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Frese ALPHA HCR

Pressure Independent Flow Limiting Valve



Pressure Independent Flow Limiting Valve

Frese

Over 30 years' experience producing dynamic balancing solutions has positioned Frese as a leading manufacturer of energy saving valves and through our commitment to innovation, we continue to be at the forefront of technological advancements in our areas of expertise.

To support our products, the knowledge, experience and dedication of our employees and partners ensure our solutions are applied correctly to maximise savings and position Frese as the authoritative voice for pressure independent and dynamic solutions.

Pressure Independent Flow Limitation

A pressure independent flow limiting valve is an innovative alternative to traditional hydronic balancing methods comprising static balancing valves.

A system with pressure independent flow limiting valves provides efficient and accurate flow and differential pressure control ensuring the design flow conditions are achieved at all times irrespective of pressure fluctuations in the system.

Frese ALPHA HCR · Pressure Independent Flow Limiting Valve

The Frese ALPHA HCR (High Corrosion Resistant) valves are particularly designed and manufactured for automatic balancing in industrial applications.

An integral part of the Frese ALPHA HCR Valve is the ALPHA Flow Cartridge, which limits the flow to a specified level at all times, regardless of fluctuating pressure conditions.

The patented design of the stainless steel ALPHA flow cartridge introduces an interchangeable orifice plate for design flexibility and a resistant diaphragm for high accuracy operation. The Frese ALPHA HCR valve can also be installed with the ALPHA HCR cartridge for other highly corrosive applications.

Available as standard up to DN300 and with other materials up to DN125 on request. Frese ALPHA HCR valve guarantees the hydraulic balance of the system regardless of pressure fluctuations.

General Benefits

- Quick and easy selection as only flow data is required
- Design flow rate achieved but not exceeded – always in balance
- Easy to install
- Simplified commissioning process – no proportional balancing
- No requirement for additional balancing valves in the distribution pipework, risers and branches
- No straight pipe requirements upstream and downstream
- Improved response to water hammer due to the shock absorption by the rubber diaphragm of the cartridge

HCR Pressure Independent Flow Limiting Valve



Technical Data · Frese ALPHA HCR

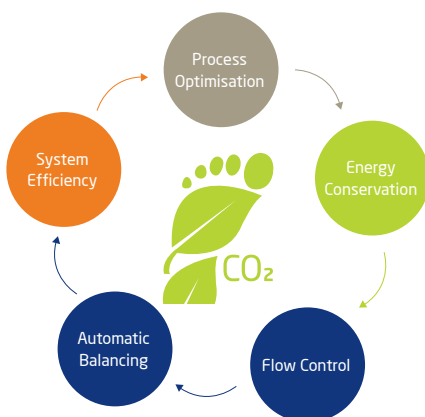
Size range:	DN25 to DN450
Valve housing:	AISI 316 L / AISI 316 Other materials upon request
P/T plugs:	AISI 316
Fasteners:	Hastelloy or Duplex Steel
Pressure class:	PN16/PN25
Temperature:	-20°C to +110°C
Flow range:	Please refer to cartridge programme



Technical Data · Frese ALPHA HCR Cartridge

For Valve Housing:	Type 20: DN25 - DN40 Type 50/60: DN50 - DN450
Cartridge material:	Type 20: Duplex Type 50/60: AISI316 Other materials upon request
O-rings:	EPDM
Spring:	Hastelloy or Stainless Steel W1.4310
Diaphragm:	HNBR reinforced
Medium temperature:	-20°C to +120°C
Diff. pressure range:	7 - 600 kPa

Frese Industrial Valves · Helping our customers to become more sustainable



A hydronic system designed and fitted with pressure independent flow limiting valves offers many advantages over traditionally designed, static systems.

These advantages include:

- Simplified system design
- Ease of selection
- System flexibility
- Minimised commissioning process

The major benefit is the significant saving of energy that can be achieved through maximising ΔT and eliminating overflows in the system.



Frese ALPHA HCR Flow Limiting Valve for Industrial Applications

For over 30 years, Frese has specialised in the design and manufacture of dynamic, pressure independent flow solutions for global heating and cooling applications.

As a valve manufacturer, Frese has been involved with the industrial industry for a number of years, delivering pressure independent flow limiting valves for various heating and cooling applications.

The introduction of the Frese ALPHA HCR pressure independent flow limiting valves enables Frese to offer the benefits of dynamic balancing to a variety of new, exciting industrial applications including oil & gas installations, petrochemical plants, pharma

installations and other industries where there is a need for high corrosive resistant balancing valves.

The Frese ALPHA HCR flow limiting valve works independently and therefore it can be installed in either single or multiple parallel distribution lines. Furthermore, the independent nature of the valve provides total system flexibility with no re-commissioning required should the system be extended. In addition, it is also possible to use back flush processes with the Frese ALPHA HCR pressure independent flow limiting valve if necessary.

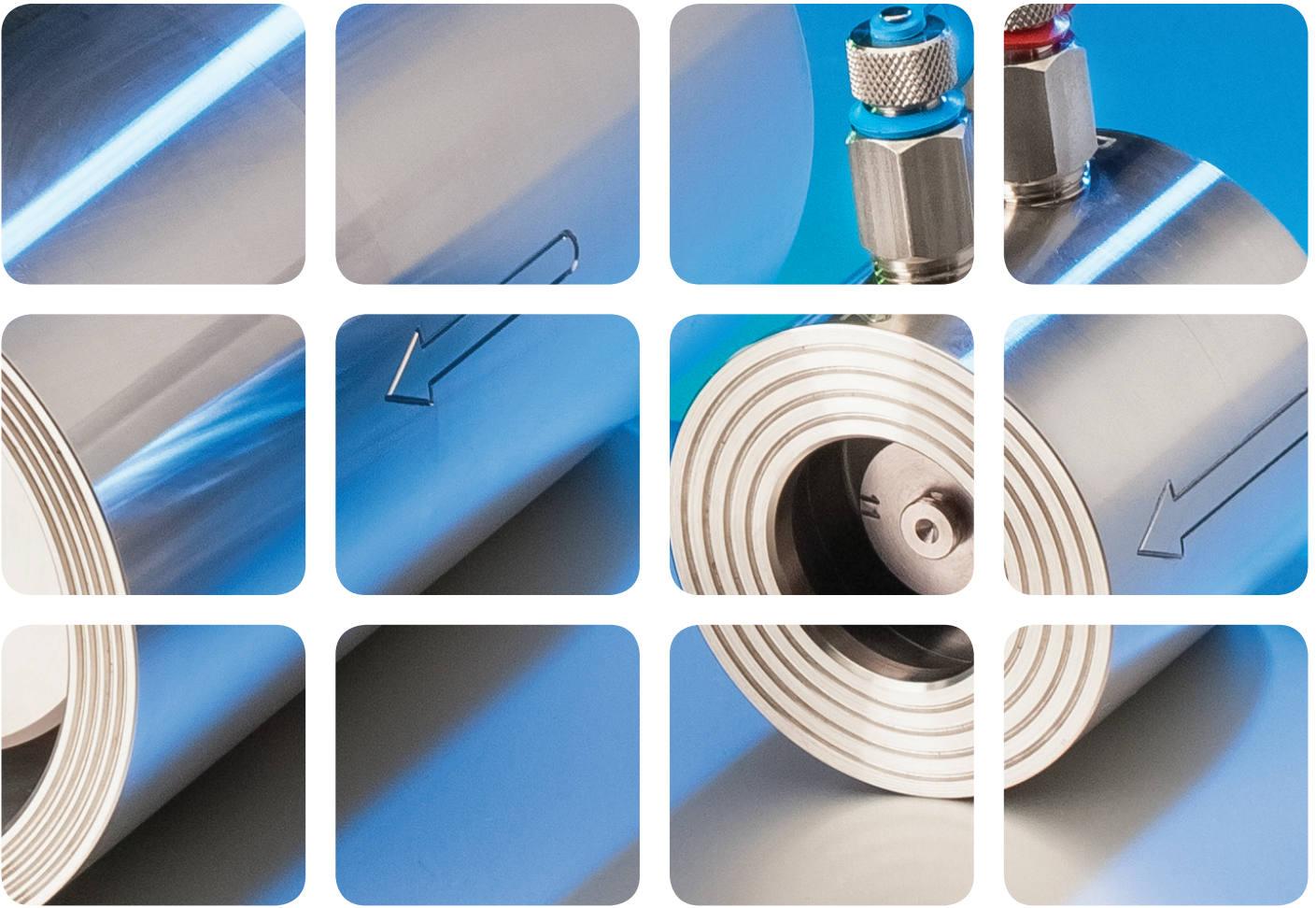
Applications

Industrial heating and cooling, for example:

- Breweries
- Dairies
- Butcheries
- Battery Cooling

Please contact Frese for information on your specific application.



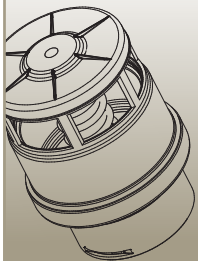
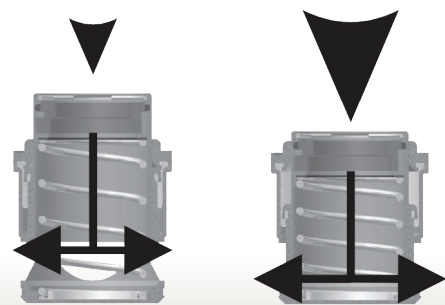


Frese ALPHA HCR Cartridges

Operation

When the pressure increases, the spring will be compressed and the piston will respond and reduce the outlet area and vice versa.

The result is a constant flow rate through the valve, independent of pressure fluctuations.



Function

The following applies to all flow control valves:

$$Q = K_v \cdot \sqrt{\Delta p}$$

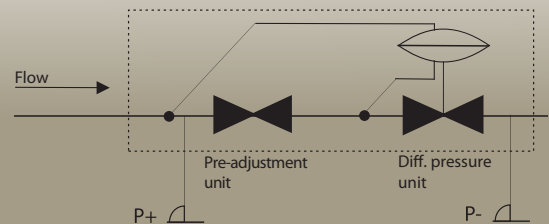
$$Q = \text{Flow (m}^3/\text{h)}$$

$$K_v = \text{Opening area}$$

$$\Delta p = \text{Differential pressure (Bar)}$$

The Frese ALPHA and ALPHA HCR cartridges react to pressure fluctuations in the system ensuring that the differential pressure across the pre-adjustment unit is kept constant.

This ensures that the maximum flow limit is achieved in accordance with the design.





KNOWLEDGE

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