

Grundfos valves

Non-return valves and foot valves



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1. Non-return valves, type GNVP



Fig. 1 GNVP valves

GNVP non-return valves are designed for installation in pipe systems between two DIN flanges. Thanks to their compact design, the GNVP valves are easy to install. All composite parts have a wide range of drinking water approvals, maintained at regular test intervals. According to the DIN EN 13959 standard, all GNVP non-return valves incorporate two test/drainage plugs for user-friendly usage.

Applications

The GNVP non-return valves are designed exclusively for installation in Grundfos booster systems where a one-way water flow is required.

Maximum operating pressure: 16 bar (PN 16).
Liquid temperature: 0 °C to +60 °C.

Drinking water approvals

WRAS

DVGW

ACS

BELGAQUA

For full details on approvals and certificates, please reach out to your local Grundfos sales company.

Construction

The polyoxymethylene (POM) valve housing is equipped with one or several insert valve cartridges, depending on the size. GNVP DN 32, DN 40 and DN 50-I are equipped with one valve cartridge. GNVP DN 50, DN 65, DN 80 and DN 100 are equipped with several valve cartridges. The DN 50-I is a special version with a smaller seal diameter.

The valve cartridge components are made of POM, the seals are made of NBR, and the spring is made of stainless steel, for optimum functionality and reliability.

Head loss

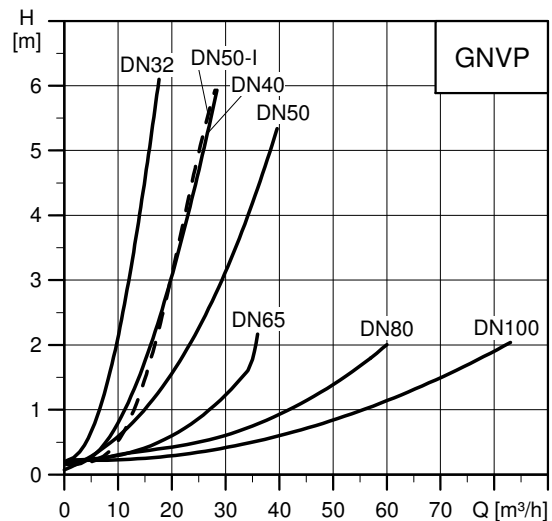
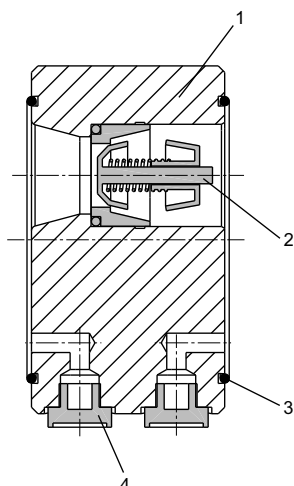


Fig. 2 Head loss curves for non-return valves, type GNVP

Dimensions

| Type | Outer diameter [mm] | Width [mm] | Size of O-ring seal [mm] | Product numbers |
|---------------------|---------------------|------------|--------------------------|-----------------|
| GNVP DN 32 (1 1/4") | 70 | 60 | Ø45 x 3 | 91040183 |
| GNVP DN 40 (1 1/2") | 90 | 60 | Ø56 x 3 | 91040184 |
| GNVP DN 50-I (2") | 108 | 60 | Ø76 x 3 | 96155179 |
| GNVP DN 50 (2") | 108 | 60 | Ø83 x 3 | 98595908 |
| GNVP DN 65 (2 1/2") | 125 | 60 | Ø94 x 3 | 91040186 |
| GNVP DN 80 (3") | 143 | 60 | Ø110 x 3 | 91069032 |
| GNVP DN 100 (4") | 160 | 60 | Ø130 x 3 | 91040187 |

Materials

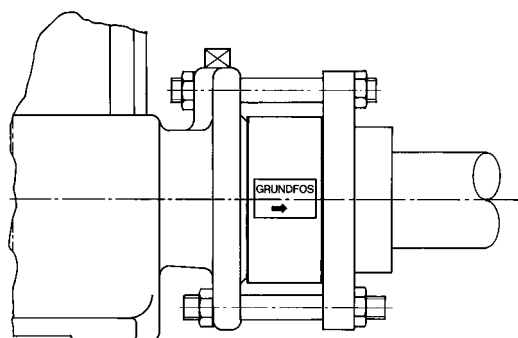


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Fig. 3 Components of a GNVP, DN 50 valve

Installation

| Pos. | Valve components | Materials |
|------|------------------|-----------|
| 1 | Housing | POM |
| 2 | Cartridge | POM |
| | O-ring | NBR |
| 3 | O-ring | EPDM |
| 4 | Plug | POM |
| | O-ring | EPDM |



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Fig. 4 Installation example, GNVP

The GNVP non-return valve is fitted between two DIN flanges, such as pump flange and counter flange, by means of bolts and nuts. The valve can be fitted in any position required. The arrow on the nameplate indicates the direction of the water flow.

Note: The GNVP valves have factory-fitted O-rings on both mating surfaces for optimum sealing against the flanges. As a result, no additional gaskets are required.

2. Non-return valves, type GNV

GNV non-return valves are designed for installation in pipe systems between two DIN flanges. The valve casing is made of electro-coated cast iron. Valve cone, valve seat and other components are made of stainless steel.

Applications

GNV 50, 80 and 100 are used in Grundfos booster systems, in water supply systems and drainage systems in both dwelling houses and in industry where a one-way water flow is required.

Maximum operating pressure: 25 bar (PN 25).
Liquid temperature: 0 °C to +120 °C.

Construction

The choice of materials reduces wear and corrosion to a minimum and ensures long maintenance-free life.

The valve seat consists of a stainless-steel ring on which synthetic rubber has been vulcanised. Due to this construction, the valve cone is seated directly on the stainless-steel ring at high pressures, to relieve the pressure on the rubber.

Head loss

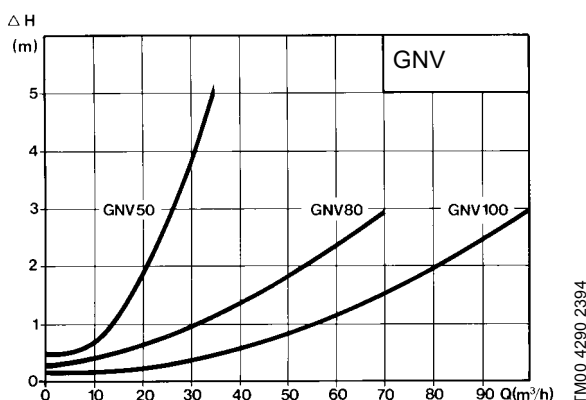


Fig. 5 Head loss curves for non-return valves, type GNV

Dimensions and weights

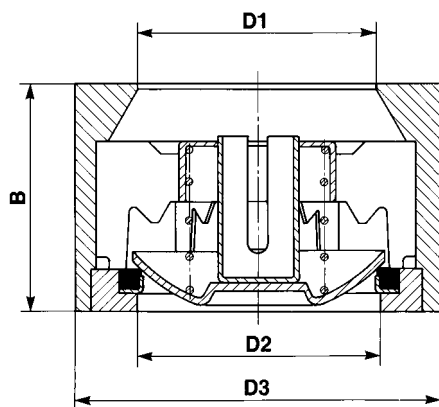


Fig. 6 Dimensional sketch, GNV

| Type | D1 [mm] | D2 [mm] | D3 [mm] | B [mm] | Weights [kg] | Product numbers |
|-----------------|---------|---------|---------|--------|--------------|-----------------|
| GNV DN 50 (2") | 65 | 50 | 104 | 48 | 1.4 | 957521 |
| GNV DN 80 (3") | 80 | 70 | 128 | 93 | 2.7 | 957526 |
| GNV DN 100 (4") | 100 | 95 | 160 | 95 | 5.0 | 957541 |

Materials

| Valve components | Materials | DIN W.-No. |
|--------------------------------------|----------------------|------------|
| Valve casing, electro-coated | Cast iron | 0.6020 |
| Valve seat, vulcanised | Stainless steel, NBR | 1.4301 |
| Guide for valve seat, electro-coated | Cast iron | 0.6020 |
| Valve cone | Stainless steel | 1.4301 |
| Guide complete | Stainless steel | 1.4301 |
| Spring | Stainless steel | 1.4301 |
| Spring retainer | Stainless steel | 1.4401 |

Installation

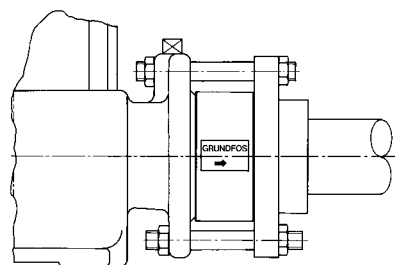


Fig. 7 Installation example, GNV

The GNV non-return valve is fitted between two DIN flanges, such as pump flange and counter flange, by means of bolts and nuts. The valve can be fitted in any position required. The arrow on the nameplate indicates the direction of the water flow.

Before installation, gaskets should be fitted on either side of the valve. The following sizes should be used:

| Valve type | Gasket size |
|------------|-------------------------|
| GNV 50 | Ø102 / Ø65 mm x 1.5 mm |
| GNV 80 | Ø125 / Ø80 mm x 1.5 mm |
| GNV 100 | Ø162 / Ø115 mm x 2.0 mm |

3. Foot valves and non-return valves

BV, MV 3/4" to 3"

BV and MV valves are one-way valves with the valve casing made of cast iron or bronze. The valves have internal pipe thread and can be supplied with or without spring-loaded valve cone.

BV: foot valve without spring
 BVF: foot valve with spring
 MV: non-return valve without spring
 MVF: non-return valve with spring.

Applications

BV and MV valves are used in minor water supply and pumping systems to avoid backflow when the pump is stopped. The valves are also fitted in systems where the pumps are connected in parallel and as foot valves to secure the suction conditions of the pumps.

Valves without a spring are only intended for vertical installation. Valves with a spring can be fitted in any position in the pipe system.

Maximum operating pressure: 25 bar.
 Liquid temperature: 0 °C to +70 °C.

Product numbers

| BV, MV without spring | Cast iron | Bronze | BVF, MVF with spring | Cast iron | Bronze |
|-----------------------|-----------|--------|----------------------|-----------|--------|
| BV 3/4" | 956007 | 956207 | BVF 3/4" | 956107 | 956307 |
| BV 1" | 956010 | 956210 | BVF 1" | 956110 | 956310 |
| BV 1 1/4" | 956012 | 956212 | BVF 1 1/4" | 956112 | 956312 |
| BV 1 1/2" | 956015 | 956215 | BVF 1 1/2" | 956115 | 956315 |
| BV 2" | 956020 | 956220 | BVF 2" | 956120 | 956320 |
| BV 2 1/2" | 956025 | 956225 | BVF 2 1/2" | 956125 | 956325 |
| BV 3" | 956030 | 956230 | BVF 3" | 956130 | 956330 |
| MV 3/4" | 957007 | 957207 | MVF 3/4" | 957107 | 957307 |
| MV 1" | 957010 | 957210 | MVF 1" | 957110 | 957310 |
| MV 1 1/4" | 957012 | 957212 | MVF 1 1/4" | 957112 | 957312 |
| MV 1 1/2" | 957015 | 957215 | MVF 1 1/2" | 957115 | 957315 |
| MV 2" | 957020 | 957220 | MVF 2" | 957120 | 957320 |
| MV 2 1/2" | 957025 | 957225 | MVF 2 1/2" | 957125 | 957325 |
| MV 3" | 957030 | 957230 | MVF 3" | 957130 | 957330 |

Dimensions and weights

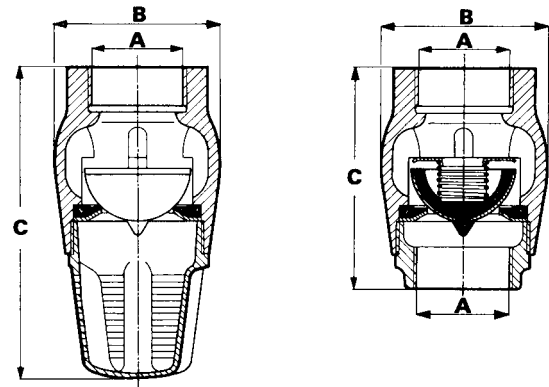
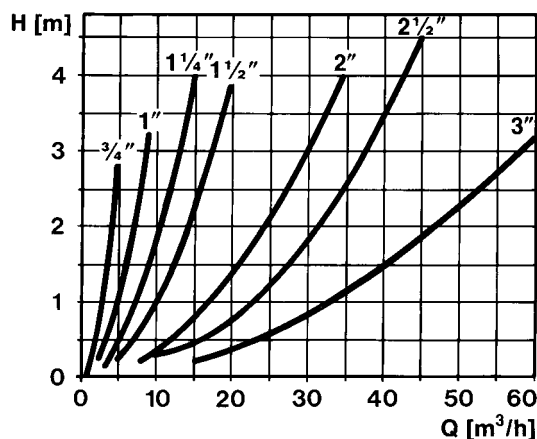


Fig. 8 Dimensional sketch, BV, MV 3/4" to 3"

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| Type | A | B [mm] | C [mm] | Cast iron [kg] | Bronze [kg] |
|-----------|--------|--------|--------|----------------|-------------|
| BV 3/4" | 3/4" | 44 | 104 | 0.5 | 0.5 |
| BV 1" | 1" | 60 | 117 | 0.8 | 0.9 |
| BV 1 1/4" | 1 1/4" | 70 | 130 | 1.2 | 1.4 |
| BV 1 1/2" | 1 1/2" | 75 | 155 | 1.5 | 1.8 |
| BV 2" | 2" | 100 | 212 | 2.6 | 3.1 |
| BV 2 1/2" | 2 1/2" | 120 | 235 | 4.6 | 5.2 |
| BV 3" | 3" | 137 | 263 | 6.3 | 6.9 |
| MV 3/4" | 3/4" | 44 | 80 | 0.4 | 0.5 |
| MV 1" | 1" | 60 | 87 | 0.8 | 0.9 |
| MV 1 1/4" | 1 1/4" | 70 | 100 | 1.1 | 1.3 |
| MV 1 1/2" | 1 1/2" | 75 | 108 | 1.4 | 1.7 |
| MV 2" | 2" | 100 | 136 | 2.5 | 2.9 |
| MV 2 1/2" | 2 1/2" | 120 | 163 | 4.4 | 5.1 |
| MV 3" | 3" | 137 | 182 | 6.0 | 6.8 |

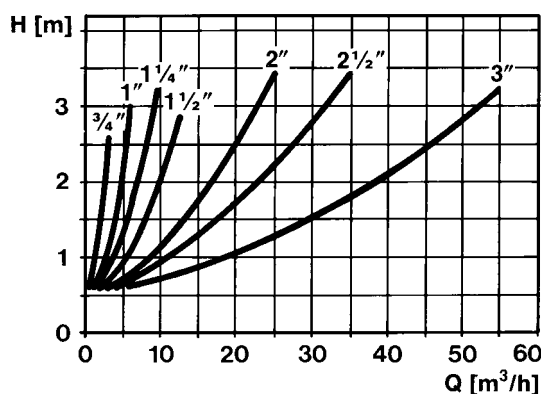
Head loss without spring



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Fig. 9 Head loss curves for BV and MV

Head loss with spring



TM00 1193 4697

Fig. 10 Head loss curves for BVF and MVF

Materials

| Valve components | Materials | DIN W.-No. |
|------------------------|----------------------|------------|
| Valve casing | Cast iron | 0.6020 |
| | Bronze | 2.1176.01 |
| Valve seat, vulcanised | Stainless steel, NBR | 1.4301 |
| Valve cone, vulcanised | Stainless steel, NBR | 1.4301 |
| Spring | Stainless steel | 1.4301 |
| Spring retainer | Stainless steel | 1.4301 |
| Nipple (MV) | Bronze | 2.1096.01 |
| Strainer (BV) | Bronze | 2.1096.01 |

BV, MV 4" to 6"

BV and MV valves are one-way valves with valve casing in stainless steel or nickel-resist alloy and other components in stainless steel. Foot valves (BV) in stainless steel are only available in the 6" dimension.

BV 4" to 6" in nickel-resist alloy
 MV 4" to 6" in nickel-resist alloy
 BV 6" in stainless steel.

Applications

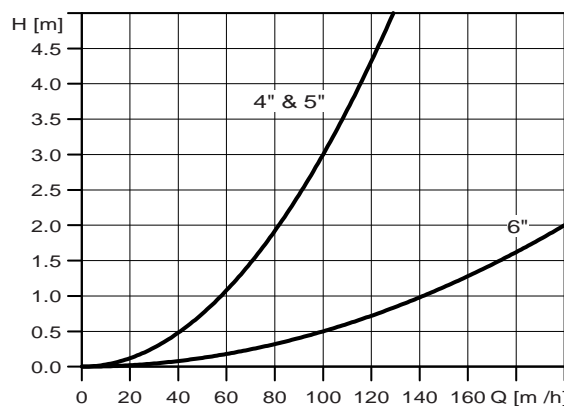
The foot valve is fitted to the inlet pipe in boreholes to secure the suction condition of the pump.

The non-return valve is fitted in large pipe systems to avoid backflow.

Thanks to the combination of materials, the BV and MV valves can be used in pipe systems for slightly aggressive liquids.

Maximum operating pressure: 25 bar.
 Liquid temperature: 0 °C to +70 °C.

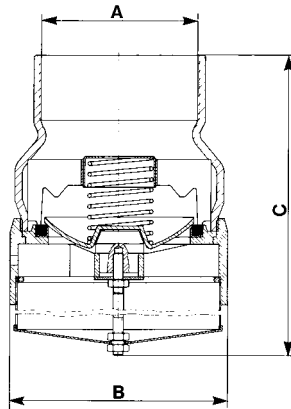
Head loss



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Fig. 11 Head loss curves for BV and MV

Dimensions and weights



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Fig. 12 Dimensional sketch, BV, MV 4" to 6"

| Type | A | B [mm] | C [mm] | Weight [kg] | Product numbers |
|-------|-----------|-----------|-----------|----------------|-------------------|
| | | | | | Nickel-resist |
| BV 4" | Rp 4 | 162 | 415 | 9.7 | 956449 |
| BV 5" | Rp 5 | 190 | 482 | 17.5 | 956459 |
| BV 6" | Rp 6 | 228 | 550 | 18.2 | 956461 |
| | | | | | Stainless: 285001 |
| MV 4" | Rp 4 | 158 | 240 | 8.7 | 957449 |
| MV 5" | Rp 5 | 158 | 215 | 16.5 | 957450 |
| MV 6" | Rp 6 | 190 | 241 | 17.2 | 957461 |
| MV 6" | 6" flange | 220 | 255 | 20.2 | 957460 |

Construction

The foot valves and non-return valves have internal thread and consist of valve casing, upper and lower part for MV or valve casing and strainer for BV. The valve seat consists of a stainless-steel ring on which rubber has been vulcanised. Due to this construction, the valve cone is seated directly on the stainless-steel ring at high pressures to relieve the pressure on the rubber.

To seal the valve, the valve cone is spring-loaded and controlled by guides in both the upper and lower part of the valve casing.

Materials

| Valve components | Materials | DIN W.-No. |
|--------------------------|-----------------|------------|
| Valve casing | Nickel-resist | 0.7660 |
| | Stainless steel | 1.4301 |
| Valve cone | Stainless steel | 1.4301 |
| Valve seat, vulcanised | Stainless steel | 1.4301 |
| | NBR, NR or BR | |
| Guides in valve casings | Stainless steel | 1.4301 |
| Spring | Stainless steel | 1.4301 |
| Nut and lock washer | Stainless steel | 1.4401 |
| Staybolts | Stainless steel | 1.4301 |
| Valve casing, lower part | Nickel-resist | 0.7660 |
| | Stainless steel | 1.4301 |
| Strainer | Stainless steel | 1.4301 |

4. Grundfos Product Center

Online search and sizing tool to help you make the right choice.

<http://product-selection.grundfos.com>

All the information you need in one place

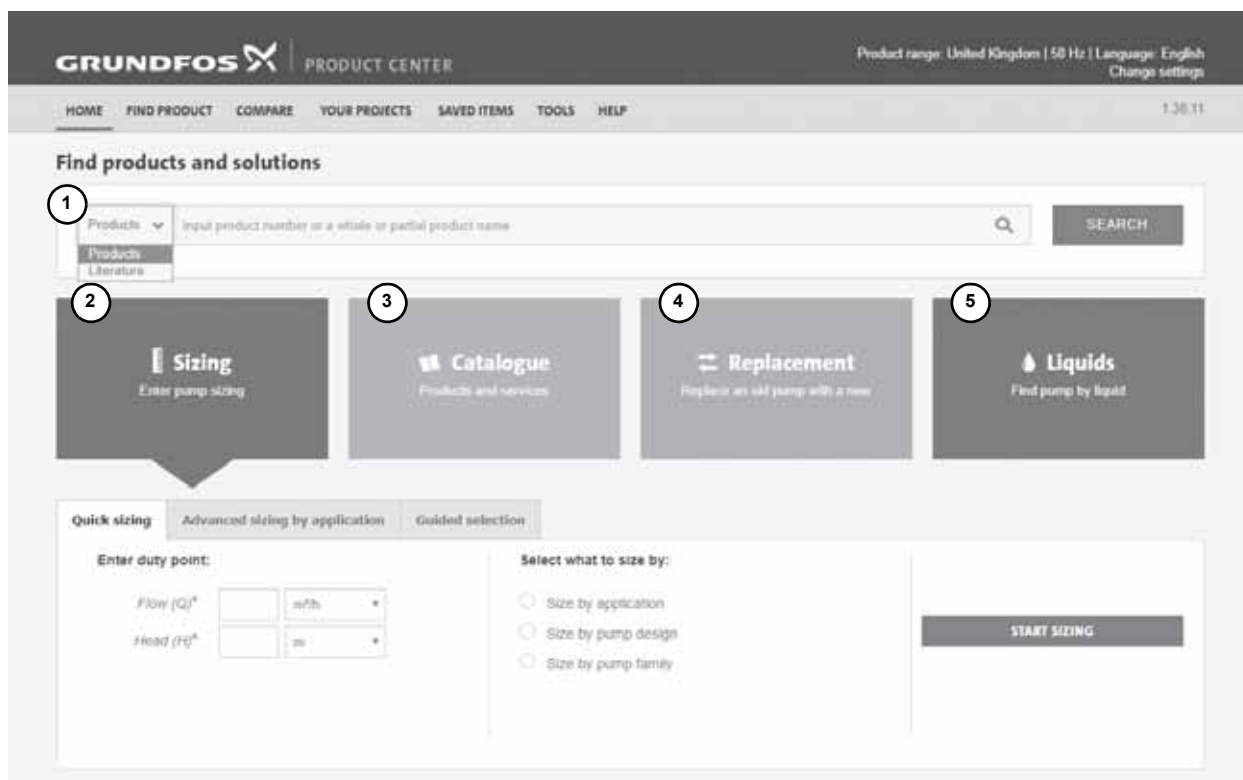
Performance curves, technical specifications, pictures, dimensional drawings, motor curves, wiring diagrams, spare parts, service kits, 3D drawings, documents, system parts. The Product Center displays any recent and saved items - including complete projects - right on the main page.

Downloads

On the product pages, you can download installation and operating instructions, data booklets, service instructions, etc. in PDF format.



TM07 2384



TM07 2383

Pos. Description

- | | |
|---|---|
| 1 | This drop-down menu enables you to set the search function to "Products" or "Literature". |
| 2 | SIZING enables you to size a pump based on entered data and selection choices. |
| 3 | CATALOGUE gives you access to the Grundfos product catalogue. REPLACEMENT enables you to find a replacement product. Search results will include information on |
| 4 | the lowest purchase price the lowest energy consumption the lowest total life cycle cost. |
| 5 | LIQUIDS enables you to find pumps designed for aggressive, flammable or other special liquids. |

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