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### BS 1387:1985 A1, LIGHT, MEDIUM AND HEAVY

#### General Information on BS 1387:1985 Welded Steel Tube

Description

BS 1387:1985 welded steel tube in produced is four thickness classes\* - A1, Light, Medium and Heavy -

and available in black finish or hot dipped galvanized finish in 6 meter uniform mill lengths.

Applications

For ordinary conveyance of steam, gas, air, water, etc.

**End Finish and End Protection** 

Plain-end square-cut (PE) or threaded and fixed with coupling (T/C). (PE) tubes are shipped without any protection on both ends. T/C tubes are supplied screwed with taper threads to BS 21 and fitted with one

taper-threaded malleable iron socket, as required under this specifications.

Identification Marking

Tubes are marked by colour bands about 50 mm wide, painted about 300 mm from each end, as follows:

Light tubes - Brown

Medium tubes - Blue

Heavy tubes - Red

#### Pertinent Excerpts from BS 1387:1985 Specification

Chemical Composition

The chemical composition of the steel, by ladle analysis, shall comply with the table below:

C max. 0.20%

Mn max. ·1.20%

P max. 0.045% S max. 0.045%

Mechanical Properties

The mechanical properties at room temperature shall be as given in table below:

Tensile strength (N/mm²)

320 to 460

Yield strength (N/mm<sup>2</sup>)

195 min.

Elongation on gauge length Lo =  $5.65\sqrt{S}$  (%)

20 min.

Outside Diameter: As shown in Table on opposite page.

Wall thickness

Light tubes

Medium and Heavy tubes

-10%

The mean consignment mass for quantities of 150 m and over of one size shall not deviate by more than ±4% from the mass of consignment calculated from the mass given in Table as appropriate. No single tube shall deviate by more than +10%, -8% from the mass given in Table as appropriate.

Hot-Dip Zinc Coating Test (if required)

Tolerances on Dimensions and Mass

After the four successive one-minute immersions in the copper-sulphate solution, the test sample shall not show any adherent red deposits of metallic copper.

**Bend Test** 

Black tubes up to and including DN 50 shall be bent cold without any signs of fracture or failure, through 180°C round a former having a radius at the bottom of the groove equal to six times the outside diameter of the tube as given in Table. Hot-dip-zinc coated tubes shall be bent cold without cracking of the steel, through 90° round a former having a radius at the bottom of the groove equal to eight times the outside diameter of tube.

**Flattening Test** 

The flattening test applies to tubes greater than DN 50.

A ring not less than 40 mm in length taken from one end of each selected tube shall be flattened cold between parallel flat platens without showing either crack or flaw until the distance between the platens, measured under load, is not greater than 75% of original outside diameter of the tube, and no cracks or flaws in the metal elsewhere than in the weld shall occur until the distance between the platens is less than 60% of original diameter. The weld shall be placed at 90° to the direction of flattening.

Leak Tightness Test

The test shall be either a hydraulic test at a pressure of 50 bar (50 x 10<sup>5</sup> N/M²), or alternatively, an eddy current test.

**Bore Test for Hot-Dip Coated Tubes** 

Hot-dip zinc coated tubes up to and including DN 25 shall have a rod 230 mm in length, of the appropriate diameter specified below, passed through them and shall have a free bore.

Rod D	iameters
Nominal Size (DN)	Diameter of rod (mm)
15.00	9.50
20.00	14.30
25.00	20.60

\* Special tube sizes not stipulated in the BS specification may be made available upon request. Please feel free to inquire. Note

## **British Standard Welded Steel Pipes**

	Nominal Size		Outside Diameter			Calculated Weight				No. of	Socket	
Thickness Class			Maximum	Minimum	Wall Thickness	Plain Ends		Threads and Coupling		Threads per inch	Outer Diameter	Min. Length
	mm	in	mm	mm	mm	kg/m	kg/ft	kg/m	kg/ft	-	mm	mm
A1	15	1/2	21.4	21.0	1.9	0.904	0.276	0.914	0.279	14	27.8	38.1
	20	3/4	26.9	26.4	2.1	1.27	0.387	1.284	0.392	14	34.1	41.3
	25	1	33.8	33.2	2.3	1.77	0.54	1.787	0.545	11	42.1	47.6
	32	11/4	42.5	41.9	2.3	2.26	0.689	2.28	0.695	11	51.6	54.0
	40	11/2	48.4	47.8	2.5	2.81	0.857	2.83	0.863	11	57.9	57.2
	50	2	60.2	59.6	2.6	3.67	1.119	3.693	1.126	- 11	70.6	63.5
	65	21/2	76.0	75.2	2.9	5.20	1.585	5.228	1.594	11	87.3	69.9
	80	3	88.7	8.7.9	2.9	6.11	1.863	6.136	1.871	11	101.6	76.2
	100	4	113.9	113.0	3.2	8.70	2.652	8.736	2.663	11	128.6	88.9
Light	15	1/2	21.4	21.0	2.0	0.947	0.289	0.956	0.291	14	27.8	38.1
	20	3/4	26.9	26.4	2.3	1.38	0.421	1.39	0.424	14	34.1	41.3
	25	1	33.8	33.2	2.6	1.98	0.604	2.00	0.61	11	42.1	47.6
	32	11/4	42.5	41.9	2.6	2.54	0.774	2.57	0.783	11	51.6	54.0
	40	11/2	48.4	47.8	2.9	3.23	0.985	3.27	0.997	11	57.9	57.2
	50	2	60.2	59.6	2.9	4.08	1.24	4.15	1.26	11	70.6	63.5
	65	21/2	76.0	75.2	3.2	5.71	1.74	5.83	1.78	11	87.3	69.9
,	80	3	88.7	87.9	3.2	6.72	2.05	6.89	2.10	1,1	101.6	76.2
	100	4	113.9	113.0	3.6	9.75	2.97	10.00	3.05	11	128.6	88.9

Test Pressure: 50 Bar / 700 Psi

# **British Standard Welded Steel Pipes**

			Outside Diameter			Calculated Weight				No. of	Socket	
Thickness	Nominal Size			,	Wall			Threads and Coupling		Threads	Outer	Min.
Class			Maximum	Minimum	Thickness					per inch	Diameter	1
	mm	in	mm	mm	mm	kg/m	kg/ft	kg/m	kg/ft		mm	mm
Medium	15	1/2	21.7	21.1	2.6	1.21	0.369	1.22	0.372	14	27.8	38.1
	20	3/4	27.2	26.6	2.6	1.56	0.475	1.5 <i>7</i>	0.479	14	34.1	41.3
	25	1	34.2	33.4	3.2	2.41	0.735	2.43	0.741	11	42.1	47.6
	32	11/4	42.9	42.1	3.2	3.10	0.945	3.13	0.954	11	51.6	54.0
	40	11/2	48.8	48.0	3.2	3.57	1.09	3.61	1.10	11	57.9	57.2
	50	2	60.8	59.8	3.6	5.03	1.53	5.10	1.55	11	70.6	63.5
	65	21/2	76.6	75.4	3.6	6.43	1.96	6.55	2.00	11	87.3	69.9
	80	3	89.5	88.1	4.0	8.37	2.55	8.54	2.60	11	101.6	76.2
	100	4	114.9	113.3	4.5	12.2	3.72	12.5	3.81	11	128.6	88.9
	125	, 5	140.6	138.7	5.0	16.6	5.06	17.1	5.21	11	155.6	95.3
	150	6	166.1	164.1	5.0	19.7	6.00	20.3	6.19	11	184.2	95.3
Heavy	15	1/2	21.7	21.1	3.2	1.44	0.439	1.45	0.442	14	27.8	38.1
	20	3/4	27.2	26.6	3.2	1.87	0.57	1.88	0.573	14	34.1	41.3
	25	. 1	34.2	33.4	4.0	2.94	0.896	2.96	0.902	11	42.1	47.0
	32	11/4	42.9	42.1	4.0	3.80	1.16	3.83	1,17	11	51.6	54.0
	40	11/2	48.8	48.0	4.0	4.38	1.34	4.42	1.35	11	57.9	57.2
	50	2	60.8	59.8	4.5	6.19	1.89	6.26	1.91	11	7.0.6	63.5
	65	21/2	76.6	75.4	4.5	7.93	2.42	8.05	2.45	11	87.3	69.9
	80	3	89.5	88.1	5.0	10.3	3.14	10.5	3.20	11	101.6	76.2
	100	4	114.9	113.3	5.4	14.5	4.42	14.8	4.51	11	128.6	88.9
	125	5	140.6	138.7	5.4	17.9	5.46	18.4	5.61	11	155.6	95.3
	150	6	166.1	164.1	5.4	21.3	6.49	21.9	6.68	11	184.2	95.3

Test Pressure: 50 Bar / 700 Psi