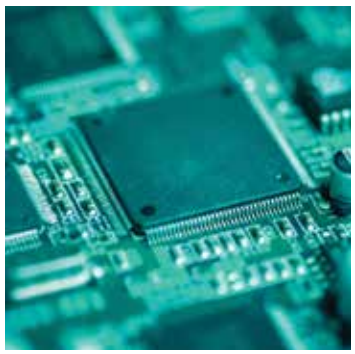
aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



Fluoropolymer Hose & Fittings Products

PAGE Product Line, Flexible Braided Hose
Catalog 5162F

Parker

ENGINEERING YOUR SUCCESS.

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Table of Contents

see back index for detailed listing

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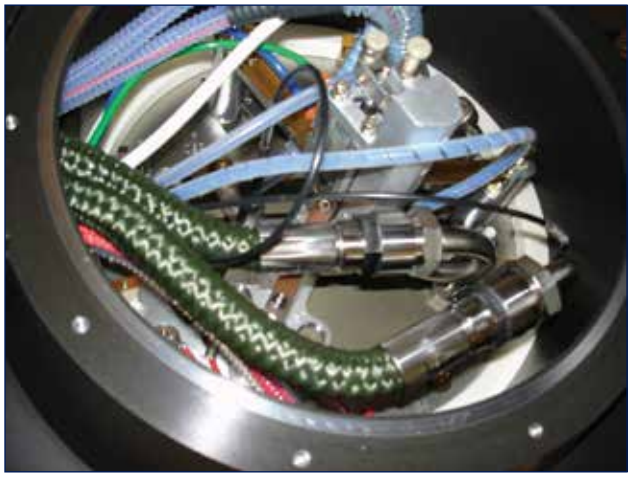
NOTES

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.



Features

- Chemical Resistant
- Corrosion Resistant
- Handles High Temperatures
- Non-Adhesive
- Easy Cleaning
- Long Life Expectancy

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 and convoluted hoses with non-conductive (natural) and conductive (black) inner core to meet today's most demanding applications.

Industrial grade conductivity meets a minimum conductance of 20 micro amps with 1,000 vdc applied over a 14" length.

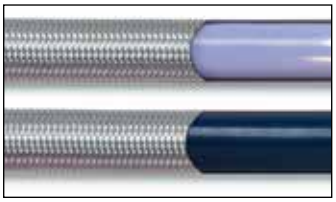
We make Custom Hoses to *your* specifications everyday.

We Make Hose Solutions

Standard and Custom Designs (cont.)

Parker PAGE hoses are available in a True Bore design and in standard nominal size hoses. The first section of this catalog, with blue tables, consist of the True Bore products and fittings. The second section, with red tables, consist of industrial PTFE hoses and fittings. Fittings for these two products are not interchangeable.

True Bore Smoothbore



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PARKER PAGE TRUE BORE Smoothbore PTFE hose has a larger inside diameter (I.D.) than a traditional, nominal hose. The increased I.D. speeds up the flow of the media traveling through the tube; in most cases, hoses carry up to 15% more flow.

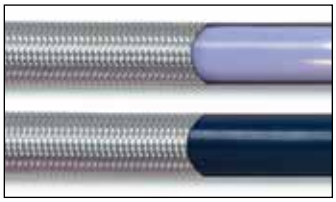
Features

- Carries 15% more flow
- Excellent chemical compatability
- Resists moisture
- Low friction minimizes pressure drops and deposits

Options

- Natural (non-conductive) or black (conductive-static dissipating)
- Braiding - Stainless Steel
- Available with double Stainless braid to handle increased pressures
- Protective/Identifying Sleeving - Fire Sleeve, Heat Shrink and Hose Guards

Industrial Smoothbore



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Parker PAGE Industrial S30 and S40 hoses look exactly like a True Bore Hose but the inside diameter of the hose is smaller in order to facilitate a Field Attachable Fitting.

Features

- Excellent chemical compatability
- Resists moisture
- Low friction minimizes pressure drops and deposits
- Can be used with field attachable fittings

Options

- Natural (non-conductive) or black (conductive-static dissipating)
- Available in heavy wall, (33% more PTFE) for greater kink resistance and reduced permeation
- Braiding - Stainless Steel
- Protective/Identifying Sleeving - Fire Sleeve, Heat Shrink and Hose Guards

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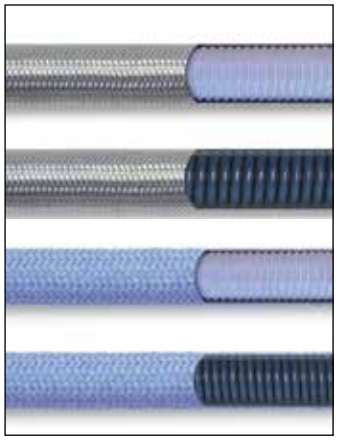
Convoluted



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 fluoropolymer hoses when used within designated operating parameters.

Features

- Seamless
- Open-pitched
- Self draining
- Excellent chemical compatibility
- Easy Cleaning
- Non Adhesive

Options

- Natural (non-conductive) or black (conductive-static dissipating)
- Braiding - Stainless Steel or Polypropylene
- Protective/Identifying Sleeving - Fire Sleeve, Heat Shrink and Hose Guards
- Available as tube assembly without braid

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Flare-Seal®

PARKER PAGE Flare-Seal® PTFE hose products are designed and manufactured to provide the ultimate in high purity, corrosion/chemical resistance and sanitary applications. The unique benefit offered by a PARKER PAGE Flare-Seal hose is that the PTFE hose liner actually passes through the inside of the fitting and is then flared over the face of the fitting. This special process eliminates the problem of bacterial entrapment and adds the benefit of unrestricted flow by providing 100% PTFE coverage on all wetted surfaces.

Flare-Seal products can be provided with flanged ends or sanitary tri-clamp end connections.

Features

- Flare Seal fitting - Continuous PTFE through fitting; no area for bacterial entrapment
- Seamless inner-core
- Uninterrupted flow
- Excellent chemical compatibility
- Easy Cleaning
- Non Adhesive

Options

- Natural (non-conductive) or black (conductive-static dissipating)
- Flanged ends or sanitary tri-clamp connections
- Braiding - Stainless Steel or Polypropylene

Special non-metallic braids of Nomex®, KEVLAR®, Kynar®, polyester and many others are available upon request.

Kynar® is a registered trademark of Elf Autochem, Nomex® and Kevlar® are registered trademarks of Dupont.

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We Make Hose Solutions
Standard and Custom Designs

Platinum Cured Silicone

As a compliment to our successful Fluoropolymer and Sanitary Food Grade Hoses, PARKER PAGE offers 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 177.2600
—ISO 10993 Sections 5, 6 10, 11
—USDA Standards
—USP Class VI Requirements
—3A Standards

▪ Page 23

Features

- Easy to clean
- Cover promotes safe operator handling

Options

- Available with double braid

Specialty Hoses

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 market and creating specialty hoses and fittings to ensure our customers success.

Specialty Hoses

- PAGE-flex® SBF - 1/2" the bend radius of conventional smoothbore hose - Page 14
- EPDM Rubber Covered Hose - Page 24
- Nomex Braided Hose - Page 17
- High Pressure Hose - Page 44

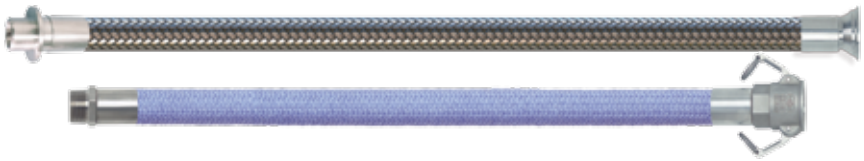
Specialty braiding or patterns

Fire Retardent Sleeving

Custom fittings

PAGE "True Bore"
Nomenclature

"True-Bore" & Convoluted Hose Assembly Nomenclature



32		J	03	C	13	C	0	–	0	1	2	0	–		
Size Code	Z for Double Braid	Hose Code	Fitting End 1	Fitting Material End 1	Fitting End 2	Fitting Material End 2	Flange Material		Length in Inches					Length in 1/8" increments	Accessory Code

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
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
Male Union Step Up	34
Male Union Step Down	35
JIC Female Swivel	30
Male JIC 37°	31
JIC Female Step Up	32
Male Union	33
Female Union	36
Female NPSH	27
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
Special Ends	
Standard Cuffed Ends	90
Non Standard Fitting	99

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

Accessory Code	
None	
Spring Guard	S
Armor 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

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

Example: 32J03C13C0-0120-A
Size: 2" **Style:** SCWV
Braid: 316 SS Single Braid
Core: Heavy Wall Open Pitch Convoluted PTFE
End 1: 2" Male Pipe NPT Hex
End 2: 2" Male Pipe NPT Step Down

Length: 120" from end of Male NPT to end of Male Step Down

Accessory: Full Length Armor Guard

NOTE: Length calculations for PAGE hose assemblies are typically made sealing surface to sealing surface per the NAHAD Fluoropolymer Hose Assembly Specification Guidelines unless otherwise requested by customer at time of order.

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PAGE Industrial S30 & S40 Hose Assembly Nomenclature

X	08	H	10	S	68	S	0	–	0	3	0	0	–		
Assembly Code	Size Code	Hose Code	Fitting End 1	Fitting Material End 1	Fitting End 2	Fitting Material End 2	Flange Material		Length in Inches					Length in 1/8" increments	Accessory Code

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
944B	944B
955B	955B

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
Inverted Flare & Power Trim Fittings	
Male Straight	76

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

Accessory Code	
None	
Spring Guard	S
Armor 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

Example: X08H10S68S0-0300
Size: 08 (13/32 I.D.) **Style:** S40
Braid: SS Single Braid
Core: Heavy Wall Smoothbore Convoluted PTFE
End 1: 1/2" 316 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

NOTE: Length calculations for PAGE hose assemblies are typically made sealing surface to sealing surface per the NAHAD Fluoropolymer Hose Assembly Specification Guidelines unless otherwise requested by customer at time of order.

PAGE Silicone Products
Nomenclature

PAGE SBP & SWPV Hose Assembly Nomenclature

Size Code	Hose Code	Fitting End 1	Fitting Material End 1	Fitting End 2	Fitting Material End 2	Flange Material	–	Length in Inches				–	Length in 1/8" increments

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

Hose Code	
SBP	C
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

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 Epoxy Coated	D
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

NOTE: Length calculations for PAGE hose assemblies are typically made sealing surface to sealing surface per the NAHAD Fluoropolymer Hose Assembly Specification Guidelines unless otherwise requested by customer at time of order.

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PAGE Hose
Working Pressures (psi)

Reinforcement Type	psi Fluoropolymer Hose Working Pressures													
	Fractional Size		3/16 (15/64)	1/4	5/16	13/32 (7/16)	1/2	5/8	7/8 (29/32)	1-1/8	1/8	1/4	3/8	1/2	5/8
	Dash Size		-4	-5	-6	-8	-10	-12	-16	-20	-3	-4	-6	-8	-10
			psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi
Wire Braid	944B	High Pressure PTFE Hose with static-dissipative core	4500		4500	4500	4500	4500	4000						
	955B	High Pressure PTFE Hose with static-dissipative core	5500		5500	5500	5500	5500	5500						
	S30	PAGE Ind. PTFE Hose	3000	3000	2500	2000	1750	1500	1000						
	S30B	PAGE Ind. PTFE Hose with static-dissipative core	3000	3000	2500	2000	1750	1500	1000						
	S40	PAGE Ind. Heavy Wall PTFE Hose	3000	3000	2500	2000	1750	1500	1000						
	S40B	PAGE Ind. Heavy Wall PTFE Hose with static-dissipative core	3000	3000	2500	2000	1750	1500	1000						
	STW Z-STW*	PAGE Heavy Wall PTFE Hose *Double Braid									3000	3000	2000	1750	
	STB Z-STB*	PAGE Heavy Wall PTFE Hose with static-dissipative core *Double Braid									3000	3000	2000	1750	
	SCW	PAGE Convoluted PTFE Hose										1500	1500	1500	
	SCB	PAGE Convoluted PTFE Hose with static-dissipative core										1500	1500	1500	
	SCWV	PAGE Heavy Wall Convoluted PTFE Hose												1500	
	SCBV	PAGE Heavy Wall Convoluted PTFE Hose with static-dissipative core												1500	
	SCWV-FS	PAGE Flare-Seal® PTFE Hose												500	
	SCBV-FS	PAGE Flare-Seal® PTFE Hose with static-dissipative core												500	
Fiber	NCW	PAGE Convoluted PTFE Hose, Nomex Braid										contact	customer	service	
	NCB	PAGE Convoluted PTFE Hose with static-dissipative core, Nomex Braid										contact	customer	service	
	PCW	PAGE Convoluted PTFE Hose, PP Braid										350	350	300	
	PCB	PAGE Convoluted PTFE Hose with static-dissipative core, PP Braid										350	350	300	
	PCWV	PAGE Heavy Wall Convoluted PTFE Hose, PP Braid												300	
	PCBV	PAGE Heavy Wall Convoluted PTFE Hose with static-dissipative core, PP Braid												300	
	PCWV-FS	PAGE Flare-Seal® PTFE Hose, PP Braid												300	
	PCBV-FS	PAGE Flare-Seal® PTFE Hose with static-dissipative core, PP Braid												300	
Other	RCTW	PAGE Rubber Covered EPDM												500	
	RCTB	PAGE Rubber Covered EPDM with static-dissipative core												500	
	SBFW	PAGE Page-Flex® SBF											300	300	
	SBFB	PAGE Page-Flex® SBF with static-dissipative core											300	300	
	SBP	Platinum Cured Braided Silicone										160	150	140	
	SWPV	Platinum Cured 4 Ply Silicone with SS Wire Helix											250	250	
	CWV	Convoluted tubing - no reinforcement												50	

*Z indicates double braid.

Legend

EPDM - Ethylene Propylene Diene Monomer Rubber
PTFE – Polytetrafluoroethylene
PTFE-S – Polytetrafluoroethylene, Static Dissipative
FEP – Fluorinated Ethylene Propylene
PFA – Perfluoroalkoxy
PFA-S – Perfluoroalkoxy, Static Dissipative
PP - Polypropylene
S – Silicone
SS - Stainless Steel

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PAGE Hose

Construction and Specifications

psi Fluoropolymer Construction and Specifications														
3/4	1	1 1/4	1 1/2	2	2-1/2	3	4					Fractional Size		Reinforcement Type
-12	-16	-20	-24	-32	-40	-48	-64	Core Tube	Reinforcement Material	Cover Material	Page #	Dash Size		
psi	psi	psi	psi	psi	psi	psi	psi							
								PTFE-S	SS Wire	—	44	High Pressure PTFE Hose with static-dissipative core	944B	Wire Braid
								PTFE-S	SS Wire	—	45	High Pressure PTFE Hose with static-dissipative core	955B	
								PTFE	SS Wire	—	42	PAGE Ind. PTFE Hose	S30	
								PTFE-S	SS Wire	—	42	PAGE Ind. PTFE Hose with static-dissipative core	S30B	
								PTFE	SS Wire	—	43	PAGE Ind. Heavy Wall PTFE Hose	S40	
								PTFE-S	SS Wire	—	43	PAGE Ind. Heavy Wall PTFE Hose with static-dissipative core	S40B	
1000	1000 1200*	1000*	900*					PTFE	SS Wire	—	13	PAGE Heavy Wall PTFE Hose *Double Braid	STW Z-STW*	
1000	1000 1200*	1000*	900*					PTFE-S	SS Wire	—	13	PAGE Heavy Wall PTFE Hose with static-dissipative core *Double Braid	STB Z-STB*	
1200	1000	750	650	450				PTFE	SS Wire	—	15	PAGE Convoluted PTFE Hose	SCW	
1200	1000	750	650	450				PTFE-S	SS Wire	—	15	PAGE Convoluted PTFE Hose with static-dissipative core	SCB	
1200	1000	750	650	450	200	175	150	PTFE	SS Wire	—	18	PAGE Heavy Wall Convoluted PTFE Hose	SCWV	
1200	1000	750	650	450	200	175	150	PTFE-S	SS Wire	—	18	PAGE Heavy Wall Convoluted PTFE Hose with static-dissipative core	SCBV	
425	350	325	300	250	200	175	150	PTFE	SS Wire	—	20	PAGE Flare-Seal® PTFE Hose	SCWV-FS	
425	350	325	300	250	200	175	150	PTFE-S	SS Wire	—	20	PAGE Flare-Seal® PTFE Hose with static-dissipative core	SCBV-FS	
		contact customer service						PTFE	Nomex		17	PAGE Convoluted PTFE Hose, Nomex Braid	NCW	Fiber
		contact customer service						PTFE-S	Nomex		17	PAGE Convoluted PTFE Hose with static-dissipative core, Nomex Braid	NCB	
250	250	200	200	200	200	200	200	PTFE	PP	—	16	PAGE Convoluted PTFE Hose, PP Braid	PCW	
250	250	200	200	200	200	200	200	PTFE-S	PP	—	16	PAGE Convoluted PTFE Hose with static-dissipative core, PP Braid	PCB	
250	250	200	200	200	150	125	100	PTFE	PP	—	19	PAGE Heavy Wall Convoluted PTFE Hose, PP Braid	PCWV	
250	250	200	200	200	150	125	100	PTFE-S	PP	—	19	PAGE Heavy Wall Convoluted PTFE Hose with static-dissipative core, PP Braid	PCBV	
250	250	200	200	200	150	125	100	PTFE	PP	—	21	PAGE Flare-Seal® PTFE Hose, PP Braid	PCWV-FS	
250	250	200	200	200	150	125	100	PTFE-S	PP	—	21	PAGE Flare-Seal® PTFE Hose with static-dissipative core, PP Braid	PCBV-FS	
500	450	375	375	300	200	200	150	FEP	Double Wire Helix	EPDM	24	PAGE Rubber Covered EPDM	RCTW	Other
500	450	375	375	300	200	200	150	PFA-S	Double Wire Helix	EPDM	24	PAGE Rubber Covered EPDM with static-dissipative core	RCTB	
250	250		200					PFA	Bonded Wire-Silicone-Fiber	—	14	PAGE Page-Flex® SBF	SBFW	
250	250		200					PFA-S	Bonded Wire-Silicone-Fiber	—	14	PAGE Page-Flex® SBF with static-dissipative core	SBFB	
100	60							PTFE	SS Wire	S	22	Platinum Cured Braided Silicone	SBP	
250	250		250	230				PTFE	SS Wire	S	23	Platinum Cured 4 Ply Silicone with SS Wire Helix	SWPV	
50	50	40	40	30	20	15	10	PTFE	None	—	25	Convoluted tubing - no reinforcement	CWV	

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PAGE Hose
Fitting Selection Chart

Hose Series	Description	Crimp Fitting	Crimp Collar	Crimpers		Factory Assembly Only	Field Attachable Fitting
				Parkrimp	Adjustable		
944B	High Pressure PTFE Hose, up to 4,500 psi	94 Series (page 51)	-	No	Factory crimp only	Yes	Not applicable
955B	High Pressure PTFE Hose, 5,500 psi	95 Series (page 51)	-	No	Factory crimp only	Yes	Not applicable
S30/S30B	Smoothbore Nominal (0.030 wall)	91N/91 Series (page 43)	-	Yes	COS-K4 with special dies required	No	90 Series (page 52)
S40/S40B	Smoothbore Nominal (0.040 wall)	91N/91 Series (page 43)	-	Yes	COS-K4 with special dies required	No	Not applicable
STW/STB	Smoothbore True Bore	PAGE Series - Two piece crimp fittings (page 27)	ST300	No	Yes	No	Not applicable
SCW/SCB	Convoluted	PAGE Series - Two piece crimp fittings (page 27)	SC300	No	Yes	No	Not applicable
PCW/PCB	Convoluted	PAGE Series - Two piece crimp fittings (page 27)	PC300	No	Yes	No	Not applicable
SBP/SWPV	Platinum Cured Silicone	PAGE Series - Two piece crimp fittings (page 27)	SIL300	No	Yes	No	Not applicable
RCTW/RCTB	Rubber Covered Fluoropolymer	PAGE Series - Two piece crimp fittings (page 27)	RC300	No	Yes	No	Not applicable
SCWV/SCBV	Convoluted Heavy Wall	PAGE Series - Two piece crimp fittings (page 27)	SC300	No	Yes	Yes	Not applicable
PCWV/PCBV	Convoluted Heavy Wall	PAGE Series - Two piece crimp fittings (page 27)	PC300	No	Yes	Yes	Not applicable

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PAGE "True-Bore"
HOSE & FITTINGS

Visual Index

PAGE Product Line PTFE & Specialty		**S30**	Industrial .030 wall with SS Braid	**S30B**	Conductive Industrial .030 wal (with SS Braid	**S40**	Heavy Wall .040 with SS Braid
		 pg. 42		 pg. 42		 pg. 43	
S40B	Conductive Heavy Wall .040 with SS Braid	**STW**	"True-Bore" with SS Braid	**STB**	Conductive "True-Bore" with SS Braid	**SBFW**	PAGE-flex® SBF
 pg. 43		 pg. 13		 pg. 13		 pg. 14	
SBFB	Conductive PAGE-flex® SBF	**SCW**	Convoluted with SS Braid	**SCB**	Conductive Convoluted with SS Braid	**PCW**	Convoluted with PP Braid
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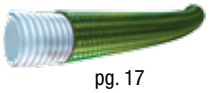
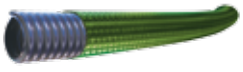
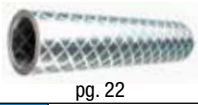
PCB	Conductive Convoluted with PP Braid	**NCW**	Convoluted with Nomex Braid	**NCB**	Conductive Convoluted with Nomex Braid	**SCWV**	Heavy Wall Convoluted with SS Braid
 pg. 16		 pg. 17		 pg. 17		 pg. 18	
SCBV	Conductive Heavy Wall Convoluted with SS Braid	**PCWV**	Heavy Wall Convoluted with PP Braid	**PCBV**	Conductive Heavy Wall Convoluted with PP Braid	**SCWV-FS**	Flare-Seal® with SS Braid
 pg. 18		 pg. 19		 pg. 19		 pg. 20	
SCBV-FS	Conductive Flare-Seal® with SS Braid	**PCWV-FS**	Flare-Seal® with PP Braid	**PCBV-FS**	Conductive Flare-Seal® with PP Braid	**SBP**	Platinum Cured Braided Silicone Tubing
 pg. 20		 pg. 21		 pg. 21		 pg. 22	
SWPV	Platinum Cured 4 Ply Silicone w/ SS Helix	**RCTW**	EPDM Rubber Covered Natural	**RCTB**	EPDM Rubber Covered Conductive	**CWV**	Convoluted Tubing
 pg. 23		 pg. 24		 pg. 24		 pg. 25	
CBV	Conductive Convoluted Tubing						
 pg. 25							

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

STW/STB - "TRUE BORE"
Smoothbore PTFE Hose, Stainless Steel Braid

Features

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

Compliances

- FDA 21 CFR 177.1550
- USP Class VI
- ISO 10993 Sections 5, 6, 10, 11

Applications/Markets

- Fluid Handling
- Chemical Transfer
- Paint
- Pharmaceutical
- Food & Beverage
- Cosmetics

Part Number		Nominal I.D.		Nominal O.D.		Maximum Working Pressure 72°F/ 23°C		Minimum Bend Radius		Vac. Rating Hg./72°F	Weight		Permanent Fitting Series
#	#												
Natural	Conductive	inch	mm	inch	mm	psi	bar	inch	mm	inch	lbs./ft.	kg./mtr.	
03-STW	03-STB	1/8	3	.25	6	3,000	207	1-1/2	38	28	.05	.08	NA
04-STW	04-STB	1/4	6	.37	9	3,000	207	3	76	28	.08	.13	PAGE
06-STW	06-STB	3/8	10	.51	13	2,000	138	5	127	28	.11	.16	PAGE
08-STW	08-STB	1/2	13	.63	16	1,750	121	6-1/2	165	28	.16	.24	PAGE
12-STW	12-STB	3/4	19	.88	22	1,000	69	8.5	216	28	.20	.30	PAGE
16-STW	16-STB	1	25	1.13	29	1,000	69	12	305	20	.33	.49	PAGE
16Z-STW	16Z-STB	1	25	1.22	31	1,000	69	12	305	20	.56	.83	PAGE
20Z-STW	20Z-STB	1-1/4	32	1.52	38	1,000	69	14	356	18	.68	1.02	PAGE
24Z-STW	24Z-STB	1-1/2	38	1.73	44	900	62	15	381	15	.79	1.18	PAGE

Construction

Tube: STW - Natural FDA Compliant PTFE
STB - Black Static-Dissipative PTFE
Reinforcement: 304 Stainless Steel braid

Fittings

PAGE Series – page 27
Uses crimp collar ST300 - page 36

Operating Parameters

Temperature Range:
-100°F to +450°F (-73°C to +232°C)
Change in length at Max. Working Pressure: +2% to -4%
Min. Burst Pressure is 4x Max. Working Pressure at 73°F (23°C)
All ratings based on 72°F (23°C)

Notes

"Z" indicates double braid
See page 5 for part numbering system
Cannot be used with 90 or 91N series fittings

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

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SBFW/SBFB - Page-Flex® SBF

Extra Flexible Fluoropolymer Hose

Features

- Half the minimum bend radius of conventional smoothbore products
- Kink and vacuum resistant
- Easily cleaned
- PPIH full line of optional reinforcement types
- Cooler outside temperatures reduces operator burns
- Reduces environment temperatures in confined areas
- Available with white Silicone cover

Compliances

- FDA 21 CFR 177.1550
- **USP Class VI Certified**
- ISO 10993 Sections 5, 6, 10, 11

Applications/Markets

- Fluid Handling
- Chemical Transfer
- Paint
- Pharmaceutical
- Food & Beverage
- Cosmetics

Part Number		Nominal I.D.		Nominal O.D.		Maximum Working Pressure 72°F/ 23°C		Minimum Bend Radius		Vac. Rating Hg./72°F	Weight	
#	#											
Natural	Conductive	inch	mm	inch	mm	psi	bar	inch	mm	inch	lbs./ft.	kg./mtr.
06-SBFW	06-SBFB	3/8	10	.63	16	300	21	2	51	28	.16	.24
08-SBFW	08-SBFB	1/2	13	.76	19	300	21	2-1/2	64	28	.23	.34
12-SBFW	12-SBFB	3/4	19	1.04	26	250	17	3	76	28	.37	.55
16-SBFW	16-SBFB	1	25	1.29	33	250	17	4	102	28	.54	.80
24-SBFW	24-SBFB	1-1/2	38	1.85	47	200	14	7	178	28	.83	1.23

Construction

Tube: SBFW - Natural PFA tube

SBFB - Black Static-dissipative PFA tube

Reinforcement: bonded wire braid - silicone - textile braided composite with 316 Stainless Steel braid

Operating Parameters

Temperature Range:

-65°F to +325°F (-54°C to +163°C)

Min. Burst Pressure is 4x Max. Working Pressure at 72°F (23°C)

All ratings based on 72°F (23°C)

Fittings

PAGE Series – page 27

Complete line of standard PPIH crimp fittings

Notes

Factory-made assemblies only

SBFB - Special order only

Available with white silicone cover

See page 5 for part numbering system

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

www.comoso.com

SCW/SCB - Convoluted PTFE Hose
316 Stainless Steel Braid

Features

- High temperature hose
- Excellent corrosion resistance
- Seamless
- Open pitch
- Self draining
- Withstands extreme flexing
- Environmentally safe; low effusion
- Long life expectancy

Applications/Markets

- Fluid Handling
- Chemical Transfer
- Paint
- Semiconductor

Compliances

- FDA 21 CFR 177.1550
- USP Class VI
- ISO 10993 Sections 5, 6, 10, 11

Part Number		Nominal I.D.		Nominal O.D.		Maximum Working Pressure 72°F/ 23°C		Minimum Bend Radius		Vac. Rating Hg./72°F	Weight		Permanent Fitting Series
#	#												
Natural	Conductive	inch	mm	inch	mm	psi	bar	inch	mm	inch	lbs./ft.	kg./mtr.	
04-SCW	04-SCB	1/4	6	.46	12	1,500	104	3/4	19	28	.08	.11	PAGE
06-SCW	06-SCB	3/8	10	.54	14	1,500	104	1	25	28	.14	.21	PAGE
08-SCW	08-SCB	1/2	13	.72	18	1,500	104	1-1/2	38	28	.16	.23	PAGE
12-SCW	12-SCB	3/4	19	1.02	26	1,200	83	2	51	28	.27	.40	PAGE
16-SCW	16-SCB	1	25	1.31	33	1,000	69	2-1/2	64	28	.37	.55	PAGE
20-SCW	20-SCB	1-1/4	32	1.73	44	750	52	3	76	28	.46	.68	PAGE
24-SCW	24-SCB	1-1/2	38	1.93	49	650	45	3-3/4	95	28	.55	.81	PAGE
32-SCW	32-SCB	2	51	2.42	62	450	31	4-3/4	121	28	.90	1.4	PAGE

Construction

Tube: SCW - Natural FDA Compliant PTFE
SCB - Black Static-Dissipative PTFE
Reinforcement: 316 Stainless Steel braid

Fittings

PAGE Series – page 27
Uses crimp collar SC300 - page 36

Operating Parameters

Temperature Range:
-100°F to +500°F (-73°C to +260°C)
Min. Burst Pressure is 4x Max. Working Pressure at 72°F (23°C)
All ratings based on 72°F (23°C)

Notes

Not suggested for steam-cold water cycling applications
See page 5 for part numbering system
Cannot be used with 90 or 91N series fittings

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

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PCW/PCB - Convoluted PTFE Hose
Polypropylene Braid

Features

- Personal handling safety
- Excellent corrosion resistance
- Seamless
- Open pitch
- Self draining
- Withstands extreme flexing
- Environmentally safe; low effusion
- Long life expectancy

Compliances

- FDA 21 CFR 177.1550
- USP Class VI
- ISO 10993 Sections 5, 6, 10, 11

Applications/Markets

- Fluid Handling
- Chemical Transfer
- Paint
- Pharmaceutical
- Food & Beverage

Part Number		Nominal I.D.		Nominal O.D.		Maximum Working Pressure 72°F/ 23°C		Minimum Bend Radius		Vac. Rating Hg./72°F	Weight		Permanent Fitting Series
#	#										lbs	kg	
Natural	Conductive	inch	mm	inch	mm	psi	bar	inch	mm	inch	lbs./ft.	kg./mtr.	
04-PCW	04-PCB	1/4	6	.55	14	350	59	3/4	19	28	.03	.05	PAGE
06-PCW	06-PCB	3/8	10	.64	16	350	59	1	25	28	.06	.09	PAGE
08-PCW	08-PCB	1/2	13	.84	21	300	21	1-1/2	38	28	.15	.22	PAGE
12-PCW	12-PCB	3/4	19	1.15	29	250	17	2	51	28	.18	.27	PAGE
16-PCW	16-PCB	1	25	1.50	38	250	17	2-1/2	64	28	.26	.39	PAGE
20-PCW	20-PCB	1-1/4	32	1.92	49	200	14	3	76	28	.37	.55	PAGE
24-PCW	24-PCB	1-1/2	38	2.12	54	200	14	3-3/4	95	28	.42	.63	PAGE
32-PCW	32-PCB	2	51	2.65	67	200	14	4-3/4	121	28	.56	.83	PAGE

Construction

Tube: PCW - Natural FDA Compliant PTFE
PCB - Black Static-Dissipative PTFE
Reinforcement: Polypropylene

Operating Parameters

Temperature Range:
0°F to +212°F (-18°C to +100°C)
Min. Burst Pressure is 4x Max. Working Pressure at 72°F (23°C)
All ratings based on 72°F (23°C)

Fittings

PAGE Series – page 27
Uses crimp collar PC300 - page 36

Notes

Not suggested for steam-cold water cycling applications
See page 5 for part numbering system
Cannot be used with 90 or 91N series fittings

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

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NCW/NCB
Seamless Convoluted PTFE with Nomex Braid

Features

- Very light weight
- Superior flexibility
- Kink and vacuum resistant
- Eliminates RFI issues
- Factory assembly only

Compliances

- FDA 21 CFR 177.1550
- USP Class VI
- ISO 10993 Sections 5, 6, 10, 11

Applications/Markets

- Fluid Handling
- Chemical Transfer
- Paint
- Pharmaceutical
- Food & Beverage
- Cosmetics

Part Number		Order Size	Nominal I.D.		Nominal O.D.		Maximum Working Pressure 72°F/23°C		Minimum Bend Radius		Vac. Rating Hg./72°F	Weight	
#	#											lbs	kg
Natural	Conductive		inch	mm	inch	mm	psi	bar	inch	mm	inch	lbs./ft.	kg./mtr.
04-NCW	04-NCB	1/4	.260	7	.460	12	725	50	1	25	30	.02	.03
06-NCW	06-NCB	3/8	.370	9	.560	14	400	28	1-1/2	38	30	.06	.09
08-NCW	08-NCB	1/2	.500	13	.740	19	280	19	2	51	30	.08	.12
12-NCW	12-NCB	3/4	.750	19	1.010	26	200	14	2-1/2	64	30	.14	.22
16-NCW	16-NCB	1	1.000	25	1.290	33	200	14	4	102	30	.22	.32

Construction

Tube: NCW - Natural PTFE tube
NCB - Black Static Dissipative PTFE tube
Reinforcement: Nomex braid

Operating Parameters

Temperature Range:
-100°F to +400°F (-73°C to +204°C)
Min. Burst Pressure is 4x Max. Working Pressure at 72°F (23°C)
All ratings based on 72°F (23°C)

Fittings

PAGE Series – page 27

Uses crimp collar SC300 - page 36

Notes

Factory-made assemblies only
NCB Conductive (Static Dissipative) tube I.D. surface only
NCB Conductive Spec - Must conduct 20 microamps 1000 VDC potential 14" sample
See page 5 for part numbering system

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

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SCWV/SCBV
Stainless Steel Braid, Heavy Wall Convoluted PTFE Hose

Features
- High temperature hose
- Open pitch
- Thicker wall
- Handles vaccum applications at elevated temperatures
- Excellent chemical compatibility
- Easy Cleaning, Non Adhesive

Compliances
- FDA 21 CFR 177.1550
- USP Class VI
- ISO 10993 Sections 5, 6, 10, 11

Applications/Markets
- Fluid Handling
- Chemical Transfer
- Paint
- Semiconductor

Part Number		Nominal I.D.		Nominal O.D.		Maximum Working Pressure 72°F/ 23°C		Minimum Bend Radius		Vac. Rating Hg./72°F	Weight		Permanent Fitting Series
#	#										lbs	kg	
Natural	Conductive	inch	mm	inch	mm	psi	bar	inch	mm	inch	lbs./ft.	kg./mtr.	
08-SCWV	08-SCBV	1/2	13	.75	19	1,500	104	2	51	28	.17	.26	PAGE
12-SCWV	12-SCBV	3/4	19	1.04	26	1,200	83	2-3/4	70	28	.33	.49	PAGE
16-SCWV	16-SCBV	1	25	1.25	32	1,000	69	4	102	28	.37	.55	PAGE
20-SCWV	20-SCBV	1-1/4	32	1.66	42	750	52	5-1/2	140	28	.56	.83	PAGE
24-SCWV	24-SCBV	1-1/2	38	1.92	49	650	45	7	178	28	.64	.95	PAGE
32-SCWV	32-SCBV	2	51	2.49	63	450	31	8-1/2	216	28	.84	1.24	PAGE
40-SCWV	40-SCBV	2-1/2	64	3.25	83	200	14	12	305	28	1.52	2.26	PAGE
48-SCWV	48-SCBV	3	76	3.80	97	175	12	14	356	28	1.82	2.71	PAGE
64-SCWV	64-SCBV	4	102	4.76	121	150	10	16	406	28	2.10	3.13	PAGE

Construction
Tube: SCWV - Heavy Wall Natural FDA Compliant PTFE
SCBV - Heavy Wall Black Static-dissipative PTFE
Reinforcement: 316 Stainless Steel braid

Operating Parameters
Temperature Range:
-100°F to +500°F (-73°C to +260°C)
Min. Burst Pressure is 4x Max. Working Pressure at 72°F (23°C)
All ratings based on 72°F (23°C)

Fittings
PAGE Series – page 27
Uses crimp collar SC300 - page 36

Notes
Factory-made assemblies only
Not suggested for steam-cold water cycling applications
See page 5 for part numbering system
Cannot be used with 90 or 91N series fittings
Vacuum wire recommended for 2-1/2, 3 and 4 inch

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

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PCWV/PCBV

Polypropylene Braid, Heavy Wall Convoluted PTFE Hose

Features

- Personal handling safety
- Open pitch
- Thicker wall
- Handles vaccum applications at elevated temperatures
- Excellent chemical compatibility
- Easy Cleaning, Non Adhesive

Compliances

- FDA 21 CFR 177.1550
- USP Class VI
- ISO 10993 Sections 5, 6, 10, 11

Applications/Markets

- Fluid Handling
- Chemical Transfer
- Paint
- Pharmaceutical
- Food & Beverage

Part Number		Nominal I.D.		Nominal O.D.		Maximum Working Pressure 72°F/ 23°C		Minimum Bend Radius		Vac. Rating Hg./72°F	Weight		Permanent Fitting Series
#	#												
Natural	Conductive	inch	mm	inch	mm	psi	bar	inch	mm	inch	lbs./ft.	kg./mtr.	
08-PCWV	08-PCBV	1/2	13	.81	21	300	21	3	76	28	.14	.20	PAGE
12-PCWV	12-PCBV	3/4	19	1.30	33	250	17	3-1/2	89	28	.22	.32	PAGE
16-PCWV	16-PCBV	1	25	1.44	36	250	17	4-1/2	114	28	.32	.47	PAGE
20-PCWV	20-PCBV	1-1/4	32	1.86	47	200	14	5	127	28	.40	.59	PAGE
24-PCWV	24-PCBV	1-1/2	38	2.10	53	200	14	6	152	28	.49	.73	PAGE
32-PCWV	32-PCBV	2	51	2.66	68	200	14	8-1/2	216	28	.66	.99	PAGE
40-PCWV	40-PCBV	2-1/2	64	3.57	91	150	10	12	305	28	1.21	1.80	PAGE
48-PCWV	48-PCBV	3	76	3.92	100	125	9	14	356	28	1.45	2.16	PAGE
64-PCWV	64-PCBV	4	102	4.92	125	100	7	16	406	28	1.68	2.50	PAGE

Construction

Tube: PCWV - Heavy Wall Natural FDA Compliant PTFE
PCBV - Heavy Wall Black Static-dissipative PTFE
Reinforcement: Polypropylene

Operating Parameters

Temperature Range:
0°F to +212°F (-18°C to +100°C)
Min. Burst Pressure is 4x Max. Working Pressure at 72°F (23°C)
All ratings based on 72°F (23°C)

Fittings

PAGE Series – page 27
Uses crimp collar PC300 - page 36

Notes

Factory-made assemblies only
Not suggested for steam-cold water cycling applications
See page 5 for part numbering system
Cannot be used with 90 or 91N series fittings
Vacuum wire recommended for 2-1/2, 3 and 4 inch

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

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SCWV-FS/SCBV-FS - Flare-Seal®
Stainless Steel Braid

Features

- Flare Seal fitting - Continuous PTFE through fitting; no area for bacterial entrapment
- Increased flow
- Thicker wall
- Excellent chemical compatibility
- Easy Cleaning, Non Adhesive

Compliances

- FDA 21 CFR 177.1550
- USP Class VI
- ISO 10993 Sections 5, 6, 10, 11

Applications/Markets

- Fluid Handling
- Chemical Transfer
- Paint
- Pharmaceutical
- Food & Beverage

Part Number		Nominal I.D.		Nominal O.D.		Maximum Working Pressure 72°F/ 23°C		Minimum Bend Radius		Vac. Rating Hg./72°F	Weight	
#	#											
Natural	Conductive	inch	mm	inch	mm	psi	bar	inch	mm	inch	lbs./ft.	kg./mtr.
08-SCWV-FS	08-SCBV-FS	1/2	13	.75	19	500	35	2	51	28	.17	.26
12-SCWV-FS	12-SCBV-FS	3/4	19	1.04	26	425	29	2-3/4	70	28	.33	.49
16-SCWV-FS	16-SCBV-FS	1	25	1.25	32	350	24	4	102	28	.37	.55
20-SCWV-FS	20-SCBV-FS	1-1/4	32	1.66	42	325	22	5-1/2	140	28	.56	.83
24-SCWV-FS	24-SCBV-FS	1-1/2	38	1.92	49	300	21	7	178	28	.64	.95
32-SCWV-FS	32-SCBV-FS	2	51	2.49	63	250	17	8-1/2	216	28	.84	1.24
40-SCWV-FS	40-SCBV-FS	2-1/2	64	3.25	83	200	14	12	305	28	1.52	2.26
48-SCWV-FS	48-SCBV-FS	3	76	3.80	97	175	12	14	356	28	1.82	2.71
64-SCWV-FS	64-SCBV-FS	4	102	4.76	121	150	10	16	406	28	2.10	3.13

Construction

Tube: SCWV -FS- Heavy Wall Natural FDA Compliant PTFE
SCBV-FS - Heavy Wall Black Static-dissipative PTFE
Reinforcement: 316 Stainless Steel braid

Fittings

PAGE Series – page 27

Operating Parameters

Temperature Range:
-100°F to +500°F (-73°C to +260°C)
Min. Burst Pressure is 4x Max. Working Pressure at 72°F (23°C)
All ratings based on 72°F (23°C)

Notes

Factory-made assemblies only
Not suggested for steam-cold water cycling applications
All dimensions nominal
See page 5 for part numbering system
Cannot be used with 90 or 91N series fittings

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

www.comoso.com

PCWV-FS/PCBV-FS - Flare-Seal®
Polypropylene Braid

Features

- Flare Seal fitting - Continuous PTFE through fitting; no area for bacterial entrapment
- Increased flow
- Personal handling safety
- Good chemical compatibility
- Easy Cleaning, Non Adhesive

Compliances

- FDA 21 CFR 177.1550
- USP Class VI
- ISO 10993 Sections 5, 6, 10, 11

Applications/Markets

- Fluid Handling
- Chemical Transfer
- Paint
- Pharmaceutical
- Food & Beverage

Part Number		Nominal I.D.		Nominal O.D.		Maximum Working Pressure 72°F/ 23°C		Minimum Bend Radius		Vac. Rating Hg./72°F	Weight	
#	#											
Natural	Conductive	inch	mm	inch	mm	psi	bar	inch	mm	inch	lbs./ft.	kg./mtr.
08-PCWV-FS	08-PCBV-FS	1/2	13	.810	21	300	21	3	76	28	.14	.20
12-PCWV-FS	12-PCBV-FS	3/4	19	1.10	28	250	17	3-1/2	89	28	.22	.32
16-PCWV-FS	16-PCBV-FS	1	25	1.44	36	250	17	4-1/2	114	28	.31	.47
20-PCWV-FS	20-PCBV-FS	1-1/4	32	1.86	47	200	14	5	127	28	.40	.59
24-PCWV-FS	24-PCBV-FS	1-1/2	38	2.10	53	200	14	6	152	28	.49	.73
32-PCWV-FS	32-PCBV-FS	2	51	2.66	68	200	14	8-1/2	216	28	.66	.99
40-PCWV-FS	40-PCBV-FS	2-1/2	64	3.42	87	150	10	12	305	28	1.21	1.80
48-PCWV-FS	48-PCBV-FS	3	76	3.92	100	125	9	14	356	28	1.45	2.16
64-PCWV-FS	64-PCBV-FS	4	102	4.92	125	100	7	16	406	28	1.68	2.50

Construction

Tube: PCWV-FS - Heavy Wall Natural FDA Compliant PTFE
PCBV-FS- Heavy Wall Black Static-dissipative PTFE
Reinforcement: Polypropylene

Operating Parameters

Temperature Range:
0°F to +212°F (-18°C to +100°C)
Min. Burst Pressure is 4x Max. Working Pressure at 72°F (23°C)
All ratings based on 72°F (23°C)

Fittings

PAGE Series – page 27

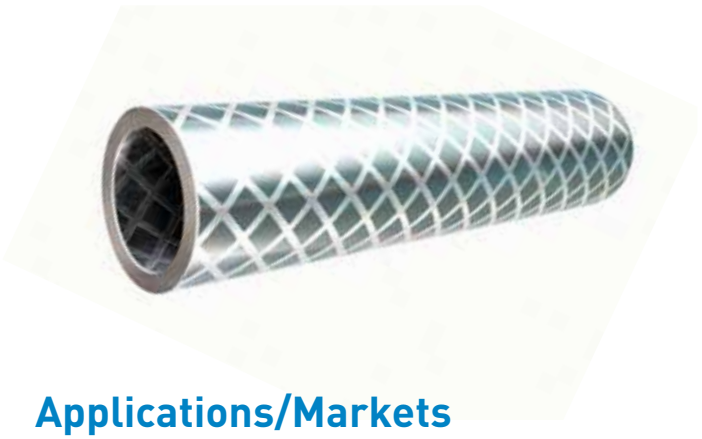
Notes

Factory-made assemblies only
Not suggested for steam-cold water cycling applications
See page 5 for part numbering system
Cannot be used with 90 or 91N series fittings

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

www.comoso.com

SBP
Platinum Cured Braided Silicone Tubing



Features
- Easy Cleaning
- Insulates hose for safer operator handling
- Good chemical compatibility
- Non Adhesive

Compliances
- FDA 21 CFR 177.2600
- USP Class VI
- ISO 10993 Sections 5, 6, 10, 11
- USDA Standards
- 3A Standards

Applications/Markets
- Fluid Handling
- Pharmaceutical
- Food & Beverage

Part Number	Nominal I.D.		Nominal O.D.		Maximum Working Pressure 68˚F/ 20˚C		Minimum Burst Pressure 68˚F/20˚C		Length/Roll		Weight		Permanent Fitting Series
#											lbs	kg	
Natural	inch	mm	inch	mm	psi	bar	psi	bar	feet	meter	lbs./ft.	kg./mtr.	
04-SBP	.250	6	.500	13	160	11.7	575	40	50	15.2	.112	.167	PAGE
06-SBP	.375	10	.625	16	150	10.3	550	38	50	15.2	.117	.174	PAGE
08-SBP	.500	13	.875	22	140	9.7	420	29	50	15.2	.190	.283	PAGE
12-SBP	.750	19	1.125	29	100	6.9	350	24	50	15.2	.326	.486	PAGE
16-SBP	1.000	25	1.405	36	60	4.1	225	16	50	15.2	.404	.602	PAGE

Construction
Tube: Platinum cured silicone
Reinforcement: Textile braid
Cover: Platinum cured silicone

Operating Parameters
Temperature Range:
-80°F to +450°F (-62°C to +232°C)
Min. Burst Pressure is 4x Max. Working Pressure at 68°F (20°C)
All ratings based on 68°F (20°C)
Working pressures may vary depending upon end connections and process and temperature parameters.

Fittings
PAGE Series – page 27
Uses crimp collar SIL300 - page 36
Cannot be used with 90 or 91N/91 series fittings

Notes
Available with double braid
See page 7 for part numbering system

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

www.comoso.com

SWPV
Platinum Cured 4 Ply Silicone with Stainless Steel Wire Helix

Features
- Easy Cleaning
- Insulates hose for safer operator handling
- Good chemical compatibility
- Non Adhesive

Compliances
- FDA 21 CFR 177.2600
- **USP Class VI Certified**
- ISO 10993 Sections 5, 6, 10, 11
- USDA Standards
- 3A Standards

Applications/Markets
- Fluid Handling
- Pharmaceutical
- Food & Beverage

Part Number	Nominal I.D.		Nominal O.D.		Maximum Working Pressure 72°F/ 23°C		Minimum Burst Pressure 72°F/23°C		Vac. Rating Hg./72°F	Minimum Bend Radius		Weight		Permanent Fitting Series
#												lbs	kg	
Natural	inch	mm	inch	mm	psi	bar	psi	bar	inch	inch	mm	lbs./ft.	kg./mtr.	
08-SWPV	.500	13	.900	23	250	17	750	52	30	1-1/2	38	.27	.40	PAGE
12-SWPV	.750	19	1.150	29	250	17	750	52	30	2-1/2	64	.37	.55	PAGE
16-SWPV	1.000	25	1.400	36	250	17	750	52	30	3	76	.46	.69	PAGE
24-SWPV	1.500	38	1.900	48	250	17	750	52	30	4	102	.66	.98	PAGE
32-SWPV	2.000	51	2.400	61	230	16	700	48	30	5-1/2	140	.85	1.27	PAGE

Construction
Tube: Platinum cured silicone

Reinforcement: Wrapped textile with Stainless Steel wire helix

Cover: Platinum cured silicone

Operating Parameters
Temperature Range:

-80°F to +450°F (-62°C to +232°C)

Min. Burst Pressure is 4x Max. Working Pressure at 72°F (23°C)

All ratings based on 72°F (23°C)

Working pressures may vary depending upon end connections and process and temperature parameters.

Fittings
PAGE Series – page 27

Uses crimp collar SIL300 - page 36

Cannot be used with 90 or 91N/91 series fittings

Notes
Available with double braid

See page 7 for part numbering system

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

www.comoso.com

RCTW/RCTB EPDM Rubber Covered
Fluoropolymer Hose

Features

- Personal handling safety
- Handles full vacuum
- Good chemical compatibility
- Easy Cleaning, Non Adhesive

Compliances

- FDA 21 CFR 177.1550 (FEP core tube)
- **USP Class VI Certified**
- ISO 10993 Sections 5, 6, 10, 11

Applications/Markets

- Food & Beverage
- Pharmaceutical
- Fluid Handling
- Chemical
- Ground Support
- Industrial
- Paint
- Semiconductor

Specialty

Part Number		Nominal I.D.		Nominal O.D.		Maximum Working Pressure 72°F/ 23°C		Minimum Bend Radius		Vac. Rating Hg./72°F	Weight		Permanent Fitting Series
#	#												
Natural	Conductive	inch	mm	inch	mm	psi	bar	inch	mm	inch	lbs./ft.	kg./mtr.	
08-RCTW	08-RCTB	1/2	13	.95	24	500	35	2-1/2	64	30	.33	.49	PAGE
12-RCTW	12-RCTB	3/4	19	1.25	32	500	35	3	76	30	.51	.76	PAGE
16-RCTW	16-RCTB	1	25	1.53	39	450	31	4	102	30	.67	1.00	PAGE
20-RCTW	20-RCTB	1-1/4	32	1.74	44	375	26	7	178	30	.72	1.07	PAGE
24-RCTW	24-RCTB	1-1/2	38	2.13	54	375	26	9	229	30	1.10	1.51	PAGE
32-RCTW	32-RCTB	2	51	2.68	68	300	21	10-1/2	267	30	1.54	2.30	PAGE
40-RCTW	40-RCTB	2-1/2	64	3.30	84	200	14	15	381	30	2.07	3.09	PAGE
48-RCTW	48-RCTB	3	76	3.88	99	200	14	18	457	30	2.99	4.46	PAGE
64-RCTW	64-RCTB	4	102	4.98	127	150	10	22-1/2	572	30	4.33	6.46	PAGE

Construction

Tube: RCTW - Natural FEP tube
RCTB - Static-dissipative PFA tube
Reinforcement: Double wire helix - multi layered rubber
Cover: Textile reinforced EPDM

Operating Parameters

Temperature Range:
-40°F to +300°F (-40°C to +149°C) Decrease working pressure one percent for every 2°F above 212°F.
Operating pressures shown are for non-impulse service
All ratings based on 72°F (23°C)

Fittings

PAGE Series – page 27
Uses crimp collar RC300 - page 36

Notes

RCTB - Special order only
See page 5 for part numbering system
Cannot be used with 90 or 91N series fittings

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

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CWV/CBV
Fluoropolymer Convoluted Tubing


As Manufactured


Standard Cuff


Reduced Cuff


Specified Flare


Vacuum Wire on I.D.


Vacuum Wire on O.D.


Expanded Cuff


90° Flanged End

Features
- Open pitched
- Self draining
- Very flexible
- Multiple cuffing options

Compliances
- FDA 21 CFR 177.1550
- USP Class VI
- ISO 10993 Sections 5, 6, 10, 11

Applications/Markets


- Fluid Handling
- Chemical Transfer
- Paint
- Pharmaceutical
- Food & Beverage
- Semiconductor

Part Number		Order Size	Nominal I.D.		Maximum O.D.		Maximum Working Pressure 72°F/23°C		Minimum Burst Pressure 72°F/23°C		Minimum Bend Radius		Vac. Rating Hg./72°F	Weight	
#	#													lbs	kg
Natural	Conductive	inch	inch	mm	inch	mm	psi	bar	psi	bar	inch	mm	inch	lbs./ft.	kg./mtr.
08-CWV	08-CBV	1/2	.46	12	.700	18	50	3.4	100	6.9	1-1/2	38	30	.09	.13
12-CWV	12-CBV	3/4	.69	18	1.01	26	50	3.4	100	6.9	1-7/8	48	30	.17	.25
16-CWV	16-CBV	1	.85	22	1.51	31	50	3.4	100	6.9	2-1/2	64	30	.18	.27
20-CWV	20-CBV	1-1/4	1.14	29	1.61	41	40	2.8	80	5.5	3-1/8	79	30	.28	.42
24-CWV	24-CBV	1-1/2	1.45	37	1.88	48	40	2.8	80	5.5	3-3/4	95	30	.32	.48
32-CWV	32-CBV	2	1.80	46	2.43	62	30	2.0	60	4.1	4-3/4	120	30	.62	.76
40-CWV	40-CBV	2-1/2	2.50	64	3.21	82	20	1.4	40	2.8	5	127	30	.76	1.13
48-CWV	48-CBV	3	3.00	76	3.75	95	15	1.0	30	2.0	7	178	30	.91	1.35
64-CWV	64-CBV	4	4.00	102	4.75	121	10	0.7	20	1.3	9	229	30	1.05	1.56

Construction
Tube: CWV: FDA Compliant PTFE
CBV: Black Static Dissipative PTFE

Fittings
PAGE Series – page 27
Uses crimp collar SC300 - page 36

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

Notes
Bend Radius based on 36" length piece

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

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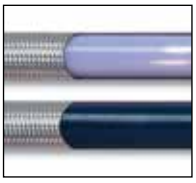
NOTES

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

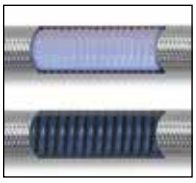
Crimp Fittings
Two Piece - 316 Stainless Steel

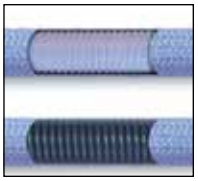
PAGE Series True Bore Fittings

Works on the following hose types:


Smooth True Bore


Rubber Covered Fluoropolymer


Convoluted SS Braid


Convoluted Non-Metallic Braid


Silicone Hose & Tubing

Where applicable, “B” indicates Brass and “C” indicates Carbon Steel and “S” indicates Stainless Steel. For detailed ordering information, contact Customer Service.

Features

- New fitting part numbers follow Parker standard nomenclature
- Fittings are interchangeable between styles
  - reduces inventory

Options

- Application specific designs available
- Stainless or Carbon Steel

PAGE Fitting Nomenclature

Example: 08-16SAN-S

This example describes a permanent sanitary flange step down, 1/2" I.D. hose with a 1" sanitary flange. This fitting is constructed of stainless steel since the designated material is -S.

08-16SAN-S – **Hose I.D.** (1/2”)
08-**16**SAN-S – **End Size** (1”)
08-16**SAN**-S – **End Configuration Code (Sanitary Flange)**
08-16SAN-**S** – **PAGE Fitting Material Selection**
- B = All Brass
- C = Carbon Steel
- S = Stainless Steel

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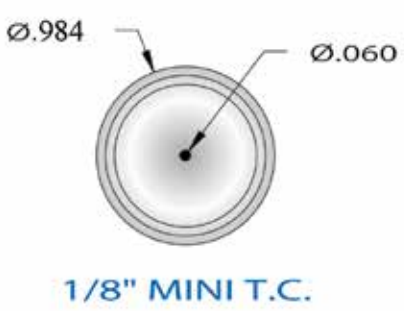
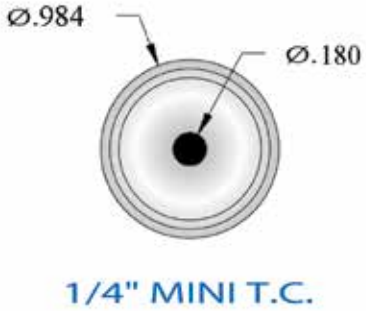
Typical Dimensions for Sanitary Fittings

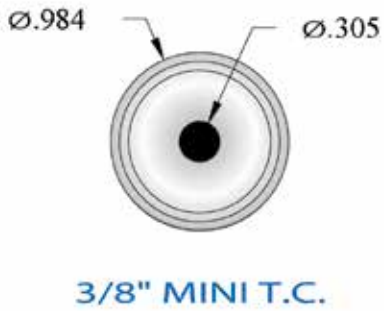
These actual size drawings are provided to eliminate sizing errors when specifying sanitary fittings. The outside diameter is the same for 1/8", 1/4", 3/8", 1/2" and the 3/4" (mini) styles. For your convenience and ordering accuracy, all of these drawings may be used as sizing I.D. and O.D. patterns.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



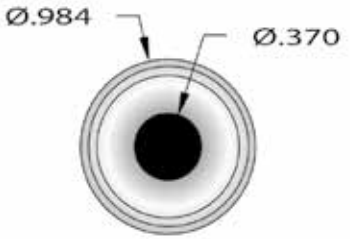
1/8" MINI T.C.



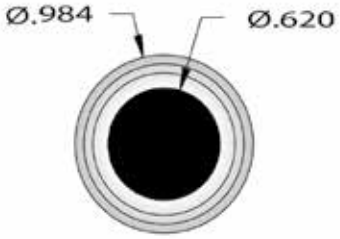
1/4" MINI T.C.



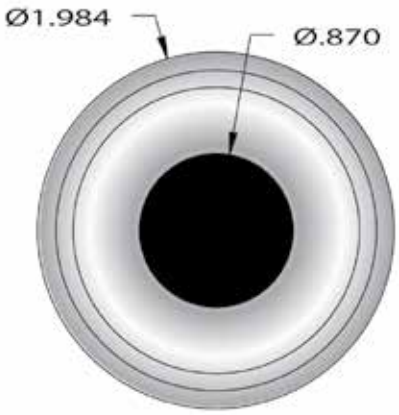
3/8" MINI T.C.



1/2" MINI T.C.



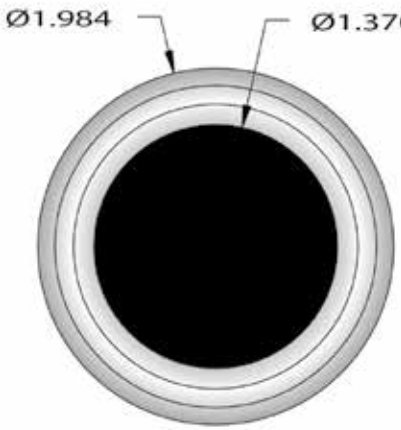
3/4" MINI T.C.



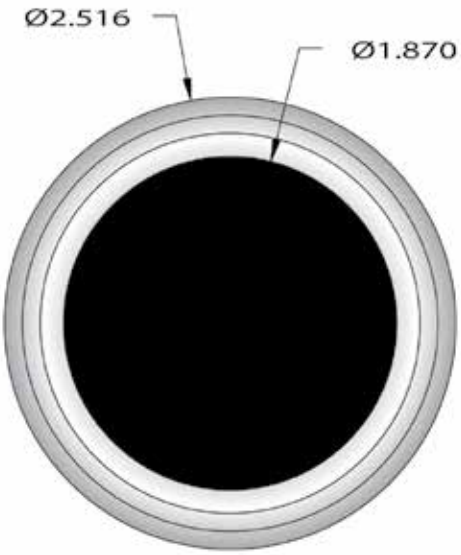
1" T.C.

Crimp Fittings
Sanitary Sizing

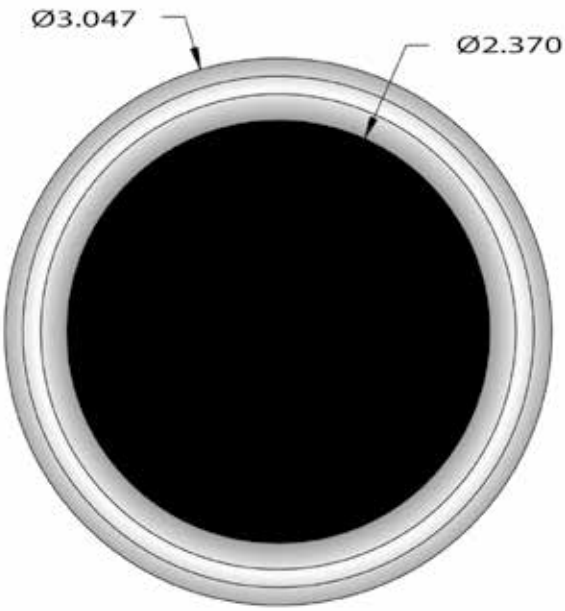
Typical Dimensions for Sanitary Fittings



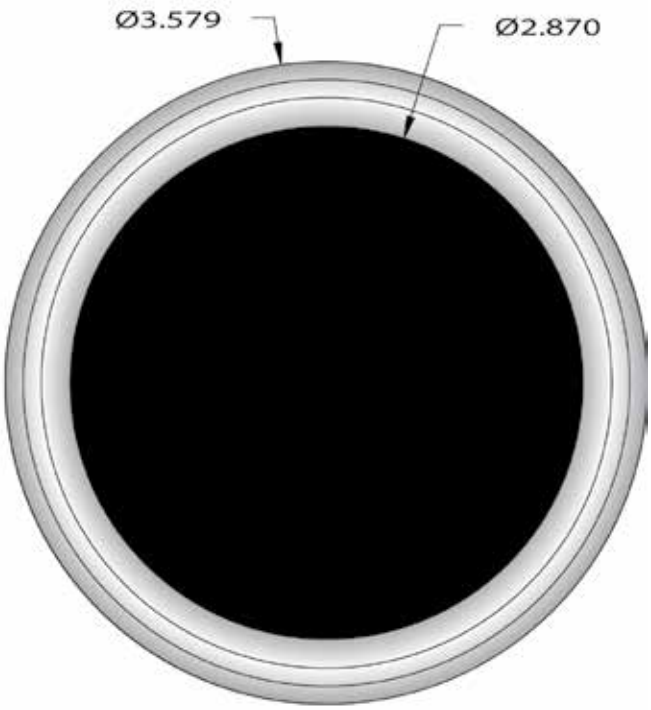
1 1/2" T.C.



2" T.C.



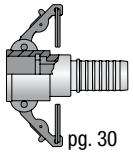
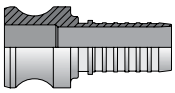
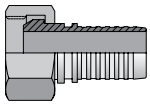
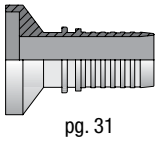
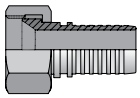
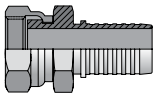
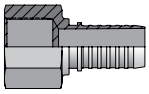
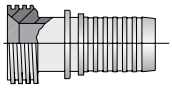
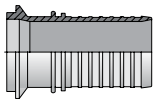
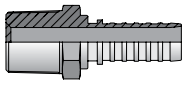
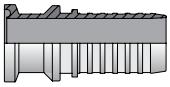
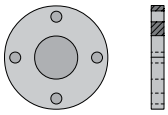
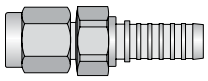
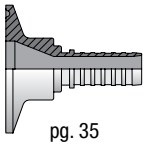
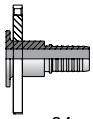
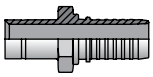
2 1/2" T.C.



3" T.C.

PAGE Fittings Visual Index

PAGE Fittings
PERMANENT

CL-S Female Cam & Groove	E-S Male Cam & Groove	FBS-S Female Sanitary Bevel Seat	FIL-S Female I-Line® Sanitary	FJX-S Female JIC 37° Swivel
 pg. 30	 pg. 31	 pg. 31	 pg. 31	 pg. 33
FORFS-S Female Seal-Lok™ Swivel Short	**FP-S** Female NPTF Pipe Rigid	**MBS-S** Male Sanitary Bevel Seat	**MIL-S** Male I-Line® Sanitary	**MP-S** Male NPTF Pipe Rigid
 pg. 33	 pg. 32	 pg. 31	 pg. 32	 pg. 32
MSAN-S Mini Sanitary Flange	**PF** ANSI Flange	**PLCF-S** Female A-Lok® Compression	**SAN-S** Sanitary Flange & Step Downs	**SFR-S** Flange Retainer
 pg. 35	 pg. 34	 pg. 33	 pg. 35	 pg. 34
TUBE-S A-Lok® Male Stand Pipe-Rigid "V" Notch				
 pg. 34				

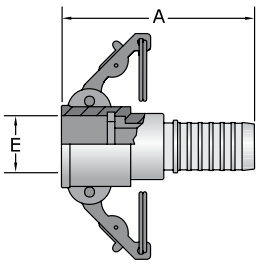
NOTE:

The PAGE fitting call-out does not follow traditional Parker fitting nomenclature. The end size and hose size are reversed.

Length calculations for PAGE hose assemblies are typically made sealing surface to sealing surface per the NAHAD Fluoropolymer Hose Assembly Specification Guidelines unless otherwise requested by customer at time of order.

PAGE Series Fittings

CL-S Female Cam & Groove



Part Number	Hose I.D.		A		E	
#	○					
	inch	mm	inch	mm	inch	mm
16-16CL-S	1	25	4.2	107	1.44	37
24-24CL-S	1-1/2	38	5.2	132	2.10	53
32-32CL-S	2	51	6.0	152	2.48	63
48-48CL-S	3	76	7.2	183	3.60	91
64-64CL-S	4	102	7.8	198	4.70	119

Construction: Stainless Steel. Note: Also available as encapsulated female cam under part number TEC-S and TECL-S.

NOTE: The PAGE fitting call-out does not follow traditional Parker fitting nomenclature. The end size and hose size are reversed. Length calculations for PAGE hose assemblies are typically made sealing surface to sealing surface per the NAHAD Fluoropolymer Hose Assembly Specification Guidelines unless otherwise requested by customer at time of order.

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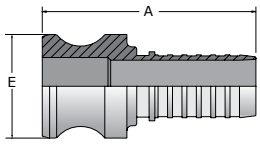
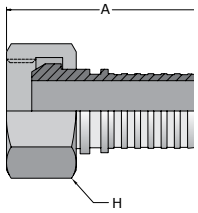
E-S Male Cam & Groove



Part Number #	Hose I.D.		A		E	
	inch	mm	inch	mm	inch	mm
12-12E-S	3/4	19	2.60	66	1.26	32
16-16E-S	1	25	2.91	74	1.44	37
20-20E-S	1-1/4	32	3.64	93	1.78	45
24-24E-S	1-1/2	38	4.03	102	2.10	53
32-32E-S	2	51	4.75	121	2.48	63
48-48E-S	3	76	5.75	146	3.60	91
64-64E-S	4	102	5.88	149	4.70	119

Construction: Stainless Steel.

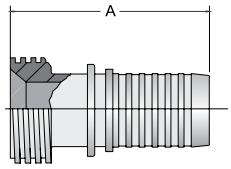
FBS-S Female Sanitary Bevel Seat



Part Number #	Acme Thread	Hose I.D.		A	
	inch	inch	mm	inch	mm
16-16FBS-S	1-1/2-8	1	25	2.74	70
24-24FBS-S	2-8	1-1/2	38	3.41	87
32-32FBS-S	2-1/2-8	2	51	3.94	100
40-40FBS-S	3-8	2-1/2	64	4.37	110
48-48FBS-S	3-1/2-8	3	76	4.85	123
64-64FBS-S	4-5/8-6	4	102	5.24	133

Construction: Stainless Steel.

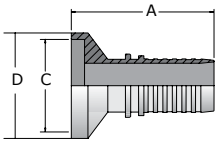
MBS-S Male Sanitary Bevel Seat



Part Number #	Acme Thread	Hose I.D.		A	
	inch	inch	mm	inch	mm
16-16MBS-S	1-1/2-8	1	25	2.74	70
24-24MBS-S	2-8	1-1/2	38	3.41	87
32-32MBS-S	2-1/2-8	2	51	3.94	100
40-40MBS-S	3-8	2-1/2	64	4.37	110
48-48MBS-S	3-1/2-8	3	76	4.85	123
64-64MBS-S	4-5/8-6	4	102	5.24	133

Construction: Stainless Steel.

FIL-S Female I-Line® Sanitary



Part Number #	Hose I.D.		A		Flange Size C		D	
	inch	mm	Inch	mm	Inch	mm	Inch	mm
16-16FIL-S	1	25	2.60	66	1.25	32	2.00	51
24-24FIL-S	1-1/2	38	3.43	87	1.76	45	2.00	51
32-32FIL-S	2	51	4.23	107	2.26	57	2.64	67
40-40FIL-S	2-1/2	64	4.42	112	2.76	70	3.31	84
48-48FIL-S	3	76	4.84	123	3.31	84	3.87	98

Construction: Stainless Steel.

NOTE: The PAGE fitting call-out does not follow traditional Parker fitting nomenclature. The end size and hose size are reversed. Length calculations for PAGE hose assemblies are typically made sealing surface to sealing surface per the NAHAD Fluoropolymer Hose Assembly Specification Guidelines unless otherwise requested by customer at time of order.

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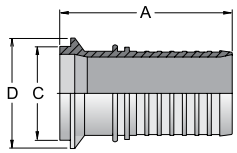
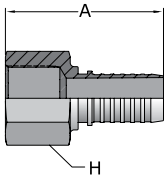
MIL-S Male I-Line® Sanitary



Part Number #	Hose I.D.		A		Flange Size C		D	
	inch	mm	Inch	mm	Inch	mm	Inch	mm
16-16MIL-S	1	13	2.60	66	1.25	32	2.00	51
24-24MIL-S	1-1/2	19	3.43	87	1.76	45	2.00	51
32-32MIL-S	2	25	4.23	107	2.26	57	2.64	67
40-40MIL-S	2-1/2	64	4.42	112	2.76	70	3.31	84
48-48MIL-S	3	76	4.84	123	3.31	84	3.87	98

Construction: Stainless Steel.

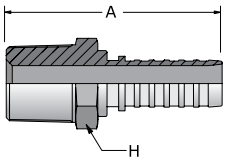
FP-S Female NPTF Pipe-Rigid



Part Number #	Thread Size	Hose I.D.		A		H Hex
	inch	inch	mm	inch	mm	inch
04-04FP-S	1/4-18	1/4	6	1.63	41	3/4
06-06FP-S	3/8-18	3/8	10	1.73	44	7/8
08-08FP-S	1/2-14	1/2	13	2.25	57	1-1/16
12-12FP-S	3/4-14	3/4	19	2.60	66	1-5/16
16-16FP-S	1-11 1/2	1	25	2.85	72	1-5/8
20-20FP-S	1 1/4-11 1/2	1-1/4	32	3.50	89	2
24-24FP-S	1 1/2-11 1/2	1-1/2	38	3.63	92	2-3/8
32-32FP-S	2-11 1/2	2	51	4.25	108	2-7/8

Construction: Stainless Steel.

MP-S Male NPTF Pipe-Rigid



Part Number #	Thread Size	Hose I.D.		A		H Hex
	inch	inch	mm	inch	mm	inch
04-04MP-S	1/4-18	1/4	6	1.63	41	9/16
06-06MP-S	3/8-18	3/8	10	1.76	45	11/16
08-08MP-S	1/2-14	1/2	13	2.34	59	7/8
12-12MP-S	3/4-14	3/4	19	2.59	66	1-1/8
16-16MP-S	1-11 1/2	1	25	3.00	76	1/3/8
20-20MP-S	1 1/4-11 1/2	1-1/4	32	3.39	86	1-3/4
24-24MP-S	1 1/2-11 1/2	1-1/2	38	3.89	99	2
32-32MP-S	2-11 1/2	2	51	4.58	116	2-1/2
40-40MP-S	2-1/2 8	2-1/2	64	5.28	134	3
48-48MP-S	3-8	3	76	5.93	151	3-3/4
64-64MP-S	4-8	4	102	6.82	173	4-5/8

Construction: Stainless Steel.

NOTE: The PAGE fitting call-out does not follow traditional Parker fitting nomenclature. The end size and hose size are reversed. Length calculations for PAGE hose assemblies are typically made sealing surface to sealing surface per the NAHAD Fluoropolymer Hose Assembly Specification Guidelines unless otherwise requested by customer at time of order.

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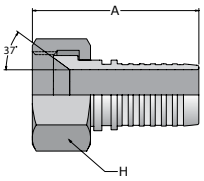
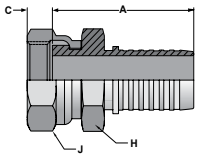
FJX-S Female JIC 37° Swivel



Part Number	Thread Size	Hose I.D.		A		H Hex
#						
	inch	inch	mm	inch	mm	inch
04-04FJX-S	7/16-20	1/4	6	1.44	37	9/16
06-06FJX-S	9/16-18	3/8	10	1.65	42	11/16
08-08FJX-S	3/4-16	1/2	13	2.13	54	7/8
12-12FJX-S	1-1/16-12	3/4	19	2.54	65	1-1/4
16-16FJX-S	1-5/16-12	1	25	2.76	70	1-1/2
20-20FJX-S	1-5/8-12	1-1/4	32	3.25	83	2
24-24FJX-S	1-7/8-12	1-1/2	38	3.73	95	2-1/4
32-32FJX-S	2-1/2-12	2	51	4.55	116	2-7/8
40-40FJX-S	3-12	2-1/2	64	4.76	121	3-3/8

Construction: Stainless Steel.

FORFS-S Female Seal-Lok® Swivel-Short

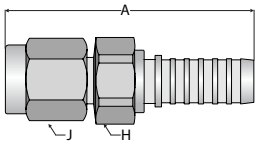


Part Number	Thread Size	Hose I.D.		A		C		H Hex	J Hex
#									
		inch	mm	inch	mm	inch	mm	inch	inch
04-04FORFS-S	9/16-18	1/4	6	1.50	38	.32	8	9/16	11/16
06-06FORFS-S	11/16-16	3/8	10	1.85	47	.32	8	11/16	13/16
08-08FORFS-S	13/16-16	1/2	13	2.00	51	.43	11	13/16	15/16
12-12FORFS-S	1-3/16-12	3/4	19	2.30	58	.57	14	1-1/8	1-3/8
16-16FORFS-S	1-7/16-12	1	25	2.50	64	.58	15	1-3/8	1-5/8
24-24FORFS-S	2-12	1-1/2	38	3.98	101	.59	15	2	2-1/4

Construction: Stainless Steel.

NOTE: When measuring overall length to the end of the nut, B+C dimensions must be used to calculate cut-off allowance. Stainless steel fittings must be assembled with Karrykrimp2, PHastkrimp, Superkrimp or Parkimp2. See CrimpSource for more information.

PLCF-S Female A-LOK® Compression (With Nut & Ferrules)



Part Number	Thread Size	Hose I.D.		A		H Hex	J Hex
#							
		inch	mm	inch	mm	inch	inch
04-04PLCF-S	7/16-20	1/4	6	1.52	39	9/16	9/16
06-06PLCF-S	9/16-20	3/8	10	1.63	41	11/16	11/16
08-08PLCF-S	3/4-20	1/2	13	2.05	52	7/8	7/8
12-12PLCF-S	1-20	3/4	19	2.30	58	1-1/8	1-1/8
16-16PLCF-S	1-5/16-20	1	25	2.57	65	1-3/8	1-1/2

Construction: Stainless Steel.

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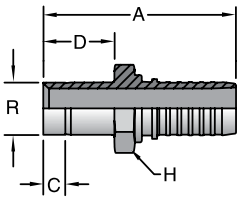
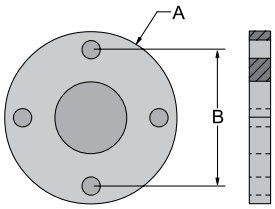
TUBE-S A-LOK® Male Standpipe-Rigid with "V" Notch



Part Number	Diameter R	Hose I.D.		A		C		D		H Hex
#	∅	◎								⬡
	inch	inch	mm	inch	mm	inch	mm	inch	mm	inch
04-04TUBE-S	1/4	1/4	6	1.75	45	.18	5	.66	17	7/16
06-06TUBE-S	3/8	3/8	10	2.06	52	.25	6	.85	2	5/8
08-08TUBE-S	1/2	1/2	13	2.56	65	.34	9	.97	25	3/4
12-12TUBE-S	3/4	3/4	19	2.86	73	.40	10	1.02	26	1-1/8
16-16TUBE-S	1	1	25	3.34	85	.52	13	1.30	33	1-3/8
20-20TUBE-S	1-1/4	1-1/4	32	4.05	10	.50	13	1.75	45	1-3/4

Construction: Stainless Steel.

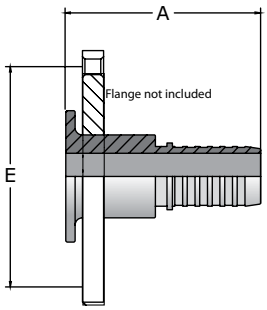
PF ANSI B16.5 Flange



Carbon Steel (Epoxy Coated)	316 Stainless Steel	304 Stainless Steel	Flange Diameter A		Hose I.D.		Bolt Spacing B	
#	#	#	∅		◎			
Flange	Flange	Flange	inch	mm	inch	mm	inch	mm
08-PF150	08-PF156	08-PF154	3-1/2	89	1/2	13	2-3/8	60
12-PF150	12-PF156	12-PF154	3-7/8	98	3/4	19	2-3/4	70
16-PF150	16-PF156	16-PF154	4-1/4	108	1	25	3-1/8	79
20-PF150	20-PF156	20-PF154	4-5/8	117	1-1/4	32	3-1/2	89
24-PF150	24-PF156	24-PF154	5	127	1-1/2	38	3-7/8	98
32-PF150	32-PF156	32-PF154	6	152	2	51	4-3/4	120
40-PF150	40-PF156	40-PF154	7	178	2-1/2	64	5-1/2	140
48-PF150	48-PF156	48-PF154	7-1/2	191	3	76	6	152
64-PF150	64-PF156	64-PF154	9	229	4	102	7-1/2	191

Note: Also available in 300 lb. flange and other materials. Contact Customer Service for options.

SFR-S Flange Retainer



Part Number	Flange Diameter		Hose I.D.		A		Bolt Spacing E	
#	∅		◎					
	inch	mm	inch	mm	inch	mm	inch	mm
08-08SFR-S	3-1/2	89	1/2	13	2.30	58	2-3/8	60
12-12SFR-S	3-7/8	98	3/4	19	2.60	66	2-3/4	70
16-16SFR-S	4-1/4	108	1	25	3.00	76	3-1/8	79
20-20SFR-S	4-5/8	117	1-1/4	32	3.25	83	3-1/2	89
24-24SFR-S	5	127	1-1/2	38	3.65	93	3-7/8	98
32-32SFR-S	6	152	2	51	4.25	108	4-3/4	120
40-40SFR-S	7	178	2-1/2	64	5.00	127	5-1/2	140
48-48SFR-S	7-1/2	191	3	76	5.50	140	6	152
64-64SFR-S	9	229	4	102	7.00	178	7-1/2	191

Construction: Stainless Steel.

NOTE: The PAGE fitting call-out does not follow traditional Parker fitting nomenclature. The end size and hose size are reversed. Length calculations for PAGE hose assemblies are typically made sealing surface to sealing surface per the NAHAD Fluoropolymer Hose Assembly Specification Guidelines unless otherwise requested by customer at time of order.

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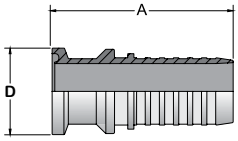
MSAN-S Mini Sanitary Flange



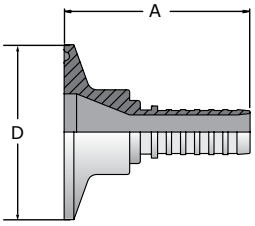
Part Number	Hose I.D.		A		Flange Size D	
#	○					
	inch	mm	inch	mm	inch	mm
04-04MSAN-S	1/4	6	1.47	37	.98	25
04-08MSAN-S	1/4	6	1.50	38	.98	25
06-06MSAN-S	3/8	10	1.53	39	.98	25
06-08MSAN-S	3/8	10	1.53	39	.98	25
06-12MSAN-S	3/8	10	1.66	42	.98	25
08-08MSAN-S	1/2	13	1.90	48	.98	25
08-12MSAN-S	1/2	13	1.94	49	.98	25
12-12MSAN-S	3/4	19	2.16	55	.98	25
16-16MSAN-S	1	25	2.27	58	.98	25

Construction: Stainless Steel. Meets ASME-BPE.

NOTE: The PAGE fitting call-out does not follow traditional Parker fitting nomenclature. The end size and hose size are reversed.

NOTE: The PAGE fitting call-out does not follow traditional Parker fitting nomenclature. The end size and hose size are reversed. Length calculations for PAGE hose assemblies are typically made sealing surface to sealing surface per the NAHAD Fluoropolymer Hose Assembly Specification Guidelines unless otherwise requested by customer at time of order.

SAN-S Sanitary Flange & Step-Downs



Part Number	Hose I.D.		A		Flange Size D	
#	○					
	inch	mm	inch	mm	inch	mm
08-08SAN-S	1/2	13	2.11	54	1.98	50
08-16SAN-S	1/2	13	2.11	54	1.98	50
08-24SAN-S	1/2	13	2.34	59	1.98	50
12-12SAN-S	3/4	19	2.32	59	1.98	50
16-16SAN-S	1	25	2.45	62	1.98	50
12-24SAN-S	3/4	19	2.34	59	1.98	50
16-24SAN-S	1	25	2.32	59	1.98	50
24-24SAN-S	1-1/2	38	3.10	79	1.98	50
24-32SAN-S	1-1/2	38	3.12	79	2.52	64
32-32SAN-S	2	51	3.67	93	2.52	64
40-40SAN-S	2-1/2	64	4.00	102	3.05	77
48-48SAN-S	3	76	4.50	114	3.58	91
64-64SAN-S	4	102	4.75	121	4.68	119

Construction: Stainless Steel. Compliant ASME-BPE.

NOTE: The PAGE fitting call-out does not follow traditional Parker fitting nomenclature. The end size and hose size are reversed.

NOTE: The PAGE fitting call-out does not follow traditional Parker fitting nomenclature. The end size and hose size are reversed. Length calculations for PAGE hose assemblies are typically made sealing surface to sealing surface per the NAHAD Fluoropolymer Hose Assembly Specification Guidelines unless otherwise requested by customer at time of order.

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Collars
For Hose with PAGE Series Fittings

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.

Inserts & Collars Sold Separately

Examples:

If you need a Female JIC Swivel Fitting for a 08-SCW Hose (1/2" Convoluted), 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.

By Size

Hose	Collar # Size	04	06	08	12	16	20	24	32	40	48	64
STW STB	ST300	ST300	ST300	ST300	ST300	ST300	ST300	ST300				
SCW SCB	SC300	SC300	SC300	SC300	SC300	SC300	SC300	SC300	SC300			
PCW PCB	PC300	PC300	PC300	PC300	PC300	PC300	PC300	PC300	PC300			
SCWV SCBV	SC300			SC300	SC300	SC300	SC300	SC300	SC300	SC300	SC300	SC300
PCWV PCBV	PC300			PC300	PC300	PC300	PC300	PC300	PC300	PC300	PC300	PC300
CWV CBV	SC300 ST300 ST301			ST300	ST300	ST300		ST301	SC300	SC300	SC300	
SBP	SIL300	SIL300	SIL300	SIL300	SIL300	SIL300						
SWPV	SIL300			SIL300	SIL300	SIL300		SIL300	SIL300			
SBFW SBFB	SBF300		SBF300	SBF300	SBF300	SBF300		SBF300				
RCTW RCTB	RC300			RC300	RC300	RC300	RC300	RC300	RC300	RC300	RC300	RC300
NCW NCB	SC300	SC300	SC300	SC300	SC300	SC300						

By Style

Size	ST300	SC300	PC300	SBF300	SIL 300	RC300
	For use with STW/STB	For use with SCW/SCB, SCWV/SCBV, CWV/CBV, NCW/NCB, NCWV/NCBV	For use with PCW/PCB, PCWV/PCBV	For use with SBFW/SBFB	For use with SBP/SWPV	For use with RCTW/RCTB
1/4"	04-ST300	04-SC300	04-PC300	—	04-SIL300	—
3/8"	06-ST300	06-SC300	06-PC300	06-SBF300	06-SIL300	—
1/2"	08-ST300	08-SC300	08-PC300	08-SBF300	08-SIL300	08-RC300
3/4"	12-ST300	12-SC300	12-PC300	12-SBF300	12-SIL300	12-RC300
1"	16-ST300	16-SC300	16-PC300	16-SBF300	16-SIL300	16-RC300
1-1/4"	20Z-ST300	20-SC300	20-PC300	—	—	20-RC300
1-1/2"	—	24-SC300	24-PC300	24-SBF300	24-SIL300	24-RC300
2"	—	32-SC300	32-PC300	—	32-SIL300	32-RC300
3"	—	48-SC300	48-PC300	—	—	48-RC300
4"	—	64-SC300	64-PC300	—	—	64-RC300

Note: Also available in carbon steel.

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PAGE INDUSTRIAL
HOSE & FITTINGS

S30/S30B - Industrial .030" wall
PTFE Hose, Stainless Steel Braid

Features

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

Compliances

- FDA 21 CFR 177.1550 (Natural tube)
- SAE J517 (100R14)

Applications/Markets

- Fluid Handling
- Chemical Transfer
- Paint
- Pharmaceutical
- Food & Beverage
- Cosmetics

Part Number		Nominal I.D.		Nominal O.D.		Maximum Working Pressure 72°F/ 23°C		Minimum Bend Radius		Vac. Rating Hg./72°F	Weight		Permanent Fitting Series	Field Attachable Series
#	#										lbs	kg		
Natural	Conductive	inch	mm	inch	mm	psi	bar	inch	mm	inch	lbs./ft.	kg./mtr.		
04-S30	04-S30B	3/16	5	.305	8	3,000	207	2	51	28	.06	.09	91N	90
05-S30	05-S30B	1/4	6	.375	10	3,000	207	3	76	28	.11	.16	91N	90
06-S30	06-S30B	5/16	8	.430	11	2,500	172	4	102	28	.13	.20	91N	90
08-S30	08-S30B	13/32	10	.535	14	2,000	138	5	127	28	.15	.22	91N	90
10-S30	10-S30B	1/2	13	.636	16	1,750	121	6-1/2	165	28	.19	.28	91N	90
12-S30	12-S30B	5/8	16	.765	19	1,500	103	7-1/2	191	12	.24	.36	91N	90
16-S30	16-S30B	7/8	22	1.030	26	1,000	69	9	229	14	.31	.47	91N	90

Construction

Tube: S30 - Natural FDA Compliant PTFE
S30B - Black Static-Dissipative PTFE
Reinforcement: 304 Stainless Steel braid

Operating Parameters

Temperature Range:
-100°F to +450°F (-73°C to +232°C)
Change in length at Max. Working Pressure: +2% to -4%
Min. Burst Pressure is 4x Max. Working Pressure at 73°F (23°C)
All ratings based on 72°F (23°C)

Fittings

91N/91 Series – page 43
90 Series – page 52

Notes

See page 6 for part numbering system

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

S40/S40B - Industrial .040 wall
Heavy Wall PTFE Hose, Stainless Steel Braid

Features

- 33% more PTFE
- High temperature hose
- Excellent chemical compatibility
- Improved kink resistance
- Decreased gas permeation
- Low friction minimizes pressure drops and deposits

Compliances

- FDA 21 CFR 177.1550 (Natural tube)
- SAE J517 (100R14)

Applications/Markets

- Fluid Handling
- Chemical Transfer
- Paint
- Pharmaceutical
- Food & Beverage
- Cosmetics

Part Number		Nominal I.D.		Nominal O.D.		Maximum Working Pressure 72°F/ 23°C		Minimum Bend Radius		Vac. Rating Hg./72°F	Weight		Permanent Fitting Series
#	#												
Natural	Conductive	inch	mm	inch	mm	psi	bar	inch	mm	inch	lbs./ft.	kg./mtr.	
04-S40	04-S40B	3/16	5	.320	8	3,000	207	2	51	28	.08	.13	91N
05-S40	05-S40B	1/4	6	.375	10	3,000	207	3	76	28	.11	.16	91N
06-S40	06-S40B	5/16	8	.435	11	2,500	172	4	102	28	.12	.18	91N
08-S40	08-S40B	13/32	10	.565	14	2,000	138	5	127	28	.16	.23	91N
10-S40	10-S40B	1/2	13	.656	17	1,750	121	6-1/2	165	28	.17	.25	91N
12-S40	12-S40B	5/8	16	.780	20	1,500	103	7-1/2	191	12	.19	.28	91N
16-S40	16-S40B	7/8	22	1.05	27	1,000	69	9	229	14	.49	.73	91N

Construction

Tube: S40 - Natural FDA Compliant PTFE
S40B - Black Static-Dissipative PTFE

Reinforcement: 304 Stainless Steel braid

Fittings

91N/91 Series – page 43

Operating Parameters

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

Change in length at Max. Working Pressure: +2% to -4%

Min. Burst Pressure is 4x Max. Working Pressure at 73°F (23°C)

All ratings based on 72°F (23°C)

Notes

See page 6 for part numbering system

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

944B – 4,000-4,500 psi W.P. High Temp Hose
PTFE Hose, Double Stainless Steel Braid

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 72˚F/ 23˚C		Minimum Bend Radius		Vac. Rating Hg./72˚F	Weight	
#											
	inch	mm	inch	mm	psi	MPa	inch	mm	inch	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	27.6	3.25	83	28	.31	.45
944B-12	5/8	16	.99	25	4,000	27.6	4.00	102	28	.74	1.05
944B-16	29/32	23	1.25	32	4,000	27.6	5.00	127	28	1.09	1.55

Construction

Tube: Black static-dissipative PTFE
Reinforcement: 304 Stainless Steel braid

Operating Parameters

Temperature Range:
-65°F to +400°F (-54°C to +204°C)
Change in length at working pressure is +2% to -2%
Min. Burst Pressure is 3x Max. Working Pressure at 72°F (23°C)
All ratings based on 72°F (23°C)

Fittings

94 Series – page 51

Notes

Factory-made assemblies only
Not suggested for steam-cold water cycling applications
Reduce pressure to 3,000 psi (20.7MPa) for pressure impulse applications

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

955B – 5,500 psi W.P. High Temp Hose

PTFE Hose, Multiple Stainless Steel Braids

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
- Ground Support

Part Number	Nominal I.D.		Maximum O.D.		Maximum Working Pressure 72°F/ 23°C		Minimum Bend Radius		Vac. Rating Hg./72°F	Weight	
#										lbs	kg
	inch	mm	inch	mm	psi	MPa	inch	mm	inch	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	28	1.20	1.77

Construction

Tube: Black static-dissipative PTFE

Reinforcement: Multiple high density braids of 304 Stainless Steel

Fittings

95 Series – page 51

Operating Parameters

Temperature Range:

-65°F to +400°F (-54°C to +204°C)

Change in length at working pressure is +2% to –2%

Min. Burst Pressure is 16,000 psi at 73°F (23°C)

All ratings based on 72°F (23°C)

Notes

Factory-made assemblies only

Not suggested for steam-cold water cycling applications

Reduce operating pressure to 4000 psi (27.6 MPa) for impulse service applications

All dimensions nominal - Working pressures and vacuum ratings may vary depending upon end connections and process and temperature parameters.

Industrial Fittings
For S30, S40, 944B and 955B Hose

90, 91N/91, 94 and 95 Series - Crimp and Field Attachable Fittings

Works on the following hose types:

S30 & S40
uses 90 or 91N/91 Series

944B uses 94 &
955B uses 95 Series

Where applicable, “B” indicates Brass and “C” indicates Carbon Steel and “S” indicates Stainless Steel. For detailed ordering information, contact Customer Service.

Features

- Field attachable fittings allow users to work on-site
- Field attachable fittings required no expensive equipment

Options

- Stainless or Carbon Steel

Hose Fitting Insertion Values

Hose Dash Size	91N	92	93N
-2			
-3	7/16	9/16	
-4	1/2		
-5	9/16		
-6	5/8		7/16
-8	11/16		7/16
-10	11/16		3/4
-12	3/4		7/8
-16	15/16		15/16
-20	1		1
-24			1-1/8
-32			1-3/8

90, 91N/91, 94 & 95 Series Fitting Nomenclature

Example: 10391N-8-6

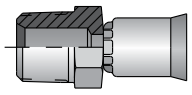
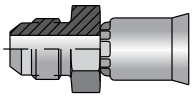
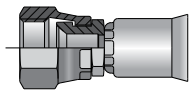
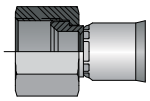
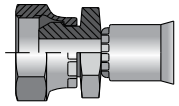
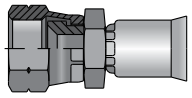
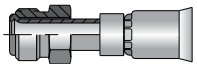
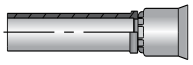
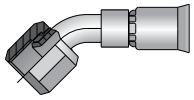
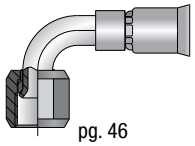
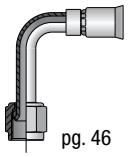
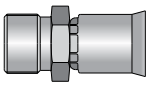
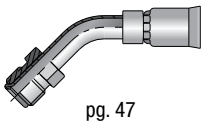
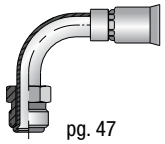
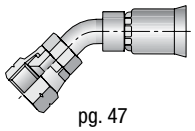
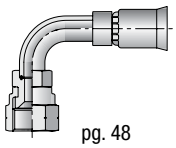
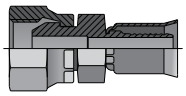
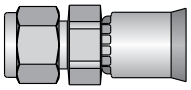
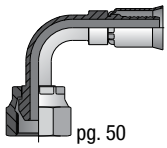
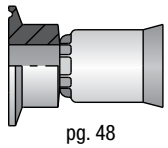
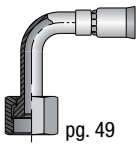
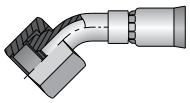
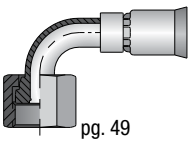
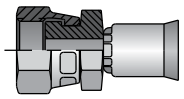
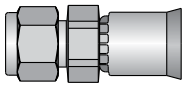
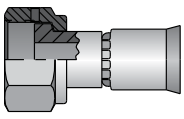
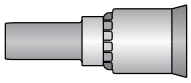
This example describes a permanent crimp 1/2" Male SAE JIC 37° with a 3/8" I.D. hose size. This fitting is constructed of steel since the designated material is blank.

10391N-8-6 – **Fitting Type** (1 = Permanent/Crimp)
10**3**91N-8-6 – **End Configuration Code** (Male SAE JIC 37)
103**91N**-8-6 – **Fitting Series** (Series 91N)
10391N-**8**-6 – **End Size** (1/2")
10391N-8-**6** – **Hose I.D.** (3/8")

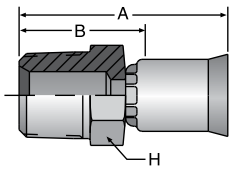
Parker Fitting Material Selection
- Blank = Steel (unless otherwise noted)
- B = All Brass
- C = Stainless Steel
- S = All Carbon Steel – Used only with PTFE Fittings

91N/91 Series Visual Index

91N/91 Series
PERMANENT

101 Male Taper Pipe Rigid	**103** Male JIC 37°	**106** JIC 37° Female Swivel	**106 RD** JIC 37° Female Swivel w/o Nip. Hex	**107** Female Pipe Swivel
 pg. 44	 pg. 44	 pg. 44	 pg. 45	 pg. 45
108 Female SAE 45° Swivel	**128** Male Inverted Swivel Straight	**134** Straight Tube	**137** FemaleJIC 37° Swivel 45° Elbow	**139** Female JIC 37° Swivel 90° Elbow
 pg. 45	 pg. 45	 pg. 46	 pg. 46	 pg. 46
141 Female JIC 37° Swivel 90° Elb Long	**161** Compression Air Brake	**167** SAE Male Inverted 45° Elbow	**169** SAE Male Inverted 90° Elbow	**177** SAE 45° Swivel 45° Elbow
 pg. 46	 pg. 47	 pg. 47	 pg. 47	 pg. 47
179 Female SAE 45° Swivel 90° Elbow	**192** Female BSP Pipe Swivel STR (60° Cone)	**1AL** A-Lok® Compression	**1B2** Female BSP Pipe Swl. 90° Elbow (60° Cone)	**1FN** Sanitary Flange
 pg. 48	 pg. 50	 pg. 48	 pg. 50	 pg. 48
1J1 Female Seal-Lok™ 90° Elbow Long	**1J7** Female Seal-Lok™ 45° Elbow	**1J9** Female Seal-Lok™ 90° Elbow	**1JC** Female Seal-Lok™ Swivel Straight Short	**1P6** CPI® Compression w/nut and ferrule
 pg. 49	 pg. 49	 pg. 49	 pg. 50	 pg. 48
1Q1 Female Ultra Seal	**1TU** Universal Tube Stub End			
 pg. 49	 pg. 50			

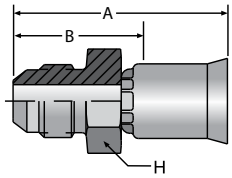
10191N Male Taper Pipe Rigid



Part Number	Thread Size	Hose 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	1
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

Construction: Brass nipple, steel shell.
Add “B” for Brass nipple and shell.
Add “C” for Stainless Steel.

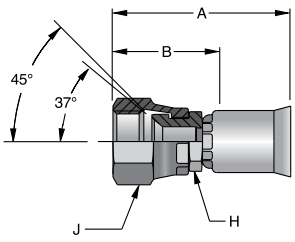
10391N Male (JIC) 37°



Part Number	Thread Size	Hose 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	1
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

Construction: Brass nipple, steel shell.
Add “B” for Brass nipple and shell.
Add “C” for Stainless Steel.

10691N SAE (JIC) 37° Swivel



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

Construction: Brass nipple, steel nut and shell.
Add “B” for Brass nipple, nut and shell.
Add “S” for Steel nipple, nut and shell.
Add “C” for Stainless Steel.
NOTE: Sizes -4, -5,-8 and -10 incorporate a dual seat.

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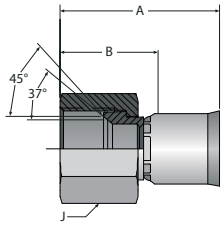
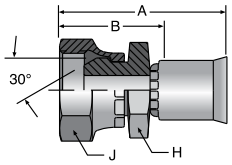
10691NRD SAE (JIC) 37° Swivel



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		H Hex
#							
		inch	inch	mm	inch	mm	inch
10691N-4-4-RD	7/16-20	-4	1.34	34	13/16	21	9/16
10691N-5-5-RD	1/2-20	-5	1.51	38	7/8	22	5/8
10691N-6-6-RD	9/16-18	-6	1.60	41	15/16	24	11/16
10691N-8-8-RD	3/4-16	-8	1.79	45	1-1/16	27	7/8
10691N-10-10-RD	7/8-14	-10	1.91	49	1-3/16	30	1
10691N-12-12-RD	1-1/16-12	-12	2.09	58	1-5/16	33	1-1/4
10691N-16-16-RD	1-5/16-12	-16	2.27	58	1-5/16	33	1-1/2

Construction: Brass nipple, steel nut and shell.
Add “B” for Brass nipple, nut and shell.
Add “C” for Stainless Steel.
NOTE: Sizes -4, -5,-8 and -10 incorporate a dual seat.

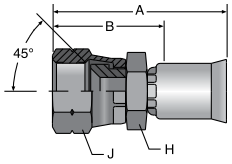
10791N Female Pipe Swivel



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		H Hex	J Hex
#								
		inch	inch	mm	inch	mm	inch	inch
10791N-4-4	1/4-18	-4	1.50	38	15/16	24	9/16	11/16
10791N-6-6	3/8-18	-6	1.67	42	1	25	5/8	7/8
10791N-8-8	1/2-14	-8	1.83	46	1-1/8	29	3/4	1
10791N-10-10	3/4-14	-12	2.09	53	1-5/16	33	1	1-1/4
10791N-12-12	1-1/11-1/2	-12	2.26	57	1-5/16	33	1-3/16	1-3/8

Construction: Brass nipple, steel nut and shell.
Add “B” for Brass nipple, nut and shell.
Add “C” for Stainless Steel.

10891N SAE 45° Swivel



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		H Hex	J Hex
#								
		inch	inch	mm	inch	mm	inch	inch
10891N-6-6	5/8-18	-6	1.69	43	1-1/16	27	5/8	3/4
10891N-12-12	1-1/16-14	-12	2.12	54	1-5/16	33	1	1-1/4

Construction: Brass nipple, steel nut and shell.
Add “S” for Steel nipple, nut and shell.
Add “C” for Stainless Steel.

12891N Male Inverted Swivel–Straight

Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		j Hex
#							
		inch	inch	mm	inch	mm	inch
12891N-4-4	7/16-24	-4	2.09	53	1-1/2	38	7/16
12891N-5-5	1/2-20	-5	2.15	55	1-9/16	40	1/2
12891N-5-6	1/2-20	-6	2.23	57	1-9/16	40	1/2
12891N-6-6	5/8-18	-6	2.23	57	1-9/16	40	5/8
12891N-8-8	3/4-18	-8	2.31	59	1-5/8	41	3/4
12891N-10-10	7/8-18	-10	2.43	58	1-3/4	44	7/8
12891N-12-12	1-1/16-16	-12	2.50	64	1-11/16	43	1-1/16

Construction: Steel nipple, tube, nut and shell.
Add “C” for Stainless Steel.

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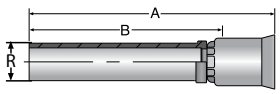
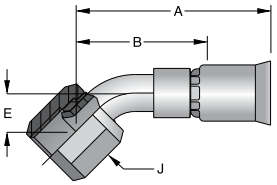
13491N Straight Tube



Part Number	Hose Size	Diameter R	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	2.81	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

Construction: Brass nipple, steel shell.
Add "B" for Brass nipple and shell.
Add "C" for Stainless Steel.
NOTE: The 16T91N fitting includes 13491N with the 60HAB sleeve and 61HAB.

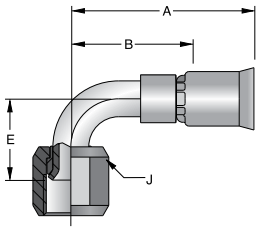
13791N JIC 37° Swivel 45° Elbow



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		E		J Hex
#									
		inch	inch	mm	inch	mm	inch	mm	inch
13791N-4-4	7/16-20	-4	1.74	44	1-3/16	30	0.33	8	9/16
13791N-5-5	1/2-20	-5	1.87	47	1-1/4	32	0.36	9	5/8
13791N-6-6	9/16-18	-6	1.94	49	1-5/16	33	0.43	11	11/16
13791N-8-8	3/4-16	-8	2.28	58	1-9/16	37	0.55	14	7/8
13791N-10-10	7/8-14	-10	2.42	61	1-11/16	43	0.64	43	1
13791N-12-12	1-1/16-12	-12	2.83	58	2-1/16	52	0.78	20	1-1/4
13791N-16-16	1-5/16-12	-16	3.18	81	2-1/4	57	0.89	23	1-1/2
13791-20-20	1-5/8-12	-20	3.67	93	2-9/16	65	1.10	28	2

Construction: Steel tube, nipple, nut and shell. Add "C" for Stainless Steel.

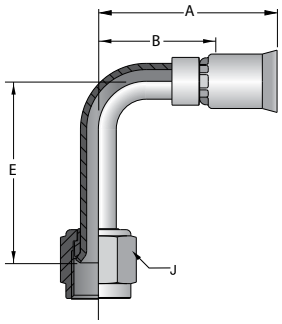
13991N JIC 37° Swivel 90° Elbow



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		E		J Hex
#									
		inch	inch	mm	inch	mm	inch	mm	inch
13991N-4-4	7/16-20	-4	1.62	41	1-1/16	37	0.68	17	9/16
13991N-5-5	1/2-20	-5	1.71	43	1-1/8	29	0.77	20	5/8
13991N-6-6	9/16-18	-6	1.91	49	1-1/4	32	0.91	23	11/16
13991N-8-8	3/4-16	-8	2.03	52	1-5/16	33	1.09	28	7/8
13991N-10-10	7/8-14	-10	2.27	58	1-9/16	37	1.23	43	1
13991N-12-12	1-1/16-12	-12	2.75	58	1-15/16	49	1.82	46	1-1/2
13991N-16-16	1-5/16-12	-16	3.15	80	2-3/16	56	2.14	52	1-1/2
13991-20-20	1-5/8-12	-20	3.53	90	2-7/16	62	1.18	30	2

Construction: Steel tube, nipple, nut and shell. Add "C" for Stainless Steel.

14191N JIC 37° Swivel 90° Elbow Long Drop



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		E		J Hex
#									
		inch	inch	mm	inch	mm	inch	mm	inch
14191N-4-4	7/16-20	-4	1.66	42	1-1/8	29	1.80	46	9/16
14191N-5-5	1/2-20	-5	1.72	44	1-1/8	29	1.77	45	5/8
14191N-6-6	9/16-18	-6	1.93	49	1-5/16	33	2.13	54	11/16
14191N-8-8	3/4-16	-8	2.11	54	1-3/8	35	2.43	62	7/8
14191N-10-10	7/8-14	-10	2.34	59	1-5/8	41	2.57	65	1
14191N-12-12	1-1/16-12	-12	2.63	67	1-7/8	48	3.73	95	1-1/4
14191N-16-16	1-5/16-12	-16	3.15	80	2-3/16	56	4.33	110	1-1/2
14191-20-20	1-5/8-12	-20	4.00	102	2-15/16	75	5.28	134	2

Construction: Steel tube, nipple, nut and shell. Add "C" for Stainless Steel.

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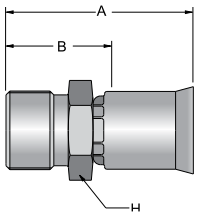
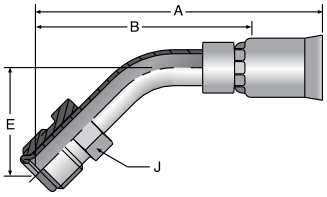
16191N Compression Air Brake



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		H Hex
#							
		inch	inch	mm	inch	mm	inch
16191N-8-8	11/16-20	-8	1.61	41	15/16	24	3/4
16191N-8-10	11/16-20	-10	1.61	41	15/16	24	7/8
16191N-10-10	13/16-18	-10	1.82	46	1-1/8	29	15/16
16191N-12-12	1-18	-12	1.93	49	1-1/8	29	1-1/4

Construction: Brass nipple, steel shell.
Add “B” for Brass nipple and shell.
Add “C” for Stainless Steel.

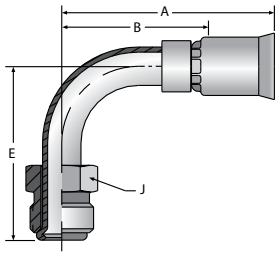
16791N Male Inverted Swivel 45° Elbow



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

Construction: Steel tube, nipple, nut and shell. Add “C” for Stainless Steel.

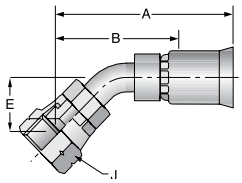
16991N Male Inverted Swivel 90° Elbow



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

Construction: Steel tube, nipple, nut and shell. Add “C” for Stainless Steel.

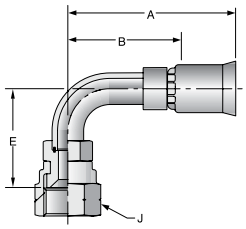
17791N SAE 45° Swivel 45° Elbow



Part Number	Thread Size	Hose i.d.		A		Cutoff Allow. B		E		J Hex
#										
		inch	mm	inch	mm	inch	mm	inch	mm	inch
17791N-6-6	5/8-18	3/8	10	2.06	52	1-5/16	33	0.39	10	3/4
17791N-12-12	1-1/16-14	3/4	19	3.07	78	2-7/16	62	0.78	20	1-1/4

Construction: Steel tube, nipple, nut and shell. Add “C” for Stainless Steel.

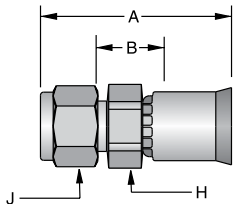
17991N SAE 45° Swivel 90° Elbow



Part Number	Thread Size	Hose I.D.		A		Cutoff Allow. B		E		J Hex
#										
		inch	mm	inch	mm	inch	mm	inch	mm	inch
17991N-6-6	5/8-18	3/8	10	2.06	52	1-5/16	49	1.19	30	3/4
17991N-12-12	1-1/16-14	3/4	19	2.92	74	2-1/8	54	1.82	46	1-1/4

Construction: Steel tube, nipple, nut and shell. Add “C” for Stainless Steel.

1AL91N A-LOK® Compression



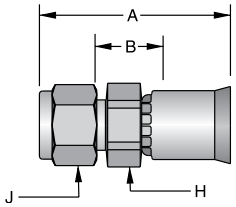
Part Number	Part Number	Hose Size	A		Cutoff Allow. B		H Hex	J Hex
#	#							
w/nut & ferrule	w/o nut & ferrules		inch	mm	inch	mm	inch	inch
1AL91N-4-4C	1AL91N-4-4NC	-4	1.30	33	7/16	11	1/2	9/16
1AL91N-4-5C	1AL91N-4-5NC	-5	1.35	34	7/16	11	1/2	9/16
1AL91N-6-6C	1AL91N-6-6NC	-6	1.53	39	1/2	13	5/8	11/16
1AL91N-8-8C	1AL91N-8-8NC	-8	1.61	41	7/16	11	13/16	7/8
1AL91N-12-12C	1AL91N-12-12NC	-12	1.86	47	1/2	13	1-1/8	1-1/8
1AL91N-16-16C	1AL91N-16-16NC	-16	2.11	58	7/16	11	1-3/8	1-1/2

Construction: Stainless steel nipple, nut, ferrules and 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.

Nuts and Ferrules are Manufactured by the Instrumentation Products Division. Refer to Catalog 4230/4233 for Installation Instructions and Replacement Components.

1P691N CPI® Compression (With Nut and Ferrule)



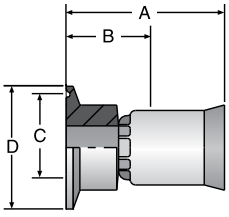
Part Number	Hose Size	A		Cutoff Allow. B		H Hex	J Hex
#							
w/nut & ferrules		inch	mm	inch	mm	inch	inch
1P691N-4-4C	-4	1.30	33	7/16	11	1/2	9/16
1P691N-6-6C	-6	1.53	39	1/2	13	5/8	11/16
1P691N-8-8C	-8	1.61	41	7/16	11	13/16	7/8

Construction: Stainless steel nipple and shell.

Note: Nut part No. is **XBZ-SS**; Ferrule part No. is **XTZ-SS**; X denotes dash size.

Nuts and Ferrules are Manufactured by the Instrumentation Products Division. Refer to Catalog 4230/4233 for Installation Instructions and Replacement Components.

1FN91N Sanitary Flange



Part Number	Hose Size	A		Cutoff Allow. B		C		Flange Size D	
#									
		inch	mm	inch	mm	inch	mm	inch	mm
1FN91N-16-16C	-16	1.96	50	1-1/16	27	0.87	22	1.98	50

Construction: Stainless steel nipple and shell.

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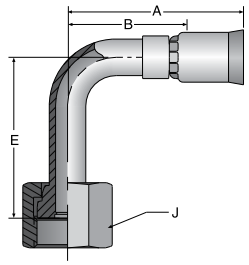
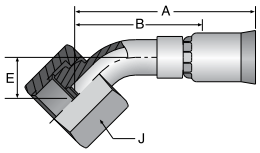
1J191N Female Seal-Lok™ Swivel 90° Elbow Long Drop



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

Construction: Steel tube, nipple, nut and shell.
Add “C” for Stainless Steel.

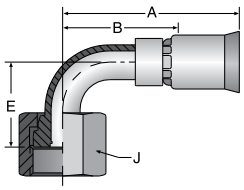
1J791N Female Seal-Lok™ Swivel 45° Elbow



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

Construction: Steel tube, nipple, nut and shell.
Add “C” for Stainless Steel.

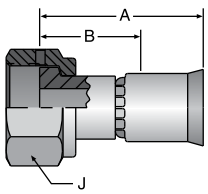
1J991N Female Seal-Lok™ Swivel 90° Elbow Short Drop



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		E		J Hex
#									
			inch	mm	inch	mm	inch	mm	inch
1J991N-4-4	9/16-18	-4	1.73	44	1-1/4	32	0.82	21	11/16
1J991N-6-6	11/16-16	-6	1.91	49	1-5/16	33	0.91	23	13/16
1J991N-8-8	13/16-16	-6	2.02	51	1-3/8	35	1.15	29	15/16
1J991N-10-10	1-14	-8	2.18	55	1-1/2	38	1.27	32	1-1/8
1J991N-12-12	1-3/16-12	-8	2.39	61	1-11/16	43	1.85	43	1-3/8
1J991N-16-16	1-7/16-12	-10	2.47	63	1-3/4	44	2.21	56	1-5/8

Construction: Steel tube, nipple, nut and shell.
Add “C” for Stainless Steel.

1Q191N Ultra Seal



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		J Hex
#							
			inch	mm	inch	mm	inch
1Q191N-8-8C	7/8-20	-8	1.62	41	15/16	24	1

Construction: Stainless Steel.

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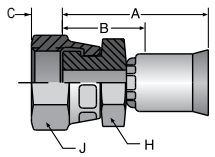
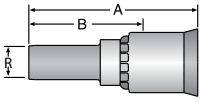
1JC91N Female Seal-Lok™ Swivel Straight



Part Number #	Thread Size	Hose Size	A		Cutoff Allow. B		C		H Hex	J Hex
			inch	mm	inch	mm	inch	mm	inch	inch
1JC91N-4-4	9/16-18	-4	1.46	37	5/8	16	.32	8	9/16	11/16
1JC91N-6-6	11/16-16	-6	1.62	41	11/16	17	.32	8	5/8	13/16
1JC91N-8-8	13/16-16	-8	1.93	49	13/16	21	.43	11	3/4	15/16
1JC91N-10-10	1-14	-10	2.05	52	7/8	22	.53	13	15/16	1-1/8
1JC91N-12-10	1-3/16-12	-10	2.05	52	1-1/4	32	.57	14	15/16	1-3/8
1JC91N-12-12	1-3/16-12	-12	2.05	58	1-1/4	32	.57	14	15/16	1-3/8
1JC91N-16-16	1-7/16-12	-16	2.56	65	1-1/16	27	.58	15	1-3/8	1-5/8
1JC91N-20-16	1-11/16-12	-16	2.30	58	1-3/8	35	.59	15	1-5/8	1-7/8
1JC91-20-20	1-11/16-12	-20	2.68	68	1-11/16	43	.59	15	1-11/16	1-7/8

Construction: Steel nipple, nut and shell.
Add “B” for Brass nipple, nut and shell.
Add “C” for Stainless Steel.

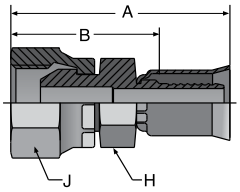
1TU91N Universal Tube Stub



Part Number #	Hose Size	Diameter R	A		Cutoff Allow. B	
		inch	inch	mm	inch	mm
1TU91-2-3C	-3	1/8	1.33	34	7/8	22
1TU91-3-3C	-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

Construction: Stainless Steel.
NOTE: Use with A-Lok & CPI nuts, sleeves and adapters. These components are manufactured by Parker’s Instrumentation Connectors Division. Refer to catalogs 4230 & 4233 for additional information.

19291N Female BSP Parallel Pipe Swive Straight (60° Cone)



Part Number #	Thread Size	Hose Size	A		Cutoff Allow. B		C		H Hex	J Hex
			inch	mm	inch	mm	inch	mm	inch	inch
19291N-8-8	PF-1/2-14	-8	1.99	51	1-5/16	33	27	27	9/16	11/16
19291N-12-12	PF-3/4-14	-12	2.35	60	1-9/16	40	36	36	5/8	13/16

Construction: Steel nipple, nut and shell.
Add “B” for Brass nipple, nut and shell.
Add “C” for Stainless Steel.

1B291N Female Parallel Pipe Swivel - 90° Elbow (60° Cone)

Part Number #	Thread Size	Hose Size	A		Cutoff Allow. B		E		J Hex
			inch	mm	inch	mm	inch	mm	inch
1B291N-8-8	PF-1/2-14	-8	2.04	52	1-3/8	35	1.57	40	27
1B291N-12-12	PF-3/4-14	-12	2.93	74	2-1/8	54	2.54	65	36

Construction: Steel nipple, nut and shell. Add “C” for Stainless Steel.

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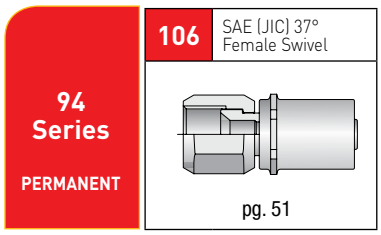
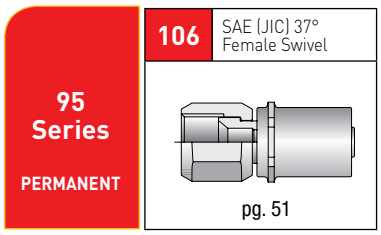
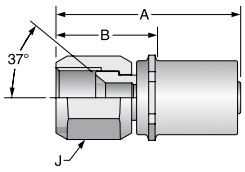
94/95 Series Visual Index





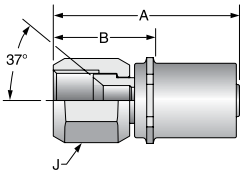
10694 SAE (JIC) 37° Female Swivel



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		J Hex
#							
			inch	mm	inch	mm	inch
10694-6-6	9/16-18	-6	1.76	45	15/16	24	11/16
10694-8-8	3/4-16	-8	2.09	53	1-3/16	30	7/8
10694-10-10	7/8-14	-10	2.30	58	1-5/16	33	1
10694-12-12	1-1/16-12	-12	2.45	62	1-5/16	33	1-1/4
10694-16-16	1-5/16-12	-16	2.72	69	1-7/16	37	1-1/2

Construction: Steel nipple, nut and shell. Add “C” for Stainless Steel.

10695 SAE (JIC) 37° Female Swivel

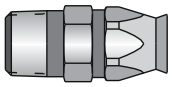
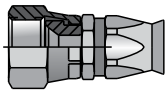
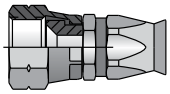
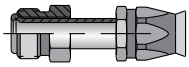
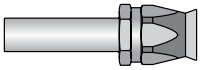


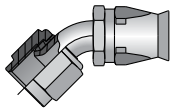
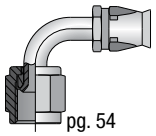
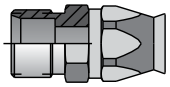
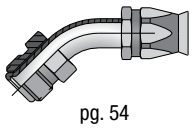
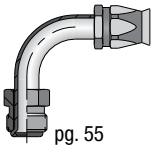
Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		J Hex
#							
			inch	mm	inch	mm	inch
10695-4-4	7/16-20	-4	1.76	45	15/16	24	11/16
10695-6-6	9/16-18	-6	2.09	53	1-3/16	30	7/8
10695-8-8	3/4-16	-8	2.30	58	1-5/16	33	1
10695-12-12	1-1/16-12	-12	2.45	62	1-5/16	33	1-1/4
10695-16-16	1-5/16-12	-16	2.72	69	1-7/16	37	1-1/2

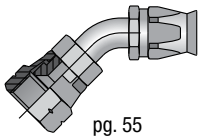
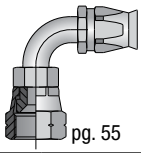
Construction: Steel nipple, nut and shell. Add “C” for Stainless Steel.

90 Series Visual Index

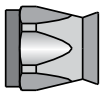
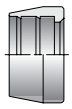
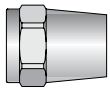
90 Series
FIELD ATTACHABLE

201 Male Taper Pipe Rigid	206 SAE (JIC) 37° Swivel	208 SAE 45° Swivel	228 SAE Male Inverted Swivel Straight	234 Straight Tube
 pg. 52	 pg. 53	 pg. 53	 pg. 53	 pg. 53

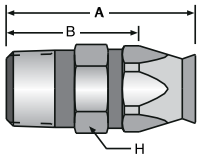
237 JIC 37° Swivel 45° Elbow	239 JIC 37° Swivel 90° Elbow	253 SAE Compression Air Brake	267 SAE Male Inverted Swivel 45° Elbow	269 SAE Male Inverted Swivel 90° Elbow
 pg. 54	 pg. 54	 pg. 54	 pg. 54	 pg. 55

277 SAE 45° Swivel 45° Elbow	279 SAE 45° Swivel 90° Elbow
 pg. 55	 pg. 55

90 Series
REPLACEMENT COMPONENTS

200 Replacement Socket	090 Replacement Ferrule	60HAB Compression Airbrake Sleeve	61HAB Compression Airbrake Nut
 pg. 56	 pg. 56	 pg. 57	 pg. 57

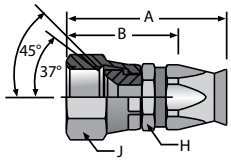
20190 Male Taper Pipe Rigid



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		H Hex
#							
			inch	mm	inch	mm	inch
20190-2-4	1/8-27	-4	1.33	34	7/8	22	9/16
20190-4-4	1/4-18	-4	1.58	40	1-1/16	27	9/16
20190-4-5	1/4-18	-5	1.66	42	1-1/8	29	5/8
20190-4-6	1/4-18	-6	1.66	42	1-1/8	29	11/16
20190-6-6	3/8-18	-6	1.66	42	1-1/8	29	11/16
20190-6-8	3/8-18	-8	1.77	45	1-3/16	30	7/8
20190-8-8	1/2-14	-8	1.97	50	1-7/16	37	7/8
20190-8-10	1/2-14	-10	2.13	54	1-7/16	37	1
20190-12-12	3/4-14	-12	2.26	57	1-9/16	40	1-1/8
20190-12-16	3/4-14	-16	2.29	58	1-5/8	41	1-3/8
20190-16-16	1-11-1/2	-16	2.46	62	1-7/8	48	1-3/8
20190-20-20	1-1/4-11-1/2	-20	2.69	68	2-1/16	52	2

Construction: Brass nipple and ferrule, steel socket.
Add “C” for Stainless Steel.

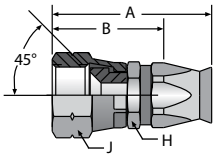
20690 SAE (JIC) 37° Swivel



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		H Hex	J Hex
#								
			inch	mm	inch	mm	inch	inch
20690-4-4	7/16-20	-4	1.58	40	1-1/8	29	9/16	9/16
20690-5-5	1/2-20	-5	1.66	42	1-1/8	29	5/8	5/8
20690-6-6	9/16-18	-6	1.74	44	1-3/16	35	11/16	11/16
20690-8-6	3/4-16	-6	1.85	47	1-5/16	33	7/8	7/8
20690-8-8	3/4-16	-8	1.98	50	1-3/8	35	7/8	7/8
20690-8-10	3/4-16	-10	2.07	53	1-7/16	37	1	7/8
20690-10-10	7/8-14	-10	2.22	56	1-1/2	38	1	1
20690-12-12	1-1/16-12	-12	2.33	59	1-5/8	41	1-1/4	1-1/4
20690-16-16	1-5/16-12	-16	2.52	64	1-15/16	49	1-3/8	1-1/2
20690-20-20	1-5/8-12	-20	2.99	76	2-5/16	59	2	2

Construction: Brass nipple and ferrule, steel nut and socket.
Add “C” for Stainless Steel.
NOTE: Sizes -4, -5,-8 and -10 incorporate a dual seat.

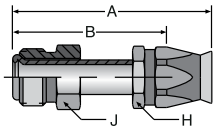
20890 SAE 45° Swivel



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		H Hex	J Hex
#								
			inch	mm	inch	mm	inch	inch
20890-6-6	5/8-18	-6	1.77	45	1-1/4	32	11/16	3/4
20890-12-12	1-1/16-14	-12	2.34	59	1-11/16	43	1-1/8	1-1/4

Construction: Brass nipple and ferrule, steel nut and socket.
Add “C” for Stainless Steel.

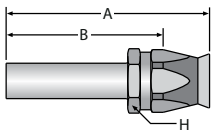
22890 SAE Male Inverted Swivel-Straight



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		H Hex	J Hex
#								
			inch	mm	inch	mm	inch	inch
22890-4-4	7/16-24	-4	2.15	55	1-11/16	43	9/16	7/16
22890-5-5	1/2-20	-5	2.21	56	1-11/16	43	5/8	1/2
22890-5-6	1/2-20	-6	2.20	56	1-11/16	43	11/16	1/2
22890-6-6	5/8-18	-6	2.22	56	1-11/16	43	11/16	5/8
22890-8-8	3/4-18	-8	2.34	59	1-13/16	46	13/16	3/4
22890-10-10	7/8-18	-10	2.53	64	1-7/8	48	15/16	7/8
22890-12-12	1-1/16-16	-12	3.01	76	2-3/8	60	1-1/8	1-1/16

Construction: Brass ferrule, steel tube, nut and socket.
Add “C” for Stainless Steel.

23490 Straight Tube



Part Number	Hose Size	Tube Size		A		Cutoff Allow. B		H Hex
#								
		inch	mm	inch	mm	inch	mm	inch
23490-8-8	-8	1/2	6	3.06	78	2-1/2	64	13/16
23490-8-10	-10	1/2	8	3.15	80	2-1/2	64	1
23490-10-8	-8	5/8	8	3.26	83	2-5/8	67	13/16
23490-10-10	-10	5/8	10	3.28	83	2-5/8	67	1
23490-12-12	-12	3/4	13	3.28	83	2-11/16	68	1-1/8

Construction: Brass nipple and ferrule, steel socket.
Add “C” for Stainless Steel.
NOTE: 26T90 fitting includes 23490 with the 60HAB sleeve and 61HAB nut.

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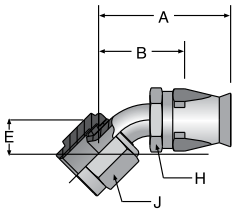
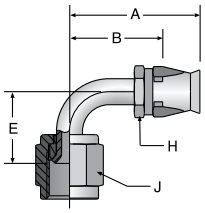
23790 JIC 37° Swivel 45° Elbow



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		E		H Hex	J Hex
#										
			inch	mm	inch	mm	inch	mm	inch	inch
23790-4-4	7/16-20	-4	1.79	45	1-3/8	35	0.33	8	9/16	9/16
23790-5-5	1/2-20	-5	1.86	47	1-3/8	35	0.36	9	5/8	5/8
23790-6-6	9/16-18	-6	1.96	50	1-7/16	37	0.39	10	11/16	11/16
23790-8-6	3/4-16	-6	2.11	54	1-11/16	43	0.55	14	11/16	7/8
23790-8-8	3/4-16	-8	2.40	61	1-3/4	44	0.55	14	13/16	7/8
23790-10-10	7/8-14	-10	2.45	62	1-7/8	48	0.63	16	15/16	1
23790-12-12	1-1/16-12	-12	3.04	77	2-7/16	62	0.78	20	1-1/8	1-1/4
23790-16-16	1-5/16-12	-16	3.28	83	2-11/16	68	0.90	23	1-3/8	1-1/2
23790-20-20	1-5/8-12	-20	3.70	94	3-1/16	78	1.18	30	1-3/4	2

Construction: Brass ferrule, steel tube, nut and socket. Add “C” for Stainless Steel.

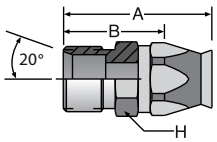
23990 JIC 37° Swivel 90° Elbow Short Drop



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		E		H Hex	J Hex
#										
			inch	mm	inch	mm	inch	mm	inch	inch
23990-4-4	7/16-20	-4	1.67	41	1-1/4	32	0.83	21	9/16	9/16
23990-5-5	1/2-20	-5	1.75	44	1-1/4	32	0.83	21	5/8	5/8
23990-6-6	9/16-18	-6	1.84	47	1-5/16	33	0.91	23	11/16	11/16
23990-8-6	3/4-16	-6	1.94	49	1-7/16	37	1.14	29	11/16	7/8
23990-8-8	3/4-16	-8	2.14	54	1-9/16	40	1.14	29	13/16	7/8
23990-10-10	7/8-14	-10	2.38	60	1-3/4	44	1.23	31	15/16	1
23990-12-12	1-1/16-12	-12	2.95	75	2-5/16	59	1.82	46	1-1/8	1-1/4
23990-16-16	1-5/16-12	-16	3.13	80	2-1/2	64	2.14	54	1-3/8	1-1/2
23990-20-20	1-5/8-12	-20	3.54	90	2-7/8	73	2.57	65	1-3/4	2

Construction: Brass ferrule, steel tube, nut and socket. Add “C” for Stainless Steel.

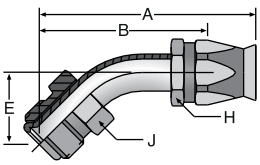
26190 SAE Compression Air Brake



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		H Hex
#							
			inch	mm	inch	mm	inch
26190-8-8	11/16-20	-8	1.69	43	1-1/16	27	13/16
26190-8-10	11/16-20	-10	1.86	47	1-3/16	30	1
26190-10-10	13/16-18	-10	1.92	49	1-1/4	32	1
26190-12-10	1-18	-10	2.09	53	1-7/16	37	1
26190-12-12	1-18	-12	2.09	53	1-7/16	37	1-1/8

Construction: Brass nipple and ferrule, steel socket.
Add “B” for Brass nipple and socket.
Add “C” for Stainless Steel.

26790 SAE Male Inverted Swivel 45° Elbow



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		E		H Hex	J Hex
#										
			inch	mm	inch	mm	inch	mm	inch	inch
26790-4-4	7/16-24	-4	2.11	54	1-11/16	43	0.63	16	9/16	7/16
26790-5-5	1/2-20	-5	2.51	64	2	51	0.94	24	5/8	1/2
26790-5-6	1/2-20	-6	2.55	65	2-1/16	52	0.94	24	11/16	1/2
26790-6-6	5/8-18	-6	2.61	66	2-1/8	54	0.94	24	11/16	5/8
26790-8-8	3/4-18	-8	2.97	75	2-3/8	60	0.94	24	13/16	3/4
26790-8-10	3/4-18	-10	3.05	77	2-7/16	62	0.94	24	15/16	3/4
26790-10-10	7/8-18	-10	3.43	87	2-11/16	68	1.02	26	15/16	7/8
26790-12-12	1-1/16-16	-12	3.83	97	3-3/16	81	1.15	29	1-1/8	1-1/16

Construction: Brass ferrule, steel tube, nut and socket. Add “C” for Stainless Steel.

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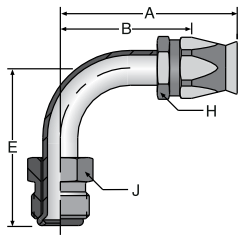
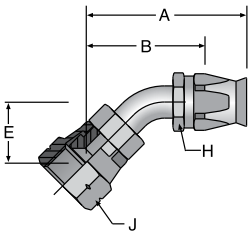
26990 SAE Male Inverted Swivel 90° Elbow



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		E		H Hex	J Hex
#										
			inch	mm	inch	mm	inch	mm	inch	inch
26990-4-4	7/16-24	-4	1.79	45	1-5/16	33	1.19	30	9/16	7/16
26990-5-5	1/2-20	-5	2.01	51	1-1/2	38	1.65	42	5/8	1/2
26990-5-6	1/2-20	-6	2.05	52	1-9/16	40	1.65	42	11/16	1/2
26990-6-6	5/8-18	-6	2.03	52	1-1/2	38	1.70	43	11/16	5/8
26990-8-8	3/4-18	-8	2.30	58	1-11/16	43	1.78	45	13/16	3/4
26990-8-10	3/4-18	-10	2.39	61	1-3/4	44	1.78	45	15/16	3/4
26990-10-10	7/8-18	-10	3.16	80	2-1/2	64	2.18	55	15/16	7/8
26990-12-12	1-1/16-16	-12	3.56	90	2-15/16	75	2.51	64	1-1/8	1-1/16

Construction: Brass ferrule, steel tube, nut and socket. Add “C” for Stainless Steel.

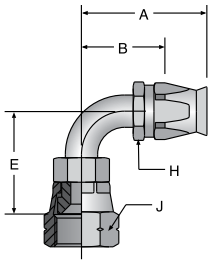
27790 SAE 45° Swivel 45° Elbow



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		E		H Hex	J Hex
#										
			inch	mm	inch	mm	inch	mm	inch	inch
27790-6-6	5/8-18	-6	1.72	44	1-3/16	30	0.39	10	11/16	3/4
27790-12-12	1-1/16-14	-12	3.03	77	2-3/8	60	0.78	20	1-1/8	1-1/4

Construction: Brass ferrule, steel tube, nut and socket. Add “C” for Stainless Steel.

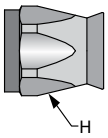
27990 SAE 45° Swivel 90° Elbow



Part Number	Thread Size	Hose Size	A		Cutoff Allow. B		E		H Hex	J Hex
#										
			inch	mm	inch	mm	inch	mm	inch	inch
27990-4-4	7/16-20	-4	1.67	42	1-1/4	32	.68	17	9/16	9/16
27990-5-5	1/2-20	-5	1.75	44	1-1/4	32	.77	20	5/8	5/8
27990-6-6	5/8-18	-6	1.86	47	1-3/8	35	.85	22	11/16	3/4
27990-8-8	3/4-16	-8	2.09	53	1-1/2	38	1.09	28	13/16	7/8
27990-12-12	1-1/16-14	-12	2.95	75	2-5/16	39	1.82	46	1-1/8	1-1/4

Construction: Brass ferrule, steel tube, nut and socket. Add “C” for Stainless Steel.

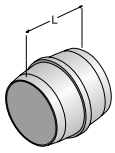
20090 Replacement Socket for Field Attachable Fittings



Part Number #	H Hex
	inch
20090-4	9/16
20090-5	5/8
20090-6	11/16
20090- 8	7/8
20090-10	1
20090-12	1-1/8
20090-16	1-3/8
20090-20	1-3/4

Construction: Steel or Stainless Steel.
Add "C" for Stainless Steel.

60 HAB SAE Compression Airbrake Sleeve



Part Number #	Tube Size		L
	inch	mm	inch
60HAB-4	1/4	6	.250
60HAB-6	3/8	10	.313
60HAB-8	1/2	13	.375
60HAB-10	5/8	16	.438
60HAB-12	3/4	19	.500

Construction: Brass.
NOTE: To be used with 13491N & 23490.

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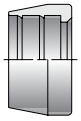
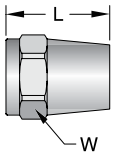
090 Replacement Ferrule for 90 Series Field Attachable Fittings



Part Number #	Hose Size
090-4B	-4
090-5B	-5
090-6B	-6
090- 8B	-8
090-10B	-10
090-12B	-12
090-16B	-16
090-20B	-20

Construction: Brass.
Replace “B” with “C” for Stainless Steel.

61 HAB SAE Compression Airbrake Nut



Part Number #	Thread Size	Tube Size		L		W Hex
		inch	mm	inch	mm	inch
61HAB-4	7/16-24	1/4	6	0.75	19	9/16
61HAB-6	7/32-24	3/8	10	1.13	29	5/8
61HAB- 8	11/16-20	1/2	13	1.25	32	13/16
61HAB-10	13/16-18	5/8	16	1.38	35	15/16
61HAB-12	1-18	3/4	19	1.56	40	1-1/8

Construction: Brass.
NOTE: To be used with 13491N & 23490 Fittings.

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Accessories
For Fluoropolymer Hoses

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 ¼" 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.

Features

- Extends hose life
- Maximizes performance
- Increased abrasion resistance
- Reduces downtime
- Cover promotes safe operator handling

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)

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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. IE: B2-08-BLU = 1/2" Blue

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

SAG Armor Guard

Non Standard Product

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

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

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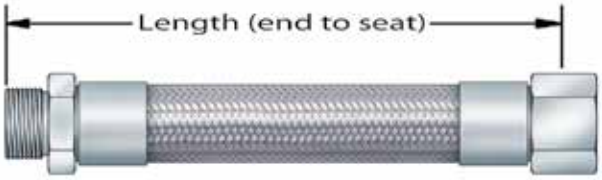
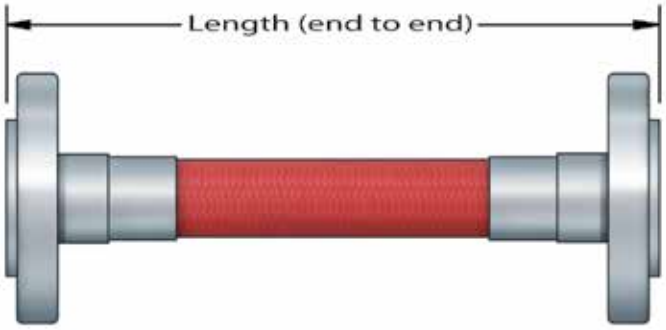
Measuring Hose
Assembly Length

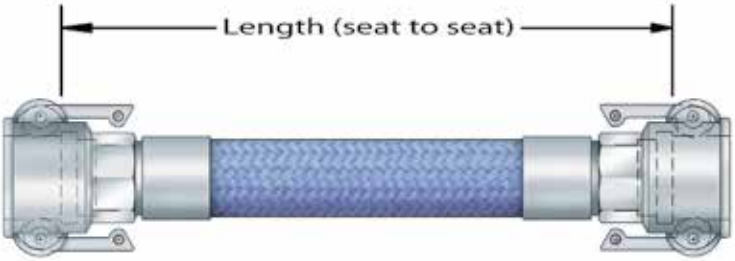


Male Pipe x Female JIC Assembly

Female JIC x Female JIC Assembly



Flange x Flange assembly

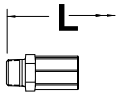


Cam & Groove x
Cam & Groove Assembly

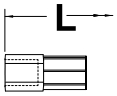
Sanitary x Sanitary Assembly

Assembly Length Measurements

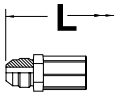
For NAHAD Hose Assemblies



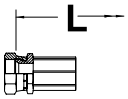
MALE PIPE



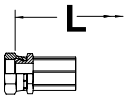
FEMALE PIPE



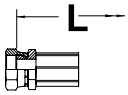
MALE JIC
MALE SAE
MALE VACUSEAL
MALE CAM LOCK



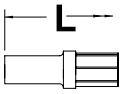
FEMALE JIC SWIVEL
FEMALE SAE SWIVEL



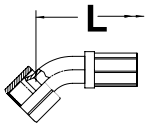
FEMALE PIPE SWIVEL
FEMALE BSP SWIVEL



FEMALE SEAL-LOK
ULTRA SEAL
FEMALE VACUSEAL
FEMALE BEVEL SEAT

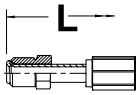


TUBE STUB

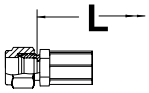


45° Elbow Fittings

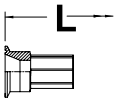
EX. 45° JIC/SAE
45° SEAL-LOK
45° BSP SWIVEL



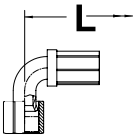
MALE INVERTED



ALOK
CPI

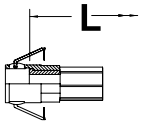


SANITARY FLANGES
MALE BEVEL SEAT
FLANGE FITTINGS



90° Elbow Fittings

EX. 90° JIC/SAE
90° SEAL-LOK
90° BSP SWIVEL



FEMALE CAM AND GROOVE

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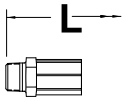
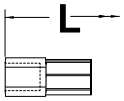
Assembly Length Measurements

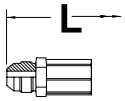
For SAE Hose Assemblies (unless noted on drawing)



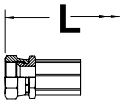
01



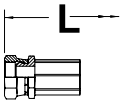
02



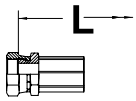
03, 04
HV



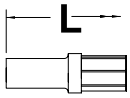
06, 08



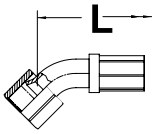
07, 92



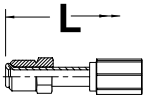
JC, JS
Q1, VH



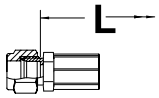
34, TU
1D, 3D



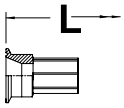
45° Elbow Fittings
Ex. 37, 77
J7, B1



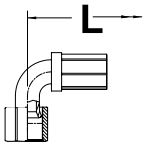
28



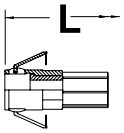
AL, P6



FN, FV
4K



90° Elbow Fittings
EX. 39, 41
79, J9
J9, B2



FC

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Summary of Properties
PTFE, FEP and PFA

The table below lists a generally accepted summary of properties that we believe to be reliable. Please note that many of these resins are produced in several varieties and property characteristics may vary. Therefore, determination of resin is dependent on the application and this table is only meant to serve as a general guideline.

Properties*	ASTM or Unit	PTFE	FEP	PFA	High Purity PFA
MECHANICAL PROPERTIES					
Specific Gravity	D792 D3307	2.13-2.22 -	2.12-2.17 -	2.12-2.17 -	- 2.14-2.16
Elongation %	D638 D3307	200-450 -	250-330 -	280-400 -	- 370
Tensile Strength (psi)	D638(psi) D3307(psi)	2500 -	3400 -	3600 -	- 3600
Flexural Strength (psi)	D790	no break	no break	no break	no break
Compressive Strength (psi)	D695	700-900	725-2200	725-810	na
Tensile Elastic Modulus (Young's Modulus) (psi)	D638	57,000 -	50,000 -	72,500- 87,000	na
Flexural Modulus	D790(psi) D790 103MPa (103kgf/cm2)	71,000-85,000 0.5-0.6 (5.0-6.0)	78,000-92,000 0.5-0.6 (5.5-6.4)	94,000-99,000 0.6-0.7 (6.6-7.0)	- 647-686 -
Flex Life (MIT cycles)	D2176	>1,000,000	5,000-80,000	10,000-500,000	2000 x 10^3
Hardness Durometer Shore D	D2240	D50-65	D55	D55-D60	D60
Coefficient of Friction	(on steel)	0.02	0.05	0.04-0.06	0.05
Abrasion Resistance 1000 cycles	Taber	8-90	14-20	0.00-96.75	na
Impact Strength IZO.D. 73°F (23°C) notched ft/lbs/in	D256	3	no break	no break	no break
THERMAL PROPERTIES					
Melting Point	°C °F	327 621	260 500	305 582	305 582
Upper Service Temperature(20000h)	°C °F	260 500	204 400	260 500	260 500
Flammability	UL 94	V-0	V-0	V-0	V-0
Thermal Conductivity BTU-in/hr-ft^2, ºF		1.7-2.08	1.4	1.3	na
Thermal Conductivity Cal-cm/sec-cm^2, ºC		6 x 10-4	6 x 10-4	6 x 10-6	na
Linear Coefficient of Thermal Expansion Min/inºF 73.4-140ºF	D696	55.6	46.1-58.3	66.7	na
Heat of Fusion	BTU/LB	29-37	4-35	13	na
Heat of Combustion	BTU/LB °F	2200	2200	2300	na
Low Temperature Embrittlement	°C °F	-268 -450	-268 -450	-268 -450	-268 -450
ELECTRICAL PROPERTIES					
Dielectric Constant	D150/10^3Hz D150/10^6Hz	2.1 2.1	2.1 2.1	2.1 2.1	2.1 2.1
Dielectric Strength	D149/125 MIL D149/10 MIL	500 ≥1400	508 >610	500 ≥1400	500 - 600 na
Volume Resistivity	D257/ohm-cm	>10^{18}	>10^{18}	>10^{18}	na
Surface Resistivity	D257/ohm-cm	>10^{18}	>10^{17}	>10^{17}	na
GENERAL PROPERTIES					
Chemical/Solvent Resistance	D543	Excellent	Excellent	Excellent	Excellent
Refractive Index		1.35	1.338	1.34	1.34
Limiting Oxygen Index, %	D2868	>95	>95	≥95	na
Water Contact Angle	Angle to Level	110	114	115	na
Water Absorption 24h,%	D570	<0.01	<0.01	<0.03	<0.01
Weatherability		Excellent	Excellent	Excellent	Excellent

*General resin properties; tubing properties may vary.

Selection of Hose Diameter

From Flow Rate and Velocity

The Fluid Velocity Nomogram gives the velocity of a liquid 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.

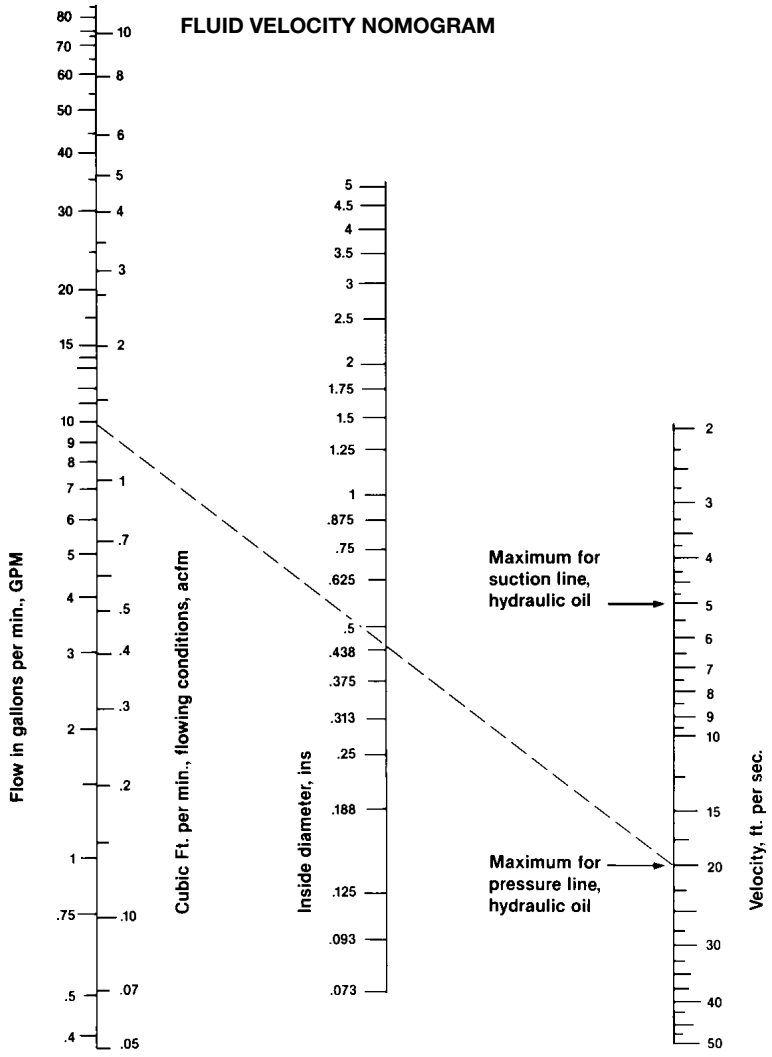
This chart is based on the following formulas:

$$v_{fps} = \frac{.321Q}{\frac{\pi d^2}{4}}$$

Q = gal per min
d = hose or tube I. D. (inch)

cu. ft./min. = .1337 Q

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.



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Standard Fitting Configurations

by Connection and End Code

	Description	End Code
Pipe	Male NPTF Pipe - Rigid - Straight	01
	Male NPTF Pipe - Swivel - Straight	13
	Male NPTF Pipe - Swivel - 90° Elbow	1L
	Female NPTF Pipe - Rigid - Straight	02
	Female NPSM Pipe - Swivel - Straight (60° Cone)	07
SAE Str. Trd.	Male SAE Straight Thread with O-ring - Rigid - Straight	05
	Male SAE Straight Thread with O-ring - Swivel - Straight	0G
	Male SAE Straight Thread with O-ring - Swivel - 90° Elbow	0L
	Male SAE Straight Thread with O-ring - Adjustable - 90° Elbow	35
Flare	Male JIC 37° - Rigid - Straight	03
	Male JIC 37° - Bulkhead without Locknut - Straight	LB
	Female JIC 37° - Swivel - Straight	06
	Female JIC 37° - Swivel - 45° Elbow - Short Drop	37
	Female JIC 37° - Swivel - 45° Elbow - Medium Drop	L7
	Female JIC 37° - Swivel - 90° Elbow - Short Drop	39
	Female JIC 37° - Swivel - 90° Elbow - Medium Drop	L9
	Female JIC 37° - Swivel - 90° Elbow - Long Drop	41
	Male SAE 45° - Rigid - Straight	04
	Female SAE 45° - Swivel - Straight	08
	Female SAE 45 / Swivel - 45° Elbow	77
	Female SAE 45 / Swivel - 90° Elbow	79
	Female SAE 45 / Swivel - 90° Elbow - Long Drop	81
	Female JIC 37°/SAE 45° Dual Flare - Swivel - Straight	06
Inverted Flare	Male Inverted SAE 45° - Swivel - Straight	28
	Male Inverted SAE 45° - Swivel - 45° Elbow	67
	Male Inverted SAE 45° - Swivel - 90° Elbow	69
	Female Inverted SAE 45° - Rigid - Straight	29
Seal-Lok	Male Seal-Lok - Rigid - Straight (with O-ring)	J0
	Male Seal-Lok - Bulkhead without Locknut-Straight (with O-ring)	JB
	Female Seal-Lok - Swivel - Straight - Long	JS
	Female Seal-Lok - Swivel - Straight - Short	JC
	Female Seal-Lok - Swivel - 30° Elbow	J2
	Female Seal-Lok - Swivel - 22 1/2° Elbow	J6
	Female Seal-Lok - Swivel - 45° Elbow	J7
	Female Seal-Lok - Swivel - 90° Elbow - Short Drop	J9
	Female Seal-Lok - Swivel - 90° Elbow - Medium Drop	J5
JIS	Female Seal-Lok - Swivel - 90° Elbow - Long Drop	J1
	Female Metric Swivel - Straight (30° Flare)	MU
	Female BSP Parallel Pipe - Swivel - Straight (30° Flare)	FU
	Male BSP Taper Pipe - Rigid - Straight (60° Cone)	UT
	Female BSP Parallel Pipe - Swivel - Straight (60° Cone)	GU
	Female BSP Parallel Pipe - Swivel - 45° Elbow (60° Cone)	G1
Metric	Female BSP Parallel Pipe - Swivel - 90° Elbow (60° Cone)	G2
	Male Metric L - Rigid - Straight (24° Cone)	D0
	Male Standpipe Metric L - Rigid - Straight	1D

	Description	End Code
Metric	Female Metric L - Swivel - Straight (Ball Nose)	C3
	Female Metric L - Swivel - 45° Elbow (Ball Nose)	C4
	Female Metric L - Swivel - 90° Elbow (Ball Nose)	C5
	Female Metric L - Swivel - Straight (24° Cone with O-ring)	CA
	Female Metric L - Swivel - 45° Elbow (24° Cone with O-ring)	CE
	Female Metric L - Swivel - 90° Elbow (24° Cone with O-ring) -	CF
	Male Metric S - Rigid - Straight (24° Cone)	D2
	Male Standpipe Metric S - Rigid - Straight	3D
	Female Metric S - Swivel - Straight (Ball Nose)	C6
	Female Metric S - Swivel - 45° Elbow (Ball Nose)	C7
	Female Metric S - Swivel - 90° Elbow (Ball Nose)	C8
	Female Metric S - Swivel - Straight (24° Cone with O-ring)	C9
	Female Metric S - Swivel - 45° Elbow (24° Cone with O-ring)	0C
BSP	Female Metric S - Swivel - 90° Elbow (24° Cone with O-ring)	1C
	Male BSP Taper Pipe - Rigid - Straight	91
	Female BSP Parallel Pipe - Swivel - Straight (60° Cone)	92
	Male BSP Parallel Pipe - Rigid - Straight (60° Cone)	D9
	Female BSP Parallel Pipe - Swivel - 45° Elbow (60° Cone)	B1
	Female BSP Parallel Pipe - Swivel - 90° Elbow (60° Cone)	B2
	Female BSP Parallel Pipe - Swivel - 90° Elbow Block Type (60° Cone)	B4
	Female BSP Parallel Pipe - Swivel - Straight (Flat Seat)	B5
	Male BSP Taper Pipe - Rigid - 45° Elbow	BV
Fr. Gaz	Male BSP Taper Pipe - Rigid - 90° Elbow or Side Outlet	BZ
	Male French Gaz Series - Rigid - Straight (24° Cone)	FG
Specialty	Female French Gaz Series - Swivel - Straight (Ball Nose)	F4
	Male Ferulok Flareless-Rigid-Straight (24° Cone with Nut & Ferrule)	11
	Female Ferulok Flareless - Swivel - Straight (24° Cone)	12
	DIN Metric Banjo - Straight	49
	ANSI B16.5 Flange	4K
	Female A-Lok® Compression	AL
	Female Cam & Groove	FC
	Sanitary Flange & Step Downs	FN
	Mini Sanitary Flange	FV
	Bulkhead w/Zerk Port Integrated	GK
	Male I-Line® Sanitary	H1
	Female I-Line® Sanitary	H2
	Male Sanitary Bevel Seat	H4
	Female Sanitary Bevel Seat	H5
	Male Standpipe - Rigid - Straight (Inch Size Tube O.D.)	34
	Male Standpipe - Rigid - Straight with V-Notch	TW
	Universal Tube Stub	TU
	Male Rapid Assembly, Straight	WU
	Male Rapid Assembly, 45° Elbow	WW
	Male Rapid Assembly, 90° Elbow	WY

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Hose Assembly and Crimping

How To Use Crimpsource

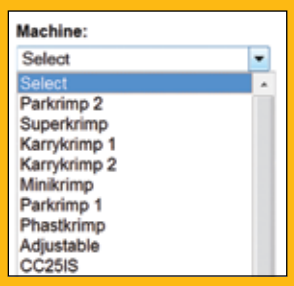
1 Data

The most **up-to-date** information for crimping is located at www.parker.com/crimpsource. Not only is it accurate, but it is easy.

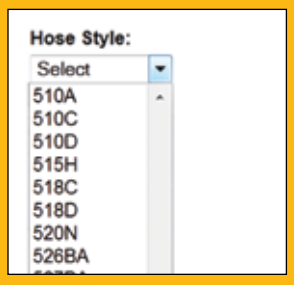
NOTE: If the hose does not come up, then you cannot crimp that hose on the machine you selected.

If the fitting you choose doesn't come up, then that series is not available for that hose. Same with size.

2 Make your Selections



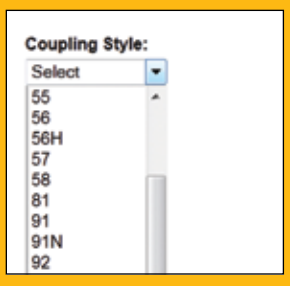
Choose the correct machine.



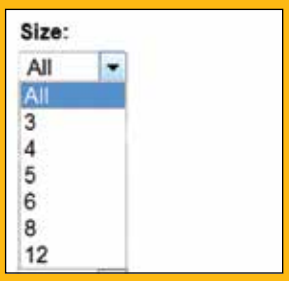
Choose the hose you are crimping.

Note If the hose does not come up, then the crimper chosen does not work with the selected hose.

3 Make your Selections



Choose the fitting style.



Choose the fittings size. Once you have selected values from each field, hit the search button.

Note If the chosen fitting/size doesn't come up, the series/size is not available for that hose.

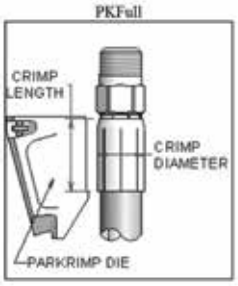
4 Review The Results

Home Print

Hose Style:	Coupling Style:	Crimper:	Hose Description
540N	**56**	**Minikrimp**	Meets or exceeds SAE 100R7

Size	Die		Die Ring	Crimp Diameter	Crimp Length	Hose Insertion	Drawing
Parker Parflex Crimp Dies							
-8	80C-P08		82C-R01	0.850	FULL	1-1/8	PKFull

Comments
PFD: Crimp diameter is measured four places, 45 degrees apart, at the top, then middle and bottom of the crimp.
PFD: Crimp diameter tolerance on all Parkrimp Crimpers is ± 0.010" (± 0.25mm) unless otherwise specified. Crimp length tolerance is ± 0.030" (± 0.76mm).
PFD: Align measurement caliper or micrometer on the center of crimp impressions avoiding the crimp ribs.
PFD: Crimp diameter tolerance on all Adjustable Crimpers is ± 0.005" (± 0.13mm). Crimp length tolerance is ± 0.030" (± 0.76mm).
PFD: Reference Parker Fluid Connector Group (FCG) Safety Bulletin 4400-B.1 (www.parker.com/safety)



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Hose Assembly & Crimping
PTFE Permanent Series 91, 91N

CAUTION: There are several different sections for Hose Assembly and Crimping. Be sure you are in the section that corresponds to the fitting series you are using. **See Table of Contents for listing.**

1
Cut

Using a power hose cutoff saw, cut hose squarely.

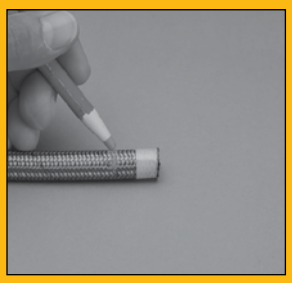
Note
PTFE Hose should be taped prior to cutting. Hose should be cut at center point of taped section.

2
Inspection

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

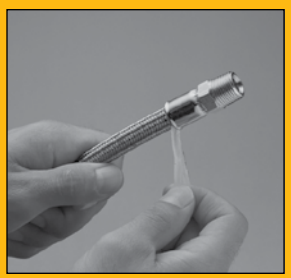
Fittings – Verify fitting series corresponds to the selected hose. Visually inspect fitting(s) for a through-hole, threads and damage.

3
Assembly Prep



Insertion Depth – Mark hose end with proper insertion depth line. See Hose Fitting Insertion Values, pg. 46 for insertion depths of fitting series that do not incorporate an insertion depth. For covered 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 when hose is used.



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
PTFE Permanent Series 91, 91N

4
Die Selection

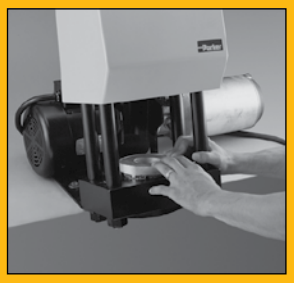
Select proper Parkrimp die set. (Reference Crimp Source Instructions, pg. 76 or Crimpsource online at www.parker.com/crimpsource)

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.

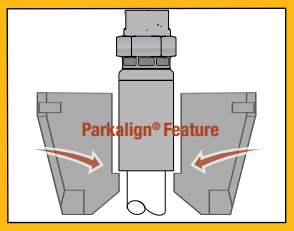


Die Ring – Place applicable die ring on top of die. Position ring so it is centered on die.

Parflex hoses utilize silver die ring. (Reference Crimp Source Instructions, pg. 76 or 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).



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

Warning

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

Note

Pump on crimper must not exceed the rated pressure of the crimper being used. 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.

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8

Measure & Inspect

Measure and verify hose assembly length.

Inspect insertion depth mark at fitting ends. Insertion mark must be visible but not exceed 1/8" from end of crimped 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 Crimp Source Instructions, pg. 76 or Crimpsource online at www.parker.com/crimpsource)

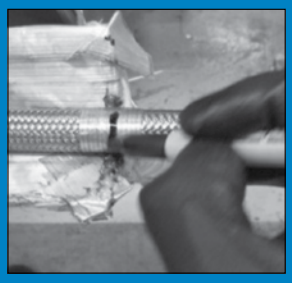
Hose Assembly & Crimping

PTFE Permanent PAGE Series

CAUTION: There are several different sections for Hose Assembly and Crimping. Be sure you are in the section that corresponds to the fitting series you are using. **See Table of Contents for listing.**

1

Inspection/Marking



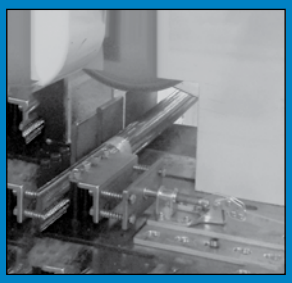
Obtain correct hose, fittings and collars per customer order. Inspect to make certain no defects are present on fittings, collars or hose.

Using 1" wide filament tape, apply 1 to 1½ wraps of tape tightly around hose at location to be cut. Mark tape in the middle where cut will be made. Tape will be left on during crimping so only ½" width of tape should remain.

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

2

Cutting

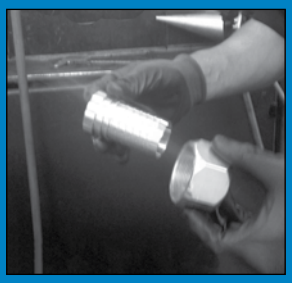


Using a rotary power cutting saw with a smooth toothless blade, cut hose squarely to proper length. Fitting length being used in the assembly shall be taken into account when calculating hose length.

Blow ends of hose off / out to remove any debris left from cutting operation. Cut off wires or fabric extending past the end of hose.

3

Assembly



PAGE series fittings are not one piece but two pieces (insert + collar) and must be properly installed to assure leak free long life assemblies.

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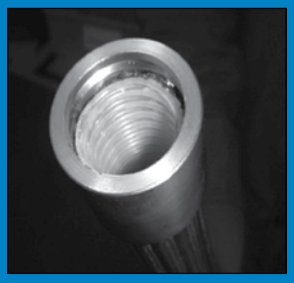
Hose Assembly & Crimping

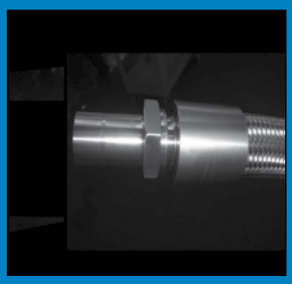
PTFE Permanent PAGE Series

4

Assembly

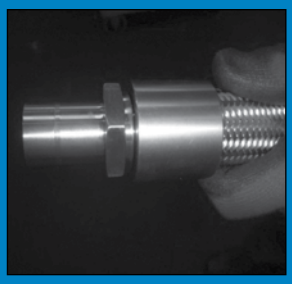


a. Orient and place collar on hose end fully.



b. Using a taper punch, push punch into tube to enlarge bore of hose so insert just slides into hose.

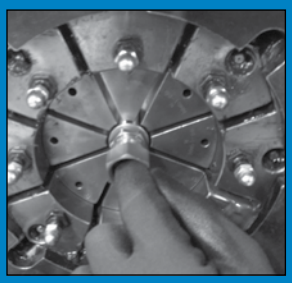
c. Push insert into hose until lock groove of insert is just at end of collar.



d. Pull collar out towards end of insert until at correct crimp position on insert of collar.

5

Assembly



Crimp assembly only in Parker Approved adjustable crimper. Select correct die and crimp spec from Parker Crimp Source.

www.parker.com/crimpsource

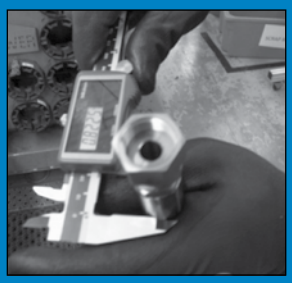
a. Place assembly into crimp dies so full collar length crimp is obtained.

b. Check crimp dimensions in four places around the middle of the crimp circumference. Verify the average of those readings is within crimp specification tolerances. Adjust crimper up or down if needed to obtain proper dimension.

c. Crimp opposite end following the same procedures.

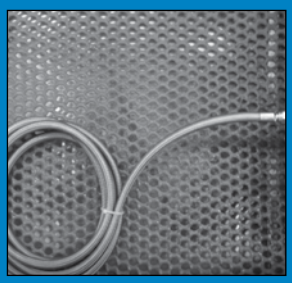
6

Inspect



Inspect assembly, noting the length.

a. Test to correct test pressures to assure no leaks are observed using hydrostatic pressure unit (recommended). Air or nitrogen under water can be used with caution utilizing the proper pressure and procedures for that equipment.



Blow out all water from the assembly and recheck length.

**Note any movement of length and make compensations as needed on next assembly.

Package assembly appropriately for customer requirements.

Hose Assembly & Crimping

Field Attachable - 90 Series

CAUTION: There are several different sections for Hose Assembly and Crimping. Be sure you are in the section that corresponds to the fitting series you are using. **See Table of Contents for listing.**

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

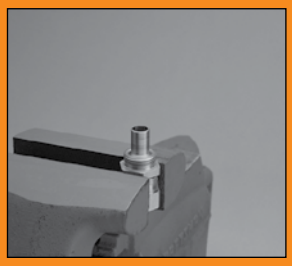
Slide two sockets over end of hose with bottom of sockets back to back. Position sockets at each end of hose.

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.

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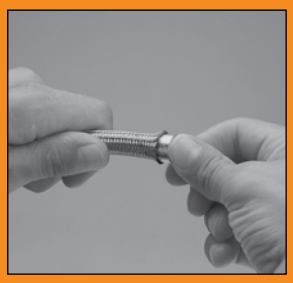
4

Assembly



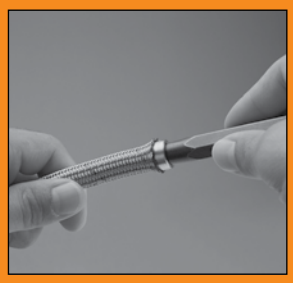
By hand, push sleeve over end of PTFE core tube and under wire braid.

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.

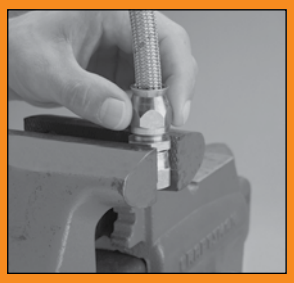
Assemble hose – Using a twisting motion, push hose over nipple until hose is seated against nipple chamfer.

Hose Assembly & Crimping

Field Attachable - 90 Series

7

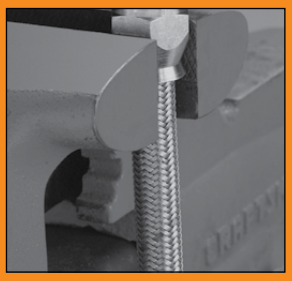
Assembly



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.

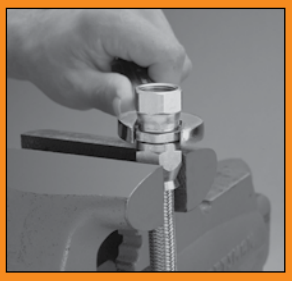


Remove assembly from vise and reposition with socket in vise jaws. Ensure socket extends beyond vise jaws far enough to allow nipple to be completely tightened.

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.

Parker Safety Guide

For selecting and using Hose, Tubing, Fittings, and Related Accessories

⚠ Parker Safety Guide for Selecting and Using Hose, Tubing, Fittings and Related Accessories
Publication No. 4400-B.1
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WARNING: Failure or improper selection or improper use of hose, tubing, fittings, assemblies 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.
- Electrocution from high voltage electric powerlines.
- 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, 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 FITTING 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

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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 that 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.

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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);

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- 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.

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Offer of Sale

The items described in this document and other documents or descriptions provided by Parker Hannifin Corporation, as subsidiaries and its authorized distributors are hereby offered for sale at prices to be established by Parker Hannifin Corporation, its subsidiaries and its authorized distributors. This offer and its acceptance by any customer ("Buyer") shall be governed by all of the following Terms and Conditions. Buyer's order for any such item, when communicated to Parker Hannifin Corporation, its subsidiary or an authorized distributor ("Seller") verbally or in writing, shall constitute acceptance of this offer.

1. Terms and Conditions of Sale: All descriptions, quotations, proposals, offers, acknowledgments, acceptances and sales of Seller's products are subject to and shall be governed exclusively by the terms and conditions stated herein. Buyer's acceptance of any offer to sell is limited to these terms and conditions. Any terms or conditions in addition to, or inconsistent with those stated herein, proposed by Buyer in any acceptance of an offer by Seller, are hereby objected to. No such additional, different or inconsistent terms and conditions shall become part of the contract between Buyer and Seller unless expressly accepted in writing by Seller. Seller's acceptance of any offer to purchase by Buyer is expressly conditional upon Buyer's assent to all the terms and conditions stated herein, including any terms in addition to, or inconsistent with those contained in Buyer's offer. Acceptance of Seller's products shall in all events constitute such assent.

2. Payment: Payment shall be made by Buyer net 30 days from the date of delivery of the items purchased hereunder. Any claims by Buyer for omissions or shortages in a shipment shall be waived unless Seller receives notice thereof within 30 days after Buyer's receipt of the shipment.

3. Delivery: Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller's plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller's delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

4. Warranty: Seller warrants that the items sold thereunder shall be free from defects in material or workmanship for a period of 365 days from the date of shipment to Buyer, or 2,000 hours of use, whichever expires first. THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GAURANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANTIBILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING ARE HEREBY DISCLAIMED. NOTWITHSTANDING THE FOREGOING, THERE ARE NO WARRANTIES WHATSOEVER ON ITEMS BUILT OR ACQUIRED WHOLELY OR PARTIALLY, TO BUYER'S DESIGNS OR SPECIFICATIONS.

5. Limitation Of Remedy: SELLER'S LIABILITY ARISING FROM OR IN ANY WAY CONNECTED WITH THE ITEMS SOLD OR THIS CONTRACT SHALL BE LIMITED EXCLUSIVELY TO REPAIR OR REPLACEMENT OF THE ITEMS SOLD OR REFUND OF THE PURCHASE PRICE PAID BY BUYER, AT SELLER'S SOLE OPTION. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND OR NATURE WHATSOEVER, INCLUDING BUT NOT LIMITED TO LOST PROFITS ARISING FROM OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR ITEMS SOLD HEREUNDER, WHETHER ALLEGED TO ARISE FROM BREACH OF CONTRACT, EXPRESS OR IMPLIED WARRANTY, OR IN TORT, INCLUDING WITHOUT LIMITATION, NEGLIGENCE, FAILURE TO WARN OR STRICT LIABILITY.

6. Changes, Reschedules and Cancellations: Buyer may request to modify the designs or specifications for the items sold herunder as well as the quantities and delivery dates thereof, or may request to cancel all or part of this order, however, no such requested modification or cancellation shall become part of the contract between Buyer and Seller unless accepted by Seller in a written amendment to this Agreement. Acceptance of any such requested modification or cancellation shall be at Seller's discretion, and shall be upon such terms and conditions as Seller may require.

7. Special Tooling: A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

8. Buyer's Property: Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Buyer's property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

9. Taxes: Unless otherwise indicated on the face hereof, 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 the items sold hereunder. If any such taxes must be paid by Seller of if Seller is liable for the collection of such tax, the amount thereof shall be in additon to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. 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 Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets (hereinafter "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 an item sold pursuant to this contract infringes in 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 an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and options, procure for Buyer the right to continue using said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item 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 items 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 item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.
If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgments resulting from any claim that such item infriges any patent, trademark, copyright, trade dress, trade secret or any similiar right.

11. Force Majeure: Seller does not assume the risk of and shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter "Events of Force Majeure"). Events of Force Majeure shall include without limitation, accidents, acts of God, strikes or labor disputes, acts, laws, rules or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller's control.

12. Entire Agreement/Governing Law: The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.

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NOTES

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Aerospace

Key Markets

Aftermarket services
Commercial transports
Engines
General & business aviation
Helicopters
Launch vehicles
Military aircraft
Missiles
Power generation
Regional transports
Unmanned aerial vehicles

Key Products

Control systems & actuation products
Engine systems & components
Fluid conveyance systems & components
Fluid metering, delivery & atomization devices
Fuel systems & components
Fuel tank inerting systems
Hydraulic systems & components
Thermal management
Wheels & brakes

Automation

Key Markets

Alternative energy
Conveyor & material handling
Factory automation
Food & beverage
Life sciences & medical
Machine tools
Packaging machinery
Paper machinery
Plastics machinery
Primary metals
Safety & security
Semiconductor & electronics
Transportation & automotive

Key Products

AC/DC drives & systems
Air preparation
Electric actuators, gantry robots & slides
Human machine interfaces
Inverters
Manifolds
Miniature fluidics
Pneumatic actuators & grippers
Pneumatic valves & controls
Rotary actuators
Stepper motors, servo motors, drives & controls
Structural extrusions
Vacuum generators, cups & sensors

Climate & Industrial Controls

Key Markets

Agriculture
Air conditioning
Construction Machinery
Food & beverage
Industrial machinery
Life sciences
Oil & gas
Precision cooling
Process
Refrigeration
Transportation

Key Products

Accumulators
Advanced actuators
CO_2 controls
Electronic controllers
Filter driers
Hand shut-off valves
Heat exchangers
Hose & fittings
Pressure regulating valves
Refrigerant distributors
Safety relief valves
Smart pumps
Solenoid valves
Thermostatic expansion valves

Filtration

Key Markets

Aerospace
Food & beverage
Industrial plant & equipment
Life sciences
Marine
Mobile equipment
Oil & gas
Power generation & renewable energy
Process
Transportation
Water Purification

Key Products

Analytical gas generators
Compressed air filters & dryers
Engine air, coolant, fuel & oil filtration systems
Fluid condition monitoring systems
Hydraulic & lubrication filters
Hydrogen, nitrogen & zero air generators
Instrumentation filters
Membrane & fiber filters
Microfiltration
Sterile air filtration
Water desalination & purification filters & systems

Fluid Connectors

Key Markets

Aerial lift
Agriculture
Bulk chemical handling
Construction machinery
Food & beverage
Fuel & gas delivery
Industrial machinery
Life sciences
Marine
Mining
Mobile
Oil & gas
Renewable energy
Transportation

Key Products

Check valves
Connectors for low pressure fluid conveyance
Deep sea umbilicals
Diagnostic equipment
Hose couplings
Industrial hose
Mooring systems & power cables
PTFE hose & tubing
Quick couplings
Rubber & thermoplastic hose
Tube fittings & adapters
Tubing & plastic fittings

Hydraulics

Key Markets

Aerial lift
Agriculture
Alternative energy
Construction machinery
Forestry
Industrial machinery
Machine tools
Marine
Material handling
Mining
Oil & gas
Power generation
Refuse vehicles
Renewable energy
Truck hydraulics
Turf equipment

Key Products

Accumulators
Cartridge valves
Electrohydraulic actuators
Human machine interfaces
Hybrid drives
Hydraulic cylinders
Hydraulic motors & pumps
Hydraulic systems
Hydraulic valves & controls
Hydrostatic steering
Integrated hydraulic circuits
Power take-offs
Power units
Rotary actuators
Sensors

Instrumentation

Key Markets

Alternative fuels
Biopharmaceuticals
Chemical & refining
Food & beverage
Marine & shipbuilding
Medical & dental
Microelectronics
Nuclear Power
Offshore oil exploration
Oil & gas
Pharmaceuticals
Power generation
Pulp & paper
Steel
Water/wastewater

Key Products

Analytical Instruments
Analytical sample conditioning products & systems
Chemical injection fittings & valves
Fluoropolymer chemical delivery fittings, valves & pumps
High purity gas delivery fittings, valves, regulators & digital flow controllers
Industrial mass flow meters/ controllers
Permanent no-weld tube fittings
Precision industrial regulators & flow controllers
Process control double block & bleeds
Process control fittings, valves, regulators & manifold valves

Seal

Key Markets

Aerospace
Chemical processing
Consumer
Fluid power
General industrial
Information technology
Life sciences
Microelectronics
Military
Oil & gas
Power generation
Renewable energy
Telecommunications
Transportation

Key Products

Dynamic seals
Elastomeric o-rings
Electro-medical instrument design & assembly
EMI shielding
Extruded & precision-cut, fabricated elastomeric seals
High temperature metal seals
Homogeneous & inserted elastomeric shapes
Medical device fabrication & assembly
Metal & plastic retained composite seals
Shielded optical windows
Silicone tubing & extrusions
Thermal management
Vibration dampening

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