

# Rotary Screw Compressors SK Series

With the world-renowned SIGMA PROFILE 

Free air delivery 0.53 to 2.70 m³/min, Pressure 5.5 – 15 bar



# SK series

## SK – Long-term savings

Discerning compressed air users expect maximum availability and efficiency, even from smaller compressors. It will come as no surprise therefore that Kaeser's SK series rotary screw compressors go far beyond meeting these key expectations. Not only do they deliver more compressed air for less power consumption, but they also combine ease of use and maintenance with exceptional versatility and environmentally responsible design.

### More air for your money

Kaeser's engineers have managed to significantly boost the performance of the new SK series compressors compared to previous models. This impressive feat has been achieved both through airend optimisation and the minimisation of internal pressure losses.

### Low energy consumption

The efficiency of a machine depends on the total costs incurred throughout the equipment's entire service life. With compressors, energy costs account for the lion's share of total expenditure. Kaeser therefore designed its SK series compressors with optimum energy efficiency in mind. Refinements to the energy-saving Sigma Profile airend rotors and the use of IE3 premium efficiency motors have significantly contributed to the increased performance of these versatile compressors. The addition of the SIGMA CONTROL 2 internal controller and Kaeser's unique cooling system have helped to push the boundaries of efficiency even further.

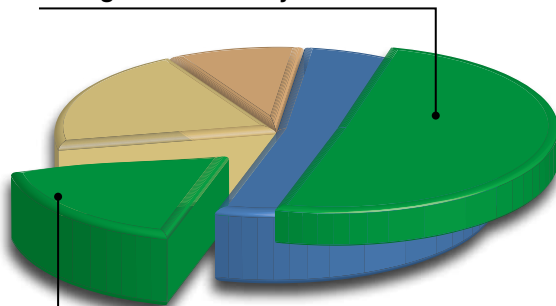
### Optimised design

All SK series models share logical and user-friendly design throughout. For example, the left-hand enclosure panel can be removed in a few simple steps and allows excellent visibility of the system's intelligently laid out components. Needless to say, the SK series was designed to ensure best possible access to all service points. When closed, the sound-absorbing compressor enclosure keeps operational sound levels to a minimum thereby ensuring a pleasantly quiet work environment. Moreover, with its three intake openings, the enclosure provides separate air flow for high efficiency cooling of the compressor, the drive motor and switching cabinet. Last, but not least, SK series compressors are impressively compact, which makes them the perfect choice for applications where space is at a premium.

### Modular system concept

SK series compressors are available as standard versions, as so-called "T" models that are equipped with an integrated, thermally shielded refrigeration dryer and as AIRCENTER models that additionally include an underslung air receiver. Kaeser's intelligent modular design therefore offers incredible flexibility. Moreover, all versions are available with an integrated frequency converter for infinitely variable speed control.

Potential energy cost savings through heat recovery



Energy cost savings through system optimisation



- Compressed air system investment
- Maintenance costs
- Energy costs
- Potential energy cost savings

## Quiet, dependable performance



Image: SK 22



# SK series

## Design is in the details



### SIGMA PROFILE airend

At the heart of every SK system lies a premium quality airend featuring Kaeser's SIGMA PROFILE rotors. With optimised flow characteristics, these rotors play a key role in setting the new standard in specific power performance.



### Maximum efficiency: IE3 motors

Use of IE3 motors will become mandatory in the EU from the 1st of January 2015, but users can already enjoy the benefits that these premium efficiency motors have to offer by choosing KAESER SK series rotary screw compressors.



### SIGMA CONTROL 2

The SIGMA CONTROL 2 ensures efficient control and system monitoring. The large display and RFID reader provide effective communication and maximum security. Multiple interfaces offer exceptional flexibility, whilst the SD card slot makes updates quick and easy.



### Efficient cooling

Kaeser's innovative cooling system uses a high efficiency dual flow fan and separate air flow channels for cooling of the motor, the fluid / compressed air cooler and the control cabinet. This not only achieves optimum cooling performance, low compressed air discharge temperatures and minimal sound levels, but also promotes efficient air compression.



# SK T (SFC) series

**Also available with refrigeration dryer and variable speed control**



Image: SK 22 T



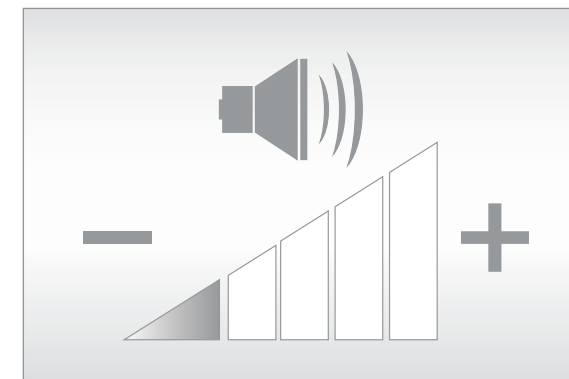
## SK with energy-saving dryer

The compressed air refrigeration dryer is installed in a separate enclosure to shield it from heat radiated by the compressor; this design approach therefore enhances reliability. The automatic dryer shutdown feature further aids energy-efficient performance.



## Optional variable speed control

The use of variable speed control can provide definite advantages for specific applications, which is why SK models are also optionally available with variable speed control. The frequency converter is integrated into the compressor system's control cabinet.



## Even quieter

The new cooling system provides outstanding cooling performance and enables optimum soundproofing. Normal conversation can take place right next to the running compressor.



## Maintenance friendly

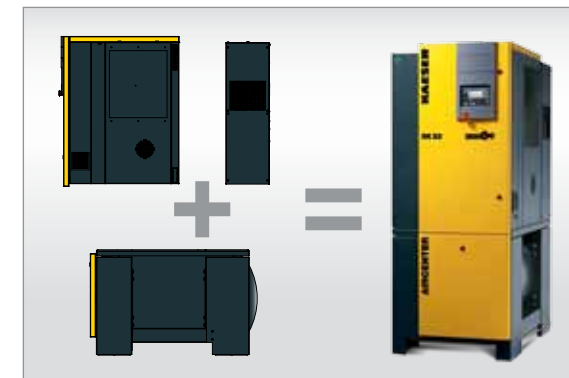
All maintenance work can be carried out from one side of the unit. The left housing cover is easily removed to allow excellent component accessibility.



Image: SK AIRCENTER 22

# AIRCENTER

**The compact and efficient compressed air package**



## Connect and go

Simply connect this compact compressed air package to the power supply and compressed air distribution network and you're ready to go - that's it!



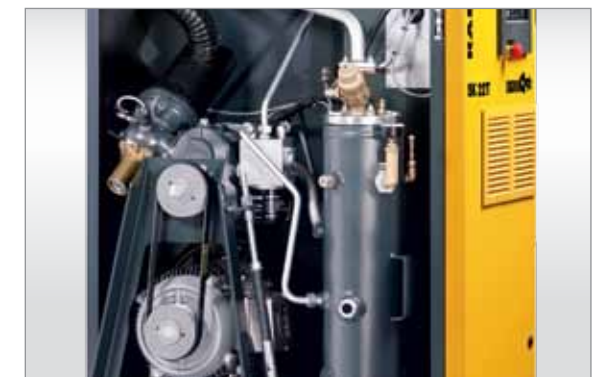
## Durable air receiver

The 350-litre air receiver is especially designed for installation in AIRCENTER systems. All inner and outer surfaces are coated to provide excellent corrosion protection and ensure long service life.



## Service-friendly design

The left-hand housing cover is easily removed to allow excellent accessibility to all service points. Inspection glasses allow convenient inspection of fluid levels and drive belt tension whilst the unit is in operation.



## Excellent component access

All maintenance and service components are easily accessible, which significantly reduces the downtime associated with service and maintenance tasks. This helps to increase compressed air availability and minimises operating costs.



**KAESER**

**SK 22**

**SIGMA** 





## 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.

### Rotary screw airend

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

### Electric motor

IE3 premium efficiency German electric motor, IP 54.

### Fluid and air flow

'Honeycomb' air intake filter, pneumatic inlet and venting relief valve, minimum pressure / check valve, thermostatic valve and fluid filter within the cooling fluid circuit, fluid / compressed air combination cooler.

### Refrigeration dryer (with 'T' version)

With electronic condensate drain. Refrigerant compressor with energy-saving, cycling shutdown feature; linked to operational status of the compressor when inactive. Alternatively, continuous operation can be selected on site.

### 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 and continuous control as standard. Interfaces: Ethernet; additional optional communication modules for: Profibus DP, Modbus, Profinet and Devicenet. SD-card slot for data-logging and updates. RFID reader, web server.

SK series rotary screw compressors also optionally available with SIGMA CONTROL BASIC.

### Electrical components

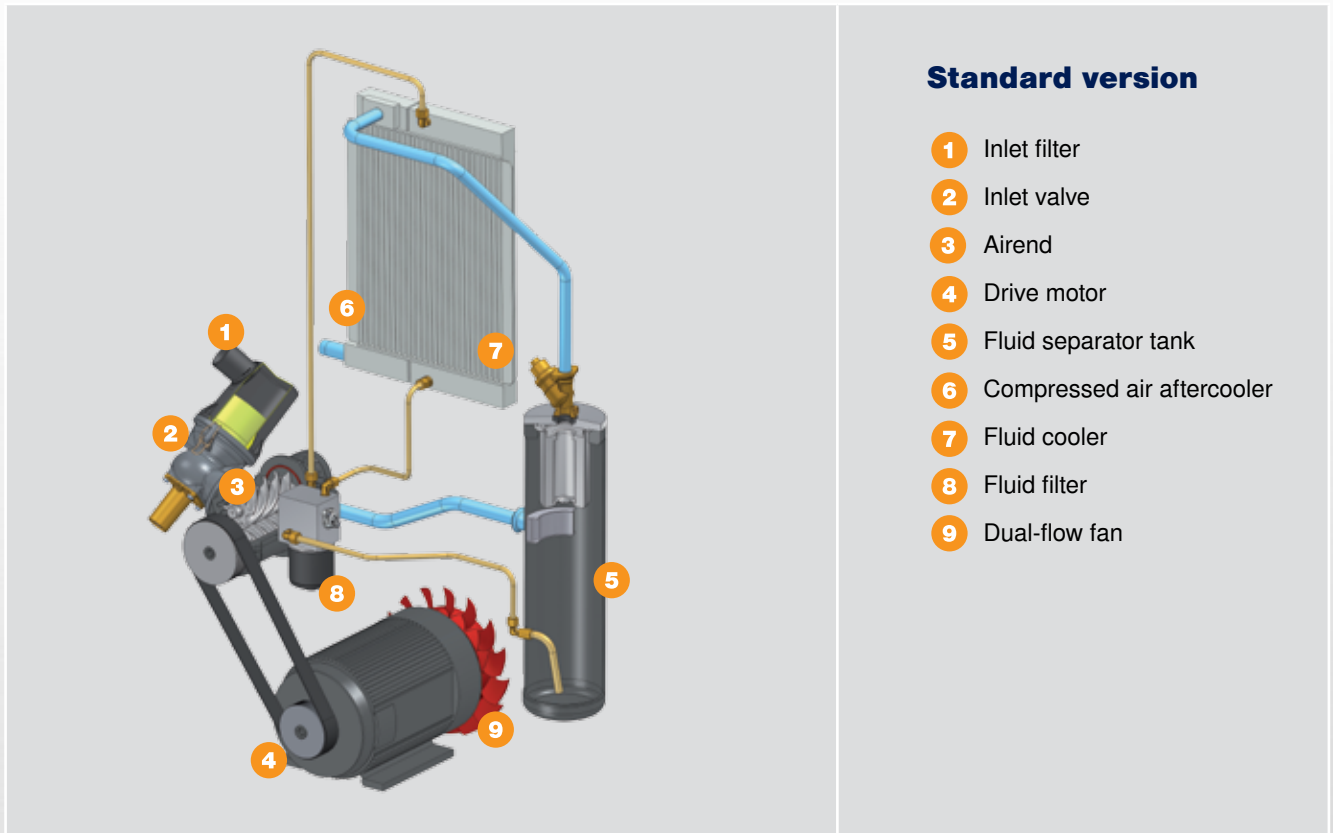
Ventilated IP 54 control cabinet, automatic star-delta starter, overload relay, control transformer.



Rotary screw airend with energy-saving SIGMA PROFILE rotors



## Design

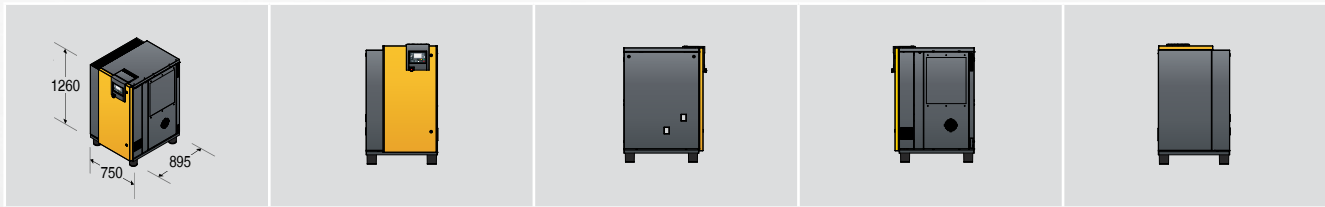


SIGMA CONTROL 2 controller

Technical specifications

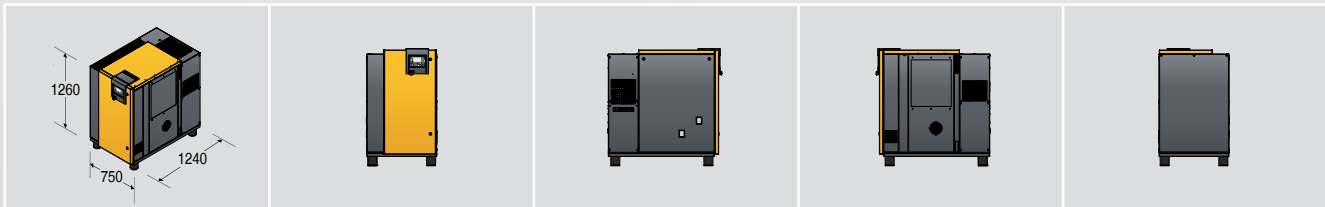
Standard version

Model	Working pressure	FAD*)	Max. operating pressure	Rated motor power	Refrigeration dryer power consumption	Air receiver volume	Pressure dew point	Dimensions W x D x H	Air connection	Sound pressure level **)	Weight
	bar	m³/min	bar	kW	kW	l	°C	mm		dB(A)	kg
SK 22	7.5 10 13	2.00 1.68 1.32	8 11 15	11	–	–	–	750 x 895 x 1260	G 1	66	312
SK 25	7.5 10 13	2.50 2.11 1.72	8 11 15	15						67	320



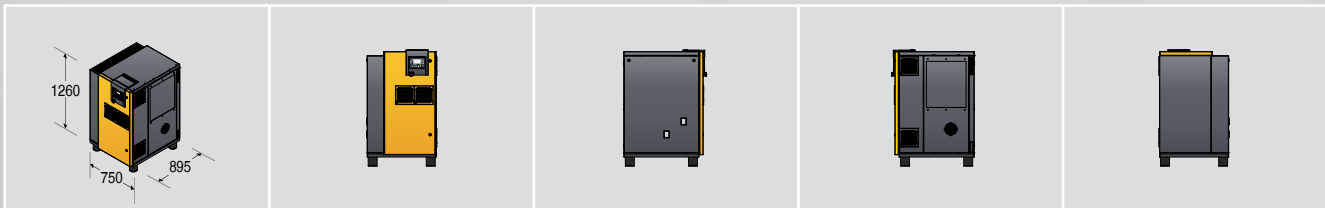
T – Version with integrated refrigeration dryer (Refrigerant R 134a)

Model	Working pressure	FAD*)	Max. operating pressure	Rated motor power	Refrigeration dryer power consumption	Air receiver volume	Pressure dew point	Dimensions W x D x H	Air connection	Sound pressure level **)	Weight
	bar	m³/min	bar	kW	kW	l	°C	mm		dB(A)	kg
SK 22 T	7.5 10 13	2.00 1.68 1.32	8 11 15	11	0.46	–	+3	750 x 1240 x 1260	G 1	66	387
SK 25 T	7.5 10 13	2.50 2.11 1.72	8 11 15	15						67	395



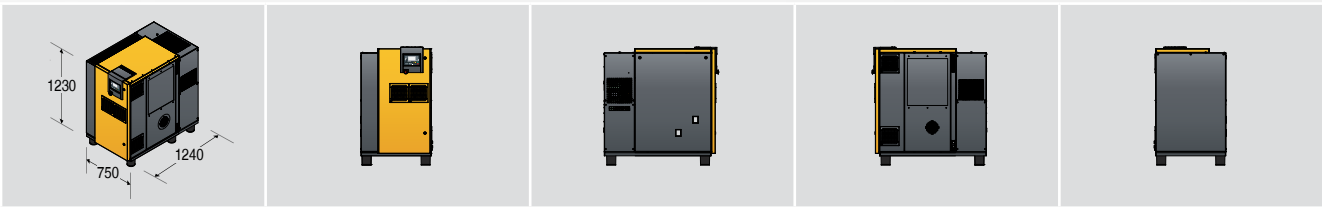
SFC – Version with variable speed drive

Model	Working pressure	FAD*)	Max. operating pressure	Rated motor power	Refrigeration dryer power consumption	Air receiver volume	Pressure dew point	Dimensions W x D x H	Air connection	Sound pressure level **)	Weight
	bar	m³/min	bar	kW	kW	l	°C	mm		dB(A)	kg
SK 22 SFC	7.5 10 13	0.62 - 1.98 0.63 - 1.67 0.57 - 1.37	8 11 15	11	–	–	–	750 x 895 x 1260	G 1	67	329
SK 25 SFC	7.5 10 13	0.81 - 2.55 0.84 - 2.25 0.83 - 1.90	8 11 15	15						68	337



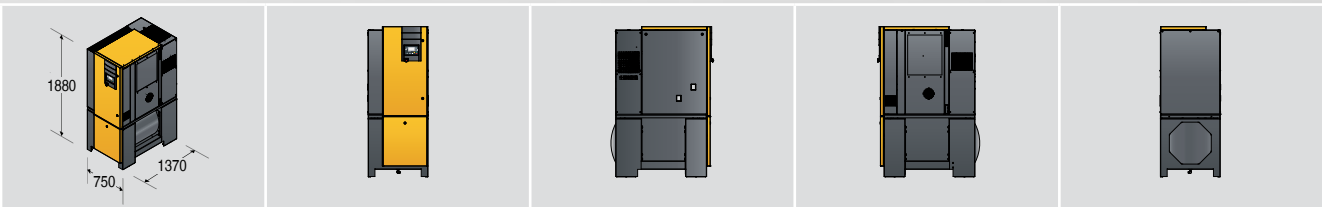
T-SFC – Version with variable speed drive and integrated refrigeration dryer

Model	Working pressure	FAD*)	Max. operating pressure	Rated motor power	Refrigeration dryer power consumption	Air receiver volume	Pressure dew point	Dimensions W x D x H	Air connection	Sound pressure level **)	Weight
	bar	m³/min	bar	kW	kW	l	°C	mm		dB(A)	kg
SK 22 T SFC	7.5 10 13	0.62 - 1.98 0.63 - 1.67 0.57 - 1.37	8 11 15	11	0.46	–	+3	750 x 1240 x 1260	G 1	67	404
SK 25 T SFC	7.5 10 13	0.81 - 2.55 0.84 - 2.25 0.83 - 1.90	8 11 15	15						68	412



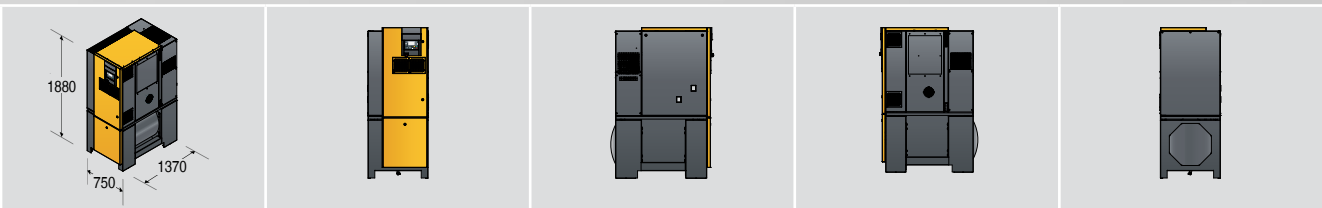
AIRCENTER – Standard version

Model	Working pressure	FAD*)	Max. operating pressure	Rated motor power	Refrigeration dryer power consumption	Air receiver volume	Pressure dew point	Dimensions W x D x H	Air connection	Sound pressure level **)	Weight
	bar	m³/min	bar	kW	kW	l	°C	mm		dB(A)	kg
AIRCENTER 22	7.5 10 13	2.00 1.68 1.32	8 11 15	11	0.46	350	+3	750 x 1370 x 1880	G 1	66	579
AIRCENTER 25	7.5 10 13	2.50 2.11 1.72	8 11 15	15						67	587



AIRCENTER SFC – Version with variable speed drive

Model	Working pressure	FAD*)	Max. operating pressure	Rated motor power	Refrigeration dryer power consumption	Air receiver volume	Pressure dew point	Dimensions W x D x H	Air connection	Sound pressure level **)	Weight
	bar	m³/min	bar	kW	kW	l	°C	mm		dB(A)	kg
AIRCENTER 22 SFC	7.5 10 13	0.62 - 1.98 0.63 - 1.67 0.57 - 1.37	8 11 15	11	0.46	350	+3	750 x 1370 x 1880	G 1	67	596
AIRCENTER 25 SFC	7.5 10 13	0.81 - 2.55 0.84 - 2.25 0.83 - 1.90	8 11 15	15						68	604

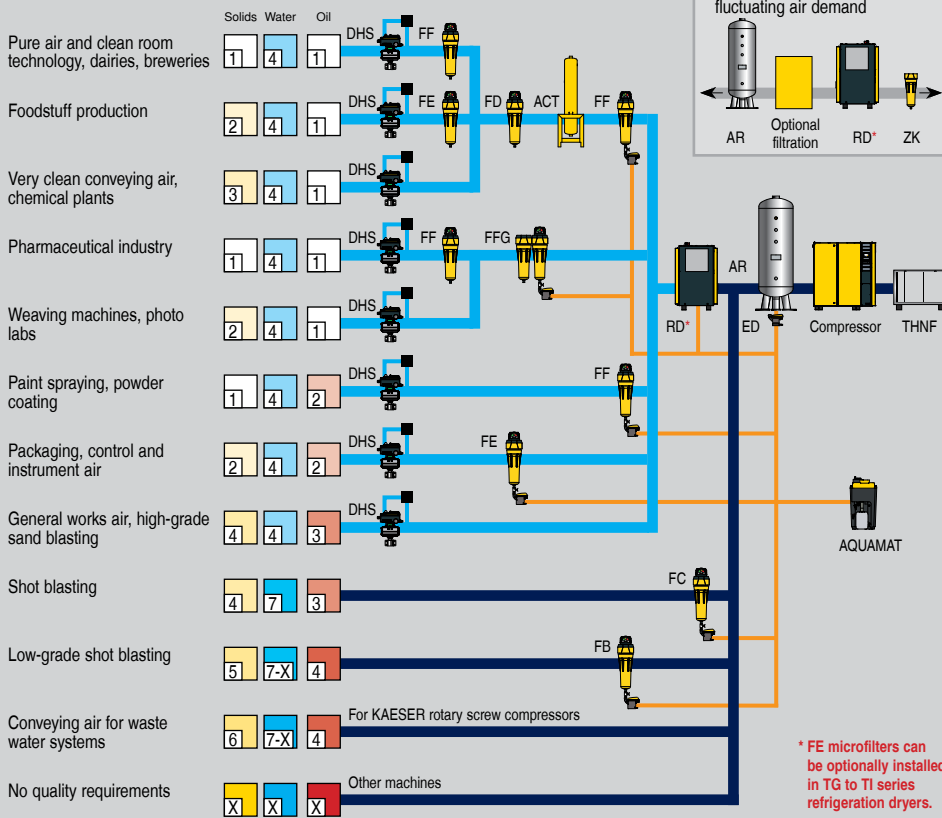


\*) FAD complete system as per ISO 1217 : 2009, Annex C: Absolute intake pressure 1 bar (a), cooling and air intake temperature 20 °C  
\*\*) Sound pressure level as per ISO 2151 and the basic standard ISO 9614-2, tolerance: ± 3 dB (A)

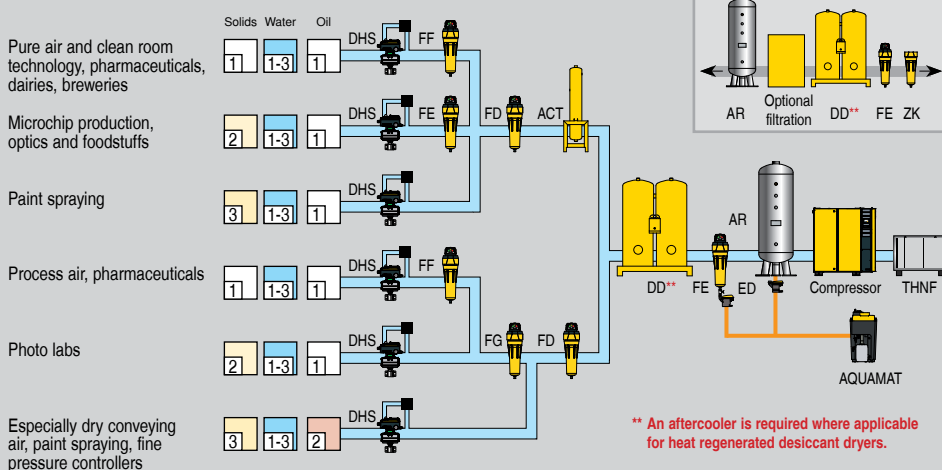
## Choose the required grade of treatment according to your field of application:

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

Application examples: Selection of treatment classes to ISO 8573-1 (2010)



For non frost protected air systems: Compressed air treatment with a desiccant dryer (down to -70 °C pressure dew point)



Explanation	
ACT	Activated carbon adsorber
AQUAMAT	AQUAMAT
DD	Desiccant dryer
DHS	Air-main charging system
AR	Air receiver
ED	ECO DRAIN
FB / FC	Pre-filter
FD	Particulate filter
FE / FF	Microfilter
FFG	Activated carbon and microfilter combination
FG	Activated carbon filter
RD	Refrigeration dryer
THNF	Bag filter
ZK	Centrifugal separator

Compressed air quality classes to ISO 8573-1(2010):

Solid particles / dust			
Class	max. particle count per m³ of a particle size with d [µm]*		
	0.1 ≤ d ≤ 0.5	0.5 ≤ d ≤ 1.0	1.0 ≤ d ≤ 5.0
0	e.g. Consult KAESER regarding pure air and cleanroom technology		
1	≤ 20,000	≤ 400	≤ 10
2	≤ 400,000	≤ 6,000	≤ 100
3	Not defined	≤ 90,000	≤ 1,000
4	Not defined	Not defined	≤ 10,000
5	Not defined	Not defined	≤ 100,000
Particle concentration C <sub>p</sub> in mg/m³ *			
6	0 < C <sub>p</sub> ≤ 5		
7	5 < C <sub>p</sub> ≤ 10		
X	C <sub>p</sub> > 10		

Water	
Class	Pressure dew point, in °C
0	e.g. Consult KAESER regarding pure air and cleanroom technology
1	≤ -70 °C
2	≤ -40 °C
3	≤ -20 °C
4	≤ +3 °C
5	≤ +7 °C
6	≤ +10 °C
Class	Concentration of liquid water C <sub>w</sub> in g/m³ *
7	C <sub>w</sub> ≤ 0.5
8	0.5 < C <sub>w</sub> ≤ 5
9	5 < C <sub>w</sub> ≤ 10
X	C <sub>w</sub> > 10

Oil	
Class	Total oil concentration (fluid, aerosol + gaseous) [mg/m³]*
0	e.g. Consult KAESER regarding pure air and cleanroom technology
1	≤ 0.01
2	≤ 0.1
3	≤ 1.0
4	≤ 5.0
X	> 5.0

\*) At reference conditions 20 °C, 1 bar(a), 0% humidity