

Frese ALPHA - automatic balancing valve

Application

The Frese ALPHA Valves are particularly designed and manufactured for the automatic balancing of heating and cooling circuits.

The Frese ALPHA Cartridges - the second generation cartridges - are an integral part of the Frese ALPHA Valves limiting the flow at the specified level even under fluctuating pressure conditions.

The patented design of these cartridges introduces a replaceable orifice plate for higher flexibility and a resistant diaphragm for higher accuracy. From small size threaded valves (DN15) to big flanged type valves (DN800), from small heating units to district cooling applications, Frese ALPHA Valves guarantee the hydraulic balance of the system regardless pressure fluctuations.

Benefits

- Balancing of the system takes place automatically even under fluctuating pressure conditions

Design

- No need to use balancing valves in the distribution lines, main distribution lines and supply lines.
- Less time to define the necessary equipment for a hydraulic balanced system.
- No impact if the calculated distribution of pressure in the installation is not accurate.
- Security that the specified flow is also the real one
- No requirements on pipe lengths before and after the valve

Installation

- Minimized commissioning time due to automatic balancing of the system
- Cartridge solution makes flushing procedure very easy
- No need for oversized pumps and oversized control valves

Operation

- Energy savings due to elimination of overflows
- Higher comfort due to correct distribution of water in the system and to optimized function of the control valves



Features

Wide product range covering all applications:

- sizes from DN15 to DN800
- different end connections (female/female, union connections, flanges)
- dezincification resistant brass, ductile iron.
- P/T plugs, drain, combi-drain.
- Kit solution with strainer and ball-valves, solution with integral ball-valve.
- Modifications & extensions of the system do not affect the hydraulic balance in the other parts of the system.
- Tamper resistant cartridge independent of flow regulation errors during commissioning and operation of the system.
- Self-cleaning cartridge not allowing dirt to compromise the accuracy of the valve.
- Resistant diaphragm between the moving parts of the cartridge eliminates friction, noise and impact from water hammer.

Frese ALPHA - automatic balancing valve

Female/Female threaded

A very simple and efficient solution for automatic balancing of heating/cooling circuits.

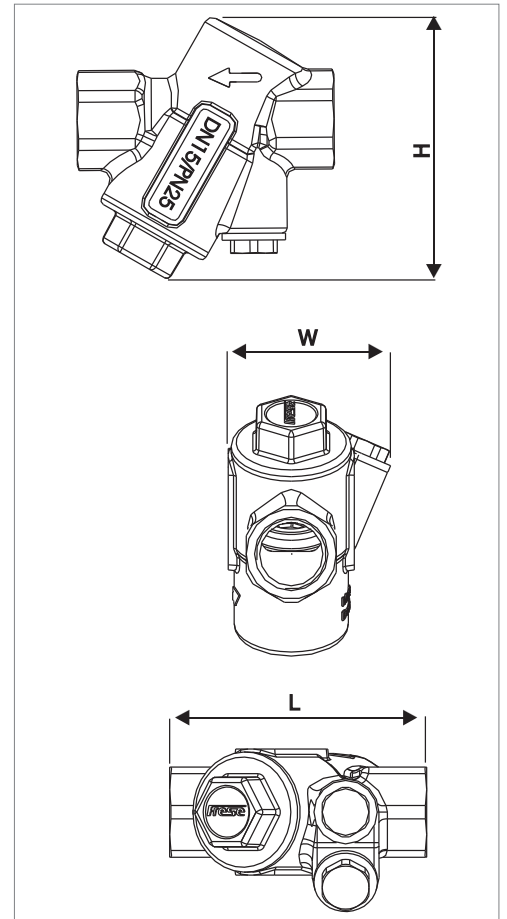
Technical data

| | |
|------------------------------|-------------------|
| Valve Housing: | DZR brass, CW602N |
| O-rings: | EPDM |
| Pressure class: | PN25 |
| Temperature: | -20°C to + 120°C |
| Diff. Pressure Range: | 7 - 600 kPa |
| Thread: | ISO 228 |

Frese product numbers are marked with an X.
X represents the 5 different options available for different accessory features - see below.
E.g. 49-9041 = Frese ALPHA DN32 equipped with 2 pcs. 1" P/T-Plugs.

Flow Cartridge is selected from Cartridge Catalogues and ordered under individual numbers.

| Frese no. | Dimensions |
|-----------|------------|
| 49-900X | DN15 |
| 49-901X | DN20 |
| 49-902X | DN25 |
| 49-903X | DN25L |
| 49-904X | DN32 |
| 49-905X | DN40 |
| 49-906X | DN50 |



| Accessories | 1 | | 2 | | 4 | | 5 | | 6 | | L, W & H are stated in [mm] | |
|-------------|----|-----|----|-----|----|-----|----|-----|----|-----|-----------------------------|-----------------|
| | | | | | | | | | | | L | Net Weight [kg] |
| Dimensions | W | H | W | H | W | H | W | H | W | H | | |
| 15/20 | 55 | 94 | 71 | 133 | 63 | 95 | 71 | 133 | 49 | 75 | 77 | ~0.50 |
| 25 | 55 | 94 | 71 | 133 | 63 | 95 | 71 | 133 | 49 | 75 | 83 | ~0.65 |
| 25L/32/40 | 80 | 126 | 91 | 164 | 83 | 127 | 91 | 164 | 68 | 115 | 123 | ~1.45 |
| 50 | 80 | 126 | 91 | 164 | 83 | 127 | 91 | 164 | 68 | 115 | 128 | ~1.45 |

Glycolic mixtures (both ethylene and propylene) up to 50% are applicable with Frese Alpha. Strainer is recommended. The pipe system should be properly ventilated to avoid the risk of air-pockets.

Specification text

The valve shall operate by means of an automatic balancing cartridge with replaceable orifice plate and internal diaphragm. The pressure class of the valve shall be PN25. The valve housing shall be made of DR brass.

Frese ALPHA - automatic balancing valve

ALPHA kit

A kit solution containing an Alpha Female / Female Valve, a strainer and two isolation ball-valves.

Technical data

ALPHA Valve:

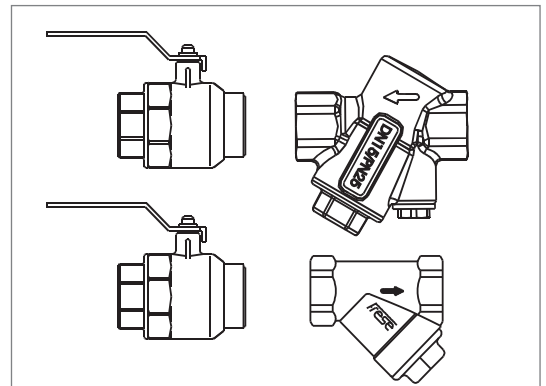
| | |
|------------------------------|-------------------------|
| Valve Housing: | DZR brass, CW602N |
| O-rings: | EPDM |
| Seal: | PTFE |
| Pressure class: | PN25 |
| Temperature: | -20°C to + 120°C |
| Diff. Pressure Range: | 7 - 600 kPa |
| Flow range: | See Cartridge Catalogue |
| Thread: | ISO 228 |

Strainer:

| | |
|------------------------|-------------------------------------|
| Valve Housing: | DR, Dezincification Resistant Brass |
| Filter: | Stainless steel |
| Seal: | PTFE |
| Mesh: | 32 (0,5 mm) |
| Pressure class: | PN16 |
| Temperature: | -20 to + 150°C |
| Thread: | ISO 228 |

Ball Valve:

| | |
|------------------------|-------------------------------------|
| Valve Housing: | DR, Dezincification Resistant Brass |
| O-rings: | EPDM |
| Seal: | PTFE |
| Pressure class: | PN20 |
| Temperature: | -20 to + 110°C |
| Thread: | ISO 228 |

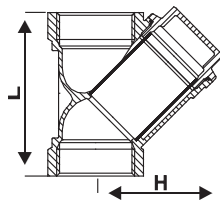


Flow Cartridge is selected from Cartridge Catalogues and ordered under individual numbers.

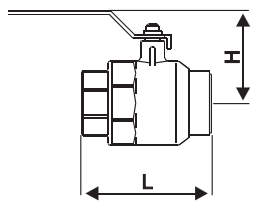
Please see accessories for feature selection.

| Frese no. | Dimensions |
|-----------|------------|
| 49-9466 | DN15 |
| 49-9476 | DN20 |
| 49-9486 | DN25 |
| 49-9496 | DN25L |
| 49-9506 | DN32 |
| 49-9516 | DN40 |
| 49-9526 | DN50 |

| Strainer | Dimensions | Weight [kg] | L [mm] | H [mm] |
|----------|------------|-------------|--------|--------|
| | DN15 | 0.158 | 56 | 41 |
| | DN20 | 0.282 | 69 | 50 |
| | DN25 | 0.440 | 82 | 62 |
| | DN32 | 0.638 | 90 | 71 |
| | DN40 | 0.820 | 101 | 78 |
| | DN50 | 1.280 | 121 | 96 |



| Ball Valve | Dimensions | Weight [kg] | L [mm] | H [mm] |
|------------|------------|-------------|--------|--------|
| | DN15 | 0.195 | 62 | 44 |
| | DN20 | 0.327 | 73 | 47 |
| | DN25 | 0.502 | 85 | 55 |
| | DN32 | 0.869 | 106 | 75 |
| | DN40 | 1.348 | 113 | 82 |
| | DN50 | 2.371 | 135 | 94 |



Glycolic mixtures (both ethylene and propylene) up to 50% are applicable with Frese Alpha. The pipe system should be properly ventilated to avoid the risk of air-pockets.

Specification text

The valve shall operate by means of an automatic balancing cartridge with replaceable orifice plate and internal diaphragm. The pressure class of the valve shall be PN25. The valve housing shall be made of DR brass. The housing of the strainer shall be made of DR brass; the filter shall be replaceable and made of stainless steel. The filter mesh shall be 32 (0.5 mm).

Frese ALPHA - automatic balancing valve

Fixed Female/Male for union connection

An automatic balancing valve with an integral ball valve and one union end for ease of installation

Technical data

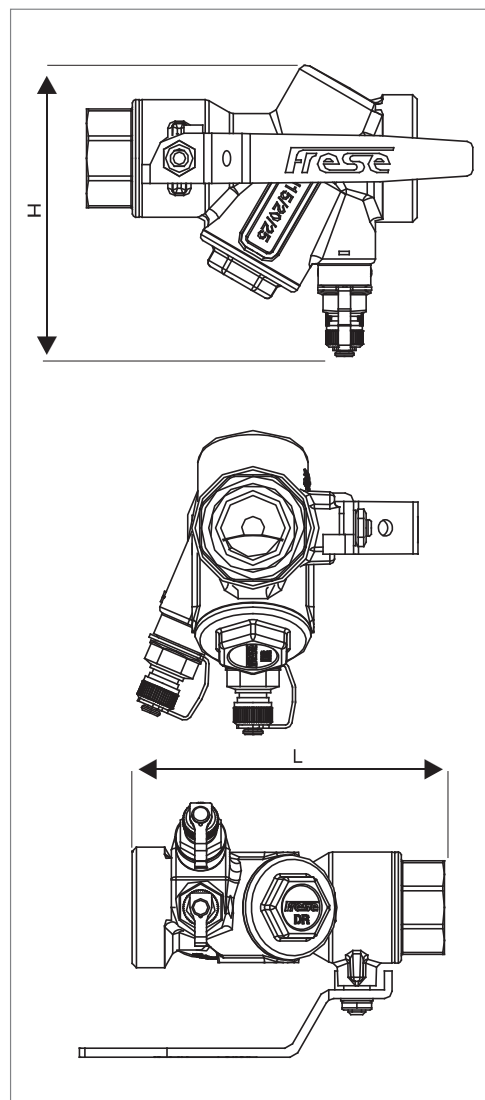
Valve Housing: DZR brass, CW602N
O-rings: EPDM
Seal: PTFE
Pressure class: PN25
Temperature: -20°C to + 120°C
Diff. Pressure Range: 7 - 600 kPa
Flow range: See Cartridge Catalogue
Thread: ISO 228

Frese product numbers are marked with an X. X represents the 3 different options available for different accessory features - see below. E.g. 49-9431 = Frese ALPHA DN32 equipped with 2 pcs. 1" P/T-Plugs.

Flow Cartridge is selected from Cartridge Catalogues and ordered under individual numbers.

| Frese no. | Dimensions |
|-----------|------------|
| 49-935X | DN15 |
| 49-937X | DN20 |
| 49-939X | DN25 |
| 49-941X | DN25L |
| 49-943X | DN32 |
| 49-945X | DN40 |

| Accessories | 1 | | 4 | | 6 | | L, W & H are stated in [mm] | |
|--------------|-----|-----|----------------------|-----|-----------------|-----|-----------------------------|-----------------|
| | | | Plug and drain valve | | 2 pcs P/T plugs | | L | Net Weight [kg] |
| Dimensions | W | H | W | H | W | H | | |
| 15/20/25 | 87 | 94 | 95 | 95 | 81 | 75 | 107 | ~0.71 |
| 25L/32/40/50 | 124 | 126 | 127 | 127 | 112 | 115 | 160 | ~2.15 |



| All threads are ISO type. Length is total valve length with one union connection. Length in mm. * Material in contact with water | Frese no./ Lenght with one union | Male ends DZR Brass * | Frese no./ Lenght with one union | Soldering ends Brass |
|---|----------------------------------|------------------------------|----------------------------------|-----------------------------|
| | DN15 | 43-4310/132 | 15 mm | 43-4102/127 |
| | DN20 | 43-4312/132 | 18 mm | 43-4103/127 |
| | DN25 | 43-4314/146 | 22 mm | 43-4104/129 |
| | | | 28 mm | 43-4105/128 |
| | DN25L | 43-5330/200 | 28 mm | 43-5122/180 |
| | DN32 | 43-5332/200 | 35 mm | 43-5123/197 |
| | DN40 | 43-5334/202 | 42 mm | 43-5124/197 |

Glycolic mixtures (both ethylene and propylene) up to 50% are applicable with Frese Alpha. Strainer is recommended. The pipe system should be properly ventilated to avoid the risk of air-pockets.

Specification text

The valve shall operate by means of an automatic balancing cartridge with replaceable orifice plate and internal diaphragm. The pressure class of the valve shall be PN25. The valve housing shall be made of DR brass. The housing shall have one fixed threaded end and one union end. The valve includes an integral ball valve with handle.

Frese ALPHA - automatic balancing valve

Fixed Female/Female for union connection

An automatic balancing valve with an integral ball valve and one union end for ease of installation


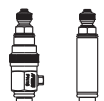
Technical data

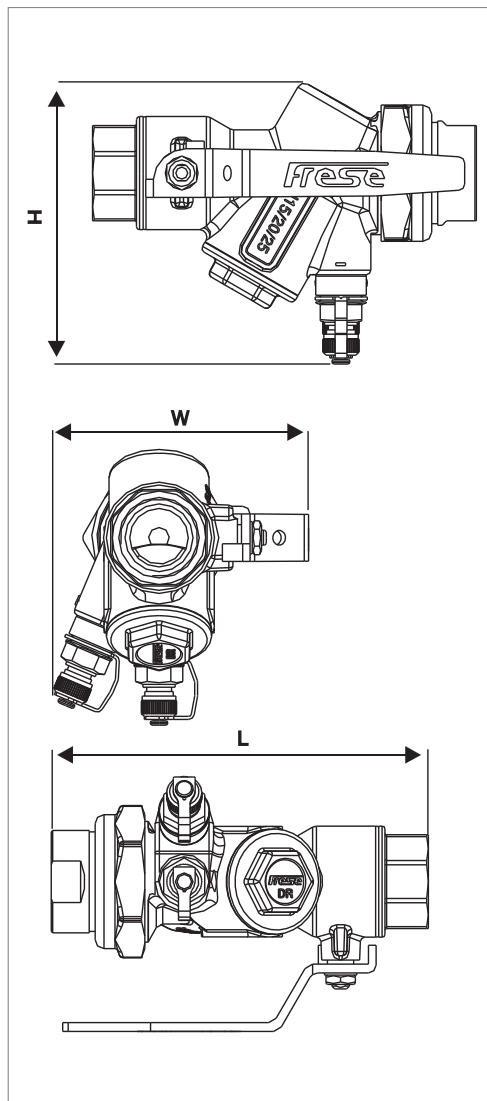
Valve Housing: DZR brass, CW602N
O-rings: EPDM
Seal: PTFE
Pressure class: PN25
Temperature: -20°C to + 120°C
Diff. Pressure Range: 7 - 600 kPa
Flow range: See Cartridge Catalogue
Thread: ISO 228


Frese product numbers are marked with an X. X represents the 2 different options available for different accessory features - see below. E.g. 49-9421 = Frese ALPHA DN32 equipped with 2 pcs. 1" P/T-Plugs.

Flow Cartridge is selected from Cartridge Catalogues and ordered under individual numbers.

| Frese no. | Dimensions |
|-----------|------------|
| 49-934X | DN15 |
| 49-936X | DN20 |
| 49-938X | DN25 |
| 49-940X | DN25L |
| 49-942X | DN32 |
| 49-944X | DN40 |

| Accessories | 1 | | 5 | | L, W & H are stated in [mm] | |
|--------------|---|-----|---|-----|-----------------------------|-----------------|
| |  | |  | | L | Net Weight [kg] |
| Dimensions | W | H | W | H | | |
| 15/20/25 | 87 | 94 | 103 | 133 | 129/129/146 | ~0.87 |
| 25L/32/40/50 | 124 | 126 | 135 | 164 | 195/195/200 | ~2.54 |



| All threads are ISO type. Length is total valve length with one union connection. Length in mm. * Material in contact with water | Frese no./Length with one union | Female ends  DZR Brass * |
|---|---------------------------------|--|
| | DN15 | 43-4210/129 |
| | DN20 | 43-4212/129 |
| | DN25 | 43-4214/146 |
| | DN25L | 43-5230/195 |
| | DN32 | 43-5232/195 |
| | DN40 | 43-5234/200 |

Glycolic mixtures (both ethylene and propylene) up to 50% are applicable with Frese Alpha. Strainer is recommended. The pipe system should be properly ventilated to avoid the risk of air-pockets.

Specification text

The valve shall operate by means of an automatic balancing cartridge with replaceable orifice plate and internal diaphragm. The pressure class of the valve shall be PN25. The valve housing shall be made of DR brass. The housing shall have one fixed threaded end and one union end. The valve includes an integral ball valve with handle.

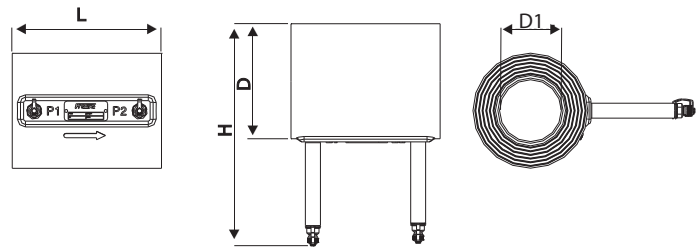
Frese ALPHA - automatic balancing valve

Flanged ductile iron

A wafer-type valve containing, depending on the size and the design flow, up to 85 Frese ALPHA cartridges

Technical data

| | |
|------------------------------|------------------------------|
| Valve Housing: | Ductile iron DIN 1693 GGG-40 |
| O-rings: | EPDM |
| Fasteners: | AISI 306 |
| Pressure class: | PN16 (PN25) |
| Temperature: | -20°C to + 110°C |
| Diff. Pressure Range: | 13 - 600 kPa |
| Flow range: | See Cartridge Catalogue |



| Frese no. (PN16) | Frese no. (PN25) | Dimensions | L [mm] | D [mm] | D1 [mm] | H [mm] | Net Weight [kg] | Cart./Valve (Pcs.) |
|------------------|------------------|------------|--------|--------|---------|--------|-----------------|--------------------|
| - | 49-9073 | DN50 | 170 | 100 | 80 | 218 | 3.41 | 1 |
| - | 49-9083 | DN65 | 170 | 119 | 80 | 237 | 4.91 | 1 |
| - | 49-9093 | DN80 | 170 | 131 | 80 | 249 | 4.79 | 1 |
| 49-9103 | 49-9540 | DN100 | 170 | 163 | 100 | 281 | 6.90 | 2 |
| 49-9163 | 49-9541 | DN125 | 170 | 193 | 125 | 311 | 9.00 | 3 |
| 49-9113 | 49-9542 | DN150 | 170 | 216 | 150 | 334 | 11.73 | 4 |
| 49-9123 | 49-9543 | DN200 | 170 | 271 | 200 | 389 | 18.75 | 7 |
| 49-9133 | 49-9544 | DN250 | 170 | 326 | 260 | 440 | 23.44 | 12 |
| 49-9143 | 49-9545 | DN300 | 170 | 383 | 315 | 501 | 33.41 | 15 |
| 49-9153 | 49-9546 | DN350 | 170 | 443 | 355 | 561 | 44.21 | 19 |
| 49-9173 | 49-9547 | DN400 | 170 | 496 | 405 | 614 | 51.63 | 26 |
| 49-9183 | 49-9548 | DN450 | 170 | 545 | 455 | 663 | 57.47 | 33 |
| 49-9193 | 49-9549 | DN500 | 170 | 601 | 508 | 719 | 67.75 | 40 |
| 49-9203 | 49-9550 | DN600 | 170 | 715 | 610 | 833 | 88.90 | 56 |
| 49-9213 | - | DN800 | 170 | 880 | 760 | 998 | 127.30 | 85 |

Blind Caps can be fitted instead of cartridges if the full flow capacity is not required. Frese A/S can deliver the valve with the cartridges installed (Frese number i.e. 49-9073-01 instead of 49-9073). Valves are delivered with 4" P/T-Plugs. From DN100 the valves are delivered with an eye bolt.

Glycolic mixtures (both ethylene and propylene) up to 50% are applicable with Frese Alpha. Strainer is recommended. The pipe system should be properly vented to avoid the risk of air-pockets.

Specification text

The valve shall operate by means of automatic balancing stainless steel cartridges with replaceable orifice plate and internal EPDM diaphragm. The pressure class of the valve shall be PN16/PN25. The valve housing shall be made of ductile iron type GGG40. The valve shall comply with flanges according to EN/ANSI standards.