Tubing

ROYAL BRASS AND HOSE

Bend With Us

Royal Brass & Hose can produce tube assemblies to customers' specifications.

We require a drawing or sample tube.

The result will be a dimensionally accurate tube assembly every time with significant savings.

We offer a variety of material options including stainless, plated, and carbon steels as well as aluminum, copper and brake line. We can end form Flat Face, JIC, SAE 45 double flare, Braze-on, and welded.

Double & Single Flaring Ends are capped for cleanliness

Royal Brass and Hose is your tube assembly specialist!

Combining precises End Forming, CNC Bending and Laser Vector Quality Control we emply the latest technology to ensure your assemblies are within tolerance. If you want just one assembly or a thousand, all will fit, just right, the first time.

Do you want to outfit your equipment with tubing?
Provides us with engineering drawings or XYZ coordinates and we can quickly turn a complete set of assemblies for your prototype.

Do you need assistance with determining the proper tube design or pathway?
Experienced professionals from Royal Brass and Hose will come to your sight and help design a system that meets your performance specifications and budget.

Royal Brass and Hose currently serves the construction, airline ground support, agricultural, forestry, and automotive industries.
We appreciate the opportunity to serve you too!

GENERAL TECHNICAL TUBING INFORMATION

Tube Selection and Sizing

Proper tube material, type and size for a given application and type of fittings is critical for efficient and trouble free operation of the fluid system. Selection of proper tubing involves choosing the right tube material, and determining the optimum tube size(O.D. and wall thickness).

In order to make proper selection, the following information about the fluid system must be gathered first:

Fluid System Parameters

1. Type of fluid
2. Operating temperature range
3. Type of line: pressure, return or suction
4. Maximum operating pressure
5. Maximum flow rate

Selection of tube material depends on the fluid, the operating temperature range and the maximum operating pressure. The tube O.D. and wall thickness selection depends on the last four parameters above and the maximum operating temperature.

STEEL HYDRAULIC TUBING WORKING PRESSURES

NOMINAL TUBE O.D. (IN.)	SEE NOTE^	NOMINAL TUBE WALL THICKNESS (IN.)											
		0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120	0.134	0.148	0.156	0.188
1/8	1	5,600	7,000	–	–	–	–	–	–	–	–	–	–
1/8	2	6,800	9,000	–	–	–	–	–	–	–	–	–	–
1/8	3	6,650	8,450	–	–	–	–	–	–	–	–	–	–
3/16	1	3,750	4,650	–	–	–	–	–	–	–	–	–	–
3/16	2	4,250	5,500	–	–	–	–	–	–	–	–	–	–
3/16	3	4,250	5,450	–	–	–	–	–	–	–	–	–	–
1/4	1	2,800	3,500	4,900	6,500	–	–	–	–	–	–	–	–
1/4	2	3,100	3,950	5,800	8,200	–	–	–	–	–	–	–	–
1/4	3	3,100	3,950	5,750	7,800	–	–	–	–	–	–	–	–
5/16	1	2,250	2,800	3,900	5,200	–	–	–	–	–	–	–	–
5/16	2	2,400	3,100	4,500	6,250	–	–	–	–	–	–	–	–
5/16	3	2,450	3,100	4,500	6,150	–	–	–	–	–	–	–	–
3/8	1	1,850	2,350	3,250	4,350	*5,550	*6,350	–	–	–	–	–	–
3/8	2	2,000	2,500	3,650	5,050	*6,700	*7,950	–	–	–	–	–	–
3/8	3	2,000	2,550	3,650	5,000	*6,550	*7,600	–	–	–	–	–	–
1/2	1	–	1,750	2,450	3,250	4,150	*4,750	*5,450	*6,000	–	–	–	–
1/2	2	–	1,850	2,650	3,650	4,800	*5,600	*6,600	*7,450	–	–	–	–
1/2	3	–	1,850	2,700	3,650	4,800	*5,550	*6,450	*7,200	–	–	–	–
5/8	1	–	1,400	1,950	2,600	3,300	3,800	*4,350	*4,800	–	–	–	–
5/8	2	–	1,450	2,100	2,850	3,700	4,350	*5,050	*5,650	–	–	–	–
5/8	3	–	1,500	2,100	2,850	3,750	4,350	*5,050	*5,600	–	–	–	–
3/4	1	–	1,150	1,650	2,150	2,750	3,150	3,650	*4,000	–	–	–	–
3/4	2	–	1,200	1,700	2,350	3,050	3,500	4,100	*4,600	–	–	–	–
3/4	3	–	1,200	1,750	2,350	3,050	3,550	4,150	*4,600	–	–	–	–
7/8	1	–	1,000	1,400	1,850	2,350	2,700	3,100	*3,400	–	–	–	–
7/8	2	–	1,050	1,450	1,950	2,550	2,950	3,450	*3,850	–	–	–	–
7/8	3	–	1,050	1,500	2,000	2,600	3,000	3,500	*3,900	–	–	–	–
1	1	–	875	1,200	1,600	2,050	2,350	2,700	3,000	*3,350	*3,700	–	–
1	2	–	900	1,250	1,700	2,200	2,550	3,000	3,300	*3,750	*4,200	–	–
1	3	–	900	1,300	1,750	2,250	2,600	3,000	3,350	*3,800	*4,200	–	–
1 1/8	1	–	–	1,100	1,450	1,850	2,100	2,400	2,650	*3,000	*3,300	–	–
1 1/8	2	–	–	1,150	1,500	1,950	2,250	2,650	2,900	*3,300	*3,700	–	–
1 1/8	3	–	–	1,150	1,550	2,000	2,300	2,650	2,950	*3,300	*3,700	–	–
1 1/4	1	–	–	1,000	1,300	1,650	1,900	2,200	2,400	*2,700	*2,950	*3,100	*3,750
1 1/4	2	–	–	1,000	1,350	1,750	2,000	2,350	2,600	*2,950	*3,250	*3,450	*4,250
1 1/4	3	–	–	1,000	1,350	1,750	2,050	2,350	2,650	*2,950	*3,300	*3,500	*4,300
1 1/2	1	–	–	–	1,100	1,400	1,600	1,800	2,000	*2,250	*2,450	*2,600	*3,150
1 1/2	2	–	–	–	1,100	1,450	1,650	1,950	2,150	*2,400	*2,700	*2,850	*3,500
1 1/2	3	–	–	–	1,150	1,450	1,700	1,950	2,150	*2,450	*2,700	*2,850	*3,500
1 3/4	1	–	–	–	925	1,200	1,350	1,550	1,700	*1,900	*2,100	*2,250	*2,700
1 3/4	2	–	–	–	950	1,250	1,400	1,650	1,800	*2,050	*2,250	*2,400	*2,950
1 3/4	3	–	–	–	950	1,250	1,450	1,650	1,850	*2,050	*2,300	*2,400	*2,950
2	1	–	–	–	800	1,050	1,200	1,350	1,500	1,650	*1,850	*1,950	*2,350
2	2	–	–	–	850	1,050	1,250	1,400	1,600	1,750	*1,950	*2,100	*2,550
2	3	–	–	–	850	1,100	1,250	1,450	1,600	1,800	*2,000	*2,100	*2,550
2 1/4	1	–	–	–	*700	*900	*1,050	*1,200	*1,350	*1,500	*1,650	*1,750	*2,100
2 1/4	2	–	–	–	*750	*950	*1,100	*1,250	*1,400	*1,550	*1,750	*1,850	*2,250
2 1/4	3	–	–	–	*750	*950	*1,100	*1,250	*1,400	*1,600	*1,750	*1,850	*2,250

Reference Working Pressures at Approximately 4:1 Design Factor (psi) Steel Hydraulic Tubing SAJ525

^ Pressure values listed opposite numbers 1, 2, and 3 for each tube O.D. were derived from the Barlow, Boardman, and Lamé formulas, respectively, with 12,500 psi allowable stress factor

* Not normally considered suitable for 37° single flaring to SAE J533

TUBING

STEEL

Steel Hydraulic Tubing

STANDARD UPS LENGTH: 20' (2 - 7' pieces), (1 - 6' piece). 20' continuous lengths available.
TEMPERATURE RANGE: -65°F to +500°F.
ADDITIONAL INFORMATION: Packaging charge applicable for 20' motor freight lengths.
Also available in plated steel or different wall thickness.

Tube bending available.
Call for pricing.

SPECIFICATIONS

RB&H #	TUBE O.D. (IN.)	WALL THICKNESS (IN.)
03ST	3/16	.035
04ST	1/4	.035
05ST	5/16	.035
06ST	3/8	.035
06ST-065	3/8	.065
08ST	1/2	.049
08ST-065	1/2	.065
10ST	5/8	.049
12ST	3/4	.065
16ST	1	.065

Meets SAE J525 specifications
Custom bending & assemblies available

Stainless Steel Hydraulic Tubing

TEMPERATURE RANGE: -425°F to +1200°F.
ADDITIONAL INFORMATION: Packaging charge applicable for 20' motor freight lengths.

SPECIFICATIONS

RB&H #	TUBE O.D. (IN.)	WALL THICKNESS (IN.)
06SST	3/8	.035
08SST	1/2	.035
05SST X .028	5/16	.028

Meets ASTM 269 specifications

COPPER

Copper Tubing

SOFT WALL

STANDARD LENGTH: 50'.
APPLICATIONS: Refrigeration.

Tube bending available.
Call for pricing.

SPECIFICATIONS

RB&H #	TUBE O.D. (IN.)
02CTR	1/8
03CTR	3/16
04CTR	1/4
05CTR	5/16
06CTR	3/8
08CTR	1/2
10CTR	5/8
12CTR	3/4

Meets SAE J528 specifications

Nylon Tubing

NT100

COLOR: Black.

APPLICATION:

- Airbrake

FEATURES:

- Meets SAE J844, Type A & B and FM VSS 571.106

SPECIFICATIONS

RB&H #	TUBE O.D. (IN.)	WALL THICKNESS (IN.)
NT10002BK	1/8	.023
NT10004BK	1/4	.040
NT10005BK*	5/16	.040
NT10006BK	3/8	.062
NT10008BK	1/2	.062
NT10010BK	5/8	.092
NT10012BK	3/4	.092

Available in other colors: price, reel quantities and availability upon request

* Must use 1200 series Polyline fittings, see page 328

PT230

MATERIAL: Polymide "Nylon 6/6" semi rigid general purpose.

FEATURES:

- Chemical resistance to ammonia, benzene, essential oils, fats, grease, ketones, and tulene
- Natural compound covered under FDA 121.2502 regulation for food contact

SPECIFICATIONS

RB&H #	TUBE O.D. (IN.)	WALL THICKNESS (IN.)
PT23002NA	1/8	.015
PT23003NA	3/16	.023
PT23004NA	1/4	.030
PT23005NA	5/16	.036
PT23006NA	3/8	.040
PT23008NA	1/2	.062

Available in other colors: price, reel quantities and availability upon request

TUBING

POLYETHYLENE

Polyethylene Tubing

PT240

SPECIFICATIONS

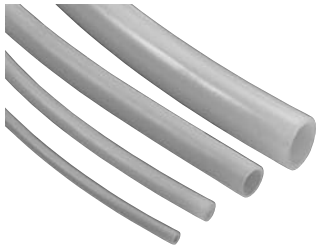
RB&H #	TUBE I.D.	TUBE O.D. (IN.)	WALL THICKNESS (IN.)
PT24004NA	3/16	1/4	.125
PT24005NA	3/16	5/16	.125
PT24006NA	1/4	3/8	.125
PT24008NA	3/8	1/2	.125
PT24010NA	1/2	5/8	.125
PT24012NA	5/8	3/4	.125
PT24016NA	3/4	1	.25

* Must use 1200 series Polyline fittings, see page 328

COLOR: Natural.

FEATURES:

- Economical, flexible, and low density
- Chemical resistance to alkalis, dilute acid, ammonia gas, ammonium hydroxide, brine water, and most aqueous solutions of metallic salts
- Natural compound covered under FDA 121.2502 regulation for food contact



PVC

Clear PVC Tubing

SPECIFICATIONS

RB&H #	TUBE I.D. (IN.)	TUBE O.D. (IN.)	WALL (IN.)	PSI	WEIGHT (LBS./FT.)	LENGTH (FT.)
PT20004NA	1/8	1/4	1/16	68	.021	100
PT20005NA	3/16	5/16	1/16	55	.027	100
PT20006NA	1/4	3/8	1/16	55	.034	100
PT20000NA	1/4	1/2	1/8	70	.083	100
PT20007NA	5/16	7/16	1/16	50	.042	100
PT20008NA	3/8	1/2	1/16	40	.048	100
PT20001NA	3/8	9/16	3/32	50	.078	100
PT20009NA	3/8	5/8	1/8	65	.111	100
PT20010NA	1/2	5/8	1/16	30	.062	100
PT20011NA	1/2	3/4	1/8	45	.139	100
PT20014NA	5/8	7/8	1/8	40	.166	100
PT20016NA	3/4	1	1/8	35	.194	100
PT20020NA	1	1 1/4	1/8	28	.250	100
PT20024NA	1 1/4	1 5/8	3/16	31	.478	50

MATERIAL: Clear PVC - (polyvinyl chloride) soft pliable plasticized PVC resin.

COUPLINGS: Use clamped hose barbs.

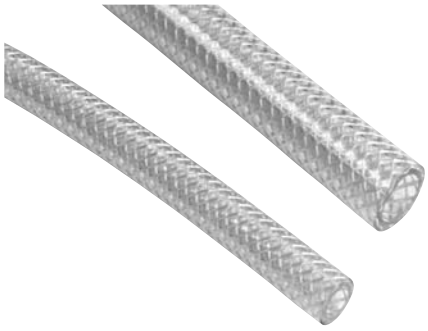
APPLICATIONS:

- Tubing for laboratories
- Water distillation lines
- Deionized water systems
- Air conditioning, Refrigeration, and air line drainage
- Bottling plants
- Beverage dispenser units
- Ice making machines
- Printing press equipment
- High energy efficient furnace drainage
- Transfer of weak chemicals & acids

FEATURES:

- NSF approved
- High quality flexible PVC compound.
- PVC compound meets USP class VI requirements.
- High gloss crystal clear appearance with glass smooth interior to reduce sediment buildup
- Non-toxic blue tint in compliance with FDA** requirements to enhance clarity ***FDA–CFR Title 21 parts 170 to 199
- USDA-Accepted for use in slaughtering, processing, transporting, or storage areas in direct contact with meat or poultry food products prepared under federal inspection
- Self-extinguishing
- Hardness shore “A” 72-75
- Abrasion resistant

Clear-Braided Reinforced Tubing



USDA- Accepted for use in slaughtering, processing, transporting, or storage areas in direct contact with meat or poultry food product prepared under Federal inspection

SPECIFICATIONS

RB&H #	TUBE I.D. (IN.)	TUBE O.D. (IN.)	WALL (IN.)	PSI	WEIGHT (LBS./FT.)	LENGTH (FT.)
PVTL-3/16	3/16	.394	.103	315	.0506	100
PVTL-1/4	1/4	29/64	.102	300	.0603	100
PVTL-5/16	5/16	17/32	3/32	280	.0777	100
PVTL-3/8	3/8	.600	.113	230	.0926	100
PVTL-1/2	1/2	.728	.114	215	.1182	100
PVTL-5/8	5/8	29/32	9/64	200	.1817	100
PVTL-3/4	3/4	1.024	.137	150	.2053	100
PVTL-1	1	1.299	.150	130	.2903	100
PVTL-1-1/4	1 1/4	1.732	.241	110	.6070	100
PVTL-1-1/2	1 1/2	1.929	.215	70	.6212	100
PVTL-2	2	2 1/2	1/4	50	.9502	100

NOTE: Working pressure decreases as temperature increases (pressure ratings can only be obtained with proper coupling procedures.

* Because we continually examine ways to improve our products, we reserve the right to alter specifications without prior notice.

TEMPERATURE RANGE: +25° (-4°C) to 150°F (+65°C).

CONSTRUCTION: Blue tinted cover and tube compounded from Non-toxic PVC ingredients in compliance with applicable FDA** requirements. Reinforced with spiraled polyester yarn and with multiple longitudinal polyester yarn (orange yarn for identification) to reduce elongation under pressure.

COUPLINGS: Use clamped hose barbs.

APPLICATION:

- Pneumatic, air & water, glue, lubrication, air breathing, and vacuum lines (call factory for ratings)
- Deionized water systems
- Packaging Machines
- Potable water transfer lines
- Transfer of powdered foods
- Food & beverage dispensing (Applications where Polyvinyl Chloride is compatible with the media to be conveyed)

FEATURES:

- NSF approved
- Longitudinally reinforced to reduce elongation under pressure
- Non-toxic compounds
- Glass smooth interior
- Crystal clear
- Chemical resistant (see chemical resistance chart)
- Non marking
- Lightweight
- Ozone Resistant
- Self extinguishing

General Specifications

APPLICATION INFORMATION: Meets requirements of DIN Standard 2391, Class C. This tubing is especially well suited for application in hydraulic and pneumatic circuitry where dimensional accuracy and good surface finish are important to the proper attachment of fittings.

WORKABILITY & STRENGTH: Prior to bending, the tubing will exhibit the following properties:

Tensile Strength — 32 - 45 Kp/mm2

Yield — 24 Kp/mm2 minimum

Bending to close radii will tend to reduce wall thickness at the outer bend and consequently reduce recommended operating pressure.

STANDARD LENGTHS: Steel tubes are stocked and shipped in approximately six meter lengths. Tubes of specific cut lengths are available on special order.

CONVERSION FACTORS:

1 millimeter = 0.03937 inch
1 square centimeter = 0.1550 square inch
1 kilogram/square centimeter = 14.22 pounds/square inch
1 kilogram/meter = 0.6720 pounds/foot

SPECIFICATIONS

RB&H #	NOMINAL SIZE O.D. X WALL (IN.)	FLOW CROSS-SECTION (CM^2)	^RECOMMENDED OPERATING PRESSURE (KG/CM^2)
4X0.5MST	4 x 0.5	.071	242
4X1.0MST	4 x 1.0	.031	483
5X1.0MST	5 x 1.0	.071	387
6X1.0MST	6 x 1.0	.130	322
6X1.5MST	6 x 1.5	.071	483
6X2.0MST	6 x 2.0	.031	644
8X1.0MST	8 x 1.0	.28	242
8X1.5MST	8 x 1.5	.20	363
8X2.0MST	8 x 2.0	.13	483
8X2.5MST	8 x 2.5	.071	604
10X1.0MST	10 x 1.0	.50	193
10X1.5MST	10 x 1.5	.38	290
10X2.0MST	10 x 2.0	.28	387
10X2.5MST	10 x 2.5	.20	483
12X1.0MST	12 x 1.0	.79	161
12X1.5MST	12 x 1.5	.64	242
12X2.0MST	12 x 2.0	.50	322
12X2.5MST	12 x 2.5	.38	403
12X3.0MST	12 x 3.0	.28	483
14X1.0MST	14 x 1.0	1.13	138
14X1.5MST	14 x 1.5	.95	207
14X2.0MST	14 x 2.0	.79	276
14X2.5MST	14 x 2.5	.64	345
14X3.0MST	14 x 3.0	.50	414
15X1.0MST	15 x 1.0	1.33	129
15X1.5MST	15 x 1.5	1.13	193
15X2.0MST	15 x 2.0	.95	258
15X2.5MST	15 x 2.5	.79	322
15X3.0MST	15 x 3.0	.64	387
16X1.0MST	16 x 1.0	1.54	121
16X1.5MST	16 x 1.5	1.33	181
16X2.0MST	16 x 2.0	1.13	242
16X2.5MST	16 x 2.5	.95	302
16X3.0MST	16 x 3.0	.79	363
18X1.0MST	18 x 1.0	2.01	107

Metric Steel Tubing

SPECIFICATIONS

RB&H #	NOMINAL SIZE O.D. X WALL (IN.)	FLOW CROSS-SECTION (CM^2)	^RECOMMENDED OPERATING PRESSURE (KG/CM^2)
18X1.5MST	18 x 1.5	1.17	161
18X2.0MST	18 x 2.0	1.54	215
18X2.5MST	18 x 2.5	1.33	269
18X3.0MST	18 x 3.0	1.13	322
20X1.5MST	20 x 1.5	2.27	145
20X2.0MST	20 x 2.0	2.01	193
20X2.5MST	20 x 2.5	1.77	242
20X3.0MST	20 x 3.0	1.54	290
20X3.5MST	20 x 3.5	1.33	338
20X4.0MST	20 x 4.0	1.13	387
22X1.5MST	22 x 1.5	2.84	132
22X2.0MST	22 x 2.0	2.55	176
22X2.5MST	22 x 2.5	2.27	220
22X3.0MST	22 x 3.0	2.01	264
25X2.0MST	25 x 2.0	3.46	155
25X2.5MST	25 x 2.5	3.14	193
25X3.0MST	25 x 3.0	2.84	232
25X3.5MST	25 x 3.5	2.54	349
25X4.0MST	25 x 4.0	2.27	309
25X4.5MST	25 x 4.5	2.01	348
25X5.0MST	25 x 5.0	1.77	387
28X1.5MST	28 x 1.5	4.91	104
28X2.0MST	28 x 2.0	4.52	138
28X3.0MST	28 x 3.0	3.80	207
28X4.0MST	28 x 4.0	3.14	276
30X2.0MST	30 x 2.0	5.31	129
30X2.5MST	30 x 2.5	4.91	161
30X3.0MST	30 x 3.0	4.52	193
30X4.0MST	30 x 4.0	3.80	258
30X5.0MST	30 x 5.0	3.14	322
35X2.0MST	35 x 2.0	7.55	111
35X3.0MST	35 x 3.0	6.61	166
35X4.0MST	35 x 4.0	5.73	221
35X5.0MST	35 x 5.0	4.91	276
38X2.5MST	38 x 2.5	8.55	127
38X3.0MST	38 x 3.0	8.04	153
38X4.0MST	38 x 4.0	7.07	204
38X5.0MST	38 x 5.0	6.16	254
38X7.0MST	38 x 7.0	4.52	459
42X2.0MST	42 x 2.0	11.34	260
42X3.0MST	42 x 3.0	10.13	386
42X4.0MST	42 x 4.0	9.03	566
42X5.0MST	42 x 5.0	8.04	230
50X6.0MST	50 x 6.0	11.34	220

^ Based of 4:1 safety factor

Packaging charge included

Metric Nylon Tubing

TEMPERATURE RANGE: -60°F to +250°F continuous.

APPLICATION:

- Pneumatics
- Hydraulic
- Vacuum
- Gases
- Lubricants
- Oils
- General chemicals
- Machine tool
- Coolant
- Fuel
- Fresh & saltwater

FEATURES:

- Most universal of all thermoplastic tubing
- Lightweight
- Long fatigue life
- Excellent abrasion resistance
- Broad range of corrosion resistance and chemical compatibility
- Low moisture absorption
- Can be used with fuel

SPECIFICATIONS

RB&H #	NOMINAL SIZE O.D. X WALL (IN.)	25°C - 75°F MINIMUM BURST PRESSURE	
		BARS	PSI
MTP16004xx-100	4 x 2.7	75	1,086
MTP16042xx-100	4 x 2	134	1,956
MTP16005xx-100	5 x 3.3	70	1,015
MTP16006xx-100	6 x 4	85	1,233
MTP16085xx-100	8 x 5.5	74	1,074
MTP16008xx-100	8 x 6	58	841
MTP16107xx-100	10 x 7.5	57	827
MTP16010xx-100	10 x 8	42	609
MTP16012xx-100	12 x 10	32	464
MTP16129xx-100	12 x 9	63	914
MTP16014xx-100	14 x 12	27	392
MTP16141xx-100	14 x 11	52	754
MTP16015xx-100	15 x 12	48	696
MTP16016xx-100	16 x 13	44	638
MTP16018xx-100	18 x 14	58	841

NOTE: Sold in 25 meter bags (82')

xx - fill in with color abbreviation needed

COLORS

XX	COLORS AVAILABLE
NA	Natural
BK	Black
BU	Blue
GN	Green
RD	Red
YW	Yellow
OR	Orange
GY	Gray

Metric Polyurethane Tubing

SPECIFICATIONS

RB&H #	NOMINAL SIZE O.D. X WALL (IN.)	MINIMUM BURST PRESSURE @ 75°F	
		BARS	PSI
MTU16004xx-100	4 x 2.5	28	400
MTU16005xx-100	5 x 3	28	400
MTU16006xx-100	6 x 4	28	400
MTU16008xx-100	8 x 6	23	330
MTU16010xx-100	10 x 7	23	330
MTU16012xx-100	12 x 8	23	330

NOTE: Sold in 25 meter bags (82')

xx - fill in with color abbreviation needed

COLORS

XX	COLORS AVAILABLE
NA	Natural
BK	Black
BU	Blue

TEMPERATURE RANGE: -40°F to +180°F.

APPLICATIONS:

- Instrumentation
- Fuel
- Computer devices
- Food processing equipment
- General manufacturing applications
- Automotive
- Machine tools
- General medical applications
- General laboratory use
- Vacuum equipment

FEATURES:

- Most flexible
- Kink resistant
- Excellent abrasion and tearing resistance
- Broad range of chemical resistance
- Toughest
- Excellent oxidation and ozone resistance