



# Type Approval Certificate

[ Flexible Rubber Hose Assembly ]

**Initial Approval** 24 February 2014

**Manufacturer** Manuli RYCO Hydraulics Sdn. Bhd.  
Plot 207, Kuala Ketil Ind. Estate Kuala Ketil, Kedah Darulman, 09300 Malaysia

**Product Description** Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

Model : T3000, T3600, T4000, T5000, T6000,  
H3000, H4000, H5000, H6000,  
T1, T2,  
SRF, SRX

Application : Lubricating oil, Fuel Oil, Hydraulic oil  
Compressed air, Fresh water, Sea water

“ See Appendix 1 ”

**Approval Condition** “ See Appendix 1 ”

**THIS IS TO CERTIFY** that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows.

Pt 5, Ch 6, Sec 1 of the Rules for Classification of Steel Ships.

This Certificate is valid until 23 February 2029

Issued at Busan, Korea on 25 June 2024



This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "<http://e-cert.krs.co.kr>" by using the tracking No(ME24030099667) and certificate No.(SGP49687-HS001).



**KOREAN REGISTER**

*General Manager of  
Marine & Ocean Equipment Team*

- Note :**
1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
  2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
  3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
  4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

## Product Description and/or Approval Condition

Date of Issue : 25 June 2024

### A. Product Description

#### 1. Product Specification

##### 1) Isobaric Braid

Type	Size (DN)	Max. Pressure (bar)	Service Temp. (°C)
T3000	6 ~ 25	245	-40 ~ +100
T3600	6 ~ 25	250	-40 ~ +100
T4000	6 ~ 25	280	-40 ~ +100
T5000	6 ~ 19	350	-40 ~ +100
T6000	6 ~ 12	420	-40 ~ +100

##### 2) Isobaric Spiral

Type	Size (DN)	Max. Pressure (bar)	Service Temp. (°C)
H3000	31 ~ 51	215	-40 ~ +121
H4000	10 ~ 51	280	-40 ~ +121
H5000	10 ~ 51	350	-40 ~ +121
H6000	10 ~ 51	420	-40 ~ +121

##### 3) Braid

Type	Size (DN)	Max. Pressure (bar)	Service Temp. (°C)
T1	5 ~ 51	40 ~ 250	-40 ~ +100
T2	6 ~ 76	70 ~ 420	-40 ~ +100

##### 4) Suction and Return

Type	Size (DN)	Max. Pressure (bar)	Service Temp. (°C)
SRF	19 ~ 51	7 ~ 21	-40 ~ +100
SRX	19 ~ 76	4 ~ 21	-40 ~ +100

Coupling material : Carbon Steel AISI/SAE 12L14, #1010, #1020, #1040, #1045  
 Stainless Steel  
 Electroplated Fe/Zn12c acc. to AS1789

\* Hose manufacturer :

- 1) MANULI RYCO Hydraulics Sdn. Bhd. (Malaysia), Manuli Hydraulics(Suzhou) Co., Ltd.  
 : T3000, T3600, T4000, T5000, T6000, H3000, H4000, H5000, H6000, T1, T2
- 2) Wellcall Hose Sdn. Bhd. (Malaysia)  
 : SRF
- 3) ILKE(SEL) Istanbul, Turkey  
 : SRX

\* Hose assembling location : MANULI RYCO Hydraulics(Dalian) Co., Ltd.  
 MANULI Hydraulics(Suzhou) Co., Ltd.

#### 2. Approved Drawings and Documents

- 1) Approved drawing No. 2000-16, 7000-16, 9090-1616, 90000-16
- 2) Approved catalogues for T3000, T3600, T4000, T5000, T6000, H3000, H4000, H5000, H6000, T1, T2, SRF, SRX

## Product Description and/or Approval Condition

Date of Issue : 25 June 2024

### 3. Test Reports, etc.

- 1) Burst Test Report (H6000, H4000, T4000, H5000, H3000, etc.) No. 5378 dated on 20 Feb 2013 witnessed by GL and LR
- 2) Burst Test Report (T3000, T4000, T5000, T6000, H3000, H4000, H5000, H6000, T1, T2, SRF, etc.) No. 5185 dated on 15 Nov 2012 witnessed by DNV and LR
- 3) Test Report (DIEHARD, SLIDER) No. RHAU-IB-1001-1009 dated 27 Aug 2012
- 4) Fire Resistance Test (SR Series) Report No. RH-FT-60-62 dated 07 Apr 2006
- 5) Burst Test (SRX) Report No. #20181128 dated 28 Nov 2018 witnessed by DNV-GL

## B. Approval Condition

### 1. Application & Limitation

- 1) SRX hose is approved in accordance with SAE 100R4 and impulse test was not carried out.
- 2) The flexible hoses are to be installed in clearly visible and readily accessible locations.
- 3) The flexible hoses are to be used as short as possible in the permanent piping system where flexibility is required.
- 4) This certificate is valid for the specific assembly of hose and coupling type as specified, assembled and delivered directly by the Manufacturer.
- 5) Flexible hose assemblies are not to be installed where they may be subjected to torsional deformation (twisting) under normal operating conditions.
- 6) The installation and maintenance are to be carried out in accordance with the manufacturer's instructions.

### 2. Individual Product Cert. and Drawing Approval Requirement

- 1) Individual Product Certification is required in case of pipes belonging to Class I and II.

### 3. Marking

- 1) Hoses should be marked with the following items
  - Hose manufacturer's name or trademark
  - Date of manufacture (Month/Year)
  - Rated pressure
  - Type designation
  - Nominal diameter
  - Rated temperature

### 4. Others

- Nil

&lt; End of Certificate &gt;