

 **RAPHAEL**

Product brochure

FIRE PROTECTION



 **RAPHAEL FP**

FIRE PROTECTION VALVES

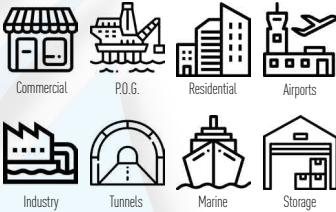
RAPHAEEL FP Range valves are integral to fixed fire suppression systems, serving diverse industries like Petrochemical, Oil & Gas, Offshore, and Marine. These valves enable precise control of water, foam, and seawater flow, allowing for manual or remote on-off functions. Crafted for reliability and fail-safe operation, they excel in fire suppression systems that demand swift response to contain flames.

Raphael fire protection valves are elastomeric diaphragm-type, with streamlined globe and angle patterns.

With only 3 parts in the main body, the valves feature direct resilient diaphragm seal with no wet spring or metallic moving parts inside. Raphael FP serves various systems, such as Deluge, Pre-action, Pressure control, Monitor, and Hydrants. These diaphragm valves operate using a patented reinforced diaphragm, obviating the need for a compensating metal spring. Their unique elastic design enables gradual, precise opening, and smooth, drip-tight closure without vibration, thus preventing water hammer, whether installed vertically or horizontally.



MARKETS



TECHNICAL DATA

FLUID:

Water, Brackish water, Sea Water

SIZE RANGE:

40 mm to 400 mm [1 1/2" to 16"]

AVAILABLE CONNECTION ENDS:

Flanged, Grooved, Threaded

NOMINAL PRESSURE:

250 PSI [17.2 bar]

BODY MATERIAL:

- Ductile iron ASTM A-536
- Cast Steel ASTM A-216 WCB
- Stainless Steel ASTM A-351 CFB
- Stainless Steel ASTM A-351 CFBM
- Nickel Aluminum Bronze 8-148 C95800

FASTENERS MATERIAL:

- Galvanized steel
- Stainless Steel A-304 #A2
- Stainless Steel A-316 #A4
- Nickel Alloy (seawater service)

COATING:

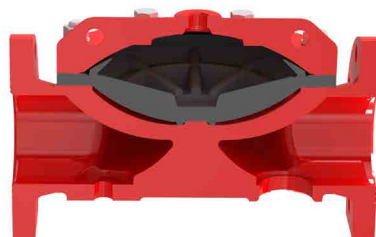
- Base layer – high built Epoxy FBE
- Top layer – electrostatic Polyester powder RAL 3000
- Rilsan Polyamid based (Nylon 11)
- Internal - Vitrious Enamel DIN3475
- External - Epoxy/Polyester powder RAL 3000

ELASTOMERS:

- NR, Fabric reinforced natural rubber
- EPDM, Fabric reinforced EPDM
- NBR, Fabric reinforced Nitrile Rubber

ADVANTAGES

- Simple and robust construction
- No internal metallic moving wet components
- 4 side and 3 cover ports enable easy trim and accessories connection
- Durable material and coatings enable long lasting usage in rough conditions including foam, off shore and seawater
- Large valve sizes and connection ends selection
- Original diaphragm design with three parts: body, diaphragm & cover plate, which 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
- 250 psi (17.2 bar seal test: 25.5 bar) to DIN3230 ANSI FCI 70-2 CLASS VI.

CHARACTERISTICS

- FDV hydro-dynamic pattern design ensures high flow rates with minimum head loss.
- The elastomeric direct seal diaphragm is the only moving wet part of the FDV control chamber.
- Low maintenance costs. The valve is serviced in-line, only one replaceable part, the long-life elastomeric diaphragm.
- Tested and approved for Fire testing, according to ISO-6182:5.
- Conforms with Inspection, Testing and Maintenance Std. of water-based Fire Protection Systems, NFPA 25.
- Soft closing upon pressurization of FDV control chamber, by line pressure or other independent water source, prevents surges. Closing speed of FDV valves can be controlled.
- FDV resets to standby close position again by pressurizing its control chamber.
- All FDV valves are designed and built for on/off and modulating applications.

CERTIFICATES

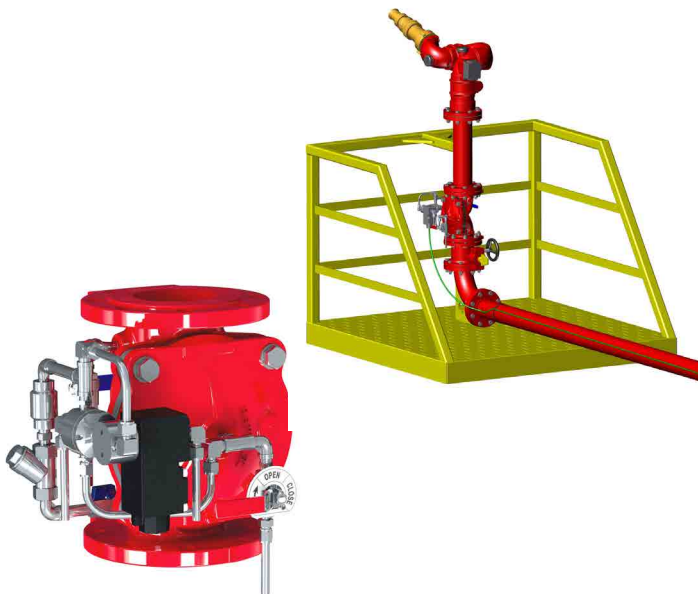
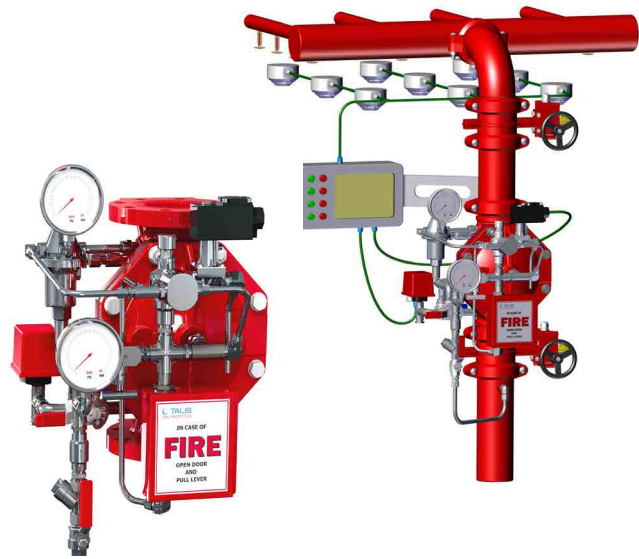


DELUGE SYSTEMS

The FDV is a UL/FM approved Fire Protection control valve for Deluge fire sprinkler systems, designed for installations in hazardous environments.

RAPHAEL's Deluge systems can be actuated electrically, pneumatically or electro-pneumatically and can be reset locally or remotely. The Deluge system incorporates an emergency valve, bypassing the fire detection systems for manual operation.

Designed for vertical or horizontal installation, a globe pattern, line pressure operated. The FDV 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 rate with minimum head loss.



MONITOR SYSTEMS

Used to protect against rapid fire spread in high risk areas. Monitor systems are designed to provide large volumes of water to a target location, or a sector. Monitor systems are fast acting, versatile and can be set to extinguish fire by projecting water or foam solutions from large distances, either by manual or remote-control devices.

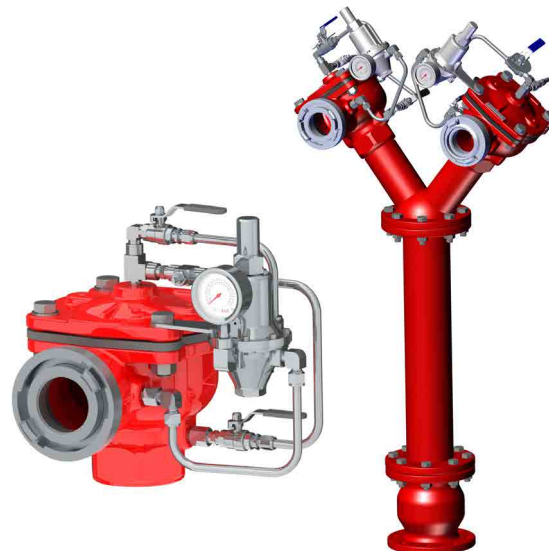
A monitor valve is attached to each monitor to enable its operation.

Controlled by electric, hydraulic or pneumatic signals, the FDV-R Monitor valve can be controlled locally or remotely, according to the end user's needs. The valves are built to deliver fast response and large flows, with minimum head loss to the monitor system.

FIRE HYDRANTS

Used as a connection point by which firefighters can tap into a water supply. It is a component of active fire protection. It provides a connection interface from public water source to firefighter's water hoses.

The hydrant is equipped with a pressure-reducing valve in order to prevent injuries caused by unexpected high pressure.



PRESSURE CONTROL VALVES

The FDV-R is a UL/FM approved Fire Protection control valve for the use of pressure reducing, relief and level control, are elastomeric diaphragm type, open fail-safe streamlined globe & angle pattern valves, featuring direct resilient diaphragm seal, with no wet spring or metallic moving parts inside the valve body.

FDV-R valves are used for fixed fire suppression systems, water, foam and seawater-based flow control, in manual or remote on-off & pressure control applications.

FDV-R valves operate with a patented reinforced diaphragm, which eliminates the need for a compensating metal spring. The special elastic design enables gradual and precise opening or drip tight smooth closing of the valve without vibration, preventing water hammer. FDV-R automatic control valves are designed for installation, optionally in either the vertical or horizontal position.



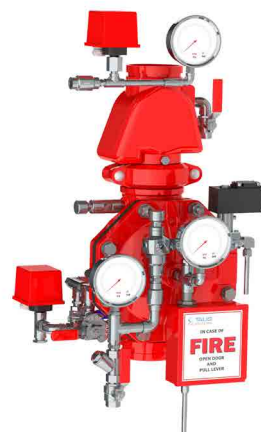
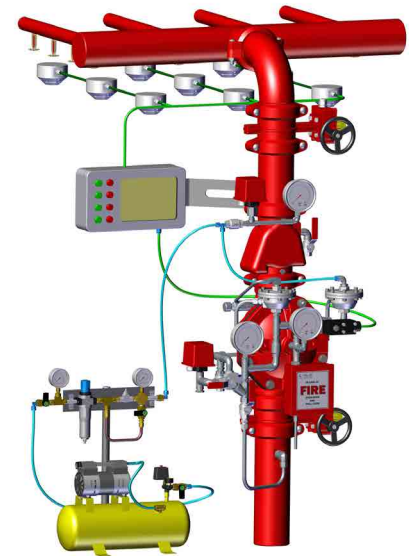
PREACTION VALVES

The Preaction UL/FM approved system is based on a controlled FDV deluge valve and a clapper check valve installed at its downstream. The clapper check valve is kept closed by the pressurized automatic sprinklers pipe line.

The space between the close deluge downstream side and the closed clapper, serves as the "Intermediate chamber" where the acoustic alarm and pressure switch are connected to.

In a fire situation, the flames heat shatters open of one or more of the automatic sprinklers causing the pipe line to depressurize. The pressure decrease causes a pneumatic actuator to open. This is considered as one event of actuation.

When one or more of the smoke detectors are activated, it sends an electric signal to the main control board. This is considered as the second event of actuation. Only when both events of actuation occur, the control board opens the solenoid valve and FDV deluge valve opens, admitting water to the sprinkles pipe line.



WHO ARE WE

Raphael is leading the international market valve industry with its wide and innovative product range for water flow control.

Founded in 1949, Raphael Valves Industries Ltd., is a manufacturer of high quality control valves. Raphael's product range includes hydraulic control valves, butterfly valves, gate valves, check valves and many other solutions for the Irrigation, Waterworks and Fire Protection markets.

Various coating technologies including epoxy, Rilsan (Nylon 11), enamel and more give us the ability to supply a high quality protection for special applications.

All valves are subject to a stringent quality control procedure – Raphael's quality management system is ISO 9001 certified, UL and FM, ABS, Lloyds, EMERCOM, CNBOP-PIB and more. We have the widest range of valves and smart solutions for many uses.

Raphael is actively engaged in advancing the domain of „smart water“ and its associated innovations. Several of these smart products are designed to enhance data flow, increase visibility, and optimize technical and logistical operations.

As part of this approach, Raphael's best minds created a one of a kind ultrasonic hydrometer-„ULTRAF PRO“. The first worldwide Ultrasonic flow measuring unit integrated with hydraulic valve.

RAPHAEL FP Range valves are essential components in fixed fire suppression systems, serving various industries such as Petrochemical, Oil & Gas, Offshore, and Marine. They facilitate the precise control of water, foam, and seawater flow, enabling manual or remote on-off applications. These valves are purposefully crafted to offer dependable and fail-safe solutions, particularly for fire suppression systems that require rapid response to curb the spread of flames.



WE

Promote and nurture a culture of trust, respect, transparency, and honesty across all our global endeavors.



YOU

You as a customer and partner are not only our inspiration for our innovations but also the driving force behind our performance.



TOGETHER

We nurture talent to create and deploy innovative solutions, striving to enhance the quality of life for everyone.



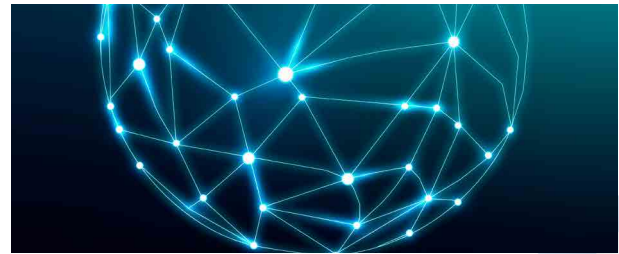
FIRE PROTECTION



IRRIGATION



WATERWORKS



SMART SOLUTIONS

RAPHAEL VALVES INDUSTRIES (1975) LTD, founded in 1949, is the first Israeli manufacturer of water control valves. RAPHAEL's research department constantly strives to introduce new and innovative products and solutions for water control systems including water works, fire-protection, irrigation systems and other fields.

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