BRITISH STANDARD

BS 31:1940

Incorporating Amendment Nos. 1, 2, 3, 4 and 5

CONFIRMED
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Specification for

Steel conduit and fittings —

For electrical wiring

UDC 621.315.67

Co-operating organisations

The Electrical Industry Committee under whose supervision this British Standard was prepared consists of representatives from the following Government Departments and Scientific and Industrial Organisations:

Admiralty*
Central Electricity Board
Electricity Commissioners
General Post Office*
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H.M. Office of Works*
High Commissioner for India
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The Government Departments and Scientific and Industrial Organisations marked with an asterisk in the above list, together with the following, were directly represented on the Committees entrusted with the preparation of this British Standard:

Air Ministry
Crown Agents for the Colonies
Association of Steel Conduit Manufacturers
Association of Supervising Electrical Engineers
Electrical Association for Women
Fire Offices Committee
Malleable Ironfounders' Association
National Register of Electrical Installation Contractors

This specification having been approved by the Electrical Industry Committee and endorsed by the Chairman of the Engineering Divisional Council was published by the authority of the General Council as a British Standard on 22 July 1940

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Contents

Foreword

This British Standard requires reference to the following:

BS 84:1940, *Screw threads of , Whitworth Form*.

BS 580, *Trichloroethylene*.

BS 729-2.

BS 3382-2.

This revision of the 1933 edition of BS 31 was undertaken principally with a view to clarifying the position of the lugs relative to the spout outlets in small circular boxes. Clauses **2** and **19**, and Figure 5 have therefore been amended. Table 9, giving dimensions of entry bushes, has also been slightly modified.

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

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 28 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

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NOTE *This Specification does not necessarily apply to boxes specially designed to take switches and wall-sockets, but it is recommended that the dimensions of spouts and screw threads in this Specification should be adopted for such boxes.*

In order to avoid misconceptions with regard to designations hitherto used, it is desirable that the terms adopted in this Specification be carefully adhered to.

1 *a. Conduit.* Two classes of steel conduit for electrical wiring are recognised as standard :

Class A. Plain.

Class B. Screwed.

Class A consists of light-gauge conduit of the thicknesses and dimensions given in Table 1. Class A conduit is either close-joint, brazed, welded or solid drawn. The method of joining the lengths of tubing is by means of a coupler in the form of an external sleeve having some form of positive continuity connection.

In the close-joint tubes the edges of the steel strip, although brought tightly together in the process of manufacture, are not metallically joined in any way.

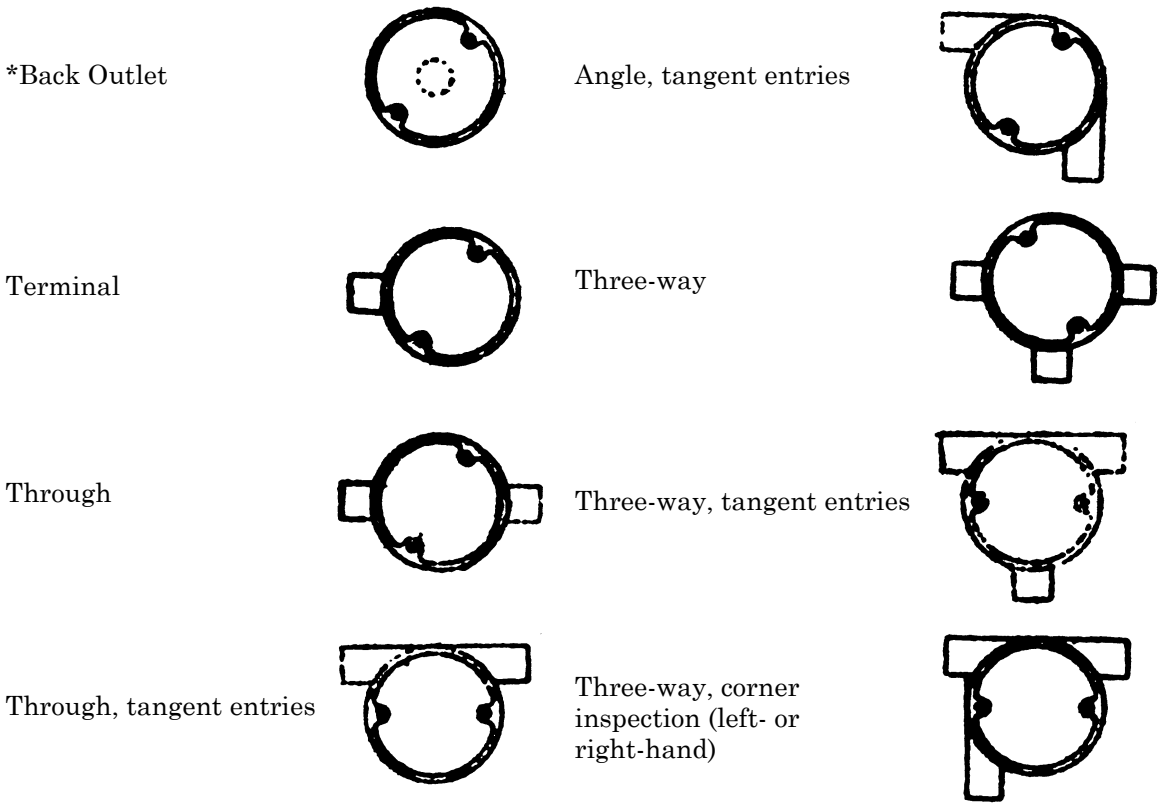
Class B consists of heavy-gauge conduit of the thicknesses and dimensions given in Table 1. Class B conduit is either welded or solid drawn. Both ends of the conduit are screwed.

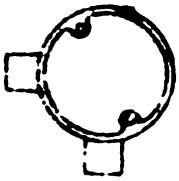
The ends of all conduit, Classes A and B, shall be reamered.

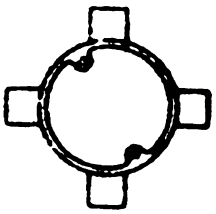
b. Fittings. Two classes of fittings are recognised as standard, namely, Screwed and Non-Screwed, the difference being only in respect of whether the fitting is threaded for use with screwed Class B conduit, or is bored out for use with Class A conduit, or heavy-gauge conduit if supplied non-screwed to special order.

Non-screwed fittings shall be provided with some form of continuity joint such that ample and permanent electrical continuity and mechanical rigidity are ensured. The electrical continuity shall be such as to comply with the test given in Clause **40**.

c. Circular Boxes. Circular boxes shall be designated as follows:



Angle 

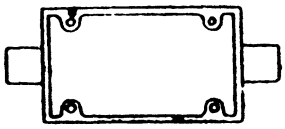
Four-way, intersection 

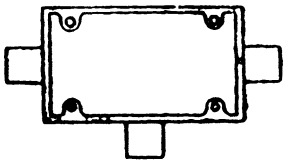
These boxes are supplied with covers of the following materials as required: steel, malleable cast iron or fibre (see Clause **22**).

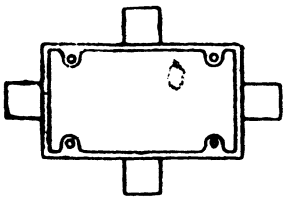
NOTE A "Back Outlet" box is also a "Terminal" box, but the word "Terminal" has been reserved for a box with one entry at the side. A box fitted with two entries, one at the side and one at the back, should be referred to as a "Terminal Box with Back Outlet".

d. Tangent Entry Boxes. Any of the above boxes may be of the tangent-entry type if desired, but, if so, they shall conform to the general dimensions specified for the corresponding radial-entry type of box.

e. Oblong boxes. Oblong boxes shall be designated as follows:

Through 

Tee 

Intersection 

These boxes are supplied with covers of the following materials as required: steel, malleable cast iron or fibre (see Clause **22**).

2 Material and method of manufacture

Steel conduit shall be either close-joint, brazed, welded or solid drawn as ordered, and shall be of mild steel and free from burrs and internal roughness.

The conduit fittings shall be made of steel or malleable cast iron except where otherwise specified herein.

All steel shall have a tensile strength of not less than 18 tons nor more than 24 tons per square inch of section, and an elongation of not less than 15 per cent in a length of 8 in. Malleable iron castings shall be well annealed and free from internal projections.

All conduit and fittings shall be adequately protected against corrosion both inside and outside and shall be classified according to the type of protection applied as follows :

Class 1. Light protection both inside and outside.	EXAMPLE: priming paint.
Class 2. Medium protection both inside and outside.	EXAMPLE: stoved enamel air-drying paint.
Class 3. Medium/Heavy protection. Inside as Class 2, Outside as Class 4.	EXAMPLE: stoved enamel inside. Sherardised outside.
Class 4. Heavy protection both inside and outside.	EXAMPLE: hot-dip zinc coating sherardising.

The class of finish shall be indelibly marked on each length of conduit, near to one end. The inscription thereon shall be easily legible.

Screw threads shall be free from enamel and are excluded from the requirements for protection against corrosion. The materials and protective coatings shall comply with the tests given in Clauses **35** to **38** of this standard. For Class 3 conduit and fittings, the inside and outside protective coatings shall separately comply with the relevant tests of Clause **38**. Conduit and fittings may be split to the extent considered necessary to allow adequate examination of their interior surfaces.

The inside edges of all openings through which it is intended that cable shall pass shall be smoothly rounded in order to prevent abrasion of the cable.

3 Screw threads

Screw threads on conduit couplers and fittings (except as otherwise specified in Table 2 and Figure 5, Figure 6 and Figure 7) shall be of Whitworth form as defined in BS 84. Right-hand threads shall be used and the number of threads per inch shall be as stated in Table A and Table B.

Tolerances are allowed on the screw threads in accordance with the figures stated in Table A and Table B.

The gauges for testing these threads shall be in accordance with Appendix A.

4 Outside diameter of conduit

The conduit shall be manufactured to and designated by the respective outside diameters given in Table 1.

The tolerances to be allowed on the outside diameter of Class A conduit, before application of the protective coating shall be + 0.001 in., – 0.005 in.

In the case of Class B conduit the outside diameter shall be allowed to vary from 0.001 in. above the nominal size to the minimum dimension allowed for the full diameter of the screw thread, as stated in Table A.

5 Length of conduit

The conduit shall be manufactured in straight lengths of from ten to fifteen feet, and one coupler shall be supplied with each length of screwed conduit.

6 Length of thread

The length of thread on the ends of the conduit shall be in accordance with the dimensions given in Table 1.

7 Thickness of conduit

The conduit shall be manufactured to the respective thicknesses given in Table 1.

The average thickness of steel conduit shall be determined by weighing not less than one hundred feet (100 ft.). The weight shall fall within plus or minus 8 per cent of the figures given in Table 1.

8 Thickness of fittings

For all fittings made out of *tube*, the minimum thickness of the fittings shall be equal to that of the corresponding conduit with which they are used. (See Table 1 and Table 2.) In no case shall "close joint" tube be used for these fittings.

For all *cast* fittings, the minimum thickness of the machined part measured at the root of the thread shall be as follows :

For sizes up to and including 1 in. diameter conduit	$^1/_{16}$ in.
For sizes from $1^1/_4$ in. up to 2 in. diameter conduit	$^3/_{32}$ in.
For $2^1/_2$ in. diameter conduit	$^1/_8$ in.

9 Length of recessed portion in plain fittings

The minimum length of recessed portion in plain fittings, i.e., the length machined out to allow of the admission of the conduit, shall be in accordance with the dimensions given in Table 2.

10 Thread in screwed fittings[1)]

The internal thread in the ends of screwed fittings shall be screwed parallel to the axes of the fittings to within a tolerance of $^1/_8$ in. in 1 ft.

The minimum length of the screwed portion shall be the same as the minimum length of recessed portion in plain fittings, and the maximum length shall be in accordance with the dimensions given in Table 2.

If a shoulder be introduced at the inner end of the screwed portion, the bore shall be not less than the internal diameter of the corresponding conduit.

The thickness of metal at the root of the thread in steel fittings shall be not less than that allowed for screwed conduit of corresponding size, as determined from the minimum thickness (Table 1) and the depth of thread (Table A, col. 4).

11 Plain couplers

The minimum length of plain couplers shall be in accordance with the dimensions given in Table 2. The couplers shall comply with the test given in Clause **40**.

12 Screwed couplers

Screwed couplers shall be screwed inside throughout their entire length. Their minimum length shall be in accordance with the dimensions given in Table 2.

13 Running Couplers

The standard length of running couplers shall be 6 in. long for conduit up to and including 1 in. diameter, and 9 in. long for conduit from $1^1/_4$ in. to $2^1/_2$ in. diameter inclusive. (See Table 2.)

The minimum length of the long screwed portion of the conduit shall be equal to the length of the screwed coupler with which it is supplied, plus the thickness of lock-nut, plus $^3/_{16}$ in.

[1)] Fittings screwed in accordance with this Specification will not permit of the conduit being screwed right through to the interior of the fitting. It will be noted that the length of the unthreaded portion of the spouts of boxes is defined by the dimension for the projection of spout from the outside of the box (Table 4, dimension D) and the maximum length of the threaded portion of the spouts (Table 2).

Table A — Limiting sizes and tolerances for screw threads on conduit (Class B)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Nominal outside diameter	Number of threads per inch	Pitch	Nominal depth of thread	Tolerances (see Note)		Full diameter			Effective diameter			Core diameter		
				Pitch	Angle	Maximum	Tolerance	Minimum	Maximum	Tolerance	Minimum	Maximum	Tolerance	Minimum
in.		in.	in.	in.	degree	in.	in.	in.	in.	in.	in.	in.	in.	in.
1/2	18	0.055 56	0.035 55	0.001 8	6.1	0.500 0	0.010 6	0.489 4	0.464 4	0.007 1	0.457 3	0.428 9	0.014 1	0.414 8
5/8	18	0.055 56	0.035 55	0.001 8	6.1	0.625 0	0.010 6	0.614 4	0.589 4	0.007 1	0.582 3	0.553 9	0.014 1	0.539 8
3/4	16	0.062 50	0.040 00	0.002 0	5.7	0.750 0	0.011 3	0.738 7	0.710 0	0.007 5	0.702 5	0.670 0	0.015 0	0.655 0
1	16	0.062 50	0.040 00	0.002 0	5.7	1.000 0	0.011 3	0.988 7	0.960 0	0.007 5	0.952 5	0.920 0	0.015 0	0.905 0
1 1/4	16	0.062 50	0.040 00	0.002 0	5.7	1.250 0	0.011 3	1.238 7	1.210 0	0.007 5	1.202 5	1.170 0	0.015 0	1.155 0
1 1/2	14	0.071 43	0.045 75	0.002 1	5.3	1.500 0	0.012 0	1.488 0	1.454 3	0.008 0	1.446 3	1.408 5	0.016 0	1.392 5
2	14	0.071 43	0.045 75	0.002 1	5.3	2.000 0	0.012 0	1.988 0	1.954 3	0.008 0	1.946 3	1.908 5	0.016 0	1.892 5
	14	0.071 43	0.045 75	0.002 1	5.3	2.500 0	0.012 0	2.488 0	2.454 3	0.008 0	2.446 3	2.408 5	0.016 0	2.392 5

NOTE Columns 5 and 6 give, for information, the errors in pitch per length of thread engaged and in angle respectively, each of which can be compensated by *half* the tolerance on effective diameter given in column 11. The angle tolerance refers to the sum of the errors on the two half-angles of the thread (nominally 27 ½°) taken regardless of sign.

The errors in pitch and angle shown in the Table may therefore exist together, provided the effective diameter has the minimum value given in column 12. Subject to the same condition, the permissible error in pitch may be increased up to double the values shown in column 5, provided the error in angle is correspondingly reduced, and *vice-versa*.

Table B — Limiting sizes and tolerances for screw threads in couplers and fittings

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Nominal outside diameter of conduit	Number of threads per inch	Pitch	Nominal depth of thread	Tolerances (see Note)		Full diameter			Effective diameter			Core diameter		
				Pitch	Angle	Minimum	Tolerance	Maximum	Minimum	Tolerance	Maximum	Minimum	Tolerance	Maximum
in.		in.	in.	in.	degree	in.	in.	in.	in.	in.	in.	in.	in.	in.
$^1/_2$	18	0.055 56	0.035 55	0.001 8	6.1	0.500 0	0.014 1	0.514 1	0.464 4	0.007 1	0.471 5	0.428 9	0.010 6	0.439 5
$^5/_8$	18	0.055 56	0.035 55	0.001 8	6.1	0.625 0	0.014 1	0.639 1	0.589 4	0.007 1	0.596 5	0.553 9	0.010 6	0.564 5
$^3/_4$	16	0.062 50	0.040 00	0.002 0	5.7	0.750 0	0.015 0	0.765 0	0.710 0	0.007 5	0.717 5	0.670 0	0.011 3	0.681 3
1	16	0.062 50	0.040 00	0.002 0	5.7	1.000 0	0.015 0	1.015 0	0.960 0	0.007 5	0.967 5	0.920 0	0.011 3	0.931 3
$1^1/_4$	16	0.062 50	0.040 00	0.002 0	5.7	1.250 0	0.015 0	1.265 0	1.210 0	0.007 5	1.217 5	1.170 0	0.011 3	1.181 3
$1^1/_2$	14	0.071 43	0.045 75	0.002 1	5.3	1.500 0	0.016 0	1.516 0	1.454 3	0.008 0	1.462 3	1.408 5	0.012 0	1.420 5
2	14	0.071 43	0.045 75	0.002 1	5.3	2.000 0	0.016 0	2.016 0	1.954 3	0.008 0	1.962 3	1.908 5	0.012 0	1.920 5
$2^1/_2$	14	0.071 43	0.045 75	0.002 1	5.3	2.500 0	0.016 0	2.516 0	2.454 3	0.008 0	2.462 3	2.408 5	0.012 0	2.420 5

NOTE Columns 5 and 6 give, for information, the errors in pitch per length of thread engaged and in angle respectively, each of which can be compensated by *half* the tolerance on effective diameter given in column 11. The angle tolerance refers to the sum of the errors on the two half-angles of the thread (nominally 27 ½°) taken regardless of sign.

The errors in pitch and angle shown in the Table may therefore exist together, provided the effective, diameter has the maximum value given in column 12. Subject to the same condition, the permissible error in pitch may be increased up to double the values shown in column 5, provided the error in angle is correspondingly reduced, and *vice-versa*.

14 Elbows

The minimum radius of any elbow, in inches, measured from the centre of curvature to the axis of the elbow (see Figure 2) shall be in accordance with the dimensions given in Table 3.

The axis of any elbow shall be a quadrant of a circle plus a straight portion at each end (tangential to the arc at the end), which shall measure not less than the length in inches given in Table 3.

15 Normal bends

Normal bends shall be large-sweep bends giving a diversion of 90 degrees in the run of the conduit, and the minimum radius of curvature and length of straight portions at the ends shall be in accordance with the dimensions given in Table 3. (See Figure 3.)

16 Half-normal bends

Half-normal bends shall be similar to normal bends both as regards radius of curvature and length of straight portions at the ends, but shall give a diversion in the run of the conduit of 45 degrees, as shown in Figure 4.

17 Tees

Tees shall conform as regards the overall length, minimum radius of curvature and length of straight portions at the ends with the dimensions given in Table 3. (See Figure 1.)

18 Split fittings

Split elbows, normal bends, tees and couplers shall be of the same general dimensions as the corresponding solid fittings, but the two halves shall be fastened together with screws passing through lugs made in one piece with the halves of the fitting.

The number of lugs and size of screws shall be in accordance with the figures given in Table 2.

19 Small circular boxes

a) Three types of small circular boxes for use with Class B conduit are recognised as standard in this Specification :

Class B1, malleable cast-iron or steel boxes.

Class B2, alternative design of malleable cast-iron or steel box and dome cover for $^{3}/_{4}$ in. conduit only.

Class B3, alternative design of malleable cast-iron or steel box with multiple back-outlets.

Corresponding types of box for use with Class A conduit are also recognised as standard, and these shall comply with the requirements set out in sub-clause **19** b) and **19** c) subject to the provisions of Clause **9** also being complied with.

b) *Malleable Cast-iron Boxes*. The walls and bases shall be not less than $^{7}/_{64}$ in. thick (subject to a manufacturing negative tolerance of $^{1}/_{32}$ in.).

The remaining dimensions shall be as stated in paragraphs i) – iii) below.

All boxes shall be clearly and indelibly marked on the base with the word "MALLEABLE."

i) *Class* B1. Boxes shall conform to the dimensions given in Table 4 and shall be provided with two lugs for the fixing of the cover not less than $^{7}/_{64}$ in. thick.

The standard position of the spout outlets in relation to the lugs shown in full lines in Figure 5 shall be as follows :

	Position of Spout outlets
a) Terminal box with one outlet	1
b) Angle box with two outlets	1 and 2
c) Tee box with three outlets	1, 2 and 3
d) Four-way box	1, 2, 3 and 4
e) Through-way box with two outlets	1 and 4.

NOTE The addition of a back outlet to any of the above does not affect the position of lugs in respect to the radial outlets.

The distance between the centre of the fixing hole and the edge of the lug shall be not less than $^3/_{16}$ in. nor more than $^7/_{32}$ in.

ii) *Class* B2. Boxes and covers shall conform to the dimensions shown in Figure 6, and the boxes shall be provided with four bosses for fixing the covers, set diagonally at an angle of 45° to the axis of a spout. The only size of box and cover recognised as standard is that for use in conjunction with $^3/_4$ in. conduit.

iii) *Class* B3. Boxes shall conform to the dimensions given in Figure 7 and shall be provided with two lugs for the fixing of the cover not less than $^7/_{64}$ in. thick as shown in the figure. The only sizes of box recognised as standard are those for use in conjunction with $^5/_8$ in. and $^3/_4$ in. conduit.

c) *Steel boxes.* No part of the boxes shall have a thickness less than 0.104 inch (12 S.W.G.). All other dimensions shall be the same as for the corresponding class of malleable cast-iron boxes, but the spouts if formed from separate components shall be welded or screwed into the body of the box during manufacture, and the inner edges shall be rounded; if screwed in, the spouts shall be permanently fixed so that they cannot be unscrewed. The spout itself, and the junction of the spout and box, shall be watertight before application of the protective coating.

d) Provision for earthing shall be made in all Class B1, B2 and B3 boxes.

20 Large circular boxes

a) Large circular boxes shall be made of malleable cast-iron or steel.

b) *Malleable cast-iron boxes*. The walls and bases shall be not less than $^9/_{64}$ in. thick (subject to a manufacturing negative tolerance of $^1/_{32}$ in.). They shall conform to the dimensions given in Table 4, but shall have four lugs not less than $^9/_{64}$ in. thick for fixing the covers, spaced as shown in Figure 5. The distance between the centre of each fixing hole and the edge of the lug shall be not less than $^1/_4$ in.

The boxes shall be clearly and indelibly marked on the base with the word "MALLEABLE."

c) *Steel Boxes*. No part of the boxes shall have a thickness less than 0.120 in. All other dimensions shall be the same as for malleable cast-iron boxes. The spouts if formed from separate components shall be welded or screwed into the body of the box during manufacture, and the inner edges shall be rounded; if screwed in, the spouts shall be permanently fixed so that they cannot be unscrewed. The spout itself, and the junction of the spout and box, shall be watertight before application of the protective coating.

21 Oblong boxes

Oblong boxes shall be of malleable cast iron or steel, and shall conform to the minimum internal dimensions and thicknesses given in the following Table.

Minimum internal dimensions for oblong boxes

(Through, tee and intersection)

Size of conduit	Minimum internal dimensions	Minimum thickness of wall and base	
		Steel	Mall. C. I.[a]
in.	in.	in.	in.
$^1/_2$, $^5/_8$, $^3/_4$ and 1	$3^5/_8 \times 2 \times 1^1/_8$	0.120	$^1/_8$
$1^1/_4$	$5^1/_2 \times 2^5/_8 \times 1^5/_8$	0.120	$^1/_8$
$1^1/_2$	$5^1/_2 \times 2^5/_8 \times 1^5/_8$	0.120	$^1/_8$
2	$9^1/_2 \times 4^1/_2 \times 2^1/_4$	0.120	$^3/_{16}$
$2^1/_2$	$9^1/_2 \times 4^1/_2 \times 2^3/_4$	0.120	$^3/_{16}$

(See Table 4 for dimensions of inlets.)

[a] Subject to a manufacturing tolerance of $^1/_{32}$ in.

If made of malleable cast iron, the boxes shall be clearly and indelibly marked on the base with the word "MALLEABLE."

In the case of steel boxes, the spouts if formed from separate components shall be welded or screwed into the body of the box during manufacture, and the inner edges shall be rounded; if screwed in, the spouts shall be permanently fixed so that they cannot be unscrewed. The spout itself, and the junction of the spout and box, shall be watertight before application of the protective coating.

22 Covers for boxes

Covers shall be of steel, malleable cast-iron, or fibre or other suitable insulating material, as may be ordered. They shall be of the same diameter as, or $^1/_2$ in. greater in diameter than, the external diameter of the top of the box, as may be ordered. They shall be fixed to the boxes by means of screws, which shall be supplied with the covers. Screws for use with all fittings with light, medium or heavy protection, shall be of brass, or steel, with sherardized finish to BS 729-2[2)], or steel, zinc plated to BS 3382-2[3)].

Electro-brass-plated steel screws are expressly excluded.

Steel covers shall be not less than 0.048 in. thick. Malleable cast-iron covers shall be not less than $^7/_{64}$ in. thick for the small size, and not less in thickness than the minimum thickness of the box for which they are supplied.

Fibre covers shall be not less than $^3/_{16}$ in. thick and they shall be drilled with two (or four) counter-sunk clearing holes with centres to agree with those on the box.

When dome covers are ordered they shall be of steel or malleable cast iron, and shall conform to the dimensions given in Table 5 and Figure 8.

A combined dome cover and hook is standardised for use with small circular conduit boxes, Class B1. These covers shall be of steel or malleable cast iron and shall conform to the shape and dimensions given in Figure 9.

23 Inspection fittings

Inspection fittings of the channel type shall follow the lines of the ordinary fittings as regards the length of recessed portion in Class A and the threaded portion in Class B; and the area of the opening in the clear, in the case of elbows, shall be not less than two and one-half times and in the case of bends and tees, not less than three times the internal cross-sectional area of the corresponding conduit.

Inspection fittings shall be so constructed that the screws fixing the cover cannot come into contact with the ends of the conduit.

24 Covers for fittings other than boxes

Covers for fittings shall be of steel, malleable cast iron, or fibre or other suitable insulating material. They shall be fixed to the fittings by means of screws, which shall be supplied with the covers. Screws for use with all fittings with light, medium or heavy protection, shall be of brass, or steel with sherardized finish to BS 729-2[2)], or steel, zinc plated, to BS 3382-2[3)]. Electro-brass-plated steel screws are expressly excluded.

Steel covers shall be not less than 0.048 in. thick. Malleable cast-iron covers shall be not less in thickness than the minimum thickness of the fitting for which they are supplied.

Fibre covers shall be not less than $^3/_{16}$ in. thick and they shall be drilled with counter-sunk clearing holes with centres to agree with those on the fitting.

25 Ordinary clips

Ordinary clips shall be made of mild steel, and shall conform to the shape and dimensions given in Figure 10 and Table 6 for the sizes and descriptions ordered.

26 Girder clips

Girder clips shall be made of iron wire, and shall conform to the shape and dimensions given in Figure 11 and Table 6. The threaded end shall be fitted with a malleable iron clip-piece and nut.

[2)] BS 729, "*Zinc coatings on iron and steel articles*", Part 2, "*Sherardized coatings*".

[3)] BS 3382, "*Electroplated coatings on threaded components*", Part 2, "*Zinc on steel components*".

27 Single and multiple saddles

Single and multiple saddles shall be made of mild steel, and shall conform to the shape and dimensions given in Figure 12 and Figure 13 and Table 7.

28 Spacing plates

Plates used for spacing the saddles or clips from the walls shall be of such thickness as will conform with the axial centres of the boxes (see Figure 5, dimension C minus $^{1}/_{2}$ dimension A), namely $^{1}/_{8}$ in. for conduit up to $1^{1}/_{2}$ in. diameter, and $^{3}/_{16}$ in. for larger sizes of conduit.

29 Pipe hooks

Pipe hooks shall be mild steel forgings or malleable castings. They shall conform to the shape and dimensions given in Figure 14 and Table 8.

30 Screwed reducers

Screwed reducers shall be of mild steel or malleable cast iron, and shall conform to the shape and dimensions given in Figure 15 and Table 8.

In all cases the length of thread on the inside shall be not less than that given in the Table.

31 Iron plugs

Iron plugs shall be of malleable cast iron or mild steel, and shall conform to the shape and dimensions given in Figure 16 and Table 8. The plug may be recessed to the thickness of the head, the thickness of the wall being not less than $^{1}/_{8}$ in.

32 Lock-nuts

Lock-nuts shall be of malleable cast iron or of mild steel, and the thickness shall be in accordance with the dimensions given in Table 2. If hexagonal, the width across the flats shall be in accordance with Table 2. If round, the edge shall be milled or castellated.

33 Entry bushes

Entry bushes shall be of brass or moulded insulating material and shall conform to the shape and dimensions given in Figure 7 and Table 9.

34 Tolerance on dimensions

All dimensions except those for which tolerances are specifically stated herein, or which are definitely stated as being maxima or minima, are to be regarded as nominal dimensions, and subject to a tolerance of plus or minus 5 per cent.

35 General

The respective materials shall conform to the requirements of this Specification and may be subjected to the tests set forth below. It is not intended that these tests shall be made on every batch of material supplied, unless so specified when inviting tenders.

Unless otherwise specified when inviting tenders, a certificate that all such tests have been applied to, and successfully withstood by, samples from the bulk of the material used for the manufacture of the conduit and fittings will be accepted as evidence of compliance with the terms of this Specification.

The purchaser shall have the right to inspect all material and select samples for independent check tests at his own expense.

36 Test pieces for steel

Test pieces shall be tested for tensile strength. Test pieces shall also stand being bent double, flat on themselves, without showing signs of cracking.

37 Test of malleable cast iron

Articles selected at random from each batch shall be capable of being deformed in configuration by hammer blows without showing signs of fracture.

38 Tests for resistance to corrosion

a) *Light protection*. Samples of conduit with light protection are slowly bent round a smooth cylindrical mandrel having a radius equal to :

i) Ten times the normal conduit diameter for conduit not exceeding a nominal diameter of 1 in.

ii) Twelve times the nominal diameter for other conduits.

A sheet of cardboard or the like, about $^1/_8$ in thick is placed between the conduit and the mandrel. After this test the coating of the conduit shall show no sign of damage. Fittings shall be inspected for completeness of covering by the protective coating, both inside and outside.

b) *Medium protection*. Samples of conduit shall be bent through 90°, using an appropriate bending tool, so that the inside radius of the bend is equal to six times the nominal size, cleaned with a piece of wadding soaked in benzine and then dried. The bent part of each sample shall then be immersed in a solution of 0.75 % potassium ferricyanide ($K_3Fe(CN)_6$) and 0.25 % ammonium persulphate ($(NH_4)_2S_2O_8$) in water and a quantity of about 0.1 % of a suitable wetting agent, for instance a sodium salt of an alkylnaphthaline sulphonic acid, is added.

Fittings with medium protection are cleaned in the manner described above for conduit and are then totally immersed in the solution. The solution and samples are maintained at a temperature of 20 ± 1 °C.

Each sample is tested separately, a fresh solution being used each time.

After immersion for 5 minutes, the samples are removed from the solution and left to dry at room temperature in air. After the whole test as described above, the samples shall show no more than two blue coloured spots on each square centimetre of the surface, and no blue spot shall have a dimension larger than 1.5 mm. Traces of rust on sharp edges, screw threads and machined surfaces, also any yellowish film removable by rubbing, are ignored.

c) *Heavy protection.* Samples of conduit are bent as described in Subclause **38** b) degreased by immersion in trichloroethylene in accordance with BS 580 for ten minutes and wiped dry with a piece of soft cloth. They are then immersed in a 2 % solution of sulphuric acid in water for 15 seconds, thoroughly cleaned in running water and again wiped dry with a piece of clean soft cloth.

The bent part of each sample is then immersed in a solution of copper sulphate ($CuSO_4.5H_2O$) in distilled water, having a specific gravity of 1.186 at 20 °C.

Fittings with heavy protection are degreased as described above for conduit and then totally immersed in the solution. The solution and the samples are maintained at a temperature of 20 ± 1 °C, without stirring.

NOTE The solution is made by dissolving 360 grammes of crystalline copper sulphate in 1 litre of distilled water, and neutralizing with copper carbonate or copper hydroxide (about 1 g/l). The specific gravity is then checked and adjusted as necessary.

The container shall be such that it will not react with the solution and shall be of such a size as to provide clearance of at least 1 in between the walls thereof and the sample.

Each sample is immersed 4 times in succession in the same solution, each time for one minute. A fresh solution shall be used for each sample. After each immersion, the sample is immediately cleaned in running water with a brush to remove any black deposit. The sample is then wiped dry with a piece of clean soft cloth and, except after the fourth immersion, returned to the solution. Care should be taken to clean out all holes and pockets.

After the test, the sample shall show no precipitation of copper which cannot be scrubbed off in running water, if necessary after immersion in a 10 % solution of hydrochloric acid in water for 15 seconds.

Traces of copper precipitation on screw threads, sharp edges and machined surfaces may be ignored.

40 Continuity test for non-screwed conduit and fittings

An arrangement of conduit and fittings consisting of 11 pieces of non-screwed conduit, coupled together by fittings not less than 1 inch apart (representing, in approximately equal numbers, each type of fitting in the batch), shall be assembled with their continuity devices as in service, and tested for continuity. The resistance between the ends of the assembly shall not exceed 0.05 ohm.

41 Tests for dimensions

Test samples of conduit and their fittings may be tested at the works of the manufacturer *before application of the protective coating*, as the case may be, as follows :

a) *Conduit, Outside Diameter*. One per cent of any batch of conduit (never less than one standard straight length) shall be selected at random, and be tested for correctness of outside diameter, the tolerances on which are stated in Clause **4**. Particulars of gauges for carrying out this test are given in Appendix A.

b) *Conduit, Thickness*. Not less than one hundred feet (100 ft.) of any batch of conduit shall be selected at random, and be tested for average thickness by weighing. (See Clause **7**.)

c) *Fittings, Inside Diameter, Thickness*. One per cent of any batch of plain couplers or fittings shall be selected at random, and be tested for correctness of dimensions. One per cent of any batch of screwed couplers or screwed fittings shall be selected at random *before screwing* and be tested for thickness.

d) *Conduit, Couplers, Fittings — Accuracy of Screwing*. One per cent of any batch of screwed conduit (never less than one standard straight length) or of screwed couplers and fittings shall be selected at random and be tested for accuracy of thread by means of suitable gauges. The inspection gauges for each component include a "Go" gauge having a full-form thread to ensure interchangeability, and a "Not Go" gauge for the crests of the threads to ensure satisfactory depth of engagement of the threads. Limits for such inspection gauges are given in Appendix A.

42 Additional tests for dimensions

Should the test samples first selected for testing prove unsatisfactory, a further selection of samples may be made and tested under the conditions in Clause **41**. Should the second selection of test samples also prove unsatisfactory, the whole batch from which the samples were selected shall be held not to comply with the requirements of this Specification.

Table 1 — Standard dimensions and weight of steel conduit

Conduit (outside diameter), size of ... in.		$^1/_2$	$^5/_8$	$^3/_4$	1	$1^1/_4$	$1^1/_2$	2	$2^1/_2$
Threads per inch		18	18	16	16	16	14	14	14
Maximum length of thread on ends	in.	$^7/_{16}$	$^1/_2$	$^9/_{16}$	$^{11}/_{16}$	$^3/_4$	$^{13}/_{16}$	$^{15}/_{16}$	$1^1/_{16}$
Minimum length of thread on ends	in.	$^3/_8$	$^7/_{16}$	$^1/_2$	$^5/_8$	$^{11}/_{16}$	$^3/_4$	$^7/_8$	1
Nominal thickness — Class A (plain)	in	.040	.040	.048	.048	.056	.064	.064	.072
Minimum thickness — Class A (plain)	in.	.036	.036	.044	.044	.052	.060	.060	.068
Nominal thickness — Class B (screwed)	in.	.056	.056	.064	.064	.064	.072	.080	.080
Minimum thickness — Class B (screwed)	in.	.052	.052	.060	.060	.060	.068	.076	.076
Calculated weight per 100 ft., in lb., before enamelling, galvanising or sherardising, and not including couplers.	Class A (plain)	20	26	37	50	73	100	135	191
	Class B (screwed)	27	34	47	64	81	110	164	207

Table 2 — Standard dimensions of fittings

Conduit (outside diameter), size of ... in.		$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Plain coupler, minimum length of	in.	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{7}{8}$	$2\frac{1}{8}$	$2\frac{3}{8}$
Screwed coupler, minimum length of	in.	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$
Fittings, cast (machined part), minimum thickness of	in.	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{3}{32}$	$\frac{3}{32}$	$\frac{3}{32}$	$\frac{1}{8}$
Fittings, tube (machined part), minimum thickness of — Class A	in.	.036	.036	.044	.044	.052	.060	.060	.068
Fittings, tube (machined part), minimum thickness of — Class B	in.	.052	.052	.060	.060	.060	.068	.076	.076
Split elbows, number of lugs and size of screws for		3 No. 2 B.A.	3 No. 2 B.A.	4 No. 2 B.A.	4 No. 2 B.A.	4 $\frac{1}{4}$″ B.S.W.	5 $\frac{1}{4}$″ B.S.W.	5 $\frac{1}{4}$″ B.S.W.	5 $\frac{1}{4}$″ B.S.W.
Split normal bends, number of lugs and size of screws for		5 No. 2 B.A.	5 No. 2 B.A.	5 No. 2 B.A.	6 No. 2 B.A.	6 $\frac{1}{4}$″ B.S.W.	6 $\frac{1}{4}$″ B.S.W.	7 $\frac{1}{4}$″ B.S.W.	7 $\frac{1}{4}$″ B.S.W.
Split tees, number of lugs and size of screws for		6 No. 2 B.A.	6 No. 2 B.A.	6 No. 2 B.A.	6 No. 2 B.A.	6 $\frac{1}{4}$″ B.S.W.	8 $\frac{1}{4}$″ B.S.W.	8 $\frac{1}{4}$″ B.S.W.	8 $\frac{1}{4}$″ B.S.W.
Running couplers, length of	in.	6	6	6	6	9	9	9	9
Recessed portion in Class A or Threaded portion in Class B for all Fittings, Length of — Minimum (Class B only)	in.	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{15}{16}$	$1\frac{1}{16}$
Recessed portion in Class A or Threaded portion in Class B for all Fittings, Length of — Maximum (Class B only)	in.	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{7}{8}$	1	$1\frac{1}{8}$
Lock-nuts, Thickness	in.	$\frac{3}{16}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{3}{8}$
Lock-nuts, Width across Flats, Max.	in.	.815	.915	1.092	1.472	1.662	2.040	2.570	3.150
Lock-nuts, Whitworth Spanner	in.	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{7}{8}$	1	$1\frac{1}{4}$	$1\frac{5}{8}$	2

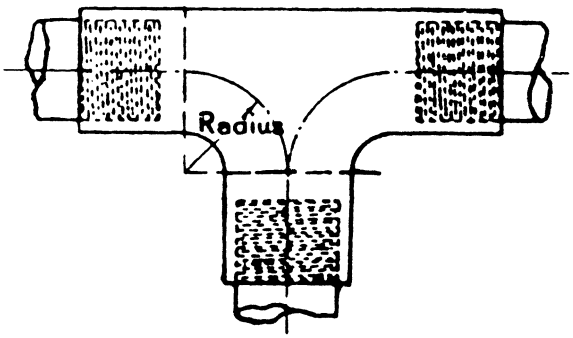


Figure 1 — Tee

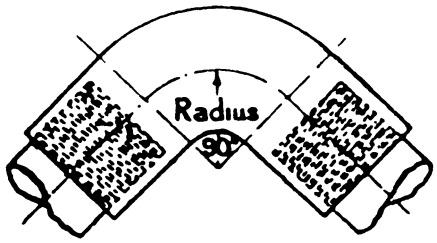


Figure 2 — Elbow

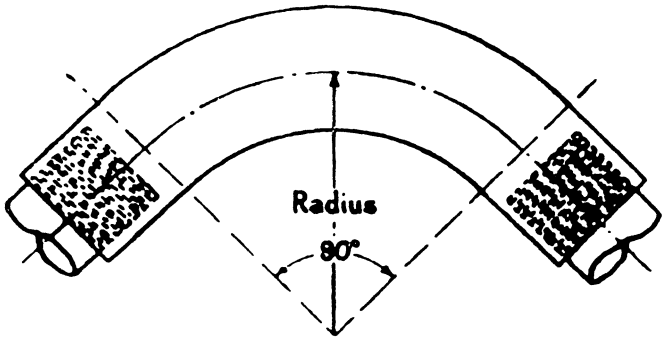


Figure 3 — Normal Bend

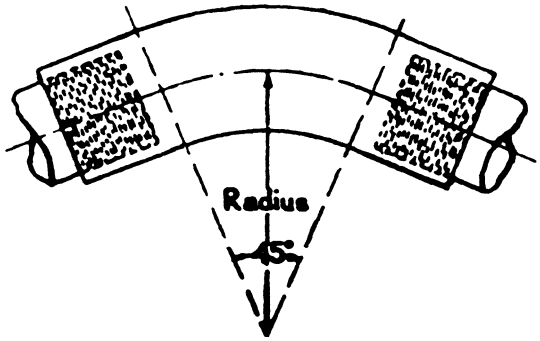
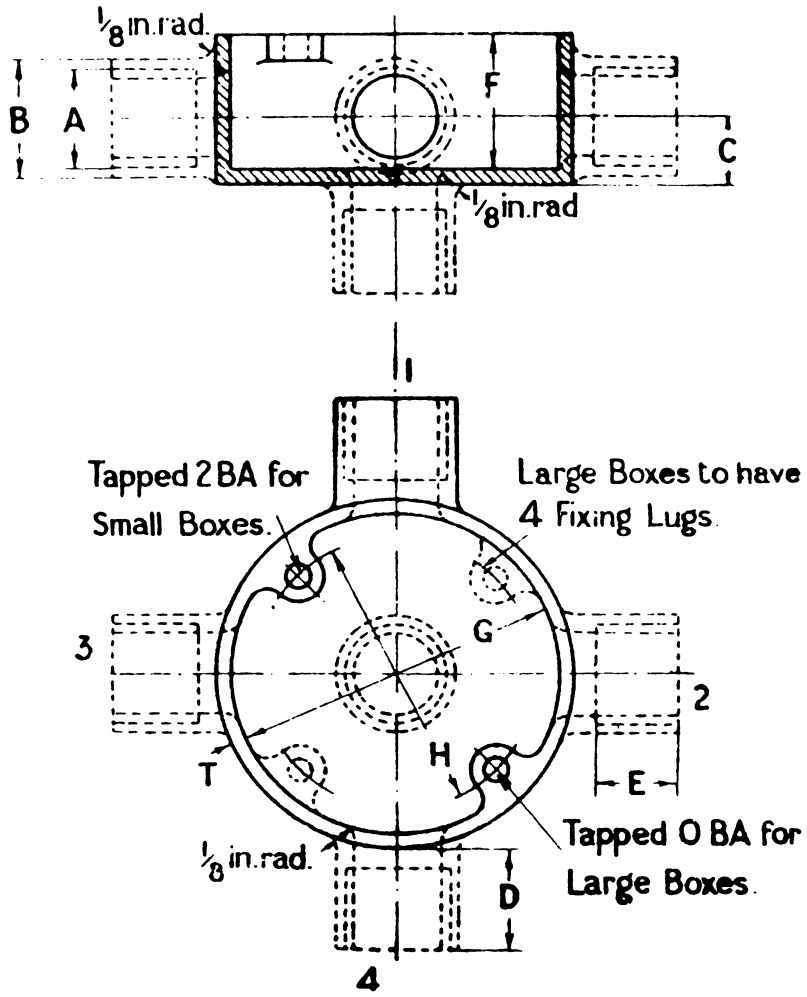


Figure 4 — Half-Normal Bend

Table 3 — Tees, elbows, normal and half-normal bends, Figure 1 to Figure 4

Conduit (outside diameter), size of...in.			$^1/_2$	$^5/_8$	$^3/_4$	1	$1^1/_4$	$1^1/_2$	2	$2^1/_2$
Minimum Radius, measured from the centre of curvature to the axis of the fittings	Elbow or Tee,	in.	$^1/_2$	$^5/_8$	$^3/_4$	1	$1^1/_4$	$1^1/_2$	2	$2^1/_2$
	Normal or Half-Normal Bend,	in.	$1^1/_2$	$1^9/_{16}$	$1^7/_8$	$2^1/_2$	$3^1/_8$	$3^3/_4$	5	$6^1/_4$
Minimum length of straight portion at ends of elbows, tees, normal and half-normal bends		in.	$^{11}/_{16}$	$^3/_4$	$^{13}/_{16}$	$^{15}/_{16}$	1	$1^1/_{16}$	$1^3/_{16}$	$1^5/_{16}$
Minimum length of tees		in.	$2^3/_8$	$2^3/_4$	$3^1/_8$	$3^7/_8$	$4^1/_2$	$5^1/_8$	$6^3/_8$	$7^5/_8$



NOTE For dimension T see Clauses **19** and **20**.

Figure 5

Table 4 —Small (Class B1) and large circular boxes (including outlet dimensions for oblong boxes), Figure 5

For all boxes (including oblong boxes)						For small circular boxes			For large circular boxes		
A (Size of conduit)	B		C	D	E[a] (Max.)	F (Min.)	G (Min.)	H[b]	F (Min.)	G (Min.)	H[b]
	Mall. C.I.	Steel									
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1/2	5/8	0.533	3/8	5/8	1/2	1	2 3/8	2	1 3/8	3 3/16	2 13/16
5/8	3/4	0.674	7/16	11/16	9/16	1	2 3/8	2	1 3/8	3 3/16	2 13/16
3/4	7/8	0.806	1/2	3/4	5/8	1	2 3/8	2	1 3/8	3 3/16	2 13/16
1	1 1/8	1.056	5/8	7/8	3/4	1 1/8	2 3/8	2	1 3/8	3 3/16	2 13/16
1 1/4	1 7/16	1.306	3/4	1	13/16	—	—	—	1 1/2	3 3/16	2 13/16
1 1/2	1 11/16	1.561	7/8	1 1/8	7/8	—	—	—	—	—	—
2	2 3/16	2.085	1 3/16	1 3/8	1	—	—	—	—	—	—
2 1/2	2 3/4	2.585	1 7/16	1 5/8	1 1/8	—	—	—	—	—	—

NOTE The provision of a shoulder at the inner end of the threaded portion of the spouts is not essential, but attention is drawn to the footnote of page 4 prohibiting the possibility of conduit being screwed right through to the interior of the fitting.

[a] E is the length of threaded portion.

[b] Not subject to the tolerance mentioned in Clause **34**.

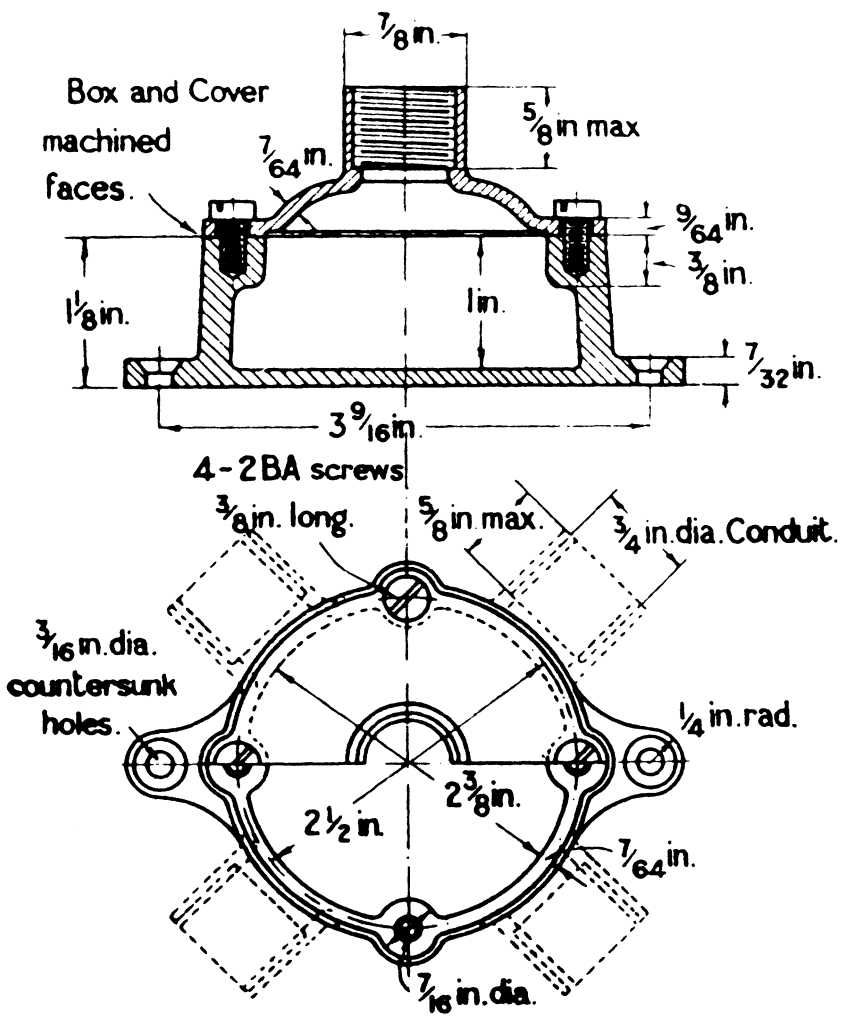
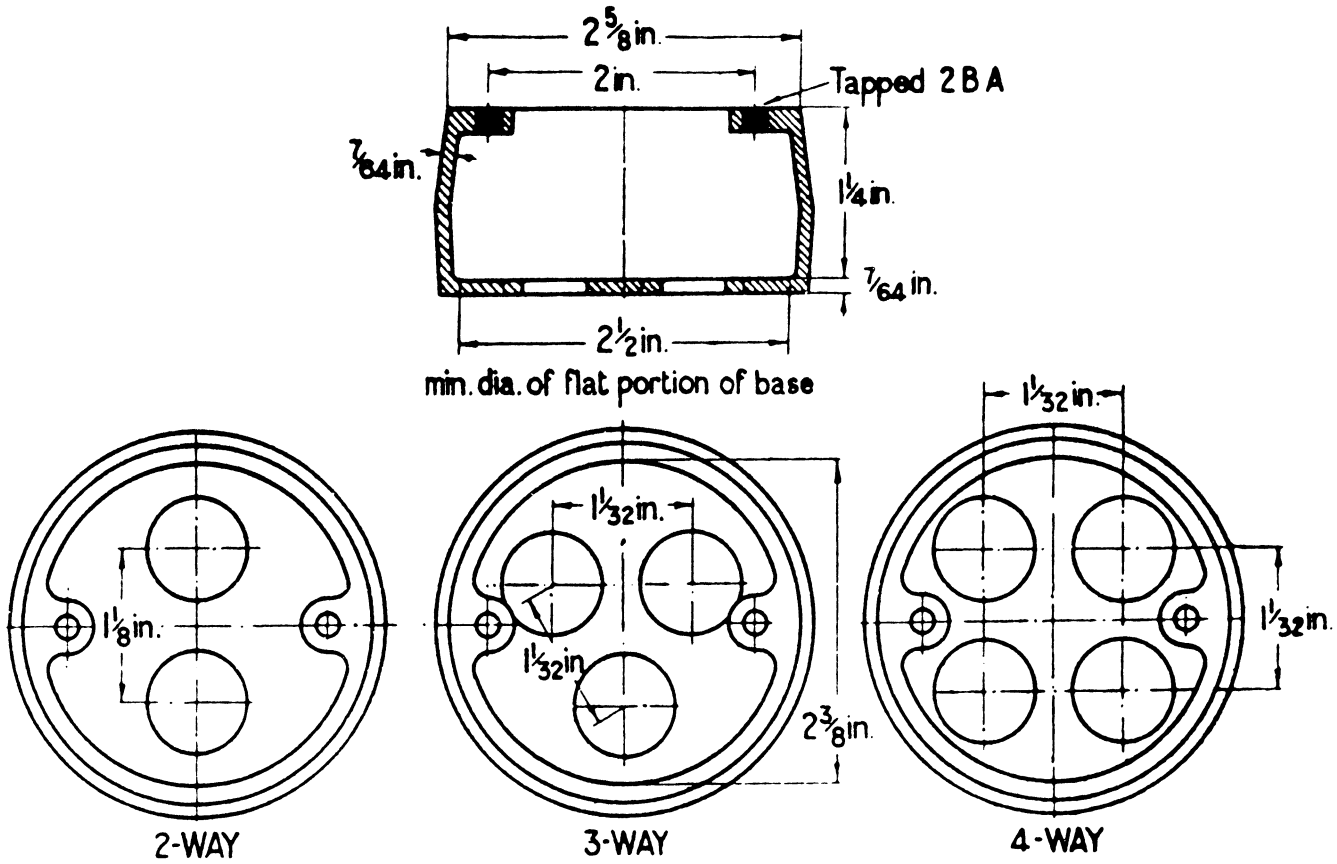


Figure 6



Diameter of holes in base to be 5/8 in. clear or 3/4 in. clear

Figure 7

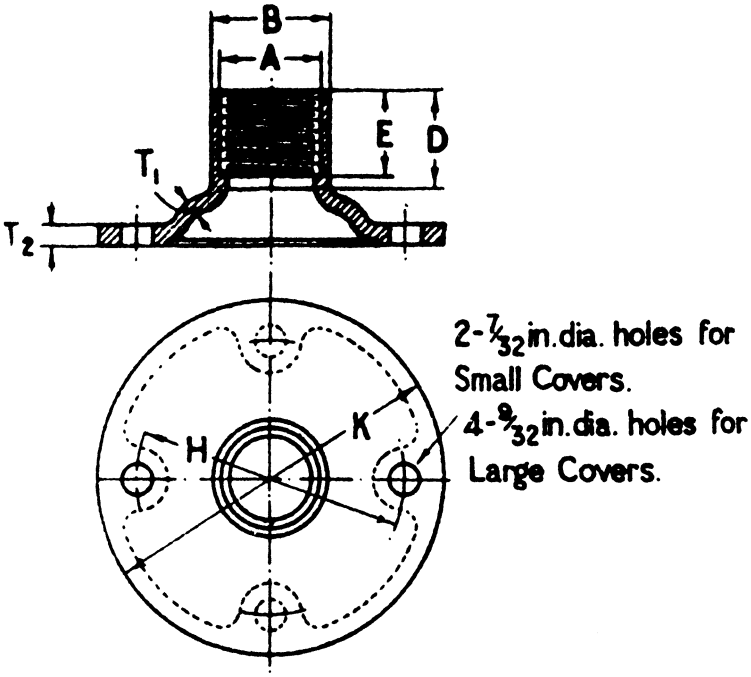


Figure 8

Table 5 — Dome covers, Figure 8

For all covers			For small covers					For large covers				
Size of conduit A	B	D	E	H	K[a]	T_1	T	E	H	K[a]	T_1	T_2
in.	in.	in.	Min. in.	in.	in.	Min. in.	Min. in.	Min. in.	in.	in.	Min. in.	Min. in.
$^5/_8$	$^3/_4$	$^{11}/_{16}$	$^9/_{16}$	2	$2^{19}/_{32}$	$^7/_{64}$	$^9/_{64}$	—	—	—	—	—
$^3/_4$	$^7/_8$	$^3/_4$	$^5/_8$	2	$2^{19}/_{32}$	$^7/_{64}$	$^9/_{64}$	$^5/_8$	$2^{13}/_{16}$	$3^{15}/_{32}$	$^3/_{16}$	$^7/_{32}$
1	$1^1/_8$	$^7/_8$	—	—	—	—	—	$^3/_4$	$2^{13}/_{16}$	$3^{15}/_{32}$	$^3/_{16}$	$^7/_{32}$

[a] Dimension K shall be increased by $^1/_2$ in., if so ordered.

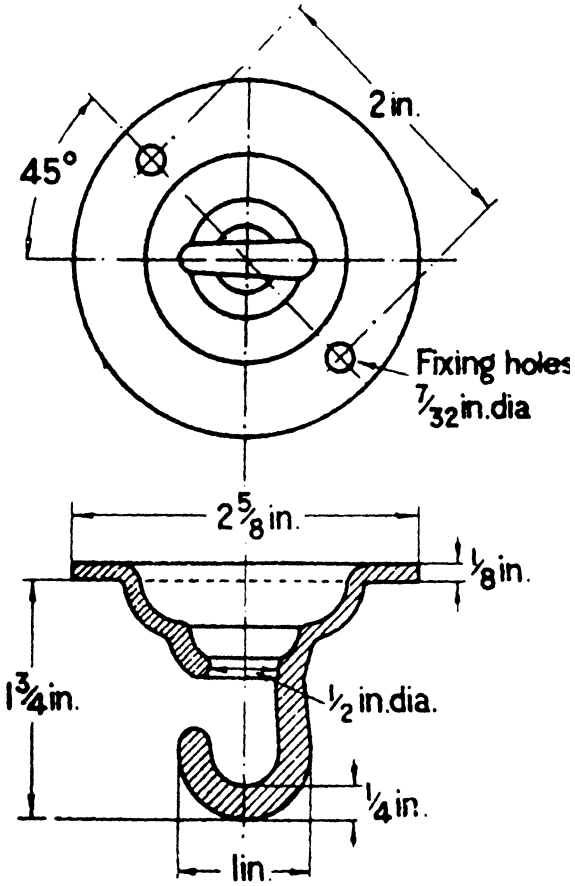
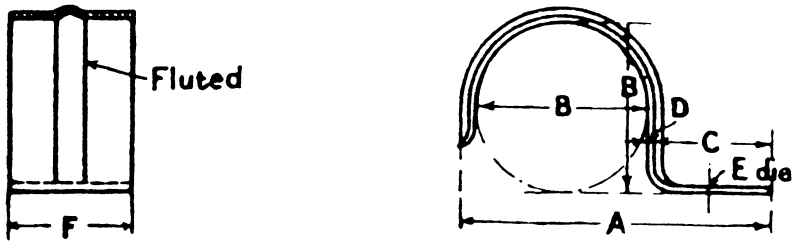


Figure 9 — Combined dome cover and hook



NOTE The number of flutes is optional.

Figure 10 — Ordinary Clip

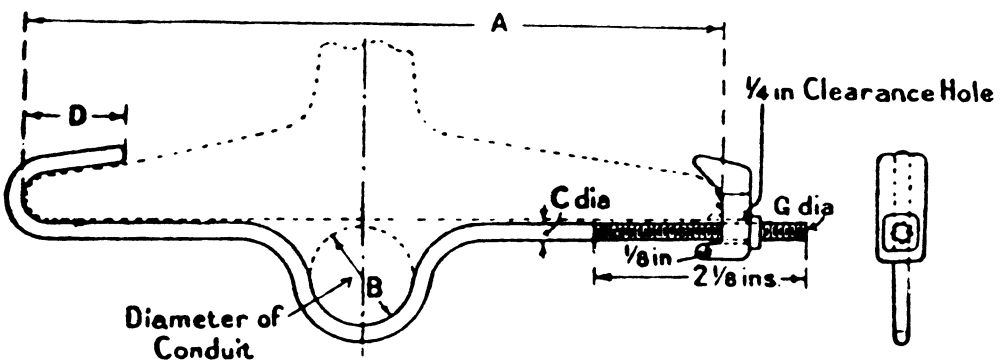
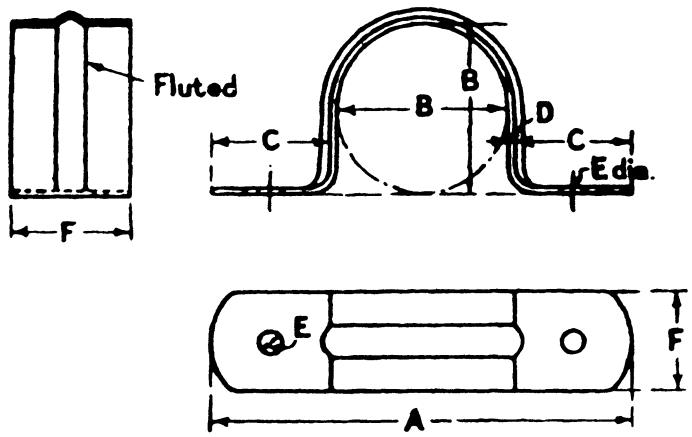


Figure 11 — Girder Clip

Table 6 — Clips, Figure 10 and Figure 11

	Size of conduit	A	B	C	D	E	F	G	H[a]
Ordinary clips (Figure 10)	in.	in.	in.	in.		in.	in.		in.
	$\frac{1}{2}$	$1\frac{1}{2}$	$\frac{1}{2}$	$\frac{5}{8}$	22 S.W.G. (.028 in.)	$\frac{5}{32}$	$\frac{5}{8}$	—	0.590
	$\frac{5}{8}$	$1\frac{9}{16}$	$\frac{5}{8}$	$\frac{5}{8}$	”	$\frac{5}{32}$	$\frac{5}{8}$	—	0.653
	$\frac{3}{4}$	$1\frac{5}{8}$	$\frac{3}{4}$	$\frac{3}{4}$	20 S.W.G. (.036 in.)	$\frac{5}{32}$	$\frac{3}{4}$	—	0.786
	1	$1\frac{7}{8}$	1	$\frac{3}{4}$	”	$\frac{3}{16}$	$\frac{3}{4}$	—	0.911
	$1\frac{1}{4}$	$2\frac{1}{4}$	$1\frac{1}{4}$	$\frac{7}{8}$	18 S.W.G. (.048 in.)	$\frac{3}{16}$	1	—	1.110
	$1\frac{1}{2}$	$2\frac{9}{16}$	$1\frac{1}{2}$	$\frac{7}{8}$	”	$\frac{3}{16}$	1	—	1.235
	2	$3\frac{1}{16}$	2	$\frac{7}{8}$	”	$\frac{3}{16}$	1	—	1.485
	$2\frac{1}{2}$	$3\frac{5}{8}$	$2\frac{1}{2}$	$\frac{7}{8}$	”	$\frac{3}{16}$	$1\frac{1}{8}$	—	1.735
Girder clips (Figure 11)	$\frac{1}{2}$	—	$\frac{1}{2}$	Min. 7 S.W.G. (.176 in.)	in. $\frac{1}{2}$	—	—	Min. 2 B.A.	—
	$\frac{5}{8}$	—	$\frac{5}{8}$	”	$\frac{5}{8}$	—	—	”	—
	$\frac{3}{4}$	—	$\frac{3}{4}$	”	$\frac{3}{4}$	—	—	”	—
	1	—	1	”	1	—	—	”	—
	$1\frac{1}{4}$	—	$1\frac{1}{4}$	”	$1\frac{1}{4}$	—	—	”	—
	$1\frac{1}{2}$	—	$1\frac{1}{2}$	”	$1\frac{1}{2}$	—	—	”	—
	2	—	2	”	2	—	—	”	—
	$2\frac{1}{2}$	—	$2\frac{1}{2}$	”	$2\frac{1}{2}$	—	—	”	—

[a] H is the distance between centre of clip and centre of fixing-hole (Figure 10).



NOTE *The number of flutes is optional.*

Figure 12 — Single Saddles

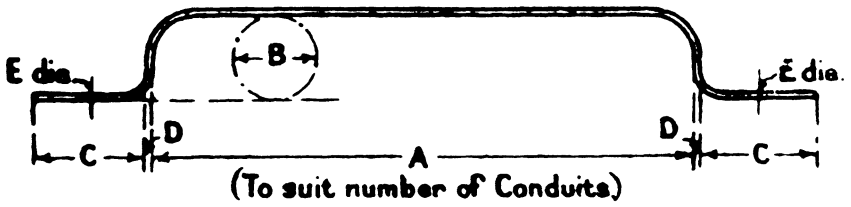


Figure 13 — Multiple Saddles

Table 7

	Size of conduit	A	B	C	D	E	F	H[a]
	in.	in.	in.	in.		in.	in.	in.
Single saddles (Figure 12)	1/2	1 13/16	1/2	5/8	22 S.W.G. (.028 in.)	5/32	5/8	1.18
	5/8	1 15/16	5/8	5/8	"	5/32	5/8	1.31
	3/4	2 5/16	3/4	3/4	20 S.W.G. (.036 in.)	5/32	3/4	1.57
	1	2 9/16	1	3/4	"	3/16	3/4	1.82
	1 1/4	3 1/16	1 1/4	7/8	18 S.W.G. (.048 in.)	3/16	1	2.22
	1 1/2	3 11/32	1 1/2	7/8	"	3/16	1	2.47
	2	3 27/32	2	7/8	"	3/16	1	2.97
	2 1/2	4 11/32	2 1/2	7/8	"	3/16	1	3.47
Multiple saddles (Figure 13)	1/2	—	1/2	5/8	22 S.W.G. (.028 in.)	5/32	5/8	—
	5/8	—	5/8	5/8	"	5/32	5/8	—
	3/4	—	3/4	3/4	20 S.W.G. (.036 in.)	5/32	3/4	—
	1	—	1	3/4	"	5/32	3/4	—
	1 1/4	—	1 1/4	7/8	18 S.W.G. (.048 in.)	3/16	1	—
	1 1/2	—	1 1/2	7/8	"	3/16	1	—
	2	—	2	7/8	"	3/16	1	—
	2 1/2	—	2 1/2	7/8	"	3/16	1	—

[a] H is the distance between centres of fixing-holes (Figure 12).

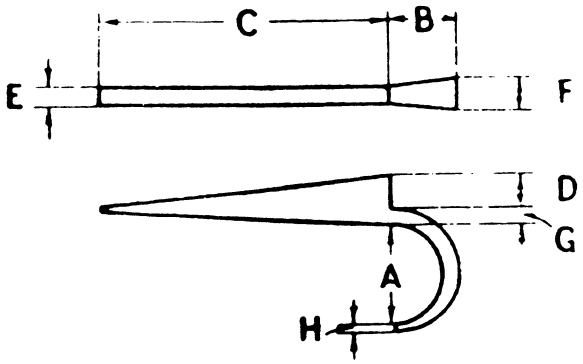


Figure 14 — Pipe hooks

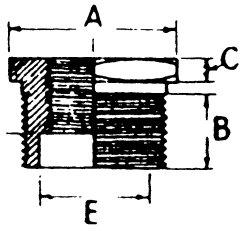


Figure 15 — Screwed reducer

Table 8 — Pipe hooks, screwed reducers and iron

	Size of conduit	A	B	C	D	E	F	G	H
	in.	in.	in.	in.	Min. in.	Min. in.	Min. in.	Min. in.	Min.[b] in.
Pipe hooks (Figure 14)	1/2	1/2	3/8	1 3/4	1/4	1/8	1/4	1/8	1/16
	5/8	5/8	7/16	1 7/8	1/4	1/8	1/4	1/8	1/16
	3/4	3/4	1/2	2 1/8	1/4	1/8	1/4	1/8	1/16
	1	1	5/8	2 3/8	1/4	5/32	5/16	3/16	3/32
	1 1/4	1 1/4	3/4	3	1/4	5/32	5/16	3/16	3/32
	1 1/2	1 1/2	7/8	3 1/8	1/4	3/16	3/8	3/16	3/32
	2	2	1 1/8	3 1/2	1/4	3/16	3/8	3/16	3/32
	2 1/2	2 1/2	1 1/4	4	1/4	7/32	7/16	1/4	1/8
		Max.							
Screwed reducers (Figure 15) (A = width across flats)	3/4 to 5/8	7/8	7/16	1/8	[a]	—	—	—	—
	1 " 3/4	1 3/32	9/16	1/8	9/16	13/16	—	—	—
	1 1/4 " 3/4	1 1/4	5/8	5/32	9/16	1 1/16	—	—	—
	1 1/2 " 3/4	1 1/2	21/32	7/32	9/16	1 5/16	—	—	—
	2 " 3/4	2 1/8	3/4	1/4	9/16	1 13/16	—	—	—
	1 1/4 " 1	1 1/4	3/4	5/32	11/16	1 1/16	—	—	—
	1 1/2 " 1	1 1/2	21/32	7/32	11/16	1 5/16	—	—	—
	2 " 1	2 1/8	3/4	1/4	11/16	1 13/16	—	—	—
	1 1/2 " 1 1/4	1 1/2	21/32	7/32	3/4	1 5/16	—	—	—
	2 " 1 1/4	2 1/8	3/4	1/4	3/4	1 13/16	—	—	—
	2 " 1 1/2	2 1/8	3/4	1/4	13/16	1 13/16	—	—	—
	2 1/2 " 1 1/2	2 5/8	1	1/4	13/16	2 1/16	—	—	—
	2 1/2 " 2	2 5/8	1	1/4	1 1/16	2 1/16	—	—	—
		Max.							
Iron plugs (Figure 16) (A = Width across flats)	1/2	11/16	1/4	1/8	3/8	—	—	—	—
	5/8	13/16	9/32	1/8	13/32	—	—	—	—
	3/4	7/8	5/16	1/8	7/16	—	—	—	—
	1	1 3/32	3/8	1/8	1/2	—	—	—	—
	1 1/4	1 1/4	13/32	5/32	9/16	—	—	—	—
	1 1/2	1 1/2	7/16	7/32	21/32	—	—	—	—
	2	2 1/8	1/2	1/4	3/4	—	—	—	—
	2 1/2	2 5/8	9/16	1/4	13/16	—	—	—	—

[a] The 3/4 to 5/8 in. reducer is threaded internally right through.
[b] Thickness of hook to be of uniform taper from dimensions G to H.

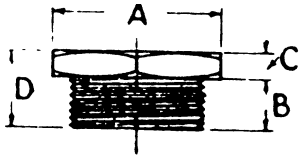


Figure 16 — Iron plug

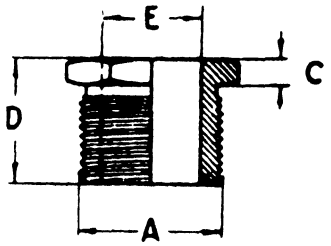


Figure 17a — Bush with male thread

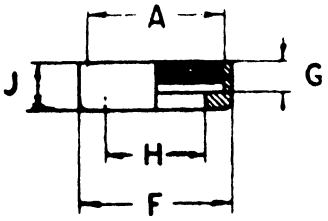


Figure 17b — Bush with female thread

Table 9 — Entry bushes, Figure 17

Size of bush	Entry bush with male thread				Entry bush with female thread			
	Width across flats	Thickness of hexagon	Length overall (min.)	Bore	External diameter	Length of thread	Bore	Depth overall
A	B	C	D	E	F	G	H	J
in.	in.	in.	in.	in.	in.	in.	in.	in.
$^{5}/_{8}$	$^{11}/_{16}$	$^{3}/_{16}$	$^{3}/_{4}$	$^{7}/_{16}$	$^{3}/_{4}$	$^{3}/_{16}$	$^{7}/_{16}$	$^{5}/_{16}$
$^{3}/_{4}$	$^{13}/_{16}$	$^{3}/_{16}$	$^{13}/_{16}$	$^{17}/_{32}$	$^{7}/_{8}$	$^{3}/_{16}$	$^{9}/_{16}$	$^{5}/_{16}$
1	$1^{3}/_{32}$	$^{3}/_{16}$	$^{15}/_{16}$	$^{3}/_{4}$	$1^{1}/_{8}$	$^{7}/_{32}$	$^{3}/_{4}$	$^{11}/_{32}$
$1^{1}/_{4}$	$1^{3}/_{8}$	$^{7}/_{32}$	$1^{1}/_{32}$	$1^{1}/_{32}$	$1^{3}/_{8}$	$^{7}/_{32}$	$1^{1}/_{32}$	$^{11}/_{32}$
$1^{1}/_{2}$	$1^{5}/_{8}$	$^{7}/_{32}$	$1^{3}/_{32}$	$1^{7}/_{32}$	$1^{5}/_{8}$	$^{5}/_{16}$	$1^{1}/_{4}$	$^{7}/_{16}$
2	$2^{1}/_{8}$	$^{1}/_{4}$	$1^{1}/_{4}$	$1^{3}/_{4}$	$2^{3}/_{16}$	$^{11}/_{32}$	$1^{3}/_{4}$	$^{15}/_{32}$

Appendix A Gauging

A.1 Outside diameter of conduit

Limits of tolerances for the outside diameter of conduit are stated in Clause **4**.

It is recommended that limit gap gauges made to the sizes given in Table 10 and Table 11 should be used for the final inspection of the outside diameter of conduit.

Table 10 — Limit gap gauges for inspection of outside diameter of plain conduits (Class A)

Nominal size of conduit	Limits for "Go" gap gauge	Limits for "Not Go" gap gauge	Thickness of gauge
in.	in.	in.	in.
1/2	0.501 0 to 0.501 3	0.495 0 to 0.494 7	1/4
5/8	0.626 0 to 0.626 3	0.620 0 to 0.619 7	1/4
3/4	0.751 0 to 0.751 3	0.745 0 to 0.744 7	1/4
1	1.001 0 to 1.001 3	0.995 0 to 0.994 7	5/16
1 1/4	1.251 0 to 1.251 3	1.245 0 to 1.244 7	5/16
1 1/2	1.501 0 to 1.501 3	1.495 0 to 1.494 7	5/16
2	2.001 0 to 2.001 4	1.995 0 to 1.994 6	3/8
2 1/2	2.501 0 to 2.501 4	2.495 0 to 2.494 6	3/8

NOTE For convenience, both the "Go" and the "Not Go" gaps for each size may be formed in one plate.

Table 11 — Limit gap gauges for inspection of outside diameter of screwed conduit (Class B)

Nominal size of conduit	Limits for "Go" gap gauge	Limits for "Not Go" gap gauge	Thickness of gauge
in.	in.	in.	in.
1/2	0.501 0 to 0.501 3	0.489 4 to 0.489 1	1/4
5/8	0.626 0 to 0.626 3	0.614 4 to 0.614 1	1/4
3/4	0.751 0 to 0.751 3	0.738 7 to 0.738 4	1/4
1	1.001 0 to 1.001 3	0.988 7 to 0.988 4	5/16
1 1/4	1.251 0 to 1.251 3	1.238 7 to 1.238 4	5/16
1 1/2	1.501 0 to 1.501 3	1.488 0 to 1.487 7	5/16
2	2.001 0 to 2.001 4	1.988 0 to 1.987 6	3/8
2 1/2	2.501 0 to 2.501 4	2.488 0 to 2.487 6	3/8

NOTE For convenience, both the "Go" and "Not Go" gaps for each size may be formed in one plate.

A.2 Inspection gauges for screw threads

a) *For Threads on Conduit*. In order to ensure that the threads on conduit do not exceed the maximum sizes specified in Table A, they should be tested with "Go" full-form screw gauges made to the nominal sizes given in Table 12. These gauges may be of the usual ring type or of other suitable form.

"Not Go" gauges should be used to ensure that the full diameter of the thread does not fall below the minimum size specified in Table A. These gauges should be made to the nominal sizes stated in Table 12.

Table 12 — Limit gauges for threads on conduit (Class B)

Conduit size	"Go" full-form ring (or calliper) screw gauge		"Not Go" gap gauge for crests of thread[a]	
	Nominal size	Length of thread	Nominal size	Width
in.	in.	in.	in.	in.
1/2	0.500 0 × 18 T.P.I. Whit.	7/16	0.489 4	1/4
5/8	0.625 0 × 18 T.P.I. Whit.	1/2	0.614 4	1/4
3/4	0.750 0 × 16 T.P.I. Whit.	9/16	0.738 7	1/4
1	1.000 0 × 16 T.P.I. Whit.	11/16	0.988 7	5/16
1 1/4	1.250 0 × 16 T.P.I. Whit.	3/4	1.238 7	5/16
1 1/2	1.500 0 × 14 T.P.I. Whit.	13/16	1.488 0	5/16
2	2.000 0 × 14 T.P.I. Whit.	15/16	1.988 0	3/8
2 1/2	2.500 0 × 14 T.P.I. Whit.	1 1/16	2.488 0	3/8

[a] This gauge is the same as the "Not Go" gap gauge for the body of Class B conduit, as given in Table 11.

The following limits of tolerance are recommended for the above gauges when used for final inspection of conduit.

Table 13

		Limits of tolerance for inspection gauges	
		Up to and including 1 1/2 in.	Above 1 1/2 in.
		in.	in.
"Go" full-form ring (or calliper) screw gauge	Full dia.	+ 0.000 9 – 0.000 0	+ 0.001 4 – 0.000 0
	Eff. dia.	+ 0.000 6 – 0.000 0	+ 0.000 9 – 0.000 0
	Core dia.	+ 0.000 6 – 0.000 0	+ 0.000 9 – 0.000 0
"Not Go" gap gauge[a]		+ 0.000 0 – 0.000 3	+ 0.000 0 – 0.000 4

[a] This gauge is the same as the "Not Go" gap gauge for the body of Class B conduit, as given in the Table 11.

b) *For Threads in Couplers and Fittings.* The threads in couplers and fittings should be tested with a "Go" full-form plug screw gauge made to the nominal sizes given in Table 14. The crests of the threads at the core diameter should also be tested with "Not Go" cylindrical plug gauges the nominal sizes of which are also given in Table 14.

Table 14 — Limit gauges for threads in couplers and fittings

Conduit size	"Go" full-form plug screw gauge		"Not Go" cylindrical plug gauge for core diameter	
	Nominal size	Length of thread	Nominal size	Length of plug
in.	in.	in.	in.	in.
$^1/_2$	0.500 0 × 18 T.P.I. Whit.	$^7/_{16}$	0.439 5	$^3/_8$
$^5/_8$	0.625 0 × 18 T.P.I. Whit.	$^1/_2$	0.564 5	$^3/_8$
$^3/_4$	0.750 0 × 16 T.P.I. Whit.	$^9/_{16}$	0.681 3	$^3/_8$
1	1.000 0 × 16 T.P.I. Whit.	$^{11}/_{16}$	0.931 3	$^7/_{16}$
$1^1/_4$	1.250 0 × 16 T.P.I. Whit.	$^3/_4$	1.181 3	$^7/_{16}$
$1^1/_2$	1.500 0 × 14 T.P.I. Whit.	$^{13}/_{16}$	1.420 5	$^9/_{16}$
2	2.000 0 × 14 T.P.I. Whit.	$^{15}/_{16}$	1.920 5	$^5/_8$
$2^1/_2$	2.500 0 × 14 T.P.I. Whit.	$1^1/_{16}$	2.420 5	$^{11}/_{16}$

NOTE The "Go" screw and "Not Go" plug gauges may be combined on one handle if desired.

The following limits of tolerance are recommended for the above gauges when used for final inspection of couplers and fittings.

Table 15

		Limits of tolerance for inspection gauges	
		Up to and including $1^1/_2$ in.	Above $1^1/_2$ in.
		in.	in.
"Go" full-form plug screw gauge	Full dia.	+ 0.000 0 – 0.000 6	+ 0.000 0 – 0.000 9
	Eff. dia.	+ 0.000 0 – 0.000 6	+ 0.000 0 – 0.000 9
	Core dia.	+ 0.000 0 – 0.000 9	+ 0.000 0 – 0.001 4
"Not Go" plug gauge for core diameter		+ 0.000 3 – 0.000 0	+ 0.000 4 – 0.000 0

A.3 Workshop gauges

The inspection gauges referred to above are intended for use during final inspection of the work. All work which falls within the prescribed limits will be passed by these gauges, since the directions of the gauge tolerances are such that their limits do not encroach upon the tolerances allowed for the work.

Workshop gauges required for use during the production of the work or at any time previous to the final inspection, may be of the same type as the inspection gauge, but they should be made to limits which slightly overlap those laid down for the work. This ensures that all work which satisfies the workshop gauges will be accepted without hesitation during the final test with the inspection gauges.

Appendix B Approximate metric equivalents

The figures in British measures in this Specification are to be regarded as the Standard. The following approximate metric equivalents are given for convenience of users in countries in which the metric system has been generally adopted.

Outside diameter of conduit	
in.	mm. (approx.)
1/2	12.70
5/8	15.88
3/4	19.05
7/8	22.23
1	25.40
1 1/4	31.75
1 1/2	38.10
2	50.80
2 1/2	63.50

Appendix C Pipe hooks

The pipe hooks specified in Clause **29**, Figure 14 and Table 8 are suitable for use with gas and water pipes as well as conduit.

The following Table shows the relation between the sizes of conduit and those of gas or water pipes; thus enabling the appropriate size of hook to be selected.

External diameter of tubing		Trade size of tubing	
Gas and water	**Conduit**	**Gas and water**	**Conduit**
in.	in.	in.	in.
17/32	1/2	1/4	1/2
11/16	5/8	3/8	5/8
27/32	3/4	1/2	3/4
15/16	1	5/8	1
1 1/16	1	3/4	
1 7/32	1 1/4	7/8	1 1/4
1 11/32	1 1/4	1	
1 11/16	1 1/2	1 1/4	1 1/2
1 29/32	2	1 1/2	2
2 5/32	2	1 3/4	
2 3/8	2 1/2	2	2 1/2

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