

Sigma Frequency Control

SFC Series 8 to 18ST

Capacities: from 10 to 113 cfm

Pressures: from 80 to 217 psig



Variable Speed Technology from Kaeser

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 more rapidly and frequently, variable frequency drive (AKA variable speed) 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.

Superior part-load performance

Kaeser's Sigma Frequency Control (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 1). 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.

Precise pressure control

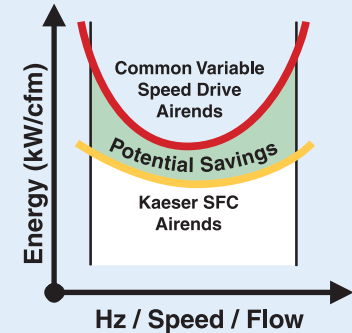
Kaeser's SFC design includes highly accurate sensors to maintain stable pressure (± 2 psig), without wasting air by over pressurizing the air system. This also increases reliability and product quality in your plant.

Sigma Profile™ Airend

Kaeser's single-stage, flooded rotary screw airend with the power-saving Sigma Profile is optimized for variable speed operation over a wide range of flows. Kaeser makes a variety of airends so each machine is matched with the best one for optimized efficiency. See graph 2.

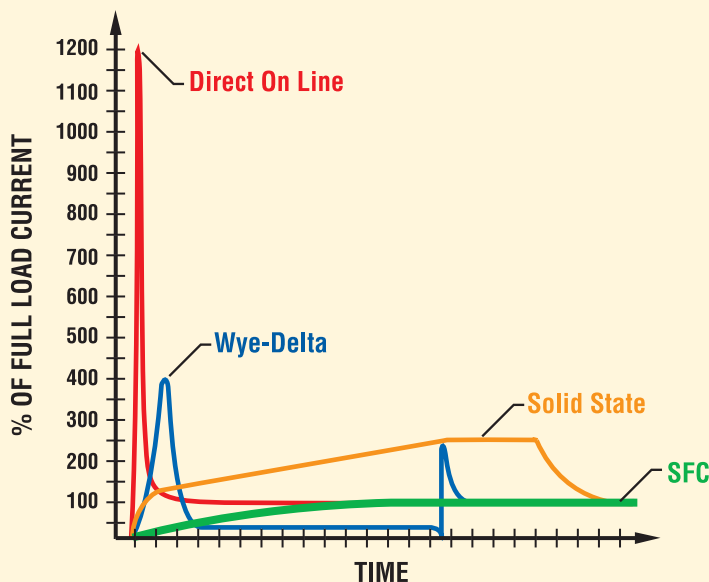


Airend Specific Performance



Graph 2

Comparison of In-rush Current for Various Starting Methods



Graph 1

Belt Drive with Automatic Tensioning



A ribbed single belt drive efficiently transfers power from motor to airend. Our unique automatic tensioning device 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.

SFC Series



TEFC Motor with Reduced Voltage Starter

Premium-efficiency, totally enclosed, fan cooled (TEFC) motors with Class F insulation are standard for long life in harsh environments. Tri-voltage 208-230/460 V, 3-phase, 60 Hz is standard. Other voltages are available. Magnetic Wye-Delta reduced voltage starters ensure low starting current and smooth acceleration.



Important SFC Drive Features

- Operate across a very wide range of flow (20 -100%) without the typical cooling problems that some variable frequency units have.
- Dedicated drive cabinet cooling fans for better ventilation and reliability, even in extreme conditions.
- Electromagnetic interference (EMI) filters that eliminate or isolate all feedback and reduce the harmonic distortion entering the plant's electrical grid.
- Galvanic isolation between the power source and the drive ensures safety. When the unit is switched off or the emergency stop is pushed, all power is cut to the drive, however control logic is still maintained.
- 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.

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.

Optimized Air Flow Design

Air is drawn into separate cooling zones for the drive motor and coolers. This “split cooling” design eliminates pre-heating, increasing cooling efficiency without increasing power consumption. Cooler temperatures also promote longer lubricant and motor life. Cooling air is exhausted through a single port at the top of the cabinet. Ducting this air enables heat recovery and further reduces noise.

Air for compression enters through a separate grill on the right side of the cabinet. It is then filtered through a two-stage air intake filter. This filter protects the airend and extends fluid change intervals.



→ Fresh cooling air

→ Recirculated air

→ Exhaust air

Cooling Fan

A powerful axial double-flow fan draws cool ambient air through the coolers. It's high static pressure makes it ideally suited for ducting and heat recovery applications.

The fan is extremely quiet and consumes less power than conventional fans, providing additional energy savings.



High-Efficiency Coolers with Filter Mat

Conveniently located on the outside of the unit, our standard high-efficiency coolers provide



maximum cooling resulting in approach temperatures as low as 11°F 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.

Inlet Filter

We protect our compressors with a two-stage, 1 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.

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 checked without opening or stopping the compressor through a window in the service panel.



Solid Construction

Kaeser compressors are constructed with solid steel base frames and floors. The airend/motor drive module and separator tank are each mounted on large vibration isolation mounts to eliminate all strain on piping and wiring. All of our compressors have full sheet metal enclosures with durable powder coat finishes and dense polymer foam insulation to provide safety and protect components from dirty environments. Unit also features hinged and gasketed access doors as well as removable rear and side cabinet panels for easy service access.

Extremely Quiet

Kaeser integrates several design features to make our compressors extremely quiet. The low-noise radial fan, insulated cabinet, and split cooling air-flow design considerably reduce noise generated. With sound levels as low as 68 dB(A), the SFC is nearly 10 dB(A) quieter than comparable compressors.

Technical Specifications

Model	Nominal Motor (hp)	Pressure ⁽¹⁾ (psig)	*Capacity for 460V ⁽²⁾ (cfm)		Dimensions L x W x H (in.)	Weight ⁽³⁾ (lb.)	Sound Level ⁽⁴⁾ (db(A))
			Min	Max			
SFC 8	10	110	13	48	24¾ x 30 x 43¾	460	68
SFC 8T		125	12	48	24¾ x 42¼ x 43¾	650	
SFC 11	15	110	22	76	29½ x 35 ¼ x 49⅝	725	68
SFC 11T		125	22	72		891	
SFC 15	20	110	29	98	29½ x 48⅞ x 49⅝	743	69
SFC 15T		125	28	95		908	
SFC 18S	25	110	33	113	44½ x 35½ 49½	940	70
SFC 18ST		125	33	113	58¼ x 35½ 49½	1100	

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

Options

Integrated Refrigerated Dryer (T models)

SFC models 8 through 18S are available with a fully integrated refrigerated dryer sized to produce a consistent dew point at full flow. The dryer compartment is completely isolated from the air compressor. Forced air cooling with low flow resistance and a dedicated fan ensure reliable performance and the top side exhaust design supports efficient heat recovery. The internal heat exchangers are stainless steel for long life. All cold surfaces are insulated and only CFC-free R134a refrigerant is used. Power is wired from the main control cabinet and service points are easily accessible.



T models include high efficiency moisture separators with stainless steel cores for long life and no maintenance. They are equipped with the Eco-Drain to automatically remove condensate without wasting valuable compressed air. Eco-Drain's aluminum housing and patented valve technology ensure many years of reliable service.

AirCenter™

You have enough to do without designing and then installing a new compressed air system. To help keep things simple, SFC 8 through 18S are also available as AirCenters. These are complete compressed air systems with compressor, tank, drain, and air treatment. They arrive completely assembled, piped, wired, and ready for installation - simply make your utility connections and you're ready for operation. They save floor space and our integrated design makes installation easy and inexpensive. Kaeser AirCenters are the answer to many challenges. 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.



Options *continued*

Sigma Control 2™

Intelligent Control and Protection

For the ultimate protection of your investment and to ensure the most efficient operation possible, we offer our Sigma Control 2™ as an option. The Sigma Control 2 works with the SFC drive system to efficiently adjust compressed air output to fluctuating demand. System pressure is maintained ± 2 psig without sacrificing efficiency. 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 maintenance.

Sigma Control 2 has superior communications capabilities. An Ethernet port and built-in web server enable remote monitoring. ModBus, 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 details.



Online Utility Rebate Finder

Many utilities offer financial incentives to improve compressed air system energy efficiency.

Visit www.kaeser.com/rebates to see a comprehensive database of utility incentives for compressed air and other industrial equipment.

Heat Recovery

Compressing air converts the electrical energy you buy into heat. Kaeser compressors can be easily adapted for heat recovery to achieve even greater energy savings.



KAESER COMPRESSORS

Built for a lifetime.™

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