

Thread Identification Guide

SAE O-Ring (ORB) & NPSM



Technical Information

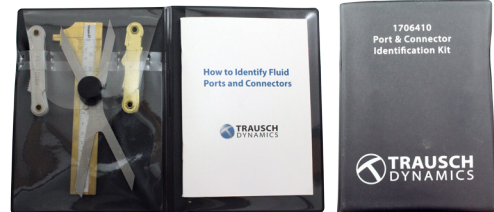
Adapter Sizing Chart

NPTF, BSPT and BSPP measure 1/4" larger than their actual size. For example, a 1/4" NPTF, BSPT or BSPP will actually measure 1/2" on the O. D. of the threads. JIC, SAE O-ring & Flat Face threads measure as listed below. The first number listed is the size of thread, the second number is the threads per inch.

Size	NPTF (Pipe)	JIC (37°)	SAE (O-Ring)	Face Seal (Flat Face)	BSPP (Parallel)	BSPT (Tapered)
-2	1/8 - 27	5/16 - 24	5/16 - 24	-	1/8 - 28	1/8 - 28
-3	-	3/8 - 24	3/8 - 24	-	-	-
-4	1/4 - 18	7/16 - 20	7/16 - 20	9/16 - 18	1/4 - 19	1/4 - 19
-5	-	1/2 - 20	1/2 - 20	-	-	-
-6	3/8 - 18	9/16 - 18	9/16 - 18	11/16 - 16	3/8 - 19	3/8 - 19
-8	1/2 - 14	3/4 - 16	3/4 - 16	13/16 - 16	1/2 - 14	1/2 - 14
-10	-	7/8 - 14	7/8 - 14	1 - 14	-	-
-12	3/4 - 14	1-1/16 - 12	1-1/16 - 12	1 3/16 - 12	3/4 - 14	3/4 - 14
-14	-	1-3/16 - 12	1-3/16 - 12	1 5/16 - 12	-	-
-16	1 - 11-1/2	1-5/16 - 12	1-5/16 - 12	1 7/16 - 12	1 - 11	1 - 11
-20	1-1/4 - 11-1/2	1-5/8 - 12	1-5/8 - 12	1 11/16 - 12	1-1/4 - 11	1-1/4 - 11
-24	1-1/2 - 11-1/2	1-7/8 - 12	1-7/8 - 12	2 - 12	1-1/2 - 11	1-1/2 - 11
-32	2 - 11-1/2	2-1/2 - 12	2-1/2 - 12	2 1/2 - 12	2 - 11	2 - 11

Thread Sizing Kit

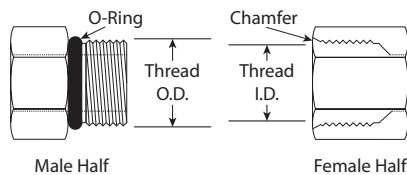
Allows the user to properly identify threads of all hydraulic types. This handy kit includes a fractional thread pitch gauge, a metric thread pitch gauge, inside & outside caliper (inches and millimeters), a seat angle gauge (24 degree/30 degree/37 degree/45 degree), 27-page fluid ports & connections identification guid. A carrying case is standard for easy and convenient storage.



Stock Number	Ship Wt.
1706410	1

SAE Straight Thread O-Ring (ORB)

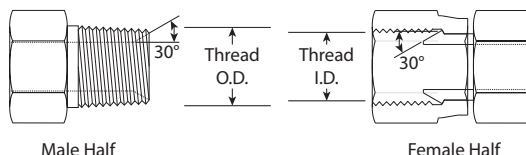
This port connection is recommended by the NFPA for optimum leakage control in medium to high pressure hydraulic systems. Sometimes referred to as "O-Ring Boss," the male connector has a straight thread and an o-ring. The female port has a straight thread, a machined surface (minimal spotface) and a chamfer to accept the o-ring. The seal takes place by compressing the o-ring into the chamfer. The threads hold the connection mechanically.



Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D.	Female Thread I.D.	O-Ring
1/8	02	5/16 - 24	5/16 (.31)	9/32 (.27)	902N90
3/16	03	3/8 - 24	3/8 (.38)	11/32 (.34)	903N90
1/4	04	7/16 - 20	7/16 (.44)	13/32 (.39)	904N90
5/16	05	1/2 - 20	1/2 (.50)	15/32 (.45)	905N90
3/8	06	9/16 - 18	9/16 (.56)	17/32 (.51)	906N90
1/2	08	3/4 - 16	3/4 (.75)	11/16 (.69)	908N90
5/8	10	7/8 - 14	7/8 (.88)	13/16 (.81)	910N90
3/4	12	1 1/16 - 12	1 1/16 (1.06)	1 (.98)	912N90
7/8	14	1 3/16 - 12	1 3/16 (1.19)	1 1/8 (1.10)	914N90
1	16	1 5/16 - 12	1 5/16 (1.31)	1 1/4 (1.23)	916N90
1 1/4	20	1 5/8 - 12	1 5/8 (1.63)	1 9/16 (1.54)	920N90
1 1/2	24	1 7/8 - 12	1 7/8 (1.88)	1 13/16 (1.79)	924N90
2	32	2-1/2 - 12	2-1/2 (2.50)	2 7/16 (2.42)	932N90

NPSM (National Pipe Thread Mechanical)

Commonly referred to as "female pipe swivels," this connection is still widely used in fluid power systems. The NPSM thread design differs from the NPTF pipe thread design which seals on the threads themselves. The NPSM female pipe swivel seals on a 30° seat (flare) and is visible down inside of the swivel nut. This swivel nut is permanently attached to the body and mates with a male pipe thread that has a 30° seat (chamfer) machined into the end. The threads bring both 30° seats (flare and chamfer) together creating a metal-to-metal mechanical seal. Please note that not all male NPTF threads have a chamfer machined into the end. The SAE standard does not require the chamfer to be machined. Sometimes a male NPTF thread adapter or fitting will have what looks like a small chamfer, but is in fact a small deburr that does not meet the requirement for the metal-to-metal mechanical seal.



Inch Size	Dash Size	Nominal Thread Size	Male Thread O.D.	Female Thread I.D.
1/8	02	1/8 - 27	12/32 (0.41)	3/8 (0.38)
1/4	04	1/4 - 18	17/32 (0.54)	1/2 (0.49)
3/8	06	3/8 - 18	11/16 (0.68)	5/8 (0.63)
1/2	08	1/2 - 14	27/32 (0.84)	25/32 (0.77)
3/4	12	3/4 - 14	1 1/16 (1.05)	1 (0.98)
1	16	1 - 11 1/2	1 5/32 (1.32)	1 1/4 (1.24)
1 1/4	20	1 1/4 - 11 1/2	1 21/32 (1.66)	1 19/32 (1.58)
1 1/2	24	1 1/2 - 11 1/2	1 29/32 (1.90)	1 13/16 (1.82)
2	32	2 - 11 1/2	2 3/8 (2.38)	2 5/16 (2.30)

