# Alpha Sanitary

- Easy to install
- Insert can be changed if another flow is requried
- Self-cleaning
- Stainless steel AISI 316
- Pressure class: PN25

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# Description Alpha Sanitary

## Area of use

Alpha Sanitary is a dynamic balancing valve designed for use with tap water circulation systems
The valve balances the system automatically, independently of temperature and changing pressure conditions, and ensures rapid access of hot water in all taps.
The valve is delivered with an insert for a flow range between 40l/h and 410l/h.
Alpha Sanitary can be used in tap water systems where there is a potential risk for bacterial growth such as legionella.
In such installations, the water temperature can be periodically to between 70 and 80 degrees to kill off the bacteria.
All parts of the valve that come into contact with water are manufactured from AISI316 grate Stainless Steel to ensure the highest possible corrosion resistance.

## Benefits

Design

- Less time to define necessary components in a hydraulically balanced system.
- No effect if the calculated pressure in the installation is not correct.
- Assurance that the specified circulating flow is also the real flow.
- Thoroughly tested technology.
- Robust and corrosion-resistant design.

Installation

- Minimized commissioning time due to dynamic regulation of the plant.
- No need for oversized pumps.
- No requirement for straight pipe length before and after the valve.
- Easy to install in small spaces.

During operation

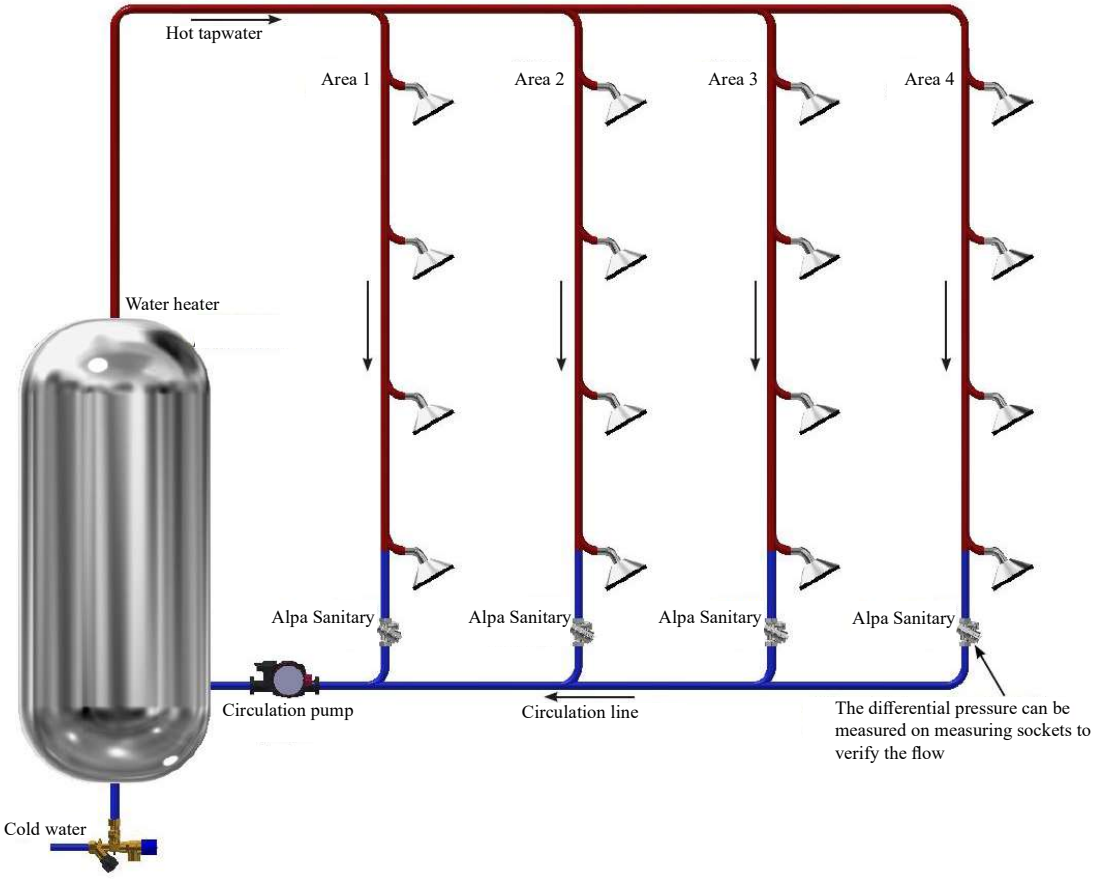
- Automatic balancing of the system even when changing pressure conditions.
- Optimization of energy consumption.
- Optimization of distribution and balance.
- The balance in the system is independent of water temperature.
- Quick access to hot water in all taps.

# Description Alpha Sanitary

## Function

- The valve is made of stainless steel AISI 316, for domestic hot water.
- Has measuring nipples for measuring differential pressure.
- Changes or expansions of the system do not affect the hydraulic balance in other parts of the system.
- Fixed insert that is independent of flow errors during commissioning and operation of the plant.
- Self-cleaning insert that prevents dirt from affecting the valve's precision.
- A robust diaphragm between the moving parts of the insert prevents friction, sound and pressure surges.
- Easy maintenance and descaling with removable insert.
- Easy to install, no requirement for straight pipe lengths before or after the valve.
- Compact design, easy to install in cramped spaces.
- The insert is interchangeable if you want to change the flow.
- The product covers a large flow area.
- Pressure tested according to EN12266.

## Application example

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# Product information Alpha Sanitary

## Sizing example

The balancing valve Alpha is dimensioned according to the heat loss on the circuit in which it is placed.
The example below describes the dimensioning of the valve and the total amount of water to the circulation pump.

In order to dimension the circulation line in a typical building consisting of 4 floors and basement, you need to know the following information:

**Pipe lenght: 40m**
The total pipe length that the valve regulates.

**Heat loss: 9W/meter pipe**
The heat loss in an external 27mm pipe with 30mm insulation and a temperature difference at 40 ° C between room and medium.

**Temperature difference: 5°C**
VVB temperature 55 ° C. Required circulation temperature 50 ° C.
The amount of water can be calculated using the following formula:

$$Q = \frac{(40 \times 9W/m) \times 0,86}{5°C} = 62l/h$$

Given the parameters in the above formula, you can now see that you need an insert that has a nominal flow of 60l / h.

The total amount of flow that the circulating pump needs for 4 floors is then a total of 240l/h,
(4x60l/h).

The lowest differential pressure for the insert is 12 kPa.

# Product information Alpha Sanitary

## Insert Function

When the pressure increases, the spring is compressed, which makes the effort to reduce the flow advice and vice versa.
The result is a constant flow through the valve, independent of pressure fluctuations.

The following formula applies to flow control:

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

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

The valve insert responds to pressure fluctuations in the system and ensures that the differential pressure across the unit is kept constant.
This ensures that the maximum flow limit is reached in accordance with the calculation.

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# Product information Alpha Sanitary

## Flow calculation

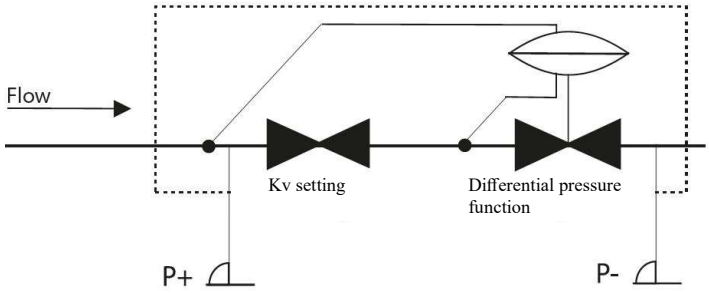
The flow over the valve can be identified by measuring the differential pressure (Δp) over the valve.

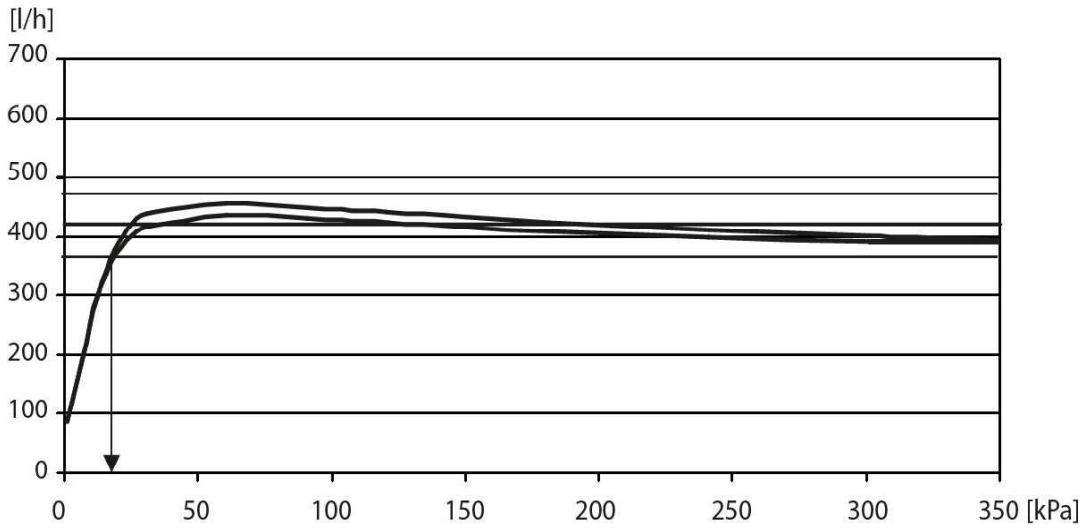
If the measured differential pressure is above the minimum Δp, the flow can be seen in the graph of the valve.

If the measured differential pressure is lower than Δp, the flow can be found using these formulas.

| | |
|---|---|
| $Q = Kv \cdot \sqrt{\Delta p}$ | $Q = m^3/h$<br>$\Delta p = Bar$ |
| $Q = Kv \cdot 100 \cdot \sqrt{\Delta p}$ | $Q = l/h$<br>$\Delta p = kPa$ |
| $Q = \frac{Kv}{36} \cdot 100 \cdot \sqrt{\Delta p}$ | $Q = l/s$<br>$\sqrt{\Delta p} = kPa$ |

## Principle sketch




Schematic view of the flow characteristics of the insert with a nominal flow of 420l/h. The insert limits the flow to a minimum of 21 kpa and keeps it up to a maximum of 350 kpa before overflow is obtained.

# Technical data Alpha Sanitary

## Housing

### Pressure class
PN25

### Max temperature
120°C

### Min temperature
-20°C

### Material
Stainless steel AISI316 (EN 1.4408)

### Flow area
See insert table

### Thread
ISO 228

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## Insert:

### Max temperatur e
120°C

### Min temperature
-20°C

### Material
Stainless steel AISI316 (EN 1.4408)
O-rings: EPDM 281
Feather: Stainless steel
Membrane: HNBR

### Differential pressure range
9-350 kPa

### For housing
DN15-DN20

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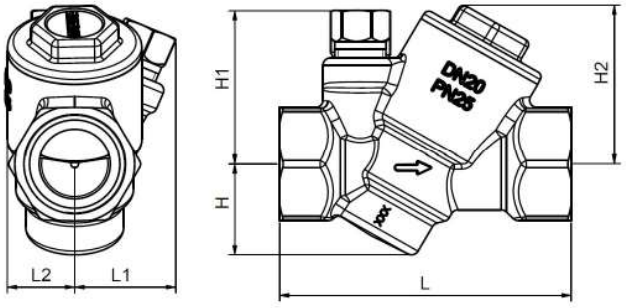
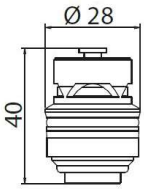
# Technical data Alpha Sanitary

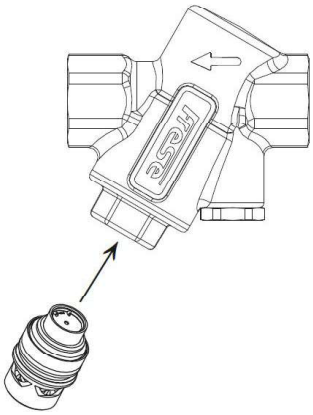
## Measurements housing




| Dimension | L | L1 | L2 | H | H1 | H2 | Weight (kg) |
|---|---|---|---|---|---|---|---|
| DN 15 | 69 | 27 | 18 | 25 | 37 | 44 | 0,35 |
| DN 20 | 78 | 27 | 18 | 25 | 37 | 44 | 0,39 |

## Measurements insert



# Product information Alpha Sanitary

## Ordering codes

| Article number | Desgination | Description |
|---|---|---|
| FD9D9004000X00SE0 | Alpha Sanitary housing | DN 15 excl insert |
| FD9D9004100X00SE0 | Alpha Sanitary housing | DN 20 excl insert |

| Article number | Designation | Flow l/h | Flow l/s | Flow gpm | Min. Δp kPa | Kv |
|---|---|---|---|---|---|---|
| FD9D9004200X00SE0 | Alpha insert typ 20 | 40 | 0,011 | 0,18 | 9 | 0,13 |
| FD9D9004300X00SE0 | Alpha insert typ 20 | 60 | 0,017 | 0,26 | 12 | 0,17 |
| FD9D9004400X00SE0 | Alpha insert typ 20 | 80 | 0,022 | 0,35 | 13 | 0,22 |
| FD9D9004500X00SE0 | Alpha insert typ 20 | 105 | 0,029 | 0,46 | 14 | 0,28 |
| FD9D9004600X00SE0 | Alpha insert typ 20 | 135 | 0,038 | 0,59 | 14 | 0,36 |
| FD9D9004700X00SE0 | Alpha insert typ 20 | 180 | 0,050 | 0,79 | 14 | 0,48 |
| FD9D9004800X00SE0 | Alpha insert typ 20 | 240 | 0,067 | 1,06 | 14 | 0,64 |
| FD9D9004900X00SE0 | Alpha insert typ 20 | 310 | 0,086 | 1,36 | 14 | 0,83 |
| FD9D9005000X00SE0 | Alpha insert typ 20 | 410 | 0,114 | 1,81 | 15 | 1,06 |

| Article number | Designation | Description |
|---|---|---|
| FD9D9005100X00SE0 | Measuring outlet for Alpha valve housing | 2pcs Red+ Blue |

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