

Hydraulic Hose (Section VI)

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No. SAE 100 R1/AT - Medium Pressure Hose



Meets or exceeds requirements of SAE 100R1/AT
Fitting Selection: Page 80-89

Inside Diameter	mm	Size	Outside Diameter	Working Pressure-PSI	Min. Burst Pressure-PSI	Min. Bend Radius	Weight LB/FT
3/16"	5.0	3	1/2"	3,000	12,000	3.5	.13
1/4"	6.5	4	9/16"	2,750	11,000	4.0	.17
5/16"	8.0	5	5/8"	2,500	10,000	4.5	.21
3/8"	9.5	6	23/32"	2,250	9,000	5.0	.24
1/2"	13.0	8	27/32"	2,000	8,000	7.0	.30
5/8"	16.0	10	31/32"	1,500	6,000	8.0	.35
3/4"	19.0	12	1-1/8"	1,250	5,000	9.5	.44
1"	25.0	16	1-7/16"	1,000	4,000	12.0	.61
1-1/4"	32.0	20	1-49/64"	625	2,500	16.5	.87
1-1/2"	38.0	24	2-3/64"	500	2,000	20.0	1.14
2"	51.0	32	2-19/32"	375	1,500	25.0	1.68

Construction: Inner tube is constructed of oil resistant seamless black synthetic rubber. Reinforced with a layer of high-tensile steel wire. The cover is black synthetic rubber, resistant to abrasion, oil, fuel, and weathering.

Recommended Uses: Medium pressure hydraulic oil lines, fuels, naphtha, gasoline and lubricants.

Temperature Range: -40°F to +210°F with peaks to +250°F (-40°C to +100°C with peaks to +120°C).

No. SAE 100 R2/A - High Pressure Hose



Meets or exceeds requirements of SAE 100R2/A
Fitting Selection: Page 80-89
Meets Flame Resistance Acceptance Designation U.S. MSHA 1C-11

Inside Diameter	mm	Size	Outside Diameter	Working Pressure-PSI	Min. Burst Pressure-PSI	Min. Bend Radius	Weight LB/FT
1/4"	6.5	4	23/32"	5,000	20,000	4.0	.28
3/8"	9.5	6	55/64"	4,000	16,000	5.0	.40
1/2"	13.0	8	1"	3,500	14,000	7.0	.50
3/4"	19.0	12	1.22 1-1/4	2,250	9,000	9.5	.70
1"	25.0	16	1-39/64"	2,000	8,000	12.0	.95
1-1/4"	32.0	20	2-1/16"	1,625	6,500	16.5	1.50

Construction: Inner tube is seamless oil resistant black synthetic rubber. Reinforced with two braids of high-tensile steel wire. The cover is black synthetic rubber, resistant to abrasion, heat, oil, fuel, and weathering.

Recommended Uses: High pressure hydraulic oil lines, fuels, naphtha, gasoline and lubricants.

Temperature Range: -40°F to +200°F with peaks to +250°F (-40°C to +93°C with peaks to +120°C).

No. SAE 100 R2/AT - High Pressure Hose



Meets or exceeds requirements of SAE 100R2/AT
 Fitting Selection: Page xx-xx
 Meets Flame Resistance Acceptance Designation U.S. MSHA 1C-111

Inside Diameter	mm	Size	Outside Diameter	Working Pressure-PSI	Min. Burst Pressure-PSI	Min. Bend Radius	Weight LB/FT
3/16"	5.0	3	35/64"	5,000	20,000	3.5	.22
1/4"	6.5	4	39/64"	5,000	20,000	4.0	.24
5/16"	8.0	5	11/16"	4,250	17,000	4.5	.30
3/8"	9.5	6	49/64"	4,000	16,000	5.0	.36
1/2"	13.0	8	29/32"	3,500	14,000	7.0	.46
5/8"	16.0	10	1-1/32"	2,750	11,000	8.0	.54
3/4"	19.0	12	1-3/16"	2,250	9,000	9.5	.63
1"	25.0	16	1-17/32"	2,000	8,000	12.0	.91
1-1/4"	32.0	20	1-61/64"	1,625	6,500	16.5	1.44
1-1/2"	38.0	24	2-13/64"	1,250	5,000	20.0	1.78
2"	51.0	32	2-45/64"	1,125	4,500	25.0	2.30

Construction: Inner tube is seamless oil resistant black synthetic rubber. Reinforced with two braids of high-tensile steel wire. The cover is pin-pricked, non-marking synthetic rubber, resistant to abrasion, heat, oil, fuel, and weathering.

Recommended Uses: High pressure hydraulic oil lines, fuels, naptha, gasoline and lubricants.

Temperature Range: -40°F to +200°F with peaks to +250°F (-40°C to +93°C with peaks to +120°C).

No. HTP 15 - Hot Water/High Pressure Hose



Inside Diameter	mm	Size	Outside Diameter	Working Pressure-PSI	Min. Burst Pressure-PSI	Min. Bend Radius	Weight LB/FT
1/4"	6.5	4	9/16"	2,100	8,400	3.7	.19
3/8"	9.5	6	23/32"	2,100	8,400	4.3	.25
1/2"	13.0	8	55/64"	2,100	8,400	6.3	.30

No. HTP 21 - Hot Water/High Pressure Hose

Inside Diameter	mm	Size	Outside Diameter	Working Pressure-PSI	Min. Burst Pressure-PSI	Min. Bend Radius	Weight LB/FT
3/8"	9.5	6	23/32"	3,000	12,000	5.1	.29
1/2"	13.0	8	55/64"	3,000	12,000	6.3	.33

Construction: Inner tube is seamless black synthetic rubber, resistant to high temperatures and detergent fluids. Reinforced with one braid of high-tensile steel wire. The cover is black synthetic rubber, resistant to abrasion, oil, fuel, and weathering.

Recommended Uses: Power washers, water and/or steam at high temperatures and medium pressure, detergent fluids for cleaning equipment.

Temperature Range: -40°F to +302°F, -40°C to +150°C.

No. SAE 100 R4 - Return/Suction Hose



Meets or exceeds requirements of SAE 100R4
Meets Flame Resistance Acceptance Designation U.S. MSHA 1C-111

Inside Diameter	mm	Size	Outside Diameter	Working Pressure-PSI	Min. Burst Pressure-PSI	Min. Bend Radius	Weight LB/FT
3/4"	19.0	12	1-3/8"	300	1,200	5.0	.55
1"	25.0	16	1-5/8"	250	1,000	6.0	.73
1-1/4"	32.0	20	2"	200	800	8.0	.83
1-1/2"	38.0	24	2-1/4"	150	700	10.0	1.03
2"	51.0	32	2-3/4"	100	400	12.0	1.37
2-1/2"	63.0	40	3-1/4"	62	250	14.0	1.61
3"	76.0	48	3-3/4"	56	225	18.0	2.10

Construction: Inner tube is seamless oil resistant black synthetic rubber. Reinforced with two braids of textile fiber with a spiral wire to prevent collapse under vacuum. The cover is black synthetic rubber, resistant to abrasion, fuel, and weathering.

Recommended Uses: Petroleum and water-based hydraulic fluids in suction lines or in low pressure return lines. Suction up to 28 in. of mercury.

Temperature Range: -40°F to +200°F with peaks to +250°F (-40°C to +93°C with peaks to +120°C).

No. SAE 100 R5 - Medium Pressure Hose



Meets or exceeds requirements of SAE 100R5
D.O.T. FMVSS 106 thru size 12 J1402C Type A II

Inside Diameter	mm	Size	Outside Diameter	Working Pressure-PSI	Min. Burst Pressure-PSI	Min. Bend Radius	Weight LB/FT
3/16"	5.0	3	35/64"	3,000	12,000	3.0	.16
1/4"	6.5	4	39/64"	3,000	12,000	3.4	.19
5/16"	8.0	5	45/64"	2,250	9,000	4.0	.24
3/8"	9.5	6	51/64"	2,000	8,000	4.6	.26
1/2"	13.0	8	61/64"	1,750	7,000	5.5	.34
5/8"	16.0	10	1-7/64"	1,500	6,000	6.5	.46
7/8"	22.0	14	1-17/64"	800	3,200	7.4	.48
1-1/8"	29.0	20	1-17/32"	625	2,500	9.0	.54
1-3/8"	35.0	24	1-25/32"	500	2,000	10.5	.71
1-13/16"	46.0	32	2-17/64"	350	1,400	13.2	.87

Construction: Inner tube is seamless oil resistant black synthetic rubber. Reinforced with one textile fiber and one braid of high-tensile steel wire. The cover is black textile braid impregnated with rubber, resistant to abrasion, oil, fuel, and weathering.

Recommended Uses: Medium pressure hydraulic oil lines, fuels, naptha, gasoline and lubricants.

Temperature Range: -40°F to +200°F with peaks to +250°F (-40°C to +93°C with peaks to +120°C).

No. CF - Compactflex High Pressure Hose



Fitting Selection: Page 80-89

Meets Flame Resistance Acceptance Designation U.S. MSHA 1C-111

One braid compact hose especially designed according to R1/AT dimensions.

Meets or exceeds requirements of R2/AT pressure performance with lower bend radius.

Inside Diameter	mm	Size	Outside Diameter	Working Pressure-PSI	Min. Burst Pressure-PSI	Min. Bend Radius	Weight LB/FT
5/16"	8.0	5	5/8"	4,250	17,000	3.5	.17
3/8"	9.5	6	23/32"	4,000	16,000	3.5	.27
1/2"	13.0	8	55/64"	3,500	14,000	5.0	.33
5/8"	16.0	10	31/32"	2,750	11,000	6.0	.43
3/4"	19.0	12	1-1/8"	2,250	9,000	7.0	.52
1"	25.0	16	1-7/16"	2,000	8,000	9.0	.77

Construction: Inner tube is seamless oil resistant black synthetic rubber. Reinforced with one special braid of high-tensile steel wire. The cover is black synthetic rubber, resistant to abrasion, oil, fuel, and weathering.

Recommended Uses: High pressure hydraulic oil lines, fuels, naphtha, gasoline and lubricants.

Temperature Range: -40°F to +210°F with peaks to +250°F (-40°C to +100°C with peaks to +120°C).

No. TP - Trapper High Pressure Hose



Fitting Selection: Page 80-89

Meets Flame Resistance Acceptance Designation U.S. MSHA 1C-111

Two braids of compact hose according to one braid dimensions.

The hose exceeds requirements of SAE 100R2/AT or DIN 20022 2SN hose, with excellent impulse performances exceeding 400,000 cycles when tested with appropriate couplings.

Inside Diameter	mm	Size	Outside Diameter	Working Pressure-PSI	Min. Burst Pressure-PSI	Min. Bend Radius	Weight LB/FT
1/4"	6.5	4	35/64"	5,850	23,400	3.0	.19
5/16"	8.0	5	5/8"	5,500	22,000	3.5	.23
3/8"	9.5	6	23/32"	5,100	20,400	3.5	.29
1/2"	13.0	8	27/32"	4,400	17,600	5.0	.39
5/8"	16.0	10	31/32"	4,050	16,200	6.5	.44
3/4"	19.0	12	1-1/8"	3,450	13,800	8.0	.54
1"	25.0	16	1-7/16"	2,700	10,800	10.0	.81
1-1/4"	32.0	20	1-49/64"	2,400	9,600	14.5	1.14

Construction: Inner tube is seamless oil resistant black synthetic rubber. Reinforced with two spiral braids of high-tensile steel wire. The cover is black synthetic rubber, resistant to abrasion, oil, fuel, and weathering.

Trapper hose has a significantly smaller outer diameter than SAE100R2 which reduces the weight and facilitates the installation of assemblies.

Recommended Uses: High pressure hydraulic oil lines, fuels, naphtha, gasoline and lubricants.

Temperature Range: -40°F to +200°F with peaks to +250°F (-40°C to +93°C with peaks to +120°C).

No. IT 312 - Medium Pressure Teflon Hose



Meets or exceeds requirements of SAE 100R14

Inside Diameter	mm	Size	Outside Diameter	Working Pressure-PSI	Min. Burst Pressure-PSI	Min. Bend Radius	Weight LB/FT
1/8"	3.2	3	1/4"	3,000	12,000	1.5	.05
3/16"	5.0	4	5/16"	3,000	12,000	2.0	.07
1/4"	6.5	5	3/8"	3,000	12,000	3.0	.10
5/16"	8.0	6	7/16"	2,500	10,000	4.0	.12
3/8"	9.5	7	1/2"	2,250	9,000	4.5	.13
13/32"	10.5	8	35/64"	2,000	8,000	5.5	.17
1/2"	13.0	10	41/64"	1,500	6,000	6.5	.19
5/8"	16.0	12	49/64"	1,200	4,800	7.5	.23
3/4"	19.0	14**	57/64"	1,000	4,000	9.0	.28
7/8"	22.0	16	1-1/32"	1,000	4,000	10.5	.33
1"	25.0	18**	1-9/64"	900	3,600	12.0	.38
1-1/8"	29.0	20	1-19/64"	625	2,500	16.0	.43

Construction: Extruded Teflon* tube with AISI 304 Stainless steel single wire braid.

Recommended Uses: Virtually all chemical applications, steam, compressor discharge, medium pressure applications with laundry equipment, plastic molding presses, not recommended for steam/cold water cycling.

Temperature Range: -65°F to +450°F (-55°C to +240°C). For steam, the maximum working pressure is 425 psi at +450°F.

Lengths: Standard, also cut and/or couple to individual client requirements.

* E.I. DuPont registered trademark.

** True Bore

*** Steam 200 psi at +388°F.

No. SB 5 - Ultra High Pressure Hose



Inside Diameter	mm	Size	Outside Diameter	Working Pressure-PSI	Min. Burst Pressure-PSI	Min. Bend Radius	Weight LB/FT
1/4"	6.5	4	53/64"	10,000	40,000	4.0	.53
3/8"	9.5	6	1"	8,500	34,000	5.0	.67

Construction: Inner tube is seamless oil resistant black synthetic rubber. Reinforced with four layers of alternated, spiraled, high-tensile steel wire. One braid of high tensile steel wire over a layer of fabric. The cover is black synthetic rubber resistant to abrasion, oil, fuel, and weathering.

Recommended Uses: Ultra high pressure hydraulic oil lines.

Temperature Range: -40°F to +210°F with peaks to +250°F (-40°C to +100°C with peaks to +120°C).

Braided Hose Ferrules

Compactflex, R1/A, R1/AT, Trapper
Non-Skive Type



Hose Inside Diameter	Part Number
3/16"	1CC03CFNS
1/4"	1CC04CFNS
5/16"	1CC05CFNS
3/8"	1CC06CFNS
1/2"	1CC08CFNS
5/8"	1CC10CFNS
3/4"	1CC12CFNS
1"	1CC16CFNS
1-1/4"	1CC20CFNS
1-1/2"	1CC24CFNS
2"	1CC32CFNS

Hose Inside Diameter	Part Number
3/16"	2CC03CFNS
1/4"	2CC04CFNS
5/16"	2CC05CFNS
3/8"	2CC06CFNS
1/2"	2CC08CFNS
5/8"	2CC10CFNS
3/4"	2CC12CFNS
1"	2CC16CFNS
1-1/4"	2CC20CFNS

Hose Inside Diameter	Part Number
3/16"	2CC03CF
1/4"	2CC04CF
5/16"	2CC05CF
3/8"	2CC06CF
1/2"	2CC08CF
5/8"	2CC10CF
3/4"	2CC12CF
1"	2CC16CF
1-1/4"	2CC20CF
1-1/2"	2CC24CF
2"	2CC32CF

NPT

North American Thread Types - Iron Pipe Thread Abbreviations

N = National
P = Pipe

S = Straight Thread
T = Tapered Thread

F = Fuels
M = Mechanical Joint

NPTF

National Pipe Tapered thread for Fuels is a dryseal thread. It is used for both male and female ends.

The NPTF male will mate with the NPTF, NPSF, or NPSM female.

The NPTF male has tapered threads and a 30° inverted seat. The NPTF female has tapered threads and no seat. The seal takes place by deformation of the threads. The NPSM female has straight threads and a 30° inverted seat. The seal takes place on the 30° seat.

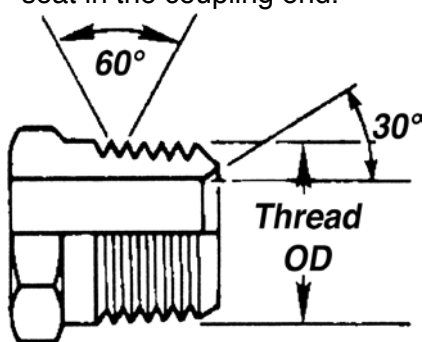
The NPTF connector is similar to, but not interchangeable with, the BSPT connector. The thread pitch is different in most sizes. Also, the thread angle is 60° instead of the 55° angle found on BSPT threads.

NPSF

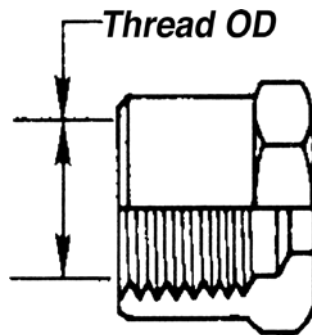
National Pipe Straight thread for Fuels is sometimes used for female ends and properly mates with the NPTF male end. However, SAE recommends the NPTF thread in preference to the NPSF for female ends.

NPSM

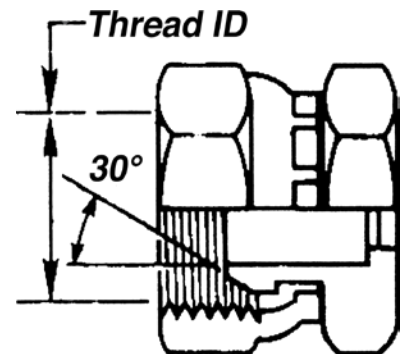
National Pipe Straight thread for Mechanical joint. This is used on the female swivel nut of iron pipe swivel adapters. The leak-resistant joint is not made by the sealing fit of threads, but by a tapered seat in the coupling end.



NPTF Male



NPTF Female



NPSM Female

Dash Size	Nominal Size (In.)	Threads per Inch	Female Thread ID	Male Thread OD
-2	1/8"	27	23/64"	13/32"
-4	1/4"	18	15/32"	35/64"
-6	3/8"	18	19/32"	43/64"
-8	1/2"	14	3/4"	27/32"
-12	3/4"	14	61/64"	1-1/16"
-16	1"	11-1/2	1-13/64"	1-5/16"
-20	1-1/4"	11-1/2	1-17/32"	1-43/64"
-24	1-1/2"	11-1/2	1-25/32"	1-29/32"
-32	2"	11-1/2	2-1/4"	2-3/8"

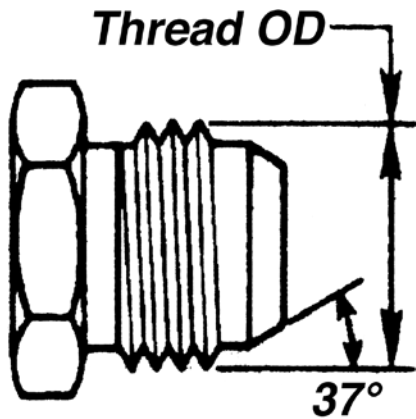
JIC (37° Flare)

The society of Automotive Engineers (SAE) specifies a 37° angle flare or seat be used with high pressure hydraulic tubing. These are commonly called JIC couplings.

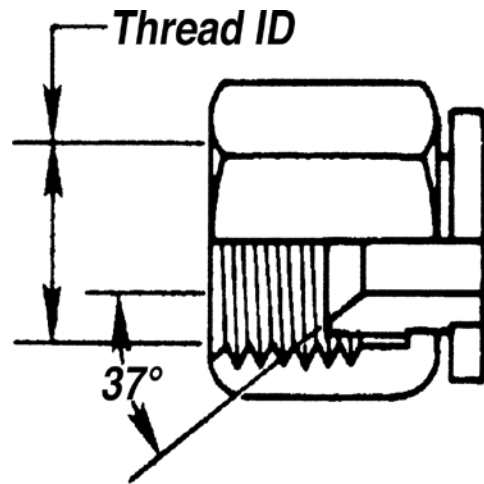
The JIC 37° flare male will mate with a JIC female only.*
 The JIC male has straight threads and a 37° flare seat.
 The JIC female has straight threads and a 37° flare seat.
 The seal is made on the 37° flare seat.

Some sizes have the same threads as the SAE 45° flare. Carefully measure the seat angle to differentiate.

***Note:** Some C5, C5E and Lock-On couplings may have dual machined seats (both 37° and 45° seats).



JIC 37° Male



JIC 37° Female

Dash Size	Nominal Size (In.)	Thread Size	Threads per Inch	Female Thread ID	Male Thread OD	Torque Recommendation (Ft./Lbs.)	
						Minimum	Maximum
-2	1/8"	5/16"	24	17/64"	5/16"	-	-
-3	3/16"	3/8"	24	21/64"	3/8"	-	-
-4	1/4"	7/16"	20	25/64"	7/16"	10	11
-5	5/16"	1/2"	20	29/64"	1/2"	13	15
-6	3/8"	9/16"	18	1/2"	9/16"	17	19
-8	1/2"	3/4"	16	11/16"	3/4"	34	38
-10	5/8"	7/8"	14	13/16"	7/8"	50	56
-12	3/4"	1-1/16"	12	31/32"	1-1/16"	70	78
-14	7/8"	1-3/16"	12	1-7/64"	1-3/16"	-	-
-16	1"	1-5/16"	12	1-15/64"	1-5/16"	94	104
-20	1-1/4"	1-5/8"	12	1-35/64"	1-5/8"	124	138
-24	1-1/2"	1-7/8"	12	1-51/64"	1-7/8"	156	173
-32	2"	2-1/2"	12	2-27/64"	2-1/2"	219	243

SAE (45° Flare)

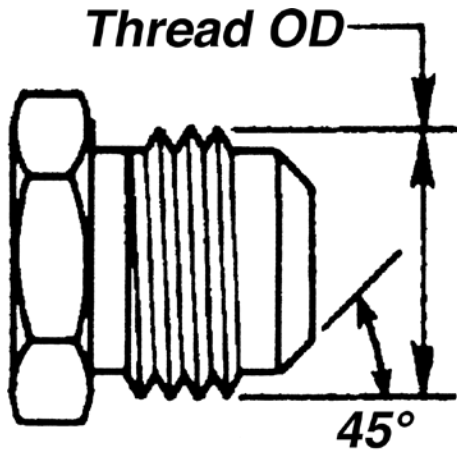
A term usually applied to fittings having a 45° angle flare or seat. Soft copper tubing is generally used in such applications as it is easily flared to the 45° angle. These are for low pressure applications - such as for fuel lines and refrigerant lines.

The SAE 45° flare male will mate with an SAE 45° flare female only or a dual seat JIC/SAE 45°.*
 The SAE male has straight threads and a 45° flare seat.
 The SAE female has straight threads and a 45° flare seat.
 The seal is made on the 45° flare seat.

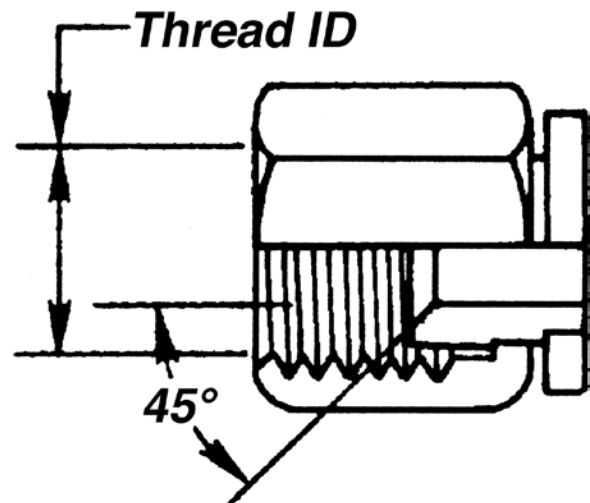
Some sizes have the same threads as the SAE 37° flare.

Carefully measure the seat angle to differentiate.

***Note:** Some C5, C5E, PCTS, C14, and Lock-On couplings may have dual machined seats (both 37° and 45° seats).



SAE 45° Male



SAE 45° Female

Dash Size	Nominal Size (In.)	Thread Size	Threads per Inch	Female Thread ID	Male Thread OD	Torque Recommendation (Ft./Lbs.)	
						Minimum	Maximum
-2	1/8"	5/16"	24	17/64"	5/16"	-	-
-3	3/16"	3/8"	24	21/64"	3/8"	-	-
-4	1/4"	7/16"	20	25/64"	7/16"	10	11
-5	5/16"	1/2"	20	29/64"	1/2"	13	15
-6	3/8"	9/16"	18	1/2"	9/16"	17	19
-8	1/2"	3/4"	16	11/16"	3/4"	34	38
-10	5/8"	7/8"	14	13/16"	7/8"	50	56
-12	3/4"	1-1/16"	12	31/32"	1-1/16"	70	78

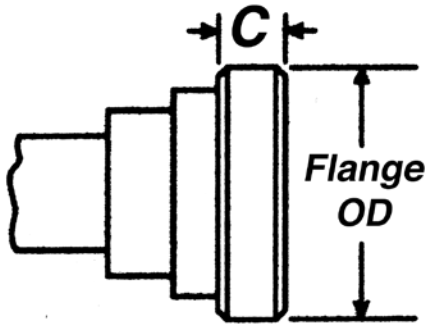
O-Ring Flange - SAE J518

The SAE Code 61 and Code 62 4-Bolt Split Flange is used worldwide, usually as a connection on pumps and motors.

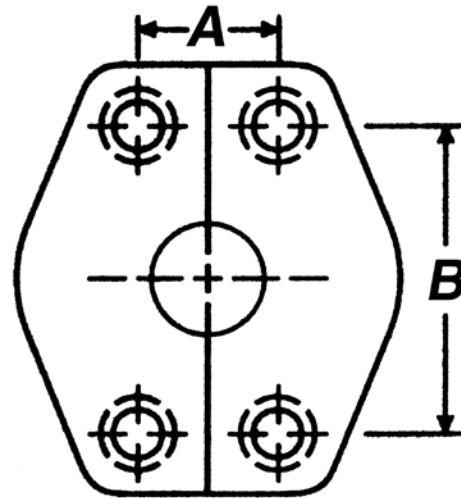
There are three exceptions:

1. The -10 size, which is common outside of North America, is not an SAE standard size.
2. Caterpillar flanges, which are the same flange O.D. as SAE Code 62, have a thicker flange head ("C" dimension in illustration).
3. Poclairn flanges, which are completely different from SAE flanges.

SAE Code 61 and Code 62



**Flange Head
(FL/FLH, FLC)**



**4-Bolt Split Flange Bolt
Hose Dimensions**

Dash Size	Nominal Flange Size (In.)	Code 61 Flange				Code 62 Flange			
		Flange OD (In.)	A (In.)	B (In.)	C (In.)	Flange OD (In.)	A (In.)	B (In.)	C (In.)
-8	1/2"	1.188	.688	1.500	.265	1.250	.718	1.594	.305
-10	5/8"	1.345	-	-	.265	-	-	-	-
-12	3/4"	1.500	.875	1.875	.265	1.625	.937	2.000	.345
-16	1"	1.750	1.031	2.062	.315	1.875	1.093	2.250	.375
-20	1-1/4"	2.000	1.188	2.312	.315	2.125	1.250	2.625	.405
-24	1-1/2"	2.375	1.406	2.750	.315	2.500	1.437	3.125	.495
-32	2"	2.812	1.688	3.062	.375	3.125	1.750	3.812	.495
-40	2-1/2"	3.312	2.000	3.500	.375	-	-	-	-
-48	3"	4.000	2.438	4.188	.375	-	-	-	-
-56	3-1/2"	4.500	2.750	4.750	.442	-	-	-	-
-64	4"	5.000	3.062	5.125	.442	-	-	-	-
-80	5"	6.000	3.625	6.000	.442	-	-	-	-

BSPP

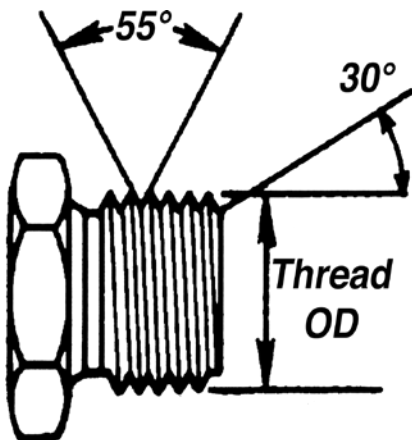
It is a common misconception that all foreign thread types are metric. This is not always the case. There are two common thread forms: Metric and Whitworth (BSP). The country of origin and the proper nomenclature for each is listed below.

British Standard Pipe Parallel

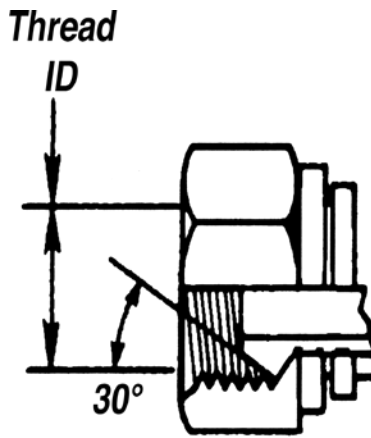
Popular couplings have British Standard Pipe (BSP) threads, also known as Whitworth threads. These can be Parallel (BSPP); or Tapered with a 55° thread angle (BSPT).

The BSPP (Parallel) male will mate with a BSPP (Parallel) female or a female port BSPOR. The BSPP male has straight threads and a 30° seat. The BSPP female has straight threads and a 30° seat, and O-ring. The female port has straight threads and a spotface. The seal on the port is made with an O-Ring or soft metal washer on the male.

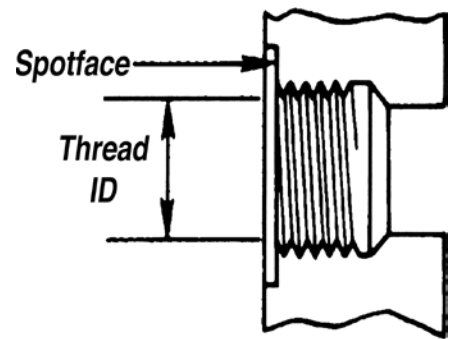
The BSPP (parallel) connector is similar to, but not interchangeable with, the NPSM connector. The tread pitch is different in most sizes, and the tread angle is 55° instead of the 60° angle found on NPSM threads.



BSPP Male



BSPP Female



BSPP Female Port

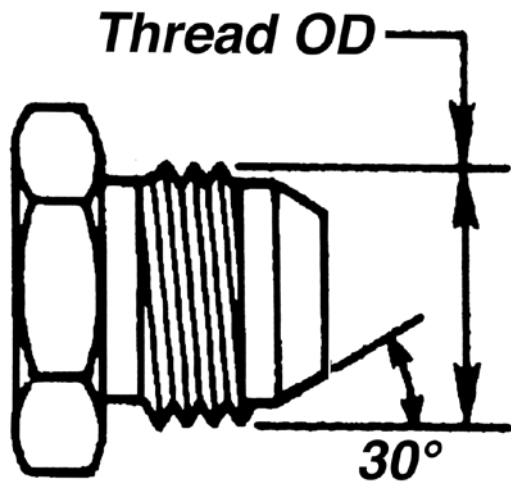
Dash Size	Nominal Size (In.)	Threads per Inch	Female Thread ID	Male Thread OD	Torque Recommendation Ft/Lbs	
					Minimum	Maximum
-2	1/8"	28	11/32"	3/8"	7	9
-4	1/4"	19	15/32"	17/32"	11	18
-6	3/8"	19	19/32"	21/32"	19	28
-8	1/2"	14	3/4"	13/16"	30	36
-10	5/8"	14	13/16"	29/32"	37	44
-12	3/4"	14	31/32"	1-1/32"	50	60
-16	1"	11	1-7/32"	1-11/32"	79	95
-20	1-1/4"	11	1-17/32"	1-21/32"	127	152
-24	1-1/2"	11	1-25/32"	1-7/8"	167	190
-32	2"	11	2-7/32"	2-11/32"	262	314

Japanese Thread Types

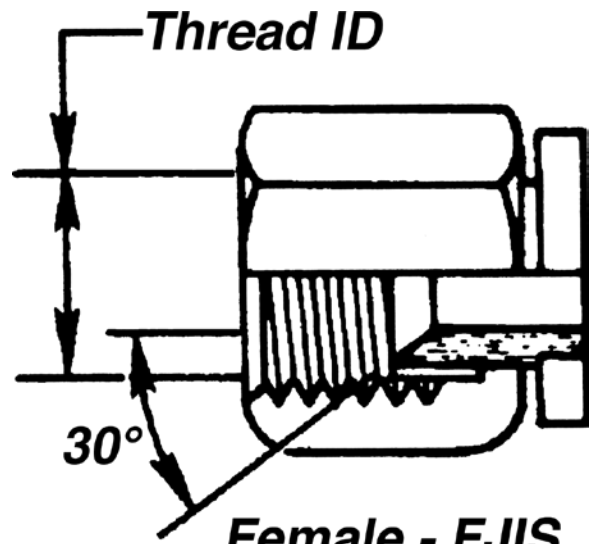
The most popular coupling style in Japan is the Japanese Industrial Standard coupling. Most Japanese equipment uses Japanese Industrial Standard couplings with a 30° seat and British Standard Pipe Parallel threads. They are not interchangeable with British couplings, since the flare is not inverted.

Japanese 30° Flare Parallel Threads

These Japanese 30° flare male connector will mate with a Japanese 30° flare female only. The male and female have straight threads and a 30° seat. The seal is made on a 30° seat. The threads on the Japanese 30° flare connector conform to JIS B 0202, which are the same as the BSPOR threads. Both the British and Japanese connectors have a 30° seat, but they are not interchangeable, because the British seat is inverted.



Male - MJIS



Female - FJIS

Dash Size	Nominal Size (In.)	Threads per Inch	Female Thread ID	Male Thread OD
-2	1/8"	1/8" - 28	11/32"	3/8"
-4	1/4"	1/4" - 19	7/16"	17/32"
-6	3/8"	3/8" - 19	19/32"	21/32"
-8	1/2"	1/2" - 14	3/4"	13/16"
-10	5/8"	5/8" - 14	13/16"	29/32"
-12	3/4"	3/4" - 14	15/16"	1-1/32"
-16	1"	1" - 11	1-13/16"	1-15/16"
-20	1-1/4"	1-1/4" - 11	1-17/32"	1-21/32"
-24	1-1/2"	1-1/2" - 11	1-25/32"	1-7/8"
-32	2"	2" - 11	2-7/32"	2-11/32"

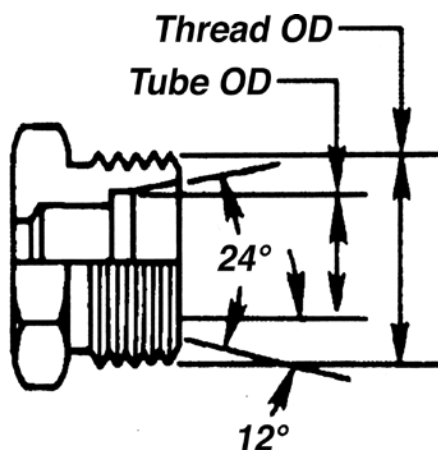
DIN 24° Cone

The DIN 24° cone male will mate with any of the three females shown.

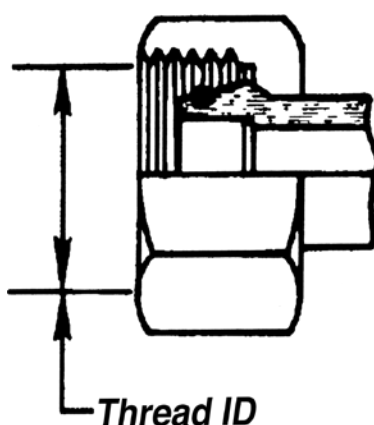
The male has a 24° seat, straight metric threads, and a recessed counterbore which matches the tube O.D. of the coupling used with it. The mating female is a 24° cone with O-ring, a metric tube fitting or a universal 24° or 60° cone.

There is a light and heavy series DIN coupling. Proper identification is made by measuring both the thread size and the tube O.D. (The heavy series has a smaller tube O.D. but a thicker wall section than the light.)

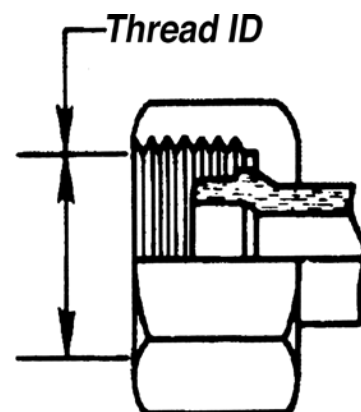
When measuring the flare angle with the seat angle gauge, use the 12° gauge. (The seat angle gauge measures the angle from the connector centerline).



**Male 24° Cone
DIN 2353**



**Female 24° Cone
with O-Ring**



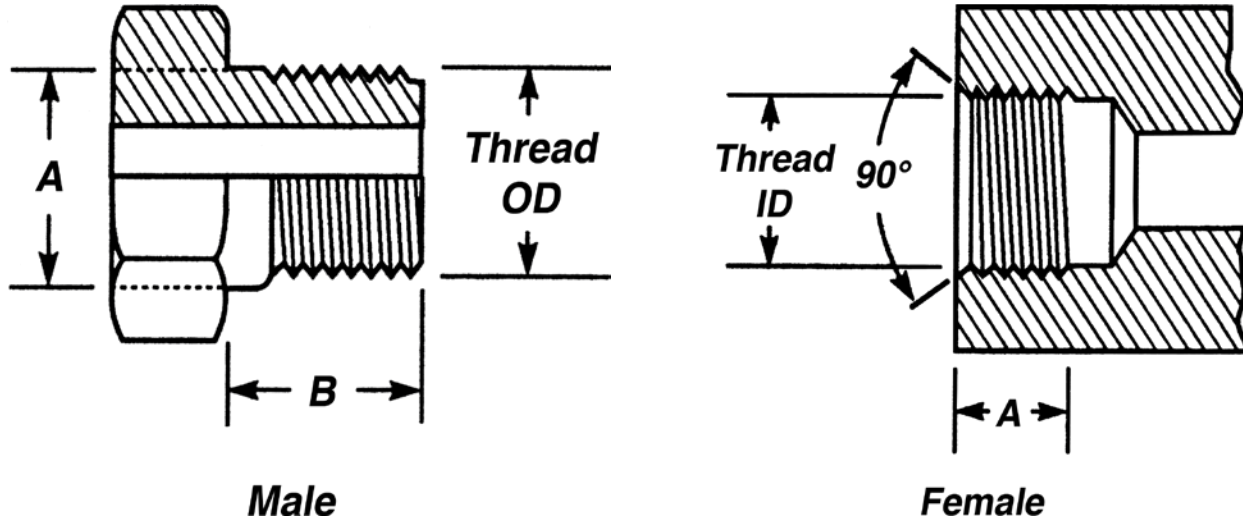
**Female Universal
24° or 60° Cone**

Metric Thread Size	Female Thread ID (mm)	Male Thread OD (mm)	Light Tube OD (mm)	Heavy Tube OD (mm)	Torque Recommendation Ft/Lbs	
					Minimum	Maximum
M12x1.5	10.5	12.0	6	-	7	15
M14x1.5	12.5	14.0	8	-	15	26
M16x1.5	14.5	16.0	10	8	18	30
M18x1.5	16.5	18.0	12	10	22	33
M20x1.5	18.5	20.0	14	12	26	37
M22x1.5	20.5	22.0	15	14	30	52
M24x1.5	22.5	24.0	-	16	30	52
M26x1.5	24.5	26.0	18	-	44	74
M30x2.0	28.0	30.0	22	20	59	89
M36x2.0	34.0	36.0	28	25	74	111
M42x2.0	40.0	42.0	-	30	74	162
M45x2.0	43.0	45.0	35	-	133	184
M52x2.0	50.0	50.0	42	38	148	221

DIN 3852 Type C Metric and Whitworth Tapered BSPT

The DIN 3852 Type C couplings are available with either metric or Whitworth British thread. The male will mate only with the female as shown.

The male and female couplings have tapered threads. The seal takes place on the threads. There are three series of DIN 3852 Type C Couplings: Extra Light (LL), Light (L) and Heavy (S).



DIN 3852 Type C Metric and Whitworth Tapered Thread Connectors

Series	Tube OD mm	Metric Tapered Threads						Whitworth Tapered Threads					
		Thread Size	Female		Male		Thread Size	Female		Male			
			Thread ID mm	A mm	Thread ODmm	A mm		B mm	Thread ID In	A mm	Thread OD In	A mm	B mm
LL Extra Light	4	8x1.0	6.5	5.5	8	8.40	8	1/8-28	11/32	5.5	1/8	.392	8
	5	8x1.0	6.5	5.5	8	8.40	8	1/8-28	11/32	5.5	1/8	.392	8
	6	10x1.0	8.5	5.5	10	10.4	8	1/8-28	11/32	5.5	1/8	.392	8
	8	10x1.0	8.5	5.5	10	10.4	8	1/8-28	11/32	5.5	1/8	.392	8
L Light	6	10x1.0	8.5	5.5	10	10.4	8	1/8-28	11/32	5.5	1/8	.392	8
	8	12x1.5	10.5	8.5	12	12.53	12	1/4-19	15/32	8.5	1/4	.532	12
	10	14x1.5	12.5	8.5	14	14.53	12	1/4-19	15/32	8.5	1/4	.532	12
	12	16x1.5	14.5	8.5	16	16.53	12	3/8-19	19/32	8.5	3/8	.670	12
	15	18x1.5	16.5	8.5	18	18.53	12	1/2-14	3/4	8.5	1/2	.839	14
	18	22x1.5	20.5	10.5	22	22.65	14	1/2-14	3/4	10.5	1/2	.839	14
S Heavy	6	12x1.5	10.5	8.5	12	12.53	12	1/4-19	15/32	8.5	1/4	.532	12
	8	14x1.5	12.5	8.5	14	14.53	12	1/4-19	15/32	8.5	1/4	.532	12
	10	16x1.5	14.5	8.5	16	16.53	12	3/8-19	19/32	8.5	3/8	.670	12
	12	18x1.5	16.5	8.5	18	18.53	12	3/8-19	19/32	8.5	3/8	.670	12
	14	20x1.5	18.5	10.5	20	20.65	14	1/2-14	3/4	10.5	1/2	.839	14
	16	22x1.5	20.5	10.5	22	22.65	14	1/2-14	3/4	10.5	1/2	.839	14

Pipe Fittings & Adapters

Available in Metric, Din & BSP - please specify size and thread when inquiring and/or ordering.

