



Lloyd's  
Register

## Type Approval Certificate Extension

This is to certify that **Certificate No.08/10090 (E4)** for the undernoted product(s) has/have been extended and renumbered in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

This certificate is issued to:

**PRODUCER** RYCO Hydraulics.

**PLACE OF PRODUCTION** RYCO Hydraulics Pty. Ltd.  
99 Calarco Drive, Derrimut, Victoria, 3026 Australia

RYCO Hydraulics Sdn. Bhd.  
Plot 207, Kuala Ketil Industrial Estate, 09300 Kuala Ketil,  
Kedah Darulaman, Malaysia

RYCO Hydraulics (Dalian) Ltd.  
38 Ying Ri Road, Ying Cheng Zi Industrial Zone, Gan Jing Zi District,  
Dalian 116036 China

**DESCRIPTION** Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings  
Designations:  
Diehard T1D  
Slider T1S  
Survivor RQP1  
T1E Advantage  
DF1E Advantage  
DF1D Diehard  
DF1S Slider  
DK1D Diehard  
DK1S Slider  
Fire Suppression T1F

**Certificate No.** 08/10090 (E5)

**Issue Date** 27 May 2019

**Expiry Date** 26 December 2023

**Sheet** 1 of 6



Chng Teck Wee  
South Asia Technical Support Office  
Lloyd's Register Singapore Pte. Ltd.

Lloyd's Register Asia  
2 Science Park Drive, #02-05/06 Ascent, Singapore 118222

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**TYPE** SAE 100R1

**APPLICATION** For use on ships and offshore installations classed with Lloyd's Register, as short lengths in systems of fresh and seawater, compressed air, water based hydraulics, hydraulic oil, fuel and lubricating oil.

**STANDARD** Part 5, Chapter 12 of Lloyd's Register's Rules and Regulations for the Classification of Ships (July, 2013)  
Part 5, Chapter 10 of Lloyd's Register's Rules and Regulations for the Classification of Mobile Offshore Units (September 1996 plus Notices Nos. 1, 2, 3, 4, 5 & 6 as applicable)  
Fire Resistant Testing according to ISO 15540/15541

**RATINGS** Sizes: DN 5 to DN 51  
Maximum Working Pressure: 40 to 250 bar (see below)  
Service Temperature: -40°C to +150°C (see below)  
Coupling Material: Carbon Steel AISI  
Stainless Steel (Option)  
Electroplated Fe/Zn12c acc. to AS1789

**OTHER CONDITIONS** The hoses may be used for the following working conditions

DIEHARD T1D	DN (mm)	Max. Pressure (bar)
T13D	5	250
T14D	6	225
T15D	8	215
T16D	10	180
T18D	12	160
T110D	16	130
T112D	19	105
T116D	25	90
T120D	31	65
T124D	38	50

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T132D	51	40
Temperature Range: -40°C to +100°C		

SLIDER T1S	DN (mm)	Max. Pressure (bar)
T13S	5	250
T14S	6	225
T15S	8	215
T16S	10	180
T18S	12	160
T110S	16	130
T112S	19	105
T116S	25	90
T120S	31	65
T124S	38	50
T132S	51	40
Temperature Range: -40°C to +100°C		

SURVIVOR RQP1	DN (mm)	Max. Pressure (bar)
RQP14	6	225
RQP15	8	215
RQP16	10	180
RQP18	12	160
RQP110	16	130
RQP112	19	120
RQP116	25	90
Temperature Range: -40°C to +150°C		

T1E ADVANTAGE	DN (mm)	Max. Pressure (bar)
T13E	5	250
T14E	6	225
T15E	8	215
T16E	10	180
T18E	12	160
T110E	16	130
T112E	19	105
T116E	25	90

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T120E	31	65
T124E	38	50
T132E	51	40
Temperature Range: -40°C to +100°C		

DF1E ADVANTAGE	DN (mm)	Max. Pressure (bar)
DF14E/D/S	6	225
DF15E/D/S	8	215
DF16E/D/S	10	180
DF18E/D/S	12	160
DF110E/D/S	16	130
DF112E/D/S	19	105
DF116E/D/S	25	90
Temperature Range: -40°C to +100°C		

DF1D DIEHARD	DN (mm)	Max. Pressure (bar)
DF14D	6	225
DF15D	8	215
DF16D	10	180
DF18D	12	160
DF110D	16	130
DF112D	19	105
DF116D	25	90
Temperature Range: -40°C to +100°C		

DF1S SLIDER*	DN (mm)	Max. Pressure (bar)
DF14S	6	225
DF15S	8	215
DF16S	10	180
DF18S	12	160
DF110S	16	130
DF112S	19	105
DF116S	25	90
Temperature Range: -40°C to +100°C		

\*Part No., Dimension and rated Pressure are in accordance with the information provided in the product datasheet for DF1D.

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DK1D DIEHARD	DN (mm)	Max. Pressure (bar)
DK14D	6	295
DK15D	8	250
DK16D	10	230
DK18D	12	200
DK110D	16	150
DK112D	19	125
DK116D	25	110
DK120D	31	100
Temperature Range: -40°C to +100°C		

DK1S SLIDER	DN (mm)	Max. Pressure (bar)
DK14S	6	295
DK15S	8	250
DK16S	10	230
DK18S	12	200
DK110S	16	150
DK112S	19	125
DK116S	25	110
DK120S	31	100
Temperature Range: -40°C to +100°C		

FIRE SUPPRESSION T1F	DN (mm)	Max. Pressure (bar)
T13F	5	250
T14F	6	225
T15F	8	215
T16F	10	180
T18F	12	160
T110F	16	130
T112F	19	105
T116F	25	90
Temperature Range: -40°C to +100°C		

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Where synthetic rubber hoses are used for oil fuel supply to burners, the hoses are to have external wire braid protection in addition to the integral wire braid.

Carbon steel couplings are to be normalised for temperatures below -10°C.

In all cases the hoses are to be installed in accordance with the manufacturer's instructions and tested to the satisfaction of the attending surveyor.

*"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 Singapore Pte. Ltd. of any modification or changes to the equipment in order to obtain a valid certificate."*

*The Design Appraisal Document No. 08/10090(E5) and its supplementary Type Approval Terms and Conditions form part of this Certificate.*

All other details remain as the previous **Certificate No. 08/10090(E4)** to which this extension should be attached.

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