KAESER COMPRESSORS®

Oil-free compression rotary screw compressors

CSG-2, DSG-2, FSG-2 Series

Flow rate up to 51 m³/min, Pressure 4 to 10 bar

www.kaeser.com

Durable and clean-running for sensitive processes

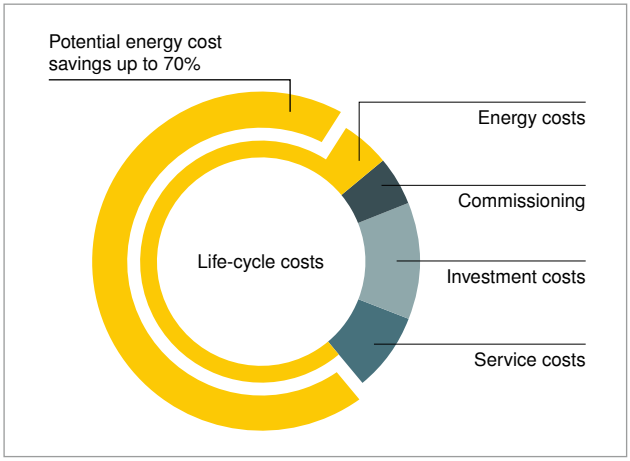
Two-stage, oil-free compression KAESER rotary screw compressors not only impress with their intelligent component layout, but also with their many innovative details – all of course with renowned KAESER quality and KAESER's distinctive, contemporary design. Whether for the semiconductor, food or automotive industries: our two-stage, dry compression compressors tirelessly prove that process-appropriate purity and cost-effectiveness do indeed go hand in hand – even in extreme conditions.

Long-term efficiency

Compressed air simply has to be available wherever and whenever it is needed. KAESER oil-free compression rotary screw compressors are therefore built to last and to ensure many years of dependable performance. Comprising tried and tested components that have been developed as a result of KAESER's near century of experience in mechanical engineering, KAESER compressors deliver the durability and compressed air availability to meet even the toughest of demands.

Innovation you can trust

Using all of the advantages that KAESER's advanced Research and Development Centre in Coburg has to offer, KAESER's engineers designed every detail of the two-stage, oil-free compression rotary screw airend with maximum efficiency and performance in mind. Further additional system features include the use of fibre-free pulse dampers and, with water-cooled compressor packages, an integrated heat recovery module.



Efficiency as standard

KAESER quality and expertise really count when it comes to those all-important total system costs for asset investments, such as compressors or complete compressed air supply systems. Lowest possible compressed air costs and maximum availability can be guaranteed only through a combination of perfect interplay between energy efficiency and service / maintenance, and by viewing the compressed air supply system as a whole.

Service-friendly

These versatile systems were engineered for maximum ease-of-use and servicing right from the outset of the design stage. Fewer wearing parts and the use of premium quality materials ensure reduced maintenance requirement, longer service intervals and extended service life. Excellent component accessibility as a result of generously sized maintenance doors and a swing-out cooler are just some of the features that make servicing so effortless.

Energy-efficiency: the essential requirement

Investment and service costs account for only a small part of a compressor's total life-cycle costs. Since energy accounts for the lion's share of these costs, why not save with KAESER Life-Cycle Management? KAESER has been committed to minimising your energy costs for compressed air production for over 40 years. We also have the bigger picture in clear focus when it comes to service and maintenance, as well as maximum compressed air supply availability.

Contents

Heat recovery

Compressed air drying

Technical specifications

Equipment and options

KAESER compressor airends: precise, durable, efficient

At the heart of every KAESER oil-free compression rotary screw compressor lies a tried and tested, two-stage rotary screw airend. Providing optimal performance and dependability, every airend ensures maximum efficiency throughout its entire service life.

Image: FSG 420-2 i.HOC SFC A ▸

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.

Durable coating

The blasted and bonderised rotors are treated using the special "Ultra Coat" process to produce an innovative and durable coating, which is resistant to temperatures of up to 300 °C. Since this cost-reducing coating is highly abrasion-resistant, its sealing and protection performance remains consistent even after years of operation.

Standard DIN-EN -50598

The European eco-compatible design standard DIN-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.

Combined with a high-performance frequency converter

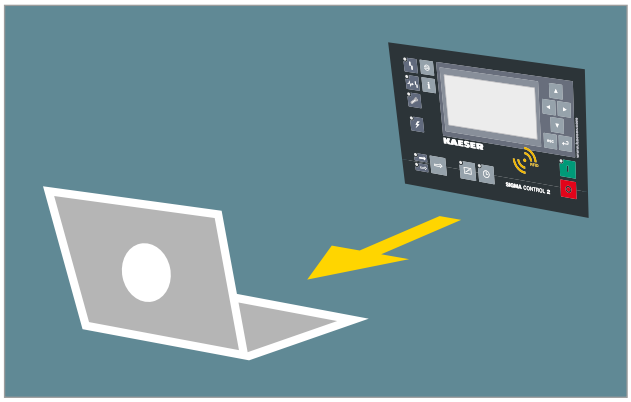
The Siemens frequency converter has a control algorithm adapted to the motor. With the finely tuned combination of a frequency converter and a synchronous reluctance motor, KAESER achieves the ‘IES2’ highest system efficiency class as defined by the DIN-EN-50598 standard (CSG standard).

SIGMA CONTROL® 2 and SIGMA AIR MANAGER® 4.0

Perfect interplay

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. Last but not least, variable interfaces enable seamless networking capability and the SD card slot makes updates quick and easy.



Integrated web server

The SIGMA CONTROL 2 is equipped with its own web server, making compressor status visualisation possible via Intranet / Internet. This means that operational data and maintenance / alarm messages can be viewed, with password protection, from any PC running a standard Internet browser. This feature benefits users by simplifying operation and maintenance.

SIGMA AIR MANAGER 4.0

This powerful master controller provides efficient control and coordinated management of up to 16 pieces of compressed air supply equipment and also monitors associated air treatment components. The SIGMA AIR MANAGER 4.0 also enables full compatibility of all KAESER compressed air supply systems within Industrie 4.0 environments.

KAESER CONNECT

The SIGMA AIR MANAGER 4.0's integrated web server provides visual display of all compressed air system data in the form of HTML pages. The information is available anytime, anywhere, and can be visualised in real-time on all network-capable devices.

Service...

...virtually maintenance-free

(1) Hydraulic inlet valve

The hydraulically operated inlet valves in KAESER oil-free compression rotary screw compressors are unaffected by contamination and condensate. This enhances their reliability and ease of maintenance compared to pneumatic valves.

(2) Fibre-free pulse dampers

KAESER's new fibre-free pulse dampers keep pressure losses to an absolute minimum, help maintain consistent air quality and minimise unwanted vibration. In addition, their fibre-free design reliably eliminates the possibility of compressed air contamination.

Image: CSG 120-2 RD SFC W

...excellent accessibility

(3) Easy-access coupling

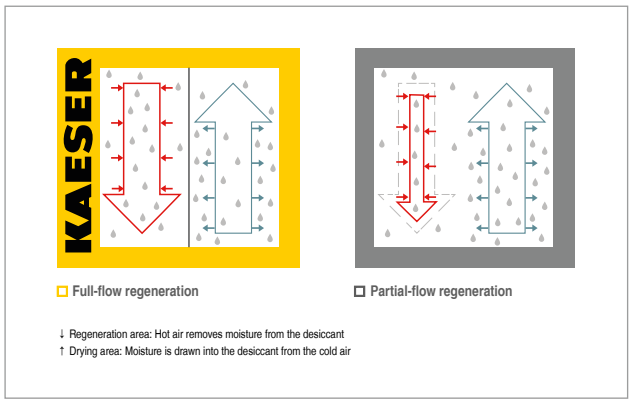
The electric motor directly drives the airend via a maintenance-free coupling, which virtually eliminates transmission losses. As there is no need for complicated disassembly work, the easy-access coupling can be exchanged quickly and simply.

(4) High efficiency condensate separator

Thanks to its flow-optimised design, the newly developed condensate separator reliably separates the condensate downstream from the air coolers – with minimal pressure loss.

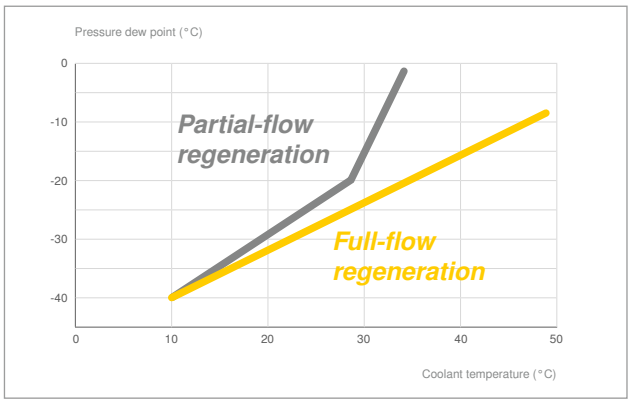
Image: CSG 120-2 RD SFC W

Image: CSG 120-2 RD SFC, person shown 1.80 m tall



Full-flow regeneration in detail

The i.HOC (Integrated Heat of Compression Dryer) system uses 100% of the heat of compression from the second compression stage for drying purposes (full-flow regeneration). This heat, which is produced in any case, is therefore effectively available at zero cost.



Drying even near the limit

The advantages of full-flow regeneration become obvious, especially with increased coolant temperatures. KAESER rotation dryers achieve outstanding drying results even without additional electric heating of the regeneration air.

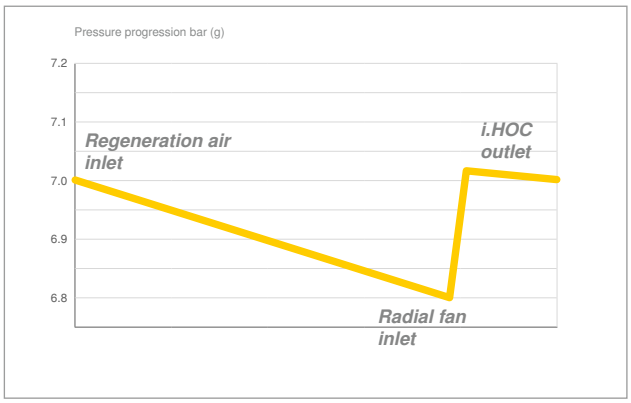
i.HOC

Dependable pressure dew point through innovative process engineering

The patented i.HOC rotation dryer from KAESER uses up to 100 % of the heat created during the compression process! Thanks to this full-flow regeneration method, these dryers deliver reliable pressure dew points to an ambient temperature of 45 °C – without any electrical heating or additional cooling of the regeneration air! Air- and water-cooled versions are available.

The advantages:

- Dependable sub-zero pressure dew points even at high ambient or coolant temperatures.
- Pressure dew point stability even at lowest compressor load – without any need for a partial load compensator.
- Available with pressure dew point control if required.
- Highly effective, simultaneous drying and heat recovery with water-cooled compressors.



Perfect performance

The i.HOC's intelligent controller ensures dew point stability even with fluctuating flow rates and at compressor partial load. When commissioned, the target pressure dew point is reached after just one rotation of the drum.

Pressure loss? On the contrary!

The radial fan in the base of the i.HOC equalises drying process pressure losses as required, thereby guaranteeing maximum pressure dew point stability and quality – the pressure at the i.HOC dryer outlet is even higher than at the inlet!

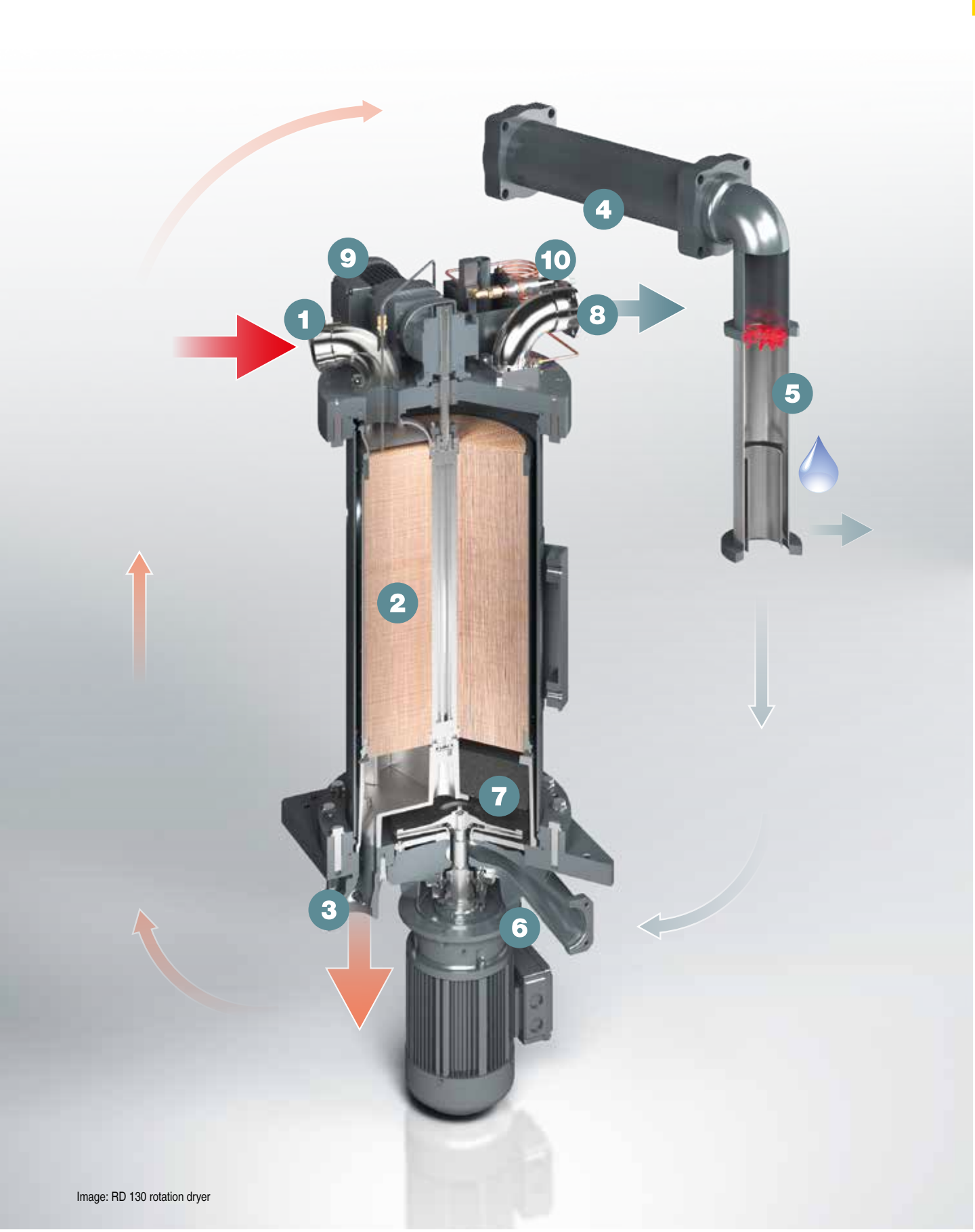


Image: RD 130 rotation dryer

(1) Regeneration air inlet
(2) Drum
(3) Regeneration air outlet
(4) Heat exchanger stage 2
(5) Condensate separator
(6) Radial fan
(7) Demister
(8) i.HOC rotation dryer outlet
(9) Drum motor
(10) Pressure dew point sensor (optional)

i.HOC

Precision for efficiency and low pressure dew points

Precision drum

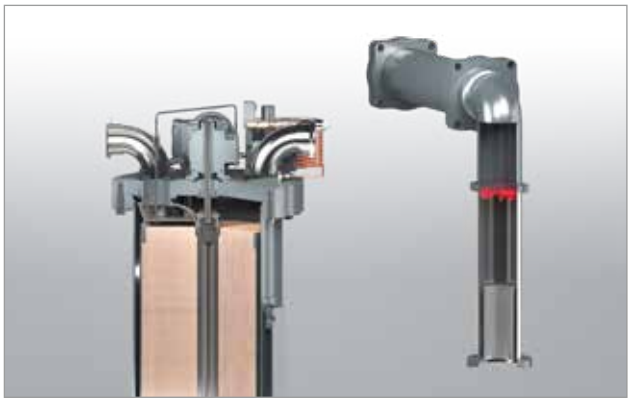
The silica gel desiccant is bedded in a precision manufactured drum with exceptionally high run-out qualities. Incorrect flows within the dryer and resulting pressure dew point fluctuations are therefore reliably prevented.

Variable speed drum motor

The speed of the drum is automatically adjusted according to actual compressor performance in order to regenerate the desiccant as effectively as possible. This is the key to ensuring consistently low pressure dew points.

Durable and efficient

Thanks to CFD optimisation, the flow-optimised radial fan installed in the base of the dryer efficiently compensates for the pressure losses in the i.HOC cooling path.



External condensate separation

The i.HOC system uses a highly efficient condensate separator downstream from the heat exchanger in the second compression stage, in order to separate the condensate that occurs during the regeneration process **outside of the dryer**. This protects the drum from potentially damaging water droplets.

Cleaning made simple

Thorough cleaning of the air aftercoolers doesn't require the use of a crane – they can simply be swung out by a service technician. Cleaning can then be performed quickly and easily next to the machine without the risk of contaminating the compressor unit's interior.

Operation in ambient temperatures up to +45 °C as standard

Air-cooled machines operate dependably in ambient temperatures up to +45 °C thanks to their durable and energy-efficient radial fan.

Air-cooling

Dependable performance –
even under extreme conditions

The advantages:

- Cooling water infrastructure is no longer required.
- Meticulously designed machines with logical component layout make maintenance and service work quick and easy, thereby ensuring further savings.
- The heated cooling air can be easily re-used for space-heating purposes.

◂ Image: FSG 420-2 A

Outstanding durability through pre-cooling

Highly effective pre-cooling with a stainless steel tube cooler on the high pressure side ensures outstanding air cooler durability. Furthermore, this durable cooler combination also delivers comparably low compressed air discharge temperatures.

Energy-saving standstill fan

When the large radial fan in air-cooled units is switched off as part of the transition to standby mode, the energy-saving, temperature-controlled standstill fan reliably removes remaining heat from the compressor.

Water-cooling

Compact energy-savers

The advantages:

- Exceptionally low compressed air discharge temperature thanks to high quality separate air cooler.
- Load-dependent cooling water control for optimum compressor cooling and simultaneous efficient use of cooling water.
- Compact and low-height design.

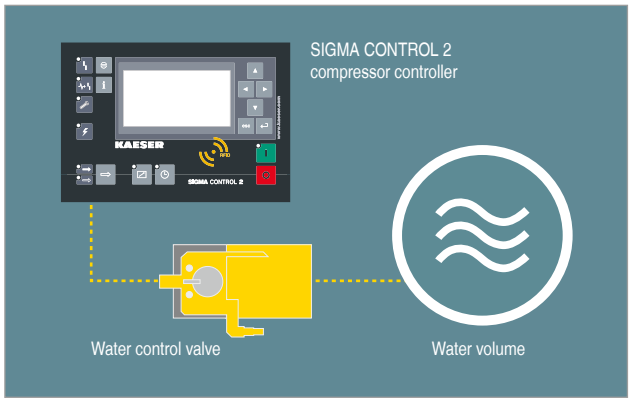
Image: FSG 420-2 i.HOC W SFC ▸

Parallel heat exchanger

Both the low and high pressure stages of water-cooled KAESER oil-free compression rotary screw compressors are equipped with their own dedicated parallel heat exchanger for enhanced heat transfer. This optimised cooling consequently improves specific power performance.

Optimised water cooler

Water-cooled, oil-free compression KAESER rotary screw compressors feature highly efficient air/water heat exchangers. CuNi10Fe cooling pipes with internal star lamella fins provide optimum heat transfer and lowest possible compressed air discharge temperatures with minimal pressure loss.



Clever control

Water-cooled, oil-free compression KAESER rotary screw compressors feature sealed water control valves that are actuated via the advanced SIGMA CONTROL 2 compressor controller, which precisely adjusts water volume to meet actual load requirement.

Permanent adjustment

The important but time-consuming task of performing hydraulic adjustment of both air coolers is carried out permanently and automatically during commissioning and when the machine is in operation. Cooling performance is therefore optimally matched to the operating conditions.

Why recover heat?

The question should in fact be: Why not?

By doing so, you reduce your company's primary energy consumption and improve the CO_2 balance.

Compressors with air-cooling

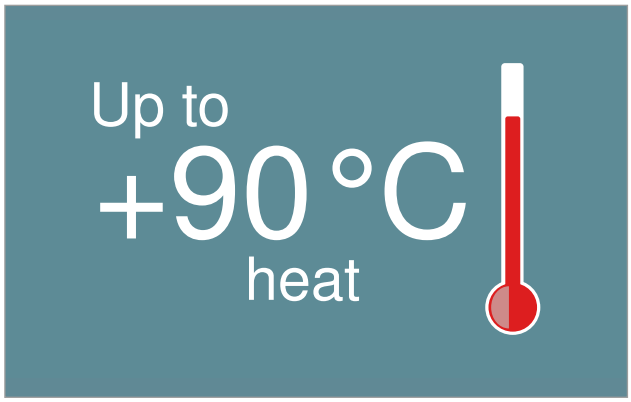
Users need to develop clever ideas regarding the use of warm compressor exhaust air. KAESER has the expertise to help you with everything you need to know and will be by your side every step of the way.

Compressors with water-cooling

Using the compact heat recovery module integrated into the compressor, generation of hot water for production or auxiliary heating purposes couldn't be simpler. Cost- and space-intensive external infrastructure is therefore not necessary with KAESER solutions and the amortisation period of the heat recovery module is usually less than a year (see example calculation below).

Example amortisation calculation	
Inlet temperature	20 °C
Relative humidity	30 %
Cooling water inlet (primary)	20 °C
Cooling water outlet (primary)	80 °C
Compressor power consumption CSG-130-2 10 bar (g)	96.8 kW
Heat recovery potential based on total power consumption	87 %
Recoverable heat capacity	84.2 kW
Annual operating hours	6,000 hrs
Kilowatt hours per year	505,296 kWh
Fuel costs	0.02 €/kWh
Annual fuel cost savings	€ 10,105
Amortisation period	**< 1 year**

Amortisation period < 1 year



Process, heating and service water

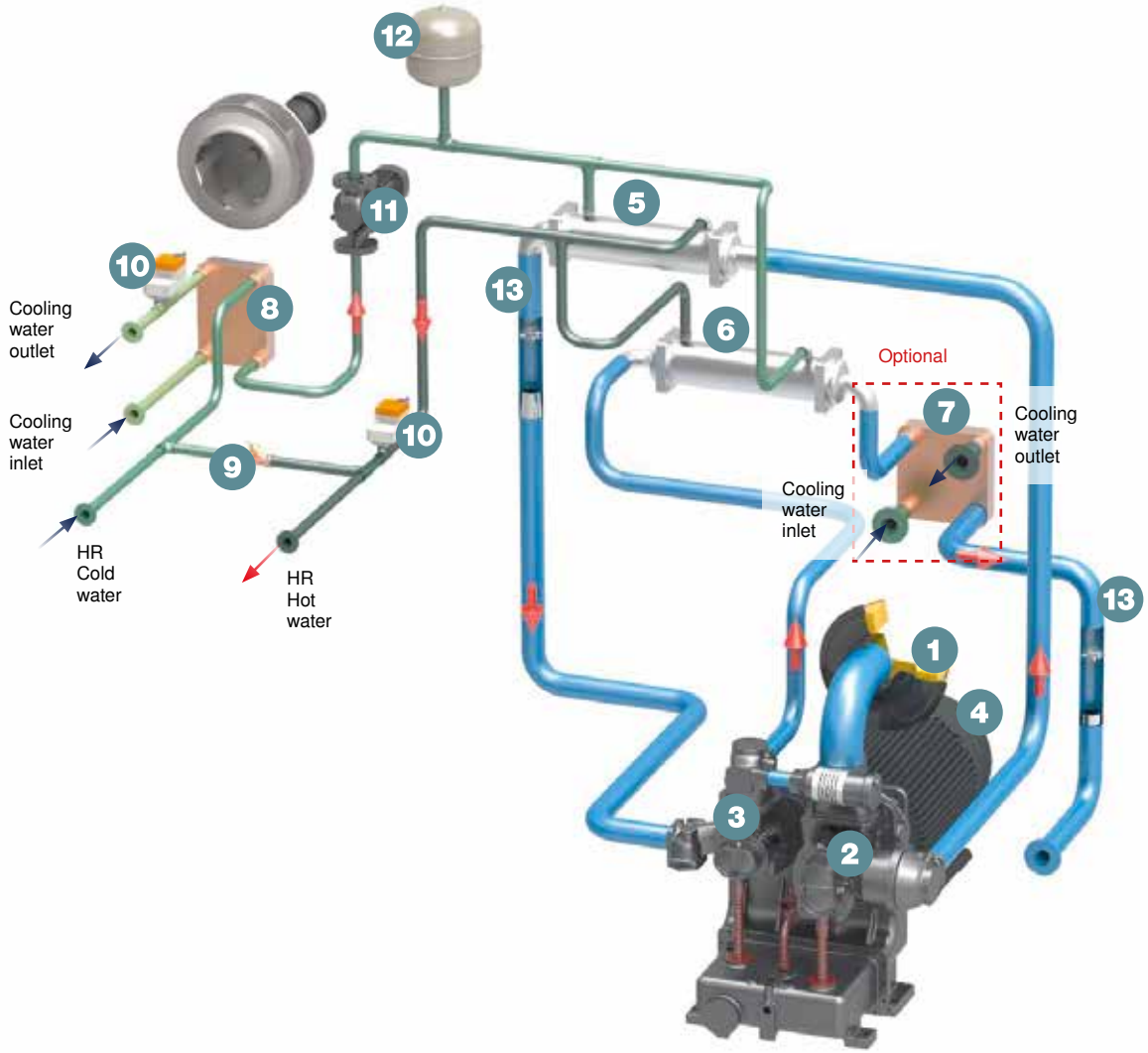
Compressor exhaust heat can be used to produce hot water with temperatures up to +90 °C, which can then be used for a wide range of applications.

Space heating with warm exhaust air

Heating made simple: thanks to radial fans with high residual thrust, the reusable (warm) air from air-cooled KAESER rotary screw compressors can be ducted away easily to spaces that require heating – usually without the need for additional fans.

Technical implementation of integrated heat recovery

Water-cooled system version with heat recovery



(1) Intake filter

(2) Low pressure stage (Stage 1)

(3) High pressure stage (Stage 2)

(4) Drive motor

(5) Air cooler downstream from Stage 1 (air/water)

(6) Air cooler downstream from Stage 2 (air/water)

(7) Optional additional heat exchanger (air/water)
→ Plate heat exchanger version

(8) Heat exchanger (water/water)

(9) Check valve

(10) Water control valve
(actuated by SIGMA CONTROL)

(11) Pump

(12) Expansion tank

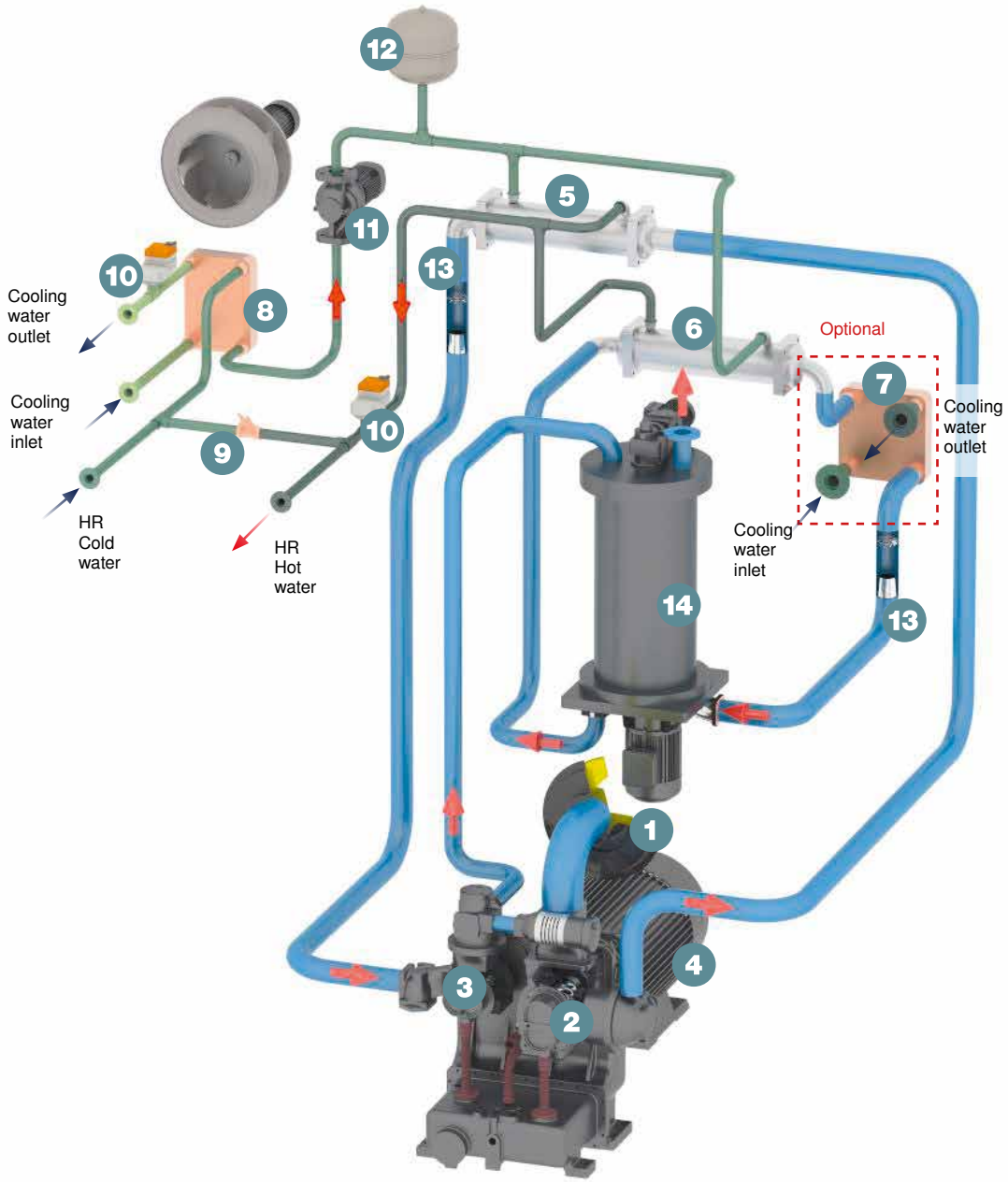
(13) Condensate separator

(14) Integrated i.HOC rotation dryer

In two-stage, oil-free compression rotary screw compressors, some 90 % of the usable heat is processed through the two air coolers (5) and (6).

KAESER therefore uses separate, high-quality heat exchangers, developed specially to meet heat recovery requirements. The remaining 10 % of usable heat is processed through the oil cooler and in the jacket cooling system of the compression stages.

Versions with rotation dryer



Compressed air drying process – Overview

+3 °C RMC 4 *)

Refrigeration dryers

-30 °C RMC 3 *)

I.HOC rotation dryer

-40 °C RMC 2 *)

Combination dryer

–70 °C RMC 1 *)

Desiccant dryer

Residual moisture in the compressed air following drying.

*) **RMC = Residual Moisture Class**

Precision analysis essential

The required dew point plays a significant role in determining the drying process, as well as the investment, service and energy costs associated with compressed air drying.
It is therefore highly recommended to carry out a detailed system analysis. Unnecessarily high compressed air volume creates additional costs, which is something that we will gladly help you avoid!

Refrigeration dryers

Even for oil-free compression rotary screw compressors, refrigeration dryers are the go-to choice for delivering best possible energy efficiency and favourable investment costs when requiring pressure dew points to **+3 °C**. Pressure dew points below +3 °C are provided by desiccant dryers.

i.HOC rotation dryer

The optional i.HOC rotation dryer for integration in the rotary screw compressor can reliably and efficiently achieve pressure dew points as low as **-30 °C**. The hot compressed air from the second compression stage is used to regenerate the desiccant.

Combination dryer

HYBRITEC dryers combine the energy-saving operation of modern refrigeration dryers with the ultra-low pressure dew points of desiccant dryers. HYBRITEC dryers achieve pressure dew points as low as **-40 °C** with exceptional efficiency.

Heatless regenerated dryer

KAESER's DC series heatless regenerated desiccant dryers achieve pressure dew points to **-70 °C**, even under extreme operating conditions.

Integrated refrigeration drying

KAESER refrigeration dryers ensure perfect drying of compressed air for the intended application and all flow rates. Since they are high-quality industrial machines, you'll be providing reliable protection against condensate damage for your systems and processes, even under the harshest of conditions (CSG series).

Energy-saving drying

Integrated design, together with the generously-dimensioned aluminium block heat exchanger, helps ensure minimal pressure loss of less than 0.1 bar. The energy-saving scroll refrigeration compressor helps achieve additional compressed air energy savings.

Excellent accessibility

All refrigeration dryer components are perfectly accessible via the service door on the front of the unit. Dryer service and maintenance work is therefore a breeze.

Image: CSG 120-2 T SFC A

Air-cooled CSG packages

Rated motor power	Model	Gauge pressure	Standard			SFC		
			Flow rate [1]	Mass	Sound pressure level [2]	Flow rate [1]	Mass	Sound pressure level [2]
kW		bar	m³/min	kg	dB(A)	m³/min	kg	dB(A)
37	**CSG 55-2** **CSG 55-2 T** **CSG 55-2 i.HOC**	6 8 10	Upon request 5.4 –	2270 2520 2985	71	–	–	–
45	**CSG 70-2** **CSG 70-2 T** **CSG 70-2 i.HOC**	4 6 8 10	8.92 7.77 6.65 –	2310 2560 3025	71	–	–	–
55	**CSG 90-2** **CSG 90-2 T** **CSG 90-2 i.HOC**	4 6 8 10	10.52 9.62 8.8 7.67	2375 2625 3090	72	3.31 – 10.62 3.23 - 9.45 3.47 - 8.20 Upon request	2435 2685 3150	72
75	**CSG 120-2** **CSG 120-2 T** **CSG 120-2 i.HOC**	4 6 8 10	12.97 12.92 12 10.43	2515 2765 3230	73	3.94 – 13.23 4.51 – 12.31 5.08 – 11.2 4.81 – 10.00	2575 2825 3290	73
90	**CSG 130-2** **CSG 130-2 T** **CSG 130-2 i.HOC**	4 6 8 10	– 12.92 12.88 12.85	2640 2890 3355	74	4.23 – 13.35 4.64 – 13.26 5.05 – 13.17 5.47 – 12.57	2700 2950 3415	74

Air-cooled DSG packages

Rated motor power	Model	Gauge pressure	Standard			SFC		
			Flow rate [1]	Mass	Sound pressure level [2]	Flow rate [1]	Mass	Sound pressure level [2]
kW		bar	m³/min	kg	dB(A)	m³/min	kg	dB(A)
90	**DSG 140-2** **DSG 140-2 i.HOC**	8 10	13.18 13.12	3400 4500	77	–	–	–
110	**DSG 180-2** **DSG 180-2 i.HOC**	4 6 8 10	21.7 19.2 18.4 16.1	3550 4650	78	8.58 - 22.52 9.46 - 20.79 8.51 - 18.56 9.54 - 16.43	4150 5250	79
132	**DSG 220-2** **DSG 220-2 i.HOC**	4 6 8 10	26.15 23 21.6 19.1	3700 4800	78	7.84 - 22.51 8.68 - 22.45 9.51 - 21.8 9.95 - 19.5	4300 5400	79
160	**DSG 260-2** **DSG 260-2 i.HOC**	4 6 8 10	28.61 26.1 26 22.9	3850 4950	79	8.59 - 27.71 9.36 - 27.66 9.62 - 25.44 10.3 - 23.3	4450 5550	80
200	**DSG 290-2** **DSG 290-2 i.HOC**	4 6 8 10	28.6 28.55 28.5 26	4000 5100	81	9.07 - 30.09 10.27 - 30.05 11.47 - 30 12.33 - 28	4600 5700	82

Air-cooled FSG packages

Rated motor power	Model	Gauge pressure	Standard			SFC		
			Flow rate [1]	Mass	Sound pressure level [2]	Flow rate [1]	Mass	Sound pressure level [2]
kW		bar	m³/min	kg	dB(A)	m³/min	kg	dB(A)
160	**FSG 300-2** **FSG 300-2 i.HOC**	4 6 8	35.12 29.4 29.3	5550 6750	78	–	–	–
200	**FSG 350-2** **FSG 350-2 i.HOC**	4 6 8 10	42.15 37.3 34.9 29.2	5750 6950	79	–	–	–
250	**FSG 420-2** **FSG 420-2 i.HOC**	4 6 8 10	50.14 45.7 42 37.1	5950 7150	80	12.95 - 48.53 14.79 - 44.56 16.63 - 40.57 18.48 - 36.54	6550 7750	81
315	**FSG 450-2** **FSG 450-2 i.HOC**	4 6 8	50.1 45.6 41.9	6250 7450	81	–	–	–
315	**FSG 500-2** **FSG 500-2 i.HOC**	4 6 8 10	- - 50 45.6	6250 7450	82	15.48 - 50.77 16.94 - 50.7 18.41 - 47.53 19.88 - 43.57	6550 7750	83
355	**FSG 520-2** **FSG 520-2 i.HOC**	4 6 8 10	–	–	–	15.48 - 50.77 16.94 - 50.7 18.41 - 50.63 19.88 - 48.59	7600 8800	84

Dimensions for standard and SFC versions

Model	Dimensions W x D x H Standard/SFC mm
CSG-2 **CSG-2 T** **CSG-2 i.HOC**	2490 x 1660 x 2145 2840 x 1660 x 2145 3140 x 1660 x 2145
DSG-2 **DSG-2 i.HOC**	3435x 1750 x 2385 4270 x 1750 x 2385
FSG-2 **FSG-2 i.HOC**	3860 x 2075 x 2730 4630 x 2075 x 2730

[1] Flow rate complete system as per ISO 1217 : 2009, Annex C/E, inlet pressure 1 bar (a), cooling and air inlet temperature +20 °C
[2] Sound pressure level as per ISO 2151 and basic standard ISO 9614-2, tolerance: ± 3 dB (A)

Specifications subject to change without notice

Water-cooled CSG packages

Rated motor power	Model	Gauge pressure	Standard			SFC		
			Flow rate [1]	Mass	Sound pressure level [2]	Flow rate [1]	Mass	Sound pressure level [2]
kW		bar	m³/min	kg	dB(A)	m³/min	kg	dB(A)
37	**CSG 55-2** **CSG 55-2 T** **CSG 55-2 i.HOC**	6 8 10	Upon request 5.4 –	2270 2520 2985	64	–	–	–
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75	**CSG 120-2** **CSG 120-2 T** **CSG 120-2 i.HOC**	4 6 8 10	12.97 12.92 12 10.43	2515 2765 3230	66	3.94 – 13.23 4.51 – 12.31 5.08 – 11.2 4.81 – 10.00	2575 2825 3290	66
90	**CSG 130-2** **CSG 130-2 T** **CSG 130-2 i.HOC**	4 6 8 10	– 12.92 12.88 12.85	2640 2890 3355	68	4.23 – 13.35 4.64 – 13.26 5.05 – 13.17 5.47 – 12.57	2700 2950 3415	68

Water-cooled DSG packages

Rated motor power	Model	Gauge pressure	Standard			SFC		
			Flow rate [1]	Mass	Sound pressure level [2]	Flow rate [1]	Mass	Sound pressure level [2]
kW		bar	m³/min	kg	dB(A)	m³/min	kg	dB(A)
90	**DSG 140-2** **DSG 140-2 i.HOC**	8 10	13.18 13.12	3100 4200	69	–	–	–
110	**DSG 180-2** **DSG 180-2 i.HOC**	4 6 8 10	21.7 19.2 18.4 16.1	3250 4350	70	8.58 - 22.52 9.46 - 20.79 8.51 - 18.56 9.54 - 16.43	3850 4950	71
132	**DSG 220-2** **DSG 220-2 i.HOC**	4 6 8 10	26.15 23 21.6 19.1	3400 4500	71	7.84 - 22.51 8.68 - 22.45 9.51 - 21.8 9.95 - 19.5	4000 5100	72
160	**DSG 260-2** **DSG 260-2 i.HOC**	4 6 8 10	28.61 26.1 26 22.9	3550 4650	74	8.59 - 27.71 9.36 - 27.66 9.62 - 25.44 10.3 - 23.3	4150 5250	75
200	**DSG 290-2** **DSG 290-2 i.HOC**	4 6 8 10	28.6 28.55 28.5 26	3700 4800	75	9.07 - 30.09 10.27 - 30.05 11.47 – 30 12.33 - 28	4300 5400	76

Water-cooled FSG packages

Rated motor power	Model	Gauge pressure	Standard			SFC		
			Flow rate [1]	Mass	Sound pressure level [2]	Flow rate [1]	Mass	Sound pressure level [2]
kW		bar	m³/min	kg	kg	m³/min	dB(A)	dB(A)
160	**FSG 300-2** **FSG 300-2 i.HOC**	4 6 8	35.12 29.4 29.3	5250 6400	74	–	–	–
200	**FSG 350-2** **FSG 350-2 i.HOC**	4 6 8 10	42.15 37.3 34.9 29.2	5450 6600	75	–	–	–
250	**FSG 420-2** **FSG 420-2 i.HOC**	4 6 8 10	50.14 45.7 42 37.1	5650 6800	75	12.95 - 48.53 14.79 - 44.56 16.63 - 40.57 18.48 - 36.54	6250 7400	76
315	**FSG 450-2** **FSG 450-2 i.HOC**	4 6 8	50.1 45.6 41.9	5950 7100	75	–	–	–
315	**FSG 500-2** **FSG 500-2 i.HOC**	4 6 8 10	– – 50 45.6	5950 7100	76	15.48 - 50.77 16.94 - 50.7 18.41 - 47.53 19.88 - 43.57	6700 7850	77
355	**FSG 520-2** **FSG 520-2 i.HOC**	4 6 8 10	– – – 50	6550 7700	77	15.48 - 50.77 16.94 - 50.7 18.41 - 50.64 19.88 - 50.57	7300 8450	78

Dimensions for standard and SFC versions

Model	Dimensions W x D x H mm
CSG-2 **CSG-2 T** **CSG-2 i.HOC**	2490 x 1660 x 1965 2840 x 1660 x 1965 3140 x 1660 x 1965
DSG-2 **DSG-2 i.HOC**	3435x 1750 x 2385 4270 x 1750 x 2385
FSG-2 **FSG-2 i.HOC**	3650 x 2075 x 2730 4475 x 2075 x 2220

[1] Flow rate complete system as per ISO 1217 : 2009, Annex C/E, inlet pressure 1 bar (a), cooling and air inlet temperature +20 °C
[2] Sound pressure level as per ISO 2151 and basic standard ISO 9614-2, tolerance: ± 3 dB (A)

Specifications subject to change without notice

Equipment

Complete unit

Oil-free compression rotary screw compressor with two-stage compression; condensate separator, condensate drain and fibre-free pulse dampers for both compression stages; oil tank ventilation with micro-filter, ready for operation, fully automatic, silenced.

Airend

Two-stage, oil-free compression rotary screw airend with integrated gearing and collection tank for gear oil. Rotors feature durable coating. Both high and low pressure compression stages feature jacket cooling; high pressure stage with chromium steel rotors.

Drive:
Precision gearing as per AGMA Q13/DIN Class 5 with helical spur gears.

Drive motor

Premium efficiency IE4 drive motor, quality manufacture; IP 55 enclosure protection, Pt100 temperature sensor in windings; continuous measurement and monitoring of motor windings temperature.

Electrical components

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

SIGMA CONTROL 2

Full-text display, 30 selectable languages; soft touch icon keys; 'traffic light' style LEDs to indicate operating status; fully automatic monitoring and control; Dual, Quadro and Dynamic control modes provided as standard; SD card slot for data logging and updates; RFID reader; web server; interfaces: Ethernet; optional communications modules for: Profibus DP, Modbus, Profinet and Devicenet.

Dynamic Control

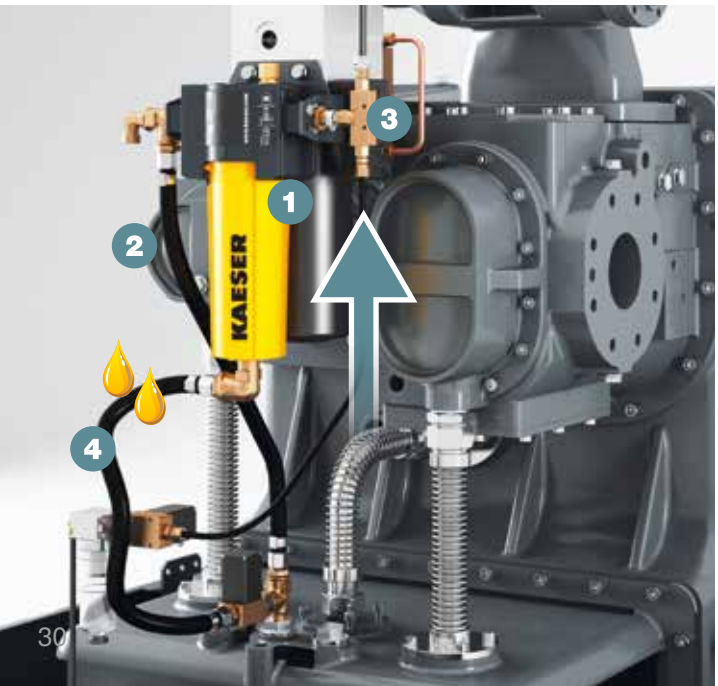
The dynamic control feature calculates run-on times based on the motor winding temperature. This reduces idling times and energy consumption. Additional control modes are stored in the SIGMA CONTROL 2 and can be called up as required.

Cooling

Optionally available with air- or water-cooling. Radial fan with separate drive motor. Exhaust air discharged upwards.

Air-cooled version:
High-pressure side: aluminium cooler with stainless steel tube pre-cooler. Low pressure side: aluminium cooler; aluminium cooler for gear oil.

Water-cooled version:
Two shell and tube heat exchangers comprising coated steel jacket and pipes made from CuNi10Fe; one gear oil cooler.



Dependable oil reservoir venting

The microfilter in the oil reservoir venting system prevents intake of oil-laden air. This is another key detail to ensure that compressed air quality is reliably and efficiently maintained at all times.

(1) Microfilter
(2) Oil mist removal
(3) Ejector
(4) Return to gear oil reservoir

Optional extras

	Model	Air-cooled	Water-cooled
Bolt-down machine feet	CSG-2 DSG-2 FSG-2	● ● ●	● ● ●
Silencer intake air opening (Sound insulated connecting links upstream from heat exchangers)	CSG-2 DSG-2 FSG-2	● ● ●	– – –
Cooling-air filter mats (Protect the heat exchanger against heavy contamination)	CSG-2 DSG-2 FSG-2	● ● ●	– – –
Integrated heat recovery with pump (Compressor is equipped with a complete second auxiliary water system, including water pump. This protects the compressor against potential excessive temperatures.)	CSG-2 DSG-2 FSG-2	– – –	● ● ●
Integrated heat recovery without pump (Compressor is equipped with a second auxiliary water system, without water pump. This protects the compressor against potential over-temperature.)	CSG-2 DSG-2 FSG-2	– – –	● ● ●
Auxiliary heat exchanger downstream from air cooler, 2nd stage (Reduces the discharge temperature of compressed air in compressors with heat recovery. Improves the pressure dew point for compressors with i.HOC.)	CSG-2 DSG-2 FSG-2	– – –	● ● ●
Integrated heat exchanger downstream from i.HOC rotation dryer (Reduces the compressed air outlet temperature from the compressor for packages with integrated i.HOC.)	CSG-2 DSG-2 FSG-2	● ● ●	● ● ●
Pressure dew point measurement (Pressure dew point sensor installed.)	CSG-2 DSG-2 FSG-2	● ● ●	● ● ●
Pressure dew point adjustment (Controlled bypass around stage 1 heat exchanger to improve pressure dew point as needed.)	CSG-2 DSG-2 FSG-2	● ● ●	● ● ●
Pressure dew point control (Pressure dew point measurement and controlled bypass around stage 1 heat exchanger to improve pressure dew point as needed.)	CSG-2 DSG-2 FSG-2	● ● ●	● ● ●
KAESER hot air control (Bypass around stage 1 heat exchanger to increase compressed air temperature after leaving the second stage as needed. No heat exchanger installed downstream from the second stage.) *Not available for packages with integrated rotation or refrigeration dryer.*	CSG-2 DSG-2 FSG-2	● – ●	● – ●
Vibration measurement (Monitoring of the bearings on the motor and compressor. Warning and fault levels are programmed in the controller.)	CSG-2 DSG-2 FSG-2	– – ●	– – ●

● Available
– Not available

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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