



QUALITY HOSE PRODUCTS

OILFIELD | INDUSTRIAL | MARINE



OVER
EST. 60 1957
YEARS

copperstaterubber.com | sales@copperstaterubber.com

Copper State Rubber has been building quality hoses for the oilfield industry for over 50 years.

Through this experience we strive to continually improve our products and to be an innovator within the industry. For example, we are the first American Manufacturer to introduce the Super Choke & Kill hose that operates at 15,000 PSI and tests to 22,500 PSI, and to qualify a Rotary/Vibrator hose 6" full flow ID that operates at 7,500 PSI, and test to 11,250 PSI that meets API 7K FSL1 & FSL2 Requirements.

Our manufacturing facility is audited by API yearly to meet ISO 9001:2015 for the design and manufacturing of offshore, oilfield, marine and industrial hoses and by API to meet Spec. Q1, 7K and 16C. We take the quality of our products seriously, therefore, none of our hoses are coupled outside our manufacturing facility and all hoses are tested before shipment to insure only the highest quality hoses are supplied to the end user.

If you are looking for a product that's not in our catalog please call as Copper State Rubber can build a hose for any application that meets your requirement.

Copper State Rubber | 10485 W Roosevelt St. | Avondale, AZ 85323



Q1-3217

ISO-3042

Licenses

API16C-0383 | API7K-0014

ISO 9001:2015

Certificate Number: ISO-3042

copperstaterubber.com
sales@copperstaterubber.com



COPPER STATE RUBBER | PRODUCT OFFERINGS



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API 16C Monogrammed Choke & Kill Product Diagram



1 Copper State Rubber Full Flow Choke & Kill Coupling

No protruding parts on coupling available with API Hubs/Flanges, Unions, Grayloc Hubs. Couplings are built-in as an integral part of the hose, reducing flexing fatigue at the end connection, thus making the hose less susceptible to damage if the bend radius is exceeded. All Copper State Rubber hoses are built as a single unit. To maintain our quality control after sale, no Copper State Rubber hoses are coupled outside our plant.

2 Steel Cable

Spirally wound at each end of hose for additional reinforcement at coupling.

3 Abrasive Resistant Fire Retardant Cover

Neoprene-base synthetic compounded to be extra tough to assure greater resistance to oil, cuts, abrasion, weather, and temperature extremes. Guide stripe provided for easy alignment. Also available with ¼ full round stainless steel armor.

4 Secondary Carcass

Gives added strength and safety with one ply of specially woven fabric and layer of protective rubber.

5 4, 6 and 8 Layer Wire Reinforcement

This all-important section assures maximum safety, strength, and flexibility with the use of four, six or eight spirally wound layers of special fatigue resistant, high-tensile steel wires, each embedded in a thick layer of rubber and tough fabric.

6 Primary Carcass

Provides greater flexibility through scientifically constructed multiple plies of premium grade high-tensile fabric impregnated with rubber. Our flexible liner prevents any sudden rupture without warning at the hose ends.

7 Tube

Copolymer suitable for hydrocarbons, resistant to H₂S and gas permeation.

Choke & Kill Hose is surge tested at 15,000 PSI in .75 of a second.

--- • CERTIFIED FACTORY TEST REPORTS WITH GRAPH FURNISHED WITH EVERY HOSE • ---
--- (WE TEST 100% OF OUR HOSES BEFORE SHIPMENT) ---

Regular Choke & Kill Hose

SPEC 090-1915C

10,000 PSI Working Pressure

Master Choke & Kill Hose

SPEC 090-1910C

5,000 PSI Working Pressure



Hose and coupling are suitable for H2S service. Couplings are Ni-Kanigen plated for salt water resistance.

Application:

- Choke & Kill Suitable for H2S
- Working Temperature -20F to 212F
- Max Length: 200 ft.

Non API16 C Monogrammed 4" 10,000 Working Pressure and 2" Through 3" 15,000PSI Working Pressure Choke & Kill Hoses Available



API 16C Choke & Kill Hose

ID (inches)	OD (inches)	MBR (inches)	Straight Ends (inches)	Working Pressure (PSI)	Test Pressure (PSI)	Hose Body Weight (lbs/ft)		Coupling Weight (lbs)
						Armored	Unarmored	
2	4.3	36	40	5,000	10,000	20	16	65
	4.5	36	42	10,000	15,000	22	16	104
2 ½	5.0	36	42	10,000	15,000	36	28	100
3	5.7	36	40	5,000	10,000	25	20	81
	6.3	36	42	10,000	15,000	35	31	110

Non API Monogrammed Super Choke & Kill Hose

SPEC 090-19225 HS

15,000 PSI Working Pressure

Tested to 400°F for 2 Hours at 15,000 PSI, with 5% Co2 and Oil Based Fluids



Hose and coupling are suitable for H2S service. Couplings are Ni-Kanigen plated for salt water resistance.

Application:

- Choke & Kill suitable for H₂S
- Working Temperature: -20°F to 250°F
- Higher temperature available upon request
- Max length: 200 ft.

Regular Choke & Kill Hose

SPEC 090-1915 HS

10,000 PSI Working Pressure

Master Choke & Kill Hose

SPEC 090-1910 HS

5,000 PSI Working Pressure

ID (inches)	OD (inches)	MBR (inches)	Straight Ends (inches)	Working Pressure (PSI)	Test Pressure (PSI)	Weight (lbs/ft)		Coupling Weight (lbs)
						Armored	Unarmored	
2	4.3	36	40	5,000	7,500	20	16	65
	4.5	36	42	10,000	15,000	24	19	104
	5.1	36	52	15,000	22,500	45	37	206
2 ½	4.5	36	40	5,000	7,500	23	18	67
	5.0	36	42	10,000	15,000	34	28	100
	6.2	36	52	15,000	22,500	47	39	206
3	5.7	36	40	5,000	7,500	25	20	81
	6.3	36	42	10,000	15,000	36	31	110
	6.9	36	52	15,000	22,500	50	42	240
3 ½	6.1	36	40	5,000	7,500	28	23	90
	6.8	36	42	10,000	15,000	41	35	120
4	6.6	36	40	5,000	7,500	34	28	104
	7.3	36	42	10,000	15,000	49	42	135
5	8.3	48	40	5,000	7,500	53	44	200
	8.9	48	42	10,000	15,000	71	62	240



Only years of research and development could produce this hose.

Copper State Rubber hose engineers and rubber specialists have pooled their knowledge for years in an effort to design and construct a rotary drilling hose that would more than satisfy the most exacting requirements of the drilling industry. The successful result is the “Choke & Kill” 8-wire layer Rotary Drilling Hose. The design of this hose is so advanced that it was necessary to develop new precision machinery for its production.

Copper State Special Well Service Hose for General Rig Use

SPEC 090-1920

**Burner Hose | Test Lines | Acidizing Lines | Cementing Lines | Fracking Lines
High Pressure Jetting | Gas Lines**



Thermoflex Well Service Hoses Also Available In:
15,000 PSI Test 10,000 PSI WP – Spec: 090-1924
11,250 PSI Test 7,500 PSI WP – Spec: 090-1928

- Liner compounded for maximum resistance to gas permeation
- Stainless Steel Liner (optional)
- Stainless Steel Armored (optional)
- Maximum operating temperature 250°F
- H₂S and CO₂ compatible
- Certified factory graph test reports furnished with every hose
- Fire retardant – 700°C for 30 minutes

Style	ID (inches)	OD (inches)	MBR (inches)	Straight Ends (inches)	Length	Rated	Coupling Weight Each (lbs)	Identification
Thermoflex Well Service Hose	2.0	4.0	36	42	Up To 200 feet	10,000 PSI Tested	80	Stainless Steel Bend Welded to Coupling Body Showing; Mfg Name, Style of Hose, Date of Manufacture and Test, Working Pressure and Serial Number
	2.5	5.0					100	
	3.0	6.0					115	
	3.5	6.5					130	
	4.0	7.0					145	

Rotary / Vibrator Cementing & Decoking Product Diagram



1 Copper State Full Flow Rotary Hose Coupling

No protruding parts on coupling available with API Hubs/Flanges, Unibolts, Unions, Grayloc Hubs. Couplings are built-in as an integral part of the hose, reducing flexing fatigue at the end connection, thus making the hose less susceptible to damage if the bend radius is exceeded. All Copper State Rubber hoses are built as a single unit. To maintain our quality control after sale, no Copper State Rubber hoses are coupled outside our plant.

2 Steel Cable

Spirally wound at each end of hose for additional reinforcement at coupling.

3 Abrasive Resistant Fire Retardant Cover

Neoprene-base synthetic compounded to be extra tough to assure greater resistance to oil, cuts, abrasion, weather, and temperature extremes. Guide stripe provided for easy alignment. Also available with ¼ full round stainless steel armor.

4 Secondary Carcass

Gives added strength and safety with one ply of specially woven fabric and layer of protective rubber.

5 4, 6 and 8 Layer Wire Reinforcement

This all-important section assures maximum safety, strength, and flexibility with the use of four, six or eight spirally wound layers of special fatigue resistant, high-tensile steel wires, each imbedded in a thick layer of rubber and tough fabric.

6 Primary Carcass

Provides greater flexibility through scientifically constructed multiple plies of premium grade high-tensile fabric impregnated with rubber. Our flexible liner prevents any sudden rupture without warning at the hose ends.

7 Oil-Resistant Tube

Compounded for elevated temperatures of oil-base mud and oil emulsions. Resistant to gas permeation.

Choke & Kill Hose is surge tested at 15,000 PSI in .75 of a second.

--- • CERTIFIED FACTORY TEST REPORTS WITH GRAPH FURNISHED WITH EVERY HOSE • ---
 (WE TEST 100% OF OUR HOSES BEFORE SHIPMENT)

Rotary Drilling Hose Decoking Hose

API 7K LICENSED, CERTIFICATE

NO 7K-0014 FSL1 & FSL2

4,000, 5,000 and 7,500 PSI

This high-quality decoking hose provides many years of trouble-free service.

See product diagram and features on page two.



Application:

- Mud, Mud Booster/Jumper, Decoking, Motion Compensator Hoses
- Working Temperature: -20°F to 250°F
- Max Length: 200 ft.

ID (inches)	OD (inches)	MBR (inches)	Straight Ends (inches)	API Grade	Working Pressure (PSI)	Test Pressure (PSI)	Weight (lbs/ft)		Coupling Weight (lbs)
							Armored	Unarmored	
2	4.5	36	36	C	4,000	6,000	20	16	65
	4.5	36	40	D	5,000	7,500	20	16	65
	4.7	36	42	E	7,500	11,250	22	19	75
2 ½	4.7	36	36	C	4,000	6,000	23	18	67
	4.7	36	40	D	5,000	7,500	23	18	67
	4.9	36	42	E	7,500	11,250	24	19	77
3	5.6	36	36	C	4,000	6,000	25	20	81
	5.6	36	40	D	5,000	7,500	25	20	81
	6.3	36	42	E	7,500	11,250	36	31	136
3 ½	6.1	36	36	C	4,000	6,000	28	23	90
	6.1	36	40	D	5,000	7,500	28	23	90
	6.8	36	42	E	7,500	11,250	41	35	105
4	6.6	36	36	C	4,000	6,000	33	28	104
	6.6	36	40	D	5,000	7,500	33	28	104
	7.3	36	42	E	7,500	11,250	49	42	117
5	8.3	48	38	C	4,000	6,000	53	44	200
	8.3	48	42	D	5,000	7,500	53	44	200
	8.9	48	44	E	7,500	11,250	71	62	240
6	9.3	48	38	C	4,000	6,000	71	62	302
	9.3	48	42	D	5,000	7,500	71	62	302
	9.9	48	44	E	7,500	11,250	92	83	324
8	10.79	72	60	*	4,000	5,000	78	67.5	340
	10.79	72	60	*	6,000	7,500	78	67.5	340

* Non-API 7K Monogrammed

Cementing Hose

API 7K LICENSED, CERTIFICATE NO 7K-0014 FSLO

See product diagram and features on page two.



Application:

- Cementing and Acidizing Service
- Working Temperature: -20°F to 250°F
- Max Length: 200 ft.

Note: Hose must be flushed with water after acidizing to a neutral pH



ID (inches)	OD (inches)	MBR (inches)	Straight Ends (inches)	Working Pressure (PSI)	Test Pressure (PSI)	Weight (lbs/ft)		Coupling Weight (lbs)
						Armored	Unarmored	
2	4.3	36	40	5,000	7,500	20	16	65
	4.5	36	42	10,000	15,000	24	19	104
	5.1	36	52	15,000	22,500	45	37	206
2 ½	4.5	36	40	5,000	7,500	23	18	67
	5.0	36	42	10,000	15,000	34	28	100
	6.2	36	52	15,000	22,500	47	39	206
3	5.7	36	40	5,000	7,500	25	20	81
	6.3	36	42	10,000	15,000	36	31	110
	6.9	36	52	15,000	22,500	50	42	240
3 ½	6.1	36	40	5,000	7,500	28	23	90
	6.8	36	42	10,000	15,000	41	35	120
4	6.6	36	40	5,000	7,500	34	28	104
	7.3	36	42	10,000	15,000	49	42	135



***Note: All of these hoses require factory-applied fittings.**

Motion Compensator Hoses

SPEC 090-2000

2,500 PSI - 7,500 PSI



Application:

- Motion Compensator Systems

Hose Construction:

- **Tube:** EPDM
- **Reinforcement:** multiple plies of synthetic textile and high tensile spiral wire.
- **Cover:** black, oil, abrasion and ozone resistant CR+
- Working Temperature: -40°F to 250°F
- Available with factory swaged on or built in fittings and liner elastomers to meet customer's requirements
- Max Length: 200 ft.



B.O.P. Control Lines

SPEC 070-5000

2,500 PSI - 5,000 PSI



Meets Lloyd's Register of Shipping Section I of OSG1000/499
Certificate No.: HOU-020146/2
Complies with API 16D Control Systems for Drilling Well Control
Equipment, Section 10.1.2, Latest Edition

Application:

- BOP control lines

Hose Construction:

- **Tube:** black, oil resistant synthetic rubber
- **Reinforcement:** multiple plies of synthetic textile and high tensile spiral wire
- **Cover:** multiple layers of fire retardant material with a stainless steel outer casing
- Working Temperature: -40 °F to 250 °F
- Available IDs: ½", ¾", 1", 1-1/4", 1-1/2" & 2"
- Safety Factor: 4 to 1
- Max Length: 200 ft.

Terminating Connectors:

Hose comes standard with 1" 316SS male connections with extra-long threads to accept miscellaneous threaded connectors. Also available with welded fittings to match customers' requirements.



*Note: All of these hoses require factory-applied fittings.

Diverter Hose

SPEC 070-1917

Suction & Discharge



Application:

- Diverter system to control shallow pocket blowouts.

Hose Construction:

- **Tube:** black, oil resistant Buna N
- **Reinforcement:** multiple plies of synthetic textile and high tensile spiral wire, same as our Choke & Kill hose
- **Cover:** black, oil, abrasion and ozone resistant CR+
- Working Temperature: -40°F to 250°F
- Available Working Pressures: 2,500 PSI to 7,500 PSI
- Available with factory swaged on or built in fittings and liner elastomers to meet customer's requirements
- Max Length: 200 ft.



ID (inches)	OD (inches)	MBR (inches)	WP* (PSI)	Weight (lbs/100 ft)
4	5.2	36	2,000	800
5	6.5	36	2,000	1,000
6	7.5	36	2,000	1,200
8	9.6	48	1,500	2,200
10	11.8	64	1,200	3,100
12	14.0	80	1,000	4,000

Work-Over Hose

SPEC 090-1906

Manufactured with elastomers that are compatible with the fluid that is being conveyed through the hose.



Application:

- Ideal for portable drilling units, slim hole drilling, core drilling and seismograph work.

Hose Construction:

- **Tube:** black, oil/abrasion resistant synthetic rubber
- **Reinforcement:** multiple plies of synthetic textile and high tensile spiral wire, same as our Choke & Kill hose
- **Cover:** black, oil, abrasion and ozone resistant CR+
- Working Temperature: -40°F to 250°F
- Available Working Pressures: 2,500 PSI to 7,500 PSI
- Available with factory swaged on fittings to meet customer's requirements
- Max Length: 200 ft.



Stainless Steel Lined Flexible Flow Lines

Spec 090-3600

H₂S and Co₂ compatible

A premium quality, extremely flexible hose, available with stainless steel or high grade neoprene, fire resistant outer covers.



- An ideal hose for oil and gas gathering, test, lines, injection lines, hydraulic control lines, acidizing lines, production lines, or risers to floating or fixed surface facilities
- Continuous stainless steel liner
- Other type end fittings available



ID (inches)	OD (inches)	MBR (inches)	Working Pressure (PSI)	Test Pressure (PSI)	Built-in Couplings		
					API	Integral	Flanges
2	4.4	30	5,000	7,500	✓	✓	✓
2.5	4.9	30	5,000	7,500	✓	✓	✓
3	5.8	36	5,000	7,500	✓	✓	✓
3.5	5.9	36	5,000	7,500	✓	✓	✓
4	6.3	36	5,000	7,500	✓	✓	✓
5	8.3	48	5,000	7,500	✓	✓	✓
6	9.3	48	5,000	7,500	✓	✓	✓
2	4.5	30	10,000	15,000	✓	✓	✓
2.5	5.0	30	10,000	15,000	✓	✓	✓
3	6.0	36	10,000	15,000	✓	✓	✓
3.5	6.9	36	10,000	15,000	✓	✓	✓
4	7.9	36	10,000	15,000	✓	✓	✓
5	8.9	48	10,000	15,000	✓	✓	✓
2	5.1	36	15,000	22,500	✓	✓	✓
2.5	5.9	36	15,000	22,500	✓	✓	✓
3	6.9	36	15,000	22,500	✓	✓	✓

Copper State Rubber Fire Resistant Flexible Jumper Lines for Oil and Gas Production Systems

SPEC 070-1915

A premium quality, extremely flexible hose with special polymer liner, or optional stainless steel liner, and with stainless steel outer cover. H₂S AND Co₂ compatible.



Hose Construction:

- Special polymer liner or stainless steel liner
- Breaker strips over rubberized textile plies
- Reinforcement is 2, 4, or 6 highest strength coated steel plies
- Cushion layers of adhesive bonding between the plies
- Special rubber adhesive bonding between the plies
- Fire-resistant synthetic rubber bonded over reinforcement plies
- Stainless steel outer cover for additional fire resistance and abrasion

Jumper Lines are also available in lower and/or higher working pressures than those listed.



Jumper Lines (max length 200 ft.)

ID (inches)	OD (inches)	MBR (feet)	WP* (PSI)	TP* (PSI)	Weight (lbs/ft)
5	6.8	4	2,500	3,750	17
6	8.0	6	2,000	3,000	22
8	10.0	8	1,500	2,250	28
10	12.0	10	1,200	1,800	34
12	14.3	12	1,000	1,500	41

Multi-Purpose Heavy Duty Oilfield Service Hose

SPEC 070-2WE0068



- Designed for service as discharge hose for reverse circulations, acidizer/cement service solution equipment, mud tank jetting, instrument blow down service, and rotary/vibrator service on portable drilling units, workover rigs and seismograph equipment.
- Exceeds requirements of API 7K for minimum safety factor: 2½ to 1 burst pressure.

ID (inches)	OD (inches)	MBR (inches)	Wire Layers	WP* (PSI)	Min Burst (PSI)	Weight (lbs/ft)
2	3	25	6	5,000	20,000	6

Hose Construction:

- **Tube:** black neoprene, high-grade (cr+)
- **Reinforcement:** multiple spiral plies of special high tensile steel wire, each separated by a rubber layer
- **Cover:** MSHA accepted oil, weather and abrasion-resistant red synthetic rubber cover
- Synthetic outer cover added for abrasion resistance
- **Optional:** stainless steel outer protective armor available
- Working Temperature: -40°F to +250°F (-40° to +121°C)
- H₂S suitable with terminating connections meeting requirements of MR-01-75, latest edition
- Also available with 7500 PSI WP – **Spec 2 WEO 168**



Hydraulic Pile Driver Hose

SPEC 070-366

The basic design of this hose is from our oilfield Choke & Kill hose construction, with a few modifications to adapt it for the purpose of driving pilings offshore.



- Designed to operate with the large hydraulic hammers that are in service today
- Flexible, and delivers performance in excess of the demands for pressure, pulsations, abrasion, vacuum, and heat resistance, when driving pilings

Hose Construction:

- **Inner Lining:** spiral strip-wound stainless steel
- **Second Lining:** high quality Buna "N" oil resistant compound and special spirals of synthetic materials above the second lining help to protect against deformation and cut down on vibration
- **Reinforcement:** four spirals of copper-coated high-strength wire, same as used in our Choke & Kill hose – see page two for diagram
- **Cover:** neoprene cover bonded to carcass with nylon breaker strip
- Built-in API fittings

ID (inches)	OD (inches)	MBR (inches)	WP* (PSI)	TP* (PSI)	Weight (lbs/ft)
4	200	48	6,000	9,000	47



Steam Pile Driver Hose

SPEC 070-326

The basic design of this hose, with a few modifications, is our Choke & Kill hose construction (see page 2).



- Flexible connection between the steam hammer and the power unit
- This pile driver hose is designed to give long service life, and prevent any rubber particles from getting into the driving hammer

Hose Construction:

- **Inner Lining:** spiral strip-wound stainless steel, with a heat-insulating ply over the strip-wound stainless steel liner
- **Second Lining:** synthetic rubber compound rated to 450°F
- **Reinforcement:** four spiral braids of copper-coated high strength wire for the main reinforcement. (same high strength wire used in our Choke & Kill hose)
- **Cover:** neoprene covers bonded to carcass with breaker strip
- Built-in API connections

ID (inches)	Max Length (feet)	MBR (inches)	WP* (PSI)	TP* (PSI)	Weight (lbs/ft)	Temp Range (°F)
4	200	48	400	600	21	450°
6	200	60	400	600	26	450°



Copper State Rubber Top Drive Blower Hose

SPEC 070-1129

A heavy-duty, premium hose to prevent dangerous fumes from accumulating around the top drive unit during drilling operations.



- Copper State Rubber Blower Hoses are designed for long service life
- This is an excellent Hose for Vapor Recovery Service

Hose Construction:

- **Tube:** multiple plies of nylon tire cord. Internal helix wire
- **Reinforcement:** multiple plies of synthetic textile and high tensile spiral wire
- **Cover:** double thickness, abrasion resistant orange corrugated cover for maximum flexibility



ID (inches)	OD (inches)	Standard Lengths (feet)	Max WP* (air)	Weight (lbs/ft)
8	9.8	86	50	11
10	11.8	86	50	12.5

Fuel Transfer Hose

SPEC 070-1175

**Loading/Deck Hose | Service Fuel/Oil/Oil Base Mud
Suction & Discharge 250 PSI WP***



Application:

- Transfer of fuel/oil/oil base mud
- Compatible with 60% aromatics content

Hose Construction:

- **Tube:** black oil resistant Buna N good for 60% aromatic content
- **Reinforcement:** multiple plies of synthetic textile and helix steel wire
- **Cover:** tan, oil abrasion and ozone resistant CR+
- Working Temperature -40°F to 250°F
- Max Aromatics 60%
- 4 to 1 Safety Factor
- Full Vacuum Service
- Exceeds US Coast Guard Regulations
- Max Length: 200 ft.



ID (inches)	OD (inches)	MBR (inches)	WP*	Weight (lbs/ft)
2	2.9	12	250	2.1
2.5	3.4	18	250	2.5
3	3.9	18	250	2.9
4	5.2	24	250	4.2
5	6.3	30	250	5.9
6	7.5	36	200	8.1
8	9.4	48	100	10.9
10	11.5	74	100	12
12	13.5	78	100	14

Fuel Discharge Hose

SPEC 070-1205

**Loading/Deck Hose | Service Fuel/Oil/Oil Base Mud
Discharge 250 PSI WP***

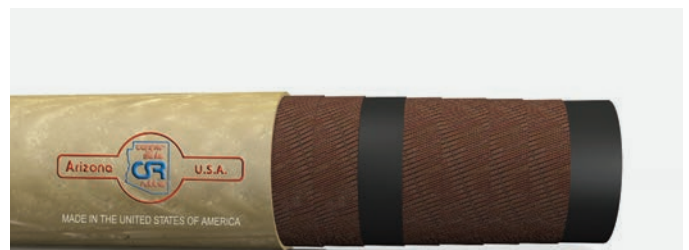


Application:

- Transfer of fuel/oil/oil base mud
- Compatible with 60% aromatics content

Hose Construction:

- **Tube:** black oil resistant Buna N good for 60% aromatic content
- **Reinforcement:** multiple plies of synthetic textile
- **Cover:** tan, oil abrasion and ozone resistant CR+
- Working Temperature -40°F to 250°F
- Max Aromatics 60%
- 4 to 1 Safety Factor
- Exceeds US Coast Guard Regulations
- Max Length: 200 ft.



ID (inches)	OD (inches)	WP*	Weight (lbs/ft)
2	2.9	250	1.7
3	3.8	250	2.3
4	4.8	250	3.0
5	6.0	250	4.7
6	7.1	200	5.9
8	9.4	100	10.9

Fireproof/Multi Purpose Hose

SPEC 070-3175FP

**Service Fuel/Liquid Mud/Deepwell/Firemain and Deluge
Suction & Discharge 250 and 400 PSI WP**



Application:

- Transfer of fuel/liquid mud/deepwell/firemain and deluge
- Compatible with 60% aromatics content

Hose Construction:

- **Tube:** black oil resistant Buna N good for 60% aromatic content
- **Reinforcement:** multiple plies of synthetic textile and helix steel wire
- **Cover:** black, fire resistant CR+ rubber
- Working Temperature -40°F to 250°F
- Max Aromatics 60%
- 4 to 1 Safety Factor
- Full Vacuum Service
- **Meets ISO 15540:1999 Fire Requirements**
- **ABS Type Approved**
- **Max Length: 200 ft.**

*Note: fire layer is omitted in hose rendering



ID (inches)	OD (inches)	MBR (inches)	WP*	Weight (lbs/ft)
2	3.2	12	200/400	3.3
3	4.3	18	200/400	4.5
4	5.3	24	200/400	6.0
5	6.5	30	200/400	7.3
6	8.1	42	200/400	13.6
8	10.1	48	200/400	18.6
10	12.2	54	200/400	25.8
12	14.7	66	200/400	35.4

Extra Heavy Duty Fuel Transfer Hose

SPEC 070-3175

Loading/Deck Hose | Service Fuel/Oil/Oil Base Mud Suction & Discharge 400 PSI WP*



Application:

- Transfer of fuel/oil/oil base mud
- Compatible with 60% aromatics content

Hose Construction:

- **Tube:** black oil resistant Buna N good for 60% aromatic content
- **Reinforcement:** multiple plies of synthetic textile and helix steel wire
- **Cover:** orange, oil abrasion and ozone resistant CR+
- Working Temperature -40°F to 250°F
- Max Aromatics 60%
- 4 to 1 Safety Factor
- Full Vacuum Service
- Exceeds US Coast Guard Regulations
- Max Length: 200 ft.



ID (inches)	OD (inches)	MBR (inches)	WP*	Weight (lbs/ft)
2	3.1	12	400	2.6
3	4.1	18	400	4.0
4	5.1	24	400	5.5
5	6.5	30	400	7.3
6	7.6	36	400	10.8

Extra Heavy Duty Softwall Fuel Transfer Hose

SPEC 070-1296

Loading/Deck Hose | Service Fuel/Oil/Oil Base Mud Discharge 400 PSI WP*



Application:

- Transfer of Fuel/Oil/Oil Base Mud
- Compatible with 60% Aromatics Content

Hose Construction:

- **Tube:** black oil resistant Buna N good for 60% aromatic content
- **Reinforcement:** multiple plies of synthetic textile
- **Cover:** orange, oil abrasion and ozone resistant CR+
- Working Temperature -40°F to 250°F
- Max Aromatics 60%
- 4 to 1 Safety Factor
- Exceeds US Coast Guard Regulations
- Max Length: 200 ft.



ID (inches)	OD (inches)	WP*	Weight (lbs/ft)
2	2.9	400	2.0
3	4.0	400	3.0
4	5.0	400	3.9
5	6.2	400	5.0
6	7.3	400	6.9

Drill Water Hose

SPEC 070-1127

**Loading/Deck Hose | Service Drillwater/Suction/Discharge
200 PSI WP***



Application:

- Transfer of drillwater

Hose Construction:

- **Tube:** black SBR
- **Reinforcement:** multiple plies of synthetic textile
- **Cover:** black SBR

- Working Temperature -40°F to 250°F
- 4 to 1 Safety Factor
- Max Length: 200 ft.



ID (inches)	OD (inches)	MBR (inches)	WP*	Weight (lbs/ft)
2	2.76	18	200	1.79
3	3.85	18	200	2.76
4	4.91	24	200	4.18
5	5.93	36	200	5.11
6	7.29	36	200	5.54
8	11.09	48	200	13.87

Potable Water Discharge Hose

SPEC 070-1103

**Loading/Deck Hose | Service Potable Water
Discharge 200 PSI WP***



Application:

- Transfer of potable water

Hose Construction:

- **Tube:** white natural food grade rubber
- **Reinforcement:** multiple plies of synthetic textile
- **Cover:** blue oil resistant CR+

- Working Temperature -40°F to 250°F
- 4 to 1 Safety Factor
- Max Length: 200 ft.



ID (inches)	OD (inches)	WP*	Weight (lbs/ft)
1.5	2.15	200	1.02
2	2.52	200	1.5
3	4	200	2.74
4	5	200	3.74
5	5.93	200	4.9

* WP=Working Pressure

Rig Wash Down Hose

SPEC 070-1123

Discharge 150 PSI WP*



Application:

- For general wash down service using hot water

Hose Construction:

- **Tube:** white EPDM
- **Reinforcement:** multiple plies of high tensile textile cords
- **Cover:** white, oil abrasion and ozone resistant neoprene
- Working Temperature -40°F to 250°F
- 4 to 1 Safety Factor
- Wash down hose can be furnished with or without tapered nozzle
- Max Length: 50 ft.



ID (inches)	OD (inches)	MBR (inches)	WP*	Weight (lbs/ft)
1	1.5	12	200	0.63
1.25	1.75	12	200	0.75
1.5	1.875	12	200	0.87

Potable Water Hose

SPEC 070-1127-P

Loading/Deck Hose | Service Potable Water Suction & Discharge 200 PSI WP*



Application:

- Transfer of potable water

Hose Construction:

- **Tube:** white natural food grade rubber
- **Reinforcement:** multiple plies of synthetic textile and steel helix wire
- **Cover:** blue oil resistant CR+
- Working Temperature -40°F to 250°F
- 4 to 1 Safety Factor
- Max Length: 200 ft.



ID (inches)	OD (inches)	MBR (inches)	WP*	Weight (lbs/ft)
1.5	2.48	12	200	1.58
2	2.97	12	200	2.32
3	3.85	18	200	2.83
4	5.09	24	200	4.12
5	6	36	200	5.21

Bulk Material Discharge Hose

SPEC 070-1101

Loading/Deck Hose | Service Drillwater/Bulk Material Discharge 200 PSI WP*



Application:

- Transfer of drillwater/cement/barite/bentonite

Hose Construction:

- **Tube:** black SBR
 - **Reinforcement:** multiple plies of synthetic textile
 - **Cover:** black SBR
- Working Temperature -40°F to 250°F
 - 4 to 1 Safety Factor
 - Max Length: 200 ft.



ID (inches)	OD (inches)	WP*	Weight (lbs/ft)
3	3.7	200	1.8
4	4.8	200	2.9
5	5.8	200	3.5
6	6.8	200	4.1

Bulk Material Hose

SPEC 070-1127-B

Loading/Deck Hose | Service Bulk Material Suction & Discharge 200 PSI WP*



Application:

- Transfer of cement/barite/bentonite

Hose Construction:

- **Tube:** black SBR
 - **Reinforcement:** multiple plies of synthetic textile and steel helix wire
 - **Cover:** black SBR
- Working Temperature -40°F to 250°F
 - 4 to 1 Safety Factor
 - Max Length: 200 ft.



ID (inches)	OD (inches)	MBR (inches)	WP*	Weight (lbs/ft)
3	3.9	18	200	2.8
4	5.2	24	200	4.0
5	6.3	30	200	5.5
6	7.3	36	200	7.3

* WP=Working Pressure

General Purpose Wire Braided Air Hose

SPEC 070-800 WB

High pressure hose that can be used for various purposes



Application:

- Air transfer

Hose Construction:

- **Tube:** black oil resistant EPDM
 - **Reinforcement:** multiple plies of synthetic textile and braided steel wire
 - **Cover:** yellow, oil abrasion and ozone resistant neoprene
- Working Temperature -40°F to 250°F
 - 4 to 1 Safety Factor
 - Max Length: 200 ft.



ID (inches)	OD (inches)	Wire Braids	WP*	Weight (lbs/ft)
1	1.5	2	1,000	64
1.25	1.8	2	1,000	85
1.5	2.3	2	1,000	125
2	2.8	2	800	180
2.5	3.5	2	800	240
3	3.8	2	500	275
4	4.8	2	500	400

Submarine Offshore Petroleum Loading Hose

SPEC 070-3112

Suction & Discharge 225 PSI WP



Application:

- Transfer of petroleum products offshore

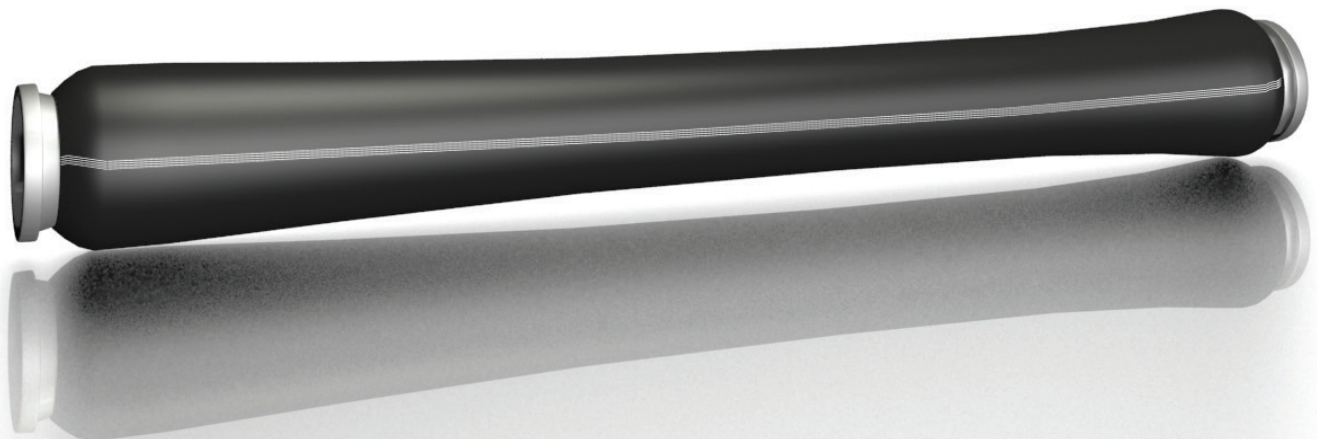
Hose Construction:

- **Tube:** oil resistant synthetic rubber
- **Reinforcement:** multiple plies of synthetic cord and high-tensile steel wire helix
- **Cover:** black, oil abrasion and ozone resistant CR+
- Working Temperature -40°F to 250°F
- 5 to 1 Safety Factor
- Comes standard with built-in nipples
- Max Length: 50 ft.

Design Features:

- Maximum flow velocity 50 feet per second
- Maximum temporary elongation 2.5%
- Maximum permanent elongation 0.7%
- Nipples conform to API-5L Grade A
- Flanges conform to ANSI Standards
- Certified welding to API-1104
- All exposed surfaces of nipples and flanges coated with zinc or epoxy paint, excluding flange facings
- Hoses less than 12" inside diameter come standard with welded slip-on flanges, hoses 12" inside diameter and greater come standard with welded weld-neck flat face flanges, unless otherwise requested.

ID (inches)	OD (inches)		MBR (inches)	Weight in air (lbs)		Weight in air (lbs/ft)	Weight in water (lbs)		Weight in water (lbs/ft)
	Section			Lengths			Lengths		
	A	B		30'	35'		30'	35'	
6	10	8	35	506	572	13	242	264	5
8	12	10	48	770	858	19	374	418	7
10	14	12	60	990	1,122	24	484	528	9
12	17	14	73	1,606	1,804	39	792	880	15
16	21	18	98	2,244	2,508	51	1,166	1,254	19
20	26	22	122	3,784	4,224	86	2,046	2,222	36



Submarine Offshore Hose with Special Reinforced End for Connection to Plem

SPEC 070-3114

Suction & Discharge 225 PSI WP



Application:

- Transfer of petroleum products offshore plem connection

Hose Construction:

- **Tube:** oil resistant synthetic rubber
- **Reinforcement:** multiple plies of synthetic cord and high-tensile steel wire helix
- **Cover:** black, oil abrasion and ozone resistant CR+
- Working Temperature -40°F to 250°F
- 5 to 1 Safety Factor
- Comes standard with built-in nipples
- Max Length: 50 ft.

Design Features:

- White band on reinforced end for identification
- Maximum flow velocity 50 feet per second
- Maximum temporary elongation 2.5%
- Maximum permanent elongation 0.7%
- Nipples conform to API-5L Grade A
- Flanges conform to ANSI Standards
- Certified welding to API-1104
- All exposed surfaces of nipples and flanges coated with zinc or epoxy paint, excluding flange facings
- Hoses less than 12" inside diameter come standard with welded slip-on flanges, hoses 12" inside diameter and greater come standard with welded weld neck flat face flanges, unless otherwise requested.

Electrical Continuity:

- Electrical continuity on all standard hoses except tanker rail and underbouy hoses

ID (inches)	OD (inches)			MBR (inches)	Weight in air (lbs)		Weight in air (lbs/ft)
	Section				Lengths		
	A	B	C		30'	35'	
6	11	8	10	35	671	770	22
8	14	10	12	48	1,023	1,166	34
10	16	12	14	60	1,298	1,485	43
12	19	14	17	73	2,024	2,310	67
16	23	18	21	98	2,904	3,300	97
20	28	22	26	122	4,664	5,280	155

Submarine Hose

SPEC 070-4112

Suction & Discharge



Application:

- LPG & crude oil

Hose Construction:

- **Tube:** black oil resistant Buna N
- **Reinforcement:** multiple plies of synthetic textile and helix wire
- **Cover:** black, oil abrasion and ozone resistant CR+
- Working Temperature -40°F to 250°F
- Available with built in or swaged on fittings
- Lo-Temp fittings for LPG service at -60°F
- Optional with built in stainless steel helix wire
- Max Length: 200 ft.



ID (inches)	OD (inches)	MBR (inches)	WP* (PSI)	Weight (lbs/ft)	Vac
6	8.6	36	350	18.0	Full
8	11.3	48	350	29.3	Full
10	13.0	60	350	39.2	Full
12	15.0	72	350	48.0	Full

Sand Suction Hose

SPEC 070-1387

Suction & Discharge



Application:

- Sand suction hose for use on dredges offering a flexible connection between hard piping and pumps

Hose Construction:

- **Tube:** gum rubber – available in 1/4", 3/8" & 1/2" thickness
- **Reinforcement:** multiple plies of synthetic textile and steel helix wire
- **Cover:** black, oil abrasion and ozone resistant CR+
- Working Temperature -40°F to 250°F
- Max Length: 200 ft.



ID (inches)	OD (inches)	Ply	Weight (lbs/ft)
6.0	8.2	6	17.6
6.6	8.8	6	19.1
8.0	10.3	8	23.6
8.8	11.0	8	30.0
10.0	12.7	10	35.6
10.8	13.9	10	38.2
12.0	14.9	12	43.7
12.8	15.6	12	46.1
14.0	18.9	12	49.1
15.0	8.9	12	55.2
16.0	18.9	12	60.3
18.0	20.9	12	66.0

* WP=Working Pressure

All Purpose Chemical Hose

SPEC 070-1187

Suction & Discharge 300 PSI WP



Application:

- Transfer of 98% of known chemicals

Hose Construction:

- **Tube:** Ultra High Molecular Weight Polyethylene (UHMW)
- **Reinforcement:** multiple plies of synthetic textile and helix steel wire
- **Cover:** black with green stripe, oil, abrasion and ozone resistant CR+
- Working Temperature -40°F to 250°F
- 5 to 1 Safety Factor
- Also available with Crossed Linked Polyethylene (XLPE) and Chlorinated Polyethylene (CPE) tube material.
- Max Length: 200 ft.



ID (inches)	OD (inches)	MBR (inches)	WP* (PSI)	Rated Burst (PSI)	Weight (lbs/ft)
4	5.31	24	300	1,500	5.3
6	7.63	36	300	1,500	8.4
8	9.75	48	300	1,500	14.5
10	11.29	56	300	1,500	20.7
12	14.00	66	300	1,500	27.4

Jetting Hose

SPEC 070-1917J

Suction & Discharge



Application:

- Ideal for leg jetting service

Hose Construction:

- **Tube:** black oil resistant Buna N
- **Reinforcement:** multiple plies of synthetic textile and high tensile spiral wire same as our choke & kill hose.
- **Cover:** black, oil abrasion and ozone resistant CR+
- Working Temperature -40°F to 250°F
- Higher Working Pressures Available
- Max Length: 200 ft.



ID (inches)	OD (inches)	WP* (PSI)	Weight (lbs/ft)
2	3	2,000	4
3	4	2,000	8
4	5	2,000	10
6	7.3	2,000	12

Ultra High Pressure Shoreflex Oil Suction And Discharge Hose

SPEC 070-1919

Suction & Discharge 500PSI WP



Application:

- Transfer of petroleum products at higher pressures

Hose Construction:

- **Tube:** black oil resistant Buna N
 - **Reinforcement:** multiple plies of synthetic textile high tensile spiral wire same as our choke & kill hose
 - **Cover:** black, oil abrasion and ozone resistant CR+
- Working Temperature -40°F to 250°F
 - Full Vacuum Service
 - Burst pressures in excess of 6,000PSI
 - Available with higher working pressures
 - Alternate liners available HNBR and Viton
 - Max Length: 200 ft.



ID (inches)	OD (inches)	MBR (inches)	WP* (PSI)	TP* (PSI)	Weight (lbs/100 ft)
2.5	4.0	30	500	750	500
3	4.5	30	500	750	600
4	5.5	36	500	750	800
6	7.5	42	500	750	1,000
8	9.5	54	500	750	1,200
10	11.5	60	500	750	1,400

Sea Water Resistant Floater Discharge Hose

SPEC 070-1400

Discharge 200 PSI WP



Application:

- Transfer of petroleum products in areas without port facilities or underwater pipelines – this hose will float when filled with petroleum products having a specific gravity lower than seawater

Hose Construction:

- **Tube:** black oil resistant Buna N, good for 60% aromatic content
 - **Reinforcement:** multiple plies of synthetic cord textile
 - **Cover:** black, oil abrasion and ozone resistant CR+
- Working Temperature -40°F to 250°F
 - 4 to 1 Safety Factor
 - Max Length: 200 ft.



ID (inches)	OD (inches)	WP* (PSI)	TP* (PSI)	Weight (lbs/100 ft)
4	4.75	200	300	325
6	6.75	200	300	550
8	8.75	200	300	675

Oil Suction & Discharge Hose

SPEC 070-1910

Oil Suction and Discharge 200 PSI WP to 300 PSI WP



Application:

- Transfer of petroleum products

Hose Construction:

- **Tube:** black oil resistant Buna N
- **Reinforcement:** multiple plies of synthetic textile high tensile steel helix wire
- **Cover:** black, oil abrasion and ozone resistant CR+
- Working Temperature -40°F to 250°F
- 5 to 1 Safety Factor
- Full Vacuum Service
- Exceeds US Coast Guard Regulations
- Available in higher working pressures: **Spec 070-1911, 250PSI** and **Spec 070-1912, 300PSI**
- Alternate liner materials available upon request
- Max Length: 200 ft.



200 PSI Dock Hose – Full Vacuum Service

ID (inches)	OD (inches)	MBR (inches)	WP* (PSI)	Rate Burst (PSI)	Weight (lbs/ft)
3	3.8	16	200	1,000	2.9
4	4.9	18	200	1,000	4.4
6	7.4	36	200	1,000	7.9
8	9.4	48	200	1,000	13.8
10	11.6	54	200	1,000	20.0
12	13.8	66	200	1,000	26.7

250 PSI Dock Hose – Full Vacuum Service

3	4.0	16	250	1,250	3.0
4	5.0	18	250	1,250	5.0
6	7.5	36	250	1,250	8.0
8	9.5	48	250	1,250	13.9
10	11.8	54	250	1,250	20.2
12	13.9	66	250	1,250	26.8

300 PSI Dock Hose – Full Vacuum Service

3	4.3	16	300	1,500	3.3
4	5.3	18	300	1,500	5.3
6	7.6	36	300	1,500	8.4
8	9.8	48	300	1,500	14.5
10	11.9	54	300	1,500	20.7
12	14.0	68	300	1,500	27.4

Rubber Expansion Joints

Protecting Piping and Equipment Systems from Stress/Motion



- Spool Type-Single Arch-Double Arch
- Spherical Type
- Wide Arch Type
- Concentric Reducer Type
- Eccentric Reducer Type



The benefits of rubber expansion joints:

1

One-Piece Construction

A leakproof tube extends through the bore and forms the outside surfaces of the flanges. Natural or synthetic rubber compounds are used to meet the requirements of the application. Both tube and flange are coated with a special urethane formulation for extra resistance to aging.

2

Longer Service-Higher Pressures

Longer life and higher working pressures result from “double-protected” construction. The tied metal rings and extra plies over the arch prevent usual causes of expansion joint failure.

3

No Gaskets

All expansion joints are supplied with full-face flanges of vulcanized rubber and fabric. This design makes gaskets unnecessary. Large sealing surface permits low bolting pressures and tends to equalize uneven surfaces to provide a tight seal.

4

Resists Exposure

A one-piece rubber cover is especially compounded to provide optimum resistance against aging and exposure. If oil is present in the application, oil-resistant compounds are used for maximum service life.

Advantages Over Metallic Expansion Joints:

- Greater resistance to shock
- Natural recovery from movement
- Both axial and lateral deflection
- No flex-cracking with age
- No electrolysis problem
- Better insulation against vibration and sound
- No gaskets needed
- Requires less space
- Lighter weight
- Easier to install
- Higher working pressures
- Longer service life
- Requires no maintenance

Flexible Corrugated Metal Hose Assembly Metal Expansion Joints High Pressure Expansion Compensators

Monel | Stainless Steel | Bronze | Carbon Steel | Teflon

**Complete Fabricating Facilities
Certified Welders to Assure Quality and Safety of Our Products
Metallic Hoses and Joints Comply with all Governmental Regulations**

Style No. 10
IPT Nipple with Integral Hex

Style No. 11
IPT Nipple with Attached Hex Nut

Style No. 12
IPT Nipple without Hex Nut
(Welding Nipple Also Available)

Style No. 13
IPT Female G.J. Union

Style No. 14
Modified Slip-on Flange

Style No. 15
Weld Neck Flange

Style No. 16
Lap Joint Flange & Stub End



**Corrugated Metal Hose | Interlocking Metal Hose | Vibration Absorbers
Pump Connectors | Teflon Hose | Expansion Joints**

--- • HOSES FABRICATED TO YOUR SPECIFICATIONS • ---

Rubber Lined Fire Hose

SPEC 100-FFH

Underwriters' Label or Factory Mutual Approved



- Factory applied fittings
- Available with any thread required

ID (inches)	TP* (PSI)	Weight (lbs/ 50ft coupled)
1.5	300	Single Jacket 21
2	300	Single Jacket 31
2.5	300	Single Jacket 39
1.5	400	Double Jacket 27
2	400	Double Jacket 38
2.5	400	Double Jacket 47
3	400	Double Jacket 73



100% Synthetic Extruded Cover & Liner (Red Cover)

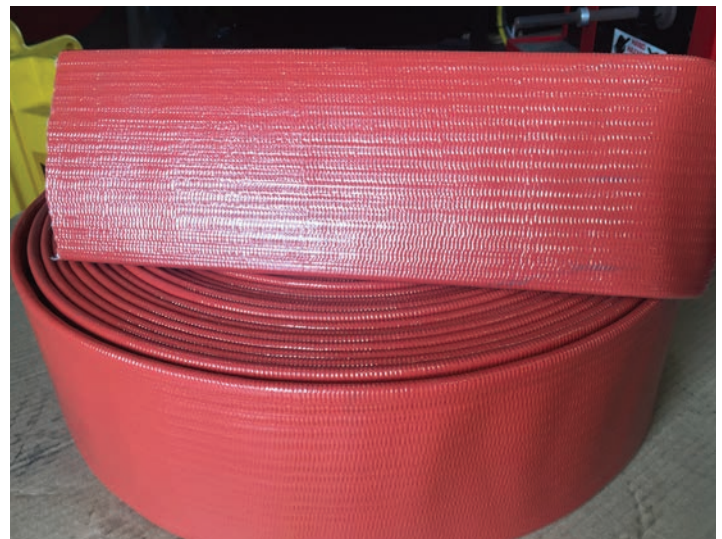
SPEC 200-FFH

Underwriters' Label or Factory Mutual Approved



- One Piece Extruded Cover and Liner

ID (inches)	Coupling Bowl Size	TP * (PSI)	Weight (lbs/ 50ft coupled)
1.5	1.8	500	12
2.0	2.0	500	16
2.5	2.8	500	22
1.5	1.8	600	16
2.0	2.3	600	22
2.5	2.9	600	31
3.0	3.3	600	40



100% Polyester Single Jacket

SPEC 300-FFH

Underwriters' Label or Factory Mutual Approved

- Neoprene Liner
- Extra Heavy Duty Service
- Oil Resistant and Mildew Proof
- Couplings: Expansion Ring Type
- All Kinds of Threads Available

ID (inches)	Coupling Bowl Size	TP* (PSI)	Weight (lbs/ 50ft coupled)
1.5	1.8	600	17
2.0	2.3	600	21
2.5	2.8	600	30



100% Polyester Single Jacket

SPEC 400-FFH

Underwriters' Label or Factory Mutual Approved

- Neoprene Liner
- Oil Resistant and Mildew Proof
- Couplings: Expansion Ring Type
- All Kinds of Threads Available

ID (inches)	Coupling Bowl Size	TP* (PSI)	Weight (lbs/ 50ft coupled)
1.5	1.8	500	15
2.0	2.3	500	20
2.5	2.8	500	27
3.0	3.4	500	37



Hydraulic Lines

Every type hose and hose fittings
Used in the oil field, industrial, and marine industries
Working pressures up to 20,000 PSI
SAE Specifications.



- 1 through 6 spiral wire braids
- Sizes 3/16" ID through 2" ID



All Purpose Air Hose

SPEC 070-300

ID (inches)	OD (inches)	WP* (PSI)	Weight (lbs/ft)
0.38	0.7	300	21
0.50	0.9	300	28
0.75	1.2	300	43
1.00	1.5	300	64
1.25	1.7	300	77
1.50	1.8	300	90
2.00	2.9	500	150
3.00	3.9	500	220
4.00	5.1	500	295



Floating Roof Drain Hose

SPEC 070-1178-VC (Viton Cover)

SPEC 070-1178-BC (Buna "N" Cover)

Roof Drain Hose (Conventional Type Construction)



- 100% aromatic proof-Viton cover-Neoprene tube
- 70% aromatic proof-High grade Buna "N" cover-Neoprene tube
- Stainless steel flexible outer scuff cover available
- Every length tested, serial numbered, and crated before shipment
- Also manufacture stainless steel covered flexible foam lines, for floating roof tanks that withstands over 2000°F
- Hose manufactured with memory lay pattern
- Helix wire to prevent kinking
- Lengths to 200 feet



ID (inches)	OD (inches)	Ply	Approximate weight ballasted (lbs)	TP* (PSI)
3	4.3	4	7	225
4	5.3	4	10	225
6	7.5	4	22	225

OVER
EST. 60 1957
YEARS

Copper State Rubber excels in the manufacture of non-standard rubber hose products, that are not included in catalogs.

We can design and build hoses to your job requirements and specifications.

Couplings

Built-in Nipples

Application:

- Recommended on handmade hose for heavy-duty suction or discharge service

Size Range:

- Steel — 2" to 20" Aluminum — 4" to 12"

Description:

- Steel or aluminum with bands to add extra holding strength

Attachment:

- Nipples are built into hose at time of manufacture



Pressed On Couplings

Application:

- Recommended on all loading/deck hose where a permanent connection is needed

Size Range:

- 1" to 14"

Description:

- Steel or Stainless Steel with machined serrations on nipple and ferrule

Attachment:

- Nipples are permanently pressed on hose at time of assembly



Klaw Marine Break-away Couplings

Size Range:

- 2" to 6"

Construction Material:

- Stainless Steel

End Connections:

- NPT Male, NPT Female, 150# Flanged, 300# Flanged, PN16 Flanged, PN40 Flanged, BSPP Male, BSPP Female, BSPT Male, BSPT Female, Hammer Union Connections (Available as per client requirements)

Sealing:

- Viton, Nitrile, Low Temperature Nitrile, Chemraz, Kalrez, PTFE, EPDM, Isolast (Available as per client requirements)



Couplings

Klaw Dry Break Couplings - Qs

Size Range:

- 1" through 6"

Construction Material:

- Stainless Steel, Aluminium, Brass/Gunmetal

End Connections:

- NPT Male, NPT Female, 150# Flanged, 300# Flanged, PN16 Flanged, PN40 Flanged, BSPP Male, BSPP Female, BSPT Male, BSPT Female. (Available per client requirements)

Sealing:

- Viton, Nitrile, Low Temperature Nitrile, Chemraz, Kalrez, EPDM, Isolast (Available per client requirements)



Safety Break-away Coupling - Breaking Bolt Series from Dixon: Marine Version

Applications:

- Designed to minimize spillage and damage associated with pull-away incidents
- Typical applications include: ship-to-offshore platform and ship-to-ship product transfer operations
- Designed to be installed within a hose string where the coupling will have a length of hose attached to both sides

Features:

- Coupling automatically senses an excessive load, closes the valves and disconnects, release is executed when force causes bolts to break
- Working pressure: 360 PSI at ambient temperature (70°F)
- 316T1 stainless steel body with FKM (FPM) O-rings
- Female NPT is standard, optional ANSI / DIN flanges or male NPT are available



Dry Disconnect Couplings from Dixon

Dry disconnect couplings are designed for the quick and spill free connection and disconnection of hoses and pipelines when transferring expensive hazardous product that is costly to clean up, reprocess or dispose of. Dry disconnects are used by producers of ink, adhesives, fatty acids, pharmaceuticals, liquid soaps, petroleum, chemicals, agricultural and a wide variety of common caustic and specialty acids.

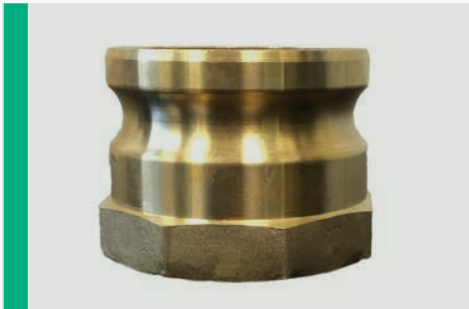


Cam & Groove Couplings

Available in Aluminum, Brass, Cast Iron, Stainless Steel, and Polypropylene

Part A

Male adapters - female thread



Part B

Female couplers - male thread



Part C

Female couplers - hose shank



Part D

Female couplers - female thread



Part E

Male adapters - hose shank



Part F

Male adapters - male thread



Dust Plug

For use with couplers



Dust Cap

For use with adapters
(locking handles available)



RMA Tolerances

Measure uncoupled hose of hose with rubber flanges from end of rubber to end of rubber. Coupled or steel flanged hose assemblies are measured from end of steel to end of steel.

A. Handbuilt Hose: Wire & Nonwire		
Size	ID (inches)	OD (inches)
1"-2"	± 0.031	± 0.062
Over 2"-3½"	± 0.047	± 0.062
Over 3½"-4"	± 0.062	± 0.062
Over 4"-12"	± 0.062	± 0.125
Over 12"	- 0.250	± 0.250
	+ 0.125	± 0.125
	- 0.250	± 0.250

B. Specified Cut Lengths of Hose	
Hose Length	Tolerance (inch)
12" and Under	± 0.125
Over 12"-24"	± 0.188
Over 24"-36"	± 0.250
Over 36"-48"	± 0.375
Over 48-72"	± 0.500
Over 72"	± 1%

C. Wire Reinforced - Made to Order Hose	
Hose Length	Tolerance (inch)
To 5'	± 1
5'-10'	± 2 or -1
10'-25'	± 2
Over 25'	± 1%

Storage Recommendations

Rubber products in storage can be adversely affected by temperature, humidity, ozone, sunlight, oils, solvents, corrosive liquids and fumes, insects, rodents and radioactive materials.

The warehousing area should be relatively cool, dark and free from dampness and mildew. All items should be stored on a first-in, first-out basis, since even under these conditions, an unusual length of shelf life could deteriorate certain products.

The ideal storage temperature for rubber products is 50 to 70°F (10—21.1°C) with a maximum limit of 100°F (58°C). If stored below 32°F (0°C), some products may become stiff and should be warmed before being placed in service. Rubber products should not be stored near sources of heat, such as radiators, base heaters, etc. Nor should they be stored under conditions of high or low humidity.

To protect against the adverse effects of ozone, rubber products should not be stored near electrical equipment that may generate ozone or stored for any lengthy period in geographical areas of known high ozone. Conditions of direct and reflected sunlight should also be avoided.

Whenever feasible, rubber products should be stored in their original shipping containers, especially when such containers are wooden crates or cardboard cartons, since this will provide protection against the deteriorating effects of oils, solvents, and corrosive liquids; and will also afford some protection against ozone and sunlight.

However, after all precautions have been taken it should be noted that hoses have a tendency to shrink during storage.

Hose Bend Radius

The Bend Radius is the radius of the bent section of hose measured to the innermost surface of the curved portion. It is important because the minimum bend radius is the maximum amount a hose can be bent without being kinked or damaged.

General formula to determine bend length:

Angle of Bend

$$360^\circ \times 2 \pi r = \text{minimum length of hose to make bend}$$

**r = given bend radius of average hose
(3/4 foot per each 1" of hose I.D.)**

Example:

To make a 90° bend with a hose with a 6" I.D. - $r = 3/4' \times 6 = 4.5'$

90°

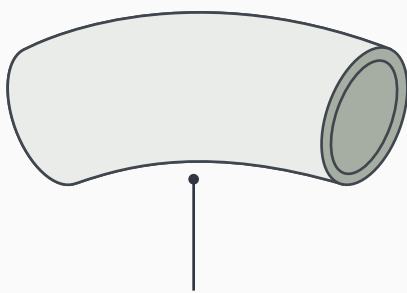
$$\frac{90^\circ}{360^\circ} \times 2 \times 3.14 \times 4.5 =$$

$$0.25 \times 2 \times 3.14 \times 4.5 = 7'$$

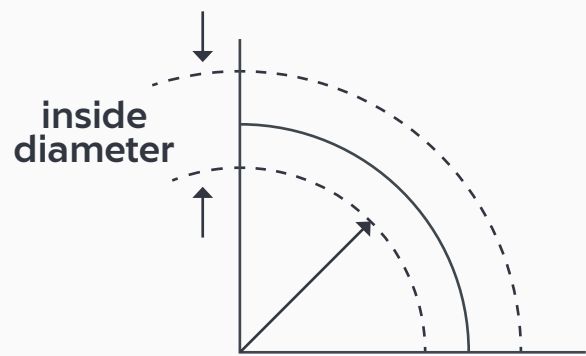
7' then is the minimum length of hose that can be bent without damaging it.

Remember that the bend should take place over the entire minimum length and not a portion of it. In addition, the formula does not mean that 7' will be long enough to meet application needs. It only means that if the 90° bend takes place in less than 7', the hose could be damaged.

However, hose can be constructed to a tighter bend radius to meet your specific needs.



bend radius



bend radius "r"

Resistance Rating

A – Good resistance, usually suitable for service

F – Fair resistance, a 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

Elastomers/Plastics

NR	Natural Rubber	MQ	Dimethyl-polysiloxane
IR	Isoprene, Synthetic	FKM	Fluorocarbon Rubber (Viton)
SBR	Styrene-butadiene	CM	Chloro-polyethylene
CR	Chloroprene	ECO/CO	Epichlorohydrin
NBR	Nitrile-butadiene	XLPE	Cross-linked Polyethylene
HNBR	Hydrogenated Nitrile Butadiene Rubber	PTFE	Polytetrafluoroethylene
IIR	Isobutene-isoprene	PVC	Polyvinyl Chloride
CSM	Chloro-sulfonyl-polyethylene	PA*	Polyamide*
EPDM	Ethylene-propylene-diene copolymer	UHMWPE**	Ultra High Molecular Weight Polyethylene**

Material	NR or IR	SBR	CR	NBR	HNBR	IIR	CSM	EPDM	MQ	FKM	CM	ECO or CO	XLPE	UHMWPE**	PTFE	PVC	PA*
Acetic acid, dilute, 10% glacial	F	C	C	X	F	A	C	A	A	X	A	F	A	A	A	A	X
	C	X	X	F	F	F	C	F	F	X	A	X	A	A	A	X	X
Acetic acid anhydride	C	C	F	X	X	F	A	I	C	X	A	X	A	A	A	X	X
Acetone	A	A	F	A	X	A	F	A	A	X	A	X	A	A	A	X	A
Acetylene	A	A	F	A	X	A	F	A	C	A	I	I	A	A	A	X	
Air 68°F/20°C	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Air 150°F/65°C	A	A	A	A	I	A	A	A	A	A	A	A	A	A	A	F	A
Aluminum chloride 150°F/65°C	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	F	X
Aluminum fluoride 150°F/65°C	A	A	A	A	A	A	A	A	F	A	X	A	A	A	A	X	F
Aluminum sulfate 150°F/65°C	A	A	A	A	I	A	A	A	A	A	A	I	A	A	A	A	F
Alums 150°F/65°C	A	A	A	A	A	A	A	A	A	A	A	I	A	A	A	A	F
Ammonia gas, anhydrous	A	A	A	A	I	A	A	A	A	X	A	I	A	A	A	X	F
Ammonia, 10% water solution 30% water solution	F	F	F	A	I	A	A	A	A	A	I	I	A	A	A	A	A
	F	F	F	A	I	A	F	A	A	A	I	I	A	A	A	F	F
Ammonium chloride	A	A	A	A	A	A	A	A	C	A	A	A	A	A	A	A	F
Ammonium hydroxide	C	F	F	F	I	A	A	A	A	A	A	I	A	A	A	F	A
Ammonium nitrate	A	A	A	A	A	A	A	A	A	A	I	A	A	A	A	F	F
Ammonium phosphate, monobasic dibasic tribasic	A	A	A	A	I	A	A	A	A	A	A	I	A	A	A	F	A
	A	A	A	A	I	A	A	A	A	A	I	I	A	A	A	F	A
	A	A	A	A	I	A	A	A	A	A	I	I	A	A	A		
Ammonium sulfate	A	A	A	A	A	A	A	A	A	A	A	I	A	A	A	A	F
Amyl acetate	F	X	X	X	X	F	X	A	A	X	C	X	A	A	A	X	F
Amyl alcohol	A	A	A	A	F	A	A	A	A	A	A	A	A	A	A	X	F
Aniline, Aniline oil	X	X	C	X	X	A	X	C	C	A	C	X	A	A	A	X	X
Aniline, dyes	F	F	F	F	X	A	F	C	C	F	X	I	I	A	A	X	X
Asphalt	X	X	F	F	I	X	F	X	I	A	F	A	X	A	A	X	A
Barium chloride	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Barium hydroxide	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	F
Barium sulfide	A	A	A	A	A	A	A	A	A	A	I	A	A	A	A	A	X

* A variety of PA types were included in this data. For the specific chemistry and performance characteristics, contact the individual manufacturer.

** UHMWPE molecular weight 4 million minimum.

Material	NR or IR	SBR	CR	NBR	HNBR	IIR	CSM	EPDM	MQ	FKM	CM	ECO or CO	XLPE	UHMWPE**	PTFE	PVC	PA*
Beer	A	A	A	A	I	A	A	A	A	A	I	A	A	A	A	A	A
Beet sugar liquors	A	A	A	A	A	A	A	A	A	A	I	I	A	A	A	A	A
Benezine, Benzol	X	X	X	C	X	X	X	X	C	A	C	X	A	C	A	X	F
Benezine, petroleum ether and					I									F	A	X	A
Benzine, petroleum naphtha	X	X	C	F	I	X	F	X	C	A	I	I	A	F	A	X	A
Black sulfate liquor	A	A	A	A	I	A	A	A	A	F	I	I	A	A	A	C	X
Blast furnace gas	C	C	A	C	X	C	C	C	C	A	I	I	A	A	A	X	A
Borax	A	A	A	A	A	A	A	A	A	A	I	I	A	A	A	A	A
Boric acid	A	A	A	A	A	A	A	A	A	A	I	A	A	A	A	A	F
Bromine	X	X	X	X	X	X	C	X	F	A	C	I	F	X	A	X	X
Butane	X	X	F	A	A	X	A	X	A	A	A	A	A	A	A	X	A
Butyl acetate	C	X	X	X	I	F	X	F	A	X	F	X	A	A	A	X	A
Butyl alcohol, Butanol	A	A	A	A	A	A	A	A	A	A	F	I	A	A	A	X	C
Calcium bisulfate	C	C	A	A	I	F	A	F	C	A	A	I	A	A	A	A	
Calcium chloride	A	A	A	A	A	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	A	A	A	A	A
Calcium hypochlorite	X	X	X	X	F	A	F	A	C	A	A	F	F	A	A	A	X
Caliche liquors	A	A	A	A	A	A	A	A	I	A	F	I	A	A	A	A	A
Cane sugar liquors	A	A	A	A	I	A	A	A	A	A	A	A	A	A	A	A	A
Carbolic acid, phenol	C	C	C	C	X	C	C	A	A	A	A	I	A	A	A	X	X
Carbon dioxide dry/wet	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	I	A
Carbon disulfide	X	X	X	X	I	X	X	X	C	A	C	I	C	C	A	X	C
Carbon monoxide 150°F/65°C	C	C	C	C	A	C	F	C	A	A	I	A	A	A	A	A	C
Carbon tetrachloride	X	X	X	C	F	X	X	X	C	A	C	F	A	C	A	X	X
Castor oil	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Cellosolve acetate	F	F	X	X	X	A	X	A	C	C	X	I	A	A	A	X	F
CFC-12	X	X	A	A	I	F		F	X	A	I	A	I		A	X	F
China wood oil, tung oil	X	X	F	A	A	A	F	A	A	C	I	I	A	A	A	I	F
Chlorine, dry/wet	X	X	X	X	C	X	X	X	X	C	C	X	F	X	A	X	X
Chlorinated Solvents	X	X	X	X	X	X	X	X	C	C	X	I	A	F	A	X	C
Chloroacetic acid	X	C	C	C	X	X	A	I	C	X	X	I	A	A	A	X	X
Chlorosulfonic acid	X	X	C	C	I	X	X	X	C	X	X	I	F	X	A	X	X
Chromic acid	X	X	X	X	X	C	A	I	C	C	A	I	F	C	A	C	C
Citric acid	A	A	A	F	A	A	A	A	A	A	A	A	A	A	A	A	F
Coke oven gas	C	C	C	C	X	C	A	A	A	X	A	X	C	X	A	X	A
Copper Chloride 150°F/65°C	C	A	F	A	A	A	F	A	A	A	A	I	A	A	A	A	X
Copper Sulfate 150°F/65°C	C	A	A	A	A	F	A	A	A	A	A	A	A	A	A	A	A
Corn oil	X	C	F	A	A	A	F	C	A	A	A	A	A	A	A	F	A
Cottonseed oil	X	C	F	A	A	A	F	C	A	A	A	I	A	A	A	F	A
Creosote, coal tar	X	X	F	A	I	X	F	X	C	F	F	X	A	A	A	X	X
wood	X	X	F	A	A	X	C	X	C	A	F	X	A	A	A	X	X
Creosols, cresylic acid	C	X	X	C	A	C	F	X	C	A	F	I	A	F	A	X	X
Dichlorobenzene	X	X	X	X	I	X	X	X	X	A	I	X	X	X	A	X	A
Dichloroethylene	X	X	X	X	I	X	X	X	X	A	X	X	C	C	A	X	C
Diesel fuel	X	X	X	A	A	X	F	X	X	A	A	A	F	F	A	X	A
Diethanolamine 20%	C	X	A	A	I	A	X	A	X	X	I	I	A	A	A	I	A

* A variety of PA types were included in this data. For the specific chemistry and performance characteristics, contact the individual manufacturer.

** UHMWPE molecular weight 4 million minimum.

Material	NR or IR	SBR	CR	NBR	HNBR	IIR	CSM	EPDM	MQ	FKM	CM	ECO or CO	XLPE	UHMWPE**	PTFE	PVC	PA*
Diethylamine	F	F	F	C	I	F	X	F	F	X	I	I	A	A	A	A	I
Dilsopropylamine	F	I	I	F	I	C	I	I	I	I	I	I	A	A	A	I	I
Diocetylphthalate	X	X	X	X	I	F	X	F	X	F	I	F	A	F	A	X	A
Ethers	C	C	C	C	X	C	F	X	C	X	A	I	A	F	A	X	A
Ethyl acetate	F	X	X	X	X	F	X	F	F	X	F	X	A	F	A	X	A
Ethyl alcohol	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	F	F
Ethyl cellulose	F	F	F	F	I	F	F	F	C	X	F	I	A	A	A	X	C
Ethyl chloride	A	F	F	X	A	A	F	A	C	F	F	F	F	C	A	X	A
Ethylene glycol	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Ferric chloride	A	A	A	A	A	A	A	A	A	I	A	A	A	A	A	A	C
Ferric sulfate	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Formaldehyde	A	A	C	A	F	A	A	A	A	A	A	F	A	A	A	F	C
Formic acid	A	A	C	F	I	A	A	A	A	X	A	F	F	A	A	X	X
Fuel oil	X	X	A	A	A	X	F	X	C	A	F	A	A	F	A	F	A
Furfural	X	C	C	X	X	A	F	C	C	X	A	X	A	I	A	X	X
Gasoline unleaded	X	X	X	A	I	X	X	X	I	A	C	A	A	F	A	X	A
Gasoline + MTBE	X	X	X	A	I	X	X	X	C	A	C	A	A	F	A	X	I
HI Test + MTBE	X	X	X	A	I	X	X	X	C	A	C	A	A	F	A	X	I
Gelatin	A	A	A	A	I	A	A	A	A	A	I	A	A	A	A	A	A
Glucose	A	A	A	A	A	A	A	A	A	A	I	A	A	A	A	A	A
Glue	F	F	A	A	I	F	A	A	A	C	I	A	A	A	A		F
Glycerine, glycerol	A	A	A	A	I	A	A	A	A	A	A	A	A	A	A	A	A
Green sulfate liquor	A	A	A	A	I	A	A	A	A	A	A	A	A	A	A	A	X
HFC-134A	F	X	A	A	I	A	F	A	I	X	F	I	A	I	A	I	I
Hydraulic fluids:																	
Petroleum	X	X	A	A	A	X	F	X	I	A	A	A	I	A	A		A
Phosphate ester alkyl	X	X	C	X	I	A	X	A	I	I	A	X	I	I	A	X	A
Phosphate ester aryl	X	X	X	X	I	C	X	C	I	I	C	X	I	I	A	X	A
Phosphate ester blends	X	X	X	X	X	X	X	C	I	I	C	X	I	I	A	X	A
Silicate ester	X	X	C	C	F	X	C	X	I	A	C	C	I	I	A	X	A
Water glycol	A	A	A	A	I	A	A	A	I	A	A	A	I	A	A	X	A
Hydrobromic acid	C	X	C	C	I	A	A	A	C	A	A	I	I	A	A	A	X
Hydrochloric acid	A	X	X	X	I	C	C	C	C	A	A	X	A	A	A	C	X
Hydrocyanic acid	F	F	C	F	F	C	A	C	A	A	X	I	A	A	A	F	X
Hydrofluoric acid	X	X	X	X	I	C	A	C	X	A	A	I	A	F	A	F	X
Hydrofluosilicic acid	A	F	F	F	A	A	A	A	A	A	A	I	I	A	A	C	X
Hydrogen gas	F	F	A	A	I	A	A	A	A	A	C	A	A	A	A	A	A
Hydrogen peroxide	X	X	C	C	F	C	C	C	A	A	A	I	I	C	A	C	C
Hydrogen sulfide, dry	C	C	C	C	X	A	A	A	C	F	X	F	A	A	A	A	X
wet	C	C	C	C	X	A	A	A	C	C	X	F	A	A	A	A	X
Isobutyl alcohol	A	A	A	F	F	A	A	A	A	F	I	I	A	A	A	F	C
Isopropyl alcohol	A	A	A	F	F	A	A	A	A	F	I	A	A	A	A	F	C
Isooctane	X	X	F	A	A	X	A	X	S	A	A	A	A	A	A	A	A
Kerosene	X	X	F	A	A	X	C	X	C	A	A	A	A	F	A	A	A
Lacquers	X	X	X	X	X	C	X	X	I	X	C	X	F	F	A	A	A

* A variety of PA types were included in this data. For the specific chemistry and performance characteristics, contact the individual manufacturer.

** UHMW/PE molecular weight 4 million minimum.

Material	NR or IR	SBR	CR	NBR	HNBR	IIR	CSM	EPDM	MQ	FKM	CM	ECO or CO	XLPE	UHMWPE**	PTFE	PVC	PA*
Lacquers solvents	X	X	X	X	X	C	X	X	I	X	C	X	F	F	A	A	A
Lactic acid	C	C	C	C	I	C	A	C	A	A	X	I	A	A	A	A	C
Linseed oil	C	X	F	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Lubricating oil, crude	X	X	F	A	F	X	C	X	C	A	A	A	A	A	A	A	A
refined	X	X	F	A	F	X	C	X	C	A	A	A	A	A	A	A	A
Magnesium chloride 150°F/65°C	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Magnesium hydroxide 150°F/65°C	A	F	F	F	F	A	A	A	F	A	A	A	A	A	A	A	A
Magnesium sulfate 150°F/65°C	A	A	A	A	I	A	A	A	A	A	A	A	A	A	A	A	A
Mercuric chloride	F	F	C	F	A	A	A	A	A	A	X	A	A	A	A	A	C
Mercury	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Methyl alcohol, methanol	A	A	A	A	A	A	A	A	A	C	A	F	A	A	A	A	F
Methyl chloride	C	C	C	C	X	C	X	C	X	A	C	I	F	C	A	A	X
Methyl ethyl ketone	X	X	X	X	I	F	C	A	C	X	C	X	A	A	A	A	A
Methyl isopropyl ketone	X	X	X	X	I	F	C	C	C	X	F	X	A	A	A	A	A
MTBE	I	I	I	I	I	I	I	I	I	I	I	I	A	I	I	A	I
Milk	C	C	F	F	I	A	A	A	A	A	A	A	A	A	A	A	A
Mineral Oils	X	C	F	A	A	X	F	X	A	A	A	A	A	A	A	A	A
Natural Gas	C	C	A	A	A	C	A	X	C	A	A	A	A	A	A	A	A
Nickel chloride 150°F/65°C	A	A	A	A	A	A	A	A	A	A	A	I	A	A	A	A	A
Nickel sulfate 150°F/65°C	A	A	A	A	A	A	A	A	A	A	A	I	A	A	A	A	A
Nitric acid, crude	X	X	X	X	I	C	C	X	X	C	A	X	F	I	A	X	X
diluted 10%	X	X	C	X	I	C	A	C	C	C	A	X	I	A	A	F	X
concentrated 70%	X	X	X	X	I	C	C	X	X	C	X	X	F	X	A	X	X
Nitrobenzene	X	X	X	X	X	X	X	X	C	F	C	X	A	F	A	X	X
Oleic acid	X	F	C	F	A	F	F	F	A	C	A	A	A	A	A	X	A
Oleum	X	C	C	X	F	I	X	I	I	C	X	X	I	X	A	X	X
Oxalic acid	F	C	F	A	F	A	A	A	A	A	A	F	A	A	A	F	A
Oxygen	F	C	A	A	X	A	A	A	A	A	A	F	A	A	A	A	A
Palmitic acid	X	F	A	A	A	F	F	F	C	A	A	F	A	A	A	C	C
Perchloroethylene	X	X	X	C	F	X	X	X	C	A	C	F	A	C	A	X	X
Petroleum oils and crude	X	X	F	A	I	X	C	X	C	A	C	A	A	X	A	X	X
Phosphoric acid, crude 200°F/95°C	A	C	C	C	I	C	A	C	C	A	A	I	A	A	A	F	
pure 45%	A	C	C	C	I	C	A	C	C	A	A	I	A	A	A	F	C
Piric acid, molten	C	C	C	C	I	C		I	I	A	X	I	I	X	A	X	X
water solution	A	C	F	F	I	A	A	I	A	A	X	I	I	A	A	X	X
Potassium chloride	A	A	A	A	A	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	A	A	A	A	A
Potassium hydroxide	F	F	C	C	I	A	A	A	A	C	A	A	A	A	A	A	C
Potassium sulfate	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Propane	X	X	F	A	A	X	F	X	A	A	A	A	A	A	A	A	A
Sewage	C	C	F	A	A	C	A	C	C	A	I	I	A	A	A	I	I
Soap solutions	A	A	F	A	A	A	A	A	A	A	A	A	A	A	A	A	I
Soda ash, sodium carbonate	A	A	A	A	A	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	A	A	A	A	A
Sodium bisulfate	A	A	A	A	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	A	A	A	A	A
Sodium cyanide	A	A	A	A	I	A	A	A	A	A	A	A	A	A	A	A	A

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 ** UHMWPE molecular weight 4 million minimum.

Material	NR or IR	SBR	CR	NBR	HNBR	IIR	CSM	EPDM	MQ	FKM	CM	ECO or CO	XLPE	UHMWPE**	PTFE	PVC	PA*
Sodium hydroxide	F	F	C	C	F	A	C	A	A	C	A	F	A	A	A	C	C
Sodium hypochlorite	X	X	X	X	F	A	F	A	C	A	A	F	F	C	A	A	C
Sodium metaphosphate	A	A	C	A	A	A	F	A	A	A	A	I	A	A	A	F	A
Sodium nitrate	C	C	C	C	I	A	A	A	C	A	A	A	A	A	A	A	A
Sodium perborate	C	C	C	C	F	A	A	A	A	A	X	I	A	F	A		
Sodium peroxide	C	C	C	C	F	A	A	A	C	A	X	I	A	C	A	X	X
Sodium phosphate, monobasic	A	F	C	F	A	A	A	A	A	A	A	I	A	A	A		
dibasic	A	F	C	F	A	A	A	A	A	A	I	I	A	A	A		
tribasic	A	F	C	F	A	A	A	A	A	A	I	X	A	A	A	X	A
Sodium silicate	A	A	A	A	A	A	A	A	A	A	A	I	A	A	A	A	A
Sodium sulfate	A	A	A	A	X	A	A	A	A	A	A	A	A	A	A	A	
Sodium sulfide	A	A	A	A	I	A	A	A	A	A	A	I	A	A	A	A	C
Sodium thiosulfate, "hypo"	A	A	A	A	I	A	A	A	A	A	A	I	A	A	A	A	
Soybean oil	X	C	F	A	A	A	A	A	A	A	A	A	A	A	A	X	A
Stannic chloride 450°F/230°C	A	A	A	A	A	F	A	F	A	A	A	I	A	A	A	A	C
Stearic acid	X	X	C	F	F	F	C	F	A	I	F	F	A	A	A	F	A
Sulfur	F	F	A	F	X	A	A	A	F	A	A	F	C	A	A	F	A
Sulfur chloride	X	X	C	C	X	X	A	X	C	A	A	I	A		A	X	X
Sulfur dioxide, dry	C	C	C	C	X	C	A	C	A	A	X	I	I	X	A	X	X
Sulfur trioxide, dry	X	C	C	C	X	C	F	C	A	A	I	I	I	X	A	X	X
Sulfuric acid, 10%	A	A	A	A	I	A	A	A	A	A	A	A	A	A	A	F	X
11%-75%	C	C	C	C	I	F	A	C	C	A	A	F	A	A	A	F	X
76%-95%	X	X	X	X	I	C	A	X	X	A	X	X	A	A	A	C	X
fuming	X	X	X	X	I	X	X	X	X	A	X	X	X	X	A	X	X
Sulfurous acid	C	C	C	C	F	C	A	C	C	A	A	C	A	A	A	C	X
Tannic acid	A	C	A	C	A	A	A	A	A	A	A	I	A	A	A	A	A
Tar	X	X	C	C	I	X	C	X	C	F	I	F	X	I	A	I	I
Tartaric acid	A	C	C	C	A	F	A	F	A	A	A	F	A	A	A	A	A
Toluene, Toluol	X	X	X	C	X	X	X	X	C	A	C	X	A	C	A	X	C
Trichloroethylene	X	X	X	X	C	X	X	X	C	A	C	X	A	F	A	X	X
Turpentine	X	X	X	F	A	X	X	X	C	A	F	A	A	F	A	X	A
Urea, water solution	A	I	A	A	I	A	A	A	A	I	I	I	A	A	A	X	A
Vinegar	C	C	C	C	I	A	A	A	A	A	A	I	A	A	A	A	A
Vinyl acetate	X	X	X	X	X	A	X	F	I	A	I	I	I	A	A	X	
Water, acid mine	A	A	C	A	I	A	A	A	A	A	A	I	A	A	A	A	
Water, fresh	A	A	C	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Water, distilled	A	A	C	A	I	A	A	A	A	A	A	A	A	A	A	A	A
Whiskey and wines	A	A	A	C	A	A	A	A	A	A	A	I	A	A	A	X	A
Xylene, xylo	X	X	X	C	X	X	X	X	C	A	X	X	A	C	A	X	A
Zinc chloride	C	C	C	C	A	A	A	A	A	A	A	I	A	A	A	A	A
Zinc sulfate	A	A	A	A	A	A	A	A	A	A	A	I	A	A	A	A	X

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Phoenix Plant

10485 West Roosevelt St.
Avondale, Arizona 85323
P +1 (602) 269-5927
F +1 (602) 269-8106

Houston Office

14141 South Wayside Drive
Houston, Texas 77048
P +1 (713) 644-1491
F +1 (713) 644-9830

copperstaterubber.com | sales@copperstaterubber.com



QUALITY HOSE PRODUCTS
OILFIELD | INDUSTRIAL | MARINE

Made in the USA

+1 (713) 644-1491

copperstaterubber.com | sales@copperstaterubber.com