IS 902 (1992): Specification for Suction Hose Couplings For Fire Fighting Purposes [CED 22: Fire Fighting]

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IS 902 : 1992
(Reaffirmed 2007)

भारतीय मानक

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(तीसरा पुनरीक्षण)

Indian Standard

SUCTION HOSE COUPLINGS FOR FIRE FIGHTING PURPOSES - SPECIFICATION

(Third Revision)

First Reprint OCTOBER 2000

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BUREAU OF INDIAN STANDARDS
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October 1992 Price Group 3

AMENDMENT NO. 1 AUGUST 2002
TO
IS 902 : 1992 SUCTION HOSE COUPLINGS FOR FIRE FIGHTING PURPOSES — SPECIFICATION

(Third Revision)

(*Page* 1, *clause* 5.4) — Substitute the following for the existing:

"**5.4 Washers**

Washers used in the couplings shall conform to IS 937 : 1981 'Specification for washers for water fittings for fire fighting purposes (*second revision*)'.

(CED 22)

Reprography Unit, BIS, New Delhi, India

FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Fire Fighting Sectional Committee had been approved by the Civil Engineering Division Council.

The present revision is being taken up with a view to incorporating the changes required in light of experience gained in the field as a result of following this standard. Major changes include the change in a few dimensions of different components of the coupling. Only the multi-serrated type couplings have been retained while ribbed type have been dropped. The standard also refers to the latest versions of Indian Standards and hence also gives the current designations for the materials of various components.

This standard permits the use of copper, copper alloys, aluminium and aluminium alloys only in the manufacture of couplings, and it is strongly recommended that all the components be made in either aluminium or its alloys and copper or its alloys as it is essential to avoid, as far as possible, coupling aluminium alloys to copper alloys or *vice versa*, particularly for long periods, as otherwise electrolytic action may result from the close proximity of these metals to each other. It is also recommended that aluminium alloy fittings be made from gravity die-castings, unless otherwise approved by the purchaser. On die-cast fittings, where the bore is shown as parallel, it is suggested that the manufacturer be allowed a reasonable taper to facilitate core withdrawal but this taper should be kept to the minimum required for this purpose. Other materials may be used with the prior approval of the purchaser provided that they have good corrosion resistance to all types of water, including sea water or brackish water, and there is no change of electrolytic action between adjacent materials. It is also essential that aluminium alloy couplings are thoroughly washed with fresh water immediately after use with sea water or brackish water.

A separate standard IS 3549 : 1983 'Water suction and discharge hose of rubber heavy duty (*second revision*)' has also been published in which the sizes of hose have been specified in metric units.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

SUCTION HOSE COUPLINGS FOR FIRE FIGHTING PURPOSES — SPECIFICATION

(Third Revision)

1 SCOPE

1.1 This standard lays down the requirements regarding material, shape and dimensions, construction, workmanship, and tests of suction hose couplings used in fire fighting operations.

2 REFERENCES

2.1 The Indian Standards listed in Annex A are necessary adjuncts to this standard.

3 MATERIAL

3.1 Castings and Forgings

Castings and forgings shall be made of any one of the materials given under **3.1.1** and **3.1.2**.

3.1.1 *Coppor Alloys*

Copper alloys used for castings and forgings shall conform to the requirements given below:

a) Sand castings	LTB 2 of IS 318 : 1981 Grade 3 of IS 304 : 1981
b) Die-castings	Grade 3 of IS 292 : 1983
c) Hot forgings	Grade 1 of IS 291 : 1977

3.1.2 *Aluminium Alloys*

Aluminium alloys used for castings shall conform to IS Designation 4450 WP, 4225 WP or 4600 of IS 617 : 1975 castings shall be of die casting only.

4 SHAPE AND DIMENSIONS

4.1 The shape and dimensions of suction hose couplings shall conform to Fig. 1 to 7 and Tables 1, 2 and 3.

5 CONSTRUCTION

5.1 Couplings shall be of the locking ring pattern (*see* Fig. 7) and the various parts shall be as shown in Fig. 1 to 5. The locking ring shall be secured either by pegging or screwing or by both. The tail pieces of couplings shall be of multi-serrated type (*see* Fig. 7).

5.2 Round Threads for Male Coupling and Nut

The basic form of round threads shall be as shown in Fig. 6. The limits and tolerances of threads shall be in accordance with Table 3.

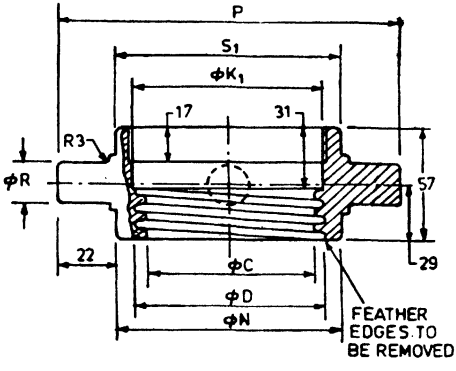
5.3 'V' Threads for Locking Ring and Nut

The locking ring and the nut for female coupling shall have threads conforming to M-95x3, M—120x3, M—160x3 of IS 4218 (Parts 1 to 6) : 1976.

5.4 Washers

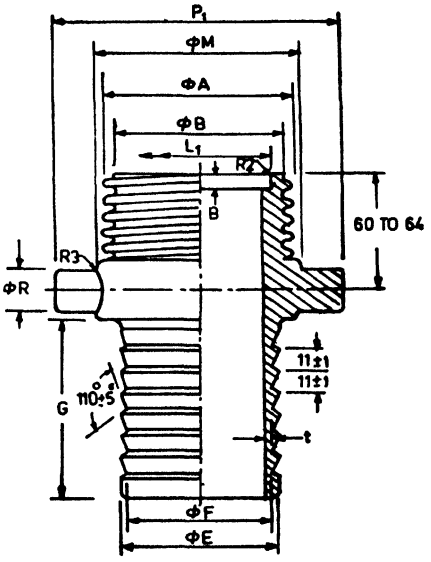
Washers used in the couplings shall be of rubber conforming to requirements of hardness as applicable to type 3 of IS 5382 : 1985 also acid and alkali resistance (*see* Note) or of leather conforming to IS 581 : 1978.

NOTE — When a piece of 2·5 cm cut from any portion is dipped in 20% sulphuric acid/5% sodium hydroxide solution for 30 minutes, there shall be no sign of corrosion/damage.



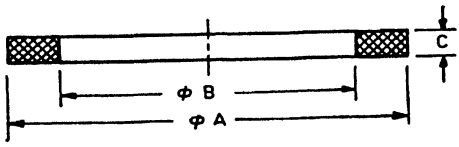
All dimensions in millimetres.

FIG. 1 NUT FOR FEMALE COUPLING



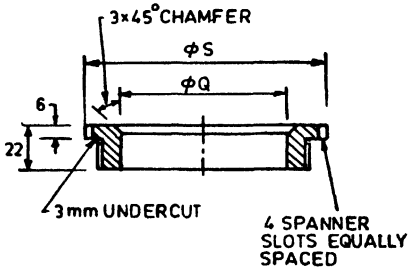
All dimensions in millimetres.

FIG. 2 MALE COUPLING



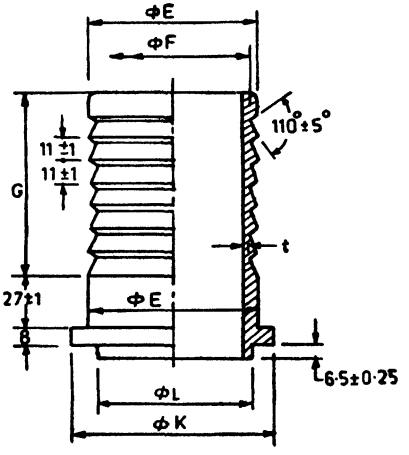
All dimensions in millimetres.

FIG. 4 WASHER



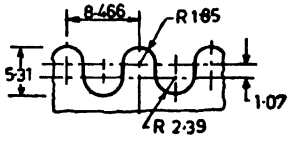
All dimensions in millimetres.

FIG. 5 LOCKING RING



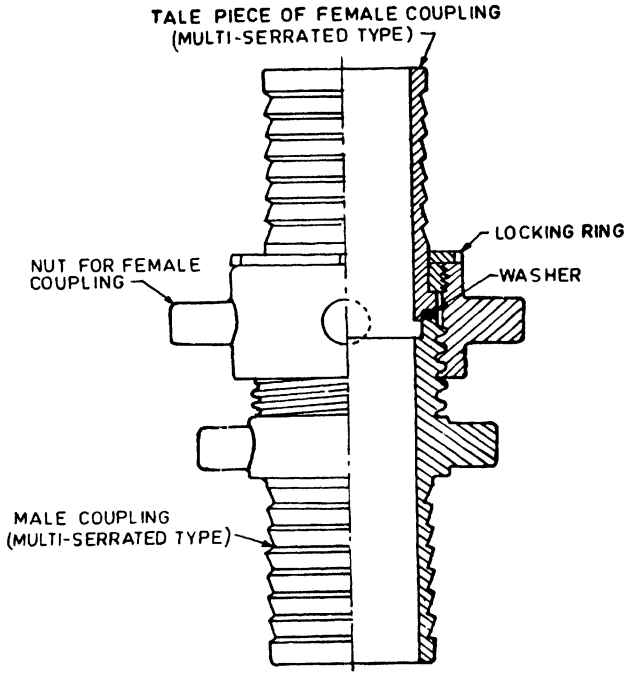
All dimensions in millimetres.

FIG. 3 FEMALE COUPLING



All dimensions in millimetres.

FIG. 6 BASIC FORM OF ROUND THREAD FOR COUPLING



All dimensions in millimetres.

FIG. 7 ASSEMBLY

Table 1 Dimensions of Tail Piece for Female Coupling and of Locking Ring

(*Clause* 4.1, and *Fig.* 3, 5 *and* 7)

All dimensions and tolerances in millimetres.

Nominal Size of Coupling	Tail Piece for Female Coupling						Locking Ring	
	Dia-*E* (Tolerance ± 0·4)	Dia-*F* (Tolerance ± 0·8)	Dia-*G* (Tolerance ± 0·8)	Dia-*K* (Tolerance + 0·00 — 0·40)	Dia-*L* (Tolerance + 0·00 — 0·40)	Thickness, *Min* + 0·8 — 0	Dia-*O* (Tolerance + 0·40 — 0·00)	Dia-*S* (Tolerance ± 0·4)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
75	77·80	71·40	89	92	68·20	4	80·20	114·3
100	103·20	96·80	114	117·40	93·6	4	105·70	142·0
140	141·30	134·90	152	155·70	131·8	4	143·70	181·0

Table 2 Dimensions of Male Coupling and of Nut for Female Coupling

(*Clause* 4.1, and *Fig.* 1, 2 *and* 7)

All dimensions and tolerances in millimetres.

Nominal Size of Coupling	Male Coupling								Nut for Female Coupling			
	Dia-*E* (Tolerance ±0·4)	Dia-*F* (Tolerance ±0·8)	Dia-*G* (Tolerance ±0·8)	Dia-*S1* (Tolerance +0·40 —0·00)	Dia-*M* (Tolerance ±0·8)	*P1* (Tolerance ±0·8)	Dia-*R* (Tolerance ±0·8)	Thickness *t*, *Min* ±0·8)	Dia-*K* (Tolerance +0·40 —0·00)	Dia-*N* (Tolerance ± 1)	*P* (Tolerance ± 1)	Dia-*S1* (Tolerance ± 1)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
75	77·80	71·40	89	69·9	95	140	19	4	93·70	110	170	114·3
100	103·20	96·80	114	95·3	121	165	24	4	119·10	137	197	142·9
140	141·30	134·90	152	133·4	159	203	24	4	157·20	175	235	181

Table 3 Limits and Tolerances of Round Threads

(*Clauses* 4.1 *and* 5.2, and *Fig.* 6)

All dimensions in millimetres.

Nominal Size of Coupling	Male Thread			Female Thread		
	Major Dia-*A*	Minor Dia-*B*		Major Dia-*D*	Minor Dia-*C*	
	Maximum	Minimum	Maximum	Minimum	Minimum	Maximum
(1)	(2)	(3)	(4)	(5)	(6)	(7)
7	92·00	91·60	81·40	93·20	82·6	83·0
100	117·40	117·00	106·90	118·60	108·0	108·0
140	155·50	155·10	144·9	156·70	146·1	146·1

6 TOLERANCE

6.1 Unless specified otherwise, the tolerances on machined dimensions shall conform to IS 2102 (Part 1) : 1980.

7 WORKMANSHIP AND FINISH

7.1 All parts of the couplings shall not have burrs and sharp edges. The waterway shall have a smooth finish.

8 PERFORMANCE REQUIREMENTS

8.1 Hydraulic Test

Assembled couplings shall be subjected to hydraulic pressure of 21 kg/cm^2 for a period of two minutes for the purpose of locating porosity in the castings and also to test the merits of the joint. The test shall be applied after all machining and screwing operations have been completed. The couplings when so tested shall not show any sign of leakage.

8.1.1 While assembling the suction hose couplings for the hydraulic pressure test, only hand tightness is to be applied by means of coupling wrench. Use shall not be made of any extension on the handle of the wrench, or any other means to produce excessive tightness.

9 MARKING

9.1 Suction hose couplings shall be clearly and permanently marked with the following information:

a) Manufacturer's name or trade-mark,

b) Size of coupling, and

c) Year of manufacture.

9.1.1 The suction hose couplings may also be marked with the Standard Mark.

ANNEX A

(*Clause* 2.1)

LIST OF REFERRED INDIAN STANDARDS

IS No.	*Title*
291 : 1989	Naval brass rods and sections for machining purposes (*third revision*)
292 : 1983	Leaded brass ingots and castings (*second revision*)
304 : 1981	High tensile brass ingots and castings (*second revision*)
318 : 1981	Leaded tin bronze ingots and castings (*second revision*)
581 : 1976	Vegetable tanned hydraulic leather (*second revision*)
617 : 1975	Aluminium and aluminium alloy ingots and castings for general engineering purposes (*second revision*)
2102 (Part 1) : 1980	General tolerances for dimensions and form and position : Part 1 General tolerances for linear and angular dimensions (*second revision*)
4218 (Part 1) : 1976	ISO metric screw threads : Part 1 Basic and design profiles (*first revision*)
(Part 2) : 1976	Diameter pitch combinations (*first revision*)
(Part 3) : 1976	Basic dimensions for design profiles (*first revision*)
(Part 4) : 1976	Tolerancing system (*first revision*)
(Part 5) : 1979	Tolerances (*first revision*)
(Part 6) : 1978	Limits of sizes for commercial bolts and nuts (diameter range 1 to 52 mm) (*first revision*)
5382 : 1985	Rubber sealing rings for gas mains, water mains and sewers (*first revision*)

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Handbook' and 'Standards : Monthly Additions'.

This Indian Standard has been developed from Doc : No. CED 22 (4609).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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