



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	Sanha GmbH & Co. KG
Address	Im Teelbruch 80, Essen, 45219, Germany
Place of Production	NiroSan Edelstahlrohr GmbH Buckower Chaussee 133, Berlin, 12277, Germany
Place of Production	Sanha GmbH & Co. KG Werk Schmiedefeld, Hauptstr. 76, Großharthau-Schmiedefeld, 01909, Germany
Type	Pipe Press Fitting System
Description	Press fitting system made of stainless steel (1.4404, 1.4571, 1.4408) Series 9000 with EPDM Sealing Ring Series 17000 with HNBR Sealing Ring Series 18000 with FKM Sealing Ring
Trade Name	NiroSan® Gas / NiroSan® Industry
Application	As piping components in Class 3 piping systems on ships classed or intended for Classification with Lloyd's Register. <u>Restrictions:</u> 1) Starting / Control Air and CO2 Systems 2) inside machinery spaces of category A or accomodation spaces for main lines of inert gas systems

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- 3) Fire class division's penetrations
- 4) Bilge main lines in high fire risk compartments
- 5) Scupper pipes below freeboard deck to overboard

Specified Standard	Lloyd's Register Rules and Regulations for the Classification of Ships, July 2021 and IACS Regulation P. 2.11 including additional fire endurance test under dry conditions.						
Ratings	<p>NiroSan Press Fittings for general applications</p> <table><thead><tr><th>pipe outer diameter (mm)</th><th>Design Pressure (bar)</th></tr></thead><tbody><tr><td>15 - 54</td><td>16</td></tr><tr><td>64 - 108</td><td>10</td></tr></tbody></table> <p>Flammable liquids and dry sprinkler* systems up to 7 bar design pressure.</p> <p>*Dry sprinkler systems are subject to the acceptance of the National Authority.</p> <p>Maximum approved working temperature up to 120 °C (depending on medium and sealing material)</p>	pipe outer diameter (mm)	Design Pressure (bar)	15 - 54	16	64 - 108	10
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15 - 54	16						
64 - 108	10						
Additional Tests	Fire Test of sizes DN15, DN35 and DN76 according to ISO 19921, but under dry conditions during flame impingement for 30, 20 and 30 minutes with subsequent hydraulic static proof test at 10,5 bar.						
Other Conditions	For deck and bulkhead penetrations see also the requirements of the National Authorities. Selection and installation to be in accordance with the producer's instructions and recommendations.						



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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: C16-20085

The Design Appraisal Document HTS/ENS 43117-21 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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