

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Butterfly Valves**

with type designation(s)
S46, S57, S64

Issued to

Alfa Europe B.V.
Hengelo Ov, Overijssel, Netherlands

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
DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition January 2018

Application :

Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV GL.

Type:	Temperature range:	Max. working press.:	Sizes:
S46	See page 3	See page 2	DN50 to DN1200 (see page 2)
S57	See page 3	See page 2	DN50 to DN1200 (see page 2)
S64	See page 3	See page 2	DN50 to DN1200 (see page 2)

Issued at **Høvik** on **2018-06-15**

This Certificate is valid until **2023-06-14**.

for **DNV GL**

DNV GL local station: **Rotterdam, Offshore & Newbuilding**

Approval Engineer: **Maheshraja Venkatesan**

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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 types of butterfly valves designed in accordance with EN 593:

Valve type	Pressure rating	Sizes covered	Face to face dimensions
S46 (Double flanged type)	PN6/ PN10/ PN16	DN50,65,80,100,125,150,200,250,300,350,400,450,500	EN 558 series 13
	PN10	DN600, 700,800,900,1000,1100,1200	
S57 (Wafer type)	PN6/ PN10/ PN16/ PN20	DN50,65,80,100,125,150,200,250,300,350,400,450,500	EN 558 series 20
	PN10	DN600, 700,800,900,1000,1100,1200	
S64 (Lug type)	PN6/ PN10/ PN16/ PN20	DN50,65,80,100,125,150,200,250,300,350,400,450,500	EN 558 series 20
	PN10	DN600, 700,800,900,1000,1100,1200	

Pressure-Temperature ratings	: EN 12516-1 (for steel materials); : EN 1092-2 (for ductile iron materials); : EN 1092-3 (for copper alloy materials); : EN 1092-4 (for aluminium alloy materials)
Wall thickness	: EN 12516-1 (for steel materials); : EN 12516-4 (for metallic materials other than steel)
End dimensions	: Relevant parts of EN 1092 for types S46, S57 and S64;

Material of construction:

Valve type	Valve component			
	Body	Disc	Shaft	Liner
S46	Ductile iron JS1030, BS1400 AB2 (EN1982: 2017) / DIN CC333g / ASTM B148 C95800, SS 1.4408	Aluminium bronze AB2, SS 1.4408, SS 1.4462, ASTM A890 Gr. 6A, Cast Steel A216 WCB	SS 1.4122/ SS 1.4462	NBR, EPDM, VITON
S57	Ductile iron JS1030, BS1400 AB2 (EN1982: 2017) / DIN CC333g / ASTM B148 C95800, SS 1.4408	Aluminium bronze AB2, SS 1.4408, SS 1.4462, ASTM A890 Gr. 6A, Cast Steel A216 WCB	SS 1.4122/ SS 1.4462	NBR, EPDM, VITON
S64	Ductile iron JS1030, BS1400 AB2 (EN1982: 2017) / DIN CC333g / ASTM B148 C95800, SS 1.4408	Aluminium bronze AB2, SS 1.4408, SS 1.4462, ASTM A890 Gr. 6A, Cast Steel A216 WCB	SS 1.4122/ SS 1.4462	NBR, EPDM, VITON

Valve plug details (for all types):

Valve Size	DIN 908 Plug
DN40 – DN80	M20x1.5
DN100	M22x1.5
DN125	M24x1.5
DN150	M27x1.5
DN200	M30x1.5
DN250	M38x1.5
DN300	M42x1.5

Job Id: **262.1-025290-1**
Certificate No: **TAP0000145**

Model	Size	Bottom Plate D/No.	Rev.
S46	DN350	YH935-D350II-15C-00	00
	DN400	YH935-D400II-15C-00	00
	DN450	YH935-D450II-15C-00	00
	DN500	YH935-D500II-15C-00	00
	DN600	YH935-D600II-15C-00	00
	DN700	YH935-D700II-15C-00	00
	DN800	YH935-D800II-15UC-00	00
S57, S64	DN350	YH935-D350II-15LC-00	00

Corrosion allowance (for all types):
3mm for DN40 – DN300
4mm for DN350 – DN600
5mm for DN700 – DN1200

Application/Limitation

The approval is valid for ship, machinery & cargo piping systems onboard DNV GL classed ships and mobile offshore units.

Design temperatures depending on seat materials:

NBR : -15°C to +80°C
EPDM : -23°C to +120°C
VITON : -15°C to +200°C

Materials chosen for the specific system shall be suitable for the intended medium and environmental conditions.

Nodular cast iron of the ferritic type, with specified minimum elongation of 12%, may be used in class II and III piping and in pipes and valves located on the ship's side and bottom and valves on the collision bulkhead. The use of nodular cast iron in class I piping shall be subject to consideration for approval in each case.

Nodular cast iron shall not be used for media having a temperature below 0°C.

Austenitic stainless steels (e.g. CF8M, 316) covered by this certificate are not seawater resistant and shall not be used in direct contact with seawater.

Valves covered by this certificate with non-metallic seats are not considered fire safe and shall not be installed in systems where fire safe applications are required.

The approval does not include actuator of the valves.

This certificate does not cover valves installed in LNG/LPG applications.

Type Approval documentation

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 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).

Valves fitted on ship's side and bottom are also to be hydrostatically tested at a pressure equal to 5 bar

Tests carried out

N/A

Certification

Valve bodies shall be delivered with material certificates in accordance with DNV GL Ship 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 mm and design pressure > 16 bar, and for ship side valves where DN>100 mm regardless of pressure. For other valves a manufacturer's product certificate may be accepted.

Marking of product

For traceability to this type approval, the final products are to be marked with:

- manufacturer's name or trade mark
- valve type designation
- 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.