

IDENTIFY THREADS

There may be times when you are not sure of the thread of the fitting you are using and it is therefore necessary to make checks that allow you to identify it correctly.

Since all mechanical parts have construction tolerances, the measurements in the tables may differ by a few tenths from the measured dimension.

The tables serve as an **aid** in identifying the thread.

For a safe identification it is necessary to use threaded plugs for the female threads and threaded rings for the male threads.

Buffers and rings must be certified by a metrology laboratory which issues an official compliance document.

TOOLS TO USE:

Centesimal or digital caliper



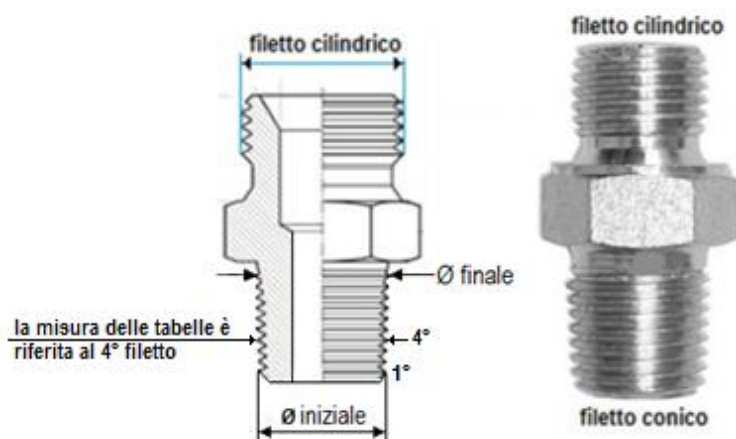
Pitch gage



Pads and threaded rings



CHECK IF THE THREAD IS CYLINDRICAL OR TAPERED



Measure the initial \varnothing and the final \varnothing of the thread with the caliper.


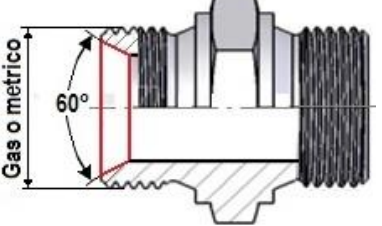

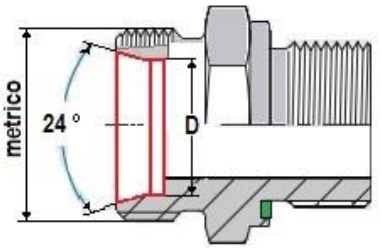

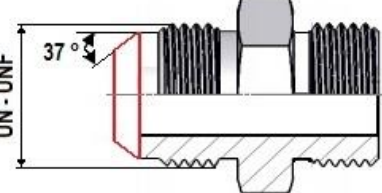

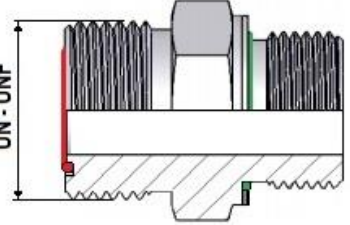

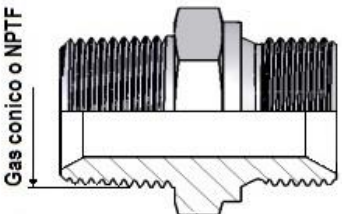
If the dimension is constant, the thread is cylindrical (parallel).

The **male** tapered thread has a smaller initial diameter than the fine thread diameter.

The tapered **female** thread decreases to the bottom of the thread.

Attention: all the dimensions are in millimeters

RECOGNIZE THE TYPE OF SEAL

		<p>Mechanical seal on concave 60 ° flare, highlighted in red. The thread can be GAS / BSPP or METRIC.</p>
		<p>Mechanical seal with nut and cutting ring. Seal with gasket on cutting ring Seal with o-ring on 24 ° cone on female side. The thread is always METRIC. Dimension D identifies the external Ø of the rigid pipe. Lightweight (L) series. Heavy (S) series</p>
		<p>Mechanical seal on 37 ° cone It is known as the 37 ° JIC fitting. The thread is American type UN - UNF There is also a SAE 45 ° seal used in air conditioning.</p>
		<p>Front seal with O-RING. It is known as an ORFS connection. The thread is American type UN - UNF</p>
		<p>Mechanical seal between the thread of the male fitting and the thread of the female fitting. The conical gas thread is used in Europe. The NPTF thread is used in the USA.</p>

The threaded fittings used in the hydraulic sector, **in principle**, can be identified according to the country of origin of the machinery or component. (USA, England, France, Germany, Italy, Japan)

AMERICAN STANDARD THREADS and SEALS

▮ **NPTF** (National Pipe Tapered Fuel) - SAE J476-B2

Used in the USA. It is a conical thread.

The seal occurs by deformation of the threads between male and female.

Disassembly and then screwing of the fitting is not recommended; the seal is no longer ensured.

Similar to BSPT, but not interchangeable. The two threads can be confused.

▮ **NPSM** (National Pipe Straight Mechanical) Used in the USA

It is a cylindrical thread.

The seal is made with the seat at 30 ° on the male fitting.

▮ **JIC 37 °**. (Joint Industrial Council) reference standard SAE J 514- ISO 8434-2

Used in the USA and of aeronautical derivation, the seal is ensured by the 37 ° flare and the thread is cylindrical type UN-UNF.

It can be confused with the SAE 45 ° because they use the same thread, but the sealing angle for the SAE is 45 °.

▮ **ORFS** (O - Ring Face Seal). Reference standard: SAE J 1453 - ISO 8434-3

Used in the USA and Europe, it is widely used in the mobile sector because it guarantees a dry seal even with high pressures and strong vibrations. The thread is cylindrical UN-UNF type.

▮ **SAE J514 O-Ring Boss** (ORB). Used in the USA.

It is a UN-UNF cylindrical thread with the seal guaranteed by an O-ring in its seat of the female thread.

EUROPEAN STANDARD THREADS and SEALS

▮ **BSPP** (British Standard Pipe Parallel). Reference standard: BS5200—ISO 8434-6

Used in Europe it is a cylindrical thread derived from the “Whitworth” thread, but with different dimensions and pitch.

It is known as a **cylindrical GAS thread**.

The mechanical seal is made with a 60 ° concave flare on the male fitting.

The O - ring seal is located on the cone of the female fitting.

The seal with flat seat on male and female is guaranteed by a copper gasket.

▮ **BSPT** (British Standard Pipe Tapered). Used in Europe is a **conical GAS thread**.

The seal occurs by deformation of the threads between male and female.

It can be confused with NPTF.

Never use a male fitting with a tapered thread in a female with a cylindrical thread.

The few threads in the coupling are dangerous.

▮ **French GAS**. Used in France is a cylindrical metric fine pitch thread.

The mechanical seal is made with a 24 ° cone and a seat for a rigid pipe which has the dimensions in inches.

▮ **German** fittings DIN 2353 (Deutsche Industrial Norms)

Reference standard ISO 12151-2 / ISO 8434-1 & ISO 8434-4

Used on all German components, they are also widely used in Europe.

Threads are cylindrical metric.

The 24 ° seal can be metallic with a rigid tube, nut and cutting ring; or with gasket.

Other solutions include the deformed rigid pipe with flat gasket.

Hose fittings have an O - ring seal built into the female seat.

JAPANESE STANDARD THREADS and SEALS

Japanese components use **JIS** (Japanese Industrial Standard) fittings, which are seated at 30 ° and BSPP thread.

- JIS B 0202 30 ° inverted cone - BSPP thread
- JIS B 8363 - 30 ° are similar to BS 5200 gas / bspp but are not interchangeable.
- JIS B 8363 conical thread is interchangeable with conical / bspt gas.
- Komatsu JIS B 0207 30 ° fitting but with metric thread

Clarification:

do not confuse the **GAS / BSPP** thread with the **Whitworth** thread which is indicated by the initials **W**. They are two different threads.

The GAS / BSPP thread has a totally different diameter and pitch than the corresponding Whitworth diameter. The GAS designation is conventional as it refers to the diameter of the iron pipe on which this thread was used.

Example: a **1 "gas** thread has a male diameter of **Ø 33.2 mm** and a pitch of 25.4: 11 = **2.3 mm**

The corresponding Whitworth thread has a male diameter of **Ø 25.4mm** and the pitch of 25.4: 8 = **3.17 mm**.

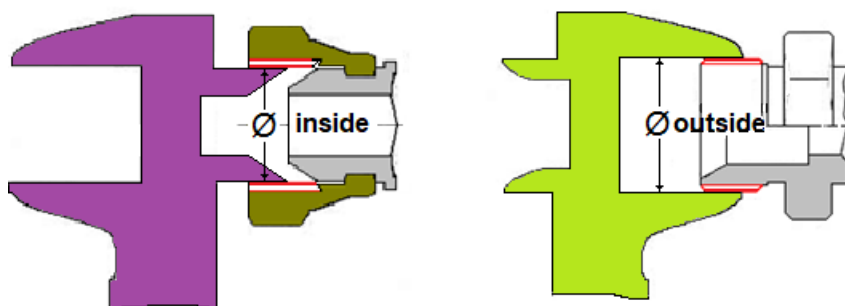
The Whitworth is useful for connecting low resistance mechanical elements, such as light alloys.

Be careful not to get confused when talking about gas threads with the internal diameter of the flexible hose defined with the measurement in inches.

Example:

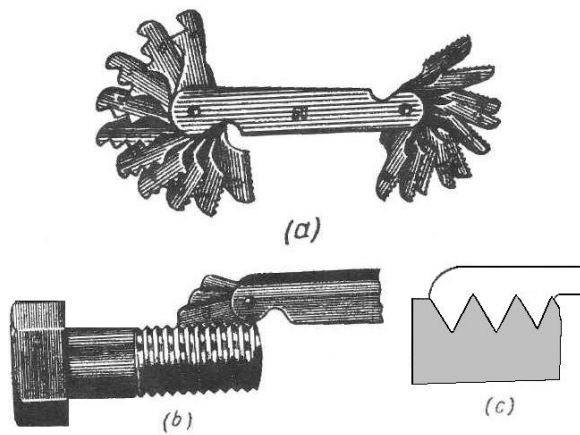
- The 1/4 "gas external thread measured with the caliper corresponds to **Ø 13.1 mm**
The measurement of the internal Ø of a 1/4 " flexible hose corresponds to **Ø 6.35 mm**
- The 1 " gas external thread measured with the caliper corresponds to **Ø 33.2 mm**
The measurement of the internal Ø of a 1 " flexible hose corresponds to **Ø 25.4 mm**

MEASURE THE INSIDE OR THE OUTSIDE DIAMETER OF THE THREAD



Male thread pitch control:

With the pitch gage (a) you search for the corresponding pitch and place it as shown in figure (b). Looking into the light (c), no light should be seen.



Or:

with the caliper you measure the pitch of 4 threads and for example the measurement read will be 5.32 mm which corresponds to the pitch of a 3/8 "-19 thread.

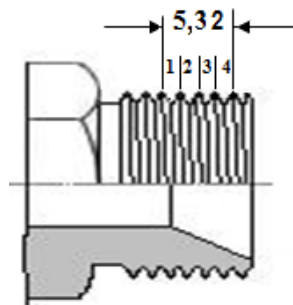
The value of 19 indicates the number of threads per inch; that is, in 25.4 mm (1 ") there must be 19 threads, therefore $25.4 : 19 = 1.33$ mm which is the thread pitch.

A minimum of 4 threads are measured to have a greater distance for better control.

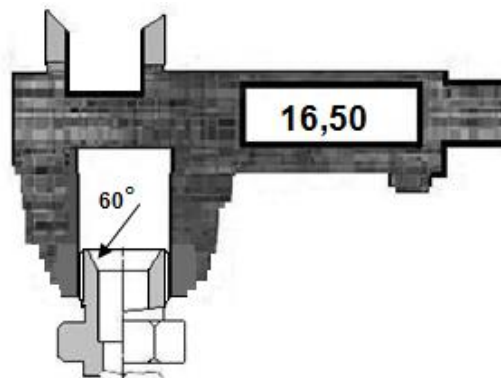
So $4 \times 1.33 = 5.32$ mm

Therefore it is definitely defined that the measured thread is a 3/8 "gas / bspp male.

The pitch of a 16 x 1.5 thread corresponds to 1.5 mm; so it means that if we had measured 4 threads we would have read the 6 mm dimension.



Example:



In this example the male fitting has a 60 ° flare and therefore the thread can be gas according to the BS 5200 standard, or metric according to the DIN 3863 standard.

A conical thread is excluded because the thread of the fitting is clearly cylindrical.

The dimension $\varnothing = 16.5$ mm indicates a 3/8 "GAS / BSPP fitting, but the construction tolerances could lead to consider also a 16 x 1.5 metric fitting with a external \varnothing of 16 mm.

Pitch verification definitely defines the thread.

For further testing, the male is screwed into a female, the exact thread of which is known, and the nipple must be screwed without encountering excessive resistance.

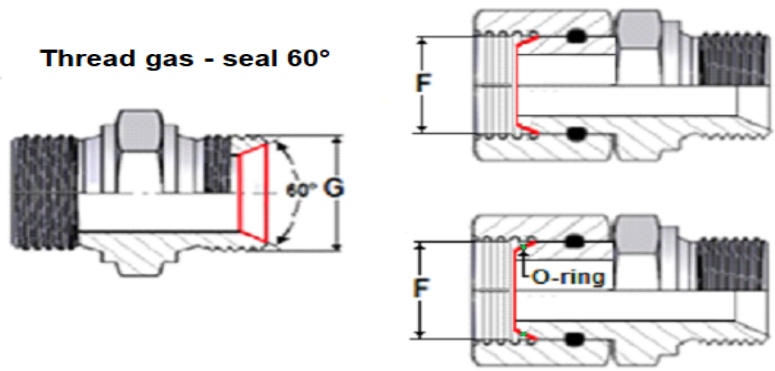
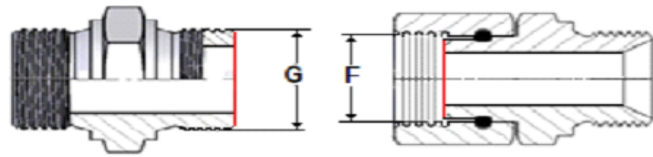
Summing up:

- ▣ Recognize whether the thread is cylindrical or conical
- ▣ Check the type of seal
- ▣ Measure the internal Ø or external Ø of the thread with the caliper
- ▣ Check the pitch of the thread
- ▣ Find the corresponding thread with the tables shown below

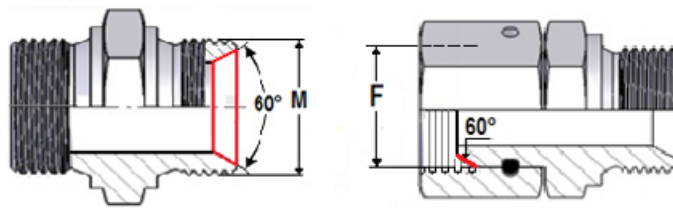
IDENTIFY THE THREAD WITH THE TABLES BELOW

Standard: BS 5200 Metal to metal seal

Standard: ISO 12151-6 Seal with o-ring

<p>Thread gas - seal 60°</p> 		
<p>Thread gas - flat seal</p> 		
Thread GAS / BSPP	F Ø interno (mm)	G Ø esterno (mm)
1/8" – 28	8,6	9,7
1/4" – 19	11,5	13,1
3/8" – 19	15	16,6
1/2" – 14	18,6	21
5/8" – 14	20,6	22,9
3/4" – 14	24,1	26,4
7/8" – 14	27,9	30,2
1" – 11	30,3	33,2
1 1/8" – 11	35	37,9
1 1/4" – 11	39	41,9
1 3/8" – 11	41,4	44,3
1 1/2" – 11	44,8	47,8
1 3/4" – 11	50,8	53,8
2" – 11	56,7	59,6
2" 1/4" – 11	62,7	65,7
2" 3/8" – 11	66,4	69,4
2 1/2" – 11	72,2	75,2
2 3/4" – 11	78,5	81,5
3" – 11	85	87,9

Metric thread

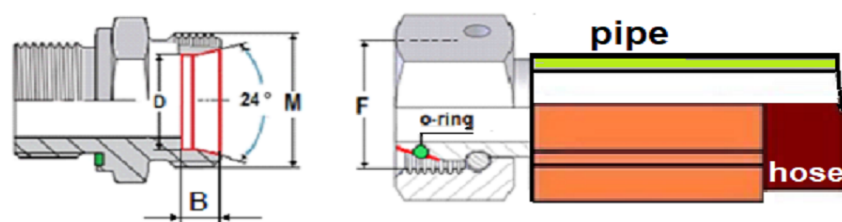
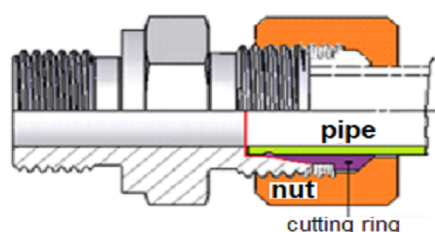


thread	F Ø interno (mm)	M Ø esterno (mm)
M 12 x 1,5	10,5	12
M 14 x 1,5	12,5	14
M 16 x 1,5	14,5	16
M 18 x 1,5	16,5	18
M 20 x 1,5	18,5	20
M 22 x 1,5	20,5	22
M 24 x 1,5	22,5	24
M 26 x 1,5	24,5	26
M 30 x 1,5	28,5	30
M 30 x 2	27,9	30
M 36 x 2	33,9	36
M 42 x 2	39,9	42
M 45 x 1,5	43,5	45
M 45 x 2	42,9	45
M 52 x 1,5	50,5	52
M 52 x 2	49,9	52
M 58 x 2	55,0	58

METRIC CYLINDRICAL THREAD.

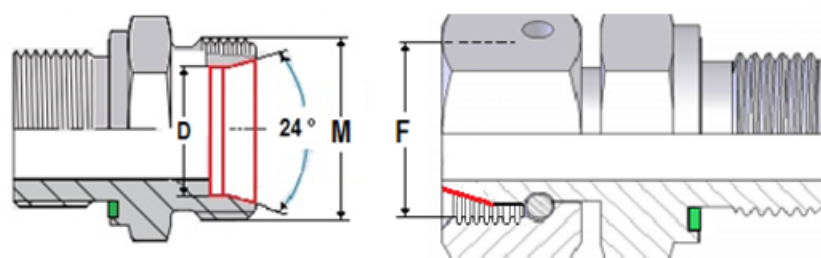
24 ° seat according to ISO 8434-1 (DIN 2353)

Mechanical seal with nut and cutting ring or with O-ring



Thread	F Ø interno (mm)	M Ø esterno (mm)	Ø D	B	Serie LL= very light L = light S = heavy
M 8 x 1	7	8	4	4	LL
M 10 x 1	9	10	6	5,5	LL
M 12 x 1,5	10,5	12	8	5,5	LL
M 12 x 1,5	10,5	12	6	7	L
M 14 x 1,5	12,5	14	8	7	L
M 16 x 1,5	14,5	16	10	7	L
M 18 x 1,5	16,5	18	12	7	L
M 22 x 1,5	20,5	22	15	7	L
M 26 x 1,5	24,5	26	18	7,5	L
M 30 x 2	27,9	30	22	7,5	L
M 36 x 2	33,9	36	28	7,5	L
M 45 x 2	42,9	45	35	10,5	L
M 52 x 2	49,9	52	42	11	L
M 14 x 1,5	12,5	14	6	7	S
M 16 x 1,5	14,5	16	8	7	S
M 18 x 1,5	16,5	18	10	7,5	S
M 20 x 1,5	18,5	20	12	7,5	S
M 22 x 1,5	20,5	22	14	8	S
M 24 x 1,5	22,5	24	16	8,5	S
M 30 x 2	27,9	30	20	10,5	S
M 36 x 2	33,9	36	25	12	S
M 42 x 2	39,9	42	30	13,5	S
M 52 x 2	49,9	52	38	16	S

French fittings - metric threads
metallic seal 24° or nut and cutting ring



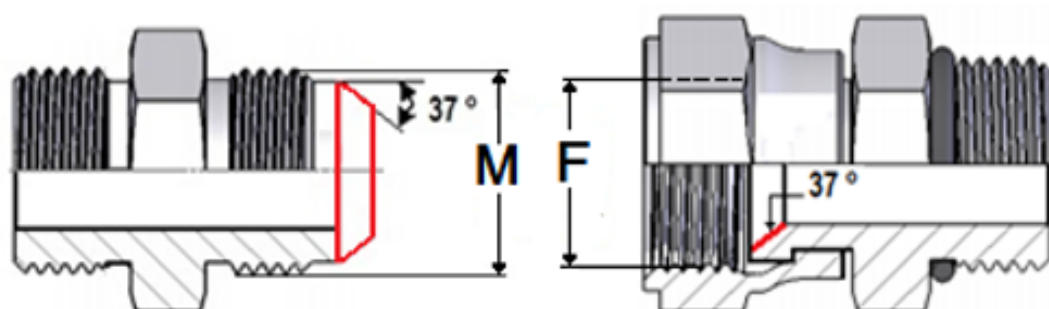
Ø D	METRIC thread	F Ø interno (mm)	M Ø esterno (mm)
13,5	M 20 x 1,5	18,5	20
17	M 24 x 1,5	22,5	24
21,5	M 30 x 1,5	28,5	30
27	M 36 x 1,5	34,5	36
33,8	M 45 x 1,5	43,5	45
42,55	M 52 x 1,5	50,5	52
49	M 58 x 2	55,9	58

French metric threads		
METRIC threads	F Ø interno (mm)	M Ø esterno (mm)
M 12 x 1	11	12
M 27 x 1,5	25,5	27
M 33 x 1,5	31,5	33
M 36 x 1,5	34,5	36
M 39 x 1,5	37,5	39

Cylindrical thread UN - UNF

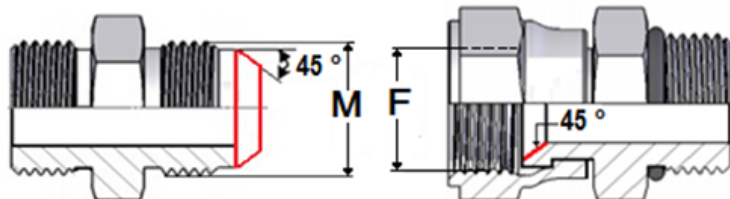
Seal 37° (JIC 37°)

Reference standard: ISO 8434-2 and SAE J516



Thread UN-UNF	F Ø interno (mm)	M Ø esterno (mm)
5/16 – 24 unf	6,78 ÷ 7,04	7,77 ÷ 7,95
3/8 – 24 unf	8,38 ÷ 8,64	9,22 ÷ 9,53
7/16 – 20 unf	9,73 ÷ 10,03	10,77 ÷ 11,10
1/2 – 20 unf	11,33 ÷ 11,61	12,36 ÷ 12,70
9/16 – 18 unf	12,75 ÷ 13,08	13,92 ÷ 14,29
3/4 – 16 unf	17,32 ÷ 17,96	18,65 ÷ 19,10
7/8 – 14 unf	20,27 ÷ 20,68	21,79 ÷ 22,23
1 1/16 – 12 unf	24,69 ÷ 25,15	26,64 ÷ 27,00
1 3/16 – 12 un	27,86 ÷ 28,32	29,83 ÷ 30,16
1 5/16 – 12 un	31,04 ÷ 31,50	33,00 ÷ 33,34
1 5/8 – 12 un	38,99 ÷ 40,18	40,94 ÷ 41,28
1 7/8 – 12 un	45,35 ÷ 45,80	47,29 ÷ 47,63
2 1/2 – 12 un	61,20 ÷ 61,60	63,16 ÷ 63,50

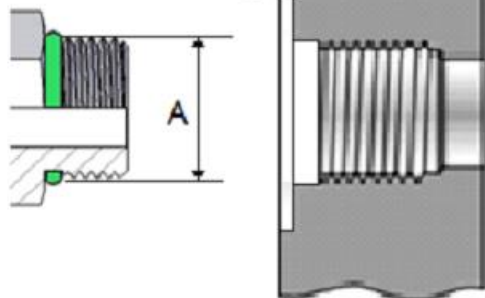
Cylindrical thread UN – UNF
Fitting with seal SAE 45°



*The air conditioning /refrigeration and automotive sector uses a fitting similar to the JIC 37° but the sealing angle is 45° .
 Meets SAE J 516 (45°) specification*

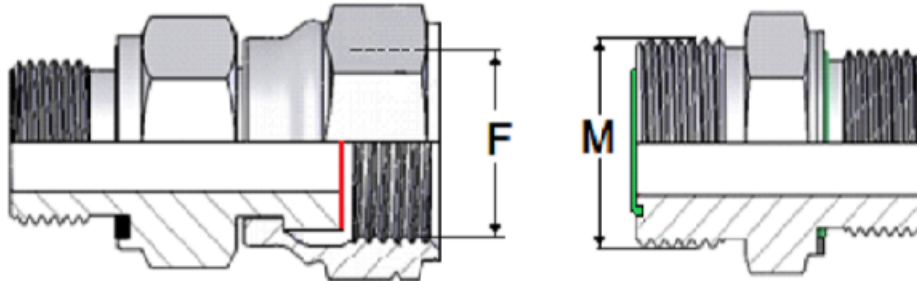
THREAD UN-UNF	F Ø interno (mm)	M Ø esterno (mm)
5/16"- 24 unf	6,78 ÷ 7,04	7,77 ÷ 7,95
3/8" - 24 unf	8,38 ÷ 8,64	9,22 ÷ 9,53
7/16"- 20 unf	9,73 ÷ 10,03	10,77 ÷ 11,10
1/2" - 20 unf	11,33 ÷ 11,61	12,36 ÷ 12,70
5/8" - 18 unf	14,35 ÷ 14,68	15,52 ÷ 15,88
1 1/16" - 16 unf	15,75 ÷ 16,10	17,19 ÷ 17,46
3/4" - 16 unf	17,32 ÷ 17,96	18,65 ÷ 19,10
7/8" - 14 unf	20,27 ÷ 20,68	21,79 ÷ 22,23
1 1/16" - 14 unf	24,69 ÷ 25,15	26,64 ÷ 27,00
1 1/4" - 12 un	29,45 ÷ 29,92	31,57 ÷ 31,75
1 3/8" - 12 un	32,64 ÷ 33,10	34,44 ÷ 34,93

SAE boss- O. ring



thread UN - UNF	mod.	A (mm)
5/16-24	-2	7,93
3/8-24	-3	9,52
7/16-20	-4	11,11
1/2-20	-5	12,70
9/16-18	-6	14,28
3/4-16	-8	19,10
7/8-14	-10	22,22
1.1/16-12	-12	27,00
1.3/16-12	-14	30,10
1.5/16-12	-16	33,30
1.5/8-12	-20	41,30
1.7/8-12	-24	47,60
2.1/2-12	-32	63,50

cylindrical thread **UN – UNF–UNS**
 Fitting **ORFS** flat seal with O - RING
 Meets : **ISO 8434 - 1**

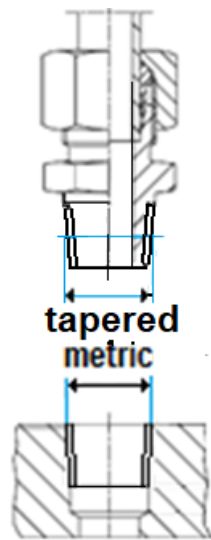


THREAD UN-UNF-UNS	F Ø interno (mm)	M Ø esterno (mm)
9/16"– 18 unf	12,75 ÷ 13,08	13,92 ÷ 14,29
11/16"–16 unf	15,75 ÷ 16,10	17,19 ÷ 17,46
13/16"– 16 unf	18,92 ÷ 19,28	20,36 ÷ 20,64
1" – 14 uns	23,44 ÷ 23,83	24,97 ÷ 25,40
1. 3/16"–12 un	27,86 ÷ 28,32	29,83 ÷ 30,16
1. 7/16"–12 un	34,21 ÷ 34,67	36,18 ÷ 36,51
1. 11/16"–12 un	40,56 ÷ 41,02	42,53 ÷ 42,86
2" – 12 un	48,51 ÷ 48,97	50,46 ÷ 50,80

TAPERED THREAD

There are three types of tapered threads:

- **tapered metric** Little used in hydraulics



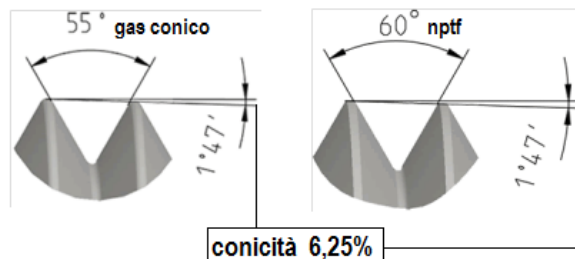
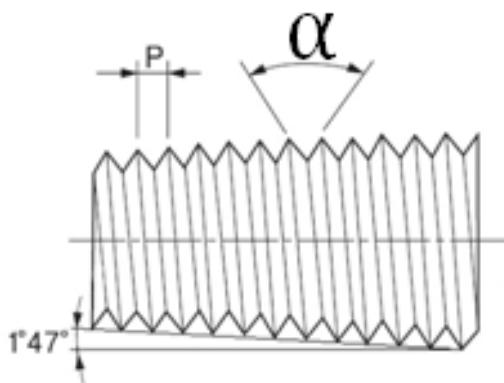
M
10x1
12x1,5
14x1,5
16x1,5
18x1,5
22x1,5
12x1,5
14x1,5
16x1,5
18x1,5
20x1,5
22x1,5

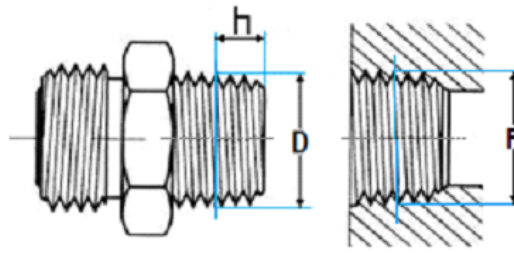
- **Tapered Gas / BSPT and NPTF**

The two threads are similar but not interchangeable.

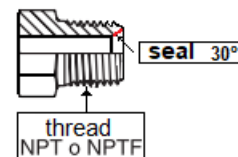
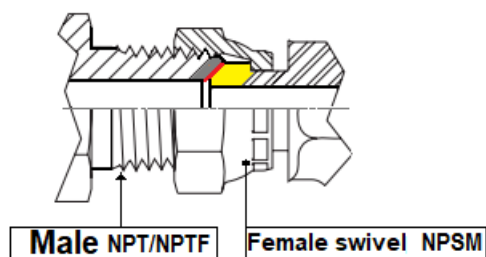
In the 1/2 "and 3/4" sizes the two threads can be confused because they have the same pitch; change the angle α of the thread.

NPTF thread is used in the USA.





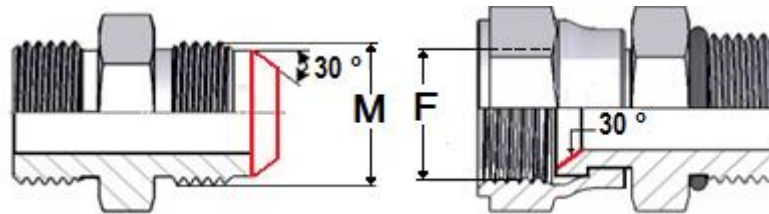
Tapered GAS / BSPT – ISO 7					NPTF - SAE J 476				
thread	threads per inches	D	h	F	thread	threads per inches	D	h	F
1/8"	28	9,7	4	8,6	1/8"	27	10,2	4,1	8,5
1/4"	19	13,1	6	11,1	1/4"	18	13,5	5,8	11,5
3/8"	19	16,8	6,4	15	3/8"	18	17	6,1	14,5
1/2"	14	21	8,2	18,6	1/2"	14	21,1	8,1	18
3/4"	14	26,4	9,5	24,1	3/4"	14	26,5	8,6	23,2
1"	11	33,2	10,4	30,3	1"	11,5	33,1	10,2	29,2
1 1/4"	11	41,9	12,7	38,9	1 1/4"	11,5	41,9	10,7	37,9
1 1/2"	11	47,8	12,7	44,8	1 1/2"	11,5	48	10,7	43,5
2"	11	59,6	15,9	56,7	2"	11,5	60	11	56



If the nipple does not have a 30 ° flare, the seal is not ensured.

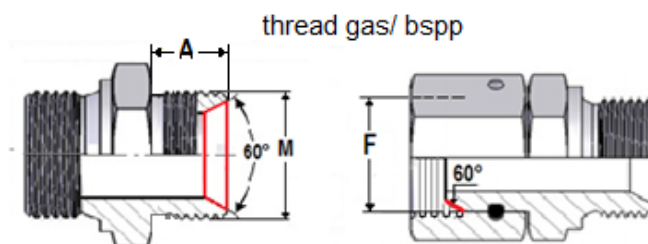
Japanise fittings

JIS B 0202 seal 30°- Thread BSPP



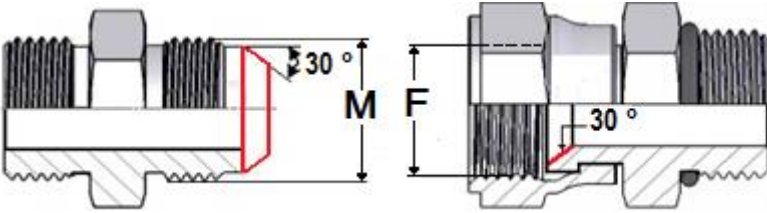
Thread GAS / BSPP	F Ø interno (mm)	G Ø esterno (mm)
1/8" – 28	8,6	9,7
1/4" – 19	11,5	13,1
3/8" – 19	15,0	16,6
1/2" – 14	18,6	21,0
3/4" – 14	24,1	26,4
1" – 11	30,3	33,2
1 1/4" – 11	39,0	41,9
1 1/2" – 11	44,8	47,8
2" – 11	56,7	59,6

Fittings JIS B 8363 - 30° are similar to gas/bspp BS 5200 but they are **not** interchangeable.



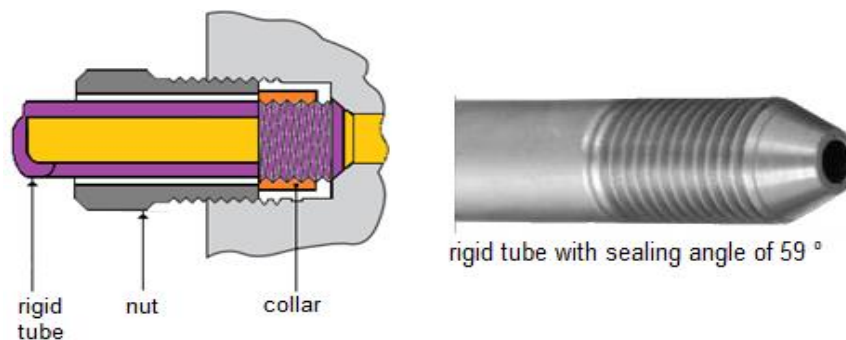
The share **A** is higher, therefore it does **not** guarantee perfect tightness

The Japanese conical thread JIS B 8363 is **interchangeable** with the tapered / bspt gas.

Komatsu fittings JIS 30° metric thread		
		
Thread METRIC	F Ø interno (mm)	G Ø esterno (mm)
14 x 1,5	12,5	14
18 x 1,5	16,5	18
22 x 1,5	20,5	22
24 x 1,5	22,5	24
30 x 1,5	28,5	30
33 x 1,5	31,5	33
36 x 1,5	34,5	36
42 x 1,5	40,5	42

Fittings autoclave.

The use of this type of fitting is intended for very high pressure equipment up to **10 000 bar**. Consult the manufacturers' catalogs and ask their technical department for detailed information.



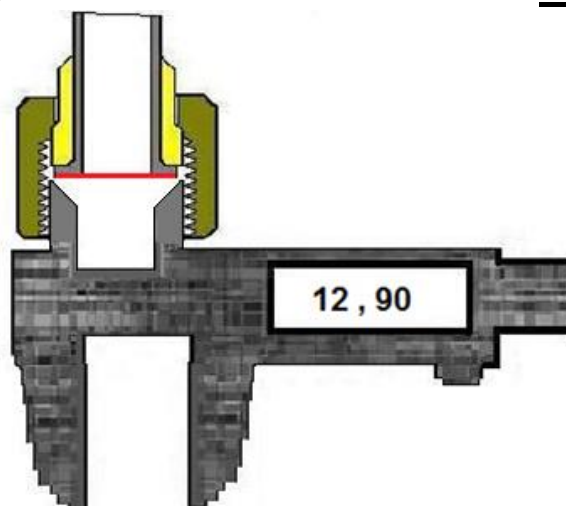
TABLES FOR THE QUICK IDENTIFICATION OF MALE THREADS



With the external \varnothing of the thread of 16.6 mm and with a 60 ° flare,
a 3/8 "gas cylindrical / BSPP thread is identified.
For added safety check the step as shown on page 5.

Measurement of the external Ø in mm	Male thread (seal type)	Measurement of the external Ø in mm	Male thread (seal type)
7,77 ÷ 7,95	5/16" – 24 UNF (JIC)	29,83 ÷ 30,16	1.3/16"–12 UN (JIC-ORFS)
9,22 ÷ 9,53	3/8" – 24 UNF (JIC)	30,0	M 30 x 2 o M 30 x 1,5
9,7	1/8 " – 28 BSPP o BSPT	30,2	7/8"– 14 BSPP
10,0	M 10 x 1	31,57 ÷ 31,75	1.1/4"– 12 UN (SAE 45°)
10,2	1/8" – 27 NPTF	33,00 ÷ 33,34	1. 5/16"– 12UN (JIC)
10,77 ÷ 11,1	7/16"– 20 UNF (JIC)	33,1	1" – 11,5 NPTF
12,0	M 12 x 1,5	33,2	1"– 11 BSPP o BSPT
12,36 ÷ 12,7	1/2"– 20 UNF (JIC)	33,0	M 33 x 1,5
13,1	1/4"– 19 BSPP o BSPT	34,44 ÷ 34,93	1.3/8"–12 UN (SAE45°)
13,5	1/4"– 18 NPTF	36,0	M 36 x 2
14,0	M 14 x 1,5	36,18 ÷ 36,51	1.7/16" – 12 UN (ORFS)
13,92 ÷ 14,29	9/16"–18 UNF (JIC–ORFS)	37,9	1.1/8"– 11 BSPP
15,52 ÷ 15,88	5/8"– 18 UNF (SAE 45°)	38,0	M 38 x 1,5
16,0	M 16 x 1,5	40,94 ÷ 41,28	1.5/8" – 12 UN (JIC)
16,6	3/8" – 19 BSPP	41,9	1.1/4"– 11,5 NPTF
16,8	3/8"– 19 BSPT	41,9	1.1/4"–11 BSPP o BSPT
17,0	3/8"– 18 NPTF	42,0	M 42 x2
17,19 ÷ 17,46	11/16" – 16 UN (ORFS)	42,53 ÷ 42,86	1.11/16"– 12UN (ORFS)
18,0	M18 x 1,5	44,3	1.3/8"– 11 BSPP
18,65 ÷ 19,1	3/4"– 16 UNF (JIC)	45,0	M 45 x 1,5 o M 45 x 2
20	M 20 x 1,5	47,29 ÷ 47,63	1 7/8" – 12 UNF (JIC)
20,36 ÷ 20,64	13/16" – 16 UNF (ORFS)	47,8	1.1/2"– 11 BSPP o BSPT
21,0	1/2"– 14 BSPP o BSPT	48,0	1.1/2" – 11,5 NPTF
21,1	1/2" – 14 NPTF	50,46 ÷ 50,8	2" – 12 UNF (ORFS)
21,79 ÷ 22,23	7/8"– 14 UNF (JIC)	52,0	M 52 x 1,5 o M 52 x 2
22,0	M 22 x 1,5	53,8	1.3/4" – 11BSPP
22,9	5/8"– 14 BSPP	59,6	2"– 11 BSPP o BSPT
24,0	M 24 x 1,5	60,0	2"– 11,5 NPTF
24,97 ÷ 25,4	1" – 14 UNS (ORFS)	63,16 ÷ 63,5	2. 1/2"– 12 UN (JIC)
26,0	M 26 x 1,5	65,7	2.1/4"– 11 BSPP
26,4	3/4" – 14 BSPP o BSPT	69,4	2.3/8"– 11 BSPP
26,5	3/4"– 14 NPTF	75,2	2. 1/2" – 11 BSPP
26,64 ÷ 27,0	1. 1/16"– 12 UNF (JIC)	81,5	2.3/4" – 11 BSPP
27,0	M 27 x 1,5	87,9	3" – 11 BSPP

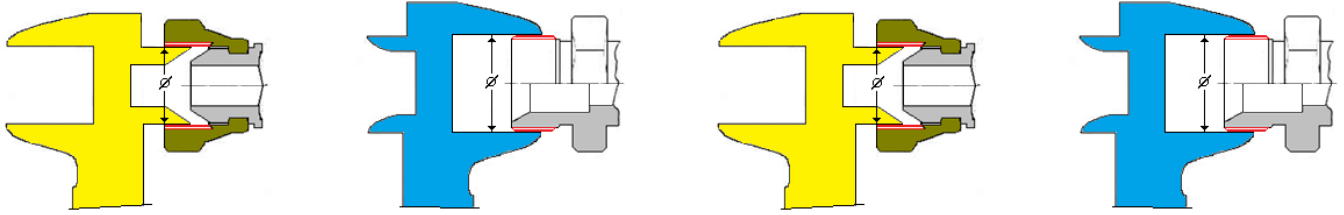
TABLES FOR THE QUICK IDENTIFICATION OF FEMALE THREADS



<i>Internal Ø measurement in mm</i>	<i>Female thread (seal type)</i>	<i>Internal Ø measurement in mm</i>	<i>Female thread (seal type)</i>
6,78 ÷ 7,04	5/16" – 24 UNF (JIC)	27,9	7/8" – 14 BSPP
8,5	1/8" – 27 NPTF	28,0	M 30 x 2
8,57	1/8" – 28 BSPT	28,5	M 30 x 1,5
8,6	1/8" – 28 BSPP	29,2	1" – 11,5 NPTF
8,38 ÷ 8,64	3/8" – 24 UNF (JIC)	29,45 ÷ 29,92	1.1/4" – 12 UN (SAE 45°)
9,73 ÷ 10,03	7/16" – 20 UNF (JIC)	30,3	1" – 11 BSPP o BSPT
10,5	M 12 x 1,5	31,04 ÷ 31,50	1. 5/16" – 12UN (JIC)
11,0	M 12 x 1	31,5	M 33 x 1,5
11,1	1/4" – 19 BSPT	32,64 ÷ 33,1	1.3/8" – 12 UN (SAE45°)
11,33 ÷ 11,61	1/2" – 20 UNF (JIC)	34,0	M 36 x 2
11,5	1/4" – 19 BSPP	34.21 ÷ 34.67	1.7/16" – 12UN (ORFS)
11,5	1/4" – 18 NPTF	34,5	M 36 x 1,5
12,5	M 14 x 1,5	35,0	1.1/8" – 11 BSPP
12,75 ÷ 13,08	9/16" – 18 UNF (JIC – ORFS)	37,5	M 39 x 1,5
14,35 ÷ 14,68	5/8" – 18 UNF (SAE 45°)	37,9	1.1/4" – 11,5 NPTF
14, 5	M 16 x 1,5	38,99 ÷ 40,18	1.5/8" – 12 UN (JIC)
14,5	3/8" – 18 NPTF	39,0	1.1/4" – 11 BSPP o BSPT
15,0	3/8" – 19 BSPP o BSPT	39,9	M 42 x2
15,75 ÷ 16,10	11/16" – 16 UNF (ORFS)	40,5	M 42 x 1,5
16,5	M18 x 1,5	40.56 ÷ 41.02	1.11/16" – 12UN (ORFS)
17,32 ÷ 17,96	3/4" – 16 UNF (JIC)	42,9	M 45 x 2
18	1/2" – 14 NPTF	43,5	M 45 x 1,5
18,4	M 20 x 1,5	43,5	1.1/2" – 11,5 NPTF
18,6	1/2" – 14 BSPP o BSPT	44,8	1.1/2" – 11 BSPP o BSPT
18,92 ÷ 19,28	13/16" – 16 UNF (ORFS)	45,35 ÷ 45,80	1. 7/8" – 12 UN (JIC)
20,27 ÷ 20,68	7/8" – 14 UNF (JIC)	48,51 ÷ 48,97	2" – 12 UNF (ORFS)
20,5	M 22 x 1,5	49,9	M 52 x 2
20,6	5/8" – 14 BSPP	50,5	M 52 x 1,5
22,5	M 24 x 1,5	50,8	1.3/4" – 11BSPP
23,2	3/4" – 14 NPTF	55,0	M 58 x 2
23.44 ÷ 23.83	1" – 14 UNS (ORFS)	56,0	2" – 11,5 NPTF
24,1	3/4" – 14 BSPP o BSPT	56,7	2" – 11 BSPP o BSPT
24,69 ÷ 25,15	1. 1/16" – 12UNF (JIC)	61,21 ÷ 61,67	2. 1/2" – 12 UN (JIC)
25,5	M 27 x 1,5	72,6	2. 1/2" – 11 BSPP
27,86 ÷ 28,32	1.3/16" – 12 UN (JIC-ORFS)	85,4	3" – 11 BSPP

Verification of the female thread can be done using a male nipple with the same thread.
The nipple must be screwed on without encountering excessive resistance.

UNIVERSAL TABLE TO IDENTIFY THREADS



Female thread	Ø mm	Male thread	Female thread	Ø mm	Male thread
5/16" – 24 UNF (JIC)	6,78 ÷ 7,04		M 16 x 1,5	14,5	
	7,77 ÷ 7,95	5/16" – 24UNF(JIC)	3/8" – 18 NPT	14,5	
3/8" – 24UNF (JIC)	8,38 ÷ 8,64		3/8" – 19 BSPP/BSPT	15,0	
1/8" – 27 NPTF	8,5			15,52 ÷ 15,88	5/8" – 18 UNF(SAE 45°)
1/8" – 28 BSPP/BSPT	8,6		11/16" – 16 UNF(ORFS)	15,75 ÷ 16,10	
	9,22 ÷ 9,53	3/8" – 24 UNF (JIC)		16,0	M 16 x 1,5
	9,7	1/8" – 28 BSPP/BSPT	M 18 x 1,5	16,5	
7/16" – 20UNF (JIC)	9,73 ÷ 10,03			16,6	3/8" – 19 BSPP
	10,0	M 10 x 1		16,8	3/8" – 19 BSPT
	10,2	1/8" – 27 NPTF		17	3/8" – 18 NPTF
M 12 x 1,5	10,5			17,19 ÷ 17,46	11/16" – 16 UN (ORFS)
	10,77 ÷ 11,1	7/16" – 20 UNF (JIC)	3/4" – 16 UNF (JIC)	17,32 ÷ 17,96	
M 12 x 1	11,0			18,0	M18 x 1,5
1/4" – 19 BSPP/BSPT	11,1 ÷ 11,5		1/2" – 14 NPTF	18,0	
1/4" – 18 NPTF			1/2" – 14 BSPP/BSPT	18,6	
1/2" – 20 UNF (JIC)	11,33 ÷ 11,61		M 20 x 1,5	18,4	
	12,0	M 12 x 1,5		18,65 ÷ 19,1	3/4" – 16 UNF (JIC)
	12,36 ÷ 12,7	1/2" – 20 UNF (JIC)	13/16" – 16 UNF (ORFS)	18,92 ÷ 19,28	
M 14 x 1,5	12,5			20,0	M 20 x 1,5
9/16" – 18 UNF	12,75 ÷ 13,08	(seal seat JIC o ORFS)	7/8" – 14 UNF (JIC)	20,27 ÷ 20,68	
	13,1	1/4" – 19 BSPP o BSPT		20,36 ÷ 20,64	13/16" – 16UNF (ORFS)
	13,5	1/4" – 18 NPTF	M 22 x 1,5	20,5	
	13,92 ÷ 14,29	9/16" – 18 UNF (JIC–ORFS)	5/8" – 14 BSPP	20,6	
	14,0	M 14 x 1,5			
5/8" – 18UNF (SAE45°)	14,35 ÷ 14,68				

	21,0 ÷ 21,1	1/2" – 14 BSPP/BSPT 1/2" – 14 NPTF		38,0	M 38 x 1,5
	21,79 ÷ 22,23	7/8" – 14 UNF (JIC)	1.5/8" – 12 UN (JIC)	38,99 ÷ 40,18	
	22,0	M 22 x 1,5	1.1/4" – 11 BSPP/BSPT	39,0	
M 24 x 1,5	22,5		M 42 x 2	39,9	
	22,9	5/8" – 14 BSPP	M 42 x 1,5	40,5	
3/4" – 14 NPTF	23,2		1.11/16" – 12UN (ORFS)	40,56 ÷ 41,02	
1" – 14 UNS (ORFS)	23,44 ÷ 23,83			40,94 ÷ 41,28	1.5/8" – 12 UN (JIC)
	24,0	M 24 x 1,5		41,9	1.1/4" – 11.5 NPTF
3/4" – 14 BSPP/BSPT	24,1			42,0	1.1/4" – 11 BSPP/BSPT
					M 42 x 2

1. 1/16"- 12UNF(JIC)	24,69 ÷ 25,25			42,53÷42,86	1.11/16"- 12UN (ORFS)
	24,97 ÷ 25,4	1" – 14 UNS (ORFS)	M 45 x 2	42,9	
M 27 x 1,5	25,5		M 45 x 1,5	43,5	
	26	M 26 x 1,5	1.1/2" – 11,5 NPTF	43,5	
	26,4 ÷ 26,5	3/4" – 14 BSPP/BSPT 3/4" – 14 NPTF	1.1/2" – 11BSPP/BSPT	44,8	
	26,64 ÷ 27,0	1. 1/16"- 12 UNF (JIC)		45,0	M 45 x 1,5 o M 45 x 2
	27,0	M 27 x 1,5	1.7/8" – 12 UN (JIC)	45,35÷45,80	
1.3/16"-12UN	27,86 ÷ 28,32	(seal seat JIC o ORFS)		47,29÷47,63	1.7/8" – 12 UN (JIC)
7/8" – 14 BSPP	27,9			47,8	1.1/2" – 11 BSPP/BSPT
M 30 x 2	28,0			48,0	1.1/2" – 11,5 NPTF
M 30 x 1,5	28,5		2" – 12 UNF (ORFS)	48,51÷48,97	
1" – 11,5 NPTF	29,2		M 52 x 2	49,9	
1.1/4" – 12 UN (SAE45°)	29,45 ÷ 29,92			50,46 ÷ 50,8	2" – 12 UNF (ORFS)
(seal seat JIC o ORFS	29,83 ÷ 30,16	1.3/16"- 12UN	M 52 x 1,5	50,5	
	30,0	M 30 x 1,5 o M 30 x 2	1.3/4" ÷ 11 BSPP	50,8	
	30,2	7/8" – 14 BSPP		52	M 52x1,5 o M 52x2
1" – 11 BSPP/BSPT	30,3			53,75	1.3/4" ÷ 11 BSPP
1.5/16" – 12 UN (JIC)	31,04 ÷ 31,5		M 58 x 2	55,0	
M 33x 1,5	31,5		2" – 11,5 NPTF	56,0	
	31,57 ÷ 31,75	1.1/4"- 12 UN (SAE45°)	2" – 11 BSPP/BSPT	56,7	
1.3/8"- 12 UN (SAE45°)	32,64 ÷ 33,1			59,6	2" – 11 BSPP/BSPT
	33,0	M 33 x 1,5		60,0	2" – 11,5 NPTF
	33,0 ÷ 33,34	1.5/16"-12 UN (JIC)	2.1/2"- 12 UN (JIC)	61,21÷61,67	
	33,1 ÷ 33,2	1" – 11,5NPTF 1" – 11 BSPP/BSPT		63,16 ÷ 63,5	2.1/2"- 12 UN (JIC)
M 36 x 2	34,0		2.1/2"- 11 BSPP	72,6	
1.7/16" – 12UN (ORFS)	34,21 ÷ 34,67			75,1	2.1/2"- 11 BSPP
	34,44 ÷ 34,93	1.3/8"- 12 UN (SAE45°)	3"- 11 BSPP	85,4	
M 36 x 1,5	34,5			87,9	3"- 11 BSPP
1.1/8" – 11 BSPP	35				
	36	M 36 x 2			
	36,18 ÷ 36,51	1.7/16"- 12UN (ORFS)			
M 39 x 1,5	37,5				
1.1/4" – 11,5 NPTF	37,9	1.1/8" – 11 BSPP			