



Hydraulics, Inc. fluid conducting swivel joints described in this catalog encompass one of the most complete range of sizes and configurations available to industry. Considerable thought has been given to actual needs and because of this, certain types of swivels previously not available to the equipment designer are now standard to Hydraulics, Inc.

The same standards of quality that has been a company tradition since 1955 are prevalent in these products and laboratory testing with hours of actual services has proven the design. In the interest

of efficient energy transfer, particular attention has been given to flow characteristics. Rotational torques have been held to limits compatible to flexible hose standards of the industry. Materials and manufacturing process have been selected to provide a most attractive service life when compared to alternate methods.

To the designer of hydraulic powered equipment, these products offer an opportunity to improve existing concepts and take a different approach to new equipment design.

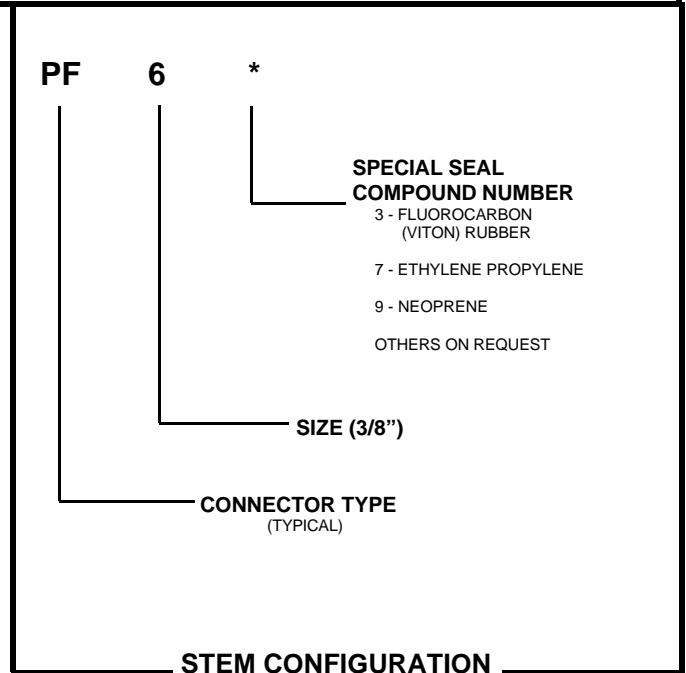
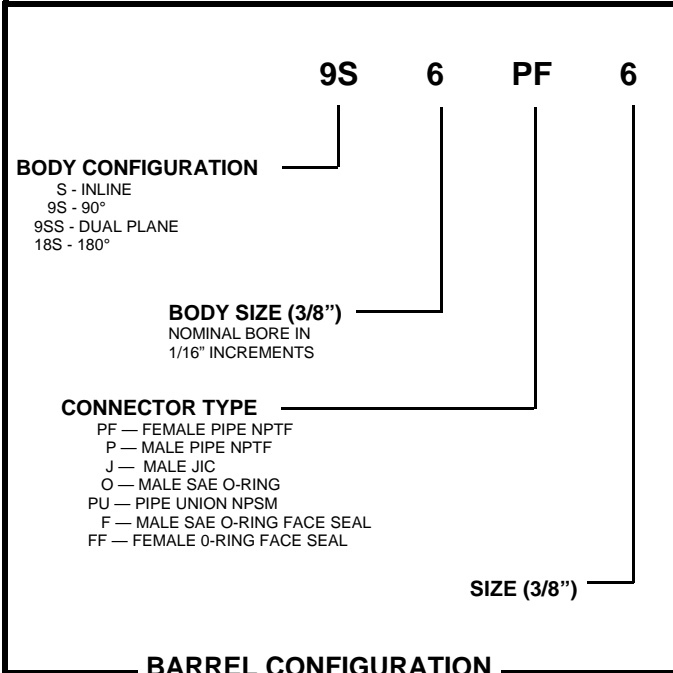
FLUID CONDUCTING SWIVELS PROVIDE

- Design versatility
- Longer flex hose life
- Simplified plumbing
- Ease of maintenance

NOTE! THESE PRODUCTS FOR LIQUID FLUID POWER SYSTEMS ONLY

“Because of technological progress and product improvements, all design and dimensional data shown in this catalog is subject to change without notice. Technical information has been prepared from actual test results under controlled environmental conditions and data is considered to be reliable, but no responsibility can be assumed for its accuracy under varied field conditions.”

EXAMPLE OF PART NUMBER SYSTEM



**MANUFACTURER OF
COMPONENTS FOR FLUID
POWER SYSTEMS**



HIGH PRESSURE HYDRAULIC SWIVEL JOINTS

“S” Series/In-Line Swivel Joint

Sizes - ¼" through 2" pipe size
Connection types - JIC, pipe, SAE O-Ring face seal (male & female)
Operating pressures - vacuum & to 3,000 PSI
Operating temperatures - 40° to 200° F



“9S” Series/90° Swivel Joint

Sizes - ¼" through 2" pipe size
Connection types - JIC & O-Ring (male), pipe and SAE O-Ring face seal (male & female) & pipe union
Operating pressures - vacuum & to 3,000 PSI
Operating temperatures - 40° to 200° F



“9SS” Series/Dual Plane Swivel Joint

Sizes - ¼" through 1¼" pipe size
Connection types - JIC & O-Ring (male), pipe & SAE O-Ring face seal (male & female)
Operating Pressures - vacuum & to 3,000 PSI
Operating Temperatures - 40° to 200° F



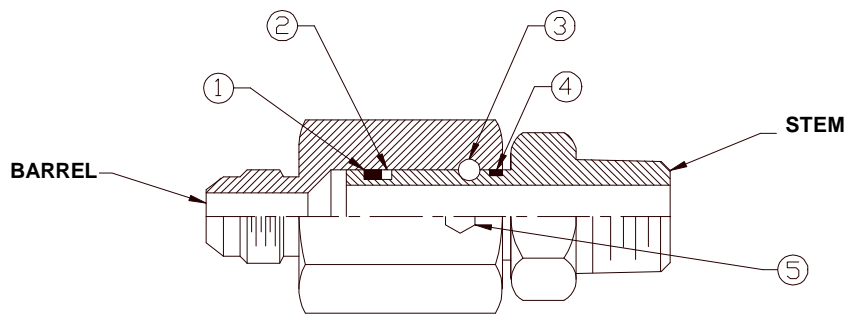
“18S” Series/180° Swivel Joint

Sizes - ¼" through 2" pipe size
Connection types - JIC (male), pipe & SAE O-Ring face seal (male & female) & pipe union
Operating pressures - vacuum & to 3,000 PSI
Operating temperatures - 40° to 200° F





S SERIES / IN-LINE 3000 PSI / FULL FLOW

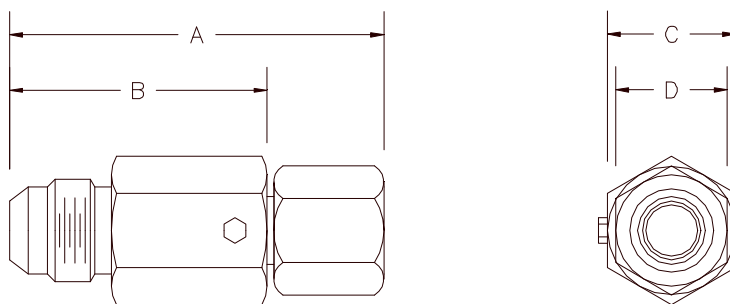


- 1 SYNTHETIC RUBBER O-RING
- 2 TEFLON BACK UP RING
- 3 RETAINER BALLS
- 4 DUST SEAL
- 5 BALL HOLE PLUG

HYDRAULICS, INC. Design Features

- Hardened carbon steel barrel and stem - Large wear surface
- Protective treatment meeting SAE hose fitting standards
- Chrome retainer balls - Long life
- Standard O-Ring and back up ring - Field replaceable seal kits - Page 26
- Burnished barrel bore - Extended seal life
- Optional seal material - Page 2
- Low pressure drop - See in-line pressure drop chart - Page 27
- Low rotational torque - see in-line torque chart - Page 27
- Optional grease fitting - Page 26

MALE JIC TO FEMALE PIPE

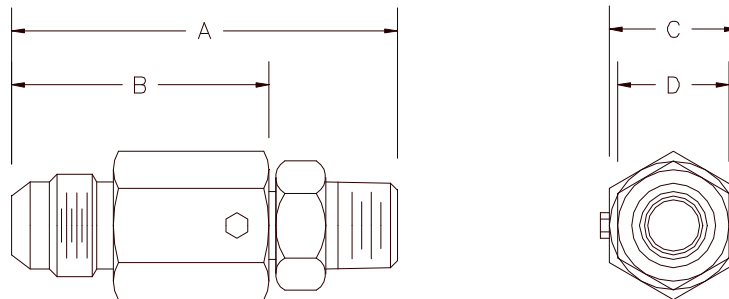


PART NO.	BARREL THREAD	STEM THREAD	A	B	C HEX	D HEX
S6J6-PF4	9/16 - 18	1/4 - 18	2.67	1.77	1.00	1.00
S6J8-PF6	3/4 - 16	3/8 - 18	2.81	1.90	1.00	1.00
S8J10-PF8	7/8 - 14	1/2 - 14	3.14	2.00	1.25	1.25
S8J12-PF12	1 1/16 - 12	3/4 - 14	3.23	2.09	1.25	1.25
S16J16-PF16	1 5/16 - 12	1 - 11 1/2	3.75	2.58	1.75	1.62
S20J20-PF20	1 5/8 - 12	1 1/4 - 11 1/2	4.08	2.74	2.25	2.00
S24J24-PF24	1 7/8 - 12	1 1/2 - 11 1/2	4.82	3.12	2.75	2.37
S32J32-PF32	2 1/2 - 12	2 - 11 1/2	6.16	4.39	3.50	3.00



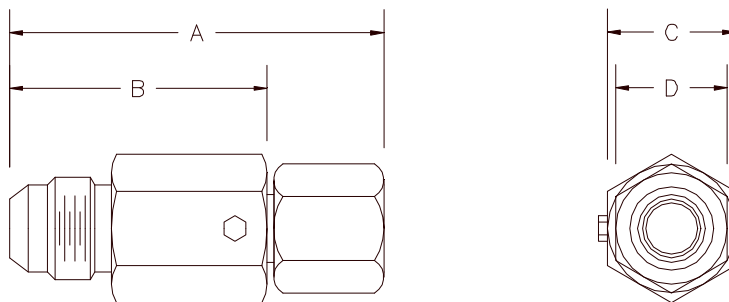
S SERIES / IN-LINE 3000 PSI / FULL FLOW

MALE JIC TO MALE PIPE



PART NO.	BARREL THREAD	STEM THREAD	A	B	C HEX	D HEX
S6J6-P4	9/16 - 18	1/4 - 18	2.61	1.77	1.00	1.00
S6J8-P6	3/4 - 16	3/8 - 18	2.76	1.90	1.00	1.00
S8J10-P8	7/8 - 14	1/2 - 14	3.09	2.00	1.25	1.25
S8J12-P12	1 1/16 - 12	3/4 - 14	3.31	2.09	1.25	1.25
S16J16-P16	1 5/16 - 12	1 - 11 1/2	4.10	2.60	1.75	1.62
S20J20-P20	1 5/8 - 12	1 1/4 - 11 1/2	4.49	2.74	2.25	2.00
S24J24-P24	1 7/8 - 12	1 1/2 - 11 1/2	5.17	3.12	2.75	2.37
S32J32-P32	2 1/2 - 12	2 - 11 1/2	6.96	4.39	3.50	3.00

MALE JIC TO FEMALE JIC

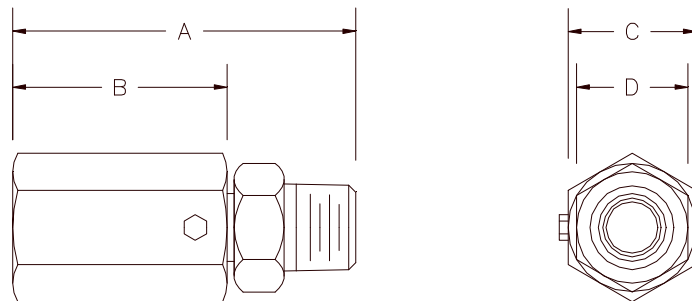


PART NO.	BARREL THREAD	STEM THREAD	A	B	C HEX	D HEX
S6J6-JF6	9/16 - 18	9/16 - 18	2.37	1.77	1.00	1.00
S6J8-JF8	3/4 - 16	3/4 - 16	2.56	1.90	1.00	1.00
S8J10-JF10	7/8 - 14	7/8 - 14	2.78	2.00	1.25	1.25
S8J12-JF12	1 1/16 - 12	1 1/16 - 12	2.89	2.09	1.25	1.25
S14J14-JF14	1 3/16 - 12	1 3/16 - 12	2.89	2.09	1.37	1.37
S16J16-JF16	1 5/16 - 12	1 5/16 - 12	3.40	2.60	1.75	1.62
S20J20-JF20	1 5/8 - 12	1 5/8 - 12	3.65	2.74	2.25	2.00
S24J24-JF24	1 7/8 - 12	1 7/8 - 12	4.12	3.12	2.75	2.37
S32J32-JF32	2 1/2 - 12	2 1/2 - 12	5.68	4.39	3.50	3.00



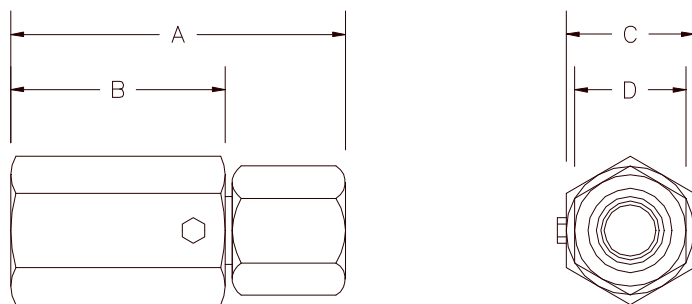
S SERIES / IN-LINE 3000 PSI / FULL FLOW

FEMALE PIPE TO MALE PIPE



PART NO.	BARREL THREAD	STEM THREAD	A	B	C HEX	D HEX
S6PF4-P4	1/4 - 18	1/4 - 18	2.34	1.50	1.00	1.00
S6PF6-P6	3/8 - 18	3/8 - 18	2.34	1.50	1.00	1.00
S8PF8-P8	1/2 - 14	1/2 - 14	2.77	1.68	1.25	1.25
S8PF12-P12	3/4 - 14	3/4 - 14	2.89	1.68	1.25	1.25
S16PF16-P16	1 - 11 1/2	1 - 11 1/2	3.89	2.37	1.75	1.63
S20PF20-P20	1 1/4 - 11 1/2	1 1/4 - 11 1/2	4.35	2.60	2.25	2.00
S24PF24-P24	1 1/2 - 11 1/2	1 1/2 - 11 1/2	5.27	3.22	2.75	2.37
S32PF32-P32	2 - 11 1/2	2 - 11 1/2	6.87	4.30	3.50	3.00

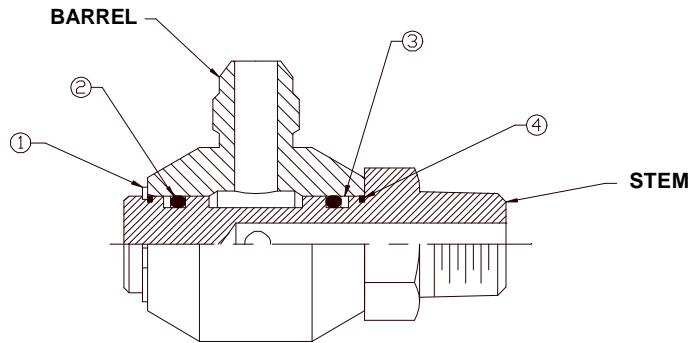
FEMALE PIPE TO FEMALE PIPE



PART NO.	BARREL THREAD	STEM THREAD	A	B	C HEX	D HEX
S6PF4-PF4	1/4 - 18	1/4 - 18	2.45	1.55	1.00	1.00
S6PF6-PF6	3/8 - 18	3/8 - 18	2.45	1.55	1.00	1.00
S8PF8-PF8	1/2 - 14	1/2 - 14	2.85	1.70	1.25	1.25
S8PF12-PF12	3/4 - 14	3/4 - 14	2.85	1.70	1.25	1.25
S16PF16-PF16	1 - 11 1/2	1 - 11 1/2	3.55	2.40	1.75	1.63
S20PF20-PF20	1 1/4 - 11 1/2	1 1/4 - 11 1/2	4.00	2.60	2.25	2.00
S24PF24-PF24	1 1/2 - 11 1/2	1 1/2 - 11 1/2	4.92	3.22	2.75	2.37
S32PF32-PF32	2 - 11 1/2	2 - 11 1/2	6.07	4.30	3.50	3.00



9S SERIES / 90° 3000 PSI /PRESSURE BALANCED

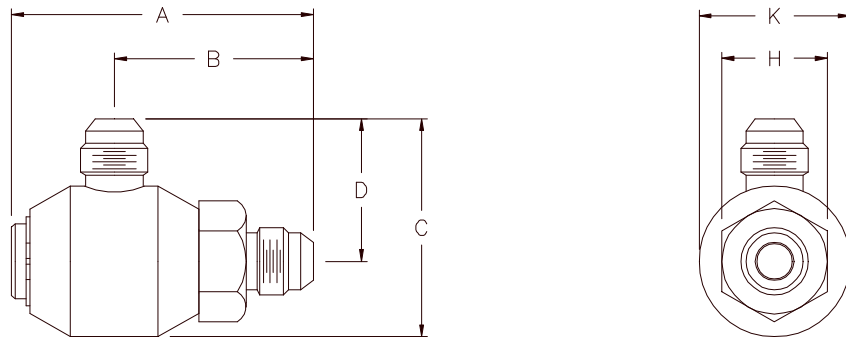


- 1 NON-LOAD BEARING RETAINING RING
- 2 SYNTHETIC RUBBER O-RING (TWO)
- 3 TEFLON BACK UP RING (TWO)
- 4 DUST SEAL (TWO)

HYDRAULICS, INC. Design Features

- Hardened carbon steel barrel - Large wear surface
- Barrel thread boss and stem annealed - Reduced breakage from shock and vibration
- Burnished barrel bore - Extended seal life
- Copper filled furnace braze joints
- Heavy duty retainer ring
- Protective treatment meeting SAE hose fitting standards
- Standard O-Ring and back up ring - Field replaceable seal kits - Page 26
- Optional seal material - Page 2
- Recessed and protected dust seals
- Pressure balanced for low rotational torque - See 90° torque chart - Page 27
- Excellent flow characteristics - See 90° pressure drop chart - Page 27

MALE JIC TO MALE JIC

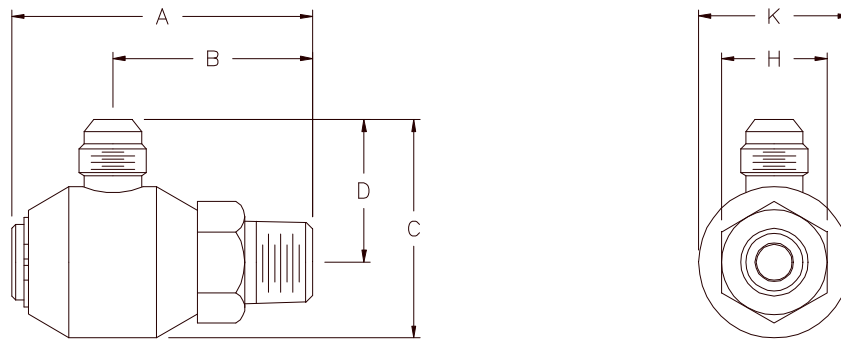


PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	K DIA.
9S6J5-J5	1/2 - 20	1/2 - 20	2.50	1.65	1.80	1.17	.87	1.25
9S6J5-J6	1/2 - 20	9/16 - 18	2.50	1.65	1.80	1.17	.87	1.25
9S6J6-J5	9/16 - 18	1/2 - 20	2.50	1.65	1.80	1.17	.87	1.25
9S6J6-J6	9/16 - 18	9/16 - 18	2.50	1.65	1.81	1.18	.87	1.25
9S6J6-J8	9/16 - 18	3/4 - 16	2.50	1.65	1.81	1.18	.87	1.25
9S6J8-J8	3/4 - 16	3/4 - 16	2.50	1.65	1.91	1.28	.87	1.25
9S8J10-J10	7/8 - 14	7/8 - 14	2.83	1.99	2.26	1.50	1.00	1.50
9S12J12-J12	1 1/16 - 12	1 1/16 - 12	3.40	2.37	3.05	1.99	1.25	2.12
9S16J16-J16	1 5/16 - 12	1 5/16 - 12	3.82	2.70	3.36	2.18	1.62	2.37
9S20J20-J20	1 5/8 - 12	1 5/8 - 12	4.12	2.80	3.70	2.33	2.00	2.75
9S24J24-J24	1 7/8 - 12	1 7/8 - 12	5.27	3.51	4.65	2.90	2.37	3.50
9S32J32-J32	2 1/2 - 12	2 1/2 - 12	6.25	4.16	5.67	3.54	3.12	4.25



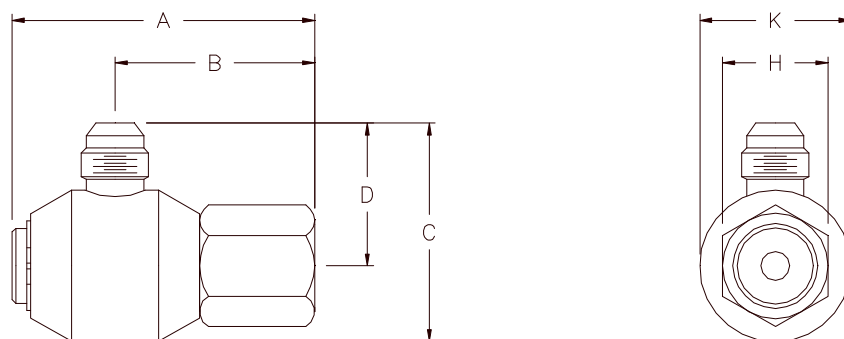
9S SERIES / 90° 3000 PSI /PRESSURE BALANCED

MALE JIC TO MALE PIPE



PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	K DIA.
9S6J5-P4	1/2 - 20	1/4 - 18	2.50	1.65	1.80	1.17	.87	1.25
9S6J5-P6	1/2 - 20	3/8 - 18	2.50	1.65	1.80	1.17	.87	1.25
9S6J6-P4	9/16 - 18	1/4 - 18	2.50	1.65	1.81	1.18	.87	1.25
9S6J6-P6	9/16 - 18	3/8 - 18	2.50	1.65	1.81	1.18	.87	1.25
9S6J8-P6	3/4 - 16	3/8 - 18	2.50	1.65	1.91	1.28	.87	1.25
9S8J8-P8	3/4 - 16	1/2 - 14	2.83	1.99	2.20	1.44	1.00	1.50
9S8J10-P8	7/8 - 14	1/2 - 14	2.83	1.99	2.26	1.50	1.00	1.50
9S12J12-P12	1 1/16 - 12	3/4 - 14	3.40	2.37	3.05	1.99	1.25	2.12
9S16J16-P16	1 5/16 - 12	1 - 11 1/2	3.82	2.70	3.36	2.18	1.62	2.37
9S20J20-P20	1 5/8 - 12	1 1/4 - 11 1/2	4.18	2.86	3.70	2.33	2.00	2.75
9S24J24-P24	1 7/8 - 12	1 1/2 - 11 1/2	5.32	3.55	4.65	2.90	2.37	3.50
9S32J32-P32	2 1/2 - 12	2 - 11 1/2	6.20	4.10	5.67	3.54	3.12	4.25

MALE JIC TO FEMALE PIPE

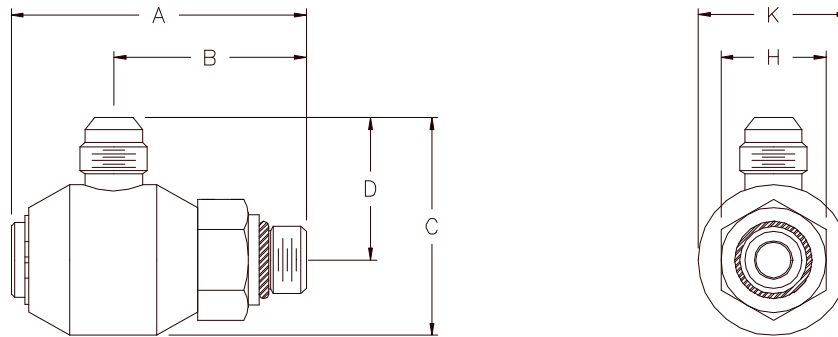


PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	K DIA.
9S6J5-PF4	1/2 - 20	1/4 - 18	2.50	1.65	1.80	1.17	.87	1.25
9S6J5-PF6	1/2 - 20	3/8 - 18	2.50	1.65	1.80	1.17	.87	1.25
9S6J6-PF4	9/16 - 18	1/4 - 18	2.50	1.65	1.81	1.18	.87	1.25
9S6J6-PF6	9/16 - 18	3/8 - 18	2.50	1.65	1.81	1.18	.87	1.25
9S6J8-PF6	3/4 - 16	3/8 - 18	2.50	1.65	1.91	1.28	.87	1.25
9S8J8-PF8	3/4 - 16	1/2 - 14	2.62	1.78	2.20	1.44	1.00	1.50
9S8J10-PF8	7/8 - 14	1/2 - 14	2.62	1.78	2.26	1.50	1.00	1.50
9S12J12-PF12	1 1/16 - 12	3/4 - 14	3.00	2.00	3.05	1.99	1.25	2.12
9S16J16-PF16	1 5/16 - 12	1 - 11 1/2	3.40	2.28	3.36	2.18	1.62	2.37
9S20J20-PF20	1 5/8 - 12	1 1/4 - 11 1/2	4.08	2.76	3.70	2.33	2.00	2.75
9S24J24-PF24	1 7/8 - 12	1 1/2 - 11 1/2	4.89	3.12	4.66	2.91	2.37	3.50
9S32J32-PF32	2 1/2 - 12	2 - 11 1/2	5.50	3.41	5.67	3.53	3.12	4.25



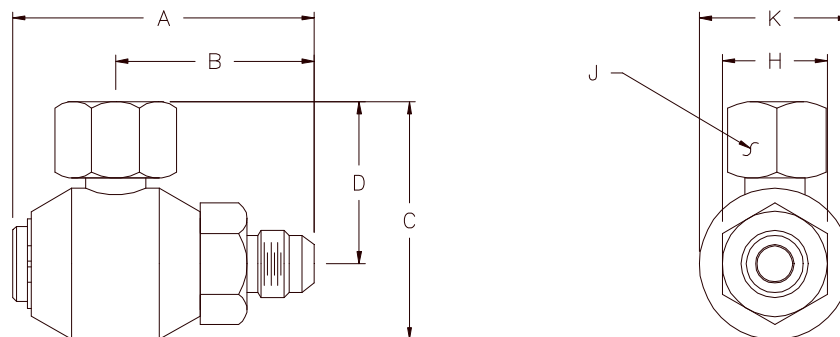
9S SERIES / 90° 3000 PSI /PRESSURE BALANCED

MALE JIC TO MALE O-RING



PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	K DIA.
9S6J5-O6	1/2 - 20	9/16 - 18	2.50	1.65	1.80	1.17	.87	1.25
9S6J6-O6	9/16 - 18	9/16 - 18	2.50	1.65	1.80	1.18	.87	1.25
9S6J6-O8	9/16 - 18	3/4 - 16	2.50	1.65	1.81	1.18	.87	1.25
9S6J8-O8	3/4 - 16	3/4 - 16	2.50	1.65	1.91	1.28	.87	1.25
9S8J10-O10	7/8 - 14	7/8 - 14	2.58	1.74	2.26	1.50	1.00	1.50
9S12J12-O12	1 1/16 - 12	1 1/16 - 12	3.24	2.21	3.05	1.99	1.25	2.12
9S16J16-O16	1 5/16 - 12	1 5/16 - 12	3.82	2.70	3.36	2.18	1.62	2.37
9S20J20-O20	1 5/8 - 12	1 5/8 - 12	3.76	2.44	3.70	2.33	2.00	2.75
9S24J24-O24	1 7/8 - 12	1 7/8 - 12	4.78	3.02	4.65	2.90	2.37	3.50
9S32J32-O32	2 1/2 - 12	2 1/2 - 12	5.50	3.41	5.67	3.54	3.12	4.25

FEMALE PIPE UNION TO MALE JIC

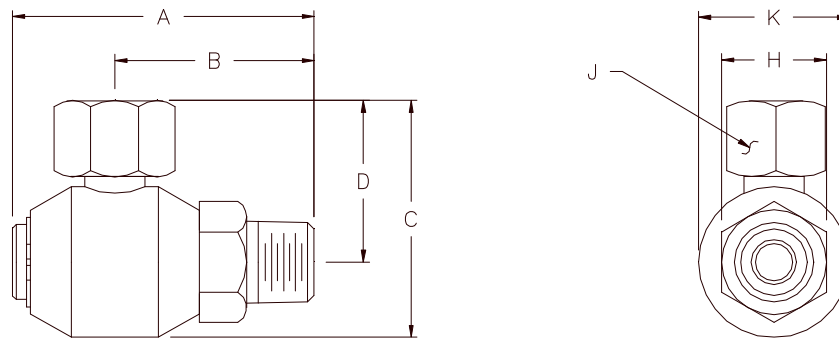


PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9S6PU4-J5	1/4 - 18	1/2 - 20	2.50	1.65	1.89	1.27	.87	.75	1.25
9S6PU4-J6	1/4 - 18	9/16 - 18	2.50	1.65	1.89	1.27	.87	.75	1.25
9S6PU6-J5	3/8 - 18	1/2 - 20	2.50	1.65	1.94	1.31	.87	.87	1.25
9S6PU6-J6	3/8 - 18	9/16 - 18	2.50	1.65	1.94	1.31	.87	.87	1.25
9S6PU6-J8	3/8 - 18	3/4 - 16	2.50	1.65	1.94	1.31	.87	.87	1.25
9S8PU8-J10	1/2 - 14	7/8 - 14	2.83	1.99	2.26	1.51	1.00	1.00	1.50
9S12PU12-J12	3/4 - 14	1 1/16 - 12	3.40	2.37	3.09	2.03	1.25	1.25	2.12
9S16PU16-J16	1 - 11 1/2	1 5/16 - 12	3.82	2.70	3.31	2.12	1.62	1.50	2.37
9S20PU20-J20	1 1/4 - 11 1/2	1 5/8 - 12	4.12	2.81	3.89	2.52	2.00	1.87	2.75
9S24PU24-J24	1 1/2 - 11 1/2	1 7/8 - 12	5.71	3.51	4.73	2.98	2.37	2.25	3.50
9S32PU32-J32	2 - 11 1/2	2 1/2 - 12	6.25	4.16	5.65	3.52	3.12	2.75	4.25



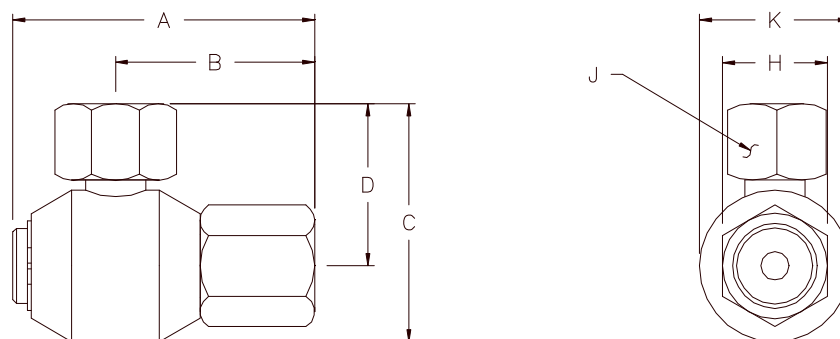
9S SERIES / 90° 3000 PSI /PRESSURE BALANCED

FEMALE PIPE UNION TO MALE PIPE



PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9S6PU4-P4	1/4 - 18	1/4 - 18	2.50	1.65	1.89	1.27	.87	.75	1.25
9S6PU4-P6	1/4 - 18	3/8 - 18	2.50	1.65	1.89	1.27	.87	.75	1.25
9S6PU6-P4	3/8 - 18	1/4 - 18	2.50	1.65	1.94	1.31	.87	.87	1.25
9S6PU6-P6	3/8 - 18	3/8 - 18	2.50	1.65	1.94	1.31	.87	.87	1.25
9S8PU8-P8	1/2 - 14	1/2 - 14	2.83	1.99	2.26	1.51	1.00	1.00	1.50
9S12PU12-P12	3/4 - 14	3/4 - 14	3.40	2.37	3.09	2.03	1.25	1.25	2.12
9S16PU16-P16	1 - 11 1/2	1 - 11 1/2	3.82	2.70	3.31	2.12	1.62	1.50	2.37
9S20PU20-P20	1 1/4 - 11 1/2	1 1/4 - 11 1/2	4.18	2.86	3.89	2.52	2.00	1.87	2.75
9S24PU24-P24	1 1/2 - 11 1/2	1 1/2 - 11 1/2	5.32	3.55	4.73	2.98	2.37	2.25	3.50
9S32PU32-P32	2 - 11 1/2	2 - 11 1/2	6.20	4.11	5.65	3.52	3.12	2.75	4.25

FEMALE PIPE UNION TO FEMALE PIPE

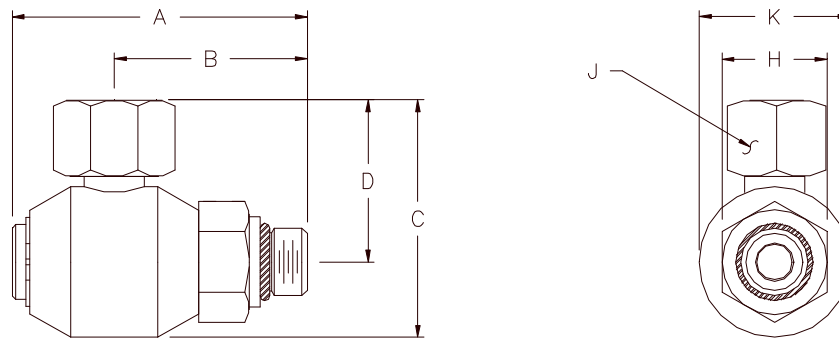


PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9S6PU4-PF4	1/4 - 18	1/4 - 18	2.50	1.65	1.89	1.27	.87	.75	1.25
9S6PU4-PF6	1/4 - 18	3/8 - 18	2.50	1.65	1.89	1.27	.87	.75	1.25
9S6PU6-PF4	3/8 - 18	1/4 - 18	2.50	1.65	1.94	1.31	.87	.87	1.25
9S6PU6-PF6	3/8 - 18	3/8 - 18	2.50	1.65	1.94	1.31	.87	.87	1.25
9S8PU8-PF8	1/2 - 14	1/2 - 14	2.62	1.78	2.26	1.51	1.00	1.00	1.50
9S12PU12-PF12	3/4 - 14	3/4 - 14	3.00	2.00	3.09	2.03	1.25	1.25	2.12
9S16PU16-PF16	1 - 11 1/2	1 - 11 1/2	3.40	2.28	3.31	2.12	1.62	1.50	2.37
9S20PU20-PF20	1 1/4 - 11 1/2	1 1/4 - 11 1/2	4.08	2.76	3.89	2.52	2.00	1.87	2.75
9S24PU24-PF24	1 1/2 - 11 1/2	1 1/2 - 11 1/2	4.89	3.12	4.73	2.98	2.37	2.25	3.50
9S32PU32-PF32	2 - 11 1/2	2 - 11 1/2	5.50	3.41	5.65	3.52	3.12	2.75	4.25



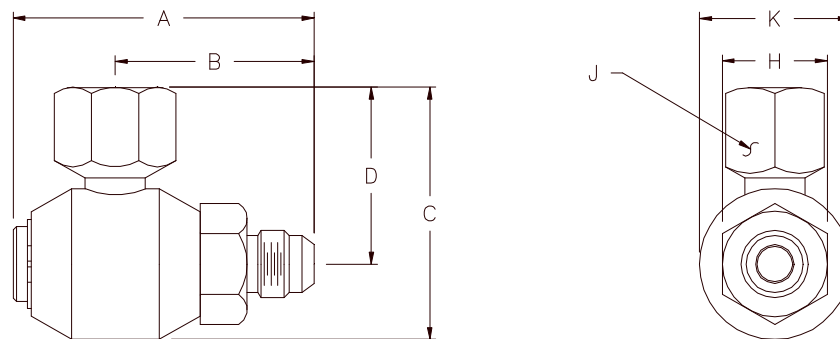
9S SERIES / 90° 3000 PSI /PRESSURE BALANCED

FEMALE PIPE UNION TO O-RING



PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9S6PU4-O6	1/4 - 18	9/16 - 18	2.50	1.65	1.89	1.27	.87	.75	1.25
9S6PU6-O6	3/8 - 18	9/16 - 18	2.50	1.65	1.94	1.31	.87	.87	1.25
9S6PU6-O8	3/8 - 18	3/4 - 16	2.50	1.65	1.94	1.31	.87	.87	1.25
9S8PU8-O10	1/2 - 14	7/8 - 14	2.58	1.74	2.26	1.51	1.00	1.00	1.50
9S12PU12-O12	3/4 - 14	1 1/16 - 12	3.24	2.21	3.09	2.03	1.25	1.25	2.12
9S16PU16-O16	1 - 11 1/2	1 5/16 - 12	3.82	2.70	3.31	2.12	1.62	1.50	2.37
9S20PU20-O20	1 1/4 - 11 1/2	1 5/8 - 12	3.76	2.44	3.89	2.52	2.00	1.87	2.75
9S24PU24-O24	1 1/2 - 11 1/2	1 7/8 - 12	4.78	3.02	4.73	2.98	2.37	2.25	3.50
9S32PU32-O32	2 - 11 1/2	2 1/2 - 12	5.50	3.41	5.65	3.52	3.12	2.75	4.25

FEMALE PIPE TO MALE JIC

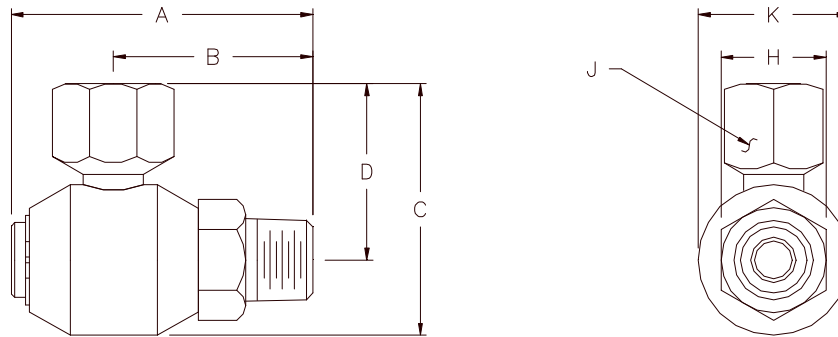


PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9S6PF4-J5	1/4 - 18	1/2 - 20	2.50	1.65	2.00	1.37	.87	.75	1.25
9S6PF4-J6	1/4 - 18	9/16 - 18	2.50	1.65	2.00	1.37	.87	.75	1.25
9S6PF6-J5	3/8 - 18	1/2 - 20	2.50	1.65	2.00	1.37	.87	.87	1.25
9S6PF6-J6	3/8 - 18	9/16 - 18	2.50	1.65	2.00	1.37	.87	.87	1.25
9S6PF6-J8	3/8 - 18	3/4 - 16	2.50	1.65	2.00	1.37	.87	.87	1.25
9S8PF8-J10	1/2 - 14	7/8 - 14	2.83	1.99	2.59	1.84	1.00	1.00	1.50
9S12PF12-J12	3/4 - 14	1 1/16 - 12	3.40	2.37	3.30	2.24	1.25	1.37	2.12
9S16PF16-J16	1 - 11 1/2	1 5/16 - 12	3.82	2.70	3.64	2.46	1.62	1.62	2.37
9S20PF20-J20	1 1/4 - 11 1/2	1 5/8 - 12	4.12	2.81	3.98	2.61	2.00	2.00	2.75
9S24PF24-J24	1 1/2 - 11 1/2	1 7/8 - 12	5.27	3.51	5.20	3.45	2.37	2.37	3.50
9S32PF32-J32	2 - 11 1/2	2 1/2 - 12	6.25	4.16	6.06	3.94	3.12	2.87	4.25



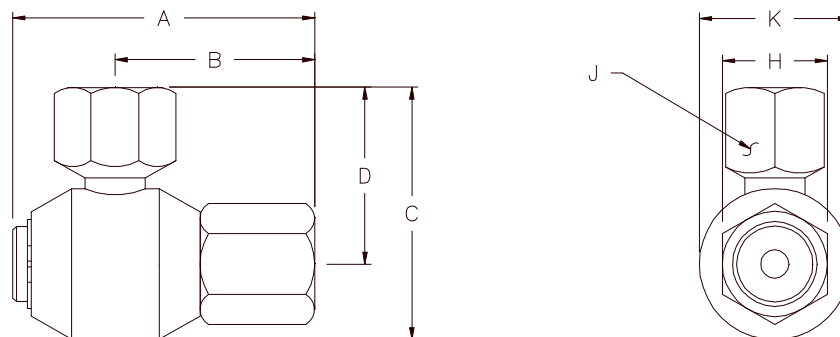
9S SERIES / 90° 3000 PSI /PRESSURE BALANCED

FEMALE PIPE TO MALE PIPE



PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9S6PF4-P4	1/4 - 18	1/4 - 18	2.50	1.65	2.00	1.37	.87	.75	1.25
9S6PF4-P6	1/4 - 18	3/8 - 18	2.50	1.65	2.00	1.37	.87	.75	1.25
9S6PF6-P4	3/8 - 18	1/4 - 18	2.50	1.65	2.00	1.37	.87	.87	1.25
9S6PF6-P6	3/8 - 18	3/8 - 18	2.50	1.65	2.00	1.37	.87	.87	1.25
9S8PF8-P8	1/2 - 14	1/2 - 14	2.83	1.99	2.59	1.84	1.00	1.00	1.50
9S12PF12-P12	3/4 - 14	3/4 - 14	3.40	2.37	3.30	2.24	1.25	1.37	2.12
9S16PF16-P16	1 - 11 1/2	1 - 11 1/2	3.82	2.70	3.64	2.46	1.62	1.62	2.37
9S20PF20-P20	1 1/4 - 11 1/2	1 1/4 - 11 1/2	4.18	2.86	3.98	2.61	2.00	2.00	2.75
9S24PF24-P24	1 1/2 - 11 1/2	1 1/2 - 11 1/2	5.32	3.55	5.20	3.45	2.37	2.37	3.50
9S32PF32-P32	2 - 11 1/2	2 - 11 1/2	6.20	4.11	6.06	3.94	3.12	2.87	4.25

FEMALE PIPE TO FEMALE PIPE

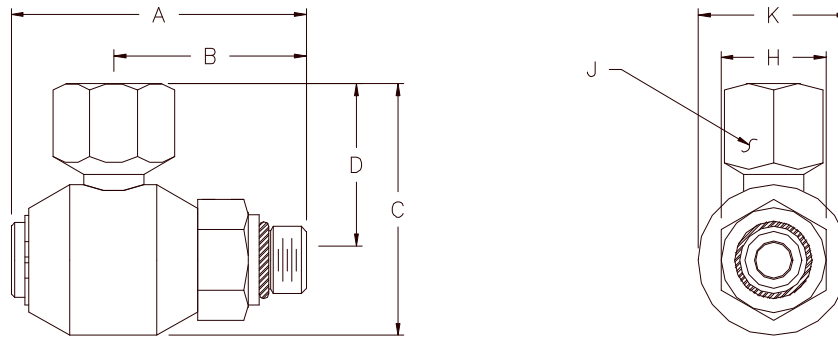


PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9S6PF4-PF4	1/4 - 18	1/4 - 18	2.50	1.65	2.00	1.37	.87	.75	1.25
9S6PF4-PF6	1/4 - 18	3/8 - 18	2.50	1.65	2.00	1.37	.87	.75	1.25
9S6PF6-PF4	3/8 - 18	1/4 - 18	2.50	1.65	2.00	1.37	.87	.87	1.25
9S6PF6-PF6	3/8 - 18	3/8 - 18	2.50	1.65	2.00	1.37	.87	.87	1.25
9S8PF8-PF8	1/2 - 14	1/2 - 14	2.62	1.78	2.59	1.84	1.00	1.00	1.50
9S12PF12-PF12	3/4 - 14	3/4 - 14	3.00	2.00	3.30	2.24	1.25	1.37	2.12
9S16PF16-PF16	1 - 11 1/2	1 - 11 1/2	3.40	2.28	3.64	2.46	1.62	1.62	2.37
9S20PF20-PF20	1 1/4 - 11 1/2	1 1/4 - 11 1/2	4.08	2.76	3.98	2.61	2.00	2.00	2.75
9S24PF24-PF24	1 1/2 - 11 1/2	1 1/2 - 11 1/2	4.89	3.12	5.20	3.45	2.37	2.37	3.50
9S32PF32-PF32	2 - 11 1/2	2 - 11 1/2	5.50	3.41	6.06	3.94	3.12	2.87	4.25



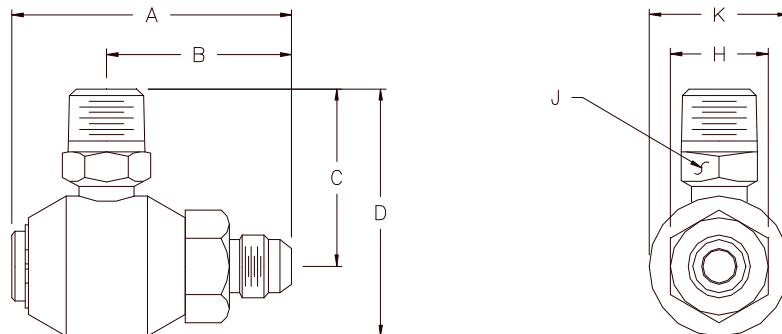
9S SERIES / 90° 3000 PSI /PRESSURE BALANCED

FEMALE PIPE TO O-RING



PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9S6PF4-O6	1/4 - 18	9/16 - 18	2.50	1.65	2.00	1.37	.87	.75	1.25
9S6PF6-O6	3/8 - 18	9/16 - 18	2.50	1.65	2.00	1.37	.87	.87	1.25
9S6PF6-O8	3/8 - 18	3/4 - 16	2.50	1.65	2.00	1.37	.87	.87	1.25
9S8PF8-O10	1/2 - 14	7/8 - 14	2.58	1.74	2.59	1.84	1.00	1.00	1.50
9S12PF12-O12	3/4 - 14	1 1/16 - 12	3.24	2.21	3.30	2.24	1.25	1.37	2.12
9S16PF16-O16	1 - 11 1/2	1 5/16 - 12	3.82	2.70	3.64	2.46	1.62	1.62	2.37
9S20PF20-O20	1 1/4 - 11 1/2	1 5/8 - 12	3.76	2.44	3.98	2.61	2.00	2.00	2.75
9S24PF24-O24	1 1/2 - 11 1/2	1 7/8 - 12	4.78	3.02	5.19	3.44	2.37	2.37	3.50
9S32PF32-O32	2 - 11 1/2	2 1/2 - 12	5.50	3.41	6.06	3.94	3.12	2.87	4.25

MALE PIPE TO MALE JIC

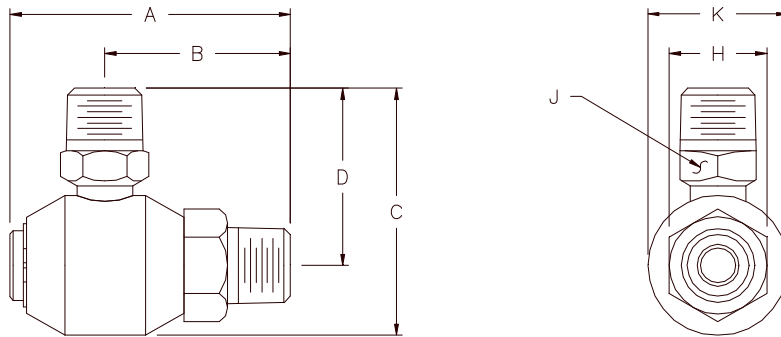


PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9S6P4-J5	1/4 - 18	1/2 - 20	2.50	1.65	2.12	1.50	.87	.56	1.25
9S6P4-J6	1/4 - 18	9/16 - 18	2.50	1.65	2.12	1.50	.87	.56	1.25
9S6P6-J5	3/8 - 18	1/2 - 20	2.50	1.65	2.12	1.50	.87	.68	1.25
9S6P6-J6	3/8 - 18	9/16 - 18	2.50	1.65	2.12	1.50	.87	.68	1.25
9S8P8-J10	1/2 - 14	7/8 - 14	2.83	1.99	2.65	1.90	1.00	.87	1.50
9S12P12-J12	3/4 - 14	1 1/16 - 12	3.40	2.37	3.32	2.26	1.25	1.12	2.12
9S16P16-J16	1 - 11 1/2	1 5/16 - 12	3.82	2.70	3.81	2.62	1.62	1.37	2.37
9S20P20-J20	1 1/4 - 11 1/2	1 5/8 - 12	4.12	2.81	4.31	2.93	2.00	1.75	2.75
9S24P24-J24	1 1/2 - 11 1/2	1 7/8 - 12	5.27	3.51	5.45	3.70	2.37	2.37	3.50
9S32P32-J32	2 - 11 1/2	2 1/2 - 12	6.25	4.16	6.55	4.42	3.12	2.87	4.25



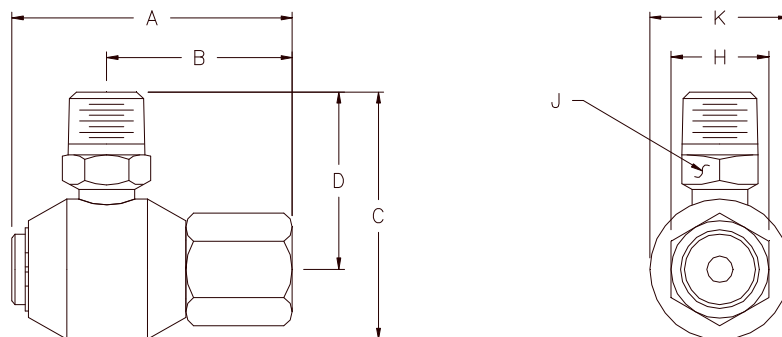
9S SERIES / 90° 3000 PSI /PRESSURE BALANCED

MALE PIPE TO MALE PIPE



PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9S6P4-P4	1/4 - 18	1/4 - 18	2.50	1.65	2.12	1.50	.87	.56	1.25
9S6P4-P6	1/4 - 18	3/8 - 18	2.50	1.65	2.12	1.50	.87	.68	1.25
9S6P6-P4	3/8 - 18	1/4 - 18	2.50	1.65	2.12	1.50	.87	.56	1.25
9S6P6-P6	3/8 - 18	3/8 - 18	2.50	1.65	2.12	1.50	.87	.68	1.25
9S8P8-P8	1/2 - 14	1/2 - 14	2.83	1.99	2.65	1.90	1.00	.87	1.50
9S12P12-P12	3/4 - 14	3/4 - 14	3.40	2.37	3.32	2.26	1.25	1.12	2.12
9S16P16-P16	1 - 11 1/2	1 - 11 1/2	3.82	2.70	3.81	2.62	1.62	1.37	2.37
9S20P20-P20	1 1/4 - 11 1/2	1 1/4 - 11 1/2	4.18	2.86	4.31	2.93	2.00	1.75	2.75
9S24P24-P24	1 1/2 - 11 1/2	1 1/2 - 11 1/2	5.32	3.55	5.45	3.70	2.37	2.37	3.50
9S32P32-P32	2 - 11 1/2	2 - 11 1/2	6.20	4.10	6.55	4.42	3.12	2.87	4.25

MALE PIPE TO FEMALE PIPE

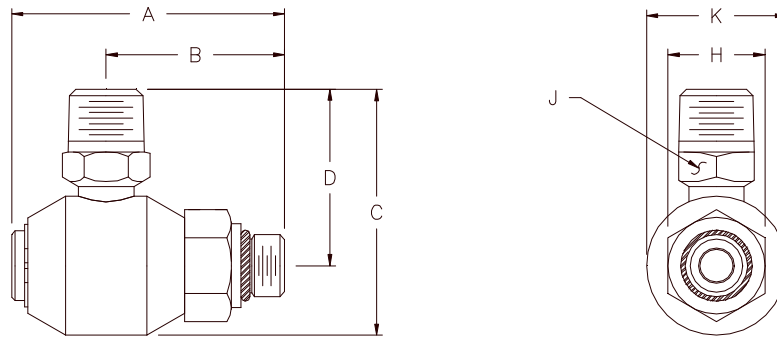


PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9S6P4-PF4	1/4 - 18	1/4 - 18	2.50	1.65	2.12	1.50	.87	.56	1.25
9S6P6-PF4	3/8 - 18	1/4 - 18	2.50	1.65	2.12	1.50	.87	.68	1.25
9S6P4-PF6	1/4 - 18	3/8 - 18	2.50	1.65	2.12	1.50	.87	.56	1.25
9S6P6-PF6	3/8 - 18	3/8 - 18	2.50	1.65	2.12	1.50	.87	.68	1.25
9S8P8-PF8	1/2 - 14	1/2 - 14	2.62	1.78	2.65	1.90	1.00	.87	1.50
9S12P12-PF12	3/4 - 14	3/4 - 14	3.00	2.00	3.32	2.26	1.25	1.12	2.12
9S16P16-PF16	1 - 11 1/2	1 - 11 1/2	3.40	2.28	3.81	2.62	1.62	1.37	2.37
9S20P20-PF20	1 1/4 - 11 1/2	1 1/4 - 11 1/2	4.08	2.76	4.31	2.93	2.00	1.75	2.75
9S24P24-PF24	1 1/2 - 11 1/2	1 1/2 - 11 1/2	4.89	3.12	5.44	3.69	2.37	2.37	3.50
9S32P32-PF32	2 - 11 1/2	2 - 11 1/2	5.50	3.41	6.55	4.42	3.12	2.87	4.25



9S SERIES / 90° 3000 PSI /PRESSURE BALANCED

MALE PIPE TO O-RING



PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9S6P4-O5	1/4 - 18	1/2 - 20	2.50	1.65	2.12	1.50	.87	.56	1.25
9S6P4-O6	1/4 - 18	9/16 - 18	2.50	1.65	2.12	1.50	.87	.56	1.25
9S6P6-O5	3/8 - 18	1/2 - 20	2.50	1.65	2.12	1.50	.87	.68	1.25
9S6P6-O6	3/8 - 18	9/16 - 18	2.50	1.65	2.12	1.50	.87	.68	1.25
9S6P6-O8	3/8 - 18	3/4 - 16	2.50	1.65	2.12	1.50	.87	.68	1.25
9S8P8-O10	1/2 - 14	7/8 - 14	2.58	1.75	2.65	1.90	1.00	.87	1.50
9S12P12-O12	3/4 - 14	1 1/16 - 12	3.24	2.21	3.32	2.26	1.25	1.12	2.12
9S16P16-O16	1 - 11 1/2	1 5/16 - 12	3.82	2.70	3.81	2.62	1.62	1.37	2.37
9S20P20-O20	1 1/4 - 11 1/2	1 5/8 - 12	3.76	2.45	4.31	2.93	2.00	1.75	2.75
9S24P24-O24	1 1/2 - 11 1/2	1 7/8 - 12	4.78	3.02	5.45	3.70	2.37	2.37	3.50
9S32P32-O32	2 - 11 1/2	2 1/2 - 12	5.50	3.41	6.55	4.42	3.12	2.87	4.25

INSTALLATION INFORMATION

Hydraulics, Inc. swivel joints are generally considered low speed rotation as encountered in fluid power systems. Maximum speed of rotation depends upon system environment, with fluid types and extreme conditions as related to temperatures and pressures being of prime consideration. Questionable applications should be proven by laboratory or prototype testing.

Contamination at installation should be avoided and connecting plumbing should not cause undue loading. The swivel should not be used as a load bearing or structural member.

TYPICAL INSTALLATIONS



Earth boring auger on utility truck compensates movement in all planes by using "9SS" Series swivel.



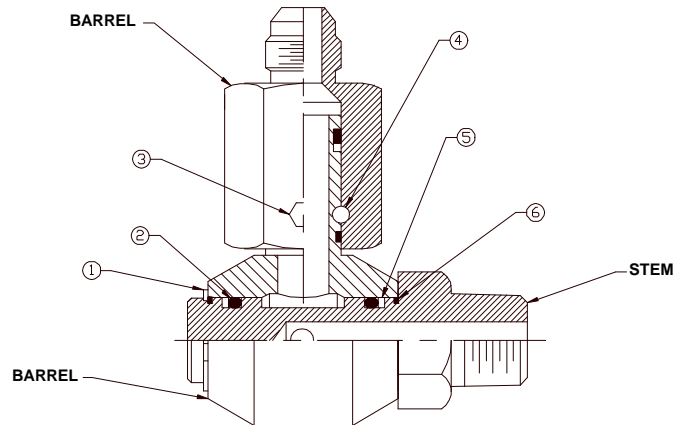
Log loader utilizes limited boom rotation and "S" Series swivel on hoses through spindle.



Coal mining equipment manufacturer extends hose life with "9S" Series swivels allowing hose to take natural form for flexing.



9SS SERIES / 90° 3000 PSI / DUAL PLANE



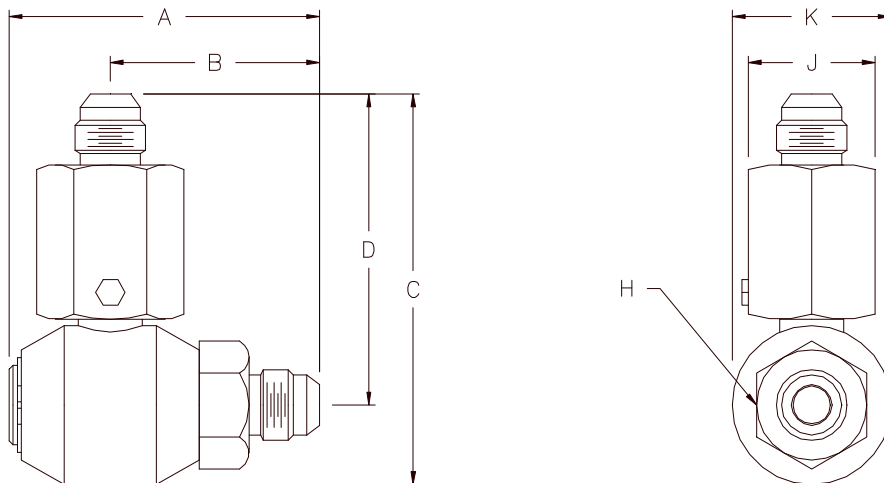
- 1 NON-LOAD BEARING RETAINING RING
- 2 SYNTHETIC RUBBER O-RING (THREE)
- 3 BALL HOLE PLUG

- 4 RETAINING BALLS
- 5 TEFLON BACK UP RING (THREE)
- 6 DUST SEAL (THREE)

HYDRAULICS, INC. Design Features

- Hardened carbon steel barrel and in-line stem
- Stem annealed - Reduced breakage from shock and vibration
- Burnished barrel bores - Extended seal life
- Copper filled furnace braze joints
- Protective treatment meeting SAE hose fitting standards
- Standard O-Ring and back up ring - Field replaceable seal kits - Page 26
- Optional seal material - Page 2
- Recessed and protected dust seals
- Low rotational torque - See in-line and 90° torque chart - Page 27
- Low pressure drop - Combine in-line and 90° pressure drop chart - Page 27
- Optional grease fitting - Page 26

MALE JIC TO MALE JIC

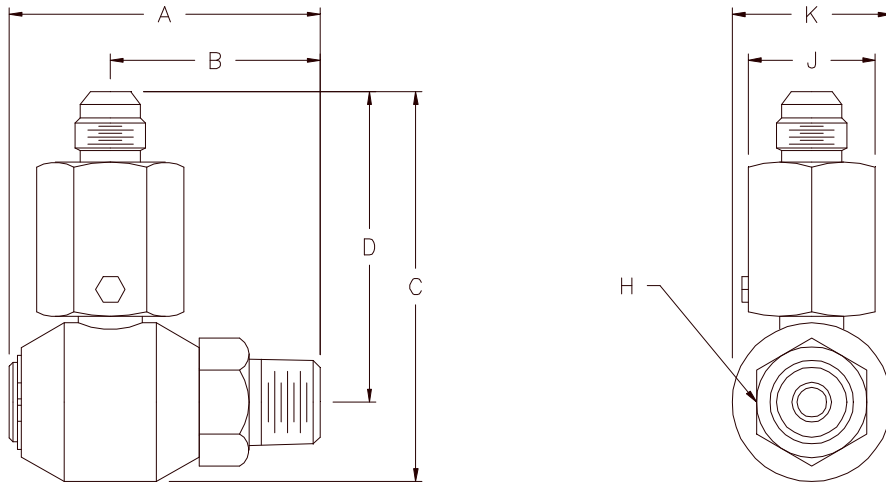


PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9SS6J6-J5	9/16 - 18	1/2 - 20	2.50	1.65	3.06	2.44	.87	1.00	1.25
9SS6J6-J6	9/16 - 18	9/16 - 18	2.50	1.65	3.06	2.44	.87	1.00	1.25
9SS6J6-J8	9/16 - 18	3/4 - 16	2.50	1.65	3.06	2.44	.87	1.00	1.25
9SS8J10-J10	7/8 - 14	7/8 - 14	2.83	2.00	3.60	2.96	1.00	1.25	1.50
9SS12J12-J12	1 1/16 - 12	1 1/16 - 12	3.40	2.37	4.30	3.23	1.25	1.37	2.12
9SS16J16-J16	1 5/16 - 12	1 5/16 - 12	3.82	2.70	5.10	3.90	1.62	1.75	2.37
9SS20J20-J20	1 5/8 - 12	1 5/8 - 12	4.12	2.81	5.72	4.44	2.00	2.25	2.75
9SS24J24-J24	1 7/8 - 12	1 7/8 - 12	5.27	3.51	6.87	5.12	2.37	2.75	3.50



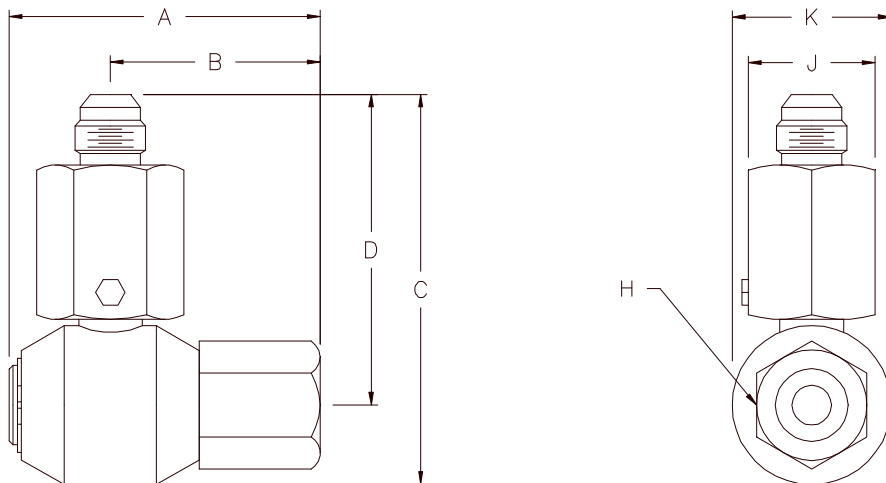
9SS SERIES / 90° 3000 PSI / DUAL PLANE

MALE JIC TO MALE PIPE



PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9SS6J6-P4	9/16 - 18	1/4 - 18	2.50	1.62	3.06	2.44	.87	1.00	1.25
9SS6J8-P6	3/4 - 16	3/8 - 18	2.50	1.62	3.06	2.44	.87	1.00	1.25
9SS8J10-P8	7/8 - 14	1/2 - 14	2.83	1.99	3.63	2.88	1.00	1.25	1.50
9SS12J12-P12	1 1/16 - 12	3/4 - 14	3.40	2.37	4.30	3.23	1.25	1.25	2.12
9SS16J16-P16	1 5/16 - 12	1 - 11 1/2	3.80	2.65	5.10	3.90	1.62	1.75	2.37
9SS20J20-P20	1 5/8 - 12	1 1/4 - 11 1/2	4.18	2.76	5.72	4.44	1.75	2.00	2.75
9SS24J24-P24	1 7/8 - 12	1 1/2 - 11 1/2	5.32	3.55	6.87	5.12	2.37	2.75	3.50

MALE JIC TO FEMALE PIPE

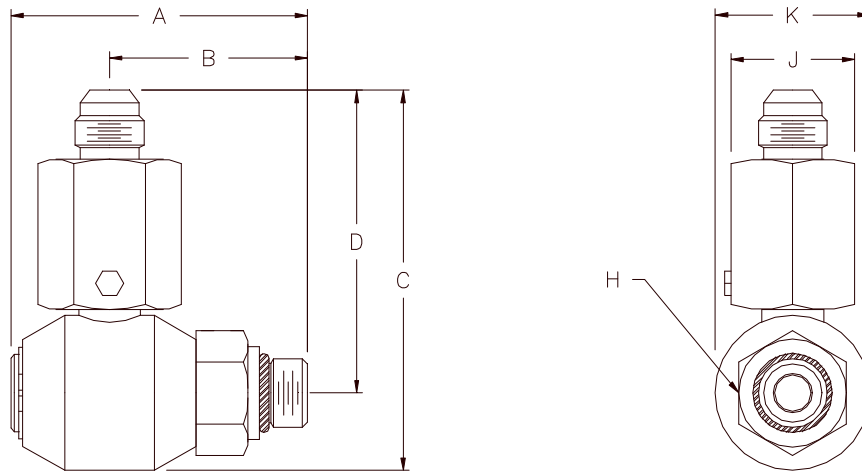


PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9SS6J6-PF4	9/16 - 18	1/4 - 18	2.50	1.65	3.06	2.44	.87	1.00	1.25
9SS6J6-PF6	9/16 - 18	3/8 - 18	2.50	1.65	3.06	2.44	.87	1.00	1.25
9SS6J8-PF6	3/4 - 16	3/8 - 18	2.50	1.65	3.06	2.44	.87	1.00	1.25
9SS8J10-PF8	7/8 - 14	1/2 - 14	2.62	1.79	3.63	2.88	1.00	1.25	1.50
9SS12J12-PF12	1 1/16 - 12	3/4 - 14	3.00	1.97	4.30	3.23	1.25	1.37	2.12
9SS16J16-PF16	1 5/16 - 12	1 - 11 1/2	3.40	2.28	5.10	3.90	1.62	1.75	2.37
9SS20J20-PF20	1 5/8 - 12	1 1/4 - 11 1/2	4.08	2.76	5.72	4.44	2.00	2.25	2.75
9SS24J24-PF24	1 7/8 - 12	1 1/2 - 11 1/2	4.89	3.12	6.87	5.12	2.37	2.75	3.50



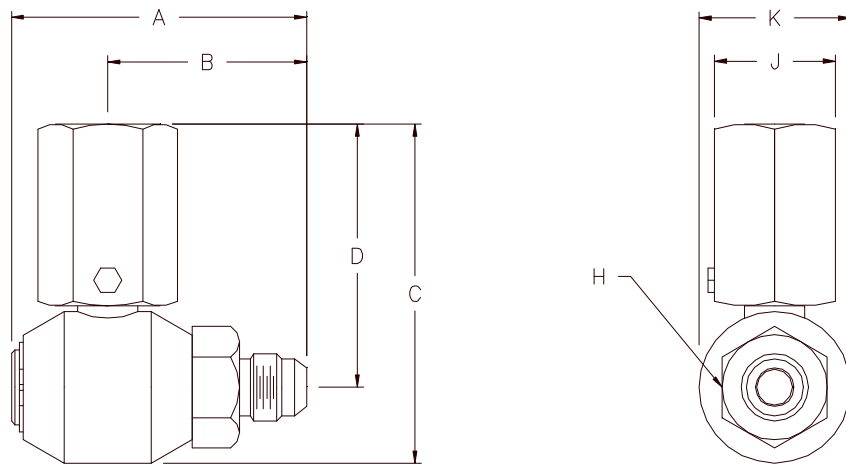
9SS SERIES / 90° 3000 PSI / DUAL PLANE

MALE JIC TO MALE O-RING



PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9SS6J6-O6	9/16 - 18	9/16 - 18	2.50	1.65	3.06	2.44	.87	1.00	1.25
9SS6J6-O8	9/16 - 18	3/4 - 16	2.50	1.65	3.06	2.44	.87	1.00	1.25
9SS6J8-O8	3/4 - 16	3/4 - 16	2.50	1.65	3.06	2.44	.87	1.00	1.25
9SS8J10-O10	7/8 - 14	7/8 - 14	2.58	1.74	3.63	2.88	1.00	1.25	1.50
9SS12J12-O12	1 1/16 - 12	1 1/16 - 12	3.24	2.21	4.30	3.23	1.25	1.37	2.12
9SS16J16-O16	1 5/16 - 12	1 5/16 - 12	3.82	2.70	5.10	3.90	1.62	1.75	2.37
9SS20J20-O20	1 5/8 - 12	1 5/8 - 12	3.76	2.45	5.72	4.44	2.00	2.25	2.75
9SS24J24-O24	1 7/8 - 12	1 7/8 - 12	4.78	3.02	6.87	5.12	2.37	2.75	3.50

FEMALE PIPE TO MALE JIC

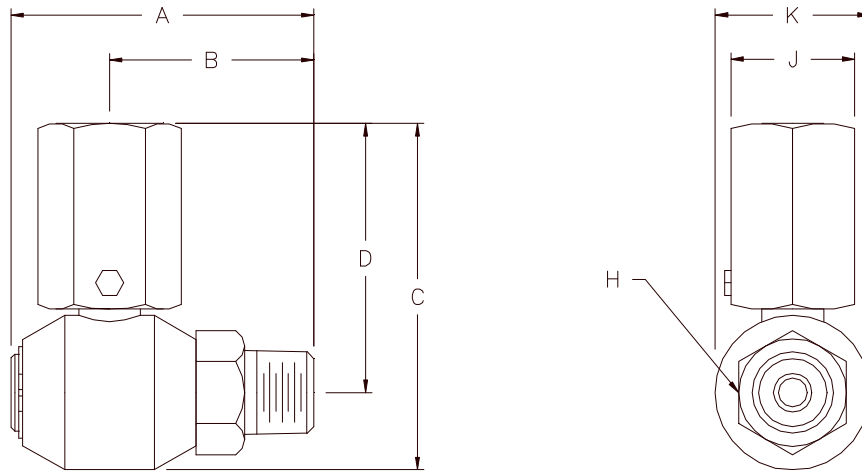


PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9SS6PF4-J5	1/4 - 18	1/2 - 20	2.50	1.65	2.85	2.23	.87	1.00	1.25
9SS6PF4-J6	1/4 - 18	9/16 - 18	2.50	1.65	2.85	2.23	.87	1.00	1.25
9SS6PF6-J5	3/8 - 18	1/2 - 20	2.50	1.65	2.85	2.23	.87	1.00	1.25
9SS6PF6-J6	3/8 - 18	9/16 - 18	2.50	1.65	2.85	2.23	.87	1.00	1.25
9SS6PF6-J8	3/8 - 18	3/4 - 16	2.50	1.65	2.85	2.23	.87	1.00	1.25
9SS8PF8-J10	1/2 - 14	7/8 - 14	2.83	1.99	3.42	2.67	1.00	1.25	1.50
9SS12PF12-J12	3/4 - 14	1 1/16 - 12	3.40	2.37	4.09	3.02	1.25	1.25	2.12
9SS16PF16-J16	1 - 11 1/2	1 5/16 - 12	3.82	2.70	4.89	3.69	1.62	1.75	2.37
9SS20PF20-J20	1 1/4 - 11 1/2	1 5/8 - 12	4.12	2.81	5.51	4.23	2.00	2.25	2.75
9SS24PF24-J24	1 1/2 - 11 1/2	1 7/8 - 12	5.27	3.51	6.93	5.18	2.37	2.75	3.50



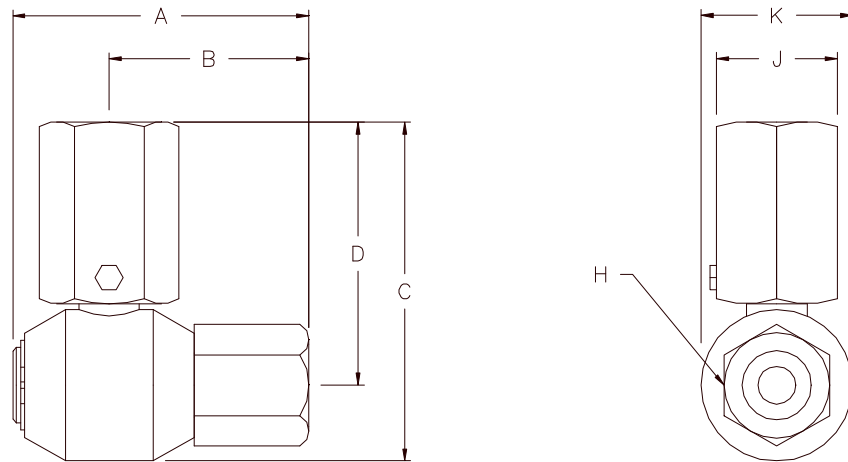
9SS SERIES / 90° 3000 PSI / DUAL PLANE

FEMALE PIPE TO MALE PIPE



PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9SS6PF4-P4	1/4 - 18	1/4 - 18	2.50	1.62	2.85	2.23	.87	1.00	1.25
9SS6PF6-P4	3/8 - 18	1/4 - 18	2.50	1.62	2.85	2.23	.87	1.00	1.25
9SS6PF6-P6	3/8 - 18	3/8 - 18	2.50	1.62	2.85	2.23	.87	1.00	1.25
9SS8PF8-P8	1/2 - 14	1/2 - 14	2.83	1.99	3.42	2.67	1.00	1.25	1.50
9SS12PF12-P12	3/4 - 14	3/4 - 14	3.40	2.37	4.09	3.02	1.25	1.25	2.12
9SS16PF16-P16	1 - 11 1/2	1 - 11 1/2	3.80	2.65	4.89	3.69	1.62	1.75	2.37
9SS20PF20-P20	1 1/4 - 11 1/2	1 1/4 - 11 1/2	4.18	2.76	5.51	4.23	2.00	2.25	2.75
9SS24PF24-P24	1 1/2 - 11 1/2	1 1/2 - 11 1/2	5.32	3.55	6.93	5.18	2.37	2.75	3.50

FEMALE PIPE TO FEMALE PIPE

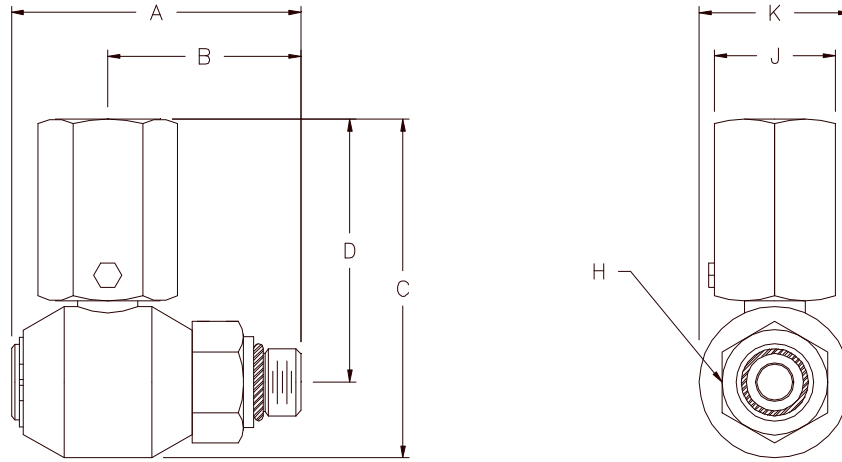


PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9SS6PF4-PF4	1/4 - 18	1/4 - 18	2.50	1.65	2.85	2.23	.87	1.00	1.25
9SS6PF4-PF6	1/4 - 18	3/8 - 18	2.50	1.65	2.85	2.23	.87	1.00	1.25
9SS6PF6-PF4	3/8 - 18	1/4 - 18	2.50	1.65	2.85	2.23	.87	1.00	1.25
9SS6PF6-PF6	3/8 - 18	3/8 - 18	2.50	1.65	2.85	2.23	.87	1.00	1.25
9SS8PF8-PF8	1/2 - 14	1/2 - 14	2.62	1.78	3.42	2.67	1.00	1.25	1.50
9SS12PF12-PF12	3/4 - 14	3/4 - 14	3.00	2.00	4.09	3.02	1.25	1.25	2.12
9SS16PF16-PF16	1 - 11 1/2	1 - 11 1/2	3.40	2.28	4.89	3.69	1.62	1.75	2.37
9SS20PF20-PF20	1 1/4 - 11 1/2	1 1/4 - 11 1/2	4.08	2.76	5.51	4.23	2.00	2.25	2.75
9SS24PF24-PF24	1 1/2 - 11 1/2	1 1/2 - 11 1/2	4.89	3.12	6.93	5.18	2.37	2.75	3.50



9SS SERIES / 90° 3000 PSI / DUAL PLANE

FEMALE PIPE TO O-RING

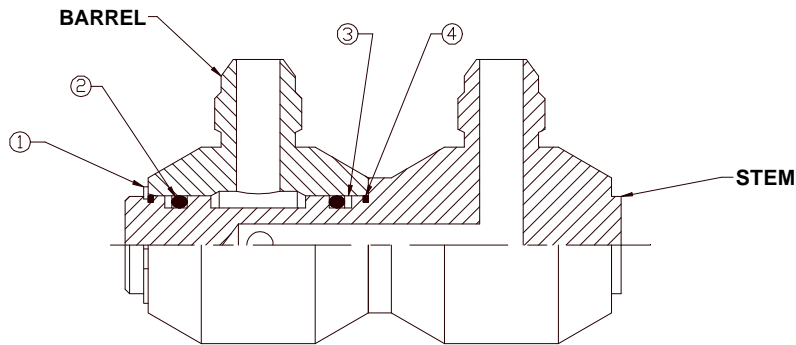


PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	H HEX.	J HEX.	K DIA.
9SS6PF4-O6	1/4 - 18	9/16 - 18	2.50	1.65	2.85	2.23	.87	1.00	1.25
9SS6PF6-O6	3/8 - 18	9/16 - 18	2.50	1.65	2.85	2.23	.87	1.00	1.25
9SS6PF6-O8	3/8 - 18	3/4 - 16	2.50	1.65	2.85	2.23	.87	1.00	1.25
9SS8PF8-O10	1/2 - 14	7/8 - 14	2.58	1.75	3.42	2.67	1.00	1.25	1.50
9SS12PF12-O12	3/4 - 14	1 1/16 - 12	3.24	2.21	4.09	3.02	1.25	1.25	2.12
9SS16PF16-O16	1 - 11 1/2	1 5/16 - 12	3.82	2.70	4.89	3.69	1.62	1.75	2.37
9SS20PF20-O20	1 1/4 - 11 1/2	1 5/8 - 12	3.76	2.45	5.51	4.23	2.00	2.25	2.75
9SS24PF24-O24	1 1/2 - 11 1/2	1 7/8 - 12	4.78	3.02	6.93	5.18	2.37	2.75	3.50





18S SERIES / 180° 3000 PSI / PARALLEL PLANE

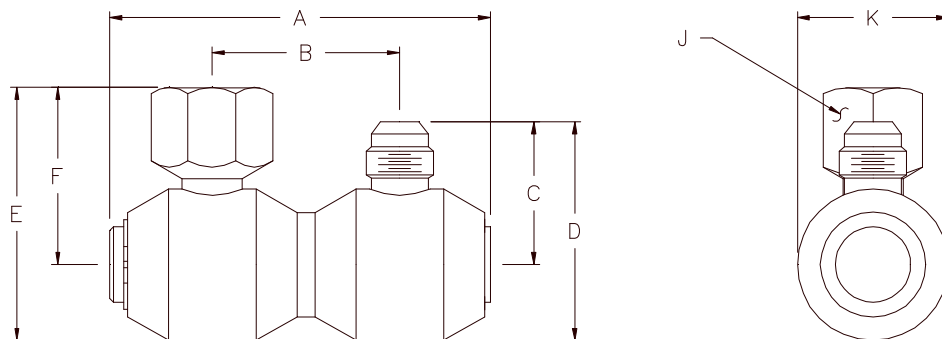


- 1 NON-LOAD BEARING RETAINING RING
- 2 SYNTHETIC RUBBER O-RING (TWO)
- 3 TEFLON BACK UP RING (TWO)
- 4 DUST SEAL (TWO)

HYDRAULICS, INC. Design Features

- Hardened carbon steel barrel - Large wear surface
- Barrel thread boss and stem annealed - Reduced breakage from shock and vibration
- Burnished barrel bore - Extended seal life
- Copper filled furnace braze joints
- Heavy duty retainer ring
- Protective treatment meeting SAE hose fitting standards
- Standard O-Ring and back up ring - Field replaceable seal kits - Page 26
- Optional seal material - Page 26
- Recessed and protected dust seals
- Pressure balanced for low rotational torque - See 90° torque chart - Page 27
- Low pressure drop - See 90° pressure drop chart - Page 27

FEMALE PIPE TO MALE JIC

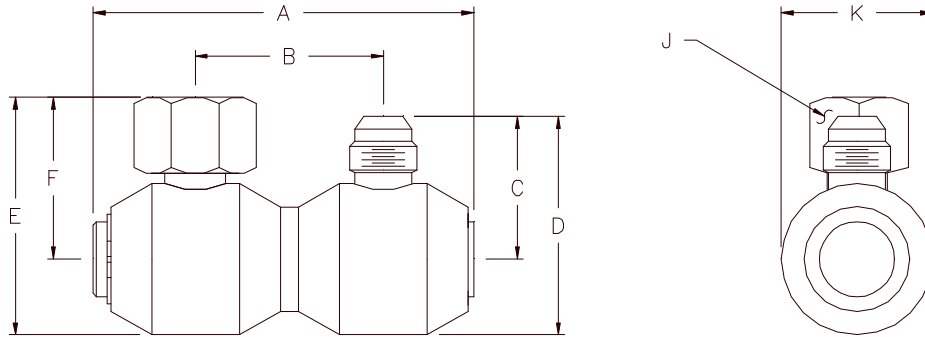


PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	E	F	J HEX.	K DIA.
18S6PF4-J5	1/4 - 18	1/2 - 20	3.15	1.50	1.17	1.80	2.00	1.37	.75	1.25
18S6PF4-J6	1/4 - 18	9/16 - 18	3.15	1.50	1.17	1.80	2.00	1.37	.75	1.25
18S6PF6-J5	3/8 - 18	1/2 - 20	3.15	1.50	1.17	1.80	2.00	1.37	.87	1.25
18S6PF6-J6	3/8 - 18	9/16 - 18	3.15	1.50	1.17	1.80	2.00	1.37	.87	1.25
18S6PF6-J8	3/8 - 18	3/4 - 16	3.15	1.50	1.28	1.91	2.00	1.37	.87	1.25
18S8PF8-J10	1/2 - 14	7/8 - 14	3.12	1.50	1.50	2.26	2.59	1.84	1.00	1.50
18S12PF12-J12	3/4 - 14	1 1/16 - 12	3.86	1.87	1.99	3.05	3.30	2.24	1.37	2.12
18S16PF16-J16	1 - 11 1/2	1 5/16 - 12	4.68	2.25	2.18	3.36	3.64	2.46	1.62	2.37
18S20PF20-J20	1 1/4 - 11 1/2	1 5/8 - 12	5.29	2.50	2.33	3.70	3.98	2.61	2.00	2.75
18S24PF24-J24	1 1/2 - 11 1/2	1 7/8 - 12	7.17	3.37	2.90	4.67	5.20	3.45	2.37	3.50
18S32PF32-J32	2 - 11 1/2	2 1/2 - 12	8.29	3.87	3.54	5.67	6.06	3.94	2.87	4.25



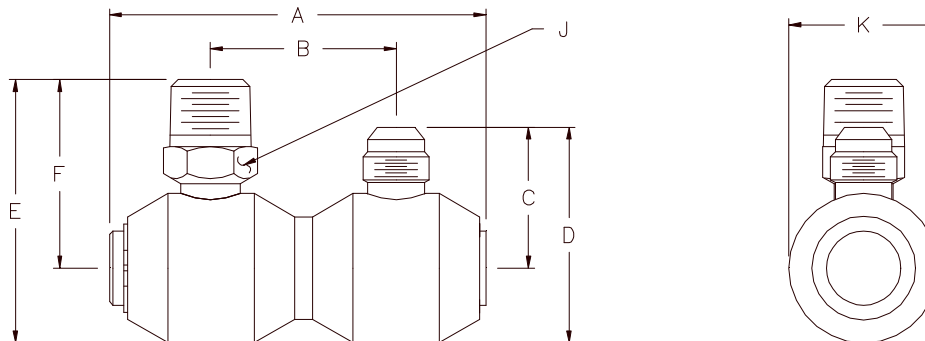
18S SERIES / 180° 3000 PSI / PARALLEL PLANE

FEMALE PIPE UNION TO MALE JIC



PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	E	F	J HEX.	K DIA.
18S6PU4-J5	1/4 - 18	1/2 - 20	3.15	1.50	1.17	1.80	1.89	1.27	.75	1.25
18S6PU4-J6	1/4 - 18	9/16 - 18	3.15	1.50	1.17	1.80	1.89	1.27	.75	1.25
18S6PU6-J5	3/8 - 18	1/2 - 20	3.15	1.50	1.17	1.80	1.94	1.31	.87	1.25
18S6PU6-J6	3/8 - 18	9/16 - 18	3.15	1.50	1.17	1.80	1.94	1.31	.87	1.25
18S6PU6-J8	3/8 - 18	3/4 - 16	3.15	1.50	1.28	1.91	1.94	1.31	.87	1.25
18S8PU8-J10	1/2 - 14	7/8 - 14	3.12	1.50	1.50	2.26	2.26	1.51	1.00	1.50
18S12PU12-J12	3/4 - 14	1 1/16 - 12	3.86	1.87	1.99	3.05	3.09	2.03	1.25	2.12
18S16PU16-J16	1 - 11 1/2	1 5/16 - 12	4.68	2.25	2.18	3.36	3.31	2.12	1.50	2.37
18S20PU20-J20	1 1/4 - 11 1/2	1 5/8 - 12	5.29	2.50	2.33	3.70	3.89	2.52	1.87	2.75
18S24PU24-J24	1 1/2 - 11 1/2	1 7/8 - 12	7.17	3.37	2.90	4.65	4.73	2.98	2.25	3.50
18S32PU32-J32	2 - 11 1/2	2 1/2 - 12	8.29	3.87	3.54	5.67	5.65	3.52	2.75	4.25

MALE PIPE TO MALE JIC

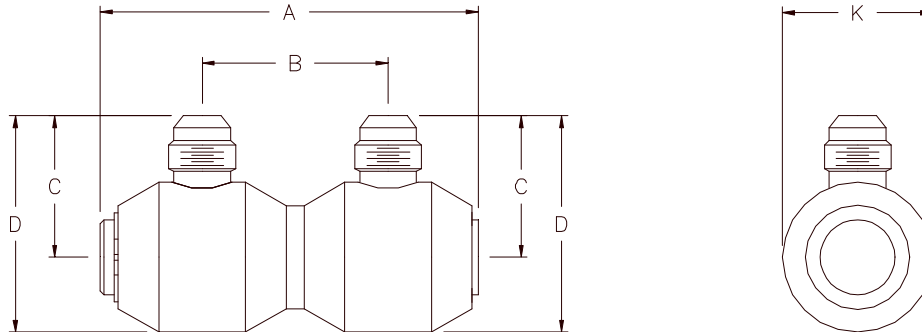


PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	E	F	J HEX.	K DIA.
18S6P4-J5	1/4 - 18	1/2 - 20	3.15	1.50	1.17	1.80	2.12	1.50	.56	1.25
18S6P4-J6	1/4 - 18	9/16 - 18	3.15	1.50	1.17	1.80	2.12	1.50	.56	1.25
18S6P6-J8	3/8 - 18	3/4 - 16	3.15	1.50	1.28	1.91	2.12	1.50	.68	1.25
18S8P8-J10	1/2 - 14	7/8 - 14	3.12	1.50	1.50	2.26	2.65	1.90	.87	1.50
18S12P12-J12	3/4 - 14	1 1/16 - 12	3.86	1.87	1.99	3.05	3.32	2.26	1.12	2.12
18S16P16-J16	1 - 11 1/2	1 5/16 - 12	4.68	2.25	2.18	3.36	3.81	2.62	1.37	2.37
18S20P20-J20	1 1/4 - 11 1/2	1 5/8 - 12	5.29	2.50	2.33	3.70	4.31	2.93	1.75	2.75
18S24P24-J24	1 1/2 - 11 1/2	1 7/8 - 12	7.17	3.37	2.90	4.65	5.45	3.70	2.37	3.50
18S32P32-J32	2 - 11 1/2	2 1/2 - 12	8.29	3.87	3.54	5.67	6.55	4.42	2.87	4.25



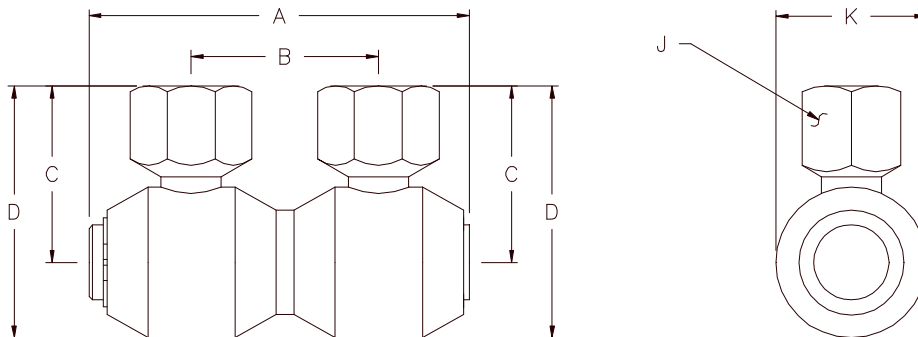
18S SERIES / 180° 3000 PSI / PARALLEL PLANE

MALE JIC TO MALE JIC



PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	K DIA.
18S6J5-J5	1/2 - 20	1/2 - 20	3.15	1.50	1.17	1.80	1.25
18S6J6-J6	9/16 - 18	9/16 - 18	3.15	1.50	1.17	1.80	1.25
18S6J8-J8	3/4 - 16	3/4 - 16	3.15	1.50	1.28	1.91	1.25
18S8J8-J10	3/4 - 16	7/8 - 14	3.12	1.50	1.44	2.20	1.50
18S8J10-J10	7/8 - 14	7/8 - 14	3.12	1.50	1.50	2.26	1.50
18S12J12-J12	1 1/16 - 12	1 1/16 - 12	3.86	1.87	1.99	3.05	2.12
18S16J16-J16	1 5/16 - 12	1 5/16 - 12	4.68	2.25	2.18	3.36	2.37
18S20J20-J20	1 5/8 - 12	1 5/8 - 12	5.29	2.50	2.33	3.70	2.75
18S24J24-J24	1 7/8 - 12	1 7/8 - 12	7.17	3.37	2.90	4.65	3.50
18S32J32-J32	2 1/2 - 12	2 1/2 - 12	8.29	3.87	3.54	5.67	4.25

FEMALE PIPE TO FEMALE PIPE

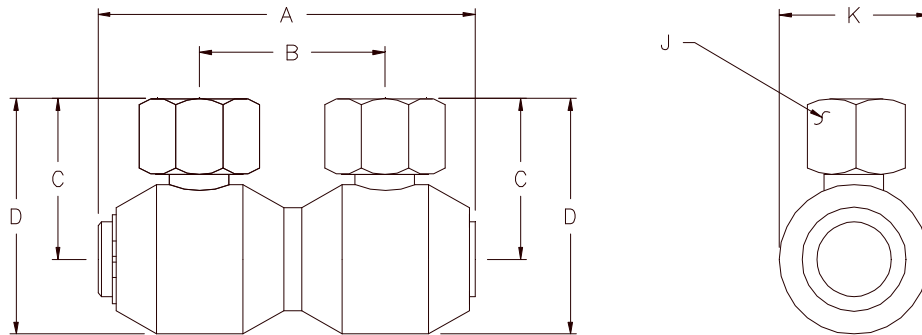


PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	J HEX.	K DIA.
18S6PF4-PF4	1/4 - 18	1/4 - 18	3.15	1.50	1.37	2.00	.75	1.25
18S6PF6-PF6	3/8 - 18	3/8 - 18	3.15	1.50	1.37	2.00	.87	1.25
18S8PF8-PF8	1/2 - 14	1/2 - 14	3.12	1.50	1.84	2.59	1.00	1.50
18S12PF12-PF12	3/4 - 14	3/4 - 14	3.86	1.87	2.24	3.30	1.37	2.12
18S16PF16-PF16	1 - 11 1/2	1 - 11 1/2	4.68	2.25	2.46	3.64	1.62	2.37
18S20PF20-PF20	1 1/4 - 11 1/2	1 1/4 - 11 1/2	5.29	2.50	2.61	3.98	2.00	2.75
18S24PF24-PF24	1 1/2 - 11 1/2	1 1/2 - 11 1/2	7.17	3.37	3.45	5.20	2.37	3.50
18S32PF32-PF32	2 - 11 1/2	2 - 11 1/2	8.29	3.87	3.94	6.06	2.87	4.25



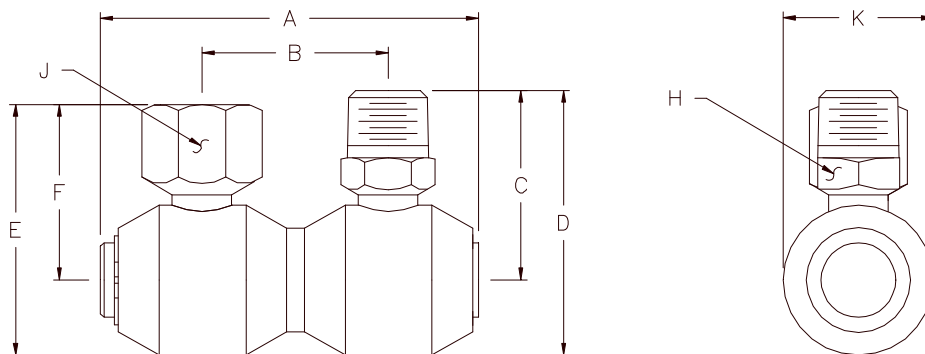
18S SERIES / 180° 3000 PSI / PARALLEL PLANE

FEMALE PIPE UNION TO FEMALE PIPE UNION



PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	J HEX.	K DIA.
18S6PU4-PU4	1/4 - 18	1/4 - 18	3.15	1.50	1.27	1.89	.75	1.25
18S6PU6-PU6	3/8 - 18	3/8 - 18	3.15	1.50	1.31	1.94	.87	1.25
18S8PU8-PU8	1/2 - 14	1/2 - 14	3.12	1.50	1.51	2.26	1.00	1.50
18S12PU12-PU12	3/4 - 14	3/4 - 14	3.86	1.87	2.03	3.09	1.25	2.12
18S16PU16-PU16	1 - 11 1/2	1 - 11 1/2	4.68	2.25	2.12	3.31	1.50	2.37
18S20PU20-PU20	1 1/4 - 11 1/2	1 1/4 - 11 1/2	5.29	2.50	2.52	3.89	1.87	2.75
18S24PU24-PU24	1 1/2 - 11 1/2	1 1/2 - 11 1/2	7.17	3.37	2.98	4.73	2.25	3.50
18S32PU32-PU32	2 - 11 1/2	2 - 11 1/2	8.29	3.87	3.52	5.65	2.75	4.25

FEMALE PIPE TO MALE PIPE

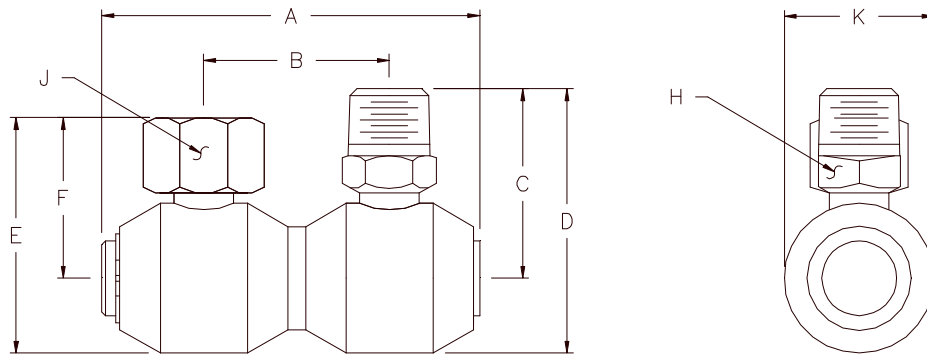


PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	E	F	H HEX.	J HEX.	K DIA.
18S6PF4-P4	1/4 - 18	1/4 - 18	3.15	1.50	1.50	2.12	2.00	1.37	.56	.75	1.25
18S6PF6-P4	3/8 - 18	1/4 - 18	3.15	1.50	1.50	2.12	2.00	1.37	.56	.87	1.25
18S6PF6-P6	3/8 - 18	3/8 - 18	3.15	1.50	1.50	2.12	2.00	1.37	.68	.87	1.25
18S8PF8-P8	1/2 - 14	1/2 - 14	3.12	1.50	1.90	2.65	2.59	1.84	.87	1.00	1.50
18S12PF12-P12	3/4 - 14	3/4 - 14	3.86	1.87	2.26	3.32	3.30	2.24	1.12	1.37	2.12
18S16PF16-P16	1 - 11 1/2	1 - 11 1/2	4.68	2.25	2.62	3.81	3.64	2.46	1.37	1.62	2.37
18S20PF20-P20	1 1/4 - 11 1/2	1 1/4 - 11 1/2	5.29	2.50	2.93	4.31	3.98	2.61	1.75	2.00	2.75
18S24PF24-P24	1 1/2 - 11 1/2	1 1/2 - 11 1/2	7.17	3.37	3.70	5.45	5.20	3.45	2.37	2.37	3.50
18S32PF32-P32	2 - 11 1/2	2 - 11 1/2	8.29	3.87	4.18	6.55	6.06	3.94	2.87	2.87	4.25



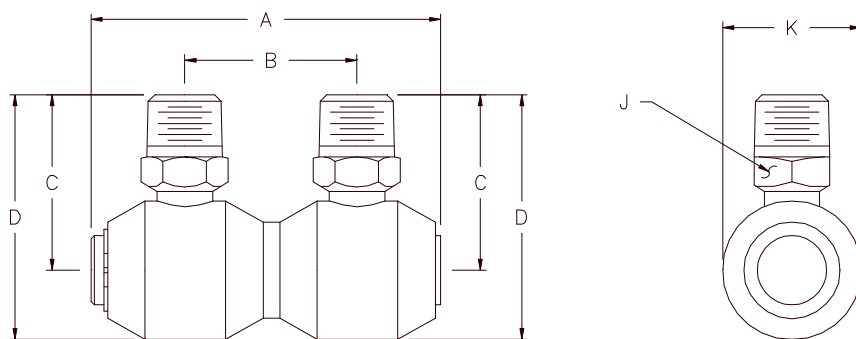
18S SERIES / 180° 3000 PSI / PARALLEL PLANE

FEMALE PIPE UNION TO MALE PIPE



PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	E	F	H HEX.	J HEX.	K DIA.
18S6PU4-P4	1/4 - 18	1/4 - 18	3.15	1.50	1.50	2.12	1.89	1.27	.56	.75	1.25
18S6PU4-P6	1/4 - 18	3/8 - 18	3.15	1.50	1.50	2.12	1.89	1.27	.68	.75	1.25
18S6PU6-P4	3/8 - 18	1/4 - 18	3.15	1.50	1.50	2.12	1.94	1.31	.56	.87	1.25
18S6PU6-P6	3/8 - 18	3/8 - 18	3.15	1.50	1.50	2.12	1.94	1.31	.68	.87	1.25
18S8PU8-P8	1/2 - 14	1/2 - 14	3.12	1.50	1.90	2.65	2.26	1.51	.87	1.00	1.50
18S12PU12-P12	3/4 - 14	3/4 - 14	3.86	1.87	2.26	3.32	3.09	2.03	1.12	1.25	2.12
18S16PU16-P16	1 - 11 1/2	1 - 11 1/2	4.68	2.25	2.62	3.81	3.31	2.12	1.37	1.50	2.37
18S20PU20-P20	1 1/4 - 11 1/2	1 1/4 - 11 1/2	5.29	2.50	2.93	4.31	3.89	2.52	1.75	1.87	2.75
18S24PU24-P24	1 1/2 - 11 1/2	1 1/2 - 11 1/2	7.17	3.37	3.70	5.45	4.73	2.98	2.37	2.25	3.50
18S32PU32-P32	2 - 11 1/2	2 - 11 1/2	8.29	3.87	4.42	6.55	5.65	3.52	2.87	2.75	4.25

MALE PIPE TO MALE PIPE



PART NO.	BARREL THREAD	STEM THREAD	A	B	C	D	J HEX.	K DIA.
18S6P4-P4	1/4 - 18	1/4 - 18	3.15	1.50	1.50	2.12	.56	1.25
18S6P6-P6	3/8 - 18	3/8 - 18	3.15	1.50	1.50	2.12	.68	1.25
18S8P8-P8	1/2 - 14	1/2 - 14	3.12	1.50	1.90	2.65	.87	1.50
18S12P12-P12	3/4 - 14	3/4 - 14	3.86	1.87	2.26	3.32	1.12	2.12
18S16P16-P16	1 - 11 1/2	1 - 11 1/2	4.68	2.25	2.62	3.81	1.37	2.37
18S20P20-P20	1 1/4 - 11 1/2	1 1/4 - 11 1/2	5.29	2.50	2.93	4.31	1.75	2.75
18S24P24-P24	1 1/2 - 11 1/2	1 1/2 - 11 1/2	7.17	3.37	3.70	5.45	2.37	3.50
18S32P32-P32	2 - 11 1/2	2 - 11 1/2	8.29	3.87	4.42	6.55	2.87	4.25



SEAL KITS AND GREASE FITTINGS

KITS AS LISTED CONTAIN DUST AND FLUID SEALS WITH RETAINING RINGS, BALLS, AND PLUGS AS APPLICABLE.

S-SERIES

BODY SIZE	S6	S8	S14	S16	S20	S24	S32
KIT NO.	S6-1	S8-1	S14-1	S16-1	S20-1	S24-1	S32-1

9S-SERIES

BODY SIZE	9S6	9S8	9S12	9S16	9S20	9S24	9S32
KIT NO.	9S6-1	9S8-1	9S12-1	9S16-1	9S20-1	9S24-1	9S32-1

9SS-SERIES

BODY SIZE	9SS6	9SS8	9SS12	9SS16	9SS20	9SS24	9SS32
KIT NO.	9SS6-1	9SS8-1	9SS12-1	9SS16-1	9SS20-1	9SS24-1	9SS32-1

18S-SERIES

BODY SIZE	18S6	18S8	18S12	18S16	18S20	18S24	18S32
KIT NO.	9S6-1	9S8-1	9S12-1	9S16-1	9S20-1	9S24-1	9S32-1

NOTE: SPECIAL SEALS

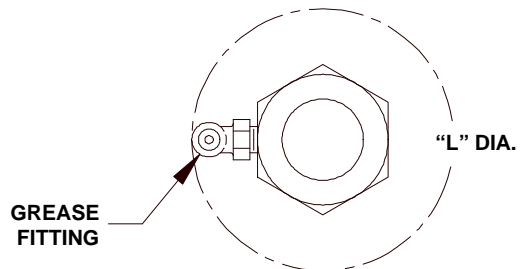
To obtain kits with seal compounds other than standard buna-n, suffix the replacement seal kit part number with the applicable seal material code number.
 Example: S6-1 kit would become S6-1-9 for a neoprene seal. See chart on Page 2.

GREASE FITTINGS FOR "S" & "9SS" SERIES

To specify grease fittings prefix part number with letter "G" as in example:

GS6J8-PF6 or
 G9SS16J16-P16

Allow additional diametrial barrel clearance as shown in chart.



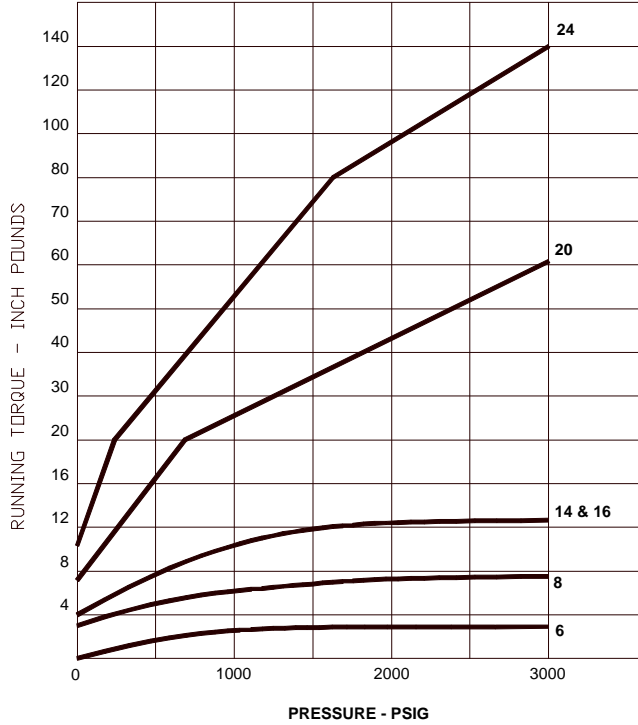
BODY SIZE	6	8	12	14	16	20	24	32
"L" DIA.	2.21	2.46	2.46	2.59	2.96	3.46	3.96	4.71

"Because of technological progress and product improvements, all design and dimensional data shown in this catalog is subject to change without notice. Technical information has been prepared from actual test results under controlled environmental conditions and is considered to be reliable, but no responsibility can be assumed for its accuracy under varied field conditions."

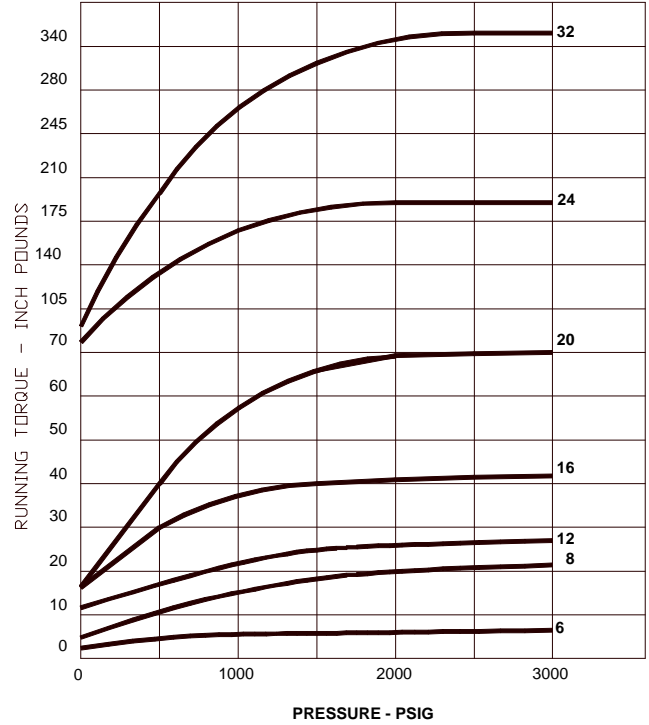


ROTATIONAL TORQUE AND PRESSURE DROP CHART

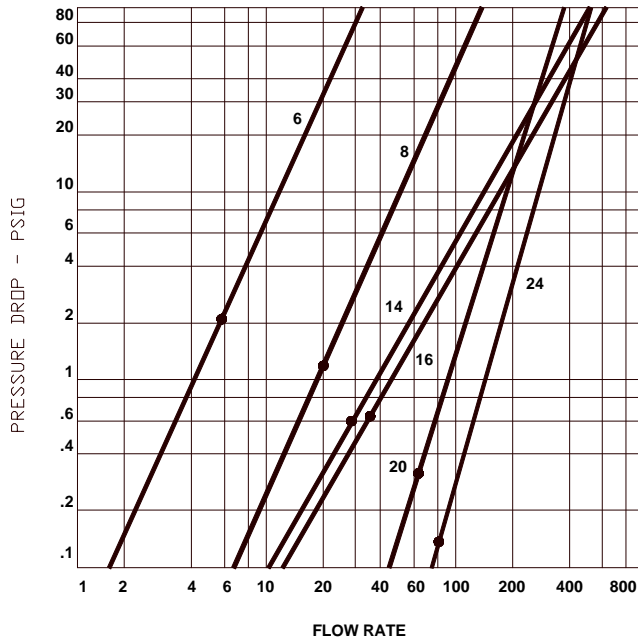
ROTATIONAL TORQUE vs PRESSURE - IN-LINE



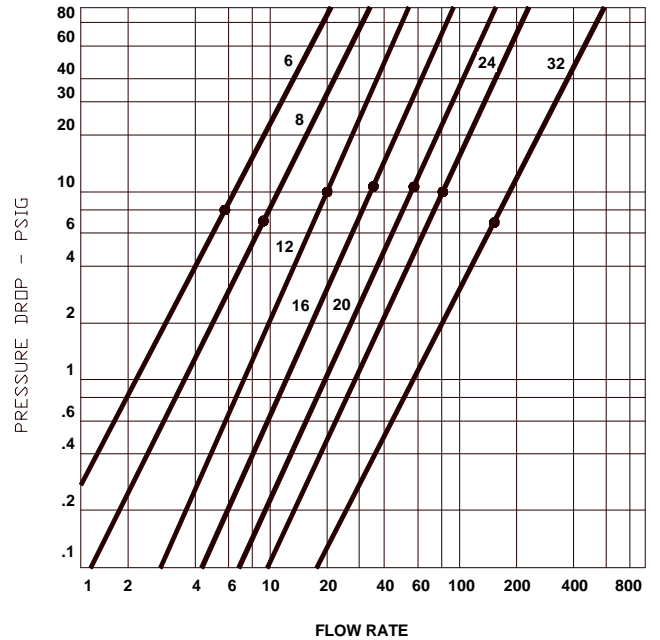
ROTATIONAL TORQUE vs PRESSURE - 90°



PRESSURE DROP vs FLOW (GPM) - IN-LINE



PRESSURE DROP vs FLOW (GPM) - 90°



- Pressure Drop Thru Swivel Based on Flows Giving 15 FPS Fluid Velocity Thru Nominal Bore Size

- Pressure Drop Thru Swivel Based on Flows Giving 15 FPS Fluid Velocity Thru Nominal Bore Size



HC-104A



HC-102



HC-103



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 VELS, COUPLINGS, AND CONTROLS FOR
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 REPRESENTATIVE.**

