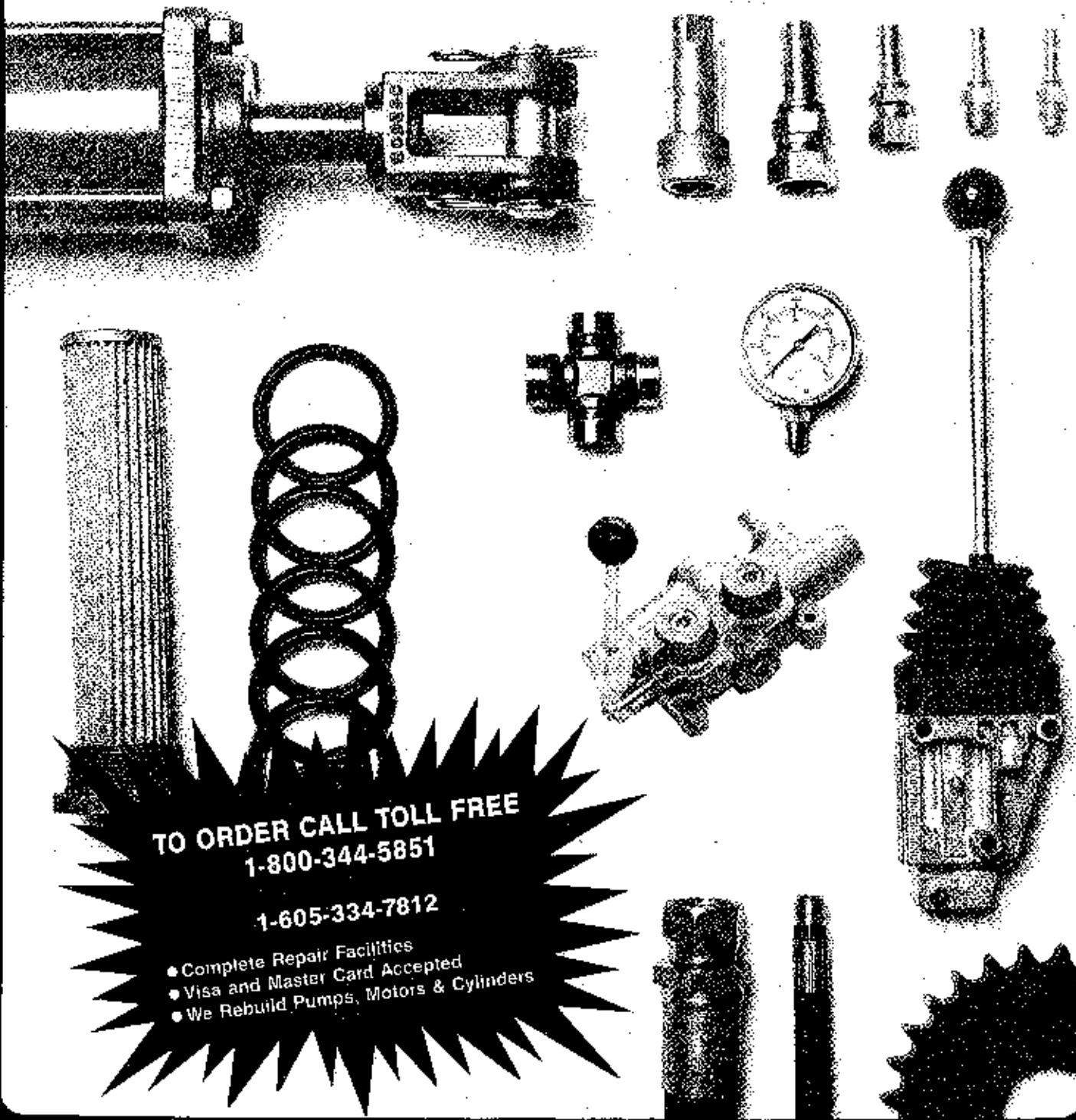


# HYDRAULIC WORLD, INC.



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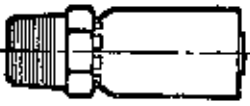
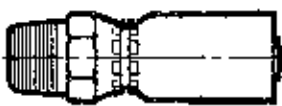

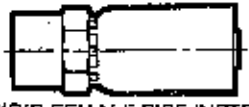
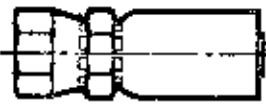
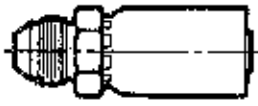


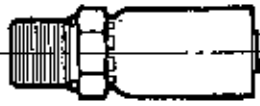
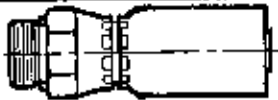
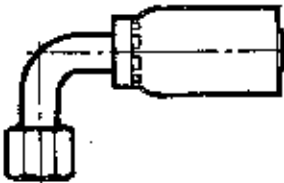
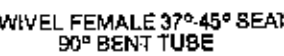

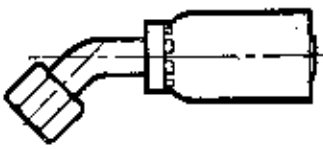
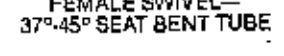
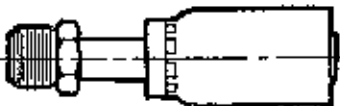

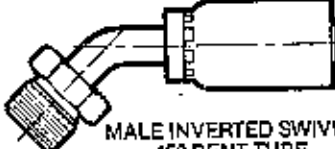

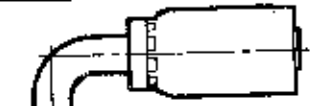


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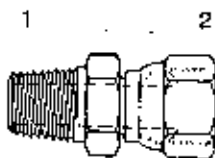
**Hose Fittings — Crimp Style — No Skive — Medium Pressure —  
For Thin Cover Hoses 100R1T, 100R2AT, 100R3, 100R4**

	Hose Size x Thread	Imperial Eastman No.	Weatherhead Coll-O-Crimp Number	House of Hose Number	Wgt. Lbs.	
 RIGID MALE PIPE—NPTF	<b>MALE PIPE SOLID</b>					
	$\frac{1}{4}$ x $\frac{1}{4}$ NPT	HU04-04MB	04U-104	403V	.13	
	$\frac{1}{2}$ x $\frac{3}{8}$ NPT	HU04-06MB	04U-106	418V	.19	
	$\frac{3}{4}$ x $\frac{1}{2}$ NPT	HU06-04MB	06U-104	600V	.22	
	$\frac{1}{2}$ x $\frac{1}{2}$ NPT	HU06-06MB	06U-106	603V	.31	
	$\frac{3}{4}$ x $\frac{1}{2}$ NPT	HU06-08MB	06U-108	615V	.37	
	$\frac{1}{2}$ x $\frac{1}{2}$ NPT	HU08-06MB	08U-106	800V	.43	
	$\frac{3}{4}$ x $\frac{1}{2}$ NPT	HU08-08MB	08U-108	803V	.44	
	$\frac{1}{2}$ x $\frac{3}{8}$ NPT	HU08-12MB	08U-112	815V	.46	
	$\frac{3}{4}$ x $\frac{1}{2}$ NPT	HU12-12MB	12U-112	1203V	.66	
	1 x 1 NPT	HU16-16MB	16U-116	1600V	.96	
	1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ NPT	HU20-20MB	20U-120		1.06	
 MALE SWIVEL NPTF	<b>MALE PIPE SWIVEL</b>					
	$\frac{1}{4}$ x $\frac{1}{4}$ NPT	HU04-04MC	04U-J04	406V	.18	
	$\frac{1}{2}$ x $\frac{1}{4}$ NPT	HU06-04MC	06U-J04		.25	
	$\frac{3}{4}$ x $\frac{1}{4}$ NPT	HU06-06MC	06U-J06	609V	.32	
	$\frac{1}{2}$ x $\frac{1}{2}$ NPT	HU06-08MC	06U-J08	651V	.42	
	$\frac{3}{4}$ x $\frac{1}{2}$ NPT	HU08-08MC	08U-J08	809V	.50	
	$\frac{1}{2}$ x $\frac{1}{2}$ NPT	HU12-12MC	12U-J12	1209V	.58	
	1 x 1 NPT	HU16-16MC	16U-J16	1609V	.68	
 FEMALE SWIVEL PIPE (NPSM)	<b>FEMALE PIPE SWIVEL</b>					
	$\frac{1}{4}$ x $\frac{1}{4}$ NPSM		04U-054	409V	.10	
	$\frac{1}{2}$ x $\frac{3}{8}$ NPSM		06U-056	606V	.12	
	$\frac{3}{4}$ x $\frac{1}{2}$ NPSM		08U-058	806V	.15	
	$\frac{1}{2}$ x $\frac{1}{2}$ NPSM		12U-062	1206V	.31	
	1 x 1 NPSM		16U-066	1606V	.62	
 RIGID FEMALE PIPE (NPTF)	<b>FEMALE PIPE SOLID</b>					
	$\frac{1}{4}$ x $\frac{1}{4}$ NPT	HU04-04NB	04U-204	412V	.11	
	$\frac{1}{2}$ x $\frac{3}{8}$ NPT	HU06-06NB	06U-206	612V	.18	
	$\frac{3}{4}$ x $\frac{1}{2}$ NPT	HU08-08NB	08U-208	812V	.27	
	$\frac{1}{2}$ x $\frac{1}{2}$ NPT	HU12-12NB	12U-212		.57	
 FEMALE SWIVEL	<b>JIC 37° and SAE 45° DUAL SEAT FEMALE SWIVEL</b>					
	$\frac{1}{4}$ x $\frac{3}{16}$ - 20	HU04-04NJ	04U-604	424V	.08	
	$\frac{1}{4}$ x $\frac{1}{8}$ - 20	HU04-05NJ	04U-605	427V	.09	
	$\frac{3}{8}$ x $\frac{1}{8}$ - 16	HU06-06NJ	06U-606	630V	.14	
	$\frac{1}{2}$ x $\frac{1}{8}$ - 16	HU08-08NJ	08U-608	824V	.21	
	$\frac{3}{8}$ x $\frac{1}{4}$ - 14	HU08-10NJ	08U-610	827V	.24	
	<b>JIC 37° FEMALE SWIVEL</b>					
	$\frac{1}{4}$ x $\frac{3}{16}$ - 18	HU04-06NJ	04U-606	433V	.10	
	$\frac{3}{8}$ x $\frac{3}{16}$ - 18	HU06-06NJ	06U-606	627V	.16	
	$\frac{1}{2}$ x $\frac{1}{16}$ - 12	HU08-12NJ	08U-612	845V	.31	
	$\frac{3}{8}$ x $\frac{1}{8}$ - 12	HU12-12NJ	12U-612	1221V	.38	
	1 x $\frac{1}{16}$ - 12	HU16-16NJ	16U-616	1618V	.69	
	1 $\frac{1}{2}$ x $\frac{1}{8}$ - 12	HU20-20NJ	20U-620		.75	
<b>SAE 45° FEMALE SWIVEL</b>						
$\frac{3}{8}$ x $\frac{3}{16}$ - 18	HU06-06NS	06U-406	633V	.16		
$\frac{1}{2}$ x $\frac{1}{16}$ - 14	HU12-12NS	12U-412		.48		
 RIGID MALE—J.I.C.	<b>JIC 37° RIGID MALE</b>					
	$\frac{1}{4}$ x $\frac{3}{16}$ - 20	HU04-04MJ	04U-504	418V	.08	
	$\frac{1}{4}$ x $\frac{1}{8}$ - 18	HU04-06MJ	04U-506	421V	.17	
	$\frac{3}{8}$ x $\frac{1}{8}$ - 18	HU06-06MJ	06U-506	618V	.22	
	$\frac{1}{2}$ x $\frac{1}{8}$ - 16	HU06-08MJ	06U-508	621V	.23	
	$\frac{3}{8}$ x $\frac{1}{4}$ - 16	HU08-08MJ	08U-508	815V	.27	
	$\frac{1}{2}$ x $\frac{1}{4}$ - 14	HU08-10MJ	08U-510	818V	.29	
		$\frac{3}{8}$ x $\frac{1}{8}$ - 12	HU08-12MJ	08U-512	846V	.42
		$\frac{1}{2}$ x $\frac{1}{8}$ - 12	HU12-12MJ	12U-512	1215V	.63
		1 x $\frac{1}{16}$ - 12	HU16-16MJ	16U-516	1612V	.91
	1 $\frac{1}{2}$ x $\frac{1}{8}$ - 12	HU16-16MJ	20U-520		1.04	

	Hose Size x Thread	Imperial Eastman No.	Weatherhead Coil-O-Crimp Number	House of Hose Number	Wgt. Lbs.	Order No.
	<b>MALE O RING SOLID</b>					
	$\frac{1}{4} \times \frac{7}{16}$ - 20	HU04-04RA	04U-P04		.08	931600404
	$\frac{1}{4} \times \frac{1}{2}$ - 20	HU04-05RA	04U-P05		.14	931600405
	$\frac{1}{4} \times \frac{9}{16}$ - 18	HU04-06RA	04U-P06		.19	931600406
	$\frac{3}{8} \times \frac{1}{2}$ - 18	HU06-06RA	06U-P06		.25	931600506
	$\frac{3}{8} \times \frac{3}{4}$ - 16	HU06-08RA	06U-P08	639V	.30	931600608
	$\frac{1}{2} \times \frac{3}{4}$ - 16	HU06-08RA	06U-P08	830V	.42	931600808
	$\frac{1}{2} \times \frac{1}{2}$ - 14	HU08-10RA	08U-P10	833V	.48	931600810
	$\frac{3}{4} \times 1\frac{1}{8}$ - 12	HU08-12RA	08U-P12		.54	931600812
	$1 \times 1\frac{1}{8}$ - 12	HU12-12RA	12U-P12		.70	931601212
$1 \times 1\frac{1}{8}$ - 12	HU16-16RA	16U-P16		1.01	931601616	
	<b>MALE O RING SWIVEL</b>					
	$\frac{3}{8} \times \frac{7}{16}$ - 18	HU06-06RC	06U-R06		.23	931610606
	$\frac{3}{8} \times \frac{1}{2}$ - 16	HU06-08RC	06U-R08	645V	.24	931610606
	$\frac{1}{2} \times \frac{1}{2}$ - 16	HU08-08RC	08U-R08		.30	931610808
$\frac{1}{2} \times \frac{3}{4}$ - 14	HU06-10RC	08U-R10	839V	.43	931610810	
	<b>JIC 37° and SAE 45° FEMALE SWIVEL 90° BENT TUBE DUAL SEAT</b>					
	$\frac{1}{4} \times \frac{7}{16}$ - 20	HU04-04NJ90T	04U-664	4130V	.09	931280404
	$\frac{1}{4} \times \frac{1}{2}$ - 20	HU04-05NJ90T	04U-665	4157V	.12	931280405
	$\frac{3}{8} \times \frac{3}{4}$ - 16	HU06-06NJ90T	06U-666		.30	931280606
	$\frac{1}{2} \times \frac{3}{4}$ - 16	HU08-08NJ80T	08U-668	8133V	.32	931280808
	<b>JIC 37° FEMALE SWIVEL 90° BENT TUBE</b>					
	$\frac{3}{8} \times \frac{3}{8}$ - 18	HU06-08NJ90T	06U-666	6160V	.18	931380606
	$\frac{3}{8} \times 1\frac{1}{8}$ - 12	HU12-12NJ90T	12U-672		.64	931381212
	$1 \times 1\frac{1}{8}$ - 12	HU16-16NJ90T	16U-676		1.07	931381616
	<b>SAE 45° FEMALE SWIVEL 90° BENT TUBE</b>					
	$\frac{3}{8} \times \frac{3}{8}$ - 18	HU06-06NS90T	06U-448	6151V	.22	931480606
	<b>JIC 37° FEMALE SWIVEL 45° BENT TUBE</b>					
	$\frac{1}{4} \times \frac{7}{16}$ - 20	HU04-04NJ45T	04U-684	4127V	.09	931270404
	$\frac{1}{4} \times \frac{1}{2}$ - 20	HU04-05NJ45T	04U-685	4154V	.16	931270405
	$\frac{3}{8} \times \frac{3}{8}$ - 18	HU06-06NJ45T	06U-686	6157V	.18	931370606
	$\frac{3}{8} \times \frac{1}{2}$ - 16	HU06-08NJ45T	06U-688		.27	931270608
	$\frac{1}{2} \times \frac{1}{2}$ - 16	HU08-08NJ45T	08U-688	8130V	.30	931270808
	$\frac{1}{2} \times \frac{3}{4}$ - 14	HU08-10NJ45T	08U-690	8157V	.31	931270810
	$\frac{3}{8} \times 1\frac{1}{8}$ - 12	HU12-12NJ45T	12U-692		.42	931371212
	$1 \times 1\frac{1}{8}$ - 12	HU16-16NJ45T	16U-696		.93	931371616
	<b>SWIVEL MALE INVERTED FLARE</b>					
	$\frac{1}{4} \times \frac{7}{16}$ - 24	HU04-04MF	04U-B04	4106V	.09	931510404
	$\frac{1}{4} \times \frac{1}{2}$ - 20	HU04-05MF	04U-B05	4133V	.11	931510405
	$\frac{3}{8} \times \frac{1}{2}$ - 20	HU06-05MF	06U-B05	6109V	.14	931510605
	$\frac{3}{8} \times \frac{3}{4}$ - 18	HU06-06MF	06U-B06	6136V	.16	931510606
	$\frac{1}{2} \times \frac{3}{4}$ - 18	HU08-08MF	08U-B08	8109V	.27	931510808
	<b>MALE INVERTED SWIVEL</b>					
	$\frac{1}{4} \times \frac{7}{16}$ - 24	HU04-04MF	04U-B04	4106V	.09	931510404
	$\frac{1}{4} \times \frac{1}{2}$ - 20	HU04-05MF	04U-B05	4133V	.11	931510405
	$\frac{3}{8} \times \frac{1}{2}$ - 20	HU06-05MF	06U-B05	6109V	.14	931510605
	$\frac{3}{8} \times \frac{3}{4}$ - 18	HU06-06MF	06U-B06	6136V	.16	931510606
	<b>SWIVEL MALE INVERTED FLARE 45° BENT TUBE</b>					
	$\frac{1}{4} \times \frac{7}{16}$ - 24	HA04-04MF45T	04U-B44	4109V	.09	931520404
	$\frac{1}{4} \times \frac{1}{2}$ - 20	HA04-05MF45T	04U-B45	4136V	.12	931520405
	$\frac{3}{8} \times \frac{1}{2}$ - 20	HA06-05MF45T	06U-B45	6112V	.18	931520605
	$\frac{3}{8} \times \frac{3}{4}$ - 18	HA06-06MF45T	06U-B46	6139V	.24	931520606
	$\frac{1}{2} \times \frac{3}{4}$ - 18	HA08-08MF45T	08U-B48	8112V	.29	931520808
	<b>SWIVEL MALE INVERTED FLARE 90° BENT TUBE</b>					
	$\frac{1}{4} \times \frac{7}{16}$ - 24	HA04-04MF90T	04U-B64	4112V	.09	931530404
	$\frac{1}{4} \times \frac{1}{2}$ - 20	HA04-05MF90T	04U-B65	4139V	.10	931530405
	$\frac{3}{8} \times \frac{1}{2}$ - 20	HA06-05MF90T	06U-B65	6115V	.19	931530605
	$\frac{3}{8} \times \frac{3}{4}$ - 18	HA06-06MF90T	06U-B66	6142V	.20	931530606
	$\frac{1}{2} \times \frac{3}{4}$ - 18	HA08-08MF90T	08U-B68	8115V	.31	931530808
	<b>FLARELESS TUBE (ERMETO) WITH NUT AND SLEEVE</b>					
	$\frac{3}{8} \times \frac{3}{8}$ - 18	HU06-08MN	06U-756		.21	931810806
	$\frac{1}{2} \times \frac{3}{8}$ - 16	HU08-08MN	08U-758		.34	931810808
$\frac{1}{2} \times \frac{1}{2}$ - 14	HU08-10MN	08U-760		.48	931810810	
<b>FLARELESS TUBE WITH NUT AND SLEEVE</b>						

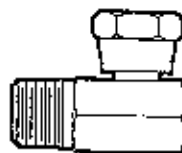
# STEEL PIPE ADAPTERS

**1404**  
Male Pipe  
Swivel Adapter



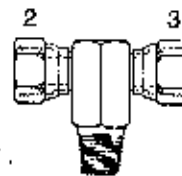
Dash Size	Male Pipe 1	Female NPSM 2
2-2	3/8	3/8
2-4	1/2	1/4
4-2	1/4	3/8
4-4	1/4	1/4
4-6	1/4	3/8
6-4	3/8	1/4
6-6	3/8	3/8
6-8	3/8	1/2
8-6	1/2	3/8
8-8	1/2	1/2
8-12	1/2	3/4
12-6	3/4	3/8
12-8	3/4	1/2
12-12	3/4	3/4
12-16	3/4	1
16-8	1	1/2
16-12	1	3/4
16-16	1	1
16-20	1	1 1/4
20-16	1 1/4	1
20-20	1 1/4	1 1/4
24-24	1 1/2	1 1/2

**1501**  
Male Pipe  
Elbow Swivel  
Adapter



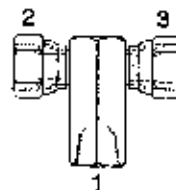
Dash Size	Male Pipe 1	Female NPSM 2
2-2	1/8	1/8
2-4	1/8	1/4
4-2	1/4	1/8
4-4	1/4	1/4
4-6	1/4	3/8
6-4	3/8	1/4
6-6	3/8	3/8
6-8	3/8	1/2
8-6	1/2	3/8
8-8	1/2	1/2
8-12	1/2	3/4
12-6	3/4	1/2
12-12	3/4	3/4
12-16	3/4	1
16-12	1	3/4
16-16	1	1
16-20	1	1 1/4
20-12	1 1/4	3/4
20-16	1 1/4	1
20-20	1 1/4	1 1/4
20-24	1 1/4	1 1/2
24-20	1 1/2	1 1/4
24-24	1 1/2	1 1/2

**1601**  
Male  
Swivel Tee



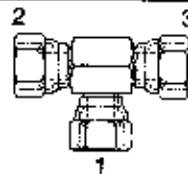
Dash Size	Male Pipe 1	Female NPSM 2 & 3
2-2	1/8	1/8
4-4	1/4	1/4
6-6	3/8	3/8
8-8	1/2	1/2
12-12	3/4	3/4
16-16	1	1

**1602**  
Female  
Swivel Tee



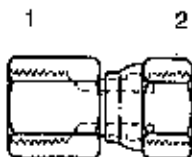
Dash Size	Female Pipe 1	Female NPSM 2 & 3
4-4	1/2	1/4
6-6	3/8	3/8
8-8	1/2	1/2
12-12	3/4	3/4
16-16	1	1

**1603**  
Female  
Swivel Union



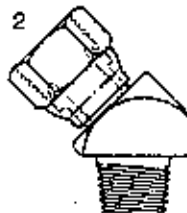
Dash Size	Female NPSM 1	Female NPSM 2 & 3
2-2	1/8	1/4
4-4	1/4	1/4
6-6	3/8	3/8
8-8	1/2	1/2
12-12	3/4	3/4
16-16	1	1

**1405**  
Female Pipe  
Swivel Adapter



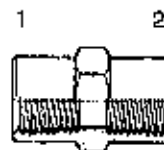
Dash Size	Female Pipe 1	Female NPSM 2
2-2	1/8	3/8
2-4	1/8	1/4
4-2	1/4	1/8
4-4	1/4	1/4
4-6	1/4	3/8
6-4	3/8	1/4
6-6	3/8	3/8
6-8	3/8	1/2
8-6	1/2	3/8
8-8	1/2	1/2
8-12	1/2	3/4
12-8	3/4	1/2
12-12	3/4	3/4
12-16	3/4	1
16-16	1	1
20-20	1 1/4	1 1/4

**1503**  
Male 45°  
Pipe Elbow  
Swivel Adapter



Dash Size	Male Pipe 1	Female NPSM 2
2-2	3/8	3/8
2-4	1/2	1/4
4-2	1/4	1/8
4-4	1/4	1/4
4-6	1/4	3/8
6-4	3/8	1/4
6-6	3/8	3/8
6-8	3/8	1/2
8-6	1/2	3/8
8-8	1/2	1/2
8-12	1/2	3/4
12-6	3/4	1/2
12-12	3/4	3/4
12-16	3/4	1
16-12	1	3/4
16-16	1	1

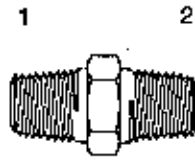
**5000**  
Pipe  
Coupling



Dash Size	Female Pipe 1	Female Pipe 2
2	1/8	1/8
4	1/4	1/4
6-6	3/8	3/8
8	1/2	1/2
12	3/4	3/4
16	1	1
20	1 1/4	1 1/4

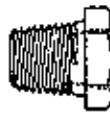
# STEEL PIPE FITTINGS

**5404**  
Hex Pipe  
Nipple



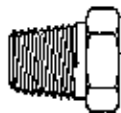
Dash Size	Male Pipe 1	Male Pipe 2
2	1/8	1/8
4-2	1/4	1/8
4	1/4	1/4
6-4	3/8	1/4
6	3/8	3/8
8-6	1/2	3/8
8	1/2	1/2
12-8	3/4	1/2
12	3/4	3/4
16	1	1
20	1 1/4	1 1/2

**5406**  
Hex Reducer  
Bushing



Dash Size	Male Pipe	Female Pipe
4-2	1/4	1/8
6-2	3/8	1/8
6-4	3/8	1/4
8-2	1/2	1/8
8-4	1/2	1/4
8-6	1/2	3/8
12-4	3/4	1/4
12-6	3/4	3/8
12-8	3/4	1/2
16-8	1	1/2
16-12	1	3/4
20-12	1 1/4	3/4
20-16	1 1/4	1
24-20	1 1/2	1 1/4

**5406-P**  
Hex Head  
Plug



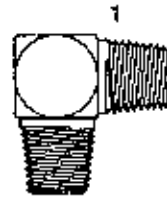
2	1/8
4	1/4
6	3/8
8	1/2
12	3/4
16	1
20	1 1/4
24	1 1/2

**5406-HHP**  
Hollow Hex  
Plug



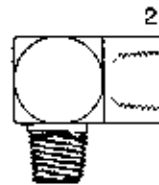
1	1/8
2	3/8
4	1/4
6	3/8
8	1/2
12	3/4
16	1
20	1 1/4

**5500**  
Male Elbow



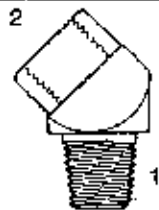
Dash Size	Male Pipe 1	Male Pipe 2
4	1/4	1/4
6	3/8	3/8
8	1/2	1/2
12	3/4	3/4

**5502**  
90° Street  
Elbow



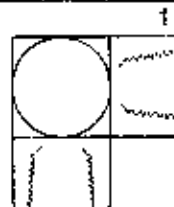
Dash Size	Male Pipe 1	Female Pipe 2
2	1/8	1/8
4	1/4	1/4
6	3/8	3/8
8-6	1/2	3/8
8-8	1/2	1/2
12	3/4	3/4
16	1	1

**5503**  
45° Street  
Elbow



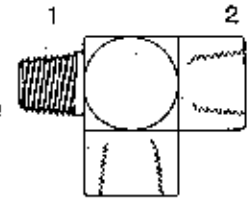
Dash Size	Male Pipe 1	Female Pipe 2
4	1/4	1/4
6	3/8	3/8
8	1/2	1/2
12	3/4	3/4
16	1	1

**5504**  
Female Elbow



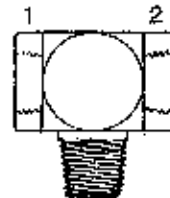
Dash Size	Female Pipe 1	Female Pipe 2
4	1/4	1/4
6	3/8	3/8
8	1/2	1/2
12	3/4	3/4
16	1	1

**5602**  
Street Tee



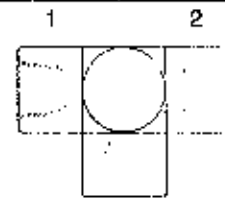
Dash Size	Male Pipe 1	Female Pipe 2 & 3
4	1/4	1/4
6	3/8	3/8
8	1/2	1/2
12	3/4	3/4
16	1	1

**5604**  
Male Branch  
Tee



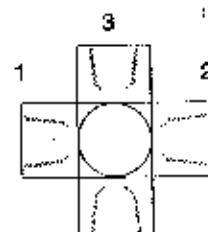
Dash Size	Female Pipe 1 & 2	Male Pipe 3
4	1/4	1/4
6	3/8	3/8
8	1/2	1/2
12	3/4	3/4

**5605**  
Female Pipe  
Tee



Dash Size	Female Pipe 1 & 2	Female Pipe 3
2	1/8	1/8
4	1/4	1/4
6	3/8	3/8
8	1/2	1/2
12	3/4	3/4
16	1	1

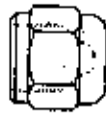
**5652**  
Female  
Cross



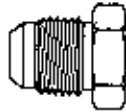
Dash Size	Female Pipe 1 & 2	Female Pipe 3 & 4
4	1/4	1/4
6	3/8	3/8
8	1/2	1/2
12	3/4	3/4

# STEEL 37° FLARE TUBE FITTINGS

**304-C**  
Cap Nut

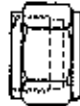


**2408**  
Plug



Dash Size	Tube O.D.	Thread Size
4	1/4	7/16-20
5	5/16	1/2-20
6	3/8	9/16-18
8	1/2	3/4-16
10	5/8	7/8-14
12	3/4	1 1/8-12
14	7/8	1 3/8-12
16	1	3/4-12
20	1 1/4	1 5/8-12

**318**  
Tube Nut



Dash Size	Tube O.D.	Thread Size
4	1/4	7/16-20
5	5/16	1/2-20
6	3/8	9/16-18
8	1/2	3/4-16
10	5/8	7/8-14
12	3/4	1 1/8-12
14	7/8	1 3/8-12
16	1	1 5/8-12

**319**  
Tube Sleeve



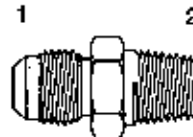
Dash Size	Tube O.D.	
4	1/4	
5	5/16	
6	3/8	
8	1/2	
10	5/8	
12	3/4	
14	7/8	
16	1	

**2403**  
Tube Union



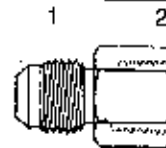
Dash Size	Thread Size 1	Thread Size 2
4	7/16-20	7/16-20
5	1/2-20	1/2-20
6	9/16-18	9/16-18
8	3/4-16	3/4-16
10	7/8-14	7/8-14
12	1 1/8-12	1 1/8-12
16	1 3/8-12	1 3/8-12
20	1 5/8-12	1 5/8-12

**2404**  
Male Connector



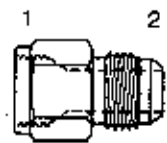
Dash Size	Thread Size 1	Pipe Thread 2
4-2	7/16-20	1/8
4-4	7/16-20	1/4
4-6	7/16-20	3/8
5-4	1/2-20	1/4
6-4	9/16-18	1/4
6-6	9/16-18	3/8
6-8	9/16-18	1/2
8-6	3/4-16	3/8
8-8	3/4-16	1/2
8-12	3/4-16	3/4
10-8	7/8-14	3/8
10-8	7/8-14	1/2
10-12	7/8-14	3/4
12-8	1 1/8-12	1/2
12-12	1 1/8-12	3/4
12-16	1 1/8-12	1
14-12	1 3/8-12	3/4
16-16	1 5/8-12	1
20-20	1 5/8-12	1 1/2
24-20	1 5/8-12	1 1/4
24-24	1 5/8-12	1 1/2

**2405**  
Female Connector



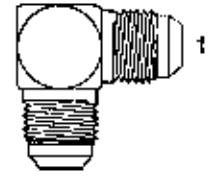
Dash Size	Thread Size 1	Pipe Thread 2
4-2	7/16-20	1/8
4-4	7/16-20	1/4
6-4	9/16-18	1/4
6-6	9/16-18	3/8
6-8	9/16-18	1/2
8-6	3/4-16	3/8
8-8	3/4-16	1/2
10-8	7/8-14	1/2
12-12	1 1/8-12	3/4

**2406**  
Tube Reducer



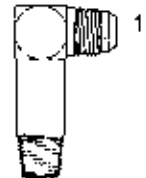
Dash Size	Female Tube O.D.	Male Tube O.D.
6-4	3/8	1/4
6-5	3/8	5/16
8-4	1/2	1/4
8-6	1/2	3/8
10-8	5/8	1/2
12-4	3/4	1/4
12-6	3/4	3/8
12-8	3/4	1/2
12-10	3/4	5/8
14-12	7/8	3/4
16-8	1	1/2
16-10	1	5/8
16-12	1	3/4
20-16	1 3/4	1

**2500**  
Union Elbow



Dash Size	Thread Size 1	Thread Size 2
4	7/16-20	7/16-20
5	1/2-20	1/2-20
6	9/16-18	9/16-18
8	3/4-16	3/4-16
10	7/8-14	7/8-14
12	1 1/8-12	1 1/8-12
16	1 5/8-12	1 5/8-12

**2501-LL**  
Extra Long Male Elbow

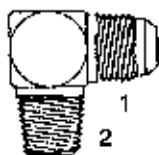


Dash Size	Thread Size 1	Pipe Size 2
6-4	9/16-18	1/4
6-6	9/16-18	3/8
8-6	3/4-16	3/8
8-8	3/4-16	1/2
10-8	7/8-14	1/2
12-12	1 1/8-12	3/4

**HYDRAULIC WORLD  
PROVIDES FAST,  
FRIENDLY SERVICE**

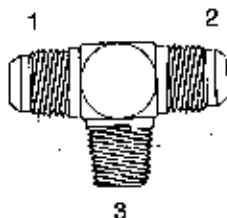
# STEEL TUBE FITTINGS

**2501**  
Male Elbows



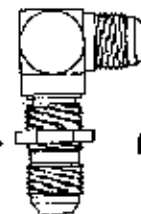
Dash Size	Thread Size 1	Pipe Thread 2
4-2	7/16-20	1/8
4-4	7/16-20	1/4
4-6	7/16-20	3/8
4-8	7/16-20	1/2
5-2	1/2-20	1/8
5-4	1/2-20	1/4
5-6	1/2-20	3/8
6-4	3/4-18	1/4
6-6	3/4-18	3/8
6-8	3/4-18	1/2
8-4	3/4-16	1/4
8-6	3/4-16	3/8
8-8	3/4-16	1/2
8-12	3/4-16	3/4
10-6	7/8-14	3/8
10-8	7/8-14	1/2
10-12	7/8-14	3/4
12-8	1 1/16-12	1/2
12-12	1 1/16-12	3/4
12-16	1 1/16-12	1
16-12	1 5/16-12	3/4
16-16	1 5/16-12	1
16-20	1 5/16-12	1 1/4
20-16	1 5/8-12	1
20-20	1 5/8-12	1 1/4
24-24	1 7/8-12	1 1/2

**2601**  
Male Branch Tee



Dash Size	Thread Size 1 & 2	Pipe Thread 3
4-2	7/16-20	1/8
4-4	7/16-20	1/4
6-4	3/4-18	1/4
6-6	3/4-18	3/8
8-6	3/4-16	3/8
8-8	3/4-16	1/2
10-8	7/8-14	3/8
12-12	1 1/16-12	3/4
16-16	1 5/16-12	1

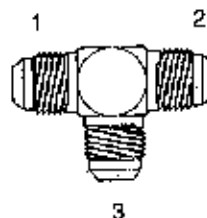
**2700**  
Bulkhead Union



**2701**  
Bulkhead Union Elbow

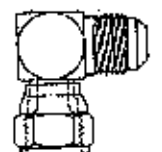
Dash Size	Thread Size	Bulkhead Thread
4	7/16-20	7/16-20
5	1/2-20	1/2-20
6	3/4-18	3/4-18
8	3/4-16	3/4-16
10	7/8-14	7/8-14
12	1 1/16-12	1 1/16-12
14	1 3/16-12	1 3/16-12
16	1 5/16-12	1 5/16-12

**2603**  
Union Tee



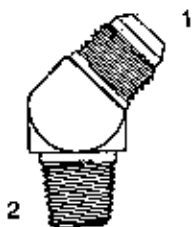
Dash Size	Thread Size 1 & 2	Thread Size 3
4	7/16-20	7/16-20
5	1/2-20	1/2-20
6	3/4-18	3/4-18
8	3/4-16	3/4-16
10	7/8-14	7/8-14
12	1 1/16-12	1 1/16-12
14	1 3/16-12	1 3/16-12
16	1 5/16-12	1 5/16-12
20	1 7/8-12	1 7/8-12

**6500**  
Swivel Nut Elbow



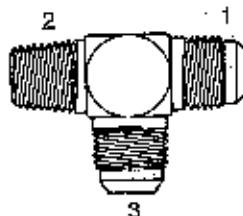
Dash Size	Thread Size 1	Thread Size 2
4	7/16-20	7/16-20
5	1/2-20	1/2-20
6	3/4-18	3/4-18
8	3/4-16	3/4-16
10	7/8-14	7/8-14
12	1 1/16-12	1 1/16-12
14	1 3/16-12	1 3/16-12
16	1 5/16-12	1 5/16-12
20	1 7/8-12	1 7/8-12

**2503**  
Male 45° Elbow



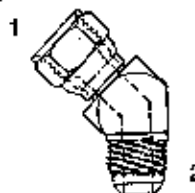
Dash Size	Thread Size 1	Pipe Thread 2
4-2	7/16-20	1/8
4-4	7/16-20	1/4
4-6	7/16-20	3/8
6-4	3/4-18	1/4
6-6	3/4-18	3/8
6-8	3/4-18	1/2
8-6	3/4-16	3/8
8-8	3/4-16	1/2
8-12	3/4-16	3/4
10-8	7/8-14	3/8
10-12	7/8-14	3/4
12-12	1 1/16-12	3/4
16-16	1 5/16-12	1
20-20	1 7/8-12	1 1/4

**2605**  
Male Run Tee



Dash Size	Thread Size 1 & 3	Pipe Thread 2
4-4	7/16-20	1/4
6-4	3/4-18	1/4
6-6	3/4-18	3/8
8-6	3/4-16	3/8
8-8	3/4-16	1/2
10-8	7/8-14	1/2
12-12	1 1/16-12	3/4
16-16	1 5/16-12	1

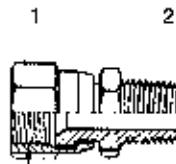
**6502**  
45° Swivel Nut Elbow



Dash Size	Thread Size 1	Thread Size 2
4	7/16-20	7/16-20
5	1/2-20	1/2-20
6	3/4-18	3/4-18
8	3/4-16	3/4-16
10	7/8-14	7/8-14
12	1 1/16-12	1 1/16-12
14	1 3/16-12	1 3/16-12
16	1 5/16-12	1 5/16-12
20	1 7/8-12	1 7/8-12

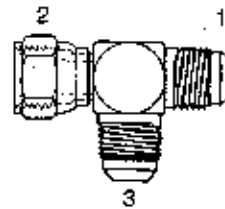
## STEEL 37° FLARE ADAPTERS

### 6505 Swivel Nut to Male Pipe Adapter



Dash Size	Thread Size 1	Pipe Thread 2
4-2	7/16-20	1/8
4-4	7/16-20	1/4
6-6	9/16-18	3/8
8-6	3/4-16	3/8
8-8	3/4-16	1/2
10-8	7/8-14	1/2
10-12	7/8-14	3/4
12-12	1 1/16-12	3/4
16-16	1 5/16-12	1

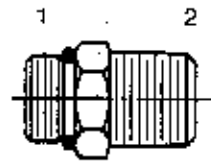
### 6602 Swivel Nut Run Tee



Dash Size	Thread Size 1 & 2	Thread Size 3
4	7/16-20	7/16-20
5	1/2-20	1/2-20
6	9/16-18	9/16-18
8	3/4-16	3/4-16
10	7/8-14	7/8-14
12	1 1/16-12	1 1/16-12
14	1 3/16-12	1 3/16-12
16	1 5/16-12	1 5/16-12
20	1 7/8-12	1 7/8-12

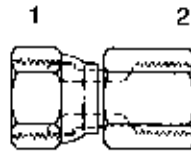
## O-RING ADAPTERS

### 6401 O-Ring Thread Adapter



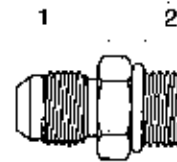
Dash Size	O-Ring Thread 1	Pipe Thread 2
4-2	7/16-20	1/8
4-4	7/16-20	1/4
6-4	9/16-18	1/4
6-6	9/16-18	3/8
6-8	3/4-16	3/8
8-6	3/4-16	1/2
8-8	3/4-16	1/2
10-8	7/8-14	1/2
12-12	1 1/16-12	3/4

### 6506 Swivel Nut To Female Pipe Adapter



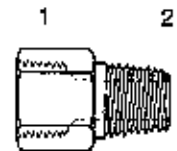
Dash Size	Thread Size 1	Pipe Thread 2
4-2	7/16-20	1/8
4-4	7/16-20	1/4
6-4	9/16-18	1/4
6-6	9/16-18	3/8
8-6	3/4-16	3/8
8-8	3/4-16	1/2
10-8	7/8-14	1/2
10-12	7/8-14	3/4
12-12	1 1/16-12	3/4
16-16	1 5/16-12	1

### 6400 Straight Thread Connector



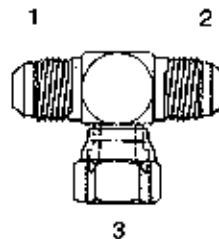
Dash Size	Thread Size 1	O-Ring Thread 2
4	7/16-20	7/16-20
4-5	7/16-20	1/2-20
4-6	7/16-20	9/16-18
5	1/2-20	1/2-20
5-4	1/2-20	7/8-20
5-6	3/2-20	9/16-18
6	9/16-18	9/16-18
6-4	9/16-18	3/4-20
6-6	9/16-18	3/4-18
8	3/4-16	3/4-16
8-6	3/4-16	9/16-18
8-10	3/4-16	7/8-14
8-12	3/4-16	1 1/16-12
10	7/8-14	7/8-14
10-8	7/8-14	3/4-16
10-12	7/8-14	1 1/16-12
12	1 1/16-12	1 1/16-12
12-8	1 1/16-12	3/4-16
12-10	1 1/16-12	7/8-14
12-14	1 1/16-12	1 3/16-12
12-16	1 1/16-12	1 5/16-12
14	1 3/16-12	1 3/16-12
14-12	1 3/16-12	1 1/16-12
14-16	1 3/16-12	1 5/16-12
16	1 5/16-12	1 5/16-12
16-12	1 5/16-12	1 1/16-12
16-14	1 5/16-12	1 3/16-12
16-20	1 5/16-12	1 5/16-12
20	1 7/8-12	1 7/8-12
20-16	1 7/8-12	1 5/16-12
20-24	1 7/8-12	1 7/8-20
24	1 7/8-12	1 7/8-12
24-20	1 7/8-12	1 5/16-12

### 6404 Female O-Ring Pipe Adapter



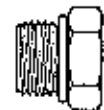
Dash Size	O-Ring Thread 1	Pipe Thread 2
4-2	7/16-20	1/8
4-4	7/16-20	1/4
6-4	9/16-18	1/4
6-6	9/16-18	3/8
8-6	3/4-16	3/8
8-8	3/4-16	1/2
10-8	7/8-14	1/2
12-12	1 1/16-12	3/4

### 6600 Swivel Nut Branch Tee



Dash Size	Thread Size	Female Thread
4	7/16-20	7/16-20
5	1/2-20	1/2-20
6	9/16-18	9/16-18
8	3/4-16	3/4-16
10	7/8-14	7/8-14
12	1 1/16-12	1 1/16-12
14	1 3/16-12	1 3/16-12
16	1 5/16-12	1 5/16-12
20	1 7/8-12	1 7/8-12

### 6408 O-Ring Hex Head Plug



Dash Size	O-Ring Thread	
4	7/16-20	
5	1/2-20	
6	9/16-18	
8	3/4-16	
10	7/8-14	
12	1 1/16-12	
14	1 3/16-12	
16	1 5/16-12	
20	1 7/8-12	
24	1 7/8-12	

**TO ORDER  
CALL TOLL-FREE  
1-800-344-5851**



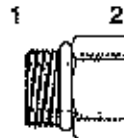
# STEEL O-RING ADAPTERS

## 6405 O-Ring To Female Pipe Adapter



Dash Size	O-Ring Thread 1	Pipe Thread 2
4-4	3/16-20	1/4
5-2	1/2-20	1/8
5-4	1/2-20	1/4
6-4	3/16-18	1/4
6-6	3/16-18	3/8
6-8	3/16-18	1/2
8-4	3/4-16	3/4
8-6	3/4-16	3/8
8-8	3/4-16	1/2
10-8	7/8-14	1/2
10-12	7/8-14	3/4
12-6	1 1/16-12	3/8
12-8	1 1/16-12	1/2
12-12	1 1/16-12	3/4
14-12	1 3/16-12	3/4
16-8	1 3/16-12	1/2
16-12	1 3/16-12	3/4
18-16	1 5/16-12	1
20-16	1 5/16-12	1
20-20	1 5/16-12	1 1/4
24-20	1 7/8-12	1 1/4
24-24	1 7/8-12	1 1/2

## 6410 O-Ring Port Reducer



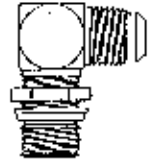
Dash Size	O-Ring Thread 1	O-Ring Thread 2
6-4	3/16-18	3/16-20
8-6	3/8-16	3/16-18
8-10	3/8-16	7/16-14
10-8	7/8-14	3/4-16
12-8	1 1/16-12	3/4-16
12-10	1 1/16-12	7/8-14
14-12	1 3/16-12	1 1/16-12
16-12	1 3/16-12	1 1/16-12
20-12	1 5/16-12	1 1/16-12
20-16	1 5/16-12	1 5/16-12
24-20	1 7/8-12	1 5/16-12

## SAE Boss O-Ring



4	3/16-20
5	1/2-20
6	3/16-18
8	3/8-16
10	7/8-14
12	1 1/16-12
14	1 3/16-12
16	1 5/16-12
20	1 5/16-12
24	1 7/8-12

## 6801 Straight Thread Elbow Connector



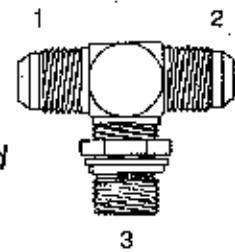
Dash Size	Thread Size 1	O-Ring Thread 2
4	3/16-20	3/16-20
5	1/2-20	1/2-20
5-4	1/2-20	3/16-20
5-6	1/2-20	3/16-18
6	3/16-18	3/16-18
6-4	3/16-18	3/16-20
6-6	3/16-18	1/2-20
6-8	3/16-18	3/4-16
8	3/4-16	3/4-16
8-6	3/4-16	3/8-18
8-10	3/4-16	7/8-14
8-12	3/4-16	1 1/16-12
10	7/8-14	7/8-14
10-8	7/8-14	3/4-16
10-12	7/8-14	1 1/16-12
12	1 1/16-12	1 1/16-12
12-8	1 1/16-12	3/4-16
12-10	1 1/16-12	7/8-14
12-14	1 1/16-12	1 3/16-12
12-16	1 1/16-12	1 5/16-12
14	1 3/16-12	1 3/16-12
14-18	1 3/16-12	1 5/16-12
16	1 5/16-12	1 5/16-12
16-12	1 5/16-12	1 1/16-12
16-14	1 5/16-12	1 3/16-12
16-20	1 5/16-12	1 5/16-12
20	1 5/16-12	1 5/16-12
20-16	1 5/16-12	1 5/16-12
20-24	1 5/16-12	1 7/8-12
24	1 7/8-12	1 7/8-12

## 6802 Straight Thread 45° Elbow



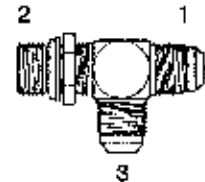
Dash Size	Thread Size 1	O-Ring Thread 2
4	3/16-20	3/16-20
4-6	3/16-20	3/16-18
5	1/2-20	1/2-20
6	3/16-18	3/16-18
6-8	3/16-18	3/4-16
8	3/4-16	3/4-16
8-6	3/4-16	3/8-18
8-10	3/4-16	7/8-14
8-12	3/4-16	1 1/16-12
10	7/8-14	7/8-14
10-8	7/8-14	3/4-16
12	1 1/16-12	1 1/16-12
14	1 3/16-12	1 3/16-12
16	1 5/16-12	1 5/16-12
20	1 5/16-12	1 5/16-12

## 6803 Straight Thread Branch Tee



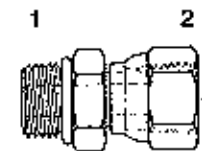
Dash Size	Thread Size 1 & 2	O-Ring Thread 2
4	3/16-20	3/16-20
5	1/2-20	1/2-20
6	3/16-18	3/16-18
8	3/4-16	3/4-16
10	7/8-14	7/8-14
12	1 1/16-12	1 1/16-12
14	1 3/16-12	1 3/16-12
16	1 5/16-12	1 5/16-12

## 6804 Straight Thread Run Tee



Dash Size	Thread Size 1 & 3	O-Ring Thread 2
4	3/16-20	3/16-20
5	1/2-20	1/2-20
6	3/16-18	3/16-18
8	3/4-16	3/4-16
10	7/8-14	7/8-14
12	1 1/16-12	1 1/16-12
14	1 3/16-12	1 3/16-12
16	1 5/16-12	1 5/16-12

## 6900 O-Ring Swivel Adapter



Dash Size	O-Ring Thread 1	Female NPSM 2
4-2	3/16-20	1/8
4-4	3/16-20	1/4
5-4	1/2-20	1/4
6-4	3/16-18	1/4
6-6	3/16-18	3/8
6-8	3/16-18	1/2
8-4	3/4-16	1/4
8-8	3/4-16	3/8
8-8	3/4-16	1/2
8-12	3/4-16	3/4

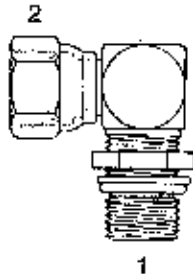
6900 Series  
Continued on Next Page

# STEEL ADAPTERS

**6900** Continued from Previous Page

Dash Size	O-Ring Thread		Female NPSM	
	1	2	1	2
10-6	3/8-14		3/8	
10-8	7/8-14		1/2	
10-12	7/8-14		3/4	
12-8	1 1/8-12		1/2	
12-12	1 1/8-12		3/4	
12-16	1 1/8-12		1	
14-12	1 3/8-12		3/4	
16-12	1 3/8-12		3/4	
16-16	1 3/8-12		1	
16-20	1 3/8-12		1 1/4	
20-12	1 3/8-12		3/4	
20-16	1 3/8-12		1	
20-20	1 3/8-12		1 1/4	
24-24	1 3/8-12		1 1/2	

**6901**  
90° O-Ring Swivel Adapter



Dash Size	O-Ring Thread		Female NPSM	
	1	2	1	2
4-2	7/16-20		1/8	
4-4	7/16-20		1/4	
4-6	7/16-20		3/8	
6-4	9/16-18		1/4	
6-6	9/16-18		3/8	
6-8	9/16-18		1/2	
8-4	3/4-16		1/4	
8-6	3/4-16		3/8	
8-8	3/4-16		1/2	
8-12	3/4-16		3/4	
10-4	7/8-14		1/4	
10-6	7/8-14		3/8	
10-8	7/8-14		1/2	
10-12	7/8-14		3/4	
12-6	1 1/8-12		3/8	
12-8	1 1/8-12		1/2	
12-12	1 1/8-12		3/4	
12-16	1 1/8-12		1	
14-12	1 3/8-12		3/4	
16-12	1 3/8-12		3/4	
16-16	1 3/8-12		1	
20-20	1 3/8-12		1 1/4	
24-24	1 3/8-12		1 1/2	

**6902**  
45° O-Ring Swivel Adapter



Dash Size	O-Ring Thread		Female NPSM	
	1	2	1	2
4-2	7/16-20		1/8	
4-4	7/16-20		1/4	
4-6	7/16-20		3/8	
6-4	9/16-18		1/4	
6-6	9/16-18		3/8	
6-8	9/16-18		1/2	
8-4	3/4-16		1/4	
8-6	3/4-16		3/8	
8-8	3/4-16		1/2	
8-12	3/4-16		3/4	
10-6	7/8-14		3/8	
10-8	7/8-14		1/2	
10-12	7/8-14		3/4	
12-8	1 1/8-12		1/2	
12-12	1 1/8-12		3/4	
12-16	1 1/8-12		1	
16-12	1 3/8-12		3/4	
16-16	1 3/8-12		1	
20-20	1 3/8-12		1 1/4	

**Split-Flange Kit**

Two split-flange Halves, Bolts, and Lock Washers Nipple



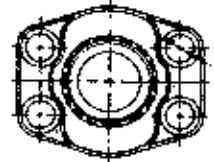
Code 61

PART NUMBER	Flange Size	Flange Head Dia.
SFK-12	3/4	1.50
SFK-16	1	1.75
SFK-20	1 1/4	2.00
SFK-24	1 1/2	2.38
SFK-32	2	2.81
SFK-40	2 1/2	3.31

Code 62

PART NUMBER	Flange Size	Flange Head Dia.
SFK-12H	3/4	1.63
SFK-16H	1	1.88
SFK-20H	1 1/4	2.12
SFK-24H	1 1/2	2.50
SFK-32H	2	3.12

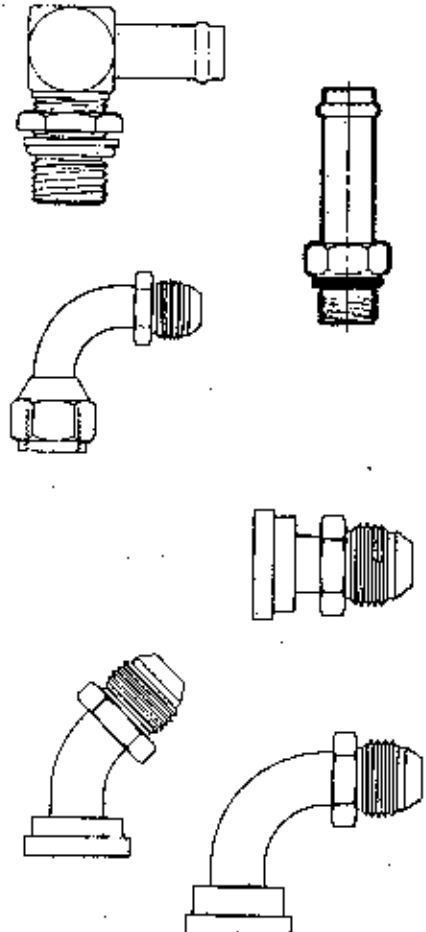
**W43**  
Female Pipe Flange Pad Code 61



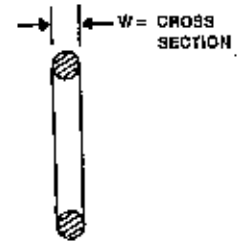
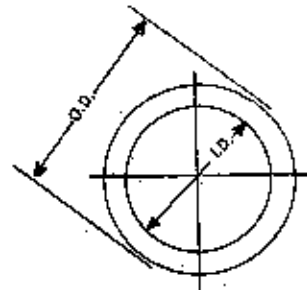
Dash Size	Pipe Size	Pad Size
W43-12-12	3/4	3/4
W43-18-16	1	1
W43-20-20	1 1/4	1 1/4
W43-24-24	1 1/2	1 1/2
W43-32-32	2	2
W43-40-40	2 1/2	2 1/2

## MISC. ADAPTERS

If you don't see what you need, call us - we might have it.



# O-RINGS AND BACKUP RINGS



All O-rings are nitrile compound and 70 durometer hardness. All back-up rings are nitrile compound and 90 durometer hardness.

To order O-rings, first decide the cross section (W) size that you need, then the I.D. or O.D. and use the order number from that family group that matches.

## NOMINAL 1/16" ACTUAL .070" CROSS SECTION

Nominal ID x OD	Std. O-Rings Order No.	Back-Up Rings Order No.
1/8x1/4	2-006	8-006
5/32x9/32	2-007	8-007
3/16x5/16	2-008	8-008
7/32x11/32	2-009	8-009
1/4x3/8	2-010	8-010
5/16x7/16	2-011	8-011
3/8x1/2	2-012	8-012
7/16x9/16	2-013	8-013
1/2x5/8	2-014	8-014
9/16x11/16	2-015	8-015
5/8x3/4	2-016	8-016
11/16x13/16	2-017	8-017
3/4x7/8	2-018	8-018
13/16x15/16	2-019	8-019
7/8x1	2-020	8-020
15/16x11/16	2-021	8-021
1x1-1/8	2-022	8-022
1-1/16x1-3/16	2-023	8-023
1-1/8x1-1/4	2-024	8-024
1-3/16x1-5/16	2-025	8-025
1-1/4x1-3/8	2-026	8-026
1-5/16x1-7/16	2-027	8-027
1-3/8x1-1/2	2-028	8-028
1-1/2x1-5/8	2-029	8-029
1-5/8x1-3/4	2-030	8-030
1-3/4x1-7/8	2-031	8-031
1-7/8x2	2-032	8-032
2x2-1/8	2-033	8-033
2-1/8x2-1/4	2-034	8-034
2-1/4x2-3/8	2-035	8-035
2-3/8x2-1/2	2-036	8-036
2-1/2x2-5/8	2-037	8-037
2-5/8x2-3/4	2-038	8-038
2-3/4x2-7/8	2-039	8-039
2-7/8x3	2-040	8-040
3x3-1/8	2-041	8-041
3-1/4x3-3/8	2-042	8-042
3-1/2x3-5/8	2-043	8-043
3-3/4x3-7/8	2-044	8-044
4x4-1/8	2-045	8-045
4-1/4x4-3/8	2-046	8-046
4-1/2x4-5/8	2-047	8-047
4-3/4x4-7/8	2-048	8-048
5x5-1/8	2-049	8-049
5-1/4x5-3/8	2-050	8-050

## NOMINAL 3/32" ACTUAL .103" CROSS SECTION

Nominal ID x OD	Std. O-Rings Order No.	Back-Up Rings Order No.
3/8x9/16	2-110	8-110
7/16x5/8	2-111	8-111
1/2x11/16	2-112	8-112
9/16x3/4	2-113	8-113
5/8x13/16	2-114	8-114
11/16x7/8	2-115	8-115
3/4x15/16	2-116	8-116
13/16x1	2-117	8-117
7/8x1-1/16	2-118	8-118
15/16x1-1/8	2-119	8-119
1x1-3/16	2-120	8-120
1-1/16x1-1/4	2-121	8-121
1-1/8x1-5/16	2-122	8-122
1-3/16x1-3/8	2-123	8-123
1-1/4x1-7/16	2-124	8-124
1-5/16x1-1/2	2-125	8-125
1-3/8x1-9/16	2-126	8-126
1-7/16x1-5/8	2-127	8-127
1-1/2x1-11/16	2-128	8-128
1-9/16x1-3/4	2-129	8-129
1-5/8x1-13/16	2-130	8-130
1-11/16x1-7/8	2-131	8-131
1-3/4x1-15/16	2-132	8-132
1-13/16x2	2-133	8-133
1-7/8x2-1/16	2-134	8-134
1-15/16x2-1/8	2-135	8-135
2x2-3/16	2-136	8-136
2-1/16x2-1/4	2-137	8-137
2-1/8x2-5/16	2-138	8-138
2-3/16x2-3/8	2-139	8-139
2-1/4x2-7/16	2-140	8-140
2-5/16x2-1/2	2-141	8-141
2-3/8x2-9/16	2-142	8-142
2-7/16x2-5/8	2-143	8-143
2-1/2x2-11/16	2-144	8-144
2-9/16x2-3/4	2-145	8-145
2-5/8x2-13/16	2-146	8-146
2-11/16x2-7/8	2-147	8-147
2-3/4x2-15/16	2-148	8-148
2-13/16x3	2-149	8-149
2-7/8x3-11/16	2-150	8-150
3x3-3/16	2-151	8-151
2-1/4x3-7/16	2-152	8-152
3-1/2x3-11/16	2-153	8-153

## NOMINAL 3/32" ACTUAL .130" CROSS SECTION

Nominal ID x OD	Std. O-Rings Order No.	Back-Up Rings Order No.
3-3/4x3-15/16	2-154	8-154
4x4-3/16	2-155	8-155
4-1/4x4-7/16	2-156	8-156
4-1/2x4-11/16	2-157	8-157
4-3/4x4-15/16	2-158	8-158
5x5-3/16	2-159	8-159
5-1/4x5-7/16	2-160	8-160
2-1/2x5-11/16	2-161	8-161
5-3/4x5-15/16	2-162	8-162
6x6-3/16	2-163	8-163
6-1/4x6-6/16	2-164	8-164
6-1/2x6-11/16	2-165	8-165
6-3/4x6-15/16	2-166	8-166
7x7-3/16	2-167	8-167
7-1/4x7-7/16	2-168	8-168
7-1/2x7-11/16	2-169	8-169
7-3/4x7-15/16	2-170	8-170
8x8-3/16	2-171	8-171
8-1/4x8-7/16	2-172	8-172
8-1/2x8-11/16	2-173	8-173
8-3/4x8-15/16	2-174	8-174
9x9-3/16	2-175	8-175
9-1/4x9-7/16	2-176	8-176
9-1/2x9-11/16	2-177	8-177
9-3/4x9-15/16	2-178	8-178

## NOMINAL 1/8" ACTUAL .139" CROSS SECTION

Nominal ID x OD	Std. O-Rings Order No.	Back-Up Rings Order No.
3/16x7/16	2-201	n/a
1/4x1/2	2-202	n/a
5/16x9/16	2-203	n/a
3/8x5/8	2-204	n/a
7/16x11/16	2-205	n/a
1/2x3/4	2-206	n/a
9/16x13/16	2-207	n/a
5/8x7/8	2-208	8-208
11/16x15/16	2-209	8-209
3/4x1	2-210	8-210
13/16x1-1/16	2-211	8-211
7/8x1-1/8	2-212	8-212
15/16x1-3/16	2-213	8-213
1x1-1/4	2-214	8-214
1-1/16x1-5/16	2-215	8-215

# O-RINGS AND BACKUP RINGS

## NOMINAL 1/8" ACTUAL .139" CROSS SECTION

Nominal ID x OD	Std. O-Rings Order No.	Back-Up Rings Order No.
1-1/8x1-3/8	2-216	8-216
1-3/16x1-7/16	2-217	8-217
1-1/4x1-1/2	2-218	8-218
1-5/16x1-9/16	2-219	8-219
1-3/8x1-5/8	2-220	8-220
1-7/16x1-11/16	2-221	8-221
1-1/2x1-3/4	2-222	8-222
1-5/8x1-7/8	2-223	8-223
1-3/4x2	2-224	8-224
1-7/8x2-1/8	2-225	8-225
2x2-1/4	2-226	8-226
2-1/8x2-3/8	2-227	8-227
2-1/4x2-1/2	2-228	8-228
3-3/8x2-5/8	2-229	8-229
2-1/2x2-3/4	2-230	8-230
2-5/8x2-7/8	2-231	8-231
2-3/4x3	2-232	8-232
2-7/8x3-1/8	2-233	8-233
3x3-1/4	2-234	8-234
3-1/8x3-3/8	2-235	8-235
3-1/4x3-1/2	2-236	8-236
3-3/8x3-5/8	2-237	8-237
3-1/2x3-3/4	2-238	8-238
3-5/8x3-7/8	2-239	8-239
3-3/4x4	2-240	8-240
3-7/8x4-1/8	2-241	8-241
4x4-1/4	2-242	8-242
4-1/8x4-3/8	2-243	8-243
4-1/4x4-1/2	2-244	8-244
4-3/8x4-5/8	2-245	8-245
4-1/2x4-3/4	2-246	8-246
4-5/8x4-7/8	2-247	8-247
4-3/4x5	2-248	8-248
4-7/8x5-1/8	2-249	8-249
5x5-1/4	2-250	8-250
5-1/8x5-3/8	2-251	8-251
5-1/4x5-1/2	2-252	8-252
5-3/8x5-5/8	2-253	8-253
5-1/2x5-3/4	2-254	8-254
5-5/8x5-7/8	2-255	8-255
5-3/4x6	2-256	8-256
5-7/8x6-1/8	2-257	8-257
6x6-1/4	2-258	8-258
6-1/4x6-1/2	2-259	8-259
6-1/2x6-3/4	2-260	8-260
6-3/4x7	2-261	8-261
7x7-1/4	2-262	8-262
7-1/4x7-1/2	2-263	8-263
7-1/2x7-3/4	2-264	8-264
7-3/4x8	2-265	8-265
8x8-1/4	2-266	8-266
8-1/4x8-1/2	2-267	8-267
8-1/2x8-1/8	2-268	8-268
8-7/8x9	2-269	8-269
9x9-1/4	2-270	8-270
9-1/4x9-1/2	2-271	8-271
9-1/2x9-3/4	2-272	8-272
9-3/4x10	2-273	8-273
10x10-1/4	2-274	8-274
10-1/2x10-3/4	2-275	8-275

Nominal ID x OD	Std. O-Rings Order No.	Back-Up Rings Order No.
11x11-1/4	2-276	8-276
11-1/2x11-3/4	2-277	8-277
12x12-1/4	2-278	8-278
13x13-1/4	2-279	8-279

### NOMINAL 3/16" ACTUAL .210" CROSS SECTION

Nominal ID x OD	Std. O-Rings Order No.	Back-Up Rings Order No.
3/8x3/4	2-308	8-308
7/16x13/16	2-309	8-309
1/2x7/8	2-310	8-310
9/16x15/16	2-311	8-311
5/8x1	2-312	8-312
11/16x1-1/16	2-313	8-313
3/4x1-1/8	2-314	8-314
13/16x1-3/16	2-315	8-315
7/8x1-1/4	2-316	8-316
15/16x1-5/16	2-317	8-317
1x1-3/8	2-318	8-318
1-1/16x1-7/16	2-319	8-319
1-1/8x1-1/2	2-320	8-320
1-3/16x1-9/16	2-321	8-321
1-1/4x1-5/8	2-322	8-322
1-5/16x1-11/16	2-323	8-323
1-3/8x1-3/4	2-324	8-324
1-1/2x1-7/8	2-325	8-325
1-5/8x2	2-326	8-326
1-3/4x2-1/8	2-327	8-327
1-7/8x2-1/4	2-328	8-328
2x2-3/8	2-329	8-329
2-1/8x2-1/2	2-330	8-330
2-1/4x2-5/8	2-331	8-331
2-3/8x2-3/4	2-332	8-332
2-1/2x2-7/8	2-333	8-333
2-5/8x3	2-334	8-334
2-3/4x3-1/8	2-335	8-335
2-7/8x3-1/4	2-336	8-336
3x3-3/8	2-337	8-337
3-1/8x3-1/2	2-338	8-338
3-1/4x3-5/8	2-339	8-339
3-3/8x3-3/4	2-340	8-340
3-1/2x3-7/8	2-341	8-341
3-5/8x4	2-342	8-342
3-3/4x4-1/8	2-343	8-343
3-7/8x4-1/4	2-344	8-344
4x4-3/8	2-345	8-345
4-1/8x4-1/2	2-346	8-346
4-1/4x4-5/8	2-347	8-347
4-3/8x4-3/4	2-348	8-348
4-1/2x4-7/8	2-349	8-349
4-5/8x5	2-350	8-350
4-3/4x5-1/8	2-351	8-351
4-7/8x5-1/4	2-352	8-352
5x5-3/8	2-353	8-353
5-1/8x5-1/2	2-354	8-354
5-1/4x5-5/8	2-355	8-355
5-3/8x5-3/4	2-356	8-356
5-1/2x5-7/8	2-357	8-357
5-5/8x6	2-358	8-358
5-3/4x6-1/8	2-359	8-359
5-7/8x6-1/4	2-360	8-360

## NOMINAL 1/4" ACTUAL .275" CROSS SECTION

Nominal ID x OD	Std. O-Rings Order No.	Back-Up Rings Order No.
1-1/2x2	2-401	n/a
1-5/8x2-1/8	2-402	n/a
1-3/4x2-1/4	2-403	n/a
1-7/8x2-3/8	2-404	n/a
2x2-1/2	2-405	n/a
2-1/8x2-5/8	2-406	n/a
2-1/4x2-3/4	2-407	n/a
2-3/8x2-7/8	2-408	n/a
2-1/2x3	2-409	n/a
2-5/8x3-1/8	2-410	n/a
2-3/4x3-1/4	2-411	n/a
2-7/8x3-3/8	2-412	n/a
3x3-1/2	2-413	n/a
3-1/8x3-5/8	2-414	n/a
3-1/4x3-3/4	2-415	n/a
3-3/8x3-7/8	2-416	n/a
3-1/2x4	2-417	n/a
3-5/8x4-1/8	2-418	n/a
3-3/4x4-1/4	2-419	n/a
3-7/8x4-3/8	2-420	n/a
4x4-1/2	2-421	n/a
4-1/8x4-5/8	2-422	n/a
4-1/4x4-3/4	2-423	n/a
4-3/8x4-7/8	2-424	n/a
4-1/2x5	8-425	8-425
4-5/8x5-1/8	8-426	8-426
4-3/4x5-1/4	8-427	8-427
4-7/8x5-3/8	8-428	8-428
5x5-1/2	2-429	8-429
5-1/8x5-5/8	2-430	8-430
5-1/4x5-3/4	2-431	8-431
5-3/8x5-7/8	2-432	8-432
5-1/2x6	2-433	8-433
5-5/8x6-1/8	2-434	8-434
5-3/4x6-1/4	2-435	8-435
5-7/8x6-3/8	2-436	8-436
6x6-1/2	2-437	8-437
6-1/4x6-3/4	2-438	8-438
6-1/2x7	2-439	8-439
6-3/4x7-1/4	2-440	8-440
7x7-1/2	2-441	8-441
7-1/4x7-3/4	2-442	8-442
7-1/2x8	2-443	8-443
7-3/4x8-1/4	2-444	8-444
8x8-1/2	2-445	8-445
8-1/2x9	2-446	8-446
9x9-1/2	2-447	8-447
9-1/2x10	2-448	8-448
10x10-1/2	2-449	8-449
10-1/2x11	2-450	8-450
11x11-1/2	2-451	8-451
11-1/2x12	2-452	8-452
12x12-1/2	2-453	8-453

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### USEFUL FORMULAS

PSI	=	$\frac{\text{FORCE}}{\text{AREA}}$
CYL. AREA	=	$\pi r^2$
FORCE (lbs.)	=	PSI X AREA
CYL. SPEED (ft. per sec.)	=	$\frac{3208 \times \text{GPM}}{\text{AREA}}$
HORSEPOWER	=	$\frac{\text{PSI} \times \text{GPM}}{1714}$
HORSEPOWER (Fluid motor)	=	$\frac{\text{TORQUE (in. lbs.)} \times \text{RPM}}{63025}$
TORQUE (in lbs.)	=	$\frac{\text{PSI} \times \text{DISP. (cu. in.)}}{2}$
RPM	=	$\frac{231 \times \text{GPM}}{\text{DISP. (cu. in.)}}$
GPM (Pump outflow)	=	$\frac{\text{RPM} \times \text{DISP. (cu. in.)}}{231}$

NO ALLOWANCE HAS BEEN MADE FOR EFFICIENCY OF COMPONENTS.

### Horsepower to Drive a Pump

#### RULES-OF-THUMB...

Approximate power requirements can be figured with simple mental arithmetic with this rule-of-thumb:

**1 HP is required for each 1 GPM @ 1500 PSI**

Figures in table are HP's required to drive a hydraulic pump.

GPM	500 PSI	750 PSI	1000 PSI	1250 PSI	1500 PSI	1750 PSI	2000 PSI	2500 PSI	3000 PSI	5000 PSI
1	.172	.257	.343	.429	.515	.600	.686	.858	1.00	1.72
1 1/8	.343	.515	.686	.858	1.03	1.20	1.37	1.72	2.06	3.43
1 1/4	.515	.778	1.03	1.29	1.54	1.80	2.06	2.75	3.09	5.15
2	.686	1.03	1.37	1.72	2.06	2.40	2.75	3.43	4.12	6.86
2 1/8	.858	1.29	1.72	2.14	2.57	3.00	3.43	4.29	5.15	8.58
2 1/4	1.03	1.54	2.06	2.57	3.09	3.60	4.12	5.15	6.18	10.3
3	1.20	1.80	2.40	3.00	3.60	4.20	4.80	6.00	7.21	12.0
3 1/8	1.37	2.06	2.75	3.43	4.12	4.80	5.49	6.86	8.24	13.7
3 1/4	1.54	2.25	3.03	3.72	4.41	5.10	5.88	7.21	8.60	15.4
4	1.72	2.57	3.43	4.29	5.15	6.00	6.86	8.58	10.3	17.2
5	2.06	3.09	4.12	5.15	6.18	7.21	8.24	10.3	12.4	20.6
6	2.40	3.60	4.80	6.00	7.21	8.41	9.61	12.0	14.4	24.0
7	2.75	4.12	5.49	6.86	8.24	9.61	11.1	13.7	16.5	27.5
8	3.09	4.63	6.18	7.72	9.27	10.8	12.4	15.4	18.5	30.9
9	3.43	5.15	6.86	8.58	10.3	12.0	13.7	17.2	20.6	34.3
10	3.72	5.58	7.40	9.21	11.0	12.8	14.6	18.5	22.4	37.2
12	4.41	6.60	8.80	11.0	13.2	15.6	18.0	22.4	26.9	44.1
15	5.15	7.72	10.3	12.9	15.4	18.0	20.6	25.7	30.9	51.5
20	6.86	10.3	13.7	17.2	20.6	24.0	27.5	34.3	41.2	68.6
25	8.58	12.9	17.2	21.4	25.7	30.0	34.3	42.9	51.5	85.8
30	10.3	15.4	20.6	26.1	30.9	36.0	41.2	51.5	61.8	103
35	12.0	18.0	24.0	30.0	36.0	42.0	48.0	60.0	72.1	120
40	13.7	20.6	27.5	34.3	41.2	48.0	54.9	68.6	82.4	137
45	15.4	23.2	30.9	38.6	46.3	54.1	61.8	77.2	92.7	154
50	17.2	25.7	34.3	42.9	51.5	60.0	68.6	85.8	103	172
55	18.9	28.2	37.8	47.2	56.8	66.1	75.6	94.4	113	189
60	20.6	30.9	41.2	51.5	61.8	72.1	82.4	103	124	206
65	22.4	33.5	44.6	55.8	66.9	78.1	89.2	112	134	223
70	24.0	36.0	48.0	60.0	72.1	84.1	96.1	120	144	240
75	25.7	38.6	51.5	64.3	77.2	90.1	103	128	154	257
80	27.5	41.2	54.9	68.6	82.4	96.1	110	137	165	275
85	29.2	43.8	58.3	72.9	87.5	102	117	146	175	292

### Hydraulic Cylinder Force

#### CYLINDER THRUST, IN POUNDS

Piston or rod Diam.	Piston Area, Sq. In.	500 PSI	750 PSI	1000 PSI	1500 PSI	2000 PSI	3000 PSI
5/8	.31	153	230	307	460	614	930
3/4	.44	221	331	442	663	884	1320
7/8	.60	300	450	600	900	1200	1800
1	.78	393	589	785	1178	1571	2357
1-1/8	.99	500	750	1000	1500	2000	3000
1-1/4	1.23	613	920	1227	1840	2454	3680
1-3/8	1.48	740	1110	1480	2220	2960	4440
1-1/2	1.77	883	1325	1767	2650	3534	5315
1-3/4	2.41	1202	1804	2406	3609	4816	7226
2	3.14	1570	2358	3141	4711	6282	9420
2-1/4	3.91	2000	3000	4000	6000	8000	12000
2-1/2	4.91	2454	3680	4910	7368	9820	14750
3	7.07	3535	5300	7070	10,600	14,140	21,210
3-1/4	8.30	4150	6225	8300	12,450	16,600	24,900
3-1/2	9.62	4810	7215	9620	14,430	19,240	28,860
4	12.57	6283	9425	12,567	18,850	25,130	37,700
5	19.64	9817	14,725	19,635	29,450	39,270	58,900
6	28.27	14,137	21,200	28,275	42,400	56,560	84,700
7	38.49	19,242	28,865	38,485	57,725	76,970	115,500
8	50.27	26,130	39,200	50,265	75,460	100,500	150,700
10	78.54	39,270	58,900	78,540	117,800	157,000	235,500
12	113.10	56,600	84,900	113,200	169,800	226,400	340,000
14	158.94	77,000	115,500	154,000	231,000	308,000	462,000
16	201.08	100,000	150,000	200,000	300,000	400,000	600,000

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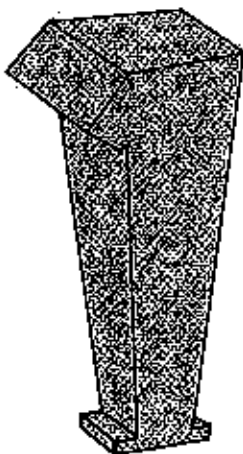
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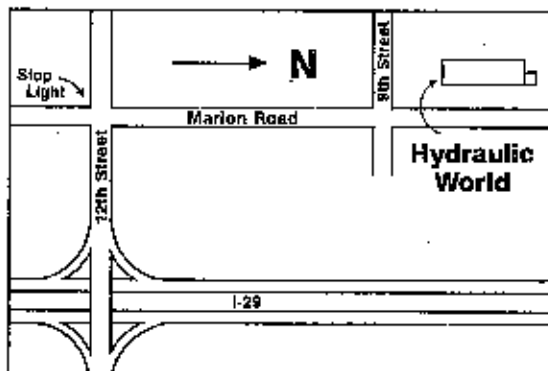
*Dennis Greenfield*

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