

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Diaphragm Valve**

with type designation(s)

711D Threaded, 733D Flanged, 799D Wafer

Issued to

Mil Inbal Valves Ltd.**Rishon Lezion, Israel**

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems**DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition July 2015****DNV GL class programme DNVGL-CP-0186 – Type approval – Valves****Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****The valve may be used as deluge and flow control deluge valve in fire water systems.**

Type:	Temperature range:	Max. working press.:	Sizes:
711D Threaded	Dependent on the sealing material see certificate	21 bar	DN 1½" to 2"
733D Flanged	Dependent on the sealing material see certificate	21 bar	DN2" to 12"
799D Wafer	Dependent on the sealing material see certificate	21 bar	DN3" to 12"

This Certificate is valid until **2020-06-30**.Issued at **Høvik** on **2016-05-24**DNV GL local station: **Haifa**for **DNV GL**Approval Engineer: **Adel Samiei**

Marianne Spæren Marveng
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Product description

The valves are pilot operated, and have only the resilient sleeve as moving part.

End connection configurations:

Type	End Connection	Sizes
711D	Threaded	DN 1½" - 2"
733D	Flanged	DN 2" - 12"
799D	Wafer	DN 3" - 12"

Flanges ratings as per the requirement of client & maximum working pressure of valve may be #125/150/300 (ASME) or PN16/25 (EN).

Materials:

Body/ENDS	Housing	Sleeve
Nodular cast iron of the ferrittic type: EN-GJS-400-15 according to EN1563 ASTM A536 grade 65-45-12	Carbon Steel SAE 1020 I.S 530 CLASS-B/EN10025	Rubber B4 EPDM BUNA-N
Cast Steel ASTM A216 gr. WCB/WCC/LCB/LCC	Carbon Steel SAE 1020	
Stainless Steel ASTM A351 / A744 gr. CF8M	Stainl. Steel ASTM A312/ A358 TP-316L	
Stainless Steel 6Mo UNS S31254	Stainl. Steel ASTM A312/A358 UNS S31254	
Stainless Steel Duplex UNS S31803	Stainl. Steel ASTM A312/A358 UNS S31803	
Stainless Steel Super Duplex UNS S31803/ASTM A995 Gr5A/6A	Stainl. Steel ASTM A312/A358 UNS S32760	
BS EN 1982 CC491K/CC492K (BS1400 gr. LG2/LG4)	CuNi 90/10 BS2871 gr. PT3	
BS EN1982 (1999) CC333G (AB2)/ UNS C95800	CuNi 90/10 BS2871 gr. PT3/UNS 7060X CuNiFe1.6Mn	
Titanium ASTM B367 gr. GR-C2	Titanium ASTM B862 Gr.2	

Limitations

The valves are approved for ship piping systems, machinery piping systems and cargo piping systems on board ships and mobile offshore units taking into account the below limitations.

The valves are to be covered with two layers fire insulation 25mm 128kg/m³ ceramic fibres.

Valves covered by this certificate which are sizes 3" to 12" (both including) are to be considered fire safe when wrapped in the 50 mm thick ceramic fibre.

Nodular cast iron of the ferrittic type (with specified minimum elongation of 12%) may be used in class II and III piping and in valves located on the ship's side and bottom and valves on the collision bulkhead.

Nodular cast iron of the ferrittic type shall not be used for media having a temperature exceeding 350°C and below 0°C.

The range of fluid working temperature is depending upon the sealing / sleeve material:

Job Id: **262.1-004626-3**
Certificate No: **TAP000005V**

- EPDM: 0°C to +130°C
- Buna-N: 0°C to +100°C
- Rubber B4: 0°C to 65°C

Valves with threaded connection shall not be used in piping systems conveying toxic or flammable media or service where fatigue, severe erosion or crevice corrosion is expected to occur.

Valves with tapered thread are only approved for:

- Class I piping systems up to (and including) DN25
- Class II and III piping systems up to (and including) DN50

Valves with parallel thread are only approved for Class III piping systems up to (and including) DN50.

Production Tests

All valve bodies shall be subjected by the manufacturer to a hydrostatic test at a pressure equal to 1.5 times the nominal pressure (The nominal pressure is the maximum allowable working pressure at room temperature).

All valves assembly shall be subjected to seat leakage test at 1.1 times maximum working pressure at closed position.

Production Testing and acceptance criteria shall be in accordance with EN12266-1

Certification

DNV GL product certificate is required for valves with DN>100 mm (4") and PN>16 bar. For other valves manufacturer's certificate is accepted.

Each product/delivery is to be accompanied by the following documents:

- Material Certificate for valve body in accordance with DNV GL ship rules pt.4 Ch.6 Sec.2 Table3.
- Instruction manual/specification sheet.

Type Approval documentation

Tests carried out

Leakage - burst - fire tests

Marking of product

For traceability to this type approval each product is at least to be marked with:

- Manufacturer's name
- Type designation

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform a survey – every second year before the expiry date of this certificate - to verify that the conditions for the type approval are complied with.