KAESER COMPRESSORS®

Built for a lifetime.

Compressed Air System Control

Flow Controller

Capacities from 1000 to 15,000 cfm

kaeser.com

Flow Controller

The benefits of stable pressure

The flow controller is an intermediate regulating device installed between the air system supply and the distribution network. When combined with proper storage it rapidly responds to changes in demand and ensures stable air pressure to all points of use throughout your facility for higher production rates, reduced maintenance costs, and significant energy savings.

The impact of artificial demand and leaks

Artificial demand is operating a system at a higher pressure than necessary. Every 2 psig increase in pressure costs approximately 1% increase in power consumption. Most systems have fluctuating demand and if not properly controlled, system pressure will also fluctuate, leading to inconsistent production, higher scrap rates, and higher energy costs. To compensate, many users run more compressors than needed and at higher pressures than needed, causing higher leak rates and greater energy usage.

Controlling wasteful demand

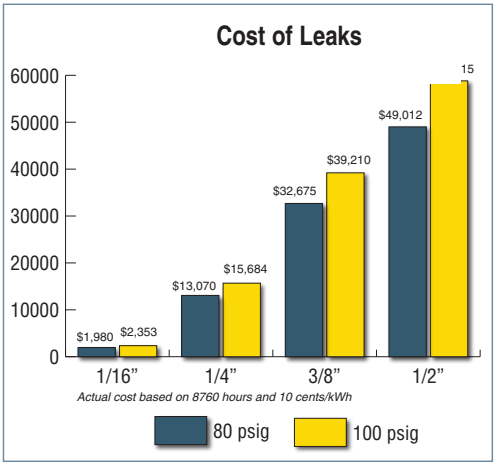
Compressed air is a very expensive input. At 10 cents per kWh, a 125 hp compressor can consume up to $95,000 per year in energy costs alone. In most systems, only 50% of the air produced is needed for production. Leaks, inappropriate uses, and artificial demand account for the remaining 50%. Without proper controls, you are likely to produce more air volume than needed at higher energy input rates and still not provide stable flow and pressure to your production equipment. Controlling flow and system pressure reduces much of this waste and improves pneumatic equipment function at the same time.

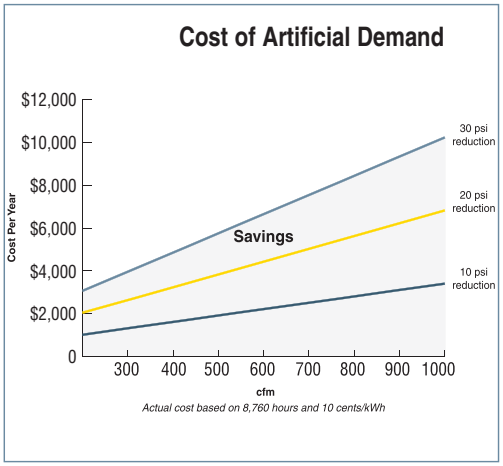
Reduce costs and waste

Lowering the operating pressure to what production equipment actually needs. This eliminates artificial demand and substantially reduces air losses through leaks. In this way, overall air consumption is greatly reduced.

Further, stored compressed air can now be used to satisfy air demand spikes (see point 5, on the right) without pressure drop at the point of use. Additional energy is saved, since stand-by compressors do not have to come on-line. This greatly reduces compressor cycling and ensures more efficient use of compressors.

An added benefit is that by reducing wide fluctuations in volume flow (and velocity), the flow controller ensures that your dryers and filters have adequate contact time to properly clean your compressed air. This protects production equipment which may be sensitive to moisture and other contaminants.





Flow controller applications

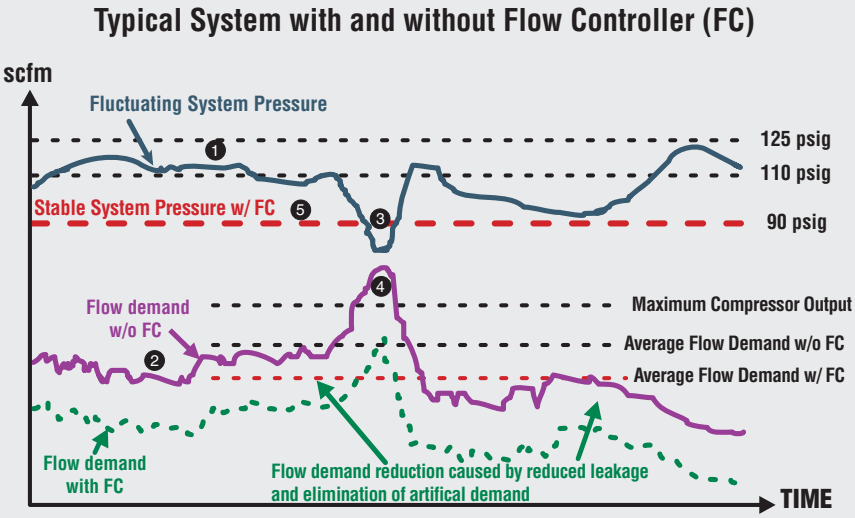
Flow controllers have a number of different applications. In systems with multiple older compressors that are not compatible with current PLC-based controller technology, flow controls can reduce fluctuation in flow that waste power and prevent stable pressure. This has the added benefits of keeping pressure and flow within the optimal performance range for dryers and filters, as well as ensuring pneumatic equipment receives adequate pressure to prevent stoppages and scrap.

In some installations with older piping and higher leak loads, it may not be feasible to replace aging piping or repair existing leaks. A flow controller will reduce leak rates and artificial demand.

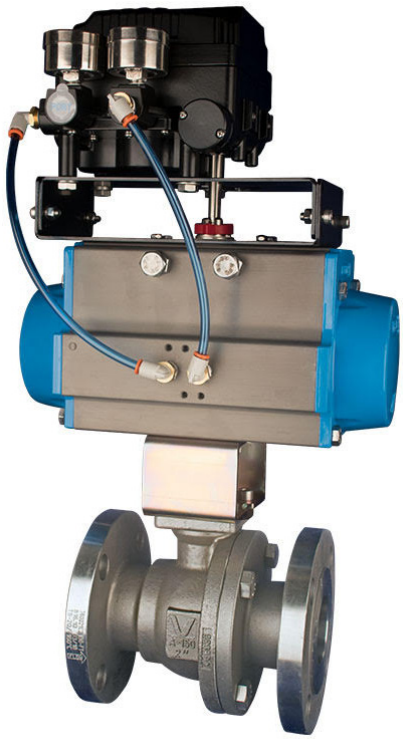
Flow controls help create more effective storage for large, intermittent demand events (such as bag houses). By maintaining a large volume at higher pressure on the compressed air supply side and releasing air at the needed pressure to the distribution side, you will reduce unnecessary compressor starts. Increased storage is also beneficial to ensure the proper function and shut down of certain equipment. As noted above, this can prevent air quality issues caused by low pressure and excessive flows that dryers and filters cannot keep up with.

In a plant where some processes or production lines need lower pressures than the main supply, the flow controller will eliminate the need for separate compressed air systems running at different pressures.

Flow controllers are available as forwards pressure (pressure regulating), back pressure (pressure relieving), and combination of the two to meet requirements of complex compressed air systems.



This is a typical chart reading which can be used to determine actual demand and flow pattern in existing systems. Pressure ❶ and flow ❷ are inversely related, as can be seen at ❸ and ❹. Pressure drops below the desired system pressure of 90 psig at ❸ because the system cannot deliver the needed flow from storage at point ❹. The flow controller reduces the flow demand in the system while maintaining stable system pressure ❺.



Technical Specifications

Connection Size (in.)	Max. Flow* (scfm)
2 NPT	1000
3 NPT	3000
1.5 Flange	1500
2 Flange	2500
3 Flange	3500
4 Flange	6000
6 Flange	12,000
8 Flange	15,000

**Flow characteristics may vary depending on inlet pressure and set point pressure. Rated flow based on 100 psig inlet, and a minimum of 10 psi available between inlet pressure and set point pressure.*

Specifications are subject to change without notice. See installation instructions for further details.

NOTES:

2" and 3" NPT*

Maximum inlet pressure: 125 psig*

Inlet pressure range: 50 - 125 psig*

Set-point pressure range: 15 - 115 psig*

Ambient air temperature range: 40° - 110°F

Maximum inlet temperature: 150°F

1.5-8" Flange

Maximum inlet pressure: 250 psig

Inlet pressure range: 85 - 250 psig

Set-point pressure range: 40 - 225 psig

Ambient air temperature range: 40° - 110°F

Maximum operating temperature: 300°F

Flanged valves can operate as forward flow controller, back pressure controller, or combination, and can shutdown demand side pressure during nights and weekends.

*Consult factory for higher flows, pressures, and temperatures or other operating conditions.

Indicated performance is based upon adequate compressed air supply, piping, and adequate storage volume upstream of the flow controller.

Features:

- Rapid valve response
- Electronically controlled pressure regulation
- Remote pressure adjustment
- Easy installation with plug-in power
- Control panel and valve can be isolated for service without interrupting air supply
- No field calibration necessary
- Opens in case of low pressure or loss of power

KAESER COMPRESSORS®

Built for a lifetime.

TÜVRheinland CERTIFIED
Management System
ISO 9001:2015
ISO 14001:2015
www.tuv.com
ID 9108616471

MEMBER OF CAGI Compressed Air & Gas Institute

ENERGY STAR PARTNER

Kaeser Compressors, Inc.
511 Sigma Drive
Fredericksburg, VA 22408 USA
Telephone: 540-898-5500
Toll Free: 800-777-7873
info.usa@kaeser.com

Kaeser Compressors Canada Inc.
3760 La Verendrye Street
Boisbriand, QC J7H 1R5 CANADA
Telephone: (450) 971-1414
Toll free: (800) 477-1416
info.canada@kaeser.com

Kaeser Compresores de México S de RL de CV
Calle 2 #123
Parque Industrial Jurica
76100 Querétaro, Qro.
Telephone: 01 (442) 218 64 48
sales.mexico@kaeser.com

Kaeser Compresores de Guatemala y Cia. Ltda.
3a calle 6-51, zona 13
Colonia Pamplona
01013–Guatemala City
Telephone: +502 2412-6000
info.guatemala@kaeser.com

www.kaeser.com