

Screw Compressors

ESD SERIES

Capacities from: 858 to 1502 cfm

Pressures from: 80 to 217 psig

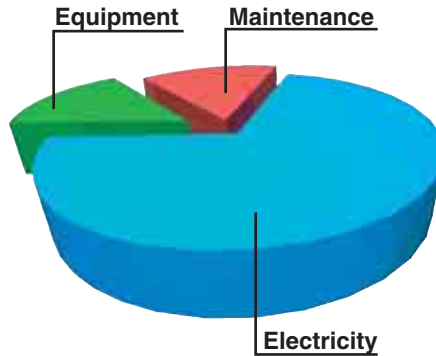


Direct Drive Rotary Screw Compressor

Maximum Efficiency and Reliability

For years, customers have relied on Kaeser for energy-efficient equipment and complete compressed air system solutions. Our research and development team continues to produce industry-leading compressor technology to meet virtually any compressed air application requirement. The new ESD series rotary screw compressor is no exception.

Kaeser's new ESD compressors combine our proprietary optimized Sigma Profile airend and Sigma Control system with the latest one-to-one drive technology. They also incorporate optimized designs for reducing maintenance, attenuating noise, and providing superior aftercooling. Manufactured according to strict ISO 9001 quality standards and designed for easy maintenance, our compressors provide exceptional energy savings and years of reliable service.



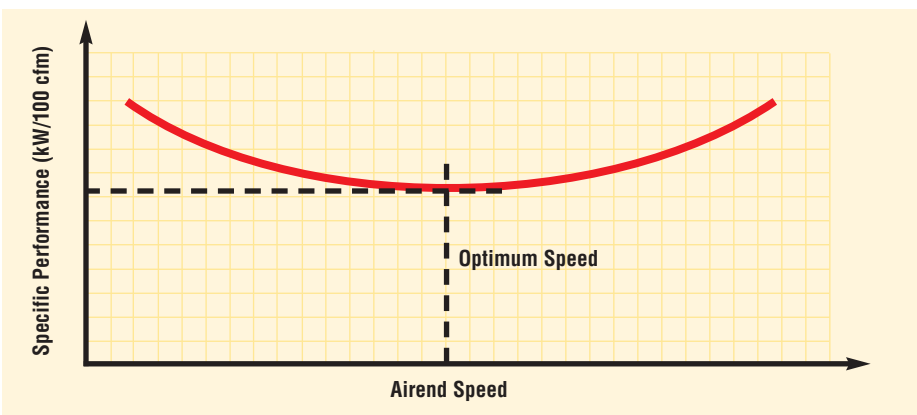
70% of Your Long Term Compressor Cost is Electricity

Analyze the total costs of a compressed air system and you'll realize that power cost is significant. In just one year it could exceed the cost of the compressor itself. Over a period of ten years, this could consume 70% of your overall costs.

That's why it is important to investigate energy efficiency when considering a new compressor.

Kaeser's proprietary Sigma Profile compresses air efficiently. It delivers up to 20% more cfm per horsepower than units with other airend designs.

A Perfect Match



1 Inlet Filter

We protect our compressors with a two-stage, 4 micron air intake filter. This extends airend life and fluid change intervals. The filter may be cleaned several times before replacement and is easily serviced with no tools required.



2 Sigma Profile Airend

Kaeser uses a number of newly designed airends for this ESD series. They are precision-machined to close tolerances and optimized in size and profile to match the low airend speeds with their best specific performance (see *A Perfect Match* curve below).



3 One-to-One Drive

Some compressors are called direct drive but are really gear-driven units. In Kaeser's ESD package, the motor is directly connected to the airend with a maintenance-free coupling, providing maximum transmission efficiency. The airend and motor are connected by a casting which is doweled and pinned to assure perfect alignment.



4 Motor

TEFC, high efficiency, 460 or 575 V, 3-phase, 60 Hz, 1800 rpm, class F insulation. Other voltages are available. Remote grease fittings make maintenance a breeze.





5 Radial Fans

Two powerful radial fans draw cool ambient air through the cooler. They are designed to provide higher static pressure which is ideally suited for ducting and heat recovery applications. The radial fans are extremely quiet, thermostatically controlled and consume less power than conventional axial fans providing additional energy savings.



Efficient Separator System

ESD packages are fitted with an optimized, high-efficiency separation system. Most of the cooling fluid is initially separated from the air by centrifugal force in the separator tank. Any remaining fluid is separated by a 2-stage filter in the separator cartridge. This *triple* action doubles the cartridge service life and



reduces fluid carry over to 2 ppm or less. The fluid level is quickly verified by the easy-to-read level indicator.



Extremely Quiet

While the low-noise radial fan and the one-to-one drive considerably reduce noise levels, the new “split cooling air flow” design provides superior sound proofing without cooling efficiency losses. As a result, the ESD series is about 10 dB(A) quieter than conventional compressors of equal performance with noise emissions as low as 76 dB(A) under any operating conditions.

Unique Air Flow Design

To increase operational reliability and reduce maintenance costs, the coolers are conveniently located on the outside of the unit. Therefore, dust and dirt build-up are easily monitored, accessed, and removed without dismantling the cooler.

Optimized Cooling

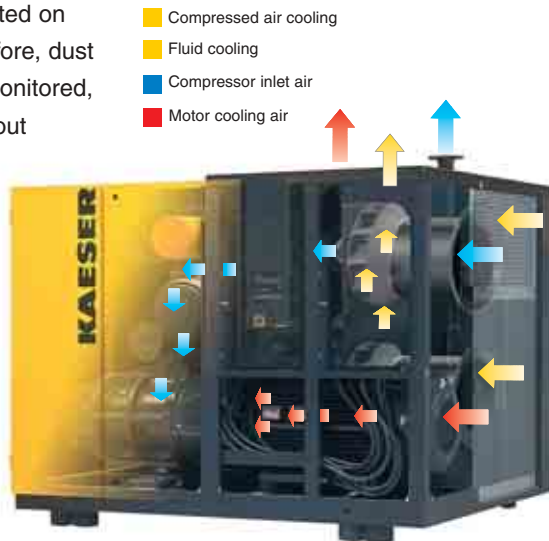
Cooling air is drawn directly from ambient air, routed through the coolers and exhausted upwards through the cooler box. The cooling air is not preheated which provides optimum cooling, thus significantly lowering air drying requirements.

Cooling air for the motor is also drawn directly from ambient air. The radial fan creates a vacuum within the cabinet that effectively cools the motor even under unfavorable operating conditions.

Sigma Control

Developed by Kaeser in conjunction with Siemens AG, this patented compressor control features an industrial-based PC with an Intel® microprocessor inside. Five different compressor control configurations are available to precisely match compressor performance to air demand and increase energy savings.

With Sigma Control and Kaeser's proprietary software, compressor systems can be monitored and adjusted from any location worldwide. Sigma Control also features extensive capabilities for maintenance trending and air demand tracking.



Optimized Efficiency

In ESD packages, one-to-one drive reduces the number of components needed compared to a gear drive unit thus increasing reliability and service life.

Kaeser has selected oversized airends specifically matched to produce the required output in flow and pressure. Compared to compressors using small, high-speed gear-driven airends, the ESD one-to-one drive provides triple savings: no-loss power transmission, improved power consumption, and reduced maintenance and related downtime costs.

$$\text{Airend RPM} = \text{Motor RPM}$$



One-to-One Direct Drive

Equipment

Compressor

Single-stage, flooded rotary screw airend with the power-saving, proprietary Sigma Profile delivers pressures up to 217 psig.

Electric Motor

TEFC, high efficiency, 460 V, 3-phase, 60 Hz, 1800 rpm, and class F insulation. Other voltages are available.

Starter

Magnetic Wye-Delta reduced-voltage starter ensures low starting current and smooth acceleration.

Drive

Direct drive with maintenance-free coupling provides maximum transmission efficiency.

Sigma Control System

Sigma Control is a modern, compact, PC-based control system with Intel™ processor and real-time operating system. Sigma Control monitors all critical compressor and control system functions and compressor maintenance items. History memory offers easy troubleshooting and record keeping. Integrated database offers plain text display in up to 20 languages. Sigma Control has three communication ports built-in (RS 232, RS 485, Profibus) with open architecture for integration into master control systems.

Air Cooling System

- All units are filled with Kaeser Premium fluid to cool, clean and lubricate airend.
- Two separate cooling air inlet zones for the coolers and drive motor ensure optimum cooling. Drawing ambient air across the coolers and motor through separate zones avoids preheating and results in lower approach temperatures, longer

lubricant life, and cooler motor temperatures.

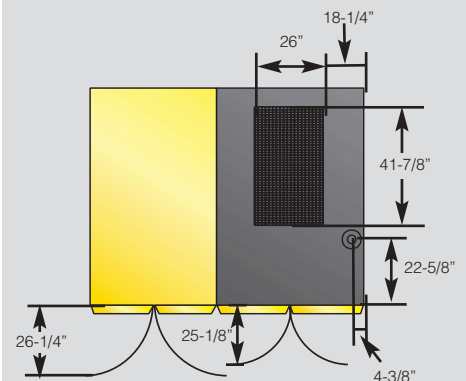
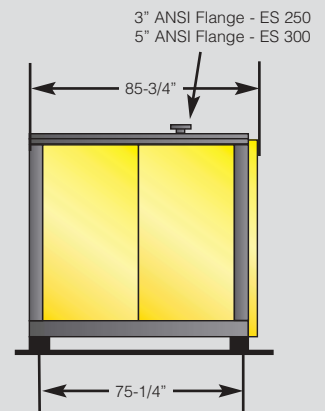
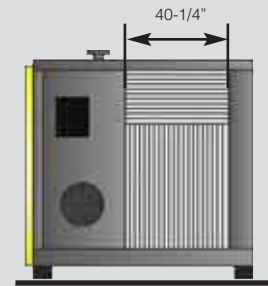
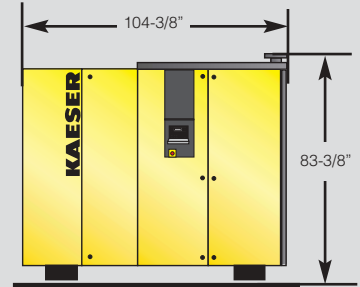
- Two-stage 4 micron air intake filters with cyclone pre-separation and replaceable, cleanable cartridge extends fluid drain intervals and airend life.
- Pneumatic inlet and vent valve are included.
- Combined reservoir and separator tank with 3-stage separation system ensures minimal fluid carry over of 2 ppm or less (by weight). Quick change devices on the separator and cooler allow complete, fast, and easy fluid changes.
- ASME or CRN separator tank is equipped with quick disconnect fittings for manual verification of separator element contamination.
- Combination valve incorporates a thermostatically controlled valve, cooler by-pass, and micro fluid filter. The thermostatically controlled valve ensures perfect fluid temperature regulation. The micro fluid filter utilizes a spin-on cartridge.
- Main air lines are made of rigid pipe and incorporate flexible pipe connections.
- High-efficiency coolers are included.
- Standard units are air-cooled, optional water-cooling is available.
- Radial cooling fans reduce package noise and produce greater static pressure across the coolers.

Enclosure

Compact unit is soundproofed by a sheet metal enclosure with mineral wool and plastic liners. Enclosure features a durable powder-coated finish. Compressor is mounted on base frame with a solid steel floor and vibration isolation mounts. Additional vibration isolation for airend, motor, and separator tank is standard.

Dimensions

Dimensions are for reference only — please contact Kaeser for dimensional drawings.



Compressed Air System Design

Engineering expertise

With decades of combined experience in compressed air systems and design, our entire team of qualified engineers is always at your service. For specialized systems or unique requirements, Kaeser's highly trained engineers provide expert applications assistance. From complex installations and challenging environments to facilities with limited space, Kaeser can design and lay out a system to meet the specified requirements for performance and reliability.

Using specialized tools such as our Power Cost Analysis and Air Demand Analysis, we can provide an accurate assessment of the existing installation as well as a contrasting view of the proposed system's performance.

Kaeser uses state-of-the-art CAD systems to lay out the proposed system and produce traditional two-dimensional drawings for project execution. Plus, a three dimensional, virtual walk-through tour of the proposed system allows the end user to see the complete installation. The virtual modeling allows all options to be considered. Variables such as distance, diameters, equipment order, location, accessories and connections can be reviewed and modified, if necessary, prior to installation.

ESD Series - Technical Specifications

Model	Pressure Range (psig)	Capacity (cfm) ⁽¹⁾	Rated Motor Power (hp)	Dimensions (in.)	Noise Level dB(A) ⁽²⁾	Weight (lb.) ⁽³⁾
ESD 250	110	1298	250	104-3/8 x 85-3/4 x 83-3/8	76	11,200
	125	1293				
	145	989				
	190	866				
ESD 300	110	1490	300	104-3/8 x 85-3/4 x 83-3/8	79	12,000
	125	1293				
	145	1284				
	190	977				

(1) Performance rated in accordance with CAGI/PNEUROP PN2CPTC2 test code. (2) Measured at 3 feet according to CAGI. (3) Weights may vary slightly depending on air end model.

Specifications are subject to change without notice.



**KAESER
COMPRESSORS**

Built for a lifetime.™

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The Air Systems Specialist

With over 85 years of experience, Kaeser is the air systems specialist. Our extensive 100,000 square foot facility allows us to provide unequalled product availability. With service centers nationwide and our 24-hour emergency parts guarantee, Kaeser customers can rely on the best after-sales support in the industry. Kaeser stands committed to providing the highest quality air system for your specific compressed air needs.