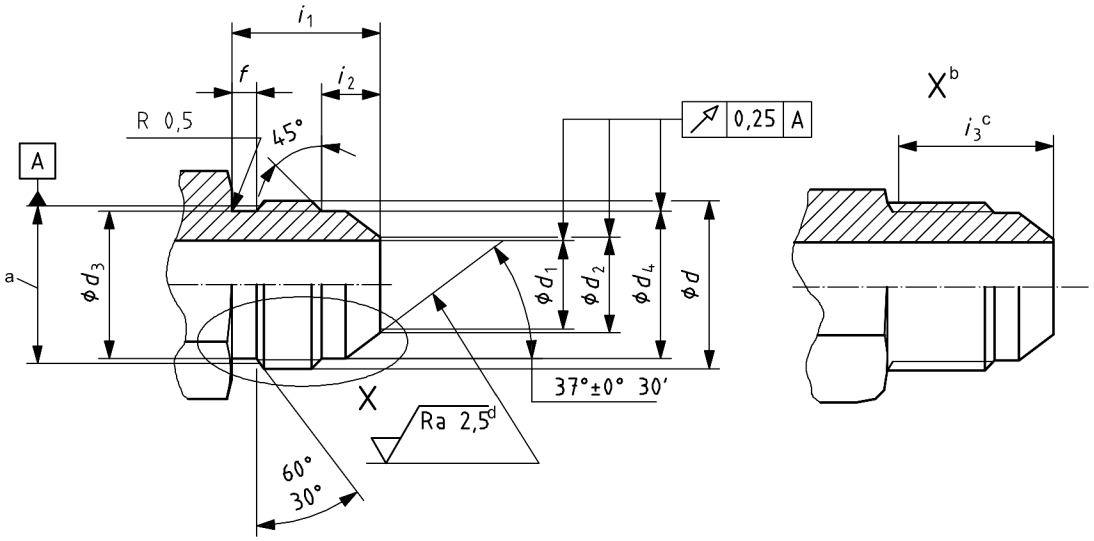
"Dimensions and design for 37° flared metallic connectors in accordance with ISO 8434-2:2007, *Metallic tube connections for fluid power and general use — Part 2: 37° flared connectors*."

Dimensions in millimetres
Surface roughness in micrometres



[a] Pitch diameter.

[b] Optional construction for shapes.

[c] Minimum full thread depth.

[d] No axial tool marks are allowed on this surface; for spiral tool marks, a surface roughness value $Ra \leqslant 1{,}6$ µm shall be used.

Figure 4 — 37° flared connection

Table 7 — Dimensions of 37° flared connections

Dimensions in millimetres

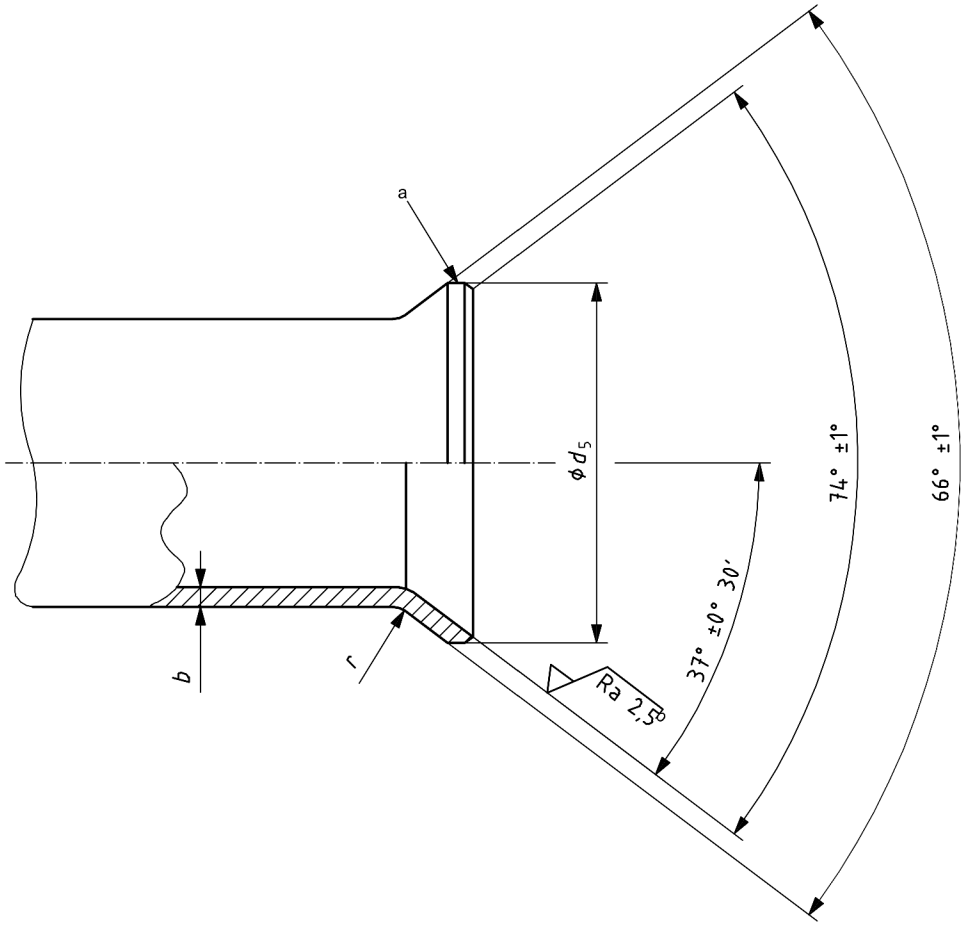
Tube OD	Thread [a] d	d_1		d_2	d_3	d_4	f	i_1	i_2	i_3
		nom.	tol.	± 0,08	± 0,15	± 0,15	± 0,4	± 0,4	± 0,2	min.
6	7/16-20 UNF	4,4	±0,1	4,9	9,15	9,15	2,3	14	5,1	13,6
8	1/2-20 UNF	6	±0,2	6,5	10,7	10,7	2,3	14	5,1	13,6
10	9/16-18 UNF	7,5	±0,2	8,1	12,1	12,1	2,5	14,1	5,2	13,75
12	3/4-16 UNF	9,9	±0,2	10,8	16,85	16,65	2,8	16,7	6,6	16,3
16	7/8-14 UNF	12,3	±0,2	13,7	19,5	19,5	3,1	19,3	7	18,85
20	1 1/16-12 UN	15,5	±0,2	16,85	23,85	23,85	3,6	21,9	8,2	21,55
25	1 5/16-12 UN	21,5	±0,2	23,2	30,2	30,2	3,6	23,1	8,2	22,75
30/32	1 5/8-12 UN	27,5	±0,3	29,15	38,15	38,15	3,6	24,3	9,5	23,95
38	1 7/8-12 UN	33,5	±0,3	35,1	44,5	44,5	3,6	27,5	9,8	27,15
50	2 1/2-12 UN	45	±0,3	47,75	60,35	60,35	3,6	33,9	11,9	33,5

[a] For the general plan of threads, see ISO 263; also see provisions for screw threads in ISO 68-2 and ISO 5864:1993, class 2A.

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Dimensions in millimetres
Surface roughness in micrometres



[a] Slight flat permissible.

[b] No axial tool marks are allowed on this surface; for spiral tool marks, a surface roughness value $Ra \leqslant 1{,}6$ µm shall be used.

Figure 5 — 37° single flare for tubes

Table 8 — Dimensions of 37° single flare for metric and inch tubes

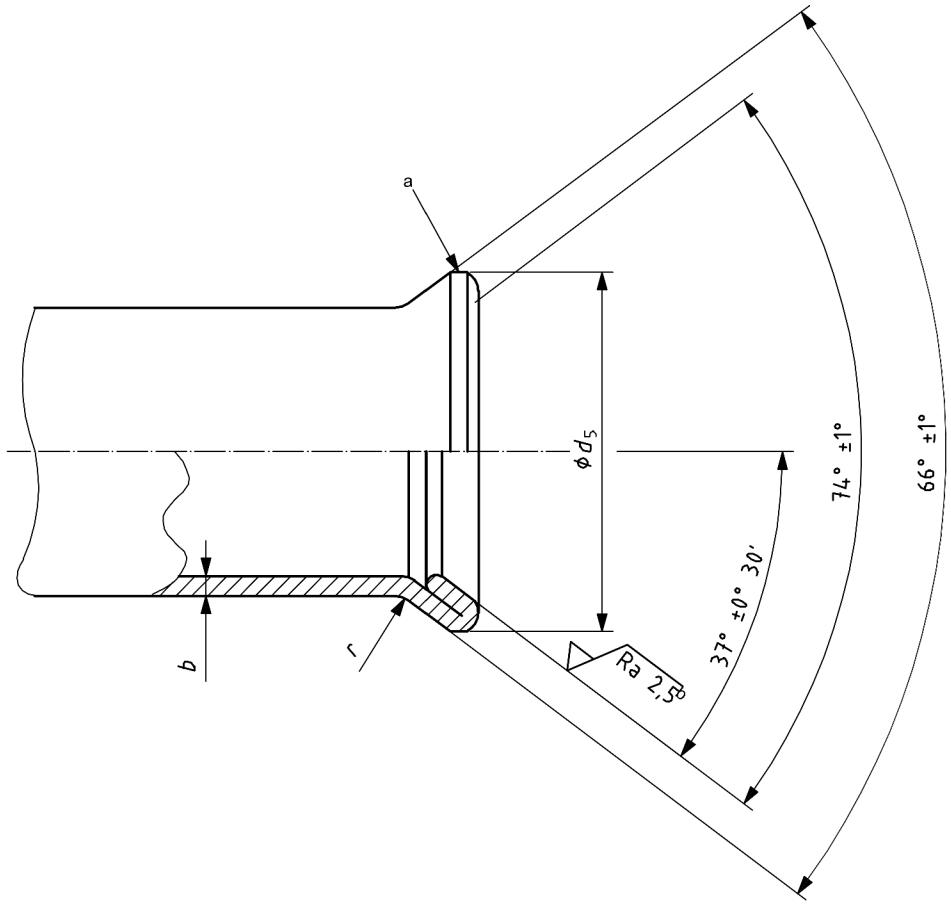
Dimensions in millimètres

Tube OD		b_{max}		d_5		r
Metric mm	Inch in	Metric tube	Inch tube	min.	max.	± 0,5
6	1/4	1,5	1,65	8,6	9,7	0,8
8	5/16	1,5	1,65	10,2	11,3	0,8
10	3/8	1,5	1,65	11,7	12,7	1
12	1/2	2	2,1	16,0	17,3	1,5
16	5/8	2,5	2,41	19,3	20,2	1,5
20	3/4	3	2,76	23,4	24,7	2
25	1	3	3,05	29,7	31	2,3
30/32	1 1/4	3	3,05	37,6	38,9	2,3
38	1 1/2	3	3,05	43,2	45,3	2,8
50	2	3,5	3,4	59,2	61,2	2,8

[a] Metric tubing shall be preferred for new and future designs.

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Dimensions in millimetres
Surface roughness in micrometres



a Slight flat permissible.

b No axial tool marks are allowed on this surface; for spiral tool marks, a surface roughness value $Ra \leqslant 1{,}6$ µm shall be used.

Figure 6 — 37° double flare for tubes

Table 9 — Dimensions of 37° double flare for metric and inch tubes

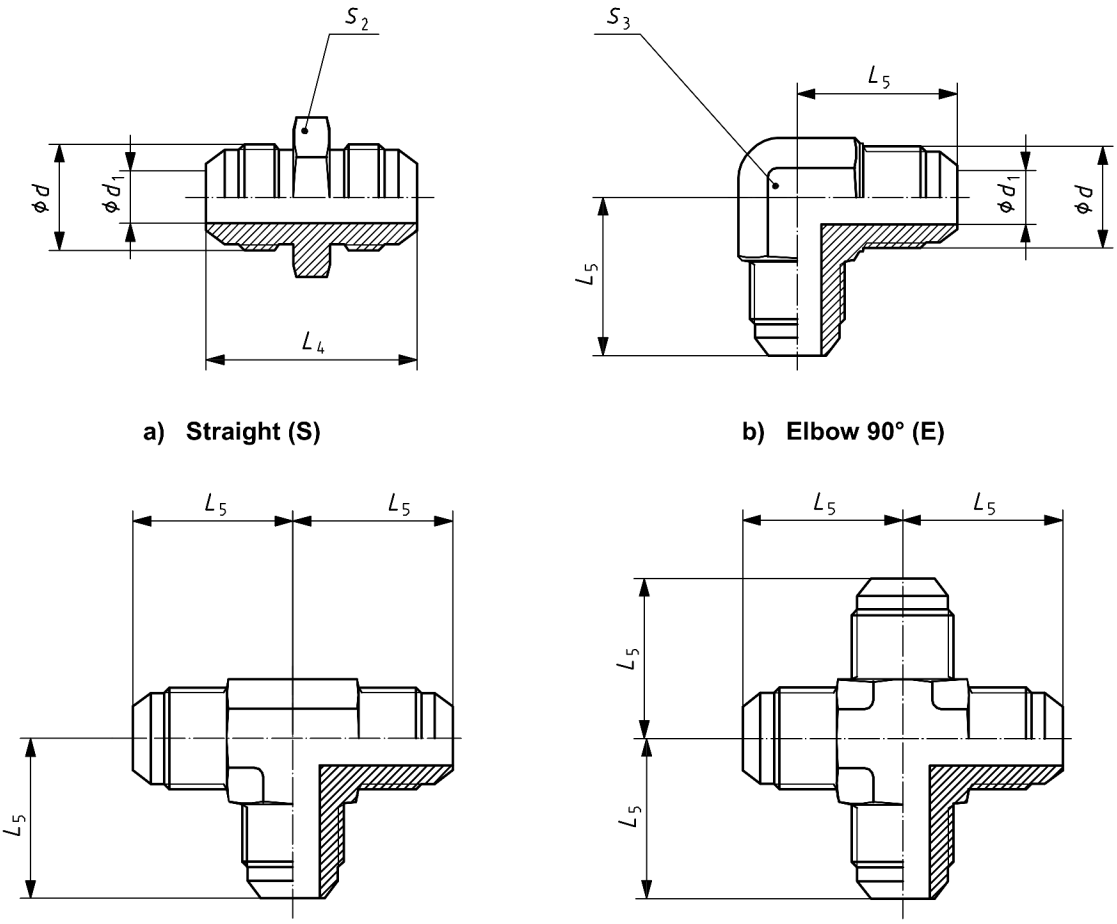
Dimensions in millimetres

Tube OD		b_{max}		d_5		r
Metric [a] mm	Inch in	Metric tube	Inch tube	min.	max.	± 0,5
6	1/4	1	0,88	8,6	9,7	0,8
8	5/16	1	0,88	10,2	11,3	0,8
10	3/8	1,25	1,24	11,7	12,7	1
12	1/2	1,25	1,24	16,0	17,3	1,5
16	5/8	1,5	1,65	19,3	20,2	1,5
20	3/4	1,5	1,65	23,4	24,7	2
25	1	1,5	1,65	34,3	31,0	2,3
30/32	1 1/4	1,5	1,65	37,6	38,9	2,3
38	1 1/2	1,5	1,65	43,2	45,3	2,8
50	2	3,5	3,4	59,2	61,2	2,8

a Metric tubing shall be preferred for new and future designs.

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a) Straight (S)

b) Elbow 90° (E)

c) Tee (T)

d) Cross (K)

NOTE For details not shown here, see Figure 4 and Table 7.

Figure 9 — Union connectors

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Table 12 — Dimensions of union connectors

Dimensions in millimetres

Ordering size code [a]	Tube OD [b]	Thread [c] d	d_1	L_4	L_5	S_2	S_3		
							Forged connector		Connector machined from barstock
			ref.	± 0,8	± 1		nom.	tol.	max.
6 × 6	6	7/16-20 UNF	4,4	35	22,5	12	12	+0/-0,8	14
8 × 8	8	1/2-20 UNF	6	35	24	14	14	+0/-0,8	17
10 × 10	10	9/16-18 UNF	7,5	36	27	17	14	+0/-0,8	22
12 × 12	12	3/4-16 UNF	9,9	41	32	22	19	+0/-0,8	22
16 × 16	16	7/8-14 UNF	12,3	48	37	24	22	+0/-0,8	32
20 × 20	20	1 1/16-12 UN	15,5	55	42	30	27	+0/-1,0	36
25 × 25	25	1 5/16-12 UN	21,5	57	46	36	32	+0/-1,0	41
32 × 32	32	1 5/8-12 UN	27,5	61,5	52,5	46	41	+0/-1,0	55
38 × 38	38	1 7/8-12 UN	33,5	70	59	50	50	+0/-1,0	60
50 × 50	50	2 1/2-12 UN	45	86,5	77,5	65	65	+0/-1,0	80

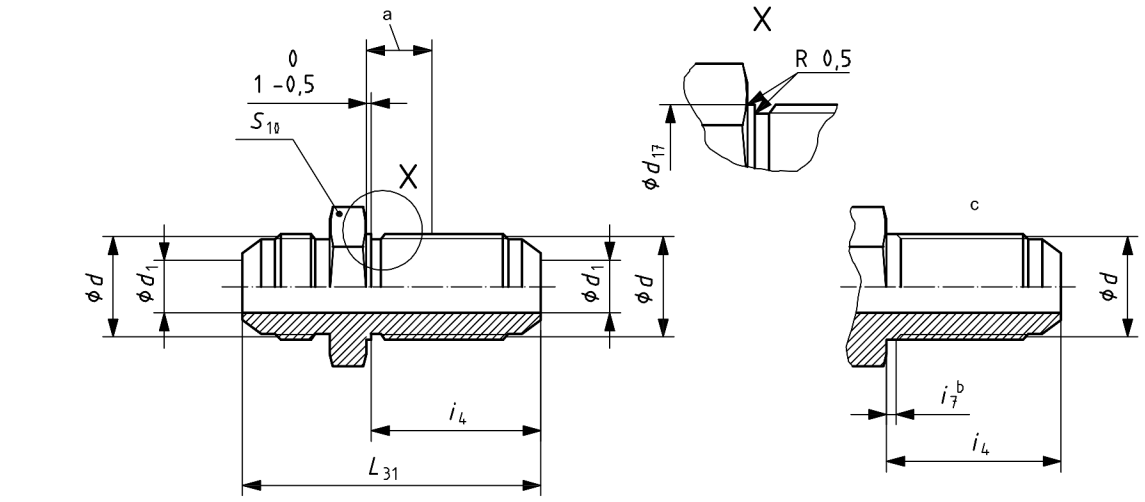
[a] Code given is for straights and elbows. Add third and fourth sizes for tees and crosses using left, right, up-and-down sequence omitting ends when not present.

[b] See Table 1 for corresponding inch sizes.

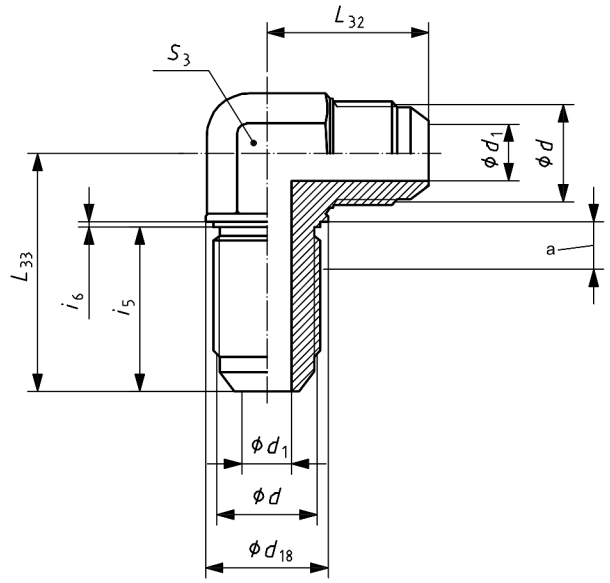
[c] In accordance with ISO 263, ISO 68-2 and ISO 5864.

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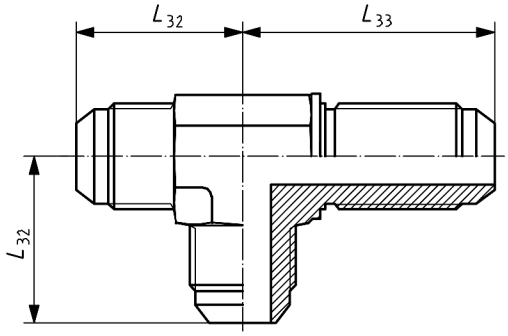
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a) Bulkhead (straight) (BHS)



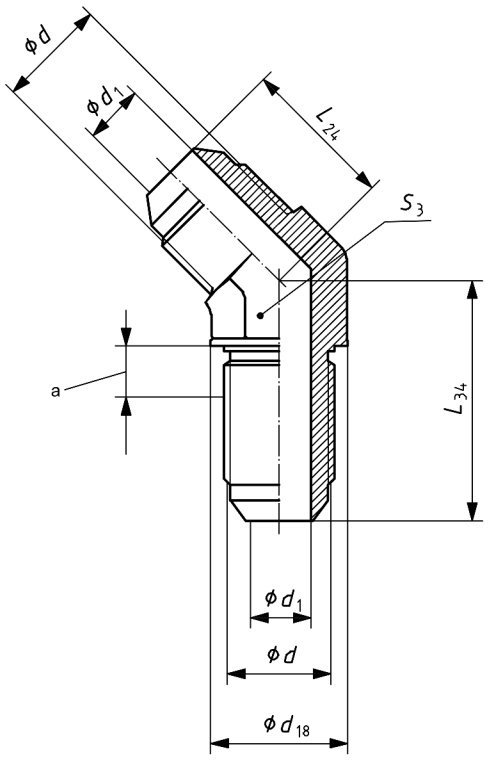
b) 90° bulkhead elbow (BHE)



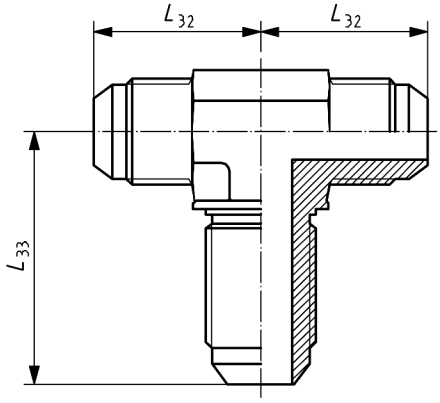
c) Bulkhead run tee (BHRT)

Figure 15 — Bulkhead connectors and corresponding bulkhead locknuts

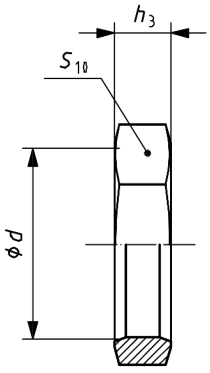
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d) Adjustable stud run tee (SDRT)



e) Bulkhead branch tee (BHBT)



f) Bulkhead locknut (BHLN)

NOTE For details not shown here, see Figure 4 and Table 7.

a Maximum bulkhead thickness: 10 mm.

b Distance from last full-form thread to bearing face.

c Optional construction.

Figure 15 *(continued)*

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Table 18 — Dimensions of bulkhead connectors and corresponding bulkhead locknuts

Dimensions in millimetres

Ordering size code [a]	Tube OD [b]	Thread [c] d	d_1 ref.	d_{17} [d] ref.	d_{18} ± 1	h_3 ± 0,5	i_4 ± 0,5	i_5 ± 0,5	i_6 ± 0,5	i_7 max.	L_{24} ref.	L_{31} ± 0,8	L_{32} ± 1	L_{33} ± 1	L_{34} ± 1	S_3 ref.	S_{10}
6 × 6	6	7/16-20 UNF	4,4	11,1	14,3	7,1	30,5	25,9	2,4	3	18,5	52,5	24,5	40,5	39	12	17
8 × 8	8	1/2-20 UNF	6	12,7	15,9	7,1	30,5	25,9	2,4	3	19,5	52,5	27	43,5	42	14	19
10 × 10	10	9/16-18 UNF	7,5	14,3	17,5	7,1	32,5	27,7	2,4	3	21	55,5	27,5	46	42,5	14	22
12 × 12	12	3/4-16 UNF	9,9	19	22,2	7,9	36,6	31,8	3,2	3	25	62	34,5	53,5	49,5	19	24
16 × 16	16	7/8-4 UNF	12,3	22,2	25,4	9,1	40,1	35,3	3,2	4	28	69,5	39,5	60,5	55	22	30
20 × 20	20	1 1/16-12 UN	15,5	27	30,2	10,4	44,4	39,6	3,2	4	32,5	78,5	45	68	62	27	36
25 × 25	25	1 5/16-12 UN	21,5	33,3	36,5	10,4	44,4	39,6	3,2	4	37,5	80	49,5	71	65	32	41
32 × 32	32	1 5/8-12 UN	27,5	41,3	44,4	10,4	45,7	40,9	3,2	4	40,5	84	55	79	67,5	41	50
38 × 38	38	1 7/8-12 UN	33,5	47,6	50,8	10,4	46	41,1	3,2	4	45	89,5	59,5	87	68	50	55
50 × 50	50	2 1/2-12 UN	45	63,5	66,7	10,4	53,1	48,5	3,2	4	56,5	106,5	73,5	104,5	74	65	70

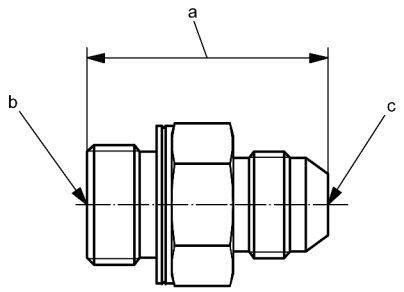
[a] Code given is for straights and elbows. Add third end size for tees using left, right, up-and-down sequence, omitting ends when not present.

[b] See Table 1 for corresponding inch sizes.

[c] In accordance with ISO 263, ISO 68-2 and ISO 5864.

[d] Diameter of bulkhead pilot is the same as major thread diameter. Recommended pilot hole for bulkhead fittings is 0,4 mm over major thread diameter.

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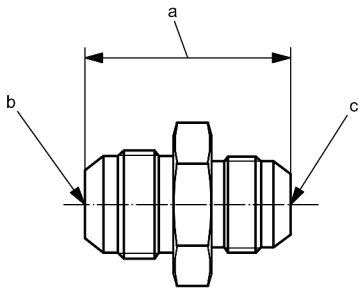


a Length to be reduced by factor from Table A.1.

b Standard stud end.

c Reduced 37° flared end.

Figure A.1 — Stud straight with reduced 37° flared end



a Length to be reduced by factor from Table A.1.

b Standard 37° flared end.

c Reduced 37° flared end.

Figure A.2 — Reducer union

Table A.1 — Factors for straight connectors with reduced 37° flared end

Dimensions in millimetres

Nominal tube OD of smaller 37° flared end	Standard machining size (tube OD or stud size of larger end of connector)								
	Tube OD								
	8 **G1/4 or** **M12 × 1,5** 1/2-20 UNF	**10** **G1/4 or** **M14 × 1,5** 9/16-18 UNF	**12** **G3/8 or** **M16 × 1,5** 3/4-16 UNF	**16** **G1/2 or** **M22 × 1,5** 7/8-14 UNF	**20** **G3/4 or** **M27 × 2** 1 1/16-12 UNF	**25** **G1 or** **M33 × 2** 1 5/16-12 UNF	**32** **G1 1/4 or** **M42 × 2** 1 5/8-12 UNF	**38** **G1 1/2 or** **M48 × 2** 1 7/8-12 UNF	**50** **G2 or** **M60 × 2** 2 1/2-12 UNF
6	0	0,3	2,8	5,3	7,9	9,1	10,4[b]	13,5[b]	19,8[b]
8		0,3	2,8	5,3	7,9	9,1	10,4[b]	13,5[b]	19,8[b]
10			2,5	5,1	7,9	9,1	10,2	13,5[b]	19,8[b]
12				2,5	5,3	6,4	7,6	10,9	17,3[b]
16			[a]		2,8	3,8	5,1	8,4	17,3
20						1,3	2,3	5,6	14,7
22							1,3	17,3	11,9
25								3,3	9,7
30									6,4

a No factor is required when the ends of the connector are the same size. For connectors whose 37° flared end is larger than the stud end, see Table A.3 or A.6.

b These "multiple jump" connectors are not recommended.

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