IS 903 (1993, Reaffirmed 2008): Fire Hose Delivery Couplings, Branch Pipe, Nozzles and Nozzle Spanner--Specification (Fourth Revision). UDC 614.843.2 : 621.643.415

IS 903 : 1993
(Reaffirmed 2008)

भारतीय मानक

अग्नि होज प्रदाय युगमन शाखा पाईप नोजल और नोजल पाने की विशिष्टि

(चौथा पुनरीक्षण)

Indian Standard

FIRE HOSE DELIVERY COUPLINGS, BRANCH PIPE, NOZZLES AND NOZZLE SPANNER — SPECIFICATION

(Fourth Revision)

Second Reprint OCTOBER 2009
(Including Amendment No. 1 & 2)

UDC 614.843.2: 621.643.415

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

December 1993

Price Group 5

Fire Fighting Sectional Committee, CED 22

FOREWORD

This Indian Standard (Fourth 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.

Fire hose delivery couplings, branch pipe, nozzles and nozzle spanner are some of the important accessories used for fire fighting operations. This standard was first published in 1958, revised subsequently in 1965, 1975 and 1984. The fourth revision incorporates all the amendments issued so far besides correcting the various figures according to the modifications decided by the concerned Technical Committee.

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.

AMENDMENT NO. 1 SEPTEMBER 1999
TO
IS 903 : 1993 FIRE HOSE DELIVERY COUPLINGS, BRANCH PIPE, NOZZLES AND NOZZLE SPANNER — SPECIFICATION

(Fourth Revision)

[*Page* 1; *clause* 5.2.1(c)] — Delete 'DCB 1 of'.

(*Page* 2, *clause* 5.2.6) — Substitute 'Grade 1 & 4 of IS 3444 : 1987' *for* 'designation of 04Cr17Ni12MO2 of IS 6529 : 1972'.

(*Page* 7, *Annex* A) — Insert the following:

'IS 3444 : 1987 Corrosion resistant alloy steel and nickel base castings for general applications'

(CED 22)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 2 SEPTEMBER 2003
TO
IS 903 : 1993 FIRE HOSE DELIVERY COUPLINGS, BRANCH PIPE, NOZZLES AND NOZZLE SPANNER — SPECIFICATION

(Fourth Revision)

(*Page* 1, *clause* 5.2.2, *line* 2) — Substitute 'IS Designation 4225, 4450 or 4600 of IS 617 : 1975' for the existing.

(CED 22)

Reprography Unit, BIS, New Delhi, India

Indian Standard

FIRE HOSE DELIVERY COUPLINGS, BRANCH PIPE, NOZZLES AND NOZZLE SPANNER — SPECIFICATION

(Fourth Revision)

1 SCOPE

This standard lays down the requirements regarding material, shape, construction and test (wherever applicable) for fire hose delivery couplings, branch pipe, nozzles and nozzle spanner used in fire fighting operations.

2 REFERENCES

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

3 WORKMANSHIP AND FINISH

All fittings shall be of good workmanship, finish and free from all burrs and sharp edges. The forgings and castings shall be sound and free from porosity, blow-holes, scales, cracks and other imperfections and shall not be repaired or filled so as to hide casting defects. The water-way of the fittings shall have a smooth finish.

4 MARKING AND CRITERIA FOR CONFORMITY

4.1 Each fitting shall be separately, clearly and permanently marked with the following information :

a) Manufacturer's name and trade-mark,
b) Size (where applicable), and
c) Year of manufacture.

4.1.1 Each fitting may also be marked with the Standard Mark.

NOTE — The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

4.2 Each fitting shall be checked for the requirements given in this standard.

SECTION 1

5 DELIVERY HOSE COUPLING

5.1 The delivery hose couplings shall consist of male half coupling and female half coupling assembled with washer as shown in Fig. 1.

5.2 Materials

5.2.1 *Copper Alloys*

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

a) Sand Castings	Grade LTB 2 of IS 318 : 1981 or Grade HTB 1 of IS 304 : 1981
b) Die castings	Grade 3 of IS 292 : 1983
c) Hot forgings	DCB 1 of IS 291 : 1989
d) Gravity die castings	IS 1264 : 1989

5.2.2 Aluminium alloys used shall be die casting only and shall conform to IS Designation 4250, 4450 and 4600 of IS 617 : 1975. Exposed aluminium surfaces shall have an anodized finish and all threaded parts of aluminium alloy components shall be coated with molybdenum listed grease.

5.2.3 Zinc-aluminium alloy (copper 0·5 to 1·5 percent, aluminium 10·5 to 11·5 percent, magnesium 0·015 to 0·03 percent and balance zinc) may be used and shall be die cast.

5.2.4 The phospher bronze wire used for the spring shall conform to IS 7608 : 1987 to be used in case of copper alloy couplings and stainless steel wire used for the spring shall conform to IS 6528 : 1972 to be used in case of aluminium alloy, zinc alloy and stainless steel couplings.

5.2.5 The washers used in the couplings shall conform to Type A of IS 937 : 1981.

5.2.6 When stainless steel used for the manufacture of hose delivery couplings, branch pipes and nozzles,

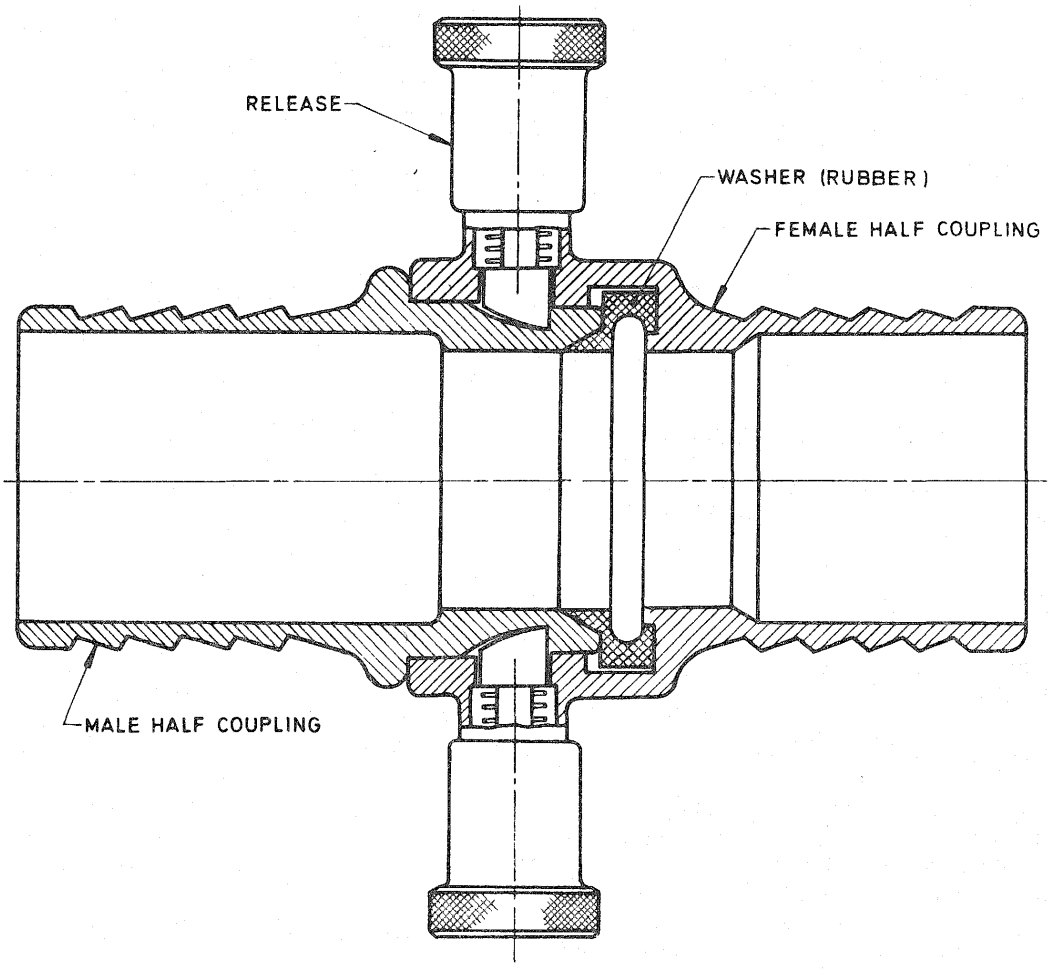


FIG. 1 ASSEMBLY OF DELIVERY HOSE COUPLINGS

it shall conform to designation 04Cr17Ni12MO2 of IS 6529 : 1972.

5.3 Size and Dimension

It shall be of two sizes, 63 mm and 70 mm. The shape and dimension of these two sizes are given in Fig. 2.

5.4 Hydraulic Test Requirement

The coupling shall be subjected to a hydraulic pressure of 2·1 MN/mm² (21 kgf/cm²) for a period of 2½ minutes. The coupling shall not show any sign of leakage or sweating.

SECTION 2

6 BRANCH PIPE

6.1 Materials

Same as given in **5.2** except washers for branch pipe, which shall conform to Type B of IS 937 : 1981.

6.2 The shape and dimension of the branch pipe shall be as given in Fig. 3.

6.3 Hydraulic Test Requirement

The branch pipe shall be subjected to a hydraulic pressure of 2.1 MN/mm² (21 kgf/cm²) for a period of 2½ minutes. It shall not show any sign of leakage or sweating.

SECTION 3

7 NOZZLES

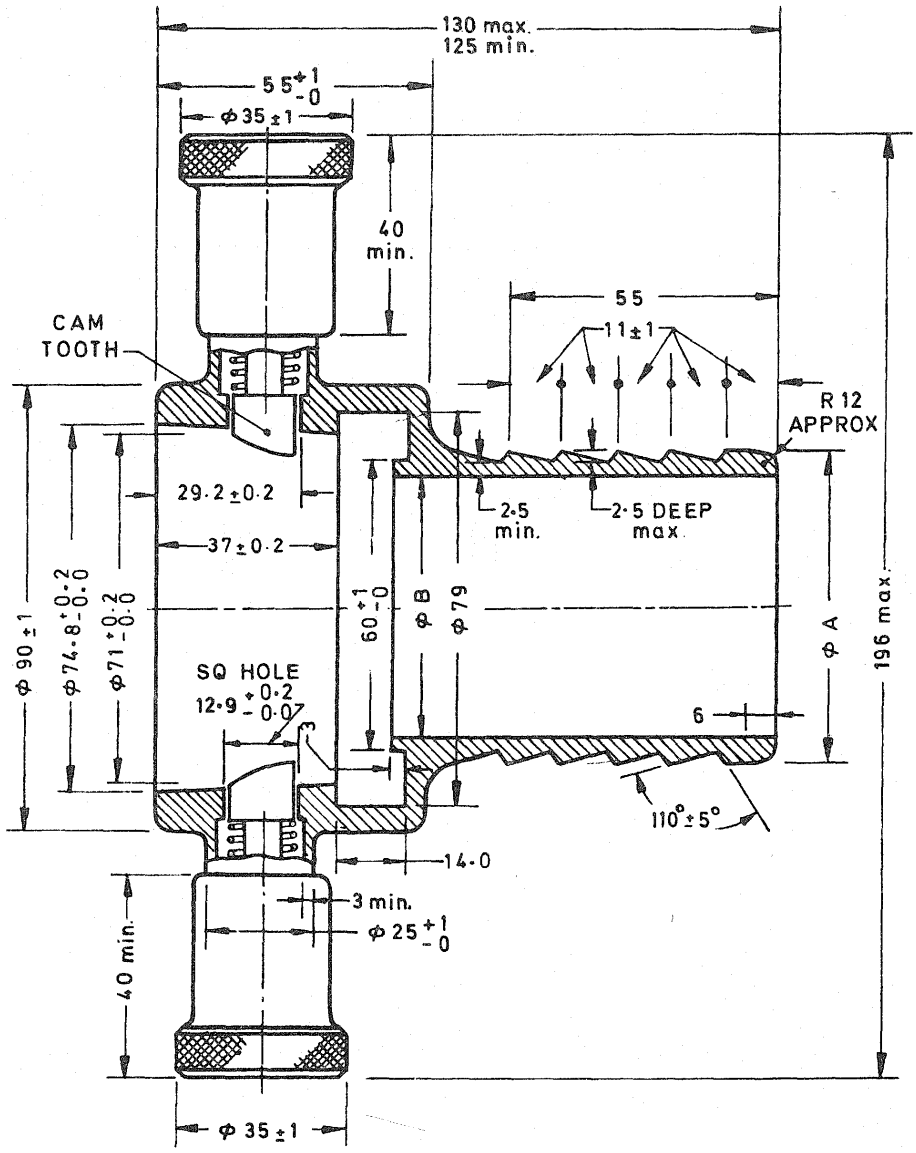
7.1 Materials

Same as given in **5.2**.

7.2 The size of nozzles shall be 6, 12, 15, 20, 25 and 30 mm and shall conform to dimensions as shown in Fig. 4.

7.3 Hydraulic Test Requirements

The nozzle shall be subjected to a hydraulic pressure of 2·1 MN/mm² (21 kgf/cm²) for a period of 2½ minutes and shall not show any sign of leakage or sweating.

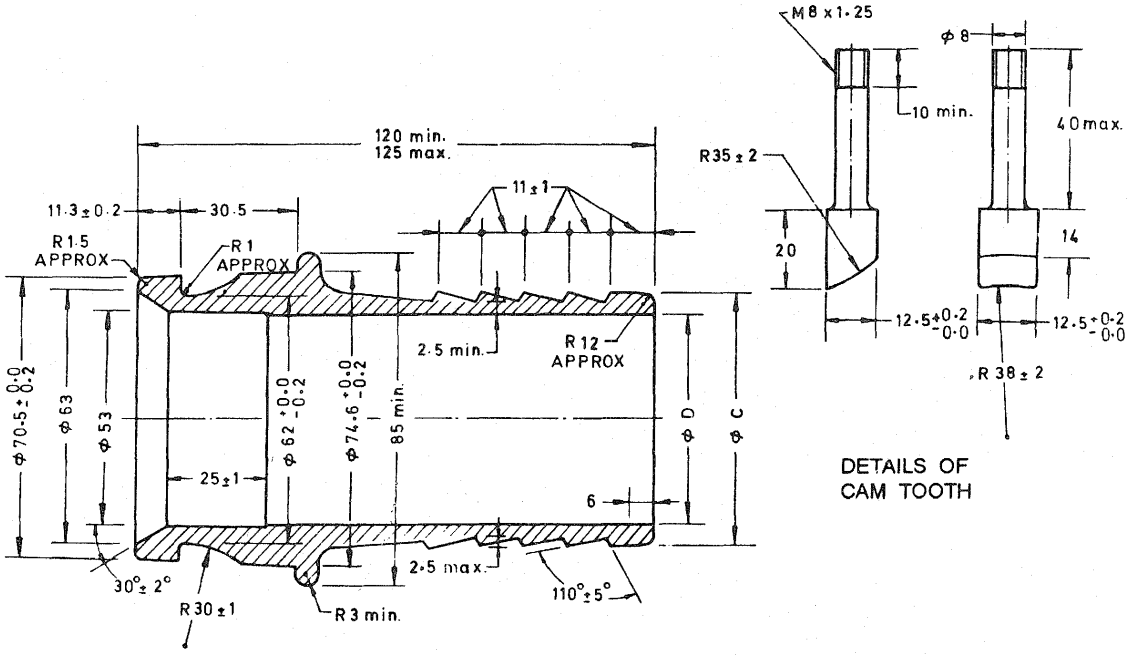


All dimensions in millimetres.

NOTE — Tolerance where not specified shall be ±0.5 mm.

2A FEMALE HALF COUPLING

FIG. 2 DETAILS OF DELIVERY HOSE COUPLING —*Contd.*



Size	Dimensions			
	A (ø)	B (ø)	C (ø)	D (ø)
ø 63	63	53 + 0.00 - 0.5	63	53 + 0.0 - 0.5
ø 70	70	60 + 0.0 - 0.5	70	60 + 0.0 - 0.5

All dimensions in millimetres.

NOTE — Tolerance where not specified shall be ±0.5 mm. The valve of B in case of ø 70 size shall be reduced to 53 mm for a length of 5 mm minimum at washer and reduced gradually by smooth curve after the serrated length of coupling.

2B MALE HALF COUPLING

FIG. 2 DETAILS OF DELIVERY HOSE COUPLING

SECTION 4

8 NOZZLE SPANNER

8.1 Materials

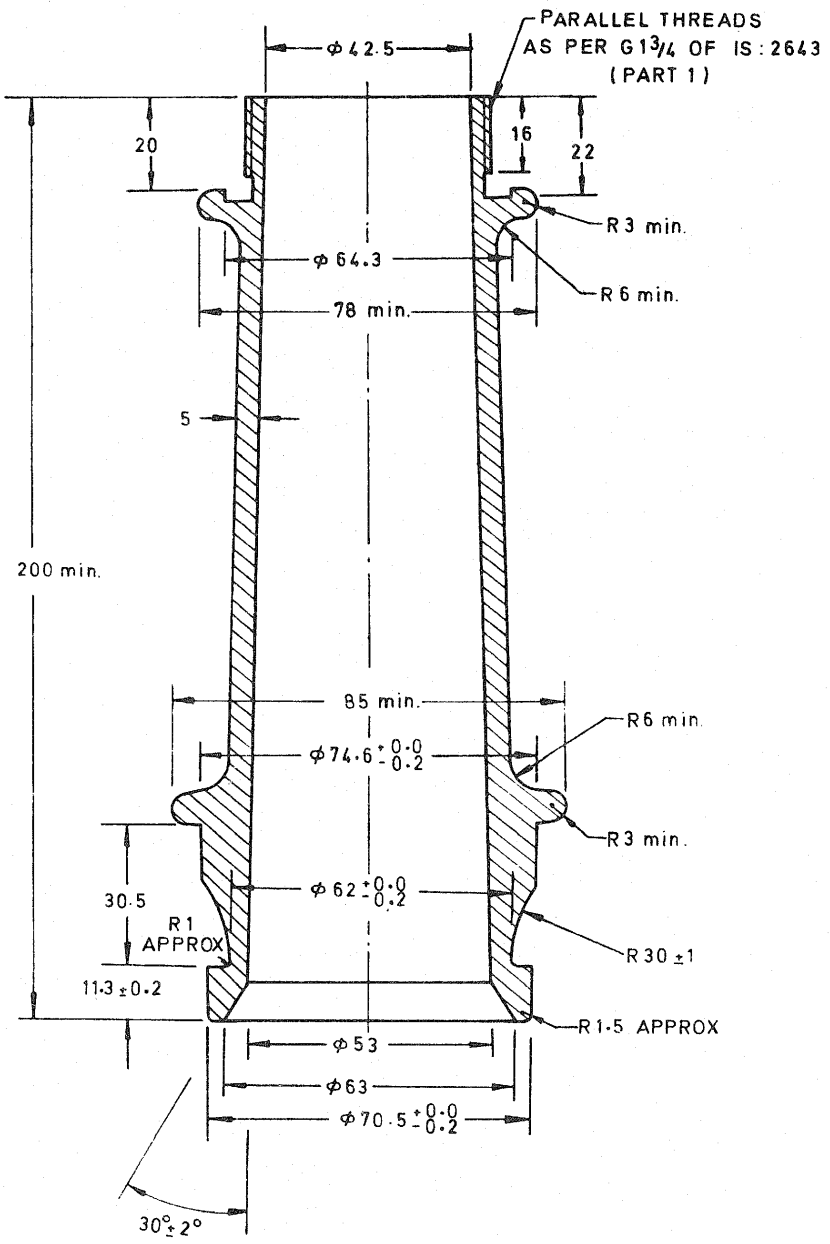
The nozzle spanner shall be made of steel of Grade 35C4 and 40C8 of IS 1570 (Part 2/Sec 1) : 1979.

8.2 The shape and dimension of the spanner shall be as given in Fig. 5.

8.3 The nozzle spanner shall be given anti-corrosive treatment by plating with chromium (*see* IS 1337 : 1980) or zinc (*see* IS 1573 : 1986).

8.4 Deflection Test Requirement

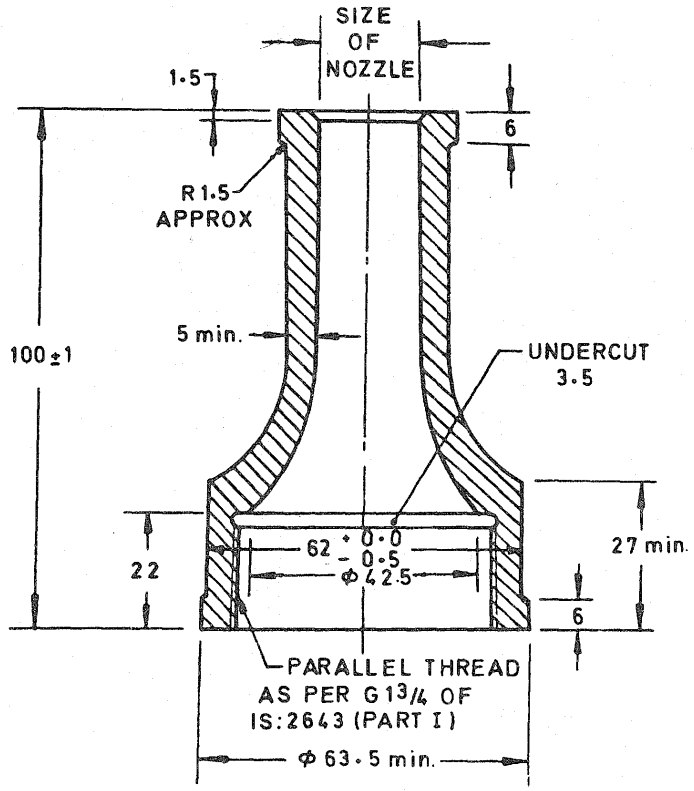
The spanner shall be fitted to a hexagon bar of the appropriate size. A weight of 35 kg shall then be applied to the handle when horizontal at a distance of 17 cm from the central line of the job and there shall not be any damage in respect of permanent deflection of the spanner job.



All dimensions in millimetres.

NOTE — Tolerance where not specified shall be ±0·5 mm.

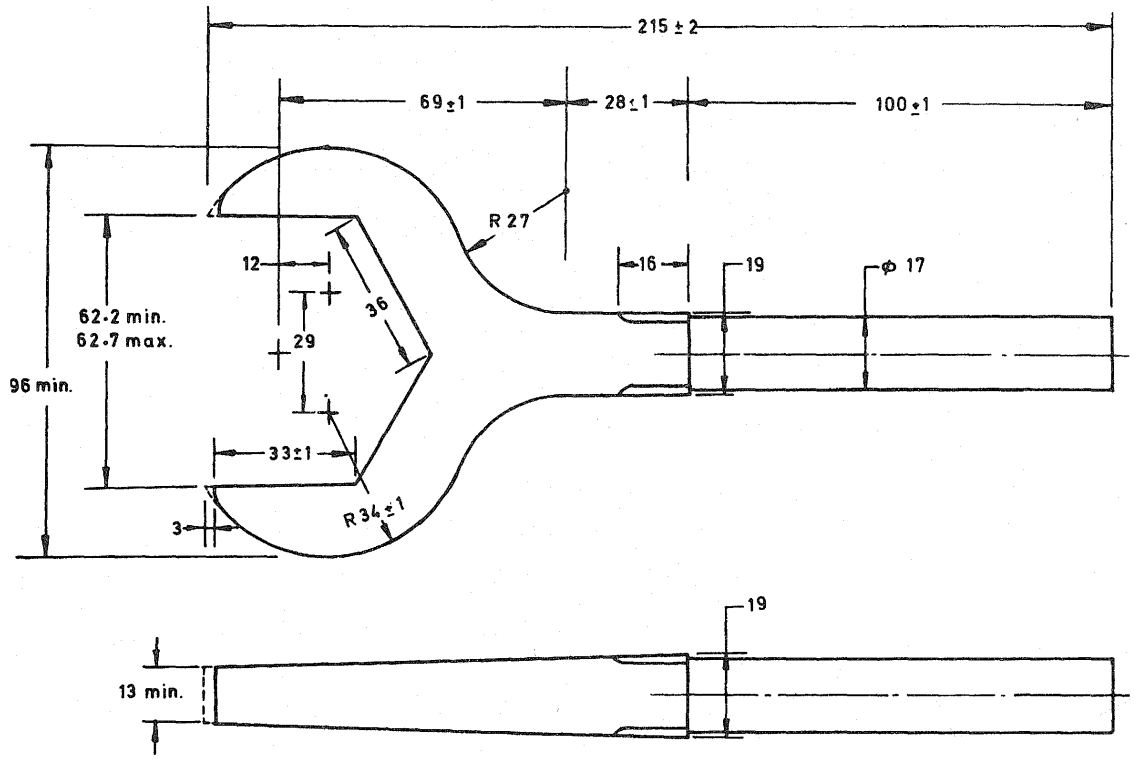
FIG. 3 BRANCH PIPE



All dimensions in millimetres.

NOTE — Tolerance where not specified shall be ±0·5 mm.

FIG. 4 NOZZLE



All dimensions in millimetres.

NOTE — Tolerance where not specified shall be ±0·5 mm.

FIG. 5 NOZZLE SPANNER

ANNEX A
(*Clause* 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	*Title*	*IS No.*	*Title*
291 : 1989	Specification for naval brass rods and sections (for machining purposes) (*third revision*)	1337 : 1980	Specification for electroplated coatings of hard chromium coatings on iron and steel (*second revision*)
292 : 1983	Specification for leaded brass ignots and castings (*second revision*)	1570 (Part 2/ Sec 1) : 1979	Schedules for wrought steels: Part 2 Carbon steels (unalloyed steels), Section 1 Wrought products (other than wire) with specified chemical composition and related properties (*first revision*)
304 : 1981	Specification for high tensile brass ingots and castings (*second revision*)		
318 : 1981	Specification for leaded tin bronze ingots and castings (*second revision*)	1573 : 1986	Specification for electroplated coatings of zinc on iron and steel (*second revision*)
617 : 1975	Specification for aluminium and aluminium alloys ingots and castings for general engineering purposes (*second revision*)	2643 (Part 1) : 1975	Dimensions for pipe threads for fastening purposes : Part 1 Basic profile and dimensions (*first revision*)
		6528 : 1972	Specification for stainless steel wire
937 : 1981	Specification for washers for water fittings for fire fighting purposes (*second revision*)	6529 : 1972	Specification for stainless steel blooms, billets and slabs for forging
1264 : 1989	Specification for brass gravity die castings (ingots and castings) (*third revision*)	7608 : 1987	Specification for phosphor bronze wire for general engineering purposes (*first revision*)

ANNEX B
(*Foreword*)

COMMITTEE COMPOSITION

Fire Fighting Sectional Committee, CED 22

Chairman	*Representing*
FIRE ADVISER	Ministry of Home Affair
Members	
ASSTT INSPECTOR GENERAL (RPSF)	Ministry of Railways
ASSTT SECURITY OFFICER (*Alternate*)	
SHRI S. N. CHAKRABORTY	Tariff Advisory Committee, Madras
SHRI B. L. CHOUDHRY	Oil and Natural Gas Commission, Dehradun
SHRI B. K. SIPPY (*Alternate*)	
SHRI S. M. DESAI	Eureka Firetech Pvt Ltd, Bombay
SHRI D. P. DHATRAK	Urban Development Department, Government of Maharashtra, Bombay
SHRI S. K. DHARI	Municipal Corporation of Delhi, Delhi
SHRI R. C. SHARMA (*Alternate*)	
SHRI RAMESH R. DHOBLAY	Bhabha Atomic Research Centre (Fire Service), Bombay
DIRECTOR	Home Department (Fire Service), Government of Tamil Nadu
DEPUTY DIRECTOR (*Alternate*)	
DIRECTOR OF EQUIPMENT	National Airport Authority, New Delhi
SENIOR FIRE OFFICER (*Alternate*)	
DIRECTOR GEN OF FIRE SERVICE	Home (Police Department), Government of Andhra Pradesh, Hyderabad
DEPUTY DIRECTOR (*Alternate*)	
SHRI C. P. GOSAIN	CPWD (Electrical), New Delhi
SHRI P. N. GHOSH	In personal capacity J-1916 Chitranjan Park, New Delhi
SHRI J. S. JAMSHEDJI	Steelage Industries Ltd (Minimax Division), Bombay
SHRI C. GNANRAJ (*Alternate*)	
MAJ GEN B. S. KATARIA	Ministry of Defence (DIFR)
SHRI A. K. SURI (*Alternate*)	
SHRI P. KHANNA	Jay Shree Textiles & Industries, Rishra
SHRI D. J. KULKARNI	Municipal Corporation of Greater Bombay (Bombay Fire Brigade), Bombay
SHRI S. N. KUNDU	Fire & Safety Applicances Co, Calcutta
MANAGING DIRECTOR	Avon Services (Production and Agencies) Pvt Ltd, Bombay
TECHNICAL EXECUTIVE (*Alternate*)	
SHRI G. B. MENON	In personal capacity, New Delhi
SHRI R. K. MISRA	Steel Authority of India
SHRI SURESH BABU V. (*Alternate*)	
SHRI P. N. PANCHAL	Central Industrial Security Force, Ministry of Home Affairs
ASSTT INSPECTOR GEN (FIRE) (*Alternate*)	
SHRI B. PATHAK	West Bengal Fire Services, Calcutta
PRESIDENT	The Institution of Fire Engineers (India), New Delhi
GENERAL SECRETARY (*Alternate*)	
SHRI R. R. RAO	Ministry of Defance (DGI)
COL V. R. SENAHATTI (*Alternate*)	
SHRI HARISH SALOT	Vijay Fire Protection Systems Pvt Ltd, Bombay
SHRI L. SEN	Directorate General of Technical Development, New Delhi
SHRI P. H. SETHNA	Kooverji Devshi & Co Pvt Ltd, Bombay
SHRI N. T. PANJWANI (*Alternate*)	
SHRI B. J. SHAH	Newage Industries, Surender Nagar, Gujarat
SHRI A. M. SHAH (*Alternate*)	
SHRI ASHOK SHARMA	Mathar & Platt (India) Ltd, Bombay
SHRI A. K. NANDI (*Alternate*)	
SHRI R. C. SHARMA	Directorate General of Supplies and Disposals, New Delhi
DR T. P. SHARMA	Central Building Research Institute (CSIR), Roorkee
DR A. K. GUPTA (*Alternate*)	
SHRI SUNIL DAS	Metalluragical & Engg Consultants (India) Ltd, Ranchi
SHRI M. C. P. SINHA (*Alternate*)	

Fire Fighting Sectional Committee, CED 22 — *Contd*

Members	*Representing*
SHRI TARIT SUR	Surex Production & Sales Pvt Ltd, Calcutta
SHRI D. NEOGI (*Alternate*)	
SHRI J. N. VAKIL	Tariff Advisory Committee, Bombay
SHRI K. RAVI (*Alternate*)	
SHRI T. YOGESWARA	Steel Authority of India Ltd (Rourkela Steel Plant), Rourkela
SHRI JOHN TAKEY (*Alternate*)	
SHRI J. VENKATARAMAN, Director (Civil Engineering)	Director General, BIS, (*Ex-officio Member*)

Member Secretary
SHRI HEMANT KUMAR
Joint Director (Civil Engineering)

Water Fitting for Fire Fighting Purposes Subcommittee, CED 22:1

Convener	
SHRI A. K. SURI	Ministry of Defence, R&D Organization, New Delhi
Members	
SHRI H. S. KAPARWAN (*Alternate* to Shri A. K. Suri)	
SHRI K. BHASKARAN	Madras Refineries Ltd, Manali, Madras
SHRI S. N. CHAKRABORTY	Tariff Advisory Committee, Madras
SHRI Z. U. ISLAM (*Alternate*)	
SHRI S. K. DHERI	Municipal Corporation of Delhi (Delhi Fire Service), New Delhi
FIRE ADVISER	Ministry of Home Affairs, New Delhi
SHRI S. A. HAVELIWALA	Chhatriya Rubber & Chemical Industries, Bombay
SHRI A. K. BHATTACHARYA (*Alternate*)	
SHRI P. KHANNA	Jaya Shree Textiles, Rishra (WB)
SHRI D. J. KULKARNI	Municipal Corpn of Bombay (Bombay Fire Brigade), Bombay
PRESIDENT	The Institution of Fire Engineers (India), New Delhi
GENERAL SECRETARY (*Alternate*)	
SHRI C. V. RAMACHANDRAN	Directorate of Standardization, Ministry of Defence, New Dehli
SHRI K. U. K. PILLAI (*Alternate*)	
SHRI H. V. RAO	Engineers India Ltd, New Delhi
SHRI K. V. BHARDWAJ (*Alternate*)	
SENIOR MANAGER (FIRE SAFETY SECURITY)	Indian Petrochemicals Corpn Ltd, Bombay
SHRI P. H. SETHNA	Kooverji Devshi & Co Pvt Ltd, Bombay
SHRI N. T. PANJWANI (*Alternate*)	
SHRI B. J. SHAH	Newage Industries, Surender Nagar, Gujarat
SHRI A. M. SHAH (*Alternate*)	
SHRI VAISHNAV SHAH	Devraj Engineers, Ahmadabad
SHRI DEVAN V. SHAH (*Alternate*)	
SHRI ASHOK SHARMA	Mather & Platt (India) Ltd, Bombay
SHRI K. R. ESWARAN (*Alternate*)	
SUPERINTENDENT	Steel Authority of India Ltd (Rourkela Steel Plant), Rourkela

MGIPF—370 Deptt. of BIS/2009—4.11.2009—100 Books.