

LLOYD'S REGISTER TYPE APPROVAL

Issue by: UK&I Technical Support Office

Issued to: Poseidon Marine Supplies

For: Flexible hose assemblies for high-pressure CO2 systems

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register Type Approval System Procedure TA14 Version 03 (July 2017) and this Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

Application for Type Approval	11 Oct 2019
LR Production Facilities audit report, Ref; PRJ11100244906/1	20 Jan 2020
Manuli Hydraulics authorization letter as hose assembler; letter dated 05-Dec-2019	
Manuli Hydraulics Training Course of products, assembly and installation; letter dated 18-Dec-2019	
Manuli Hydraulics- LR Type Approval Certificate No. 00/00121(E7), Exp. Date; 09 October 2020	
Manuli Hydraulics- LR Type Approval Certificate No. 00/00136(E7), Exp. Date; 09 October 2020	
Manuli Hydraulics- LR Type Approval Certificate No. 16/80050(E1), Exp. Date; 24 October 2021	
Manuli Hydraulics- LR Type Approval Certificate No. 16/80051(E1), Exp. Date; 24 October 2021	

CONDITIONS OF APPROVAL

1. Hoses and fittings are manufactured by Manuli Hydraulics Italia S.r.l.
2. It is responsibility for **Poseidon Marine Supplies** that the hoses and fittings are to be designed and constructed in accordance with recognised National or International Standards acceptable to marine high-pressure CO2 systems. In order to maintain the approval, the manufacturer is required to confirm that there have been no changes in the formulation or production process for the material and that the places of manufacture remains unchanged.
3. **Poseidon Marine Supplies'** responsible to maintain the applicable latest tests standard/code of the Hoses and fittings.
4. Production Quality Assessment (PQA) will require to be conducted on or around 30 months from the date of issue on the certificate.



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Supplementary Type Approval Terms and Conditions

Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.

Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations. Lloyd's Register EMEA reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the Lloyd's Register Type Approval System Procedure.

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	Poseidon Marine Supplies
Address	6-8 Almiridos Str, Piraeus, 18540, Greece
Place of Production	Poseidon Marine Supplies 6-8 Almiridos Str, Piraeus, 18540, Greece
Type	Flexible Hoses
Description	1SN flexible rubber hoses reinforced by one steel wire braids complete with straight, 90 degree & swivel end fittings. <ul style="list-style-type: none">• 330mm hose 1/2inch with end fittings BSP male 1/2 – female 21.8 x 14• 600mm hose 1/4inch with end fittings BSP male 3/8• 361mm hose 1/2inch with end fittings UNF female 3/4• 650mm hose 1/2inch with end fittings female 21.8 x 14• 527mm hose 3/16inch with end fittings UNF male 3/8
Trade Name	MANULI
Application	For use in marine high-pressure CO2 systems as a connection between the valves and manifolds.
Specified Standard	Lloyd's Register's Rules and Regulations for the Classification of Ships 2019, Part 5, Chapter 12, Section 7. EN 853 SAE J517



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Type Approval Certificate

Ratings	Hose Type	Max. Working Pressure
	<ul style="list-style-type: none"> 330mm hose 1/2inch with end fittings BSP male 1/2 - female 21.8 x 14 	160 bar
	<ul style="list-style-type: none"> 600mm hose 1/4inch with end fittings BSP male 3/8 	225 bar
	<ul style="list-style-type: none"> 361mm hose 1/2inch with end fittings UNF female 3/4 	160 bar
	<ul style="list-style-type: none"> 650mm hose 1/2inch with end fittings female 21.8 x 14 	160 bar
	<ul style="list-style-type: none"> 527mm hose 3/16inch with end fittings UNF male 3/8 	300 bar
	Minimum temperature; - 60 deg. C.	

Other Conditions	
	<ol style="list-style-type: none"> Hoses are to be selected, installed and in accordance with the manufacturer's recommendations and statutory requirements for fire and safety system. Materials for hoses and fittings are to be manufactured and tested in accordance with the requirements for Class I piping systems. Each hose, pipe and their associated fittings are to be tested at the manufacturer's production facility to a hydrostatic pressure not less than 1.5 times of the rated pressure. The manufacturer's recommendations on replacement of the hoses after a specified period in service are to be strictly observed. Each flexible hose with end fittings is to be provided with the manufacturer's pressure test report and conformity of the production and the following details are to be permanently marked: <ul style="list-style-type: none"> Manufacturer's name or trademark. Date of manufacture (month/year). Designation type reference. Nominal diameter. Pressure rating. Temperature range.

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 Design Appraisal Document No. LR2003128TA and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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