

BS 336:2010



BSI Standards Publication

Specification for fire hose couplings and ancillary equipment

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Foreword

Publishing information

This British Standard is published by BSI and came into effect on 30 April 2010. It was prepared by Technical Committee FSH/17, *Fire brigade equipment*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

BS 336:2010 supersedes BS 336:1989, which is withdrawn.

Information about this document

Although dimensions are given in metric terms, screwed and instantaneous couplings and connectors manufactured in accordance with this specification are interchangeable with existing couplings.

The figures are included in the main body of the specification, so that reference may be made readily to a requirement in the text and to the relevant information in tables and figures.

A minimum bore for delivery hose couplings is specified to assist with the specification of hose repair tools which have to pass through the couplings.

Delivery hose components are suitable for use with layflat hose conforming to BS 6391, suction hose components are suitable for use with hose conforming to BS 3165 or BS EN ISO 14557, and hose reel fittings are suitable for use with hose conforming to BS EN 1947. Hand-controlled branchpipes are covered by BS EN 15182.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Requirements are expressed in sentences in which the principal auxiliary verb is "shall".

Where optional recommendations are included, they are expressed in sentences in which the principal auxiliary verb is "should".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Section 1: General

1 Scope

This British Standard specifies requirements for couplings, connectors and other components for use with delivery hose conforming to BS 6391 and suction hose conforming to BS 3165 or BS EN ISO 14557, suitable for firefighting purposes up to a working pressure not exceeding 16 bar. It also applies to other items of equipment associated with the use of firefighting hose.

Annex A to Annex E specify methods for testing various aspects of performance. Annex F lists the standards specifying the materials for components listed in Table 2a).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 750:2006, *Specification for underground fire hydrants and surface box frames and covers*

BS 970-4, *Specification for wrought steels for mechanical and allied engineering purposes – Part 4: Valve steels*

BS 1134 (both parts), *Assessment of surface texture*

BS 1154, *Specification for natural rubber compounds*

BS 1473, *Specification for wrought aluminium and aluminium alloys for general engineering purposes – Rivet, bolt and screw stock*

BS 1474, *Specification for wrought aluminium and aluminium alloys for general engineering purposes – Bars, extruded round tubes*

BS 1580-1:2007, *Unified screw threads – Part 1: Screw threads with diameters $\frac{1}{4}$ in and larger – Requirements*

BS 2090:1954, *Aluminium alloy AL-P2024-T3 – Clad sheet and strip – $0,3\text{ mm} \leq a \leq 6\text{ mm}$*

BS 2752, *Specification for chloroprene rubber compounds*

BS 3102, *Specification for brass eyelets and washers for general purpose*

BS 3165, *Specification for rubber and plastics suction hoses and hose assemblies for fire-fighting purposes*

BS 3734-1, *Rubber – Tolerances for products – Part 1: Dimensional tolerances*

BS 4422, *Fire – Vocabulary*

BS 5163-2, *Valves for waterworks purposes – Part 2: Stem caps for use on isolating valves and associated water control apparatus – Specification*

BS 5599, *Specification for hard anodic oxide coatings on aluminium for engineering purposes*

BS 6017, *Specification for copper refinery shapes*

BS 6282, *Devices with moving parts for the prevention of contamination of water by backflow*

BS 6391, *Specification for non-percolating layflat delivery hoses and hose assemblies for fire fighting purposes*

BS EN 485 (all parts), *Aluminium and aluminium alloys – Sheet, strip and plate*

BS EN 515, *Aluminium and aluminium alloys – Wrought products – Temper designations*

BS EN 573-2, *Aluminium and aluminium alloys – Chemical composition and form of wrought products – Part 2: Chemical symbol based designation system*

BS EN 573-3, *Aluminium and aluminium alloys – Chemical composition and form of wrought products – Part 3: Chemical composition*

BS EN 573-4, *Aluminium and aluminium alloys – Chemical composition and form of wrought products – Part 4: Forms of products*

BS EN 754-1, *Aluminium and aluminium alloys – Cold drawn rod/bar and tube – Part 1: Technical conditions for inspection and delivery*

BS EN 754-2:1997, *Aluminium and aluminium alloys – Cold drawn rod/bar and tube – Part 2: Mechanical properties*

BS EN 754-7:1997, *Aluminium and aluminium alloys – Cold drawn rod/bar and tube – Part 7: Seamless tubes, tolerances on dimensions and form*

BS EN 754-8:1997, *Aluminium and aluminium alloys – Cold drawn rod/bar and tube – Part 8: Porthole tubes, tolerances on dimensions and form*

BS EN 755, *Aluminium and aluminium alloys – Extruded rod/bar, tube and profiles (all parts)*

BS EN 1011-4, *Welding – Recommendations for welding of metallic materials – Part 4: Arc welding of aluminium and aluminium alloys*

BS EN 1057, *Copper and copper alloys – Seamless, round copper tubes for water and gas in sanitary and heating applications*

BS EN 1473, *Installation and equipment for liquefied natural gas – Design of onshore installations*

BS EN 1559-1, *Founding – Technical conditions of delivery – Part 1: General*

BS EN 1559-4, *Founding – Technical conditions of delivery – Part 4: Additional requirements for aluminium alloy castings*

BS EN 1562, *Founding – Malleable cast irons*

BS EN 1652, *Copper and copper alloys – Plate, sheet, strip and circles for general purposes*

BS EN 1676, *Aluminium and aluminium alloys – Alloyed ingots for remelting – Specifications*

BS EN 1706, *Aluminium and aluminium alloys – Castings – Chemical composition and mechanical properties*

BS EN 1947, *Fire-fighting hoses – Semi-rigid delivery hoses and hose assemblies for pumps and vehicles*

BS EN 1976, *Copper and copper alloys – Cast unwrought copper products*

BS EN 1978, *Copper and copper alloys – Copper cathodes*

BS EN 1982, *Copper and copper alloys – Ingots and castings*

- BS EN 10090, *Valve steels and alloys for internal combustion engines*
- BS EN 10296 (both parts), *Welded circular steel tubes for mechanical and general engineering purposes – Technical delivery conditions*
- BS EN 10297-1, *Seamless circular steel tubes for mechanical and general engineering purposes – Technical delivery conditions – Part 1: Non-alloy and alloy steel tubes*
- BS EN 10305 (all parts), *Steel tubes for precision applications – Technical delivery conditions*
- BS EN 12020-1, *Aluminium and aluminium alloys – Extruded precision profiles in alloys EN AW-6060 and EN AW-6063 – Part 1: Technical conditions for inspection and delivery*
- BS EN 12020-2, *Aluminium and aluminium alloys – Extruded precision profiles in alloys EN AW-6060 and EN AW-6063 – Part 2: Tolerances on dimensions and form*
- BS EN 12163, *Copper and copper alloys – Rod for general purposes*
- BS EN 12164, *Copper and copper alloys – Rod for free machining purposes*
- BS EN 12165, *Copper and copper alloys – Wrought and unwrought forging stock*
- BS EN 12166, *Copper and copper alloys – Wire for general purposes*
- BS EN 12167, *Copper and copper alloys – Profiles and rectangular bar for general purposes*
- BS EN 12373-1, *Aluminium and aluminium alloys – Anodizing – Part 1: Method for specifying decorative and protective anodic oxidation coatings on aluminium*
- BS EN 12420, *Copper and copper alloys – Forgings*
- BS EN 12540, *Corrosion protection of metals – Electrodeposited coatings of nickel, nickel plus chromium, copper plus nickel and copper plus nickel plus chromium*
- BS EN ISO 14557, *Fire-fighting hoses – Rubber and plastics suction hoses and hose assemblies*
- BS EN 15182, *Hand-held branchpipes for fire service use*
- BS EN 27434, *Slotted set screws with cone point*
- BS EN 27435, *Slotted set screws with long dog point*
- BS EN 27436, *Slotted set screws with cup point*
- BS EN 24766, *Slotted set screws with flat point*
- BS EN ISO 228 (both parts), *Pipe threads where pressure-tight joints are not made on the threads*
- BS EN ISO 4026, *Hexagon socket set screws with flat point*
- BS EN ISO 4027, *Hexagon socket set screws with cone point*
- BS EN ISO 4028, *Hexagon socket set screws with dog point*
- BS EN ISO 4029, *Hexagon socket set screws with cup point*
- BS EN ISO 4762, *Hexagon socket head cap screws*
- BS EN ISO 7380, *Hexagon socket button head screws*
- BS EN ISO 10642, *Hexagon socket countersunk head screws*

BS EN ISO 14457, *Fire-fighting hoses – Rubber and plastics suction hoses and hose assemblies*

BS ISO 2936, *Assembly tools for screws and nuts – Hexagon socket screw keys*

3 Terms and definitions

For the purposes of this British Standard, the terms and definitions given in BS 4422 apply, together with the following.

3.1 blank cap

pressure-retaining component that fits on to a male delivery hose connector or suction connection

3.2 blank plug

pressure-retaining component that fits into a female delivery hose connector or suction connection

NOTE Dust covers, sometimes used to cover connectors, are not intended to be pressure-retaining components and might therefore not be capable of conforming to the pressure retention requirements.

4 Materials

The material for each product or component listed Table 1 shall be chosen from the list of permitted materials specified in Table 2 and the relevant clause (see Table 1).

NOTE 1 The choice of materials should be made with due regard to possible corrosion, particularly bi-metallic corrosion where different metals are in contact. Temporary, occasional contact of different metals in two products connected during use is not a problem, but where different metals are used in the same product severe corrosion can occur. In particular, aluminium and its alloys are liable to corrode when in contact with copper or its alloys, and where there is such contact suitable measures should be taken to prevent corrosion.

Particular care should be exercised in the selection of materials for use in marine environments where the water to be used in the fire hose might be seawater. Attention is drawn to BS MA 18.

NOTE 2 Materials should be free from toxic substances and should not give rise to taste, odour, cloudiness or discolouration of the water or foster any microbiological growth.

NOTE 3 It is acknowledged that materials other than those given in Table 2 may be used for couplings and that these could otherwise conform to the standard, but the use of these other materials is outside the scope of the standard.

NOTE 4 The purchaser should be advised that as far as possible the coupling of copper or copper alloy components to aluminium alloy should be avoided, particularly where contact is for long periods, as electrolytic action and consequent corrosion might result. They should also be advised that it is preferable to wash all products with fresh water after use or contact with sea water or brackish water.

Table 1 Clauses and tables relevant to each product and component

Component	Clause reference	Figure reference
Delivery hose couplings	8	1–4
Delivery hose connectors	9	5
Breechings	10	6
Branchpipes	11	7, 9
Nozzles for branchpipes	11	8
Blank caps and plugs	12	9
Chains and “S” hooks		
Standpipe shaft	13	9
Standpipe base and head		
Hydrant keys and bars	14	10
Hose reel couplings		
Suction hose couplings	15	11, 12
Suction collecting heads	16	13
Metal suction strainer	17.1	14
Basket suction strainer	17.2	15
Suction hose wrenches	18	16
Foam inlet adaptor	19	17
Springs and circlips	8.3, 9.3	—
Washers	8.4, 9.4, 11.1, 13.2, 15.2, 17.1.4	1, 2, 7, 9, 11, 12a)

Table 2a) Choice of materials: Aluminium alloys

Component		Material (see Note)								
		6082 T6 ^{A)}	6082 TF ^{A)}	LM6 M	LM16 TF	LM25 TF	5056A O or HZ	5154A ON H2	5154A H2	5251 H4
Delivery hose couplings		✓		✓ ^{B)}	✓	✓				
Delivery hose connectors										
Breechings										
Branchpipes				✓ ^{B)}	✓	✓				
Nozzles for branchpipes										
Blank caps and plugs										
Chains and "S" hooks				✓	✓	✓				
Standpipe shaft		✓	✓		✓	✓				
Standpipe base and head										
Hydrant keys and bars		✓	✓		✓	✓				
Suction hose couplings					✓	✓				
Suction collecting heads		✓			✓	✓	✓	✓	✓	✓
Metal suction strainer					✓	✓	✓	✓	✓	✓
Basket suction strainer										
Suction hose wrenches										
Foam inlet adaptor					✓ ^{C)}	✓ ^{C)}				

NOTE Table F.1 lists the standards specifying the various materials listed in Table 2a).

A) Of a gauge suitable for welding.

B) For coupling release housings only.

C) Anodized. See 5.3.

Table 2b) Choice of materials: Copper and copper alloys

Component	Material and applicable British Standard(s)										
	CR024A BS EN 1652	CR024A BS EN 1057	CR024A BS EN 12166	CR024A BS EN 1976, 1978	CW507L BS EN 1652	CW507L BS EN 12166 ^{A)}	CW508L BS EN 1652	CW712R BS EN 12165, 12420	CW712R BS EN 12163, 12164, 12167	CW609N/ CW614N/ CW617N BS EN 12165, 12420	9N/ CW614N/ CW617N BS EN 12163, 12164, 12167
Delivery hose couplings								✓	✓	✓	✓
Delivery hose connectors								✓	✓	✓	✓
Blank caps and plugs											
Chains and “S” hooks						✓				✓	
Standpipe shaft		✓									
Standpipe base and head								✓	✓	✓	✓
Hydrant keys and bars											
Hose reel couplings								✓	✓	✓	✓
Suction hose couplings					✓		✓	✓	✓	✓	✓
Suction collecting heads			✓	✓				✓		✓	
Metal suction strainer											
Basket suction strainer								✓		✓	
Suction hose wrenches											
Foam inlet adaptor								✓		✓	

A) Should not be used with aluminium products.

A) Should not be used with aluminium products.

Table 2c) Choice of materials: Copper, copper alloys and other

Component	Material and applicable British Standard(s)					Other
	CC767S BS EN 1982	CC754S BS EN 1982	CC491K BS EN 1982	CW451K BS EN 12166 ^{A)}	CW452K BS EN 12166 ^{A)}	
Delivery hose couplings	✓	✓	✓			
Delivery hose connectors						
Breechings	✓	✓	✓			
Branchpipes						
Nozzles for branchpipes						
Blank caps and plugs Chains and "S" hooks			✓	✓	✓	B)
Standpipe shaft						
Standpipe base and head	✓	✓	✓			
Suction hose couplings	✓	✓	✓			
Suction collecting heads	✓	✓	✓			
Metal suction strainer	✓	✓	✓			
Foam inlet adaptor	✓	✓	✓			
Springs and circlips				✓	✓	Steel

^{A)} Anodized. See 5.3.

^{B)} Steel (chrome or cadmium plated).

5 Manufacture

5.1 Castings and mouldings

Castings shall be clean, sound and free from gross porosity, cracks and other surface imperfections. No filling or similar after-treatment of castings shall be carried out without the approval of the purchaser.

NOTE On die-cast fittings where a bore is shown as parallel, a reasonable taper should be allowed to facilitate core withdrawal. However, this taper should be kept to the minimum required for this purpose.

5.2 Welding

Welds shall be free from lack of fusion, cracks, non-metallic inclusions, porosity and cavities.

Welding of aluminium shall be in accordance with BS EN 1011-4.

5.3 Finish

Machined surfaces, unless otherwise specified by the purchaser, shall be of grade N7 as assessed in accordance with BS 1134.

NOTE 1 Assessment may be made using roughness comparison specimens calibrated in accordance with BS 1134 with the agreement of the purchaser.