

Rotary Screw Compressors BSD Series

With the world-renowned SIGMA PROFILE 

Free air delivery 3.60 to 8.16 m³/min, Pressure 5.5 – 15 bar



What do you expect from a compressor system?

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

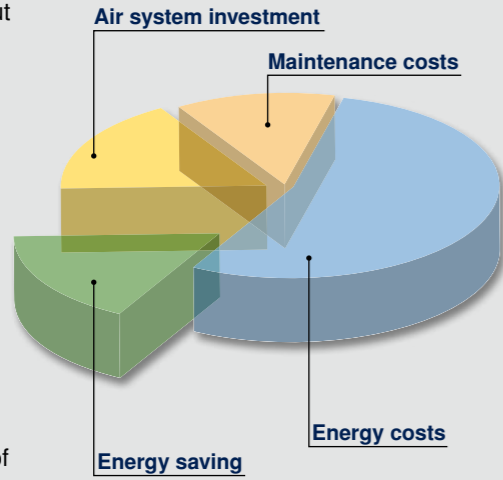
Efficient energy consumption therefore plays a vital role in the production of compressed air, as does reliability of the compressor.

In many cases, a reliable compressed air supply is essential to guarantee maximum performance from valuable production systems.

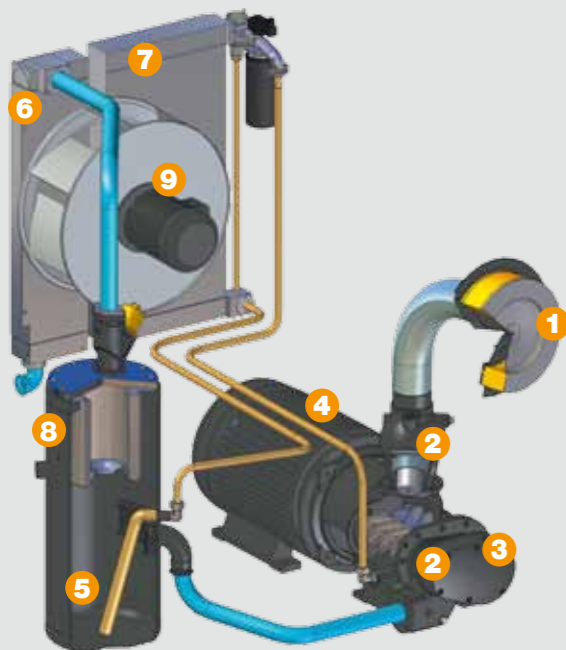
Reliability also ensures a supply of constant quality compressed air that optimises efficiency of the air treatment equipment downstream from the compressor.

With regards to sound protection, it is always better to keep noise emissions to a minimum from the outset 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 and cost-effective to maintain.



Function diagram:



- 1 Inlet filter
- 2 Inlet valve
- 3 Airend
- 4 Drive motor
- 5 Fluid separator
- 6 Air aftercooler
- 7 Fluid cooler
- 8 Fluid filter
- 9 Radial fan

BSD –
The new standard in efficiency

KAESER's Solution:
The BSD Series

The new BSD rotary screw compressors fulfil every customer requirement: they are highly energy efficient, quieter than quiet, require minimal maintenance, are extremely reliable and deliver the very best in air quality.

All of these advantages are aided through innovations in compressor design, drive system technology, cooling and ventilation, silencing and maintenance methods.

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



SIGMA PROFILE

The SIGMA PROFILE, developed by Kaeser Kompressoren in 1975, saves up to 15% in energy consumption compared with conventional rotor profile designs. The airends in BSD units use even further refined SIGMA PROFILE rotor versions.



Powerful radial fan

The quiet and powerful radial fan draws in cool ambient air through the cooler. Its high residual thrust means that the fan is not affected by contamination that is drawn in with the air and ensures sufficient power reserves to allow connection of long exhaust duct sections. In addition, the radial fan consumes significantly

less drive power than conventional axial fans, saving even more energy.



Quieter than quiet

In combination with the new cooling system, the silent radial fan and directly coupled motor reduce noise at source. Performance is further enhanced by a new cooling system that features separate cooling air flow paths to allow almost hermetic silencing without influencing cooling efficiency. With a sound power

level of no more than 68-70 dB(A), the BSD series is approximately 10 dB (A) – or 90 percent – quieter than comparable compressors of the same power.

One-to-one drive: Ultimate efficiency

The drive motor and the airend in BSD series compressors are designed to operate at the same low speed. This enables the drive and compression units to be linked via a maintenance-free coupling, which avoids the transmission losses associated with gear driven units. One-to-one drive also reduces the number of components needed in comparison with gear drive, which significantly increases reliability and service life. A further advantage is that sound levels are also considerably lower. The airend in each BSD model is designed to specifically match air demand and ensures outstanding efficiency through low-speed operation of only 2980 rpm.

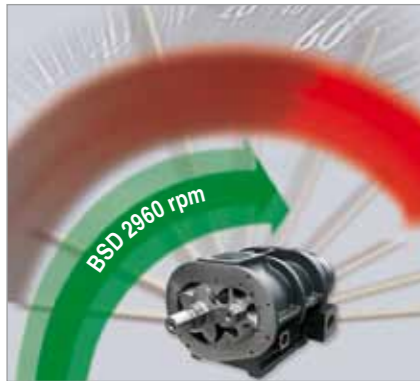


BSD – Eight decisive advantages



1 SIGMA PROFILE air end

A specific drive power can be used to turn a smaller air end at high speed or a larger air end at slow speed. Larger, low speed air ends are more efficient, delivering more compressed air for the same drive power. That is why KAESER developed air ends especially for the BSD series that precisely match the individual drive power and motor speed of each machine in the range. The slightly higher investment cost of the larger air end is quickly recovered by the energy saved during operation.



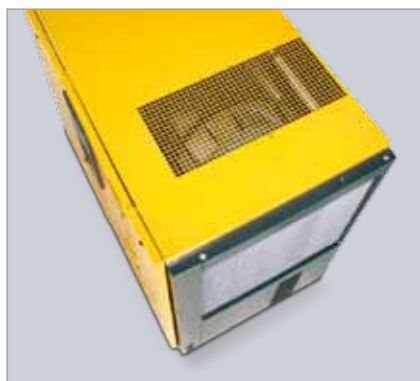
2 Energy-saving 1:1 drive

The advantages of the 1:1 drive system are not just limited to the elimination of transmission losses: The motor and air end are joined by the coupling and its housing to form a compact and durable unit that, apart from greasing of the motor bearings, requires no regular maintenance. Should the coupling ever need to be replaced, it takes just a few minutes without any disassembly of the unit, as the opening in the housing is more than large enough to replace the two coupling sections. Furthermore, the low air end speed of 2960 rpm in BSD units ensures maximum efficiency and durability, which in turn leads to reduced compressed air costs.



3 Innovative radial fan

Quiet and efficient – these are the most important features of a radial fan. Low peripheral speed means low noise. Power consumption is up to 50 percent lower than a comparable axial fan. Another advantage is the high residual thrust (stable curve) that allows the use of exhaust ducting with a pressure drop of up to 60 Pa without the need for an additional extractor fan.



4 Efficient cooling system

In addition to improved cooling efficiency, the system has further benefits to offer: The inside of the cabinet remains clean because surrounding air is drawn through the cooler into the cooler box and then exhausted directly upward out of the machine. Dirt particles in the cooling air collect mainly on the air intake side of the cooler, on BSD units that means outside the cabinet. Any dust or particle build-up is therefore easily noticed and quickly cleaned off without the need for any dismantling work. Operational reliability is improved and the need for maintenance work is significantly reduced.

5 Optimised oil separation system

BSD machines are fitted with a new, highly efficient separator system. The cooling fluid is initially separated from the compressed air by centrifugal force in the separator tank. Only a minimal amount of fluid remains to be removed by the high capacity, deep-bed filter in the separator cartridge. These two factors double the operational life of the cartridge compared with conventional systems and ensure minimum aerosol content in the compressed air delivery ($< 1 \text{ mg/m}^3$). The improved air quality eases the burden on the downstream air treatment components and the optional filter pressure drop monitoring set further enhances efficient operation.



6 Synthetic coolant

The synthetic cooling medium SIGMA FLUID makes possible an extension of the fluid change interval to over 6000 hours. Nevertheless, as a preventative protection measure for your equipment, we strongly recommend that a fluid analysis be carried out after 6000 operating hours due to the varied nature of environmental and intake conditions. Due to its lower vapour pressure, less SIGMA FLUID is consumed in comparison with mineral oils and its reduced tendency to emulsify makes condensate treatment and disposal easier and less expensive. SIGMA FLUID therefore not only helps reduce service costs but also increases reliability.



7 Easy maintenance

All models feature high quality, durable components that are positioned logically and contribute to the outstanding performance and reliability of these compressor packages. Component accessibility is made simple through wide opening doors, easy lift off panels and a sensible design that ensures unrivalled ease of maintenance. The rear and left side of BSD units can be positioned right next to a wall to maximise use of space.



8 SIGMA CONTROL

Based on robust PC architecture, the SIGMA CONTROL offers the possibility of Dual, Quadro, Vario and Continuous control. Clearly marked navigation and input keys on the user interface are used to move around within the menu options of the four line alpha-numeric display. This powerful compressor controller can also display information in any 1 of 30 selectable languages at just the press of a button. The SIGMA CONTROL automatically controls and monitors the compressor package. The Profibus interface enables exchange of data and operational parameters allowing the SIGMA Control to communicate with other air management systems such as the SIGMA Air Manager. Interfaces are provided as standard for connection of a modem, a second compressor in base-load sequencing mode and for connection to data networks (Profibus DP).



Equipment

Complete unit

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

Sound insulation

Lined with washable plastic foam; maximum 68-70 dB(A) to PN8NTC 2.3 in 1 m distance, free-field measurement.

Vibration damping

Double insulated anti-vibration mountings using rubber bonded metal elements.

Airend

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



Drive

Directly coupled, no gearing.

Electric motor



High efficiency EFF1-rated motors consume less power for greater output and are standard throughout the range of KAESER compressors. The motors are protected to IP 55 and conform to insulation Class F for greater power reserve. Also available with PTC thermistor sensors for full motor protection.

Electrical components

Control cabinet to IP 54, containing automatic star-delta starter, motor overload protection, control transformer and volt-free contacts for ventilation control.

Fluid and air flow

Dry air intake filter with initial separation, inlet and venting valves, fluid reservoir with three-stage separator system, pressure relief valve, minimum pressure/check valve, thermostatic valve and fluid micro-filter, all fully piped using newly-developed elastic couplings.



Cooling

The standard version is air cooled; separate aluminium coolers for compressed air and fluid, radial fan driven by its own motor.

SIGMA CONTROL

Interfaces for data communication comprising RS 232 for a modem, RS 485 for a slave compressor and a Profibus DP interface for data networks. Prepared for Teleservice.



Ergonomic control panel

Red, yellow and green LEDs show the operational state of the machine at a glance. Also

features a four-line 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; monitoring of 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)

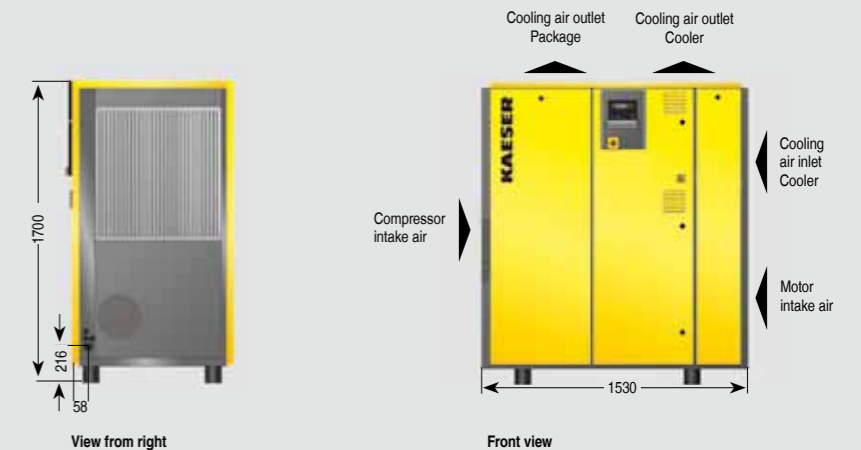
Comprehensive design know-how



KESS (KAESER's Energy Saving Service) provides comprehensive analysis of your compressed air usage, enabling KAESER's experts to plan and design a system that is specially tailored to meet all of your compressed air needs. Typically ensuring a 95-98% load capacity,

KAESER compressed air systems achieve exceptional efficiency and produce application-specific quality compressed air at lowest possible cost. Use this expertise to your advantage and let KAESER KOMPRESSOREN design your compressed air system.

Dimensions



Technical Specifications BSD

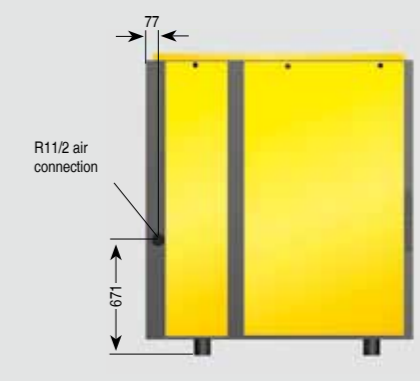
Model	Max. operating pressure bar	FAD *) Complete unit at operating pressure m ³ /min	Maximum operating pressure bar	Rated motor power kW	Dimensions W x D x H mm	Air connection	Sound pressure level **) dB (A)	Weight kg
BSD 62	7.5	5.65	8	30	1530 x 1005 x 1700	G 1½	68	980
	10	4.45	11					
	13	3.60	15					
BSD 72	7.5	7.00	8	37	1530 x 1005 x 1700	G 1½	68	1015
	10	5.59	11					
	13	4.40	15					
BSD 81	7.5	8.16	8	45	1530 x 1005 x 1700	G 1½	70	1100
	10	6.79	11					
	13	5.43	15					



3D-View



View from left



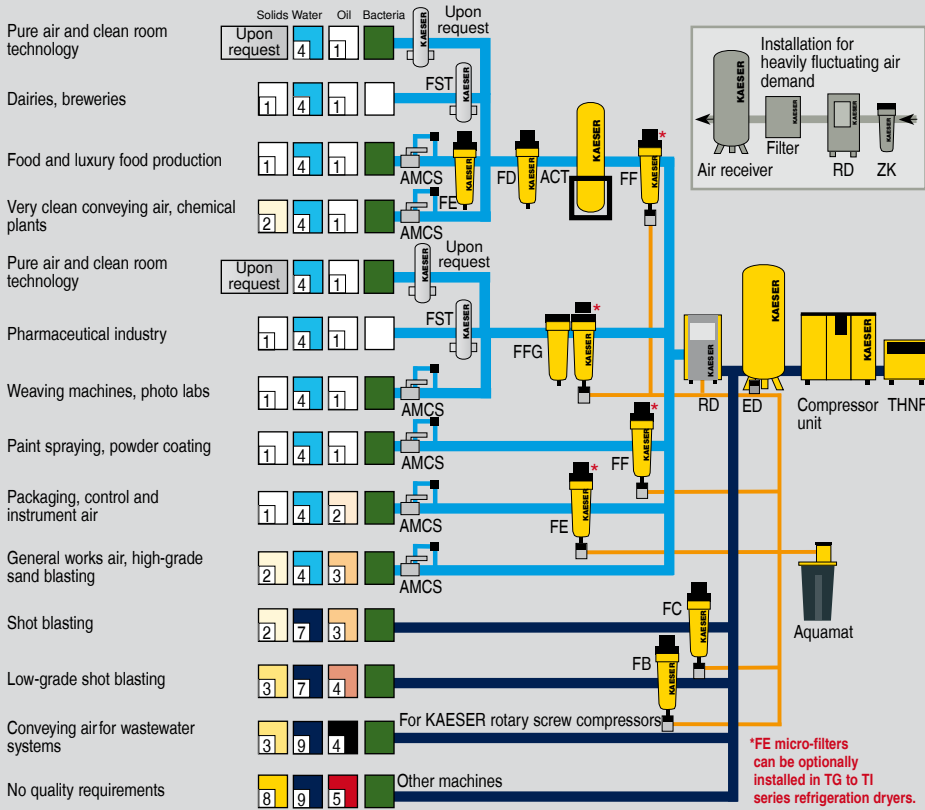
Rear view

*) FAD as per ISO 1217:2009, Annex C; **) Sound pressure level as per ISO 2151 and basic standard ISO 9614-2, tolerance: ± 3 dB(A)

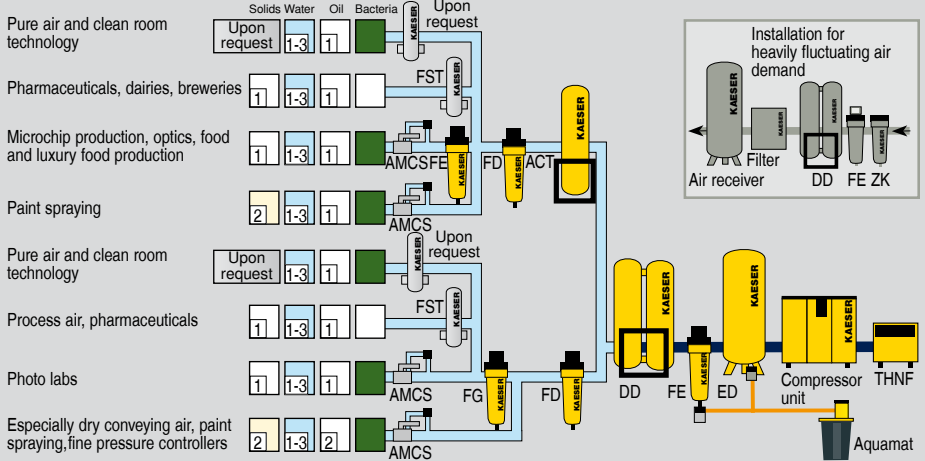
Choose the required grade of treatment according to your field of application:

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

Application examples: selection of treatment classes to ISO 8573-1



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



Explanation	
THNF	Bag filter
ZK	Centrifugal separator
ED	ECO DRAIN
FB / FC	Pre-filter
FD	Particulate filter
FE / FF	Microfilter
FG	Activated carbon filter
FFG	Activated carbon and microfilter combination
RD	Refrigeration dryer
DD	Desiccant dryer
ACT	ACT activated carbon adsorber
FST	Sterile filters
Aquamat	Aquamat
AMCS	Air-main charging system

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

Solid particles / dust			
Class	Max. particle count per m ³ 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
Class	Particle concentration C _p [mg/m ³]*		
6	0 < C _p ≤ 5		
7	5 < C _p ≤ 10		
X	C _p > 10		

Water	
Class	Pressure dew point [°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 _w [g/m ³]*
7	C _w ≤ 0.5
8	0.5 < C _w ≤ 5
9	5 < C _w ≤ 10
X	C _w ≤ 10

Oil	
Class	Total oil concentration (fluid, aerosol + gaseous) [mg/m ³]*
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

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