
International Standard



4144

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Stainless steel fittings threaded to ISO 7/1

Raccords en acier inoxydable, filetés suivant l'ISO 7/1

First edition — 1979-09-01

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UDC 621.643.4 : 669.14/.15.018.8

Ref. No. ISO 4144-1979 (E)

Descriptors : pipe fittings, steel products, stainless steels, pipe sockets, pipe nipples, pipe bends, pipe plugs, unions, ISO screw threads, designations, specifications, dimensions, symbols, proving pressure.

Price based on 10 pages

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 4144 was developed by Technical Committee ISO/TC 5, *Metal pipes and fittings*, and was circulated to the member bodies in January 1978.

It has been approved by the member bodies of the following countries :

Belgium
Czechoslovakia
Denmark
Egypt, Arab Rep. of
Finland
Germany, F. R.
India

Israel
Italy
Korea, Rep. of
Mexico
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Romania
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The member bodies of the following countries expressed disapproval of the document on technical grounds :

Australia
France
Japan

South Africa, Rep. of
United Kingdom

Stainless steel fittings threaded to ISO 7/1

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1 Scope and field of application

This International Standard specifies requirements for stainless steel fittings for threaded connections in accordance with ISO 7/1, used mainly for industrial purposes.

ISO 228/1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1 : Designation, dimensions and tolerances*

ISO 272, *Fasteners — Width across flats for hexagon products*

2 References

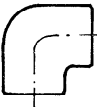
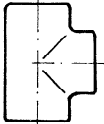

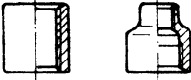





ISO 7/1, *Pipe threads where pressure-tight joints are made on the threads — Part 1 : Designation, dimensions and tolerances*.

ISO 2604/2, *Steel products for pressure purposes — Quality requirements — Part 2 : Wrought seamless tubes*.

3 Symbols

See table 1.

Table 1 — Types of fittings and their symbols

Diagram	Type	Symbol	Table
	Elbows	A1	2
	Tees	B1	2
	Half sockets	M1	3
	Sockets, equal and reducing	M2	4 and 5
	Reducing bushes	N4	6
	Hexagon nipples	N8	7
	Caps	T2	8
	Plugs	T8 and T10	9
	Unions	U1 or U11	10

4 Materials

The fittings shall be made from rolled steel, forged steel, etc. having characteristics and properties at least equal to those of the steel TS 47 specified in ISO 2604/2.

5 Dimensions

Unspecified dimensions are at the discretion of the manufacturer.

The drawings are diagrammatic, without prejudice to the manufactured form.

6 Threads

6.1 Choice of thread

Fittings shall be threaded in accordance with ISO 7/1.

External threads are tapered 1 : 16; internal threads are normally parallel, but taper threads may be used.

Exceptions : Non-pressure-tight threads of union-nuts and their mating threads shall be in accordance with ISO 228/1.

6.2 Alignment of threads

The axes of screw threads shall be accurate within $\pm 1/2^\circ$ of the specified angle.

6.3 Chamfering

The outlets of the fittings should be chamfered.

7 Widths across flats

Widths across flats, S , shall comply with ISO 272 except for caps and unions.

8 Hydraulic test pressure

The fittings shall be capable of withstanding a hydraulic test pressure of 50 bar*.

If tests are required, this shall be stated at the time of enquiry or order. The manufacturer may substitute for the hydraulic test other tests which ensure an equivalent leak tightness.

9 Designation of fittings

The fittings complying with this International Standard are designated by the following particulars, in the sequence shown :

Type of fitting

Designation of the thread(s)

Symbol (see table 1)

Grade of steel when other than TS 47 is required

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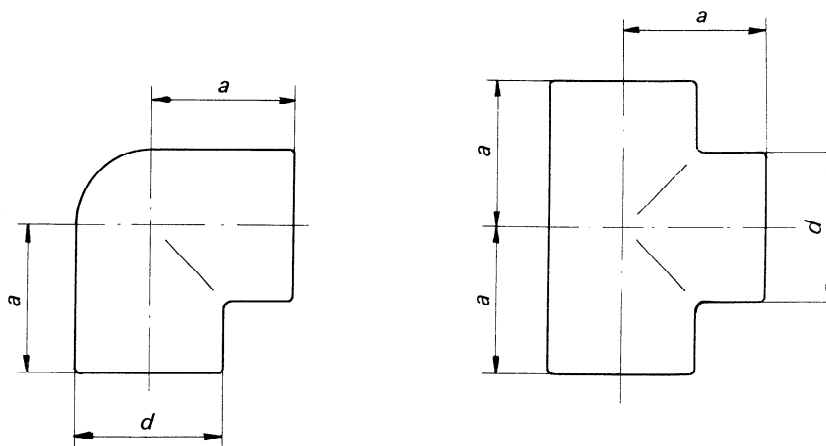
Examples of designation :

1) Equal female elbow 2 of grade TS 47 :
Elbow 2 A1 ISO 4144

2) Reduced tee with run 2 and branch 1 of grade TS 61 :
Reduced tee 2 \times 1 B1 TS 61 ISO 4144.

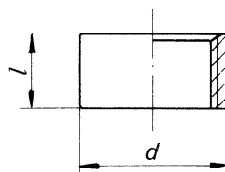
* 1 bar = 10^5 Pa $\approx 10^5$ N/m²

Table 2 — Elbows A1 and Tees B1



Thread designation	Nominal size DN	d min. mm	a min. mm
1/8	6	14,5	19
1/4	8	17,5	21
3/8	10	21,5	25
1/2	15	27	28
3/4	20	32,5	33
1	25	39,5	38
1 1/4	32	49	45
1 1/2	40	56	50
2	50	68	58
2 1/2	65	84	70
3	80	98	80

Table 3 — Half sockets M1



Thread designation	Nominal size DN	d min. mm	l min. mm
1/8	6	14,0	8
1/4	8	18,5	11
3/8	10	21,3	12
1/2	15	26,4	15
3/4	20	32,5	17
1	25	39,5	19,5
1 1/4	32	48,3	22
1 1/2	40	55,5	22
2	50	68,0	26
2 1/2	65	84,0	30,5
3	80	98,0	34

Table 4 — Sockets M2

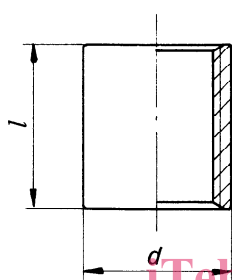
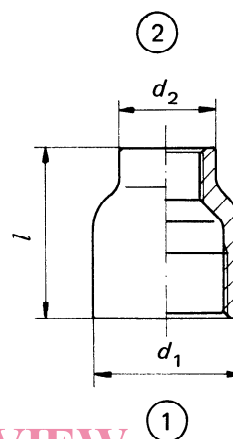


Table 5 — Reducing sockets M2

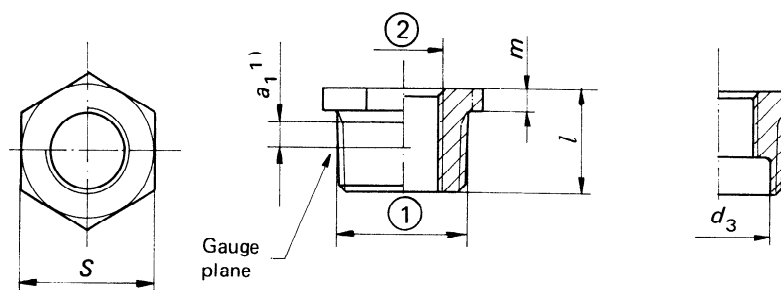


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Thread designation	Nominal size DN	d min. mm	l min. mm
1/8	6	14,0	17
1/4	8	18,5	25
3/8	10	21,3	26
1/2	15	26,4	34
3/4	20	32,5	36
1	25	39,5	43
1 1/4	32	48,3	48
1 1/2	40	55,5	48
2	50	68,0	56
2 1/2	65	84,0	65
3	80	98,0	71

Thread designations		Nominal sizes		d_1 min. mm	d_2 min. mm	l min. mm
1	2	DN ₁	DN ₂			
1/4	1/8	8	6	18,5	14,5	27
3/8	1/4	10	8	21,5	18,5	30
1/2	3/8	15	10	27	21,5	36
3/4	3/8	20	10	32,5	21,5	39
	1/2		15	32,5	27	39
1	1/2	25	15	39,5	27	45
	3/4		20	39,5	32,5	45
1 1/4	3/4	32	20	49	32,5	50
	1		25	49	39,5	50
1 1/2	1	40	25	56	39,5	55
	1 1/4		32	56	49	55
2	1 1/4	50	32	68	49	65
	1 1/2		40	68	56	65
2 1/2	1 1/2	65	40	84	56	74
	2		50	84	68	74
3	2	80	50	98	68	80
	2 1/2		65	98	84	80

Table 6 — Reducing bushes N4



Hexagonal shape for sizes up to 1, hexagonal or octagonal shape for sizes 1 1/4 to 3.

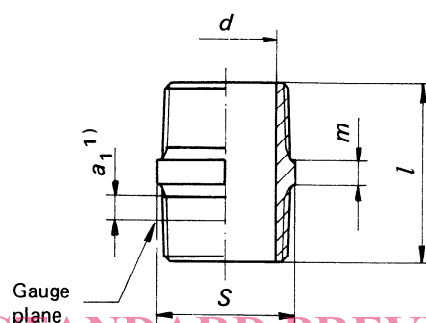
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Thread designations		Nominal sizes		l min.	m min.	d_3 max.	S	a_1 min. ¹⁾
①	②	DN ₁	DN ₂	mm	mm	mm	mm	mm
1/4	1/8	8	6	17	4,0	8,9	14	3,7
3/8	1/4	10	8	17,5	5,0	12,4	17 ²⁾	3,7
1/2	3/8	15	10	21	5,0	16,1	22	5,0
3/4	3/8	20	10	24,5	5,5	21,6	27 ²⁾	5,0
	1/2		15	24,5	5,5	21,6	27 ²⁾	5,0
1	1/2	25	15	27,5	6,0	27,1	36	6,4
	3/4		20	27,5	6,0	27,1	36	6,4
1 1/4	3/4	32	20	32,5	6,5	35,8	46	6,4
	1		25	32,5	6,5	35,8	46	6,4
1 1/2	1	40	25	32,5	6,5	41,7	50	6,4
	1 1/4		32	32,5	6,5	41,7	50	6,4
2	1	50	25	40	7,0	52,9	65	7,5
	1 1/2		40	40	7,0	52,9	65	7,5
2 1/2	1 1/2	65	40	46,5	7,0	68,7	80	9,2
	2		50	46,5	7,0	68,7	80	9,2
3	2	80	50	51,5	7,5	81,0	90	9,2
	2 1/2		65	51,5	7,5	81,0	90	9,2

1) These values comply with ISO 7/1.

2) The values 19 and 30 for across flats may be used. The manufacturer shall in all cases ensure that the threads are full form for the entire useful length of thread.

Table 7 — Hexagon nipples N8



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Hexagonal shape for sizes up to 1, hexagonal or octagonal shape for sizes 1 1/4 to 3.

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Thread designation	Nominal size DN	l min. mm	m min. mm	d max. mm	S mm	a_1 min. ¹⁾ mm
1/8	6	21	4,0	6,0	12	2,5
1/4	8	28	4,0	8,9	14	3,7
3/8	10	29	5,0	12,4	17 ²⁾	3,7
1/2	15	36	5,0	16,1	22	5,0
3/4	20	41	5,5	21,6	27 ²⁾	5,0
1	25	46,5	6,0	27,1	36	6,4
1 1/4	32	54	6,5	35,8	46	6,4
1 1/2	40	54	6,5	41,7	50	6,4
2	50	65,5	7,0	52,9	65	7,5
2 1/2	65	76,5	7,0	68,7	80	9,2
3	80	85	7,5	81,0	90	9,2

1) These values comply with ISO 7/1.

2) The values 19 and 30 for across flats may be used. The manufacturer shall in all cases ensure that the threads are full form for the entire useful length of thread.