Some RYCO Hose Series are not listed on this page: AJ2D, TJ2D, RQG1, M2G, M1, FB1, RTH1, TW1, PW2, MP1.

These hoses are specific purpose hoses, and their temperature limits are specified in the HOSE section of this Product Technical Manual. Refer to RYCO Technical Department for any further queries.

Other RYCO Hose Series are listed below. The Maximum Working Temperatures for these hoses as listed in the HOSE section of this Product Technical Manual; are for use with general purpose, mineral (petroleum) oil based hydraulic fluids, except where otherwise stated.

Temperature limits for other hydraulic fluids, and some other common applications, are listed below.

**CAUTION:**

Life expectancy of hoses is shortened at high temperatures. Detrimental effects increase when temperature is elevated, and when operating pressure, flow velocity, duration and frequency of exposure, and level of impurities in the media are high. Actual service life at temperatures approaching the recommended limits will depend on the particular application and the fluid being used.

Maximum Working Temperatures refer to the temperature of the media in the hose; not the environmental temperature of around the outside of the hose. Please refer to RYCO Technical Department for environmental temperatures in excess of 80°C (176°F), except RQP1 and RQP2 Series where environmental temperature is the same as media temperature.

Maximum Working Temperatures shown are for continuous temperatures. Slightly higher intermittent temperatures (up to 10% of time) may be acceptable with some hoses and some fluids if reduced service life is acceptable, please refer to RYCO Technical Department for more information.

DO NOT expose hose to maximum temperature and maximum rated working pressure at the same time.

The fluid manufacturer's recommended maximum operating temperature for the fluid must not be exceeded. If different to the below listed temperatures, the lower limit must take precedence. We recommend keeping the hose filled with the pressure medium at all times. Further information available on request.

| | GROUP 1 | GROUP 2 | GROUP 3 | GROUP 4 |
|---|---|---|---|---|
| **AVENGER** | T1A, T2A | H12A, H13A, HSHA, HSPA | | |
| **DIEHARD** | T1D, T2D, TXA2D<br>AS1D, AS2D | H12D, H13D, H15D | | |
| **SLIDER** | T2S | H12S, H13S | | |
| **SURVIVOR** | | | RQP1, RQP2, RQP5 | |
| **OTHER SERIES** | DF2 ,SR, M2, T5<br>P1HT | | | RT7, RT7N, RT7T, RT7TN<br>PL1 |
| **MEDIA** | **TEMPERATURE LIMITS** | | | |
| GENERAL PURPOSE MINERAL (PETROLEUM) BASED HYDRAULIC OIL* | -40°C to +100°C<br>(-40°F to +212°F)<br>**P1HT:** -40° to +125°C<br>(-40°F to +257°F) | -40°C to +121°C<br>(-40°F to +250°F) | -40°C to +150°C<br>(-40°F to +302°F) | -40°C to +95°C<br>(-40°F to +203°F) |
| WATER | +71°C (+160°F) | +71°C (+160°F) | +121°C (+250°F) | +70°C (+158°F) |
| WATER IN MINERAL OIL (40% to 80% water) | +85°C (+185°F) | +85°C (+185°F) | +121°C (+250°F) | "-40°C to +95°C<br>(-40°F to +203°F) |
| MINERAL OIL IN WATER (more than 80% water) | +85°C (+185°F) | +85°C (+185°F) | +121°C (+250°F) | +70°C (+158°F) |
| WATER / GLYCOL | +85°C (+185°F) | +85°C (+185°F) | +121°C (+250°F) | +70°C (+158°F) |
| GLYCOL | +85°C (+185°F) | +85°C (+185°F) | +85°C (+185°F) | +70°C (+158°F) |
| PHOSPHATE ESTERS** | Not suitable | Not suitable | -40°C to +82°C**<br>(-40°F to +180°F)**" | Not suitable |
| AIR*** | **P1HT:** -40° to +100°C<br>(-40°F to +212°F)<br>*****OTHERS**:<br>+71°C (+160°F) | +71°C (+160°F)*** | +121°C (+250°F)*** | +71°C (+160°F)*** |
| PETROL (GASOLINE) | Refer to RYCO | Refer to RYCO | Refer to RYCO | Refer to RYCO |
| DIESEL FUEL | **T5:** +71°C (+160°F)<br>**P1HT:** -40°C to +71°C<br>(-40°F to +160°F)<br>**OTHERS:** +50°C (+122°F) | +50°C (+122°F) | +93°C (+200°F) | **T5:** +71°C (+160°F)<br>**PL1:** -40° to +49°C<br>(-40°F to +120°F) |
| ENGINE LUBRICATING OIL, GEARBOX OIL | -40°C to +100°C<br>(-40°F to +212°F) | -40°C to +100°C<br>(-40°F to +212°F) | -40°C to +100°C<br>(-40°F to +212°F) | -40°C to +95°C<br>(-40°F to +203°F) |
| AUTOMATIC TRANSMISSION FLUID | -40°C to +100°C<br>(-40°F to +212°F) | -40°C to +100°C<br>(-40°F to +212°F) | -40°C to +100°C<br>(-40°F to +212°F) | -40°C to +95°C<br>(-40°F to +203°F) |

* For highly refined and special purpose mineral based hydraulic oils, (for example aviation hydraulic oils, MIL spec oils, etc), refer to RYCO Technical Department.

** Not suitable for use with aerospace type phosphate esters such as Monsanto Skydrol 500B, Stauffer Aero-Safe 2300W and Chevron Hy-jet IV.

*** For use with Air at pressures above 17,2 Bar (250 PSI), cover of hose must be perforated / pin-pricked (except RQP5 and T5), to allow air permeating through hose to escape without blistering the cover. Maximum working pressure of wire braid and spiral reinforced hose must be reduced by 30%. Observe all State and Federal Safety Regulations.

The characteristics shown below are for the normal or usual range of these specific Elastomers. Characteristics can be changed somewhat through different compounding to meet the requirements of specialized applications. Each elastomer has a unique combination of strengths and weaknesses. Depending on each specific application, the elastomer must possess the correct combination of properties if it is to perform satisfactorily.

Tube and cover elastomers may occasionally be upgraded to take advantage of improved materials and technology.

For detailed information on specific hose tube or cover check the Chemical Resistance Table on Page 177 and also the specific hose page.

| COMMON NAME<br>Chemical Name | NEOPRENE<br>Poly-Chloroprene | NITRILE<br>Acrylonitrile & Butadiene | HYPALON<br>Chlorosulfonated Polyethylene | EPDM<br>Ethylene Propylene Diene | CPE<br>Chlorinated Polyethylene | POLYESTER<br>Polyamide Resin | TEFLON<br>Fluorinated Thermoplastic |
|---|---|---|---|---|---|---|---|
| Common Designation | CR | NBR | CSM | EPDM | CPE | PE-E | PTFE |
| Flame Resistance | Very Good | Poor | Good | Poor | Good | Poor | Good |
| Petroleum Base Oils | Good | Excellent | Very Good | Poor | Very Good | Very Good | Excellent |
| Diesel Fuel | Good to Excellent | Excellent | Good | Poor | Very Good | Very Good | Excellent |
| Resistance to Gas Permeation | Good | Good | Good to Excellent | Fair to Good | Good | Good | Good to Excellent |
| Weather | Good to Excellent | Fair to Good | Very Good | Excellent | Good | Excellent | Excellent |
| Ozone | Good to Excellent | Poor for Tube Good for Cover | Very Good | Excellent | Good | Good | Excellent |
| Heat | Good | Good | Very Good | Excellent | Excellent | Good | Excellent |
| Low Temperature | Fair to Good | Poor to Fair | Poor | Good to Excellent | Good | Good | Excellent |
| Water - Oil Emulsions | Excellent | Excellent | Good | Poor | Excellent | Very Good | Excellent |
| Water/Glycol Emulsions | Excellent | Excellent | Excellent | Excellent | Excellent | Very Good | Excellent |
| Diesters | Poor | Poor | Fair | Excellent | Very Good | Good | Excellent |
| Phosphate Esters to 82°C (180°F) | Fair (For Cover) | Poor | Excellent (not for Aerospace types) | Very Good | Very Good | Good | Excellent |
| Phosphate Ester Base Emulsions | Fair (For Cover) | Poor | Excellent (not for Aerospace types) | Very Good | Very Good | Good | Excellent |

HYPALON, TEFLON ™ DU PONT

**TUBE MATERIAL**

| CHEMICAL NAME | NEOPRENE | NITRILE | NITRILE PVC | CPE | HYPALON | POLYESTER | TEFLON |
|---|---|---|---|---|---|---|---|
| Acetic Acid (25%) | 2 | X | 2 | 1 | 2 | X | 1 |
| Acetone | X | X | X | 1 | X | X | 1 |
| Acetylene | NO HOSE AVAILABLE | | | | | | |
| Air (71°C, 166°F) | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Air (82°C, 180°F) | 2 | 2 | 2 | 1 | 2 | 2 | 1 |
| Air (93°C, 199°F) | X | X | X | 1 | 2 | X | 1 |
| Ammonia (Aqueous) | 1 | 2 | 1 | - | 1 | X | 1 |
| Amyl Acetate | X | X | X | 2 | X | X | 1 |
| Aniline | X | X | X | 2 | X | - | 1 |
| Benzene (Benzol) | X | X | X | X | X | X | 1 |
| Butyl Acetate | X | X | X | 2 | X | X | 1 |
| Butyl Alcohol (Butanol) | 2 | X | X | 1 | 2 | 2 | 1 |
| Carbon Dioxide (Dry) | 2 | 1 | 1 | 1 | 1 | - | 1 |
| Carbon Dioxide (Wet) | 2 | 1 | 1 | 1 | 1 | - | 1 |
| Carbon Disulfide | X | X | X | 2 | X | - | 1 |
| Chlorine Gas (Dry & Wet) | NO HOSE AVAILABLE | | | | | | |
| Chlorine Water (25%) | X | X | X | - | 2 | X | 1 |
| Chloroform | X | X | X | - | X | X | 1 |
| Cyclohexane | X | 2 | X | 1 | X | 2 | 1 |
| Diesel fuel (under 50°C, 122°F) | X | 1 | X | 2 | X | 1 | 1 |
| Ethers (under 50°C, 122°F) | X | 2 | 2 | 1 | 2 | X | 1 |
| Ethyl Acetate | X | X | X | 2 | X | 2 | 1 |
| Ethyl Alcohol (Ethanol) | 1 | 1 | - | 1 | 1 | 2 | 1 |
| Ethyl Cellulose | - | - | - | 1 | - | - | 1 |
| Ethyl Chloride (Wet) | 2 | X | X | - | X | - | 1 |
| Ethylene Glycol (under 66°C, 151°F) | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Fluorine (Liquid) | NO HOSE AVAILABLE | | | | | | |
| Formaldehyde 37% | 2 | 2 | - | 1 | 2 | 2 | 1 |
| Fuel A (ASTM) | X | 2 | 2 | 1 | 1 | - | - |
| Fuel B (ASTM) | X | 2 | X | 2 | X | - | - |
| Fuel Oil | X | 1 | X | 1 | X | 2 | 1 |
| Glycerine (Glycerol) | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Grease (Petroleum Base) | 2 | 1 | 2 | - | 2 | 1 | 1 |
| Hexane (under 50°C, 122°F) | X | 1 | 2 | 2 | 1 | 2 | 1 |
| Hydraulic Fluid (Phosphate Ester Base) | X | X | X | 1 | 1 | 2 | 1 |
| Hydraulic Fluid (100°C, 212°F) (Std. Petroleum Oils) | 2 | 1 | 2 | 1 | 1 | 1 | 1 |
| Hydrochloric Acid (15%) | X | X | X | 1 | 2 | X | 1 |
| Hydrochloric Acid (37%) | X | - | X | 1 | 2 | X | 1 |
| Hydrogen (Gas) | 1 | 1 | - | 1 | - | 2 | 1 |
| Hydrogen Peroxide (30%) | X | 2 | X | 1 | 2 | X | 1 |

**TUBE MATERIAL**

| CHEMICAL NAME | NEOPRENE | NITRILE | NITRILE PVC | CPE | HYPALON | POLYESTER | TEFLON |
|---|---|---|---|---|---|---|---|
| Isopropyl Alcohol | 2 | 2 | 2 | 1 | 2 | - | 1 |
| Kerosene | X | 2 | X | 1 | X | 2 | 1 |
| L.P.G. | USE L.P.G. HOSE ONLY | | | | | | |
| Lubricating Oils (under 50°C, 122°F) | 2 | 1 | 2 | 1 | 2 | 1 | 1 |
| Methyl Alcohol (Methanol) 100% | 1 | 1 | 1 | 1 | 1 | 2 | 1 |
| Methyl Chloride | X | X | X | X | X | 2 | 1 |
| Methyl Ethyl Ketone (MEK) | X | X | X | 2 | X | 2 | 1 |
| Naphtha (Low Aromatics) | X | 2 | X | 1 | X | X | 1 |
| Natural Gas | USE L.P.G. HOSE ONLY | | | | | | |
| Nitric Acid (10%) | X | X | X | 1 | 2 | X | 1 |
| Nitric Acid (40%) | X | X | X | X | X | X | 1 |
| Oxalic Acid (10% cold) | X | X | X | 1 | 2 | X | 1 |
| Ozone (Dry) | 2 | X | 2 | 1 | 2 | 2 | 1 |
| Paint Solvents (Oil Base) | X | X | - | - | X | 2 | 1 |
| Perchloroethylene | X | X | X | 2 | X | X | 1 |
| Phenol (Carbolic Acid) | X | X | X | 1 | X | X | 1 |
| Phosphoric Acid (50%) | 2 | 2 | X | 1 | 1 | X | 1 |
| Propane Gas | USE L.P.G. HOSE ONLY | | | | | | |
| Sodium Hydroxide (40%) | 1 | 2 | - | 1 | 1 | X | 1 |
| Sodium Hydroxide (50%, under 45°C, 113°F) | 2 | X | X | 1 | 1 | X | 1 |
| Sodium Hydroxide (50%, under 82°C, 180°F) | - | - | - | 1 | 2 | X | 1 |
| Sulphur Dioxide (Dry) | X | X | X | - | 2 | X | 1 |
| Sulphuric Acid (10%) | 1 | 2 | 2 | 1 | 1 | X | 1 |
| Sulphuric Acid (93%) | X | X | X | - | X | X | 1 |
| Toluene (Toluol) | X | X | X | X | X | 2 | 1 |
| Trichloroethylene | X | X | X | 2 | X | 2 | 1 |
| Vegetable Oils | 2 | 1 | 2 | 1 | 2 | 1 | 1 |
| Xylene | X | X | - | X | - | 2 | 1 |

1 = Excellent Resistance
2 = Good Resistance
X = Not Recommended
- = No Data Available

HYPALON, TEFLON ™ DUPONT

The Chemical Compatibility Chart is for guidance only.
In all cases testing is advised to determine the application suitability.
Material for Couplings and Adapters must also be compatible - refer to RYCO.
Specified resistance applies only at room temperature unless otherwise stated, and within the listed concentration.

## WORKING PRESSURES - Hose Couplings, Hose Assemblies and Adapters.

Since many factors influence the pressure at which a hydraulic system will or will not perform satisfactorily, maximum static working pressures listed should be used as a guide only and not as a "standard" nor "specification" nor construed as a "guaranteed minimum."

Within the fluid power industry, many criteria are used for the determination of pressure capability. Various fibre stresses, minimum yields and design factors are applied, commensurate with total system conditions. Thus, it is impractical to lay down specific allowable working pressures that satisfy all design criteria.

Unless otherwise specified in this document and given correct working conditions, including, but not limited to, torque setting, assembly, alignment, support, pressures (internal and external), temperature limits, environmental, installation, vibration free, damage free, chemical, cleanliness and regular maintenance and inspection the following may be used as a maximum static pressure guide only. For further technical assistance contact RYCO Technical Department or your RYCO hydraulics distributor.

**The Maximum Working Pressure of a Hose Assembly is the lessor rated Working Pressure of the Hose or End Style. The Maximum Rated Working Pressure of an Adapter with a combination of Thread / End Styles and sizes, is the Maximum Working Pressure of the least rated end.**

## How to Use the Charts

For BSP, NPT, SAE Code 61 and 62 and RYCO Code 62C Flanges, RYCOLOK and RYCO SUPERLOK;
the column headings are for Dash Size of the connector.

For JIC 37°, ORFS, SAE 45°, SAE Inverted Flare, Tube Bite and UN O (O Ring Boss);
the column headings are for Tube Size of the connector.

Refer to pages 8 or 77 for more information.

**EXAMPLES:**

1. Maximum Rated Working Pressure for 1/2" (-08) NPT Male and NPSM Female swivel is 5100 PSI. (Just read down the -08 column).
2. Maximum Rated Working Pressure for 13/16" ORFS Male and Female is 6000 PSI. 13/16" ORFS is used with 1/2" or -08 tube; see pages 8 or 77. The Maximum Rated Working Pressure is found by reading down the -08 column.
3. Maximum Rated Working Pressure for 1.1/16" JIC Male and Female is 7000 PSI. 1.1/16" JIC is used with 3/4" or -12 tube; see pages 8 or 77. The Maximum Rated Working Pressure is found by reading down the -12 column.

**1 BAR = 14.5 PSI 1 MPA = 10 BAR**

| Thread/End Style | Dash Size/Tube Size (Maximum Static Working Pressure Guide in Bar) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | -02/04 | -06 | -08 | -10 | -12 | -16 | -20 | -24 | -32 |
| BSPT MALE/FEMALE FIXED | 8000 | 6000 | 5100 | 5100 | 4000 | 3000 | 2500 | 2170 | 2170 |
| BSPP or BSPT MALE BSPP FEMALE SWIVEL | 9000 | 8000 | 7000 | 5100 | 5100/6000* | 4000/6000* | 3500/6000* | 5100 | 4000 |
| BSPP O RING MALE | 6000 | 5100 | 5100 | 4000 | 4000 | 3000 | 2500 | 2170 | 2170 |
| BSPP MALE & BONDED SEAL | 6000 | 5100 | 5100 | 5100 | 5100 | 4200 | 3050 | 2680 | 2540 |
| NPT MALE/FEMALE FIXED | 8000** | 6000** | 5100 | 5100 | 4000 | 3000 | 2500 | 2170 | 2170 |
| NPT MALE NPSM FEMALE SWIVEL | 9000 | 8000 | 7000 | 5100 | 5100/6000* | 4000/6000* | 3500/6000* | 5100 | 4000 |
| JIC 37° MALE FEMALE SWIVEL | 8700 | 7600 | 7000 | 7000 | 7000 | 6000 | 3500/6000* | 2700/6000* | 2540/6000* |
| ORFS (O RING FACE SEAL) | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 4000 | 4000 | |
| RYCOLOK (STAPLE) | 6520 | 6000 | 5220 | 5100 | 5100 | 5100 | 3050 | 3050 | 2460 |
| RYCO SUPERLOK (SUPERSTAPLE) | | | | | 6000 | 6000 | 6000 | 5100 | 5100 |
| SAE 45° FLARE | 6000 | 6000 | 5100 | 4000 | 3100 | 2500 | 2175 | 1500 | 1300 |
| SAE INVERTED FLARE | 2750 | 2250 | 2000 | | | | | | |
| SAE CODE 61 FLANGE | | | 5100 | 5100 | 5100 | 5100 | 4200 | 3700 | 3050 |
| SAE CODE 62 FLANGE RYCO CODE 62C FLANGE | | | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 |
| TUBE BITE | 6000 | 5600 | 5600 | 4200 | 4200 | 3500 | 3500 | 3500 | 3500 |
| UN O RING (O RING BOSS) | 6000 | 6000 | 6000 | 5100 | 5100 | 5100 | 3040 | 2680 | 2540 |
| UN O RING (O RING BOSS) ADJUSTABLE | 6000 | 6000 | 5100 | 4000 | 3100 | 2500 | 2175 | 1500 | 1300 |

*The first figure is for Crimp Nut fittings, the second figure is for Wire Nut fittings.

** For use with Jacking Hose Assemblies, NPT male Maximum Rated Working Pressure is 10000 PSI in -04 and -06 sizes.

### METRIC DKL & DKOL
### MALE, FEMALE & FEMALE O RING

| TUBE SIZE | THREAD SIZE | DASH SIZE | MAX. WORKING PRESSURE | |
|---|---|---|---|---|
| mm | mm | | BAR | PSI |
| 6 | M12 x 1,5 | **-12** | 250 | 3625 |
| 8 | M14 x 1,5 | **-14** | 250 | 3625 |
| 10 | M16 x 1,5 | **-16** | 250 | 3625 |
| 12 | M18 x 1,5 | **-18** | 250 | 3625 |
| 15 | M22 x 1,5 | **-22** | 250 | 3625 |
| 18 | M26 x 1,5 | **-26** | 160 | 2320 |
| 22 | M30 x 2,0 | **-30** | 160 | 2320 |
| 28 | M36 x 2,0 | **-36** | 100 | 1450 |
| 35 | M45 x 2,0 | **-45** | 100 | 1450 |
| 42 | M52 x 2,0 | **-52** | 100 | 1450 |

### METRIC DKS & DKOS
### MALE, FEMALE & FEMALE O RING

| TUBE SIZE | THREAD SIZE | DASH SIZE | MAX. WORKING PRESSURE | |
|---|---|---|---|---|
| mm | mm | | BAR | PSI |
| 6 | M14 x 1,5 | **-14** | 420 | 6000 |
| 8 | M16 x 1,5 | **-16** | 420 | 6000 |
| 10 | M18 x 1,5 | **-18** | 420 | 6000 |
| 12 | M20 x 1,5 | **-20** | 420 | 6000 |
| 14 | M22 x 1,5 | **-22** | 420 | 6000 |
| 16 | M24 x 1,5 | **-24** | 420 | 6000 |
| 20 | M30 x 2,0 | **-30** | 420 | 6000 |
| 25 | M36 x 2,0 | **-36** | 420 | 6000 |
| 30 | M42 x 2,0 | **-42** | 420 | 6000 |
| 38 | M52 x 2,0 | **-52** | 420 | 6000 |