

Specification for

Hose couplings for petrol, oil and lubricants —

($\frac{3}{4}$ in. to 4 in. nominal sizes)

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British Electricity Authority and Area Board	Institution of Production Engineers
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Association of Mining and Electrical Engineers	Federation of Painting Contractors
British Wrapped Rubber Hose Manufacturers Association	Institution of Municipal Engineers
Council of British Manufacturers of Petroleum Equipment	Institution of Water Engineers
Cut Thread Screwing Tool Manufacturers Association	National Association of Colliery Managers
Federation of British Rubber Manufacturers Associations	National Benzole Association
Federation of Civil Engineering Contractors	National Coal Board
Federation of Manufacturers of Contractors Plant	Oil Companies Materials Committee
	Institution of Water Engineers
	Inter-Service Oil Distribution Technical Committee
	Individual manufacturers of couplings

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Foreword

This standard makes reference to the following British Standards:—

BS 192, *B.S.W. and B.S.F. open-ended carbon steel spanners.*

BS 218, *Leaded brass (58 per cent copper, 2 per cent lead) forging stock and forgings.*

BS 249, *Leaded brass (58 per cent copper, 3 per cent lead) rods and sections (other than forging stock).*

BS 1400, *Schedule for copper alloy ingots and copper and copper alloy castings.*

BS 2090, *Hook spanners, peg spanners, coupling wrenches and the related slots, holes and horns.*

BS 2779, *Fastening threads of B.S.P. sizes.*

and to the following American Specifications:—

ASA.B.33.1, *Hose coupling screw threads.*

API STD.5L, *Line pipe.*

API STD.6.A, *Threads in valves, fittings and flanges.*

This British Standard has been prepared under the authority of the Mechanical Engineering Industry Standards Committee in response to a request from the Joint Services Committee.

These couplings have been designed primarily for duties in connection with filling and discharging of rail and road cars and dispensing equipment.

Two forms of screw threads have been specified for the couplings: Whitworth (B.S.P.) threads in accordance with BS 84¹⁾, and American threads in accordance with ASA specification B33.1 ($\frac{3}{4}$ in. to 2 in.) and with Federal Standard Stock Catalogue ZZ-H-466b (November, 1935) ($2\frac{1}{2}$ in. to 4 in.) (see Appendix A and Appendix B). These latter threads have been specified to ensure that the couplings connect with oil equipment screwed in accordance with API STD. 5L and 6A.

Appendix A and Appendix B have been included, giving the dimensions and tolerances of the American hose-coupling screw threads, but details of the pilot at the beginning of the male thread and the length of the nipple have been excluded.

The couplings may be secured to the hose by clamps, by clips or by other suitable means. It is essential that suitable hose be used in conjunction with the couplings covered by this standard. Such hose should be sufficiently thick and heavy to withstand the pressure required (see Clause 1, last paragraph) but it should be pliable enough to enable it to be compressed on to the coupling for attachment purposes.

This standard forms one of a series for hose couplings, the other British Standards in this series being:—

BS 336, *Fire hose and suction hose couplings, branch pipes and nozzle connections.*

BS 1782, *Hose couplings ($1\frac{1}{2}$ in. to 8 in. nominal sizes) other than fire hose couplings.*

BS 1906, *Hose couplings (air and water) ($1\frac{1}{8}$ in. to $1\frac{1}{4}$ in. nominal sizes).*

¹⁾ BS 84, "Screw threads of Whitworth form".

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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 44 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.

1 Scope

This British Standard applies to the following types of reduced bore couplings and adaptors:—

- a) Couplings with ribbed tail-ends and hexagons (see Table 1a, Table 1b, Table 5 and Table 7) for $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2, $2\frac{1}{2}$, 3 and 4 in. hose.
- b) Couplings with serrated tail-ends and hexagons (see Table 2, Table 6 and Table 7) for $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2, $2\frac{1}{2}$, 3 and 4 in. hose.
- c) Couplings with ribbed tail-ends and rectangular horns (see Table 3, Table 5 and Table 8) for $1\frac{1}{2}$, 2, $2\frac{1}{2}$, 3 and 4 in. hose.
- d) Couplings with serrated tail-ends and round horns (see Table 4, Table 6 and Table 9) for $1\frac{1}{2}$, 2, $2\frac{1}{2}$, 3 and 4 in. hose.
- e) Adaptor: double ended union, with hexagons and with male threads at both ends (see Table 10).
- f) Adaptor: swivelling type with hexagons, or with round horns, and with female threads at both ends (see Table 11 and Table 12).
- g) Caps (see Table 13).
- h) Plugs (see Table 14).

The maximum pressures recommended for the couplings when they are attached to suitable hoses (see Foreword, paragraph 6) are as follows:

- 100 lb/sq. in. when the hose is secured to the coupling by wire binding.
- 150 lb/sq. in. when the hose is secured to the ribbed type of coupling by suitable clips.

2 Information to be supplied by the purchaser

The purchaser shall give, in his enquiry and order, the following information:—

- a) The type of coupling required, i.e. whether with hexagons, or with rectangular or round horns.
- b) Whether the tail-ends shall be ribbed or serrated. (Particular attention is drawn to the footnotes to Table 5 and Table 6)
- c) The form of screwthread required (see Clause 7).

3 Designation of sizes of couplings

The size by which the coupling is designated shall be the nominal bore of the hose with which it is to be used.

4 Materials

The material used in the manufacture of the couplings and adaptors shall be as follows:—

- a) Gunmetal castings complying with Specification LG2-C of BS 1400.²⁾
- b) Brass castings complying with Specifications B2-C and B3-C of BS 1400.
- c) Brass bars complying with BS 249.³⁾
- d) Hot pressings complying with BS 218⁴⁾ are permissible but the purchaser shall be given prior notification by the manufacturer of his intentions to supply hot pressings.

5 Dimensions

The dimensions of couplings and adaptors shall conform to those shown on Figure 7 to Figure 22 and in Table 1 to Table 14.

NOTE The illustrations in this standard are diagrammatic only, and are solely for the purpose of indicating where the specified dimensions apply.

6 Workmanship

Workmanship shall be of good quality. All burrs and sharp edges shall be removed and the couplings shall have a smooth finish.

NOTE The term “smooth finish” in this clause refers, in the case of castings, to clean cored waterways, all exterior surfaces, except round horns and tails, being fettled and wire brushed.

7 Screw threads

The couplings shall be screwed with either:

- a) Whitworth (B.S.P.) threads, “free fit” as specified in BS 2779⁵⁾,
- or
- b) American hose threads as specified in Appendix A and Appendix B.

The first thread on all male and female threads shall be chamfered to 45°.

The purchaser shall state in his enquiry and order which threads he requires [see Clause 2 c)].

8 Washers

Washers shall be made of specially selected leather, synthetic rubber, rubber asbestos compound or other suitable material as specified by the purchaser. When not so specified the purchaser shall be given prior notification by the manufacturer of the type and quality of washer he intends to supply.

²⁾ BS 1400, “Schedule for copper alloy ingots and copper and copper alloy castings”.

³⁾ BS 249, “Leaded brass (58 per cent copper, 3 per cent lead) rods and sections (other than forging stock)”.

⁴⁾ BS 218, “Leaded brass (58 per cent copper, 2 per cent lead) forging stock and forgings”.

⁵⁾ BS 2779, “Fastening threads of B.S.P. sizes”.

9 Bonding

Means shall be provided on the couplings for electrical bonding but the method to be used shall be agreed between the purchaser and the manufacturer.

NOTE The method of electrical bonding to be used on the couplings will vary according to the type of hose employed, but the method to be adopted must comply with any Government instructions and with the relevant requirements of the petroleum industry.

10 Wrenches and spanners

Wrenches for use with the rectangular horned type couplings shall conform to the dimensions given in Figure 23 and Table 15, and those for use on round horned couplings shall conform to the dimensions given in Figure 24 and Table 16 and may be made of ferrous or non-ferrous materials. These wrenches are also specified in BS 2090⁶⁾. Spanners shall comply with BS 192⁷⁾.

11 Identification marking

Each set of couplings shall be legibly and permanently marked with the manufacturer's identification and the number of this British Standard, i.e. BS 2464.

Each female tail-end for use with the 2¹/₂ in. coupling screwed with B.S.P. threads shall be marked with the symbols "B.S.P." (see the footnotes to Table 5 to Table 6).

In addition, couplings shall be marked with the following letters to indicate the type of screw thread on the couplings:—

B.S.P. — for Whitworth (B.S.P.) threads complying with BS 2779.⁸⁾

Am. — for American threads (see Appendix A and Appendix B).

The male tail-ends shall be clearly marked near the screwed end as follows:

RIB — to indicate a ribbed tail-end
or SER — to indicate a serrated tail-end.

12 Hydrostatic test

All couplings, when assembled without hose, shall be subjected to a hydrostatic test of 200 lb/sq. in. It shall be applied after all machining operations have been completed. This test is for the purpose of locating flaws in the material after machining, and also to test the merits of the joint.

When couplings are being assembled for the hydrostatic test, only the appropriate standard wrench or spanner shall be used in tightening them. Use shall not be made of an extension on the handle of the wrench or spanner, or of other means to produce excessive tightness. Couplings complying with this standard shall not show signs of leakage during this test by reason either of defective joint or of other defects.

When required, this test shall be applied in the presence of the purchaser or his representative.

13 Inspection

The purchaser or his representative shall have access, at all reasonable times, to those portions of the works in which the testing is taking place.

14 Test facilities

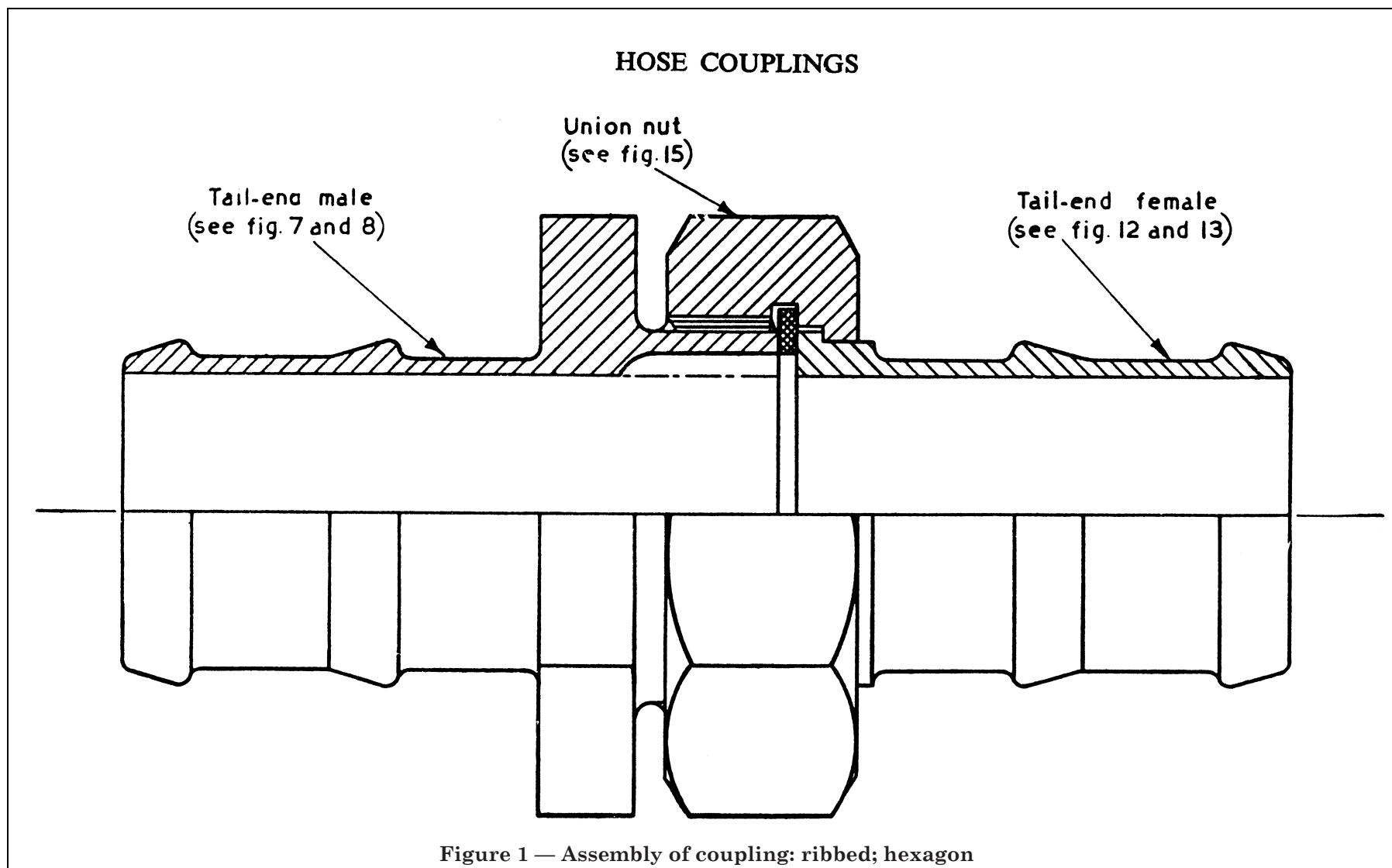
The manufacturer shall supply, at his own cost, labour and appliances for making the tests on his premises in accordance with this standard. Failing the existence of facilities for making the prescribed tests at his own works the manufacturer shall be responsible for having the tests made elsewhere.

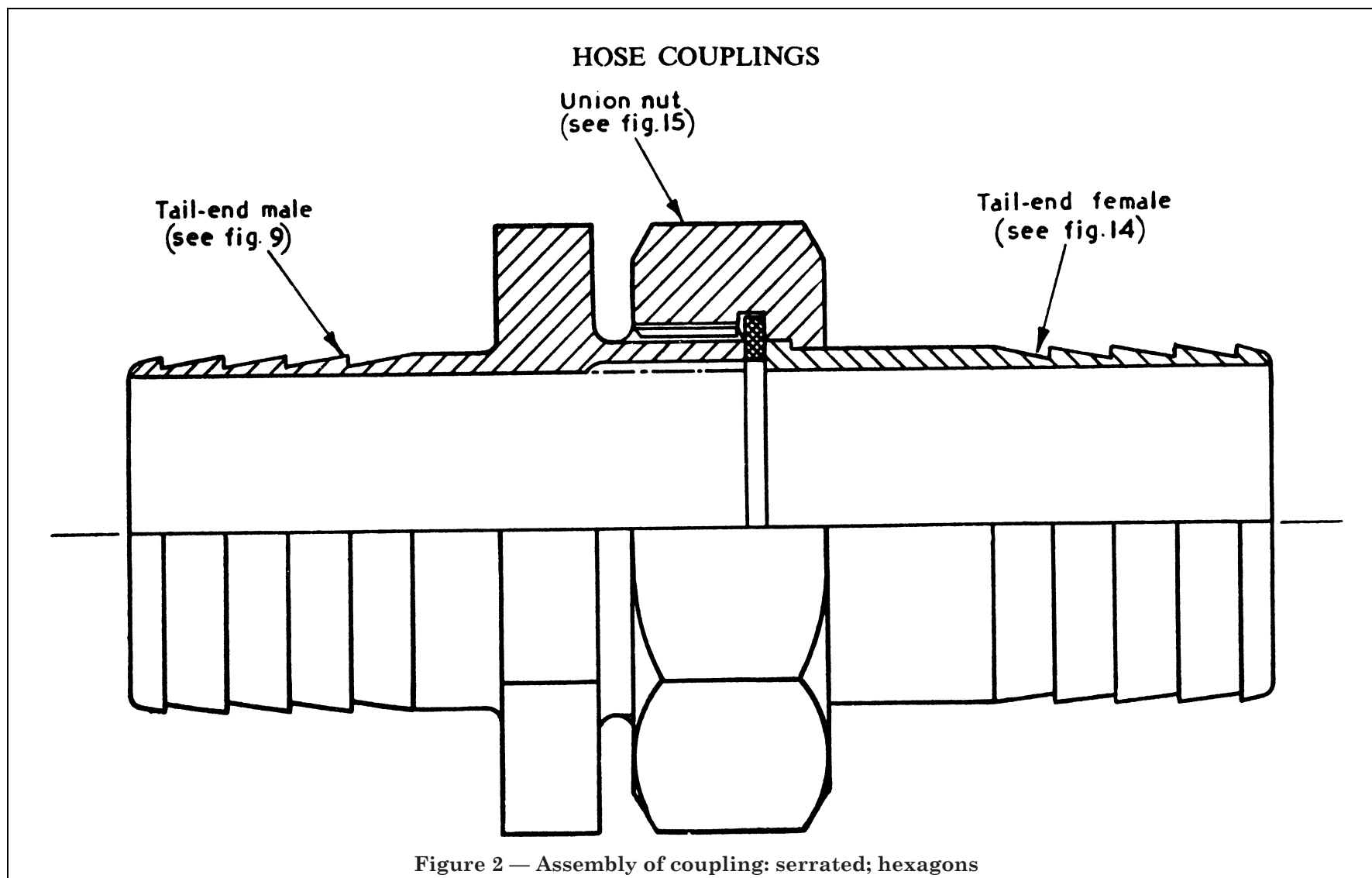
Illustrations of couplings and tables of dimensions
(are shown on following pages)

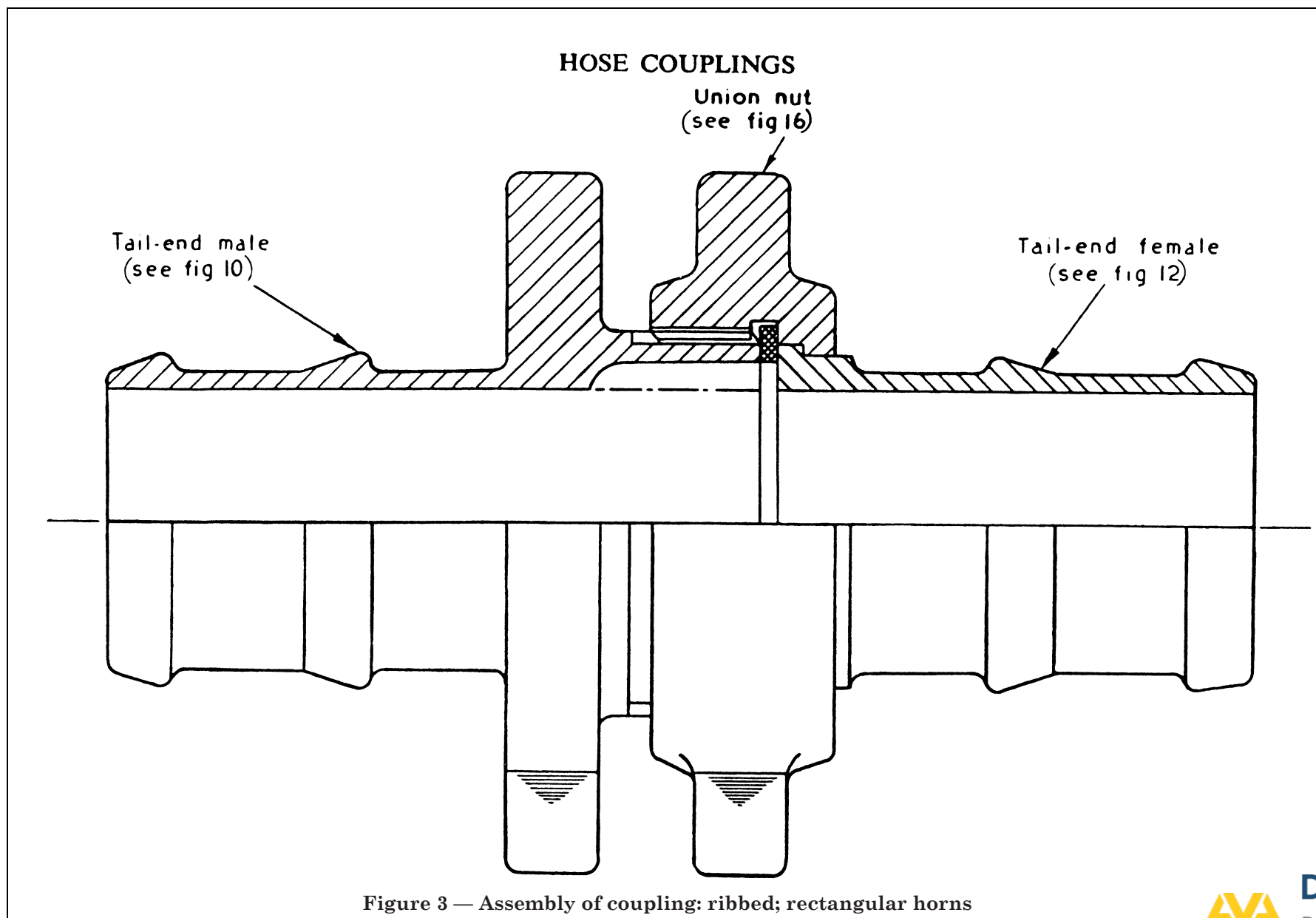
⁶⁾ BS 2090, "Hook spanners, peg spanners, coupling wrenches and the related slots holes and horns".

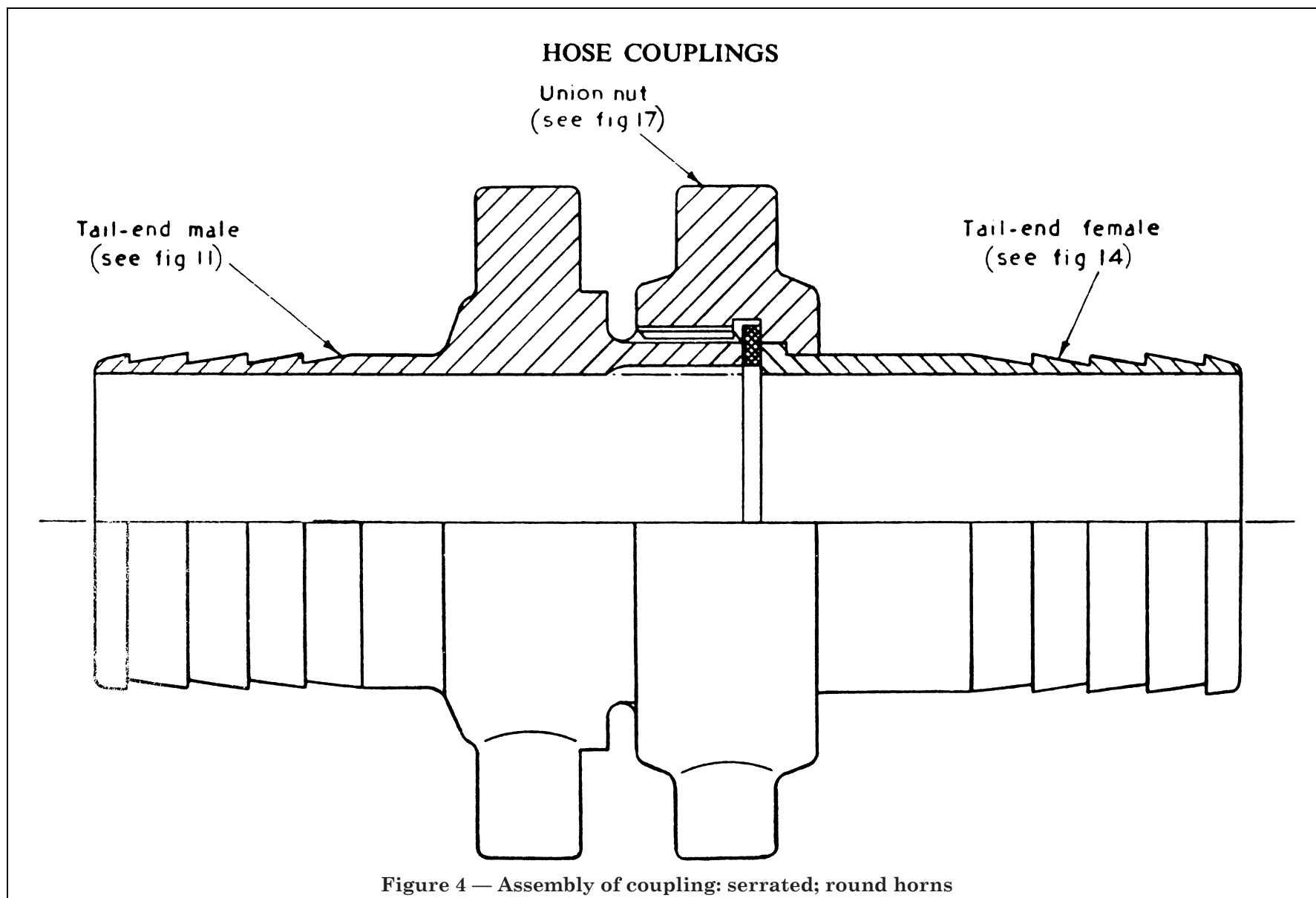
⁷⁾ BS 192, "B.S.W. and B.S.F. open-ended carbon steel spanners".

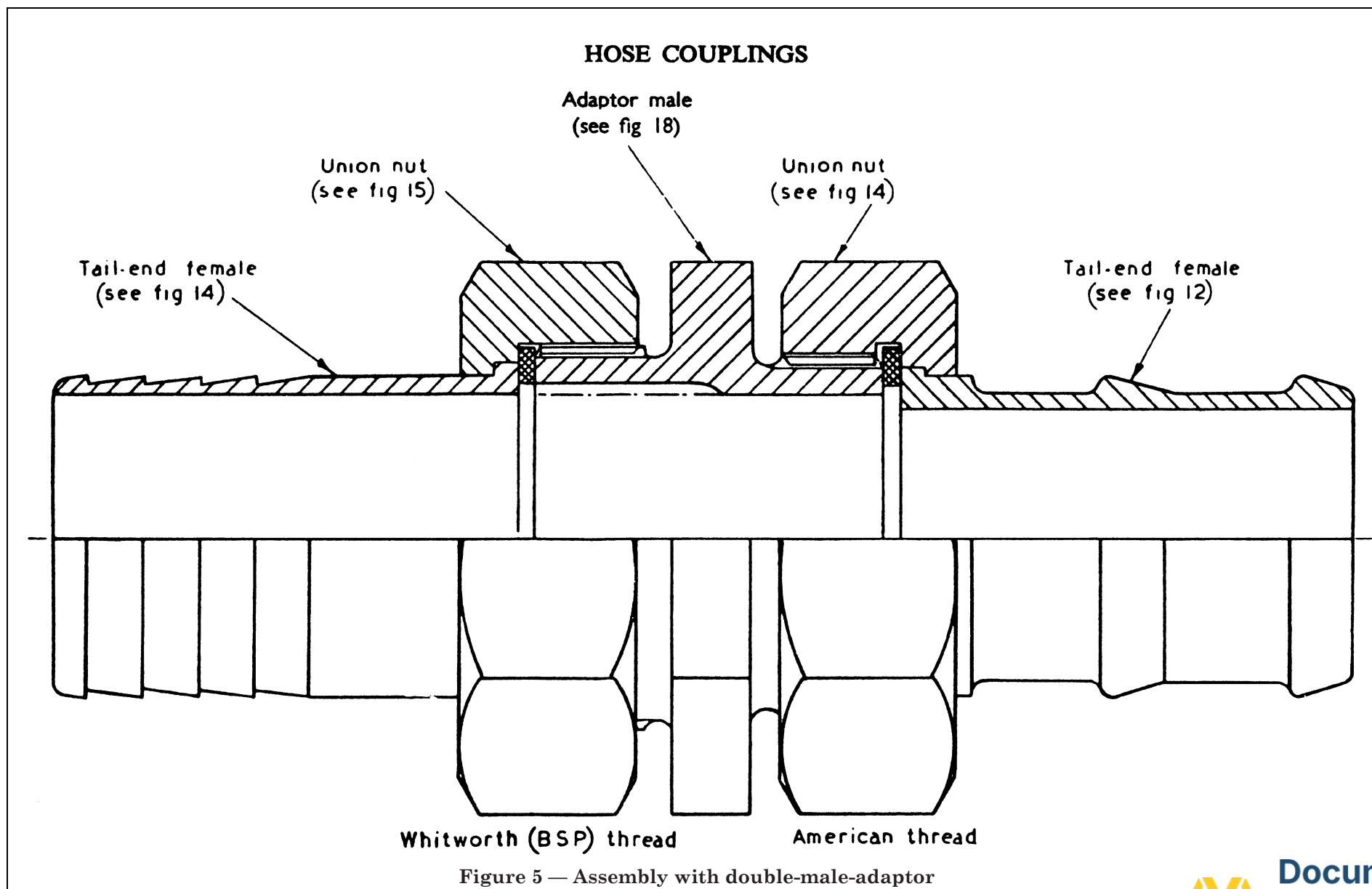
⁸⁾ BS 2779, "Fastening threads of B.S.P. sizes".











HOSE COUPLINGS

Adaptor female swivelling type
(see figs 19 and 20)

Tail end male ribbed
(see figs 8 and 10)

Tail end male serrated
(see figs 9 and 11)

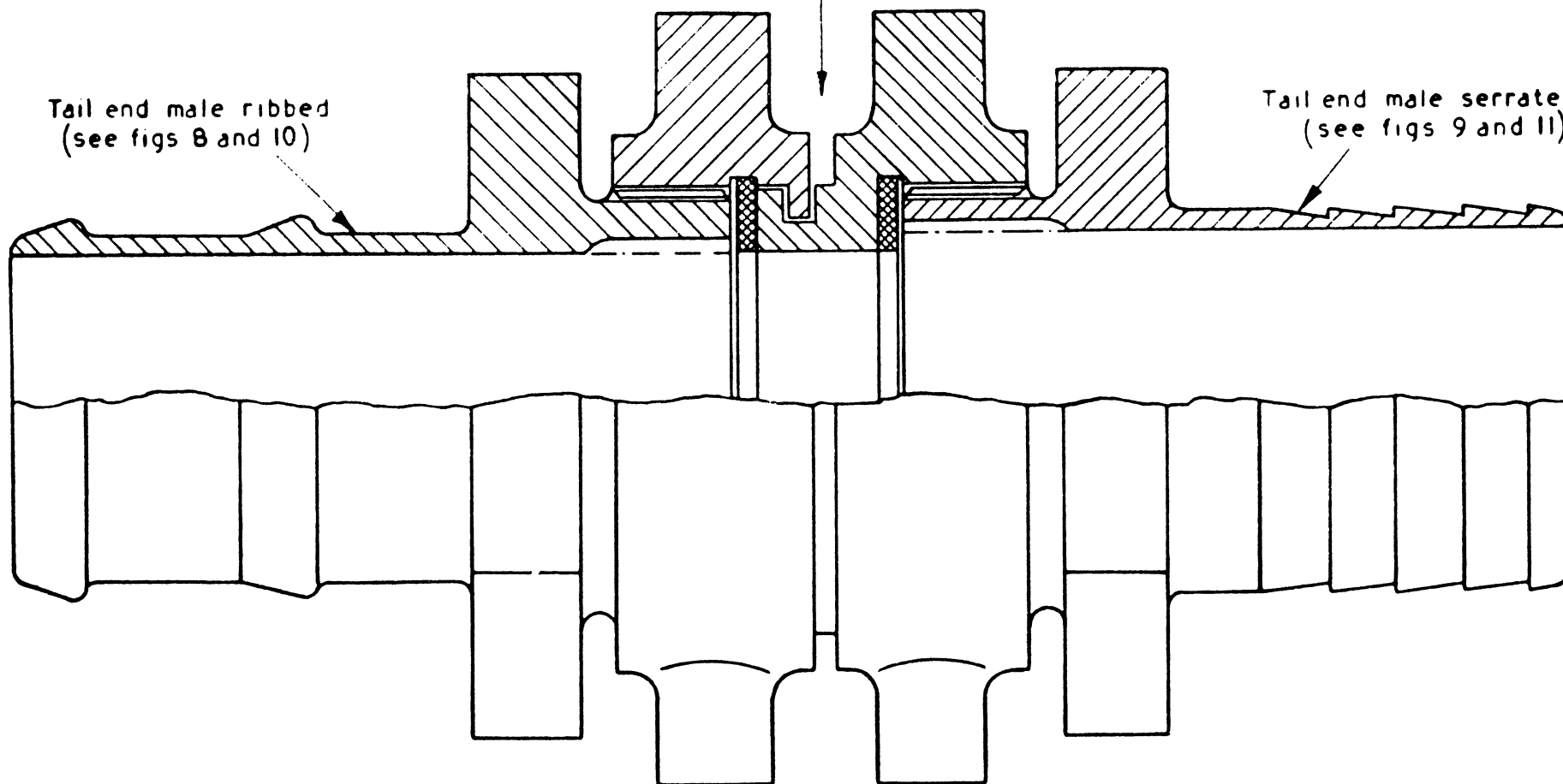
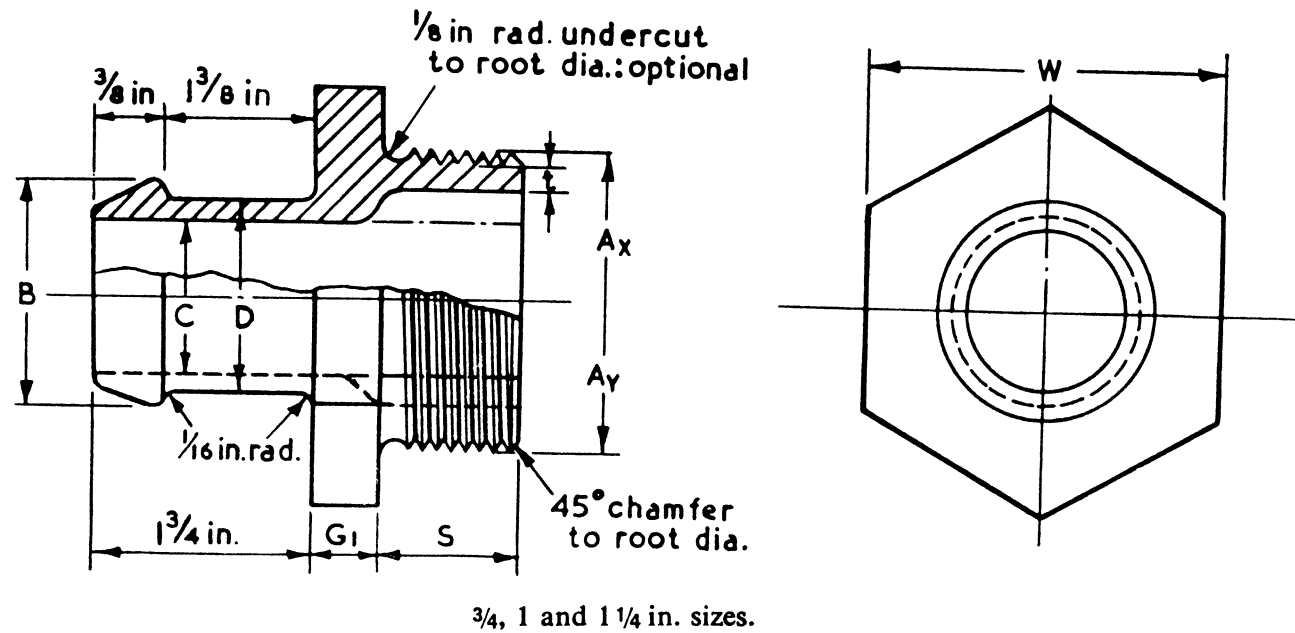


Figure 6 — Assembly with swivelling type adaptor

HOSE COUPLINGS



Smooth finish all over.

NOTE See Clause 9 for electrical bonding.

Figure 7 — Tail-end: male; ribbed; hexagon

Table 1a — Tail-end: male; ribbed; hexagon
(See Figure 7)

Size of coupling, i.e. hose bore	Screw thread			B. dia.	C. dia	D. dia.	G ₁	S	t	W Hexagons	
	Nominal size	A _X	A _Y							Max.	Min.
		Whitworth (B.S.P.) Major dia. (max.)	American thread Major dia. (max.) (See Appendix A)								
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
3/4	3/4	1.041 0	1.035 3	0.750	0.484	0.640	0.312	0.687	0.125	1.250	1.212
1	1	1.309 0	1.295 1	1.000	0.625	0.812	0.312	0.687	0.125	1.625	1.575
1 1/4	1 1/4	1.650 0	1.639 9	1.250	0.875	1.062	0.375	0.750	0.125	2.000	1.938