KAESER COMPRESSORS

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HPC | Compressed Air Systems

Rotary Screw Compressors SX Series

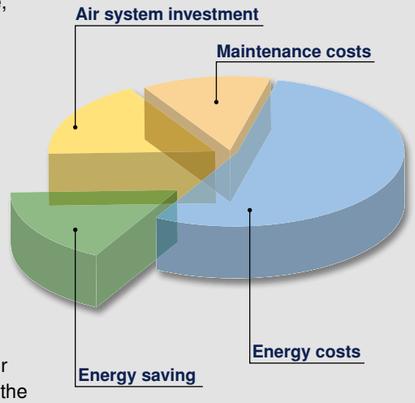
With the world-renowned SIGMA PROFILE

Free air delivery 0.26 to 0.80 m³/min, Pressures 8 – 11 – 15 bar

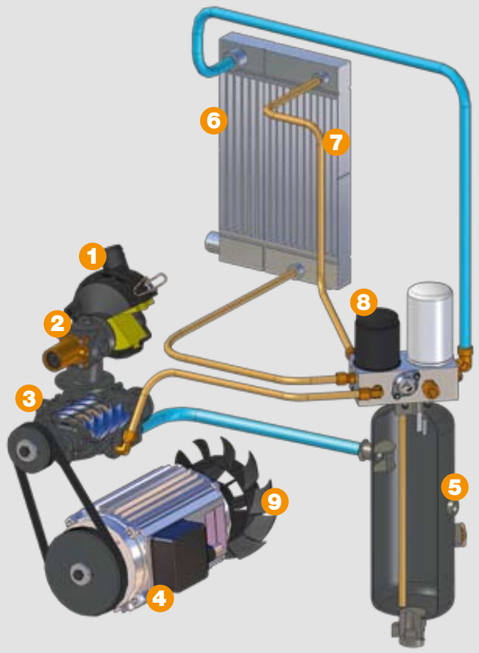
KAESER COMPRESSORS

What do users expect from a compressor system?

They expect maximum efficiency and reliability. This may sound simple, but these advantages are influenced by many different factors: Energy costs for example, taken over the lifetime of a compressor, add up to a multiple of investment costs. This is not just the case for larger compressed air systems, but also for smaller systems such as SX series compressors. Efficient energy consumption therefore plays a vital role in the production of compressed air. The air system must also deliver the compressed air in the correct volume, at the required quality, and provide exceptional reliability. This is essential to ensure maximum availability of compressed air powered production equipment. Last but not least, a truly efficient compressed air system should incur minimal maintenance costs. This is achieved by using high quality components and through logical system design which allows excellent accessibility to all maintenance points. KAESER rotary screw compressors fulfil all of these needs and provide the basis for highly efficient compressed air production.



Function diagram:



SX – Rotary Screw Compressors

Compact compressed air power

Innovative design – SX Aircenter

Kaeser's SX series 'Aircenter' systems offer more than space-saving compressed air production, treatment and storage: They redefine the concept of turnkey compressed air systems, as each model features the very latest technology to ensure unrivalled user advantages and outstanding performance. All three modules – the compressor, refrigeration dryer and air receiver – are enclosed within in a single housing, so that the whole system appears as a single integrated unit. The components within every Kaeser "Aircenter" package are perfectly matched to provide optimum energy efficiency, ease of maintenance and unrivalled durability.

EFF1 motor

SX optionally available as an Aircenter model with refrigeration dryer and compressed air receiver

1. Intake filter
2. Inlet valve
3. Airend
4. Drive motor
5. Fluid separator
6. Compressed air aftercooler
7. Fluid cooler
8. Fluid filter
9. Fan

Energy-saving SIGMA PROFILE

Each KAESER rotary screw compressor airend uses SIGMA PROFILE rotors, specially developed by KAESER, that require approximately 10-20 % less energy than conventional rotors with the same air delivery capacity. This consequently provides best in-class performance.

Compressor controller Sigma Control

The SIGMA CONTROL compressor controller is a robust PC-based industrial computer with a real-time operating system and update capability. 'Traffic light' style LEDs clearly indicate system operational status.

Even quieter

The new cooling system combines optimum sound damping with enhanced cooling. Normal conversation can take place right next to the running compressor.

Dual-flow fan

The patent-pending dual-flow cooling fan produces the cooling air flow for the drive motor on one side and the cooling air for the package on the other. The crescent-shaped fan blades help to further reduce sound emissions.

Powerful – Efficient – Quiet

As the most efficient way to achieve a given drive power, KAESER uses large, low speed rotary screw airends. This ensures that the specific power is always within the optimal range. SX series units use a flexible V-belt drive system to precisely determine airend speed dependent upon the airend being used. Low airend speed also means that components are subjected to less wear and consequently last longer, whilst noise emissions are also significantly reduced in comparison with high speed airends. This is particularly important for compressors installed directly in work environments.

SX – Maximum Versatility

SX (Standard)

As with all KAESER rotary screw compressors, the SX series is designed to meet the toughest of industrial demands: User-friendly and easy to maintain, SX compressors operate quietly and efficiently to provide a cost-effective and dependable source of quality compressed air. They are the ideal choice for users in the trade and craft sector that require a single compressor for their air supply, yet can also be easily integrated into larger compressed air systems.

SX-T with energy-saving dryer

Kaeser's compact modular design with integrated refrigeration dryer (T version) has significant advantages: The dryer is contained in its own separate cabinet within the unit to prevent exposure to heat from the compressor package. The dryer shut-down feature – which is linked to compressor operation – can also be selected via the compressor controller to further reduce energy consumption.

Aircenter: The integrated solution

The compact SX Aircenter series from Kaeser provides cost-effective compressed air production, treatment and storage with minimal space requirement. The compressor, dryer and air receiver are integrated within a single housing. Each unit is optionally available with a micro-filter or micro-filter combination.

Standard version
SX series rotary screw compressor

Excellent accessibility

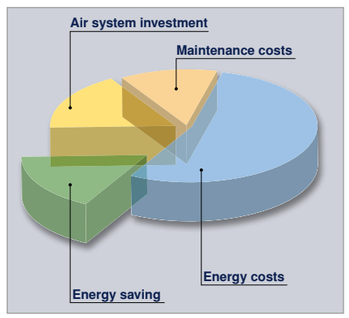
All maintenance work can be carried out from one side of the unit. The left housing cover is easily removed to allow excellent component accessibility. Furthermore, there's no need to remove the housing cover to inspect fluid levels, as these can be checked via a convenient inspection window. 'T' versions are also equipped with a service opening for the test button on the refrigeration dryer's electronic condensate drain.

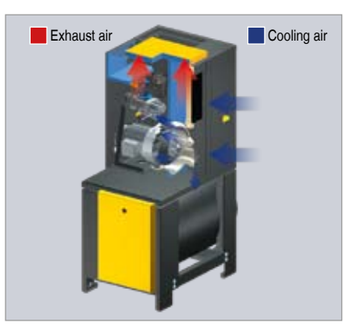
Maintenance friendly

Clever design and logical component layout ensure maintenance tasks are simple to perform and therefore contribute to keeping these costs to an absolute minimum. Features include: honeycombed air filter, quick change oil filter, easy access separator cartridge and long life drive belts.

Exceptional efficiency

Energy costs account for over 70 percent of total compressed air costs. This can amount to a significant sum even for smaller compressed air systems, which is why KAESER uses the very latest technology to ensure that every compressor provides best possible energy efficiency. These compressors form the basis for reliable and cost-effective compressed air production as part of a correctly planned and integrated compressed air supply system.





Cooling system with dual-flow fan

The high-efficiency cooling system uses an innovative dual-flow fan (patent pending) that not only ensures exceptional performance, but which also keeps sound emissions to an absolute minimum. The system uses separate flow paths for the compression air and for the motor and fluid cooling air to guarantee sufficient reserves even at high ambient temperatures of up to 45°C. Compression efficiency and motor cooling are enhanced by drawing in the air for motor cooling and compression from the ambient surroundings. Furthermore, sound levels are exceptionally low as the air flows through the cooling system at low speed. This system also significantly contributes to the effectiveness and reliability of refrigeration dryers in T-version packages.

Tailored control

The SIGMA CONTROL basic multi-function controller provides all the advantages of modern compressor control technology without the additional costs associated with PC-based control systems. Using the proven 'Dual' and 'Quadro' control modes, this advanced control system will communicate with – and constantly monitor – the compressor package. If necessary, system messages can be defined as alarms and, with the addition of an optional memory module, can be forwarded to a master control system, such as the SIGMA AIR MANAGER. This feature therefore enables the compressor to be easily integrated within a centrally controlled compressed air installation.

Equipment

Complete unit

Ready for operation, fully automatic, super silenced, vibration damped, all panels powder coated.

Sound insulation

Lined with washable foam, anti-vibration mounts, double vibration damped.

Airend

Genuine KAESER single-stage rotary screw airend with SIGMA PROFILE rotors and cooling fluid injection for optimised rotor cooling.

Electric motor

German made premium efficiency (Eff1) electric motor to IP 54 and insulation class F for additional reserve.

V-belt drive

Maintenance-free elasticised V-belt. No further adjustment necessary.

Fluid and air flow

Honeycombed dry-air filter, pneumatic inlet and vent valves, cooling fluid reservoir with three-stage separator system, pressure release valve, minimum pressure/ check valve, thermostatic valve and micro-filter in cooling fluid system.

Cooling

Air cooled; separate aluminium coolers for compressed air and cooling fluid, dual-flow fan (patent pending) fitted to motor drive shaft.

Electrical components

Ventilated control cabinet to IP 54, automatic star-delta starter (from 3kW); motor-overload protection; control transformer.

SIGMA CONTROL

Interfaces for data communication, comprising: RS 232 for a modem, RS 485 for a slave compressor in baseload sequencing mode (not with SFC version), Profibus DP interface for data networks. Prepared for Teleservice.

Ergonomic control panel

Red, yellow and green LEDs show operational status at a glance. Also features a plain text display, 30 selectable languages, touch keys with icons and a duty cycle indicator.

Prime functions

Fully automatic monitoring and regulation of airend discharge temperature, motor current, direction of airend rotation, air filter, fluid filter and fluid separator cartridge, display of performance data, service intervals of primary components, operating hours, status data and event memory data. Selection of Dual, Quadro, Vario and Continuous control modes as required.

(For further information refer to SIGMA CONTROL/SIGMA CONTROL BASIC brochure P-780)

Technical Specifications – SX

Standard version

Rated motor power kW	Model	Working pressure bar	FAD *) m³/min	Max. operating pressure bar	Sound level **) dB(A)	Dimensions W x D x H mm	Weight kg
2.2	**SX 3**	7.5 10	0.34 0.26	8 11	60	590 x 632 x 970	140
3	**SX 4**	7.5 10 13	0.45 0.36 0.26	8 11 15	61	590 x 632 x 970	140
4	**SX 6**	7.5 10 13	0.60 0.48 0.37	8 11 15	62	590 x 632 x 970	145
5.5	**SX 8**	7.5 10 13	0.80 0.67 0.54	8 11 15	64	590 x 632 x 970	155

T-version with integrated refrigeration dryer (refrigerant134a)

Model	Working pressure bar	FAD *) m³/min	Max. operating pressure bar	Dryer power consumption kW	Dryer differential pressure bar	Sound level **) dB(A)	Dimensions W x D x H mm	Weight kg
SX 3 T	7.5 10	0.34 0.26	8 11	0.25	0.2	60	590 x 916 x 970	185
SX 4 T	7.5 10 13	0.45 0.36 0.26	8 11 15	0.25	0.2	61	590 x 916 x 970	185
SX 6 T	7.5 10 13	0.60 0.48 0.37	8 11 15	0.27	0.2	62	590 x 916 x 970	190
SX 8 T	7.5 10 13	0.80 0.67 0.54	8 11 15	0.27	0.2	64	590 x 916 x 970	200

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

Rated motor power kW	Model	Working pressure bar	FAD *) m³/min	Max. operating pressure bar	Dryer power consumption kW	Dryer differential pressure bar	Receiver volume l	Sound level **) dB(A)	Dimensions W x D x H mm	Weight kg
2.2	**Aircenter 3**	7.5 10	0.34 0.26	8 11	0.25	0.2	200	60	590 x 1090 x 1560	285
3	**Aircenter 4**	7.5 10 13	0.45 0.36 0.26	8 11 15	0.25	0.2	200	61	590 x 1090 x 1560	285
4	**Aircenter 6**	7.5 10 13	0.60 0.48 0.37	8 11 15	0.27	0.2	200	62	590 x 1090 x 1560	290
5.5	**Aircenter 8**	7.5 10 13	0.80 0.67 0.54	8 11 15	0.27	0.2	200	64	590 x 1090 x 1560	300

*) Performance data to ISO 1217: 1996, Annex C; **) Sound level to PN8NTC 2.3 at 1m distance, free-field measurement

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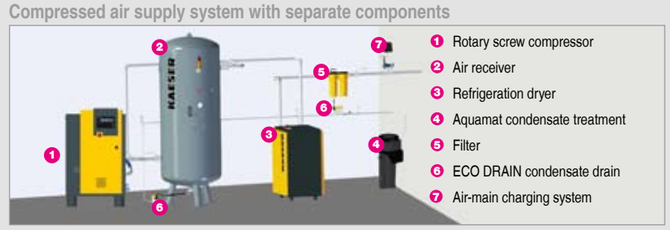
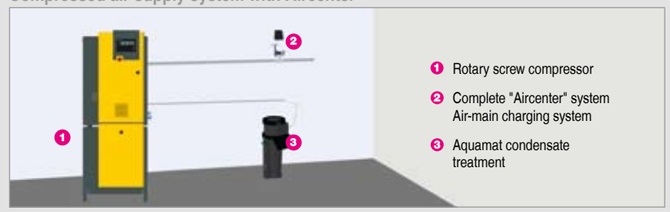
Professional planning

Compressed air supply system with separate components



Compressed air supply system with Aircenter

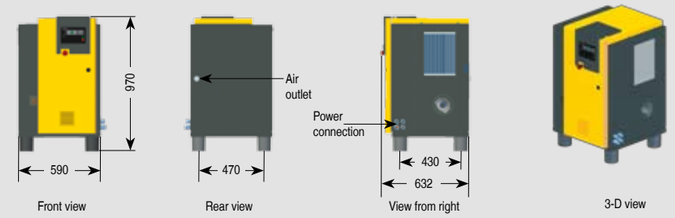


Only properly designed air systems can meet the demands for air quality, availability and efficiency that are placed on a modern compressed air supply.

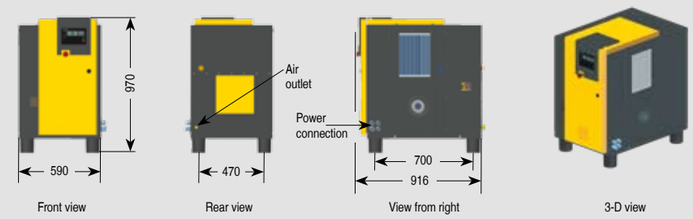
Therefore benefit from decades of compressed air engineering experience and let KAESER design your compressed air supply system.

Dimensions

Standard version

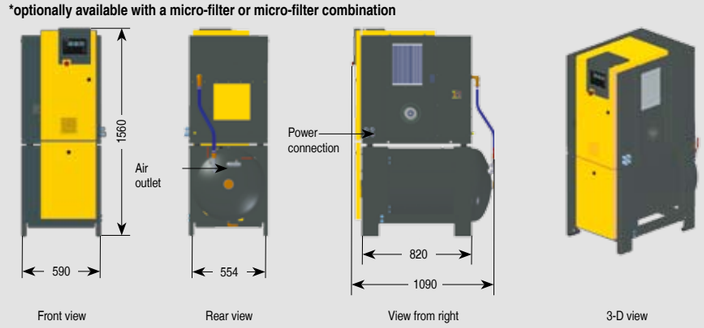


T - Version with integrated refrigeration dryer



Aircenter – With refrigeration dryer and compressed air receiver

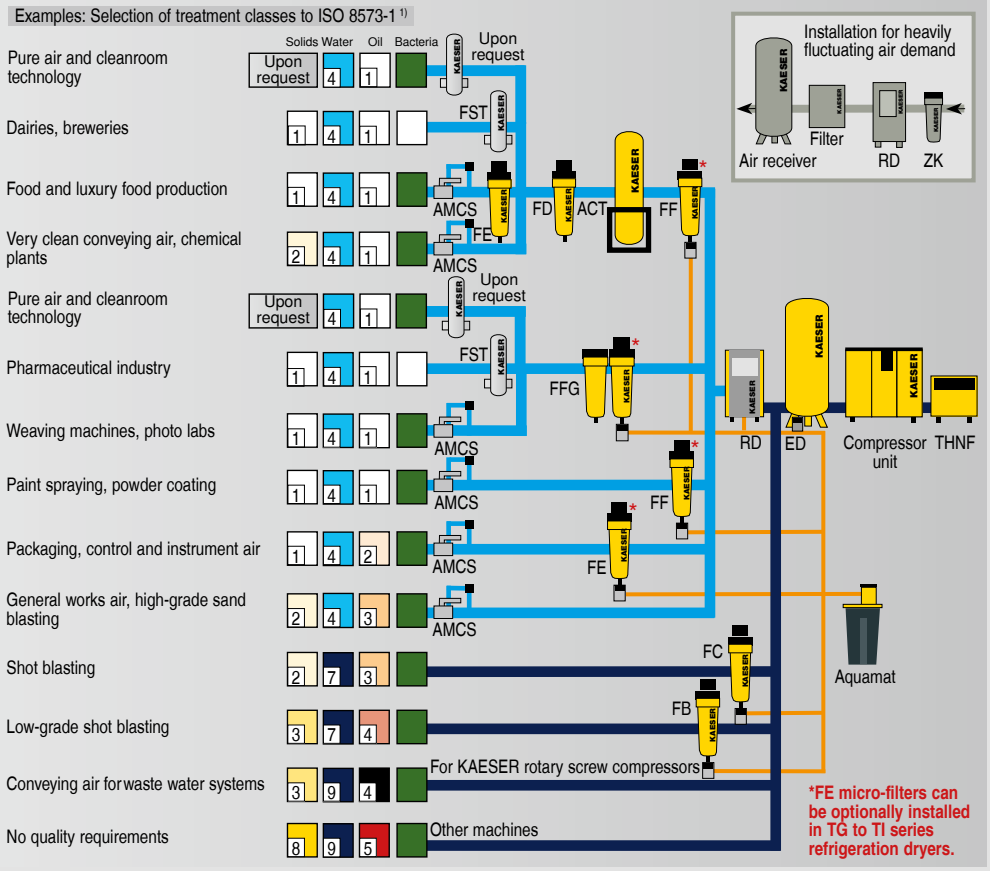
***optionally available with a micro-filter or micro-filter combination**



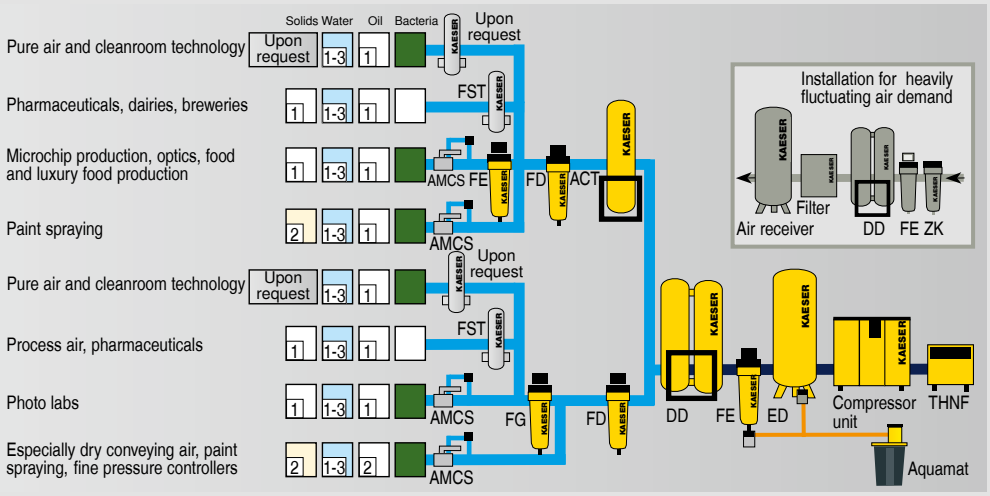
Choose the required grade of treatment according to your field of application:

Air treatment using a refrigeration dryer (pressure dew point + 3 °C)

Examples: Selection of treatment classes to ISO 8573-1 [1]



For air mains subject to sub-zero temperatures: Compressed air treatment with a desiccant dryer (pressure dew point to -70 °C)



Explanation:

THNF = Bag filter
Cleans dusty and heavily contaminated intake air

ZK = Centrifugal separator
Separates accumulating condensate

ED = Eco-drain
Electronic level-controlled condensate drain

FB = Pre-filter

FC = Pre-filter

FD = Particulate filter (attrition)

FE = Micro-filter
Separates aerosol oil and solid particles

FF = Micro-filter
Separates aerosol oil and solid particles

FG = Activated carbon filter
For adsorption of oil vapours

FFG = Activated carbon and micro-filter combination

RD = Refrigeration dryer
For drying compressed air, pressure dew point to +3 °C

DD = Desiccant dryer
For drying compressed air, pressure dew point to -70 °C

ACT = Activated carbon adsorber
For adsorption of oil vapours

FST = Sterile filter
For sterile compressed air

Aquamat = Condensate treatment system

AMCS = Air main charging system

Contaminants:

+	Solids –
+	Water/Condensate –
+	Oil –
+	Bacteria –

Degree of filtration:

Class ISO 8573-1	Solid particles [1]		Humidity [2]	Total oil content [2]
	Max. particle size µm	Max. particle concentration mg/m³	Pressure dew point (x = Liquid water in g/m³)	mg/m³
0	e.g. Consult KAESER regarding pure air and cleanroom technology			
1	0.1	0.1	≤ - 70	≤ 0.01
2	1	1	≤ - 40	≤ 0.1
3	5	5	≤ - 20	≤ 1
4	15	8	≤ + 3	≤ 5
5	40	10	≤ + 7	–
6	–	–	≤ + 10	–
7	–	–	x ≤ 0.5	–
8	–	–	0.5 < x ≤ 5	–
9	–	–	5 < x ≤ 10	–

[1] As per ISO 8573-1:1991 (The specification for particle content is not measured as per ISO 8573-1:2001, as the limits defined therein for Class 1 are to be applied to 'Cleanrooms').
[2] As per ISO 8573-1:2001

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