



# Air-Main Charging Systems

## DHS 4.0 Series

**Compact assistants that make a big difference**

A system is only as good as its components.



Scan the code to  
learn more!



DHS 4.0 Series



# 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 re-starts. This can lead to filter element damage and to a raised pressure dew point in the refrigeration dryer. 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 necessary 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 enables long service life, which in turn leads to considerably reduced costs. Connect to the SIGMA AIR MANAGER 4.0 and take full control of your system to assure maximum compressed air supply dependability.

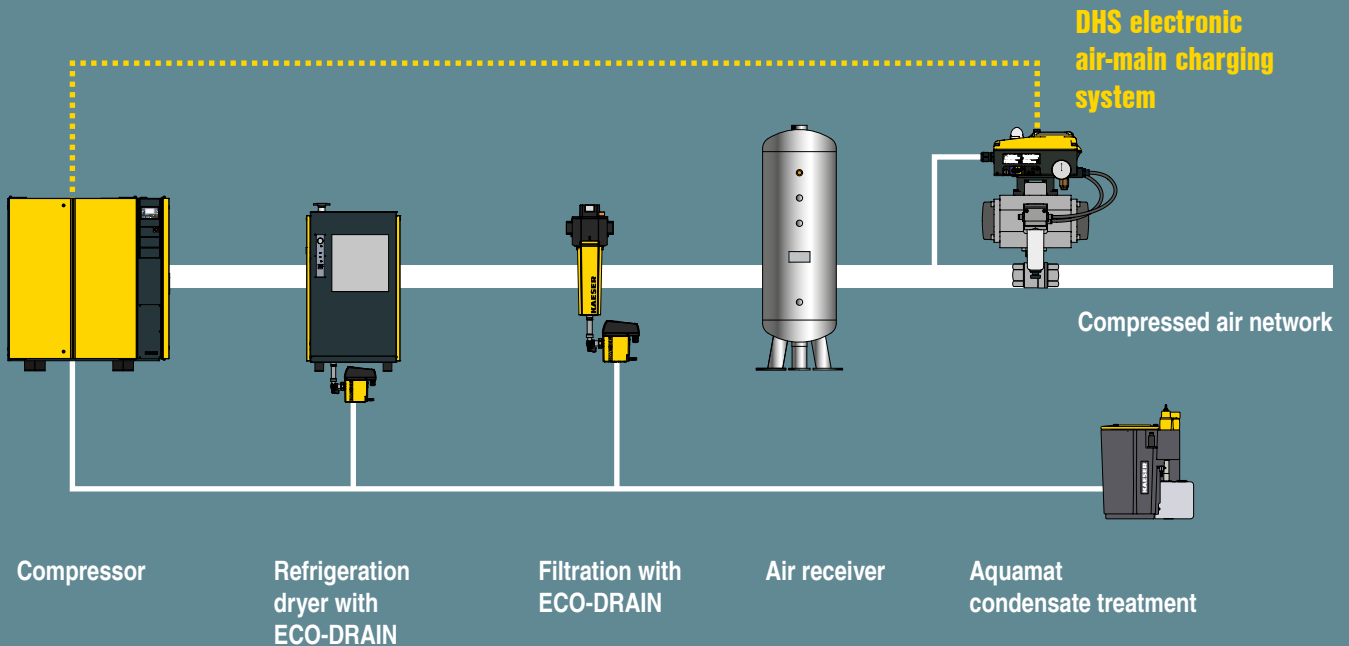


## Flexible application

Image: Example compressed air station

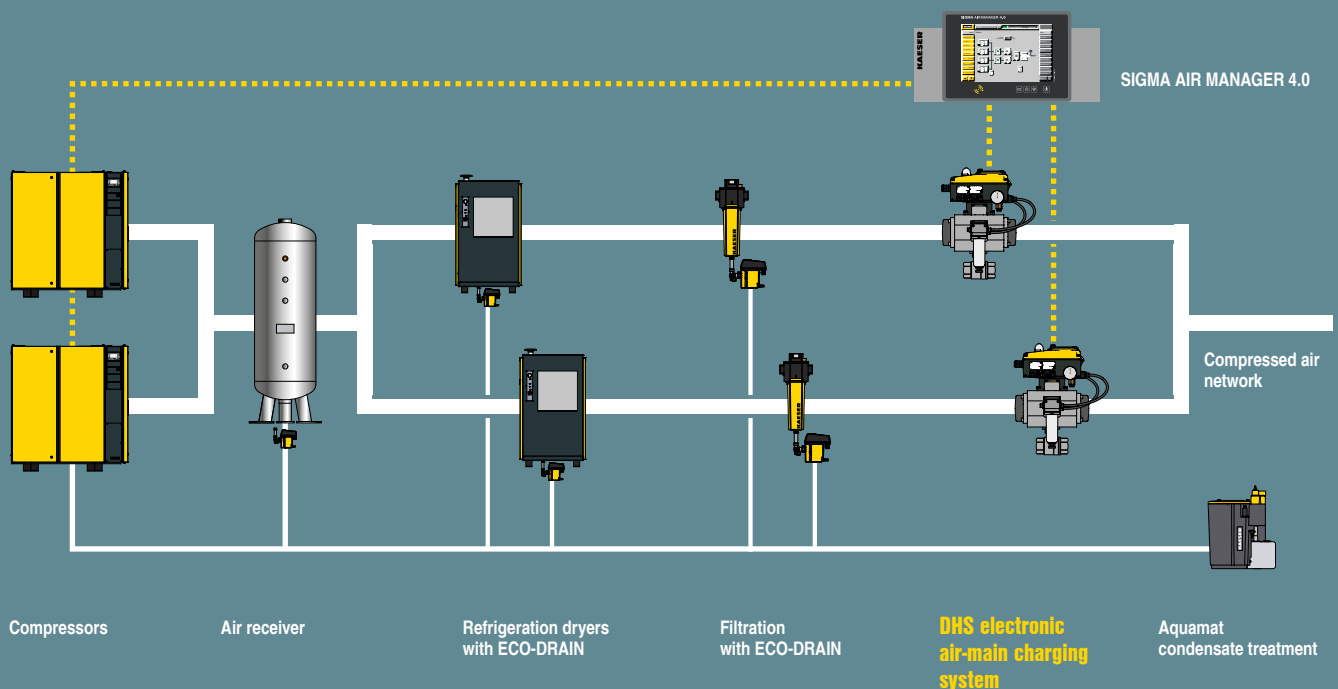
# Dependable compressed air supply with air-main charging

*Protect your components!*



# Dependable compressed air quality with air-main charging

*Trouble-free production!*



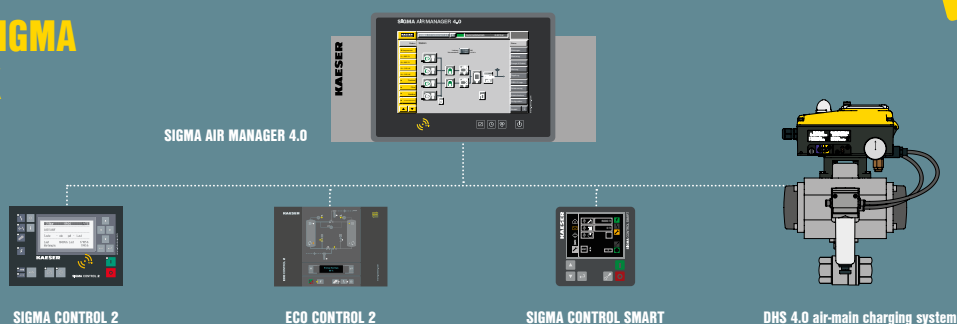


# Perfect **interplay**

# Data Transfer



## KAESER SIGMA NETWORK

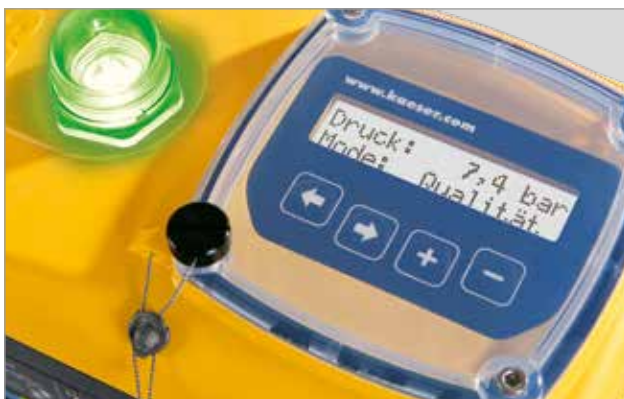


### We offer system solutions

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.

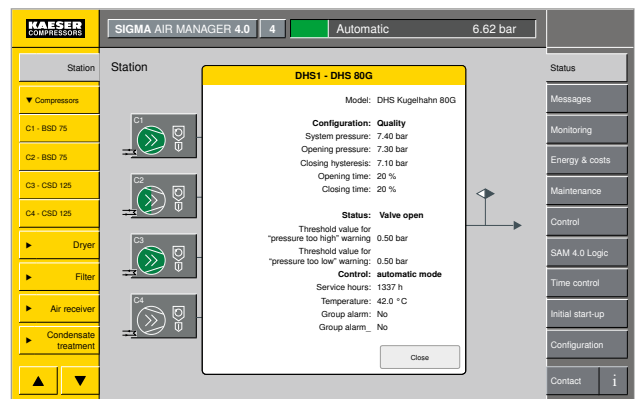
### Information & communication

All relevant information, such as pressure measurement values or status indicators, is shown in real-time and is 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 operational status 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

### High-visibility LED indicator

LED illuminates green: Valve position 100 % - open

LED flashes green: Fitting moving to open position

LED flashes red: Valve position 0 % - closed

LED flashes red: Fitting moving to closed position

**Clear to see** – The bi-colour mechanical operating indicator provides additional operational safety.

### 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' operation status checks and makes it easy to save operating 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.



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 fitting.

### 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.

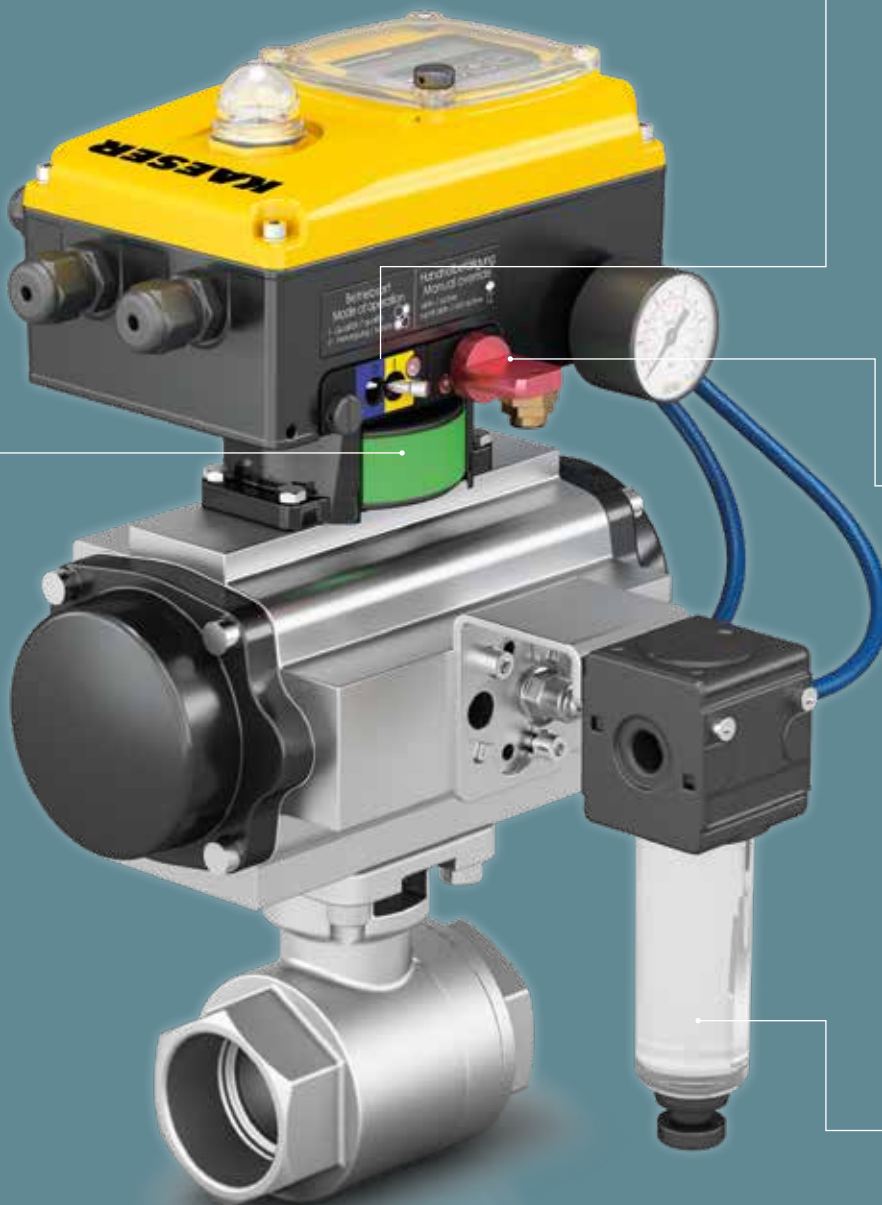


Image: DHS 4.0



## Smart KAESER compressed air station





DHS 4.0 Series

## A system is more than the sum of its parts

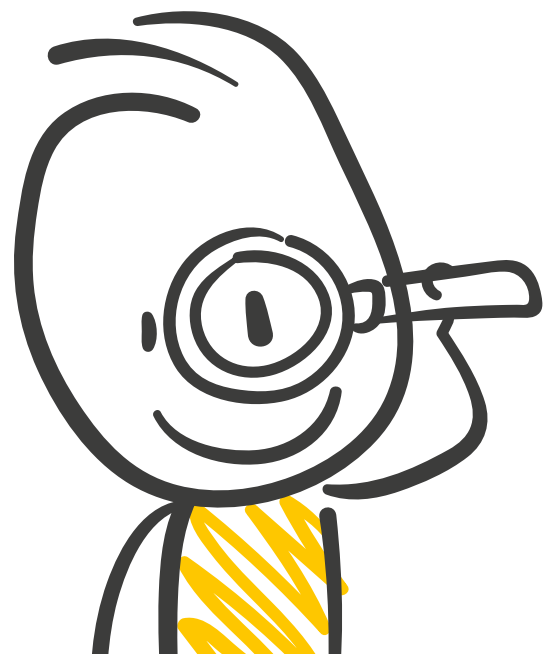
There's no mystery behind what it takes to create a reliable, efficient and energy-saving compressed air supply. Yet to many users, it can appear as if some weird and wonderful magic is involved. However, by simply observing a few points, it quickly becomes clear that this seeming sorcery is nothing 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 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 will occur. Moreover, unnecessary costs are incurred if the compressors also run at weekends in order 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

**Priority 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.

**Priority compressed air quality for redundant compressed air networks:** In the event of dryer or filter faults, for example, additionally closes off the affected line (**set ex works**).

## Electronic control unit

Integrated electronic pressure sensor, pressure regulator 0-16 bar (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°. End-point 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 activated with 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

End-point 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 unwanted air flow:

With dropping pressure, the speed of flow in the pipe-work 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 re-starting 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 modulated 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 specifications

## Electronic air-main charging systems

Model	DN	Optional connection threads	Suitable for pressure range			Electr. pressure transducer	Functional priority		Dimensions W x D x H mm	Weight kg
			0.5-10 bar	0.5-16 bar	up to 63 bar		Compressed air treatment	Compressed air supply		

### Versions with ball valve

DHS 4.0 15 G	15	G 1/2	1/2" NPT	–	✓	□	✓	✓	●	226 x 234 x 303	5.0
DHS 4.0 20 G	20	G 3/4	3/4" NPT	–	✓	□	✓	✓	●	226 x 234 x 318	5.1
DHS 4.0 25 G	25	G 1	1" NPT	–	✓	□	✓	✓	●	226 x 244 x 361	6.4
DHS 4.0 32 G	32	G 1 1/4	1 1/4" NPT	–	✓	□	✓	✓	●	226 x 244 x 369	8.2
DHS 4.0 40 G	40	G 1 1/2	1 1/2" NPT	–	✓	□	✓	✓	●	226 x 249 x 412	9.3
DHS 4.0 50 G	50	G 2	2" NPT	–	✓	□	✓	✓	●	226 x 249 x 428	11.4
DHS 4.0 65 G	65	G 2 1/2	2 1/2" NPT	–	✓	□	✓	✓	●	226 x 256 x 493	17.8
DHS 4.0 80 G	80	G 3	3" NPT	–	✓	□	✓	✓	●	226 x 264 x 527	24.2

### Versions with butterfly valve

DHS 4.0 40	40	4 x M16	4 x 1/2"-13 UNC	–	✓	–	✓	✓	●	226 x 244 x 411	8.7
DHS 4.0 50	50	4 x M16	4 x 5/8"-11 UNC	–	✓	–	✓	✓	●	226 x 244 x 427	9.6
DHS 4.0 65	65	4 x M16	4 x 5/8"-11 UNC	–	✓	–	✓	✓	●	258 x 249 x 459	11.1
DHS 4.0 80	80	8 x M16	4 x 5/8"-11 UNC	–	✓	–	✓	✓	●	258 x 249 x 489	12.6
DHS 4.0 100	100	8 x M16	8 x 5/8"-11 UNC	–	✓	–	✓	✓	●	299 x 256 x 545	16.7
DHS 125	125	8 x M16	8 x 3/4"-10 UNC	–	✓	–	✓	✓	●	348 x 267 x 597	23.7
DHS 4.0 150	150	8 x M16	8 x 3/4"-10 UNC	–	✓	–	✓	✓	●	397 x 292 x 645	28.9
DHS 4.0 200	200	8 x M20	8 x 3/4"-10 UNC	–	✓	–	✓	✓	●	473 x 352 x 733	39.1
DHS 4.0 250	250	12 x M20	12 x 7/8"- 9 UNC	✓	Upon request	–	✓	✓	●	560 x 409 x 852	63.9
DHS 4.0 300	300	12 x M20	12 x 7/8"- 9 UNC	✓	Upon request	–	✓	✓	●	601 x 480 x 1028	88.5
DHS 4.0 350	350	16 x M20	12 x 1"- 8 UNC	✓	Upon request	–	✓	✓	●	702 x 522 x 1145	159
DHS 4.0 400	400	16 x M20	16 x 1"- 8 UNC	✓	Upon request	–	✓	✓	●	738 x 595 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 on-site

– Not equipped

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

## Spring-loaded bypass valves

Connection diameter	Pressure setting range	Maximum working pressure	Maximum working temperature	Dimensions W x D x H	Weight
	bar	bar	°C	mm	kg
G 1/2	4-10	16	80	65 x 90 x 185	1
G 3/4	4-10	16	80	75 x 90 x 185	1.1
G 1	4-10	16	80	90 x 90 x 185	1.5



# The world is our home

As one of the world's largest compressed air system providers and compressor manufacturers, KAESER KOMPRESSOREN is represented throughout the world by a comprehensive network of branches, subsidiary companies and authorised partners in over 100 countries.

With innovative products and services, KAESER KOMPRESSOREN's experienced consultants and engineers help customers to enhance their competitive edge by working in close partnership to develop progressive system concepts that continuously push the boundaries of performance and compressed air efficiency.

Moreover, the decades of knowledge and expertise from this industry-leading system provider are made available to each and every customer via the KAESER group's global computer network.

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



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