

Industrial Rotary Screw Compressors

SX - HSD Series

3 – 700 hp

Capacities from: 8.8 to 3069 cfm

Pressures from: 50 to 217 psig



A Philosophy Built-for-a-lifetime™

Meeting All Your Air System Needs

Since revolutionizing the screw compressor design with the 5:6 asymmetrical Sigma Profile airend many years ago, Kaeser has continued to lead the industrial compressor industry with premium quality compressors. Kaeser offers the widest range of fluid injected rotary screw compressors all designed and built without deviating from core Kaeser principles of reliability, energy efficiency, and lowest cost of ownership. Add to that our expert system design, installation, and maintenance services and it's clear why Kaeser is The Air Systems Specialist.

Innovation you can trust

With a cutting edge research and development team committed to building industry-leading products, Kaeser continues to deliver better solutions to meet our customers' compressed air needs. Kaeser's expertise and world-wide reputation for superior reliability and efficiency offer excellent performance and peace of mind.

Rugged reliability

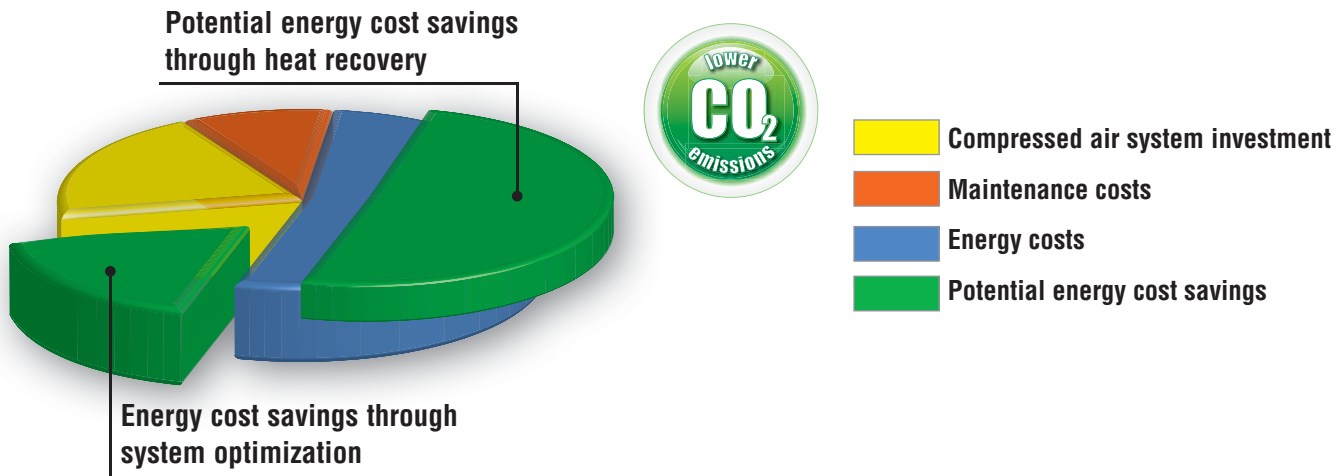
Kaeser's screw compressors meet our rigorous "built for a lifetime" standard. Designed and built with Kaeser's generations of compressed air experience, you can rest assured that these compressors will continue to deliver the air you need with the exceptional reliability you expect from a Kaeser compressor.

Service-friendly

From the ground up, these compressors have been designed with the user in mind. Fewer wearing parts and using premium quality materials ensure reduced maintenance requirements, longer service intervals, and extended service life. A smarter component layout with generously sized maintenance doors simplify service and lower your operating costs.

Guaranteed efficiency

In our comprehensive design approach, Kaeser chooses the components that work together in the most energy efficient way possible. Each and every component—from inlet filter to discharge flange—has been carefully selected with performance in mind. In fact, our compressors are up to **30% more efficient** than the competition. With Kaeser's superior integrated controls, we guarantee an efficient system with lower operating costs, however small or large your demand may be.



Today, Kaeser employs over 5,000 people and our growing distribution network provides reliable and sustainable compressed air system solutions in 100 nations throughout the world.



State-of-the-Art Manufacturing

Kaeser's extensive manufacturing facilities in Coburg, Germany, cover over 25 acres. State-of-the-art Computer Numerically Controlled (CNC) machining equipment and highly accurate lathe, milling, and grinding machines produce our proprietary airends, housings, and other components to very precise tolerances. The assembly facilities are carefully planned to produce large numbers of compressors in the most efficient and expedient manner.



Continuous quality control

Sigma Profile rotors are precision-machined and finished to an accuracy of 1/1000 mm. The airend's finished dimensions are measured and verified using the latest in 3D computer technology.



Meticulous airend assembly

Highly trained specialists assemble each airend according to our strict ISO 9001:2008 standards.





Advanced machining centers

State-of-the-art machining centers in climate-controlled rooms produce the Sigma Profile rotors and casings. These machining centers operate 24 hours a day to keep up with the demand for Kaeser premium quality compressors.



Environmentally friendly powder coating system

All Kaeser rotary screw compressors feature powder-coated enclosures. Our unique powder coating technique applies a super fine glaze to each individual enclosure panel. The panels are baked at 350°F for a corrosion-proof and scratch-resistant finish.



Comprehensive unit testing

Once the manufacturing and assembly process is complete, each and every screw compressor undergoes a comprehensive testing procedure to verify its mechanical and electrical operation prior to shipment. These strict testing standards ensure the highest product quality available.



Research and Development Center

Research and development

Kaeser's research and development team continues to produce industry leading air system technology. All of our products are designed individually for efficiency, reliability, and minimal maintenance, and are built to work together for an unparalleled systems and solutions approach to each application.

Sigma Product Line

Premium quality comes standard

While others may offer premium features as an option, at Kaeser, we believe quality should never be just an option. Our approach to design is rooted in the German traditions of quality craftsmanship, exceptional reliability, and superior energy efficiency. From using fewer wearing parts, to smarter component layouts, to easy maintenance access, our complete line of rotary screw compressors is built for a lifetime™ of energy efficient operation.



Sigma Profile™ airends

Our single-stage, flooded rotary screw airend delivers pressures up to 217 psig and features our power saving Sigma Profile design. Our airends are optimized in size and profile to match the airend speeds with their best specific performance. Unlike the competition, Kaeser Compressors makes many different airends so that we can apply them at their optimal speed and performance (see Graph 1).



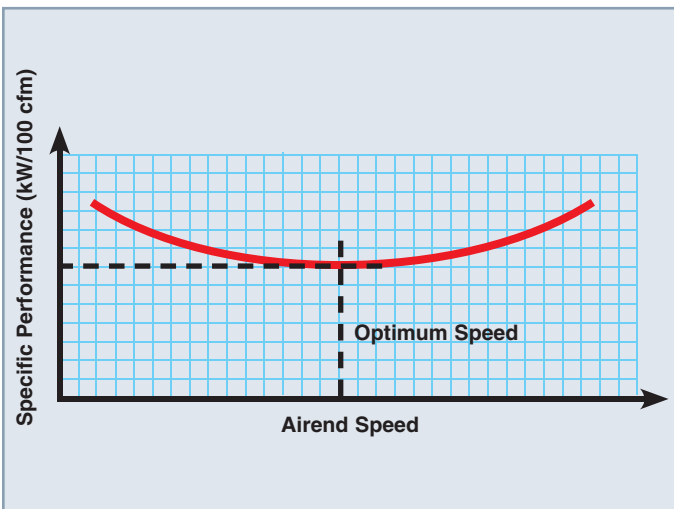
Premium efficiency TEFC motors

Kaeser uses only premium efficiency Totally Enclosed Fan Cooled (TEFC) motors with class F insulation for extra protection from heat and contaminants. Magnetic Wye-Delta reduced voltage starting or Sigma Frequency Control is standard. These energy saving features ensure low starting current and smooth acceleration (see Graph 2).

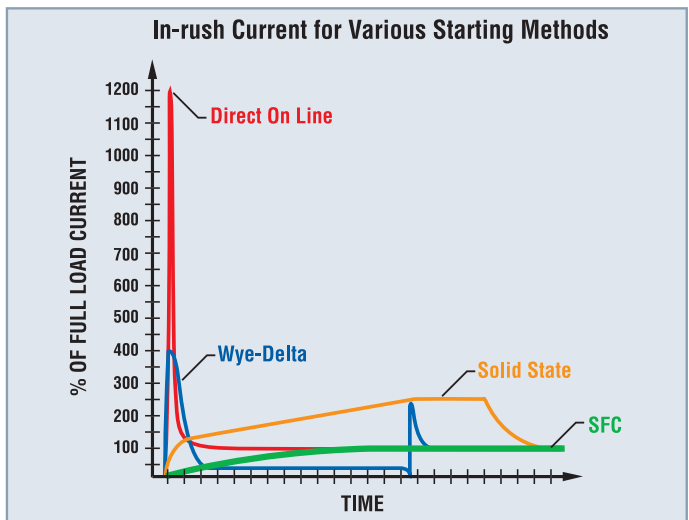


Efficient separator system

Our 3-stage separation system ensures very low fluid carry-over (1-3 ppm), and extended filter service life. Our no-leak design features rigid steel piping, flexible connections, and vibration isolators. Each pressure vessel is ASME coded (CRN in Canada) and includes wet side/dry side fittings to check differential pressure, an easy to read fluid level indicator, and our unique quick fluid drain system.



Graph 1



Graph 2

Package Design

Extremely low sound and vibration

All models come standard with Kaeser's superior cabinet that features complete metal enclosures with sound proofing liners and heavy-duty vibration isolation. As a result, our compressors are about 10 dB(A) quieter than conventional compressors of equal performance.

Parallel cooling design

Separate air inlet zones for the compressor coolers and drive motor ensure optimum cooling and performance. Drawing ambient air directly across the coolers and motor through separate zones eliminates preheating and results in longer lubricant life and a cooler running motor.



This also results in much lower approach temperatures, improving moisture separation and air quality.

To increase reliability and reduce maintenance costs, the coolers are conveniently located on the outside of the unit, where dust and dirt build-up are easily seen and can be removed without dismantling the cooler. A powerful fan pulls air through the coolers and creates a vacuum within the cabinet that effectively cools the motor even under severe operating conditions. Top exhaust allows for easy heat recovery and reduces the system footprint.

Service-friendly Design



Easy maintenance access

Our rotary screw compressors feature an open package layout. All of the major components are easily accessible, reducing preventive maintenance time by as much as 50% when compared to other similarly sized units.

Service doors open wide and like the panels, are easily removed. Our unique fluid separator design even allows pressurized oil changes, saving valuable time. BSD units and larger have remote grease fittings for the fan and drive motor.

When you consider the energy efficiency savings and the maintenance costs savings, it's clear that owning a *built for a lifetime™* Kaeser compressor will save you money, year after year.

SX-AS and SFC Belt Drive Compressors

On our 3-25 hp compressors, we use a space saving v-belt drive design. Kaeser models include a unique automatic v-belt tensioner that maintains optimal efficiency and prolongs belt life. These models offer simple maintenance and the flexibility of changing working pressure with an easy field modification.

SX Series 3 - 7.5 hp	SK Series 15 - 20 hp
SM Series 7.5 - 15 hp	AS Series 20 - 30 hp





Sigma Control™ Basic

All of our belt drive units come standard with our integrated Sigma Control™ Basic controller. This simple and reliable interface offers convenient pressure control and system monitoring with status display and maintenance reminders. Displays include discharge pressure and temperature, load and service hours, as well as fault indicators. Sigma Control 2 is optional.

See page 11 for more information on Sigma Control 2.

ASD-HSD and SFC Direct Drive Compressors

On larger units from 25 to 700 hp, we use only true direct drive, providing maximum power transfer and efficiency from motor to airend. Because we make more sizes of airends, we can run them at lower speeds than smaller, gear-driven units. This design has fewer components, eliminates heat and drive losses, and reduces maintenance and related downtime.



One-to-One Direct Drive
Airend RPM = Motor RPM





Intelligent control and protection

To protect your investment and ensure the most efficient operation possible, we control these compressors with our Sigma Control 2™. This intelligent controller comes standard with multiple pre-programmed control profiles so you can select the one that best fits your application.

Monitoring and Maintenance:

- Monitors more than 20 critical operating parameters
- Shuts unit down to prevent damage
- Signals if immediate service is required
- Tracks preventive maintenance

intervals and provides notice when PMs are due.

- RFID sensor for secure access and managing maintenance intervals.

Data Storage and Analysis:

- SD card slot with included SD card for fast, easy software updates, storing key operational parameters
- Long-term data storage for analyzing energy consumption and compressor operation.

Communications Capabilities:

- Ethernet port and built-in web-server for remote viewing.



- ModBus, Profinet, Profibus, Devicenet, and other industrial communications interfaces are also available as plug in options for seamless integration into plant control/monitoring systems.
- Sends e-mail alerts for maintenance notifications, alarms, warnings, and optional messages.

Sigma Frequency Control

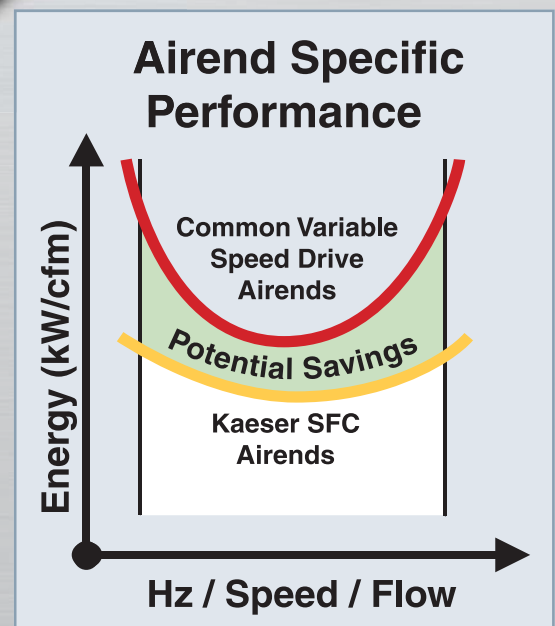
Unmatched performance

Kaeser Sigma Frequency Control combines the latest in Siemens drive technology with our Sigma Profile airend and Sigma Control system. Our engineers have optimized the airend design to accommodate a wide flow range with unmatched efficiency. The drive motor and airend operate at low speeds, resulting in exceptional reliability and long life. Kaeser's SFC units range from 8 to 515 kW and are incredibly quiet, with noise levels as low as 67 dB(A). SFC models from 8 to 132 kW are also available with integrated dryers.



Integrated System Design

Even though variable frequency drive compressors can have an effective flow range of 20% to 100%, the efficiency (kW/cfm) is not constant over the whole speed range. The best efficiency is normally between 40% and 85%. As the graph illustrates, the Sigma Profile airend has a clear efficiency advantage over a wider flow range than the competition.



Integrated Systems

Premium compressed air quality

Kaeser rotary screw compressors are also available in a variety of configurations. These package systems can be customized to suit your specific compressed air and air treatment needs.



50 hp compressor with integrated refrigerated air dryer.



AirCenters come with an integral refrigerated dryer and ASME coded receiver tank.



25 hp belt drive compressor with integral refrigerated dryer and Sigma Frequency Control.

“T” Series

While all Kaeser compressors are available as stand alone units, most models are also available with air treatment equipment built in.

The “T” series rotary screw compressors feature integral refrigerated dryers with stainless steel, plate-type heat exchangers, moisture separators, and condensate drains. These work together to remove moisture and other contaminants from your air system to improve product quality and help reduce wear on production equipment.

The T models include a space-saving cabinet that reduces overall footprint, provides easy access to service points, and prevents exposure to preheated air and contaminants from the compressor package. They also feature single point hook up to simplify your installation.

AirCenter™

To further reduce your installation time and space requirements, Kaeser offers the AirCenter. These complete air systems include not only the dryer, but also the air receiver tank. Available with either one (simplex) or two (duplex) Sigma rotary screw compressors, they come pre-assembled with a refrigerated air dryer mounted on a horizontal receiver tank.

Available in a wide range of models from 3 to 40 hp, these units are perfect for small shops or plants. All systems are completely piped and wired, and ready for installation. Clean Air Treatment Packages with coalescing filters and condensate drains are available options.

Much More Than Just Equipment

To ensure our equipment solutions meet every expectation, Kaeser offers a wide variety of pre-sale and after-sale support services, including: system baselining with Air Demand Analysis (energy audits), flow metering, air quality analysis, leak detection, and compressor fluid analysis. We also offer customer seminars on system design for reducing maintenance and energy costs.

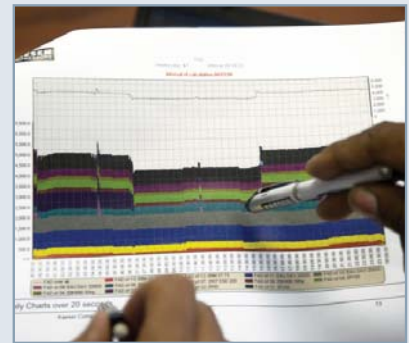


Your Kaeser field representative will visit your site to collect detailed information about your system and compile supporting data, sketches, and photographs. Based on the data and your feedback on system problems and goals, we can make solid recommendations for system optimization.



Leak detection

Kaeser uses the latest ultrasonic leak detectors with onboard data logging. In addition to tagging your leaks, you will receive a detailed report with the location and approximate leak rate of each leak found. With this information, you can determine the best leak repair plan.



Air Demand Analysis (ADA)

Kaeser's compressed air energy audits stand out in the industry for their completeness and accuracy. An ADA can help:

- Eliminate air system inefficiencies related to leaks, inadequate piping, storage, or controls.
- Reduce waste and scrap caused by inconsistent pressure in production equipment.
- Cut maintenance costs by optimizing run time and reducing excess cycling.

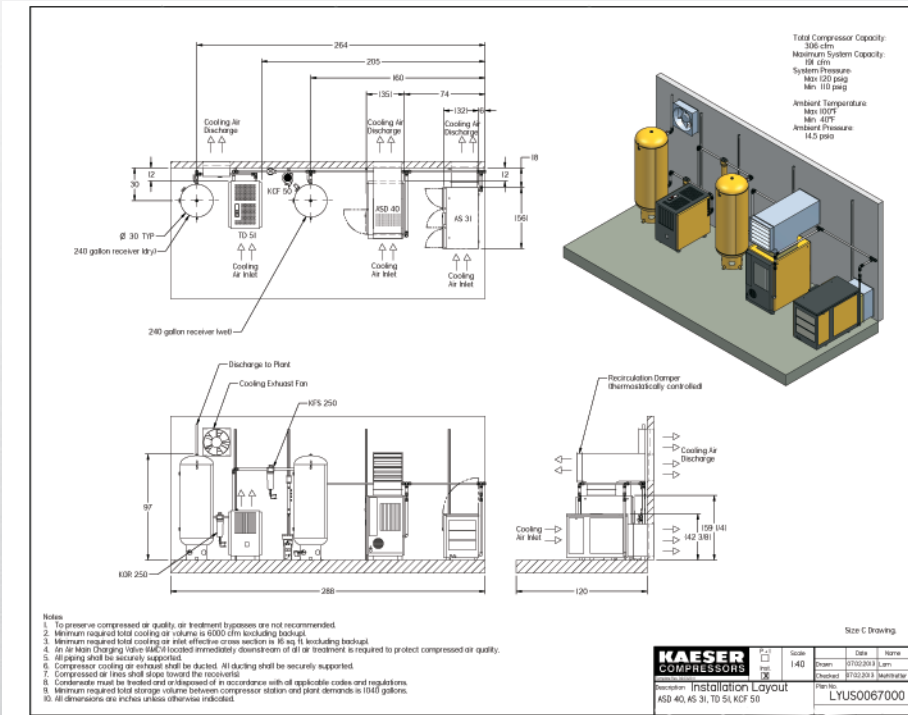
ADA documentation will also help you apply for electric utility rebates.

Kaeser Energy Savings System

Our unique Kaeser Energy Savings System (KESS) software simulates power requirements of different system scenarios. This helps identify solutions that will achieve the greatest efficiency without compromising pressure/flow requirements or system reliability.

Custom Designed Solutions

Our factory-trained representatives work closely with our application engineers to design a complete, custom system tailored to your requirements. Whether it's a system enhancement for a small collision center or a complete turnkey installation for a chemical processing plant, Kaeser can recommend the right solution based on operating conditions, air quality needs, capacity and pressure requirements, and application-specific regulations.



Accurate system drawings and schematics ensure proper pipe sizing and storage as well as adequate ventilation.

Superior system control



Our Sigma Air Manager is a major advance in compressed air system controls. Its powerful intelligence achieves the highest energy efficiencies. Further, with SAM's full communications capabilities, the entire system can be monitored and analyzed from any location as a stand-alone network or part of a larger plant control system. In the event of system problems, SAM's remote monitoring capabilities can allow our service technicians to view system status and diagnostic codes prior to making a service call to minimize trouble-shooting and repair time.

Sigma Air Manager features software that can display your compressed air system information in real-time on your desktop or laptop computer through a standard Internet browser. Simple HTML pages show the compressors' operational state, SAM's operating and system pressure data, as well as service and alarm messages.



With SAM's integrated Internet capabilities, air system data is available from any location.

Sigma Air Utility

Do you produce your water, gas, and electricity? Probably not. So why own and operate compressors if you don't have to? Let Kaeser — The Air Systems Specialist — plan, install, and maintain a complete air system in your plant, so you can focus on running your business.

Sigma Air Utility is a proven solution. We design, build, own, operate, maintain, and stand behind your compressed air system. We guarantee the amount of air you need, at the pressure you need, and at the quality you need — at all times. On top of that, it will be the most energy efficient air system you've ever had.



Sigma Air Utility can be delivered in pre-assembled modules or installed in your plant compressor room.



SmartPipe™

Kaeser's SmartPipe™ is a modular compressed air distribution system that offers both lower installation costs and lower long term operating costs.

Fast to install and easy to modify, SmartPipe is the most versatile compressed air distribution system available. Our combination of lightweight materials and connectors dramatically reduce labor and installation time, especially in overhead installations.

SmartPipe is ideal for installations requiring the highest quality air. Available in sizes ranging from 1/2" to 6" in diameter, its aluminum material will not rust or corrode. Leak-free connectors prevent air loss and wasted energy. Further, it has low pressure drop and no rough surfaces or interior restrictions that accumulate contaminants. The smooth interior with full bore design allows them to flow to your dryers and filters for efficient removal.

Factory-trained Sales and Service

Kaeser is committed to providing the best after-sales service in the industry through our factory-trained, national distribution network. We have implemented the Kaeser Factory Certified Training (KFaCT) program to ensure the highest standards in local service.

KFaCT incorporates information on system basics, air system installation, maintenance, troubleshooting, and air treatment.

Kaeser Factory Certified Training

KFaCT

Master Certified



Kaeser's training program was developed in conjunction with standards from the Department of Energy's Compressed Air Challenge and the Compressed Air and Gas Institute and includes non-Kaeser training materials to give technicians quality, unbiased education in compressed air systems.

Kaeser Compressed Air Seminars

Kaeser's Compressed Air Seminars are designed to provide helpful information for air system specifiers and end users. These seminars are available on both general and industry specific levels, depending on the customer's need.

Focused on system design with an emphasis on reliability and energy efficiency, Kaeser's seminars are intended for plant engineers and maintenance

managers. Topics include installation considerations, system audits, and suggestions for preventive maintenance.

Kaeser also offers Service Schools designed specifically for existing Kaeser owners to train users on preventive maintenance, troubleshooting, and repair. Each seminar is tailored to meet the customers' needs and includes classroom lectures and hands-on training. Our schools are conducted at our training facility or on-site at the customer's facility.



Kaeser Credentials

- Our System Design and Engineering Department includes DOE-certified AirMaster Plus specialists.
- We support the Compressed Air Challenge initiative to train industrial users in air system "best practices".
- We were early advocates of the Compressed Air & Gas Institute's initiative to develop a standardized compressor performance data sheet ... and to encourage other manufacturers to accurately assess the specific power consumption of their equipment.
- We are ISO 9001:2008 and ISO 14001:2004 certified and are committed to continually improving our efficiency without compromising our quality.



Certified Management Systems



Technical Specifications

Rotary Screw Compressors

SX Series



Model	Capacity at Operating Pressure (cfm)		
	125 psig	160 psig	217 psig
SX 3	12	9.2	—
SX 4	16	13	9
SX 5	21	17	13
SX 7.5	28	24	19

SM Series



Model	Capacity at Operating Pressure (cfm)		
	125 psig	160 psig	217 psig
SM 7.5	32	27	19
SM 10	42	35	27
SM 15	53	44	34

SK Series



Model	Capacity at Operating Pressure (cfm)		
	125 psig	160 psig	217 psig
SK 15	71	59	46
SK 20	88	77	63

AS Series



Model	Capacity at Operating Pressure (cfm)		
	125 psig	160 psig	217 psig
AS 20	99	85	64
AS 25	120	102	85
AS 30	141	122	100

ASD Series



Model	Capacity at Operating Pressure (cfm)		
	125 psig	175 psig	217 psig
ASD 25	112	—	—
ASD 30	132	110	—
ASD 40S	162	127	106
ASD 40	191	159	123

BSD Series



Model	Capacity at Operating Pressure (cfm)		
	125 psig	175 psig	217 psig
BSD 40	193	161	—
BSD 50	236	190	157
BSD 60	288	230	185

CSD Series



Model	Capacity at Operating Pressure (cfm)		
	125 psig	175 psig	217 psig
CSD 60	290	232	186
CSD 75	345	283	226
CSD 100S	417	340	276
CSD 100	494	410	332
CSD 125	565	480	399

DSD Series



Model	Capacity at Operating Pressure (cfm)		
	125 psig	175 psig	217 psig
DSD 125	569	424	—
DSD 150	671	544	—
DSD 175	660	636	526
DSD 200	862	639	530
DSD 250	1003	837	615

ESD Series



Model	Capacity at Operating Pressure (cfm)		
	125 psig	175 psig	217 psig
ESD 250	1261	978	816
ESD 300	1501	1236	957

FSD Series



Model	Capacity at Operating Pressure (cfm)		
	125 psig	175 psig	217 psig
FSD 350	1522	1271	—
FSD 400*	1744	—	—
FSD 450	1990	1497	1250

* FSD 400: Maximum with this airtend is 145 psig

HSD Series



Model	Capacity at Operating Pressure (cfm)		
	125 psig	175 psig	217 psig
HSD 500	2264	1815	—
HSD 550	2521	1956	1632
HSD 600	2762	2214	1773
HSD 650	3002	2472	1914

Variable Frequency Drive

SFC



Model	Capacity at 460V* at Operating Pressure (cfm)			
	Min / Max	110 psig	125 psig	145 psig**
SFC 8	MIN	13	12	13
	MAX	48	48	42
SFC 11	MIN	22	22	22
	MAX	76	72	65
SFC 15	MIN	29	28	30
	MAX	102	95	86
SFC 18S	MIN	33	33	28
	MAX	127	119	111
SFC 22S	MIN	33	33	28
	MAX	149	141	131
SFC 22	MIN	36	36	—
	MAX	162	153	—
SFC 30S	MIN	37	37	35
	MAX	182	171	160
SFC 30	MIN	46	47	49
	MAX	213	202	188
SFC 37	MIN	54	54	43
	MAX	254	240	220
SFC 45S	MIN	69	69	53
	MAX	288	273	250
SFC 45	MIN	69	69	52
	MAX	310	295	262
SFC 55	MIN	77	76	67
	MAX	374	357	320
SFC 75S	MIN	100	100	72
	MAX	463	441	383
SFC 90S	MIN	120	118	99
	MAX	509	484	438
SFC 110S	MIN	136	134	116
	MAX	618	588	531
SFC 75	MIN	127	126	—
	MAX	559	528	—
SFC 90	MIN	127	126	125
	MAX	627	595	547
SFC 110	MIN	150	147	141
	MAX	735	692	629
SFC 132S	MIN	209	208	279
	MAX	830	781	706
SFC 132	MIN	209	208	279
	MAX	919	867	788
SFC 160	MIN	230	226	198
	MAX	1074	1017	929
SFC 200	MIN	303	300	227
	MAX	1305	1240	1091
SFC 250	MIN	358	357	294
	MAX	1466	1384	1271
SFC 315	MIN	470	466	346
	MAX	2091	1988	1769
SFC 410	MIN	413	410	346
	MAX	2624	2525	2264
SFC 515	MIN	417	353	346
	MAX	3037	2633	2543

***Performance data values are only valid for 460V/3 ph/ 60 Hz.
Please consult Kaeser for 575V data.**

****Higher pressures are available.**

For more information see our SFC brochures - USSFC-BELT, USSFC30S110S, and USSFC75-515

Specifications are subject to change without notice.

The Air Systems Specialist

We earn our customers' business by supplying superior quality equipment and services. Our products are designed for reliable performance, easy maintenance, and energy efficiency. Prompt and dependable customer service, quality assurance, training, and engineering support contribute to the value our customers have come to expect from Kaeser. Our employees are committed to implementing and maintaining the highest standards of quality to merit customer satisfaction. We aim for excellence in everything we do.

Our engineers continue to refine manufacturing techniques and take full advantage of the newest machining innovations. Extensive commitment to research and development keeps our products on the leading edge of technology to benefit our customers. Our industry-leading controls continue to set the standard for efficient system operation. With over 90 years of experience, Kaeser is the air systems specialist.

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Certified Management Systems



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CAGI Certified Performance

Our compressors' energy efficiency has been tested and confirmed by an independent laboratory as part of the Compressed Air and Gas Institute's Rotary Screw Compressor Performance Verification Program. CAGI data sheets for our screw compressor units can be found at www.kaeser.com/cagi

