


INTER PLANT STANDARD IN STEEL INDUSTRY		
 IPSS	SPECIFICATION FOR BUTTON HEAD CEASE NIPPLES	IPSS: 1-02-061-18 (Second Revision)
	BASED ON IS4009 (Part 1): 1981	Formerly: IPSS: 1-02-061-97 (First Revision)

0. FOREWORD

- 0.1 Interplant Standards activity in steel industry has been initiated under the aegis of the Indian Standards Institution (ISI) and the Steel Authority of India Ltd (SAIL). This Interplant Standards, prepared by the Standards Committee on Hydraulic, Pneumatic and Lubricating Equipment, IPSS 1 : 2, with the active participation of the representatives of all the steel plants, major consultants and established manufacturers of hydraulic system for steel plants and was adopted by the approval committee on Consumable Stores and General Equipment in May, 1997. Thereafter this has revised on January 2018.
- 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 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.
- 0.3 This Inter Plant Standard is generally based on IS 4009 (Part 1): 1981 "Button head grease nipples". This IPSS Standard covers the requirements of industrial and giant button head grease nipples. For convenience of reference the clause number of Indian Standard along with the matching clause of this are given at Appendix-B.
- 0.4 While preparation of this standard the help of the following standards specification has been taken

IS 1367:2002(Part 1)	Technical supply conditions for threaded fasteners (Third Revision)
IS 4009 (Part 1): 1981	Button head grease nipples
IS 4454 (Part 2):2001	Steel wires for cold formed springs (Second Revision)
IS 7906 (Part 1): 1997	Helical compression springs (First Revision) Part-1: Design and calculations for spring made from circular section wire.
IS8788:2002	Dimensions for Metric external taper and internal parallel screw threads (Second Revision)

1. SCOPE

- 1.1 This standard specifies the requirements of button head grease nipples to be used for light and heavy machinery and earth moving equipment in the steel plants.

2. MATERIAL

- 2.1 Button head grease nipples shall be manufactured from steel having proportion conforming to IS 1367: 2002.
- 2.2 The compression spring of the valve of the nipple shall be manufactured from wall spring unalloyed and shall be of grade 'BW' conforming to IS 4454 (Part 2): 2001.

3. TYPES & DIMENSIONS

- 3.1 The button head grease nipples shall be of two types :
- a) Industrial button head grease nipples
 - b) Giant button head grease nipple
- 3.2 The dimensions of grease nipples shall be as given in Table-1

4. GENERAL REQUIRMENTS

- 4.1 Both types of button head grease nipples shall be finished smooth and shall be free from burrs, threads and other manufacturing defects.
- 4.2 Button head grease nipples shall be plated with either zinc or cadmium.
- 4.3 The ball shall protrude from the top surface of nipple body to the extent given in

Table –1.

- 4.4 The head of the nipples manufactured from steel shall be hardened to a minimum hardness of 500 HV.
- 4.5 The mounting thread of the nipples shall have external paper threads conforming to IS 8788: 2002 for metric threads and IS 554: 1999 for Whitworth pipe threads to suit the plant requirement.
- 4.6 Compression spring of the valve of the nipple shall be designated as per IS 7906 (part 1) : 1997 and shall have such spring characteristics that the port opening shall start at the pressure of 6-8 bar and a full opening of the port shall take a pressure of 20 bar.

5. TEST FOR FLOW & SEALING

- 5.1 **Flow Test** – When pressed with lubricant the port of the nipple shall start opening at pressure 6-8 bar and shall open fully at pressure 20 bar allowing the lubricant to flow smoothly. Under these conditions there shall not be any abnormality in the operation of the valve and the other components.
- 5.2 **Pressure Tightness** – When the lubricant (oil or grease) is forced into the nipple from the fitting side under a pressure of 35 bar there shall not be any leakage or other abnormalities.

6. MARKING

The nipple shall be marked with manufacturer's name or identification mark.

7. SAMPLING

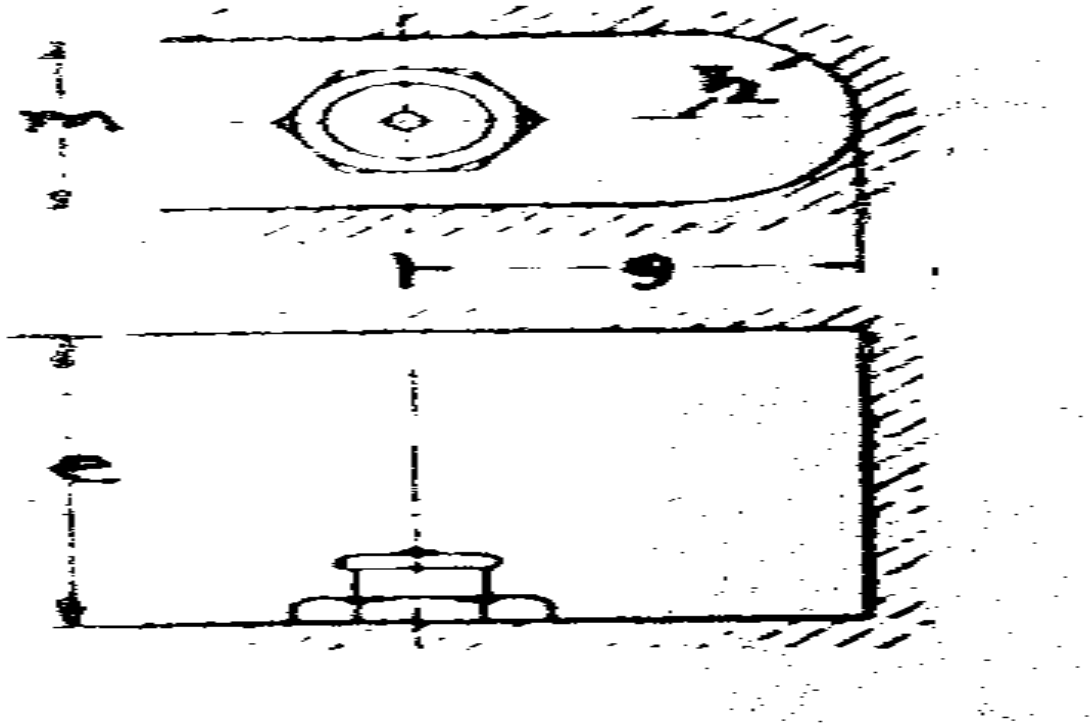
Unless otherwise agreed upon the sampling plan shall be followed as per IS 4905: 1968 "Method for random sampling".

8. TEST CERTIFICATE

Each lot of supply of nipples shall be accompanied with test certificate for flow and pressure test (refer clause 5.1 and 5.2) as per Clause 7.

9. INFORMATION FOR USER

Space for Service Tools – Recommended dimensions for the space required for easy connection and attachment of service tools such as grease guns (whether hand held or power operated) shall be as follows:



(Figure - 1)

Nominal Size of Grease Nipple	e Min	g Min	M Min	r2 Min
M 10 x 1	55	35	32	16
M 16 x 1.5	60	45	36	18
M 20 x 1.5	80	65	46	23

TABLE 1 : DIMENSIONS FOR BUTTON HEAD GREASE NIPPLES

(Read along with Fig. 1)

A) Industrial Button Head Grease Nipples

Sl. No	Normal Metric	size d1 BSP	b	C -0.1	d2 h12	d3 h12	h max	k +/- 0.375	1 -0.5	r	p	f	Width across flats	D	d4	Bal
1	M10x1	1/8"	6.5	3	13	16	18	4.5	5.5	1.0	0.5	2	17	7	2.9	4
2	M10x1	1/4"	8.5	3	13	16	18	4.5	5.5	1.0	0.5	2	17	7	2.9	4
3	M16x1.5	3/8"	8.5	3	13	16	18	4.5	5.5	1.5	0.5	2	17	7	2.9	4

B) Giant Button Head Grease Nipples

Sl. No	Normal Metric	size d1 BSP	b	C -0.1	d2 h12	d3 h12	h max	k +/- 0.375	1 -0.5	r	p	f	Wid th acro ss flats	D	d4	Bal
1	M16x1.5	3/8	8.5	3	13	22	29.5	5.5	12.5	1.5	0.87	2.5	24	10	5	7
2	M20x1.5	1/2	8.5	3	13	22	29.5	5.5	12.5	1.5	0.87	2.5	24	10	5	7

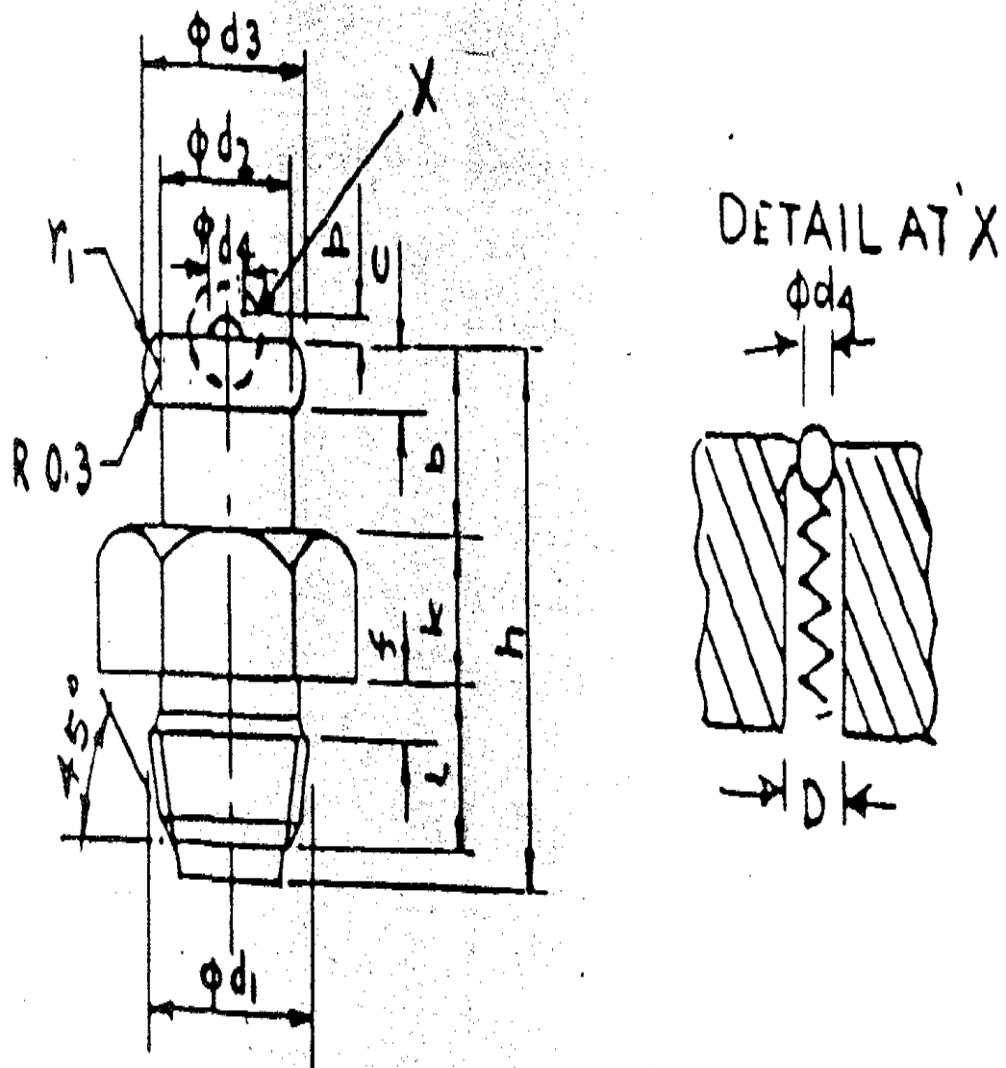


FIG. 1

APPENDIX I
COMPARATIVE STUDY OF
IPSS : 1-02-061-97 'SPECIFICATION FOR BUTTON HEAD GREASE NIPPLES
AND
IS 4009 (PART 1): 1981 BUTTON HEAD GREASE NIPPLES

Requirement	Clause Reference in IPSS	Clause Reference in ISS
Requirements which are same as in ISS		
Scope	1.0	1.0
General Requirement	4.1	5.1
	4.3	5.3
	4.4	5.4
Tests	5.1 & 5.2	6.1 & 6.2
Sampling	7.0	9.0
Information for user	9.0	10.0
A. Requirements which are complementary / Supplementary to ISS		
Material	2.2	3.0
General Requirements	4.5	5.5
Type and Dimensions	3.0 & Table - 1	2.0 & Table – 1
Test Certificate	8.0	9.0
B. Requirements selected out of the choice given in ISS		
General requirements	4.2	5.2
Material	2.1	3.0

-X-X-X-X-X-X-