KAESER KOMPRESSOREN®

# Rotary Screw Compressors

**ASK Series**

With the world-renowned SIGMA PROFILE

Flow rate 0.79 to 4.65 m³/min, Pressure 5.5 to 15 bar

**www.kaeser.com**

# ASK – Maximum performance

Today's users expect maximum availability and efficiency from their compressors, regardless of size. It's therefore no surprise that our ASK series rotary screw compressors meet these expectations in full – they not only generate more compressed air for less energy, but also leave nothing to be desired when it comes to versatility, user-friendliness, ease of maintenance, and environmentally sustainable design.

## More compressed air for your money

ASK series rotary screw compressors are true class leaders when it comes to performance. Thanks to a redeveloped airend featuring further-optimised SIGMA PROFILE rotors and low speed operation, the latest ASK models deliver up to 16% higher flow rates in comparison to their predecessors.

## Energy-saving performance

The efficiency of a machine depends on the total costs incurred throughout its entire service life. KAESER therefore designed its ASK models with maximum energy efficiency in mind. Optimisation of the rotary screw airend with its energy-saving SIGMA PROFILE, combined with the use of Premium Efficiency (IE3) motors, the SIGMA CONTROL controller, and KAESER's intelligently designed cooling system, have enhanced energy-saving operation still further.

## Intelligent design

ASK models impress with their intelligent, user-focused design. The housing doors can be opened in a few simple steps to allow excellent visibility of the system's intelligently laid-out components, whilst all maintenance points are easily accessible. When closed, the sound-insulated housing panels reduce operating noise to a minimum, ensuring a comfortable working environment. Moreover, with its two intake openings, the enclosure provides separate air flows for highly effective cooling of the compressor system and drive motor. Thanks to their compact design, ASK series compressors are the perfect choice for applications where space is at a premium.

Up to
96 %
usable for heating

## Why choose heat recovery?

In fact, the question should be: Why not? Ultimately, as much as 100% of the electrical drive energy supplied to every rotary screw compressor is converted into heat. Up to 96% of this energy can be recovered and reused for heating purposes. This not only reduces primary energy consumption, but also improves the company's overall energy balance.



# Powerful and service-friendly

Made in Germany

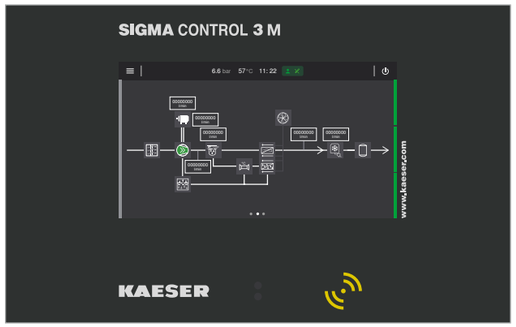
ASK 34 shown in image

ASK series

# Quality is in the details

## Save energy with the SIGMA PROFILE

At the heart of every ASK system lies a premium-quality rotary screw airend featuring the energy-saving SIGMA PROFILE. KAESER airends are equipped with flow-optimised rotors, which contribute significantly to the overall system's class-leading specific package input power.

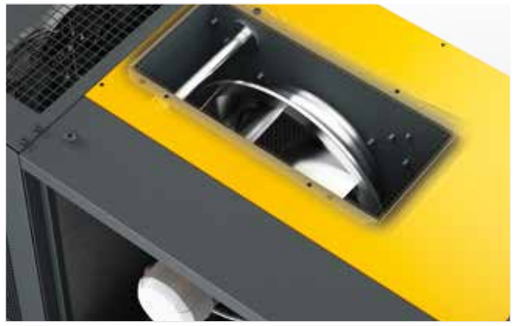



## SIGMA CONTROL controller

Comprehensive overview of components and assemblies – including live values in real time. Intuitive icons show current system health status. Detailed views and settings options open at the click of a button. Clear visibility of the air, oil, cooling water and heat recovery circuits guarantees a pinpoint overview and optimal control.

## IE3 – Energy-saving motors

Naturally, every KAESER ASK series rotary screw compressor features a highly efficient, energy-saving Premium Efficiency IE3 drive motor.

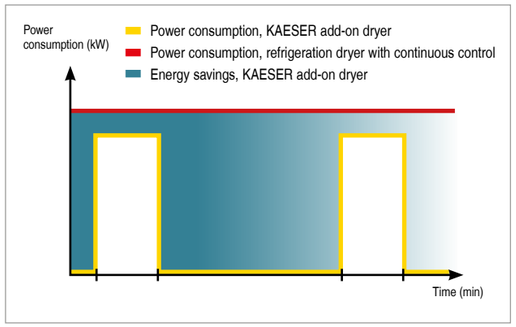


## Energy-saving radial fan

Driven by an independent motor, the radial fan assures low compressed air discharge temperatures and provides greater cooling performance for lower energy consumption. Needless to say, it also complies with the efficiency requirements of EU Directive 327/2011.

ASK T series

# With energy-efficient add-on dryer




## Energy-saving control

The integrated refrigeration dryer in ASK T systems is highly efficient thanks to its energy-saving control, whereby it is only activated when compressed air actually needs to be dried. As a result, application-specific compressed air quality is achieved with maximum cost efficiency.

## Efficient refrigeration dryer

With its efficient rotary piston compressor and corrosion-resistant aluminium heat exchanger, the add-on refrigeration dryer for ASK systems was designed with absolute energy efficiency in mind.

## Refrigeration dryer with ECO-DRAIN

The refrigeration dryer is equipped with an ECO-DRAIN. This electronic, level-controlled condensate drain eliminates the compressed air losses associated with solenoid valves, thereby saving energy and considerably enhancing operational reliability.

## Exceptional compressed air quality

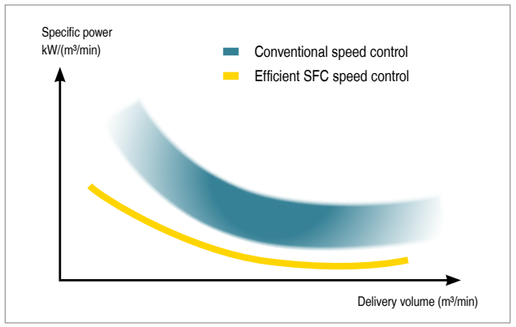
Because the compressor and dryer are thermally shielded from one another, the dryer remains unaffected by heat from the compressor, which means that it can operate at peak performance at all times to provide optimum-quality, dried compressed air.

ASK 34 T shown in image

ASK 34 SFC shown in image

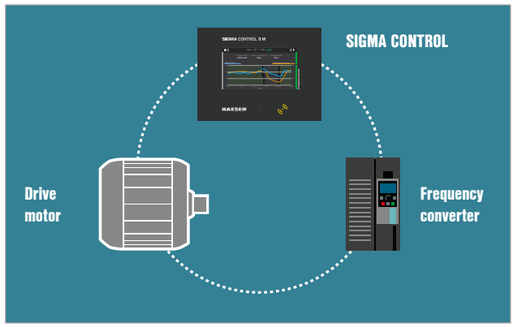
ASK (T) SFC series

# Quality is in the details




## Optimised specific package input power

With any compressed air station, it is the speed-controlled compressor that operates for longer than any other unit in the system. ASK SFC models are therefore designed to provide maximum efficiency whilst avoiding extreme speeds. This saves energy, prolongs service life, and enhances reliability.




## SIGMA CONTROL: Optimum efficiency

The combination of a perfectly matched frequency converter, drive motor and controller enables a high degree of efficiency across a broad operating range, and also serves to minimise machine vibrations. Moreover, the thermally optimised control cabinet makes operation in ambient temperatures up to +45 °C a walk in the park.

## Integrated SFC control cabinet

Housed in its own integrated yet insulated control cabinet, the SFC frequency converter is shielded from compressor heat. A separate fan maintains operating temperatures in the optimum range, ensuring maximum performance and service life.

## EMC-certified complete system

Like all KAESER products, ASK (T) SFC series systems are compliant with the European EMC Directive (Electromagnetic Compatibility), as well as with the German EMC Act, as indicated by the VDE EMC quality mark.

# Drive systems

## Fixed speed, fixed flow rate

### ASK base load

Base load compressors from KAESER are designed to run at one optimal operating speed. Operating at maximum efficiency, they deliver a constant air volume at a fixed motor speed, making them ideally suited to applications with a constant or lightly fluctuating air demand.

### Committed to meeting your objectives

ASK base load compressors stand out for their functional, durable drive technology and supreme levels of efficiency.

## Variable speed, variable flow rate

### ASK peak load

Maximum flexibility and sustainability: thanks to their variable-speed drive motors, ASK peak load compressors from KAESER always deliver the exact volume of compressed air that is actually required. This makes them particularly efficient in applications with variable air demand.

### Committed to meeting your objectives

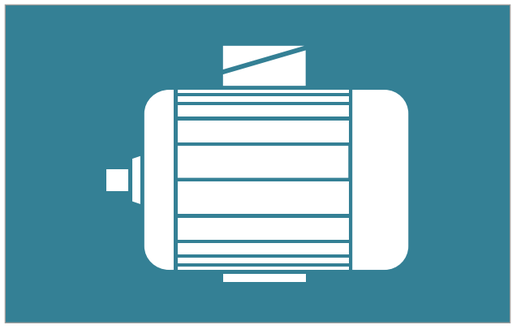
Peak load compressors stand out with their exceptional flexibility when it comes to delivery volumes, guaranteeing impressive efficiency across the entire delivery range.

### PREMIUM EFFICIENCY IE3

When it comes to base load compressors, IE3 Premium Efficiency asynchronous motors guarantee best possible efficiency thanks to their well-proven, durable technology and renowned service-friendliness.

### Perfect teamwork

IE3 motors guarantee energy-efficient operation whilst at the same time fulfilling European efficiency requirements. Thanks to SFC technology, speed is precisely adjusted according to compressed air requirement, thereby reducing idling times and energy costs.



### Sustainable and service-friendly

The IE3 asynchronous motors fitted by KAESER are designed to conserve resources. High-quality electrical steel and optimised windings reduce material use and enhance efficiency. This makes the drive not only highly durable, but also service-friendly.

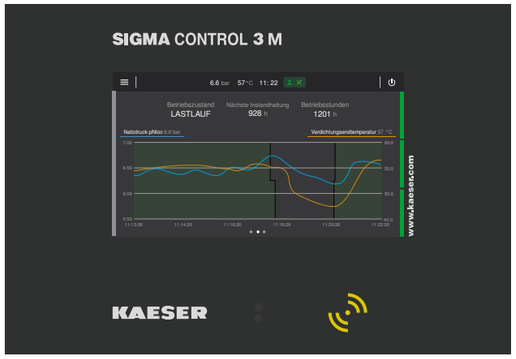
### Efficient and economical

Premium Efficiency motors deliver high efficiency levels throughout their entire speed range. This helps to save energy and therefore costs, even during partial load operation.

SIGMA CONTROL internal compressor controller

# SIGMA CONTROL

Intelligent, future-oriented, and efficient – the integrated SIGMA CONTROL compressor controller represents the future of cutting-edge compressed air systems. With its innovative platform concept for hardware and software, KAESER has set new standards in control of stationary compressors. The SIGMA CONTROL not only increases energy efficiency, but also enhances reliability and simplifies operation, whilst the touch display places intuitive control right at your fingertips. Clear visualisation ensures a constant optimal overview of machine states, operating data and maintenance information. Rapid navigation provides direct access to principal functions, without time-consuming scrolling or searching.



## Maximum control with KAESER Connect

With our KAESER Connect app, you always have an eye on your compressor. All values are displayed in real time, allowing you to remain continuously informed about the current status of your compressed air system. Push notifications keep you up to speed with developments: important updates, KPIs, maintenance counter information, and machine states are delivered directly to your mobile end device. The machine report provides even more transparency and can be sent quickly and easily to your smartphone or E-mail. This way, you can monitor your compressed air system efficiently, conveniently and with maximum security – wherever you may be.

## Future-proof

Modular system architecture with universal, configurable IoT interfaces enables flexible adaptation to new requirements and technologies.

## Higher efficiency

Intelligent control helps to significantly reduce the energy consumption of your compressed air system.

## Maximum dependability

Smart maintenance planning, early detection of deviations during operation, and detailed status messaging ensure reliable and interruption-free function.

## Comprehensive compatibility

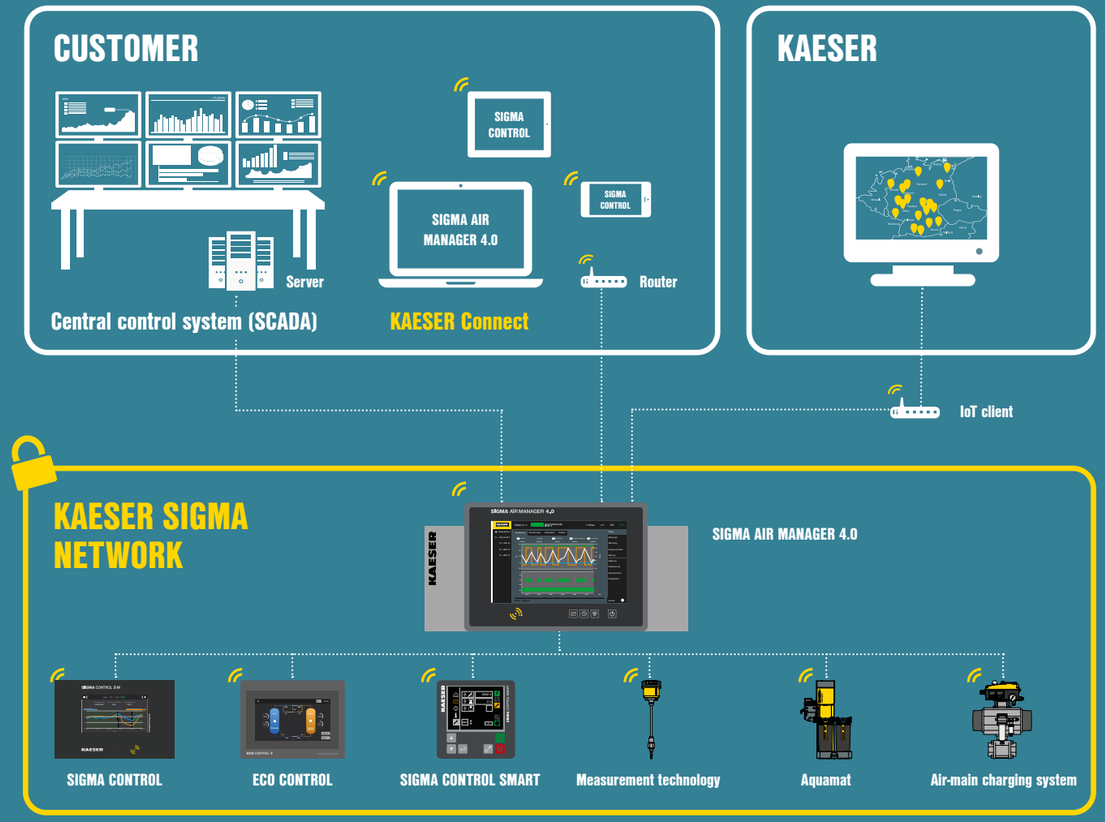
Compatible with all KAESER compressors, whether current or previous models.



SIGMA AIR MANAGER 4.0 compressed air management system

# SIGMA AIR MANAGER 4.0

Adaptive, efficient and networked: demand-oriented compressed air management takes on a whole new meaning with the SIGMA AIR MANAGER 4.0. This advanced master controller coordinates operation of multiple compressors, as well as dryers or filters, with exceptional efficiency. A patented, simulation-based optimisation process determines future demand based on past compressed air consumption profiles. Thanks to networking of all components in the compressed air station via this intelligent master controller and the secure KAESER SIGMA NETWORK, comprehensive monitoring, energy management and predictive maintenance are all possible.



KAESER
ASK 34
SIGMA

# Equipment

### Complete system

Operation-ready, fully automatic, super-silenced, vibration damped, all panels powder coated, suitable for use in ambient temperatures up to +45 °C

### Sound insulation

Panels lined with laminated mineral wool

### Vibration damping

Double-insulated anti-vibration mounts with metal elements

### Airend

Genuine KAESER single-stage rotary screw airend with the energy-saving SIGMA PROFILE and cooling fluid injection for optimal cooling

### Drive

V-belt drive with automatic belt tensioning

### Electric motor

Premium Efficiency IE3 electric motor, quality German manufacture, IP55 protection rating, ISO F for additional reserve

### Electrical components

IP54 control cabinet, control transformer, Siemens frequency converter, floating contacts for ventilation systems

### Cooling fluid and air circuit

Dry air filter, pneumatic inlet and venting valves, cooling fluid reservoir with three-stage separator system, safety valve, minimum pressure check valve, thermostatic valve and microfilter in cooling fluid circuit, all fully piped with flexible couplings

### Cooling

Air-cooled, separate aluminium cooler for compressed air and cooling fluid, radial fan meets fan efficiency requirements as per EU Directive 327/2011

### Refrigeration dryer

CFC-free, R-513A refrigerant, fully insulated, hermetically sealed refrigerant circuit, rotary piston refrigerant compressor with energy-saving shutdown function, hot gas bypass control, electronic level-controlled condensate drain

### Heat recovery (HR)

Optionally available with integrated HR system (plate-type heat exchanger)

### SIGMA CONTROL

Modular system with control unit and integrated inputs/outputs, designed for use with KAESER rotary screw compressors, traffic-light operating state display, fully automatic monitoring and control; Dual, Quadro, and Vario control modes, timer for compressor functions (On, Off) or external outputs, base load sequencing function for operation of two compressors, high-performance processor hardware; all components designed for industrial conditions, capacitive touchscreen with optical bonding, Time-of-Flight and other internal sensors, SD card slot for updates, USS bus communications module adapter for frequency converter, RFID reader, Ethernet interface for connection to SIGMA NETWORK.

Connection to control technology available via optional communications modules for: Profibus DP, Modbus TCP, Profinet, and DeviceNet.



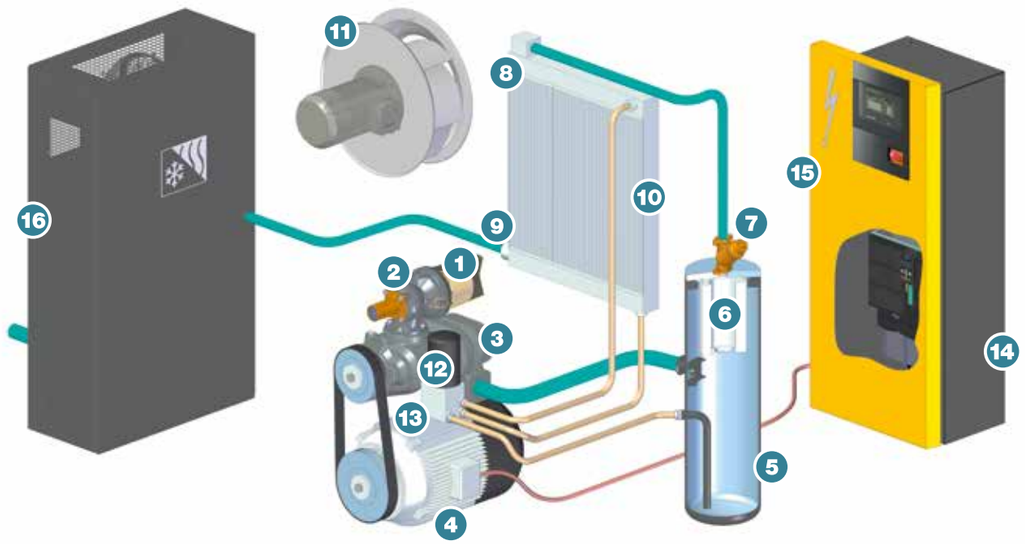
# How it works

The air for compression passes through the intake filter (1) and the inlet valve (2) into the SIGMA PROFILE airend (3). The airend (3) is driven by a high-efficiency electric motor (4). The cooling oil injected for cooling purposes during the compression process is separated from the air inside the fluid separator tank (5). The compressed air flows through the 2-stage oil separator cartridge (6) and the minimum pressure check valve (7) into the compressed air aftercooler (8).

The compressed air then exits the system through the compressed air connection (9). The heat generated during the compression process is removed from the cooling oil via the fluid cooler (10) and dissipated into the environment by a separate fan with fan motor (11). The cooling oil is then cleaned by the fluid filter (12).

The thermostatic valve (13) ensures constant operating temperatures. The control cabinet (14) houses the internal SIGMA CONTROL compressor controller (15) and, depending on the compressor version, the star-delta starter or frequency converter (SFC). An optional add-on dryer (16) is available for drying the compressed air.

(1) Intake filter
(2) Inlet valve
(3) Airend
(4) Drive motor
(5) Fluid separator tank
(6) Oil separator cartridge
(7) Minimum pressure check valve
(8) Compressed air aftercooler
(9) Compressed air connection
(10) Fluid cooler
(11) Fan with motor
(12) Fluid filter
(13) Thermostatic valve
(14) Control cabinet
(15) SIGMA CONTROL
(16) Add-on dryer



# Technical data

## Standard versions

| Model | Working pressure bar | Flow rate, *) complete system at working pressure m³/min | Max. gauge pressure bar | Drive motor nominal power kW | Dimensions W x D x H mm | Compressed air connection | Sound pressure level **) dB(A) | Weight kg |
|---|---|---|---|---|---|---|---|---|
| **ASK 28** | 6 | 3.17 | 6 | 15 | 800 x 1110 x 1530 | G 1 ¼ | 65 | 485 |
| | 7.5 | 2.86 | 8 | | | | | |
| | 10 | 2.40 | 11 | | | | | |
| | 13 | 1.93 | 15 | | | | | |
| **ASK 34** | 6 | 3.87 | 6 | 18.5 | 800 x 1110 x 1530 | G 1 ¼ | 67 | 505 |
| | 7.5 | 3.51 | 8 | | | | | |
| | 10 | 3.00 | 11 | | | | | |
| | 13 | 2.50 | 15 | | | | | |
| **ASK 40** | 6 | 4.45 | 6 | 22 | 800 x 1110 x 1530 | G 1 ¼ | 69 | 525 |
| | 7.5 | 4.06 | 8 | | | | | |
| | 10 | 3.52 | 11 | | | | | |
| | 13 | 2.94 | 15 | | | | | |

## SFC versions with variable speed control

| Model | Working pressure bar | Flow rate, *) complete system at working pressure m³/min | Max. gauge pressure bar | Drive motor nominal power kW | Dimensions W x D x H mm | Compressed air connection | Sound pressure level **) dB(A) | Weight kg |
|---|---|---|---|---|---|---|---|---|
| **ASK 34 SFC** | 7.5 | 0.94 - 3.60 | 8 | 18.5 | 800 x 1110 x 1530 | G 1 ¼ | 68 | 530 |
| | 10 | 0.80 - 3.14 | 11 | | | | | |
| | 13 | 0.88 - 2.70 | 15 | | | | | |
| **ASK 40 SFC** | 7.5 | 0.94 - 4.19 | 8 | 22 | 800 x 1110 x 1530 | G 1 ¼ | 70 | 550 |
| | 10 | 0.80 - 3.71 | 11 | | | | | |
| | 13 | 0.88 - 3.17 | 15 | | | | | |

*) Flow rate, complete system as per ISO 1217: 2009, Annexe C/E: Absolute inlet pressure 1 bar(a), cooling and air inlet temperature +20 °C
**) Sound pressure level as per ISO 2151 and basic standard ISO 9614-2, tolerance: ± 3 dB (A)

## T versions with integrated refrigeration dryer (refrigerant R-513A)

| Model | Working pressure bar | Flow rate, *) complete system at working pressure m³/min | Max. gauge pressure bar | Drive motor nominal power kW | Refrigeration dryer model | Dimensions W x D x H mm | Compressed air connection | Sound pressure level **) dB(A) | Weight kg |
|---|---|---|---|---|---|---|---|---|---|
| **ASK 28 T** | 6 | 3.17 | 6 | 15 | ABT 40 | 800 x 1460 x 1530 | G 1 ¼ | 65 | 580 |
| | 7.5 | 2.86 | 8 | | | | | | |
| | 10 | 2.40 | 11 | | | | | | |
| | 13 | 1.93 | 15 | | | | | | |
| **ASK 34 T** | 6 | 3.87 | 6 | 18.5 | ABT 40 | 800 x 1460 x 1530 | G 1 ¼ | 67 | 600 |
| | 7.5 | 3.51 | 8.0 | | | | | | |
| | 10 | 3.00 | 11 | | | | | | |
| | 13 | 2.50 | 15 | | | | | | |
| **ASK 40 T** | 6 | 4.45 | 6 | 22 | ABT 40 | 800 x 1460 x 1530 | G 1 ¼ | 69 | 620 |
| | 7.5 | 4.06 | 8 | | | | | | |
| | 10 | 3.52 | 11 | | | | | | |
| | 13 | 2.94 | 15 | | | | | | |

## T SFC versions with variable speed control and integrated refrigeration dryer

| Model | Working pressure bar | Flow rate, *) complete system at working pressure m³/min | Max. gauge pressure bar | Drive motor nominal power kW | Refrigeration dryer model | Dimensions W x D x H mm | Compressed air connection | Sound pressure level **) dB(A) | Weight kg |
|---|---|---|---|---|---|---|---|---|---|
| **ASK 34 T SFC** | 7.5 | 0.94 - 3.60 | 8 | 18.5 | ABT 40 | 800 x 1460 x 1530 | G 1 ¼ | 68 | 625 |
| | 10 | 0.80 - 3.14 | 11 | | | | | | |
| | 13 | 0.88 - 2.70 | 15 | | | | | | |
| **ASK 40 T SFC** | 7.5 | 0.94 - 4.19 | 8 | 22 | ABT 40 | 800 x 1460 x 1530 | G 1 ¼ | 70 | 645 |
| | 10 | 0.80 - 3.71 | 11 | | | | | | |
| | 13 | 0.88 - 3.17 | 15 | | | | | | |

## Technical data for add-on refrigeration dryer

| Model | Refrigeration dryer power consumption kW | Pressure dew point °C | Refrigerant | Refrigerant charge kg | Global warming potential GWP | $CO_2$ equivalent t | Hermetic refrigeration circuit |
|---|---|---|---|---|---|---|---|
| **ABT 40** | 0.60 | +3 | R-513A | 0.57 | 629 | 0.36 | – |

## More compressed air for less energy

# The world is our home

As one of the world's largest manufacturers of compressors, blowers and compressed air systems, KAESER KOMPRESSOREN is represented throughout the world by a comprehensive network of wholly owned subsidiaries and authorised distribution partners in over 140 countries.

By offering innovative, efficient and reliable products and services, KAESER KOMPRESSOREN's experienced consultants and engineers work in close partnership with customers to enhance their competitive edge and to develop progressive system concepts that continuously push the boundaries of performance and technology. Moreover, decades of knowledge and expertise from this industry-leading systems provider are made available to each and every customer via the KAESER group's advanced global IT network.

These advantages, coupled with KAESER's worldwide service organisation, ensure that every product operates at the peak of its performance at all times, providing optimal efficiency and maximum availability.

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