

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Globe Valve**with type designation(s)
Straight & Angle type

Issued to

**Dikkan Gemi ve Endustriyel Vana Sanayi Ticaret Anonim
Sirketi
Izmir, Turkey**

is found to comply with

**DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL class programme DNVGL-CP-0186 – Type approval – Valves****Application :****Product(s) approved by this certificate is/are accepted for installation on vessels classed by
DNV GL.****Temperature range:** 0°C to 180°C (depending on the sealant material, see page 2)**Max. working press.:** 16 bar(g)**Sizes:** DN 15 to DN 200 (see page 2)Issued at **Høvik** on **2018-01-02**This Certificate is valid until **2023-01-01**.for **DNV GL**DNV GL local station: **Istanbul**Approval Engineer: **Maheshraja Venkatesan****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

Four different types of valves with various sizes designed in accordance with EN 12516-3 as shown below:

Size	Minimum wall thickness of valve body & bonnet, mm							
	Globe valves		Quick Closing Valves		Self-closing Valves (Lever & counter-weight type)		Self-closing Valves (Spring loaded)	
	Straight type	Angle type	Straight type	Angle type	Straight type	Angle type	Straight type	Angle type
DN 15	5	6	5	6	5	6	5	6
DN 20	5	6	5	6	5	6	5	6
DN 25	6	7	6	7	6	7	6	7
DN 32	5	7	5	7	5	7	5	7
DN 40	7	7	7	7	7	7	7	7
DN 50	7	7	7	7	7	7	7	7
DN 65	5	5	7,5	7,5	7,5	7,5	7,5	7,5
DN 80	5	5	8	8	8	8	8	8
DN 100	5	5	8,5	9,5	8,5	9,5	8,5	9,5
DN 125	6	6	9,5	9,5	-	-	-	-
DN 150	7	7	10,5	11	-	-	-	-
DN 175	10	10	10	10	-	-	-	-
DN 200	8	8	11	12	-	-	-	-

End flanges are in accordance with PN 16 from EN 1092-2.

Material of construction:

Valve component	Material grade			
	Globe valves	Quick Closing Valves	Self-closing Valves (Lever & counter-weight type)	Self-closing Valves (Spring loaded)
Body & bonnet	EN GJS-400-18-LT from EN 1563	EN GJS-400-18-LT from EN 1563	EN GJS-400-18-LT from EN 1563	EN GJS-400-18-LT from EN 1563
Bonnet gasket	Graphite	Graphite	Graphite	Graphite
Bolting	Grade 8.8 from ISO 898-1	Grade 8.8 from ISO 898-1	Grade 8.8 from ISO 898-1	Grade 8.8 from ISO 898-1
Disc	CuSn5Zn5Pb5-C from EN 1982/ X5CrNi18-10 from EN 10028-7 for sizes ≤ DN65	X20Cr13 from EN 10088-2	X20Cr13 from EN 10088-2	X20Cr13 from EN 10088-2
	EN GJS-400-18-LT from EN 1563 for sizes ≥ DN 80			
Stem	CuZn35Ni3Mn2AlPb from EN 12449/ X20Cr13 from EN 10088-3 CuZn39Pb3 from EN 12164	X20Cr13 from EN 10088-3	X20Cr13 from EN 10088-3	X20Cr13 from EN 10088-3
Seat	CuSn5Zn5Pb5-C from EN 1982/ X5CrNi18-10 from EN 10028-7	X20Cr13 from EN 10088-2	X5CrNi18-10 from EN 10028-7	X5CrNi18-10 from EN 10028-7
Gland packing	Graphite	-	Graphite	-
O-ring	-	NBR/ Viton (FKM)	-	NBR/ Viton (FKM)
Gland	EN GJS-400-18-LT from EN 1563	-	-	-

Note: '-' → Not applicable

Application/Limitation

Valves covered by this certificate are approved to be used class II and class III piping systems in accordance with DNV GL Ship Rules Pt.4 Ch.6 and also:

- on the ship's side and bottom
- on the collision bulkhead

Pressure temperature ratings shall follow Table 16 from EN 1092-2.

Temperature limits based on the sealant materials used:-

Graphite	: 0°C to 180°C
NBR	: 0°C to 100°C
Viton (FKM)	: 0°C to 180°C

Valves covered by this certificate (except quick closing valves with NBR O-ring) are not considered as fire-safe.

The approval does not include any operating gear for remote control of the valves.

'Globe valves - straight & angle type' and 'Self-closing valves – straight & angle type' covered by this certificate may not be used as shut off or quick closing valve.

Production testing

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 valve assemblies 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 EN 12266-1 (leakage rate A).

For valves fitted on ship's side and bottom the test pressure shall not be less than 5 bar.

Certification

Valve bodies shall be delivered with material certificates in accordance with DNV GL Ship Rules Pt.4 Ch.6 Sec.2 Table 3. Materials with VL and W certificates shall be manufactured in a foundry approved by the society.

DNV GL product certificates are required for valves with DN > 100 and design pressure ≥ 16 bar, and for ship side valves where DN > 100 regardless of pressure. For other valves a manufacturer's product certificate may be accepted.

Type Approval documentation

Job Id: **262.1-022199-1**
Certificate No: **TAP0000153**

Tests carried out

Burst tests as per EN 12516-3;

Vibration test as per DNVGL-CG-0339 (IEC 60068-2-6) & fire test as per ISO 10497 (for quick closing valves)

Marking of product

Valves shall be marked at least with the following details:

- manufacturer's name or trade mark
- valve type designation and size
- maximum design pressure and temperature
- arrow to indicate direction of flow on one way flow valves

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNVGL-CP-0338.