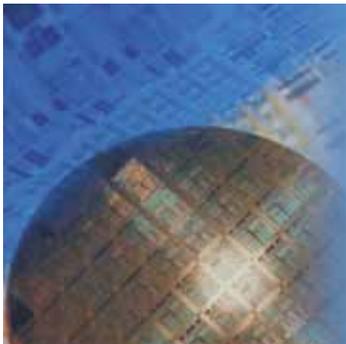


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Flexible Braided Hose, Catalog 5162E



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PARKER/PAGE International is a leading manufacturer of Flexible Fluoroplastic Hose products. As an innovator in the design and production of seamless convoluted hoses and special application assemblies, PARKER/PAGE supplies products to a wide variety of customers around the world. Our experience extends into such diverse markets as chemical manufacturing, pharmaceutical processing, food handling and semiconductor production. From our manufacturing and fabrication facility in Fort Worth, Texas, we offer fluid transport solutions worldwide.

PARKER/PAGE PTFE Hose product materials are compliant with the following requirements:

FDA 21 CFR 177.1550, 177.2600

UPS XXIII Class VI Requirements

European Pharmacopoeia 3.1.9

ISO 10993 Sections 5, 6 10, 11

USDA Standards

3A Standards

WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

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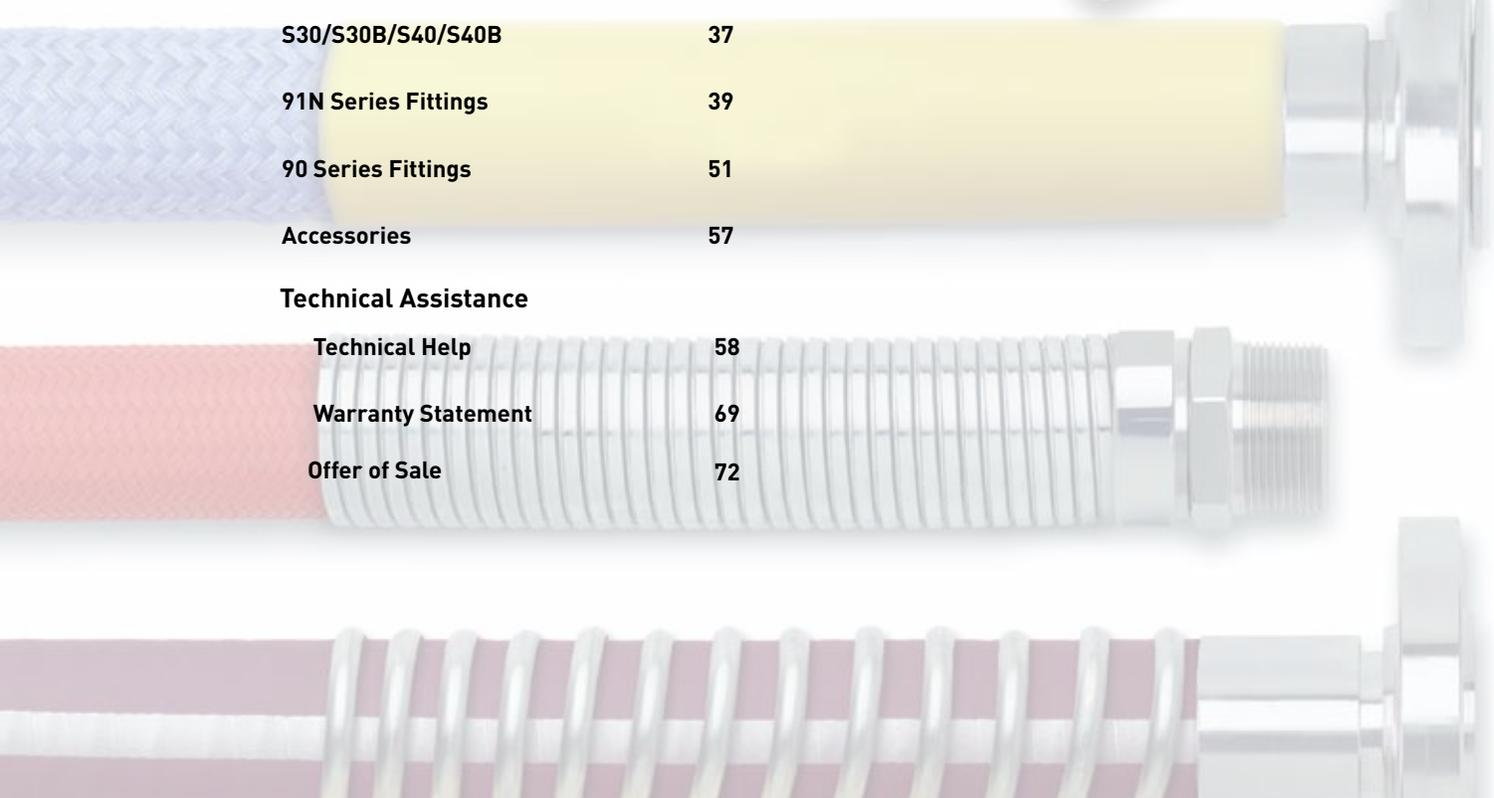


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We Make Hose Solutions

Standard and Custom Designs

Whether you are purchasing a standard, off the shelf hose, or a custom design, PARKER PAGE hoses deliver the ultimate in life, flexibility and integrity. In fact, PARKER PAGE International Hose is known in the hose industry as a leader in the design and development of application specific PTFE hoses. Many of our hose solutions have spawned new product lines, such as PAGE-flex SBF™, offering a smoothbore flexible hose with the same bend radius of a conventional convoluted hose.



Non Conductive & Conductive

Some applications require conductivity of the tube in order to dissipate static build up. PARKER PAGE International offers a full range of smooth bore hoses with non-conductive (natural) and conductive (black) inner core to meet today's most demanding applications. This tubing may be supplied with a fully conductive liner and also, a fully conductive tube.

Fully conductive tubes are available in PTFE and PFA. Industrial grade conductivity conforms to AMS-H-27267, having a minimum conductance of 10-20 micro amps with 1,000 vdc applied over a 14" length. Upon special request an ISO grade conforming to a maximum of a 1 mega ohm resistance over a one meter length when tested in accordance with ISO 8031 is available.

PARKER PAGE HOSES

- Chemical Resistant
- Corrosion Resistant
- Handles High Temperatures
- Non-Adhesive
- Easy Cleaning
- Long Life Expectancy
- Maximum Durability
- FDA & USP Class VI Compliant
- Environmentally Safe (Low Effusion)



PAGE-flex SBF™
1/2 the minimum bend radius of
conventional smoothbore tubing



Specialty braid or braiding
patterns are available



Fire Retardant Sleaving



Custom fittings



True-Bore Hose

PAGE HOSE & FITTINGS



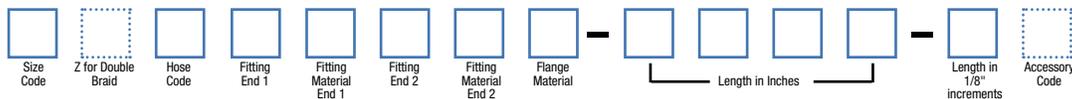
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FLUOROPOLYMER HOSE PRODUCTS

TRUE BORE & CONVOLUTED Part Numbering System



Size Code	
3/16"	03
1/4"	04
5/16"	05
3/8"	06
1/2"	08
5/8"	10
3/4"	12
7/8"	14
1"	16
1-1/4"	20
1-1/2"	24
2"	32
2-1/2"	40
3"	48
4"	64

Hose Code	
ACW	A
CBV	BV
CWV	V
FTHB	FB
FTHN	FN
KCB	RB
KCW	R
NCB	MB
NCW	M
PCB	NB
PCBV	PB
PCW	N
PCWV	P
RCTB	GB
RCTW	G
SBFW	SBF
SCB	TB
SCBV	JB
SCW	T
SCWV	J
STB	SB
STW	S

Fitting Code	
Industrial Thread	
Male Pipe NPT Hex	03
Female Pipe NPT Hex	06
Male Pipe NPT Step Down	13
Male Pipe NPT Step Up	23
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Male Union Step Down	35
JIC Female Swivel	30
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JIC Female Step Up	32
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316 Stainless (SS 316)	6
316 Stainless (SS 15Ra)	E
Electropolished to 15Ra	
Carbon Steel	C
PFA Encapsulated	T
Hastelloy	H
Monel	M

Flange Material	
None	0
Carbon Steel	
Epoxy Coated	D
304SS	4
316SS	6
Kynar	K
Polypropylene	P
Non Standard	X

Accessory Code*	
None	
Spring Guard	S
Armour Guard	A
End Bend Restrictors	E
Fire Sleeve	F
Rubber Sleeve	H
FEP Heat Shrink	T
Polyolefin Heat Shrink	P
Silicone Sleeve	M
Vacuum Spring Wire	W
Specials	X

*See Accessory Section for Details

= Optional

Example: 32J08T17T0-0120-A

Size: 2" **Style:** SCWV

Braid: 316 SS Single Braid

Core: Heavy Wall Open Pitch Convoluted PTFE

End 1: 2" 316 SS PFA Encapsulated Male Cam & Groove

End 2: 2" 316 SS PFA Encapsulated Female Cam & Groove

Length: 120" from end of Male Cam to seat of Female Cam with full length Armour Guard

All ratings based on 72°F (22°C) - All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.



TRUE BORE - SMOOTHBORE PTFE HOSE

With Stainless Steel Braid

True-Bore Hose

PARKER PAGE International TRUE BORE Smoothbore PTFE hose is constructed with an extruded virgin Fluoropolymer (PTFE) inner core reinforced with a tightly woven stainless steel braid. The braid serves a dual purpose, by (a) providing a protective covering and (b) allowing the hose to carry substantial operational pressure while maintaining a 4:1 safety factor.



PARKER PAGE Smoothbore inner core is also available with special outer reinforcement braids. Special metal braids such as Monel®, Hastelloy® and non-metallic braids of Nomex®, KEVLAR®, Kynar®, PEEK™, polyester, and many others can be furnished on request.

STW (Natural) & STB (Conductive)

True Bore Smoothbore PTFE with Stainless Steel Braid

Part Number		Hose I.D.	Hose O.D.	Working Pressure	Minimum Burst Pressure	Vacuum Rating	Minimum Bend Radius	Weight per Foot
Natural	Conductive	Inch (MM)	Inch (MM)	psi @ 72°F (Bars @ 22°C)	psi @ 72°F (Bars @ 22°C)	In. Hg. @ 72°F (kg/sq.cm @ 22°C)	Inch (MM)	Lbs. (Kg/M)
03-STW	03-STB	.125 (3.2)	.250 (6.3)	3000 (207.0)	12000 (828.0)	29.9 (1.0)	1.5 (38.1)	.051 (0.076)
04-STW	04-STB	.250 (6.3)	.370 (9.4)	3000 (207.0)	12000 (828.0)	29.9 (1.0)	3.0 (76.2)	.084 (0.125)
06-STW	06-STB	.375 (9.5)	.510 (13.0)	2000 (138.0)	8000 (552.0)	29.9 (1.0)	5.00 (127.0)	.108 (0.161)
08-STW	08-STB	.500 (12.7)	.630 (16.0)	1750 (120.7)	7000 (483.0)	29.9 (1.0)	6.5 (165.1)	.159 (0.237)
10-STW	10-STB	.625 (15.9)	.760 (19.3)	1500 (103.5)	6000 (414.0)	29.9 (1.0)	7.5 (190.5)	.196 (0.292)
12-STW	12-STB	.750 (19.0)	.880 (22.4)	1000 (69.0)	4000 (276.0)	29.9 (1.0)	8.0 (215.9)	.202 (0.301)
16-STW	16-STB	1.000 (25.4)	1.130 (28.7)	1000 (69.0)	4000 (276.0)	20.0 (0.8)	12.00 (304.8)	.327 (.487)
16Z-STW	16Z-STB	1.000 (25.4)	1.220 (31.0)	1200 (82.7)	4800 (331.0)	20.0 (0.8)	12.00 (304.8)	.557 (.829)
20Z-STW	20Z-STB	1.250 (31.7)	1.410 (35.8)	1000 (69.0)	4000 (276.0)	18.0 (0.6)	14.00 (355.6)	.682 (1.015)
24Z-STW	24Z-STB	1.500 (38.1)	1.730 (43.9)	900 (62.1)	3600 (248.4)	15.0 (0.5)	18.00 (381.0)	.790 (1.176)

NOTE: Temperature Range: -100°F to +450°F (-73°C to +232°C) Z indicates Double Braid
Uses crimp collar ST300

See page 5 for Part Numbering System.

All ratings based on 72°F (22°C) - All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

SEAMLESS CONVOLUTED PTFE HOSE

Standard Wall



PARKER PAGE International designs and manufactures high quality seamless convoluted hoses that are open pitched and self draining. Standard seamless PTFE braided hoses are extremely lightweight, flexible and kink resistant. PARKER PAGE Convoluted Fluoropolymer PTFE hoses are less susceptible to cracking from stress or flexing than metal hoses or other Fluoroplastic hoses when used within designated operating parameters.

PARKER PAGE offers two types of PTFE inner core, natural and conductive (static-dissipative). External hose reinforcements consist of stainless steel, polypropylene and many other metallic and non-metallic braid options including fire sleeve, wire guard and polyolefin heat shrinkable tubing.

**PTFE is Extremely Chemical Resistant
(Non- Corrosive)**

Environmentally Safe - (Low Effusion)

Non-Adhesive

Easy Cleaning

Long Life Expectancy

Maximum Durability

Exceptional tensile strength



PARKER PAGE Hose product materials are compliant with the following requirements: FDA 21 CFR 177.1550, 177.2600 • USP XXII Class VI Requirements • Pharmacopoeia 3.1.9 • ISO 10993 Sections 5, 6, 10, 11 • USDA Standards • 3A Stan-

SEAMLESS CONVOLUTED PTFE HOSE

Standard Wall

SCW (Natural) & SCB (Conductive)

316 Stainless Steel Braid

Part Number		Hose I.D.	Hose O.D.	Working Pressure	Minimum Burst Pressure	Vacuum Rating	Minimum Bend Radius	Weight per Foot
Natural	Conductive	Inch (MM)	Inch (MM)	psi @ 72°F (Bars @ 22°C)	psi @ 72°F (Bars @ 22°C)	In. Hg. @ 72°F (Kg/Sq.CM @ 22°C)	Inch (MM)	Lbs. (Kg/M)
04-SCW	04-SCB	.250 (06.3)	.460 (11.7)	1500 (103.5)	6000 (414.0)	29.9 (1.0)	0.750 (19.0)	.075 (.112)
06-SCW	06-SCB	.375 (09.5)	.540 (13.7)	1500 (103.5)	6000 (414.0)	29.9 (1.0)	1.000 (25.4)	.140 (.208)
08-SCW	08-SCB	.500 (12.7)	.720 (18.3)	1500 (103.5)	6000 (414.0)	29.9 (1.0)	1.500 (38.1)	.156 (.232)
12-SCW	12-SCB	.750 (19.0)	1.020 (25.9)	1200 (82.8)	4800 (331.2)	29.9 (1.0)	2.000 (50.8)	.266 (.396)
16-SCW	16-SCB	1.000 (25.4)	1.310 (33.3)	1000 (69.0)	4000 (276.0)	29.9 (1.0)	2.500 (63.5)	.370 (.551)
20-SCW	20-SCB	1.250 (31.7)	1.730 (43.9)	750 (51.7)	3200 (220.8)	29.9 (1.0)	3.000 (76.2)	.458 (.682)
24-SCW	24-SCB	1.500 (38.1)	1.930 (49.0)	650 (44.8)	2600 (179.4)	29.9 (1.0)	3.750 (95.2)	.545 (.811)
32-SCW	32-SCB	2.000 (50.8)	2.420 (61.5)	450 (31.0)	1800 (124.2)	29.9 (1.0)	4.750 (120.6)	.897 (1.335)

NOTE: Temperature Range: -100°F to +500°F (-73°C to +260°C)
Uses crimp collar SC300

PCW (Natural) & PCB (Conductive)

Polypropylene Braid

Part Number		Hose I.D.	Hose O.D.	Working Pressure	Minimum Burst Pressure	Vacuum Rating	Minimum Bend Radius	Weight per Foot
Natural	Conductive	Inch (MM)	Inch (MM)	psi @ 72°F (Bars @ 22°C)	psi @ 72°F (Bars @ 22°C)	In. Hg. @ 72°F (Kg/Sq.CM @ 22°C)	Inch (MM)	Lbs. (Kg/M)
04-PCW	04-PCB	.250 (06.3)	.550 (13.9)	350 (59.1)	1400 (96.6)	29.9 (1.0)	0.750 (19.0)	.030 (.045)
06-PCW	06-PCB	.375 (09.5)	.640 (16.3)	350 (59.1)	1400 (96.6)	29.9 (1.0)	1.000 (25.4)	.060 (.089)
08-PCW	08-PCB	.500 (12.7)	.820 (20.8)	300 (20.7)	1200 (82.8)	29.9 (1.0)	1.500 (38.1)	.148 (.220)
12-PCW	12-PCB	.750 (19.0)	1.150 (29.2)	250 (17.2)	1000 (69.0)	29.9 (1.0)	2.000 (50.8)	.180 (.268)
16-PCW	16-PCB	1.000 (25.4)	1.500 (38.1)	250 (17.2)	1000 (69.0)	29.9 (1.0)	2.500 (63.5)	.262 (.390)
20-PCW	20-PCB	1.250 (31.7)	1.920 (48.8)	200 (13.8)	800 (55.2)	29.9 (1.0)	3.000 (76.2)	.370 (.551)
24-PCW	24-PCB	1.500 (38.1)	2.120 (53.8)	200 (13.8)	800 (55.2)	29.9 (1.0)	3.750 (95.2)	.420 (.625)
32-PCW	32-PCB	2.000 (50.8)	2.650 (67.3)	200 (13.8)	800 (55.2)	29.9 (1.0)	4.750 (120.6)	.560 (.833)

NOTE: Temperature Range: 0°F to +212°F (-18°C to +100°C)
Uses crimp collar PC300

All ratings based on 72°F (22°C) - All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

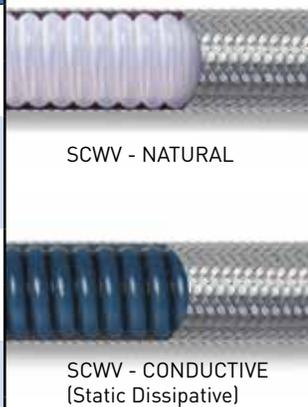
SEAMLESS CONVOLUTED PTFE HOSE ASSEMBLIES

Heavy Wall Open Pitch Vacuum Hose

SCWV (Natural) & SCBV (Conductive)

316 Stainless Steel Braid - Heavy Wall Open Pitch

Part Number		Order I.D.	Hose O.D.	Working Pressure	Minimum Burst Pressure	Vacuum Rating	Minimum Bend Radius	Weight per Foot
Natural	Conductive	Inch (MM)	Inch (MM)	psi @ 72°F (Bars @ 22°C)	psi @ 72°F (Bars @ 22°C)	In. Hg. @ 72°F (Kg/Sq.CM @ 22°C)	Inch (MM)	Lbs. (Kg/M)
08-SCWV	08-SCBV	.500 (12.7)	.720 (18.3)	1500 (103.5)	6000 (441.0)	29.9 (1.0)	2.00 (50.8)	.173 (0.257)
12-SCWV	12-SCBV	.750 (19.0)	1.040 (26.4)	1200 (82.8)	4800 (331.2)	29.9 (1.0)	2.75 (69.8)	.330 (0.491)
16-SCWV	16-SCBV	1.000 (25.4)	1.250 (31.7)	1000 (69.0)	4300 (296.7)	29.9 (1.0)	4.00 (101.6)	.368 (.548)
20-SCWV	20-SCBV	1.250 (31.7)	1.660 (42.2)	750 (51.7)	3200 (220.8)	29.9 (1.0)	5.50 (139.7)	.560 (.833)
24-SCWV	24-SCBV	1.500 (38.1)	1.920 (48.8)	650 (44.8)	2600 (179.4)	29.9 (1.0)	7.00 (177.8)	.641 (.954)
32-SCWV	32-SCBV	2.000 (50.8)	2.490 (63.2)	450 (31.0)	2100 (144.9)	29.9 (1.0)	8.50 (215.9)	.835 (1.243)
40-SCWV	40-SCBV	2.500 (63.5)	3.250 (82.5)	200 (13.8)	800 (55.2)	29.9 (1.0)	12.00 (304.8)	1.520 (2.262)
48-SCWV	48-SCBV	3.000 (76.2)	3.800 (96.5)	175 (12.0)	700 (48.3)	29.9 (1.0)	14.00 (355.6)	1.820 (2.709)
64-SCWV	64-SCBV	4.000 (101.6)	4.760 (120.9)	150 (10.3)	600 (41.4)	29.9 (1.0)	16.00 (406.4)	2.100 (3.125)

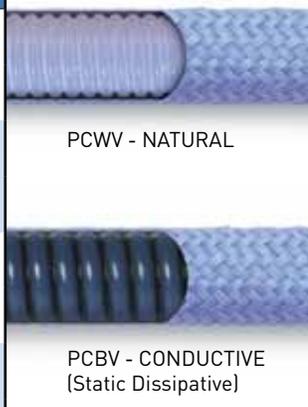


NOTE: Temperature Range: -100°F to +500°F (-73°C to +260°C)
Uses crimp collar SC300

PCWV (Natural) & PCBV (Conductive)

Polypropylene Braid - Heavy Wall Open Pitch

Part Number		Order I.D.	Hose O.D.	Working Pressure	Minimum Burst Pressure	Vacuum Rating	Minimum Bend Radius	Weight per Foot
Natural	Conductive	Inch (MM)	Inch (MM)	psi @ 72°F (Bars @ 22°C)	psi @ 72°F (Bars @ 22°C)	In. Hg. @ 72°F (Kg/Sq.CM @ 22°C)	Inch (MM)	Lbs. (Kg/M)
08-PCWV	08-PCBV	.500 (12.7)	.810 (20.6)	300 (20.7)	1200 (82.8)	29.9 (1.0)	3.00 (76.2)	.136 (.202)
12-PCWV	12-PCBV	.750 (19.0)	1.100 (27.9)	250 (17.2)	1000 (69.0)	29.9 (1.0)	3.50 (88.9)	.215 (.320)
16-PCWV	16-PCBV	1.000 (25.4)	1.440 (35.6)	250 (17.2)	1000 (69.0)	29.9 (1.0)	4.50 (114.3)	.313 (.466)
20-PCWV	20-PCBV	1.250 (31.7)	1.860 (47.2)	200 (13.8)	800 (55.2)	29.9 (1.0)	5.00 (127.0)	.396 (.589)
24-PCWV	24-PCBV	1.500 (38.1)	2.100 (53.3)	200 (13.8)	800 (55.2)	29.9 (1.0)	6.00 (152.4)	.492 (.732)
32-PCWV	32-PCBV	2.000 (50.8)	2.660 (67.6)	200 (13.8)	800 (55.2)	29.9 (1.0)	8.50 (215.9)	.662 (.985)
40-PCWV	40-PCBV	2.500 (63.5)	3.420 (86.9)	150 (10.3)	600 (41.4)	29.9 (1.0)	12.00 (304.8)	1.206 (1.795)
48-PCWV	48-PCBV	3.000 (76.2)	3.920 (99.6)	125 (8.6)	500 (34.5)	29.9 (1.0)	14.00 (355.6)	1.452 (2.161)
64-PCWV	64-PCBV	4.000 (101.6)	4.920 (124.9)	100 (6.9)	400 (27.6)	29.9 (1.0)	16.00 (406.4)	1.678 (2.497)



NOTE: Temperature Range: 0°F to +212°F (-18°C to +100°C)
Uses crimp collar PC300



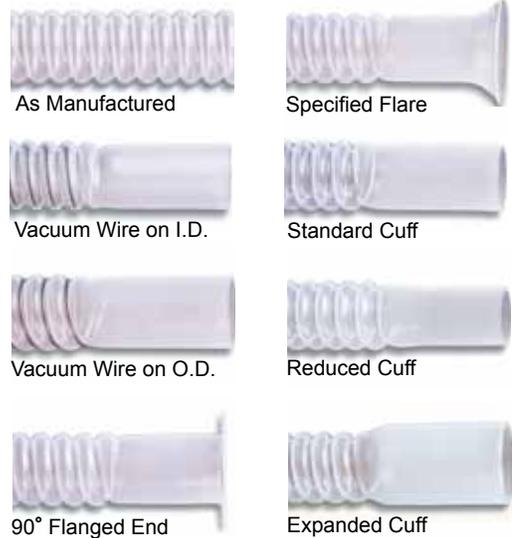
SEAMLESS CONVOLUTED PTFE HOSE ASSEMBLIES Without Braid PTFE - Heavy Wall Open Pitch

LOW PRESSURE VENT AND VACUUM TUBING

PARKER PAGE manufactures high quality PTFE convoluted tubing from thick walled PTFE that is open pitched and self draining. CWV/CBV tubing is manufactured with smooth, rounded, helical-shaped convolutions which help to promote easy cleaning and self draining for ultimate high purity, convoluted tubing.

PARKER PAGE Heavy Wall Open Pitch tubing is offered in natural (non-conductive) or black (conductive-static dissipating). CWV and CBV tube can be provided with standard smooth cuffs, Flare Seal style, flanged or a variety of crimp style end fittings. For vacuum applications at elevated temperatures and for 2.5", 3" and 4" sizes, a vacuum wire is recommended.

PARKER PAGE CWV and CBV is widely used in high temperature and chemical resistant applications for industries such as semiconductor, automotive, chemical, petrochemical and pharmaceutical industries.



All ratings based on 72°F (22°C) - All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

CWV (Natural) & CBV (Conductive)

PTFE - Heavy Wall Convoluted Tubing

Part Number	Order I.D.	Min./Max. Inside Diameter		Maximum Outside Diameter	Working Pressure	Minimum Burst Pressure	Vacuum Rating	Weight per foot	Minimum Bend Radius*
		Inch (MM)	Inch (MM)						
08-CWV (08-CBV)	.500 (12.7)	.454 (11.5)	.466 (11.8)	.700 (17.8)	50 (3.4)	100 (6.9)	29.9 (1.0)	0.087 (0.129)	1.50 (38)
12-CWV (12-CBV)	.750 (19.0)	.683 (17.4)	.701 (17.8)	1.010 (25.7)	50 (3.4)	100 (6.9)	29.9 (1.0)	0.165 (0.246)	1.88 (48)
16-CWV (16-CBV)	1.000 (25.4)	.841 (21.4)	.859 (21.8)	1.510 (30.7)	50 (3.4)	100 (6.9)	29.9 (1.0)	0.184 (0.274)	2.50 (64)
20-CWV (20-CBV)	1.250 (31.7)	1.125 (28.6)	1.145 (29.1)	1.610 (40.9)	40 (2.8)	80 (5.5)	29.9 (1.0)	0.280 (0.417)	3.13 (79)
24-CWV (24-CBV)	1.500 (38.1)	1.420 (36.1)	1.480 (37.6)	1.880 (47.8)	40 (2.8)	80 (5.5)	29.9 (1.0)	0.320 (0.476)	3.75 (95)
32-CWV (32-CBV)	2.000 (50.8)	1.770 (45)	1.830 (46.5)	2.432 (61.8)	30 (2.0)	60 (4.1)	29.9 (1.0)	0.417 (0.621)	4.75 (120)
40-CWV (40-CBV)	2.500 (63.5)	2.460 (62.5)	2.540 (64.5)	3.210 (81.5)	20 (1.4)	40 (2.8)	29.9 (1.0)	0.760 (1.131)	5.00 (127)
48-CWV (48-CBV)	3.000 (76.2)	2.940 (74.7)	3.060 (77.7)	3.750 (95.2)	15 (1.0)	30 (2.0)	29.9 (1.0)	0.910 (1.354)	7.00 (178)
64-CWV (64-CBV)	4.000 (101.6)	3.940 (100)	4.060 (103)	4.750 (121)	10 (0.7)	20 (1.3)	29.9 (1.0)	1.050 (1.563)	9.00 (229)



NOTE: Temperature Range: -100°F to +500°F (-73°C to +260°C)

Uses crimp collar SC300

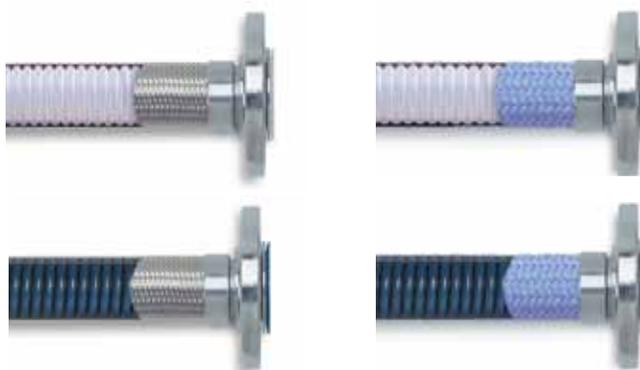
*Bend Radius based on 36" length piece

All ratings based on 72°F (22°C) - All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.



PTFE FLARE-SEAL™ PRODUCTS

Convolute



PARKER PAGE Flare-Seal™ PTFE hose products are designed and manufactured to provide the ultimate in high purity, corrosion/chemical resistance and sanitary applications. PARKER PAGE Flare-Seal™ PTFE hose products are available in convoluted with a stainless steel braid or as polypropylene braided convoluted assemblies. They can be manufactured in natural (non-conductive) or black (conductive-static dissipating) assemblies.

One unique benefit offered by PARKER PAGE Flare-Seal™ hoses is that the PTFE hose liner actually passes through the inside of the fitting and it is then flared over the face of the fitting. This special process is a significant improvement over conventional fitting assembly procedures, where the fitting normally passes through the inside of the liner, creating flow restrictions and bacterial entrapment. PARKER PAGE Flare-Seal™ products solve these problems with the benefit of unrestricted flow leaving no area for bacterial entrapment while providing 100% PTFE coverage on all wetted surfaces. Flare-Seal™ products can be provided with flanged ends or sanitary tri-clamp end connections.



SEAMLESS INNER CORE
UNINTERRUPTED FLOW
EASY TO CLEAN

Flare-Seal

PARKER PAGE Hose product materials are compliant with the following requirements: FDA 21 CFR 177.1550, 177.2600 • USP XXII Class VI Requirements • Pharmacopoeia 3.1.9 • ISO 1093 Sections 5, 6, 10, 11 • USDA Standards • 3A Standards

PTFE FLARE-SEAL™ PRODUCTS

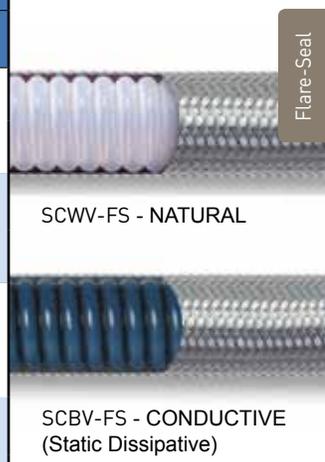
Seamless Convoluted

SCWV-FS (Natural) & SCBV-FS (Conductive)

PTFE Convoluted 316 Stainless Braid with Flare Seal Fitting

Part Number		Order I.D.	Hose O.D.	Working Pressure	Minimum Burst Pressure	Vacuum Rating	Minimum Bend Radius	Weight per Foot
Natural	Conductive	Inch (MM)	Inch (MM)	psi @ 72°F (Bars @ 22°C)	psi @ 72°F (Bars @ 22°C)	In. Hg. @ 72°F (Kg/Sq.CM @ 22°C)	Inch (MM)	Lbs. (Kg/M)
08-SCWV-FS	08-SCBV-FS	.500 (12.7)	.720 (18.3)	500 (34.5)	2000 (137.9)	29.9 (1.0)	2.00 (50.8)	.173 (0.257)
12-SCWV-FS	12-SCBV-FS	.750 (19.0)	1.040 (26.4)	425 (29.3)	1700 (117.2)	29.9 (1.0)	2.75 (69.8)	.330 (0.491)
16-SCWV-FS	16-SCBV-FS	1.000 (25.4)	1.250 (31.7)	350 (24.1)	1400 (96.5)	29.9 (1.0)	4.00 (101.6)	.368 (.548)
20-SCWV-FS	20-SCBV-FS	1.250 (31.7)	1.660 (42.2)	325 (22.4)	1300 (89.6)	29.9 (1.0)	5.50 (139.7)	.560 (.833)
24-SCWV-FS	24-SCBV-FS	1.500 (38.1)	1.920 (48.8)	300 (20.7)	1200 (82.7)	29.9 (1.0)	7.00 (177.8)	.641 (.954)
32-SCWV-FS	32-SCBV-FS	2.000 (50.8)	2.490 (63.2)	250 (17.2)	1000 (69.0)	29.9 (1.0)	8.50 (215.9)	.835 (1.243)
40-SCWV-FS	40-SCBV-FS	2.500 (63.5)	3.250 (82.5)	200 (13.8)	800 (55.2)	29.9 (1.0)	12.00 (304.8)	1.520 (2.262)
48-SCWV-FS	48-SCBV-FS	3.000 (76.2)	3.800 (96.5)	175 (12.0)	700 (48.2)	29.9 (1.0)	14.00 (355.6)	1.820 (2.709)
64-SCWV-FS	64-SCBV-FS	4.000 (101.6)	4.760 (120.6)	150 (10.3)	600 (41.4)	29.9 (1.0)	16.00 (406.4)	2.100 (3.125)

NOTE: Temperature Range: -100°F to +500°F (-73°C to +260°C)



SCWV-FS - NATURAL

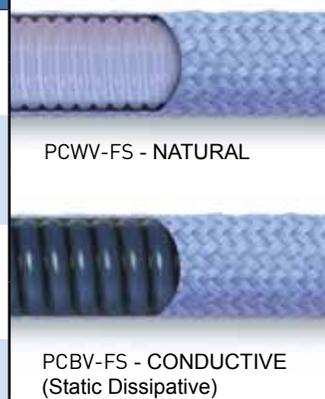
SCBV-FS - CONDUCTIVE (Static Dissipative)

PCWV-FS (Natural) & PCBV-FS (Conductive)

PTFE Convoluted Polypropylene Braid with Flare Seal Fitting

Part Number		Order I.D.	Hose O.D.	Working Pressure	Minimum Burst Pressure	Vacuum Rating	Minimum Bend Radius	Weight per Foot
Natural	Conductive	Inch (MM)	Inch (MM)	psi @ 72°F (Bars @ 22°C)	psi @ 72°F (Bars @ 22°C)	In. Hg. @ 72°F (Kg/Sq.CM @ 22°C)	Inch (MM)	Lbs. (Kg/M)
08-PCWV-FS	08-PCBV-FS	.500 (12.7)	.810 (20.6)	300 (20.7)	1200 (82.8)	29.9 (1.0)	3.00 (76.2)	.136 (0.202)
12-PCWV-FS	12-PCBV-FS	.750 (19.0)	1.100 (27.9)	250 (17.2)	1000 (69.0)	29.9 (1.0)	3.50 (88.9)	.215 (0.320)
16-PCWV-FS	16-PCBV-FS	1.000 (25.4)	1.440 (35.6)	250 (17.2)	1000 (69.0)	29.9 (1.0)	4.50 (114.3)	.313 (.466)
20-PCWV-FS	20-PCBV-FS	1.250 (31.7)	1.860 (47.2)	200 (13.8)	800 (55.2)	29.9 (1.0)	5.00 (127.0)	.396 (.589)
24-PCWV-FS	24-PCBV-FS	1.500 (38.1)	2.100 (53.3)	200 (13.8)	800 (55.2)	29.9 (1.0)	6.00 (152.4)	.492 (.732)
32-PCWV-FS	32-PCBV-FS	2.000 (50.8)	2.660 (67.6)	200 (13.8)	800 (55.2)	29.9 (1.0)	8.50 (215.9)	.662 (.985)
40-PCWV-FS	40-PCBV-FS	2.500 (63.5)	3.420 (86.9)	150 (10.3)	600 (41.4)	29.9 (1.0)	12.00 (304.8)	1.206 (1.795)
48-PCWV-FS	48-PCBV-FS	3.000 (76.2)	3.920 (99.6)	125 (8.6)	500 (34.5)	29.9 (1.0)	14.00 (355.6)	1.452 (2.161)
64-PCWV-FS	64-PCBV-FS	4.000 (101.6)	4.920 (124.9)	100 (6.9)	400 (27.6)	29.9 (1.0)	16.00 (406.4)	1.678 (2.497)

NOTE: Temperature Range: 0°F to +212°F (-18°C to +100°C)



PCWV-FS - NATURAL

PCBV-FS - CONDUCTIVE (Static Dissipative)



PLATINUM CURED SILICONE PRODUCTS

As a compliment to our successful Fluoropolymer and Sanitary Food Grade Hoses, PARKER PAGE has expanded its hose and tubing line to include Platinum Cured Silicone Products. These high quality hoses continue our tradition of total customer satisfaction. PARKER PAGE Fluoropolymer and Platinum Cured hoses meet or exceed the following requirements: FDA 21 CFR 177.1550, 177.2600

UPS XXIII Class VI Requirements

European Pharmacopoeia 3.1.9

ISO 10993 Sections 5, 6 10, 11

USDA Standards

3A Standards

SBP

Platinum Cured Braided Silicone Tubing

Part Number	Tubing I.D.	Tubing O.D.	Working Pressure	Minimum Burst Pressure	Length/ Roll
	Inch (MM)	Inch (MM)	psi @ 68°F (Bars @ 20°C)	psi @ 68°F (Bars @ 20°C)	Feet (Meter)
02-SBP	0.125 (3.2)	0.313 (7.9)	175 (12.1)	700 (48.3)	50 (15.2)
03-SBP	0.188 (4.8)	0.375 (9.5)	170 (11.7)	650 (44.8)	50 (15.2)
04-SBP	0.250 (6.4)	0.500 (12.7)	160 (11.0)	575 (39.6)	50 (15.2)
06-SBP	0.375 (9.5)	0.625 (15.9)	150 (10.3)	550 (37.9)	50 (15.2)
08-SBP	0.500 (12.7)	0.875 (22.2)	140 (9.7)	420 (29.0)	50 (15.2)
10-SBP	0.625 (15.9)	1.000 (25.4)	115 (7.9)	400 (27.6)	50 (15.2)
12-SBP	0.750 (19.1)	1.125 (28.6)	100 (6.9)	350 (24.1)	50 (15.2)
14-SBP	0.875 (22.2)	1.250 (31.8)	100 (6.9)	250 (17.2)	50 (15.2)
16-SBP	1.000 (25.4)	1.405 (35.7)	60 (4.1)	225 (15.5)	50 (15.2)

NOTE: Temperature Range: -80°F to +450°F (-62°C to +232°C)
Uses SIL300 Crimp Collar



Available with Double Braid
Special Order

SWPV

Platinum Cured 4 Ply Silicone Hose with Stainless Steel Wire Helix

Part Number	Hose ID	Hose OD	Working Pressure	Minimum Burst	Vacuum Rating	Minimum Bend Radius	Weight per Foot
	Inch (MM)	Inch (MM)	psi @ 72°F (Bars @ 22°C)	psi @ 72°F (Bars @ 22°C)	In. Hg. @ 72°F (Kg/Sq.CM @ 22°C)	Inch (MM)	Lbs. (Kg/M)
08-SWPV	.500 (12.7)	.900 (22.8)	250 (17.2)	750 (51.7)	29.0 (1.0)	1.50 (38.1)	.266 (0.397)
12-SWPV	.750 (19.0)	1.150 (29.2)	250 (17.2)	750 (51.7)	29.9 (1.0)	2.50 (63.5)	.366 (0.545)
16-SWPV	1.000 (25.4)	1.400 (35.6)	250 (17.2)	750 (51.7)	29.9 (1.0)	3.00 (76.2)	.462 (0.689)
24-SWPV	1.500 (38.1)	1.900 (48.3)	250 (17.2)	750 (51.7)	29.9 (1.0)	4.00 (101.6)	.658 (0.978)
32-SWPV	2.000 (50.8)	2.400 (61.0)	230 (15.8)	700 (48.3)	29.9 (1.0)	5.50 (139.7)	.854 (1.270)

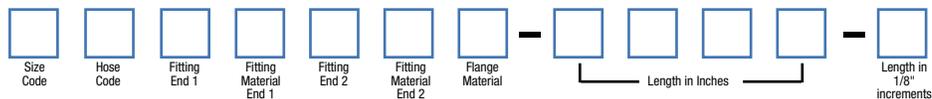
NOTE: Temperature Range: -80°F to +450°F (-62°C to +232°C)
Uses SIL300 Crimp Collar
Sizes 2.5", 3" and 4" are available upon request



All ratings based on 72°F (22°C) - All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

SILICONE TUBING PRODUCTS

Part Numbering System



Size Code	
3/16"	03
1/4"	04
5/16"	05
3/8"	06
1/2"	08
5/8"	10
3/4"	12
7/8"	14
1"	16
1-1/4"	20
1-1/2"	24
2"	32
2-1/2"	40
3"	48
4"	64

Hose Code	
SBP	C
SZBP	ZC
SWPV	E

Fitting Code	
Industrial Thread	
Male Pipe NPT Hex	03
Female Pipe NPT Hex	06
Male Pipe NPT Step Down	13
Male Pipe NPT Step Up	23
Male Union Step Up	34
Male Union Step Down	35
JIC Female Swivel	30
JIC Female Step Up	32
Male Union	33
Female Union	36
Female NPSH	37
Female ORFS Swivel	80
Male ORFS	81
Male O-Ring Boss	86
Flanges	
Flange Retainer	05
Flare-Seal Flange Retainer	29
Cam Lock	
Female Cam Lock	07
With Locking Handles	17
Male Cam Lock	08
Sanitary	
Sanitary Tri Clamp	40
Sanitary Tri Clamp 45°	4K
Sanitary Tri Clamp 90°	4L
Sanitary 1-Step Up	4A
Sanitary 2-Step Up	4B
Sanitary 3-Step Up	4C
Sanitary Flare Seal™	4F
Sanitary Mini	42
Sanitary Mini Step Up	43
I-Line Male	48
I-Line Female	49
Bevel Seat Female	45
Bevel Seat Male	46
Tube and Vacuum	
PAGElok™ Tube Adapter	38
PAGElok™ Tube Compression Fitting	39
Buttweld	
Buttweld for Tube	18
Buttweld for Pipe	19

Fitting Material	
304 Stainless (SS 304)	4
316 Stainless (SS 316)	6
316 Stainless (SS) Electropolished to 15Ra	E
Carbon Steel	C
Teflon Encapsulated	T
Hastelloy	H
Monel	M

Flange Material	
None	0
Carbon Steel	D
Epoxy Coated	
304SS	4
316SS	6
Kynar	K
Polypropylene	P
Non Standard	X

Example: 16E4064L60-0060-4

Size: 1" **Style:** SWPV

Construction: Wrapped Platinum Cured Silicone Hose with SS Vacuum wire

End 1: 1" 316SS Sanitary Tri Clamp Fitting

End 2: 1" 316SS Sanitary Tri Clamp 90° Elbow Fitting

Length: 60-1/2" from end of Straight Tri-Clamp to center line of 90° Elbow Tri-Clamp

All ratings based on 72°F (22°C) - All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

Silicone



SPECIALTY HOSE

PAGE-flex SBF™

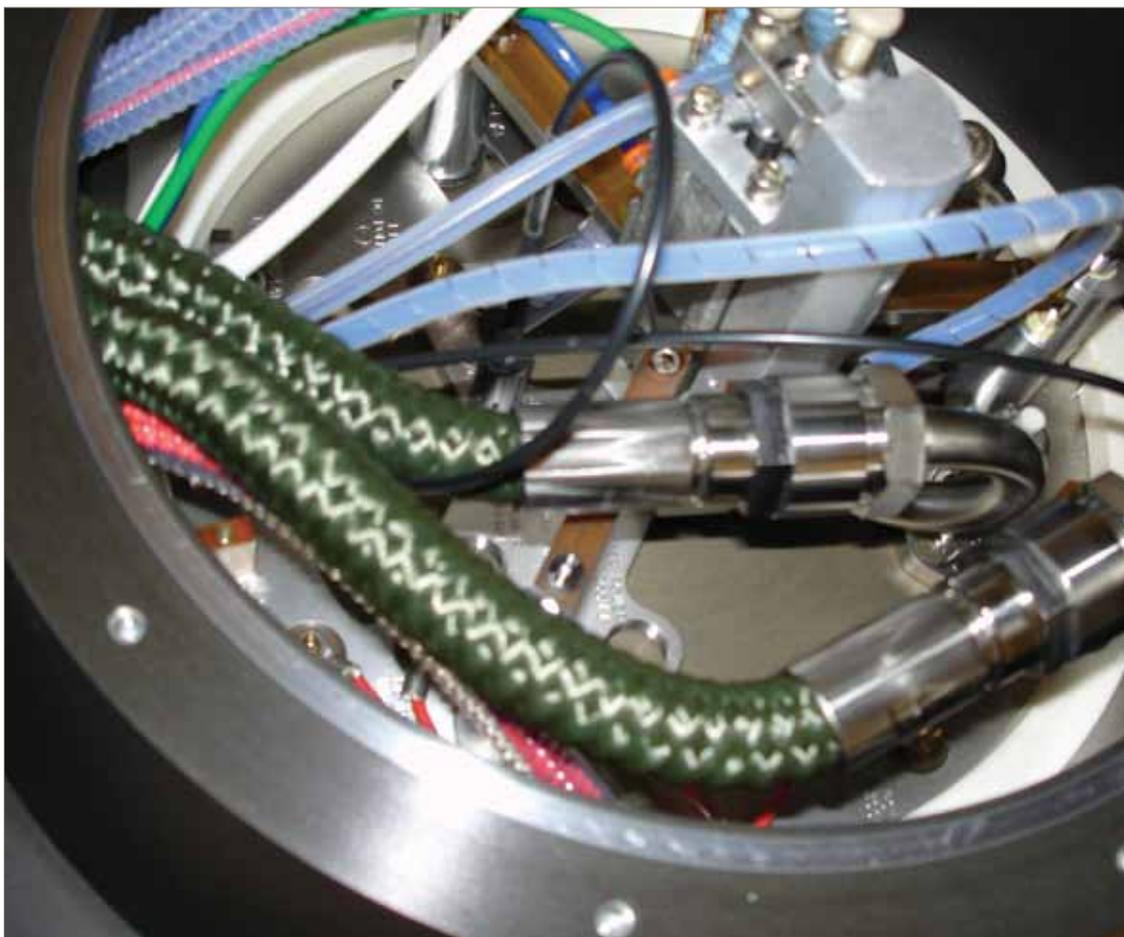
Rubber Covered Hose

Food Transfer Hose

NOMEX Hose

High Pressure Hose

PARKER PAGE is recognized as a world leader in the design and manufacture of custom hoses and fittings. Supreme flexibility, superior bend radius, improved vacuum resistance and increased hose life are just a few of the improvements we have made in our hoses over the last couple of years. As demands in the industry change, so do our products. Our engineers are continually surveying the demands of the market and creating specialty hoses and fittings to ensure our customers success.



Specialty

NOMEX BRAIDED HOSE

Seamless Convoluted PTFE with Nomex Braid

NCW & NCB seamless convoluted PTFE is Nomex braided for extreme light weight, flexibility and kink resistance that operates over a wide temperature range. Nomex braided hoses are light weight alternatives to stainless steel braided products with nearly the same temperature resistance. These hoses have superior flexibility and eliminate RFI issues seen in many applications having stainless steel reinforcements.

Standard non-conductive and optional conductive, static dissipative I.D. are available to the following specifications.



Factory Assemblies Only

NCW (Natural) & NCB (Conductive)

Part Number		Hose I.D.	Hose O.D.	Working Pressure	Minimum Burst Pressure	Vacuum Rating	Minimum Bend Radius	Weight per Foot
Natural	Conductive	Inch (MM)	Inch (MM)	psi @ 72°F (Bars @ 22°C)	psi @ 72°F (Bars @ 22°C)	In. Hg. @ 72°F (Kg/Sq.CM @ 22°C)	Inch (MM)	Lbs. (Kg/M)
04-NCW	04-NCB**	.260 (6.6)	.460 (11.7)	725 (50)	2900 (200)	29.9 (1.0)	1.0 (2.54)	.016 (.024)
06-NCW	06-NCB*	.370 (9.4)	.560 (14.2)	400 (28)	1600 (110)	29.9 (1.0)	1.5 (38.1)	.060 (.089)
08-NCW	08-NCB*	.500 (12.7)	.740 (18.8)	280 (19)	1125 (77.6)	29.9 (1.0)	2.0 (50.8)	.080 (.119)
12-NCW	12-NCB**	.750 (19.1)	1.010 (25.7)	200 (14)	800 (55.0)	29.9 (1.0)	2.5 (63.5)	.140 (.208)
16-NCW	16-NCB**	1.000 (25.4)	1.290 (32.8)	200 (14)	800 (55.0)	20.0 (1.0)	4 (101.6)	.216 (.321)

NOTE: Factory Assemblies Only
 Temperature range: -100°F to +400°F (-73°C to +204°C)

NCW – Available in all sizes.

NCB – * In Stock, ** Available on request.

NOTE 1: NCB Conductive (Static Dissipative) tube I.D. Surface Only.

NOTE 2: NCB Conductive Spec - Must conduct 20 microamps 1000 VDC potential 14” sample.

NOTE 3: Working pressures may vary depending on end connections.

All ratings based on 72°F (22°C) - All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.



PAGE-flex SBF™ HOSE ASSEMBLIES

Smoothbore With Convoluted Hose Flexibility

PAGE-flex SBF™ utilizes a smoothbore PFA tube, a bonded, wire braid - silicone - textile braided composite, giving this product a superior bend radius, kink and vacuum resistance. This proprietary tube technology can then be additionally reinforced with any application specific braid for working pressure and abrasion resistance. The revolutionary design answers our customer's demands for a flexible smoothbore product utilizing the entire PARKER PAGE International Hose line of standard fittings.

PAGE-flex SBF™ Advantages

- Superior Flexibility
- Easily cleaned
- PPIH full line of optional reinforcement types
- Standard - Stainless Steel reinforced
- -65°F to +325°F operating temperature range (dependent on reinforcement type)
- Cooler outside temperatures reduces operator burns
- Reduces environment temperatures in confined areas
- Excellent for food and chemical transfer applications



1/2 the minimum bend radius of conventional smoothbore products

PAGE-flex SBF™ is available in true bore sizes $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ ", 1" and 1 $\frac{1}{2}$ " with the complete line of standard PPIH crimp style fittings.

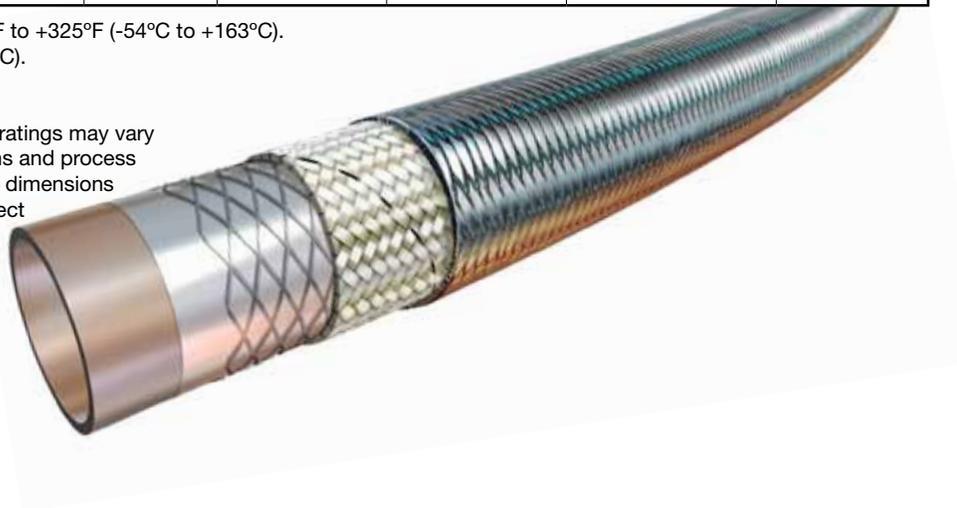
All ratings based on 72°F (22°C) - All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

SBFW - Non-Conductive
SBFB - Conductive - Special Order Only

Part Number		Hose I.D.	Hose O.D.	Working Pressure	Minimum Burst Pressure	Vacuum Rating	Minimum Bend Radius
Non Conductive	Conductive	Inch (MM)	Inch (MM)	psi @ 72°F (Bars @ 22°C)	psi @ 72°F (Bars @ 22°C)	In. Hg. @ 72°F (Kg/Sq.CM @ 22°C)	Inches (MM)
06-SBFW	06-SBFB	0.375 (9.52)	0.625 (15.9)	300 (20.7)	1200 (82.7)	29.9 (1.0)	2.00 (50.8)
08-SBFW	08-SBFB	0.500 (12.7)	0.755 (19.2)	300 (20.7)	1200 (82.7)	29.9 (1.0)	2.50 (63.5)
12-SBFW	12-SBFB	0.750 (19.0)	1.040 (26.4)	250 (17.2)	1000 (69)	29.9 (1.0)	3.00 (76.2)
16-SBFW	16-SBFB	1.000 (25.4)	1.290 (32.8)	250 (17.2)	1000 (69)	29.9 (1.0)	4.00 (101.6)
24-SBFW	24-SBFB	1.500 (38.1)	1.850 (47.0)	200 (13.8)	800 (55.2)	29.9 (1.0)	7.00 (177.8)

NOTE: Temperature range: -65°F to +325°F (-54°C to +163°C).
 All ratings based upon 72°F (22°C).
 Supplied as assemblies only

Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters. All dimensions nominal. Specifications are subject to change without notice.



Specialty

**Non-Conductive Inner Tubing or Additional Braiding
 Materials Available via Special Order**

All ratings based on 72°F (22°C) - All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.



PAGE 944B/955B HIGH PRESSURE PTFE HOSE

Handles Pressures up to 5,500 psi

Hydraulic systems seem to get more and more demanding each day. Operating temperatures are on the rise. Synthetic hydraulic fluids are more in demand and space is becoming more limited. Requirements are for hose assemblies designed to endure all of these conditions, yet handle high working pressures while maintaining peak flow rates. PARKER PAGE 944B/955B High PSI hose assemblies answer the challenge, delivering quality performance under these demanding circumstances.

PARKER PAGE 944B/955B High PSI assemblies have a heavy wall of PTFE that has excellent compatibility with a variety of media. The PTFE tube has a static dissipating liner that provides a path of continuity to the end fittings for applications where flow induced electrostatic charges could occur and potentially damage the hose assembly. The resilient PTFE tube is reinforced with braided SS 304 wire. Braiding, as opposed to spiraling, allows for better flexibility and a tighter bend radius in the finished hose while maintaining high continuous working pressures. The stainless steel wire braid also minimizes volumetric expansion in hydraulic service.



Product Features:

- Up to 5,500 psi for non-impulse applications
- Static dissipating liner
- Excellent compatibility with a variety of media
- Chemically inert
- Up to 6 layers of reinforcement
- Better flexibility than spiral hose
- Tighter bend radius than spiral hose

All ratings based on 72°F (22°C) - All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

944B – up to 4,500 PSI W.P. High Temp Hose



Features

- High temperature hydraulic hose
- Excellent chemical compatibility
- Resists moisture
- Low friction minimizes pressure drops and deposits

Applications/Markets

- General hydraulics
- Chemical transfer
- Compressed air/gases
- Paint stripping

Part Number	Nominal I.D.		Maximum O.D.		Maximum Working Pressure 73°F/ 23°C		Minimum Bend Radius		Vac. Rating Hg./73°F	Weight	
	inch	mm	inch	mm	psi	MPa	inch	mm		lbs./ft.	kg./mtr.
#											
944B-4	15/64	6	.39	10	4,500	31.0	1.50	38	28	.11	.16
944B-6	5/16	8	.49	12	4,500	31.0	2.50	64	28	.17	.24
944B-8	7/16	11	.62	16	4,500	31.0	2.88	73	28	.25	.35
944B-10	1/2	13	.73	19	4,000	27.5	3.25	83	28	.31	.45
944B-12	5/8	16	.99	25	4,000	27.5	4.00	102	28	.74	1.05
944B-16	29/32	23	1.25	32	4,000	27.5	5.00	127	28	1.09	1.55

Both products available in assemblies with carbon or stainless steel female JIC fittings

Construction

Tube: Black static-dissipative PTFE
 Reinforcement: Multiple high density braids of 304 Stainless Steel

Operating Parameters

Temperature Range: -65°F to +400°F (-54°C to +204°C)
 Change in length at working pressure is +2% to -2%
 Burst Pressure 3x Max. Working Pressure at 73°F (23°C)

Reduce working for impulse applications to:

- 944B = 3000 psi wp
- 955B = 4000 psi wp

Fittings

944 Factory-made assemblies only
 94 Series

955 Factory-made assemblies only
 95 Series

Notes

Factory-made assemblies only
 Not suggested for steam-cold water cycling applications
 Proof pressure @ 50% of minimum burst pressure

955B – 5,500 PSI W.P. High Temp Hose



Features

- High temperature hydraulic hose
- Excellent chemical compatibility
- Resists moisture
- Low friction minimizes pressure drops and deposits

Applications/Markets

- General hydraulics
- Chemical transfer
- Compressed air/gases

Part Number	Nominal I.D.		Maximum O.D.		Maximum Working Pressure 73°F/ 23°C		Minimum Bend Radius		Vac. Rating Hg./73°F	Weight	
	inch	mm	inch	mm	psi	MPa	inch	mm		lbs./ft.	kg./mtr.
#											
955B-4	15/64	6	.50	13	5,500	37.9	3.00	76	28	.23	.34
955B-6	5/16	8	.62	16	5,500	37.9	5.00	127	28	.24	.35
955B-8	7/16	11	.75	19	5,500	37.9	5.75	146	28	.46	.68
955B-10	1/2	13	.91	23	5,500	37.9	6.50	165	28	.91	1.34
955B-12	5/8	16	1.08	27	5,500	37.9	7.75	197	28	.92	1.36
955B-16	29/32	23	1.36	34	5,500	37.9	9.63	245	14	1.20	1.77

All ratings based on 72°F (22°C) - All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.



RUBBER COVERED FLUOROPOLYMER

Smoothbore with EPDM Rubber Cover



PARKER PAGE International Rubber Covered Fluoropolymer hoses consist of an inner tube reinforced with multi-layered rubber, polyester cord and double helix wire for support. PARKER PAGE hose can be grounded via it's internal helical wires and is available with a natural fluoropolymer or a conductive black static dissipative fluoropolymer inner core for applications where electrostatic dissipation is required. The wire helix supports full vacuum service in all areas.

STANDARD COLORS

Purple w/Silver Stripe.....1/2" - 4"
 Conductive I.D. - Purple w/Yellow Stripe....1/2" - 2"

Custom Colors available upon request

RCTW (Natural)

RCTB (Conductive) **Special Order Only**

Part Number		Hose I.D.	Hose O.D.	Working Pressure	Minimum Burst Pressure	Vacuum Rating	Minimum Bend Radius	Weight
Natural	Conductive	Inch (MM)	Inch (MM)	psi 72°F (Bars @ 22°C)	psi @ 72°F (Bars @ 22°C)	In. Hg. @ 72°F (Kg/Sq.CM @ 22°C)	Inch (MM)	Lbs./Ft. (Kg/M)
08-RCTW	08-RCTB	0.500 (12.7)	0.950 (24.1)	500 (34.5)	2000 (138.0)	29.9 (1.0)	2.50 (63.5)	0.360 (0.535)
12-RCTW	12-RCTB	0.750 (19.0)	1.250 (31.7)	500 (34.5)	2000 (138.0)	29.9 (1.0)	3.00 (76.2)	0.550 (0.819)
16-RCTW	16-RCTB	1.000 (25.4)	1.530 (38.8)	450 (31.0)	1800 (124.2)	29.9 (1.0)	4.00 (101.6)	0.600 (0.892)
20-RCTW	20-RCTB	1.250 (31.7)	1.740 (44.2)	375 (25.9)	1500 (103.5)	29.9 (1.0)	7.00 (177.8)	0.930 (1.384)
24-RCTW	24-RCTB	1.500 (38.1)	2.130 (54.1)	375 (25.9)	1500 (103.5)	29.9 (1.0)	9.00 (228.6)	1.080 (1.607)
32-RCTW	32-RCTB	2.000 (50.8)	2.680 (68.0)	300 (20.7)	1200 (82.7)	29.9 (1.0)	10.50 (266.7)	1.330 (1.979)
40-RCTW	40-RCTB	2.500 (63.5)	3.300 (83.8)	200 (13.8)	1000 (69.0)	29.9 (1.0)	15.00 (381.0)	1.680 (2.500)
48-RCTW	48-RCTB	3.000 (76.2)	3.880 (98.6)	200 (13.8)	1000 (69.0)	29.9 (1.0)	18.00 (457.2)	2.020 (3.006)
64-RCTW	64-RCTB	4.000 (101.6)	4.980 (126.5)	150 (10.3)	750 (51.7)	29.9 (1.0)	22.5 (571.5)	2.830 (4.211)

NOTE: Temperature range: -40°F to +300°F (-40°C to +149°C). Decrease working pressure one percent for every 2°F above 212°F.
 Uses crimp collar RC300
 Natural has a FEP inner core; Conductive has a PFA inner core and is a **special order product**.

See chemical resistance chart or contact PARKER PAGE International Sales for specific material compatibility

Operating pressures shown are for non-impulse service. Reduce operating pressures by 1,000 PSI for pump discharge and similar impulse service applications.

High temperature burst pressure (@400°F) = minimum burst psi @ 72°F x .75



PARKER PAGE Hose product materials are compliant with the following requirements: FDA 21 CFR 177.1550, 177.2600 • USP XXII Class VI Requirements • Pharmacopoeia 3.1.9 • ISO 1093 Sections 5, 6, 10, 11 • USDA Standards • 3A Standards

CRIMP FITTINGS

Two Piece 316 Stainless Steel

Works on the following hose types

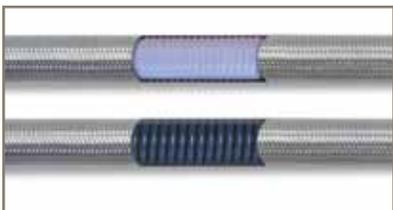


Smooth True Bore

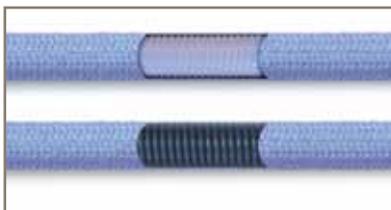


Rubber Covered
Fluoropolymer

The Part # Column for PAGE Crimp Fittings indicates material type. Where applicable, "B" indicates Brass and "C" indicates Carbon Steel and "S" indicates Stainless Steel. For detailed ordering information, contact PARKER PAGE Int'l Hose.



Convoluted SS Braid



Convoluted
Non-Metallic Braid



Silicone Hose & Tubing

Sanitary Fittings

SAN-S - Sanitary Tri Clamp

316 Stainless Steel

Dash Number	Part Number	Dash Number	Part Number
-08	08-08SAN-S	-32	32-32SAN-S
-12	12-12SAN-S	-40	40-40SAN-S
-16	16-16SAN-S	-48	48-48SAN-S
-24	24-24SAN-S	-64	64-64SAN-S



CRIMP FITTINGS

Sanitary

SAN-S - Sanitary Tri Clamp Step Up

316 Stainless Steel

Dash Number	Part Number	Dash Number	Part Number
-06	06-24SAN-S	-24	20-24SAN-S
-08	08-16SAN-S	-24	24-32SAN-S
-08	08-24SAN-S	-32	32-40SAN-S
-12	12-24SAN-S	-40	40-48SAN-S
-16	16-24SAN-S	-48	48-64SAN-S



MSAN-S - Mini - Sanitary Fittings

316 Stainless Steel



Dash Number	Part Number	Dash Number	Part Number
-04	04-04MSAN-S	-08	08-08MSAN-S
-04	04-08MSAN-S	-08	08-12MSAN-S
-06	06-06MSAN-S	-12	12-12MSAN-S
-06	06-08MSAN-S	-16	16-12MSAN-S
-06	06-12MSAN-S		

CRIMP FITTINGS

Sanitary

FBS-S Female Bevel Seat Sanitary



316 Stainless Steel

Part Number
16-16FBS-S
24-24FBS-S
32-32FBS-S
40-40FBS-S
48-48FBS-S
64-64FBS-S

MBS-S Male Bevel Seat Sanitary



316 Stainless Steel

Part Number
16-16MBS-S
24-24MBS-S
32-32MBS-S
40-40MBS-S
48-48MBS-S
64-64MBS-S

FIL-S Female I-Line Sanitary



316 Stainless Steel

Part Number
16-24FIL-S
24-32FIL-S
32-32FIL-S
40-40FIL-S
48-48FIL-S

MIL-S Male I-Line Sanitary



316 Stainless Steel

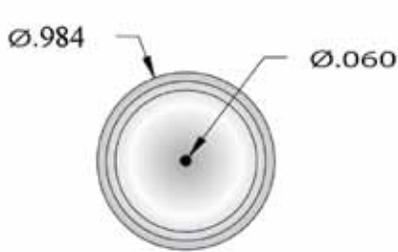
Part Number
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24-32MIL-S
32-32MIL-S
40-40MIL-S
48-48MIL-S

CRIMP FITTINGS

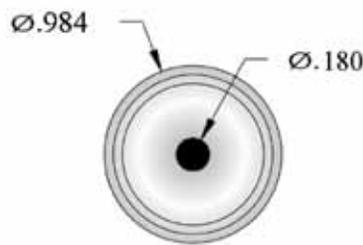
Sanitary

Typical Dimensions for Sanitary Fittings

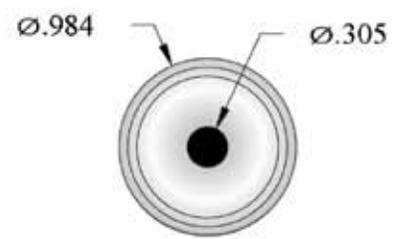
These actual size drawings are provided to eliminate sizing errors when specifying sanitary fittings. The outside diameter is the same for 1/8", 1/4", 3/8", 1/2" and the 3/4" (mini) styles. For your convenience and ordering accuracy, all of these drawings may be used as sizing, I.D. and O.D. patterns. These fittings are ASME-BPE compliant.



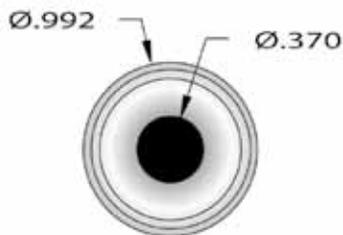
1/8" MINI T.C.



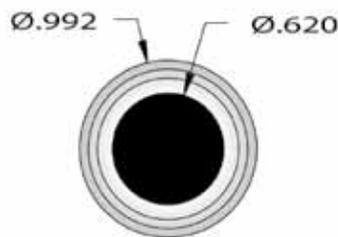
1/4" MINI T.C.



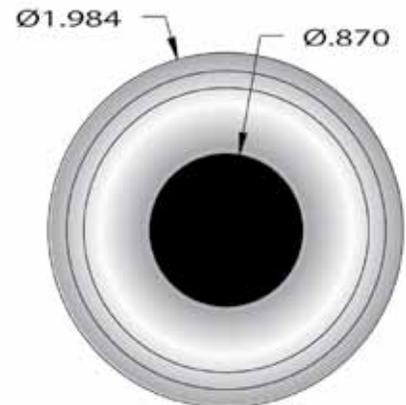
3/8" MINI T.C.



1/2" MINI T.C.



3/4" MINI T.C.



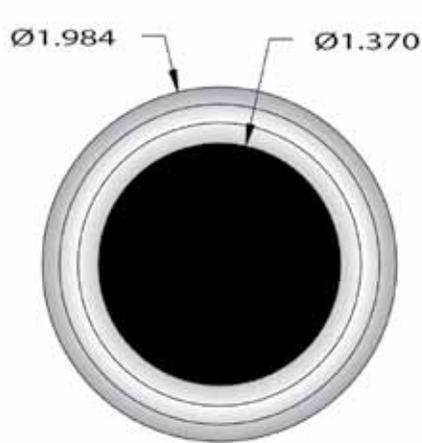
1" T.C.

PAGE Fittings

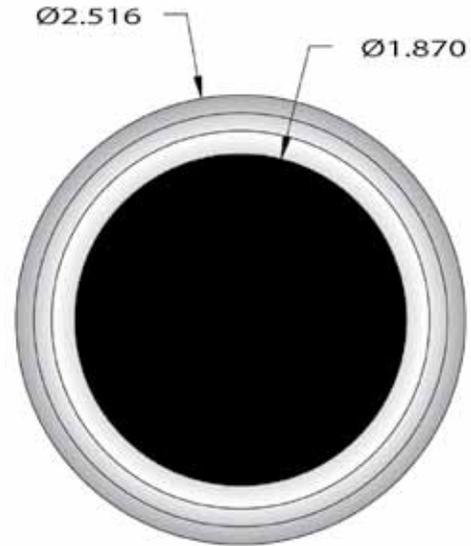
CRIMP FITTINGS

Sanitary

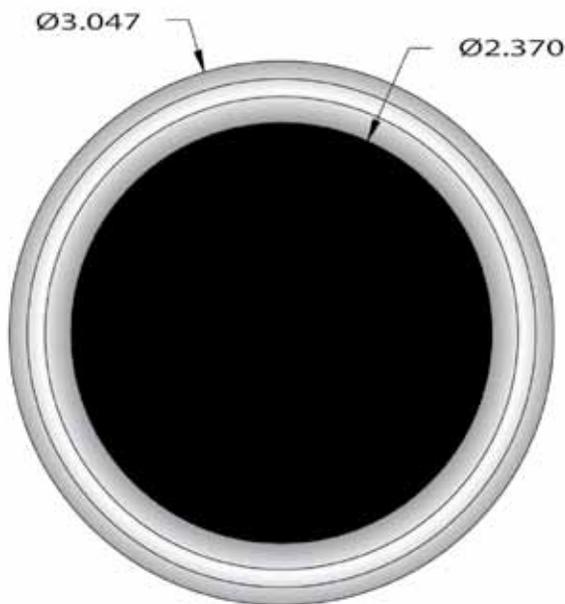
Typical Dimensions for Sanitary Fittings



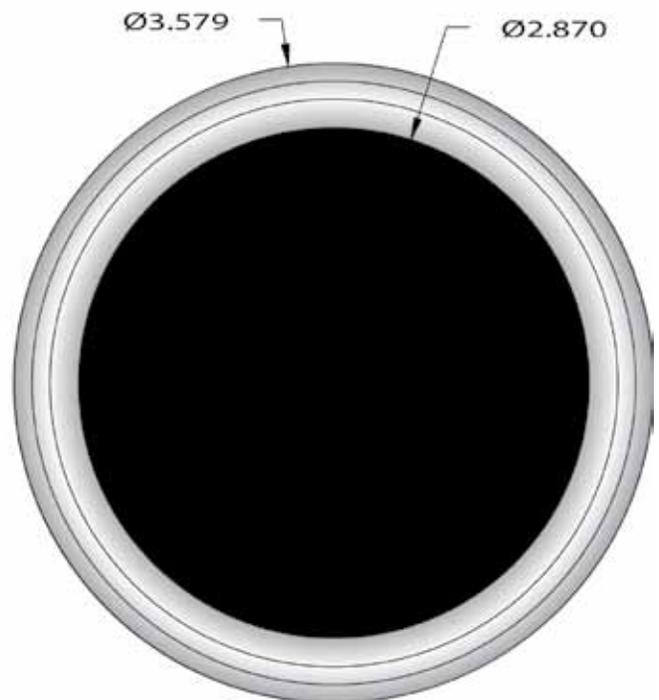
1 1/2" T.C.



2" T.C.



2 1/2" T.C.



3" T.C.

CRIMP FITTINGS

Flange

SFR-S



Flange Retainer

Part Number
08-08SFR-S
12-12SFR-S
16-16SFR-S
20-20SFR-S
24-24SFR-S

Part Number
32-32SFR-S
40-40SFR-S
48-48SFR-S
64-64SFR-S

NOTE: Flange retainers do not include Flanges.

TEFR-S



Encapsulated Flange Retainer

Part Number
12-12TEFR-S
16-16TEFR-S
20-20TEFR-S
24-24TEFR-S

Part Number
32-32TEFR-S
40-40TEFR-S
48-48TEFR-S
64-64TEFR-S

NOTE: This product is a Non-Standard item.

PF



150# Flanges for Flange Retainer

Carbon Steel (Epoxy Coated)
08-PF150
12-PF150
16-PF150
20-PF150
24-PF150
32-PF150
40-PF150
48-PF150
64-PF150

316 Stainless Steel
08-PF156
12-PF156
16-PF156
20-PF156
24-PF156
32-PF156
40-PF156
48-PF156
64-PF156

304 Stainless Steel
08-PF154
12-PF154
16-PF154
20-PF154
24-PF154
32-PF154
40-PF154
48-PF154
64-PF154

NOTE: Also available - 300# Flanges.



Available in: Kynar® - Polypropylene - Monel®
Hastelloy® - CPVC

CRIMP FITTINGS

Cam & Groove

C-S and CL-S



Female Cam and Groove Swivel

Part Number
08-12C-S
12-12C-S
16-16CL-S
20-20CL-S
24-24CL-S

Part Number
32-32CL-S
40-40CL-S
48-48CL-S
64-64CL-S

NOTE: CL Supplied w/locking arms only.

E-S



Male Cam Lock

Part Number
08-12E-S
12-12E-S
16-16E-S
20-20E-S
24-24E-S

Part Number
32-32E-S
40-40E-S
48-48E-S
64-64E-S

TEC-S and TECL-S



Encapsulated Female Cam

Part Number
12-12TEC-S
16-16TECL-S
20-20TECL-S
24-24TECL-S

Part Number
32-32TECL-S
40-40TECL-S
48-48TECL-S



NOTE: CL Supplied w/locking arms only. Also available w/ conductive encapsulated insert.

Call for available sizes. **This product is a Non-Standard item.**

CRIMP FITTINGS

Cam & Groove

TEE-S



Encapsulated Male Cam

Part Number
12-12TEE-S
16-16TEE-S
20-20TEE-S
24-24TEE-S

Part Number
32-32TEE-S
40-40TEE-S
48-48TEE-S

NOTE: This product is a Non-Standard item.

TEFLA-S

Encapsulated Flange X Male Cam Adapter

Part Number
12-12TEFLA-S
16-16TEFLA-S
20-20TEFLA-S
24-24TEFLA-S
32-32TEFLA-S
48-48TEFLA-S



NOTE: Does not include Flange. To order as a complete unit use XX-TEFLA-316 (316 Stainless Flange only) This product is a Non-Standard item.

TESG

Encapsulated Silicone Gasket

Part Number
08TESG
12TESG
16TESG
20TESG
24TESG

Part Number
32TESG
40TESG
48TESG
64TESG



CRIMP FITTINGS

Industrial

MP



Male Pipe (NPT) Hex

Part Number
04-02MP-S
04-04MP-S, C
06-04MP-S
06-06MP-S, C
08-06MP-S
08-08MP-S, C
12-12MP-S, C

Part Number
16-16MP-S, C
20-20MP-S, C
24-24MP-S, C
32-32MP-S, C
40-40MP-S, C
48-48MP-S, C
64-64MP-S, C

NOTE: S= 316L Stainless Steel C= Plated Carbon Steel

FP



Female Pipe (NPT) Hex

Part Number
04-04FP-S
06-06FP-S
08-08FP-S
12-12FP-S

Part Number
16-16FP-S
20-20FP-S
24-24FP-S
32-32FP-S

FJX



Female JIC Swivel

Part Number
04-04FJX-S, C
06-06FJX-S, C
08-08FJX-S, C
12-12FJX-S, C
16-16FJX-S, C,

Part Number
20-20FJX-S, C
24-24FJX-S, C
32-32FJX-S, C
40-40FJX-S

NOTE: S= 316L Stainless Steel C= Plated Carbon Steel

FORFS



Female O-Ring Face Seal

Part Number
04-04FORFS-S
06-06FORFS-S
08-08FORFS-S
12-12FORFS-S

Part Number
16-16FORFS-S
20-20FORFS-S
24-24FORFS-S



CRIMP FITTINGS

Weld

BWT-S

Buttweld Tube

Part Number
08-08BWT-S
12-12BWT-S
16-16BWT-S
20-20BWT-S
24-24BWT-S

Part Number
24-32BWT-S
32-32BWT-S
40-40BWT-S
48-48BWT-S



NOTE: Standard wall thickness 0.065" (1.65mm)

BWP40-S

Buttweld Pipe (Schedule 40)

Part Number
08-08BWP40-S
12-12BWP40-S
16-16BWP40-S
16-24BWP40-S
24-24BWP40-S

Part Number
24-32BWP40-S
32-32BWP40-S
40-40BWP40-S
48-48BWP40-S
64-64BWP40-S



NOTE: Schedule 5 and 10 also available.

INSTRUMENTATION FITTINGS

TUBE-S

Pagelok™ Tube Adapter

Part Number
04-04-TUBE-S
06-06-TUBE-S
08-08-TUBE-S
12-12-TUBE-S
16-16-TUBE-S
20-20-TUBE-S



PLCF-S

Pagelok™ Compression (2 Ferrule Designs)

Part Number
04-04PLCF-S
06-06PLCF-S
08-08PLCF-S
12-12PLCF-S
16-16PLCF-S



NOTE: Metric tube sizes available

COLLARS



Parker PAGE fittings are unique because the collars are designed to keep inventory at a minimum. Where possible, collars are designed to fit hoses by size rather than by hose series. This means that a 06-SC300 will work on many convoluted hoses rather than only on one specific series of hose.

ST300

For use with STW/STB
(also available in carbon steel "CS")

Part Number
04-ST300
06-ST300
08-ST300
12-ST300

Part Number
16-ST300
20Z-ST300
24Z-ST300

SC300

For use with SCW/SCB, SCWV/SCBV, CWV/CBV, NCW/NCB, NCWV/NCBV (also available in carbon steel "CS")

Part Number
06-SC300
08-SC300
12-SC300
16-SC300
20-SC300

Part Number
24-SC300
32-SC300
48-SC300
65-SC300

PC300

For use with PCW/PCB, PCWV/PCBV
(also available in carbon steel "CS")

Part Number
06-PC300
08-PC300
12-PC300

Part Number
16-PC300
24-PC300
32-PC300

COLLARS

SBF300

For use with SBF

Part Number
06-SBF300
08-SBF300
12-SBF300

Part Number
16-SBF300
224-SBF300

SIL300

For use with SBP/SWPV, CWPV

Part Number
08-SIL300
12-SIL300
16-SIL300

Part Number
24-SIL300
32-SIL300

RC300

For use with RCTW/RCTB

Part Number
08-RC300
12-RC300
16-RC300
20-RC300

Part Number
24-RC300
32-RC300
48-RC300
64-RC300



INDUSTRIAL SMOOTHBORE ADAPTERS

For JIC To NPT

PARKER PAGE JIC (SAE) to NPT Adapters are designed to be used with any PARKER PAGE Field Attachable Fittings that have Female JIC (SAE) 37° swivels. PARKER PAGE adapters allow an effortless connection between Industrial smoothbore PTFE Hose assemblies with Female JIC (SAE) 37° swivels connecting to Pipe Threads (NPT). These adapters can simplify the most difficult assembly routing problems by eliminating the need to rotate the hose assembly in order to make a threaded connection. By simply loosening the swivel ends and extracting the old assembly, a replacement assembly with swivel ends can be installed in minutes. PARKER PAGE Adapters are available in most common industrial configurations in 316 Stainless Steel, Carbon Steel and Brass.

2404

Male Pipe Adapter



NOTE: Please add S, C or B to Denotes material.
 B = Brass
 C = Carbon Steel
 S = Stainless Steel

2404 Series Permanent

Hose Number	Part Number	Brass Carbon Steel Stainless Steel	JIC Thread Size	Pipe Thread Size
-03	2404-03-02-	B, C, S	3/8" - 24	1/8" - 27
-04	2404-04-02-	B, C, S	7/16" - 20	1/8" - 27
-04	2404-04-04-	B, C, S	7/16" - 20	1/4" - 18
-05	2404-05-04-	B, C, S	1/2" - 20	1/4" - 18
-06	2404-06-04-	B, C, S	9/16" - 18	1/4" - 18
-06	2404-06-06-	B, C, S	9/16" - 18	3/8" - 18
-08	2404-08-06-	B, C, S	3/4" - 16	3/8" - 18
-08	2404-08-08-	B, C, S	3/4" - 16	1/2" - 14
-10	2404-10-08-	B, C, S	7/8" - 14	1/2" - 14
-12	2404-12-12-	B, C, S	1-1/16" - 12	3/4" - 14
-16	2404-16-16-	B, C, S	1-5/16" - 12	1" - 11-1/2
-20	2404-20-20-	B, C, S	1-5/8" - 12	1-1/4" - 11-1/2

2405

Female Pipe Adapter



NOTE: Please add S, C or B to Denotes material.
 B = Brass
 C = Carbon Steel
 S = Stainless Steel

2405 Series Permanent

Hose Number	Part Number	Brass Carbon Steel Stainless Steel	JIC Thread Size	Pipe Thread Size
-04	2405-04-02-	B, C, S	7/16" - 20	1/8" - 27
-04	2405-04-04-	B, C, S	7/16" - 20	1/4" - 18
-05	2405-05-04-	B, C, S	1/2" - 20	1/4" - 18
-06	2405-06-04-	B, C, S	9/16" - 18	1/4" - 18
-06	2405-06-06-	B, C, S	9/16" - 18	3/8" - 18
-08	2405-08-06-	B, C, S	3/4" - 16	3/8" - 18
-08	2405-08-08-	B, C, S	3/4" - 16	1/2" - 14
-10	2405-10-08-	B, C, S	7/8" - 14	1/2" - 14
-12	2405-12-12-	B, C, S	1-1/16" - 12	3/4" - 14
-16	2405-16-16-	B, C, S	1-5/16" - 12	1" - 11-1/2

2501

Male Pipe Adapter 90° Elbow



2501 Series Permanent

Part Number
2501-04-04 - (S, C, B)
2501-06-06 - (S, C, B)
2501-08-08 - (S, C, B)
2501-12-12 - (S, C, B)
2501-16-16 - (S, C, B)

NOTE: Please add S, C or B to Denotes material.
 B = Brass
 C = Carbon Steel
 S = Stainless Steel

Adapters



INDUSTRIAL HOSE & FITTINGS



Nominal Hose

GOODYEAR
RUBBER PRODUCTS INC.

Call Toll Free: **1-866-711-4673**
WebSales@GoodyearRubberProducts.com

**We Ship
World Wide**

INDUSTRIAL SMOOTHBORE - PTFE HOSE

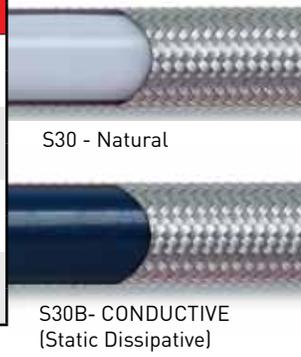
(.030 Wall) Standard Wall Smooth Bore PTFE Hose

The S30 Series hose is manufactured in natural or with an inner conductive static dissipating liner that provides continuity between the end fittings for applications where flow induced electrostatic charges could be a potential hazard. Use with Field Attachable fittings, page 51.

S30 (Natural) & S30B (Conductive)

PTFE with Stainless Steel Braid

Dash Number	Part Number		Hose I.D.	Hose O.D.	Bend Radius	psi	Burst Pressure
	Natural	Conductive					
-03	03-S30	03-S30B	.125	.250	1.5	3000	12000
-04	04-S30	04-S30B	.187	.305	2.0	3000	12000
-05	05-S30	05-S30B	.250	.375	3.0	3000	12000
-06	06-S30	06-S30B	.312	.430	4.0	2500	10000
-08	08-S30	08-S30B	.406	.535	5.0	2000	8000
-10	10-S30	10-S30B	.500	.636	6.5	1750	7000
-12	12-S30	12-S30B	.625	.765	7.5	1500	6000
-16	16-S30	16-S30B	.875	1.030	9.0	1000	4000



NOTE: Temperature Range: -100°F to +450°F (-73°C to 232°C)

(.040 Wall) Heavy Wall Smooth Bore PTFE Hose

PAGE S40 Series hose is manufactured as above, however, with a minimum wall thickness of .040" resulting in 33% more PTFE than other manufacturers. The additional tubing thickness provides an improved bend radius, greater kink resistance and decreased gas permeation. Use with Field Attachable fittings, page 51.

S40 (Natural) & S40B (Conductive)

PTFE Heavy Wall with Stainless Steel Braid

Dash Number	Part Number		Hose I.D.	Hose O.D.	Bend Radius	psi	Burst Pressure
	Natural	Conductive					
-03	03-S40	03-S40B	.125	.250	1.0	3000	12000
-04	04-S40	04-S40B	.187	.320	1.5	3000	12000
-05	05-S40	05-S40B	.250	.375	2.0	3000	12000
-06	06-S40	06-S40B	.312	.435	3.5	2500	10000
-08	08-S40	08-S40B	.406	.565	4.5	2000	8000
-10	10-S40	10-S40B	.500	.656	5.0	1750	7000
-12	12-S40	12-S40B	.625	.780	6.0	1500	6000
-16	16-S40	16-S40B	.875	1.050	9.0	1000	4000
-16Z	16Z-S40*	16Z-S40B*	.875	1.100	7.3	1250	5000
-20Z	20Z-S40*	20Z-S40B*	1.125	1.350	11.0	1000	4000



NOTE: Temperature Range: -100°F to +450°F (-73°C to 232°C) *Z indicates Double Braid

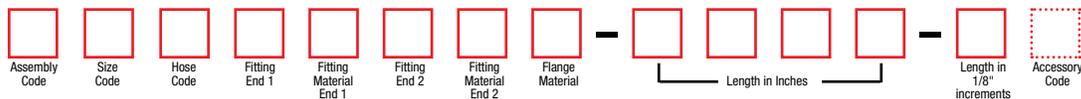
See page 38 for Part Numbering System

All ratings based on 72°F (22°C) - All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.



INDUSTRIAL SMOOTHBORE - PTFE HOSE

S30 Standard Wall & S40 Heavy Wall Part Numbering System



Assembly Code	
Permanently Attached	X
Field Attachable	FA

Size Code	
1/8"	03
3/16"	04
1/4"	05
5/16"	06
13/32"	08
1/2"	10
5/8"	12
7/8"	16
1-1/8"	20

Hose Code	
S30	S
S30B	SB
S40	H
S40B	HB
ZS40	R
ZS40B	RB
MaxPac HIPS**	W

**MaxPac™ Hose is available with Black Conductive Tube and Female Stainless Steel, 37° JIC Swivel Fittings only

Fitting Code	
Pipe Thread Fittings	
Male Pipe NPT Hex	10
Male Pipe NPT Step Up	15
Male Pipe NPT Step Down	20
Male Union	11
Male Union 45°	14
Male Union 90°	19
Male Union Step Up	16
Male Union Step Down	21
Female Pipe NPT Hex	55
Female Pipe Step Up	58
Female Pipe Step Down	59
Female Union	80
Female Union Step Up	84
Female Union Step Down	88
JIC Fittings	
JIC Female Swivel	68
JIC Female 45° Elbow	66
JIC Female 90° Elbow	67
SAE Female Swivel	69
SAE Female 45° Elbow	70
SAE Female 90° Elbow	71
JIC Female Step Up	64
JIC Female Step Down	65
Tube Stub Fittings	
Tube Stub	91
Tube Stub Step Up	93
Tube Stub Step Down	95
SAE Male Compression	96
SAE Female Compression	97
Inverted Flare & Power Trim Fittings	
Male Straight	76

Fitting Material	
Stainless (SS)	S
Brass	B
Carbon Steel	C

Accessory Code*	
None	
Spring Guard	S
Armour Guard	A
End Bend Restrictors	E
Fire Sleeve	F
Rubber Sleeve	H
FEP Heat Shrink	T
Polyolefin Heat Shrink	P
Silicone Sleeve	M
Internal Spring	I
Vacuum Spring Wire	W
Specials	X

*See Accessory Section for Details

 = Optional

Example: X08H10S68S0-0300

Size: 08 (13/32 I.D.) **Style:** S40

Braid: SS Single Braid

Core: Heavy Wall Smoothbore Convuluted PTFE

End 1: 1/2" 314 SS Male NPT

End 2: 1/2" 316 SS Female 37° Seat JIC Swivel

Length: 300" from end of Male Pipe to seat of Female JIC

All ratings based on 72°F [22°C] - All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

Nominal Hose

PERMANENT & FIELD ATTACHABLE FITTINGS

FOR S30/S40 Hoses

Series 91N & Series 90

PARKER PAGE engineers design and manufacture Permanent and Field Attachable Fittings to accommodate our Industrial Smoothbore PTFE S30 and S30B (.030" wall) hose styles.

Expensive assembly equipment is not required to build a custom hose assembly with PARKER PAGE Field Attachable Fittings. They can be assembled with common bench tools, for example, a clamping vise and an adjustable wrench. This convenience allows lower volume users and those working in remote locations both the accessibility and availability to fabricate Industrial Smoothbore PTFE hose assemblies. Most commonly used industrial configurations, including Male Pipe (NPT) and Female JIC (SAE) 37° swivel fittings, are available in 300 Series Stainless Steel and Carbon Steel.

1	03	91	8	6	N/A
Type	End Configuration Code	Series of Fitting	End Size	Hose Size	Material

This example describes a permanent crimp 1/2" Male JIC 37° hose end with a 3/8" hose end-this commonly referred to as a "jump size". This fitting is constructed from carbon steel since the designated material is blank.

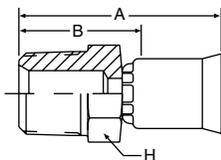
The callout is: 10391N-8-6

The Part # Column for 91N Series Fittings indicates material type. Where applicable, "B" indicates Brass and "C" indicates Stainless Steel. For detailed ordering information, contact PARKER PAGE Int'l Hose.

90/91N Fittings

PERMANENT FITTINGS - 91N SERIES

10191N Male Taper Pipe Rigid



91N Series Permanent

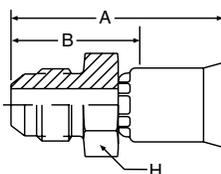
*Part Number	B	C	NPTF Thread Size	A			Cutoff Allow. B		H Hex
				Inch	Inch	MM	Inch	MM	Inch
10191N-2-4			1/8-27	-4	1.27	32	3/4	19	7/16
10191N-4-4	+		1/4-18	-4	1.50	38	15/16	24	9/16
10191N-4-5	+		1/4-18	-5	1.55	39	15/16	24	9/16
10191N-4-6	+		1/4-18	-6	1.60	41	15/16	24	9/16
10191N-6-6	+		3/8-18	-6	1.65	58	1	25	11/16
10191N-6-8	+		3/8-18	-8	1.71	43	1	25	11/16
10191N-8-8	+		1/2-14	-8	1.94	49	1-1/4	32	7/8
10191N-8-10	+		1/2-14	-10	1.96	50	1-1/4	32	7/8
10191N-8-12 (+)	+	+	1/2-14	-12	2.42	61	1-1/4	32	7/8
10191N-12-12	+		3/4-14	-12	2.19	56	1-3/8	35	1-1/8
10191N-16-16	+		1-11-1/2	-16	2.46	62	1-1/2	38	1-3/8
10191-20-20			1-1/4-11-1/2	-20	3.05	77	2-1/16	52	1-3/4

* Brass nipple, steel shell.

B – Brass nipple, brass shell.

C – All components 303 stainless steel.

10391N Male (JIC) 37°



91N Series Permanent

*Part Number	B	C	NPTF Thread Size	A			Cutoff Allow. B		H Hex
				Inch	Inch	MM	Inch	MM	Inch
10391N-4-4	+	+	7/16-20	-4	1.37	35	13/16	21	1/2
10391N-5-5	+	+	1/2-20	-5	1.48	38	7/8	22	9/16
10391N-6-6 (+)	+	+	9/16-18	-6	1.64	42	1	25	11/16
10391N-8-8	+	+	3/4-16	-8	1.79	35	1-1/8	29	7/8
10391N-8-6	+	+	3/4-16	-6	1.73	44	1-1/16	27	7/8
10391N-10-10	+	+	7/8-14	-10	2.07	53	1-3/8	35	7/8
10391N-12-12	+	+	1-1/16-12	-12	2.10	53	1-5/16	33	1-1/8
10391N-16-16	+	+	1-5/16-12	-16	2.43	62	1-1/2	38	1-3/8

* Brass nipple, steel shell.

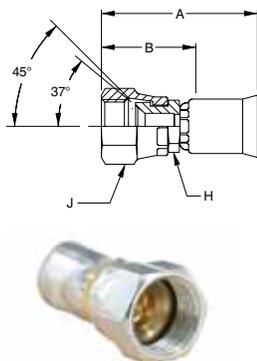
B – Brass nipple, brass shell.

C – All components 303 stainless steel.

PERMANENT FITTINGS - 91N SERIES

10691N SAE (JIC) 37° Swivel

91N Series Permanent



*Part Number	S	B	C	Thread Size	Tube Size		A		Cutoff Allow. B		H Hex	J Hex
					Inch	Inch	Inch	MM	Inch	MM	Inch	Inch
10691N-4-4 ~				7/16-20	-4	1/4	1.43	36	7/8	22	3/8	9/16
10691N-5-5 ~		+		1/2-20	-5	5/16	1.56	40	15/16	24	7/16	5/8
10691N-6-6				9/16-18	-6	3/8	1.63	41	1	25	1/2	11/16
10691N-6-8	+	+	+	9/16-18	-8	1/2	1.69	43	1	25	9/16	11/16
10691N-8-8 ~		+		3/4-16	-8	1/2	1.89	48	1-3/16	30	11/16	7/8
10691N-8-10 ~	+	+		3/4-16	-10	5/8	1.86	58	1-1/8	29	3/4	7/8
10691N-10-10 ~		+		7/8-14	-10	5/8	2.03	52	1-5/16	33	13/16	1
10691N-12-12		+		1-1/16-12	-12	3/4	2.12	54	1-5/16	33	1	1-1/4
10691N-16-16		+		1-5/16-12	-16	1	2.45	62	1-9/16	40	1-1/4	1-1/2
10691-20-20	+	+		1-5/8-12	-20	1-1/4	2.98	76		46		2

* Brass nipple, steel nut, shell.

S – Steel nipple, nut and shell.

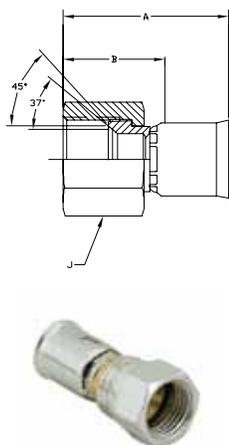
B – Brass nipple, brass nut, shell.

C – All components 303 stainless steel.

These fittings contain a dual seat that accepts both the JIC (37 deg.) and SAE (45 deg.) male configurations. The size -6 and -12 swivel fittings are shown under part number 10891N.

10691NRD

91N Series Permanent



*Part Number	B	C	Thread Size	Tube Size		A		Cutoff Allow. B		J Hex
				Inch	Inch	Inch	MM	Inch	MM	Inch
10691N-4-4-RD ~ (+)	+	+	7/16-20	-4	1/4	1.34	34	13/16	21	9/16
10691N-5-5-RD ~ (+)	+	+	1/2-20	-5	5/16	1.51	38	7/8	22	5/8
10691N-6-6-RD (+)	+	+	9/16-18	-6	3/8	1.60	41	15/16	24	11/16
10691N-8-8-RD ~ (+)	+	+	3/4-16	-8	1/2	1.79	45	1-1/16	27	7/8
10691N-10-10-RD ~	+	+	7/8-14	-10	5/8	1.91	49	1-3/16	30	1
10691N-12-12-RD	+	+	1-1/16-12	-12	3/4	2.09	58	1-5/16	33	1-1/4
10691N-16-16-RD ~ (+)	+	+	1-5/16-12	-16	1	2.27	58	1-5/16	33	1-1/2

* Brass nipple, steel nut, shell.

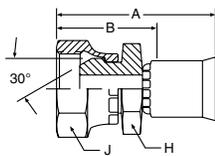
B – Brass nipple, brass nut, shell.

C – All components 303 stainless steel.

These fittings contain a dual seat that accepts both the JIC (37 deg.) and SAE (45 deg.) male configurations. The size -6 and -12 swivel fittings are shown under part number 10891N.

PERMANENT FITTINGS - 91N SERIES

10791N Female Pipe Swivel



91N Series Permanent

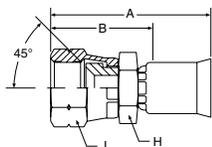
*Part Number	B	C	Thread Size	Inch	Tube Size	A		Cutoff Allow. B		H Hex	J Hex
						Inch	MM	Inch	MM	Inch	Inch
10791N-4-4	+		1/4-18	-4	1/4	1.50	38	15/16	24	9/16	11/16
10791N-6-6	+		3/8-18	-6	3/8	1.67	42	1	25	5/8	7/8
10791N-8-8	+		1/2-14	-8	1/2	1.83	46	1-1/8	29	3/4	1
10791N-12-12	+		3/4-14	-12	3/4	2.09	53	1-5/16	33	1	1-1/4
10791N-16-16	+		1-11-1/2	-16	1	2.26	57	1-5/16	33	1-3/16	1-3/8

* Brass nipple, steel nut and shell.

B – Brass nipple, brass nut and shell.

C – All components 300 series stainless steel.

10891N SAE 45° Swivel



91N Series Permanent

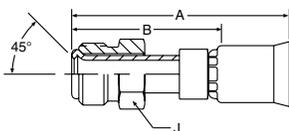
*Part Number	S	C	Thread Size	Inch	Tube Size	A		Cutoff Allow. B		H Hex	J Hex
						Inch	MM	Inch	MM	Inch	Inch
10891N-6-6		+	5/8-18	-6	3/8	1.69	43	1-1/16	27	5/8	3/4
10891N-12-12	+	+	1-1/16-14	-12	3/4	2.12	54	1-5/16	33	1	1-1/4

* Brass nipple, steel nut and shell.

S – Steel nipple, nut and shell.

C – All components 300 series stainless steel.

12891N Male Inverted Swivel–Straight



91N Series Permanent

*Part Number	B	C	Thread Size	Inch	Tube Size	A		Cutoff Allow. B		J Hex
						Inch	MM	Inch	MM	Inch
12891N-4-4	+	+	7/16-24	-4	1/4	2.09	53	1-1/2	38	7/16
12891N-5-5	+	+	1/2-20	-5	5/16	2.15	55	1-9/16	40	1/2
12891N-5-6	+	+	1/2-20	-6	3/8	2.23	57	1-9/16	40	1/2
12891N-6-6	+	+	5/8-18	-6	3/8	2.23	57	1-9/16	40	5/8
12891N-8-8	+	+	3/4-18	-8	1/2	2.31	59	1-5/8	41	3/4
12891N-10-10	+	+	7/8-18	-10	5/8	2.43	58	1-3/4	44	7/8
12891N-12-12	+	+	1-1/16-16	-12	3/4	2.50	64	1-11/16	43	1-1/16

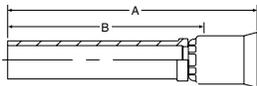
* Steel nipple, tube, nut and shell.

B – Steel nipple, tube, nut and shell.

C – All components 300 series stainless steel.

PERMANENT FITTINGS - 91N SERIES

13491N Straight Tube



91N Series Permanent

*Part Number	B	C	Inch	Tube Size	A		Cutoff Allow. B	
				Inch	Inch	MM	Inch	MM
13491N-8-8	+	+	-8	1/2	2.80	71	2-1/8	54
13491N-8-10	+	+	-10	1/2	2.80	71	2-1/8	54
13491N-10-10	+	+	-10	5/8	2.96	75	2-1/4	58
13491N-12-12	+	+	-12	3/4	3.37	86	2-9/16	65

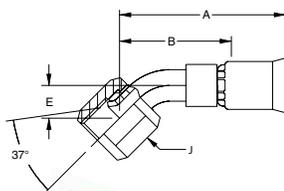
The 16T91N fitting includes 13491N with the 60HAB sleeve and 61HAB nut.

* Brass nipple, steel shell.

B – Brass nipple, brass nut, shell.

C – All components 303 stainless steel. C – All components 303 stainless steel.

13791N JIC 37° Swivel 45° Elbow



91N Series Permanent

*Part Number	C	Thread Size	Inch	Tube Size	A		Cutoff Allow. B		E		J Hex
				Inch	Inch	MM	Inch	MM	Inch	MM	Inch
13791N-4-4		7/16-20	-4	1/4	1.74	44	1-3/16	30	0.33	8	9/16
13791N-5-5	+	1/2-20	-5	5/16	1.87	47	1-1/4	32	0.36	9	5/8
13791N-6-6		9/16-18	-6	3/8	1.94	49	1-5/16	33	0.39	10	11/16
13791N-8-8		3/4-16	-8	1/2	2.28	58	1-9/16	37	0.55	14	7/8
13791N-10-10		7/8-14	-10	5/8	2.42	61	1-11/16	43	0.64	43	1
13791N-12-12	+	1-1/16-12	-12	3/4	2.83	58	2-1/16	52	0.78	20	1-1/4
13791N-16-16	+	1-5/16-12	-16	1	3.18	81	2-1/4	57	0.89	23	1-1/2
13791-20-20	+	1-5/8-12	-20	1-1/4	3.67	93	2-9/16	65	1.10	28	2

* Steel tube, nipple, nut and shell.

B – Brass nipple, brass shell.

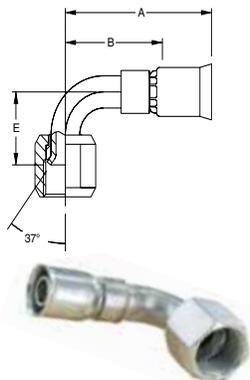
C – All components 303 stainless steel.

90/91N Fittings

PERMANENT FITTINGS - 91N SERIES

13991N JIC 37° Swivel 90° Elbow

91N Series Permanent



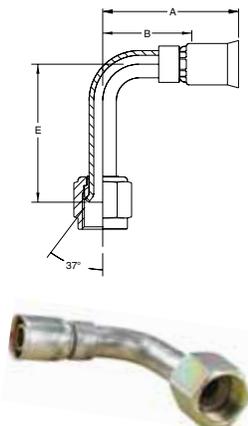
*Part Number	C	Thread Size	Inch	Tube Size	A		Cutoff Allow. B		E		J Hex
					Inch	MM	Inch	MM	Inch	MM	Inch
13991N-4-4		7/16-20	-4	1/4	1.62	41	1-1/16	37	0.68	17	9/16
13991N-5-5	+	1/2-20	-5	5/16	1.71	43	1-1/8	29	0.77	20	5/8
13991N-6-6	+	9/16-18	-6	3/8	1.91	49	1-1/4	32	0.85	22	11/16
13991N-8-8		3/4-16	-8	1/2	2.03	52	1-5/16	33	1.09	28	7/8
13991N-10-10		7/8-14	-10	5/8	2.27	58	1-9/16	37	1.23	43	1
13991N-12-12	+	1-1/16-12	-12	3/4	2.75	58	1-15/16	49	1.82	46	1-1/2
13991N-16-16	+	1-5/16-12	-16	1	3.15	80	2-3/16	56	2.14	52	1-1/2
13991-20-20	+	1-5/8-12	-20	1-1/4	3.53	90	2-7/16	62	1.18	30	2

* Steel tube, nipple, nut and shell.

C – All components 303 stainless steel.

14191N JIC 37° Swivel 90° Long Elbow

91N Series Permanent



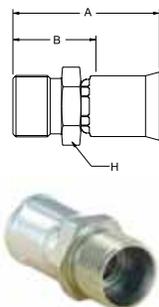
*Part Number	C	Thread Size	Inch	Tube Size	A		Cutoff Allow. B		E		J Hex
					Inch	MM	Inch	MM	Inch	MM	Inch
14191N-4-4		7/16-20	-4	1/4	1.66	42	1-1/8	29	1.80	46	9/16
14191N-5-5	+	1/2-20	-5	5/16	1.72	44	1-1/8	29	1.77	45	5/8
14191N-6-6	+	9/16-18	-6	3/8	1.93	49	1-5/16	33	2.18	55	11/16
14191N-8-8	+	3/4-16	-8	1/2	2.11	54	1-3/8	35	2.43	62	7/8
14191N-10-10	+	7/8-14	-10	5/8	2.34	59	1-5/8	41	2.57	43	1
14191N-12-12	+	1-1/16-12	-12	3/4	2.63	58	1-7/8	48	3.73	95	1-1/4
14191N-16-16	+	1-5/16-12	-16	1	3.15	80	2-3/16	56	4.33	110	1-1/2
14191N-20-20 (+)	+	1-5/8-12	-20	1-1/4	4.00	102	2-15/16	75	5.28	134	2

* Steel tube, nipple, nut and shell.

C – All components 303 stainless steel.

16191N Compression Air Brake

91N Series Permanent



*Part Number	B	C	Thread Size	Inch	Tube Size	A		Cutoff Allow. B		J Hex
						Inch	MM	Inch	MM	Inch
16191N-8-8	+	+	11/16-20	-8	1/2	1.61	41	15/16	24	3/4
16191N-8-10	+	+	11/16-20	-10	5/8	1.61	41	15/16	24	7/8
16191N-10-10	+	+	13/16-18	-10	5/8	1.82	46	1-1/8	29	15/16
16191N-12-12	+	+	1-18	-12	3/4	1.93	49	1-1/8	29	1-1/4

* Brass nipple, steel shell.

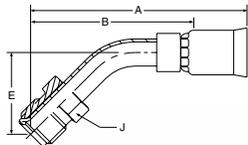
B – Brass nipple, brass shell.

C – All components 303 stainless steel.

PERMANENT FITTINGS - 91N SERIES

16791N Male Inverted Swivel 45° Elbow

91N Series Permanent



*Part Number	C	Thread Size	Inch	Tube Size	A		Cutoff Allow. B		E		J Hex
					Inch	MM	Inch	MM	Inch	MM	Inch
16791N-4-4	+	7/16-24	-4	1/4	2.05	52	1-1/2	38	0.63	16	7/16
16791N-5-5	+	1/2-20	-5	5/16	2.48	63	1-7/8	48	0.71	18	1/2
16791N-6-6	+	5/8-18	-6	3/8	2.60	66	1-15/16	49	0.96	24	5/8
16791N-8-8	+	3/4-18	-8	1/2	2.85	72	2-1/8	54	0.90	23	3/4
16791N-10-10	+	7/8-18	-10	5/8	3.30	84	2-5/8	67	1.02	43	7/8
16791N-12-12	+	1-1/16-16	-12	3/4	3.64	58	2-13/16	71	1.15	29	1-1/16

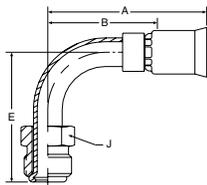
* Steel tube, nipple, nut and shell.

B – Brass nipple, brass shell.

C – All components 303 stainless steel.

16991N Male Inverted Swivel 90° Elbow

91N Series Permanent



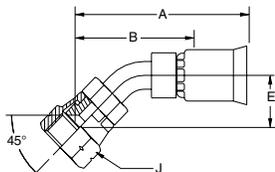
*Part Number	C	Thread Size	Inch	Tube Size	A		Cutoff Allow. B		E		J Hex
					Inch	MM	Inch	MM	Inch	MM	Inch
16991N-4-4	+	7/16-24	-4	1/4	1.72	44	1-3/16	30	1.19	30	7/16
16991N-5-5	+	1/2-20	-5	5/16	1.98	50	1-3/8	35	1.65	42	1/2
16991N-5-6 (+)	+	1/2-20	-6	3/8	2.03	52	1-7/16	37	1.65	42	1/2
16991N-6-6	+	5/8-18	-6	3/8	2.08	53	1-7/16	37	1.70	43	5/8
16991N-8-8	+	3/4-18	-8	1/2	2.18	55	1-1/2	38	1.87	43	3/4
16991N-10-10	+	7/8-18	-10	5/8	3.02	58	2-5/16	59	2.18	55	7/8
16991N-12-12	+	1-1/16-16	-12	3/4	3.36	85	2-9/16	64	2.51	64	1-1/16

* Steel tube, nipple, nut and shell.

C – All components 303 stainless steel.

17791N SAE 45° Swivel 45° Elbow

91N Series Permanent



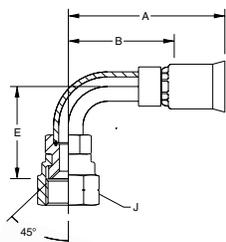
*Part Number	C	Thread Size	Inch	Tube Size	A		Cutoff Allow. B		E		J Hex
					Inch	MM	Inch	MM	Inch	MM	Inch
17791N-6-6	+	5/8-18	-6	3/8	2.06	52	1-5/16	33	0.39	10	3/4
17791N-12-12	+	1-1/16-14	-12	3/4	3.07	78	2-7/16	62	0.78	20	1-1/4

* Steel tube, nipple, nut and shell.

C – All components 303 stainless steel.

PERMANENT FITTINGS - 91N SERIES

17991N SAE 45° Swivel 90° Elbow



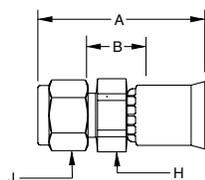
91N Series Permanent

*Part Number	C	Thread Size	Inch	Tube Size	A		Cutoff Allow. B		E		J Hex
					Inch	MM	Inch	MM	Inch	MM	Inch
17991N-6-6	+	5/8-18	-6	3/8	2.06	52	1-5/16	49	1.19	30	3/4
17991N-12-12	+	1-1/16-14	-12	3/4	2.92	74	2-1/8	54	1.82	46	1-1/4

* Steel tube, nipple, nut and shell.

C – All components 303 stainless steel.

1AL91N A-LOK® Compression



91N Series Permanent

Part Number	Part Number	C	Inch	Tube Size	A		Cutoff Allow. B		H Hex	J Hex
(w/nut/ferrules)	(w/o nut/ferrules)				Inch	MM	Inch	MM	Inch	Inch
1AL91N-4-4 (+)	1AL91N-4-4N (+)		-4	1/4	1.30	33	7/16	11	1/2	9/16
1AL91N-4-5 (+)	1AL91N-4-5N (+)		-5	1/4	1.35	34	7/16	11	1/2	9/16
1AL91N-6-6 (+)	1AL91N-6-6N (+)		-6	3/8	1.53	39	1/2	13	5/8	11/16
1AL91N-8-8 (+)	1AL91N-8-8N (+)		-8	1/2	1.61	41	7/16	11	13/16	7/8
1AL91N-12-12 (+)	1AL91N-12-12N (+)		-12	3/4	1.86	47	1/2	13	1-1/8	1-1/8
1AL91N-16-16 (+)	1AL91N-16-16N (+)		-16	1	2.11	58	7/16	11	1-3/8	1-1/2

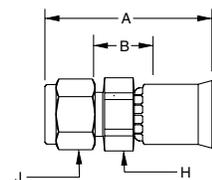
C – 316 stainless steel nipple, nut and ferrules; 303 stainless steel shell.

Note: Nut part no. is XNUX-316; front ferrule part no. is XFFX-316; back ferrule part no. is XBFX-316.

X Denotes dash size.

Please reference Instrument Tubing Selection Guide, Bulletin 4200-TS, or contact the Instrumentation Connectors Division in Huntsville, Alabama, (Phone: 256-881-2040) directly for correct installation and application information.

1P691N CPI® Compression (With Nut and Ferrule)



91N Series Permanent

Part Number	Inch	Tube Size	A		Cutoff Allow. B		H Hex	J Hex
			Inch	MM	Inch	MM	Inch	Inch
1P691N-4-4C (+)	-4	1/4	1.30	33	7/16	11	1/2	9/16
1P691N-4-5C (+)	-5	1/4	1.35	34	7/16	11	1/2	9/16
1P691N-6-6C (+)	-6	3/8	1.53	39	1/2	13	5/8	11/16
1P691N-8-8C (+)	-8	1/2	1.61	41	7/16	11	13/16	7/8
1P691N-12-12C (+)	-12	3/4	1.86	47	1/2	13	1-1/8	1-1/8
1P691N-16-16C (+)	-16	1	2.06	58	7/16	14	1-3/8	1-1/2

C – 316 stainless steel nipple, nut and ferrule; 303 stainless steel shell.

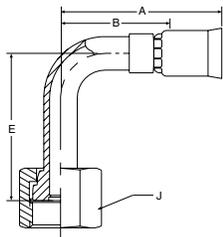
Note: Nut part No. is XBZ-SS; ferrule part No. is XTZ-SS. X Denotes dash size.

Please reference Instrument Tubing Selection Guide, Bulletin 4200-TS, or contact the Instrumentation Connectors Division in Huntsville, Alabama, (Phone: 256-881-2040) directly for correct installation and application information.

PERMANENT FITTINGS - 91N SERIES

1J191N Female Seal-Lok™ Swivel 90° Elbow Long Drop

91N Series Permanent



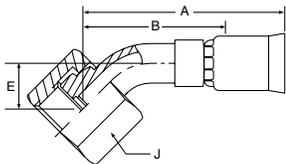
*Part Number Hose Fitting	C	Thread Size	Inch	Tube Size	A		Cutoff Allow. B		E		J Hex
					Inch	MM	Inch	MM	Inch	MM	Inch
1J191N-4-4 (+)		9/16-18	-4	1/4	1.66	42	1-1/16	27	1.80	46	11/16
1J191N-4-5	+	9/16-18	-5	5/16	1.78	45	1-1/16	27	1.80	46	11/16
1J191N-6-5 (+)	+	11/16-16	-5	5/16	1.92	49	1-3/16	30	2.13	54	13/16
1J191N-6-6	+	11/16-16	-6	3/8	1.92	49	1-3/16	30	2.13	54	13/16
1J191N-8-6 (+)	+	13/16-16	-6	3/8	2.00	51	1-9/16	40	2.51	43	15/16
1J191N-8-8	+	13/16-16	-8	1/2	2.15	58	1-7/16	37	2.51	64	15/16
1J191N-10-10	+	1-14	-10	5/8	1.25	32	1-9/16	40	2.76	70	1-1/8
1J191N-12-12	+	1-3/16-12	-12	3/4	2.65	67	1-13/16	46	3.78	96	1-3/8
1J191N-16-16	+	1-7/16-12	-16	1	3.15	80	2-1/4	57	4.50	114	1-1/2

* Steel tube, nipple, nut, and shell.

C – All components 303 stainless steel.

1J791N Seal-Lok™ Swivel 45° Elbow

91N Series Permanent



*Part Number Hose Fitting	C	Thread Size	Inch	Tube Size	A		Cutoff Allow. B		E		J Hex
					Inch	MM	Inch	MM	Inch	MM	Inch
1J791N-4-4	+	9/16-18	-4	1/4	1.73	44	1-1/4	32	0.41	10	11/16
1J791N-4-6	+	9/16-18	-6	3/8	1.91	49	1-5/16	33	0.41	10	11/16
1J791N-6-6	+	11/16-16	-6	3/8	2.02	51	1-3/8	35	0.43	11	13/16
1J791N-8-8	+	13/16-16	-8	1/2	2.18	55	1-1/2	38	0.59	15	15/16
1J791N-8-10	+	13/16-16	-8	1/2	2.39	61	1-11/16	43	0.59	15	15/16
1J791N-10-10	+	1-14	-10	5/8	2.47	63	1-3/4	44	0.59	43	1-1/8
1J791N-12-12	+	1-3/16-12	-12	3/4	2.74	58	1-15/16	49	0.81	21	1-3/8
1J791N-16-16	+	1-7/16-12	-16	1	3.50	89	2-1/2	64	0.94	24	1-5/8

* Steel tube, nipple, nut, and shell.

C – All components 303 stainless steel.

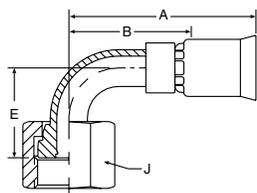
90/91N Fittings



PERMANENT FITTINGS - 91N SERIES

1J991N Seal-Lok™ Swivel 90° Elbow

91N Series Permanent



*Part Number Hose Fitting	C	Thread Size	Inch	Tube Size	A		Cutoff Allow. B		E		J Hex
					Inch	MM	Inch	MM	Inch	MM	Inch
1J991N-4-4	+	9/16-18	-4	1/4	1.79	45	1-1/4	32	0.82	21	11/16
1J991N-6-6	+	11/16-16	-6	3/8	1.87	47	1-1/4	32	0.90	23	13/16
1J991N-8-8	+	13/16-16	-8	1/2	2.07	53	1-3/8	35	1.15	29	15/16
1J991N-10-10	+	1-14	-10	5/8	2.23	57	1-1/2	38	1.27	32	1-1/8
1J991N-12-12	+	1-3/16-12	-12	3/4	2.63	67	1-7/8	48	1.85	43	1-3/8
1J991N-16-16	+	1-7/16-12	-16	1	3.45	58	2-9/16	65	2.21	56	1-5/8
1J991N-20-20	+	1-11/16-12	-20	1-1/4	3.91	99	2-7/8	73	2.51	64	1-7/8

* Steel tube, nipple, nut, and shell.

C – All components 303 stainless steel.

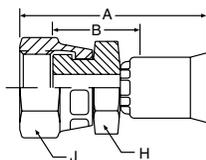
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Industrial, Sanitary and Field Attachable Fittings**

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1JC91N Seal-Lok™ Straight

91N Series Permanent



*Part Number Hose Fitting	B	C	Thread Size	Inch	A		Cutoff Allow. B		H Hex	J Hex
					Inch	MM	Inch	MM	Inch	Inch
1JC91N-4-4	+		9/16-18	-4	1.46	37	5/8	16	9/16	11/16
1JC91N-6-6	+		11/16-16	-6	1.62	41	11/16	17	5/8	13/16
1JC91N-8-8	+		13/16-16	-8	1.93	49	13/16	21	3/4	15/16
1JC91N-10-10	+		1-14	-10	2.05	52	7/8	22	15/16	1-1/8
1JC91N-12-10	+		1-3/16-12	-10	2.05	52	1-1/4	32	15/16	1-3/8
1JC91N-12-12	+		1-3/16-12	-12	2.05	58	1-1/4	32	15/16	1-3/8
1JC91N-16-16	+		1-7/16-12	-16	2.56	65	1-1/16	27	1-3/8	1-5/8
1JC91N-20-16	+	+	1-11/16-12	-16	2.30	58	1-3/8	35	1-5/8	1-7/8
1JC91-20-20	+	+	1-11/16-12	-20	2.68	68	1-11/16	43	1-11/16	1-7/8

* Steel nipple, nut, and shell.

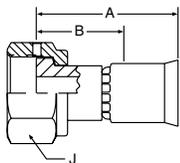
B – Brass nipple, brass nut, shell.

C – All components 303 stainless steel.

90/91N Fittings

PERMANENT FITTINGS - 91N SERIES

1Q191N Ultra Seal

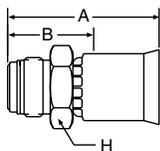


91N Series Permanent

Part Number	Thread Size	Inch	Inch	A		Cutoff Allow. B		J Hex
				Inch	MM	Inch	MM	Inch
1Q191N-4-4C (+)	9/16-18	-4	1/4	1.63	41	3/4	19	11/16
1Q191N-6-6 C (+)	3/4-20	-6	3/8	1.81	46	7/8	22	7/8
1Q191N-8-8C (+)	7/8-20	-8	1/2	1.62	41	15/16	24	1
1Q191N-12-12C (+)	1-15/16-20	-12	3/4	1.93	49	1-1/8	29	1-1/2

C – 316L stainless steel nipple and nut; 303 stainless steel shell.

1HV91N Male VacuSeal

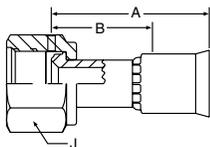


91N Series Permanent

Part Number	Thread Size	Inch	Inch	A		Cutoff Allow. B		H Hex
				Inch	MM	Inch	MM	Inch
1HV91N-4-4C (+)	9/16-18	-4	1/4	1.59	40	1	25	3/4
1HV91N-6-6C (+)	7/8-14	-6	3/8	1.80	46	1	24	1-1/16
1HV91N-8-8C (+)	7/8-14	-8	1/2	1.89	48	1-1/16	27	1-1/16

C – 316L stainless steel nipple and nut; 303 stainless steel shell.

1VH91N Female VacuSeal



91N Series Permanent

Part Number	Thread Size	Inch	Inch	A		Cutoff Allow. B		H Hex
				Inch	MM	Inch	MM	Inch
1VH91N-4-4C (+)	9/16-18	-4	1/4	1.59	40	1-1/16	27	3/4
1VH91N-8-6C (+)	7/8-14	-6	3/8	1.83	46	1-3/16	30	1-1/16
1VH91N-8-8C (+)	7/8-14	-8	1/2	1.94	49	1-3/16	30	1-1/16

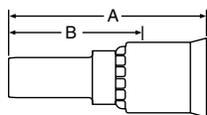
C – 316L stainless steel nipple and nut; 303 stainless steel shell.

90/91N Fittings

PERMANENT FITTINGS - 91N SERIES

1TU91N Universal Tube Stub Fitting

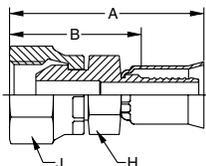
91N Series Permanent



Part Number	Inch	Inch	A		Cutoff Allow. B	
			Inch	MM	Inch	MM
1TU91N-2-3C	-3	1/8	1.33	34	7/8	22
1TU91N-3-3C	-3	3/16	1.33	34	7/8	22
1TU91N-4-4C	-4	1/4	1.63	41	1-1/16	27
1TU91N-4-5C	-5	1/4	1.70	43	1-1/16	27
1TU91N-6-6C	-6	3/8	1.81	46	1-3/16	30
1TU91N-8-8C	-8	1/2	2.72	58	1-7/16	37
1TU91N-8-10C	-10	1/2	2.14	54	1-7/16	37
1TU91N-10-10C (+)	-10	5/8	2.14	54	1-7/16	37
1TU91N-12-12C (+)	-12	3/4	2.24	57	1-7/16	37
1TU91N-16-16C	-16	1	2.73	69	1-3/4	44

NOTE: C – 316 stainless steel nipple, 303 stainless steel shell.

19291N Female BSP Swivel



91N Series Permanent

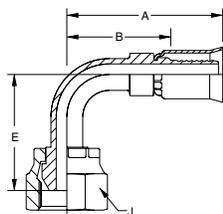
*Part Number	B	C	Thread Size	Inch	Tube Size	A		Cutoff Allow. B		H Hex	J Hex
						Inch	MM	Inch	MM	MM	MM
19291N-8-8	+	+	1/2-14	8	1/2	1.99	51	1-5/16	33	27	27
19291N-12-12	+	+	3/4-14	12	3/4	2.35	60	1-9/16	40	36	36

NOTE: * Steel nipple, nut and shell.

B – Brass nipple, brass nut, shell.

C – All components 303 stainless steel.

1B291N Female BSP Swivel 90° Elbow



91N Series Permanent

*Part Number	B	C	Thread Size	Inch	Tube Size	A		Cutoff Allow. B		E		J Hex
						Inch	MM	Inch	MM	Inch	MM	MM
1B291N-8-8	+	+	1/2-14	8	1/2	2.04	52	1-3/8	35	1.57	40	27
1B291N-12-12	+	+	3/4-14	12	3/4	2.93	74	2-1/8	54	2.54	65	36

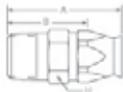
NOTE: * Steel nipple, tube, nut and shell.

B – Brass nipple, brass nut, shell.

C – All components 303 stainless steel.

FIELD ATTACHABLE FITTINGS - 90 SERIES

20190 - Male Pipe Rigid



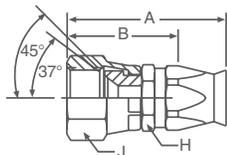
90 Series Field Attachable

Hose Number	Part Number	Thread Size	Deduct Length
-04*	20190-2-4	1/8"-27	29/32"
-04*	20190-4-4	1/4"-18	1-1/16"
-05*	20190-4-5	1/4"-18	1-1/8"
-06	20190-4-6	1/4"-18	1-1/8"
-06*	20190-6-6	3/8"-18	1-1/8"
-08	20190-6-8	3/8"-18	1-5/32"
-08*	20190-8-8	1/2"-14	1-15/32"
-10	20190-8-10	1/2"-14	1-7/16"
-12*	20190-12-12	3/4"-14	1-19/32"
-16	20190-12-16	3/4"-14	1-21/32"
-16	20190-16-16	1"-11 1/2	1-27/32"
-20	20190-20-20	1-1/4"-11 1/2	2-3/16"

NOTE: Brass nipple & ferrule and steel nut and socket.

*Denotes availability in stainless steel. Add suffix "S" for 303 SS nipple, ferrule and socket. Consult factory for availability

20690 - 37° Female Swivel



90 Series Field Attachable

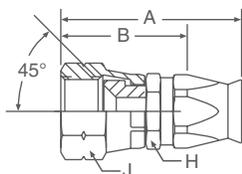
Hose Number	Part Number	Thread Size	Deduct Length
-04*	20690-4-4	7/16"-20	1-1/8"
-05*	20690-5-5	1/2"-20	1-3/32"
-06*	20690-6-6	9/16"-18	1-1/4"
-06	20690-8-6	3/4"-16	1-11/32"
-08*	20690-8-8	3/4"-16	1-3/8"
-10*	20690-8-10	3/4"-16	1-7/16"
-10*	20690-10-10	7/8"-14	1-9/16"
-12*	20690-12-12	1-1/16"-12	1-11/16"
-16*	20690-16-16	1-5/16"-12	1-15/16"
-20	20690-20-20	1-5/8"-12	2-5/16"

NOTE: Brass nipple & ferrule and steel nut and socket.

*Denotes availability in stainless steel. Add suffix "S" for 303 SS nipple, ferrule and socket. Consult factory for availability

FIELD ATTACHABLE FITTINGS - 90 SERIES

20890 - 45° SAE Female Swivel

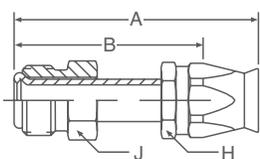


90 Series Field Attachable

Hose Number	Part Number	Thread Size	Deduct Length
-06	20890-6-6	5/8"-18	1-5/16"
-12	20890-12-12	1-1/16"-14	1-11/16"

NOTE: Brass nipple, ferrule, steel nut & socket.

22890 - Male Inverted Flare Swivel

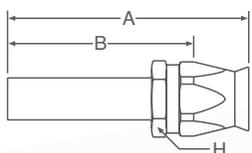


90 Series Field Attachable

Hose Number	Part Number	Thread Size	Deduct Length
-04	22890-4-4	7/16"-24	1-5/8"
-05	22890-5-5	1/2"-20	1-11/16"
-06	22890-5-6	1/2"-20	1-11/16"
-06	22890-6-6	5/8"-18	1-3/4"
-08	22890-8-8	3/4"-18	1-3/4"
-10	22890-10-10	7/8"-18	2-1/8"
-12	22890-12-12	1-1/16"-16	2-3/8"

NOTE: Brass ferrule, steel tube, nut & socket.

23490 - Straight Tube



90 Series Field Attachable

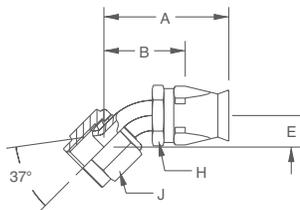
Hose Number	Part Number	Thread Size	Deduct Length
-08	23490-8-8	1/2"	2-7/16"
-10	23490-8-10	1/2"	2-1/2"
-08	23490-10-8	5/8"	2-11/16"
-10	23490-10-10	5/8"	2-5/8"
-12	23490-12-12	3/4"	3-1/16"

NOTE: Brass nipple and ferrule, steel socket.

FIELD ATTACHABLE FITTINGS - 90 SERIES

23790 - 37° JIC Female Swivel - 45° Elbow

90 Series Field Attachable

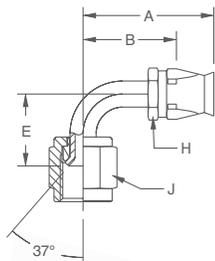


Hose Number	Part Number	Thread Size	Deduct Length
-04	23790-4-4	7/16"-20	1-3/8"
-05	23790-5-5	1/2"-20	1-1/8"
-06	23790-6-6	9/16"-18	1-3/16"
-06	23790-8-6	3/4"-16	1-19/32"
-08	23790-8-8	3/4"-16	1-5/8"
-10	23790-10-10	7/8"-14	1-25/32"
-12	23790-12-12	1-1/16"-12	2-7/32"
-16	23790-16-16	1-5/16"-12	2-1/2"

NOTE: Brass ferrule, steel tube, nut & socket.

23990 - 37° JIC Female Swivel - 90° Elbow

90 Series Field Attachable

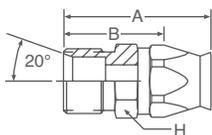


Hose Number	Part Number	Thread Size	Deduct Length
-04	23990-4-4	7/16"-20	1-1/4"
-05	23990-5-5	1/2"-20	1-1/4"
-06	23990-6-6	9/16"-18	1-3/32"
-06	23990-8-6	3/4"-16	1-1/4"
-08	23990-8-8	3/4"-16	1-1/2"
-10	23990-10-10	7/8"-14	1-1/2"
-12	23990-12-12	1-1/16"-12	2-5/16"
-16	23990-16-16	1-5/16"-12	2-1/2"

NOTE: Brass ferrule, steel tube, nut & socket.

26190 - SAE Compression Air Brake

90 Series Field Attachable



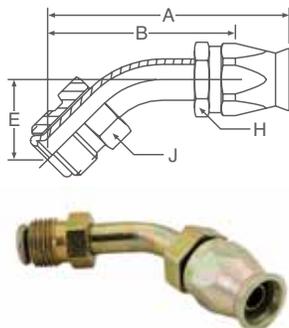
Hose Number	Part Number	Thread Size	Deduct Length
-08	26190-8-8	11/16"-20	1-1/16"
-10	26190-8-10	11/16"-20	1-5/32"
-10	26190-10-10	13/16"-18	1-15/16"
-10	26190-12-10	1"-18	1-5/16"
-12	26190-12-12	1"-18	1-13/16"

NOTE: Brass nipple & ferrule, carbon steel socket.
Use with 61HAB nut and 60HAB sleeve, nut included.



FIELD ATTACHABLE FITTINGS - 90 SERIES

26790 - SAE Male Inverted Flare Swivel - 45° Elbow

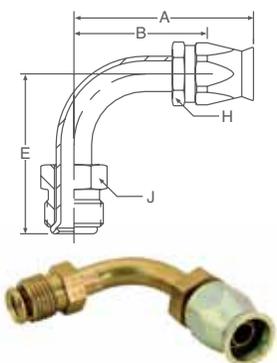


90 Series Field Attachable

Hose Number	Part Number	Thread Size	Deduct Length
-04	26790-4-4	7/16"-24	1-11/16"
-05	N/A	7/16"-24	1-11/16"
-05	26790-5-5	1/2"-20	2"
-06	26790-5-6	1/2"-20	2-1/16"
-06	26790-6-6	5/8"-18	2-1/8"
-08	26790-8-8	3/4"-18	2-1/16"
-12	26790-12-12	1-1/16"-16	2-15/32"

NOTE: Brass ferrule, steel tube, nut & socket.

26990 - SAE Male Inverted Flare Swivel - 90° Elbow

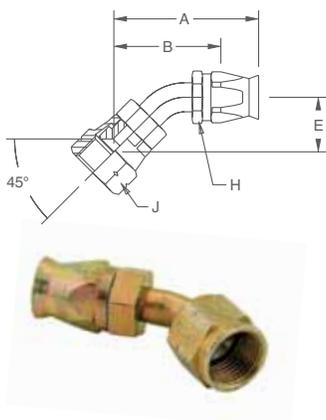


90 Series Field Attachable

Hose Number	Part Number	Thread Size	Deduct Length
-04	26990-4-4	7/16"-24	1-9/16"
-05	26990-4-5	7/16"-24	1-5/8"
-05	26990-5-5	1/2"-20	1-1/2"
-06	26990-5-6	1/2"-20	1-9/16"
-06	26990-6-6	5/8"-18	1-1/2"
-08	26990-8-8	3/4"-18	1-11/16"
-12	26990-12-12 *NS	1-1/16"-16	2-3/16"

NOTE: Brass ferrule, steel tube, nut & socket. * = Non Standard

27790 - 45° SAE Female Swivel - 45° Elbow



90 Series Field Attachable

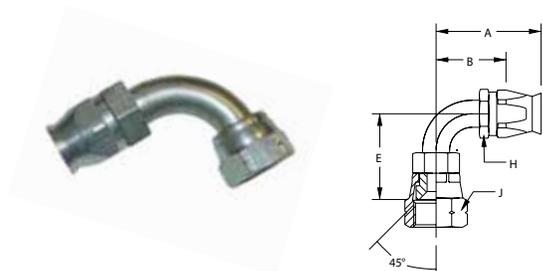
Hose Number	Part Number	Thread Size	Deduct Length
-06	27790-6-6	5/8" -18	1-3/16"
-12	27790-12-12	1-1/16" -14	2-7/32"

NOTE: Brass ferrule, steel tube, nut & socket.

90/91N Fittings

FIELD ATTACHABLE FITTINGS - 90 SERIES

27990 - 45° SAE Female Swivel - 90° Elbow



90 Series Field Attachable

Hose Number	Part Number	Thread Size	Deduct Length
-06	27990-6-6	5/8"-18	1-3/16"
-12	27990-12-12	1-1/16"-14	2-3/16"

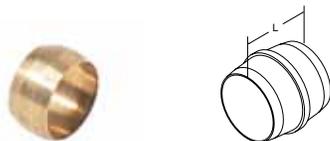
NOTE: Brass ferrule, steel tube, nut & socket.

60HAB

SAE Compression Airbrake Ferrule

Hose Number	Part Number	Tube Size
-08	60HAB-08	1/2"
-10	60HAB-10	5/8"
-12	60HAB-12	3/4"

NOTE: Use with Compression Airbrake Fittings.



61HAB

SAE Compression Airbrake Nut

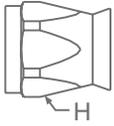
Hose Number	Part Number	Thread Size	Tube Size
-08	61HAB-08	1-1/16"- 20	1/2"
-10	61HAB-10	1-3/16"- 18	5/8"
-12	61HAB-12	1"- 18	3/4"

NOTE: Use with Compression Airbrake Fittings.



20090 - Replacement Socket

90 Series Field Attachable



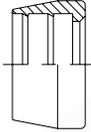
Hose Number	Part Number
-04*	20090-4
-05*	20090-5
-06*	20090-6
-08*	20090-8
-10*	20090-10
-12*	20090-12
-16*	20090-16



NOTE: * Denotes availability in stainless steel.
Add-S suffix for 303 SS Socket

090 - Replacement Ferrule

90 Series Field Attachable



Hose Number	Part Number
-04*	090-4B
-05*	090-5B
-06*	090-6B
-08*	090-8B
-10*	090-10B
-12*	090-12B
-16*	090-16B



NOTE: * Denotes availability in stainless steel.
Add-S suffix for 303 SS Socket

90/91N Fittings



ACCESSORIES

Harsh environments sometimes require assemblies with silicone fire sleeves, fluoropolymer heat shrink, polyolefin shrinkable chafe guard, spring guards or interlocked casings to prolong the life of the hose. PARKER PAGE manufactures every hose style with these options available.

Maximizing hose performance by adding cost reducing accessories such as Armor Guard, to increase the abrasion resistance of the hose, or a Fire Sleeve, to maintain an outer hose temperature for operator handling, can add weeks, months, and in some cases, even years to hose life. Cost for hose enhancing accessories is minimal compared to the savings you gain by keeping the hose operating longer in the field. Most of these product enhancements are available for hoses sized from 1/4" up to 4" and can be provided on almost any hose. In addition, several of the value added accessories may be purchased separately, allowing customers to value-up their existing hoses.

Available products include:
Silicone Covers, Stainless Steel Spring Guard, Armor Guard, Polyolefin Heat Shrink, and Fire Sleeve.

For use on all PAGE Hoses.



SFS Series Silicone Fire Sleeve

Hose Number	Fire Sleeve Number
-03	SFS-08
-04	SFS-08
-05	SFS-08
-06	SFS-12
-08	SFS-12
-10	SFS-12
-12	SFS-16
-16	SFS-20
-16Z	SFS-20
-20Z	SFS-24



TESTED in accordance with:
UL-73, NFPA-250, ASTM-E84

PARKER PAGE Fire Sleeve has a coating of specially compounded silicone rubber bonded to a low density high bulk fiberglass sleeve. This unique combination offers a temporary barrier to flame penetration and provides long term mechanical and environmental protection. Applications include steel manufacturing plants, foundries, glass factories and welding/cutting shops.

OPERATING TEMPERATURES:
Continuous: -65°F to +500°F (-18°C to +260°C)
Intermittent: -65°F to +2000°F (-18°C to +1093°C)

Accessories

ACCESSORIES

SG Series Spring Guard

Dash Number	Part Number	Hose Number	Spring Guard Number
-04	SG-04	-12	SG-12
-05	SG-05	-16	SG-16
-06	SG-06	-16Z	SG-16Z
-08	SG-08	-20Z	SG-20Z
-10	SG-10	-	-



PARKER PAGE Spring Guard is available in hot dipped galvanized carbon steel. This method of protection is well suited for applications where hose assemblies are subjected to rough handling, abrasion and severe flexing. A stainless steel internal support spring is also available for vacuum applications.

B2 Polyolefin Heat Shrink

Hose Number	Polyolefin HS
-03	B2-08-XXX
-04	B2-08-XXX
-05	B2-08-XXX
-06	B2-12-XXX
-08	B2-12-XXX
-10	B2-12-XXX
-12	B2-16-XXX
-16	B2-24-XXX
-16Z	B2-24-XXX
-20Z	B2-24-XXX



PARKER PAGE offers a very flexible, flame retarded, radiation crosslinked Polyolefin heat shrink to aid in the identification of hoses through color coding and also, protect surfaces from dirt and grim. Meets functional requirements of AMS-DTL-23053/5, Class 1E2.

COLORS AVAILABLE

- RED= Red BLK= Black
- WHI=White BLU=Blue
- YEL=Yellow GRY=Gray

Custom Printing Available Fluoropolymer Heat Shrink Available

NOTE: Replace XXX with 3 letter indicator for color. See color chart.
Example: B2-08-BLU = 1/2" Blue

OPERATING TEMPERATURES: Continuous: -65°F to +275°F (-18°C to +135°C)

SAG Armour Guard

Non Standard Product

Please contact Customer Service for sizing, delivery and pricing.
817.624.1329 • 800.847.7280 • email: page@parker.com



All ratings based on 72°F (22°C) - All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.



PARKER PAGE HOSE & FITTINGS SELECTION CHART

Hose Series	Description	Crimp Fitting	Crimp Collar	Crimpers		Factory Assembly	Field Attachable Fitting
				ParKrimp	Adjustable		
S30/S30B	Smoothbore - Nominal (0.030wall)	91N series (Cat. pages 39-50)	-	Yes	COS-K4 with special dies required	No	90 series (Cat. pages 51-55)
S40/S40B	Smoothbore - Nominal (0.040wall)	91N series (Cat. pages 39-50)	-	Yes	COS-K4 with special dies required	No	Not applicable
STW/STB	Smoothbore - True Bore	Two piece crimp fittings (Cat. pages 23-35)	ST300	No	Yes	No	Not applicable
SCW/SCB	Convuluted	Two piece crimp fittings (Cat. pages 23-35)	SC300	No	Yes	No	Not applicable
PCW/PCB	Convuluted	Two piece crimp fittings (Cat. pages 23-35)	PC300	No	Yes	No	Not applicable
SBP/SWPV	Platinum Cured Silicone	Two piece crimp fittings (Cat. pages 23-35)	SIL300	No	Yes	No	Not applicable
RCTW/RCTB	Rubber Covered Fluoropolymer	Two piece crimp fittings (Cat. pages 23-35)	RC300	No	Yes	No	Not applicable
SCW/SCBV	Convuluted - Heavy Wall	Two piece crimp fittings (Cat. pages 23-35)	SC300	No	Yes	Yes	Not applicable
PCW/PCBV	Convuluted - Heavy Wall	Two piece crimp fittings (Cat. pages 23-35)	PC300	No	Yes	Yes	Not applicable

Inserts & Collars Sold Separately

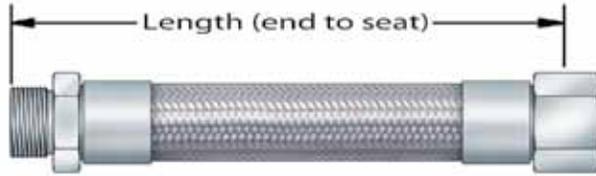
Examples:

If you need a Female JIC Swivel Fitting for a 08-SCW Hose (1/2" Convuluted), place an order for (1) 08-08 FJX-S and (1) 08-SC300.

If you need a Male Pipe Fitting for a 12-RCTW Hose, place an order for (1) 12-12 MP-S and (1) 12-RC300.



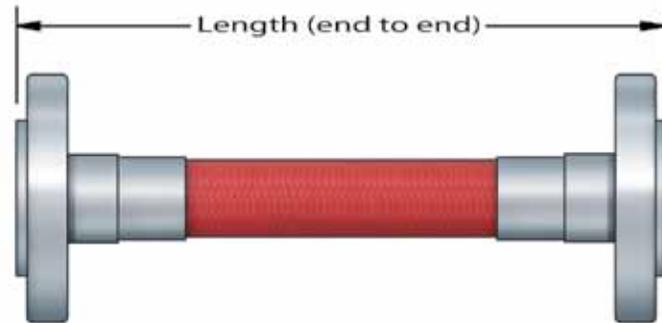
MEASURING ASSEMBLY LENGTH



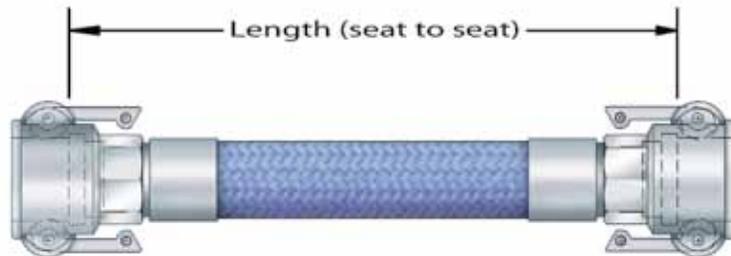
Male Pipe x Female JIC Assembly



Female JIC x Female JIC Assembly



Flange x Flange assembly



Cam & Groove x
Cam & Groove Assembly



Sanitary x Sanitary Assembly



PARKER PAGE BRAIDING CHARACTERISTICS

BRAID TYPE	CHARACTERISTICS	POOR	FAIR	GOOD	EXCELLENT
STAINLESS STEEL Temperature Rating on Hose -100°F to + 500°F (-73°C to +260°C)	Tensile Strength				●
	Abrasion Resistance				●
	Chemical Resistance			●	
	Corrosion Resistance			●	
	High Temperature Capabilities				●
	Durability			●	
	Personal Handling Safety		●		
POLYPROPYLENE Temperature Rating on Hose 0°F to + 212°F (-18°C to +100°C)	Tensile Strength		●		
	Abrasion Resistance			●	
	Chemical Resistance			●	
	Corrosion Resistance				●
	High Temperature Capabilities	●			
	Durability			●	
	Personal Handling Safety				●
Kynar® (PVDF) Temperature Rating on Hose -40°F to + 280°F (-40°C to +138°C)	Tensile Strength			●	
	Abrasion Resistance			●	
	Chemical Resistance				●
	Corrosion Resistance				●
	High Temperature Capabilities			●	
	Durability			●	
	Personal Handling Safety				●
PEEK™ Temperature Rating on Hose -65°F to + 500°F (-54°C to +260°C)	Tensile Strength				●
	Abrasion Resistance				●
	Chemical Resistance				●
	Corrosion Resistance				●
	High Temperature Capabilities				●
	Durability				●
	Personal Handling Safety				●
KEVLAR® Temperature Rating on Hose -100°F to + 350°F (-73°C to +177°C)	Tensile Strength				●
	Abrasion Resistance			●	
	Chemical Resistance		●		
	Corrosion Resistance				●
	High Temperature Capabilities			●	
	Durability		●		
	Personal Handling Safety				●
Nomex® Temperature Rating on Hose -100°F to + 400°F (-73°C to +204°C)	Tensile Strength		●		
	Abrasion Resistance			●	
	Chemical Resistance			●	
	Corrosion Resistance				●
	High Temperature Capabilities				●
	Durability			●	
	Personal Handling Safety				●

Other braid materials available such as Polyester, Monel and Hastelloy. Consult Customer Service for minimum quantities and special quotes.

Technical

SUMMARY OF PROPERTIES

	PROPERTY	ASTM	UNITS	PTFE	FEP	PFA	ETFE	PDVF	PEEK
Mechanical	Tensile Strength	D 1708	PSI	2,500-4,000	3,500	4,000	7,500	D 638 5,000	D 638 13,300
	Specific Gravity	D 792		2.13-2.24	2.15	2.15	1.70	1.8	1.32
	Coefficient of Friction	Dynamic (<10ft/min)		0.1	0.2	0.2	0.4	0.14 0.17	0.18
	Compressive Strength	D 695	PSI	3,500	2,200		7,100	11,600	17,100
	Impact Strength 73°F	D 256	Ft-Lb/in	3.5	No Break	No Break	No Break	3-6	655
	Flexural Modulus 73°F	D 790	PSI	27,000	95,000	95,000	200,000		530,800
	Tensile Modulus	D 638	PSI	80,000	60,000	40,000	120,000	348,000	522,100
	Hardness-Durometer	D 2240		D-50-65	D-55	D-60	D-75	D-76-80	
	Elongation	D 1708	%	200-400	300	300	100-300	D 630 150	D 638 50
	Flexural Strength	D 790	PSI	No Break	No Break	No Break	37.9 5,500	10,750	24,700
	Water Absorption	D 570	%	<0.01	<0.01	<0.03	<0.03	<0.04	<0.05
	Deformation Under Load (73°F, 1000 PSI, 24 HR)	D 621		3.5	1.8	2.0	0.6		
	Linear Coefficient of Expansion (70-212°F) (212-300°F) (300-408°F)	D 696	in/in/°F	3.8 5 x 10 ⁻⁶ 4.2 5 x 10 ⁻⁶ 5.0 5 x 10 ⁻⁶	4.5-5.8 x 10 ⁻⁶	6.7 x 10 ⁻⁶ 9.4 x 10 ⁻⁶ 11.1 x 10 ⁻⁶	5.0 x 10 ⁻⁶ 7.0 x 10 ⁻⁶	7.1 x 10 ⁻⁶	2.6 x 10 ⁻⁶
	Flex Life (MIT)			>1,000,000	<80,000	<500,000	<25,000		
Creep Resistance	D 674	LB/Sq In			40,000				
Electrical	Dielectric Strength (Short Term) 10Mil Film	D 149	V/Mil	>1,400	>2,000	>2,000	>2,000	>1080	>500
	Volume Resistivity	D 257	ohm-cm	>10 ¹⁶	>10 ¹⁶	>10 ¹⁶	>10 ¹⁶	>10 ¹³	>4.9 10 ¹⁶
	Surface Resistivity	D 257	ohm/Sq	>10 ¹⁶	>10 ¹⁶	>10 ¹⁷	>10 ¹⁴		
Thermal	Continuous Service Temperature		°F	500	400	500	302	235	482
	Melting Point	DTA	°F	635-650	500-530	575-590	490-535	352	633
	Thermal Conductivity	C-177	BTU/hr/ft ² /°F.in	1.7	1.4	1.32	1.65	1.31	1.2
	Heat of Fusion		BTU/lb	29-37	11	13	20		
	Specific Heat 25°C 100°C 200°C 275°C	C-177	Cal/g/°C	0.23 0.25 0.27 0.29	0.26	0.256 0.283 0.334 0.391	0.46-0.47	.30-.34	
	Low Temperature Embrittlement		°F				-150°		
	Deflection Temperature 66 PSI 264 PSI		°F	252 131	138 134	166 118	220 160	235	285
	Heat of Combustion		BTU/lb	2,200		2,200	8,100		
Other	Flammability Rating	UL 94		V0	V0	V0	V0	V0	V0
	Retractive Index	D 542		1.35	1.338	1.35	1.40		
	Limiting Oxygen Index			>95	>95	>95	30-31		

Technical



HOSE DIAMETER/FLOW RATE/VELOCITY GUIDE

Selection of Hose Diameter from Flow Rate and Velocity

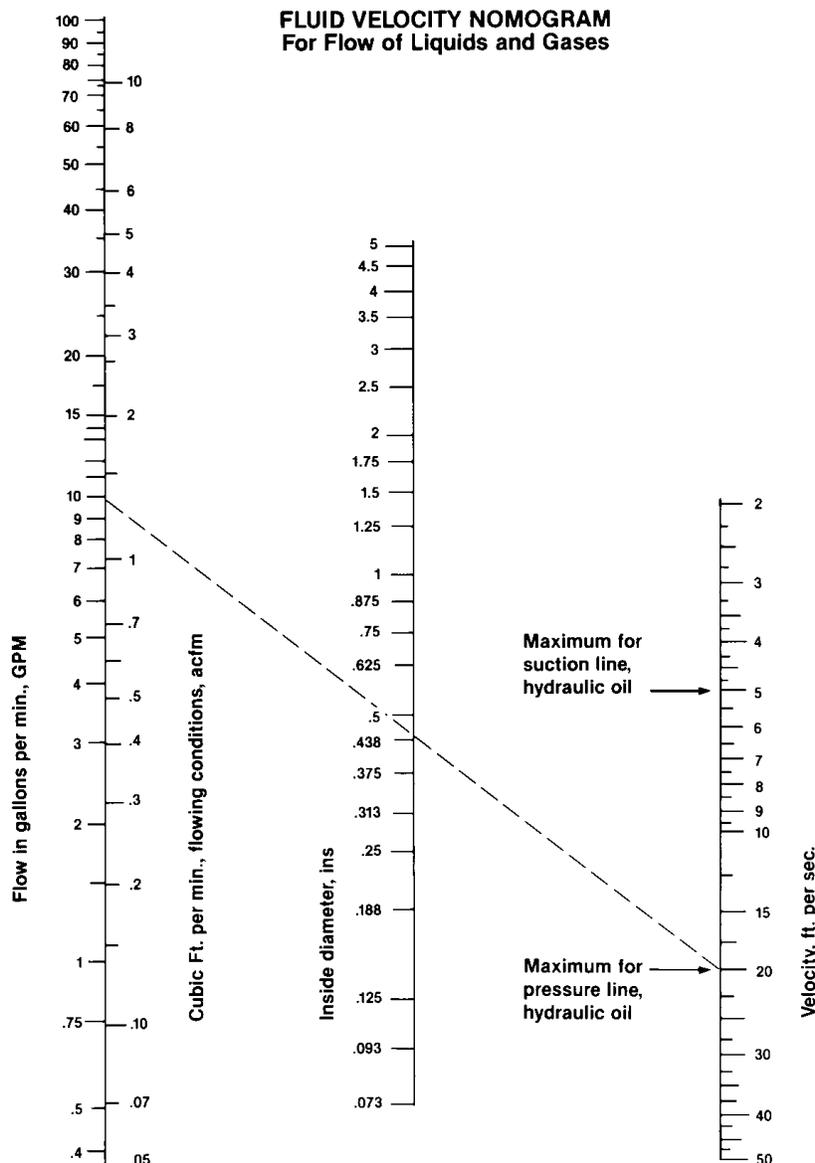
The Fluid Velocity Nomogram gives the velocity of a liquid or gas as a function of flow rate and inside diameter of the fluid line. The commonly recommended maximum velocities for hydraulic oil systems at 200°F or less are indicated for guidance.

Example: At 10 gpm, what is the minimum size within the recommended velocity range for a hydraulic pressure line?

The dashed line drawn from the 10 gpm mark on the left hand line to the maximum velocity of 20 fps intersects the middle line at .438 " (7/16" I. D. hose or tubing).

For a hose application, use 1/2" I. D., the nearest common standard size.

This chart is based on the following formulas: $V_{fps} = \frac{.321Q}{pd^2}$, Q = gal per min
d = hose or tube I. D. (inch)



$$\text{cu. ft./min.} = .1337 Q^4$$

The cu. ft. per min. value is the actual volume flow rate under flowing conditions.

For air, standard cfm of free air = 7.81 actual cfm when the inlet air is at 100 PSig, 68°F.

Technical

HOSE ASSEMBLY & CRIMPING

Permanent Fittings

1 Cut

Using a power hose cutoff saw, cut hose squarely.



NOTE

PTFE Hose should be taped prior to cutting. Hose should be cut at center point of taped section.

2 Inspection

Hose – Visually inspect both ends of hose for square cut. Remove any burrs, loose fibers or wires.



Fittings – Verify fitting series corresponds to the selected hose. Visually inspect fitting(s) for a through-hole, threads and damage.

3 Prep Assembly

Insertion Depth – Mark hose end with proper insertion depth line. For jacketed PTFE hoses, use a sharp knife and light pressure to cut back the cover at least the length of the insertion depth of the fitting.



WARNING

Do not use lubricating oil when installing fittings on hose used in oxygen service. When installing fittings on hose used in oxygen service, lubricate with a non-oil based soap solution. Failure to do so may result in an explosion and personal injury



Assemble Hose – Push fitting onto hose slightly and then remove tape. Continue pushing fitting onto hose until fitting reaches depth insertion mark.



HOSE ASSEMBLY & CRIMPING

Permanent Fittings

4 Die Selection

Select proper Parkrimp die set.
(Reference Crimpsource online at www.parker.com/crimpsource)



5 Lubricate Bowl

Using a premium, quality, lithium-base grease, apply a thin layer of grease on bowl of crimper base plate.



6 Die & Spacer Ring

Crimp Die – Place die set into bowl.



Die Ring – Place applicable die ring on top of die.
Position ring so it is centered on die.

Parflex hoses utilize silver die ring.

(Reference Crimpsource online at www.parker.com/crimpsource)



7 Crimp

Assemble hose – Insert hose and fitting from bottom of crimper and up through die set. Position fitting so bottom of fitting skirt rests on die step (PARKALIGN feature).

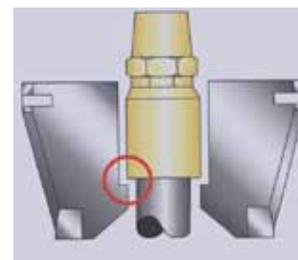


WARNING

*Keep fingers and hands away from die-pusher area.
Failure to do so may result in personal injury.*

NOTE

Pump on crimper should not exceed 3000 PSI. Parker Hannifin will not accept responsibility for the operation of or provide warranty coverage for a crimper that is operated by a power unit other than equipment supplied by Parker Hannifin for the express purpose of operating the crimper.



While holding hose and fitting in position on die step, crimp fitting onto hose until die ring contacts base plate.

Technical

HOSE ASSEMBLY & CRIMPING

Permanent Fittings

8 Measure & Inspect

Crimp Die – Place die set into bowl.



Measure and verify hose assembly length.



Inspect insertion depth mark at fitting ends. Insertion mark must be visible and within 1/8" of bottom of fitting shell.



Measure crimp diameter of each fitting at top, middle and bottom of shell. Take measurements at a minimum of three places around shell circumference. Verify crimp diameter is within tolerances. (Reference

Technical



HOSE ASSEMBLY & CRIMPING

Field Attachable Fittings

1 Inspection

Hose – Visually inspect both ends of hose for square cut. Remove any burrs, loose fibers or wires.



FITTINGS –Inspect each component for possible damage. In addition, inspect socket and nipple for a through-hole and threads.



2 Assembly

Slide two sockets over end of hose with bottom of sockets back to back. Position sockets at each end of hose.



NOTE

When installing sockets on hose, check hose ends to determine if wire braid “necks down” (bends inward). If one end “necks down” use this end to slide sockets onto hose.



3 Assembly

Mount nipple hex in vise. Ensure nipple end extends beyond vise jaws sufficiently to allow installation of hose.



Push hose bore onto nipple to size tube and to aid in separating braid before assembling ferrule onto hose.

Once completed, remove hose from nipple.



Technical

HOSE ASSEMBLY & CRIMPING

Field Attachable Fittings

4 Assembly

By hand, push sleeve over end of PTFE core tube and under wire braid.



To complete positioning of sleeve, push hose end with sleeve, against a solid flat surface.



5 Assembly

Verify tube butts against inside shoulder of ferrule.



Using a tapered punch, push punch into end of sleeve and tube to set sleeve barbs into tube.



6 Assembly

Using SAE 20 weight oil, lubricate nipple and socket threads. For stainless steel fittings, use Parker ThreadMate™ or a molybdenum type lubricant.



WARNING

Do not use lubricating oil when installing fittings on hose used in oxygen service. When installing fittings on hose used in oxygen service lubricate with a non-oil based soap solution. Failure to do so may result in an explosion and personal injury when hose is used.



Assemble hose – Using a twisting motion, push hose over nipple until hose is seated against nipple chamfer.



HOSE ASSEMBLY & CRIMPING

Field Attachable Fittings

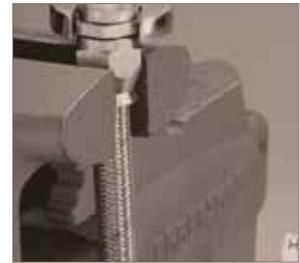
7 Assembly

Push socket forward and hand-start threading of socket to nipple.



CAUTION

When tightening socket in vise, do not over tighten vise jaws. Over tightening vise jaws will distort internal threads of socket.



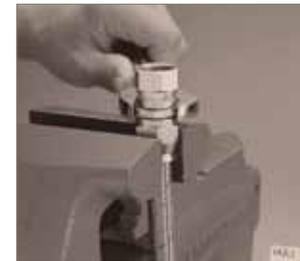
Remove assembly from vise and reposition with socket in vise jaws. Ensure socket extends beyond vise jaws far enough to allow nipple to be completely tightened.

8 Assembly

Wrench tighten nipple hex until clearance between hex and socket hex is 1/32" or less.



Tighten further to align corners of nipple and socket hexes if necessary.



9 Measure & Inspect

Measure and verify hose assembly length.



Technical



! Parker Safety Guide for Selecting and Using Hose, Tubing, Fittings and Related Accessories
Publication No. 4400-B.1
Revised: August 2007

WARNING: Failure or improper selection or improper use of hose, tubing, assemblies, fittings, quick action couplings or related accessories ("Products") can cause death, personal injury and property damage. Possible consequences of failure or improper selection or improper use of these Products include but are not limited to:

- Fittings thrown off at high speed.
- High velocity fluid discharge.
- Explosion or burning of the conveyed fluid.
- Electrocutation from high voltage electric power lines.
- Contact with suddenly moving or falling objects that are controlled by the conveyed fluid.
- Injections by high-pressure fluid discharge.
- Dangerously whipping hose.
- Contact with conveyed fluids that may be hot, cold, toxic, or otherwise injurious.
- Sparking or explosion caused by static electricity buildup or other sources of electricity.
- Sparking or explosion while spraying paint or flammable liquids.
- Injuries resulting from inhalation, ingestion or exposure to fluids.

Before selecting or using any of these Products, it is important that you read and follow the instructions below. Only Hose from Parker's Stratoflex Products Division is approved for in-flight aerospace applications.

1.0 GENERAL INSTRUCTIONS

1.1 Scope: This safety guide provides instructions for selecting and using (including assembling, installing, and maintaining) these Products. For convenience, all rubber and/or thermoplastic products commonly called "hose" or "tubing" are called "Hose" in this safety guide. All assemblies made with Hose are called "Hose Assemblies". All products commonly called "fittings", "couplings" or "adapters" are called "Fittings". All related accessories (including crimping and swaging machines and tooling) are called "Related Accessories". This safety guide is a supplement to and is to be used with, the specific Parker publications for the specific Hose, Fittings and Related Accessories that are being considered for use. Parker publications are available at www.parker.com. SAE J1273 (www.sae.org) and ISO 17165-2 (www.ansi.org) also provide recommended practices for hydraulic Hose Assemblies.

1.2 Fail-Safe: Hose, Hose Assemblies and Fittings can and do fail without warning for many reasons. Design all systems and equipment in a fail-safe mode, so that failure of the Hose, or Hose Assembly or Fitting will not endanger persons or property.

1.3 Distribution: Provide a copy of this safety guide to each person responsible for selecting or using Hose and Fitting products. Do not select or use Parker Hose or Fittings without thoroughly reading and understanding this safety guide as well as the specific Parker publications for the Products.

1.4 User Responsibility: Due to the wide variety of operating conditions and applications for Hose and Fittings, Parker does not represent or warrant that any particular Hose or Fitting is suitable for any specific end use system. This safety guide does not analyze all technical parameters that must be considered in selecting a product. The user, through its own analysis and testing, is solely responsible for:

- Making the final selection of the Products.
- Assuring that the user's requirements are met and that the application presents no health or safety hazards.
- Providing all appropriate health and safety warnings on the equipment on which the Products are used.
- Assuring compliance with all applicable government and industry standards.

1.5 Additional Questions: Call the appropriate Parker technical service department if you have any questions or require any additional information. See the Parker publication for the Products being considered or used, or call 1-800-CPARKER, or go to www.parker.com, for telephone numbers of the appropriate technical service department.

2.0 HOSE AND FITTINGS SELECTION INSTRUCTIONS

2.1 Electrical Conductivity: Certain applications require that the Hose be nonconductive to prevent electrical current flow. Other applications require the Hose and the Fittings and the Hose/Fitting interface to be sufficiently conductive to drain off static electricity. Extreme care must be exercised when selecting Hose and Fittings for these or any other applications in which electrical conductivity or nonconductivity is a factor.

The electrical conductivity or nonconductivity of Hose and Fittings is dependent upon many factors and may be susceptible to change. These factors include but are not limited to the various materials used to make the Hose and the Fittings, Fitting finish (some Fitting finishes are electrically conductive while others are nonconductive), manufacturing methods (including moisture control), how the Fittings contact the Hose, age and amount of deterioration or damage or other changes, moisture content of the Hose at any particular time, and other factors. The following are considerations for electrically nonconductive and conductive Hose. For other applications consult the individual catalog pages and the appropriate industry or regulatory standards for proper selection.

2.1.1 Electrically Nonconductive Hose: Certain applications require that the Hose be nonconductive to prevent electrical current flow or to maintain electrical isolation. For applications that require Hose to be electrically nonconductive, including but not limited to applications near high voltage electric lines, only special nonconductive Hose can be used. The manufacturer of the equipment in which the nonconductive Hose is to be used must be consulted to be certain that the Hose and Fittings that are selected are proper for the application. Do not use any Parker Hose or Fittings for any such application requiring nonconductive Hose, including but not limited to applications near high voltage electric lines, unless (i) the application is expressly approved in the Parker technical publication for the product, (ii) the Hose is marked "nonconductive", and (iii) the manufacturer of the equipment on which the Hose is to be used specifically approves the particular Parker Hose and Fittings for such use.

2.1.2 Electrically Conductive Hose: Parker manufactures special Hose for certain applications that require electrically conductive Hose.

Parker manufactures special Hose for conveying paint in airless paint spraying applications. This Hose is labeled "Electrically Conductive Airless Paint Spray Hose" on its layline and packaging. This Hose must be properly connected to the appropriate Parker Fittings and properly grounded in order to dissipate dangerous static charge buildup, which occurs in all airless paint spraying applications. Do not use any other Hose for airless paint spraying, even if electrically conductive. Use of any other Hose or failure to properly connect the Hose can cause a fire or an explosion resulting in death, personal injury, and property damage.

Parker manufactures a special Hose for certain compressed natural gas ("CNG") applications where static electricity buildup may occur. Parker CNG Hose assemblies comply with the requirements of ANSI/IAS NGV 4.2-1999; CSA 12.52-M99, "Hoses for Natural Gas Vehicles and Dispensing Systems" (www.ansi.org). This Hose is labeled "Electrically Conductive for CNG Use" on its layline and packaging. This Hose must be properly connected to the appropriate Parker Fittings and properly grounded in order to dissipate dangerous static charge buildup, which occurs in, for example, high velocity CNG dispensing or transfer. Do not use any other Hose for CNG applications where static charge buildup may occur, even if electrically conductive. Use of other Hoses in CNG applications or failure to properly connect or ground this Hose can cause a fire or an explosion resulting in death, personal injury, and property damage. Care must also be taken to protect against CNG permeation through the Hose wall. See section 2.6, Permeation, for more information. Parker CNG Hose is intended for dispenser and vehicle use at a maximum temperature of 180°F (82°C). Parker CNG Hose should not be used in confined spaces or unventilated areas or areas exceeding 180°F (82°C). Final assemblies must be tested for leaks. CNG Hose Assemblies should be tested on a monthly basis for conductivity per ANSI/IAS NGV 4.2-1999; CSA 12.52-M99.

Parker manufactures special Hose for aerospace in-flight applications. Aerospace in-flight applications employing Hose to transmit fuel, lubricating fluids and hydraulic fluids require a special Hose with a conductive inner tube. This Hose for in-flight applications is available only from Parker's Stratoflex Products Division. Do not use any other Parker Hose for in-flight applications, even if electrically conductive. Use of other Hoses for in-flight applications or failure to properly connect or ground this Hose can cause a fire or an explosion resulting in death, personal injury and property damage. These Hose assemblies for in-flight applications must meet all applicable aerospace industry, aircraft engine and aircraft requirements.

2.2 Pressure: Hose selection must be made so that the published maximum working pressure of the Hose and Fittings are equal to or greater than the maximum system pressure. The maximum working pressure of a Hose Assembly is the lower of the respective published maximum working pressures of the Hose and the Fittings used. Surge pressures or peak transient pressures in the system must be below the published maximum working pressure for the Hose. Surge pressures and peak pressures can usually only be determined by sensitive electrical instrumentation that measures and indicates pressures at millisecond intervals. Mechanical pressure gauges indicate only average pressures and cannot be used to determine surge pressures or peak transient pressures. Published burst pressure ratings for Hose is for manufacturing test purposes only and is no indication that the Product can be used in applications at the burst pressure or otherwise above the published maximum recommended working pressure.

2.3 Suction: Hoses used for suction applications must be selected to insure that the Hose will withstand the vacuum and pressure of the system. Improperly selected Hose may collapse in suction application.

2.4 Temperature: Be certain that fluid and ambient temperatures, both steady and transient, do not exceed the limitations of the Hose. Temperatures below and above the



recommended limit can degrade Hose to a point where a failure may occur and release fluid. Properly insulate and protect the Hose Assembly when routing near hot objects (e.g. manifolds). Do not use any Hose in any application where failure of the Hose could result in the conveyed fluids (or vapors or mist from the conveyed fluids) contacting any open flame, molten metal, or other potential fire ignition source that could cause burning or explosion of the conveyed fluids or vapors.

2.5 Fluid Compatibility: Hose Assembly selection must assure compatibility of the Hose tube, cover, reinforcement, and Fittings with the fluid media used. See the fluid compatibility chart in the Parker publication for the product being considered or used. This information is offered only as a guide. Actual service life can only be determined by the end user by testing under all extreme conditions and other analysis.

Hose that is chemically compatible with a particular fluid must be assembled using Fittings and adapters containing likewise compatible seals.

2.6 Permeation: Permeation (that is, seepage through the Hose) will occur from inside the Hose to outside when Hose is used with gases, liquid and gas fuels, and refrigerants (including but not limited to such materials as helium, diesel fuel, gasoline, natural gas, or LPG). This permeation may result in high concentrations of vapors which are potentially flammable, explosive, or toxic, and in loss of fluid. Dangerous explosions, fires, and other hazards can result when using the wrong Hose for such applications. The system designer must take into account the fact that this permeation will take place and must not use Hose if this permeation could be hazardous. The system designer must take into account all legal, government, insurance, or any other special regulations which govern the use of fuels and refrigerants. Never use a Hose even though the fluid compatibility is acceptable without considering the potential hazardous effects that can result from permeation through the Hose Assembly.

Permeation of moisture from outside the Hose to inside the Hose will also occur in Hose assemblies, regardless of internal pressure. If this moisture permeation would have detrimental effects (particularly, but not limited to refrigeration and air conditioning systems), incorporation of sufficient drying capacity in the system or other appropriate system safeguards should be selected and used.

2.7 Size: Transmission of power by means of pressurized fluid varies with pressure and rate of flow. The size of the components must be adequate to keep pressure losses to a minimum and avoid damage due to heat generation or excessive fluid velocity.

2.8 Routing: Attention must be given to optimum routing to minimize inherent problems (kinking or flow restriction due to Hose collapse, twisting of the Hose, proximity to hot objects or heat sources). For additional routing recommendations see SAE J1273 and ISO 17165-2. Hose Assemblies have a finite life and if possible, should be installed in a manner that allows for ease of inspection and future replacement. Rubber Hose because of its relative short life, should not be used in residential and commercial buildings for HVAC (heating, ventilating and air conditioning) applications.

2.9 Environment: Care must be taken to insure that the Hose and Fittings are either compatible with or protected from the environment (that is, surrounding conditions) to which they are exposed. Environmental conditions including but not limited to ultraviolet radiation, sunlight, heat, ozone, moisture, water, salt water, chemicals and air pollutants can cause degradation and premature failure.

2.10 Mechanical Loads: External forces can significantly reduce Hose life or cause failure. Mechanical loads which must be considered include excessive flexing, twist, kinking, tensile or side loads, bend radius, and vibration. Use of swivel type Fittings or adapters may be required to insure no twist is put into the Hose. Unusual applications may require special testing prior to Hose selection.

2.11 Physical Damage: Care must be taken to protect Hose from wear, snagging, kinking, bending smaller than minimum bend radius and cutting, any of which can cause premature Hose failure. Any Hose that has been kinked or bent to a radius smaller than the minimum bend radius, and any Hose that has been cut or is cracked or is otherwise damaged should be removed and discarded.

2.12 Proper End Fitting: See instructions 3.2 through 3.5. These recommendations may be substantiated by testing to industry standards such as SAE J517 for hydraulic applications, or MIL-A-5070, AS1339, or AS3517 for Hoses from Parker's Stratoflex Products Division for aerospace applications.

2.13 Length: When establishing a proper Hose length, motion absorption, Hose length changes due to pressure, and Hose and machine tolerances and movement must be considered.

2.14 Specifications and Standards: When selecting Hose and Fittings, government, industry, and Parker specifications and recommendations must be reviewed and followed as applicable.

2.15 Hose Cleanliness: Hose components may vary in cleanliness levels. Care must be taken to insure that the Hose Assembly selected has an adequate level of cleanliness for the application.

2.16 Fire Resistant Fluids: Some fire resistant fluids that are to be conveyed by Hose require use of the same type of Hose as used with petroleum base fluids. Some such fluids require a special Hose, while a few fluids will not work with any Hose at all. See instructions 2.5 and 1.5. The wrong Hose may fail after a very short service. In addition, all liquids but pure water may burn fiercely under certain conditions, and even pure water leakage may be hazardous.

2.17 Radiant Heat: Hose can be heated to destruction without contact by such nearby items as hot manifolds or molten metal. The same heat source may then initiate a fire. This can occur despite the presence of cool air around the Hose.

2.18 Welding or Brazing: When using a torch or arc welder in close proximity to hydraulic lines, the hydraulic lines should be removed or shielded with appropriate fire resistant materials. Flame or weld spatter could burn through the Hose and possibly ignite escaping fluid resulting in a catastrophic failure. Heating of plated parts, including Hose Fittings and adapters, above 450°F (232°C) such as during welding, brazing or soldering may emit deadly gases.

2.19 Atomic Radiation: Atomic radiation affects all materials used in Hose assemblies. Since the long-term effects may be unknown, do not expose Hose assemblies to atomic radiation.

2.20 Aerospace Applications: The only Hose and Fittings that may be used for in-flight aerospace applications are those available from Parker's Stratoflex Products Division. Do not use any other Hose or Fittings for in-flight applications. Do not use any Hose or Fittings from Parker's Stratoflex Products Division with any other Hose or Fittings, unless expressly approved in writing by the engineering manager or chief engineer of Stratoflex Products Division and verified by the user's own testing and inspection to aerospace industry standards.

2.21 Unlocking Couplings: Ball locking Couplings or other Fittings with quick disconnect ability can unintentionally disconnect if they are dragged over obstructions, or if the sleeve or other disconnect member is bumped or moved enough to cause disconnect. Threaded Fittings should be considered where there is a potential for accidental uncoupling.

3.0 HOSE AND FITTINGS ASSEMBLY AND INSTALLATION INSTRUCTIONS

3.1 Component Inspection: Prior to assembly, a careful examination of the Hose and Fittings must be performed. All components must be checked for correct style, size, catalog number, and length. The Hose must be examined for cleanliness, obstructions, blisters, cover looseness, kinks, cracks, cuts or any other visible defects. Inspect the Fitting and sealing surfaces for burrs, nicks, corrosion or other imperfections. Do NOT use any component that displays any signs of nonconformance.

3.2 Hose and Fitting Assembly: Do not assemble a Parker Fitting on a Parker Hose that is not specifically listed by Parker for that Fitting, unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division. Do not assemble a Parker Fitting on another manufacturer's Hose or a Parker Hose on another manufacturer's Fitting unless (i) the engineering manager or chief engineer of the appropriate Parker division approves the Assembly in writing or that combination is expressly approved in the appropriate Parker literature for the specific Parker product, and (ii) the user verifies the Assembly and the application through analysis and testing. For Parker Hose that does not specify a Parker Fitting, the user is solely responsible for the selection of the proper Fitting and Hose Assembly procedures. See instruction 1.4.

To prevent the possibility of problems such as leakage at the Fitting or system contamination, it is important to completely remove all debris from the cutting operation before installation of the Fittings. The Parker published instructions must be followed for assembling the Fittings on the Hose. These instructions are provided in the Parker Fitting catalog for the specific Parker Fitting being used, or by calling 1-800-CPARKER, or at www.parker.com.

3.3 Related Accessories: Do not crimp or swage any Parker Hose or Fitting with anything but the listed swage or crimp machine and dies in accordance with Parker published instructions. Do not crimp or swage another manufacturer's Fitting with a Parker crimp or swage die unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division.

3.4 Parts: Do not use any Parker Fitting part (including but not limited to socket, shell, nipple, or insert) except with the correct Parker mating parts, in accordance with Parker published instructions, unless authorized in writing by the engineering manager or chief engineer of the appropriate Parker division.

3.5 Field Attachable/Permanent: Do not reuse any field attachable Hose Fitting that has blown or pulled off a Hose. Do not reuse a Parker permanent Hose Fitting (crimped or swaged) or any part thereof. Complete Hose Assemblies may only be reused after proper inspection under section 4.0. Do not assemble Fittings to any previously used hydraulic Hose that was in service, for use in a fluid power application.

3.6 Pre-Installation Inspection: Prior to installation, a careful examination of the Hose Assembly must be performed. Inspect the Hose Assembly for any damage or defects. DO NOT use any Hose Assembly that displays any signs of nonconformance.

3.7 Minimum Bend Radius: Installation of a Hose at less than the minimum listed bend radius may significantly reduce the Hose life. Particular attention must be given to preclude sharp bending at the Hose to Fitting juncture. Any bending during installation at less than the minimum bend radius must be avoided. If any Hose is kinked during installation, the Hose must be discarded.

3.8 Twist Angle and Orientation: Hose Assembly installation must be such that relative motion of machine components does not produce twisting.

3.9 Securement: In many applications, it may be necessary to restrain, protect, or guide the Hose to protect it from damage by unnecessary flexing, pressure surges, and contact with other mechanical components. Care must be taken to insure such restraints do not introduce additional stress or wear points.

3.10 Proper Connection of Ports: Proper physical installation of the Hose Assembly requires a correctly installed port connection insuring that no twist or torque is transferred to the Hose when the Fittings are being tightened or otherwise during use.

3.11 External Damage: Proper installation is not complete without insuring that tensile loads, side loads, kinking, flattening, potential abrasion, thread damage or damage to sealing surfaces are corrected or eliminated. See instruction 2.10.

3.12 System Checkout: All air entrapment must be eliminated and the system pressurized to the maximum system pressure (at or below the Hose maximum working pressure) and checked for proper function and freedom from leaks. Personnel must stay out of potential hazardous areas while testing and using.

3.13 Routing: The Hose Assembly should be routed in such a manner so if a failure does occur, the escaping media will not cause personal injury or property damage. In addition, if fluid media comes in contact with hot surfaces, open flame or sparks, a fire or explosion may occur. See section 2.4.

3.14 Ground Fault Equipment Protection Devices (GFEPDs): WARNING! Fire and Shock Hazard. To minimize the danger of fire if the heating cable of a Multitube bundle is damaged or improperly installed, use a Ground Fault Equipment Protection Device. Electrical fault currents may be insufficient to trip a conventional circuit breaker.

For ground fault protection, the IEEE 515:1989 (www.ansi.org) standard for heating cables recommends the use of GFEPDs with a nominal 30 milliampere trip level for "piping systems in classified areas, those areas requiring a high degree of maintenance, or which may be exposed to physical abuse or corrosive atmospheres".

4.0 HOSE AND FITTING MAINTENANCE AND REPLACEMENT INSTRUCTIONS

4.1 Even with proper selection and installation, Hose life may be significantly reduced without a continuing maintenance program. The severity of the application, risk potential from a possible Hose failure, and experience with any Hose failures in the application or in similar applications should determine the frequency of the inspection and the replacement for the Products so that Products are replaced before any failure occurs. A maintenance program must be established and followed by the user and, at minimum, must include instructions 4.2 through 4.7.

4.2 Visual Inspection Hose/Fitting: Any of the following conditions require immediate shut down and replacement of the Hose Assembly:

- Fitting slippage on Hose;
- Damaged, cracked, cut or abraded cover (any reinforcement exposed);
- Hard, stiff, heat cracked, or charred Hose;
- Cracked, damaged, or badly corroded Fittings;
- Leaks at Fitting or in Hose;
- Kinked, crushed, flattened or twisted Hose; and
- Blistered, soft, degraded, or loose cover.

4.3 Visual Inspection All Other: The following items must be tightened, repaired, corrected or replaced as required:

- Leaking port conditions;
- Excess dirt buildup;
- Worn clamps, guards or shields; and
- System fluid level, fluid type, and any air entrapment.

4.4 Functional Test: Operate the system at maximum operating pressure and check for possible malfunctions and leaks. Personnel must avoid potential hazardous areas while testing and using the system. See section 2.2.

4.5 Replacement Intervals: Hose assemblies and elastomeric seals used on Hose Fittings and adapters will eventually age, harden, wear and deteriorate under thermal cycling and compression set. Hose Assemblies and elastomeric seals should be inspected and replaced at specific replacement intervals, based on previous service life, government or industry recommendations, or when failures could result in unacceptable downtime, damage, or injury risk. See section 1.2. Hose and Fittings may be subjected to internal mechanical and/or chemical wear from the conveying fluid and may fail without warning. The user must determine the product life under such circumstances by testing. Also see section 2.5.

4.6 Hose Inspection and Failure: Hydraulic power is accomplished by utilizing high pressure fluids to transfer energy and do work. Hoses, Fittings and Hose Assemblies all contribute to this by transmitting fluids at high pressures. Fluids under pressure can be dangerous and potentially lethal and, therefore, extreme caution must be exercised when working with fluids under pressure and handling the Hoses transporting the fluids. From time to time, Hose Assemblies will fail if they are not replaced at proper time intervals. Usually these failures are the result of some form of misapplication, abuse, wear or failure to perform proper maintenance. When Hoses fail, generally the high pressure fluids inside escape in a stream which may or may not be visible to the user. Under no circumstances should the user attempt to locate the leak by "feeling" with their hands or any other part of their body. High pressure fluids can and will penetrate the skin and cause severe tissue damage and possibly loss of limb. Even seemingly minor hydraulic fluid injection injuries must be treated immediately by a physician with knowledge of the tissue damaging properties of hydraulic fluid.

If a Hose failure occurs, immediately shut down the equipment and leave the area until pressure has been completely released from the Hose Assembly. Simply shutting down the hydraulic pump may or may not eliminate the pressure in the Hose Assembly. Many times check valves, etc., are employed in a system and can cause pressure to remain in a Hose Assembly even when pumps or equipment are not operating. Tiny holes in the Hose, commonly known as pinholes, can eject small, dangerously powerful but hard to see streams of hydraulic fluid. It may take several minutes or even hours for the pressure to be relieved so that the Hose Assembly may be examined safely.

Once the pressure has been reduced to zero, the Hose Assembly may be taken off the equipment and examined. It must always be replaced if a failure has occurred. Never attempt to patch or repair a Hose Assembly that has failed. Consult the nearest Parker distributor or the appropriate Parker division for Hose Assembly replacement information.

Never touch or examine a failed Hose Assembly unless it is obvious that the Hose no longer contains fluid under pressure. The high pressure fluid is extremely dangerous and can cause serious and potentially fatal injury.

4.7 Elastomeric seals: Elastomeric seals will eventually age, harden, wear and deteriorate under thermal cycling and compression set. Elastomeric seals should be inspected and replaced.

4.8 Refrigerant gases: Special care should be taken when working with refrigeration systems. Sudden escape of refrigerant gases can cause blindness if the escaping gases contact the eye and can cause freezing or other severe injuries if it contacts any other portion of the body.

4.9 Compressed natural gas (CNG): Parker CNG Hose Assemblies should be tested after installation and before use, and at least on a monthly basis per ANSI/IAS NGV 4.2-1999; CSA 12.52-M99 Section 4.2 "Visual Inspection Hose/Fitting". The recommended procedure is to pressurize the Hose and check for leaks and to visually inspect the Hose for damage.

Caution: Matches, candles, open flame or other sources of ignition shall not be used for Hose inspection. Leak check solutions should be rinsed off after use.

5.0 HOSE STORAGE

5.1 Age Control: Hose and Hose Assemblies must be stored in a manner that facilitates age control and first-in and first-out usage based on manufacturing date of the Hose and Hose Assemblies. The shelf life of rubber Hose or Hose Assemblies that have passed visual inspection and a proof test is 10 years (40 quarters) from the date of manufacture. The shelf life of thermoplastic and polytetrafluoroethylene Hose or Hose Assemblies is considered to be unlimited.

5.2 Storage: Stored Hose and Hose Assemblies must not be subjected to damage that could reduce their expected service life and must be placed in a cool, dark and dry area with the ends capped. Stored Hose and Hose Assemblies must not be exposed to temperature extremes, ozone, oils, corrosive liquids or fumes, solvents, high humidity, rodents, insects, ultraviolet light, electromagnetic fields or radioactive materials.



OFFER OF SALE

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14. Limitation on Assignment. Buyer may not assign its rights or obligations under this agreement without the prior written consent of Seller.

15. Entire Agreement. This agreement contains the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of the agreement. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter are herein merged.

16. Waiver and Severability. Failure to enforce any provision of this agreement will not waive that provision nor will any such failure prejudice Seller's right to enforce that provision in the future. Invalidation of any provision of this agreement by legislation or other rule of law shall not invalidate any other provision herein. The remaining provisions of this agreement will remain in full force and effect.

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18. Governing Law. This agreement and the sale and delivery of all Products hereunder shall be deemed to have taken place in and shall be governed and construed in accordance with the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to this agreement. Disputes between the parties shall not be settled by arbitration unless, after a dispute has arisen, both parties expressly agree in writing to arbitrate the dispute.

19. Indemnity for Infringement of Intellectual Property Rights. Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Section. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets ("Intellectual Property Rights"). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that a Product sold pursuant to this Agreement infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If a Product is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Product, replace or modify the Product so as to make it noninfringing, or offer to accept return of the Product and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to Products delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any Product sold hereunder. The foregoing provisions of this Section shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

20. Taxes. Unless otherwise indicated, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of Products.





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