

Company Information	Additional Company/ Plant Detail	Confirmation Of Type Approval
RAPHAEL VALVES INDUSTRIES LTD NORTHERN INDUSTRIAL ZONE OR AKIVA PO BOX 555 30600 Israel Tel +97246263555 Fax +97246263558 Email : export@raphael.co.il Website : www.raphael-valves.com		This product doesn't have a Confirmation of Type Approval.
<i>Certificate Number Category Expiry Date</i>		

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Product	Valve, Deluge
Model	FDV Valves
Intended Service	Marine & Offshore Application – Used for Water Flow Control in Deluge, Pre-Activated Sprinklers or Foam-Water Type Systems.
Description	<p>FDV's are elastomeric diaphragm type, globe pattern valves, featuring direct resilient/elastomeric diaphragm seal, with no balancing spring or metallic moving wet components in the valve body. The valves are designed for vertical or horizontal installation.</p> <p>Size: 2", 3", 4", 6" and 8" with flanged inlet/outlet end connections.</p> <p>Size: 1.5" and 2" with threaded inlet/outlet end connections.</p> <p>Valve body and cover are manufactured from Ductile Iron ASTM A-563 65-45-12 (default material), Cast Steel ASTM A-216 Grade WCB, Stainless Steel ASTM A743 CF8, Stainless Steel ASTM A743 CF8M or Nickel Aluminum bronze ASTM B148 C95800.</p> <p>Diaphragms and V-Rings are made of Natural Rubber (NR – standard for DI and WCB valves) or EPDM (standard for Bronze and SS valves).</p> <p>Valves actuating systems as per listed technical specifications.</p>
Ratings	Maximum Allowable Working Pressure (MAWP): 250 psi (17.2 bar)
Service Restrictions	Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.
Comments	<ol style="list-style-type: none"> As per Manufacture IOM Manual, the FDV valve must be installed in accessible location(s). The valve, associated with its control trim and pilot lines, must be installed in areas not be subject to freezing (minimum surrounding temperature of 4 °C). In accordance with Par 8.3.2 of UL 260 Standard, an automatic operating means of the electric type shall be constructed for operation from both a primary and a secondary source of electric energy. The Manufacturer of a valve is to guarantee that the valve is constructed to the Standard and conforming to the identifications to which it is marked. The Manufacturer is to guarantee also that the valve has been tested before shipment to the pressure required by the pressure rating of the valve. The Certificate of test is to be submitted upon request as per Par. 4-6-2/5.11.4 of ABS Steel Vessel Rules. All valves are to bear the trademark of the Manufacturer legibly stamped or cast on the exterior of the valve and also the primary pressure rating at which the manufacturer guarantees the valve to meet the requirements of the Standard as indicated on Par. 4-2-2/9.5 of ABS Mobile Offshore Drilling Unit Rules. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
Notes, Drawing and Documentation	For FDV Basic Deluge Valve Components Drawings, see Attachment. Document FDV – FIRE PROTECTION ELASTOMERIC DIAPHRAGM TYPE 250 psi BASIC UNTRIMMED DELUGE VALVES - General Description and IOM Manual, Revision: 0, Pages: 60

Technical Specification for FDV-AC1 – Pneu-Electric Actuated with Remote Reset Deluge Valve;
 Technical Specification for FDV-AH1 – Hydraulic Actuated with Remote Reset Deluge Valve;
 Technical Specification for FDV-AP1 – Pneumatic Actuated with Remote Reset Deluge Valve;
 Technical Specification for FDV-DA1 – Hydraulic Actuated & Anti-Columning Remote Reset Deluge Valve;
 Technical Specification for FDV-DC0 – Pneu-Electric Actuated with Local Reset Deluge Valve;
 Technical Specification for FDV-DC1 – Pneu-Electric Actuated with Remote Reset Deluge Valve;
 Technical Specification for FDV-DE0 – Electrical Actuated with Local Reset Deluge Valve;
 Technical Specification for FDV-DE1 – Electrical Actuated with Remote Reset Deluge Valve;
 Technical Specification for FDV-DH0 – Hydraulic Actuated with Local Reset Deluge Valve;
 Technical Specification for FDV-DH1 – Hydraulic Actuated with Remote Reset Deluge Valve
 Technical Specification for FDV-DP1 – Pneumatic Actuated with Remote Reset Deluge Valve;
 Technical Specification for FDV-PA0 – Hydraulic Actuated, Pressure Reducing Local Reset Deluge Valve & Anti-Columning;
 Technical Specification for FDV-PA1 – Hydraulic Actuated, Pressure Reducing Remote Reset Deluge Valve with Anti-Columning;
 Technical Specification for FDV-PC0 – Pneu-Electric Actuated with Local Reset, Pressure Reducing Deluge Valve;
 Technical Specification for FDV-PC1 – Pneu-Electric Actuated with Remote Reset, Pressure Reducing Deluge Valve;
 Technical Specification for FDV-PE0 – Electrical Actuated with Local Reset, Pressure Reducing Deluge Valve;
 Technical Specification for FDV-PH0 – Hydraulic Actuated with Local Reset, Pressure Reducing Deluge Valve;
 Technical Specification for FDV-PH1 – Hydraulic Actuated with Remote Reset, Pressure Reducing Deluge Valve;
 Technical Specification for FDV-PP0 – Pneumatic Actuated with Local reset, Pressure Reducing Deluge Valve;
 Technical Specification for FDV-PP1 – Pneumatic Actuated with Remote Reset, Pressure Reducing Deluge Valve;

File No. VLFT.EX26941 – UL Online Certificate for FDV Special System Water Control Valves, Deluge Type;
 Report No. EX1345 – UL Type Test Reports for FDV Valves per Standard UL260, Dated 2016, Pages: 35
 Report No. EX26941 – UL Operation Tests Report for FDV Valves per Standard UL1739, Dated 7-Mar-2016, Pages: 22
 Report No. EX26941 – UL Test Conclusion for FDV Valves per Standard UL260, Issued 16-Jun-2016, Pages: 6
 Report dated 20-Sep-2016 – LR Fire Test Report for FDV Valves according to ISO 6182-5:1995, Pages: 4

Term Of Validity	This Product Design Assessment (PDA) Certificate 16-GE1560936-PDA, dated 19/Oct/2016 remains valid until 18/Oct/2021 or until the Rules or specifications used in the assessment are revised (whichever occurs first). This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product. Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA. Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.
ABS Rules	- Rules for Conditions of Classification (2016): 1-1-4/7.7, 1-1-A3 and A4, which covers the following: - Rules for Building and Classing Steel Vessels (2016): 4-6-2; - Rules for Building and Classing Steel Vessels Under 90 Meters (295 Feet) in Length (2016): 4-4-2; - Rules for Building and Classing Offshore Support Vessels (2016): 4-6-2; - Rules for Building and Classing Steel Vessels for Service on Rivers and Intracoastal Waterways (2016): 4-3-2 - Rules for Conditions of Classification – High-Speed Craft (2016): 1-1-4/11.9, 1-1-A2 and A3, 4-4-2 - Rules for Conditions of Classification – Offshore Units and Structures (2016): 1-1-4/9.7, 1-1-A2 and A3, which covers the following;; - Rules for Building and Classing Mobile Offshore Drilling Units (2016): 4-2-2.
National Standards	UL 260 – Standard for Dry Pipe and Deluge Valves for Fire-Protection Service, Seventh Ed.

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	16-GE1560936-PDA	21/OCT/2016	18/OCT/2021