



# Rotary Screw Compressors

## ASK Series

With the world-renowned SIGMA PROFILE

Flow rate 0.79 to 4.65 m<sup>3</sup>/min, Pressure 5.5 to 15 bar

[www.kaeser.com](http://www.kaeser.com)

# ASK – Maximum performance

Today's users expect maximum availability and efficiency from their compressors, regardless of size. It will therefore come as no surprise that KAESER's ASK series rotary screw compressors go far beyond simply meeting these key expectations. 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.

## More air for your money

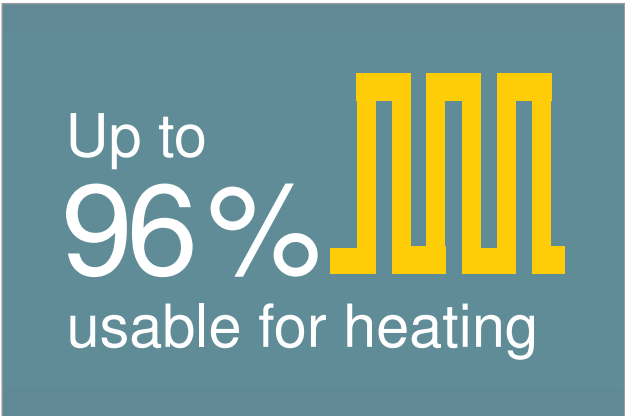
ASK series rotary screw compressors are true class leaders when it comes to performance. Thanks to a redeveloped airend featuring further-optimised SIGMA PROFILE rotors and low-speed operation, the latest ASK models deliver up to 16% higher flow rates compared to their predecessors.

## Energy-saving performance

The efficiency of a machine depends on the total costs incurred throughout its entire service life. KAESER therefore designed their ASK series compressors with optimum energy efficiency in mind. Refinements to the energy-saving SIGMA PROFILE rotors inside the airend and the use of Premium Efficiency IE3 motors have contributed significantly to the increased performance of these versatile compressors. The addition of a SIGMA CONTROL 2 controller and KAESER's unique cooling system has helped to push the boundaries of efficiency even further.

## Optimised design

All ASK models share logical and user-friendly design throughout. For example, the housing doors can be opened in a few simple steps to allow excellent visibility of the system's intelligently laid-out components. Needless to say, the ASK series was designed to ensure best possible access to all service points. When closed, the sound-absorbing compressor housing keeps operating noise to a minimum, thereby ensuring a pleasantly quiet working environment. Moreover, with its two intake openings, the enclosure provides separate air flows for highly efficient cooling of the compressor and drive motor. Last but not least, ASK series compressors are impressively compact, which makes them 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? Amazingly, up to 100% of the electrical energy supplied to a 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



Image: ASK 28





ASK series

# Quality is in the details



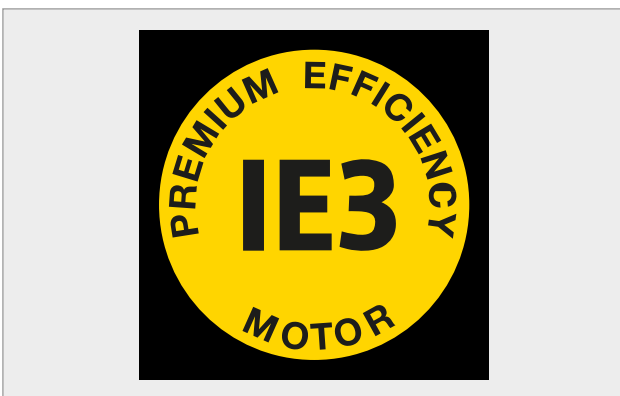
## Save energy with the SIGMA PROFILE

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



## SIGMA CONTROL 2 controller

The internal SIGMA CONTROL 2 controller ensures efficient compressor control and monitoring at all times. The large display and RFID reader provide easy communication and maximum security. Integration into the SIGMA NETWORK is also available.



## Energy-saving IE3 motors

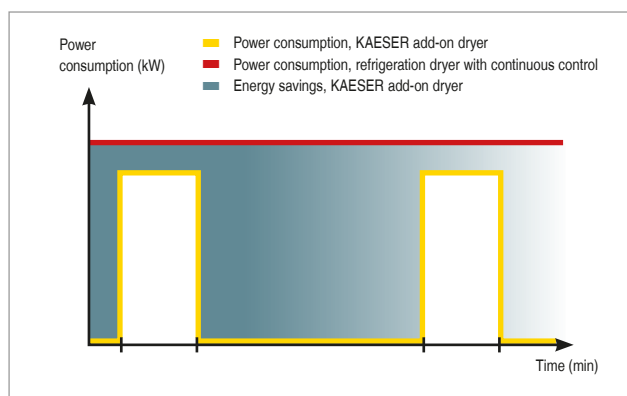
Naturally, every KAESER ASK series rotary screw compressor features an energy-saving, Premium Efficiency IE3 drive motor.



## 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.

## With energy-efficient add-on dryer



### Energy-saving control

The integrated refrigeration dryer in ASK T units operates at a high level of efficiency thanks to its energy-saving control, whereby it is only activated when compressed air actually needs to be dried. As a result, the required compressed air quality is achieved with maximum energy efficiency.



### Efficient refrigeration dryer

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



### Refrigeration dryer with ECO-DRAIN

The refrigeration dryer is equipped with an ECO-DRAIN automatic condensate drain. Activated electronically, this advanced, level-controlled condensate drain eliminates the compressed air losses associated with solenoid valve control, 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, dry compressed air.

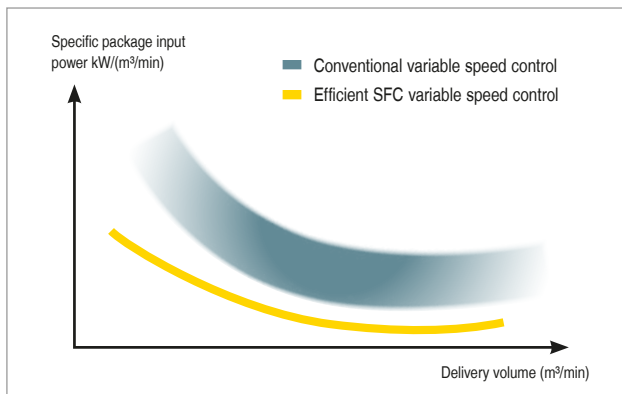


Image: ASK 28 T



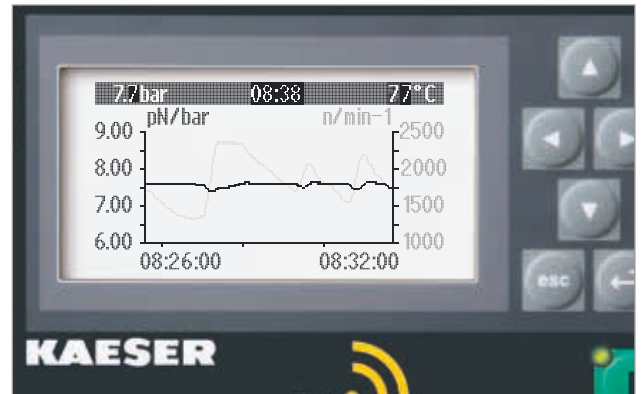
Image: ASK 40 T SFC

# 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 without running at extreme speeds. This saves energy, maximises service life and enhances reliability.



## Precision pressure control

The flow rate can be adjusted within the control range according to pressure, so as to match the actual compressed air demand. As a result, working pressure is precisely maintained to within  $\pm 0.1$  bar. This allows the maximum pressure to be reduced, thereby saving energy and therefore costs.



## Integrated SFC control cabinet

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



## EMC-certified complete system

It goes without saying that, like all KAESER products, ASK SFC series units are tested and certified for electro-magnetic compatibility in accordance with the European EMC directive, as well as with the German EMC Act, as indicated by the VDE EMC mark.









# 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

## 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 energy-saving SIGMA PROFILE rotors and cooling fluid injection for optimised cooling

## Drive

V-belt drive with automatic belt tensioning

## Electric motor

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

## Electrical components

IP 54 control cabinet, control transformer, Siemens frequency converter, floating contacts for ventilation systems

## Fluid and air flow

Dry air intake filter, pneumatic intake and venting valves, cooling fluid reservoir with three-stage separator system, safety valve, minimum pressure check valve, thermostatic valve and fluid microfilter, 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, scroll refrigerant compressor with energy-saving shut-off feature, hot gas bypass control, electronic level-controlled condensate drain

## Heat recovery (HR)

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

## 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. Selection of Dual, Quadro, Vario and Continuous control as standard. Ethernet interface for connection to the SIGMA NETWORK; SD card slot for data-logging and updates; RFID reader

Connection to centralised control systems available via optional communications module for: Profibus DP, Modbus, Profinet and Devicenet, web server.

# How it works

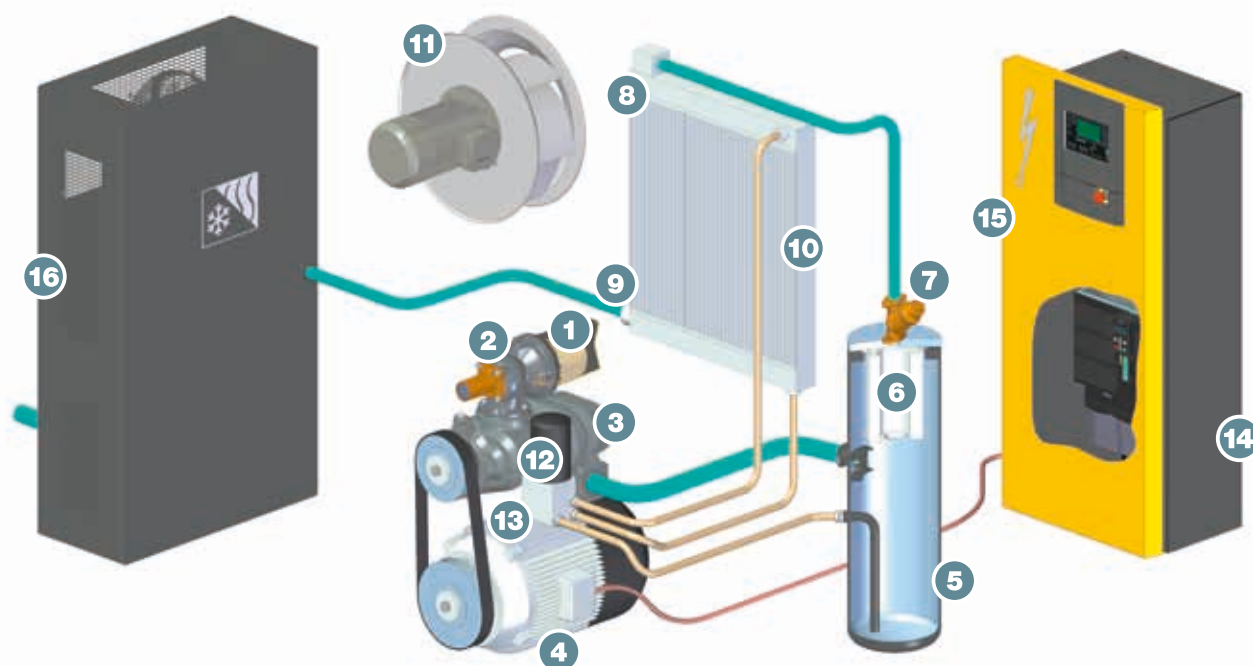
The air for compression passes through the intake filter (1) and the inlet valve (2) into the SIGMA PROFILE airend (3). The airend (3) is driven by a high-efficiency electric motor (4). The cooling oil injected for cooling purposes during the compression process is separated from the air inside the fluid 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 consistent operating temperatures. The control cabinet (14) houses the internal SIGMA CONTROL 2 compressor controller (15) and, depending on the machine version, the star-delta starter or the frequency converter (SFC).

Some systems also feature an optional add-on dryer (16) 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 2
- (16) Add-on dryer



# Technical specifications

## Standard versions

Model	Gauge working pressure	Flow rate, *) complete system at gauge working pressure	Max. gauge pressure	Drive motor rated power	Dimensions W x D x H	Compressed air connection	Sound pressure level **)	Mass
	bar	m³/min	bar	kW	mm		dB(A)	kg
<b>ASK 28</b>	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					
<b>ASK 34</b>	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					
<b>ASK 40</b>	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	Gauge working pressure	Flow rate, *) complete system at gauge working pressure	Max. gauge pressure	Drive motor rated power	Dimensions W x D x H	Compressed air connection	Sound pressure level **)	Mass
	bar	m³/min	bar	kW	mm		dB(A)	kg
<b>ASK 34 SFC</b>	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					
<b>ASK 40 SFC</b>	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	Gauge working pressure bar	Flow rate, *) 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 **) dB(A)	Mass kg
<b>ASK 28 T</b>	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						
<b>ASK 34 T</b>	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						
<b>ASK 40 T</b>	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	Gauge working pressure bar	Flow rate, *) 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 **) dB(A)	Mass kg
<b>ASK 34 T SFC</b>	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						
<b>ASK 40 T SFC</b>	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 specifications for add-on refrigeration dryer

Model	Refrigeration dryer power consumption kW	Pressure dew point °C	Refrigerant	Refrigerant charge kg	Global warming potential GWP	CO <sub>2</sub> equivalent t	Hermetic refrigeration circuit
<b>ABT 40</b>	0.60	+3	R-513A	0.57	631	0.36	—

# 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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# Rotary Screw Compressors

## **BSD Series**

With the world-renowned SIGMA PROFILE

Flow rate 1.12 to 8.19 m<sup>3</sup>/min, Pressure 5.5 to 15 bar

# BSD – More efficient than ever

With its latest generation of BSD series rotary screw compressors, KAESER pushes the boundaries of compressed air availability and efficiency even further. Not only do they deliver more compressed air for less energy, but they also combine user-friendliness and ease of maintenance with exceptional versatility and environmentally responsible design.

## BSD – Multiple savings

New BSD series compressors from KAESER save energy in numerous different ways. Equipped with newly refined SIGMA PROFILE rotors, the airends are controlled and monitored by the industrial PC-based SIGMA CONTROL 2 compressor controller. This advanced controller matches compressed air delivery to actual current demand and keeps costly idling time to an absolute minimum, thanks to its Dynamic control mode.

## Variable speed control with reluctance motor

The new synchronous reluctance motor combines the advantages of both asynchronous and synchronous motors, all within a single drive system. The motor contains no aluminium, copper or expensive rare earth materials, making the drive system durable and easy to service. Furthermore, the functional principle keeps heat losses in the motor to a minimum, which results in significantly lower bearing temperatures, thereby ensuring extended service life for the motor and bearings. In terms of losses, the synchronous reluctance motor, coupled with a perfectly-matched frequency converter, delivers superior performance over asynchronous motors — especially in the partial load range.

## Perfect partners

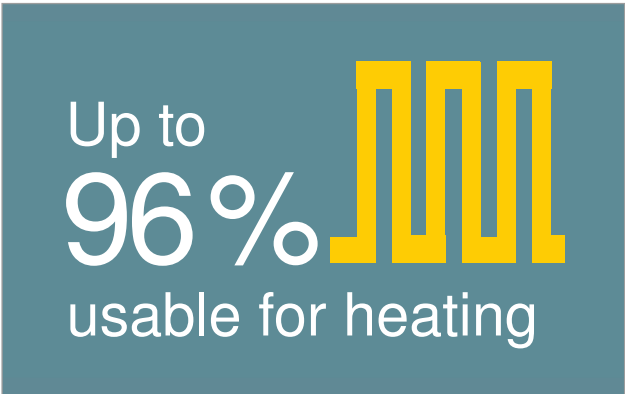
BSD series rotary screw compressors are the perfect partners for high-efficiency industrial compressed air stations. The internal SIGMA CONTROL 2 controller offers numerous communication channels, allowing seamless integration into master control systems such as KAESER's SIGMA AIR MANAGER, as well as in-house central control systems. This allows unprecedented levels of efficiency to be achieved.

## Electronic Thermo Management (ETM)

Powered via an electric motor and integrated into the cooling circuit, the sensor-controlled temperature control valve is at the heart of the innovative Electronic Thermo Management (ETM) system. The new SIGMA CONTROL 2 compressor controller monitors inlet air and compressor temperature so as to prevent the formation of condensate, even at varying air humidity levels. The ETM system dynamically control fluid temperatures, ensuring they remain as low as possible for greater energy efficiency. It also enables the operator to adapt the heat recovery system better to suit their specific requirements.

## 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.

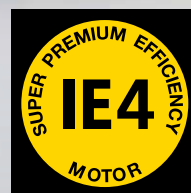


Up to  
**96%**  
usable for heating

# Service-friendly design



Image: BSD 65







# Uncompromising efficiency



## Energy savings with SIGMA PROFILE

At the heart of every BSD rotary screw compressor lies a premium-quality air end featuring Kaeser's energy-saving SIGMA PROFILE rotors. Flow-optimised for impressive performance, these advanced rotors help KAESER BSD systems set the highest standards in terms of specific output.



## SIGMA CONTROL 2: Optimum efficiency

The internal SIGMA CONTROL 2 controller ensures efficient compressor control and monitoring at all times. The large display and RFID reader provide easy communication and maximum security. Variable interfaces enable seamless networking capability, whilst the SD card slot makes updates quick and easy.



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

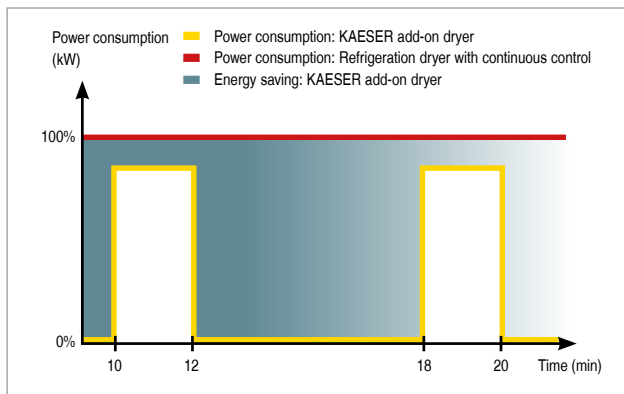
KAESER is currently the only compressed air systems provider to equip some of its compressors with Super Premium Efficiency IE4 drive motors as standard, thereby delivering unrivalled levels of performance and energy efficiency.



## Required temperature assured

The innovative Electronic Thermo Management (ETM) system dynamically controls fluid temperatures according to the prevailing operating conditions, so as to ensure reliable prevention of condensate accumulation and also to boost energy efficiency.

# Premium compressed air quality thanks to add-on refrigeration dryer



## Energy saving control

BSD T units are equipped with a highly efficient integrated refrigeration dryer featuring energy saving control. This means that the dryer is only activated when compressed air actually needs to be dried: as a result, the required compressed air quality is achieved with maximum energy efficiency.



## Dependable KAESER centrifugal separator

A KAESER centrifugal separator with electronic ECO-DRAIN condensate drain is installed upstream from the refrigeration dryer, ensuring reliable condensate pre-separation and drainage, even at high ambient temperatures and humidity levels.



## Refrigeration dryer with ECO-DRAIN

The refrigeration dryer also features a level-controlled ECO-DRAIN electronic condensate drain, which reliably eliminates the compressed air losses associated with units using solenoid valve control. This saves energy and considerably enhances operational reliability.



## Future-proof refrigerant

The new EU 517/2014 F-Gas Regulation is intended to minimise emissions of fluorinated greenhouse gases and therefore contribute to limiting global warming. KAESER's new T-systems are designed to use R-513A refrigerant, which has a very low GWP (Global Warming Potential) value. This means that these efficient dryers will be future-proof for their entire life cycle.



Image: BSD 83 T



High-efficiency drive system: Efficiency class IES2



### The new standard: IEC 61800-9-2

The European eco-compatible design standard IEC 61800-9-2 defines the requirements for drive systems in electrically driven production machines. It specifies a required level of system efficiency, taking into account losses from the motor and frequency converter. With 20% lower losses as compared to the benchmark, KAESER systems meet this standard with ease.

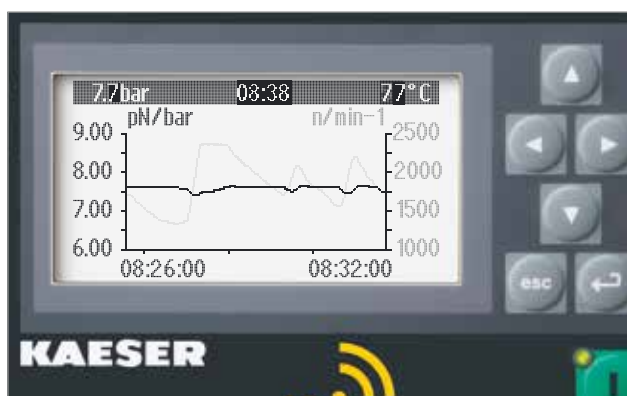


### Maximum energy efficiency

KAESER's frequency-controlled systems meet the IES2 efficiency standard, which is the highest achievable level of efficiency as per IEC 61800-9-2. The level IES2 indicates that losses are 20% lower than the required benchmark.



# Rotary screw compressors with variable speed control and synchronous reluctance motor



## Precision pressure control

The flow rate can be adjusted within the control range, according to pressure. The working pressure is kept constant to within  $\pm 0.1$  bar. This allows the maximum pressure to be reduced, thereby saving energy and therefore costs.



## Durable and service-friendly

Durable and service-friendly: The rotors in the synchronous reluctance motor do not contain aluminium, copper or magnetic rare earth materials. This makes the bearings and rotors as easy to replace as those in asynchronous motors. The functional principle keeps heat losses in the motor to a minimum, which results in significantly lower bearing temperatures, thereby ensuring extended service life for the motor and bearings.



## Separate SFC control cabinet

The SFC frequency converter is housed within its own control cabinet, in order to shield it from heat arising from the compressor. A separate fan keeps operating temperatures in the optimum range, so as to ensure maximum performance and longest possible service life.



## EMC-certified

It goes without saying that the SFC control cabinet and SIGMA CONTROL 2 are tested and certified, both as individual components and as a complete system, to EMC directive EN 55011 for Class A1 industrial power supplies.

# Maximum efficiency with frequency-controlled synchronous reluctance motors



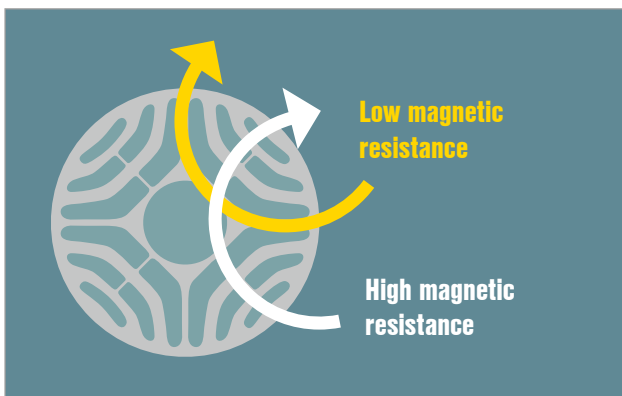
## High-efficiency synchronous reluctance motor

This range of motors combines the advantages of both asynchronous and synchronous motors, all within a single drive system. The rotors contain no aluminium, copper or magnetic rare earth materials. They are constructed from electrical steel, feature a special profile and are arranged in series. This makes the drive highly durable and easy to service.



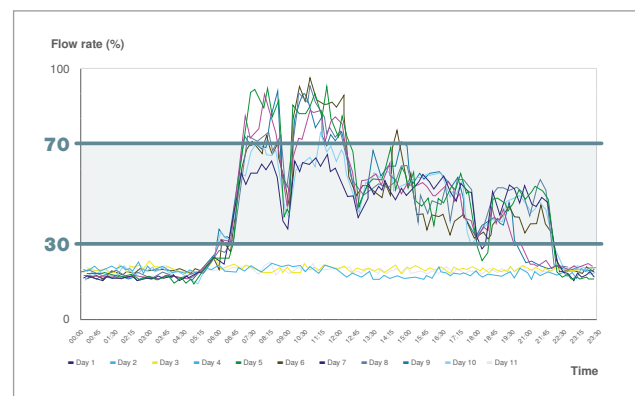
## High-performance frequency converter

The Siemens frequency converter has a control algorithm specifically adapted to the motor. With the perfectly-matched combination of frequency converter and synchronous reluctance motor, KAESER achieves the highest possible system efficiency class of IES2 as per IEC 61800-9-2.



## How the reluctance motor works

In a synchronous reluctance motor, the torque is generated by magnetic reluctance. The rotor features salient poles and is made of a soft magnetic material, such as electrical steel, which is highly permeable to magnetic fields.

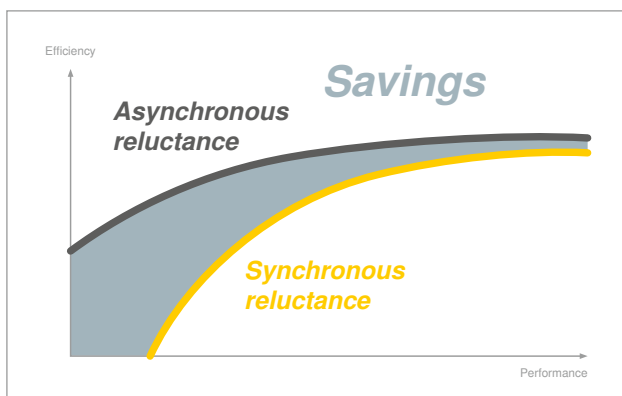
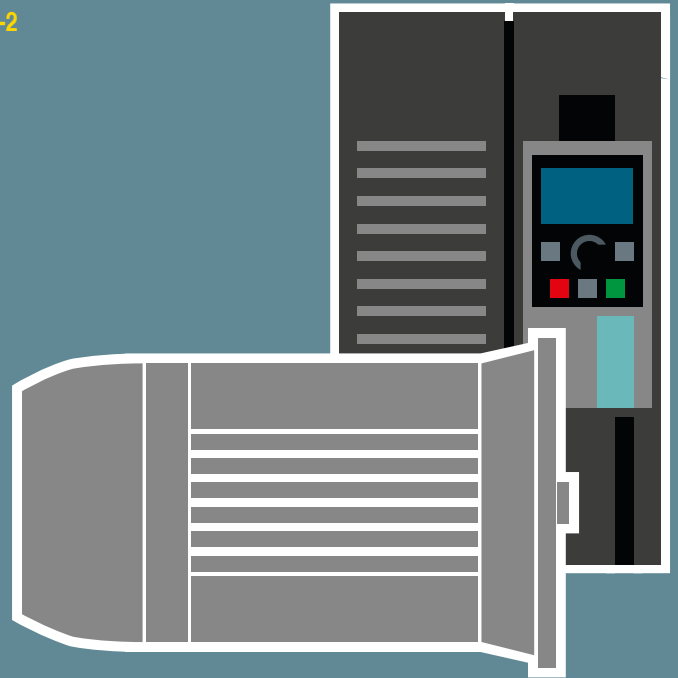


## Minimal operating costs – exceptional productivity

Considerable energy savings are possible thanks to significantly higher levels of efficiency – especially in the partial load range – as compared to systems using asynchronous drive motors. The low moment of inertia of synchronous reluctance motors allows very short cycles, thereby boosting the productivity of the machine and the system as a whole.

# Your **benefits** at a glance:

- ✓ Best system efficiency class: IES2 as per IEC 61800-9-2
- ✓ Maximum energy efficiency across the whole control range
- ✓ Durable, service-friendly drive system
- ✓ Advanced drive technology
- ✓ Minimal operating costs, high productivity and availability
- ✓ Industrie 4.0-ready
- ✓ Complete system EMC-certified



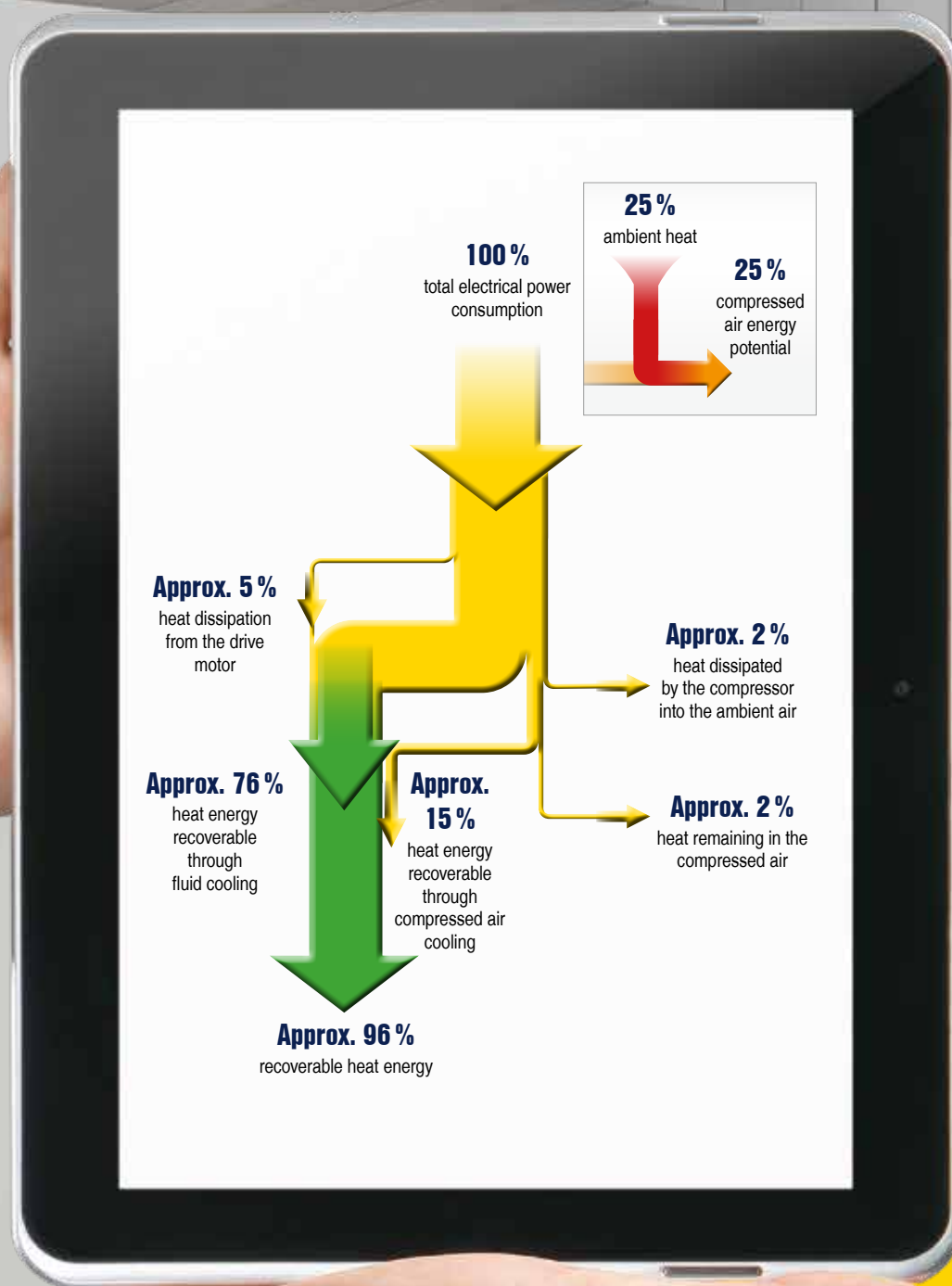
## Applications for compressors with variable speed control and synchronous reluctance motor

A recent study shows that the typical compressed air consumption profile is in the range of 30–70% of the maximum. This is where a rotary screw compressor equipped with variable speed control and a synchronous reluctance motor can demonstrate its energy efficiency advantages in the partial load range to the full.



## High efficiency in partial load operation

Synchronous reluctance motors achieve significantly higher efficiency in the partial load range than asynchronous motors. This allows savings of up to 10% when compared to conventional variable-speed systems.



#### Savings calculation example for warm air heat recovery in terms of fuel oil (BSD 65)

Maximum available heat capacity:	35.2 kW
Calorific value per litre of fuel oil:	9.86 kWh/l
Fuel oil heating efficiency:	90% (0.9)
Price per litre of fuel oil:	0.60 €/l


**Cost saving:**  $\frac{35.2 \text{ kW} \times 2000 \text{ h per year}}{0.9 \times 9.86 \text{ kWh/l}} \times 0.60 \text{ €/l} = \text{€ 4,759 per year}$

Further information regarding heat recovery:  
<http://www.kaeser.com/products/rotaryscrewcompressors/heatrecovery/>

Heat recovery system

## Cost-effective heating

Up to  
**96%**  
usable for heating



### Heat recovery just makes sense

Amazingly, 100% of the electrical drive energy supplied to a compressor is converted into heat energy. Of that heat, up to 96% can be recovered and reused for heating purposes. Use this potential to your advantage!



### Space heating with warm exhaust air

Heating made simple: Thanks to the radial fan with high residual thrust, (warm) exhaust air can easily be ducted away to spaces that require heating. This simple process is thermostatically controlled.

Up to  
**+70 °C**  
heat



### Process, heating and service water

Thanks to the plate-type<sup>\*)</sup> heat exchanger system, compressor exhaust heat can be used to produce hot water with temperatures up to +70 °C, which can then be used for a wide range of applications. Higher temperatures are available upon request.

<sup>\*)</sup> optionally available integrated into the package



### Clean hot water

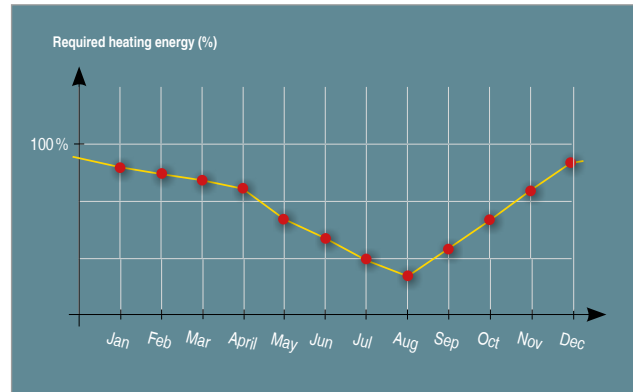
When there is no other water circuit connected, special fail-safe heat exchangers meet the highest demands for water purity, such as those required for cleaning water in the foodstuff industry.

# Energy-saving, versatile and flexible



## PTG plate-type heat exchanger system

PTG plate-type heat exchangers consist of a package of pressed stainless steel plates. They provide excellent heat exchange characteristics from an impressively compact design. PTG heat exchangers can be integrated into existing hot water supply systems and are suited for industrial applications.



## Required heating energy across the whole year

It goes without saying that heating is essential during the winter months. However, it is also needed to a greater or lesser extent at other times of the year, such as in the spring and autumn. In fact, energy for heating purposes is actually required for approximately 2000 hours per year.



## Conserve energy resources

In view of steadily rising energy costs, conservation of energy resources is not only important for the environment, but also an economic necessity. Heat recovered from rotary screw compressors can not only be used for space-heating purposes during the winter months, but can also reduce energy costs when used for other processes.



## Use heat energy for your heating systems

Up to 76 percent of the original energy supplied to the compressor can be recovered and reused in water heating systems and service water installations. This significantly reduces the primary energy demand required for heating purposes.





# 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.

## Sound insulation

Panels lined with laminated mineral wool.

## Vibration damping

Double insulated anti-vibration mounts with rubber bonded metal elements.

## Airend

Genuine KAESER single-stage airend with energy-saving SIGMA PROFILE and cooling fluid injection for optimised rotor cooling; 1:1 direct drive.

## Drive

1:1 direct drive with highly flexible coupling, without gearing.

## Electric motor

Standard system with Super Premium Efficiency IE4 drive motor, quality German manufacture, IP 55, Iso F class insulation for additional reserve; Pt100 temperature sensor in windings for monitoring of the motor; externally lubricated bearings.

## Optional SFC frequency converter

Synchronous reluctance motor, quality German manufacture, IP 55, with Siemens frequency converter; meets IES2 system efficiency standard; externally lubricated bearings.

## Electrical components

IP 54 control cabinet, control transformer, Siemens frequency converter, floating contacts for ventilation systems.

## Cooling fluid and air flow

Dry air filter; pneumatic inlet and venting valve; cooling fluid reservoir with three-stage separation system; safety valve, minimum pressure check valve, Electronic Thermo Management (ETM) and eco-fluid filter in the cooling fluid circuit; fully piped, flexible line connections.

## Cooling

Air-cooled; separate aluminium cooler for compressed air and cooling fluid; radial fan with separate electric motor, Electronic Thermo Management (ETM).

## Refrigeration dryer

CFC-free, R-513A refrigerant, hermetically sealed refrigerant circuit, scroll refrigerant compressor with energy-saving shut-off feature, hot gas bypass control, electronic condensate drain, upstream centrifugal separator.

## Heat recovery (HR)

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

## SIGMA CONTROL 2

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

## SIGMA AIR MANAGER 4.0

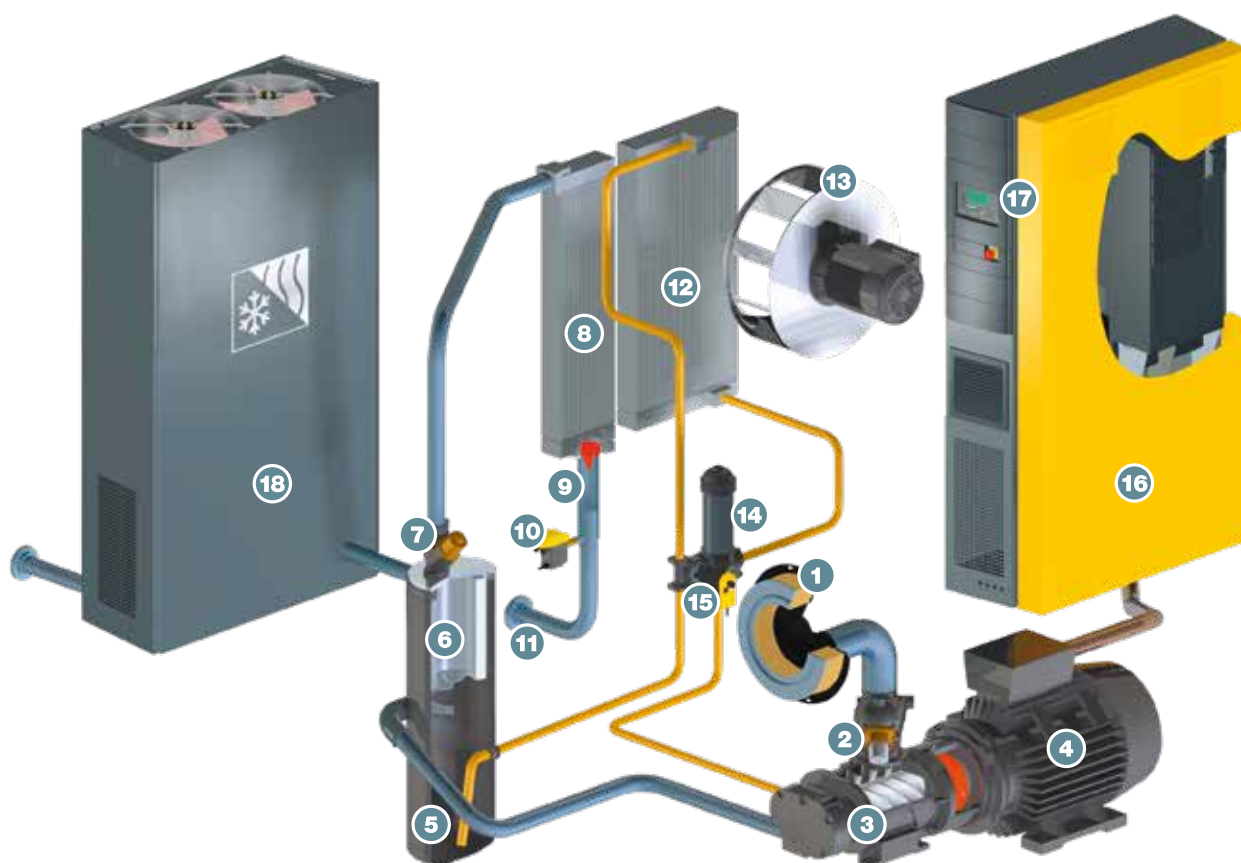
The refined adaptive 3-D<sup>advanced</sup> Control predictively calculates and compares the various operating options and selects the most efficient one to suit the specific needs of the application. The SIGMA AIR MANAGER 4.0 constantly adjusts flow rates and compressor energy consumption in response 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 converters (SBC) provide a host of possibilities to enable the system to be individually tailored to meet exact user requirements. The SBC can be equipped with digital and analogue input and output modules, as well as with SIGMA NETWORK ports, to enable seamless display of pressure, flow rate, pressure dew point, power or alarm message information.

# How it works

The air for compression passes through the inlet filter (1) and the inlet valve (2) into the SIGMA PROFILE airend (3). The compressor airend (3) is driven by a high-efficiency electric motor (4). The cooling oil injected for cooling purposes during compression is separated from the air in 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). Following cooling, any accumulating condensate is removed from the compressed air by the integrated centrifugal separator (9) and is then drained away via the add-on ECO-DRAIN condensate drain (10). The condensate-free compressed air then leaves the system via the compressed air connection (11). The heat generated during the compression process is removed from the cooling oil via the fluid cooler (12) and dissipated into the surrounding ambient air by a separate fan with fan motor (13). The cooling oil is then cleaned by the ECO fluid filter (14). The Electronic Thermo Management (ETM) system (15) ensures lowest possible operating temperatures. The control cabinet (16) houses the internal SIGMA CONTROL 2 compressor controller (17) and, depending on the compressor model, the star-delta starter or frequency converter (SFC). Versions are available featuring an add-on refrigeration dryer (18) for cooling the compressed air down to +3°C, thereby effectively removing all moisture.

- (1) Inlet filter
- (2) Inlet valve
- (3) SIGMA PROFILE airend
- (4) IE4 drive motor
- (5) Fluid separator tank
- (6) Oil separator cartridge
- (7) Minimum pressure check valve
- (8) Compressed air aftercooler
- (9) KAESER centrifugal separator
- (10) ECO-DRAIN condensate drain
- (11) Compressed air connection
- (12) Fluid cooler
- (13) Fan motor
- (14) ECO fluid filter
- (15) Electronic Thermo Management
- (16) Control cabinet with integrated SFC frequency converter
- (17) SIGMA CONTROL 2 compressor controller
- (18) Add-on refrigeration dryer



# Technical specifications

## Standard versions

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	Dimensions W x D x H mm	Compressed air connection	Sound pressure level <sup>**)</sup> dB(A)	Mass kg
<b>BSD 65</b>	7.5	5.65	8.5	30	1590 x 1030 x 1700	G 1 ½	69	970
	10	4.52	12					
	13	3.76	15					
<b>BSD 75</b>	7.5	7.00	8.5	37	1590 x 1030 x 1700	G 1 ½	70	985
	10	5.60	12					
	13	4.43	15					
<b>BSD 83</b>	7.5	8.16	8.5	45	1590 x 1030 x 1700	G 1 ½	71	1060
	10	6.85	12					
	13	5.47	15					



## SFC - Versions with variable speed control

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	Dimensions W x D x H mm	Compressed air connection	Sound pressure level <sup>**)</sup> dB(A)	Mass kg
<b>BSD 75 SFC</b>	7.5	1.54 - 7.44	10	37	1665 x 1030 x 1700	G 1 ½	72	1020
	10	1.51 - 6.51	10					
	13	1.16 - 5.54	15					



\*) Flow rate complete system as per ISO 1217: 2009 Annexe 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° C and 30% relative humidity

### 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
BSD 65 T	7.5	5.65	8.5	30	ABT 83	1990 x 1030 x 1700	G 1 ½	69	1100
	10	4.52	12						
	13	3.76	15						
BSD 75 T	7.5	7.00	8.5	37	ABT 83	1990 x 1030 x 1700	G 1 ½	70	1115
	10	5.60	12						
	13	4.43	15						
BSD 83 T	7.5	8.16	8.5	45	ABT 83	1990 x 1030 x 1700	G 1 ½	71	1190
	10	6.85	12						
	13	5.47	15						



### T SFC - Versions with variable speed control 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
BSD 75 T SFC	7.5	1.54 - 7.44	10	37	ABT 83	2065 x 1030 x 1700	G 1 ½	72	1150
	10	1.51 - 6.51	10						
	13	1.16 - 5.54	15						



### Technical specifications for add-on refrigeration dryer

Model	Refrigeration dryer power consumption kW	Pressure dew point °C	Refrigerant	Refrigerant charge kg	Global warming potential GWP	CO <sub>2</sub> equivalent t	Hermetic refrigeration circuit
ABT 83	0.90	+3	R-513A	1.20	631	0.76	–



# 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

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# Rotary Screw Compressors

## CSD(X) Series

With the world-renowned SIGMA PROFILE

Flow rate 1.1 to 17.5 m<sup>3</sup>/min, Pressure 5.5 to 15 bar

# CSD(X) – Even more efficient

KAESER KOMPRESSOREN pushes the boundaries of compressed air efficiency once again with its latest generation of CSD(X) series rotary screw compressors. Not only do the further optimised CSD(X) compressors deliver more compressed air for less energy, but they also combine ease of use and maintenance with exceptional versatility and environmentally responsible design.

## CSD(X) – Multiple savings

The newly refined CSD(X) systems save energy in multiple ways: the compressor airends are equipped with the further optimised SIGMA PROFILE rotors and are controlled and monitored via the industrial-PC-based SIGMA CONTROL 2 compressor controller. This advanced controller matches compressed air delivery to actual demand and uses dynamic control to keep costly idling time to an absolute minimum.

## Variable speed control with synchronous reluctance motor

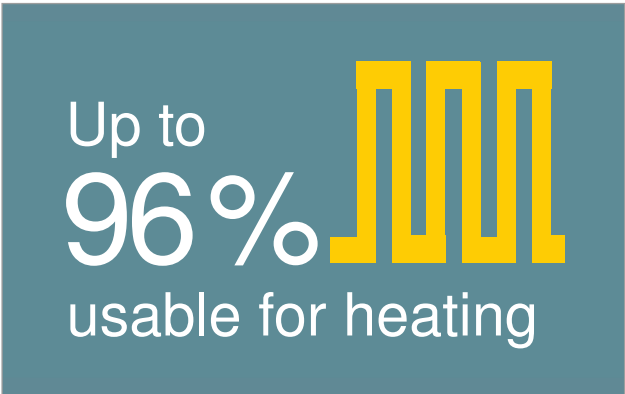
The new synchronous reluctance motor combines the advantages of asynchronous and synchronous motors in one drive system. The motor contains no aluminium, copper or costly rare earth magnets, which makes the drive durable and service-friendly. In addition, the functional principle minimises motor heat losses resulting in significantly lower bearing temperatures. This ensures significantly extended bearing and motor service life. In conjunction with the perfectly matched frequency converter, the synchronous reluctance motor also delivers superior performance compared to an asynchronous motor when it comes to losses, especially in the partial load range.

## Perfect partners

CSD(X) series rotary screw compressors are the perfect partners for high-efficiency industrial compressed air stations. The internal SIGMA CONTROL 2 compressor controller offers various communication channels, which allows seamless connection with advanced master controllers, such as KAESER's SIGMA AIR MANAGER, and in-house centralised control systems. This enables simple setup and achieves unprecedented levels of efficiency.

## Electronic Thermo Management (ETM)

Powered via an electric motor, the sensor-controlled temperature control valve integrated into the cooling circuit is the heart of the innovative Electronic Thermo Management system. The new SIGMA CONTROL 2 compressor controller monitors intake and compressor temperature in order to prevent condensate formation, even with differing air humidity conditions. Moreover, the ETM system dynamically keeps fluid temperatures as low as possible to deliver even greater energy efficiency. This system also enables end users to better adapt heat recovery systems to suit their specific needs.



Up to  
**96%**  
usable for heating

## Why choose heat recovery?

The question should in fact be: Why not? Amazingly, up to 100 % of the (electrical) energy input 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 overall operating energy balance.

# Service-friendly design



Image: CSDX 140 SFC





Control panel for KAESER SIGMA CONTROL 2. The panel features a central LCD screen displaying the following information:

2.8bar		0926	75°C
ON LOAD			
Key	- on	pa	- Load
Run	18 005h	Load	17105h
Maintenance inc.			1995h

Below the screen, the text "KAESER" and "SIGMA CONTROL 2" are visible, along with an "RFID" symbol. To the right of the screen are several buttons, including a green "I" button and a red "O" button. A hand is holding a yellow RFID key fob labeled "KAESER KOMPRESSOREN 02/20XX" near the panel.



# Uncompromising efficiency



## Save energy with the SIGMA PROFILE

At the heart of every CSD(X) system lies a premium quality airend featuring KAESER's SIGMA PROFILE rotors. Flow-optimised for impressive performance, these advanced rotors help KAESER CSD(X) systems set the highest standards for efficiency.



## SIGMA CONTROL 2: optimum efficiency

The internal SIGMA CONTROL 2 controller ensures efficient compressor system control, monitoring and documentation at all times, whilst the large display and RFID reader provide clear communication and maximum security. Last, but not least, variable interfaces enable seamless networking capability and the SD card slot makes updates quick and easy.



## Tomorrow's technology, today: IE4 motors

KAESER is currently the only compressed air systems provider to equip its compressors with super premium efficiency IE4 class motors as standard, thereby delivering maximum performance and energy efficiency.

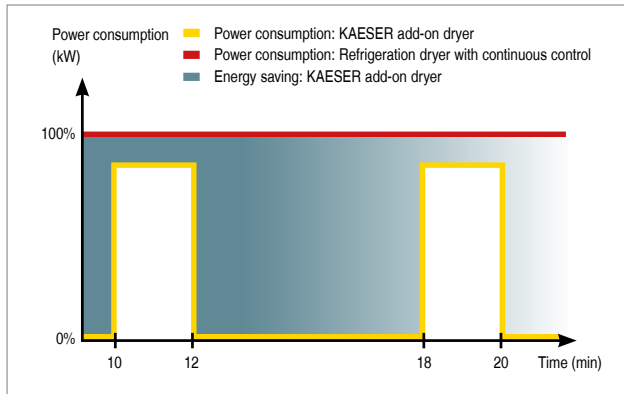


## Required temperature assured

According to operating conditions, the innovative Electronic Thermo Management (ETM) system dynamically controls fluid temperature to ensure safe prevention of condensation accumulation and also boosts energy efficiency.



# Premium compressed air quality with add-on refrigeration dryer



## Energy-saving control

The integrated refrigeration dryer in CSD(X)-T units provides high-efficiency performance thanks to its energy-saving control. The dryer is therefore active only when compressed air actually needs to be dried: this approach consequently achieves the required compressed air quality with maximum efficiency.



## Dual cooling

Two independent fans and a separate enclosure assure high thermal reserve for the integrated refrigeration dryer. This allows the required compressed air quality to be reliably maintained at all times even at high ambient temperatures.



## Dependable KAESER centrifugal separator

A KAESER centrifugal separator fitted with an electronic ECO-DRAIN condensate drain installed upstream from the refrigeration dryer ensures that condensate is reliably pre-separated and drained, even when ambient temperatures and humidity are high.



## Future-proof refrigerant

The new EU 517/2014 F-gases regulation is intended to minimise emissions of fluorinated greenhouse gases and therefore contribute to limiting global warming. KAESER's new T-systems are equipped with R-513A refrigerant, which has a very low GWP (Global Warming Potential) value. This means that these efficient dryers will be future-proof for their entire life cycle.



Image: CSD 105 T

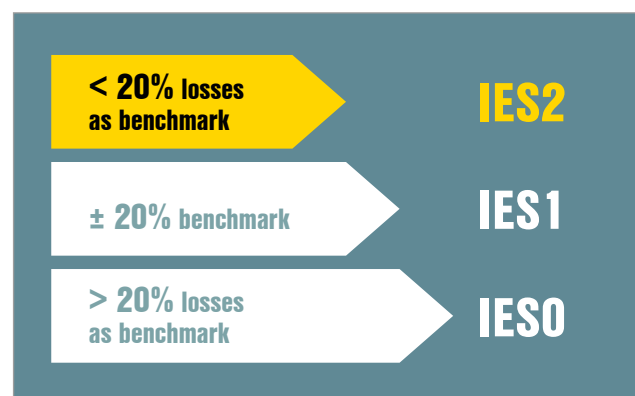


High-efficiency drive system: Efficiency class IES2



### Standard DIN-EN 50598

The European eco-compatible design standard DIN-EN 50598 defines the requirements for drive systems in electrically driven production machines. This standard specifies system efficiency, taking into account losses from the motor and frequency converter. With 20% lower losses compared to the benchmark, KAESER systems meet this standard with ease.

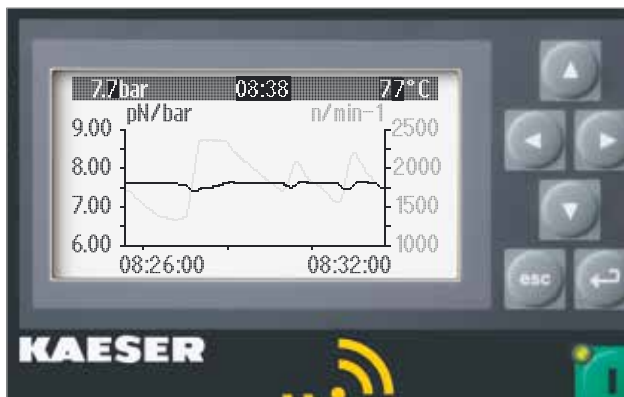


### Maximum energy efficiency

For the frequency-controlled packages in the CSD(X) series, KAESER meets the IES2 system efficiency standard, which is the highest possible class as per the EN 50598 standard. IES2 class drive systems operate with 20% lower losses compared to the benchmark.

CSD (T) SFC / CSDX (T) SFC Series

# Speed-controlled compressor with synchronous reluctance motor



## Precision pressure control

The flow rate can be adjusted within the control range according to pressure. Operating pressure is kept constant to within  $\pm 0.1$  bar. This allows maximum pressure to be reduced, thereby saving both energy and money.



## Durable and service-friendly

Durable and service-friendly: the rotors of the synchronous reluctance motor do not contain aluminium, copper or rare earth magnetic materials. This therefore makes the bearings and rotors as easy to replace as those in asynchronous motors. The functional principle keeps heat losses to a minimum, resulting in significantly lower bearing temperatures. This ensures extended bearing and motor service life.



## Separate SFC control cabinet

The SFC variable speed drive is housed in its own control cabinet to shield it from heat from the compressor. A separate fan keeps operating temperatures in the optimum range to ensure maximum performance and service life.



## EMC-certified

It goes without saying that the SFC control cabinet and SIGMA CONTROL 2 are tested and certified both as individual components and as a system to EMC directive EN 55011 for Class A1 industrial power supplies.

# Maximum efficiency with the frequency-controlled synchronous reluctance motor



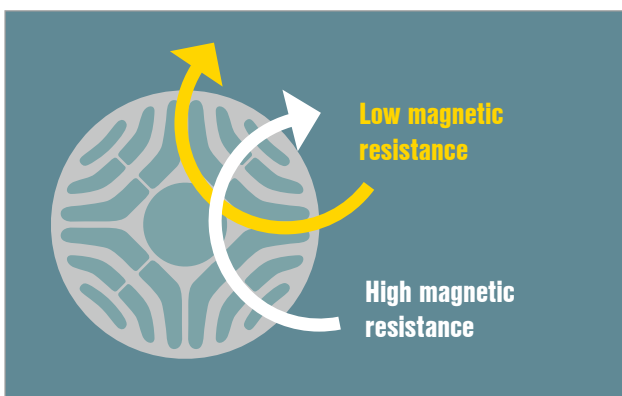
## Efficient synchronous reluctance motor

This motor series combines the advantages of asynchronous and synchronous motors in one drive system. The rotors do not use aluminium, copper or expensive rare earth magnets. Instead they are made of electrical steel with a specialised profile and arranged in series. This makes the drive highly durable and service-friendly.



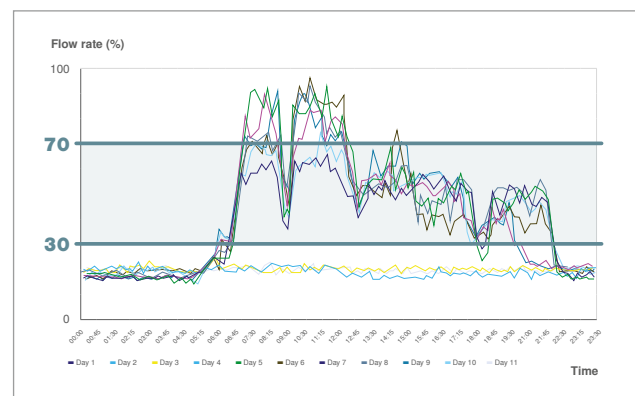
## Combined with a high-performance frequency converter

The Siemens frequency converter has a control algorithm adapted to the motor. With the fine-tuned combination of a frequency converter and a synchronous reluctance motor, KAESER achieves the top system efficiency class 'IES2' as defined by the EN 50598 standard.



## How the reluctance motor works

In a synchronous reluctance motor, the torque is generated by magnetic reluctance. The rotor has salient poles and is made of a soft magnetic material, such as electric steel, which is highly permeable to magnetic fields.



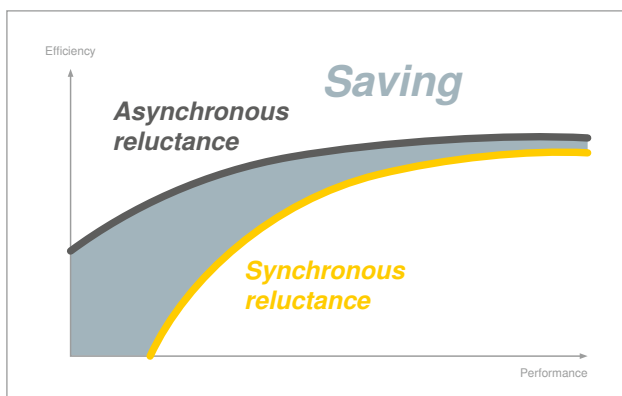
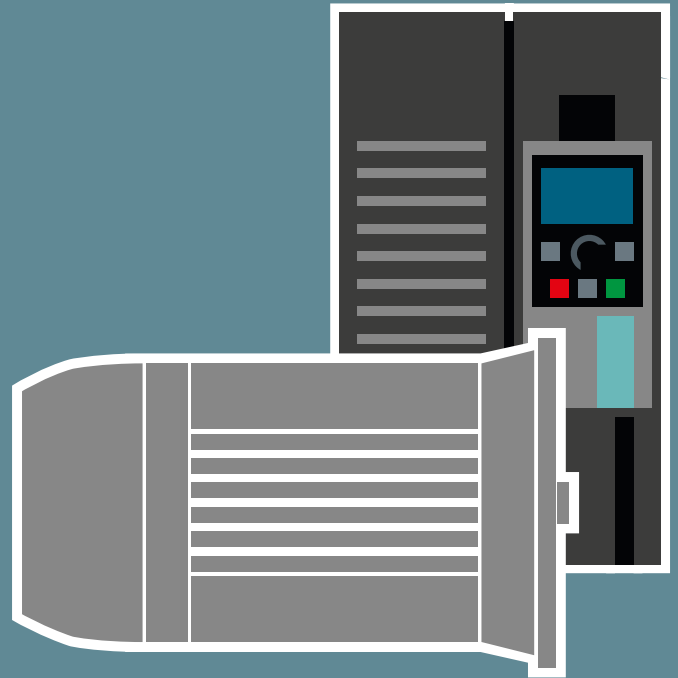
## Minimal operating costs – exceptional productivity

Considerable energy savings are made possible due to significantly greater efficiency – especially in the partial load range – than comparable systems using asynchronous drive technology. The low moment of inertia of synchronous reluctance motors allows high cycle rates, thereby boosting machine and system productivity.



# Your **benefits** at a glance:

- ✓ Best system efficiency: IES2 as per EN 50598
- ✓ Maximum energy efficiency throughout the control range
- ✓ Durable and service-friendly drive
- ✓ Advanced drive technology
- ✓ Minimal operating costs, high productivity and availability
- ✓ Industrie 4.0 ready
- ✓ Entire system EMC-certified



## Applications for speed-controlled compressor systems with synchronous reluctance motor

A recent study shows that the typical compressed air consumption profile is in the 30-70% range of the maximum. This is where a speed-controlled rotary screw compressor with synchronous reluctance motor technology can display its energy efficiency advantages in the partial load range to the fullest.



## High efficiency in partial load operation

Synchronous reluctance motors achieve significantly better efficiency in the partial load range than asynchronous motors, for example. This allows savings of up to 10% compared with conventional variable-speed systems.

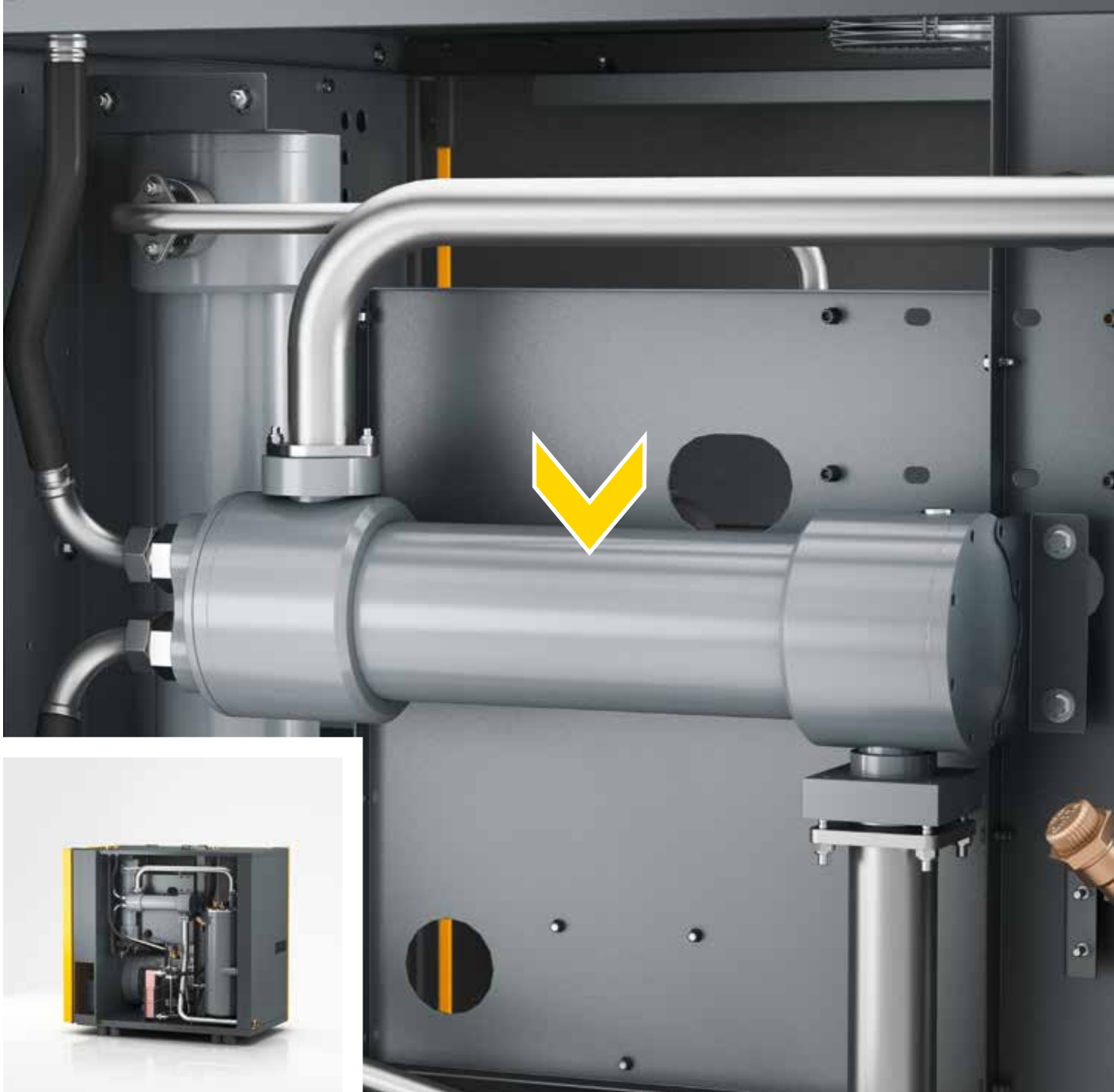
CSD and CSDX Series – Water-cooled...

## ...with plate heat exchanger



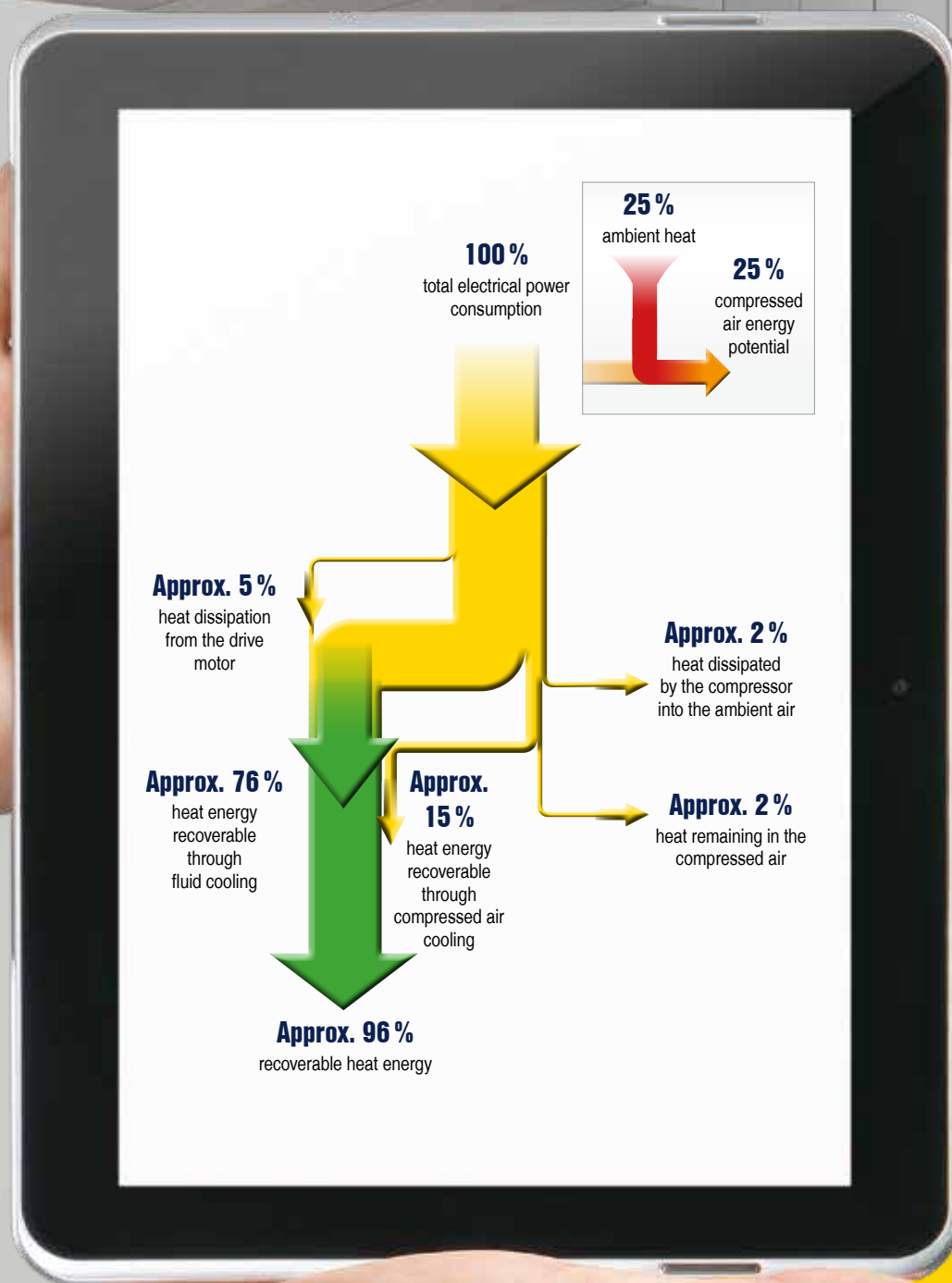
Two copper-soldered stainless-steel plate-type heat exchangers assure high cooling capacity thanks to the corrugated plate design with excellent heat transmission properties – the perfect choice for applications with clean compressor cooling water.

## ...with shell and tube heat exchanger



Shell and tube heat exchangers made of copper-nickel alloy (CuNi10Fe) have similar cooling performance to that of plate-type heat exchangers, but are less susceptible to contamination. The exchangeable inserts allow easy cleaning or replacement in case of contamination.

In addition they are seawater-proof, which means that they are suitable for compressors used in maritime applications. Moreover, they exhibit exceptionally low pressure loss, which in turn saves energy and money.



#### Savings calculation example for warm air heat recovery in terms of fuel oil (CSDX 165)

Maximum available heat capacity:	101 kW
Fuel value per litre of fuel oil:	9.86 kWh/l
Fuel oil heating efficiency:	90% (0.9)
Price per litre of fuel oil:	0.60 €/l


**Cost saving:**  $\frac{101 \text{ kW} \times 2000 \text{ h per year}}{0.9 \times 9.86 \text{ kWh/l}} \times 0.60 \text{ €/l} = \text{€ } 13,657 \text{ per year}$

Further information regarding heat recovery:  
<https://www.kaeser.com/int-en/products/rotary-screw-compressors/heat-recovery/>

Heat recovery system

## Cost-effective heating

Up to  
**96%**  
usable for heating



### Heat recovery is an all-round win

Amazingly, 100% of the electrical drive energy input to a compressor is converted into heat energy. Of that heat, up to 96% is available for heat recovery purposes. Use this potential to your advantage!



### Space heating with warm exhaust air

It's heating made easy: thanks to the high residual thrust radial fan, exhaust (warm) air can be easily ducted away to spaces that require heating. This simple process is thermostatically controlled.

Up to  
**+70 °C**  
hot



### Process, heating and service water

Hot water, up to +70 °C, can be produced from reusable compressor heat via PWT\* heat exchanger systems. Please contact KAESER regarding higher temperature requirements.

\* optionally installed within the package



### Clean hot water

If no other water circuit is interconnected, special fail-safe heat exchangers meet the highest demands for the purity of the water being heated, as with cleaning water in the food industry, for example.

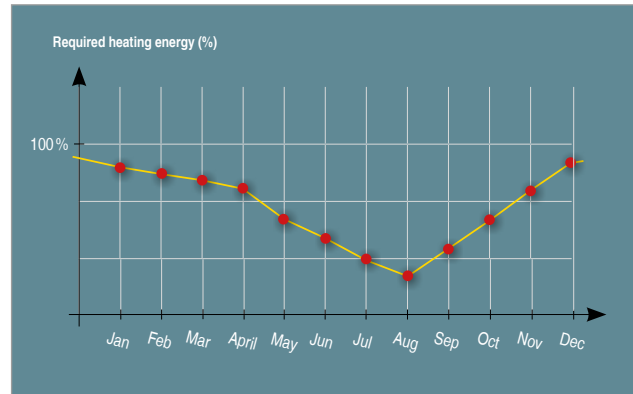


# Energy-saving, versatile and flexible



## PTG plate heat exchanger system

PTG plate-type heat exchangers consist of a package of pressed copper-soldered stainless steel plates. They provide excellent heat exchange characteristics with an impressively compact design. PTGs can be integrated into existing hot water supply systems and are well-suited for industrial applications.



## Required heating energy year-round

It goes without saying that heating is necessary during the winter months. However, it is also required to a greater or lesser extent at other times of the year, such as in spring and autumn. Heating energy is therefore actually required year-round.



## Conserve energy resources

In view of steadily rising energy prices, energy conservation is not only important for the environment, but is also becoming an economic necessity. Heat recovered from rotary screw compressors can be used not only for heating purposes during the winter months, but can also be utilised year-round in other processes.



## Feed heat energy to a heating system

Up to 76 percent of the original input electrical energy for the compressor system can be recovered for use in hot water heating systems and service water installations. This significantly reduces primary energy demand required for heating purposes.



# Equipment

## Complete unit

Ready-to-run, 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 using rubber bonded metal elements.

## Airend

Genuine KAESER single stage airend with energy-saving SIGMA PROFILE and cooling fluid injection for optimised rotor cooling.

## Drive

1:1 direct drive, torsional-elastic coupling, without gearing.

## Electric motor

Standard system with premium efficiency IE4 motor, quality German manufacture, IP 55, ISO F class insulation for additional reserve; PT 100 winding temperature sensor for motor monitoring; externally lubricated bearings.

## Optional SFC frequency converter

Synchronous reluctance motor, quality German manufacture, IP 55, with Siemens frequency converter; meets IES2 system efficiency standard; externally lubricated bearings.

## Electrical components

IP 54 control cabinet, control transformer, Siemens frequency converter, floating contacts for ventilation systems.

## Fluid and air flow

Dry air filter; pneumatic inlet and venting valve; cooling fluid reservoir with three-stage separator system; pressure relief valve, minimum pressure check valve, Electronic Thermo Management (ETM) and ECO fluid filter in the cooling fluid circuit; fully piped connections, flexible line connections.

## Cooling

Air-cooled; separate aluminium cooler for compressed air and cooling fluid; radial fan with separate electric motor, Electronic Thermo Management (ETM).

## Refrigeration dryer

CFC-free, R-513A refrigerant, hermetically sealed refrigerant circuit, scroll refrigerant compressor with energy-saving shut-off feature, hot gas bypass control, electronic condensate drain, upstream centrifugal separator.

## Heat recovery (HR)

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

## SIGMA CONTROL 2

“Traffic light” LED indicators show operational status at a glance, plain text display, 30 selectable languages, soft-touch keys with icons, fully automated monitoring and control. Selection of Dual, Quadro, Vario, Dynamic and continuous control as standard. Ethernet interface; additional optional communications interfaces for: Profibus DP, Modbus, Profinet and Devicenet; SD card slot for data recording and updates; RFID reader, web server.

## SIGMA AIR MANAGER 4.0

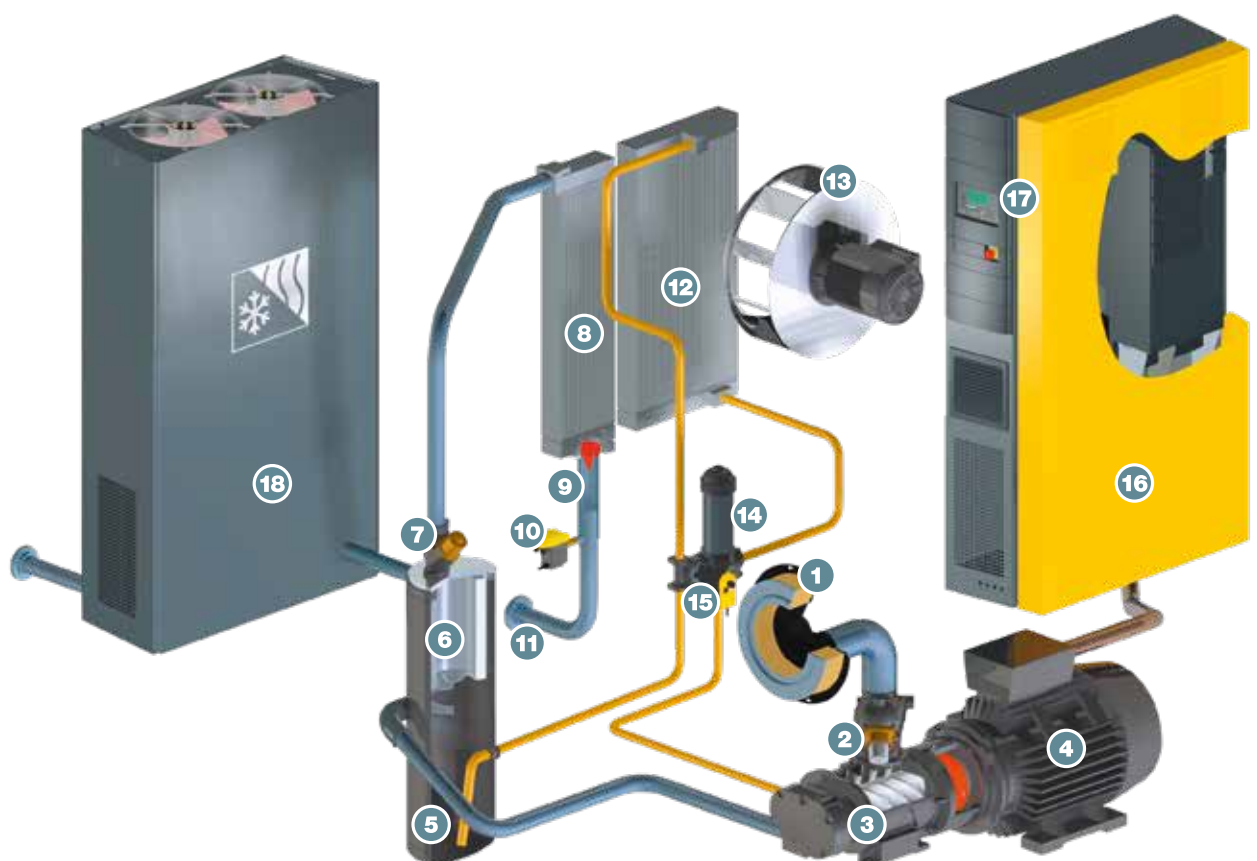
The further-refined adaptive 3-D<sup>advanced</sup> Control predictively calculates and compares various operating scenarios and selects the most efficient to suit the compressed air application's specific needs. The SIGMA AIR MANAGER 4.0 therefore optimally adjusts flow rates and compressor energy consumption automatically in response to actual compressed air demand.

This powerful feature 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 converters (SBC) provide a host of possibilities to enable the system to be individually tailored to meet exact user requirements. The SBC can be equipped with digital and analogue input and output modules, as well as with SIGMA NETWORK ports, to enable seamless display of pressure, flow rate, pressure dew point, power or alarm message information.

# How it works

The air to be compressed passes through the intake filter (1) and the inlet valve (2) into the SIGMA PROFILE compressor airend (3). The compressor airend (3) is driven by a high efficiency electric motor (4). The cooling oil injected for cooling purposes during the compression process is re-separated from the air in 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). Following cooling, any accumulating condensate is removed from the compressed air by the integrated centrifugal separator (9) and is then drained away from the machine via the installed ECO-DRAIN (10) condensate drain. The condensate-free compressed air then leaves the system at the compressed air connection (11). The heat generated during the compression process is removed from the cooling oil via the fluid cooler (12) and dissipated into the environment with a separate fan with fan motor (13). The cooling oil is then cleaned by the ECO fluid filter (14). The Electronic Thermo Management system (15) ensures lowest possible operating temperatures. The control cabinet (16) houses the internal SIGMA CONTROL 2 compressor controller (17) and, depending on the machine version, the star-delta starter or the frequency converter (SFC). Some systems also feature an optional add-on refrigeration dryer (18) that cools the the compressed air to +3 °C and thereby effectively removes all moisture.

- (1) Intake filter
- (2) Inlet valve
- (3) SIGMA PROFILE airend
- (4) IE4 drive motor
- (5) Fluid separator tank
- (6) Oil separator cartridge
- (7) Minimum pressure check valve
- (8) Compressed air aftercooler
- (9) KAESER centrifugal separator
- (10) ECO-DRAIN condensate drain
- (11) Compressed air connection
- (12) Fluid cooler
- (13) Fan motor
- (14) ECO fluid filter
- (15) Electronic Thermo Management
- (16) Control cabinet with integrated SFC frequency converter
- (17) SIGMA CONTROL 2 compressor controller
- (18) Add-on refrigeration dryer



# Technical specifications – CSD

## Standard version

Model	Working pressure bar	Flow rate *) Overall package at working pressure m³/min	Max. operating pressure bar	Drive motor rated power kW	Dimensions W x D x H mm	Compressed air connection	Sound pressure level **) dB(A)	Mass kg
CSD 85	7.5	8.26	8.5	45	1760 x 1110 x 1900	G 2	70	1250
	10	6.89	12					
	13	5.50	15					
CSD 105	7.5	10.14	8.5	55	1760 x 1110 x 1900	G 2	71	1290
	10	8.18	12					
	13	6.74	15					
CSD 125	7.5	12.02	8.5	75	1760 x 1110 x 1900	G 2	72	1320
	10	10.04	12					
	13	8.06	15					



## SFC - Version with variable speed drive

Model	Working pressure bar	Flow rate *) Overall package at working pressure m³/min	Max. operating pressure bar	Drive motor rated power kW	Dimensions W x D x H mm	Compressed air connection	Sound pressure level **) dB(A)	Mass kg
CSD 85 SFC	7.5	1.99 - 8.37	8.5	45	1760 x 1110 x 1900	G 2	72	1220
	10	1.49 - 7.21	12					
	13	1.16 - 6.15	15					
CSD 105 SFC	7.5	2.32 - 10.01	8.5	55	1760 x 1110 x 1900	G 2	73	1280
	10	1.91 - 8.79	12					
	13	1.39 - 7.41	15					
CSD 125 SFC	7.5	2.90 - 12.22	8.5	75	1760 x 1110 x 1900	G 2	74	1300
	10	2.22 - 10.74	12					
	13	1.81 - 8.98	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)



**T - Version with integrated refrigeration dryer (Refrigerant\*\*\*\*) R-513A)**

Model	Working pressure	Flow rate <sup>*)</sup> Overall package at working pressure m³/min	Max. operating pressure	Drive motor rated power	Refrigeration dryer power consumption <sup>***)</sup>	Dimensions W x D x H	Compressed air connection	Sound pressure level <sup>**) (A)</sup>	Mass
	bar		bar	kW		mm		dB(A)	kg
CSD 85 T	7.5	8.26	8.5	45	0.92	2160 x 1110 x 1900	G 2	70	1410
	10	6.89	12						
	13	5.50	15						
CSD 105 T	7.5	10.14	8.5	55	0.92	2160 x 1110 x 1900	G 2	71	1450
	10	8.18	12						
	13	6.74	15						
CSD 125 T	7.5	12.02	8.5	75	1.30	2160 x 1110 x 1900	G 2	72	1510
	10	10.04	12		0.92				
	13	8.06	15						


**T SFC - Version with variable speed drive and integrated refrigeration dryer (Refrigerant\*\*\*\*) R-513A)**

Model	Working pressure	Flow rate *) Overall package at working pressure	Max. operating pressure	Drive motor rated power	Refrigeration dryer power consumption ***)	Dimensions W x D x H	Compressed air connection	Sound pressure level *)	Mass
	bar	m³/min	bar	kW		mm		dB(A)	kg
CSD 85 T SFC	7.5	1.99 - 8.37	8.5	45	0.92	2160 x 1110 x 1900	G 2	72	1380
	10	1.49 - 7.21	12						
	13	1.16 - 6.15	15						
CSD 105 T SFC	7.5	2.32 - 10.01	8.5	55	0.92	2160 x 1110 x 1900	G 2	73	1440
	10	1.91 - 8.79	12						
	13	1.39 - 7.41	15						
CSD 125 T SFC	75	2.9 - 12.22	8.5	75	1.30	2160 x 1110 x 1900	G 2	74	1490
	10	2.22 - 10.74	12		0.92				
	13	1.81 - 8.98	15						



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

\*\*\*\* Contains fluorinated greenhouse gases covered by the Kyoto Protocol: GWP 631, refrigerant charge 1.45 kg, CO<sub>2</sub> equivalent 0.9 t  
Only with CSD 125 T (T-SFC) with 8,5 bar overpressure: GWP 631, refrigerant charge 1.65 kg, CO<sub>2</sub> equivalent 1.0 t

# Technical specifications – CSDX

## Standard version

Model	Working pressure bar	Flow rate *) Overall package at working pressure m³/min	Max. operating pressure bar	Drive motor rated power kW	Dimensions W x D x H mm	Compressed air connection	Sound pressure level **) dB(A)	Mass kg
CSDX 140	7.5	13.74	8.5	75	2110 x 1290 x 1950	G 2	71	1830
	10	11.83	12					
	13	9.86	15					
CSDX 165	7.5	16.16	8.5	90	2110 x 1290 x 1950	G 2	72	1925
	10	13.53	12					
	13	11.49	15					



## SFC - Version with variable speed drive

Model	Working pressure bar	Flow rate *) Overall package at working pressure m³/min	Max. operating pressure bar	Drive motor rated power kW	Dimensions W x D x H mm	Compressed air connection	Sound pressure level **) dB(A)	Mass kg
CSDX 140 SFC	7.5	3.46 - 13.37	8.5	75	2110 x 1290 x 1950	G 2	72	1650
	10	2.82 - 11.60	10					
	13	2.13 - 10.04	13					
CSDX 165 SFC	7.5	3.87 - 16.03	8.5	90	2110 x 1290 x 1950	G 2	73	1750
	10	3.34 - 13.91	12					
	13	2.68 - 11.84	13					



\*) 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)

**T - Version with integrated refrigeration dryer (Refrigerant\*\*\*\*) R-513A)**

Model	Working pressure bar	Flow rate <sup>*)</sup> Overall package at working pressure m³/min	Max. operating pressure bar	Drive motor rated power kW	Refrigeration dryer power consumption <sup>***)</sup>	Dimensions W x D x H mm	Compressed air connection	Sound pressure level <sup>**) </sup> dB(A)	Mass kg
<b>CSDX 140 T</b>	7.5	13.74	8.5	75	1.38	2510 x 1290 x 1950	G 2	71	2045
	10	11.83	12						
	13	9.86	15						
<b>CSDX 165 T</b>	7.5	16.16	8.5	90	1.38	2510 x 1290 x 1950	G 2	72	2140
	10	13.53	12						
	13	11.49	15						


**T SFC - Version with variable speed drive and integrated refrigeration dryer (Refrigerant\*\*\*\*) R-513A)**

Model	Working pressure bar	Flow rate <sup>*)</sup> Overall package at working pressure m³/min	Max. operating pressure bar	Drive motor rated power kW	Refrigeration dryer power consumption <sup>***)</sup>	Dimensions W x D x H mm	Compressed air connection	Sound pressure level <sup>**) </sup> dB(A)	Mass kg
<b>CSDX 140 T SFC</b>	7.5	3.46 - 13.37	8.5	75	1.38	2510 x 1290 x 1950	G 2	72	1865
	10	2.82 - 11.6	12						
	13	2.13 - 10.04	15						
<b>CSDX 165 T SFC</b>	7.5	3.87 - 16.03	8.5	90	1.38	2510 x 1290 x 1950	G 2	73	1965
	10	3.34 - 13.91	12						
	13	2.68 - 11.84	15						



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

\*\*\*\*) Contains fluorinated greenhouse gases covered by the Kyoto Protocol: GWP 631, refrigerant charge 1.5 kg, CO<sub>2</sub> equivalent 0.9 t

# 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

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# Rotary Screw Compressors

## ASD Series

With the world-renowned SIGMA PROFILE

Flow rate 0.89 to 6.39 m<sup>3</sup>/min, Pressure 5.5 to 15 bar



# ASD – Even more efficient

KAESER KOMPRESSOREN pushes the boundaries of compressed air efficiency once again with its latest generation of ASD (ASD.4) series rotary screw compressors. Not only do these optimised ASD compressors deliver more compressed air for less energy, but they also combine ease of use and maintenance with exceptional versatility and environmentally responsible design.

## ASD – Multiple savings

The newly refined ASD systems save energy in multiple ways: the compressor air ends feature further refined SIGMA PROFILE rotors and are controlled and monitored via the industrial-PC-based SIGMA CONTROL 2 compressor controller. This advanced controller matches compressed air delivery to actual demand and uses dynamic control to keep costly idling time to an absolute minimum.

## Variable speed with reluctance motor

The new synchronous reluctance motor combines the advantages of asynchronous and synchronous motors in one drive system. The motor contains no aluminium, copper or expensive rare earth magnets, which makes the drive durable and service-friendly. In addition, the functional principle keeps heat losses in the motor to a minimum, resulting in significantly lower bearing temperatures. This ensures significantly extended bearing and motor service life. In conjunction with the perfectly matched frequency converter, the synchronous reluctance motor also delivers superior performance compared to an asynchronous motor when it comes to losses, especially in the partial load range.

## Perfect partners

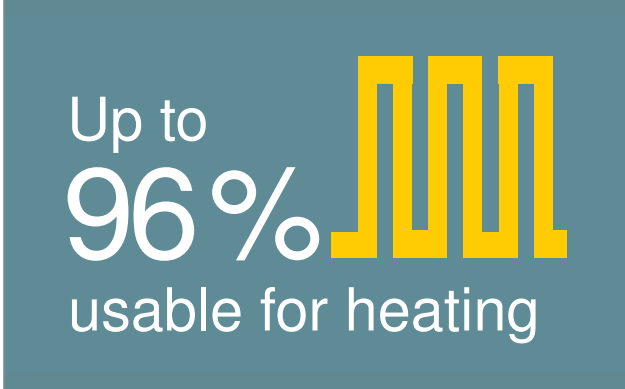
ASD series rotary screw compressors are the perfect partners for high-efficiency industrial compressed air stations. The internal SIGMA CONTROL 2 compressor controller offers various communication channels, which allows seamless communication with advanced master controllers, such as KAESER's SIGMA AIR MANAGER, and in-house centralised control systems. This enables simple setup and achieves unprecedented levels of efficiency.

## Electronic Thermo Management (ETM)

Powered via an electric motor, the sensor-controlled temperature control valve integrated into the cooling circuit is the heart of the innovative Electronic Thermo Management (ETM) system. The new SIGMA CONTROL 2 compressor controller monitors intake and compressor temperature in order to prevent condensate formation, even with differing air humidity conditions. The ETM dynamically controls fluid temperature – low fluid temperature enhances energy efficiency. This system also enables end users to better adapt heat recovery systems to suit their specific needs.

## Why choose heat recovery?

The question should in fact be: Why not? Amazingly, up to 100 % of the (electrical) energy input 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 applicable company's total energy balance.



Up to  
**96 %**  
usable for heating

# Service-friendly design



Image: ASD 60





ASD series

# Uncompromising efficiency



## Save energy with the SIGMA PROFILE

At the heart of every ASD system lies a premium quality airend featuring KAESER's SIGMA PROFILE rotors. Flow-optimised for impressive performance, these advanced rotors help KAESER ASD systems set the highest standards for efficiency.



## SIGMA CONTROL 2: Assured efficiency

The internal SIGMA CONTROL 2 controller ensures efficient compressor control and monitoring at all times. The large display and RFID reader provide easy communication and maximum security. Variable interfaces enable seamless networking capability, whilst the SD card slot makes updates quick and easy.



## Tomorrow's technology, today: IE4 motors

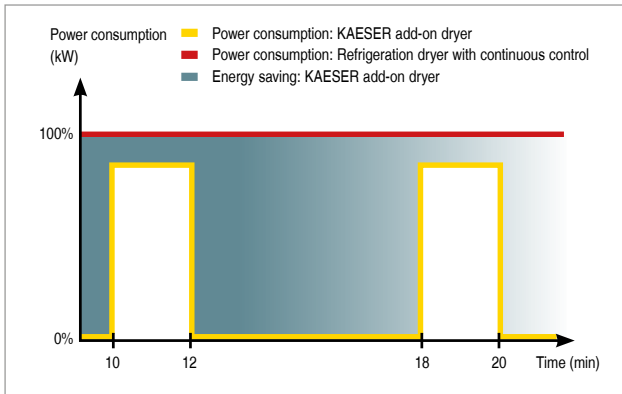
KAESER is currently the only compressed air systems provider to equip its compressors with super premium efficiency IE4 motors as standard, thereby delivering maximum performance and energy efficiency.



## Required temperature assured

According to operating conditions, the innovative Electronic Thermo Management (ETM) system dynamically controls fluid temperature to ensure safe prevention of condensation accumulation and also boosts energy efficiency.

# Premium compressed air quality with an add-on refrigeration dryer



## Energy-saving control

The integrated refrigeration dryer in ASD-T units provides high-efficiency performance thanks to its energy-saving control. The dryer is therefore active only when compressed air actually needs to be dried: as a result, this approach achieves the required compressed air quality with maximum efficiency.



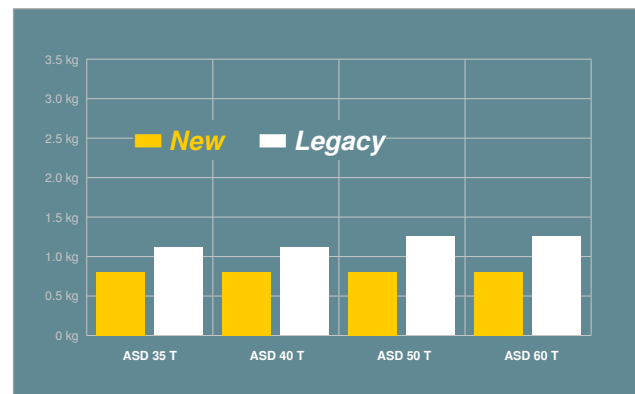
## Dependable KAESER centrifugal separator

A KAESER centrifugal separator fitted with an electronic ECO-DRAIN condensate drain installed upstream from the refrigeration dryer ensures that condensate is reliably pre-separated and drained, even when ambient temperatures and humidity are high.



## Refrigeration dryer with ECO-DRAIN

The refrigeration dryer also features an ECO-DRAIN. The advanced level-controlled condensate drain eliminates the compressed air losses associated with solenoid valve control, thereby saving energy and considerably enhancing operational dependability.



## Minimal refrigerant requirement

The refrigeration dryers in the new ASD-T units require approximately 36% less refrigerant than previous generation dryers. This not only saves costs, but is also significantly more environmentally friendly.





Image: ASD 60 T

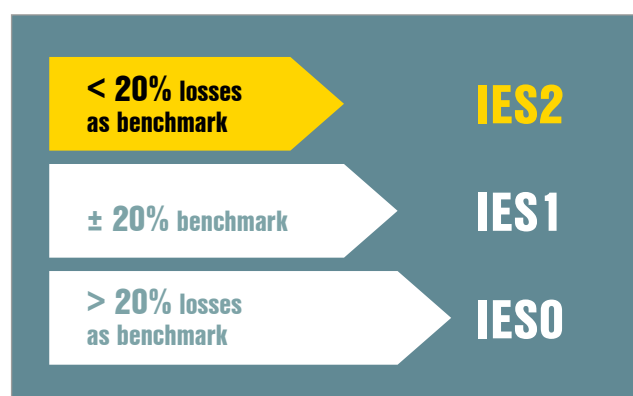


High-efficiency drive system: Efficiency class IES2



### The new EN 50598 standard

The European eco-compatible design standard EN 50598 defines the requirements for drive systems in electrically driven production machines. It specifies system efficiency, taking into account losses from the motor and frequency converter. With 20% lower losses compared to the benchmark, KAESER systems meet the standard with ease.

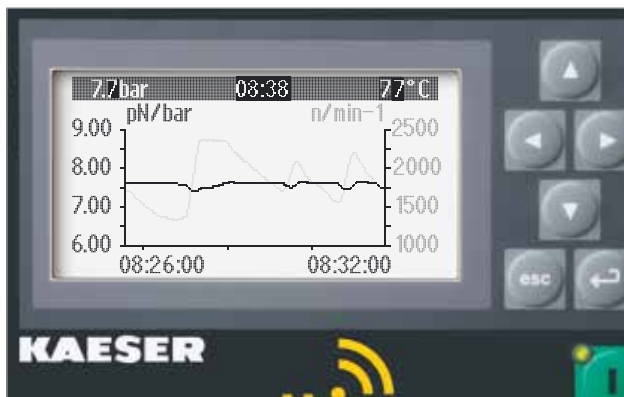


### Maximum energy efficiency

For the variable frequency systems in the ASD series, KAESER meets the IES2 system efficiency standard, which indicates the highest possible level under the EN 50598 standard. IES2 designation indicates 20% lower losses compared to the benchmark.

ASD (T) SFC series

# Speed-controlled compressor with synchronous reluctance motor



## Precision pressure control

The flow rate can be adjusted within the control range according to pressure. Operating pressure is kept constant to within  $\pm 0.1$  bar. This allows maximum pressure to be reduced, which, in turn, leads to significant energy and money savings.



## Durable and service-friendly

Durable and service-friendly: the rotors of the synchronous reluctance motor do not contain aluminium, copper or magnetic materials using rare earth metals. That makes the bearings and rotors as easy to replace as those in asynchronous motors. The functional principle keeps heat losses to a minimum, resulting in significantly lower bearing temperatures. This ensures extended bearing and motor service life.



## Separate SFC control cabinet

The SFC variable speed drive is housed in its own control cabinet to shield it from heat from the compressor. A separate fan keeps operating temperatures in the optimum range to ensure maximum performance and service life.



## Entire system EMC-certified

It goes without saying that the SFC control cabinet and SIGMA CONTROL 2 are tested and certified both as individual components and as a complete system to EMC directive EN 55011 for Class A1 industrial power supplies.

ASD (T) SFC series

# Maximum efficiency with variable frequency synchronous reluctance motor



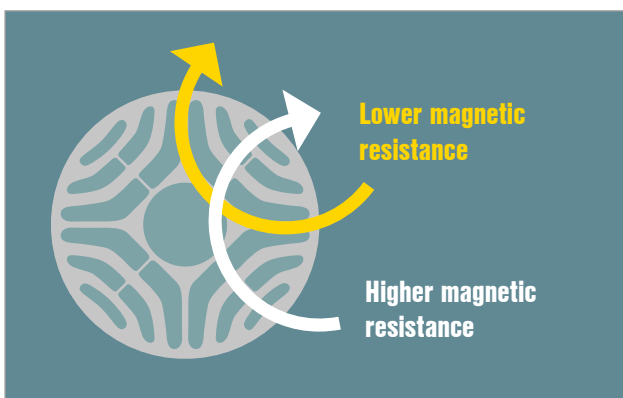
## Efficient synchronous reluctance motor

This motor series combines the advantages of asynchronous motors and synchronous motors in one drive system. The rotors do not use aluminium, copper or expensive rare earth magnets. Instead they are made of electrical steel with a specialised profile and arranged in series. This makes the drive highly durable and service-friendly.



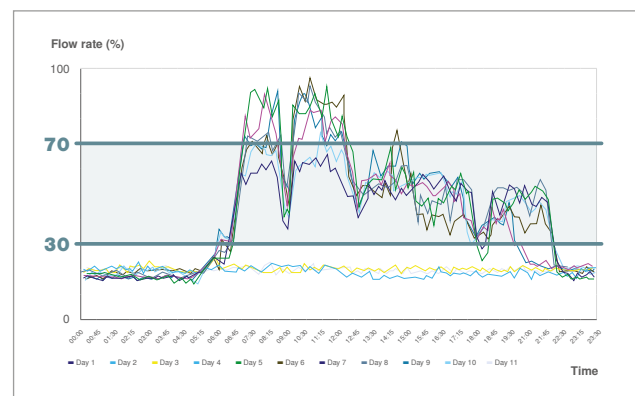
## Combined with a high-performance frequency converter

The Siemens frequency converter has a motor-matched control algorithm. With the fine-tuned combination of a frequency converter and a synchronous reluctance motor, KAESER achieves the top system efficiency level IES2 under the EN 50598 standard.



## How the reluctance motor works

In a synchronous reluctance motor, the torque is generated by magnetic reluctance. The rotor has salient poles and is made of a soft magnetic material such as electric steel, which is highly permeable to magnetic fields.

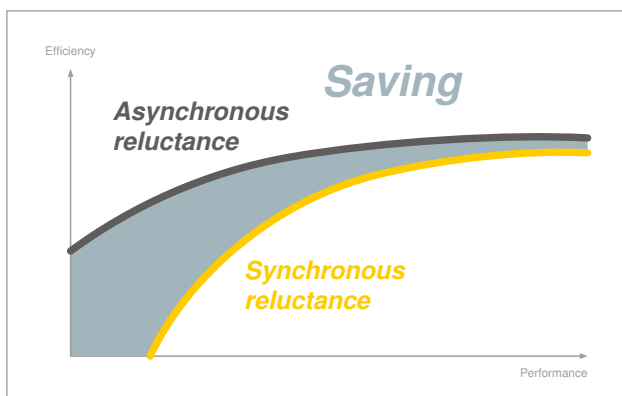
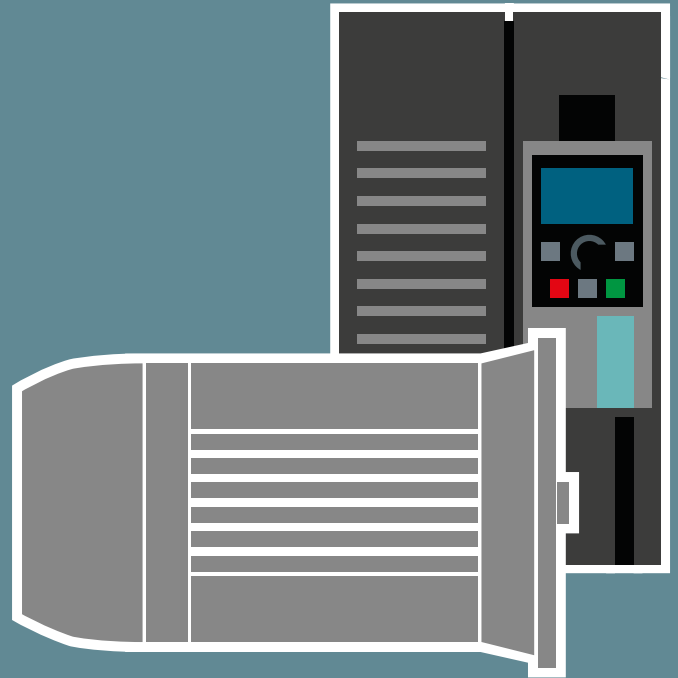


## Minimal operating costs – exceptional productivity

Significantly greater efficiency – especially in the partial load range – than comparable asynchronous systems helps achieve considerable energy savings. The low moment of inertia of synchronous reluctance motors allows high cycle rates, thereby boosting machine and system productivity.

# Your **benefits** at a glance:

- ✓ Best system efficiency: IES2 as per EN 50598
- ✓ Maximum energy efficiency throughout the control range
- ✓ Durable and service-friendly drive
- ✓ Advanced drive technology
- ✓ Minimal operating costs, high productivity and availability
- ✓ Industrie 4.0 ready
- ✓ Entire system EMC-certified



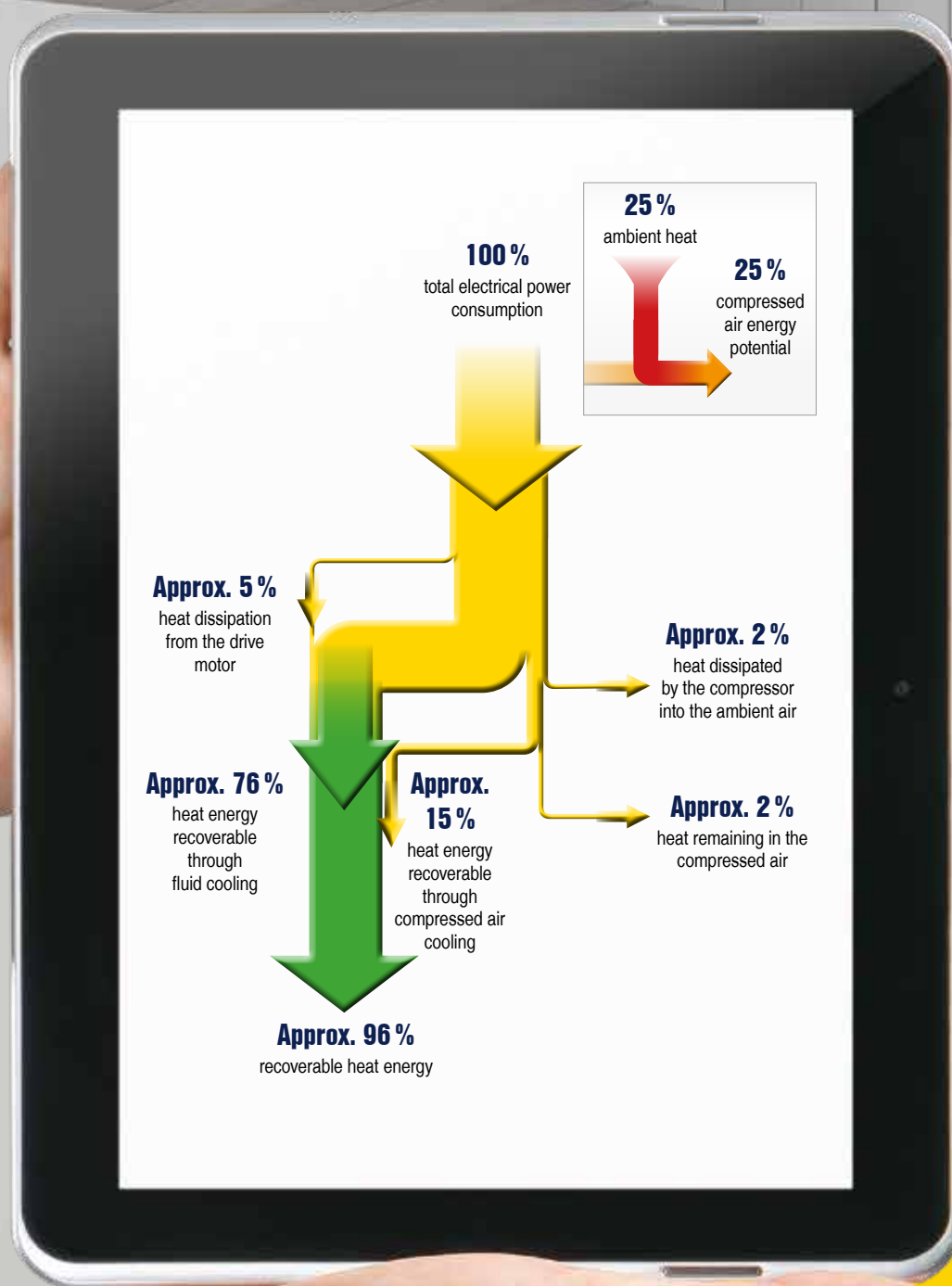
## Applications for speed-controlled compressor systems with synchronous reluctance motors

A recent study shows that the typical compressed air consumption profile is in the 30-70% range of the maximum. This is where a speed-controlled rotary screw compressor with synchronous reluctance motor can display its energy efficiency advantages in the partial-load range to the fullest.



## High efficiency in partial-load operation

Synchronous reluctance motors achieve significantly better efficiency in the partial-load range than asynchronous motors, for example. This allows savings of up to 10% compared with conventional variable-speed systems.



#### Savings calculation example for warm air heat recovery in terms of fuel oil (ASD 60)

Maximum available heat capacity:	34.9 kW
Fuel value per litre of fuel oil:	9.86 kWh/l
Fuel oil heating efficiency:	90 % (0.9)
Price per litre of fuel oil:	0.60 €/l

**Cost saving:**  $\frac{34.9 \text{ kW} \times 2000 \text{ h per year}}{0.9 \times 9.86 \text{ kWh/l}} \times 0.60 \text{ €/l} = \text{€4,719 per year}$


Further information regarding heat recovery:  
<http://www.kaeser.com/int-en/products/rotary-screw-compressors/heat-recovery/>



Heat recovery system

## Cost-effective heating

Up to  
**96%**  
usable for heating



### Heat recovery simply makes sense

Amazingly, 100% of the electrical drive energy input to a compressor is converted into heat energy. Of that heat, up to 96% is available for heat recovery purposes. Use this potential to your advantage!



### Space heating with warm exhaust air

It's heating made easy: thanks to the high residual thrust radial fan, exhaust (warm) air can be easily ducted away to spaces that require heating. This simple process is thermostatically controlled.

Up to  
**+70 °C**  
hot



### Process, heating and service water

Hot water, up to 70 °C, can be produced from reusable compressor heat via PWT<sup>\*)</sup> heat exchanger systems. Please contact KAESER regarding higher temperature requirements.

<sup>\*)</sup> optionally installed within the package



### Clean hot water

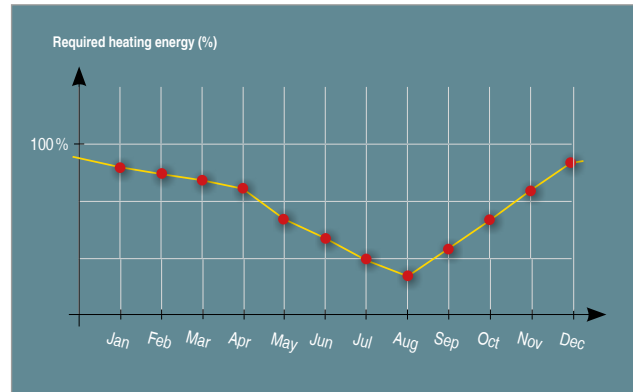
If no other water circuit is interconnected, special fail-safe heat exchangers meet the highest demands for the purity of the water being heated, as with cleaning water in the food industry, for example.

# Energy-saving, versatile and flexible



## PTG plate heat exchanger system

PTG plate-type heat exchangers consist of a package of pressed stainless steel plates. They provide excellent heat exchange characteristics with an impressively small form factor. PTGs can be integrated into existing hot water supply systems and are suited for industrial applications.



## Required heating energy over the course of a year

It goes without saying that heating is necessary during the winter months. However, it is also required to a greater or lesser extent at other times of the year, such as in spring and autumn. Heating energy is actually required for approximately 2000 hours per year.



## Conserve energy resources

In view of steadily rising energy prices, energy conservation is not only important for the environment, but is also becoming an economic necessity. Heat recovered from rotary screw compressors can be used not only for heating purposes during the winter months, but can also reduce energy costs when used in other processes.



## Feed heat energy to a heating system

Up to 76 percent of the original input energy for the compressor system can be recovered for use in hot water heating systems and service water installations. This significantly reduces primary energy demand required for heating purposes.



# Equipment

## Complete unit

Ready-to-run, 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 mountings using rubber bonded metal elements.

## Airend

Genuine KAESER single stage airend with energy-saving SIGMA PROFILE and cooling fluid injection for optimised rotor cooling. 1:1 direct drive.

## Drive

Direct, high-flex coupling, without gearing.

## Electric motor

Standard system with premium efficiency IE4 motor, quality German manufacture, IP 55, ISO F class insulation for additional reserve; PT 100 winding temperature sensor for motor monitoring; externally lubricated bearings.

## SFC option

Synchronous reluctance motor, quality German manufacture, IP 55, with Siemens frequency converter; meets IES2 system efficiency standard; externally lubricated bearings.

## Electrical components

IP 54 control cabinet, control transformer, Siemens frequency converter, floating contacts for ventilation systems.

## Fluid and air flow

Dry air filter; pneumatic inlet and venting valve; cooling fluid reservoir with three-stage separator system; pressure relief valve, minimum pressure check valve, Electronic Thermo Management (ETM) and eco-fluid filter in the cooling fluid circuit; fully piped connections, flexible line connections.

## Cooling

Air-cooled; separate aluminium cooler for compressed air and cooling fluid; radial fan with separate electric motor, Electronic Thermo Management (ETM).

## Refrigeration dryer

CFC-free, R-134a refrigerant, fully insulated, hermetically sealed refrigerant circuit, scroll refrigerant compressor with energy-saving shut-off feature, hot-gas bypass control, electronic condensate drain and upstream centrifugal separator.

## Heat recovery (HR)

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

## SIGMA CONTROL 2

“Traffic light” LED indicators show operational status at a glance, plain text display, 30 selectable languages, soft-touch keys with icons, fully automated monitoring and control. Selection of Dual, Quadro, Vario, Dynamic and Continuous control as standard. Ethernet interface; additional optional communications interfaces for: Profibus DP, Modbus, Profinet and Devicenet; SD card slot for data recording and updates; RFID reader, web server.

## SIGMA AIR MANAGER 4.0

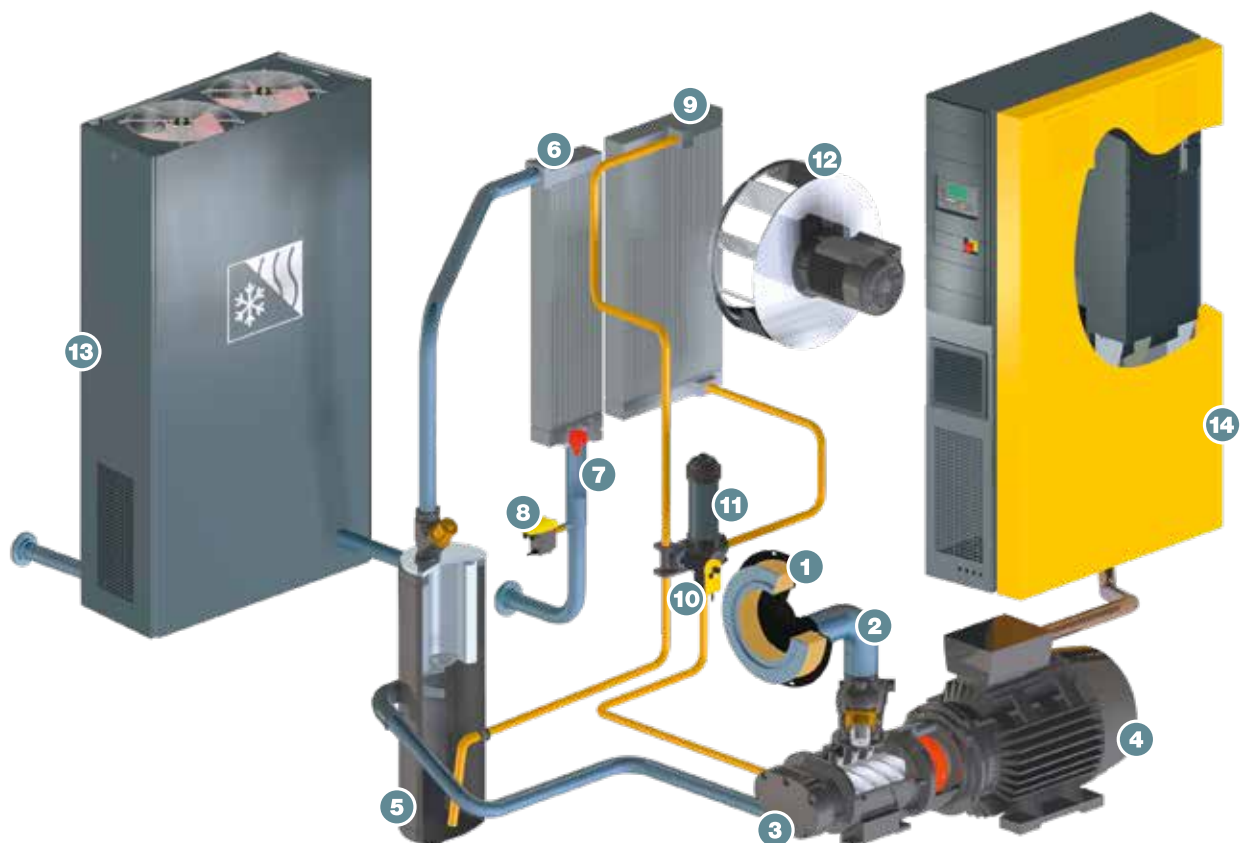
The further-refined adaptive 3-D<sup>advanced</sup> Control predictively calculates and compares various operating scenarios and selects the most efficient to suit the compressed air application's specific needs. The SIGMA AIR MANAGER 4.0 therefore automatically optimally adjusts flow rates and compressor energy consumption in response to current compressed air demand. This powerful feature 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 converters (SBC) provide a host of possibilities to enable the system to be individually tailored to meet exact user requirements. The SBC can be equipped with digital and analogue input and output modules, as well as with SIGMA NETWORK ports, to enable seamless display of pressure, flow rate, pressure dew point, power or alarm message information.

# How it works

The airend (3) is driven by an electric motor (4). The fluid injected primarily for cooling purposes during the compression process is re-separated from the air in the fluid separator (5). The integrated fan ensures cooling of the compressor package and also provides sufficient flow of cooling air through the oil cooler and compressed air aftercooler (6 and 9).

The controller ensures that the compressor produces compressed air within the set pressure limits. Safety functions protect the compressor against failure of key systems via automatic shutdown capability.

- (1) Intake filter
- (2) Inlet valve
- (3) SIGMA PROFILE airend
- (4) IE4 drive motor
- (5) Fluid separator tank
- (6) Compressed air aftercooler
- (7) KAESER centrifugal separator
- (8) ECO-DRAIN condensate drain
- (9) Fluid cooler
- (10) Electronic Thermo Management
- (11) ECO fluid filter
- (12) Radial fan
- (13) Add-on refrigeration dryer
- (14) Control cabinet with integrated SFC frequency converter





# Technical specifications

## Standard version

Model	Operating pressure bar	Flow rate <sup>*)</sup> Overall package at operating pressure m³/min	Max. working pressure bar	Drive motor rated power kW	Dimensions W x D x H mm	Compressed air connection	Sound pressure level <sup>**)</sup> dB(A)	Mass kg
ASD 35	7.5	3.16	8.5	18.5	1460 x 900 x 1530	G 1 ¼	65	610
	10	2.63	12					
ASD 40	7.5	3.92	8.5	22	1460 x 900 x 1530	G 1 ¼	66	655
	10	3.13	12					
	13	2.58	15					
ASD 50	7.5	4.58	8.5	25	1460 x 900 x 1530	G 1 ¼	66	695
	10	3.85	12					
	13	3.05	15					
ASD 60	7.5	5.53	8.5	30	1460 x 900 x 1530	G 1 ¼	69	750
	10	4.49	12					
	13	3.71	15					



## SFC - Version with variable speed drive

Model	Operating pressure bar	Flow rate <sup>*)</sup> Overall package at operating pressure m³/min	Max. working pressure bar	Drive motor rated power kW	Dimensions W x D x H mm	Compressed air connection	Sound pressure level <sup>**)</sup> dB(A)	Mass kg
ASD 35 SFC	(Prospectively available from mid-2018)							
ASD 40 SFC	7.5	1.05 - 4.64	8.5	22	1540 x 900 x 1530	G 1 ¼	68	755
ASD 50 SFC	7.5	1.07 - 5.27	8.5	25	1540 x 900 x 1530	G 1 ¼	68	757
	10	1.00 - 4.58	13					
	13	0.93 - 3.82	13					
ASD 60 SFC	7.5	1.26 - 6.17	8.5	30	1540 x 900 x 1530	G 1 ¼	70	795
	10	1.00 - 4.76	15					
	13	0.93 - 4.14	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 °C and 30 % relative humidity



**T - Version with integrated refrigeration dryer (refrigerant R-134a)**

Model	Operating pressure bar	Flow rate <sup>1)</sup> Overall package at operating pressure m³/min	Max. working pressure bar	Drive motor rated power kW	Refrigeration dryer power consumption <sup>***)</sup>	Dimensions W x D x H mm	Compressed air connection	Sound pressure level <sup>**)</sup> dB(A)	Mass kg
ASD 35 T	7.5	3.16	8.5	18.5	0.8	1770 x 900 x 1530	G 1 ¼	65	705
	10	2.63	12						
ASD 40 T	7.5	3.92	8.5	22	0.8	1770 x 900 x 1530	G 1 ¼	66	750
	10	3.13	12						
	13	2.58	15						
ASD 50 T	7.5	4.58	8.5	25	0.8	1770 x 900 x 1530	G 1 ¼	66	790
	10	3.85	12						
	13	3.05	15						
ASD 60 T	7.5	5.53	8.5	30	0.8	1770 x 900 x 1530	G 1 ¼	69	845
	10	4.49	12						
	13	3.71	15						


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

Model	Operating pressure bar	Flow rate <sup>1)</sup> Overall package at operating pressure m³/min	Max. working pressure bar	Drive motor rated power kW	Refrigeration dryer power consumption <sup>***)</sup>	Dimensions W x D x H mm	Compressed air connection	Sound pressure level <sup>**)</sup> dB(A)	Mass kg
ASD 35 T SFC	(Prospectively available from mid-2018)								
ASD 40 T SFC	7.5	1.05 - 4.64	8.5	22	0.8	1850 x 900 x 1530	G 1 ¼	68	850
ASD 50 T SFC	7.5	1.07 - 5.27	8.5	25	0.8	1850 x 900 x 1530	G 1 ¼	68	852
	10	1.00 - 4.58	13						
	13	0.93 - 3.82	13						
ASD 60 T SFC	7.5	1.26 - 6.17	8.5	30	0.8	1850 x 900 x 1530	G 1 ¼	70	890
	10	1.00 - 4.76	15						
	13	0.93 - 4.14	15						



# 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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