

## Control Valves

### Pressure Relief Control Valve

### FDV-R-RN2

The FDV-R-RN2 Pressure Relief valve is an automatic hydraulic control service valve, designed to operate in fixed fire protection system, especially in fire pump units. The FDV-R-RN2 pilot controlled hydraulic valve is activated by line pressure. The pilot valve has a spring-loaded membrane which is sensitive to upstream pressure. The pilot's spring is pre-set to a desired maximum pressure. The pilot valve maintains a maximum pressure in the pipe system by quickly opening the main valve, discharging any excess pressure off the pipe system, preventing any potential damage.

Designed for vertical or horizontal installation, the line pressure operated FDV-R-RN2 Pressure Relief valve features a direct elastomeric diaphragm seal, with no balancing spring or internal metallic wet components in the valve body. The hydrodynamic pattern design, ensures high flow rates with minimum head loss.



#### MARKETS



Marine



P.O.G.



Airports



Industry



Tunnels



Storage



Residential



Commercial

#### TECHNICAL DATA

##### FLUID:

Water, Brackish water, Sea water, Foam

##### SIZE RANGE:

FDV-R valve (globe) - 40mm to 400mm (1½" to 16")

FDV-Ra valve (angled) - 50mm to 200mm (2" to 8")

##### AVAILABLE CONNECTIONS ENDS:

Flange\*Flange, Groove\*Groove, Thread\*Thread

##### PRESSURE NOMINAL:

250 psi (17.2 bar)

##### REGULATION RATIO: 5:1

SENSITIVITY: 1.45 psi (0.1 Bar)

#### APPROVALS



#### ADVANTAGES

- Only three parts: body, diaphragm & cover plate, no wet metal spring inside the control chamber
- Low maintenance cost: the valve is serviced in-line and only one replaceable part - the long-life elastomeric diaphragm.
- Conforms with inspection, Testing and Maintenance Standard of water-based Fire Protection Systems, NFPA 25
- Maintains a constant set upstream pressure securing the system from over pressure

#### CHARACTERISTICS

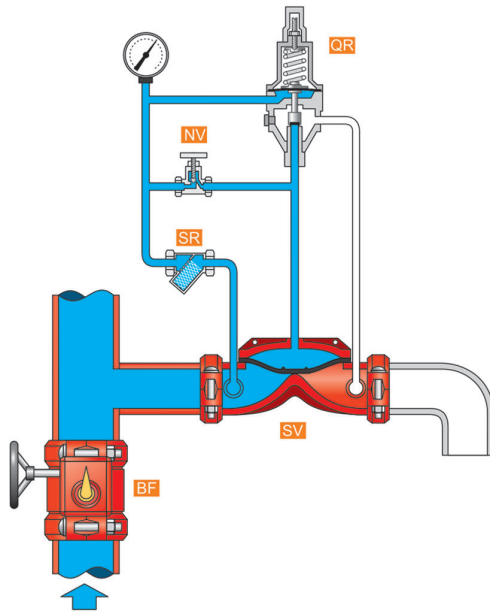
- Hydro-dynamic pattern design ensures high flowrates with minimum head loss
- Simple and reliable design
- Quick respond to downstream pressure changes

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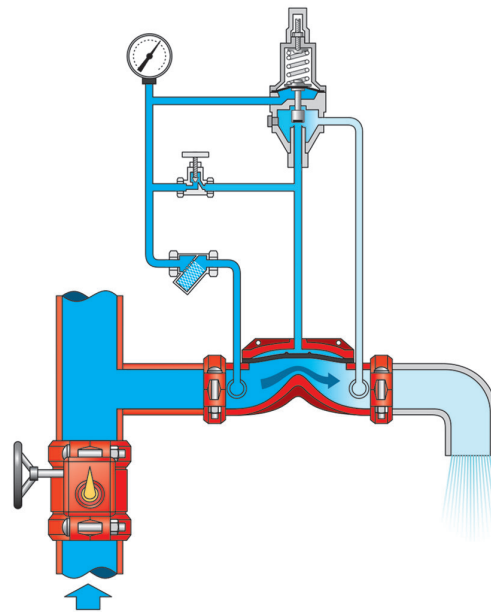
 **VALVETEK TRADING**

## Schematic drawing

Set position



Fire position



**QR** - QRPV – Quick Relief Pilot Valve    **SR** - strainer  
**NV** - Needle valve    **SV** - FDV-R service valve

### SET Position:

When a fire protection system is in SET position, and water pressure in the pipe system is maintained within the pre-established pressure range considered safe for operation, the FDV-R-RN2 will remain closed.

The FDV-R-RN2 valve's control chamber is pressurized by the inlet flow, pre calibrated by the Pressure Relief Pilot **[QR]** forcing the diaphragm against its seat, preventing the valve from opening.

### OPERATION

When the Fire system trips open and Fire pump starts-up and pressure rises in the pipe system surpassing the preset maximum pressure, the FDV-R-RN2 will quickly open, to enable water discharge out of the pipe system to the valve's downstream.

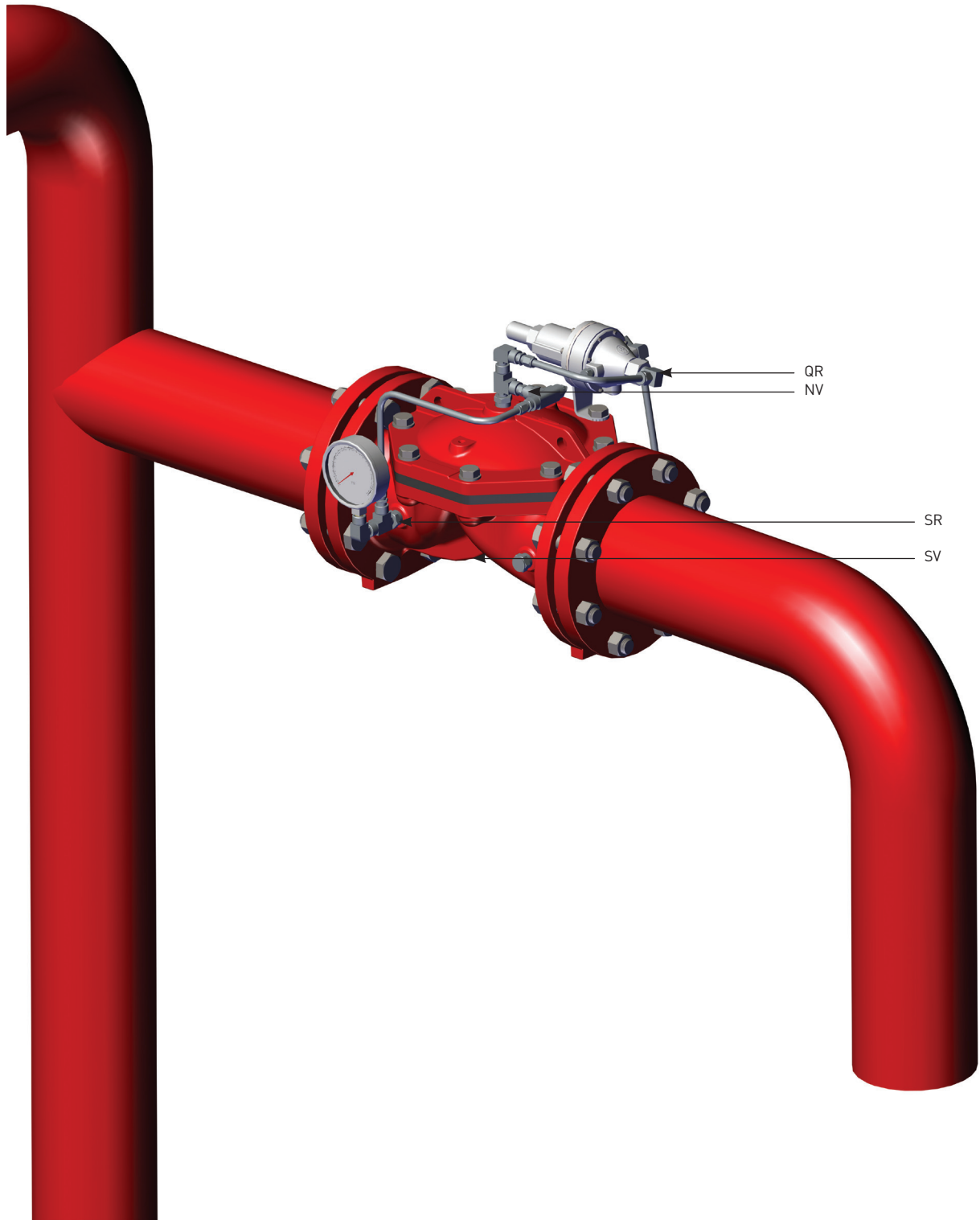
The valve is controlled by the Pressure relief pilot. The pilot's is commanded by a hydraulic sensor port, connected to the pipe system, through the valve's upstream port. The pilot commands the valve to open, proportioning the adequate water passage necessary to maintain the system within the safe maximum required set pressure, regardless of system flow.

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 **VALVETEK TRADING**

# FDV-R- RN2

## Typical installation



**QR** - QRPV – Quick Relief Pilot Valve  
**NV** - Needle valve

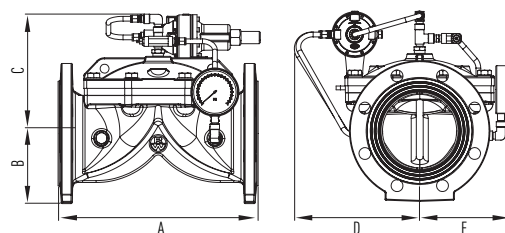
**SR** - Strainer  
**SV** - FDV-R service valve

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## Dimensions Table

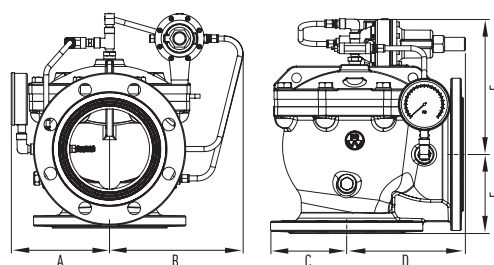
### FDV-Ra-RN2 Globe

Size	2"		3"		4"		6"		8"	
	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
A	111	4.4	198	7.8	190.6	7.5	184.2	7.3	277.5	10.9
B	176	6.9	162	6.4	176	6.9	352	13.9	245	9.6
C	146	5.7	172.6	6.8	184	7.2	137	5.4	220	8.7
D	120	4.7	154.3	6.1	178	7.0	218	8.6	226.4	8.9
E	83	3.3	116	4.6	113.8	4.5	148	5.8	171.5	6.8
F	229	9.0	208	8.2	220	8.7	253.7	10	314	12.4
Kg/lb	6.2	13.6	20.1	44.2	25.6	56.3	48.1	105.8	71.9	158.2



### FDV-Ra-RN2 Angle

Size	1.5"- 2"		3"		4"		6"		8"	
	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
A	190	7.5	314	12.4	336	13.2	410	16.1	470	18.5
B	82	3.2	100	3.9	109	4.3	142.5	5.6	161	6.3
C	204	8	197.2	7.8	209	8.2	241	9.5	308	12.1
D	211	8.3	163	6.4	177.6	7.0	253.4	10	250	9.8
E	166	6.5	182	7.2	202	8.0	184.2	7.3	451	17.8
Kg/lb	8.6	20	17.5	38.5	23.7	52.3	52.3	115.1	65.8	144.8



## Factory Standard

### MAIN VALVE:

#### BODY & COVER

- Ductile iron
- Cast Steel WCB
- Stainless Steel CF8
- Stainless Steel CF8M
- Nickel Aluminum Bronze

#### ELASTOMERS:

- NR, 3 layer reinforced natural rubber
- EPDM, 3 layer reinforced

#### COATING:

- Rilsan Polyamide based (Nylon 11)
- Polyester based EPC
- High built Epoxy FBE
- Vitreous Enamel (internal only)

### TRIM

#### PIPING & TUBING:

- Stainless Steel 316
- Copper/Brass
- Cupro-Nickel
- Monel®

#### FITTINGS:

- Stainless Steel 316
- Brass
- Super Duplex
- Cupro-Nickel
- Monel®

#### ACCESSORIES:

- Brass Nickel plated
- Nickel Aluminium bronze
- Stainless steel CF8M
- Monel®
- Cupro-Nickel

### PLEASE SPECIFY

- Pattern: Glob or angled
- Working Media
- Ambiental conditions
- Min/Max operating flow
- Min/Max operating pressure
- Upstream set pressure
- Additional accessories needed

For more detailed technical information, please refer to chapter Engineering Data.

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# CERTIFICATE OF COMPLIANCE

**Certificate Number** 20160827-EX27099  
**Report Reference** EX27099-20160825  
**Issue Date** 2016-AUGUST-27

**Issued to:** RAPHAEL VALVES INDUSTRIES (1975) LTD  
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**This is to certify that representative samples of** FIRE PUMP RELIEF VALVES  
Models FDV-R and FDV-RA.

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

**Standard(s) for Safety:** UL 1478, Standard for Safety for Fire Pump Relief Valves.  
**Additional Information:** See the UL Online Certifications Directory at [www.ul.com/database](http://www.ul.com/database) for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

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