
INTERNATIONAL STANDARD



3306

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

**Plain end as-welded and sized precision steel tubes —
Technical conditions for delivery**

Tubes de précision en acier, soudés, calibrés extérieurement, à extrémités lisses — Conditions techniques de livraison

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Price based on 6 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 3306 was drawn up by Technical Committee ISO/TC 5, *Metal pipes and fittings*, and circulated to the Member Bodies in March 1974.

It has been approved by the Member Bodies of the following countries :

Australia	Hungary	Sweden
Belgium	India	Switzerland
Bulgaria	Israel	Thailand
Canada	Italy	Turkey
Denmark	Norway	United Kingdom
Egypt, Arab Rep. of	Romania	U.S.S.R.
Finland	South Africa, Rep. of	Yugoslavia
France	Spain	

The Member Bodies of the following countries expressed disapproval of the document on technical grounds :

Austria
Germany
Japan
U.S.A.

Plain end as-welded and sized precision steel tubes — Technical conditions for delivery

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the technical conditions for delivery of as-welded and sized tubes with plain ends, manufactured from the grades of steel shown in table 2, with precision dimensional tolerances and in those dimensions from ISO 560 shown in table 8.

Tubes in accordance with this International Standard are employed mainly for purposes where importance attaches to dimensional accuracy and, if required, small thicknesses and surface finish.

If such tubes are intended for use in hydraulic piping equipment, they must be used only in the annealed or normalized condition.

2 REFERENCES

ISO/R 166, *Drift expanding test on steel tubes.*

ISO/R 202, *Flattening test on steel tubes.*

ISO 375, *Steel — Tensile testing of tubes.*

ISO/R 404, *General technical delivery requirements for steel.*

ISO 560, *Plain end precision steel tubes, seamless and welded — Dimensions and masses per unit length.*

ISO 2604/III, *Steel products for pressure purposes — Quality requirements — Part III: Welded tubes.*

3 DESIGNATION FOR THE ORDER

3.1 The tubes shall be designated by the following details:

- a) quantity;
- b) grade of steel;
- c) reference to this International Standard;
- d) condition of tubes at delivery;
- e) outside diameter and thickness;
- f) length.

Example: 2 000 m as-welded and sized precision steel tubes in steel R 37, as per ISO 3306, annealed in controlled atmosphere (GKM), outside diameter 25 mm, thickness 2 mm, in random lengths.

3.2 Certain alternatives are permitted; other supplementary requirements may be specified and the purchaser should state his requirements in his enquiry and order; if he does not do so, supply will be made at the option of the manufacturer.

4 MATERIAL

The tubes shall be manufactured from a steel produced by an open hearth, electric or one of the basic oxygen processes.

Other processes may be used by agreement between the interested parties.

The method of manufacture and deoxidation process is left to the option of the manufacturer.

On the purchaser's request, the supplier shall indicate the method of manufacture and the deoxidation practice used.

Rimmed steel is permitted for steel grades R 28, R 33, R 37 and R 42.

5 MANUFACTURE OF THE PRODUCT

The tube shall be manufactured from either hot- or cold-rolled steel strip longitudinally welded continuously by the passage of an electric current across the abutting edges without the addition of filler metal and sized. For certain applications, the tubes may be heat-treated. The condition of the tubes at delivery shall be chosen from table 1.

6 CONDITION OF TUBES AT DELIVERY

The tubes are normally delivered in one of the conditions shown in table 1.