

T-MAG

MAG DRIVE PUMPS



T-Mag™ MAG DRIVE PUMPS



Chemical Compatibility Guide

This information is compiled from numerous sources and believed to be reliable to this date. **It is intended as a guideline to be used with all available information to determine suitability of wetted portions of T-Mag™ pumps for various applications.** We suggest thorough research, which should include known applications when determining pump selection. This chart is to be used at your discretion and risk. The accuracy of these ratings cannot be guaranteed.

SELECTING THE BEST WETTED MATERIAL FOR A T-Mag™ PUMP

In the absence of previous experience, (which is always the best guide) wetted materials may be selected from the available resistance charts. The Typhoon Chemical Resistance Guide is compiled from numerous reliable sources and cross-checked, however, it is only intended as an additional source of information.

Pump life not only depends on chemical compatibility with the process fluid but also on the process conditions. These conditions will vary depending on the abrasiveness of your process fluid, temperature, size of pump, pumping media, and lift conditions. Consult your authorized T-Mag™ distributor regarding which wetted material will work best for your application requirements.



TEMPERATURE CAUTION: Temperature limits are based upon mechanical stress only. Certain chemicals will significantly reduce maximum safe operating temperatures. Consult engineering guides for chemical compatibility and temperature limits.

It must be emphasized that none of these figures are absolute and are only general guidelines.

SELECTION OF PLASTIC MATERIALS

Many factors can affect the chemical resistance of plastics. These include, but are not limited to, exposure time, extremes of temperature and pressure, frequency of temperature and/or pressure cycling, attrition due to abrasive particles, and the type of mechanical stress imposed. The fact that certain combinations of chemicals and mechanical load can induce stress cracking in many otherwise chemically resistant materials, both metallic and non-metallic, is of particular significance.

The chemical / temperature ratings presented are based on well-processed or well fabricated test specimens being essentially resistant to either chemical attack and/or severe swelling which would normally impair their performance under moderate mechanical stress.

Operating parameters are dependent upon the particular application, and may differ from those experienced in either laboratory testing or apparently similar field service. Because corrosive fluids or vapors are often mixtures of various individual chemicals, it is strongly recommended that trial installations be evaluated under actual service conditions.

For example, immersion testing in individual chemicals at a specific operating temperature doesn't predict the performance of a material should an exothermic reaction take place when mixtures of chemicals are involved.

The ratings given on the following pages are a guide and do not constitute a warranty of any kind, expressed or implied, with respect to the performance of the materials T-Mag™ offers in any specific application.

Viton® is a registered trademark of DuPont Dow Elastomers.

Teflon® is a registered trademark of DuPont.

Rulon® is a registered trademark of Saint Gobain Performance Plastics

TEMPERATURE LIMITS

TEMPERATURE LIMITS FOR ELASTOMERS

EPDM	-60° to +280° F (-51.1° to 137.8° C)
Viton®	-40° to +350° F (-40.° to 176.7° C)
Teflon® PTFE	+40° to +220° F (4.4° to 104.4° C)

TEMPERATURE LIMITS FOR PLASTICS

Rulon®	-400° to +550° F (-240.° to 288° C)
ETFE	-148° to +311° F (-100° to 155° C)
Polypropylene	+32° to +175° F (0° to 79.4° C)
PVDF	+10° to +225° F (-12.2° to 107.2° C)

NOTE: These are average temperatures. Chemicals and solvents can have an effect on temperature limits

RUBBER COMPOUNDS

Listed below are the various rubber compounds manufactured for use as elastomers in T-Mag™ pumps. These compounds consist of natural rubber and man-made additives to increase the compounds resistance to specific types of fluids.

COMPOUND	TEMPERATURE LIMITS	SUITABLE APPLICATIONS
EPDM	-60° to +280° F -51.1° to 137.8° C	Excellent for use in applications requiring extremely cold temperatures. May also be used as a low cost alternative when pumping dilute acids or caustics.
Viton®	-40° to +350° F -40° to 176.7° C	Excellent for use in applications requiring extremely hot temperatures. May also be used with aggressive fluids such as aromatic or chlorinated hydrocarbons and highly aggressive acids.

TEFLON® COMPOUNDS

Teflon® PTFE is one of the most chemically inert man-made compounds known.

COMPOUND	TEMPERATURE LIMITS	SUITABLE APPLICATIONS
Teflon® PTFE	+40° to +220 ° F - 4.4° to 104.4 ° C	Excellent choice when pumping highly aggressive fluids such as aromatic or chlorinated hydrocarbons, acids, caustics, ketones and acetates.

NOTES

Material	PP+GF	PVDF+CF	ETFE+CF	VITON	EPDM	995	H.D.	SSiC
						CERAMIC	CARBON	
Liquid								
Acetic Acid, 20%	A ²	A ³	A ⁴	B ¹	A ²	A ⁴	A ⁴	A ⁶
Acetic Acid, 80%	B ¹	A ¹	A ⁴	X	-	A ⁴	A ⁴	A ⁶
Acetic Acid, Glacial	C ²	B ⁴	-	X	X	A ⁵	A ⁵	A ⁶
Acetone	A ²	X	A ³	X	B ²	A ⁵	A ⁵	A ⁶
Aluminum Chloride	A ⁴	A ⁴	A ⁵	A ⁵	A ⁴	A ⁵	A ⁵	A ⁶
Aluminum Hydroxide	A ⁴	A ⁶	-	A ⁴	A ³	A ⁶	A ⁶	A ⁶
Aluminum Sulfate	A ⁴	A ⁵	A ⁵	A ³	A ³	A ⁵	A ⁵	A ⁶
Ammonia Liquid	A ¹	A ⁵	A ⁵	C ¹	B ³	A ⁵	A ⁵	A ⁶
Ammonium Chloride	A ³	A ⁶	A ⁵	A ⁵	A ⁴	A ⁶	A ⁶	A ⁶
Aqua Regia	C ²	C ²	A ¹	B ²	C ²	A ³	-	A ⁴
Barium Carbonate	A ⁴	A ⁴	A ⁵	A ⁶	A ⁴	A ⁶	A ⁶	A ⁶
Bromine Water	C ¹	A ²	A ⁴	A ²	X	A ²	A ²	A ⁶
Calcium Hydroxide	A ⁴	A ⁶	A ⁵	A ⁵	A ⁴	A ⁴	A ⁴	A ⁴
Calcium Hypochlorite	A ²	A ⁴	-	A ³	B ²	A ⁴	A ⁴	A ⁶
Chlorine Water	C ¹	A ⁴	A ⁵	C ¹	B ¹	A ⁵	A ⁵	A ⁶
Chloroform	C ¹	A ²	X	B ¹	X	A ⁵	A ⁵	A ⁶
Chromic Acid, 10%	B ¹	A ⁶	A ⁵	A ¹	B ¹	A ²	A ²	A ⁶
Chromic Acid, 30%	C ¹	A ²	A ⁴	A ³	C ¹	A ⁴	B ¹	A ⁵
Chromic Acid, 50%	X	A ²	A ⁴	A ⁵	X	A ²	C ²	A ⁴
Copper Chloride	A ⁴	A ⁵	A ⁴	A ⁵	A ⁴	A ⁶	A ⁵	A ⁶
Copper Cyanide	A ³	A ⁴	A ⁵	A ³	A ³	A ⁵	A ⁵	A ⁶
Copper Sulfate	A ⁴	A ⁵	A ⁵	A ⁵	A ⁴	A ⁵	A ⁵	A ⁶
Ethyl Alcohol	A ²	A ⁴	A ⁴	A ³	B ³	A ⁵	A ⁵	A ⁶
Ethylene Glycol	A ³	A ⁴	A ⁵	A ⁵	A ⁴	A ⁵	A ⁵	A ⁶
Ferric Chloride	A ³	A ⁴	A ⁵	A ³	A ³	A ³	A ³	A ⁶
Ferrous Sulfate	A ⁴	A ⁵	A ⁵	A ⁴	A ⁴	A ⁴	A ⁴	A ⁶
Fluoboric Acid	A ³	A ⁵	-	A ⁴	A ³	A ¹	A ⁴	A ⁶
Formaldehyde	A ⁴	A ²	-	A ⁴	A ⁴	A ⁶	A ⁵	A ⁶
Formic Acid	A ¹	A ²	A ²	B ¹	A ⁴	A ⁵	A ⁵	A ⁶
Freon 12 (wet)	X	A ⁶	-	A ¹	B ¹	A ⁴	A ⁴	A ⁶
Gasoline	X	A ⁵	A ⁵	B ³	X	A ⁶	A ⁶	A ⁶
Hydrobromic Acid, 20%	A ⁴	A ⁵	A ⁵	A ³	A ³	A ⁶	A ⁶	A ⁶
Hydrobromic Acid, 0-25%	A ⁴	A ⁵	A ⁵	A ³	A ³	A ⁵	A ⁵	A ⁵
Hydrobromic Acid, 25-40%	A ⁴	A ⁴	A ⁵	B ²	C ²	A ⁴	A ³	A ⁴
Hydrofluoric Acid, 10%	B ²	A ⁵	A ⁵	A ³	A ³	A ¹	A ³	A ⁶
Hydrofluoric Acid, 30%	C ²	A ⁵	A ⁵	A ⁴	B ³	A ¹	A ³	A ⁴
Hydrofluoric Acid, 60%	X	A ³	A ⁴	A ⁴	C ²	B ¹	A ²	A ³
Hydrogen Peroxide, 50%	C ¹	A ²	A ⁵	A ¹	C ¹	A ⁵	A ²	A ⁶

Legends: A: Excellent; B: Good; C: Fair to Poor; X: Not Recommended; -: No Chemical Compatibility Information is Available
 1: ~68° F; 2: ~104° F; 3: ~140° F; 4: ~176° F; 5: ~212° F; 6: ~248° F

Material	PP+GF	PVDF+CF	ETFE+CF	VITON	EPDM	995	H.D.	SSiC
						CERAMIC	CARBON	
Liquid								
Hydrogen Peroxide, 30%	A ¹	A ⁴	A ⁶	A ²	A ¹	A ⁵	A ³	A ⁶
Kerosene	A ¹	A ⁵	A ⁵	A ¹	X	A ⁶	A ⁶	A ⁶
Methyl Alcohol	A ³	A ⁵	-	B ²	A ³	A ⁶	A ⁶	A ⁶
Methylene Chloride	X	B ¹	-	C ¹	X	A ⁶	A ⁶	A ⁶
Nickel Chloride	A ⁴	A ⁵	A ⁵	A ⁵	A ⁴	A ⁵	A ⁵	A ⁶
Nickel Sulfate	A ³	A ⁵	A ⁵	A ⁴	A ⁴	A ⁶	A ⁶	A ⁶
Nickel Acid, 10%	A ³	A ³	A ⁵	A ⁵	A ²	A ⁴	A ⁶	A ⁶
Nickel Acid, 30%	A ²	A ²	A ⁵	A ⁶	A ²	A ⁴	A ⁶	A ⁶
Nickel Acid, 50%	B ²	A ²	A ⁴	A ¹	X	A ⁴	C ¹	A ⁶
Nitric Acid (anhydrous)	C ³	X	A ²	A ¹	X	A ³	X	A ⁴
Oleum	X	X	A ¹	A ⁴	X	A ²	A ²	A ⁴
Phosphoric Acid, 50-100%	A ¹	A ³	A ³	A ⁴	A ⁴	A ²	A ⁴	A ⁵
Phosphoric Acid, 0-50%	A ⁴	A ⁵	A ⁵	A ⁴	A ⁴	A ²	A ⁴	A ⁶
Potassium Dichromate	A ³	A ⁴	A ⁵	A ⁵	A ⁴	A ⁵	A ⁵	A ⁶
Potassium Hydroxide	A ⁴	C ²	A ⁵	B ¹	A ⁵	A ²	A ⁵	A ⁵
Potassium Permanganate	A ²	A ³	A ⁵	A ³	A ³	A ⁵	A ⁵	A ⁶
Soaps	A ⁴	A ⁵	-	A ⁵	A ⁴	A ⁶	A ⁶	A ⁶
Sodium Chloride	A ⁴	A ⁵	A ⁵	A ⁴	A ⁴	A ⁵	A ⁴	A ⁶
Sodium Hydroxide, 20%	A ³	C ²	A ⁵	B ¹	A ³	A ²	A ³	A ⁵
Sodium Hydroxide, 50%	A ³	X	A ⁵	X	A ⁴	A ²	A ³	A ³
Sodium Hypochlorite, 20%	C ²	A ²	A ⁵	B ³	B ³	A ³	A ²	A ⁶
Sodium Sulfide	A ⁴	A ⁵	A ⁵	A ⁴	A ⁴	A ⁵	A ⁴	A ⁶
Sulfuric Acid, 0-10%	A ⁴	A ⁵	A ⁵	A ⁶	A ⁴	A ⁵	A ⁴	A ⁶
Sulfuric Acid, 10-75%	A ³	A ⁴	A ⁵	A ⁴	A ³	A ⁴	A ³	A ⁵
Sulfuric Acid, 75-100%	B ²	A ³	A ⁵	A ⁴	A ²	A ⁴	A ³	A ³
Toluene (Toluol)	C ¹	A ²	A ²	B ¹	X	A ⁴	A ⁴	A ⁶
Trichloroethane	-	A ²	-	A ¹	X	A ⁴	A ⁴	A ⁶
Trichloroethylene	C ¹	A ³	X	A ¹	X	A ⁶	A ⁶	A ⁶
Turpentine	B ¹	A ⁵	-	A ¹	C ¹	A ⁶	A ⁶	A ⁶
Xylene (Xylol)	X	A ⁴	-	B ¹	X	A ⁶	A ⁵	A ⁶
Zinc Chloride	A ⁴	A ⁵	A ⁵	A ⁵	A ⁴	A ⁵	A ⁵	A ⁶
Zinc Sulfate	A ⁴	A ⁵	A ⁵	A ⁵	A ⁴	A ⁵	A ⁵	A ⁶

Legends: A: Excellent; B: Good; C: Fair to Poor; X: Not Recommended; -: No Chemical Compatibility Information is Available

1: ~68° F; 2: ~104° F; 3: ~140° F; 4: ~176° F; 5: ~212° F; 6: ~248° F

NOTES



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Your Authorized Distributor: