Pressure Holding Valves

DHS Series

1” - 2” NPT
2” - 8” Flange

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Pressure Holding Valves

Velocity control improves air quality

KAESER's pressure holding valves prevent damage and increase the effectiveness of air treatment equipment by reducing exposure to excessive velocity. The pressure holding valve automatically opens and closes to maintain a set minimum pressure in the supply side of the air system while pressurizing the main distribution piping. It also pressurizes the entire system in the shortest possible time.

Why your system needs a DHS pressure holding valve

Compressed air dryers and filters are designed and rated to treat specified volumes of air at specific conditions. Refrigerated and desiccant dryers, for example, are rated to achieve a specified dew point at a particular volume (scfm), pressure (100 psig), compressed air temperature (100°F), and ambient temperature (100°F).

If system pressure is not constant, the air velocity through clean air treatment equipment will fluctuate. For those operating 24 hours a day, fluctuation may be minor. If, however, compressors are shut down for any length of time (overnight, weekends, holidays), system pressure will drop significantly as air escapes through leaks. When the compressors are turned on the air velocity will be high until operating pressure is reached. In this condition, dryers and filters may not work to specification and contaminants may be carried over, causing scrap and higher maintenance on equipment. Further, high air velocities may damage filter media and accelerate wear on desiccant, increasing maintenance costs.

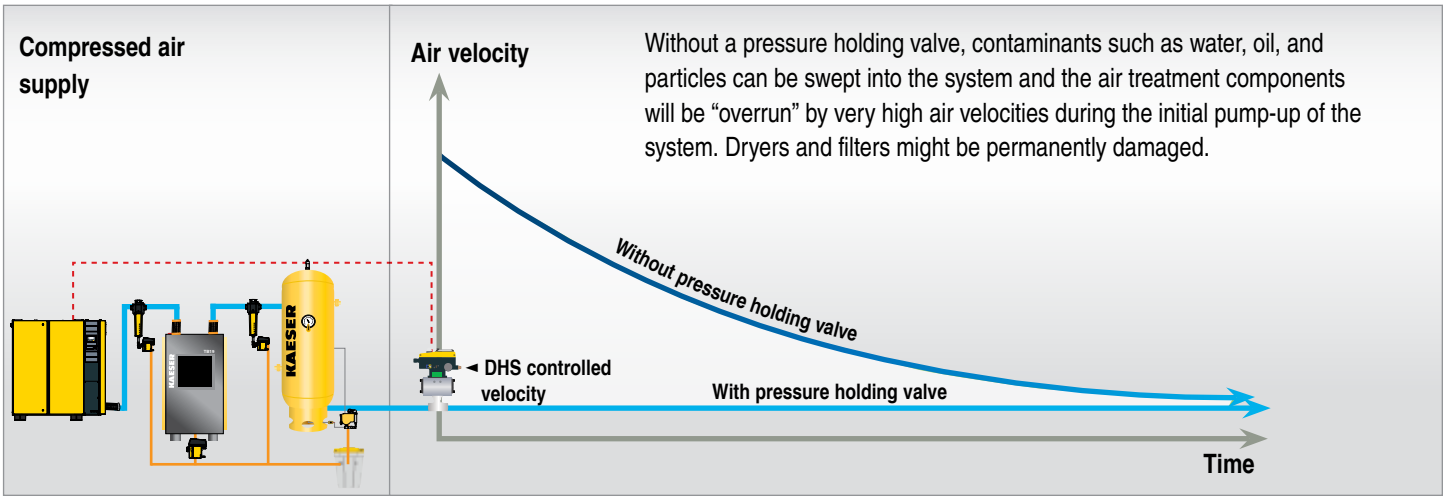
Air quality protection

A pressure holding valve controls high velocity air while an air system is being pressurized. After the air system has been pressurized, the pressure holding valve also prevents exposure of air treatment components to possible overflow conditions.

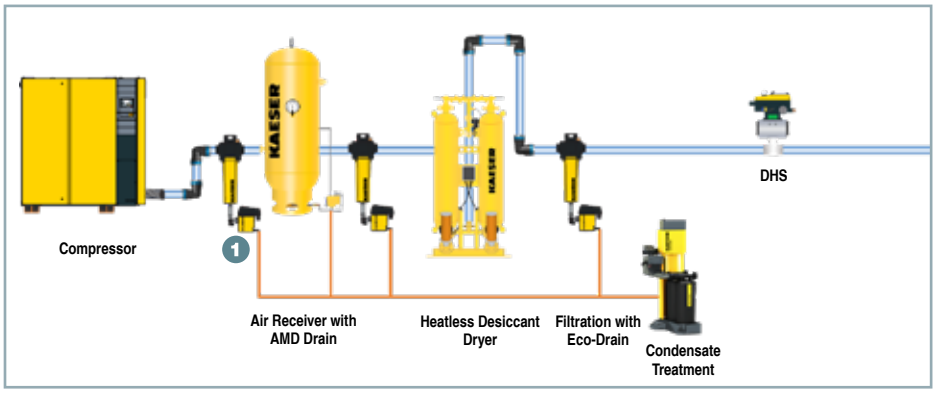
Leaks, artificial demand, and unregulated uses all affect the total demand for air. When this total demand reduces the system pressure, the increased air velocity may greatly reduce the effectiveness or damage the air treatment components. A DHS pressure holding valve prevents this condition, ensuring that dryers and filters will be able to operate according to their rated specifications.

The pressure holding valve is also able to isolate the treatment line in the event that an air treatment component malfunctions and alarms (See Priority: Air Quality on the next page). This not only assures consistent air quality, but also safeguards the pipe distribution network and the air consumers in your production facility. The DHS will also keep the supply side of the system pressurized, so when the system is started back up, the time to pressurize the distribution piping is reduced.

Velocity Profile

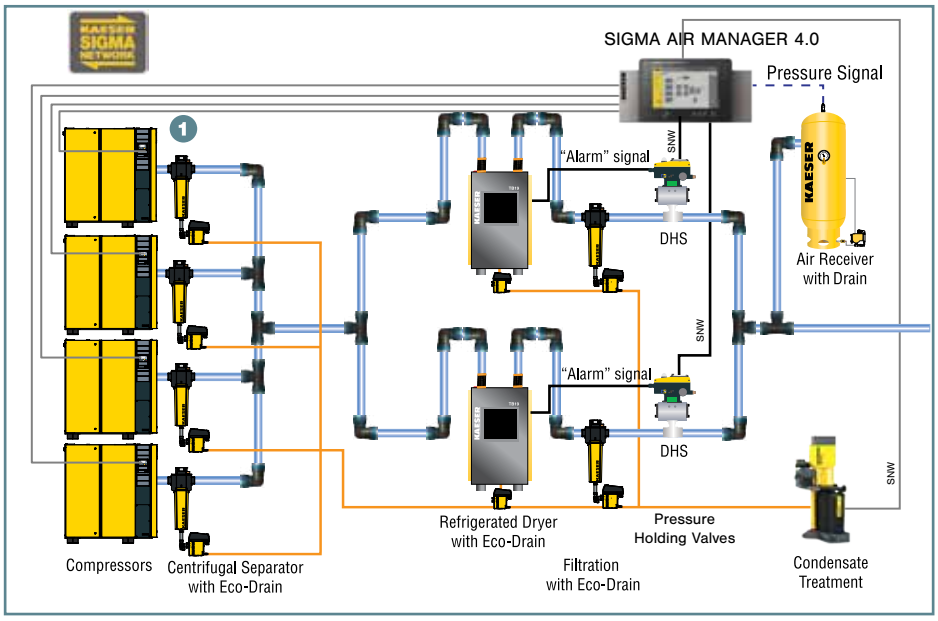


Priority: Air Quality



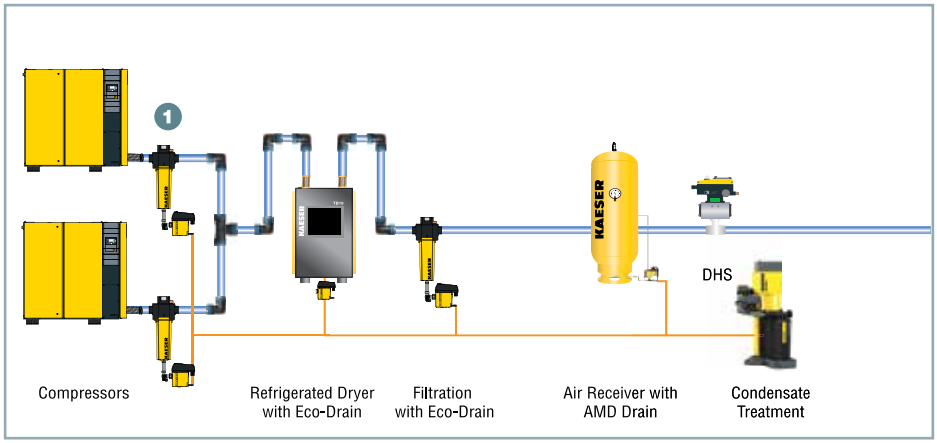
In its default configuration, the pressure holding valve (DHS) is pre-set to close if the demand exceeds supply, pressure falls below the set point, or in case of power outage. It minimizes air velocity at start up and maintains air supply side pressure. For systems which are shut down frequently, this option further minimizes periods of high velocity air.

Priority: Air Quality



The second example shows a multiple compressor system with two parallel air treatment lines all controlled by a SIGMA AIR MANAGER® (SAM) 4.0. A standard feature of the DHS is its ability to connect to a SAM 4.0 by the KAESER SIGMA NETWORK. The SAM 4.0 can modify DHS 4.0 parameters and monitor for alarms. With optional inputs, the DHS can also close in case of a dryer failure or alarm.

Priority: Air Supply



When the supply of air is the priority, the pressure holding valve is set so that the default is "normally open". In case of power failure, the valve remains open, ensuring air supply. For systems which are shut down infrequently and have no leaks in the supply side piping, this field adjustable setting allows for any storage receiver after the pressure holding valve to supplement air during start up conditions, further minimizing system exposure to high velocity air and faster start up.

1 *If not included with compressor*

DHS Series

Connection (in.)	Max. Working Temperature (°F)	Max. Working Pressure (psig)	Dimensions W x D x H (approx. in.)	Weight (lbs.)
DHS with Ball Valve				
1 NPT	140	232**	9.7 x 9.8 x 13	17
1-1/2 NPT			9.7 x 10 x 15	23
2 NPT			9.7 x 10.3 x 16.7	25.1
DHS with Butterfly Valve				
2 Flange	140	232	9.7 x 9.6 x 16.8	21.2
3 Flange			9.7 x 9.8 x 19.3	27.8
4 Flange			9.7 x 10.1 x 21.4	36.8
6 Flange			9.7 x 10.8 x 25.4	63.7
8 Flange			9.7 x 11.2 x 28.8	86.2

NOTE: ***All DHS models operate on 24 VDC or 115 V / 1 ph / 60 Hz power supply.***

**For more sizes consult factory*
***Option up to 914 psig*

DHS High Temperature Series

Connection (in.)	Max. Working Temperature (°F)	Max. Working Pressure (psig)	Dimensions W x D x H (approx. in.)	Weight (lbs.)
DHS High Temperature with Butterfly Valve				
2-1/2 Flange	400	232	10 x 7 x 25	33
3 Flange			10 x 7.5 x 25	37
4 Flange			13 x 9 x 28	58
6 Flange			13 x 11 x 31	79
8 Flange			16 x 13.5 x 35	127

NOTES: For use with heated desiccant and heat of compression dryers without aftercoolers.
All DHS Series models require 115 V /1 ph / 60 Hz power supply.

Specifications are subject to change without notice.

Example of DHS Return on Investment:

1000 cfm system utilizing a heatless desiccant dryer and 3 filters. The system regularly gets shut off overnight and repressurizes in the morning. This causes the desiccant to degrade more quickly and the filter elements to break. Desiccant has to be replaced more frequently (less than rated 5 year life), and filter element are replaced more often than once a year.

Cost of replacing desiccant > Cost of one DHS Valve
Cost of replacing filter elements = Cost of one DHS Valve
Total Cost of Replacement = 2x the cost of one DHS Valve

*Does not include cost of labor and cost of lost production

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Built for a lifetime.

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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 Vérendrye 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 Pomplona
01013–Guatemala City
Telephone: +502 2412-6000
info.guatemala@kaeser.com

www.kaeser.com