



# Rotary Screw Compressors

## SM Series

With the world-renowned SIGMA PROFILE

Flow rate 0.39 to 1.64 m<sup>3</sup>/min, Pressure 5.5 to 15 bar

# Long-term savings

Today's users expect maximum availability and efficiency from their compressors, regardless of size. SM series rotary screw compressors meet these key expectations and more. Not only do they deliver more compressed air for less energy, but they also combine ease of use and maintenance-friendliness with exceptional versatility and environmentally responsible design.

## SMart with SIGMA 06

The latest generation SM series rotary screw compressors feature the new SIGMA 06 airend with further-refined SIGMA PROFILE rotors for higher intake volumes and even greater efficiency. The result? Up to 13 percent lower power consumption and up to 10 percent higher flow rate.

## Energy-saving performance

The efficiency of a machine depends on the total costs incurred throughout the equipment's entire service life. With compressors, energy costs account for the lion's share of total expenditure. KAESER therefore designed its SM series compressors with optimum energy efficiency in mind. Refinements to the energy-saving SIGMA PROFILE airend rotors contribute significantly to the increased performance of these versatile compressors, whilst Super Premium Efficiency IE4 motors (Premium Efficiency IE3 motors for the SM 10 and SM 16), a SIGMA CONTROL 2 internal controller, low airend speeds, reduced internal pressure losses and a unique dual-flow fan cooling system all combine to push the boundaries of efficiency even further.

## Optimised design

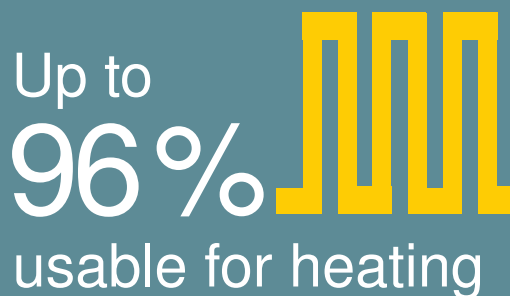
The new SM models all share logical and user-friendly design throughout. For example, the left-hand side panel can be removed in a few simple steps to allow excellent visibility of the system's intelligently laid out components. Needless to say, the SM series was designed to ensure best possible access to all service points. When closed, the sound-absorbing compressor enclosure keeps operational sound levels to a minimum, thereby ensuring a pleasantly quiet work environment. In addition, the enclosure features four inlet openings for separate airflow cooling of the compressor, motor, control cabinet and intake air. Last but not least, SM series compressors are impressively compact, which makes them the perfect choice for applications where space is at a premium.

## Modular system concept

SM series compressors are available as standard versions, as versions equipped with an add-on energy-saving refrigeration dryer and as AIRCENTER versions which, in addition to a refrigeration dryer, feature an air receiver installed underneath. KAESER's intelligent modular design principle therefore offers incredible flexibility. The SM 13 model is also available with a frequency converter for infinitely variable flow rate control.

## Why choose heat recovery?

In fact, the question should be: Why not? Amazingly, up to 100 % of the (electrical) energy supplied to a 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.

An infographic with a teal background. On the left, the text 'Up to 96%' is written in white, with '96%' being significantly larger. To the right of this text is a yellow graphic consisting of three vertical bars of varying heights, resembling a stylized sound wave or a bar chart. Below the '96%' and the graphic, the text 'usable for heating' is written in white.

Up to  
**96%**  
usable for heating

**Quiet, powerful, reliable and durable.**



Image: SM 13

KAESER



KAESER



SIGMA CONTROL 2



SM Series

## Design is in the details



### SIGMA PROFILE airend

At the heart of every SM system lies a new, premium-quality airend featuring Kaeser's energy-saving SIGMA PROFILE rotors. With optimised flow characteristics, these rotors play a key role in setting new standards in specific power performance.



### SIGMA CONTROL 2

The SIGMA CONTROL 2 ensures efficient control and system monitoring. The large display and RFID reader provide effective communication and maximum security. Multiple interfaces offer exceptional flexibility, whilst the SD card slot makes updates quick and easy.



### Tomorrow's technology, available today: IE4 motors

KAESER remains the only compressed air systems provider to equip compressors with Super Premium Efficiency IE4 drive motors as standard (SM 13 models), thereby delivering maximum performance and energy efficiency. SM 10 and SM 16 model compressors are equipped with Premium Efficiency IE3 motors.



### Efficient cooling

KAESER's innovative cooling system uses a highly efficient, dual-flow fan and separate airflow channels for cooling the motor, fluid / compressed air aftercooler and control cabinet. This not only achieves optimum cooling performance, low compressed air discharge temperatures and minimal operating sound levels, but also more efficient compression.



## Also available with refrigeration dryer and variable speed control



### SM with energy-saving dryer

The compressed air refrigeration dryer is installed in a separate enclosure in order to shield it from heat radiated by the compressor. The automatic shutdown function further enhances energy-efficient performance.



### Variable speed control also available

The use of variable speed control can provide definite advantages for specific applications, which is why the SM 13 is also available with this feature. The frequency converter is integrated into the compressor system's control cabinet (with a separate fan) and is thermally isolated.



### Even quieter

The new cooling system provides outstanding cooling performance and enables optimum sound-proofing. Normal conversation can take place right beside the running compressor.



### Maintenance-friendly

All maintenance work can be carried out from one side of the unit. The left housing cover is easily removed to allow excellent component accessibility.



Image: SM 13 T





Image: AIRCENTER 13



AIRCENTER

# The compact and efficient complete compressed air station



## Connect and go

Simply connect the power supply and air distribution network to this compact complete compressed air station and it is ready to operate. No further installation work is necessary.



## Durable air receiver

The 270-litre air receiver is specially designed for installation in AIRCENTER systems. All inner and outer surfaces are coated to provide excellent corrosion protection and to ensure long service life.



## Service-friendly design

The left-hand housing cover is easily removed to allow excellent accessibility to all service points. Inspection glasses allow convenient inspection of fluid levels, condensate drain and drive belt tension whilst the unit is in operation.



## KAESER FILTER for pure air

Thanks to lowest possible differential pressure, original KAESER FILTER products (optional) efficiently ensure compressed air of all purity classes as per ISO 8573-1, whilst allowing rapid and clean replacement of the filter elements. They are available in four different filter grades.



# KAESER

## SM 13

SIGMA 







# Equipment

## Complete system

Ready-to-run, fully automatic, super-silenced, vibration damped, all panels powder coated. Suitable for use in ambient temperatures up to +45 °C.

## Airend

Genuine KAESER single-stage airend with SIGMA PRO-FILE rotors and cooling fluid injection for optimised rotor cooling.

## Electric motor

Super Premium Efficiency IE4 (Premium Efficiency IE3 in SM 10 / SM 16) motor, quality German manufacture, IP 55.

## Fluid and air flow

"Honeycomb" structure air intake filter, pneumatic inlet and venting valves, cooling fluid separator tank with triple separation system, pressure relief valve, minimum pressure / check valve, thermostatic valve and fluid filter within the cooling fluid circuit, fluid / compressed air combination cooler.

## Refrigeration dryer (with T version)

Pressure dew point measurement via PT 100 sensor and electronic level-controlled condensate drain with alarm contact as standard. Refrigerant compressor with energy-saving, cycling shutdown feature; linked to operational status of the compressor when inactive. Alternatively, continuous operation can be selected on site.

## Electrical components

Ventilated IP 54 control cabinet, automatic star-delta starter, overload relay, control transformer.

## SIGMA CONTROL 2

"Traffic light" LED indicators show operational status at a glance; plain text display, over 30 selectable languages, soft-touch keys with icons, fully automated monitoring and control. Selection of Dual, Quadro, Vario and Continuous control modes as standard. Interfaces: Ethernet; additional optional communications modules for: Profibus DP, Modbus, Profinet and Devicenet. SD card slot for data-logging and updates. Reader and web server.

## SIGMA AIR MANAGER 4.0

The refined adaptive 3-D<sup>advanced</sup> Control predictively calculates and compares the various operating options and selects the most efficient one to suit the specific needs of the application.

The SIGMA AIR MANAGER 4.0 constantly adjusts flow rates and compressor energy consumption in response to current compressed air demand. This optimisation is made possible by the integrated industrial PC with multi-core processor, in combination with the adaptive 3-D<sup>advanced</sup> Control. Furthermore, the SIGMA NETWORK bus converter (SBC) provides a host of possibilities for enabling the system to be individually tailored to meet specific user requirements. The SBC can be equipped with digital and analogue input and output modules, as well as with SIGMA NETWORK ports, in order to enable seamless display of flow rate, pressure dew point, performance or alarm message information.

Amongst other key features, the SIGMA AIR MANAGER 4.0 provides long-term data storage capacity for reporting, controlling and audits, as well as for energy management tasks as per ISO 50001.

*(See image on right; extract from the SIGMA AIR MANAGER 4.0 brochure)*

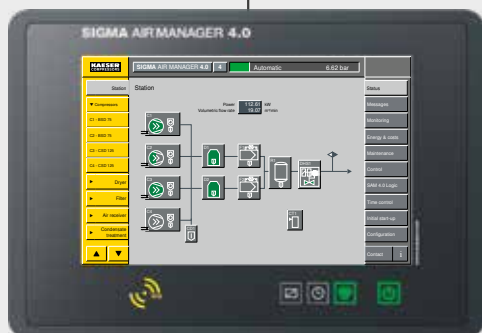


Digital output device, e.g. laptop



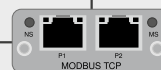
Control centre

KAESER CONNECT



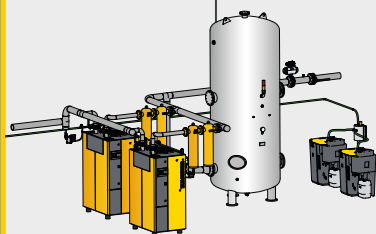
SIGMA AIRMANAGER 4.0

Communications module e.g. Modbus TCP

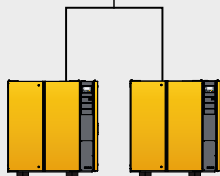


## KAESER SIGMA NETWORK

SIGMA NETWORK  
PROFIBUS Master



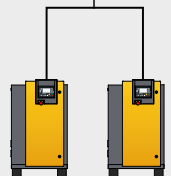
Various connection possibilities  
for treatment components



Connection of conventional  
compressors possible



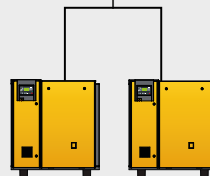
Controller:  
SIGMA CONTROL 2



Connection of compressors with  
SIGMA CONTROL 2



Controller:  
SIGMA CONTROL



Connection of compressors with  
SIGMA CONTROL; connection to stations  
with Profibus network (SAM 1 alternative)



# Secure data – secure business!

# Technical specifications

## Standard versions

Model	Gauge working pressure bar	Flow rate <sup>1)</sup> complete system at gauge working pressure m³/min	Max. gauge pressure bar	Drive motor rated power kW	Dimensions W x D x H mm	Compressed air connection	Sound pressure level <sup>2)</sup> dB(A)	Mass kg
SM 10	7.5	0.94	8	5.5	630 x 790 x 1100	G 3/4	62	220
	10	0.78	11					
	13	0.60	15					
SM 13	7.5	1.32	8	7.5	630 x 790 x 1100	G 3/4	65	240
	10	1.08	11					
	13	0.85	15					
SM 16	7.5	1.62	8	9.0	630 x 790 x 1100	G 3/4	66	240
	10	1.36	11					
	13	1.09	15					

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

Model	Gauge working pressure bar	Flow rate <sup>1)</sup> complete system at gauge working pressure m³/min	Max. gauge pressure bar	Drive motor rated power kW	Refrigeration dryer model	Dimensions W x D x H mm	Compressed air connection	Sound pressure level <sup>2)</sup> dB(A)	Mass kg
SM 10 T	7.5	0.94	8	5.5	ABT 15	630 x 1090 x 1100	G 3/4	62	295
	10	0.78	11						
	13	0.60	15						
SM 13 T	7.5	1.32	8	7.5	ABT 15	630 x 1090 x 1100	G 3/4	65	315
	10	1.08	11						
	13	0.85	15						
SM 16 T	7.5	1.62	8	9.0	ABT 15	630 x 1090 x 1100	G 3/4	66	315
	10	1.36	11						
	13	1.09	15						

## SFC - Version with variable-speed drive

Model	Gauge working pressure bar	Flow rate <sup>1)</sup> complete system at gauge working pressure m³/min	Max. gauge pressure bar	Drive motor rated power kW	Dimensions W x D x H mm	Compressed air connection	Sound pressure level <sup>2)</sup> dB(A)	Mass kg
SM 13 SFC	7.5	0.39 - 1.40	8	7.5	630 x 790 x 1100	G 3/4	67	250
	10	0.40 - 1.19	11					
	13	0.42 - 0.95	15					

## T SFC - Version with variable-speed drive and integrated refrigeration dryer

Model	Gauge working pressure bar	Flow rate <sup>1)</sup> complete system at gauge working pressure m³/min	Max. gauge pressure bar	Drive motor rated power kW	Refrigeration dryer model	Dimensions W x D x H mm	Compressed air connection	Sound pressure level <sup>2)</sup> dB(A)	Mass kg
SM 13 T SFC	7.5	0.39 - 1.40	8	7.5	ABT 15	630 x 1090 x 1100	G 3/4	67	325
	10	0.40 - 1.19	11						
	13	0.42 - 0.95	15						



#### AIRCENTER - Versions with refrigeration dryer and air receiver

Model	Gauge working pressure bar	Flow rate <sup>*)</sup> complete system at gauge working pressure m³/min	Max. gauge pressure bar	Drive motor rated power kW	Refrigeration dryer model	Air receiver volume l	Dimensions W x D x H mm	Compressed air connection	Sound pressure level <sup>**)</sup> dB(A)	Mass kg
AIRCENTER 10	7.5	0.94	8	5.5	ABT 15	270	630 x 1220 x 1720	G 3/4	62	420
	10	0.78	11							
	13	0.60	15							
AIRCENTER 13	7.5	1.32	8	7.5	ABT 15	270	630 x 1220 x 1720	G 3/4	65	440
	10	1.08	11							
	13	0.85	15							
AIRCENTER 16	7.5	1.62	8	9.0	ABT 15	270	630 x 1220 x 1720	G 3/4	66	440
	10	1.36	11							
	13	1.09	15							

#### AIRCENTER - Versions with variable-speed drive

Model	Gauge working pressure bar	Flow rate <sup>*)</sup> complete system at gauge working pressure m³/min	Max. gauge pressure bar	Drive motor rated power kW	Refrigeration dryer model	Air receiver volume l	Dimensions W x D x H mm	Compressed air connection	Sound pressure level <sup>**)</sup> dB(A)	Mass kg
AIRCENTER 13 SFC	7.5	0.39 - 1.40	8	5.5	ABT 15	270	630 x 1220 x 1720	G 3/4	62	450
	10	0.40 - 1.19	11							
	13	0.42 - 0.95	15							

\*) Flow rate complete system as per ISO 1217: 2009 Annex C/E: 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)

\*\*\*) Power consumption (kW) at ambient temperature +20° and 30 % relative humidity

#### Technical specifications for add-on refrigeration dryer

Model	Refrigeration dryer power consumption kW	Pressure dew point °C	Refrigerant	Refrigerant charge kg	Greenhouse warming potential GWP	CO <sub>2</sub> equivalent t	Hermetic refrigeration circuit
ABT 15	0.37	3	R-513A	0.35	631	0.22	Yes

# 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.



## **KAESER KOMPRESSOREN SE**

P.O. Box 2143 – 96410 Coburg – GERMANY – Tel +49 9561 640-0 – Fax +49 9561 640-130  
e-mail: [productinfo@kaeser.com](mailto:productinfo@kaeser.com) – [www.kaeser.com](http://www.kaeser.com)