

**Fluid compatibility**

This chart indicates the suitability of various elastomers and metals for use with fluids to be conveyed. It is intended as a guide only and is not a guarantee. Final selection of the proper hose style, seal, or material of metal components is further dependent on many factors including pressure, fluid and ambient temperature, concentration, duration of exposure, etc.

**HOW TO USE THE CHART**

1. The chart has separate sections for rating elastomers for use as hose inner tubes and as seals. Ratings for a given elastomer may not always be the same in both sections.
2. Both the elastomer and the metal must be considered when determining suitability of a combination for a hose assembly, adapter with O-Ring, swivel joint or coupling.
3. Locate the fluid to be conveyed and determine the suitability of the elastomeric and metal components according to the resistance ratings shown for each.
4. Specific hose part numbers can be found under the inner tube material groupings in the Hose Tube Identification Chart below.
5. Dimensional and operating specifications for each hose can be found on the catalog pages shown with each hose part number.
6. Information on O-Rings and seal options for swivel joints and couplings, and how to specify them, are shown in the respective sections of this catalog.
7. For further details on the products shown in this catalog, and their applications, contact Eaton Aeroquip Inc., Industrial Division, Maumee, Ohio, 419-867-2600.

**RESISTANCE RATING KEY**

E = Excellent – Fluid has little or no effect.  
 G = Good – Fluid has minor to moderate effect.  
 C = Conditional – Service conditions should be described to Eaton Aeroquip for determination of suitability for application.  
 U = UNSATISFACTORY

The differences between ratings “E” and “G” are relative. Both indicate satisfactory service. Where there is a choice, the materials rated “E” may be expected to give better or longer service than those rated “G”.

NOTE: Special precautions are necessary in gaseous applications due to the potential volume of gaseous fluid in the system. Unless the cover is perforated, hose styles with rubber or thermoplastic covers are not suitable for gases above 250 psi. Hose styles with perforated covers are so noted in their construction descriptions.

**HOSE TUBE IDENTIFICATION CHART**

1 Synthetic Rubber		
302A (p. 44)	2781 (p. 28)	FC639 (p. 31)
303 (p. 44)	FC136 (p. 33)	FC647 (p. 40)
1503 (p. 43)	FC211 (p. 24)	FC659 (p. 34)
1529 (p. 30)	FC212 (p. 29)	FC735 (p. 32)
2555 (p. 49)	FC254 (p. 34)	FC736 (p. 32)
2556 (p. 41)	FC273 (p. 35)	GH120 (p. 31)
2565 (p. 41)	FC310 (p. 26)	GH466 (p. 38)
2575 (p. 41)	FC318 (p. 20)	GH493 (p. 33)
2580 (p. 21)	FC414 (p. 48)	GH506 (p. 37)
2583 (p. 22)	FC466 (p. 20)	GH663 (p. 24)
2651 (p. 44)	FC579 (p. 53)	GH681 (p. 25)
2681 (p. 23)	FC606 (p. 37)	GH683 (p. 25)
2766 (p. 30)	FC616 (p. 53)	GH781 (p. 28)
	FC619 (p. 19)	GH793 (p. 29)

  

2 PTFE		
2807 (p. 65)	FC363 (p. 63)	FC469 (p. 67)
2808 (p. 67)	FC364 (p. 64)	FC563 (p. 64)
FC186 (p. 65)	FC465 (p. 66)	FC645 (p. 66)

  

3 Thermoplastic Elastomer		
FC372 (p. 57)	FC375 (p. 58)	FC690 (p. 60)
FC373 (p. 57)	FC376 (p. 59)	
FC374 (p. 58)	FC377 (p. 59)	

**WARNING:** Compatibility of hose fittings with conveyed fluid is an essential factor in avoiding chemical reactions that may result in release of fluids or failure of the connection with the potential of causing severe personal injury or property damage.

4 AQP		5 Special Application Hose (Not Included in Fluid Chart)	
2661 (p. 19)		FC234 Fuel (pp. 45-46)	
FC194 (p. 22)		FC650	
FC195 (p. 27)		CR170	
FC300 (p. 43)		FC321 LPG (p. 47)	
FC323 (p. 35)		1531 Railroad Air Brake	
FC324 (p. 36)		1531A (p. 49)	
FC325 (p. 36)		Recoil Air Hose (p. 42)	
FC332 (p. 40)		1540 FC665 Refrigeration/	
FC350 (p. 46)		FC505 FC765 Air Conditioning	
FC355 (p. 45)		FC555 GH134 (pp. 54-56)	
FC498 (p. 21)		FC558 FC802	
FC510 (p. 26)		FC701 Sewer Cleaning (pp. 62-63)	
FC699 (p. 47)		FC702	
GH194 (p. 23)		FC252 Silicone (pp. 51-52)	
GH195 (p. 27)		FC352	
		2550	
		2554 Truck Air Brake (p. 50)	
		2570	
		FC350	

6 EPDM Rubber		
FC611 (p. 38)	FC636 (p. 39)	FC693 (p. 39)

**SEAL ELASTOMER DATA**

Seal Elastomer	Application Specification	Max. Operating Temperature Range
Buna-N <sup>†</sup>	none	-40°F to +250°F (-40°C to +121°C)
Neoprene	none	-65°F to +300°F (-54°C to +149°C)
EPR (Ethylene Propylene Rubber)/ EPDM	none	-65°F to +300°F (-54°C to +149°C)
Viton <sup>*</sup>	MIL-R-25897	-15°F to +400°F (-29°C to +204°C)

<sup>†</sup>Buna-N temperature range -65°F to +225°F. Also per MIL-R-6855.  
<sup>\*</sup>Viton is a DuPont trademark.

FLUID	HOSE						SEALS				METAL						
	1 Synthetic Rubber	2 PTFE	3 Thermoplastic Elastomer	4 AQP	5 Special Application Hose	6 EPDM	Buna-N	Neoprene	EPR	Viton*	Urethane	Hytrek	Steel	Brass	Stainless Steel	Aluminum	Monel
Acetaldehyde	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Acetic Acid, 10%	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Acetic Acid, Glacial	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Acetone	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Acetophenone	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Acetyl Acetone	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Acetyl Chloride	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Acetylene	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Air, Hot (Up to +160°F)	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Air, Hot (161°F – 200°F)	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Air, Hot (201°F – 300°F)	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Air Wet	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Aluminum Chloride	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Aluminum Fluoride	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Aluminum Nitrate	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Aluminum Sulfate	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Alums	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ammonia, Cold	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ammonia, Hot	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ammonia, Anhydrous	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ammonia, Aqueous	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ammonium Carbonate	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ammonium Chloride	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ammonium Hydroxide	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ammonium Nitrate	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ammonium Phosphate	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Ammonium Sulfate/Sulfide	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Amyl Acetate	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U

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E = EXCELLENT  
G = GOOD  
C = CONDITIONAL  
U = UNSATISFACTORY

FLUID	HOSE						SEALS						METAL					
	1	2	3	4	5	6	Buna-N	Neoprene	EPR	Viton*	Urethane	Hytrel	Steel	Brass	Stainless Steel	Aluminum	Monel	
Palmitic Acid	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Para-Dichlorobenzene	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Pentane	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Perchloric Acid	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Perchloroethylene	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Phenol (Carbolic Acid)	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Phos. Ester/Petroleum Blend	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Phosphoric Acid	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Phosphorous Trichloride	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Potassium Acetate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Potassium Chloride	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Potassium Cyanide	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Potassium Dichromate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Potassium Hydroxide, to 10%	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Potassium Hydroxide, over 10%	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Potassium Nitrate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Potassium Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Propane	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Propyl Acetate	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Propyl Alcohol	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Propylene	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Refrigerant R-12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Refrigerant R-13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Refrigerant R-22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Refrigerant R-134a	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Sewage	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Silicone Oils	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Soap (Water Solutions)	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Sodium Acetate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Sodium Bicarbonate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Sodium Borate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Sodium Carbonate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Sodium Chloride	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Sodium Cyanide	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Sodium Hydroxide, to 10%	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Sodium Hydroxide, over 10%	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Sodium Hypochlorite	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Sodium Metaphosphate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Sodium Nitrate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Sodium Perborate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Sodium Peroxide	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	

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FLUID	HOSE						SEALS						METAL					
	1	2	3	4	5	6	Buna-N	Neoprene	EPR	Viton*	Urethane	Hytrel	Steel	Brass	Stainless Steel	Aluminum	Monel	
Sodium Phosphates	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Sodium Silicate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Sodium Sulfate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Sodium Sulfide	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Sodium Thiosulfate	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Soy Bean Oil	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Stannic Chloride	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Steam (up to 388°F)	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Stearic Acid	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Stoddard Solvent	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Straight Petroleum Base	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Straight Phosphate Ester	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Styrene	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Sulfur	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Sulfur Chloride	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Sulfur Dioxide	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Sulfur Trioxide	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Sulfuric Acid, to 10%	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Sulfuric Acid, over 10%	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Sulfurous Acid	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Tannic Acid	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Tar (Bituminous)	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Tartaric Acid	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Tertiary Butyl Alcohol	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Titanium Tetrachloride	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Toluene (Toluol)	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Trichloroethylene	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Tricresyl Phosphate	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Triethanolamine	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Tung Oil	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Turpentine	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Varnish	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Vinyl Chloride	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Water (to +150°F)	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Water (+151°F to +200°F)	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Water (+201°F to +350°F)	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Water Glycol	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Water Petroleum Emulsion	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
Xylene	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Zinc Chloride	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Zinc Sulfate	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	

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**Hydraulic fluids & lubricating oils**

The following is a representative list of fluids and manufacturers. The fluids are grouped under generic "family" heads and arranged alphabetically. For each generic "family" listing we have included maximum fluid temperature recommendations for the four hose classifications on page 400 (1 through 4). Two maximum fluid temperature ratings are listed under designations of "H" and "LP".

The "H" designation is for hydraulic service up to the maximum rated operating pressure of any particular hose in the classification. The "LP" designation is for low-pressure service such as lubricating oil systems or low-pressure hydraulic return lines.

The letter "U" in the box indicates unsatisfactory resistance to the fluid type.

Fluid temperature ratings are predicated on maximum allowable ambient temperatures as follows:

**Classifications 1 and 3** (Synthetic Rubber and Thermoplastic Elastomer)

"H" fluid temp. ratings: +140°F ambient

"LP" fluid temp. ratings: +180°F ambient

**Classification 2** (PTFE)

"H" fluid temp. ratings: +400°F ambient

"LP" fluid temp ratings: +400°F ambient

**Classification 4** (AQP)

"H" fluid temp. ratings: +160°F ambient

"LP" fluid temp. ratings: +250°F ambient

(If "H" fluid temperature is +225°F or less, allowable ambient temperature may be increased to +200°F)

**Ambient temperatures in excess of those recommended, in conjunction with maximum fluid temperatures, can materially shorten the service life of the hose.**

CAUTION: The fluid manufacturer's recommended maximum operating temperature for any specific name-brand fluid should be scrupulously observed by the user. These recommended temperatures can vary widely between name brands of different fluid compositions, even though they fall into the same generic "family" of fluids.

Exceeding the manufacturer's recommended maximum temperature can result in fluid breakdown, producing by-products that are harmful to elastomeric products, as well as other materials in the system. *If a manufacturer's recommended maximum temperature for his specific fluid is lower than that for the hose rating, it should take precedence over the hose rating for service usage.*