BRITISH STANDARD SPECIFICATION

FLEXIBLE STEEL TUBING

TO ENCLOSE FLEXIBLE DRIVES FOR POWER DRIVEN TOOLS FOR GENERAL PURPOSES

B.S. 731 : Part 2 : 1958

Price 3/- net

BRITISH STANDARDS INSTITUTION

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THIS BRITISH STANDARD, having been approved by the Mechanical Engineering Industry Standards Committee and endorsed by the Chairman of the Engineering Divisional Council, was published under the authority of the General Council on 22nd September, 1958.

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First revision, September 1958.

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 3000, indexed and cross-indexed for reference, together with an abstract of each standard, will be found in the Institution's Yearbook, price 15s.

This standard makes reference to the following British Standard:
B.S. 1449 Steel plate, sheet and strip.

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 B.S.I. references relate to the work on this standard:—
Committee references MEE/126 and MEE/126/1
Draft for comment CY(MEE) 618

CO-OPERATING ORGANIZATIONS

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

Admiralty
Air Ministry
Associated Offices' Technical Committee
Association of Consulting Engineers (Incorporated)
British Chemical Plant Manufacturers' Association
British Compressed Air Society
British Electrical and Allied Manufacturers' Association
British Engineers' Association
British Gear Manufacturers' Association
British Internal Combustion Engine Manufacturers' Association
British Iron and Steel Federation
British Railways, The British Transport Commission
Crown Agents for Oversea Governments and Administrations
D.S.I.R.—Mechanical Engineering Research Laboratory
Electricity Council, Generating Board and Area Boards in England and Wales
Engineering Equipment Users' Association
Gas Council
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*Institution of Mechanical Engineers
Institution of Mechanical Engineers (Automobile Division)
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Locomotive and Allied Manufacturers' Association of Great Britain
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Ministry of Power
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Ministry of Transport and Civil Aviation
Ministry of Works
National Coal Board
National Physical Laboratory (D.S.I.R.)
Radio Industry Council
War Office

The Government department 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 standard:—

Association of Supervising Electrical Engineers
Federation of British Rubber and Allied Manufacturers
Society of British Aircraft Constructors Ltd.
Society of Motor Manufacturers and Traders Ltd.
Individual manufacturers

BRITISH STANDARD SPECIFICATION FOR

FLEXIBLE STEEL TUBING TO ENCLOSE FLEXIBLE DRIVES

FOR POWER DRIVEN TOOLS FOR GENERAL PURPOSES

FOREWORD

This British Standard forms part of the revision of B.S. 731, 'Flexible steel conduit for cable protection and flexible steel tubing to enclose flexible drives', which was published in 1937. In the course of revision it was decided to separate those parts of the standard dealing with flexible steel conduit for cable protection from those dealing with flexible steel tubing to enclose flexible drives. Part 1 of this revised standard, covering flexible steel conduit, was published in 1952.

This Part of the revised standard provides for two types of flexible steel tubing: locking and interlocking types. In addition to standardizing dimensions, the standard specifies mechanical requirements for the finished tubing and prescribes suitable qualities of materials for use in the manufacture of flexible steel tubing.

SPECIFICATION

SCOPE

1. This British Standard specifies requirements for flexible steel tubing of the following types:

a. Interlocking.
b. Locking.

CONSTRUCTION

2. The tubing shall be of the square-locked or interlocking type made by helically coiling a formed steel strip, and shall be provided with a continuous packing of asbestos yarn inserted between the coils (see Fig. 1). The spiral of the tubing shall be right-handed, and the spiral of the lining shall be left-handed.

MATERIAL

3. *a. Steel strip.* The strip used in the manufacture of the tubing shall be of mild steel, bright, cold rolled and annealed, at least equivalent in quality to Grade En2 as specified in B.S. 1449.* The strip shall be electro-galvanized, electro-tinned or otherwise provided with an equally effective coating before being formed into tubing, the thickness of the coating being not less than 0·000 10 in.

* B.S. 1449, 'Steel plate, sheet and strip'.

NOTE. The electro-deposition is neither designed nor intended to be other than a protection to the material during manufacture, handling, storage and transport. The onus of protecting the tube in service is on the user, who should adopt methods suited to the particular conditions prevailing.

The strip used in the manufacture of the lining shall be made from cold-rolled carbon steel strip with round edges, having a carbon content of 0·3 to 0·4 per cent and having a tensile strength from 60 to 70 tons per square inch.

b. Asbestos packing. The packing shall consist of a commercial grade asbestos yarn of the chrysotile variety. The yarn shall have an organic content not exceeding 18 per cent and shall be of a suitable count and of a size sufficient to ensure reasonable and satisfactory tightness.

DIMENSIONS

4. The dimensions of the tubing shall be in accordance with Tables 1 and 2. The tubing shall be supplied in such lengths as may be specified by the purchaser or his representative.

WORKMANSHIP

5. The interior of flexible steel tubing shall be free from burrs or sharp edges and free from obstructions that would interfere with the spiral strip lining for which the tubing is normally intended.

When the tubing is cut to length, the ends shall be cut square and free from burrs or sharp edges that would interfere with the assembly of the tubing with the parts with which it is used.

All tubing shall be so formed in manufacturing that it will not unravel when cut, and shall be free from any other defects that would affect its serviceability.

CERTIFICATE

6. The manufacturer, if so requested, shall provide a certificate to the effect that the tubing complies with the requirements of this British Standard.

TABLE 1. DIMENSIONS OF FLEXIBLE STEEL TUBING, LOCKING TYPE, ASBESTOS PACKED

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Nominal shaft diameter		Outside diameter of tubing		Nominal inside diameter of tubing without lining		Nominal inside diameter of tubing with lining		Spiral steel strip lining				Threads per foot in normal position (approx.)		Minimum bending radius (measured at centre line of tubing)	
								Thickness		Nominal width					
Metric sizes	Inch sizes	Metric sizes +0·25 −0	Inch sizes +0·010 −0	Metric sizes	Inch sizes	Metric sizes	Inch sizes	Metric sizes ±0·076	Inch sizes ±0·003	Metric sizes	Inch sizes	Outer casing	Lining		
mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.			mm	in.
6	0·250	14	0·551	11·0	0·433	8·6	0·339	1·20	0·048	5·5	0·216	75	44	127	5
8	0·312 5	15	0·591	12·0	0·472	10·6	0·417	0·71	0·028	9·5	0·375	75	21	153	6
10	0·375	19	0·748	15·0	0·591	13·6	0·536	0·71	0·028	9·5	0·375	60	21	178	7
11	0·437 5	22	0·866	18·0	0·709	14·0	0·551	2·03	0·080	6·35	0·250	60	34	191	7·5
12	0·437 5	24	0·945	20·0	0·787	16·0	0·630	2·03	0·080	6 35	0 250	60	34	203	8
13	0·500	26	1·024	22·0	0·866	18·0	0·709	2·03	0·080	6·35	0·250	60	34	216	8·5
15	0·625	29	1·142	25·4	1·000	21·4	0·842	2·03	0·080	6·35	0·250	51	34	229	9
17·5	0·687 5	32	1·260	27·0	1·063	24·0	0·945	1·50	0·059	15·0	0·591	47	16	254	10
20	0·812 5	34	1·339	29·0	1·142	26·0	1·024	1·50	0·059	15·0	0·591	47	16	267	10·5
22	0·875	36	1·417	31·5	1·240	28·5	1·122	1·50	0·059	15·0	0·591	47	16	279	11
25	1·000	39	1·535	34·5	1·358	31·5	1·240	1·50	0·059	15·0	0·591	47	16	305	12

TABLE 2. DIMENSIONS OF FLEXIBLE STEEL TUBING, INTERLOCKING TYPE, ASBESTOS PACKED

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Nominal shaft diameter		Outside diameter of tubing		Nominal inside diameter of tubing without lining		Nominal inside diameter of tubing with lining		Spiral steel strip lining				Threads per foot in normal position (approx.)		Minimum bending radius (measured at centre line of tubing)	
								Thickness		Nominal width					
Metric sizes	Inch sizes	Metric sizes +0·25 −0	Inch sizes +0·010 −0	Metric sizes	Inch sizes	Metric sizes	Inch sizes	Metric sizes ±0·076	Inch sizes ±0·003	Metric sizes	Inch sizes	Outer casing	Lining		
mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.			mm	in.
10	0·375	19	0·748	15·9	0·626	12·9	0·508	1·50	0·059	10·0	0·394	58	21	178	7
11 to 13	0·437 5 to 0·500	24	0·945	20·0	0·787	17·0	0·670	1·50	0·059	15·0	0·591	58	16	216	8·5
15	0·625	29	1·142	24·5	0·965	21·5	0·846	1·50	0·059	15·0	0·591	46	16	241	9·5
17·5	0·687 5	32	1·260	26·5	1·043	23·5	0·925	1·50	0·059	15·0	0·591	42	16	267	10·5
20	0·812 5	34	1·339	28·5	1·122	25·5	1·004	1·50	0·059	15·0	0·591	42	16	292	11·5
22	0·875	40	1·575	30·5	1·201	27·5	1·083	1·50	0·059	15·0	0·591	42	16	330	13
25	1·000	42	1·654	35·0	1·378	32·0	1·260	1·50	0·059	15·0	0·591	40	16	356	14

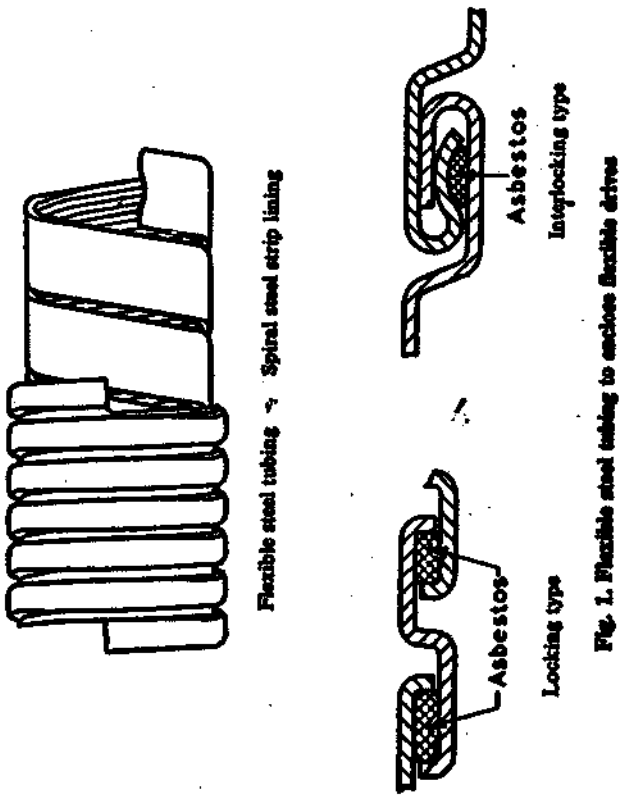

Fig. 1. Flexible steel tubing to enclose flexible drive

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