

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	Volz Gruppe GmbH
Address	Gartenstraße 6, Deilingen, 78586, Germany
Type	Mechanical Pipe Joints
Description	Stainless steel (1.4571) and carbon steel (C15, C22, St37-0, St37-2 and 9SMnPb28K) high pressure 24° compression couplings with or without seals sensitive to heat as per Volz Catalogue 04/2015, Pages 18 to 125 and 154 to 162
Trade Name	LL (very light gauge), L (light gauge) and S (heavy gauge)
Application	For pressure pipes in the marine, offshore and industrial environment. <u>Restrictions</u> -Bulkhead couplings are not to be used on watertight bulkheads, Gastight bulkheads and for "A", "B" fire class divisions. -Couplings with seals sensitive to heat are not acceptable in the following locations : <ol style="list-style-type: none">1. Starting/control air and CO₂ systems.2. Inside machinery spaces of category A or accommodation spaces for main lines of inert gas systems.3. Fire main, water spray and sprinkler systems or similar which are not always filled with water.

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Specified Standard Lloyd's Register Rules and Regulations for the Classification of Ships, July 2020 and IACS P2.11 including wet fire endurance test for couplings with seals sensitive to heat.

Ratings See Appendix

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: 96/20001 (E6)

The Design Appraisal Document HPC/HMD 5139-00, Issue No. 7 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

Appendix

RATINGS

<u>Stainless steel</u> couplings <u>with</u> seals sensitive to heat	Pipe Outside Diameter (mm)	Nominal Pressure PN at 20 °C (bar)
L (light gauge)	6 – 15	250
	18 – 22	160
	28 – 42	100
S (heavy gauge)	6 – 14	630
	16 – 25	400
	30 – 38	250
Temperature Range	FPM (Viton) : -25°C to +200°C PTFE (Teflon) : -60°C to +200°C	
Pressure reduction as per manufacturers recommendations	Temperature, °C	50 100 200 Reduction, % 4.5 11 20

<u>Stainless steel and carbon steel</u> couplings <u>without</u> seals sensitive to heat	Pipe Outside Diameter (mm)	Nominal Pressure PN at 20 °C (bar)
LL (very light gauge)	4 – 8	100
L (light gauge)	6 – 10	500
	12 – 18	400
	22 – 42	250
S (heavy gauge)	6 – 10	800
	12 – 16	630
	20 – 38	420
Temperature Range	Carbon steel : -40°C to +120°C Stainless steel : -60°C to +400°C	
Pressure reduction for <u>stainless steel</u> as per manufacturer's recommendations	Temperature, °C	50 100 200 300 400 Reduction, % 4.5 11 20 29 33