



**VR DN 10÷100**  
PVC-U

Check valve

# VR

## DN 10÷100

The VR is an angle seat check valve with weighted PVC piston that allows the passage of fluid in one direction only

### CHECK VALVE

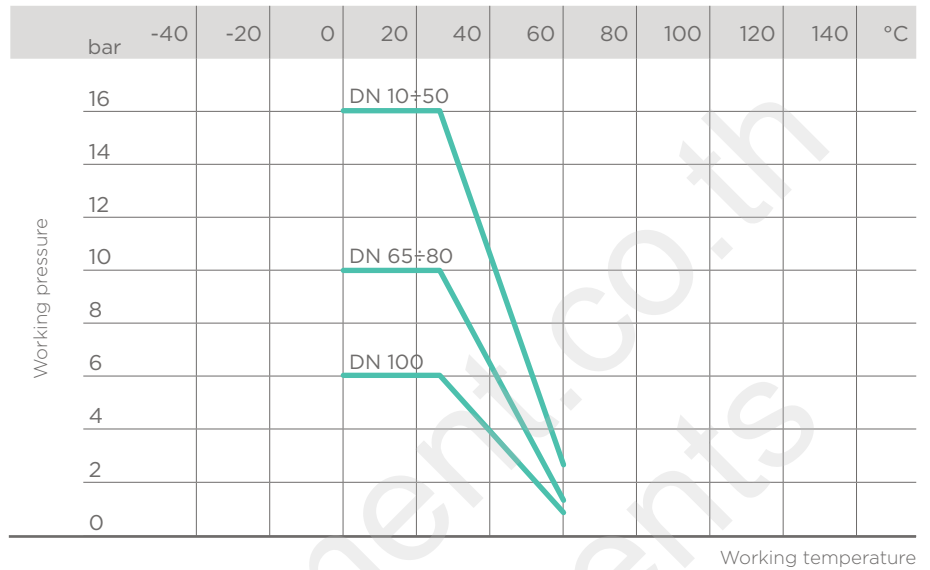
- Connection system for solvent weld, threaded and flanged joints
- **No metal parts in contact with the fluid**
- **Piston with counterweight** able to work with high intensity fluid
- Limited pressure drop. Only minimum back pressure is required for the hermetic seal
- **Valve material compatibility** (PVC-U) with water conveyance, drinking water and other food substances according to **current regulations**
- Can be maintained with the valve body installed

Technical specifications	
<b>Construction</b>	Angle seat check valve
<b>Size range</b>	DN 10 ÷ 100
<b>Nominal pressure</b>	<b>DN 10÷50:</b> PN 16 with water at 20 °C <b>DN 65:</b> PN 10 with water at 20 °C <b>DN 80÷100:</b> PN 6 with water at 20 °C
<b>Temperature range</b>	0 °C ÷ 60 °C
<b>Coupling standards</b>	<b>Solvent welding:</b> EN ISO 1452, EN ISO 15493, BS 4346-1, DIN 8063, NF T54-028, ASTM D 2467, JIS K 6743. Can be coupled to pipes according to EN ISO 1452, EN ISO 15493, DIN 8062, NF T54-016, ASTM D 1785, JIS K 6741 <b>Thread:</b> ISO 228-1, DIN 2999, ASTM D 2464, JIS B 0203 <b>Flanging system:</b> ISO 7005-1, EN ISO 1452, EN ISO 15493, EN 558-1 (DN 10÷50), DIN 2501, ANSI B.16.5 cl.150, JIS B 2220
<b>Reference standards</b>	<b>Construction criteria:</b> EN ISO 16137, EN ISO 1452, EN ISO 15493 <b>Test methods and requirements:</b> ISO 9393 <b>Installation criteria:</b> DVS 2204, DVS 2221, UNI 11242
<b>Valve material</b>	PVC-U
<b>Seal material</b>	EPDM or FPM

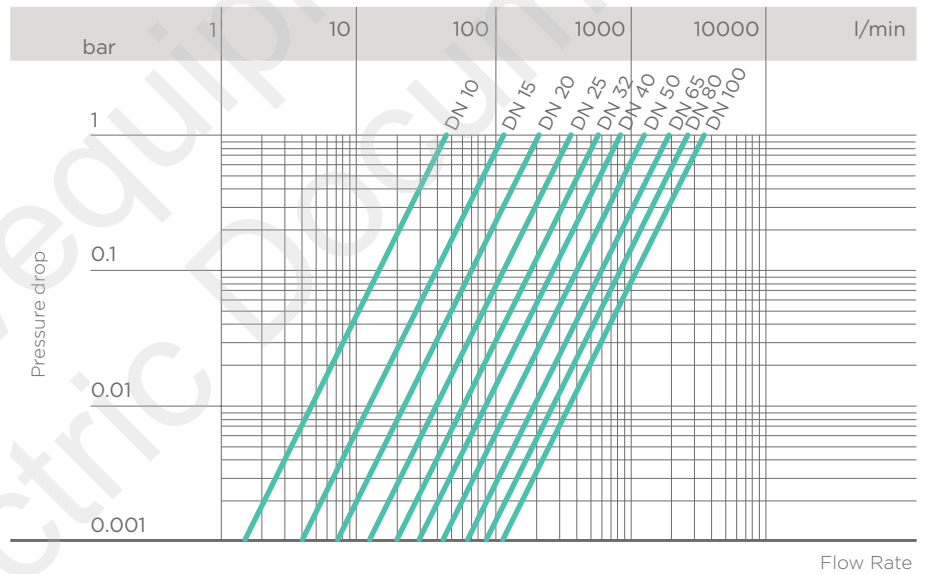
# TECHNICAL DATA

## PRESSURE VARIATION ACCORDING TO TEMPERATURE

For water and non-hazardous fluids with regard to which the material is classified as CHEMICALLY RESISTANT. In other cases, a reduction of the nominal pressure PN is required (25 years with safety factor).



## PRESSURE DROP GRAPH



## K<sub>v</sub>100 FLOW COEFFICIENT

The K<sub>v</sub>100 flow coefficient is the Q flow rate of litres per minute of water at a temperature of 20°C that will generate  $\Delta p = 1$  bar pressure drop at a certain valve position.

The K<sub>v</sub>100 values shown in the table are calculated with the valve completely open.

DN	10	15	20	25	32	40	50	65	80	100
K <sub>v</sub> 100	47	110	205	375	560	835	1300	1950	2600	3500

## MINIMUM PRESSURE REQUIRED TO LIFT THE PISTON

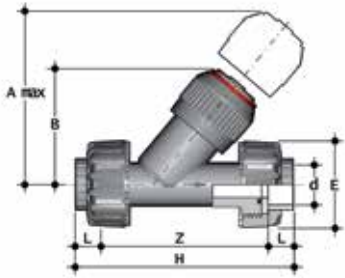
DN	10	15	20	25	32	40	50	65	80	100
bar	0.008	0.008	0.009	0.014	0.017	0.018	0.021	0.022	0.022	0.024

## MINIMUM SEALING PRESSURE (PISTON IN CLOSED POSITION)

DN	10	15	20	25	32	40	50	65	80	100
mm H <sub>2</sub> O	150	150	200	350	350	350	350	350	350	350

The figures refer to the seals that are not worn.

The information in this leaflet is provided in good faith. No liability will be accepted concerning technical data that is not directly covered by recognised international standards. FIP reserves the right to carry out any modification. Products must be installed and maintained by qualified personnel.

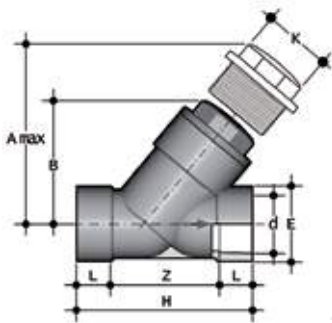


### VRUIV

Check valve with female union ends for solvent welding, metric series

d	DN	PN	A max	B	E	H	L	Z	Fig.	g	EPDM Code	FPM Code
16	10	16	125	72	55	135	14	107	A	218	VRUIV016E	VRUIV016F
20	15	16	125	72	55	135	16	103	A	226	VRUIV020E	VRUIV020F
25	20	16	145	84	66	158	19	120	A	388	VRUIV025E	VRUIV025F
32	25	16	165	95	75	176	22	132	A	606	VRUIV032E	VRUIV032F
40	32	16	190	111	87	207	26	155	A	923	VRUIV040E	VRUIV040F
50	40	16	210	120	100	243	31	181	A	1335	VRUIV050E	VRUIV050F
63	50	16	240	139	120	298	38.2	221.6	A	2313	VRUIV063E	VRUIV063F

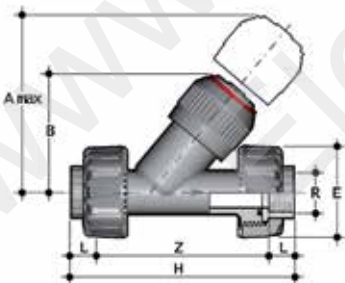
also available with standard ANSI, BS and JIS connections



### VRIV

Check valve with female ends for solvent welding, metric series

d	DN	PN	A max	B	E	H	K	L	Z	Fig.	g	EPDM Code	FPM Code
75	65	10	300	179	104	243	96	44	155	B	3485	VRIV075E	VRIV075F
90	80	6	325	192	116	262	105	51	160	B	4530	VRIV090E	VRIV090F
110	100	6	385	231	138	325	-	61	203	C	7170	VRIV110E	VRIV110F

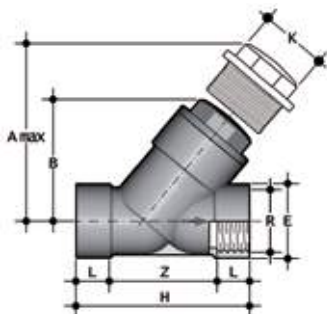


### VRUFV

Check valve with BSP threaded female union ends

R	DN	PN	A max	B	E	H	L	Z	Fig.	g	EPDM Code	FPM Code
3/8"	10	16	125	72	55	135	11.4	112.2	A	221	VRUFV038E	VRUFV038F
1/2"	15	16	125	72	55	143	15	113	A	230	VRUFV012E	VRUFV012F
3/4"	20	16	145	84	66	160	16.3	127.4	A	390	VRUFV034E	VRUFV034F
1"	25	16	165	95	75	183	19.1	144.8	A	602	VRUFV100E	VRUFV100F
1 1/4"	32	16	190	111	87	214	21.4	171.2	A	932	VRUFV114E	VRUFV114F
1 1/2"	40	16	210	120	100	235	21.4	192.2	A	1341	VRUFV112E	VRUFV112F
2"	50	16	240	139	120	285	25.7	233.6	A	2348	VRUFV200E	VRUFV200F

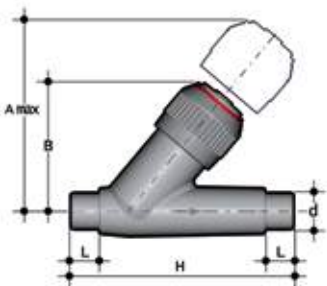
also available with standard ASTM/NPT connections



## VRFV

Check valve with BSP threaded female ends

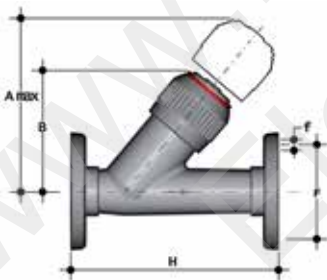
R	DN	PN	A max	B	E	H	K	L	Z	Fig.	g	EPDM Code	FPM Code
2 1/2"	65	10	300	179	104	243	96	30.2	182.6	B	3485	VRFV212E	VRFV212F
3"	80	6	325	192	116	262	105	33.3	195.4	B	4520	VRFV300E	VRFV300F
4"	100	6	385	231	138	325	-	39.3	246.4	C	6965	VRFV400E	VRFV400F



## VRDV

Check valve with male ends for solvent welding, metric series

d	DN	PN	A max	B	H	L	Fig.	g	EPDM Code	FPM Code
16	10	16	125	72	114	14	A	125	VRDV016E	VRDV016F
20	15	16	125	72	124	16	A	135	VRDV020E	VRDV020F
25	20	16	145	84	144	19	A	225	VRDV025E	VRDV025F
32	25	16	165	95	154	22	A	360	VRDV032E	VRDV032F
40	32	16	190	111	174	26	A	590	VRDV040E	VRDV040F
50	40	16	210	120	194	31	A	835	VRDV050E	VRDV050F
63	50	16	240	139	224	38	A	1420	VRDV063E	VRDV063F

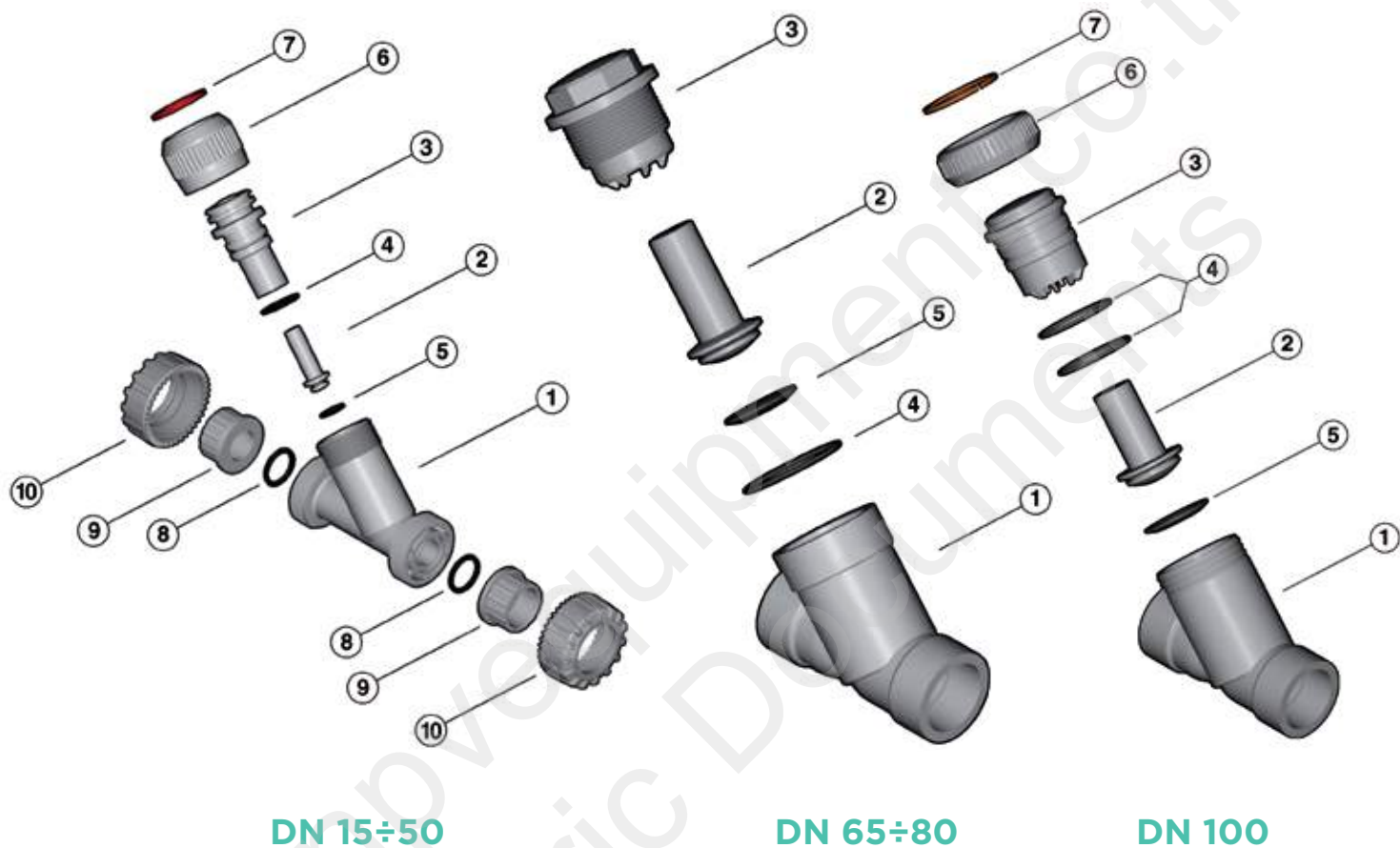


## VROV

Check valve with fixed flanges, drilled PN10/16

d	DN	PN	A max	B	F	f	H	Fig.	g	EPDM Code	FPM Code
20	15	16	125	72	65	14	130	A	280	VROV020E	VROV020F
25	20	16	145	84	75	14	150	A	430	VROV025E	VROV025F
32	25	16	165	95	85	14	160	A	640	VROV032E	VROV032F
40	32	16	190	111	100	18	180	A	1035	VROV040E	VROV040F
50	40	16	210	120	110	18	200	A	1405	VROV050E	VROV050F
63	50	16	240	139	125	18	230	A	2235	VROV063E	VROV063F
75	65	10	300	179	145	17	356	B	4600	VROV075E	VROV075F
90	80	6	325	192	160	17	404	B	6300	VROV090E	VROV090F
110	100	6	385	231	180	17	475	C	9200	VROV110E	VROV110F

## EXPLODED VIEW



**DN 15÷50**

**DN 65÷80**

**DN 100**

- 1 · Body (PVC-U - 1)
- 2 · Piston (PVC-U - 1)
- 3 · Bonnet (PVC-U - 1)
- 4 · O-Ring (EPDM-FPM - 1/2)\*

- 5 · Piston flat gasket (EPDM-FPM - 1)\*
- 6 · Union nut (PVC-U - 1)
- 7 · Retaining ring (PVC-U - 1)
- 8 · Socket seal O-Ring (EPDM-FPM - 2)\*

- 9 · End connector (PVC-U - 2)\*
- 10 · Union nut (PVC-U - 2)

\* Spare parts

The material of the component and the quantity supplied are indicated between brackets

## DISMOUNTING

### DN 15÷50 - DN 100 (fig. A and C)

- 1) Isolate the valve from the fluid flow.
- 2) Unscrew the union nut (6) and separate the bonnet (3) from the body (1).
- 3) Remove the piston (2) and flat gasket (5).
- 4) Remove the retaining ring (7) and separate the union nut (6) from the bonnet (3).
- 5) Remove the O-Ring from the bonnet (4).

### DN 65÷100 (fig. B)

- 1) Isolate the valve from the fluid flow.
- 2) Unscrew the bonnet (3) from the body (1).
- 3) Remove the O-Ring (4) from its seating in the body (1).
- 4) Remove the piston (2) and relative flat gasket (5).

## MOUNTING

### DN 15÷50 - DN 100 (fig. A and C)

- 1) Insert the O-Ring (4) in its seating in the bonnet (3).
- 2) Insert the bonnet (3) in union nut (6) and fix the two components using the retaining ring (7).
- 3) Insert the piston (2) complete with flat gasket (5) in the bonnet (3), then fit the bonnet on the body (1).
- 4) Screw the union nut (6) on the body (1)

### DN 65÷100 (fig. B)

- 1) Insert the piston (2) complete with flat gasket (5) in the bonnet (3).
- 2) Insert the O-ring (4) in the body (1) seating.
- 3) Screw the bonnet (3) to the body (1)



**Note:** maintenance operations can be carried out with the valve body installed during assembly, it is advisable to lubricate the rubber seals. Mineral oils are not recommended for this task as they react aggressively with EPDM rubber.

Fig. A

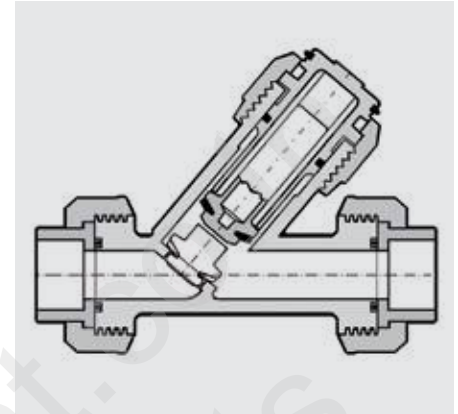


Fig. B

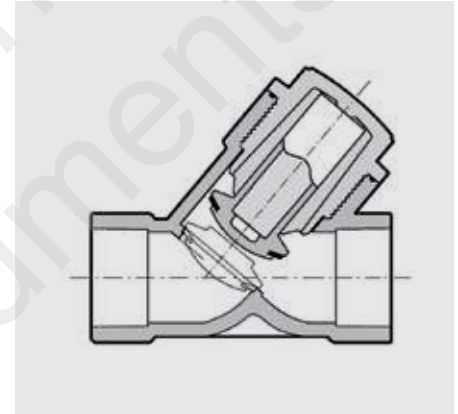
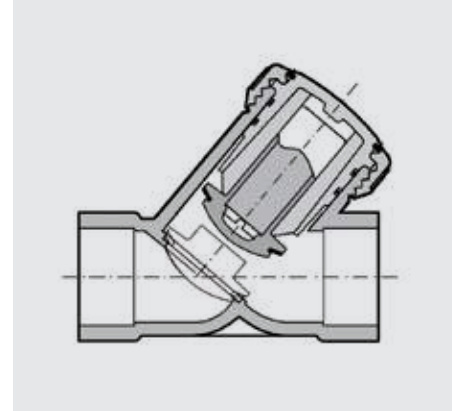


Fig. C



## INSTALLATION

- 1) The check valve can be installed on vertical or horizontal axis pipes. The bonnet (3) must however always be turned upwards as the piston works by gravity.
- 2) If the valve is installed in a vertical position, if the connection is solvent welded, make sure that the solvent cement does not enter inside the body, as this would damage the seating of the seal.
- 3) Install the valve such that the arrow stamped on the body indicates the direction of fluid flow .

## ⚠ WARNINGS

- Do not used compressed air or other gases to test thermoplastic lines.