



Specification for carbon steel pipes and tubes with specified room temperature properties for pressure purposes

This British Standard BS 3601:1987 has been adopted by the Standards Council of New Zealand for use in New Zealand, pursuant to the provisions of the Standards Act 1988.

NZS/BS 3601:1987

© British Standards Institution. No part of this publication may be photocopied or otherwise reproduced without the prior permission in writing of BSI

British Standard Specification for
**Carbon steel pipes and tubes with
specified room temperature properties
for pressure purposes**

Tubes et tuyaux en acier au carbone à caractéristiques spécifiées à température ambiante, pour
appareils à pression — Spécifications

Druckrohre aus unlegiertem Stahl mit besonderen Eigenschaften bei Raumtemperatur

Foreword

This British Standard has been prepared under the direction of the Iron and Steel Standards Committee and supersedes BS 3601 : 1974 which is withdrawn.

The main technical differences between this edition and the previous edition are that changes have been made to the chemical analysis and the mechanical properties to take into account current steelmaking practice.

The specified minimum tensile strength for steel 410 has been increased to 430 N/mm² and the designation has been changed to 430 accordingly. The designations of the other steels remain unchanged from the previous edition.

Changes have been made to the thickness tolerance (excluding weld reinforcement) of submerged arc welded tubes and the length tolerance for cut lengths above 6 m long.

The assessment of the flattening test for welded tubes has been brought into alignment with that for seamless tubes and flattening test constants are specified for welded tubes.

The designation of steel tubes in this specification and their nearest equivalent designations in ISO 2604 : Parts 2, 3 and 6 are shown in appendix A for information purposes.

This standard is aligned, as far as possible, with the corresponding requirements and test procedures agreed for incorporation in draft ISO standards.

The steels covered by this standard are generally regarded as being weldable. However, care should be taken and welding should be in accordance with the appropriate British Standard for welding, e.g. BS 2633.

This standard is one of a series specifying requirements for steel pipes and tubes for pressure purposes. Other standards in the series are as follows.

BS 3602 Specification for steel pipes and tubes for pressure purposes: carbon and carbon manganese steel with specified elevated temperature properties

Part 1. Seamless, electric resistance welded and induction welded tubes

Part 2. Submerged arc welded tubes

BS 3603 Specification for steel pipes and tubes for pressure purposes: carbon and alloy steel with specified low temperature properties

BS 3604 Specification for steel pipes and tubes for pressure purposes: ferritic alloy steel with specified elevated temperature properties

BS 3605 Specification for seamless and welded austenitic stainless steel pipes and tubes for pressure purposes

Purchasers ordering to this British Standard are advised to specify in their purchasing contract that the supplier operates a quality system in compliance with BS 5750 : Part 2 to assure themselves that products claimed to comply with BS 3601 consistently achieve the required level of quality.

It is outside the scope of this standard to specify formal qualifications for personnel engaged in testing but it is emphasized that the operation of all equipment should be supervised by competent, trained personnel.

For the purpose of this standard, no difference is intended in the meaning between 'pipe' and 'tube' though idiomatic use prefers sometimes the one and sometimes the other.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Contents

	Page
Foreword	Inside front cover
Committees responsible	Back cover
Specification	
1 Scope	2
2 Information to be supplied by the purchaser and options to be documented	2
3 Designation	2
4 Manufacture of the steel	2
5 Manufacture of the product	3
6 Chemical analysis	3
7 Final supply conditions	5
8 Mechanical properties	6
9 Visual inspection and appearance	6
10 Tolerances	6
11 Tests	7
12 Number, selection and preparation of samples and test pieces	7
13 Test methods	8
14 Retests	10
15 Test certificate	10
16 Protective coating	10
17 Marking	10
Appendices	
A Designation of steel tubes in BS 3601 : 1987 and the nearest equivalent designations in BS 3601 : 1974 and ISO 2604 : Parts 2, 3 and 6	11
B Dimensional limits of tubes in relation to the method of manufacture	11
C Eddy current testing of tubes for verification of leak tightness	11
Tables	
1 Method of manufacture of tube, reference and steel grades applicable	3
2 Chemical composition and mechanical properties at room temperature	4
3 Permitted deviations of the product analysis from the specified ladle analysis	5
4 Tube manufacturing process and final supply conditions	5
5 Number of tubes per batch	8
6 Flattening test constant <i>C</i>	9
7 Designation of steel tubes in BS 3601 : 1987 and the nearest equivalent designations in BS 3601 : 1974 and ISO 2604 : Parts 2, 3 and 6	11
8 Dimensional limits of tubes in relation to the method of manufacture	11
9 Drill diameter sizes for method A	12
10 Notch dimensions for method B	12