Raphael
Beyond Valves



FIRE PROTECTION

ENGINEERING DATA

Product Catalog

Fire Product Catalog

RAPHAEL VALVES INDUSTRIES (1975) LTD.

Founded in 1949, Raphael Valves Industries Ltd., is a manufacturer of high-quality control valves. With an extensive and pioneering product lineup, Raphael leads the global market in valve technology.

Our product range includes Fire Protection sectors, hydraulic control valves, butterfly valves, gate valves, check valves and more, specifically designed to meet the needs of the Irrigation, Waterworks. Each valve undergoes thorough quality control testing and manufacturing procedures, holding prestigious certifications such as ISO 9001, UL and FM approval.

Raphael offers a wide range of elastomeric diaphragm-type valves in streamlined globe and angle patterns. These valves are essential components in fixed fire extinguishing systems using water, foam, or seawater media. Our Fire Protection range includes Deluge and Preaction systems, Pressure control valves, Monitors and Hydrants, suitable for various environments such as Petro-chemical, Oil & Gas, Offshore, and Marine applications.

ENGINEERING DATA

FDV BASIC VALVE	4
FDV-R BASIC VALVE	10

FDV Basic Valves

Basic Valves

The FDV hydraulic control valve's solid and simple construction, in edition with its hydro-dynamically engineered inner streamlined flow passages, makes it the valve on which a large selection of fire protection application is based on.

The FDV type is a full bore globe patterned valve featuring direct elastomeric diaphragm seal with no balancing spring or inside metallic moving wet components. The valve is designed for vertical or horizontal installation.

Its symmetric shape enables a revers flow without any head loss change.

A selection of cast metals, coatings, diaphragms and fasteners, enables its usage in rough environment and streaming media. The FDV valve is suitable for on-shore as well as off- shore installations and can operate with fresh water, brackish water, foam and seawater.

9 optional ports provide an easy and flexible trim piping and tubing connection.



MARKETS



ADVANTAGES

- Simple and robust construction
- No inside metallic moving wet components
- 4 side, 2 bottom and 3 cover ports enable easy trim and accessories connection
- Durable material and coatings enables long lasting usage in rough conditions including off shore and seawater
- Large valve sizes and connection ends selection
- Diaphragm original design enables gradual and precise valve opening or closing
- Maintenance free between the NFPA 25 five years checks
- Stands fully in most strict fire protection design and operation demands

TECHNICAL DATA

FLUID:
Water, Brackish water, Sea water, Foam

SIZE RANGE:
40 mm to 250 mm (1½" to 10")

CONNECTIONS ENDS:
Flange*Flange, Groove*Groove, Flange*Groove, Groove*Flange, Thread*Thread

PRESSURE NOMINAL:
250 psi (17.2 bar)



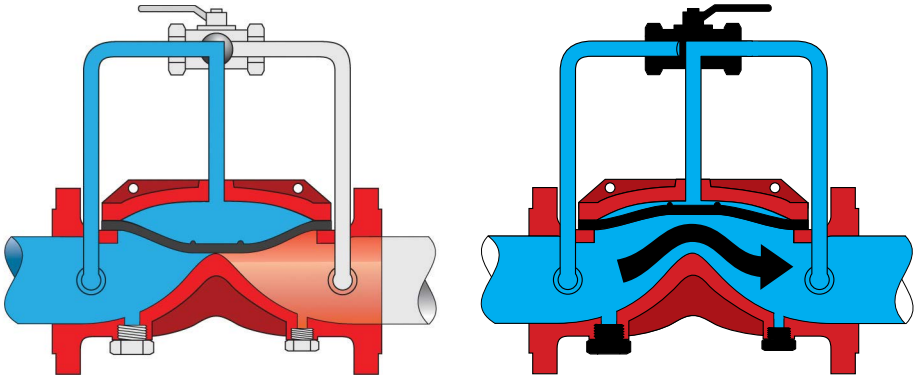
ON-Off Operation

The FDV is a normally open valve with a very low breaking through pressure of less than 5 psi.

When the valve's control chamber becomes pressurized, the force applied on the upper diaphragm surface, pushes it against the valves seat and holds the valve close. The diaphragm's springiness compensates for the low area/force ratio as the valve need to close although the downstream pressure nearly equalizes the upstream.

When the valve's control chamberis drained and de-pressurizes, the force applied by line pressure raises the diaphragm from its seat, pushes it into the control chamber space and drains the residual water out.

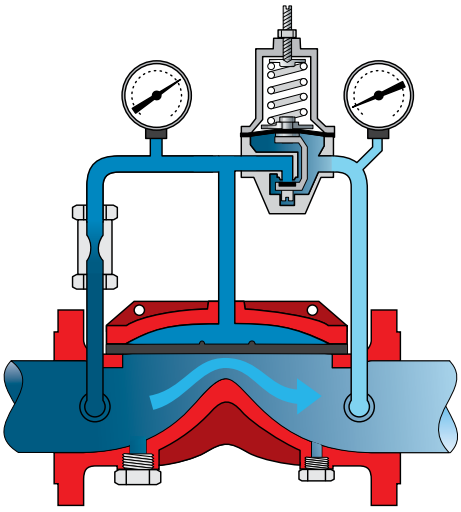
By that, water passage obstruction clears and the valves fully opens. This demonstrate a typical On-Off operation: a pressurized control chamber causes the valve to close while a drainage of this space combined with the valve's internal pressure, causes it to fully open.



Modulating Operation

Manipulating the control chamber pressure using suitable pilot valves, enables the control of the upstream pressure, downstream pressure and valve's rate of flow.

A change in the control chamber's pressure and as a result, the chamber's water volume, will place the diaphragm at a position that would narrow or enlarge the water passage cross area. Controlled diaphragm moves can be used to regulate gradually valve's flow in regard of line pressure deviation, as demonstrated in the schema bellow.



FDV

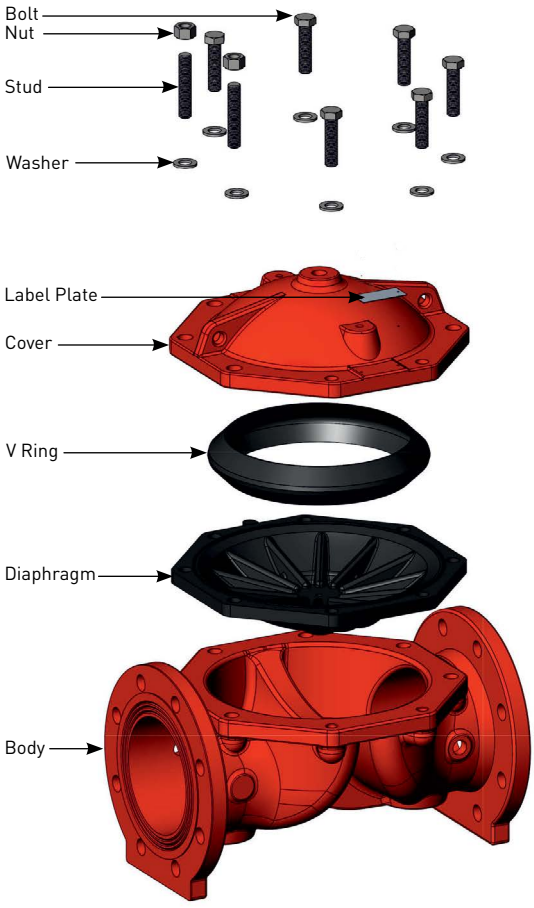
Optional pattern

Diameter / Connection	1.5" DN40	2" DN50	3" DN80	4" DN100	6" DN150	8" DN200	10" DN250
TH-TH	■	■					
GR-GR	■	■	■	■	■	■	■
GR-FL			■	■	■	■	
FL-GR			■	■	■	■	
FL-FL			■	■	■	■	■

■ Available Options

Construction Materials & Coatings

Body & Cover	
Ductile Iron	ASTM A-536
Stainless Steel	ASTM A743, CF8M
Stainless Steel	ASTM A743, CF8
Cast Steel	ASTM A-216 Grade WCB
Nickel Aluminum Bronze	ASTM B148 UNS C95800
Diaphragm	
NR	Nylon fabric reinforced Natural Rubber
EPDM	Nylon fabric reinforced EPDM
NBR	Nylon fabric reinforced Nitrile rubber
Fasteners	
Stainless Steel 304	ASTM F593
Stainless steel 316	ASTM F593
Galvanized steel	ASTM F2329
Nickel Alloys	Monel 400; Cupro-nickel
Coating	
Internal-FBE Phenolic Epoxy+Polyester	External-FBE Phenolic Epoxy+Polyester
Internal-Vitreous Enamel	External-FBE Phenolic Epoxy+Polyester
Internal-Rilsan (Nylon 11)	External-Rilsan (Nylon 11)



Valves Construction and Applications

FDV-R	Water	Brackish Water	Sea Water	Foam
Body & Cover	Ductile Iron	Stainless Steel CF8M	Ni.Al.Br	Stainless Steel CF8
Fasteners	Galvanized Steel	Stainless Steel 316	Nickel Bronze alloys	Stainless Steel 304
Diaphragm	Natural Rubber	EPDM	EPDM	EPDM
Coating	Rilsan	Uncoated	Uncoated	Uncoated

FDV valves flow factor

NOMINAL DIAMETER		FLOW FACTOR	
INCH	MM	Kv	Cv
1.5	DN40	59	68
2	DN50	87	101
3	DN80	207	240
4	DN100	345	400
6	DN150	768	891
8	DN200	1290	1496
10	DN250	1850	2146

Kv = Valve flow coefficient (m^3/h) / (bar)

Cv = Valve flow coefficient (gpm) / (psi)

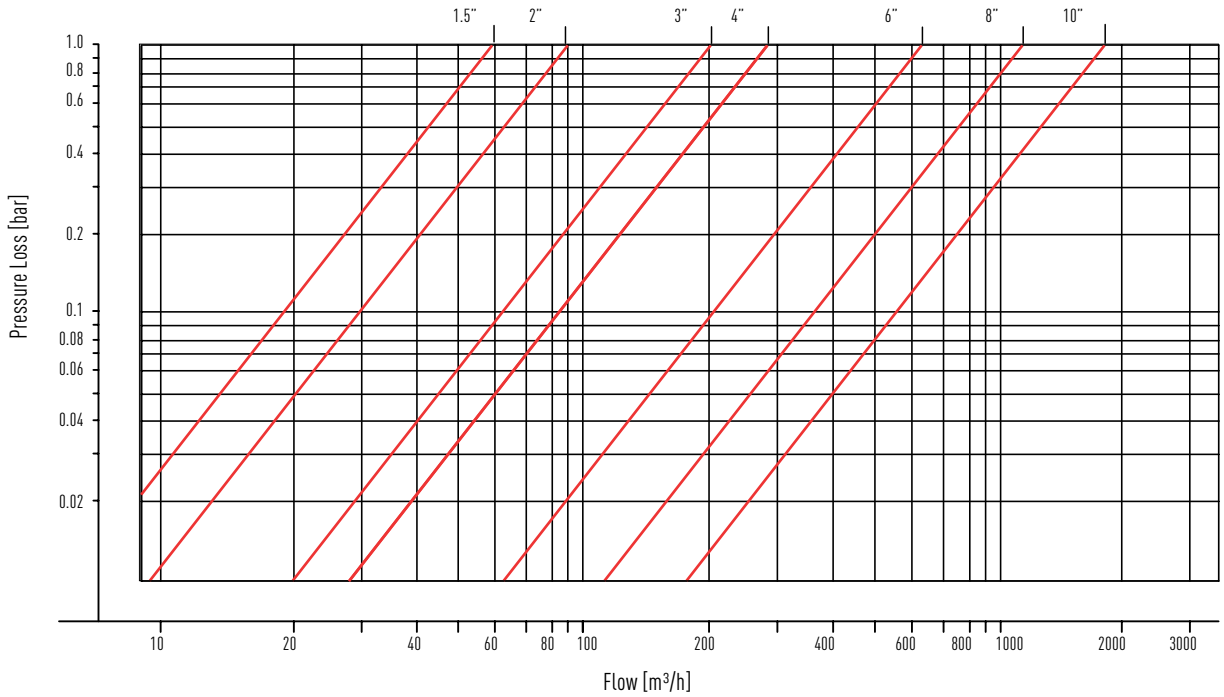
Cv = 1.16 Kv ; Kv = 0.862 Cv

Q = Flow rate in m^3/h orgpm

Δp = Head loss across the valve in bar or psi

Q = Kv √Δp

Flow chart

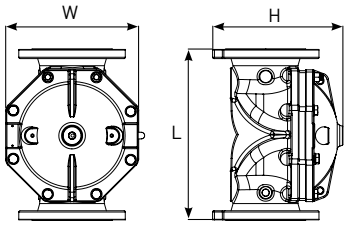


FDV

FDV FL-FL

SIZE (in)	L	H	W	Kg (lb)
DN 50 (2")	220 (8.7)	163 (6.4)	140 (5.5)	8.9 (19.6)
DN 80 (3")	325 (12.9)	205 (8.1	235 (9.3)	21.3 (47)
DN 100 (4")	400 (15.8)	255 (10.0)	310 (12.2)	38 (84)
DN 150 (6")	465 (18.3)	338 (13.3)	354 (13.9)	56.6 (127.7)
DN 200 (8")	570 (22.4)	415 (16.3)	466 (18.3)	96 (211.6)
DN 250 (10")	768 (30.2)	560 (22.0)	616 (24.2)	218.6 (482)

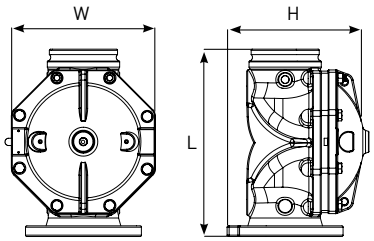




FDV FL-GR

SIZE (in)	L	H	W	Kg (lb)
DN 80 (3")	327 (12.9)	200 (7.9)	230 (9.0)	17.6 (39)
DN 100 (4")	400 (15.7)	227 (8.9)	302 (11.9)	34.2 (75.4)
DN 150 (6")	464 (18.3)	365 (14.4)	354 (13.9)	48.8 (107.6)
DN 200 (8")	570 (22.4)	416 (16.4)	466 (18.3)	86 (189.6)

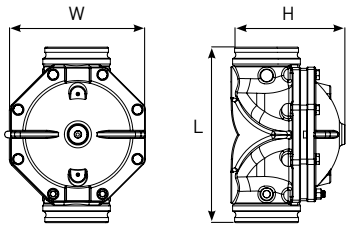




FDV GR-GR

SIZE (in)	L	H	W	Kg (lb)
DN 40 (1.5")	205 (8.0)	97 (3.8)	127 (5.0)	2.9 (6.4)
DN 50 (2")	220 (8.7)	112 (4.4)	140 (5.5)	4.5 (9.9)
DN 80 (3")	327 (12.9)	158 (6.2)	230 (9.0)	13.3 29.3)
DN 100 (4")	400 (15.7)	212 (8.3)	302 (11.9)	27 (59.5)
DN 150 (6")	464 (18.3)	300 (11.8)	354 (13.9)	42.3 (93.6)
DN 200 (8")	570 (22.4)	364 (14.3)	466 (18.3)	75.4 (166.2

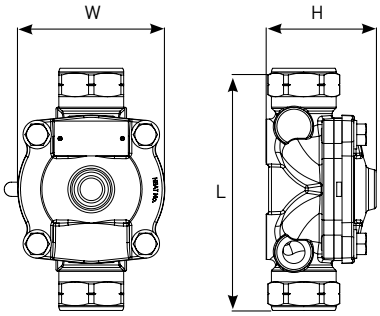




FDV TH-TH

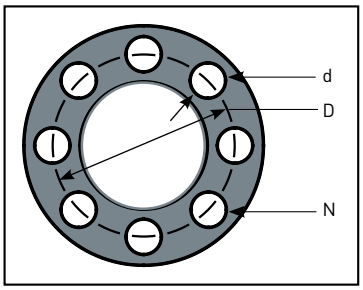
SIZE (in)	L	H	W	Kg (lb)
DN 40 (1.5")	204 (8.0)	94 (3.7)	125 (4.9)	2.9 (6.4)
DN 50 (2")	222 (8.7)	113 (4.4)	140 (5.5)	4.97 (11)





Flange Drilling Specification - Nominal Dimensions in inches & (mm)

Nominal	ANSI B16.42 (Class 150)			ISO 7005-2 (PN 16)			ANSI B16.24 (Class 150)			ANSI B16.50 (Class 150)		
Valve Size	Dim. D	Dim. d	Qty. n	Dim. D	Dim. d	Qty. n	Dim. D	Dim. d	Qty. n	Dim. D	Dim. d	Qty. n
3" (DN 80)	6.00 (152.4)	0.75 (19.0)	4	6.30 (160.0)	0.71 (18.0)	8	6.00 (152.4)	0.75 (19.0)	4	6.00 (152.4)	0.75 (19.0)	4
4" (DN 100)	7.5 (190.5)	0.75 (19.0)	8	7.5 (190.5)	0.71 (18.0)	8	7.5 (190.5)	0.75 (19.0)	8	7.5 (190.5)	0.75 (19.0)	8
6" (DN 150)	9.50 (241.3)	0.88 (22.2)	8	9.50 (241.3)	0.87 (22.0)	8	9.50 (241.3)	0.88 (22.2)	8	9.50 (241.3)	0.88 (22.2)	8
8" (DN 200)	11.75 (298.5)	0.88 (22.2)	8	11.61 (295)	0.87 (22.0)	12	11.75 (298.5)	0.88 (22.2)	8	11.75 (298.5)	0.88 (22.2)	8
10" (DN 250)	14.25 (362)	1 (25.4)	12	14 (355)	1.02 (26)	12	14.25 (362)	1 (25.4)	12	14.25 (362)	1 (25.4)	12



Port Sizing

(Port Size in NPT per ANSI B1.20.1)

Port Description	DN40 1.5"	DN50 2"	DN80 3"	DN100 4"	DN150 6"	DN200 8"	DN250 10"
Control Chamber Supply	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Bottom Downstream Drain	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Side Port	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Bottom Upstream Drain	3/4"	3/4"	1 1/4"	2"	2"	2"	2"

Basic Valves

FDV-R

The FDV-R type is a globe pattern valve featuring direct elastomeric diaphragm seal with no balancing spring or inside metallic moving wet components. The valve is designed for vertical or horizontal installation.

Solid and simple construction, with hydro-dynamically engineered inner streamlined flow passage, makes it the basic valve for large selection of fire protection applications.

A wide selection of cast metals, coatings, diaphragms and fasteners, enables its usage in harsh environment and flow media. The FDV-R valve is suitable for on-shore as well as off-shore installations and can operate with fresh water, brackish water, foam and seawater.

7 optional trim ports provide an easy and flexible trim piping and tubing connection.



MARKETS



ADVANTAGES

- Simple and robust construction
- No inside metallic moving wet components
- 4 side, and 3 cover ports enable easy trim and accessories connection
- Durable material and coatings enables long lasting usage is rough conditions including foam, off shore and seawater
- Large valve sizes and connection ends selection
- Diaphragm original design enables gradual and precise valve opening or closing
- Maintenance free between the NFPA 25 five years checks
- Stands fully in most strictfire protection design and operation demands

TECHNICAL DATA

FLUID:
Water, Brackish water, Sea water, Foam

SIZE RANGE:
40 mm to 250 mm (1½" to 10")

CONNECTIONS ENDS:
Flange*Flange, Groove*Groove, Flange*Groove, Groove*Flange, Thread*Thread

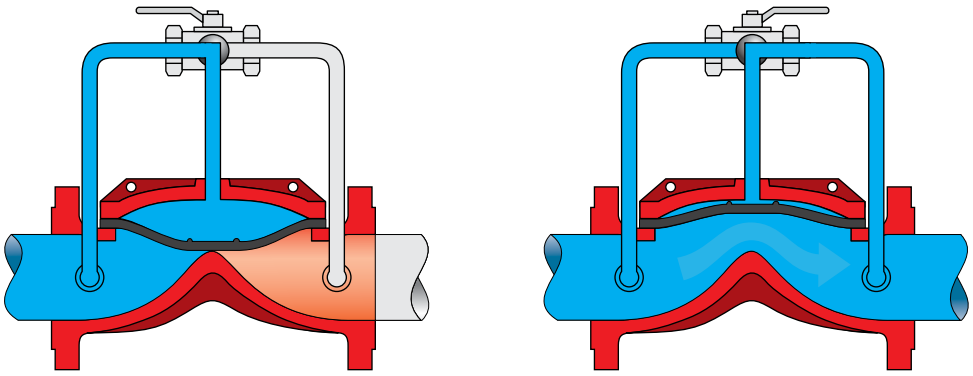
PRESSURE NOMINAL:
250 psi (17.2 bar)



ON-Off Operation

The FDV-R is a normally open valve with a very low breaking through pressure of less than 5 psi. When the valve's control chamber becomes pressurized, the force applied on the upper diaphragm surface, pushes it against the valves seat and holds the valve close. The diaphragm's springiness compensates for the low area/force ratio as the valve need to close although the downstream pressure nearly equalizes the upstream.

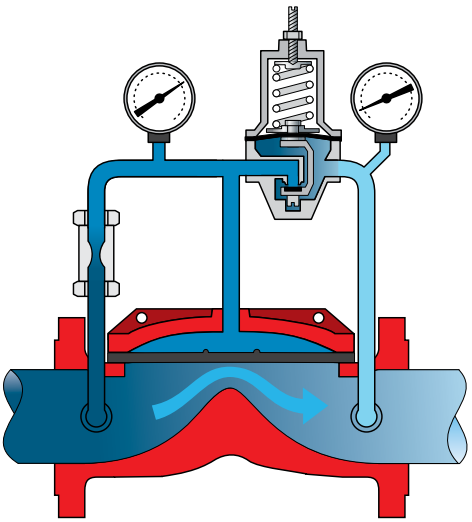
When the valve's control chamberis drained and de-pressurizes, the force applied by the line pressure, raises the diaphragm from its seat, pushes it into the control chamber space and drains the residual water out. By that, water passage obstruction clears and the valves fully opens. This demonstrate a typical On-Off operation: a pressurized control chamber causes the valve to close while a drainage of this space combined with the valve's internal pressure, causes it to fully open.



Modulating Operation

Manipulating the control chamber pressure using suitable pilot valves, enables the control of the upstream pressure, downstream pressure and valve's rate of flow.

A change in the control chamber's pressure and as a result, the chamber's water volume, will place the diaphragm at a position that would narrow or enlarge the water passage cross area. Controlled diaphragm moves can be used to regulate gradually valve's flow in regard of line pressure deviation, as demonstrated in the schema bellow.



FDV-R

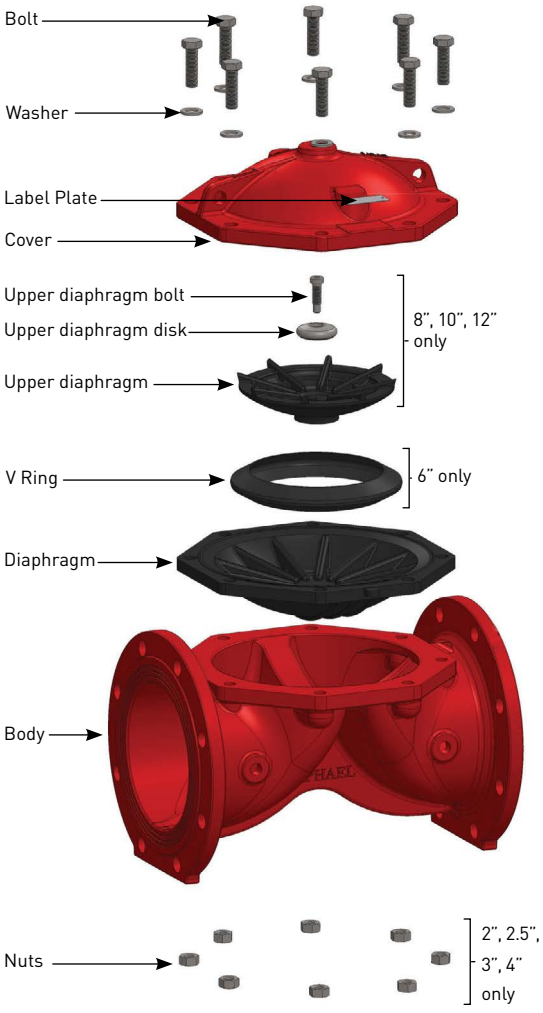
FDV-R optional Patterns

Valve	Diam. / End. Conn.	1.5" DN40	2" DN50	2.5" DN65	3" DN80	4" DN100	6" DN150	8" DN200	10" DN250	12" DN300	14" DN350	16" DN400
FDV-R Globe	TH-TH	■	■	■	■	■						
	GR-GR	■	■	■	■	■	■	■				
	FL-FL		■	■	■	■	■	■	■	■	■	■

■ Available Options

Construction Materials& Coatings

Body & Cover	
Ductile Iron	ASTM A-536
Stainless Steel	ASTM A743, CF8M
Stainless Steel	ASTM A743, CF8
Cast Steel	ASTM A-216 Grade WCB
Nickel Aluminum Bronze	ASTM B148 UNS C95800
Diaphragm	
NR	Nylon fabric reinforced Natural Rubber
EPDM	Nylon fabric reinforced EPDM
NBR	Nylon fabric reinforced Nitrile rubber
Fasteners	
Stainless Steel 304	ASTM F593
Stainless steel 316	ASTM F593
Galvanized steel	ASTM F2329
Nickel Alloys	Monel 400; Cupro-nickel
Coating	
Internal-FBE Phenolic Epoxy+Polyester	External-FBE Phenolic Epoxy+Polyester
Internal-Vitreous Enamel	External-FBE Phenolic Epoxy+Polyester
Internal-Rilsan (Nylon 11)	External-Rilsan (Nylon 11)



Valves Construction and Applications

FDV-R	Water	Brackish Water	Sea Water	Foam
Body & Cover	Ductile Iron	Stainless Steel CF8M	Ni.Al.Br	Stainless Steel CF8
Fasteners	Galvanized Steel	Stainless Steel 316	Nickel Bronze alloys	Stainless Steel 304
Diaphragm	Natural Rubber	EPDM	EPDM	EPDM
Coating	Rilsan	Uncoated	Uncoated	Uncoated

FDV-R valves flow factor

NOMINAL DIAMETER		FLOW FACTOR	
INCH	MM	Kv	Cv
1.5	DN40	40	46.4
2	DN50	70	81.2
2.5	DN65	100	116
3	DN80	170	197
4	DN100	290	336.4
6	DN150	490	568.4
8	DN200	790	916.4
10	DN250	1400	1624
12	DN300	1800	2088
14	DN350	1850	2146
16	DN400	2000	2320

Kv = Valve flow coefficient (m^3/h) / (bar)

Cv = Valve flow coefficient (gpm) / (psi)

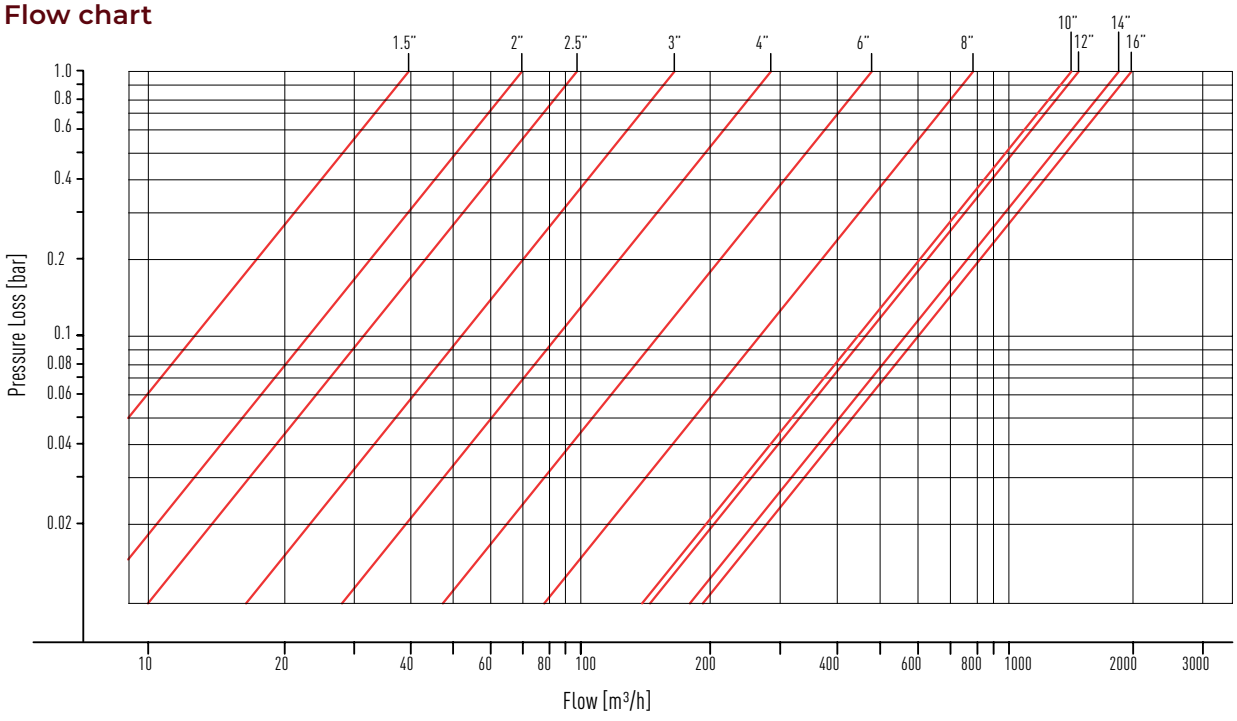
Cv = 1.16 Kv ; Kv = 0.862 Cv

Q = Flow rate in m^3/h orgpm

Δp = Head loss across the valve in bar or psi

Q = Kv √Δp

Flow chart



FDV-Ra

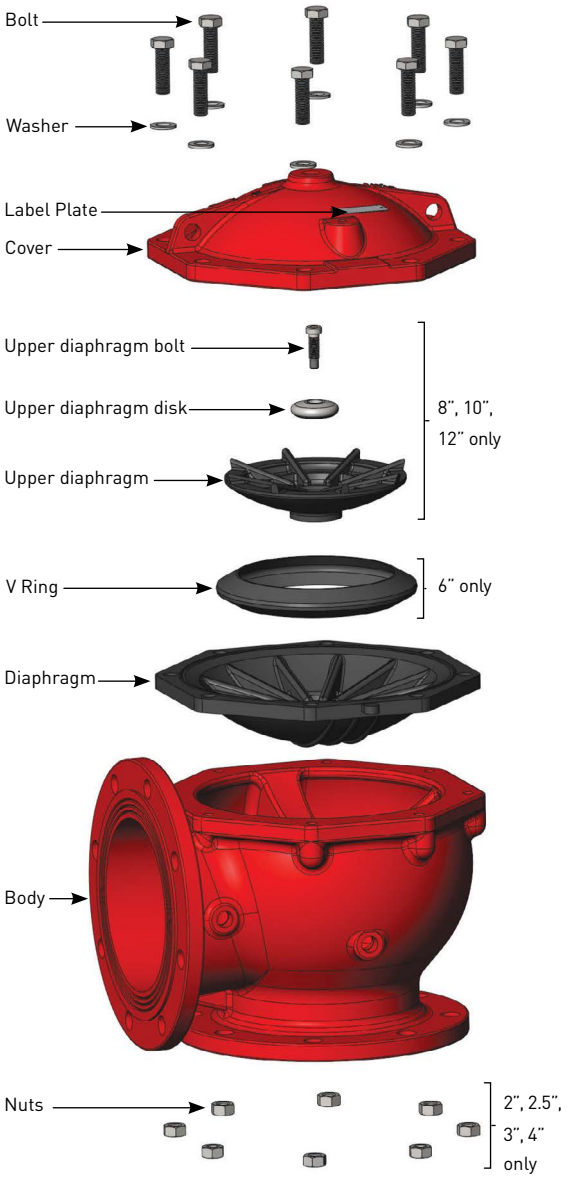
FDV-R optional Patterns

Valve	Diam. End. Conn.	1.5" DN40	2" DN50	2.5" DN65	3" DN80	4" DN100	6" DN150	8" DN200	10" DN250	12" DN300	14" DN350	16" DN400
FDV-R Angle	TH-TH		■	■	■							
	GR-GR			■	■	■	■					
	FL-FL			■	■	■	■	■				

■ Options

Construction Materials& Coatings

Body & Cover	
Ductile Iron	ASTM A-536
Stainless Steel	ASTM A743, CF8M
Stainless Steel	ASTM A743, CF8
Cast Steel	ASTM A-216 Grade WCB
Nickel Aluminum Bronze	ASTM B148 UNS C95800
Diaphragm	
NR	Nylon fabric reinforced Natural Rubber
EPDM	Nylon fabric reinforced EPDM
NBR	Nylon fabric reinforced Nitrile rubber
Fasteners	
Stainless Steel 304	ASTM F593
Stainless steel 316	ASTM F593
Galvanized steel	ASTM F2329
Nickel Alloys	Monel 400; Cupro-nickel
Coating	
Internal-FBE Phenolic Epoxy+Polyester	External-FBE Phenolic Epoxy+Polyester
Internal-Vitreous Enamel	External-FBE Phenolic Epoxy+Polyester
Internal-Rilsan (Nylon 11)	External-Rilsan (Nylon 11)



Valves Construction and Applications

FDV-R	Water	Brackish Water	Sea Water	Foam
Body & Cover	Ductile Iron	Stainless Steel CF8M	Ni.Al.Br	Stainless Steel CF8
Fasteners	Galvanized Steel	Stainless Steel 316	Nickel Bronze alloys	Stainless Steel 304
Diaphragm	Natural Rubber	EPDM	EPDM	EPDM
Coating	Rilsan	Uncoated	Uncoated	Uncoated

FDV-Ra Flow Factor

NOMINAL DIAMETER		FLOW FACTOR	
INCH	MM	Kv	Cv
2	DN50	62	72
2.5	DN65	90	104.4
3	DN80	155	179.8
4	DN100	200	232
6	DN150	470	545.2
8	DN200	750	870

Kv = Valve flow coefficient (m^3/h) / (bar)

Cv = Valve flow coefficient (gpm) / (psi)

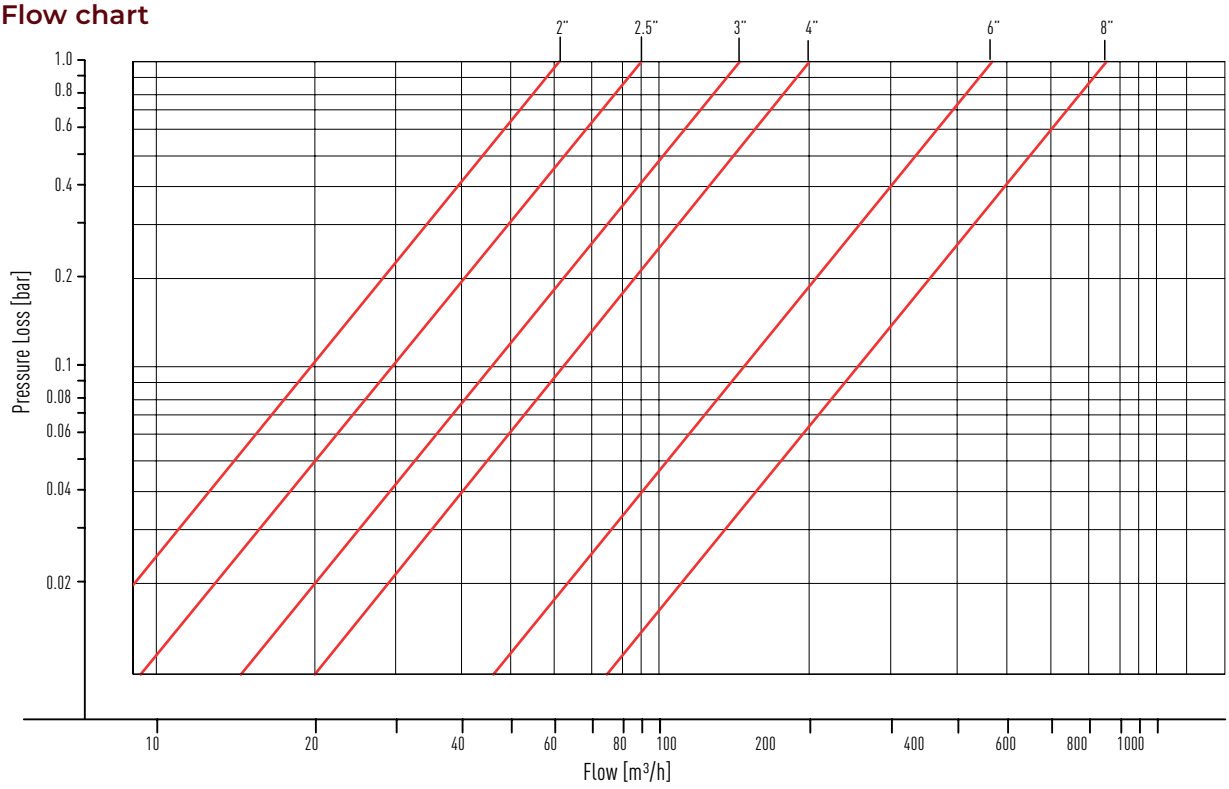
Cv = 1.16 Kv ; Kv = 0.862 Cv

Q = Flow rate in m^3/h orgpm

Δp = Head loss across the valve in bar or psi

Q = Kv √Δp

Flow chart

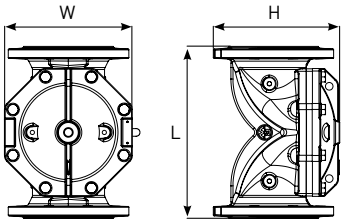


FDV-R

FDV-R FL-FL

SIZE (in)	L	H	W	Kg (lb)
DN 50 (2")	190 (7.5)	159 (6.3)	165 (6.5)	7.9 (17.4)
DN 65 (2.5")	216 (8.5)	173 (6.8)	185 (7.3)	9.3 (20.5)
DN 80 (3")	283 (11.1)	200 (7.8)	200 (7.8)	17.5 (35.6)
DN 100 (4")	305 (12.0)	220 (8.6)	230 (9.0)	26 (57.3)
DN 150 (6")	406 (16.0)	295 (11.6)	300 (11.8)	46 (101.4)
DN 200 (8")	470 (18.5)	383 (15.0)	354 (13.9)	67.5 (148.8)
DN 250 (10")	635 (25)	430 (16.9)	464 (18.3)	111 (244.7)
DN 300 (12")	749 (29.5)	474 (18.6)	480 (18.9)	151 (332.9)
DN 350 (14")	749 (29.5)	520 (20.5)	520 (20.5)	177 (390.2)
DN 400 (16")	860 (33.9)	711 (28.0)	616 (24.2)	327 (720.9)

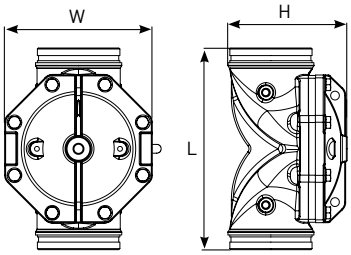




FDV-R GR-GR

SIZE (in)	L	H	W	Kg (lb)
DN 40 (1.5")	159 (6.3)	80 (3.1)	96 (3.8)	1.5 (3.3)
DN 50 (2")	190 (7.5)	96 (3.8)	125 (4.9)	3.0 (6.6)
DN 65 (2.5")	225 (8.9)	114 (4.5)	140 (5.5)	4.7 (10.4)
DN 80 (3")	290 (11.4)	140 (5.5)	200 (7.9)	10.8 (20.3)
DN 100 (4")	346 (13.6)	346 (13.6)	230 (9.0)	18.0 (36.7)
DN 150 (6")	412 (16.2)	2a39 (9.4)	302 (11.9)	33 (72.7)
DN 200 (8")	470 (18.5)	350 (13.8)	354 (13.9)	51 (112.4)

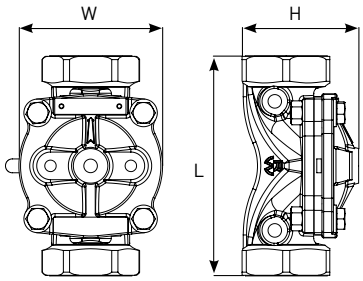




FDV-R TH-TH

SIZE (in)	L	H	W	Kg (lb)
DN 40 (1.5")	159 (6.3)	80 (3.1)	96 (3.8)	2.0 (4.4)
DN 50 (2")	190 (7.5)	196 (7.7)	125 (4.9)	3.5 (7.7)
DN 65 (2.5")	225 (8.9)	110 (4.3)	140 (5.5)	5 (11)
DN 80 (3")	290 (11.4)	138 (5.4)	200 (7.9)	24.2 (20.3)
DN 100 (4")	346 (13.6)	220 (8.7)	230 (9.0)	16.5 (36.4)





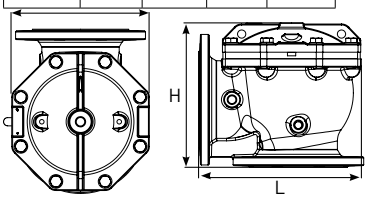
Port Description

Port Description	DN50 2"	DN65 2.5"	DN80 3"	DN100 4"	DN150 6"	DN200 8"	DN250 10"	DN300 12"	DN350 14"	DN400 16"
Diaphragm Chamber Supply	1/4"	1/4"	1/4"	1/4"	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"
Upstream & Downstream side ports	1/4"	1/4"	1/4"	1/4"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"

FDV-Ra FL-FL

SIZE (in)	L	H	W	Kg (lb)
DN 50 (2")	112 (4.4)	159 (6.2)	165 (6.5)	8.1 (17.9)
DN 65 (2.5")	122 (4.8)	160 (6.3)	185 (7.2)	11 (24.2)
DN 80 (3")	154 (6.0)	210 (8.2)	200 (7.9)	19 (41.9)
DN 100 (4")	177 (7.0)	230 (9.0)	230 (9.0)	26.5 (58.4)
DN 150 (6")	218 (8.6)	315 (12.4)	300 (11.8)	48.7 (107.4)
DN 200 (8")	225 (8.8)	400 (15.7)	354 (13.9)	62.5 (137.8)

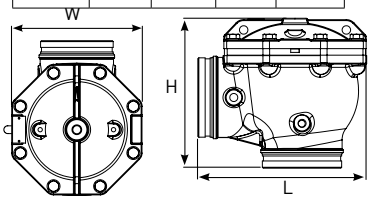




FDV-Ra GR-GR

SIZE (in)	L	H	W	Kg (lb)
DN 50 (2")	90 (3.5)	150 (5.9)	125 (4.9)	3.0 (6.6)
DN 65 (2.5")	117 (4.6)	160 (6.3)	125 (4.9)	4.7 (10.4)
DN 80 (3")	148 (5.8)	205 (8.0)	200 (7.9)	10.8 (23.8)
DN 100 (4")	150 (5.9)	227 (8.9)	230 (9.0)	18.0 (39.7)
DN 150 (6")	206 (8.1)	317 (12.5)	300 (11.8)	33 (72.7)
DN 200 (8")	225 (8.8)	400 (15.7)	354 (13.9)	51 (112.4)

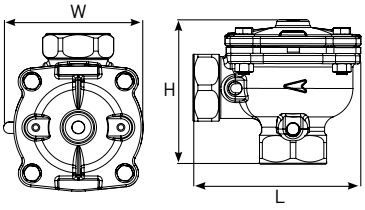


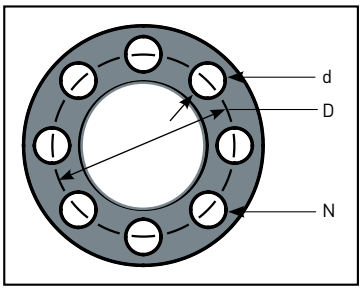


FDV-Ra TH-TH

SIZE (in)	L	H	W	Kg (lb)
DN 50 (2")	90 (3.5)	150 (5.9)	125 (4.9)	4.2 (9.2)
DN 65 (2.5")	117 (4.6)	160 (6.3)	125 (4.9)	7 (15.4)
DN 80 (3")	148 (5.8)	205 (8.0)	200 (7.9)	12 (26.5)
DN 100 (4")	150 (5.9)	227 (8.9)	230 (9.0)	15.9 (35.0)







Flange Drilling Specification - Nominal Dimensions in inches & (mm)

Nominal	ANSI B16.42 (Class 150)			ISO 7005-2 (PN 16)		
Valve Size	Dim. D	Dim. d	Qty. n	Dim. D	Dim. d	Qty. n
3" (DN 80)	6.00 (152.4)	0.75 (19.0)	4	6.30 (160.0)	0.71 (18.0)	8
4" (DN 100)	7.5 (190.5)	0.75 (19.0)	8	7.5 (190.5)	0.71 (18.0)	8
6" (DN 150)	9.50 (241.3)	0.88 (22.2)	8	9.50 (241.3)	0.87 (22.0)	8
8" (DN 200)	11.75 (298.5)	0.88 (22.2)	8	11.61 (295)	0.87 (22.0)	12
10" (DN 250)	14.25 (362)	1 (25.4)	12	14 (355)	1.02 (26)	12
12" (DN 300)	17 (431.8)	1 (25.4)	12	16.14 (410)	1.02 (26)	12
14" (DN 350)	18.75 (476.3)	1.125 (28.57)	12	18.50 (470)	1.02 (26)	16
16" (DN 400)	21.25 (539.8)	1.125 (28.57)	16	20.66 (525)	1.16 (29.5)	16

Providing advanced solutions to customers around the world

North America|South America|Europe|Africa|Asia|Australia

RAPHAEL, founded in 1949, is the first Israeli manufacturer of water control valves.

RAPHAEL's research department constantly strives to introduce innovative products and solutions for water control systems including water works, fire protection and irrigation systems.



Raphael Valves Industries (1975) Ltd.
Northern Industrial Zone, Or Akiva 3065401, Israel
972-(0)4-6263555 / info@raphael-valves.com / raphael-valves.com

FP_CAT_08.26_EN