Raphael
Beyond Valves



FIRE PROTECTION

PRODUCT BROCHURE

RAPHAEL VALVES INDUSTRIES (1975) LTD.

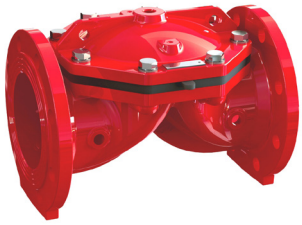
Founded in 1949, Raphael Valves Industries Ltd., is a manufacturer of high-quality control valves. With an extensive and pioneering product lineup, Raphael leads the global market in valve technology.

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.

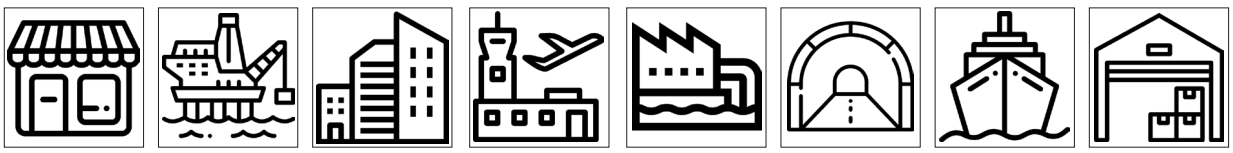
Raphael offers a wide range of elastomeric diaphragm-type valves in streamlined globe and angle patterns. These valves are essential components in fixed fire extinguishing systems using water, foam, or seawater media. Our Fire Protection range includes Deluge and Preaction systems, Pressure control valves,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







MARKETS



Commercial | P.O.G. | Residential | Airport | Industrial | Tunnels | Marine | Storage

APPROVALS

FDV & FDV-R

Diaphragm Valves

Raphael FP Range valves are key elements in fixed fire suppression systems, widely used across industries including petrochemical, oil & gas, offshore, and marine. They enable accurate control of water, foam, or seawater flow, supporting both manual and remote on–off operation.

Engineered for reliability and fail-safe performance, these valves are well suited for systems requiring rapid response and high flow capacity. Raphael fire protection valves are elastomeric diaphragm-type units, available in streamlined globe and angle configurations.

With just three primary components, the design incorporates a direct, resilient diaphragm seal and eliminates the need for internal springs or metallic moving parts in contact with the fluid.

Raphael FP valves are compatible with a range of system types, including deluge, preaction, pressure control, monitor, and hydrant applications. The valves operate using a patented reinforced diaphragm, removing the need for a compensating metal spring. This elastic design ensures controlled, gradual opening and smooth, drip-tight closure without vibration, helping to prevent water hammer in both vertical and horizontal installations.

FDV



FDV-R



TECHNICAL DATA

FLUID:
Water, Brackish water, Sea Water

SIZE RANGE:
from 40 mm to 400 mm [1 1/2" to 16"]

AVAILABLE CONNECTION ENDS:
Flanged, Grooved, Threaded

NOMINAL PRESSURE:
17.2 bar (250 psi)

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-Bronze-Aluminum 8-148 C95800

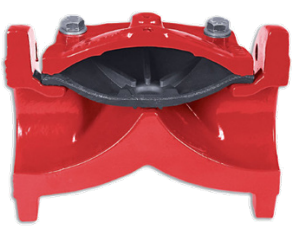
FASTENERS MATERIAL:
- Galvanized steel
- Stainless Steel A-304 #A2
- Stainless Steel A-316 #A4
- Nickel Alloy (seawater service)

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

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, brackish water and seawater
- Enables handling and maintenance at in-line installations
- 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 waterbased 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.

DELUGE SYSTEMS



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

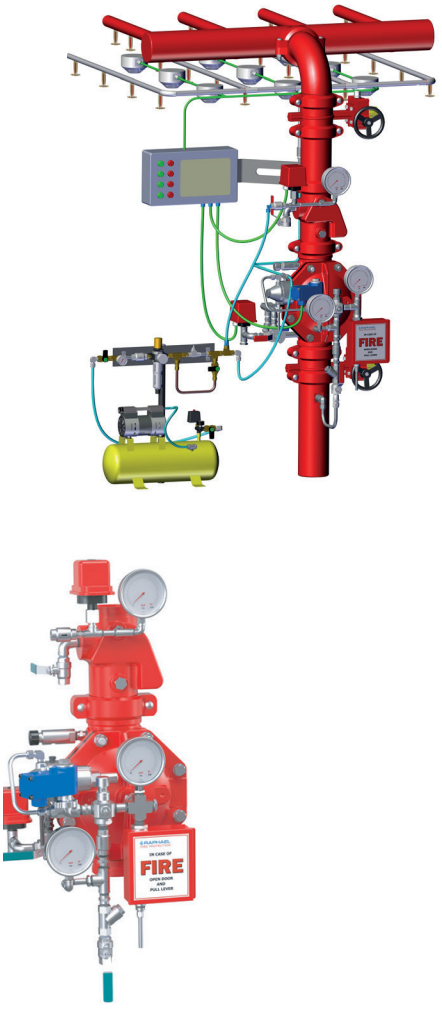
RAPHAEL's Deluge systems can be actuated electrically, pneumatically or electro-pneumatically and can be reset locally or remotely. The Deluge system incorporates an emergency valve, bypassing the fire detection systems for manual operation.

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.

The Deluge system is designed for vertical or horizontal installation.

- **Diameters:** 1.5”- 10”
- **End connections:** FL, TH, GR, FL-GR
- **Working pressure:** up to 17.2 bar (250psi)
- **Applications:** refineries, industrial plants, warehouses, parking areas, halls, and storage facilities.

PREACTION VALVES



The UL/FM-approved Preaction system is based on a controlled FDV Deluge valve and a clapper check valve installed downstream. The clapper check valve is kept closed by the pressurized automatic sprinkler pipeline.

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

The system can be configured for either Single Interlock or Double Interlock operation, depending on the specific fire protection requirements.

In a Double Interlock configuration, two independent events are required to activate the system:

1. When one or more automatic sprinklers operate due to heat, the sprinkler pipeline depressurizes, activating a pneumatic actuator. This constitutes the first actuation event.
2. When one or more smoke detectors are activated, an electrical signal is sent to the main control panel. This constitutes the second actuation event.

Only when both events occur does the control panel energize the solenoid valve, allowing the FDV Deluge valve to open and admit water into the sprinkler pipeline.

- **Diameters:** 1.5”- 10”
- **End connections:** FL, TH, GR, FL-GR
- **Working pressure:** up to 17.2 bar (250psi)
- **Applications:** refineries, industrial plants, warehouses, parking areas, halls, and storage facilities.

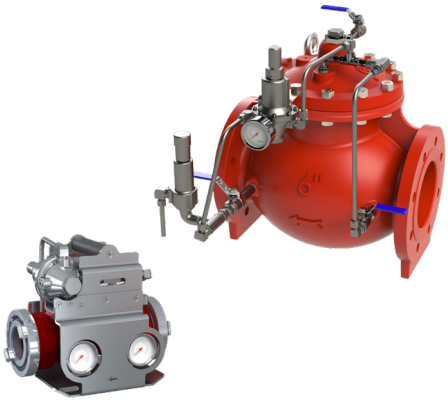
PRESSURE CONTROL VALVES

The FDV-R is a UL/FM approved Fire Protection control valve for the use of pressure reducing, relief and level control. It is an 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, 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.





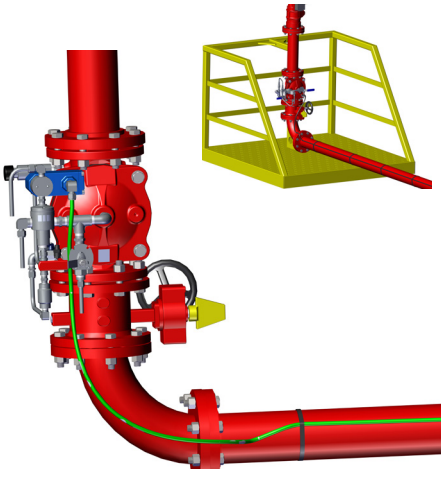
- **Diameter:** 1,5“- 16”
- **Pressure:** up to 17.2 bar (250 psi)
- **End connections:** Flange, Threaded, Groove
- **Applications:** Regulation and maintenance of pressure and flow in fire protection systems

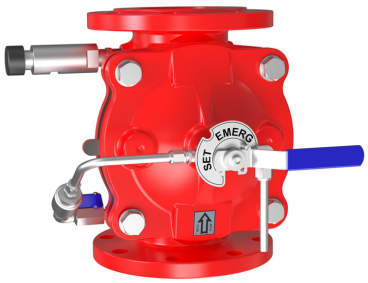
MONITOR SYSTEMS

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 connected to a monitor and controls 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 for fast re-sponse and deliver large flows, with minimum head loss to the monitor system.





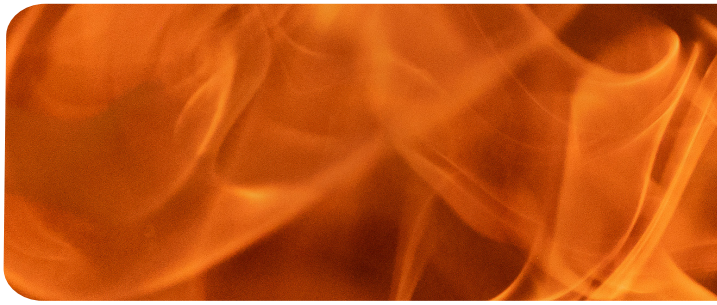
- **Diameter:** 1,5“- 16”
- **Pressure:** up to 17.2 bar (250 psi)
- **End connections:** Flange, Threaded, Groove
- **Applications:** Water cannons, municipal hydrants

Providing advanced solutions to customers around the world

NorthAmerica|SouthAmerica|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 new and innovative products and solutions for water control systems including water works, fire protection and irrigation systems.



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