

Air-Main Charging Systems

DHS 4.0 Series

Compact assistants that make a big difference.

A system is only as good as its components.

www.kaeser.com

Scan the code to learn more!

Compact assistants that make a big difference

DHS 4.0 series electronic air-main charging systems from KAESER not only provide protection for your compressed air treatment components, but also help ensure reliable compressed air quality. This even applies following complete shutdown of your compressed air supply system, for example at weekends. It is here where our air-main charging systems truly shine.

Since the network is often depressurised following periods of downtime, there is no flow resistance from the network pressure when the compressors are started. The compressed air treatment components in a compressed air supply system, however, are designed to accommodate the flow rates and speeds that occur in the distribution network when the system is in load operation.

Therefore, without back-pressure present, there is the risk that filter and dryer components may become ‘overwhelmed’ by the sudden surge in airflow that occurs when the system restarts. This can lead to filter element damage and to a raised pressure dew point in the refrigeration dryers. As a result, contaminants such as oil, particulate matter and humidity are introduced into the pipe distribution network and the process air.

DHS 4.0 series electronic air-main charging systems from KAESER eliminate these risks by guaranteeing the required minimum pressure, which consequently ensures smooth network start-up and safe operation of the compressed air station. Electronic air-main charging systems also prove highly useful during system operation – and are even essential for stations with multiple treatment lines – because they help assure consistently high compressed air quality. If a fault occurs with a dryer or a filter, for example, the air-main charging system is able to shut down and isolate the affected treatment line. This not only assures consistent air quality, but also safeguards the pipe distribution network and the air consumers in your production facility.

Moreover, this protection saves money: it minimises the burden on compressed air treatment components, air receivers and pipe networks and also prevents surge loads caused by large changes in pressure from occurring. This consequently ensures long service life, which in turn leads to considerably reduced costs. Connected to the SIGMA AIR MANAGER 4.0, it enables you to take full control of your system, assuring maximum compressed air supply dependability and availability.

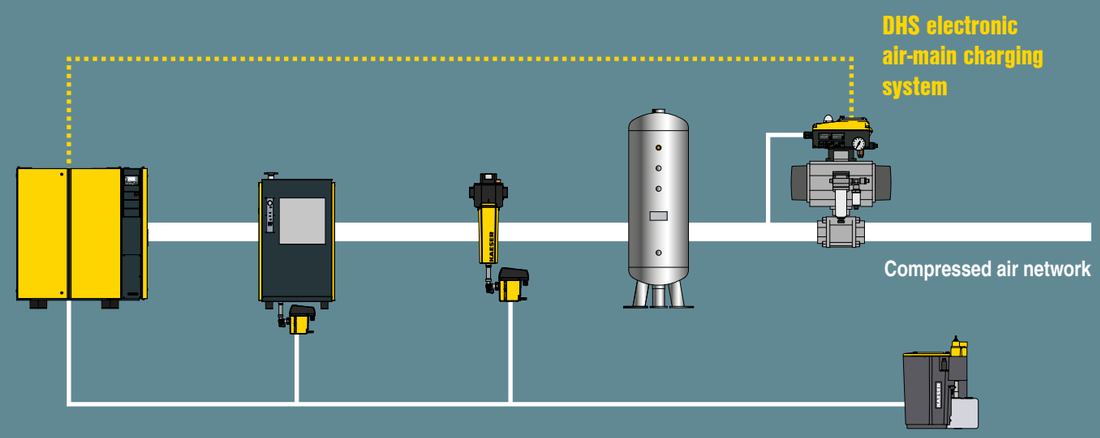


Flexible application

Image: Example compressed air station

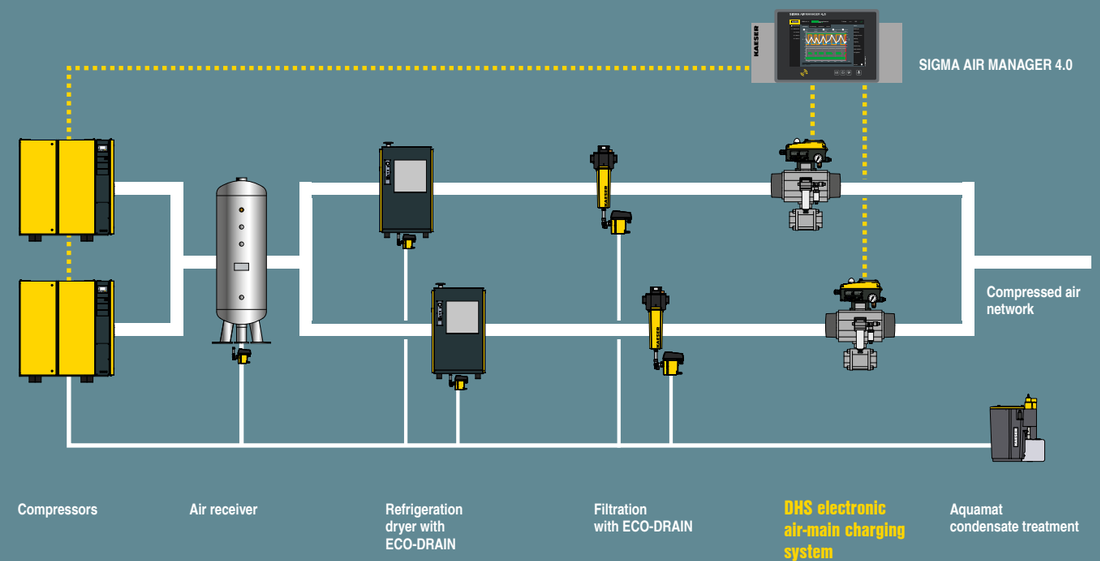
Reliable compressed air supply with air-main charging

Protects your components!



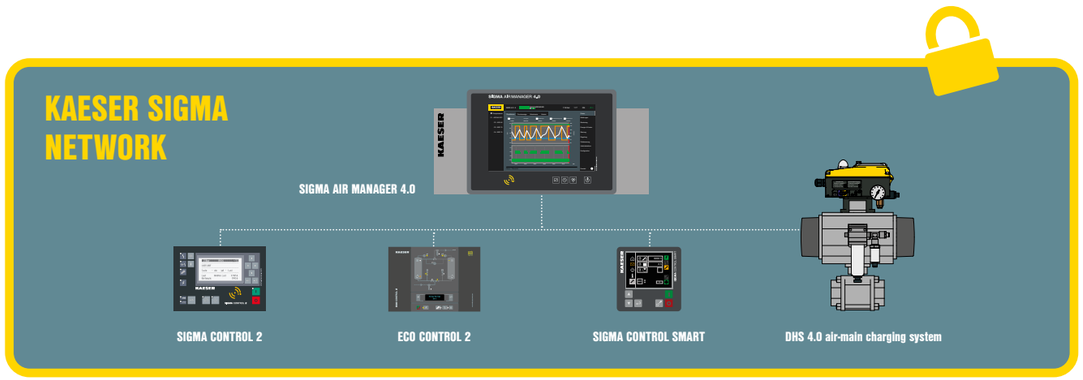
Reliable compressed air quality with air-main charging

Trouble-free production!



Perfect interplay





We offer system solutions

DHS 4.0 series air-main charging systems, like all other station components, can be connected to the SIGMA AIR MANAGER 4.0 master controller via the SIGMA NETWORK.

Information & communication

All relevant information, such as measured pressure values or status indicators, is shown in real-time and formatted for cross-machine communication.



Expanded control and function capability

The air-main charging system can be easily adjusted to accommodate specific production periods and can be opened or closed, for example, via the controller's timer function. The real-time display keeps you informed of the operating state at all times. The SIGMA NETWORK connection provides you with direct control.



Convenient operation & display

In addition to the stand-alone capability of the DHS 4.0, you will also be able to use your SIGMA AIR MANAGER 4.0 for input and visualisation. The extended menu is intuitive to navigate and presents you with all essential information.

DHS 4.0 series

Design and functionality

Two-line clear text display

DHS 4.0 speaks your language

KAESER DHS 4.0 systems are designed with maximum user-friendliness and dependability in mind. Every DHS 4.0 can be intuitively adapted to all applications via the display, as well as via the SIGMA AIR MANAGER 4.0. The system also allows “at-a-glance” operating state checks and makes it easy to save working parameters for future use.

SIGMA NETWORK interface

The air-main charging system can be connected to a master controller via an IP65-rated M12 screw connection.

Project-specific sizing

Matched according to each project, all common fitting sizes and standards are available. The use of end caps facilitates installation and allows single-side pipework disassembly.

High-visibility LED indicator

LED illuminates green: Valve position 100% – open
LED flashes green: Valve moving to open position
LED flashes red: Valve position 0% – closed
LED flashes red: Valve moving to closed position

Clear to see – The bicolour mechanical operating indicator provides additional operational safety.



Image: DHS 4.0

Pulse-width modulation

Based on pulse-width modulation, the KAESER-developed control algorithm initiates gradual opening and closing of the system to prevent treatment components from being overwhelmed by surges in air flow. It also prevents vibrations from occurring in the compressed air distribution network.

Switchable operating modes

Two operating modes

Depending on the priority and configuration of the compressed air station, operators of DHS 4.0 series electronic air-main charging systems can choose between two operating modes in order to best suit the specific application.

Operating mode setting:
I) Yellow = Priority: Compressed air quality

II) Blue = Priority: Compressed air supply

The selected operating mode is secured by a screw connection.

Manual emergency operation

In the event of a power failure, the valve can be manually operated with a special key if needed. Behaviour is predetermined when selecting the operating mode.

Standard prefilter

The standard prefilter protects the control unit and simultaneously serves as an indicator of dirt and moisture at the transfer point.

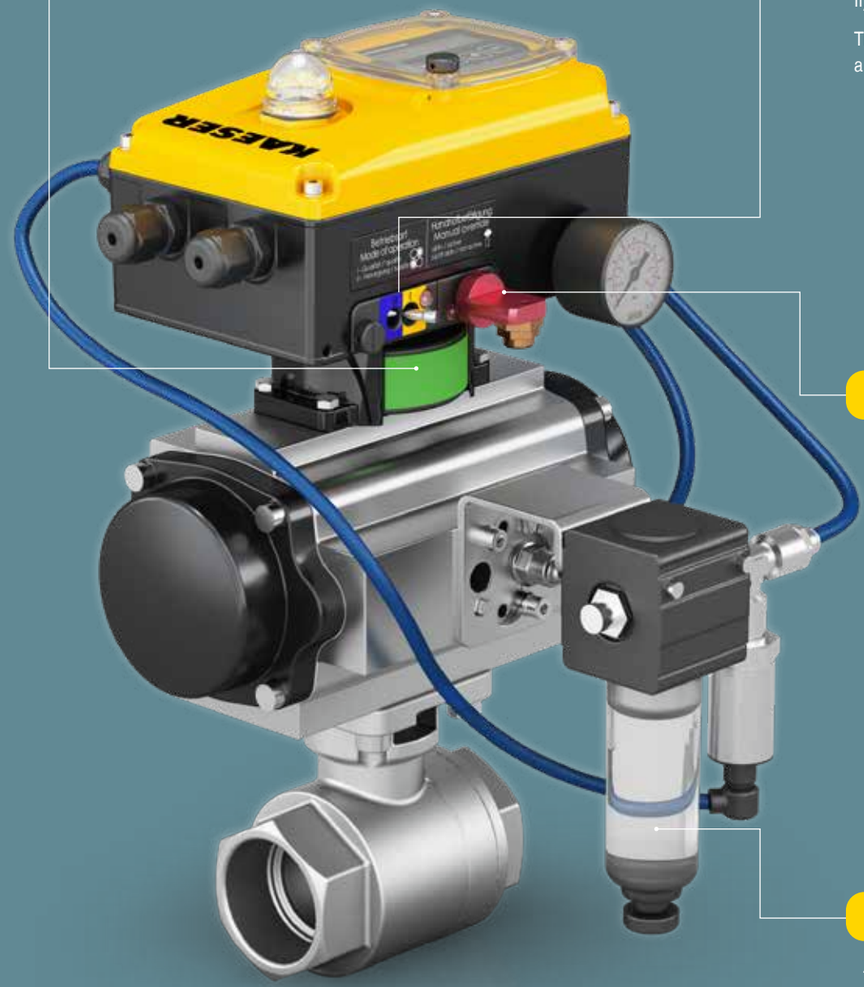


Image: DHS 4.0



Smart KAESER compressed air station

DHS 4.0 series

A system is more than the sum of its parts

There is no mystery behind what it takes to create a reliable, efficient and energy-saving compressed air supply. Yet to many users, it can appear as if some strange and wonderful magic is involved. However, by simply observing a few points, it quickly becomes clear that this seeming sorcery is nothing more than an illusion and it is possible to achieve significant operating cost savings.

Therefore, in order to ensure proper planning and to benefit from efficient and dependable compressed air system operation, the following should be taken into consideration: in addition to demand pressure and process air requirements, factors such as piping, cooling, ventilation, spatial conditions and environmental aspects should be included in the planning process. A well thought-out system design lays the optimum foundation for effective operation later on.

Generation, treatment and compressed air storage are essential components when it comes to the supply of compressed air. If the treatment components are overwhelmed by excessively high air flow rates, or if a treatment line is not effectively closed-off in the event of a fault, unwanted contamination of the process air may occur. Moreover, unnecessary costs are incurred if the compressors also run at weekends to compensate for leakage losses.

With an air-main charging system from KAESER, these issues are a thing of the past.

We keep an eye on your compressed air system.

Equipment

Two operating modes, depending on priority...

...reliable compressed air supply
Pulse-width modulated opening and closing of ball valve and butterfly valve for efficient and proper operation of the compressed air supply.

...reliable compressed air quality for redundant compressed air networks
Additionally closes the affected line in the event of, for example, dryer or filter faults (factory-configured).

Electronic control unit

Integrated electronic pressure sensor, 0-16 bar pressure regulator (optionally available for 63 bar), high-visibility LED, mechanical indicator, processor unit, display (25 languages), pressure monitoring, password protection, operating mode selection switch, pressure gauge for internal control pressure. Control unit can be rotated 90°. Endpoint monitoring. Software update via microSD card. Anti-tamper seals available for keyboard and operating mode switch to protect against unauthorised access. Multi-voltage: 90-260 V AC, 47-63 Hz, 24 V DC.

Pivot drive

Spring-loaded pneumatic pivot drive. Ball or butterfly valve actuated via internal control pressure. Silicone-free greases (standard) for ball and butterfly valve. Silicone-free is an option. All parts are specially cleaned.

Operation

Password and operating parameter input via keyboard or via a master controller. For example, opening pressure, hysteresis, opening/closing time in percent, pressure monitoring. Manual operation using a key to open if needed.

Interfaces

Floating inputs for “external shutdown”, e.g. dryer fault. Floating outputs for “Group alarm”, “Open”, “Close” and “Pressure monitoring”. 4-20 mA air distribution network signal for compressor controller or master control systems. Modbus TCP communications interface with M12 plug-in connection.

SIGMA NETWORK

The DHS 4.0 is equipped as standard with a SIGMA NETWORK interface to make operation even more convenient.

Ball valve or butterfly valve

Endpoint mounting capability simplifies remodelling or expansion of the compressed air distribution network. It also facilitates alignment and securing in the pipeline for easy installation.

Your benefits at a glance

Protection from impermissible air flow:

With dropping pressure, the speed of flow in the pipework quickly increases and can potentially overwhelm all components in the compressed air system. Installation of a KAESER DHS 4.0 air-main charging system guarantees the required minimum pressure and ensures reliable operation, especially when restarting the system following a shutdown.

A brilliantly simple operating concept:

Easy configuration in 25 languages, immediate recognition of operating state, manual actuation in the event of an emergency: all time-saving features that also increase safety.

Gentle pressure build-up in the system:

KAESER-developed pulse-width modulation control ensures nuanced system intervention via precision opening and closing sequences.

Connection to SIGMA AIR MANAGER 4.0

DHS 4.0 series air-main charging systems can be connected to the SIGMA AIR MANAGER 4.0 master controller via the SIGMA NETWORK.

Technical data

Electronic air-main charging systems

Type	DN	Optional connection threads		Suitable for pressure range			Electr. pressure transducer	Safety functionality		Dimensions W x D x H	Weight
				0.5–10 bar	0.5–16 bar	up to 63 bar		Compressed air treatment	Compressed air supply	mm	kg
Version with ball valve											
DHS 4.0 15 G	15	G 1/2	1/2" NPT	–	✓	□	✓	✓	●	220 x 234 x 296	5.0
DHS 4.0 20 G	20	G 3/4	3/4" NPT	–	✓	□	✓	✓	●	220 x 234 x 296	5.1
DHS 4.0 25 G	25	G 1	1" NPT	–	✓	□	✓	✓	●	220 x 244 x 335	6.4
DHS 4.0 32 G	32	G 1 1/4	1 1/4" NPT	–	✓	□	✓	✓	●	220 x 244 x 346	8.2
DHS 4.0 40 G	40	G 1 1/2	1 1/2" NPT	–	✓	□	✓	✓	●	217 x 249 x 377	9.3
DHS 4.0 50 G	50	G 2	2" NPT	–	✓	□	✓	✓	●	299 x 249 x 417	11.4
DHS 4.0 65 G	65	G 2 1/2	2 1/2" NPT	–	✓	□	✓	✓	●	349 x 256 x 460	17.8
DHS 4.0 80 G	80	G 3	3" NPT	–	✓	□	✓	✓	●	349 x 264 x 493	24.2
Versions with butterfly valve											
DHS 4.0 40	40	4 x M16	4 x 1/2"-13 UNC	–	✓	–	✓	✓	●	220 x 244 x 411	8.7
DHS 4.0 50	50	4 x M16	4 x 5/8"-11 UNC	–	✓	–	✓	✓	●	220 x 244 x 427	9.6
DHS 4.0 65	65	4 x M16	4 x 5/8"-11 UNC	–	✓	–	✓	✓	●	258 x 259 x 459	11.1
DHS 4.0 80	80	8 x M16	4 x 5/8"-11 UNC	–	✓	–	✓	✓	●	258 x 268 x 489	12.6
DHS 4.0 100	100	8 x M16	8 x 5/8"-11 UNC	–	✓	–	✓	✓	●	299 x 290 x 545	16.7
DHS 4.0 125	125	8 x M16	8 x 3/4"-10 UNC	–	✓	–	✓	✓	●	348 x 320 x 597	23.7
DHS 4.0 150	150	8 x M16	8 x 3/4"-10 UNC	–	✓	–	✓	✓	●	397 x 342 x 645	28.9
DHS 4.0 200	200	8 x M20	8 x 3/4"-10 UNC	–	✓	–	✓	✓	●	473 x 382 x 733	39.1
DHS 4.0 250	250	12 x M20	12 x 7/8"- 9 UNC	✓	Upon request	–	✓	✓	●	560 x 421 x 852	63.9
DHS 4.0 300	300	12 x M20	12 x 7/8"- 9 UNC	✓	Upon request	–	✓	✓	●	601 x 471 x 1028	88.5
DHS 4.0 350	350	16 x M20	12 x 1"- 8 UNC	✓	Upon request	–	✓	✓	●	702 x 509 x 1145	159
DHS 4.0 400	400	16 x M20	16 x 1"- 8 UNC	✓	Upon request	–	✓	✓	●	738 x 575 x 1301	260

Electrical connection 90-260 V AC / 47-63 Hz or 24 V DC; IP 65 protection

□ Accessories: DHS pressure regulator 63 bar ✓ Standard ● Adjustable at user-end – Not applicable

Retrofit kits for older KAESER air-main charging systems available upon request.

Spring-loaded overflow valves

Connection size	Pressure setting range	Maximum working pressure	Maximum working temperature	Dimensions W x D x H	Weight
	bar	bar	°C	mm	kg
G ½	4–10	16	80	65 x 90 x 185	1
G ¾	4–10	16	80	75 x 90 x 185	1.1
G 1	4–10	16	80	90 x 90 x 185	1.5

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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