Certificate No: LR2610064TA
Issue Date: 29/08/2024
Expiry Date: 28/08/2029

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

Manufacturer	**Sinpro (Dezhou) Industries Co., Ltd.**
Address	No. 1, Industrial Park Road, Ningjin County, Shandong Province, 253400, China
Place of Production	Sinpro (Dezhou) Industries Pte Ltd East of Gongye San Lu, South of Xiangjiang Dong Dajie, Dongbu New District, Ningjin County, Dezhou City, 253400, China
Type	Butterfly Valves
Description	Center Line Butterfly Valve
Trade Name	Wafer type, Double Flange type, U-Flange type, Lug type
Application	Marine and offshore applications subject to the valves complying with LR Rules and Regulations for the particular services.
Specified Standard	LR Rules and Regulations for the Classification of Ships, July 2025 ISO 19921 : 2005 GB/T 22218 - 2008
Ratings	Wafer type: Nominal Diameter (mm): DN25~DN1200 Design Pressure Rating (MPa): 2.5 (DN25~DN150) 1.6 (DN25~DN600) 1.0 (DN25~DN1200)

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Torsten Schroeder

Engineering - Piping/ Decarbonisation -
Senior Specialist to Lloyd's Register EMEA
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Double Flange type:	
Nominal Diameter (mm):	DN50~DN1200
Design Pressure Rating (MPa):	2.5 (DN50~DN150) 1.6 (DN50~DN600) 1.0(DN50~DN1200)
U-Flange type:	
Nominal Diameter (mm):	DN50~DN1200
Design Pressure Rating (MPa):	2.5 (DN50~DN150) 1.6(DN50~DN600) 1.0 (DN50~DN1200)
Lug type:	
Nominal Diameter (mm):	DN25~DN1200
Design Pressure Rating (MPa):	2.5 (DN25~DN150) 1.6 (DN25~DN600) 1.0(DN25~DN1200)
Design Temperature (˚C):	100 (NBR) 130 (EPDM) 145 (EPDM HT) 190 (PTFE) 200 (FPM/VITON)
Material Body:	Grey Cast Iron EN-GJL-250 (EN 1561) Nodular Cast Iron EN-GJS-400-18 (EN 1563) Nodular Cast Iron EN-GJS-400-15 (EN 1563) Nodular Cast Iron EN-GJS-500-7 (EN 1563) Cast steel ASTM A216-WCB/ASTM A352 LCB/ASTM A352 LCC Stainless steel ASTM A351 CF8M (AISI 316/EN 1.4408) Stainless steel ASTM A351 CF3M (AISI 316L/EN 1.4404) Stainless steel ASTM A351 CF8(AISI 304/EN 1.4301) Al-Bronze ASTM B148 C95400/C95500/C95800 Stainless steel Duplex steel ASTM A890/A995 Gr. 4A (CD3MN/UNS S31803/EN 1.4462) Stainless steel Super Duplex steel ASTM A890/A995 Gr. 5A (CE3MN/UNS S23750/EN 1.4469)

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Disc:	Nodular Cast Iron EN-GJS-400-15 (EN 1563) Nodular Cast Iron EN-GJS-500-7 (EN 1563) Stainless steel ASTM A351 CF8M (AISI 316/EN 1.4408) Stainless steel ASTM A351 CF3M (AISI 316L/EN 1.4404) Stainless steel ASTM A351 CF8 (AISI 304/EN 1.4301) Stainless steel Monel 400 ASTM A494 Cr. M35-1/UNS N24135 Stainless steel Hastelloy C ASTM A494 CW/12MW UNS N30002 Stainless steel Duplex steel ASTM A890/A995 Gr. 4A (CD3MN/UNS S31803/EN1.4462) Stainless steel Duplex steel ASTM A890/A995 Gr. 5A (CE3MN/UNS S23750/EN 1.4469) Stainless steel Super Duplex steel ASTM A890 Gr. 5A (CE3MN/UNS S32750/EN 1.4501) Al-Bronze ASTM B148 C95400/C95500/C95800
Liner:	NBR/EPDM/EPDM HT/PTFE/FPM/VITON
Shaft:	Stainless steel AISI 304/AISI 316/AISI 316L/AISI 416/AISI 431/ AISI 630 Stainless steel ASTM A693 Gr. 630 Stainless steel Duplex ASTM A182 Gr. F51 Stainless steel Super Duplex ASTM A182 Gr. F55 Stainless steel 1.4462/1.4057/1.4418/1.4122/1.4104/1.4401/ 2.0966/2.4883 Hastelloy Alloy C-276 Stainless steel ASTM A564 Gr. 630 Monel Alloy K50

Additional Tests FIG988 series with seat of NBR/EPDM/FPM are to be fire tested according to ISO 19921 : 2005 & GB/T 22218-2008 (Design pressure rating of 2.5 MPa excluded).

Other Conditions

1. Materials for metallic castings and forgings of Class I and Class II piping systems are to be produced at a works approved by LR and are to be tested in accordance with the Rules for Materials.

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2. Valves are to be used within their specified pressure and rating for all normal operating conditions, and are to be suitable for the intended purpose.
3. Valves intended for Class I and II are to be tested but not less than 1.5 times the design pressure.
4. For valves with grey cast iron body the application restrictions as per LR Ship Rules, Part 5, Chapter 12, 4.2 are to be observed.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

Previous Version: LR2006465TA

The Design Appraisal Document LR2610064_DAD and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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