

Type Approval Certificate

This is to certify that the undernoted product has been tested with satisfactory results in accordance with the relevant requirements of the LR Type Approval System.

This certificate is issued to:

PRODUCER Hy-Lok Corporation

PLACE OF PRODUCTION 1467-1, Songjeong-dong, Gangseo-gu, Busan, Korea 618-817

DESCRIPTION Instrument Manifolds Valves

TYPE M-Series

Body materials: 316 stainless steel, carbon steel and alloy 400

Packing materials: PTFE and Grafoil

Remote Mounting			
Description	Part No.	Orifice	Material
2-Valves Block	M2V**8N	3.2 mm	SS316/ Carbon Steel Alloy 400
2-Valves Vertical	M2VV**8N	3.2 mm	
3-Valves Block	M3V**8N	6.4 mm	
5-Valves Block	M5V**8N	6.4 mm	
Direct Mounting			
Description	Part No.	Orifice	Material
2-Valves Single Flange	M2V1F**8N	3.2 mm	SS316/ Carbon Steel Alloy 400
2-Valves Single Block Flange	M2VDM**8N	6.4 mm	
3- Valves Single Flange	M3V1F**8N	6.4 mm	
3- Valves Dual Flange	M3V2F**	6.4 mm	
3- Valves Single Block Flange	M3VDM**8N	5.0 mm	
3- Valves Dual Block Flange	M3V2DM**	5.0 mm	
5-Valves Single Flange	M5V1F**8N	6.4 mm	
5-Valves Dual Flange	M5V2F**	6.4 mm	
5- Valves Single Block Flange	M5VDM**8N	6.4 mm	
5- Valves Single Block Flange "A" style	M5VDMA**8N	5.0 mm	

Certificate No. 13/10050

Issue Date 27 June 2013

Expiry Date 26 June 2018

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Yokohama Design Support Office
Lloyd's Register Group Limited

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(Continued)

Gage /Root Valve			
Description	Part No.	Orifice	Material
Gauge Valves	GV**MF8N	6.4 mm	SS316/ Carbon Steel Alloy 400
	GV**MF12N8N	6.4 mm	
	GV**MF8N12N	6.4 mm	
	GV**F8N	6.4 mm	
Root Valves	GRV**MF8N	6.4 mm	
	GRV**MF12N8N	6.4 mm	
	GRV**MF8N12N	6.4 mm	
	GRV**F8N	6.4 mm	
Gage 2-Valves	GV2**-MF8N	3.2 mm	

APPLICATION Marine piping systems for air, steam, thermal oil, fuel oil, lubricating oil and hydraulic oil

DESIGN CODE STANDARD LR Rules and Regulations for the Classification of Ships, Part 5, Chapter 12 (July 2012)
ASME B31.1 "Power Piping" 2010
ASME B1.20.1 "Pipe Threads, General Purpose (inch)" 1983
ASME B16.34 "Valves-Flanged, Threaded and Welding End" 2009

RATINGS

Pressure-Temperature Rating

Packing Material	Body Material	Temperature Range	Pressure Rating @100°F	Pressure Rating @Max. Temp.
PTFE	Stainless Steel	-65°F ~ 450°F (-54°C ~ 232°C)	6,000 psig (41,369 kPa)	4,130 psig @450°F (28,475 kPa @232 °C)
	Carbon Steel	-20°F ~ 350°F (-29°C ~ 176°C)	6,000 psig (41,369 kPa)	5,230 psig @350°F (36,060 kPa @176 °C)
	Alloy 400	-65°F ~ 450°F (-54°C ~ 232°C)	5,000 psig (34,474 kPa)	3,970 psig @450°F (27,372 kPa @232 °C)
Grafoil	Stainless Steel	-65°F ~ 1200°F (-54°C ~ 648°C)	6,000 psig (41,369 kPa)	1,175 psig @1200°F (8,101 kPa @648 °C)
	Carbon Steel	-20°F ~ 350°F (-29°C ~ 176°C)	6,000 psig (41,369 kPa)	5,230 psig @350°F (36,060 kPa @176 °C)
	Alloy 400	-65°F ~ 500°F (-54°C ~ 260°C)	5,000 psig (34,474 kPa)	3,960 psig @500°F (27,303 kPa @260 °C)

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OTHER CONDITIONS Where the valves are intended to be installed on a ship classed with Lloyd's Register (LR), they are to be made, installed and tested in accordance with Part 5, Chapter 12 of the Rules and Regulations for the Classification of Ships.

"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 Group Limited of any modification or changes to the equipment in order to obtain a valid certificate."

The Design Appraisal Document No. 13/10025 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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