

Sigma Frequency Control

SFC Series 8 - 22S

Capabilities from: 10 to 164 cfm

Pressures from: 80 to 217 psig



SFC 8 - 22S

Variable speed technology from Kaeser

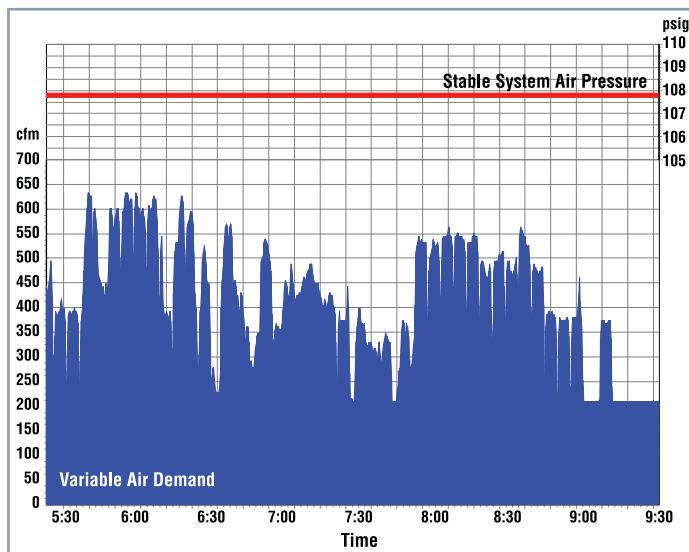
Kaeser Compressors' SFC 8-22S rotary screw compressors are the perfect solution for smaller compressed air systems with varying air demand. Using cutting edge Siemens drive technology, these Sigma Frequency Control (SFC) units are able to meet varying demand while maintaining stable pressure. The result is exceptional reliability and superior energy efficiency. As a matter of fact, these units are up to 18% more efficient than the competition.

Meeting varying loads

Most compressed air systems have varying loads and it is often more effective and efficient to apply multiple compressors to meet changing demand. In cases where the demand profile changes rapidly and frequently, variable frequency drive compressors may also be recommended. By varying the frequency of the input electricity to the motor, these compressors speed up and slow down to match their air output to your demand.

Precise pressure control

Kaeser's SFC design includes highly accurate sensors to maintain stable pressure (± 2 psig), without wasting air by over-pressurizing the system (see Graph 1). This also increases reliability and product quality in your plant.



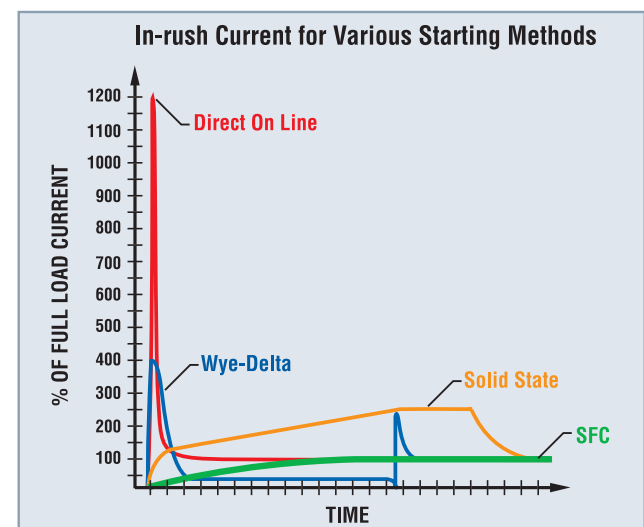
Graph 1

Superior part-load performance

Kaeser's SFC units have superior part-load performance and make great trim load machines. They can be easily integrated into a multi-compressor system to provide faster response to variations in air consumption. At the same time, they can reduce electricity costs since their electrical consumption varies directly with air production.

The ultimate soft start

Our frequency drives are the ultimate soft starter for your motor using the lowest start-up current (see Graph 2). They eliminate heat spikes in motor windings, allowing unlimited motor starts. Of course, frequency drives usually have fewer starts/stops, which means less frequent loading and unloading, for less wear and tear on important mechanical parts.



Graph 2



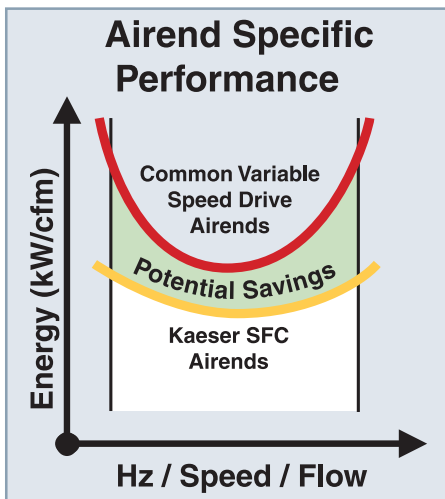
Designed for Reliability, Simplicity, and Performance



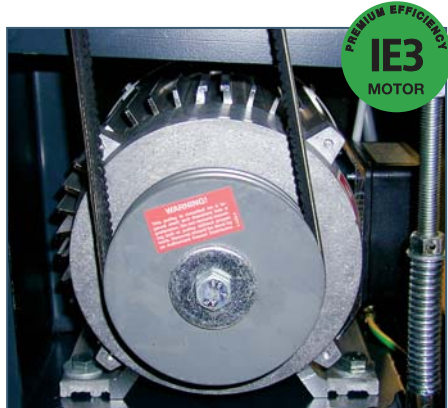
Sigma Profile™ air end

Our single-stage, fluid-cooled rotary screw air end delivers pressures up to 217 psig and features our power saving Sigma Profile design. Our air ends are precision machined and optimized in size and profile to match the air end speeds with their best specific performance. Unlike the competition, Kaeser Compressors makes many different air ends so that we can apply them at their optimal speed and performance.

See Graph 3.



Graph 3



TEFC motor with reduced voltage starter

Premium-efficiency, totally enclosed, fan cooled (TEFC) motors with Class F insulation provide long life in harsh environments. The motors are manufactured by Siemens so they can be best paired with the Siemens drive technology. 460 or 575 V, 3-phase, 60 Hz is standard. Other voltages are available.

Belt drive with automatic tensioning

A ribbed single belt drive efficiently transfers power from motor to air end. Units also feature our unique automatic tensioning device that maintains proper tension to maximize energy efficiency, prolong belt life, and simplify routine maintenance. The belt tension can easily be verified through a window in the service panel.



Sigma Control™ Basic

A 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 10).

Efficient separator system

A three-stage separator (ASME or CRN) combines centrifugal action and a 2-stage coalescing filter to reduce fluid carry over to 2 ppm or less. Quick release fittings, drain and fill ports are arranged for fast and easy fluid changes from sump and cooler without any pumping device. The easy-to-read fluid level indicator can be safely checked through a window in the service panel while the compressor is running.





Superior cooling fans

Our cooling fan design increases air flow through the unit while reducing overall power requirements and sound levels. It also ensures the unit can safely operate even under severe operating conditions.

High-efficiency coolers with filter mat

Conveniently located on the outside of the unit, our standard high-efficiency coolers provide maximum cooling resulting in exceptionally low approach



temperatures for more moisture separation at the compressor discharge and better air quality. A filter mat simplifies cooler maintenance. Dirt and dust build up on the outside of the filter, where it is easily seen and removed. This extends cooler service intervals and increases thermal reserve for harsher conditions.



Fluid cooling system

Units are filled with Kaeser Premium Fluid to cool, clean, and lubricate the airend. A thermostatically controlled combination valve ensures perfect fluid temperature regulation and incorporates a cooler by-pass and spin-on fluid filter. Main air and fluid lines are made of rigid pipe with flexible connections. A 10 micron spin-on fluid filter extends fluid life and protects the airend and is within easy reach of the front cover.

Enclosure

Our superior cabinet design reduces noise and footprint while offering easy access for service. A heavy-duty metal enclosure with a durable powder-coated finish keeps noise in but dirt and dust out. Thick sound insulation keeps sound levels as low as 68 dB(A), up to 10 dB(A) quieter than comparable units.

Lockable panels provide easy access to all maintenance items. Electrical components are housed in a spacious, ventilated control cabinet. Wiring is neatly arranged and terminals are clearly identified.

Internal and external vibration isolators eliminate stress on piping and wire connections, further increasing reliability.

Parallel cooling design

Two separate cooling air inlet zones for the coolers and drive motor ensure optimum cooling. Drawing ambient air directly across the coolers and motor through separate zones eliminates pre-heating 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. Top exhaust allows for easy heat recovery and reduces the system footprint.



SFC 8 - 22S units can be installed in a corner and still provide easy access for maintenance.

SFC Drive Features

- Operates across a very wide range of flow (20 -100%) while maintaining a safe operating temperature.
- Dedicated drive cabinet cooling fans for better ventilation and reliability, even in extreme conditions.
- Electromagnetic interference (EMI) filters are used to mitigate feedback and electrical noise that can be induced into the plant electrical grid.
- Safety features prevent the motor from unintentionally starting. When the unit is switched off or the emergency stop is pushed, all power is cut to the motor.
- Shielded motor cables reduce electromagnetic radiation that may affect other electrical devices.
- Siemens drives for the latest technology, reliability, world wide support, and easy integration into system controls.



Service-friendly Design

The SFC 8 - 22S 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.

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.



Ease of Maintenance

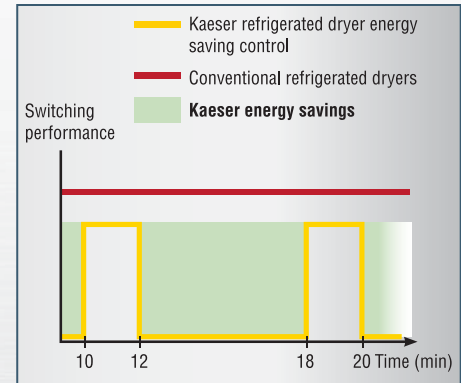
- 1** Easy single panel access for routine service
- 2** Maintenance reminders on controller
- 3** Single piece, multi-ribbed belt with an automatic tensioner
- 4** Spin-on 10 micron fluid filter
- 5** Cartridge style 1 micron inlet filter
- 6** Quick fluid change system with drain hose
- 7** Side panel windows to view fluid level and test the auto drain (on T versions and AirCenters)
- 8** Cleanable filter mat on coolers (not shown)



Integrated Dryer Option

Premium compressed air quality

The integrated dryer is perfectly sized for the full flow of the compressor. The dryer is located in a separate cabinet so it is not exposed to preheated air or contaminants from the compressor package.



Energy-saving control

The integrated refrigerated dryer in Kaeser units provides high efficiency performance thanks to its energy-saving control. The dryer is active only when compressed air actually needs to be dried. This approach achieves the required compressed air quality with maximum efficiency.

Superior heat exchanger

The dryer's heat exchanger is corrosion and contamination-resistant. The superior design ensures excellent heat transfer characteristics with exceptionally low pressure drop, for the best in reliable, energy efficient operation.



Eco-Drain

The integrated refrigerated dryer also features a zero loss Eco-Drain. The advanced level-controlled condensate drain eliminates the compressed air losses associated with solenoid valve control. This saves energy and considerably enhances the reliability of the compressed air supply.

Reliable moisture separation

The moisture separator reliably removes the accumulating condensate from the air, even with fluctuating airflow. Kaeser's no maintenance design ensures condensate is separated without adding pressure drop.

Complete Compressed Air Systems

Life Just Got Easier

Kaeser offers two series of all-in-one designs with our built-for-a-lifetime™ quality, reliability, and efficiency. Our SFC 8-15 models are available in these space-saving packages designed to make installation a snap.



The AirCenter™

To simplify your compressed air system, Kaeser offers the AirCenter. This factory-built unit combines essential system components in one easy-to-install package. AirCenters come completely assembled and include a refrigerated dryer with automatic condensate drain, receiver tank, and an optional filtration package. The small footprint and super quiet operation let you place the system almost anywhere, while the energy efficiency, easy maintenance, and Kaeser durability offer the lowest possible life cycle cost.

Enhanced Communications Option

Intelligent control and protection



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

monitors more than 20 critical operating parameters, shuts the unit down to prevent damage, and signals if immediate service is required. It also tracks preventive maintenance intervals and provides notice when PMs are due. An RFID sensor provides secure access and simplifies managing maintenance intervals. An SD card slot with included SD card enables fast, easy software updates, storing key operational parameters, and offers long-term data storage for analyzing energy consumption and compressor operation.

Sigma Control 2 has superior communications capabilities. An Ethernet port and built-in web-server enable 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.

See our Sigma Control 2 brochure for more information.

Heat Recovery Ready

The next level of energy savings

The rise in energy prices is an unwelcome reality in today's manufacturing and business environment. While the rate of price increases for natural gas, heating oil, and other sources may vary from year to year, the upward trajectory is clear. Energy cost reduction strategies are vital to staying competitive.

Compressing air converts the electrical energy you pay for into heat. Our compressors are available with a heat recovery option to easily recover up to 76% of this energy. You can harness additional heat recovery by ducting exhaust air. In all, 96% of input energy is recovered as heat.

Heat recovery can also be incorporated by tapping into the thermal energy

of a rotary screw compressor's cooling fluid circuit. The recovered heat can be used to warm process water, service water, and other fluids.

When you consider that a 30 hp compressor running full time at 7 cents/kWh uses over \$22,500 per year in energy, the potential savings and benefits are significant.

The SFC 8-22S units can come ready to be connected to external (SFC 8-15) or internal (SFC 18S and 22S) stainless steel plate type heat exchangers.

For additional information on heat recovery, see our whitepaper "Turning Air Compressors into an Energy Source".



Technical Specifications

Model	Pressure Range (1) (psig)	*Capacity for 460V (2) (cfm)		Rated Motor Power (hp)	Dimensions L x W x H (in.)	Weight (3) (lb.)	Sound Level (4) (dB(A))
		Min	Max				
SFC 8 SFC 8T	110	13	48	10	24¾ x 30 x 43¾ 24¾ x 42¼ x 43¾	460 650	68
	125	12	48				
SFC 11 SFC 11T	110	22	76	15	29½ x 35¼ x 49⅝ 29½ x 48⅞ x 49⅝	725 891	68
	125	22	72				
SFC 15 SFC 15T	110	29	102	20	29½ x 48⅞ x 49⅝	743 908	69
	125	28	95				
SFC 18S SFC 18ST	110	33	127	25	31½ x 43¾ x 60¼ 31½ x 57½ x 60¼	1169 1378	70
	125	33	119				
SFC 22S SFC 22ST	110	33	149	30	31½ x 43¾ x 60¼ 31½ x 57½ x 60¼	1213 1422	72
	125	33	141				

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

(1) Other pressures available from 80 to 217 psig. (2) Performance rated in accordance with ISO 1217, Annex E test code. (3) Weights may vary slightly depending on airend model. (4) Per ISO 2151 using ISO 9614-2.

Specifications are subject to change without notice.

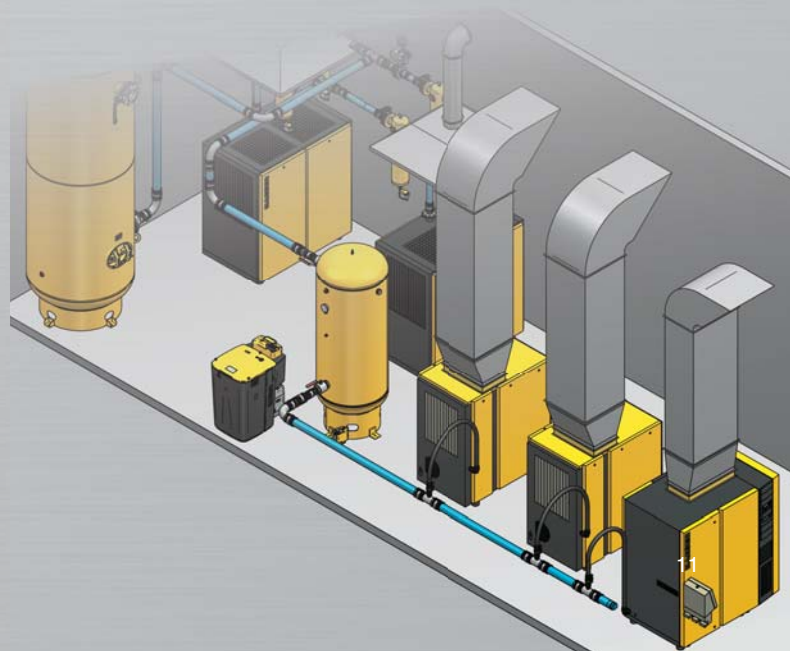
Compressed Air System Design

Analysis that goes well beyond the basics

Using our Air Demand Analysis (ADA) and Kaeser Energy Saving System (KESS) we can evaluate your existing installation and identify solutions that will achieve the greatest efficiency without compromising pressure/flow requirements or system reliability.

From complex installations, to challenging environments, to limited space, Kaeser can design a system to meet your specific requirements for performance and reliability.

Kaeser's CAD drawings help visualize new equipment and how it will fit into the building along with existing equipment, piping, walls, vents, etc. This facilitates installation planning.



Built for a lifetime.™

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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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

