KAESER COMPRESSORS

# Rotary Screw Compressors

with the world-renowned SIGMA PROFILE

## SK T SFC Series

FAD from 0.43 to 2.20 m³/min
Pressure 8/11/15 bar

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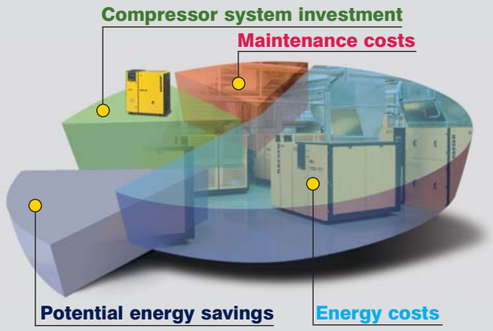
## What do you expect from a compressor?

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

This sounds 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.

Efficient energy consumption therefore plays a vital role in the production of compressed air, as does reliability of the compressor. 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 efficiency of the air treatment equipment downstream of the compressor.

With regards to noise protection, it is always better to keep noise emissions to a minimum in the first place by using a quiet compressor, rather than have to retro-fit sound protection measures later on.

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

# SK – Compact compressed air power

### KAESER's Solution: The SK Series

User-friendly and easy to maintain, the new SK series rotary screw compressors from KAESER operate quietly and efficiently to provide a cost-effective and dependable source of quality compressed air.

All of these advantages are aided through innovations in the compressor unit, controller and cooling system.

The new SK series of rotary screw compressors is a meticulously engineered and reliable product range built to KAESER's renowned high quality standards.



1. Inlet valve (not visible)
2. Electric motor
3. V-belt drive with automatic belt tensioning
4. Airend (not visible)
5. Separator with cartridge
6. Fluid cooler
7. Compressed air aftercooler
8. SIGMA CONTROL compressor controller
9. Refrigeration dryer (with SK T)

### Energy saving SIGMA PROFILE

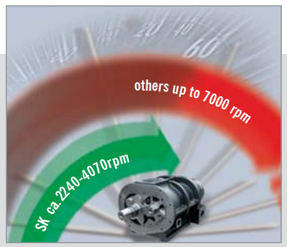
Each KAESER rotary screw compressor airend uses SIGMA PROFILE rotors, specially developed by KAESER, that require approximately 15 percent less energy than conventional rotors of the same air delivery capacity. The airends in SK units use even further refined rotors.

### SIGMA CONTROL compressor controller

Based on an industrial PC with Intel processors, the SIGMA CONTROL is a compressor controller designed to optimise energy efficiency whilst significantly increasing operational reliability. The user-friendly interface indicates operational status at a glance using bright traffic-light style LEDs.

### Quieter than quiet


The new cooling system features separate air flow paths, allowing almost hermetic silencing without influencing cooling efficiency. Normal conversation can take place right next to the running compressor.



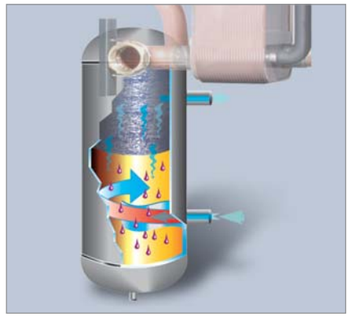

### Quietly powerful

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. SK units use a flexible V-belt drive system to precisely determine airend speed dependent upon the airend being used. Further advantages of low airend speeds are that components are subjected to less wear and consequently last longer, and the associated lower noise emissions are of particular importance for compressors installed directly in work environments.

# SK – Maximum versatility

### Available with refrigeration dryer
### Permanently dry compressed air

Space saving, energy efficient compressed air generation and treatment is possible by selecting the SK **T** integrated refrigeration dryer module option. Easy to maintain, the dryer is contained in its own separate housing within the unit to prevent exposure to heat from the compressor package, considerably increasing operational reliability. The refrigeration dryer also features an energy saving mode that can be selected via the SIGMA CONTROL and greatly reduces energy costs.



### Stainless steel condensate separator

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


Eff1 motor

### Electronic condensate drain

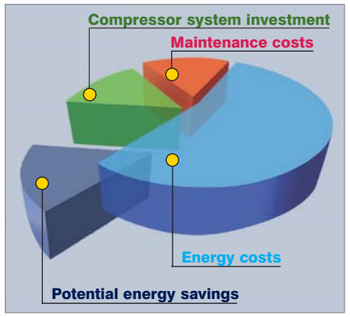
The refrigeration dryer's electronically controlled ECO DRAIN operates according to the condensate level. This prevents any pressure loss and considerably enhances the reliability of the compressed air supply.

### Variable speed option
### Integrated frequency converter

For applications with fluctuating compressed air demand, the SK 21 compressor package is also available with a KAESER SIGMA Frequency Control (SFC) module. The SFC module is integrated within the compressor's control cabinet and, just like the SIGMA CONTROL, is manufactured to the very highest standards by Siemens.

### Energy savings

SFC variable speed control precisely tailors compressed air consumption to match fluctuating compressed air demand and can achieve significant savings even at low air-flow volumes.




### EMC certified

Electromagnetic compatibility (EMC) is particularly important for variable speed compressors. All SK 21 SFC components and systems are tested for electromagnetic compatibility to Class A1 (industrial) and Class B (domestic) in accordance with EN 55011.

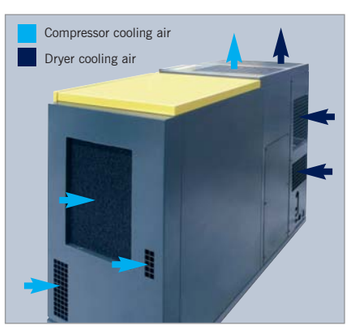
VDE EMV

### Alternative controller: SIGMA CONTROL BASIC

Alternatively, if the comprehensive communication capability of the SIGMA CONTROL is not required, SK models are also available with the SIGMA CONTROL BASIC compressor controller. This controller offers the possibility of "Dual" and "Quadro" control to achieve significant energy savings and operates via an electronic pressure sensor with low switching differential. With the addition of an optional plug-in memory module, the SIGMA CONTROL BASIC is also able to communicate with the SIGMA AIR MANAGER master controller. This feature enables the compressor to be easily integrated within a centrally controlled compressed air installation.

### Efficient cooling air flow system

Just like KAESER's larger units, SK compressors also have separate air intakes for the air/fluid cooler, motor and compressed air, resulting in significant reserves even in high ambient temperatures. Taking in motor cooling air from the surroundings ensures reliable and effective motor cooling even under adverse conditions. The compression process is also enhanced by directly sucking in air for compression from the ambient surroundings. The air intakes are specially designed to draw cooling air in slowly in order to keep sound levels to an absolute minimum. KAESER's modular design concept enables refrigeration dryers in 'T' units to be installed in their own separate housing and to have their own individual cooling system, significantly contributing to high efficiency and reliability.



# Comprehensive design know-how


# Equipment

**Complete unit**

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 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 device for extended belt life.

**Fluid and airflow**

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.

**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**

SIGMA CONTROL industrial computer for monitoring and control with interfaces 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.

**Professional planning**

Every KAESER compressed air system illustrates KAESER's continued commitment to producing application-specific quality compressed air at the lowest possible cost. This standard is achieved with products of the 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. Let KAESER design your air system.

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**Ergonomic control panel**

Plain text display, soft-keys with icons, duty display feature, traffic-light style LEDs (green, yellow, red) show compressor operational status.

**Comprehensive functions**

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

(For further information see SIGMA-CONTROL brochure P-780)

## Technical specification SK

| Rated motor power kW | Model | Working pressure bar | FAD*) m³/min | Max. pressure bar | Sound level**) dB(A) | Dimensions W × D × H | Weight kg |
|---|---|---|---|---|---|---|---|
| | | 7.5 | 1.80 | 8 | | | |
| 11 | **SK 21** | 10 | 1.53 | 11 | 64 | 1010 × 740 × 1200 | 320 |
| | | 13 | 1.14 | 15 | | | |
| | | 7.5 | 2.20 | 8 | | | |
| 15 | **SK 24** | 10 | 1.86 | 11 | 65 | 1010 × 740 × 1200 | 320 |
| | | 13 | 1.40 | 15 | | | |

## Technical specification SK SFC

| Rated motor power kW | Model | Working pressure bar | FAD range m³/min | Max. pressure bar | Sound level**) dB(A) | Dimensions W × D × H | Weight kg |
|---|---|---|---|---|---|---|---|
| | | 7.5 | 0.51 – 1.95 | 8 | | | |
| 11 | **SK 21 SFC** | 10 | 0.55 – 1.61 | 11 | 66 | 1010 × 740 × 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 (refrigerant R 134a)

| Model | Working pressure bar | FAD*) m³/min | Max. pressure bar | Refrigeration dryer power consumption kW | Sound level**) dB(A) | Dimensions W × D × H | Weight kg |
|---|---|---|---|---|---|---|---|
| | 7.5 | 1.80 | 8 | | | | |
| **SK 21 T** | 10 | 1.53 | 11 | 0.43 | 64 | 1335 × 740 × 1200 | 380 |
| | 13 | 1.14 | 15 | | | | |
| | 7.5 | 2.20 | 8 | | | | |
| **SK 24 T** | 10 | 1.86 | 11 | 0.43 | 65 | 1335 × 740 × 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 × D × H | Weight kg |
|---|---|---|---|---|---|---|---|
| | 7.5 | 0.51 – 1.95 | 8 | | | | |
| **SK 21 T SFC** | 10 | 0.55 – 1.61 | 11 | 0.43 | 66 | 1335 × 740 × 1200 | 390 |
| | 13 | 0.43 – 1.24 | 15 | | | | |

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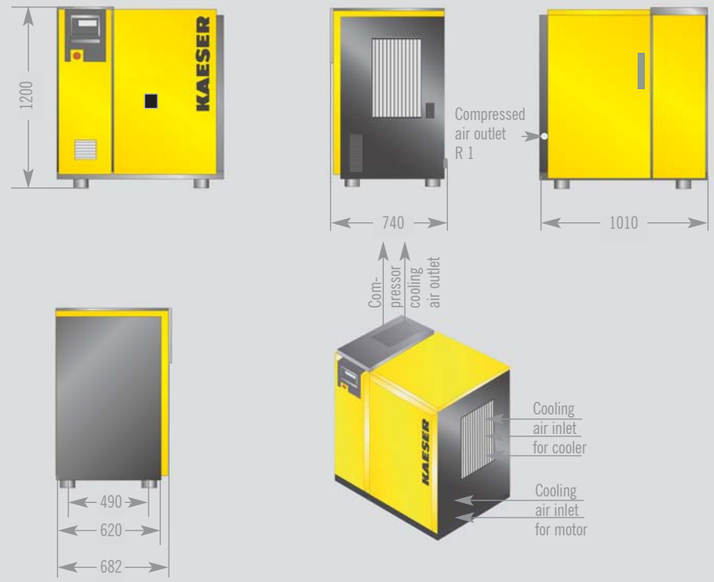
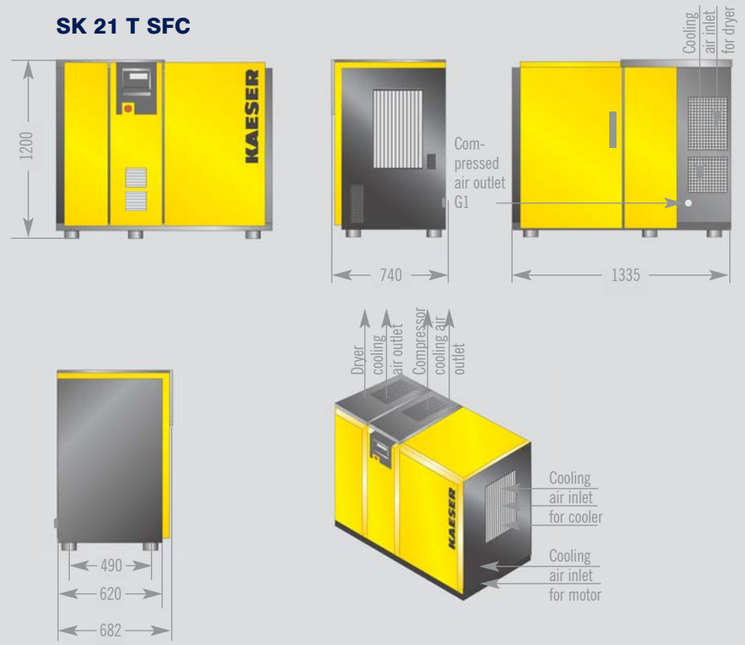
# Dimensions:

**SK**




**SK 21 T SFC**



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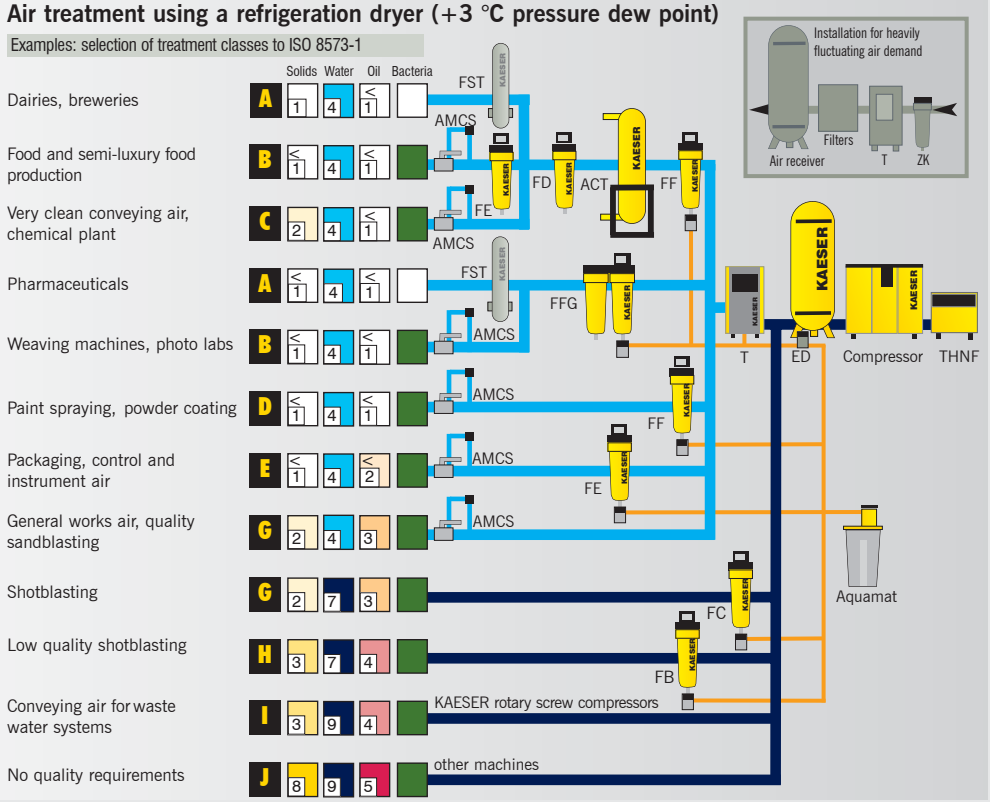
# Different fields of application need different grades of air treatment

## 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

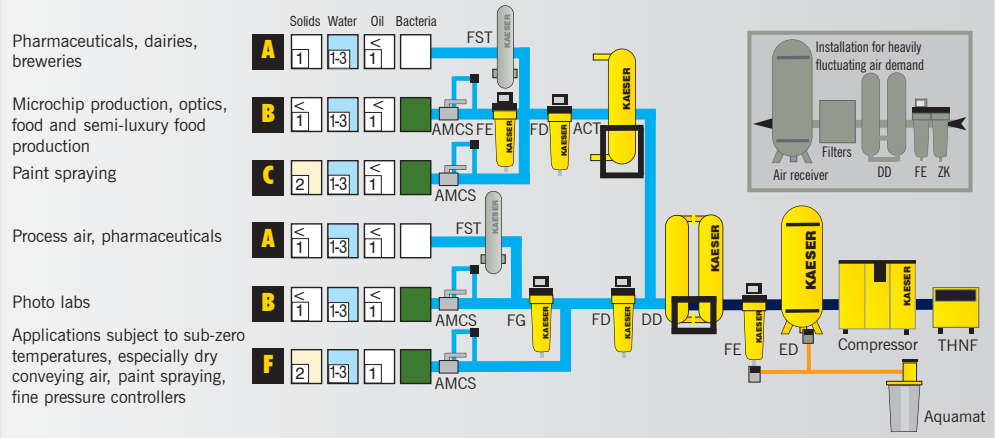
**ACT = activated carbon adsorber**
for adsorption of oil vapours, oil vapour content ≤0.003 mg/m³

**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:**

+ solids -
+ water -
+ oil -
+ bacteria -

**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 | Humidity: µm | mg/m³ | Pressure dew point (x=liquid water *) | Oil concentration 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** Aerosol oil≤ 0.003 mg/m³, particle retention > 0.01 µm
sterile, odourless and taste-free

**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

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