BS 6258 : 1988

UDC 669.14-412-462.3

British Standard Specification for

Hollow steel bars for machining

Barres en acier à usiner — Spécifications

Hohlstäbe aus Stahl zur spanenden Bearbeitung

Foreword

This British Standard has been prepared under the direction of the Piping Systems Components Standards Committee and is a revision of BS 6258 : 1982 which is withdrawn.

This standard is based on ISO 2938, published by the International Organization for Standardization (ISO), with a number of modifications, the main difference being the inclusion of two grades of carbon manganese steel, two grades of ferritic stainless steel, four grades of martensitic stainless steel and thirteen grades of austenitic stainless steel.

Information to be supplied by the purchaser is given in appendix A.

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

Amendment No. 1
published and effective from 15 September 1992
to BS 6258 : 1988

Specification for hollow steel bars for machining

Revised text

AMD 7278
September 1992

3 Designation

After '(3) CFSN (denoting cold finished seamless normalized);' insert the following.

'(4) CFSA (denoting cold finished seamless sub-critical annealed);'

AMD 7278
September 1992

Table 3. Mechanical properties at room temperature

In the heading of column 5, immediately after '$R_{p1.0}$†' insert '**min.**'.

In row 3 (steel grade 600) of column 2 (delivery condition), immediately after the words 'Hot finished' insert the following, 'or cold finished and sub-critical annealed'.

In the heading of column 8 (Charpy V-notch) insert the footnote symbol '¶'.

In row 4 (steel grade 600) in column 8 (Charpy V-notch), delete the three values of '50' and substitute the value '40' three times.

At the bottom of the table, at the end of the footnotes, insert the following footnote.

'¶Minimum average energy value (see **14.2**).'

AMD 7278
September 1992

14.1 Tensile test

In line 2, delete 'BS 18' and substitute 'BS EN 10002-1'.

AMD 7278
September 1992

14.2 Impact test

In paragraph 1, line 2, delete 'BS 131 : Part 2' and substitute 'BS EN 10045-1'.

In paragraph 4, line 3, delete 'BS 131 : Part 2' and substitute 'BS EN 10045-1'.

AMD 7278
September 1992

Publications referred to

Delete the references to 'BS 18' and 'BS 131' and substitute the following immediately after the reference to BS 5903.

'BS EN 10002 Tensile testing of metallic materials
Part 1 Method of test at ambient temperature

BS EN 10045 Charpy impact test on metallic materials
Part 1 Test method (V- and U-notches)'.

Contents

Specification

1 Scope

This British Standard specifies the requirements for thick walled seamless hollow steel bars in carbon manganese steels and in ferritic, martensitic and austenitic stainless steels intended for the manufacture of tubular or annular machined parts. Provision is made in this standard for low temperature applications.

NOTE. The titles of the publications referred to in this standard are given on the inside back cover.

2 Information to be supplied by the purchaser

This standard allows a number of options. Therefore, to assist the purchaser a checklist of the options together with the other information to be supplied in the enquiry and order is given in appendix A.

3 Designation

The hollow bars shall be designated by the following:

(a) the number of this British Standard, i.e. BS 6258;

(b) one of the following references, which indicate the method of manufacture;

(1) HFS (denoting hot finished seamless);

(2) HFSN (denoting hot finished seamless normalized);

(3) CFSN (denoting cold finished seamless normalized);

(c) the grade of steel (see table 3);

(d) for martensitic stainless steels, one of the following references which indicate the tensile strength range:

P (denoting R_m = 550 to 700 N/mm^2)

R (denoting R_m = 700 to 850 N/mm^2)

S (denoting R_m = 775 to 925 N/mm^2)

T (denoting R_m = 850 to 1000 N/mm^2)

NOTE 1. Other mechanical properties associated with these ranges are given in table 3.

Examples of the designations are:

BS 6258 HFSN 490 which designates hot finished seamless hollow bar in the normalized condition made from steel 490.

BS 6258 HFS 303S31 which designates hot finished seamless hollow bar made from steel 303S31.

NOTE 2. The purchaser should state in his enquiry and order the designation and grade of the steel required (see item (a) of **A.1**).

4 Manufacture of the steel

4.1 General

The steelmaking process specified in **4.2** and the deoxidation process specified in **4.3** shall be at the option of the manufacturer. If required, the manufacturer shall advise the purchaser of the steelmaking process used.

NOTE. The purchaser should state in his enquiry and order if he wishes to be advised of the steelmaking process used (see item (a) of **A.2**).

4.2 Steelmaking process

The steel shall be produced by an electric or one of the basic oxygen processes.

4.3 Deoxidation

Steels 490 and 600 shall be fully killed and made by fine grain practice with an aluminium addition as given in table 1.

5 Manufacture of the product

Hollow bars shall be manufactured by a seamless process and shall be either hot finished or cold finished.

NOTE 1. The terms 'hot finished' and 'cold finished' apply to the condition of the tube before it is heat treated in accordance with clause **7**.

NOTE 2. If the purchaser requires a particular finishing process, this should form the basis of an agreement between the purchaser and the manufacturer and be stated in the enquiry or order (see item (b) of **A.2**).

6 Chemical composition

6.1 Ladle analysis

The steel shall show on ladle analysis the composition given in table 1 appropriate to the grade.

6.2 Product analysis

When an analysis on the product is required (see note), the permissible deviations given in table 2 shall apply to the ladle analysis specified in table 1.

Samples shall be taken either from the test pieces used for the verification of the mechanical properties, or from the tube at the same location as for the mechanical test samples.

In case of dispute, the methods of chemical analysis shall be in accordance with British Standard Handbook No. 19.

NOTE. If a check analysis for acceptance purposes is required this should be stated in the enquiry or order and the number of samples agreed between the purchaser and manufacturer (see item (c) of **A.2**).

Table 1. Chemical composition (ladle analysis)

Steel grade (see note 1)	Chemical composition (maximum unless range stated) (see notes 2 and 3)								
	C	Si	Mn	P	S	Cr	Mo	Ni	Others
Carbon manganese steels									
	%	%	%	%	%	%	%	%	(see notes 4 and 5)
490	0.20	0.50	1.50	0.050	0.050	–	–	–	Al_{met} 0.015 min.
600	0.22	0.35	1.60	0.050	0.050	–	–	–	Al_{met} 0.020 min. V 0.08 to 0.12
Ferritic steels									
403S17	0.08	1.0	1.0	0.040	0.030	12.0 to 14.0	–	0.50	–
430S17	0.08	1.0	1.0	0.040	0.030	16.0 to 18.0	–	0.50	–
Martensitic steels									
410S21	0.09 to 0.15	1.0	1.0	0.040	0.030	11.5 to 13.5	–	1.00	–
420S29	0.14 to 0.20	1.0	1.0	0.040	0.030	11.5 to 13.5	–	1.00	–
420S37	0.20 to 0.28	1.0	1.0	0.040	0.030	12.0 to 14.0	–	1.00	–
431S29	0.12 to 0.20	1.0	1.0	0.040	0.030	15.0 to 18.0	–	2.0 to 3.0	–
Austenitic steels									
303S31	0.12	1.0	2.0	0.060	0.15 to 0.35	17.0 to 19.0	*	8.0 to 10.0†	–
302S31	0.12	1.0	2.0	0.045	0.030	17.0 to 19.0	–	8.0 to 10.0†	–
304S11	0.030	1.0	2.0	0.045	0.030	17.0 to 19.0	–	9.0 to 12.0	–
304S15	0.06	1.0	2.0	0.045	0.030	17.5 to 19.0	–	8.0 to 11.0	–
304S31	0.07	1.0	2.0	0.045	0.030	17.0 to 19.0	–	8.0 to 11.0	–
321S31	0.08	1.0	2.0	0.045	0.030	17.0 to 19.0	–	9.0 to 12.0	Ti 5C to 0.80
347S31	0.08	1.0	2.0	0.045	0.030	17.0 to 19.0	–	9.0 to 12.0	Nb 10C to 1.00
316S11	0.030	1.0	2.0	0.045	0.030	16.5 to 18.5	2.00 to 2.50	11.0 to 14.0	–
316S13	0.030	1.0	2.0	0.045	0.030	16.5 to 18.5	2.50 to 3.00	11.5 to 14.5	–
316S31	0.07	1.0	2.0	0.045	0.030	16.5 to 18.5	2.00 to 2.50	10.5 to 13.5	–
316S33	0.07	1.0	2.0	0.045	0.030	16.5 to 18.5	2.50 to 3.00	11.0 to 14.0	–
320S31	0.08	1.0	2.0	0.045	0.030	16.5 to 18.5	2.00 to 2.50	11.0 to 14.0	Ti 5C to 0.80
310S31	0.15	1.5	2.0	0.045	0.030	24.0 to 26.0	–	19.0 to 22.0	–

*Optional up to 1 % max.

†It is permissible for the upper limit to be increased by 0.5 %.

NOTE 1. The steel grades listed, with the exception of grades 490 and 600 are identical in chemical composition to grades of steel having the same designations given in BS 970 : Part 1.

NOTE 2. Elements not quoted in the table are not to be intentionally added without the agreement of the purchaser other than for the purpose of finishing the heat. All reasonable precautions are to be taken to prevent the addition of such elements from scrap or other materials used in the manufacture, but residual elements may be present provided that the mechanical properties are not adversely affected.

NOTE 3. For permissible deviations on product check analysis, see table 2.

NOTE 4. Other grain refining elements may be added at the option of the manufacturer.

NOTE 5. Where a minimum Al_{met} is specified, determination of the total aluminium content shall be deemed to comply with this requirement provided that the value obtained is not less than 0.018 % for grade 490 and 0.023 % for grade 600. In cases of dispute the metallic aluminium content shall be determined.

Table 2. Permitted deviations of product analysis from the specified ladle analysis

(a) Carbon manganese steels		
Element	**Range in which maximum of specified element falls**	**Variation on specified range (over maximum)**
	%	%
Carbon	Up to and including 0.25	0.02
Silicon	Up to and including 0.50	0.03
Manganese	Over 1.0 up to and including 1.5	0.08
	Over 1.5	0.10
Phosphorus	Up to and including 0.060	0.008
Sulphur	Up to and including 0.060	0.008
Vanadium	Up to and including 0.12	0.03

(b) Stainless steels		Variation on specified range	
Element	**Range in which maximum of specified element falls**	**Over maximum**	**Under minimum**
	%	%	%
Carbon	Up to and including 0.03	0.005	–
	Over 0.03 up to and including 0.25	0.01	0.01
	Over 0.25	0.02	0.02
Silicon	Up to and including 1.0	0.05	–
	Over 1.0 up to and including 2.0	0.07	–
Manganese	Up to and including 1.0	0.03	–
	Over 1.0 up to and including 2.0	0.04	–
Phosphorus	Over 0.03 up to and including 0.045	0.004	–
	Over 0.045	0.005	–
Sulphur	Up to and including 0.030	0.003	–
	Specified range 0.15 to 0.35 (303S31)	0.02	0.02
Chromium	Over 10 up to and including 15	0.15	0.15
	Over 15 up to and including 20	0.20	0.20
	Over 20	0.25	0.25
Molybdenum	Over 2.0 up to and including 3.0	0.08	0.08
Nickel	Up to and including 1.0	0.03	–
	Over 1.0 up to and including 3.0	0.05	0.05
	Over 5.0 up to and including 10.0	0.10	0.10
	Over 10.0 up to and including 20.0	0.15	0.15
	Over 20.0	0.20	0.20
Niobium	All ranges	0.05	0.05
Titanium	All ranges	0.05	0.05

7 Delivery condition

Hollow bars shall be supplied in one of the delivery conditions specified for the grade of material in table 3.

NOTE. The purchaser should state in his enquiry and order the delivery condition required selected from table 3 (see item (d) of **A.2**).

8 Mechanical properties

The hollow bars shall have the mechanical properties given in table 3.

NOTE. The hardness (HB) values are given for guidance only.

Table 3. Mechanical properties at room temperature

Steel grade	Delivery condition	Thickness	R_e* min.	$R_{p1.0}$†	R_m‡	A§ min.	Charpy V-notch	Hardness HB‖	Sensitization period
		mm	N/mm^2	N/mm^2	N/mm^2	%	J		min
490	Hot finished	< 16	335	–	490/610	21	–	150 to 190	–
		16 to 30	315	–	490/610	21	–	150 to 190	–
		> 30	295	–	490/610	21	–	150 to 190	–
490	Hot finished and normalized or cold finished and normalized	< 16	345	–	490/610	21	at -20 °C 41	145 to 185	–
		16 to 30	325	–	490/610	21	41	145 to 185	–
		> 30	315	–	490/610	21	41	145 to 185	–
600	Hot finished	< 16	480	–	600/750	18	–	190 to 230	–
		16 to 30	460	–	600/750	18	–	190 to 230	–
		> 30	440	–	600/750	18	–	190 to 230	–
600	Hot finished and normalized or cold finished and normalized	< 16	420	–	550/700	20	at -20 °C 50	160 to 200	–
		16 to 30	410	–	550/700	20	50	160 to 200	–
		> 30	400	–	550/700	20	50	160 to 200	–
403S17	Hot finished or softened condition		420	–	280 min	20	–	170 max.	–
430S17	Hot finished or softened condition		430	–	280 min	20	–	170 max.	–
410S21	Hardened and Tempered P	150	370	–	550/700	20	at +20 °C 50	152 to 207	–
	R	63	525	–	700/850	15	28	201 to 255	–
420S29	Hardened and Tempered R	150	525	–	700/850	15	28	201 to 255	–
	S	29	585	–	775/925	13	22	223 to 277	–
420S37	Hardened and Tempered R	150	525	–	700/950	15	28	201 to 225	–
	S	150	585	–	775/925	13	22	223 to 277	–
431S29	Hardened and Tempered T	150	680	–	850/1000	11	28	248 to 302	–
303S31	Hot finished or solution treated	–	–	225	520 min.	40	–	183 max.	–
302S31	Hot finished or solution treated	–	–	225	510 min.	40	–	183 max.	–
304S11	Hot finished or solution treated	–	–	215	480 min.	40	–	183 max.	30
304S15	Hot finished or solution treated	–	–	230	480 min.	40	–	183 max.	15
304S31	Hot finished or solution treated	–	–	230	490 min.	40	–	183 max.	15
321S31	Hot finished or solution treated	–	–	235	510 min.	35	–	183 max.	30
347S31	Hot finished or solution treated	–	–	240	510 min.	30	–	183 max.	30
316S11	Hot finished or solution treated	–	–	225	490 min.	40	–	183 max.	30
316S13	Hot finished or solution treated	–	–	225	490 min.	40	–	183 max.	30
316S31	Hot finished or solution treated	–	–	240	510 min.	40	–	183 max.	15
316S33	Hot finished or solution treated	–	–	240	510 min.	40	–	183 max.	15
320S31	Hot finished or solution treated	–	–	245	510 min.	35	–	183 max.	30
310S31	Hot finished or solution treated	–	–	240	510 min.	40	–	207 max.	–

*R_e is the yield strength.
†$R_{p1.0}$ is the 1.0 % proof stress (non-proportional elongation).
‡R_m is the tensile strength.
§A is the percentage elongation on a gauge length, $L_o = 5.65\sqrt{S_o}$
‖ HB values are given for guidance only.

9 Weldability

NOTE. With the exception of the martensitic stainless steel grades 410S21, 420S29, 420S37 and 431S29, the steels covered by this British Standard are generally regarded as being weldable. However, care has to be taken.

Welding, where required, shall be carried out in accordance with the requirements of the appropriate British Standard for welding, e.g. BS 5135 or BS 4677.

10 Appearance

10.1 The hollow bars shall have a surface finish corresponding to the manufacturing process employed and the heat treatment given.

10.2 The material shall be clean and free from such defects as can be established by visual inspection.

NOTE. It is permissible for surface defects to be removed by grinding or other agreed methods provided that the hollow bar will clean to the maximum outside diameter and minimum inside diameter sizes as stated by the supplier.

10.3 Ends shall be cut nominally square with the axis of the hollow bar and be free from excessive burrs.

Table 4. Nominal dimensions

Outside diameter	Series 1		Series 2		Series 3		Series 4		Series 5	
	Inside diameter	Nominal thickness *a*	Inside diameter	Nominal thickness *a*	Inside diameter	Nominal thickness *a*	Inside diameter	Nominal thickness *a*	Inside diameter	Nominal thickness *a*
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
32	–	–	–	–	20	6	–	–	16	8
36	25	5.5	–	–	20	8	–	–	16	10
40	28	6	–	–	25	7.5	–	–	20	10
45	32	6.5	–	–	28	8.5	–	–	20	12.5
50	36	7	–	–	32	9	–	–	25	12.5
56	40	8	–	–	36	10	–	–	28	14
63	50	6.5	45	9	40	11.5	36	13.5	32	15.5
71	56	7.5	50	10.5	45	13	40	15.5	36	17.5
75	60	7.5	56	9.5	50	12.5	45	15	40	17.5
80	63	8.5	56	12	50	15	45	17.5	40	20
85	67	9	61	12	55	15	50	17.5	45	20
90	71	9.5	67	11.5	63	13.5	56	17	50	20
95	75	10	69	13	63	16	56	19.5	50	22.5
100	80	10	75	12.5	71	14.5	63	18.5	56	22
106	85	10.5	80	13	71	17.5	63	21.5	56	25
112	90	11	85	13.5	80	16	71	20.5	63	24.5
118	95	11.5	90	14	80	19	71	23.5	63	27.5
125	100	12.5	95	15	90	17.5	80	22.5	71	27
132	106	13	98	17	90	21	80	26	71	30.5
140	112	14	106	17	100	20	90	25	80	30
150	125	12.5	118	16	106	22	95	27.5	80	35
160	132	14	122	19	112	24	100	30	90	35
170	140	15	130	20	118	26	110	30	100	35
180	150	15	140	20	125	27.5	112	34	–	–
190	160	15	150	20	132	29	–	–	–	–
200	160	20	–	–	140	30	–	–	–	–

11 Dimensions and tolerances

11.1 Dimensions

The dimensions shall be as given in table 4.

NOTE 1. Values for nominal thickness *a* are given for information only.

NOTE 2. The purchaser should state in his enquiry and order the dimensions required in terms of component maximum outside diameter, minimum inside diameter and total machined length and method of machining, i.e. checking to i.d. or o.d. (see item (b) of **A.1**).

11.2 Machined sizes

The manufacturer shall inform the purchaser of the maximum clean outside diameter that can be machined from each hollow bar size when chucking true to the outside or inside diameter, and the maximum length of the machined component for which these machined sizes apply.

The manufacturer shall also inform the purchaser of the average mass per unit length for each hollow bar size.

11.3 Tolerances

Dimensional variations shall not exceed the values given in table 5.

Table 5. Tolerances

	Tolerance
Outside diameter	
Cold finished	$^{+1}_{-0}$ % (with a minimum of 0.30 mm)
Hot finished	$^{+2}_{-0}$ % (with a minimum of 1.0 mm)
Thickness	Minimum thickness not more than 5 % below the nominal thickness (see table 4). No maximum
Straightness	
Steel grades 490 and 600 Cold finished	1 in 1500
Steel grades 490 and 600 Hot finished	1 in 1000
Stainless steels	1 in 600

11.4 Straightness

The deviations from straightness shall not exceed the values given in table 5 when measured over the total length of each hollow bar.

11.5 Lengths

Hollow bars shall be supplied in either:

(a) random lengths; or

(b) cut lengths.

Where 'cut length' is specified, the permissible variation shall be $^{+6}_{-0}$ mm for lengths up to and including 6 m. For every 3 m increase in length above 6 m, the plus tolerance shall be increased by 1.5 mm with a maximum of 12.5 mm.

NOTE. The purchaser should state in his enquiry and order whether 'random lengths' or 'cut lengths' are required (see item (c) of **A.1**) together with the following information:

(a) for random lengths, the length range required and the total quantity in metres (see item (d) of **A.1**);

(b) for cut lengths, the exact length required and the total quantity in metres (see item (e) of **A.1**).

12 Tests

12.1 The hollow bars shall be subject to the following tests:

(a) visual inspection;

(b) tensile test (in accordance with **14.1**);

(c) if required, impact tests for steels with impact properties given in table 3 (see **14.2**);

(d) if required, intergranular corrosion test for austenitic stainless steels (see **14.3**).

NOTE. The purchaser should state in his enquiry and order whether impact tests and/or intergranular corrosion tests are required (see items (e) and (f) of **A.2**).

13 Number and selection of samples and test pieces

The test samples shall be taken from the ends of hollow bars at the following rate:

for outside diameter < 100 mm one test per batch of 400 hollow bars as produced;

for outside diameter $\geqslant 100$ mm one test per batch of 200 hollow bars as produced.

For hollow bars not heat treated a batch shall consist only of hollow bars of the same diameter and thickness.

For hollow bars that are heat treated a batch shall consist only of hollow bars of the same diameter and thickness subjected to the same finishing treatment in a continuous furnace or heat treated in the same furnace charge in a batch type furnace.

If the number of hollow bars is less than 400 and 200 respectively, the whole of the batch shall be treated as one batch.

14 Test methods and test requirements

14.1 Tensile test

The tensile test shall be carried out in accordance with BS 18.

The tensile strength R_m, the yield strength R_e and the elongation A shall be determined and the results obtained shall comply with the requirements given in table 3. For the

yield strength for carbon manganese steel and ferritic stainless steel, either the upper yield strength R_{eH} or the 0.5 % proof stress (total elongation) $R_{t0.5}$ shall be determined. For austenitic stainless steels either the 1.0 % proof stress (non-proportional elongation) $R_{p1.0}$ or the 1.0 % proof stress (total elongation) $R_{t1.0}$ shall be determined.

The percentage elongation shall be reported with reference to a gauge length $L_o = 5.65\sqrt{S_o}$. If other gauge lengths are used, the corresponding percentage elongation on $5.65\sqrt{S_o}$ shall be obtained in accordance with BS 3894 : Part 1 for carbon and low alloy steels or BS 3894 : Part 2 for austenitic stainless steels. In case of dispute, a gauge length of $5.65\sqrt{S_o}$ shall be used.

14.2 Impact test

The impact test shall be carried out in accordance with BS 131 : Part 2, at the temperature specified in table 3 of this standard.

The test pieces shall be cut so that the longitudinal axes are parallel to the longitudinal axis of the hollow bar. The notch shall be perpendicular to the original surface of the hollow bar.

The average energy value obtained from three standard 10 mm x 10 mm test pieces shall be not less than the value stated in table 3. It is permissible for one individual value to be below the specified value provided that it is not less than 70 % of that value.

If the standard test piece cannot be obtained from the material one of the subsidiary standard test pieces defined in BS 131 : Part 2 shall be used.

NOTE. The minimum average impact value to be obtained from subsidiary standard test pieces should form the basis of an agreement between the manufacturer and the purchaser and be stated in the enquiry or order (see item (g) of **A.2**).

14.3 Intergranular corrosion test

If required the intergranular corrosion test which is only applicable to austenitic stainless steels shall be carried out in accordance with BS 5903.

The test piece shall be sensitized by heating at a temperature of 650 °C for the appropriate time given in table 3, followed by cooling in air.

The results of the tests shall comply with clause **10** of BS 5903 : 1980.

15 Re-tests

15.1 Tensile test

If a hollow bar selected for testing fails the tensile test specified in **14.1**, the batch of hollow bars that it represents shall be deemed not to comply with the requirements of this British Standard unless two further tests are made from the same hollow bar, and both these tests prove satisfactory.

15.2 Impact test

If a hollow bar selected for testing fails the impact test specified in **14.2**, the following re-test procedure shall be used.

If the average of three impact values is lower than the specified value or if any one value is lower than 70 % of this specified value, three additional test pieces shall be taken from the same sample and tested. The average value of the six tests shall be not less than the specified value. Not more than two of the individual values shall be lower than the specified value and not more than one shall be lower than 70 % of this value.

16 Re-heat treatment

The manufacturer shall have the right to heat treat or re-heat treat any material, including any material already found not to fulfil the test requirements, and re-submit it for testing in accordance with **15.1** and **15.2**.

17 Test certificate

If a test certificate is required, it shall give the ladle analysis of the steel, the final heat treatment carried out (if specified), the test results and a statement that the material complies with the requirements of this British Standard.

NOTE. If the purchaser requires a test certificate this should be stated in the enquiry and order (see item (h) of **A.2**).

18 Protection

Hollow bars shall be supplied either uncoated or with the manufacturer's normal mill protective coating.

NOTE 1. The purchaser should state a preference in his enquiry and order (see item (i) of **A.2**).

NOTE 2. If the purchaser requires other special protection this should be agreed between the manufacturer and the purchaser and stated in the enquiry and order (see item (j) of **A.2**).

19 Marking

19.1 Before dispatch from the manufacturer's works, the hollow bars shall be marked in accordance with **19.2**.

NOTE. Any additional markings required by the purchaser should be specified in the enquiry and order (see item (k) of **A.2**).

19.2 Each hollow bar shall be legibly marked at one end, commencing not more than 300 mm from the end, by stencilling or other indelible marking.

The marking shall consist of the following in the sequence indicated:

(a) the manufacturer's name or trade mark;

(b) the designation in accordance with clause **3**, as follows:

(1) the number of this British Standard, i.e. BS 6258*;

(2) the symbol representing the method of manufacture;

(3) the grade of steel;

(4) the martensitic stainless steel reference letter, where applicable.

(c) a code number which identifies the hollow bar batch with test certificates and delivery documents.

Alternatively, for small diameter hollow bars that are bundled, it is permissible for the information in (a), (b) and (c) to be stamped on one or more metal or other durable tags, or printed on banding clips or straps, which shall be securely attached to each bundle. However, the information in (c) shall always be marked on each hollow bar.

*Marking BS 6258 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is therefore solely the responsibility of the person making the claim. Such a declaration is not to be confused with third party certification of conformity which may also be desirable.

Appendix

Appendix A. Information to be supplied by the purchaser

A.1 The purchaser should state the following in his enquiry and order:

(a) the number of this British Standard and the grade and type of steel as expressed by the appropriate designation (see clause **3**);

(b) either:

(1) the hollow bar nominal dimensions, i.e. outside diameter (o.d.) and inside diameter (i.d.) (see table 4), or

(2) the machined component maximum o.d., minimum i.d. and total machined length together with the method of machining, i.e. chucking to o.d. or i.d. (see **11.1**);

(c) whether random lengths or cut lengths are required (see **11.5**); and

(d) for random lengths, the length range required and the total quantity in metres (see **11.5**); or

(e) for cut lengths, the exact length required and the total quantity in metres (see **11.5**).

A.2 Certain options are permitted by this standard. The purchaser should state in his enquiry and order the following requirements, but if no such statement is made supply is at the option of the manufacturer:

(a) whether he wishes to be advised of the steelmaking process used (see **4.1**);

(b) whether a particular finishing process is required (see clause **5**);

(c) whether a product analysis is required and, if so, the number of samples to be checked (see **6.2**);

(d) the delivery condition required (see clause **7**);

(e) whether impact tests are required (see clause **12**);

(f) for austenitic stainless steels whether an intergrannular crystalline corrosion test is required (see clause **12**);

(g) the minimum average energy value to be obtained from subsidiary standard test pieces (see **14.2**);

(h) whether a test certificate is required (see clause **17**);

(i) whether hollow bars are to be supplied uncoated or with the normal mill coating (see clause **18**);

(j) whether special protection is required (see clause **18**);

(k) whether additional marking to that given in **19.2** is required (see **19.1**).

Publications referred to

BS 18 Method for tensile testing of metals (including aerospace materials)

BS 131 Methods for notched bar tests
Part 2 The Charpy V-notch impact test on metals

BS 970 Specification for wrought steels for mechanical and allied engineering purposes
Part 1 General inspection and testing procedures and specific requirements for carbon, carbon manganese and stainless steels

BS 3894 Method for converting elongation values for steel
Part 1 Carbon and low alloy steels
Part 2 Method of conversion for application to austenitic steels

BS 4677 Specification for arc welding of austenitic stainless steel pipework for carrying fluids

BS 5135 Specification for process of arc welding of carbon and carbon manganese steels

BS 5903 Method for determination of resistance to intergranular corrosion of austenitic stainless steels: copper sulphate-sulphuric acid method (Moneypenny Strauss test)

BS Handbook No. 19 Methods for the sampling and analysis of iron, steel and other ferrous metals

*ISO 2938 Hollow steel bars for machining

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* Referred to in the foreword only.

This British Standard, having been prepared under the direction of the Piping Systems Components Standards Committee, was published under the authority of the Board of BSI and comes into effect on 31 August 1988.

First published September 1982
First revision August 1988

ISBN 0 580 16340 7

The following BSI references relate to the work on this standard:
Committee reference PSE/8 Draft for comment 87/73683 DC

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Amendments issued since publication

Amd. No.	Date of issue	Text affected

British Standards Institution · 2 Park Street London W1A 2BS · Telephone 01-629 9000 · Telex 266933