INTERNATIONAL STANDARD

ISO 3253

Second edition
1998-09-01

Gas welding equipment — Hose connections for equipment for welding, cutting and allied processes

Matériel de soudage aux gaz — Raccords pour tuyaux souples pour appareils de soudage, coupage et techniques connexes

Reference number
ISO 3253:1998(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 3253 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 8, *Equipment for gas welding, cutting and allied processes*.

This second edition cancels and replaces the first edition (ISO 3253:1975), of which it constitutes a technical revision.

Annex A of this International Standard is for information only.

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Gas welding equipment — Hose connections for equipment for welding, cutting and allied processes

1 Scope

This International Standard lays down the dimensions and specifies the characteristics of the constituent parts of hose connections for equipment for welding, cutting and allied processes.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 228-1:1994, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation.*

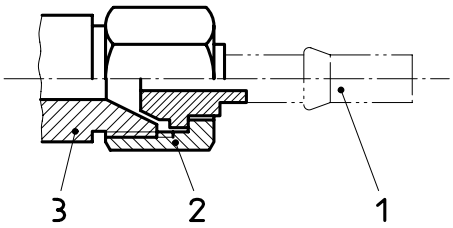
ISO 261:1998, *ISO general-purpose metric screw threads — General plan*.

ISO 9539:1988, *Materials for equipment used in gas welding, cutting and allied processes.*

3 General

The gas pipe threads shall be in accordance with the requirements of ISO 228-1. All other dimensions are given in millimetres.

The joint is made with a under cone and cone seal (see figure 1).



Key

1 Hose coupling nipple

2 Union nut

3 Threaded union

Figure 1 — Hose connection

4 Material

The material shall conform to ISO 9539.

5 Dimensions

5.1 General

The dimensions of threaded union, union nut and hose coupling nipple shall be as specified in 5.2, 5.3 and 5.4.

5.2 Threaded union

A threaded union is shown in figure 2 and the dimensions and tolerances of threaded unions are given in table 1.

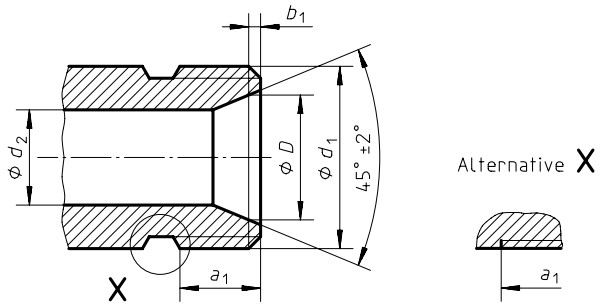


Figure 2 — Threaded union

Table 1 — Dimensions and tolerances of threaded union

Thread (d_1)	$D^{1)}$	$a_1^{2)}$ min.	b_1 JS15	d_2 max.
G1/8	6,5	7,5	1,2	5
G1/4	8,3	9,5	1,4	7
G3/8	11,5	10,5	1,8	10
G1/2	13,9	12	2	12
G3/4	18,5	13,5	2,2	16
G1	24	14,5	2,4	22

1) Datum diameter (nominal diameter of contact).

2) Effective length of thread.

Tolerances for external thread according to class A.

The dimensions not given are left to the discretion of the manufacturer.

Type of thread to be used:

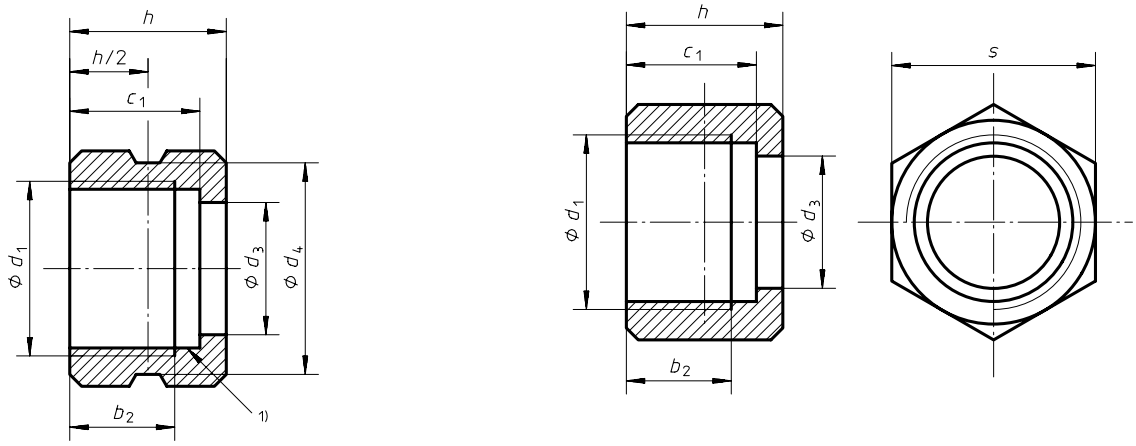
— right-hand for oxygen and non-fuel gases;

— left-hand for fuel gases.

NOTE For those countries using metric threads according to ISO 261 the dimensions are given in annex A.

5.3 Union nut

A union nut is shown in figure 3 and the dimensions and tolerances of union nuts are given in table 2.



a) With left-hand thread **b) With right-hand thread**

1) optional undercut

Figure 3 — Union nut

Table 2 — Dimensions and tolerances of union nut

Thread (d_1)	b_2 min.	c_1 JS15	d_3 H12	d_4 h14	h h14	s h11
G1/8	8	10	6,5	11	12	11
G1/4	10	12,5	9,5	17	15,5	17
G3/8	10,5	13,5	12,5	19	16,5	19
G1/2	13	16,5	14,5	24	20,5	24
G3/4	15	18,5	19,5	30	22,5	30
G1	17	21,5	25,5	41	26,5	41

The dimensions not given are left to the discretion of the manufacturer.

Type of thread to be used:

— right-hand for oxygen and non-fuel gases;

— left-hand for fuel gases.

NOTE For those countries using metric threads according to ISO 261 the dimensions are given in annex A.

5.4 Hose coupling nipple

A hose coupling nipple is shown in figure 4 and the dimensions and tolerances of hose coupling nipples are given in table 3.

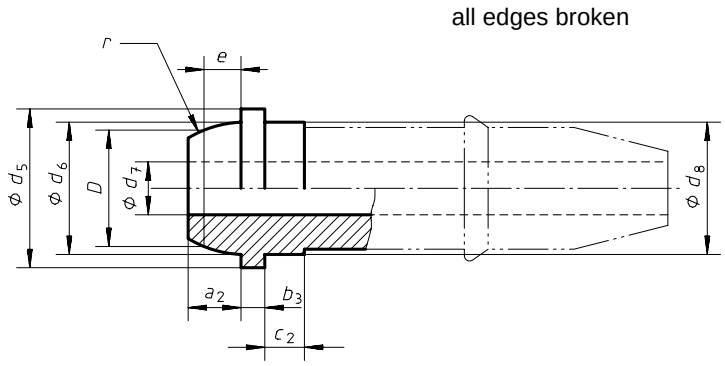


Figure 4 — Hose coupling nipple

Table 3 — Dimensions and tolerances of hose coupling nipple

Internal diameter of hose[1)]	Thread	a_2 h14	b_3 h14	c_2 min.	$D^{2)}$	d_5 h12	d_6 h12	d_8 h12	e h14	r h14
3,2 4 5	**G1/8**	4,5	2	4	6,5	8	7	6	3	3,5
4 5 6,3 8	**G1/4**	5	2,5	5	8,3	11	9	9	3,5	4,5
5 6,3 8 10	**G3/8**	6	2,5	5	11,5	14,5	12,5	12	4	6,25
6,3 8 10	**G1/2**	6	3,5	6	13,9	18	15	14	4,5	7,5
10 12,5 16	**G3/4**	8	3,5	6	18,5	23,5	20	19	5,25	10
16 20	**G1**	10	4,5	7	24	29,75	26	25	6,5	13

1) These values are given as a guide. To every hose diameter correspond the appropriate dimensions of the part to be engaged in the hose.

2) Datum diameter (nominal diameter of contact).

The dimensions not given and the profile of the part to be engaged in the hose are left to the discretion of the manufacturer.

The diameter d_7 shall be as large as possible to ensure maximum flow capacity.

To ensure correct seating between the hose coupling nipple and the threaded union, the diameter d_7 shall not exceed d_2.

As the profile of the hose coupling nipple is left to the manufacturer's discretion, the wall between the bore and the smallest diameter of the profile shall have adequate strength. However, the profile and the dimensions should be chosen so as to permit the burst pressure of the hose to be reached when the hose is fixed by a suitable clamp.

NOTE For those countries using metric threads according to ISO 261 the dimensions are given in annex A.

Annex A
(informative)

Metric threads according to ISO 261

Special national conditions are national characteristics or practices that cannot be changed even over a long period.

This annex constitutes a list of modifications to this International Standard which are to be taken into consideration in those countries in which the relevant special national conditions apply. In this case these provisions are normative, for other countries, they are informative.

This annex will expire five years after the date of the publication.

Clause 3 Delete the first sentence.

5.2 Replace table 1 by the following table 1.

Table 1 — Dimensions and tolerances of threaded unions

Thread ($d_1 \times P$)	$D^{1)}$	$a_1^{2)}$ min.	b_1 JS15	d_2 max.	α °
M12 × 1	6,9	8	1,4	3,5	$60^{\,0}_{-5}$
M16 × 1,5	11,2	9	1,5	7	
M20 × 1,5	15,2	11	1	10	
1) Datum diameter (nominal diameter of contract). 2) Effective length thread.					

5.3 Replace table 2 by the following table 2.

Table 2 — Dimensions and tolerances of union nut

Thread ($d_1 \times P$)	b_2 min.	c_1 JS15	d_3 H12	d_4 h14	h h14	s h11
M12 × 1	7	9	8	14	11	14
M16 × 1,5	8	11	12	19	13	19
M20 × 1,5	11	14	15	23	17	23

5.4 Replace table 3 by the following table 3.

Table 3 — Dimensions and tolerances of hose coupling nipple

Internal diameter of hose[1)]	**Thread** ($d_1 \times P$)	a_2 h14	b_3 h14	c_2 min.	D[2)]	d_5 h12	d_6 h12	d_8 h12	e h14	r h14
6,3	**M12 × 1**	4,5	2	5	6,9	10,5	8	8	3	4
6,3 10	**M16 × 1,5**	4,5	2	5	11,2	14	13	12	3,2	6,5
10 12,5	**M20 × 1,5**	5	3	5	15,2	18	17,2	15	2,5	8,8
1) These values are given as a guide. To every hose diameter correspond the appropriate dimensions of the part to be engaged in the hose. 2) Datum diameter (nominal diameter of contact).										

ICS 25.160.30

Descriptors: welding, gas welding, gas cutting, brazing and soldering, welding equipment, hoses, pipe fittings, specifications, dimensions.

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