

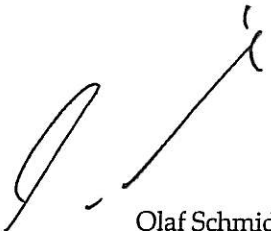
Type Approval Certificate Extension

This is to certify that Certificate No. 96/20001 (E2) for the undernoted products is extended and renumbered as shown.

This certificate is issued to:

PRODUCER	VOLZ-Gruppe Gartenstrasse 6 78586 Deilingen Germany
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 01/2006, Chapters 1 to 5
TYPE	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 :-<ol style="list-style-type: none">a. Main lines of inert gas systems.b. Pipe systems for flammable liquids including corresponding vent and sounding pipes.3. Fire main, water spray and sprinkler systems or similar which are not always filled with water.

Certificate No.	96/20001 (E3)
Issue Date	15 February 2011
Expiry Date	14 January 2016
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Olaf Schmidt
Hamburg Design Support Centre
Lloyd's Register EMEA

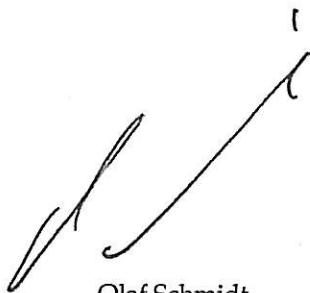
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RATINGS

<u>Stainless steel</u> couplings with seals sensitive to heat	Pipe Outside Diameter (mm)	Nominal Pressure PN at 20 °C (bar)
L (light gauge)	6 – 15 18 – 22 28 – 42	250 160 100
S (heavy gauge)	6 – 14 16 – 25 30 – 38	630 400 250
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 without seals sensitive to heat	Pipe Outside Diameter (mm)	Nominal Pressure PN at 20 °C (bar)
LL (very light gauge) L (light gauge)	4 – 8 6 – 10 12 – 18 22 – 42	100 500 400 250
S (heavy gauge)	6 – 10 12 – 16 20 – 38	800 630 420
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	

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STANDARD

Lloyd's Register Rules and Regulations for the Classification of Ships, July 2010 and IACS P2.11 including wet fire endurance test for couplings with seals sensitive to heat.

"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."

The attached Design Appraisal Document No. HPC/HMD 5139-00, Issue No. 3 dated 15.02.2011 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

All other details remain as the previous Certificate No. 95/20001 (E2) to which this extension should be attached.

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