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BS 3606:1978

UDC 66.045.1:669.14-462

4 AMD 2
1981
+ AMD 3

Specification for Steel tubes for heat exchangers

Spécification pour tubes d'échangeurs en acier
Spezifikation für Stahlrohre für Wärmetauscher

WITHDRAWN



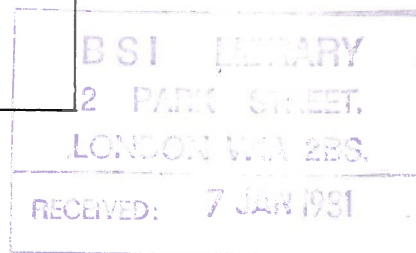
15 SEP 1978

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Amendment Slip No. 1,
published and effective from 28 November 1980
to BS 3606 : 1978

Steel tubes for heat exchangers



Revised text

AMD 3344
November 1980

Table 1(a). Chemical composition, mechanical properties at room temperature, and heat treatment. (a) Carbon and carbon manganese steel tubes

Under the sub-heading ' R_e ' for steel reference 440, delete the entry '265' and substitute '245'.

AMD 3344
November 1980

Notes to table 1 (page 6)

Delete the existing text of NOTE 2 and substitute the following:

'NOTE 2. For the low alloy steels in table 1 (b), residual incidental elements shall not be greater than the following limits:

nickel	0.30 %
copper	0.25 %
tin	0.03 %

AMD 3344
November 1980

Appendix D. Physical properties of steels

In the table for carbon and carbon manganese steels 320 and 440, delete the entries for modulus of elasticity against the temperatures 400 °C, 500 °C, and 600 °C and substitute the following:

'185' at 400 °C, '175' at 500 °C and '165' at 600 °C.

In the table for alloy steels 243, 245, 261, 620, 621, 622, and 625, delete the entries for modulus of elasticity against the temperatures 300 °C and 600 °C and substitute the following:

'195' at 300 °C and '165' at 600 °C.

In the table for austenitic stainless steels 304S22, 304S25, 316S24, 316S25, 316S29, 316S30, 321S22 and 347S17, delete the entries for modulus of elasticity against the temperatures 20 °C and 200 °C and substitute the following:

'200' at 20 °C and '185' at 200 °C.

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ISE/73

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Amendment Slip No. 2
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Specification for steel tubes for heat exchangers

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Revised text

AMD 3726
August 1981

Table 1 (b). Chemical composition, mechanical properties at room temperature, and heat treatment. (b) Low alloy steel tubes

For 0.3 % molybdenum steel, reference 243, in the column headed
'Mechanical properties at room temperature':

- (a) under ' R_e ', delete '250' and substitute '275';
- (b) under ' R_m ', delete '450' and substitute '480'.



PIPES, steel HEAT EXCHANGERS
PIPE Heat exchanger

AMD 5059

BSI

Amendment No. 3
published and effective from 31 July 1986
to BS 3606 : 1978
Specification for steel tubes for heat exchangers

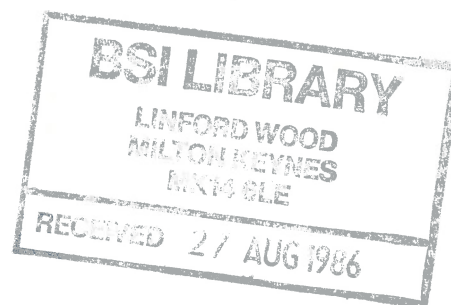
Revised text

AMD 5059
July 1986

Clause 4. Designations

In the second section of the list of references, headed 'Steel', under the subheading 'Carbon steels', insert 'Grade 400' between 'Grade 320' and 'Grade 440'.

In the same section in the column headed 'Reference' insert '400' between '320' and '440'.



WITHDRAWN

Table 1. Chemical composition, mechanical properties at room temperature, and heat treatment (as amended by Amendment No. 1)

Delete section (a) of table 1 (retaining the notes), and substitute the following:

Table 1. Chemical composition, mechanical properties at room temperature, and heat treatment

(a) *Carbon and carbon manganese steel tubes*

Reference	Chemical composition (ladle analysis) (see notes 1 to 4)						Mechanical properties at room temperature (see note 7)								Heat treatment (see note 8)	
	C		Si	Mn		P	S	R _e	R _m	A	Flattening test constant C	Drift expanding and flanging test: % increase in D	Hardness	Reference heat treatment	Temperature	
	min.	max.	min.	max.	min.	max.	min.	min.	min.							
										d/D ratio						
320	—	0.16 (see note 5)	—	—	0.30	0.70	0.050	0.050	(195) (see note 9)	—	0.10	12	15	19	72RB 130HV	N 880/940 °C
400	—	0.12	0.10	0.35	0.90	1.20	0.020	0.020	230	400	0.07	10	12	17	82RB 155HV	N 900/950
440	0.12	0.18	0.10	0.35	0.90	1.20	0.040	0.035	265	440	0.07	10	12	17	85RB 170HV	N 880/940

In the notes to table 1 delete entirely note 2 and substitute the following:

*NOTE 2. For steel reference 400 in table 1(a), residual incidental elements shall not be greater than the following limits:

copper	0.25 %
tin	0.025 %
nickel	0.30 %
chromium	0.20 %
molybdenum	0.10 %
aluminium	0.04 %

For the low alloy steels in table 1(b), residual incidental elements shall not be greater than the following limits:

copper	0.25 %
tin	0.03 %
nickel	0.30 %

AMD 5059
July 1986

Appendix D. Physical properties of steels (as amended by Amendment No. 1)

Delete the table heading for carbon and carbon manganese steels and substitute the following:

'Carbon and carbon manganese steels 320, 400 and 440'

In the table for carbon and carbon manganese steels, in the column headed 'Thermal conductivity', delete '440' and substitute **'400 and 440'**.

AMD 5059
July 1986

Appendix E. Designations of steel tubes in BS 3606 and ISO 2604 : Parts II, III and V

In the table, in column 1 under the heading 'Designation' which is under the first general heading 'BS 3606', insert the following new entries between 'CFS 320' and 'ERW 440':

'ERW 400
CEW 400
CFS 400'.

In column 2 under the heading 'Colour code in accordance with BS 5383' which is under the first general heading 'BS 3606', insert the following against the new entries for ERW 440, CEW 400 and CFS 400:

{ 'Dark
grey'.

In column 3 under the heading 'Designation' insert the following against the new entries for ERW 400, CEW 400 and CFS 400.

'
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AMD 5059
July 1986

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In the paragraph concerning BSI references delete the reference to 'ISE/73' and substitute 'ISM/73'.