

How to Use this Section

This section is intended as an aid to identifying the most popular threads on hydraulic hose couplings and adaptors, and hydraulic equipment.

BSP, Metric, American and Japanese thread sizes can be very similar. It is important to measure and match every criteria of thread diameter, thread pitch, seating or sealing type (including angle of seats if present) to accurately determine thread type.

Procedure

Step 1. Investigation

Check for any markings on fitting or equipment which may be a clue to thread type. Country of origin may provide a clue.

Europe Check DIN/BSP **UK/Australia** Check BSP
America Check NPT/JIC/UNO/ORFS **Japan** Check JIS

All RYCO parts have a unique part number stamped on to aid identification.

Step 2. Visual Inspection

Depending on whether the male or female thread or both are available, different features will aid identification.

- Are threads parallel or tapered?
- Is there an O Ring or a washer seal?
- If cone seats are present, are they concave or convex?
- Type and position on fittings.

Step 3. Measure Threads

With a caliper, measure the thread diameter. OD of male threads
ID of female threads

Using a thread gauge, determine the number of threads per inch.

If thread gauge is not available, measure pitch from crest to crest of adjacent threads, or count the number of threads in 1/4" and multiply by four for threads per inch.

Chart at bottom of page may assist.

Step 4. Seat Angle Measurement

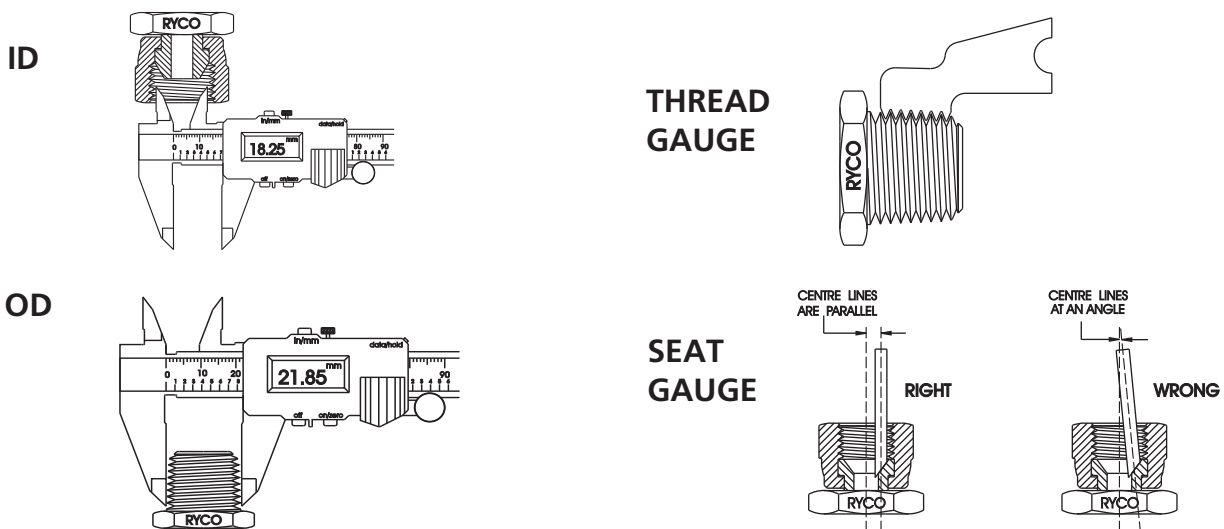
Using a seat gauge, determine the angle of the seat.

Some fittings have dual seats (eg. JIC 37° & SAE 45°), and some have a radiused cone.

Step 5. Conclusion

Match the measurements taken against those in the tables herein that appear to be similar to the coupling under consideration.

A final check can be achieved by mating with an actual coupling of the same thread.



TPI (Threads Per Inch)	28	27	24	20	19	18	16	14	12	11.5	11	8	16.9	12.7
THREAD PITCH (mm)	0,91	0,94	1,06	1,27	1,34	1,4	1,59	1,81	2,12	2,21	2,31	3,18	1,5	2,0

BSPT & BSPP THREADS

BSP is BRITISH STANDARD PIPE

BSPT is BRITISH STANDARD PIPE TAPER

BSPP is BRITISH STANDARD PIPE PARALLEL

Also known as Whitworth 55° Thread Form

Thread form per AS 1722.1, BS 21, ISO 7, DIN 3852-2 Form C

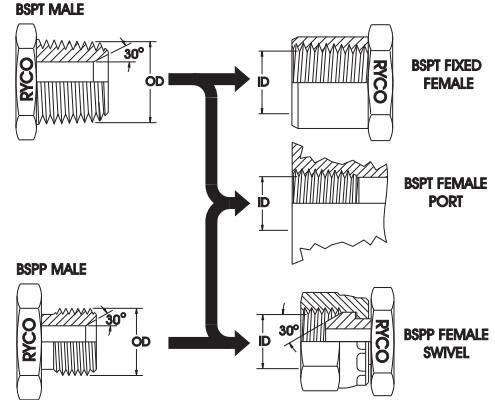
Thread form per AS 1722.2, ISO 228 (Thread Type), ISO 1179

BSPT male threads seal against threads of fixed BSPT female. Contact is made on the flanks of the threads.

Use of a thread sealant is recommended for BSPT male to BSPT female connections.

Measure the BSPT male thread OD and female thread ID at the first full thread near the end of the fitting.

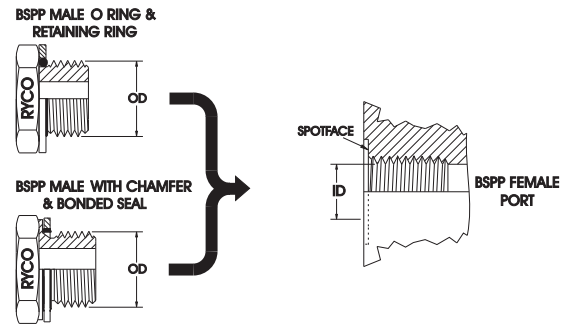
BSPT male and BSPP male with conical 30° seat (60° included angle) seal against matching conical 30° seat of BSPP female swivel.



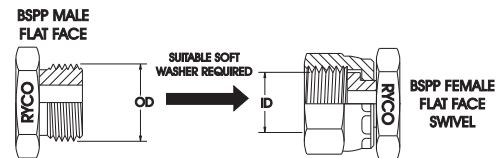
BSPP O Ring male connector has straight threads and O Ring with metal Retaining Ring. It seals against flat external surface of BSPP female port.

BSPP male, with chamfer to locate Bonded Seal also seals against flat external surface of BSPP female port.

Surface irregularities require a Spot Face to ensure effective sealing. Elbows and tees have Lock Nut to allow orientation of fitting to required direction.



BSPP male and BSPP female flat face swivel require a suitable soft washer between faces to seal. For low working pressure.



BSPT & BSPP Thread Dimensions

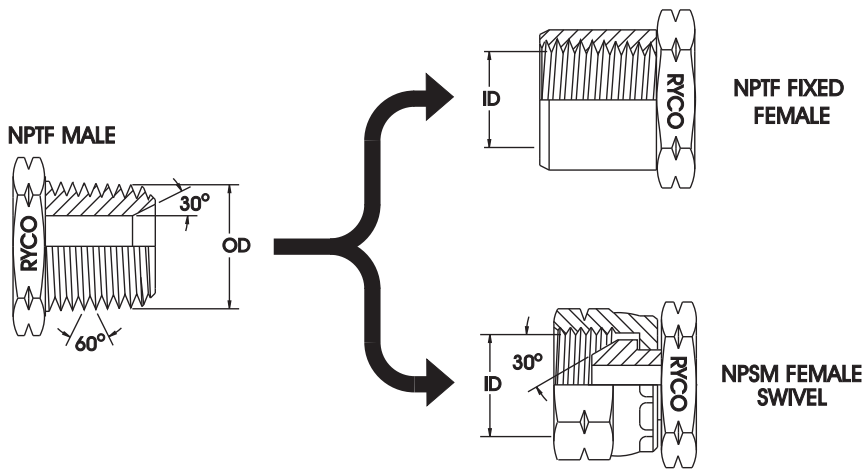
BSPT & BSPP SIZE & PITCH	DASH SIZE	BSPT MALE THREAD OD		BSPP MALE THREAD OD		BSPT FEMALE THREAD ID		BSPP FEMALE THREAD ID	
		mm	inch	mm	inch	mm	inch	mm	inch
1/8 - 28	-02	9,5	0.37	9,6	0.38	8,4	0.33	8,6	0.34
1/4 - 19	-04	12,8	0.50	13,0	0.51	11,2	0.44	11,9	0.47
3/8 - 19	-06	16,3	0.64	16,5	0.65	14,7	0.59	15,2	0.60
1/2 - 14	-08	20,4	0.80	20,8	0.82	18,3	0.72	19,1	0.75
5/8 - 14	-10	22,5	0.89	22,8	0.90	20,6	0.81	20,8	0.82
3/4 - 14	-12	25,9	1.02	26,3	1.04	23,9	0.94	24,6	0.97
1 - 11	-16	32,6	1.28	33,1	1.30	29,7	1.17	30,7	1.21
1.1/4 - 11	-20	41,1	1.62	41,8	1.64	38,6	1.52	39,4	1.55
1.1/2 - 11	-24	47,0	1.85	47,7	1.88	44,5	1.75	45,5	1.79
2 - 11	-32	58,6	2.31	59,5	2.34	56,4	2.22	57,4	2.26
2.1/2 - 11	-40	74,1	2.92	75,1	2.95	71,9	2.83	72,6	2.86
3 - 11	-48	86,6	3.41	87,9	3.46	84,6	3.33	85,4	3.36

Thread size refers to the nominal bore of the pipe. Subtract approx. 1/4" (6 mm) from thread diameter measurement for nominal pipe size. Pitch is Threads Per Inch (TPI). "Gas", "R" & "G" also refer to BSP. "Male Iron (Pipe)" may be BSP or NPT.

NPT & NPS THREADS

- | | |
|--|-----------------------------------|
| NPT is NATIONAL PIPE TAPER (AMERICAN) | Thread form per ANSI/ASME B1.20.1 |
| NPS is NATIONAL PIPE STRAIGHT (PARALLEL) | Thread form per ANSI/ASME B1.20.1 |
| NPTF is NATIONAL PIPE TAPER FOR FUEL | Thread form per SAE J476 |
| NPSM is NATIONAL PIPE STRAIGHT MECHANICAL | Thread form per ANSI/ASME B1.20.1 |

National Pipe threads are similar in function to BSP threads, but are not generally interchangeable. NPTF threads (also known as Dryseal) are an improvement to NPT. Controlled truncation of threads mean the metal-to-metal thread seal is at root and crest of threads, in addition to flanks of threads. Use of thread sealant is recommended for NPT male and NPT female connection.



Measure NPT male thread OD and NPT female thread ID at first full thread near end of fitting.

NPT Thread Dimensions

NPT THREAD SIZE & PITCH	DASH SIZE	MALE THREAD MINOR OD		FEMALE THREAD ID	
		mm	inch	mm	inch
1/8 - 27	-02	9,9	0.39	8,4	0.33
1/4 - 18	-04	13,2	0.52	11,2	0.44
3/8 - 18	-06	16,6	0.65	14,7	0.58
1/2 - 14	-08	20,6	0.81	17,8	0.70
3/4 - 14	-12	26,0	1.02	23,4	0.92
1 - 11.1/2	-16	32,5	1.28	29,5	1.16
1.1/4 - 11.1/2	-20	41,2	1.62	38,1	1.50
1.1/2 - 11.1/2	-24	47,3	1.86	43,9	1.73
2 - 11.1/2	-32	59,3	2.33	56,4	2.22
2.1/2 - 8	-40	71,5	2.82	69,1	2.72
3 - 8	-48	87,3	3.44	84,8	3.34

NPSM Thread Dimensions

NPSM THREAD SIZE	DASH SIZE	FEMALE THREAD ID	
		mm	inch
1/8 - 27	-02	8,6	0.34
1/4 - 18	-04	11,9	0.47
3/8 - 18	-06	15,0	0.59
1/2 - 14	-08	19,1	0.75
3/4 - 14	-12	24,6	0.97
1 - 11.1/2	-16	30,5	1.20
1.1/4 - 11.1/2	-20	39,4	1.55
1.1/2 - 11.1/2	-24	45,5	1.79
2 - 11.1/2	-32	57,4	2.26
2.1/2 - 8	-40	68,8	2.71
3 - 8	-48	84,6	3.33

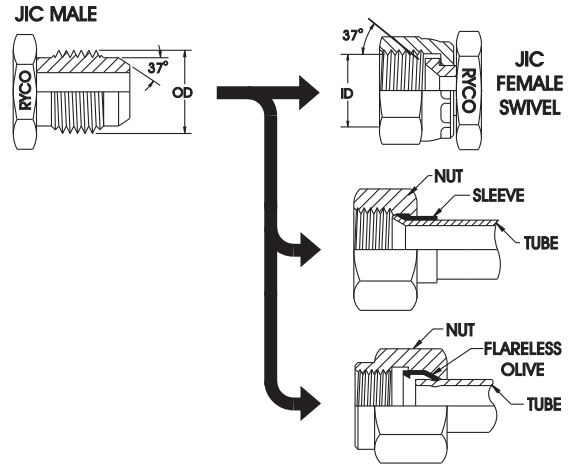
Thread size refers to the nominal bore of the pipe.
 Subtract approximately 1/4" (6 mm) from thread measurement for nominal pipe size.
 Pitch is Threads Per Inch (TPI).

JIC 37° FLARE & UNO (O RING BOSS) THREADS

JIC is JOINT INDUSTRIES COUNCIL SAE J514, ISO 8434-2
 UN is UNIFIED NATIONAL SAE J1926, ISO 11926-2

JIC & UNO (O Ring Boss) thread forms are the same (ASME B1.1). Method of sealing differs.

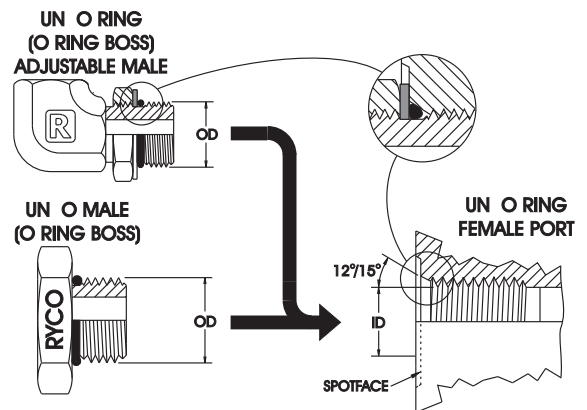
JIC male has 37° flare which seals against 37° seat in female.



JIC male can also seal against 37° flared tubing with JIC nut and sleeve.

JIC male can also be used with RYCO S134 J-Lok Female Nut and Flareless Olive on Imperial OD tubing.

UNO (O Ring Boss) seals with O Ring compressed between hex boss of UN male and 12°/15° tapered bore of UN (O Ring Boss) female port. For elbows and tees, Back Up Washer and Lock Nut allow orientation of fitting to required direction.



JIC & UNO Thread Dimensions

MALE THREAD OD & PITCH	DASH SIZE	MALE THREAD OD		FEMALE THREAD ID		TUBE SIZE
inch - TPI		mm	inch	mm	inch	inch
5/16 - 24 UNF	-05	7,9	0.31	6,9	0.27	1/8
3/8 - 24 UNF	-06	9,5	0.38	8,5	0.33	3/16
7/16 - 20 UNF	-07	11,1	0.44	9,9	0.39	1/4
1/2 - 20 UNF	-08	12,7	0.50	11,4	0.45	5/16
9/16 - 18 UNF	-09	14,3	0.56	13,0	0.51	3/8
3/4 - 16 UNF	-12	19,1	0.75	17,5	0.69	1/2
7/8 - 14 UNF	-14	22,2	0.88	20,3	0.80	5/8
1.1/16 - 12 UN	-17	27,0	1.06	24,9	0.98	3/4
1.3/16 - 12 UN	-19	30,2	1.19	28,2	1.11	7/8
1.5/16 - 12 UN	-21	33,3	1.31	31,2	1.23	1
1.5/8 - 12 UN	-26	41,3	1.63	39,1	1.54	1.1/4
1.7/8 - 12 UN	-30	47,6	1.88	45,5	1.79	1.1/2
2.1/2 - 12 UN	-40	63,5	2.50	61,5	2.42	2

Thread size is actual measurement of male thread and pitch is Threads Per Inch (TPI).

JIS THREADS

JIS is JAPANESE INDUSTRIAL STANDARDS

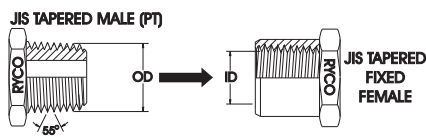
There are four popular coupling styles in Japan.

1. JIS Tapered Pipe Thread.

The Japanese tapered pipe thread connector is identical to and interchangeable with the BSPT (tapered) connector. The Japanese male thread does not have a 30° Flare, and will not mate with the BSPP female swivel with conical seat.

The seal on the Japanese tapered pipe thread connector is made on the threads. Use of a thread sealant is recommended.

Thread form per JIS B 0203 (identical to BSPT)

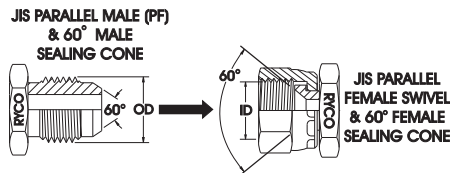


Refer to BSPT section for dimensions of threads.

2. JIS 30° Flare (Female Internal Cone Seat).

This connection uses a 60° concave (inverted) seat and British Standard Pipe Parallel threads. They are not interchangeable with BSPP conical seat couplings, because the cone seats are opposite.

Thread form per JIS B 0202 (identical to BSPP)



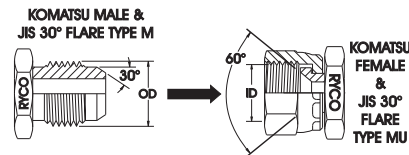
Refer to BSPP section for dimensions of threads.

3. Komatsu 30° flare (Female Internal Cone Seat).

Threads commonly used on Komatsu equipment (30° cone) have metric thread form.

MALE THREAD OD & PITCH	DASH SIZE	FEMALE THREAD ID
mm		mm
M14 x 1,5	-1415	12,5
M18 x 1,5	-1815	16,5
M22 x 1,5	-2215	20,5
M24 x 1,5	-2415	22,5
M30 x 1,5	-3015	28,5
M33 x 1,5	-3315	31,5
M36 x 1,5	-3615	34,5
M42 x 1,5	-4215	40,5

Thread form per JIS B 0207



4. Komatsu Style Flange Fitting JIS B 8363

The Komatsu style Flange fitting is nearly identical to, and fully interchangeable with, the SAE Code 61 flange fitting*. The O Ring dimensions are different between all sizes. When replacing a Komatsu style flange with an SAE style flange, an SAE style O Ring must always be used.

*5/8" is not in the SAE Standards.

BSPT & BSPP Threads Dimensions

BSPT & BSPP SIZE & PITCH	DASH SIZE	BSPT MALE THREAD OD		BSPP MALE THREAD OD		BSPT FEMALE THREAD ID		BSPP FEMALE THREAD ID	
inch - TPI		mm	inch	mm	inch	mm	inch	mm	inch
1/8 - 28	-02	9,5	0.37	9,6	0.38	8,4	0.33	8,6	0.34
1/4 - 19	-04	12,8	0.50	13,0	0.51	11,2	0.44	11,9	0.47
3/8 - 19	-06	16,3	0.64	16,5	0.65	14,7	0.59	15,2	0.60
1/2 - 14	-08	20,4	0.80	20,8	0.82	18,3	0.72	19,1	0.75
5/8 - 14	-10	22,5	0.89	22,8	0.90	20,6	0.81	20,8	0.82
3/4 - 14	-12	25,9	1.02	26,3	1.04	23,9	0.94	24,6	0.97
1 - 11	-16	32,6	1.28	33,1	1.30	29,7	1.17	30,7	1.21
1.1/4 - 11	-20	41,1	1.62	41,8	1.64	38,6	1.52	39,4	1.55
1.1/2 - 11	-24	47,0	1.85	47,7	1.88	44,5	1.75	45,5	1.79
2 - 11	-32	58,6	2.31	59,5	2.34	56,4	2.22	57,4	2.26
2.1/2 - 11	-40	74,1	2.92	75,1	2.95	71,9	2.83	72,6	2.86
3 - 11	-48	86,6	3.41	87,9	3.46	84,6	3.33	85,4	3.36

Thread size refers to the nominal bore of the pipe. Subtract approx. 1/4" (6 mm) from thread diameter measurement for nominal pipe size. Pitch is Threads Per Inch (TPI). "Gas", "R" & "G" also refer to BSP. "Male Iron (Pipe)" may be BSP or NPT.

METRIC FRENCH GAZ

Also known as Metric French GAZ 24°

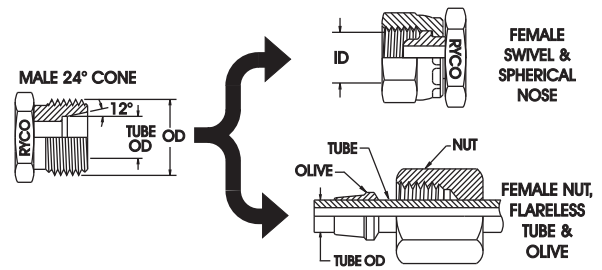
These seal on a 24° cone seat located internally on the male connector using straight fine metric threads.

Metric French GAZ series uses fractional number metric OD tubing, as shown in the table.

Metric French Millimetric series uses whole number metric OD tubing. The two series are not interconnectable.

The male will mate with a straight thread female swivel with spherical nose seat.

The same male also mates with flareless tube, Tube Nut and Compression Olive (Cutting Ring). Tightening of the female nut compresses the olive causing it cut into the tube, thereby forming a seal between the tube, olive and 24° male cone.



MALE THREAD OD & PITCH	DASH SIZE	MALE THREAD OD		FEMALE THREAD ID		TUBE SIZE
inch - TPI		mm	inch	mm	inch	mm
M20 x 1,5	-20	20,0	0.78	18,5	0.72	13,25
M24 x 1,5	-24	24,0	0.94	22,5	0.88	16,75
M30 x 1,5	-30	30,0	1.18	28,5	1.12	21,25
M36 x 1,5	-36	36,0	1.41	34,5	1.35	26,75
M45 x 1,5	-45	45,0	1.77	43,5	1.71	33,50
M52 x 1,5	-52	52,0	2.04	50,5	1.98	42,25

METRIC FRENCH MILLIMETRIC

Also known as Metric Millimetric

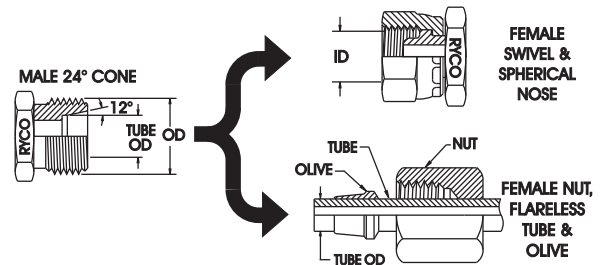
These seal on a 24° cone seat located internally on the male connector using straight fine metric threads.

Metric French GAZ series uses fractional number metric OD tubing, as shown in the table.

Metric French Millimetric series uses whole number metric OD tubing. The two series are not interconnectable.

The male will mate with a straight thread female swivel with spherical nose seat.

The same male also mates with flareless tube, Tube Nut and Compression Olive (Cutting Ring). Tightening of the female nut compresses the olive causing it cut into the tube, thereby forming a seal between the tube, olive and 24° male cone.



MALE THREAD OD & PITCH	DASH SIZE	MALE THREAD OD		FEMALE THREAD ID		TUBE SIZE
inch - TPI		mm	inch	mm	inch	mm
M27 x 1,5	-27	27,0	1.06	25,5	1.00	20
M30 x 1,5	-30	30,0	1.18	28,5	1.12	22
M33 x 1,5	-33	33,0	1.30	31,5	1.24	25
M36 x 1,5	-36	36,0	1.41	34,5	1.35	28
M39 x 1,5	-39	39,0	1.54	37,5	1.48	30
M45 x 1,5	-45	45,0	1.77	43,5	1.71	35

METRIC DIN THREADS

DIN is **DEUTSCHE INDUSTRIE NORMEN (GERMAN INDUSTRIAL STANDARD)**

Thread Form per DIN 3853, ISO 261
 24° Cone Seat per DIN 3861, ISO 8434-1/DIN 2353
 O Ring Seal per DIN 3865,
 Bonded Seal and Port per DIN 3852-1

DKL is **DICHT KEGEL LEICHT**

DKS is **DICHT KEGEL SCHWER**

DKOL is **DICHT KEGEL O RING LEICHT**

DKOS is **DICHT KEGEL O RING SCHWER**

DKM is **DICHT KEGEL METRIC**

(Metric Light Series 24° Cone)

(Metric Heavy Series 24° Cone)

(Metric Light O Ring Series 24° Cone)

(Metric Heavy O Ring Series 24° Cone)

(Metric 60° Cone)

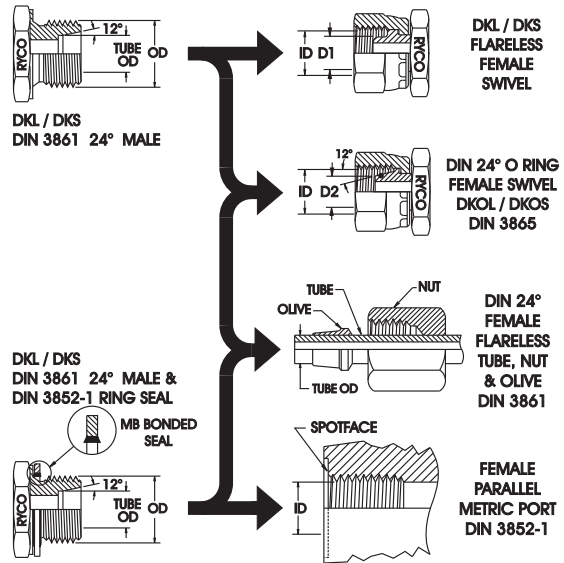
This DIN connection comes in a Light Series (DKL/DKOL) and a Heavy Series (DKS/DKOS). Some thread sizes in each series are the same, but the Tube OD of the Heavy Series is smaller and has a thicker tube wall. Because the tube and sealing cone are different sizes, Light and Heavy Series are NOT interchangeable.

The DIN male 24° internal cone seat will seal with flareless female swivel fittings. These female fittings use either a spherical nose (DKL/DKS) or an O Ring seal (DKOL/DKOS) located on their outward facing 24° cone. Female DKL sizes up to and including M26 have a universal 24°/60° cone and can be used in place of female DKM fittings with 60° cone.

The same male also mates with the DIN system Metric Tube, Tube Nut and Compression Olive (Cutting Ring).

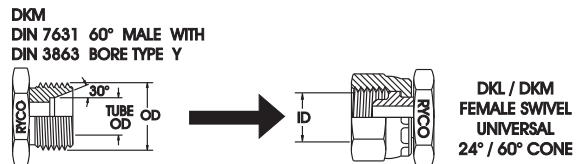
Tightening of the female nut compresses the olive causing it to cut into the tube, thereby forming a seal between the tube, olive and 24° male cone.

The same male used with a metal Bonded Seal will mate with a DIN 3852-1 metric threaded port with spotface.



DKM 60° CONE SEAT

The DIN male 60° internal cone seat will mate with DKL/DKM female universal 24°/60° cone fittings up to and including size M26 and DKM female 60° cone fittings from size M30 up.



MALE THREAD OD & PITCH	FEMALE THREAD ID	LIGHT SERIES - DKL/DKOL				HEAVY SERIES - DKS/DKOS			
		DASH SIZE	TUBE OD	D1 DIA	D2 DIA	DASH SIZE	TUBE OD	D1 DIA	D2 DIA
mm	mm		mm	mm	mm		mm	mm	mm
M12 x 1,5	10,5	-1215*	6	7,5	6,3				
M14 x 1,5	12,5	-1415*	8	9,5	8,2	-1415	6	7,5	6,3
M16 x 1,5	14,5	-1615*	10	11,5	10,2	-1615	8	9,5	7,9
M18 x 1,5	16,5	-1815*	12	14,0	12,2	-1815	10	12,0	10,0
M20 x 1,5	18,5					-2015	12	14,0	12,0
M22 x 1,5	20,5	-2215*	15	17,0	15,2	-2215	14	16,0	14,2
M24 x 1,5	22,5					-2415	16	18,0	15,8
M26 x 1,5	24,5	-2615*	18	20,0	18,2				
M30 x 2,0	28,0	-3020	22	24,5	22,2	-3020	20	22,5	19,8
M36 x 2,0	34,0	-3620	28	30,5	28,2	-3620	25	27,5	24,5
M42 x 2,0	40,0					-4220	30	33,0	30,0
M45 x 2,0	43,0	-4520	35	38,0	35,4				
M52 x 2,0	50,0	-5220	42	45,0	42,4	-5220	38	41,0	36,8

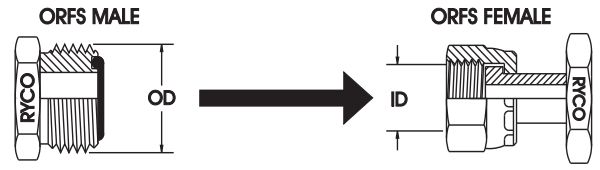
*These DKL Light Series Female Connections can be used in place of DKM Female.

Note: in above tables, pitch is included in DASH Size.

For HOSE COUPLINGS and most ADAPTORS, pitch is not included in the DASH Size.

ORFS THREADS SAE J1453, ISO 8434-3 ORFS is O RING FACE SEAL

ORFS system consists of ORFS Male with O Ring in Face, which seals against Flat Seated ORFS Female Swivel Nut fitting. The Swivel Nut can be slipped back to help installation in tight situations. The prominent position of the O Ring on the Male fitting makes it easy to inspect the condition of the O Ring.

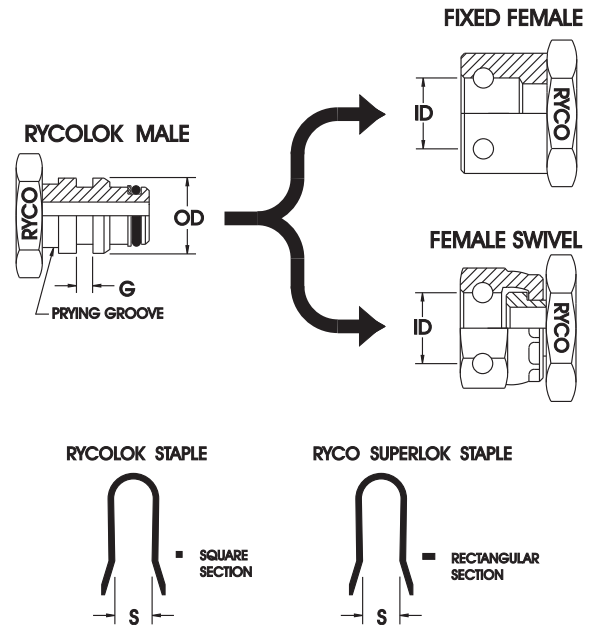


MALE THREAD OD & PITCH	DASH SIZE	MALE THREAD OD		FEMALE THREAD ID		TUBE SIZE
inch - TPI		mm	inch	mm	inch	inch
9/16 - 18 UNF	-09	14,3	0.56	12,9	0.51	1/4
11/16 - 16 UN	-11	17,3	0.68	16,0	0.63	3/8
13/16 - 16 UN	-13	20,6	0.81	19,1	0.75	1/2
1 - 14 UNS	-16	25,4	1.00	23,6	0.73	5/8
1.3/16 - 12 UN	-19	30,0	1.18	28,2	1.11	3/4
1.7/16 - 12 UN	-23	36,3	1.43	34,3	1.35	1
1.11/16 - 12 UN	-27	42,7	1.68	40,6	1.60	1.1/4
2 - 12 UN	-32	51,8	2.00	48,8	1.92	1.1/2

RYCOLOK SAE J1467 RYCO SUPERLOK

RYCOLOK are also called CLIP FASTENER & STAPLE

The RYCOLOK male connector uses an O Ring and Back Up Washer, and seals on the smooth bore of the female. The connection is held together by the staple. The male staple groove (G) aligns with the drilled holes of the female allowing the staple to be inserted. RYCOLOK and RYCO SUPERLOK use different width staples and are therefore NOT interchangeable.



NOMINAL SIZE			NOM. MALE OD & FEMALE ID		RYCOLOK STAPLE SIZE				RYCO SUPERLOK STAPLE SIZE			
DN	inch	Dash	mm	inch	G	G	S	S	G	G	S	S
6	1/4	-06	15	0.59	5,1	0.2	8	0.31	-	-	-	-
10	3/8	-10	20	0.79	5,1	0.2	13	0.51	-	-	-	-
12	1/2	-13	24	0.94	5,1	0.2	17	0.67	-	-	-	-
16	5/8	-16	26	1.02	5,1	0.2	19	0.75	-	-	-	-
19	3/4	-20	29	1.14	5,1	0.2	22	0.87	9	0.35	22	0.87
25	1	-25	39	1.53	7,1	0.28	29	1.14	13	0.51	29	1.14
31	1.1/4	-32	46	1.81	7,1	0.28	36	1.42	13	0.51	36	1.42
38	1.1/2	-40	55	2.16	7,1	0.28	45	1.77	13	0.51	45	1.77
51	2	-50	64	2.52	7,1	0.28	54	2.13	13	0.51	54	2.13

SAE THREADS

SAE is Society of Automotive Engineers

These fittings are commonly used in refrigeration, automotive and low pressure applications.

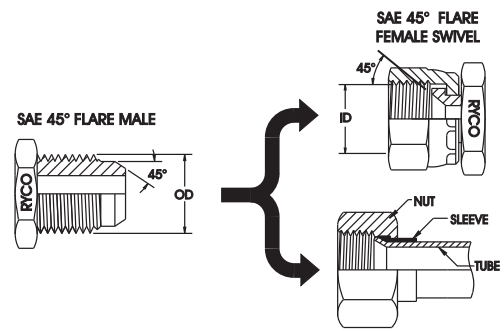
SAE 45° Flare

SAE J512

SAE male has 45° flare which seals against 45° seat in female.
Male can also seal against 45° flared tubing with nut and sleeve.

7/16 - 20, 1/2 - 20, 3/4 - 16 & 7/8 - 14 are the same thread form as JIC 37° flare. Some fittings in these sizes have both JIC 37° & SAE 45° seats.

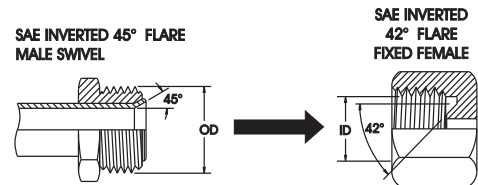
MALE THREAD OD & PITCH	DASH SIZE	MALE THREAD OD		FEMALE THREAD ID		TUBE SIZE
inch - TPI		mm	inch	mm	inch	inch
5/16 - 24	-05	7,9	0.31	6,8	0.27	1/8
3/8 - 24	-06	9,5	0.38	8,4	0.33	3/16
7/16 - 20	-07	11,1	0.44	9,9	0.39	1/4
1/2 - 20	-08	12,7	0.50	11,4	0.44	5/16
5/8 - 18	-10	15,9	0.63	14,2	0.56	3/8
3/4 - 16	-12	19,1	0.75	17,5	0.69	1/2
7/8 - 14	-14	22,2	0.88	20,6	0.81	5/8
1.1/16 - 14	-17	27,0	1.06	24,9	0.98	3/4



SAE 45° INVERTED FLARE

SAE J512

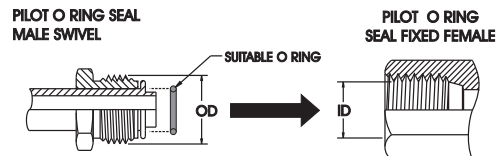
MALE THREAD OD & PITCH	DASH SIZE	MALE THREAD OD		FEMALE THREAD ID		TUBE SIZE
inch - TPI		mm	inch	mm	inch	inch
7/16 - 24	-07	11,1	0.44	9,9	0.39	1/4
1/2 - 20	-08	12,7	0.50	11,4	0.45	5/16
5/8 - 18	-10	15,9	0.63	14,2	0.56	3/8
11/16 - 18	-11	17,5	0.69	16,0	0.63	7/16



SAE PILOT O RING SEALS

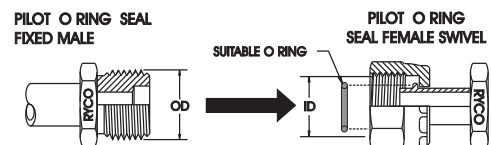
Pilot Male Swivel

MALE THREAD OD & PITCH	DASH SIZE	MALE THREAD OD		FEMALE THREAD ID		TUBE SIZE
inch - TPI		mm	inch	mm	inch	Dash
5/8 - 18	-10	15,9	0.63	14,2	0.56	-6
3/4 - 18	-12	19,0	0.75	17,8	0.70	-8
7/8 - 18	-14	22,2	0.88	20,6	0.81	-10

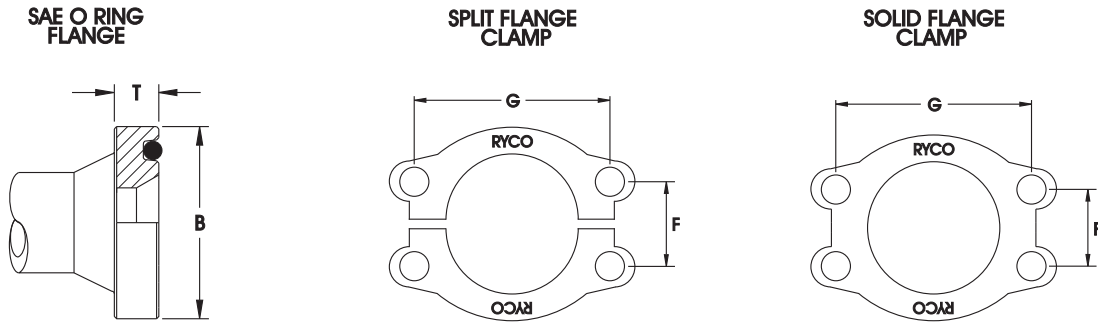


Pilot Female Swivel

MALE THREAD OD & PITCH	DASH SIZE	MALE THREAD OD		FEMALE THREAD ID		TUBE SIZE
inch - TPI		mm	inch	mm	inch	Dash
5/8 - 18	-10	15,9	0.63	14,2	0.56	-6
3/4 - 16	-12	19,0	0.75	17,5	0.69	-8
7/8 - 14	-14	22,2	0.88	20,6	0.81	-10



SAE O RING FLANGE - CODE 61 & CODE 62 SAE J518, ISO 6162 RYCO O RING FLANGE - CODE 62C



The male connector has a flange head with an O Ring groove on the face. The female can be a flange block or port with smooth face to accept the O Ring, and four threaded bolt holes in a rectangular pattern. The connection is held together using either a split or solid flange clamp, fitted over the male flange head and

drawn up to the female port using the four bolts. This compresses the O Ring forming a seal between the male flange and the flat female port face.

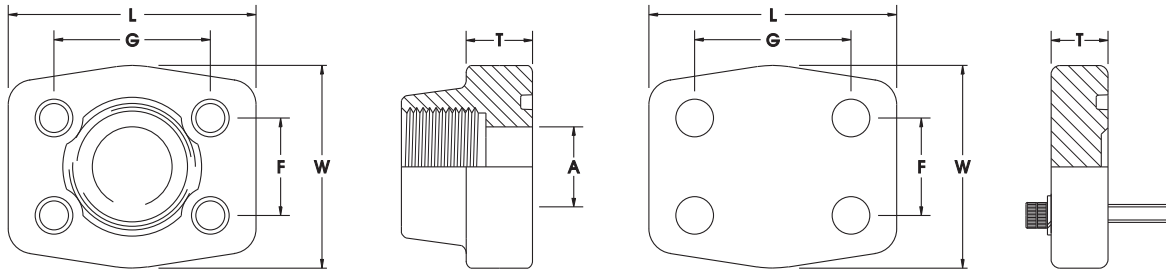
SAE J518, DIN 20066, ISO/DIS 6162 and JIS B 8363 are all interchangeable, except for bolt sizes.

NOM. FLANGE SIZE	DASH SIZE	BØ		T		F		G		PORT THREAD & BOLT LENGTH			
		inch	mm	inch	mm	inch	mm	inch	mm	PORT UNC	BOLT LENGTH inch	PORT METRIC	BOLT mm
CODE 61													
1/2	-08	30,2	1.19	6,73	0.265	17,5	0.69	38,1	1.50	5/16 - 18	1.1/4	M8 x 1,25	35
*5/8	-10	34,0	1.34	6,73	0.265	19,8	0.78	42,9	1.69	5/16 - 18		M8 x 1,25	
3/4	-12	38,1	1.50	6,73	0.265	22,2	0.88	47,6	1.88	3/8 - 16	1.1/4	M10 x 1,5	35
1	-16	44,5	1.75	8,00	0.315	26,2	1.03	52,4	2.06	3/8 - 16	1.1/4	M10 x 1,5	35
1.1/4	-20	50,8	2.00	8,00	0.315	30,2	1.19	58,7	2.31	7/16 - 14	1.1/2	M10 x 1,5	40
1.1/2	-24	60,3	2.38	8,00	0.315	35,7	1.41	69,8	2.75	1/2 - 13	1.1/2	M12 x 1,75	45
2	-32	71,4	2.81	9,53	0.375	42,9	1.69	77,8	3.06	1/2 - 13	1.1/2	M12 x 1,75	45
2.1/2	-40	84,1	3.31	9,53	0.375	50,8	2.00	88,9	3.50	1/2 - 13	1.3/4	M12 x 1,75	45
3	-48	101,6	4.00	9,53	0.375	61,9	2.44	106,4	4.19	5/8 - 11	1.3/4	M16 x 2,0	45
CODE 62													
1/2	-08	31,7	1.25	7,75	0.305	18,2	0.72	40,5	1.59	5/16 - 18	1.1/4	M8 x 1,25	35
3/4	-12	41,3	1.63	8,76	0.345	23,8	0.94	50,8	2.00	3/8 - 16	1.1/2	M10 x 1,5	40
1	-16	47,6	1.88	9,53	0.375	27,8	1.09	57,2	2.25	7/16 - 14	1.3/4	M12 x 1,75	45
1.1/4	-20	54,0	2.12	10,29	0.405	31,8	1.25	66,7	2.63	1/2 - 13	1.3/4	M14 x 2,0	45
1.1/2	-24	63,5	2.50	12,57	0.495	36,5	1.44	79,4	3.13	5/8 - 11	2.1/4	M16 x 2,0	60
2	-32	79,4	3.13	12,57	0.495	44,5	1.75	96,8	3.81	3/4 - 10	2.3/4	M20 x 2,5	70
RYCO CODE 62C													
3/4	-12	41,3	1.63	14,20	0.559	23,8	0.94	50,8	2.00	3/8 - 16	1.3/4	M10 x 1,5	45
1	-16	47,6	1.88	14,20	0.559	27,8	1.09	57,2	2.25	7/16 - 14	1.3/4	M12 x 1,75	45
1.1/4	-20	54,0	2.12	14,20	0.559	31,8	1.25	66,7	2.63	1/2 - 13	2	M14 x 2,0	50
1.1/2	-24	63,5	2.5	14,20	0.559	36,5	1.44	79,4	3.13	5/8 - 11	2.1/2	M16 x 2,0	60

RYCO Code 62C fittings conform to the flange OD and bolt hole patterns of SAE Code 62 but require special flange clamp halves. The RYCO Code 62C flange heads are thicker than SAE Code 62 and measure T = 14,2 mm (0.559") in all sizes. RYCO Code 62C flanges have similar dimensions to the Caterpillar XT-5 and XT-6 range of flanges. Cat™ Caterpillar®, XT-5™, XT-6™ Caterpillar®.

*5/8 is used by Komatsu.

SAE O RING FLANGE BLOCKS - CODE 61 & CODE 62 SAE J518, ISO 6162



NOM. FLANGE SIZE	DASH SIZE	L		W		F		G		A		T EXCEPT BLIND FLANGES		T T BLIND FLANGES S967/S968	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch

inch		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
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CODE 61

1/2	-08	56	2.20	48	1.89	17,5	0.69	38,1	1.50	13	0.51	16	0.63	16	0.63
3/4	-12	65	2.56	50	1.97	22,2	0.88	47,6	1.88	19	0.75	18	0.71	16	0.63
1	-16	70	2.76	60	2.36	26,2	1.03	52,4	2.06	25	0.98	18	0.71	19	0.75
1.1/4	-20	79	3.11	68	2.68	30,2	1.19	58,7	2.31	32	1.26	21	0.83	18	0.71
1.1/2	-24	93	3.66	78	3.07	35,7	1.41	69,8	3.06	38	1.50	25	0.98	20	0.79
2	-32	102	4.02	90	3.54	42,9	1.69	77,8	3.50	51	2.01	25	0.98	20	0.79

CODE 62

3/4	-12	71	2.80	60	2.36	23,8	0.94	50,8	2.00	19	0.75	21	0.83	19	0.75
1	-16	81	3.19	70	2.76	27,8	1.09	57,2	2.25	25	0.98	25	0.98	24	0.94
1.1/4	-20	95	3.74	78	3.07	31,8	1.25	66,7	2.63	32	1.26	27	1.06	27	1.06
1.1/2	-24	112	4.41	94	3.70	36,5	1.44	79,4	3.13	38	1.50	30	1.18	30	1.18
2	-32	134	5.28	114	4.49	44,5	1.75	96,8	3.81	51	2.01	37	1.46	28	1.10

NOM. FLANGE SIZE	DASH SIZE	SOCKET HEAD CAP SCREW (THREAD X LENGTH)	SOCKET HEAD CAP SCREW (THREAD X LENGTH)
		UNC x inch	METRIC x mm

inch		UNC x inch	METRIC x mm
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CODE 61

1/2	-08	5/16 - 18 x 1.1/4	M8x1,25 X 30
3/4	-12	3/8 - 16 x 1.1/2	M10x1,5 X 35
1	-16	3/8 - 16 x 1.1/2	M10x1,5 X 35
1.1/4	-20	7/16 - 14 x 1.3/4	M10x1,5 X 40
1.1/2	-24	1/2 - 13 x 1.3/4	M12x1,75 X 45
2	-32	1/2 - 13 x 1.3/4	M12x1,75 X 45

CODE 62

3/4	-12	3/8 - 16 x 1.1/2	M10x1,5 X 40
1	-16	7/16 - 14 x 1.3/4	M12x1,75 X 45
1.1/4	-20	1/2 - 13 x 1.3/4	M14x2,0 X 45
1.1/2	-24	5/8 - 11 x 2	M16x2,0 X 50
2	-32	3/4 - 10 x 2.1/2	M20x2,5 X 70