IP SS

SPECIFICATION FOR FERRULE AND METRIC COUPLING NUT FOR MALE STUD COUPLINGS

BASED ON IS : 8802 AND IS : 8803

IPSS : 1-02-006-85

0. Foreword

0.1 Interplant standardization activity in steel industry has been initiated under the aegis of the Indian Standards Institution (ISI) and the Steel Authority of India Limited (SAIL). This Interplant Standard prepared by the Standards Committee on Basic Standards and Hydraulic, Pneumatic and Lubricating Equipment, IPSS 1:2 with the active participation of the representatives of all the steel plants and established manufacturers of couplings for hydraulic pipes was adopted by the Approval Committee on Consumable Stores and General Equipment, IPSS 1, on 30 January 1985.

0.2 Interplant Standards for steel industry primarily aim at achieving rationalization and unification of parts and sub-assemblies used in plant equipment and accessories, and provide guidance in indenting stores or equipment for existing or new installations by individual steel plants. For exercising effective control on the inventories, it is advisable to select a fewer number of sizes (or types) from among those mentioned in this standard for the purpose of company standards of individual steel plants. It is not desirable to make deviations in technical requirements.

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1. Scope — This interplant standard specifies the dimensions, material and other technical requirements of ferrules and metric coupling nuts used in hydraulic pipe connections along with male stud coupling bodies conforming to IPSS : 1-02-005-85 'Specification for ferrule type male stud couplings and male stud coupling bodies for hydraulic lines'.

Note 1 — This standard does not cover the flared fittings.

Note 2 — This standard is generally based on IS : 8802-1978 'Specification for ferrules for oil-hydraulic couplings' and IS : 8803-1978 'Specification for coupling nuts for oil-hydraulic couplings' and for convenience of reference, the clause numbers of these Indian Standards for each requirement are given in Appendix A along with the number of the matching clauses of this standard.

2. Dimensions — The dimensions shall be as given in Table 1 and Table 2.

3. Material

3.1 *Coupling Nut* — The material shall be 14 Mn 1 S 14 as given in IS : 1570-1961 'Schedules for wrought steels for general engineering purposes' or any other steel as agreed to between the user and the manufacturer.

3.2 *Ferrule* — The material and heat treatment, if any, of the ferrule shall be such that it has adequate tensile strength and toughness to bite on to the tube without showing any signs of failure. The exact specification of the material is left to the manufacturer. However, guidelines for the selection of the material and details of the sealing edge are given in Appendix B for information only.

4. Technical Requirements

4.1 These ferrules and coupling nuts shall be used with male stud coupling bodies conforming to IPSS : 1-02-005-85.

4.2 Threads shall conform to tolerance class 6H of IS : 4218 (Part 4)-1976. 'ISO metric screw threads : Part 4 Tolerancing system (*first revision*)'.

4.3 Product grade and tolerances shall conform to IS : 1367 (Part 2)-1979 'Technical supply conditions for threaded steel fasteners : Part 2 Product grades and tolerances (*second revision*)'.

4.4 These items are intended to be procured in sets along with male stud coupling bodies conforming to IPSS : 1-02-005-85 as well as separately according to the designation given in **5**.

Amendments Issued (*to be filled up by the user department*)

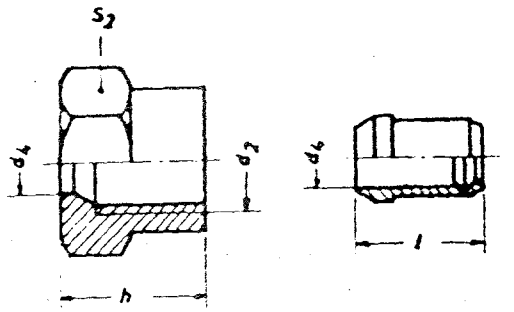
No.	Date of Issue	No.	Date of Issue
1		3	
2		4	

UDC 621·643·415:621·882·3

TABLE 1 METRIC COUPLING NUT FOR MALE STUD COUPLINGS AND FERRULE

(Clause 2)

All dimensions in millimetres.



Series	Designation	Tube Outside Diameter d_4	d_2	h	S_2 A/F	l
Very Light, VL	NP 100	4	M 8 × 1	11·5	10	6
		5	M 10 × 1	12	12	7
		6	M 10 × 1	12	12	7
		8	M 12 × 1	12·5	14	7
		10	M 14 × 1	12·5	17	7
		12	M 16 × 1	12	18	7·5
		15	M 20 × 1·5	13	24	9
	NP 64	18	M 24 × 1·5	16	27	9
		22	M 28 × 1·5	16·5	32	9
Light, L	NP 250	6	M 12 × 1·5	15	14	9·5
		8	M 14 × 1·5	15	17	9·5
		10	M 16 × 1·5	16	19	10
		12	M 18 × 1·5	16	22	10
		15	M 22 × 1·5	17·5	27	10
	NP 160	18	M 26 × 1·5	18	32	10
		22	M 30 × 2	20·5	36	10·5
	NP 100	28	M 36 × 2	21	41	10·5
		35	M 45 × 2	24	50	13
		42	M 52 × 2	24	60	13·5
Heavy, H	NP 640	6	M 14 × 1·5	16	17	9·5
		8	M 16 × 1·5	16	19	9·5
		10	M 18 × 1·5	17·5	22	10
		12	M 20 × 1·5	18	24	10
		14	M 22 × 1·5	20	27	10
	NP 400	16	M 24 × 1·5	21	30	10·5
		20	M 30 × 2	24	36	12·5
		25	M 36 × 2	26·5	46	12 5
	NP 250	30	M 42 × 2	29·5	50	13
		38	M 52 × 2	32·5	60	13·5

4.5 Surface Protection —The coupling nuts shall be phosphated to class A2 of IS: 3618-1966 'Specification for phosphate treatment of iron and steel for protection against corrosion'.

5. Designation

5.1 Coupling Nut — A coupling nut of light series (*L*) for outside diameter of tube 12 mm conforming to this standard shall be designated as :

Coupling Nut L12, IPSS : 1-02-006-85

TABLE 2 METRIC COUPLING NUT

(*Clause* 2)

All dimensions in millimetres.

Series	Outside Diameter of Tube	d B11	d_1 +0·2 0	d_2	d_3 0 −0·1	d_4	l_1 0 −0·2	l_2 +0·3 0	l_3	r
Light (L)	4	4	4·9	5·5	4·5	4·4	3	8	—	—
	6	6	7·8	9	6·5	7	3·5	8·5	1·4	—
	8	8	9·8	11	8·5	9	—	—	—	—
	10	10	12	13	10·6	11	—	9	—	0·6
	12	12	14	15	12·6	13	3·8	—	—	—
	15	15	17	18	15·6	16	—	9·5	—	—
	18	18	20	21	18·6	19	—	10	—	—
	22	22	24	25	22·6	23	4	—	1·6	—
	28	28	30·2	31	28·6	29	—	10·5	—	0·6
	35	35	37·6	40	35·6	38	—	—	—	—
	42	42	44·6	47	42·6	45	4·5	12	—	—

Note — The 12° angle of the finished form is to be formed by pressing suitably to a stage where the diameter '*d*' as given in the Table is maintained. The finished form could also be produced by machining instead of pressing according to the choice of the manufacturer.

5.2 Ferrule — A ferrule of light series (*L*) for outside diameter of tube 6 mm shall be designated as :

Ferrule L 6 IPSS : 1-02-006-85

6. Test — These are to be hydraulically tested in accordance with IS : 10103-1982 'Method of test for ferrule type couplings used in oil-hydraulic systems'.

7. Test Certificate — The manufacturer shall provide a test certificate for its satisfactory performance conforming to this standard.

8. Guarantee — The manufacturer shall provide a guarantee against defective material and bad workmanship for a period of 12 months from the date of actual use or 18 months from the date of receipt.

9. Packing — Each ferrule and coupling nut set shall be separately packed in polythene bag and put in a cardboard box before delivery.

APPENDIX A

(*Clause* 1)

COMPARATIVE STUDY OF IPSS : 1-02-006-85 'SPECIFICATION FOR FERRULE AND METRIC COUPLING NUT FOR MALE STUD COUPLINGS'

AND

IS : 8802-1978 'SPECIFICATION FOR FERRULES FOR OIL-HYDRAULIC COUPLINGS'

AND

IS : 8803-1978 'SPECIFICATION FOR COUPLING NUTS FOR OIL-HYDRAULIC COUPLINGS'

Requirement		Clause Reference in IPSS	Clause Reference in IS
Requirements which are identical between IPSS and ISS	Material for coupling nut	3.1	3 of IS : 8803
	Material for ferrule	3.2	3 of IS : 8802
	Surface protection	4.5	4 of IS : 8803
	Designation of coupling nut	5.1	6 of IS : 8803
	Designation of ferrule	5.2	6 of IS : 8802
	Details of materials and sealing edge of ferrules	Appendix B	Appendix A of IS : 8802
Requirements selected for steel plant use, out of several choice given in ISS	Dimension	2	2 of IS : 8802 and IS : 8803
Supplementary requirements not contradicting ISS	Dimension for very light series	2	Table 1 of IS : 8802 and IS : 8803
Deviations from ISS	Technical requirement	4	—
	Test	6	—
	Test certificate	7	—
	Guarantee	8	—
	Packing	9	—

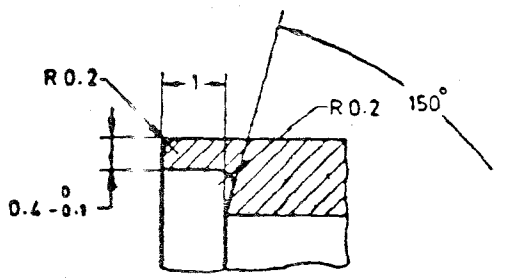
APPENDIX B

(*Clause* 3.2)

DETAILS OF MATERIAL AND SEALING EDGE OF FERRULES

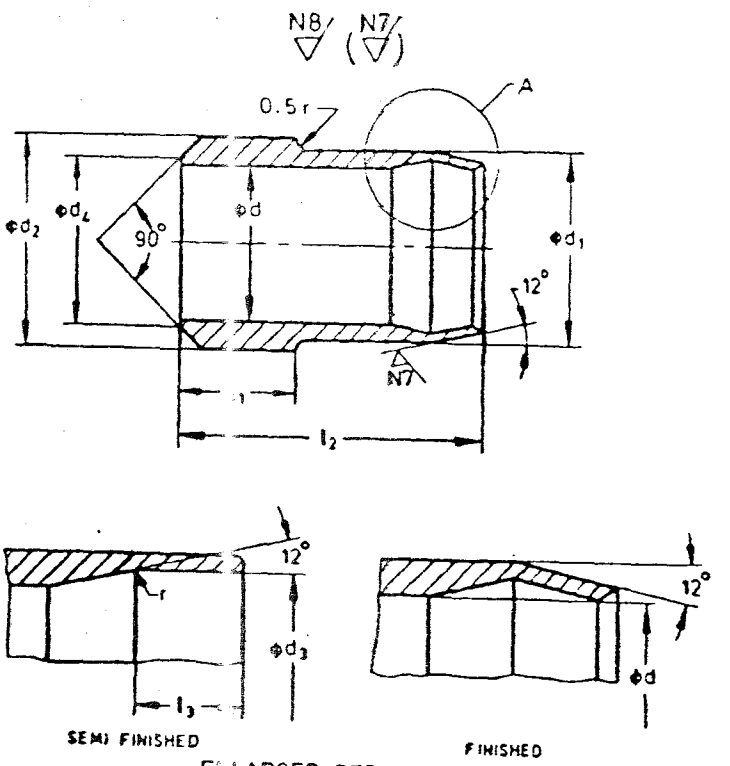
B-1. *Material* — C45 conforming to IS : 1570-1961.

B-1.1 *Form*



B-2. *Material* — Steel with minimum tensile strength of 412 MPa case hardened to a depth of 20 to 30 microns and tempered, surface hardness 580 to 650 *HV* and core strength 686 to 785 MPa.

B-2.1 *Form*



ENLARGED DETAIL A