Grundfos valves

Non-return valves and foot valves

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1. Non-return valves, type GNVP

TM04 9408 4110

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

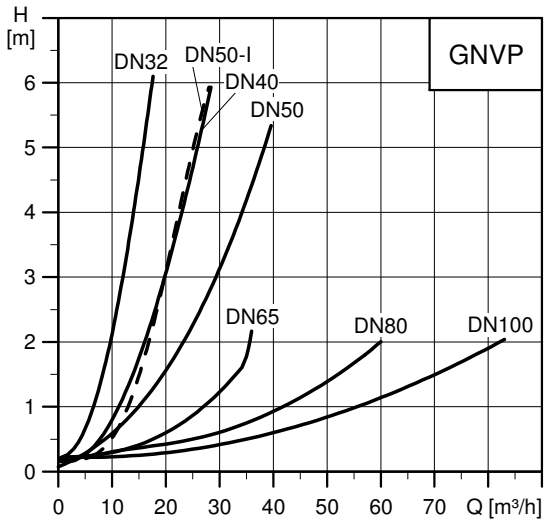

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Fig. 2 Head loss curves for non-return valves, type GNVP

Dimensions

Type	Outer diameter [mm]	Width [mm]	Size of O-ring seal [mm]	Product numbers
GNVP DN 32 (1 1/4")	70	60	∅45 x 3	91040183
GNVP DN 40 (1 1/2")	90	60	∅56 x 3	91040184
GNVP DN 50-I (2")	108	60	∅76 x 3	96155179
GNVP DN 50 (2")	108	60	∅83 x 3	98595908
GNVP DN 65 (2 1/2")	125	60	∅94 x 3	91040186
GNVP DN 80 (3")	143	60	∅110 x 3	91069032
GNVP DN 100 (4")	160	60	∅130 x 3	91040187

Materials

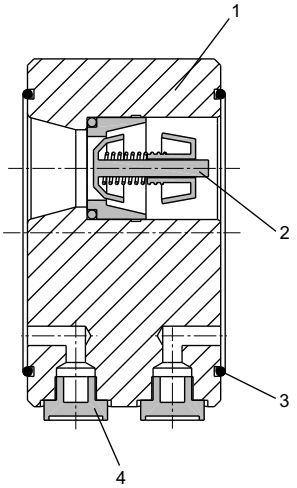

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Fig. 3 Components of a GNVP, DN 50 valve

Installation

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

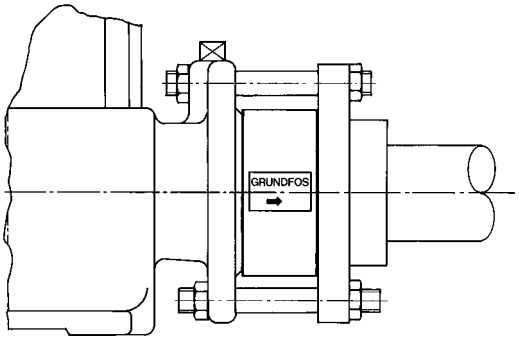

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Fig. 4 Installation example, GNVP

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

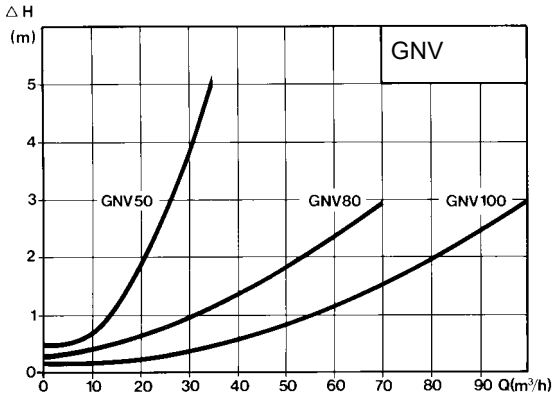

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Fig. 5 Head loss curves for non-return valves, type GNV

Dimensions and weights

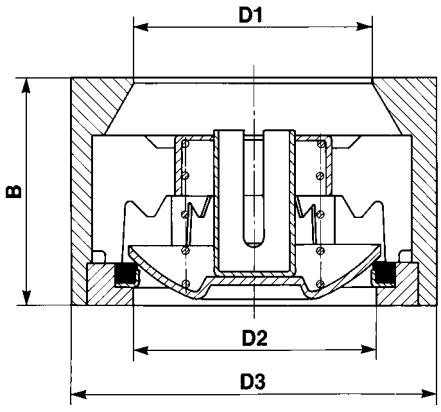

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Fig. 6 Dimensional sketch, GNV

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

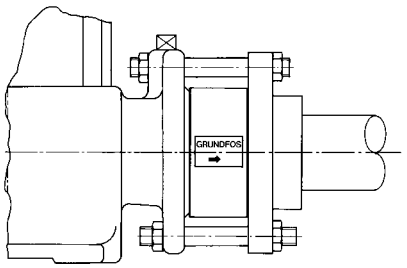

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Fig. 7 Installation example, GNV

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	∅102 / ∅65 mm x 1.5 mm
GNV 80	∅125 / ∅80 mm x 1.5 mm
GNV 100	∅162 / ∅115 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

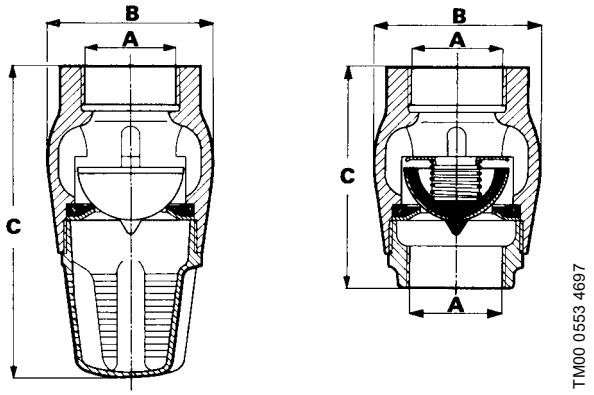

Fig. 8 Dimensional sketch, BV, MV 3/4" to 3"

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

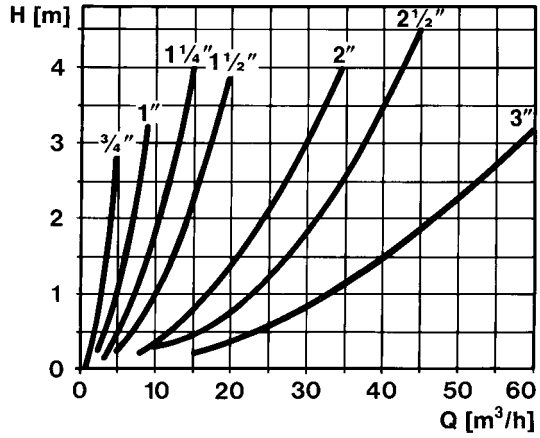

Fig. 9 Head loss curves for BV and MV

Head loss with spring

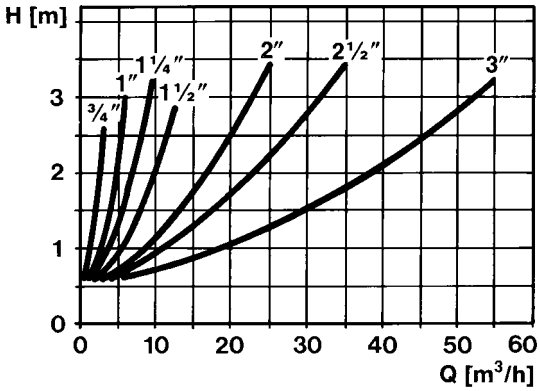

Fig. 10 Head loss curves for BVF and MVF

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

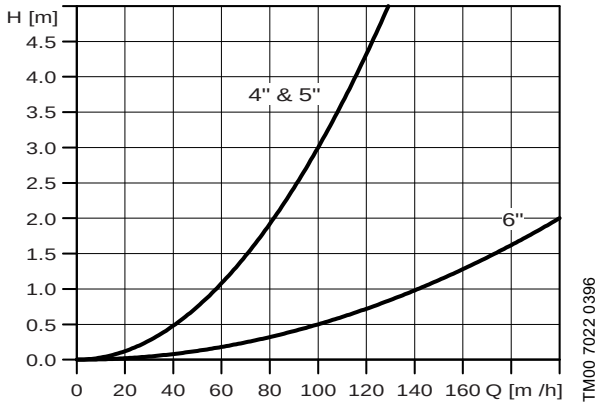

Fig. 11 Head loss curves for BV and MV

Dimensions and weights

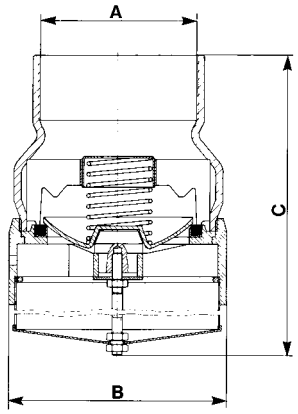

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Fig. 12 Dimensional sketch, BV, MV 4" to 6"

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 NBR, NR or BR	1.4301
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

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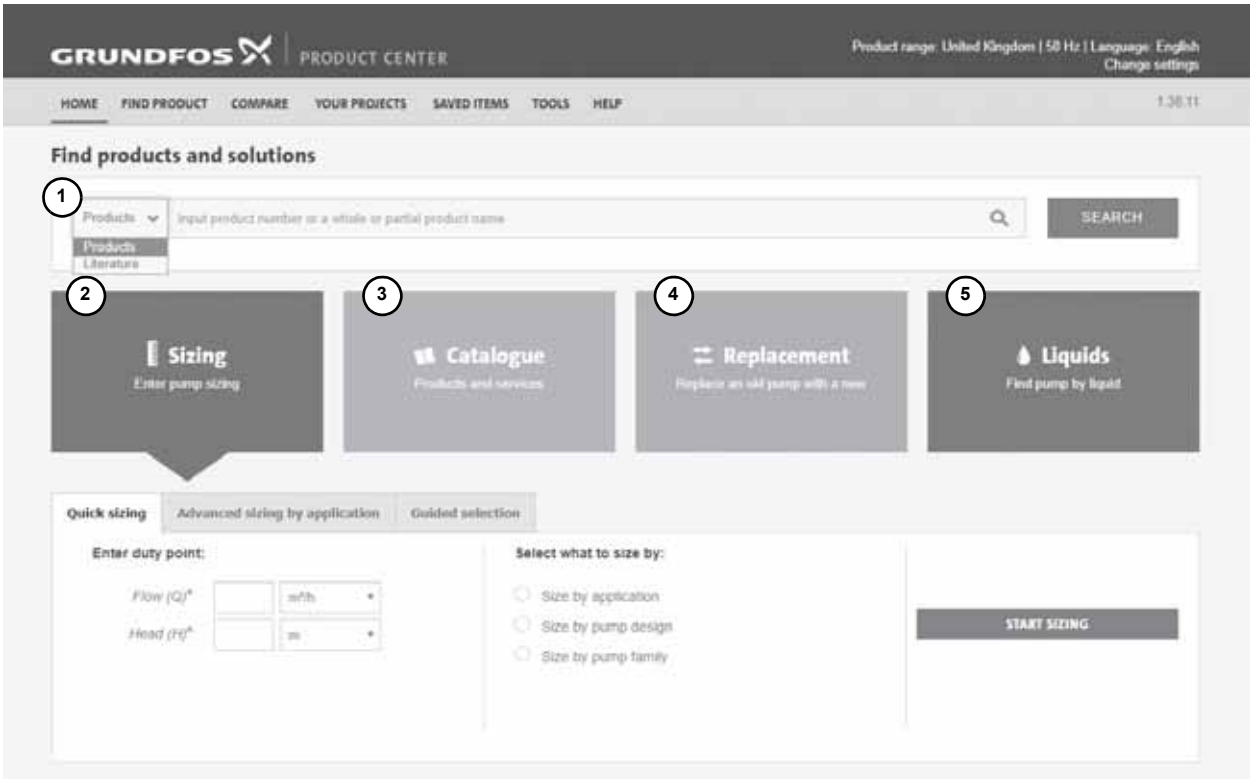

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