

**KAESER**  
COMPRESSORS®

*Built for a lifetime.*



# SIGMA FREQUENCY CONTROL

## SFC Series 18 - 45S

Capacities from: 31 to 290 cfm

Pressures from: 80 to 217 psig

[kaeser.com](http://kaeser.com)

# SFC 18 - 45S

## Variable Speed Technology from KAESER

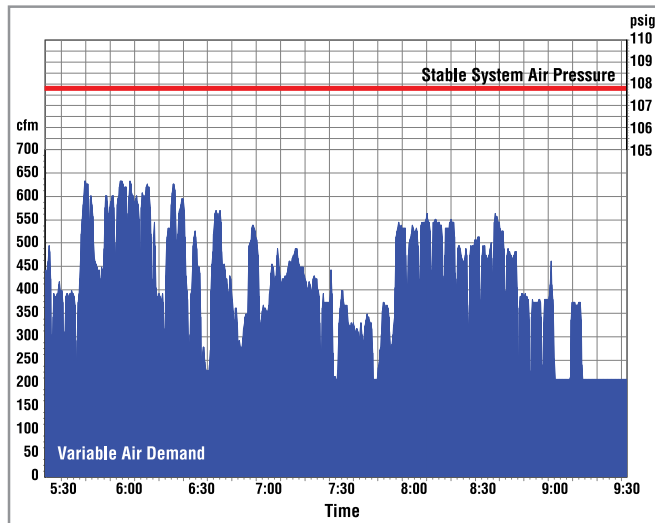
Variable speed drive compressors are one of several strategies to reduce energy consumption in compressed air production, and KAESER COMPRESSORS has pushed the boundaries of compressed air efficiency once again with the latest generation of SIGMA FREQUENCY CONTROL (SFC) rotary screw compressors. Our SFC 18-45S models feature the latest generation of airends optimized for maximum performance over a wider range of flows at multiple pressure levels. Using IE4 super premium motors in combination with advanced and proven drive technology, we achieve the highest IES2 efficiency. These units are up to 25% 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 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 ( $\pm 1.5$  psig), without wasting air by over pressurizing the system (see Graph 1). This also increases reliability of pneumatic equipment and improves product quality.



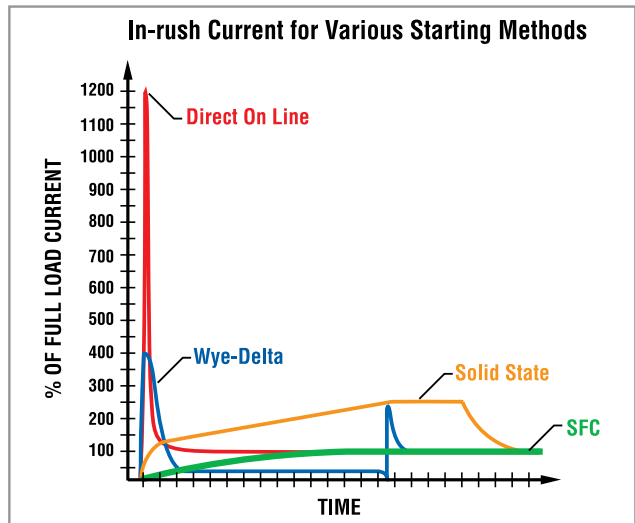
Graph 1

### 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 2). They eliminate heat spikes in motor windings, and have less frequent loading and unloading, for less wear and tear on important mechanical parts.



Graph 2

**KAESER**

**SFC 37**

**SIGMA** 

**SFC** 



# Reliability, Simplicity, and Performance

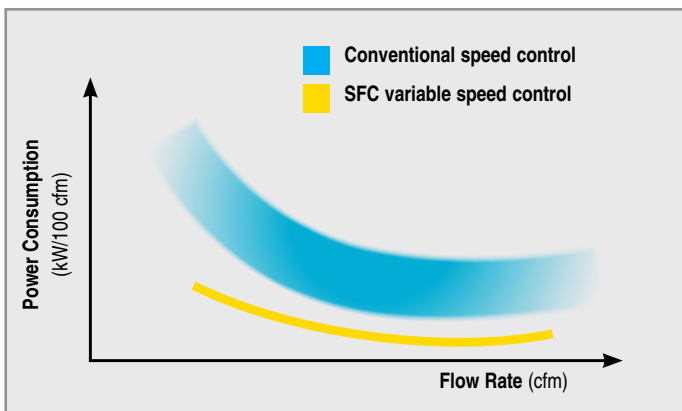


## SIGMA PROFILE® Aired

Our single-stage, fluid cooled rotary screw airend delivers pressures up to 217 psig and features our power saving SIGMA PROFILE design. Our airends are precision machined and optimized in size and profile to match the airend speeds with their best specific performance.

## Premium efficiency motor

SFC models feature premium efficiency Totally Enclosed Fan Cooled (TEFC) motors with class F insulation for extra protection from heat and contaminants. SFC units operate on 460 or 575 V, 3-phase, 60 Hz. Other voltages are available.



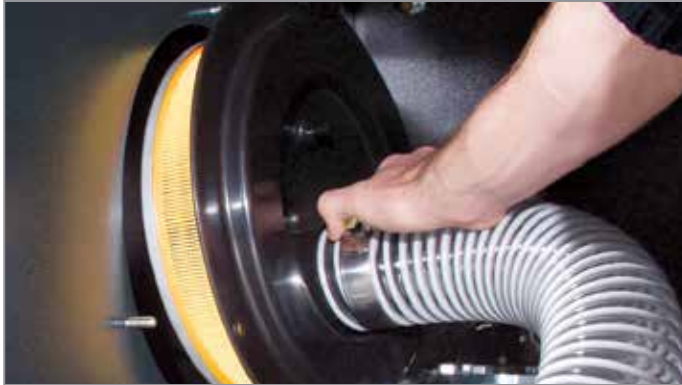
## Higher efficiency at all pressures

A variable speed screw compressor should be the most frequently loaded unit in a properly designed system. Each is optimized to deliver significantly more air with lower kW than comparable compressors.

## 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 are available at [www.kaeser.com/cagi](http://www.kaeser.com/cagi)





### **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 is easily accessed and may be cleaned several times before replacement.



### **Integral moisture separator**

A moisture separator is integrated into the stainless steel discharge piping. Our unique design maximizes separation with minimal pressure loss. A zero loss Eco-Drain automatically removes captured moisture without the compressed air losses associated with solenoid valve drains. This saves energy and improves air quality.



### **Electronic Thermal Management system**

Our innovative Electronic Thermal Management system dynamically regulates fluid temperature to avoid internal condensation, eliminating a common cause of lubricant degradation. It ensures a lower, stable operating temperature which extends airend and cooler life and increases energy efficiency. The ETM has an adjustable temperature setting making it perfectly suited for heat recovery applications.



### **Fluid separation system**

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

# Intelligent control and protection

To protect your investment and ensure the most efficient operation possible, we control our compressors with our SIGMA CONTROL<sup>®</sup> 2. This intelligent controller comes standard with multiple pre-programmed control profiles so you can select the one that best fits your application.

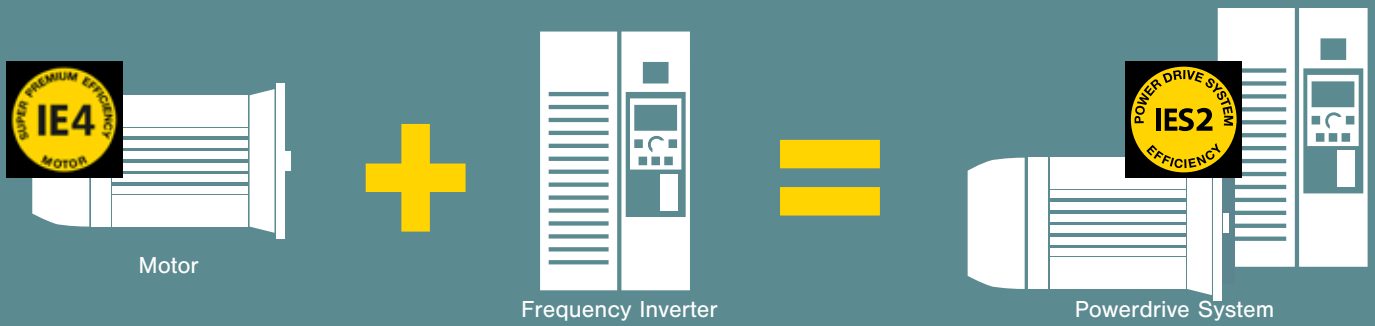
SIGMA CONTROL 2 has superior external communications capabilities. An Ethernet port and built-in web-server allow easy remote monitoring. EtherNet/IP, Modbus, Profinet<sup>®</sup>, Profibus<sup>®</sup>, DeviceNet<sup>™</sup>, and other industrial communications interfaces are also available as plug-in options for seamless integration into plant control/monitoring systems.



## Condition monitoring and protection

SIGMA CONTROL 2 tracks preventive maintenance intervals, and provides notice when preventive maintenance is due. The controller also monitors more than 20 critical operating parameters such as motor windings, cooling fluid, inlet and discharge temperatures. If the compressor is operating outside design limits, the controller will shut the unit down to prevent damage and signal if immediate service is required.

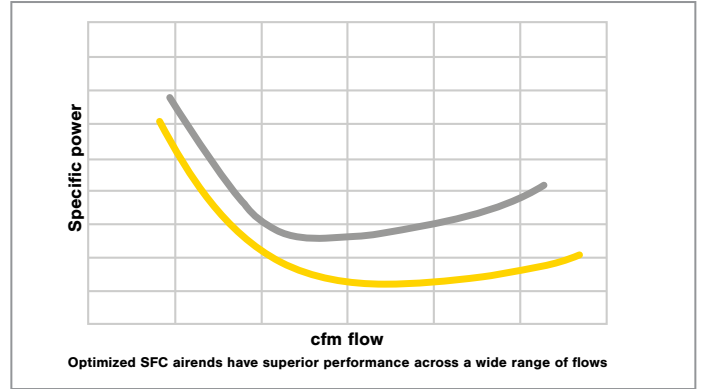
Maintenance reminders and alerts are plainly visible on the screen and may be sent automatically to you or your service provider if you make use of the external communications capability. Alerts and conditions are stored long term in the built-in SD card. Storing this operating data aids in troubleshooting, as well as analyzing energy consumption.



KAESER selects motors with optimally matched frequency converters in order to guarantee perfect interplay for the highest level of system efficiency. Our IE4 super premium motors are specifically selected for operation with variable frequency control and meet the highest efficiency class under IEC 600034-30-2. In combination with advanced and proven drive technology, we achieve IES2, the top level power drive efficiency in accordance with IEC 618009-2.



KAESER SFC 18 to 45S compressors are driven by synchronous reluctance motors that generate less heat, have lower internal temperatures, longer life and higher efficiency.



For each pressure range, our airends deliver more air than comparable units. These lower, flatter performance curves mean lower power consumption across the full range of flow.



# Superior cooling design

Proper cooling is vital to compressor function and longevity. Our design draws ambient air directly across the coolers and motor through two separate zones. This eliminates pre-heating and results in longer lubricant life and a cooler running motor. It also improves moisture separation to improve air quality. The SIGMA CONTROL 2 monitors and controls the ETM to maintain optimal running temperatures to avoid overheating and reduce condensate formation in the fluid circuit.

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 removed without any disassembly.



A powerful radial fan pulls air through the coolers and effectively cools the motor even under severe operating conditions.

Top exhaust allows for easy heat recovery and reduces the system footprint.

## Drive Cabinet

In general, the electronics in frequency drive compressors are more sensitive and susceptible to environmental conditions. KAESER SFC compressors feature temperature controlled electrical cabinets with dedicated cooling fans and protection from dirt and dust.



## Low sound and vibration

We feature complete metal enclosures with sound proofing liners and heavy-duty vibration isolation. Our airflow design with radial fans and top discharge greatly reduces noise – up to 10 dB(A) quieter than comparable compressors.



# Service-friendly design

These SFC 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. For installations where space is limited, both the front and back doors of the package fully swing out and each door can also be removed.

SIGMA CONTROL 2 signals when PM is due

Easy access inlet air filter requires no special tools for servicing

Eco-friendly fluid filter element safe for thermal disposal

Generously sized doors fully swing out or are easily removable

Double vibration isolation ensures wiring and fluid connections stay tight.



Coolers are easily cleaned

Separator design allows fast, complete fluid changes

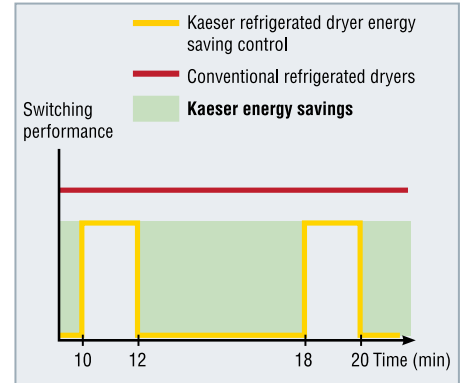
Fluid fill port conveniently placed

Fluid level easy to check

# Integrated Dryer Option

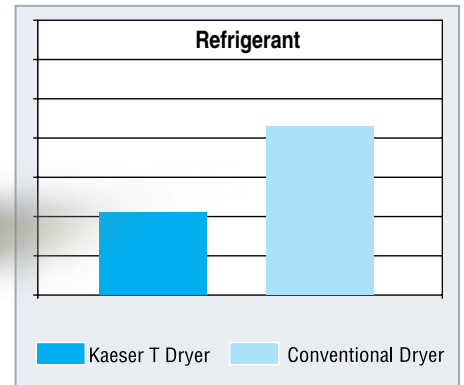
## Premium compressed air quality

SFC 18-45S models are available with an integrated refrigerated dryer. 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.



### Climate friendly design

In addition to energy saving controls, our integrated dryers feature the new R-513A refrigerant with 56% lower global warming potential than common dryer refrigerants. Combined with our advanced heat exchanger design, we need only half the refrigerant – resulting in the most climate friendly dryer possible.



### Refrigerated dryer with Eco-Drain

The refrigerated dryer also features a zero loss Eco-Drain which is monitored by the SIGMA CONTROL 2. 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.

# Technical Specifications

## for Air-Cooled Units

Model	Pressure Range <sup>(1)</sup> (psig)	*Capacity for 460V <sup>(2)</sup> (cfm)		Rated Motor Power (hp)	Dimensions W x D x H (in.)	Weight <sup>(3)</sup> (lb.)	Sound Level <sup>(4)</sup> (dB(A))	
		Min	Max					
SFC 18 SFC 18T	110	31	141	25	60 <sup>5</sup> / <sub>8</sub> x 35 <sup>3</sup> / <sub>8</sub> x 60 <sup>1</sup> / <sub>4</sub> 72 <sup>1</sup> / <sub>8</sub> x 35 <sup>3</sup> / <sub>8</sub> x 60 <sup>1</sup> / <sub>4</sub>	1543	68	
	125	31	134			1753		
SFC 22 SFC 22T	110	37	163	30		1565	69	
	125	37	154			1775		
SFC 30S SFC 30ST	110	38	185	40		1669	69	
	125	37	174			1878		
SFC 30 SFC 30T	110	46	217	40		1753	70	
	125	48	206			1962		
SFC 37 SFC 37T	110	54	262	50		65 <sup>1</sup> / <sub>2</sub> x 40 <sup>1</sup> / <sub>2</sub> x 66 <sup>7</sup> / <sub>8</sub> 81 <sup>1</sup> / <sub>4</sub> x 40 <sup>1</sup> / <sub>2</sub> x 66 <sup>7</sup> / <sub>8</sub>	2249	74
	125	54	248				2535	
SFC 45S SFC 45ST	110	69	290	60	2315		74	
	125	69	275		2601			

**\*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.

SFC 37-45S compressors are available water-cooled with stainless steel, plate type heat exchangers as standard equipment. Shell and tube heat exchangers are available on request.

**Specifications are subject to change without notice.**

# The world is our home

As one of the world's largest compressed air systems providers and compressor manufacturers, KAESER COMPRESSORS is represented throughout the world by a comprehensive network of branches, subsidiary companies and factory trained partners.

With innovative products and services, KAESER COMPRESSORS' experienced consultants and engineers help customers to enhance their competitive edge by working in close partnership to develop progressive system concepts that continuously push the boundaries of performance and compressed air efficiency. Every KAESER customer benefits from the decades of knowledge and experience gained from hundreds of thousands of installations worldwide and over ten thousand formal compressed air system audits.

These advantages, coupled with KAESER's worldwide service organization, ensure that our compressed air products and systems deliver superior performance with maximum uptime.



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