

CAT 2

WRENCHES & INDUSTRIAL MONITORS

25

WRENCHES

- ADJUSTABLE COMBINATION SPANNER
- UNIVERSAL SPANNER
- SPANNER - PIN LUG
- HYDRANT NON - SLIP

INDUSTRIAL MONITORS

- SINGLE WATERWAY
- DUAL WATERWAY
- HYDRANT MOUNT





FIRE PROTECTION

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TERMS:

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- We reserve the right to alter product specifications without notice.

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WRENCHES

ADJUSTABLE COMBINATION SPANNER



Steel Handle w/Zinc Plated Head	
Part #	List
2619050	
2618950	

UNIVERSAL SPANNER



- Painted Red

Zinc Plated Iron	
Part #	List
2623350	

SPANNER WRENCH- FOR PIN LUG



Size	Zinc Plated Iron	
	Part #	List
1-1/2"	SW 150	
2"	SW 200	
2-1/2"	SW 250	
3"	SW 300	
4"	SW 400	

INDUSTRIAL MONITORS

SINGLE WATERWAY MONITOR SEAMLESS BRASS TUBE CONSTRUCTION

► GPM - (1250) | Height - 18 in | Width - 18 in | Weight - 45 lbs.



NOZZLE NOT INCLUDED

Details	Hardcoat Aluminum	
	Part #	List
4" Female NPT X 2-1/2" NST outlet	736	
4" Flange X 2-1/2" NST outlet	736-1	

- FM Approved - GPM: Flow up to 1250 GPM. - 2.5" Waterway - 360° horizontal & 135° vertical. - Travel 90° above to 45° below horizontal. - Positive friction locks on both horizontal & vertical travel. - Low friction loss.

SINGLE WATERWAY MONITOR

► GPM - (1250) | Height - 16 in | Width - 15 in | Weight - 56 lbs.



NOZZLE NOT INCLUDED



Details	Hardcoat Aluminum	
	Part #	List
4" Female NPT X 2-1/2" NST outlet	611	
4" Flange X 2-1/2" NST outlet	611-1	

Features:
 - FM Approved - GPM: Flow up to 1250 GPM. - Corrosion resistant bronze construction ideal for Marine, Offshore, Industrial or other corrosive environments. - Full 3" Waterway. - Full 360° rotation w/Positive twist lock. - Vertical travel from 70° above to 70° below horizontal. Vertical travel is controlled by hand wheel w/Worm gear fully enclosed. - Worm Gear is protected from elements w/Double row Stainless Steel Ball Bearings at all rotation joints.

DUAL WATERWAY MONITOR

► GPM - (750) | Height - 18 in | Width - 14 in | Weight - 45 lbs.



NOZZLE NOT INCLUDED



Details	Hardcoat Aluminum	
	Part #	List
4" Female NPT X 2-1/2" NST outlet	636	
4" Flange X 2-1/2" NST outlet	636-1	

Features:
 - FM Approved - GPM: Flow up to 1250 GPM. - 2.5" Waterway - 360° horizontal & 135° vertical. - Travel 90° above to 45° below horizontal. - Positive friction locks on both horizontal & vertical travel. - Low friction loss.

HYDRANT MOUNT

► Hydrant Mount

Details	Hardcoat Aluminum	
	Part #	List
4" ANSI Outlet Flange	699	

Features:
 - Allows a monitor to be mounted on any 2-1/2" Hydrant Outlet.
 - Adjustable Height: From 17" to 28" from ground.
 - Length 9-1/2" from swivel to middle of flange 2-1/2" Swivel Inlet NST.



TECHNICAL DATA

CORROSION RESISTANCE OF COUPLING MATERIALS

CAUTION: The following data has been compiled from generally available sources and should not be relied upon without consulting and following the specific recommendations of the manufacturer regarding particular coupling materials.

RATINGS: 1. Excellent
2. Good
3. Fair Conditional
x. Not Satisfactory

NOTES: No rating indicates no data available

AGENT	Mall. From Steel	Brass	Bronze	Aluminum	Glass	Stainless 410, 416, 430	Stainless 302, 202, 304, 308	Stainless 316	Monel
Acetate, Solvents, Crude		3				2	1	1	2
Acetate, Solvents, Pure		1	1	1		1	1	1	1
Acetic Acid	X	X	X	2	1	X	2	2	2
Acetic Acid Vapor	X	X		3		X	2	2	3
Acetic Anhydride	X	X		2		X	2	2	2
Acetone	1	1	1	1	1	1	1	1	1
Acetylene	1	2		1		1	1	1	2
Alcohols	1	2		1		1	1	1	1
Aluminum Sulfate	X	3	3	3	1	X	3	2	2
Alums	X	3	2	3	1	X	3	2	2
Ammonia Gas	1	X	3	1	3	1	1	1	X
Ammonium Chloride	1	3		1*		3	3	1	1
Ammonium Hydroxide	2	X		2		1	1	1	3
Ammonium Nitrate	1	X		2		1	1	1	3
Ammonium Phosphate (Ammoniacal)		X				1	1	1	2
Ammonium Phosphate (Neutral)		3				1	1	1	2
Ammonium Phosphate (Acid)		3				3	2	1	2
Ammonium Sulfate	1	3				2	1	1	2
Asphalt	1	2				2	1	1	1
Beer	2	2	1	1		X	1	1	1
Beet Sugar Liquors	1	2		1		2	1	1	1
Benzene, Benzol	1	1	1	1	1	1	1	1	1
Benzine (petroleum-naphtha)	1	1		1		1	1	1	1
Borax	2	2				1	1	1	1
Boric Acid	X	3		1		3	2	1	1
Butane, Butylene	1	1	1	1		1	1	1	1
Butadiene		1				1	1	1	1
Calcium Bisulfate		X				X	2	1	X
Calcium Hypochlorite	3	3	3	X	3	X	3	2	3
Cane Sugar Liquors	1	2		1		2	1	1	1
Carbon Dioxide (Dry)	1	1		1		1	1	1	1
Carbon Dioxide (Wet & Aqueous Sol)	2	3		2		2	1	1	2
Carbon Disulfide	2	3		2		2	1	1	3
Carbon Tetrachloride	3	1	2	3	1	1	1	1	1
Chlorine (Dry)	2	2	2	1	2	2	2	2	1
Chlorine (Wet)	X	X	3	X	2	X	X	3	3
Chromic Acid		X	X	X	1	3	2	2	3
Citric Acid	X	3		1		3	X	1	2
Coke Oven Gas	1	3		2		1	1	1	2
Copper Sulfate	X	X		X		1	1	1	3
Core Oils		1	1			1	1	1	1
Cottonseed Oil	1	1	1	1		1	1	1	1
Creosote	2	3		1		1	1	1	1
Ethers	2	1		1		1	1	1	1
Ethylene Glycol	2	2				1	1	1	1
Ferric Chloride	X	X	X	X	1	X	X	X	X
Ferric Sulfate	X	X		X		1	1	1	3
Formaldehyde	2	2		2		1	1	1	1

*3 to X at high temperatures.

Chemical Chart is reprinted from 1996 RMA Hose Handbook

TECHNICAL DATA

CORROSION RESISTANCE OF COUPLING MATERIALS

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RATINGS: 1. Excellent
2. Good
3. Fair Conditional
x. Not Satisfactory

NOTES: No rating indicates no data available

AGENT	Mall. From Steel	Brass	Bronze	Aluminum	Glass	Stainless 410, 416, 430	Stainless 302, 202, 304, 308	Stainless 316	Monel
Formic Acid	X	2		X		X	2	1	2
Freon	3	1	1	1		1	1	1	1
Furfural	1	2		1		1	1	1	1
Gasoline (Sour)	3	3		3		3	1	1	X
Gasoline (Refined)	1	1	1	1		1	1	1	1
Gelatin	1	3		1		1	1	1	1
Glucose	1	1		1		1	1	1	1
Glue	1	3		1		1	1	1	1
Glycerine or Glycerol	1	2		1		1	1	1	1
Hydrochloric Acid	X	X	X	X	1	X	X	X	X
Hydrocyanic Acid	3	X		1		3	1	1	2
Hydrofluoric Acid	X	3	3	X	X	X	X	X	X
Hydrogen Fluoride		3				X	X	3	1
Hydrogen	1	1		1		1	1	1	1
Hydrogen Peroxide	X	X		1		1	2	1	2
Hydrogen Sulfide (Dry)	3	3		2		3	2	1	3
Hydrogen Sulfide (Wet)	3	3		2		3	2	1	3
Lacquers and Lacquer Solvents	3	2		1		1	1	1	1
Lactic Acid	X			3			3	2	1
Lime-Sulfur	2	X		2		1	1	2	1
Linseed Oil	1	1		1			1	1	1
Magnesium Chloride	3	3		X		3	2	1	1
Magnesium Hydroxide	1	2		X		1	1	1	1
Magnesium Sulfate	2	2		3		1	1	1	1
Mercuric Chloride	3	X		X		X	X	3	X
Mercury	1	X		X		1	1	1	2
Milk	3	3		1		2	1	1	3
Molasses	2	X		2		2	1	1	1
Natural Gas	1	2		1		1	1	1	1
Nickel Chloride		X		X		X	3	2	2
Nickel Sulfate		3		X		3	2	1	1
Nitric Acid	X	X	X	3	1	2	2	2	X
Oleic Acid	2	3		1		2	2	1	1
Oxalic Acid	3	3		2		3	2	1	1
Oxygen	1	1	1	1		1	1	1	1
Palmitic Acid	1	3		1		2	2	1	1
Petroleum Oils (Sour)		3				3	1	1	X
Petroleum Oils (Refined)	1	1	1	1		1	1	1	1
Phosphoric Acid 25%	3	X		3	3	X	3	1	2
Phosphoric Acid 25-50%	X	X		X	3	X	X	2	2
Phosphoric Acid 50-85%	X	X		X	X	X	X	2	2
Picric Acid	3	X		3		2	1	1	X
Potassium Chloride	2	3		3		3	2	1	1
Potassium Hydroxide	3	X		X		1	1	1	1
Potassium Sulfate	2	2		1		1	1	1	1
Propane	1	1				1	1	1	1
Rosin (Dark)	1	2			1	1	1	1	1
Rosin (Light)		X		1		1	1	1	2

*3 to X at high temperatures.

Chemical Chart is reprinted from 1996 RMA Hose Handbook

CORROSION RESISTANCE OF COUPLING MATERIALS

OIL & GASOLINE RESISTANCE

CAUTION: The following data has been compiled from generally available sources and should not be relied upon without consulting and following the specific recommendations of the manufacturer regarding particular coupling materials.

RATINGS: 1. Excellent
2. Good
3. Fair Conditional
x. Not Satisfactory

NOTES: No rating indicates no data available

AGENT	Mall. From Steel	Brass	Bronze	Aluminum	Glass	Stainless 410, 416, 430	Stainless 302, 202, 304, 308	Stainless 316	Monel
Shellac		2		2		1	1	1	1
Sludge Acid		X				X	X	3	2
Soda Ash (Sodium Carbonate)	1	2		X		1	1	1	1
Sodium Bicarbonate	3	1		X		1	1	1	1
Sodium Bisulfate	X	3		3		X	1	1	1
Sodium Chloride	2	3	2	X	1	3	2	1	1
Sodium Cyanide	2	X		X		1	1	1	2
Sodium Hydroxide	3	X	3	X	X	2	2	2	1
Sodium Hypochlorite	X	X		X		X	3	2	3
Sodium Metaphosphate	X	3		1		2	1	1	1
Sodium Nitrate	1	3		1		1	1	1	1
Sodium Perborate	3	3		1		1	1	1	1
Sodium Peroxide	3	3		1		1	1	1	1
Sodium Phosphate (Alkaline)		3				1	1	1	1
Sodium Phosphate (Neutral)		2				1	1	1	1
Sodium Phosphate (Acid)		2				X	2	1	1
Sodium Silicate	1	3		X		1	1	1	1
Sodium Sulfate	1	2		3		1	1	1	1
Sodium Sulfide	1	X				1	1	1	2
Sodium Thiosulfate (Hypo)	3	X		X		1	1	1	2
Stearic Acid	3	3		3		2	2	1	1
Sulfate Liquors		X				1	1	1	2
Sulfur	2	X		2		2	2	1	3
Sulfur Chloride	X	X				X	3	2	2
Sulfur Dioxide (Dry)	2	1		1		1	1	1	1
Sulfur Dioxide (Wet)		X				X	2	1	X
Sulfuric Acid 10%	X	X	3	3		X	X	2	2
Sulfuric Acid 10-75%	X	X	X	X		X	X	X	2
Sulfuric Acid 75-95%	3	X	X	X		3	3	2	3
Sulfuric Acid 95%	2	X	X			2	2	2	X
Sulfurous Acid	X	X		X		X	3	2	X
Tannic Acid	3	3	1	X			1	1	1
Tar	1	2		1		2	1	1	1
Toluene, Toluol	1	1		1		1	1	1	1
Trichlorethylene	3	1		3		1	1	1	1
Turpentine		3		1		3	1	1	1
Varnish	2	2				1	1	1	1
Vegetable Oils	1	2		1		1	1	1	1
Vinegar	3	3		3		3	2	1	2
Water (Acid Mine Water)	3	X		3		2	1	1	3
Water (Fresh)	3	1		1		1	1	1	1
Water (Salt)	3	3	2	X		3	2	2	1
Whiskey	X	2				3	1	1	2
Wines	X	2				3	1	1	2
Xylene, Xylol	2	1		1		1	1	1	1
Zinc Chloride	X	X		X		3	2	1	1
Zinc Sulfate	3	3		3		3	2	1	1

*3 to X at high temperatures.

Chemical Chart is reprinted from 1996 RMA Hose Handbook

Rubber hose is used to convey petroleum products both in the crude and refined stages. The aromatic content of refined gasoline is often adjusted to control the octane rating. The presence of aromatic hydrocarbons in this fuel generally has a greater effect on rubber components than do aliphatic hydrocarbons. Aromatic materials in contact with rubber tend to soften it and reduce its physical properties. For long lasting service, the buyer of gasoline hose should inform the hose manufacturer of the aromatic content of the fuel to be handled so that the proper tube compound can be recommended for the specific application.

The effects of oil on rubber depend on a number of factors that include the type of rubber compound, the composition of the oil, the temperature and time of exposure. Rubber compounds can be classified as to their degree of oil resistance based on their physical properties after exposure to a standard test fluid. In this RMA classification, the rubber samples are immersed in IRM 903 oil at 100°C for 70 hours. (See ASTM Method D-471 for a detailed description of the oil and the testing procedure.) As a guide to the user of hose in contact with oil, the oil resistance classes and a corresponding description are listed.

PHYSICAL PROPERTIES AFTER EXPOSURE TO OIL:

	VOLUME CHANGE MAXIMUM	TENSILE STRENGTH RETAINED
CLASS A (HIGH OIL RESISTANCE).....	+25%	80%
CLASS B (MEDIUM/HIGH OIL RESISTANCE).....	+65%	50%
CLASS C (MEDIUM OIL RESISTANCE).....	+100%	40%

CHEMICAL RECOMMENDATIONS

The materials being handled by flexible rubber hose are constantly increasing in number and diversity. To assist in the selection of the proper elastomer for the service conditions encountered, the following table has been prepared. The reader is cautioned that it is only a guide and should be used as such, as the degree of resistance of an elastomer with a particular fluid depends upon such variables as temperature, concentration, pressure, velocity of flow, duration of exposure, aeration, stability of the fluid, etc. Also variations in elastomer types and special compounding of stocks to meet specific service conditions have considerable influence on the results obtained. When in doubt, it is always advisable to test the tube compound under actual service conditions. If this is not practical, tests should be devised that simulate service conditions or the hose manufacturer contacted for Recommendations.

The following table lists the more commonly used materials, chemicals, solvents, oils, etc. The recommendation are based on room temperature and pressure conditions normally recommended for the particular type of hose being used. Where conditions beyond this can be met readily, they have been so indicated; where conditions are not normal and cannot be readily met, the hose manufacturer should always be consulted. The table does not imply conformance to the Food & Drug Administration requirements of Federal or State Laws when handling food products.

TABLE OF CHEMICAL, OIL & SOLVENT RESISTANCE OF HOSE:

WARNING: The following data has been compiled from generally available sources and should not be relied upon without consulting and following the hose manufacturer's specific chemical recommendations. Neglecting to do so might result in failure of the hose to fulfill its intended purpose, and may result in possible damage to property and serious bodily injury.

RESISTANCE RATING

- A** - Good Resistance, usually suitable for service.
- F** - Fair Resistance, the chemical has some deteriorative effects, but the elastomer is still adequate for moderate service.
- C** - Depends on Condition, moderate service may be possible if chemical exposure is limited or infrequent.
- X** - Not recommended, unsuitable for service.
- I** - Insufficient Information, not enough data available at the time of publication to determine rating.

RELASTOMERS/PLASTICS

- NR** - Natural Rubber
- IR** - Isoprene, synthetic
- SBR** - Styrene-butadiene
- CR** - Chloroprene
- NBR** - Nitrile-butadiene
- IIR** - Isobutene-isoprene
- CSM** - Chloro-sulfonyl-polyethylene
- EPDM** - Ethylene-propylene-diene-terpolymer
- MQ** - Dimethyl-polysiloxane
- FKM** - Fluorocarbon rubber
- CM** - Chloro-polyethylene
- ECO/CO** - Epichlorohydrin
- EXLPE** - Chloro-sulfonyl-polyethylene

TECHNICAL DATA

ELASTOMERS

Commonly used Elastomers:													Special Elastomers:														
MATERIAL	NR lor IR	SBR	CR	NBR	IIR	CSM	EPDM	MQ	FKM	CM	ECO CO	XLPE	MATERIAL	NR lor IR	SBR	CR	NBR	IIR	CSM	EPDM	MQ	FKM	CM	ECO CO	XLPE		
(Maximum Temperature 100° F (38°C) Unless Otherwise Specified)																											
Acetic Acid, Dilute, 10%	F	C	C	C	A	C	A	A	X	A	F	A	Carbon dioxide, dry/wet	A	A	A	A	A	A	A	A	A	A	A	A	A	
Glacial	C	X	X	X	F	C	F	F	X	A	X	A	Carbon disulfide	X	X	X	X	X	X	X	C	A	C		C		
Anhydride	C	C	F	F	F	A	I	C	X	A	X	A	Carbon monoxide 150°C (65°C)	C	C	C	C	C	F	C	A	A	I		A		
Acetone	A	A	F	X	A	F	A	A	X	A	X	A	Carbon tetrachloride	X	X	X	C	X	X	X	C	A	C	F	A		
Acetylene	A	A	F	A	A	F	A	C	A	I	I	I	Castor oil	A	A	A	A	A	A	A	A	A	A	A	A		
Air 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	Cellosolve acetate	F	F	X	X	A		A	C	C			A		
Aluminum Chloride 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	CFC-12	X	X	A	A	F		F	X	A		A	I		
Aluminum Fluoride 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	China wood oil, tung oil	X	X	F	A	A	F	A	A	C		I	A		
Aluminum Sulfate 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	Chlorine, dry/wet	X	X	X	X	X	X	X	X	C	X	X	F		
Alums 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	Chlorinated solvents	X	X	X	X	X	X	X	C	C	C		A		
Ammonia Gas	A	A	A	A	A	A	A	A	X	A	I	A	Chloroacetic acid	X	C	C	C	X	A	I	C	X			A		
Ammonium Chloride	A	A	A	A	A	A	A	C	A	A	A	A	Chlorosulfonic acid	X	X	C	C	X	X	X	C	X			F		
Ammonium Hydroxide	C	F	F	F	A	A	A	A	A	A	I	A	Chromic acid	X	X	X	X	C	A	I	C	C	A		F		
Ammonium Nitrate	A	A	A	A	A	A	A	A		I	A	A	Citric acid	A	A	A	F	A	A	A	A	A	A	A	A		
Ammonium Phosphate, monobasic	A	A	A	A	A	A	A	A		A	I	A	Coke oven gas	C	C	C	C	C	A		A	X	A	X	C		
dibasic	A	A	A	A	A	A	A	A		I	I	A	Copper chloride 150°F (65°C)	C	A	F	A	A	F	A	A	A	A	I	A		
tribasic	A	A	A	A	A	A	A	A		I	I	A	Copper sulfate 150°F (65°C)	C	A	A	A	F	A	A	A	A	A	A	A		
Ammonium Sulfate	A	A	A	A	A	A	A	A	A	A	I	A	Corn oil	X	C	F	A	A	F	C	A	A	A	A	A		
Amyl Acetate	F	X	X	X	F	X	A	A	X	C	X	A	Cottonseed oil	X	C	F	A	A	F	C	A	A	A	I	A		
Amyl Alcohol	A	A	A	A	A	A	A	A	A	A	A	A	Creosote, coal tar	X	X	F	A	X	F	X	C	F		X	A		
Aniline, Aniline Oil	X	X	C	X	A	X	C	C	A	C	X	A	Wood	X	X	F	A	X		X	C	A			A		
Aniline Dyes	F	F	F	F	A	F	C	C			I	I	Creosols, cresylic acid	C	X	X	C	C	F	X	C		F		A		
Asphalt	X	X	F	F	X	F	X		A		A	X	Ethers	C	C	C	C	C	F	X	C	X	A		A		
Barium Chloride 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	Ethyl acetate	F	X	X	X	F	X	F	F	X	F	X	A		
Barium Hydroxide 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	Ethyl alcohol	A	A	A	A	A	A	A	A	A	A	A	A		
Barium Sulfide 150°F (65°C)	A	A	A	A	A	A	A	A	A	I	A	A	Ethyl cellulose	F	F	F	F	F		F	C	X	F		A		
Beer	A	A	A	A	A	A	A	A	A	I	A	A	Ethyl chloride	A	F	F	X	A	F	A	C	F	F	F	F		
Beet Sugar Liquors	A	A	A	A	A	A	A	A	A	I	I	A	Ethylene glycol	A	A	A	A	A	A	A	A	A	A	A	A		
Benzene, Benzol	X	X	X	C	X	X	X	C	A	C	X	A	Ferric chloride 150°F (65°C)	A	A	A	A	A	A	A	A	I	A	A	A		
Benzene, petroleum ether and													Ferric Sulfate 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A		
Benzene, petroleum naphtha	X	X	C	F	X	F	X	C	A		I	A	Formaldehyde	A	A	C	A	A	A	A	A	A	A	F	A		
Black Sulfate Liquor	A	A	A	A	A	A	A	A		I	I	A	Formic acid	A	A	C	F	A	A	A	A	X	A	F	F		
Blast Furnace Gas	C	C	A	C	C	C	C	C	A	I	I	A	Fuel oil	X	X	A	A	X	F	X	C	A	F	A	A		
Borax	A	A	A	A	A	A	A	A	A	I	I	A	Furfural	X	C	C	X	A	F	C	C	X	A	X	A		
Boric Acid	A	A	A	A	A	A	A	A	A	I	A	A	Gasoline, Non Leaded	X	X	X	A	X	X	X		A	C	A	A		
Bromine	X	X	X	X	X	C	X	F	A	C		F	Gasoline, + MTBE	X	X	X	A	X	X	X	C	A	C	A	A		
Butane	X	X	F	A	X	A	X	A	A	A	A	A	Hi-test-+ MTBE	X	X	X	A	X	X	X	C	A	C	A	A		
Butyl Acetate	C	X	X	X	F	X	F	A	X	F	X	A	Gelatin	A	A	A	A	A	A	A	A	A		A	A		
Butyl alcohol, butanol	A	A	A	A	A	A	A	A	A	F	I	A	Glucose	A	A	A	A	A	A	A	A	A		A	A		
Calcium bisulfate	C	C	A	A	F	A	F	C	A	A	I	A	Glue	F	F	A	A	F	A	A	A	C		A	A		
Calcium chloride	A	A	A	A	A	A	A	A	A	A	A	A	Glycerine, glycerol	A	A	A	A	A	A	A	A	A	A	A	A		
Calcium hydroxide	A	A	A	A	A	A	A	A	A	A	A	A	Green sulfate liquor	A	A	A	A	A	A	A	A	A	A	A	A		
Calcium hypochlorite	X	X	X	X	A	F	A	C	A	A	F	F	HFC-134A	F	X	A	A	A	F	A		X	F		A		
Caliche liquors	A	A	A	A	A	A	A				I	A															
Cane sugar liquors	A	A	A	A	A	A	A	A	A	A	A	A															
Carbolic acid, phenol	C	C	C	C	C	C	A	A	A	A		A															

Chart is reprinted from 1996 RMA Hose Handbook

TECHNICAL DATA

ELASTOMERS

Commonly used Elastomers:													Special Elastomers:													
MATERIAL	NR lor IR	SBR	CR	NBR	IIR	CSM	EPDM	MQ	FKM	CM	ECO CO	XLPE	MATERIAL	NR lor IR	SBR	CR	NBR	IIR	CSM	EPDM	MQ	FKM	CM	ECO CO	XLPE	
(Maximum Temperature 100° F (38°C) Unless Otherwise Specified)																										
Carbon dioxide, dry/wet	A	A	A	A	A	A	A	A	A	A	A	A	Carbon disulfide	X	X	X	X	X	X	X	C	A	C		C	
Carbon disulfide	X	X	X	X	X	X	X	X	X	C	A	C	Carbon monoxide 150°C (65°C)	C	C	C	C	C	F	C	A	A	I		A	
Carbon monoxide 150°C (65°C)	C	C	C	C	C	F	C	A	A	I		A	Carbon tetrachloride	X	X	X	C	X	X	X	C	A	C	F	A	
Carbon tetrachloride	X	X	X	C	X	X	X	C	A	C	F	A	Castor oil	A	A	A	A	A	A	A	A	A	A	A	A	
Castor oil	A	A	A	A	A	A	A	A	A	A	A	A	Cellosolve acetate	F	F	X	X	A		A	C	C			A	
Cellosolve acetate	F	F	X	X	A								CFC-12	X	X	A	A	F		F	X	A		A	I	
CFC-12	X	X	A	A	F								China wood oil, tung oil	X	X	F	A	A	F	A	A	C		I	A	
China wood oil, tung oil	X	X	F	A	A	F	A	A	C				Chlorine, dry/wet	X	X	X	X	X	X	X	X	C	X	X	F	
Chlorine, dry/wet	X	X	X	X	X	X	X	X	X	C	X	X	Chlorinated solvents	X	X	X	X	X	X	X	C	C	C		A	
Chlorinated solvents	X	X	X	X	X	X	X	X	X	C	C	C	Chloroacetic acid	X	C	C	C	X	A	I	C	X			A	
Chloroacetic acid	X	C	C	C	X	A	I	C	X				Chlorosulfonic acid	X	X	C	C	X	X	X	C	X			F	
Chlorosulfonic acid	X	X	C	C	X	X	X	C	X				Chromic acid	X	X	X	X	C	A	I	C	C	A		F	
Chromic acid	X	X	X	X	C	A	I	C	C	A			Citric acid	A	A	A	F	A	A	A	A	A	A	A	A	
Citric acid	A	A	A	F	A	A	A	A	A	A	A	A	Coke oven gas	C	C	C	C	C	A		A	X	A	X	C	
Coke oven gas	C	C	C	C	C	A							Copper chloride 150°F (65°C)	C	A	F	A	A	F	A	A	A	A	I	A	
Copper chloride 150°F (65°C)	C	A	F	A	A	F	A	A	A	A	A	A	Copper sulfate 150°F (65°C)	C	A	A	A	F	A	A	A	A	A	A	A	
Copper sulfate 150°F (65°C)	C	A	A	A	F	A	A	A	A	A	A	A	Corn oil	X	C	F	A	A	F	C	A	A	A	A	A	
Corn oil	X	C	F	A	A	F	C	A	A	A	A	A	Cottonseed oil	X	C	F	A	A	F	C	A	A	A	I	A	
Cottonseed oil	X	C	F	A	A	F	C	A	A	A	A	A	Creosote, coal tar	X	X	F	A	X	F	X	C	F		X	A	
Creosote, coal tar	X	X	F	A	X	F	X	C	F				Wood	X	X	F	A	X		X	C	A			A	
Wood	X	X	F	A	X								Creosols, cresylic acid	C	X	X	C	C	F	X	C		F		A	
Creosols, cresylic acid	C	X	X	C	C	F	X	C					Ethers	C	C	C	C	C	F	X	C	X	A		A	
Ethers	C	C	C	C	C	F	X	C	X	A			Ethyl acetate	F	X	X	X	F	X	F	F	X	F	X	A	
Ethyl acetate	F	X	X	X	F	X	F	F	X	F	X	A	Ethyl alcohol	A	A	A	A	A	A	A	A	A	A	A	A	
Ethyl alcohol	A	A	A	A	A	A	A	A	A	A	A	A	Ethyl cellulose	F	F	F	F	F		F	C	X	F		A	
Ethyl cellulose	F	F	F	F	F								Ethyl chloride	A	F	F	X	A	F	A	C	F	F	F	F	
Ethyl chloride	A	F	F	X	A	F	A	C	F	F	F	F	Ethylene glycol	A	A	A	A	A	A	A	A	A	A	A	A	
Ethylene glycol	A	A	A	A	A	A	A	A	A	A	A	A	Ferric chloride 150°F (65°C)	A	A	A	A	A	A	A	A	I	A	A	A	
Ferric chloride 150°F (65°C)	A	A	A	A	A	A	A	A	A	I	A	A	Ferric Sulfate 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	
Ferric Sulfate 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A	Formaldehyde	A	A	C	A	A	A	A	A	A	A	F	A	
Formaldehyde	A	A	C	A	A	A	A	A	A	A	A	A	Formic acid	A	A	C	F	A	A	A	A					

TECHNICAL DATA

ELASTOMERS

Commonly used Elastomers:													Special Elastomers:	
MATERIAL	NR lor IR	SBR	CR	NBR	IIR	CSM	EPDM	MQ	FKM	CM	ECO CO	XLPE		
(Maximum Temperature 100° F (38°C) Unless Otherwise Specified)														
Hydraulic fluids														
Petroleum	X	X	A	A	X	F	X			A	A			
Phosphate ester alkyl	X	X	C	X	A	X	A			A	X			
Phosphate ester arly	X	X	X	X	C	X	C			C	X			
Phosphate ester blends		X	X	X	X	X	X	C			C	X		
Silicate ester	X	X	C	C	X	C	X			C	C			
Water-Glycol	A	A	A	A	A	A	A		A	A	A			
Hydrobromic acid	C	X	C	C	A	A	A	C	A	A			I	
Hydrochloric acid	A	X	X	X	C	C	C	C	A	A	X	A		
Hydrocyanic acid	F	F	C	F	C	A	C	A	A				A	
Hydrofluoric acid	X	X	X	X	C	A	C	X	A	A			A	
Hydrofluosilicic acid	A	F	F	F	A		A	A	A	A			I	
Hydrogen Gas	F	F	A	A	A		A	A	A		A	A		
Hydrogen peroxide	X	X	C	C	C	C	C	A	A	A			I	
Hydrogen sulfide, dry	C	C	F	C	A	A	A	C	F				A	
wet	C	C	F	C	A	A	A	C	C		F	A		
Kerosene	X	X	F	A	X	C	X	C	A	A	A	A		
Lacquers	X	X	X	X	C	X	X		X		X	F		
Lacquers solvents	X	X	X	X	C	X	X		X		X	F		
Lactic acid	C	C	C	C	C	A	C	A	A			A		
Linseed oil	C	X	F	A	A	A	A	A	A	A	A	A		
Lubricating oil, crude	X	X	F	A	X	C	X	C	A		A	A		
refined	X	X	F	A	X	C	X	C		A	A	A		
Magnesium chloride 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A		
Magnesium hydroxide 150°F (65°C)	A	F	F	F	A	A	A	F	A	A	A	A		
Magnesium sulfate 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	A	A		
Mercuric chloride	F	F	C	F	A	A	A	A	A		A	A		
Mercury	A	A	A	A	A	A	A	A	A		A	A		
Methyl alcohol, methanol	A	A	A	A	A	A	A	A	C	A	F	A		
Methyl chloride	C	C	C	C	C	X	C	X	A			F		
Methyl ethly ketone	X	X	X	X	F	C	A	C	X	C	X	A		
Methyl isopropyl ketone	X	X	X	X	F	C	C	C	X	F	X	A		
MTBE												A		
Milk	C	C	F	F	A	A	A	A	A	A	A	A		
Mineral oils	X	C	F	A	X	F	X	A	A	A	A	A		
Natural gas	C	C	A	A	C	A	X	C	A	A	A	A		
Nickel chloride 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	I	A		
Nickel sulfate 150°F (65°C)	A	A	A	A	A	A	A	A	A	A	I	A		
Nitric acid, crude	X	X	X	X	C	C	X	X	C	A	X	F		
Diluted 10%	X	X	C	X	C	C	X	X	C	A	X	F		
Concentrated 70%	X	X	X	X	C	C	X	X	C	X	X	F		
Nitrobenzene	X	X	X	X	X	X	X	C	F	C	X	A		
Oleic acid	X	F	C	F	F	F	F	A	C	A		A		
Oleum spirits	X	C	C	C			I		C			I		

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TECHNICAL DATA

ELASTOMERS

Commonly used Elastomers:													Special Elastomers:	
MATERIAL	NR lor IR	SBR	CR	NBR	IIR	CSM	EPDM	MQ	FKM	CM	ECO CO	XLPE		
(Maximum Temperature 100° F (38°C) Unless Otherwise Specified)														
Oxalic acid	F	C	F	F	A	A	A	A	A	A	F	A		
Oxygen	F	C	A	C	A		A	A	A	A	F	A		
Palmitic acid	X	F	A	A	F	F	F	C	A	A	F	A		
Perchloroethylene	X	X	X	C	X	X	X	C	A	C	F	A		
Petroleum oils and crude 200°F (95°C)	X	X	F	A	X	C	X	C	A	C	F	A		
Phosphoric acid, crude	A	C	C	C	C	A	C	C	A	A		A		
pure 45%	A	C	C	C	C	A	C	C	A	A		I		
Picric acid, molten	C	C	C	C	C		I					I		
water solution	A	C	F	F	A	A	I	A	A			I		
Potassium chloride	A	A	A	A	A	A	A	A	A	A	A	A		
Potassium cyanide	A	A	A	A	A	A	A	A	A	A	A	A		
Potassium hydroxide	F	F	C	C	A	A	A	A	C	A	A	A		
Potassium sulfate	A	A	A	A	A	A	A	A	A	A	A	A		
Propane	X	X	F	A	X	F	X	A	A	A	A	A		
Sewage	C	C	F	A	C	A	C	C	A		I	A		
Soap solutions	A	A	F	A	A	A	A	A	A	A	A	A		
Soda ash, sodium carbonate	A	A	A	A	A	A	A	A	A	A	A	A		
Sodium bicarbonate, baking soda	A	A	A	A	A	A	A	A	A	A	A	A		
Sodium bisulfate	A	A	A	A	A	A	A	A	A	A	A	A		
Sodium chloride	A	A	A	A	A	A	A	A	A	A	A	A		
Sodium cyanide	A	A	A	A	A	A	A	A	A	A	A	A		
Sodium hydroxide	F	F	C	C	A	C	A	A	C	A	F	A		
Sodium hypochlorite	X	X	X	X	A	F	A	C	A	A	F	F		
Sodium metaphosphate	A	A	C	A	A	F	A	A	A	A	I	A		
Sodium nitrate	C	C	C	C	A	A	A	C		A	A	A		
Sodium perborate	C	C	C	C	A	A	A	A	A			A		
Sodium peroxide	C	C	C	C	A	A	A	C	A			A		
Sodium phosphate, monobasic	A	F	C	F	A	A	A	A	A	A		A		
dibasic	A	F	C	F	A	A	A	A				A		
tribasic	A	F	C	F	A	A	A	A				A		
Sodium silicate	A	A	A	A	A	A	A	A	A	A	I	A		
Sodium sulfate	A	A	A	A	A	A	A	A	A	A	A	A		
Sodium sulfide	A	A	A	A	A	A	A	A	A	A	I	A		
Sodium thiosulfate, "hypo"	A	A	A	A	A	A	A	A	A	A	A	A		
Soybean oil	X	C	F	A	A	A	A	A	A	A	A	A		
Stannic chloride	A	A	A	A	F	A	F	A	A	A	I	A		
Steam 450°F (230°C)	C	C	C	C	A	A	F	C	X		X	X		
Stearic acid	X	X	C	F	F	C	F	A	I		F	A		
Sulfur	F	F	A	F	A	A	A	F	A		F	C		
Sulfur chloride	X	X	C	C	X	A	X	C	A			A		
Sulfur dioxide, dry	C	C	C	C	C	A	C	A	A		I	I		
Sulfur trioxide, dry	X	C	C	C	C	F	C	A	A			I		
Sulfuric acid, 10%	A	A	A	A	A	A	A	A	A	A	A	A		

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TECHNICAL DATA

ELASTOMERS

Commonly used Elastomers:

Special Elastomers:

MATERIAL	NR lor IR	SBR	CR	NBR	IIR	CSM	EPDM	MQ	FKM	CM	ECO CO	XLPE
(Maximum Temperature 100° F (38° C) Unless Otherwise Specified)												
11%-75%	C	C	C	C	F	A	C	C	A	A	F	A
76%-95%	X	X	X	X	C	A	X	X	A	X	X	A
fuming	X	X	X	X	X	X	X	X	X	X	X	X
Sulfurous acid	C	C	C	C	C	A	C	C	A	A	C	A
Tannic acid	A	C	A	C	A	A	A	A	A	A	I	A
Tar	X	X	C	C	X	C	X	C	F		F	X
Tartaric acid	A	C	C	C	F	A	F	A	A	A	F	A
Toluene, toluol	X	X	X	C	X	X	X	C	A	C	X	A
Trichloroethylene	X	X	X	X	X	X	X	C	A	C	X	A
Turpentine	X	X	X	F	X	X	X	C	A	F	A	A
Vinegar	C	C	C	C	A	A	A	A	A	A		A
Water, acid mine	A	A	C	A	A	A	A	A	A	A	I	A
Water, fresh	A	A	C	A	A	A	A	A	A	A	A	A
distilled	A	A	C	A	A	A	A	A	A	A	A	A
Whiskey and wines	A	A	A	C	A	A	A	A	A	A	I	A
Xylene.xylol	X	X	X	C	X	X	X	C	A	X	X	A
Zinc chloride	C	C	C	C	A	A	A	A	A	A	I	A
Zinc sulfate	A	A	A	A	A	A	A	A	A	A	I	A

NOZZLES - SPECS

Nozzle Style & Size	Inlet PSI	Pressure KPA	Straight GPM	Stream IPM	30 GPM	30 IPM	60 GPM	60 IPM	90 GPM	90 IPM
10464 1"	50	345	18	68	21	79	24	91	27	102
	75	517	22	83	25	95	28	106	32	121
	100	690	24	91	28	106	32	121	36	136
10464 1-1/2"	50	345	45	170	50	189	55	208	60	227
	75	517	50	189	55	208	65	246	75	284
	100	690	55	208	60	227	75	284	85	322
10464 2-1/2"	50	345	90	341	120	454	130	492	145	549
	75	517	100	379	140	530	150	568	180	681
	100	690	110	416	165	625	180	681	205	776

Threads Per Inch

1-1/2" Size	2.100 (NYFD)	1.990 (NST)	2.093 (NYCORP)	1.878 (NPSH)
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Threads Per Inch

	6"	7"	7-1/2"	8"
2-1/2"	3.058	3.13	2.990 (CHICAGO)	3.062
	3.093		3.062 (NST)	3.093
	3.125		3.125 (DETROIT)	3.140
	3.156			3.156
	3.187			3.312
	3.234			3.031 (NYFD)
	3.250			3.00 (NY CORP)
	3.312			2.841 (NPSH)
	3.062 (PITTSBURGH)			3.78 (CLEVELAND)

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