Operator manual

Portable Rotary Screw Compressor

MOBILAIR M59 / M59 PE SIGMA CONTROL SMART pV

No.: 902395 04 E

Manufacturer:

KAESER KOMPRESSOREN SE

96410 Coburg • PO Box 2143 • GERMANY • Tel. +49-(0)9561-6400 • Fax +49-(0)9561-640130

www.kaeser.com

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1 Regarding this document

1.1 Using this document

The operating manual is a component of the product. It describes the machine as it was at the time of first delivery after manufacture.

- ➢ Keep the operating manual in a safe place throughout the life of the machine.
- ➢ Supply any successive owner or user with this operating manual.
- ➢ Please insert any amendment or revision of the operating manual sent to you.
- ➢ Enter details from the machine nameplate and individual items of equipment in the table in chapter 2.

1.2 Further documents

Further documents included with this operating manual are:

- Certificate of acceptance / pressure vessel operating instructions
- Declaration of Conformity in accordance with the applicable directive
- SIGMA CONTROL SMART controller operating manual
- Chassis documentation (where applicable)

Missing documents can be requested from KAESER.

- ➢ Ensure that all documents are complete and observe the instructions contained within them.
- ➢ Please ensure that you provide the data from the nameplate when ordering documents.

1.3 Copyright

This operating manual is protected by copyright. Any queries regarding the use or duplication of this documentation should be referred to KAESER. Correct use of information will be fully supported.

1.4 Symbols and labels

- ➢ Please note the symbols and labels used in this document.

1.4.1 Warnings

Warnings indicate risks potentially resulting in personal injury, if the measures specified are not taken.

Warning notices indicate three levels of danger identified by the corresponding signal word:

Signal word	Meaning	Consequences of non-compliance
DANGER	Warns of an imminent danger	Will very likely result in death or severe injury
WARNING	Warns of a potentially imminent danger	May result in death or severe injury

Signal word	Meaning	Consequences of non-compliance
CAUTION	Warns of a potentially dangerous situation	May result in a moderate physical injury

Tab. 1 Danger levels and their definition (personal injury)

Some warning notes may precede a chapter. They apply to the entire chapter including all sub-sections.

Example:



DANGER
The type and source of the imminent danger is shown here!
The possible consequences of ignoring a warning are shown here.
The word "DANGER" indicates that death or severe injury can very likely result from ignoring the warning.

➢ The measures required to protect yourself from danger are shown here.

Warning notes referring to a sub-section or the subsequent action are integrated into the procedure and numbered as an action.

Example:



1. **WARNING!**
   The type and source of the imminent danger is shown here!
   The possible consequences of ignoring a warning are shown here.
   The word "WARNING" indicates that death or severe injury may result from ignoring the warning.
   ➢ The measures required to protect yourself from danger are shown here.
2. Always read and comply with warning instructions.

1.4.2 Potential damage warnings

Contrary to the warnings shown above, damage warnings do not indicate a potential personal injury.

Damage warnings have only one danger level, identified with this signal word:

Signal word	Meaning	Consequences of non-compliance
NOTE	Warns of a potentially dangerous situation	Damage to property is possible

Tab. 2 Danger levels and their definition (damage to property)

Example:



NOTICE
The type and source of the imminent danger is shown here!
Potential effects when ignoring the warning are indicated here.

➢ The protective measures against the damages are shown here.

➢ Carefully read and fully comply with warnings against damages.

1.4.3 Other alert notes and their symbols



This symbol indicates particular important information.

Material — Here you will find details on special tools, operating materials or spare parts.

Precondition — Here you will find conditional requirements necessary to carry out the task.
The conditions relevant to safety shown here will help you to avoid dangerous situations.

➢ This symbol is placed by lists of actions comprising one step of a task.

1. In process instructions with several steps ...
2. ... the sequence of steps is numbered.

Result — Shows the expected conclusion of the previous action.

Option da — ➢ Information relating to one option only is marked with an option code (e.g., "option da" means that this section is only valid for machines with the air treatment components "aftercooler and centrifugal separator"). Option codes used in this operating manual are explained in chapter 2.3.



Information referring to potential problems is identified by a question mark.
The cause is named in the help text ...
➢ ... as is a solution.



This symbol refers to important information or measures concerning environmental protection.

Further information — Further subjects are introduced here.

2 Technical Specifications

2.1 Nameplate

The machine's nameplate contains the model type and important technical information.

The nameplate is located on the outside of the machine (see illustration in chapter 13.1).

➢ Enter the data from the nameplate here as a reference:

Feature	Value
Portable rotary screw compressor	
Material no. / Serial no.	
Actual total mass	
Lifting point load capacity	
Rated power	
Rated engine speed	
Maximum gauge working pressure PS	

Tab. 3 Nameplate

2.2 Vehicle identification number

The vehicle identification number (VIN) is the only unmodifiable and therefore the most important identification feature on the machine.

The vehicle identification number remains associated with the machine throughout the entire duration of its service life. The vehicle identification number is stamped into the bodywork of the machine.

Further information For the location of the VIN stamp, see chapter 13.1.

2.3 Options overview

A list of the options built into your machine helps to correlate the information in this Operating Manual.
Available options are listed on the options label (option: code letters).

This label can be found:

- on the outside of the machine.
- see chapter 13.1.

Only the codes for those options fitted appear on the options label!

Options fitted:

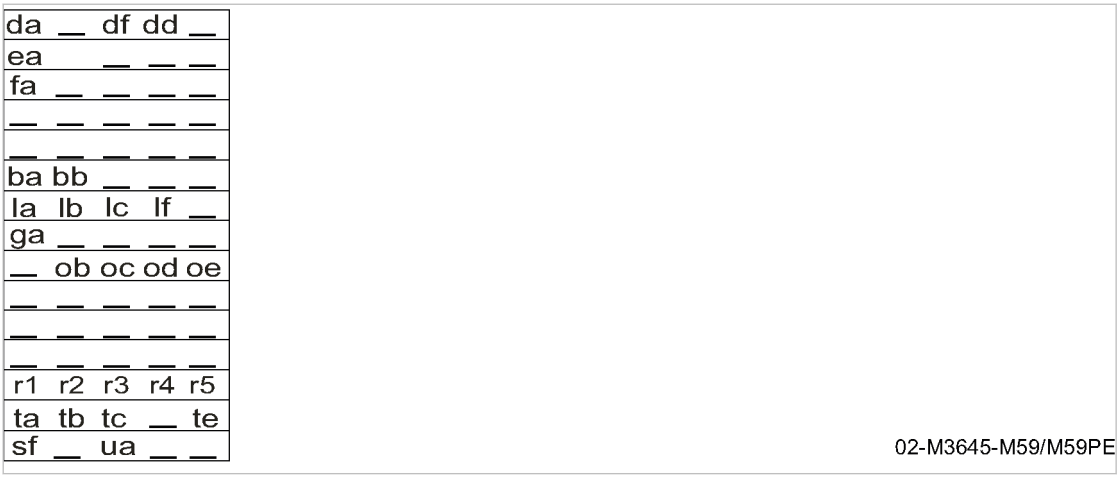


Fig. 1 Option label MOBILAIR M59 / M59 PE with options

[r1] Place holders for chassis options
[r3] Place holders for chassis options
[r4] Place holders for chassis options
[r5] Place holder for frame design options for stationary machines

➢ See the separate document "Chassis Operating Manual" for information about the option codes.

➢ Take a list of available options from the options label and enter these options as reference in the below overviews.

2.3.1 Option ea
Tool lubricator

Option	Option code	Available?
Tool lubricator (with option fa)	ea	
—	—	

Tab. 4 Tool lubricator options

2.3.2 Option da, df, dd
Air treatment

Option	Option code	Available?
Compressed air aftercooler and water separator	da	
Heat exchanger (with bypass)	df	
Filter combination	dd	

Tab. 5 Air treatment options

2.3.3 Option fa
Air distributor

Option	Option code	Available?
Direct air flow	fa	

Option	Option code	Available?
—	—	

Tab. 6 Air distributor option

2.3.4 Option ba, bb Low temperature equipment

Option	Option code	Available?
Low temperature equipment	ba	
Coolant pre-heating	bb	

Tab. 7 Low temperature equipment options

2.3.5 Option lc, lf Exhaust gas after-treatment

Option	Option code	Available?
Exhaust gas after-treatment with diesel particulate filter	lc + lf	
Exhaust gas after-treatment with diesel oxidation catalytic converter	lf	

Tab. 8 Exhaust gas after-treatment options

2.3.6 Option la, lb Equipment for fire hazard areas

Option	Option code	Available?
Spark arrestor	la	
Spark arrestor and engine air intake shut-off valve (automatic)	lb	

Tab. 9 Optional equipment for fire hazard areas

2.3.7 Option ga Generator

Option	Option code	Available?
Generator	ga	

Tab. 10 Generator option

2.3.8 Option ob, od Automatic engine start/stop

Option	Option code	Available?
Automatic engine start/stop	ob	

Option	Option code	Available?
Trickle charging for starter batteries	od	

Tab. 11 Automatic engine start/stop

2.3.9 Option oe Sealed floor pan

Option	Option code	Available?
Sealed floor pan	oe	

Tab. 12 Closed floor pan option

2.3.10 Option oc UMTS modem

Option	Option code	Available?
UMTS modem	oc	

Tab. 13 UMTS modem

2.3.11 Option rb/rm/rr, rb/rm/rs, rc/ro/rr, rg/rp/rr, rc/ro/rs, rd/ro/rr, rd/rn/rr Chassis

Chassis are defined by the combination of several option designations as follows:
Model/Axle load/Height adjustment/Anti-twist protection/Service brake

Example: *rb/rm/rs* means:
Chassis in European design, with height adjustment and overrun brake

Chassis:

Chassis	Option code	Provided?
Model (rb, rc, rd):		
EG chassis	rb	
GB chassis	rc	
GB chassis	rg	
USA chassis	rd	
Height adjustment (rm, rn, ro):		
With height adjustment	rm	
ajustable coupling height	rn	
Without height adjustment	ro	
Anti-twist protection, tow bar tube (rp)		
Adapter, mounted rotatable	rp	
Service brake (rr, rs):		
Without service brake	rr	
EC ≙ Europe, GB ≙ Great Britain, US ≙ United States of America		

Chassis	Option code	Provided?
With overrun brake	rs	
Axle load (rk, rl)		
low	rk	
high	rl	
EC ≙ Europe, GB ≙ Great Britain, US ≙ United States of America		

Tab. 14 Chassis options

2.3.12 Option ta, tb, tc, te Lighting

Option	Option code	Available?
None (stationary)	ta	
Reflective warning triangle	tb	
EG - 12 V	tc	
USA - 12 V (DOT conformity)	te	

Tab. 15 Lighting options

2.3.13 Option rw,rx Frame design for stationary machines

Frame design for stationary machines are defined by option designations as follows:

Frame:

Frame	Option code	Available?
Stationary (rw, rx):		
on skids	rw	
on frame	rx	

Tab. 16 Options for stationary frame design

2.3.14 Option ua Hose reels

Option	Option code	Available?
Hose reels	ua	

Tab. 17 Hose reel option

2.3.15 Option sf
Anti-theft device

Option	Option code	Available?
Anti-theft device	sf	

Tab. 18 Optional anti-theft device

2.4 Machine (without options)

2.4.1 Noise emission

Guaranteed sound power level:

Type	M59 / M59 PE
Guaranteed sound power level(1), (2) [dB(A)]	98

(1) in accordance with Machinery Directive 2000/14/EC,
(2) applies exclusively to machines lined with sound proofing material.

Tab. 19 Guaranteed sound power level

Emission sound pressure level

Type	M59 / M59 PE
Emission sound pressure level(3) [dB(A)] (according to EN ISO 11203)	81.0

Measurement distance: d = 1 m

Logarithmic surface ratio: Q2 = 17.0 dB(A)

(3) Calculated from the guaranteed sound power level (2000/14/EC Directive, Sound Emission Standard ISO 3744)

Tab. 20 Emission sound pressure level

2.4.2 Tightening torque

2.4.2.1 Tightening torques for screws

Recommended values for screws of property class 8.8

Thread	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20
Torque [Nm]	3.0	5.9	10.0	24.5	48.0	84.0	133.0	206.0	295.0	415.0

Information provided according to VDI 2230.

Tab. 21 Tightening torques for screws (property class 8.8, coefficient of friction μ = 0,12)

2.4.2.2 Torques for lifting eye

Recommended values for screws corresponding to the strength category:

Screws	Strength category	Thread	Torque [Nm]
Mushroom head screw	8.8	M12	70
Mushroom head screw	10.9	M12	70

Tab. 22 Torques for lifting eye screws

2.4.3 Ambient conditions

Positioning	Limit value
Maximum altitude amsl* [m]	1000
Minimum ambient temperature [°C]	−10
Maximum ambient temperature [°C]	+45
* Higher altitudes are permissible only after consultation with the manufacturer.	

Tab. 23 Ambient conditions

2.4.4 Additional specifications according to the machine's operating licence

For specifications according to the machine's operating licence, such as:

- dimensions,
- track width,
- footprint,

are to be found in the dimensioned drawing in chapter 13.3.

The dimensional drawings also show the position of the following inlets and outlets:

- Cooling air inlet
- Cooling air outlet
- Compressed air outlet
- Exhaust

2.5 Chassis

2.5.1 Chassis options

➢ See the technical data relating to the chassis in the separate document "Chassis Operating Manual".

2.6 Machines with stationary frame design

2.6.1 Option rw, rx
Mass of machines with stationary frame design

Actual mass of individual machines are dependent on equipment fitted (see machine nameplate).

➢ Enter the actual overall weight* from the nameplate as reference.

Option	rw	rx
Type stationary frame design	Skids	Frame
Actual total weight [kg]*		
* Enter here for reference, the actual total weight taken from the nameplate.		

Tab. 24 Mass of the machine

2.7 Compressor

2.7.1 Variable pressure flow rate control (pV control)

Overview:

- Maximum machine gauge working pressure
- Rated system pressure and flow rate
- Rated system pressure and engine speed

2.7.1.1 Maximum machine gauge working pressure

Maximum gauge working pressure [bar]	10.3	14.0
SIGMA airend	17-G	17-G
Setting range, rated system pressure [bar(g)]	6.0–10.3	6.0–14.0

Tab. 25 Maximum gauge working pressure

2.7.1.2 Rated system pressure and flow rate

Definition of flow rate: Constant delivery volume relative to intake conditions.
Flow rate in accordance with ISO 1217:2009. Annex D

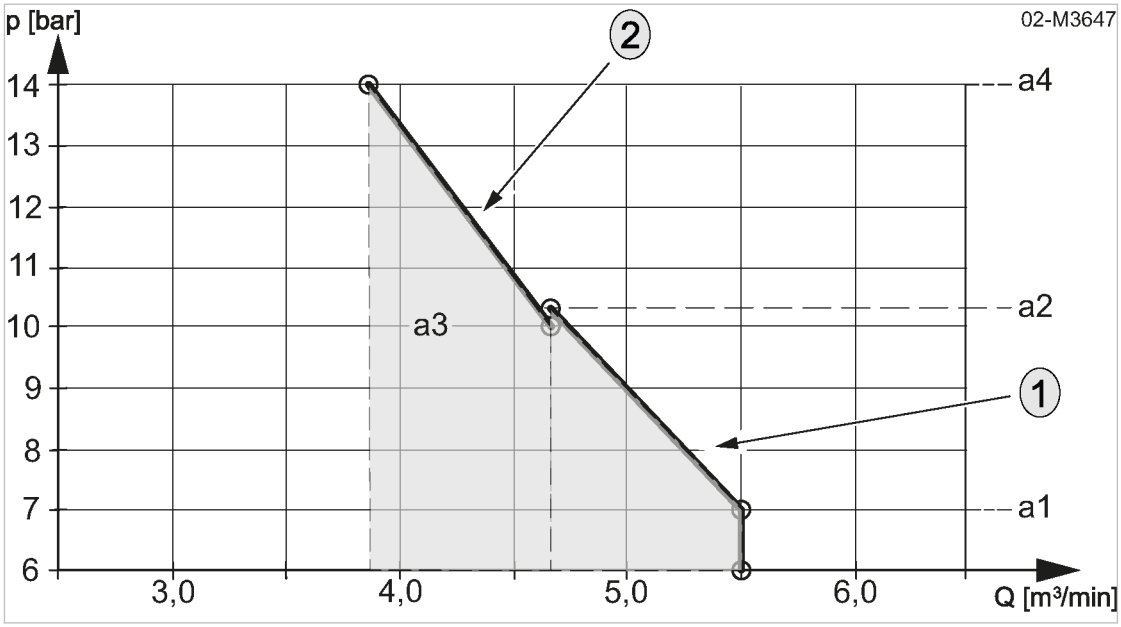


Fig. 2 Rated system pressure / flow rate diagram

1 Characteristic curve, rated system pressure 6.0–10.3 bar
2 Characteristic curve, rated system pressure 6.0–14.0 bar
Q Flow rate [m³/min]
p Rated pressure [bar(g)]

Flow rate for setting range, rated system pressure 6.0–10.3 bar:

Only use compressed air tools with the appropriate pressure for the intended use (tool working pressure).

Measuring point	Maximum gauge working pressure (Rated pressure) [bar]	Flow rate [m³/min]	Application example
a1	7.0	5.5	Cable blowing, hammer application, blasting application
a2	10.3	4.7	Hammer application, blasting application

Tab. 26 Flow rate dependent on rated system pressure

Flow rate for setting range, rated system pressure 6.0–14.0 bar:

Only use compressed air tools with the appropriate pressure for the intended use (tool working pressure).

Measuring point	Maximum gauge working pressure (Rated pressure) [bar]	Flow rate [m³/min]	Application example
a3	10.0	4.7	Hammer application, blasting application

Measuring point	Maximum gauge working pressure (Rated pressure) [bar]	Flow rate [m³/min]	Application example
a4	14.0	3.8	Cable blowing, drilling application

Tab. 27 Flow rate dependent on rated system pressure

2.7.1.3 Rated system pressure and engine speed

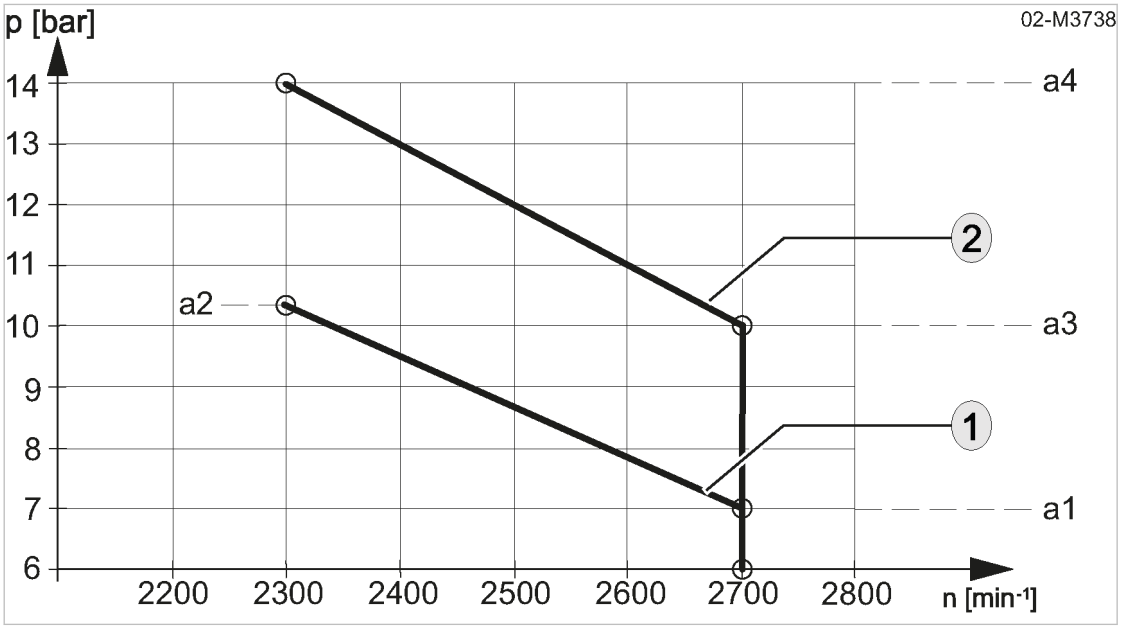


Fig. 3 Rated system pressure / engine speed diagram

[1] Characteristic curve, rated system pressure 6.0–10.3
[2] Characteristic curve, rated system pressure 6.0–14.0
[n] Engine speed [min¹]
[p] Rated pressure [bar(g)]

Setting range, rated system pressure 6.0–10.3 bar / engine speed:

Measuring point	Pressure stage (rated pressure) [bar]	Speed min⁻¹
a1	7.0	2700
a2	10.3	2300

Tab. 28 Rated system pressure and engine speed

Setting range, rated system pressure 6.0–14.0 bar / engine speed:

Measuring point	Pressure stage (rated pressure) [bar]	Speed min⁻¹
a3	10.0	2700
a4	14.0	2300

Tab. 29 Rated system pressure and engine speed

2.7.2 Compressed air outlet

Outlet valve ["]	Number
G 3/4	2
G 1	1

Tab. 30 Compressed air distributor

2.7.3 Safety valves

Maximum working pressure: see machine nameplate

Maximum working pressure [bar]	10.3	14.0
Setting range, nominal system pressure [bar]	6.0–10.3	6.0–14.0
Safety valve actuating pressure [bar]	16	16

Tab. 31 Safety valve actuating pressure

2.7.4 Temperature

Required temperatures readiness to switch to LOAD mode	Values
Airend discharge temperature (ADT) [°C]	20
The engine coolant temperature (ECT) [°C]	20

Tab. 32 Required temperatures readiness to switch to LOAD mode

Airend discharge temperature	Values
Typical airend discharge temperature during operation [°C]	75 100
Maximum airend discharge temperature (automatic safety shut-down) [°C]	117

Tab. 33 Airend discharge temperature

2.7.5 Cooling oil recommendation

A sticker showing the type of oil used is located near the oil separator tank filler.
Information on ordering cooling oil is found in chapter 11.

Cooling oils for general applications

	SIGMA FLUID		
	MOL	S-460	S-570
Description	Mineral oil	Synthetic oil	Synthetic oil

	SIGMA FLUID		
	MOL	S-460	S-570
Application	Standard oil for all applications except in connection with processing of foodstuffs. Particularly suitable for machines with a low duty cycle.	Standard oil for all applications except in connection with processing of foodstuffs. Particularly suitable for machines with a high duty cycle. Not suitable for East and Southeast Asia.	Special oil for ambient conditions with high temperatures and humidity. Standard oil for all applications except in connection with foodstuffs. Particularly suitable for machines with a high duty cycle.
Viscosity at 40°°C	46 mm^2/s (ASTM D445)	46 mm^2/s (ASTM D445)	53 mm^2/s (ASTM D445)
Viscosity at 100 °C	6.9 mm^2/s (ASTM D445)	7.2 mm^2/s (ASTM D445)	8.0 mm^2/s (ASTM D445)
Flash point	230 °C (ASTM D92)	251 °C (ASTM D92)	258 °C (ASTM D92)
Density at 15 °C	0.868 g/cm^3 (ASTM D1298)	0.860 g/cm^3 (ASTM D1298)	0.869 g/cm^3 (ASTM D1298)
Pour point:	−30 °C (ASTM D97)	−27 °C (ASTM D97)	−54 °C (ASTM D97)

Tab. 34 Cooling oil recommendation

Cooling oils for applications in food processing

	SIGMA FLUID	
	FG-460	FG-680
Description	Synthetic oil	Synthetic oil
Application	Specifically for machines in applications where the compressed air may come into contact with foodstuff.	Special oil for ambient conditions with high temperatures and humidity. Specifically for machines in applications where the compressed air may come into contact with foodstuff.
Approval	USDA H1, NSF approved for applications where contact with foodstuffs may sporadically or incidentally be possible.	USDA H1, NSF approved for applications where contact with foodstuffs may sporadically or incidentally be possible.
Viscosity at 40° °C	46 mm^2/s (ASTM D445)	68 mm^2/s (ASTM D445)
Viscosity at 100 °C	8.0 mm^2/s (ASTM D445)	10.5 mm^2/s (ASTM D445)
Flash point	246 °C (ASTM D92)	238 °C (ASTM D92)
Density at 15 °C	0.842 g/cm^3 (ASTM D1298)	0.854 g/cm^3 (ASTM D1298)
Pour point:	−39 °C (ASTM D97)	−39 °C (ASTM D97)

Tab. 35 Cooling oil recommendation (food processing)

2.7.6 Cooling oil charge

Cooling oil	Fluid volume [l]
Machine	8.5

Tab. 36 Cooling oil charge

2.8 Engine

2.8.1 Engine specifications

Option Ic

Feature	Sales region EUROPE
Make/model	HATZ / 3H50TICD
Exhaust gas after-treatment	DOC (1) + DPF (2)
Engine control	Electronic
Fuel injection	Common rail system
Rated engine power [kW]	43.7
Speed at LOAD operation [min^{-1}]	2700–2300
Speed at IDLE operation [min^{-1}]	2200
Fuel type	Diesel (3)
Fuel consumption at LOAD operation [l/h]	10.1
Oil consumption relative to fuel consumption [%]	Approx. 0.5

(1) DOC ≙ Diesel oxidation catalytic converter

(2) DPF ≙ Diesel particulate filter

(3) Only use diesel fuel in accordance with EN 590 or ASTM D975. Consult the engine manufacturer before using other fuel types!

Tab. 37 HATZ / 3H50TICD engine specifications

2.8.2 Carbon dioxide emissions

Definition of CO_2 emissions: CO_2 emissions are the mass of carbon dioxide produced when substances containing carbon are burnt.

Units for CO_2 emissions:

- g/km
- g/kWh*

These CO_2 measurements result from the testing of a (parent) engine over a fixed test cycle under laboratory conditions. The engine is representative of the engine family and shall not imply or express any guarantee of the performance of a particular engine.

CO_2 measurement	Value
CO_2 emissions [g/kWh]	787.30

CO_2 measurement	Value
* ≙ Unit employed in this operating manual	

Tab. 38 CO_2 emissions value

2.8.3 Oil recommendations

The engine oil must meet the following classification:

- ACEA, class E9
- API, class CJ-4

➢ Only use engine with a low white ash build-up.

- Engine oils that do not conform to the above can reduce the useful life of the engine!
- The use of unlisted engine oils requires prior authorisation by KAESER.

➢ Please contact your authorised KAESER SERVICE agent.

Viscosity:

The ambient temperature at the installation site and the application area is decisive in selecting the appropriate viscosity class. Excess viscosity can cause difficulties when starting up, whilst too low a viscosity reduces the lubricating effect of the engine oil, leading to high oil consumption.

Viscosity is classified by SAE.

Always use multigrade lubricating oils!

Always ensure the prescribed lubricating oil quality when selecting the viscosity class!

Ambient temperatures [°C]	Viscosity class
−10 50	SAE 15W/40
−20 30	SAE 5W/30
−20 50	SAE 10W/40

Tab. 39 Engine oil recommendation

Viscosity class for first fill:

For the first fill, the machine engine is filled with oil of the following viscosity class:

Ambient temperatures [°C]	Viscosity class
−20 50	SAE 10W/40

Tab. 40 Viscosity class for first fill

2.8.4 Fuel recommendation

To comply with emission regulations, diesel engines fitted with an exhaust gas treatment system must be operated only with a sulphur-free diesel fuel. Compliance with the emission requirements but also the durability of the individual exhaust gas treatment components is not assured if this requirement is ignored!

The diesel fuel must meet the requirements of EN 590 and ASTM D975 respectively.

The use of other fuels as well as the mixing with additives is only permitted after consultation with the engine manufacturer.

The following fuel specifications are approved:

- Diesel fuels according to EN 590
  - (≤0.0010% Sulphur – EU: Level IIIB and higher)

For the US market the use of extremely low-sulphur diesel fuel is required by law:

- Diesel fuels according to ASTM D975
  - (≤0.0015% Sulphur – EPA: Tier 4 interim and higher)

Never store fuel in galvanised containers!

Bio diesel:

According to EN 590 and ASTM D975, a specific portion of bio diesel is permitted in the fuel.

Depending on the country of origin, bio diesel can be produced from different plant materials and thus have different properties.

Affected by temperature, atmospheric oxygen and time, these bio diesel components in the fuel may decompose in the fuel and thus cause damages within the fuel system.

The fuel must be filtered before it is filled into the machine when it has been supplied in barrels or canisters. This procedure prevents malfunctions in the fuel system caused by contamination.

2.8.5 Engine coolant recommendation

In fluid-cooled engines, the cooling fluid must be treated and monitored to prevent engine damage.

Water quality:

An important factor in the treatment of cooling fluid is the correct water quality.

As a rule, clear, clean fresh water must be used, which should be as soft as possible and in accordance with the following analytical values:

Feature		Value
pH value		6.5-8.0
Chloride	[mg/l]	Max. 80
Chloride + sulphate	[mg/l]	Max. 160
Alkaline earth ions	mmol/l	2.7
Hardness	°dH	15
1°dH = 0.1783 mmol/l; alkaline earth ions = 7.147 mg/l Ca^{2+} or 4.336 mg/l Mg^{2+}		

Tab. 41 Water quality specification

Contact the local water utilities for information regarding water quality. If the water does not meet the above parameters, it must be treated.

If suitable water is not available, distilled or demineralised water should be used for treating the coolant. Seawater, brackish water, brine and industrial wastewater are not suitable. Salts may cause corrosion or the formation of disruptive residues.

Coolant quality:

In the course of ongoing technical development, a new anti-corrosion agent/antifreeze has been approved by the engine manufacturer.

This features the following advantages over the anti-corrosion agent/antifreeze that was approved previously:

- Less residue in the engine cooling system
- Improved heat flow
- Improved environmental compatibility

The coolant (cooling fluid) is treated by the addition of anti-freeze with ethylene glycol-based anti-corrosion additives to the water.

The coolant used must be in accordance with the stipulations provided by the engine manufacturer HATZ.

➢ Do not use an anti-corrosion agent/antifreeze that has not been approved by the engine manufacturer.

➢ Avoid impermissible mixing ratios of anti-corrosion agent/antifreeze and water.

Further information For information regarding the preparation/mixing of the coolant, please see chapter 10.4.1.3 “Mixing the Coolant”.

Initial fill of anti-corrosion agent/antifreeze:

For the initial fill, the coolant cooler is filled with a mixture of the following fluid components:

Components	Description	Percentages [% vol.]
Anti-corrosion agent/antifreeze	Glysantin® G40®	50
Water		50

Tab. 42 Initial fill of coolant cooler

Miscibility with other anti-corrosion agents/antifreezes:

Mixing with different anti-corrosion agents/antifreezes is not recommended, even if from the same manufacturer. This can result in significantly reduced corrosion/antifreeze protection, which may damage the engine cooling system and, consequently, the engine. A mixtures of different types of anti-corrosion agent/antifreeze generally provides a lower level of performance than the specially balanced active components of a single coolant type.



Consequently, the use of different anti-corrosion agents/antifreezes is only permitted following consultation with and approval from the engine manufacturer!

2.8.6 Fill quantities

Description	Fill quantity [l]
Engine oil	5.5

Description	Fill quantity [l]
Fuel	80 * 60 **
Coolant	10.5

* Standard

** For weight optimisation, to comply with the permissible maximum weight.

Tab. 43 Fill quantities

2.8.7 Batteries

➢ Ascertain from the sales documents which battery is fitted to your machine.

Designation	Standard battery	Gel battery*
Characteristic	Value	Value
Voltage [V]	12	12
Capacity [Ah]	80	44
Low-temperature testing current [A] (as per EN 50342)	640	730

* For weight optimisation, to comply with permissible total mass.

Tab. 44 Batteries

2.9 Options

2.9.1 Option ea, ec Tool lubricator

Name	Temperature range [°C]	Fluid volume [l]
Special road breaker lubricant	–25 – 50	2.5

Tab. 45 Road breaker lubricant recommendation

2.9.2 Air treatment options

2.9.2.1 Air quality at the compressed air outlets

Interrelation between compressed air treatment and compressed air quality:

Compressed air treatment		Compressed air quality	
Option designation	Components	Characteristics	Abbreviation
da	■ Aftercooler ■ Water separator	cool and condensate-free	A
da + df	■ Aftercooler ■ Water separator ■ Heat exchanger	dry and warmed	W

Compressed air treatment		Compressed air quality	
Option designation	Components	Characteristics	Abbreviation
da + dd	■ Aftercooler ■ Water separator ■ Filter combination	dry and technically oil-free	F
da + dd + df	■ Aftercooler ■ Water separator ■ Filter combination ■ Heat exchanger	technically oil-free and warmed	G
ea	Tool lubricator	Lubricated	E

Tab. 46 Interrelation between compressed air treatment and compressed air quality

The compressed air outlets at the air distributor are labelled with the identifiers of compressed air quality.

2.9.3 Option ba Low-temperature equipment

2.9.3.1 Ambient conditions

Installation	Limit value
Maximum elevation ASL* [m]	1000
Minimum ambient temperature [°C]	−25
Maximum ambient temperature [°C]	+45
* Higher altitudes are permissible only after consultation with the manufacturer	

Tab. 47 Ambient conditions, low-temperature equipment

2.9.3.2 Option bb Coolant preheating

Further information For specifications of the engine coolant preheating, see chapter 2.9.5.

2.9.3.3 Insulated hose lines

Designation	Material
Insulated pressure hoses for control air	Polyamide

Tab. 48 Insulated pressure hoses

2.9.4 Option ua Hose reel

When the optional hose reel with compressed air extension hose is selected, the compressor is equipped with an additional discharge valve.

Designation	Discharge valve
Size ["]	G 3/4
Quantity	1

Tab. 49 Additional discharge valve for the compressed air extension hose

2.9.5 Option bb; od Auxiliary electrical systems

Power supply connection details:

Mains supply	Value
Mains voltage [V / 1-phase / N / PE]	230
Frequency [Hz]	50
Supply cable cross-section [mm^2] (Cu multi-core)	3 x 2.5
User's fusing [A]	16

Tab. 50 Power supply connection details

Option bb **Coolant pre-heating:**

Coolant pre-heating device	Value
Voltage [V]	230
Power [W]	550

Tab. 51 Technical data – Coolant pre-heating device

Option od **Battery charger:**

Battery charger	Value
Type	12V DC / 5A
Charging voltage [V]	14.0
Charging current [A]	>0.5
Maximum charging current [A]	5
Protection class	IP 54

Tab. 52 Battery charger specification

2.9.6 Option ga Generator

Generator specifications:

Characteristics	400V / 3~		230V / 3~		115V / 2~
Rated power [kVA] 3-phase/2-phase	13.0	8.5	13.0	8.5	7.0

Characteristics	400V / 3~		230V / 3~		115V / 2~
Rated power [kVA] single-phase	7.0	5.0	7.5	5.0	5.0
Voltage constant [%] balanced load	±5				
Voltage constant [%] single-phase, unbalanced load	+6/−10				
Rated power [A] 3-phase/2-phase	18.8	12.3	52.6	21.1	—
Rated current [A] single-phase	30.4	21.7	32.6	37.6	60.9
Rated current [A] Short-circuit (0.3s / 170V)	300.0	260.0	330.0	330.0	420.0
Power factor (cos phi)	0.8 – 1				
Frequency [Hz]	50				
Speed [min^{-1}]	3000				
Distortion factor [%]	<5				
Type	Synchronous internal pole (electronically controlled)				
Protection class	IP 54				

Tab. 53 Generator specification

Option ga Compressed air flow rate in generator mode:

Characteristic	Rated system pressure 7–10.3 bar	
Gauge working pressure [bar]	7.0	10.3
Rated power [kVA]	Flow rate [m^3/min]*	Flow rate [m^3/min]*
0	4.7	4.7
4	4.7	3.2
8	4.0	1.8
10	2.9	0.9
12	2.2	0.3
13	1.8	—

* value dependent on current draw.

Tab. 54 Compressed air flow rate in generator mode

Option ga **Compressed air flow rate in generator mode:**

Characteristic	Rated system pressure 10.0–14 bar	
Gauge working pressure [bar]	10.0	14.0
Rated power [kVA]	Flow rate [m³/min]*	Flow rate [m³/min]*
0	3.8	3.8
4	3.8	3.1
8	3.5	1.4
10	2.7	0.8
12	1.8	0.3
13	1.3	—

* value dependent on current draw.

Tab. 55 Compressed air flow rate in generator mode

Connections:

Type	400V / 3~	230V / 3~	115V / 2~
Power sockets	Number:		
16 A; 230V / 1~ / N / PE	3	–	–
16 A; 400V / 3~ / N / PE	1	–	–
16 A; 230V / 2~ / PE	–	2	–
32 A; 230V / 3~ / PE	–	1	–
16 A; 230V /3~ / PE	–	1	–
32 A; 115V / 2~ / PE	–	–	1
16 A; 115V / 2~ / PE	–	–	2

Tab. 56 Connection sockets

Circuit breaker:

Type	400V / 3~	230V / 3~	115V / 2~
Automatic circuit breaker [A]	Number:		
16	1	1	2
32	–	1	1

Tab. 57 Circuit breaker

Operating limits

(per EN 60034-22, page 10, table)

Characteristics	Value
Design category	G3
Voltage adjustment range [%]	±5

Characteristics	Value
Static voltage deviation [%]	1
Maximum dynamic voltage drop [%]	–15
Maximum dynamic voltage rise [%]	20
Maximum voltage settling time [ms]	1500
Maximum voltage asymmetry [%]	1

Tab. 58 Generator operating limits

Maximum power loading by consumers:

Resistive consumers include incandescent electric lamps and heaters, for example.
Electric motors and transformers are inductive consumers.

Nominal conditions:

- Ambient temperature: 25 °C
- Max. height above sea level for place of installation: 1000 m

Three-phase current:

Generator	400V / 3~		230V / 3~	
Rated power [kVA]	13.0	8.5	13.0	8.5
Resistive consumers [kW]	11.0	8.5	6.3	6.3
Inductive consumers [kW]	7.5	5.0	6.3	6.3

Tab. 59 Maximum three-phase mains load

Alternating current:

Generator	400V / 3~		230V / 3~		115V / 2~
Rated power [kVA]	13.0	8.5	13.0	8.5	7.0
Resistive consumers [kW]	6.4	6.4	3.6	3.6	3.6
Inductive consumers [kW]	6.4	6.4	3.6	3.6	3.6

Tab. 60 Maximum AC mains load

Power reduction at elevated ambient temperatures

Ambient temperature [°C]	Generator power
≤30	Full power available
>30	Reduction of 10 % for each temperature rise of 10 °C.

Tab. 61 Power reduction at elevated ambient temperatures

3 Safety and Responsibility

3.1 Basic instructions

The machine is manufactured to the latest engineering standards and acknowledged safety regulations. Nevertheless, dangers can arise through its operation:

- danger to life and limb of the operator or third parties,
- Impairments to the machine and other material assets.



Disregard of warning or safety instructions can cause serious injuries!

➢ Use this machine only if it is in a technically perfect condition and only for the purpose for which it is intended; observe all safety measures and the instructions in the service manual!

➢ Immediately rectify (have rectified) any faults that could be detrimental to safety!

3.2 Specified use

The machine is intended solely for generating compressed air for industrial use. Any other use is considered incorrect. The manufacturer is not liable for any damages that may result from incorrect use. The user alone is liable for any risks incurred.

➢ Keep to the specifications listed in this service manual.

➢ Operate the machine only within its performance limits and under the permitted ambient conditions.

➢ Do not use compressed air for breathing purposes unless it is specifically treated.

3.3 Incorrect Use

Improper usage can cause damage to property and/or (severe) injuries.

➢ Only use the machine as intended.

➢ Never direct compressed air at persons or animals.

➢ Do not use untreated compressed air for breathing purposes.

➢ Do not allow the machine to take in toxic, acidic, flammable of explosive gases or vapours.

➢ Do not operate the machine in areas in which specific requirements with regard to explosion protection are in force.

3.4 Operator responsibilities

3.4.1 Observe statutory and accepted regulations

Examples of these include nationally implemented European directives and/or applicable national legislation, safety and accident prevention regulations.

➢ Observe all relevant statutory and accepted technical regulations during transportation, operation, cleaning and maintenance of the machine.

3.4.2 Determining suitable personnel

Suitable personnel are experts who, by virtue of their training, knowledge and experience, as well as their knowledge of relevant regulations, can assess the work to be undertaken and recognise the possible dangers involved.

Authorised operating personnel must possess the following qualifications:

- They must be of legal age.
- They must have read and understood the safety instructions and sections of the operating manual applicable to operation, and they must be capable of observing them.
- They must have received adequate training in and authorisation for the safe operation of automotive, electrical and compressed air devices.

Authorised maintenance personnel must possess the following qualifications:

- They must be of legal age.
- They must have read and understood the safety instructions and sections of the operating manual applicable to maintenance, and they must be capable of observing them.
- They must be fully conversant with the safety concepts and regulations of automotive, electrical and compressed air engineering.
- They must be capable of recognising the possible dangers associated with automotive, electrical and compressed air devices and taking appropriate measures to safeguard persons and property.
- They must have received adequate training in and authorisation for safe maintenance of this machine.

Authorised cleaning personnel must possess the following qualifications:

- They must be of legal age.
- They must have read and understood the safety instructions and sections of the operating manual applicable to cleaning, and they must be capable of observing them.
- They must be fully conversant with the safety concepts and regulations of automotive, electrical and compressed air engineering.
- They must be capable of recognising the possible dangers associated with automotive, electrical and compressed air devices and taking appropriate measures to safeguard persons and property.
- They must have received adequate instruction in and authorisation for the safe cleaning of this machine.

Authorised transport personnel must possess the following qualifications:

- They must be of legal age.
- They must have read and understood the safety instructions and sections of the operating manual applicable to transportation, and they must be capable of observing them.
- They must have received adequate training in and authorisation for the safe transportation of this machine.
- They must be fully conversant with the safety concepts and regulations of motor vehicles and transported goods.
- They must be capable of recognising the possible dangers associated with automotive devices and taking appropriate measures to safeguard persons and property.

➢ Ensure that personnel entrusted with transportation, operation, cleaning and maintenance possess the necessary qualifications and authorisations to carry out their respective tasks.

3.4.3 Complying with inspection schedules and accident prevention regulations

The machine is subject to local inspection schedules.

Examples of operation in Germany

- ➢ Have the pre-commissioning inspection carried out according to the Ordinance on Industrial Safety and Health, §15.
- ➢ Carry out recurring inspections to *DGUV Regel 100–500*, chapter 2.11:
  The user must ensure that the machine's safety devices are checked for function as required or at least annually.
- ➢ Carry out oil changes to *DGUV Regel 100–500*, chapter 2.11:
  The user must ensure that the cooling oil is changed as required or at least annually and the oil change must be documented. Intervals may be varied if an analysis proves that the oil is still usable.
- ➢ Keep to inspection intervals in accordance with the Ordinance on Industrial Health and Safety with maximum intervals as laid down in §16:

Inspection	Inspection interval	Inspection authority
Equipment inspection	Before commissioning	Approved supervisory body
Internal inspection	Every 5 years after commissioning or the last inspection	Competent person (e. g. KAESER SERVICE technician)
Strength test	Every 10 years after commissioning or the last inspection	Competent person (e. g. KAESER SERVICE technician)

Tab. 62 Inspection intervals according to Ordinance on Industrial Health and Safety

Checking the lifting point

The user is responsible for ensuring that the machine's lifting point and fixings are inspected according to national regulations for wear and damage.

- ➢ Have lifting eye checked.
  Lifting eye is not in order: The machine must not be transported by crane. Have the machine repaired immediately.

3.4.4 Option Ic
Complying with inspection intervals for diesel particulate filters

The machine is subject to local inspection schedules. KAESER SERVICE is an inspecting authority.

- ➢ Have the TRGS 554 inspection carried out annually and the TÜV (or local equivalent) every two years.

3.5 Dangers

Basic instructions

The following describes the various forms of danger that can occur during machine operation.

Basic safety instructions are found in this service manual at the beginning of each chapter in the section entitled 'Safety'.

Warning instructions are found before a potentially dangerous task.

3.5.1 Safely dealing with sources of danger

The following describes the various forms of danger that can occur during machine operation.

Exhaust fumes

Exhaust gases from combustion engines contain carbon monoxide, a colour- and odour-less but highly toxic gas. The inhalation of minute quantities can be lethal.
Furthermore, diesel exhaust contains soot particles, some of which are noxious.

- ➢ Do not inhale exhaust fumes.
- ➢ Park the machine in such a manner that the exhaust cannot blow towards the operators.
- ➢ Never use the machine in enclosed spaces, only in the open.

Fire and explosion

Spontaneous ignition and combustion of fuel can result in serious injury or death.

- ➢ Allow no open flames or sparks at the place of use.
- ➢ Do not smoke while refuelling.
- ➢ Never refuel the machine when it is running.
- ➢ Do not allow fuel to overflow.
- ➢ Wipe up spilled fuel immediately.
- ➢ Provide a fire extinguisher in the immediate vicinity.
- ➢ For the operation in combustible environment, fit the machine with a spark arrestor (Option Ia).

Hot coolant

The cooling system of a liquid-cooled engine at running temperature is under high pressure. If the filler cap is unscrewed, hot coolant can spray out under pressure and cause severe scalding.

- ➢ Let the machine cool down before opening the cooling system.
- ➢ Unscrew the filler cap carefully by a quarter to half a turn at first. Remove the filler cap only when pressure has escaped completely.

Electricity

Touching voltage-carrying components can result in electric shocks, burns or even death.

- ➢ Allow only qualified and authorised electricians or trained personnel under the supervision of a qualified and authorised electrician to carry out work on electrical equipment according to electrical engineering rules.
- ➢ Regularly check that all electrical connections are tight and in proper condition.
- ➢ Switch off any external power sources.
  For example, the connection to the electrical engine coolant pre-heater.

Compressive forces

Compressed air is contained energy. Uncontrolled release of this energy can cause serious injury or death. The following information concerns any work on components that could be under pressure.

- ➢ Wait until the compressor has automatically vented (check the pressure gauge: it must read 0 bar)
- ➢ Then open an outlet valve carefully to ensure that the line between the minimum pressure check valve and the compressed air outlet is vented.
- ➢ Do not carry out welding, heat treatment or mechanical modifications to pressurised components (e.g. pipes and vessels) as this influences the components' resistance to pressure. The safety of the machine is then no longer ensured.

Compressed air quality

The composition of the compressed air must be suitable for the actual application in order to preclude health and life-threatening dangers.

- ➢ Use appropriate systems for air treatment before using the compressed air from this machine as breathing air (fresh air reinforcement) and/or for the processing of comestibles.
- ➢ Use comestibles-compatible cooling oil whenever compressed air is to come into contact with comestibles.

Spring forces

Springs under tension or compression store energy. Uncontrolled release of this energy can cause serious injury or death.
Minimum pressure check valves, safety valves and inlet valves are powerfully spring-loaded.

- ➢ Do not open or dismantle any valves.

Rotating components

Touching the fan wheel, the coupling or the belt drive while the machine is switched on can result in serious injury.

- ➢ Do not open the service doors or panels while the machine is running.
- ➢ Prior to opening the service doors or the enclosure, switch off the engine, disconnect from power source and secure against unintended reactivation.
- ➢ Wear close-fitting clothes and a hair net if necessary.
- ➢ Ensure that all covers and safety guards are in place and secured before re-starting.

Temperature

The operation of the combustion engine and the compression generate high temperatures. Touching hot components may cause injuries.

- ➢ Avoid contact with hot components.
  These include combustion engine, airend, oil and compressed air lines, coolers and oil separator tank. Any objects in or near the flow of exhaust gas or discharged cooling air will become very hot.
- ➢ Wear protective clothing.
- ➢ Wear protective gloves when connecting or disconnecting external compressed air hoses to the outlet valves.

- ➢ Allow the machine to cool down before commencing any maintenance work.
- ➢ If welding is carried out on or near the machine, take adequate measures to prevent sparks or heat from igniting oil vapours or parts of the machine.

Noise

The enclosure absorbs the machine noise to a tolerable level. This function will be effective only if the body is closed.

- ➢ Operate the machine only with closed body.
- ➢ Check machines that are lined with sound insulation material for perfect condition of the sound insulation material.
- ➢ Wear ear protection if necessary.
  Safety valve blow-off results in high noise emission.
- ➢ Never generate compressed air without consumers being connected.

Operating fluids/materials

The used operating fluids and materials can cause adverse health effects. Suitable safety measures must be taken in order to prevent injuries.

- ➢ Strictly forbid fire, open flame and smoking.
- ➢ Follow safety regulations when dealing with fuel, oils, lubricants, antifreeze and chemical substances.
- ➢ Avoid contact with skin and eyes.
- ➢ Do not inhale fumes or aerosols from fuel or oil.
- ➢ Do not eat or drink while handling fuel, oil, cooling and lubricating fluids or antifreeze.
- ➢ Keep suitable fire extinguishing agents ready for use.
- ➢ Use only KAESER approved operating materials.

Unsuitable spare parts

Unsuitable spare parts compromise the safety of the machine.

- ➢ Use only spare parts approved by the manufacturer for use in this machine.
- ➢ Use only original KAESER spare parts on pressure bearing parts.

Conversion or modification of the machine

Modifications, additions or conversions to or of the machine can result in unpredictable hazards.

- ➢ Do not convert or modify the machine!
- ➢ Do not install any non-approved additional components.
- ➢ Do not make any changes to the machine that will increase its mass beyond the permissible limit and/or endanger its safe use or transportation. Any such changes invalidate the approval to use the machine or tow it on the road.
- ➢ Prior to any technical modification and expansions of the machine, obtain the written approval of the manufacturer.

3.5.2 Operating the machine safely

The following information provides you with the necessary safety rules to ensure safe handling of the machine throughout the individual phases of its product life.

Personal protective equipment

When working on the machine you may be exposed to dangers that can result in accidents with severe adverse health effects.

➢ Wear protective clothing at all times.

Suitable protective clothing (examples):

- Safety work wear
- Protective gloves
- Safety boots
- Protective glasses
- Ear protection

3.5.2.1 Transportation

In order to prevent accidents, the mass and size of the machine require safety measures to be taken during transportation.

➢ Only allow transport by authorised personnel who are trained in the safe handling of motor vehicles and the transportation of goods.

➢ Ensure that no persons are on the machine during transportation.

Transporting the machine as trailer

Non-compliance with the basic rules regarding safe operation of a trailer can result in serious accidents during transportation of the machine.

➢ The maximum permissible trailer load for the towing vehicle and the maximum permissible load for the trailer coupling must not be exceeded.

➢ Extreme centre of gravity shifts due to excessive or incorrectly distributed loads must be avoided.

➢ Do not tow in a manner that imposes excessive stress on the machine, or the chassis in particular.

➢ Adjust towing speed in accordance with prevailing road conditions. This applies particularly to unpaved roads and when negotiating bends.

➢ The tow bar must remain level with the ground in order to avoid difficulties with the driving dynamics (unstable handling), which may result in damage to the towing vehicle and/or the machine.

➢ Before moving the machine, ensure any immobiliser devices (e.g. anti-theft chain) are removed or switched off.

Transporting the machine as a trailer on the public road

➢ Do not tow machines on public roads without lighting and signalling devices.

➢ Ensure all running gear, including chassis, wheels, brakes, signalling devices and lighting on the trailer is in a safe condition.

➢ National laws and regulations pertaining to safe transportation on public roads must be observed.

Transporting the machine by crane

Non-compliance with the safety regulations for lifting accessories and hoists can result in serious accidents when lifting and moving the machine by crane.

- ➢ Do not enter the danger area whilst the machine is being lifted.
- ➢ Never lift and move the machine over people or residential buildings.
- ➢ Extreme centre of gravity shifts due to excessive loads or add-on equipment (tilting) must be avoided.
- ➢ Do not exceed the load capacity of the lifting point on the machine (lifting eye).
- ➢ Only the designated lifting eye should be used to attach lifting gear. Under no circumstances should hand grips, tow bars or other components be used for this purpose.
- ➢ Only use crane hooks and shackles that comply with local safety regulations.
- ➢ Do not attach cables, chains or ropes directly to the lifting eye.
- ➢ Do not tamper with the crane suspension equipment, in particular the fixing points on the lifting eye.
- ➢ In the event that screwed-on lifting eyes need to be removed, only use new, self-locking nuts when reinstalling.
- ➢ Avoid jolting during lifting, as this may damage components.
- ➢ Loads must be lifted slowly and set down carefully.
- ➢ Never leave the load hanging from the hoist for longer than is necessary.

The following are prohibited:

- Transport by air (lifting the machine by helicopter via the lifting eye).
- Dropping the machine by parachute.

Transporting the machine by forklift

Non-compliance with the safety regulations for floor-borne vehicles can result in serious accidents when lifting and moving the machine by forklift.

- ➢ Only stationary machines fitted with skids may be transported via forklift.
- ➢ Qualified transport personnel must be in receipt of written instructions.
- ➢ Use a suitable forklift (appropriate for the weight of the machine).
- ➢ Insert both fork prongs fully under the machine.
- ➢ Lift the machine carefully until the specified transport height (minimum ground clearance) has been reached.
- ➢ Incline the lift mast so as to increase the stability of the forklift.
- ➢ The machine must be lowered immediately after unloading from the HGV loading bed/loading ramp and reaching the specified clearance between loading sill and lifting accessory.
- ➢ Driving with a raised load is prohibited.
- ➢ Standing beneath raised loads is prohibited.
- ➢ Transporting personnel using the forklift is prohibited.

Transporting portable machines as a load

- ➢ Position the machine levelly on the loading bed.
- ➢ Use squared timber or chocks to secure the machine against rolling away.
- ➢ Use squared timber to support the tow bar around the supporting device.
- ➢ Relieve the load on the supporting device.
- ➢ Affix tension belts to the lashing points provided.
- ➢ Lash the machine down properly with all the tension belts.
- ➢ Do not use bracing over the bodywork.

Transporting stationary machines as a load

- ➢ Position the machine levelly on the loading bed.
- ➢ Affix tension belts to the lashing points provided.
- ➢ Lash the machine down properly with all the tension belts.
- ➢ Under no circumstances should the lashing points be used as crane lifting points.
- ➢ Do not use bracing over the bodywork.

3.5.2.2 Installation

Installing the machine in a suitable location reduces the potential for accidents and faults.

- ➢ Do not position the machine directly against a wall. A build-up of heat from the hot exhaust gases can damage the machine.
- ➢ Ensure accessibility so that all work on the machine can be carried out without danger or hindrance.
- ➢ Do not operate in areas in which there are specific requirements with regard to explosion protection in force.
  For example, the requirements on “use in areas at risk of explosion” as per ATEXDirective 2014/34/EU.
- ➢ Ensure adequate ventilation.
- ➢ Position the machine in such a manner that the working conditions in the immediate vicinity are not impaired.
- ➢ Comply with threshold values for ambient temperature and humidity.
- ➢ The intake air must not contain any damaging contaminants.

Damaging contaminants include, for example:

- Exhaust gases from internal combustion engines,
- Combustible, explosive or chemically unstable gases and vapours,
- Acid or base-forming chemicals such as ammonia, chlorine, or hydrogen sulphide.

- ➢ Do not position the machine in the hot exhaust air flow from other machines.
- ➢ Keep a suitable fire extinguishing agent ready for use.
- ➢ Secure the machine against rolling away.
- ➢ Do not place additional loads on the machine (e.g. excavator bucket as an anti-theft measure).

3.5.2.3 Commissioning, operation and maintenance

During commissioning, operation and maintenance you may be exposed to dangers resulting from electricity, pressure and temperature. Careless actions can cause accidents with severe adverse health effects.

- ➢ The machine should be operated by authorised personnel only.
- ➢ Wear close-fitting, flame-resistant clothing. Wear protective clothing as necessary.
- ➢ Switch off the machine and lock against unexpected activation.
- ➢ Wait until the compressor has automatically vented (check: the pressure gauge must read 0 bar!)
- ➢ Then open the compressed air discharge valve carefully, so as to ensure that the line between the minimum pressure check valve/check valve and the compressed air outlet is vented.
- ➢ Allow the machine to cool down sufficiently.
- ➢ Do not open any body panels whilst the machine is switched on.

➢ Do not open or dismantle any valves.
➢ Only use spare parts approved by KAESER for use in this machine.
➢ Carry out regular inspections:

- for visible damage and leaks,
- of safety devices,
- of EMERGENCY STOP devices,
- of parts that require monitoring.

➢ Pay particular attention to cleanliness during all maintenance and repair work. Cover components and exposed openings with clean cloths, paper or tape to keep them clean.
➢ Do not leave any loose components, tools or cleaning cloths on or in the machine.
➢ Components removed from the machine can still be dangerous:
Do not attempt to open or destroy any components taken from the machine.
➢ Only use suitable compressed air hoses.

Compressed air hoses must meet the following requirements:

- They must be of the right type and size for the highest permissible working pressure of the machine,
- They must not be damaged, worn or of inferior quality,
- They must have couplings and connections of the right type and size.

➢ Ensure that compressed air hoses are vented before disconnecting them from the machine.
➢ Secure the open end of an air hose before applying air pressure. The free end of an unsecured hose may whip and cause injury.
➢ At working pressures >7 bar, compressed air hoses should be secured by a safety cable to their respective outlet valves.

3.5.2.4 Parking the machine

Improper parking and use of the parked machine endangers personnel and material.

➢ Select an even surface for parking.
➢ Use a coupled towing vehicle to move the machine into position.
➢ Place chocks under the wheels.
➢ Apply the parking brake.
➢ Loosen the lighting and signalling system.
➢ Detach the breakaway cable/safety chain.
➢ Lower the prop stand / crank down the jockey wheel.
➢ Uncoupling the machine
➢ Ensure that the machine is properly separated from the towing vehicle.
➢ Remove the towing vehicle from the machine.
➢ No person may access the parked machine, particularly the bodywork.
➢ No person may sit on the parked machine, particularly the towing mechanism.

3.5.2.5 Decommissioning/storage/disposal

Improper handling of used operating fluids/materials and components represents a danger to the environment.

➢ Drain off operating fluids and dispose of them in accordance with applicable environmental regulations.
These include, for example, fuel, engine oil, compressor cooling oil and coolant.
➢ Dispose of the machine in accordance with applicable environmental regulations.

3.5.3 Organisational Measures

➢ Designate personnel and their responsibilities.
➢ Give clear instructions on reporting faults and damage to the machine.
➢ Give instructions on fire reporting and fire-fighting measures.

3.5.4 Danger areas

The table gives information on areas dangerous to personnel.
Only authorized personnel may enter these areas.

Task	Danger area	Authorized personnel
Transport	Within a 3 m radius of the machine.	Operating personnel to prepare for transport. No personnel during transport.
	Beneath the lifted machine.	No personnel!
Commissioning	Within the machine. Within a 1 m radius of the machine.	Maintenance personnel
Operation	Within a 1 m radius of the machine.	Operating personnel
Maintenance	Within the machine. Within a 1 m radius of the machine.	Maintenance personnel

Tab. 63 Danger areas

3.6 Safety devices

Various safety devices ensure safe working with the machine.
➢ Do not change, bypass or disable safety devices.
➢ Regularly check safety devices for their correct function.
➢ Do not remove or obliterate labels and notices.
➢ Ensure that labels and notices are clearly legible.

Further information More information on safety devices is contained in chapter 4.5.

3.7 Safety signs

The tables list the various safety signs used and their meanings. The diagram shows the location of the safety signs on the exterior and interior of the machine.



During cleaning or maintenance work, it must be ensured that the attached safety signs are not damaged or removed. Arrange for missing or illegible signs to be replaced!

External safety signs:

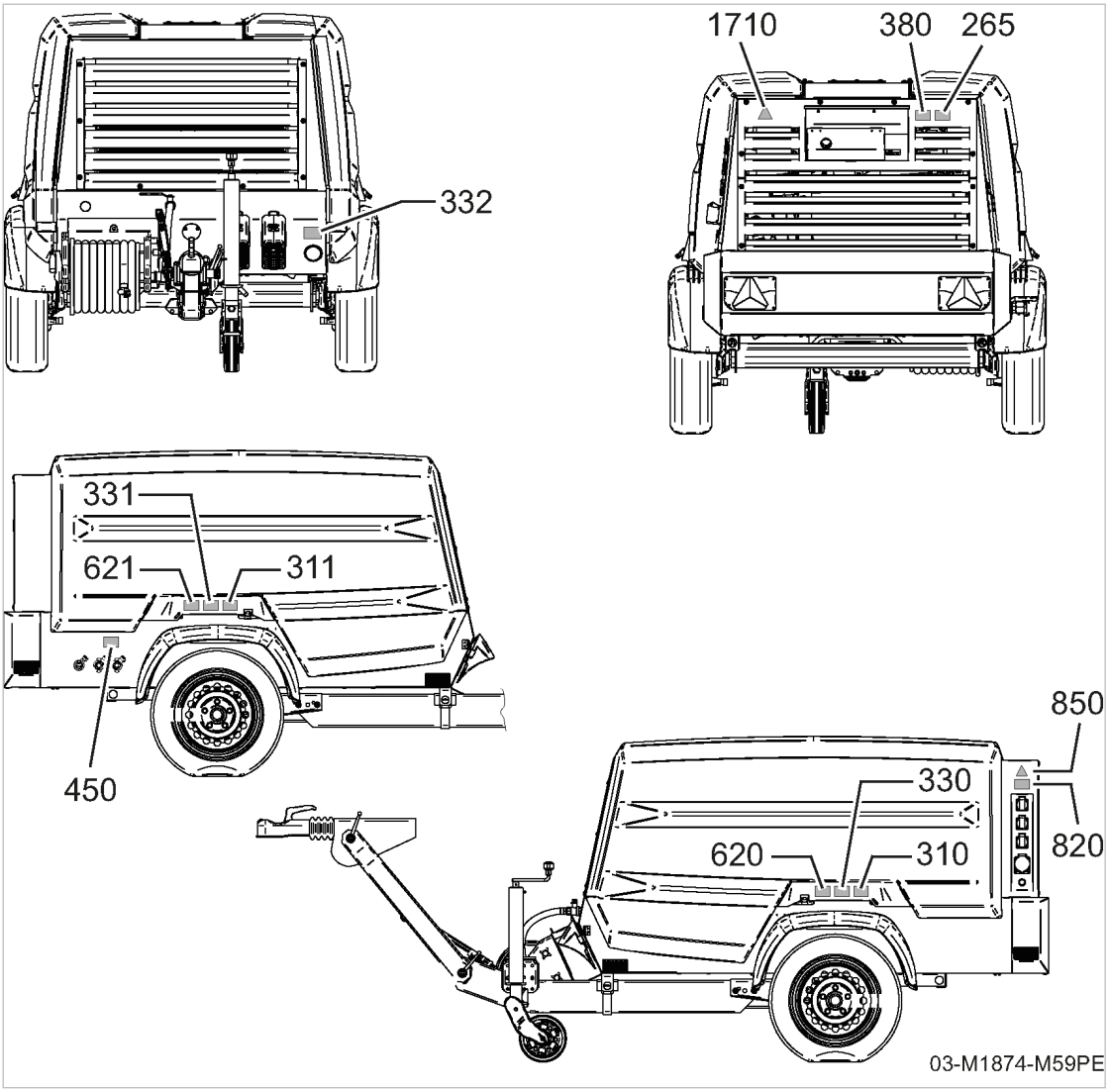


Fig. 4 Location of safety signs (exterior)

Item	Symbol	Meaning
265		Caution! Risk of injury to personnel or damage to the machine from incorrect operation! ➢ Read and understand the operating manual and all safety information before switching on this machine.
310 311		Warning! Operating the machine with open doors or enclosure is prohibited! Personal injury or damage to the machine can result from an open machine enclosure. ➢ Only operate with the enclosure fully closed. ➢ Only transport with the enclosure fully closed.

Item	Symbol	Meaning
330 331		Warning! Hot surface! Risk of burns from contact with hot components. ➢ Do not touch the surface. ➢ Wear long-sleeved clothes (no synthetics, e.g. polyester) and protective gloves.
380		Danger! Toxic exhaust gases in work area! ➢ Only use the machine outdoors. ➢ Direct exhaust gases out to open air. ➢ Do not inhale noxious gases.
450		Warning! Loud noise and compressed air blast! Hearing damage and injury if ball valve is opened without a compressed air hose being connected. ➢ 1. Connect a compressed air hose. ➢ 2. Open the ball valve.
620 621		Warning! Risk of serious injuries (particularly to the hands) or severed limbs from rotating components! ➢ Operate the machine only with closed safety guards, maintenance doors and enclosure panels. ➢ Shut down the machine before opening the doors/enclosure and prevent from restarting.
850/820		Risk of fatal injury from contact with live components! ➢ Take protective measures.
1710		Warning Risk of injury from automatic start of the machine. ➢ Prior to carrying out any work on the machine: ■ Switch off the machine. ■ Switch off the «Controller ON/OFF» switch. ➢ Only operate the machine with doors closed.

Tab. 64 Safety signs

Internal safety signs:

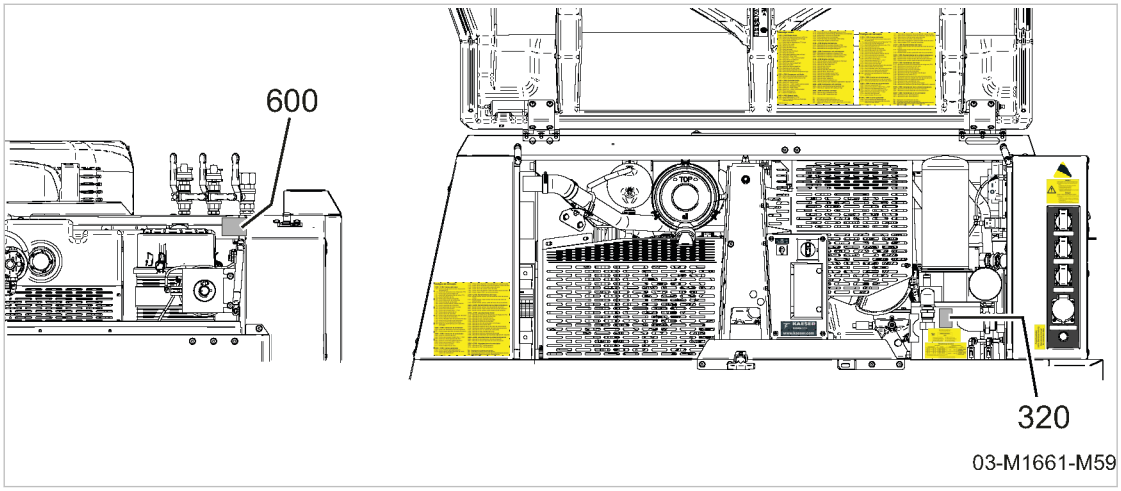


Fig. 5 Location of safety signs (interior)

Item	Symbol	Meaning
320		Warning Loud noise and oil mist! Hearing damage and burns from safety valve blow-off. ➢ Wear ear protection and protective clothing. ➢ Close the enclosure or doors. ➢ Proceed with caution.
600		Danger! Risk of fatal injury when dismantling valves (spring-loaded or under pressure)! ➢ Do not open or dismantle valves. ➢ Call an authorised service technician in the event of faults.

Tab. 65 Safety signs

3.8 Option ga Operating the generator

3.8.1 Observe protective measures against dangerous body current

Protection against dangerous levels of body current is regulated by the “Low Voltage Directive” IEC 60364–5–551 (DIN VDE 0100–551).
The protective measure “Protective separation, insulation monitoring and shutdown" is applied here. In accordance with this protective measure, the generator is equipped with an automatic circuit breaker with shunt release for all poles and an insulation monitoring device.

➢ Observe and comply with the regulations concerning “protection against dangerous body current” when operating the generator.

3.8.2 Operating the generator safely

Observe the following in order to ensure safe operation of the machine with generator:

➢ Check daily that the insulation monitoring device is functioning correctly.

- ➢ Do not earth the neutral line (N) or connect it to the protective conductor/potential equaliser (PE).
- ➢ Ensure that potential equalisation is carried out completely (generator/machine through cables to electrical consumer).
- ➢ Where the generator is feeding into a network (TN network), leave the existing protective measures of the network in place, or create effective protective measures.
- ➢ Adjust the protective measures accordingly if the generator is feeding into different networks.
- ➢ Work on the generator or generator control box may only be carried out by a qualified electrician. This qualified electrician shall be responsible for the effectiveness of the protective measures provided.
- ➢ Do not use the generator for feeding power distributors on construction sites.
- ➢ A generator with insulation monitoring must not be connected to any other insulation monitoring device, as the monitoring devices can then influence one another.
- ➢ Do not use ground fault current circuit breakers, as these are unsuited to unearthed networks (IT network, such as supplied by the generator) due to there being no earthing present. The protective separation provided by the generator, however, renders downstream protection via a ground fault current circuit breaker unnecessary.
- ➢ Follow the regulations of the local electricity supplier and obtain any necessary permits.
- ➢ Regularly check that all electrical connections are tightened and in an appropriate condition.
- ➢ When cleaning the interior of the machine, do not direct jet water at the generator, its connector box or control box.
- ➢ When cleaning the exterior of the machine, do not direct jet water at the plug socket panel.

3.8.3 Connecting extension cables

- ➢ Whilst operating the generator, observe the regulations regarding the connection of extension cables.

The following must be taken into account:

- In IT networks, the total length of the power cables must not exceed 250 m (DIN VDE 0100, Part 728 / IEC 60364-5-551).
- Use at least H07RN-F cables to DIN VDE 0282 Part 4 (IEC 60245-4 / HD 22.4) as non-fixed extension cables.

3.8.4 Do not exceed the maximum network load

- ➢ When operating the generator, do not exceed the maximum network load via the connected consumers.

The following must be taken into account:

- The power consumption values of simultaneously operating consumers must be added up.
- The maximum continuous power load of the generator by the connected consumers is limited by the circuit breakers.

3.8.5 Carrying out regular checks on the generator

To ensure safe operation of the machine, the generator must be checked regularly.

Daily check by authorised operating personnel prior to starting up the generator:

- ➢ Check the insulation monitoring device is functioning correctly.

Annual inspection by a qualified and authorised electrician:

- ➢ Inspect the generator and generator control box for mechanical damage.
- ➢ Inspect the protective conductor.
- ➢ Measure the dielectric resistance.
- ➢ Measure the substitute leakage current.
- ➢ Check the generator is functioning correctly.
- ➢ Check the generator fan is functioning correctly, clean if required.
- ➢ Clean the cooling air inlets.
- ➢ Check/tighten the screw connections on the generator and generator control box.
- ➢ Clean the protective cover on the automatic circuit breaker and check for damage.
- ➢ Check the protective covers on the consumer plug sockets for damage and tight sealing.
- ➢ Check all plates and warning labels are present and complete.

3.9 Emergencies

3.9.1 Correct actions in the event of a fire

Suitable extinguishing media:

- Foam
- carbon dioxide
- Sand or earth

Unsuitable extinguishing agents:

- Strong jet of water

1. Keep calm.
2. Give the alarm.
3. If possible: Turn off engine using control devices.
4. Make safe:
   - Warn persons in danger
   - Help incapacitated persons
   - Close the doors
5. When trained accordingly: Attempt to extinguish the fire.

3.9.2 Treating injuries from handling operating fluids/materials

The following operating fluids/materials are in the machine:

- Fuel
- Lubricating oils
- Compressor cooling oil
- Engine coolant
- Battery electrolyte
- tool lubricant (option e)

Eye contact:

Fuel, oil and other fluids/materials can cause irritation.

- ➢ Rinse eyes thoroughly with lukewarm water and seek medical assistance immediately.

Skin contact:

Fuel, oil and other fluids/materials may irritate after prolonged contact.

➢ Wash thoroughly with skin cleaner, then with soap and water.

➢ Contaminated clothing should be intensively cleaned before reuse.

If inhaled:

Fuel and oil vapours impair breathing.

➢ Clear the respirator tract from fuel or oil vapour.

Any difficulty with respiration: seek immediate medical help.

If swallowed:

➢ Wash out the mouth immediately.

➢ Do not induce vomiting.

➢ Seek medical aid.

3.10 Warranty

This operating manual does not contain any independent warranty commitment. Our general terms and conditions apply with regard to warranty.

A condition of our warranty is that the machine is used solely for the purpose for which it is intended and under the conditions specified.
Due to the multitude of applications for which the machine is suitable, the user is obliged to determine its suitability for his specific application.

Furthermore, we do not assume any warranty obligation for damages caused by:

- the use of unsuitable parts or operating materials,
- arbitary modifications,
- incorrect maintenance,
- incorrect repair.

Correct maintenance and repair includes the use of genuine KAESER spare parts and operating materials.

➢ Obtain confirmation from KAESER that your specific operating conditions are suitable.

3.11 Identifying the effects of improper modifications

The machine and various modules are designed according to applicable regulations and are submitted for approval procedures by the relevant authorities (where applicable).

Concerned modules include:

- Engine
- Fuel system
- Exhaust system
- Chassis (if available)
- Compressor
- Pressure-bearing components (e.g., valves, vessels, pipelines)

Remodeling or modifications can have the result that the interaction of the individual modules according to regulations is no longer ensured. Thus, the prerequisites required for approval by the authorities may no longer be given.

The concerned directives and regulations can be:

- Machinery directive
- Pressure vessel directive
- EMC directive
- Directive on environmental noise

In machines requiring a national road traffic permit, remodeling or modifications may adversely affect their approval for road traffic.

- Exhaust emission limits may not be met.
- The prerequisites for approval are no longer given.

Remodeling or modifications restrict the service work that can be performed for you (examples):

- Warranty (if directly and originally affected by the remodeling or modification)
- Reduced replacement part supply (scope, delivery times)
- SIGMA CONTROL SMART:
  Program changes result in a reduced capability of software updating.

3.12 Environmental protection

The operation of this machine may cause dangers for the environment.

➢ Do not allow operating fluids/materials to escape into the environment or into the sewage system!

➢ Store and dispose of operating fluids/materials and replaced parts in accordance with local environment protection regulations.

➢ Observe relevant national regulations.
This applies particularly to parts contaminated with fuel, oil, coolants, reduction agents and acids.



For the emission output of the corresponding engine class to always comply with applicable requirements, the drive engine must only be operated, used and maintained in accordance with instruction provided to the end user.

Do not intentionally manipulate the engine management of the drive engine or operate it improperly or carry out deficient maintenance measures.

Intentional manipulations of the emission reduction system and its improper operation, especially deactivation or deficient maintenance of the exhaust gas after-treatment system or individual exhaust gas after-treatment components are not permitted.

Possible exhaust gas after-treatment components (if provided):

- Components for the reduction of particle emission
  - Diesel oxidation catalytic converter
  - Diesel particulate filter
- Components for the reduction of nitrogen oxide emissions
  - SCR catalytic converter with reduction agent addition

4 Design and Function

4.1 Bodywork

Bodywork is understood to be the exterior of the machine mounted on the chassis.

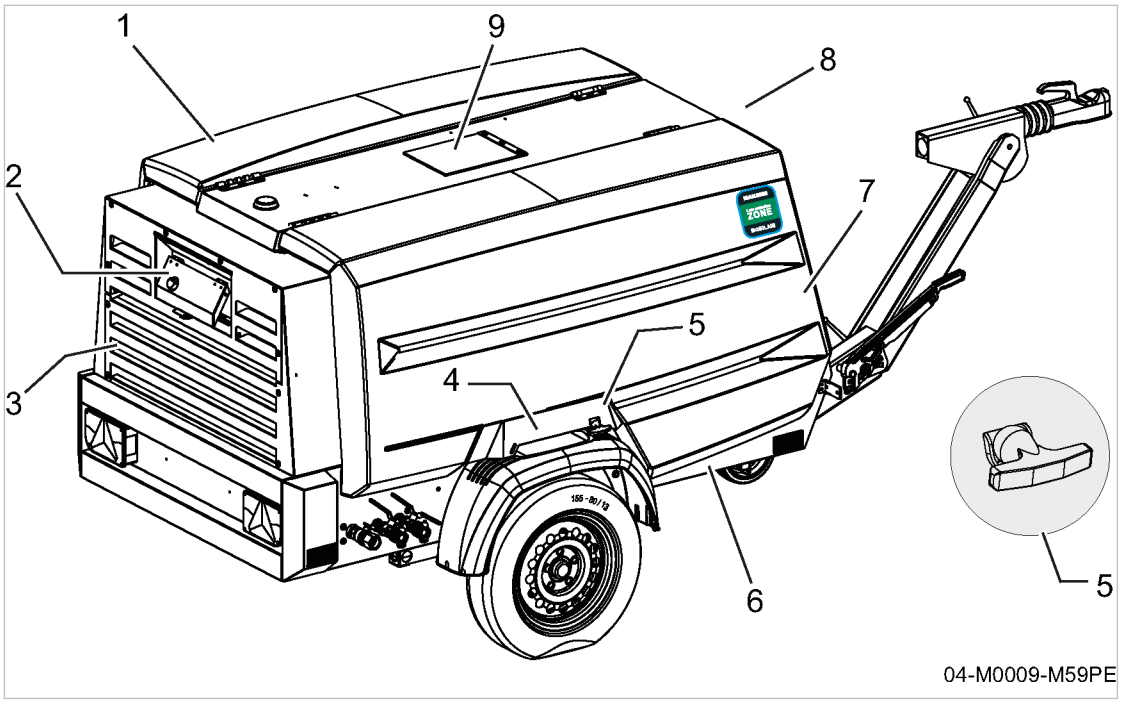


Fig. 6 Overview of bodywork

1. Left-hand wing door
2. Control panel cover SIGMA CONTROL SMART
3. Cooling air inlet
4. Handle
5. Snap fastener
6. Lower part
7. Right-hand wing door
8. Cooling air outlet
9. Cover for lifting eye

The bodywork has several functions when it is closed:

- Weather protection
- Sound insulation
- Protection against touching
- Cooling air flow

The bodywork is not suitable for the following uses:

- Persons walking, standing or sitting on it.
- As a place to rest or store any kind of load.



CAUTION
Pinch hazard!
Risk of serious pinch injury to fingers when closing doors and covers.

➢ Work with caution.

➢ Wear protective gloves as necessary.

Safe and reliable operation is only ensured when the bodywork is closed.
The wing doors are provided with handles for opening. Release the doors by the snap fasteners.
The doors are held open by gas springs.

4.2 Machine layout

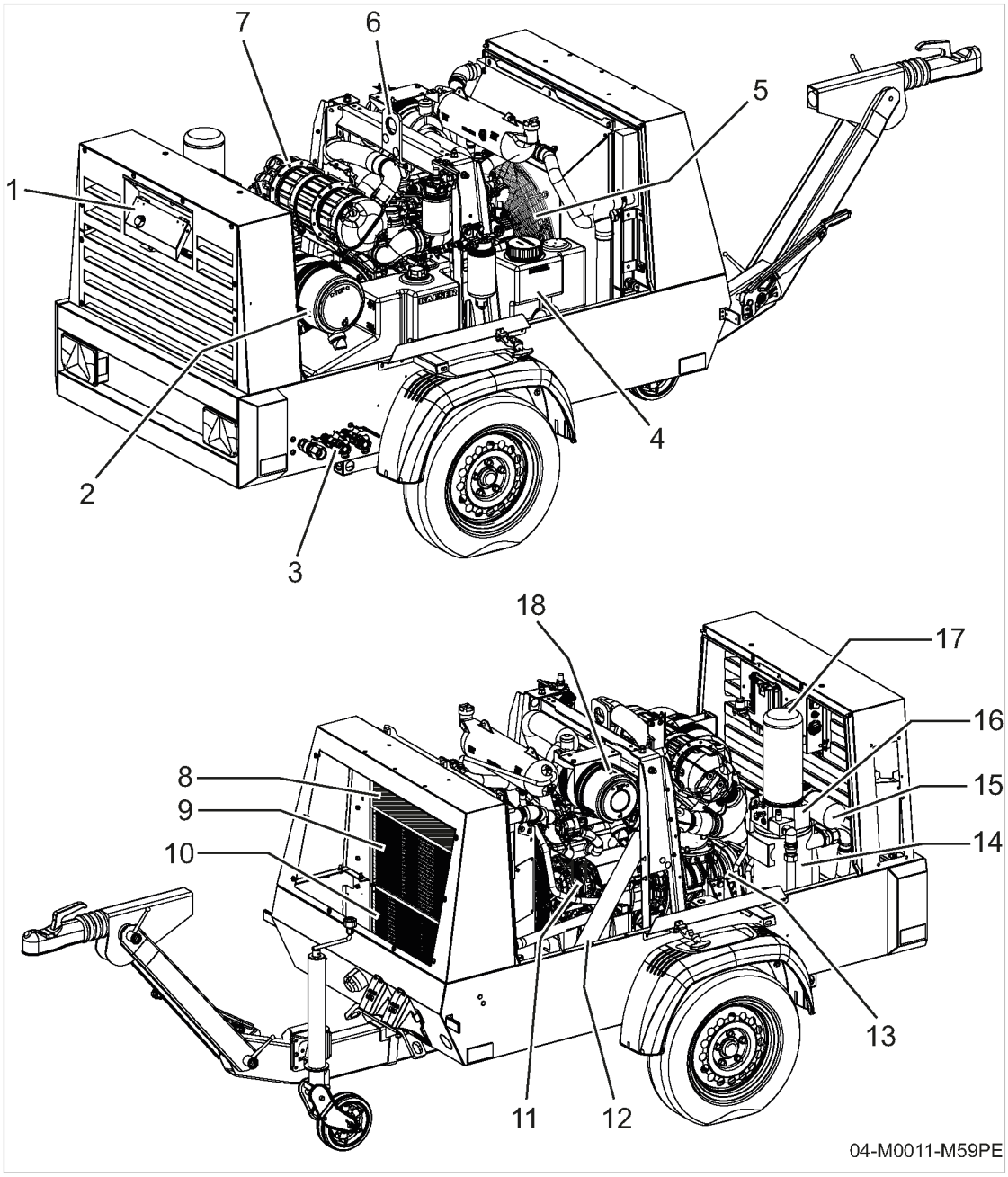


Fig. 7 Right-hand door opened

1 Control panel cover
2 Compressor air filter
3 Compressed air outlet
4 Fuel tank
5 Fan wheel
6 Lifting eye
7 Exhaust gas after-treatment with diesel oxidation catalyst and diesel particulate filter
8 Charge air cooler
9 Coolant cooler
10 Oil cooler
11 Drive engine
12 Exhaust gas pipe
13 Airend
14 Oil separator tank
15 Oil filter
16 Thermostatic valve
17 Oil separator cartridge
18 Engine air filter

4.3 Machine function

Functional description of the machine (without options).

Item numbers correspond to the piping and instrument flow diagram (P&I diagram) in Chapter 13.2.

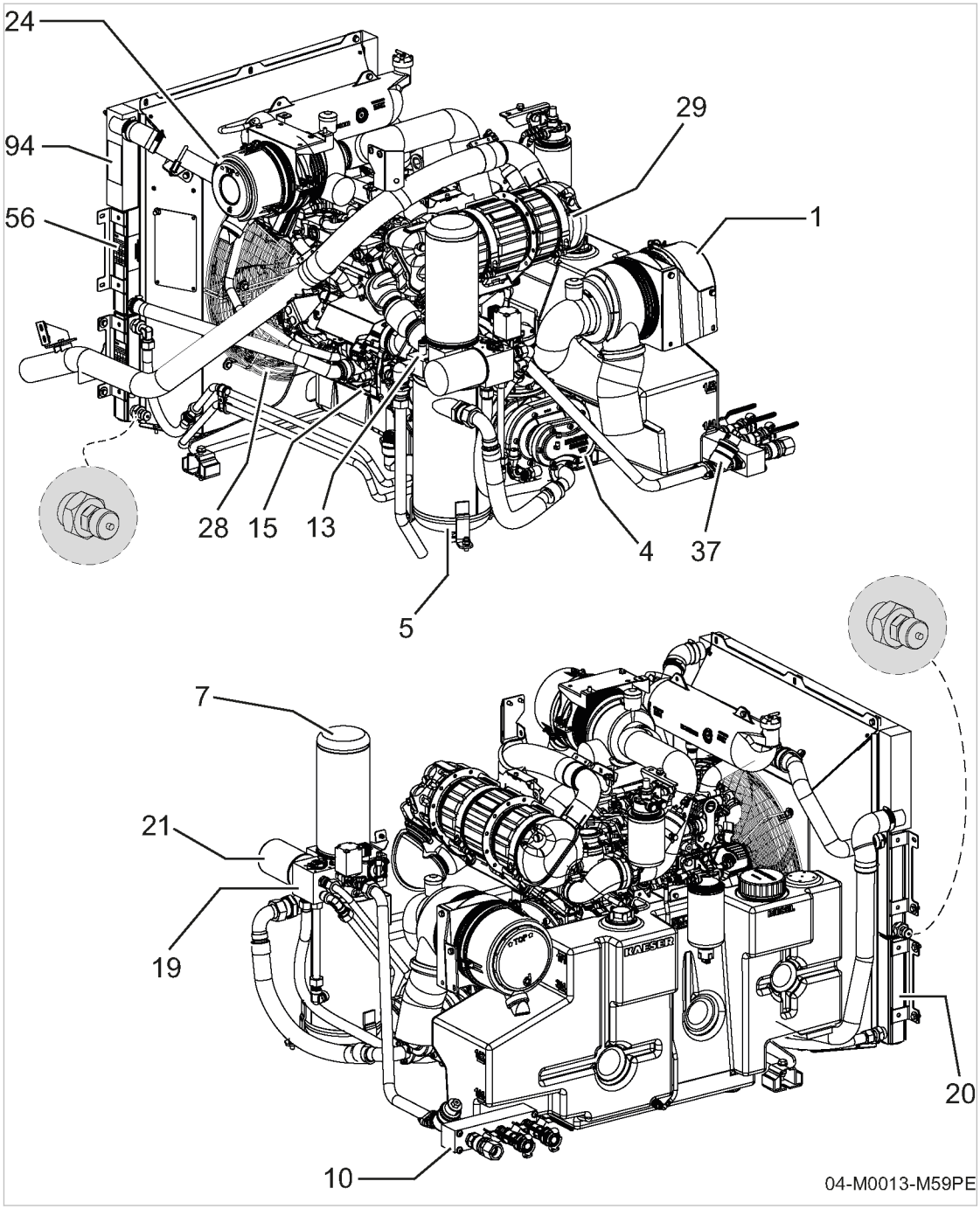


Fig. 8 Machine overview

[1] Compressor air filter
[4] Airend
[5] Oil separator tank
[7] Oil separator cartridge
[10] Air distributor
[13] Safety valve
[15] Engine
[19] Thermostatic valve
[20] Oil cooler
[21] Oil filter
[24] Engine air filter
[28] Fan wheel
[29] Exhaust gas after-treatment with diesel oxidation catalytic converter and diesel particulate filter
[37] Minimum pressure check valve
[56] Coolant cooler
[94] Charge air cooler

Ambient air is drawn in and cleaned through the compressor air filter [1].

The air is then compressed inside the airend [4].

The airend is driven via an internal combustion engine [15].

Cooling oil is injected into the airend. It lubricates the moving parts and forms a seal between the rotors themselves and between the rotors and the housing. This direct cooling inside the compression chamber ensures a very low airend discharge temperature.

The cooling oil is removed from the compressed air in the oil separator tank [5] and cooled in the oil cooler [20]. The oil then flows back to the point of injection, via the oil filter [21] . The machine's internal pressure keeps the oil circulating. A separate pump is not necessary. A thermostatic valve [19] regulates and optimises the cooling oil temperature.

The compressed air is separated from the cooling oil in the oil separator tank [5] and then passes through the minimum pressure check valve [37] to the air distributor [10]. The minimum pressure check valve always maintains a minimum system pressure so as to ensure a continuous flow of cooling oil inside the machine.

The flow direction of the fan wheel [28] and the layout of the cooling air inlet and outlet determine the machine's cooling air within the enclosure. The cooling air flows continuously through the oil cooler and coolant cooler. The heated cooling air is discharged back into the surrounding environment through the cooling air outlet.

4.4 Operating modes and control mode

4.4.1 Machine operating modes

The machine operates in the following modes:

- WARM-UP
  - The inlet valve is nearly fully closed.
  - The minimum intake air volume escapes via the venting valve.
  - The drive engine runs at minimum speed.
- LOAD
  - The inlet valve is open.
  - The drive engine runs at maximum speed.
  - The airend delivers compressed air.
- MODULATING
  - With the help of a control valve (the proportional controller) the degree of opening of the inlet valve is steplessly varied in response to the air demand.
  - The load and fuel consumption of the drive engine rises and falls with the air demand.
  - The airend delivers compressed air.

- IDLE
  - The inlet valve is closed.
  - The control valve opens, allowing pressure in the oil separator tank to be applied to the inlet valve.
  - Compressed air then flows in a closed circuit through the compressor block, the oil separator tank and the control valve.
  - The pressure in the oil separator tank remains constant.
  - The drive engine runs at minimum speed.
- RUN-ON PERIOD/STANDSTILL
  - The inlet valve closes.
  - The venting valve opens to de-pressurise the machine.
  - Machine cools down.
  - The drive motor comes to a standstill.

4.4.2 MODULATING control

The control system regulates the volume of air generated to match the actual demand. The machine keeps the working pressure constant by continuously varying the volumetric flow rate within the machine's regulating range, independent of the air demand.

With the help of an electrical control valve (the proportional controller), the opening and closing of the inlet valve is continuously varied in response to the actual air demand. The airend provides compressed air for connected consumers.

This continuous delivery regulation minimises the fuel consumption of the drive engine. The load and fuel consumption of the drive engine rises and falls with the air demand.

4.5 Safety devices

4.5.1 Monitoring functions with shut-down

The SIGMA CONTROL SMART monitors important machine parameters. The machine is automatically shut down if an alarm occurs.

The SIGMA CONTROL SMART saves the alarm message in its event memory.

Further information Further information on alarm messages at the controller is provided in chapter 9.2.1.

4.5.2 Further safety devices

The following safety devices are provided and may not be modified in any way:

- «EMERGENCY STOP» pushbutton
  :«The EMERGENCY STOP» pushbutton is for immediate shut-down of the machine. The motor/engine comes to a stop. The pressure system is vented.
- Safety valves:
  Safety valves protect the system against unacceptable pressure rise. They are factory set.
- Housing and covers for moving parts and electrical connections:
  Protect against unintentional contact.

4.6 SIGMA CONTROL SMART control panel

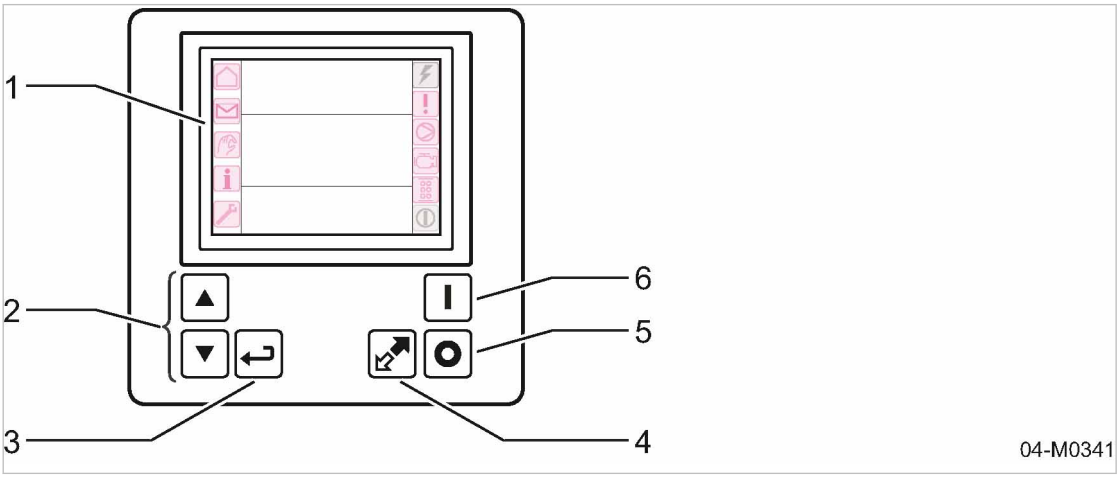


Fig. 9 SIGMA CONTROL SMART operator panel – overview

Location	Symbol	Description	Function	Display
1	–	Indicator field or display	Graphical display.	–
2	▲ ▼	«Up» key and «down» key	■ Scrolls up or down through the menu options. ■ Enter settings. ■ Change values. ■ Switch between menu pages.	–
3	↵	«Enter» key	■ Jumps to the selected submenu option. ■ Finish an entry. ■ Activate the input. ■ Acknowledges/resets maintenance tasks. ■ Returns to the superordinate menu item (press quickly) ■ Closes the menu (press for at least two seconds)	–
4		Key «LOAD/IDLE»	Toggles the compressor between LOAD and IDLE operating modes.	Flashes when ready for switching to LOAD mode. Continuous light when the machine is running under LOAD.
5		«STOP» key	■ Stops the machine. ■ Acknowledges/resets maintenance tasks.	Continuous light when a fault has occurred.

Location	Symbol	Description	Function	Display
6		«START» key	Starts the machine.	Flashes when ready to start. Lights continuously, when the engine is running.

Tab. 66 Instrument panel keys and displays

Further information For more information about the controller's functionality, please see the separate SIGMA CONTROL SMART user manual.

4.7 Variable pressure flow rate control (pV control)

The machine is fitted with a variable pressure flow rate control.

The flow rate is flexible in accordance with the preselected pressure setting and adjustment of the engine speed. With it, the machine can be operated from the minimum pressure to the maximum working pressure.

Limiting by:
<Setting the maximum nominal pressure> at the SIGMA CONTROL SMART controller.

Further information
- ▸ For more information about setting the *maximum nominal pressure*, see the separate User Manual of the SIGMA CONTROL SMART controller, chapter "Set maximum nominal pressure".
- ▸ For further information about the variable pressure flow rate, please see chapter 2.7.1.

4.8 Exhaust gas after-treatment

The exhaust from a diesel engine contains invisible particles that are dangerous to health.

State-of-the-art engine technologies are used to reduce the emission of pollutants and to meet the tighter exhaust standards.

For a proper balance, all parameters affecting combustion must be optimally adjusted to each other. In interaction with injection and turbo-charging in particular, the exhaust gas recirculation allows for combustions with significantly less nitrogen oxides.

Furthermore, all engines are fitted with various after-treatment facilities. The total of these measures therefore contribute to the protection of human health and the environment.

4.8.1 Engine optimisation

The engine series is equipped with a common rail diesel injection system and exhaust gas return. The engines are set to a maximum of efficiency and low particle emissions.

Electronic engine management:

The engine system is equipped with an electronic engine management that communicates with the system controller SIGMA CONTROL SMART.

In addition to monitoring the engine and exhaust gas treatment, the engine control unit (ECU) also monitors itself. Any faults or malfunctions are stored as fault codes in the alarm memory and forwarded to the SIGMA CONTROL SMART controller.

Common rail injection system:

The engine is fitted with a common rail injection system for mixture preparation. It is a high-pressure accumulator injection system for diesel engines. The common rail injection allows you to optimise the combustion process so that fewer contaminants are generated whilst consuming less fuel. The fuel is injected into the combustion chamber from a highly pressurised joint distributor pipe (common rail). The common rail injection system is controlled by the engine control unit.

Exhaust gas recirculation::

Exhaust gas recirculation is a measure to reduce the emissions of nitrogen oxides. At high combustion temperatures, damaging nitrogen oxides (NO_x) increasingly develop in the engine. To reduce these levels, the combustion temperature must be lowered. The cooled and controlled exhaust gas recirculation circulates a portion of the exhaust gas back to the suction side of the engine where it is added to the inlet air. This reduces the available oxygen volume and thus the combustion temperature. Both measures reduce the development of nitrogen oxides.

Exhaust gas recirculation occurs only in the partial load area of the engine because the engine runs particularly lean in this area. Exhaust gas recirculation is not practical in cold start, warm-up and full load.

Exhaust gas turbo-charging:

The performance of the combustion engine can be enhanced by means of turbo-charging. A turbocharger compresses the air to allow more oxygen to flow into the combustion chamber. As a result, more fuel can be combusted and the engine performance increases accordingly. The turbocharger is driven by exhaust gas which makes turbo-charged engines very efficiently.

4.8.2 Exhaust gas treatment system

The exhaust gas treatment system primarily contributes to limiting the exhaust gas emissions of the machine.

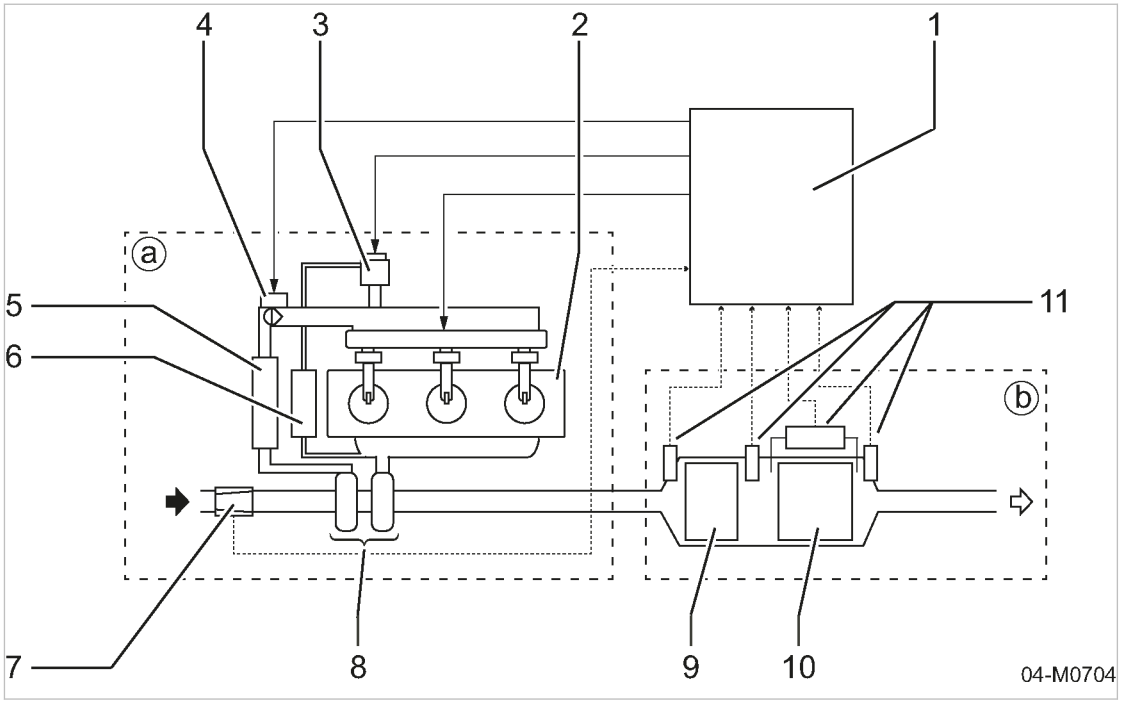


Fig. 10 Principle of treatment devices

1	Engine control unit (ECU)	7	Air flow meter
a	Common rail system	8	Turbocharger
2	Engine block	b	Exhaust gas treatment system
3	Exhaust gas return valve (EGR)	9	Diesel oxidation catalytic converter (DOC)
4	Inlet throttle	10	Diesel particulate filter (DPF)
5	Intercooler	11	Sensors
6	Cooler exhaust gas return (EGR)	12	SIGMA CONTROL SMART controller

Diesel oxidation catalytic converter (DOC):

The diesel oxidation catalytic converter uses the fuel which has not been burnt during final injection for the active regeneration of the diesel particulate filter. The diesel oxidation catalytic converter serves a source of heat for the regeneration of the diesel particulate filter.

Diesel particulate filter (DPF):

The diesel particulate filter is used for reducing the particulates present in the diesel engine exhaust (fine solids and mostly soot). Nearly all of these particles are trapped in the filter and burnt to CO_2 at high exhaust gas temperature.

At a low exhaust gas temperature when the particulates do not burn spontaneously, a pressure difference occurs between inlet and outlet of the diesel particulate filter. This initiates a regeneration of the filter,

during which the soot is removed. Regeneration is activated when the filter medium is saturated with soot to a certain degree.

4.8.3 Option Ic
Regenerating the diesel particulate filter

The removal of soot from the diesel particulate filter is known as regeneration.

Normally, the engine control unit (ECU) will start the regeneration automatically. Only in exceptional cases (adverse operating conditions) does regeneration need to be initiated manually (parked regeneration).

Function:

The exhaust gas after-treatment system on the HATZ diesel engine is a passive particulate filter system. A passive particulate filter system burns off the soot in the filter by means of the nitrogen oxides contained in the exhaust gas, after they have been converted in the diesel oxidation catalytic converter (DOC). This process runs continuously as soon as the exhaust gas temperature exceeds 350 °C. The passive particulate filter system does not contain a burner. The prerequisite for continuous passive regeneration is a sufficient ratio of nitrogen oxides to soot within the engine's exhaust gas.

Definition of nominal filter load:

The engine control unit internally monitors the soot level in the diesel particulate filter. The current soot load is displayed (as a percentage) by the SIGMA CONTROL SMART controller.
When the soot load in the diesel particulate filter has reached 100%, the system prompts a request for *parked regeneration*.

Standard operation (passive regeneration):

Under normal operating conditions (exhaust gas temperature > 350 °C), the exhaust gas after-treatment system operates without any intervention by the operator. The soot particles are burnt off continuously without intervention by the ECU. This occurs predominantly at high engine loads. Reaction with nitrogen dioxide converts the soot particles into carbon dioxide. The soot load of the diesel particulate filter remains within a permissible range.

Parked regeneration (activated by operator):

If passive regeneration does not result in a sufficient reduction of the soot load, the particulate filter will continue to accumulate soot until eventually a *parked regeneration* (particulate filter system load > 100%) becomes necessary.

A special engine operating status occurs during the *parked regeneration*. Compressed air production is not possible throughout the duration of the regeneration process.

When an engine requests a *parked regeneration*, the following warning message is displayed: *Parked regeneration required.*

The operator must then initiate the *parked regeneration*. This results in the compressor being unloaded so that the engine can start the regeneration. The process requires approximately 20 to 30 minutes and, during this time, the engine can autonomously adjust its speed so as to achieve the optimal operating point for regeneration.

Because regeneration will begin only at temperatures above 350 °C, it is recommended to warm up the engine in LOAD before initiating a *parked regeneration*.

4.9 Options

The options available for your machine are described below.

4.9.1 Option da, dd, df
Air treatment options

For certain applications, the compressed air generated by this machine must be treated before use.

The following describes the possible air treatment options that may be fitted to the machine.

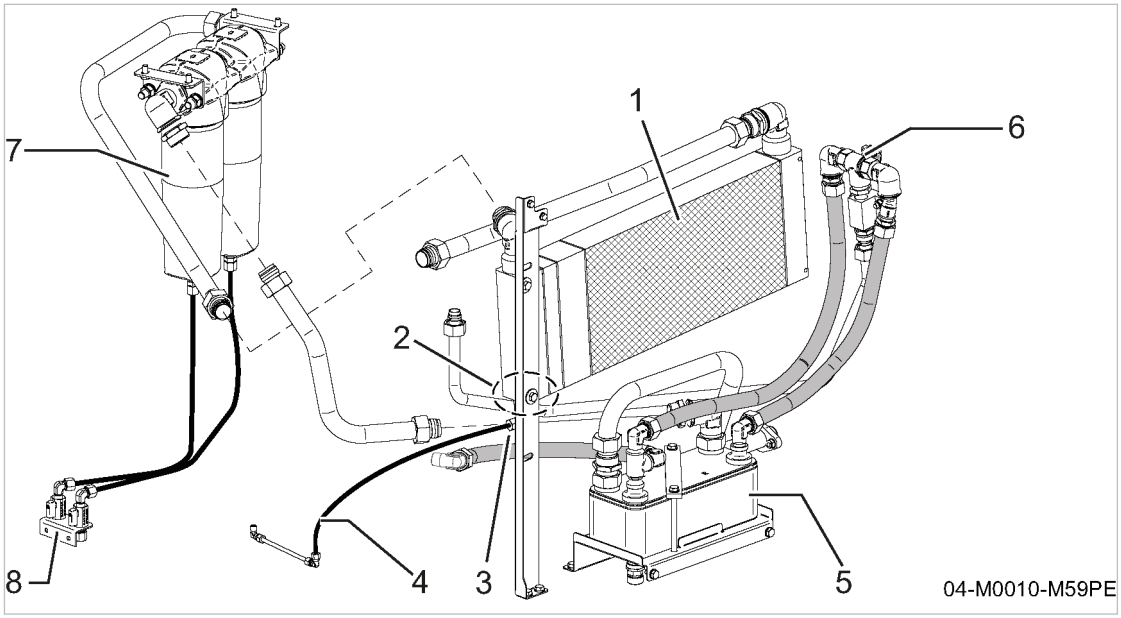


Fig. 11 Compressed air options

1. Compressed air aftercooler
2. Water separator
3. Dirt trap
4. Condensate drain line
5. Heat exchanger
6. Directional control valve
7. Filter combination
8. Condensate drain

4.9.1.1 Option da
Compressed air aftercooler

The compressed air aftercooler lowers the compressed air temperature to only 5 K to 10 K above the ambient temperature. The exchange of heat lowers the compressed air temperature and the water contained in the compressed air precipitates to condensate. Most of the moisture carried in the air is removed in the after-cooler.

4.9.1.2 Option da
Water separator

The condensate generated during air cooling is collected in the water separator.

4.9.1.3 Option da
Dirt trap with condensate drain line

A dirt trap is located beneath the water separator. Whilst the condensate flows through the dirt trap, existing dirt particles are retained.

Subsequently, the condensate flows through the connected condensate drain pipe to the exhaust gas pipe. Due to the high exhaust temperatures, the condensate evaporates completely here.

4.9.1.4 Option df
Heat exchanger

For warm compressed air, an oil/compressed air heat exchanger is installed, in which the cooled, dried compressed air is reheated using the hot cooling oil coming from the compressor.

This warm, dry compressed air is ideal for applications such as sandblasting.

Option df **Compressed air quality with/without heat exchanger:**

If heating is not required, you can use the bypass to bridge the heat exchanger.

Option designation	Heat exchanger	Compressed air quality
da + df	activated	heated and dry
	Bridged	cool and condensate-free
da + dd + df	activated	heated and technically oil-free
	Bridged	cool and technically oil-free

Tab. 67 Compressed air quality with/without heat exchanger

4.9.1.5 Option dd
Filter combination

For oil-free compressed air, the dried compressed air passes through a prefilter and microfilter combination, from which it emerges both oil-free and free from solid particles.

4.9.2 Option ea
Tool lubricator

Compressed air containing lubricant is required for the lubrication of air tools. A tool lubricator, which adds lubricant to the compressed air, can be specified for this purpose.

A metering wheel on the tool lubricator regulates the amount of lubricant in the compressed air:

- A lesser amount for the lubrication of air tools and prevention of corrosion;
- a larger amount for cleaning air tools and preventing ice build-up.

The supply of lubricant can be switched on or off using a shut-off valve.

The quantity of lubricant is adjusted automatically in response to changes in air demand (one or more tools/consumers operating).

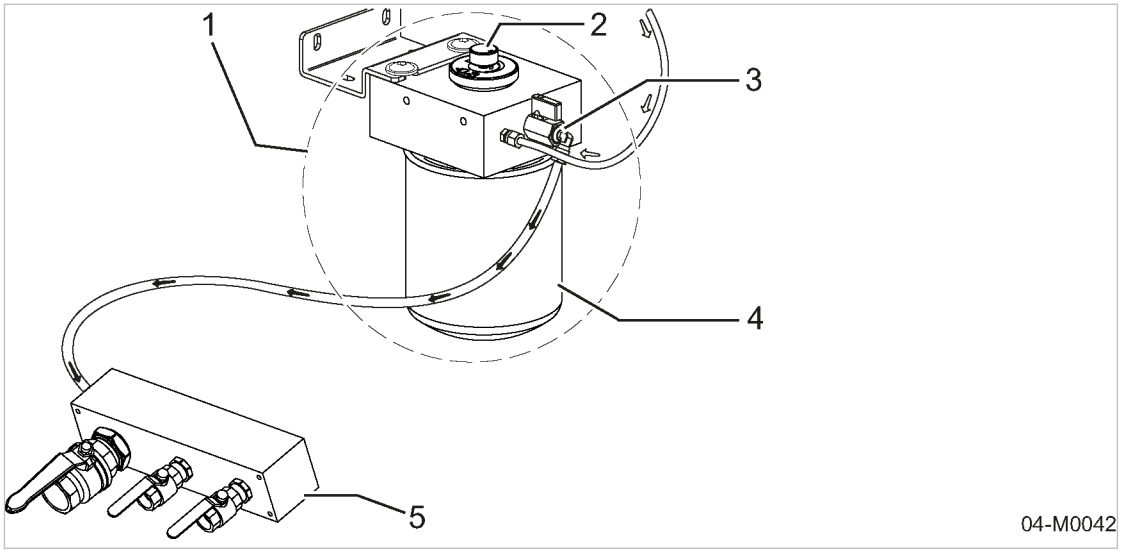


Fig. 12 Tool lubricator

1 Tool lubricator
2 Metering wheel
3 Shut-off (ball) valve
4 Supply vessel
5 Air distributor

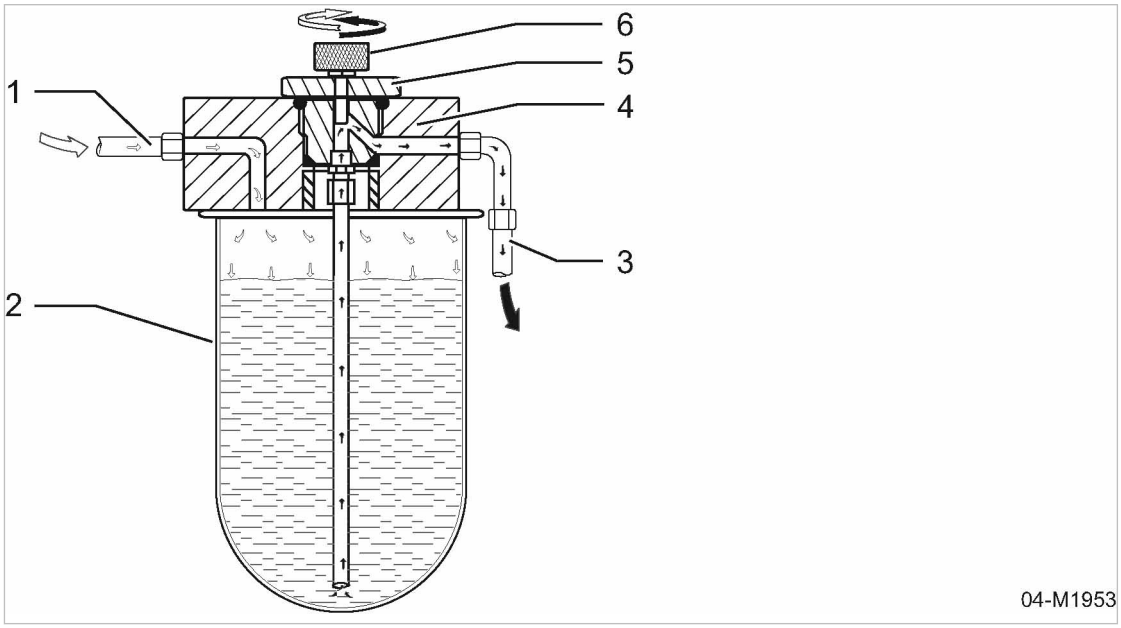


Fig. 13 Principle tool lubricator

1 Compressed air inlet
2 Supply vessel
3 Lubricant outlet
4 Tool lubricator top section with lubricant filler port
5 Screw plug with lubricant dipstick and integrated riser pipe
6 Metering wheel

4.9.3 Option ba
Low temperature equipment

The machine is fitted with low-temperature equipment for the operation in extremely low temperatures up to -25 °C. The electrical equipment starts the drive engine of the machine at ambient temperatures as low as −10 °C.

You can improve the cold-start behaviour of the machine with the following options:

Option / option designation	Function
Coolant pre-heating / bb	Pre-heat the drive engine coolant.

Tab. 68 Low temperature equipment options

4.9.3.1 Option bb
Pre-heat the drive engine coolant

The drive engine coolant can be pre-heated in order to attain an improved cold-start behaviour. An electric pre-heating device has been installed for this purpose. The heating element of the pre-heating device protrudes directly into the drive engine coolant.

The thermal output from the heating element into the coolant results in a slower circulation of the coolant. Resulting from the circulation the supplied heat is evenly distributed. The coolant of the drive engine and its direct surrounding significantly warm up above the local ambient temperature. A melting protection protects against overheating.

The ideal pre-heating time depends on the outside temperature. Approx. 3 hours of pre-heating time result in thermal balance. This means that subsequently supplied heat only serves to maintain the already existing temperature. The rest of the subsequently supplied heat is emitted to the surroundings.



Damages to the drive engine and electrical pre-heating device are precluded with pre-heating times lasting longer than 3 hours. However, the unnecessary energy consumption should be prevented by shutting down the pre-heating device on time!

A flexible power cable has been included with the machine. To commission the pre-heating device you only need to connect the power cable to the machine’s connection and the user's power socket.

Further information See Fig. 14 for the position of the device connection.

4.9.3.2 Option bb
Device connection of coolant pre-heating on the machine

Option bb

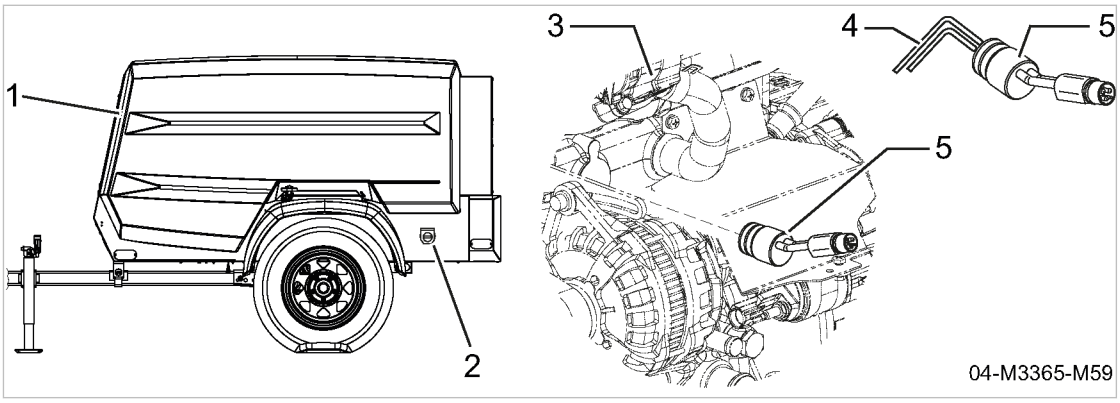


Fig. 14 Device connection on the machine

1 Machine
2 Device connection
3 Drive engine
4 Heating element
5 Pre-heating device

4.9.4 Option Ia, Ib
Options for operation in fire hazard areas

Diesel engines represent a potential source of ignition in environments where concentrations of gas, vapour or dust are present and can cause major fires with disastrous consequences for people, the environment and production.

For operation in fire hazard areas, the machine is equipped with the following options:

- Engine air shut-off valve
- Spark arrester

4.9.4.1 Option Ib
Engine air shut-off valve

In the event that combustible gases and vapours from the surrounding environment are drawn into the air inlet by the diesel engine, they will have the effect of an additional fuel supply. This can cause a sudden, uncontrolled increase in engine speed which may result in mechanical damage. Without appropriate preventive measures, the engine and engine-driven devices can be irreparably damaged. Explosion and/or fire are also a possibility.

When an inflammable gas mixture is drawn into the engine air inlet, it will no longer be possible to stop the engine solely by shutting off the fuel supply. In order to shut down the engine quickly and reliably in such cases, the intake of combustion air must be shut off.

Should the engine exceed a certain speed, the engine air shut-off valve will close automatically. This shuts off the supply of intake air and brings the engine immediately to a standstill.

4.9.4.2 Option Ia
Spark arrester

Sparks in exhaust gases represent a considerable risk in environments where inflammable materials are present. Flying sparks combined with inflammable materials can cause fires and explosions.

A spark arrester on the exhaust silencer is required when operating a diesel engine in a fire hazard area, or in forestry and agricultural applications. In such applications, a spark can ignite inflammable materials.

The spark arrester prevents the exhaust silencer from emitting any glowing combustion residue.

Option Ia

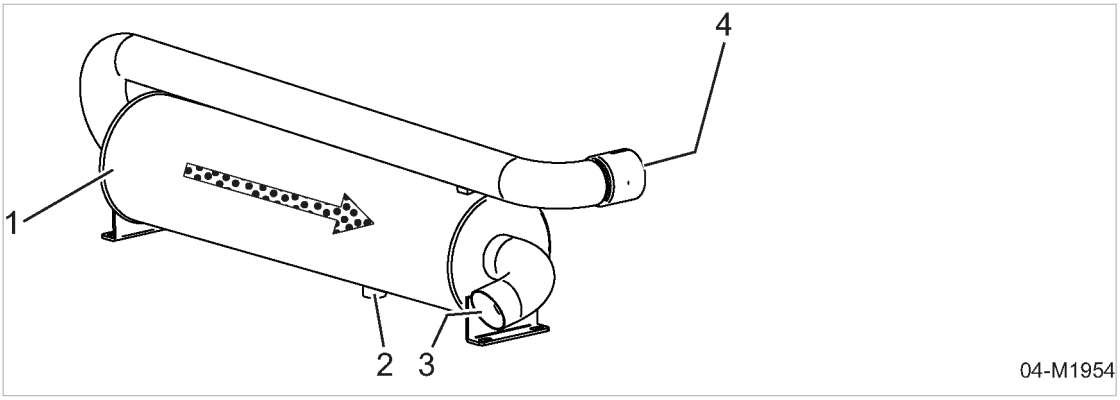


Fig. 15 Spark arrester

1	Spark arrester	3	Exhaust gas outlet
2	Soot trap discharge port with sealing plug	4	Exhaust gas inlet

4.9.5 Option ga
Generator option

A generator is installed to provide a power supply for individual electrical consumers.

The generator is powered by the engine via a belt drive. A tensioning element automatically ensures optimal belt tension.

4.9.5.1 Operating modes

When the compressor is operating with normal flow rate control, electrical power can be generated at the same time.

The generator provides two operating modes:

- Automatic cut-in
- Continuous load

The operating mode can be selected via the «operating mode selector switch».

Generator main switch	Operating mode selector switch	What is to be supplied?
OFF	-	Compressed air
ON	Position 1 (Automatic cut-in)	Compressed air and electrical power
	Position 2 (Continuous load)	Electrical power and compressed air

Tab. 69 Generator/compressor operation

Operating mode	Automatic cut-in	Continuous load
Switch position	Position 1	Position 2
Engine speed	Electrical power consumption > 100 VA Automatic maximum speed	Permanent maximum speed (full engine load)
	Power consumption below minimum value: Engine run-on time of approximately 2 minutes at maximum speed	
Benefits	Fuel saving Constant oscillation between maximum and minimum speed is avoided	Continuous generator power available without delay

Tab. 70 Generator operating modes

4.9.5.2 Operating controls

The generator control box is positioned inside the machine. Switches and fuses are located inside the generator control box.

The plug sockets for electrical consumer connections are located on the plug socket panel on the outside of the machine. Below the plug sockets is the «Insulation monitoring» test key.

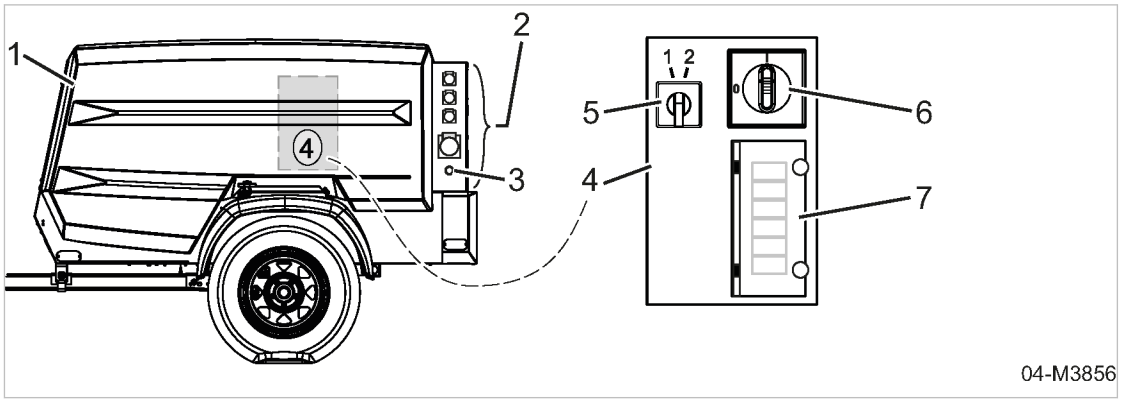


Fig. 16 Example – Generator control box and plug sockets

1 Machine side view
2 Plug socket panel
3 «Insulation monitoring» test key with integrated warning lamp
4 Generator control box
5 «Operating mode selector switch»
6 «Main switch»
7 Protective cover, automatic circuit breaker

Option ga

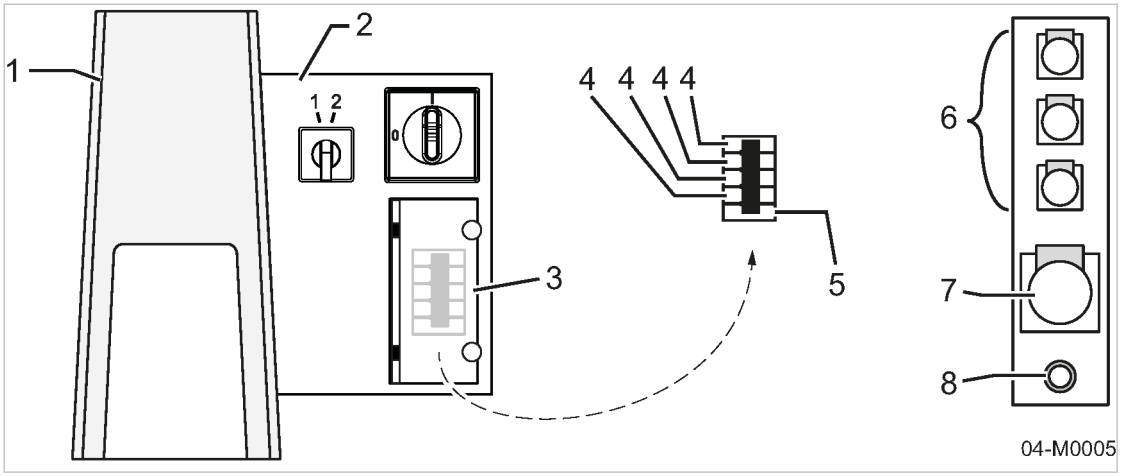


Fig. 17 Generator control box operator panel, 400 V three-phase

1 Lifting eye strut
2 Generator control box
3 Protective cover, automatic circuit breaker
4 Automatic circuit breaker with shunt release
5 Shunt release
6 Plug socket 230V/N/PE, 16A
7 Plug socket 400V/3/N/PE, 16A
8 «Insulation monitoring» test key with integrated warning lamp

Option ga

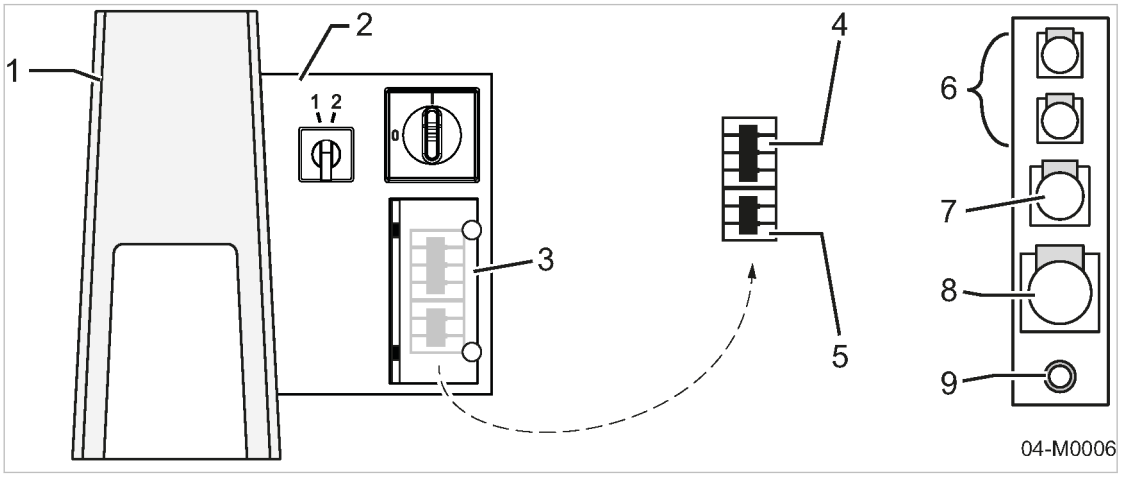


Fig. 18 Generator control box operator panel, 230 V three-phase

1 Lifting eye strut
2 Generator control box
3 Protective cover, automatic circuit breaker
4 Automatic circuit breaker with shunt release
5 Automatic circuit breaker
6 Plug socket 230V/2/PE, 16A
7 Plug socket 230V/3/PE, 16A
8 Plug socket 230V/3/PE, 32A
9 «Insulation monitoring» test key with integrated warning lamp

Option ga

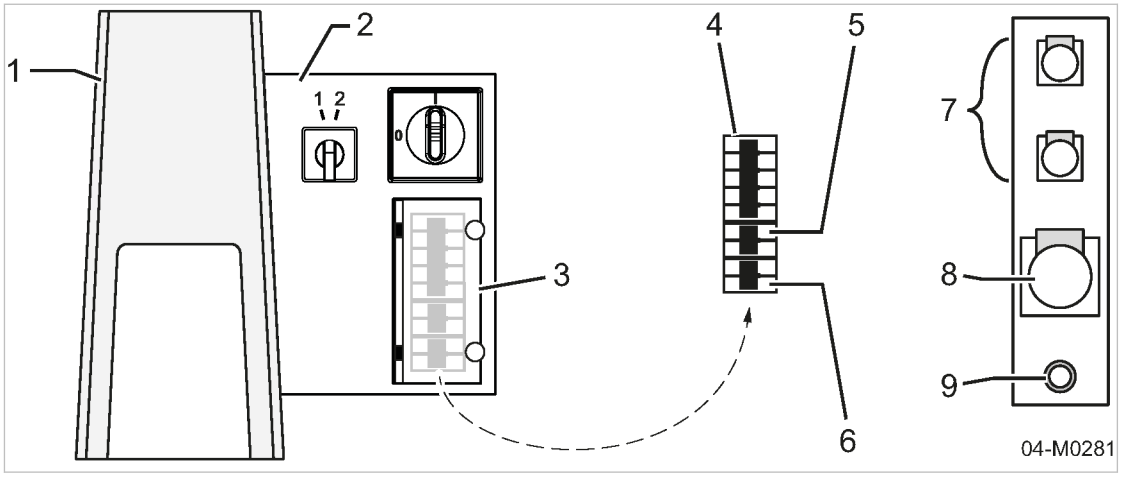


Fig. 19 Generator control box operator panel, 115 V AC

1 Lifting eye strut
2 Generator control box
3 Protective cover, automatic circuit breaker
4 Automatic circuit breaker with shunt release
5 Automatic circuit breaker
6 Automatic circuit breaker
7 Plug socket 115V/2/PE, 16A
8 Plug socket 115V/2/PE, 32A
9 «Insulation monitoring» test key with integrated warning lamp

4.9.5.3 Note the following when operating the generator

Do not exceed the maximum network load

➢ When operating the generator, do not exceed the maximum network load via the connected consumers.

The following must be taken into account:

- The power consumption values of simultaneously operating consumers must be added up.
- The maximum continuous power load of the generator by the connected consumers is limited by the automatic circuit breakers.

Connecting electrical consumers



DANGER
Devices start automatically without warning.
Serious injury and damage to property is possible.

➢ Ensure that all electrical consumers are switched off.

Before connecting electrical consumers, carry out the following instructions:

- Note the technical specifications for the generator before connecting voltage-sensitive equipment.
- Check that electrical consumers and their connecting cables are in perfect condition.
- Plug in and switch on electrical consumers one at a time.
- Equipment with unfavourable on/off characteristics (e.g. high starting current) should be started first.
  Do not allow the rated current for each plug socket to be exceeded, so as not to overload the generator.

Switching off the generator

Before switching off the generator, carry out the following instructions:

- Switch off electrical consumers and unplug them one at a time.
- Switch off equipment with the highest current draw last.
- Check that the protective covers on the plug sockets are closed correctly.
- Run the engine for a further 2 minutes approx. after switching off the generator, in order to allow the generator to cool down.

4.9.6 Option ob, od Automatic start/stop options

Option ob Automatic start/stop

For an automatic start-up of the machine, the automatic start/stop function can be set via the SIGMA CONTROL SMART controller.

Option od Trickle charging the starter batteries

The starter battery must be sufficiently charged to start the engine at all times, even after longer period of inactivity. To ensure that this is the case, a battery charger must be used.

The electrical auxiliary device is pre-wired ready for operation. Power is supplied via a separate mains connection. A flexible power cable (supplied) connects the machine's adapter plug to the user-end mains power socket.

4.9.7 Option oc UMTS modem

The machine is equipped with a UMTS modem. This modem can be equipped with a SIM card and serves for connection to the MOBILAIR fleet management system.

The UMTS modem has only indicating functions.

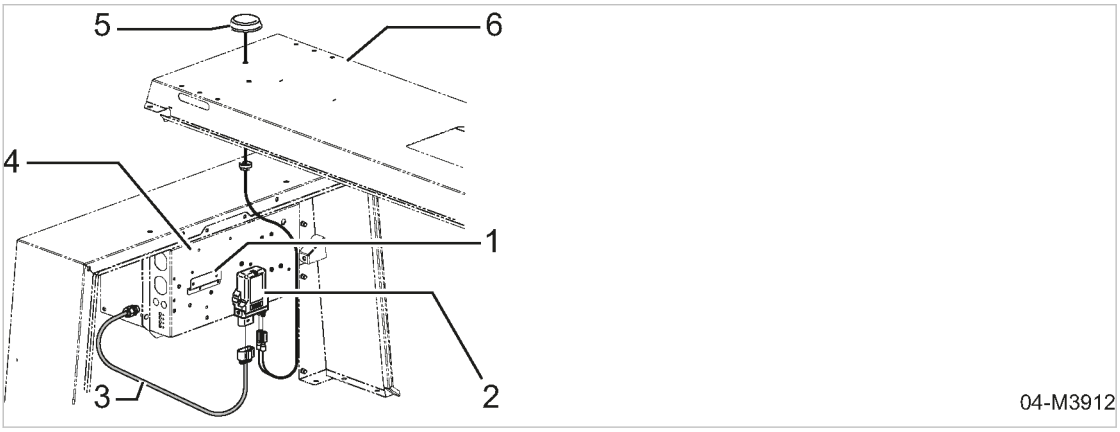


Fig. 20 Location of the UMTS modem inside the machine

1 Modem bracket
2 Modem
3 Signal cable
4 Control box
5 Antenna
6 Central section of the enclosure

4.9.7.1 Features

The machine is delivered fully wired for operation.

The model designation is provided on the nameplate.

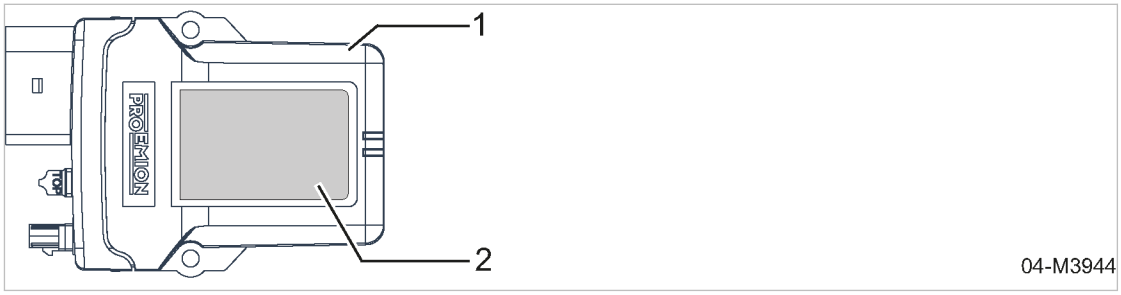


Fig. 21 Nameplate with model designation

1 Device
2 Nameplate

Feature	3351 model designation
CAN-CAN-Bluetooth/WLAN bridge	—
CAN-Bluetooth/WLAN interface	—
Battery	—
Antenna (internal/external)	External
Mobile communications (3G/4G)	3G
Real-time mode	X
Logging mode	X
Input/output features	X
Acceleration sensor	X
Gyro sensor	X
CAN connections	1
GNSS	X
eSIM card	X
X ≙ Fitted, — ≙ Not fitted	

Tab. 71 Features

4.9.7.2 Overview of interfaces and indicator elements

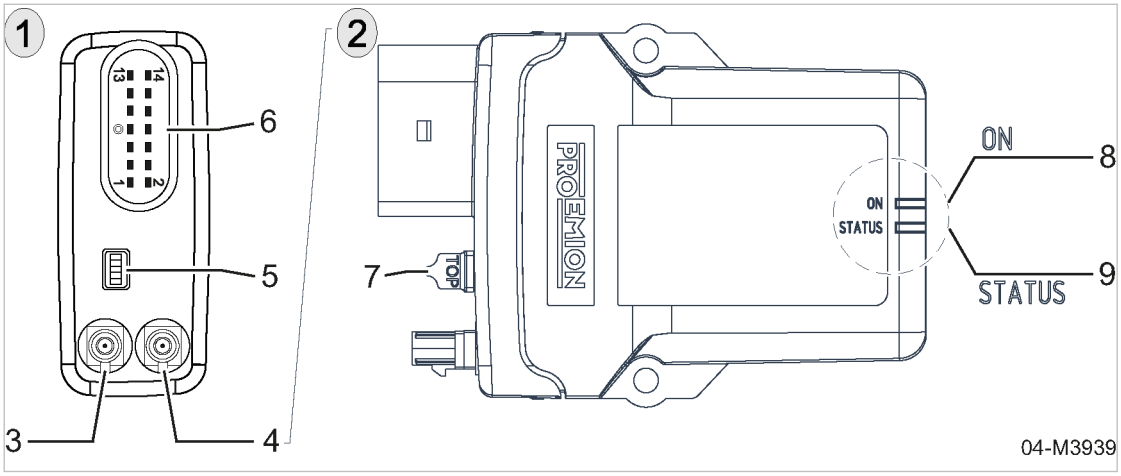


Fig. 22 Interfaces and indicator elements

1 View – Interfaces
2 View – Indicator elements
3 GNSS antenna connection
4 Mobile communications antenna connection
5 Micro USB connection
6 Main plug connector
7 Protective cap for micro USB connection
8 *ON* LED indicator element
9 *STATUS* LED indicator element

4.9.7.3 Interfaces

GNSS antenna connection

In order to receive GNSS satellite signals, the machine's GNSS antenna connection is connected to an active antenna.
For pin assignment, see figure below.

CAUTION
Injury to personnel from high-frequency energy
➢ Ensure that the machine is switched off during installation.

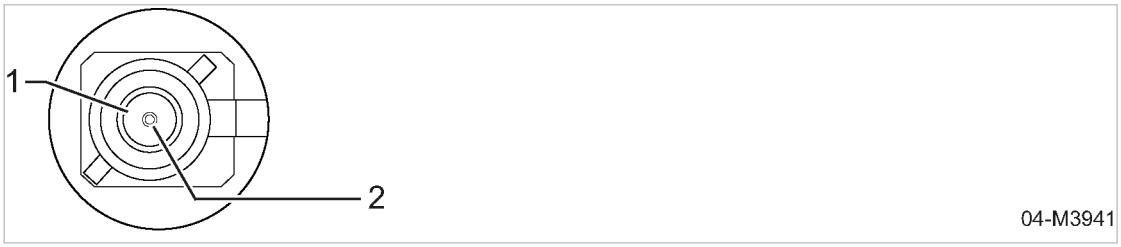


Fig. 23 GNSS antenna connection

Pin	Designation	Description
1	Ground	Signal ground / shielding
2	Signal	GNSS signal / supply voltage 3.3 V

Tab. 72 Pin assignment, GNSS antenna connection

Mobile communications antenna connection

In order to receive mobile communications signals, the machine's mobile communications antenna connection is connected to an antenna.
For pin assignment, see figure below.

CAUTION
Injury to personnel from high-frequency energy
➢ Ensure that the machine is switched off during installation.

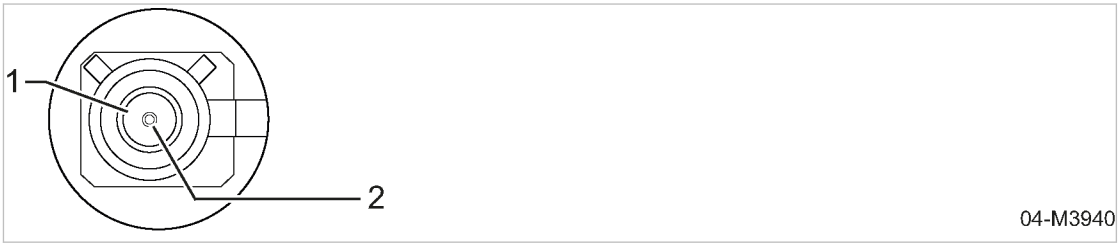


Fig. 24 Mobile communications antenna connection

Pin	Designation	Description
1	Ground	Signal ground / shielding
2	Signal	Mobile communications

Tab. 73 Pin assignment, mobile communications antenna connection

Micro USB connection

You can connect the machine to a PC using the micro USB connection.
The micro USB connection can be used to perform diagnostics, as well as updates to the boot loader and firmware. For pin assignment, see figure below.

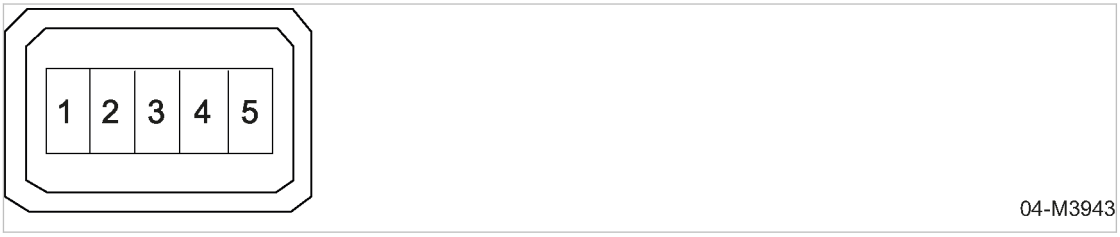


Fig. 25 Pin assignment for micro USB connection

Pin	Designation	Description
1	VBUS	Input
2	D-	Bidirectional
3	D+	Bidirectional
4	ID	Input (0=Boot mode, 1 / open=USB DEVICE)
5	Ground	USB power supply / Reference ground

Tab. 74 Pin assignment for micro USB connection

To protect the micro USB connection from dirt, always close the connection using the protective cap.

Main plug connector

The main plug connector is used to connect the device to the CAN bus and to supply the device with power. The I/O signals are integrated into the plug. For pin assignment, see figure below.

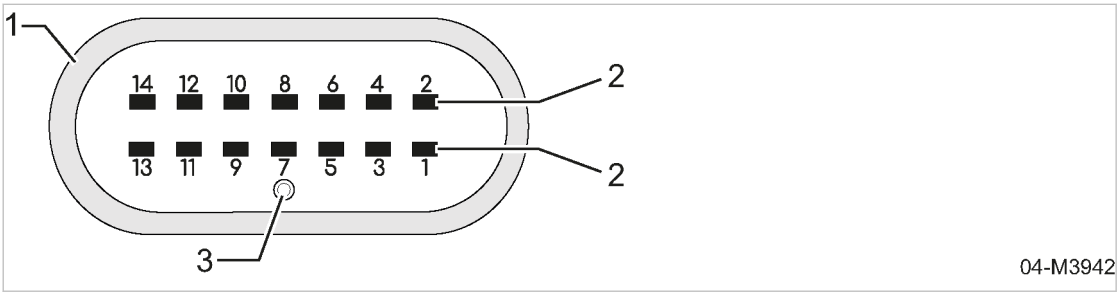


Fig. 26 Pin assignment for main plug connector

1 Main plug connector
2 Pin assignment
3 Reset key

Pin	Designation	Description
1	Terminal 30 / VCC	Power supply
2	Factory setting 1	Input
3	Terminal 31 / Ground	Power supply
4	Analogue input 1	I/O input
5	Analogue input 1	I/O input
6	Analogue input 1	I/O input
7	Digital output	I/O output
8	Terminal 15	Input (ignition signal)
9	Factory setting 2	Input
10	CAN2–GND	–
11	CAN2–High	CAN, bidirectional
12	CAN2–Low	CAN, bidirectional
13	CAN1–High	CAN, bidirectional
14	CAN1–Low	CAN, bidirectional
Depending on the model variant, the pin assignment depicted may vary.		

Tab. 75 Pin assignment for main plug connector

4.9.7.4 Indicator elements

LED ON:

The *LED ON* indicator displays the status of the power supply.

Colour	Status	Meaning
–	Off	Device is switched off or in Sleep mode.
Green	On	Device is switched on, Terminal 30 voltage is in the permissible range.

Colour	Status	Meaning
Red	On	Device is switched on, Terminal 30 voltage is outside the permissible range.
Green	Flashing	Device is in Diagnostics or Update mode.

Tab. 76 LED ON indicator element

LED STATUS:

The *LED STATUS* indicator displays the operating status of the active connections. The different colours are displayed in order of priority. The highest level of priority is Level 1; the lowest is Level 5. If more than one operating status is active at the same time, the *LED STATUS* indicator will display the status with the highest priority level.

Colour	Status	Connection	Priority	Meaning
–	Off	–	–	Device is switched off.
Green	On	Various	–	Connected to PROEMION server.
Blue	On	Mobile communications Internet	1	Not connected to PROEMION server.
Red	On	CAN 1	2	Connection error.
Orange	On	CAN 2	3	Connection error.
Magenta	On	GNSS	4	No item / antenna found.
White	On	WLAN Bluetooth	5	No network / device connected.

Tab. 77 LED STATUS indicator element

4.9.8 Document bag

The document bag is used to store important accompanying documents for the machine safely and clean within the machine. This ensures that operating personnel always, and at any location, has access to the accompanying documents of the portable machine.

The document bag is not part of the standard equipment. It can be optionally selected!

Example for accompanying documents of machine:

- Machine's Operating Manual.
- User Manual of SIGMA CONTROL SMART.
- Chassis operating instructions (where applicable).

Position the document bag inside the machine, see the below figure.

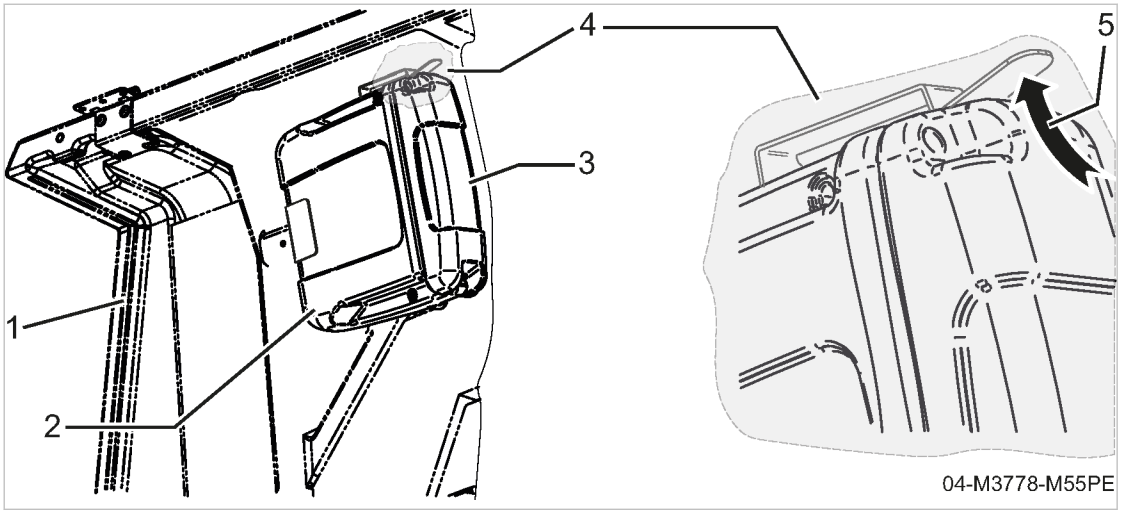


Fig. 27 Document bag option

1 Right-hand gull-wing door opened
2 Document bag
3 Document bag cover
4 Retaining clip
5 Direction of arrow (undo retaining clip)

The document bag cover is secured with a retaining clip. To unlock the cover, press the retaining clip in the direction of the arrow 5.

4.9.9 Option ua
Hose reel option

The machine is provided with an extension hose to allow connection and operation of remote air tools. A hose reel is provided for safe storage of this hose.

4.9.10 Option oe
Closed floor pan option

The machine is fitted with a closed floor pan for catching liquids in the event of a leak, thereby preventing any ground contamination.

The closed floor pan:

- cannot catch all liquids contained within the machine; it is intended only to capture small leaks in the vicinity of components at risk.
- is equipped with maintenance openings which are closed with bung plugs. These holes must be closed tightly following any cleaning tasks.

When other components are removed from the closed floor pan (e.g. the sheet metal cover), they must be properly sealed prior to being reinstalled.

Position of maintenance openings in the closed floor pan:

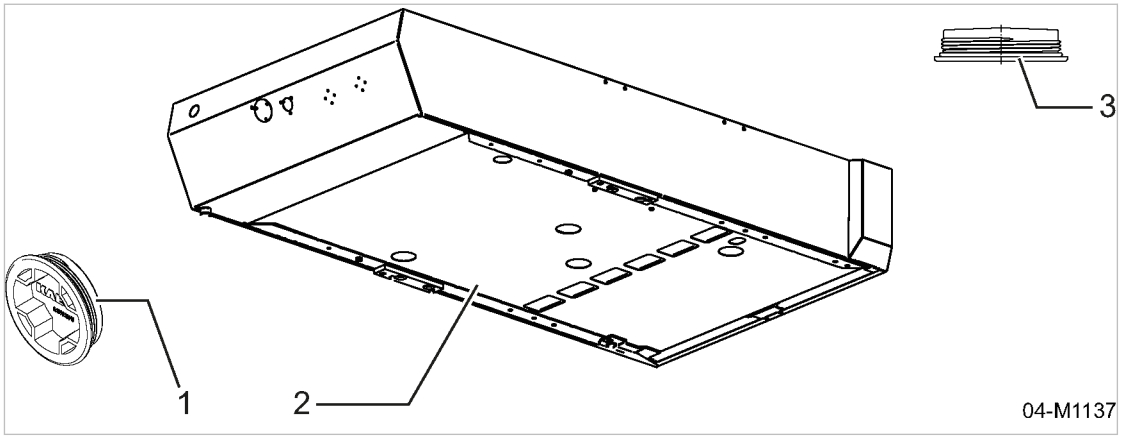


Fig. 28 Position of maintenance openings

1 Bung plugs
2 Floor pan with maintenance openings
3 Bung plug side view

4.9.11 Option sf
Anti-theft device option

The machine is fitted with a security chain for anti-theft protection. The container for the security chain is located on the front side of the machine.

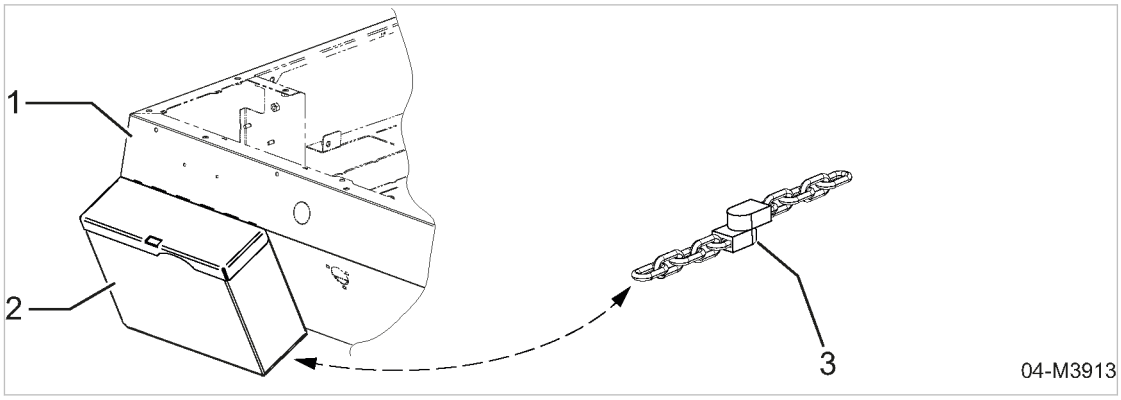


Fig. 29 Container for security chain

1 Front side of machine
2 Container
3 Safety chain

4.9.12 Transport options

See the separate document "Chassis Operating Manual" for information on the design of the individual chassis.

4.9.13 Frame design options for stationary machines

4.9.13.1 Option rw; rx
Frame types of stationary machines

Option	Designation	Characteristics
rw	Skid	■ Frame designed as skid ■ Use as stationary machine ■ Mounted on truck/trailer platform
rx	Frame	■ The mounting assembly is designed as a frame. ■ Use as stationary machine ■ Mounted on truck/trailer platform

Tab. 78 Stationary machines

Further information See chapter 13.3 for the dimensional drawings of machines with stationary frame designs.

5 Installation and Operating Conditions

5.1 Ensuring safety

The conditions in which the machine is installed and operated have a decisive effect on safety.

Warning instructions are located before a potentially dangerous task.



Disregard of warning instructions can cause serious injuries!

Complying with safety notes

Disregard of safety notes can cause unforeseeable dangers!

- ➢ Strictly forbid fire, open flame and smoking.
- ➢ If welding is carried out on or near the machine, take adequate measures to prevent sparks or heat from igniting fuel or oil vapours or parts of the machine.
- ➢ Do not store inflammable material in the vicinity of the machine.
- ➢ The machine is not explosion-proof:
  Do not operate in areas in which specific requirements with regard to explosion protection are in force.
  For instance, the requirements of ATEX directive 2014/34/EC "Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres".
- ➢ Keep suitable fire extinguishing agents ready for use.
- ➢ Ensure that required ambient conditions are maintained.

Required ambient conditions may be:

- Ambient temperature
- Air composition at the installation site:
  - clean with no damaging contaminants (e.g., dust, fibres, fine sand)
  - free of explosive or chemically unstable gases or vapours
  - free of acid/alkaline forming substances, particularly ammonia, chlorine or hydrogen sulphide.

5.2 Installation conditions

Precondition The floor must be level, firm and capable of bearing the mass of the machine.

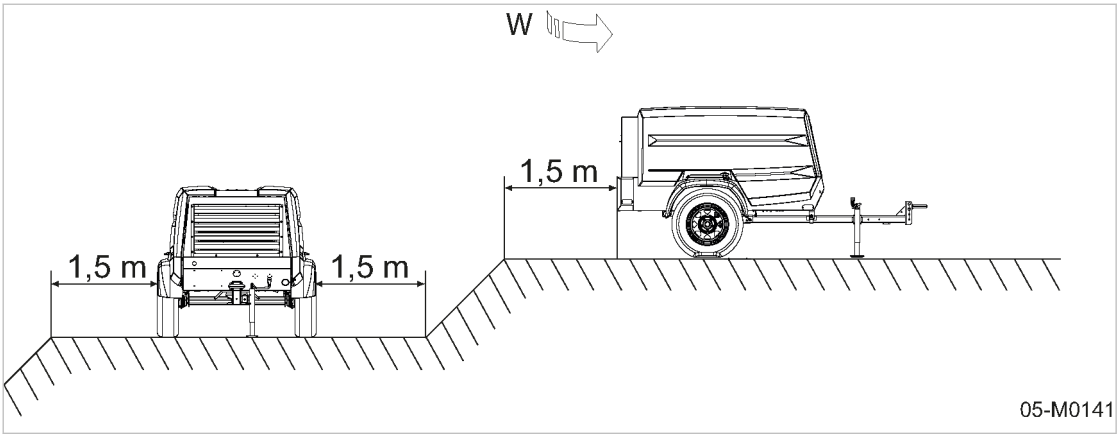


Fig. 30 Minimum distance from excavations/slopes and walls
Ⓦ Wind direction

1. Keep sufficient distance (at least 1.5 m) from the edges of excavations and slopes.
2. Ensure that the machine is as level as possible.

The machine can be temporarily operated on a slope of not more than 15°.

3. Ensure accessibility so that all work on the machine can be carried out without danger or hindrance. The operator panel with the «EMERGENCY STOP» button must be accessible and within reach at any time.

4. *NOTICE!*
Fire hazard from build-up of heat and hot exhaust system!
Insufficient clearance above the machine may well cause heat build-up that could damage the machine.
   - ➢ Do not position the machine directly under a low roof or covering.
   - ➢ Ensure always sufficient ventilation space around the machine.
5. Ensure there is enough free space all round and above the machine.
6. Keep air inlet and outlet openings free of obstructions so that the cooling air can flow freely through the machine.
7. Install the machine ensuring that
   - exhaust gases and heated exhaust air can escape freely.
   - Do not allow exhaust gases and heated cooling air to be drawn into the compressor. Note the wind direction! (see figure 30)
   - Ensure the unimpeded intake of fresh air (air intake, cooling air).
8. *NOTICE!*
Ambient temperature too low.
Frozen condensate and highly viscous engine or compressor cooling oil can cause damage when starting the machine.
   - ➢ Use winter grade engine oil.
   - ➢ Use winter diesel fuel.
   - ➢ Use low viscosity compressor cooling oil.
9. At ambient temperatures below 0 °C, follow the instructions in chapter 7.4.

5.3 Requirements for positioning on a lorry platform

For special applications, a stationary machine may be installed on the platform of a lorry. In this case, fasten the machine with bolt-down machine mounts on the load platform.

Special prerequisites for the installation on lorry platforms:

1. Follow the vehicle manufacturer's loading guidelines for safe operation and transportation.
2. Ensure sufficient clearance for access to the machine while fastened to the platform.
   - Ensure that operating activities are possible.
   - Ensure that monitoring activities are possible.
   - Ensure that maintenance activities are possible.
   - Ensure that an emergency shut-down is possible.
3. Ensure sufficient clearance for air supply to and exhaust lines from the machine while fastened to the platform.
   - Keep the intake air openings unobstructed.
   - Keep the exhaust air openings unobstructed.
4. Ensure sufficient clearance for the exhaust gas conduit from the machine while fastened to the platform.
   - Keep the exhaust gas opening unobstructed.
   - Ensure sufficient distance and discharge option for escaping exhaust gas.
5. If required, attach a hazardous goods label at the machine.

Further information — For the installation of the bolt-down machine mounts, see chapter 6.4.

6 Installation

6.1 Ensuring safety

Follow the instructions below for safe installation.

Warning instructions are located before a potentially dangerous task.



Disregard of warning instructions can cause serious injuries!

Complying with safety notes

Disregard of safety notes can cause unforeseeable dangers!

- ➢ Follow the instructions in chapter 3 'Safety and Responsibility'.
- ➢ Installation work may only be carried out by authorised personnel.
- ➢ Do not reuse removed self-locking nuts but replace with new ones. The non-positive safety against loosening is no longer ensured when the nut is unscrewed.

Further information: Details of authorised personnel are found in chapter 3.4.2.

Details of dangers and their avoidance are found in chapter 3.5.

6.2 Reporting Transport Damage

1. Check the machine for visible and hidden transport damage.
2. Inform the carrier and the manufacturer in writing of any damage found.

6.3 Perform regular maintenance on the chassis:

- ➢ See the separate document "Chassis Operating Manual" for instructions regarding maintenance on the chassis.

6.4 Securing the parked machine



Bolt-down machine feet and rubber pads are **not** part of the standard equipment. These items can be optionally selected!

For safe footing, a stationary machine can be secured with bolt-down machine feet.

Material: Bolt-down machine feet (anti-vibration elements)

Fastening screws

Wrench

Precondition: The machine is switched off.

The machine is installed on level ground and has cooled down.

Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 bar!

6.4.1 Fitting the machine feet

The support frame of the machine is provided with holes for fitting bolt-down machine feet (see dimensional drawing in chapter 13.3 for the location of these holes).

You must use machine feet if a stationary machine is placed on or bolted to surfaces not subject to acceleration (e.g., lorry load platform).

You may use rubber pads instead of the machine feet if the stationary machine is placed on or bolted to surfaces not subject to acceleration (static installation).

Option rx

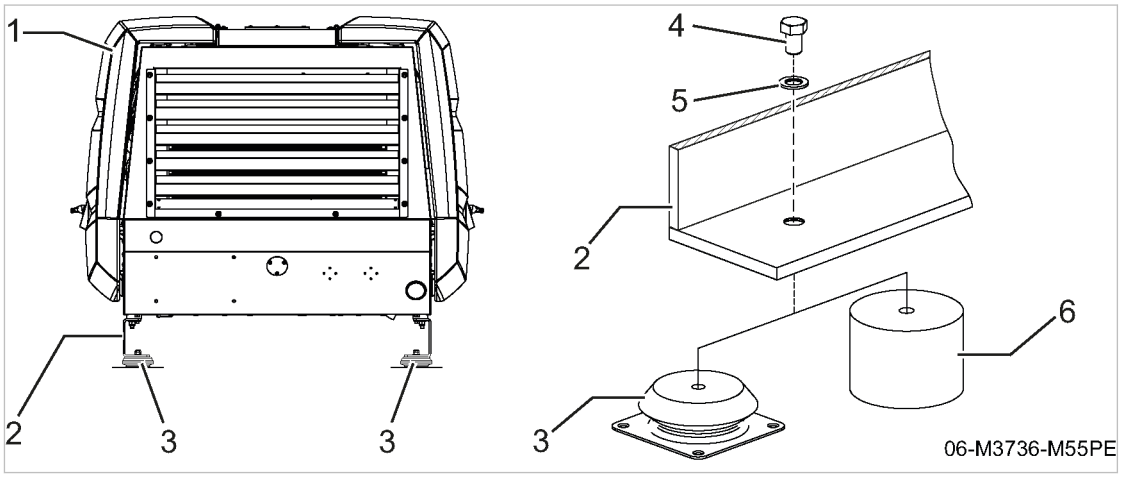


Fig. 31 Mounting machine foot/rubber pad

1. Machine
2. Machine's support frame (support)
3. Machine foot (anti-vibration metal element)
4. Hexagon bolt
5. Washer
6. Rubber pad

1. Position the bolt-down machine feet underneath the corresponding drilled hole of the support frame.
2. Fit the washer to the hexagon bolt.
3. Insert the hexagon bolt through the drilled hole of the support frame.
4. Install the hexagon bolt in the thread of the machine foot.
5. Tighten the hexagon bolt.
6. Install and tighten the other machine feet analogously.

7 Initial Start-up

7.1 Ensuring safety

Here you will find instructions for a safe commissioning of the machine.
Warning instructions are located before a potentially dangerous task.



Disregard of warning instructions can cause serious injuries!

Complying with safety notes

Disregard of safety notes can cause unforeseeable dangers!

- ➢ Follow the instructions in chapter 3 'Safety and Responsibility'.
- ➢ Commissioning tasks may only be carried out by authorised personnel!
- ➢ Make sure that no one is working on the machine.
- ➢ Ensure that all service doors and panels are locked.

Further information
Details of authorised personnel are found in chapter 3.4.2.
Details of dangers and their avoidance are found in chapter 3.5.

7.2 Before Initial Start-up (or Recommissioning)

Incorrect or improper commissioning can cause injury to persons and damage to the machine.

7.2.1 Note when commissioning



The initial start-up of every machine takes place at the factory. Every machine is also given a trial run and passes a careful check.

- ➢ Commissioning may only be carried out by authorised installation and service personnel who have been trained on this machine.
- ➢ Remove all packing materials on and in the machine.
- ➢ Observe the machine during the first few hours of operation to ensure that it is operating correctly.

7.2.2 Special measures for re-commissioning after storage or de-commissioning

➢ Carry out the following before every start-up of the machine after long period of storage or de-commissioning:

Storage/de-commissioning period longer than:	Action
5 months	**Drive engine:** ➢ Remove desiccant from engine air filter. ➢ Check the engine air filter. ➢ Check the engine oil filter. ➢ Drain the preserving oil from the engine. ➢ Fill up with engine oil. ➢ Check the engine coolant level. ➢ Check the battery charge state(s). ➢ Re-connect the battery (batteries). ➢ Check all fuel hoses for leaks, loose connections, wear and damage. ➢ Check all pressure hoses of the drive engine (engine oil, coolant, charging air) for leaks, loose connections, wear and damage.
	Compressor: ➢ Remove desiccant from compressor air filter. ➢ Check the compressor air filter. ➢ Check the compressor oil filter. ➢ Drain the preserving oil from the separator tank. ➢ Fill with cooling oil. ➢ Check all pressure hoses/lines of the compressor (cooling oil, compressed air, control air, condensate) for leaks, loose connections, wear and damage.
	Body: ➢ Clean the bodywork with a grease and dirt dissolving agent.
36 months	**Technical condition:** ➢ Have the overall technical condition checked by an authorised KAESER SERVICE technician.

Tab. 79 Measures for re-commissioning the compressor after a long period of storage or de-commissioning

7.3 Checking installation and operating conditions

➢ Check and confirm all the items in the check list before first start-up of the machine.

Task	See chapter	Complied with?
➢ Are the operators fully conversant with the safety regulations?	—	
➢ Have all the installation conditions been fulfilled?	5	
➢ Is there sufficient cooling oil in the separator tank?	10.6.1	

Task	See chapter	Complied with?
➢ Is the contamination indicator on the compressor air filter OK?	10.6.7	
➢ Is there sufficient oil in the drive engine?	10.4.6	
➢ Is the contamination indicator on the drive engine air filter OK?	10.4.2	
➢ Is there sufficient coolant in the coolant expansion tank?	10.4.1	
➢ Is there sufficient fuel in the fuel tank?	—	
➢ All doors closed?	—	
➢ All panels installed?	—	

Tab. 80 Checklist for installation and operating conditions

7.4 Low-temperature operation

Cold ambient temperatures during winter operation require adjustments to operating fluids, components and the warm-up function of the machine.

- Adjusting the operating fluids.
  - Use winter engine oil
  - Use low-viscosity cooling oil for the compressor
  - Use winter diesel fuel
- Adjusting the components
  - Use short compressed air hoses
- Check the warm-up function when temperatures are low
  - Activate the automated start-up process
- Use the low temperature feature (option ba)
  - Preheat the engine coolant

➢ Follow all instructions carefully.

Result These adjustments will increase the service life of your machine.

7.4.1 Checking the warm-up function in low-temperature conditions

When operating in low ambient temperatures, start-up of the machine is performed via an automated start-up process.

When the «START» key on the control panel of the SIGMA CONTROL SMART is pressed, the engine begins a maximum of three automatic start-up cycles of 30 seconds each.

Following every false start, the machine is vented. Following each time the machine is vented, a new start-up cycle begins automatically.

Should the third start-up cycle end with another false start, the operator must manually switch off the control voltage and, after a defined period of time, switch it back on again.

➢ Follow all instructions carefully.

7.4.1.1 Activating the automated start-up process

Precondition All compressed air discharge valves on the compressed air outlet are open.

1. Open the left-hand door.

2. Switch on the «Controller ON/OFF» switch.
   The controller boots up.
   The *Ready to start* indicator flashes.
3. Close the left-hand door.
4. Press the «START» key on the control panel of the SIGMA CONTROL SMART.
   The machine begins a maximum of three automatic start-up cycles of 30 seconds each.
   The machine is automatically vented should a false start occur.
   After the machine has been vented, a new start-up cycle begins automatically.

The automated start-up process for low-temperature conditions ends after three automatic start-up cycles with false starts.

➢ For reactivating the automated start-up process, see Chapter 7.4.1.2.

7.4.1.2 Reactivating the automated start-up process

1. Open the left-hand door.
2. Switch off the «Controller ON/OFF» switch.
3. Wait for 20 seconds.
4. Switch the «Controller ON/OFF» switch back on.
5. Close the left-hand door.
6. Check if the *Ready to start* indicator on the control panel of the SIGMA CONTROL SMART flashes.
7. Press the «START» key on the control panel of the SIGMA CONTROL SMART.
   Three more automatic start-up cycles will be performed.
   One of the three automatic start-up cycles successfully starts up the machine.

7.4.1.3 Actions required following a successful start-up

1. Run the machine load-free with the compressed air discharge valves open until it has warmed up.
2. Switch the machine to LOAD operation.

7.4.2 Starting assistance

The machine's electrical equipment is designed for starting at ambient temperatures as low as −10 °C.

If the machine's starter battery is discharged, it can be started with the battery of another vehicle or machine with combustion engine.

Material Jumper cables

Precondition The machine is disconnected from the towing vehicle and safely parked.

WARNING
Fire and explosion hazard.
Short-circuit currents caused by short-circuited battery. A damaged battery can catch fire or explode.
Battery casing may crack and allow acidic fluid to spray out.

- ➢ Observe the instructions provided with the battery jumper cables.
- ➢ Do not connect the battery jumper cables to the negative pole of the discharged battery or to the bodywork of the machine.
- ➢ Work with caution.

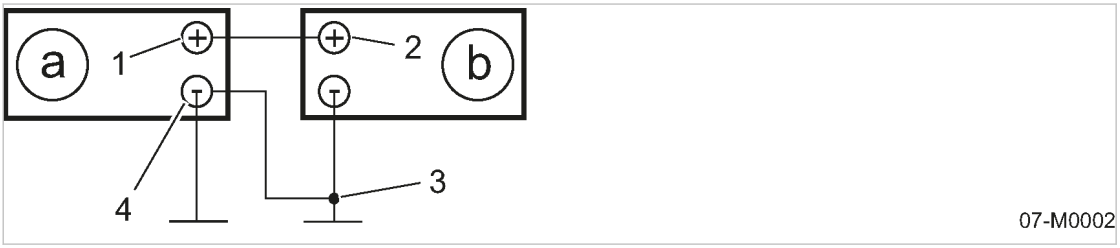


Fig. 32 Jumper cable connection diagram

- [a] Assisting vehicle battery (external donor battery)
- [b] Engine battery (receiving battery)
- [1] Positive (+) terminal starting assistance
- [2] Positive (+) terminal of the machine battery
- [3] Bare metal point on the engine block (earth)
- [4] Negative (-) terminal of assisting vehicle battery

Complying with safety instructions:

1. **WARNING!**
   Fault in starting aid process!
   - ➢ Connect batteries of the same voltage only.
   - ➢ Ensure that machine and assisting vehicle do not touch.
   - ➢ Switch off all consumers prior to connecting and disconnecting the batteries.
   - ➢ Only use battery jumper cables of sufficient diameter and with insulated terminal clamps.
   - ➢ Observe the instructions provided with the battery jumper cables.
   - ➢ Keep jumper cables away from rotating parts.
   - ➢ Avoid short-circuits due to incorrect poling and/or bridging with tools.
   - ➢ Do not bend over the battery when attaching jumper cables.
   - ➢ Do not attempt to start the machine if its battery is frozen. Allow the battery to thaw first!
   - ➢ Do not try to start the machine with a boost charger.
2. Comply with the safety instruction shown when using starting aids and starter batteries.

Preparations:

1. Park the assisting vehicle in close distance to the engine, without their bodywork touching each other.
2. Stop the drive engine of the assisting vehicle.
3. Open the accesses to the batteries (remove maintenance panels/bonnet and pole caps).
4. Switch off all power consumers.

Connecting the battery jumper cables:

1. Connect the positive terminals [2] and [1].



2. **DANGER!**
   Explosion hazard!
   A spark may ignite an explosive gas mixture.
   - ➢ Do not, under any circumstances, connect the negative pole of the assisting machine to the negative pole of the battery in the machine to be started.
     This can cause sparks when connecting and disconnecting.
   - ➢ Work with caution.
3. Connect the minus pole of the assisting battery [4] to a bare metal point on the machine's drive engine [3] to be started (as far away from the battery as possible).

Starting the drive engine:

1. Start the drive engine of the assisting vehicle and run at high speed.
2. Start drive engine of the machine.



Let the two drive engines run for approximately 10-15 minutes after the successful start. This is important, in particular for fully discharged batteries. They will pick up little current only in the beginning and have a high internal resistance. Any voltage peaks occurring in the engine generator in this state can be attenuated only by the battery of the assisting vehicle. The engine electronics of the machine, in particular, is sensitive to overvoltages and could be damaged easily.

Disconnecting the battery jumper cables:

1. Stop the drive engine of the assisting vehicle.
2. Disconnect the jumper cables in the reverse order, first negative (-) then positive (+).
3. Place the pole caps.
4. Close the maintenance panels and/or bonnet.



A stop of the machine's drive engine as soon as the cables are disconnected could indicate major damage (e.g. to the engine generator or battery) which must repaired by a specialised workshop.

7.4.3 Starting up low-temperature equipment

➢ Check which low temperature equipment is fitted to your machine.

7.4.3.1 Option bb
Pre-heat the drive engine coolant

In order to improve the cold-start behaviour your machine is equipped with an electric coolant pre-heating device. The corresponding power cable has been included with the machine.

See Fig. 33 for the position of the device connection on the machine.

Option bb

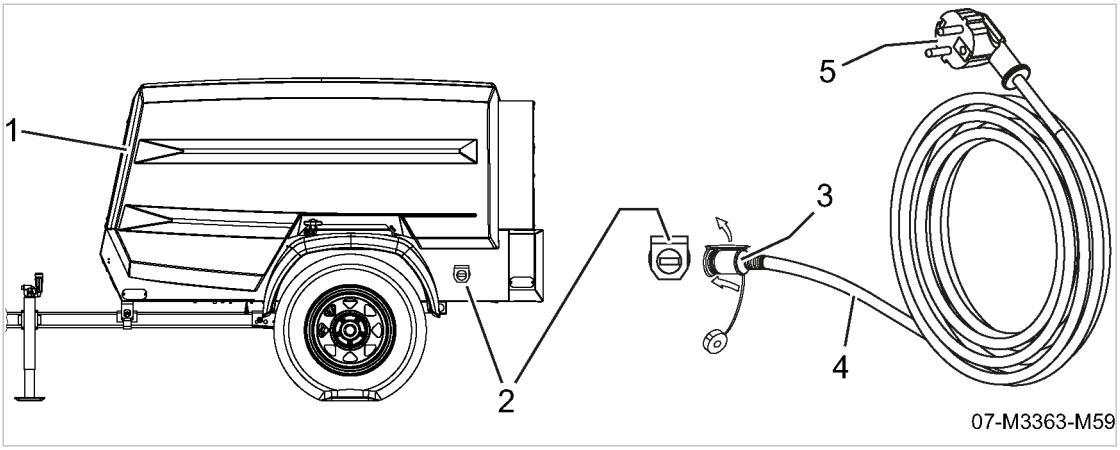


Fig. 33 Coolant pre-heating

[1] Machine
[2] Connection for the coolant pre-heating
[3] Unit plug
[4] Power cable
[5] Mains plug

1. **DANGER!**
   Danger of fatal injury from electric shock
   - ➢ Connect mains plug of power cable to user's power socket only.
   - ➢ Have the coolant pre-heating and associated power cable checked according to the maintenance schedule.
2. Open the wing door.
3. Remove the power cable from the machine’s interior.
4. Close the wing door.
5. Connect the unit plug to the connection of the machine.
6. Connect the mains plug to the user's power outlet.
   The heating element of the pre-heating device warms up the drive engine’s coolant.
7. Note the pre-heating time of approx. 3 hours.

7.5 Option ga
Operating the generator

The generator can be operated without earthing.
Test the insulation monitoring device with the engine running every day before putting the generator into operation.

Option ga

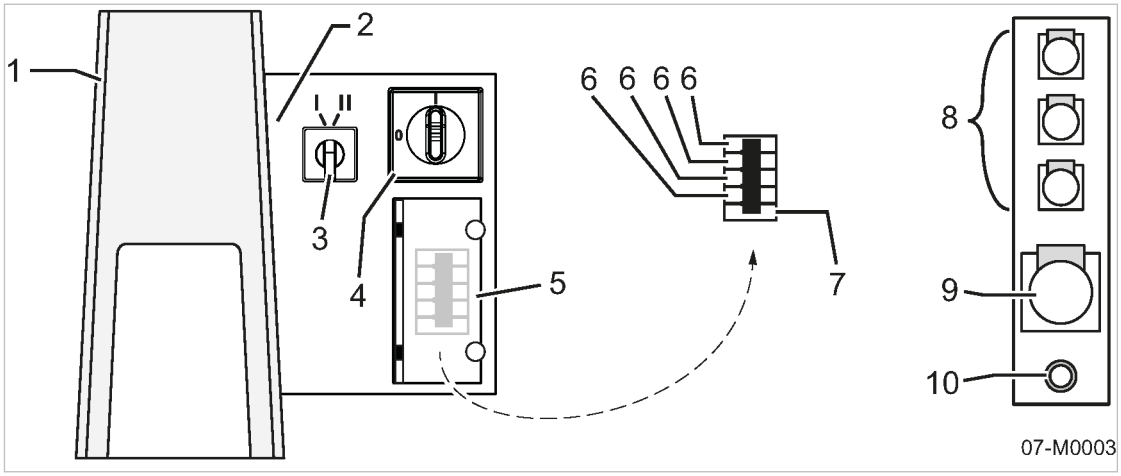


Fig. 34 Insulation monitoring – 400 V three-phase generator

[1] Lifting eye strut
[2] Generator control box
[3] «Operating mode selector switch»
[4] «Main switch»
[5] Circuit breaker protective cover
[6] Circuit breaker with shunt release
[7] Shunt release
[8] Plug socket 230V/N/PE, 16A
[9] Plug socket 400V/3/N/PE, 16A
[10] «Insulation monitoring» test key with integrated warning lamp

Option ga

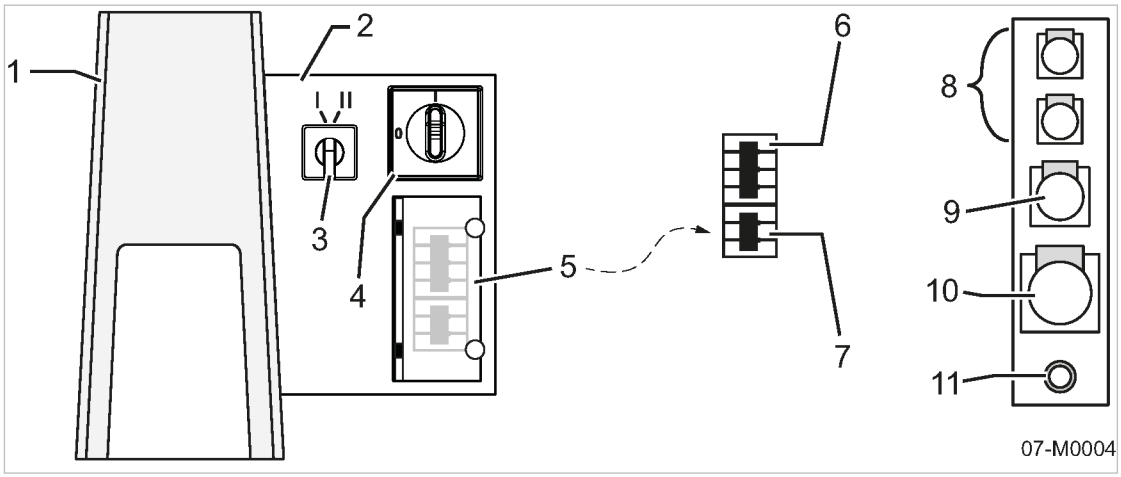


Fig. 35 Insulation monitoring – 230 V three-phase generator

[1] Lifting eye strut
[2] Generator control box
[3] «Operating mode selector switch»
[4] «Main switch»
[5] Circuit breaker protective cover
[6] «Main fuse»
(«Protection switch» in the form of circuit breaker with shunt release)
[7] Circuit breaker
[8] Plug socket 230/2/PE, 16A
[9] Plug socket 230/3/PE, 16A
[10] Plug socket 230/3/PE, 32A
[11] «Insulation monitoring» test key with integrated warning lamp

Option ga

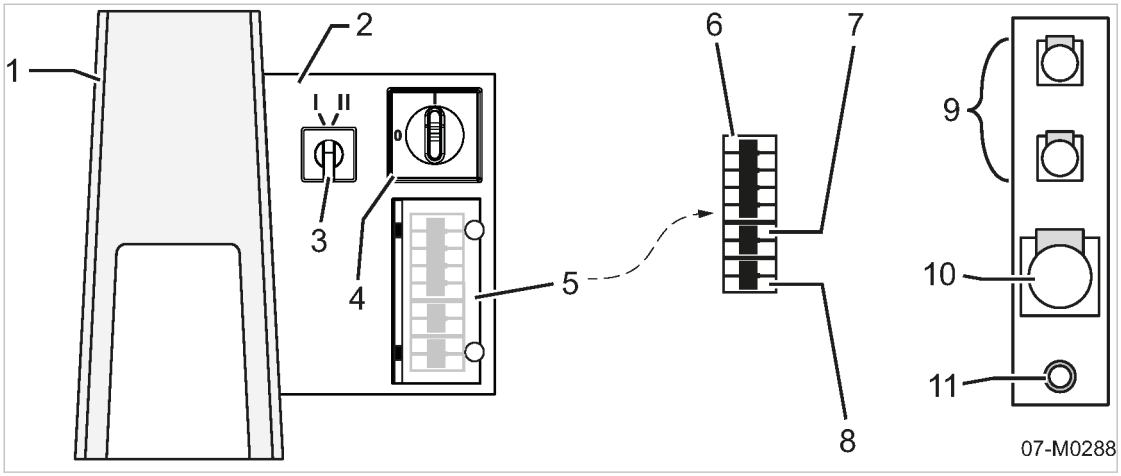


Fig. 36 Insulation monitoring - 115 V AC generator

[1] Lifting eye strut
[2] Generator control box
[3] «Operating mode selector switch»
[4] «Main switch»
[5] Circuit breaker protective cover
[6] «Main fuse»
(«Protection switch» in the form of circuit breaker with shunt release)
[7] Circuit breaker
[8] Circuit breaker
[9] Plug socket 115/2/PE, 16A
[10] Plug socket 115/2/PE, 32A
[11] «Insulation monitoring» test key with integrated warning lamp

1. Start the machine.

2. **DANGER!**
Risk of fatal injury from contact with live components!
➢ The generator may only be used if the «protection switch» («main fuse») has tripped during the test!

3. Check the insulation monitoring as per following instructions:

Checking instructions are also provided on the label attached to the generator control box.

DANGER!

Electric voltage.

Risk of fatal injury from contact with live components!

▸ Test the «main fuse» every day whilst the machine is running.

▸ The generator may only be operated if the main fuse is functioning correctly.

Checking the «main fuse»:

➢ Switch on the «main fuse» for the generator.

➢ Press and hold the «test key» for 3 seconds.

The «main fuse» trips out.

Problem: The «main fuse» does not trip out.

➢ Shut down the generator and contact your authorised KAESER SERVICE agent.

Tab. 81 Test instructions for generator with isolation monitoring

7.6 Option od
Operating the battery charger

As an electrical auxiliary device, the battery charger is delivered prewired and ready for operation. Power is supplied via a separate mains connection. A device plug socket is provided on the left-hand side of the machine for connecting the mains connector cable.

A supply voltage must be permanently connected for as long as the machine remains in standby mode. Trickle charging the battery ensures that it is always ready to start the machine.

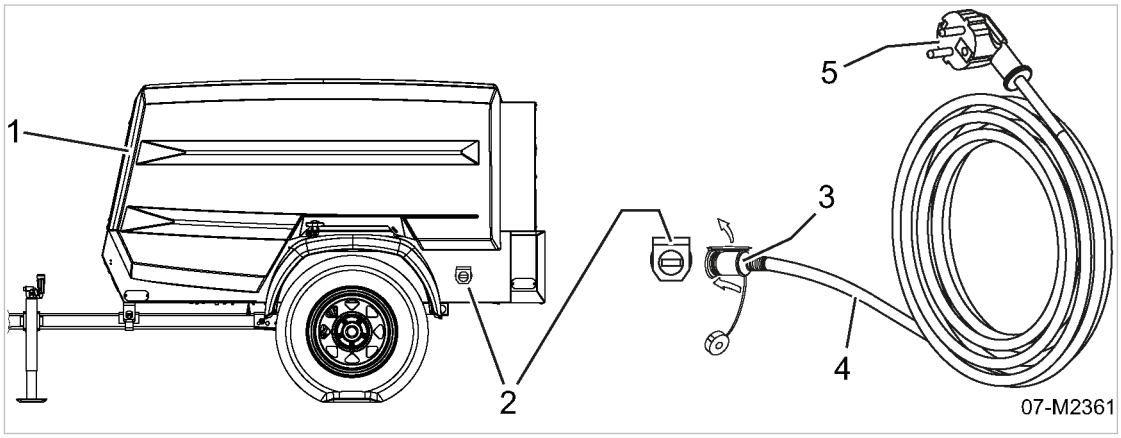


Fig. 37 Connecting the supply voltage

[1] Machine
[2] Battery charger device plug socket
[3] Device plug
[4] Mains connector cable
[5] Mains plug



1. **DANGER!**
   Danger of fatal injury from electric shock!
   Serious injury or death can result from a short-circuit in the electrical auxiliary equipment.
   - ➢ Only use a safety plug for connecting the mains connector cable.
   - ➢ Arrange to have the battery charger, including the connecting lines, checked as per the maintenance schedule.
2. Connect the mains connector cable (supplied) with the user-end mains power socket.

Further information For electrical auxiliary devices, see chapter 2.9.5.

8 Operation

8.1 Ensuring safety

Here you will find instructions for a safe operation of the machine.

Warning instructions are located before a potentially dangerous task.



Disregard of warning instructions can cause serious injuries!

Complying with safety notes

Disregard of safety notes can cause unforeseeable dangers!

- ➢ Follow the instructions in chapter 3 'Safety and Responsibility'.
- ➢ Make sure that no one is working on the machine.

Preventing accidental contact

Intensely heated, rotating or electrically live components can cause severe injuries.

- ➢ Ensure that all doors, canopy, and panels are closed,
- ➢ Do not carry out any checks or settings while the machine is running.
- ➢ Shut down the machine before opening any doors/canopy.

Safe working with compressed air tools and hoses

Open and pressurised compressed air hoses move erratically and can cause serious injury to people.

- ➢ Pressurise compressed air hoses only after the tool has been connected.
- ➢ Do not pressurise open compressed air hoses.
- ➢ Detach compressed air hoses only after the hose has been purged of compressed air.
- ➢ At working pressures >7 bar, compressed air hoses should be secured by a cable to their respective outlet valves.

Condensate formation in compressed air hoses

Use the shortest possible compressed air hoses to minimise the temperature difference between the machine's compressed air outlet and the air tool. The hose length represents a cooling section. With increasing cooling, the compressed air gives off moisture capable of damaging the air tool.

- ➢ Use short compressed air hoses.

Condensate formation in compressed air receivers

Compressed air stored in a containers will cool down. The compressed air precipitates moisture that collects at the container's bottom. Corrosion may damage the container.

- ➢ Regularly drain the condensate.

Further information

Details of authorised personnel are found in chapter 3.4.2.

Details of dangers and their avoidance are found in chapter 3.5.

8.2 Starting up and shutting down

Precondition No personnel are working on the machine.

➢ To start up and shut down the machine correctly, the following instructions must be carried out in the sequence given here.
- Starting instrument layout on control panel
- Keys and indicators on the SIGMA CONTROL SMART control unit
- «Controller ON/OFF» switch
- Quick reference guide
  - Start-up procedure
  - Shutdown procedure

Detailed instructions can be found in the following two chapters:
- Starting the machine.
- Shutting down the machine.

8.2.1 Control panel

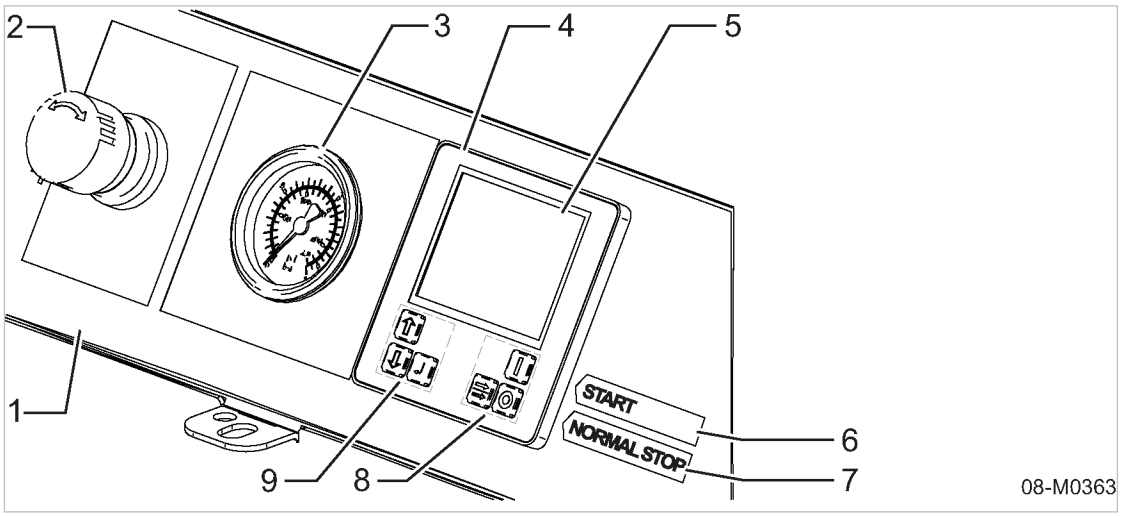


Fig. 38 Control panel with starting instruments

1 Control panel
2 «EMERGENCY STOP» key
3 Compressed air outlet pressure gauge
4 SIGMA CONTROL SMART control unit
5 Display
6 *START* label
7 *NORMAL OFF* label
8 Operating keys
9 «Menu navigation» keys

➢ Memorise the layout of the starting instruments on the control panel.

To ensure a gentle shutdown, always switch off the machine using the «OFF» key on the control panel of the SIGMA CONTROL SMART. This is indicated clearly by the *NORMAL OFF* label to the right of the SIGMA CONTROL SMART control unit.

Use the «EMERGENCY STOP» key for emergencies only.

8.2.2 SIGMA CONTROL SMART control unit

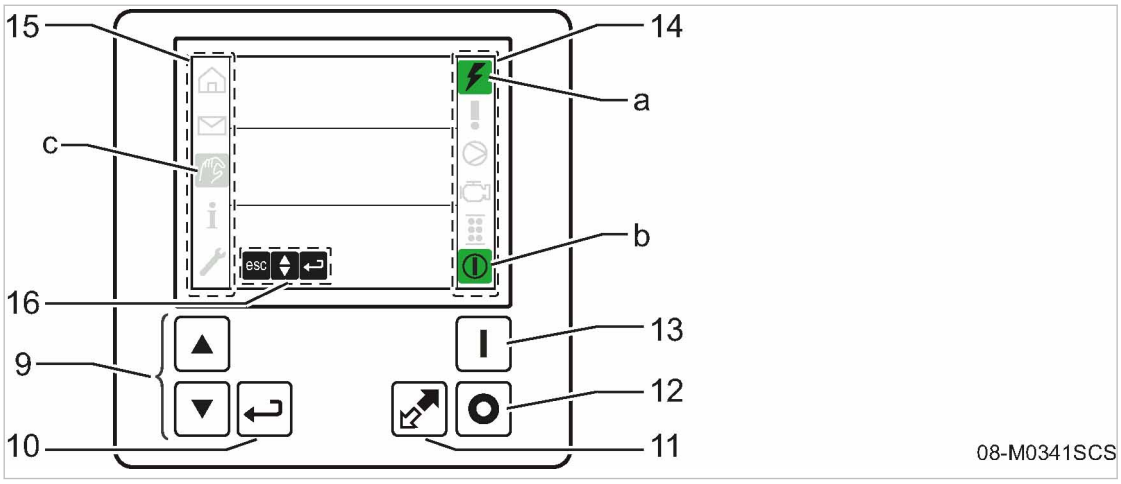


Fig. 39 Keys and indicators, SIGMA CONTROL SMART control unit

- [9] «Up» and «Down» keys
- [10] «Enter» key
- [11] «LOAD/IDLE» key
- [12] «OFF» key
- [13] «START» key
- [14] Status bar
- [a] *Control voltage ON*
- [b] *READY* (flashing)
- [15] Menu bar
- [c] *Settings menu*
- [16] Navigation menu

➢ Memorise the keys and indicators on the control unit.

8.2.3 Controller ON/OFF switch

The control voltage for the SIGMA CONTROL SMART control unit is switched on when the «Controller ON/OFF» switch is set to *ON*. The «Controller ON/OFF» switch is located inside the machine.

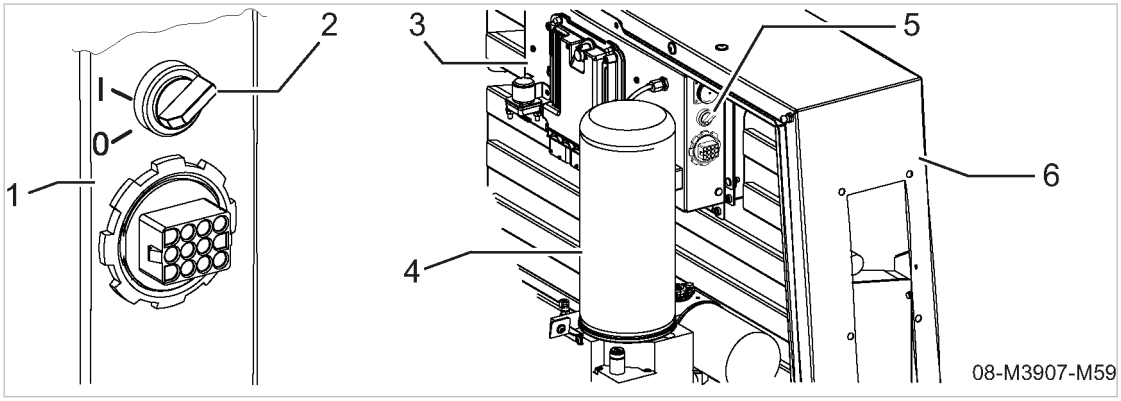


Fig. 40 Location, «Controller ON/OFF» switch

- [1] Control box detail
- [2] «Controller ON/OFF» switch
- [3] Control box
- [4] Oil separator cartridge
- [5] Location, «Controller ON/OFF» switch
- [6] Left-hand side of machine

1. Open the left-hand door.
2. Memorise the location of the «Controller ON/OFF» switch.

8.2.4 Observing the quick reference guide

A quick reference guide, displayed as symbols for the start-up and shutdown procedures, can be found on a label on the control panel cover.

➢ Memorise the symbols for the start-up and shutdown procedures.

Start-up symbols:

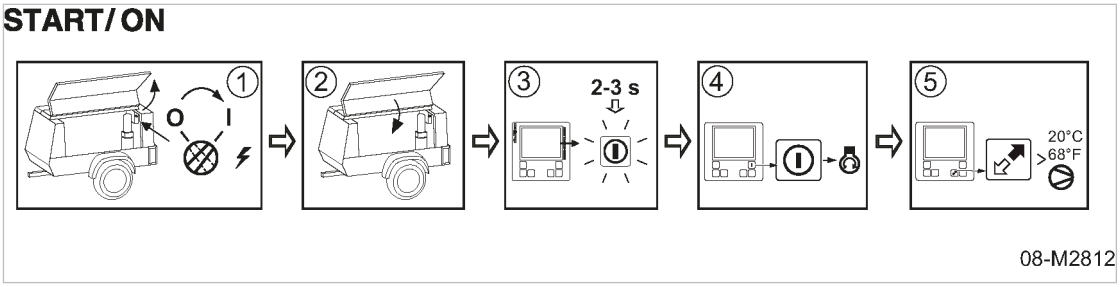


Fig. 41 Quick reference guide for start-up procedure

1. Open the control panel cover.
2. Follow the process step symbols on the quick reference guide to start up the machine.

Shutdown symbols:

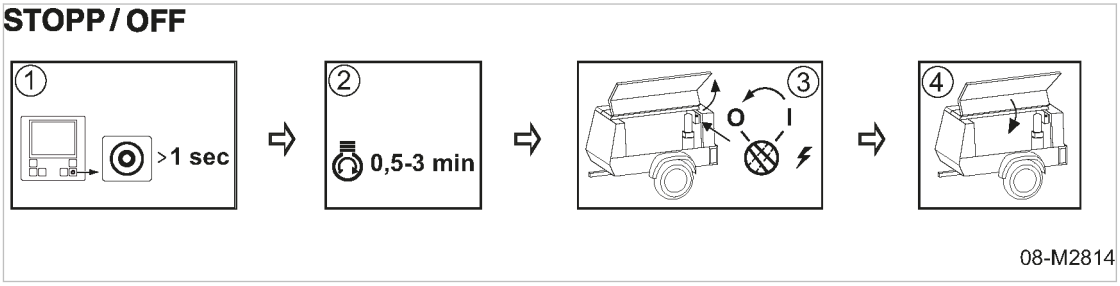


Fig. 42 Quick reference guide for shutdown procedure

1. Open the control panel cover.
2. Follow the process step symbols on the quick reference guide to shut down the machine.

8.2.5 Operating the machine in winter conditions

Please note the following when operating in winter conditions:

- It is possible for the «EMERGENCY STOP» key to become iced over.
- It is possible for the machine to exceed its permissible total mass when snowed or iced over.

WARNING
«EMERGENCY STOP» safety device key jammed!
The machine's emergency shutdown function will not work.

➢ Check that the «EMERGENCY STOP» key functions correctly.

➢ Do not operate the machine if the «EMERGENCY STOP» key does not function.

NOTICE
Permissible total mass of the machine exceeded!
➢ Remove snow and/or ice from the machine.

Checking the EMERGENCY STOP key

1. Activate the «EMERGENCY STOP» key.
   The «EMERGENCY STOP» key cannot be activated or does not engage.
2. Defrost the «EMERGENCY STOP» key.
3. Try the «EMERGENCY STOP» key again.

In the event that the «EMERGENCY STOP» key still does not function after multiple attempts.
➢ Arrange for an authorised KAESER SERVICE agent to replace the «EMERGENCY STOP» key.

Observing the permissible total mass of the machine

➢ Remove snow and/or ice from the machine.

8.2.6 Starting the machine

NOTICE
Serious damage to the engine from cold start sprays!
Cold start sprays, such as ether or engine start sprays, can cause severe damage to the engine.
➢ Do not use cold start sprays.

Preparing to start:

1. Open the control panel cover of the SIGMA CONTROL SMART.
2. Open the left-hand door.
3. Switch on the «Controller ON/OFF» switch.
4. Close the left-hand door.

Result The controller switches on,
The controller boots up and the operating indicators appear on the display.
If no faults are displayed on the SIGMA CONTROL SMART, the *Ready to start* indicator flashes.

Starting the engine:

Each cylinder of the diesel engine has a glow plug installed. The glow plugs aid start-up by preheating the air for the combustion process. The ideal pre-glow time depends on the prevailing ambient temperature.

➢ Press the «START» key.

The glow plugs heat up the air for the combustion process.

Following the requisite pre-glow time, the engine starts and runs at IDLE speed during the warm-up phase.

- LOAD operation is then possible when the *airend discharge temperature (ADT)* setpoint is reached.
  (For temperature settings, see chapter 2.7.4).
- If the starting sequence fails or is interrupted via the «EMERGENCY STOP» key, the “re-start inhibitor” is activated for 20 seconds. The display indicates the remaining time before another start can be attempted.

Despite preheating by the glow plugs, the engine does not start at cold ambient temperatures.

The engine is too cold.

➢ For activating the automated low-temperature start-up process, see chapter 7.4.1.2.

Switching the machine to LOAD operation:

The SIGMA CONTROL SMART monitors the setpoint value for the *airend discharge temperature (ADT)*. As soon as the *airend discharge temperature* setpoint is reached, the machine switches out of the warm-up phase and into LOAD operation.

Irrespective of this, the «LOAD/IDLE» key can be activated before the *airend discharge temperature* setpoint has been reached; see Table 82.

➢ Activate the «LOAD/IDLE» key to switch the machine to LOAD operation.

The setpoint value for the ADT* has been reached.	The setpoint value for the ADT* has not been reached.
➢ Activate the «LOAD/IDLE» key.	➢ Activate the «LOAD/IDLE» key.
The machine switches immediately to LOAD operation.	■ The LOAD demand is saved. ■ The machine continues to run in the warm-up phase. ■ As soon as the *airend discharge temperature (ADT)* setpoint is reached, the machine automatically switches to LOAD operation.
The machine is ready for operation.	The machine is ready for operation.

* ≙ airend discharge temperature

Tab. 82 Switching the machine to LOAD operation

8.2.7 Setting the compressed air discharge pressure

The compressed air discharge pressure can be modified only when this option is activated in the machine controller.
(See also the separate user manual for SIGMA CONTROL SMART.)

The compressed air discharge pressure (nominal pressure) can be set when the engine is in standstill (with the controller activated) or during operation (with the machine running).

- The pressure can only be set at lower than the nominal working pressure of the machine.

- You can adjust the settings in increments of 0,1 bar or 1 psi.
- The adjustment is displayed.

CAUTION
Danger from incorrectly set pressure!
Danger from malfunctioning or not functioning compressed air tools when the machine's discharge pressure is set incorrectly.

➢ Use connected compressed air tools only with the pressure appropriate for its purpose (tool working pressure).

➢ Comply with the information and notes provided in the compressed air tool's operating instruction.

The Settings menu for the compressed air discharge pressure can be reached in two ways:

- Quick access from the main menu
- Access via menu structure

Precondition Controller switched on
The pressure adjustment option is enabled.

➢ Select the access type.

Quick access from the main menu:

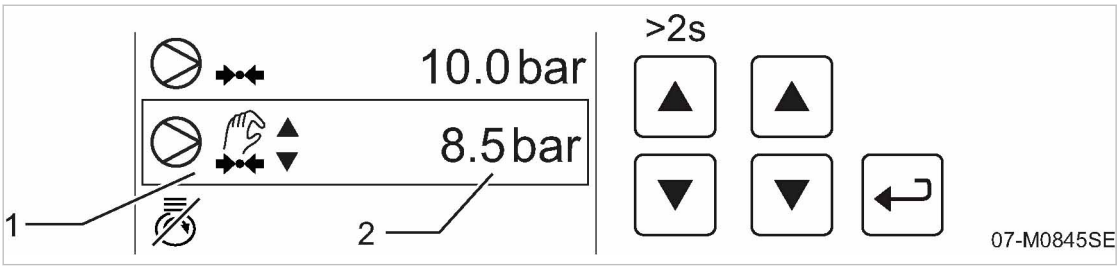


Fig. 43 Quick access adjustment compressed air output pressure
[1] Symbolic setting the compressed air discharge pressure
[2] Setting value

1. Press «UP» or «DOWN» for more than two seconds and release.
   The display immediately jumps to the line for "Setting the compressed air discharge pressure".
   The Settings menu has a flashing frame.
2. Press the «UP» and/or «DOWN» keys to select the required pressure.
   The set value for the compressed air discharge pressure is immediately active and remains saved.
3. Press «Enter».
   The frame disappears.
4. Press «Enter».
   Jump back to the menu bar, the "Main menu" symbol receives a black background.

Access via menu structure

Precondition The Settings menu (hand symbol) is selected.

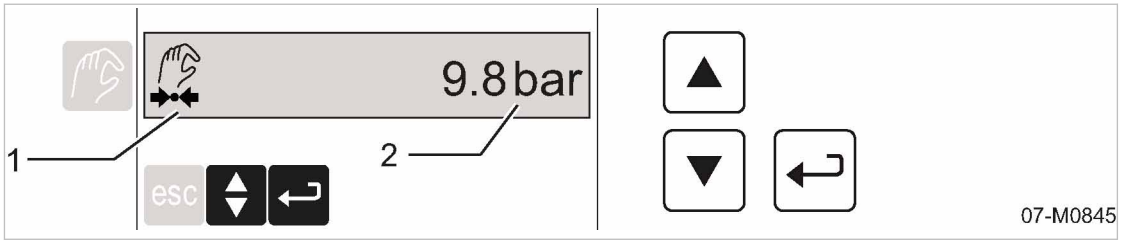


Fig. 44 Setting the compressed air discharge pressure

[1] Adjustment compressed air output pressure
[2] Setting value

1. Press «down» for a short time.
   The "Setting compressed air discharge pressure" line is framed.
2. Press «Enter».
   The frame flashes and thus signals that input is possible.
   You can set the required compressed air discharge pressure.
3. Press the «UP» and/or «DOWN» keys to select the required pressure.
   The set value for the compressed air discharge pressure is immediately active and remains saved.
4. Press «Enter».
   The frame stops flashing.
5. Press «Enter» for at least two seconds.
   Jump back to the menu bar, the "Settings menu" symbol receives a black background.

or:

1. Press «UP» or «DOWN» until all lines of the Settings menu no longer have a frame.
2. Press «Enter» for just a moment.
   Jump back to the menu bar, the "Settings menu" symbol receives a black background.

The modification of the pressure setting at the display can be blocked upon the entry of the Customer password (password level 1). The last setting of the compressed air discharge pressure is retained.

8.2.8 Shutting down the machine

NOTICE
Thermal overload of the turbocharger can occur if the engine is shut down at high load! Failure of or damage to the turbocharger is possible.

- ➢ To ensure a gentle shutdown, always switch off the engine using the «OFF» key on the control panel of the SIGMA CONTROL SMART.
- ➢ Only use the «EMERGENCY STOP» key in a genuine emergency.

Switching the machine to the run-on phase:

➢ Switch the machine to the run-on phase.
- ➢ Press the «LOAD/IDLE» key.
- The machine switches to *unloaded run-on*.
  - The engine runs at IDLE speed.
  - Oil separator tank is vented.
  - The inlet valve closes.
- ⌛ 0.5 - 3 minutes (engine can be switched off).
- ➢ Press and hold down the «OFF» key for longer than 1 second.
- The engine switches off.

Shutting down the engine:

➢ Turn the engine off after the cooling-down phase.
- ➢ Press and hold down the «OFF» key for longer than 1 second.
- The machine switches to *unloaded run-on*.
  - The engine runs at IDLE speed
  - Oil separator tank is vented.
  - The inlet valve closes.
  - The engine switches off, controlled by a timer.

- If the pressure in the oil separator tank is still > 1 bar, the controller will activate the *back pressure* indicator.
- When the machine is fully vented, the display changes to *Ready to start*.
- When all pressure has been vented from the oil separator tank following shutdown, the *Restart inhibitor* is activated, as indicated by the timer counting backwards on the display (from 20 seconds).

Switching off the control voltage:

1. *NOTICE!*
   Memory fault!
   Damage to the machine electronics and/or controller is possible.
   ➢ Only shut down the control voltage for the SIGMA CONTROL SMART after the engine control unit has completed the saving procedure.
2. Switch off the «Controller ON/OFF» switch.

Shutting down the machine:

1. Close all «compressed air discharge valves» on the compressed air outlet.
2. Close the control panel cover.
3. Close both doors.

8.2.9 Shutting down in an emergency

In the event of danger, shut the machine down immediately by activating the «EMERGENCY STOP» key.

Only use the «EMERGENCY STOP» key for shutting down the machine in **emergencies**.

Shutting down the machine quickly:

➢ Activate the «EMERGENCY STOP» key.
The engine shuts down immediately,
The «EMERGENCY STOP» key is locked.
The compressed air system is vented,
The machine is secured against restarting.

Resolving a fault on the machine:

Precondition Operational safety of the machine and its immediate environment is ensured.

1. Determine the cause of the fault.
2. Rectify the fault appropriately.

Restarting the machine:

Once the fault has been resolved, the machine must be unlocked.

Precondition The fault has been rectified.

1. Turn the «EMERGENCY STOP» key in the direction of the arrow until it unlocks automatically.
2. Confirm the alarm message using the «Enter» key.
3. Restart the SIGMA CONTROL SMART to acknowledge the alarm message.

Result The machine is ready to start.

8.3 Confirming alarm and warning messages

- Information evaluated by the controller is stored in the event memory.
- Warning and alarm messages are indicated on the display.
- The message is stored in the controller's event memory at the same time.

8.3.1 Confirming alarm messages

When an alarm message is displayed:

- The machine is shut down and/or cannot be restarted.
- The assigned signal indicator illuminates red.

Precondition Fault rectified.

➢ Confirm the message using the «Enter» key.
The alarm indicator is extinguished.
The alarm symbol on the status bar remains active.

If the fault is not yet rectified:
The message line in the event memory has a coloured (red) frame.

Acknowledging the message:

The event memory status bar continues to display the confirmed message.

Once the fault has been successfully remedied, the message still needs to be acknowledged by restarting the SIGMA CONTROL SMART.

➢ Restart the SIGMA CONTROL SMART to acknowledge the alarm message.

The message is acknowledged.

The machine can be started.

8.3.2 Confirming warning messages

Before an alarm, a warning message is displayed:

- The assigned signal indicator illuminates orange.

Precondition The cause of the warning is rectified

➢ Confirm the message using the «Enter» key.

The warning message is extinguished.

The warning symbol on the status bar remains active.

If the fault is not yet rectified:
The message line in the event memory has a coloured (orange) frame.

Acknowledging the message:

The event memory status bar continues to display the confirmed message.

Once the fault has been successfully remedied, the message still needs to be acknowledged by restarting the SIGMA CONTROL SMART.

➢ Restart the SIGMA CONTROL SMART to acknowledge the warning message.

The message is acknowledged.

The machine can be started.

Further information For more information regarding the event memory, see the separate operating manual for the SIGMA CONTROL SMART.

8.4 Cleaning the machine after operation

For the machine to be in proper technical condition, it must also be clean. In particular, the interior of the machine should not be heavily contaminated with oil.

When cleaning the interior of the machine using a high-pressure washer, appropriate measures must be taken for effective protection of the electrical components from jet water.

➢ The machine must be cleaned by authorised and trained personnel only!

Cleaning by means of dry-ice blasting is strictly prohibited! This can result in unforeseen damage.

Material
Eye protection
Cleaning cloth
Cleaning agents
High-pressure washer

Precondition
The machine is standing in a cleaning area equipped with an oil separator,
The machine is standing on level ground and has cooled down.
The machine is fully vented,
the pressure gauge reads 0 bar!
The Controller ON/OFF switch is switched off,
the negative cable of the battery has been disconnected.



WARNING
Stirred up dirt particles and hazardous materials!
Injury to the eyes.
➢ Wear safety glasses.



NOTICE
Jet water can damage the machine!
Jet water can damage or destroy electrical components and sensitive display instruments.
➢ Do **not** direct jet water at electrical components.
➢ Observe the separate manufacturer instructions regarding external and internal cleaning of the machine.
➢ Deploy the extension pole of the high-pressure washer in order to maintain the necessary distance from the object being cleaned.
➢ Keep the extension pole of the high-pressure washer in constant motion.

➢ Clean the machine carefully!

8.4.1 Cleaning the exterior of the machine

Overview:
- Open the closed floor pan (option)
- Check the protective covers are over all plug sockets on the exterior of the machine (options)
- Close the control panel cover
- Clean the exterior
- Clean the electrical components (options)
- Clean sensitive display instruments

Option oe **Opening the closed floor pan:**



In order to prevent liquid from accumulating inside the machine, the closed floor pan must be opened.

1. Remove all bung plugs.
2. Clean all bung plugs.

Option ga **Checking the protective covers are over all plug sockets on the exterior of the machine:**

To prevent water ingress, all plug sockets are equipped with self-closing protective covers.

Option symbol	Designation	Position
tc, te	Lighting plug socket	Front side of machine
bb	Coolant preheating plug socket	see chapter 7.4.3.
od	Battery trickle charging plug socket	see chapter 7.6.
ga	Electrical consumer plug socket	see chapter 13.3.

Tab. 83 Plug sockets on the exterior of the machine

➢ Check that protective covers on the optional plug sockets are all closed correctly.

Closing the control panel cover:

➢ Close the control panel cover of the SIGMA CONTROL SMART.
Sensitive display instruments are protected against direct jets of water or steam.

Cleaning the exterior of the machine:

In order to prevent damage when cleaning with a high-pressure washer, the following minimum distances from the object being cleaned must be maintained:
- Round jet nozzles: approximately 70 cm
- Fan jet nozzles: approximately 30 cm
- Dirt blasters: approximately 30 cm

1. Do **not** use jet water to clean plug sockets.
2. Do **not** use jet water to clean the «isolation monitoring» test key.
3. Deploy the extension pole of the high-pressure washer in order to maintain the necessary distance from the object being cleaned.
4. Keep the extension pole of the high-pressure washer in constant motion.

➢ Clean the exterior of the machine with the high-pressure washer.

Result External cleaning by high-pressure washer is complete.

Cleaning the electrical components

1. Clean all plug sockets manually using a cleaning cloth.
2. Clean the «isolation monitoring» key manually using a cleaning cloth.

Clean the display instruments:

1. Open the control panel cover of the SIGMA CONTROL SMART.
2. Clean sensitive display instruments manually using a cleaning cloth.

8.4.2 Cleaning the interior of the machine

Overview:
- Cover the intake openings on both air filters
- Cover sensitive components

- Adjust the high-pressure washer
- Clean the interior of the machine
- Remove all covers
- Seal the floor pan (option)

Covering the intake openings on both air filters:

1. Cover the intake opening on the engine air filter.
2. Cover the intake opening on the compressor air filter.

Covering sensitive components:

1. Check that the control panel cover of the SIGMA CONTROL SMART is closed.
2. If necessary, close the control panel cover.
3. Cover the generator control box (option) with a plastic sheet and close with adhesive tape.

Result Sensitive display instruments and the generator control box are protected against splash water.

Setting the high-pressure washer:

➢ For setting the high-pressure washer, see chapter 84.

High-pressure washer	Value
Interior diameter of the jet nozzle [mm]	6.3
Flow rate [l/min]	12.5

Tab. 84 High-pressure washer setting

Cleaning the interior of the machine:

Precondition Set the high-pressure washer as per the values given in Table 84.



1. *NOTICE!*
   Jet water can damage the machine!
   Jet water can damage or destroy electrical components and sensitive display instruments.
   ➢ Do **not** direct jet water at electrical components.
2. Do **not** direct jet water at the starter, control box or sensitive display instruments.
3. Do **not** direct jet water at solenoid valves or electrical plug-in connections.
4. Do **not** direct jet water at the starter battery/batteries.
5. Do **not** direct jet water at the generator (option) or its connector box.
6. Do **not** direct jet water at the covered generator control box (option).
7. Clean non-sensitive components/surfaces inside the machine.



Whilst cleaning, keep the extension pole of the high-pressure washer in constant motion.



Accumulated water in the closed floor pan.

➢ Remove the bung plugs.

➢ Allow the water to drain out.

For information on draining liquids from inside the machine, see chapter 10.12.8.

Removing all covers:

1. Remove the cover from the engine air filter intake opening.
2. Remove the cover from the compressor air filter intake opening.
3. Remove the cover from the generator control box (option).

Result The plastic sheeting and adhesive tape is removed from the interior of the machine.

Cleaning sensitive components:

In the event of heavy contamination of the generator (option) or generator control box, a gentle degreasing cleaning agent may be used. The cleaning agent must not alter the surfaces of the objects being cleaned.

➢ Clean the following components manually using a cleaning cloth:
- Generator
- Generator connector box
- Generator control box
- Solenoid valves
- Electrical plug-in connections

Option oe **Sealing the floor pan:**

Precondition Any liquid inside the machine has completely drained away.

1. If required, remove any remaining contaminants with a cleaning cloth.
2. Reinsert all bung plugs.

Dispose of dirty covers, adhesive and cleaning cloths in accordance with applicable environmental protection regulations.

8.5 Operating the options

➢ Comply with all instructions.

8.5.1 Option ea Operating the tool lubricator

Precondition The machine is switched off.

Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.

The supply vessel is filled with lubricant.

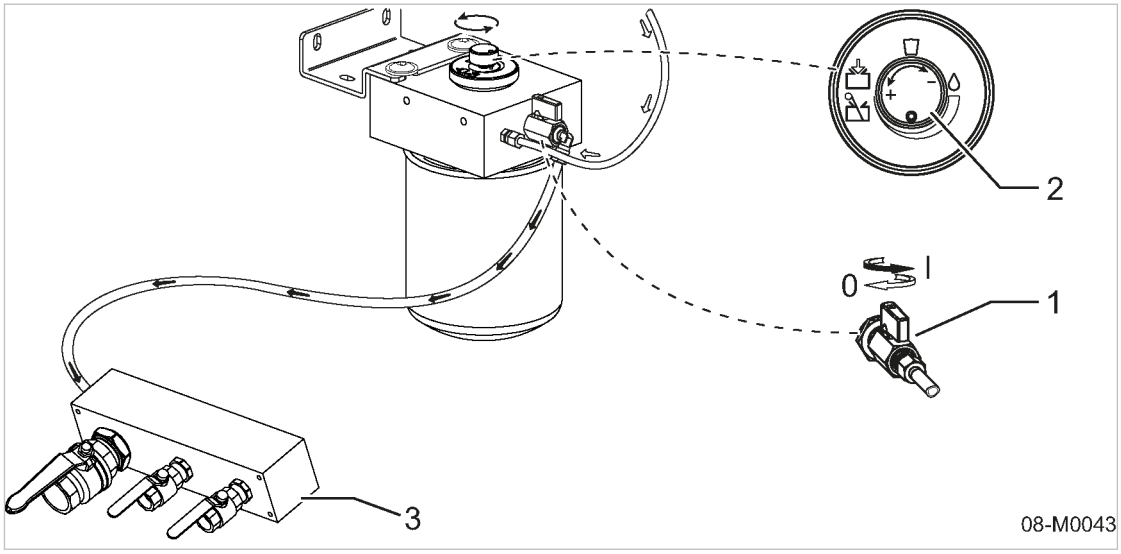


Fig. 45 Adjusting the tool lubricator

[1] Shut-off valve
I – open
0 – closed
[2] Metering wheel
[3] Air distributor

➢ Open the right-hand door.

Switching on the lubricant:

1. Open the shut-off valve.
2. Close the door.

Setting the compressed air lubricant content:

The required lubricant content of the compressed air depends on the application and must be determined by the operator. It depends on the air tools used and the supply hoses connected.

The lubricant content of the compressed air can be controlled by adjusting the metering wheel:

- Turning clockwise: Reduces the lubricant content.
- Turning anticlockwise: Increases the lubricant content.

1. Set the required lubricant content using the metering wheel.
2. Close the door.

Further information For filling the supply vessel with lubricant, see chapter 10.12.1.

Shutting off the lubricant:

1. Close the shut-off valve.
2. Close the door.

8.5.2 Option ba
Using the low-temperature equipment

Overview:

- Pre-heat the drive engine coolant

➢ Comply with all instructions!

8.5.2.1 Option bb
Using the coolant pre-heating

1. Start the coolant pre-heating as described in chapter 7.4.3.
2. Pre-heat the drive engine coolant for approx. 3 hours.
   Thermal balance achieved.
3. Disconnect the mains plug from the user's power outlet.
4. Disconnect the unit plug from the connection of the machine.
5. Open the wing door.
6. Stow the power cable inside the machine.
7. Close the wing door.

➢ Gently start the machine with the pre-heated coolant of the drive engine.



Diesel engines run more efficiently if the diesel engine has been pre-heated. The use of coolant pre-heating therefore reduces pollutant emissions and the fuel consumption due to the shortened warm-up phase.

In addition, wear of the drive engine is reduced, thus increasing its service life.

8.5.3 Option ua
Using the hose reel

To increase the area of application for flexibly operated air tools, a compressed air extension hose is fitted to the front side of the machine. The compressed air extension hose can be deployed easily and conveniently via a hose reel. A crank handle is used to reel out the compressed air extension hose to the required length.



WARNING
Danger from open, pressurised compressed air hoses!
Uncontrolled whipping around of the hose ends.

- ➢ Do not pressurise open compressed air hoses.
- ➢ Pressurise compressed air hoses only after the air tool has been connected.
- ➢ At working pressures >7 bar, compressed air hoses should be secured to their respective discharge valves via a safety cable.
- ➢ Detach air tools only after the compressed air extension hose has been vented.

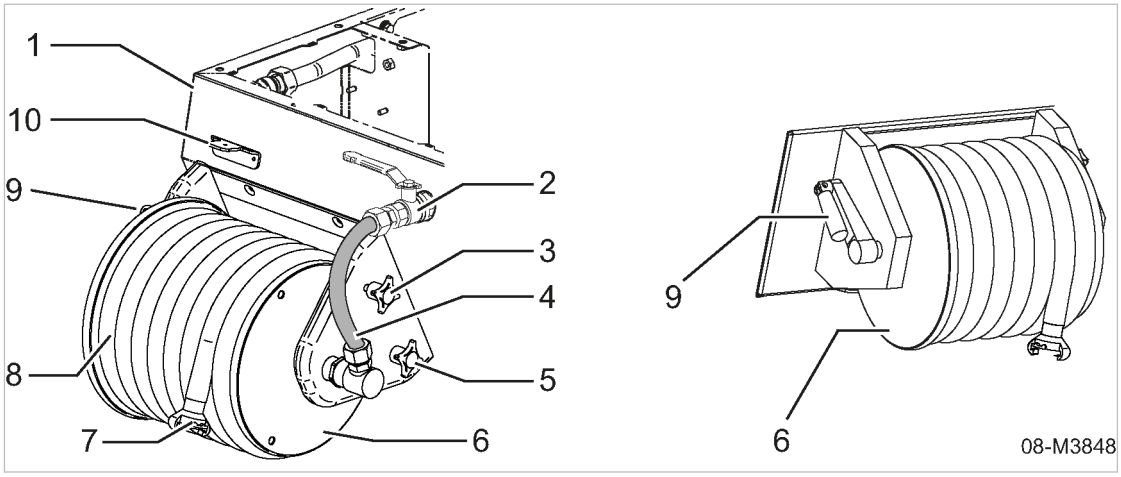


Fig. 46 Hose reel

1	Front side of machine	6	Hose drum
2	Compressed air discharge valve	7	Claw coupling
3	Transport locking screw	8	Compressed air extension hose
4	Compressed air hose	9	Crank handle
5	Clamping screw	10	Bracket

Operating the machine with a compressed air extension hose

Precondition The compressed air discharge valve for the compressed air extension hose is closed.

1. Remove the compressed air extension hose claw coupling from the bracket.
2. Loosen the transport locking screw.
3. Loosen the clamping screws.
4. Swing out the crank handle.
5. Reel out the compressed air extension hose to the required length.
6. Tighten the clamping screws.
7. Swing the crank handle back in.
8. Check that the air tool is switched off.
9. Attach the air tool.
10. Start the machine.
11. Hold the air tool by its handle.
12. Open compressed air discharge valve 2 for the compressed air extension hose.
13. Switch on the air tool.

Preparing the machine for operation without a compressed air extension hose

Precondition The machine is switched off.
The machine is fully vented, the pressure gauge reads 0 bar.

1. Close compressed air discharge valve 2 for the compressed air extension hose.
2. Detach the air tool.
3. Loosen the clamping screws.
4. Swing out the crank handle.
5. Reel in the compressed air extension hose evenly and tightly.

6. Tighten the clamping screws.
7. Swing the crank handle back in.

Securing the hose drum for transportation of the machine

1. Check that the compressed air extension hose is reeled in evenly and tightly.
2. If necessary, reel the compressed air extension hose in again.
3. Plug the claw coupling onto the bracket.
4. Tighten the clamping screws.
5. Tighten the transport locking screw as far as it will go.

8.5.4 Option da/df, da/dd/df Bypassing/switching on the heat exchanger

A heat exchanger serves to reheat the treated compressed air. This heating system features a bypass function via a directional control valve. An intermediate position between the two positions "I" - open (red marking) and "0" - closed (blue marking) can also be selected. This allows the compressed air temperature to be roughly preset.

The bypass permits infinitely variable setting of the compressed air discharge temperature, from 7 °C above ambient to approximately 85 °C.

The lever for the directional control valve is located on the exterior of the machine, on the right-hand side. This enables the required compressed air quality to be adjusted easily and conveniently during operation of the machine.

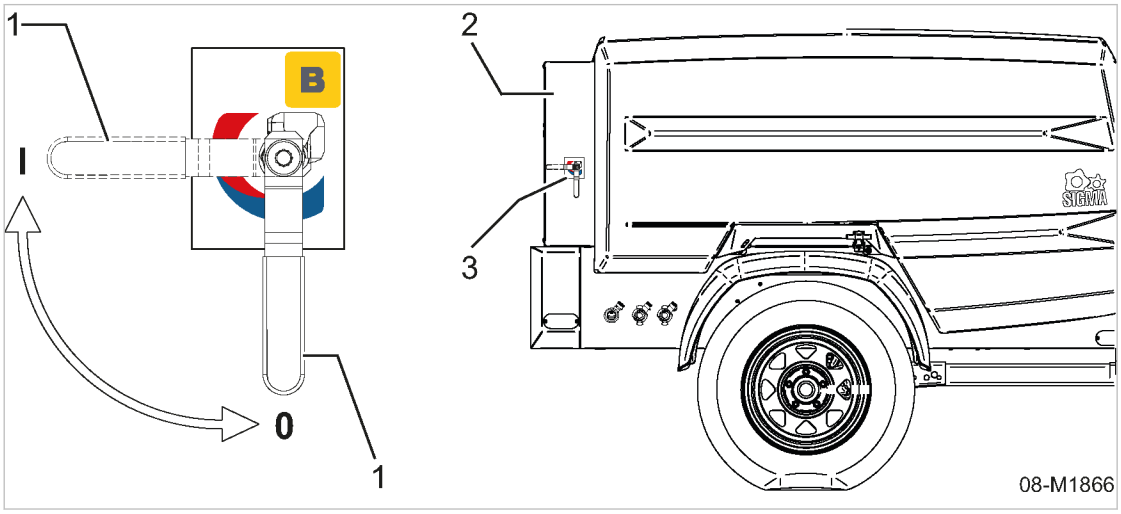


Fig. 47 Bypassing/switching on the heat exchanger

[1] Directional control valve lever
[2] Machine, right-hand side
[3] Location of lever on the machine

➢ Follow all instructions carefully.

8.5.4.1 Option da/df
Selecting compressed air quality B or A

The following options can be selected for compressed air treatment:

- Condensate-free and reheated compressed air
  → Compressed air quality B
- Condensate-free compressed air only
  → Compressed air quality A

Heat exchanger directional control valve	Compressed air quality at compressed air outlet	Compressed air quality symbols
I	Condensate-free and warm compressed air	B
0	Condensate-free compressed air	A
I – directional control valve open; 0 - directional control valve closed		

Tab. 85 Directional control valve position and selected compressed air quality

Switching on the heat exchanger:

➢ Open the directional control valve on the heat exchanger (position I) → red marking.

Result The oil/compressed air heat exchanger is incorporated into the compressor oil circuit. Compressed air fed through the heat exchanger is reheated by the hot cooling oil from the compressor. “Condensate-free and warm compressed air” is available from the compressed air distributor.

Switching off the heat exchanger:

➢ Close the directional control valve on the heat exchanger (position 0) → blue marking.

Result The oil/compressed air heat exchanger is circumvented by the bypass line and therefore is not incorporated into the compressor oil circuit. Compressed air fed through the heat exchanger is not reheated. Consequently, only “condensate-free compressed air” is available from the compressed air distributor.

8.5.4.2 Option da/dd/df
Selecting compressed air quality G or F

The following options can be selected for compressed air treatment:

- Moisture-reduced, oil-free and reheated compressed air
  → Compressed air quality G
- Moisture-reduced, oil-free compressed air
  → Compressed air quality F

Heat exchanger directional control valve	Compressed air quality at compressed air outlet	Compressed air quality symbols
I	Moisture-reduced, technically oil-free and warm compressed air	G
I – directional control valve open; 0 - directional control valve closed		

Heat exchanger directional control valve	Compressed air quality at compressed air outlet	Compressed air quality symbols
0	Moisture-reduced, technically oil-free compressed air	F
I – directional control valve open; 0 - directional control valve closed		

Tab. 86 Directional control valve position and selected compressed air quality

Switching on the heat exchanger:

➢ Open the directional control valve on the heat exchanger (position I) → red marking.

Result The oil/compressed air heat exchanger is incorporated into the compressor oil circuit. Compressed air fed through the heat exchanger is reheated by the hot cooling oil from the compressor. “Technically oil-free, dry and warm compressed air” is available from the compressed air distributor.

Switching off the heat exchanger:

➢ Close the directional control valve on the heat exchanger (position 0) → blue marking.

Result The oil/compressed air heat exchanger is circumvented by the bypass line and therefore is not incorporated into the compressor oil circuit. Compressed air fed through the heat exchanger is not reheated. Consequently, only “technically oil-free and dry compressed air” is available from the compressed air distributor.

8.5.5 Option ga Generator operation



DANGER
Risk of fatal injury caused by contact with live components!

➢ Check correct function of the insulation monitoring device daily (see chapter 7.5).

➢ Have the generator and control box checked annually by a qualified electrician (see chapter 3.8.5).

8.5.5.1 Switching in the generator

Precondition LOAD operation.
Read and follow the instructions on generator operation in chapter 4.9.5.3.

1. Turn the «generator main switch »to the "I" position.
2. Set the «automatic circuit-breaker(s)» to the "I" position.
3. Turn the mode selector switch to the required mode of operation.

Further information See chapter 4.9.5.2 for generator controls.
See chapter 4.9.5.1 for generator operating modes.

8.5.5.2 Switching off the generator

Precondition Read and follow the instructions on switching off the generator in chapter 4.9.5.3.

1. *NOTICE!*
   Thermal overload of the turbo generator.
   Stopping the machine abruptly after the generator has been in operation for some time can cause heat damage to the generator.
   ➢ Allow the engine to run for about 2 minutes in idle before shutting down to allow the generator to cool down.
2. Set the «automatic circuit breaker(s)» to the "0" position.
3. Turn the «generator main switch» to the "0" position.
4. Press «LOAD/IDLE» key.
   - The machine switches to *unloaded run-on*, that is:
     - The engine runs at IDLE speed.
     - The Oil separator tank (OST) is vented.
     - The machine cools down.
   - After running about 2 minutes in IDLE, the generator has cooled down enough so that the engine can be stopped.

8.5.6 Option ob
Operating the machine with the “automatic start-stop" option

If you purchased a machine with the "automatic start-stop" option, the operator can select between running the controller in *automatic* or *manual* mode. The machine is factory-set for *manual* operation when you switch the machine on. The machine can be controlled in *manual* mode as usual during normal operation.

The respective current setting is saved.

The battery can deplete if the controller is continuously switched on (readiness for automatic machine run). The starting voltage is insufficient to start the engine when needed. Moreover, exhaustive discharge of the battery can result in battery damage.
➢ Use battery maintenance charge.

Precondition No personnel are working on the machine.
Service doors and panels are locked.

Preparing the start:

➢ Switch the «Controller ON/OFF» key to ON.
- The controller boots up and the operating indicators appear on the display.
- If necessary, the engine control unit decides to automatically preheat the engine with the glow plug.
- The *READY* indicator flashes if the controller has no fault.

Waiting for start command:

After switching on the machine (with automatic mode active) the «START» key must be pressed once to *Prepare start*.

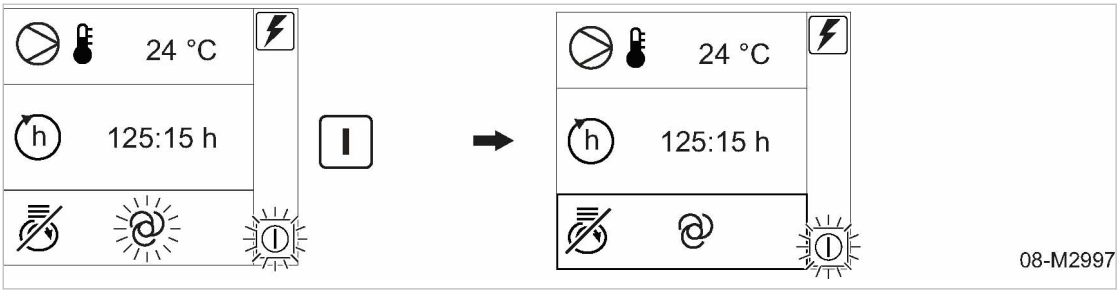


Fig. 48 Make the "Start-stop automatic" ready to start

➢ Press the «START» key.

The machine is ready for operation.

The remote contact of the master control system signals the compressed pressure demand to the controller:

- The motor/engine is automatically started.
- The controller switches the machine to LOAD as soon as the required airend discharge temperature (ADT)* has been attained.
- If the starting sequence fails or is interrupted by pressing the «EMERGENCY STOP» push button, the “re-start inhibitor” is activated for 20 seconds. The display shows the remaining time before another start can be attempted.

Further information * For temperature settings, see chapter 2.7.4

8.5.6.1 Suspend automatic mode for operating cycle (forced manual operation)

The automatic operation can be cancelled when the machine is standing still or running!

If the «START» or «STOP» keys are pressed for longer than two seconds, the controller changes to manual operation (manual mode) for this operating cycle.

➢ Push the «START», or «STOP» key longer than 2 seconds.

The machine can be controlled as usual as in normal operation.

The forced manual mode applies only to the current operating cycle. After shut-down and re-start of the machine, the *Automatic* mode is automatically reselected.

8.5.6.2 Shutting down the machine

When the compressed air demand via the remote contact of the master controller stops, the machine shuts down as follows:

1. The machine switches to *run-on phase*:

- The engine runs at IDLE speed.
- The inlet valve closes.
- Oil separator tank (OST) is vented.

When there is a new compressed air demand, the machine starts and goes into LOAD mode.

2. The machine switches to *engine run-on*:

- The engine cools down.
- The engine switches off.

Starting is not possible; the machine switches off and is subsequently restarted.

Switch the controller off:

1. *NOTICE!*
   Memory fault!
   Damage to the machine electronics and/or controller is possible.
   ➢ Shut down the controller only after the engine control unit has completed save process.
2. Switch the controller off:
   - ⧖ approx. 3 minutes.
   - ➢ Switch off the «controller ON/OFF» key.

Further information

Please see the separate operating manual of the SIGMA CONTROL SMART for details on changing the parameters of the "Start-stop automatic" and for changing the operating mode to *manual mode*.

9 Fault Recognition and Rectification

9.1 Basic instructions

The following tables are intended to assist in fault finding and rectification.

1. Do not attempt fault rectification measures other than those given in this manual!
2. In all other cases:
   Have the fault rectified by an authorised KAESER SERVICE representative.

Further information

Observe the instructions in chapter 3 "Safety and Responsibility" and prevailing local safety regulations when rectifying faults and malfunctions.
Comply also with local applicable safety provisions!

9.2 Analysing SIGMA CONTROL SMART messages

There are three types of message:

- Alarm messages, see chapter 9.2.1
- Warning messages, see chapter 9.2.2
- Maintenance messages, see chapter 10.2

The messages valid for your machine are dependent on the controller factory settings and individual equipment with which the machine is provided.

9.2.1 Alarm messages on the controller (machine off)

Alarm with automatic shutdown of the machine.



Following rectification of the fault, the alarm message must be acknowledged before the machine can be restarted.

Further information

Further information regarding the acknowledgement of alarm messages can be found in chapter 8.3.

Alarm codes, range 1100 – 1199 “Motor faults”:

Code	Meaning	Action	See chapter	Where can I get help?	
				SW	KS
1100	Fault - Engine oil pressure (p76) low.	Check the engine oil level.	10.4.4	–	–
		Arrange for the engine oil pressure to be checked.	–	X	–
		Arrange for the oil pressure switch to be checked.	–	X	X

SW = specialist workshop; KS = KAESER SERVICE; DPF = diesel particulate filter
SCS - SIGMA CONTROL SMART; ECU - engine control unit

Code	Meaning	Action	See chapter	Where can I get help?	
				SW	KS
1110	Fault – Coolant temperature (T70) high.	Check the coolant level.	10.4.1	–	–
		Clean the cooler.	10.7	–	–
		Check the water-cooling system.	–	X	X
1111	Fault – Coolant level low.	Check the coolant level.	10.4.1	–	–
1121	Fault – Charge air temperature (T73) high.	Check installation conditions. Allow the machine to cool down.	5.2	–	–
1124	Fault - Engine air flow meter error.	Arrange for it to be checked.	–	X	X
1130	Fault – Fuel level low.	Refuel.	–	–	–
1132	Fault – Fuel pressure low.	Arrange for it to be checked.	–	–	–
1135	Fault – Fuel pump.	Arrange for it to be checked.	–	X	X
1137	Fault - Fuel solenoid.	Arrange for it to be checked.	–	X	X
1140	Fault - Engine alternator does not charge.	Arrange for it to be checked.	–	X	X
1150	Fault – Other ECU error.	Arrange for it to be checked.	–	X	X
1151	Fault – ECU/SCS communication.	Arrange for it to be checked.	–	X	X
1160	Fault – Rail pressure sensor.	Arrange for it to be checked.	–	X	X
1161	Fault – Speed sensor.	Arrange for it to be checked.	–	X	X
1162	Fault - Engine speed high.	Arrange for it to be checked.	–	X	X
1164	Fault - Fuel system.	Arrange for it to be checked.	–	X	X
1165	Fault - Engine speed low.	Arrange for it to be checked.	–	X	X
1170	Fault – Automatic start mode error.	Arrange for it to be checked.	–	X	X
1180	Fault – Exhaust gas aftertreatment.	Arrange for DPF to be checked.	–	X	X
1186	Fault – Exhaust gas aftertreatment temperature high.	Arrange for DPF to be checked.	–	X	X

SW = specialist workshop; KS = KAESER SERVICE; DPF = diesel particulate filter

SCS - SIGMA CONTROL SMART; ECU - engine control unit

Code	Meaning	Action	See chapter	Where can I get help?	
				SW	KS
1192	Fault - Diesel particulate filter system.	Arrange for it to be checked.	–	X	X

SW = specialist workshop; KS = KAESER SERVICE; DPF = diesel particulate filter
SCS - SIGMA CONTROL SMART; ECU - engine control unit

Tab. 87 Alarm messages and actions relating to “motor fault”

Alarm codes, range 1200 – 1299 “Compressor faults”:

Code	Meaning	Action	See chapter	Where can I get help?	
				SW	KS
1200	Fault - ADT high.	Check installation conditions. Allow the machine to cool down.	5.2	–	–
		Check the cooling oil level.	10.6.1	–	–
		Clean the cooler.	10.7	–	–
1201	Fault - OST pressure high.	Arrange for it to be checked.	–	–	X
1202	Fault - OST temperature high at air outlet	Arrange for it to be checked.	–	–	X

SW = specialist workshop; KS = KAESER SERVICE
ADT = Airend discharge temperature; OST = Oil separator tank

Tab. 88 Alarm messages and actions relating to “compressor fault”

Alarm codes, range 1300 – 1399 “Controller faults”:

Code	Meaning	Action	See chapter	Where can I get help?	
				SW	KS
1300	Fault – PLC memory error.	Arrange for it to be checked.	–	–	X
1302	Fault – PLC-HMI communication.	Arrange for it to be checked.	–	–	X
1303	Fault - PLC temperature high.	Check installation conditions. Allow the machine to cool down.	5.2	–	–
1304	Fault – PLC power supply.	Arrange for it to be checked.	–	–	X

SW = specialist workshop; KS = KAESER SERVICE
PLC = Programmable logic controller; HMI = Human-machine interface; Watchdog = Function monitoring; ECU = Engine control unit

Code	Meaning	Action	See chapter	Where can I get help?	
				SW	KS
1306	Fault – PLC-ECU communication.	Arrange for it to be checked.	–	–	X
1310	Fault – Watchdog fault.	Arrange for it to be checked.	–	–	X
1311	Fault – I/O module.	Arrange for it to be checked.	–	–	X

SW = specialist workshop; KS = KAESER SERVICE

PLC = Programmable logic controller; HMI = Human-machine interface; Watchdog = Function monitoring; ECU = Engine control unit

Tab. 89 Alarm messages and actions relating to “controller fault”

Alarm codes, range 1400 – 1499 “General faults”:

Code	Meaning	Action	See chapter	Where can I get help?	
				SW	KS
1400	Fault – EMERGENCY STOP.	Unlock.	8.2.9	–	–
		Arrange for it to be checked.	–	–	X
1410	Fault - OST pressure sensor open circuit.	Arrange for it to be checked/repaired.	–	–	X
1412	Fault – Inlet valve pressure sensor open circuit.	Arrange for it to be checked/repaired.	–	–	X
1414	Fault - ADT sensor open circuit	Arrange for it to be checked.	–	–	X
1416	Fault - Fuel level sensor open circuit.	Arrange for it to be checked.	–	–	X
1420	Fault - Venting valve open circuit.	Arrange for it to be checked/repaired.	–	–	X
1424	Fault - Inlet valve control valve open circuit.	Arrange for it to be checked.	–	–	X
1450	Fault – UMTS modem controller locked.	Arrange for the UMTS modem to be unlocked.	–	–	X

SW = specialist workshop; KS = KAESER SERVICE

GSM = Global system for mobile communications; OST = Oil separator tank

ADT = Airend discharge temperature

Tab. 90 Alarm messages and actions relating to “General faults”

9.2.2 Warning messages on the controller

The machine is not shut down.

- In the case of an over-temperature warning, the machine switches automatically to IDLE mode to cool down.
- The warning message must be confirmed after remedying the fault.

Further information Further information on the acknowledgement of warning messages can be found in chapter 8.3.

Message codes, range 3100 – 3199 “Motor/engine warning":

Code	Meaning	Remedy	See chapter	Where can I get help?	
				SW	KS
3112	Warning - sensor coolant temperature (T70) faulty.	Have checked.	–	–	–
3120	Warning - turbo air pressure fault.	Have the turbo air pressure sensor checked.	–	X	X
3124	Warning - air flow meter fault.	Have checked.	–	X	X
3130	Warning – fuel level low.	Refuel.	–	–	–
3135	Warning - fuel pump.	Have checked.	–	X	X
3136	Warning - fuel filter water level.	Empty the fuel filter water trap.	10.4.3	–	–
3150	Warning - ECU miscellaneous error.	Have checked.	–	–	–
3154	Warning – drive motor/ engine sensor fault.	Have checked.	–	X	X
3155	Warning – drive motor/ engine actuator fault.	Have checked.	–	X	X
3164	Warning - fuel system fault	Have checked.	–	X	X
		Clean / replace the fuel filter.	10.4.3	–	–
3185	Warning message - fault in emission treatment.	Check DPF.	–	X	X
3188	Warning - emission treatment - regeneration necessary.	Initiate parked regeneration.	UM SCS	–	–

SW = Specialised workshop; KS = KAESER SERVICE

DPF = Diesel particulate filter; ECU = Electronic Control Unit

UM SCS = Separate user manual for the SIGMA CONTROL SMART controller

Tab. 91 Warning messages and measures relating to the engine.

Message codes, range 3200 – 3299 “Compressor unit warnings”:

Code	Meaning	Remedy	See chapter	Where can I get help?	
				SW	KS
3200	Warning – ADT high.	Check setup conditions. Allow the machine to cool down.	5.2	–	–
		Check the cooling oil level.	10.6.2	–	–
		Clean the cooler.	10.7	–	–
3201	Warning – OST pressure high.	Have checked.	–	–	X

SW = specialised workshop; KS = KAESER SERVICE

ADT = Airend discharge temperature; OST - Oil separator tank

Tab. 92 Warning messages and measures relating to the compressor

Alarm codes, range 3300 – 3399 “Controller warnings”:

Code	Meaning	Remedy	See chapter	Where can I get help?	
				SW	KS
3303	Warning - PLC temperature high.	Check setup conditions. Allow the machine to cool down.	5.2	–	–
3313	Warning - HMI temperature high.	Check setup conditions. Allow the machine to cool down.	5.2	–	–

SW = Specialised workshop; KS = KAESER SERVICE

PLC - Programmable logic controller; HMI = Human-machine interface

Tab. 93 General warning messages and measures

9.3 Evaluating engine faults and alarms

9.3.1 Engine does not start or stops

Possible cause	Action	Where can I get help?	
		SW	KS
«EMERGENCY STOP» key activated.	Unlock the «EMERGENCY STOP» key, see chapter 8.2.9.	–	–
Starter faulty.	Arrange for it to be replaced.	X	–
ECU fault	Arrange for it to be repaired/ replaced.	X	–
Fuel tank empty.	Fill up the fuel tank.	–	–

SW = specialist workshop; KS = KAESER SERVICE

Possible cause	Action	Where can I get help?	
		SW	KS
Air pockets in fuel line between fuel tank and injection pump.	Bleed the fuel line, see chapter 10.4.3.	–	–
Fuel filter clogged.	Clean or replace, see chapter 10.4.3.	–	–
Fuel line broken.	Arrange for it to be replaced.	X	–
Control fuse or relay fault.	Check and arrange for it to be replaced if necessary.	X	X
Discharge temperature too high.	Arrange for it to be checked.	–	X
SIGMA CONTROL SMART controller faulty.	Arrange for it to be repaired/ replaced.	–	X
Electrical connections and/or cable loose or broken.	Tighten, or arrange for cable to be replaced.	X	–
Battery faulty or charge too low.	Maintain battery, see chapter 10.9.2.	–	–
Engine alternator faulty.	Arrange for it to be replaced.	X	–
Engine alternator regulator faulty.	Arrange for it to be replaced.	X	–
Oil pressure switch indicates insufficient oil pressure.	Check the engine oil level (see chapter 10.4.4).	–	–
	Change oil, arrange to have engine repaired if necessary.	X	–
SW = specialist workshop; KS = KAESER SERVICE			

Tab. 94 Fault: “engine does not start or stops”

9.3.2 Engine does not reach full speed

Possible cause	Action	Where can I get help?	
		SW	KS
Air pockets in fuel line between fuel tank and injection pump.	Bleed the fuel line, see chapter 10.4.3.	–	–
Fuel filter clogged.	Clean or replace, see chapter 10.4.3.	–	–
Fuel line broken.	Arrange for it to be replaced.	X	–
ECU fault	Arrange for it to be repaired/ replaced.	X	–
SIGMA CONTROL SMART controller faulty.	Arrange for it to be repaired/ replaced.	–	X
SW = specialist workshop; KS = KAESER SERVICE			

Tab. 95 Fault: “engine not reaching full speed”

9.3.3 Engine loses power, black exhaust smoke

Possible cause	Action	Where can I get help?	
		SW	KS
Engine air filter clogged.	Check engine air filter maintenance indicator, replace filter element if required - see chapter 10.4.2.	–	–
Turbocharger faulty.	Arrange to have turbocharger checked.	X	X
Turbocharger hoses leaking.	Check all turbocharger hoses.		
Injector malfunctioning.	Arrange to have injector checked.	X	X
SW = specialist workshop; KS = KAESER SERVICE			

Tab. 96 Fault: “engine losing power”

9.4 Analysing compressor faults and alarms

9.4.1 Working pressure too high

Possible cause	Measure	Where can I get help?	
		SW	KS
Proportional controller defective.	Have repaired or replaced if necessary.	–	X
Inlet valve does not close.	Check the controller, control line and inlet valve and replace if necessary.	–	X
Pressure gauge indicating incorrect reading.	Have it repaired or replaced if necessary.	–	X
Venting valve does not blow off.	Check the connections and function and have it repaired or replaced as necessary.	–	X
SW = Specialised workshop; KS = KAESER SERVICE			

Tab. 97 Fault: working pressure too high

9.4.2 Working pressure too low

Possible cause	Measure	Where can I get help?	
		SW	KS
Proportional controller defective.	Have repaired or replaced if necessary.	–	X
Inlet valve not opening or only opening partially.	Repair or have it replaced if necessary.	–	X
SW = Specialised workshop; KS = KAESER SERVICE			

Possible cause	Measure	Where can I get help?	
		SW	KS
Pressure gauge indicating incorrect reading.	Have it repaired or replaced if necessary.	–	X
Safety valve maladjusted and/or leaking.	Have it repaired or replaced if necessary.	–	X
Venting valve blowing off.	Check the connections and function and have it repaired or replaced as necessary.	–	X
Engine does not run at maximum speed (in LOAD mode).	See chapter 9.3	X	X
Engine air filter and/or compressor air filter clogged.	Clean or change, see chapters 10.4.2 and 10.6.7.	–	–
Oil separator cartridge heavily clogged.	Change, see chapter 10.6.6.	–	–
SW = Specialised workshop; KS = KAESER SERVICE			

Tab. 98 Fault: working pressure too low

9.4.3 Safety valve blows off

Possible cause	Measure	Where can I get help?	
		SW	KS
Oil separator cartridge heavily clogged.	Change, see chapter 10.6.6.	–	–
Inlet valve does not close.	Check the controller, control line and inlet valve and replace if necessary.	–	X
Safety valve maladjusted and/or leaking.	Adjust or have it replaced if necessary.	–	X
SW = Specialised workshop; KS = KAESER SERVICE			

Tab. 99 Fault: safety valve blowing off

9.4.4 Machine overheating

Possible cause	Measure	Where can I get help?	
		SW	KS
Defective cooling fan.	Have the blades or the complete fan wheel replaced.	–	X
Oil cooler surface clogged.	Clean surface, see chapter 10.7.	–	–
The working element of the thermostatic valve not working.	Have it repaired or replaced if necessary.	–	X
SW = Specialised workshop; KS = KAESER SERVICE			

Possible cause	Measure	Where can I get help?	
		SW	KS
Working pressure too high (proportional controller maladjusted).	Reset to the permissible value or have it replaced.	–	X
Oil separator cartridge heavily clogged.	Measure the pressure differential and change the cartridge if greater than 1 bar. Change, see chapter 10.6.6.	–	X
Compressor oil filter cartridge clogged.	Change, see chapter 10.6.4.	–	–
Compressor cooling oil level too low.	Replenish, see chapter 10.6.2.	–	–
Oil pipes leaking.	Seal leaks or have pipes changed.	X	X
Engine cooling system or cooling fan defective.	Have repaired.	X	X
Ambient temperature too high.	See installation conditions in chapter 5.2.	–	–
SW = Specialised workshop; KS = KAESER SERVICE			

Tab. 100 Fault: machine overheating

9.4.5 Too much oil residue in the compressed air

Possible cause	Measure	Where can I get help?	
		SW	KS
Oil separator cartridge oil return line of compressor clogged.	Clean the oil separator cartridge dirt trap or replace the strainer and nozzle if necessary. See chapter 10.6.5	–	X
Cracked oil separator cartridge.	Change, see chapter 10.6.6.	–	–
Oil level in the oil separator tank too high.	Reduce to maximum level, see chapters 10.6.1 and 10.6.3.	–	–
SW = Specialised workshop; KS = KAESER SERVICE			

Tab. 101 Alarm: "Too much oil residue in the compressed air"

9.4.6 Oil flows from the compressor air filter after shutdown

Possible cause	Measure	Where can I get help?	
		SW	KS
Defective non-return function of the inlet valve.	Repair or have it replaced if necessary.	–	X
SW = Specialised workshop; KS = KAESER SERVICE			

Tab. 102 Alarm: "Oil flows from the compressor air filter after shutdown"

9.4.7 Option da
High moisture content in the compressed air

Possible cause	Measure	Where can I get help?	
		SW	KS
Blocked condensate drain on the water trap.	Clean the water trap dirt trap or replace the strainer and nozzle if necessary. See chapter 10.12.3	–	X
SW = Specialised workshop; KS = KAESER SERVICE			

Tab. 103 Fault: high moisture content in the compressed air

9.5 Option ga
Evaluate generator faults and alarms

9.5.1 There is no voltage or too low a voltage from the generator

Possible cause	Remedy	Where can I get help?	
		SW	KS
Defective drive belt.	Have changed.	X	X
Generator/regulator defective	Have repaired.	X	X
Overload protection switch triggered because of overload or defect.	Check the power requirement of the connected consumers and reduce if necessary; check the consumers for short circuits.	X	–
	Check the overload protection switch and have changed if necessary.	X	X
Engine speed too low.	Have reset to rated speed.	X	X
Generator not switched in.	Switch in the generator.	–	–
The compressor's working pressure is set too high, engine overloaded, speed drops off	Have the working pressure adjusted.	X	X
The engine power is reduced because of climatic or other effects.	Keep the generator and compressor load below the rated power	–	–
SW = specialised workshop; KS = KAESER SERVICE			

Tab. 104 There is no voltage or too low a voltage from the generator

9.5.2 Generator voltage too high

Possible cause	Remedy	Where can I get help?	
		SW	KS
Generator/regulator defective	Have repaired.	X	X
Engine speed too high.	Have reset to rated speed.	X	X

SW = specialised workshop; KS = KAESER SERVICE

Tab. 105 Generator voltage too high

10 Maintenance

10.1 Ensuring safety

Follow the safety instructions below to ensure safe machine maintenance.

Warning instructions are given prior to a potentially dangerous task.



Disregarding warning instructions can result in life-threatening injuries!

Observing safety instructions

Ignoring safety instructions can cause unforeseeable dangers.

- ➢ Follow the instructions in chapter 3 'Safety and Responsibility'.
- ➢ Allow maintenance work to be carried out only by authorised personnel.
- ➢ Do not reuse removed self-locking nuts but replace with new ones. The non-positive safety against loosening is no longer ensured when the nut is unscrewed.
- ➢ Use one of the safety signs below to advise others that the machine is currently being serviced:

Symbol	Meaning
	Do not switch on the machine.
	Warning: The machine is being serviced.

Tab. 106 Advise others that the machine is being serviced.

- ➢ Before switching on, make sure that:

- nobody is working on the machine,
- all protective guards and cover panels are attached,
- all doors and panels are closed
- all tools have been removed from the machine.

- ➢ Do not perform any checks or maintenance while the machine is running.



The access doors are held up by gas struts.

- ➢ Check that the doors remain open.

If door does not remain opened: Have the gas-filled spring changed.

When working on the compressed air system

Compressed air is contained energy. Uncontrolled release of this energy can cause serious injury or death. The following safety instructions relate to any work on components that could be under pressure.

- ➢ Disconnect the air consumers.
- ➢ De-pressurise all pressurised components and enclosures. Verify the vented state.

- Wait until the machine has automatically vented.
- Carefully open the compressed air outlet valve.
- Check: The pressure gauge must read 0 bar!

➢ Do not open or dismantle any valves.

When working on the drive system

Touching rotating, very hot or current-carrying components can cause severe injuries.

➢ Shut down the machine before opening any doors.
➢ Switch off the «controller ON/OFF» switch.
➢ Disconnect the negative cable from the battery.
➢ Ensure that the machine has cooled down.

Further information Details of authorised personnel are found in chapter 3.4.2.
Information regarding dangers and their avoidance can be found in chapter 3.5.

10.2 Note the maintenance messages on the controller

The SIGMA CONTROL SMART displays selected maintenance intervals for the machine. Display begins 25 hours before the interval will expire.

When the machine is switched on, the «Information» key illuminates. The «Acknowledge key » flashes.

➢ Read the message code from the controller's display.

10.2.1 Evaluating the maintenance message

➢ Determine any due maintenance tasks using the table below and perform the maintenance according to the maintenance schedule shown in chapter 10.3.3.1.

Code	Meaning	Remedy	see chapter
Message code, range 2100 – 2199 “engine maintenance”			
2100	Maintenance message drive motor - renew oil filter	Change the engine oil filter. (every 500h)	10.4.7
2101	Maintenance message drive motor - clean/ replace air filter.	Clean or change air filter. (every 500h)	10.4.2
2102	Maintenance message drive motor - change the oil	Change the engine oil. (every 500h)	10.4.6
Message codes, range 2200 – 2299 “compressor unit maintenance”			
2200	Maintenance message compressor - renew oil filter	Change the compressor oil filter. (every 1000h)	10.6.4
2201	Maintenance message compressor - clean/ replace the air filter.	Clean or change air filter. (every 250h)	10.6.7
h = operating hours			

Code	Meaning	Remedy	see chapter
2202	Maintenance message compressor - change the cooling oil.	Change the cooling oil. (every 1000h)	10.6.3
h = operating hours			

Tab. 107 Maintenance messages and required actions

10.2.2 Concluding the maintenance

Acknowledge the maintenance message:

Precondition Maintenance has been carried out.

➢ Acknowledge the maintenance message as described in chapter 8.3.

Resetting the maintenance interval counter

Precondition Maintenance is carried out and
the maintenance message is acknowledged.

➢ Reset the maintenance timer as described in the separate user manual for the SIGMA CONTROL SMART controller, chapter “Reset maintenance timer”.

10.3 Following the maintenance plans

10.3.1 Logging maintenance work

The maintenance intervals given are those recommended for KAESER original components with average operating conditions.

➢ In adverse conditions (e.g. oil and filter changes), perform maintenance work at shorter intervals.

Adverse conditions are, e.g.:

- poor fuel quality
- high/low temperatures
- much dust
- frequent use

➢ Adjust the maintenance intervals with regard to local installation and operating conditions.

➢ Logging all maintenance work.
This enables you to determine the frequency of individual maintenance tasks and deviations from our recommendations.

Further information A list is available in chapter 10.13.

10.3.2 Maintenance tasks following initial commissioning

The table below provides an overview of the maintenance tasks required following initial commissioning of the machine.

10.3.2.1 Maintenance tasks on the machine following initial commissioning

➢ Carry out maintenance tasks in accordance with the following schedule:

Component: Task	E10	E50	see chapter	Note
Engine:				
Check fuel lines and hose clamps. If necessary, tighten the hose clamps.		X		KS, FW
Option ga – Generator:				
Check/adjust belt tension.	X		10.12.5	

E10 = after the first 10 operating hours; E50 = after the first 50 operating hours

KS ≙ Contact KAESER SERVICE,
FW ≙ Contact specialist workshop.

Tab. 108 Maintenance tasks on the machine following initial commissioning

10.3.3 Regular maintenance tasks

The following table lists the various maintenance intervals for the machine.

Maintenance interval	Short description
Daily	–
Every 250 h, at least annually	A250
Every 500 h, at least annually	A500
Every 1000 h, at least annually	A1000
Every 1500 h, at least annually.	A1500
Every 2000 h, at least every two years.	A2000
Every 3000 h, at least every 3 years	A3000
Every 6000 operating hours	A6000
Every 36000 h, at least every six years.	A36000

Tab. 109 Maintenance intervals and regular maintenance tasks

The table below lists regular maintenance tasks.

1. Carry out maintenance tasks punctually taking ambient and operating conditions into consideration.
2. Change consumables and operating fluids according to each site.

10.3.3.1 Machine maintenance schedule

➢ Carry out maintenance tasks in accordance with the following schedule:

Maintenance tasks marked with an (*) in the tables must additionally be carried out every 6 months if annual operating hours exceed 500.

Assembly: Task	Daily	A250	A500	A1000	A1500	A2000	A3000	A4000	A36000	See Chapter	Note
Engine:											
Check the engine air filter maintenance indicator.	X									10.4.2	
Check the engine oil level.	X									10.4.4	
Change the engine oil (*).			X							10.4.6	
Replace the engine oil filter (*).			X							10.4.7	
Replace the oil separator element.			X							10.4.8	KS, FW
Check/adjust the drive belt tension.			X							10.4.9	KS, FW

KS ≙ Contact KAESER SERVICE,
FW ≙ Contact specialist workshop,
EF ≙ Contact a qualified electrician

DPF = diesel particulate filter

Assembly: Task	Daily	A250	A500	A1000	A1500	A2000	A3000	A4000	A36000	See Chapter	Note
Replace the drive belt.							X			10.4.9	KS, FW
Replace the primary filter element in the engine air filter.			X							10.4.2	
Replace the secondary filter element in the engine air filter.			X							10.4.2	
Check the intake air line between the air filter and engine.			X								KS, FW
Check the engine coolant level.	X									10.4.1	
Clean the charge air cooler.		X								10.7	
Clean the coolant cooler.		X								10.7	
Check coolant antifreeze concentration.			X							10.4.1	KS, FW
Change the coolant.							X			10.4.1	KS, FW
Remove residue within the coolant cooler.							X			10.4.1	KS, FW
Fill up the fuel tank.	X										
Check/empty the fuel water separator.	X									10.4.3	
Replace the fuel prefilter (*).			X							10.4.3	
Replace the fuel filter (*).			X							10.4.3	KS, FW
Check the fuel tank for dirt and clean, if necessary.			X								
Clean the tank strainer.			X								
Check and maintain the battery.			X							10.4.10	
Exhaust gas after-treatment:											
Check the exhaust system for leaks, including the exhaust gas after-treatment components.	X										
Service the exhaust gas after-treatment components.			X							10.5	KS, FW
Have the exhaust gas recirculation (EGR) cleaned.								X			KS, FW
Compressor:											
Check the compressor air filter maintenance indicator.	X									10.6.7	
Check the cooling oil level.	X									10.6.1	

KS ≙ Contact KAESER SERVICE,
FW ≙ Contact specialist workshop,
EF ≙ Contact a qualified electrician

DPF = diesel particulate filter

Assembly: Task	Daily	A250	A500	A1000	A1500	A2000	A3000	A4000	A36000	See Chapter	Note
Clean the compressor oil cooler.		X								10.7	
Check/clean the dirt trap in the oil separator tank (*).			X							10.6.5	
Replace the primary filter element in the compressor air filter.				X						10.6.7	
Replace the secondary filter element in the compressor air filter.				X						10.6.7	
Change the cooling oil.				X						10.6.3	
Replace the compressor oil filter.				X						10.6.4	
Replace the oil separator cartridge.				X						10.6.6	
Safety functions:											
Check the EMERGENCY STOP device.	X									10.11.1	
Arrange to have the EMERGENCY STOP device tested.			X								KS, FW
Arrange to have the safety valve(s) checked.			X							10.11.2	KS, FW
Arrange to have the excess temperature safety shut-down function tested.			X							10.11.3	KS, FW
Gull-wing doors:											
Maintain the rubber sealing strips.			X							10.9.2	
Check the “gull-wing doors closed” function.			X							10.9.3	
Check the connection elements.		X								10.9.4	
Bodywork/chassis:											
Arrange to have the lifting eye checked.			X								KS, FW
Pipes and hose lines (fuel hoses, pressure hoses):											
Check all pipes and hose lines on the machine are tightly fitted and without leaks or wear; arrange to have them replaced if necessary.			X							10.10	KS, FW

KS ≙ Contact KAESER SERVICE,
FW ≙ Contact specialist workshop,
EF ≙ Contact a qualified electrician

DPF = diesel particulate filter

Assembly: Task	Daily	A250	A500	A1000	A1500	A2000	A3000	A4000	A36000	See Chapter	Note
Arrange for the engine fuel hoses to be replaced.									X	10.10.1	KS, FW
Arrange for the engine pressure hoses to be replaced.									X	10.10.2	KS, FW
Arrange for the compressor pressure hoses to be replaced.									X	10.10.3	KS, FW
Further maintenance tasks:											
Check all accessible screw fittings, lines and clamps on machine for wear and tightness.			X							10.8	
Check all electrical connections for tightness.			X								
KS ≙ Contact KAESER SERVICE, FW ≙ Contact specialist workshop, EF ≙ Contact a qualified electrician DPF = diesel particulate filter											

Tab. 110 Regular machine maintenance tasks

10.3.3.2 Options maintenance schedule

➢ Carry out maintenance tasks in accordance with the following schedule:

Maintenance tasks marked with an (*) in the tables must additionally be carried out every 6 months if annual operating hours exceed 500.

Option: Task	Daily	A250	A500	A1000	A2000	A20000	See chapter	Note
Option ea – Tool lubricator:								
Check supply vessel fill level.	X						10.12.1	
Option da - Compressed air aftercooler:								
Clean the cooler.		X					10.12.2	
Option da – Water separator:								
Clean and check the dirt trap (*).			X				10.12.3	
Option dd – Filter combination:								
Drain the condensate.	X						10.12.4	
Replace the filter elements (*).			X				10.12.4	
KS ≙ Contact KAESER SERVICE, FW ≙ Contact specialist workshop, EF ≙ Contact a qualified electrician								

Option: Task	Daily	A250	A500	A1000	A2000	A20000	See chapter	Note
Replace the filter element seal (*).			X				10.12.4	
Option bb – Coolant preheating:								
Arrange for the coolant preheating to be checked.			X					EF
Arrange for the mains supply cable to be checked.			X					EF
Option dd – Battery charger:								
Arrange for the battery charger to be checked.			X					EF
Arrange for the mains supply cable to be checked.			X					EF
Option oe – Closed floor pan:								
Check the interior of the machine for accumulated fluids.	X						10.12.8	
Option la – Spark arrester:								
Blow out any soot residue.							10.12.6	
Option lb - Engine air shut-off valve:								
Clean/check the engine air shut-off valve.		X					10.12.7	KS, FW
Option ga – Generator:								
Carry out visual check of drive belt.		X					10.12.5	
Arrange for the generator and generator control box to be checked.			X				13.7	EF
Replace the drive belt.					X		10.12.5	
Arrange for the generator bearings to be checked.				X				KS, FW
Arrange for the generator bearings to be replaced.						X		KS, FW
KS ≙ Contact KAESER SERVICE, FW ≙ Contact specialist workshop, EF ≙ Contact a qualified electrician								

Tab. 111 Regular maintenance tasks for options

10.4 Drive engine maintenance

➢ Carry out maintenance according to the schedules in chapter 10.3.

10.4.1 Coolant cooler maintenance

The maximum permissible service life of the coolant is 3 years. Upon expiry of its service life, the drive engine coolant must be changed.

Material
Coolant
Coolant tester
Receptacle
Male hose coupling (supplied loose with the machine)
Funnel
Cleaning cloth

Precondition
The machine is switched off and has cooled down.
The machine is standing level.
Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.
The «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.

WARNING
Danger of scalding from hot coolant!
Serious injuries can be caused by hot coolant.
➢ Allow the machine to cool down before opening the cooling system.

CAUTION
Risk of chemical burns from coolants containing antifreeze!
➢ Avoid eye and skin contact with coolant. In case of contact, rinse immediately with running water.
➢ Wear protective glasses and gloves.

NOTICE
Insufficient coolant levels can damage the machine!
Insufficient coolant levels will cause the engine to overheat. Overheating can cause serious damage to the engine.
➢ Check the coolant level daily.
➢ Replenish the coolant as necessary.

➢ Open the left-hand door.

10.4.1.1 Checking the coolant level

The coolant level in the engine cooling circuit must be checked daily prior to start-up.
The level is checked via the coolant expansion tank:

- The tank is transparent so the coolant level can be seen from outside.
- The fluid level should be between the *minimum and maximum marks* when the engine is cool.

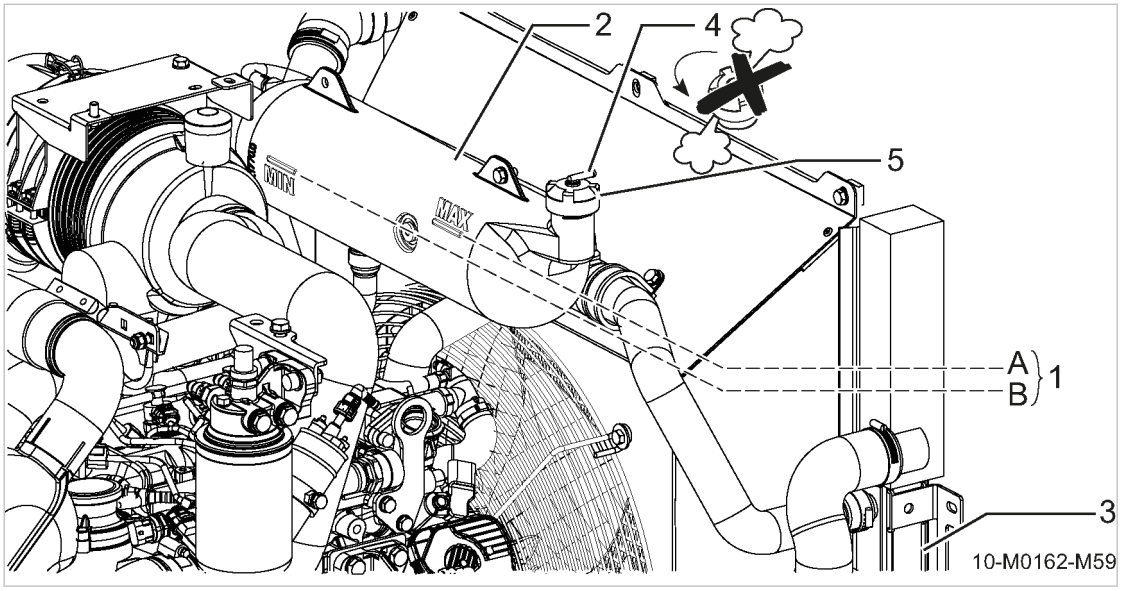


Fig. 49 Checking the coolant level

1	Coolant level	3	Coolant cooler
A	*Maximum mark* (FULL)	4	Overflow
B	*Minimum mark* (LOW)	5	Filler neck with cap
2	Coolant expansion tank		

1. Check the level of coolant in the expansion tank.
   When the coolant level falls below the *minimum mark* B: Replenish the coolant.
2. Close the door.

Determine the cause for the coolant loss and rectify.

10.4.1.2 Checking the coolant

The coolant should be checked in line with the maintenance schedule to ensure quality and long service life.

Coolant quality can be determined by the following parameters:

- Visual check
- Measuring the concentration of the antifreeze

➢ Loosen and remove the filler cap 5.

Performing a visual check:

The coolant should be checked for discolouration and any particles (flocculation) floating in it.

➢ Take a coolant sample and analyse it.
   If the coolant is heavily discoloured and/or contains floating particles: Change the coolant.

Measuring the concentration of the antifreeze:

An instrument (e.g. refractometer) is used to check the antifreeze concentration of the coolant.

Maximum frost protection is ensured with an antifreeze concentration of 55% volume, as frost protection and heat transfer properties deteriorate beyond this point. A higher concentration also leads to higher operating temperatures for the engine.

1. ***NOTICE!***
   The engine may be damaged if the antifreeze concentration is too low.
   Corrosion.
   Damage to the cooling system.
   Engine housing fracture.
   - ➢ Check coolant.
   - ➢ Protect the coolant against freezing.
   - ➢ Replenish immediately if necessary.
2. To test the coolant, use the coolant tester as instructed by the manufacturer.
   Concentration of antifreeze is too low: Change the coolant.

Performing final work steps:

1. Replace the filler cap.
2. Close the door.

10.4.1.3 Mixing the coolant

The coolant is a mixture of clean, fresh water and an antifreeze containing added anti-corrosion agent.

For corrosion protection reasons and the need to raise the boiling point, the coolant must remain in the cooling system throughout the year.

Never use water without coolant added. Water alone is corrosive at engine operating temperatures. Water alone does not offer sufficient protection from boiling or freezing of the coolant.

An adhesive label with the recommended mixture ratio for the coolant is fitted by the coolant expansion tank, see Figure 50.



Fig. 50 Recommended mixture ratio for coolant

[1] Anti-corrosion agent/antifreeze
[2] Water

➢ Observe the coolant recommendations given in chapter 2.8.5!

Preparing the coolant:

Precondition The coolant used must meet the specification of ASTM D4985.

➢ The coolant should be mixed in the ratio specified by the manufacturer.

Coolant mixture table:

Proportions [% vol.]		Frost protection down to approx. [°C]
Anti-corrosion agent/anti-freeze	Water	
50	50	−37

Tab. 112 Coolant mixture table

Do not use a higher concentration than 55% vol. of anti-corrosion agent/antifreeze, even at extremely low ambient temperatures. Maximum frost protection is achieved with 55% vol. of anti-corrosion agent/antifreeze. This corresponds to frost protection down to approx. -45°C.

The concentration of antifreeze should not be less than 33%, since corrosion protection can no longer be guaranteed and heat transfer properties deteriorate beyond this point!

10.4.1.4 Filling/refilling the coolant

The percentage of antifreeze in the coolant should not fall below 33%, so as to ensure optimal frost and corrosion protection and prevent the build-up of deposits (sludge) in the cooling circuit. Replenishing solely with water dilutes the antifreeze concentration and is therefore prohibited.

Ensure that there is sufficient space for the coolant to expand without overflowing when hot.

Precondition The «Controller ON/OFF» switch is switched off

1. Loosen and remove the coolant expansion tank filler cap.
2. Mix a quantity of coolant as per the table and replenish to the level indicated.
   Replenish the coolant to just below the *maximum mark* Ⓐ.
3. Replace the filler cap.
4. Switch the «Controller ON/OFF» switch back on.
5. Close the door.
6. Start the engine and allow to run in IDLE for about 1 minute.
7. Stop the engine.
8. Open the left-hand door.
9. Check the coolant level.
   If the coolant level in the expansion tank has decreased: Replenish the coolant.
10. Visually inspect for leaks.
11. Close the door.

10.4.1.5 Draining the coolant

Precondition The machine has cooled down.
Both doors are open.
The «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.

A hose coupling has been integrated into the coolant cooler, so as to allow user-friendly draining of the coolant from the engine. The hose coupling is located on the right-hand side of the coolant cooler.

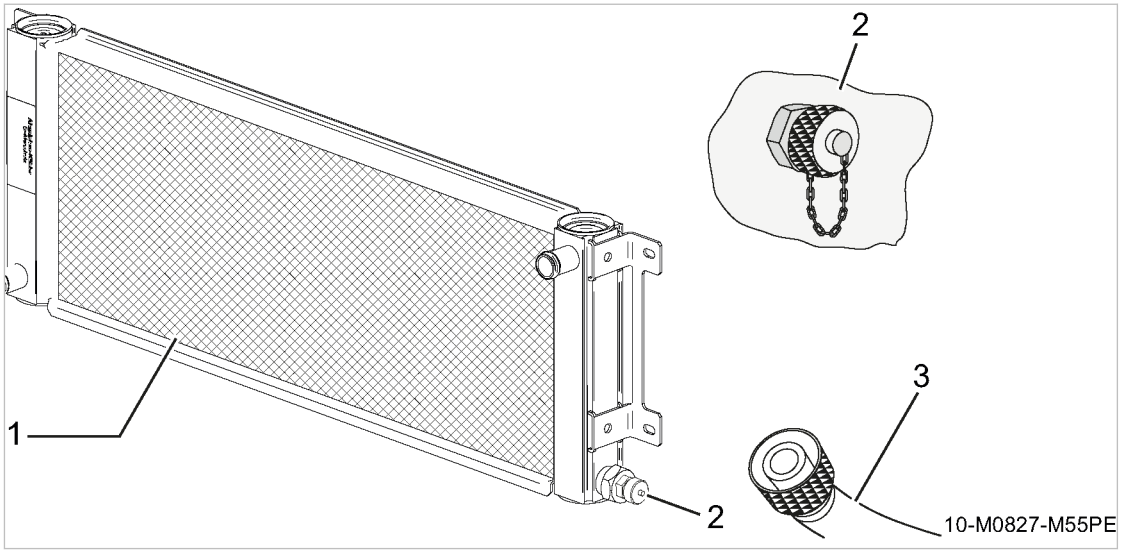


Fig. 51 Draining the coolant

[1] Coolant cooler
[2] Hose coupling
[3] Male hose coupling

1. Position a collecting vessel beneath the hole in the floor panel.
2. Loosen and remove the coolant expansion tank filler cap.
3. Suspend and fasten the free end of the hose in the receptacle.
4. Loosen and remove the protective cap for the hose coupling.
5. Attach the male hose coupling to the hose coupling.
   The hose coupling is open.
   Coolant drains completely.
6. Remove the male hose coupling from the hose coupling.
   The hose coupling is closed.
7. Fit the protective cap onto the hose coupling.

➢ Dispose of used coolant in accordance with the applicable environmental protection regulations.

Removing scaling from inside the coolant cooler

After extended periods of use, scaling may form inside the cooling circuit, and the coolant cooler in particular. The resulting reduced heat transfer can lead to the engine overheating.

1. *NOTICE!*
   Scaling in the cooling circuit!
   Damage caused by engine overheating.
   ➢ Use a cooler cleaning agent to remove scaling from inside the coolant cooler.
2. Read and observe the manufacturer's instructions regarding the use of cooler cleaning agent.
3. Having drained the coolant, use a coolant cleaning agent to descale the water cooler.

10.4.2 Engine air filter maintenance

- Operating the engine without filter elements fitted is not permitted!
- Do not use filter elements with damaged folds or seals.
- The use of unsuitable or damaged filter elements can allow dirt into the engine, causing premature wear and damage.

Service the engine air filter should any of the following occur:

- Warning message with specific message code (see Table 113) on the display of the SIGMA CONTROL SMART.
- Maintenance indicator is activated.
- Maintenance interval as per the maintenance schedule has expired.

Message code	Action
2101	Replace / clean the filter element

Tab. 113 Specific message code for “Service engine air filter”

Material Compressed air for blowing out
Spare part (if required)
Cleaning cloth

Precondition The machine is switched off and has cooled down.
Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.
The left-hand door is open,
the «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.

NOTICE
Damaged filter element.
Engine wear from contaminated intake air.
➢ Do not try to clean the filter element by striking or tapping it.
➢ Do not wash the filter element.

➢ Follow all instructions carefully.

Checking the air filter contamination level:

Air filter maintenance is required when the yellow piston inside the maintenance indicator reaches the red zone.

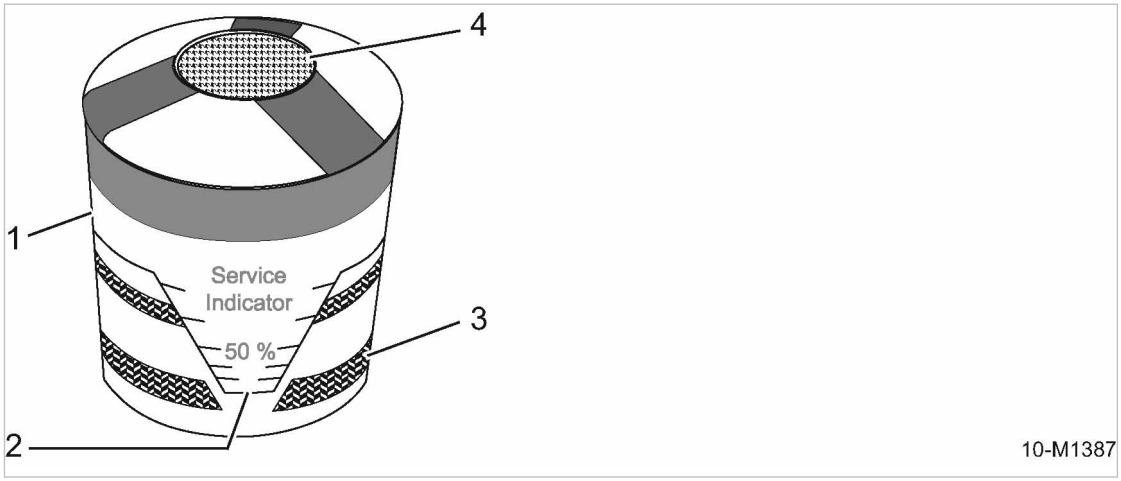


Fig. 52 Maintenance indicator

1	Maintenance indicator	3	Red zone indicator scale
2	Indicating piston, maintenance indicator	4	Maintenance indicator reset button

➢ Check the air filter maintenance indicator.

If the yellow piston has reached the red zone, Replace the primary filter element.

Cleaning the dust evacuator valve:

Coarse dirt particles in the intake air fall to the base of the filter housing and are deposited around the dust evacuator valve. When maintaining the engine air filter, these dirt particles must be removed.

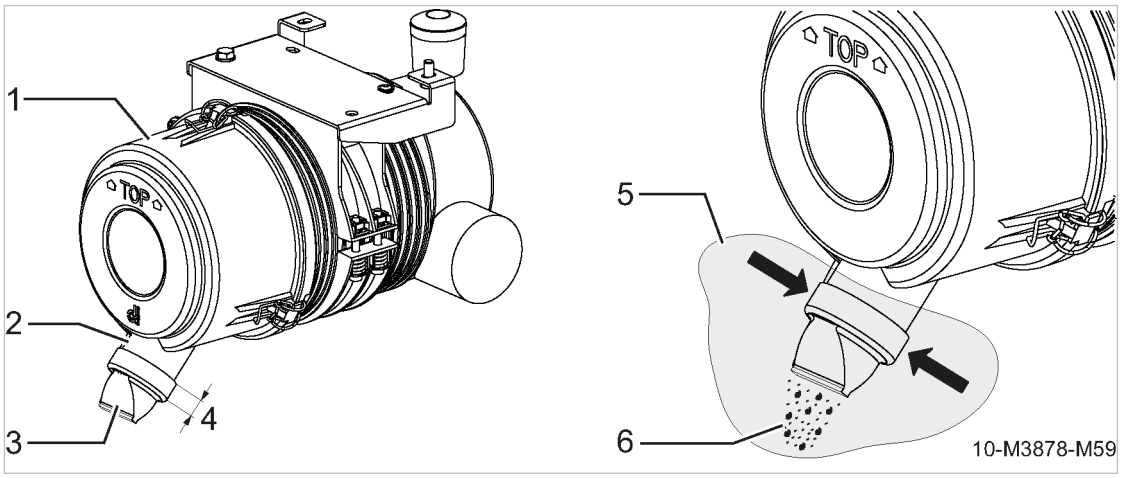


Fig. 53 Cleaning the dust evacuator valve

1	Filter cap	4	Valve area
2	Dust evacuator valve	5	Cleaning procedure
3	Evacuator vent	6	Coarse dirt particles

1. Compress valve area 4 during cleaning procedure 5.

   Evacuator vent opens.

   Coarse dirt particles and accumulated dust are expelled.
2. Release the valve area.

3. Clean the evacuator vent.
4. Check that both seal lips on the evacuator vent are still close together.

Ideally, the filter cap should be fitted so that the dust evacuator valve is pointing vertically downwards. A deflection of ± 30 ° to the vertical axis is permitted.

Removing the filter cap:

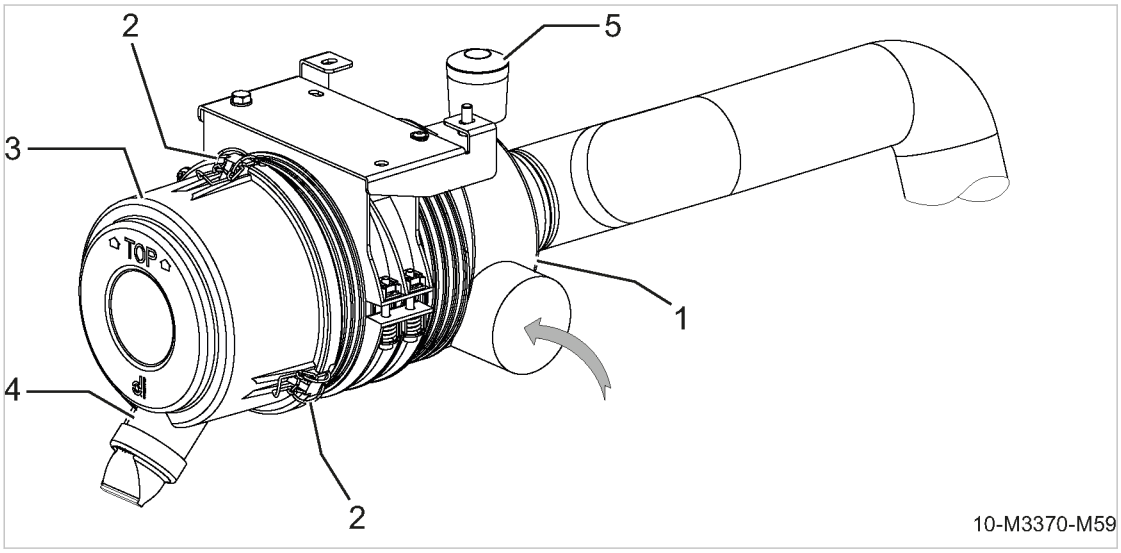


Fig. 54 Engine air filter maintenance

1 Filter housing
2 Retaining clamp
3 Filter cap
4 Dust evacuator valve
5 Maintenance indicator

1. Unlock all three retaining clamps.
2. Remove the filter cap.

Replacing the filter elements:

The engine air filter is fitted with two filter elements.

- Primary filter element
- Secondary filter element

The secondary filter element must be replaced at every third change of the primary filter element, or after two years at the latest. The secondary filter element cannot be cleaned and reused!

The efficiency of the engine air filter is not increased by the secondary filter element. The secondary filter element provides an additional level of protection, in case the primary filter element is damaged or incorrectly fitted.

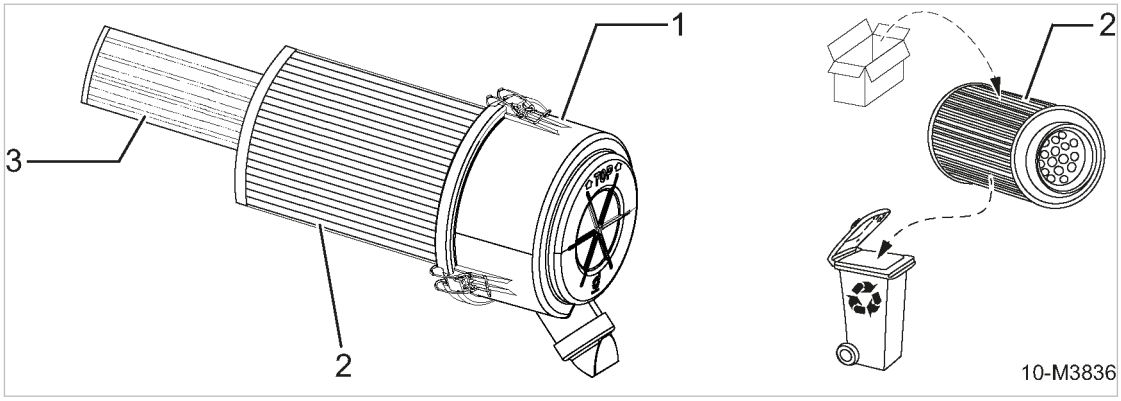


Fig. 55 Removing both filter elements

[1] Filter cap
[2] Primary filter element
[3] Secondary filter element

1. Remove the secondary filter element.
2. Remove the old primary filter element.
3. Carefully clean the filter housing, filter cap and sealing surfaces with a damp cloth.
4. Insert a new primary filter element into the filter housing. Ensure that the primary filter element is correctly secured and its seals can function properly.
5. Insert the secondary filter element.
6. Position the filter cap in front of the filter housing, with the dust evacuator valve pointing vertically downwards.
7. Place the filter cap on the filter housing and press down lightly.
8. Secure the filter cap with all three retaining clamps.

Resetting the maintenance indicator:

➢ Press the reset button on the maintenance indicator repeatedly.

The yellow piston within the indicator is reset and the maintenance indicator is ready for use again.

➢ Close the left-hand door.

Cleaning the primary filter element

Reuse cleaned primary filter elements only as an exceptional case.
Always use new filter elements if possible.

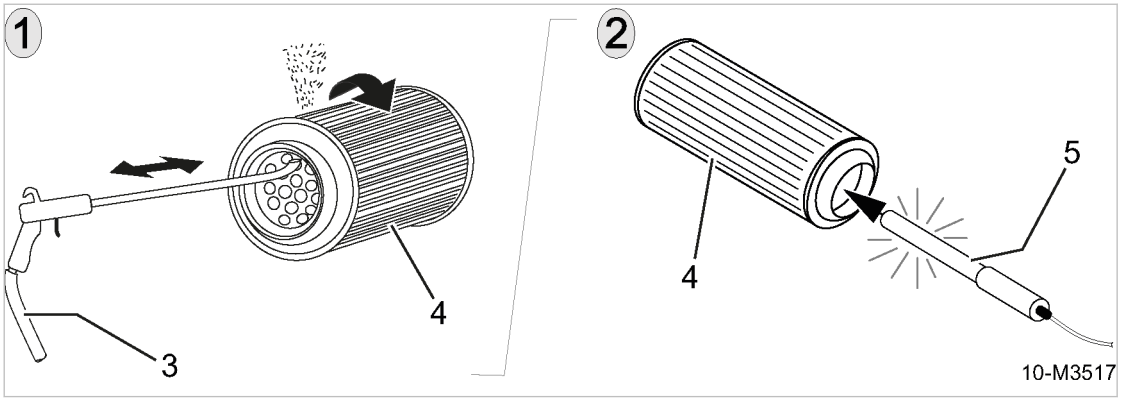


Fig. 56 Cleaning the primary filter element

[1] Cleaning the primary filter element
[2] Checking the primary filter element
[3] Compressed air gun with blast pipe (bent to approx. 90° at the end)
[4] Primary filter element
[5] Torch

1. Use dry compressed air (<5 bar!) to blow out dirt from the filter element at an angle, from the inside to the outside.
2. Blow out the primary filter element until no more dust appears.
3. In a darkened room, use a suitable torch to shine a light through the cleaned primary filter element.

   The cleaned primary filter element displays no cracks or holes.

   The cleaned filter element is in the correct condition.
4. Insert the cleaned and checked primary filter element into the filter housing.
5. Position the filter cap in place.
6. Secure the filter cap with all three retaining clamps.
7. Check to ensure the filter cap is correctly attached.

Dispose of old parts and contaminated materials in accordance with environmental regulations.

10.4.3 Fuel system maintenance

Ensure that no dirt can get into the fuel system during maintenance. Clean components and their immediate surroundings before disassembling.

Material
Spare parts
Receptacle
Cleaning cloth

Precondition
The machine is switched off.
The machine is standing level.
Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.
The machine has cooled down.
The «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.

DANGER
Danger of fire from spontaneous ignition of fuel!
Serious injury or death could result from the ignition and combustion of fuel.

- ➢ Ensure there are no open flames or sparks in the immediate vicinity.
- ➢ Ensure that the maximum ambient temperature is not exceeded in the immediate vicinity.
- ➢ Stop the engine.
- ➢ Wipe up any spilled fuel.
- ➢ Keep fuel away from hot machine components.

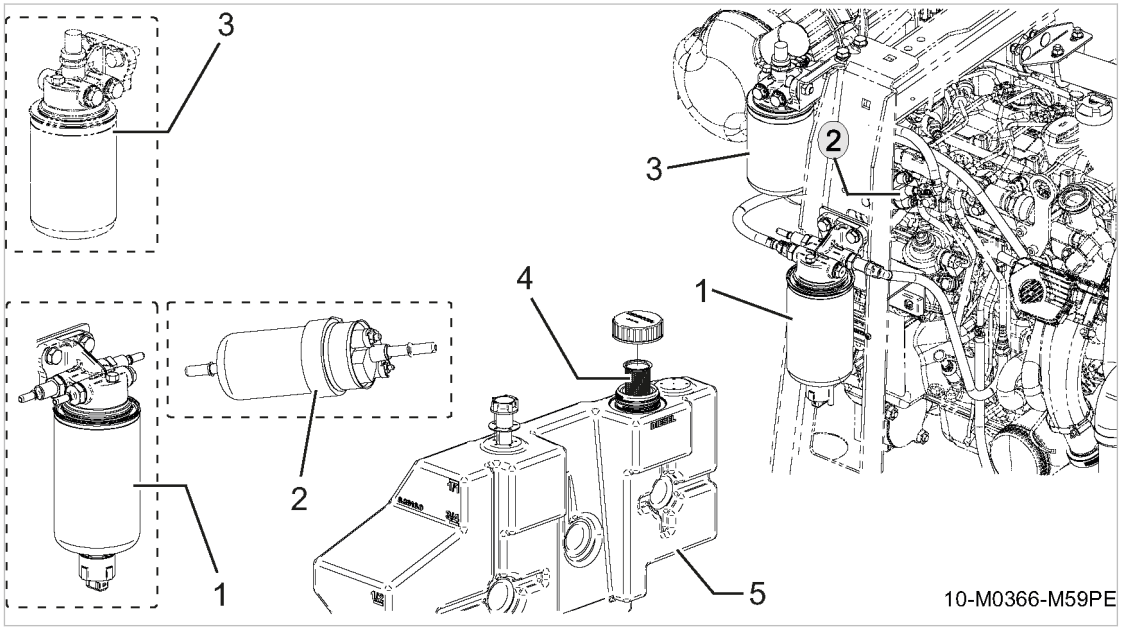


Fig. 57 Fuel system maintenance

1. Fuel prefilter with integrated water separator
2. Fuel pump
3. Fuel filter
4. Fuel strainer
5. Fuel tank

- ➢ Open the right-hand access door.

10.4.3.1 Bleeding the fuel system

Air can enter the fuel system if the fuel tank is empty following a fuel filter change, or when work is being carried out on the fuel lines.
Should the engine not start despite a full fuel tank, bleed the fuel system.

1. Connect the negative cable to the battery.
2. Switch on the «Controller ON/OFF» switch.
   The electric fuel pump is running.
3. Close both doors.

As soon as the fuel system has been bled, start the engine and allow to run for at least 5 minutes in IDLE.

4. Open the right-hand door.

5. Check both fuel filters for leaks.
   If any fuel has escaped: Retighten the filter cartridge and all screw connections.
6. Close the door.

10.4.3.2 Fuel prefilter maintenance

Emptying the fuel/water separator:

The fuel prefilter is equipped with an integrated water separator. Contaminants in the water are trapped by the water collector in the filter cartridge.

The water separator is connected to the controller by a sensor. If the water in the water collector reaches a specified level, the controller will display a warning message.

The message *Fuel filter water level* will appear on the controller display.

The water separator must be emptied immediately when this warning is displayed.

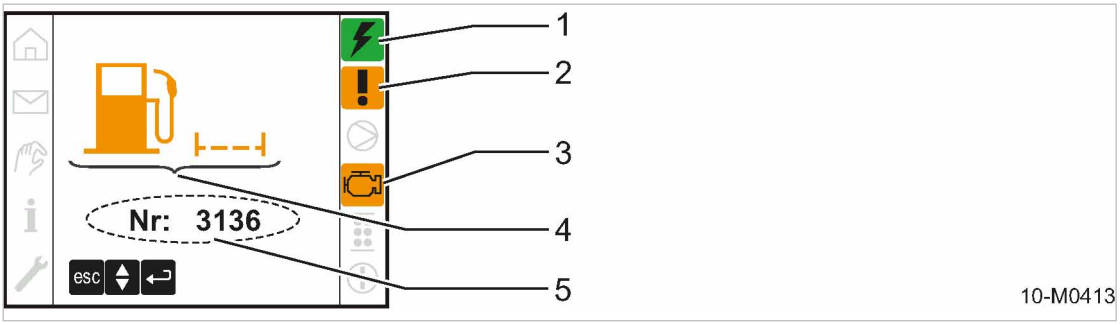


Fig. 58 Warning message: Fuel prefilter water level

1. *Control voltage ON* indicator (green)
2. *Warning* indicator (orange)
3. *Engine* indicator (orange indicates a warning)
4. Symbols for fault localisation (Fuel + level) (orange indicates a warning)
5. Fault code

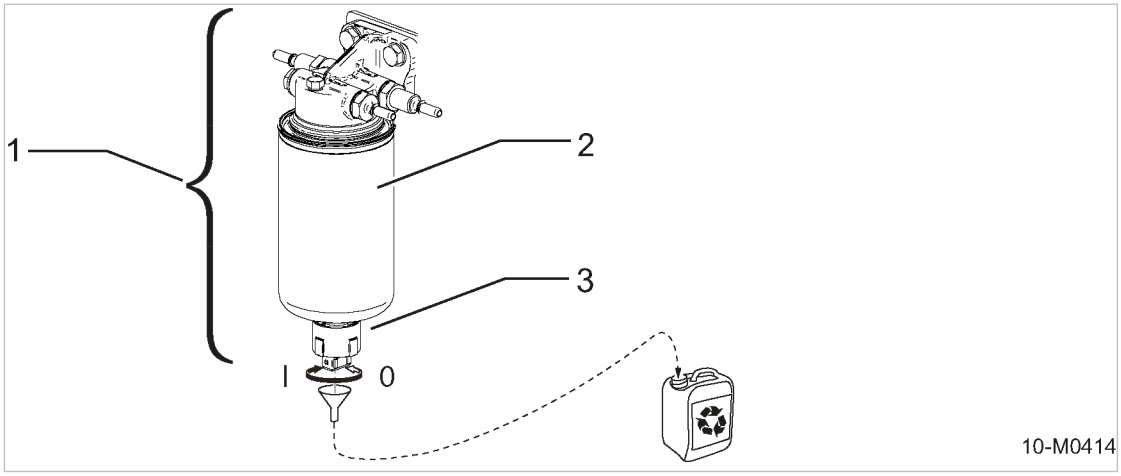


Fig. 59 Empty the fuel prefilter and water separator

[1] Fuel prefilter
[2] Filter cartridge with integrated water collector
[3] Drain plug with integrated level sensor
I - open
0 - close

1. Place a receptacle beneath the fuel prefilter housing.
2. Unscrew the drain plug on the bottom of the filter cartridge (2 turns max.) and allow water and contaminants drain out.
3. Close the drain plug.
4. Close the door.

The warning message must be acknowledged once the water separator has been emptied.

Precondition The water separator is emptied.

➢ Confirm the warning with the «Enter» key.

The mixture of fuel and water, as well as any materials contaminated with fuel, must be disposed of in accordance with environmental protection regulations.

Changing the filter cartridge:

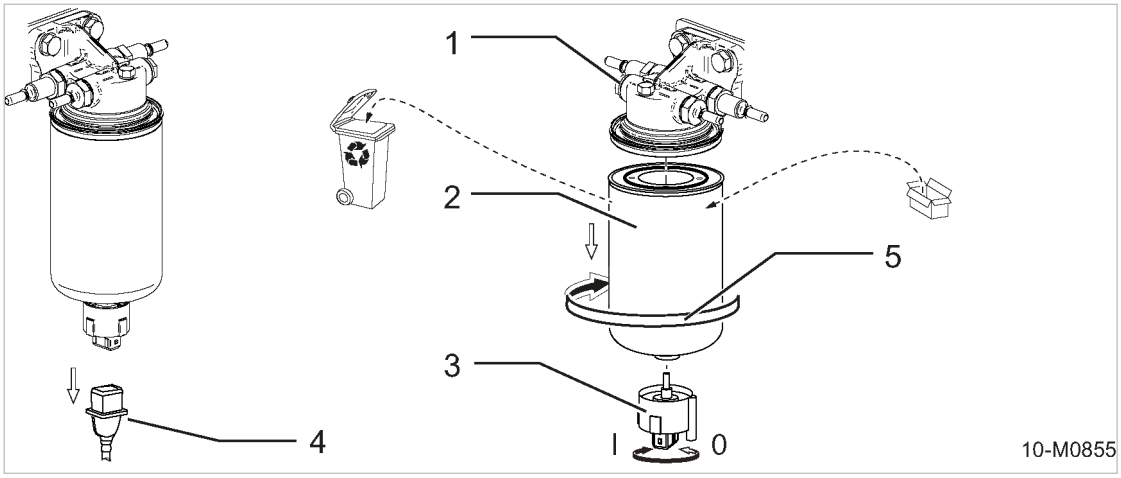


Fig. 60 Changing the fuel prefilter cartridge

[1] Filter head
[2] Filter cartridge with integrated water collector
[3] Drain plug with integrated level sensor
[4] Water level sensor connecting plug (fuel filter maintenance)
[5] Direction of rotation for unscrewing the filter cartridge and drain plug

1. Place a receptacle beneath the fuel prefilter housing.
2. Unscrew the drain plug on the bottom of the filter cartridge (2 turns max.) and allow water and contaminants drain out.
3. Remove the water level sensor connecting plug.
4. Use a standard wrench to loosen (anticlockwise) and remove the filter cartridge.
5. Empty any remaining fuel into the receptacle.
6. Remove the filter cartridge drain plug and clean with lint-free cloth.
7. Check the seal on the drain plug.
   Seal damaged: Replace the seal.
8. Fit the drain plug to a new filter cartridge.
9. Clean the sealing surfaces of the new filter cartridge and the opposite side of the filter head with a lint-free cloth.
10. Mount the filter cartridge on the filter head:
    - Moisten the sealing faces of the new filter cartridge with some fuel.
    - Manually mount the filter cartridge to the filter head (clockwise), until the seal is tight.
    - Continue to turn manually until the filter cartridge is tightly in place (¾ turn approximately).
11. Secure the water level sensor connecting plug in place.
12. Connect the negative cable to the battery.
13. Switch on the «Controller ON/OFF» switch.
14. Close the door.

The fuel system must be bled once the filter cartridge has been changed.

Dispose of fuel and any materials and components contaminated with it in accordance with environmental protection regulations.

10.4.3.3 Fuel filter maintenance

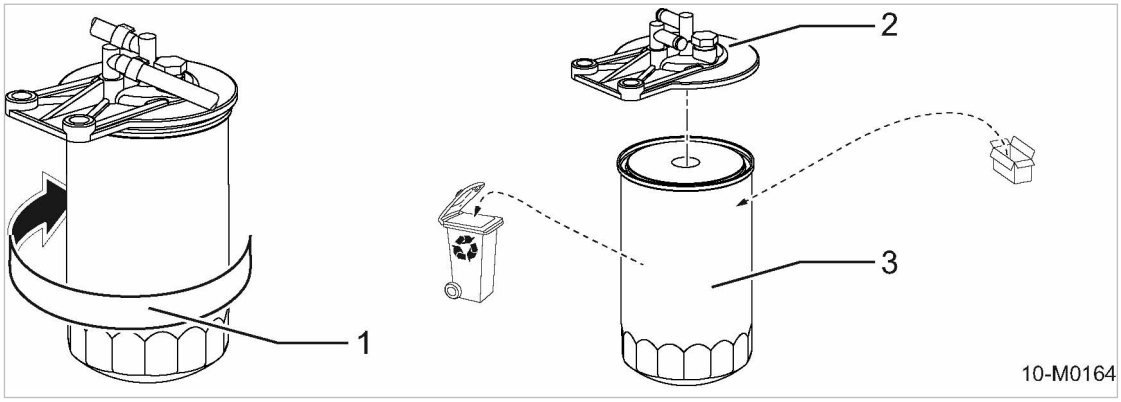


Fig. 61 Fuel filter maintenance

[1] Direction of rotation for unscrewing the filter cartridge
[2] Filter holder
[3] Filter cartridge

1. Place a receptacle beneath the fuel filter housing.
2. Use a standard wrench to loosen and remove the fine filter cartridge, collecting any escaping fuel.
3. Clean the sealing surfaces of the new filter cartridge and the opposite side of the filter holder with a lint-free cloth.
4. Mount the filter cartridge on the filter holder:
   - Moisten the rubber seals of the filter holder and the sealing surfaces of the new filter cartridge with some fuel.
   - Manually mount the filter cartridge to the filter holder (clockwise), until the seal is tight.
   - Continue to turn manually until the filter cartridge is tightly in place (½ to ¾ turn approximately).
5. Connect the negative cable to the battery.
6. Switch on the «Controller ON/OFF» switch.
7. Close the door.

The fuel system must be bled once the filter cartridge has been changed.

Dispose of fuel and any materials and components contaminated with it in accordance with environmental protection regulations.

Starting the machine and performing a test run:

1. Switch on machine using the «START» key on the control panel of the SIGMA CONTROL SMART.
2. Warm up the machine by allowing it to run in IDLE.
   Warm-up has been achieved when the required airend discharge temperature is reached.
3. Press and hold down the «OFF» key on the control panel of the SIGMA CONTROL SMART for longer than 1 second.
   The machine is switched off.

4. Wait until the machine has automatically vented.
   The pressure gauge reads 0 bar!
5. Open the discharge valves.
6. Open the right-hand door.
7. Visually check the fuel system for leaks.
8. If necessary, retighten the screw connections.
9. Close the door.

10.4.4 Checking the engine oil level

The oil level can be read off from a dipstick on the oil pan. Read off the oil level when the machine is parked on level ground and has been allowed to cool down for approximately 5 minutes. The oil level should be between the two markings on the dipstick.

- The level must not be allowed to fall below the *minimum oil level* mark.
- The level must not be allowed to exceed the *maximum level* mark.

Material: Cleaning cloth
Protective clothing
Protective gloves

Precondition: The machine is switched off,
the engine has been allowed to cool for approximately 5 minutes.
The machine is standing level.
Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.
The «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.



CAUTION
Danger of burns from hot components.
- ➢ Allow the engine to cool down before carrying out maintenance tasks.
- ➢ Wear protective clothing and protective gloves.



NOTICE
Damage to the engine from insufficient oil level.
- ➢ Check the oil level correctly.
- ➢ Only check the oil level when the machine is standing level.
- ➢ Only check the oil level after the engine has been allowed to cool down for about 5 minutes.

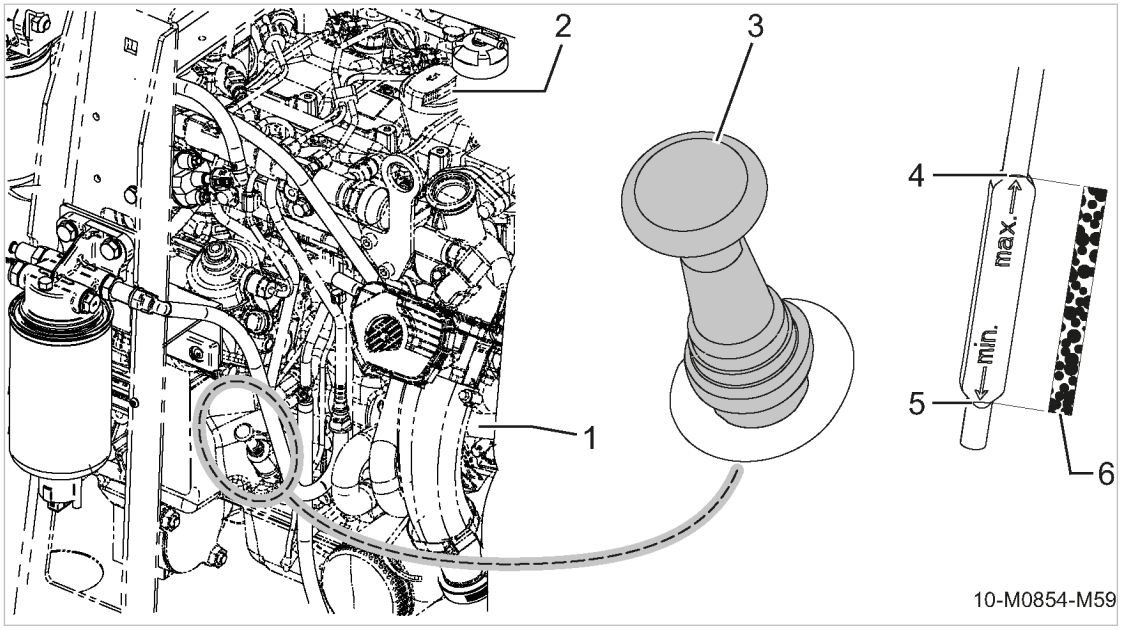


Fig. 62 Checking the engine oil level

[1] Engine, maintenance side
[2] Engine oil filler cap
[3] Dipstick
[4] Upper marking *maximum oil level*
[5] Lower marking *minimum oil level*
[6] *Correct range for oil level*

1. Open the right-hand door.
2. Pull out the dipstick.
3. Wipe the dipstick with a clean, lint-free cloth.
4. Push the dipstick back in.
5. Pull the dipstick out again to read off the actual oil level.
6. Read off the actual oil level from the dipstick.
7. For actions relating to the actual oil level, see Table 114.

Actual engine oil level	Result/action
The oil level is in the correct range.	➢ Maintaining the engine oil level. ➢ Push the dipstick in.
The oil level is at or below the lower marking *minimum oil level*.	➢ Replenish with a suitable quantity of engine oil. ➢ Check the oil level correctly again. ➢ Push the dipstick in.
The oil level is above the upper marking *maximum oil level*.	➢ Drain out a suitable quantity of engine oil. ➢ Check the oil level correctly again. ➢ Push the dipstick in.

Tab. 114 Actions required following oil level check

8. Close the right-hand door.

10.4.5 Filling/replenishing the engine oil

Material
New engine oil, see Chapter 2.8.6 for engine fill quantity.
Cleaning cloth
Refill vessel
Protective clothing
Protective gloves

Precondition
The machine is switched off,
the engine has been allowed to cool for approximately 5 minutes.
The machine is standing level.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.
The «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.

CAUTION
Danger of burning from hot surfaces.
- ➢ Allow the engine to cool down before carrying out maintenance tasks.
- ➢ Wear protective clothing and protective gloves.

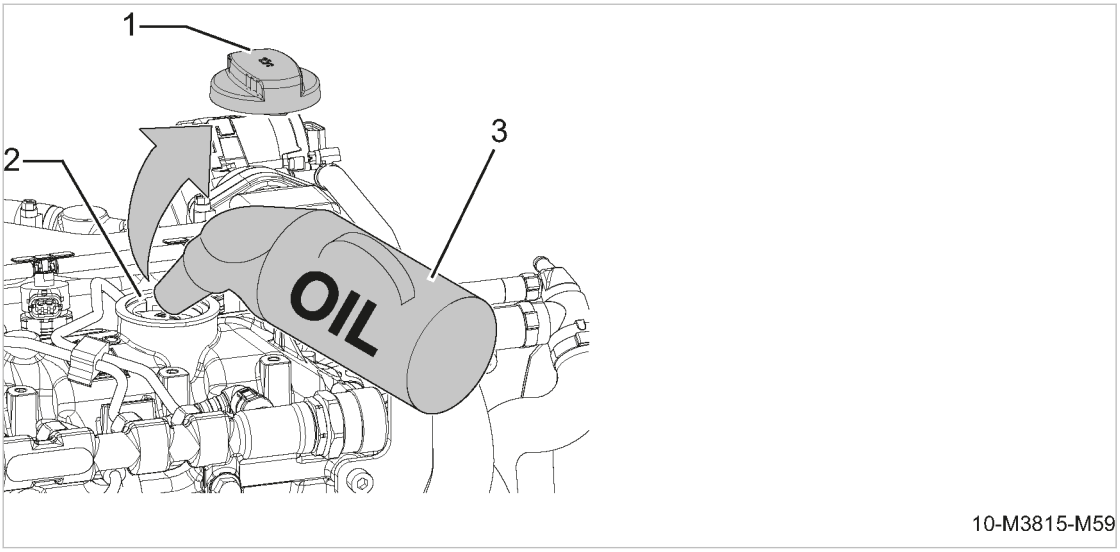


Fig. 63 Filling/replenishing the engine oil
[1] Oil filler cap
[2] Oil filler opening
[3] Suitable refill vessel

Filling with engine oil:

Observe the *maximum oil level* mark on the dipstick.

1. Open the right-hand door.
2. For location of the oil filler opening, see Fig. 63.

3. Loosen and remove the oil filler cap.
4. Fill up with fresh engine oil using a suitable refill vessel.



It takes a few minutes for the oil to reach the sump.

5. Wait for at least 5 minutes.
6. Check the oil level correctly.
   Oil level too low: Replenish the engine oil again.
7. Replace the cap on the oil filler opening.

Preparing for operation:

1. Connect the negative cable to the battery.
2. Switch on the «Controller ON/OFF» switch.
3. Close both doors.

Starting the machine and performing a test run:

1. Switch on machine using the «START» key on the control panel of the SIGMA CONTROL SMART.
2. Warm-up the machine by allowing it to run in IDLE.
3. Press and hold down the «OFF» key on the control panel of the SIGMA CONTROL SMART for longer than 1 second.
   The machine is switched off.
4. Wait until the machine has automatically vented.
   The pressure gauge reads 0 bar!
5. Open the right-hand door.
6. After approximately 5 minutes: Check the engine oil level.
   Oil level still too low: Replenish the engine oil.
7. Visually inspect for leaks.
8. Close the door.

10.4.6 Changing the engine oil

Carry out the “Change engine oil” service when any of the following events occur:

- Warning message indicated with specific message code (see table 115) on the display of SIGMA CONTROL SMART.
- Maintenance interval of the maintenance schedule has expired.

Message code	Measure
2102	Changing the engine oil

Tab. 115 Specific message code for “Change the engine oil”

Material
Fresh engine oil
Receptacle
Male hose coupling (separately enclosed with machine)
Cleaning cloth

Precondition
The machine is switched off.
The engine is at operating temperature.
The machine is standing level.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.
«Controller ON/OFF» switch is switched off,
the minus cable of the battery has been disconnected.

CAUTION
Danger of burns from hot components and escaping engine oil!
➢ Wear long-sleeved clothing and gloves.

Open the oil drain valve at the drive engine:

To drain the engine oil from the drive engine in a user-friendly manner it is necessary to attach the enclosed male hose coupling to the hose coupling of the drive engine.

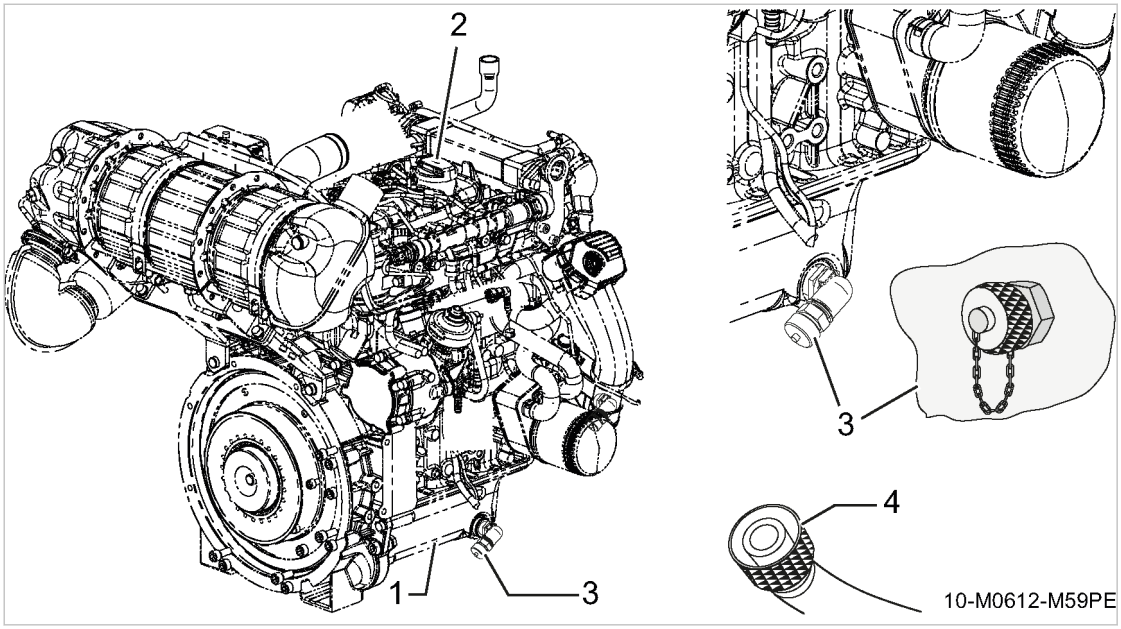


Fig. 64 Draining the engine oil

[1] Drive engine oil pan
[2] Oil filler neck cover, engine oil
[3] Hose coupling
[4] Male hose coupling

1. Open the right-hand door.
2. Loosen and remove the oil filler cover.
3. Position a collecting vessel beneath the oil pan (hole in the floor panel).
4. Suspend and fasten the free end of the hose in the receptacle.
5. Loosen and remove the protective cap for the hose coupling.

6. Install male hose coupling on the hose coupling.
   Engine oil drains.

Draining the engine oil:

➢ Allow the oil to drain out.



Dispose of old oil and oil-soaked working materials according to environmental protection regulations.

Close the hose coupling of the drive engine:

1. Loosen and remove the male hose coupling.
   The hose coupling is closed.
2. Additionally close the hose coupling with the protective cap.

Further information — See chapter 10.4.5 for filling with fresh engine oil.

10.4.7 Replacing the engine oil filter



Standard tools, such as filter wrenches or belts, can be used to loosen the old oil filter for removal. The new oil filter, however, must only be installed and tightened by hand.

Service the oil filter when any of the following occurs:

- Warning message with specific message code (see Table 116) on the display of the SIGMA CONTROL SMART.
- Maintenance interval as per the maintenance schedule has expired.

Message code	Action
2200	Replace the oil filter

Tab. 116 Specific message code for “Replace oil filter”

Material
Long-sleeved protective clothing
Protective gloves
Eye protection
Spare part
Receptacle
Cleaning cloth

Precondition
The machine is switched off,
the engine has been allowed to cool for approximately 5 minutes.
Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.
The Controller ON/OFF switch is switched off,
the negative cable of the battery has been disconnected.

CAUTION
Danger of burns from hot components and escaping engine oil!
- ➢ Allow the engine to cool down before carrying out maintenance tasks.
- ➢ Wear protective clothing and protective gloves.

NOTICE
Overstrain of components!
Leaking engine oil circuit.
- ➢ Install and tighten new oil filter only by force of hand.

Removing the used oil filter:

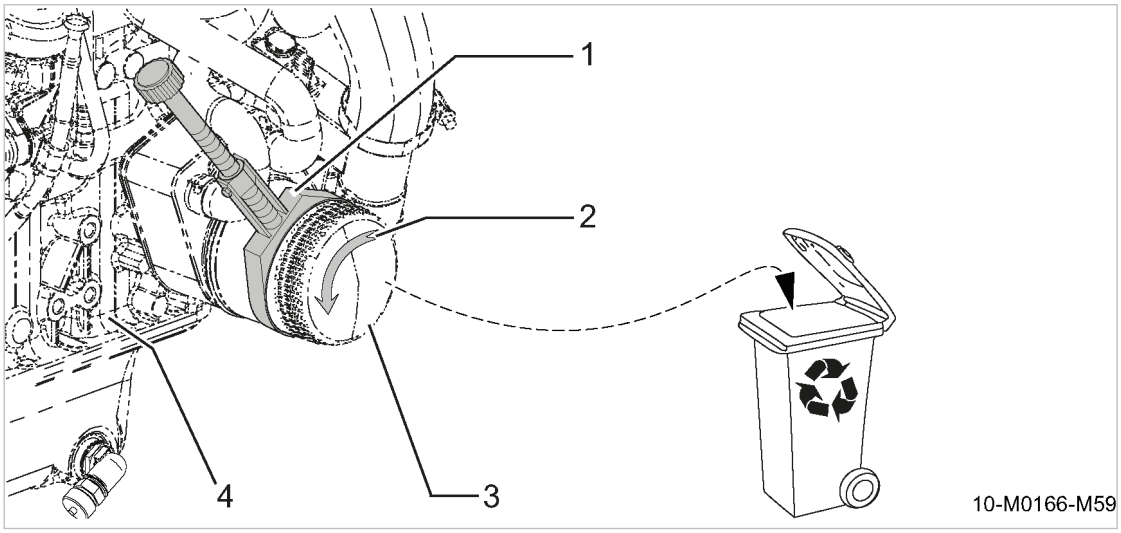


Fig. 65 Removing the used oil filter

[1] Filter wrench
[2] Direction of arrow (loosen oil filter)
[3] Used oil filter
[4] Engine block

1. Open the right-hand door.
2. Prepare a receptacle.
3. Loosen the oil filter (turn in direction of arrow [2]).
4. Remove the oil filter.
5. Catch any escaping engine oil.

Installing the new oil filter:

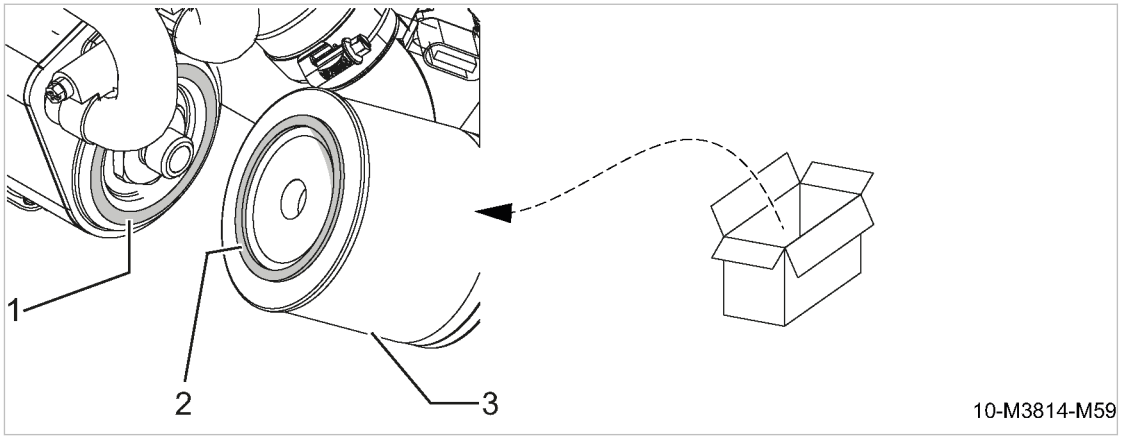


Fig. 66 Installing the new oil filter

[1] Sealing surface
[2] Seal
[3] New oil filter

1. Carefully clean the sealing surface [1] using lint-free cloth.
2. Lightly oil the seal [2] on the new oil filter.
3. Place the oil filter in the installation position.
4. Turn the new oil filter clockwise using only force of hand, until the seal sits tightly on the sealing surface.
5. Tighten the new oil filter by force of hand.

Checking the oil level:

➢ Check the engine oil level.

Engine oil level too low.

➢ Replenish the engine oil.

Dispose of old oil filter, old oil and any materials contaminated with oil in accordance with the applicable environmental protection regulations.

10.4.8 Replacing the engine oil separator element

Oil mist gases in the engine crankcase can cause excess pressure. To avoid excess pressure, the crankcase must be vented.

An oil separator serves to separate the oil mist gas into its constituent parts. The oil will be drained off into the sump. The gases will be fed back in to the combustion process.

The oil separator element must be replaced regularly; see maintenance schedule 10.3.3.1.

Material Spare part
Cleaning cloth

Precondition The machine is shut down and standing on level ground.
The engine has cooled down.
Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.
Both doors are open,
the «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.

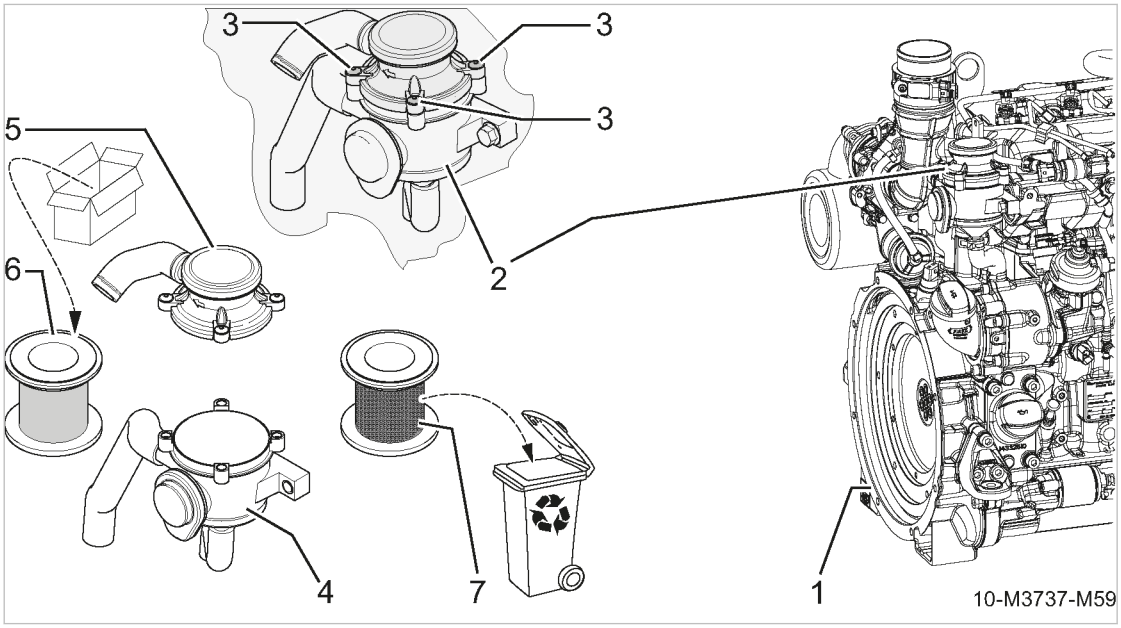


Fig. 67 Replacing the oil separator element

1 Engine
2 Oil separator
3 Fixing screw
4 Housing, lower section
5 Housing, upper section
6 New oil separator element
7 Used oil separator element

Removing the oil separator

1. Loosen and remove all four fixing screws 3 from the oil separator.
2. If necessary, remove the venting hose.
3. Carefully lift the upper section of the housing.
4. Remove the used oil separator element.

Cleaning both oil separator housing sections

Ensure that no dirt can get into either housing section during cleaning.

1. Clean both housing sections using a lint-free cloth.
2. Remove any oil or grease residue from both housing sections.

Reinstalling the oil separator

1. Insert a new oil separator element.
2. If necessary, replace the venting hose.
3. Position the upper section of the housing back in place.
4. Position all four fixing screws in place.
5. Tighten all four fixing screws with the specified torque, see Table 117.

Fixing screw torque	Value
Torque [Nm]	4

Tab. 117 Oil separator fixing screw torque

6. Connect the negative cable to the battery.
7. Switch on the «Controller ON/OFF» switch.
8. Close both doors.



Dispose of the used oil separator element and any contaminated materials in accordance with applicable environmental protection regulations.

10.4.9 Drive belt maintenance

The belt tension affects the service life of the drive belt.

Too little belt tension results in:

- Belt slip and subsequent damage.
- Engine overheating.

Too much belt tension results in:

- Excessive expansion of the drive belt.
- Reduced service life of the drive belt.
- Excess stress on the shaft bearings resulting in bearing damage.

Material Wrench

Spare part

Precondition The machine is switched off,
all components in the exhaust gas after-treatment system have cooled down,
the engine has cooled down.

Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.

The «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.



WARNING
Rotating pulleys and drive belt!
Danger of serious injury from trapping and bruising.

➢ Check the drive belt only when the engine is at standstill.

➢ Never operate the machine without a belt guard.

CAUTION
Danger of burning from extremely hot surfaces!
- ➢ Allow all components in the exhaust gas after-treatment system to cool down.
- ➢ Allow the engine to cool down.

NOTICE
Irreparable damage to the screw retainers!
- ➢ Do not remove the fixing screws from the belt guard grille.

➢ Open both doors.

10.4.9.1 Removing the belt guard grille

The belt guard grille also serves to prevent contact with the extremely hot surfaces of the exhaust gas after-treatment system.

In order to remove the belt guard grille correctly, it is only necessary to loosen the fixing screws. Each fixing screw is fitted with a clamping ring, which functions as a retainer.

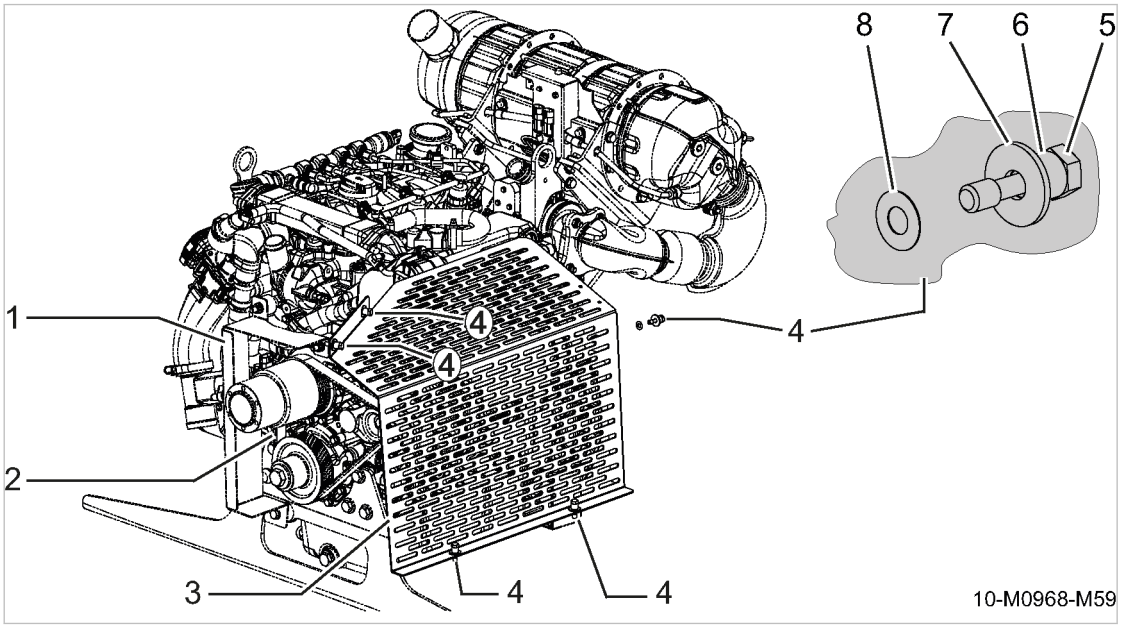


Fig. 68 Removing the belt guard grille

1	Belt guard	5	Fixing screw
2	Drive belt	6	Spacing sleeve
3	Belt guard grille	7	Washer
4	Fixing screw with retainer	8	Clamping ring

1. Loosen all fixing screws on the belt guard grille.
2. Loosen the fixing screws only as far as is necessary to allow the belt guard grille to be removed.
3. Leave the fixing screws on the belt guard using the retainer.

10.4.9.2 Conducting a visual check

Checking the drive belt for damage:

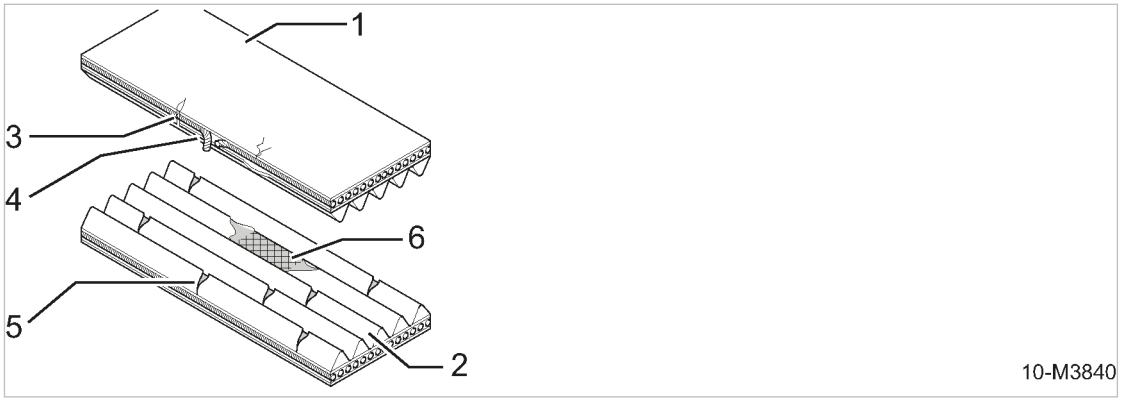


Fig. 69 Drive belt damage

1. Rear side
2. Ribbed side
3. Transverse cracks on the rear side
4. Fraying at the flanks
5. Transverse cracks in multiple ribs
6. Broken ribs

➢ Check the rear side, ribbed side and both flanks thoroughly for cracks, fraying, broken ribs or stretching.

If damaged or worn: Replace the drive belt immediately.

Checking the drive belt for secure fit:

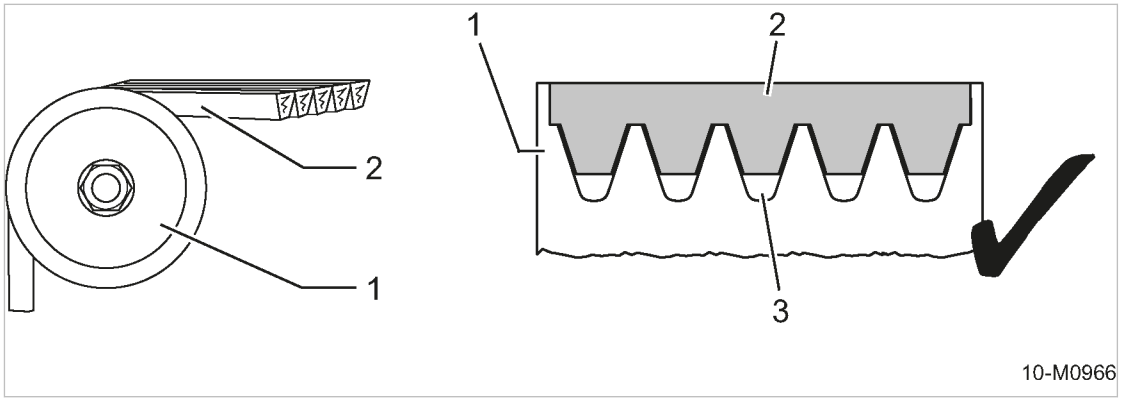


Fig. 70 Checking the fitting of the drive belt

1. Belt pulley
2. Drive belt (V-ribbed belt)
3. Pulley guidance groove

➢ Check the drive belt fitting.

Belt is positioned too deeply in the guidance groove: Replace the drive belt immediately.

1. Reinstall the belt guard.
2. Connect the negative cable to the battery.
3. Switch on the «Controller ON/OFF» switch.
4. Close the doors.

10.4.9.3 Checking the belt tension

Check belt tension only when the drive belt is warm - not hot - so as to avoid differences in length due to temperature.

Check belt tension only with a suitable, manufacturer-approved belt tension tester.

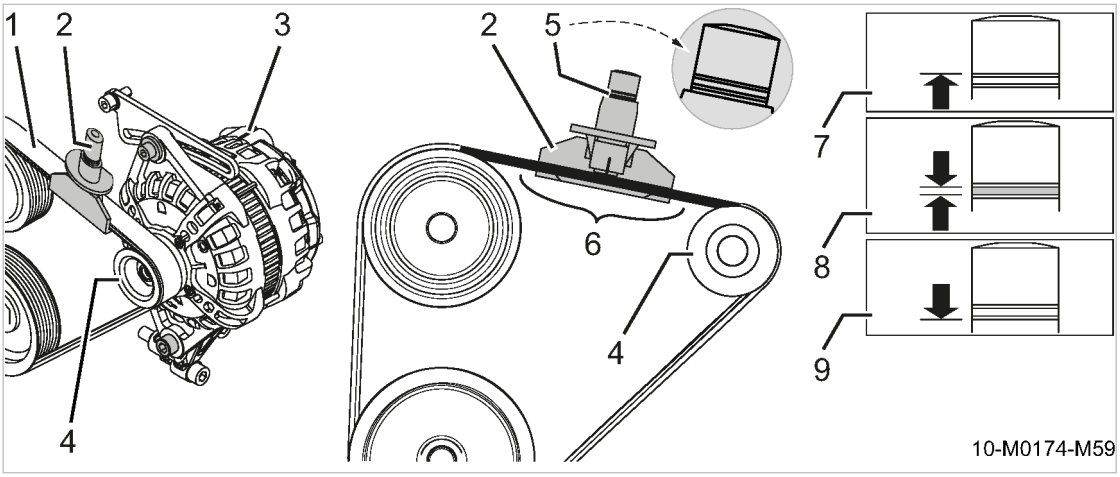


Fig. 71 Checking the belt tension

1. V-ribbed belt
2. Belt tension tester
3. Three-phase alternator
4. Three-phase alternator belt pulley
5. Belt tension tester indication
6. Measuring point
7. Belt tension tester indication *Belt new*
8. Belt tension tester indication *After maintenance interval*
9. Belt tension tester indication *Minimum tension*

1. Check the belt tension with a belt tension tester, (see Fig. 71).
2. If the belt is loose, increase the tension.
3. Reinstall the belt guard.
4. Connect the negative cable to the battery.
5. Switch on the «Controller ON/OFF» switch.
6. Close the doors.

10.4.9.4 Increasing the belt tension

The drive belt tension is increased via the screw fitting on the three-phase alternator.

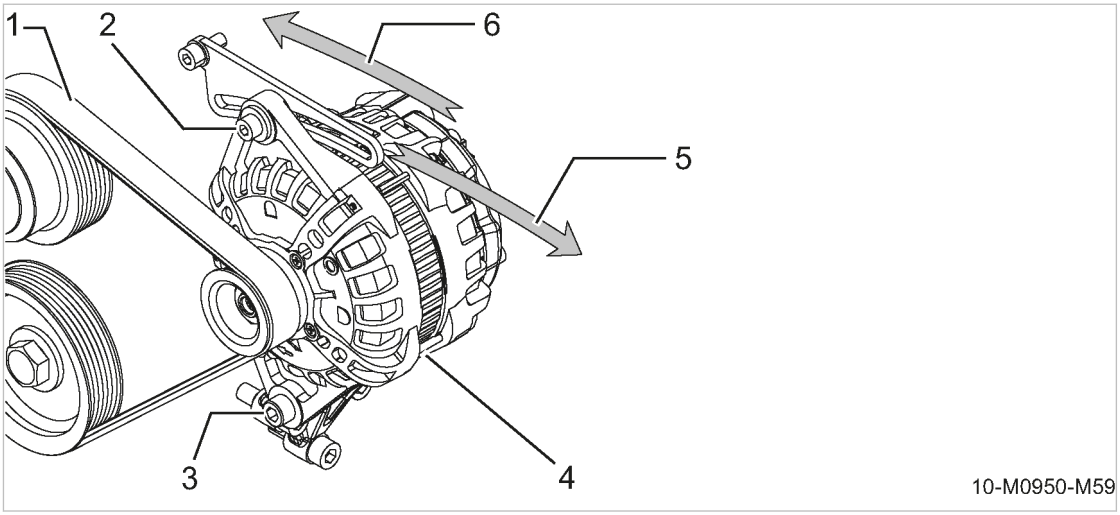


Fig. 72 Increasing the belt tension

[1]	Drive belt	[4]	Three-phase alternator
[2]	Clamping screw	[5]	Direction of arrow
[3]	Fixing screw	[6]	Direction of arrow

1. Loosen the clamping screw and fixing screw on the three-phase alternator.
2. Push the three-phase alternator in the direction of the arrow [5] until the drive belt is sufficiently tensioned.
3. Leave the three-phase alternator in this position.
4. Tighten the clamping screw and fixing screw.
5. Check the belt tension (see Fig. 71).

   Belt tension too low: Push the three-phase alternator further in the direction of the arrow [5].
   Belt tension too high: Turn the three-phase alternator slightly in the direction of the arrow [6].

10.4.9.5 Replacing the drive belt

In order to be able to replace the drive belt as easily as possible, there is a maintenance opening in the cooling shroud. The cover plate for the maintenance opening should only be removed for the purposes of replacing the drive belt.

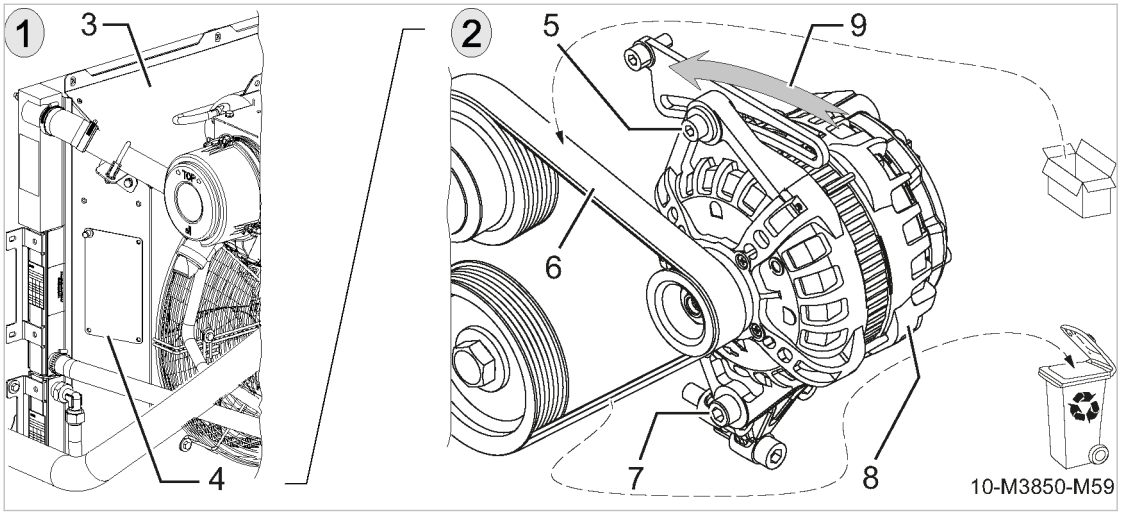


Fig. 73 Replacing the drive belt

[1] Remove the cover plate from the cooling shroud
[2] Replacing the drive belt
[3] Cooling shroud
[4] Cooling shroud cover plate
[5] Clamping screw
[6] Drive belt
[7] Fixing screw
[8] Three-phase alternator
[9] Direction of arrow

Removing the cover plate from the cooling shroud:

1. Loosen and remove all fixing screws from the cover plate.
2. Remove the cover plate from the cooling shroud.

Removing the old drive belt:

1. Loosen the fixing screw and clamping screw on the three-phase alternator.
2. Push the three-phase alternator as far as it will go in the direction of the arrow [9].
   The drive belt is loose.
3. Remove the loose drive belt from the belt pulley.
4. Lift the drive belt over one wing of the fan wheel.
5. Turn the fan wheel further in an anticlockwise direction.
6. Lift the drive belt over all of the fan wheel wings by continuing to turn it in this fashion.
7. Remove the old drive belt.

A belt that has been removed must not be used again.

Checking the belt pulleys:

1. Clean the pulleys if they are dirty.
2. Arrange replacement of worn pulleys.

Installing a new drive belt:

1. Lift the new drive belt over one wing of the fan wheel.
2. Turn the fan wheel further in a clockwise direction.

3. Lift the drive belt over all of the fan wheel wings by continuing to turn it in this fashion.
4. Position the new drive belt over the pulleys by hand, without using force.
5. Check whether the drive belt is correctly fitted in the pulley guidance grooves.
6. Increase the tension in the drive belt.

After two to three hours of operation, check the belt tension again.

Old belts should be disposed of in accordance with the applicable environmental protection regulations.

Preparing for operation:

1. Replace the cover plate on the cooling shroud.
2. Refit the belt guard grille.
3. Connect the negative cable to the battery.
4. Switch on the «Controller ON/OFF» switch.
5. Close the doors.

10.4.10 Battery maintenance

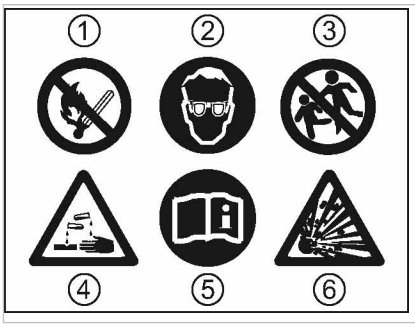
➢ Check the charging system if the batteries discharge for no obvious reason.

10.4.10.1 Safety

WARNING
Danger of acid burns from escaping electrolyte!
- ➢ Wear appropriate protective clothing, including acid-proof gloves.
- ➢ Always wear eye and face protection.
- ➢ Do not tip the battery. Electrolyte may escape from vent holes.
- ➢ Proceed with caution.

When working on batteries, note the following safety signs:

A warning label with safety signs is attached to the battery.



10-M0167

Fig. 74 Safety signs - warning labels on the battery

➢ Note and abide by all safety signs given on the battery warning label.
The individual safety signs have the following meaning:
- [1] – Fire, sparks, open flame and smoking prohibited!
- [2] – Danger of acid burns - eye and face protection must be worn!
- [3] – Keep children away from acids and batteries!
- [4] – Wear protective gloves - batteries are filled with caustic electrolyte!
- [5] – Observe the battery manufacturer's instructions!
- [6] – Explosion hazard - follow safety rules!

Further instructions on working with batteries:

➢ Do not remove battery terminal covers unnecessarily.
➢ Do not lay tools on the battery. This can cause the battery to short-circuit, overheat or explode!
➢ Take particular care when the battery has been in service for a long time or has just been charged, as highly explosive gas is emitted!
Ensure adequate ventilation!

10.4.10.2 Ensuring battery charge condition

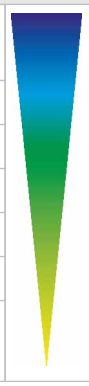
If the machine has not been operated for a long period of time, the batteries may self-discharge. The starting voltage may be insufficient to start the engine when needed. Total discharge may result in battery damage.



The following applies to starter batteries:
Recharge if stored for 30 days or longer!

The current charge level of the starter batteries can be checked on the SIGMA CONTROL SMART controller display via the *Battery voltage* indicator.

Starter batteries charge level:

Charge level [%]		Voltage display [V]	Electrolyte density [kg/l]	Notes
100		12.7 - 12.85	1.27	Battery OK, fully charged.
75		12.5	1.24	Recharge required!
65		12.4	1.22	
50		12.3	1.21	Starting capacity limit!
25		12.0	1.16	Battery discharged below permissible discharge limit.
20		11.9	1.14	
0		11.6	1.09	Battery permanently damaged due to total discharge!
Values at 25° C				

Tab. 118 Starter batteries charge level

➢ Check battery charge and recharge using suitable charging device if necessary.

10.4.10.3 Checking and maintaining standard batteries

Even so-called 'maintenance-free' batteries need a certain degree of care to achieve their maximum service life.

The outside of the battery and the terminals should be cleaned regularly with a soft cloth. This avoids current leakage and minimises the discharge rate.

Material
Terminal grease
Distilled water
Soft cleaning cloth
Protective gloves
Eye protection

Precondition
The machine is switched off and has cooled down.
The machine is standing level.
Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.
The «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.

➢ Open the left-hand door.
1. Clean the housing and terminal connections. Do not use a wire brush!
2. Lightly grease the contacts to prevent corrosion.
3. Check the battery is secured in place, tighten screw connections if necessary.
4. Check the terminal connections are secured in place, tighten if necessary.

Checking the battery electrolyte level:

The amount of electrolyte is generally sufficient for the lifetime of the battery. Nevertheless, the electrolyte level should be checked once per year. The electrolyte level should reach up to the marking, i.e. 1 cm above the plates.

Replace the battery immediately if the housing leaks!

1. *NOTICE!*
   Irreparable battery damage!
   Replenishing with pure electrolyte will increase the level of concentration and can irreparably damage the battery.
   ➢ Replenish with distilled water only.
2. Check the electrolyte level.

If the electrolyte level does not reach the marking:
➢ Replenish with distilled water.

➢ Close the door.

10.4.10.4 Checking and maintaining GEL batteries

The machine can be optionally specified with a maintenance-free GEL battery, which also contributes to weight optimisation.

Material Soft cleaning cloth
Protective gloves
Eye protection



NOTICE
Gel batteries will be irreparably damaged by replenishment with water
➢ Do not replenish gel batteries with water.

1. Check and clean the housing.
2. Remove the battery terminal covers.
3. Check and clean the terminal connections, tighten if necessary.
4. Replace the battery terminal covers and check they are secured in place.
5. Check the battery is secured in place, tighten screw connections if necessary.

10.4.10.5 Winter operation

Winter operation is especially demanding on batteries. Only a fraction of the normal starting power is available at low temperatures.



1. *NOTICE!*
   Danger of batteries freezing!
   Discharged batteries are susceptible to frost damage and can freeze at −10 °C.
   ➢ Check the battery charge condition using an electrolyte density tester.
   ➢ Recharging the batteries.
   ➢ Clean the terminals connections and apply grease.
2. Check the battery charge weekly.
   Recharge as necessary.
3. For machine standstill times of several weeks: Remove the batteries and store in a frost-free environment.



In extreme cases, the use of a heavy-duty cold-start battery and/or an additional booster battery is recommended.

10.4.10.6 Removing and installing the battery

Precondition The machine is switched off and has cooled down.
The machine is standing level.
Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.
The «Controller ON/OFF» switch is switched off.



1. **CAUTION!**
   Danger of batteries exploding!
   A short-circuited battery heats up quickly and can rupture.
   ➢ Never short-circuit a battery (e.g. with a tool).
   ➢ Wear protective gloves and eye protection.

2. *NOTICE!*
   Excessive voltage produced by the engine generator!
   Voltage peaks can destroy the engine generator regulator and diodes.
   - ➢ The battery serves as a buffer and must not be disconnected whilst the engine is running.
   - ➢ Carry out work on the batteries only when the machine has been shut down.
3. Open the left-hand door.
4. First, remove the cable connection on the negative pole of the battery.
5. Then, remove the cable connection on the positive pole of the battery.
   Both cable connections for the battery are now removed.
6. Remove the battery mounting.
7. Remove the battery from the machine.
8. Position serviced or new battery in the machine.
9. Install the battery mounting.
10. Make sure the battery is properly secured.
11. First, attach the cable connection to the positive pole of the battery.
12. Then, attach the cable connection to the negative pole of the battery.
    Both cable connections for the battery are now attached.
13. Switch on the «Controller ON/OFF» switch.
14. Close the door.

Replacing the battery:

Replacement batteries must be of the same capacity, current strength and type as the original batteries.

- ➢ Always replace batteries with the same type.

Old batteries constitute hazardous waste and must be disposed of correctly in accordance with applicable local environmental protection regulations.

10.5 Servicing components in the exhaust gas after-treatment system

Components in the exhaust gas after-treatment system reach extremely high temperatures during operation, especially when regenerating the diesel particulate filter.

To protect against contact with extremely hot surfaces, several heat shields are fitted around the exhaust gas after-treatment system.

Material Protective gloves
Protective clothing

Precondition The machine is switched off,
all components in the exhaust gas after-treatment system have cooled down,
the engine has cooled down.

The machine is standing level.

Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.

The «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.

CAUTION
Danger of burning from extremely hot surfaces.
- ➢ Allow all components in the exhaust gas after-treatment system to cool down.
- ➢ Allow the engine to cool down.

NOTICE
Irreparable damage to the screw retainers!
- ➢ Do not remove the fixing screws from the heat shield.

➢ Conduct maintenance tasks in accordance with the maintenance schedule in Chapter 10.3.3.1.

Removing the heat shield:

In order to remove the heat shield correctly, it is only necessary to loosen the fixing screws. Each fixing screw is fitted with a clamping ring, which functions as a retainer.

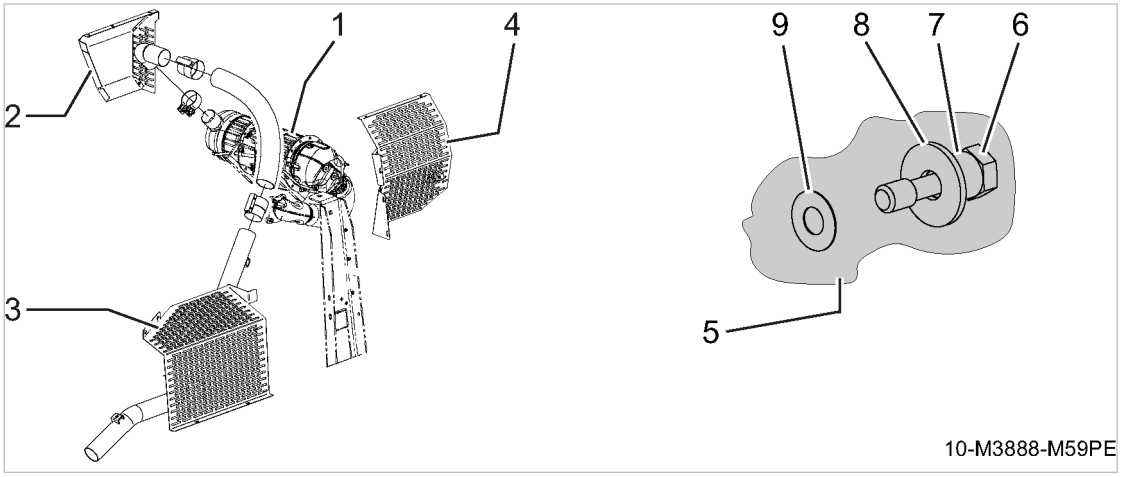


Fig. 75 Heat shield, exhaust gas after-treatment

[1] Exhaust gas after-treatment
[2] Heat shield, diesel particulate filter exhaust manifold
[3] Heat shield, exhaust gas pipe
[4] Heat shield, diesel particulate filter
[5] Fixing screw with retainer
[6] Fixing screw
[7] Spacing sleeve
[8] Washer
[9] Clamping ring

1. If necessary, remove the heat shields so as to be able to conduct the following checks correctly.
2. Loosen the fixing screws.
3. Loosen the fixing screws only as far as is necessary to allow the heat shield to be removed.
4. Leave the fixing screws on the belt guard grille using the retainer.

Checking the diesel particulate filter housing:

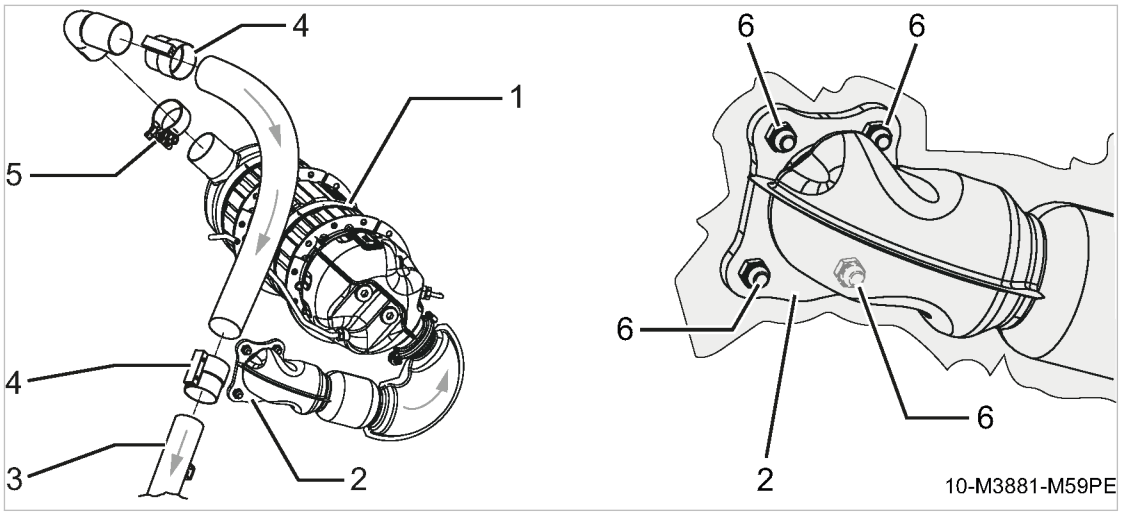


Fig. 76 Exhaust gas after-treatment with diesel particulate filter

1	Diesel particulate filter housing	4	Stepped band clamp
2	Flange connection	5	Pipe clamp
3	Exhaust gas pipe	6	Screw connection

➢ Check the diesel particulate filter housing is tightly fitted and free from damage.
The housing is damaged: Please contact KAESER SERVICE.

Checking the flange connection:

➢ Check the flange connection between the exhaust manifold and the diesel particulate filter; tighten the screw connection if required.
The flange connection is damaged: Contact KAESER SERVICE or the HATZ engine factory.

Checking the fixing elements

1. Check all pipe clamps are tightly fitted; tighten if necessary.
2. Check all stepped band clamps are tightly fitted; tighten if necessary.

Checking the exhaust manifold insulation:

➢ Check the exhaust manifold insulation is tightly fitted and free from damage.
The insulation is damaged: Please contact KAESER SERVICE.

Refitting the heat shields:

The machine must not be operating without the heat shields fitted.

Precondition Maintenance of all components in the exhaust gas after-treatment system has been completed correctly.

1. Refit all heat shields.
2. Check that all heat shields are fitted correctly.

10.6 Compressor Maintenance

➢ Perform maintenance tasks according to the schedule in chapter 10.3.3.1.

10.6.1 Check the cooling oil level

The oil level is checked at the oil separator tank oil filler. Oil must be visible when the screw plug is removed.

Material Long-sleeved protective clothing
Protective gloves
Eye protection (protective glasses)
Wrench
Cleaning cloth

Precondition The machine is switched off.
The machine has been set down on level ground.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 bar!
Left door is open, «Controller ON/OFF» switch is switched off,
the minus cable of the battery has been disconnected.

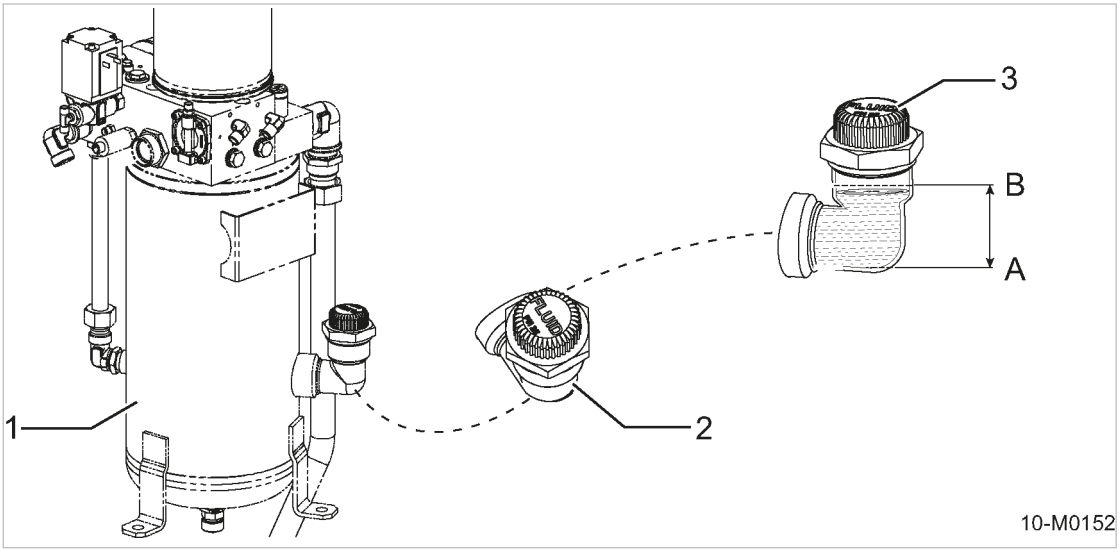


Fig. 77 Checking the cooling oil level

[1] Oil separator tank
[2] Oil filler
[3] Screw plug
[A] Minimum level
[B] Maximum level

1. Loosen the screw plug at the oil filler port.

2. Remove the screw plug from the oil filler port.
3. Check the cooling oil level.
   If oil is not visible: Top up the cooling oil.
4. Install the screw plug.
5. Tighten the screw plug.
6. Close the door.

10.6.2 Cooling oil filling and topping up

Material
Cooling oil
Funnel
Cleaning cloth
Wrench

Precondition
The machine is switched off and has cooled down.
The machine is standing level.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 bar!
Left door is open, «Controller ON/OFF» switch is switched off,
the minus cable of the battery has been disconnected.

Filling in cooling oil:

A sticker on the oil separator tank specifies the type of oil used.



1. *NOTICE!*
   The machine could be damaged by unsuitable oil!
   - ➢ Never mix different types of oil.
   - ➢ Never top up with a type of oil that differs from the one already used in the machine.
2. Loosen and remove screw plug from the filler port.
3. Top up the cooling oil to the maximum level (B) with the help of a funnel.
4. Check the oil level.
5. Check the filler plug gasket for damage.
   Damaged gasket: replace gasket.
6. Replace the screw plug in the filler port.

Preparing for operation:

1. Connect the negative battery terminal.
2. Switch on the «Controller ON/OFF» switch.
3. Close the door.

Starting the machine and performing a test run:

1. Switch on machine by using the START key on the control panel of SIGMA CONTROL SMART.
2. Let machine run in IDLE mode.
   Warm-up has been successful when required airend discharge temperature has been reached.

3. Press and hold the «OFF» key on the control panel of SIGMA CONTROL SMART for more than 1 second.
   The machine is switched off.
4. Wait until the machine has automatically vented.
   The pressure gauge reads 0 bar!
5. Open the outlet valves.
6. Open the left-hand door.
7. Check the oil level after about 5 minutes.
   Cooling oil level too low: Top up the cooling oil.
8. Visually inspect for leaks.
9. Close the door.

10.6.3 Changing the cooling oil

All of the oil must always drain fully from the following components:

- Airend
- Oil separator tank
- Oil cooler
- Oil pipes

Carry out the “Change cooling oil” service when any of the following events occur:

- Warning message indicated with specific message code (see table 119) on the display of SIGMA CONTROL SMART.
- Maintenance interval of the maintenance schedule has expired.

➢ Always change the oil filter when changing the cooling oil.

Message code	Measure
2202	Changing the cooling oil

Tab. 119 Specific message code for “Change the cooling oil”

Material
See chapter 2.7.6 for compressor oil filling volumes.
Receptacle
Male hose coupling (separately enclosed with machine)
New gasket for the screw plug
Funnel
Cleaning cloth

Precondition
Machine is switched off.
The machine is standing level.
The machine is at operating temperature.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.
«Controller ON/OFF» switch is switched off, the minus cable of the battery has been disconnected.

CAUTION
Danger of burning from hot components and escaping cooling oil!
➢ Wear long-sleeved clothing and gloves.

➢ Open the left-hand door.

10.6.3.1 Draining the cooling oil

In order to drain all of the cooling oil from the machine in a user-friendly manner, it is necessary to attach the two male hose couplings provided to the corresponding hose couplings on the oil separator tank and oil cooler.

- Remove the screw plug from the oil filler port on the oil separator tank.
- Attach one male hose coupling to the hose coupling on the oil separator tank.
- Attach the other male hose coupling to the hose coupling on the oil cooler.
- Remove the screw plug from the airend.

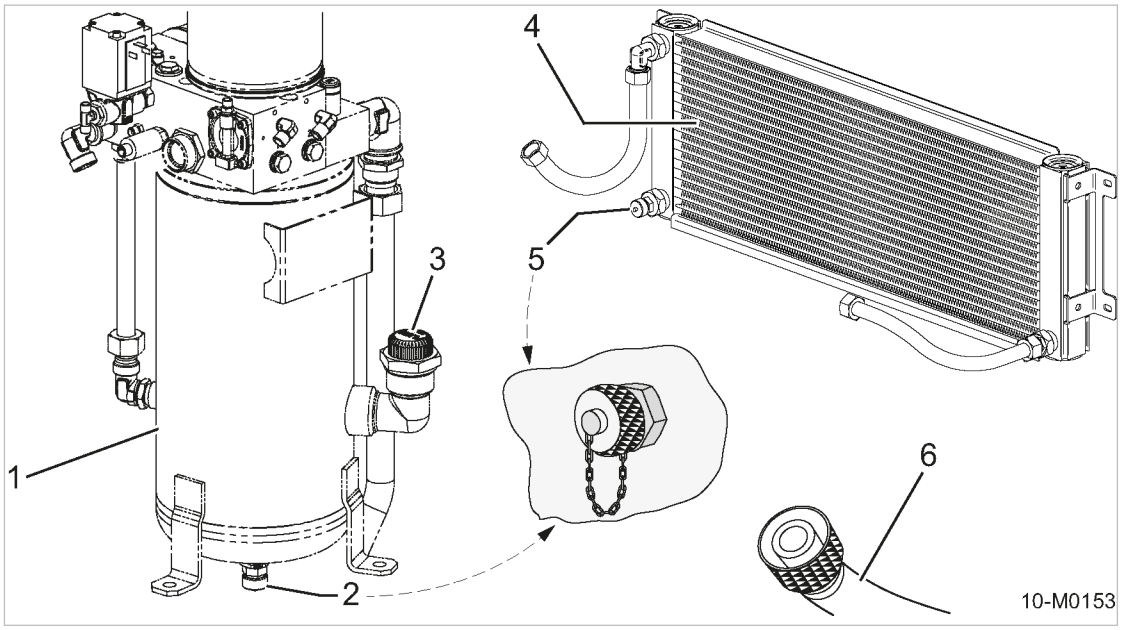


Fig. 78 Draining the compressor cooling oil

1	Oil separator tank	4	Oil cooler
2	Oil separator tank hose coupling	5	Oil cooler hose coupling
3	Oil filler port screw plug	6	Male hose coupling

➢ Follow all instructions carefully.

Removing the oil filler port screw plug:

1. Loosen and remove the screw plug from the oil filler port on the oil separator tank.
2. Remove the old sealing ring from the oil filler port.
3. Dispose of the old sealing ring.

Draining the cooling oil from the oil separator tank:

1. Position a receptacle beneath the oil separator tank (hole in floor panel).

2. Feed the free end of the male hose coupling through the opening in the floor panel.
3. Suspend and fasten the free end of the male hose coupling inside the receptacle.
4. Loosen and remove the protective cap for the hose coupling.
5. Attach the male hose coupling to the hose coupling.
   The cooling oil drains out.

Draining the cooling oil from the oil cooler:

1. Position a receptacle beneath the oil cooler (hole in floor panel).
2. Feed the free end of the male hose coupling through the opening in the floor panel.
3. Suspend and fasten the free end of the male hose coupling inside the receptacle.
4. Loosen and remove the protective cap for the hose coupling.
5. Attach the male hose coupling to the hose coupling.
   The cooling oil drains out.

Draining the cooling oil from the airend:

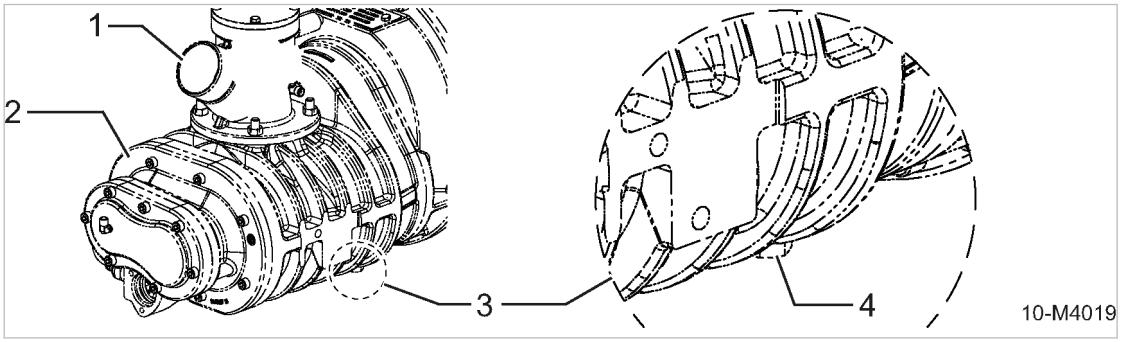


Fig. 79 Airend screw plug

[1] Inlet valve
[2] Airend
[3] Airend drainage point
[4] Screw plug

1. Position a receptacle beneath the airend (hole in floor panel).
2. Loosen and remove the screw plug [4] underneath the airend.
   The cooling oil drains out.
3. Dispose of the old sealing ring.

Draining the cooling oil from the machine:

➢ Drain all of the cooling oil from the machine at operating temperature.

Removing the oil filter component:

➢ For removing the oil filter, see chapter 10.6.4.

Closing the hose coupling on the oil separator tank:

1. Loosen and remove the male hose coupling.
   The hose coupling is closed.
2. Return the protective cap to the hose coupling.

Closing the hose coupling on the oil cooler:

1. Loosen and remove the male hose coupling.
   The hose coupling is closed.
2. Return the protective cap to the hose coupling.

Closing the screw plug on the airend:

1. Place a new sealing ring over the contact surface of the screw plug.
2. Insert the screw plug with new sealing ring.
3. Properly tighten the screw plug.

Installing the oil filter component:

➢ For installing the new oil filter, see chapter 10.6.4.

10.6.3.2 Filling in cooling oil

To properly fill the machine with new cooling oil, the filling process must be carried out in three filling steps, each with three specific cooling oil volumes. After each filling step, run the machine for a short time in IDLE speed.

For specific cooling oil quantities of the three filling steps, see table 120.

Specific cooling oil volume	Value [l]
Filling step 1	4.5
Filling step 2	3.0
Filling step 3	1.0

Tab. 120 Specific cooling oil volumes

Precondition Old cooling oil has drained completely.
Screw plug on the filler port has been removed.

Filling step 1

1. Fill the specific cooling oil volume for filling step 1 into a suitable container.
2. Fill the cooling oil into the filler port on the oil separator tank using a funnel.
3. Replace the plug in the filler port.
4. Close the door.
5. Prepare machine for operation.
6. Start the machine and run it in IDLE speed for a short time.
7. Switch off the machine.
8. Wait until the machine has automatically vented.
9. Open the door.
10. Loosen and remove the screw plug from the filler port.

Filling step 2

1. Fill the specific cooling oil volume for filling step 2 into a suitable container.
2. Repeat steps 2 - 10 from **“Filling step 1”**.

Filling step 3

1. Fill the specific cooling oil volume for filling step 3 into a suitable container.
2. Repeat steps 2 - 10 from **“Filling step 1”**.

Checking the cooling oil level

1. Check the cooling oil level after about 5 minutes.



Cooling oil level too low.

➢ Top up more cooling oil.

2. Install the screw plug with a new gasket on the filler port.
3. Tighten the screw plug.

Performing final work steps:

➢ Close the door.



Dispose of used oil and oil-contaminated working materials according to environmental protection regulations.

10.6.4 Replacing the compressor oil filter



Standard tools, such as filter wrench or belts may be used in order to loosen the old oil filter for removal. The new oil filter, however, may only be installed and tightened by hand force.

Service the oil filter when any of the following events occur:

- Warning message indicated with specific message code (see table 121) on the display of SIGMA CONTROL SMART.
- Maintenance interval of the maintenance schedule has expired.

Message code	Measure
2200	Changing the oil filter

Tab. 121 Specific message code for “Change the oil filter”

Material
Long-sleeved protective clothing
Protective gloves
Eye protection (protective glasses)
Spare part
Receptacle
Cleaning cloth

Precondition
The machine is switched off.
The machine is at operating temperature.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.
Left door is open, «Controller ON/OFF» switch is switched off,
the minus cable of the battery has been disconnected.

CAUTION
Danger of burning from hot components and escaping cooling oil!
➢ Wear long-sleeved protective clothing and protective gloves.

NOTICE
Overstraining of components!
Leaking cooling oil circuit.
➢ Install and tighten new oil filter only by hand force.

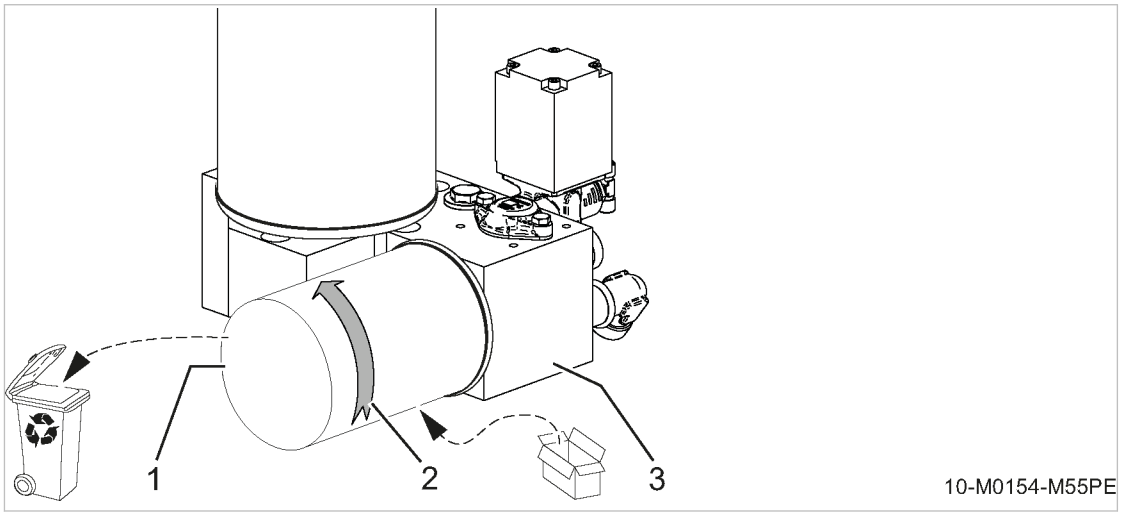


Fig. 80 Changing the oil filter
[1] Oil filter
[2] Direction of arrow (loosen oil filter)
[3] Thermostatic valve

Removing the old oil filter:

1. Prepare a receptacle.
2. Loosen oil filter (turn in direction of arrow [2]).
3. Remove the oil filter.
4. Catch any escaping cooling oil.
5. Carefully clean sealing surface using lint-free cloth.

Installing the new oil filter:

1. Lightly oil the gasket of the new filter.
2. Set oil filter into installation position.
3. Turn the new oil filter clockwise using only hand force until the gasket fits tightly on the sealing surface.
4. Tighten new oil filter by hand force.

Check the cooling oil level:

➢ Check the cooling oil level in the oil separator tank.



Cooling oil level too low.

➢ Top up the cooling oil.

Preparing for operation:

1. Connect the negative battery terminal.
2. Switch on the «Controller ON/OFF» switch.
3. Close the door.

Starting the machine and performing a test run:

1. Switch on machine by using the «START» key on the control panel of SIGMA CONTROL SMART.
2. Let machine warm up in IDLE mode.
   Warm-up has been successful when required discharge temperature has been reached.
3. Press and hold the «OFF» key on the control panel of SIGMA CONTROL SMART for more than 1 second.
   The machine is switched off.
4. Wait until the machine has automatically vented.
   Pressure gauge reads 0 bar!
5. Open the discharge valves.
6. Open the left-hand door.
7. After approximately 5 minutes: Check the cooling oil level.



Cooling oil level too low.

➢ Top up the cooling oil again.

8. Visually inspect for leaks.
9. Close the door.



Dispose of old cooling oil and any materials or parts contaminated with oil according to environment protection regulations.

Resetting maintenance timer:

➢ Reset the maintenance timer as described in the separate User Manual of SIGMA CONTROL SMART, chapter “Reset maintenance timer”.

10.6.5 Oil separator tank dirt trap maintenance

The control valve is mounted on the oil separator tank cover. The control valve has two different dirt traps that must be cleaned at least once a year.

Material
Cleaning cloth
Wrench
Small screwdriver
Maintenance kit, control valve
Petroleum ether or spirit

Precondition
The machine is switched off and has cooled down.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 bar!
Left door is open, «Controller ON/OFF» switch is switched off,
the minus cable of the battery has been disconnected.

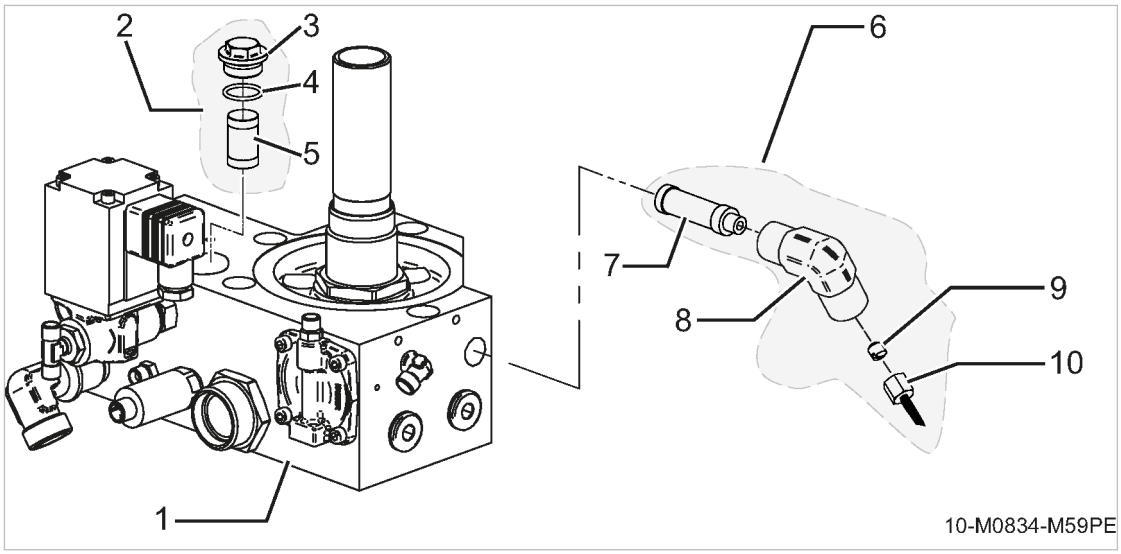


Fig. 81 Oil separator tank dirt trap maintenance

[1]	Control valve	[6]	Detail: Dirt trap, oil return line
[2]	Detail: Dirt trap, proportional controller	[7]	Strainer
[3]	Screw plug	[8]	Male stud fitting
[4]	O-ring	[9]	Nozzle
[5]	Strainer	[10]	Oil return line pipe union nut

➢ Follow all instructions carefully.

10.6.5.1 Maintenance of the proportional controller dirt trap

See Fig. 81; Detail: 2.

1. Remove the screw plug.
2. Pull off the strainer.
3. Clean the plug, strainer and O-ring with cleaning solvent or spirit.
4. Check the strainer and O-ring for wear.
   When severely worn: replace components.
5. Place the screw plug on the strainer.
6. Install the screw plug, making sure the O-ring sits in the correct position.

7. Tighten the screw plug with the specific torque required, see table 122.

Screw plug torque	Value
Thread [“]	G1/2
Torque [Nm]	15–20

Tab. 122 Dirt trap screw plug torque

10.6.5.2 Oil return line dirt trap maintenance

See Fig. 81; Detail: 6.

1. Loosen the oil return line clamping nut.
2. Use a screwdriver to remove the nozzle.
3. Remove the male stud fitting.
4. Remove the strainer.
5. Clean the male stud fitting, nozzle and strainer with cleaning solvent or spirit.
6. Check the nozzle and strainer for wear.
   When severely worn: replace components.
7. Install the nozzle and strainer in/on the male stud fitting.
8. Install male stud fitting by using the correct angular adjustment (see Fig. 82).

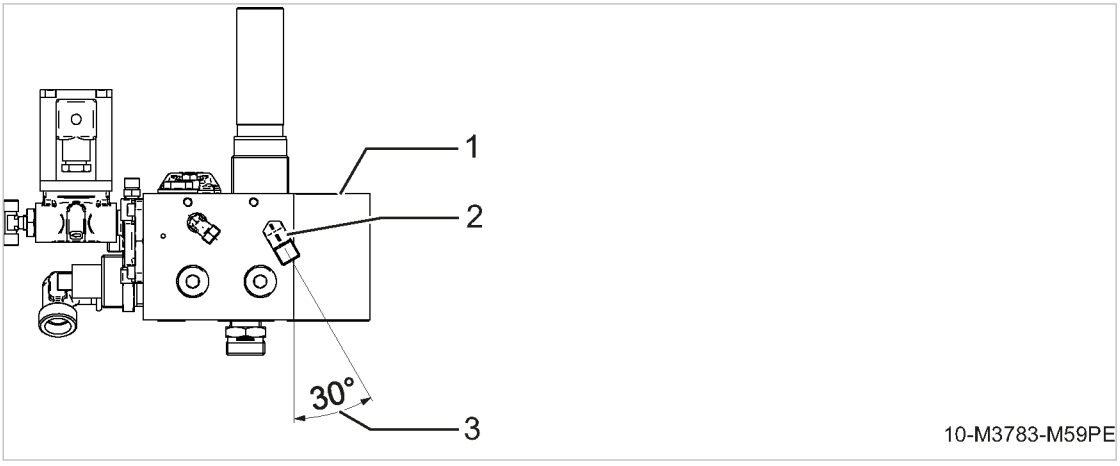


Fig. 82 Install the male stud fitting

[1] Control valve
[2] Male stud fitting
[3] Angle bracket

9. Install the oil return line clamping nut.

10.6.5.3 Preparing for operation

1. Connect the negative battery terminal.
2. Switch on the «Controller ON/OFF» switch.
3. Close the door.

10.6.5.4 Starting the machine and performing a test run

1. Switch on machine by using the «START» key on the control panel of SIGMA CONTROL SMART.
2. Warm-up machine by letting it run in IDLE mode.
   Warm-up has been successful when required airend discharge temperature has been reached.
3. Press and hold the «OFF» key on the control panel of SIGMA CONTROL SMART for more than 1 second.
   The machine is switched off.
4. Wait until the machine has automatically vented.
   Pressure gauge reads 0 bar!
5. Open the outlet valves.
6. Open the left-hand door.
7. Visually inspect for leaks.
8. Close the door.



Dispose of old parts and contaminated materials according to environmental regulations.

10.6.6 Changing the oil separator cartridge



The oil separator cartridge cannot be cleaned.

The life of the oil separator cartridge is influenced by:

- contamination in the air drawn into the compressor,
- and adherence to the replacement intervals for the:
  - Cooling oil
  - Oil filter
  - Air filter

Material
Spare part
Cleaning cloth
Filter strap wrench

Precondition
The machine is switched off.
The machine has cooled down.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.
«Controller ON/OFF» switch is switched off,
the minus cable of the battery has been disconnected.

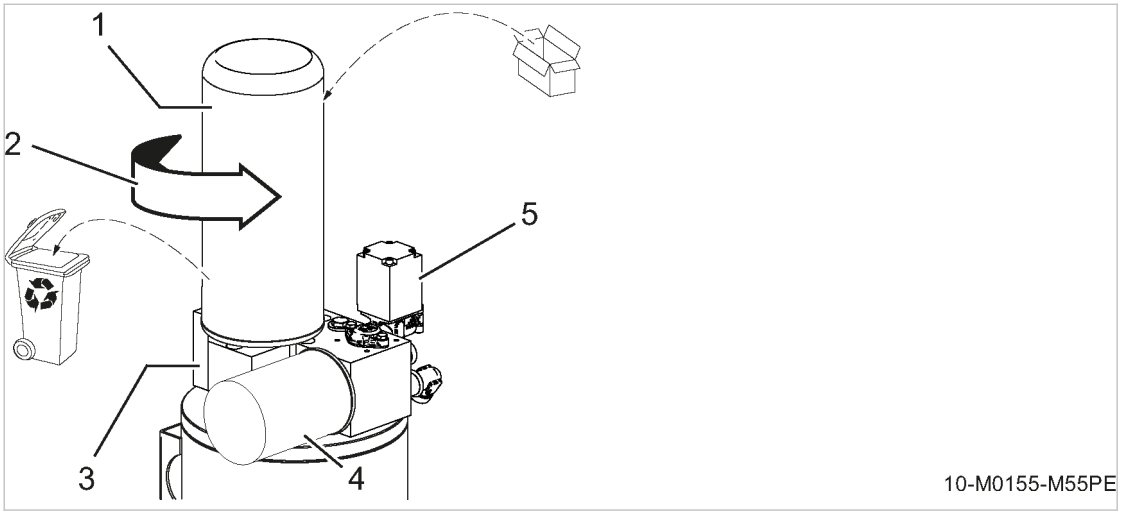


Fig. 83 Changing the oil separator cartridge

[1] Oil separator cartridge
[2] Direction of arrow (loosen oil separator cartridge)
[3] Thermostatic valve
[4] Oil filter
[5] Solenoid valve

➢ Open the left-hand door.

Changing the oil separator cartridge:

1. Loosen the old oil separator cartridge (turn in direction of arrow [2]).
2. Remove the old oil separator cartridge.
3. Clean the sealing surface.
4. Lightly oil the new filter's gasket.
5. Set new oil separator cartridge into installation position.
6. Turn the new oil separator cartridge clockwise by hand until the oil separator cartridge fits tightly on the sealing surface.
7. Tighten new oil separator cartridge by hand.
8. Check the oil level in the oil separator tank.
   Cooling oil level too low: Top up the cooling oil.

Maintenance of both control valve dirt trap must be carried out whenever the oil separator cartridge is changed.

Further information See chapter 10.6.5 for information on the maintenance of the two dirt traps.

Preparing for operation:

1. Connect the negative battery terminal.
2. Switch on the «Controller ON/OFF» switch.
3. Close the left-hand door.

Dispose of old parts and contaminated materials according to environmental regulations.

Starting the machine and performing a test run:

1. Switch on machine by using the «START» key on the control panel of SIGMA CONTROL SMART.
2. Warm-up machine by letting it run in IDLE mode.
   Warm-up has been successful when required airend discharge temperature has been reached.
3. Press and hold the «OFF» key on the control panel of SIGMA CONTROL SMART for more than 1 second.
   The machine is switched off.
4. Wait until the machine has automatically vented.
   The pressure gauge reads 0 bar!
5. Open the outlet valves.
6. Open the left-hand door.
7. After approximately 5 minutes: Check the cooling oil level.
   Cooling oil level too low: Top up the cooling oil.
8. Visually inspect for leaks.
9. Close the door.

10.6.7 Compressor air filter maintenance

- Operating the machine without filter elements fitted is not permitted!
- Do not use filter elements with damaged folds or seals.
- The use of unsuitable or damaged filter elements can allow dirt to enter the pressure system and cause premature wear and damage to the machine.

Service the compressor air filter should any of the following occur:

- Warning message with specific message code (see Table 123) on the display of the SIGMA CONTROL SMART.
- Maintenance indicator is activated.
- Maintenance interval as per the maintenance schedule has expired.

Message code	Action
2201	Replace / clean the filter element

Tab. 123 Specific message code for “Service air filter”

Material
Compressed air for blowing out
Spare part (if required)
Cleaning cloth

Precondition
The machine is switched off and has cooled down.
Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.
Both doors are open,
the «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.

NOTICE
Damaged filter element.
Machine damaged due to contaminated intake air.
- ➢ Do not try to clean the filter element by striking or tapping it.
- ➢ Do not wash the filter element.

➢ Follow all instructions carefully.

Checking the air filter contamination level:

Air filter maintenance is required when the yellow piston inside the maintenance indicator reaches the red zone.

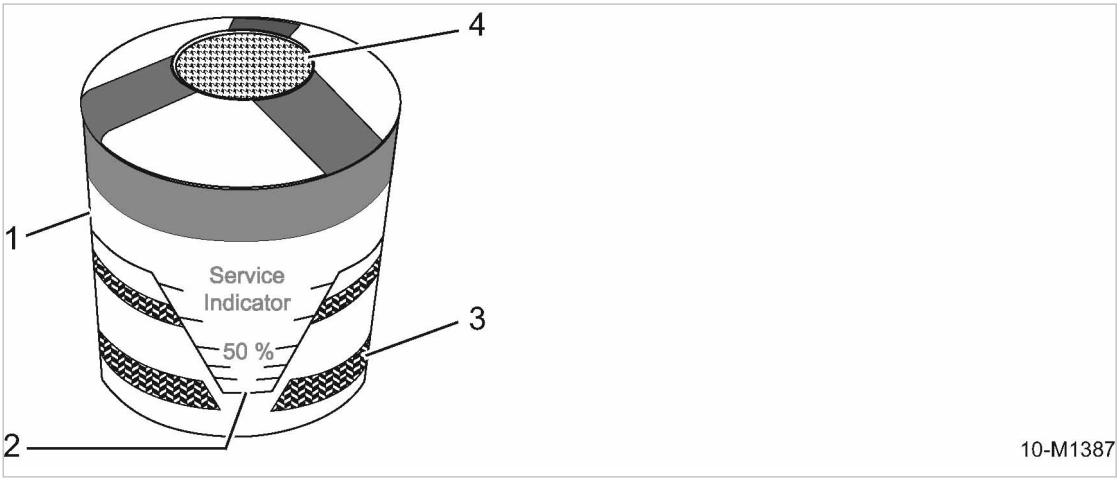


Fig. 84 Maintenance indicator

1	Maintenance indicator	3	Red zone indicator scale
2	Indicating piston, maintenance indicator	4	Maintenance indicator reset button

➢ Check the air filter maintenance indicator.
If the yellow piston has reached the red zone: Replace the filter element.

Cleaning the dust evacuator valve:

Coarse dirt particles in the intake air fall to the base of the filter housing and are deposited around the dust evacuator valve. When maintaining the compressor air filter, these dirt particles must be removed.

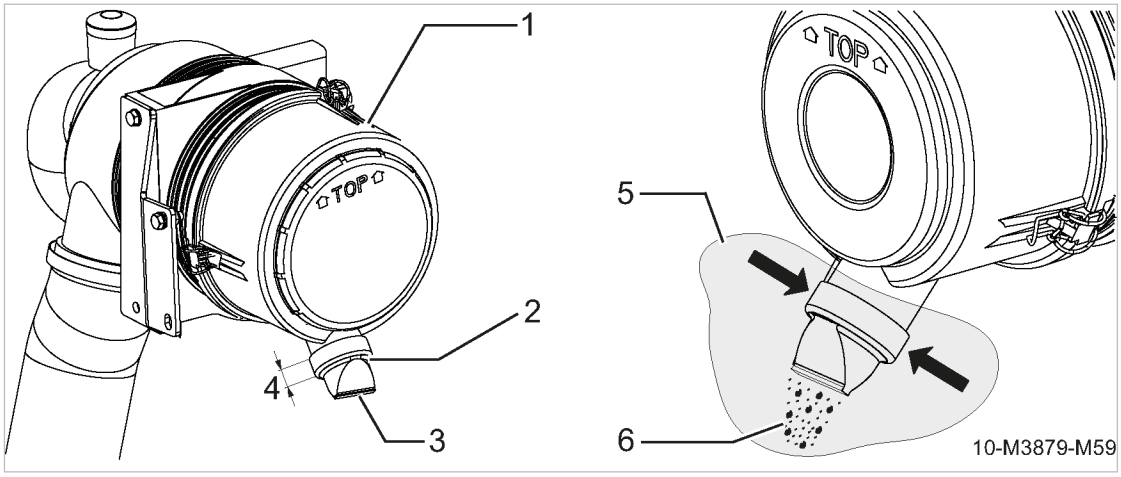


Fig. 85 Cleaning the dust evacuator valve

1	Filter cap	4	Valve area
2	Dust evacuator valve	5	Cleaning procedure
3	Evacuator vent	6	Coarse dirt particles

1. Compress valve area 4 during cleaning procedure 5.
   Evacuator vent opens.
   Coarse dirt particles and accumulated dust are expelled.
2. Release the valve area.
3. Clean the evacuator vent.
4. Check that both seal lips on the evacuator vent are still close together.

Ideally, the filter cap should be fitted so that the dust evacuator valve is pointing vertically downwards. A deflection of 30 ° to the vertical axis is permitted.

Removing the filter cap:

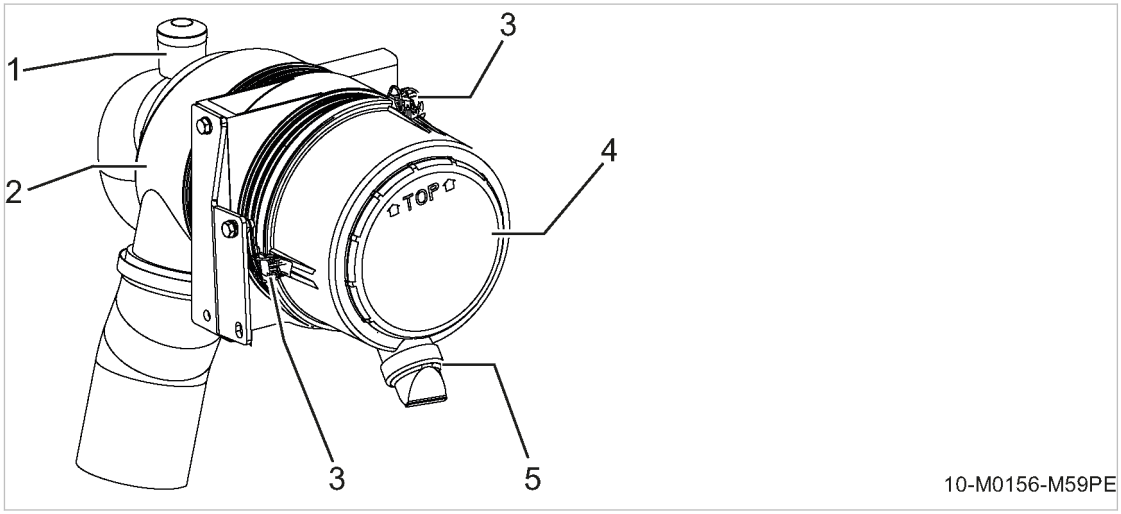


Fig. 86 Compressor air filter maintenance

1	Maintenance indicator	4	Filter cap
2	Filter housing	5	Dust evacuator valve
3	Retaining clamp		

1. Unlock all three retaining clamps.
2. Remove the filter cap.

Replacing the filter elements:

The compressor air filter is fitted with two filter elements.

- Primary filter element
- Secondary filter element

The secondary filter element must be replaced at every third change of the primary filter element, or after two years at the latest. The secondary filter element cannot be cleaned and reused!

The efficiency of the compressor air filter is not increased by the secondary filter element. The secondary filter element provides an additional level of protection, in case the primary filter element is damaged or incorrectly fitted.

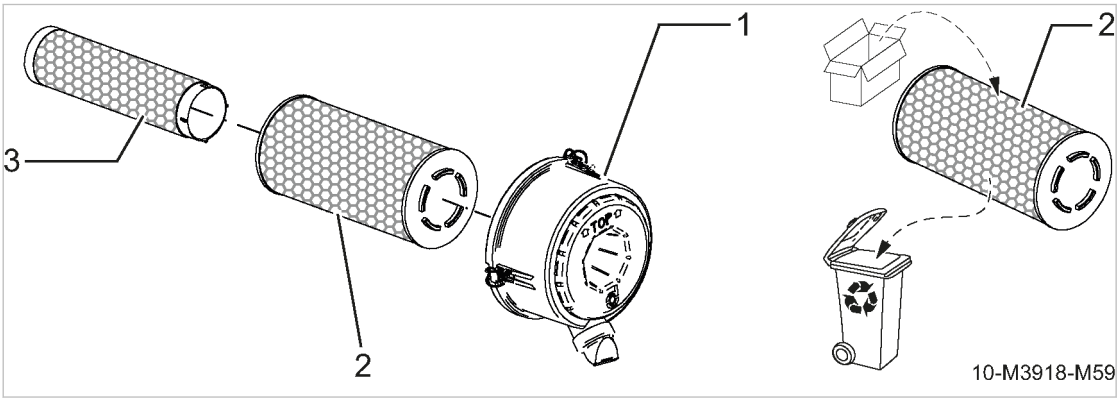


Fig. 87 Removing both filter elements

1 Filter cap
2 Primary filter element
3 Secondary filter element

1. Remove the secondary filter element.
2. Remove the old primary filter element.
3. Carefully clean the filter housing, filter cap and sealing surfaces with a damp cloth.
4. Insert a new primary filter element into the filter housing. Ensure that the primary filter element is correctly secured and its seals can function properly.
5. Insert the secondary filter element.
6. Position the filter cap in front of the filter housing, with the dust evacuator valve pointing vertically downwards.
7. Place the filter cap on the filter housing and press down lightly.
8. Secure the filter cap with all three retaining clamps.

Resetting the maintenance indicator:

1. Press the reset button on the maintenance indicator repeatedly.

   The yellow piston within the indicator is reset and the maintenance indicator is ready for use again.
2. Close both doors.

Cleaning the primary filter element

Reuse cleaned primary filter elements only as an exceptional case.
Always use new filter elements if possible.

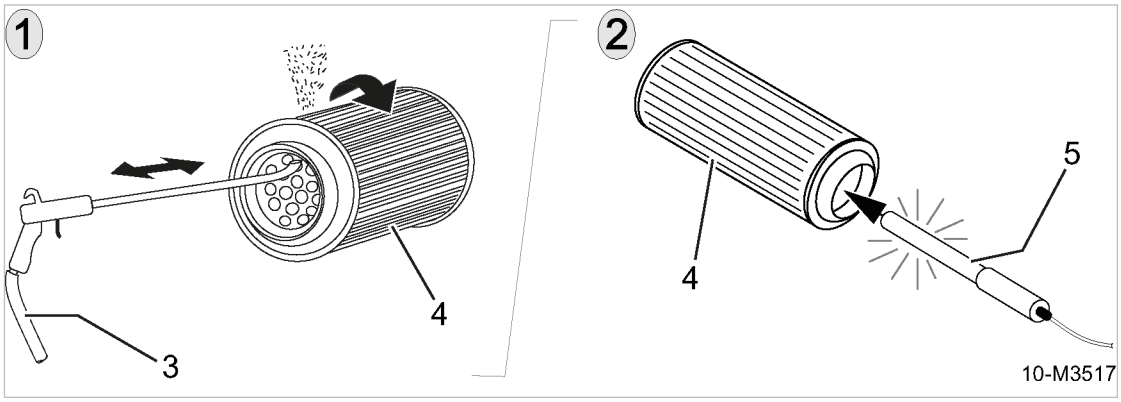


Fig. 88 Cleaning the filter element

[1] Cleaning the primary filter element
[2] Checking the primary filter element
[3] Compressed air gun with blast pipe (bent to approx. 90° at the end)
[4] Primary filter element
[5] Torch

1. Use dry compressed air (<5 bar!) to blow out dirt from the filter element at an angle, from the inside to the outside.
2. Blow out the primary filter element until no more dust appears.
3. In a darkened room, use a suitable torch to shine a light through the cleaned primary filter element.

   The cleaned primary filter element displays no cracks or holes.

   The cleaned filter element is in the correct condition.
4. Insert the cleaned and checked primary filter element into the filter housing.
5. Position the filter cap in place.
6. Secure the filter cap with all three retaining clamps.
7. Check to ensure the filter cap is correctly attached.

Dispose of old parts and contaminated materials in accordance with environmental protection regulations.

10.7 Cleaning the cooler

The three coolers for the engine and compressor are arranged together in a radiator block.

Heavy contamination of the three coolers will result in excessive temperature and thus overheating of the machine. The necessary frequency of cleaning depends heavily on the local operating conditions.

Check all three coolers regularly for contamination. Arrange for heavy contamination to be cleaned by KAESER SERVICE.

Material
Compressed air
Breathing mask (if necessary)
Water or steam jet washer

Precondition
The machine is switched off.
Both doors are open,
the «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.
The machine is standing in a cleaning area equipped with an oil separator,
the machine is standing on level ground,
the machine has cooled down.
Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.

CAUTION
Swirling dust due to cleaning with compressed air!
Risk of respiratory illness.
➢ Wear a breathing mask.

NOTICE
Damage can be caused to the machine by water or steam jets!
Direct water or steam jets can damage or destroy electrical components and indicator gauges.
➢ Cover up electrical components such as the control box, starter or indicator gauges.
➢ Do **not** direct water or steam jets at sensitive components or indicator gauges.
➢ Deploy the extension pole of the high-pressure washer in order to maintain a distance of at least 50 cm from the surface of the cooler, at an approximate angle of 90°.

NOTICE
Improper cleaning with hard objects!
Damage to the charge air cooler/oil cooler/coolant cooler.
➢ Do not use hard objects to clean the charge air cooler/oil cooler/coolant cooler.

➢ Follow all instructions carefully.

10.7.1 Cleaning the charge air cooler, oil cooler and coolant cooler

The direction of cleaning when using compressed air, water or steam jet must always be in the opposite direction to the cooling air flow.

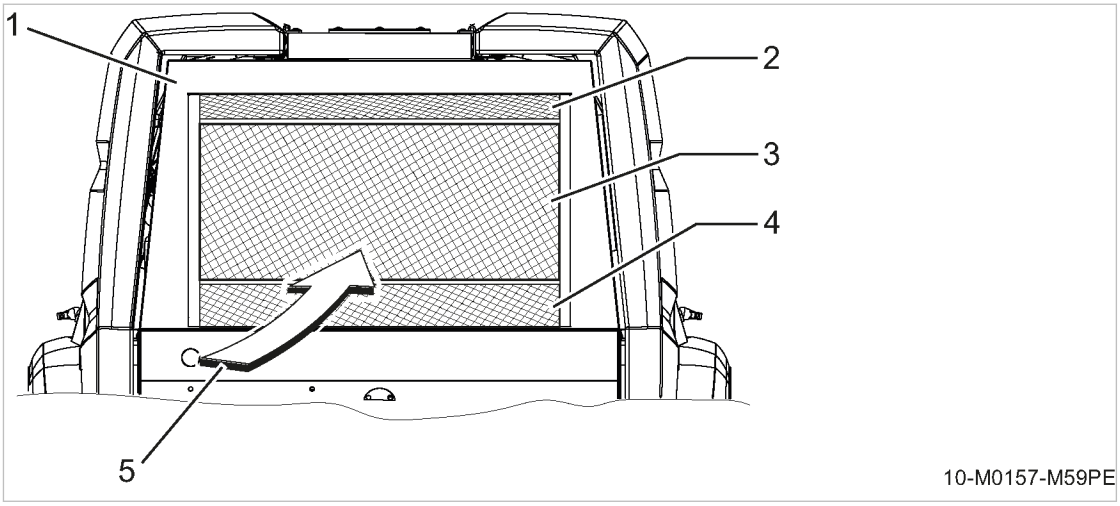


Fig. 89 Cleaning the cooler

[1] Front end of machine, radiator grille removed
[2] Charge air cooler
[3] Coolant cooler (engine)
[4] Oil cooler (compressor)
[5] Direction of cleaning with water or steam jet (from outside to inside)

Covering the intake openings on both air filters:

1. Cover the intake openings on both the engine and compressor air filters.
2. Close both doors.

Removing the exhaust air grille:

1. Loosen all the screws on the exhaust air grille.
2. Remove all the screws.
3. Remove the exhaust air grille.

Cleaning the charge air cooler, oil cooler and coolant cooler

➢ Clean the cooler fins with compressed air, water or steam jet in the opposite direction to the cooling air flow (from inside to outside).

Refitting the exhaust air grille:

1. Position the exhaust air grille.
2. Position all screws.
3. Tighten the screws.

Removing the protective coverings from the two air filters:

1. Open both doors.
2. Remove the covers from the intake openings of both the engine and compressor air filters.

Preparing for operation:

1. Connect the negative cable to the battery.

2. Turn the «Controller ON/OFF» switch to *ON*.
3. Close both doors.

Starting the machine:

1. Switch on the machine using the «START» key on the control panel of the SIGMA CONTROL SMART.
2. Allow the machine to warm up in IDLE so to allow any residual water to evaporate.
   Warm-up has been achieved when the required airend discharge temperature is reached.
3. Press and hold down the «OFF» key on the control panel of the SIGMA CONTROL SMART for longer than 1 second.
   The machine is switched off.
4. Wait until the machine has automatically vented.
   Pressure gauge reads 0 bar!
5. Open the discharge valves.

Inspecting all coolers for leaks:

1. Open both doors.
2. Visually inspect for leaks: Is cooling oil/coolant leaking out?

Is the charge air cooler/oil cooler/coolant cooler leaking?

➢ Arrange for the defective charge air cooler/oil cooler/coolant cooler to be repaired or replaced immediately by KAESER SERVICE.

➢ Close both doors.

10.8 Checking the screw connections

Overview:

- Guideline values for tightening torques.
  - General guideline values for tightening torques.
  - Specific guideline values for tightening torques.
- Sealed screw connections.

➢ Follow all instructions carefully.

10.8.1 General guideline values for tightening torques

Guideline values for the required tightening torques are dependent upon the size of the screw connection, the strength class of the screw material and the friction coefficient.

NOTICE
Damage to the machine from insufficient clamping force at screw connections

➢ Tighten all screw connections with the defined tightening torque.

1. Determine the thread size for the screw connection.
2. For determining the defined torque, see chapter 2.4.2.
3. Tighten all screw connections with the defined torque.

10.8.2 Specific guideline values for tightening torques

Screw connections for components that are either safety-related or under particular stress must be tightened with specific tightening torques.

Examples:

- For details of specific tightening torques, see chapter 2.4.2.
  - E.g. Screw connections on lifting eyes.
  - E.g. Cover screws on the oil separator tank.
- Values for further specific tightening torques are provided in the section covering the relevant maintenance task.

NOTICE
Damage to the machine from insufficient clamping force at screw connections
➢ Screw connections for components that are either safety-related or under particular stress must be tightened exclusively with the correct specific tightening torque.

1. Determine the correct specific tightening torque.
2. Tighten the screw connections with the specific tightening torque.

10.8.3 Sealed screw connections

Screw connections which must not be adjusted are sealed with a coloured locking varnish.

NOTICE
Damage to the machine caused by adjusting the settings
➢ Leave sealed screw connections in their original condition.

➢ Do not loosen or adjust sealed screw connections.

Failure to comply with these instructions will invalidate all warranty claims.

10.9 Check wing doors

The machine's closed wing doors fulfil the following functions during the machine's operation: Protection against contact, cooling air flow, sound proofing and weather protection.

In order to ensure these functions at any time, the wing doors and its connecting elements must always be in a perfect condition.

Overview:

- Check sound proofing material
- Maintain rubber sealing strips
- Check closed wing doors
- Check connecting elements

Precondition The machine is switched off.

The machine is installed on level ground,
the machine has cooled down.

Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 bar!

➢ Follow all instructions.

10.9.1 Check sound proofing material

In order to limit the machine's noise emissions to a minimum the sound proofing material that has been built into the wing doors must be checked regularly. Damaged sound proofing material must be replaced immediately.

➢ Check sound proofing material inside the wing doors for condition, fastening and dirt.

The sound proofing material is porous, cracked, no longer exists or severely contaminated with oil, fuel or cleaning agent.

➢ Have a KAESER SERVICE technician replace the sound proofing material that can no longer be used.

10.9.2 Maintain rubber sealing strips

Material Cleaning cloth

Silicone or Vaseline

The rubber sealing strips of the wing doors seal against rain water and additionally reduce noise emissions. Care of the rubber sealing strips is especially necessary prior to winter to prevent the strips from sticking and tearing when the wing doors are opened.

1. Open all wing doors.
2. Carefully clean all rubber sealing strips using a lint-free cloth.
3. Check the rubber sealing strips for cracks, holes and other damage.
4. Grease all rubber sealing strips.

Rubber sealing strips are damaged.

➢ Have a KAESER SERVICE technician replace the damaged rubber sealing strips.

10.9.3 Checking function of closed wing doors

1. Close all wing doors.
2. Lock all snap fasteners.

One or several wing doors do not properly rest on the body or cannot be locked.

➢ Contact authorised KAESER SERVICE.

10.9.4 Checking connecting elements of wing doors

Material Acid-free oil

The connecting elements of the wing doors may include:

- Screw connections

- Hinges
- Handles
- Snap fasteners
- Gas struts

1. Check all connecting elements of the wing doors for damages, wear and firm seating.
2. If necessary, grease the hinges.

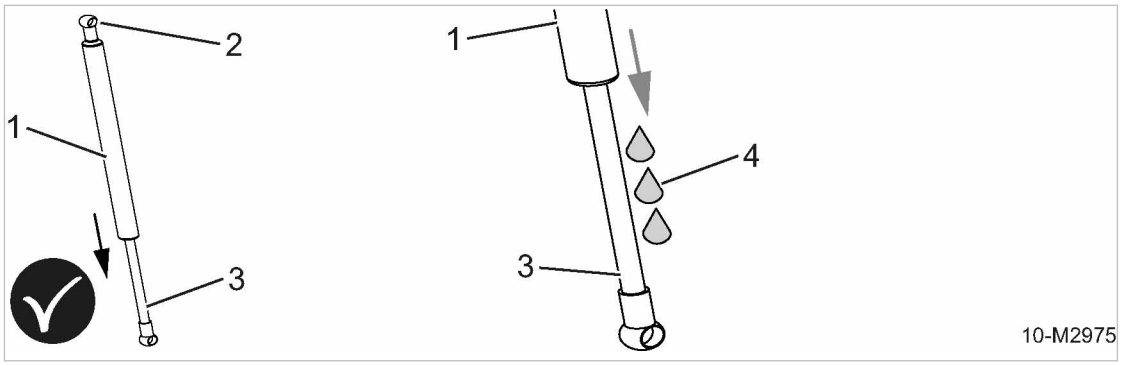


Fig. 90 Connecting rod alignment

1	Gas strut - cylinder	3	Connecting rod
2	Ball cup	4	Lubrication

3. Check both gas struts.

In order to ensure lubrication of the connecting rod, the connecting rod must be always aligned towards the ground.

4. Check if the gas struts open the unlocked wing doors properly.
   Wing doors open independently until the maximum opening angle.
5. Check if the already opened wing doors stay properly open at the maximum opening angle.

Wing doors do not open properly or do not stay open.

➢ Replace defective gas struts.

10.10 Check/replace hose lines

Overview of hose lines of machine:

- Fuel lines of the drive engine
- Pressure hoses of the drive engine
- Pressure hoses of the compressor

The hose line are subject to natural ageing regardless of proper storage or permitted utilisation during machine operation. This ageing changes the material and compound properties and reduces the performance capability of the hose lines. As a result the period of use for hose lines is limited.

The operator must ensure that all hose lines are checked at reasonable intervals and are replaced if required, see maintenance schedule 10.3.3.1

➢ Comply with all instructions!

10.10.1 Replace the fuel lines of the drive engine.

➢ Have a KAESER SERVICE technician replace the fuel lines of the drive engine.

10.10.2 Replace the pressure hoses of the drive engine.

Overview of all pressure hoses at drive engine:
- Engine oil
- Coolant for the coolant cooler
- Charge air (if available)

➢ Have a KAESER SERVICE technician replace the pressure hoses of the drive engine.

10.10.3 Replace the pressure hoses of the compressor

Overview of all pressure hoses on the compressor:
- Cooling oil
- Compressed air
- Control air
- Condensate

➢ Have a KAESER SERVICE technician replace the pressure hoses of the compressor.

10.11 Check safety functions

➢ Perform inspection tasks/have them performed according to the maintenance schedule in chapter 10.3.3.1.

10.11.1 Check the EMERGENCY STOP device

In order to shut down the machine in the event of danger, the machine is equipped with an EMERGENCY STOP device. The EMERGENCY STOP device of the machine is referred to as «EMERGENCY» pushbutton

The position of the «EMERGENCY-STOP» pushbutton is shown in Chapter 4.2 "Machine Design".

Use the «EMERGENCY STOP» pushbutton to stop the machine only in emergencies!

Check the mechanical function of the «EMERGENCY STOP» pushbutton daily with the machine shut down.

WARNING
«EMERGENCY STOP» pushbutton locked out!
The machine cannot be stopped quickly in an emergency.
➢ Check the function of the «EMERGENCY STOP» pushbutton.
➢ Do not operate the machine if the «EMERGENCY STOP» pushbutton does not work.

Precondition The machine is switched off.
The drive engine stands still.

1. Push the «EMERGENCY STOP» pushbutton.

2. Check if «EMERGENCY STOP» pushbutton locks properly and remains locked.
3. Check if the «EMERGENCY STOP» pushbutton unlocks by turning it in the direction of the arrow.

The «EMERGENCY STOP» pushbutton cannot be pressed or does not engage.
- ➢ Do not start the machine.
- ➢ Have the «EMERGENCY STOP» pushbutton replaced.

10.11.2 Have the actuating pressure of the safety valve checked

The machine should shut down if the actuating pressure of the safety valve reaches a maximum of $P_{max.}$ ($P_{max.}$ see table 124).

Check in accordance with section: "Check actuating pressure of safety valve" in the separate User Manual for the SIGMA CONTROL SMART controller, chapter “Have safety functions checked”.

Maximum working pressure: see machine nameplate

Maximum working pressure [bar]	Activating pressure [bar]
10.3	16
14.0	16

Tab. 124 Safety valve actuating pressure

Material Hearing protection
Eye protection

WARNING
Risk of hearing damage when air is blown out through the safety valve!
- ➢ Close all the doors/enclosure.
- ➢ Wear hearing protection.

WARNING
Risk of burns due to released cooling oil and compressed air when blowing off the safety valve!
- ➢ Wear eye protection.

➢ Have the actuating pressure of the safety valve checked.

Result When the "activating pressure" is reached, the pressure release valve actuates (blows off).

When the "activating pressure" is reached, the pressure release valve does not actuate (blow off).
- ➢ Immediately shut down the machine and cease any further operation.
- ➢ Request an inspection and/or replacement of the safety valve.

10.11.3 Having excessive temperature shut-down function checked

The machine should shut down if the discharge temperature reaches a maximum of $T_{max.}$; $T_{max.}$ [°C] see table 125.

Check in accordance with section: "Check safety shut-down at excessive airend discharge temperature" in the separate User Manual for the SIGMA CONTROL SMART controller, chapter “Have safety functions checked”.

Machine temperature	Value
Maximum airend discharge temperature (automatic safety shut-down) [°C]	117

Tab. 125 Safety shut-down at excessive airend discharge temperature

➢ Have shut-down at excessive airend discharge temperature checked.

Result When the maximum airend discharge temperature is exceeded, the SIGMA CONTROL SMART controller switches the machine off.

The machine does not shut down?

The excessive temperature shut-down function is no longer ensured.

➢ Immediately shut down the machine and cease any further operation.

➢ Have machine checked.

10.12 Maintenance of Optional Items

➢ Perform maintenance tasks according to the schedule in chapter 10.3.3.2.

10.12.1 Option ea Tool lubricator maintenance

Check the supply vessel daily vis-à-vis maximum and recommended fill levels.

Material Special lubricant for breakers

Funnel

Cleaning cloth

Precondition Machine is switched off.

The machine is standing level and has cooled down.

Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.

The «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.

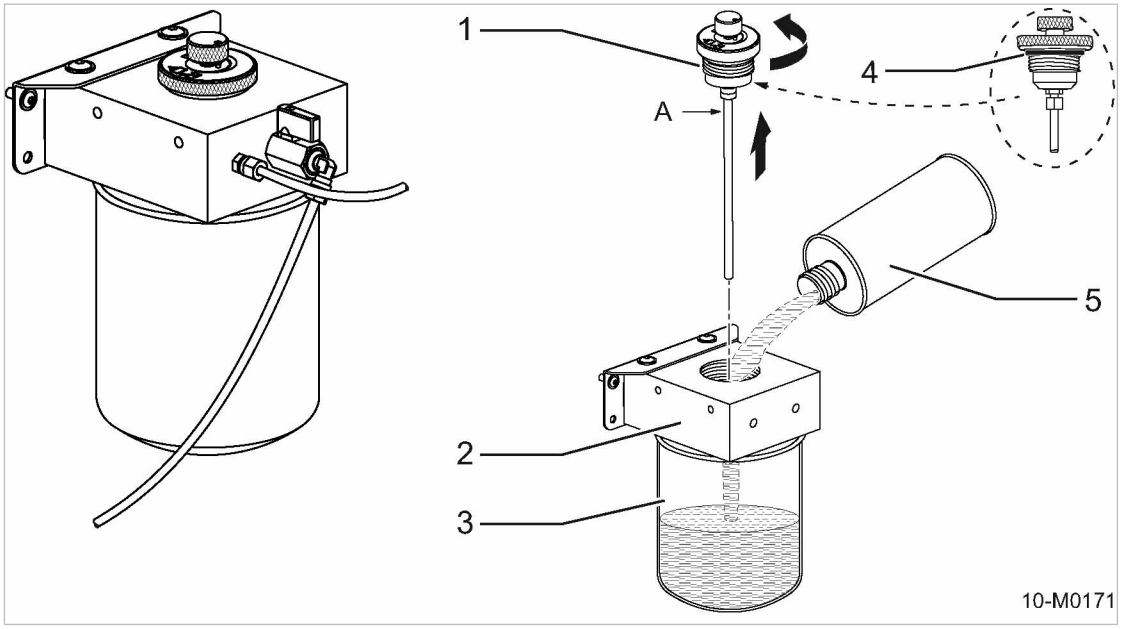


Fig. 91 Tool lubricator maintenance

[1] Screw plug with dipstick and integrated riser pipe
[A] Maximum and recommended fill level
[2] Tool lubricator top section with filler port
[3] Supply vessel
[4] O-ring
[5] Lubricant

➢ Open the door.

Checking the fill level in the supply vessel:

The supply vessel fill level can checked via the dipstick.

1. Loosen and remove the screw plug from the filler port.
2. Wipe the dipstick with a clean, lint-free cloth.
3. Insert the screw plug.
4. Remove the screw plug again.
5. Read off the fill level.
   Fill level within the upper third of the dipstick: Fill level is in order.
   Fill level too low: Replenish the lubricant.
6. Close the door.

Filling and replenishing the lubricant:

1. Loosen and remove the screw plug.
2. Use a funnel to fill the lubricant up to the maximum level (around 10 – 15 mm below the top of the supply vessel).
3. Check the fill level.
4. Check the O-ring on the screw plug for damage.
   Damaged O-ring: Replace the O-ring.

5. Insert the screw plug.
   Filler port is closed.
6. Close the door.

Further information For suitable lubricants and maximum fill levels, please see chapter 2.9.1.

10.12.2 Option da
Maintaining the compressed air aftercooler

The compressed air aftercooler is installed separately to the compressed air treatment components. The frequency of cleaning is mainly dependent on local operating conditions.

Check the compressed air aftercooler regularly for contamination.

Have severe contamination cleaned by KAESER SERVICE.

Material Compressed air
Breathing mask (if necessary)
Water or steam jet blaster

Precondition The machine is switched off.

The machine has been set down in cleaning area with oil separator,
the machine has been set down on level ground,
the machine has cooled down.

Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 bar!

Both doors are open, «Controller ON/OFF» switch is switched off,
the minus cable of the battery has been disconnected.



CAUTION
Swirling dust due to cleaning with compressed air!
Risk of injury to respiratory tract

➢ Wear breathing mask.



NOTICE
Damage to the machine can be caused by water or steam jets!
Direct water or steam jets can damage or destroy electrical components and indicator gauges.

➢ Cover up electrical components such as the control cabinet, alternator, starter and instruments.

➢ Do **not** direct water or steam jets at sensitive components such as the display instruments.

➢ Deploy the extension pole of the pressure washer at a distance of at least 50 cm and an approximately 90° angle to the cooler/radiator surface.



NOTICE
Improper cleaning with hard objects!
The compressed air aftercooler will be damaged.

➢ Do not clean the compressed air aftercooler with hard objects.

➢ Comply with all instructions!

10.12.2.1 Cleaning the compressed air aftercooler

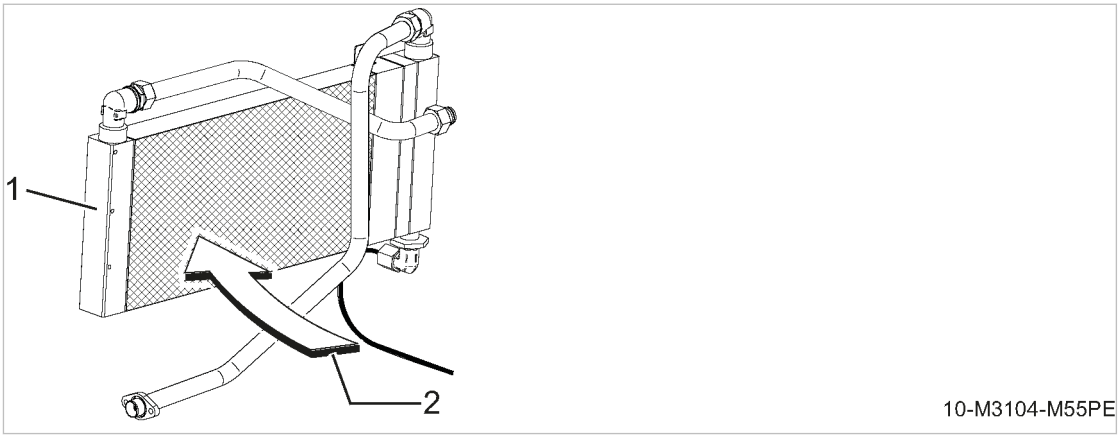


Fig. 92 Cleaning the compressed air after-cooler

[1] Compressed air aftercooler
[2] Cleaning direction for water or steam jet

Cover the intake openings of both air filters:

➢ Cover the intake openings of both the drive engine and compressor air filters.

Cleaning the compressed air aftercooler

➢ Clean the cooler fins with compressed air, water or steam jet in the opposite direction of the cooling air flow.

Remove the protective coverings from the two air filters:

➢ Remove the covers from the intake openings of both the drive engine and compressor air filters.

Preparing for operation:

1. Connect the negative battery terminal.
2. Turn the «Controller ON/OFF» switch to *ON*.
3. Close both doors.

Start the machine:

1. Start machine by using the «START» key on the control panel of SIGMA CONTROL SMART.
2. Let the machine warm up in IDLE mode to allow residual water to evaporate.
   Warm-up has been successful when required airend discharge temperature (ADT) has been reached.
3. Press and hold the «OFF» key on the control panel of SIGMA CONTROL SMART for more than 1 second.
   The machine is switched off.
4. Wait until the machine has automatically vented.
   The pressure gauge reads 0 bar!
5. Open the outlet valves.

Inspect compressed air aftercooler for leaks:

1. Open both doors.
2. Visually inspect for leaks: Does condensate escape?

Is the compressed air aftercooler leaking?

➢ Have defective compressed air aftercooler immediately repaired/replaced by authorised KAESER SERVICE.

Clean the cooler blades only at cleaning locations equipped with an oil separator!

10.12.3 Maintenance of the water separator dirt trap

Clean the water separator dirt trap if the water concentration in the compressed air is too high. The dirt trap [4] is mounted below the water separator [3].

Material
Cleaning cloth
Wrench
Small screwdriver
Dirt trap maintenance kit
Cleaning solvent or spirit

Precondition
The machine is switched off.
The machine is installed on level ground,
the machine has cooled down.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 bar!
Both doors are open, «Controller ON/OFF» switch is switched off,
the minus cable of the battery has been disconnected.

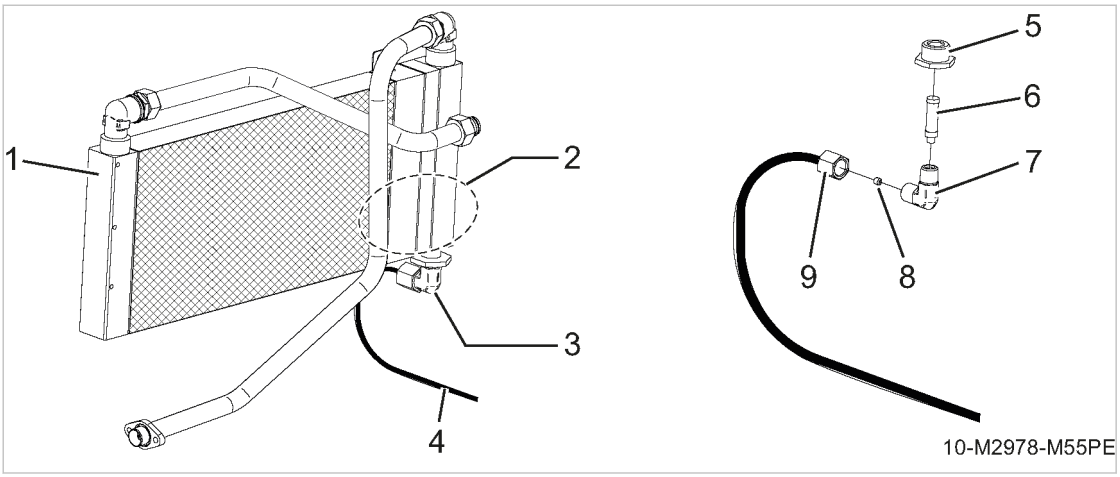


Fig. 93 Clean the dirt trap

[1] Compressed air aftercooler
[2] Water separator
[3] Dirt trap
[4] Condensate hose line
[5] Reducer
[6] Strainer
[7] Male stud fitting
[8] Nozzle
[9] Condensate hose line union nut

➢ Follow all instructions carefully.

Removing the dirt trap:

1. Loosen the clamping nut [9].
2. Remove clamping nut and condensate hose line [4].
3. Use a screwdriver to unscrew the nozzle [8].
4. Remove the nozzle from the male stud fitting.
5. Loosen and remove the male stud fitting [7].
6. Pull off the strainer [6].

Cleaning the components:

➢ Clean the nozzle, strainer and male stud fitting with cleaning solvent or spirit.

Checking the components:

➢ Check the nozzle and strainer for wear.



Components are damaged or show signs of wear.

➢ Replace components.

Installing the dirt trap:

1. Position strainer in the male stud fitting.
2. Install the male stud fitting.
3. Position the nozzle in the male stud fitting.
4. Use a screwdriver to tighten the nozzle.
5. Install clamping nut and condensate hose line.
6. Tighten condensate hose line clamping nut

Preparing for operation:

1. Connect the negative battery terminal.
2. Switch on the «Controller ON/OFF» switch.
3. Close both doors.

Starting the machine and performing a test run:

1. Switch on machine by using the «START» key on the control panel of SIGMA CONTROL SMART.
2. Let machine warm up in IDLE mode.

   Warm-up has been successful when required discharge temperature has been reached.
3. Press and hold the «OFF» key on the control panel of SIGMA CONTROL SMART for more than 1 second.

   The machine is switched off.
4. Wait until the machine has automatically vented.

   The pressure gauge reads 0 bar!
5. Open the outlet valves.

Check the dirt trap and condensate hose line for leaks:

1. Open both doors.
2. Visually inspect dirt trap for leaks.
3. Visually inspect condensate hose line for leaks.

10.12.4 Option dd Filter combination maintenance

Overview:

- Draining the condensate
- Changing the filter elements

WARNING
Danger of injury from escaping compressed air!
The filter combination is pressurised during operation. Serious injury can result from loosening or opening components under pressure.

➢ Wait until the machine is completely vented (check: pressure gauge reads 0 bar).

➢ Depressurise the filter combination.

Option dd

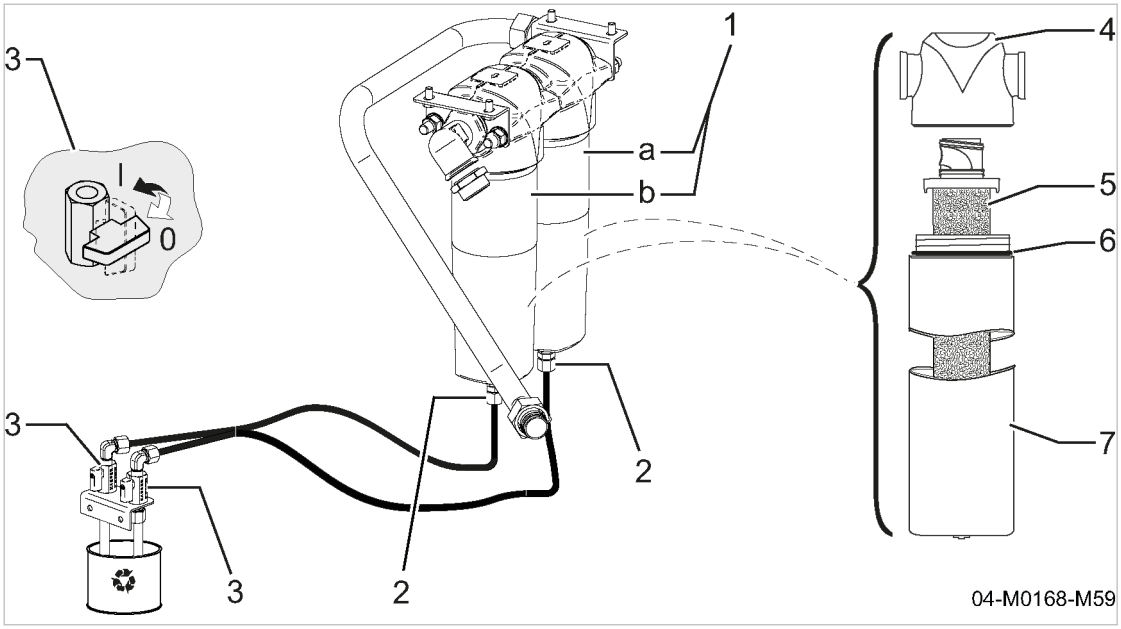


Fig. 94 Combination filter maintenance

1	Filter combination	4	Filter head
a	Prefilter	5	Filter element
b	Fine filter (microfilter)	6	Housing seal
2	Condensate drain hose screw connection	7	Filter housing
3	Shut-off valves (ball valve) for condensate drain 0 – Closed I – Open		

➢ Open door/s.

10.12.4.1 Draining the condensate

To blow out the condensate that has been discharged into the filter combination housings, the machine must be run with the condensate drain shut-off valves open for a short period of time.

Material: Receptacle
Cleaning cloth

Precondition: The machine is switched off.
The machine is standing level and has cooled down.
Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.

Positioning the receptacle

1. Place the receptacle beneath the filter combination hose lines.
2. Open both condensate drain shut-off valves.

Preparing for operation

1. Switch on the «Controller ON/OFF» switch.
2. Close the door/s.

Starting the machine

1. Switch on the machine using the «START» key on the control panel of the SIGMA CONTROL SMART.
2. Allow the machine to run in IDLE.
   The condensate discharged into the filter combination housings is blown out.
3. Wait until only compressed air is emitted.
4. Press and hold down the «OFF» key on the control panel of the SIGMA CONTROL SMART for longer than 1 second.
   The machine is switched off.
5. Wait until the machine has automatically vented.
   The pressure gauge reads 0 bar.
6. Open the door/s.
7. Switch off the «Controller ON/OFF» switch.
8. Close both condensate drain shut-off valves.
9. Remove the receptacle from the machine.
10. Close the door/s.



Condensate must be stored in suitable containers and disposed of in accordance with applicable environmental protection regulations.

10.12.4.2 Replacing the filter elements

The prefilter and fine filter contain two different elements, which must be replaced as a pair. Note positioning!

Operating the filter combination without filter elements installed is not permitted!

Handle new filter elements only with clean fabric gloves. Do not touch the new filter elements with bare fingers – contamination risk!

Material
Spare parts
Filter wrench
Wrench
Cleaning cloth
Clean fabric gloves

Precondition
The machine is switched off.
The machine is standing level and has cooled down.
Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.
The «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.

Ensuring that the filter combination is not under pressure:

➢ Slowly open the shut-off valves on the prefilter and fine filter condensate drain.
Remaining pressure escapes.

Accessing the filter housing:

To remove the housing from the prefilter and fine filter, the clamping nuts on the hose lines must first be removed.

1. Loosen both clamping nuts on the hose lines for the condensate drain.
2. Remove both hose lines from the prefilter and fine filter.

Replacing both filter elements on the filter combination:

➢ Follow all instructions carefully.

Replace the filter element on the prefilter	Replace the filter element on the fine filter
➢ Remove the filter housing in an anticlockwise direction	➢ Remove the filter housing in an anticlockwise direction
➢ Pull off the filter element in a downwards direction.	➢ Pull off the filter element in a downwards direction.
➢ Clean the filter head and housing with a lint-free cloth.	➢ Clean the filter head and housing with a lint-free cloth.
➢ Clean all sealing surfaces with a lint-free cloth.	➢ Clean all sealing surfaces with a lint-free cloth.
➢ Check the housing seal, replace with new if required.	➢ Check the housing seal, replace with new if required.
➢ Wear gloves.	➢ Wear gloves.
➢ Insert new filter element.	➢ Insert new filter element.

Replace the filter element on the prefilter	Replace the filter element on the fine filter
➢ Install the filter housing by turning clockwise.	➢ Install the filter housing by turning clockwise.

Tab. 126 Replacing the filter elements

Preparing for operation:

1. Fit both clamping nuts on the hose lines for the condensate drain to the screw connections on the prefilter and fine filter.
2. Close the condensate drain shut-off valves.
3. Tighten all screw connections on the compressed air filter combination.
4. Connect the negative cable to the battery.
5. Switch on the «Controller ON/OFF» switch.
6. Close the door/s.



Dispose of old parts and contaminated materials in accordance with environmental regulations.

Further information

Further information on replacing filter elements can be found in the “Filter Operating Instructions” in chapter 13.6.

Starting the machine and performing a test run:

1. Switch on the machine using the «START» key on the control panel of the SIGMA CONTROL SMART.
2. Warm-up the machine by allowing it to run in IDLE.
   Warm-up has been achieved when the required airend discharge temperature is reached.
3. Press and hold down the «OFF» key on the control panel of the SIGMA CONTROL SMART for longer than 1 second.
   The machine shuts down.
4. Wait until the machine has automatically vented.
   The pressure gauge reads 0 bar!
5. Open the discharge valves.

Checking the filter combination for leaks:

1. Open the door/s.
2. Visually inspect the filter combination for leaks.
3. Visually inspect the condensate hose lines for leaks.
4. Close the door/s.

10.12.5 Option ga
Generator drive belt maintenance

Correct belt tension is extremely important for trouble-free operation of the generator and for achieving a long service life for the belt itself.

A spring-supported tensioning frame automatically sets the correct belt tension. The spring force of the tensioning frame pushes the tension pulley onto the drive belt and thus sets the required belt tension.

Material Hexagon wrench

Spare part (if required)

Precondition The machine is switched off.

The machine is standing on level ground,
the machine has cooled down.

Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.

The left-hand door is open,
the «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.



WARNING
Rotating pulleys and drive belt!
Touching the moving drive belt can result in severe bruising or loss of limbs.

- ➢ Check the drive belt only when the machine is shut down.
- ➢ Never operate the machine without a belt guard.

➢ Follow all instructions carefully.

Removing the belt guard:

1. Remove the heat shield.
2. Remove the belt guard grille from the generator.

10.12.5.1 Carrying out a visual check

1. Check the drive belt thoroughly for cracks, fraying or stretching.
   If damaged or worn: Replace the drive belt immediately.
2. Refit the belt guard grille to the generator.
3. Refit the heat shield.
4. Close the door.

10.12.5.2 Replacing the drive belt

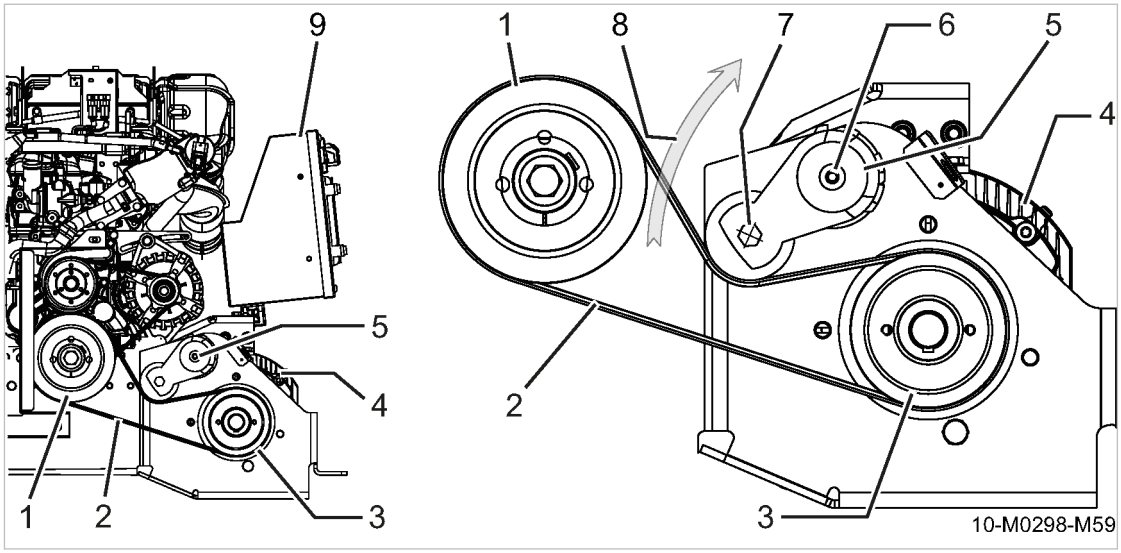


Fig. 95 Replacing the generator drive belt

1. Drive belt pulley
2. Drive belt
3. Generator drive pulley
4. Generator
5. Tensioning frame
6. Tensioning frame fulcrum
7. External hexagon (tool-holding fixture)
8. Direction of arrow
9. Generator control box

Removing the old drive belt:

1. Fit the hexagon wrench onto the tool-holding fixture on the tensioning frame.
2. Turn the tensioning frame in the direction of the arrow until tight.
   The drive belt is relieved of tension.
3. Remove the loose drive belt from the generator belt pulley.
4. Allow the tensioning frame to spring back slowly.
5. Remove the drive belt from the motor belt pulley.

Checking both belt pulleys:

➢ Check the belt pulleys for dirt and/or wear.
   If a pulley is dirty: Clean the pulley.
   If a pulley is worn: Replace the pulley.

Installing a new drive belt:

1. Position the new drive belt over the both pulleys by hand, without using force.
2. Fit the hexagon wrench onto the tool-holding fixture on the tensioning frame.
3. Turn the tensioning frame in the direction of the arrow until tight.
4. Push the drive belt downwards and guide it under the tension pulley on the tension frame.
5. Allow the tensioning frame to spring back slowly.
6. Check whether the drive belt is correctly fitted in the guidance grooves of both belt pulleys.
7. Check whether the drive belt is correctly fitted in the guidance grooves of both tension pulleys.
   The spring-supported tensioning frame automatically ensures the correct belt tension.

Preparing for operation:

1. Refit the belt guard grille.
2. Refit the heat shield.
3. Close the door.

A belt that has been removed must not be used again.

Dispose of old drive belts in accordance with the applicable environmental protection regulations.

10.12.6 Option Ia Cleaning the spark arrester

The spark arrester must be cleaned of any accumulated soot approximately every two months, so as to prevent the emission of glowing combustion residue from the exhaust silencer.

In machines with a closed floor pan (Option oe), the maintenance holes are sealed with bung plugs. To access the discharge port on the soot trap, the relevant bung plug must first be removed.

Material
Suitable rubber hose
Receptacle for the soot
Cleaning cloth
Protective gloves
Eye protection

Precondition
The machine is switched off and has cooled down.
The machine is standing level.
Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.
The «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.

DANGER
Danger of suffocation from toxic exhaust fumes!
Exhaust fumes from internal combustion engines contain carbon monoxide, which is odourless and fatal if inhaled!

- ➢ Only use the machine outdoors!
- ➢ Do not inhale exhaust fumes.

CAUTION
Danger of burns from hot components and sparks!

- ➢ Wear long-sleeved clothing and gloves.
- ➢ Wear eye protection.

Opening the soot trap:

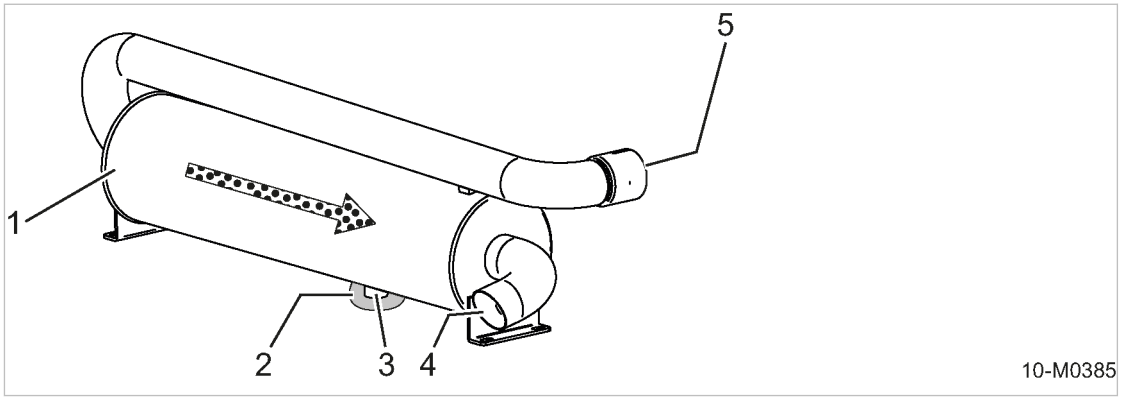


Fig. 96 Cleaning the spark arrester

[1] Exhaust silencer with integrated spark arrester
[2] Maintenance hole in the floor panel
[3] Soot trap discharge port with sealing plug
[4] Exhaust gas outlet
[5] Exhaust gas inlet

1. Remove the relevant bung plug from the floor panel (only on machines specified with Option oe).
2. Remove the sealing plug from the soot trap discharge port.
3. Feed the end of the hose through the hole in the floor panel.
4. Attach the end of the hose to the discharge port.
5. Place the other end of the hose in the soot collecting receptacle.

Preparing for operation:

1. Connect the negative cable to the battery.
2. Switch on the «Controller ON/OFF» switch.
3. Close all doors.

Starting the machine:

1. Switch on the machine using the «START» key on the control panel of the SIGMA CONTROL SMART.
2. Let the machine run in IDLE.

Blowing out the soot:

1. To increase the pressure in the exhaust system, partially cover the exhaust outlet with a fire-resistant object.

   The soot will be blown out through the hose.
2. Allow the machine to run until there are no more soot particles visible in the exhaust gas.
3. Press and hold down the «OFF» key on the control panel of the SIGMA CONTROL SMART for longer than 1 second.

   The machine is switched off.
4. Allow the machine to cool down.

Closing the soot trap:

Precondition The machine is switched off and has cooled down.

Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.

The «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.

1. Remove the end of the hose from the discharge port.
2. Return the sealing plug to the discharge port.
3. Replace the relevant bung plug in the floor panel (only on machines specified with Option oe).
4. Remove the cover from the exhaust outlet.



It is recommended to blow out the spark arrester with compressed air once a year.



Dispose of soot in accordance with environmental protection regulations.

10.12.7 Option lb
Engine air shut-off valve maintenance

Material Compressed air for blowing out

Cleaning solvent or spirit

Cleaning cloth

Precondition The machine is switched off and has cooled down.

The machine is standing level.

Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 bar.

The «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.



NOTICE
Engine air shut-off valve misaligned!
The engine air shut-off valve does not close when inflammable gas is drawn into the engine. The machine does not shut down. Irreparable engine damage, explosion and/or fire are possible.

- ➢ Do not adjust the valve set screw.
- ➢ Arrange for the valve to be set by a specialist workshop or KAESER SERVICE.

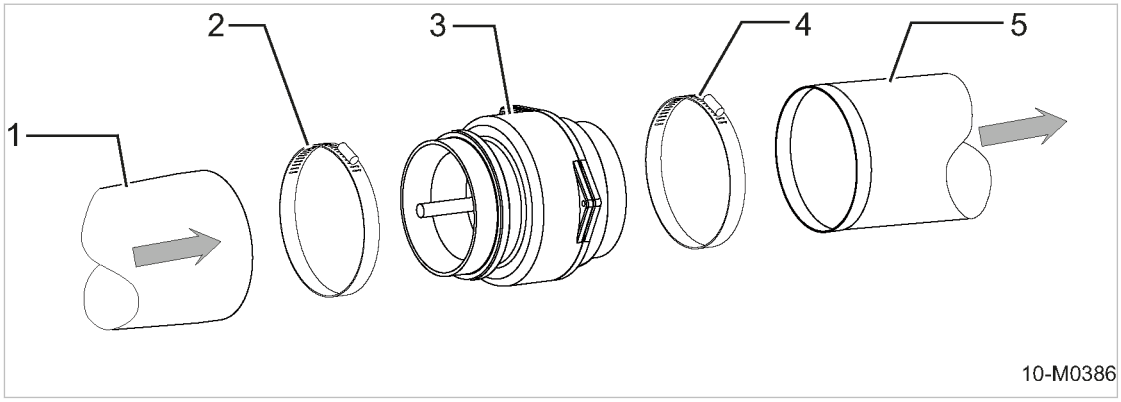


Fig. 97 Engine air shut-off valve maintenance

[1] Hose length
[2] Hose clamp
[3] Engine air shut-off valve
[4] Hose clamp
[5] Hose length

➢ Open door/s.

Cleaning the engine air shut-off valve:

1. *NOTICE!*
   The engine air shut-off valve does not close fully.
   The machine does not shut down. Irreparable engine damage, explosion and/or fire are possible.
   ➢ Do not grease the valve, as this may cause the valve to stick due to dust build-up.
2. Loosen the hose clamp on the engine air shut-off valve.
3. Turn the air intake hose to one side.
4. Check if the interior of the engine air shut-off valve is clean.
   Engine air shut-off valve is clogged: Blow out with compressed air.

If necessary, clean the valve with cleaning solvent or spirit and allow to dry.
If dirt cannot be removed: Contact KAESER SERVICE or a specialist workshop.

Checking the function and mobility of the engine air shut-off valve:

1. Check the engine air shut-off valve for signs of excessive wear.
2. Check whether the valve shutter closes easily and completely.

Result In case of severe wear or functional problems: Replace the engine air shut-off valve.

1. Reposition the air intake hose and tighten the hose clamp.
2. Close the doors.
3. Start the engine.
4. Allow the machine to warm up.
5. Switch the machine to LOAD operation.
   The engine stops during LOAD operation: Arrange for the engine air shut-off valve to be checked by KAESER SERVICE or a specialist workshop.

10.12.8 Option oe
Draining liquid accumulation within the machine

The so-called "closed floor pan" contributes to the protection of the environment by preventing a contamination of the soil in the event of leaking operating fluids.
Liquid accumulations within the machine's body can also cause corrosion or electrical faults.
Liquid accumulations must be removed as quickly as possible to avoid any faults of the machine.
For draining the liquid, maintenance openings have been added to the floor panel of the machine which are closed with bungs.



In order to clean the machine, see chapter 4.9.10 for the location of the service openings.

Material
Oil receptacle
Cleaning cloths

Precondition
The machine is switched off.
The machine is standing level.
The machine is secured against moving.
The machine is fully vented, the pressure gauge reads 0 bar.
The machine has cooled down.
All compressed air consumers are disconnected and the air outlet valves are open.

➢ Open all doors.

Checking the machine interior for liquid accumulations:

1. Check the machine interior for liquid accumulations.
   If liquid is present in the floor pan: Drain the liquid.
2. Close the doors.

Draining the liquid:

1. Place a receptacle underneath the service opening(s).
2. Unscrew and remove the bung(s) from the service openings.
   The liquid will drain.
3. Clean the bungs and service openings.
4. Close all service openings with bungs.
   The machine body is sealed.
5. Using the cleaning cloth, remove any dirt within the machine.
6. Close the doors.



Dispose of collected liquid and contaminated working materials according to environmental protection regulations.

10.13 Documenting maintenance and service work

Machine number:

➢ Enter maintenance and service work carried out in the list.

Date	Maintenance task carried out	Operating hours	Signature

Tab. 127 Maintenance log

11 Spares, Operating Materials, Service

11.1 Note the nameplate

The nameplate contains all information to identify your machine. This information is essential to us in order to provide you with optimal service.

➢ Please give the information from the nameplate with every enquiry and order for spares.

11.2 Ordering maintenance parts and operating fluids/materials

KAESER maintenance parts and operating fluids/materials are genuine parts. They are specifically selected for use in our machines and ensure trouble-free operation.

Unsuitable or poor-quality maintenance parts and operating fluids/materials may result in damage to the machine or significantly impair its proper function.

Personal injury may result from such damage.



WARNING
Risk of personal injury or damage to the machine resulting from the use of unsuitable spare parts or operating fluids/materials!

➢ Only use genuine parts and operating fluids/materials.

➢ Do not use alternative maintenance parts and operating fluids/materials.

Compressor

Name	Unit/quantity	Number
Primary filter element, air filter	1	1260
Secondary filter element, air filter	1	1261
Filter element, oil filter	1	1210
Oil separator cartridge, complete set	1	1450
Cooling oil	1	1600

Tab. 128 Compressor maintenance parts

HATZ engine parts

Name	Unit/quantity	Number
Primary filter element, air filter	1	1280
Secondary filter element, air filter	1	1281
Fuel/water separator	1	1980
Fuel filter (cartridge)	1	1920
Oil filter (cartridge)	1	1905
Injector nozzle	1	4475
Injector nozzle seal	1	4476
Engine belt	1	4470
Glow plug	1	4466

Name	Unit/quantity	Number
Engine oil	1	1925

Tab. 129 Engine maintenance parts

11.3 KAESER AIR SERVICE

KAESER AIR SERVICE offers:

- authorised service technicians with KAESER factory training,
- Increased operational reliability ensured by preventive maintenance
- Energy savings achieved by avoidance of pressure losses,
- The security of genuine KAESER spares,
- Increased legal certainty as all regulations are kept to.

➢ It make sense to sign a maintenance agreement for KAESER AIR SERVICE.
The advantages:
lower costs and higher compressed air availability.

11.4 Replacement parts for service and repair

With the help of the below spare parts list you can plan your material requirement according to operating conditions, and order the spare parts you need.



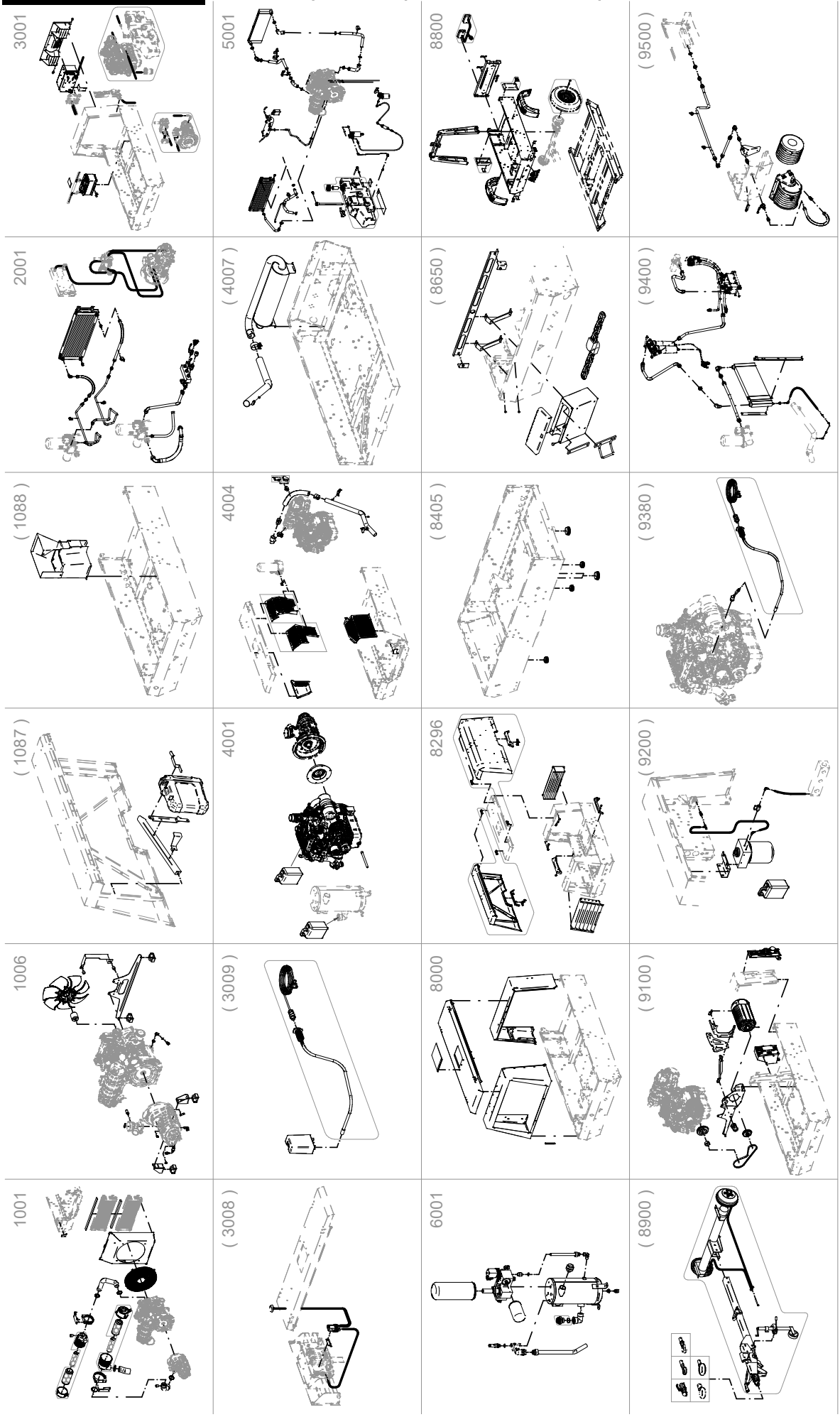
WARNING
Personal injury or machine damage due to incorrect working on the machine!
Incorrect inspection, service and/or repair can damage the machine or severely impair its function. Personal injury may result from damage.

➢ Inspections, preventive maintenance or repair tasks not described in this Operating Manual must not be carried out by unqualified personnel.

➢ Have further tasks, not described in this Operating Manual, carried out by motor vehicle workshops or KAESER SERVICE only.

11.4.1 Spare parts overview

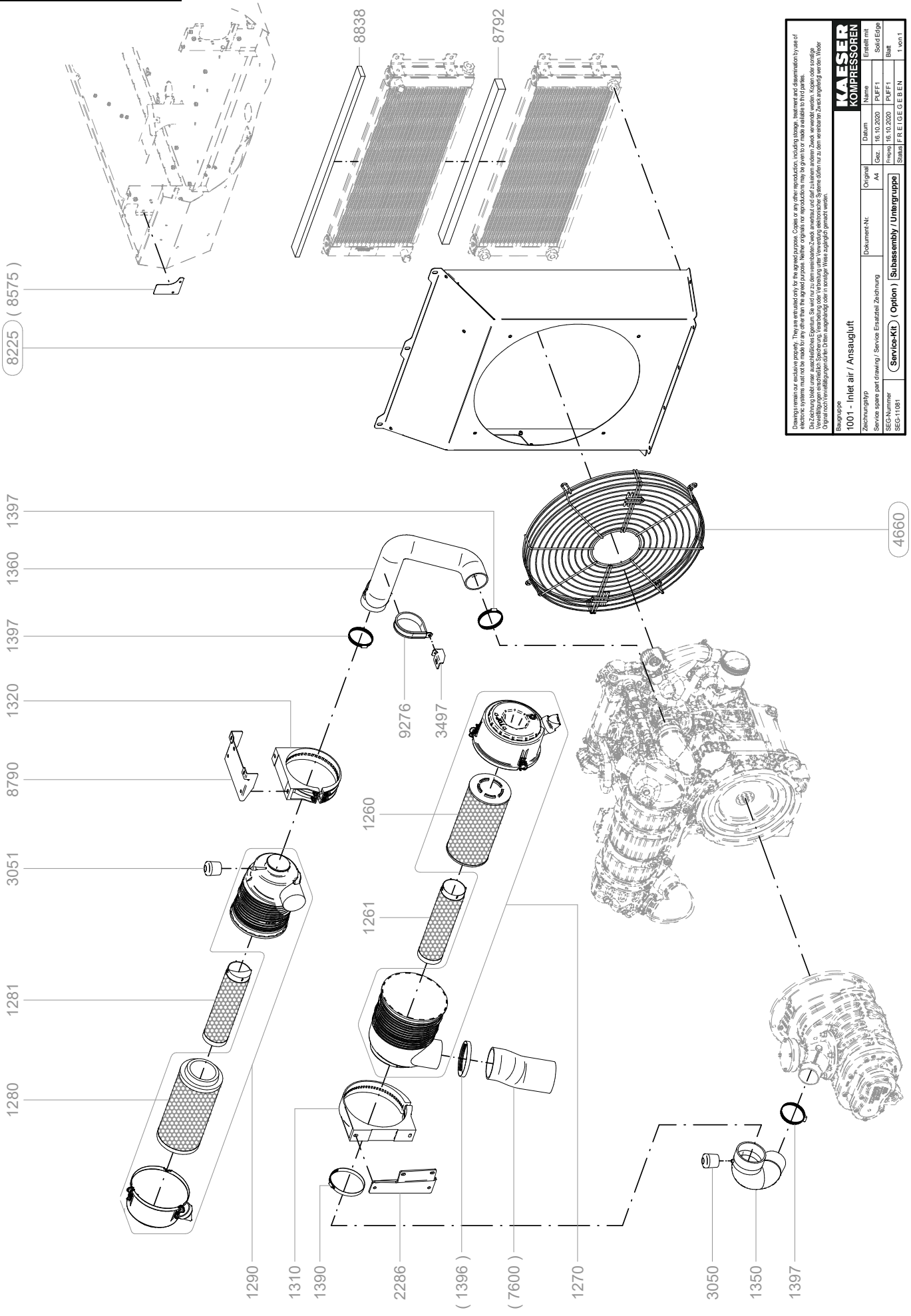
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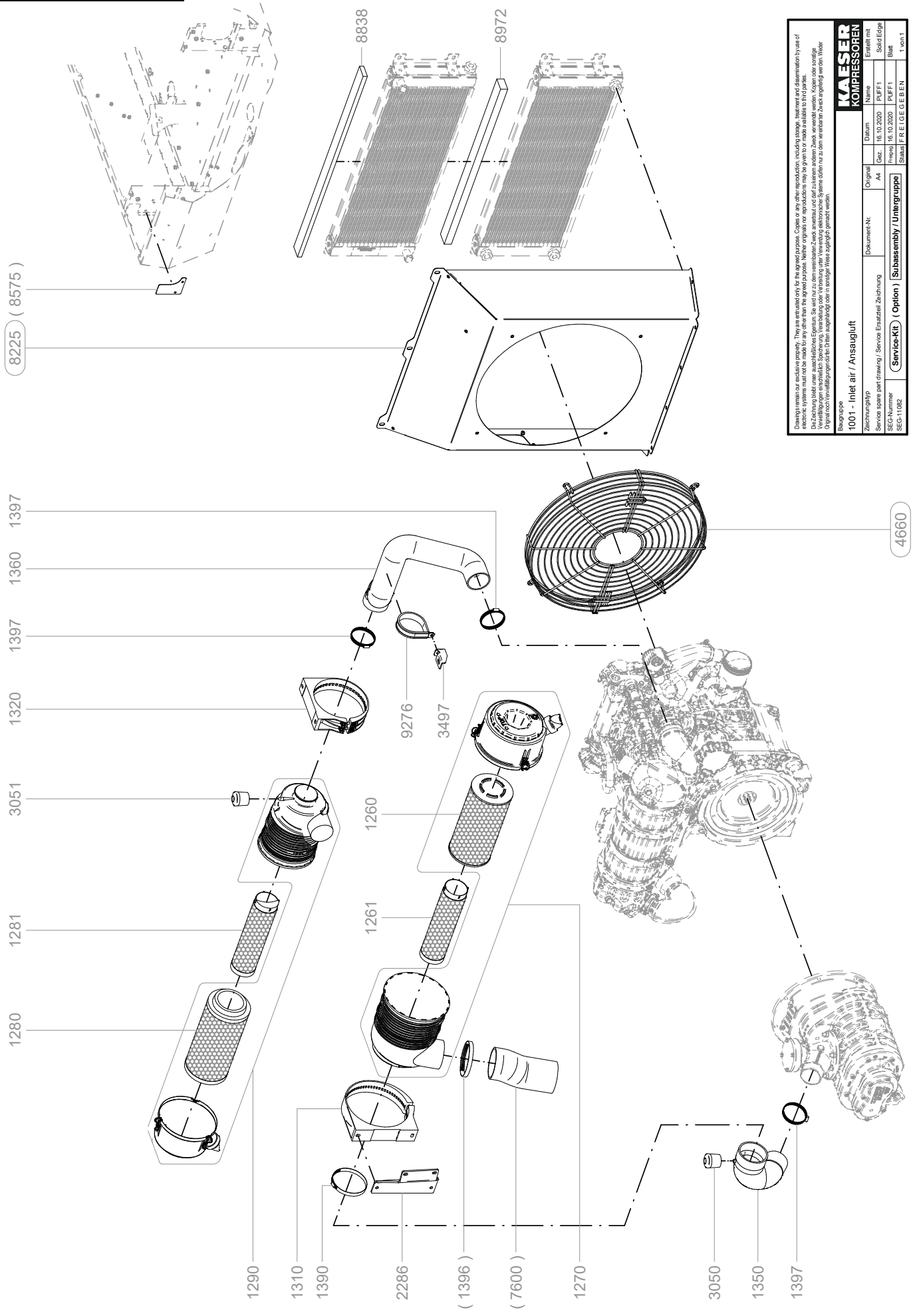


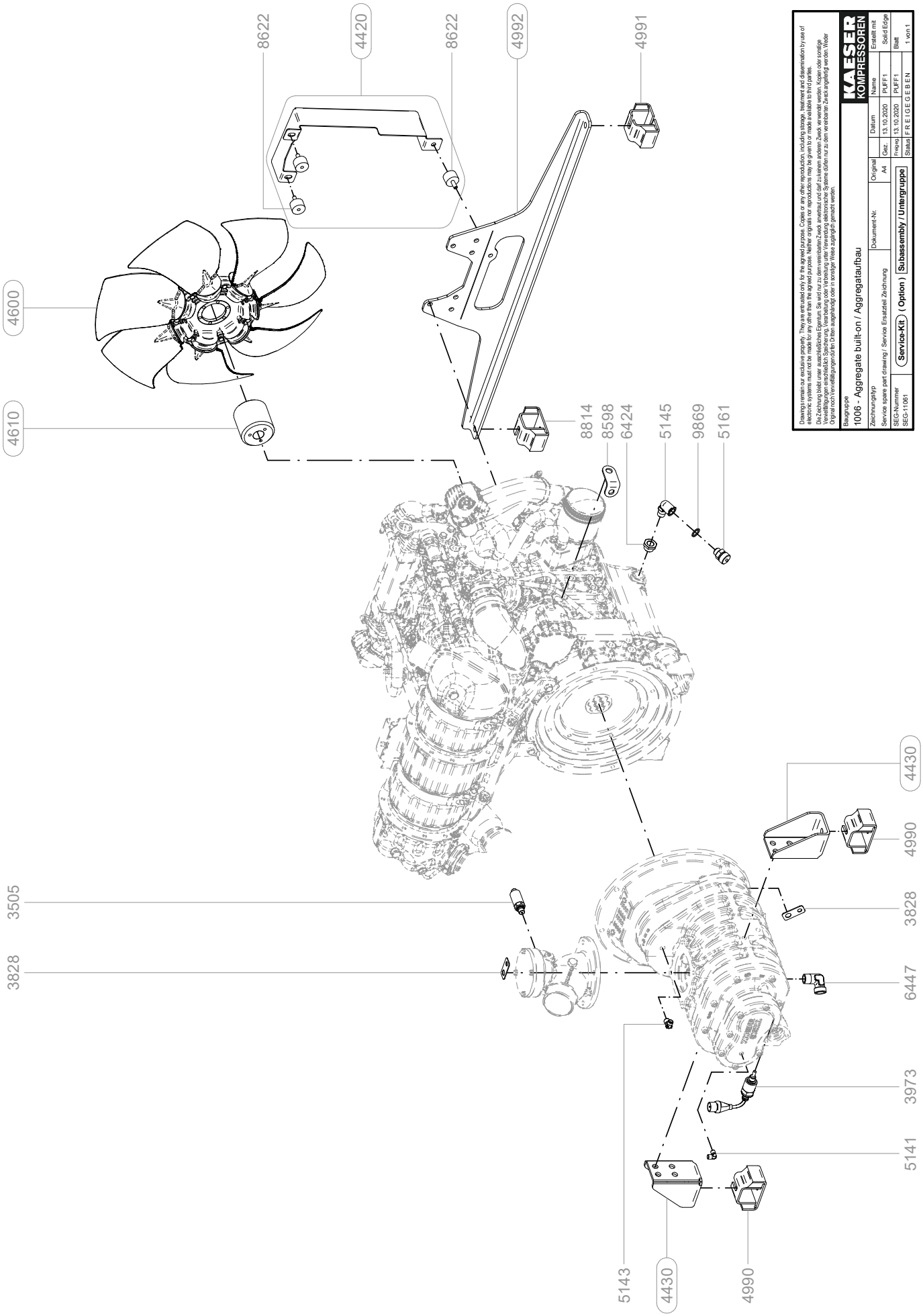
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Baugruppe	Overview / Übersicht			Datum	Name	Erstellt mit
Zeichnungstyp		Dokument-Nr.	Original	Gez.	28.10.2020	PLFF1	Solid Edge
Service spare part drawing / Service Ersatzteil Zeichnung			A4	Freigabe	28.10.2020	PLFF1	Blatt
SEG-Nummer	Service-Kit	(Option)	Subassembly / Untergruppe	Status	F R E I G E G E B E N		1 von 1
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Baugruppe
1001 - Inlet air / Ansaugluft
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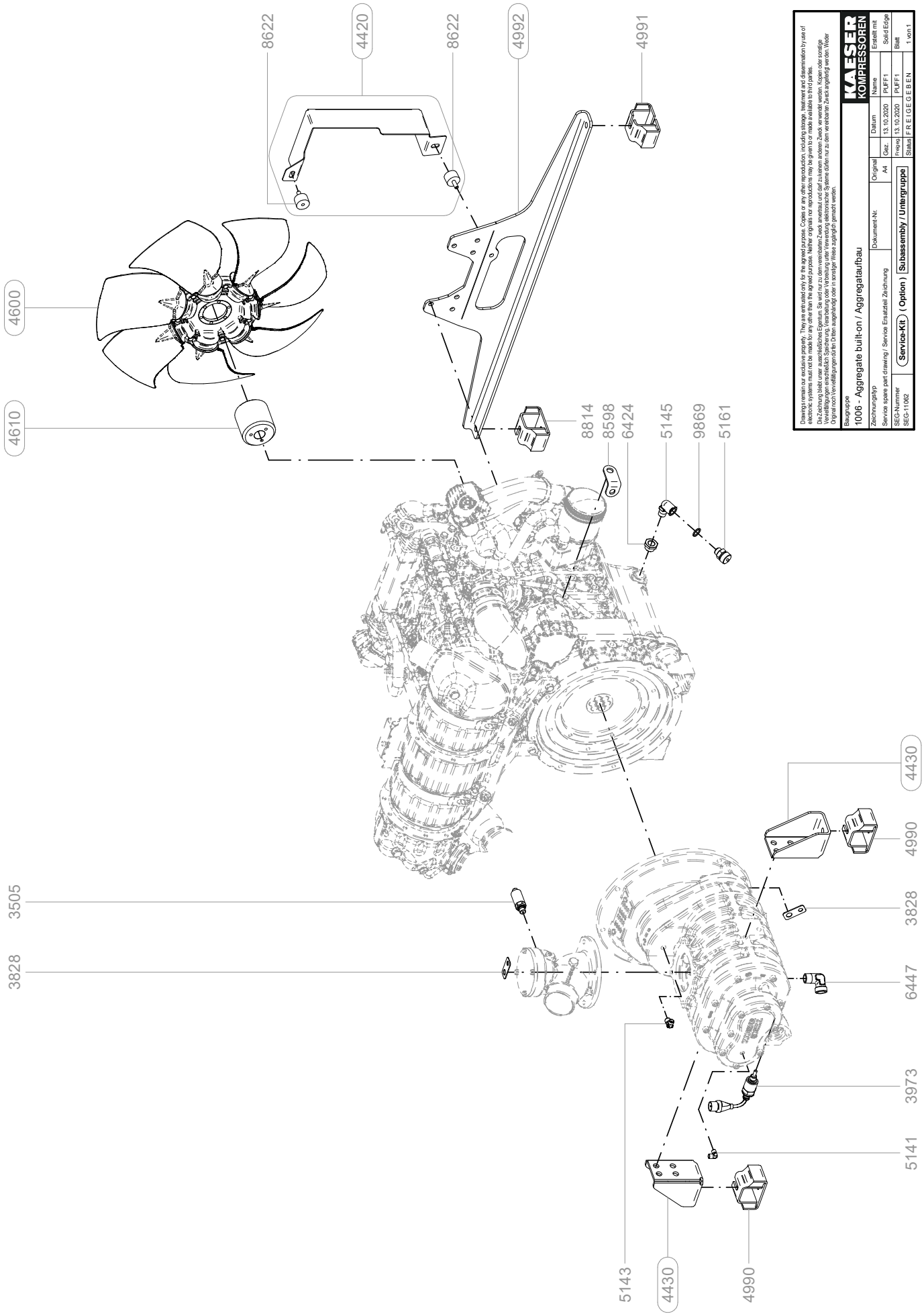


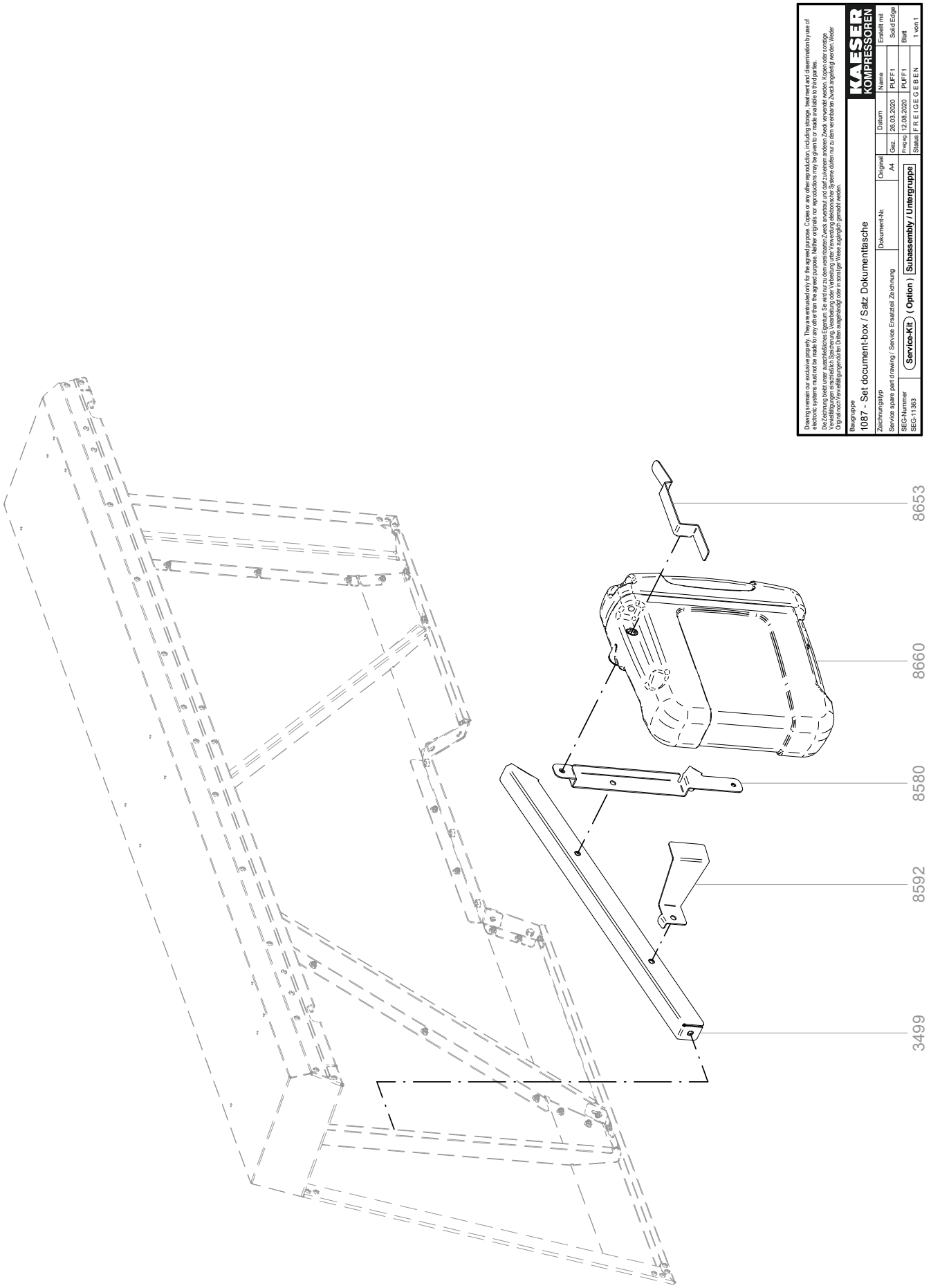
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Baugruppe
1006 - Aggregate built-on / Aggregataufbau

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SEG-Nummer	Service-Kit (Option)	Subassembly / Untergruppe	Freigg.	13.10.2020	PUFF1	Blatt
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Baugruppe
1006 - Aggregate built-on / Aggregataufbau
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
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Datum
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13.10.2020
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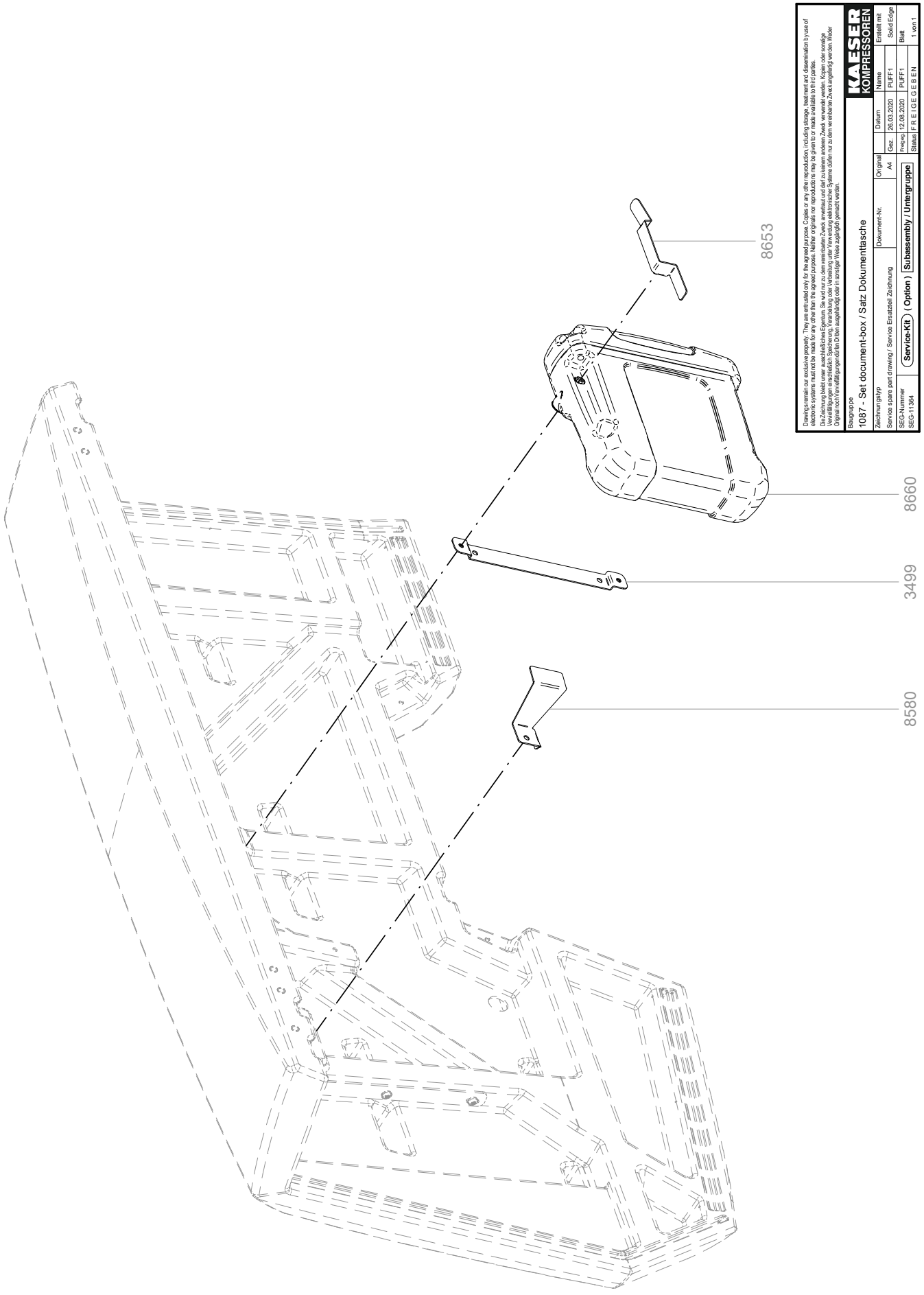


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SEG-Nummer			Freigab	12.08.2020	PUFF1	Blatt
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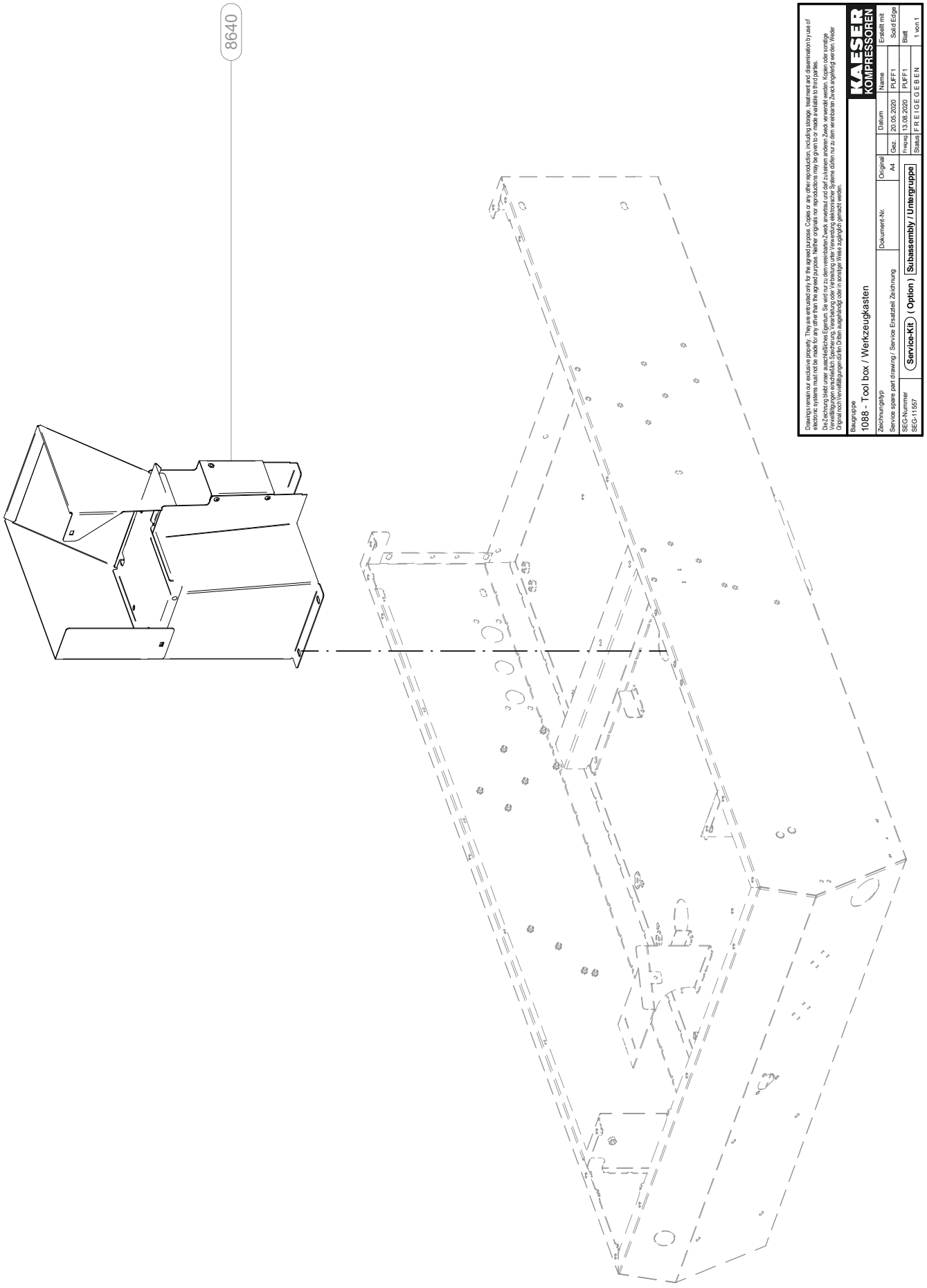


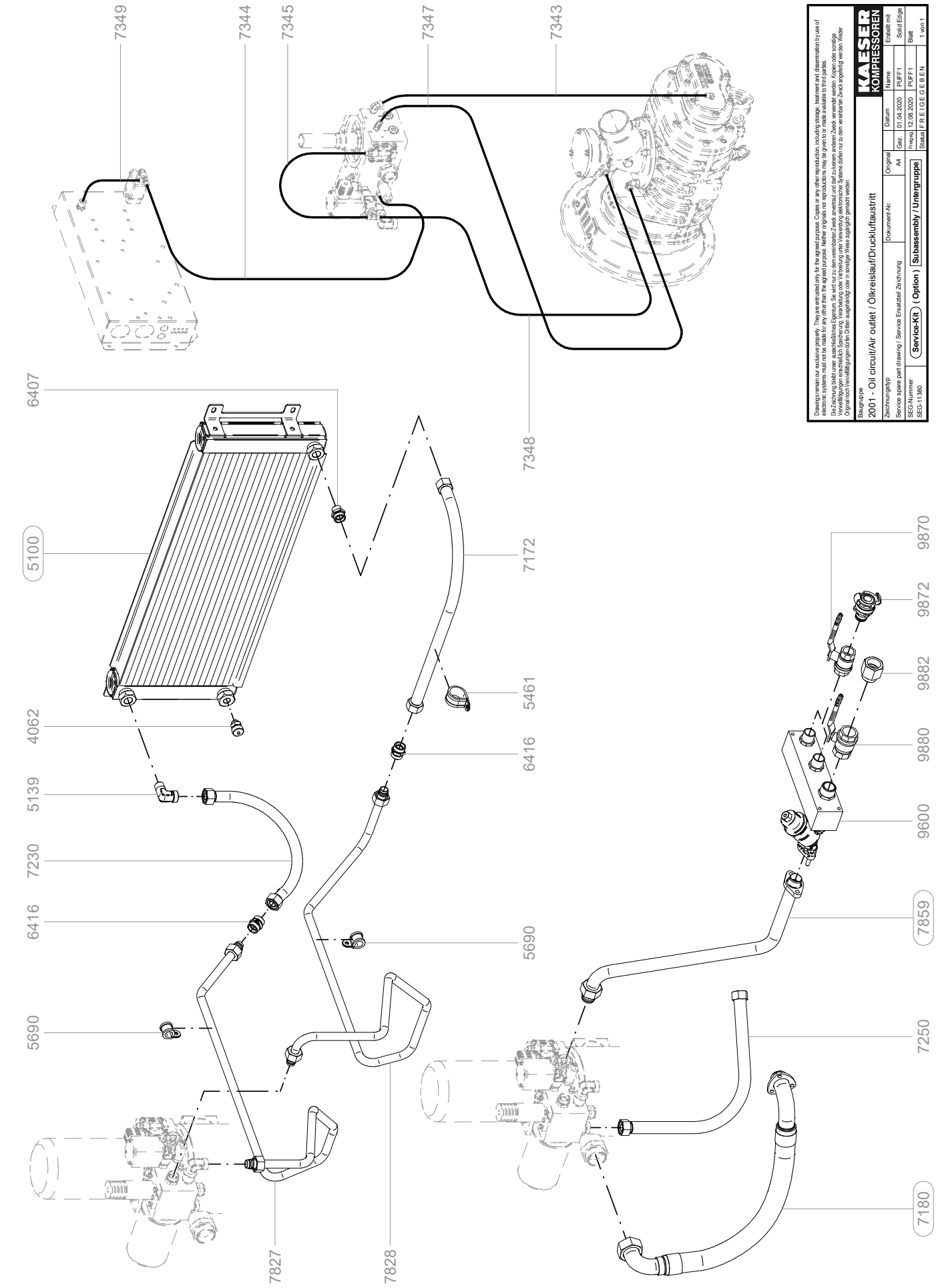
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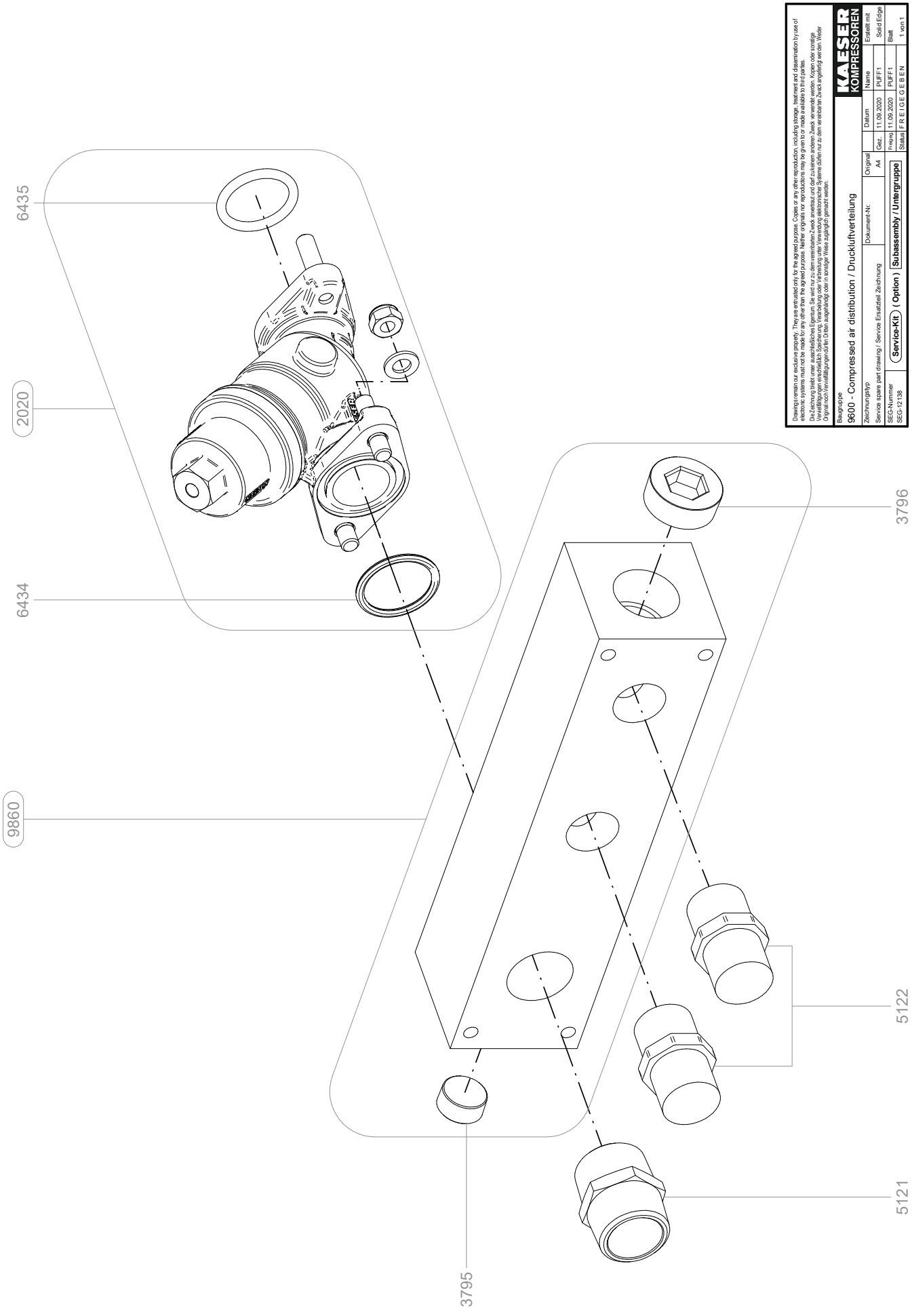
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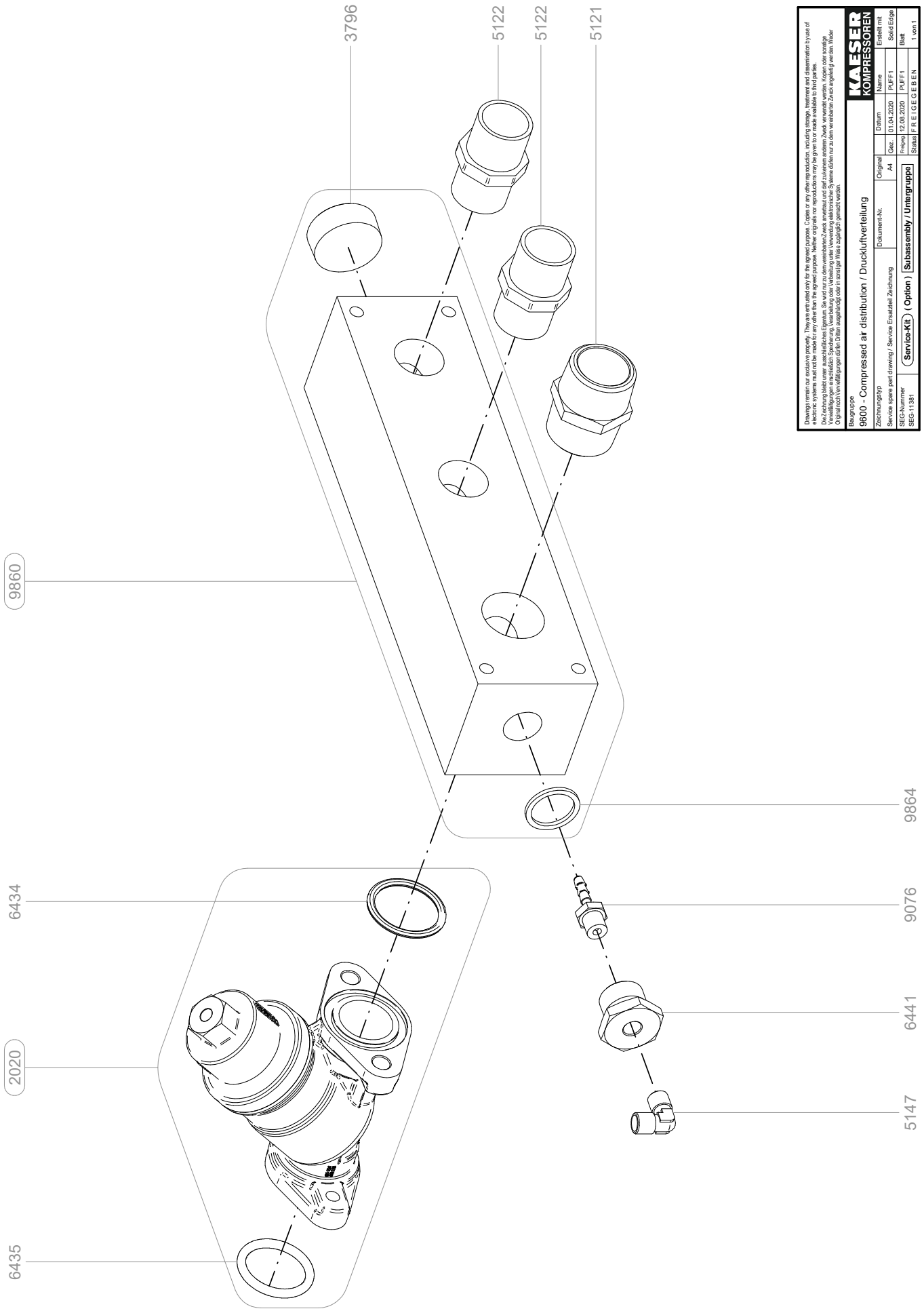
Baugruppe
1087 - Set document-box / Satz Dokumententasche

Zeichnungstyp		Original		Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung	Dokument-Nr.	A4	Gez.	26.03.2020	PLIFF1	Solid Edge
			Freig.	12.08.2020	PLIFF1	Blatt
SEG-Nummer	Service-Kit (Option)	Subassembly / Untergruppe	Status	F R E I G E G E B E N		1 von 1
SEG-111364						


8640
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KAESER KOMPRESSOREN
Baugruppe
1088 - Tool box / Werkzeugkasten
Dokument-Nr.
Original
A4
Datum
Name
Gez. 20.05.2020 PUFF1
Freigg. 13.08.2020 PUFF1
Status F R E I G E G E B E N
Erstellt mit
Solid Edge
Blatt
1 von 1
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
SEG-Nummer
SEG-11557
Service-Kit (Option) Subassembly / Untergruppe


7349
7344
7345
7347
7343
6407
5100
4062
5139
7230
6416
5690
7827
7828
7348
7172
5461
6416
5690
9870
9872
9882
9880
9600
7859
7250
7180
KAESER KOMPRESSOREN
Baugruppe
2001 - Oil circuit/Air outlet / Ölkreislauf/Druckluftaustritt
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Name
Erstellt mit
Solid Edge
Ges.
01.04.2020
PLIFF1
Freigabe
12.08.2020
PLIFF1
Blatt
1 von 1
Status FREIGEGEBEN
SEG-Nummer
SEG-I 1380
Service-Kit (Option) Subassembly / Untergruppe

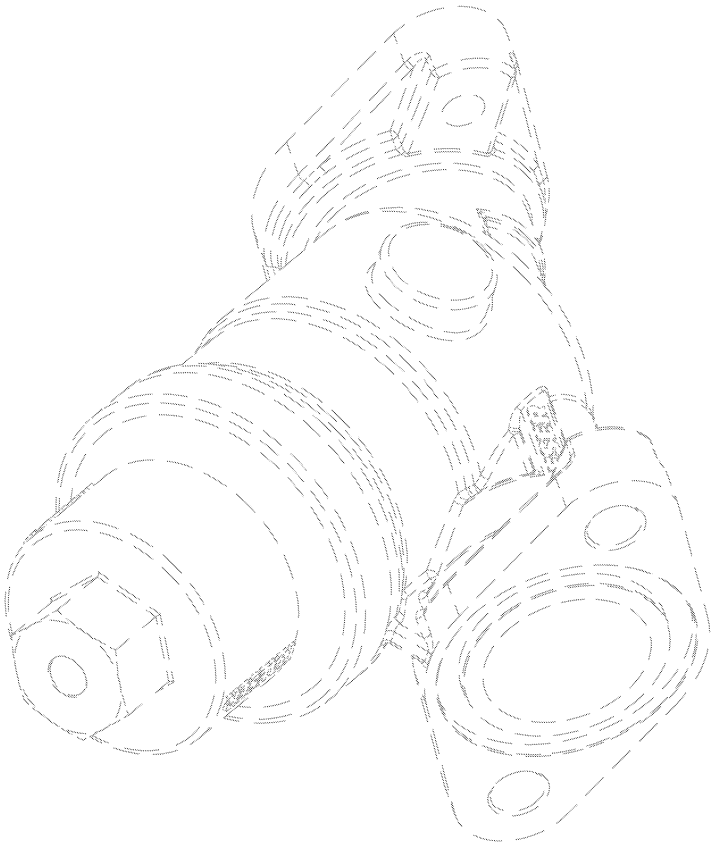

6435
2020
6434
9860
3796
5122
5121
3795
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KAESER KOMPRESSOREN
Baugruppe
9600 - Compressed air distribution / Druckluftverteilung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Gez. 11.09.2020 PUFF1
Freigab 11.09.2020 PUFF1
Status F R E I G E G E B E N
Erstellt mit Solid Edge
Blatt 1 von 1
SEG-Nummer SEG-12138
Service-Kit (Option) Subassembly / Untergruppe



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Baugruppe
9600 - Compressed air distribution / Druckluftverteilung

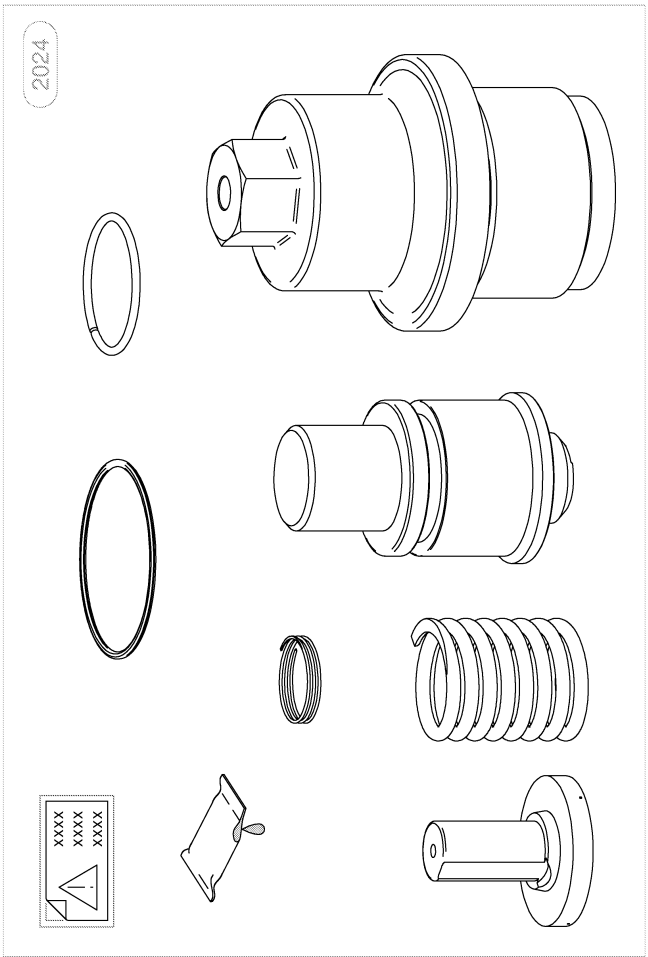
Zeichnungstyp	Dokument-Nr.	Original		Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez.	01.04.2020	PLIFF1	Solid Edge
			Freigabe	12.08.2020	PLIFF1	Blatt
SEG-Nummer	Service-Kit (Option)	Subassembly / Untergruppe	Status	F R E I G E G E B E N		1 von 1
SEG-11381						

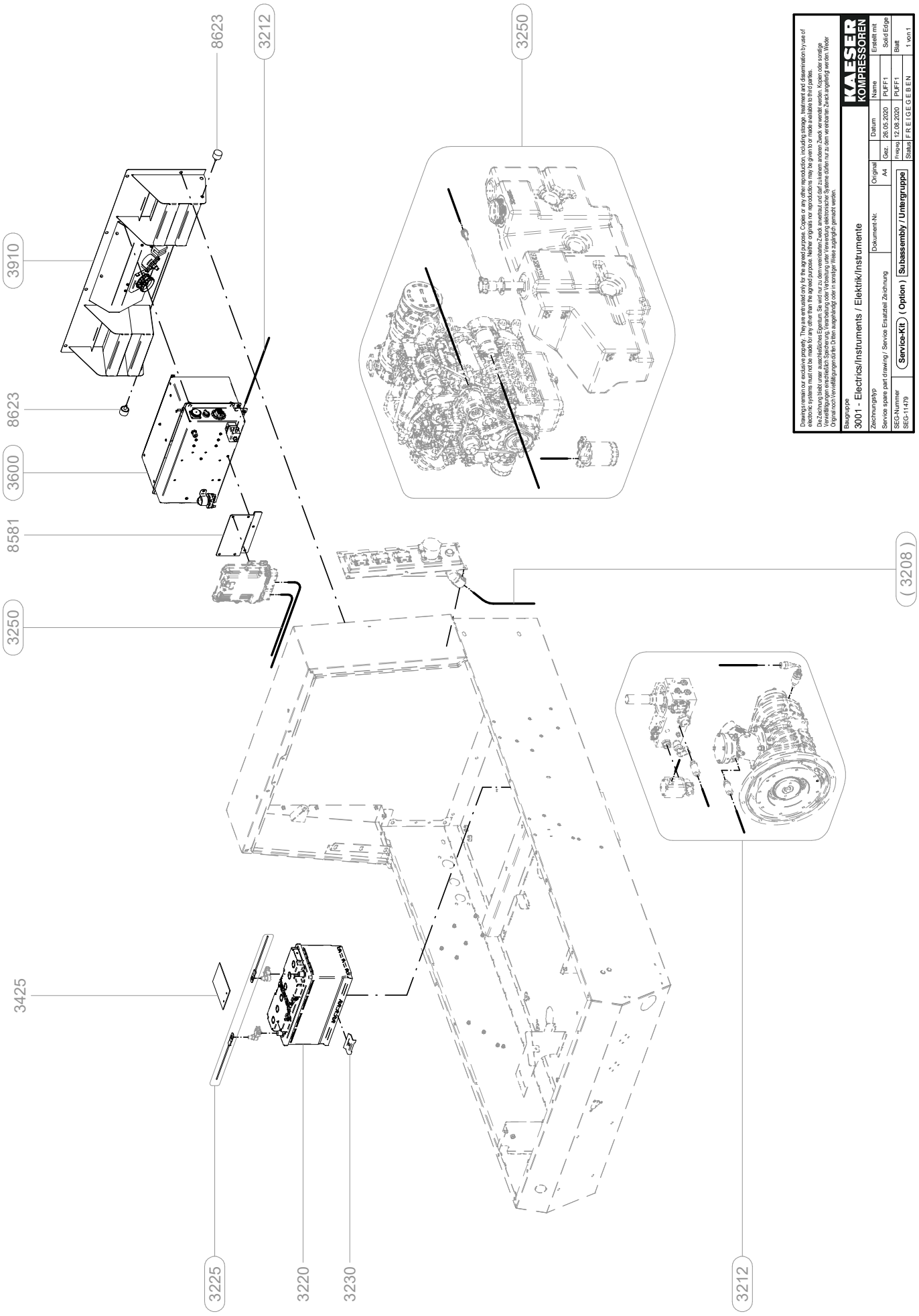


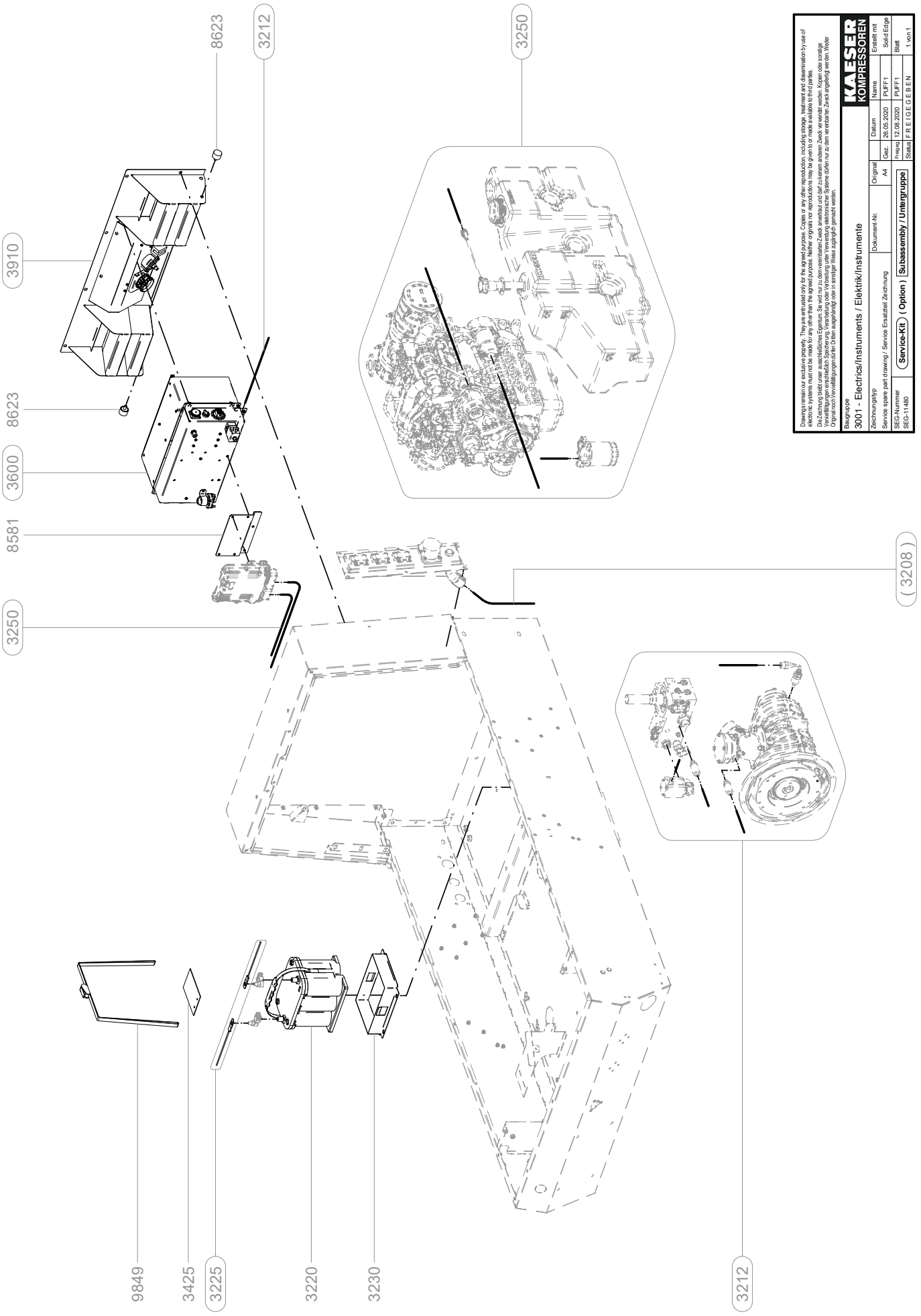
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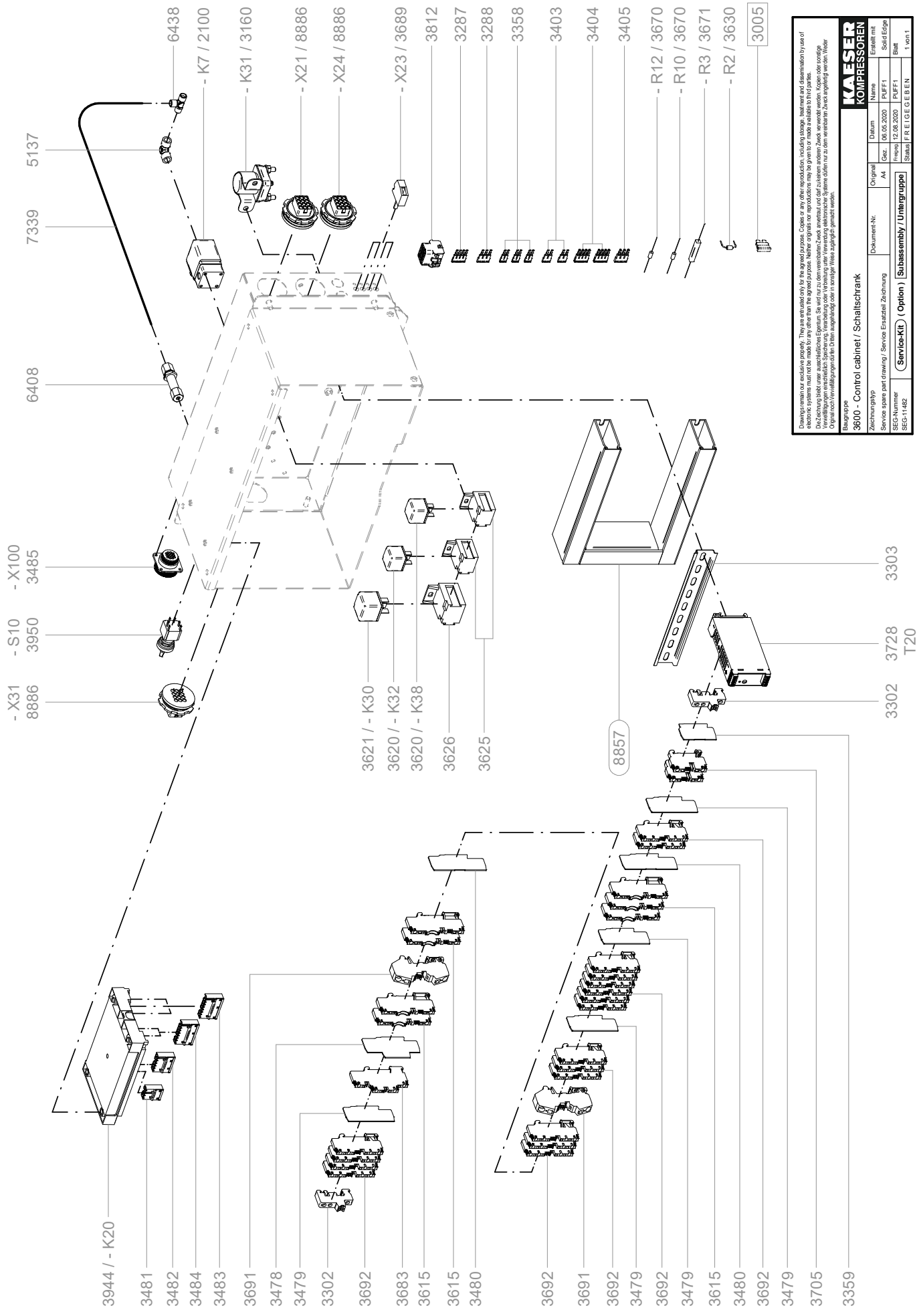
KAESER KOMPRESSOREN

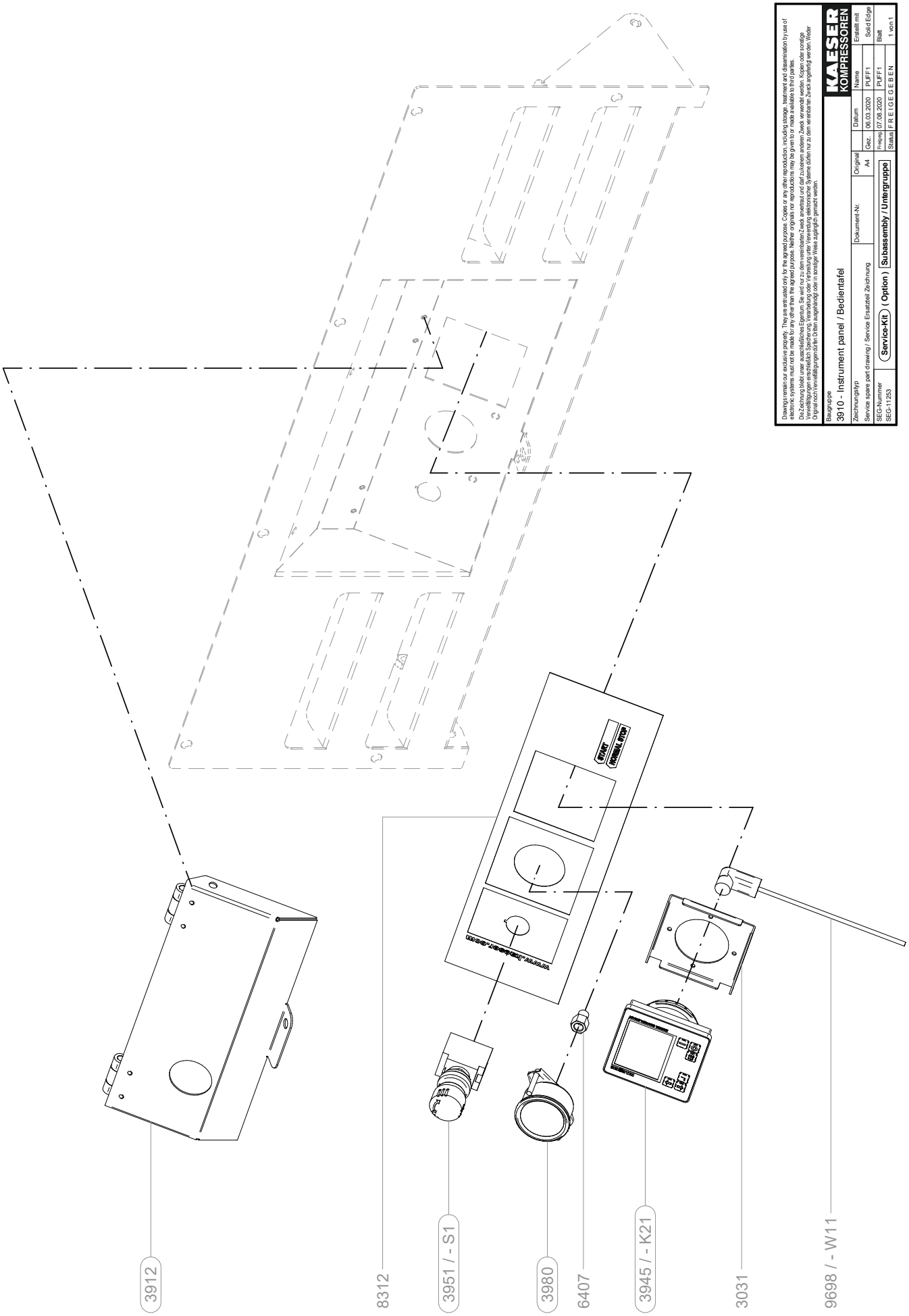
Baugruppe	2002 - Valves / Ventile			Datum	Name
Zeichnungstyp		Dokument-Nr.	Original	Erstellt mit	
Service spare part drawing / Service Ersatzteil Zeichnung			A4	Gez. 12.09.2019	fruehauf2
SEG-Nummer	Service-Kit (Option) Subassembly / Untergruppe			Freigab 12.09.2019	fruehauf2
SEG-10902_01				Status freigegeben	Blatt 1 von 1




8623
3212
3250
3910
8623
3600
8581
3250
(3208)
3425
3225
3220
3230
3212
Baugruppe
3001 - Electrics/Instruments / Elektrik/Instrumente
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Erstellt mit
Solid Edge
Ges.
26.05.2020
PLIFF1
Bearb.
12.08.2020
PLIFF1
Blatt
1 von 1
Status FREIGEGEBEN
SEG-Nummer
SEG-114179
Service-Kit (Option) Subassembly / Untergruppe


8623
3212
3250
3910
8623
3600
8581
3250
(3208)
9849
3425
3225
3220
3230
3212
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KAESER KOMPRESSOREN
Baugruppe
3001 - Electrics/Instruments / Elektrik/Instrumente
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Gez. 26.05.2020 PUFF1
Freigb. 12.08.2020 PUFF1
Erstellt mit
Solid Edge
Blatt
1 von 1
SEG-Nummer
SEG-11480
Service-Kit (Option) Subassembly / Untergruppe
Status F R E I G E G E B E N


6438
- K7 / 2100
- K31 / 3160
- X21 / 8886
- X24 / 8886
- X23 / 3689
3812
3287
3288
3358
3403
3404
3405
- R12 / 3670
- R10 / 3670
- R3 / 3671
- R2 / 3630
3005
5137
7339
6408
- X100
3485
- S10
3950
- X31
8886
3621 / - K30
3620 / - K32
3620 / - K38
3626
3625
8857
3303
3728
T20
3302
3944 / - K20
3481
3482
3484
3483
3691
3478
3479
3302
3692
3683
3615
3615
3480
3692
3691
3692
3479
3692
3479
3615
3480
3692
3479
3705
3359
Baugruppe
3600 - Control cabinet / Schaltschrank
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Erstellt mit
Ges.
06.05.2020
PLIFF1
SolidEdge
Freigabe
12.08.2020
PLIFF1
Blatt
1 von 1
Status
F R E I G E G E B E N
SEG-Nummer
SEG-111462
Service-Kit
(Option)
Subassembly / Untergruppe
KAESER KOMPRESSOREN

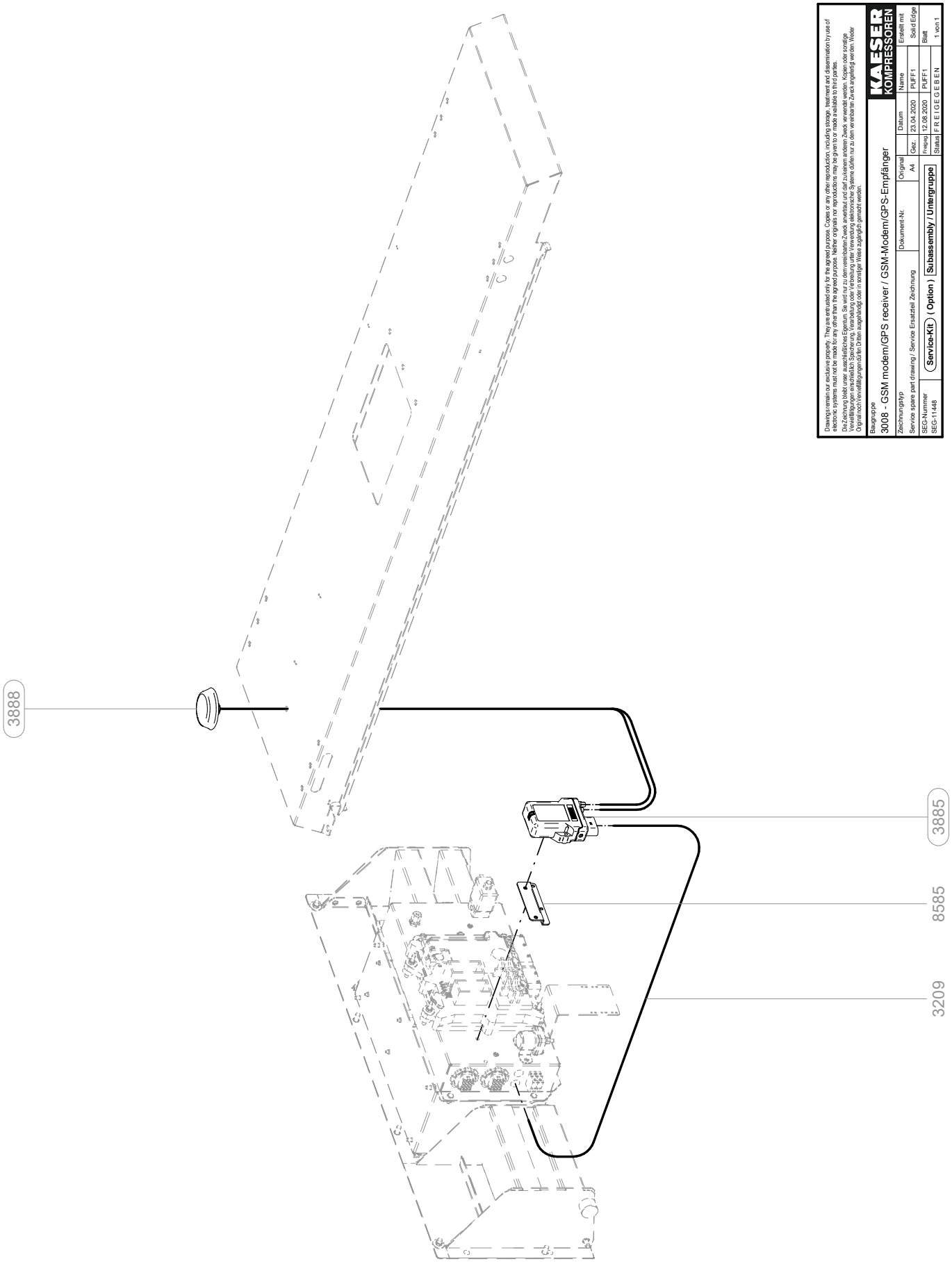


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KAESER KOMPRESSOREN

Baugruppe
3910 - Instrument panel / Bedientafel

Zeichnungstyp	Dokument-Nr.	Original		Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez.	06.03.2020	PUFF1	Solid Edge
SEG-Nummer	Service-Kit (Option)	Subassembly / Untergruppe	Freigab	07.08.2020	PUFF1	Blatt
SEG-11253			Status	F R E I G E G E B E N		1 von 1

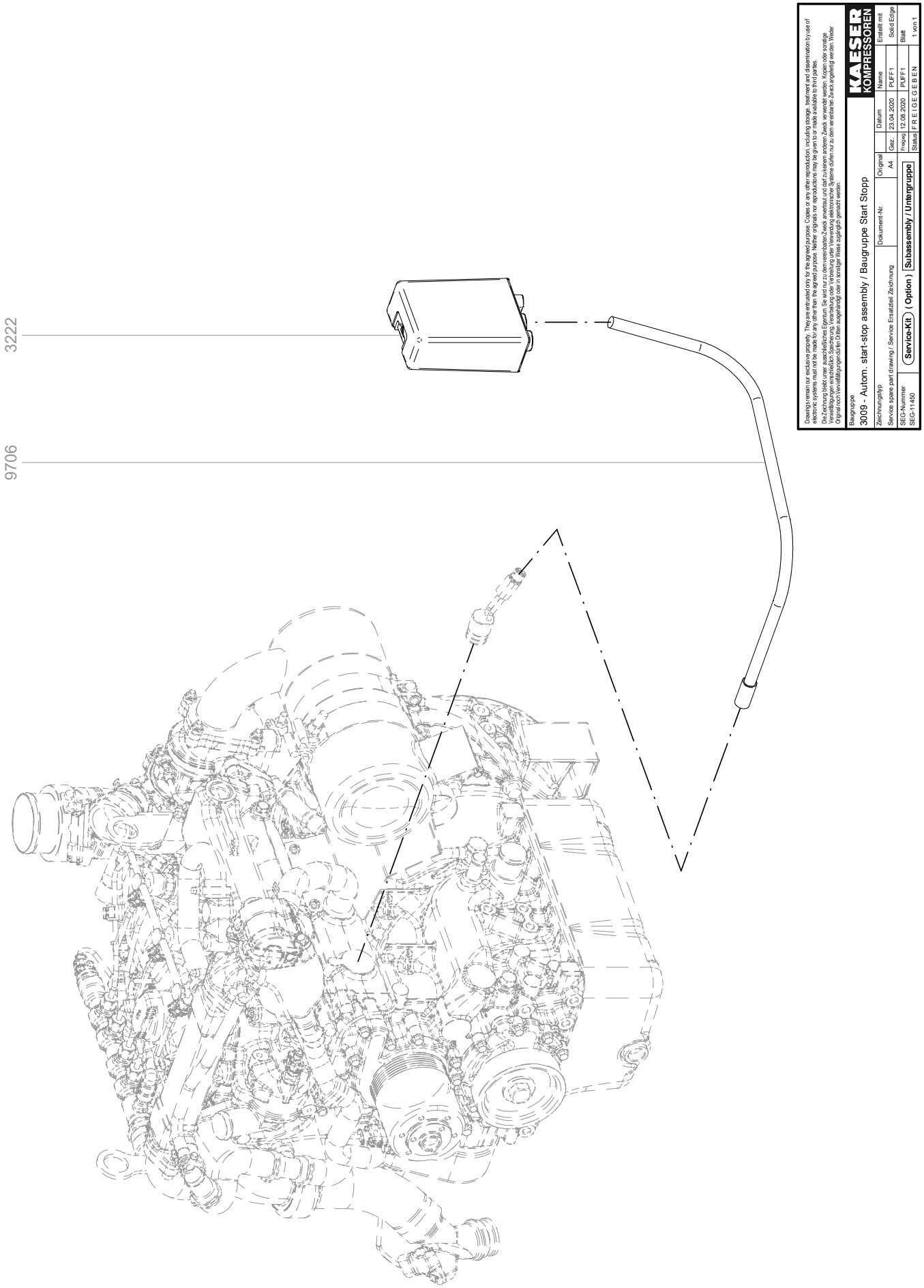


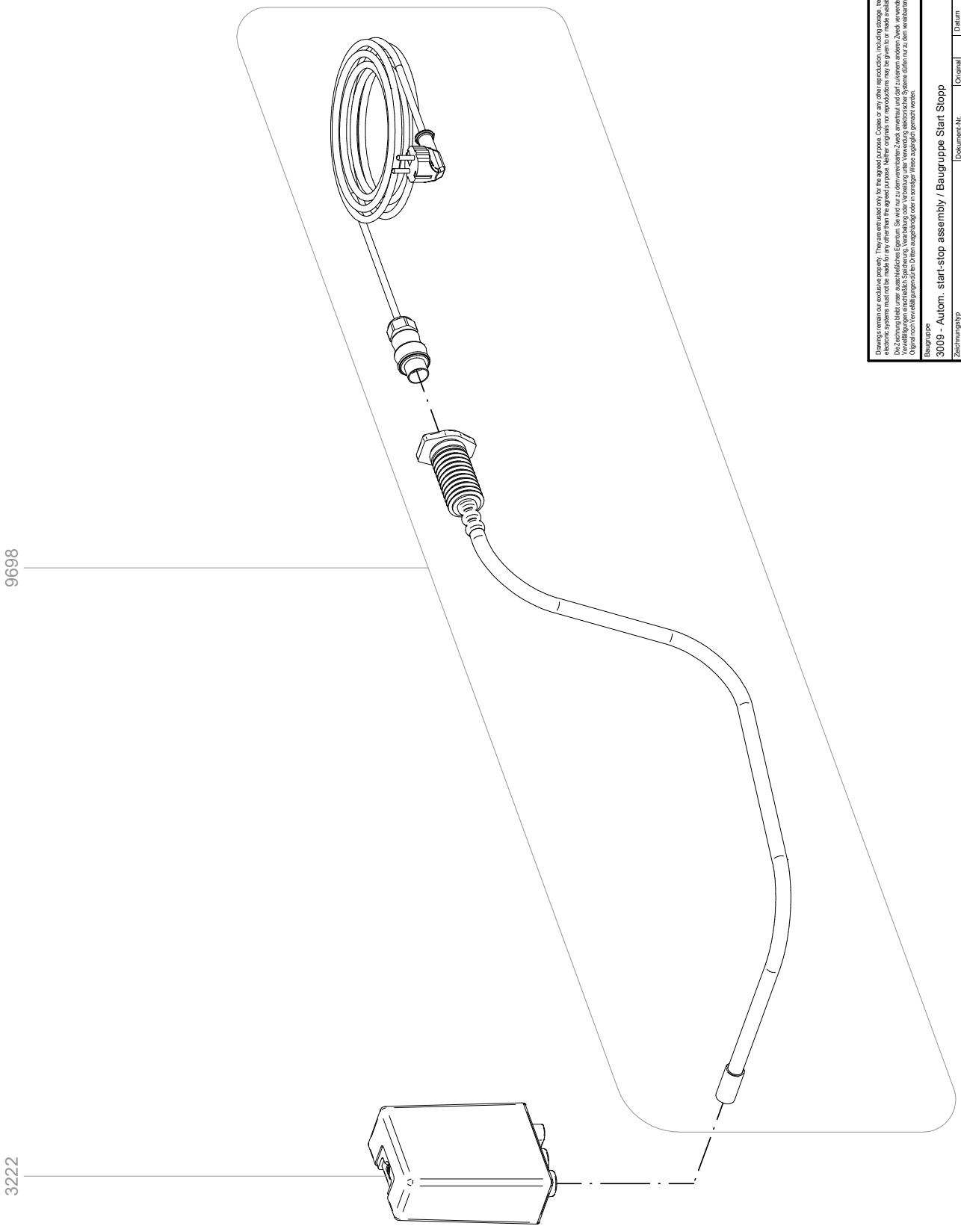
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Baugruppe
3008 - GSM modem/GPS receiver / GSM-Modem/GPS-Empfänger

Zeichnungstyp		Dokument-Nr.	Original	Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung			A4	Gez. 23.04.2020	PLIFF1	SolidEdge
SEG-Nummer	Service-Kit	(Option)	Subassembly / Untergruppe	Freigabe 12.08.2020	PLIFF1	Blatt
SEG-I1448				Status FREIGEGEBEN		1 von 1


3222
9706
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KAESER KOMPRESSOREN
Baugruppe
3009 - Autom. start-stop assembly / Baugruppe Start Stopp
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Erstellt mit
Gez. 23.04.2020 PUFF1 Solid Edge
Freigg. 12.08.2020 PUFF1
Blatt
Status FREIGEGEBEN
1 von 1
SEG-Nummer
SEG-11450
Service-Kit (Option)
Subassembly / Untergruppe

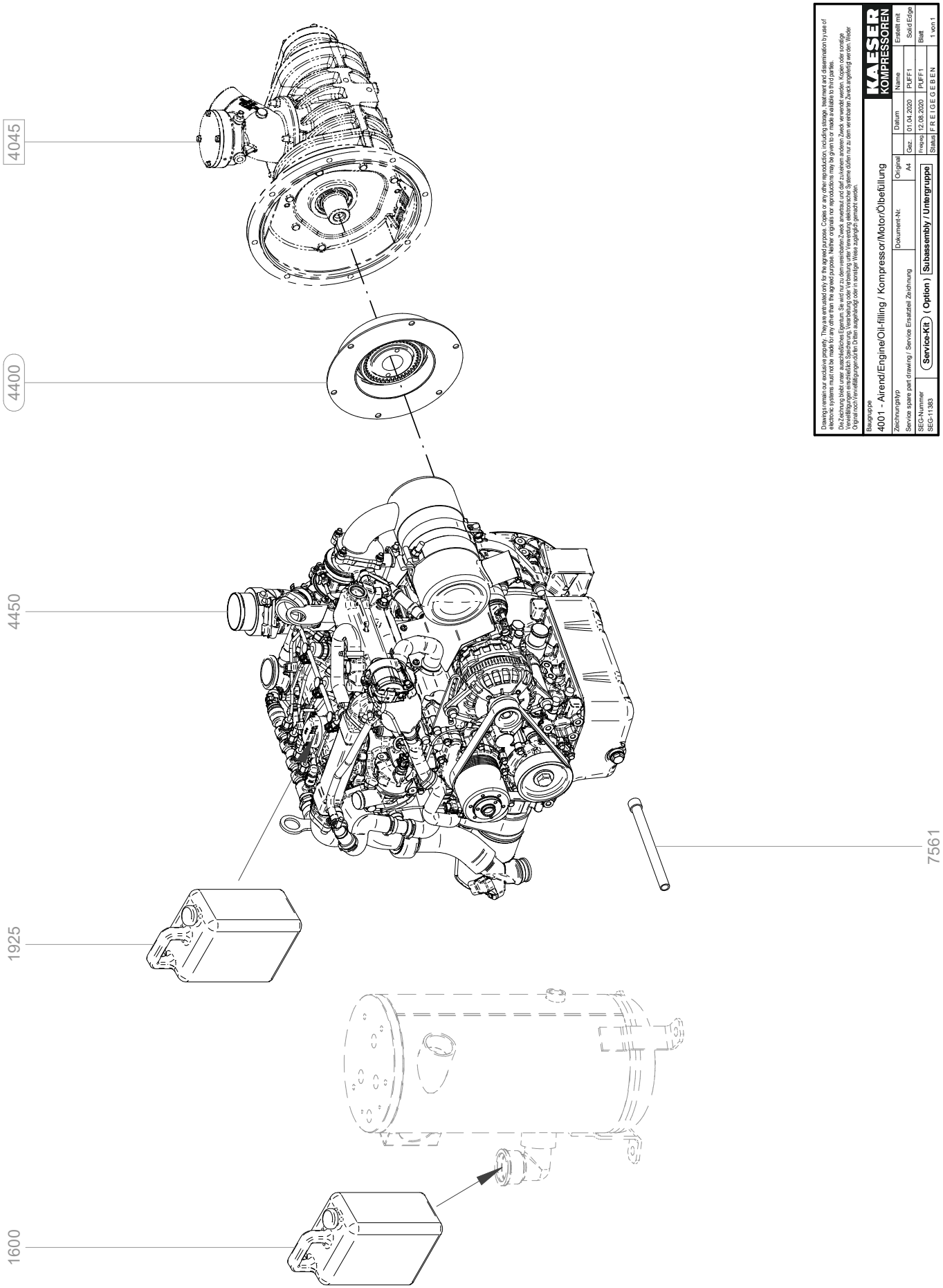


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KAESER KOMPRESSOREN

Baugruppe
3009 - Autom. start-stop assembly / Baugruppe Start Stopp

Zeichnungstyp	Dokument-Nr.	Original	Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez. 23.04.2020	PLIFF1	Solid Edge
			Freig. 12.08.2020	PLIFF1	Blatt
SEG-Nummer	Service-Kit (Option)	Subassembly / Untergruppe	Status FREIGEGEBEN		1 von 1
SEG-11451					

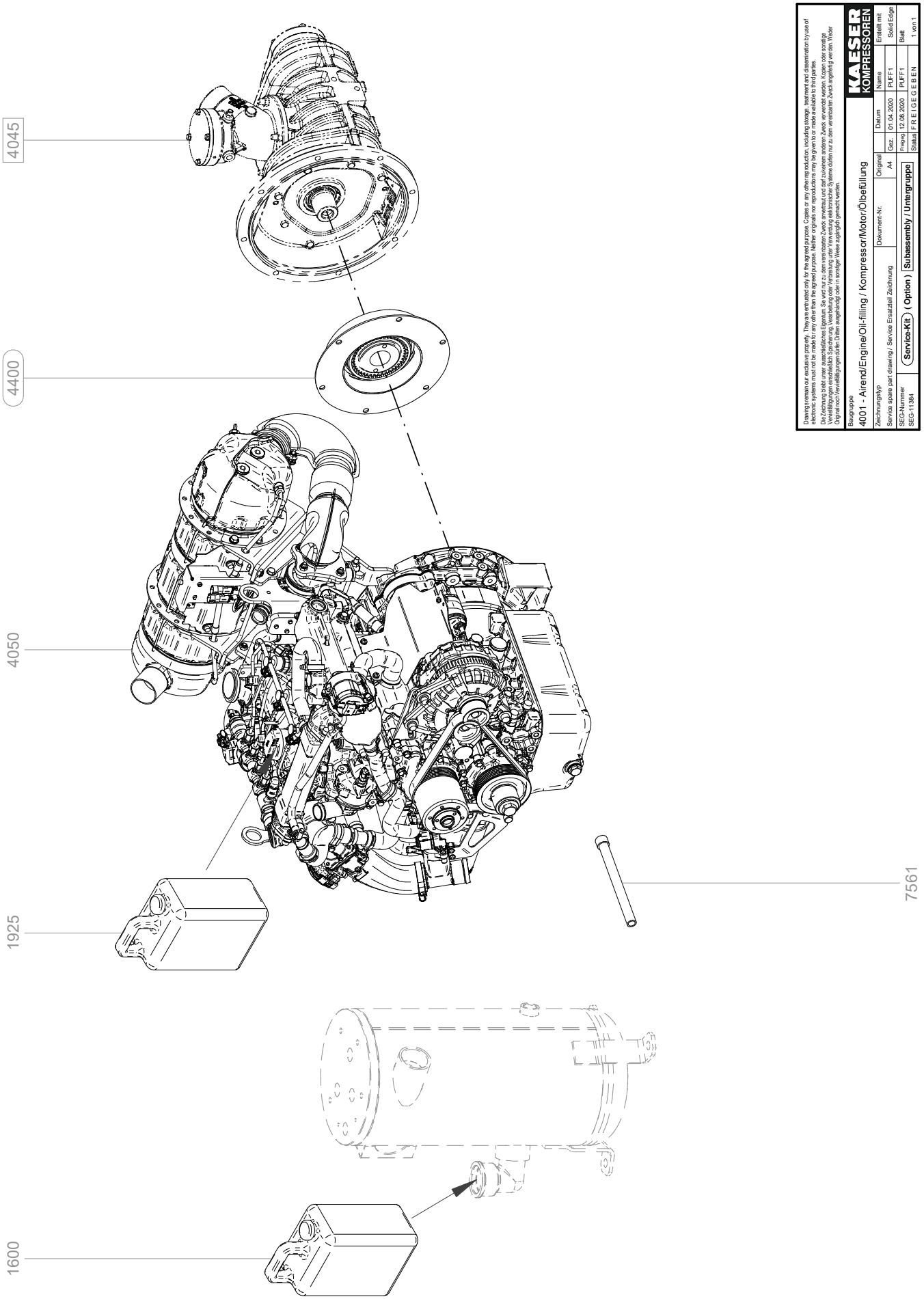


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KAESER KOMPRESSOREN

Baugruppe
4001 - Airend/Engine/Oil-filling / Kompressor/Motor/Ölbefüllung

Zeichnungstyp	Dokument-Nr.	Original		Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez.	01.04.2020	PUFF1	Solid Edge
SEG-Nummer	Service-Kit (Option)	Subassembly / Untergruppe	Freigab	12.08.2020	PUFF1	Blatt
SEG-11383			Status	F R E I G E G E B E N		1 von 1

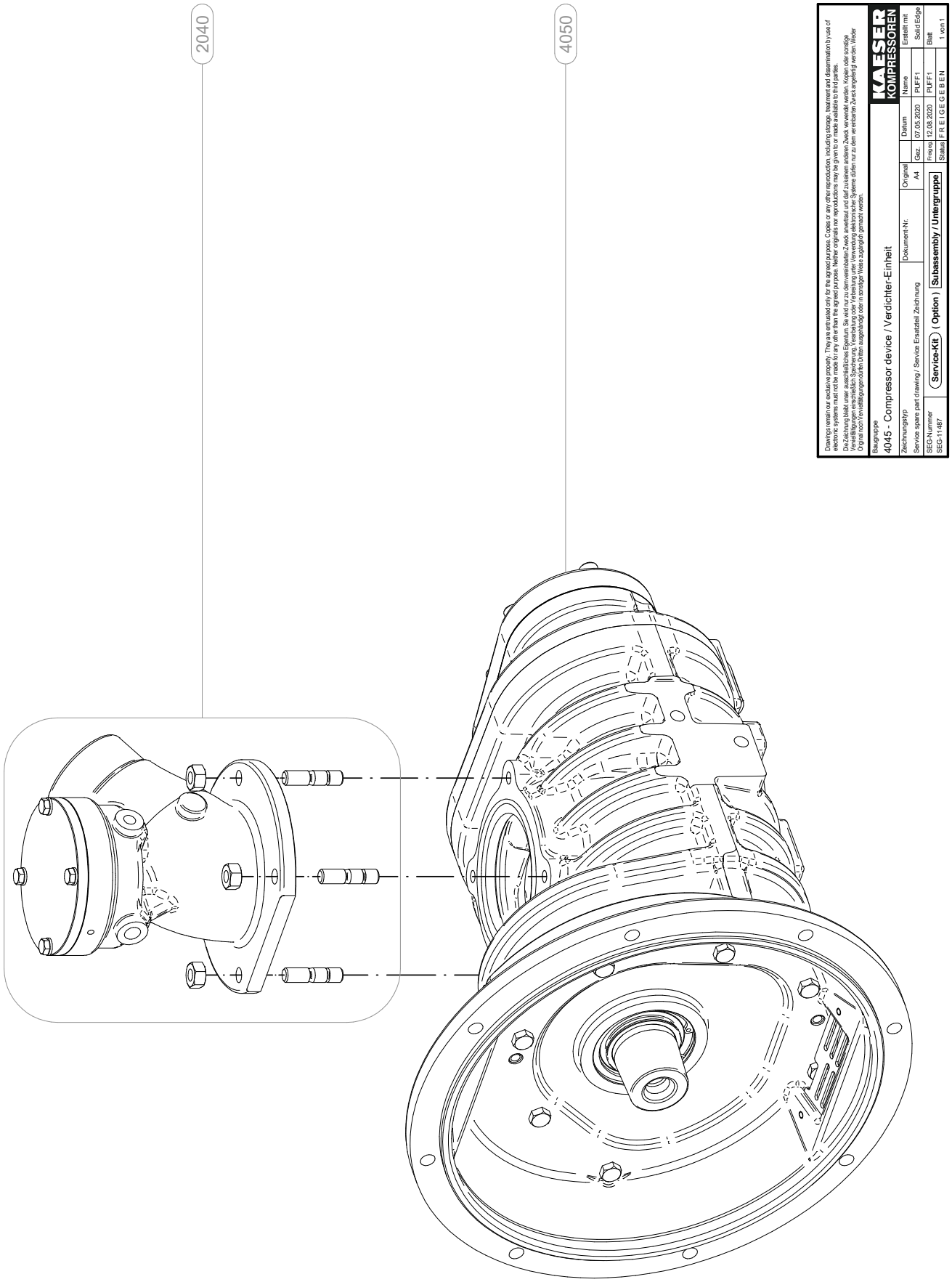


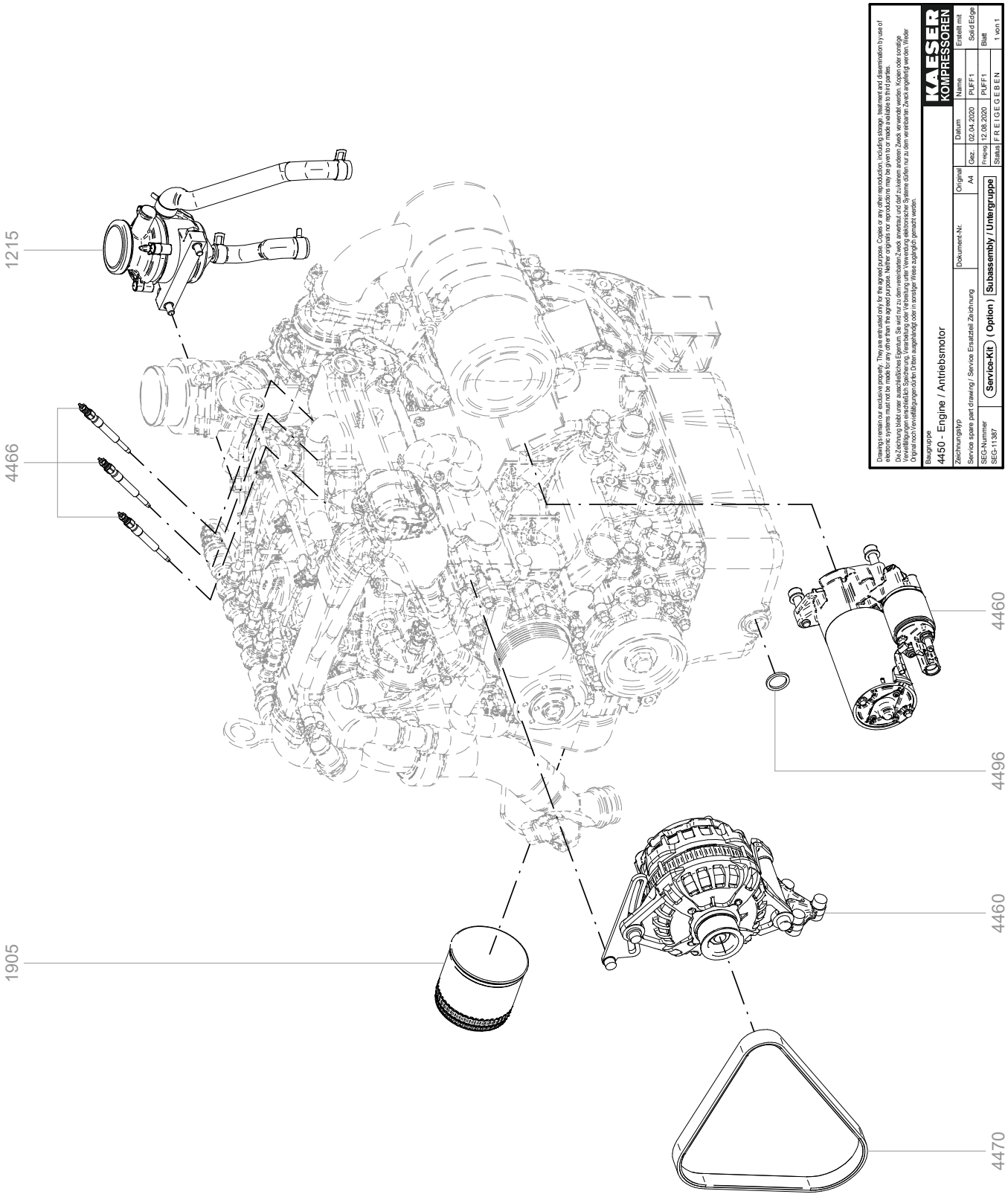
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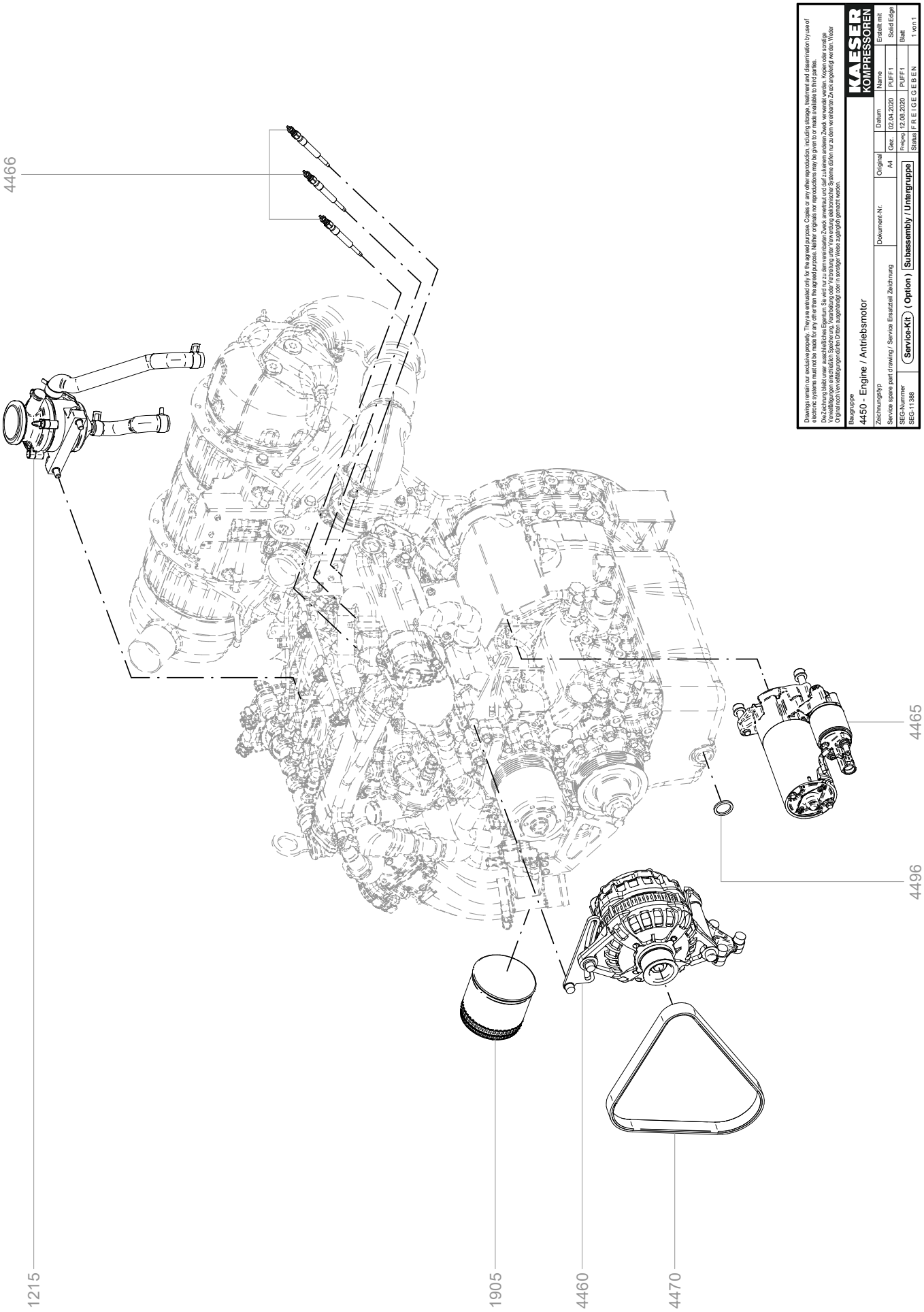
KAESER KOMPRESSOREN

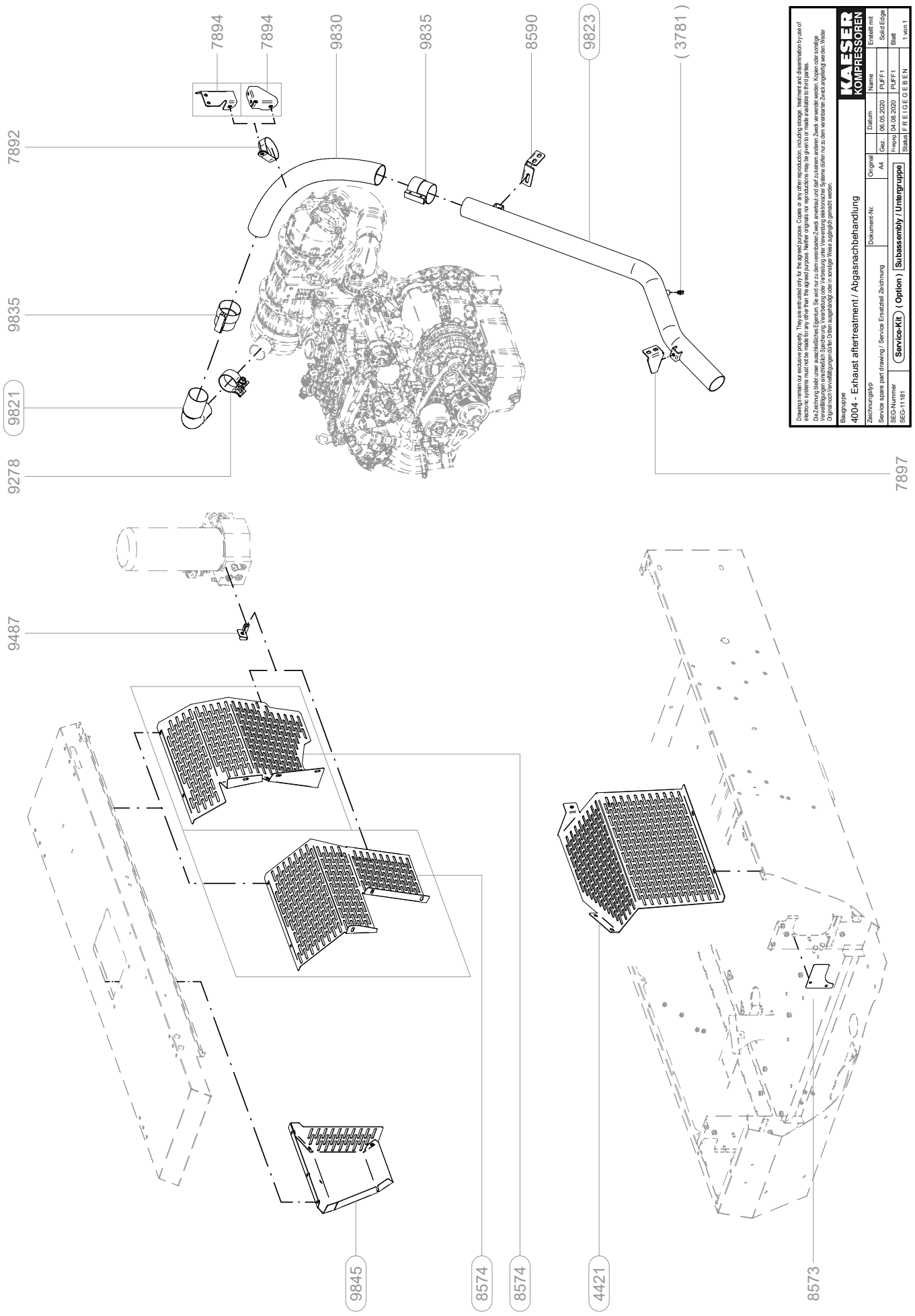
Baugruppe
4001 - Airend/Engine/Oil-filling / Kompressor/Motor/Ölbefüllung

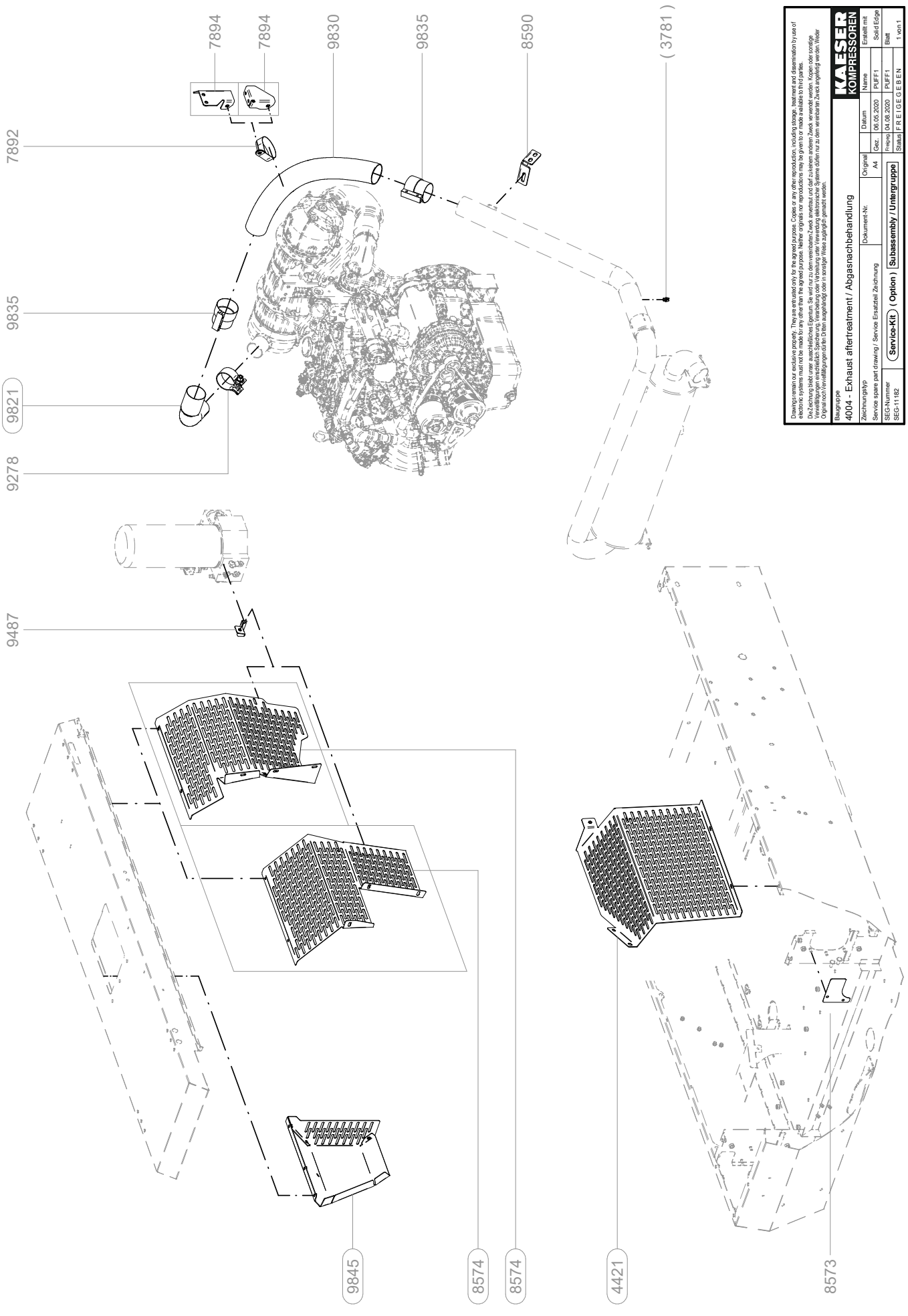
Zeichnungstyp	Dokument-Nr.	Original	Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez. 01.04.2020	PLIFF1	Solid Edge
SEG-Nummer	Service-Kit (Option)	Subassembly / Untergruppe	Freigabe 12.08.2020	PLIFF1	Blatt
SEG-I 1384			Status FREIGEGEBEN		1 von 1

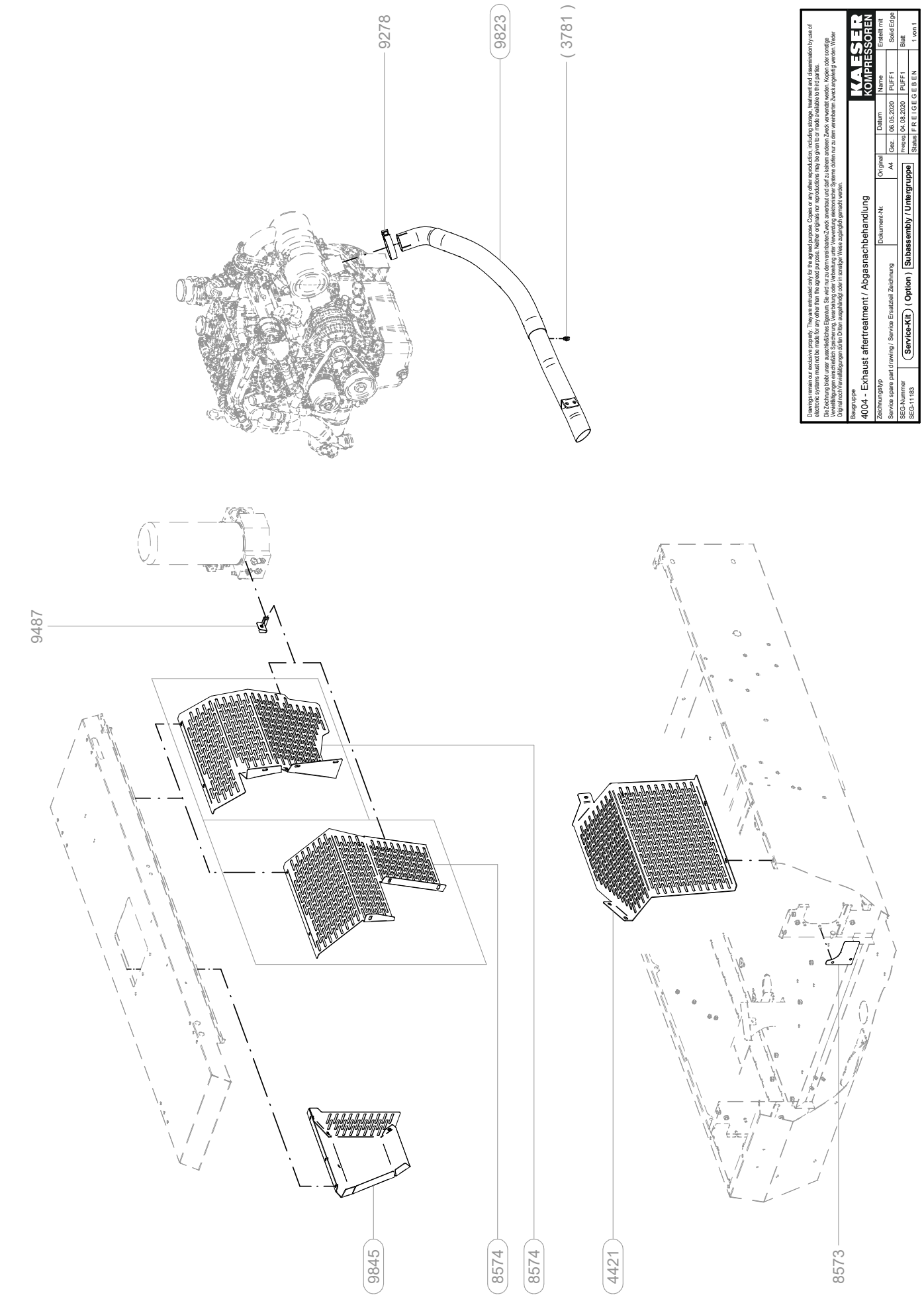

2040
4050
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KAESER KOMPRESSOREN
Baugruppe
4045 - Compressor device / Verdichter-Einheit
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Erstellt mit
Gez. 07.05.2020 PUFF1 Solid Edge
Freigg. 12.08.2020 PUFF1 Blatt
Status F R E I G E G E B E N 1 von 1
SEG-Nummer
SEG-11487
Service-Kit (Option) Subassembly / Untergruppe


1215
4466
4460
4496
4460
1905
4470
Baugruppe
4450 - Engine / Antriebsmotor
Service spare part drawing / Service Ersatzteil Zeichnung
Service-Kit (Option)
Subassembly / Untergruppe
KAESER KOMPRESSOREN


4466
4465
4496
1215
1905
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4470
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KAESER KOMPRESSOREN
Baugruppe
4450 - Engine / Antriebsmotor
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
SEG-Nummer
SEG-11388
Service-Kit (Option)
Dokument-Nr.
Subassembly / Untergruppe
Original
A4
Datum
Name
Gez. 02.04.2020 PUFF1
Freigab 12.08.2020 PUFF1
Status F R E I G E G E B E N
Erstellt mit
Solid Edge
Blatt
1 von 1


7894
7894
9830
9835
8590
9823
(3781)
7892
9835
9821
9278
7897
9487
9845
8574
8574
4421
8573
Baugruppe
4004 - Exhaust aftertreatment / Abgasnachbehandlung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Name
Datum
Erstellt mit
Ges.
06.05.2020
PLIFF1
Solid Edge
Freigabe
04.08.2020
PLIFF1
Blatt
Status FREIGEGEBEN
1 von 1
SEG-Nummer
SEG-I-11161
Service-Kit (Option)
Subassembly / Untergruppe


7894
7894
9830
9835
8590
(3781)
7892
9835
9821
9278
9487
9845
8574
8574
4421
8573
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KAESER KOMPRESSOREN
Baugruppe
4004 - Exhaust aftertreatment / Abgasnachbehandlung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Erstellt mit
Gez. 06.05.2020 PUFF1 Solid Edge
Freigab 04.08.2020 PUFF1
Blatt 1 von 1
Status F R E I G E G E B E N
SEG-Nummer
SEG-11182
Service-Kit (Option) Subassembly / Untergruppe

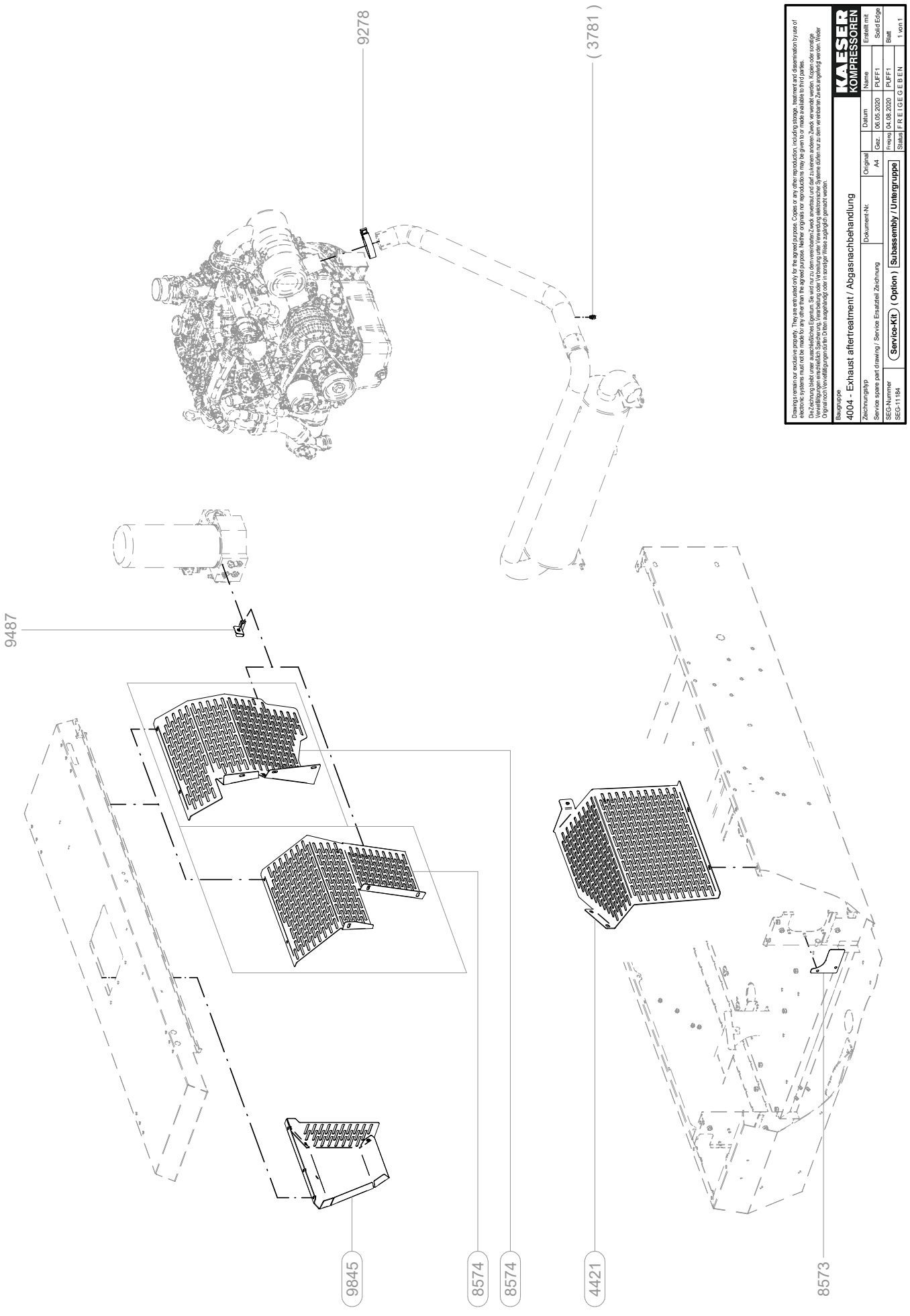


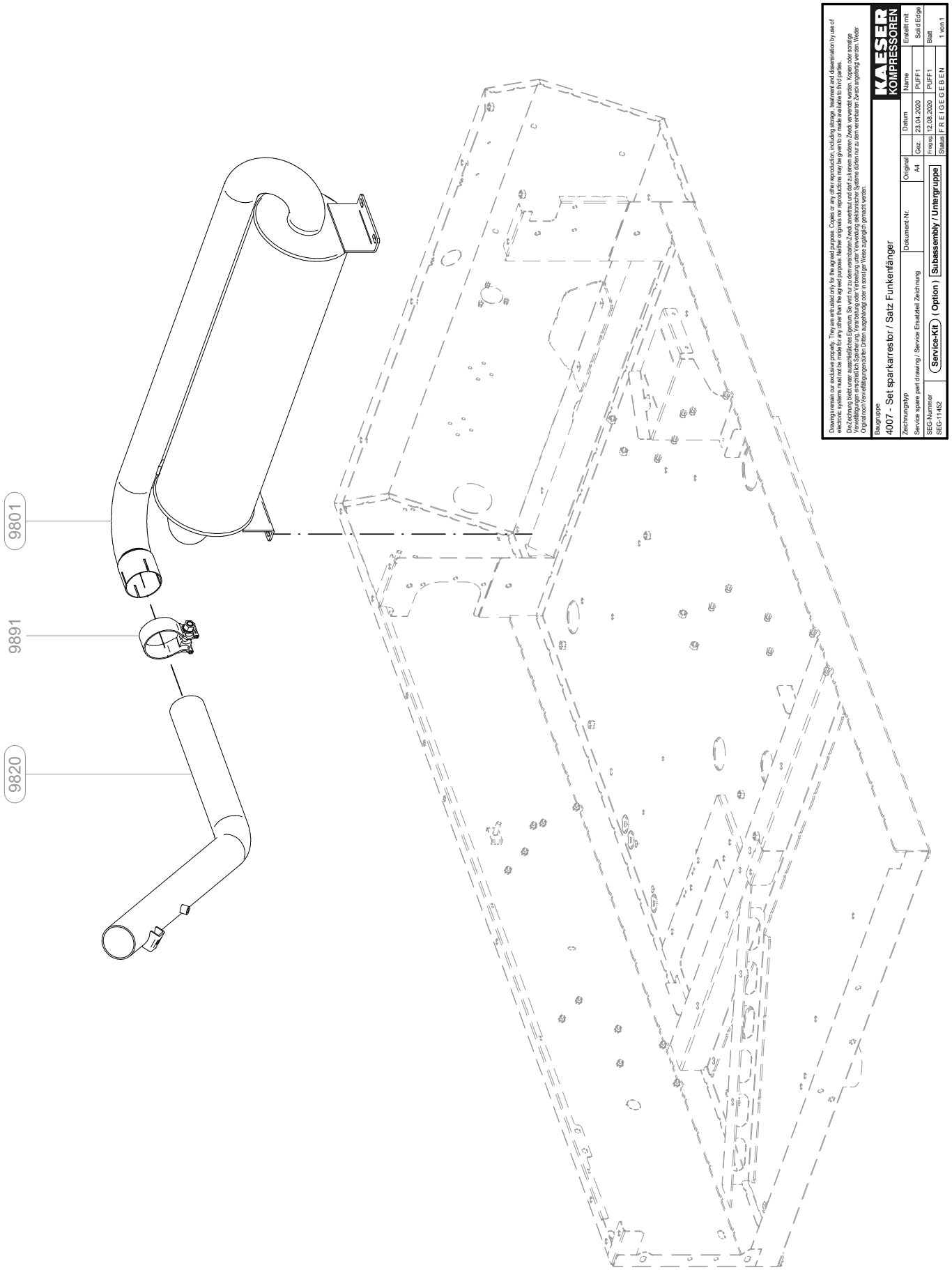
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KAESER KOMPRESSOREN

Baugruppe
4004 - Exhaust aftertreatment / Abgasnachbehandlung

Zeichnungstyp	Dokument-Nr.	Original	Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez. 06.05.2020	PLIFF1	SolidEdge
SEG-Nummer	Service-Kit (Option)	Subassembly / Untergruppe	Freigabe 04.08.2020	PLIFF1	Blatt
SEG-111163			Status FREIGEGEBEN		1 von 1


9278
(3781)
9487
9845
8574
8574
4421
8573
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KAESER KOMPRESSOREN
Baugruppe
4004 - Exhaust aftertreatment / Abgasnachbehandlung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Erstellt mit
Gez. 06.05.2020 PUFF1 Solid Edge
Freigig. 04.08.2020 PUFF1 Blatt
Status F R E I G E G E B E N 1 von 1
SEG-Nummer
SEG-11184
Service-Kit (Option) Subassembly / Untergruppe

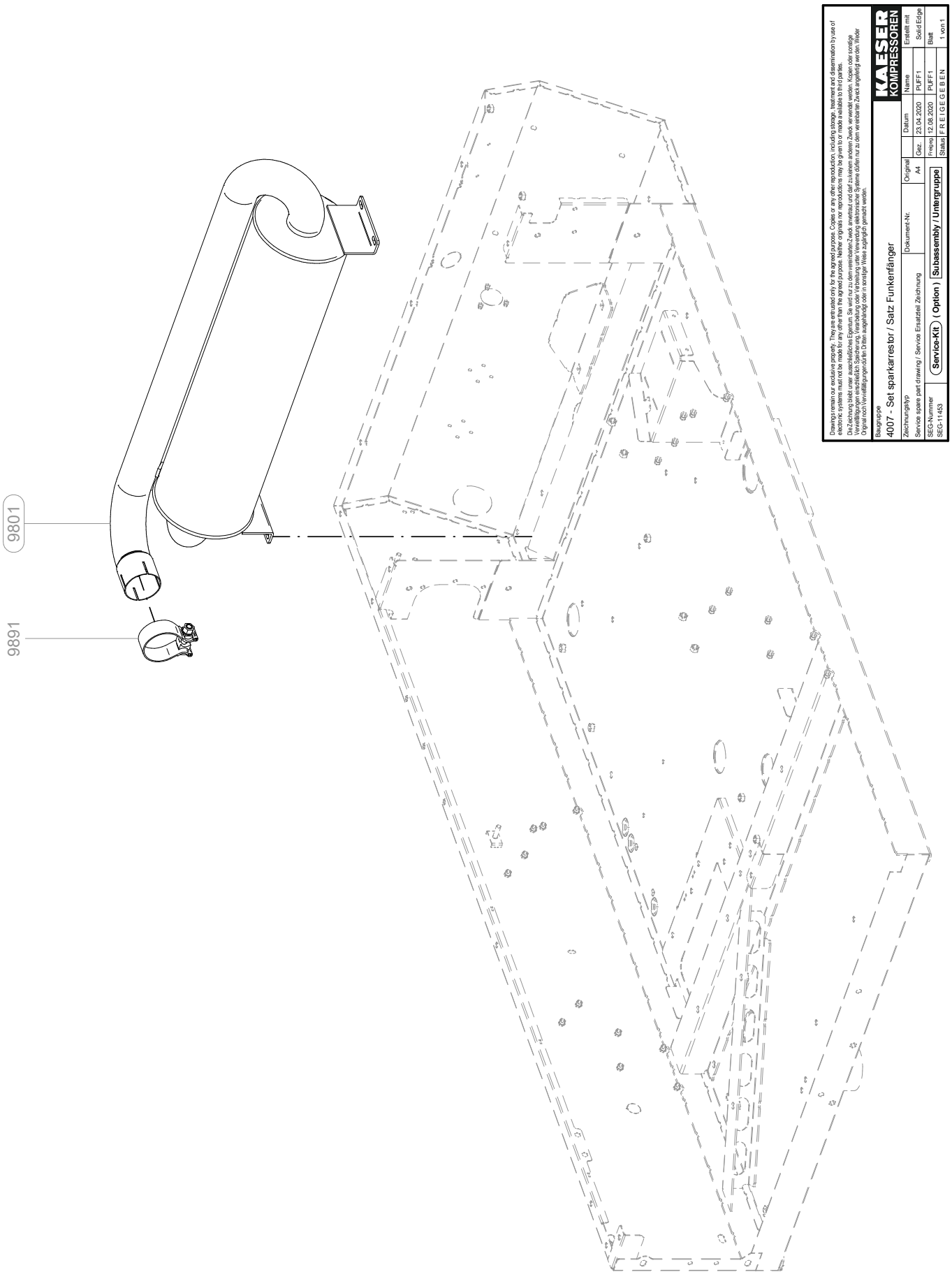


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KAESER KOMPRESSOREN

Baugruppe
4007 - Set sparkarrestor / Satz Funkenfänger

Zeichnungstyp	Dokument-Nr.	Original	Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez. 23.04.2020	PLIFF1	SolidEdge
			Freig. 12.08.2020	PLIFF1	Blatt
SEG-Nummer	Service-Kit (Option)	Subassembly / Untergruppe	Status FREIGEGEBEN		1 von 1
SEG-111452					

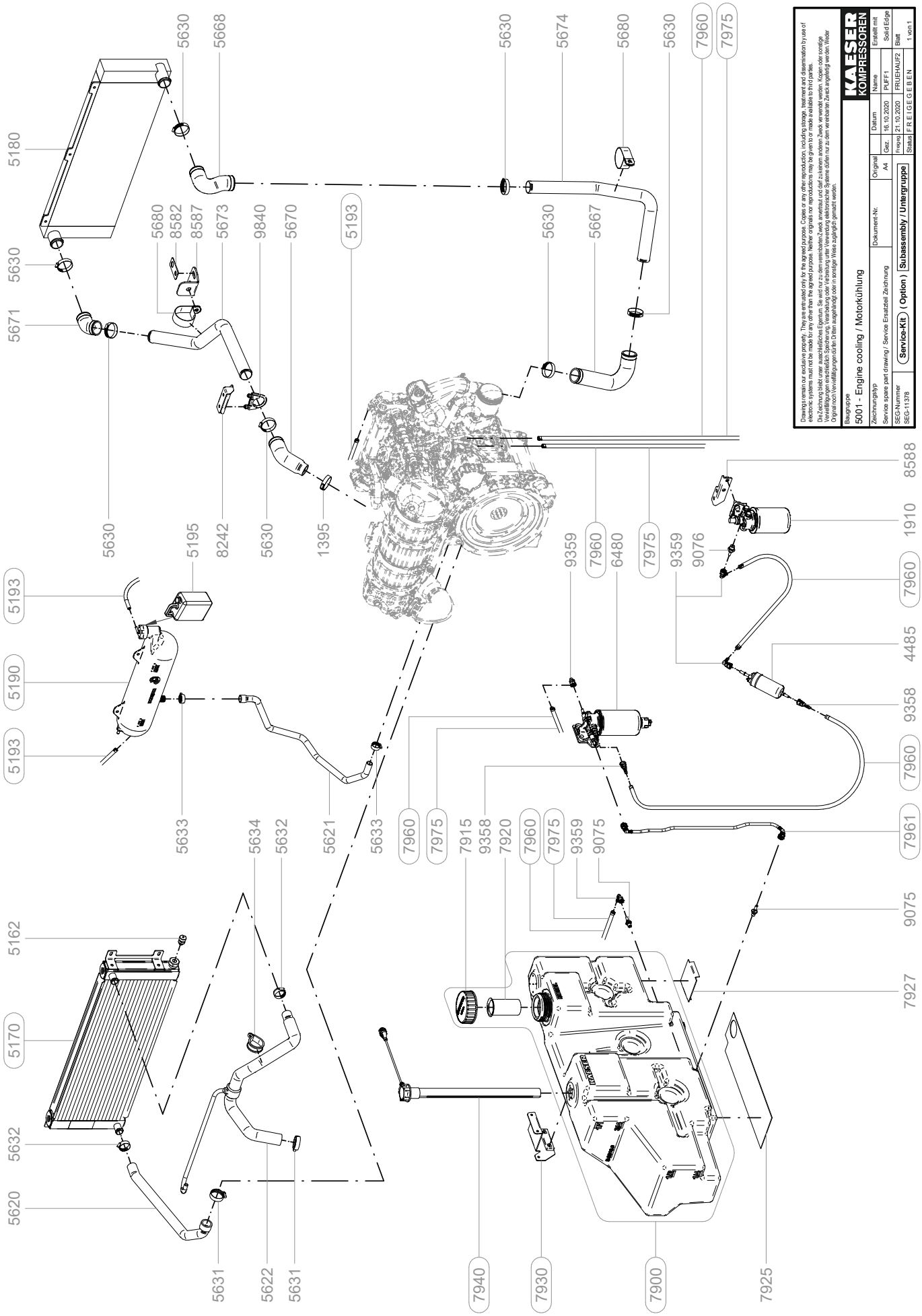


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KAESER KOMPRESSOREN

Baugruppe
4007 - Set sparkarrestor / Satz Funkenfänger

Zeichnungstyp	Dokument-Nr.	Original		Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez.	23.04.2020	PUFF1	Solid Edge
SEG-Nummer	Service-Kit (Option)	Subassembly / Untergruppe	Freigab	12.08.2020	PUFF1	Blatt
SEG-11453			Status	F R E I G E G E B E N		1 von 1



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KAESER KOMPRESSOREN

Baugruppe
5001 - Engine cooling / Motorkühlung

Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung

Dokument-Nr.

Original
A4

Datum
Ged. 16.10.2020
Freigabe 21.10.2020

Name
PUFF1
FRUEHAUF2

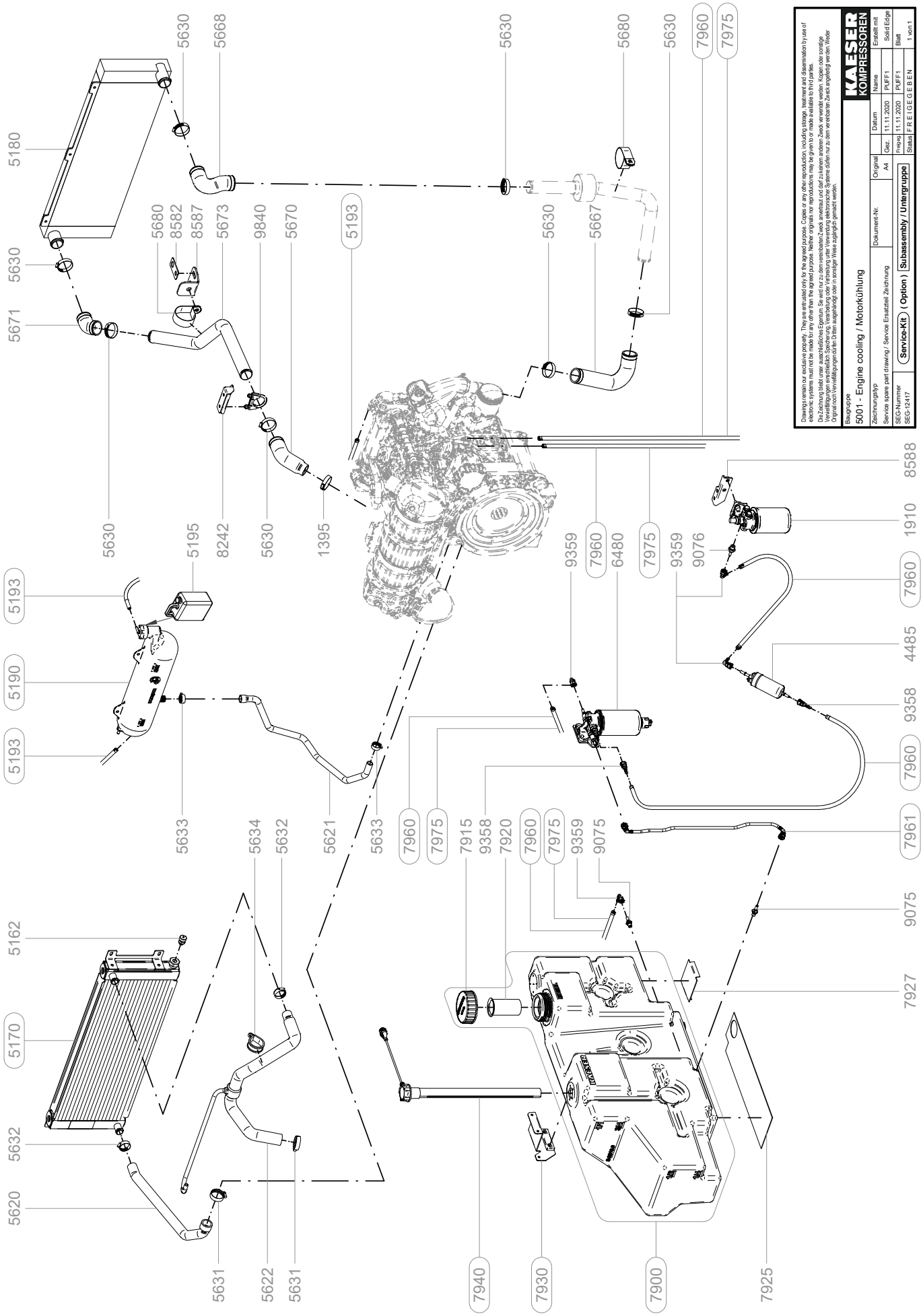
Erstellt mit
SolidEdge

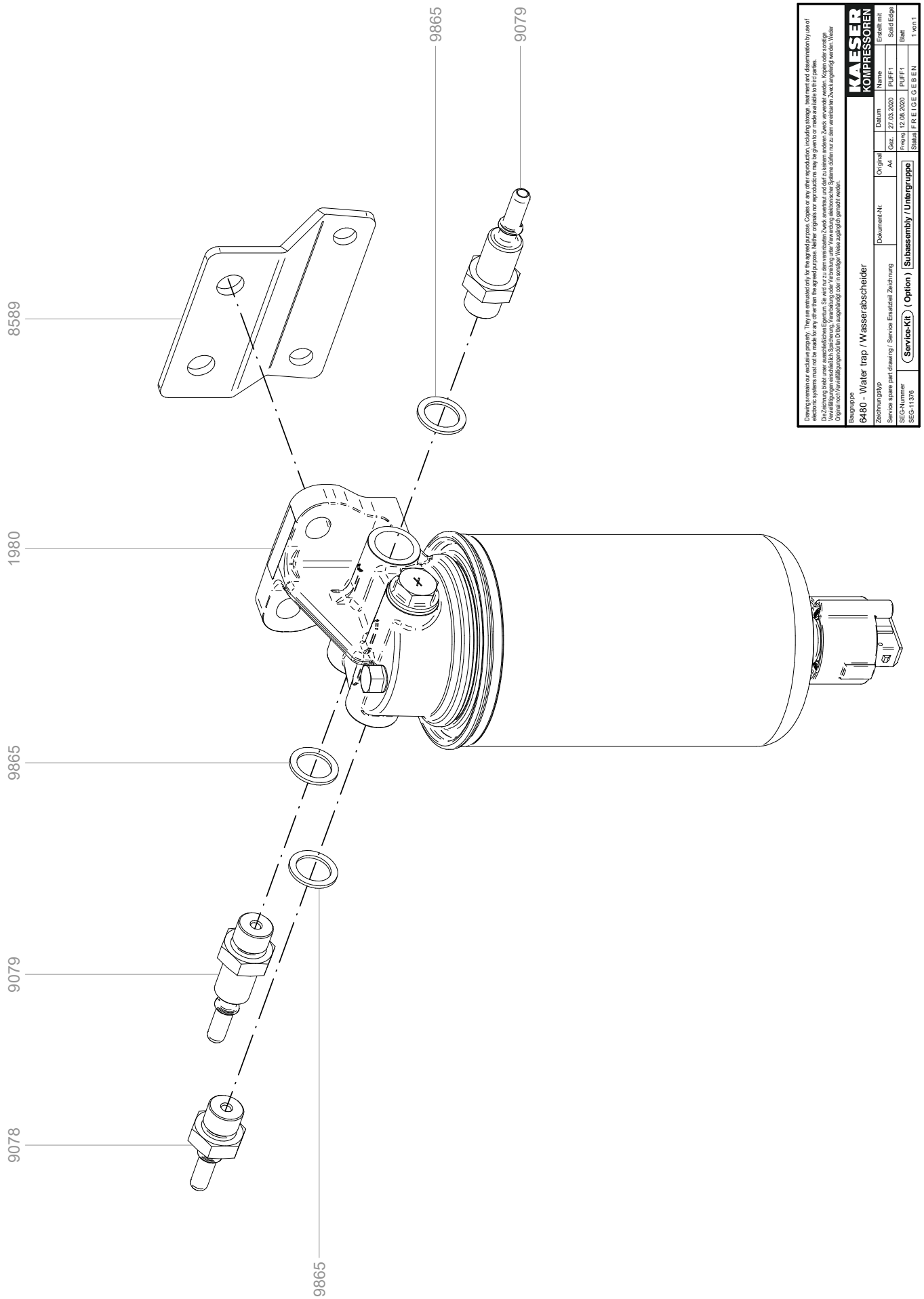
SEG-Nummer
SEG-I-1378

Service-Kit (Option) Subassembly / Untergruppe

Status F R E I G E G E B E N

Blatt
1 von 1

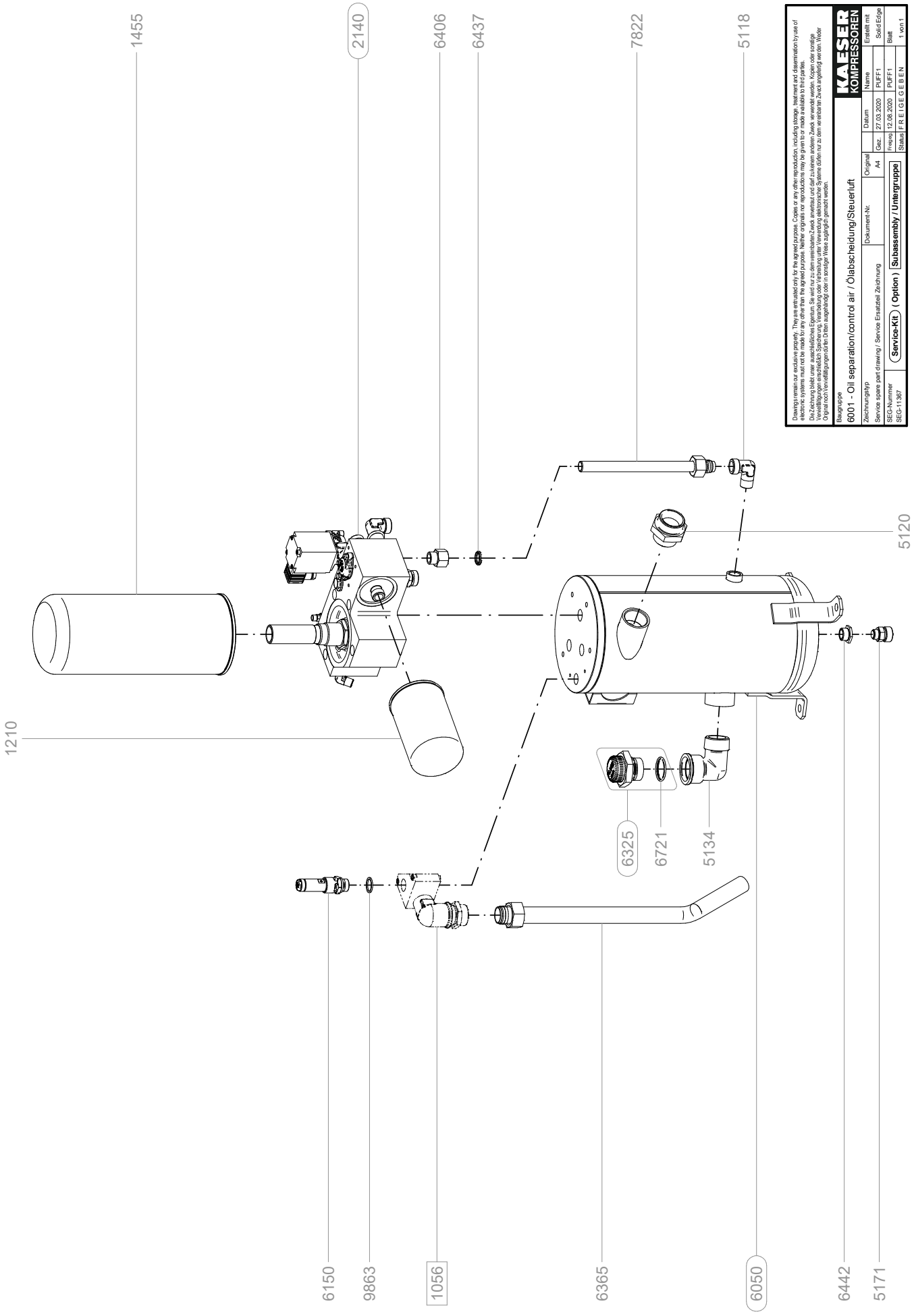

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KAESER KOMPRESSOREN
Baugruppe
5001 - Engine cooling / Motorkühlung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Erstellt mit
Gez. 11.11.2020 PUFF1
Solid Edge
Freigg. 11.11.2020 PUFF1
Blatt
1. von 1
SEG-Nummer
SEG-12417
Service-Kit (Option) Subassembly / Untergruppe
Status F R E I G E G E B E N

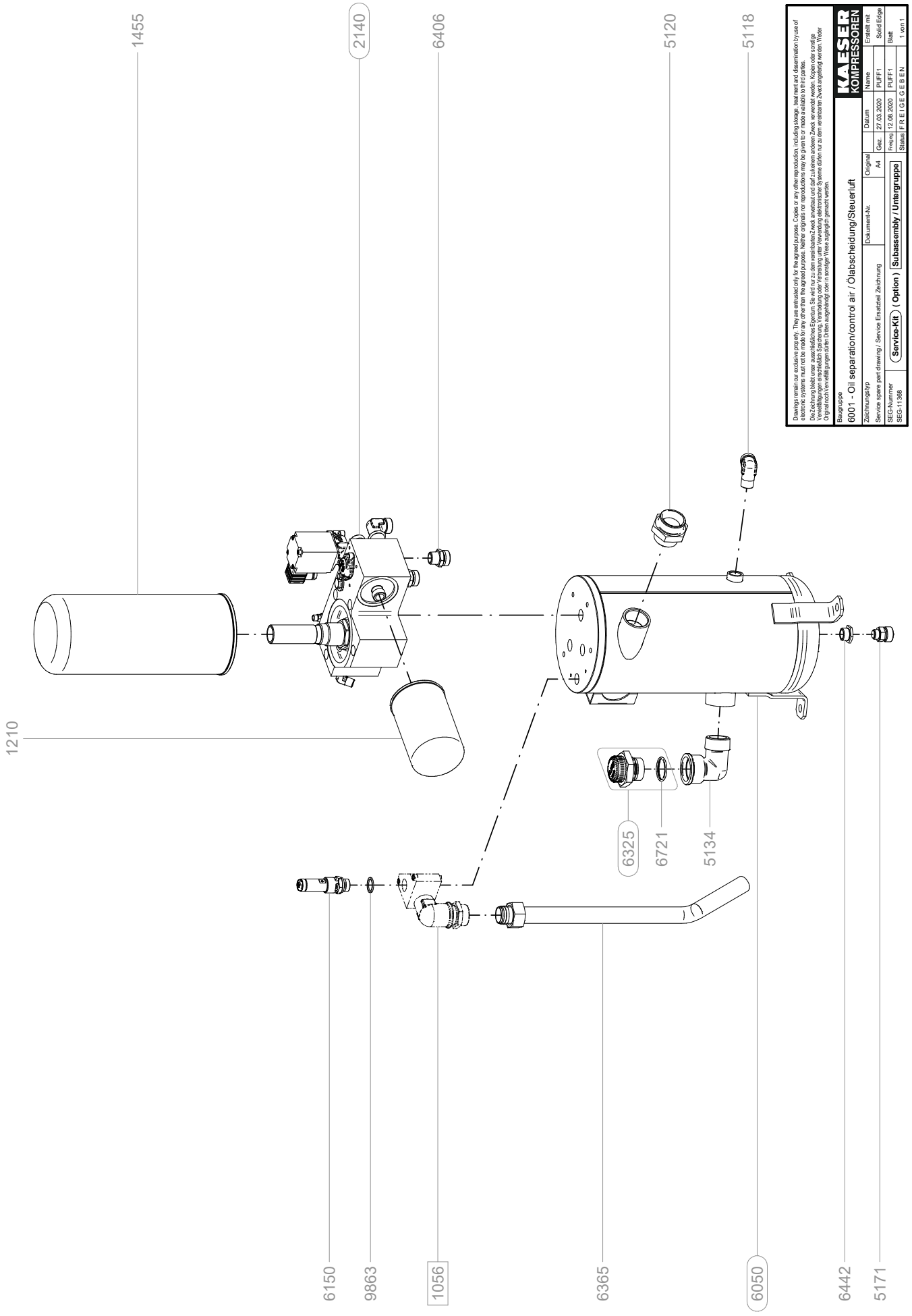


Baugruppe
6480 - Water trap / Wasserabscheider

Zeichnungstyp: Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original: A4
Name: PLIFF1
Datum: 27.03.2020
Erstellt mit: SolidEdge
Gez.: PLIFF1
Datum: 12.08.2020
Blatt: 1 von 1
Status: F R E I G E G E B E N
SEG-Nummer: SEG-11376
Service-Kit (Option) Subassembly / Untergruppe

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1455
2140
6406
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1210
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6721
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6150
9863
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6365
6050
6442
5171
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Baugruppe
6001 - Oil separation/control air / Ölabscheidung/Steuerluft
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Erstellt mit
Solid Edge
Gez.
27.03.2020
PUFF1
Freigg.
12.08.2020
PUFF1
Blatt
1 von 1
Status
F R E I G E G E B E N
SEG-Nummer
SEG-11367
Service-Kit (Option)
Subassembly / Untergruppe

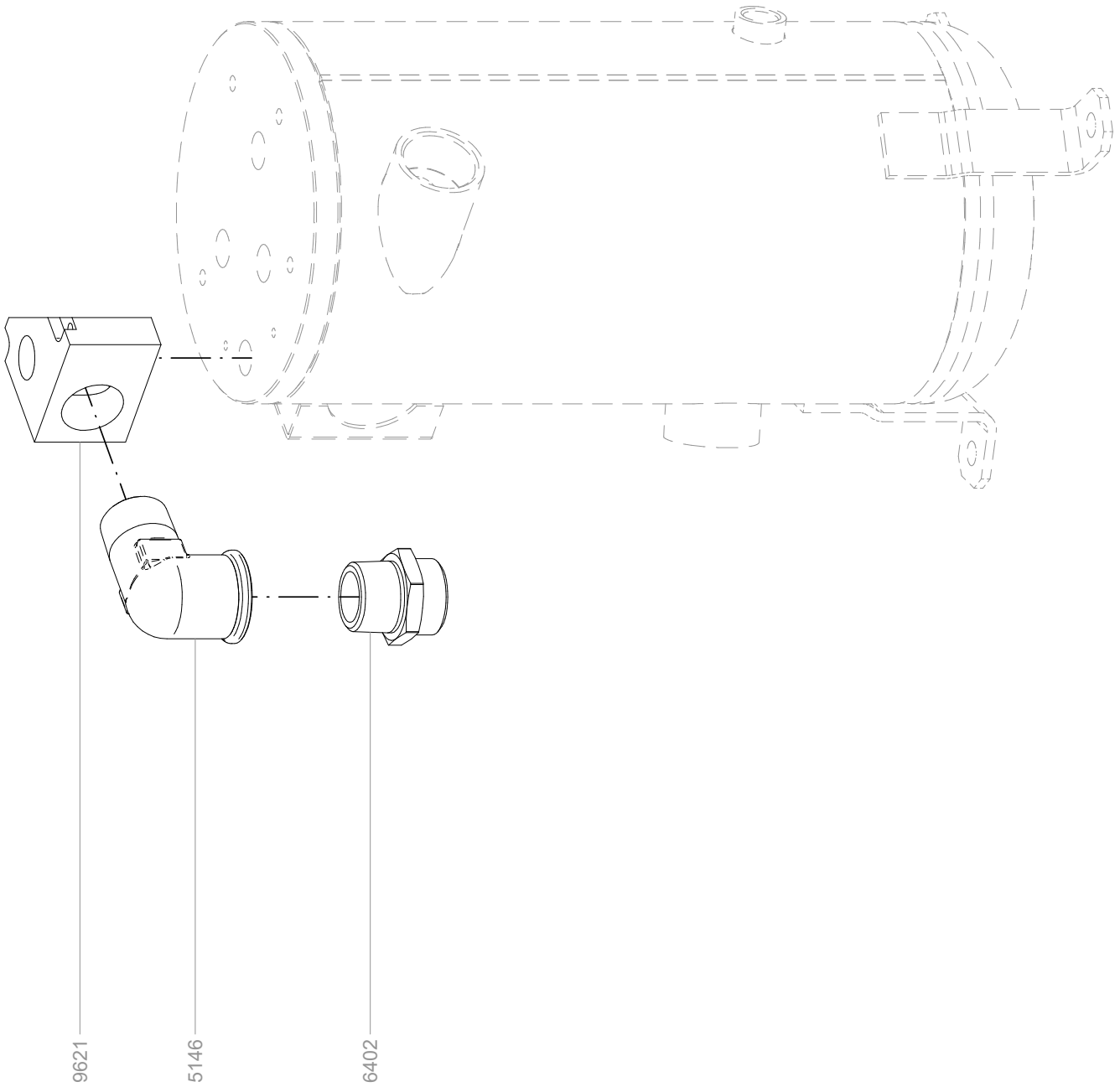

1455
2140
6406
5120
5118
1210
6325
6721
5134
6150
9863
1056
6365
6050
6442
5171
Baugruppe
6001 - Oil separation/control air / Ölabscheidung/Steuerluft
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
27.03.2020
12.08.2020
Name
PLIFF1
PLIFF1
Erstellt mit
SolidEdge
Blatt
1 von 1
SEG-Nummer
SEG-I 1368
Service-Kit
(Option)
Subassembly / Untergruppe
Status FREIGEGEBEN
KAESER KOMPRESSOREN

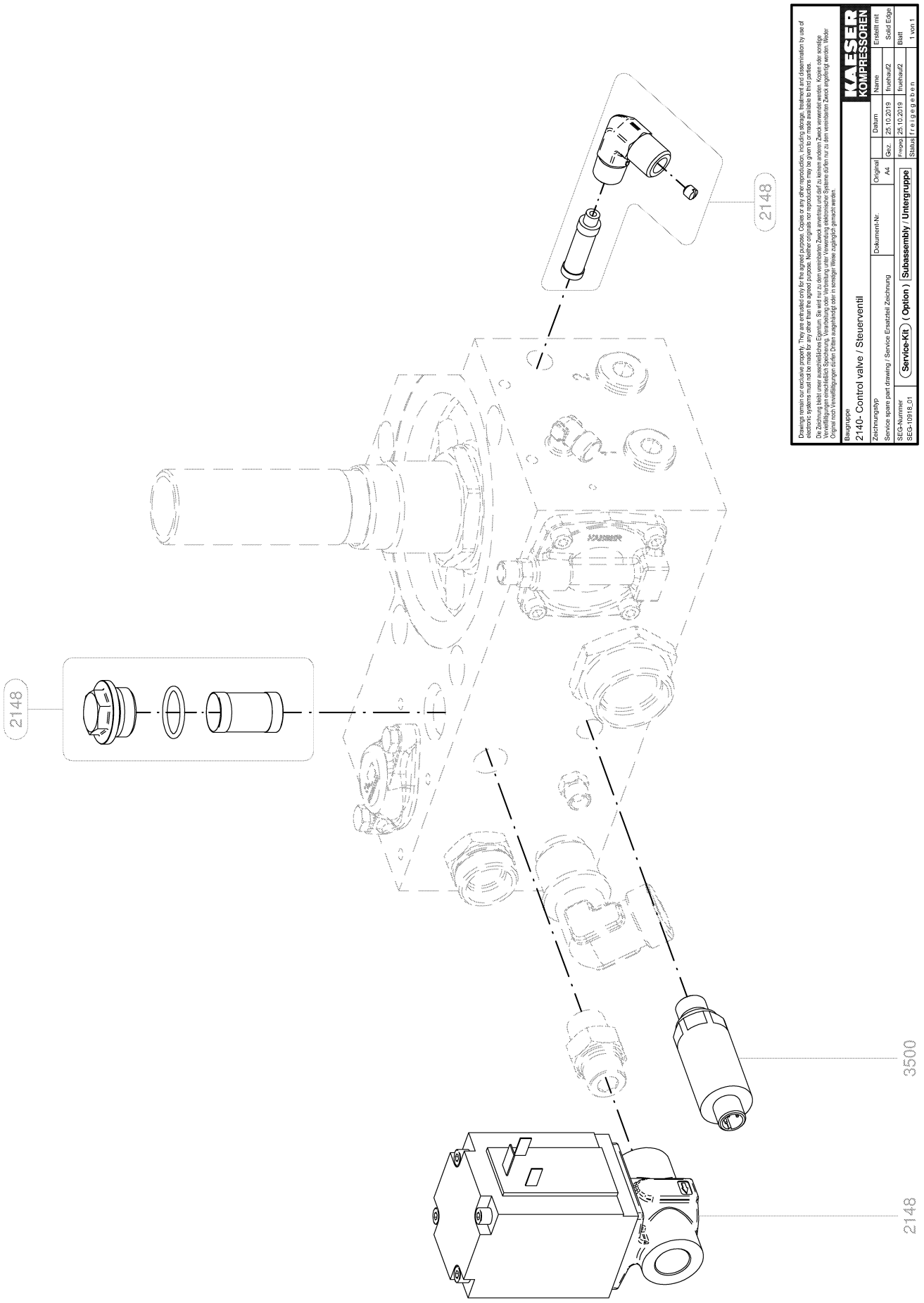
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Baugruppe
1056 - Venting / Entlüftung

Zeichnungstyp	Dokument-Nr.	Original		Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez.	27.03.2020	PUFF1	Solid Edge
SEG-Nummer			Freigg.	12.08.2020	PUFF1	Blatt
SEG-11372	Service-Kit (Option)	Subassembly / Untergruppe	Status	F R E I G E G E B E N		1 von 1



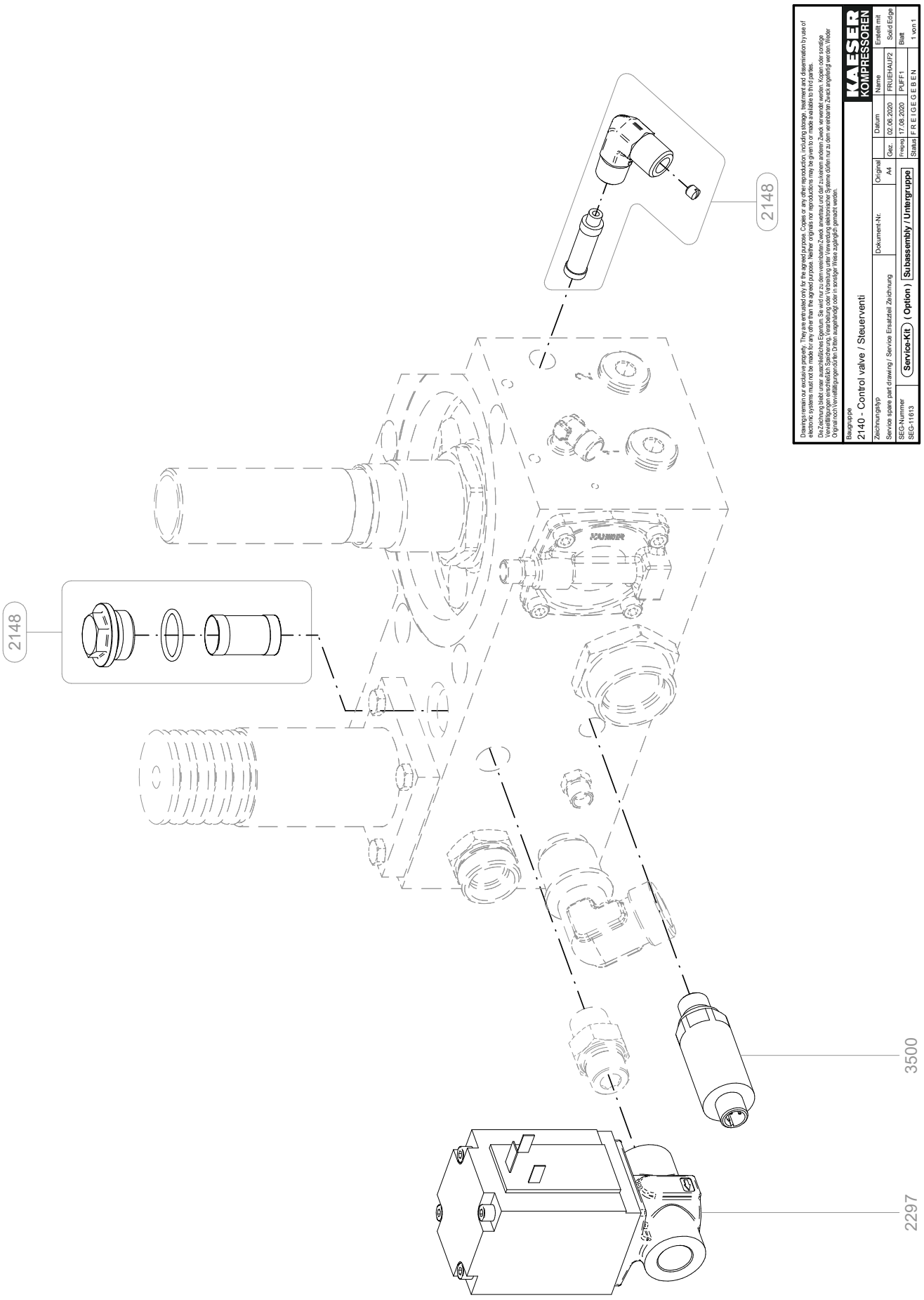


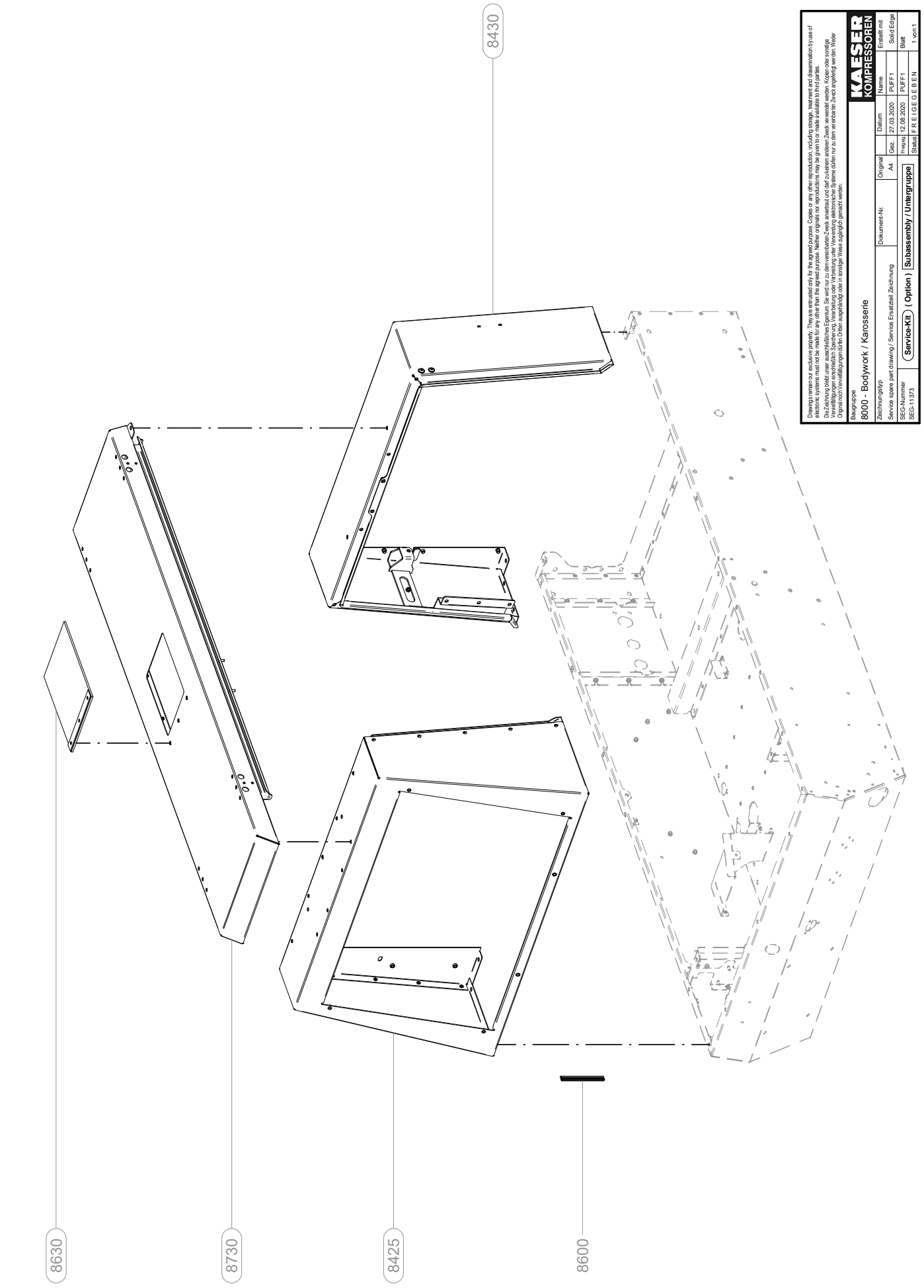
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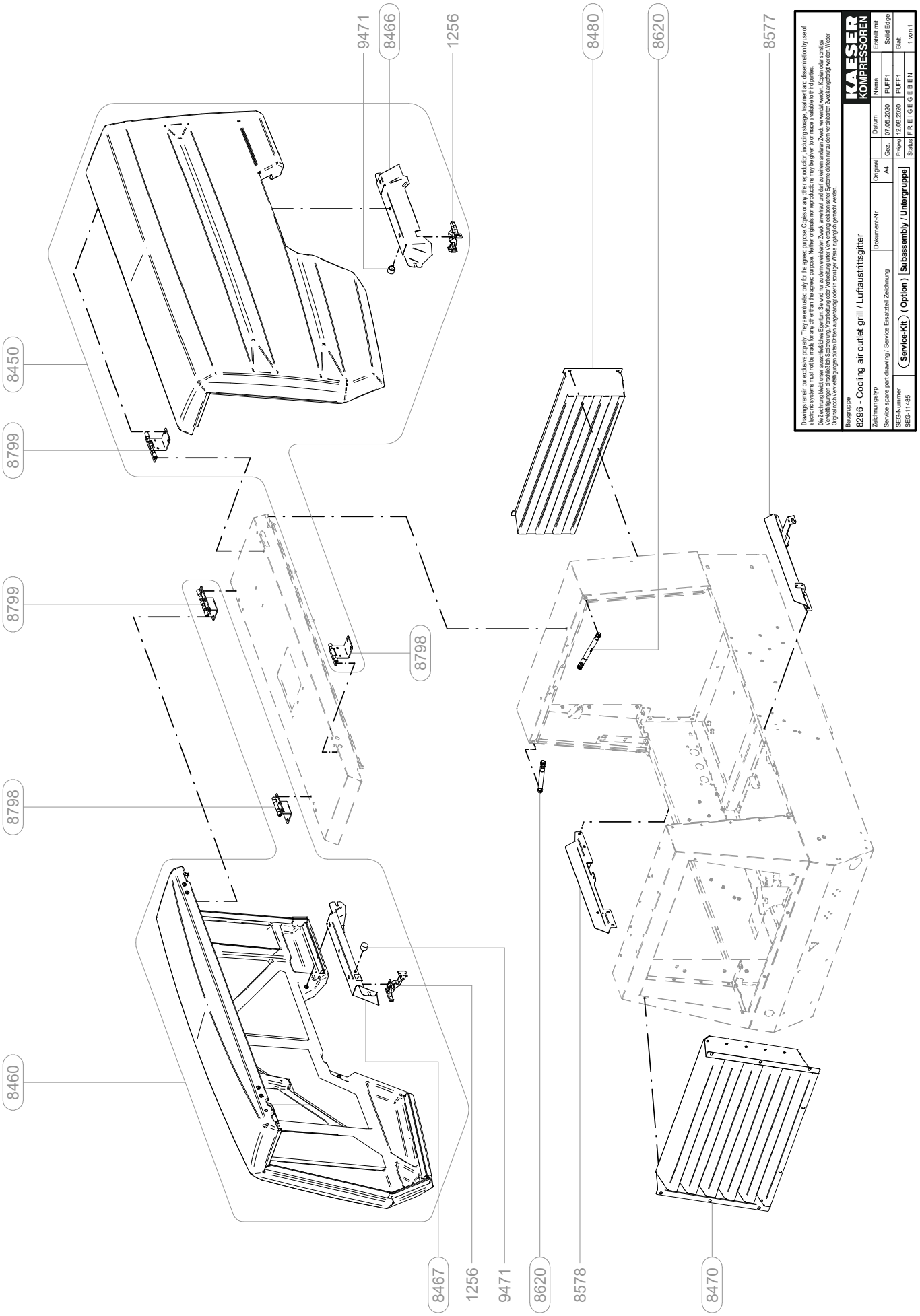
KAESER KOMPRESSOREN

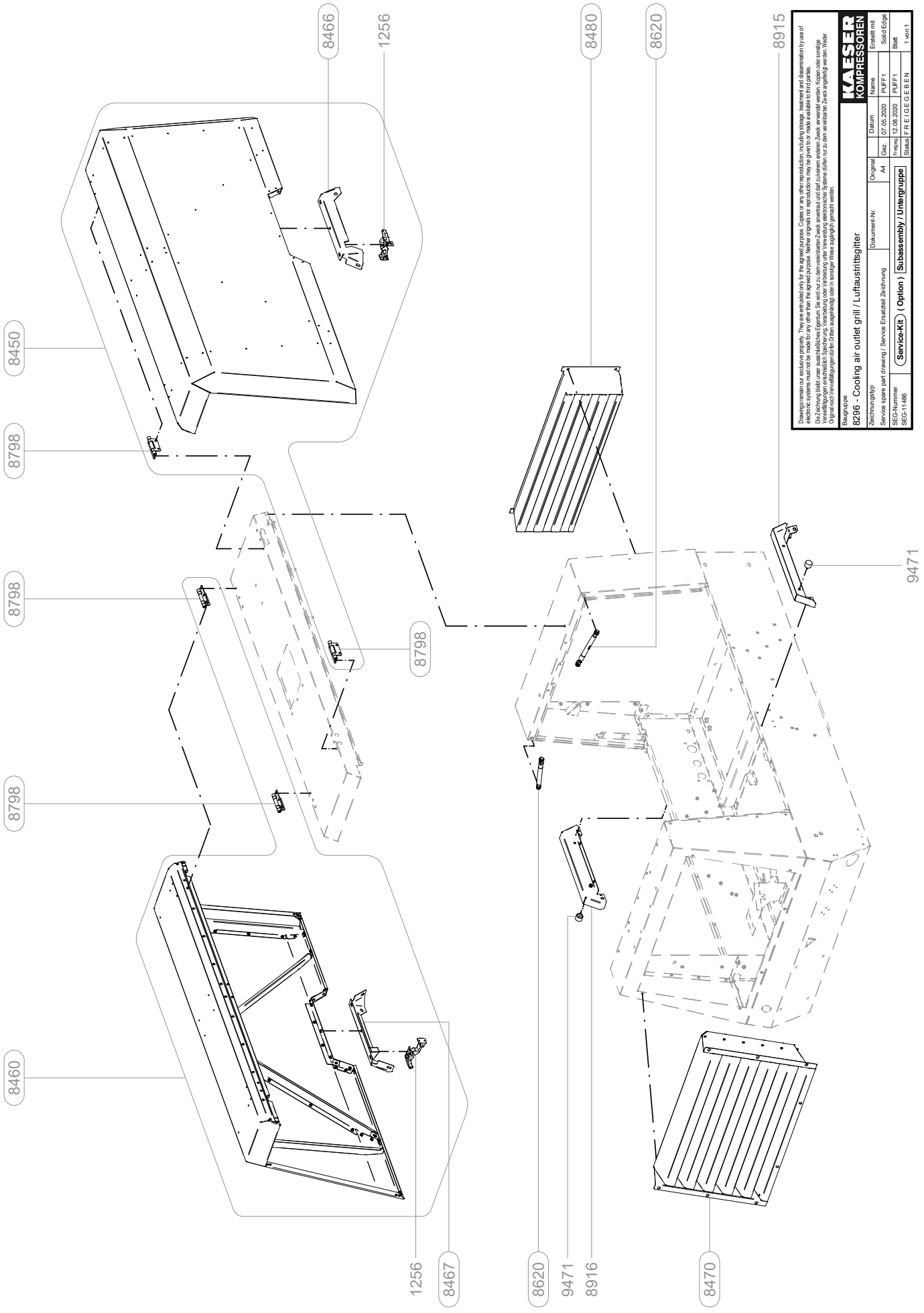
Baugruppe
2140- Control valve / Steuerventil

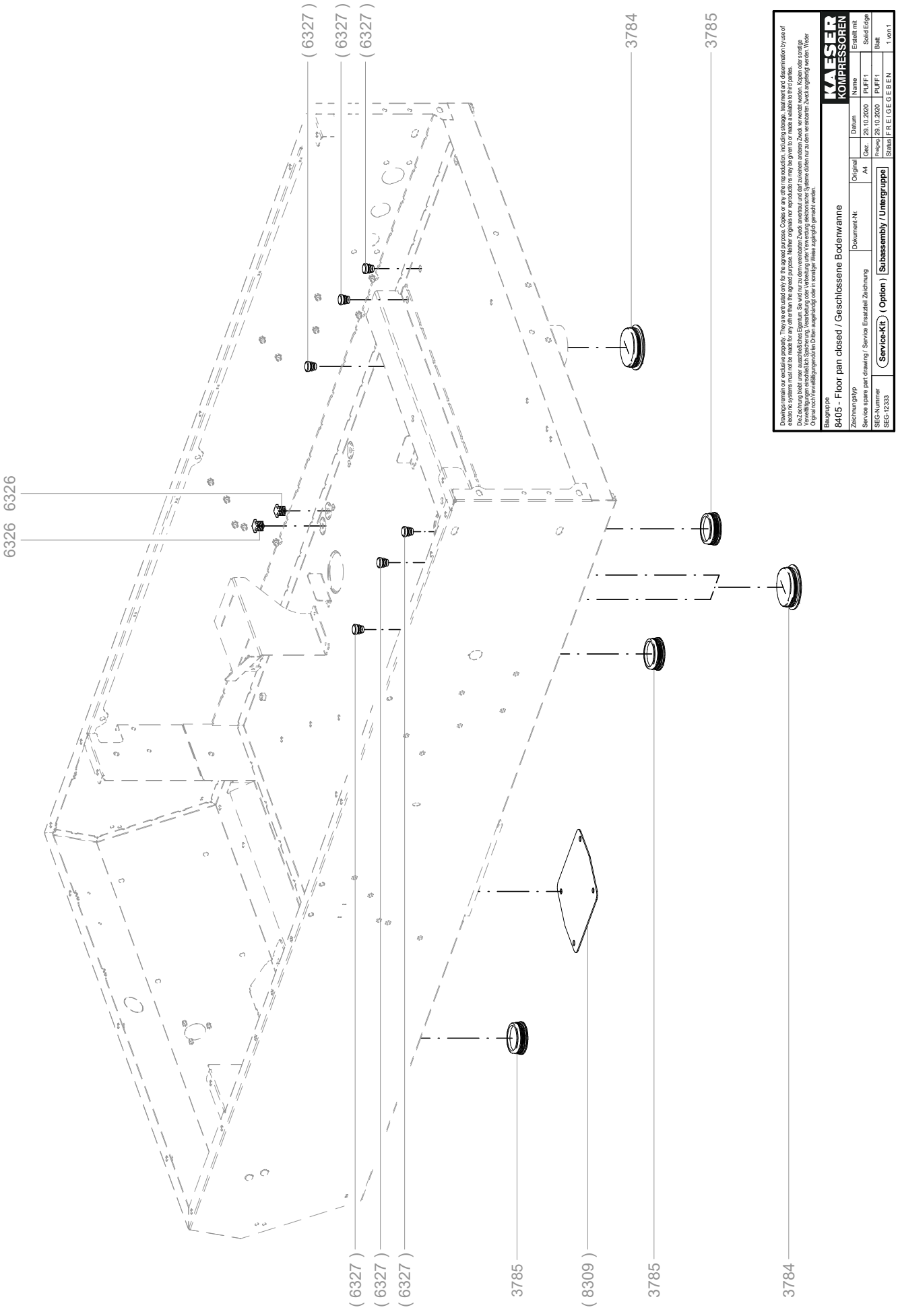
Zeichnungstyp	Dokument-Nr.	Original	Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez. 25.10.2019	fruehauf2	Solid Edge
SEG-Nummer			Freigag 25.10.2019	fruehauf2	Blatt
SEG-109118_01	Service-Kit (Option)	Subassembly / Untergruppe	Status freigegeben		1 von 1

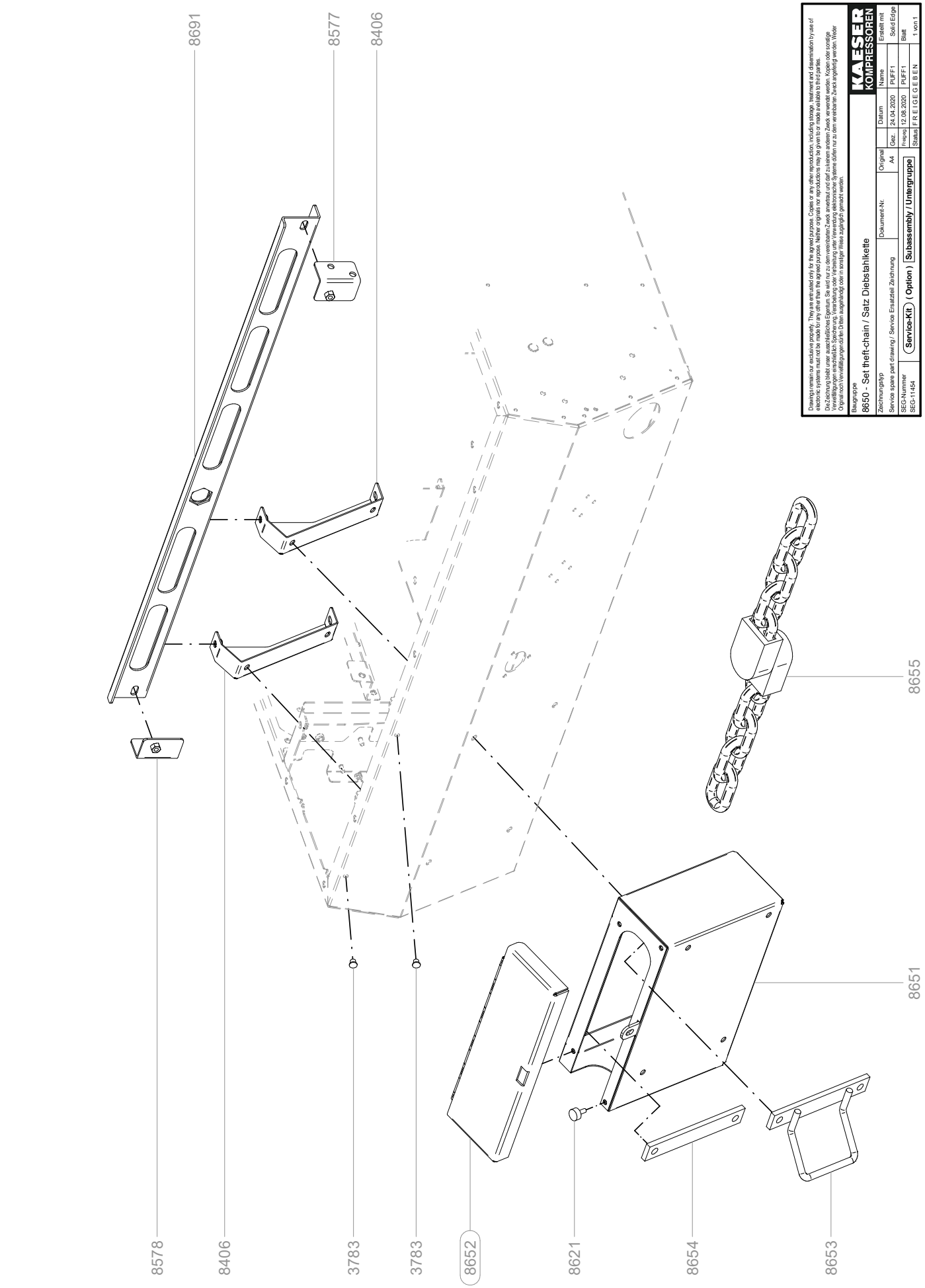

2148
2148
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2297
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Baugruppe
2140 - Control valve / Steuerventil
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
SEG-Nummer
SEG-11613
Service-Kit (Option)
Dokument-Nr.
Subassembly / Untergruppe
Original
A4
Datum
Name
Gez. 02.06.2020 FRUEHAUF2
Freigab 17.08.2020 PUFF1
Status F R E I G E G E B E N
Erstellt mit
Solid Edge
Blatt
1 von 1


8430
8630
8730
8425
8600
KAESER KOMPRESSOREN
Baugruppe
8000 - Bodywork / Karosserie
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Erstellt mit
Solid Edge
SEG-Nummer
SEG-11373
Service-Kit
(Option)
Subassembly / Untergruppe
Status FREIGEGEBEN
Blatt
1 von 1


9471
8466
1256
8480
8620
8577
8450
8799
8799
8798
8798
8460
8467
1256
9471
8620
8578
8470
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KAESER KOMPRESSOREN
Baugruppe
8296 - Cooling air outlet grill / Luftaustrittsgitter
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Gez. 07.05.2020 PUFF1
Freigg. 12.08.2020 PUFF1
Status F R E I G E G E B E N
Erstellt mit
Solid Edge
Blatt
1 von 1
SEG-Nummer
SEG-11485
Service-Kit (Option)
Subassembly / Untergruppe


8466
1256
8480
8620
8915
8450
8798
8798
8798
8798
9471
8460
1256
8467
8620
9471
8916
8470
Baugruppe
8296 - Cooling air outlet grill / Luftaustrittsgitter
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Name
Datum
Erstellt mit
Ersatzteil
Gez.
07.05.2020
PLIFF1
Solid Edge
SEG-Nummer
SEG-I-1486
Service-Kit
(Option)
Subassembly / Untergruppe
Freigegeben
12.08.2020
PLIFF1
Blatt
Status
1 von 1

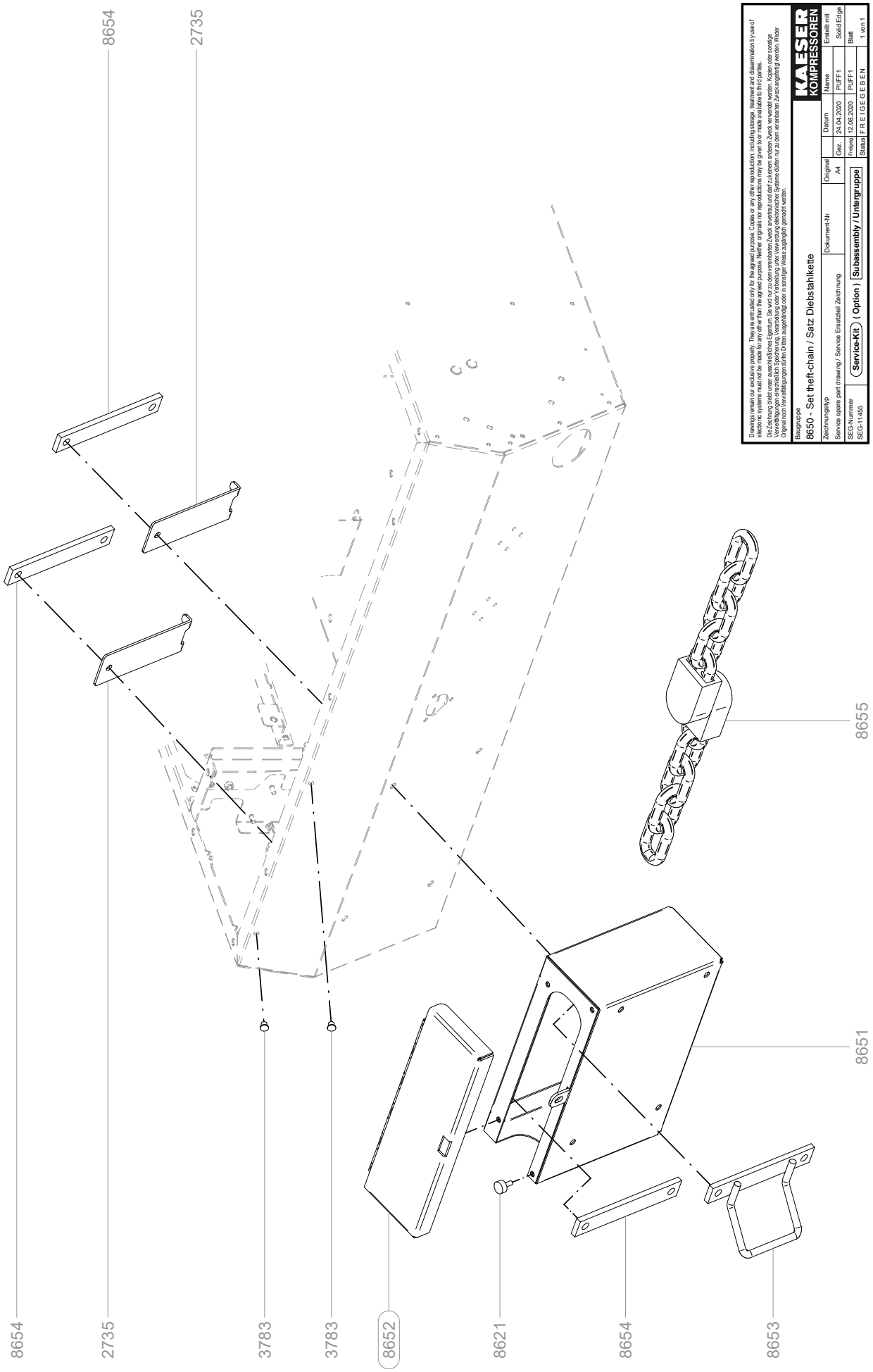

(6327)
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3784
3785
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3784
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KAESER KOMPRESSOREN
Baugruppe
8405 - Floor pan closed / Geschlossene Bodenwanne
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Erstellt mit
Gez. 29.10.2020 PUFF1 Solid Edge
Freigg. 29.10.2020 PUFF1
Blatt 1 von 1
Status F R E I G E G E B E N
SEG-Nummer
SEG-12333
Service-Kit (Option) Subassembly / Untergruppe



Baugruppe
8650 - Set theft-chain / Satz Diebstahlkette

Zeichnungstyp: Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original: A4
Name: Erstellt mit: Solid Edge
Gez.: 24.04.2020 PLIFF1
Freig.: 12.08.2020 PLIFF1
Blatt: 1 von 1
Status: F R E I G E G E B E N
SEG-Nummer: SEG-111454
Service-Kit (Option) Subassembly / Untergruppe

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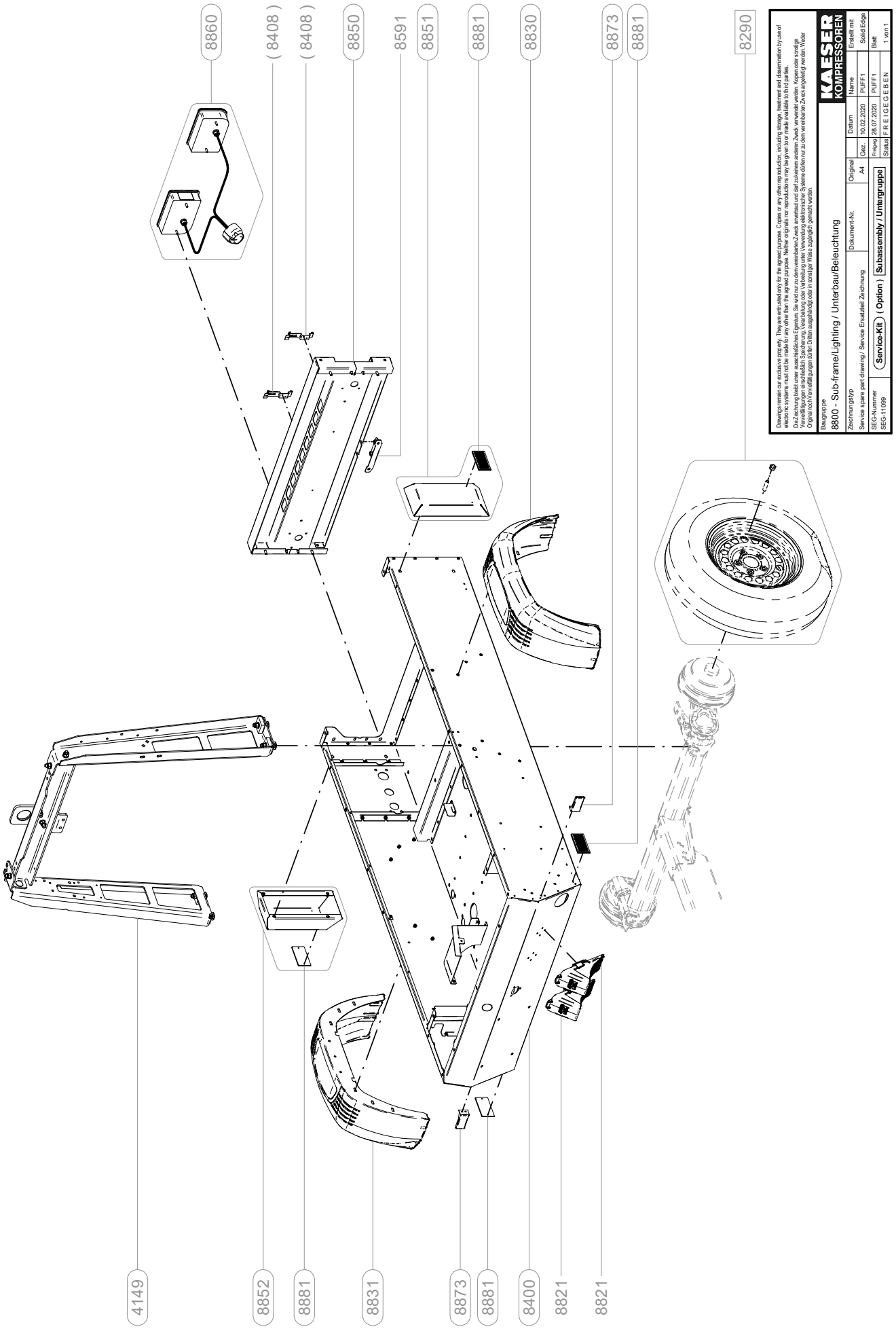


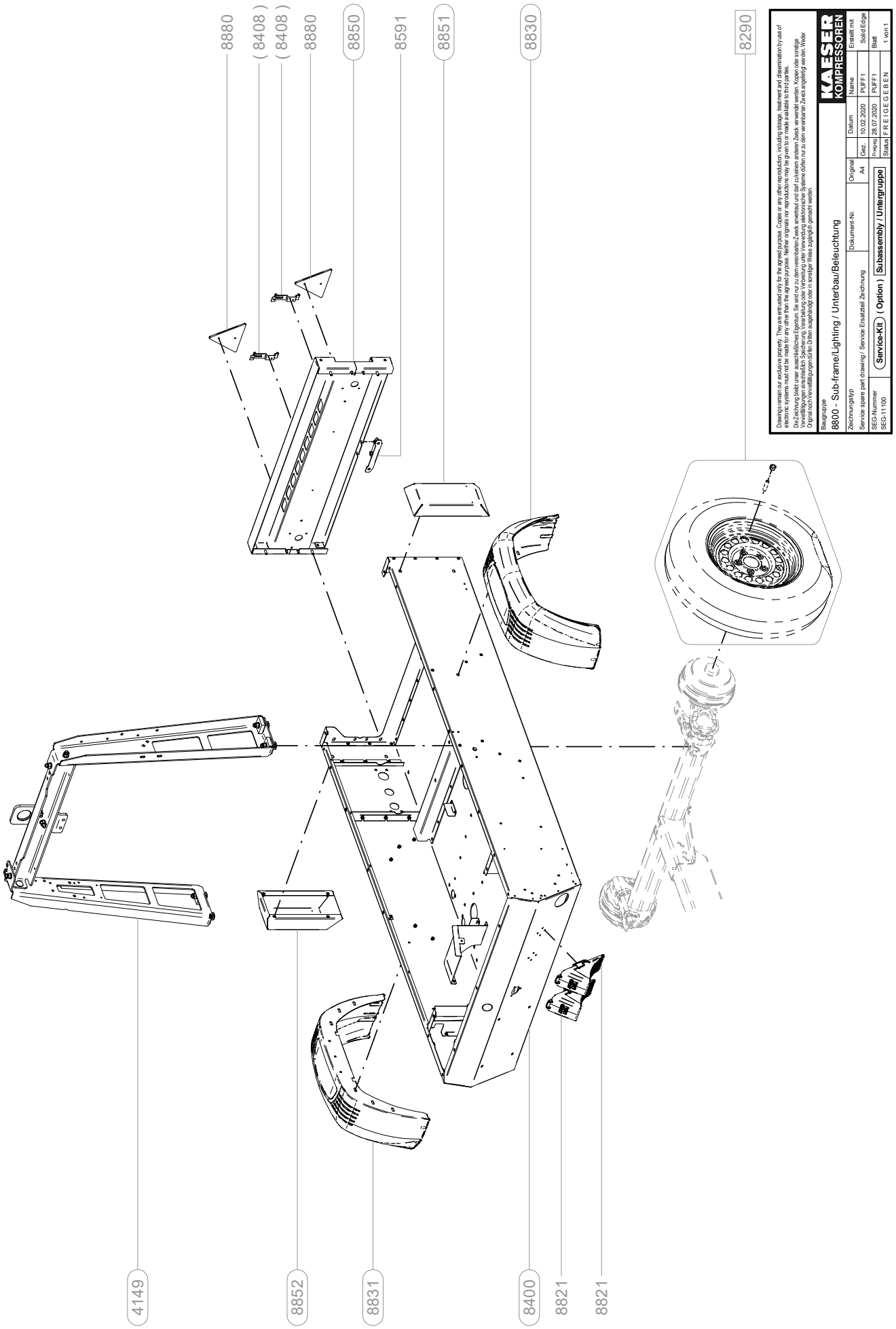
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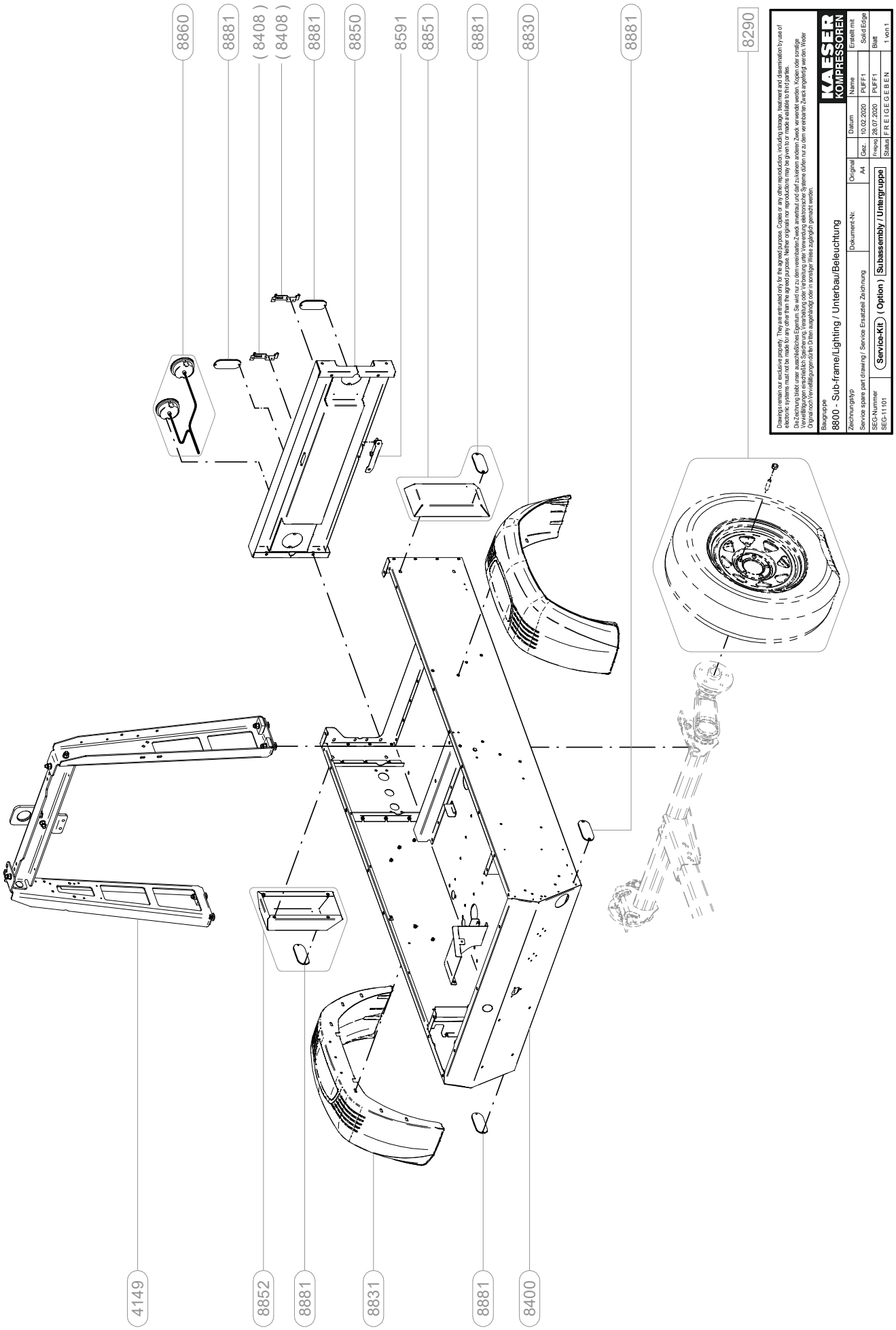
KAESER KOMPRESSOREN

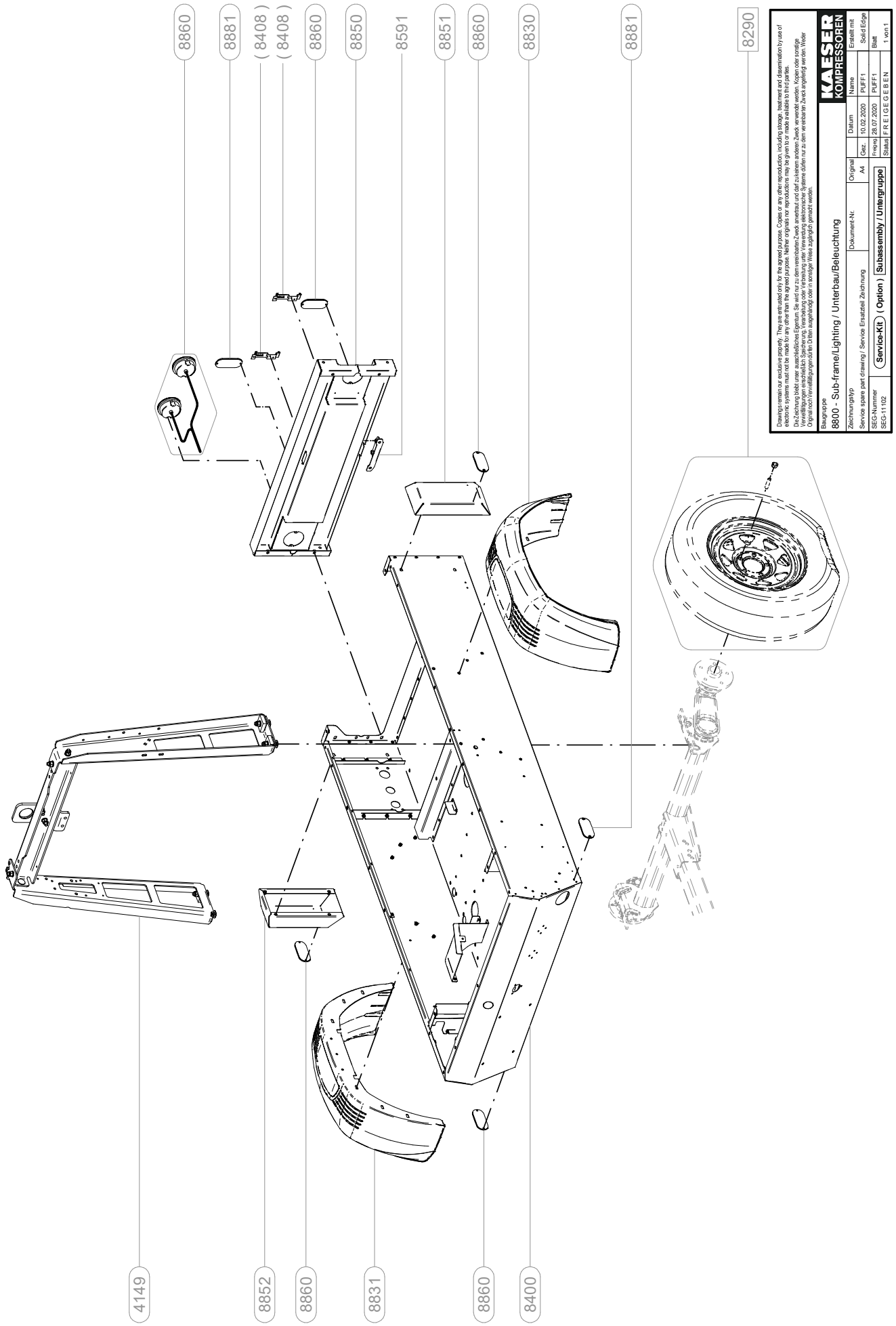
Baugruppe: 8650 - Set theft-chain / Satz Diebstahlkette				Datum	Name
Zeichnungstyp	Dokument-Nr.		Original	Gez.	24.04.2020	PUFF1
Service spare part drawing / Service Ersatzteil Zeichnung			A4	Freigg.	12.08.2020	PUFF1
SEG-Nummer: SEG-11455	Service-Kit	(Option)	Subassembly / Untergruppe	Status	F R E I G E G E B E N	

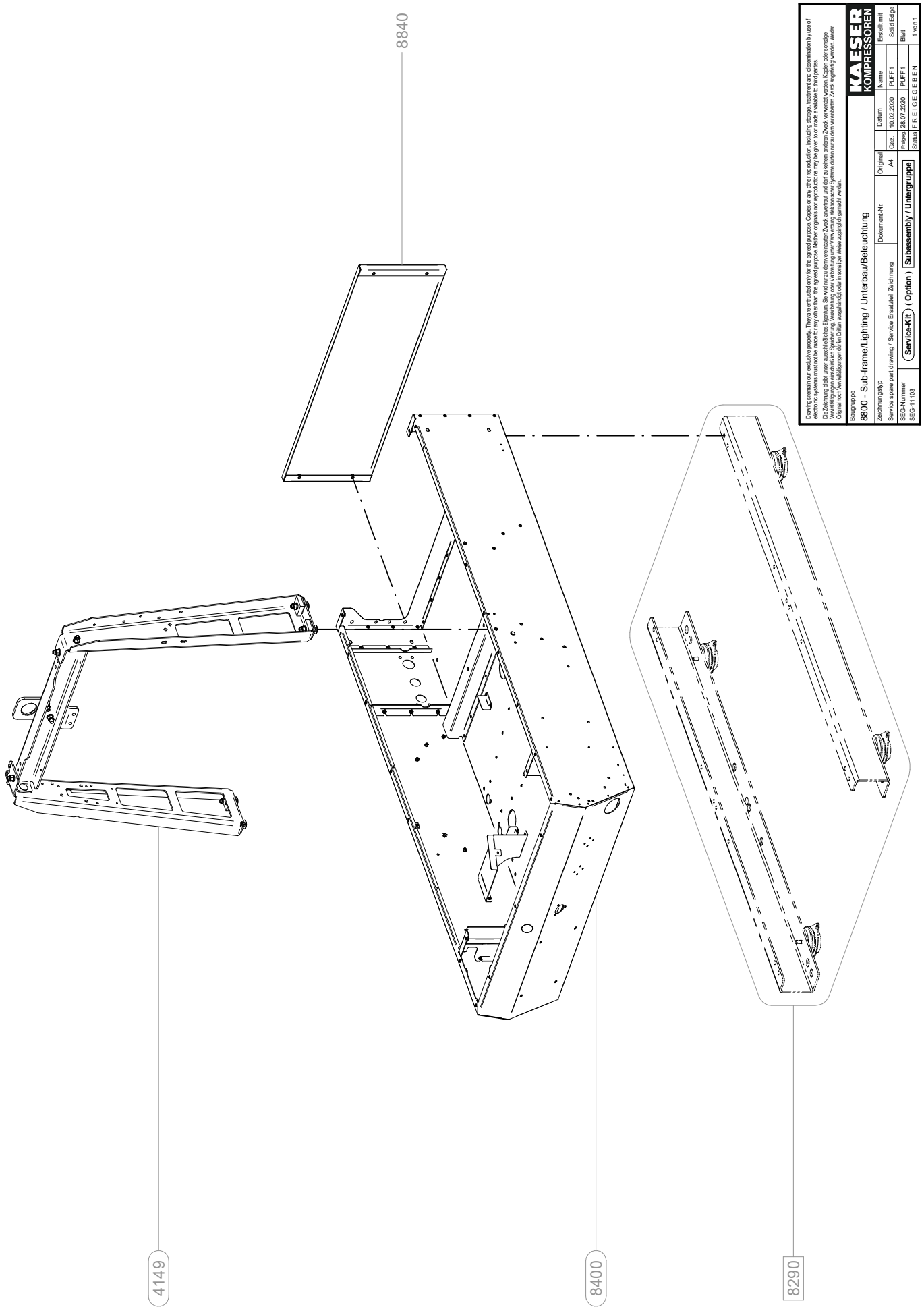
Erstellt mit: Solid Edge
Blatt: 1 von 1

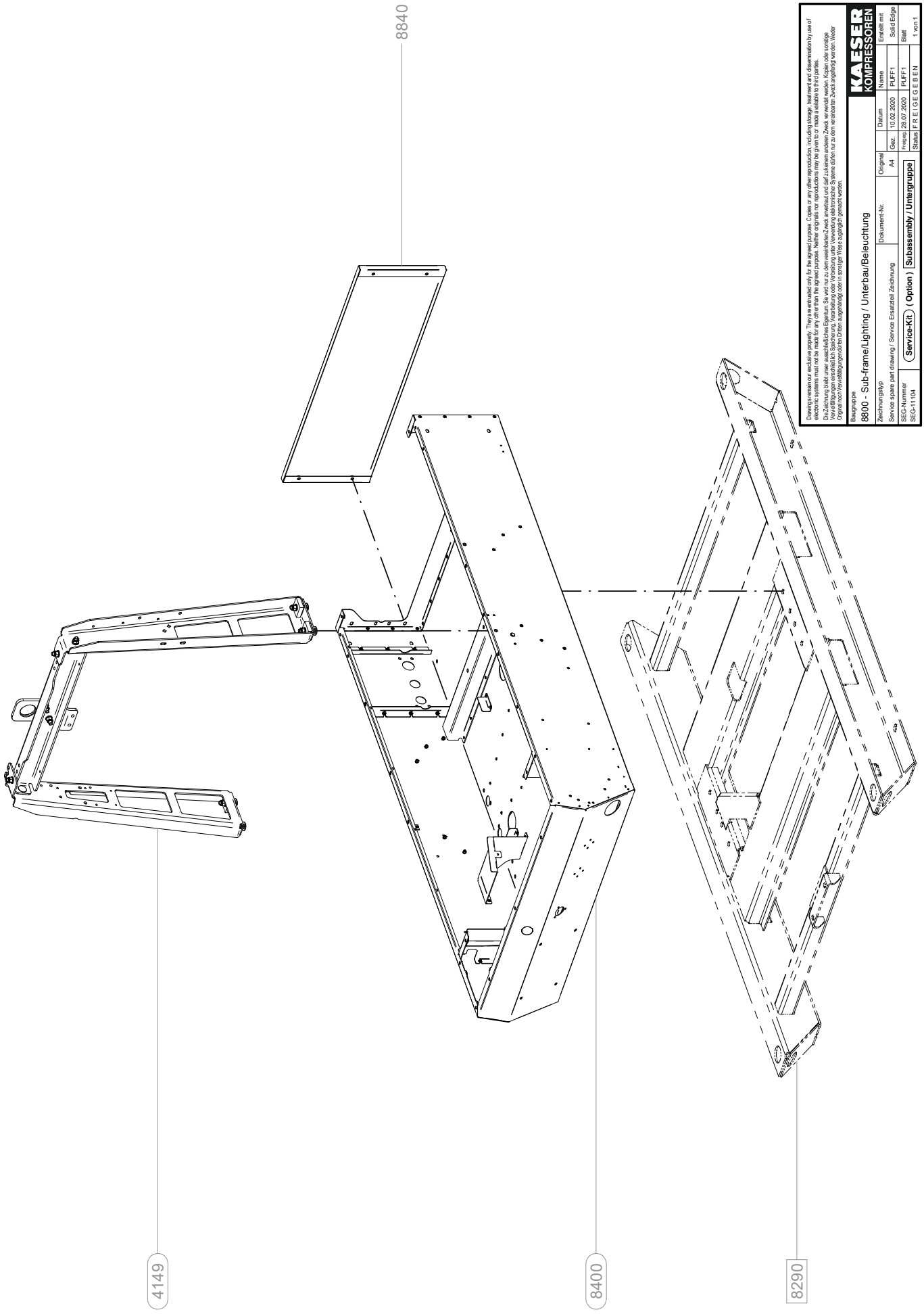

8860
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KAESER KOMPRESSOREN
Baugruppe
8800 - Sub-frame/Lighting / Unterbau/Beleuchtung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Name
Datum
Erstellt mit
SolidEdge
Ersetzt
Gez.
10.02.2020
PLIFF1
Geprüft
28.07.2020
PLIFF1
Blatt
1 von 1
SEG-Nummer
SEG-11089
Service-Kit (Option)
Subassembly / Untergruppe
Status FREIGEGEBEN

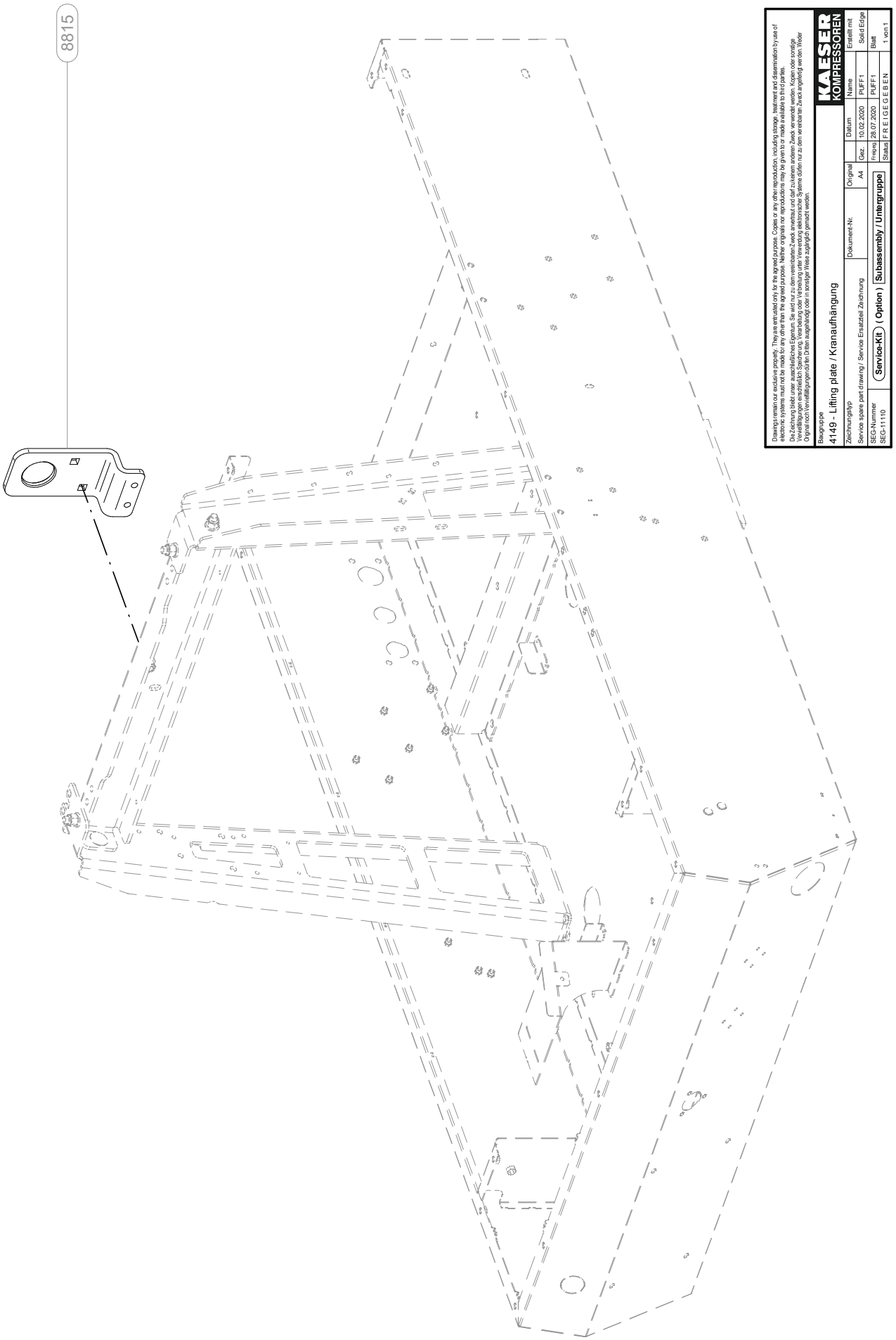

8880
(8408)
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Baugruppe
8800 - Sub-frame/Lighting / Unterbau/Beleuchtung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Erstellt mit
Solid Edge
Gez. 10.02.2020 PUFF1
Freigg. 28.07.2020 PUFF1
Blatt 1 von 1
Status F R E I G E G E B E N
SEG-Nummer
SEG-11100
Service-Kit (Option) Subassembly / Untergruppe


8860
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(8408)
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8881
8400
Baugruppe
8800 - Sub-frame/Lighting / Unterbau/Beleuchtung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Name
Datum
Erstellt mit
Ges.
10.02.2020
PLFF1
Solid Edge
Freigabe
28.07.2020
PLFF1
Blatt
Status
F R E I G E G E B E N
1 von 1
SEG-Nummer
SEG-111 01
Service-Kit
(Option)
Subassembly / Untergruppe


8860
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KAESER KOMPRESSOREN
Baugruppe
8800 - Sub-frame/Lighting / Unterbau/Beleuchtung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Name
Datum
Erstellt mit
Solid Edge
Gez.
10.02.2020
PUFF1
Freigab
28.07.2020
PUFF1
Blatt
1 von 1
Status
F R E I G E G E B E N
SEG-Nummer
SEG-11102
Service-Kit
(Option)
Subassembly / Untergruppe


8840
4149
8400
8290
KAESER KOMPRESSOREN
Baugruppe
8800 - Sub-frame/Lighting / Unterbau/Beleuchtung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
10.02.2020
28.07.2020
Name
PLIFF1
PLIFF1
Erstellt mit
SolidEdge
Blatt
1 von 1
SEG-Nummer
SEG-I-11103
Service-Kit (Option)
Subassembly / Untergruppe
Status F R E I G E G E B E N


8840
4149
8400
8290
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KAESER KOMPRESSOREN
Baugruppe
8800 - Sub-frame/Lighting / Unterbau/Beleuchtung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Gez. 10.02.2020 PUFF1
Freigab 28.07.2020 PUFF1
Erstellt mit
Solid Edge
Blatt
1 von 1
SEG-Nummer
SEG-11104
Service-Kit (Option) Subassembly / Untergruppe
Status F R E I G E G E B E N

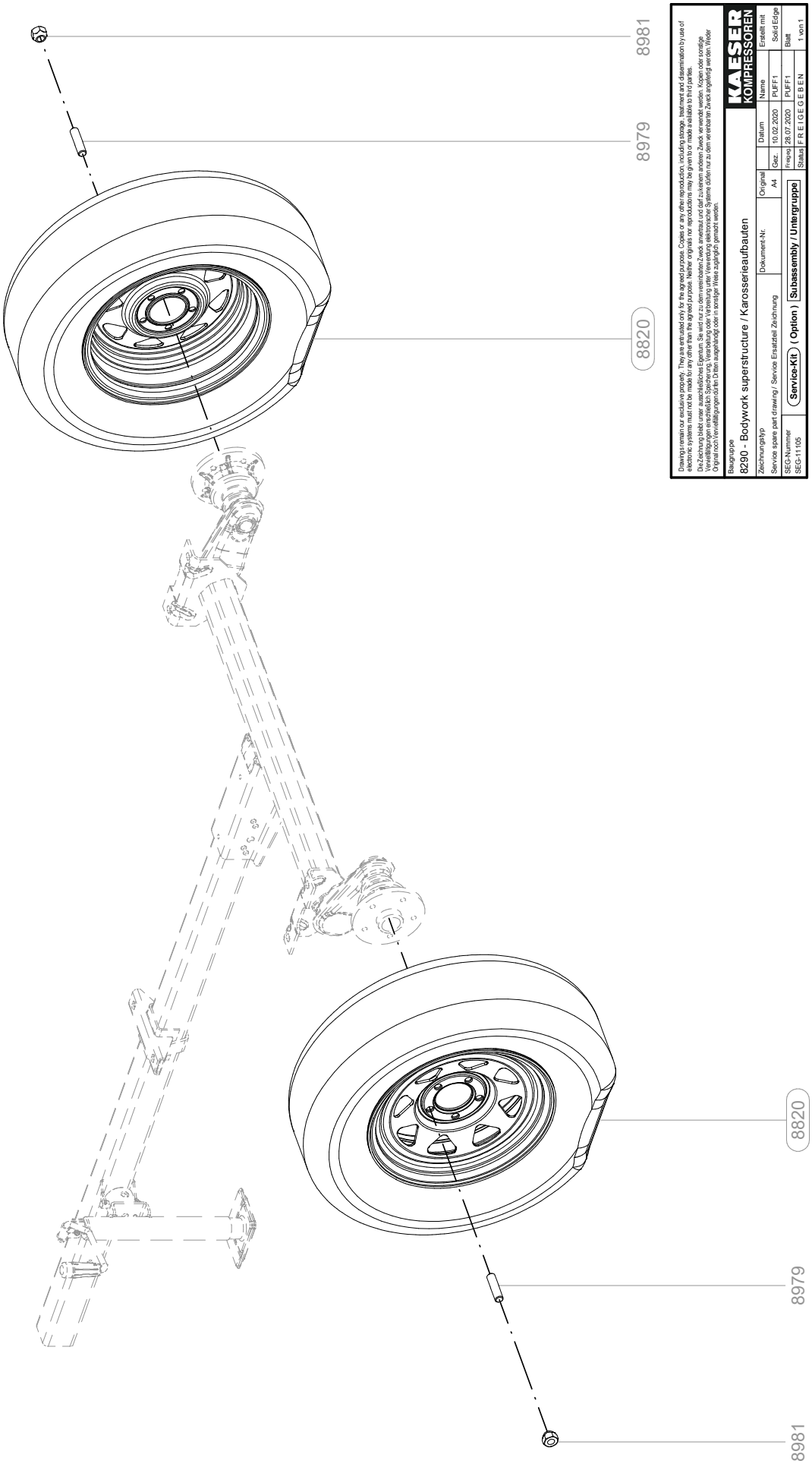


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Baugruppe
41149 - Lifting plate / Kranaufhängung

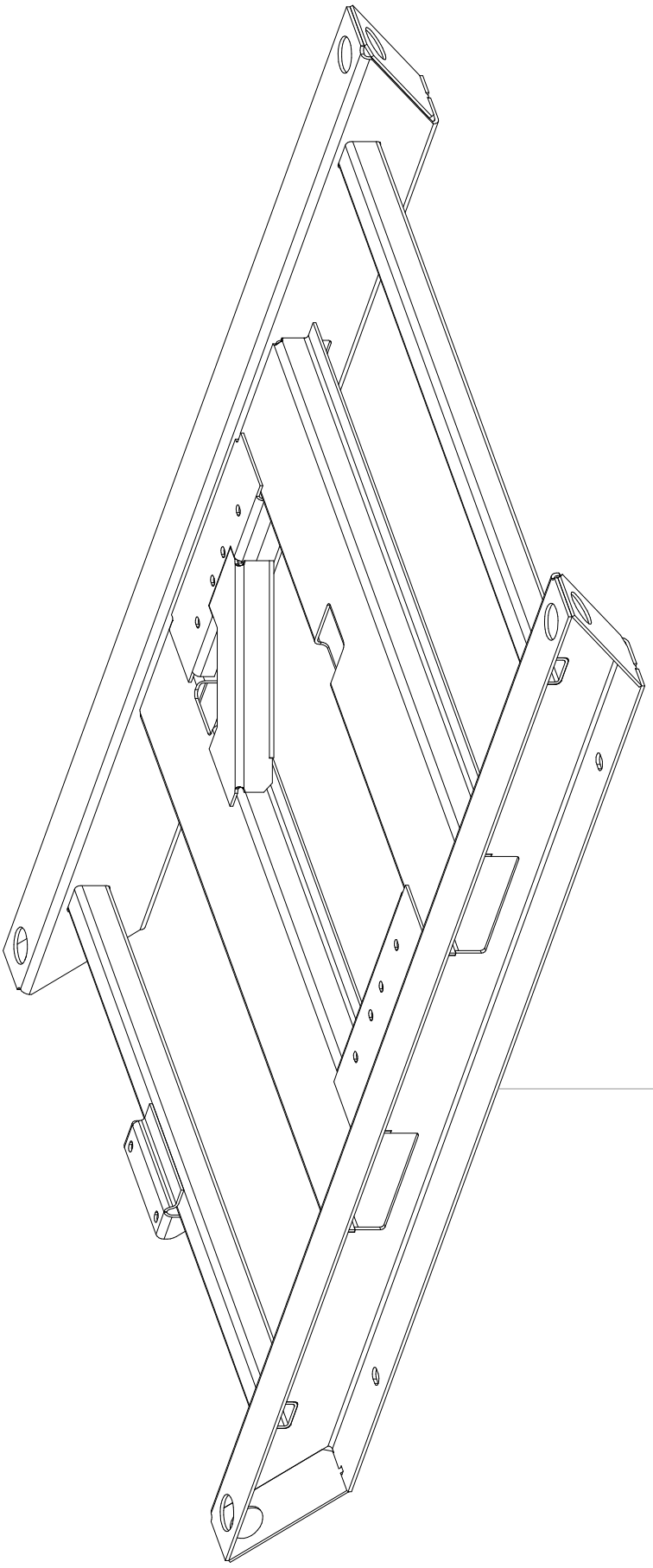
Zeichnungstyp	Dokument-Nr.	Original	Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez. 10.02.2020	PLIFF1	SolidEdge
			Freigabe 28.07.2020	PLIFF1	Blatt
SEG-Nummer	Service-Kit (Option)	Subassembly / Untergruppe	Status FREIGEGEBEN		1 von 1
SEG-11110					



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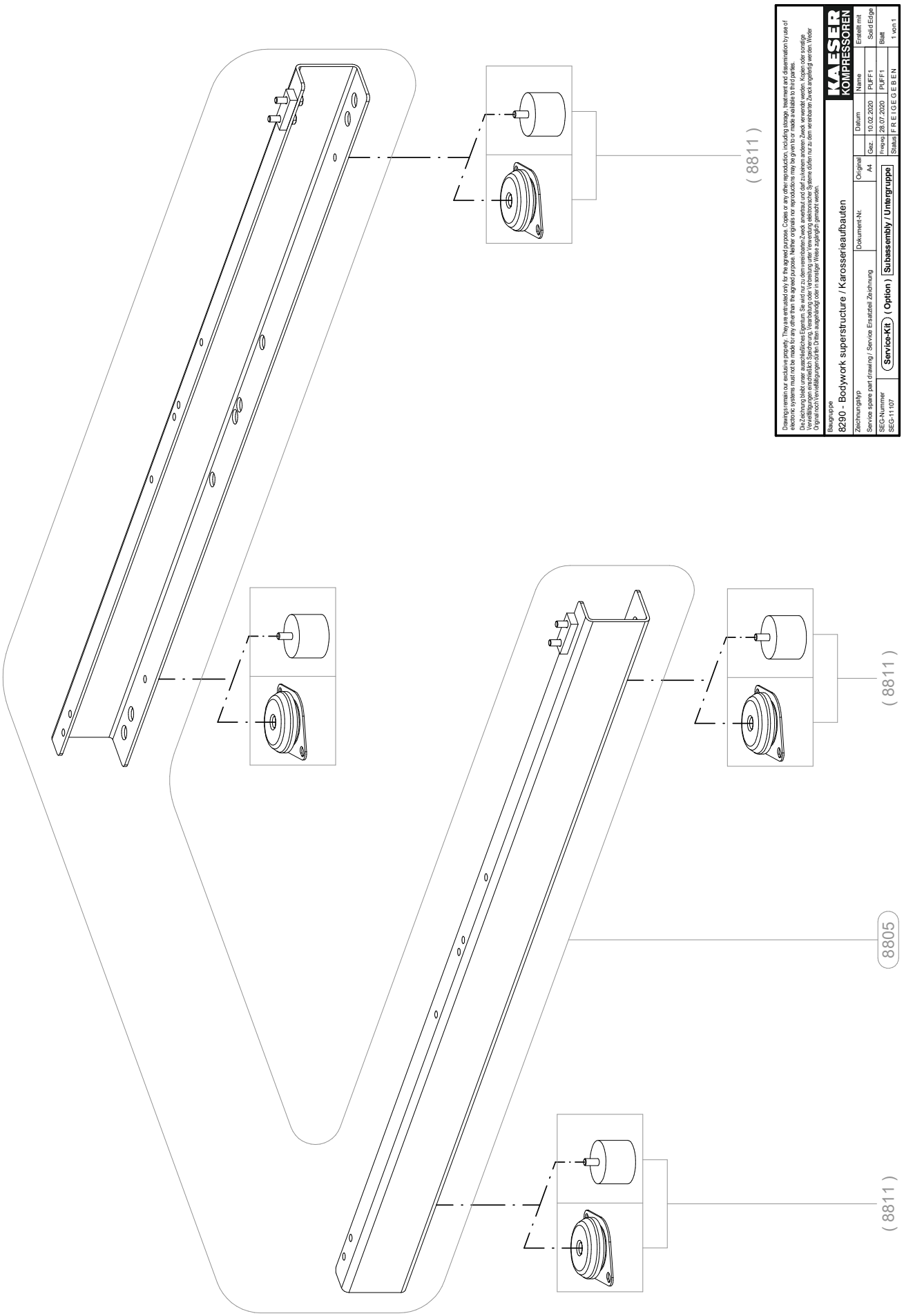
Baugruppe			Datum	Name	Erstellt mit
8290 - Bodywork superstructure / Karosserieaufbauten		Original	Gez.	10.02.2020	PUFF1	Solid Edge
Zeichnungstyp	Dokument-Nr.	A4	Freigab	28.07.2020	PUFF1	Blatt
Service spare part drawing / Service Ersatzteil Zeichnung			Status	F R E I G E G E B E N		1 von 1
SEG-Nummer SEG-11105	Service-Kit (Option)	Subassembly / Untergruppe				

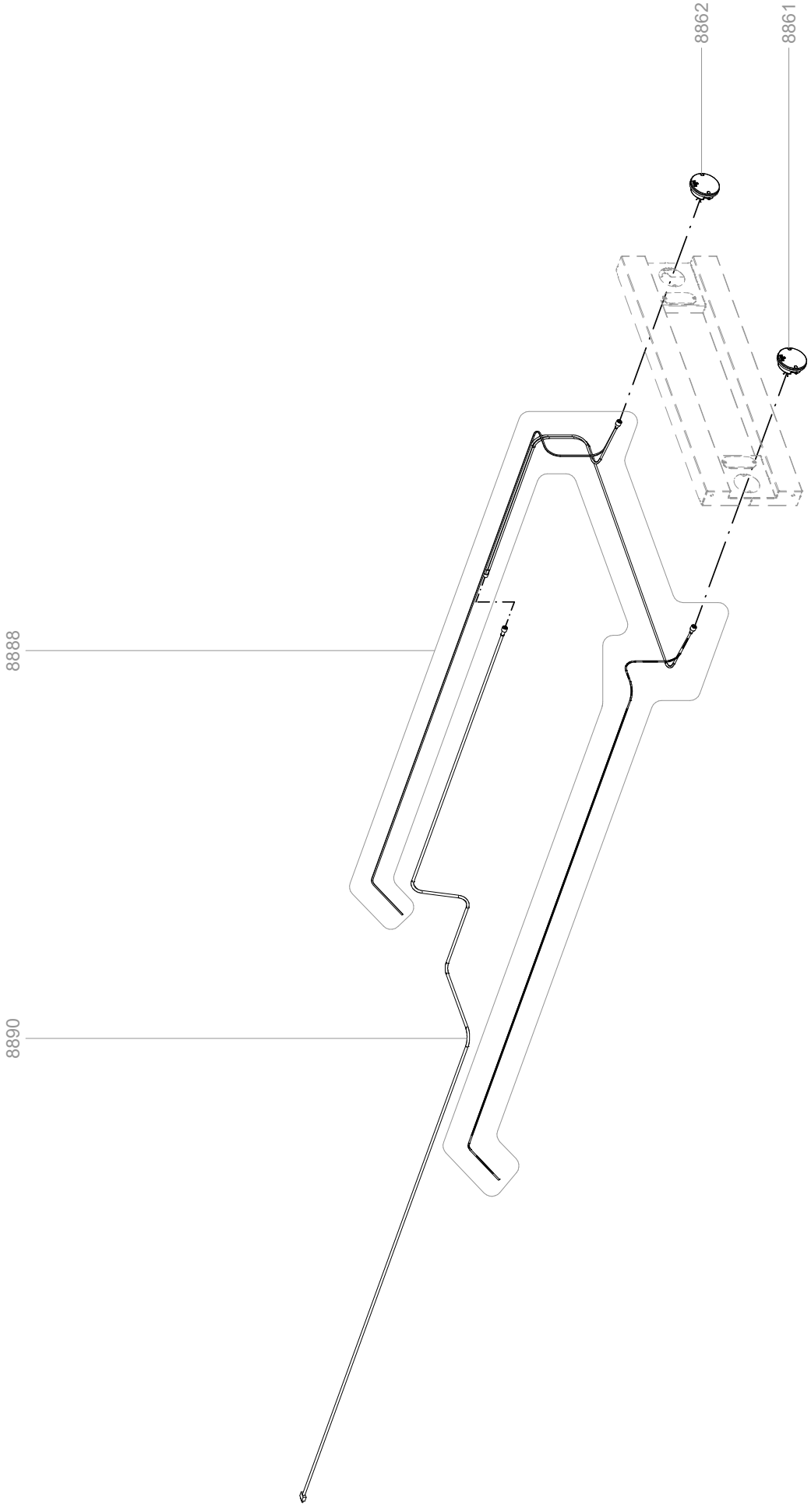


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Baugruppe
8290 - Bodywork superstructure / Karosserieaufbauten

Zeichnungstyp	Dokument-Nr.	Original		Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez.	10.02.2020	PLIFF1	Solid Edge
			Freig.	28.07.2020	PLIFF1	Blatt
SEG-Nummer	Service-Kit	(Option)	Subassembly / Untergruppe	Status	F R E I G E G E B E N	1 von 1
SEG-111 06						


(8811)
(8811)
8805
(8811)
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KAESER KOMPRESSOREN
Baugruppe
8290 - Bodywork superstructure / Karosserieaufbauten
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Erstellt mit
Gez. 10.02.2020 PUFF1 Solid Edge
Freigg. 28.07.2020 PUFF1 Blatt
Status F R E I G E G E B E N 1 von 1
SEG-Nummer
SEG-11107
Service-Kit (Option) Subassembly / Untergruppe



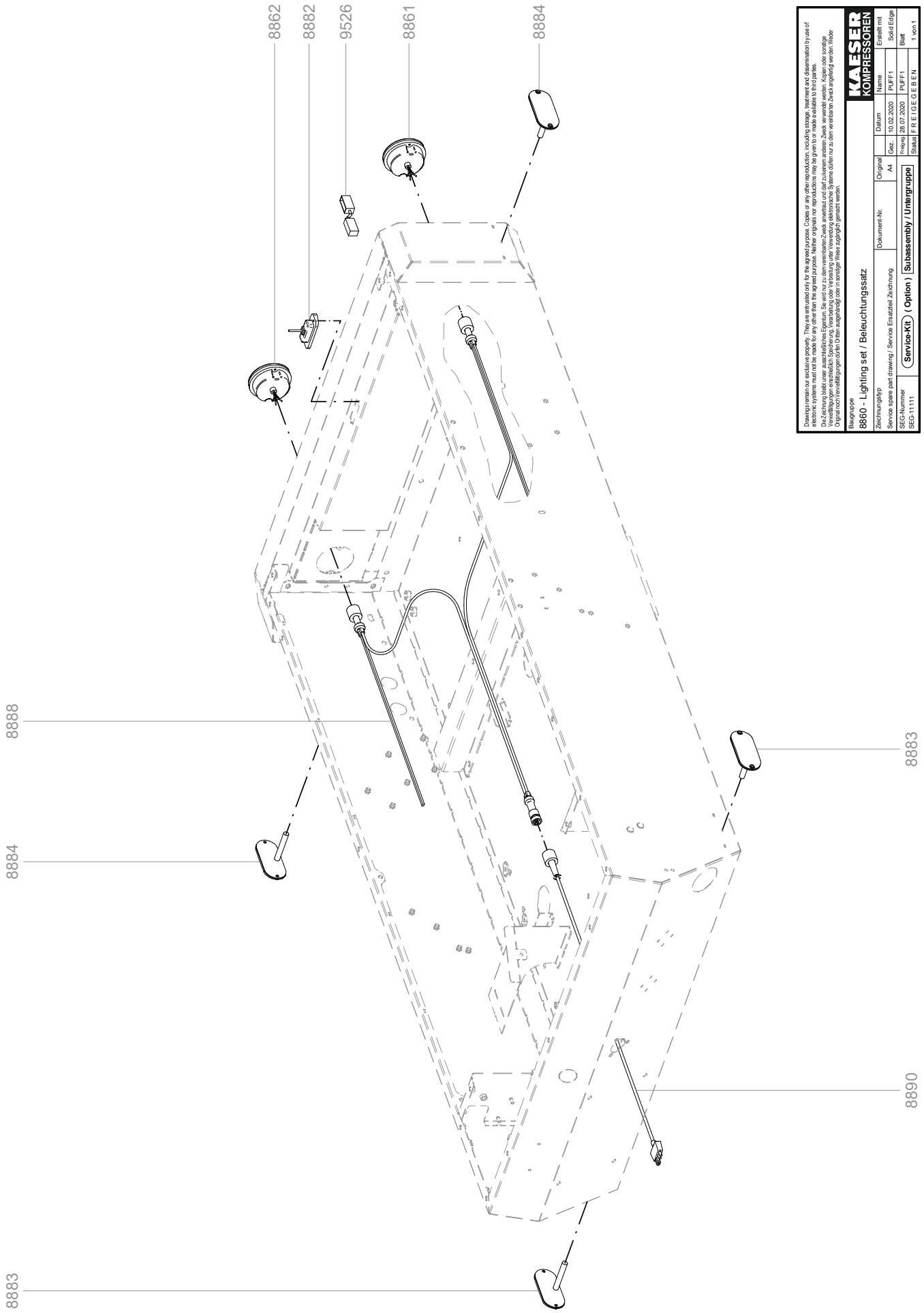
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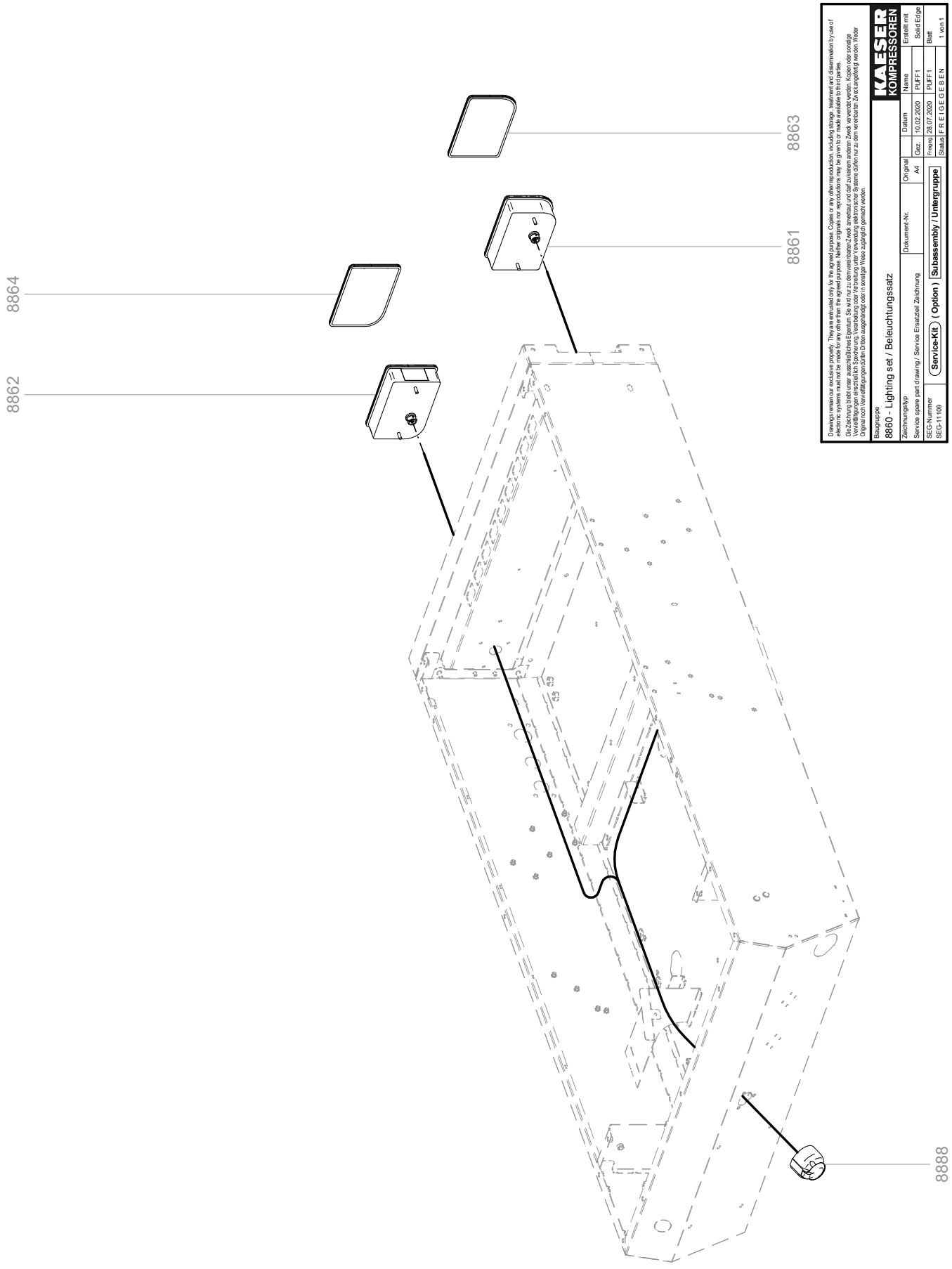
KAESER KOMPRESSOREN

Baugruppe
8860 - Lighting set / Beleuchtungssatz

Zeichnungstyp	Dokument-Nr.	Original	Datum	Name
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez. 10.02.2020	PLIFF1
			Freigabe 28.07.2020	PLIFF1
SEG-Nummer	Service-Kit	(Option)	Subassembly / Untergruppe	
SEG-111108			Status FREIGEGEBEN	

Erstellt mit SolidEdge
Blatt 1 von 1


8862
8882
9526
8861
8884
8888
8884
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8883
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KAESER KOMPRESSOREN
Baugruppe
8860 - Lighting set / Beleuchtungssatz
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
SEG-Nummer
SEG-11111
Service-Kit (Option) Subassembly / Untergruppe
Dokument-Nr.
Original
A4
Datum
Name
Erstellt mit
Solid Edge
Gez. 10.02.2020 PUFF1
Freigig 28.07.2020 PUFF1
Blatt
1 von 1
Status F R E I G E G E B E N

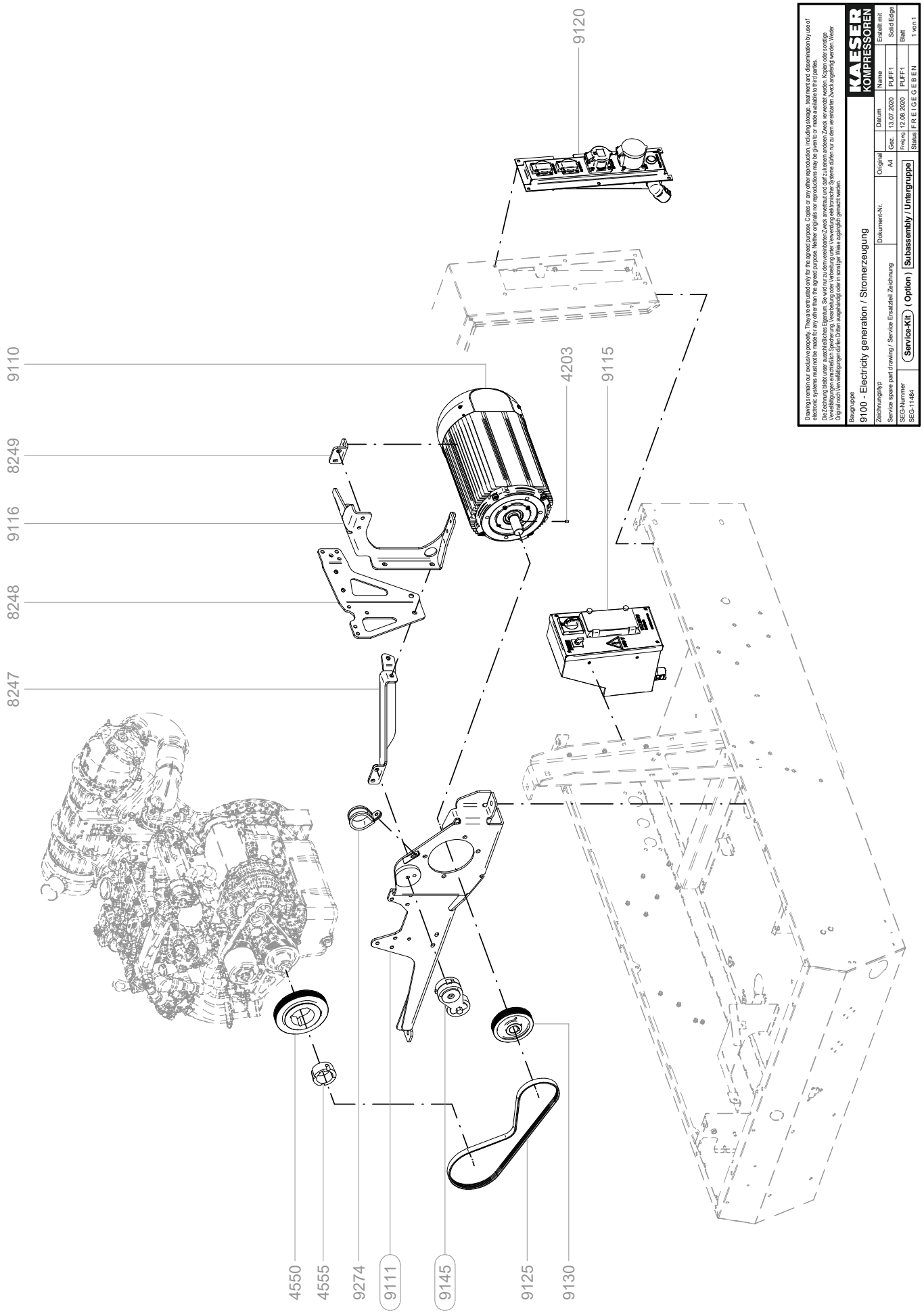


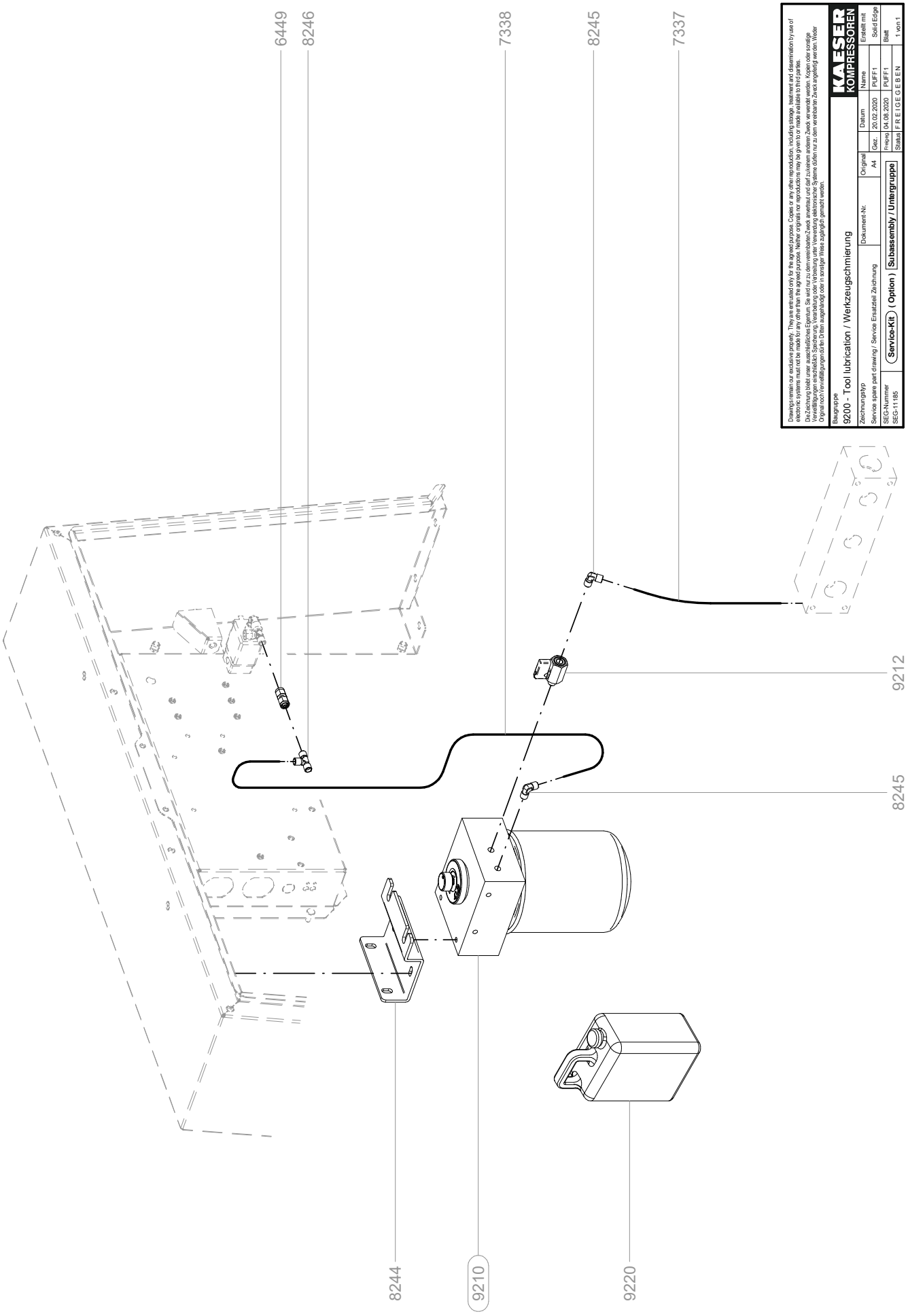
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KAESER KOMPRESSOREN

Baugruppe
8860 - Lighting set / Beleuchtungssatz

Zeichnungstyp	Dokument-Nr.	Original	Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez. 10.02.2020	PLIFF1	SolidEdge
			Freigabe 28.07.2020	PLIFF1	Blatt
SEG-Nummer SEG-111109	Service-Kit (Option)	Subassembly / Untergruppe	Status FREIGEGEBEN		1 von 1


9120
9110
8249
9116
8248
8247
4203
9115
4550
4555
9274
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KAESER KOMPRESSOREN
Baugruppe
9100 - Electricity generation / Stromerzeugung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Erstellt mit
Gez.
13.07.2020
PUFF1
Solid Edge
Freigab
12.08.2020
PUFF1
Blatt
1 von 1
Status
F R E I G E G E B E N
SEG-Nummer
SEG-11484
Service-Kit (Option) Subassembly / Untergruppe



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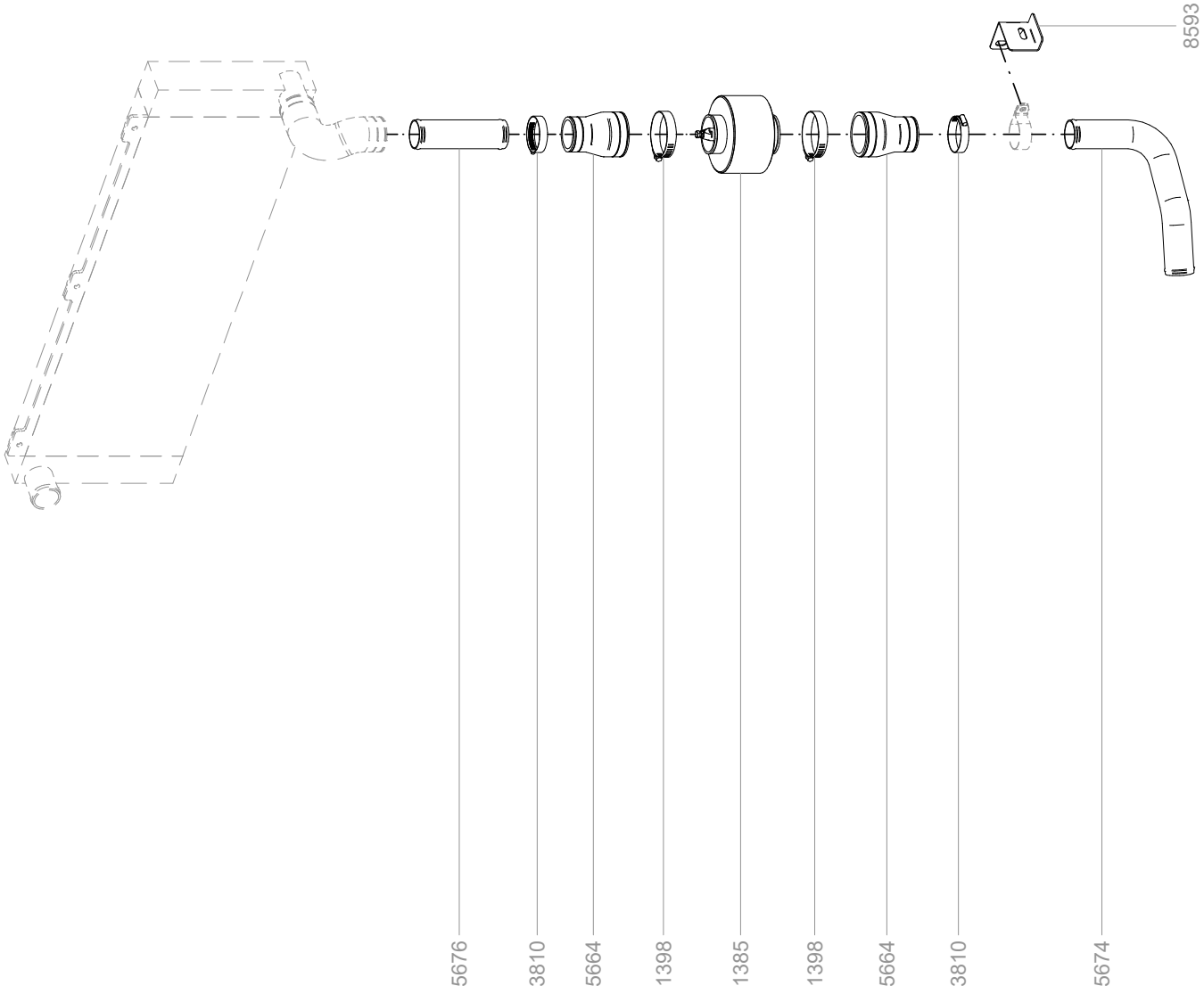
KAESER KOMPRESSOREN

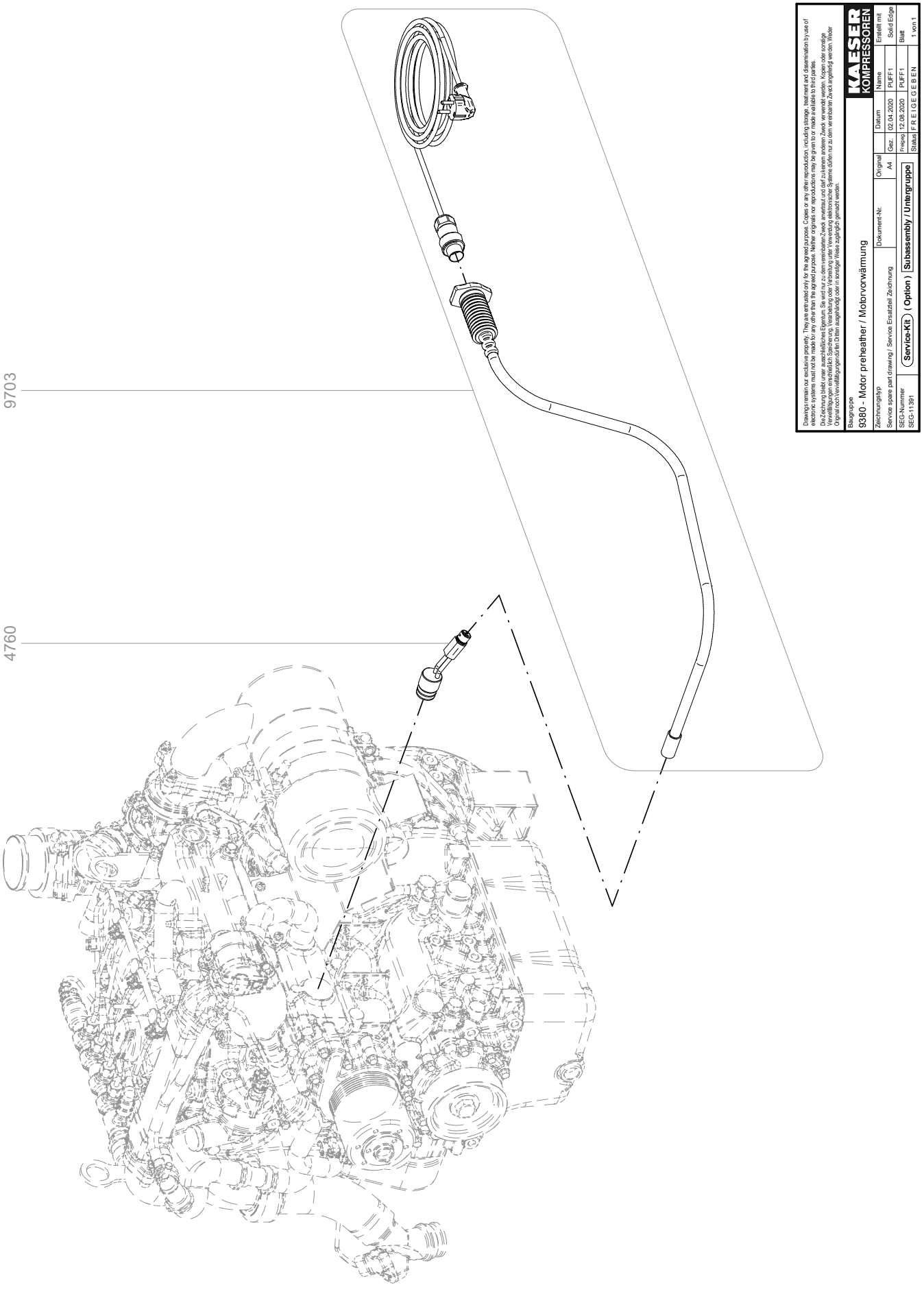
Baugruppe
9200 - Tool lubrication / Werkzeugschmierung

Zeichnungstyp	Dokument-Nr.	Original	Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez. 20.02.2020	PLIFF1	SolidEdge
SEG-Nummer	Service-Kit (Option)	Subassembly / Untergruppe	Freigg. 04.08.2020	PLIFF1	Blatt
SEG-I 1165			Status FREIGEGEBEN		1 von 1

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Baugruppe: 9370 - Engine air intake shut-off / Motoriluftabsperrung			Original	Datum	Name	Erstellt mit
Zeichnungstyp	Dokument-Nr.		A4	Gez. 11.11.2020	PUFF1	Solid Edge
Service spare part drawing / Service Ersatzteil Zeichnung				Freigg. 11.11.2020	PUFF1	Blatt
SEG-Nummer: SEG-12418	Service-Kit (Option)	Subassembly / Untergruppe		Status: F R E I G E G E B E N		1 von 1



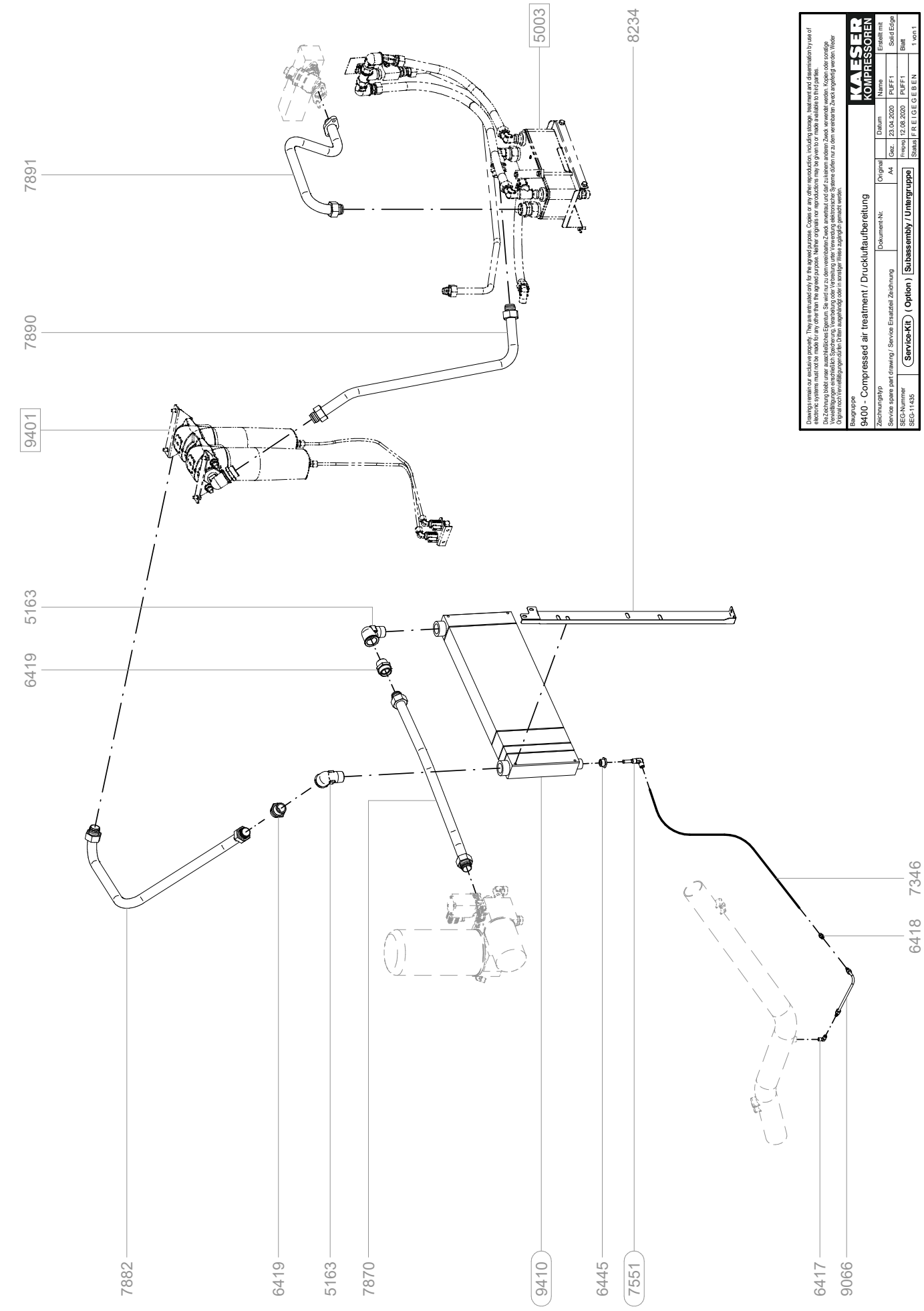


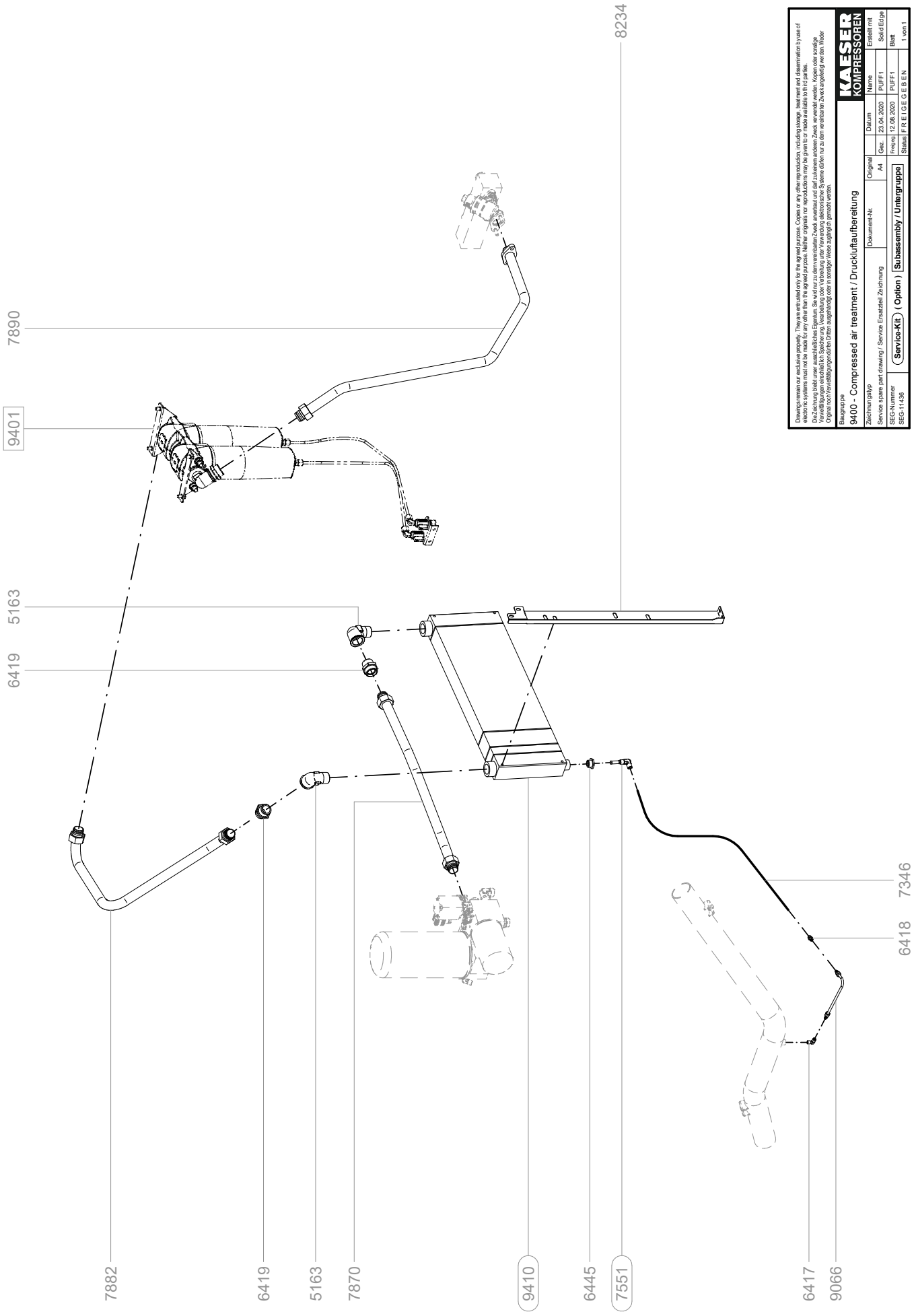
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KAESER KOMPRESSOREN

Baugruppe
9380 - Motor preheather / Motorvorwärmung

Zeichnungstyp	Dokument-Nr.	Original		Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez.	02.04.2020	PLIFF1	Solid Edge
SEG-Nummer	Service-Kit (Option)	Subassembly / Untergruppe	Freigabe	12.08.2020	PLIFF1	Blatt
SEG-I 1.391			Status	F R E I G E G E B E N		1 von 1


5003
8234
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KAESER KOMPRESSOREN
Baugruppe
9400 - Compressed air treatment / Druckluftaufbereitung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
SEG-Nummer
SEG-11435
Service-Kit (Option) Subassembly / Untergruppe
Dokument-Nr.
Original
A4
Datum
Name
Gez. 23.04.2020 PUFF1
Freigg. 12.08.2020 PUFF1
Status F R E I G E G E B E N
Erstellt mit
Solid Edge
Blatt
1 von 1



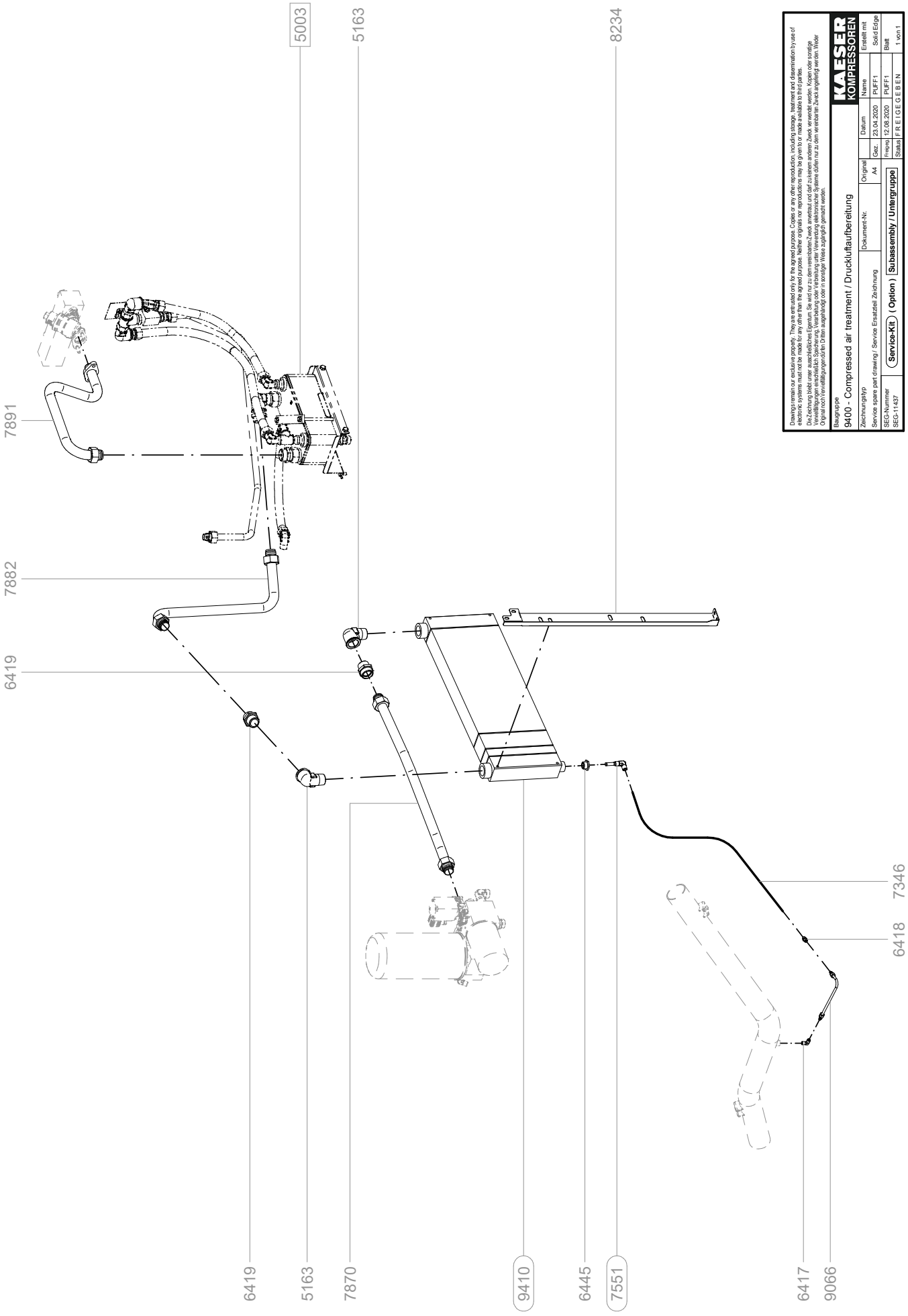
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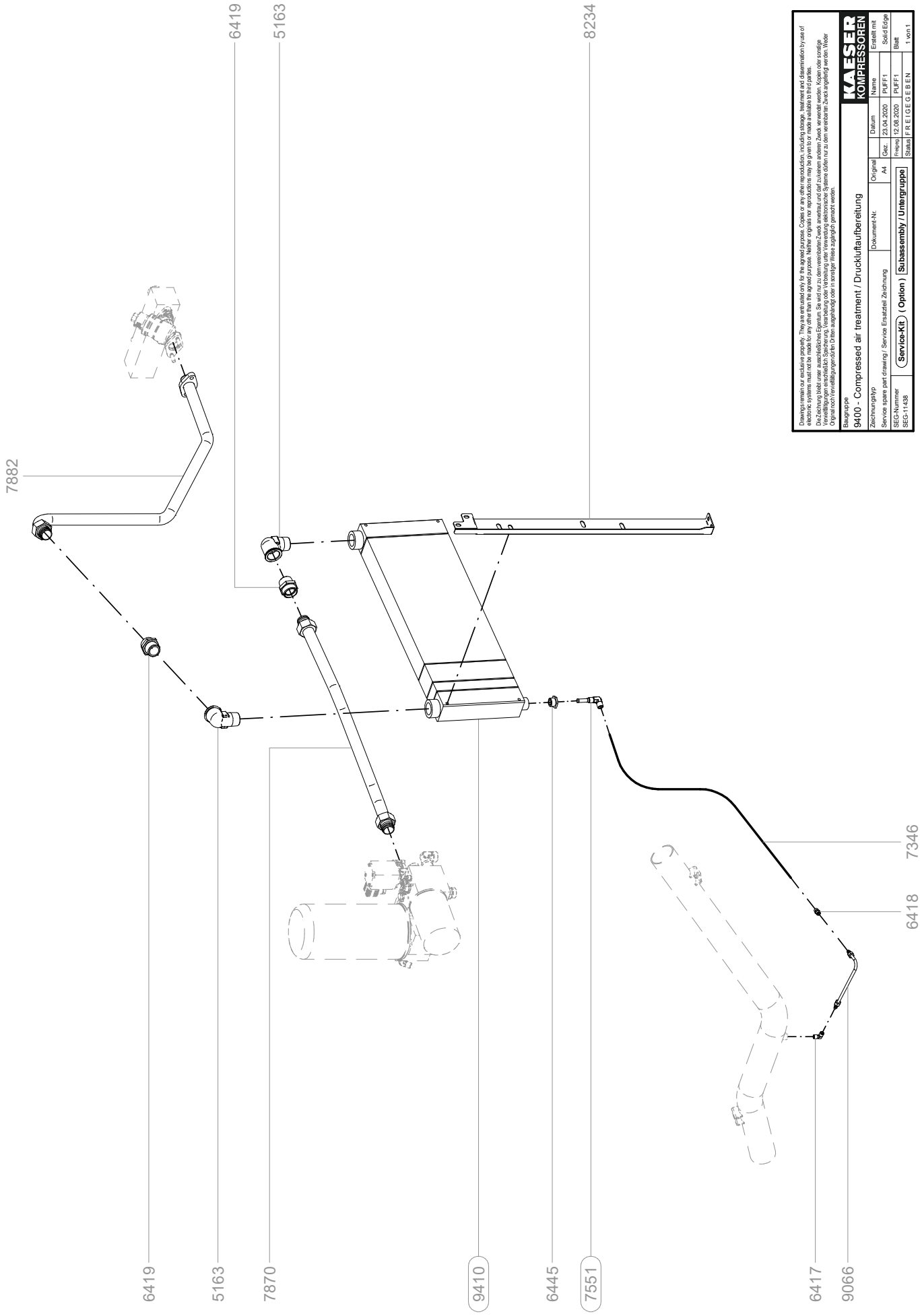
KAESER KOMPRESSOREN

Baugruppe
9400 - Compressed air treatment / Druckluftaufbereitung

Zeichnungstyp	Dokument-Nr.	Original	Datum	Name
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez. 23.04.2020	PLIFF1
			Freig. 12.08.2020	PLIFF1
SEG-Nummer	Service-Kit (Option)	Subassembly / Untergruppe	Status FREIGEGEBEN	
SEG-11436				

Erstellt mit SolidEdge
Blatt 1 von 1


5003
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KAESER KOMPRESSOREN
Baugruppe
9400 - Compressed air treatment / Druckluftaufbereitung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Erstellt mit
Gez. 23.04.2020 PUFF1 Solid Edge
Freigg. 12.08.2020 PUFF1 Blatt
Status F R E I G E G E B E N 1 von 1
SEG-Nummer
SEG-11437
Service-Kit (Option) Subassembly / Untergruppe

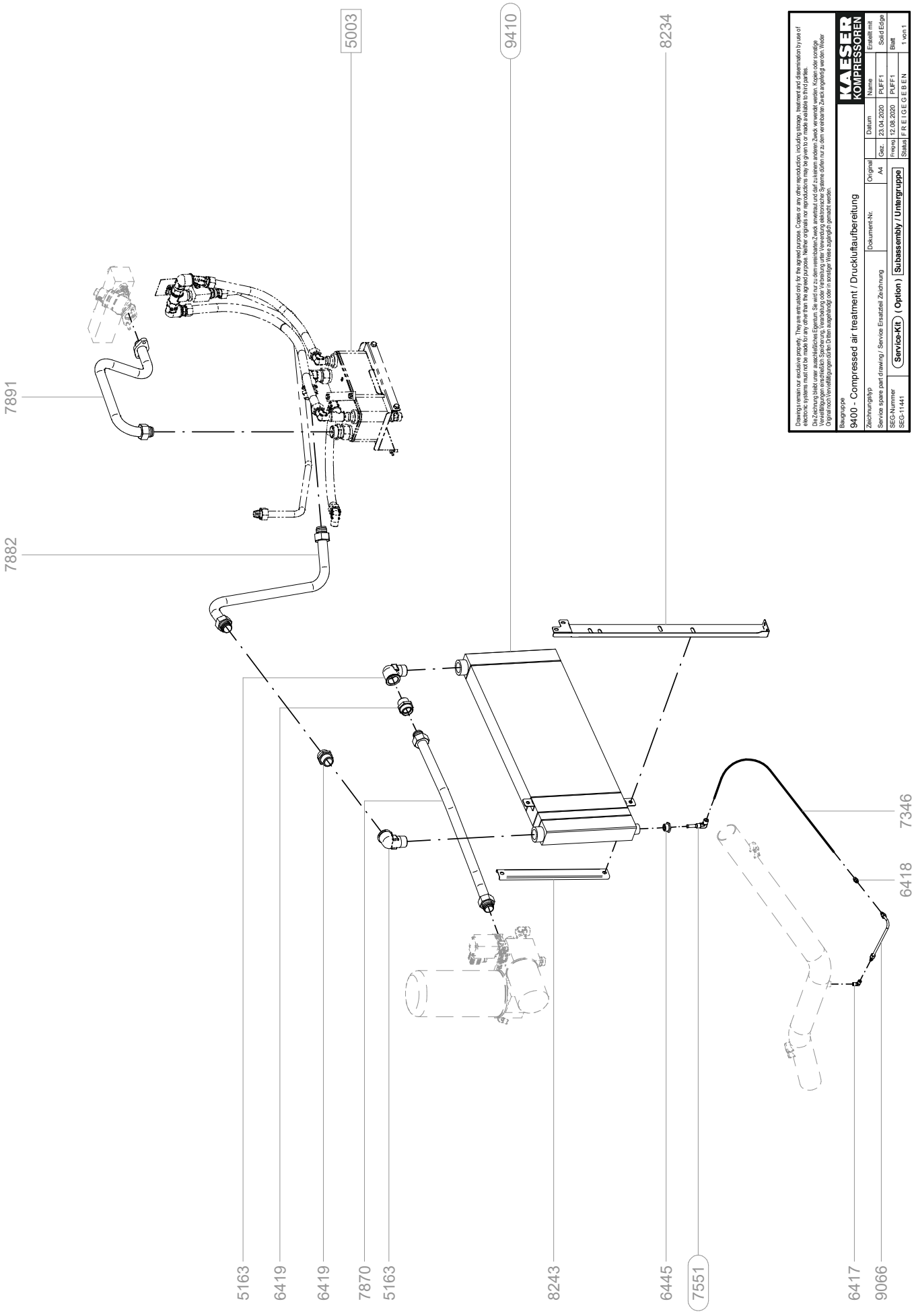


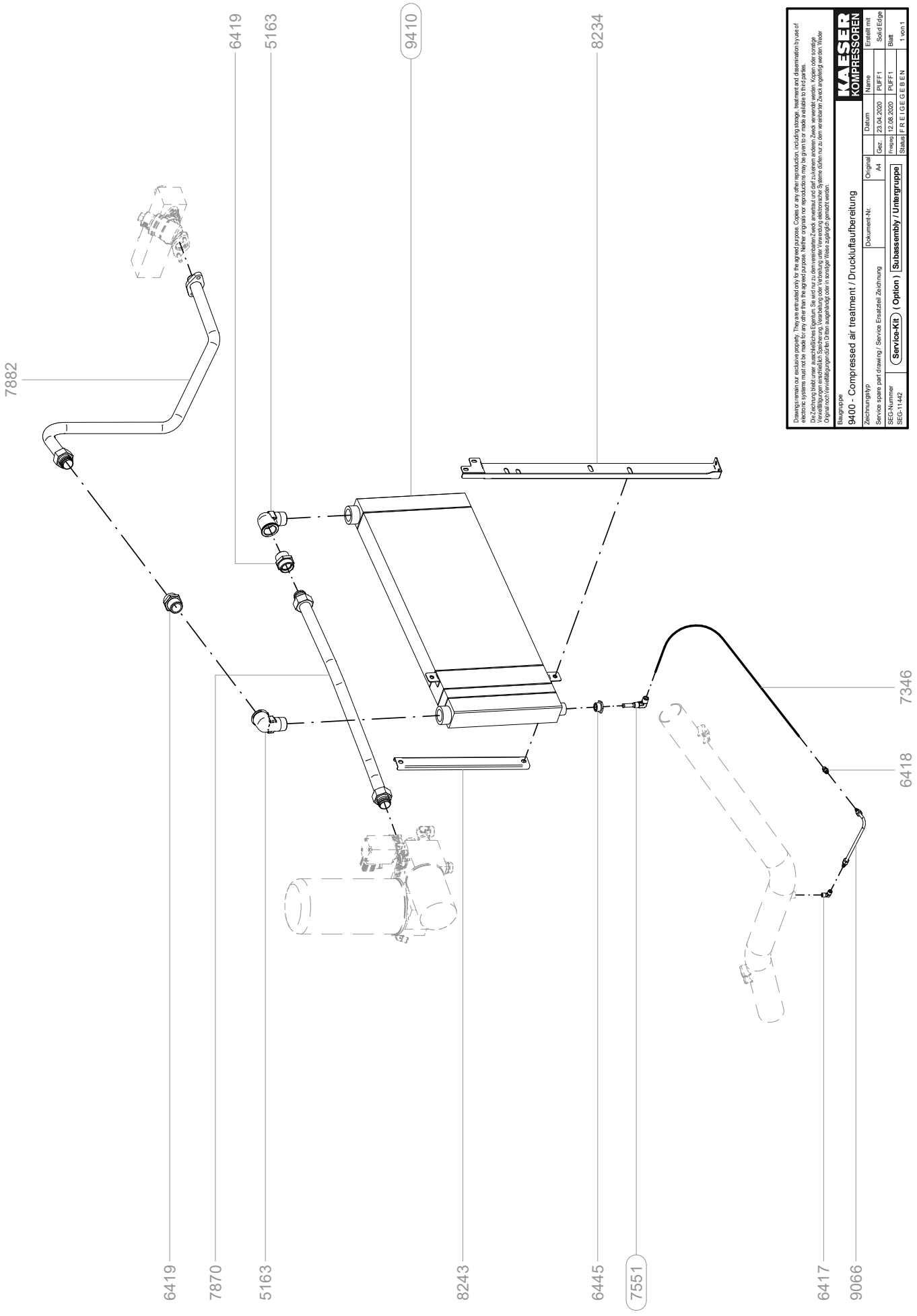
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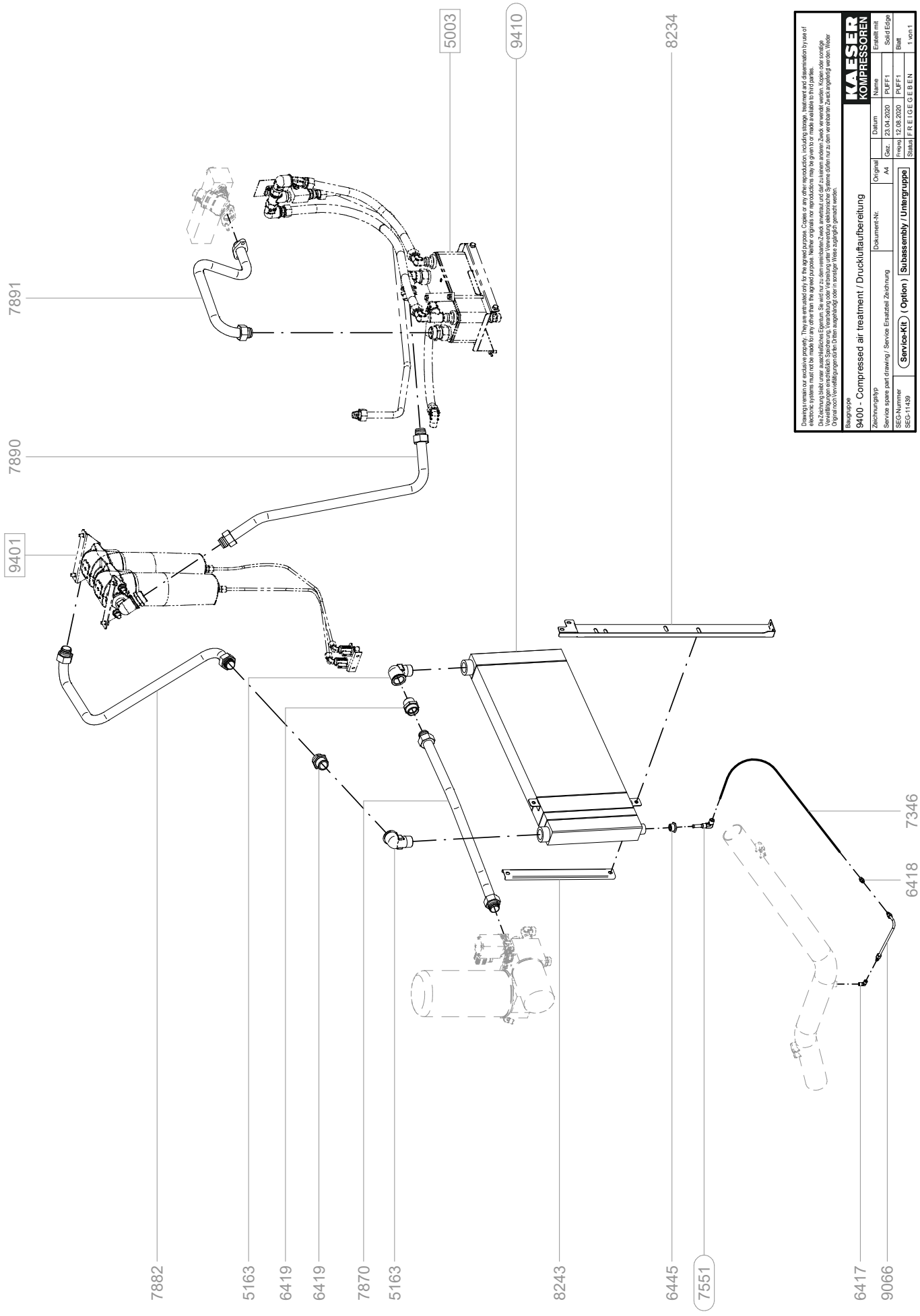
KAESER KOMPRESSOREN

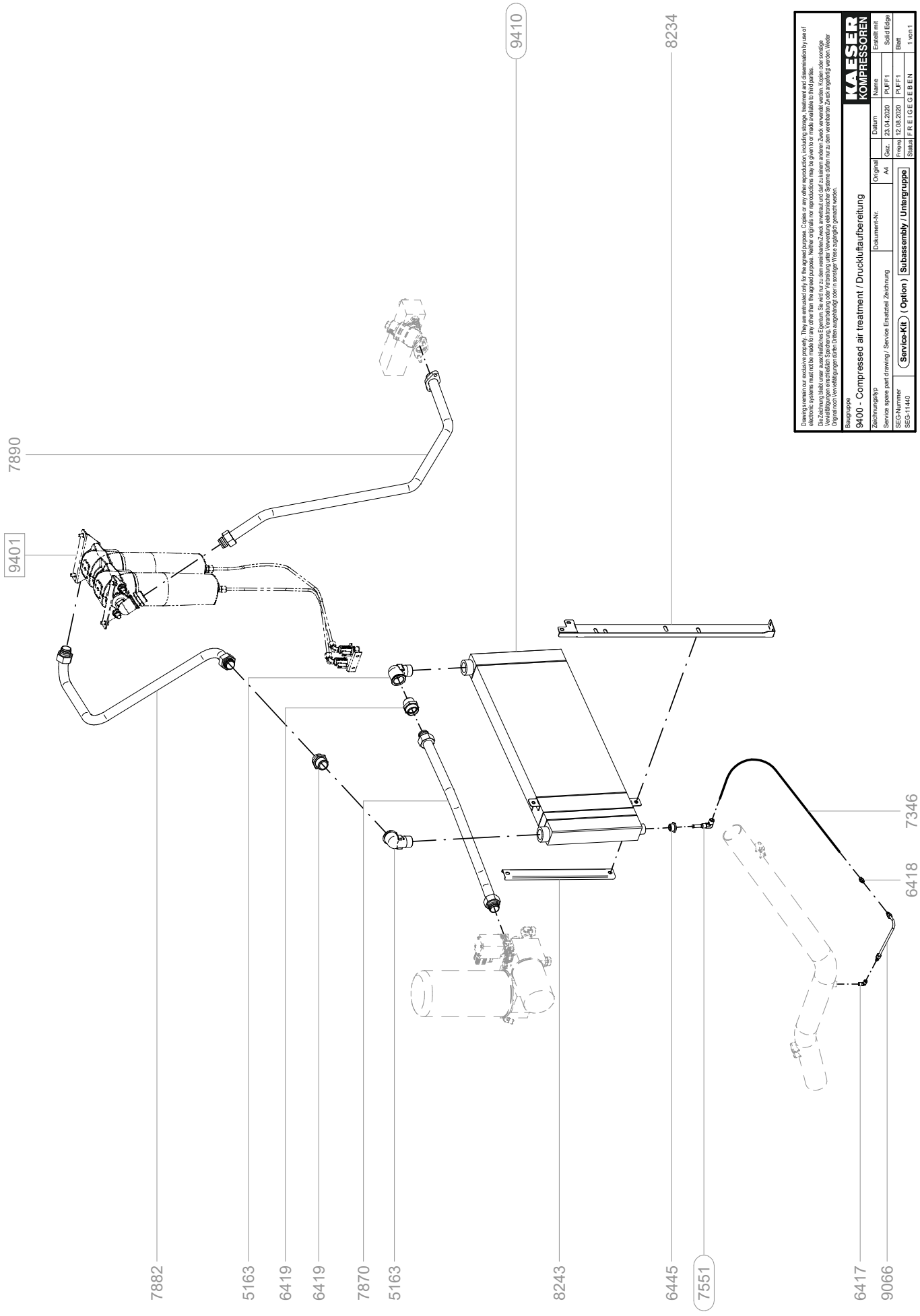
Baugruppe
9400 - Compressed air treatment / Druckluftaufbereitung

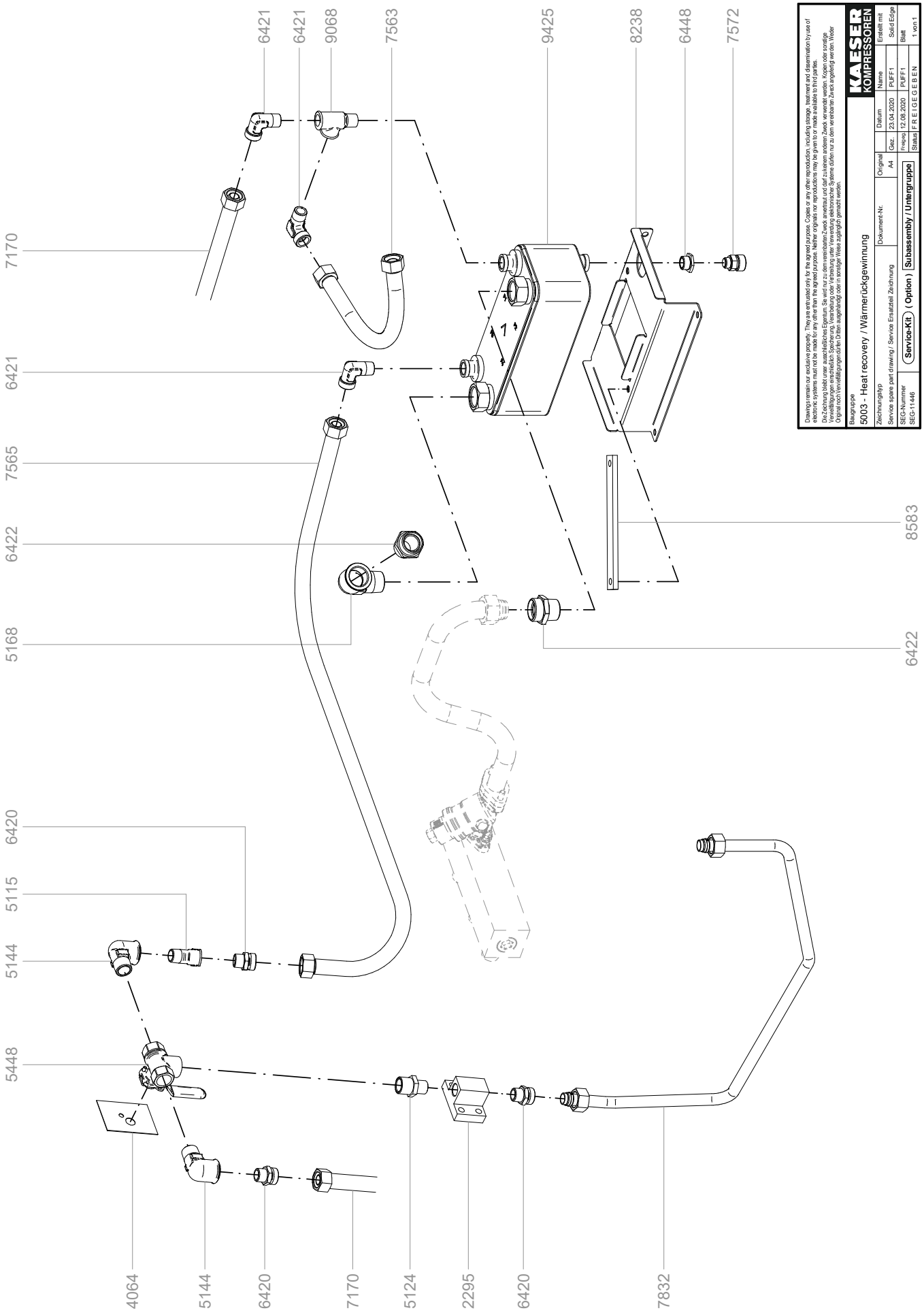
Zeichnungstyp	Dokument-Nr.	Original		Datum	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung		A4	Gez.	23.04.2020	PLIFF1	Solid Edge
			Freig.	12.08.2020	PLIFF1	Blatt
SEG-Nummer	Service-Kit	(Option)	Subassembly / Untergruppe	Status	F R E I G E G E B E N	1 von 1
SEG-111438						

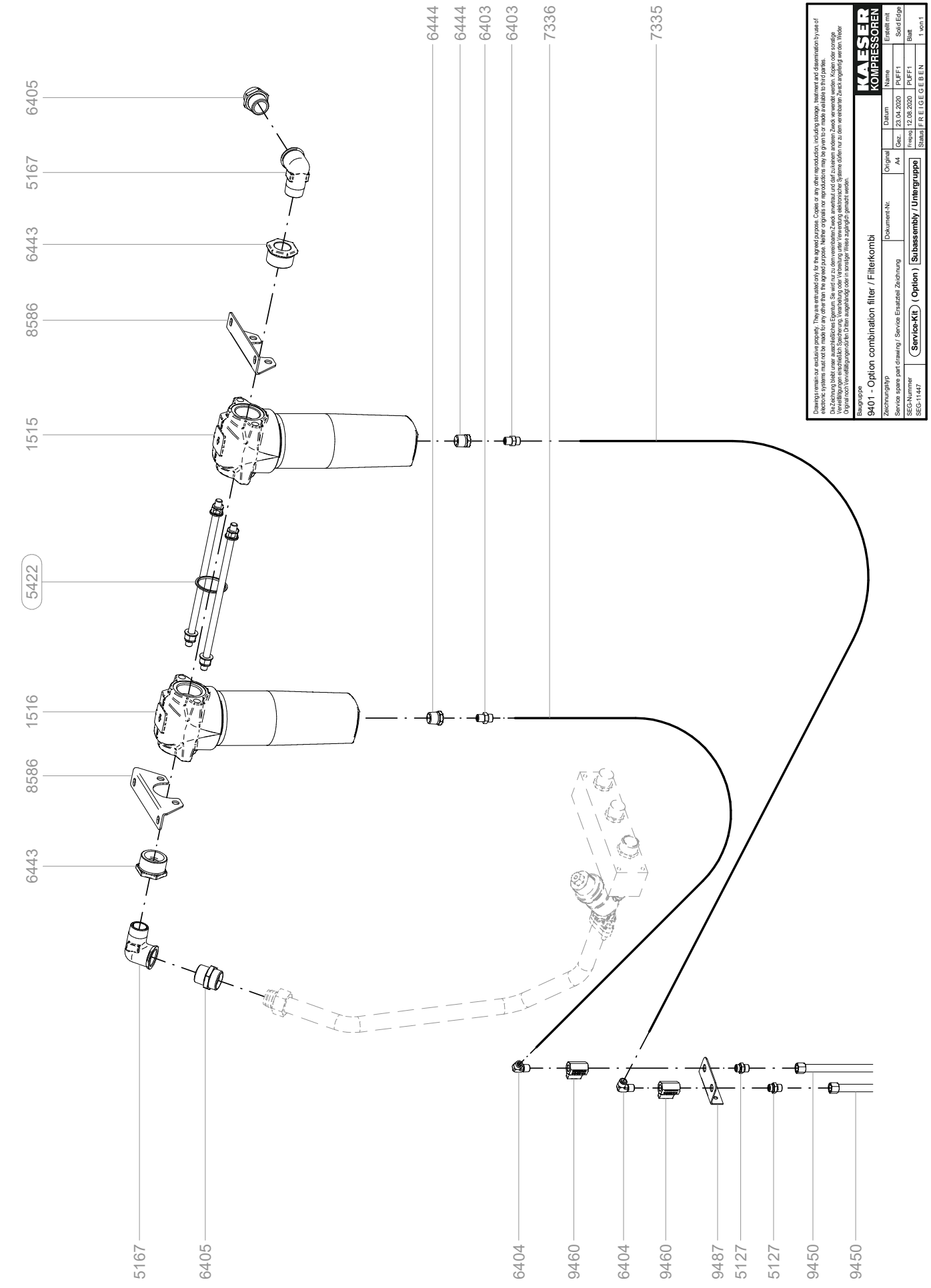

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Baugruppe
9400 - Compressed air treatment / Druckluftaufbereitung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
SEG-Nummer
SEG-11441
Service-Kit (Option) Subassembly / Untergruppe
Dokument-Nr.
Original
A4
Datum
Name
Gez. 23.04.2020 PUFF1
Freigg. 12.08.2020 PUFF1
Status F R E I G E G E B E N
Erstellt mit
Solid Edge
Blatt
1 von 1

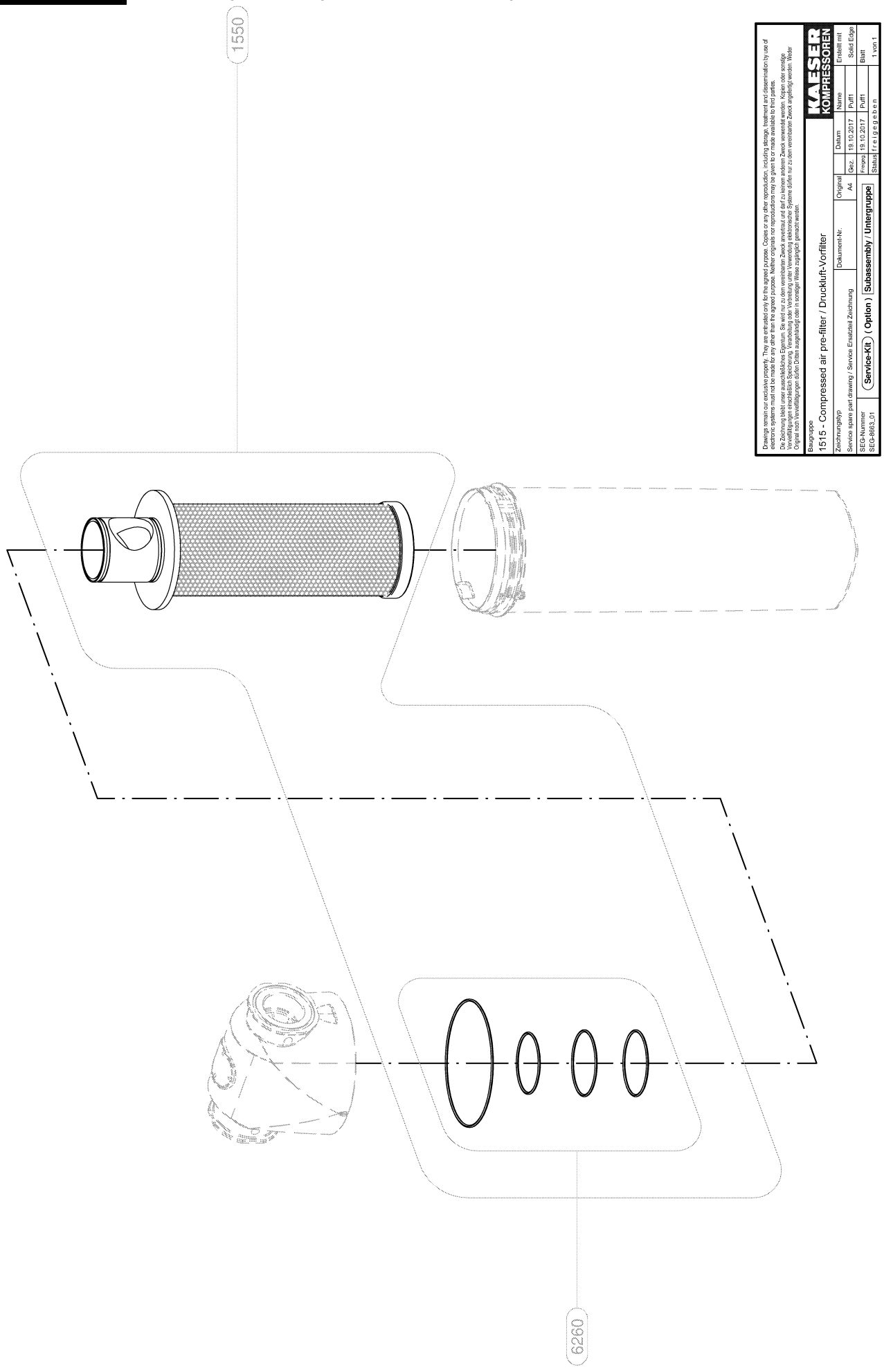

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Baugruppe
9400 - Compressed air treatment / Druckluftaufbereitung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
23.04.2020
12.08.2020
Name
PLIFF1
PLIFF1
Erstellt mit
SolidEdge
Blatt
1 von 1
SEG-Nummer
SEG-11442
Service-Kit (Option)
Subassembly / Untergruppe
Status F R E I G E G E B E N


5003
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Baugruppe
9400 - Compressed air treatment / Druckluftaufbereitung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
SEG-Nummer
SEG-11439
Service-Kit (Option) Subassembly / Untergruppe
Dokument-Nr.
Original
A4
Datum
Name
Erstellt mit
Solid Edge
Ges. 23.04.2020 PUFF1
Freigab 12.08.2020 PUFF1
Blatt
1 von 1
Status F R E I G E G E B E N


9410
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9066
KAESER KOMPRESSOREN
Baugruppe
9400 - Compressed air treatment / Druckluftaufbereitung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
23.04.2020
12.08.2020
Name
PLIFF1
PLIFF1
Erstellt mit
SolidEdge
Blatt
1 von 1
SEG-Nummer
SEG-11440
Service-Kit (Option)
Subassembly / Untergruppe
Status FREIGEGEBEN


6421
6421
9068
7563
9425
8238
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7572
7170
6421
7565
6422
5168
8583
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7170
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KAESER KOMPRESSOREN
Baugruppe
5003 - Heat recovery / Wärmerückgewinnung
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
SEG-Nummer
SEG-11446
Service-Kit (Option)
Dokument-Nr.
Subassembly / Untergruppe
Original
A4
Datum
Name
Gez. 23.04.2020 PUFF1
Freigg. 12.08.2020 PUFF1
Status F R E I G E G E B E N
Erstellt mit
Solid Edge
Blatt
1 von 1


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9460
9487
5127
5127
9450
9450
KAESER KOMPRESSOREN
Baugruppe
9401 - Option combination filter / Filterkombi
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Name
Datum
Erstellt mit
SolidEdge
PLFF1
23.04.2020
12.08.2020
Blatt
1 von 1
SEG-Nummer
SEG-11447
Service-Kit (Option)
Subassembly / Untergruppe
Status FREIGEGEBEN

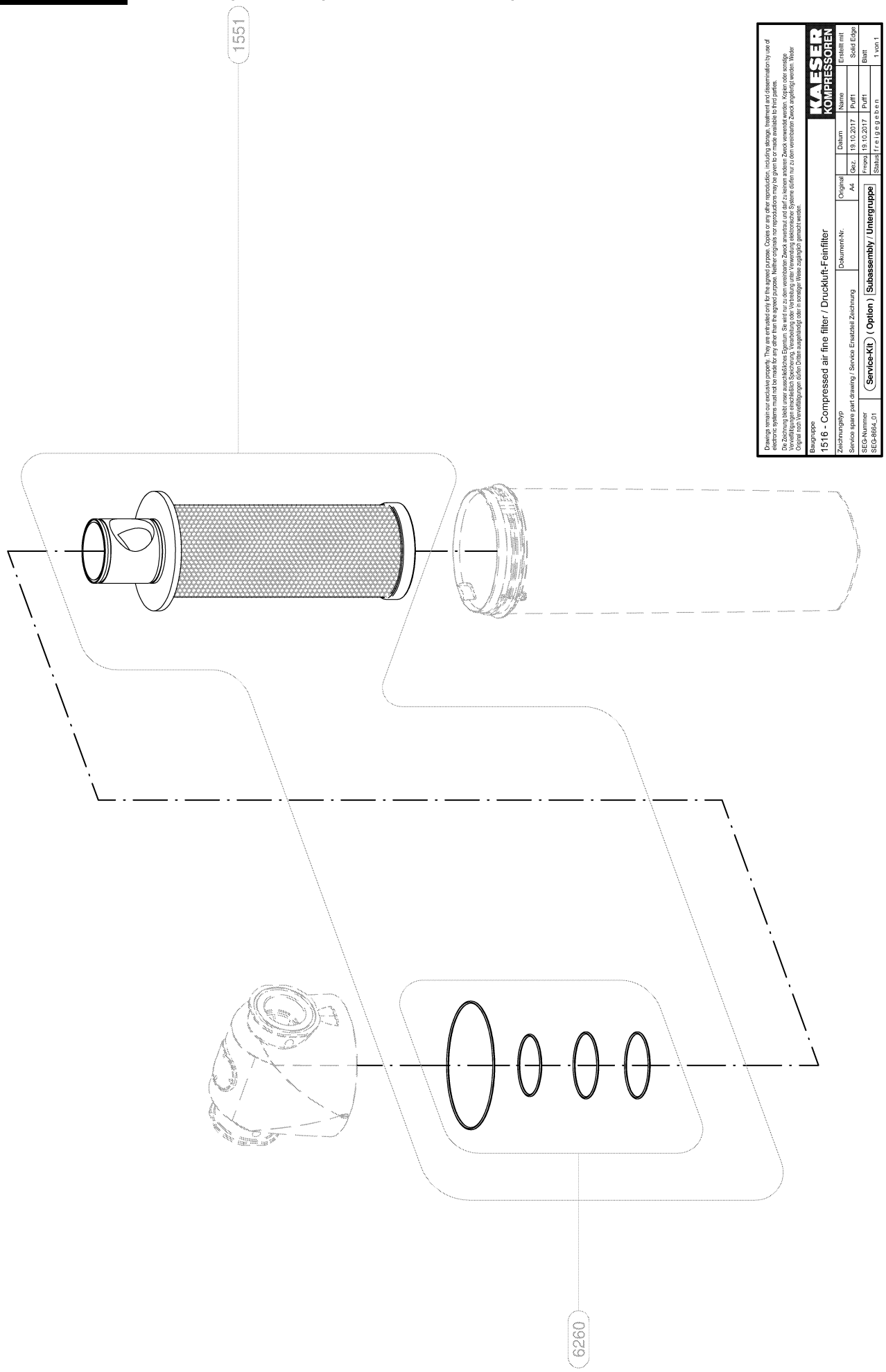


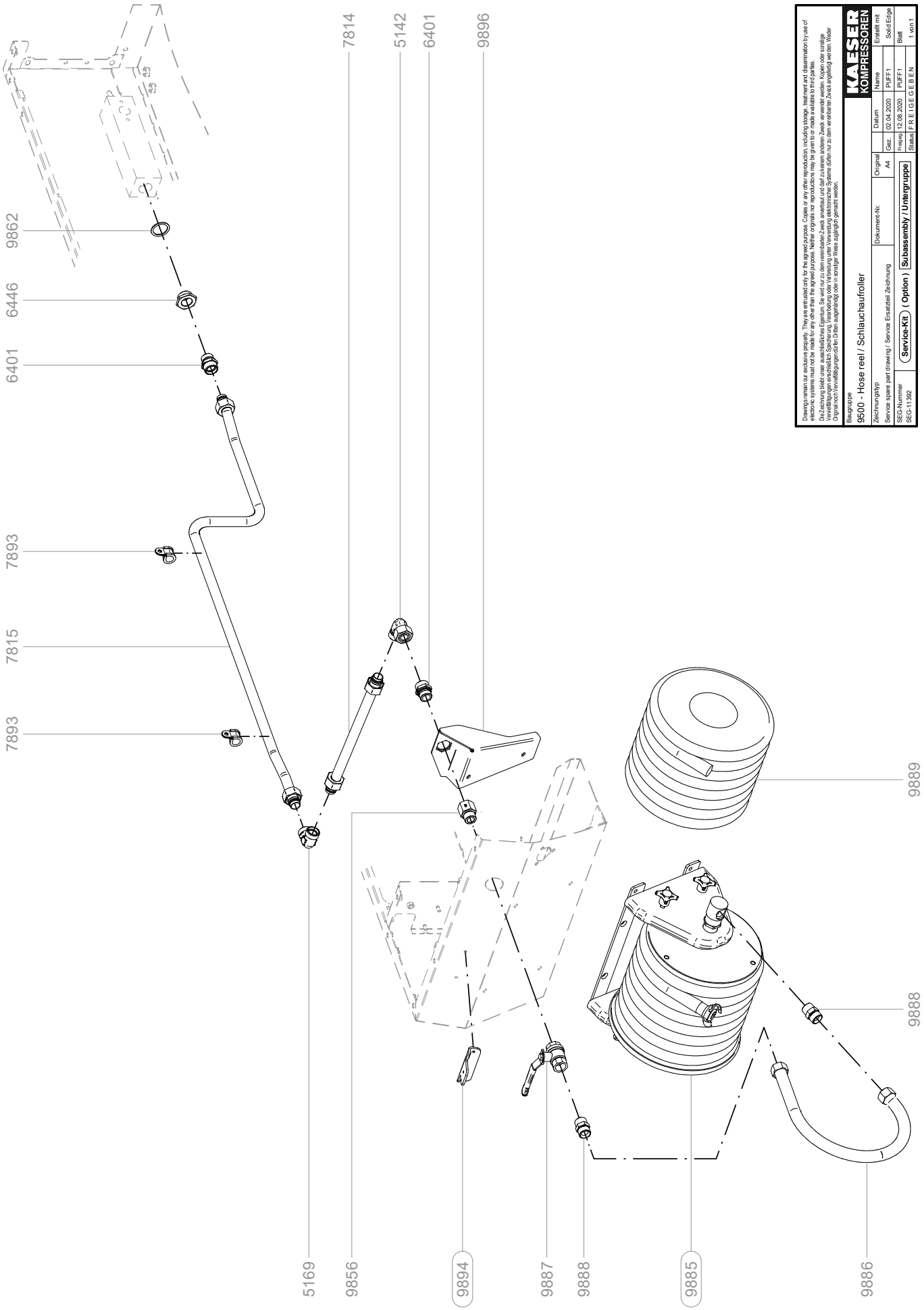
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KAESER KOMPRESSOREN

Baugruppe
1515 - Compressed air pre-filter / Druckluft-Vorfilter

Zeichnungstyp		Original		Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung	Dokument-Nr.	A4	Gez. 19.10.2017	Pufft	Solid Edge
SEG-Nummer SEG-8663_01	Service-Kit (Option) Subassembly / Untergruppe		Freigegeben 19.10.2017	Pufft	Blatt 1 von 1
			Status freigegeben		


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KAESER KOMPRESSOREN
Baugruppe
1516 - Compressed air fine filter / Druckluft-Feinfilter
Zeichnungstyp
Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.
Original
A4
Datum
Name
Erstellt mit
Skiz. 19.10.2017 Puff1 Solid Edge
Freigag. 19.10.2017 Puff1 Blatt
Status freigegeben 1 von 1
SEG-Nummer
SEG-8664_01
Service-Kit (Option) Subassembly / Untergruppe



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KAESER KOMPRESSOREN

Baugruppe				Datum	Name
9500 - Hose reel / Schlauchaufroller			Original		Erstellt mit
Zeichnungstyp	Dokument-Nr.			Gez.	02.04.2020 PUFF1 Solid Edge
Service spare part drawing / Service Ersatzteil Zeichnung			A4	Freigib	12.08.2020 PUFF1 Blatt
SEG-Nummer	(Service-Kit) (Option)	Subassembly / Untergruppe		Status	F R E I G E G E B E N 1 von 1
SEG-11392					

12 Decommissioning, Storage and Transport

12.1 De-commissioning

De-commissioning is necessary, for example, under the following circumstances:

- The machine is temporarily not needed
- The machine will not be needed for a considerable time.
- The machine is to be scrapped.

Precondition The machine is shut down.
Machine dry and cool.

1. Carry out the following de-commissioning procedures.
2. Place a notice on the instrument panel describing the de-commissioning procedures carried out.

12.1.1 Temporary decommissioning

Decommissioning the machine for periods of approximately 4 months.

Material Plastic sheeting
Moisture-resistant adhesive tape

1. Disconnect the battery/batteries (negative pole first, then the positive pole).
2. Close off the following openings with plastic foil and moisture-resistant adhesive tape:
   - Engine air intake
   - Compressor air intake
   - Exhaust gas pipe
3. Attach the following notice on the instrument panel, showing the decommissioning measures taken:

Attention!

1. This machine is temporarily decommissioned.

2. The following openings have been closed off:

- Engine air intake
- Compressor air intake
- Exhaust gas pipe

3. Recommission in accordance with the operating manual.

Date / signature:

Tab. 130 “Temporarily decommissioned” information notice

Decommissioning the machine for several weeks during severe frost:



1. *NOTICE!*
   Danger of batteries freezing!
   Discharged batteries are susceptible to frost damage and can freeze at −10 °C.
   - ➢ Store batteries in a frost-proof location.
   - ➢ Store batteries as fully charged as possible.
2. Remove the battery/batteries and store in a frost-free room.
3. Ensure batteries are fully charged; charge if necessary.

12.1.2 Long-term de-commissioning/storage

De-commissioning the machine for 5 months or longer.



The classification of the preserving oil for the drive engine must at least correspond to the classification for the engine oil, see chapter .2.8.3

Material
Receptacle
Preserving oil
Preservative
Desiccant
Plastic sheeting
Moisture-resistant adhesive tape

➢ The following measures must be taken for long-term decommissioning and storage:

Long-term decommissioning and storage tasks	see Chapter	Confirmed?
➢ Check the drive engine coolant.	10.4.1	
➢ Drain the engine oil.	10.4.6	
➢ Drain the oil from the oil separator tank and the oil cooler.	10.6.3	
➢ Fill the oil separator tank with preserving oil.	10.6.2	
➢ Fill the drive engine with preserving oil.	10.4.5	
➢ Run the machine for about 10 minutes to coat all parts with a protective oil film.	–	
➢ Disconnect the battery/batteries, the negative pole first and then the positive pole, and store in a frost-free room.	–	
➢ Check the battery liquid level.	10.9.2	
➢ Check the battery charge monthly and recharge if necessary to prevent the battery fluid from freezing.	–	
➢ Clean the battery terminals and coat with acid-resistant grease.	–	
➢ Close the compressed air outlet valves.	–	

Long-term decommissioning and storage tasks	see Chapter	Confirmed?
➢ Cover the following openings with plastic foil and moisture-proof duct tape: ■ Drive engine air intake ■ Compressor air intake ■ Exhaust gas pipe	–	
➢ Clean the bodywork and treat with preservative.	–	
➢ Attach a notice on the instrument panel informing of the decommissioning measurements taken.	–	

Tab. 131 "Long-term decommissioning/storage" checklist

➢ Attach the following notice on the instrument panel showing the de-commissioning measures taken.

Attention!

1. The machine is decommissioned.
2. It is filled with preserving oil.
3. For recommissioning:

■ Perform tasks specified for re-commissioning after a long-term decommissioning/storage.
■ Re-commission according to Operating Manual.

Date / signature:

Tab. 132 Notice text: "Long-term decommissioned/storage"

➢ Store machine in a dry place at constant temperature.

12.2 Transportation

Depending on the options fitted, the following possibilities are available for moving the machine locally or transporting it as a load:

■ Transport by crane.
  – Transport by crane is permitted for all machines fitted with a lifting eye.
■ Transport by forklift.
  – Transport by forklift is permitted exclusively for stationary machines fitted with a skid frame (Option rw).
■ Transporting the machine as load.

Instructions for transporting the machine as a trailer on public roads can be found in the operating manual for the chassis.

Precondition The machine is shut down.
The machine is locked off against unintentional activation.
The machine is fully vented, the pressure gauge reads 0 bar!
The machine has cooled down.
All compressed air consumers are disconnected.
All connecting lines have been disconnected and removed.
Any loose or movable parts that could fall off during transportation have been removed or secured.

➢ Follow all instructions carefully.

12.2.1 Safety



Only allow transport by authorised personnel who are trained in the safe handling of motor vehicles and the transportation of goods.

➢ Ensure that the danger area is clear of personnel.

12.2.2 Transporting the machine by crane

The crane lifting eye is rated for the permissible total mass of the machine.
The crane lifting eye is identified by a mandatory sign, upon which a crane hook is depicted. Only a crane hook should be inserted through the lifting eye in preparation for suspended transport.



WARNING
Death or serious injury can be caused by the machine falling or swinging!
- ➢ Use a suitable crane and hoist that correspond to the permissible total mass of the machine.
- ➢ Only lift the machine in a position that conforms with its basic structural shape.
- ➢ Avoid swinging.

Additional precautions for conditions of snow and ice:

Significant snow or ice build-up can occur on the machine when operating in winter conditions.
This may adversely effect the machine's centre of gravity (tilting).
The permissible load of both the crane and machine hoists may be exceeded.

➢ Carry out the following preliminary tasks in conditions snow and ice:
- ■ Remove any snow and/or ice from the machine before lifting by crane.
- ■ Ensure that the lifting eye cover plate is freely accessible and can be opened.

Carry out the following preliminary tasks before lifting the machine by crane:

A lifting eye is provided for transportation by crane. The lifting eye is located beneath a lift-up cover plate in the centre of the enclosure.

Precondition The machine is switched off.
The machine is securely parked.

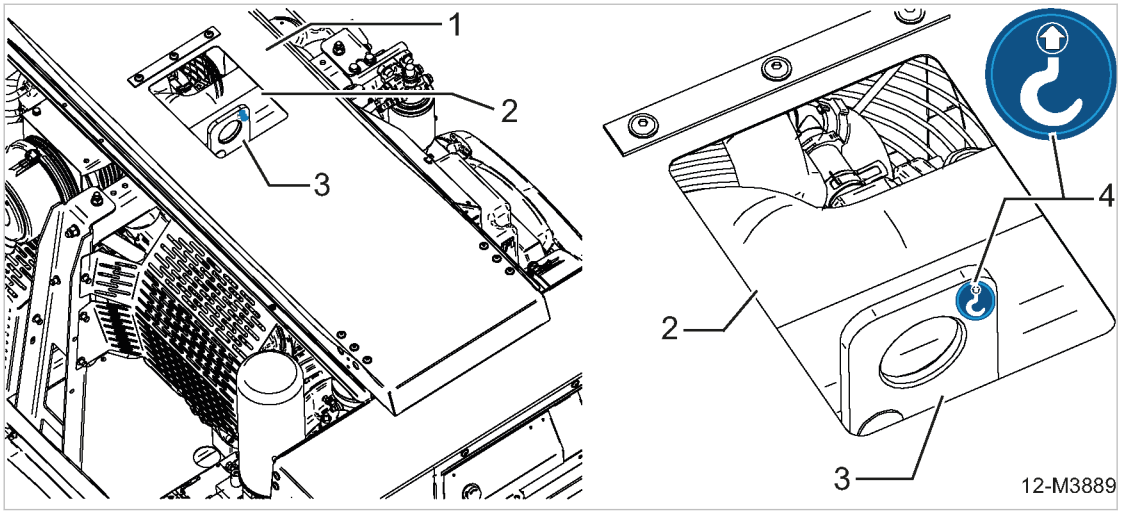


Fig. 98 Lifting eye for transportation by crane

1	Central section of enclosure	3	Crane lifting eye
2	Opening in central section of enclosure	4	Mandatory *Crane lifting point* sign

1. Open the lifting eye cover plate.
2. Position the crane hook vertically above the lifting eye.
3. Insert the crane hook into the lifting eye.

Lifting the machine by crane:

1. *NOTICE!*
   Damage to the machine from jolting during lifting!
   Danger of components breaking.
   ➢ Lift the machine carefully.
2. Lift the machine slowly and carefully.
3. Transport the machine slowly and carefully.

Setting down by crane:

1. *NOTICE!*
   Damage to the machine from it setting down incorrectly!
   Danger of components breaking; in particular, chassis components may be damaged.
   ➢ Set the machine down carefully.
2. Set the machine down slowly and carefully.
3. Ensure the machine is not set down unevenly.
4. Unhook and remove the crane hook.
5. Close the lifting eye cover plate.

12.2.3 Option rw
Transporting by forklift

Only stationary machines specified with a skid frame (Option rw) may be lifted and transported locally using a forklift. Stationary machines specified with optional skids are equipped with two lifting lugs into which two fork prongs can be inserted.

Precondition
Qualified transport personnel are available and in receipt of written instructions.
Information regarding the weight of the machine is readily available (nameplate).
A suitable forklift (appropriate for the weight of the machine) is available.
The machine is switched off.
All connecting lines have been disconnected and removed.

➢ Follow all instructions carefully.

12.2.3.1 Ensuring safety

WARNING
Death or serious injury from falling loads!
➢ Standing beneath raised loads is prohibited.
➢ Driving with a raised load is prohibited.

WARNING
Death or serious injury can occur should the machine fall off or roll over.
➢ Transporting personnel using the forklift is prohibited.

➢ Observe the specific accident prevention regulations regarding transport by forklift.
➢ Instruct personnel in the immediate danger area around the forklift or load to leave the area.



Fig. 99 Prohibition signs for forklift transport
[1] Standing beneath a raised load
[2] Transporting personnel on the forklift
[3] Driving with a raised load

1. Never stand beneath a raised load.
2. Never move a raised load above personnel.
3. Never transport personnel on the forklift.
4. Never drive with a raised load.

12.2.3.2 Checking the lifting accessory

The lifting accessory of a forklift consists of a lift mast, a fork carriage and the two fork prongs themselves. The lifting accessory is positioned in front of the forward axle of the forklift.

The fork consists of two prongs which are mounted on the fork carriage. Chain hoists or hydraulic cylinders move the fork carriage up and down the lift mast.

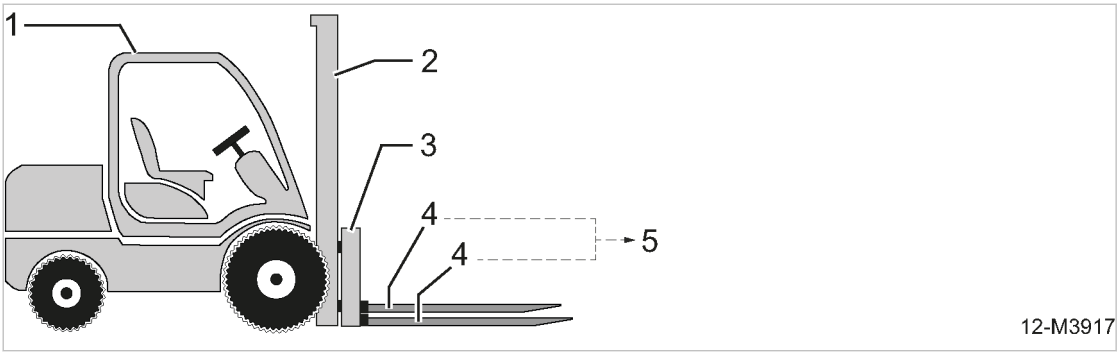


Fig. 100 Forklift example: Lifting accessory components

[1] Forklift
[2] Lift mast
[3] Fork carriage
[4] Fork prongs
[5] Fork

1. Check the fork prongs for cracks and deformation.
2. Check that both fork prongs are correctly mounted on the fork carriage.
3. Check the fork carriage for deformation.
4. Check the lift mast.
5. Check the chain hoist or hydraulic cylinders.

Both fork prongs show cracks and deformation.

➢ Replace both fork prongs.

12.2.3.3 Positioning the fork prongs under the machine

When using a forklift to transport a stationary machine with optional skids, the fork prongs must first be inserted into the lifting lugs.

NOTICE

Damage from incorrect insertion of the fork prongs!

➢ Insert the fork prongs solely into the lifting lugs provided for this purpose.

Option rw

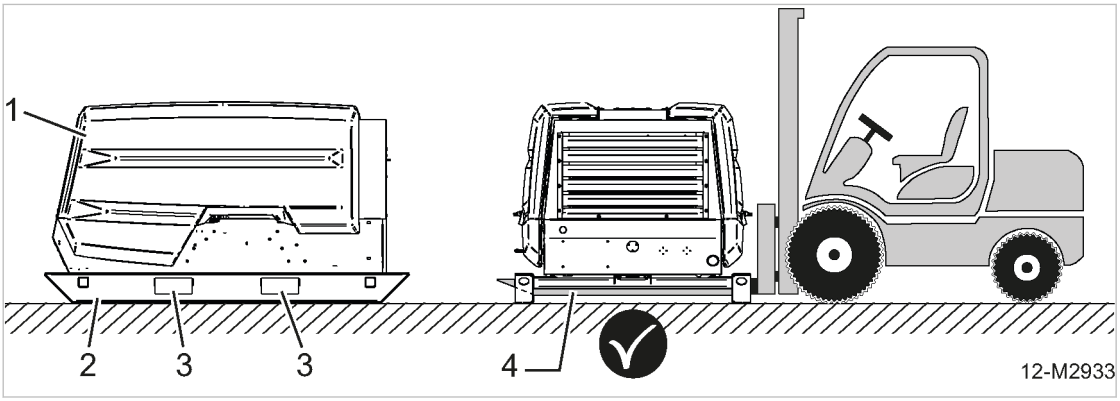


Fig. 101 Ensure both fork prongs are positioned under the machine

[1] Transverse side
[2] Optional skids
[3] Lifting lugs
[4] Machine with fork prongs correctly positioned

Precondition The machine is parked on even ground.

1. Close and lock both doors of the machine.
2. Position the forklift at the transverse side of the machine, facing the lifting lugs.
3. Align the fork prongs with the lifting lugs on the machine.
4. Carefully drive the full length of the fork prongs into the lifting lugs on the skids.

Result The fork prongs are correctly positioned under the machine.

12.2.3.4 Lifting the machine

The lift mast remains vertical throughout the lifting procedure. Once the load has been lifted, the lift mast will be inclined in the direction of the arrow.

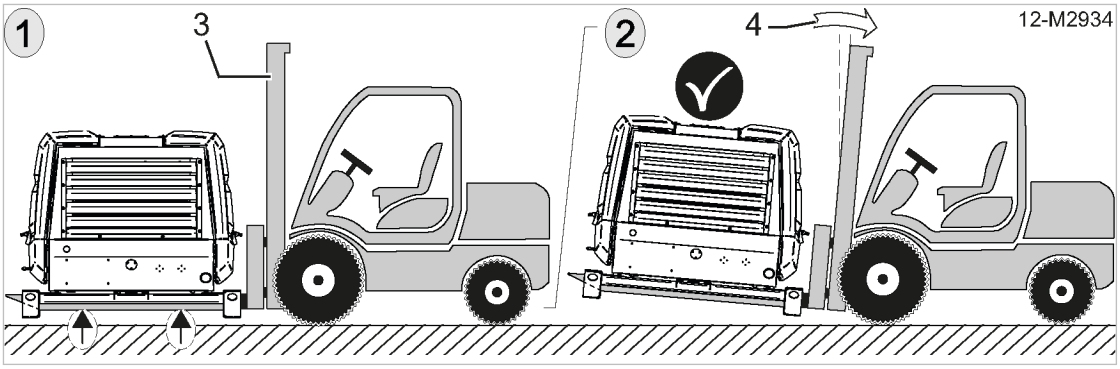


Fig. 102 Lifting the machine with a forklift

[1] Lifting the load
[2] Inclining the lift mast
[3] Lift mast
[4] Direction of arrow

Precondition The fork prongs are correctly positioned under the machine.

1. Lift the machine carefully.
2. Incline the lift mast in the direction of the arrow [4].

Result The machine is resting completely on the two fork prongs,
the specified transport height (minimum ground clearance) for horizontal transport has been reached.

Inclining the lift mast provides the optimum centre of gravity for forklift and load,
thereby increasing the stability of the forklift.

Inclining the load also serves to prevent it from sliding along the fork prongs under braking.

12.2.3.5 Transporting the machine

Example:

- The machine is being unloaded from a loading ramp/HGV loading bed.
- The unloaded machine will be transported from Point A to Point B.

Precondition The machine has been unloaded and is resting on the fork prongs.

The fork prongs are elevated, see Fig. 103.

NOTICE
The machine falls off the elevated fork prongs during transportation!
Severe damage to the machine.

- ➢ Driving with a raised load is prohibited.
- ➢ After unloading from the loading ramp/HGV loading bed, the fork carriage must be lowered immediately.

Option rw

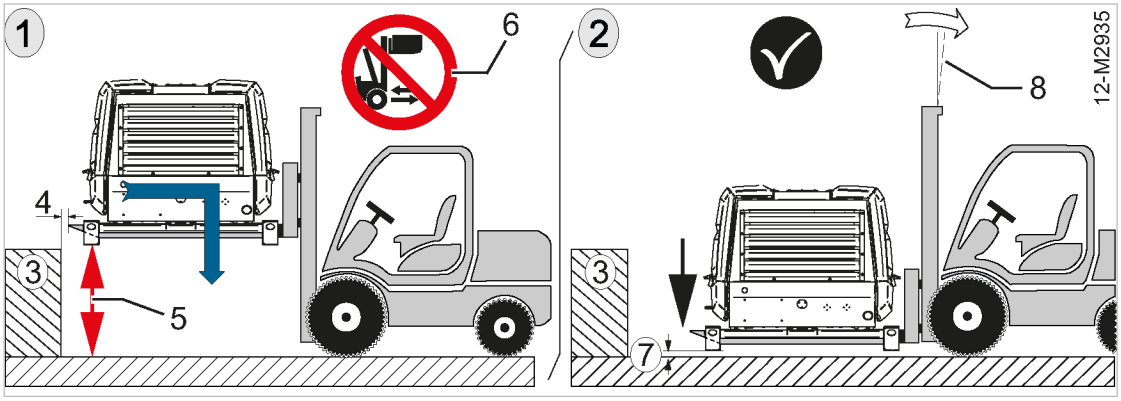


Fig. 103 Example: Transporting a machine by forklift

1. Lifting the machine from the loading ramp/HGV loading bed
2. Lowering the machine for horizontal transportation
3. Loading ramp/HGV loading bed
4. Loading sill clearance
5. Incorrect transport height
6. Prohibition sign “Driving with a raised load”
7. Correct transport height
8. Incline the lift mast in the direction of the arrow

1. Carefully reverse the forklift with the raised machine away from the loading ramp/HGV loading bed.
2. As soon as the specified horizontal clearance from the loading sill 4 has been reached, apply the brakes on the forklift.
   Forklift comes to a standstill.
3. Lower the fork carriage.
   Specified transport height (minimum ground clearance) is reached.
4. Incline the lift mast in the direction of the arrow.
5. Transport the machine at the specified transport height and with inclined lift mast from Point A to Point B.

12.2.3.6 Lowering the machine

Precondition The forklift has arrived at Point B with the machine raised to the specified transport height

1. Carefully apply the brakes.
   Forklift comes to a standstill.
2. Return the lift mast to the vertical position.
3. Lower the fork carriage as slowly as possible, until both fork prongs have vertical clearance inside the lifting lugs.
   The machine is parked on even ground at Point B.
4. Reverse the forklift until both fork prongs are fully withdrawn from the lifting lugs.

12.2.4 Transporting as a load

The type of packing and securing required is determined by the medium of transport. Packing and securing methods must be such that, with proper handling, the goods arrive at their destination in perfect condition.

Always observe the applicable accident and safety regulations during transportation.

- National directives and regulations for the securing of loads during transportation must always be complied with.
- The load must be secured in such a manner that it cannot slide, fall, roll around or cause avoidable noise under emergency braking or sudden turning. Recognised technical regulations should be observed (e.g. in Germany: VDI Directive 2700 ff).
- The driver, owner and carrier are all responsible for proper securing of the load.

Contact KAESER SERVICE with any questions regarding transportation or load securing.

KAESER accepts no liability and provides no warranty for damage arising from improper transportation or insufficient/incorrect load securing provisions.

When transporting machines for the purposes of loans, rentals and trade shows, any transportation safety devices used for the delivery must also be used for the return transport.

Material

Chocks

Stop blocks or squared timbers

Tension belts (bracing)

➢ Follow all instructions carefully.

Further information

Additional measures must be taken for the transportation of machines by sea or air freight. Please contact KAESER SERVICE for more information.

12.2.4.1 Load securing for portable machines

If necessary, attach tension belts or other bracing devices to the lashing points provided.

WARNING

Serious injury or death can result from a machine sliding, tipping over rolling away!

➢ Ensure that tensions belts are of the correct dimensions.

➢ Use squared timbers.

NOTICE

Damage from incorrect bracing!

Forces of movement can damage bodywork and supporting devices on the chassis.

➢ Do not use bracing over the bodywork.

➢ Secure portable machines only via the lashing points provided, see Fig. 105.

➢ Protect the jockey wheel/prop stand on portable machines against overload when lashing.

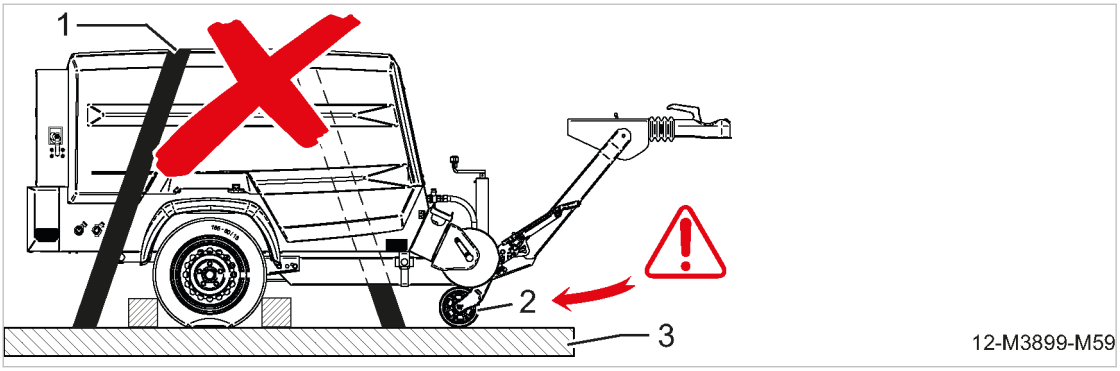


Fig. 104 Example: improper load securing

1 Incorrect bracing
2 Improperly loaded jockey wheel
3 Loading bed

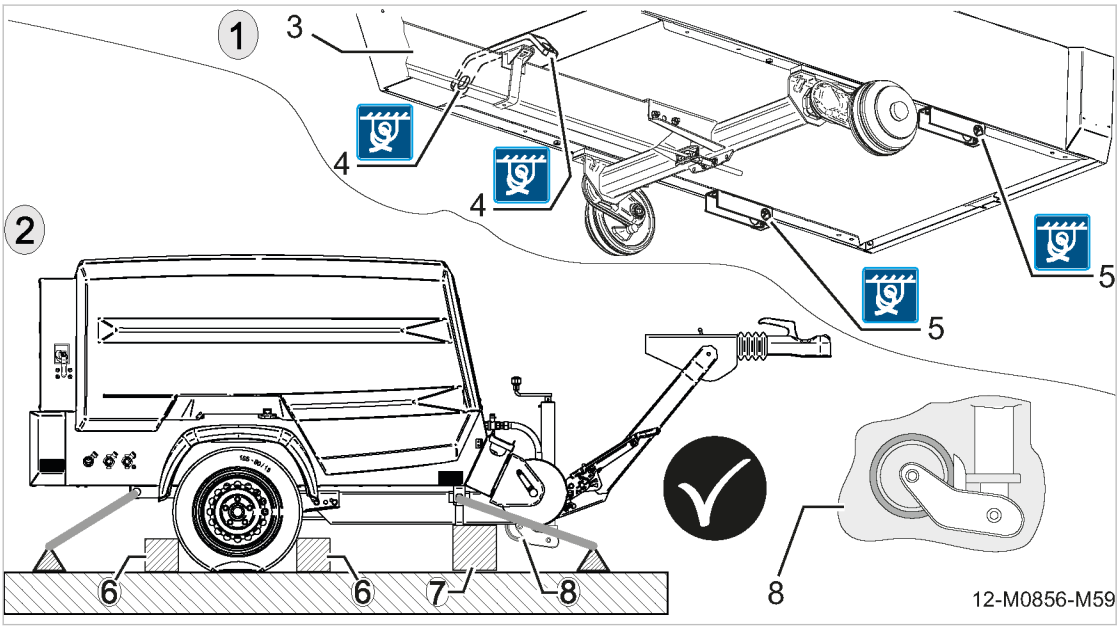


Fig. 105 Example: proper load securing via lashing points provided

1 View, lashing points
2 View, correct bracing
3 Drawbar tube
4 Lashing point, front
5 Lashing point, rear
6 Squared timber
7 Squared timber
8 Properly relieved jockey wheel

1. Placing the machine on the loading bed.
2. Crank the jockey wheel/prop stand inner tube in/out until the machine is standing level.
3. Position a squared timber 6 in front of and behind the wheels to secure portable machines against rolling away.
4. Position a suitable squared timber 7 by the jockey wheel/prop stand beneath the drawbar tube, so as to protect against overloading.
5. Crank in the inner tube of the jockey wheel/prop stand until it stops.
6. Lash the machine down properly with all the tension belts.

Result The lashing forces from the forward lashing points act on the drawbar tube and the squared timber 7.

The jockey wheel/prop stand is relieved.

The portable machine is secured against sliding, tipping over and rolling away for transportation as a load.

12.2.4.2 Load securing for stationary machines

If necessary, attach tension belts or other bracing devices to the lashing points provided.

WARNING
Serious injury or death can result from a machine sliding or tipping over!

➢ Ensure that tensions belts are of the correct dimensions.

NOTICE
Bracing can damage the bodywork!
Forces of movement during transportation can cause damage to the bodywork.

➢ Under no circumstances should the lashing points be used as crane lifting points.

➢ Do not use bracing over the bodywork.

➢ Secure stationary machines equipped with skids or mounts only via the skids or the lashing points provided, see Fig. 106.

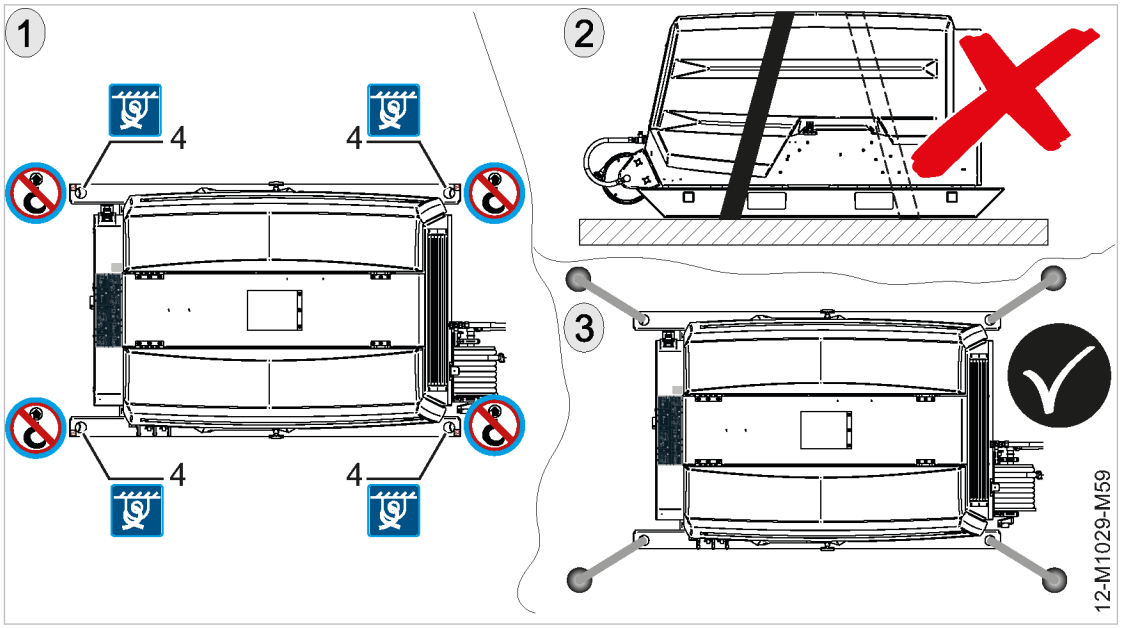


Fig. 106 Bracing as load securing (machine in stationary configuration)

[1] Lashing points
[2] Incorrect bracing
[3] Correct bracing
[4] Lashing points

➢ Lash the machine down properly with all the tension belts.

Result The stationary machine is secured against sliding and tipping over for transportation as a load.

12.2.4.3 To be noted before shipment as air freight

The machine is designated as hazardous goods for the purposes of air freight; non-compliance can result in heavy fines!



1. **WARNING!**
   Danger of fire or explosion from operating fluids/materials!
   The machine is equipped with an internal combustion engine.
   ➢ Any dangerous fluids/materials contained within the machine must be removed before transport by air.
2. Remove all dangerous fluids/materials.
   These include:
   - Residues of fuel or fuel vapours.
   - Lubricants in the engine and compressor.
   - Electrolyte in rechargeable batteries.

12.3 Storage

Moisture can lead to corrosion, particularly in the engine, airend and oil separator tank.

Frozen moisture can damage components, valve diaphragms and gaskets.

The following measures also apply to machines not yet commissioned.



Please consult with KAESER if you have questions to the appropriate storage and commissioning.



NOTICE
Moisture and frost can damage the machine!
➢ Prevent ingress of moisture and formation of condensation.
➢ Maintain a storage temperature of >0 °C.

➢ Store the machine in a dry place, free from frost if possible.

12.4 Disposal



To dispose of the machine in accordance with environmental regulations, all batteries must be removed and delivered to a designated disposal system. Substances that are harmful to living things and the environment can thus be removed and disposed of efficiently or reprocessed. In particular, this procedure facilitates the recycling of batteries.

All operating fluids in the machine must be drained and disposed of in accordance with environmental regulations. All components contaminated with operating fluids must be removed and disposed of in accordance with environmental regulations.

Any residual quantities of condensate must be drained and disposed of in accordance with environmental regulations.

Once these conditions have been fulfilled, deliver the machine to an authorised disposal agent.

Overview:

- Remove all batteries.
- Drain all operating fluids.
- Drain the condensate.

- Remove used filters/filter elements.
- Deliver the machine to an authorised disposal agent.

➢ Follow all instructions carefully.

12.4.1 Removing the batteries

Overview:

- Remove the batteries
- Dispose of batteries in accordance with environmental regulations

1. Observe the safety instructions for handling batteries.
2. Observe the safety signs on the battery.

Further information When handling batteries, observe the specific safety rules and safety signs, see chapter 10.4.10.

➢ Remove all starter batteries from the internal combustion engine.

Disposing of batteries in accordance with environmental regulations:

Batteries contain substances that are harmful to living things and the environment. For this reason, batteries must not be disposed of with unsorted municipal waste. They must be delivered to the national battery collection system. This procedure facilitates the handling and recycling of batteries.

In EU member states, used batteries must be returned to the point of sale or to a disposal system (free of charge) in accordance with Directive 2006/66/EC. Disposal facilities may be local recycling centres for used electrical devices and electronic waste, or the original points of sale.



Fig. 107 Battery labelling

[1] Do not dispose of battery with municipal waste
[2] Battery contains lead (if applicable)

1. Observe national disposal regulations!
2. Deliver batteries to the designated disposal system.

You actively contribute to the protection of the environment when you take used batteries to the designated disposal system.

12.4.2 Draining operating fluids

Material Receptacle

Cleaning cloth

To prevent it from accidentally igniting, always drain the fuel when working on the interior of the machine.

1. Drain and collect the following operating fluids from your machine.

Designation	Engine	Compressor
Fluid	Fuel	Cooling oil
	Engine oil	Transmission oil
	Coolant	Hydraulic oil
	Reduction agent additive from the exhaust gas after-treatment system	—

Tab. 133 Machine fluids

2. Drain and collect the following operating fluids from the options specified on your machine.

Designation	Low-temperature version option
Operating fluid	Antifreeze from the defroster

Tab. 134 Machine option fluids



Dispose of operating fluids and working materials and components contaminated with them in accordance with applicable environmental protection regulations.

12.4.3 Draining condensate

Material Receptacle
Cleaning cloth

1. Check compressed air options with condensate separation.
2. Drain and collect any residual quantities of condensate.



Dispose of any residual quantities of condensate and contaminated working materials in accordance with applicable environmental protection regulations.

12.4.4 Removing filters/filter elements

Material Cleaning cloth
Receptacle

1. Remove all filters/filter elements from the machine.

Designation	Engine	Compressor
Filters/filter elements	Oil filter	Oil filter
	Engine oil separator element	Oil separator cartridge
	Filter/filter element, fuel prefilter	—
	Fuel filter	—
	Filter/filter element, fuel/water separator	—

Tab. 135 Machine filters/filter elements

2. Remove all filters/filter elements from the options specified on the machine.

Designation	Filter combination option	Fresh air filter option
Filters/filter elements	Prefilter	Adsorption filter element
	Fine filter	High-performance filter element

Tab. 136 Machine option filters/filter elements



Dispose of working materials and components contaminated with operating fluids in accordance with applicable environmental protection regulations.

12.4.5 Disposing of the machine

Precondition All batteries have been removed and delivered to the designated disposal system.

All operating fluids have been drained and disposed of in accordance with applicable environmental regulations.

Any residual quantities of condensate have been drained and disposed of in accordance with applicable environmental regulations.

All used filters/filter elements have been removed and disposed of in accordance with applicable environmental regulations.

➢ Deliver the machine to an authorised disposal agent.

13 Annex

13.1 Identification

13.1.1 Identification of the machine

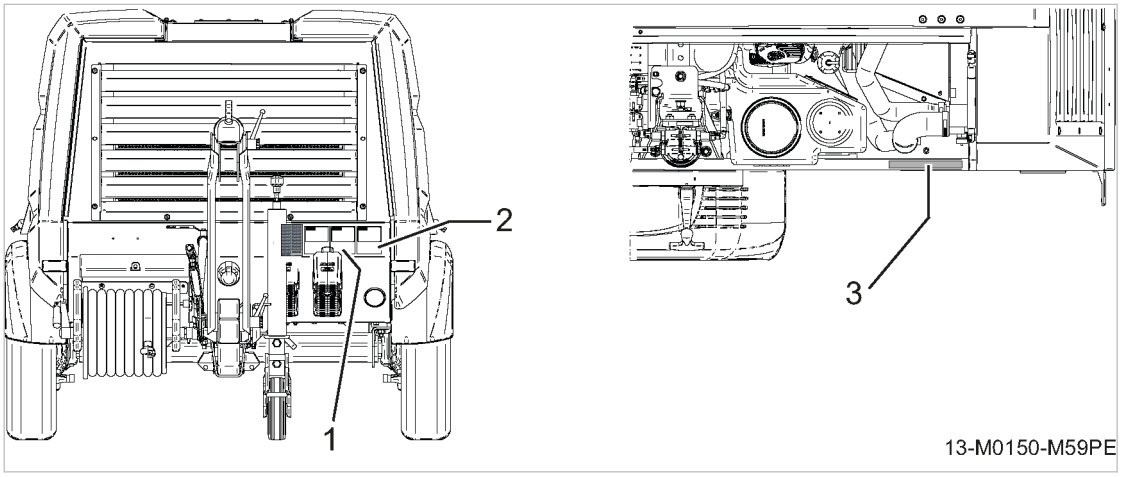


Fig. 108 Identification of the machine

1 Options label
2 Machine nameplate with unit serial number
3 VIN number *) (stamped on the bodywork)
* Vehicle identification number

13.1.2 Identification of the drive engine

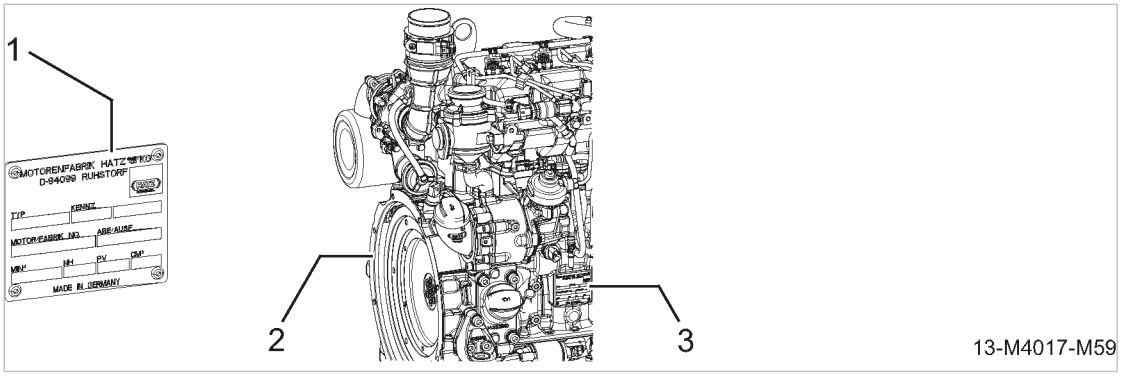
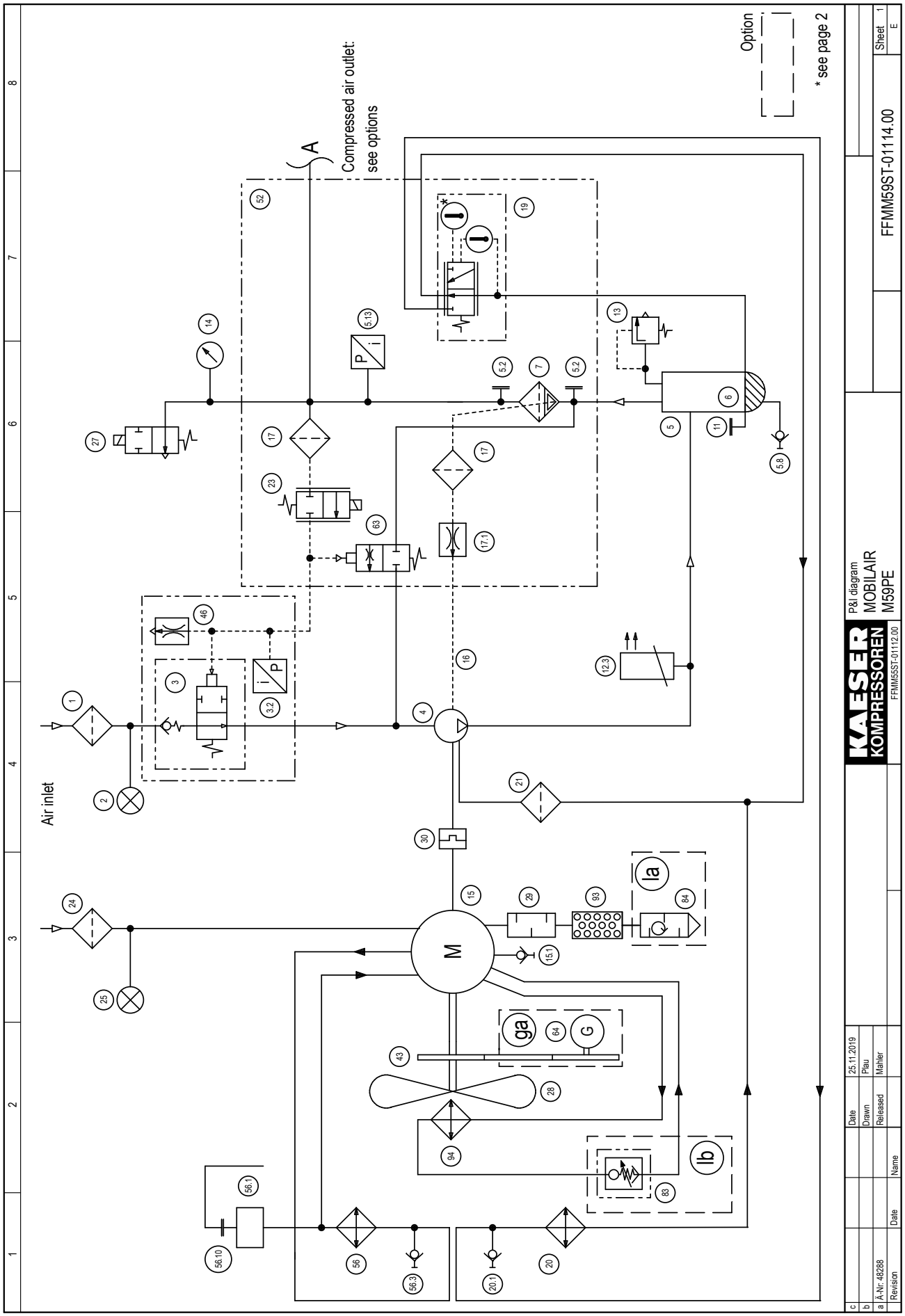


Fig. 109 Identification of the drive engine

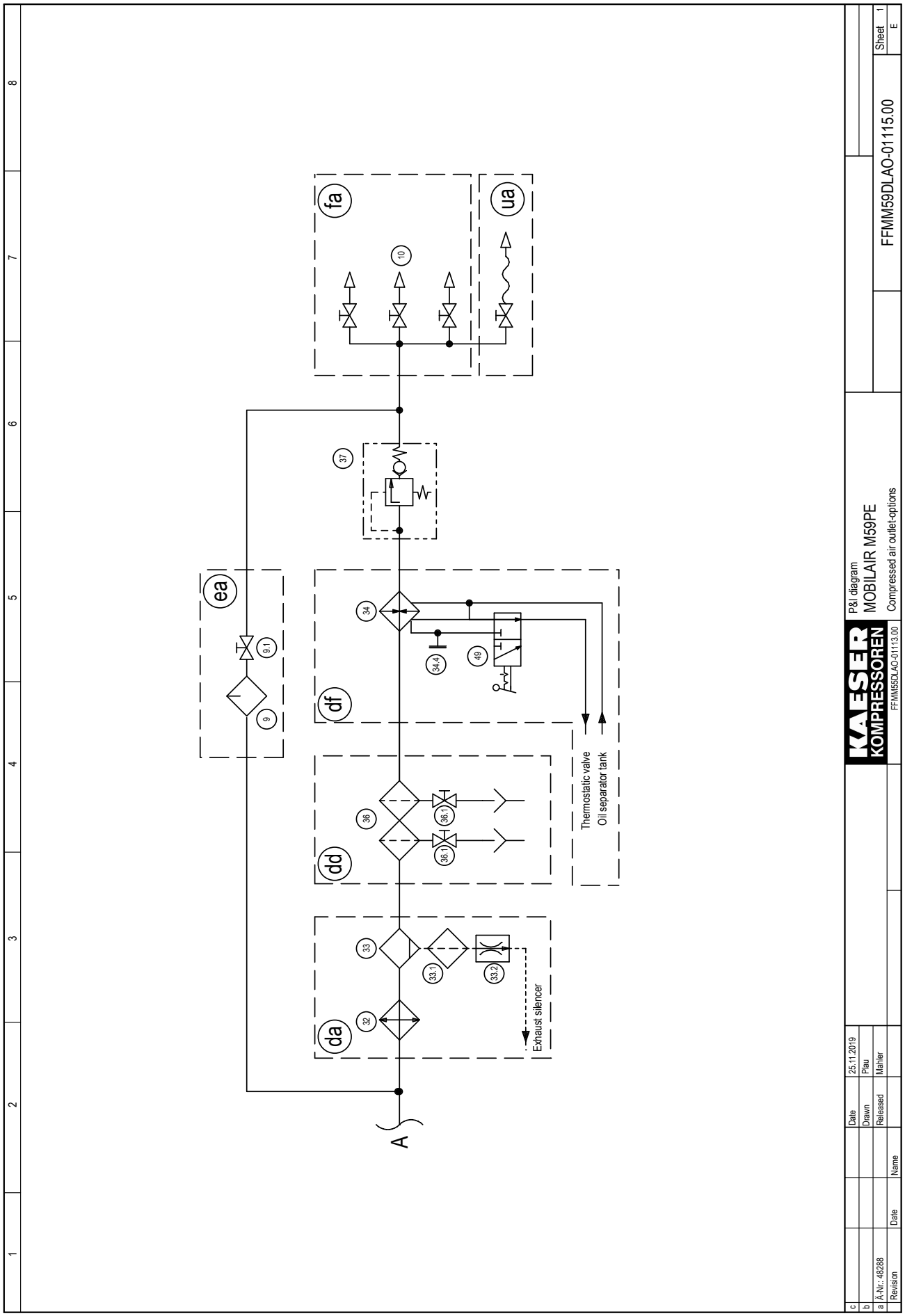
1 Engine nameplate with engine serial number
2 Engine
3 Motor nameplate position

13.2 Pipeline and instrument flow diagram (P+I diagram)


Option
* see page 2
Compressed air outlet:
see options
A
Air inlet
M
la
lb
ga
G
P/i
i/P
FFMM59ST-01114.00
P&I diagram
MOBILAIR
M59PE
KAESER KOMPRESSOREN
FRMM55ST-01112.00
Sheet 1
E
Date
Drawn
Released
Name
25.11.2019
Plau
Mahler
A-Nr. 48288
Revision

1	Compressor - Air filter
2	Maintenance indicator, Compressor - Air filter
3	Inlet valve
3.2	Pressure transducer - Control pressure
4	Rotary screw airend
5	Oil separator tank
5.2	Screw plug
5.8	Hose coupling - Oil drain device
5.13	Pressure transducer - Internal pressure
6	Oil reserve
7	Oil separator cartridge
11	Oil filler port with plug
12.3	Sensor - Airend discharge temperature
13	Safety valve
14	Pressure gauge Compressed air - Control panel
15	Diesel engine
15.1	Hose coupling - Oil drain device
16	Oil return line
17	Dirt trap
17.1	Nozzle
19	Thermostatic valve
20	Oil cooler
20.1	Hose coupling - Oil drain device
21	Oil filter
23	Electric proportional controller
24	Motor - Air filter
25	Maintenance indicator, Motor - Air filter
27	Venting valve
28	Fan
29	Exhaust gas after-treatment with diesel oxidation catalyst
30	Coupling
43	V-belt
46	Nozzle (Secondary side Proportional controller)
52	Control valve
56	Coolant cooler
56.1	Coolant expansion tank
56.3	Hose coupling - Coolant drain device
56.10	Coolant filler with screw plug and overpressure valve
63	Regulating valve (Recirculation valve)
64	Generator
83	Engine air shut-off valve (automatic shut-off)
84	Spark arrestor
93	Regulating valve (Diesel particulate filter)
94	Charge air cooler
Option	
ga	Generator
la	Spark arrestor
lb	Spark arrestor + Engine air shut-off valve (automatic shut-off)
*	only with the heat exchanger option or without compressed air treatment

c				Date	25.11.2019		P&I diagram legend		
b				Drawn	Plau	KAESER KOMPRESSOREN	MOBILAIR M59PE		
a				Released	Mahler				
	Revision	Date	Name			FFMM55ST-01112.00		FFMM59ST-01114.00	Sheet 2 E


fa
ua
ea
df
dd
da
10
37
34
34.4
49
9.1
9
36
36.1
33
33.1
33.2
32
A
Thermostatic valve
Oil separator tank
Exhaust silencer
P&I diagram
MOBILAIR M59PE
Compressed air outlet-options
FFMM59DLAO-01115.00
Sheet 1
E
KAESER KOMPRESSOREN
FFMM55DLAO-01113.00
Date 25.11.2019
Drawn Plau
Released Mahler
Name
Date
A-Nr.: 48288
Revision

1	2	3	4	5	6	7	8

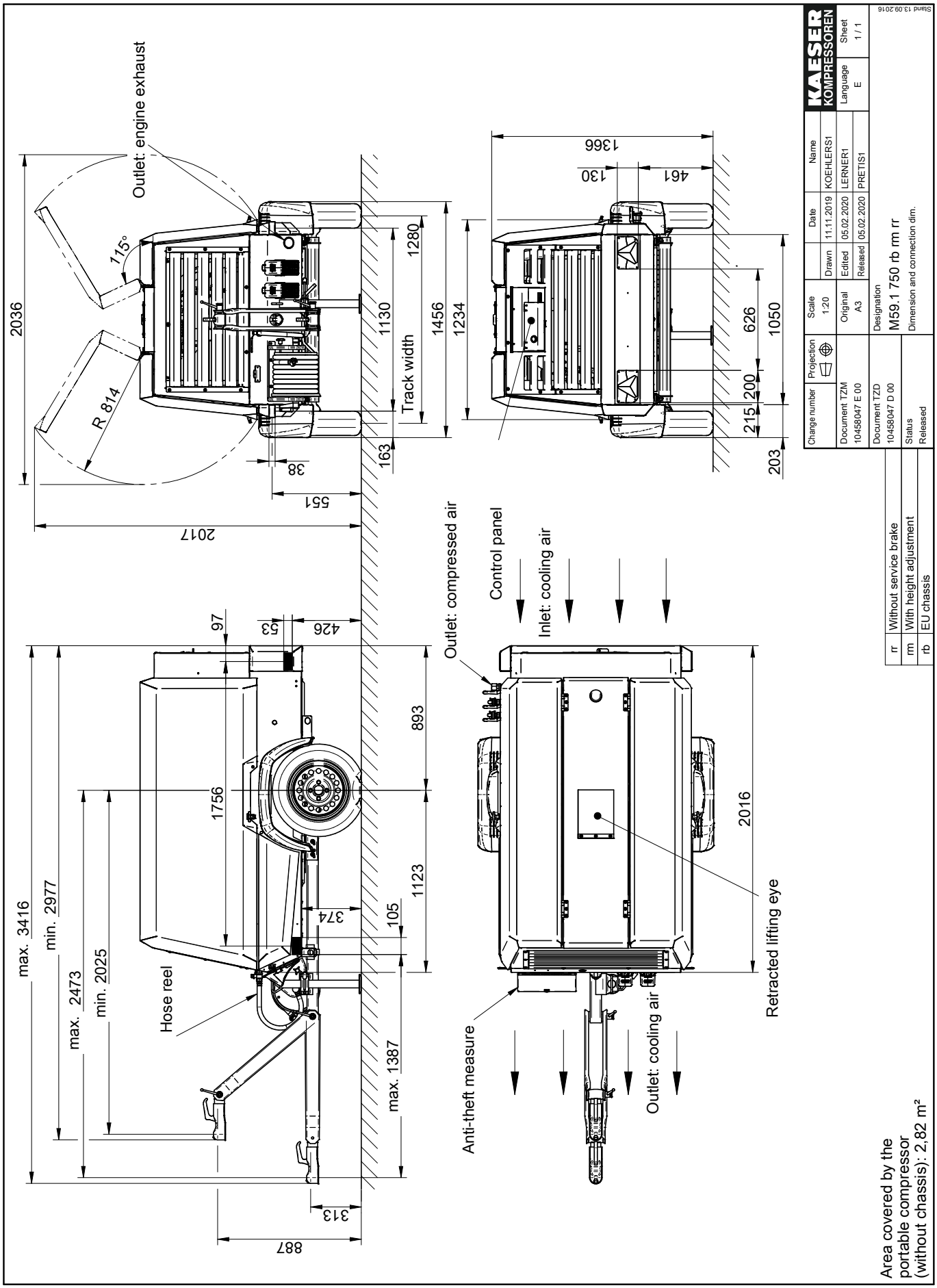
9	Tool lubricator	37	Minimum pressure check valve
9.1	Shut-off valve	49	Directional control valve
10	Air distributor		
32	Compressed air cooler	Option	
33	Centrifugal separator	da	Compressed air aftercooler + Centrifugal separator
33.1	Dirt trap	dd	Filter combination
33.2	Nozzle	df	Heat exchanger with bypass
34	Heat exchanger	ea	Tool lubricator, with option fa
34.4	Screw plug - Oil drain device	fa	Direct air flow
36	Filter combination	ua	Hose reel
36.1	Condensate drain shut-off valve		

c				Date	25.11.2019	KAESER KOMPRESSOREN	P&I diagram legend		
b				Drawn	Plau		MOBILAIR M59PE		
a				Released	Mahler		Compressed air outlet-options	FFMM59DLAO-01115.00	Sheet 2
	Revision	Date	Name			FFMM55DLAO-01113.00			E

13.3 Dimensional drawings

13.3.1 Option rb/rm/rr Dimensional drawing – chassis

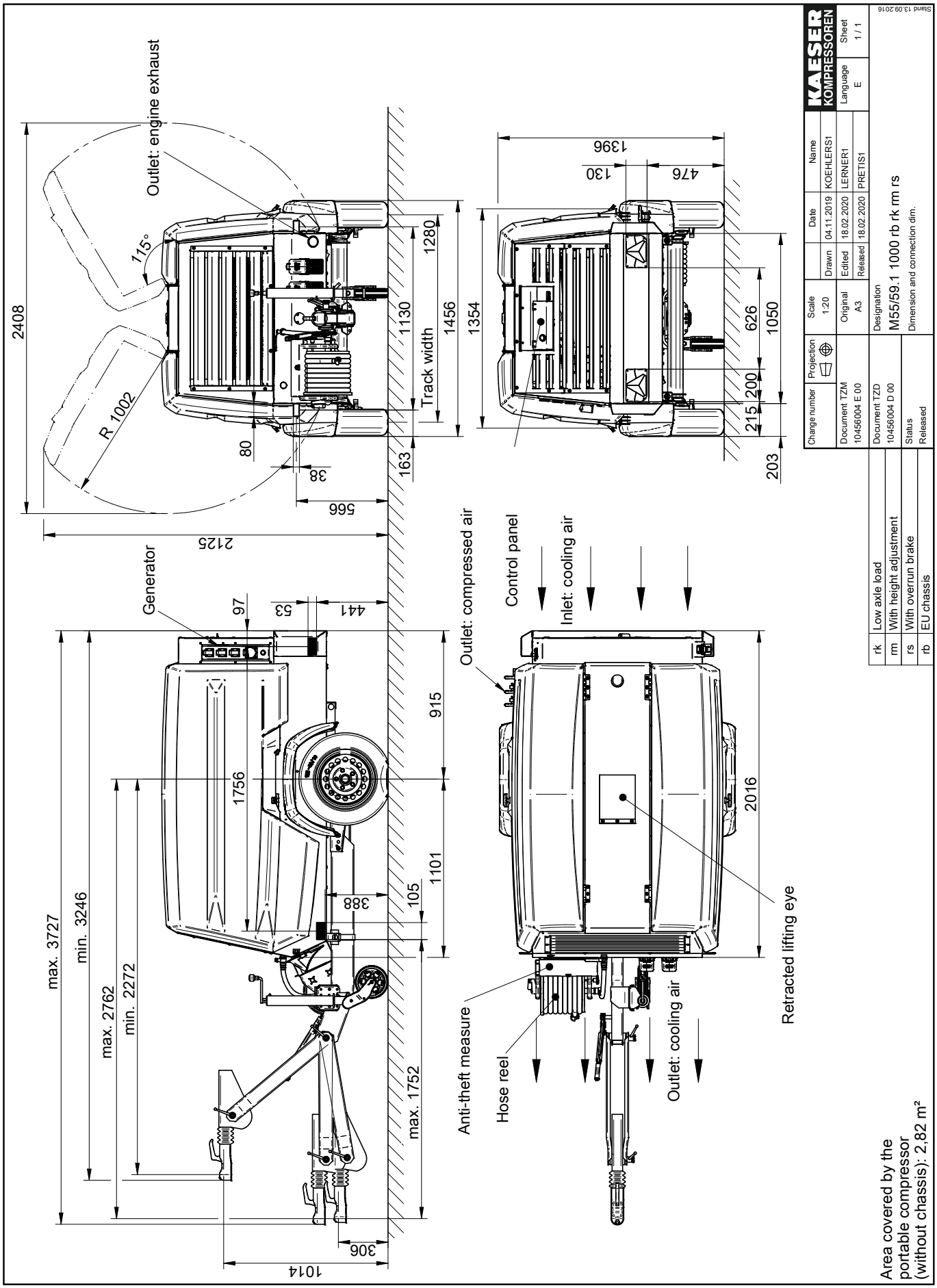
- Option rb - chassis EU version
- Option rm - Chassis with height adjustment
- Option rr - Chassis without service brake



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Subject to development-related changes.
Drawing may be altered only via CAD.

13.3.2 Option rb/rk/rm/rs Dimensional drawing – chassis

- Option rb - chassis EU version
- Option rk - Chassis with low axle load
- Option rm - Chassis with height adjustment
- Option rs - Chassis with overrun brake



Change number	Projection	Scale		Date	Name
		1:20	Drawn	04.11.2019	KOEHLERS1
Document TZM 10456004 E 00		Original A3	Edited	18.02.2020	LERNER1
			Released	18.02.2020	PRETIS1

KAESER KOMPRESSOREN — Language E — Sheet 1 / 1

Designation: M55/59.1 1000 rb rk rm rs
Dimension and connection dim.

Stand 13.09.2016

	Low axle load
rk	Low axle load
rm	With height adjustment
rs	With overrun brake
rb	EU chassis

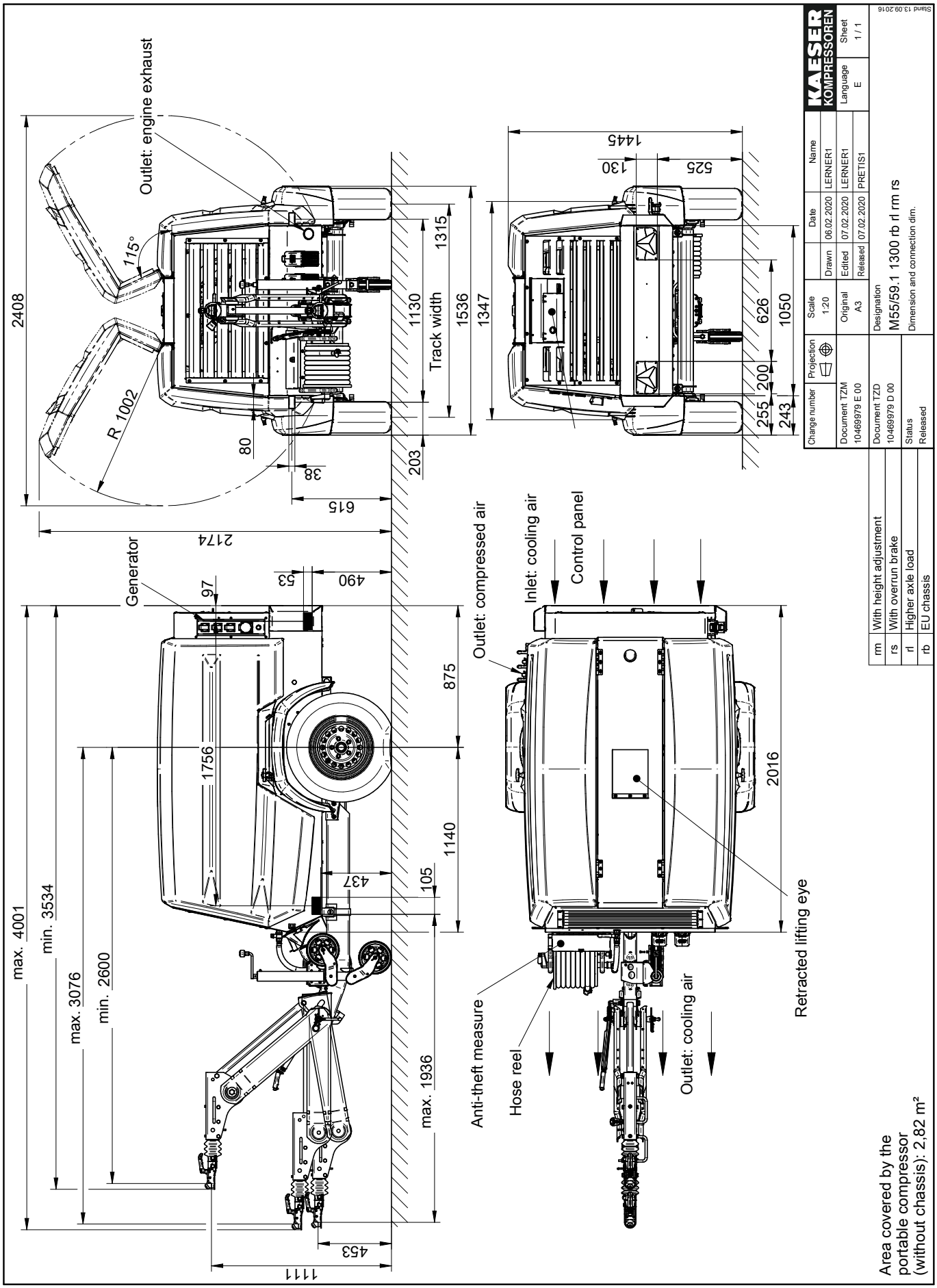
Document TZD	Status
10456004 D 00	Released

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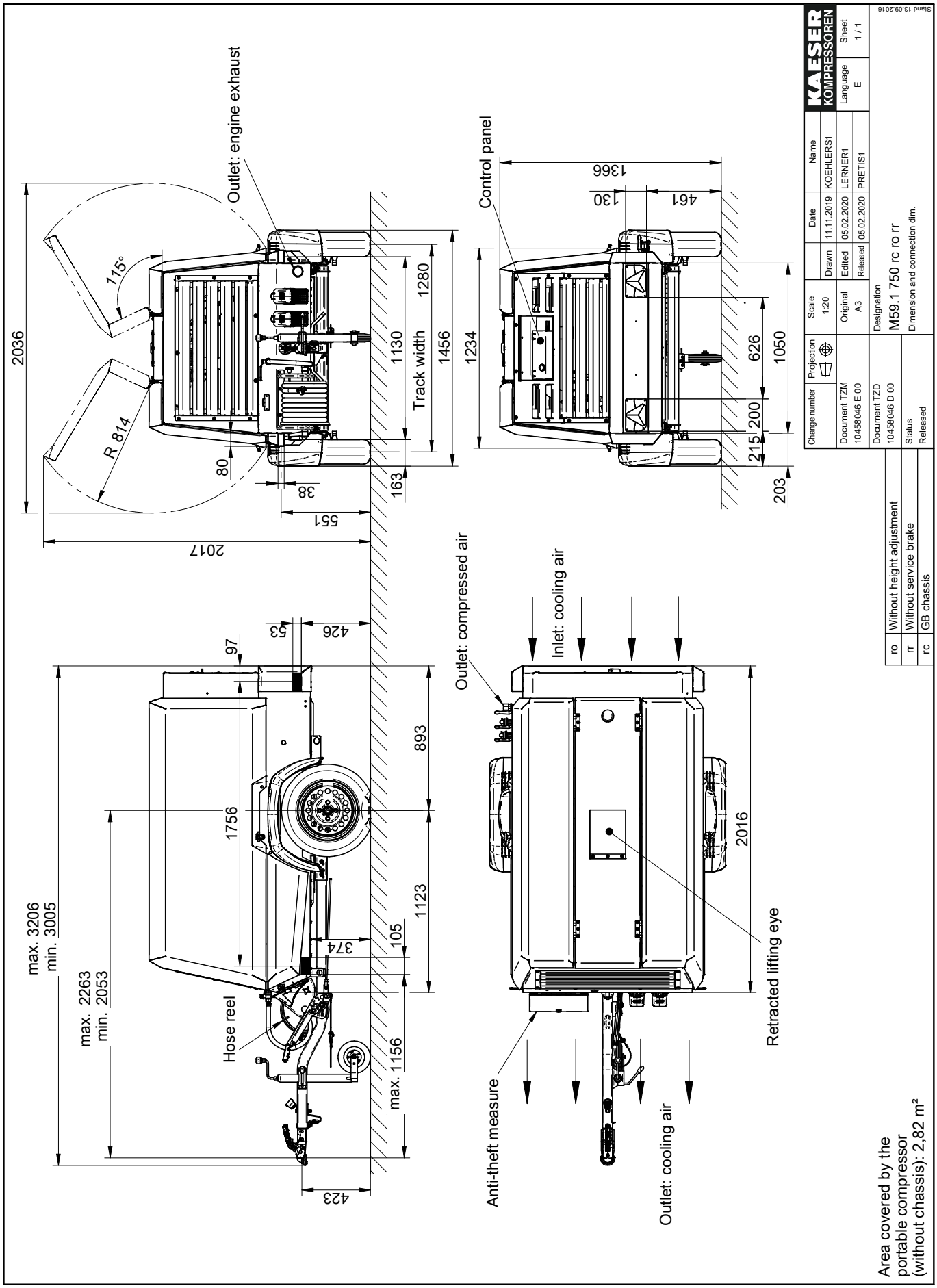
13.3.3 Option rb/rl/rm/rs Dimensional drawing – chassis

- Option rb - chassis EU version
- Option rl - Chassis with higher axle load
- Option rm - Chassis with height adjustment
- Option rs - Chassis with overrun brake


Outlet: engine exhaust
115°
R 1002
2408
2174
615
80
38
203
1130
1315
Track width
1536
1347
1445
130
525
626
1050
200
255
243
Generator
97
53
490
875
1756
1140
437
105
max. 4001
min. 3534
max. 3076
min. 2600
max. 1936
453
1111
Outlet: compressed air
Inlet: cooling air
Control panel
2016
Retracted lifting eye
Anti-theft measure
Hose reel
Outlet: cooling air
Area covered by the portable compressor (without chassis): 2,82 m²
Stand 13.09.2016
KAESER KOMPRESSOREN
Change number
Projection
Scale 1:20
Original A3
Drawn 06.02.2020 LERNER1
Edited 07.02.2020 LERNER1
Released 07.02.2020 PRETIS1
Language E
Sheet 1 / 1
Document TZM 10469979 E 00
Document TZD 10469979 D 00
Designation
M55/59.1 1300 rb rl rm rs
Dimension and connection dim.
Status
Released
rm With height adjustment
rs With overrun brake
rl Higher axle load
rb EU chassis
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13.3.4 Option rc/ro/rr
Dimensional drawing – chassis

- Option rc - Chassis, GB type
- Option ro - Chassis without height adjustment
- Option rr - Chassis without service brake



Change number	Projection	Scale		Date	Name
		1:20	Drawn	11.11.2019	KOEHLERS1
Document TZM		Original	Edited	05.02.2020	LERNER1
10458046 E 00		A3	Released	05.02.2020	PRETIS1
Document TZD		Designation			
10458046 D 00		M59.1 750 rc ro rr			
Status		Dimension and connection dim.			
Released					

KAESER KOMPRESSOREN — Language: E — Sheet: 1 / 1

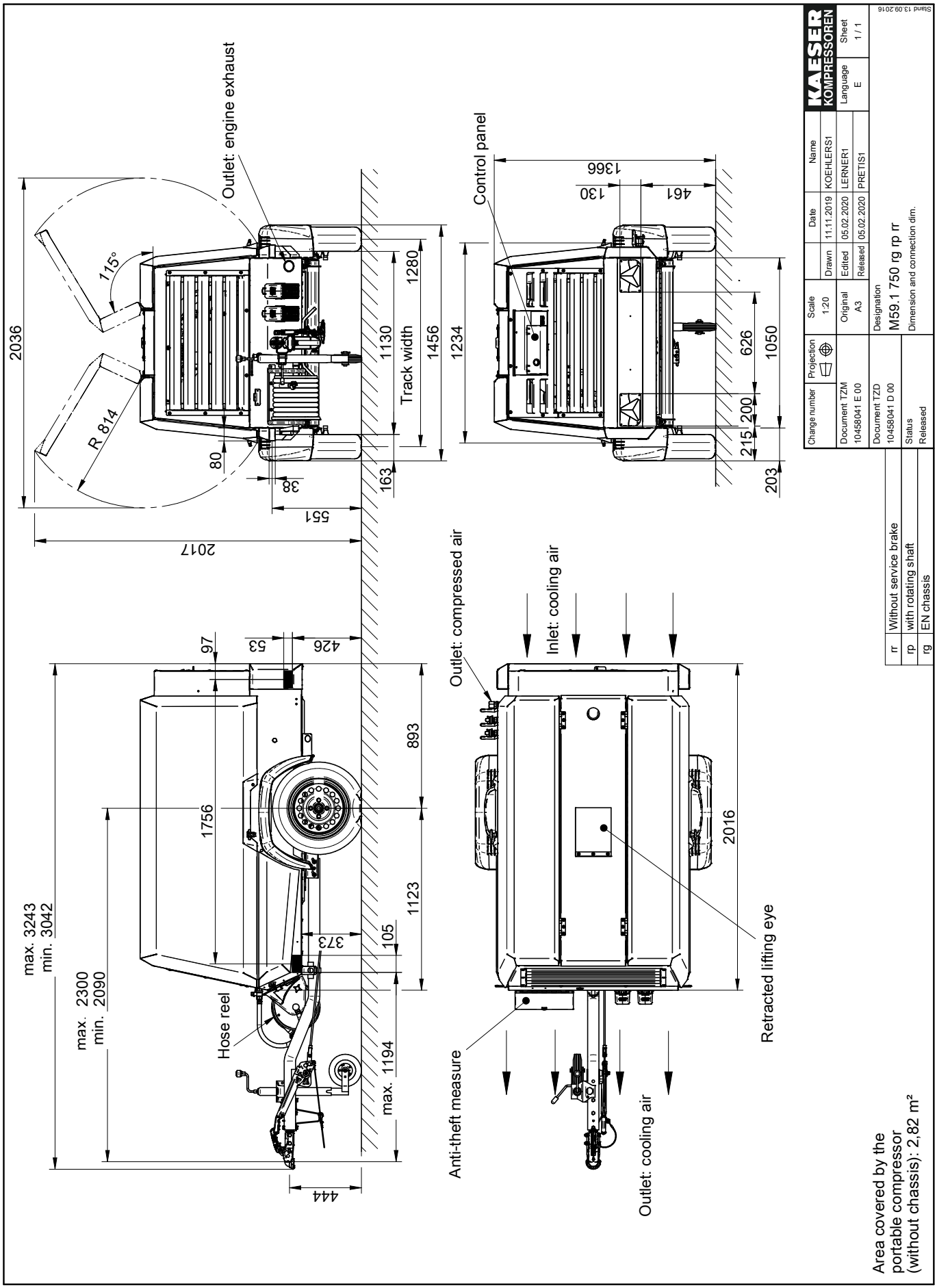
Stand 13.09.2016

ro	Without height adjustment
rr	Without service brake
rc	GB chassis

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13.3.5 Option rg/rp/rr Dimensional drawing – chassis

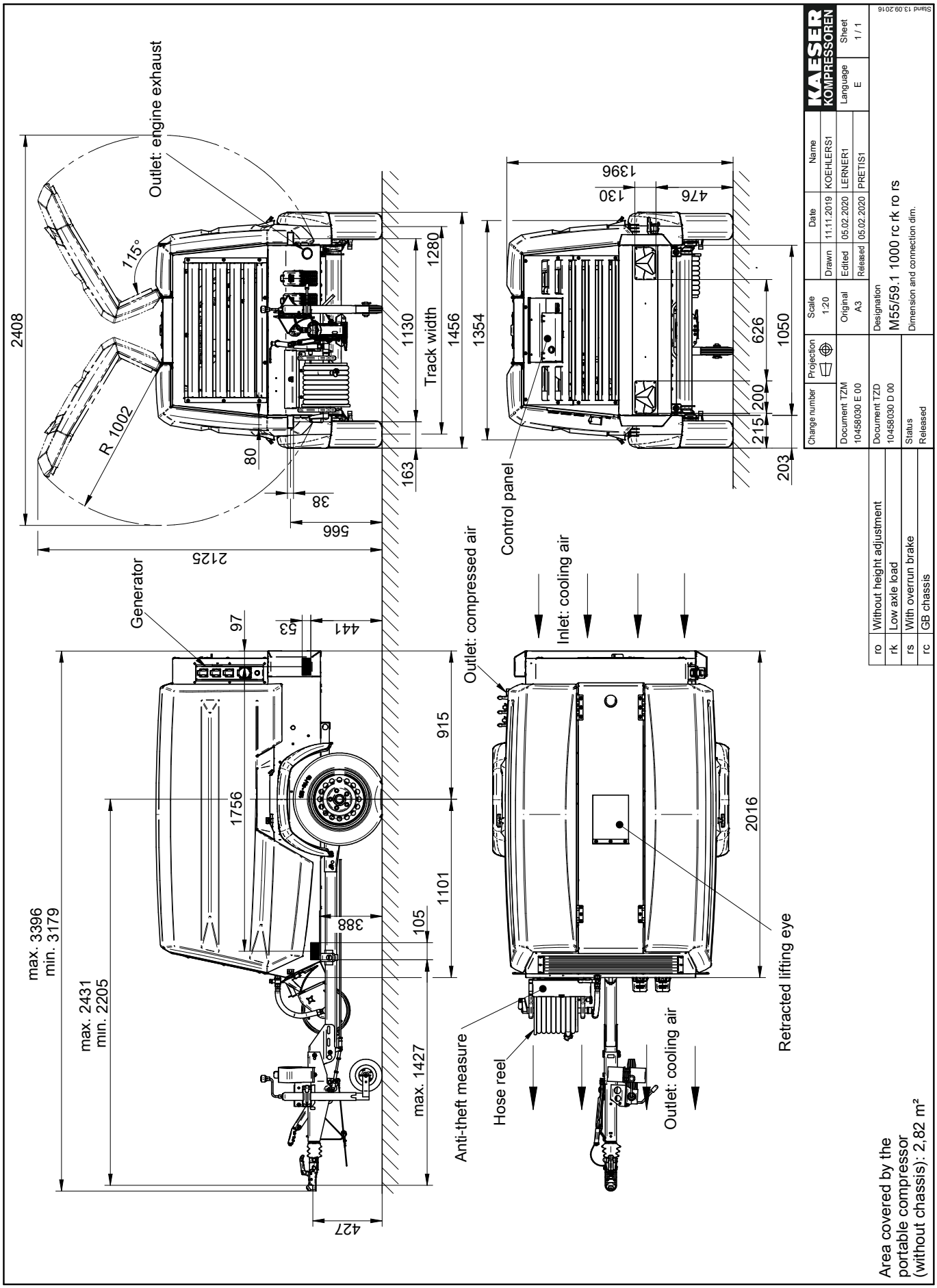
- Option rg - Chassis, GB type
- Option rs - Chassis with anti-twist protection
- Option rr - Chassis without service brake



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13.3.6 Option rc/rk/ro/rs Dimensional drawing – chassis

- Option rc - Chassis, GB type
- Option rk - Chassis with low axle load
- Option ro - Chassis without height adjustment
- Option rs - Chassis with overrun brake



Change number	Projection	Scale		Date	Name
		1:20	Drawn	11.11.2019	KOEHLERS1
Document TZM		Original	Edited	05.02.2020	LERNER1
10458030 E 00		A3	Released	05.02.2020	PRETIS1

KAESER KOMPRESSOREN — Language: E — Sheet: 1 / 1

Designation: M55/59.1 1000 rc rk ro rs
Dimension and connection dim.

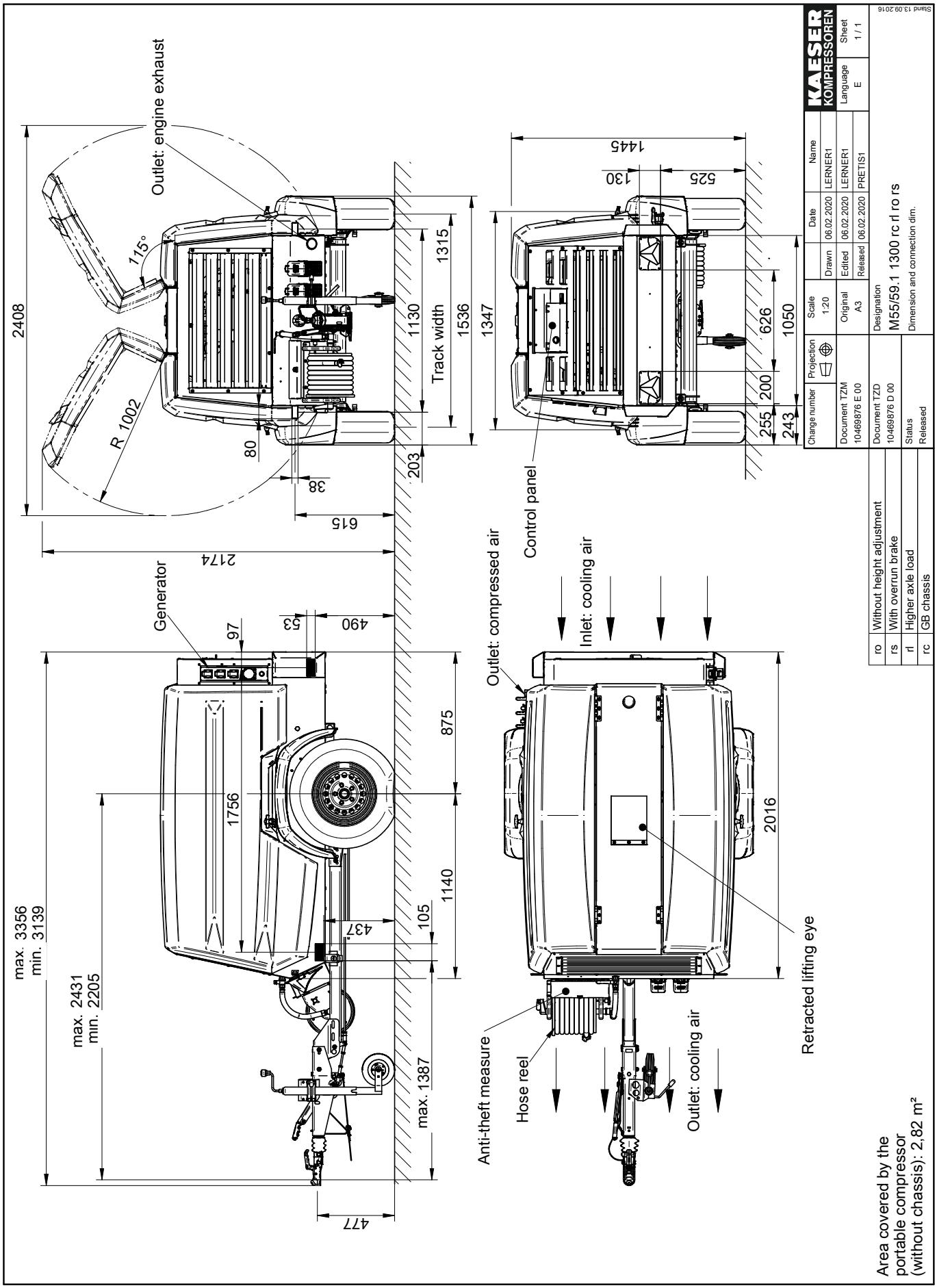
Stand 13.09.2016

	Document TZD	Status
ro	Without height adjustment	
rk	Low axle load	10458030 D 00
rs	With overrun brake	Released
rc	GB chassis	

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13.3.7 Option rc/rl/ro/rs Dimensional drawing – chassis

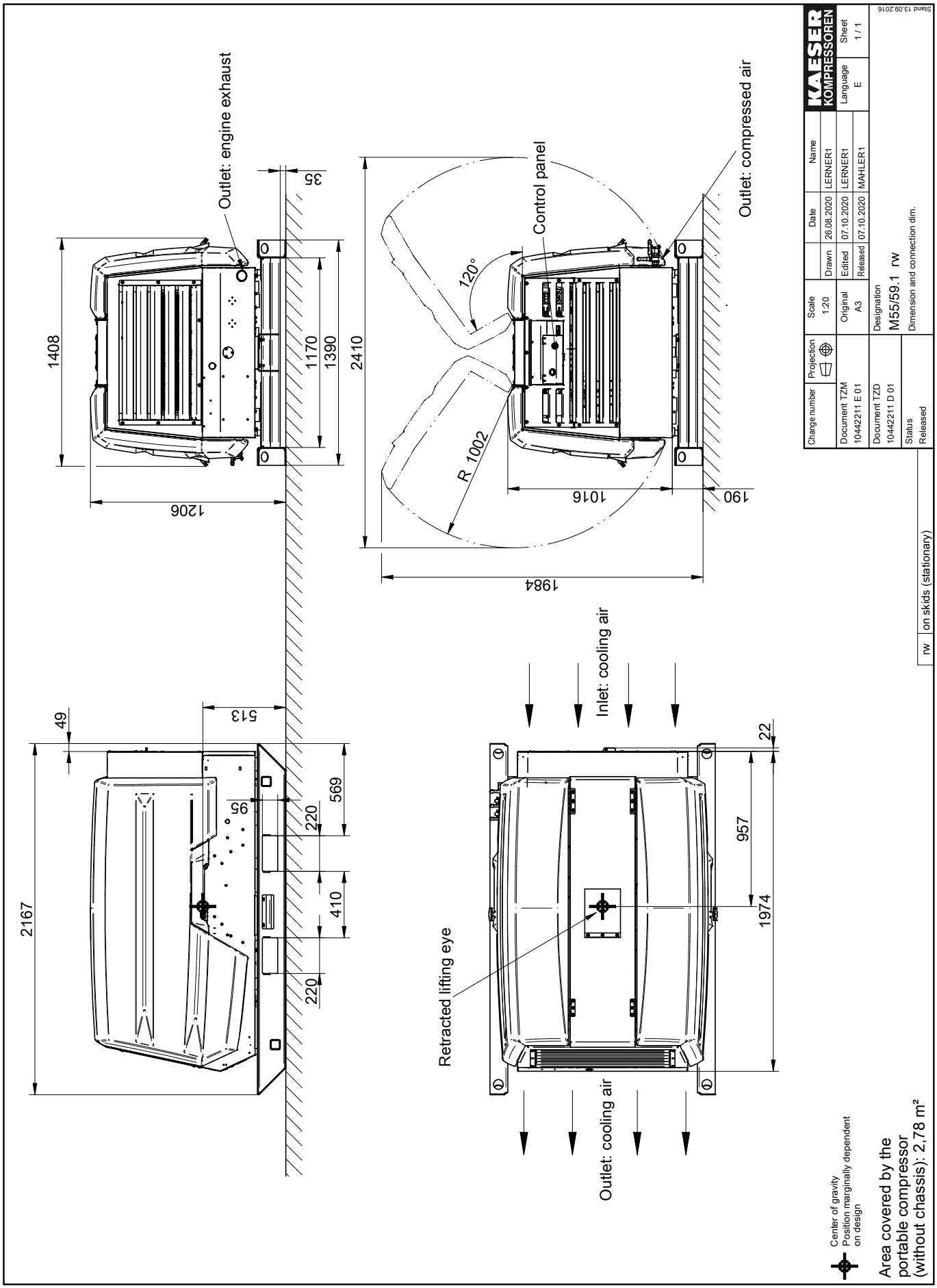
- Option rc - Chassis, GB type
- Option rl - Chassis with higher axle load
- Option ro - Chassis without height adjustment
- Option rs - Chassis with overrun brake



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13.3.8 Option rw
Dimensional drawing, stationary version

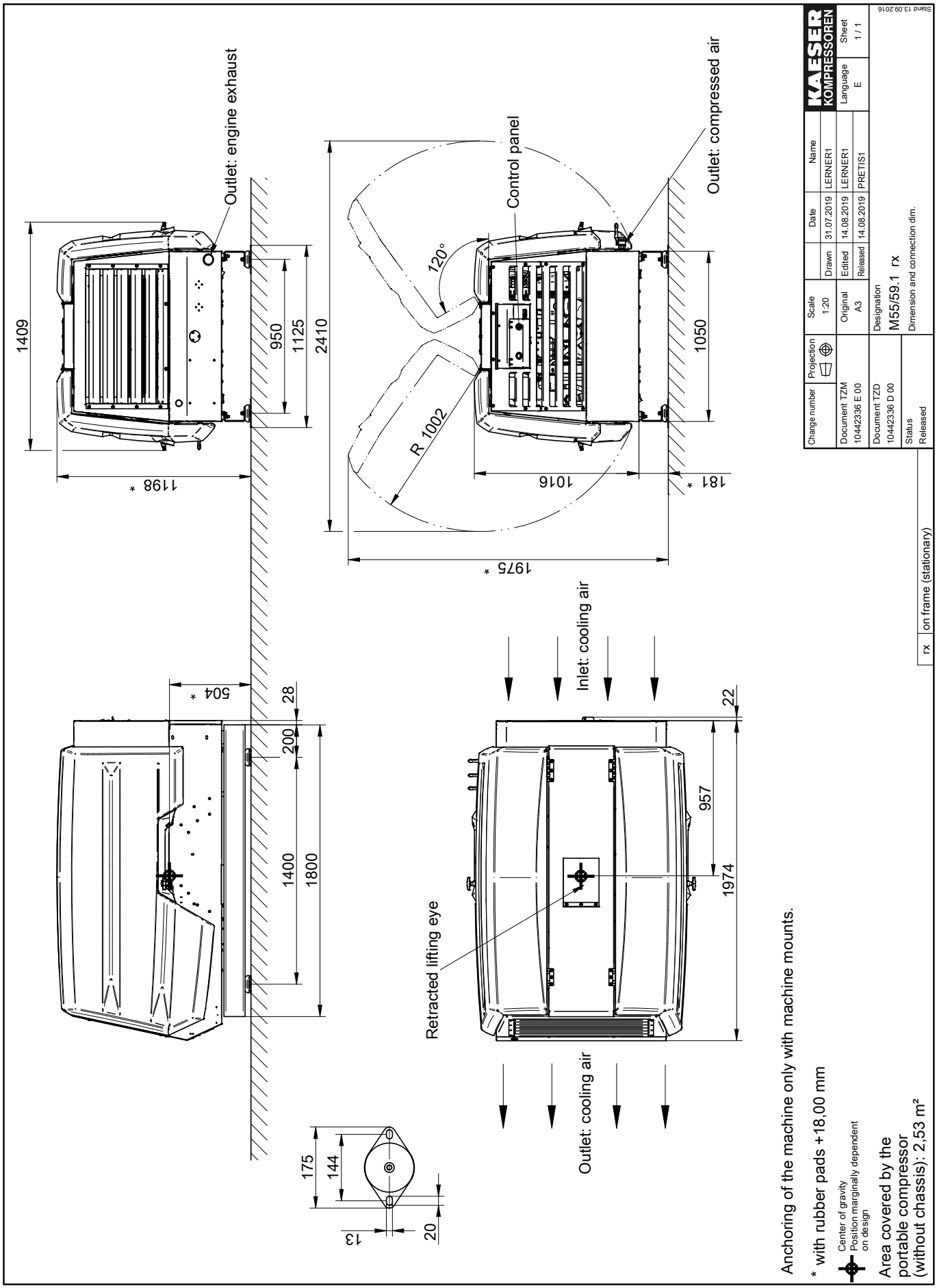
- Option rw - Skid frame on runners



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13.3.9 Option rx
Dimensional drawing, stationary version

- Option rx - Frame



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13.4 Wiring diagrams

13.4.1 Electrical Diagram

Electrical diagrams

MOBILAIR M59 - SCS

HATZ Engine stage V

SIGMA CONTROL SMART

Manufacturer: KAESER KOMPRESSOREN SE
Postfach 2143
96410 Coburg

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c				Date	20.02.2020 E	KAESER KOMPRESSOREN	Cover page MOBILAIR M59	=	
b				Drawn	Sitter			+	
a				Released	Fischer C.			DFA59-03033.00	page 1
A	Change	Date	Name						1 Sht.

Lfd. Nr. No.	Benennung Name		Zeichnungsnummer (Kunde) Drawing No. (customer)	Zeichnungsnummer (Hersteller) Drawing No. (manufacturer)	Blatt Page	Anlagenkennzeichen Unit designation
1	Cover page			DFA59-03033.00	1	
2	List of contents			ZFA59-03033.00	1	
3	Block diagram			UFA59-03033.00	1	
4	Block diagram			UFA59-03033.00	2	
5	Block diagram	cabling		UFA59-03033.00	3	
6	Circuit diagram			SFA59.BK-03033.00	1	=BK
7	Circuit diagram			SFA59.IKM-03033.00	1	=IKM
8	Circuit diagram			SFA59.IKM-03033.00	2	=IKM
9	Circuit diagram			SFA59.IKM-03033.00	3	=IKM
10	Circuit diagram	analogue input building group		SFA59.SK-03033.00	6	=SK
11	Circuit diagram	Control board EMR 4		SFA59.SK-03033.00	8	=SK
12	Circuit diagram			SFA59.SK-03033.00	1	=SK
13	Circuit diagram	analogue input building group		SFA59.SK-03033.00	2	=SK
14	Circuit diagram	analogue input building group		SFA59.SK-03033.00	3	=SK
15	Circuit diagram	analogue input building group		SFA59.SK-03033.00	4	=SK
16	Circuit diagram	Digital output assembly		SFA59.SK-03033.00	5	=SK
17	Circuit diagram			SFA59.SK-03033.00	7	=SK
18	Equipment parts list	Control cabinet		GFA59-03033.00	1	
19	Equipment parts list	Control cabinet/Control panel		GFA59-03033.00	2	
20	Equipment parts list	unit components/model-dependent components		GFA59-03033.00	3	
21	Terminal schedule	Terminal strip -X1		KFA59-03033.00	1	=SK
22	Terminal schedule	Plug connection -X21		KFA59-03033.00	10	=IKM
23	Terminal schedule	Plug connection -X24		KFA59-03033.00	11	=IKM
24	Terminal schedule	Plug connection -X25		KFA59-03033.00	12	=SK
25	Terminal schedule	Plug connection -X31		KFA59-03033.00	20	=SK
26	Component layout	Switchboard / Side panel		AFA59-03033.00	1	
27	Component layout	rear panel Switchboard		AFA59-03033.00	2	
28	Component layout	Control panel		AFA59-03033.00	3	

c				Date	20.02.2020	KAESER KOMPRESSOREN	List of contents	=	
b				Drawn	Sitter		MOBILAIR M59	+	
a				Released	Fischer C.				
B	Change	Date	Name					ZFA59-03033.00	page 1 1 Sht.

general instructions

Control voltage 12VDC
All non-designated conductors FLRY 0,75mm² white
All control lines marked a) are 1,5mm² FLRY white
All control lines marked b) are 2,5mm² FLRY white
All control lines marked c) are 0,75mm² FLRY brown
All control lines marked d) are 0,5mm² FLRY white

potentials:

15	switched plus + (unit ON)
19	Preheat with glowplug
30	+ terminal (Battery)
31	- terminal (Battery), earth
50	Starter-Control

wiring colors:

BU	= blue	OG	= orange
BN	= brown	PK	= pink
YE	= yellow	RD	= red
GN	= green	BK	= black
GNYE	= green-yellow	VT	= violet
GY	= grey	WH	= white

option ga = generator

option ob = Automatic-start-stop

option oc = GSM/GPS Modem

c				Date	20.02.2020	KAESER KOMPRESSOREN	Block diagram MOBILAIR M59	=	
b				Drawn	Sitter			+	
a				Released	Fischer C.			UFA59-03033.00	page 1
C	Change	Date	Name						3 Sht.

components Control cabinet

-K20	Control board SCS
-K22	engine control unit
-F13,-F15,-F25,-F27 -F30,-F31,-F32, -F37,-F39,-F100	Fuse
-K30	Relay Starter
-K32	Relay fuel pump
-K38	Relay ECU ON
-R2	Diode
-R3,-R10,-R11,-R12	Resistor
-S10	switch "Control ON"
-T20	Voltage transformer DC/DC
-X1	Terminal strip
-X23	Lead-through terminal
-X21,-X24,-X25,-X31	plug connection
-X100	Diagnostic socket KAESER

components unit

-B10	Pressure transducer Oil separator
-B11	Pressure transducer Inlet valve
-B21	sensor differential pressure Air filter Engine
-B31	Filter maintenance fuel
-B37	sensor fuel level
-B40	temperature sensor Airend discharge temperature
-B50	Air flow meter
-B57	differential pressure DPF
-B60	Temperature of exhaust gas upstream of oxidation catalyst
-B62	Exhaust temperature upstream of the diesel particulate filter
-K1	Control valve Inlet valve
-K7	Valve Venting
-K31	preheat attachment
-K111	Pressure regulating valve
-K112	High-pressure pump
-M9	fuel pump
-X22	Diagnostic socket Hatz
-X201	plug connection

components Control panel

-S1	EMERGENCY STOP pushbutton
-K21	Operating unit SCS

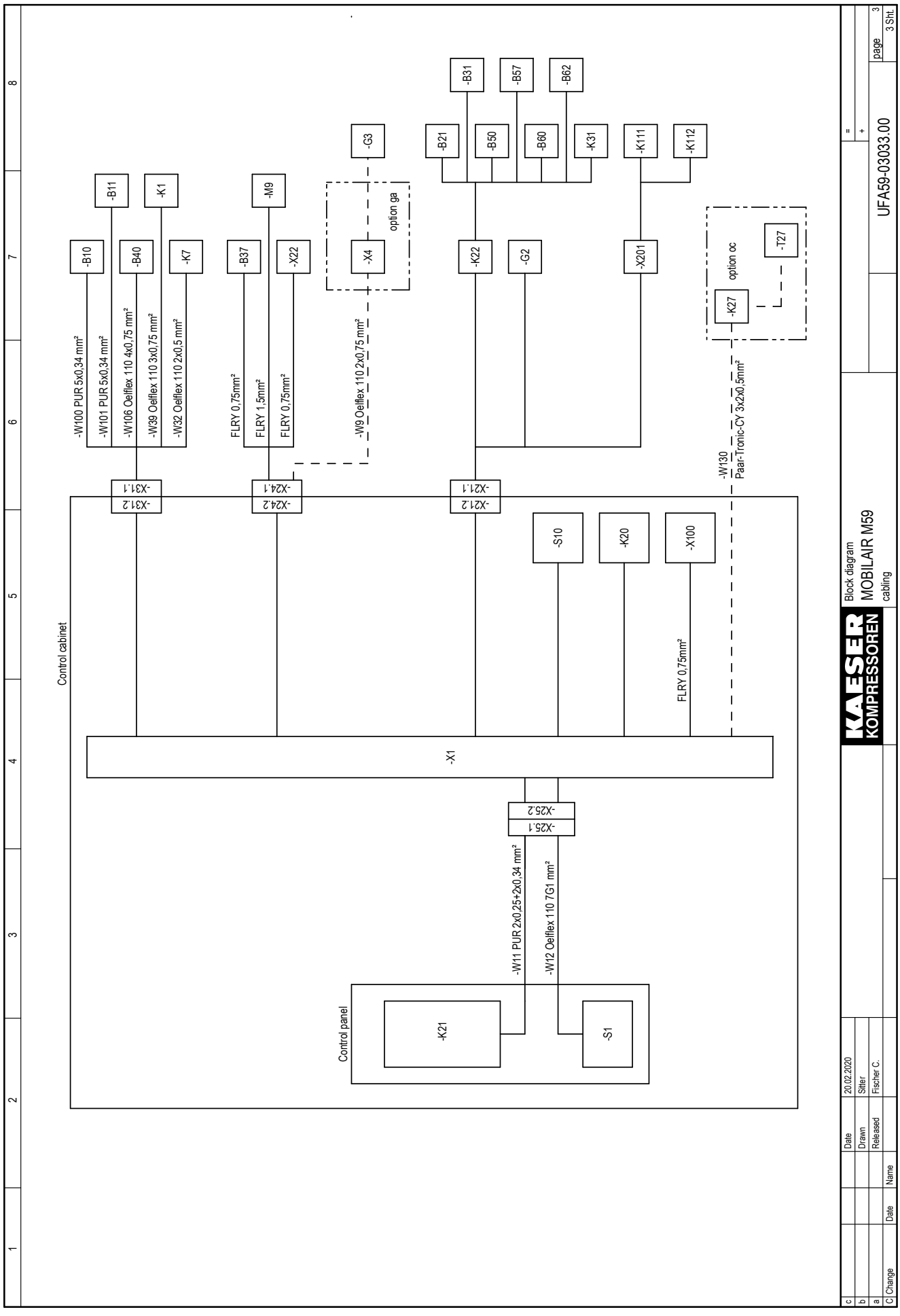
components Engine

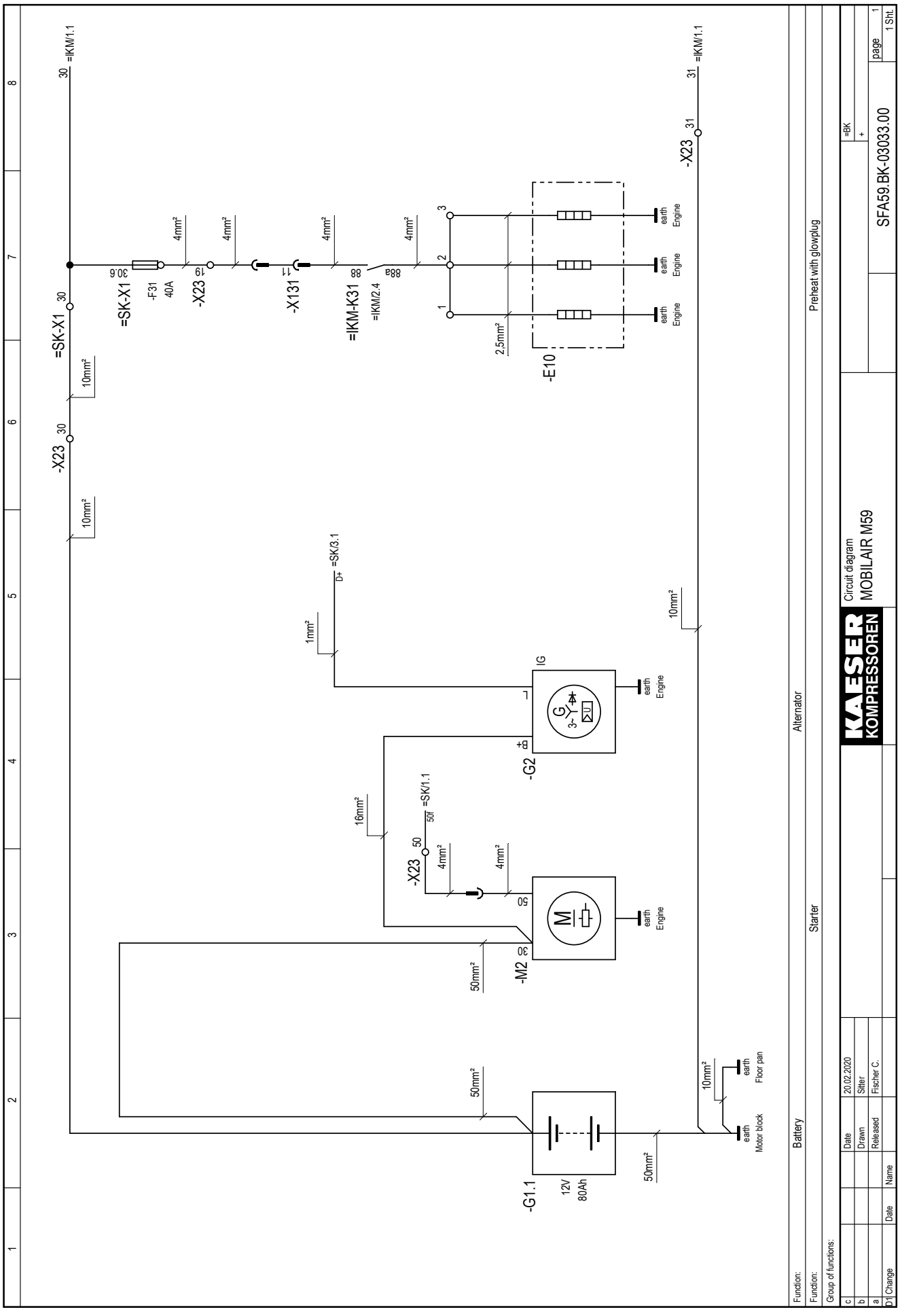
-G2	Alternator
-G1.1	Battery
-M2	Starter-Motor
-E10	heating flange

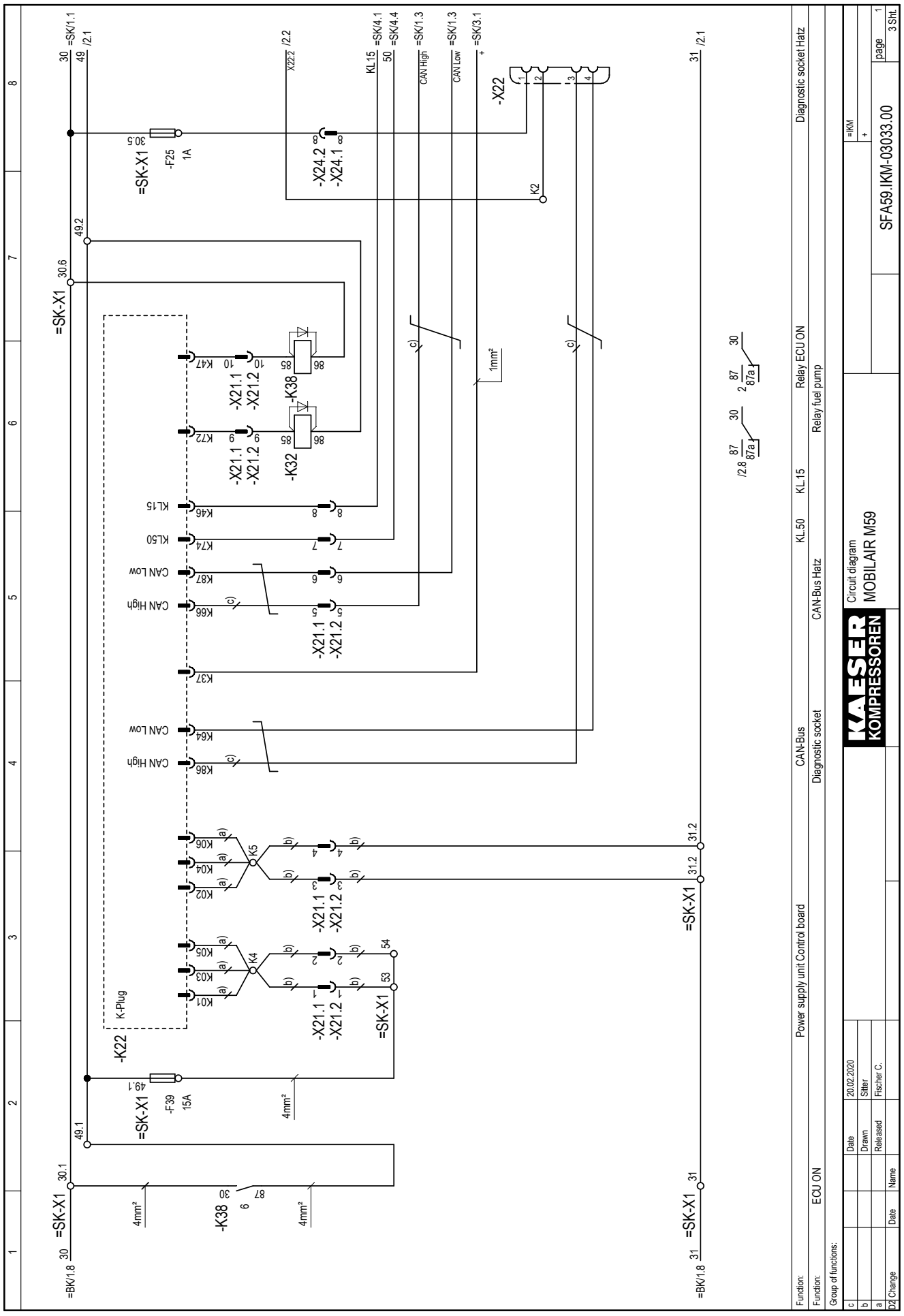
model-dependent components

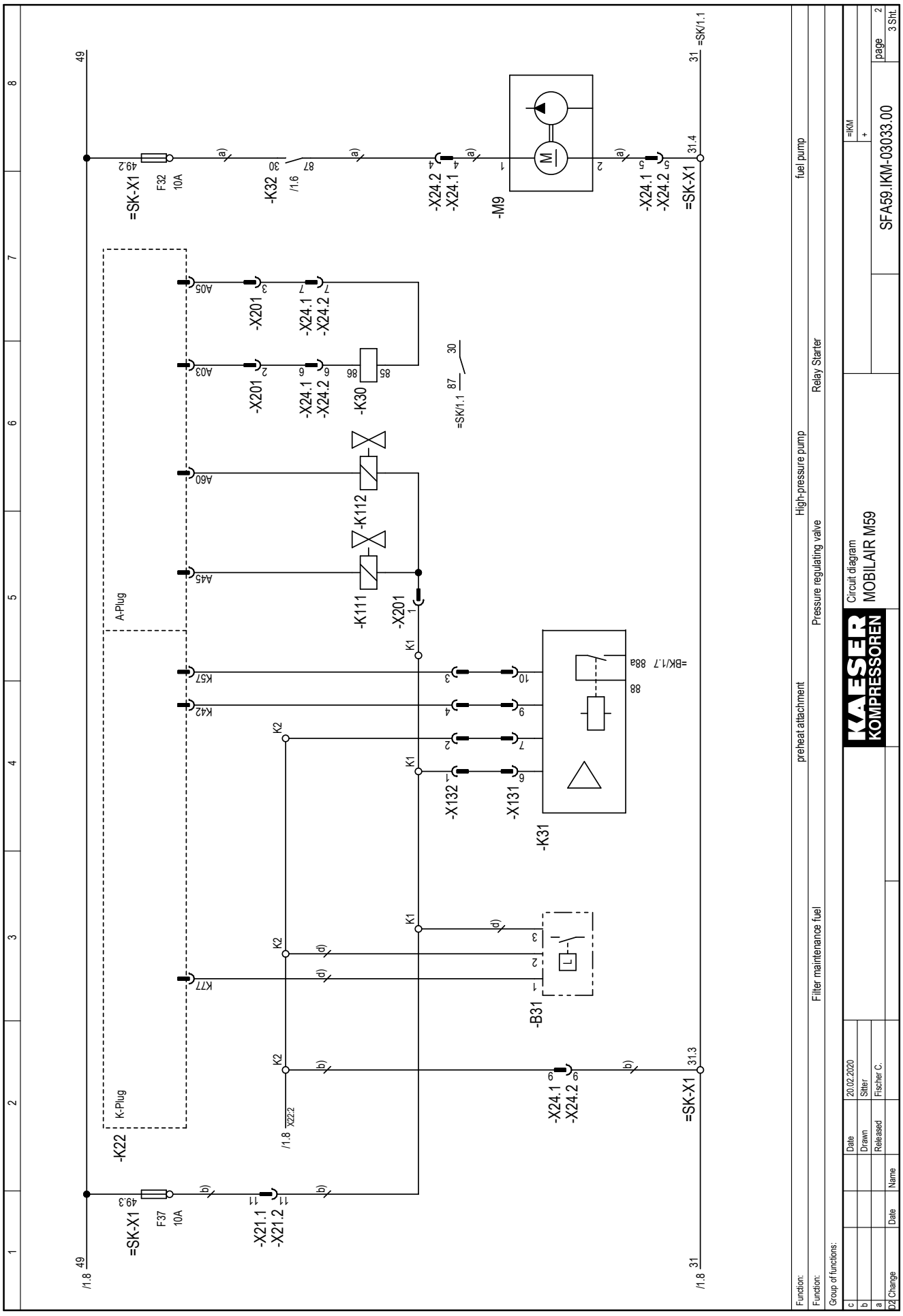
-G3	generator
-X4	interface generator
-K27	GSM/GPS Modem
-T27	GSM/GPS antenna
-X13	GSM/GPS Modem interface

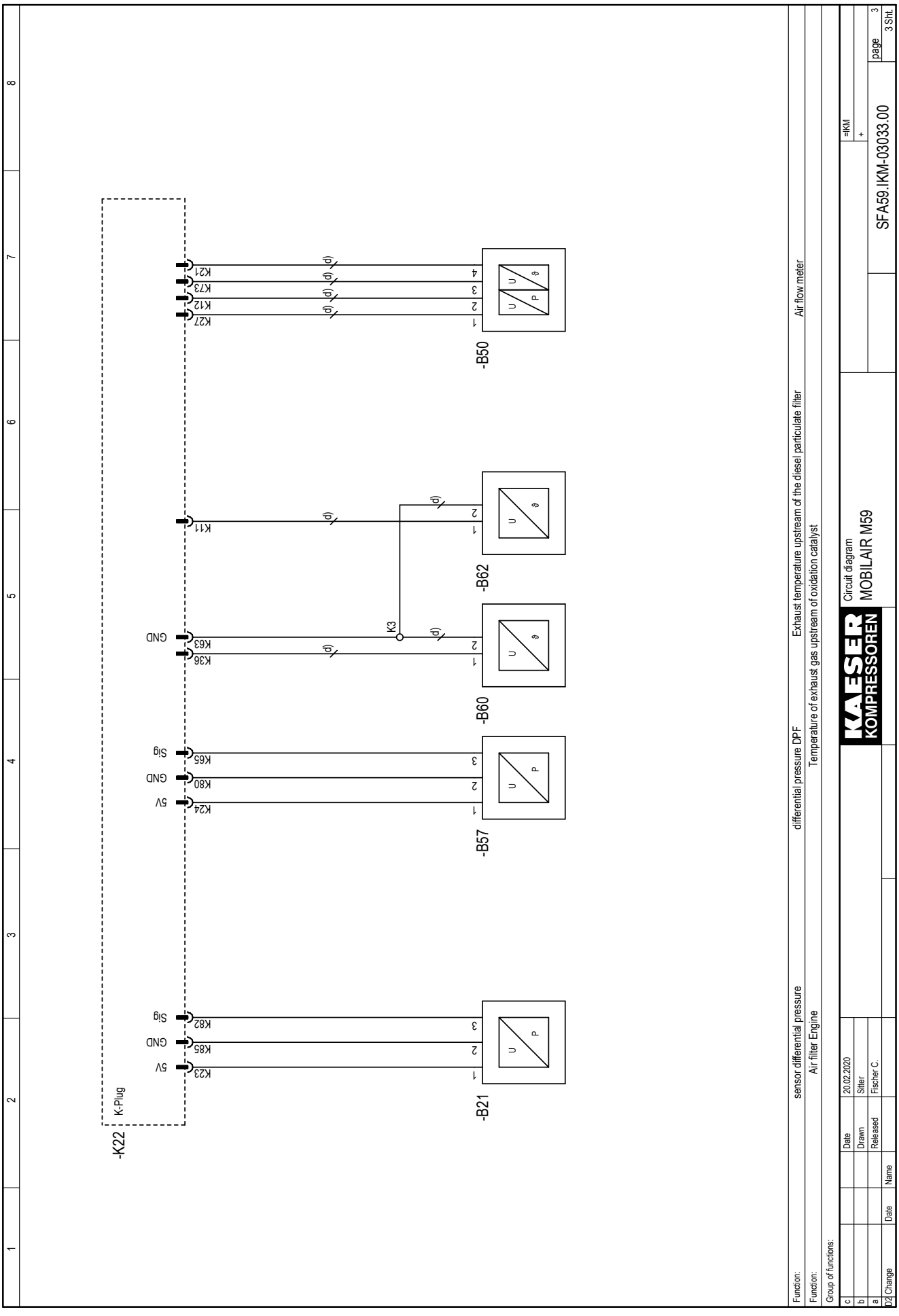
c				Date	20.02.2020	KAESER KOMPRESSOREN	Block diagram MOBILAIR M59	=	
b				Drawn	Sitter			+	
a				Released	Fischer C.			UFA59-03033.00	page 2 / 3 Sht.
C	Change	Date	Name						

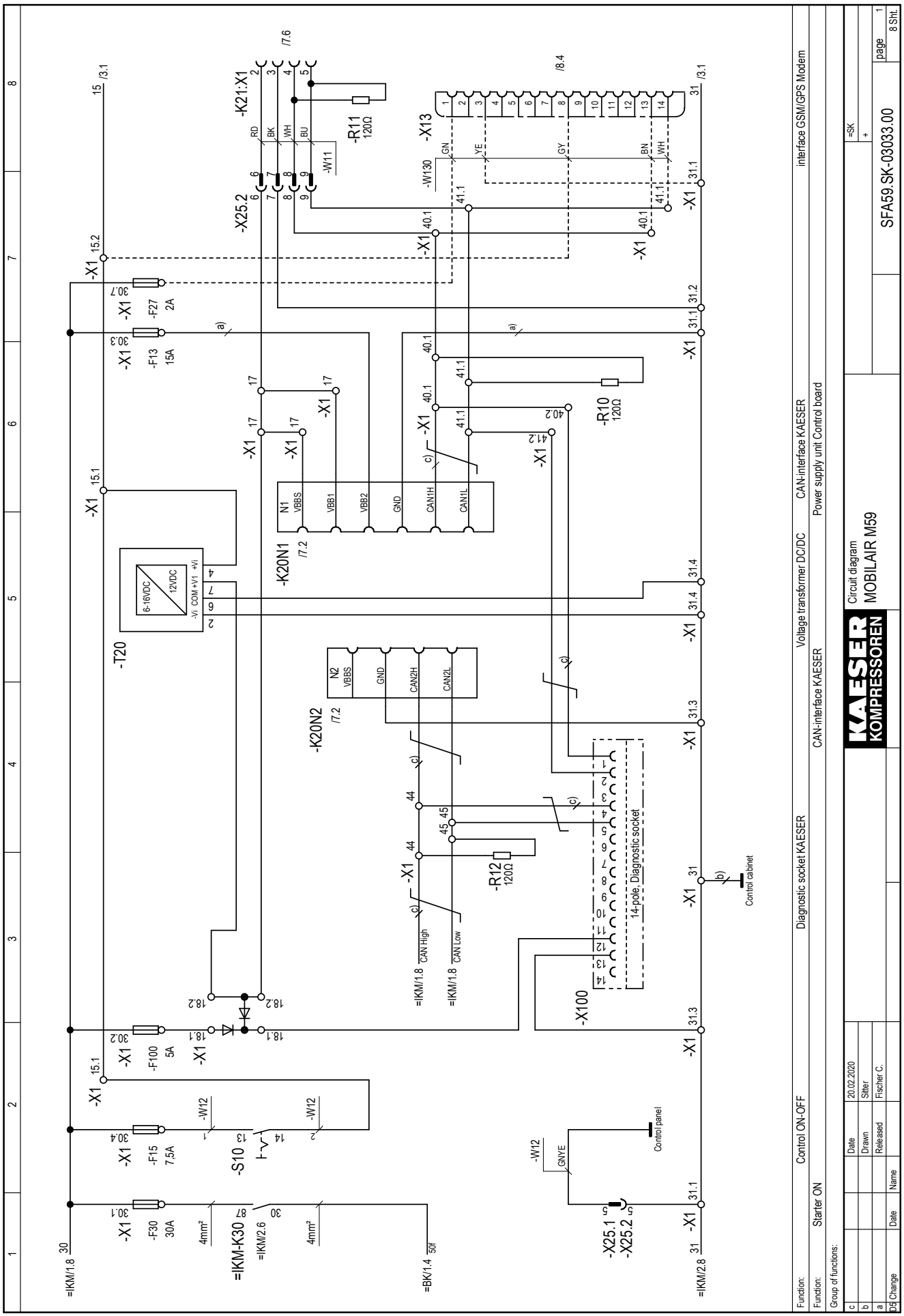

-B31
-B57
-B62
-G3
-B21
-B50
-B60
-K31
-K111
-K112
-B11
-K1
-M9
option ga
-B10
-B40
-K7
-B37
-X22
-X4
-K22
-G2
-X201
option oc
-T27
-K27
-W100 PUR 5x0,34 mm²
-W101 PUR 5x0,34 mm²
-W106 Oelflex 110 4x0,75 mm²
-W39 Oelflex 110 3x0,75 mm²
-W32 Oelflex 110 2x0,5 mm²
FLRY 0,75mm²
FLRY 1,5mm²
FLRY 0,75mm²
-W9 Oelflex 110 2x0,75 mm²
-W130
Paar-Tronic-CY 3x2x0,5mm²
-X31.1
-X31.2
-X24.1
-X24.2
-X21.1
-X21.2
-S10
-K20
-X100
Control cabinet
FLRY 0,75mm²
-X1
-X25.2
-X25.1
-W11 PUR 2x0,25+2x0,34 mm²
-W12 Oelflex 110 7G1 mm²
Control panel
-K21
-S1
Block diagram
MOBILAIR M59
cabling
KAESER KOMPRESSOREN
UFA59-03033.00
page 3
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Date
Drawn
Released
20.02.2020
Sitter
Fischer C.
Change
Name
Date

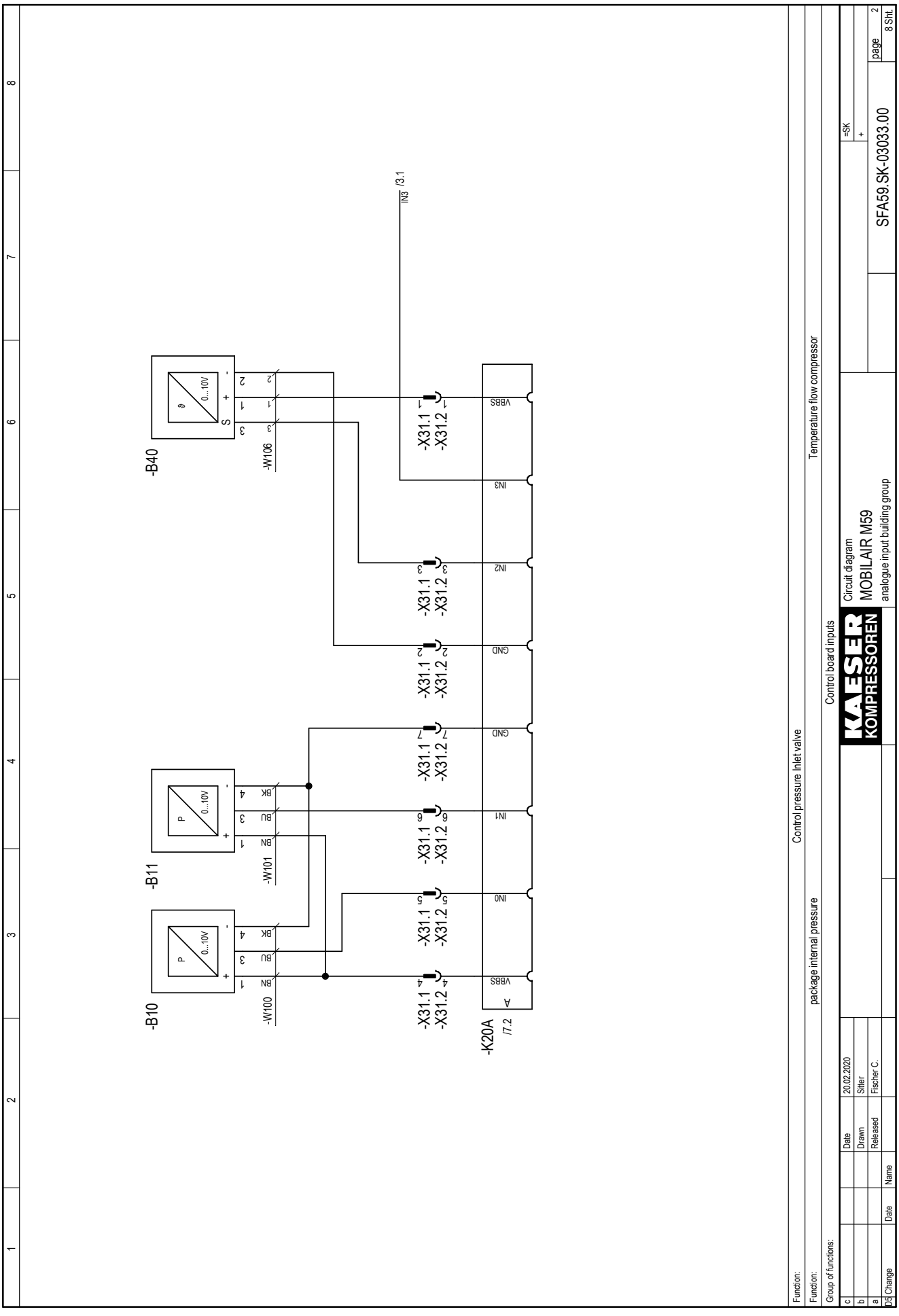

=KM/1.1
30
=SK-X1
30
-X23
30
10mm²
10mm²
=SK-X1
30.6
-F31
40A
4mm²
-X23
19
4mm²
-X131
11
4mm²
=IKM-K31
=IKM/2.4
88
88a
4mm²
3
2
1
2,5mm²
earth
Engine
-E10
-X23
31
31
=KM/1.1
=SK/3.1
D+
1mm²
10mm²
IG
-G2
B+
L
earth
Engine
16mm²
=SK/1.1
50f
-X23
50
4mm²
4mm²
50
-M2
30
50mm²
earth
Engine
50mm²
10mm²
earth
Floor pan
earth
Motor block
-G1.1
12V
80Ah
50mm²
Function:
Battery
Alternator
Function:
Starter
Preheat with glowplug
Group of functions:
KAESER KOMPRESSOREN
Circuit diagram
MOBILAIR M59
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1 Sht.
=BK
+
c
b
a
D1 Change
Date
Name
Date
20.02.2020
Drawn
Sitter
Released
Fischer C.

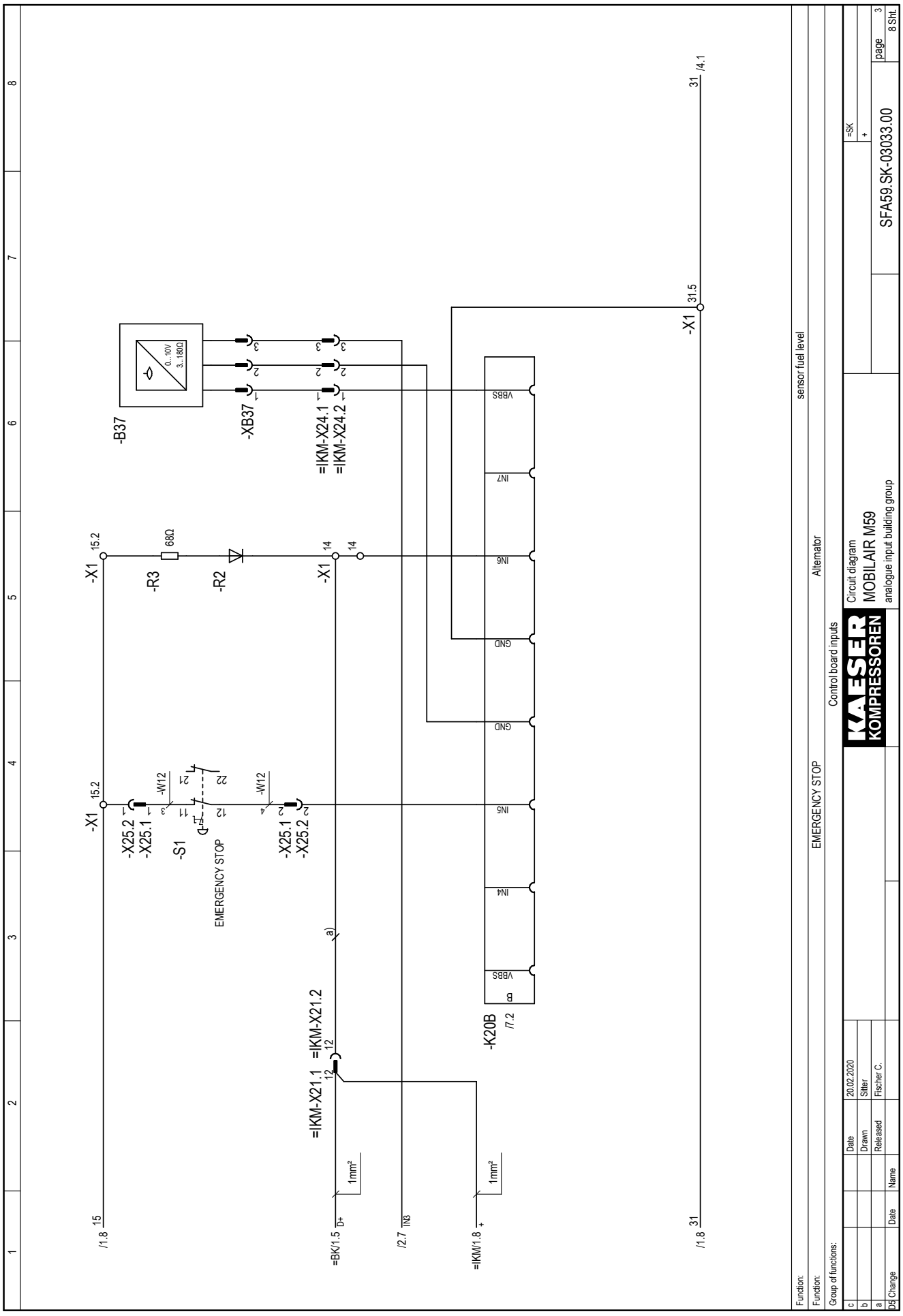

Power supply unit Control board
CAN-Bus
Diagnostic socket
CAN-Bus Hatz
Diagnostic socket Hatz
ECU ON
Relay ECU ON
Relay fuel pump
KL.50
KL.15
Circuit diagram
MOBILAIR M59
SFA59.IKM-03033.00.00
20.02.2020
Sitter
Fischer C.
page 1
3 Sht.
=SK-X1
-X22
-X21.1
-X21.2
-K38
-K32
-K22
K-Plug
-F25 1A
-F39 15A
CAN High
CAN Low
1mm²
4mm²

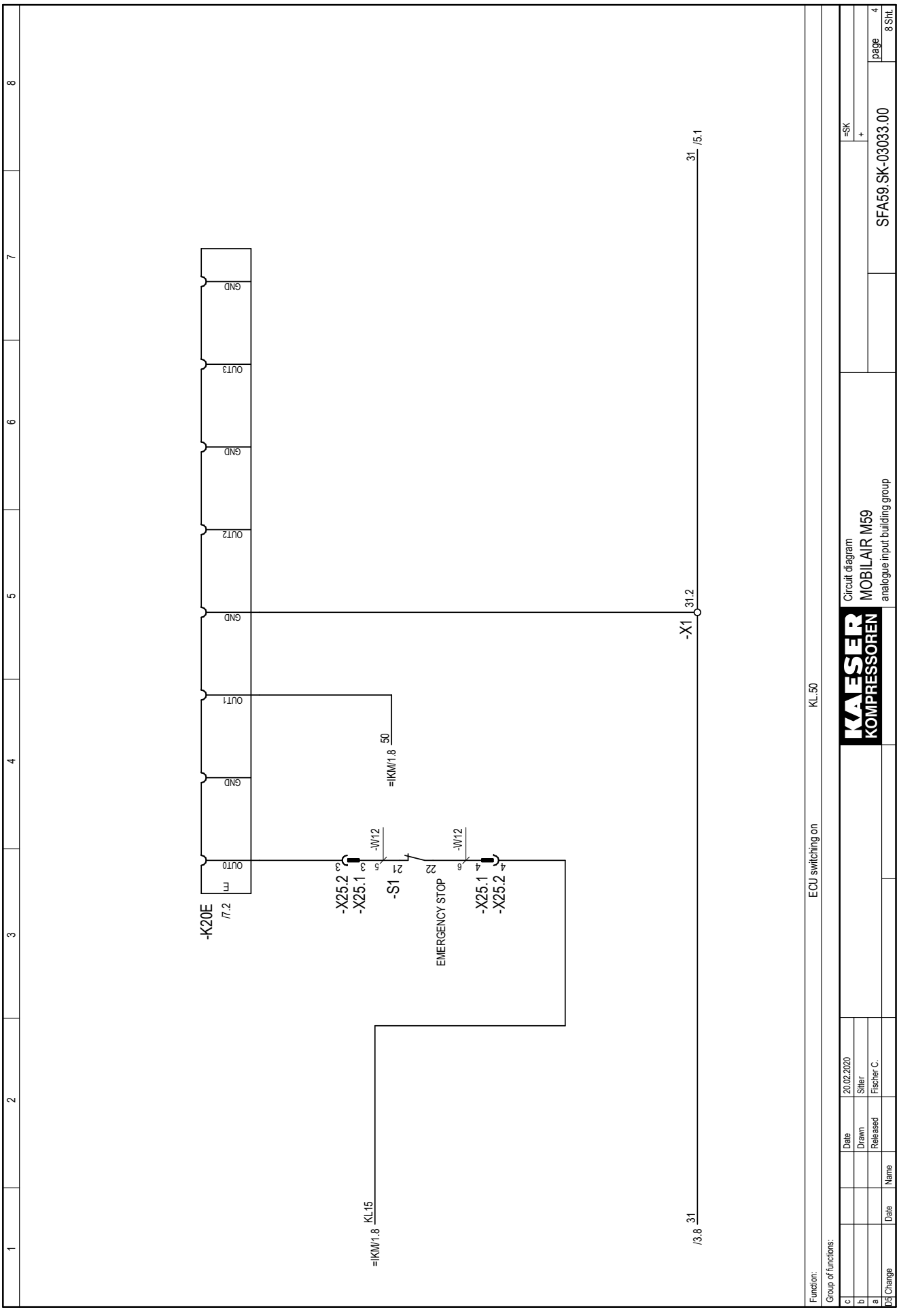

=SK-X1
F32
10A
-K32
-X24.2
-X24.1
-M9
-X24.1
-X24.2
=SK-X1
=SK/1.1
-X201
-X24.1
-X24.2
-K30
=SK/1.1
-K112
-K111
-X201
A-Plug
-K31
=BK/1.7 88a
-X132
-X131
-B31
K-Plug
-K22
=SK-X1
F37
10A
-X21.1
-X21.2
-X24.1
-X24.2
=SK-X1
/1.8
/1.8
Function: preheat attachment
High-pressure pump
fuel pump
Function: Filter maintenance fuel
Pressure regulating valve
Relay Starter
Group of functions:
Date 20.02.2020
Drawn Sitter
Released Fischer C.
Name
Date
D/J Change
Circuit diagram
MOBILAIR M59
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=IKM

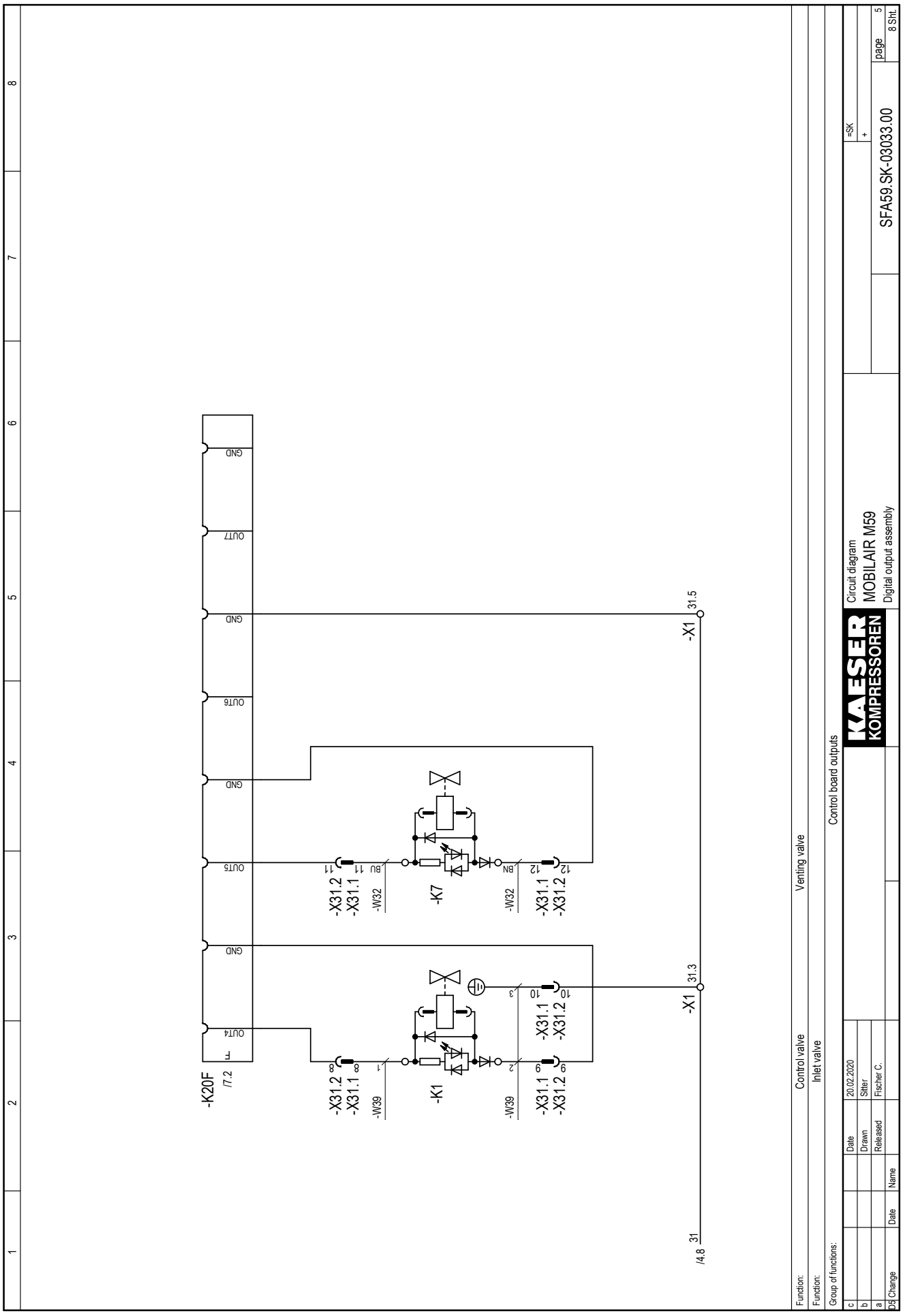

-K22
K-Plug
-B21
-B57
-B60
-B62
-B50
5V
GND
Sig
K23
K85
K82
K24
K80
K65
K36
K63
K11
K3
K27
K12
K73
K21
Function: sensor differential pressure
differential pressure DPF
Exhaust temperature upstream of the diesel particulate filter
Air flow meter
Function: Air filter Engine
Temperature of exhaust gas upstream of oxidation catalyst
Group of functions:
Date 20.02.2020
Drawn Sitter
Released Fischer C.
Name
Change
KAESER KOMPRESSOREN
Circuit diagram
MOBILAIR M59
=KM
+
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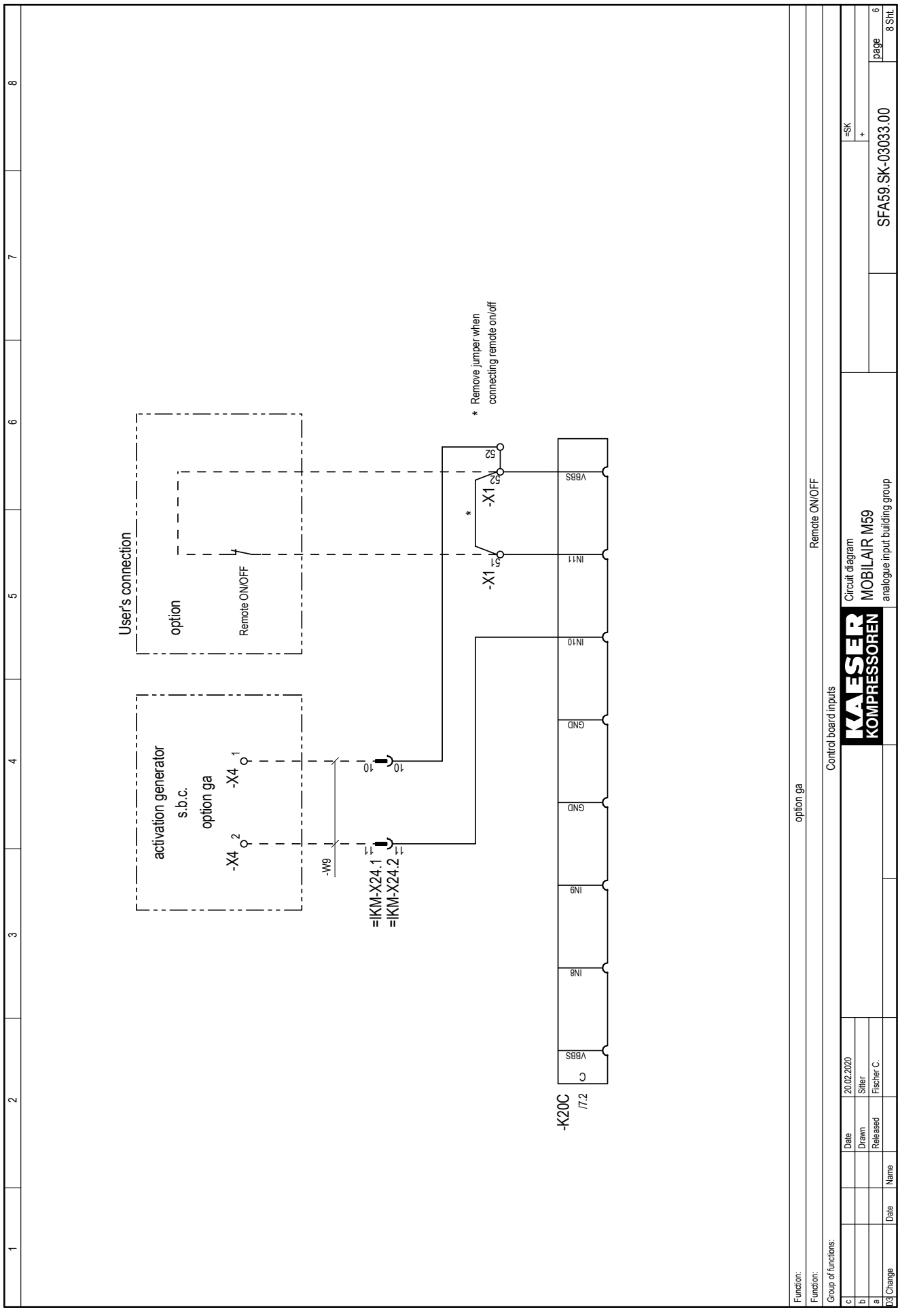

Function: Control ON-OFF
Function: Starter ON
Group of functions:
Diagnostic socket KAESER
CAN-interface KAESER
Voltage transformer DC/DC
CAN-interface KAESER
interface GSM/GPS Modem
Power supply unit Control board
Circuit diagram
MOBILAIR M59
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=SK
page 1
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Date 20.02.2020
Drawn Sitter
Released Fischer C.
Name
Date
DS Change
-K21:X1
-X25.2
-R11 120Ω
-W11
-X13
-W130
-R10 120Ω
-K20N1
-K20N2
-T20
-R12 120Ω
-X100
14-pole. Diagnostic socket
-S10
-F27 2A
-F13 15A
-F100 5A
-F15 7,5A
-F30 30A
=IKM-K30
=IKM/1.8 CAN High
=IKM/1.8 CAN Low
=BK/1.4
=IKM/2.8
Control cabinet
Control panel

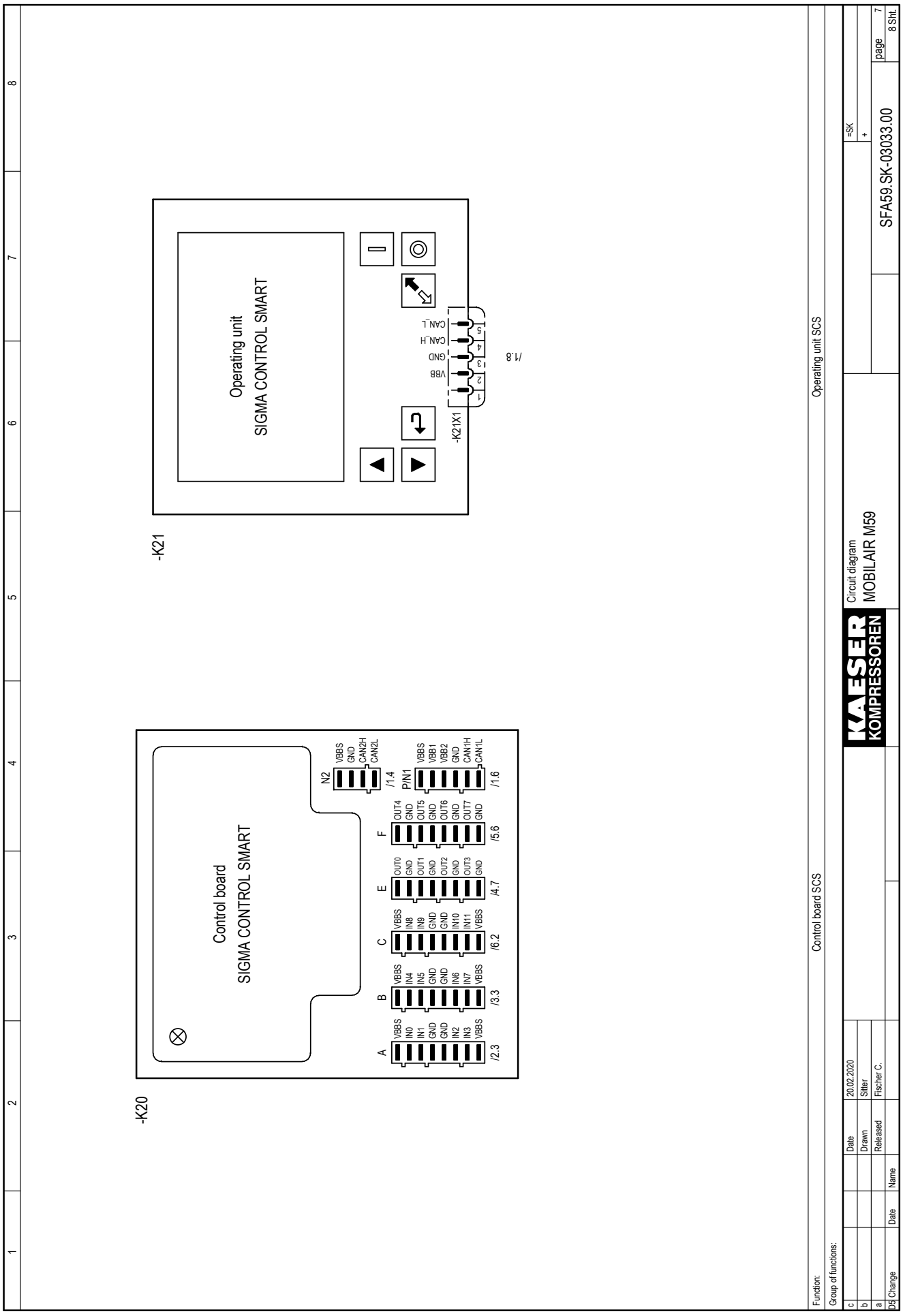

-B40
-B11
-B10
-K20A
-W106
-W101
-W100
-X31.1
-X31.2
IN3 /3.1
VBBS
IN3
IN2
GND
GND
IN1
IN0
VBBS
Control pressure Inlet valve
package internal pressure
Temperature flow compressor
Control board inputs
Circuit diagram
MOBILAIR M59
analogue input building group
SFA59.SK-03033.00
=SK
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20.02.2020
Sitter
Fischer C.

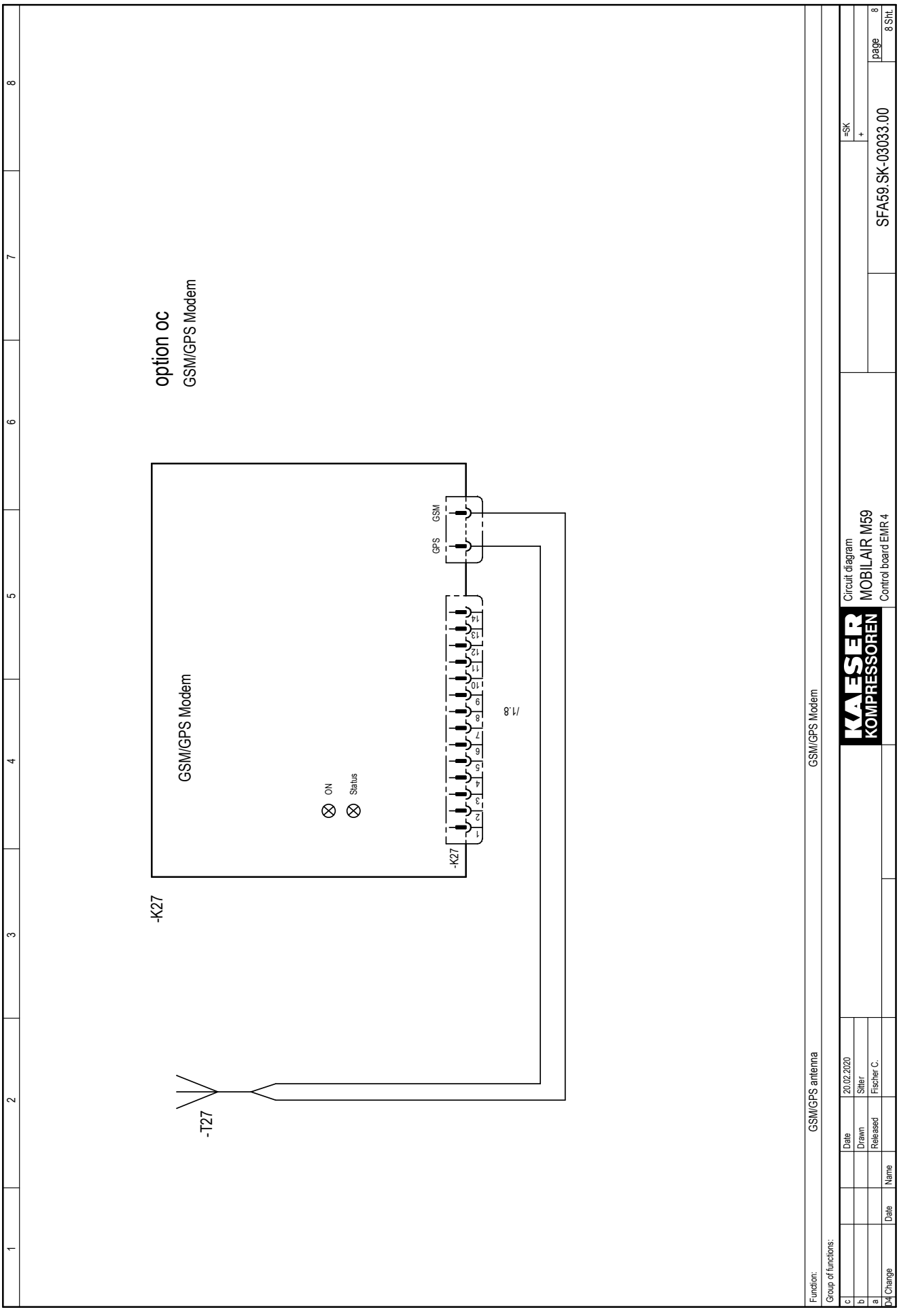

-B37
0...10V
3...180Ω
-XB37
=IKM-X24.1
=IKM-X24.2
-X1
15.2
68Ω
-R3
-R2
-X1
14
-X1
31.5
/4.1
31
-X1
15.2
-X25.2
-X25.1
-W12
-S1
EMERGENCY STOP
-X25.1
-X25.2
-W12
=IKM-X21.1
=IKM-X21.2
a)
-K20B
/7.2
VBBS
IN7
IN6
GND
GND
IN5
IN4
VBBS
B
sensor fuel level
Alternator
EMERGENCY STOP
Control board inputs
Function:
Function:
Group of functions:
KAESER KOMPRESSOREN
Circuit diagram
MOBILAIR M59
analogue input building group
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=SK
+
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Date 20.02.2020
Drawn Sitter
Released Fischer C.
Name
Date
Change
/1.8 15
=BK/1.5 D+
1mm²
/2.7 IN3
=IKM/1.8 +
1mm²
/1.8 31


-K20E
/7.2
GND
OUT3
GND
OUT2
GND
OUT1
GND
OUT0
-X25.2
-X25.1
-W12
-S1
EMERGENCY STOP
-W12
-X25.1
-X25.2
=IKM/1.8 50
=IKM/1.8 KL15
-X1
31.2
31 /5.1
/3.8 31
ECU switching on
KL.50
Function:
Group of functions:
KAESER KOMPRESSOREN
Circuit diagram
MOBILAIR M59
analogue input building group
=SK
+
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20.02.2020
Sitter
Fischer C.
Name
Change


-K20F
/7.2
OUT4
OUT5
OUT6
OUT7
GND
-X31.2
-X31.1
-W39
-K1
-X31.1
-X31.2
-W32
-K7
-X1
31.5
31.3
31
/4.8
Control valve
Venting valve
Inlet valve
Control board outputs
Function:
Function:
Group of functions:
Circuit diagram
MOBILAIR M59
Digital output assembly
SFA59.SK-03033.00
=SK
+
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20.02.2020
Sitter
Fischer C.
Name
Date
Ch Change


User's connection
option
Remote ON/OFF
activation generator
s.b.c.
option ga
-X4
-X4
-W9
=IKM-X24.1
=IKM-X24.2
-X1
-X1
* Remove jumper when connecting remote on/off
-K20C
/7.2
VBBS
IN11
IN10
GND
GND
IN9
IN8
VBBS
Function:
option ga
Function:
Remote ON/OFF
Group of functions:
Control board inputs
KAESER KOMPRESSOREN
Circuit diagram
MOBILAIR M59
analogue input building group
SFA59.SK-03033.00
=SK
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Change
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Sitter
Fischer C.


Operating unit
SIGMA CONTROL SMART
-K21
-K21X1
VBB
GND
CAN_H
CAN_L
/1.8
Control board
SIGMA CONTROL SMART
-K20
N2
VBBS
GND
CAN2H
CAN2L
/1.4
P/N1
VBBS
VBB1
VBB2
GND
CAN1H
CAN1L
/1.6
A
B
C
E
F
/2.3
/3.3
/6.2
/4.7
/5.6
Function:
Control board SCS
Operating unit SCS
Group of functions:
Date
Drawn
Released
20.02.2020
Slter
Fischer C.
KAESER KOMPRESSOREN
Circuit diagram
MOBILAIR M59
=SK
+
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option oc
GSM/GPS Modem
-K27
GSM/GPS Modem
ON
Status
GPS
GSM
-K27
/1.8
-T27
GSM/GPS antenna
GSM/GPS Modem
Function:
Group of functions:
Date
Drawn
Released
20.02.2020
Sitter
Fischer C.
Name
Date
Ind Change
KAESER KOMPRESSOREN
Circuit diagram
MOBILAIR M59
Control board EMR 4
SFA59.SK-03033.00
=SK
+
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1	2	3	4	5	6	7	8

A Stück-zahl Qty.	B Benennung und Verwendung Description and function	C Fabrikatsbezeichnung Typ; notwendige techn. Daten (z.B. Steuerspannung, Frequenz, Einstellbereich); Bestell-Nr.; Hersteller / Identification data Type; basic technical data (e.g. control voltage, frequency, adjustable range); order No.; manufacturer			D Lfd. Nr. Item	E Betriebsmittel-Kennz. nach DIN 40719, Teil 2 / Identifying symbol of device	F Stromlaufplan Planabschnitt / Circuit diagram sheet No.; section No.	G Einbauort / Location	Concerns only the manufacturer: Wst.-Nr. H Schabl. Nr.	I BZ-Pos.	J VA Kz. *)	K Eingangs-vermerk
	Control cabinet:											
1	Control cabinet		226799.0	Wagner								
1	Mounting plate		226834.1	Wagner								
1	Control board SCS	CR9052	7.9200.11000	ifm		-K20						
2	Relay	12V, 1W, 30/40A	8.6544.00050	FTM		-K32,-K38						
2	Relay socket		7.3411.00020	FTM		-K32,-K38						
1	Relay	12V, 1S, 70A	8.6544.00030	FTM		-K30						
1	Relay socket		7.3411.00010	FTM		-K30						
4	Lead-through terminal	HDFK-10 / 10mm²	7.9073.0	Phoenix		-X23:19,-X23:30,						
						-X23:31,-X23:50						
17	Terminal	WKFN 2,5D2/2/35	7.3149.02080	Wieland		-X1						
2	Terminal	WKF 16/35 PV/WKFN	7.3149.02170	Wieland		-X1						
1	Terminal	WKFN 2,5E/35/G2	7.3149.02680	Wieland		-X1						
2	Terminal	WKFN 4/35	7.3149.01810	Wieland		-X1						
10	Fuse terminal	WKFN 4FSI	7.3149.02160	Wieland		-X1						
1	Fuse UNIVAL	1 A	7.6411.00110	FTM		-F25						
1	Fuse UNIVAL	2 A	7.6411.00180	FTM		-F27						
1	Fuse UNIVAL	5 A	7.6411.00040	FTM		-F100						
1	Fuse UNIVAL	7,5 A	7.6411.00100	FTM		-F15						
2	Fuse UNIVAL	10 A	7.6411.00050	FTM		-F32,-F37						
2	Fuse UNIVAL	15 A	7.6411.00060	FTM		-F13,-F39						
1	Fuse UNIVAL	30 A	7.6411.00170	FTM		-F30						
1	Fuse UNIVAL	40 A	7.6411.00090	FTM		-F31						
2	Resistor	120 Ω	7.5392.00030	Bürklin		-R10,-R12						
1	Resistor	68 Ω	7.5392.00020	Bürklin		-R3						
1	Diode	BY550-600	7.4780.00030	Bürklin		-R2						
1	Voltage transformer	6-16VDC/12VDC	7.9235.0	TDK-Lambda		-T20						
1	Diagnostic socket KAESER	14-pole	7.6589.02000	Boersig		-X100						
1	switch Control voltage ON/OFF	RKWA	7.9027.10050	Schlegel		-S10						
1	Switching element	BTL5 24VCD, 2A	7.9027.10030	Schlegel		-S10						

Bei Nachbestellung von Geräten und Maschinen sind alle in den stark umrandeten Spalten B und C angegebenen Daten aufzuführen. Die Daten in den Spalten D bis G sind zusätzlich unter Nennung dieser Gerätestücklisten-Nummer anzugeben, soweit sie die Beantwortung technischer Rückfragen erleichtern. Für Ersatzteilbestellung ist zusätzlich die Angabe der Serialnummer erforderlich, falls diese auf dem Typenschild des Erzeugnisses genannt ist.

In Zweifelsfällen gilt die deutsche Fassung.

When reordering the equipment, all data enclosed by the heavy lines of columns B and C should be stated. In addition, the data in columns D to G should be given together with the No. of this list of equipment, insofar as they ar helpful in answering technical enquiries. When ordering spare parts, also quote the serial No. of the product if stated on the rating plate.

The German version applies in cases of doubt.

*) Versandanschrift - Kennzeichen

c				Date	20.02.2020
b				Drawn	Sitter
a				Released	Fischer C.
F	Change	Date	Name		

KAESER KOMPRESSOREN

Equipment parts list
MOBILAIR M59
Control cabinet

GFA59-03033.00

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1	2	3	4	5	6	7	8						
A Stück-zahl Qty.	B Benennung und Verwendung Description and function	C Fabrikatsbezeichnung Typ; notwendige techn. Daten (z.B. Steuerspannung, Frequenz, Einstellbereich); Bestell-Nr.; Hersteller Identification data Type; basic technical data (e.g. control voltage, frequency, adjustable range); order No.; manufacturer			D Lfd. Nr. Item	E Betriebsmittel-Kennz. nach DIN 40719, Teil 2 Identifying symbol of device	F Stromlaufplan Planabschnitt Circuit diagram sheet No.; section No.	G Einbauort Location	Concerns only the manufacturer Wst.-Nr.			
									H Schabl. Nr.	I BZ-Pos.	J VA Kz. *)	K Eingangs-vermerk
	Control cabinet											
1	Control board	Equipment supplied by the user Engine		Bosch		-K22						
1	plug connection 4-pole		7.9200.01300	Boersig		-K20N2						
1	plug connection 6-pole		7.9200.01310	Boersig		-K20N1						
3	plug connection 8-pole		7.9200.01320	Boersig		-K20A,-K20B,-K20C						
2	plug connection 8-pole		7.9200.01330	Boersig		-K20E,-K20F						
4	plug connection 12-pole	1604941-1	7.6589.00520	Boersig		-X21,-X24,-X25,-X31						
1	Solenoid valve	12VDC G1/8 3/2W	7.1370.00060	Bürkert		-K7						
	Control panel											
1	Operating unit SCS	CR9047	7.9200.11010	ifm		-K21						
1	EMERGENCY STOP	QRUV	7.3217.0	Schlegel		-S1						
1	Switching element	MHT00	7.3218.0	Schlegel		-S1						
1	plug connection 12-pole	350735-1	7.6589.00500	Boersig		-X25						

Bei Nachbestellung von Geräten und Maschinen sind alle in den stark umrandeten Spalten B und C angegebenen Daten aufzuführen. Die Daten in den Spalten D bis G sind zusätzlich unter Nennung dieser Gerätestücklisten-Nummer anzugeben, soweit sie die Beantwortung technischer Rückfragen erleichtern. Für Ersatzteilbestellung ist zusätzlich die Angabe der Serialnummer erforderlich, falls diese auf dem Typenschild des Erzeugnisses genannt ist.

In Zweifelsfällen gilt die deutsche Fassung.

When reordering the equipment, all data enclosed by the heavy lines of columns B and C should be stated. In addition, the data in columns D to G should be given together with the No. of this list of equipment, insofar as they ar helpful in answering technical enquiries. When ordering spare parts, also quote the serial No. of the product if stated on the rating plate.

The German version applies in cases of doubt.

*) Versandanschrift - Kennzeichen

c			Date	20.02.2020	
b			Drawn	Sitter	
a			Released	Fischer C.	
F	Change	Date	Name		

KAESER KOMPRESSOREN

Equipment parts list
MOBILAIR M59
Control cabinet/Control panel

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3 Sht.

1	2	3	4	5	6	7	8

A Stück-zahl Qty.	B Benennung und Verwendung Description and function	C Fabrikatsbezeichnung Typ; notwendige techn. Daten (z.B. Steuerspannung, Frequenz, Einstellbereich); Bestell-Nr.; Hersteller — Identification data Type; basic technical data (e.g. control voltage, frequency, adjustable range); order No.; manufacturer			D Lfd. Nr. Item	E Betriebsmittel-Kennz. nach DIN 40719, Teil 2 — Identifying symbol of device	F Stromlaufplan Planabschnitt — Circuit diagram sheet No.; section No.	G Einbauort — Location	Concerns only the manufacturer: Wst.-Nr. H Schabl. Nr.	I BZ-Pos.	J VA Kz. *)	K Eingangs-vermerk
	unit components											
1	Pressure transducer	0...16 bar	7.9204.0	Huba		-B10						
1	Pressure transducer	-1...5 bar	7.9203.0	Huba		-B11						
1	Differential pressure switch Engine	Equipment supplied by the user Engine				-B21						
1	Filter maintenance fuel	Equipment supplied by the user Engine				-B31						
1	sensor fuel level	ITS-60 l=520mm	7.9201.10100	Bedia		-B37						
1	Temperature probe	-30...130 °C	7.9202.40010	Bedia		-B40						
1	Air flow meter	Equipment supplied by the user Engine				-B50						
1	differential pressure DPF	Equipment supplied by the user Engine				-B57						
1	Temperature vor DOC	Equipment supplied by the user Engine				-B60						
1	Temperature vor DPF	Equipment supplied by the user Engine				-B62						
1	preheat attachment	Equipment supplied by the user Engine				-K31						
1	Pressure regulating valve	Equipment supplied by the user Engine				-K111						
1	High-pressure pump	Equipment supplied by the user Engine				-K112						
1	fuel pump		8.9164.0	KUBOTA		-M9						
1	Diagnostic socket	Cable set Engine				-X22						
	model-dependent components											
1	GSM/GPS Modem	Ifm CR3114	7.9208.02000	Proemion		-K27						
1	GSM/GPS antenna		7.9208.02010	Proemion		-T27						

Bei Nachbestellung von Geräten und Maschinen sind alle in den stark umrandeten Spalten B und C angegebenen Daten aufzuführen. Die Daten in den Spalten D bis G sind zusätzlich unter Nennung dieser Gerätestücklisten-Nummer anzugeben, soweit sie die Beantwortung technischer Rückfragen erleichtern. Für Ersatzteilbestellung ist zusätzlich die Angabe der Serialnummer erforderlich, falls diese auf dem Typenschild des Erzeugnisses genannt ist.

In Zweifelsfällen gilt die deutsche Fassung.

When reordering the equipment, all data enclosed by the heavy lines of columns B and C should be stated. In addition, the data in columns D to G should be given together with the No. of this list of equipment, insofar as they ar helpful in answering technical enquiries. When ordering spare parts, also quote the serial No. of the product if stated on the rating plate.

The German version applies in cases of doubt.

*) Versandanschrift - Kennzeichen

c				Date	20.02.2020
b				Drawn	Sitter
a				Released	Fischer C.
F	Change	Date	Name		

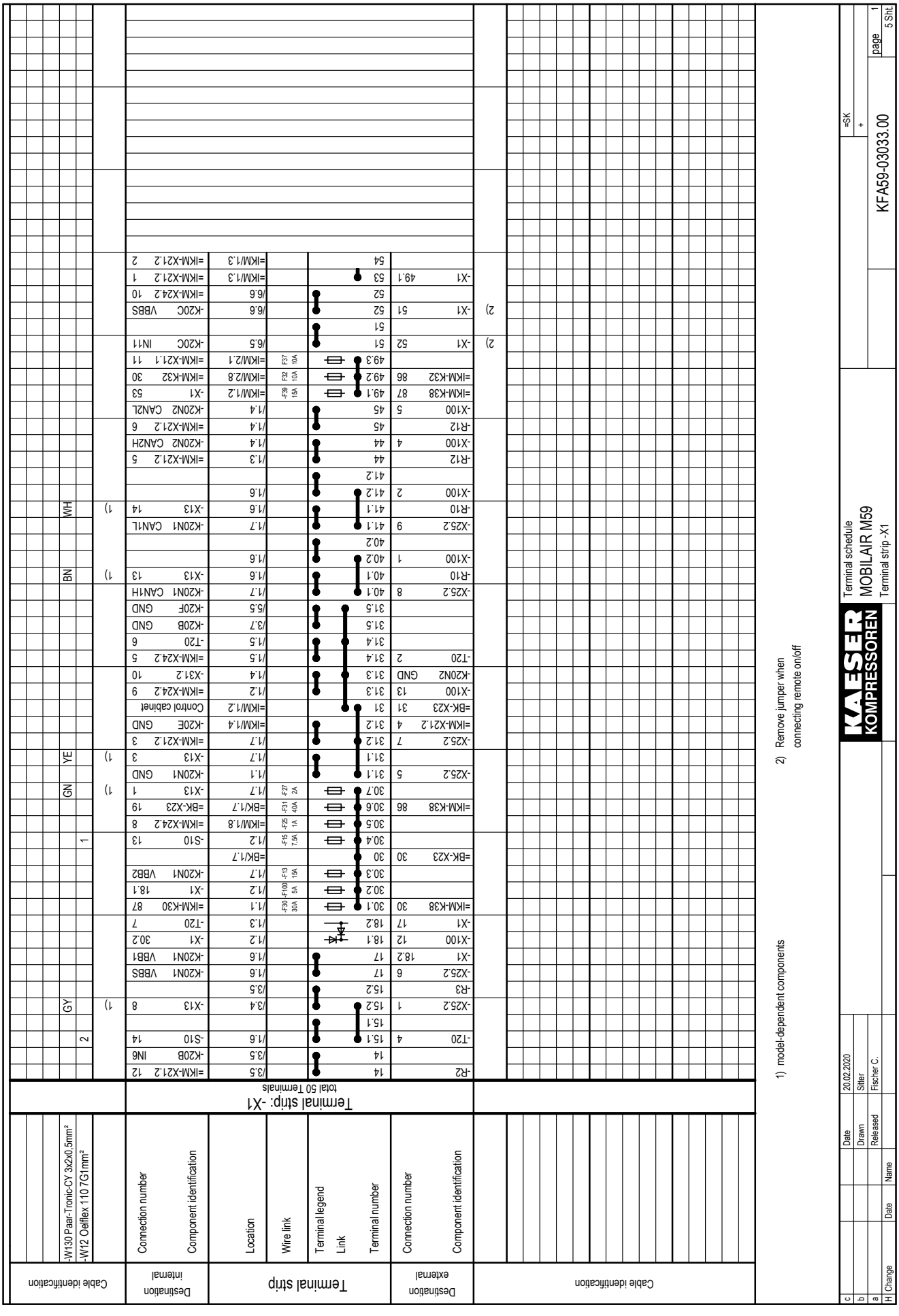
KAESER KOMPRESSOREN

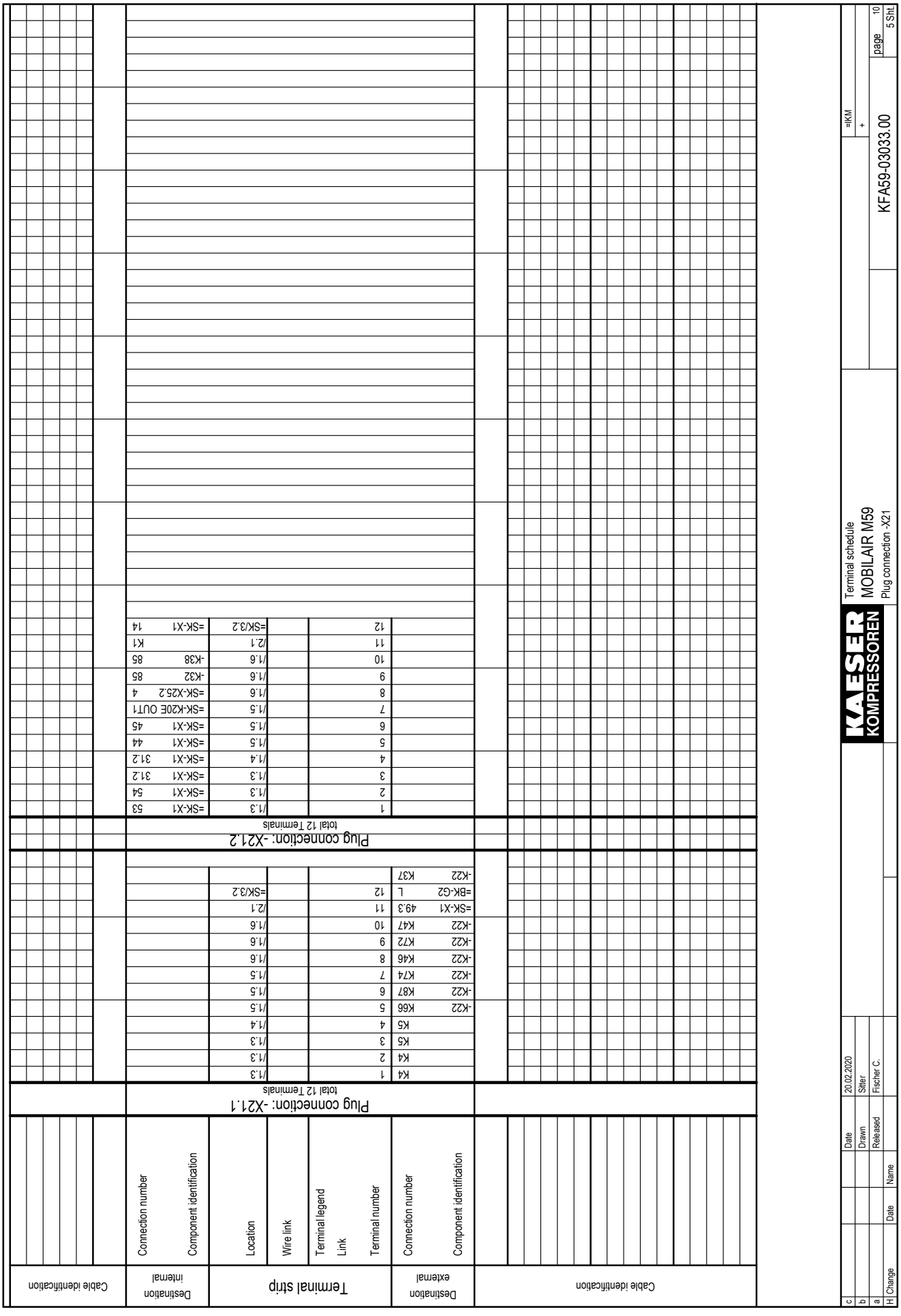
Equipment parts list
MOBILAIR M59
unit components/model-dependent components

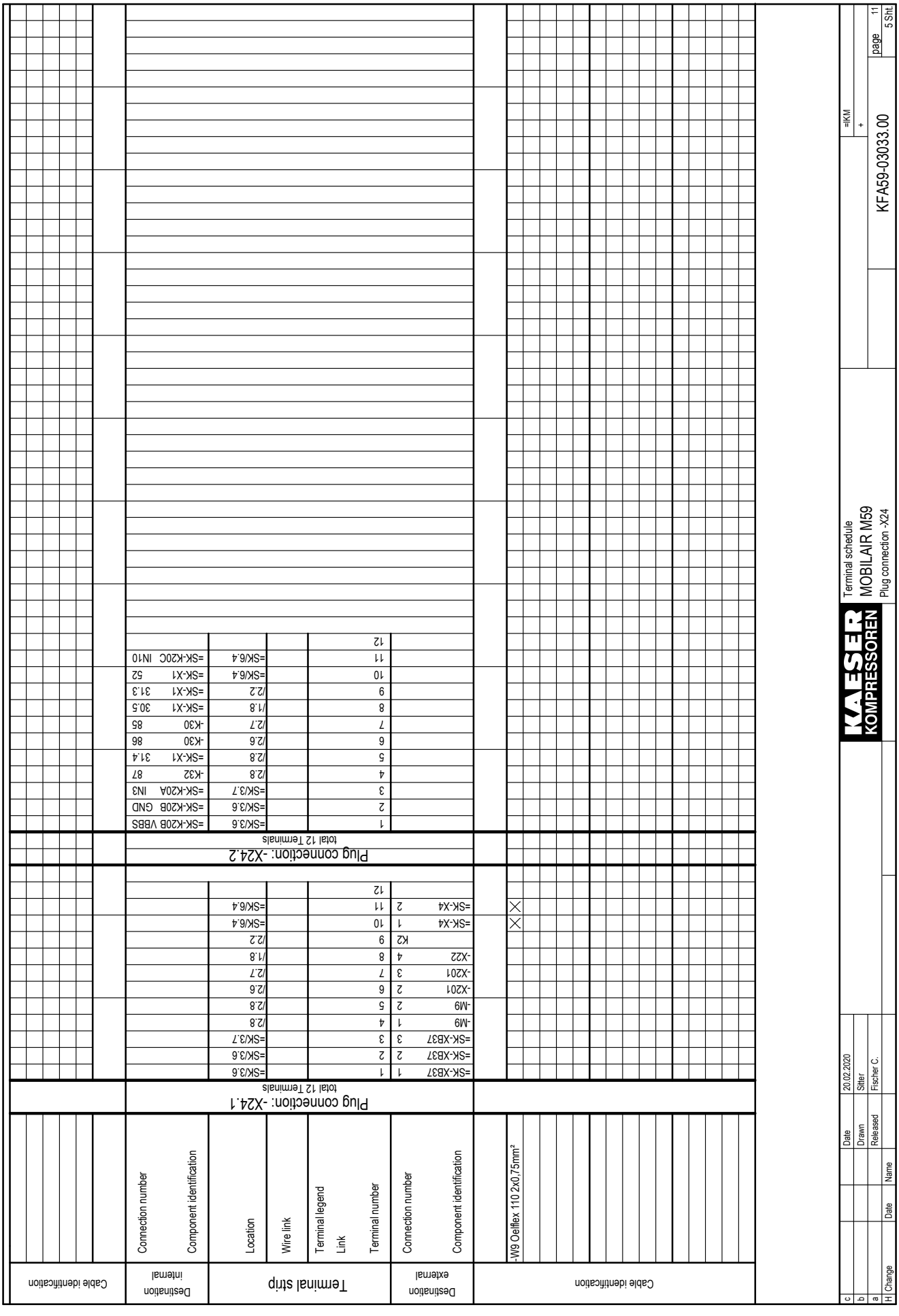
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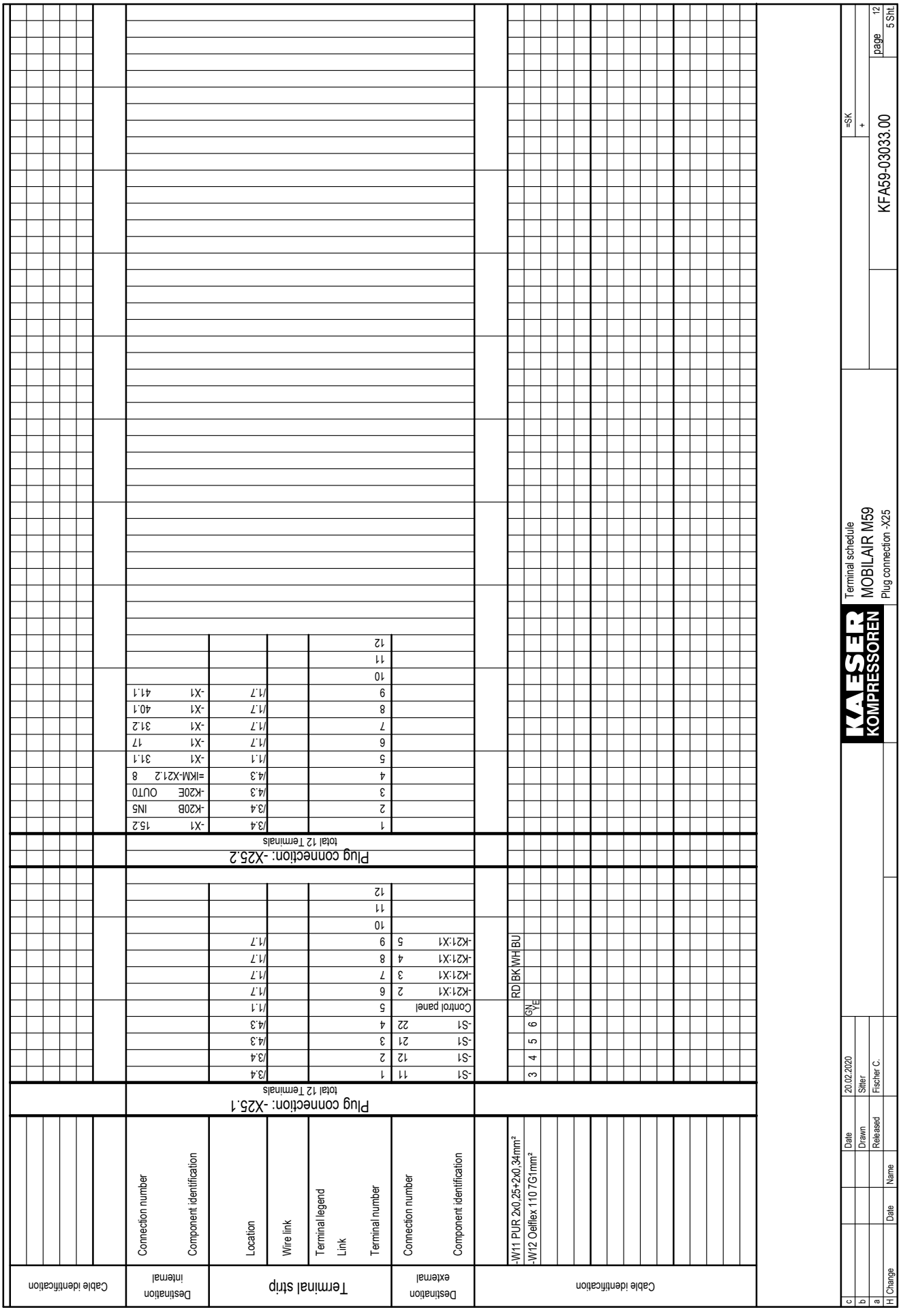
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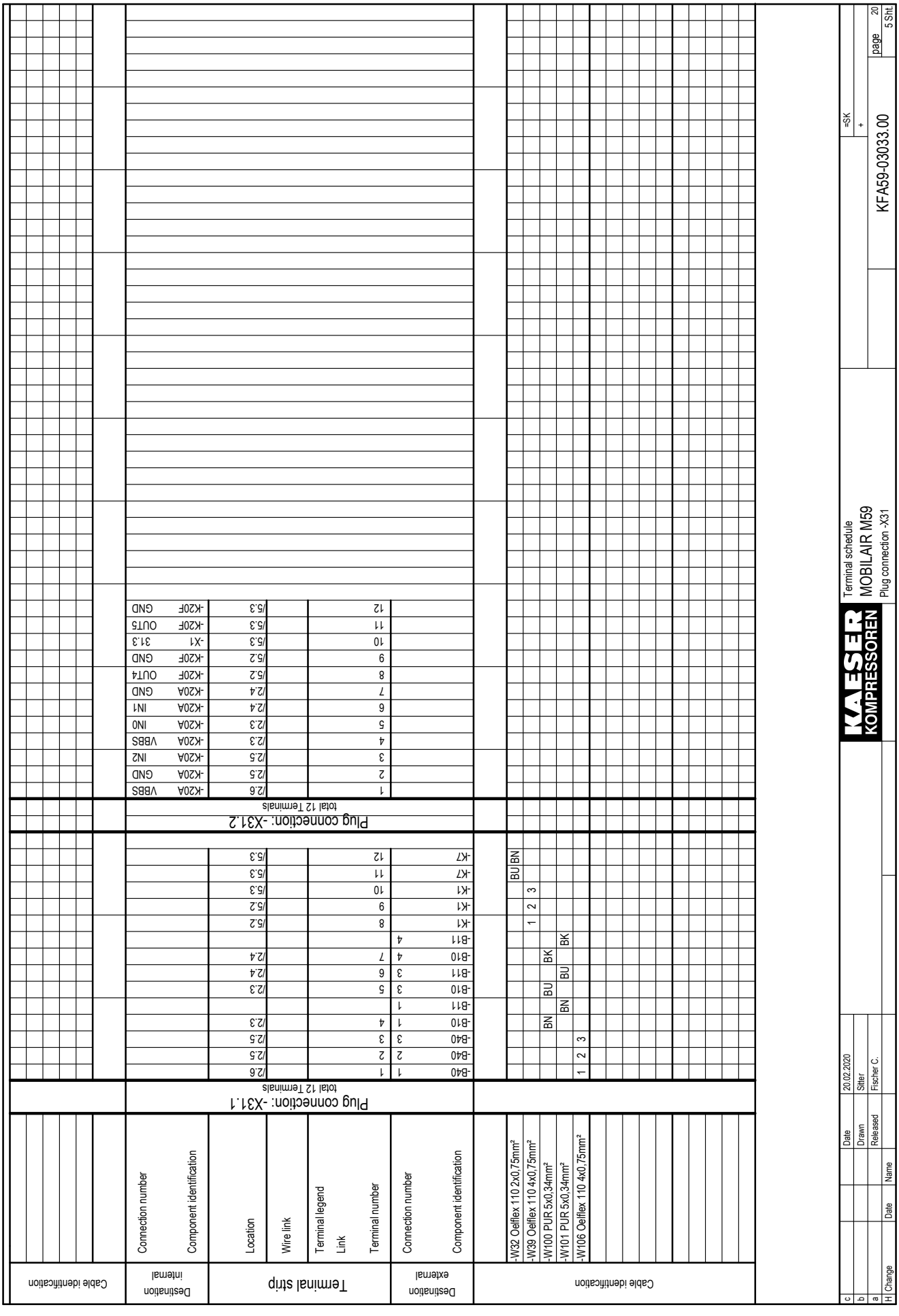
page 3
3 Sht.

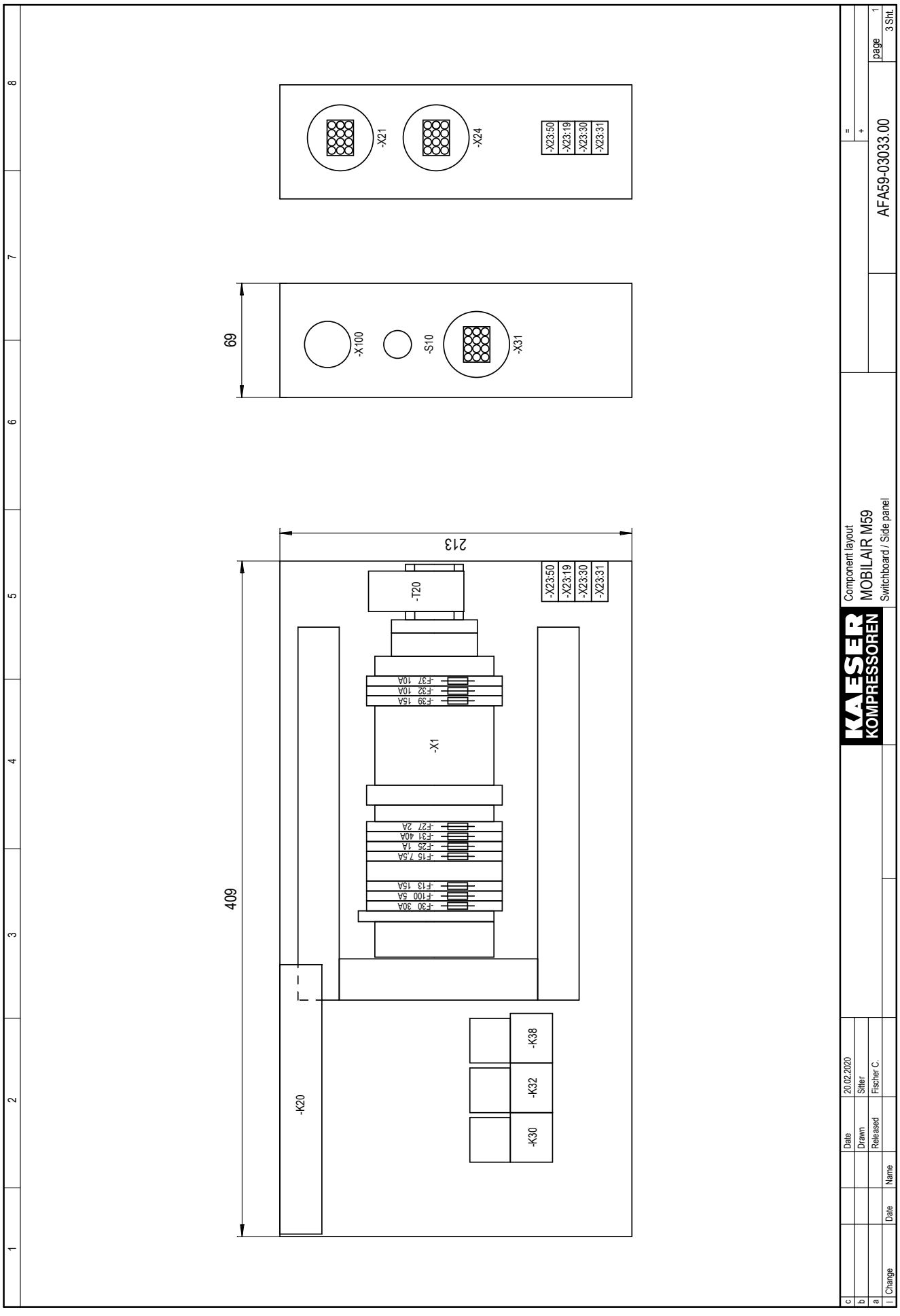

Terminal strip: -X1
total 50 Terminals
Cable identification
Destination external
Terminal strip
Destination internal
Cable identification
Component identification
Connection number
Terminal number
Link
Terminal legend
Wire link
Location
Component identification
Connection number
-W130 Paar-Tronic-CY 3x2x0.5mm²
-W12 Oelflex 110 7G1mm²
1) model-dependent components
2) Remove jumper when connecting remote on/off
KAESER KOMPRESSOREN
Terminal schedule
MOBILAIR M59
Terminal strip - X1
KFA59-03033.00
page 1
5 Sht.
=SK
Date
Drawn
Released
20.02.2020
Sitter
Fischer C.
Change
Name
Date


Cable identification
Destination internal
Terminal strip
Destination external
Cable identification
Connection number
Component identification
Location
Wire link
Terminal legend
Link
Terminal number
Connection number
Component identification
Plug connection: -X21.1
total 12 Terminals
Plug connection: -X21.2
total 12 Terminals
Date
Name
Drawn
Released
20.02.2020
Sitter
Fischer C.
Change
Terminal schedule
MOBILAIR M59
Plug connection -X21
=IKM
+
KFA59-03033.00
page 10
5 Sht.

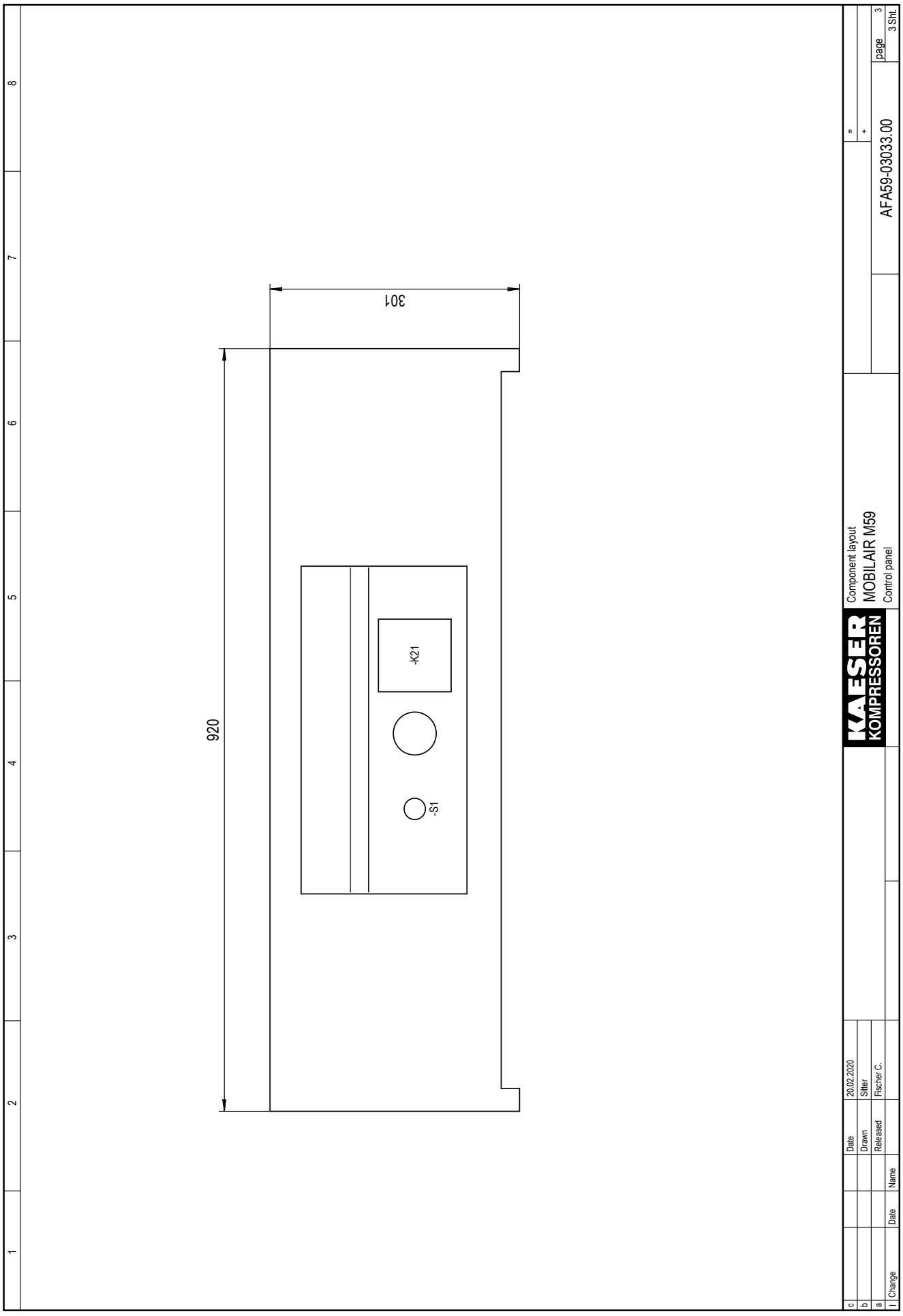

Cable identification
Destination external
Terminal strip
Destination internal
Cable identification
-W9 Oelflex 110 2x0,75mm²
Component identification
Connection number
Terminal number
Link
Terminal legend
Wire link
Location
Component identification
Connection number
Plug connection: -X24.1
total 12 Terminals
=SK-XB37 1 1 =SK/3.6
=SK-XB37 2 2 =SK/3.6
=SK-XB37 3 3 =SK/3.7
-M9 1 4 /2.8
-M9 2 5 /2.8
-X201 2 6 /2.6
-X201 3 7 /2.7
-X22 4 8 /1.8
K2 9 /2.2
=SK-X4 1 10 =SK/6.4
=SK-X4 2 11 =SK/6.4
12
Plug connection: -X24.2
total 12 Terminals
=SK-K20B VBBS =SK/3.6 1
=SK-K20B GND =SK/3.6 2
=SK-K20A IN3 =SK/3.7 3
-K32 87 /2.8 4
=SK-X1 31.4 /2.8 5
-K30 86 /2.6 6
-K30 85 /2.7 7
=SK-X1 30.5 /1.8 8
=SK-X1 31.3 /2.2 9
=SK-X1 52 =SK/6.4 10
=SK-K20C IN10 =SK/6.4 11
12
Cable identification
Destination internal
Terminal strip
Destination external
Cable identification
Terminal schedule
MOBILAIR M59
Plug connection -X24
KAESER KOMPRESSOREN
=IKM
+
KFA59-03033.00
page 11
5 Sht.
Change
Date
Name
Date
Drawn
Released
20.02.2020
Sitter
Fischer C.


Cable identification
Destination external
Terminal strip
Destination internal
Cable identification
Component identification
Connection number
Terminal number
Link
Terminal legend
Wire link
Location
Component identification
Connection number
-W11 PUR 2x0,25+2x0,34mm²
-W12 Oelflex 110 7G1mm²
Plug connection: -X25.1
total 12 Terminals
-S1 11 /3.4
-S1 12 /3.4
-S1 21 /4.3
-S1 22 /4.3
Control panel /1.1
-K21:X1 2 /1.7
-K21:X1 3 /1.7
-K21:X1 4 /1.7
-K21:X1 5 /1.7
Plug connection: -X25.2
total 12 Terminals
-X1 15.2 -K20B IN5
-K20E OUT0 /4.3
=KM-X21.2 8 /4.3
-X1 31.1 /1.1
-X1 17 /1.7
-X1 31.2 /1.7
-X1 40.1 /1.7
-X1 41.1 /1.7
KAESER KOMPRESSOREN
Terminal schedule
MOBILAIR M59
Plug connection -X25
=SK
+
KFA59-03033.00
page 12
5 Sht.
Date
Drawn
Released
20.02.2020
Sitter
Fischer C.
Change
Name


Cable identification
Destination external
Terminal strip
Destination internal
Cable identification
Component identification
Connection number
Terminal number
Link
Terminal legend
Wire link
Location
Component identification
Connection number
Plug connection: -X31.1
total 12 Terminals
-W32 Oelflex 110 2x0,75mm²
-W39 Oelflex 110 4x0,75mm²
-W100 PUR 5x0,34mm²
-W101 PUR 5x0,34mm²
-W106 Oelflex 110 4x0,75mm²
-B40 1 1 /2.6
-B40 2 2 /2.5
-B40 3 3 /2.5
-B10 1 4 /2.3
-B11 1 /
-B10 3 5 /2.3
-B11 3 6 /2.4
-B10 4 7 /2.4
-B11 4 /
-K1 8 /5.2
-K1 9 /5.2
-K1 10 /5.3
-K7 11 /5.3
-K7 12 /5.3
Plug connection: -X31.2
total 12 Terminals
1 -K20A VBBS /2.6
2 -K20A GND /2.5
3 -K20A IN2 /2.5
4 -K20A VBBS /2.3
5 -K20A IN0 /2.3
6 -K20A IN1 /2.4
7 -K20A GND /2.4
8 -K20F OUT4 /5.2
9 -K20F GND /5.2
10 -X1 31.3 /5.3
11 -K20F OUT5 /5.3
12 -K20F GND /5.3
BN
BU
BK
1 2 3
Change
Date
Name
Drawn
Released
20.02.2020
Sitter
Fischer C.
KAESER KOMPRESSOREN
Terminal schedule
MOBILAIR M59
Plug connection -X31
=SK
+
KFA59-03033.00
page 20
5 Sht.


-X21
-X24
-X23:50
-X23:19
-X23:30
-X23:31
69
-X100
-S10
-X31
213
409
-T20
-F37 10A
-F32 10A
-F39 15A
-X1
-F27 2A
-F31 40A
-F25 1A
-F15 7,5A
-F13 15A
-F100 5A
-F30 30A
-K20
-K38
-K32
-K30
Component layout
MOBILAIR M59
Switchboard / Side panel
AFA59-03033.00
page 1
3 Sht.
Date
Drawn
Released
20.02.2020
Sitter
Fischer C.
Name
Change


213
409
-K7
-K22
-X22
-K31
Component layout
MOBILAIR M59
rear panel Switchboard
KAESER KOMPRESSOREN
AFA59-03033.00
page 2
3 Sht.
Date
Drawn
Released
20.02.2020
Sitter
Fischer C.
Change
Name
Date


301
920
-K21
-S1
Component layout
MOBILAIR M59
Control panel
AFA59-03033.00
page 3
3 Sht.
Date
Drawn
Released
20.02.2020
Sitter
Fischer C.
Change
Date
Name

13.4.2 Option tc
Lighting and signalling system connection

1	2	3	4	5	6	7	8

Electrical diagrams

MOBILAIR

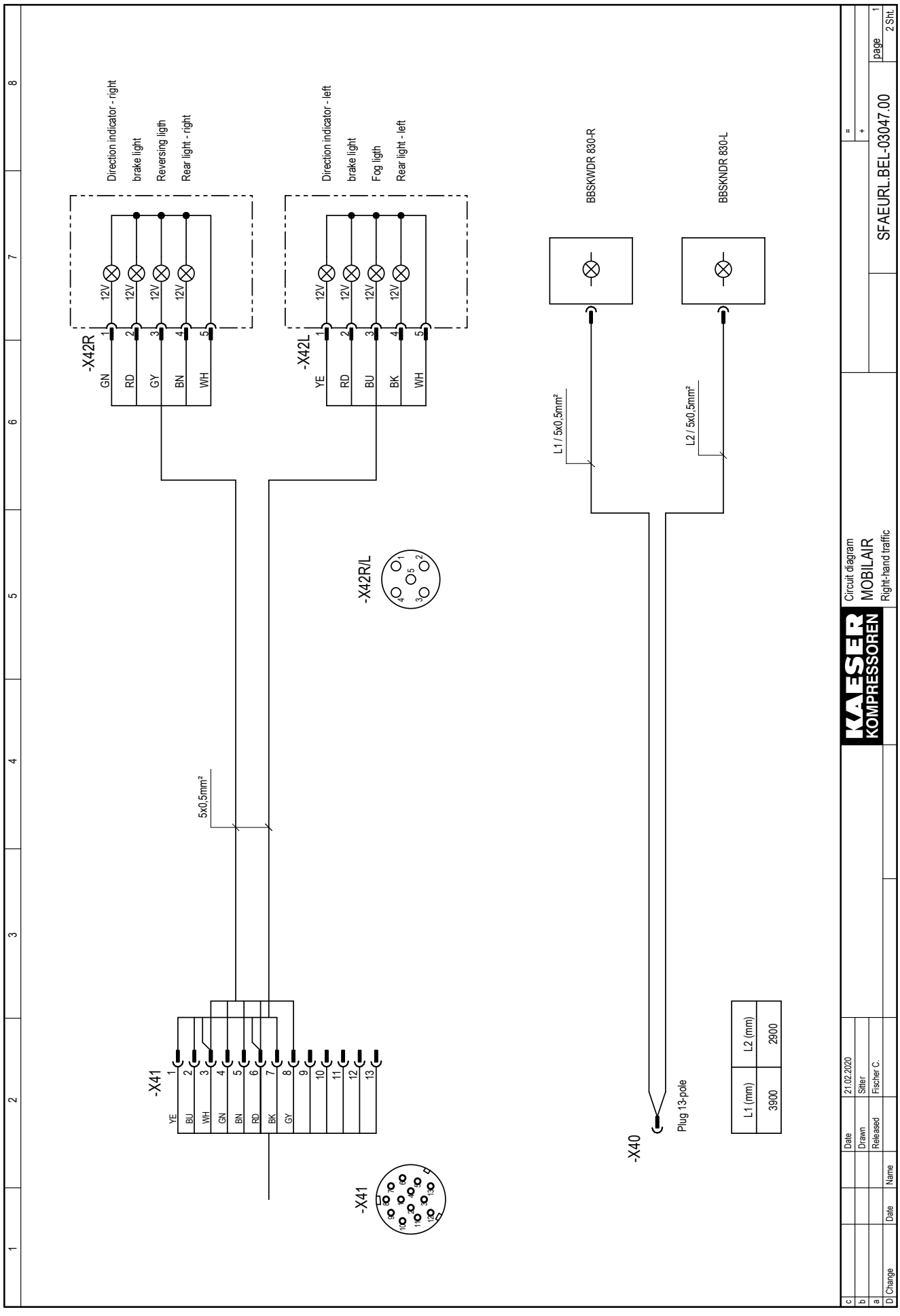
Lighting equipment

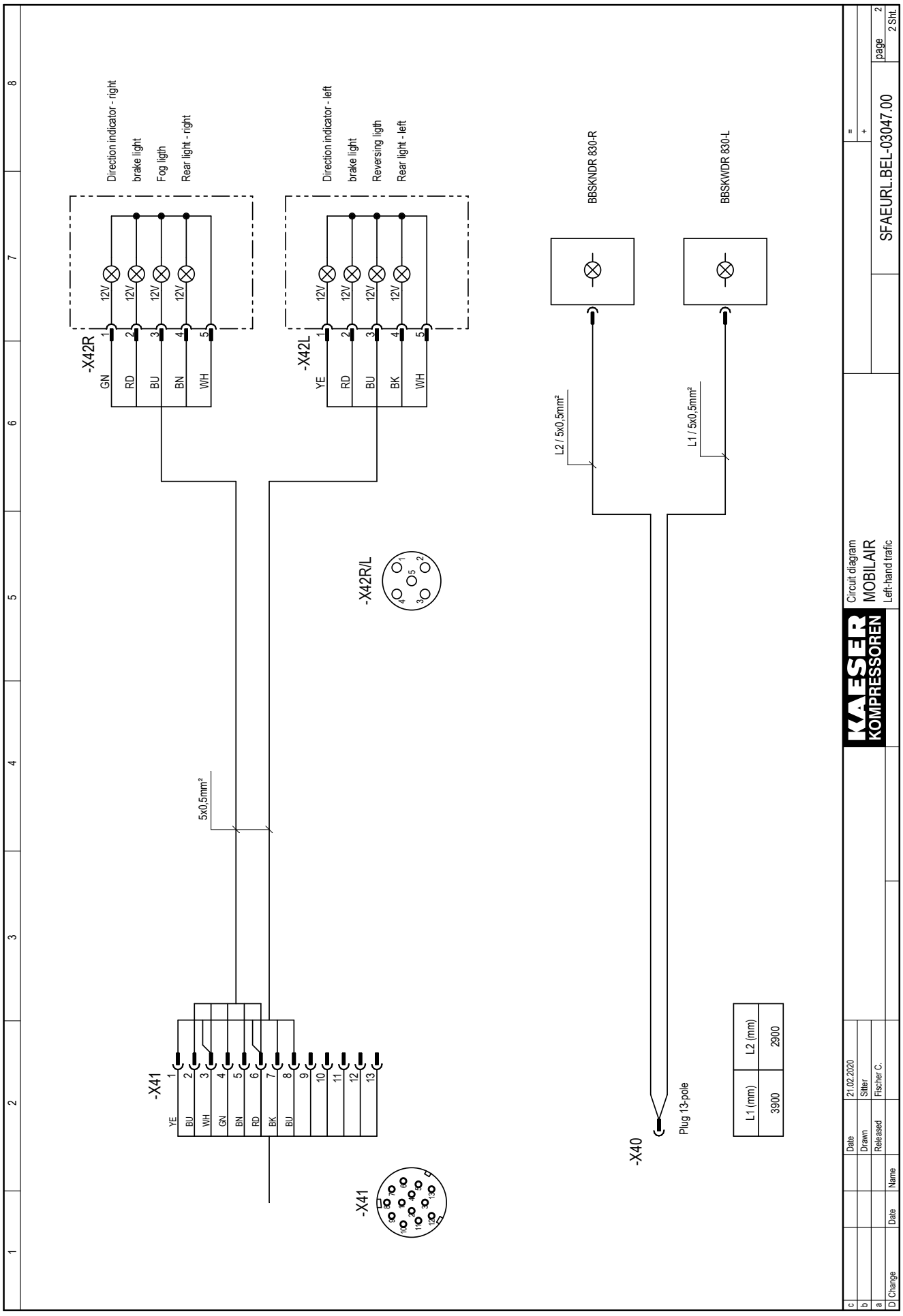
for EU-Right-hand traffic/Left-hand trafic

Manufacturer: KAESER KOMPRESSOREN SE
Postfach 2143
96410 Coburg

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c				Date	21.02.2020 E	KAESER KOMPRESSOREN	Cover page MOBILAIR	=	
b				Drawn	Sitter			+	
a				Released	Fischer C.			DFAEURL.BEL-03047.00	page 1
A	Change	Date	Name						1 Sht.


Direction indicator - right
brake light
Reversing ligth
Rear light - right
-X42R
GN
RD
GY
BN
WH
12V
Direction indicator - left
brake light
Fog ligth
Rear light - left
-X42L
YE
RD
BU
BK
WH
BBSKWDR 830-R
BBSKNDR 830-L
L1 / 5x0,5mm²
L2 / 5x0,5mm²
-X42R/L
5x0,5mm²
-X41
YE
BU
WH
GN
BN
RD
BK
GY
-X40
Plug 13-pole
L1 (mm) 3900
L2 (mm) 2900
KAESER KOMPRESSOREN
Circuit diagram
MOBILAIR
Right-hand traffic
SFAEURL.BEL-03047.00
page 1
2 Sht.
Date 21.02.2020
Drawn Sitter
Released Fischer C.
Change Date Name


Direction indicator - right
brake light
Fog ligth
Rear light - right
Direction indicator - left
brake light
Reversing ligth
Rear light - left
BBSKNDR 830-R
BBSKWDR 830-L
-X42R
-X42L
-X42R/L
-X41
-X40
-X41
12V
GN
RD
BU
BN
WH
YE
BK
5x0,5mm²
L2 / 5x0,5mm²
L1 / 5x0,5mm²
Plug 13-pole
L1 (mm)
L2 (mm)
3900
2900
KAESER KOMPRESSOREN
Circuit diagram
MOBILAIR
Left-hand trafic
SFAEURL.BEL-03047.00
page 2
2 Sht.
Date
Drawn
Released
21.02.2020
Sitter
Fischer C.
Name
Change

13.4.3 Option te
Lighting and signalling system connection

Electrical diagrams

MOBILAIR

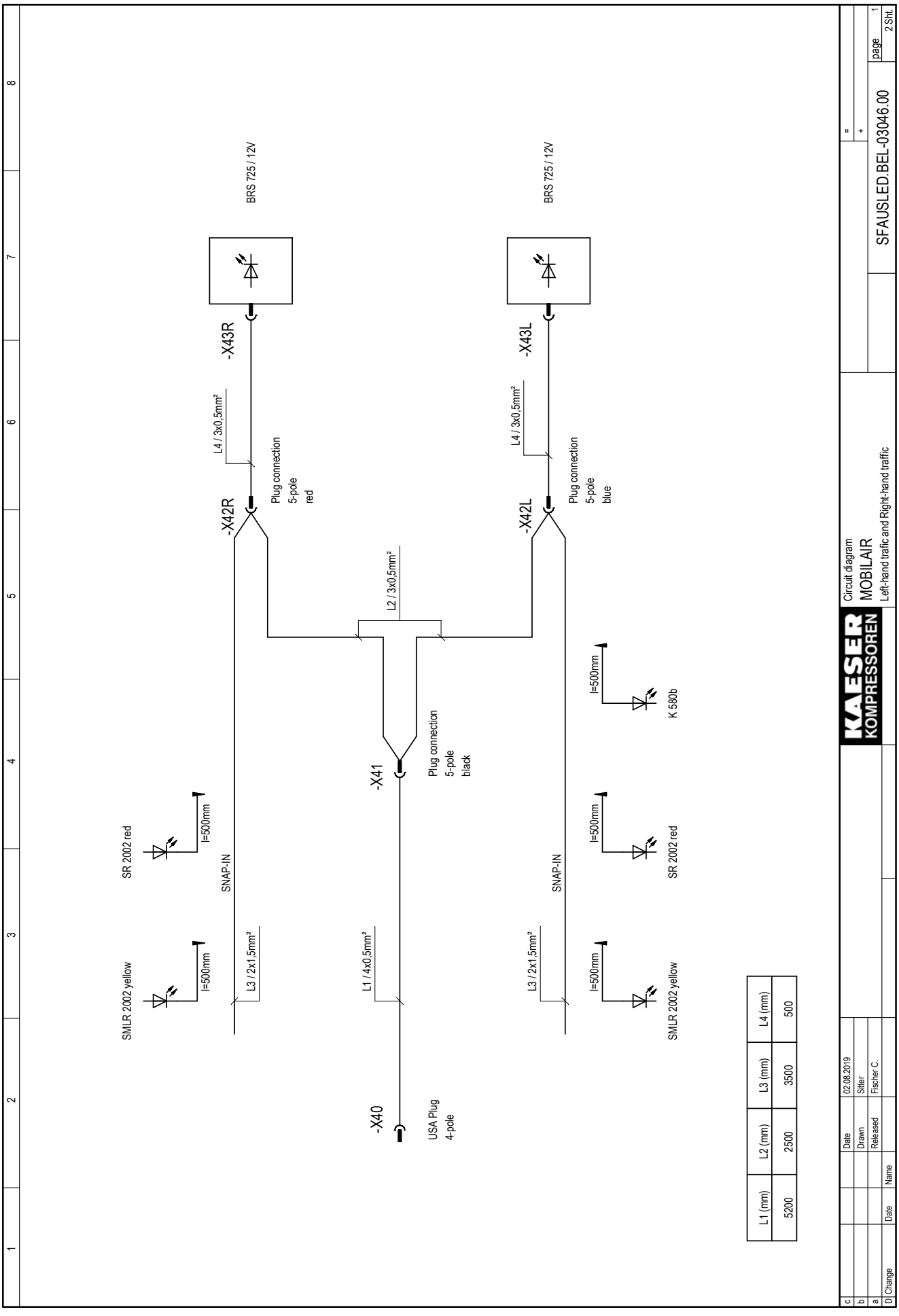
LED-Lighting equipment

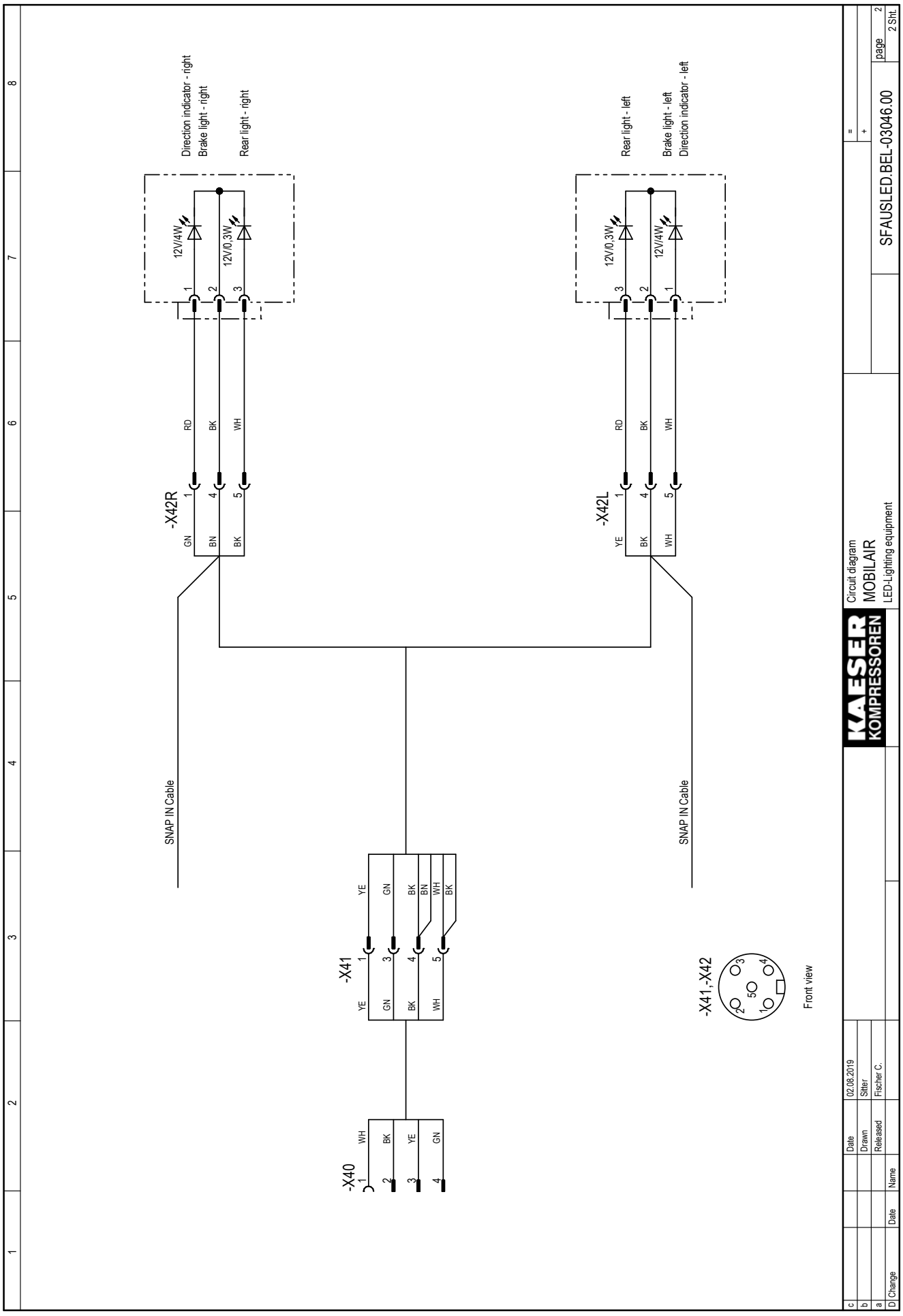
for USA / CAN

Manufacturer: KAESER KOMPRESSOREN SE
Postfach 2143
96410 Coburg

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c				Date	02.08.2019 E	KAESER KOMPRESSOREN	Cover page MOBILAIR	=	
b				Drawn	Sitter			+	
a				Released	Fischer C.			DFAUSLED.BEL-03046.00	page 1
A	Change	Date	Name						1 Sht.


BRS 725 / 12V
BRS 725 / 12V
-X43R
-X43L
L4 / 3x0,5mm²
L4 / 3x0,5mm²
Plug connection
5-pole
red
Plug connection
5-pole
blue
-X42R
-X42L
L2 / 3x0,5mm²
-X41
Plug connection
5-pole
black
SR 2002 red
I=500mm
SNAP-IN
L3 / 2x1,5mm²
SMLR 2002 yellow
I=500mm
L1 / 4x0,5mm²
-X40
USA Plug
4-pole
L3 / 2x1,5mm²
SNAP-IN
I=500mm
K 580b
I=500mm
SR 2002 red
I=500mm
SMLR 2002 yellow
L1 (mm) 5200
L2 (mm) 2500
L3 (mm) 3500
L4 (mm) 500
Date 02.08.2019
Drawn Sitter
Released Fischer C.
Name
Change
KAESER KOMPRESSOREN
Circuit diagram
MOBILAIR
Left-hand trafic and Right-hand traffic
SFAUSLED.BEL-03046.00
page 1
2 Sht.


Direction indicator - right
Brake light - right
Rear light - right
12V/4W
12V/0.3W
-X42R
RD
BK
WH
GN
BN
BK
SNAP IN Cable
Rear light - left
Brake light - left
Direction indicator - left
-X42L
YE
-X41
-X40
-X41,-X42
Front view
Circuit diagram
MOBILAIR
LED-Lighting equipment
SFAUSLED.BEL-03046.00
page 2
2 Sht.
Date
Drawn
Released
02.08.2019
Sitter
Fischer C.
Name
Change

13.4.4 Option ga
Generator electrical diagram, 400V, 3-ph

Electrical diagrams

Synchronous generator

400V/3~/50Hz, 8,5/13 kVA

with Insulation monitoring

and separatem socket panel

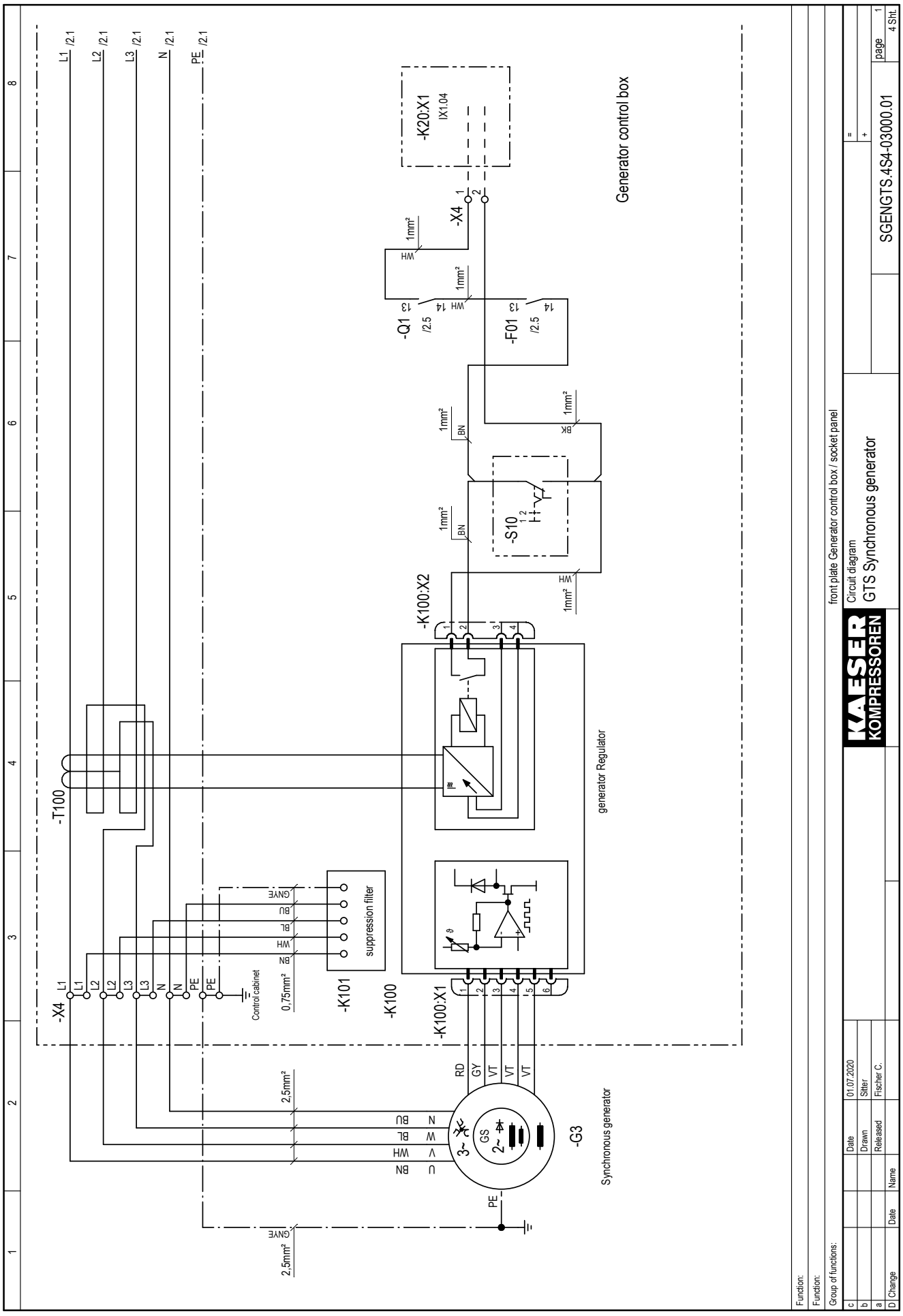
Manufacturer: KAESER KOMPRESSOREN SE
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96410 Coburg

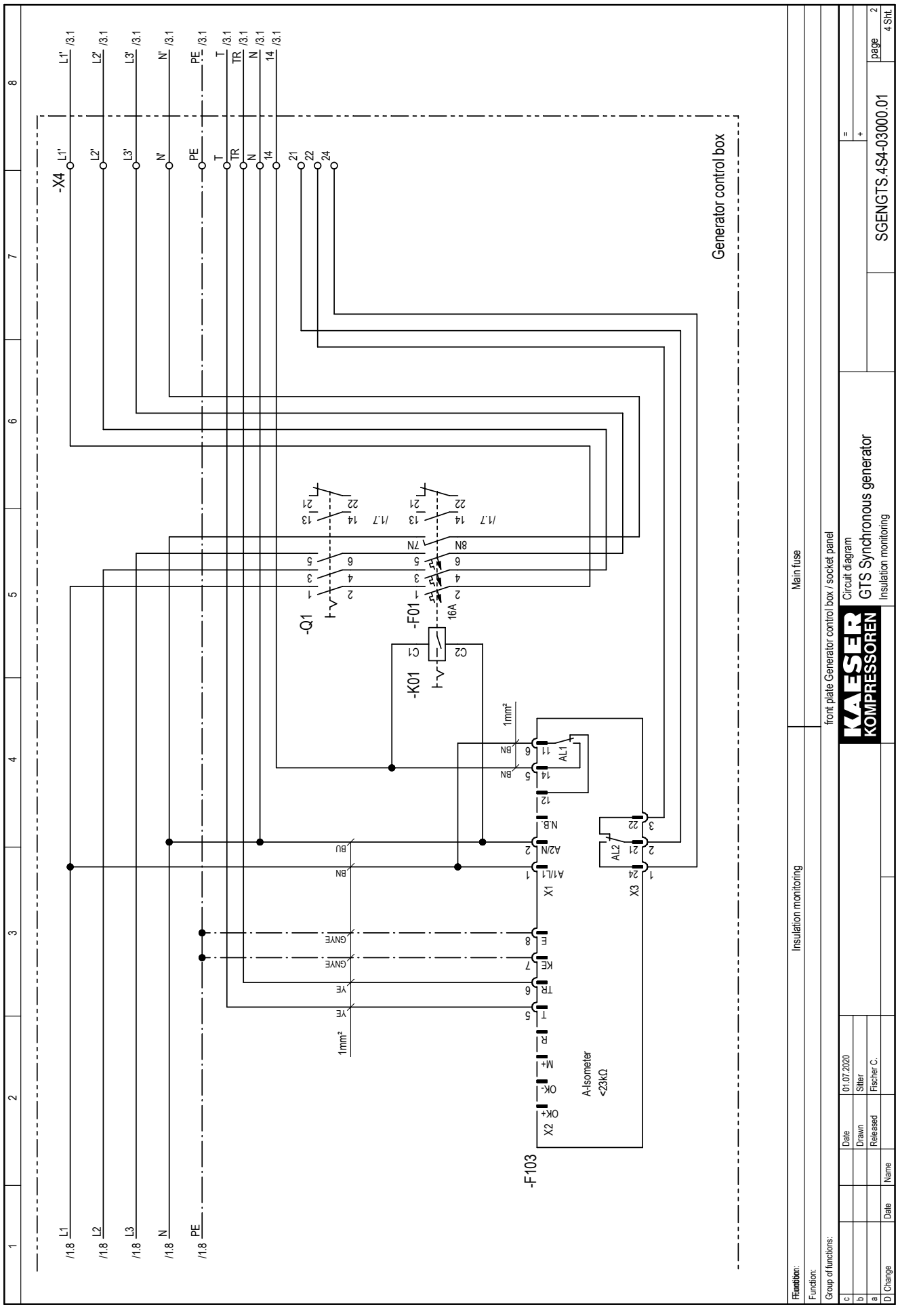
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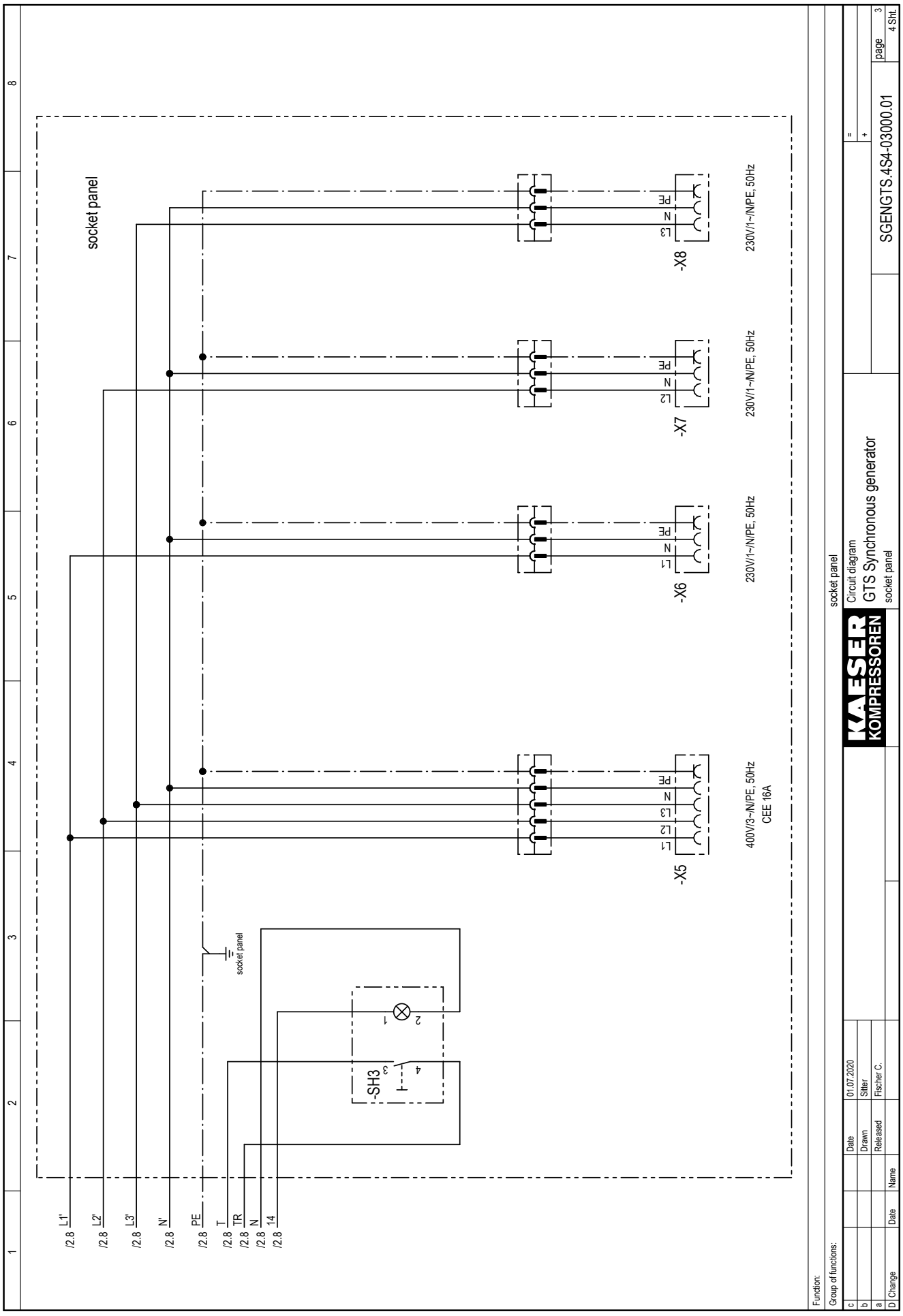
c				Date	01.07.2020 E	KAESER KOMPRESSOREN	Cover page	=	
b				Drawn	Sitter		GTS Synchronous generator	+	
a				Released	Fischer C.			DGENGTS.4S4-03000.01	page 1
A	Change	Date	Name						1 Sht.

Lfd. Nr. No.	Benennung Name	Zeichnungsnummer (Kunde) Drawing No. (customer)	Zeichnungsnummer (Hersteller) Drawing No. (manufacturer)	Blatt Page	Anlagenkennzeichen Unit designation
1	Cover page		DGENGTS.4S4-03000.01	1	
2	List of contents		ZGENGTS.4S4-03000.01	1	
3	Circuit diagram		SGENGTS.4S4-03000.01	1	
4	Circuit diagram Insulation monitoring		SGENGTS.4S4-03000.01	2	
5	Circuit diagram socket panel		SGENGTS.4S4-03000.01	3	
6	electrical equipment identification		SGENGTS.4S4-03000.01	01	
7	Equipment parts list		GGENGTS.4S4-03000.01	1	
8	Component layout		AGENGTS.4S4-03000.01	1	

c				Date	01.07.2020	KAESER KOMPRESSOREN	List of contents	=	
b				Drawn	Sitter		GTS Synchronous generator	+	
a				Released	Fischer C.			ZGENGTS.4S4-03000.01	page 1
B	Change	Date	Name						1 Sht.


Generator control box
-K20:X1
IX1.04
-X4
-Q1
/2.5
-F01
/2.5
-S10
-K100:X2
-K100:X1
-K100
generator Regulator
-K101
suppression filter
-T100
-X4
Control cabinet
0,75mm²
-G3
Synchronous generator
2,5mm²
front plate Generator control box / socket panel
Circuit diagram
GTS Synchronous generator
SGENGTS.4S4-03000.01
page 1
4 Sht.
Function:
Function:
Group of functions:
Date 01.07.2020
Drawn Sitter
Released Fischer C.
D Change Date Name


Generator control box
-X4
L1'
L2'
L3'
N'
PE
T
TR
N
14
21
22
24
/3.1
-Q1
-F01
16A
-K01
C1
C2
/1.7
7N
8N
1mm²
BN
AL1
AL2
N.B.
A2/N
A1/L1
X1
X3
X2
BU
GNYE
YE
TR
T
M+
OK-
OK+
A-Isometer
<23kΩ
-F103
L1
L2
L3
N
PE
/1.8
Insulation monitoring
Main fuse
front plate Generator control box / socket panel
KAESER KOMPRESSOREN
Circuit diagram
GTS Synchronous generator
Insulation monitoring
SGENGTS.4S4-03000.01
page 2
4 Sht.
Date
Name
01.07.2020
Sitter
Fischer C.
Drawn
Released
D Change


socket panel
-X8
-X7
-X6
-X5
PE
N
L1
L2
L3
230V/1~/N/PE, 50Hz
400V/3~/N/PE, 50Hz
CEE 16A
-SH3
socket panel
L1'
L2'
L3'
N'
PE
T
TR
N
14
/2.8
KAESER KOMPRESSOREN
Circuit diagram
GTS Synchronous generator
socket panel
SGENGTS.4S4-03000.01
page 3
4 Sht.
Function:
Group of functions:
Date 01.07.2020
Drawn Sitter
Released Fischer C.
D Change Date Name

-F01	Cut-out with overcurrent release
-F103	Insulation monitoring
-G3	generator
-K01	overcurrent release
-K100	generator-Regulator
-K101	suppression filter
-Q1	Main switch
-SH3	Test button Insulation monitoring, earth leakage lamp
-S10	Selector switch
-T100	current transformer
-X4	connection generator
-X5	Socket outlet 400V/3~/N/PE, 50Hz
-X6,-X7,-X8	Socket outlet 230V/1~/N/PE,50Hz

c				Date	01.07.2020		KAESER KOMPRESSOREN	electrical equipment identification	=
b				Drawn	Sitter			GTS Synchronous generator	+
a				Released	Fischer C.				page 01
E	Change	Date	Name					SGENGTS.4S4-03000.01	4 Sht.

1	2	3	4	5	6	7	8					
A Stück-zahl Qty.	B Benennung und Verwendung Description and function	C Fabrikatsbezeichnung Typ; notwendige techn. Daten (z.B. Steuerspannung, Frequenz, Einstellbereich); Bestell-Nr.; Hersteller Identification data Type; basic technical data (e.g. control voltage, frequency, adjustable range); order No.; manufacturer		D Lfd. Nr. Item	E Betriebsmittel-Kennz. nach DIN 40719, Teil 2 Identifying symbol of device	F Stromlaufplan Planabschnitt Circuit diagram sheet No.; section No.	G Einbauort Location	Concerns only the manufacturer Wst.-Nr. H Schabl. Nr.	I BZ-Pos.	J VA Kz. *)	K Eingangs-vermerk
	Type: Synchronous generator 8,5 kVA										
1	Synchronous generator GTS 8,5 kVA, 400 V	DWG (BL4) 8,5/5,0 - 2 ZE	7.9298.0		-G3						
1	socket panel DE	400 V / 230 V, 50 Hz, 16 A	7.9285.0		-SH3,-X5,-X6,-X7,-X8						
1	Control cabinet		7.9286.0		-F01,-F103,-K100,-K101						
					-Q1,-S10,-T100,-X4						
	Type: Synchronous generator 13 kVA										
1	Synchronous generator GTS 13 kVA, 400 V	DWG (BL4) 13/7,0 - 2 ZE	7.9291.0		-G3						
1	socket panel DE	400 V / 230 V, 50 Hz, 16 A	7.9285.0		-SH3,-X5,-X6,-X7,-X8						
1	Control cabinet		7.9286.0		-F01,-F103,-K100,-K101						
					-Q1,-S10,-T100,-X4						

Bei Nachbestellung von Geräten und Maschinen sind alle in den stark umrandeten Spalten B und C angegebenen Daten aufzuführen. Die Daten in den Spalten D bis G sind zusätzlich unter Nennung dieser Gerätestücklisten-Nummer anzugeben, soweit sie die Beantwortung technischer Rückfragen erleichtern. Für Ersatzteilbestellung ist zusätzlich die Angabe der Serialnummer erforderlich, falls diese auf dem Typenschild des Erzeugnisses genannt ist.

In Zweifelsfällen gilt die deutsche Fassung.

When reordering the equipment, all data enclosed by the heavy lines of columns B and C should be stated. In addition, the data in columns D to G should be given together with the No. of this list of equipment, insofar as they ar helpful in answering technical enquiries. When ordering spare parts, also quote the serial No. of the product if stated on the rating plate.

The German version applies in cases of doubt.

*) Versandanschrift - Kennzeichen

c				Date	01.07.2020
b				Drawn	Sitter
a				Released	Fischer C.
F	Change	Date	Name		

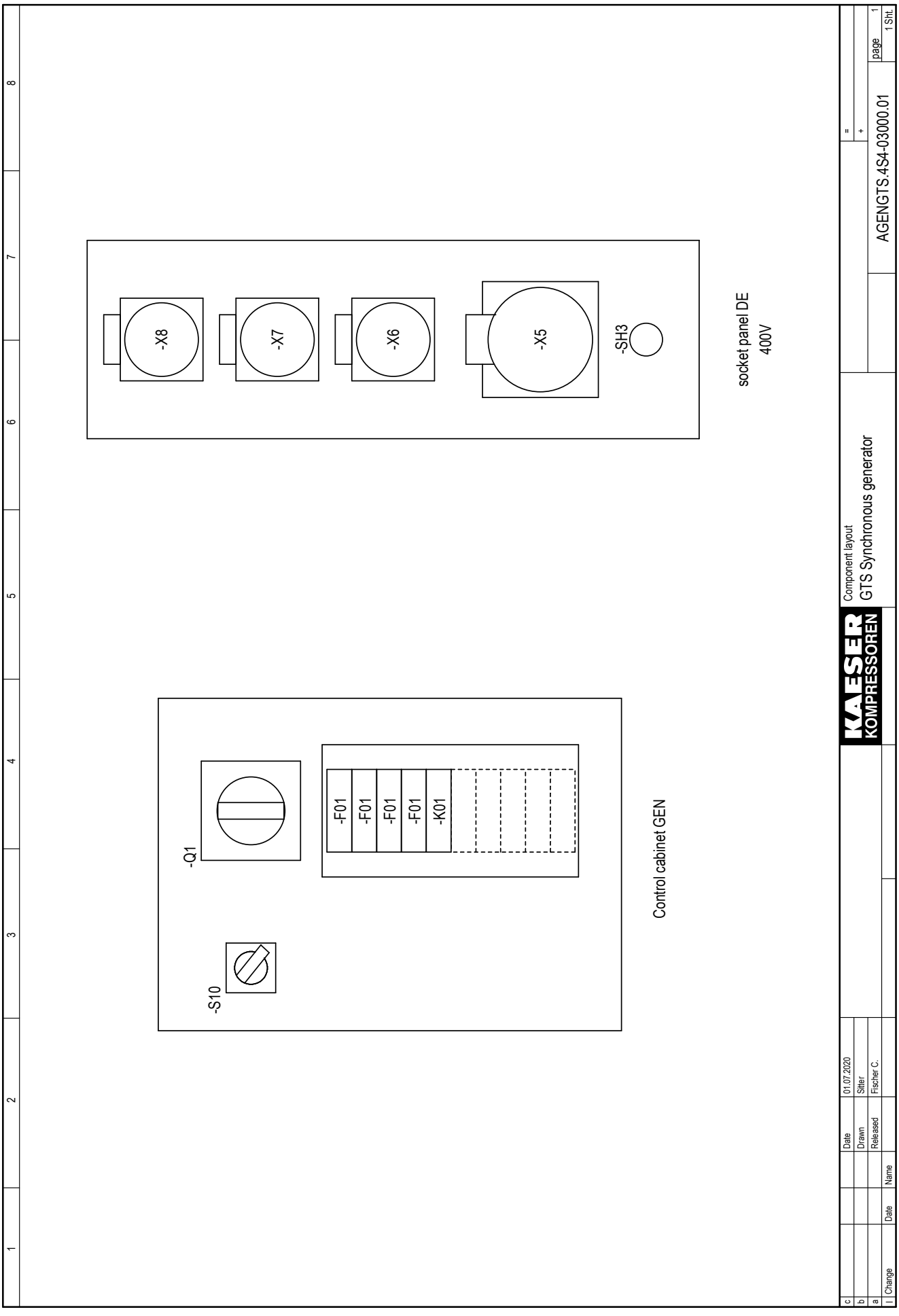
KAESER KOMPRESSOREN

Equipment parts list
GTS Synchronous generator

GGENGTS.4S4-03000.01

=
+

page 1
1 Sht.


-X8
-X7
-X6
-X5
-SH3
socket panel DE
400V
-Q1
-S10
-F01
-F01
-F01
-F01
-K01
Control cabinet GEN
KAESER KOMPRESSOREN
Component layout
GTS Synchronous generator
AGENGTS.4S4-03000.01
page 1
1 Sht.
Date
Drawn
Released
01.07.2020
Sitter
Fischer C.
Change
Name

13.4.5 Option od
Battery charger electrical diagrams

Electrical diagrams

Battery charger 12V DC / 5A

Power supply:

230V / 1~ / N / PE / 50Hz

12V - System

Manufacturer: KAESER KOMPRESSOREN SE
Postfach 2143
96410 Coburg

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c				Date	18.03.2020 E	KAESER KOMPRESSOREN	Cover page		=	
b				Drawn	Sitter		MOBILAIR		+	
a				Released	Fischer C.		Battery charger	DFABLG-03039.01	page 1	
A	Change	Date	Name						1 Sht.	

general instructions

Control voltage : 230V AC

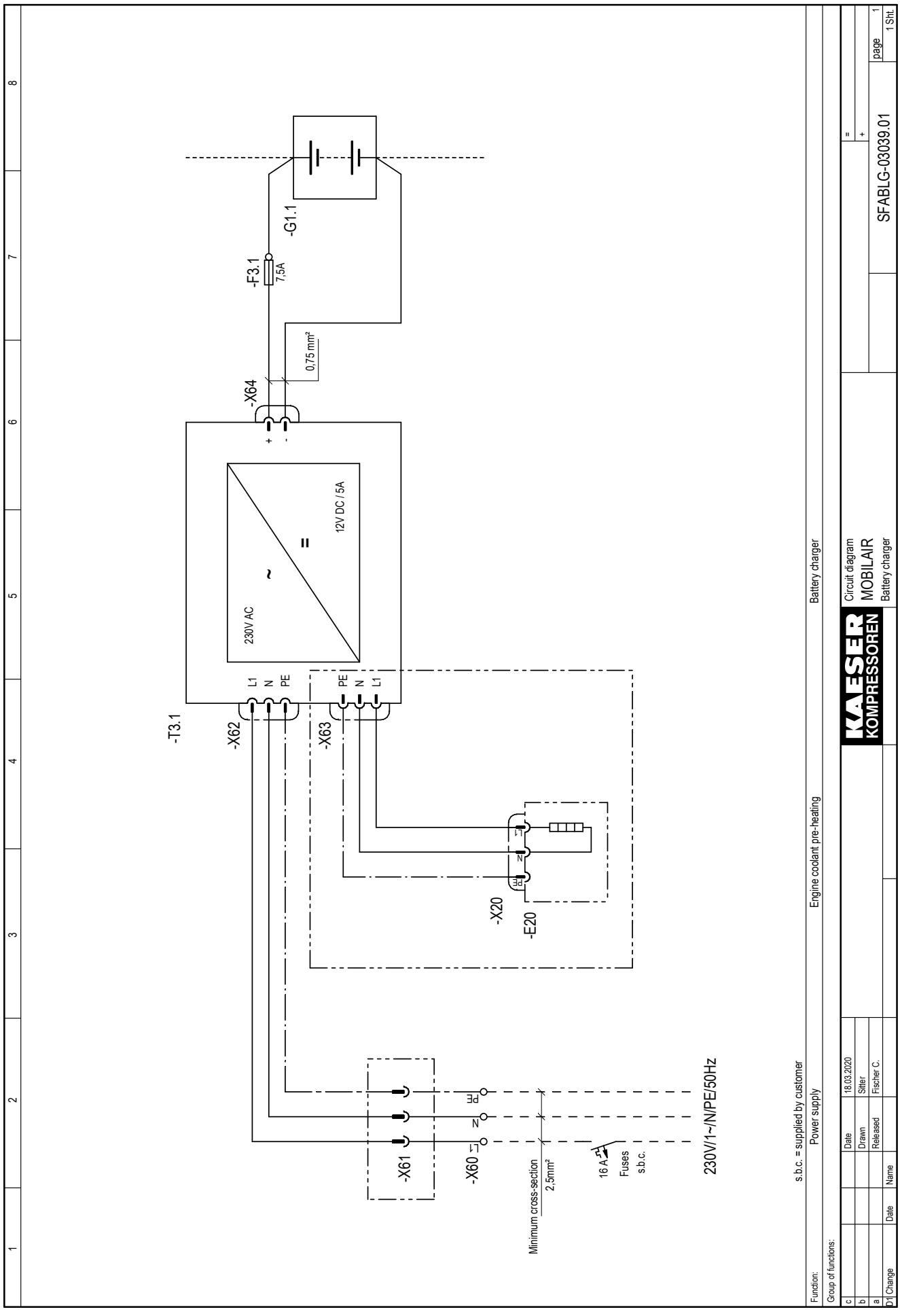
components option Battery charger

-T3.1	Battery charger
-F3.1	Fuse
-G1.1	Battery
-X60...-X64	plug connection

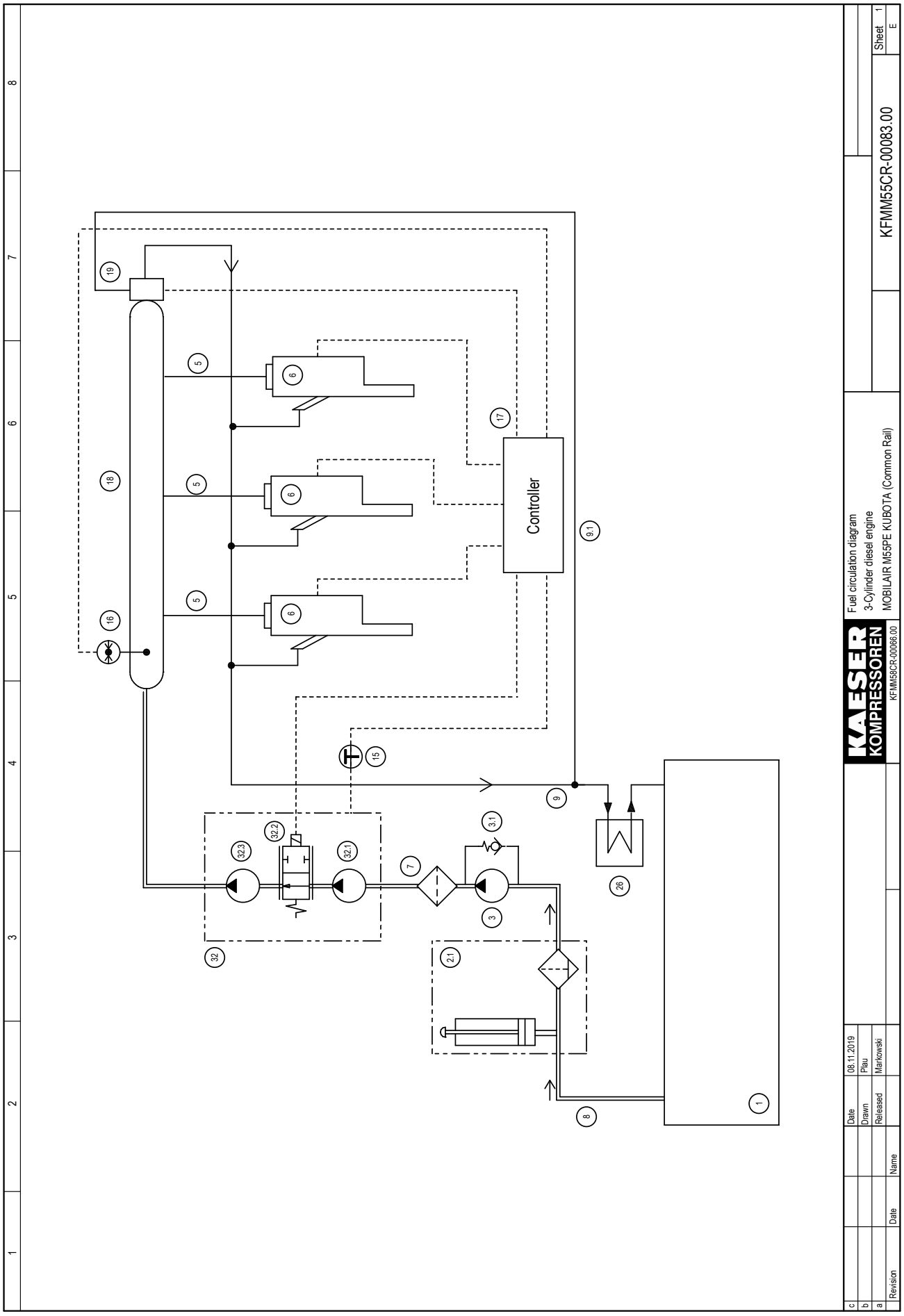
components option Engine coolant pre-heating

-E20	Heating Engine coolant pre-heating
-X20	plug connection

c				Date	18.03.2020	KAESER KOMPRESSOREN	Block diagram general instructions
b				Drawn	Sitter		
a				Released	Fischer C.		
C1	Change	Date	Name				UFABLG-03039.01 page 1 / 1 Sht.


-G1.1
-F3.1
7,5A
0,75 mm²
-X64
+
-
12V DC / 5A
230V AC
-T3.1
L1
N
PE
-X62
-X63
-X20
-E20
-X61
-X60
Minimum cross-section
2,5mm²
16 A
Fuses
s.b.c.
230V/1~/N/PE/50Hz
s.b.c. = supplied by customer
Function:
Power supply
Engine coolant pre-heating
Battery charger
Group of functions:
Date
Drawn
Released
18.03.2020
Sitter
Fischer C.
Name
Change
KAESER KOMPRESSOREN
Circuit diagram
MOBILAIR
Battery charger
SFABLG-03039.01
page 1
1 Sht.

13.5 Fuel circulation diagram


Controller
Fuel circulation diagram
3-Cylinder diesel engine
MOBILAIR M55PE KUBOTA (Common Rail)
KFMM58CR-00066.00
KFMM55CR-00083.00
Sheet 1
E
Date
Drawn
Released
08.11.2019
Plau
Markowski
Name
Revision

1	2	3	4	5	6	7	8

1	Fuel tank
2.1	Fuel prefilter with water separator and integrated manual pump
3	Fuel feed pump
3.1	Bypass valve
5	High pressure line
6	Injector nozzle
7	Fuel filter
8	Fuel supply line
9	Fuel return line
9.1	Fuel leakage pipe
15	Temperature transducer
16	Pressure transducer
17	Engine control unit
18	Distributing pipe
19	Pressure limiting valve
26	Fuel cooler
32	High-pressure pump
32.1	Fuel feed pump (fitted on engine)
32.2	Control valve (fuel feed pump)
32.3	Pump unit

c				Date	08.11.2019	KAESER KOMPRESSOREN	Fuel circulation diagram		
b				Drawn	Plau		3-Cylinder diesel engine		
a				Released	Markowski		MOBILAIR M55PE KUBOTA (Common Rail)	KFMM55CR-00083.00	Sheet 2
	Revision	Date	Name			KFMM58CR-00066.00			E

13.6 Option dd
Operating instructions for compressed air filter (combination filter)



Filters for Compressed Air

P010 - P055 (WS, AO, AA, ACS)

User Guide

EN Original Language

NL DE FR FI SV NO DA EL ES PT IT PL
SK CS ET HU LV LT RU SL TR MT RO BG

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

Parker domnick hunter

ENGINEERING YOUR SUCCESS.

EN ONE YEAR AIR QUALITY GUARANTEE



Your air quality has been guaranteed for 1 year and will be renewed at every annual filter element change.
Annual filter element changes ensure:

- Optimal performance is maintained
- Air quality continues to meet international standards
- Protection of downstream equipment, personnel and processes
- Low operational costs
- increased productivity and profitability
- peace of mind

NL LUCHTKWALITEITSGARANTIE VAN ÉÉN JAAR

De luchtkwaliteit wordt 1 jaar lang gegarandeerd. De garantie wordt elk jaar verlengd wanneer het filterelement wordt vervangen.
Een jaarlijkse vervanging van het filterelement heeft de volgende voordelen:

- Een onverminderde optimale prestatie
- Luchtkwaliteit die blijft voldoen aan de internationale normen
- Bescherming van apparatuur, personeel en processen achter de compressor
- Lage bedrijfskosten
- Hogere productiviteit en rentabiliteit
- Gemoedsrust

DE EIN JAHR GARANTIE AUF DIE LUFTQUALITÄT

Wir gewähren Ihnen eine 1-jährige Garantie auf die Luftqualität, die bei jedem jährlichen Austausch des Filterelements erneuert wird.
Ein jährlicher Austausch des Filterelements stellt Folgendes sicher:

- Optimale Leistung wird gewährleistet
- Die Luftqualität erfüllt weiterhin internationale Standards
- Schutz der nachgeschalteten Geräte, der Arbeitskräfte und Produktionsabläufe
- Geringe Betriebskosten
- Höhere Produktivität und Wirtschaftlichkeit
- Sorgenfreiheit

FR QUALITÉ DE L'AIR GARANTIE PENDANT 1 AN

La qualité de l'air est garantie pendant 1 an, garantie renouvelable à chaque remplacement annuel la de cartouche filtrante.
Le remplacement annuel des cartouches filtrantes garantit :

- La préservation de performances optimales
- Une qualité de l'air conforme aux normes internationales
- Une protection de l'équipement, des processus et du personnel en aval
- Des coûts d'utilisation réduits
- Un niveau de productivité et de rentabilité accru
- Votre tranquillité d'esprit

ES GARANTÍA DE CALIDAD DEL AIRE PARA UN AÑO

La calidad del aire tiene una garantía de 1 año y se renovará con cada cambio anual del filtro
El cambio anual del filtro le asegura:

- Se mantiene un rendimiento óptimo.
- La calidad del aire sigue cumpliendo las normas internacionales
- Protección del equipo, personal y procesos aguas abajo.
- Bajos costes de funcionamiento.
- mayor productividad y rentabilidad.
- tranquilidad.

IT GARANZIA DI UN ANNO SULLA QUALITÀ DELL'ARIA

La qualità dell'aria è garantita per un anno e la garanzia sarà rinnovata dopo ogni sostituzione annuale dell'elemento filtrante.
La sostituzione annuale dell'elemento filtrante assicura:

- Prestazioni ottimali nel tempo
- Aria di qualità sempre conforme alle norme internazionali
- Protezione del personale, delle apparecchiature e dei processi a valle
- Bassi costi di esercizio
- Maggiore produttività e redditività
- Tranquillità





(EN) Model Coding example:

Model						
Element Grade	Premium Energy Efficient Element	Model Size	Port Size	Thread Type	Drain Option	DP Indicator
WS AO AA ACS	P	3 digit code as shown below	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Float M = Manual	X = None I = Incident Monitor
AA	P	030	A	G	F	I

(NL) Voorbeeld van model codering:

Model						
Elementklasse	Premium energie-efficiënt element	Afmetingen model	Poortafmeting	Schroefdraadtype	afvoer (optioneel)	DP-indicator
WS AO AA ACS	P	3-cijferige code zoals hieronder afgebeeld	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Vlotter M = Handmatig	X = Geen I = Incidentmonitor
AA	P	030	A	G	F	I

(DE) Beispiel für Modellschlüssel:

Modell						
Element-Klasse	Energieeffizientes Element der Premiumklasse	Baugröße	Anschlussgröße	Gewindetyp	Entleerung	DD-Anzeige
WS AO AA ACS	P	Dreistelliger Code wie unten dargestellt	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Schwimmer M = Hand-	X = Keine I = Verschmutzungsanzeige
AA	P	030	A	G	F	I

(FR) Exemple de code de modèle:

Modèle						
Grade d'élément	Élément de rendement énergétique de qualité supérieure	Dimensions du modèle	Taille de l'orifice	Type de filetage	Option de purge	Indicateur PD
WS AO AA ACS	P	Code à 3 chiffres (ex. ci-dessous)	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Flotteur M = Réactivation	X = Aucun I = Contrôle des incidents
AA	P	030	A	G	F	I

(ES) Ejemplo de códigos de modelos:

Modelo						
Grado del elemento	Elemento eficiente energéticamente premium	Tamaño del modelo	Tamaño de puerto	Tipo de rosca	Opción de drenaje	Indicador DP
WS AO AA ACS	P	Código de 3 dígitos, tal y como se muestra a continuación	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Flotador M = Manual	X = Ninguno I = Monitor de incidencias
AA	P	030	A	G	F	I

(IT) Esempio di codifica dei

Modello						
Tipo elemento	Elemento ad efficienza energetica Premium	Dimensioni modello	Dimensioni attacco	Tipo di filettatura	Opzione di scarico	Indicatore DP
WS AO AA ACS	P	Codice a 3 cifre come indicato di seguito	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Galleggiante M = Ripristino	X = Nessuno I = Monitor criticità
AA	P	030	A	G	F	I

(EN) Product Selection
Stated flows are for operation at 7 bar g (100 psi g) with reference to 20°C, 1 bar a, 0% relative water vapour pressure.
For flows at other pressures apply the correction factors shown.

(NL) Productselectie
De weergegeven stroomsnelheden zijn voor een werking bij 7 bar (g) (100 psi g) met betrekking tot 20°C, 1 bar (a), 0% relatieve waterdampdruk.
Voor stroomsnelheden bij andere drukverhoudingen dient u de vermelde correctiefactoren toe te passen.

(DE) Produktauswahl
Die angegebenen Durchflussraten beziehen sich auf den Betrieb bei 7 bar ü (100 psi g), 20 °C, 1 bar ü und einem relativen Wasserdampfdruck von 0 %.
Wenden Sie zur Bestimmung der Durchflussraten bei anderen Drücken die angegebenen Korrekturfaktoren an.

(FR) Choix du produit
Les débits indiqués correspondent à un fonctionnement à une pression de 7 bar eff (100 psi eff) et aux conditions de référence suivantes : 20 °C, 1 bar (a) et 0 % de pression de vapeur d'eau relative.
Pour les débits de pression différente, appliquez les facteurs de correction indiqués.

(ES) Selección de productos
Los caudales se indican para el funcionamiento a 7 bar g (100 psi g), referidos a 20 °C (1 bar) y presión relativa del vapor de agua del 0%.
Para caudales a otras presiones, aplique los factores de corrección que se muestran.

(IT) Scelta del prodotto
Le portate indicate si riferiscono al funzionamento con una pressione di 7 bar g (100 psi g) a 20°C, 1 bar a, pressione relativa del vapore acqueo 0%.
Per altri valori di pressione applicare i fattori di correzione indicati.

Water Separator Flow Rates

Stroomsnelheden waterafscheider, Durchflusswerte des Wasserabscheiders, Débit du séparateur d'eau, Caudales del separador de agua, Portate del separatore d'acqua

Model					Port Size	L/s	m3/min	m3/hr	cfm
WS	P010A	[ ]	[ ]	[ ]	¼	10	0.6	36	21
WS	P010B	[ ]	[ ]	[ ]	⅜	10	0.6	36	21
WS	P010C	[ ]	[ ]	[ ]	½	10	0.6	36	21
WS	P015C	[ ]	[ ]	[ ]	½	40	2.4	144	85
WS	P020D	[ ]	[ ]	[ ]	¾	40	2.4	144	85
WS	P025D	[ ]	[ ]	[ ]	¾	110	6.6	396	233
WS	P025E	[ ]	[ ]	[ ]	1	110	6.6	396	233
WS	P030G	[ ]	[ ]	[ ]	1 ½	110	6.6	396	233
WS	P035G	[ ]	[ ]	[ ]	1 ½	350	21.0	1260	742
WS	P040H	[ ]	[ ]	[ ]	2	350	21.0	1260	742
WS	P045I	[ ]	[ ]	[ ]	2 ½	350	21.0	1260	742
WS	P050I	[ ]	[ ]	[ ]	2 ½	800	48.0	2880	1695
WS	P055J	[ ]	[ ]	[ ]	3	800	48.0	2880	1695

CFP - Correction Factor Minimum Inlet Pressure (Water Separators)

CFP - Correctiefactor minimale inlaatdruk (waterafscheiders), CFP – Korrekturfaktor minimaler Einlassdruck (Wasserabscheider), CFP – Facteur de correction de la pression d'admission minimale (Séparateurs d'eau), CFP: factor de corrección de presión mínima de entrada (separadores de agua), CFP - Fattore di correzione della pressione minima di ingresso (separatori d'acqua) ,

Minimum Inlet Pressure	bar g	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	psi g	15	29	44	58	73	87	100	116	131	145	160	174	189	203	218	232
Correction Factor		4.00	2.63	2.00	1.59	1.33	1.14	1.00	0.94	0.89	0.85	0.82	0.79	0.76	0.73	0.71	0.68

Filter Flow Rates

Stroomsnelheid filter, Filter-Durchflussraten, Débits du filtre, Caudales del filtro, Portate del filtro

Model					Port Size	L/s	m3/min	m3/hr	cfm	Replacement Element kit		No.
[grade]	P010A	[ ]	[ ]	[ ]	¼	10	0.6	36	21	P010	[grade]	1
[grade]	P010B	[ ]	[ ]	[ ]	⅜	10	0.6	36	21	P010	[grade]	1
[grade]	P010C	[ ]	[ ]	[ ]	½	10	0.6	36	21	P010	[grade]	1
[grade]	P015C	[ ]	[ ]	[ ]	½	20	1.2	72	42	P015	[grade]	1
[grade]	P020C	[ ]	[ ]	[ ]	½	30	1.8	108	64	P020	[grade]	1
[grade]	P020D	[ ]	[ ]	[ ]	¾	30	1.8	108	64	P020	[grade]	1
[grade]	P025D	[ ]	[ ]	[ ]	¾	60	3.6	216	127	P025	[grade]	1
[grade]	P025E	[ ]	[ ]	[ ]	1	60	3.6	216	127	P025	[grade]	1
[grade]	P030G	[ ]	[ ]	[ ]	1 ½	110	6.6	396	233	P030	[grade]	1
[grade]	P035G	[ ]	[ ]	[ ]	1 ½	160	9.6	576	339	P035	[grade]	1
[grade]	P040H	[ ]	[ ]	[ ]	2	220	13.2	792	466	P040	[grade]	1
[grade]	P045I	[ ]	[ ]	[ ]	2 ½	330	19.8	1188	699	P045	[grade]	1
[grade]	P050I	[ ]	[ ]	[ ]	2 ½	430	25.8	1548	911	P050	[grade]	1
[grade]	P055I	[ ]	[ ]	[ ]	2 ½	620	37.3	2232	1314	P055	[grade]	1
[grade]	P055J	[ ]	[ ]	[ ]	3	620	37.3	2232	1314	P055	[grade]	1

[grade] = grade
[klasse] = klasse
[Klasse] = Klasse
[grade] = grade
[grado] = grado
[grado] = grado

CFP - Correction Factor Minimum Inlet Pressure (Coalescing and Dry Particulate Filters)

CFP - Correctiefactor minimale inlaatdruk (coalescentiefilters en drogedeeltjesfilters), CFP – Korrekturfaktor minimaler Einlassdruck (Koaleszenz- und Trockenpartikelfilter), CFP – Facteur de correction de la pression d'admission minimale (Filtres coalescents et à particules sèches), CFP: factor de corrección de presión mínima de entrada (filtros de partículas secas y coalescentes), CFP - Fattore di correzione della pressione minima di ingresso (filtri anti-particolato a coalescenza e per particolato asciutto)

Minimum Inlet Pressure	bar g	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	psi g	15	29	44	58	73	87	100	116	131	145	160	174	189	203	218	232	248	263	277	290
Correction Factor		2.65	1.87	1.53	1.32	1.18	1.08	1.00	0.94	0.88	0.84	0.80	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.61	0.59

(EN) Product Selection and Correction Factors

To correctly select a Water Separator or Filter model, the flow rate of the filter must be adjusted for the minimum operating pressure of the system.

1. Obtain the minimum operating pressure and maximum compressed air flow rate at the inlet of the Water Separator or Filter.
2. Select the correction factor for minimum operating pressure from the CFP table (always round down e.g. for 5.3 bar, use 5 bar correction factor)
3. Calculate the minimum filtration capacity. Minimum Filtration Capacity = Compressed Air Flow Rate x CFP
4. Using the minimum filtration capacity, select a Water Separator or Filter model from the flow rate tables above (Water Separator or Filter selected must have a flow rate equal to or greater than the minimum filtration capacity).

(NL) Productselectie en correctiefactoren

Om het juiste waterafscheidings- of filtermodel te selecteren, dient u de stroomsnelheid van het filter aan te passen aan de minimale bedrijfsdruk van het systeem.

1. Bepaal de minimale bedrijfsdruk en de maximale stroomsnelheid van de persslucht bij de inlaat van de waterafscheider of het filter.
2. Kies de correctiefactor voor de minimale bedrijfsdruk uit de CFP-tabel (altijd naar beneden afronden, bijv. bij 5,3 bar gebruikt u 5 bar als correctiefactor).
3. Bereken de minimale filtratiecapaciteit. Minimale filtratiecapaciteit = persluchtstroming x CFP
4. Selecteer een filtermodel uit de bovenstaande tabel met stroomsnelheden aan de hand van de minimale filtercapaciteit (de stroomsnelheid van het geselecteerde filter moet gelijk zijn aan of hoger zijn dan de minimale filtercapaciteit).

(DE) Produktauswahl und Korrekturfaktoren

Zur richtigen Auswahl eines Wasserabscheiders oder Filtermodells muss die Durchflussrate des Filters entsprechend dem Mindestbetriebsdruck des Systems gewählt werden.

1. Bestimmen Sie den Mindestbetriebsdruck sowie die maximale Druckluftdurchflussrate am Einlass des Wasserabscheiders oder Filtereinlass.
2. Wählen Sie den Korrekturfaktor für den Mindestbetriebsdruck aus der CFP-Tabelle aus (immer abrunden, d. h. bei 5,3 bar einen Korrekturfaktor von 5 bar auswählen).
3. Berechnen Sie die Mindestfiltrationsleistung. Mindestfiltrationsleistung = Druckluftdurchflussrate x CFP (Korrekturfaktor)
4. Wählen Sie anhand der Mindestfiltrationsleistung einen Wasserabscheider oder Filter aus den obigen Tabellen mit der Durchflussrate (die Durchflussrate des ausgewählten Wasserabscheiders oder Filters muss gleich oder größer der Mindestfiltrationsleistung sein).

(FR) Sélection du produit et facteurs de correction

Pour sélectionner le bon modèle de filtre ou de séparateur d'eau, il convient de régler le débit du filtre en fonction de la pression de service minimale du système.

1. Déterminez la pression de service minimale et le débit d'air comprimé maximal au niveau de l'admission du séparateur d'eau ou du filtre.
2. Dans le tableau Facteurs de correction de pression (CFP), sélectionnez le facteur de correction correspondant à la pression de fonctionnement minimale (arrondissez toujours au chiffre inférieur. P. ex., pour 5,3 bar, utilisez un facteur de correction de 5 bar).
3. Calculez la capacité de filtration minimale. Capacité de filtration minimale = Débit d'air comprimé x CFP
4. À l'aide de la capacité de filtration minimale, sélectionnez un modèle de séparateur d'eau ou de filtre dans les tableaux de présentation des débits ci-dessus (le débit du séparateur d'eau ou du filtre sélectionné doit être égal ou supérieur à la capacité de filtration minimale).

(ES) Selección de productos y factores de corrección

Para seleccionar correctamente un modelo de filtro o separador de agua, el caudal del filtro se debe ajustar a la presión de trabajo mínima del sistema.

1. Determine la presión de trabajo mínima y el caudal máximo de aire comprimido en la entrada del filtro o del separador de agua.
2. Seleccione en la tabla de factores de corrección de presión (CFP) el factor de corrección para la presión de trabajo mínima (redondee siempre a la baja: por ejemplo, en el caso de 5,3 bar, utilice el factor de corrección correspondiente a 5 bar).
3. Calcule la capacidad mínima de filtración. Capacidad mínima de filtración = Caudal de aire comprimido x CFP
4. Use la capacidad mínima de filtración para seleccionar un modelo de separador de agua o filtro de las tablas de caudal anteriores (el separador de agua o el filtro seleccionados deben tener un caudal igual o superior a la capacidad mínima de filtración).

(IT) Selezione dei prodotti e fattori di correzione

Per selezionare il separatore d'acqua o modello di filtro corretto, regolare la portata del filtro per la pressione di esercizio minima dell'impianto.

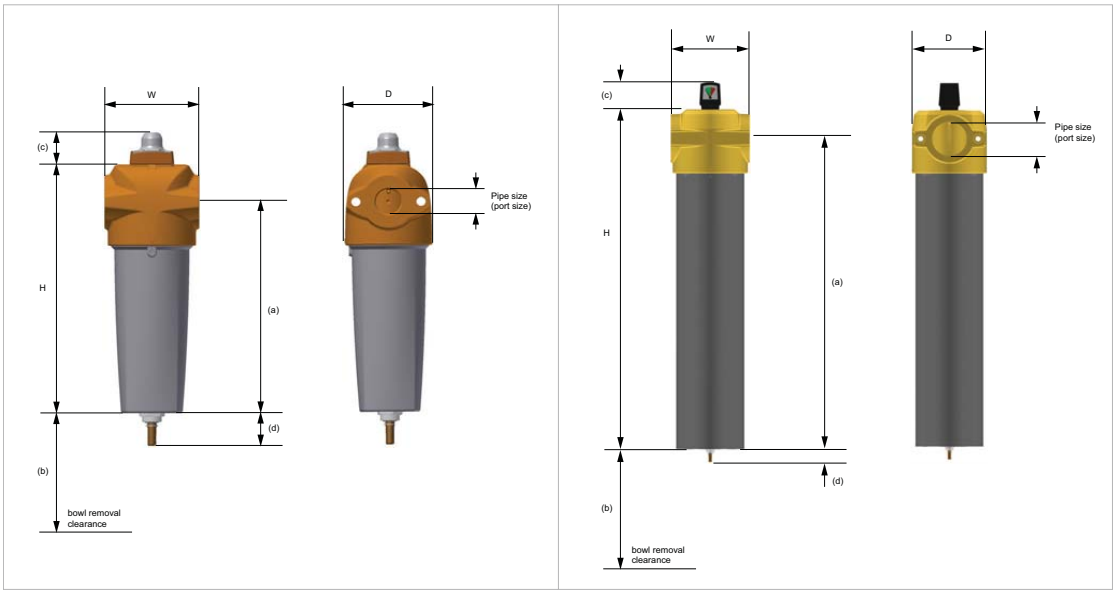
1. Ricavare la pressione di esercizio minima e la portata massima dell'aria compressa all'ingresso del separatore d'acqua o del filtro.
2. Selezionare il fattore di correzione per la pressione di esercizio minima indicato nella tabella CFP (arrotondare sempre per difetto: ad esempio, per 5,3 bar scegliere il fattore di correzione 5 bar)
3. Calcolare la capacità di filtrazione minima. Capacità di filtrazione minima = Portata aria compressa x CFP
4. Considerando la capacità di filtrazione minima ottenuta, selezionare un separatore d'acqua o un modello del filtro dalla tabella in alto relativa alle portate (la portata del separatore d'acqua o del filtro selezionato deve essere pari o superiore alla capacità di filtrazione minima)

Technical Data
Technische gegevens, Technische Daten, Données techniques, Datos técnicos, Dati tecnici

Model	Filter Models	Min Operating Pressure		Max Operating Pressure		Min Recommended Operating Temp		Max Recommended Operating Temp	
		bar g	psi g	bar g	psi g	°C	°F	°C	°F
WS	P010 [ ] [ ] F [ ] - 055 [ ] [ ] F [ ]	1	15	16	232	2	35	80	176
AO	P010 [ ] [ ] F [ ] - 055 [ ] [ ] F [ ]	1	15	16	232	2	35	80	176
AO	P010 [ ] [ ] M [ ] - 055 [ ] [ ] M [ ]	1	15	20	290	2	35	100	212
AA	P010 [ ] [ ] F [ ] - 055 [ ] [ ] F [ ]	1	15	16	232	2	35	80	176
AA	P010 [ ] [ ] M [ ] - 055 [ ] [ ] M [ ]	1	15	20	290	2	35	100	212
ACS	P010 [ ] [ ] M [ ] - 055 [ ] [ ] M [ ]	1	15	20	290	2	35	50	122

Note: AO / AA / WS grade filters for use up to 16 bar g (232 psi g) are supplied with a float drain [F] as standard.
For pressures between 16 and 20 bar g (232 and 290 psi g) a manual drain [M] must be used.
ACS grade filters are supplied with a manual drain [M] as standard.

Weights and Dimensions
Gewichten en afmetingen, Gewichte und Abmessungen, Poids et dimensions, Pesos y dimensiones, Pesi e dimensioni



Model	Pipe Size	Height (H)		Width (W)		Depth (D)		(a)		(b)		(c)		(d)		Weight	
		mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	kg	lbs
WS / P010A	¼"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P010B	⅜"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P010C	½"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P015C	½"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.16	2.55
P020C	½"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.12	2.58
WS / P020D	¾"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.12	2.58
WS / P025D	¾"	227	10.9	120	4.72	114.5	4.5	232	9.1	70	2.76	32	1.3	38	1.5	2.21	4.86
WS / P025E	1"	227	10.9	120	4.72	114.5	4.5	232	9.1	70	2.76	32	1.3	38	1.5	2.21	4.86
WS / P030G	1 ½"	367	14.45	120	4.72	114.5	4.5	323	12.7	70	2.76	32	1.3	38	1.5	2.68	5.91
WS / P035G	1 ½"	531	20.9	164	6.46	156	6.10	384	15.1	100	3.94	68	2.68	38	1.5	6.90	15.20
WS / P040H	2	623	24.5	164	6.46	156	6.10	476	18.7	100	3.94	68	2.68	38	1.5	7.30	16.10
WS / P045I	2 ½	623	24.5	164	6.46	156	6.10	476	18.7	100	3.94	68	2.68	38	1.5	7.10	15.65
WS / P050I	2 ½	745	29.3	192	7.56	183	7.20	587	23.1	120	4.72	68	2.68	38	1.5	10.30	22.71
P055I	2 ½	935	36.8	192	7.56	183	7.20	772	30.4	120	4.72	68	2.68	38	1.5	15.30	33.73
WS / P055J	3	935	36.8	192	7.56	183	7.20	772	30.4	120	4.72	68	2.68	38	1.5	15.30	33.73

Note: Water Separators do not include a DP Indicator, use dimension H + d for the total height.

(EN) Installation recommendations

It is recommended that the compressed air is treated prior to entry into the distribution system and also at critical usage points / applications.

Installation of compressed air dryers to a previously wet system could result in additional dirt loading for point of use filters for a period whilst the distribution system dries out. Filter elements may need to be changed more frequently during this period.

For installations where oil-free compressors are used, water aerosol and particulate are still present, general purpose and high efficiency grades should still be used.

A general purpose filter must always be installed to protect the high efficiency filter from bulk liquid aerosols and solid particulate.

Install purification equipment at the lowest temperature above freezing point, preferably downstream of after coolers and air receivers.

Point of use purification equipment should be installed as close to the application as possible.

Purification equipment should not be installed downstream of quick opening valves and should be protected from possible reverse flow or other shock conditions.

Purge all piping leading to the purification equipment before installation and all piping after the purification equipment is installed and before connection to the final application.

If by-pass lines are fitted around purification equipment, ensure adequate filtration is fitted to the by-pass line to prevent contamination of the system downstream.

Fit drain lines from the coalescing filters directly to a condensate separator. If it is not possible to connect the drain lines directly to a separator, the lines should be vented in to a condensate manifold (vented at one end) and then in to a single inlet of a condensate separator.

Provide a facility to drain away collected liquids from the purification equipment. Collected liquids should be treated and disposed of in a responsible manner.

(NL) Aanbevelingen voor de installatie

Aanbevolen wordt de perslucht te zuiveren voordat de lucht in het distributiesysteem wordt toegelaten, en ook bij kritieke gebruikspunten of -toepassingen.

De aansluiting van persluchtdrogers op een systeem dat nat was, kan extra vuilophoping veroorzaken bij de gebruikspuntfilters terwijl het distributiesysteem uitdroogt. Het is mogelijk dat gedurende deze periode de filterelementen vaker vervangen moeten worden.

Voor installaties met olievrije compressoren, waarin water-aërosols en deeltjes nog steeds aanwezig zijn, moeten filters voor algemeen gebruik en filters met een hoge efficiencygraad worden gebruikt.

Een filter voor algemeen gebruik moet altijd geïnstalleerd worden om het filter met hoge efficiencygraad tegen bulkvloeistof-aërosols en vaste deeltjes te beschermen.

Installeer zuiveringsapparatuur op de laagste temperatuur boven het vriespunt, bij voorkeur op een punt in het systeem na de nakoelers en luchtontvangers.

De zuiveringsapparatuur bij gebruikspunten moet zo dicht mogelijk bij de applicatie geïnstalleerd worden.

Zuiveringsapparatuur dient niet op een punt in het systeem na snel-openende kleppen te worden geïnstalleerd en moet worden beschermd tegen mogelijke tegenstroom of andere schoksituaties.

Reinig alle leidingen naar de zuiveringsapparatuur voorafgaand aan de installatie en ook nadat de zuiveringsapparatuur is geïnstalleerd, voorafgaand aan de aansluiting op de definitieve applicatie.

Als er omloopleidingen rond de zuiveringsapparatuur zijn gemonteerd, zorg er dan voor dat er voldoende filtering bij deze leidingen bestaat om te voorkomen dat het systeem verderop vervuild raakt.

Bevestig de afvoerleidingen van de coalescentiefilters direct aan een condensaatafscheider. Als het niet mogelijk is om de afvoerleidingen direct op een afscheider aan te sluiten, moeten de leidingen worden ontlucht in een condensaatverdeelstuk (dat aan één zijde wordt ontlucht) en daarna in een enkele inlaat van een condensaatafscheider.

Zorg ervoor dat het mogelijk is om de verzamelde vloeistof uit het zuiveringssysteem af te voeren. Deze vloeistof moet eerst worden gezuiverd en dan op verantwoorde wijze van de hand worden gedaan..

(DE) Installationsempfehlungen

Es wird empfohlen, die Druckluft vor dem Eintritt in das Verteilungssystem bzw. in kritische Einsatzstellen/Anwendungspunkte aufzubereiten.

Der Anschluss von Drucklufttrocknern an Systeme, die zuvor nass waren, könnte während der Trocknung des Verteilungssystems bei eingebauten Filtern zu einer zusätzlichen Verschmutzung führen. Die Filterelemente sind in dieser Phase ggf. häufiger auszutauschen.

Bei Einrichtungen, in denen ölfreie Kompressoren eingesetzt werden und noch Wassertropfen und Schmutzpartikel vorhanden sind, müssen universelle und Hochleistungsfilter verwendet werden.

Zum Schutz des Hochleistungsfilters vor großen Mengen an Flüssigkeitstropfen und festen Schmutzpartikeln muss immer ein universeller Filter vorgeschaltet werden.

Installieren Sie den Filter bei der niedrigsten Temperatur über dem Gefrierpunkt vorzugsweise hinter den Nachkühlern und Luftbehältern.

Der Einsatzort des Filters muss sich in unmittelbarer Nähe zur Anwendung befinden.

Der Filter darf sich schnell öffnenden Ventilen nicht nachgeschaltet werden. Außerdem muss ein Schutz gegen Rückfluss und andere Schockzustände gewährleistet sein.

Spülen Sie alle zum Filter führenden Rohrleitungen vor der Installation sowie nach der Installation des Filters und auch vor dem Anschluss an die endgültige Anwendung.

Sofern Bypass-Leitungen den Filter umgehen, muss zum Schutz des nachgeschalteten Systems gegen Verschmutzung für eine ausreichende Filterung dieser Leitungen gesorgt werden.

Führen Sie Ablassleitungen von den Koaleszenzfiltern direkt zu einem Kondensatabscheider. Wenn es nicht möglich ist, die Ablassleitungen direkt an einen Abscheider anzuschließen, müssen die Leitungen an ein Kondensatsammelrohr (mit Entlüftung an einem Ende) und dann an einen einzelnen Einlass eines Kondensatabscheiders angeschlossen werden.

Sorgen Sie für eine Einrichtung, die angesammelte Flüssigkeit von dem Filter entfernt. Die angesammelte Flüssigkeit muss sicher aufbereitet und entsorgt werden.

(FR) Consignes d'installation

Il est recommandé de traiter l'air comprimé avant l'entrée dans le système de distribution, ainsi qu'au niveau des applications/points d'utilisation stratégiques.

L'installation d'un sécheur à air comprimé sur un ancien système humide peut entraîner une teneur en poussière supplémentaire pour les points d'utilisation des filtres pendant la période durant laquelle le système de distribution sèche. Il sera peut-être nécessaire de changer les cartouches filtrantes plus souvent au cours de cette période.

Pour les installations équipées de compresseurs sans huile et où des particules et un aérosol d'eau sont toujours présents, il faut continuer d'utiliser des filtres polyvalents et des filtres haute efficacité.

Un filtre polyvalent doit toujours être installé pour protéger le filtre haute efficacité des aérosols de liquide en masse et des particules solides.

Installez l'équipement de purification à la température la plus basse avant le point de gel, de préférence en aval des réfrigérants et des collecteurs d'air.

L'équipement de purification au point d'utilisation doit être installé aussi près que possible de l'application.

L'équipement de purification ne doit pas être installé en aval de soupapes à ouverture rapide et doit être protégé d'un éventuel flux en sens inverse ou des chocs.

Purgez tous les conduits menant à l'équipement de purification avant l'installation, et recommencez une fois l'équipement installé et avant la connexion à l'application finale.

Si des conduites de dérivation sont en place autour de l'équipement de purification, assurez-vous qu'un élément filtrant approprié est monté sur la conduite de dérivation pour éviter la contamination du système en aval.

Installez directement les conduites d'évacuation des filtres coalescents sur un séparateur de condensation. S'il n'est pas possible de raccorder directement les conduites à un séparateur, elles doivent disposer d'une évacuation vers un collecteur de condensation (avec une extrémité d'évacuation), puis vers un séparateur de condensation à entrée unique.

Installez un dispositif permettant d'évacuer les liquides collectés dans l'équipement de purification. Ces liquides doivent être traités et éliminés comme il convient.

(ES) Recomendaciones de instalación

Se recomienda tratar el aire comprimido antes de que entre en el sistema de distribución y también en aplicaciones o puntos de utilización críticos.

La instalación de secadores de aire comprimido en un sistema húmedo existente puede producir una carga de suciedad adicional en los puntos de uso de los filtros durante un tiempo, hasta que el sistema de distribución se seque. Filter elements may need to be changed more frequently during this period.

En instalaciones que utilicen compresores sin aceite, sigue habiendo aerosoles de agua y partículas, por lo que deben utilizarse filtros de grados de alta eficiencia y carácter general.

Siempre debe instalarse un filtro de carácter general para proteger el filtro de alta eficiencia frente a altas cantidades de aerosoles líquidos y partículas sólidas.

Instale equipos de purificación en el punto de mínima temperatura sobre el punto de congelación, preferentemente aguas abajo de postenfriadores y depósitos de aire.

Los equipos de purificación en punto de utilización se deben instalar lo más cerca posible de la aplicación.

Los equipos de purificación no deben instalarse aguas abajo de válvulas de apertura rápida y deben protegerse del posible flujo inverso o de otras condiciones de cambio brusco.

Antes de instalar los equipos de purificación, purgue todas las tuberías aguas arriba de los mismos; y todas las tuberías entre la citada instalación y la conexión a la aplicación final.

Si se instalan líneas para derivar los equipos de purificación, asegúrese de montar unos filtros adecuados en la línea de derivación para evitar la contaminación del sistema aguas abajo.

Instale conductos de drenaje desde los filtros coalscentes hasta el separador de condensado. Si no es posible conectar los conductos de drenaje directamente a un separador, los conductos deberían derivarse a un colector de condensado (a un extremo) y luego a una entrada individual de un separador de condensado

Disponga los medios para drenar los líquidos recogidos en los equipos de purificación. Los líquidos recogidos se deben tratar y desechar de forma responsable.

(IT) Istruzioni di installazione

L'aria compressa deve essere trattata prima di entrare nel sistema di distribuzione e anche in corrispondenza dei punti di utilizzo / applicazione critici.

L'installazione di essiccatori per aria compressa su un impianto "umido" può provocare un ulteriore accumulo di impurità sui filtri del punto di utilizzo mentre il sistema di distribuzione si asciuga. In questo intervallo di tempo potrebbe essere necessario sostituire gli elementi filtranti con maggiore frequenza.

Gli impianti che utilizzano compressori senza olio richiedono comunque l'uso di filtri universali e ad alto grado di efficienza per la presenza di acqua sotto forma di aerosol e particelle.

Occorre sempre installare un filtro universale per proteggere il filtro ad alta efficienza dai liquidi misti in forma di aerosol e da particelle solide.

Installare depuratori a una temperatura immediatamente superiore al punto di congelamento, preferibilmente a valle di postrefrigeratori e serbatoi d'aria.

I depuratori destinati ai punti di utilizzo si devono installare il più vicino possibile alle applicazioni.

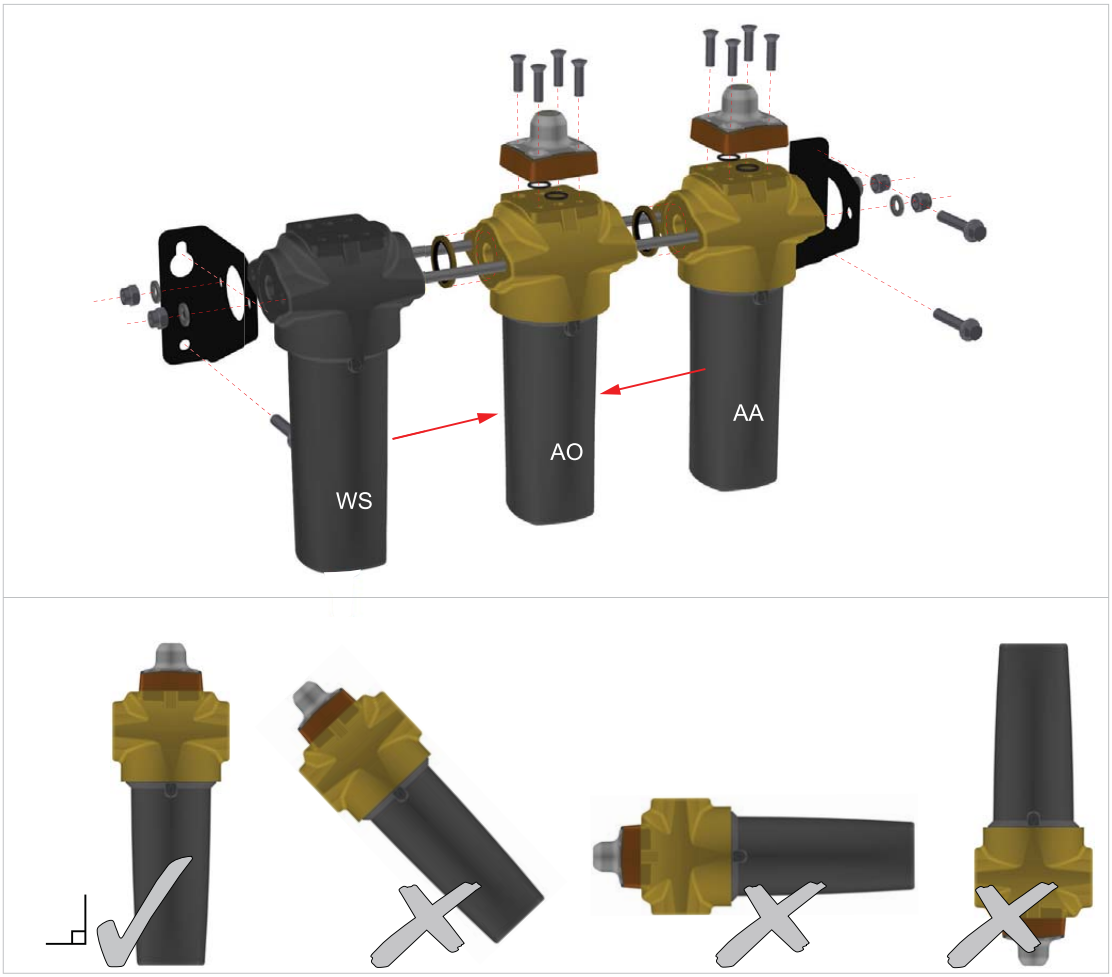
I depuratori non si devono installare a valle delle valvole ad apertura rapida e si devono proteggere dal riflusso o da altre condizioni d'urto.

Spurgare tutti i tubi che portano al depuratore prima dell'installazione, dopo aver installato il depuratore e prima di collegarli all'applicazione finale.

Se il depuratore è provvisto di linee di derivazione controllare che siano adeguatamente filtrate per evitare di contaminare il sistema a valle.

Montare le linee di scarico dai filtri a coalescenza direttamente su un separatore di condensa. Qualora non sia possibile collegare le linee di scarico direttamente a un separatore, le linee devono essere scaricate in un collettore di condensa (con sfiato su un'estremità) e quindi in un'unica entrata di un separatore di condensa.

Prevedere un sistema di deflusso dei liquidi raccolti dal depuratore. Trattare e smaltire i liquidi raccolti in modo responsabile.





Models 050 and 055 only

EN The lower closure plate may move when the filter is not pressurised

Warning The lower closure plate is a non serviceable item and should never be removed.

NL De onderste sluitplaat kan verschuiven als het filter niet onder druk staat

Warning De onderste sluitplaat behoeft geen onderhoud en mag nooit verwijderd worden.

DE Die untere Verschlussplatte kann sich bewegen, wenn der Filter nicht mit Druck beaufschlagt ist.

Warning Die untere Verschlussplatte ist wartungsfrei und darf nicht entfernt werden.

FR La plaque de fermeture inférieure peut se déplacer si le filtre n'est pas pressurisé.

Warning La plaque de fermeture inférieure ne peut pas être remplacée et ne doit jamais être retirée.

ES El plato de cierre inferior se puede mover cuando el filtro no está presurizado

Warning El plato de cierre inferior no tiene piezas que requieran mantenimiento y no se debe desinstalar nunca.

IT Se il filtro non è pressurizzato la piastra di chiusura inferiore potrebbe spostarsi

Warning La piastra di chiusura inferiore non è soggetta a manutenzione e non deve mai essere rimossa.

(EN) Startup and Operation

Warning

Before pressurising the filter ensure that the head and bowl are correctly fitted and that the locking detail is properly aligned as shown in the maintenance section (maintenance procedure 6) of this manual.

1. Open inlet valve slowly to gradually pressurise the unit.
2. Open outlet valve slowly to re-pressurise the downstream piping.

Do not open inlet or outlet valves rapidly or subject unit to excessive pressure differential or damage may occur.

(NL) Starten en bediening

Warning

Voordat het filter onder druk wordt gezet, moet u ervoor zorgen dat de kop en de kom juist zijn gemonteerd en dat de vergrendeling goed is uitgelijnd, zoals aangegeven in de onderhoudsinformatie (onderhoudsprocedure 6) van deze handleiding.

1. Doe de inlaatklep langzaam open om de druk in het toestel geleidelijk op te voeren.
2. Doe de uitlaatklep langzaam open om de druk in de leidingen verderop in het systeem opnieuw op te voeren.

Doe de inlaat- en uitlaatkleppen niet snel open en stel het toestel niet aan een te groot drukdifferentieel bloot om schade te voorkomen.

(DE) Starten und Betrieb

Warning

Bevor Sie den Filter mit Druck beaufschlagen, stellen Sie sicher, dass der Filterkopf und die Filterschale ordnungsgemäß montiert sind und dass die Sperrklinke wie im Abschnitt „Wartung“ dieser Anleitung (Wartungsverfahren 6) dieser Anleitung beschrieben ordnungsgemäß ausgerichtet ist.

1. Einlassventil langsam öffnen, damit die Einheit allmählich mit Druck beaufschlagt wird.
2. Auslassventil langsam öffnen, damit nachgeschaltete Rohrleitungen erneut mit Druck beaufschlagt werden.

Einlass- und Auslassventil nicht schnell öffnen. Einheit nicht extremen Druckunterschieden aussetzen. Gefahr von Schäden.

(FR) Démarrage et exploitation

Warning

Avant de mettre le filtre sous pression, vérifiez que la tête et la cuve sont montées correctement et que l'indicateur de verrouillage est bien aligné, comme indiqué dans la section de maintenance (procédure de maintenance 6) du présent manuel.

1. Ouvrez lentement la soupape d'admission pour mettre progressivement l'unité sous pression.
2. Ouvrez lentement la soupape de refoulement pour faire remonter la pression des conduits en aval.

Ne pas ouvrir la soupape d'admission ou la soupape de refoulement trop rapidement, ne pas soumettre l'unité à une pression différentielle trop importante. Vous risqueriez d'endommager l'équipement.

(ES) Puesta en marcha y funcionamiento

Warning

Antes de presurizar el filtro, asegúrese de que la cabeza y el cilindro están correctamente ajustados y que el detalles de bloqueo está alineado de la forma apropiada, como se muestra en la sección de mantenimiento (procedimiento de mantenimiento 6) de este manual.

1. Abra lentamente la válvula de admisión para presurizar gradualmente la unidad.
2. Abra lentamente la válvula de descarga para volver a presurizar las tuberías aguas abajo.

Para evitar daños, no abra bruscamente las válvulas de admisión o de descarga ni someta la unidad a una diferencia de presiones excesiva.

(IT) Avvio e funzionamento

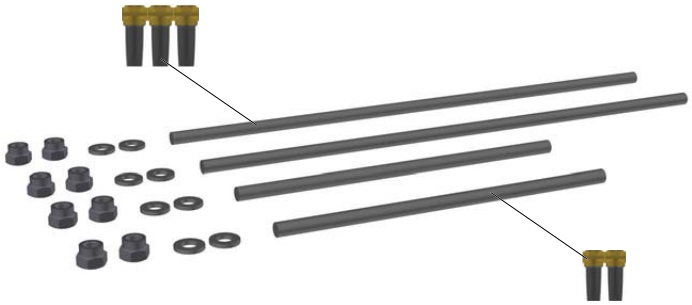
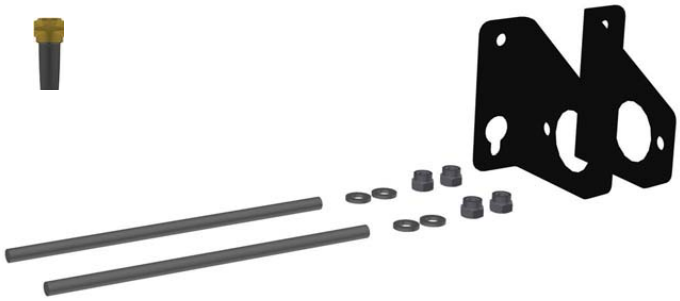
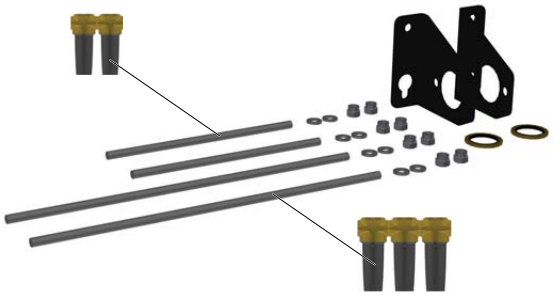
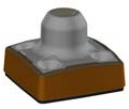
Warning

Prima di pressurizzare il filtro assicurarsi che la testa e il bicchiere siano montati correttamente e che l'elemento di bloccaggio sia allineato in maniera adeguata, come indicato nella sezione relativa alla manutenzione (procedura di manutenzione 6) del presente manuale.

1. Aprire lentamente la valvola di mandata per aumentare gradualmente la pressione nell'unità.
2. Aprire lentamente la valvola di scarico per pressurizzare nuovamente i tubi a valle.

Non aprire rapidamente le valvole di mandata o scarico né sottoporre l'unità a una differenza di pressione eccessiva; rischio di danni.

Accessories / Spare Parts (Service Kits)
Toebehoren / reserveonderdelen (onderhoudskits), Zubehör / Ersatzteile (Wartungssätze), Accessoires / Pièces de rechange (kits d'entretien), Accesorios / Piezas de repuesto (kits de mantenimiento), Accessori / Parti di ricambio (kit di manutenzione)

Filter Models	Catalogue Number	Contents
010	TRK1-2	
015 - 020	TRK2-2	
025 - 030	TRK3-2	
035- 045	TRK4-2	
050- 055	TRK5-2	
010	MBK1-1	
015 - 020	MBK2-1	
025 - 030	MBK3-1	
035 - 045	MBK4-1	
050 - 055	MBK5-1	
010	MBK1-2	
015 - 020	MBK2-2	
025 - 030	MBK3-2	
035 - 045	MBK4-2	
050 - 055	MBK5-2	
010 - 055	EM1	
010 - 055	PD15NO	
010 - 030	DPI-K	
035 - 055	ZD90GL	

Maintenance
Onderhoud, Wartung, Maintenance, Mantenimiento, Manutenzione

(EN) **Maintenance Intervals**
To ensure optimal filter performance the AO, AA, grade elements require changing every 12 months along with the automatic drain.

The performance of the ACS element is based upon a maximum oil vapour inlet concentration of 0.018mg/m^3. Replace the carbon filter element upon detection of vapour, odour or taste.

Unlike oil aerosol removal filters which are changed annually to guarantee compressed air quality, the lifetime of an oil vapour removal filter can be attributed to various factors and require more frequent changes (unless OVR is used which is sized for 6000hrs life):

Factors affecting the lifetime of adsorption filters

Oil vapour concentration
The higher the inlet concentration of oil vapour, the faster the activated carbon capacity will expire.

Bulk oil
Adsorption filters are designed to remove oil vapour and odours, not liquid oil or aerosols. Poorly maintained or non-existent pre-filtration will cause the OVR filter capacity to quickly expire.

Temperature
Oil vapour content increases exponentially to inlet temperature, reducing element life. Additionally, as temperature increases, the adsorption capacity decreases, again reducing element life.

Relative Humidity or Dewpoint
Wet air reduces the adsorptive capacity of the carbon.

Compressor oil changes
When compressor oil is changed, the new lubricant burns off “light ends” which increases the oil vapour content for hours or even weeks afterwards. This increase in oil vapour content is adsorbed by the OVR filter, significantly reducing its adsorptive life.

(NL) Onderhoudsintervallen
Voor een optimale filterprestatie moeten de elementen van graad AO, AA, om de 12 maanden worden vervangen, samen met de automatische afvoer.

The performance of the ACS element is based upon a maximum oil vapour inlet concentration of 0.018mg/m^3. Replace the carbon filter element upon detection of vapour, odour or taste.

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(DE) **Wartungsintervalle**
Um eine optimale Filterleistung zu gewährleisten, müssen die Elemente der Klassen AO, AA alle 12 Monate zusammen mit dem automatischen Ablass ausgetauscht werden.

Im Gegensatz zu Filtern für die Abscheidung von Ölaerosolen, die zur Gewährleistung der Druckluftqualität jährlich ausgetauscht werden, kann die Lebensdauer eines Ölnebel-Abscheidefilters von zahlreichen verschiedenen Faktoren abhängen, die einen häufigeren Austausch erfordern. Negative Faktoren für die Lebensdauer von Adsorptionsfiltern sind:

Ölnebel-Konzentration: Je höher die Ölnebel-Einlasskonzentration ist, desto schneller ist die Kapazität der Aktivkohle erschöpft.

Öl: Adsorptionsfilter sind entwickelt worden, um Ölnebel und Gerüche abzuscheiden, sie dienen nicht der Entfernung von flüssigem Öl oder Aerosolen. Schlecht gewartete oder nicht vorhandene Vorfiltration führt dazu, dass die OVR-Filterkapazität für die Ölnebelabscheidung schnell erschöpft ist.

Temperatur: Der Ölnebelgehalt steigt exponentiell zur Einlasstemperatur an und verringert so die Lebensdauer des Filterelements. Zudem verringert sich mit steigender Temperatur auch die Adsorptionskapazität, was ebenfalls die Lebensdauer des Filterelements verkürzt.

Relative Feuchtigkeit oder Taupunkt: Feuchte Luft verringert die Adsorptionsfähigkeit der Aktivkohle.

Austausch des Kompressoröls: Bei einem Austausch des Kompressoröls werden durch den neuen Schmierstoff „lose Enden“ abgebrannt, was zu einem Anstieg des Ölnebelgehalts für Stunden oder sogar Wochen führt. Dieser erhöhte Ölnebelgehalt wird vom OVR-Filter für die Ölabscheidung adsorbiert, wodurch sich die Lebensdauer des Filters erheblich reduziert.

Die Filterelementleistung nach ACS/AC basiert auf einer maximalen Ölnebel-Einlasskonzentration von 0,018 mg/m^3, mit einer Drucklufttemperatur von 21 °C und einem Drucktaupunkt von -40 °C.
Diese Elemente sollten ausgetauscht werden, wenn Ölnebel, Gerüche oder Geschmack festgestellt werden.

(FR) **Intervalles de maintenance**
Pour assurer des performances de filtrage optimales, les cartouches de grade AO, AA, doivent être changées tous les 12 mois, en même temps que le purgeur automatique.

Contrairement aux filtres de suppression des aérosols d'huile remplacés chaque année pour garantir la qualité de l'air comprimé, la durée de vie d'un filtre d'élimination des vapeurs d'huile dépend de différents facteurs et nécessite des remplacements plus fréquents. Facteurs influant sur la durée de vie des filtres d'adsorption :

concentration de vapeur d'huile - Plus la concentration d'entrée des vapeurs d'huile est élevée, plus vite la capacité d'absorption du charbon actif est épuisée.

présence massive d'huile - les filtres à adsorption sont conçus pour éliminer les vapeurs et les odeurs d'huile, et non pas l'huile ou les aérosols. Si la pré-filtration est mal entretenue, voire inexistante, le filtre OVR devient rapidement inefficace.

Température - la teneur en vapeurs d'huile augmente de façon exponentielle selon la température d'admission, réduisant ainsi la durée de vie de l'élément. En outre, plus la température augmente, plus la capacité d'adsorption diminue, ce qui réduit encore la durée de vie de l'élément.

Humidité relative ou point de rosée - l'air humide réduit la capacité d'adsorption du carbone.

Vidanges d'huile de compresseur - lorsque l'huile de compresseur est changée, le nouveau lubrifiant brûle « des extrémités légères » ce qui augmente la teneur en vapeur d'huile pendant des heures, voire des semaines après. Cette augmentation de la teneur en vapeur d'huile est adsorbée par le filtre OVR, réduisant de manière significative la durée de vie d'adsorption.

Les performances des filtres ACS/AC sont basées sur une concentration maximale des vapeurs d'huile d'entrée de 0,018 mg/m^3, avec de l'air comprimé à 21°c et un point de rosée sous pression de -40°c PDP.
Ces éléments doivent être remplacés en cas de détection de vapeur, d'odeur ou de goût.

(ES) **Intervalos de mantenimiento**
Para asegurar un óptimo rendimiento del filtro, es necesario cambiar los elementos de grado AO, AA cada 12 meses junto con el drenaje automático.

A diferencia de los filtros de eliminación de aerosoles de aceite que se cambian anualmente con el fin de garantizar la calidad del aire comprimido, la vida útil de un filtro de eliminación de vapores de aceite puede atribuirse a diversos factores y requiere cambios más frecuentes. Los factores que afectan a la vida útil de los filtros de adsorción son:

Concentración de vapores de aceite - Cuanto mayor sea la concentración de vapores de aceite en la entrada, más rápidamente se agotará la capacidad del carbón activado.

Aceite - Los filtros de adsorción se han diseñado para eliminar los vapores y los olores de aceite, pero no los aerosoles ni el aceite líquidos. Si no existe prefiltrado o su mantenimiento es inadecuado, se agotará rápidamente la capacidad del filtro OVR.

Temperatura - El contenido de vapores de aceite aumenta de forma exponencial a la temperatura de admisión, lo que reduce la vida útil del elemento. Asimismo, a medida que aumenta la temperatura disminuye la capacidad de adsorción, lo que una vez más reduce la vida útil del elemento.

Humedad relativa o punto de condensación - El aire húmedo reduce la capacidad de adsorción del carbón.

Cambios del aceite del compresor - Cuando se cambia el aceite del compresor, se evaporan las fracciones más ligeras del aceite nuevo, lo cual aumenta el contenido de vapores de aceite durante las horas o incluso las semanas posteriores. El filtro OVR adsorbe este aumento del contenido de vapores de aceite, lo que reduce considerablemente la vida útil de adsorción.

El rendimiento de los elementos ACS/AC se calcula tomando como base una concentración de entrada de vapores de aceite máxima de 0,018 mg/m^3, con aire comprimido a 21 °C y un punto de condensación de presión a -40 °C PDP.
Estos elementos deberán sustituirse si se detecta vapor, olor y gusto.

(IT) **Intervalli di manutenzione**
Per garantire prestazioni ottimali del filtro è necessario sostituire gli elementi filtranti di grado AO, AA ogni 12 mesi, insieme allo scarico automatico.

A differenza dei filtri per l'eliminazione di aerosol, che vengono cambiati una volta all'anno per garantire la qualità dell'aria compressa, i filtri per la rimozione dei vapori d'olio hanno una durata variabile e devono essere sostituiti più frequentemente. Fattori che influenzano la durata dei filtri ad adsorbimento:

Concentrazione di vapori d'olio - La capacità del carbone attivo si esaurisce tanto più rapidamente quanto maggiore è la concentrazione di vapori d'olio in ingresso.

Oli misti - I filtri ad adsorbimento sono studiati per eliminare vapori d'olio e odori, ma non oli liquidi e aerosol. La scarsa manutenzione o la mancanza di prefiltrazione causano il rapido esaurimento della capacità dei filtri OVR.

Temperatura - Il contenuto di vapori d'olio aumenta proporzionalmente con la temperatura di mandata, riducendo la durata del filtro. Inoltre, all'aumentare della temperatura, diminuisce la capacità di adsorbimento e ancora una volta si riduce la durata del filtro.

Umidità relativa o punto di rugiada - L'aria umida riduce la capacità di adsorbimento del carbone.

Cambio olio del compressore - Quando si cambia l'olio del compressore, il nuovo lubrificante brucia completamente gli idrocarburi leggeri provocando l'aumento del contenuto di vapori d'olio per alcune ore o addirittura per settimane. Il maggiore contenuto di vapori d'olio viene assorbito dal filtro OVR e provoca una riduzione significativa della durata di adsorbimento.

Le prestazioni degli elementi ACS / AC si basano su una concentrazione massima dei vapori d'olio in ingresso pari a 0,018 mg/m^3 con aria compressa a 21°C e un punto di rugiada in pressione di -40°C PDP.
Questi elementi devono essere sostituiti non appena vengono percepiti vapori, odori o sapori.

(EN) **Maintenance Procedure 1**

Slowly close the inlet (1) and outlet (2) valves and depressurise the filter (3) using the drain.

(NL) **Onderhoudsprocedure 1**

Sluit de inlaat- (1) en uitlaatkleppen (2) langzaam en haal de druk van het filter (3) af met de afvoer.

(DE) **Wartungsverfahren 1**

Einlass- (1) und Auslassventile (2) langsam schließen und den Druck vom Filter (3) mit dem Ablass ablassen.

(FR) **Procédure de maintenance 1**

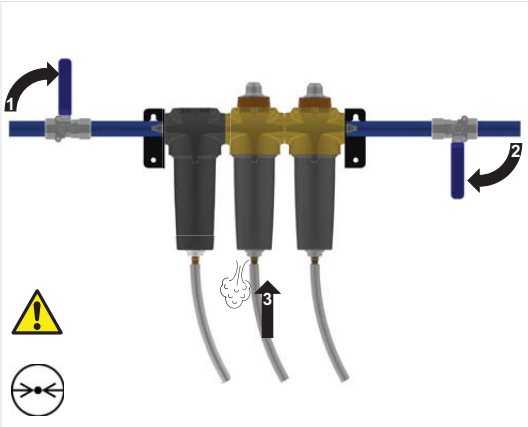
Fermez lentement la soupape d'admission (1) et la soupape de refoulement (2), puis dépressurisez le filtre (3) à l'aide du purgeur.

(ES) **Procedimiento de mantenimiento 1**

Cierre lentamente las válvulas de admisión (1) y de descarga (2) y despresurize el filtro (3) utilizando el drenaje.

(IT) **Procedura di manutenzione 1**

Chiudere lentamente le valvole di mandata (1) e di scarico (2) e depressurizzare il filtro (3) tramite lo scarico.



(EN) **Maintenance Procedure 2**

Unscrew the filter bowl (1 & 2) and remove the used element (3)

(NL) **Onderhoudsprocedure 2**

Schroef de filterkom (1 & 2) los en verwijder het gebruikte element (3)

(DE) **Wartungsverfahren 2**

Filterschale lösen (1 & 2) und das verbrauchte Element entfernen (3)

(FR) **Procédure de maintenance 2**

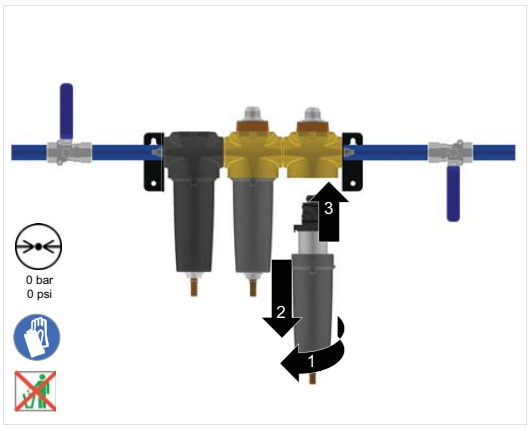
Dévissez la cuve du filtre (1 et 2) et retirez la cartouche usagée (3)

(ES) **Procedimiento de mantenimiento 2**

Desenrosque el cilindro del filtro (1 y 2) y retire el elemento utilizado (3)

(IT) **Procedura di manutenzione 2**

Svitare il bicchiere del filtro (1 e 2) e rimuovere l'elemento filtrante usato (3)



(EN) **Maintenance Procedure 3**

Unscrew the automatic drain (1) and discard (2). Fit the new drain (3) and tighten (4).

(NL) **Onderhoudsprocedure 3**

Schroef de automatische afvoer (1) los en verwijder hem (2). Plaats de nieuwe afvoer (3) en draai hem vast (4).

(DE) **Wartungsverfahren 3**

Den automatischen Ablass abschrauben (1) und entsorgen (2). Den neuen Ablass anbringen (3) und festziehen (4).

(FR) **Procédure de maintenance 3**

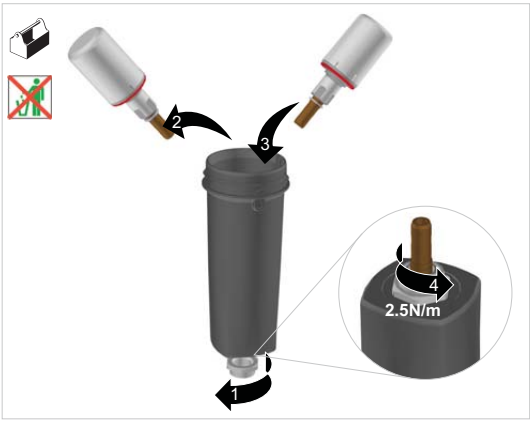
Dévissez le purgeur automatique (1) puis mettez-le au rebut (2). Montez le nouveau purgeur (3) puis serrez (4).

(ES) **Procedimiento de mantenimiento 3**

Desenrosque el drenaje automático (1) y deséchelo (2). Instale el nuevo drenaje (3) y apriételo (4).

(IT) **Procedura di manutenzione 3**

Svitare lo scarico automatico (1) ed eliminarlo (2). Montare lo scarico nuovo (3) e serrare (4).



(EN) **Maintenance Procedure 4**

Insert the new element into the filter bowl ensuring that the lugs are seated correctly in the grooves.

(NL) **Onderhoudsprocedure 4**

Steek het nieuwe element in de filterkom, waarbij de lipjes goed in de groeven steken.

(DE) **Wartungsverfahren 4**

Das neue Filterelement in die Filterschale einsetzen und sicherstellen, dass die Führungen richtig in den Nuten sitzen.

(FR) **Procédure de maintenance 4**

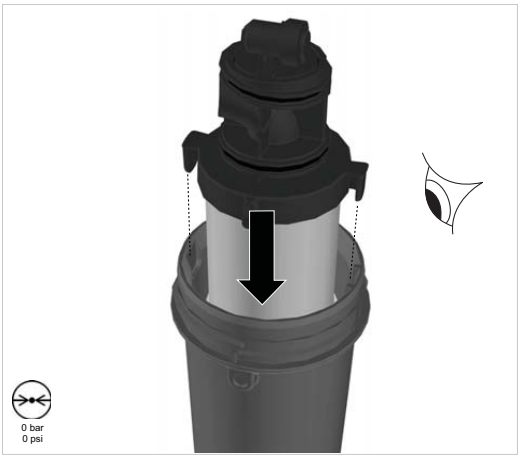
Insérez la nouvelle cartouche dans la cuve en vérifiant que les languettes sont bien enfoncées dans les encoches.

(ES) **Procedimiento de mantenimiento 4**

Inserte el nuevo elemento en el cilindro del filtro, asegurándose de que los anillos están correctamente asentados en las ranuras.

(IT) **Procedura di manutenzione 4**

Inserire il nuovo elemento filtrante nel bicchiere del filtro assicurandosi che le alette siano inserite correttamente nelle scanalature.



(EN) **Maintenance Procedure 5**

Replace the O-ring located in the filter head with the new O-ring provided.

Caution **Ensure to lubricate the O-ring and threads with a suitable acid free petroleum jelly.**

(NL) **Onderhoudsprocedure 5**

Vervang de O-ring in de filterkop door de nieuwe meegeleverde O-ring.

Caution **Zorg ervoor dat de O-ring en de draden worden gesmeerd met een geschikt soort zuurloze vaseline.**

(DE) **Wartungsverfahren 5**

Den O-Ring im Filterkopf durch den mitgelieferten neuen O-Ring ersetzen..

Caution **Sicherstellen, den O-Ring und das Gewinde mit geeigneter säurefreier Vaseline zu schmieren.**

(FR) **Procédure de maintenance 5**

Remplacez le joint torique qui se trouve dans la tête du filtre par le nouveau joint fourni..

Caution **Lubrifiez le joint torique et le filetage à l'aide d'une gelée de pétrole sans acide.**

(ES) **Procedimiento de mantenimiento 5**

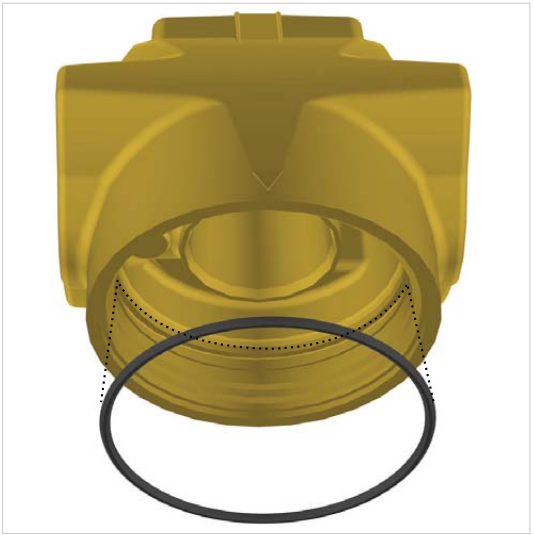
Sustituya la junta tórica localizada en la cabeza del filtro por la nueva junta tórica proporcionada.

Caution **Asegúrese de lubricar la junta tórica y las roscas con un gel ácido sin petróleo apropiado.**

(IT) **Procedura di manutenzione 5**

Sostituire l'O-ring situato nella testa del filtro con il nuovo O-ring fornito in dotazione.

Caution **Assicurarsi che l'O-ring e le filettature siano lubrificati con vaselina senza acido idonea.**



(EN) **Maintenance Procedure 6 (a)**

Refit the filter bowl and head ensuring that the threads are fully engaged and the locking details are aligned.

Note: To ensure that the bowl is fully engaged into the head, the 010-030 bowl requires 360°of rotation until the thread stop and 720° for the 035-045 bowl

(NL) **Onderhoudsprocedure 6 (a)**

Zet de filterkom en de kop terug op hun plaats en zorg ervoor dat de draden volledig gegrepen zijn en de vergrendeling uitgelijnd is.

Opmerking: Zorg ervoor dat de kom volledig in de kop steekt. De 010-030 kom moet 360° gedraaid worden, tot aan de draadstop en 720° voor de 035-045 kom

(DE) **Wartungsverfahren 6 (a)**

Die Filterschale und den Filterkopf wieder anbringen und dabei sicherstellen, dass die Gewinde vollständig fassen und die Sperrklinken richtig ausgerichtet sind.

Hinweis: Um sicherzustellen, dass die Filterschale vollständig im Filterkopf sitzt, müssen die Schalen 005 bis 030 um 360° und die Schalen 035 bis 045 um 720° gedreht werden, bis das Gewinde stoppt.

(FR) **Procédure de maintenance 6 (a)**

Remontez la cuve et la tête du filtre en vérifiant que le filetage est vissé à fond et que les indicateurs de verrouillage sont alignés.

Remarque: pour vérifier que la cuve est bien enfoncée dans la tête, le modèle de cuve 005-030 doit opérer une rotation de 360°jusqu'à la fin du filetage et le modèle de cuve 035-045 doit opérer une rotation de 720°.

(ES) **Procedimiento de mantenimiento 6 (a)**

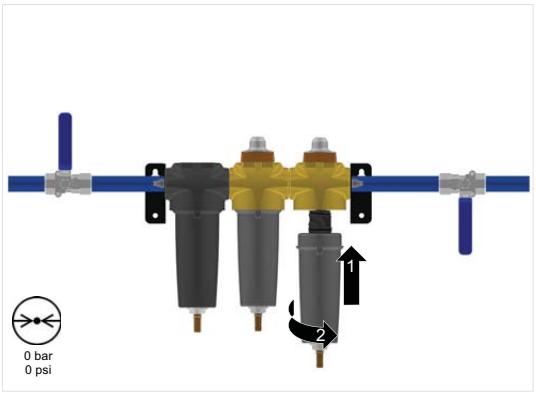
Reinstale el cilindro y la cabeza del filtro, asegurándose de que las roscas están completamente acopladas y que los detalles de bloqueo están alineados.

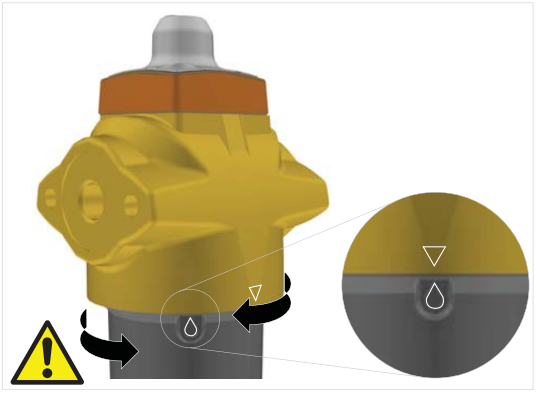
Nota: Para asegurarse de que el filtro está completamente acoplado a la cabeza, el cilindro de 010-030 necesita 360°de rotación, hasta que la rosca se detenga y 720° para el el cilindro de 035-045.

(IT) **Procedura di manutenzione 6 (a)**

Rimontare il bicchiere e la testa del filtro assicurandosi che le filettature siano completamente inserite e gli elementi di bloccaggio siano allineati.

Nota: per assicurarsi che il bicchiere sia completamente inserito nella testa, è necessaria una rotazione di 360° fino al termine della filettatura per il bicchiere 010-030 e una rotazione di 720° per il bicchiere 035-045.





(EN) **Maintenance Procedure 7**

Attach the element change date label to the filter bowl and write on the date the element is to be replaced. i.e 12 months after element change.

Caution **Do not use solvents or alcohol to clean the labels as this could cause damage.**

(NL) **Onderhoudsprocedure 7**

Plak het etiket met de vervangingsdatum aan de kom en schrijf de datum erop waarop het element weer vervangen moet worden, ofwel 12 maanden later..

Caution **Gebruik geen oplosmiddelen of alcohol om de etiketten te reinigen, omdat dit schade kan veroorzaken.**

(DE) **Wartungsverfahren 7**

Den Austauschdatum-Aufkleber des Filterelements an der Filterschale anbringen und darauf das Datum notieren, zu dem das Filterelement ausgetauscht werden muss (d.h. 12 Monate nach dem Austausch des Elements).

Caution **Zur Reinigung der Aufkleber keine Lösungsmittel oder Alkohol verwenden. Gefahr von Schäden.**

(FR) **Procédure de maintenance 7**

Attachez l'étiquette de date de remplacement de la cartouche à la cuve de filtre et notez la date du prochain remplacement, dans 12 mois.

Caution **Ne pas utiliser de solvants ou d'alcool pour nettoyer les étiquettes car cela peut endommager l'équipement.**

(ES) **Procedimiento de mantenimiento 7**

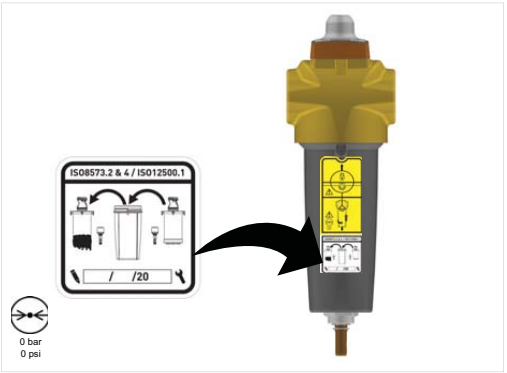
Ponga la etiqueta de cambio de fecha en el cilindro del filtro y escriba en ella la fecha en la que hay que sustituir el elemento; i.e. 12 meses después del cambio de elemento.

Caution **No utilice disolventes o alcohol para limpiar las etiquetas, puesto que podría dañarlas.**

(IT) **Procedura di manutenzione 7**

Attaccare l'etichetta della data di sostituzione dell'elemento filtrante al bicchiere del filtro riportando la data in cui l'elemento deve essere sostituito, ovvero 12 mesi dopo la sostituzione dell'elemento.

Caution **Non usare solventi o alcol per pulire le etichette poiché potrebbero provocare danni.**



(EN) -*Maintenance Procedure 8

Open the inlet valve (1) slowly to gradually pressurise the unit, slowly open outlet valve (2) to re-pressurise the downstream piping.

Warning

Do not open inlet or outlet valves rapidly or subject unit to excessive pressure differential as damage may occur.

(NL) **Onderhoudsprocedure 8**

Open de inlaatklep (1) langzaam om de druk in het toestel geleidelijk op te voeren. Zet de uitlaatklep (2) langzaam open om de druk in de uitgaande leidingen opnieuw op te voeren.

Warning

Doe de inlaat- en uitlaatkleppen niet snel open en stel het toestel niet aan een te groot drukdifferentieel bloot om schade te voorkomen.

(DE) **Wartungsverfahren 8**

Einlassventil langsam öffnen (1), damit die Einheit allmählich mit Druck beaufschlagt wird. Auslassventil langsam öffnen (2), damit nachgeschaltete Rohrleitungen erneut mit Druck beaufschlagt werden.

Warning

Einlass- und Auslassventil nicht schnell öffnen. Einheit nicht extremen Druckunterschieden aussetzen. Gefahr von Schäden.

(FR) **Procédure de maintenance 8**

Ouvrez la soupape d'admission (1) pour mettre progressivement l'unité sous pression, puis ouvrez lentement la soupape de refoulement (2) pour repressuriser les conduits en aval..

Warning

Ne pas ouvrir la soupape d'admission ou la soupape de refoulement trop rapidement. Ne pas soumettre l'unité à une pression différentielle trop importante. Vous risqueriez d'endommager l'équipement.

(ES) **Procedimiento de mantenimiento 8**

Abra lentamente la válvula de admisión (1) para presurizar gradualmente la unidad. Abra lentamente la válvula de descarga (2) para represurizar las tuberías aguas abajo..

Warning

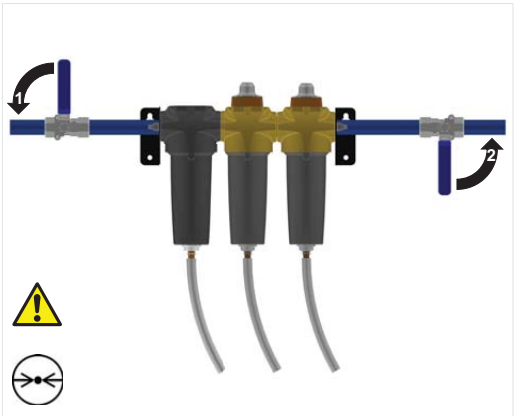
No abra bruscamente las válvulas de admisión o de descarga ni someta la unidad a una diferencia de presiones excesiva, ya que podría ocasionar daños.

(IT) **Procedura di manutenzione 8**

Aprire lentamente la valvola di mandata (1) per aumentare gradualmente la pressione nell'unità, aprire lentamente la valvola di scarico (2) per pressurizzare nuovamente i tubi a valle.

Warning

Non aprire rapidamente le valvole di mandata o scarico né sottoporre l'unità a una differenza di pressione eccessiva; rischio di danni.





FI YHDEN VUODEN ILMANLAATUTAKUU

Ilmanlaatusi taataan 1 vuodeksi ja takuu uusitaan aina vuosittaisen suodatinelementin vaihdon yhteydessä.
Vuosittainen suodatinelementin vaihtaminen varmistaa

- ihanteellisen suorituskyvyn
- kansainvälisten standardien vaatimukset täyttävän ilmanlaadun
- tuotantovälineiden, henkilökunnan ja menetelmien suojaamisen
- alhaiset käyttökustannukset
- lisääntyneen tuottavuuden ja tuoton
- mielenrauhan

SV ETT ÅRS LUFTKVALITETSGARANTI

Din luftkvalitet garanteras under ett år och garantin förnyas vid varje årligt filterelementbyte.
Årliga filterelementbyten säkerställer att:

- Optimala prestanda upprätthålls
- Luftkvaliteten fortsätter uppfylla internationella standarder
- Skydd för nedströms utrustning, personal och processer
- Låga driftkostnader
- Ökad produktivitet och lönsamhet
- Du själv får sinnesfrid

NO ETT ÅRS LUFTKVALITETSGARANTI

Din luftkvalitet er garantert for 1 år og garantien vil bli fornyet ved hver årlige utskiftning av filterelement.
Årlig utskiftning av filterelement sikrer:

- Optimal ytelse opprettholdes
- Luftkvalitet som til enhver tid møter internasjonale standarder
- Beskyttelse av nedstrøms utstyr, personell og prosesser
- Lave driftskostnader
- Økt produktivitet og lønnsomhet
- Sinnsro

DA ET ÅRS GARANTI PÅ LUFTKVALITET

Der gives 1 års luftkvalitetsgaranti, og den bliver fornyet ved hver årlig udskiftning af filterelementet.
Årlig udskiftning af filterelementet sikrer:

- At optimal ydelse bevares
- At luftkvaliteten fortsat opfylder de internationale standarder
- Beskyttelse af udstyr, personer og processer længere fremme
- Lave driftsomkostninger
- Øget produktivitet og rentabilitet
- Ro i sinde

EL ΕΓΓΥΗΣΗ ΠΟΙΟΤΗΤΑΣ ΑΕΡΑ ΕΝΟΣ ΕΤΟΥΣ

Παρέχεται εγγύηση για την ποιότητα του αέρα σας για 1 έτος, η οποία ανανεώνεται με κάθε ετήσια αλλαγή στοιχείου φίλτρου.
Με τις ετήσιες αλλαγές στοιχείου φίλτρου διασφαλίζονται τα εξής:

- Ότι θα διατηρείται η βέλτιστη απόδοση
- Ότι η ποιότητα του αέρα συνεχίζει να ικανοποιεί τα διεθνή πρότυπα
- Προστασία του κατάντι εξοπλισμού, του προσωπικού και των διαδικασιών
- Χαμηλές δαπάνες λειτουργίας
- Αυξημένη παραγωγικότητα και κερδοφορία
- Ξενοιασιά

PT GARANTIA DE QUALIDADE DO AR DE UM ANO

A qualidade do seu ar tem garantia de um ano, a qual será renovada a cada substituição anual do elemento do filtro.
As substituições anuais do elemento do filtro asseguram que:

- É mantido o desempenho ideal
- A qualidade do ar continua a respeitar as normas internacionais
- Protecção dos processos, do pessoal e do equipamento a jusante
- Baixos custos operacionais
- maior produtividade e rentabilidade
- paz de espírito



(FI) Mallikoodiesimerkki:

Malli						
Elementin laatu	Erittäin energiatehokas elementti	Mallin koko	Liitäntäaukon koko	Kierretyyppi	Vedenpoisto	Paine-eroilmaisin
WS AO AA ACS	P	3-numeroinen koodi (kuten alla)	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Uimuri M = Manuaalinen	X = Ei mitään I = Ongelmanvalvonta
AA	P	030	A	G	F	I

(SV) Exempel på modellkodning:

Modell						
Elementklass	Energisnålt premiumelement	Modellstorlek	Portstorlek	Gängtyp	Dräneringsalternativ	DP-indikator
WS AO AA ACS	P	Tresiffrig kod enligt nedan	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Flyt M = Handbok	X = Ingen I = Incidentövervakning
AA	P	030	A	G	F	I

(NO) Eksempel på modellkoding:

Modell						
Elementgradering	Premium energieffektivt element	Modellstørrelse	Portstørrelse	Gjengetype	Dreneringsmulighet	DP-indikator
WS AO AA ACS	P	Tresifret kode som vist nedenfor	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Flyt M = Manuell	X = Ingen I = Hendelsesmonitor
AA	P	030	A	G	F	I

(DA) Eksempel på kodning af model:

Model						
Elementkvalitet	Energieffektivt element i premiumkvalitet	Modelstørrelse	Portstørrelse	Gevindtype	Afløbsmulighed	DP indikator
WS AO AA ACS	P	3-cifret kode som vist nedenfor	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Flyde M = Manuel	X = Ingen I = Blokeringsindikator
AA	P	030	A	G	F	I

(EL) Παράδειγμα κωδικοποίησης μοντέλου:

Μοντέλο						
Βαθμίδα στοιχείου	Premium ενεργειακά αποδοτικό στοιχείο	Μέγεθος μοντέλου	Μέγεθος θύρας	Τύπος σπειρώματος	Επιλογή αποστράγγισης	Δείκτης DP
WS AO AA ACS	P	3ψήφιος κωδικός όπως φαίνεται παρακάτω	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Φλοτέρ M = Μη αυτόματο	X = Κανένα I = Δείκτης συμβάντων
AA	P	030	A	G	F	I

(PT) Exemplo da codificação do modelo:

Modelo						
Grau do elemento	Elemento de eficiência energética de excelência	Dimensão do modelo	Dimensão da entrada	Tipo de rosca	Opção de drenagem	Indicador de pressão diferencial
WS AO AA ACS	P	Código de 3 dígitos como indicado abaixo	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Boia M = Manual	X = Nenhum I = Monitor de incidentes
AA	P	030	A	G	F	I

(FI) Tuotevalinta

Virtaamat on tarkoitettu käytettäväksi paineessa 7 bar g (100 psi g), olosuhteiden ollessa 20 °C, 1 bar/a, 0 % suhteellinen vesihöyryn paine.
Muiden paineiden virtausarvoja varten noudata annettuja kertoimia.

(SV) Val av produkt

Uppgivna flöden är för drift vid 7 bar g (100 psi g) med referens till 20°C, 1 bar a, 0 % relativt vattenångtryck.
Använd angivna korrektionsfaktorer till flöden vid andra tryck.

(NO) Produktvalg

Oppgitte strømningshastigheter er for drift ved 7 bar (g) (100 psi g) med referanse til 20 °C, 1 bar (a), 0 % relativt vanndamptrykk.
Benytt korrigeringsfaktorene under for å finne strømningshastigheter ved andre trykk.

(DA) Produktudvalg

De anførte flow gælder for drift ved 7 bar g (100 psi g) med referenceværdierne 20°C, 1 bar a, 0 % relativt vanddamptryk.
Ved flow med andre tryk skal de viste korrektionsfaktorer anvendes.

(EL) Επιλογή προϊόντος

Οι αναφερθείσες παροχές είναι για λειτουργία σε 7 bar g (100 psi g) με αναφορά στους 20°C, 1 bar a, σχετική πίεση υδρατμών 0%.
Για ροές σε άλλες τιμές πίεσης, εφαρμόστε τους εμφανιζόμενους συντελεστές διόρθωσης.

(PT) Selecção de Produtos

Os débitos referidos são para um funcionamento a 7 bar g (100 psi g) com referência a 20°C, 1 bar a, 0% de pressão relativa do vapor de água.
Para débitos a pressões diferentes, aplique os factores de correcção apresentados.

Vedenerottimen virtausnopeudet

Flödeshastigheter för vattenavskiljare, Flytrater for vannseparator, Vandudskillers gennemløbshastigheder, Παροχές διαχωριστή νερού, Taxas de fluxo do separador de água

Model					Port Size	L/s	m3/min	m3/hr	cfm
WS	P010A	[ ]	[ ]	[ ]	¼	10	0.6	36	21
WS	P010B	[ ]	[ ]	[ ]	⅜	10	0.6	36	21
WS	P010C	[ ]	[ ]	[ ]	½	10	0.6	36	21
WS	P015C	[ ]	[ ]	[ ]	½	40	2.4	144	85
WS	P020D	[ ]	[ ]	[ ]	¾	40	2.4	144	85
WS	P025D	[ ]	[ ]	[ ]	¾	110	6.6	396	233
WS	P025E	[ ]	[ ]	[ ]	1	110	6.6	396	233
WS	P030G	[ ]	[ ]	[ ]	1 ½	110	6.6	396	233
WS	P035G	[ ]	[ ]	[ ]	1 ½	350	21.0	1260	742
WS	P040H	[ ]	[ ]	[ ]	2	350	21.0	1260	742
WS	P045I	[ ]	[ ]	[ ]	2 ½	350	21.0	1260	742
WS	P050I	[ ]	[ ]	[ ]	2 ½	800	48.0	2880	1695
WS	P055I	[ ]	[ ]	[ ]	2 ½	800	48.0	2880	1695
WS	P055J	[ ]	[ ]	[ ]	3	800	48.0	2880	1695

Korjauskerroinpaine (CFP) – korjauskerroin, pienin tulopaine (vedenerottimet)

CFP – korrigeringsfaktor för minsta inloppstryck (vattenavskiljare), CFP – korreksjonsfaktor for minimums inntakstrykk (vannseparatorer), CFP – Korrektionsfaktor for minimalt indgangstryk (vandudskillere), CFP - Συντελεστής διόρθωσης ελάχιστης πίεσης εισαγωγής (διαχωριστές νερού), CFP – Pressão de admissão mínima do fator de correção (separadores de água) ,

Minimum Inlet Pressure	bar g	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	psi g	15	29	44	58	73	87	100	116	131	145	160	174	189	203	218	232
Correction Factor		4.00	2.63	2.00	1.59	1.33	1.14	1.00	0.94	0.89	0.85	0.82	0.79	0.76	0.73	0.71	0.68

Suodattimen virtausnopeudet

Flödeshastigheter för filter, Flytrater for filter, Filters gennemløbshastigheder, Παροχές φίλτρου, Taxas de fluxo do filtro

Model					Port Size	L/s	m3/min	m3/hr	cfm	Replacement Element kit		No.
[grade]	P010A	[ ]	[ ]	[ ]	¼	10	0.6	36	21	P010	[grade]	1
[grade]	P010B	[ ]	[ ]	[ ]	⅜	10	0.6	36	21	P010	[grade]	1
[grade]	P010C	[ ]	[ ]	[ ]	½	10	0.6	36	21	P010	[grade]	1
[grade]	P015C	[ ]	[ ]	[ ]	½	20	1.2	72	42	P015	[grade]	1
[grade]	P020C	[ ]	[ ]	[ ]	½	30	1.8	108	64	P020	[grade]	1
[grade]	P020D	[ ]	[ ]	[ ]	¾	30	1.8	108	64	P020	[grade]	1
[grade]	P025D	[ ]	[ ]	[ ]	¾	60	3.6	216	127	P025	[grade]	1
[grade]	P025E	[ ]	[ ]	[ ]	1	60	3.6	216	127	P025	[grade]	1
[grade]	P030G	[ ]	[ ]	[ ]	1 ½	110	6.6	396	233	P030	[grade]	1
[grade]	P035G	[ ]	[ ]	[ ]	1 ½	160	9.6	576	339	P035	[grade]	1
[grade]	P040H	[ ]	[ ]	[ ]	2	220	13.2	792	466	P040	[grade]	1
[grade]	P045I	[ ]	[ ]	[ ]	2 ½	330	19.8	1188	699	P045	[grade]	1
[grade]	P050I	[ ]	[ ]	[ ]	2 ½	430	25.8	1548	911	P050	[grade]	1
[grade]	P055I	[ ]	[ ]	[ ]	2 ½	620	37.3	2232	1314	P055	[grade]	1
[grade]	P055J	[ ]	[ ]	[ ]	3	620	37.3	2232	1314	P055	[grade]	1

[luokka] = luokka
[klass] = klass
[type] = type
[kvalitet] = kvalitet
[βαθμίδα] = βαθμίδα
[grau] = grau

Korjauskerroinpaine (CFP) – korjauskerroin, pienin tulopaine (saostus- ja kuivat hiukkassuodattimet)
CFP – korrigeringsfaktor för minsta inloppstryck (avskiljnings- och partikelfilter), CFP – korreksjonsfaktor for minimums inntakstrykk (koagulerings- og tørrpartikkelfiltre), CFP – Korrektionsfaktor for minimalt indgangstryk (koalescens- og tørpartikelfiltre), CFP - Συντελεστής διόρθωσης ελάχιστης πίεσης εισαγωγής (φίλτρα σωματιδίων προσκόλλησης και ξηρών), CFP – Pressão de admissão mínima do fator de correção (filtros coalescentes e de partículas secas)

Minimum Inlet Pressure	**bar g**	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	psi g	15	29	44	58	73	87	100	116	131	145	160	174	189	203	218	232	248	263	277	290
Correction Factor		2.65	1.87	1.53	1.32	1.18	1.08	1.00	0.94	0.88	0.84	0.80	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.61	0.59

(FI) Tuotteen valinta ja korjauskertoimet

Jotta osaat valita oikean vedenerottimen tai suodattimen mallin, suodattimen virtausnopeus pitää säätää järjestelmän pienimpään käyttöpaineeseen.

1 Selvitä pienin käyttöpaine ja suurin paineilman virtausnopeus vedenerottimen tai suodattimen tulossa.

2 Valitse korjauskerroinpaineiden taulukosta pienimmän käyttöpaineen korjauskerroin (pyöristä aina alaspäin; esim. 5,3 baarin tapauksessa on käytettävä 5 baarin korjauskerrointa).

3 Laske vähimmäissuodatuskapasiteetti. Vähimmäissuodatuskapasiteetti = paineilman virtausnopeus x CFP

4 Valitse pienintä suodatuskapasiteettia käyttäen vedenerottimen tai suodattimen malli yllä olevasta virtausnopeustaulukosta (valitun vedenerottimen tai suodattimen virtausnopeus pitää olla vähintään yhtä suuri kuin vähimmäissuodatuskapasiteetti).

(SV) Produkturval och korrigeringsfaktorer

För att du ska kunna välja rätt modell på vattenavskiljare eller filter måste flödeshastigheten för filtret justeras efter minsta driftstryck i systemet.

1 Mät minsta driftstryck och maximal flödeshastighet för tryckluft vid inloppet för vattenavskiljaren eller filtret.

2 Välj korrigeringsfaktor för minsta driftstryck från CFP-tabellen (runda alltid av nedåt – för 5,3 bar använder du till exempel korrigeringsfaktor 5 bar).

3 Beräkna minsta filtreringskapacitet. Minsta filtreringskapacitet = flödeshastighet för tryckluft x CFP

4 Använd den minsta filtreringskapaciteten för att välja en modell på vattenavskiljare eller filter från de ovanstående tabellerna med flödeshastighet (den vattenavskiljare eller det filter du väljer måste ha en flödeshastighet som motsvarar eller är högre än den minsta filtreringskapaciteten).

(NO) Produktutvalg og korreksjonsfaktorer

Flytraten for filteret må være justert til minimum driftstrykk for systemet for å korrekt kunne velge vannseparator eller filtermodell.

1 Oppnå minimum driftstrykk og maksimum flytrate for komprimert luft ved inntaket til vannseparatoren eller filteret.

2 Velg korreksjonsfaktoren for minimum driftstrykk fra CFP-tabellen (rund alltid ned: f.eks. for 5,3 bar bør du bruke korreksjonsfaktoren for 5 bar)

3 Beregn minimum filtreringskapasitet. Minimum filtreringskapasitet = flytrate for komprimert luft x CFP

4 Bruk minimum filtreringskapasitet når du velger en vannseparator eller filtermodell fra flytratetabellene ovenfor (valgt vannseparator eller filter må ha en flytrate lik eller høyere enn minimum filtreringskapasitet).

(DA) Produktvalg og korrektionsfaktorer

For at vælge den rigtige vandudskiller og filtermodel skal filterets gennemløbshastighed justeres i forhold til systemets mindste driftstryk.

1 Det mindste driftstryk og den maksimale luftgennemløbshastighed kan aflæses ved vandudskillerens eller filterets indløb.

2 Vælg korrektionsfaktoren for det mindste driftstryk på CFP-tabellen (rund altid ned – ved f.eks. 5,3 bar, bruges korrektionsfaktor på 5 bar)

3 Beregn den minimale filtreringskapacitet. Minimal filtreringskapacitet = trykluftstrømning x CFP

4 Brug den minimale filtreringskapacitet til at vælge en vandudskiller eller filtermodel på tabellen over gennemløbshastigheder ovenfor (valgt vandudskiller eller filter skal have en gennemløbshastighed, der er lig med eller større end den minimale filtreringskapacitet).

(EL) Επιλογή προϊόντος και συντελεστές διόρθωσης

Για να επιλέξετε σωστά ένα μοντέλο διαχωριστή νερού ή φίλτρου, η παροχή του φίλτρου πρέπει να ρυθμιστεί ανάλογα με την ελάχιστη πίεση λειτουργίας του συστήματος.

1 Μάθετε ποιες είναι οι τιμές της ελάχιστης πίεσης λειτουργίας και της μέγιστης παροχής πεπιεσμένου αέρα του διαχωριστή νερού ή του φίλτρου.

2 Επιλέξτε τον συντελεστή διόρθωσης για την ελάχιστη πίεση λειτουργίας από τον πίνακα CFP (στρογγυλοποιώντας πάντα προς τα κάτω, π.χ. για 5,3 bar, χρησιμοποιήστε συντελεστή διόρθωσης 5 bar)

3 Υπολογίστε την ελάχιστη ικανότητα φιλτραρίσματος. Ελάχιστη ικανότητα φιλτραρίσματος = Παροχή πεπιεσμένου αέρα x CFP

4 Χρησιμοποιήστε την ελάχιστη ικανότητα φιλτραρίσματος για να επιλέξετε ένα μοντέλο διαχωριστή νερού ή φίλτρου από τους παραπάνω πίνακες παροχών (ο διαχωριστής νερού ή το φίλτρο που θα επιλέξετε πρέπει να έχουν παροχή μεγαλύτερη από ή ίση με την ελάχιστη ικανότητα φιλτραρίσματος).

(PT) Seleção de produto e fatores de correção

Para selecionar corretamente um separador de água ou modelo de filtro, a taxa de fluxo do filtro deve ser ajustado para a pressão mínima de funcionamento do sistema.

1 Obtenha a pressão mínima de funcionamento e a taxa máxima de fluxo de ar comprimido na entrada do separador de água ou filtro.

2 Selecione o fator de correção da pressão mínima de funcionamento a partir da tabela CFP (arredondar sempre por defeito, por ex. para 5,3 bar, utilize um fator de correção de 5 bar)

3 Calcule a capacidade mínima de filtração. Capacidade mínima de filtração = taxa de fluxo de ar comprimido x CFP

4 Ao usar a capacidade mínima de filtração, selecione um separador de água ou modelo de filtro a partir das tabelas de taxa de fluxo acima (separador de água ou filtro selecionado deve ter uma taxa de fluxo igual ou superior à capacidade mínima de filtração).

Tekniset tiedot

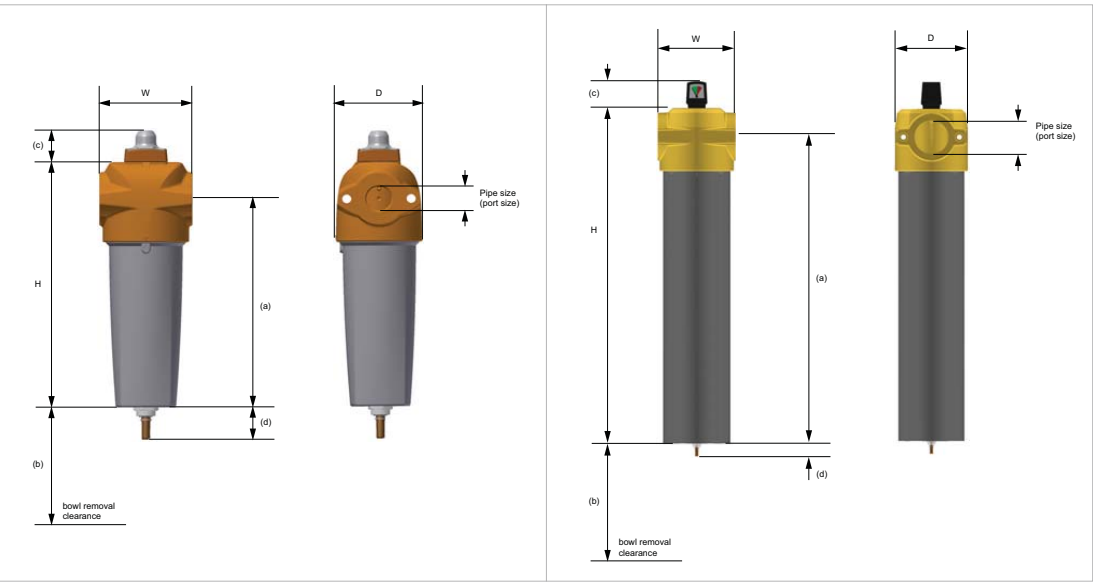
Tekniska data, Tekniske data, Tekniske specifikationer, Τεχνικά δεδομένα, Dados Técnicos

Model	Filter Models											Min Operating Pressure		Max Operating Pressure		Min Recommended Operating Temp		Max Recommended Operating Temp	
												bar g	psi g	bar g	psi g	°C	°F	°C	°F
WS	P010	[ ]	[ ]	F	[ ]	-	055	[ ]	[ ]	F	[ ]	1	15	16	232	2	35	80	176
AO	P010	[ ]	[ ]	F	[ ]	-	055	[ ]	[ ]	F	[ ]	1	15	16	232	2	35	80	176
AO	P010	[ ]	[ ]	M	[ ]	-	055	[ ]	[ ]	M	[ ]	1	15	20	290	2	35	100	212
AA	P010	[ ]	[ ]	F	[ ]	-	055	[ ]	[ ]	F	[ ]	1	15	16	232	2	35	80	176
AA	P010	[ ]	[ ]	M	[ ]	-	055	[ ]	[ ]	M	[ ]	1	15	20	290	2	35	100	212
ACS	P010	[ ]	[ ]	M	[ ]	-	055	[ ]	[ ]	M	[ ]	1	15	20	290	2	35	50	122

Note: *AO / AA / WS grade filters for use up to 16 bar g (232 psi g) are supplied with a float drain [F] as standard.*
For pressures between 16 and 20 bar g (232 and 290 psi g) a manual drain [M] must be used.
ACS grade filters are supplied with a manual drain [M] as standard.

Painot ja mitat

Vikter och dimensioner, Vekt og dimensjoner, Vægt og mål, Βάρη και διαστάσεις, Pesos e Dimensões



Model	Pipe Size	Height (H)		Width (W)		Depth (D)		(a)		(b)		(c)		(d)		Weight	
		mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	kg	lbs
WS / P010A	¼"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P010B	⅜"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P010C	½"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P015C	½"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.16	2.55
P020C	½"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.12	2.58
WS / P020D	¾"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.12	2.58
WS / P025D	¾"	227	10.9	120	4.72	114.5	4.5	232	9.1	70	2.76	32	1.3	38	1.5	2.21	4.86
WS / P025E	1"	227	10.9	120	4.72	114.5	4.5	232	9.1	70	2.76	32	1.3	38	1.5	2.21	4.86
WS / P030G	1 ½"	367	14.45	120	4.72	114.5	4.5	323	12.7	70	2.76	32	1.3	38	1.5	2.68	5.91
WS / P035G	1 ½"	531	20.9	164	6.46	156	6.10	384	15.1	100	3.94	68	2.68	38	1.5	6.90	15.20
WS / P040H	2	623	24.5	164	6.46	156	6.10	476	18.7	100	3.94	68	2.68	38	1.5	7.30	16.10
WS / P045I	2 ½	623	24.5	164	6.46	156	6.10	476	18.7	100	3.94	68	2.68	38	1.5	7.10	15.65
WS / P050I	2 ½	745	29.3	192	7.56	183	7.20	587	23.1	120	4.72	68	2.68	38	1.5	10.30	22.71
P055I	2 ½	935	36.8	192	7.56	183	7.20	772	30.4	120	4.72	68	2.68	38	1.5	15.30	33.73
WS / P055J	3	935	36.8	192	7.56	183	7.20	772	30.4	120	4.72	68	2.68	38	1.5	15.30	33.73

Note: Water Separators do not include a DP Indicator, use dimension H + d for the total height.

(FI) Asennussuositukset

On suositeltavaa, että paineilma käsitellään ennen jakelujärjestelmään syöttämistä ja kriittisissä käyttöpisteissä/käyttökohteissa.

Paineilmakuivaimien asennus aiemmin märkään järjestelmään saattaa kasvattaa käyttöpisteen suodattimen likakuormitusta jakelujärjestelmän kuivumisen aikana. Suodatinelementit on ehkä vaihdettava tavallista useammin tänä ajanjaksona.

Asennuksissa, joissa käytetään öljyttömiä kompressoreja, on yhä vesiaerosoleja ja hiukkasia. Tällöin on käytettävä edelleen yleiskäyttö- ja suurtehotyyppejä.

Yleiskäyttöinen suodatin on aina asennettava suojaamaan suurtehosuodatinta nestemäisiltä aerosoleilta ja kiinteiltä hiukkasilta.

Puhdistuslaitteisto on asennettava kohtaan, jossa on alhaisin jäätymispisteen yläpuolinen lämpötila, mieluiten jälkijäähdyttimistä ja ilmanvastaanottolaitteista alavirtauksen suuntaan.

Käyttöpisteiden puhdistuslaitteisto on asennettava mahdollisimman lähelle käyttökohdetta.

Puhdistuslaitteistoa ei saa asentaa pikaventtiileistä alavirtauksen suuntaan, ja se on suojattava mahdollisilta vastavirtauksilta ja muilta hätäolosuhteilta.

Kaikista puhdistuslaitteistoon vievistä putkista on poistettava ilma ennen asennusta ja kaikista putkista on poistettava ilma puhdistuslaitteiston asennuksen jälkeen ja ennen liittämistä lopulliseen käyttökohteeseen.

Jos puhdistuslaitteiston ympärille asennetaan ohitusputket, ohitusputkeen on asennettava riittävät suodattimet, jotta alavirtauksen suunnassa oleva järjestelmä ei saastu.

Sovita poistoputket hiilisuodattimista suoraan kondenssierottimeen. Jos poistoputkien liittäminen suoraan erottimeen ei ole mahdollista, putket on ilmattava jakoputkistoon (ilmattava toisesta päästä) ja sen jälkeen yksittäissisääntuloon kondenssierottimeen.

Puhdistuslaitteistoon keräytyvälle nesteelle on oltava poistomenetelmä. Keräytyneet nesteet on hävitettävä ja käsiteltävä vastuuntuntoisesti.

(SV) Rekommendationer för installation

Vi rekommenderar att tryckluften behandlas innan den leds in i distributionssystemet och även vid viktiga luftförbrukningspunkter/applikationer.

Installation av tryckluftstorkar i system som tidigare varit våta kan orsaka ytterligare belastning p.g.a. smuts i filtren vid förbrukningspunkterna medan distributionssystemet torkar. Under denna period kan filterelementen behöva bytas ut oftare.

För installationer där oljefria kompressorer används och där vattenaerosol och partiklar fortfarande förekommer, ska universalvarianter och högeffektiva modeller fortfarande användas.

Ett universalfilter måste alltid monteras för att skydda högeffektivitetsfiltret från vätskeaerosoler i stora mängder samt fasta partiklar.

Installera reningsutrustningen vid lägsta temperatur över fryspunkten, helst nedströms från efterkylare och tryckluftsbehållare.

Reningsutrustning vid förbrukningspunkterna ska installeras så nära applikationen som möjligt.

Reningsutrustningen bör inte installeras nedströms från snabböppnande ventiler, och den bör skyddas från eventuella backflöden och andra slagrörelser.

Töm alla rör som leder till reningsutrustningen före installationen, och töm även alla rör efter att reningsutrustningen har installerats samt före anslutning till den slutliga applikationen.

Om shuntledningar monteras runt reningsutrustningen ska tillräcklig filtrering monteras på shuntledningarna för att förhindra att systemet förorenas nedströms.

Dra dräneringsledningar direkt från koalescensfilter till kondensseparator. Om inte ledningarna kan dras direkt till en separator bör ledningarna dras till ett kondensgrenrör (med utsläpp i ena änden) och sedan till en enda ingång på en kondensseparator.

Ombesörj en anordning för att tömma ut uppsamlade vätskor från reningsutrustningen. Uppsamlade vätskor ska behandlas och bortskaffas på ett ansvarsfullt sätt.

(NO) Anbefalinger for installering

Det anbefales at den komprimerte luften behandles før den føres inn i distribusjonssystemet og også ved kritiske brukspunkter eller enheter.

Installering av lufttørkere for komprimert luft til et tidligere fuktig system kan føre til midlertidig smussbelastning for filtre ved brukspunkt i en periode mens distribusjonssystemet tørker ut. Filterelementene må kanskje skiftes oftere i denne perioden.

For installeringer der det brukes oljefrie kompressorer og det fortsatt finnes vannaerosoler og partikler, bør det fortsatt brukes universal- og mikrofilterkvalitet.

Et universalfilter må alltid installeres for å beskytte mikrofilteret fra store volumer av væskeaerosoler og faste partikler.

Installer renseutstyr ved laveste temperatur over frysepunktet, fortrinnsvis nedstrøms for etterkjølere og luftmottakere.

Renseutstyr ved brukspunkt skal installeres så nær enheten som mulig.

Renseutstyr skal ikke installeres nedstrøms for hurtigåpningsventiler og skal beskyttes mot mulig motstrøm eller andre støtsituasjoner.

Spyl alle rør som fører til renseutstyret før installering, og alle rør etter installering av renseutstyret og før tilkobling til sluttenheten.

Hvis det kobles til stikkrør rundt renseutstyret, skal man sørge for at det kobles tilstrekkelig filtrering til stikkrøret for å hindre kontaminering av systemet nedstrøms.

Fest avløpsrør fra vannutskillerfiltrene direkte til en kondensatutskiller. Dersom det ikke er mulig å koble avløpsrør direkte til en separator, skal linjene være ventilert inn i en kondensatmanifold (luftet i den ene enden) og deretter inn i et enkelt inntak på en kondensatseparator.

Sørg for at det finnes mulighet for å drenere bort oppsamlede væsker fra renseutstyret. Oppsamlede væsker bør behandles og avhendes på en ansvarlig måte.

(DA) Installationsanbefalinger

Det anbefales at behandle trykluft, før den sendes ind i fordelingssystemet, samt på kritiske brugssteder/apparater.

Installation af trykluftørreanlæg i et tidligere vådanlæg kan i en periode medføre ekstra belastning pga. snavs for filtre på brugsstedet, mens fordelingssystemet udtørres. Filterelementerne skal muligvis udskiftes oftere i denne periode.

I installationer med oliefrie kompressorer vil der stadig være vanddråber og -partikler, og der bør fortsat bruges universalfiltre samt filtre med høj effektivitetsklassificering.

Der skal altid installeres et universalfilter for at beskytte det højeffektive filter mod store mængder væskedråber og faste partikler.

Installer rensningsudstyr ved den lavest mulige temperatur over frysepunktet og helst efter efterkølere og luftudskillere.

Rensningsudstyr på brugsstedet bør installeres så tæt på apparaturet som muligt.

Rensningsudstyr bør ikke installeres efter lynåbneventiler og bør beskyttes mod eventuel modstrøm eller andre stødrisici.

Udluft alle rør, der fører til rensningsudstyret, før det installeres, og samtlige rør efter at rensningsudstyret er installeret, og før det tilsluttes det endelige apparatur.

Hvis der er monteret omløbsrør rundt om rensningsudstyret, skal der altid monteres passende filtreringsudstyr på disse omløbsrør for at forhindre forurening af systemet længere fremme.

Montér afløbsrør fra koalescensfiltrene direkte på en kondensseparator. Hvis det ikke er muligt at tilslutte afløbsrørene direkte på en separator, skal rørene udluftes ind i et kondensatorgrenrør (udluftet i den ene ende) og derefter ind i et enkelt indløb på en kondensseparator.

Sørg for, at der er et anlæg til at fjerne den opsamlede væske fra rensningsudstyret. Opsamlet væske skal behandles og bortskaffes på ansvarlig vis.

(EL) Συστάσεις εγκατάστασης

Ο χειρισμός του πεπιεσμένου αέρα συνιστάται να πραγματοποιείται πριν την εισαγωγή στο σύστημα διανομής, καθώς επίσης και σε κρίσιμα σημεία/εφαρμογές χρήσης.

Η εγκατάσταση ξηραντήρων πεπιεσμένου αέρα σε προηγουμένως υγρό σύστημα μπορεί να έχει ως αποτέλεσμα πρόσθετη βρομιά στο σημείο χρήσης των φίλτρων για ένα χρονικό διάστημα, έως ότου στεγνώσει το σύστημα διανομής. Τα φίλτρα ενδέχεται να πρέπει να αλλάζονται πιο συχνά κατά το χρονικό αυτό διάστημα.

Για τις εγκαταστάσεις όπου χρησιμοποιούνται συμπιεστές χωρίς λάδι, εξακολουθεί να υπάρχει νερό με μορφή αερολύματος και αιωρούμενων σωματιδίων, για αυτό και θα πρέπει να συνεχίσουν να χρησιμοποιούνται φίλτρα γενικής χρήσης υψηλής απόδοσης.

Το φίλτρο γενικής χρήσης πρέπει πάντα να τοποθετείται έτσι ώστε να προστατεύει το φίλτρο υψηλής απόδοσης από μεγάλους όγκους υγρών με μορφή αερολύματος και στερεών σωματιδίων.

Τοποθετήστε τον εξοπλισμό καθαρισμού στη χαμηλότερη θερμοκρασία πάνω από το σημείο πήξης, κατά προτίμηση κατάντι των μεταψυκτών και των καταναλωτών αέρα.

Το σημείο χρήσης του εξοπλισμού καθαρισμού πρέπει να είναι τοποθετημένο όσο το δυνατό πιο κοντά στην εφαρμογή.

Ο εξοπλισμός καθαρισμού δεν πρέπει να τοποθετείται κατάντι των ταχυβαλβίδων και θα πρέπει να είναι προστατευμένος από πιθανή αντίστροφη ροή ή άλλες πιθανές αιτίες πρόκλησης κραδασμών.

Πριν την εγκατάσταση, κάντε εξαέρωση όλων των σωληνώσεων που οδηγούν στον εξοπλισμό καθαρισμού. Επίσης, κάντε εξαέρωση όλων των σωληνώσεων μετά την εγκατάσταση του εξοπλισμού καθαρισμού και πριν τη σύνδεση στην τελική εφαρμογή.

Εάν πριν και μετά τον εξοπλισμό καθαρισμού είναι τοποθετημένοι αγωγοί παράκαμψης, βεβαιωθείτε ότι εφαρμόζεται επαρκές φιλτράρισμα στον αγωγό παράκαμψης, για να αποφευχθεί η μόλυνση του συστήματος κατάντι.

Προσαρμόστε τους αγωγούς αποστράγγισης από τα φίλτρα προσκόλλησης απευθείας σε έναν διαχωριστή υγροποιημένων καταλοίπων. Αν δεν είναι δυνατό να συνδεθούν οι αγωγοί αποστράγγισης απευθείας σε έναν διαχωριστή, οι αγωγοί θα πρέπει να εκτονώνονται σε μια πολλαπλή υγροποιημένων καταλοίπων (με εξαέρωση στο ένα άκρο) και στη συνέχεια σε μια ενιαία εισαγωγή ενός διαχωριστή υγροποιημένων καταλοίπων.

Παρέχετε δυνατότητα αποστράγγισης των συσσωρευμένων υγρών από τον εξοπλισμό καθαρισμού. Ο χειρισμός και η απόρριψη των συσσωρευμένων υγρών πρέπει να πραγματοποιείται με υπεύθυνο τρόπο.

(PT) Recomendações sobre a instalação

Recomenda-se que o ar comprimido seja tratado antes da entrada no sistema de distribuição e também em aplicações/pontos de utilização críticos.

A instalação dos secadores de ar comprimido num sistema previamente húmido pode resultar numa acumulação adicional de sujidade nos pontos de utilização dos filtros durante o período em que o sistema de distribuição seca. Os elementos do filtro podem necessitar de ser substituídos com mais frequência durante este período.

Para instalações em que são utilizados compressores sem óleo, estão ainda presentes os aerossóis e partículas de água e ainda devem ser utilizados graus gerais e de elevado rendimento.

Um filtro geral deve ser sempre instalado para proteger o filtro de elevado rendimento dos aerossóis líquidos em bruto e das partículas sólidas.

Instale o equipamento de purificação na temperatura mais baixa acima do ponto de congelamento, preferencialmente a jusante dos refrigeradores posteriores e dos receptores de ar.

O ponto de utilização do equipamento de purificação deve ser instalado o mais próximo possível da aplicação.

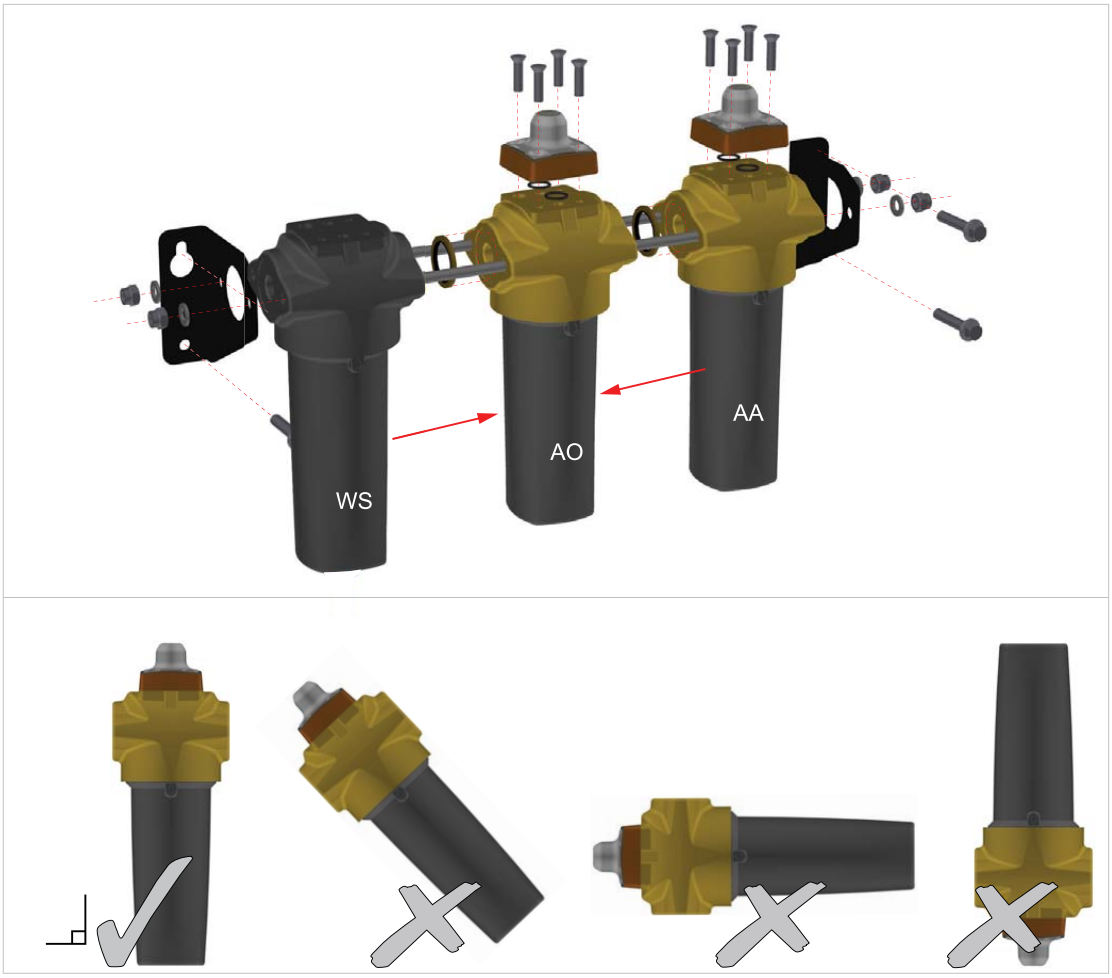
O equipamento de purificação não deve ser instalado a jusante das válvulas de abertura rápida e deve ser protegido de um possível fluxo inverso ou de outras condições de choque.

Purgue todos os tubos que levam ao equipamento de purificação antes da instalação e todos os tubos após a instalação do equipamento de purificação e antes da ligação para a aplicação final.

Se as linhas de by-pass forem instaladas em volta do equipamento de purificação, certifique-se de que a filtragem adequada é instalada na linha de by-pass para evitar a contaminação do sistema a jusante.

Instale os tubos de drenagem a partir dos filtros coalescentes directamente para um separador de condensado. Se não for possível ligar directamente os tubos de drenagem a um separador, os tubos devem ser ventilados para um colector de condensado (ventilado numa extremidade) e, em seguida, para uma entrada única de um separador de condensado.

Forneça um instrumento para drenar os líquidos recolhidos do equipamento de purificação. Os líquidos recolhidos devem ser tratados e eliminados de uma forma responsável.





(FI) **Alempi sulkulevy voi liikkua, kun suodatinta ei ole paineistettu**

Warning **Alempi sulkulevy ei vaadi huoltoa eikä sitä saa koskaan irrottaa.**

(SV) **Den nedre stängningsplattan kan röra sig om filtret inte trycksätts**

Warning **Den nedre stängningsplattan går inte att utföra service på och ska aldrig tas bort.**

(NO) **Den nedre lukkeplaten vil kunne bevege seg når filteret ikke er trykksatt**

Warning **Den nedre lukkeplaten skal ikke vedlikeholdes og bør aldri fjernes.**

(DA) **Den nederste lukkeplade kan flytte sig, når filteret ikke er under tryk**

Warning **Den nederste lukkeplade kan ikke serviceres, og den må ikke afmonteres.**

(EL) **Η κάτω πλάκα κλεισίματος μπορεί να μετακινηθεί εάν το φίλτρο δεν βρίσκεται υπό πίεση**

Warning **Η κάτω πλάκα κλεισίματος δεν επιδέχεται σέρβις και δεν πρέπει να αφαιρείται ποτέ.**

(PT) **A placa de isolamento inferior pode deslocar-se se o filtro não estiver pressurizado**

Warning **A placa de isolamento inferior não necessita de manutenção e nunca deve ser retirada.**

(FI) Käynnistys ja käyttö

Warning

Varmista ennen suodattimen paineistusta, että pää ja pesä on asetettu oikein ja että lukitusmekanismi on tässä oppaassa olevan kuvan osoittamalla tavalla huoltotilassa (huoltotoimenpide 5).

1. Paineista yksikkö asteittain avaamalla tuloventtiili.

2. Paineista laskuputkisto uudelleen avaamalla lähtöventtiili hitaasti.

Älä avaa tulo- tai lähtöventtiiliä nopeasti tai altista yksikköä liialliselle paine-erolle, sillä yksikkö voi vaurioitua.

(SV) Start och drif

Warning

Före trycksättning ska du kontrollera att huvudet och filterskålen är ordentligt monterade och att låsanordningen är korrekt inriktad så som visas i underhållsavsnittet (underhållsprocedur 6) i den här manualen.

1. Öppna inloppsventilen långsamt så att enheten trycksätts gradvis.

2. Öppna utloppsventilen långsamt för att trycksätta rörsystemet nedströms igen.

Öppna inte inlopps- eller utloppsventilerna snabbt och utsätt inte enheten för överdrivet differentialtryck, eftersom det kan orsaka skador.

(NO) Oppstart og drift

Warning

Før trykksetting av filteret, påse at filterhodet og filterskålen er korrekt montert og at låsmekanismen er riktig justert, som vist i vedlikeholdsavsnittet (vedlikeholdsprosedyre 6) i denne håndboken.

1. Åpne inntaksventilen langsomt for å sette enheten gradvis under trykk.

2. Åpne uttaksventilen langsomt for å sette nedstrømsrørene under trykk igjen.

Ikke åpne inntaks- eller uttaksventilene raskt, eller utsett enheten for høyt differensialtrykk, da dette kan føre til skade.

(DA) Start og drif

Warning

Inden filteret sættes under tryk, skal det sikres, at hovedet og beholderen er korrekt monteret, og at låsemærkerne står ud for hinanden som vist i afsnittet om vedligeholdelse (vedligeholdelsesprocedure 6) i denne manual.

1. Åbn indgangsventilen langsomt for gradvist at sætte enheden under tryk.

2. Åbn udløbsventilen langsomt for at sætte rørene længere fremme under tryk igen.

Åbn ikke indgangs- eller udgangsventiler hurtigt, og udsæt ikke enheden for store trykforskelle, da det kan medføre skader.

(EL) Έναρξη λειτουργίας και χειρισμός

Warning

Πριν θέσετε το φίλτρο υπό πίεση, βεβαιωθείτε ότι η κεφαλή και το ποτήρι του φίλτρου είναι σωστά προσαρμοσμένα και ότι τα σημάδια ασφάλισης είναι σωστά ευθυγραμμισμένα, όπως απεικονίζεται στην ενότητα συντήρησης (διαδικασία συντήρησης 6) αυτού του εγχειριδίου.

1. Ανοίξτε αργά τη βαλβίδα εισαγωγής για να ανέβει σταδιακά η πίεση της μονάδας.

2. Ανοίξτε αργά τη βαλβίδα εξαγωγής για να ανέβει η πίεση της σωλήνωσης κατάντι.

Μην ανοίγετε γρήγορα τις βαλβίδες εισαγωγής ή εξαγωγής και μην υποβάλλετε τη μονάδα σε υπερβολική διαφορική πίεση, διότι μπορεί να προκύψει βλάβη.

(PT) Arranque e Funcionamento

Warning

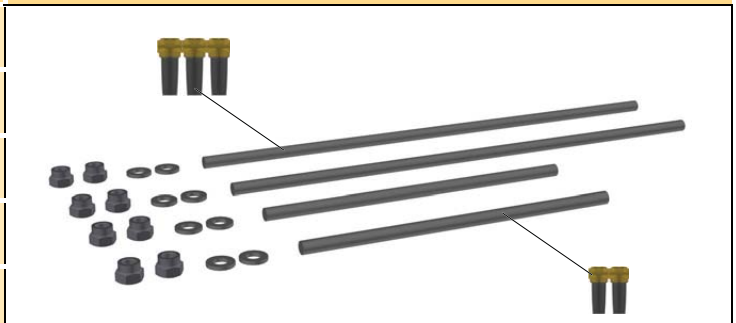
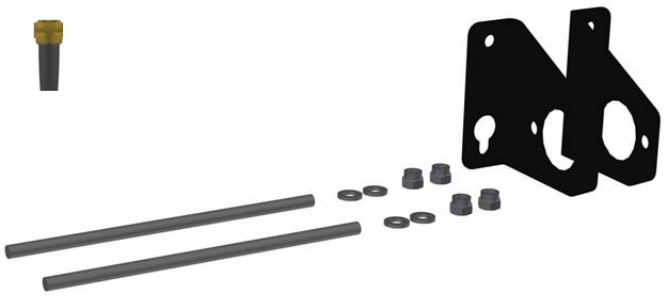
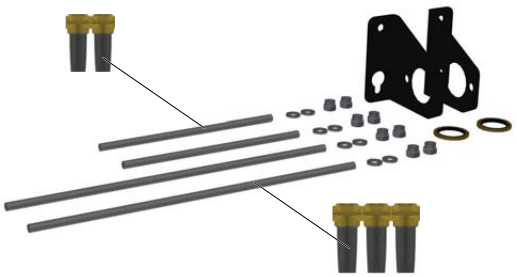
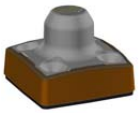
Antes de pressurizar o filtro, certifique-se de que a cabeça e o copo estão instalados correctamente e de que o detalhe de bloqueio está correctamente alinhado, conforme ilustrado na secção de manutenção (procedimento de manutenção 6) deste manual.

1. Abra lentamente a válvula de entrada para pressurizar gradualmente a unidade.

2. Abra lentamente a válvula de saída para voltar a pressurizar a tubagem a jusante.

Não abra rapidamente as válvulas de entrada ou de saída nem sujeite a unidade a uma pressão diferencial excessiva, caso contrário poderão ocorrer danos.

Lisävarusteet / varaosat (Huoltopakkaukset)
Tillbehör / Reservdelar (servicepaket), Tilbehør / Reservedeler (Service Kits), Tilbehør / Reservedele (Servicesæt),
Εξαρτήματα / Ανταλλακτικά (Κιτ σέρβις), Acessórios / Peças Sobressalentes (Kits de Manutenção)

Filter Models	Catalogue Number	Contents
010	TRK1-2	
015 - 020	TRK2-2	
025 - 030	TRK3-2	
035- 045	TRK4-2	
050- 055	TRK5-2	
010	MBK1-1	
015 - 020	MBK2-1	
025 - 030	MBK3-1	
035 - 045	MBK4-1	
050 - 055	MBK5-1	
010	MBK1-2	
015 - 020	MBK2-2	
025 - 030	MBK3-2	
035 - 045	MBK4-2	
050 - 055	MBK5-2	
010 - 055	EM1	
010 - 055	PD15NO	
010 - 030	DPI-K	
035 - 055	ZD90GL	

Huolto
Underhåll, Vedlikehold, Vedligeholdelse, Συντήρηση, Manutenção

(FI) **Huoltovälit**

Jotta voitaisiin varmistaa suodattimen ihanteellinen suorituskyky, vaaditaan AO, AA, ja -luokituksen elementtien vaihto 12 kuukauden välein yhdessä automaattipoistoputken kanssa.

ACS-elementin suoritus perustuu tulevan öljyhöyryn enimmäispitoisuuteen, joka on 0,018 mg/m^3. Korvaa hiilisuodatinelementti, kun huomaat höyryä, hajua tai makua.

Toisin kuin öljyaerosolien poistosuodattimet, jotka vaihdetaan vuosittain paineistetun ilman laadun takaamisen takia, öljyhöyryn poistosuodattimen käyttöikä riippuu monista asioista, ja se on ehkä vaihdettava useammin (paitsi jos käytetään poistosuodatinta, joka on mitoitettu 6 000:lle tunnille):

Adsorbointisuodattimien käyttöikään vaikuttavat tekijät

Öljyhöyrypitoisuus

Mitä korkeampi öljyhöyryn tulopitoisuus on, sitä nopeammin aktiivihiilikapasiteetti vanhenee.

Irtoöljy

Adsorbointisuodattimet on tarkoitettu poistamaan öljyhöyryjä ja -hajuja, mutta ei nestemäistä öljyä tai aerosoleja. Huonosti hoidettu tai olematon esisuodatus vähentää öljyhöyryn poistosuodattimen kapasiteettia nopeasti.

Lämpötila

Öljyhöyrysisältö lisääntyy eksponentiaalisesti tulolämpötilassa ja vähentää näin ollen elementin käyttöikää. Lisäksi lämpötilan noustessa adsorptiokyky vähenee, mikä myös vähentää elementin käyttöikää.

Suhteellinen kosteus tai kastepiste

Märkä ilma vähentää hiilen adsorptiokykyä.

Kompressoriöljyn vaihdot

Kun kompressoriöljyt vaihdetaan, uusi voiteluaine polttaa "kevyet loppujakeet" pois, mikä lisää öljyhöyrypitoisuutta tunneiksi tai jopa viikoiksi sen jälkeen. Öljyhöyryn poistosuodatin imee lisääntyneen öljyhöyryn ja näin ollen vähentää huomattavasti sen adsorptiokäyttöikää.

(SV) **Underhållsintervall**

För att säkerställa optimal funktion ska elementen klassade AO, AA, bytas ut var 12:e månad tillsammans med den automatiska tömningen.

Prestandan hos ACS -elementet baseras på en maximal inloppskoncentration av oljedimma på 0,018 mg/m^3. Byt ut kolfilterelementet vid detektering av dimma, odör eller smak.

Till skillnad från filter för borttagning av oljeaerosol som byts ut årligen för att säkerställa tryckluftskvaliteten, kan livslängden på ett oljedimmeborttagningsfilter påverkas av olika faktorer och kräva mer frekventa byten (om inte OVR används som är utformat för en livslängd på 6 000 timmar):

Faktorer som påverkar adsorptionsfilters livslängd

Oljedimmans koncentration

Ju högre inloppskoncentration av oljedimma desto snabbare försämras det aktiva kolets kapacitet.

Bulkolja

Adsorptionsfilter är utformade för att avlägsna oljedimma och odörer, inte flytande olja eller aerosoler. Dåligt underhåll eller obefintlig förfiltrering gör att OVR-filtrets kapacitet snabbt försämras.

Temperatur

Oljedimmenivån ökar exponentiellt mot inloppstemperaturen och minskar elementlivslängden. Dessutom försämras adsorptionskapaciteten när temperaturen stiger, vilket även detta minskar elementlivslängden.

Relativ fuktighet eller daggpunkt

Fuktig luft minskar kolets adsorptionskapacitet.

Byte av kompressorolja

Vid byte av kompressorolja bränner det nya smörjmedlet av "lätta produkter" vilket ökar mängden oljedimma i timmar eller till och med veckor efteråt. Denna ökning av mängden oljedimma adsorberas av OVR-filtret, vilket minskar dess livslängd avsevärt.

(NO) **Vedlikeholdsintervaller**

For å sikre optimal filterytelse, krever klasse AO, AA, -elementene utskiftning hver 12. måned sammen med det automatiske avløpet.

Ytelsen til ACS-elementet er basert på maksimal oljedampinntakskonsentrasjon på 0,018 mg/m^3. Skift ut karbonfilterelementet hvis du oppdager damp, lukt eller smak.

Til forskjell fra filtre for fjerning av oljespray, som skiftes ut hvert år for å garantere kvaliteten på den komprimerte luften, kan levetiden til et filter for fjerning av oljespray tilskrives forskjellige faktorer og kreve hyppigere skift (bortsett fra hvis OVR brukes, da det har en levetid på 6000 timer):

Faktorer som påvirker levetiden til adsorpsjonsfiltre

Oljedampkonsentrasjonen

Jo høyere inntakskonsentrasjon av oljedamp, jo raskere ekspirerer den aktiverte karbonkapasiteten.

Bulkolje

Adsorpsjonsfiltre er utformet for å fjerne oljedamp og lukt, ikke flytende olje eller aerosoler. Hvis det ikke finnes forfiltrering, eller den er dårlig vedlikeholdt, kan det føre til at OVR-filterkapasiteten utløper raskere.

Temperatur

Oljedampinnholdet øker eksponentielt i forhold til inntakstemperaturen, og reduserer elementets levetid. I tillegg reduseres adsorpsjonskapasiteten etter hvert som temperaturen øker, og reduserer elementets levetid.

Relativ fuktighet eller duggpunkt

Våt luft reduserer karbonets adsorberende kapasitet.

Kompressoroljeskift

Når kompressoroljen skiftes, brenner det nye smøremiddelet av lettkomponenter som øker oljedampinnholdet i mange timer eller til og med uker etterpå. Denne økningen i oljedampinnhold adsorberes av OVR-filteret, noe som reduserer levetiden betraktelig.

(DA) **Vedligeholdelsesintervaller**

For at sikre optimal filterydelse, skal elementer i kvalitet AO, AA, udskiftes hver 12. måned sammen med det automatiske afløb.

ACS-elementets ydelse er baseret på en maksimal indgangskoncentration i oliedamp på 0,018 mg/m^3. Udskift kulfilterelementet ved registrering af damp, lugt eller smag.

Modsat filtre til fjernelse af oliedråber, der udskiftes årligt for at sikre trykluftkvaliteten, kan levetiden for filtret til fjernelse af oliedamp tilskrives forskellige faktorer og kræve hyppigere udskiftninger (medmindre der bruges OVR, som er beregnet til en levetid på 6.000 timer):

Faktorer, der påvirker adsorptionsfiltre

Oliedampkoncentration

Jo højere oliedampindgangens koncentration er, jo hurtigere ophører det aktive kuls kapacitet.

Olie

Adsorptionsfiltre er udviklet til at fjerne oliedamp og -lugt, ikke flydende olie eller dråber. Dårligt vedligeholdt eller ikke-eksisterende forfiltrering vil få OVR-filterkapaciteten til at ophøre hurtigt.

Temperatur

Oliedampindholdet øges eksponentielt ift. indgangstemperaturen, hvilket reducerer elementets levetid. Derudover mindskes adsorptionskapaciteten også i takt med, at temperaturen stiger, hvilket også medfører reduceret levetid.

Relativ luftfugtighed eller dugpunkt

Våd luft reducerer kullets adsorptionskapacitet.

Udskiftning af kompressorolie

Når kompressorolien udskiftes, brænder det nye smøremiddel "lette ender" af, hvilket øger oliedampindholdet i flere timer eller endda uger efterfølgende. Forøgelsen af oliedampindholdet adsorberes af OVR-filtret, hvilket nedsætter dets adsorptionsmæssige levetid.

(EL) **Διαστήματα συντήρησης**

Για να εξασφαλίσετε τη βέλτιστη απόδοση του φίλτρου, τα στοιχεία βαθμίδας AO, AA, χρειάζεται να αλλάζονται κάθε 12 μήνες, μαζί με την αυτόματη αποστράγγιση.

Η απόδοση του στοιχείου ACS έχει υπολογιστεί για μέγιστη συγκέντρωση ατμών λαδιού στην εισαγωγή 0,018 mg/m^3. Αντικαθιστάτε το στοιχείο φίλτρου άνθρακα όταν ανιχνεύετε ατμούς, οσμές ή γεύσεις.

Αντίθετα με τα φίλτρα αφαίρεσης αερολυμάτων λαδιού, τα οποία αντικαθίστανται μία φορά το χρόνο για να εξασφαλίζουν την ποιότητα του πεπιεσμένου αέρα, η διάρκεια ζωής ενός φίλτρου αφαίρεσης ατμών λαδιού μπορεί να επηρεάζεται από διάφορους παράγοντες και να απαιτούνται πιο τακτικές αλλαγές (εκτός αν χρησιμοποιείται φίλτρο OVR, το οποίο είναι κατάλληλο για διάρκεια ζωής 6000 ωρών):

Παράγοντες που επηρεάζουν τη διάρκεια ζωής των φίλτρων προσρόφησης

Συγκέντρωση ατμών λαδιού

Όσο μεγαλύτερη είναι η συγκέντρωση των ατμών λαδιού στην εισαγωγή, τόσο πιο γρήγορα θα λήξει η ικανότητα φιλτραρίσματος του ενεργού άνθρακα.

Μεγάλος όγκος λαδιού

Τα φίλτρα προσρόφησης είναι σχεδιασμένα για να αφαιρούν ατμούς λαδιού και οσμές, όχι υγρό λάδι ή αερολύματα. Η κακή συντήρηση ή η ανυπαρξία προφιλτραρίσματος προκαλεί ταχεία λήξη της ικανότητας φιλτραρίσματος ενός φίλτρου OVR.

Θερμοκρασία

Η περιεκτικότητα σε ατμούς λαδιού αυξάνει εκθετικά σε σχέση με τη θερμοκρασία της εισαγωγής, μειώνοντας τη διάρκεια ζωής του φίλτρου. Επιπλέον, καθώς αυξάνεται η θερμοκρασία, η ικανότητα προσρόφησης ελαττώνεται, μειώνοντας και πάλι τη διάρκεια ζωής του φίλτρου.

Σχετική υγρασία ή σημείο δρόσου

Η μεγάλη υγρασία στον αέρα μειώνει την ικανότητα προσρόφησης του άνθρακα.

Αλλαγές λαδιών του συμπιεστή

Όταν αλλάζει το λάδι στον συμπιεστή, καίγονται τα “ελαφρά συστατικά” του λιπαντικού, αυξάνοντας έτσι την περιεκτικότητα σε ατμούς λαδιού για μερικές ώρες ή ακόμα και εβδομάδες μετά την αλλαγή. Η αυξημένη περιεκτικότητα σε ατμούς λαδιού προσροφάται από το φίλτρο OVR, μειώνοντας σημαντικά την προσροφητική διάρκεια ζωής του.

(PT) **Intervalos de Manutenção**

Para garantir um desempenho ideal do filtro, os elementos de grau AO, AA, necessitam de ser substituídos a cada 12 meses juntamente com o dreno automático.

O desempenho do elemento ACS é baseado numa concentração máxima da entrada de vapor do óleo de 0,018 mg/m^3. Substitua o elemento do filtro de carvão mediante a detecção de vapor, odor ou sabor.

Ao contrário dos filtros de remoção dos aerossóis do óleo que são anualmente substituídos para garantir a qualidade do ar comprimido, a duração de um filtro de remoção do vapor do óleo pode ser atribuída a diversos factores e requer substituições mais frequentes (excepto se o OVR for utilizado, aumentando assim para uma duração de 6000 hrs):

Factores que afectam a duração dos filtros de adsorção

Concentração do vapor do óleo

Quanto maior for a concentração de entrada do vapor de óleo, mais rapidamente irá expirar a capacidade do carvão activado.

Óleo em bruto

Os filtros de adsorção foram concebidos para remover os vapores e odores do óleo e não o óleo líquido ou os aerossóis. A pré-filtragem não existente ou com uma fraca manutenção irá fazer com que a capacidade do filtro OVR se extinga rapidamente.

Temperatura

O conteúdo do vapor do óleo aumenta exponencialmente para a temperatura de entrada, reduzindo o tempo de vida útil do elemento. Para além disso, à medida que a temperatura aumenta, a capacidade de adsorção diminui, reduzindo novamente o tempo de vida útil do elemento.

Humidade Relativa ou Ponto de Condensação

O ar húmido reduz a capacidade de adsorção do carvão.

Substituição do óleo do compressor

Quando o óleo do compressor for substituído, o novo lubrificante queima as "extremidades leves" aumentando o conteúdo do vapor do óleo durante horas ou até mesmo durante algumas semanas. Este aumento do conteúdo do vapor do óleo é adsorvido pelo filtro OVR, reduzindo significativamente a respectiva duração da adsorção.

(FI) **Huoltotoimenpiteet 1**

Sulje sisäänmenoputki (1) ja poistoventtiilit (2) rauhallisesti ja poista paineistus venttiilistä (3) poistoputkea käyttäen.

(SV) **Underhållsprocedur 1**

Stäng långsamt inlopps- (1) och utloppsventilerna (2) och sänk trycket i filtret (3) med tömningen.

(NO) **Vedlikeholdsprosedyre 1**

Steng ventilene i innløp (1) og uttak (2) langsomt og reduser trykket i filteret (3) ved hjelp av avløpet.

(DA) **Vedligeholdelsesprocedure 1**

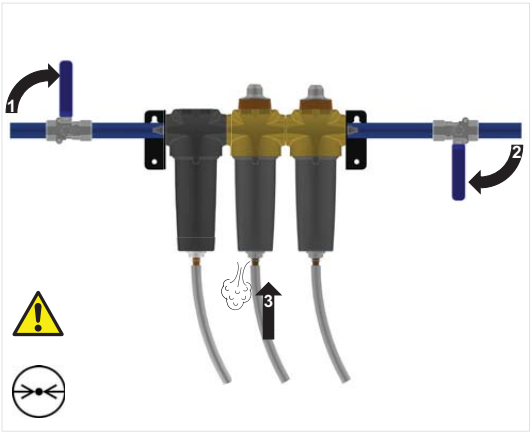
Luk indgangs- (1) og udgangsventilerne (2) langsomt, og tag trykket af filteret (3) ved hjælp af afløbet.

(EL) **Διαδικασία συντήρησης 1**

Κλείστε αργά τις βαλβίδες εισαγωγής (1) και εξαγωγής (2) και αποσυμπιέστε το φίλτρο (3) με τη βοήθεια της αποστράγγισης.

(PT) **Procedimento de Manutenção 1**

Feche lentamente as válvulas de entrada (1) e de saída (2) e despressurize o filtro (3) utilizando o dreno.



(FI) **Huoltotoimenpiteet 2**

Avaa suodatinastiat (1 ja 2) ja poista käytetty elementti (3)

(SV) **Underhållsprocedur 2**

Skruva loss filterskålen (1 och 2) och ta bort det förbrukade elementet (3).

(NO) **Vedlikeholdsprosedyre 2**

Skru løs filterskålene (1 & 2) og fjern de brukte elementene (3)

(DA) **Vedligeholdelsesprocedure 2**

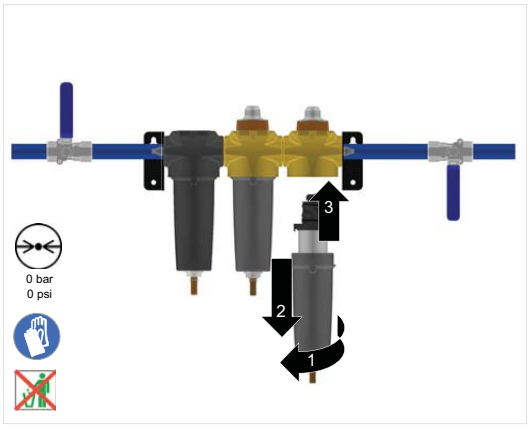
Skru filterbeholderen af (1 og 2), og fjern det brugte element (3)

(EL) **Διαδικασία συντήρησης 2**

Ξεβιδώστε το ποτήρι του φίλτρου (1 & 2) και αφαιρέστε το μεταχειρισμένο στοιχείο (3)

(PT) **Procedimento de Manutenção 2**

Desaperte o copo (1 e 2) do filtro e retire o elemento utilizado (3)



(FI) **Huoltotoimenpiteet 3**

Ruuvaa auki automaattinen poistoputki (1) ja hävitä se (2). Sovita paikoilleen uusi putki (3) ja kiristä (4).

(SV) **Underhållsprocedur 3**

Skruva loss den automatiska tömningen (1) och avyttra den (2). Sätt den nya tömningen på plats (3) och dra åt (4).

(NO) **Vedlikeholdsprosedyre 3**

Skru løs det automatiske avløpet (1) og kast det (2). Monter det nye avløpet (3) og stram til (4).

(DA) **Vedligeholdelsesprocedure 3**

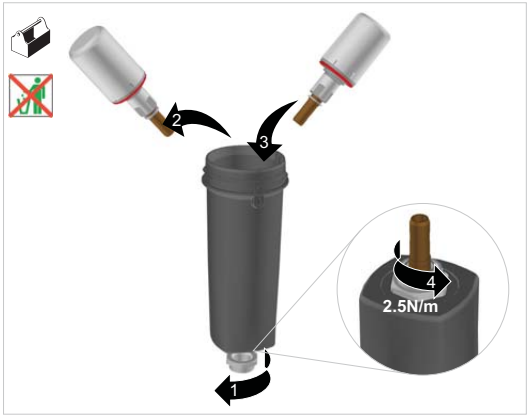
Skru det automatiske afløb af (1), og bortskaf det (2). Montér det nye afløb (3), og spænd (4).

(EL) **Διαδικασία συντήρησης 3**

Ξεβιδώστε την αυτόματη αποστράγγιση (1) και πετάξτε την (2). Τοποθετήστε τη νέα αποστράγγιση (3) και σφίξτε την (4).

(PT) **Procedimento de Manutenção 3**

Desaperte o dreno automático (1) e elimine-o (2). Instale o novo dreno (3) e aperte (4).



(FI) **Huoltotoimenpiteet 4**

Sijoita uusi elementti suodatinastiaan varmistuen, että nokat ovat asianmukaisesti koloissaan.

(SV) **Underhållsprocedur 4**

Sätt i det nya elementet i filterskålen och se till att stiften passar i spåren.

(NO) **Vedlikeholdsprosedyre 4**

Sett det nye elementet inn i filterskålen og sikre at hakene sitter riktig i sporene.

(DA) **Vedligeholdelsesprocedure 4**

Sæt det nye element i filterbeholderen, og sørg for, at tapperne sidder korrekt i rillerne.

(EL) **Διαδικασία συντήρησης 4**

Τοποθετήστε το νέο στοιχείο μέσα στο ποτήρι του φίλτρου, προσέχοντας οι προεξοχές να καθίσουν καλά μέσα στις εγκοπές.

(PT) **Procedimento de Manutenção 4**

Introduza o novo elemento no copo do filtro certificando-se de que as patilhas estão correctamente assentes nas ranhuras.



(FI) **Huoltotoimenpiteet 5**

Vaihda suodatinpään kummallakin puolella olevat O-renkaat uusiin..

Caution **Varmista, että voitelet O-renkaan ja säikeet sopivalla hapottomalla vaseliinilla.**

(SV) **Underhållsprocedur 5**

Byt ut O-ringen som sitter i filterhuvudet mot den nya, medföljande O-ringen..

Caution **Se till att smörja O-ringen och gängorna med någon passande syrafri oljegel.**

(NO) **Vedlikeholdsprosedyre 5**

Bytt ut O-ringen som ligger i filterskålen med den nye O-ringen som følger med.

Caution **Sørg for å smøre O-ringen og gjengene med en passende syrefri vaselin.**

(DA) **Vedligeholdelsesprocedure 5**

Udskift O-ringen i filterhovedet med den nye medfølgende O-ring.

Caution **Smør O-ringen og gevindet med en egnet syrefri vaseline.**

(EL) **Διαδικασία συντήρησης 5**

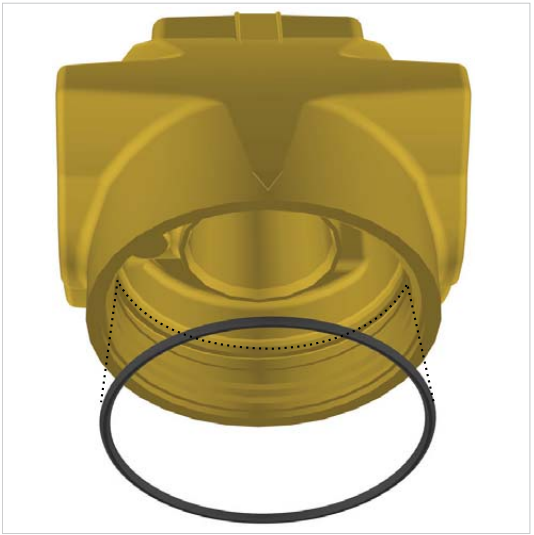
Αντικαταστήστε τον δακτύλιο Ο που βρίσκεται μέσα στην κεφαλή του φίλτρου με τον νέο παρεχόμενο δακτύλιο Ο.

Caution **Μην παραλείψετε να λιπάνετε τον δακτύλιο Ο και τα σπειρώματα με κατάλληλη γέλη πετρελαίου χωρίς οξέα.**

(PT) **Procedimento de Manutenção 5**

Substitua o O-ring situado na cabeça do filtro pelo novo O-ring fornecido.

Caution **Certifique-se de que lubrifica o O-ring e as roscas com vaselina adequada e sem ácido.**



(FI) **Huoltotoimenpiteet 6 (a)**

Sijoita suodatinastia ja -pää paikoilleen varmistuen siitä, että se sopii paikoilleen ja lukitusmekanismit ovat kohdakkain.

Huomautus: Jotta voidaan varmistaa astian kiinnittyminen päähän, 010-030-astia vaatii 360 °:n käännöksen ja 035-045-astia 720°:n käännöksen siihen asti, että kierre pysähtyy.

(SV) **Underhållsprocedur 6 (a)**

Sätt tillbaka filterskålen och huvudet och se till att de är ordentligt åtdragna och att låsanordningarna är korrekt inriktade.

OBS! För att säkerställa att skålen är ordentligt fastsatt i huvudet kräver skålen 010-030 360° vridning tills gängorna tar emot och skålen 035-045 kräver 720°.

(NO) **Vedlikeholdsprosedyre 6 (a)**

Monter filterskålen og hodet og sikre at gjengene griper riktig og låsmekanismene er justert.

Obs! For å sikre at skålen er sitter helt inn i hodet, krever skål 005-030 360°rotasjon før gjengen stopper, og 720° for skål 035-045.

(DA) **Vedligeholdelsesprocedure 6 (a)**

Genmontér filterbeholderen og filterhovedet. Gevindet skal være skruet helt i bund, og låsemærkerne skal stå ud for hinanden.

Bemærk: For at sikre, at beholderen sidder korrekt i hovedet, skal 005-030-beholderen drejes 360° indtil gevindstoppet og 720° for 035-045-beholderen

(EL) **Διαδικασία συντήρησης 6 (a)**

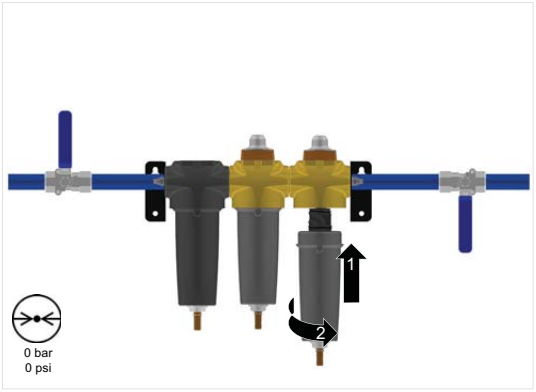
Επανατοποθετήστε το ποτήρι του φίλτρου και την κεφαλή, προσέχοντας τα σπειρώματα να βιδώσουν καλά μεταξύ τους και να ευθυγραμμιστούν τα σημάδια ασφάλισης.

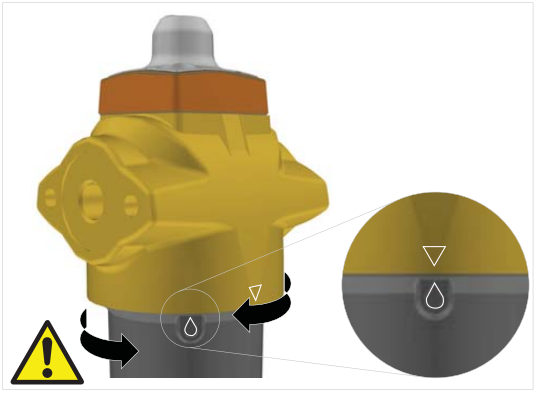
Σημείωση: Για να βεβαιωθείτε ότι το ποτήρι έχει τοποθετηθεί καλά μέσα στην κεφαλή, να έχετε υπόψη σας ότι το ποτήρι 010-030 απαιτεί περιστροφή 360° μέχρι να βιδώσει εντελώς και 720° για το ποτήρι 035-045.

(PT) **Procedimento de Manutenção 6 (a)**

Volte a instalar a cabeça e o copo do filtro certificando-se de que as roscas estão totalmente encaixadas e de que os detalhes de bloqueio estão alinhados.

Nota: Para se certificar de que o copo está totalmente encaixado na cabeça, o copo 010-030 necessita de uma rotação de 360° até atingir o batente da roscae o copo 035-045 necessita de uma rotação de 720°.





(FI) **Huoltotoimenpiteet 7**

Kiinnitä suodatinastiaan vaihtopäivätarra ja kirjoita siihen päivämäärä, jolloin elementti on jälleen vaihdettava, esim.12 kk kuluttua tämänkertaisesta vaihdosta.

Caution **Älä käytä liuottimia tai alkoholia tarrojen puhdistukseen, sillä ne voivat aiheuttaa vaurioita.**

(SV) **Underhållsprocedur 7**

Fäst elementets etikett för bytesdatum på filterskålen och skriv dit datumet som elementet ska bytas ut, d.v.s. 12 månader efter bytet av elementet.

Caution **Använd inga lösningsmedel eller alkohol för att rengöra etiketterna eftersom det kan orsaka skador.**

(NO) **Vedlikeholdsprosedyre 7**

Fest element endre dato etiketten til filteret bolle og skrive på datoen elementet skal erstattes. i.e 12 måneder etter element endring.

Caution **Ikke bruk løsemidler eller alkohol for å rengjøre etikettene, da dette kan forårsake skade.**

(DA) **Vedligeholdelsesprocedure 7**

Fastgør mærkaten med dato for elementudskiftning på filterbeholderen, og skriv datoen for, hvornår elementet skal udskiftes - d.v.s. 12 måneder efter elementudskiftningen.

Caution **Brug ikke opløsningsmidler eller alkohol til rengøring af mærkaterne, da det kan medføre beskadigelse.**

(EL) **Διαδικασία συντήρησης 7**

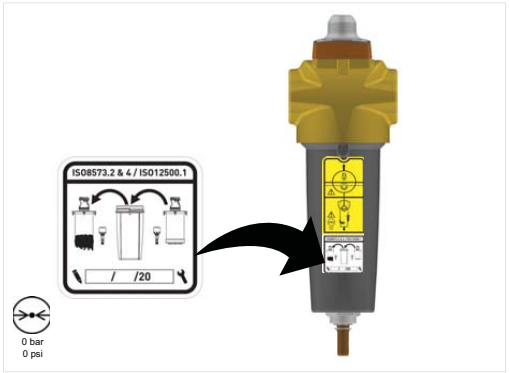
Κολλήστε την ετικέτα ημερομηνίας αλλαγής του στοιχείου στο ποτήρι του φίλτρου και σημειώστε την ημερομηνία που πρέπει να αλλαχτεί το στοιχείο, δηλ. 12 μήνες μετά την αλλαγή του στοιχείου..

Caution **Μην χρησιμοποιείτε διαλύτες ή αλκοόλες για να καθαρίσετε τις ετικέτες, γιατί έτσι μπορεί να προκληθεί ζημιά.**

(PT) **Procedimento de Manutenção 7**

Prenda a etiqueta com a data de substituição do elemento no copo do filtro e anote a data em que o elemento deve ser substituído. Por ex.: 12 meses após a substituição do elemento.

Caution **Não utilize solventes nem álcool para limpar as etiquetas, pois tal poderá provocar danos.**



(FI) **Huoltotoimenpiteet 8**

Avaa sisääntuloventtiili (1) hitaasti paineistaaksesi yksikön, avaa hitaasti ulostuloventtiili (2) paineistaaksesi laskuputkiston

Warning **Älä avaa tulo- tai lähtöventtiiliä nopeasti tai altista yksikköä liialliselle paine-erolle, sillä yksikkö voi vaurioitua.**

(SV) **Underhållsprocedur 8**

Öppna långsamt inloppsventilen (1) för att gradvis släppa ut trycket och öppna långsamt utloppsventilen (2) för att släppa ut trycket ur rörledningarna nedströms.

Warning **Öppna inte inlopps- eller utloppsventilerna snabbt och utsätt inte enheten för överdrivet differentialtryck, eftersom det kan orsaka skador.**

(NO) **Vedlikeholdsprosedyre 8**

Åpne inntaksventilen (1) sakte for gradvis å trykksette enheten, og åpne utløpsventilen (2) sakte for å trykksette nedstrømsrørene igjen

Warning **Du må ikke åpne inntaks- eller utløpsventilene raskt, eller utsette enheten for høyt differensialtrykk, da dette kan føre til skade.**

(DA) **Vedligeholdelsesprocedure 8**

Åbn indgangsventilen (1) langsomt for gradvist at sætte enheden under tryk, og åbn udgangsventilen (2) langsomt for at sætte rørene længere fremme under tryk igen..

Warning **Åbn ikke indgangs- eller udgangsventiler hurtigt, og udsæt ikke enheden for store trykforskelle, da det kan medføre skader.**

(EL) **Διαδικασία συντήρησης 8**

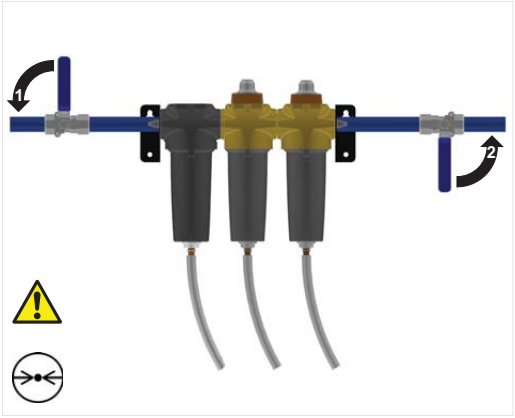
Ανοίξτε τη βαλβίδα εισαγωγής (1) αργά, για να ανέβει σταδιακά η πίεση της μονάδας, ανοίξτε αργά τη βαλβίδα εξαγωγής (2) για να ανέβει η πίεση της σωλήνωσης κατάντι.

Warning **Μην ανοίγετε γρήγορα τις βαλβίδες εισαγωγής ή εξαγωγής και μην υποβάλλετε τη μονάδα σε υπερβολική διαφορική πίεση, διότι μπορεί να προκύψει βλάβη.**

(PT) **Procedimento de Manutenção 8**

Abra lentamente a válvula de entrada (1) para pressurizar gradualmente a unidade, abra lentamente a válvula de saída (2) para voltar a pressurizar a tubagem a jusante.

Warning **Não abra rapidamente as válvulas de entrada ou de saída nem sujeite a unidade a uma pressão diferencial excessiva, caso contrário poderão ocorrer danos.**





PL ROCZNA GWARANCJA JAKOŚCI POWIETRZA

Jakość powietrza jest gwarantowana przez okres 1 roku, a gwarancja jest odnawiana po każdej corocznej wymianie wkładu.
Coroczna wymiana wkładu filtra zapewnia:
- Utrzymanie optymalnej wydajności
- Jakość powietrza spełniającą normy międzynarodowe
- Ochronę urządzeń podłączonych za filtrem, osób oraz procesów
- Niski koszt obsługi
- Większą produktywność i zyski
- Brak problemów

SK JEDNOROČNÁ ZÁRUKA KVALITY VZDUCHU

Kvalita vzduchu je zaručená na jeden rok a bude obnovená po každoročnej výmene filtračnej vložky.
Každoročné výmeny filtračných vložiek zabezpečujú:
- zachovanie optimálnej výkonnosti,
- plnenie medzinárodných noriem kvality vzduchu,
- ochranu zariadení v smere prúdenia, personálu a procesov,
- nízke prevádzkové náklady,
- zvýšenú produktivitu a ziskovosť,
- pokoj v duši.

CS ROČNÍ ZÁRUKA KVALITY VZDUCHU

Na kvalitu vzduchu je poskytována záruka 1 rok, která se obnovuje při každoroční výměně filtračního prvku.
Každoroční výměny filtračního prvku zajišťují:
- Zachování optimálního výkonu
- Trvalé dodržování mezinárodních norem týkajících se kvality vzduchu
- Ochranu zařízení, pracovníků a procesů za filtrem
- Nízké provozní náklady
- vyšší produktivitu a ziskovost
- klid na duši



ET AASTANE GARANTII ÕHU KVALITEEDILE

Teie õhu kvaliteet on garanteeritud aastaks ja pärast iga-aastast filtrielemendi vahetamist algab garantiiperiood uuesti.
Iga-aastane filtrielemendi vahetamine tagab:
- optimaalse jõudluse säilimise;
- õhukvaliteedi jätkuva vastavuse rahvusvahelistele nõuetele;
- allavoolu paiknevate seadmete, töötajate ja protsesside kaitse;
- madalad käituskulud;
- suurema tootlikkuse ja kasumlikkuse;
- meelerahu.

HU EGY ÉV LEVEGŐMINŐSÉG GARANCIA

A levegőminőséget 1 évre garantáljuk, azt a szűrőbetét éves cseréjekor egy évvel meghosszabítjuk.
Az éves szűrőbetét-csere a következő előnyöket biztosítja:
- Optimális teljesítmény fenntartása
- Nemzetközi szabványoknak megfelelő levegőminőség
- A folyamat későbbi pontján elhelyezett eszközök, a dolgozók és a folyamatok védelme
- Alacsony üzemeltetési költségek
- Jobb termelékenység és magasabb profit
- Lelki nyugalom

LV GAISA KVALITĀTES VIENA GADA GARANTIJA

Gaisa kvalitātes garantija ir spēkā 1 gadu, turklāt tiks atjaunota pēc katras ikgadējās filtra elementa maiņas.
Mainot filtra elementu reizi gadā, tiek nodrošināta:
- optimālas veiktspējas uzturēšana,
- gaisa kvalitātes pastāvīga atbilstība starptautiskajiem standartiem,
- aiz filtra pievienotā aprīkojuma, personāla un procesu aizsardzība,
- nelielas ekspluatācijas izmaksas,
- palielināts ražīgums un ienesīgums,
- nav iemesla satraukumam



(PL) Przykład kodowania modeli:

Model						
Klasa wkładu filtra	Wkład o wysokiej efektywności energetycznej	Rozmiar modelu	Rozmiar przyłącza	Typ gwintu	Opcja drenażu	Wskaźnik różnicy ciśnienia
WS AO AA ACS	P	3-cyfrowy kod jak poniżej	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Pływak M = Instrukcja	X = Brak I = Wskaźnik kontrolny zdarzeń
AA	P	030	A	G	F	I

(SK) Príklad kódovania modelu:

Model						
Trieda vložky	Prémiová energeticky výkonná vložka	Veľkosť modelu	Veľkosť otvoru	Typ závitu	Možnosť odtoku	Indikátor DP
WS AO AA ACS	P	3-číselný kód (zobrazený nižšie)	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Plávajúci M = Manuálny	X = Žiadny I = Monitorovanie udalostí
AA	P	030	A	G	F	I

(CS) Příklad kódu modelu:

Model						
Stupeň prvku	Prvotřídní energeticky úsporný prvek	Velikost modelu	Velikost hrdla	Typ závitu	Možnost vypouštění	Indikátor diferenčního tlaku
WS AO AA ACS	P	3číselný kód znázorněný níže	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Plovák M = Ruční	X = Žádný I = Monitor nehody
AA	P	030	A	G	F	I

(ET) Mudeli koodi näide:

Mudel						
Elemendi klass	Premium-tüüpi energiatõhus element	Mudeli suurus	Pordi suurus	Keerme tüüp	Äravoolu variant	DP-indikaator
WS AO AA ACS	P	3-numbriline kood, nagu allpool on näidatud	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Ujuk M = Manuaalne	X = Puudub I = Sündmuse monitor
AA	P	030	A	G	F	I

(HU) Példa az egyes modellek kódjelölésére:

Típus						
Betét minőségi osztálya	Prémium energiahatékonyságú elem	Típus mérete	Csatlakozófurat mérete	Menet típusa	Leeresztés módja	Nyomáskülönbség-jelző
WS AO AA ACS	P	Az alább látható 3-jegyű kód	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Úszó M = Kézi	X = Nincs I = Problémafigyelő
AA	P	030	A	G	F	I

(LV) Modeļa kodu piešķiršanas piemērs

Modelis						
Elementa kategorija	Augstākās klases enerģiju taupošs elements	Modeļa izmērs	Pieslēgvietas izmērs	Vītnes veids	Notecināšanas iespēja	DP indikators
WS AO AA ACS	P	Trīsciparu kods, kā redzams tālāk	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Pludiņš M = Manuāls	X = Neviens I = Incidentu uzraudzības ierīce
AA	P	030	A	G	F	I

(PL) Dobór produktów

Wymienione przepływy dotyczą pracy przy ciśnieniu 7 bar g (100 psi g) w odniesieniu do temp. 20°C, ciśnienia 1 bar (a) i ciśnienia względnego pary wodnej 0%.

W przypadku przepływów w innych ciśnieniach należy zastosować przedstawione współczynniki korekcji.

(SK) Výber produktu

Uvedené prietoky sú pre prevádzku pri tlaku 7 bar g (100 psi g) s referenciou 20°C, 1 bar (a), 0 % relatívny tlak vodnej pary.

V prípade prietokov pri iných tlakoch sa musia uplatňovať uvedené korekčné koeficienty.

(CS) Výběr produktu

Uvedené průtoky platí při provozu na 7 bar g (100 psi g) při teplotě 20 °C, 1 bar a, 0 % relativního tlaku vodní páry.

Pro průtoky při jiném tlaku použijte uvedené korekční faktory.

(ET) Toote valimine

Toodud voolukiirused on mõeldud töötamiseks võimsusel 7 baari g (100 psi g), kusjuures referentsväärtuseks on 20°C, 1 baari a, 0% suhteline veeauru surve.

Muude survete puhul rakendage näidatud korrektsioonifaktoreid.

(HU) Termékkiválasztás

A megadott átfolyási értékek 7 bar g (100 psi g) nyomáson való üzemeltetés esetén, 20°C hőmérsékletnél, 1 bar a és 0% relatív vízpáranyomás referenciaértékeken érvényesek.

Más nyomásértékek mellett az átfolyásra alkalmazza a bemutatott korrekciós tényezőket.

(LV) Produktu atlase

Noteiktās plūsmas darbībai ar 7 stieņiem g (100 psi g) ar norādi 20 °C, 1 stienis (a), 0% relatīvais ūdens tvaika spiediens.

Plūsmām pie citām spiediena vērtībām lietojiet norādītos labošanas faktorus.

Natężenia przepływu przez separator wody

Prietokové rýchlosti odlučovača vody, Průtokové rychlosti odlučovače vody, Veeseparaatori vooluhulgad, Vízleválasztó átfolyási sebességei, Ūdens separatora plūsmas ātruma vērtības

Model					Port Size	L/s	m3/min	m3/hr	cfm
WS	P010A	[ ]	[ ]	[ ]	¼	10	0.6	36	21
WS	P010B	[ ]	[ ]	[ ]	⅜	10	0.6	36	21
WS	P010C	[ ]	[ ]	[ ]	½	10	0.6	36	21
WS	P015C	[ ]	[ ]	[ ]	½	40	2.4	144	85
WS	P020D	[ ]	[ ]	[ ]	¾	40	2.4	144	85
WS	P025D	[ ]	[ ]	[ ]	¾	110	6.6	396	233
WS	P025E	[ ]	[ ]	[ ]	1	110	6.6	396	233
WS	P030G	[ ]	[ ]	[ ]	1 ½	110	6.6	396	233
WS	P035G	[ ]	[ ]	[ ]	1 ½	350	21.0	1260	742
WS	P040H	[ ]	[ ]	[ ]	2	350	21.0	1260	742
WS	P045I	[ ]	[ ]	[ ]	2 ½	350	21.0	1260	742
WS	P050I	[ ]	[ ]	[ ]	2 ½	800	48.0	2880	1695
WS	P055J	[ ]	[ ]	[ ]	3	800	48.0	2880	1695

CFP — współczynnik korekcji dla minimalnego ciśnienia wlotowego (separatory wody)

CFP – korekčný faktor minimálneho tlaku na prívode (odlučovače vody), CFP – korekční faktor, minimální vstupní tlak (odlučovače vody), CFP – minimaalse sisselaskerõhu parandustegur (veeseparaatorid), CFP - Minimális bemeneti nyomás korrekciós tényezője (vízleválasztók), CFP — korekcijas faktora minimālais ieplūdes spiediens (ūdens separators) ,

Minimum Inlet Pressure	bar g	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	psi g	15	29	44	58	73	87	100	116	131	145	160	174	189	203	218	232
Correction Factor		4.00	2.63	2.00	1.59	1.33	1.14	1.00	0.94	0.89	0.85	0.82	0.79	0.76	0.73	0.71	0.68

Natężenia przepływu przez filtr

Prietokové rýchlosti filtra, Průtokové rychlosti filtru, Filtri vooluhulgad, Szűrő átfolyási sebességei, Filtra plūsmas ātruma vērtības

Model					Port Size	L/s	m3/min	m3/hr	cfm	Replacement Element kit		No.
[grade]	P010A	[ ]	[ ]	[ ]	¼	10	0.6	36	21	P010	[grade]	1
[grade]	P010B	[ ]	[ ]	[ ]	⅜	10	0.6	36	21	P010	[grade]	1
[grade]	P010C	[ ]	[ ]	[ ]	½	10	0.6	36	21	P010	[grade]	1
[grade]	P015C	[ ]	[ ]	[ ]	½	20	1.2	72	42	P015	[grade]	1
[grade]	P020C	[ ]	[ ]	[ ]	½	30	1.8	108	64	P020	[grade]	1
[grade]	P020D	[ ]	[ ]	[ ]	¾	30	1.8	108	64	P020	[grade]	1
[grade]	P025D	[ ]	[ ]	[ ]	¾	60	3.6	216	127	P025	[grade]	1
[grade]	P025E	[ ]	[ ]	[ ]	1	60	3.6	216	127	P025	[grade]	1
[grade]	P030G	[ ]	[ ]	[ ]	1 ½	110	6.6	396	233	P030	[grade]	1
[grade]	P035G	[ ]	[ ]	[ ]	1 ½	160	9.6	576	339	P035	[grade]	1
[grade]	P040H	[ ]	[ ]	[ ]	2	220	13.2	792	466	P040	[grade]	1
[grade]	P045I	[ ]	[ ]	[ ]	2 ½	330	19.8	1188	699	P045	[grade]	1
[grade]	P050I	[ ]	[ ]	[ ]	2 ½	430	25.8	1548	911	P050	[grade]	1
[grade]	P055I	[ ]	[ ]	[ ]	2 ½	620	37.3	2232	1314	P055	[grade]	1
[grade]	P055J	[ ]	[ ]	[ ]	3	620	37.3	2232	1314	P055	[grade]	1

[klasa] = klasa

[stupeň] = stupeň

[Třída] = třída

[puhastusaste] = puhastusaste

[osztály] = osztály

[Kategorija] = Kategorija

CFP — współczynnik korekcji dla minimalnego ciśnienia wlotowego (filtry koalescencyjne i suchych cząstek stałych)
CFP – korekčný faktor minimálneho tlaku na prívode (zlučovače a suché časticové filtre), CFP – korekční faktor, minimální vstupní tlak (slučovací filtry a filtry suchých částic), CFP – minimaalse sisselaskerõhu parandustegur (koalestsents- ja kuivade osakeste filtrid), CFP - Minimális bemeneti nyomás korrekciós tényezője (Koaleszcens és száraz részecskeszűrők), CFP — korekcijas faktora minimālais ieplūdes spiediens (koalescences filtrs un sauso daļiņu filtrs)

Minimum Inlet Pressure	bar g	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	psi g	15	29	44	58	73	87	100	116	131	145	160	174	189	203	218	232	248	263	277	290
Correction Factor		2.65	1.87	1.53	1.32	1.18	1.08	1.00	0.94	0.88	0.84	0.80	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.61	0.59

(PL) Dobór produktów i współczynniki korekcji

W celu doboru właściwego modelu filtra lub separatora wody należy skorygować natężenie przepływu przez filtr ze względu na minimalne ciśnienie robocze systemu.

1 Uzyskaj informacje na temat minimalnego ciśnienia roboczego i maksymalnego natężenia przepływu sprężonego powietrza na wlocie filtra lub separatora wody.
2 Z tabeli CFP wybierz współczynnik korekcji dla minimalnego ciśnienia roboczego (zawsze zaokrąglając w dół — np. dla ciśnienia 5,3 bara użyj współczynnika korekcji dla 5 barów).
3 Oblicz minimalną wydajność filtracji. Minimalna wydajność filtracji = natężenie przepływu powietrza sprężonego x CFP
4 Na podstawie minimalnej wydajności filtracji wybierz model filtra lub separatora wody z tabeli natężenia przepływu powyżej (wybrany filtr lub separator wody musi charakteryzować się natężeniem przepływu większym lub równym minimalnej wydajności filtracji).

(SK) Výber produktov a korekčné faktory

Pre výber správneho modelu odlučovača vody alebo filtra je potrebné prietokovú rýchlosť filtra prispôsobiť minimálnemu prevádzkovému tlaku systému.

1 Na prívode odlučovača vody alebo filtra dosiahnite minimálny prevádzkový tlak a maximálnu prietokovú rýchlosť stlačeného vzduchu.
2 Z tabuľky CFP vyberte korekčný faktor pre minimálny prevádzkový tlak (vždy zaokrúhlite nadol, napr. v prípade 5,3 bar použite korekčný faktor 5 bar).
3 Vypočítajte minimálnu filtračnú kapacitu. Minimálna filtračná kapacita = prietoková rýchlosť stlačeného vzduchu x CFP
4 Na základe minimálnej filtračnej kapacity vyberte z hore uvedených tabuliek prietokových rýchlostí vhodný model odlučovača vody alebo filtra (vybratý odlučovač vody alebo filter musí mať prietokovú rýchlosť rovnakú alebo vyššiu ako je minimálna filtračná kapacita).

(CS) Výběr produktu a korekční faktory

Ke správnému výběru modelu odlučovače vody nebo filtru je třeba přizpůsobit průtokovou rychlost filtru minimálnímu provoznímu tlaku systému.

1 Na vstupu odlučovače vody nebo filtru dosáhněte minimálního provozního tlaku a maximálního průtoku stlačeného vzduchu.
2 Podle tabulky faktorů CFP zvolte korekční faktor odpovídající minimálnímu provoznímu tlaku (zaokrouhlujte vždy dolů, např. při tlaku 5,3 bar použijte korekční faktor pro tlak 5 bar).
3 Vypočítejte minimální filtrační kapacitu. Minimální filtrační kapacita = průtoková rychlost stlačeného vzduchu × CFP
4 Na základě minimální filtrační kapacity zvolte model odlučovače vody nebo filtru podle výše uvedených tabulek průtokové rychlosti (vybraný odlučovač vody nebo filtr musí mít průtokovou rychlost stejnou nebo vyšší než minimální filtrační kapacita).

(ET) Toote valimine ja parandustegurid

Veeseparaatori või filtri mudeli õigesti valimiseks tuleb filtri vooluhulka reguleerida vastavalt süsteemi minimaalsele töörõhule.

1 Minimaalse töörõhu ja maksimaalse suruõhu vooluhulga saate veeseparaatori või filtri sisselaskeavalt.
2 Valige minimaalse töörõhu parandustegur CFP-tabelist (alati ümardage allapoole, nt töörõhu 5,3 bar puhul kasutage töörõhu 5 bar parandustegurit)
3 Arvutage minimaalne filtreerimisvõimsus. Minimaalne filtreerimisvõimsus = suruõhu vooluhulk x CFP
4 Kasutades minimaalset filtreerimisvõimsust, valige veeseparaatori või filtri mudel eespool olevatest vooluhulga tabelitest (valitud veeseparaatoril või filtril peab olema vooluhulk, mis on võrdne minimaalse filtreerimisvõimsusega või mis on sellest suurem).

(HU) Termékválasztás és korrekciós tényezők

A vízleválasztó- vagy szűrőtípus megfelelő kiválasztásához a szűrő átfolyási sebességét a rendszer minimális üzemi nyomásához kell állítani.

1 Határozza meg a vízleválasztó vagy a szűrő bemeneténél érvényes minimális üzemi nyomást és maximális sűrítettlevegő-átfolyási sebességet.
2 A CFP táblázatból válassza ki a minimális üzemi nyomáshoz tartozó korrekciós tényezőt (mindig lefelé kerekítsen, pl.: 5,3 bar esetén 5 bar korrekciós tényezőt használjon)
3 Számítsa ki a minimális szűrőképességet. Minimális szűrőképesség = Sűrített levegő átfolyási sebessége x CFP
4 A minimális szűrőképesség alapján válasszon egy vízleválasztó- vagy szűrőtípust az átfolyási sebességekkel kapcsolatos fenti táblázatokból (a kiválasztott vízleválasztó vagy szűrő átfolyási sebességének legalább akkorának kell lennie, mint a minimális szűrőképesség).

(LV) Izstrādājumu atlase un korekcijas faktori

Lai pareizi atlasītu ūdens separatoru vai filtra modeli, filtra plūsmas ātrums ir jāpielāgo sistēmas minimālajam darba spiedienam.

1 Iegūstiet minimālo darba spiedienu un maksimālo saspiesta gaisa plūsmas ātrumu pie ūdens separatora vai filtra ieplūdes.
2 Atlasiet korekcijas faktoru minimālajam darba spiedienam no CFP tabulas (vienmēr noapaļojiet uz leju, piemēram, 5,3 bāriem izmantojiet 5 bāru korekcijas faktoru)
3 Aprēķiniet minimālo filtrācijas kapacitāti. Minimālā filtrācijas kapacitāte = saspiesta gaisa plūsmas ātrums x CFP
4 Izmantojot minimālo filtrācijas kapacitāti, atlasiet ūdens separatora vai filtra modeli no iepriekš dotajām plūsmas ātruma tabulām (atlasītajam ūdens separatoram vai filtram ir jābūt tādam plūsmas ātrumam, kas vienāds ar minimālo filtrācijas ātrumu vai lielāks par to).

Parametry techniczne

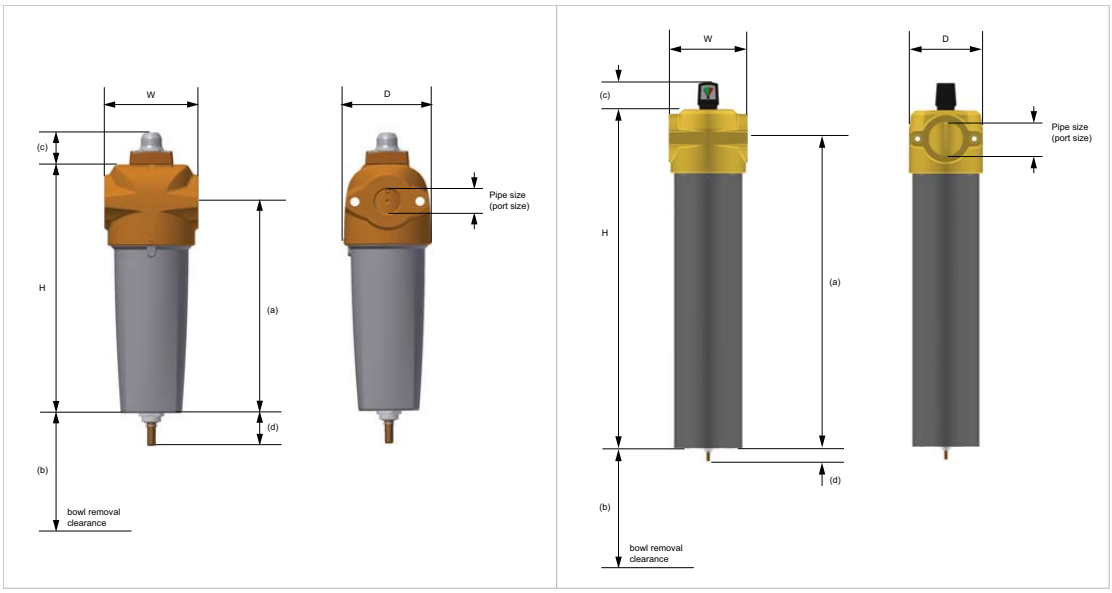
Technické údaje, Technické údaje, Tehniline teave, Műszaki adatok, Tehniskie dati

Model	Filter Models											Min Operating Pressure		Max Operating Pressure		Min Recommended Operating Temp		Max Recommended Operating Temp	
												bar g	psi g	bar g	psi g	°C	°F	°C	°F
WS	P010	[ ]	[ ]	F	[ ]	-	035	[ ]	[ ]	F	[ ]	1	15	16	232	2	35	80	176
AO	P010	[ ]	[ ]	F	[ ]	-	035	[ ]	[ ]	F	[ ]	1	15	16	232	2	35	80	176
AO	P010	[ ]	[ ]	M	[ ]	-	035	[ ]	[ ]	M	[ ]	1	15	20	290	2	35	100	212
AA	P010	[ ]	[ ]	F	[ ]	-	035	[ ]	[ ]	F	[ ]	1	15	16	232	2	35	80	176
AA	P010	[ ]	[ ]	M	[ ]	-	035	[ ]	[ ]	M	[ ]	1	15	20	290	2	35	100	212
ACS	P010	[ ]	[ ]	M	[ ]	-	035	[ ]	[ ]	M	[ ]	1	15	20	290	2	35	50	122

Note: AO / AA / WS grade filters for use up to 16 bar g (232 psi g) are supplied with a float drain [F] as standard.
For pressures between 16 and 20 bar g (232 and 290 psi g) a manual drain [M] must be used.
ACS grade filters are supplied with a manual drain [M] as standard.

Masy i wymiary

Hmotnosti a rozmery, Hmotnosti a rozměry, Massid ja mõõtmed, Tömeg- és méretadatok, Svars un izmēri



Model	Pipe Size	Height (H)		Width (W)		Depth (D)		(a)		(b)		(c)		(d)		Weight	
		mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	kg	lbs
WS / P010A	¼"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P010B	⅜"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P010C	½"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P015C	½"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.16	2.55
P020C	½"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.12	2.58
WS / P020D	¾"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.12	2.58
WS / P025D	¾"	227	10.9	120	4.72	114.5	4.5	232	9.1	70	2.76	32	1.3	38	1.5	2.21	4.86
WS / P025E	1"	227	10.9	120	4.72	114.5	4.5	232	9.1	70	2.76	32	1.3	38	1.5	2.21	4.86
WS / P030G	1 ½"	367	14.45	120	4.72	114.5	4.5	323	12.7	70	2.76	32	1.3	38	1.5	2.68	5.91
WS / P035G	1 ½"	531	20.9	164	6.46	156	6.10	384	15.1	100	3.94	68	2.68	38	1.5	6.90	15.20
WS / P040H	2	623	24.5	164	6.46	156	6.10	476	18.7	100	3.94	68	2.68	38	1.5	7.30	16.10
WS / P045I	2 ½	623	24.5	164	6.46	156	6.10	476	18.7	100	3.94	68	2.68	38	1.5	7.10	15.65
WS / P050I	2 ½	745	29.3	192	7.56	183	7.20	587	23.1	120	4.72	68	2.68	38	1.5	10.30	22.71
P055I	2 ½	935	36.8	192	7.56	183	7.20	772	30.4	120	4.72	68	2.68	38	1.5	15.30	33.73
WS / P055J	3	935	36.8	192	7.56	183	7.20	772	30.4	120	4.72	68	2.68	38	1.5	15.30	33.73

Note: Water Separators do not include a DP Indicator, use dimension H + d for the total height.

(PL) Zalecenia dotyczące instalacji

Zalecane jest oczyszczenie sprężonego powietrza przed punktami wlotowymi systemu rozprowadzania, jak też w głównych punktach stosowania.

Instalowanie osuszaczy sprężonego powietrza w wilgotnym układzie może prowadzić do gromadzenia się dodatkowych zanieczyszczeń w punktach stosowania filtrów do czasu osuszenia układu rozprowadzającego. W tym czasie może być konieczna częstsza wymiana wkładów filtrów.

W instalacjach, w których stosuje się sprężarki bezolejowe, aerozol wodny i cząsteczki zanieczyszczeń nadal będą występować; należy wtedy nadal używać filtrów uniwersalnych i wysokowydajnych.

Filtr uniwersalny powinien być zawsze instalowany w celu ochrony filtra wysokowydajnego przed większymi ilościami aerozoli cieczy i cząstkami stałymi.

Sprzęt oczyszczający należy zainstalować w najniższej temperaturze powyżej temperatury krzepnięcia, najlepiej za chłodnicą końcową i odbiornikami powietrza.

Punkt stosowania sprzętu oczyszczającego powinien znajdować się jak najbliżej miejsca stosowania powietrza.

Sprzęt oczyszczający nie może być instalowany za zaworami szybko otwierającymi i powinien być zabezpieczony przed ewentualnym przepływem wstecznym i innymi warunkami uderzeniowymi.

Przed instalacją należy oczyścić wszystkie przewody rurowe prowadzące do sprzętu oczyszczającego; należy również oczyścić wszystkie przewody rurowe po instalacji sprzętu oczyszczającego i przed podłączeniem do odbiorników końcowych.

Jeżeli do sprzętu oczyszczającego są zamontowane boczniki, należy sprawdzić, czy są do nich zamontowane odpowiednie filtry chroniące przed zanieczyszczeniem systemu w dół kierunku przepływu.

Przewody drenażowe z filtrów koalescencyjnych należy przymocować do separatora skroplin. Jeśli podłączenie przewodów drenażowych bezpośrednio do separatora nie jest możliwe, przewody należy doprowadzić do kolektora skroplin (odpowietrzonego na jednym końcu), a następnie do pojedynczego wlotu separatora skroplin.

Należy zapewnić system drenażu cieczy ze sprzętu oczyszczającego. Zebrana ciecz powinna zostać oczyszczona i usunięta w odpowiedni sposób.

(SK) Odporúčania týkajúce sa inštalácie

Stlačený vzduch sa odporúča spracúvať pred vstupom do distribučného systému a tiež v kritických používateľských bodoch alebo aplikáciách.

Inštalácia tlakových vzduchových sušičov do predtým mokrého systému by mohla zapríčiniť ďalšie ukladanie nečistoty pri používaní filtrov počas obdobia, kým distribučný systém vyschne. Filtračné vložky bude potrebné počas tohto obdobia vymieňať častejšie.

Pri inštaláciách, kde sa používajú bezolejnaté kompresory, je stále prítomný vodný aerosól a častice, a preto by sa stále mali používať univerzálne a vysokoúčinné stupne.

Vždy musí byť nainštalovaný univerzálny filter, ktorý má chrániť vysokoúčinný filter pred voľne loženými aerosólmi a pevnými časticami.

Čistiace zariadenie inštalujte pri čo najnižšej teplote nad bodom mrazu, najlepšie v smere prúdenia chladičov vzduchu a prijímačov vzduchu.

Bod použitia čistiaceho zariadenia by mal byť nainštalovaný čo najbližšie k aplikácii.

Čistiace zariadenie by sa nemalo inštalovať v smere prúdenia rýchlootváracích ventilov a malo by byť chránené pred možným opačným prúdením alebo pred inými nepriaznivými podmienkami.

Pred inštaláciou vyčistite všetky potrubia vedúce k čistiacemu zariadeniu a po nainštalovaní čistiaceho zariadenia a pred pripojením ku koncovej aplikácii vyčistite všetky potrubia.

Ak sú okolo čistiaceho zariadenia nainštalované obtokové trubice, zabezpečte, aby bola do obtokových trubíc nainštalovaná primeraná filtrácia, aby sa zabránilo znečisteniu systému v smere prúdenia.

Odtokové trubice z koalescenčných filtrov nasaďte priamo na separátor kondenzátu. Ak nie je možné pripojiť odtokové trubice priamo na separátor, mali by sa odventilovať do zberného potrubia kondenzátu (na jednom konci) a potom do jedného ventilu separátora kondenzátu.

Zabezpečte príslušenstvo na odvádzanie nahromadenej kvapaliny z čistiaceho zariadenia. Pri zaobchádzaní s nahromadenou kvapalinou a jej likvidácii je potrebné postupovať zodpovedným spôsobom.

(CS) Doporučení k instalaci

Před připojením do rozvodného systému a v kritických místech použití / v přívodech doporučujeme stlačený vzduch upravit.

Instalace vysoušečů stlačeného vzduchu do vlhkého systému může vést k nanesení dalších nečistot do filtrů po dobu vysoušení rozvodného systému. Během této doby může být potřeba častější výměna filtračních prvků.

V instalacích, kde se využívají bezolejové kompresory, je vodní aerosol a jeho částice stále přítomen. Přesto je stále třeba použít všeobecně využitelné filtry s vysokým stupněm účinnosti.

Všeobecně využitelný filtr musí být vždy instalován tak, aby chránil vysoce účinný filtr před velkým objemem kapalinových aerosolů a pevnými částicemi.

Čisticí zařízení instalujte při nejnižší teplotě nad bodem mrazu, nejlépe ve směru dochlazovače a zásobníků vzduchu.

Čisticí zařízení v místě použití by mělo být instalováno co nejblíže k přívodu.

Čisticí zařízení by nemělo být instalováno ve směru rychlootvíracích ventilů a mělo by být chráněno před případným zpětným průtokem či jinými podobnými situacemi.

Před instalací vyčistěte veškeré potrubí vedoucí k čisticímu zařízení. Čištění veškerého potrubí opakujte po instalaci a před připojením zařízení k poslednímu přívodu.

Pokud jsou kolem čisticího zařízení umístěna obtoková potrubí, zkontrolujte, zda je filtrace upevněna k obtokovému potrubí, aby nedošlo ke kontaminaci ve směru systému.

Odtoková potrubí upevněte od koalescenčních filtrů přímo k oddělovači kondenzátu. Pokud není možné připojit odtoková potrubí přímo k oddělovači, měli byste potrubí odvětrat do potrubí kondenzátu (odvětrávaného na jednom konci) a pak do jediného vstupu oddělovače kondenzátu.

Opatřete si vybavení pro odvod nahromaděné kapaliny z čisticího zařízení. S nahromaděnou kapalinou je nutné zacházet odpovědným způsobem a stejným způsobem ji také likvidovat.

(ET) Paigaldussoovitused

Suruõhku on soovitatav töödelda enne jaotussüsteemi sisenemist, samuti enne kriitilisi kasutuspunkte/rakendusi.

Suruõhukuivatite paigaldamine eelnevalt märga süsteemi võib põhjustada saasta täiendava kogunemise kasutuspunktide filtrites ajavahemikul, mil jaotussüsteem kuivab. Sel ajal võib osutuda vajalikuks filterelementide sagedasem vahetamine.

Seadmetes, kus kasutatakse õlivabu kompressoreid, on vesiaerosool ja mikroosakesed siiski olemas, mis nõuavad ikkagi üldotstarbeliste ja kõrgtootlike klasside kasutamist.

Üldotstarbeline filter peab olema alati paigaldatud, et kaitsta kõrgtootlikku filtrit vedelaine aerosoolide ja tahkete osakeste eest.

Puhastusseadmed paigaldage kõige madalama temperatuuriga kohtadesse, enne hangumispunkti, eelistatavalt väljavoolule järeljahutitest ja õhuressiiveritest.

Puhastusseadme kasutuspunkt peaks asuma rakenduskohale võimalikult lähedal.

Puhastusseadet ei tohiks paigaldada kiiresti avanevatest ventiilidest allavoolu ning seade peaks olema kaitstud võimaliku tagasivoolu või muude löökkoormuste eest.

Kogu puhastusseadmeni viiv torustik tuleb enne puhastusseadme paigaldamist läbi puhuda, samuti pärast seadme paigaldamist ning enne selle ühendamist lõpliku rakenduskohaga.

Kui puhastusseade varustatakse möödavooluliiniga, tuleb tagada selle vastav filtreerimine, hoidmaks ära väljavoolusüsteemi saastumist.

Ühendage kogumisfiltrite äravooluliinid otse kondensaadi separaatoriga. Kui äravooluliine ei ole võimalik otse separaatoriga ühendada, tuleks liinid ventileerida kondensaadikollektorisse (ühest otsast ventileeritud) ja seejärel kondensaadi separaatori ühisesse sisselaskeavasse.

Puhastusseadmest sinna kogunenud vedeliku välja laskmiseks varustage see kraaniga. Kogunenud vedelikke tuleb käidelda ja utiliseerida ettenähtud viisil.

(HU) Üzembe helyezési javaslatok

Javasoljuk, hogy az elosztórendszerbe, valamint a kritikus felhasználási pontokhoz/alkalmazásokhoz is kezelt sűrítettlevegőt biztosítson.

A sűrítettlevegős szárítók korábban nedves rendszerre telepítése járulékos szennyezési terhelést jelenthet a szűrő használatának kezdetétől számítva a szállítórendszer kiszáradásáig terjedő időtartamig. Ezen időszak alatt esetleg gyakrabban kell cserélni a szűrőbetéteket.

Olajmentes kompresszorokat tartalmazó összeállítások esetén vízpermet és (szilárd) részecskék jelenléte mellett általános rendeltetésű és nagy hatékonyságú fokozatokat is kell használni.

Az általános rendeltetésű szűrőt a nagy hatékonyságú szűrő nagy mennyiségű folyadék-aeroszoltól és szilárd részecskéktől való védelme érdekében mindig használni kell.

A tisztítóberendezést telepítse a fagypont feletti legalacsonyabb hőmérsékletű helyre, lehetőleg az utóhűtők és levegő beömlők utáni vezetékszakaszra.

A használat helyéhez tervezett tisztítóberendezést helyezze el a lehető legközelebb az alkalmazáshoz.

A tisztítóberendezések nem telepíthetők a gyorsnyitású szelepek elmenő oldalára, azokat meg kell védeni az esetleges ellenáramlástól és más hirtelen behatásoktól.

A telepítés előtt fúvasson át minden, a tisztítóberendezéshez vezető csővezetéket, a telepítés után és az alkalmazás végső bekötése előtt pedig még egyszer fúvassa át az összes csővezetéket.

Ha a tisztítóberendezés körül megkerülő csővezetékek találhatók, a rendszer elmenő oldal elszennyeződésének megelőzése érdekében gondoskodjon a kerülővezetékeken megfelelő szűrésről.

Illessze a koaleszenciás szűrő leeresztő vezetékeit közvetlenül a kondenzát-leválasztóra. Ha a leeresztő vezetékeket nem lehet közvetlenül a leválasztóra csatlakoztatni, akkor a vezetékeket a kondenzát elosztócsőnél kell levegővel szellőztetni (az egyik végről), majd azt a kondenzát-leválasztó önálló bemenetéhez kell csatlakoztatni.

A tisztítóberendezés leürítésénél gondoskodjon az összegyűlt folyadék megfelelő elszállításáról. Az összegyűjtött folyadékot kezelje és selejtezze le környezetbarát módon.

(LV) Ieteikumi uzstādīšanai

Ieteicams saspiesto gaisu apstrādāt pirms ievadīšanas sadales sistēmā un arī izšķirošajos lietošanas punktos / lietojumos.

Uzstādot saspiestā gaisa žāvētājus uz sistēmas, kas pirms tam bijusi mitra, filtros, kas uzstādīti lietošanas vietā, laikā, kamēr sadalīšanas sistēma izžūst, attiecīgi var sakrāties netīrumi. Filtra elementi, iespējams, šajā laikā jāmaina daudz biežāk.

Ja uzstādījumos, kur izmantoti saspiedēji bez eļļas, joprojām atrodas ūdens aerosols un daļiņas, joprojām jāpiemēro vispārējā nolūka un augstas produktivitātes kritēriji.

Vienmēr jābūt uzstādītam vispārēja nolūka filtram, lai augstas produktivitātes filtrs būtu pasargāts no šķidruma balonu aerosoliem un cietām daļiņām.

Uzstādiet attīrīšanas iekārtu viszemākajā temperatūrā virs sasalšanas punkta, vislabāk aiz pēcdzesētājiem un gaisa uztvērējiem.

Attīrīšanas iekārtas lietošanas punktam jābūt uzstādītam pēc iespējas tuvu lietojumam.

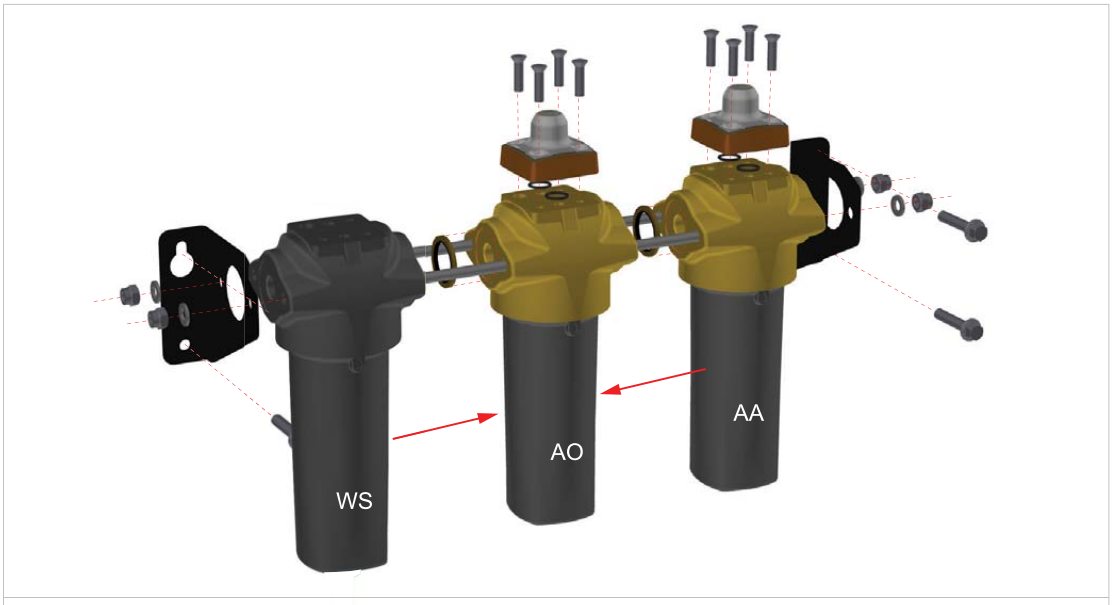
Attīrīšanas iekārtu nedrīkst uzstādīt aiz ātrās atveres vārstiem, un tā ir jāsargā no iespējamas pretplūsmas vai citiem trieciena apstākļiem.

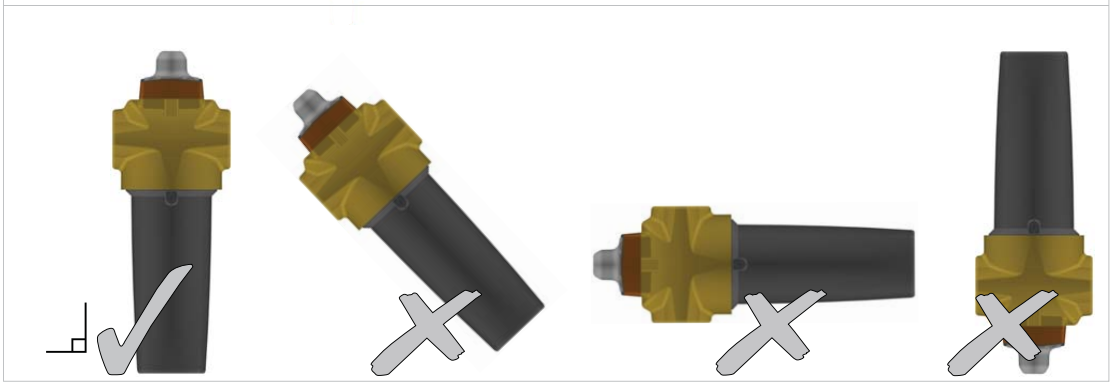
Pirms uzstādīšanas iztīriet visas caurules, kas virzītas uz attīrīšanas iekārtu; iztīriet tās vēlreiz pēc attīrīšanas iekārtas uzstādīšanas, kā arī pirms pievienošanas pēdējam lietojumam.

Ja ap attīrīšanas iekārtu ir uzstādītas apvadlīnijas, nodrošiniet, ka apvadlīnijas ir aprīkotas ar piemērotu filtru, lai nepiesārņotu tālāk esošo sistēmu.

Uzstādiet novadcaurules, kas ved no koalescējošajiem filtriem tieši līdz kondensāta atdalītājam. Ja novadcaurules nav iespējams savienot tieši ar separatoru, tās jāizvada kondensāta kolektorā (ar izeju vienā galā) un pēc tam vienā kondensāta separatora ieplūdes vietā.

Apgādājiet attīrīšanas iekārtu ar ierīci, ar ko no tās iztecina uzkrāto šķidrumu. Savāktais šķidrums jāapstrādā un no tā jāatbrīvojas atbilstošā veidā.







(PL) Dolna płyta zamykająca może poruszać się, gdy filtr nie jest pod ciśnieniem.

Warning: Dolna płyta zamykająca nie jest elementem przeznaczonym do serwisowania, dlatego nigdy nie należy jej demontować.

(SK) Spodný doskový uzáver sa môže hýbať, keď filter nie je pod tlakom.

Warning: Spodný doskový uzáver nie je opraviteľnou časťou a nikdy sa nesmie odmontovať.

(CS) Dolní uzavírací deska se může dát do pohybu, pokud filtr není natlakován

Warning: Dolní uzavírací deska je neopravitelná položka a nikdy by se neměla demontovat.

(ET) Alumine sulgurplaat võib liikuda, kui filter on survestamata.

Warning: Alumist sulgurplaati ei saa hooldada ja seda ei tohi kunagi eemaldada.

(HU) Az alsó zárólemez elmozdulhat, ha a szűrőt nem helyezi nyomás alá.

Warning: Az első zárólemez nem javítható, azt tilos elmozdítani.

(LV) Ja filtrā nav paaugstināta spiediena, apakšējā noslēgplāksne var kustēties

Warning: Apakšējā noslēgplāksne ir detaļa, kam nav nepieciešama apkope, un to nedrīkst noņemt.

(PL) Uruchomienie i eksploatacja



Przed zwiększeniem ciśnienia w filtrze należy się upewnić, że głowica oraz obudowa są prawidłowo zamontowane, a elementy blokujące są prawidłowo ustawione, jak pokazano w sekcji dotyczącej konserwacji (procedura konserwacji 6) w niniejszym podręczniku.

1. Powoli otwórz zawór wlotowy, aby stopniowo zwiększyć ciśnienie w urządzeniu.
2. Powoli otwórz zawór wylotowy, aby zwiększyć ciśnienie w dalszej części instalacji.

Nie wolno szybko otwierać zaworów wlotowych ani wylotowych, ponieważ może to doprowadzić do zbyt dużej różnicy ciśnień w urządzeniu i do jego uszkodzenia.

(SK) Spustenie a prevádzka



Pred natlakovaním filtra sa uistite, že hlavica a teleso sú nasadené správne a zaisťovacia súčiastka je správne zarovnaná, ako je zobrazené v časti o údržbe (postup údržby 6) tejto príručky.

1. Pomalým otvorením prívodného ventilu postupne natlakujte jednotku.
2. Pomalým otvorením vývodného ventilu opätovne natlakujte potrubie v smere prúdenia.

Prívodný ani vývodný ventil neotvárajte rýchlo ani nevystavujte jednotku nadmernému rozdielu tlaku, inak môže dôjsť k poškodeniu.

(CS) Spuštění a provoz



Než natlakujete filtr, zkontrolujte, zda je hlavice a baňka řádně nasazena a že pojistný detail je správně zarovnán v souladu s ustanoveními oddílu údržby (postup údržby č. 6) v tomto návodu.

1. Pomalým otevřením přívodního ventilu jednotku pozvolna natlakujte.
2. Pomalým otevřením výstupního ventilu znovu natlakujte potrubí ve směru rozvodu.

Přívodní ani výstupní ventily neotvírejte rychle, ani jednotku nevystavujte nadměrným rozdílům tlaku, v opačném případě může dojít k poškození.

(ET) Käikulaskmine ja käitamine



Enne filtri survestamist veenduge, et kate ja nõu on õigesti paigaldatud ning lukustusdetail õigesti joondatud, nagu on näidatud käesoleva juhendi hooldusjaotises (hooldustoiming nr 6).

1. Üksuse järkjärguliseks survestamiseks avage sisselaskeventiil aeglaselt.
2. Avage väljalaskeventiil aeglaselt surve taastamiseks väljavoolutorustikus.

Sisselaske- ja väljalaskeventiile ei tohi avada kiiresti ega põhjustada üksuses liiga suurt survelangu, mis võib seda kahjustada.

(HU) Beindítás és üzemeltetés



A szűrő nyomás alá helyezése előtt győződjön meg arról, hogy a szűrőedény és a szűrőfej megfelelően van felszerelve, és a zárószerkezet megfelelően igazodik - a kézikönyv karbantartási fejezetében látható módon (6-os karbantartási eljárás).

1. Az egység fokozatosan történő nyomás alá helyezéséhez a bemenő szelepet lassan nyissa meg.
2. Az elvezető csővezeték nyomásának visszaállításához lassan nyissa meg az elvezető szelepet.

A berendezés károsodásának elkerülése érdekében ne nyissa meg túl gyorsan a bemenő vagy az elvezető szelepet, és ne tegye ki az egységet nagy nyomáskülönbségnek.

(LV) Darbības uzsākšana un darbība

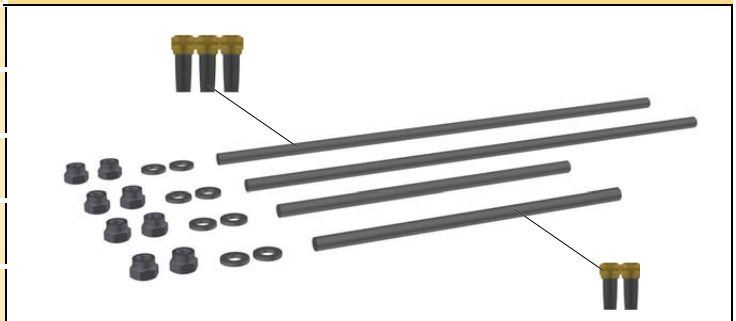
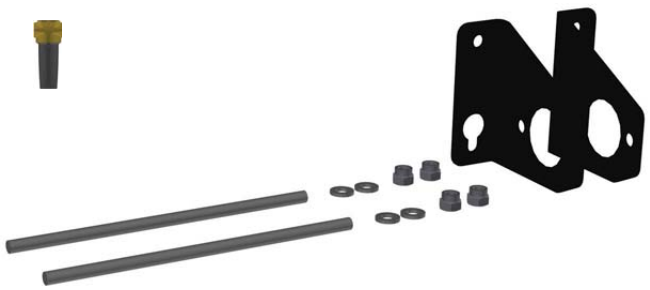
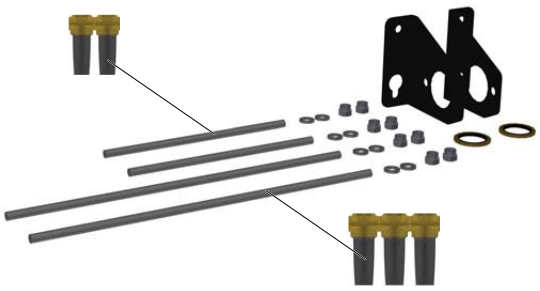
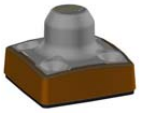


Pirms spiediena paaugstināšanas filtrā pārliecinieties, vai filtra galva un korpuss ir uzstādīts pareizi un vai fiksēšanas atzīmes atrodas viena pret otru, kā parādīts šīs rokasgrāmatas apkopes sadaļā (6. apkopes procedūra).

1. Lēni atveriet ieplūdes vārstu, lai iekārtā pakāpeniski paaugstinātu spiedienu.
2. Lēni atveriet izplūdes vārstu, lai atkal paaugstinātu spiedienu aiz iekārtas esošajās caurulēs.

Neatveriet ieplūdes vai izplūdes vārstus strauji un nepakļaujiet iekārtu pārmērīgai spiedienu starpībai, citādi var radīt bojājumus.

Akcesoria / części zamienne (zestawy serwisowe)
Príslušenstvo / náhradné diely (servisné súpravy), Příslušenství / Náhradní díly (Servisní sady), Tarvikud / varuosad (teeninduskomplektid), Tartozékok / cserealkatrész lista (szervizkészletek), Piederumi / rezerves daļas (apkopes komplekti)

Filter Models	Catalogue Number	Contents
010	TRK1-2	
015 - 020	TRK2-2	
025 - 030	TRK3-2	
035- 045	TRK4-2	
050- 055	TRK5-2	
010	MBK1-1	
015 - 020	MBK2-1	
025 - 030	MBK3-1	
035 - 045	MBK4-1	
050 - 055	MBK5-1	
010	MBK1-2	
015 - 020	MBK2-2	
025 - 030	MBK3-2	
035 - 045	MBK4-2	
050 - 055	MBK5-2	
010 - 055	EM1	
010 - 055	PD15NO	
010 - 030	DPI-K	
035 - 055	ZD90GL	

Konserwacja
Údržba, Údržba, Hooldamine, Karbantartás, Tehniskā apkope

(PL) **Częstotliwość konserwacji**

W celu zapewnienia optymalnego działania filtra należy co 12 miesięcy wymieniać wkłady filtra klasy AO, AA, oraz dren automatyczny.

Skuteczność działania wkładu ACS jest oparta na maksymalnym stężeniu oparów oleju wynoszącym 0,018mg/m^3. W przypadku wykrycia oparów, zapachu lub smaku wymienić wkład węglowy filtra.

W przeciwieństwie do filtrów usuwających aerozol olejowy, które są wymieniane co roku w celu zagwarantowania odpowiedniej jakości sprężonego powietrza, trwałość filtra usuwającego opary oleju zależy od różnych czynników; filtr wymaga częstszej wymiany (chyba że stosowany jest filtr OVR o trwałości 6000 godzin).

Czynniki wpływające na trwałość filtrów adsorpcyjnych

Stężenie oparów oleju

Im większe stężenie oparów oleju na wlocie, tym mniejsza trwałość węgla aktywowanego.

Ciekły olej

Filtry adsorpcyjne są przeznaczone do usuwania oparów oleju i zapachów, a nie ciekłego oleju i aerozoli. Nieprawidłowo konserwowany układ filtracji wstępnej lub jego brak powoduje znaczne zmniejszenie trwałości filtra OVR.

Temperatura

Zawartość oparów oleju rośnie wykładniczo ze wzrostem temperatury na wlocie, co powoduje spadek trwałości wkładu. Ponadto ze wzrostem temperatury spada skuteczność adsorpcji, co powoduje dodatkowe zmniejszenie trwałości wkładu.

Wilgotność względna lub punkt rosy

Wilgotne powietrze zmniejsza zdolność adsorpcyjną węgla.

Wymiany oleju w sprężarce

Po wymianie oleju w sprężarce nowy środek smarny wypala związki organiczne o niskiej masie cząsteczkowej, co powoduje wzrost zawartości oparów oleju na wiele godzin, a nawet tygodni. Ta zwiększona ilość oparów oleju jest pochłaniana przez filtr OVR, co powoduje znaczne zmniejszenie jego trwałości adsorpcyjnej.

(SK) **Intervaly údržby**

Na zabezpečenie optimálnej výkonnosti filtra sa výmena vložiek stupňa AO, AA spolu s automatickým výpustom vyžaduje každých 12 mesiacov.

Výkon prvkuACS je založený na maximálnej vstupnej koncentrácii olejových výparov 0,018 mg/m^3. Vymeňte vložku uhlíkového filtra po zaznamenaní výparov, zápachu alebo chuti.

Na rozdiel od filtrov odstraňujúcich olejový aerosól, ktoré sa vymieňajú každý rok z dôvodu zaručenia kvality stlačeného vzduchu, môže byť životnosť filtra odstraňujúceho olejové výpary ovplyvnená rôznymi faktormi, a preto si tento filter vyžaduje častejšiu výmenu (ak sa nepoužíva OVR, ktoré je dimenzované na životnosť 6000 hodín):

Faktory ovplyvňujúce životnosť adsorpčných filtrov

Koncentrácia olejových výparov

Čím vyššia je vstupná koncentrácia olejových výparov, tým rýchlejšie sa kapacita aktivovaného uhlíka spotrebuje.

Objemový olej

Adsorpčné filtre sú navrhnuté na odstraňovanie olejových výparov a zápachov, nie kvapalného oleja alebo aerosólov. Slabá údržba alebo neexistencia predfiltrácie spôsobí, že sa kapacita OVR filtra rýchlo spotrebuje.

Teplota

Obsah olejových výparov sa exponenciálne zvyšuje so vstupnou teplotou, čo znižuje životnosť vložky. Okrem toho pri zvyšovaní teploty sa adsorpčná kapacita znižuje, čo ešte viac znižuje životnosť vložky.

Relatívna vlhkosť alebo rosný bod

Vlhký vzduch znižuje adsorpčnú kapacitu uhlíka.

Výmeny kompresorového oleja

Po výmene kompresorového oleja nové mazivo spáli „ľahké častice“, čo zvyšuje obsah olejových výparov na celé nasledujúce hodiny, alebo dokonca týždne. Takýto zvýšený obsah olejových výparov adsorbuje OVR filter, čo však výrazne zníži jeho adsorpčnú životnosť.

(CS) **Intervaly údržby**

Chcete-li zaručit optimální výkonnost filtru, je nutné vyměňovat vložky třídy AO, AA společně s automatickým vypouštěním každých 12 měsíců.

Funkčnost vložky ACS je založena na maximální koncentraci vstupujících olejových par 0,018 mg/m^3. Při zjištění výparů, zápachu nebo pachuti vyměňte uhlíkovou filtrační vložku.

Na rozdíl od filtrů určených pro odstranění aerosolu, které se pro zajištění kvality stlačeného vzduchu mění každý rok, je životnost filtru pro odstranění olejových par závislá na různých faktorech a vyžaduje častější výměny (pokud se nepoužije OVR s životností 6000 provozních hodin):

Faktory ovlivňující životnost absorpčních filtrů

Koncentrace olejových par

Čím vyšší je koncentrace olejových par na vstupu, tím rychleji bude vyčerpána kapacita aktivního uhlí.

Olej

Absorpční filtry jsou navrženy tak, aby odstraňovaly olejové páry a zápach, nikoli kapalný olej nebo aerosoly. Špatně udržovaná nebo neexistující předfiltrace způsobí rychlé vyčerpání kapacity filtru OVR.

Teplota

Obsah olejových par se zvyšuje exponenciálně podle teploty vstupu a snižuje životnost vložky. Kromě toho se se zvyšující teplotou snižuje absorpční kapacita, což rovněž snižuje životnost vložky.

Relativní vlhkost nebo rosný bod

Mokrý vzduch snižuje absorpční kapacitu uhlí.

Výměna oleje kompresoru

Když vyměníte olej kompresoru, nové mazivo spaluje „lehké konce“, což zvyšuje obsah olejových par po dobu následujících hodin nebo týdnů. Toto zvýšení obsahu olejových par je absorbováno filtrem OVR, což významně snižuje absorpční životnost.

(ET) **Hooldusintervallid**

Filtri optimaalse jõudluse tagamiseks tuleb AO, AA klassi elemente vahetada iga 12 kuu tagant koos automaatse väljalaskeseadmega.

ACS elemendi jõudlus põhineb maksimaalsel õliaurude kontsentratsioonil 0,018mg/m^3. Auru, lõhna või maitse tuvastamise korral vahetage välja söefiltri element.

Erinevalt õliaerosooli eemaldusfiltritest, mida tuleb suruõhu kvaliteedi tagamiseks vahetada kord aastas, sõltub õliauru eemaldusfiltri tööiga erinevatest teguritest ja seda tuleb vahetada sagedamini (kui ei kasutata OVR-i, mille tööiga on 6000 tundi).

Adsorptsioonifiltrite tööiga mõjutavad tegurid

Õliaurude kontsentratsioon

Mida suurem on sisselastava õliauru kontsentratsioon, seda kiiremini saab täis aktiivsõe maht.

Jääköli

Adsorptsioonfiltrid on mõeldud õliaurude ja lõhnade eemaldamiseks, mitte vedela õli või aerosooli eemaldamiseks. Halvasti hooldatud või puuduv eelfiltratsioon põhjustab OVR-filtri mahu kiiret vähenemist.

Temperatuur

Õliaurude maht suureneb eksponentsiaalselt sisend-temperatuuri suhtes, vähendades elemendi tööiga. Lisaks väheneb temperatuuri suurenedes adsorptsioonivõime, vähendades omakorda elemendi tööiga.

Suhteline niiskus või kastepunkt

Niiske õhk vähendab sõe adsorptsioonivõimet.

Kompressori õlivahetus

Kompressoriõli vahetamisel põleb ära uue määrdeaine ülejääk, mis suurendab õliaurude mahtu veel tunde või koguni nädalaid hiljem. See õliaurude suurenenud maht adsorbeeritakse OVR-filtri poolt, mis vähendab oluliselt selle adsorbeerimisvõimet.

(HU) **Karbantartási gyakoriság**

Az optimális szűrési teljesítményhez az AO, AA, osztályú szűrőbetéteket 12 havonta kell cserélni az automatikus leeresztéssel együtt.

Az ACS szűrőbetét megfelelő működésének feltétele a maximum 0,018mg/m^3 bemeneti olajgőz-koncentráció. Gőz, szag vagy íz észlelése esetén cserélje ki a szén szűrőbetétet.

A sűrített levegő minőségének garantálására évente cserélt olajpermet-eltávolító szűrőkkel ellentétben az olajgőz-eltávolító szűrők élettartamát különböző tényezők befolyásolhatják és gyakoribb cserére lehet szükség (kivéve a 6000 üzemóra élettartamra méretezett olajgőz-eltávolító szűrőket).

Az elnyelő szűrők élettartamát befolyásoló tényezők

Az olajgőz koncentrációja

Minél magasabb az olajgőz bemeneti koncentrációja, annál gyorsabban merül ki az aktív szén kapacitása.

Nagy sűrűségű olaj

Az elnyelő szűrők olajgőzök és szagok, nem pedig folyadék halmazállapotú olaj vagy permet eltávolítására szolgálnak. A nem megfelelően karbantartott vagy hiányzó előszűrés az olajgőz-eltávolító szűrők kapacitásának túl gyors kimerüléséhez vezet.

Hőmérséklet

Az olajgőztartalom a bemeneti hőmérséklet növekedésével exponenciálisan nő, csökkentve a szűrőbetétek élettartamát. Ezen kívül a hőmérséklet növekedésével csökken az elnyelőképesség, ami ugyancsak csökkenti a szűrőbetétek élettartamát.

Relatív nedvességtartalom vagy harmatpont

A nedves levegő csökkenti a szén elnyelőképességét.

Olajcserék a kompresszorban

A kompresszor olajának cseréjekor az új kenőanyag mint „előpárlat“ kiég, ami órákra, esetleg hetekre is megnöveli az olajgőz-tartalmat. Az olajgőz-tartalom ezen növekményét az olajgőz-eltávolító szűrő nyeli el, amelynek elnyelési élettartama így jelentősen csökken.

(LV) **Apkopes intervāli**

Lai nodrošinātu optimālu filtra veiktspēju, ik pēc 12 mēnešiem jānomaina AO, AA, klases elementi un automātiskā novadcaurulīte.

ACS klases elementa veiktspēja ir atkarīga no maksimālās eļļas tvaiku ieplūdes koncentrācijas 0,018 mg/m^3. Ja tiek konstatēti tvaiki, aromāts vai garša, nomainiet oglekļa filtra elementu.

Pretēji eļļas aerosolu atdalīšanas filtriem, kas tiek mainīti katru gadu, lai nodrošinātu saspiesta gaisa kvalitāti, eļļas tvaiku atdalīšanas filtra kalpošanas laiku var saistīt ar dažādiem faktoriem, un tas ir jānomaina daudz biežāk (ja vien netiek izmantots OVR, kura kalpošanas laiks ir noteikts 6000 stundām).

Faktori, kas ietekmē adsorbcijas filtru kalpošanas laiku

Eļļas tvaiku koncentrācija

Jo augstāka ieplūdes koncentrācija, jo ātrāk beidzas aktivētā oglekļa kapacitāte.

Eļļa lielā apjomā

Adsorbcijas filtri ir paredzēti eļļas tvaiku un aromāta likvidēšanai, nevis šķidrās eļļas vai aerosolu likvidēšanai. Ja priekšfiltrācija ir vāji uzturēta vai tās nav vispār, OVR filtra kapacitāte ātri beidzas.

Temperatūra

Eļļas tvaiku saturs palielinās atbilstoši ieplūdes temperatūrai, samazinot elementa kalpošanas laiku. Turklāt, palielinoties temperatūrai, samazinās adsorbcijas kapacitāte, kas arī samazina elementa kalpošanas laiku.

Relatīvais mitrums vai kondensācijas temperatūra

Mitrs gaiss samazina oglekļa adsorbcijas kapacitāti.

Kompresora eļļas maiņa

Kad tiek mainīta kompresora eļļa, jaunais eļļošanas materiāls sadedzina vieglās frakcijas, kas palielina eļļas tvaiku saturu uz vairākām stundām vai pat nedēļām. Ar to tiek palielināts eļļas tvaiku saturs, ko adsorbē OVR filtrs, ievērojami samazinot tā adsorbēšanas kapacitāti.

(PL) **Procedura konserwacji 1**

Powoli zamknąć zawór wlotowy (1) i wylotowy (2) i obniżyć ciśnienie w filtrze (3) przy użyciu drenu.

(SK) **Postup údržby 1**

Pomaly zatvorte prívodný (1) a vývodný (2) ventil a vypustite tlak z filtra (3) použitím výpustu.

(CS) **Postup údržby č. 1**

Pomalu uzavřete vstupní (1) a výstupní (2) ventily a odtlakujte filtr (3) pomocí vypouštění.

(ET) **Hooldustoiming nr 1**

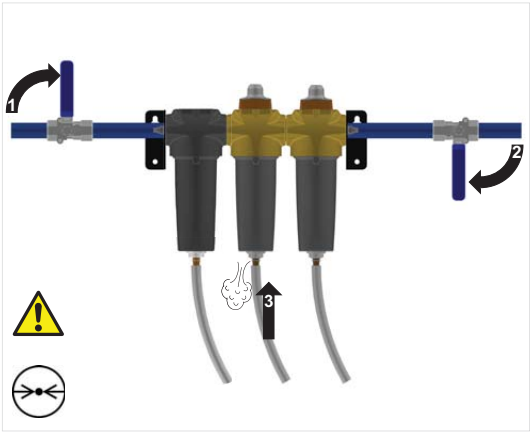
Sulgege aeglaselt sisselaske- (1) ja väljalaskeventiilid (2) ning rõhutustage filter (3) äravoolu abil.

(HU) **1-es karbantartási eljárás**

Lassan zárja el a bemenő (1) és a kimenő (2) szelepeket és nyomásmentesítse a szűrőt (3) a leeresztő segítségével.

(LV) **1. apkopes procedūra**

Lēni aizveriet ieplūdes (1) un izplūdes (2) vārstu un samaziniet spiedienu filtrā (3), izmantojot novadcaurulīti.



(PL) **Procedura konserwacji 2**

Odkręcić obudowę filtra (1 i 2) i wyjąć zużyty wkład (3).

(SK) **Postup údržby 2**

Odskrutkujte teleso filtra (1 a 2) a vyberte použitú vložku (3).

(CS) **Postup údržby č. 2**

Odšroubujte baňku filtru (1 a 2) a sejměte použitý prvek (3)

(ET) **Hooldustoiming nr 2**

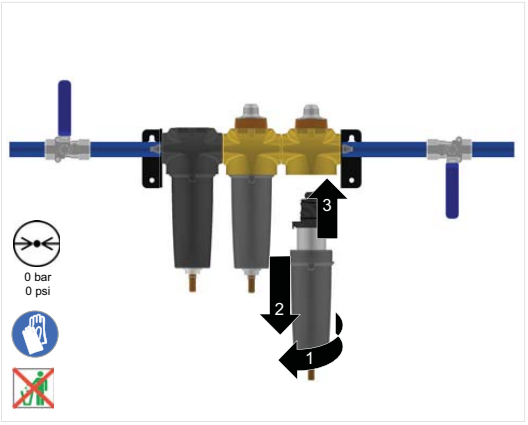
Keerake filtrinõu (1 ja 2) lahti ja eemaldage kasutatud element (3)

(HU) **2-es karbantartási eljárás**

Csavarja le a szűrőedényt (1 és 2) és vegye ki belőle a használt szűrőbetétet (3).

(LV) **2. apkopes procedūra**

Atskrūvējiet filtra korpusu (1 un 2) un izņemiet izlietoto elementu (3).



(PL) **Procedura konserwacji 3**

Odkręcić dren automatyczny (1) i wyrzucić go (2). Zamontować nowy dren (3) i dokręcić go (4).

(SK) **Postup údržby 3**

Odskrutkuje automatický výpust (1) a zlikvidujte ho (2). Nasaďte nový výpust (3) a utiahnite (4).

(CS) **Postup údržby č. 3**

Odšroubujte automatické vypouštění (1) a zlikvidujte je (2). Nasaďte nové vypouštění (3) a utáhněte (4).

(ET) **Hooldustoiming nr 3**

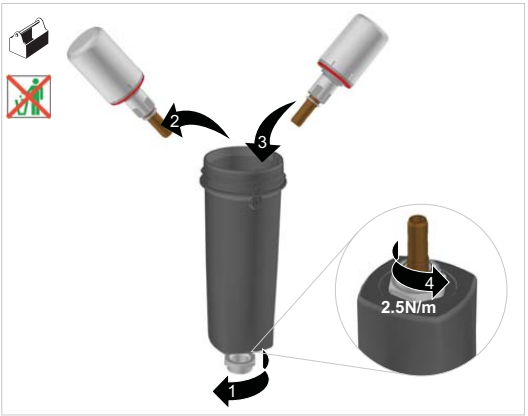
Keerake automaatne väljalaskeseade (1) lahti ja visake ära (2). Paigaldage uus väljalaskeseade (3) ja kinnitage (4).

(HU) **3-as karbantartási eljárás**

Csavarja le azt automatikus leeresztést (1) és selejtezze azt le (2). Helyezze el az új leeresztést (3) és húzza azt meg (4).

(LV) **3. apkopes procedūra**

Noskrūvējiet automātisko novadcaurulīti (1) un izmetiet to (2). Uzstādiet jauno novadcaurulīti (3) un pievelciet to (4).



(PL) **Procedura konserwacji 4**

Włożyć nowy wkład do obudowy filtra i upewnić się, że występy są prawidłowo ustawione w rowkach.

(SK) **Postup údržby 4**

Do telesa filtra vložte novú vložku a uistite sa, že výstupky sú správne nasadené do drážok.

(CS) **Postup údržby č. 4**

Zasuňte nový prvek do bańky filtru a zkontrolujte, zda jsou čepy řádně usazeny v drážkách.

(ET) **Hooldustoiming nr 4**

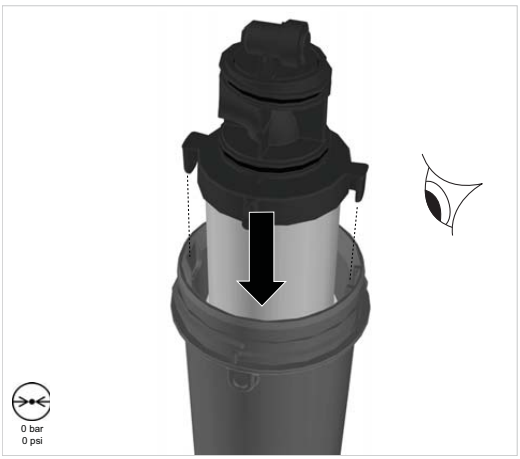
Sisestage uus element filtrinõusse, veendudes, et tugikäpad on õigesti soontes.

(HU) **4-es karbantartási eljárás**

Helyezze az új szűrőbetétet a szűrőedénybe úgy, hogy a fülek jól illeszkedjen a kiképzett hornyokba.

(LV) **4. apkopes procedūra**

Ievietojiet jauno elementu filtra korpusā, nodrošinot, lai izciļņi pareizi iegultu rievās.



(PL) **Procedura konserwacji 5**

Wymienić pierścień typu o-ring na głowicy filtra na dostarczony nowy pierścień.

Caution **Nasmarować pierścień typu o-ring oraz gwinty odpowiednią wazeliną nie zawierającą kwasów.**

(SK) **Postup údržby 5**

Tesniaci krúžok umiestnený v hlavici filtra nahraďte novým dodaným tesniacim krúžkom.

Caution **Tesniaci krúžok a závity namažte vhodnou vazelínou neobsahujúcou kyselinu.**

(CS) **Postup údržby č. 5**

Vyměňte těsnicí kroužek umístěný v hlavici filtru za nový dodaný těsnicí kroužek..

Caution **Nezapomeňte těsnicí kroužek a závity namazat vhodnou vazelínou bez kyseliny.**

(ET) **Hooldustoiming nr 5**

Asendage filtri kattes olev rõngastihend uue kaasasoleva rõngastihendiga.

Caution **Määrige kindlasti rõngastihendit ja keermeid sobiva happevaba vaseliiniga.**

(HU) **5-ös karbantartási eljárás**

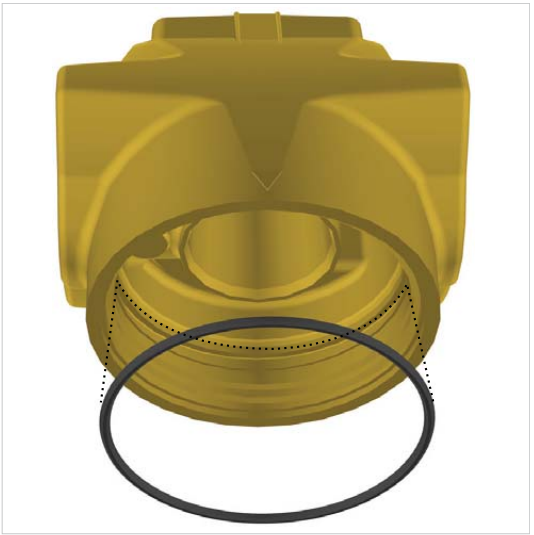
Cserélje le a szűrőfejben található O-gyűrűt a mellékelt O-gyűrűre.

Caution **Ne feledje megkenni az O-gyűrűt és a meneteket arra alkalmas savmentes ásványi olaj zselével.**

(LV) **5. apkopes procedūra**

Nomainiet filtra galvā esošo blīvgredzenu ar komplektā iekļauto jauno blīvgredzenu.

Caution **Noteikti ieeļļojiet blīvgredzenu un vītnes ar piemērotu vazelīnu, kas nesatur skābi.**



(PL) **Procedura konserwacji 6 (a)**

Zamontować obudowę filtra oraz głowicę i upewnić się, że gwinty są całkowicie dokręcone, a elementy blokujące są prawidłowo ustawione.

Uwaga: Upewnić się, że obudowa jest pewnie przymocowana do głowicy — obudowa 0010-030 wymaga obrócenia o 360° do ogranicznika gwintu, a obudowa 035-045 wymaga obrócenia o 720°

(SK) **Postup údržby 6 (a)**

Znovu nasaďte teleso a hlavicu filtra a uistite sa, že závity úplne zapadli a zaistťovacie súčiastky sú zarovnané.

Poznámka: S cieľom uistiť sa, či teleso úplne zapadlo do hlavice, sa pri telese 010-030 vyžaduje 360° rotácia, kým sa závit nezastaví, a 720° sa vyžaduje pri telese 035-045.

(CS) **Postup údržby č. 6 (a)**

Nasaďte zpět baňku a hlavici filtru a zkontrolujte, zda jsou závity řádně zapojeny a pojistné detaily jsou v rovině.

Poznámka: Abyste měli jistotu, že baňka je plně zapojena do hlavice, baňka 010-030 vyžaduje otáčení o 360°, dokud se závit nedotočí, a 720° u baňky 035-045.

(ET) **Hooldustoiming nr 6 (a)**

Paigaldage tagasi filtrinõu ja kate neid korralikult lõpuni keerates, nii et lukustusdetailid on kohakuti.

Märkus. Nõu lõpuni katte külge kinnitamiseks on vaja nõu 010-030 pöörata 360° kuni keermete lõpuni ja 720° nõu 035-045 korral.

(HU) **6-os karbantartási eljárás (a)**

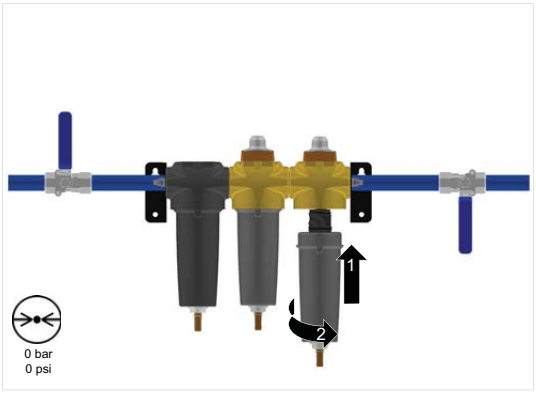
Szerelje vissza a szűrőedényt és a fejet. Győződjön meg a menetek és a záróelemek megfelelő illeszkedéséről.

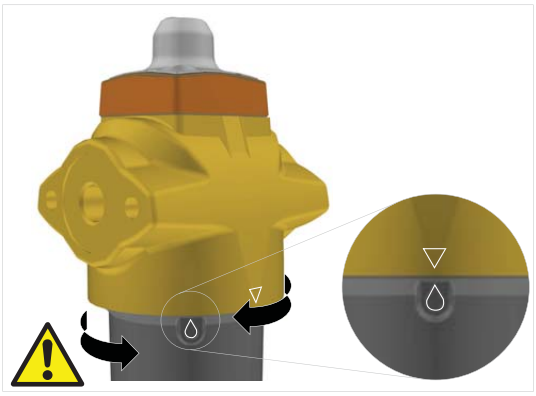
Megjegyzés: Annak biztosításához, hogy az edény teljesen a fejbe illeszkedjen a 010-030 edényt 360°-ban el kell forgatni, míg a menet el nem fogy, ill. a 035-045 edényt 720°-ban.

(LV) **6. apkopes procedūra (a)**

Atkal samontējiet filtra korpusu un galvu, nodrošinot, lai vītnes būtu pilnībā savienotas un fiksēšanas atzīmes atrastos viena pret otru.

Piezīme. Lai nodrošinātu, ka korpuss ir pilnībā ieskrūvēts galvā, korpuss 010-030 jāpagriež par 360°, līdz vītne ir pilnībā izmantota (korpuss 035-045 jāpagriež par 720°).





(PL) **Procedura konserwacji 7**

Przymocować etykietę z datą wymiany wkładu do obudowy filtra i zapisać na niej datę kolejnej wymiany wkładu przypadającą 12 miesięcy po ostatniej wymianie

Caution **Do czyszczenia etykiet nie należy używać rozpuszczalników ani alkoholu, ponieważ może to spowodować ich uszkodzenie.**

(SK) **Postup údržby 7**

Na teleso filtra pripojte štítok s dátumom výmeny vložky a napíšte dátum, kedy sa má vložka vymeniť, t. j. 12 mesiacov po výmene vložky..

Caution **Na čistenie štítkov nepoužívajte rozpúšťadlá ani alkohol, pretože môže dôjsť k poškodeniu.**

(CS) **Postup údržby č. 7**

Připevněte štítek s datem výměny prvku k bańce filtru a zapište datum příští výměny prvku, tj. 12 měsíců po výměně prvku

Caution **Nečistěte štítky rozpouštědly ani alkoholem, mohlo by dojít k poškození.**

(ET) **Hooldustoiming nr 7**

Kinnitage elemendi vahetamise kuupäeva silt filtrinõu külge ja kirjutage sellele elemendi asendamise kuupäev (12 kuud pärast elemendi vahetamist).

Caution **Ärge puhastage silte piirituse või lahustitega, kuna need võivad silte rikkuda.**

(HU) **7-es karbantartási eljárás**

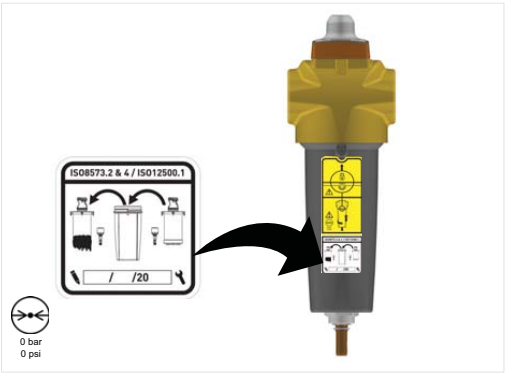
Helyezze el a szűrőbetét-csere dátumát megadó címkét a szűrőedényre, és jegyezze fel a következő csere időponját; értsd: 12 hónappal a mostani szűrőbetét-csere utáni időpontot..

Caution **Ne használjon oldószert vagy alkoholt a címkék tisztításához, mert az sérüléseket okozhat.**

(LV) **7. apkopes procedūra**

Pie filtra piestipriniet elementa maiņas datuma etiķeti un norādiet tajā nākamās elementa maiņas datumu, t. i., pēc 12 mēnešiem pēc elementa maiņas.

Caution **Etiķešu tīrīšanā neizmantojiet šķīdinātājus vai spirtu, jo tā var radīt bojājumus.**



(PL) **Procedura konserwacji 8**

Powoli otworzyć zawór wlotowy (1), aby stopniowo zwiększyć ciśnienie w urządzeniu, a następnie powoli otworzyć zawór wylotowy (2), aby zwiększyć ciśnienie w dalszej części instalacji

Warning **Nie wolno szybko otwierać zaworów wlotowych ani wylotowych, ponieważ może to doprowadzić do zbyt dużej różnicy ciśnień w urządzeniu i do jego uszkodzenia.**

(SK) **Postup údržby 8**

Pomalým otvorením prívodného ventilu (1) postupne natlakujte jednotku, pomalým otvorením vývodného ventilu (2) opätovne natlakujte potrubie v smere prúdenia.

Warning **Prívodný ani vývodný ventil neotvárajte rýchlo ani nevystavujte jednotku nadmernému rozdielu tlaku, pretože môže dôjsť k poškodeniu.**

(CS) **Postup údržby č. 8**

Pomalým otevíráním vstupního ventilu (1) jednotku postupně natlakujte, pomalým otevíráním výstupního ventilu (2) znovu natlakujte potrubí ve směru rozvodu.

Warning **Přívodní ani výstupní ventily neotvírejte rychle, ani jednotku nevystavujte nadměrným rozdílům tlaku, v opačném případě může dojít k poškození.**

(ET) **Hooldustoiming nr 8**

Avage aeglaselt sisselaskeventiil (1), et üksus järk-järgult survestada, ning avage aeglaselt väljalaskeventiil (2) surve taastamiseks väljavoolutorustikus..

Warning **Sisselaske- ja väljalaskeventiile ei tohi avada kiiresti ega põhjustada üksuses liiga suurt survelangu, mis võib tekitada sellele kahjustusi.**

(HU) **8-as karbantartási eljárás**

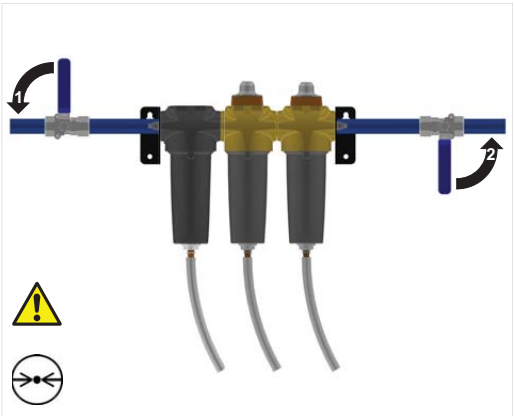
Az egység fokozatos nyomás alá helyezéséhez a bemenő szelepet (1) nyissa meg lassan; az elvezető csővezeték nyomásának visszaállításához lassan nyissa meg az elvezető szelepet (2)..

Warning **A berendezés károsodásának elkerülése érdekében ne nyissa meg túl gyorsan a bemenő vagy az elmenő szelepet, és ne tegye ki az egységet nagy nyomáskülönbségnek.**

(LV) **8. apkopes procedūra**

Lēni atveriet ieplūdes vārstu (1), lai pakāpeniski palielinātu spiedienu iekārtā, lēni atveriet izplūdes vārstu (2), lai atkal paaugstinātu spiedienu aiz iekārtas esošajās caurulēs.

Warning **Neatveriet ieplūdes vai izplūdes vārstus strauji un nepakļaujiet iekārtu pārmērīgai spiedienu starpībai, citādi var radīt bojājumus.**





(LT) VIENERIŲ METŲ KOKYBĖS GARANTIJA

Jūsų oro kokybė garantuojama 1 metų laikotarpiu ir bus atnaujinta kasmet pakeitus filtro elementą.
Kasmetiniai filtro elemento keitimai užtikrina, kad:

- bus išlaikomos optimalios charakteristikos
- oro kokybė ir toliau atitiks tarptautinius standartus
- bus apsaugoti filtruotoje aplinkoje esantys įrenginiai, darbuotojai ir procesai
- išliks mažos eksploatavimo išlaidos
- padidės produktyvumas ir pelningumas
- sumažės rūpesčių

(RU) ГОДОВАЯ ГАРАНТИЯ КАЧЕСТВА ВОЗДУХА

Качество воздуха гарантируется в течение одного года. Эту гарантию можно продлевать ежегодно за счет замены фильтрующего элемента.
Ежегодная замена фильтрующего элемента обеспечивает следующие преимущества.

- Поддержание оптимальных рабочих характеристик.
- Соответствие качества воздуха международным стандартам.
- Защита оборудования, расположенного ниже по потоку, персонала и процессов.
- Снижение эксплуатационных расходов.
- Повышение продуктивности и доходности.
- Уверенность в исправной работе.

(SL) ENOLETNA GARANCIJA ZA KAKOVOST ZRAKA

Garancija za kakovost zraka velja eno leto in se obnovi pri vsakoletni zamenjavi filtrirnega elementa.
Vsakoletna zamenjava filtrirnega elementa zagotavlja:

- vzdrževanje optimalne učinkovitosti,
- nadaljnjo skladnost kakovosti zraka z mednarodnimi standardi,
- zaščito priključene opreme, osebja in procesov,
- nizke obratovalne stroške,
- zvišano produktivnost in donosnost ter
- brezskrbnost.

(TR) BİR YIL HAVA KALİTESİ GARANTİSİ

Havanızın kalitesi 1 yıllığına garanti edilmiştir ve garanti, her yıllık filtre öğesi değişikliğinde yenilenecektir.
Yıllık filtre öğesi değişikliği şunları sağlar:

- En iyi performansın devam etmesi sağlanır
- Hava kalitesi uluslararası standartları karşılamaya devam eder
- Aşağı akım ekipmanının, personelin ve süreçlerinin korunması
- Düşük işletim masrafları
- artan verimlilik ve kârlılık
- gönül rahatlığı



(MT) GARANZIJA TA' SENA FUQ IL-KWALITÀ TAL-ARJA

Il-kwalità tal-arja tiegħek ġiet iggarantita għal sena u sejra tiġġedded ma' kull tibdil tal-element tal-filtru kull sena.
Tibdiliet tal-element tal-filtru kull sena jiżguraw:

- Żamma tal-aqwa prestazzjoni
- Il-kwalità tal-arja tibqa' tissodisfa l-istandards internazzjonali
- Il-protezzjoni ta' apparat, persunal u proċessi 'l isfel
- Spejjeż operattivi baxxi
- żieda fil-produttività u fil-profitabilità
- serħan il-moħħ

(RO) UN AN GARANŢIE A CALITĂŢII AERULUI

Calitatea aerului a fost garantată pentru 1 an şi va fi reînnoită la fiecare înlocuire anuală a elementului filtrului.
Înlocuirile anuale ale elementului filtrului asigură:

- menţinerea unor performanţe optime
- respectarea continuă a standardelor internaţionale referitoare la calitatea aerului
- protecţia echipamentului din aval, a personalului şi a proceselor
- costuri operaţionale scăzute
- productivitate şi profitabilitate crescută
- linişte sufletească



(BG) ЕДНА ГОДИНА ГАРАНЦИЯ ЗА КАЧЕСТВО НА ВЪЗДУХА

Качеството на Вашия въздух е гарантирано за 1 година и ще бъде подновявано с всяка годишна смяна на филтърен елемент.
Годишните смени на филтърен елемент осигуряват:

- Поддържане на оптимална ефективност
- Качеството на въздуха продължава да отговаря на международните стандарти
- Защита на изходните елементи на оборудването, персонала и процесите
- Ниски оперативни разходи
- Увеличена продуктивност и рентабилност
- Душевно спокойствие

(LT) Modelio kodavimo pavyzdys:

Modelis						
Elemento klasė	Aukštesniosios klasės energiją taupantis elementas	Modelio dydis	Prievado dydis	Gijų tipas	Išleidimo parinktis	DP indikatorius
WS AO AA ACS	P	3 skaitmenų kodas, kaip parodyta toliau	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Plūdė M = Rankinis	X = Nėra I = Įvykių monitorius
AA	P	030	A	G	F	I

(RU) Пример кодировки модели:

Модель						
Марка фильтрующего элемента	Высококачественный энергоэффективный фильтрующий элемент	Размер модели	Размер отверстия	Тип резьбы	Вариант сливного устройства	Индикатор перепада давления
WS AO AA ACS	P	Трехзначный код, как указано ниже	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Поплавок M = Руководство	X = Нет I = Монитор аварийных сообщений
AA	P	030	A	G	F	I

(SL) Primer kodiranja modela:

Model						
Razred elementa	Element energetske učinkovitosti »Premium«	Velikost modela	Velikost odprtine	Tip navoja	Možnost praznjenja	Indikator diferencialnega tlaka
WS AO AA ACS	P	Koda s 3 številkami, kot je prikazano spodaj	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Plavajoče M = Ročno	X = Brez I = Monitor pojavitev
AA	P	030	A	G	F	I

(TR) Model Kodlama örneği:

Model						
Eleman Sınıfı	Premium Enerji Verimli Eleman	Model Boyutu	Port Boyutu	Diş Tipi	Tahliye Seçeneği	DP Göstergesi
WS AO AA ACS	P	Aşağıdaki gibi 3 basamaklı bir kod	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Şamandıra M = Manuel	X = Yok I = Olay Monitörü
AA	P	030	A	G	F	I

(MT) Eżempju ta' Kodifikazzjoni tal-Mudell:

Mudell						
Grad ta’ Element	Element ta’ Effiċjenza ta’ Enerġija Primjum	Daqs tal-Mudell	Daqs tal-Port	Tip ta’ Kamin	Opzjoni ta’ Drejn	Indikatur DP
WS AO AA ACS	P	kodiċi bi 3 ċifri kif muri taħt	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Flowt M = Manwali	X = Xejn I = Moniter tal-Inċidenti
AA	P	030	A	G	F	I

(RO) Exemplu codificare model:

Model						
Calitate element	Element cu eficien ă energetică premium	Dimensiunea modelului	Dimensiunea orificiului	Tip de filet	Op iune de golire	Indicator de presiune diferen ială
WS AO AA ACS	P	Cod din 3 cifre, după cum se arată mai jos	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = Flotant M = Manual	X = Niciunul I = Monitor incident
AA	P	030	A	G	F	I

(BG) Пример за кодиране на модел:

Модел						
Клас на елемента	Надежден енергоефективен елемент	Размер на модела	Размер на порта	Тип с резба	Опция за дрениране	Индикатор за диференциално налягане
WS AO AA ACS	P	3-цифрен код, както е показано по-долу	A = 1/4” B = 3/8” C = 1/2” D = 3/4” E = 1” G = 1 1/2” H = 2” I = 2 1/2” J = 3”	G = BSPP N = NPT	F = С поплавък M = Ръчно	X = Няма I = Монитор за инциденти
AA	P	030	A	G	F	I

(LT) Gaminio pasirinkimas

Nurodyti srautai skirti veikimui esant 7 barams (100 psi g), kai atskaita 20°C, 1 baras ir 0 % santykinis vandens garų slėgis.

Kito slėgio srautams taikykite nurodytus korekcijos veiksnius.

(RU) Выбор продуктов

Значения расхода определены для работы под давлением 7 бар (100 фунтов на кв. дюйм) при температуре 20 °C, атмосферном давлении 1 бар и относительном давлении водяного пара 0 %.

Для определения расхода при других значениях давления используйте указанные поправочные коэффициенты.

(SL) Izbira izdelka

Navedeni pretoki so za delovanje pri 7 barg (100 psig) pri 20° C, 1 bar (a), 0% relativni tlak vodne pare.

Za pretoke z drugačnimi tlaki uporabite prikazane korekcijske faktorje.

(TR) Ürün Seçimi

Belirtilen akışlar, 20°C, 1 bar a, %0 nispi su buharı basıncına referansla 7 bar g'de (100 psi g) işletme içindir.

Diğer basınçlarda akış miktarı için aşağıda verilen düzeltme faktörleri kullanılır.

(MT) Għażla tal-Prodott

Il-flussi indikati huma għal tħaddim ta' 7 bar g (100 psi g) b'referenza ta' 20°C, 1 bar a, 0% pressjoni relattiva tal-fwar ta' ilma.

Għal flussi f'kundizzjonijiet oħrajn, applika l-fatturi ta' korrezzjoni murija.

(RO) Selecie produs

Valorile indicate ale debitelor sunt destinate operației la 7 bar g (100 psi g) cu referință la 20°C, 1 bar a, 0% presiune relativă a vaporilor de apă.

Pentru debitele aflate la alte presiuni, se aplică factorii de corec?ie prezenta?i anterior.

(BG) Избор на продукт

Посочените потоци са за работа при налягане 7 бара (изм.) (100 фунта на кв. инч (изм.)) при референтна температура от 20°C, 1 бар (атм.), 0% относително налягане на водни пари.

За потоци при други налягания прилагайте показаните коефициенти на корекция.

Vandens separatoriaus debitai

Расход на водяном сепараторе, Hitrosti pretoka izločevalnikov vode, Su Ayrıştırıcısı Akış Hızları, Rati tal-Fluss tas-Separatur tal-Ilma, Debite separator de apă, Дебити на водните сепаратори

Model			Port Size	L/s	m3/min	m3/hr	cfm
WS	P010A	[ ] [ ] [ ]	¼	10	0.6	36	21
WS	P010B	[ ] [ ] [ ]	⅜	10	0.6	36	21
WS	P010C	[ ] [ ] [ ]	½	10	0.6	36	21
WS	P015C	[ ] [ ] [ ]	½	40	2.4	144	85
WS	P020D	[ ] [ ] [ ]	¾	40	2.4	144	85
WS	P025D	[ ] [ ] [ ]	¾	110	6.6	396	233
WS	P025E	[ ] [ ] [ ]	1	110	6.6	396	233
WS	P030G	[ ] [ ] [ ]	1 ½	110	6.6	396	233
WS	P035G	[ ] [ ] [ ]	1 ½	350	21.0	1260	742
WS	P040H	[ ] [ ] [ ]	2	350	21.0	1260	742
WS	P045I	[ ] [ ] [ ]	2 ½	350	21.0	1260	742
WS	P050I	[ ] [ ] [ ]	2 ½	800	48.0	2880	1695
WS	P055J	[ ] [ ] [ ]	3	800	48.0	2880	1695

CFP – mažiausias pataisos koeficientas (angl. Correction Factor Minimum) įleidimo angos slėgiui (vandens separatoriai)

CFP — поправочный коэффициент при минимальном входном давлении (водяные сепараторы), CFP – korekcijski faktor pri minimalnem dovodnem tlaku (izločevalniki vode), CFP – Düzeltme Faktörü Minimum Giriş Basıncı (Su Ayrıştırıcıları), CFP – Pressjoni Minima tal-Iżbokk tad-Dħul tal-Fattur ta' Korrezzjoni (Separaturi tal-Ilma), CFP - Factor de corec ie presiune de intrare minimă (Separatoare de apă), CFP - коригиращ коефициент, минимално входно налягане (водни сепаратори) ,

Minimum Inlet Pressure																
	bar g	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	psi g	15	29	44	58	73	87	100	116	131	145	160	174	189	203	218	232
Correction Factor		4.00	2.63	2.00	1.59	1.33	1.14	1.00	0.94	0.89	0.85	0.82	0.79	0.76	0.73	0.71	0.68

Filtro debitai

Расход на фильтре, Hitrosti pretoka filtrov, Filtre Akış Hızları, Rati tal-Fluss tal-Filtru, Debite filtru, Дебити на филтрите

Model			Port Size	L/s	m3/min	m3/hr	cfm	Replacement Element kit		No.
[grade]	P010A	[ ] [ ] [ ]	¼	10	0.6	36	21	P010	[grade]	1
[grade]	P010B	[ ] [ ] [ ]	⅜	10	0.6	36	21	P010	[grade]	1
[grade]	P010C	[ ] [ ] [ ]	½	10	0.6	36	21	P010	[grade]	1

[grade]	P015C	[ ]	[ ]	[ ]	½	20	1.2	72	42	P015	[grade]	1
[grade]	P020C	[ ]	[ ]	[ ]	½	30	1.8	108	64	P020	[grade]	1
[grade]	P020D	[ ]	[ ]	[ ]	¾	30	1.8	108	64	P020	[grade]	1
[grade]	P025D	[ ]	[ ]	[ ]	¾	60	3.6	216	127	P025	[grade]	1
[grade]	P025E	[ ]	[ ]	[ ]	1	60	3.6	216	127	P025	[grade]	1
[grade]	P030G	[ ]	[ ]	[ ]	1 ½	110	6.6	396	233	P030	[grade]	1
[grade]	P035G	[ ]	[ ]	[ ]	1 ½	160	9.6	576	339	P035	[grade]	1
[grade]	P040H	[ ]	[ ]	[ ]	2	220	13.2	792	466	P040	[grade]	1
[grade]	P045I	[ ]	[ ]	[ ]	2 ½	330	19.8	1188	699	P045	[grade]	1
[grade]	P050I	[ ]	[ ]	[ ]	2 ½	430	25.8	1548	911	P050	[grade]	1
[grade]	P055I	[ ]	[ ]	[ ]	2 ½	620	37.3	2232	1314	P055	[grade]	1
[grade]	P055J	[ ]	[ ]	[ ]	3	620	37.3	2232	1314	P055	[grade]	1

[klasė] = klasė
[класс] = класс
[razred] = razred
[derece] = derece
[grad] = grad
[grad] = grad
[разредка] = разредка

CFP – mažiausias pataisos koeficientas (angl. Correction Factor Minimum) įleidimo angos slėgiui (koalescenciniai ir sausų kietųjų dalelių filtrai)

CFP — поправочный коэффициент при минимальном входном давлении (коалесцирующий фильтр и сухой фильтр для улавливания твердых частиц), CFP – korekcijski faktor pri minimalnem dovodnem tlaku (koalescentni filtri in filtri suhih delcev), CFP - Düzeltme Faktörü Minimum Giriş Basıncı (Birleştirme ve Kuru Partikül Filtreleri), CFP – Pressjoni Minima taż-Żbokk tad-Dħul ta' Fattur ta' Korrezzjoni (Filtri Koalexxenti u ta' Frak Xott), CFP - Factor de corec ie presiune de intrare minimă (Filtru de coalescen ă i de particule uscate), CFP - коригиращ коефициент, минимално входно налягане (коалесциращи филтри и сухи филтри за улавяне на частици)

Minimum Inlet Pressure	bar g	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	psi g	15	29	44	58	73	87	100	116	131	145	160	174	189	203	218	232	248	263	277	290
Correction Factor		2.65	1.87	1.53	1.32	1.18	1.08	1.00	0.94	0.88	0.84	0.80	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.61	0.59

(LT) Gaminio atrankos ir korekcijos koeficientai

Norint teisingai pasirinkti vandens separatoriaus arba filtro modelį, filtro debitas turi būti suderintas pagal mažiausią darbinį sistemos slėgį.

1 Gaukite mažiausią darbinį slėgį ir didžiausią suspausto oro debitą ties vandens separatoriaus arba filtro įleidimo anga.

2 Iš CFP lentelės pasirinkite pataisos koeficientą mažiausiam darbiniam slėgiui (jį visada suapvalinkite, pvz., esant 5,3 barų naudokite 5 barų pataisos koeficientą).

3 Apskaičiuokite mažiausią filtravimo talpą. Mažiausia filtravimo talpa = suspausto oro debitas x CFP

4 Naudodami mažiausią filtravimo talpą, pasirinkite vandens separatoriaus arba filtro modelį iš anksčiau pateiktų debito lentelių (pasirinkto vandens separatoriaus arba filtro debitas turi būti lygus arba didesnis nei mažiausia filtravimo talpa).

(RU) Выбор изделия и поправочные коэффициенты

Для правильного выбора модели водяного сепаратора или фильтра необходимо отрегулировать расход на фильтре при минимальном рабочем давлении в системе.

1 Определите минимальное рабочее давление и максимальный расход сжатого воздуха на входе водяного сепаратора или фильтра.

2 Выберите поправочный коэффициент для минимального входного давления из таблицы коэффициентов CFP (всегда округляйте значения, например для 5,3 бар используйте поправочный коэффициент для 5 бар).

3 Рассчитайте минимальную фильтрующую способность. Минимальная фильтрующая способность = расход сжатого воздуха x CFP

4 Используя минимальную фильтрующую способность, выберите модель водяного сепаратора или фильтра из представленных выше таблиц расхода (выбранный водяной сепаратор или фильтр должен иметь расход, равный или больший минимальной фильтрующей способности).

(SL) Dejavniki za izbiro izdelka in korekcijo

Da bi pravilno izbrali model izločevalnika vode ali filtra, morate hitrost pretoka filtra nastaviti na minimalni delovni tlak sistema.

1 Ugotovite minimalni delovni tlak in maksimalno hitrost pretoka stisnjenega zraka pri vstopu izločevalnika vode ali filtra.

2 Izberite korekcijski faktor za minimalni delovni tlak iz tabele CFP (vedno zaokrožite navzdol, npr. pri 5,3 bara uporabite korekcijski faktor 5 barov)

3 Izračunajte minimalno kapaciteto filtriranja. Minimalna kapaciteta filtriranja = hitrost pretoka stisnjenega zraka x CFP

4 S pomočjo minimalne kapacitete filtriranja v zgornjih tabelah hitrosti pretokov izberite model izločevalnika vode ali filtra (izbrani izločevalnik vode ali filter mora imeti hitrost pretoka enako ali večjo kot minimalno kapaciteto filtriranja).

(TR) Ürün Seçimi ve Düzeltme Faktörleri

Su Ayrıştırıcısı ve Filtre modelinin doğru seçilebilmesi için filtrenin akış hızının, sistemin minimum çalışma basıncına göre ayarlanması gerekir.

1 Su Ayrıştırıcısı veya Filtre'nin girişindeki minimum çalışma basıncı ve maksimum sıkıştırılmış hava akış hız değerlerini öğrenin.

2 CFP tablosundan minimum çalışma basıncı için düzeltme faktörünü seçin (her zaman aşağıya yuvarlayın, 5,3 bar için 5 bar düzeltme faktörü gibi)

3 Minimum filtrasyon kapasitesini hesaplayın. Minimum Filtrasyon Kapasitesi = Sıkıştırılmış Hava Akış Hızı x CFP

4 Minimum filtrasyon kapasitesini kullanarak yukarıdaki akış hızı tablolarından bir Su Ayrıştırıcısı ve Filtre modeli seçin (Seçilen Su Ayrıştırıcısı veya Filtre'nin akış hızı, minimum filtrasyon kapasitesine eşit veya ondan daha fazla olmalıdır).

(MT) Għażla tal-Prodott u Fatturi ta' Korrezzjoni

Biex tagħżel b'mod korrett Separatur tal-Ilma jew mudell ta' Filtru, ir-rata tal-fluss għandha tiġi aġġustata għall-pressjoni ta' tħaddim minima tas-sistema.

1 Ikseb il-pressjoni ta' tħaddim minima u r-rata tal-fluss tal-arja kkumpressata massima fl-iżbokk tad-dħul tas-Separatur tal-Ilma jew Filtru.

2 Agħżel il-fattur ta' korrezzjoni għal pressjoni tat-tħaddim minima mit-tabella CFP (dejjem qarreb għal numru sħiħ iżgħar eż. għal 5.3 bar, uża fattur ta' korrezzjoni ta' 5 bar)

3 Ikkalkula l-kapaċità tal-filtrazzjoni minima. Kapaċità tal-Filtrazzjoni Minima = Rata tal-Fluss tal-Arja Kkumpressata x CFP

4 Billi tuża l-kapaċità tal-filtrazzjoni minima, agħżel Separatur tal-Ilma jew mudell ta' Filtru mit-tabelli tar-rata tal-fluss ta' hawn fuq (Separatur tal-Ilma jew Filtru magħżul għandu jkollu rata ta' fluss ugwali jew ikbar mill-kapaċità ta' filtrazzjoni minima).

(RO) Selectarea produsului i factori de corec ie

Pentru a selecta corect un model de separator sau filtru de apă, debitul filtrului trebuie reglat la presiunea minimă de func ionare a sistemului.

1 Ob ine i presiunea minimă de func ionare i debitul maxim de aer comprimat la intrarea separatorului sau filtrului de apă.

2 Selecta i factorul de corec ie pentru presiunea minimă de func ionare din tabelul CFP (rotunji i întotdeauna, de ex., pentru 5,3 bari, utiliza i factorul de corec ie 5 bari)

3 Calcula i capacitatea minimă de filtrare. Capacitatea minimă de filtrare = Debitul de aer comprimat x CFP

4 Utilizând capacitatea minimă de filtrare, selecta i un model de separator sau filtru de apă din tabelele pentru debit de mai sus (Separatorul sau filtrul de apă selectat trebuie să aibă un debit egal cu sau mai mare decât capacitatea minimă de filtrare).

(BG) Избор на продукт и коригиращи коефициенти

За да се направи правилен избор на модел на воден сепаратор или филтър, дебитът на филтъра трябва да бъде съгласуван с минималното работно налягане на системата.

1 Проверете минималното работно налягане и максималния дебит на компресиран въздух на входа на водния сепаратор или филтъра.

2 Изберете коригиращ коефициент за минималното работно налягане от таблицата с CFP (винаги закръгляйте надолу, напр. за 5,3 bar използвайте коригиращ коефициент за 5 bar)

3 Изчислете минималния капацитет на филтрация. Минимален капацитет на филтрация = Дебит на компресиран въздух x CFP

4 Като използвате минималния капацитет на филтрация, изберете модел на воден сепаратор или филтър от таблиците за дебити по-горе (избраният воден сепаратор или филтър трябва да има дебит, равен на или по-голям от минималния капацитет на филтрация).

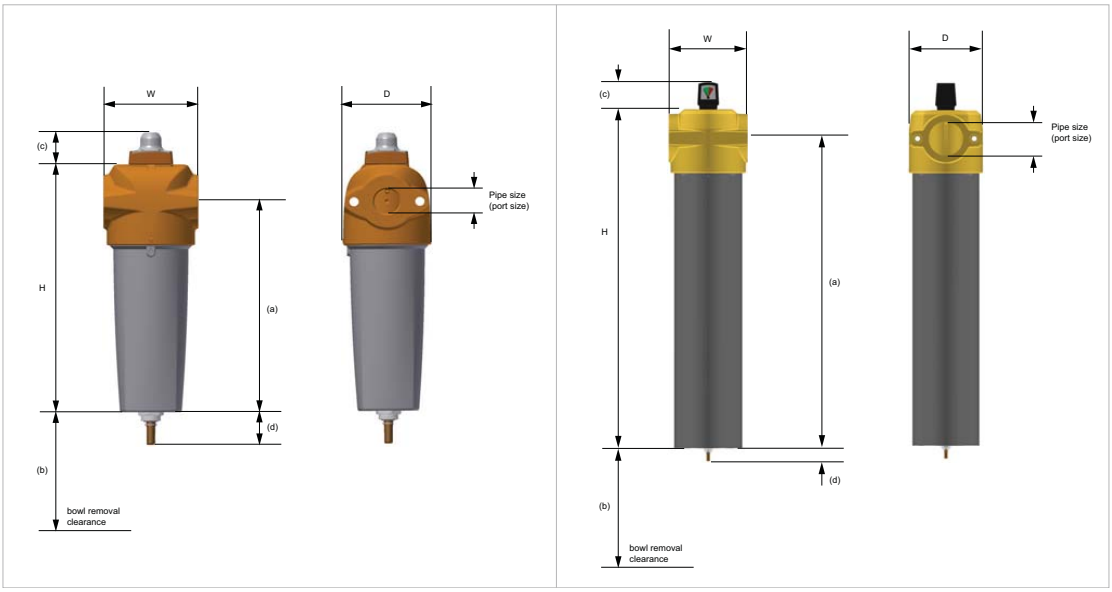
Techniniai duomenys

Технические данные, Tehnični podatki, Teknik Veriler, Dejta Teknika, Date tehnice, Технически данни

Model	Filter Models	Min Operating Pressure		Max Operating Pressure		Min Recommended Operating Temp		Max Recommended Operating Temp	
		bar g	psi g	bar g	psi g	°C	°F	°C	°F
WS	P010 [ ] [ ] F [ ] - 035 [ ] [ ] F [ ]	1	15	16	232	2	35	80	176
AO	P010 [ ] [ ] F [ ] - 035 [ ] [ ] F [ ]	1	15	16	232	2	35	80	176
AO	P010 [ ] [ ] M [ ] - 035 [ ] [ ] M [ ]	1	15	20	290	2	35	100	212
AA	P010 [ ] [ ] F [ ] - 035 [ ] [ ] F [ ]	1	15	16	232	2	35	80	176
AA	P010 [ ] [ ] M [ ] - 035 [ ] [ ] M [ ]	1	15	20	290	2	35	100	212
ACS	P010 [ ] [ ] M [ ] - 035 [ ] [ ] M [ ]	1	15	20	290	2	35	50	122

Svoris ir matmenys

Вес и габаритные размеры, Teža in mere, Ağırlıklar ve Boyutlar, Pižijiet u Dimensjonijiet, Greutăţi şi dimensiuni, Тегло и размери



Model	Pipe Size	Height (H)		Width (W)		Depth (D)		(a)		(b)		(c)		(d)		Weight	
		mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	kg	lbs
WS / P010A	¼"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P010B	⅜"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P010C	½"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P015C	½"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.16	2.55
P020C	½"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.12	2.58
WS / P020D	¾"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.12	2.58
WS / P025D	¾"	227	10.9	120	4.72	114.5	4.5	232	9.1	70	2.76	32	1.3	38	1.5	2.21	4.86
WS / P025E	1"	227	10.9	120	4.72	114.5	4.5	232	9.1	70	2.76	32	1.3	38	1.5	2.21	4.86
WS / P030G	1 ½"	367	14.45	120	4.72	114.5	4.5	323	12.7	70	2.76	32	1.3	38	1.5	2.68	5.91
WS / P035G	1 ½"	531	20.9	164	6.46	156	6.10	384	15.1	100	3.94	68	2.68	38	1.5	6.90	15.20
WS / P040H	2	623	24.5	164	6.46	156	6.10	476	18.7	100	3.94	68	2.68	38	1.5	7.30	16.10
WS / P045I	2 ½	623	24.5	164	6.46	156	6.10	476	18.7	100	3.94	68	2.68	38	1.5	7.10	15.65
WS / P050I	2 ½	745	29.3	192	7.56	183	7.20	587	23.1	120	4.72	68	2.68	38	1.5	10.30	22.71
P055I	2 ½	935	36.8	192	7.56	183	7.20	772	30.4	120	4.72	68	2.68	38	1.5	15.30	33.73
WS / P055J	3	935	36.8	192	7.56	183	7.20	772	30.4	120	4.72	68	2.68	38	1.5	15.30	33.73

Note: Water Separators do not include a DP Indicator, use dimension H + d for the total height.

(LT) Montavimo rekomendacijos

Rekomenduojama suspaustą orą apdoroti prieš jam patenkant į skirstymo sistemą ir kritiniuose naudojimo taškuose / įrenginiuose.

Suspausto oro džiovintuvus sumontavus drėgnose sistemose, džiūstant paskirstymo sistemai daugiau nešvarumų kaupiasi taškuose, kuriuose naudojami filtrai. Šiuo laikotarpiu gali reikėti dažniau keisti filtravimo elementus.

Įrangoje, kurioje naudojami kompresoriai be alyvos, vis tiek yra vandens aerozolių ir dalelių, todėl joje reikia naudoti bendrosios paskirties didelio efektyvumo klasių filtrus.

Bendrosios paskirties filtrai visada turi būti įrengti siekiant apsaugoti didelio efektyvumo filtrus nuo skystų aerozolių ir kietųjų dalelių pagrindinio kiekio poveikio.

Gryninimo įrangą sumontuokite ten, kur yra žemiausia teigiama temperatūra, geriausia – už galinių našintuvų ir oro surinkimo rezervuarų.

Naudojimo gryninimo įrangos taką reikia sumontuoti kuo arčiau įrenginio.

Gryninimo įrangos nereikėtų montuoti už greito atidarymo vožtuvų, ją reikia apsaugoti, kad nesusidarytų galima atbulinė srovė ar kiti hidrauliniai smūgiai.

Prieš montuodami išvalykite visus į gryninimo įrangą einančius vamzdžius, taip pat išvalykite visus vamzdžius, kai sumontuosite valymo įrangą, prieš prijungdami ją prie galutinio įrenginio.

Jei aplink gryninimo liniją įtaisytos apėjimo linijos, įsitikinkite, jog atitinkami filtrai įtaisyti apėjimo linijoje tam, kad neužsiterštų už jų esanti sistemos dalis.

Prijunkite išleidimo linijas nuo sujungiamųjų filtrų tiesiai prie kondensato skyriklio. Jeigu neįmanoma prijungti išleidimo linijų tiesiai prie skyriklio, linijos turi būti nukreiptos į kondensato kolektorių (atviros viename gale), tada į vieną kondensato skyriklio įvadą.

Pasirūpinkite įranga, kuri išleistų surinktus skysčius iš gryninimo įrangos. Surinktus skysčius reikia tinkamai apdoroti ir išmesti.

(RU) Рекомендации по установке

Перед входом в распределительную систему, а также в критических точках использования / подвода рекомендуется использовать сжатый воздух.

Установка осушителей сжатого воздуха во влажную систему может привести к дополнительному загрязнению фильтрующего элемента, которое накапливается в период высыхания системы. В этот период может потребоваться чаще менять фильтрующие элементы.

В установках, в которых используются безмасляные компрессоры, присутствуют водные аэрозоли и твердые частицы, следует использовать универсальные и высокоэффективные фильтры.

Для защиты высокоэффективного фильтра от масляных аэрозолей и твердых частиц следует обязательно установить универсальный фильтр.

Устанавливайте очистительное оборудование при низкой температуре, максимально приближенной, но не достигающей температуры замерзания, предпочтительно после добавочных охладителей и воздухоприемников.

Место установки очистительного оборудования должно находиться как можно ближе к подводу.

Очистительное оборудование не должно устанавливаться после быстро открывающихся клапанов, а также должно быть защищено от возможного обратного потока или других условий, создающих ударную нагрузку.

Перед установкой очистите все трубопроводы, ведущие к очистительному оборудованию, а также все трубопроводы, отходящие от очистительного оборудования, до подключения последнего подвода.

Если вокруг очистительного оборудования проложен обводной трубопровод, убедитесь, что к обводному трубопроводу подключена соответствующая фильтрующая система, чтобы предотвратить загрязнение основного потока системы.

Подсоединяйте дренажные трубопроводы из коалесцентных фильтров непосредственно к сепаратору конденсата. Если невозможно подсоединить дренажные трубопроводы непосредственно к сепаратору, необходимо вывести эти трубопроводы в коллектор конденсата (вентилируемый с одной стороны), а затем в один вход сепаратора конденсата.

Установите средства для дренажа жидкостей из очистительного оборудования. Собранные жидкости должны быть утилизированы в соответствии с указанными требованиями.

(SL) Priporočila za namestitev

Stisnjeni zrak je priporočljivo obdelati še pred vstopom v distribucijski sistem in ob odločilnih točkah uporabe.

Namestitev sušilnikov stisnjenega zraka na moker sistem lahko povzroči dodatno nalaganje umazanije v filtrih med obdobjem sušenja distribucijskega sistema. Med tem obdobjem bo morda potrebna pogostejša menjava filtrirnih elementov.

Pri namestitvah, kjer so v uporabi kompresorji brez olja in kjer so še vedno prisotni vodni in trdni delci, je treba uporabljati običajne in visokoučinkovite enote.

Za zaščito visokoučinkovitega filtra pred veliko količino vodnih in trdnih delcev mora biti vedno nameščen običajni filter.

Namestite čistilno opremo pri najnižji temperaturi nad zmrziščem, po možnosti za hladilniki polnilnega zraka in sprejemniki zraka.

Čistilna oprema naj bo nameščena kolikor je mogoče blizu mesta uporabe.

Čistilna oprema naj ne bo nameščena za zapornimi ventili in naj bo zaščitena pred morebitnim nasprotnim tokom ali ostalimi neobičajnimi situacijami.

Pred namestitvijo očistite vse cevi, ki vodijo do čistilne opreme, po namestitvi čistilne opreme in pred priklopom na zaključeni sistem pa očistite vse cevi.

Če so blizu čistilne opreme predvideni obvodi, zagotovite ustrezno filtriranje teh cevi, da ne pride do kontaminacije priključenega sistema.

Odtočne vode iz razvlažilnih filtrov priključite neposredno na ločevalnik kondenzata. Če odtočnih vodov ni možno napeljati neposredno v ločevalnik, je treba te vode napeljati v razdelilnik kondenzata (izliv na enem koncu voda) in zatem na posamezni dotok na ločevalniku kondenzata.

Zagotovite način za odvajanje zbrane tekočine iz čistilne opreme. Z zbrano tekočino je treba ravnati in jo odstraniti preudarno in odgovorno.

(TR) Kurulum tavsiyeleri

Sıkıştırılmış havanın dağıtım sistemine girmeden önce ve kritik kullanım noktalarında / uygulamalarda işlemden geçirilmesi tavsiye edilir.

Önceden yaş olan bir sisteme sıkıştırılmış hava kurutucularının kurulması, dağıtım sistemi kurulurken kullanım noktası filtrelerine fazladan kir yüklenmesine yol açabilir. Bu süre içinde filtre öğelerinin daha sık değiştirilmesi gerekebilir.

Yağsız kompresörlerin kullanıldığı kurulumlarda, su spreyi ve zerrecikler yine mevcuttur, bu durumlarda da genel amaçlı ve yüksek etkinlik düzeylerini kullanılmalıdır.

Yüksek etkinlikli filtreyi hacimli sıvı spreylerden ve katı zerreciklerden korumak için her zaman genel amaçlı bir filtre takılmalıdır.

Arındırma ekipmanını donma noktasının üstündeki en düşük ısıda ve tercihen son soğutucuların ve hava depolarının aşağı akım tarafına kurun.

Kullanma noktası arındırma ekipmanı, uygulamanın mümkün olduğu kadar yakınına kurulmalıdır.

Arındırma ekipmanı, çabuk açma valflerinin aşağı akım tarafına kurulmamalı ve ters akım olasılığına ve başka şok koşullarına karşı korunmalıdır.

Arındırma ekipmanına giden tüm boruları kurulumdan önce, bütün boruları da arındırma ekipmanı kurulduktan sonra ve son uygulamaya bağlamadan önce arındırın.

Arındırma ekipmanının çevresine by-pass hatları takılmışsa, sistemin aşağı akımında kirlenmeyi önlemek için by-pass hattına yeterli filtre donanımının takılmasını sağlayın.

Birleştirme filtrelerinden gelen süzdürme hatlarını doğrudan yoğunlaşma separatörüne takın. Süzdürme hatlarını doğrudan separatöre bağlamak mümkün değilse, hatlar yoğunlaşma manifolduna salınmalı (bir uçtan salınır), ardından da yoğunlaşma separatörünün tek bir girişine salınmalıdır.

Biriken sıvıları arındırma ekipmanından süzdürecek bir tertibat olmasını sağlayın. Biriken sıvılar sorumlu bir şekilde işlenmeli ve atılmalıdır.

(MT) Rakkomandazzjonijiet għall-Installazzjoni

Nirrakkomandaw li l-arja kompressata tiġi trattata qabel ma tidħol fis-sistema ta' distribuzzjoni kif ukoll fil-punti / l-applikazzjonijiet kritiċi ta' l-użu.

L-installazzjoni ta' tagħmir li jnixxef l-arja kumpressata fuq sistema li kienet imxarrba jista' jirriżulta f'aktar tagħbija ta' ħmieġ għall-filtri li jintużaw f'punt wieħed, għall-perjodu sakemm is-sistema ta' distribuzzjoni tinxef. L-elementi tal-filtri jista' jkollhom bżonn li jinbidlu aktar spiss matul dan il-perjodu.

Għal installazzjonijiet fejn jintużaw kumpressuri mingħajr żejt, xorta jkun hemm preżenti ajrusols u partijiet ta' l-ilma, għalhekk xorta għandhom jintużaw gradi bi skop ġenerali u b'effiċjenza kbira.

Filtru għal skopijiet ġenerali għandu dejjem jiġi installat biex jipproteġi l-filtru ta' effiċjenza kbira mill-volum kbir ta' ajrusols likwidi u partijiet solidi.

Installa tagħmir ta' purifikazzjoni fl-aktar temperatura baxxa possibbli imma b'mod li ma jkunx hemm iffriżar, preferibbilment aktar 'l isfel mill-aftercoolers u mir-riċevituri ta' l-arja.

Tagħmir tal-purifikazzjoni fil-punt ta' l-użu għandu jiġi installat kemm jista' jkun qrib tal-post fejn għandu japplika.

It-tagħmir ta' purifikazzjoni m'għandux jiġi installat aktar 'l isfel mill-valvs li jifthu malajr u għandu jkun protett minn possibilità ta' fluss b'lura jew kundizzjonijiet oħra stressanti.

Naddaf il-pajps kollha li jwasslu għat-tagħmir ta' purifikazzjoni qabel tinstalla u l-pajps kollha wara li tinstalla t-tagħmir ta' purifikazzjoni u qabel ma tqabbad ma' l-applikazzjoni finali.

Jekk tiffittja linji ta' by-pass madwar it-tagħmir ta' purifikazzjoni, kun żgur li hemm bżiżejjed filtrazzjoni ffittjata mal-linja tal-by-pass biex ma thallix li jkun hemm kontaminazzjoni tas-sistema aktar 'l isfel.

Waħħal il-linji tad-drejn mill-filtri koalexxenti direttament mas-separatur tal-kondensat. Mhuwiex possibbli li tqabbad il-linji tad-drejnijiet direttament ma' separatur, il-linji għandu jkollhom vent għall-manifold tal-kondensat (b'vent minn naħa waħda) u mbagħad għal ġewwa żbokk waħdieni ta' separatur tal-kondensat.

Ipprovdi faċilità biex tiddrejnja l-likwidi li jinġabru mit-tagħmir tal-purifikazzjoni. Il-likwidi li jinġabru għandhom jiġu trattati u mormija b'mod risponsabbli.

(RO) Recomandări de instalare

Se recomandă ca aerul comprimat să fie tratat anterior pătrunderii în sistemul de distribuţie şi, de asemenea, în punctele de utilizare/aplicaţiile critice.

Instalarea uscătoarelor cu aer comprimat pe un sistem de tip umed anterior poate avea ca rezultat acumularea suplimentară, pentru o perioadă, de impurităţi în filtrele de la punctele de utilizare, în timpul uscării sistemului de distribuţie. Este posibil ca, pe durata acestei perioade, să fie necesară înlocuirea mai frecventă a elementelor filtrului.

La instalaţii unde se utilizează compresoare fără ulei, aerosolii de apă şi macroparticulele sunt în continuare prezente, deci este necesară utilizarea în continuare a filtrelor de uz general şi a celor cu grade de eficienţă ridicată.

Un filtru de uz general trebuie instalat întotdeauna, pentru a proteja filtrul de eficienţă ridicată de aerosolii lichizi în cantităţi mari şi de macroparticulele solide.

Instalaţi echipamentul de purificare la cea mai redusă temperatură deasupra punctului de îngheţ, preferabil în aval de răcitoarele secundare şi de recipientele de aer.

Echipamentul de purificare de la punctul de utilizare trebuie instalat cât mai aproape de aplicaţia propriu-zisă.

Echipamentul de purificare nu trebuie instalat în aval de supapele cu deschidere rapidă şi trebuie protejat de posibili contracurenţi sau de alţi factori de şoc.

Purjaţi toate conductele care duc spre echipamentul de purificare înainte de instalare şi toate conductele după instalarea echipamentului de purificare şi înainte de conectarea la aplicaţia finală.

Dacă sunt montate conducte de trecere în jurul echipamentului de purificare, verificaţi să fie montate sisteme adecvate de filtrare la conducta de trecere, pentru a preveni contaminarea sistemului în aval.

Montaţi conducte de recuperare de la filtrele de coalescenţă direct la un separator de condens. Dacă nu este posibilă cuplarea directă a conductelor de recuperare la un separator, conductele trebuie ventilate la un colector de condens (ventilat la un capăt), apoi la o singură intrare a unui separator de condens.

Furnizaţi o instalaţie care să elimine, prin drenare, lichidele colectate din echipamentul de purificare. Lichidele colectate trebuie tratate şi evacuate într-o manieră responsabilă.

(BG) Препоръки за инсталацията

Препоръчително е компресираният въздух да се обработва преди влизането в системата за разпределение, а също така в точки/приложения с изключително значение.

Инсталирането на сушилни за компресиран въздух към намокрена система може да доведе до натрупване на допълнително замърсяване при използването на филтрите за определен период, докато системата за разпределение изсъхва. Елементите на филтъра може да се нуждаят от смяна по-често по време на този период.

За инсталации, където се използва безмаслени компресори, а водни аерозоли и частици все още са налични, все още трябва да се използват високоефективни разредки, както и разредки с общо предназначение.

Филтърът с общо предназначение трябва винаги да е се инсталира, за да предпази високоефективния филтър от обемни аерозоли и твърди частици.

Инсталирайте пречистващо оборудване при най-ниската температура над точката на замръзване, за предпочитане крайните допълнителни охладители и въздухоприемници.

Точката на използване на пречистващо оборудване трябва да се инсталира възможно най-близо до уреда.

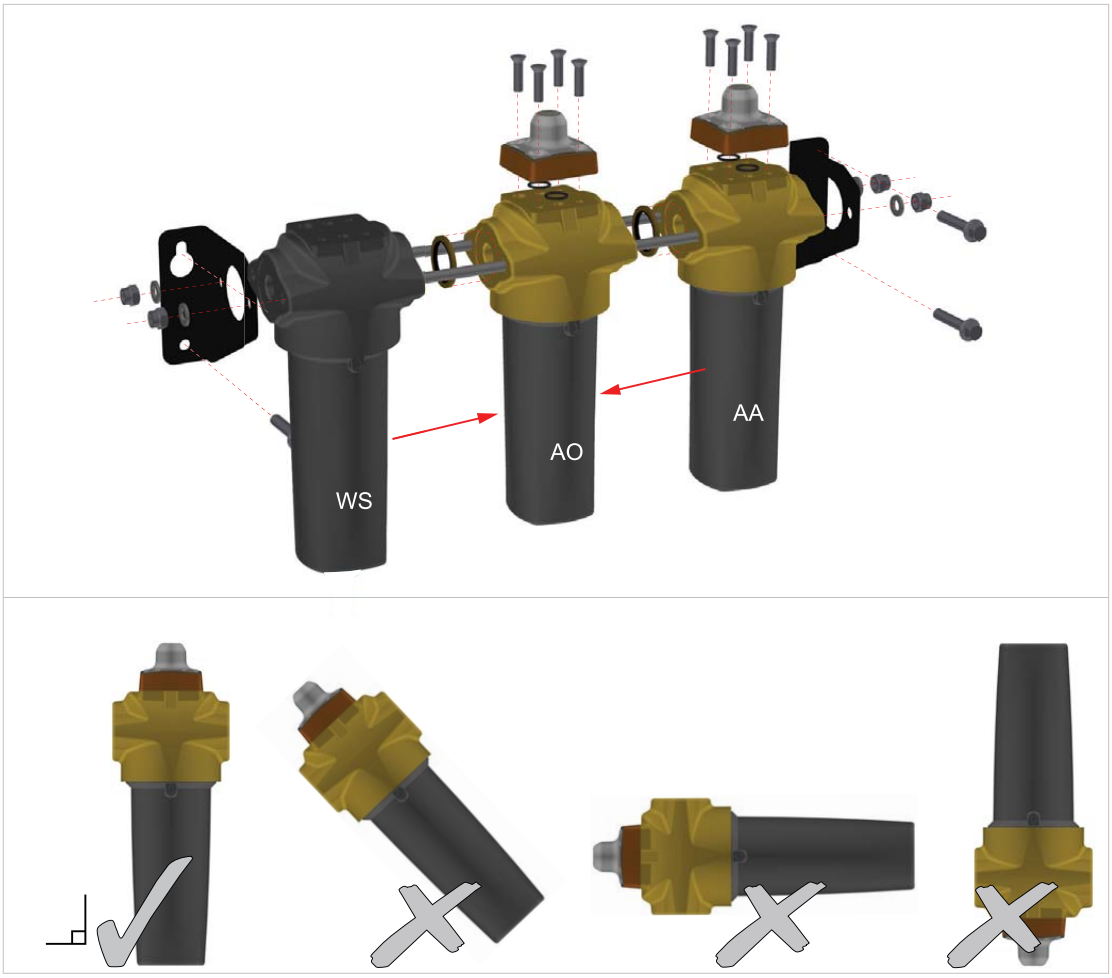
Пречистващото оборудване не трябва да се инсталира в края на бързо отварящи се клапани и трябва да се предпази от възможен обратен поток или други ударни условия.

Продухайте всички тръби, водещи към пречистващото оборудване, преди инсталацията, както и всички тръби след инсталацията на пречистващото оборудване и преди свързването на крайния уред.

Ако байпасни тръби са поставени около пречистващото оборудване, се уверете, че към байпасната тръба е нагласено подходящо филтриране, което да предотврати замърсяване нататък по системата.

Поставете отточни тръби от съединителните филтри директно към сепаратор на кондензат. Ако не е възможно директно свързване на отточни тръби към сепаратор, тръбите трябва да се оттичат към един колектор на кондензат (отворен от единия край) и след това в един вход на сепаратор на кондензат.

Осигурете условия за отичане на натрупаните флуиди от пречистващото оборудване. Натрупаните флуиди трябва да се обработват и изхвърлят по подходящия начин.





(LT) Apatinė uždarymo plokštė gali judėti, kai filtre nėra slėgio

Warning Apatinei uždarymo plokštei nereikia techninės priežiūros ir jos niekada nereikia nuimti.

(RU) Если в фильтре отсутствует давление, нижняя пластина корпуса может перемещаться.

Warning Нижняя пластина корпуса не подлежит обслуживанию и ее демонтаж не предусмотрен.

(SL) Če filter ni pod tlakom, se lahko spodnja zapiralna plošča premika.

Warning Spodnje zapiralne plošče ni možno popravljati in je nikoli ne odstranjujte.

(TR) Alttaki kapatma plakası, filtreye basınç uygulanmadığında hareket edebilir

Warning Alttaki kapatma plakası servis hizmeti verilen öğelerden değildir ve asla çıkarılmamalıdır.

(MT) Il-plakka tal-għeluq t'isfel tista' timxi meta l-filtru ma jkunx taħt pressjoni

Warning Il-plakka tal-għeluq t'isfel hija oġġett li ma jistax isirlu servis u qatt ma għandu jitneħħa.

(RO) Placa inferioară de acoperire se poate deplasa atunci când filtrul nu este presurizat

Warning Placa inferioară de acoperire este un element care nu poate fi remediat în service şi care nu trebuie demontat.

(BG) Долната затваряща пластина може да помръдне, когато филтърът не е под налягане.

Warning Долната затваряща пластина не може да се обслужва и не трябва никога да се сваля.

(LT) Paleidimas ir naudojimas

Warning

Prieš nukreipdami slėgį į filtrą įsitikinkite, kad galvutė ir indas yra gerai pritvirtinti, o fiksavimo detalės tinkamai sulygiuotos, kaip parodyta techninės priežiūros skyriuje (6 techninės priežiūros procedūra) šiame vadove.

1. Lėtai atidarydami įleidimo vožtuvą palaipsniui didinkite slėgį įrenginyje.
2. Lėtai atidarydami išleidimo vožtuvą, iš naujo sudarykite slėgį už jo esančiame vamzdyne.

Negalima staigiai atidaryti įleidimo ar išleidimo vožtuvų, paveikti įrenginio pernelyg dideliu diferencialiniu slėgiu, nes galima sugadinti įrangą..

(RU) Запуск и эксплуатация

Warning

Перед созданием давления в фильтре убедитесь, что стакан и головка фильтра правильно установлены и фиксатор правильно выровнен, как показано в разделе технического обслуживания данного руководства (процедура технического обслуживания 6).

1. Впускной клапан следует открывать плавно, чтобы постепенно создать давление в устройстве.
2. Плавно откройте выпускной клапан, чтобы создать давление в системе трубопровода.

Запрещено резко открывать впускной или выпускной клапаны, а также используемое устройство, так как это может привести к перепаду давления и повреждениям.

(SL) Zagon in uporaba

Warning

Pred obremenitvijo filtra s tlakom zagotovite, da sta glava in posoda filtra pravilno nameščeni in da sta označbi na glavi in posodi filtra ustrezno poravnani druga z drugo, kot je prikazano v poglavju o vzdrževanju v tem priročniku (postopek vzdrževanja – korak 6).

1. Počasi odprite dovodni ventil, da enoto postopoma obremenite s tlakom.
2. Počasi odprite odvodni ventil za ponovno tlačno obremenitev cevovoda za tem ventilom.

Dovodnih ali odvodnih ventilov nikoli ne odpirajte naglo in enote ne izpostavljajte prekomernim nihanjem tlaka, saj lahko to povzroči škodo.

(TR) Çalıştırma ve İşletme

Warning

Filtreye basınç uygulamadan önce, başın ve haznenin düzgün bir şekilde takıldığından ve kilitleme tertibatının, bu kılavuzun bakım bölümünde (bakım prosedürü 6) gösterildiği gibi, düzgün bir şekilde hizalandığından emin olun.

1. Giriş valfini yavaşça açıp üniteye yavaş yavaş basınç uygulayın.
2. Aşağı akım borularına yeniden basınç uygulamak için çıkış valfini yavaşça açın.

Giriş ve çıkış valflerini hızla açmayın veya üniteyi aşırı basınç farklarına maruz bırakmayın; aksi halde hasar oluşabilir.

(MT) Kif Tixgħel u Kif Tħaddem

Warning

Qabel titfa' pressjoni fuq il-filtru, agħmel żgur li r-ras u l-bowl huma mwaħħlin b'mod korrett u li d-dettall tas-sokor huwa allinjat kif jixraq kif muri fis-sezzjoni tal-manutenzjoni (proċedura ta' manutenzjoni 6) ta' dan il-manwal.

1. Iftaħ il-valv tad-dħul bil-mod, biex iżżid gradwalment il-pressjoni fl-unità.
2. Iftaħ il-valv tal-ħruġ bil-mod biex terġa' tibni l-pressjoni fil-pajps li jwasslu 'l isfel.

Ara li ma tiftaħx il-valvs tad-dħul jew tal-ħruġ f'daqqa jew b'xi mod tikkawża differenza eċċessiva fil-pressjoni tat-tagħmir għax tista' tagħmel il-ħsara.

(RO) Pornire şi operare

Warning

Înainte de presurizarea filtrului, asiguraţi-vă că paharul şi capul filtrului sunt corect montate şi că detaliul de fixare este corect aliniat, aşa cum se arată în secţiunea de întreţinere (procedura de întreţinere 6) a acestui manual.

1. Deschideţi încet supapa de admisie, pentru a presuriza gradat aparatul.
2. Deschideţi încet supapa de evacuare pentru a represuriza sistemul de conducte din aval.

Nu deschideţi rapid supapele de admisie sau de evacuare şi nu supuneţi aparatul la o diferenţă excesivă de presiune; în caz contrar, aparatul poate suferi deteriorări.

(BG) Начало и работа

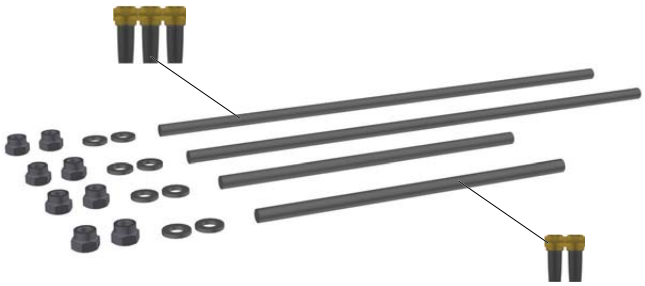
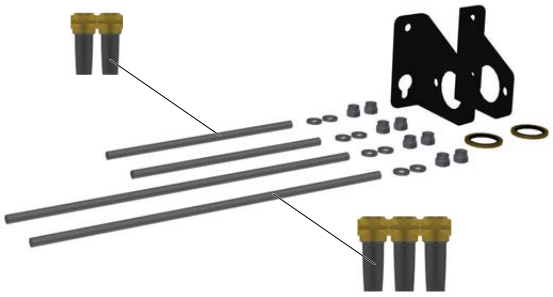
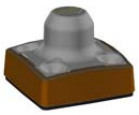
Warning

Преди херметизиране на филтъра се уверете, че главата и чашката са монтирани правилно и заключващият детайл е подходящо подравнен, както е показано в раздела за поддръжка (процедура по поддръжка 6) на това ръководство.

1. Отворете бавно входния вентил, за да пуснете постепенно налягане на уреда.
2. Отворете бавно изходния вентил, за да премахнете налягането по протежението на тръбите.

Не отваряйте входния или изходния вентил бързо и не подлагайте уреда на голяма разлика в налягането, тъй като това може да доведе до повреда.

Priedai / atsarginės dalys (techninės priežiūros komplektai)
Принадлежности / запасные части (ремонтные комплекты), Dodatna oprema / nadomestni deli (servisni kompleti), Aksesuarlar / Yedek Parçalar (Servis Kitleri), Aċċessorji / Lista tal-Parts (Settijiet tas-Servis), Accesorii / Piese de schimb (Truse de service), Принадлежности / резервни части (сервизни комплекти)

Filter Models	Catalogue Number	Contents
010	TRK1-2	
015 - 020	TRK2-2	
025 - 030	TRK3-2	
035- 045	TRK4-2	
050- 055	TRK5-2	
010	MBK1-1	
015 - 020	MBK2-1	
025 - 030	MBK3-1	
035 - 045	MBK4-1	
050 - 055	MBK5-1	
010	MBK1-2	
015 - 020	MBK2-2	
025 - 030	MBK3-2	
035 - 045	MBK4-2	
050 - 055	MBK5-2	
010 - 055	EM1	
010 - 055	PD15NO	
010 - 030	DPI-K	
035 - 055	ZD90GL	

Techninė priežiūra
Техническое обслуживание, Vzdrževanje, Bakım, Manutenzjoni, Întreţinere,Поддръжка

(LT) **Techninės priežiūros intervalai**

Norint užtikrinti optimalias filtro charakteristikas AO, AA tipo elementus reikia keisti kas 12 mėnesių kartu su automatinio išleidimo čiaupu.

Elemento ACS veikimas paremtas didžiausia alyvos garų įleidimo koncentracija 0,018 mg/m^3. Pakeiskite anglies filtro elementą aptikę garų, keistą kvapą arba skonį.

Kitaip nei alyvos aerozolių šalinimo filtrai, kurie keičiami kasmet siekiant užtikrinti suspausto oro kokybę, alyvos garų šalinimo filtro tarnavimo laikas priklauso nuo įvairių veiksnių ir jį reikia daug dažniau keisti (nebent naudojamas OVR, kurio tarnavimo laikas apskaičiuotas 6000 valandų).

Veiksniai, darantys poveikį adsorbcijos filtrų tarnavimo laikui

Alyvos garų koncentracija

Kuo didesnė alyvos garų įleidimo koncentracija, tuo greičiau baigsis aktyvuotosios anglies talpa.

Karterio alyva

Adsorbcijos filtrai skirti pašalinti alyvos garus ir kvapus, o ne suskystintą alyvą ar aerozolius. Dėl blogai prižiūrimų filtrų arba apskritai neužtėtų išankstinių filtrų OVR filtro talpa greitai pasibaigia.

Temperatūra

Alyvos garų kiekis didėja eksponentiškai pagal įleidimo temperatūrą, taip sutrumpindamas elemento tarnavimo laiką. Be to, didėjant temperatūrai, mažėja adsorbcijos galia, ir elemento tarnavimo laikas taip pat trumpėja.

Santykinis drėgnumas arba rasos taškas

Drėgnas oras sumažina adsorbcines anglies savybes.

Kompresoriaus alyvos pokyčiai

Pakeitus kompresoriaus alyvą, naujas tepalas išdegina „lengvąją frakciją“, todėl po to alyvos garų kiekis padidėja valandoms ar net savaitėms. Šį padidėjusį alyvos garų kiekį adsorbuoja OVR filtras, žymiai sumažinantis adsorbcinį tarnavimo laiką.

(RU) **Интервалы технического обслуживания**

Для обеспечения оптимальной эффективности фильтра требуется менять элементы классов AO, AA каждые 12 месяцев вместе с автоматическим дренажным устройством.

Эффективность элемента ACS рассчитана на максимальную концентрацию входящих паров масла, не превышающую 0,018 мг/м^3. При обнаружении испарений или запаха замените угольный элемент фильтра.

В отличие от масляных аэрозольных фильтров, которые подлежат ежегодной замене в целях обеспечения сжатым воздухом надлежащего качества, срок службы фильтров масляных паров зависит от различных факторов, и требует более частой замены (если только не используется OVR, срок службы которого 6 000 часов):

Факторы, влияющие на продолжительность срока службы адсорбционных фильтров:

Концентрация паров масла

Чем выше концентрация паров масла на входе, тем быстрее произойдет насыщение парами активированного угля.

Масло в емкостях.

Адсорбционные фильтры предназначены для поглощения паров масла и запахов, а не жидкой нефти или аэрозолей. Плохо выполняющаяся предварительная фильтрация или ее отсутствие приводит к быстрому ухудшению свойств фильтра OVR.

Температура

Содержание паров масла увеличивается в экспоненциальной зависимости от температуры на входе, что сокращает срок службы элемента. Кроме того, при увеличении температуры способность элемента к адсорбции уменьшается, что также сокращает срок службы элемента.

Относительная влажность или точка росы

Влажный воздух ухудшает способность углерода к адсорбции.

Замена масла в компрессоре

При замене компрессорного масла, в новом масле происходит сжигание легких углеводородов, что приводит к увеличению содержания паров масла на несколько часов или даже недель. Эти пары поглощаются фильтром OVR, что значительно сокращает его срок службы.

(SL) **Intervali vzdrževanja**

Da bi zagotovili optimalno delovanje filtra, je treba elemente razredov AO, AA zamenjati vsakih 12 mesecev, skupaj z avtomatskim izpustom.

Zmogljivost elementa ACS temelji na največji koncentraciji naftnih hlapov na dovodu 0.018mg/m^3. Ko zaznate hlape, vonj ali okus, zamenjajte filtrirni element z ogljem.

Za razliko od filtrov za odstranjevanje naftnih aerosolov, ki se jih za zagotavljanje kakovost stisnjenega zamenjuje enkrat letno, je življenjska doba filtra za odstranjevanje hlapov odvisna od različnih dejavnikov in zahtevajo bolj pogoste zamenjave (razen, če se uporablja OVR, z zasnovano trajnostjo 6000 ur):

Dejavniki, ki vplivajo na življenjsko dobo adsorpcijskih filtrov

Koncentracija oljnih hlapov

Večja kot je koncentracija oljnih hlapov na vstopu, hitreje bo sposobnost aktivnega oglja zasičena.

Tekoče olje

Adsorpcijski filtri so namenjeni odstranjevanju oljnih hlapov in vonjav, ne tekočega olja ali aerosolov. Slabo vzdrževano predhodno filtriranje ali brez le-tega bo povzročilo hitro iztrošenje zmogljivosti OVR filtra.

Temperatura

Vsebnost oljnih hlapov narašča eksponentno glede na vstopno temperaturo, s tem se življenjska doba elementa skrajša. Poleg tega se z naraščanjem temperature zmanjšuje sposobnost adsorpcije, ravno tako tudi življenjska doba elementa.

Relativna vlažnost ali rosišče

Vlažnost zraka zmanjšuje adsorpcijsko sposobnost oglja.

Menjave kompresorskega olja

Ko se kompresorsko olje zamenja, novo mazivo izloči "lahke frakcije", kar za več ur ali celo tednov poveča vsebnost oljnih hlapov. To večjo količino oljnih hlapov adsorbira OVR filter, s tem pa se bistveno skrajša njegova življenjska doba.

(TR) **Bakım Aralıkları**

En iyi performansı sağlamak için AO, AA, düzey öğelerin otomatik süzdürme tertibatı ile birlikte her 12 ayda bir değiştirilmesi gerekir.

ACS öğesinin performansı, 0,018mg/m^3 maksimum yağ buharı giriş konsantrasyonuna dayanır. Buhar, koku veya tat saptandığında karbon filtre öğesini değiştirin.

Yağ buharı giderme filtresinin kullanım süresi, basınçlı hava kalitesini garanti etmek için her yıl değiştirilen yağ aerosolü giderme filtrelerinden farklı olarak, çeşitli faktörlere bağlanabilir ve daha sık değiştirilmeleri gerekebilir (6000 saatlik ömür için boyutlandırılmış OVR kullanılmadığı sürece):

Emiş filtrelerinin kullanım süresini etkileyen faktörler

Yağ buharı konsantrasyonu

Yağ buharının giriş konsantrasyonu arttıkça, aktif karbon kapasitesi daha hızlı biçimde tükenir.

Yağ kütlesi

Emiş filtreleri, sıvı yağ veya aerosolleri değil, yağ buharını ve kokuları gidermek için tasarlanmıştır. Yeterli bakım yapılmayan veya mevcut olmayan ön filtrasyon, OVR filtre kapasitesinin hızlı biçimde tükenmesine neden olur.

Sıcaklık

Yağ buharı içeriği, giriş sıcaklığına göre katlanarak artar ve öğenin ömrünü kısaltır. Ayrıca, sıcaklık arttıkça emilim kapasitesi düşer ve yine öğenin ömrünü kısaltır.

Nispi Nem veya Çiylenme Noktası

Yaş hava, karbonun emilim kapasitesini düşürür.

Kompresör yağı değişimleri

Kompresör yağı değiştirildiğinde, yeni yağlayıcı "hafif uçları" yakar; bu da sonraki saatler, hatta haftalar boyunca yağ buharı içeriğini artırır. Yağ buharı içeriğindeki bu artış, OVR filtresi tarafından emilerek, emiş ömrünü önemli ölçüde kısaltır.

(MT) **Intervalli tal-Manutenzjoni**

Biex tiżgura l-aqwa prestazzjoni tal-filtru, l-elementi ta' grad AO, AA jeħtieġu tibdil kull 12-il xahar flimkien mad-drejn awtomatiku.

Il-prestazzjoni tal-element ACS hija bbażata fuq konċentrazzjoni massima tal-iżbokk tal-fwar taż-żejt ta' 0.018mg/m^3. Ibdel l-element tal-filtru tal-faħam wara l-kxif ta' fwar, riħa jew togħma.

B'differenza mill-filtri ta' tneħħija tal-aerosol taż-żejt li jinbidlu kull sena biex tiġi ggarantita l-kwalità tal-arja kkompressata, il-ħajja ta' filtru ta' tneħħija taż-żejt tista' tiġi attribwita għal diversi fatturi u jista' jkun hemm bżonn li l-filtri jinbidlu aktar ta' spiss (sakemm ma jintużax OVR li huwa maħsub għal ħajja ta' 6000 siegħa):

Fatturi li jaffettwaw l-għomor tal-filtri ta' assorbiment

Konċentrazzjoni ta' fwar taż-żejt

Aktar ma l-konċentrazzjoni tal-iżbokk tal-fwar taż-żejt tkun ogħla, aktar il-kapaċità ta' karbonju attivat tiskadi malajr.

Żejt tal-bulk

Filtri ta' assorbiment huma maħsubin biex ineħħu fwar taż-żejt u l-irwejjaħ, żejt mhux likwidu jew aerosols. Filtrazzjoni minn qabel miżmuma ħażin jew inežistenti tikkawża l-kapaċità tal-filtru tal-OVR biex tiskadi malajr.

Temperatura

Il-kontenut tal-fwar taż-żejt jiżdied b'mod esponenzjali skont temperatura tal-iżbokk tad-dħul, u jnaqqas il-ħajja tal-element. Barra minn hekk, hekk kif tiżdied it-temperatura, il-kapaċità ta' assorbiment tonqos, u għal darb'oħra tnaqqas il-ħajja tal-element.

Umdità jew Punt tan-nida

L-arja niedja tnaqqas il-kapaċità adsorbitva tal-faħam.

Tibdil taż-żejt tal-kompressur

Meta jinbidel iż-żejt tal-kompressur, il-lubrikant il-ġdid jaħraq it-truf irqaq li jżidu l-kontenut tal-fwar taż-żejt għal sigħat jew saħansitra għal ġimgħat wara. Din iż-żieda fil-kontenut tal-fwar taż-żejt hija adsorbita mill-filtru OVR, u tnaqqas b'mod sinifikanti l-ħajja adsorbiva tiegħu.

(RO) **Intervale de întreţinere**

Pentru a asigura performanţe optime ale filtrului, elementele de grad AO, AA necesită înlocuire la fiecare 12 luni, alături de evacuarea automată.

Performan?a elementului ACS se bazează pe o concentra?ie maximă a vaporilor de ulei care intră de 0,018mg/m^3. Înlocui?i elementul filtrului de carbon la detectarea de vapori, miros sau gust.

Spre deosebire de filtrele de îndepărtare a vaporilor de ulei, care sunt modificate anual pentru a garanta calitatea aerului comprimat, durata de via?ă a unui filtru de îndepărtare a vaporilor de ulei poate fi atribuită mai multor factori ?i necesită schimbări mai frecvente (cu excep?ia cazului în care OVR este folosit, acesta fiind dimensionat pentru 6000 ore de func?ionare):

Factori care influenţează durata de viaţă a filtrelor de adsorbţie

Concentraţia vaporilor de ulei

Cu cât concentra?ia de intrare a vaporilor de ulei este mai mare, cu atât mai repede va expira capacitatea cărbunelui activ.

Ulei la vrac

Filtrele de adsorb?ie sunt concepute pentru a îndepărta vaporii de ulei ?i mirosurile, nu uleiul lichid sau vaporii. Un filtru rău între?inut sau absen?a unei prefiltrări va determina expirarea rapidă a capacită?ii filtrului OVR.

Temperatură

Con?inutul de vapori de ulei cre?te exponen?ial la temperatura de intrare, reducând durata de via?ă a elementului. În plus, odată cu cre?terea temperaturii, capacitate de adsorb?ie scade, reducând din nou durată de via?ă a elementului.

Umiditatea relativă sau punctul de rouă

Aerul umed reduce capacitatea de adsorb?ie a carbonului.

Schimbări ale uleiului de compresor

La schimbarea uleiului de compresor, noul lubrifiant arde "capetele u?oare", care măresc con?inutul de vapori de ulei timp de câteva ore sau chiar săptămâni după aceea. Această cre?tere a con?inutului de vapori de ulei este adsorbită prin filtrul OVR, reducând în mod semnificativ durata adsorb?iei.

(LT) **1 techninės priežiūros procedūra**

Lėtai uždarykite įleidimo (1) ir išleidimo (2) vožtuvus ir išleiskite slėgį iš filtro (3) per išleidimo angą.

(RU) **Процедура технического обслуживания 1**

Медленно закройте впускной (1) и выпускной (2) клапаны и сбросьте давление в фильтре (3) с помощью дренажа.

(SL) **Postopek vzdrževanja – korak 1**

Počasi zaprite dotočni (1) in odtočni (2) ventil in iz filtra (3) prek odtoka izpustite ves tlak.

(TR) **Bakım Prosedürü 1**

Giriş (1) ve çıkış (2) valflerini yavaşça kapatın ve süzdürme tertibatını kullanarak filtredeki (3) basıncı boşaltın.

(MT) **Proċedura ta' Manutenzjoni 1**

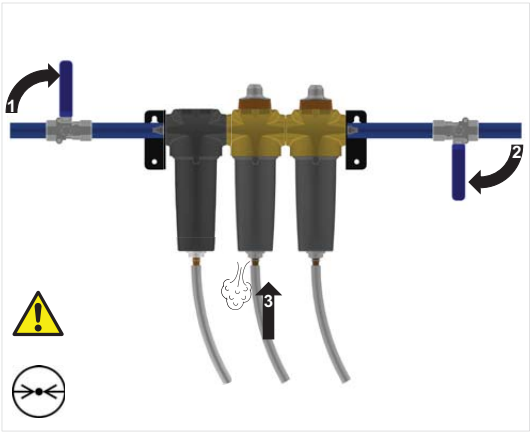
Agħlaq bil-mod il-valvi tal-iżbokk tad-dħul (1) u tal-ħruġ (2) u neħħi l-pressjoni tal-filtru (3) billi tuża d-drejn.

(RO) **Procedură de întreţinere 1**

Închideţi încet supapa de admisie (1) şi de evacuare (2) şi depresurizaţi filtrul (3) utilizând evacuarea.

(BG) **Процедура по поддръжка 1**

Бавно затворете входния (1) и изходния (2) вентил и изпуснете налягането от филтъра (3) с помощта на дренажа.



(LT) **2 techninės priežiūros procedūra**

Atsukite filtro indą (1 ir 2) ir išimkite panaudotą elementą (3)

(RU) **Процедура технического обслуживания 2**

Открутите стакан фильтра (1 и 2) и снимите использованный элемент (3)

(SL) **Postopek vzdrževanja – korak 2**

Odvijte posodo filtra (1 in 2) in odstranite uporabljeni element (3).

(TR) **Bakım Prosedürü 2**

Filtre haznesini (1 ve 2) gevşetin ve kullanılan öğeyi (3) çıkarın

(MT) **Proċedura ta' Manutenzjoni 2**

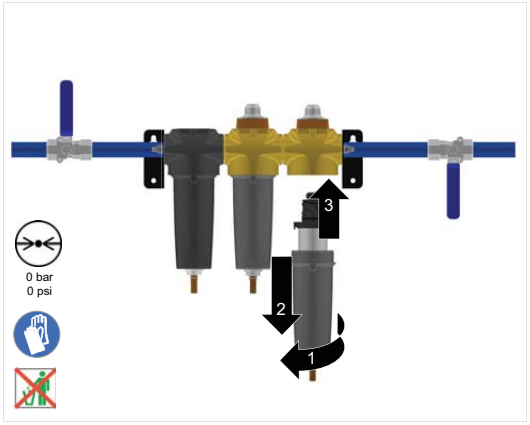
Ħoll il-bowl tal-filtru (1 u 2) u neħħi l-element użat (3)

(RO) **Procedură de întreţinere 2**

Deşurubaţi paharul filtrului (1 şi 2) şi demontaţi elementul uzat (3)

(BG) **Процедура по поддръжка 2**

Развийте филтърната чашка (1 и 2) и свалете използвания елемент (3)



(LT) **3 techninės priežiūros procedūra**

Atsukite automatinio išleidimo čiaupą (1) ir išmeskite (2). Įstatykite naują išleidimo čiaupą (3) ir priveržkite (4).

(RU) **Процедура технического обслуживания 3**

Открутите автоматический дренаж (1) и утилизируйте его (2). Установите новый дренаж (3) и затяните его (4).

(SL) **Postopek vzdrževanja – korak 3**

Odvijte samodejni odtok (1) in ga zavrzite (2). Namestite nov samodejni odtok (3) in ga privijte (4).

(TR) **Bakım Prosedürü 3**

Otomatik süzme tertibatını gevşetin (1) ve atın (2). Yeni süzdürme tertibatını takın (3) ve sıkın (4).

(MT) **Proċedura ta' Manutenzjoni 3**

Ħoll id-drejn awtomatiku (1) u armi (2). Waħħal id-drejn il-ġdid (3) u ssikka (4).

(RO) **Procedură de întreţinere 3**

Deşurubaţi evacuarea automată (1) şi aruncaţi (2). Montaţi noua evacuare (3) şi strângeţi (4).

(BG) **Процедура по поддръжка 3**

Отвийте автоматичния дренаж (1) и го изхвърлете (2). Поставете новия дренаж (3) и затегнете (4).



(LT) **4 techninės priežiūros procedūra**

Įstatykite naują elementą į filtro indą, įsitikindami, kad ąselės tinkamai įstatytos į išpjovas.

(RU) **Процедура технического обслуживания 4**

Вставьте новый элемент в стакан фильтра, проверив, что ушки правильно сели в пазы.

(SL) **Postopek vzdrževanja – korak 4**

V posodo filtra vstavite nov filtrirni element in zagotovite, da so nastavki elementa pravilno nameščeni v utorih.

(TR) **Bakım Prosedürü 4**

Yeni öğeyi filtre haznesine yerleştirerek tırnakların oluklara düzgün bir şekilde oturmasını sağlayın.

(MT) **Proċedura ta' Manutenzjoni 4**

Daħħal l-element il-ġdid fil-bowl tal-filtru u agħmel żgur li l-lugs ikunu mpoġġja tajjeb fil-gruvs.

(RO) **Procedură de întreţinere 4**

Introduceţi noul element în paharul filtrului, asigurându-vă că inelele sunt corect amplasate în canale.

(BG) **Процедура по поддръжка 4**

Поставете новия елемент в чашката на филтъра, като се уверите, че издадените части влизат правилно в каналите.



(LT) **5 techninės priežiūros procedūra**

Pakeiskite sandarinimo žiedą filtro galvutėje pateikiamais naujais sandarinimo žiedais.

Caution **Būtinai patepkite sandarinimo žiedą ir sriegius tinkamu techniniu vazelinu be rūgščių.**

(RU) **Процедура технического обслуживания 5**

Замените кольцевое уплотнение в головке фильтра новый кольцевым уплотнением.

Caution **Смажьте кольцевое уплотнение и резьбу вазелином, не содержащим кислоты.**

(SL) **Postopek vzdrževanja – korak 5**

Stari tesnilni O-obroč v glavi filtra zamenjajte z novim.

Caution **O-obroč in navoje namažite z ustreznim brezkislinskim petrolejevim gelom.**

(TR) **Bakım Prosedürü 5**

Filtrenin başında yer alan O-halkasını, verilen yeni O-halkasıyla değiştirin.

Caution **O-halkasının ve yivlerin uygun bir asitsiz vazelin ile yağlanmasını sağlayın.**

(MT) **Proċedura ta' Manutenzjoni 5**

Ibdel l-O-ring li jinsab fir-ras tal-filtru bl-O-ring il-ġdid ipprovdut.

Caution **Agħmel żgur li tillubrifika l-O-rings u l-kamini b'jelly tal-petroleum ħieles minn aċidi xieraq.**

(RO) **Procedură de întreţinere 5**

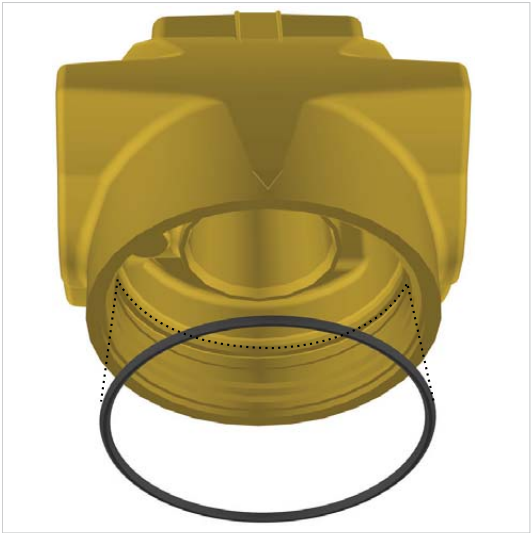
Înlocuiţi garnitura inelară situată în capul filtrului cu noua garnitură inelară furnizată.

Caution **Asiguraţi-vă că lubrifiaţi garnitura inelară şi filetele cu vaselină rectificată adecvată, fără acid.**

(BG) **Процедура по поддръжка 5**

Заменете О-пръстена, разположен във филтърната глава с предоставения нов О-пръстен.

Caution **Осигурете смазване на О-пръстена и резбите с подходящ безкиселинен вазелин.**



(LT) **6 techninės priežiūros procedūra (a)**

Vėl uždėkite filtro indą ir galvutę, įsitikindami, kad sriegiai iki galo priveržti, o fiksavimo detalės sulygiuotos.

Pastaba. Kad įsitikintumėte, jog indas yra gerai pritvirtintas prie galvutės, 010-030 indą sukite 360°, kol sriegis nebesisuks, o 035-045 indą 720°.

(RU) **Процедура технического обслуживания 6 (a)**

Установите на место стакан и головку фильтра, проверив, что резьбы полностью закручены и фиксаторы выровнены.

Примечание. Для полной установки стакана в головку необходимо повернуть стакан на 360° до полной остановки хода резьбы (стакан 005-030) или на 720° (стакан 035-045.

(SL) **Postopek vzdrževanja – korak 6 (a)**

Ponovno namestite posodo filtra in filtrsko glavo ter pazite, da so navoji priviti do konca in da sta označbi na glavi in posodi filtra ustrezno poravnani druga z drugo.

Opomba: posoda filtra je popolnoma privita na glavo, če posodo 010-030 zavrtite za 360° do konca navoja. Posodo 035-045 je treba zavrteti za 720°.

(TR) **Bakım Prosedürü 6 (a)**

Filtre haznesini ve başını, yivler tamamen yerine oturacak ve kilitleme tertibatı aynı hizaya gelecek şekilde yeniden takın.

Not: Haznenin başa tamamen yerleşmesini sağlamak için, 010-030 hazne için yiv durana kadar 360° dönüş, 035-045 hazne için ise 720° dönüş için gerekir.

(MT) **Proċedura ta' Manutenzjoni 6 (a)**

Erġa' waħħda il-bowl tal-filtru u r-ras filwaqt li tiżgura li l-kamini jkunu mqabbdin sew u d-dettalji tas-sokor ikunu allinjati.

Nota: Biex ikun żgurat li l-bowl tkun imqabbda għal kollox fir-ras, il-bowl 010-030 teħtieġ rotazzjoni ta' 360°sakemm jieqaf il-kamin u 720° għall-bowl 035-045.

(RO) **Procedură de întreţinere 6 (a)**

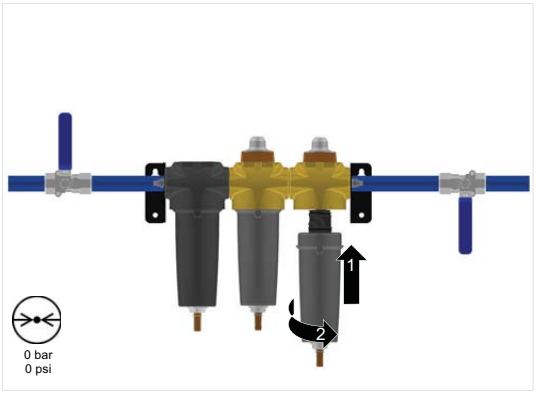
Montaţi la loc paharul şi capul filtrului, asigurându-vă că filetele sunt complet cuplate şi că detaliile de blocare sunt aliniate.

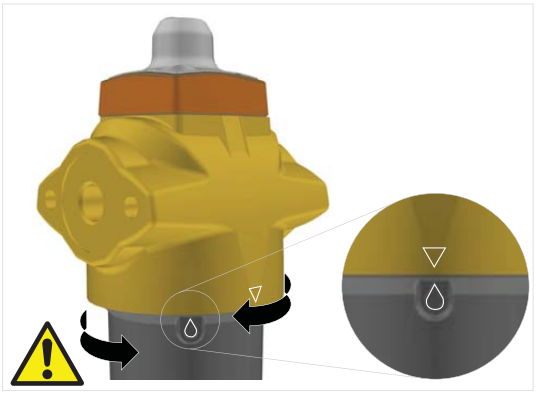
Notă: Pentru a vă asigura că paharul este complet cuplat în capul filetului, paharul 010-030 necesită o rotaţie de 360° până la oprirea filetului, respectiv de 720° pentru paharul 035-045.

(BG) **Процедура по поддръжка 6 (a)**

Поставете обратно филтърните чашка и глава, като се уверите, че резбите са напълно навити и заключващите детайли са подравнени.

Забележка: За да е сигурно, че чашката е добре закрепена в главата, 010-030 чашката изисква завъртане на 360° до застопоряване на резбата и на 720° за 035-045 чашката.





(LT) **7 techninės priežiūros procedūra**

Priklijuokite elemento keitimo datos etiketę prie filtro indo ir užrašykite datą, kada elementas turės būti pakeistas, t. y. 12 mėnesių po elemento keitimo.

Caution **Nevalykite etikečių tirpikliais arba spiritu, nes galite jas sugadinti.**

(RU) **Процедура технического обслуживания 7**

Прикрепите к стакану фильтра табличку с датой замены элемента и впишите в нее дату следующей замены (то есть через 12 месяцев после текущей замены)..

Caution **Не используйте растворители или спиртосодержащие растворы для очистки табличек, так как это может привести к повреждению.**

(SL) **Postopek vzdrževanja – korak 7**

Na posodo filtra prilepite novo nalepko z datumom, ko je treba ponovno zamenjati filtrirni element (čez 12 mesecev).

Caution **Za odstranjevanje nalepk ne uporabljajte alkohola ali čistil, ker lahko poškodujejo posodo filtra.**

(TR) **Bakım Prosedürü 7**

Öğe değiştirme tarihi etiketini filtre haznesine yapıştırın ve öğenin yenisiyle değiştirileceği tarihi yazın, örneğin öğe değişikliğinden 12 ay sonra..

Caution **Zarar verebileceği için, etiketleri temizlemek için çözücü veya alkol kullanmayın.**

(MT) **Proċedura ta' Manutenzjoni 7**

Waħħal it-tikketta tad-data tat-tibdil tal-element mal-bowl tal-filtru u ikteb id-data li fiha għandu jinbidel l-element, jiġifieri 12-il xahar wara li jinbidel l-element.

Caution **Tużax solventi jew alkoħol biex tnaddaf it-tikketti għaliex dan jista' jikkawża ħsara.**

(RO) **Procedură de întreţinere 7**

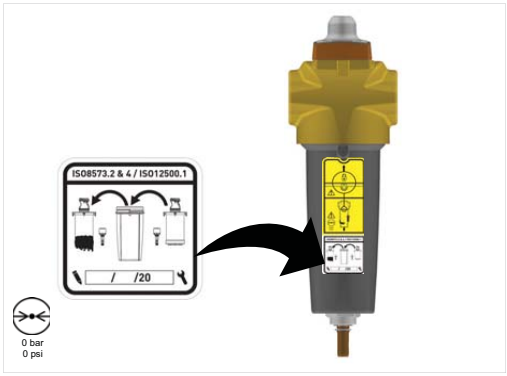
Ataşaţi eticheta cu data de înlocuire a elementului la paharul filtrului şi notaţi pe aceasta data la care elementul trebuie înlocuit, adică după 12 luni de la înlocuirea elementului..

Caution **Nu utilizaţi solvenţi sau alcool pentru curăţarea etichetelor, deoarece puteţi provoca deteriorări.**

(BG) **Процедура по поддръжка 7**

Залепете етикет с датата на смяна на елемента върху филтърната чашка и запишете на него датата, на която трябва да се смени елемента, т.е. 12 месеца след смяната на елемента..

Caution **Не използвайте разтворители или алкохол за почистване на етикетите, тъй като това може да доведе до повреда.**



(LT) **8 techninės priežiūros procedūra**

Lėtai atidarykite įleidimo vožtuvą (1) palaipsniui didindami slėgį įrenginyje, lėtai atidarykite išleidimo vožtuvą (2) paleisdami slėgį į už jo esančius vamzdžius.

Warning

Negalima staigiai atidaryti įleidimo ar išleidimo vožtuvų, paveikti įrenginio pernelyg dideliu diferencialiniu slėgiu, nes gali būti sugadinta įranga.

(RU) **Процедура технического обслуживания 8**

Медленно откройте впускной клапан (1), чтобы постепенно создать давление в приборе, медленно откройте выпускной клапан (2) для сброса давления в трубопроводе ниже по потоку.

Warning

Запрещено резко открывать впускной или выпускной клапаны, а также используемое устройство, так как это может привести к перепаду давления и повреждениям.

(SL) **Postopek vzdrževanja – korak 8**

Počasi odprite dovodni ventil (1), da enoto postopoma obremenite s tlakom, zatem pa počasi odprite še odvodni ventil (2) za ponovno tlačno obremenitev cevovoda za tem ventilom..

Warning

Dovodnih ali odvodnih ventilov nikoli ne odpirajte naglo in enote ne izpostavljajte prekomernim nihanjem tlaka, saj lahko to povzroči škodo.

(TR) **Bakım Prosedürü 8**

Üniteye aşamalı olarak basınç uygulamak için giriş valfini (1) yavaşça açın ve aşağı akım borularına yeniden basınç uygulamak için çıkış valfini (2) yavaşça açın..

Warning

Giriş ve çıkış valflerini hızla açmayın veya üniteyi aşırı basınç farklarına maruz bırakmayın; aksi halde hasar oluşabilir.

(MT) **Proċedura ta' Manutenzjoni 8**

Iftaħ il-valv tad-dħul (1) bil-mod biex terġa' tibni l-pressjoni fl-unità, iftaħ il-valv tal-ħruġ (2) biex terġa' tibni l-pressjoni fil-pajpijiet li jwasslu 'l isfel.

Warning

Ara li ma tiftaħx il-valvs tad-dħul jew tal-ħruġ f'daqqa jew b'xi mod tikkawża differenza eċċessiva fil-pressjoni tat-tagħmir għax tista' tagħmel il-ħsara.

(RO) **Procedură de întreţinere 8**

Deschideţi încet supapa de admisie (1) pentru a presuriza gradat aparatul, deschideţi încet supapa de evacuare (2) pentru a represuriza sistemul de conducte din aval.

Warning

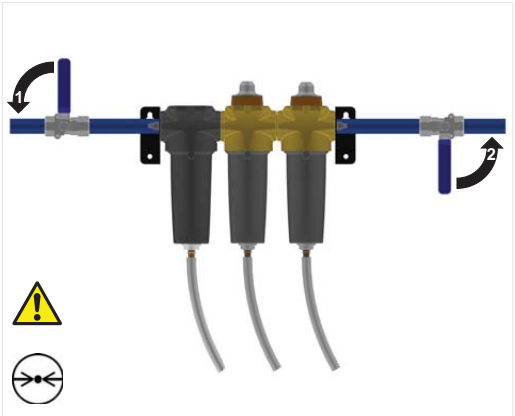
Nu deschideţi rapid supapele de admisie sau de evacuare şi nu supuneţi aparatul la o diferenţă excesivă de presiune; în caz contrar, aparatul poate suferi deteriorări.

(BG) **Процедура по поддръжка 8**

Отворете бавно входния вентил (1), за да пуснете постепенно налягане на уреда, отворете бавно изходния вентил (2), за да премахнете налягането по протежението на тръбите.

Warning

Не отваряйте входния или изходния вентил бързо и не подлагайте уреда на голяма разлика в налягането, тъй като това може да доведе до повреда.



Declaration of Conformity **EN**

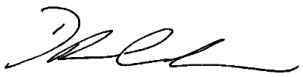
Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters
Oil-X AO/AA/ACS/WS (Size 1-5)

Directives	2014/68/EU
Standards used	Generally in accordance with ASMEVIII Div 1 : 2015 & AS1210
PED Assessment Route :	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D Size 5 Category II according to module B & D
EU Certificate of Conformity	COV0912556/1
Notified body for PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Authorised Representative	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Declaration

I declare that as the authorised representative, the above information in relation to the supply / manufacture of this product, is in conformity with the standards and other related documents following the provisions of the above Directives.

Signature:  **Date**: 21/10/2016

Declaration Number: 00298/211016

Verklaring van Conformiteit **NL**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Richtlijnen 2014/68/EU

Gehanteerde normen Gewoonlijk volgens ASMEVIII Div 1 : 2015 & AS1210.

PED-beoordelingstraject: Size 1-3 Article 4, Paragraph 3 (SEP)
Size 4 Category I according to module B & D
Size 5 Category II according to module B & D

EC Type onderzoekscertificaat: COV0912556/1

Aangemelde instantie voor PED: Lloyds Register Verification
71 Fenchurch St. London
EC3M 4BS

Bevoegde vertegenwoordiger Damian Cook
Divisional Engineering Manager
Parker Hannifin Manufacturing Limited, GSFE

Verklaring

Als bevoegde vertegenwoordiger verklaar ik dat bovenstaande informatie met betrekking tot de levering / vervaardiging van dit product overeenstemt met de normen en andere bijbehorende documentatie volgens de bepalingen van bovengenoemde richtlijnen.

Handtekening: **Datum**: 21/10/2016

Verklaringnummer: 00298/211016

Konformitätserklärung **DE**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Richtlinien 2014/68/EU

Angewandte Normen Allgemein in Übereinstimmung mit ASMEVIII Div 1 : 2015 & AS1210.

Beurteilungsroute der Druckgeräterichtlinie: Size 1-3 Article 4, Paragraph 3 (SEP)
Size 4 Category I according to module B & D

EG-Baumusterprüfbescheinigung: COV0912556/1

Benannte Stelle für die Druckgeräterichtlinie: Lloyds Register Verification
71 Fenchurch St. London
EC3M 4BS

Bevollmächtigter Vertreter Damian Cook
Divisional Engineering Manager
Parker Hannifin Manufacturing Limited, GSFE

Erklärung

Hiermit erkläre ich als bevollmächtigter Vertreter die Konformität der oben aufgeführten Informationen in Bezug auf die Lieferung/Herstellung dieses Produkts mit den Normen und anderen zugehörigen Dokumenten gemäß den Bestimmungen der oben genannten Richtlinien.

Unterschrift: **Datum**: 21/10/2016

Nummer der Erklärung: 00298/211016

Déclaration de conformité **FR**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Directives 2014/68/EU

Normes utilisées Généralement conforme à ASMEVIII div. 1 : 2015 & AS1210.

Méthode d'évaluation de la directive d'équipements de pression : Size 1-3 Article 4, Paragraph 3 (SEP)
Size 4 Category I according to module B & D

Certificat d'examen de type CE : COV0912556/1

Organisme de notification pour la directive d'équipement sous pression : Lloyds Register Verification
71 Fenchurch St. London
EC3M 4BS

Représentant agréé Damian Cook
Divisional Engineering Manager
Parker Hannifin Manufacturing Limited, GSFE

Déclaration

Je déclare à titre de représentant agréé que les informations ci-dessus liées à la fourniture/fabrication de ce produit sont en conformité avec les normes et autres documents liés déclarés selon les dispositions des directives susmentionnées.

Signature : **Date** : 21/10/2016

N° de déclaration : 00298/211016

Vaatimustenmukaisuusvakuutus **FI**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Direktiivit 2014/68/EU

Käytetyt standardit Yleensä seuraavan standardin mukaisesti: ASMEVIII Div 1: 2015 & AS1210.

PED-arviointimenettely: Size 1-3 Article 4, Paragraph 3 (SEP)
Size 4 Category I according to module B & D

EY-tyyppihyväksynnän sertifikaatti: COV0912556/1

PED-säännösten ilmoitettu laitos: Lloyds Register Verification
71 Fenchurch St. London
EC3M 4BS

Valtuutettu edustaja Damian Cook
Divisional Engineering Manager
Parker Hannifin Manufacturing Limited, GSFE

Vakuutus

Valtuutettuna edustajana vakuutan, että yllä olevat tiedot, jotka liittyvät tämän tuotteen toimittamiseen tai valmistamiseen, ovat standardien ja muiden asiaan liittyvien asiakirjojen mukaisia ja noudattavat yllä mainittuja direktiivejä.

Allekirjoitus: **Päiväys**: 21/10/2016

Vakuutuksen numero: 00298/211016

Försäkran om överensstämmelse **SV**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Direktiv	2014/68/EU
Använda standarder	Generellt i enlighet med ASMEVIII Div 1: 2015 & AS1210.
Fastställningsväg för PED:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D
EG-intyg om typprovning:	COV0912556/1
Anmält organ för PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Auktoriserad representant	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Försäkran

Jag försäkrar, i egenskap av auktoriserad representant, att ovannämnda information avseende leverans/tillverkning av denna produkt överensstämmer med standarder och övriga relaterade dokument enligt villkoren i ovanstående direktiv.

Underskrift: **Datum**: 21/10/2016

Försäkran nummer: 00298/211016

Konformitetserklæring **NO**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Direktiver	2014/68/EU
Benyttede standarder	Hovedsakelig i samsvar med ASMEVIII div 1 : 2015 & AS1210.
Rute for vurdering av PED (direktivet for trykkpålagt utstyr):	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D
EC-typegodkjenningssertifikat:	COV0912556/1
Underrettet organ for PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Autorisert representant	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Erklæring

Jeg erklærer som autorisert representant at informasjonen ovenfor med hensyn til levering/produksjon av dette produktet, er i overensstemmelse med standardene og andre relaterte dokumenter ifølge bestemmelsene i direktivene ovenfor.

Signatur: **Dato**: 21/10/2016

Erklæring nr: 00298/211016

Overensstemmelseserklæring **DA**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Direktiver	2014/68/EU
Anvendte standarder	Generelt i overensstemmelse med ASMEVIII div. 1: 2015 & AS1210.
Forløb for PED-bedømmelse:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D
EF-typeafprøvningsattest:	COV0912556/1
Notificeret organ for PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Autoriseret repræsentant	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Erklæring

Jeg erklærer hermed som autoriseret repræsentant, at ovennævnte oplysninger vedrørende levering/produktion af dette produkt er i overensstemmelse med de anførte standarder og øvrige tilknyttede dokumenter i henhold til bestemmelserne i ovenstående direktiver.

Underskrift: **Dato**: 21/10/2016

Erklæringsnummer: 00298/211016

Δήλωση συμμόρφωσης **EL**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Οδηγίες	2014/68/EU
Πρότυπα που χρησιμοποιήθηκαν	Γενικά σε συμφωνία με το ASMEVIII Div 1: 2015 & AS1210.
Διαδρομή αξιολόγησης για κανονισμούς PED:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D
Πιστοποιητικό εξέτασης τύπου ΕΚ:	COV0912556/1
Ενήμερος οργανισμός για κανονισμούς PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Εξουσιοδοτημένος αντιπρόσωπος	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Δήλωση

Δηλώνω ως ο εξουσιοδοτημένος αντιπρόσωπος ότι οι παραπάνω πληροφορίες σε σχέση με τη διάθεση / κατασκευή αυτού του προϊόντος, συμμορφώνονται ως προς τα πρότυπα και ως προς τα άλλα σχετικά έγγραφα που συνοδεύουν τις διατάξεις των πιο πάνω οδηγιών.

Υπογραφή: **Ημερομηνία**: 21/10/2016

Αριθμός δήλωσης: 00298/211016

Declaración de conformidad **ES**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Directivas	2014/68/EU
Normas utilizadas	Generalmente de conformidad con ASMEVIII Div 1: 2015 & AS1210.
Ruta de evaluación de la normativa PED:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D
Certificado de examen CE de tipo:	COV0912556/1
Organismo notificado para la normativa PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Representante autorizado	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Declaración

Como representante autorizado, declaro que la información anteriormente expuesta en relación con el suministro y/o fabricación de este producto cumple las normativas indicadas y otros documentos afines según las disposiciones de las Directivas citadas anteriormente.

Firma: **Fecha**: 21/10/2016

Número de declaración: 00298/211016

Declaração de Conformidade **PT**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Directivas	2014/68/EU
Padrões utilizados	De forma geral em concordância com ASMEVIII Div 1 : 2015 & AS1210.
Percurso de Avaliação do PED:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D
Certificado de Inspecção Tipo CE:	COV0912556/1
Notificado para o PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Revendedor Autorizado	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Declaração

Declaro, na qualidade de representante autorizado, que as informações acima contidas referentes ao fornecimento / fabrico deste produto estão em conformidade com as normas e outros documentos relacionados, de acordo com as disposições das Directivas anteriores.

Assinatura: **Data**: 21/10/2016

Número da Declaração: 00298/211016

Dichiarazione di conformità **IT**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Direttive	2014/68/EU
Norme utilizzate	Generalmente conforme a ASMEVIII Div 1: 2015 & AS1210.
Procedura di valutazione PED:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D
Attestato di certificazione tipo CE:	COV0912556/1
Organismo accreditato per PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Rappresentante autorizzato	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Dichiarazione

In qualità di rappresentante autorizzato dichiaro che le informazioni di cui sopra, in merito alla fornitura/fabbricazione del prodotto in oggetto, sono conformi alle norme indicate e a qualsiasi altro documento correlati alla fornitura basato su quanto prescritto dalle direttive menzionate.

Firma: **Data**: 21/10/2016

Dichiarazione numero: 00298/211016

Deklaracja zgodności **PL**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Dyrektywy	2014/68/EU
Stosowane standardy	Ogólnie zgodny z ASMEVIII dział 1: 2015 & AS1210.
Ścieżka potwierdzania zgodności z PED:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D
Certyfikat badania typu WE:	COV0912556/1
Organ/instytucja powiadamiana na mocy PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Autoryzowany przedstawiciel	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Deklaracja

Oświadczam, jako autoryzowany przedstawiciel, że powyższe informacje dotyczące dostawy / wytworzenia niniejszego produktu są zgodne ze standardami i innymi dokumentami powiązanymi zgodnie z postanowieniami powyższych dyrektyw.

Podpis: **Data**: 21/10/2016

Numer deklaracji: 00298/211016

Vyhlásenie o zhode **SK**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Smernice	2014/68/EU
Použité normy	Vo všeobecnosti v zhode s ASMEVIII oddiel 1 : 2015 & AS1210
Spôsob posudzovania podľa smernice PED	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D
Osvedčenie typovej skúšky ES	COV0912556/1
Oboznámený orgán podľa smernice PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Splnomocnený zástupca	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Vyhlásenie

Ako splnomocnený zástupca vyhlasujem, že informácie uvedené vyššie, sú v súvislosti s dodávkou / výrobou tohto výrobku v zhode s normami a inými súvisiacimi dokumentmi podľa ustanovení uvedených smerníc.

Podpis: **Dátum** 21/10/2016

Číslo vyhlásenia: 00298/211016

Prohlášení o shodě **CS**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Směrnice	2014/68/EU
Použité normy	Obecně v souladu ASMEVIII Div 1 : 2015 & AS1210.
Metoda stanovení shody pro tlaková zařízení (PED):	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D
Osvědčení o zkoušce typu ES:	COV0912556/1
Notifikovaný orgán pro PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Oprávněný zástupce	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Prohlášení

Jako oprávněný zástupce prohlašuji, že výše uvedené informace týkající se dodávky /výroby tohoto produktu jsou v souladu s normami a jinými souvisejícími dokumenty vyplývajícími z ustanovení výše uvedených směrnic.

Podpis: **Datum**: 21/10/2016

Číslo prohlášení: 00298/211016

Vastavusdeklaratsioon **ET**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Direktiivid	2014/68/EU
Kasutatud standardid	Üldiselt vastavuses standardiga ASMEVIII Div 1: 2015 & AS1210.
PED-vastavushinnangu jaotus:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D
EÜ tüübihindamistõend:	COV0912556/1
PEDist (surveseadmete direktiivist) teavitatud asutus:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Volitatud esindaja	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Deklaratsioon

Volitatud esindajana kinnitan, et ülaltoodud teave seoses antud toote tarnimise/tootmisega on vastavuses standardite ja muude seotud dokumentidega vastavalt ülaltoodud direktiivide sätetele.

Allkiri: **Kuupäev**: 21/10/2016

Deklaratsiooni number: 00298/211016

Megfelelőségi nyilatkozat **HU**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Direktívák	2014/68/EU
Alkalmazott szabványok:	Általánosan a következő alapján: ASMEVIII Div 1 : 2015 & AS1210.
PED értékelési irányvonal	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D
EC típusvizsgálati bizonyítvány:	COV0912556/1
PED-del kapcsolatban értesített testület:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Hivatalos képviselő	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Nyilatkozat

Hivatalos képviselőként kijelentem, hogy a termék szállításával / gyártásával kapcsolatos fent olvasható információk megfelelnek a fenti Direktívák előírásai szerinti szabványoknak és egyéb kapcsolódó dokumentumoknak.

Aláírás: **Dátum**: 21/10/2016

Nyilatkozat száma: 00298/211016

Atbilstības deklarācija **LV**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Direktīvas	2014/68/EU
Izmantotie standarti	Parasti saskaņa ar ASMEVIII Div 1 : 2015 & AS1210.
PED novērtējums :	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D
EK sastādīts Eksaminācijas sertifikāts:	COV0912556/1
Par PED informētā organizācija	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Pilnvarotais pārstāvis	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Deklarācija

Es kā pilnvarots pārstāvis ar šo paziņoju, ka iepriekšminētā informācija, kas attiecas uz šī produkta piegādi / ražošanu, atbilst standartiem un citiem atbilstošiem dokumentiem saskaņā ar iepriekšminētajām Direktīvām.

Paraksts: **Datums**: 21/10/2016

Deklarācijas numurs: 00298/211016

Atitikties deklaracija **LT**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Direktyvos	2014/68/EU
Naudoti standartai	Atitinka bendrąsias ASMEVIII Div 1 : 2015 & AS1210 nuostatas
PED įvertinimo pakopa:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D
EB tipo testavimo sertifikatas:	COV0912556/1
PED notifikuotoji institucija:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Įgaliotasis atstovas	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Deklaracija

Aš, įgaliotasis atstovas, patvirtinu, kad aukščiau pateikta gaminio tiekimo/pagaminimo informacija atitinka aukščiau nurodytus standartus ir kitą su nurodytų direktyvų nuostatomis susijusią dokumentaciją.

Parašas: **Data**: 21/10/2016

Deklaracijos numeris: 00298/211016

Декларация соответствия **RU**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Требования	2014/68/EU
Применяемые стандарты	В большинстве случаев обеспечивается соответствие стандарту ASMEVIII, Раздел 1: 2015 & AS1210.
Система обеспечения качества PED:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D
Сертификат ЕС на проведение типовых испытаний:	COV0912556/1
Уполномоченный орган для PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Уполномоченный представитель	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Декларация

Как уполномоченный представитель, я заявляю, что приведенная выше информация относительно поставки/производства данного продукта соответствует стандартам, другим связанным документам и положениям указанных выше требований.

Подпись: **Дата**: 21/10/2016

Номер декларации: 00298/211016

Izjava o skladnosti **SL**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Direktive	2014/68/EU
Uporabljeni standardi	Splošno skladno z ASMEVIII Div 1: 2015 & AS1210.
Ocenjevalna pot PED:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D
Certifikat o tipskem pregledu ES	COV0912556/1
Priglašeni organ za PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Pooblaščeni zastopnik	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Izjava

Kot pooblaščeni zastopnik izjavljam, da so zgornji podatki glede dobave/proizvodnje tega izdelka skladni s standardi in ostalimi sorodnimi dokumenti, ki sledijo določbam zgornjih direktiv.

Podpis: **Datum**: 21/10/2016

Številka izjave: 00298/211016

Uyum Beyanı **TR**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-3)

Direktifler	2014/68/EU
Kullanılan standartlar	Genelde ASMEVIII Div 1 : 2015 & AS1210'e uygun.
PED (Basınçlı Ekipman Direktifi)	Size 1-3 Article 4, Paragraph 3 (SEP)
Değerlendirmesi Yolu:	Size 4 Category I according to module B & D
AT Tip İncelemesi Sertifikası:	COV0912556/1
PED için bildirimde bulunulan kuruluş:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Yetkili Temsilci	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Beyan

Yetkili temsilci olarak beyan ederim ki bu ürünün teminine / üretimine ilişkin olarak yukarıda verilen bilgiler yukarıda anılan Direktiflerin hükümlerine uyan standartlara ve ilgili başka belgelere uygundur.

İmza: **Tarih**: 21/10/2016

Beyan No: 00298/211016

Dikjarazzjoni tal-Konformità **MT**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Direttivi	2014/68/EU
Standards użati	Ġeneralment f'konformità ma' ASMEVIII Div 1 : 2015 & AS1210.
Rotta ta' l-Assessjar tal-PED:	Size 1-3 Article 4, Paragraph 3 (SEP)
	Size 4 Category I according to module B & D
Ċertifikat tal-KE ta' l-eżaminazzjoni tat-Tip:	COV0912556/1
Korp notifikat għall-PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Rappreżentant Awtorizzat	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Dikjarazzjoni

Niddikjara li bħala r-rappreżentant awtorizzat, l-informazzjoni ta' hawn fuq, f'dak li għandu x'jaqsam mal-forniment/manifattura ta' dan il-prodott, hija f'konformità ma' l-istandards u d-dokumenti l-oħra relatati li jsegwu d-dispożizzjonijiet tad-Direttivi msemmija hawn fuq.

Firma: **Data**: 21/10/2016

Numru tad-Dikjarazzjoni: 00298/211016

Декларация за съответствие **BU**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Директиви	2014/68/EU
Използвани стандарти	Ġeneralment f'konformità ma' ASMEVIII Div 1 : 2015 & AS1210.
Начин на оценка от PED :	Size 1-3 Article 4, Paragraph 3 (SEP)
	Size 4 Category I according to module B & D
Сертификат за ЕС типово изпитване:	COV0912556/1
Нотифициращ орган за PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Упълномощен представител	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Декларация

Декларирам като упълномощен представител, че горната информация относно доставката / производството на този продукт е в съответствие със стандартите и други свързани документи следващи разпоредбите на горепосочените директиви.

Подпис: **Дата:** 21/10/2016

Номер на декларацията: 00298/211016

Declaraţia de conformitate **RO**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters

Oil-X AO/AA/ACS/WS (Size 1-5)

Directive	2014/68/EU
Standardele folosite	Ġeneralment f'konformità ma' ASMEVIII Div 1 : 2015 & AS1210.
Cale de evaluare PED:	Size 1-3 Article 4, Paragraph 3 (SEP)
	Size 4 Category I according to module B & D
Certificat de examinare EC de tip:	COV0912556/1
Agenţia notificată pentru PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Reprezentant autorizat	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE

Declaraţie

Declar, în calitate de reprezentant autorizat, faptul că informaţia de mai sus referitoare la livrarea / fabricarea acestui produs este în conformitate cu standardele şi alte documente asociate care urmăresc prevederile directivelor de mai sus.

Semnătura: **Data:** 21/10/2016

Numărul declaraţiei:00298/211016

Parker Worldwide

AE – UAE, Dubai
Tel: +971 4 8127100
parker.me@parker.com

AR – Argentina, Buenos Aires
Tel: +54 3327 44 4129

AT – Austria, Wiener Neustadt
Tel: +43 (0)2622 23501-0
parker.austria@parker.com

AT – Eastern Europe,
Wiener Neustadt
Tel: +43 (0)2622 23501 900
parker.easteurope@parker.com

AU – Australia, Castle Hill
Tel: +61 (0)2-9634 7777

AZ – Azerbaijan, Baku
Tel: +994 50 2233 458
parker.azerbaijan@parker.com

BE/LU – Belgium, Nivelles
Tel: +32 (0)67 280 900
parker.belgium@parker.com

BR – Brazil, Cachoeirinha RS
Tel: +55 51 3470 9144

BY – Belarus, Minsk
Tel: +375 17 209 9399
parker.belarus@parker.com

CA – Canada, Milton, Ontario
Tel: +1 905 693 3000

CH – Switzerland, Etoy
Tel: +41 (0)21 821 87 00
parker.switzerland@parker.com

CL – Chile, Santiago
Tel: +56 2 623 1216

CN – China, Shanghai
Tel: +86 21 2899 5000

CZ – Czech Republic, Klecany
Tel: +420 284 083 111
parker.czechrepublic@parker.com

DE – Germany, Kaarst
Tel: +49 (0)2131 4016 0
parker.germany@parker.com

DK – Denmark, Ballerup
Tel: +45 43 56 04 00
parker.denmark@parker.com

ES – Spain, Madrid
Tel: +34 902 330 001
parker.spain@parker.com

FI – Finland, Vantaa
Tel: +358 (0)20 753 2500
parker.finland@parker.com

FR – France, Contamine s/Arve
Tel: +33 (0)4 50 25 80 25
parker.france@parker.com

GR – Greece, Athens
Tel: +30 210 933 6450
parker.greece@parker.com

HK – Hong Kong
Tel: +852 2428 8008

HU – Hungary, Budapest
Tel: +36 1 220 4155
parker.hungary@parker.com

IE – Ireland, Dublin
Tel: +353 (0)1 466 6370
parker.ireland@parker.com

IN – India, Mumbai
Tel: +91 22 6513 7081-85

IT – Italy, Corsico (MI)
Tel: +39 02 45 19 21
parker.italy@parker.com

JP – Japan, Tokyo
Tel: +81 (0)3 6408 3901

KR – South Korea, Seoul
Tel: +82 2 559 0400

KZ – Kazakhstan, Almaty
Tel: +7 7272 505 800
parker.easteurope@parker.com

LV – Latvia, Riga
Tel: +371 6 745 2601
parker.latvia@parker.com

MX – Mexico, Apodaca
Tel: +52 81 8156 6000

MY – Malaysia, Shah Alam
Tel: +60 3 7849 0800

NL – The Netherlands,
Oldenzaal
Tel: +31 (0)541 585 000
parker.nl@parker.com

NO – Norway, Asker
Tel: +47 66 75 34 00
parker.norway@parker.com

NZ – New Zealand, Mt Wellington
Tel: +64 9 574 1744

PL – Poland, Warsaw
Tel: +48 (0)22 573 24 00
parker.poland@parker.com

PT – Portugal, Leca da Palmeira
Tel: +351 22 999 7360
parker.portugal@parker.com

RO – Romania, Bucharest
Tel: +40 21 252 1382
parker.romania@parker.com

RU – Russia, Moscow
Tel: +7 495 645-2156
parker.russia@parker.com

SE – Sweden, Spånga
Tel: +46 (0)8 59 79 50 00
parker.sweden@parker.com

SG – Singapore
Tel: +65 6887 6300

SK – Slovakia, Banská Bystrica
Tel: +421 484 162 252
parker.slovakia@parker.com

SL – Slovenia, Novo Mesto
Tel: +386 7 337 6650
parker.slovenia@parker.com

TH – Thailand, Bangkok
Tel: +662 717 8140

TR – Turkey, Istanbul
Tel: +90 216 4997081
parker.turkey@parker.com

TW – Taiwan, Taipei
Tel: +886 2 2298 8987

UA – Ukraine, Kiev
Tel +380 44 494 2731
parker.ukraine@parker.com

UK – United Kingdom,
Warwick
Tel: +44 (0)1926 317 878
parker.uk@parker.com

US – USA, Cleveland
Tel: +1 216 896 3000

VE – Venezuela, Caracas
Tel: +58 212 238 5422

ZA – South Africa,
Kempton Park
Tel: +27 (0)11 961 0700
parker.southafrica@parker.com

European Product Information Centre
Free phone: 00 800 27 27 5374
(from AT, BE, CH, CZ, DE, EE, ES, FI, FR, IE, IL, IS, IT, LU, MT, NL, NO, PT, SE, SK, UK)

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01/17 Rev: -

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Parker Hannifin Manufacturing Limited
Gas Separation and Filtration Division EMEA
Dukesway, Team Valley Trading Est
Gateshead, Tyne and Wear
England NE11 0PZ
Tel: +44 (0) 191 402 9000
Fax: +44 (0) 191 482 6296
www.parker.com/dhi

13.7 Option ga
Service tasks - Generator

In order to ensure a safe operation of the machine, the generator must be inspected once every year by a trained and authorised electrician.

Have the following tasks performed by a specialist electrician or the KAESER SERVICE:

- Inspect the generator and generator control cubicle for mechanical damages.
- Inspect the protective conductor.
- Measure the dielectric resistance.
- Measure the substitute leakage current.
- Test the generator functionality.
- Test the proper functioning of the generator fan and clean, if required.
- Clean the cooling air openings.
- Check and tighten the screw connections at the generator and the generator control cubicle.
- Check covers and power socket caps for damage and good sealing.
- Check the completeness of labeling and warning labels.