



TYPE APPROVAL CERTIFICATE

Certificate No:
TAP000011F
Revision No:
1

This is to certify:

That the **Butterfly Valves**

with type designation(s)
SL (light series), SR (Heavy series)

Issued to

DENNIS NAKAKITA S.A.
Pozuelo de Alarcón, Madrid, Spain

is found to comply with

DNV class programme DNV-CP-0186 – Type approval – Valves
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021

Application :

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

Type:	Temperature range:	Max. working press.:	Sizes:
SL (light series)	Depending on the seat material	10 bar	DN40 to DN1000
SR (Heavy series)	Depending on the seat material	25 bar	DN40 to DN1000

Issued at **Høvik** on **2023-04-27**

for **DNV**

This Certificate is valid until **2027-06-30**.

DNV local unit: **Madrid**

Approval Engineer: **Jane Lozanov**

Zeinab Sharifi
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: TA 251

Revision: 2022-09

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Page 1 of 3

Product description

One piece body butterfly-valves in SL and SR series
Wafer, Wafer-lug, lug and Double flanged
Single piece shaft
Minimum body thickness: according to ASME B16.34

Sizes:

SL: DN:40,50,65,80,100,125,150,200,250,300,350,400,450,500,550,600,700,800,900,1000

SR: DN:40,50,65,80,100,125,150,200,250,300,350,400,450,500,550,600,650,700,750,800,900,1000

Part	Material Category	Material designation/standard
Body and disc	Gray cast iron	ASTM A-126 Class B
	Nodular cast iron (ferritic type)	GGG40 / EN-GJS-400-15
	Carbon steel	ASTM A-216 Grade WCB
	Alloy steel	ASTM A352 Grade LCB, LC2, LC3
	Duplex castings	ASTM A-995 Gr. 5A
	Cast stainless steel	Ni-Resit ASTM A-351 CA-15, CF8, CF8M
	Forged stainless steel	ASTM A182 Grade F6, F316, F304 AISI 431
	Monel	Monel 400
	Stellite	Stellite
	Hastelloy	Hastelloy B Hastelloy C
	Bronze	ASTM B62,
	Aluminium bronze	ASTM B-148 9A & 52AL9D, ASTM B-148 Gr. 9D (for disc only)
Sealing	Non-metallic	Natural rubber, Ethylene Propylene, Neoprene, Butile, Hypalon, Nitrile, Silicon, Viton fluoride, PTFE (Teflon), RPTFE (reinforced Teflon), UHMWPE
	Metallic	AISI 316, Monel-K500, Monel K-400, Inconel and Hastelloy

Application/Limitation

Valves covered by this certificate are approved to be use in ship piping, machinery piping and cargo piping systems.

Copper and copper alloys (aluminium brass) shall not be used for media having temperature above 200°C and shall not be combined with ammonia.

Temperature range depending on seat material:

Seat	Temperature range	Seat	Temperature range	Seat	Temperature range
Natural rubber	-40°C to 60°C	Butile	-30°C to 100°C	Silicon	0°C to 200°C
Ethylene Propylene *	-40°C to 120°C	Hypalon	-20°C to 130°C	Viton fluoride	0°C to 120°C
Neoprene	-40°C to 110°C	Nitrile	-15°C to 90°C	PTFE (Teflon)	-100°C to 200°C
RPTFE (Reinforced Teflon)	-100°C to 260°C	UHMWPE	-100°C to 80°C		

*) not allowed to use in systems containing Hydrocarbons.

The approval does not include actuator and/or other equipment for remote control of the valves.

Materials and material protection chosen for the specific system shall be suitable for the intended medium and environmental conditions. Valves of austenitic stainless steel shall not be used in direct contact with seawater.

Valves covered by this certificate are fire safe and may be installed in systems where fire safe application is required.

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

Nodular cast iron of the ferritic type, with specified minimum elongation of 12%, may be used in class II and III piping (when the minimum design temperature is not less than 0°C) and in valves located on the ship's side and bottom and valves on the collision bulkhead.

Grey cast iron may be used for class III piping, with the following exceptions:

- valves fitted on ship sides and bottom and on sea chests
- valves fitted on collision bulkhead
- valves under static head fitted on the external wall of fuel tanks, lub. oil tanks and tanks for other flammable oils
- valves for fluids with temperatures in excess of 120°C.

Minimum body thicknesses (in mm) for each type/size are in accordance with below table:

DN	Heavy series (SR)	Light series (SL)	DN	Heavy series (SR)	Light series (SL)
40	12	12	400	29	20
50	12	12	450	31	20
65	16.5	16.5	500	33	20
80	13	13	550	36	20
100	13	13	600	39	24
125	15	15	650	39	-
150	18	15	700	40	25
200	20	12	750	40	-
250	22	14	800	40	30
300	24	16	900	47	28
350	26	18	1000	46	30

Type Approval documentation

Drawings: exp300R + H30-80 dated 27-02-2014 / exp300R + M30 dated 27-02-2014
exp300R + AC50 dated 27-02-2014 / exp300R + pal dated 27-02-2014
Detail drawings: (SL) CU-40R-MHN10 ed.2, CU-50R-W-MHN10 ed.2, CU-65R-W-MHN10 ed.1,
CU-80R-SML-MHN10 ed.1, CU-100R-SML-MHN10 ed.0, CU-125R-SML-MHN10 ed.0, CU-
150R-SML-MHN10 ed.0, CU-200R-SML-MHN20 ed.0, CU-250R-SML-MHN20 ed.0, CU-
300R-SML-MHN20 ed.0, CU-350R-SML-MHN20 ed.0, W.80.01, W.90.01, W.100.01,
W.105.01, W.120.01, W.140.01, W.160.01, W.180.01/10K, W.200.01
Detail drawings: (SL) CU-40R-MHN10 ed.2, CU-50R-W-MHN10 ed.2, CU-65R-W-MHN10 ed.1,
CU-80R-SML-MHN10 ed.1, CU-100R-SML-MHN10 ed.0, CU-125R-SML-MHN10 ed.0, CU-
150R-SML-MHN10 ed.0, CU-200R-SML-MHN20 ed.0, CU-250R-SML-MHN20 ed.0, CU-
300R-SML-MHN20 ed.0, CU-350R-SML-MHN30 ed.1, CU-400R-SML-MHN40 ed.0, CU-
450R-SML-MHN40 ed.0, CU-500R-SML-MHN50 ed.0, CU-550R-SML-MHN50 ed.0, CU-
600R-SML-MHN60 ed.0, CU-650R-SML-MHN60 ed.0, CU-700R-SML-MHN70 ed.2, CU-
750R ed.0, CU-800R-SML-MHN80 ed.0, CU-900R-SML-MHN80 ed.0, CU-1000R-SML-
MHN60 ed.0

ABS fire test report number HM2488649 / Dr.-Ing.T. Bäumer report number IBB-1102

Calculation reports for SR and SL series (ed3)

Fire test witnessed by ABS. Report No. IBB-2430 / ABS 4468732C, IBB-2406 / ABS 4468732B

Production Testing and Certification

Production Testing and Certification for the actual intended application shall follow the latest applicable edition of the Rules (as mentioned on the front page of this certificate).

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 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 DNV-CP-0338.