KAESER COMPRESSORS®
Built for a lifetime.

Compressed Air System Control

Flow Controller

Capacities from 1000 to 15,000 cfm

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Flow Controller

The benefits of stable pressure

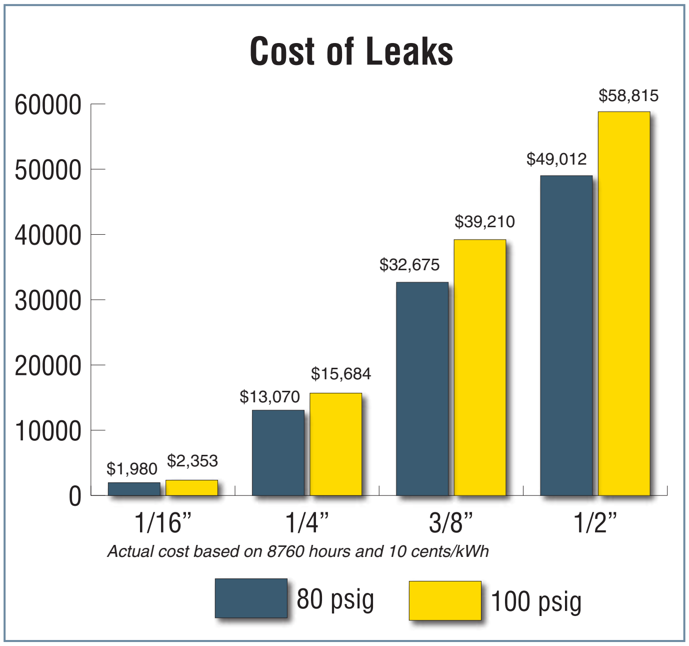
The flow controller is an intermediate flow control installed between the air system supply and the distribution network. When combined with proper storage it rapidly responds to changes in demand and ensures stable air pressure to all points of use throughout your facility for higher production rates,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

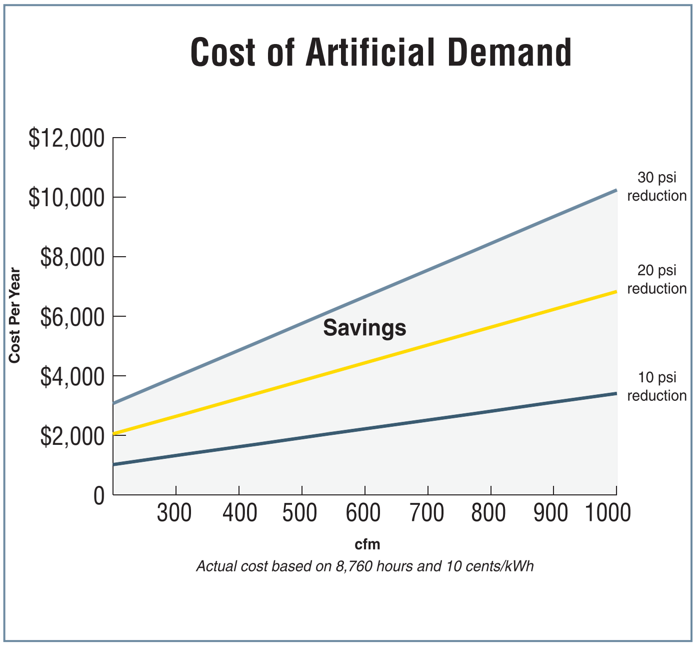
Controlling wasteful demand

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 operation at the same time.

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.





Flow controller operation

The flow controller creates more effective storage by accumulating compressed air in receivers and only delivering what air is needed for production. It responds very rapidly to fluctuating demand and actively maintains constant system pressure downstream.

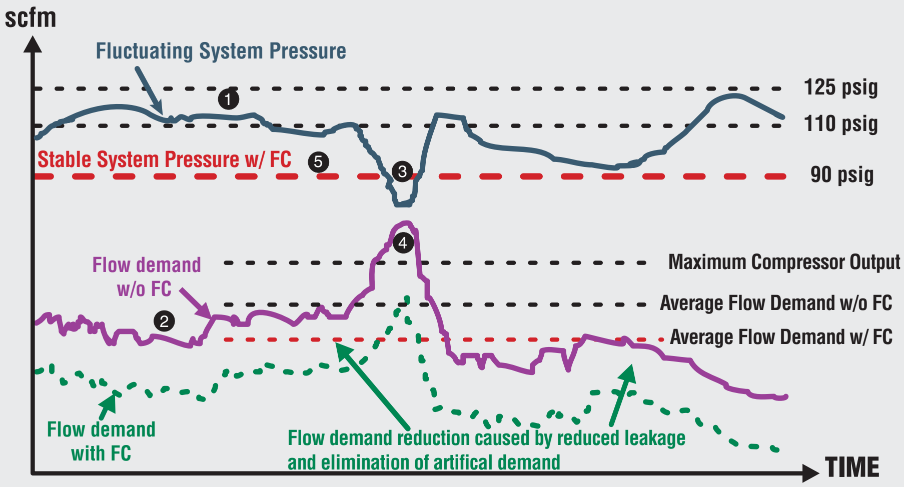
Reduce costs and waste

Stable air pressure means 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.

Typical System with and without Flow Controller (FC)



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.

Flow Controller Applications

Plants with older compressors that are not compatible with current system master controller technology can benefit from a flow controller since the flow controller can help maintain a stable system operating pressure and reduce fluctuations in flow—no communications ports are necessary.

Also, installations with older piping and higher leak loads where it may not be possible to replace aging piping or repair existing leaks can benefit from the flow controller’s ability to reduce leak rates and artificial demand.

Additionally, applications with a large, intermittent demand event may benefit from having a flow controller since it creates true storage that can supply the demand event instead of bringing on an additional compressor.

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: 300 psig

Inlet pressure range: 50 - 300 psig

Set-point pressure range: 15 - 275 psig

Ambient air temperature range: 40° - 110°F

Maximum operating temperature: 150°F

All Others

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:

- Fail open in case of low pressure or loss of power
- Rapid valve response
- Control panel can be isolated for service without interrupting air supply
- Pressure adjustment from panel
- Electronically controlled pressure regulation
- General alarm for flanged valves
- Easy installation with plug-in power
- No field calibration necessary
- Pilot air does not need to be instrument air quality

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