

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION ~~R 166~~

DRIFT EXPANDING TEST ON STEEL TUBES
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BRIEF HISTORY

The ISO Recommendation R 166, *Drift Expanding Test on Steel Tubes*, was drawn up by Technical Committee ISO/TC 17, *Steel*, the Secretariat of which is held by the British Standards Institution (B.S.I.).

At the fourth meeting of the Technical Committee, held in Stockholm, in June 1955, a draft proposal concerning a drift expanding test on steel tubes, was first submitted. It was, however, suggested at that meeting that the drafts should be submitted to Technical Committee ISO/TC 5, *Pipes and Fittings*, for comments, and that these comments, together with those of the members of Technical Committee ISO/TC 17, should be considered by Working Group No. 1 with a view to establish a revised draft proposal.

At the time of the fifth meeting of the Technical Committee, held in London, in March 1957, this test, together with four others for steel tubes, was still under consideration by Working Group No. 1.

At the sixth plenary meeting, held in Harrogate, in June 1958, a new draft proposal was placed before Technical Committee ISO/TC 17 for consideration and, with one or two minor editorial amendments, was accepted as suitable for circulation to the members of the Technical Committee for postal approval.

As a result of that circulation, certain other minor amendments were made and a revised draft was sent to the General Secretariat as a Draft ISO Recommendation.

On 24 July 1959, the Draft ISO Recommendation (No. 289) was distributed to all the ISO Member Bodies and was approved by the following Member Bodies:

Australia	Germany	Norway
Austria	Greece	Poland
Belgium	Hungary	Portugal
Bulgaria	India	Romania
Burma	Israel	Spain
Chile	Italy	Sweden
Czechoslovakia	Japan	Switzerland
Denmark	Mexico	United Kingdom
Finland	Netherlands	U.S.S.R.
France	New Zealand	

No Member Body opposed the approval of the Draft.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in November 1960, to accept it as an ISO RECOMMENDATION.

DRIFT EXPANDING TEST ON STEEL TUBES

1. SCOPE

This ISO Recommendation applies to the drift expanding test on steel tubes of circular cross-section, having an external diameter not greater than 150 mm (5.9 in) and a thickness not greater than 9 mm (0.35 in).

2. PRINCIPLE OF TEST

The test involves expanding, by means of a conical mandrel, the end of a tube or the end of a test piece consisting of a piece of tube.

The test is carried out until the maximum diameter of the drifted tube has reached the value laid down in the relevant material specification.

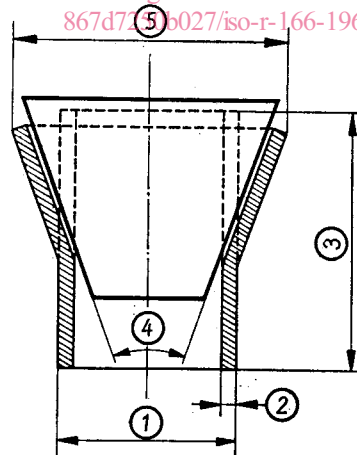
iTeh STANDARD PREVIEW

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3. SYMBOLS AND DESIGNATIONS

ISO/R 166:1960

<https://standards.iteh.ai/catalog/standards/sist/1ee3ef0b-be93-4dd7-bd9-867d75027/iso-r-166-1960>



Number	Symbol	Designation
1	D	External diameter of test piece
2	a	Thickness of test piece
3	L	Length of test piece
4		Conical angle of mandrel
5	e	Maximum external diameter of end of drifted tube

4. TEST PIECE

- 4.1 The test piece consists of a piece of tube preferably having a length L equal to twice the external diameter D , of the tube, if the angle of the drift is 30° , and a length equal to $1\frac{1}{2}$ times the diameter if the angle of the drift is 45° , 60° or 120° , but the length should be not less than 50 mm. Where the above angles are not practicable, tapers of 1 : 10 or 1 : 20 may be used.

Alternatively, the test may be made on the end of a tube without the test piece being removed.

- 4.2 The end to be tested should be in a plane perpendicular to the axis of the tube.

The edges of the end to be tested may be rounded by filing. However, a test on a test piece, the edges of which have not been rounded, is acceptable, provided the test is satisfactory.

5. DESCRIPTION OF TEST

A conical mandrel of polished steel of suitable hardness and having an angle at the tip of the cone of 30° , 45° , 60° or 120° (or a taper of 1 : 10 or 1 : 20), as specified in the relevant material specification, is forced into the test piece, under pressure, until the increase in the external diameter of the end of the section reaches the specified value.

6. TEST REQUIREMENTS

- 6.1 The mandrel should be lubricated, and there should be no rotation of the tube or the forming tool during the test.
- 6.2 In cases of dispute, the rate of penetration of the mandrel should not exceed 50 mm (1.96 in) per minute.
- 6.3 The temperature of the test piece should be equal to the ambient temperature (but in no case less than 10°C), unless some other temperature is specified.
- 6.4 The interpretation of the appearance of the test piece after testing is a matter for the material specification.