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Full document details: BS 4-2:1969

+ 2 Amds.

BRITISH STANDARD 4 : Part 2 : 1969

UDC 624.07 : [669.14.018.29—42 + 669.14.018.29—462—122.4]

METRIC UNITS

SPECIFICATION FOR STRUCTURAL STEEL SECTIONS

Part 2. Hot-rolled Hollow Sections

1969

BRITISH STANDARDS INSTITUTION

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Amendment Slip No.1, published 28 February, 1973

to BS 4 : Part 2 : 1969

Structural steel sections

Part 2. Hot rolled hollow sections

This amendment slip replaces AMD 1122 which was issued 20 February 1973, marked in error as 'Amendment Slip No.2'. AMD 1122 is therefore withdrawn, and copies destroyed.

Revised text

Contents. Delete Section 3 entirely.

Foreword. Delete the existing third paragraph and substitute the following:

'In view of the change to the metric system in the construction industry this revision, while still retaining the inch series, expresses designations, dimensions and dimensional properties in metric units only. Imperial designations are withdrawn together with the whole of Section 3.

Delete the existing fourth paragraph and substitute the following:

'To avoid possible confusion with the eventual metric based series the metric designations are conversions of the inch designations.'

In the first line on page 6 delete '18 in' and substitute '457 mm'.

1.1 Scope. In the third line delete '(1·062 in)' and '(18 in)', delete '457·2 mm' and substitute '457 mm'.

In the fourth line delete '(2 in x 1 in)'.

In the fifth line delete '(18 in x 14 in)', delete '457·2 mm x 355·6 mm' and substitute '457·2 mm x 254·0 mm'.

In the sixth line delete '(1 in x 1 in)', delete '406·4 mm x 406·4 mm' and substitute '355·6 mm x 355·6 mm'.

In the seventh line delete '(16 in x 16 in)'.

1.2.2. Designation. Delete the existing first sentence and substitute the following:

'A hollow section is designated by its outside dimensions and thickness in millimetres.'

Delete the existing fourth line and substitute the following:

'Inch dimensions should no longer be used for this purpose.'

Examples. (1) Delete '(4·5 in)' and '(0·25 in)', delete '4·5 x 0·250 CHS' and substitute '114·3 x 6·3 CHS'.
(2) Delete '(4 in x 2 in)' and '(0·160 in)', delete '4·0 x 2·0 x 0·160 RHS' and substitute '101·6 x 50·8 x 4·0 RHS'.
(3) Delete '(4 in x 4 in)' and '(0·25 in)', delete '4·0 x 4·0 x 0·250 RHS' and substitute '101·6 x 101·6 x 6·3 RHS'.

1.3.1.1.1. Circular hollow sections. In the third line delete '(1·906 in)', delete '±0·4 mm' and substitute '±0·6 mm'.

Delete the fourth, fifth and sixth lines.

In the seventh line delete '(1·906 in)'.

1.3.1.1.2 Rectangular hollow sections (including squares)

In the fifth line delete '(0·020 in)'.

1.4 Length tolerances. In the second line delete '(0·25 in)'.

Section 2. Dimensions and properties. In the second line of the Note delete '(0·062 in)'.

Table 1M. Circular hollow sections. Delete columns 1 and 2 and insert 'DESIGNATION' above columns 3 and 4 throughout.

Delete axes 'x-x', 'y-y' from the diagrams throughout.

In the third column of the last line on page 13 delete '457·2' and substitute '457'.

Table 2M. Rectangular hollow sections.

Delete columns 1 and 2 and insert 'DESIGNATION' above columns 3, 4 and 5 throughout.

Delete the following sizes and all details from pages 18 and 19:
'406·4 x 203·2 x 7·1'
'457·2 x 254·0 x 8·0 and 9·5'

Delete the last horizontal column of data beginning '18·0 x 14·0' and associated data.

Table 3M. Square hollow sections.

Delete columns 1 and 2 and insert 'DESIGNATION' above columns 3 and 4. In the heading for column 3 delete 'or' and substitute 'and', and repeat the dimensions e.g. '25·4 x 25·4' etc., throughout. Delete axes 'x-x', 'y-y' from the diagrams throughout.

Delete the following sizes and all details from page 22:
'304·8 x 304·8 x 7·1'
'355·6 x 355·6 x 8·0'

Delete the last horizontal column of data beginning '16·0 x 16·0' and associated data.

Section 3. Dimensions and properties. Delete this section entirely.

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AMD 1122

Amendment Slip No.2, published 20 February, 1973

to BS 4 : Part 2 : 1969

Structural steel sections

Part 2. Hot rolled hollow sections

Revised text

Contents. Delete Section 3 entirely.

Foreword. Delete the existing third paragraph and substitute the following:

'In view of the change to the metric system in the construction industry this revision, while still retaining the inch series, expresses designations, dimensions and dimensional properties in metric units only. Imperial designations are withdrawn together with the whole of Section 3.

Delete the existing fourth paragraph and substitute the following:

'To avoid possible confusion with the eventual metric based series the metric designations are conversions of the inch designations.'

In the first line on page 6 delete '18 in' and substitute '457 mm'.

1.1 Scope. In the third line delete '(1·062 in)' and '(18 in)', delete '457·2 mm' and substitute '457 mm'.

In the fourth line delete '(2 in x 1 in)'.

In the fifth line delete '(18 in x 14 in)', delete '457·2 mm x 355·6 mm' and substitute '457·2 mm x 254·0 mm'.

In the sixth line delete '(1 in x 1 in)', delete '406·4 mm x 406·4 mm' and substitute '355·6 mm x 355·6 mm'.

In the seventh line delete '(16 in x 16 in)'.

1.2.2. Designation. Delete the existing first sentence and substitute the following:

'A hollow section is designated by its outside dimensions and thickness in millimetres.'

Delete the existing fourth line and substitute the following:

'Inch dimensions should no longer be used for this purpose.'

Examples. (1) Delete '(4·5 in)' and '(0·25 in)', delete '4·5 x 0·250 CHS' and substitute '114·3 x 6·3 CHS'.
(2) Delete '(4 in x 2 in)' and '(0·160 in)', delete '4·0 x 2·0 x 0·160 RHS' and substitute '101·6 x 50·8 x 4·0 RHS'.
(3) Delete '(4 in x 4 in)' and '(0·25 in)', delete '4·0 x 4·0 x 0·250 RHS' and substitute '101·6 x 101·6 x 6·3 RHS'.

1.3.1.1.1. Circular hollow sections. In the third line delete '(1·906 in)', delete '+0·4 mm' and substitute '±0·6 mm'.

Delete the fourth, fifth and sixth lines.

In the seventh line delete '(1·906 in)'.

1.3.1.1.2 Rectangular hollow sections (including squares)

In the fifth line delete '(0·020 in)'.

1.4 Length tolerances. In the second line delete '(0·25 in)'.

Section 2. Dimensions and properties. In the second line of the Note delete '(0·062 in)'.

Table 1M. Circular hollow sections. Delete columns 1 and 2 and insert 'DESIGNATION' above columns 3 and 4 throughout.

Delete axes 'x-x', 'y-y' from the diagrams throughout.

In the third column of the last line on page 13 delete '457·2' and substitute '457'.

Table 2M. Rectangular hollow sections.

Delete columns 1 and 2 and insert 'DESIGNATION' above columns 3, 4 and 5 throughout.

Delete the following sizes and all details from pages 18 and 19:
'406·4 x 203·2 x 7·1'
'457·2 x 254·0 x 8·0 and 9·5'

Delete the last horizontal column of data beginning '18·0 x 1[illegible]·0' and associated data.

Table 3M. Square hollow sections.

Delete columns 1 and 2 and insert 'DESIGNATION' above columns 3 and 4. In the heading for column 3 delete 'or' and substitute 'and', and repeat the dimensions e.g. '25·4 x 25·4' etc., throughout. Delete axes 'x-x', 'y-y' from the diagrams throughout.

Delete the following sizes and all details from page 22:
'304·8 x 304·8 x 7·1'
'355·6 x 355·6 x 8·0'

Delete the last horizontal column of data beginning '16·0 x 16·0' and associated data.

Section 3. Dimensions and properties. Delete this section entirely.

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SPECIFICATION FOR

STRUCTURAL STEEL SECTIONS

Part 2. Hot-rolled Hollow Sections

BS 4 : Part 2 : 1969

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THIS BRITISH STANDARD, having been approved by the Iron and Steel Industry Standards Committee, was published under the authority of the Executive Board on 19 September, 1969.

First published January, 1963
First revision February, 1965
Second revision September, 1969

SBN: 580 05502 7

The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

In order to keep abreast of progress in the industries concerned, British Standards are subject to periodical review. Suggestions for improvements will be recorded and in due course brought to the notice of the committees charged with the revision of the standards to which they refer.

A complete list of British Standards, numbering over 5000, fully indexed and with a note of the contents of each, will be found in the British Standards Yearbook, price 20s. The BS Yearbook may be consulted in many public libraries and similar institutions.

British Standards are revised, when necessary, by the issue either of amendment slips or of revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or editions.

The following BSI references relate to the work on this Standard:
Committee reference: ISE/50
Draft for approval: 69/17407

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CO-OPERATING ORGANIZATIONS

The Iron and Steel Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

Board of Trade
British Cast Iron Research Association
British Constructional Steelwork Association
British Electrical and Allied Manufacturers' Association
British Ironfounders' Association
*British Mechanical Engineering Confederation
British Railways Board
*British Steel Industry
Council of Ironfoundry Associations
Council of Iron Producers
Crown Agents for Oversea Governments and Administrations
Department of Employment & Productivity (H.M. Factory Inspectorate)
Engineering Equipment Users' Association
Federation of Civil Engineering Contractors
Institute of British Foundrymen
Institute of Iron and Steel Wire Manufacturers
Institute of Marine Engineers
*Institution of Civil Engineers
Institution of Mechanical Engineers (Automobile Division)
Institution of Production Engineers
Institution of Structural Engineers
Joint Iron Council
Lloyd's Register of Shipping
Ministry of Defence, Army Department
Ministry of Defence, Navy Department
National Association of Drop Forgers and Stampers
National Physical Laboratory (Ministry of Technology)
Oil Companies Materials Association
Royal Institute of British Architects
Shipbuilders & Repairers National Federation
Society of British Aerospace Companies Ltd.
*Society of Motor Manufacturers and Traders Ltd.
Stainless Steel Development Association
Steel Castings Research and Trade Association
Tank and Industrial Plant Association
Tin Research Institute
Water-Tube Boilermakers Association

The Government departments and scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

British Cycle & Motor Cycle Industries Association Ltd.
British Welded Steel Tube Manufacturers' Association
Ministry of Technology
Individual manufacturers of steel sections

BRITISH STANDARD SPECIFICATION FOR

STRUCTURAL STEEL SECTIONS

Part 2. Hot-rolled Hollow Sections

FOREWORD

This British Standard, authorized by the Iron and Steel Industry Standards Committee, was first published in 1963 to meet the increased use of hot-rolled hollow sections for structural purposes, being complementary to Part 1 'Hot-rolled sections'.

Consultations are presently taking place regarding the establishment of a metric based series of hollow sections, but it will be some time before the details of this series are finalized.

However, in view of the early change to the metric system in the construction industry, as an interim measure this revision of the standard retains the existing inch based series, but all dimensions and dimensional properties are now primarily expressed in metric units. Imperial values are also included.

In order to avoid any possible confusion with the eventual metric based series, the sections should continue to be referred to by their inch based designations.

The first revision of the standard in 1965 incorporated Addendum No. 1, PD 5191 published April 1964, and further rationalized the range of sizes in the light of the demands of industry and certain improvements in manufacturing techniques which made it possible to produce rectangular hollow sections in whole inch and half inch sizes instead of the fractional sizes formerly specified.

The opportunity was also taken to align the weights of circular hollow sections with those specified in ISO/R 336 'Plain end steel tubes, welded or seamless. General table of dimensions and masses per unit length'.

In this, the second revision, which incorporates Amendments No. 1, PD 5938 published November 1966, and No. 2, AMD 229 published April 1969, the use of vulgar fractions and of standard wire gauges (SWG) has been discontinued, all dimensions being decimalized. The corner tolerances of rectangular hollow sections have been amended and made uniform throughout the range. The properties and weights have been recalculated on the mean of these tolerences which take account of corner thickening and are, therefore, more accurate.

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