Certificate No: LR2006436TA
Issue Date: 29/08/2019
Expiry Date: 28/08/2024

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	**FLOERINER (CHINA) CO.,LTD**
Address	No. 9 Hua Yuan Road, Wuxi Economic Development Zone, Jiangsu Province, 214131, China
Place of Production	Sinpro (Dezhou) Industries Co., Ltd. No. 1, Industrial Park Road, Ningjin County, Shandong Province, 253400, China
Type	Butterfly Valves
Description	Center Line Butterfly Valve Double Eccentric Butterfly Valve Triple Eccentric Butterfly Valve
Trade Name	Wafer type Double Flange type U-Flange type Lug type
Application	Marine and offshore 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 2018 API 607 - 2016 ISO 19921 : 2005 GB/T 22218 - 2008

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Qing Dong

Specialist to Lloyd's Register Classification Society (China) Co Ltd
A member of the Lloyd's Register group

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Huangpu District, China

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Ratings

Wafer type:
Nominal Diameter (mm): DN25~DN1200
Design Pressure Rating (MPa): 2.5 (DN25~DN150)
1.6 (DN25~DN600)
1.0 (DN25~DN1200)

Double Flange type:
Nominal Diameter (mm): DN50~DN1200
Design Pressure Rating (MPa): 2.5 (DN50~DN150)
1.6 (DN50~DN600)
1.6(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)
230 (RPTFE)
200 (FPM/VITON)
450 (Inconel 625 & 718)
650 (AISI 304/AISI 316/AISI 316L)

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)
Caststeel ASTM A216-WCB/ASTM A352 LCB/ASTM A352 LCC
Stainless steel ASTM A351 CF8M (AISI 316/EN 1.4408)

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	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 steelASTM 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)
	Bronze BS 1400 LG2 (G-Rg5)/ASTM B427 C90700
	ASTM B584 C90500
Disc	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)
	Carbonsteel forged ASTM A105
	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 Cr. 5A (CE3MN/UNS S23750/EN 1.4469)
	Stainlesssteel 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/RPTFE/Inconel625 & 718
	FPM/VITON/AISI 304/AISI 316/AISI 316L
Shaft	AluminiumBronze
	Stainless steel AISI 304/AISI 316/AISI 316L/AISI 416/AISI 430
	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

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Hastelloy Alloy C-276
Stainless steel ASTM A564 Gr. 630
Monel Alloy K50

Additional Tests

FCV 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).

FOV series with seat of PTFE/RPTFE + AISI 304/AISI316/AISI 316L/Inconel 625 & 718 are to be fire tested with API 607-2016(Design pressure rating of 2.5~4.0 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.
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.

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 Classification Society (China) Co Ltd of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document No. LR2006436TA and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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