



Rotary Screw Blowers

CBS, DBS, EBS, FBS, HBS Series

With the world-renowned SIGMA PROFILE

Flow rate 3 to 160 m³/min, Pressure differential up to 1.1 bar

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The rotors in KAESER KOMPRESSOREN's new CBS, DBS, EBS, FBS and HBS series rotary screw blowers are based on the world-renowned SIGMA PROFILE and have been designed to meet the particular needs of blower applications. So, just like their compressor counterparts, KAESER's rotary screw blowers deliver more compressed air for less energy. The use of premium-quality mechanical and electrical components ensures a powerful, energy-efficient, state-of-the-art blower system that is delivered ready for immediate connection.

Efficient operation

KAESER rotary screw blowers consume up to 35 percent less energy than conventional rotary lobe blowers, whilst energy savings of up to 15% can be achieved in comparison with turbo blowers. The combination of a blower airend featuring energy-saving SIGMA PROFILE rotors, flow-optimised components, efficient power transmission and high-efficiency drive motors ensures an exceptional performance, guaranteed by KAESER in accordance with the stringent tolerances of ISO 1217.

Long-term dependability

Renowned worldwide for the quality of their design, components and manufacture, KAESER products guarantee long-term machine and process availability that you can rely on. High-quality features include durable rotor bearings, a dependable power transmission, precision-dimensioned drive motors, a torsion-free sound enclosure with a cleverly designed cooling air flow, SIGMA CONTROL 2 machine controller for efficient and dependable operation – and many more besides.

Cool and quiet

KAESER rotary screw blowers also masterfully manage the balancing act between best possible damping of structure-borne and fluid-borne noise and optimised cooling of the blower airend, drive motor and intake air. In fact, the reduction of fluid-borne noise – pulsations caused by the compressed process air conveyed in the connected piping – has been refined to the point of perfection.



Compressed air at the push of a button

KAESER rotary screw blowers are user-friendly turnkey systems, delivered ready for immediate operation. All that is needed is to connect them to a power supply and the air network; the laborious processes of oil-filling, drive belt installation, motor adjustment, procurement of a suitable frequency converter, programming, cabling in accordance with EMC regulations, drawing circuit diagrams, arranging CE and EMC-certification, etc. are thankfully consigned to the past.

Procuring complete, certified machines from systems manufacturers ultimately saves you both time and money, whilst guaranteeing many years of reliable operation.

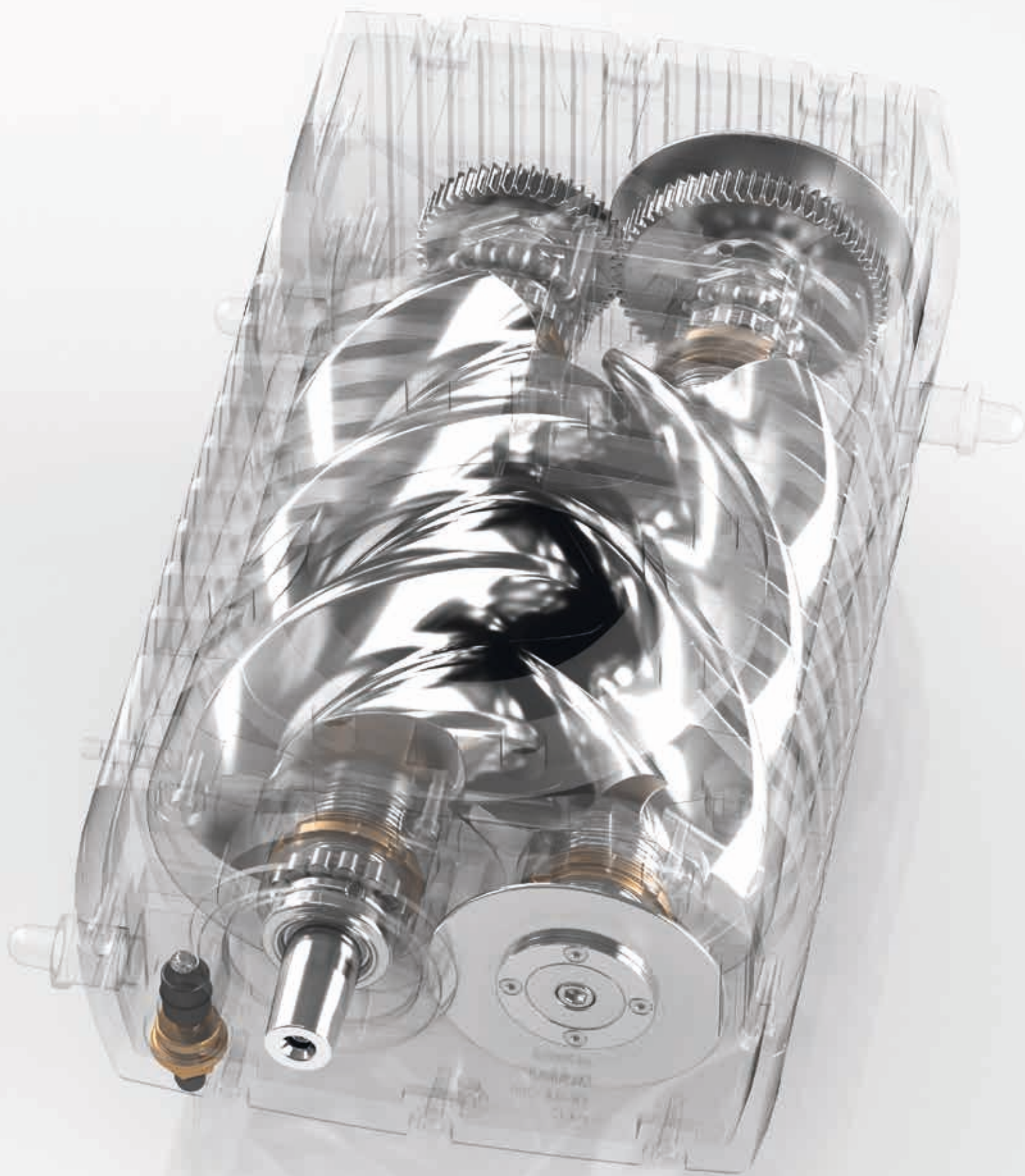
Super Premium Efficiency motors

KAESER rotary screw blowers with flange motors are now equipped with Super Premium Efficiency motors (IE4 and IES2), which stand out for their remarkable energy-saving potential thanks to extremely high levels of efficiency. Saving money has never been so easy!

Guaranteed performance specifications

To ensure that the projected savings are actually achieved during operation, KAESER quotes effective overall power consumption figures, as well as the usable flow rate, in accordance with the stringent tolerances of ISO 1217, Annexe C or E (as applicable).





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Pure efficiency with the SIGMA PROFILE

Developed in the early 1970s, KAESER's SIGMA PROFILE rotor technology revolutionised energy efficiency in rotary screw compressors. Continually refined ever since at KAESER's Research and Development Centres in Coburg and Gera, this high-efficiency compressor technology is now available for use in blower systems as well.



Blower air end with SIGMA PROFILE

KAESER's high-efficiency blower air ends combine a wide control range with near constant specific package input power. Equipped with energy-efficient SIGMA PROFILE rotors, they ensure maximum air delivery whilst keeping power consumption to an absolute minimum.



Dependable seals

Field-proven in KAESER rotary screw compressors, the sliding ring seal for the rotary transmission drive shaft lead-through on the blower air end housing is completely maintenance-free and guarantees a dependable sealing, even in hot or dusty environments.



Durable bearings

Four robust cylinder roller bearings absorb 100% of the radial forces, thereby ensuring a long service life for the air end. The rolling elements are encased in high-tech cages for optimum lubrication at all speeds.

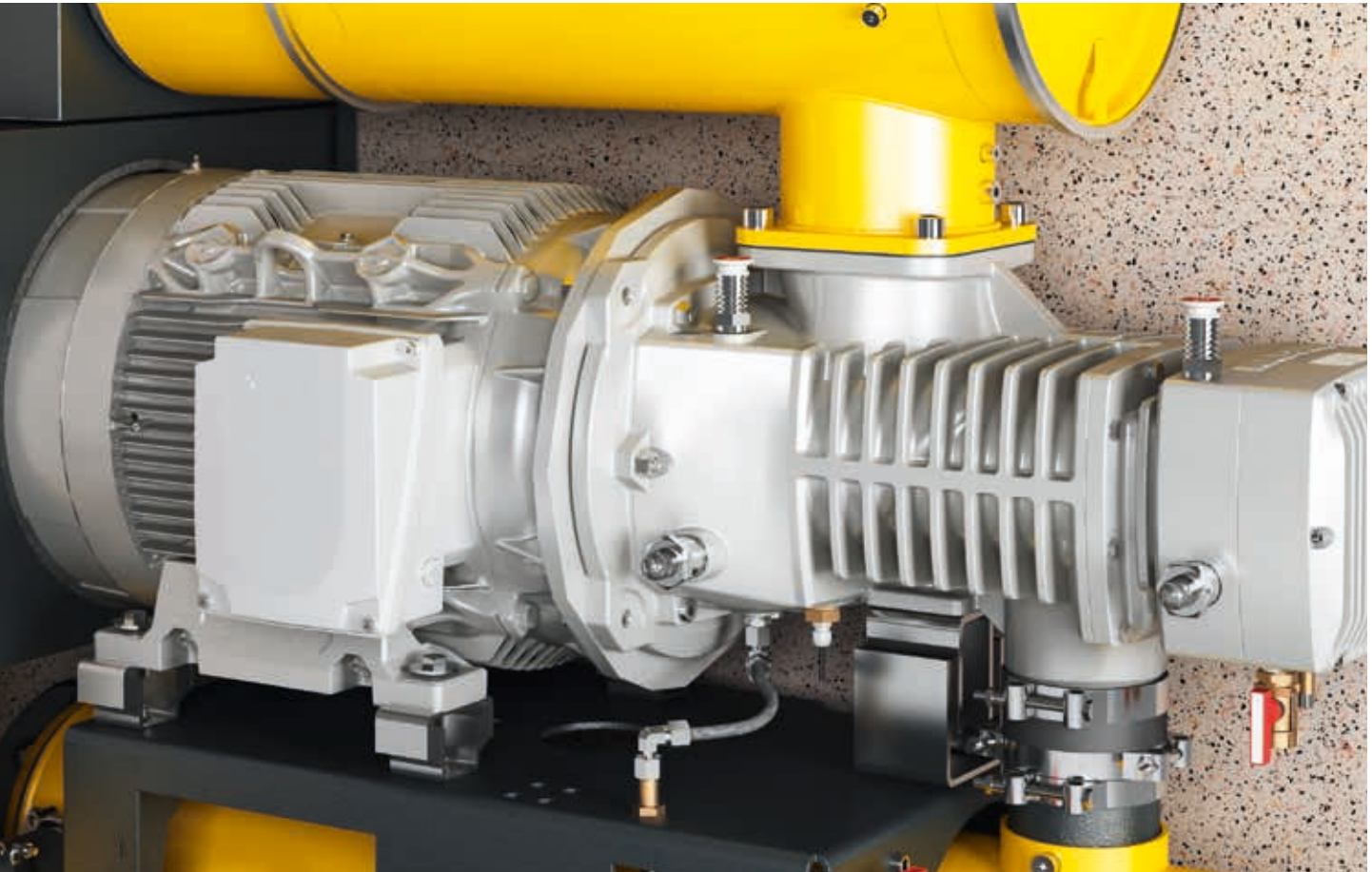


Continuous system monitoring

Sensors for oil level and temperature monitoring are integrated into the blower air end. The inside of the oil chamber is designed to ensure these continue to function whilst the machine is operating – even with fluctuating oil levels. A clever cooling design means KAESER rotary screw blowers require very little oil.

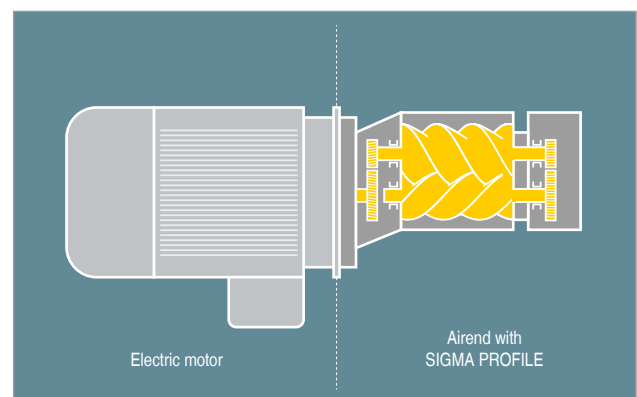
CBS, DBS, EBS, HBS series

Direct drive – ultimate efficiency



In CBS, DBS and EBS series rotary screw blowers, power is transferred from the motor to the blower airend via integrated gearing. This has proven to be the best solution for the prevailing speeds in this performance and size class when it comes to efficiency, reliability and durability. In the case of HBS series blowers, power is transferred directly, without losses, via a coupling. These design concepts are the result of extensive research at KAESER's Research and Development Centres.

The transmission ratio can be varied using different sets of timing gears, so that for example, the motor can be used at all times within the optimum frequency range of the SFC's variable speed control, or in the case of fixed-speed operation, the flow rate can be matched to the actual demand. Moreover, the combination of low lateral forces on the motor shaft and low-speed operation helps to ensure a long service life for the motor bearings.



SIGMA B blower airend

With a very high degree of efficiency and optimum levels of reliability, the airend does not require any auxiliary equipment, such as an oil or vacuum pump, or an oil cooler.

Belt drive – refined to perfection



Automatic tensioning and tension indicator

The pivoting motor base with tensioning spring ensures precision belt tensioning, irrespective of motor weight, thereby providing optimum levels of transmission efficiency at all times.

KAESER rotary screw blowers with V-belt drive provide outstanding efficiency and reliability. As a result of the company's decades of experience in compressor design and engineering, this approach to power transmission has been refined to perfection.

The automatic tensioning device ensures that the V-belt drive achieves the highest possible level of transmission efficiency at all times, throughout the entire service life of a KAESER rotary screw blower. This, of course, also reduces maintenance costs.

A solid V-belt guard protects operating personnel, in accordance with the EU Machinery Directive. It also serves to permit effective relubrication with an even distribution of grease in the motor bearings – which can only be achieved whilst the machine is operating.

The clever design of the belt guard as a "wind tunnel" reduces the temperature and thus not only increases the service life of the belt, but also that of the drive shaft seals on the airend and motor.

CBS, DBS, EBS, FBS, HBS series

Efficient and dependable

The blower aircend plays a pivotal role in ensuring outstanding energy efficiency. This it achieves in combination with precisely matched components and under the control of the advanced SIGMA CONTROL 2 blower controller.



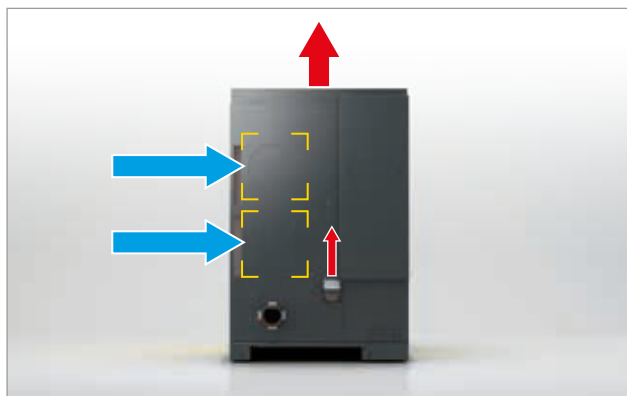
The blower controller

The SIGMA CONTROL 2 ensures efficient blower control and system monitoring at all times. A readout display, RFID reader and numerous interfaces enable fast and reliable communication, whilst the SD card slot makes data storage and software updates a breeze. In the event of a failure of the master control system, the blower will switch automatically to individual operation and can be controlled manually – ensuring a continued supply of compressed air for the process in question.



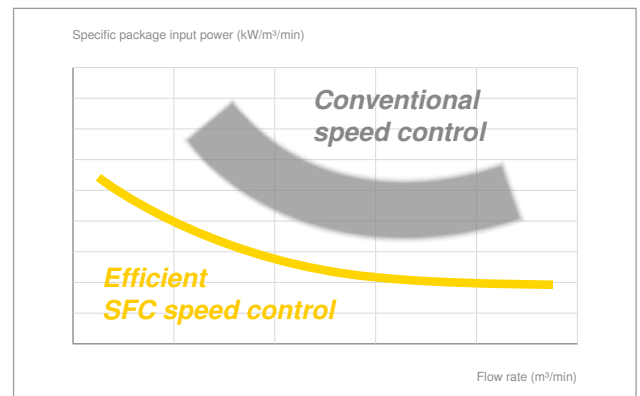
Comprehensive sensors

A wide range of sensors and switches for monitoring pressure, temperature, speed, oil level and filters ensures dependable operation of the blower, whilst allowing remote monitoring and visualisation of the operating status.



Cool intake air

Process air and cooling air for the motor are drawn in separately from outside the sound enclosure. This boosts efficiency and leads to a higher usable mass flow rate for the same power consumption. The blowers can operate in ambient temperatures up to +45 °C.



Optimised specific package input power

The moderate maximum speed, an extra-dense screw profile and near constant specific package input power across a wide, variable-speed control range all combine to achieve significant energy savings across the entire operating curve.



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02/20XX



SIGMA CONTROL 2



KAESER

DBS 221 M

CBS, DBS, EBS, FBS, HBS series

Plug-and-play

KAESER rotary screw blowers are delivered as turnkey complete machines, which saves operators a time-consuming and cost-intensive installation procedure.

Moreover, they are supplied ex-works ready for integration into Industrie 4.0 environments.



START CONTROL (STC)

The version with integrated star-delta starter for constant-speed operation is equipped with a premium contactor, overcurrent relay and phase monitoring. A SIGMA CONTROL 2 controller and reliable emergency stop system complete the package.



SIGMA FREQUENCY CONTROL (SFC)

Using variable speed control, the SFC frequency converter adjusts flow rate to match the actual air demand of the process application. Everything is delivered ready for immediate operation, since all programming and parametrisation is carried out at the factory.



Plug-and-play

These turnkey blowers are delivered complete with all sensors, STC/SFC, SIGMA CONTROL 2 and an emergency stop switch, are ready-filled with oil and are fully certified. This significantly reduces the work and costs required for planning, installation, certification, documentation and commissioning.



EMC-certified complete system

It goes without saying that the SFC control cabinet and SIGMA CONTROL 2 are tested and certified for electromagnetic compatibility, both as individual components and as complete blower systems, in accordance with EMC Directive EN 55011 for Class A1 industrial power supplies.

CBS, DBS, HBS series

A new standard for the low pressure segment

Like their larger FBS and HBS siblings, new KAESER CBS, DBS and EBS rotary screw blowers impress with their exceptionally high cost-saving potential.



Outstandingly compact

Comprising a blower airend with drive motor, loss-free power transmission, silencers, sensors, controller and electrical equipment such as frequency converter or star-delta starter, this compact powerhouse features a footprint of just 1.65 m² (DBS), whilst the 75 kW EBS model boasts a footprint of only 2.5 m².



Side-by-side installation

The layout of CBS, DBS and EBS series rotary screw blowers has been designed to allow all maintenance work to be carried out from the front of the unit. This means that these compact blowers can be installed side-by-side for even more space savings.



Flow-optimised

All relevant components, including on the intake side, are flow-optimised to minimise pressure losses. Silencers, air filters and non-return flaps also help to achieve our stated aim of "More compressed air for less energy".



Even quieter than before

Highly effective sound damping not only minimises machine noise via the sound enclosure; special absorption silencers also help significantly to reduce fluid-borne noise transmitted through the piping – a feature commonly associated with speed-controlled blowers.

More air per kilowatt



Image: EBS 410 CM SFC





Trögghet
201

HBS 1600 M

KAESER

Equipment

Super Premium Efficiency motors

Super Premium Efficiency IE4 motor from Siemens with IES2 system efficiency, three PTC thermistors or Pt100 as standard; variable-speed drive models matched to SFC frequency converter. Quick, safe maintenance thanks to easy-access, central lubrication points for motors with regreasable bearings.

SIGMA CONTROL 2

“Traffic light” LED indicators show operating status at a glance, plain text display, 30 selectable languages, soft-touch keys with icons, fully automatic monitoring and control. Interfaces: Ethernet; additional optional communication modules for Profibus DP, Modbus RTU and / TCP, Profinet IO, EtherNet/IP and DeviceNet. RFID card reader, web server, KAESER CONNECT user interface, visualisation of signals at analogue and digital inputs, warning and alarm messages, graphical display of pressure, temperature and speed trends. SD card reader for storage of process data, operating hours, working hours, warning and alarm messages. Updates via SD card.

Pulsation dampers

Efficient inlet and discharge-side absorption silencers with wide frequency range to mitigate unwanted process air pulsations, excellent damping of fluid-borne noise transmitted through piping. Discharge-free and long-lasting.

KAESER CONNECT

Create a LAN connection between PC and SIGMA CONTROL 2 via the Ethernet interface; launch Internet browser; enter SIGMA CONTROL 2 IP address and input password: Access blower controller via the integrated web server. User interface displays machine status in real-time and signals at the analogue and digital inputs, lists warning and alarm messages and graphically displays pressure, temperature and speed trends. (See image below)

Master/Slave operation

Two identical/different blowers connected via Ethernet; automatic changeover for stand-by/ready with operating hours balancing; control of two blowers possible by use of adjustable switching range.



Further optimisation



SIGMA AIR MANAGER 4.0

The SIGMA CONTROL 2 internal compressor / blower controller and the SIGMA AIR MANAGER 4.0 provide more than just optimised blower air system efficiency. Thanks to their high level of data integration and multiple interface options, they can easily be integrated into advanced production, building management and energy management systems, as well as Industrie 4.0 environments.



Optimum conditions

Carefully matched peripheral components, such as weather protection screens, supplementary fans and sound dampers in the inlet and outlet ducting, serve to maintain a pleasant working environment.



Heat recovery

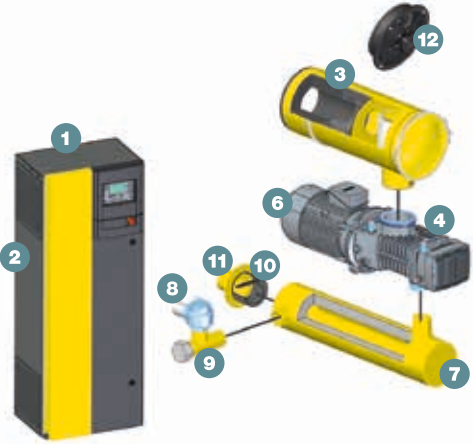
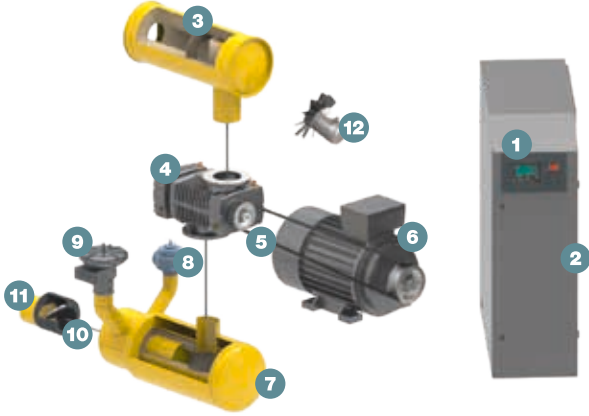
Heat exchangers can cool the process air significantly, even at high ambient temperatures. The heat thus gained can be utilised for the purposes of space heating and/or water heating, thereby considerably reducing primary energy costs.



Cooler

With minimal differential pressure, the economical ACA-type air/air aftercooler uses a temperature switch to limit the blower air temperature reliably to 10 K above ambient.

Layout

CBS, DBS	EBS, FBS
	
<ul style="list-style-type: none"> 01) SIGMA CONTROL 2 control system 02) STC or SFC control cabinet 03) Intake silencer with filter 04) SIGMA B blower airend 05) V-belt 06) IE4/IES2 – Super Premium Efficiency motor 	<ul style="list-style-type: none"> 07) Compressed air silencer 08) Pressure valve 09) Unloaded-start valve (optional) 10) Non-return flap (optional) 11) Compensator 12) Sound enclosure fan

Views



Technical specifications

Model	Gauge pressure		Max. rated motor power kW	Pipe connection DN	Dimensions with control cabinet W x D x H mm	Max. mass kg
	Max. pressure differential	Max. flow rate *)				
	mbar	m³/min				
CBS 121 L SFC	700	12.6	18.5	80	1110 x 1370 x 1670	750
CBS 121 L STC		12.5				
CBS 121 M SFC	1100	10.3	22			
CBS 121 M STC		10.2				
DBS 221 L SFC	700	23	30	100	1110 x 1480 x 1670	850
DBS 221 L STC		19	22			
DBS 221 M SFC	1100	22	37			
DBS 221 M STC		18				
EBS 410 CL SFC	700	41	37	150	1280 x 1760 x 1820	1400
EBS 410 CL STC		38				
EBS 410 CM SFC	1000	30				
EBS 410 CM STC		30				
EBS 410 L SFC	700	41	55		1460 x 1760 x 1970	1520
EBS 410 L STC		40				
EBS 410 M SFC	1100	40	75			
EBS 410 M STC		40				
FBS 660 L SFC	700	67	75	200	2250 x 1950 x 1900	2200
FBS 660 L STC		66				
FBS 660 M SFC	1100	66	110			
FBS 660 M STC		65				
HBS 1600 L SFC	700	160	200	300	2070 x 3720 x 2230	6000
HBS 1600 M SFC	1100	160	250			

*) Performance specifications as per ISO 1217 Annex C for STC version, Annex E for SFC version

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 branches, 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 peak performance at all times, whilst providing maximum availability.



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