KAESER COMPRESSORS

Rotary Screw Compressors

with the world-renowned SIGMA PROFILE

SK T SFC Series

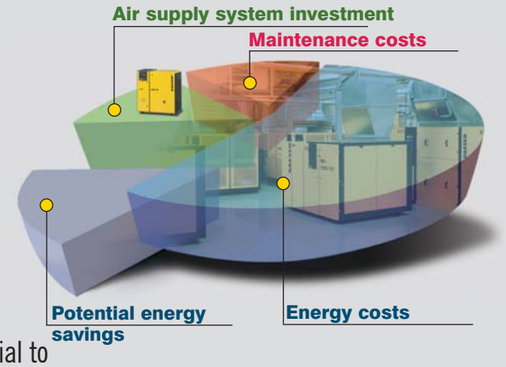
FAD 0.43 to 2.20 m³/min
Pressures 8/1/15 bar

KAESER COMPRESSORS

What do you expect from a compressor?

As a user, you expect maximum efficiency and reliability from your compressed air system.

That may sound simple, but a lot of very different factors play an important part. Electric power costs, for example, taken over the lifetime of the compressor, add up to a multiple of its purchase costs.



This is why energy efficiency is vital in the production of compressed air. In many cases, a reliable compressed air supply is essential to guarantee maximum performance from valuable production installations. Reliability also ensures a supply of constant quality compressed air that optimises the efficiency of the air treatment equipment downstream of the compressor.

With regard to noise protection, it is always better to keep noise emissions to a minimum at the source by using a quiet compressor rather than having to retrofit sound protection measures later on.

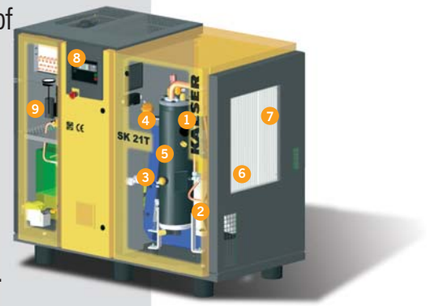
Last but not least, a truly efficient compressor is simple to maintain.

SK – thrifty power

Kaeser's solution: the SK series

SK screw compressors are a consequent reaction to customers' needs: economical power consumption, low noise emission, low servicing effort, maximum reliability and even better air quality.

Many innovative solutions were incorporated including the areas of control and cooling. The result is a mature and reliable product of recognised KAESER quality - the SK series.



1. Inlet valve (obscured)
2. Electric motor
3. V-belt drive with automatic belt tensioning
4. Airend (obscured)
5. Separator with cartridge
6. Fluid cooler
7. Compressed air cooler
8. Sigma Control
9. Refrigeration dryer (with SK T)

Energy saving SIGMA PROFILE

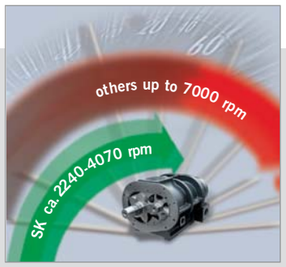
The Kaeser-developed SIGMA Profile rotors consume up to 15 percent less energy than conventional rotor profiles.
New airends with even better profiles have been developed for use in the SK series.

Easy-to-use controller

SIGMA CONTROL is based on a robust, updateable industrial computer with a real-time operating system. The operational state of the machine is quickly ascertained by means of familiar "traffic light" LEDs.

Quiet as a whisper

The new method of controlled cooling air flow enables optimum soundproofing as well as reducing air outlet temperature. You can talk quite normally next to an SK compressor.



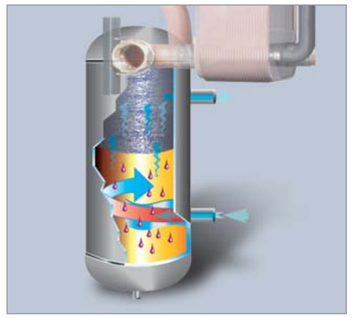
Quietly powerful

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. The SK series uses a V-belt drive system which powers the airend at precisely the right speed no matter which airend model is being used. Further advantages of low airend speeds are that components are subjected to less wear and therefore last longer The resulting lower noise emissions are of particular importance for compressors installed directly in work environments.

SK flexibility

Available with refrigeration dryer
Permanently dry air

The addition of a refrigeration dryer module forms the version SK T. The dryer module has its own cabinet and is insulated from the heat of the compressor for reliable air drying. The dryer also features an energy saving control mode that can be selected via the SIGMA CONTROL and further contributes to cost reductions.



Stainless steel condensate separator

The compact stainless steel condensate separator ensures optimal condensate separation even with fluctuating flow rates. The upstream contamination-proof heat exchanger also cools down the compressed air to make this possible.

Electronic condensate drain

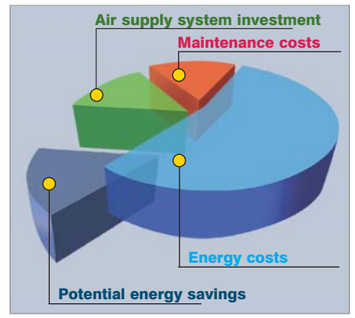
The refrigerant dryer's electronically controlled ECO DRAIN senses condensate level and operates without pressure loss. Sure condensate drainage is essential to the overall reliability of the air supply system.

Variable speed option
Integrated frequency converter

For special applications the model SK 21 can have variable speed by the addition of the SIGMA FREQUENCY CONTROL module integrated in the compressor's control cabinet. Like the compressor's computer-based SIGMA control the SFC module is also produced by Siemens.

Matching speed to demand

Variable speed can be particularly energy saving in the case of fairly low volume but highly fluctuating air demand by matching power consumed to actual air volume required.



EMC Certified

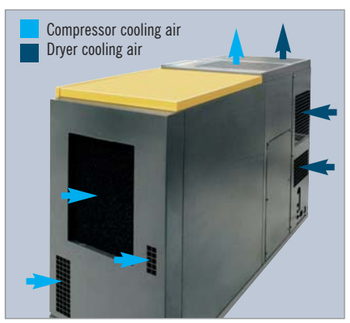
Electro-magnetic compatibility is particularly important for variable speed compressors. The individual components of the SK 21 SFC and the complete machine are tested for electro-magnetic compatibility to class 1, industrial and class 2, domestic networks and certified according to EN 55011.

Alternative: SIGMA CONTROL Basic

If the comprehensive communication possibilities of SIGMA CONTROL are not really needed, the SK machines can be fitted with a somewhat simplified version called SIGMA CONTROL BASIC. These controllers offer the two energy-saving operating modes "Dual" and "Quadro" influenced by an electronic pressure transducer with a very low switching differential. The SIGMA CONTROL BASIC can be equipped with a simple plug-in communication module to allow the SK to be integrated in a complete air supply system under a master controller such as SIGMA AIR MANAGER.

Efficient cooling air flow system

The separate air intakes for the aftercooler/fluid cooler, the motor and the airend for compression provide ample cooling even at elevated ambient temperatures. Taking in motor cooling air directly from the surroundings ensures reliable and effective motor cooling even under adverse conditions. The compression process is also enhanced by direct intake of air from the surroundings. The flow rate of cooling air is kept deliberately low to minimise noise. Kaeser's modular design concept enables the refrigeration dryer in 'T' versions to be installed in a separate cabinet with its own cooling system.



Comprehensive design know-how

1. SK screw compressor
2. TA refrigeration dryer
3. Air receiver
4. Aquamat
5. Filters
6. ECO-DRAIN condensate drain
7. Air main charging system

Equipment

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

Sound insulation
Lined with washable foam, antivibration mounts, double vibration damped.

Airend
Genuine KAESER rotary screw, single stage airend with SIGMA Profile rotors and cooling fluid injection.

Electric motor
German made premium efficiency (EFF1) electric motor to IP55 and insulation class F for additional reserve.

V-belt drive with automatic belt tensioning.

Durable V-belt drive with automatic tensioning for extended belt life.

Fluid and air flow
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 microfilter in cooling fluid system.

Air cooling

Aluminium, air-cooled, combination cooler for compressed air and cooling fluid; axial fan fitted to motor drive shaft.

Electrical components
Ventilated control cabinet to IP 54, automatic star-delta starter; motor-overload protection; control transformer

SIGMA CONTROL
Interfaces for data communication comprising RS 232 for a modem or printer, RS 485 for a slave compressor in base load sequencing mode and a Profibus DP interface for data networks. Prepared for Teleservice.

Detail design
Every KAESER compressed air system illustrates KAESER's commitment to producing application-specific air supply systems at the lowest possible cost combined with unrivalled reliability. This standard is achieved with products of highest quality and through decades of experience in design and construction of compressed air systems. Only properly designed air systems can meet all the demands for air quality, availability and efficiency that are placed on a modern compressed air supply. Why not let KAESER design your air supply system.

Ergonomic control panel

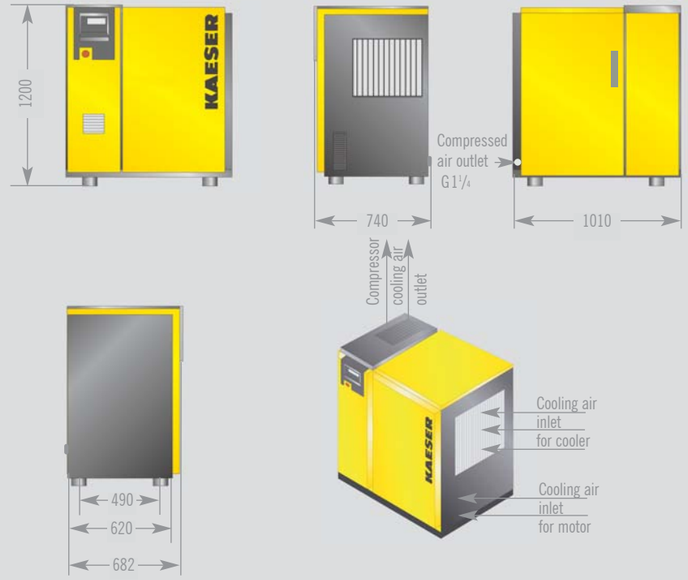
Red, yellow and green LEDs showing the operational state of the compressor; plain text display; touch keys with pictograms and duty cycle display feature.

Comprehensive functions
Fully automatic monitoring and regulation of airend discharge temperature; monitoring of motor current; direction of airend rotation; air, fluid and separator cartridge condition; display of performance data; service intervals of primary components; operating hours; status data and event memory data; selection of Dual, Quadro, Vario and Continuous operating modes.

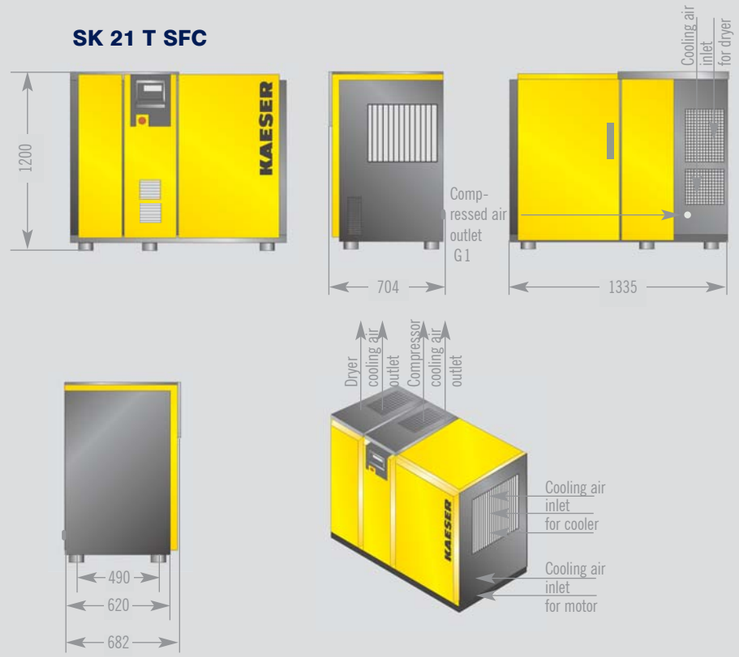
(Details in SIGMA CONTROL brochure P-780)

Dimensions

SK



SK 21 T SFC



Technical specification

Ratedmotor power kW	Model	Working pressure bar	FAD*) m³/min	Max. pressure bar	Sound level**) dB(A)	Dimensions W x D x H	Weight kg
		7.5	1.80	8			
11	**SK 21**	10	1.53	11	64	1010 x 704 x 1200	320
		13	1.14	15			
		7.5	2.20	8			
15	**SK 24**	10	1.86	11	65	1010 x 704 x 1200	320
		13	1.40	15			

Technical specification SK SFC

Ratedmotor power kW	Model	Working pressure bar	FAD range m³/min	Max. pressure bar	Sound level**) dB(A)	Dimensions W x D x H	Weight kg
		7.5	0.51 - 1,95	8			
11	**SK 21 SFC**	10	0.55 - 1.61	11	66	1010 x 704 x 1200	330
		13	0.43 - 1.24	15			

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

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

Model	Working pressure bar	FAD*) m³/min	Max. pressure bar	Refrigeration dryer power consumption kW	Sound level**) dB(A)	Dimensions W x D x H	Weight kg
	7.5	1.80	8				
SK 21 T	10	1.53	11	0.43	64	1335 x 704 x 1200	380
	13	1.14	15				
	7.5	2.20	8				
SK 24 T	10	1.86	11	0.43	65	1335 x 704 x 1200	380
	13	1.40	15				

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

Model	Working pressure bar	FAD range m³/min	Max. pressure bar	Refrigeration dryer power consumption kW	Sound level**) dB(A)	Dimensions W x D x H	Weight kg
	7.5	0.51 - 1.95	8				
SK 21 T SFC	10	0.55 - 1.61	11	0.43	66	1335 x 704 x 1200	390
	13	0.43 - 1.24	15				

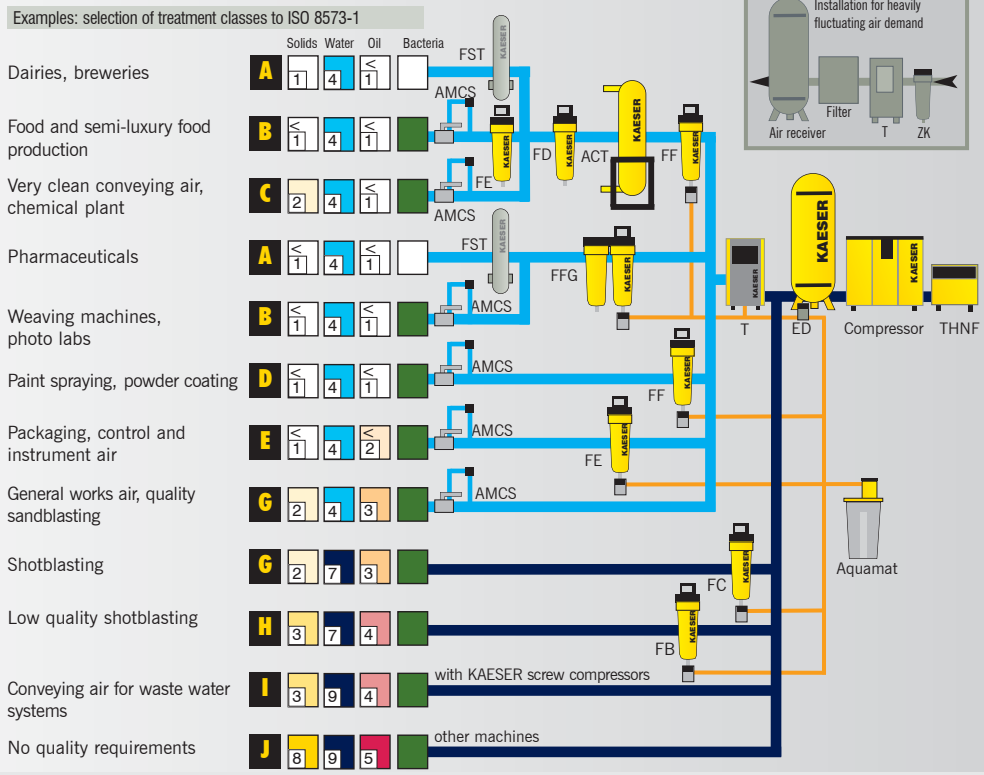
KAESER COMPRESSORS

Different fields of application need different grades of air treatment

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

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

Examples: selection of treatment classes to ISO 8573-1



Explanation

THNF = bag filter
cleans dusty and highly contaminated intake air

ZK = centrifugal separator
removes condensate

ED = ECO DRAIN
electronic level-controlled condensate drain

FB = prefilter 3 µm
separates liquid droplets and solid particles >3 µm,
oil content ≤5 mg/m³

FC = prefilter 1 µm
separates oil droplets and solid particles >1 µm,
oil content ≤1 mg/m³

FD = particulate filter 1 µm
separates dust particles (attrition) >1 µm

FE = microfilter 0.01 ppm
separates aerosol oils and solid particles >0.01 µm, aerosol content ≤0.01 mg/m³

FF = microfilter 0.001 ppm
separates aerosol oils and solid particles >0.01 µm, oil content ≤0.001 mg/m³

FG = activated carbon filter
for adsorption of oil vapours,
oil vapour content ≤0.003 mg/m³

FFG = combination filter
comprising FF and FG

RD = refrigeration dryer
pressure dew point to +3 °C

DD = desiccant dryer
for compressed air drying; DC series - heatless regeneration, pressure dew point to -70 °C; DW, DN, DTL and DTW series - heat regeneration, pressure dew point to -40 °C

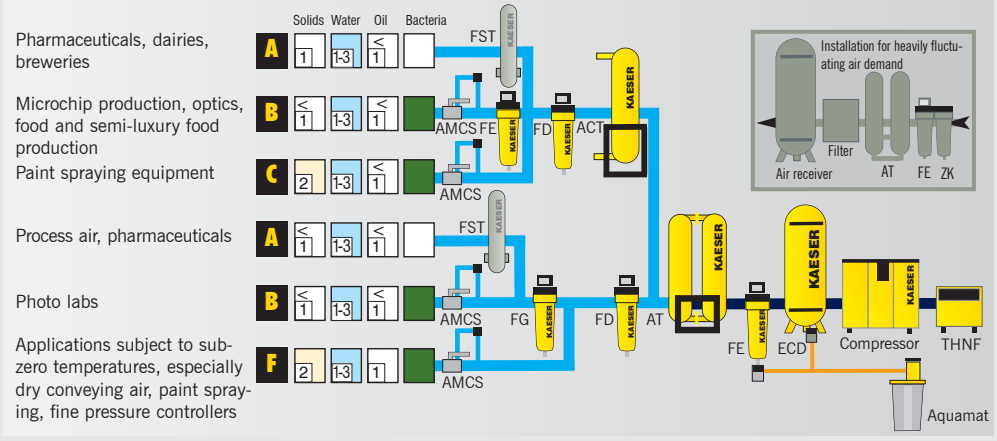
ACT = activated carbon adsorber
for adsorption of oil vapours,
oil vapour content ≤0.003 mg/m³

FST = sterile filter
for bacteria-free air

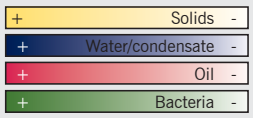
Aquamat = condensate treatment system

AMCS = air main charging system

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



Contaminants:



Degree of filtration

ISO 8573-1 Class	Solid particles: Max. no. of particles per m³ with size d (µm) 0,1<d≤0,5	0,5<d≤1,0	1,0<d≤5,0	Solid particles: Max. mass concentration µm	mg/m³	Moisture: Pressure dew point (x=liquid water content in mg/m³)	Oil content mg/m³
0	As specified by user						
1	100	1	0	–	–	≤ -70 °C	≤ 0,01
2	100000	1000	10	–	–	≤ -40 °C	≤ 0,1
3	–	10000	500	–	–	≤ -20 °C	≤ 1,0
4	–	–	1000	–	–	≤ +3 °C	≤ 5,0
5	–	–	20000	–	–	≤ +7 °C	–
6		–		≤ 5	≤ 5	≤ +10 °C	–
7		–		≤ 40	≤ 10	x ≤ 0,5	–
8		–		–	–	0,5 < x ≤ 5,0	–
9		–		–	–	5,0 < x ≤ 10,0	–

A Oil vapour content ≤ 0.003 mg/m³, particle retention > 0.01 µm, sterile, odourless and tasteless

B Oil vapour content ≤ 0.003 mg/m³, particle retention > 0.01 µm

C Oil vapour content ≤ 0.003 mg/m³, particle retention > 1 µm

D Aerosol oil≤ 0.001 mg/m³, particle retention > 0.01 µm

E Aerosol oil≤ 0.01 mg/m³, particle retention > 0.01 µm

F Aerosol oil≤ 0.01 mg/m³, particle retention > 1 µm

G Aerosol oil ≤ 1 mg/m³, particle retention > 1 µm

H Aerosol oil≤ 5 mg/m³, particle retention > 3 µm

I Aerosol oil ≤ 5 mg/m³, particle retention > 1 µm

J Untreated

LGA InterCert Certified QM-System ISO 9001:2000
LGA InterCert Certified EM-System ISO 14001

KAESER KOMPRESSOREN GmbH
P.O. Box 2143 - 96410 Coburg - GERMANY — Phone +49 9561 640-0 - Fax +49 9561 640130
www.kaeser.com - e-mail: productinfo@kaeser.com