Frese ALPHA Sanitary

Dynamic balancing valve for domestic hot water systems with circulation

DURABLE
EFFICIENT

Frese ALPHA Sanitary

Frese ALPHA Sanitary is the next generation of optimised system balance and legionella control in one compact valve solution

This dynamic balancing valve is manufactured in stainless steel in order to ensure the highest possible resistance against corrosion in domestic hot water, but it is based on familiar and extremely well proven technology.

It is, in fact, identical to one of Frese's classic valves - The Frese ALPHA - which has been used in heating and cooling systems all over the world for several years. Only the material is different - the core features and benefits remain exactly the same.

The dynamic properties of Frese ALPHA Sanitary ensure balance throughout the circulation system, regardless of fluctuating pressure conditions and water temperature. Once the valve has been installed with the correct cartridge for the system in question, you will at all times achieve the exact flow required to compensate for heat loss in the pipes.

This way there will always be quick access to hot water even at outlying tapping points, so consumers will not be left waiting.

Flow control is particularly relevant since many district heating providers are attempting to run their distribution systems at lower temperatures. This may pose a challenge for thermostatic circulation control, while Frese ALPHA Sanitary is in no way affected by this development.

Because Frese ALPHA Sanitary performs its balancing tasks with no regard for water temperature, this valve is ideal for thermal disinfection in domestic hot water systems, since this process can be accomplished with no disruption of normal operation.

Legionella in domestic hot water

More than 90% of cases of Legionnaires' disease are caused by Legionella pneumophila.

Most other types of Legionella bacteria behave similarly to Legionella pneumophila regarding thermal disinfection.

Legionella bacteria grow readily at temperatures in the range 20°C to 50°C.

Legionella bacteria in concentrations of 100,000 colony forming units per litre (cfu/l) and higher are not uncommon at the base of conventional hot water storage vessels where temperatures of 20°C to 50°C are maintained.

Under optimum conditions, Legionella bacteria can multiply from background numbers to dangerous concentrations in less than five days.

We create **VALUE** for our customers with this **GROUND-BREAKING** design focusing on:

DURABLE

- ✓ Well-proven technology
- ✓ Robust design
- ✓ Corrosion resistant
- ✓ Tamperproof
- ✓ Clogging resistant

EFFICIENT

- ✓ System balance regardless of water temperature
- ✓ Quick access to hot water at all tapping points
- ✓ Self-balancing

EASY TO INSTALL

- ✓ Easy to install - no straight piping required before or after the valve
- ✓ Easy maintenance - removable cartridge for descaling
- ✓ Compact - can be installed in restricted space
- ✓ Interchangable orifices if different flow is required
- ✓ Cartridge programme covers a wide flow range

Specifications

Frese ALPHA Sanitary

Valve Housing	AISI316 (EN 1.4408)
P/T Plugs	AISI316 (EN 1.4408)
Plugs	AISI316 (EN 1.4408)
Pressure Class	PN25
Temperature	-20°C to 120°C
Flow Range	40 l/h to 410 l/h

Specifications

Frese ALPHA Sanitary Cartridge

Cartridge Material	AISI316 (EN 1.4408)
O-rings	EPDM 281
Spring	Stainless Steel
Diaphragm	HNBR
Medium Temperature	-20°C to 120°C
DP Range	9-350 kPa
Valve Housing	DN15-DN20

Frese ALPHA Sanitary Cartridge

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.

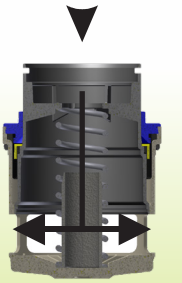
Function

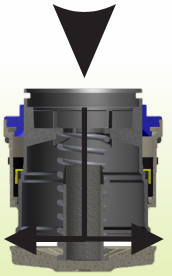
The following applies to all flow balancing valve

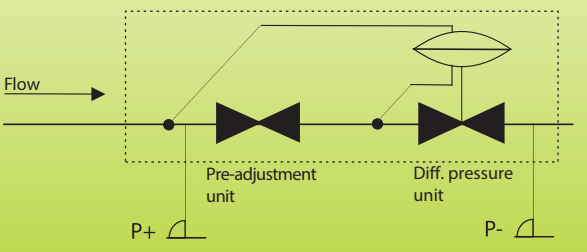
$$Q = Kv * \sqrt{\Delta p}$$

Q = Flow (m^3/h)
Kv = Opening area
Δp = Differential pressure (Bar)

The Frese ALPHA Sanitary cartridge reacts 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.

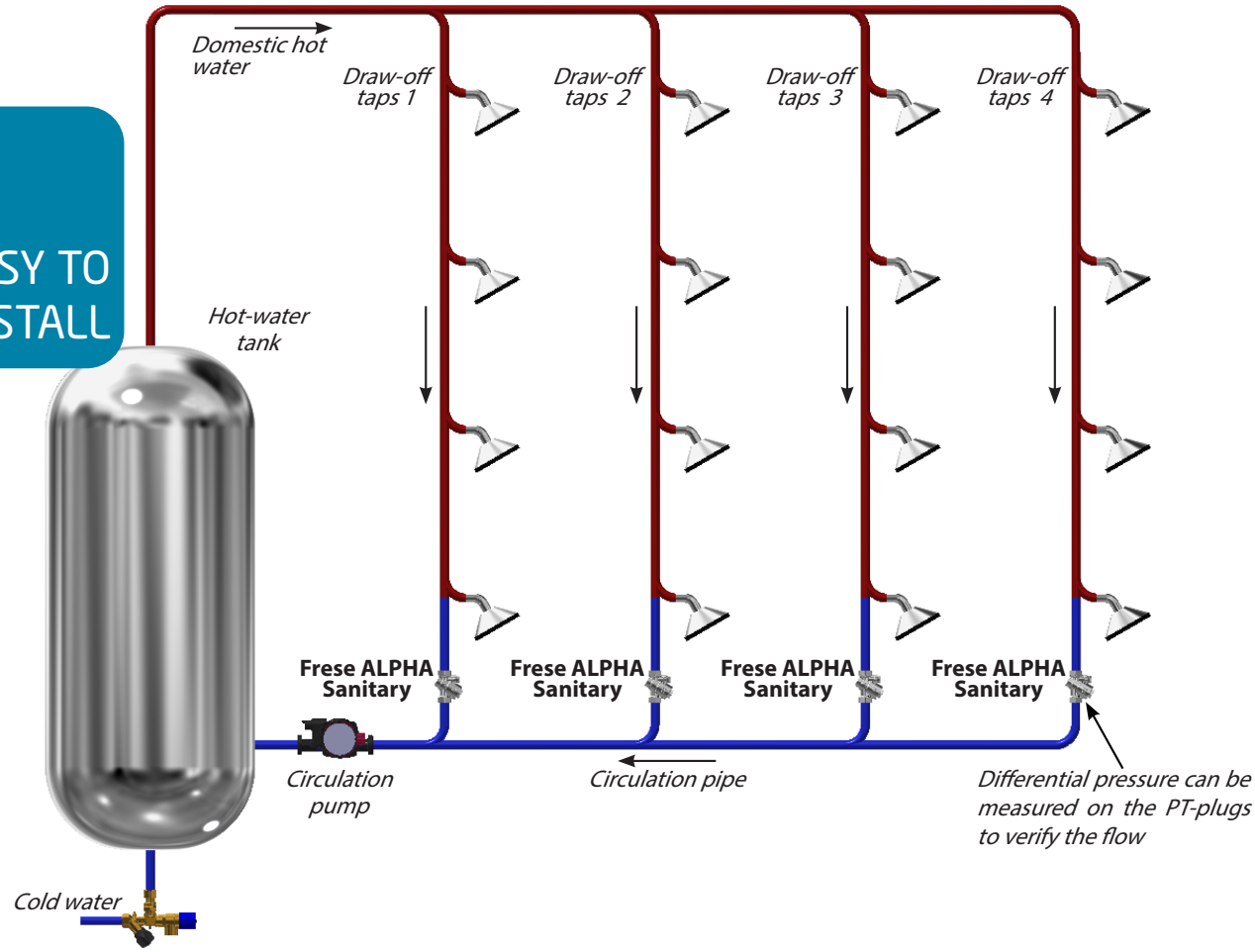






Application Example

EASY TO INSTALL



Frese ALPHA Sanitary is specifically developed for domestic hot water systems with circulation and AISI316 systems, which require high corrosion resistance.

Thermal disinfection in domestic hot water systems

The effectiveness of inactivating Legionella bacteria using raised temperatures (thermal disinfection) depends upon the temperature and how long the bacteria are exposed to that temperature.

Thermal inactivation of Legionella bacteria starts around 45-50°C but is quicker at higher temperatures.

Legionella pneumophila requires on average 2 minutes exposure to 60°C to inactivate 90% of the bacteria.

Where the water contains 100,000 cfu/l Legionella, the bacteria need to be held at 60°C for approximately 10 minutes to reduce numbers to below the action level of 1000 cfu/l.

Hot water storage cylinders that maintain a temperature of 60°C throughout the whole storage vessel for a period of one hour daily should achieve satisfactory control of Legionella bacteria, in line with health authority recommendations. Rules and threshold values vary between European countries.

KNOWLEDGE

QUALITY

INNOVATION

MANUFACTURING EXCELLENCE

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