**DSD Series**

- Air delivery: 8.6 to 26.4 m³/min
- Pressure: 5.5 to 15 bar

Rotary screw compressors
What do you expect from your air system?

As a compressed air user, you expect maximum efficiency and reliability from your air system. That may sound simple, but a lot of very different factors play an important part. 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 of the compressor. With regards to noise 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 to maintain.

KAESER’s Solution: The DSD Series

The new DSD rotary screw compressors fulfill 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 added through innovations in compressor design, drive systems, cooling and ventilation, silencing and maintenance methods.

In summary, the DSD series of rotary screw compressors is a meticulously engineered and reliable product range built to KAESER’s renowned high quality standards.

1. Energy SAVING SIGMA PROFILE

**KAESER’s SIGMA PROFILE**

Achieves up to 15% energy compared with conventional screw compressor profiles. The airends in DSD units save every further refined detail.

2. One-to-one drive

Some people talk of direct drive, but really mean geared drive. Make sure you know the difference. Maintenance costs and transmission losses are virtually eliminated, as the motor and airend on DSD units are connected via a simple coupling. Compared with compressors using small, high speed gear-driven airenDs, one-to-one provides optimum use of power.

3. Powerful Radial Fan

The quiet and powerful radial fan draws in cool ambient air through the cooler. Its high residual thrust can deal with partial clogging of the cooler and still have enough reserve to allow connection of a long exhaust duct. In addition, the radial fan consumes significantly less drive power than conventional axial fans, saving even more energy.

DSD – A revolution in efficiency

**One-to-one drive - Ultimate efficiency**

The DSD series is a range of compressors where the drive motor and the airend are designed to operate at the same low speed. The low speed operation of 1000 rpm or 1500 rpm* is evident with generously sized airenDs that are highly energy efficient and matched to the individual performances and pressures required. Significantly increasing reliability and service life, 1:1 drive reduces the number of components needed in comparison with gear drive and eliminates the associated transmission losses. Sound levels are also considerably lower. The benefits speak for themselves: Efficient power transmission, optimal energy consumption and reduced servicing / downtime costs.

**Savings through logical design**

- Direct intake of ambient air for cooling avoids pre-warming and ensures excellent cooling.
- The difference between compressed air outlet and ambient temperature is only 4-9 K, which reduces the energy requirement of downstream air drying equipment.
- Direct intake of drive motor cooling air from the surroundings ensures reliable and effective water cooling even under adverse conditions.
- Direct intake of air for compression from outside the compressor cabinet improves compression efficiency.

**Quieter than quiet**

The silent radial fan and directly coupled motor reduce noise at source. The real technical advance is in the combination of these components with the new cooling system. The separate air flow paths allow almost hermetic silencing without influencing cooling efficiency. With a sound power level of only 69 to 72 dB(A)*, the DSD series is approximately 30-40 dB(A) quieter than comparable compressors. This is equivalent to a 90 percent noise reduction. Normal conversation can take place right next to the running compressor.

**Three steps to greater efficiency:**

1. **Energy SAVING SIGMA PROFILE**

2. **One-to-one drive**

3. **Powerful Radial Fan**

*DSD 281/7.5 bar: 3000 rpm

*DSD 281/79 dB (A)
More air, more savings...

The tabled motor powers in the table below are reference points for selection of a suitable SIGMA DSD compressor system. Please contact KAESER for specific FAD and motor output data relating to other working pressures.

<table>
<thead>
<tr>
<th>Model</th>
<th>Max. working pressure</th>
<th>Motor power 1:1 (kW)</th>
<th>Motor speed 1:1 (rpm)</th>
<th>Motor power 2:1 (kW)</th>
<th>Motor speed 2:1 (rpm)</th>
<th>Dimensions (mm)</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSD 141</td>
<td>7.5</td>
<td>15.4</td>
<td>1500</td>
<td>11.7</td>
<td>22.1</td>
<td>1680</td>
<td>1685</td>
</tr>
<tr>
<td>DSD 171</td>
<td>7.5</td>
<td>15.4</td>
<td>1500</td>
<td>11.7</td>
<td>22.1</td>
<td>1680</td>
<td>1685</td>
</tr>
<tr>
<td>DSD 221</td>
<td>13</td>
<td>26.8</td>
<td>1500</td>
<td>19.5</td>
<td>33.3</td>
<td>2000</td>
<td>2010</td>
</tr>
<tr>
<td>DSD 281</td>
<td>13.5</td>
<td>30.7</td>
<td>1500</td>
<td>21.7</td>
<td>35.9</td>
<td>2300</td>
<td>2310</td>
</tr>
</tbody>
</table>

**DSD3000rpm**

**Opening in the coupling housing is more than large enough to replace the two 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; the 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; the opening in the coupling housing is more than large enough to replace the two bearings.**

DSD - Eight Decisive Advantages

1. **SIGMA PROFILE screw**
   A specific drive power can be used to turn a smaller airend at high speed or a larger airend at slow speed. Large, low speed airends are more efficient, delivering more compressed air for the same drive power. That is why KAESER developed airends especially for the DSD series (with operating speeds of 1000 / 1500 rpm) that precisely match the individual drive power and motor speed of each machine in the range. The investment in a larger airend is quickly recovered by the energy saved during operation.

2. **Energy-saving one-to-one drive**
   The advantages of a 1:1 drive system are not just limited to the elimination of transmission losses. The motors and airends 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, the opening in the coupling housing is more than large enough to replace the two coupling sections.

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. A further advantage is the high residual thrust developed that allows the use of exhaust ducting with a pressure drop of up to 150 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 cool because surrounding air is drawn through the cooler into the cooler box and then exhausted directly upward out of the machine. Chillers in the cooling air injection mainly on the inlet side of the cooler, on DSD units that means outside the cabinet. Clogging is easily reached and quickly cleared 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**
   DSD packages are fitted with a new, more 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. The improved air quality eases the burden on the downstream air treatment components. The optional filter pressure drop monitoring set further enhances efficient operation. Cartridge changing is made easy by the back-lit button, simply, quickly, and lift-free.

6. **Synthetic coolant**
   SIGMA FLUID, a synthetic coolant from KAESER, allows an extended service interval of over 10000 operating hours. However, as a preventative protection measure for your equipment, we strongly recommend that a fluid analysis be carried out after 5000 operating hours to check the real state of the environmental and intake conditions. Due to its lower vapour pressure, less SIGMA FLUID is consumed in comparison with mineral oil and results in a lower air temperature and less energy. SIGMA FLUID coolant therefore not only helps save service costs but also increases reliability.

7. **Simple coolant change**
   Changing the coolant is clean, simple and fast using KAESER’s proven system which has been specially designed for the new DSD packages. The coolant can be drained into a container via a hose (supplied as part of the package) which is connected to the quick disconnect coupling on the separator tank. The pressure built up in the tank before shutting down aids this process. Furthermore, this system significantly reduces downtime and servicing costs.

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 in the menu options of the SIGMA Air Manager. Interfaces for connection to data networks (Profibus DP).
More air, more savings...

The technical data on the right table below is reference points for selection of a suitable DSD compressor system. Please consult KAESER for specific FAD and motor output data relating to other working pressures.

### Technical Specifications - DSD Series

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated motor power</th>
<th>Rated pressure</th>
<th>Discharge air volume</th>
<th>Pressure drop</th>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSD 1141</td>
<td>7.5 kW</td>
<td>7.5 bar</td>
<td>20.7 m³/min</td>
<td>2225 × 1962 × 1885</td>
<td>3460 kg</td>
<td></td>
</tr>
<tr>
<td>DSD 1142</td>
<td>10 kW</td>
<td>8.0 bar</td>
<td>24.0 m³/min</td>
<td>2225 × 1962 × 1885</td>
<td>3400 kg</td>
<td></td>
</tr>
<tr>
<td>DSD 1171</td>
<td>13 kW</td>
<td>10 bar</td>
<td>12.9 m³/min</td>
<td>2225 × 1962 × 1885</td>
<td>3150 kg</td>
<td></td>
</tr>
<tr>
<td>DSD 1172</td>
<td>16 kW</td>
<td>13 bar</td>
<td>16.1 m³/min</td>
<td>2225 × 1962 × 1885</td>
<td>2900 kg</td>
<td></td>
</tr>
</tbody>
</table>

### DSD – Eight Decisive Advantages

1. **SIGMA PROFILE screw compressor:**
   - A specific drive power can be used to turn a smaller airend at high speed or a larger airend at slow speed. Large, low speed airends are more efficient, delivering more compressed air for the same drive power. That is why KAESER developed airends especially for the DSD series (with operating speeds of 1000 / 1500 rpm) that precisely match the individual drive power and motor speed of each machine in the range. The investment in a larger airend is quickly recovered by the energy saved during operation.

2. **Energy-saving one-to-one drive:**
   - The advantages of the 1:1 drive system are not just limited to the elimination of transmission losses. The motors and airends 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; the opening in the coupling housing is more than large enough to replace the two coupling sections.

3. **Optimised oil separation system:**
   - DSD packages are fitted with a new, more efficient separator system. The cooling fluid is initially separated from the compressed air by centrifugal force in the separator. Only a minimal amount of oil is entrained by the separator cartridge, which has two factors that contribute to the operational life of the cartridge: a) the varied nature of environmental and intake air conditions, and b) the minimum aerosol content in the compressed air. The improved air quality ensures the bearing of the downstream air treatment components. The optional filter pressure drop monitoring set further enhances efficient operation. Cartridge changing is made easy by the bolt and lock system, which lifts away.

4. **Synthetic coolant:**
   - SIGMA FLUID, a synthetic coolant from KAESER, allows an extended service interval of over 6000 operating hours. However, as a preventive protection measure for your equipment, we strongly recommend that a fluid analysis be carried out after 2800 operating hours in the worst-case intake air conditions. Due to its lower vapour pressure, less SIGMA FLUID is consumed in comparison to mineral oils and leaves substantially cleaner and less expensive. SIGMA FLUID coolant therefore not only helps reduce service costs but also increases reliability.

5. **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 per cent lower than a comparable axial fan. A further advantage is in the high residual thrust developed that allows the fan to withstand dusting with a pressure drop of up to 150 Pa without the need for an additional dust filter.

6. **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 DSD units that means outside the cabinet. Clogging is easily recognised and quickly cleared of dust without the need for any dismantling work. Operational reliability is improved and the need for maintenance work is significantly reduced.

7. **Simple coolant change:**
   - Changing the coolant is clean, simple and fast using KAESER's proven system which has been specially designed for the new DSD packages. The coolant can be drained into a container via a hose (supplied as part of the package) which is connected to the quick disc union coupling on the separator tank. The pressure built up in the tank before draining allows this process. Furthermore, this system significantly reduces downtime and servicing costs.

8. **SIGMA CONTROL:**
   - Based on robust PC architecture, the SIGMA CONTROL offers the possibility of Dual-Gas-Valve Control. Valves can be opened or closed quickly and easily by the operator through the operator interface. The SIGMA CONTROL allows the configuration and control ofprimiria is anat drives

www.kaeser.com
Equipment

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

Sound insulation
Lined with glass-fibre-laminated mineral wool; 65-72 dB(A) to PN10 2.3 at one metre distance, free-field measurement.

Vibration damping
Base frame with dual anti-vibration mountings using rubber-bonded metal elements.

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

Drive
Direct, high-flex coupling, without gearing.

Electric motor
High efficiency ET71 series motors consume less power for greater output and are silent throughout the range of KAESER compressors. The motors are protected to IP55 and conform to insulation class F for greater power reserve. Also available with PTC thermistor sensors for compensated air and fluid, radially driven by the same motor.

Controller
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.

Fluid and air flow
Dry air intake filter with pre-filtration, pneumatic 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 is fully piped using flexible couplings.

Dimensions:

Compressed air supply systems are often highly complex and can only be efficiently operated in the long term if careful planning is implemented during each stage of design, system expansion and modernisation. 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 requirements. The servicecombines tried and tested compressed air components, user advice and services with cutting edge technology to ensure maximum efficiency – KAESER air systems typically operate at 95 percent load capacity or more. Every KAESER compressed air system illustrates KAESER’s 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. Use this expertise to your advantage and let KAESER design your compressed air system.