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GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

**SPECIFICATION FOR
SET OF CONNECTORS
FOR THREE PHASE LOCOMOTIVES**

Specification No : CLW/ES/3/0124, ALT. P
Issued on: 29.09.1999

विद्युत लोको डिज़ाइन कार्यालय
चितरंजन रेलइंजन कारखाना
चितरंजन - 713301

ELECTRIC LOCO DESIGN OFFICE
CHITTARANJAN LOCOMOTIVE WORKS
CHITTARANJAN – 713331

ALTERATION RECORD SHEET

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Amendme nt No.	Date of Amendment	Page No	Alt	REASON	Authority
1.	20-03-99	-	A	Table of contents added	Sd/-
2.	20-03-99		A	Scope of Supply is updated	
3.	20-03-99		A	Approval of Samples, Tests have been included	
4.	5-07-99		B	ABB Ident. No: for Sl. No. 8 to 13 changed as per Adtranz MR, No. 433 Rev.A dt. 25.1.99	
5.	9-07-99		C	Scope of Supply is updated	
6.	29-7-99		D	Scope of Supply is updated due to inclusion of SB1&2 connectors	
7.	22/05/2002		E	Gimota part number of sl no.7 has been added (Cable clamp & reduction ring)	
8.	08/03/03		F	Fire retardant /self-extinguishing clause included as note	
9.	12/11/03		G	Gimota Part no. corrected/added in Sl. no. 2, 3, 5,6,7, 11, 21, 22 and 32 in the Scope of supply. ABB ID no. corrected in sl. No.7 Qty./Loco changed in sl. No. 10 and 91 in the Scope of supply. Description of the item has been changed in sl. no. 82 in the Scope of supply. Item sl. no. 86 in the Scope of supply has been deleted	Sd/-
10.	25-8-05		H	Qty./Loco corrected as per shop requirement vide L/no. ELE/T/16 dt. 28.8.05 & SSE/AJ/19/Connection dt. 10.6.05 and comparative demand chart of SSE/Panel & SSE/Cable harnessing section. Qty./Loco of WAG-9 & WAP-5 separately incorporated.	
11.	11-09-06		I	Qty./Loco Corrected as per SEE/EL's letter no. ELE/T/21 dt 25.08.06 & shop requirement for item no. 1 & 47 of the scope of Supply.	Sd/-
12.	19.11.07		J	ABB No. of item socket 22P/36 PIN'N' (Sl. no. 21) is corrected from HBTB 315161R0001 to HBTB315161R0011	Sd/-
13.	15.5.08		K	PLUG, 9P D-SUB, S1 PINS against SL. NO.48 & CONTACT SOCKET SIZE 8/6 MM ² have been re-introduced for shop requirement-Vide letter No.SE/3P/ST-III/ELS-19/07/22 dated 08.05.08	Sd/-
14.	01.10.09		L	Quantity/Loco column & OEM/Gimota Part No. column is deleted from the table in the scope of supply" (Clause 4). Qty. / Loco will be as per category book.	Sd/-

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15.	11.11.09	M	Description changes and ABB identification deleted for item no. 4 in the scope of supply. ABB identification no. of the sl. no 18 and 20 has been changed for the inclusion of non metallic Cable Clamp and reduction ring if requires with the connector as per shop requirement vide letter of AEE/ELC dated 13.10.09. and description changed.	Sd/-
16.	17.08.2010	N	Cl.No.4 of Scope of supply item Sl. No.92 of page no. 9 is re-introduced & one new item of scope of supply sl. no.97 of p-9 is included as per shop requirement, vide Lt. of Dy.CEE/EL Lt No.ELE/T/21. dtd. 22-07-2010.	Sd/-
17.	13.06.16	O	New Clause No. 6.5 added as separate packing for "Set of Connectors for Panel" and a "set of connectors for Loco, except Panel" as per latest category provision will be provided by the firm.	Sd/-
18.	--.04.25	P	Specification has been completely revised incorporating with re-traced drawings, detailed test schedule, sampling plan for inspection and all alterations issued time to time in Specification No. CLW/ES/3/0124 issued on 29.09.1999.	

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Specification for Set of Connectors**1. SCOPE**

This specification covers the manufacture, testing and supply of Set of Connectors for 3-Phase, 25 KV, 50 Hz AC locomotives.

2. SERVICE CONDITIONS**2.1 Climatic & Environmental condition:-**

Maximum atmospheric temperature	70°C (In Sun) ,50°C (In shade)
Ambient Atmospheric Temperature	-20.....+70°C
Ambient Temperature (Operating)	-30...+80 °C
Normal Humidity	60%.
Maximum Humidity	100% saturation during rainy season
Altitude	160 m above mean sea level
Rainfall	Very heavy in certain areas. The equipment should be designed in such a way as to withstand its running at 10 Km/hr. in flood water level of 102 mm above rail level.
Atmosphere during hot weather	Extremely dusty and desert terrain in certain areas
Coastal areas	Locomotive and equipment will be designed to work in coastal areas in humid and salty laden atmosphere.
Vibration	The equipment, sub-system and their mounting arrangement will be designed to withstand vibrations and shocks encountered in services as specified in correspondence unless otherwise prescribed.

3. STANDARDS

The standard should be as per IEC-60130, IEC-60320, IEC-60309, IEC 60529, IEC 60603-2(DIN 41612), IEC 61373, **MIL C/5015/JSS 50815, JSS 50812**, DIN-95234/**VG-95234**,DIN 95319-2,IEC-60571, DIN 51221(Sheet-3), IEC-60077, ML DTL 45204 D(latest), MIL-STD 1344A(METHOD 2003.1,METHOD 2014,METHOD 3001.1,METHOD 1001.1, TEST 1001.1) for circular connector and other latest relevant Indian/International standard as and when applicable.

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The Tenderer should quote separately for circular connectors, SUB-D connectors, contact pins, contact sockets. Railways shall have the right to exercise the opinion to place orders for circular connectors and SUB-D connectors. The tenderer should quote and supply the relevant accessories to each type of Connector also.

4. DRAWINGS:

CLW Drg. No. CLW/ES/3/SK-1/0124 to CLW/ES/3/SK-96/0124 indicates the constructional and general arrangement in brief of Set of Connectors and is enclosed. For reference purpose, ABB drawings shall be referred as mentioned in CLW drawings.

5. SCOPE OF SUPPLY

S. No.	Description	ABB identification	CLW ASS DRG No.
CIRCULAR CONNECTORS			
1.	PLUG, INSULATED 0.5X2.8	3EHN424077P0001	CLW/ES/3/SK-1/0124
2.	PLUG, SIZE 22/19POLE LITTON	3EHP431611R0001	CLW/ES/3/SK-2/0124
3.	PLUG, SIZE 28/37POLE LITTON	3EHP431611R0002	CLW/ES/3/SK-3/0124
4.	PLUG SIZE 32/31 POLES (With nonmetallic Cable Clamp)	3EHP330325R0001+ HBT8416397P0012	CLW/ES/3/SK-4/0124
5.	PLUG, SIZE 22/19POLE/ LITTON	3EHP431609R0001	CLW/ES/3/SK-5/0124
6.	PLUG, SIZE 28/37POLE/ LITTON	3EHP431609R0002	CLW/ES/3/SK-6/0124
7.	SOCKET 4P/24 PIN"N"	3EHW470071R0001	CLW/ES/3/SK-7/0124
8.	PLUG 4 P BU "N" IR CA / CONNECTOR	3EHW470084R0001	CLW/ES/3/SK-8/0124
9.	SET OF COMPLETE SOCKET / SOCKET 5P / S18 PIN 'N'	HBT315075R0011	CLW/ES/3/SK-9/0124
10.	SET OF COMPLETE SOCKET / SOCKET 5P / S18 PIN 'N' STR	HBT315075R0031	CLW/ES/3/SK-10/0124
11.	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.)	HBT315076R0011	CLW/ES/3/SK-11/0124
12.	L-PLUG 31P/S32 BUSH "N"B	HBT315088R0031	CLW/ES/3/SK-12/0124
13.	SET OF COMPLETE PLUG / PLUG P7/24 SOCKET 'N' INDOOR	HBTB315110R0011	CLW/ES/3/SK-13/0124
14.	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR/with cable clamp	HBTB315111R0011	CLW/ES/3/SK-14/0124
15.	SET OF COMPLETE PLUG / PLUG 22P /36 SKT 'N' INDOOR	HBTB315112R0011	CLW/ES/3/SK-15/0124
16.	ST.35P/40 BU"N"IR KABELH./ PLUG 35P/40 SKT 'N' INDOOR	HBTB315113R0011	CLW/ES/3/SK-16/0124
17.	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR	HBTB315157R0011	CLW/ES/3/SK-17/0124
18.	SOCKET 7P/24 PIN "N" (With Cable Clamp and Reduction Ring)	HBTB315158R0011	CLW/ES/3/SK-18/0124
19.	SET OF COMPLETE SOCKET / SOCKET 13P/32 PIN 'N' INDOOR	HBTB315159R0011	CLW/ES/3/SK-19/0124
20.	SET OF COMPLETE SOCKET / SOCKET 31P/32 PIN 'N' (With	HBTB315160R0011	CLW/ES/3/SK-20/0124

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	Cable Clamp)		
21.	SOCKET 22P / 36 PIN 'N'	HBTB315161R0011	CLW/ES/3/SK-21/0124
22.	SOCKET 35P/40 PIN 'N' IND.	HBTB315162R0011	CLW/ES/3/SK-22/0124
23.	SET OF COMPLETE SOCKET / SOCKET 61P/40 PIN 'N' INDOOR	HBTB315163R0011	CLW/ES/3/SK-23/0124
24.	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR	HBTB315176R0112	CLW/ES/3/SK-24/0124
25.	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR	HBTB315176R0113	CLW/ES/3/SK-25/0124
26.	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR	HBTB315176R0114	CLW/ES/3/SK-26/0124
27.	SET OF COMPLETE PLUG / L-PLUG 4P/40 SOCKET 'N' INDOOR	HBTB315176R0211	CLW/ES/3/SK-27/0124
28.	SET OF COMPLETE PLUG / L- PLUG 4P/40 SOCKET 'N' INDOOR	HBTB315176R0213	CLW/ES/3/SK-28/0124
29.	SOCKET 4P/40 PIN "N"	HBTB315177R0001	CLW/ES/3/SK-29/0124
30.	SOCKET 4P / 40 PIN 'N' IND	HBTB315177R0111	CLW/ES/3/SK-30/0124
31.	SOCKET 4P / 40 PIN 'N' IND	HBTB315177R0113	CLW/ES/3/SK-31/0124
32.	SET OF COMPLETE PLUG / L-PLUG 13P PIN 'N' OUTDOOR	HBTB315205R0111	CLW/ES/3/SK-32/0124
33.	SOCKET 13P PIN "N" OUTDOOR	HBTB315305R0111	CLW/ES/3/SK-33/0124
34.	SET OF COMPLETE SOCKET/ SOCKET 13P PIN "N" OUTDOOR	HBTB315305R0311	CLW/ES/3/SK-34/0124
35.	CABLE CONNECTION / HP-9P-SG-SG-17S-21-13.0 M	HBTB315385R0172	CLW/ES/3/SK-35/0124
36.	SOCKET / PLUG , 5 CRIMP SOCKET S16	HBTB415399P0012	CLW/ES/3/SK-36/0124
37.	PLUG 9 POLES SZ 13-13A/AMP/0-182645-1	HETT401293P0001	CLW/ES/3/SK-37-38/0124
38.	PROTECTIVE CAP / CABLE CLIP(Accessories to item no 40)	HETT401293P0032	
39.	ANDERSON CONTACTS 120A	X1319	CLW/ES/3/SK-39/0124
40.	ANDERSON PLUG PP 120A	X1321BLAU	CLW/ES/3/SK-40/0124
41.	ANDERSON PLUG PP 120A	X1321G3ROT	CLW/ES/3/SK-41/0124
SUB-D PLUGS/CONNECTORS			
42.	SUB-D PLUG SET/CONNECTOR SPEEDOMETER CONNECTOR SUB-SET	3EHP590025R0519	CLW/ES/3/SK-42/0124
43.	CONNECTOR SPEEDOMETER	3EHP590025R0530	CLW/ES/3/SK-43/0124
44.	ST. 9P D-SUB GR1 / CONNECTOR	HBTB316240R0009	CLW/ES/3/SK-44/0124
45.	CONNECTOR / PLUG, 15P D-SUB,SIZE-2	HBTB316240R0015	CLW/ES/3/SK-45/0124
46.	CONNECTOR / PLUG, 17P D-SUB,SIZE-3	HBTB316240R0017	CLW/ES/3/SK-46/0124
47.	SUB D Plug 25P D-SUB	HBTB316240R0025	CLW/ES/3/SK-47/0124
48.	PLUG,9P D-SUB,S1 PINS	HBTB316240R0091	CLW/ES/3/SK-48/0124
49.	SOCKET 9P D-SUB SIZE 1	HBTB316241R0009	CLW/ES/3/SK-49/0124
50.	PLUG DO 5P/ 14	HBTB415399P0022	CLW/ES/3/SK-50/0124
CONTACT PINS			
51.	CONTACT PIN, SIZE 8/2,5 SQ.MM	3EHW470321P1025	CLW/ES/3/SK-51- 53/0124

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52.	CONTACT PIN, SIZE 8/6 SQ.MM	3EHW470321P1060	CLW/ES/3/SK-54 -59/0124
53.	CONTACT PIN, SIZE 8/10 SQ. MM	3EHW470321P1100	
54.	CONTACT PIN 12/0.5	HBT415298P0001	
55.	CONTACT PIN 12/1.0	HBT415298P0003	
56.	CONTACT PIN 12/1.5	HBT415298P0005	
57.	CONTACT PIN 12/2.5	HBT415298P0007	
58.	CONTACT PIN 12/4.0	HBT415298P0009	
59.	CONTACT PIN 12/6.0	HBT415298P0011	CLW/ES/3/SK-60-63/0124
60.	CONTACT PIN GR 16* 0.5 MM2	HBT415299P0001	
61.	CONTACT PIN 16/1.0	HBT415299P0005	
62.	CONTACT PIN 16/1.5	HBT415299P0007	
63.	CONTACT PIN GR 16*2.0 MM2(AWG 14)	HBT415299P0009	CLW/ES/3/SK-64/0124
64.	CONTACT PIN MALE GR16 0.5-1.0 mm2	HBTB415399P0001	CLW/ES/3/SK-65/0124
65.	DUMMY CONTACT MALE GR16 BL/ DUMMY PLUG SIZE 16 BL	HBTB415399P0005	CLW/ES/3/SK-66-69/0124
66.	CONTACT PIN GR0/ 16 SQ.MM	HBTB416435P0001	
67.	CONTACT PIN GR0/25 SQ.MM	HBTB416435P0002	
68.	CONTACT PIN GR0/ 35 SQ.MM	HBTB416435P0003	
69.	CONTACT PIN GR0/50 SQ.MM	HBTB416435P0004	CLW/ES/3/SK-70/0124
70.	CONTACT PIN AWG 24-20 Sub-D	HESG455639P1200	CLW/ES/3/SK-71/0124
71.	CONT. PIN 0.24-0.62/24-20	X1.8076.005/01	
CONTACT SOCKETS			
72.	CONTACT SOCKET	HBT415299P0010	CLW/ES/3/SK-72/0124
73.	CONTACT SOCKET SIZE 8 / 2.5 MM2	3EHW470321P2025	CLW/ES/3/SK-73-75/0124
74.	CONTACT SOCKET SIZE 8 / 6 MM2	3EHW470321P2060	
75.	CONTACT SOCKET SIZE 8 / 10 MM2	3EHW470321P2100	
76.	CONTACT SOCKET	HBT415176P0003	CLW/ES/3/SK-76/0124
77.	CONTACT SOCKET	HBT415176P0004	CLW/ES/3/SK-77- 81/0124
78.	CONTACT SOCKET 12/1.0	HBT415298P0004	
79.	CONTACT SOCKET 12/1.5	HBT415298P0006	
80.	CONTACT SOCKET 12/2.5	HBT415298P0008	
81.	CONTACT SOCKET 12/6.0	HBT415298P0012	
82.	CONTACT SOCKET 16/0.5	HBT415299P0002	CLW/ES/3/SK-82-85/0124
83.	CONTACT SOCKET 16/1.0	HBT415299P0006	
84.	CONTACT SOCKET 16/1.5	HBT415299P0008	
85.	CONTACT SOCKET 16/2/AWG14	HBT415299P0010	
86.	CONTACT FEMALE GR16 / CONTACT SOCKET SIZE 16	HBTB415399P0002	CLW/ES/3/SK-86/0124
87.	Contact socket S.0/35 mm2	HBTB416434P0003	CLW/ES/3/SK-87-88/0124

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88.	Contact socket S.0/50 mm2	HBTB416434P0004	
89.	CONTACT SOCKET 2-3 MM2	HESG455509P0021	CLW/ES/3/SK-89/0124
90.	CONTACT SOCKET AWG24-20	HESG455638P0120	CLW/ES/3/SK-90-91/0124
91.	CONTACT SOCKET SUB-D	HESG455638P1200	
92.	CONNECTOR SKT 0.23, 0.5	SE408197P0013	CLW/ES/3/SK-92/0124
ACCESSORIES			
93.	SOCKET BODY PA	3EHW470001P0001	CLW/ES/3/SK-93/0124
94.	ADAPTOR STR. SIZE 18	HBT415278P0001	CLW/ES/3/SK-94/0124
95.	ADAPTOR NW17/SIZE 32	HBTB415393P0437	CLW/ES/3/SK-95/0124
96.	PROTECTION BOOT	HBTB-416397P0012	CLW/ES/3/SK-96/0124

6. Tests:

6.1 Type Tests, Routine Tests and Acceptance Tests:

Type Tests, Routine Tests and Acceptance Tests to be conducted on a series of circular connector complete and the contacts, series of data connector complete. For the purpose of selection of test sample, user may decide any one shell size and contact size from the series.

A. TYPE TEST: Type test to be carried out on prototype samples of Set of Connectors. Complete type tests shall be organized and conducted by the manufacturer in presence of the authorized representative of vendor controlling authority. The type test once approved by vendor controlling agency may be repeated whenever required by vendor controlling agency. Supplier shall submit internal test report along with following details prior to offering the Set of Connectors for type testing:

- The Bill of material indicating Specification drawing no, material, sub Supplier etc.
- Complete technical details of Circular Connectors, Data Connectors, Contacts, Rubber inserts etc.
- If TOT with the firm outside India is involved, then the supply experience of collaborator shall be furnished.
- The supplier shall make available at least two prototypes of the equipment proposed to be supplied by him for inspection and test at his works and advice the Dy. Chief Electrical Engineer (Design) and Controller of Stores as and when he is ready with the prototype and necessary testing and measuring apparatus and facilities for carrying out the tests.

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(v) After the above tests if it is considered necessary by the Dy. CEE/Design's, authorized representative to carry out any further tests or trials of the prototype, the Supplier will arrange for the same by the quickest means.

(vi) The supplier shall not offer equipment's of series production to the inspector authorized under the contract until the prototype has been finally approved. The Supplier shall provide all facilities to the inspecting officer at his works, to inspect and test the equipment.

B. ROUTINE TEST: To be carried out by the manufacturer on each lot. The manufacturer shall maintain record of test results to be produced as and when required by the authorized inspecting agency.

C. ACCEPTANCE TEST: Acceptance test will be done by the inspection agency as per terms and condition mentioned in the placed purchase orders. Sampling plan will be followed as tabulated below:

Sl. No.	Lot or Batch Size	Sample Size	Acceptance Verdict	
			Accept Lot if Non Conformity is Equal or Less than Mentioned No.	Reject Lot if Non Conformity is equal or greater than Mentioned No.
1.	2-8	2	0	0
2.	9-15	3	0	0
3.	16-25	5	0	1
4.	26-50	8	0	1
5.	51-90	13	0	1
6.	91-150	20	1	2
7.	151-280	32	2	3
8.	281-500	50	3	4
9.	501-1200	80	5	6
10.	1201-3200	125	7	8
11.	3201-10000	200	10	11

Note:

(a) If the sample pieces are found as per specification, then "OK" remarks will be given in firm's Inspection report or in clearance report of CLW.

(b) Otherwise, non- conformity needs to be generated, and the lot is to be treated as above sampling inspection plan.

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In addition to above, the purchaser shall have right to carry out stage inspection also at firm's premises particularly with reference to manufacturing process, quality control and compliance with various clauses of the specification.

D. TESTS ON RAW MATERIALS/ BOUGHT OUT ITEMS

- The manufacturers shall maintain Quality Assurance Plan of all raw materials/bought out items used in the manufacturing of Set of Connectors to ensure the quality and compliance to prescribed standards.
- Type tests: To be carried out on prototype samples of raw materials. For bought out items firm to submit certificate of compliance/test certificate of OEM.
- Acceptance tests: To be carried out on each batch of supply. For bought out items firm to submit certificate of compliance/test certificate of OEM. The manufacturer shall maintain record of test results to be produced as and when required by the authorized inspecting agency.

6.1.1 Circular connectors product details

a) Sizes & categories

Shells	From 18 up to 40
Contacts	Size 0 to 16

b) Materials used

Shells	Aluminum Alloy
Contacts	Brass with Gold or with Silver plating (Gold plating: Min 0.5 μ Au over min 2.5 μ Ni, Silver plating: min 3.5 μ Ag) Material grade: Gold: BS: 2874, Brass: IS: 319
Inserts	Ethylene acrylate, Silicon or equivalent Flame Retardant Halogen free low smoke non toxicity self-extinguishing elastomer-certified EN45545-2 HL-2. (Excluding EPDM)
Cable clamps	Al alloy, Nylon GR black Note: The non-metallic part of Connector (Protection boot etc.) must be of in flammability class FH 2-5mm as defined in the IS: 11731 (Part- 1): 1986- Horizontal specimen method of test for

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	solid insulating materials and class FVO as per IS:11731(Part-2): 1986-Vertical test method.
Screws	Stainless steel

c) Surface treatment

Plating	Zinc Cobalt with dark green color
Color	Olive green or black

Note: Marking on inserts shall be done in white for better visualization and for identification.

6.1.2 Table of summary of applicable type tests, routine tests & acceptance test on Circular connectors:

Sl. No.	Test Description	Connector Complete			Contacts			Reference Clause No.
		Type Test	Routine Test	Acceptance Test	Type Test	Routine Test	Acceptance Test	
1.	Visual check	✓	✓	✓	✓	✓	✓	6.1.2.1
2.	Dimensional check	✓	✓	✓	✓	✓	✓	6.1.2.2
3.	Contact engagement & separation force test							6.1.2.3
	Mating force test				✓	✓	✓	6.1.2.3.1
	Separation force test				✓	✓	✓	6.1.2.3.2
4.	Crimp test				✓	✓	✓ ** *	6.1.2.4
5.	Di-electric voltage test	✓	✓	✓				6.1.2.5
6.	Insulation resistance test	✓	✓	✓				6.1.2.6
7.	Contact resistance test	✓	✓	✓				6.1.2.7
8.	Coupling torque test	✓	✓	✓				6.1.2.8
9.	Mechanical endurance test	✓						6.1.2.9
10.	Thermal test	✓						6.1.2.1

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								0
11.	Corrosion resistance test	✓						6.1.2.1 1
12.	Vibration & shock tests	✓						6.1.2.1 2
13.	Water tightness test	✓						6.1.2.1 3
14.	Voltage Induced Test	✓	✓	✓				6.1.2.1 4
15.	Interchangeability Test	✓		✓				6.1.2.1 15
16.	Flammability test	✓	✓ *	✓ *				6.1.2.1 6
17.	Determination and thickness of plating	✓	✓	✓	✓	✓ **	✓ **	6.1.2.1 7
18.	Moisture Resistance test	✓		✓				6.1.2.1 8

Note : '*' Flammability test may be carried out on raw material sample of nonmetallic components offered by firm from which firm has manufactured offered lot during inspection. Documentary evidence for traceability of raw materials to be shown by firm whenever asked by inspecting agency.

: '**' 05 random samples of contacts of each type shall be verified during inspection for determination and verification of thickness of plating as per specification.

: '***' 01 random sample of each size of pin and sockets shall be tested during inspection.

6.1.2.1. Visual check

The connector must not have any damages, at the shell, contacts, on the surface and on the rubber parts.

6.1.2.2. Dimensional check

The dimensions of all parts of the connector must conform to the specification drawings and the applicable standards.

6.1.2.3 Contact engagement & separation force tests

Prepared By	Checked By	Issued By
SSE/ Drg. (ELECT.)	SEE/ D-I	Dy.CEE/D-I

(a) Purpose

The purpose of this test is to determine the forces required to engage and separate standard test pins with individual contacts. The force recorded during the engagement and separation cycle is indicative of the normal force pressure exerted on a mating unit by the socket contact spring member.

(b) Test equipment

Force gauge with contact holding fixture as per Exhibit-1.



Exhibit-1

(c) Test procedure

Insert a qualified test probe and measure the engagement force. As the qualified test probe is withdrawn, measure the separation force. The measured forces according to contact size must have the values given in the table.

6.1.2.3.1 Mating force

Tolerance on Probe dia (in mm)	+0/- 0.0025			
Contact size	16	12	8/8H	0
Probe dia (mm)	1.613	2.413	3.632	9.093
Force (gm)	≤350	≤550	≤1600	≤4000

6.1.2.3.2 Separating force

Tolerance on Probe dia (in mm)	+0.0025 /-0			
Contact size	16	12	8/8H	0
Probe dia (mm)	1.562	2.362	3.581	9.042
Force (gm)	≥160	≥220	≥400	≥1000

6.1.2.4 Crimp test**(a) Purpose**

Prepared By	Checked By	Issued By
SSE/ Drg. (ELECT.)	SEE/ D-I	Dy.CEE/D-I

The purpose of this test is to determine the mechanical strength of the crimped joint of contact and conductor. The values obtained give an indication of relative strength of the joint.

(b) Test equipment

- (i) Clamps, jaws or other means to hold the contact and conductor.
- (ii) Mechanism to separate the holding devices at a constant rate of speed of $1\pm 1/4$ inch/min.
- (iii) Gauge to register the amount of tension being exerted between the contact and conductor.

(c) Test procedure

- (i) Place crimped sample of crimped contact and wire into test fixture of tensile tester.
- (ii) Activate tensile equipment so that an axial force is exerted at a speed of $1\pm 1/4$ inch/ min. separating contact and conductor
- (iii) Record tensile data and examine sample.

The measured loads must have the values as given in the table

Contact Size	Wire section (mm ²)	Load(N)	Contact Size	Wire section (mm ²)	Load(N)
16	0.5	≥ 60	8/8H	1.0	130
	1.0	≥ 130		1.5	150
	1.5	≥ 150		2.5	300
12	0.5	≥ 60		4.0	500
	0.75	≥ 90		6.0	580
	1.0	130	0	10.0	≥ 700
	1.5	150		25.0	≥ 1200
	2.5	300		50.0	≥ 2400
	4.0	500		16.0	
	6.0	580		35.0	

During the test the wire must not slip out of the contact. The crimping area must not have deformations or fractures. Broken wires outside of the crimping area do not constitute a test failure.

6.1.2.5 Di-electric voltage test

Purpose of the test is to ensure proper di-electric strength of the connector. Depending upon the nominal operating voltages of the connector, test voltages are decided in accordance to the table given below.

Service	Working Voltage	Test	Flashover
---------	-----------------	------	-----------

Prepared By	Checked By	Issued By
SSE/ Drg. (ELECT.)	SEE/ D-I	Dy.CEE/D-I

	DC (V)	AC (V)	voltage (VAC 50Hz)	voltage min.(V)
Instrument	250	200	1000	1400
A	700	500	2000	2800
D	1250	900	2800	3600
E	1750	1250	3500	4500
B	2450	1750	4500	5700
C	4200	3000	7000	8500
S	According to Customers Specification			

The test voltage according to table must be applied between contacts close to each other and between a contact closest to shell and the shell. Connectors must withstand the test voltage during one minute:

- Without any flashovers.
- Without surface discharges
- Without any damage.

Note: Di-electric test in acceptance may be carried on 80% as per relevant standard

6.1.2.6 Insulation resistance test

Insulation resistance shall be checked between the adjacent contacts of connector and between all contacts shorted together and the shell.

A voltage of 500±50V DC must be applied between contacts close to each other and between all contacts connected together and the Shell.

The value of insulation resistance measured shall be more than 100 MΩ.

6.1.2.7 Contact resistance test

Contact resistance shall be measured through measurement of DC voltage drop across the contact, using appropriate equipment, corresponding to the nominal direct current through the contact as per table.

Contact size	16	12	8/8H	0
Nominal (A)	13	23	46	150
Maximum (A)	22	41	73	245
Measured values of voltage drops must not exceed the values given in the table				
Contact size	16	12	8/8H	0
Voltage drop (mV)	≤74	≤63	≤85	≤53

6.1.2.8 Coupling torque test

Prepared By	Checked By	Issued By
SSE/ Drg. (ELECT.)	SEE/ D-I	Dy.CEE/D-I

Testing of connector is to be done with connector being coupled and uncoupled as per Exhibit - 2.

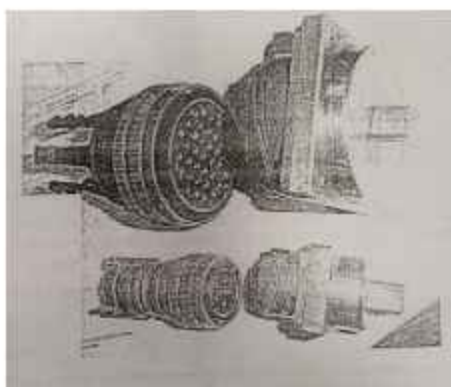


Exhibit - 2.

The measured coupling and uncoupling torques shall have the values given in the table.

Shell size	Coupling (N.cm)	Uncoupling (N.cm)
18	≤ 400	≥ 100
20	≤ 500	≥ 150
22	≤ 600	≥ 150
24	≤ 650	≥ 200
28	≤ 700	≥ 270
32	≤ 800	≥ 360
36	≤ 900	≥ 450
40	≤ 1000	≥ 590

6.1.2.9 Mechanical endurance test

The connector complete with contacts must go 500 cycles of coupling & uncoupling. A mechanical device may be used to perform coupling & uncoupling of the connector or may be done so manually.

After the test the connector must have.

- No cracks.
- No fractures.

It must also be verified that the bayonet ramps still respect the dimensions according to the relative drawing and specifications.

After the endurance cycle carry out the following tests:

Prepared By	Checked By	Issued By
SSE/ Drg. (ELECT.)	SEE/ D-I	Dy.CEE/D-I

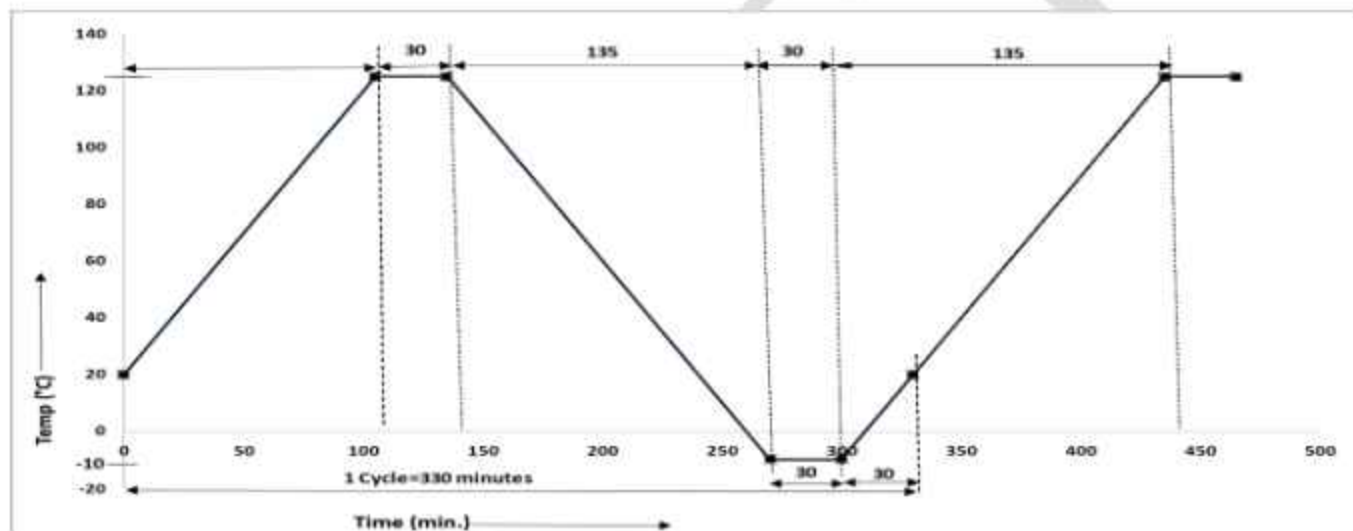
- Di-electric voltage test
- Insulation resistance test
- Contact resistance test
- Coupling torques test

6.1.2.10 Thermal test

This test is to be carried out with full bundled connectors. Connector shall be placed inside the environmental chamber with following cycle programmed:

(a) Test condition

30 min. at + 125 °C, 30 min. at -10°C; dwelt time ≥ 1 deg ° C / min ; 5 cycle total.



After this test following tests are to be repeated :

- Di-electric voltage test
- Insulation resistance test

The connector must have:

- No breakage
- To deterioration
- No surface damages

6.1.2.11 Corrosion resistance test

(a) Purpose

Prepared By	Checked By	Issued By
SSE/ Drg. (ELECT.)	SEE/ D-I	Dy.CEE/D-I

The purpose of the test is to determine the effects of a controlled salt laden atmosphere corresponding to JIS-Z2371 or equivalent on electrical and mechanical properties of the connector.

(b) Test condition

Test conditions depending on surface treatment

Zinc-Cobalt	48 hours at 35±2°C
Electroless Nickel	48 hours (Special Al alloy) at 35±2°C
Epoxy-Polyurethane	48 hours at 35±2°C

After carrying out the salt spray test following tests to be repeated

- Visual check
- Di-electric voltage test
- Insulation resistance test
- Contact resistance test

The connector must not have corrosion damages.

6.1.2.12 Vibration and Shock tests

Test shall be conducted as applicable to Rail Road products. During vibration test all conductors of the connectors to be connected in series & energised for lighting a lamp with suitable voltage, current through the circuit being not less than 100mA.

(i) Functional random test and simulated long life test is to be done as per IEC 61373.

At the end of the test, verify that the connector must have

- No resonance during the test.
- No damages after the test.
- No released threads after the test.
- No interruption in illumination of test lamp.

Note: After this test the di-electric voltage test is to be repeated.

(i) **Shock Test:** Shock test is to be done as per IEC 61373

At the end of the test, verify that the connector must have:

- No damages after the test

Note: After this test the di-electric voltage test is to be repeated.

Prepared By	Checked By	Issued By
SSE/ Drg. (ELECT.)	SEE/ D-I	Dy.CEE/D-I

6.1.2.13 Water Tightness test

This test is to be carried out with full bundled connectors. Free cable ends must be closed to avoid any infiltration of water.

The prepared connector shall be immersed in water for one hour at a pressure of 0.13 bar (1.5m head of water) at ambient temperature.

At the end of the test, inspect the connector to confirm that no water ingress has taken place.

After this test following tests to be repeated

- Di-electric voltage test
- Insulation resistance test

6.1.2.14 Voltage Induced Test**(a) Purpose**

The purpose of the test is to confirm that "No any voltage should be induced in adjacent contacts"

(b) Method of testing

Apply 110 V DC on two contacts. With the help of multimeter, one probe should be fix with supply (Positive or Negative), Move another probe on adjacent contacts and observe induce voltage.

6.1.2.15 Interchangeability Test**(a) Purpose**

The purpose of the test is to ensure "interchangeability with different vendors make set of Connectors"

(b) Method of testing

Matting with different make set of Connectors and observe for proper matting and no any Contacts push back.

6.1.2.16 Flammability test

The nonmetallic part of connector (protection boot etc.) must be of inflammability class FH2-5 mm as defined in the IS:11731(part-1) : 1986- Horizontal specimen method of Test for solid Insulating materials and class FVO as per IS: 1173(part-2):1986-Vertical test method.

6.1.2.17 Determination and thickness of plating

The plating thickness measurement to be taken at 3 different points along the length of each of the sample contacts and the average value should be higher than the minimum specified thickness.

6.1.2.18 Moisture Resistance Test: The test to be conducted as per EIA 512, IEC-60512, MILL-1344.

6.1.3 Test report

Prepared By	Checked By	Issued By
SSE/ Drg. (ELECT.)	SEE/ D-I	Dy.CEE/D-I

Upon completion of all or part of the tests and functional checks, comprehensive report to be prepared by test engineer / test house. The report shall describe the execution of the tests and their effect on the connectors together with:

- (a) The summary, which shall identify changes which have occurred during the tests. Part identification number shall be quoted.
- (b) Details of the instrumentation and procedures used for the tests. These may be included in the report but this is not mandatory.
- (c) Methods of mounting for each test.
- (d) Method and order of testing used. The report shall also include figures showing the location of all control and measuring positions.
- (e) Function test carried out and values obtained pre-test and post-test.
- (f) Results of tests from control and reference positions, together with observations against the set objectives and acceptance criteria.

The report shall contain all the control point graphs. If necessary the graphs shall contain also the tolerance bands in order to demonstrate that the test remained within the tolerance limits.

6.2 Test on Data Connectors

6.2.1 Data Connectors product details:

a) Sizes & categories

Cases	From 3 up to 25 poles
Contacts	Size HD20 and 8

b) Materials used:

Cases	Zinc Alloy(ZMAC)
Contacts	Bronze with gold plating
	Galvanic coating of Socket contact HD20 & 8: ≥ 1.3 μm Au over 1.3 μm Ni
Inserts	Nylon GR, black
Cable clamps	Brass, tin plated
Screws	Stainless steel

c) Surface treatment: No surface treatment

6.2.2 Table of summary of applicable type tests, routine tests & acceptance tests on Data connectors:

Prepared By	Checked By	Issued By
SSE/ Drg. (ELECT.)	SEE/ D-I	Dy.CEE/D-I

S. No.	Test Description	Connector Complete			Contact			Reference Clause No.
		Type Test	Routine Test	Acceptance tests	Type Test	Routine Test	Acceptance tests	
1.	Visual check	✓	✓	✓	✓	✓	✓	6.2.2.1
2.	Dimensional check	✓	✓	✓	✓	✓	✓	6.2.2.2
3.	Di-electric voltage withstand test	✓	✓	✓				6.2.2.3
4.	Insulation resistance test	✓	✓	✓				6.2.2.4
5.	Cable retention test	✓						6.2.2.5
6.	Vibration & shock tests	✓						6.2.2.6
7.	Thermal test	✓						6.2.2.7
8.	Flammability test	✓	✓ *	✓ *				6.2.2.8
9.	Determination and thickness of plating				✓	✓ **	✓ **	6.2.2.9

Note : * Flammability test may be carried out on raw material sample of nonmetallic components offered by firm from which firm has manufactured offered lot during inspection. Documentary evidence for traceability of raw materials to be shown by firm whenever asked by inspecting agency.

** 05 random samples of contacts of each type shall be verified during inspection for determination and verification of thickness of plating as per specification. For bought out items, firm to submit certificate of compliance/test certificate of OEM.

6.2.2.1 Visual check

The connector must not have any damages, at the case, contacts and on the contact insert.

Prepared By	Checked By	Issued By
SSE/ Drg. (ELECT.)	SEE/ D-I	Dy.CEE/D-I

6.2.2.2 Dimensional check

The dimensions of case parts of the connectors must conform to the specification drawings and the applicable standards.

6.2.2.3 Di-electric Voltage withstand test

Test voltage shall be applied between all contacts of the connectors shorted together and casing by gradually increasing the voltage amplitude to the test voltage and maintained at the specified level for 1 minute.

Working voltage (AC)	Working voltage (DC)	Test voltage (VAC at 50Hz)
50V AC	72V DC	500V
Above 50V AC & Up to 90V AC	Above 72V DC & Up to 125V DC	1000V
Above 160V AC & Up to 225V AC	Above 125V DC & Up to 315V DC	1500V

Data connectors must withstand the test voltage during one minute:

- Without any flashovers.
- Without surface discharges.
- Without any damage.

6.2.2.4 Insulation resistance test

Insulation resistance between the current carrying parts and casing is performed using 500V meggar.

A voltage of $500 \pm 50V$ must be applied between a contact pin closest to case and the case. The value measured must not be less than $5M\Omega$.

6.2.2.5 Cable retention test**(a) Procedure**

The force is to be applied on the cable which is secured with clamp.

The force is increased at a rate of 100N/min from 0 to 150N, at which it is finally held for 5 minutes.

It is to be observed that the cable must not move in the cable clamp.

After this test di-electric voltage test is to be repeated.

6.2.2.6 Vibration and Shock tests

Test shall be conducted as applicable to Rail Road products. During vibration test all conductors of the connectors to be connected in series & energised for lighting a lamp with suitable voltage, current through the circuit being not less than 100mA.

- (i) Functional random test and simulated long life test is to be done as per IEC 61373.

At the end of the test, verify that the connector must have

- No resonance during the test.

Prepared By	Checked By	Issued By
SSE/ Drg. (ELECT.)	SEE/ D-I	Dy.CEE/D-I

- No damages after the test.
- No interruption in illumination of test lamp

Note: After this test the di-electric voltage test is to be repeated.

(ii) **Shocks Test:** Shock testing is to be done as per IEC 61373

At the end of the test, verify that the connector must have:

- No damages after the test.

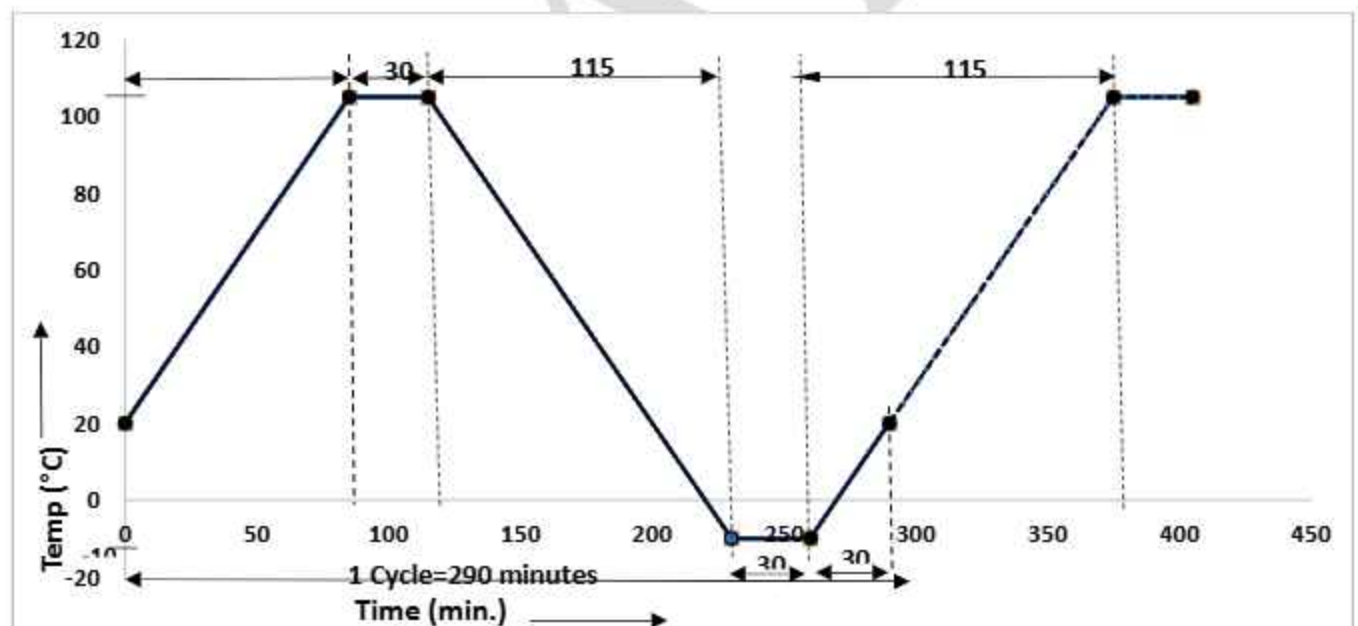
Note: After this test the di-electric voltage test is to be repeated.

6.2.2.7 Thermal test

This test is to be carried out with full bundled connectors.

(a) Test conditions

10 cycles total, each cycle consisting of 30 min. at 105°C, 90% humidity, 30 min, at - 10°C contacts energised at working DC voltage.



After this test following tests are to be repeated:

- Di-electric voltage withstand test
- Insulation resistance test

Prepared By	Checked By	Issued By
SSE/ Drg. (ELECT.)	SEE/ D-I	Dy.CEE/D-I

6.2.2.8 Flammability test

The nonmetallic part of connectors must be of inflammability class FH2-5 mm as defined in the IS:11731(part-1) : 1986- Horizontal specimen method of Test for solid Insulating materials and class FVO as per IS: 1173(part-2):1986-Vertical test method.

6.2.2.9 Determination and thickness of plating

For determination and verification of thickness of plating, firm has to submit NABL/ Govt approved lab test reports of sealed random samples by authorised official of Dy.Design/Inspecting agency.

In case of bought-out item relevant supplier COC/data sheet showing plating thickness to be provided.

6.2.3 Test report

Upon completion of all or part of the tests and functional checks, comprehensive report to be prepared by test engineer/test house. The report shall describe the execution of the tests and their effect on the connectors together with:

- a) The summary which shall identify changes which have occurred during the tests. Part identification number shall be quoted.
- b) Details of the instrumentation and procedures used during testing. These may be included in the report but this is not mandatory.
- c) Methods of mounting for each test.
- d) Method and order of testing used. The report shall also include figures showing the location of all control and measuring positions.
- e) Function test carried out and values obtained pre-test and post-test.
- f) Results of tests from control and reference positions, together with observations. against the set objectives and acceptance criteria

The report shall contain all the control point graphs. If necessary the graphs shall contain also the tolerance bands in order to demonstrate that the test remained within the tolerance limits.

7. Technical Documents to be supplied by the supplier :-

- i) Type test reports : In soft & Hard copy (One set)
- ii) Routine test reports along with each set : In soft copy + hard copy(One set)
- iii) Instruction/Maintenance Manual : In Soft copy
- iv) Detailed Drawing : Soft copy (CAD /NX (Unigraphics)) + 1 hard copy in readable size

8. IDENTIFICATION:

The tenderer shall provide following details on the equipment

Prepared By	Checked By	Issued By
SSE/ Drg. (ELECT.)	SEE/ D-I	Dy.CEE/D-I

- i) Manufacturer's name & monogram/Brand
- ii) Maximum Rated Voltage.
- iii) Month & year of Manufacture.
- iv) SL. No. of equipment.

9. QUANTITY/LOCO:

Quantity/Loco : As per latest category provision(one set means one loco set)

10. PACKING:

10.1 The Supplier should ensure that the Connectors are packed quantity per loco during delivery with the relevant ABB Identification Number labels on each item.

10.2 Separate packing for "Set of connectors for panel" and "Set of connectors for Loco except panel"

as per latest category provision will be provided by the firm.

11. Quality Assurance: As per ISO 9001.

12. REFERENCE:

This specification has the reference to the original manufacturer as follows:

M/s GIMOTA AG

CH-8954, GEROLDSWIL ZURICH Ph: 004117493010, FAX:004117493015

The tenderer shall confirm that the equipments are as either used in 3 phase AC. Locomotive manufactured by ABB for Indian Railways or similar.

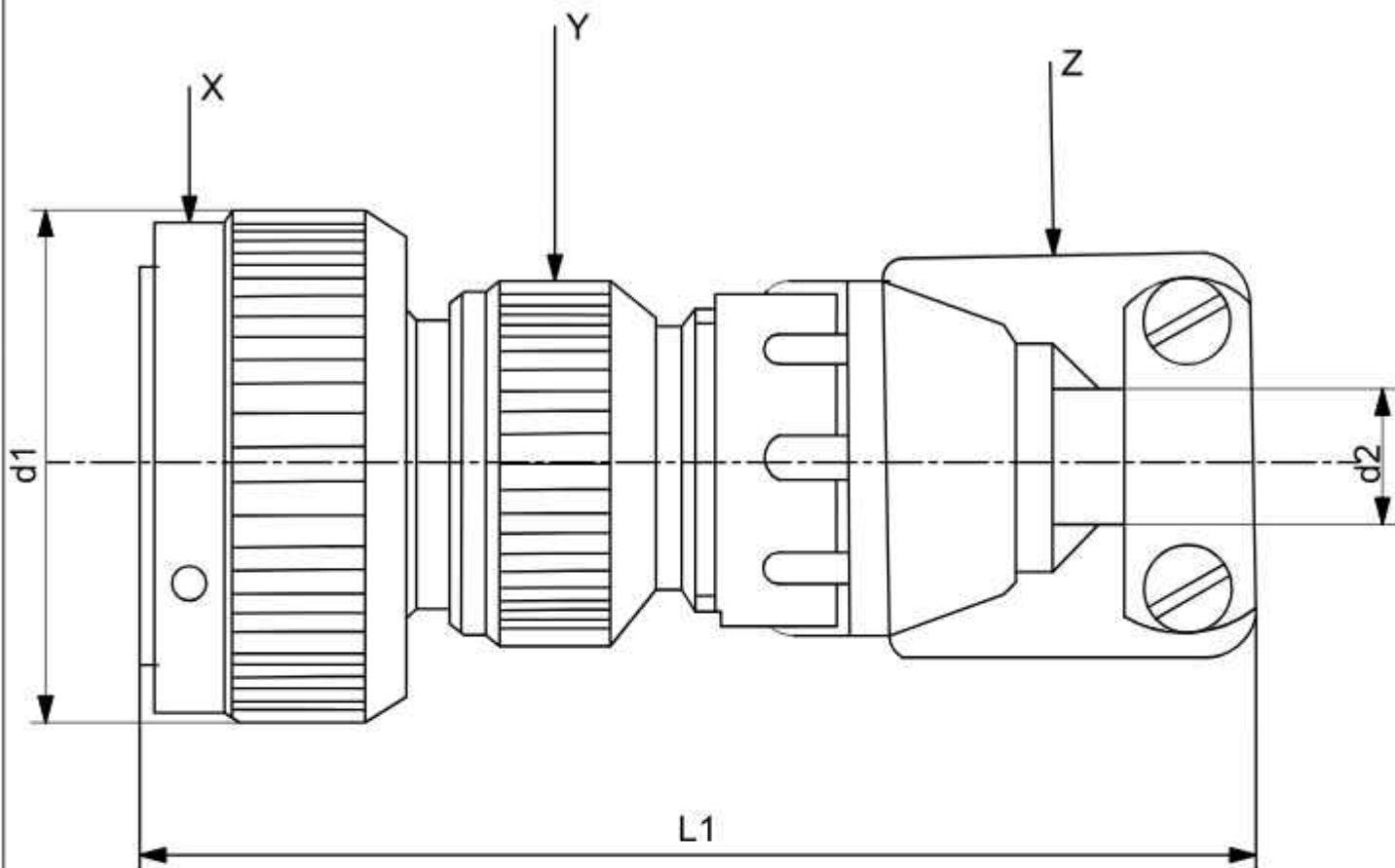
Prepared By	Checked By	Issued By
SSE/ Drg. (ELECT.)	SEE/ D-I	Dy.CEE/D-I

PLUG,INSULATED 0.5 X 2.8

Rub	Size	d1	d2		L1	X Pos.	Y Pos.	Z Pos.
			open	closed				
1	22	43.1	19	11.3	92	10	20	30

3EHP431611R0001
3EHP431611R0001 PLUG,SIZE 22/19POLE LITTON

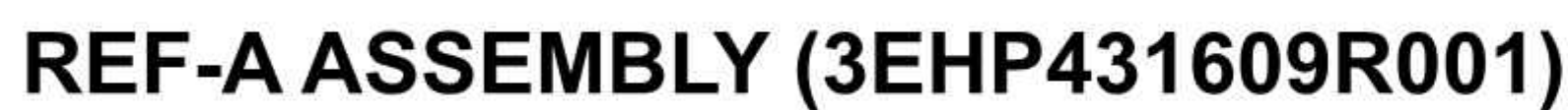
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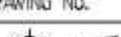


Rub	Size	d1	d2		L1	X Pos.	Y Pos.	Z Pos.
			open	closed				
2	28	53.4	23.8	15.5	103	11	21	31

3EHP431611R0002
PLUG, SIZE 28/37POLE LITTON

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संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		वर्णन SPECN	
संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		वर्णन DESCRIPTION	
संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		आरेखन संख्या DRAWING NO.	
संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		परिवर्तन संख्या ALTERATION, NO.	
संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		पृष्ठ SHEET	
संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		पृष्ठ SHEET	

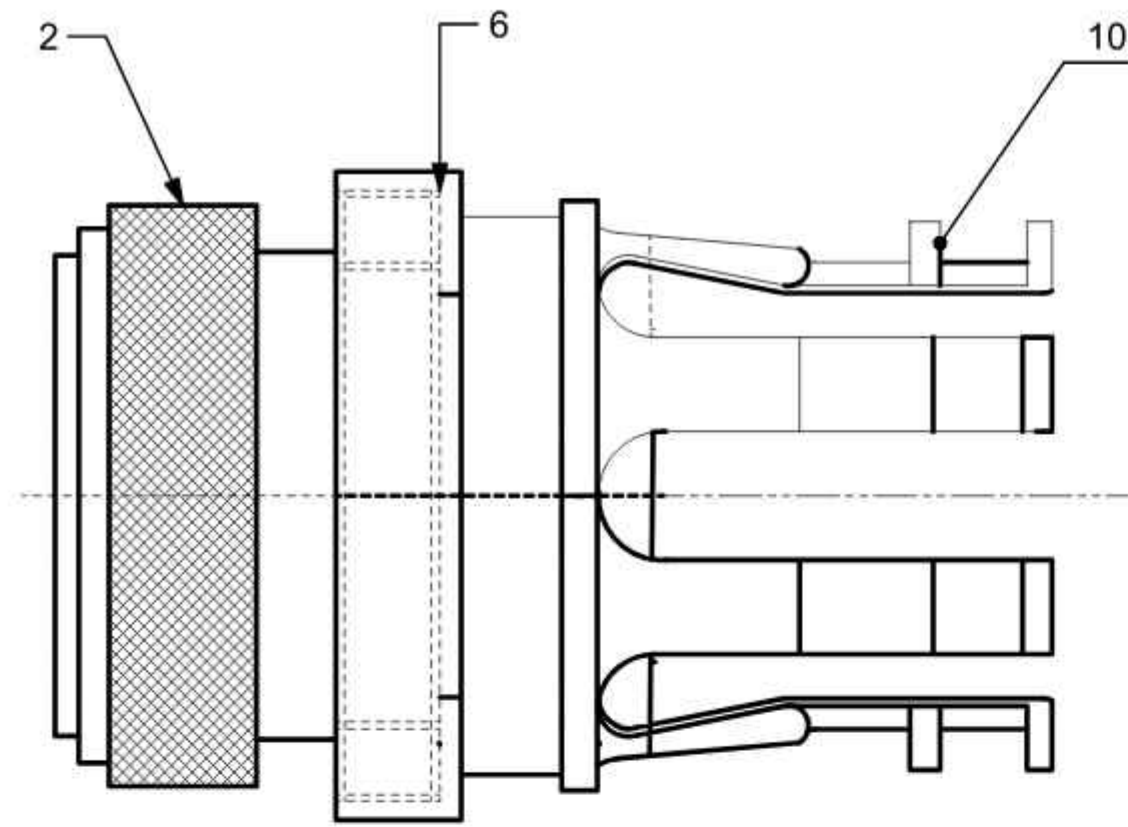


अभिप्रेत DOR			चित्ररंजन रेलईज कारखाना CHITARANJAN LOCOMOTIVE WORKS, INDIA	
जोषा वा.बा.बा. CHD SSE			प्रति भाग कि. ग्र. W.C. LUG IN GR.	
समिति सचिव / वरिष्ठ REVENUE AGT / DEE			मिटर SPECN	
अनुमोदित राजपुत्र APPROVED DYWEE			वर्णन DESCRIPTION	PLUG.SIZE 28/37 POLE LITTON
दिनांक DTE		कारखाना संख्या DRAWING NO.	CLWES/3/SK-5/0124	
एकिक अनुपात SCALE	NTS	सं. / मी. 3EHP/4316/0R/001 AUT-		परिवर्तन संख्या ALTERATION NO.
चित्रण हस्ताक्षर DATED INITIAL			पृष्ठ SHEET	OF
				A1

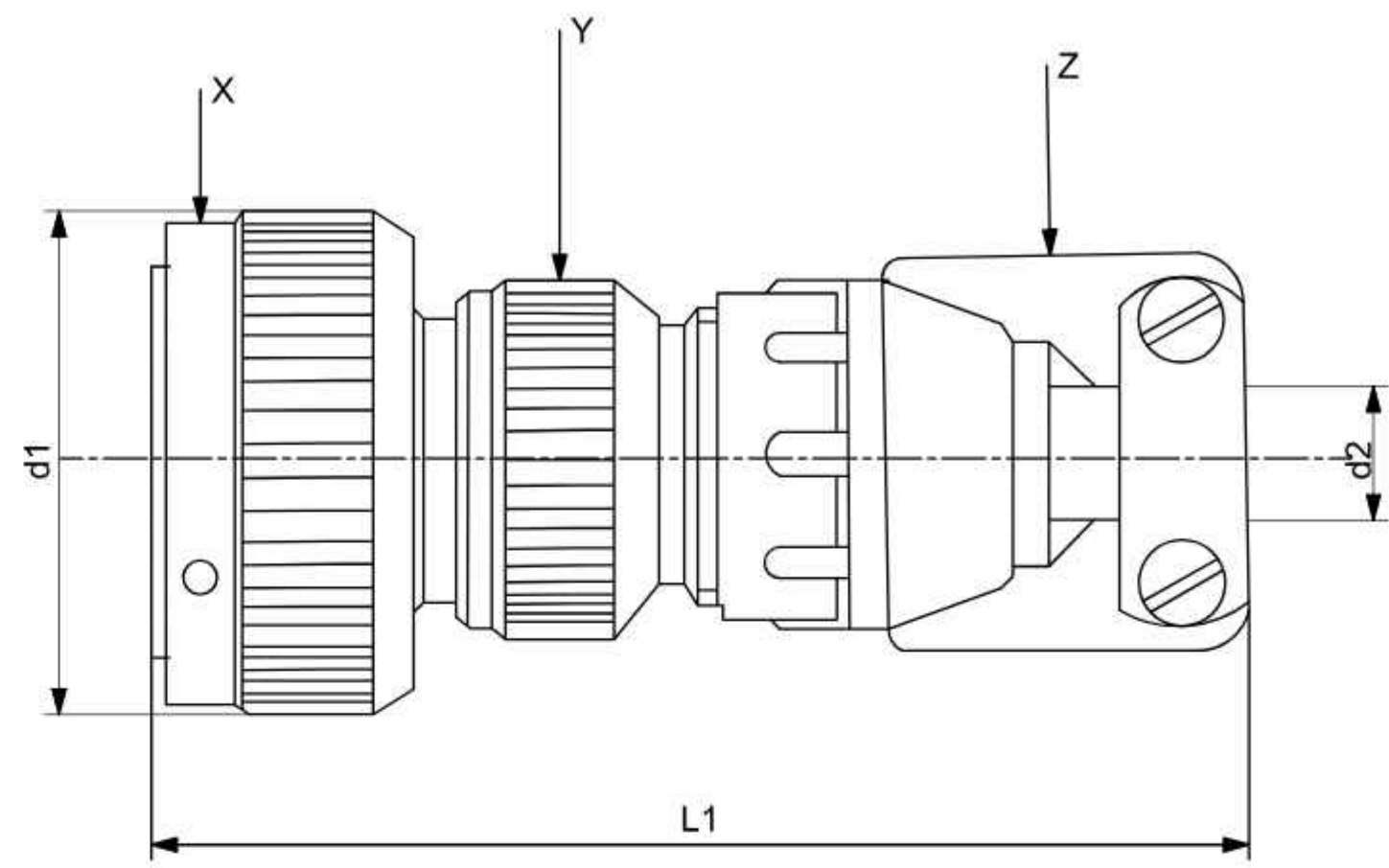
[illegible]

परिवर्तन संख्या	प्रामाणिकरण	वर्णन	DESCRIPTION
ALT. NO.	AUTHY		

	रीकॉर्ड अनुपलब्ध SCALE	NTS	आवरण संख्या DRAWING NO.			CLWES/3/SK-5/0124	
प्रमाणित कागज़ DATED INITIAL	परिचय / REF. 3EHP436169R0001 AUT-			परिवर्तन संख्या ALTERNATION NO.	पर्चा SHEET	OF	A1

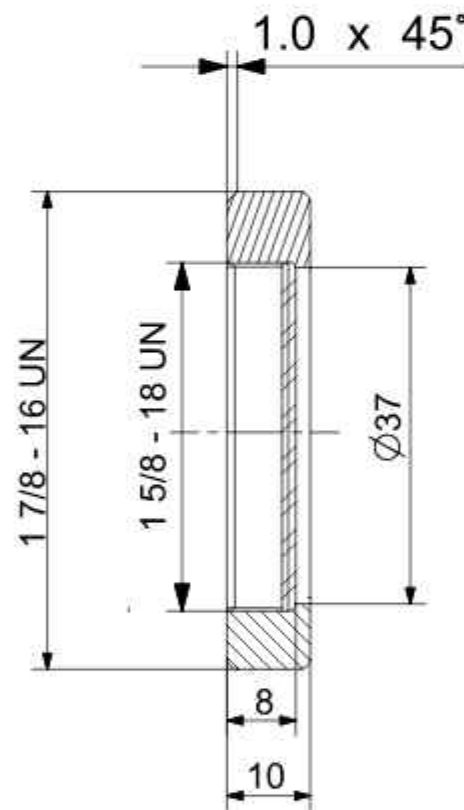


REF A ASSEMBLY (3EHP431609R0002)

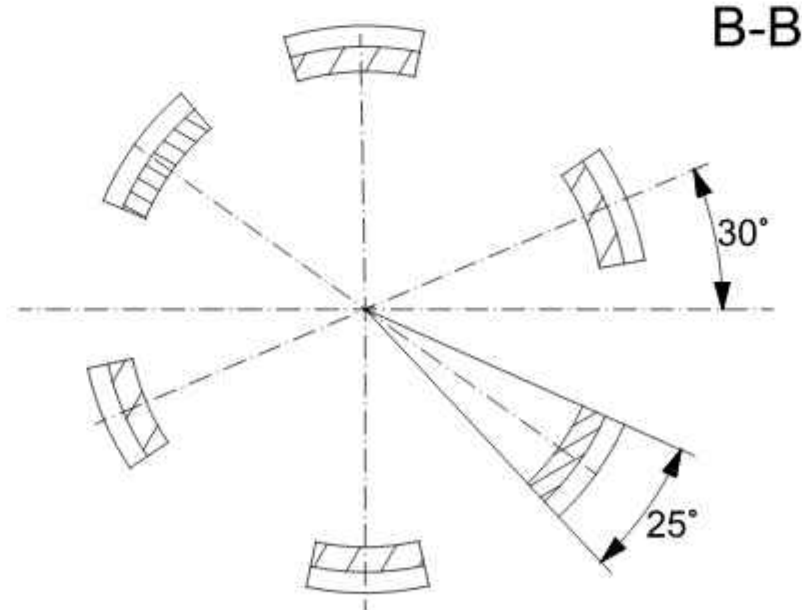
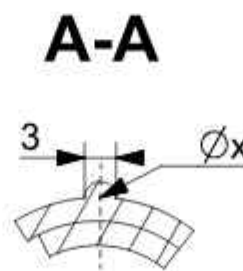
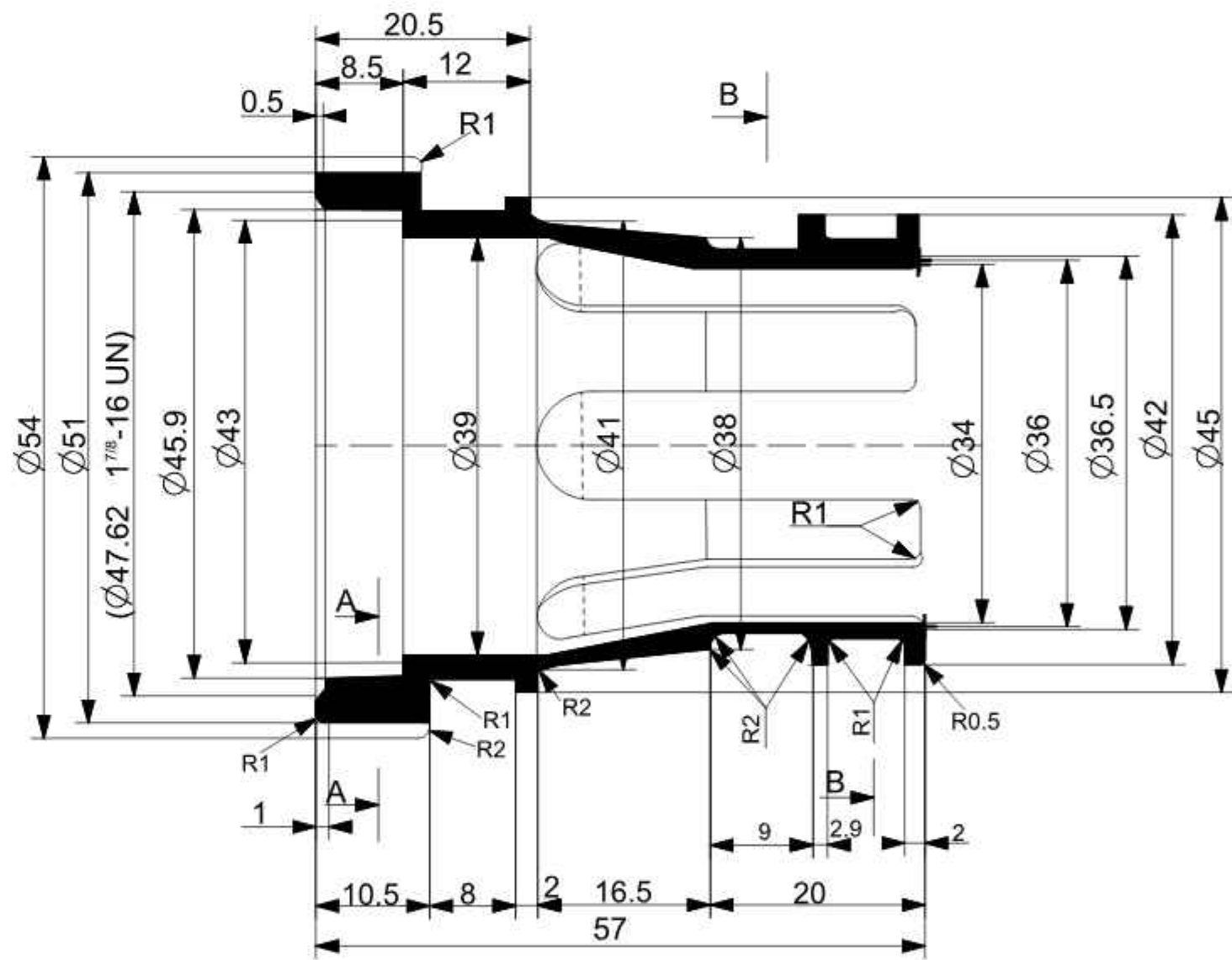


Rub	Size	d1	d2		L1	X Pos.	Y Pos.	Z Pos.
			open	closed				
2	28	53.4	23.8	15.5	103	11	21	31

REF-2 (3EHP431611R0002)



REF-6 (3EHP431527P0002)

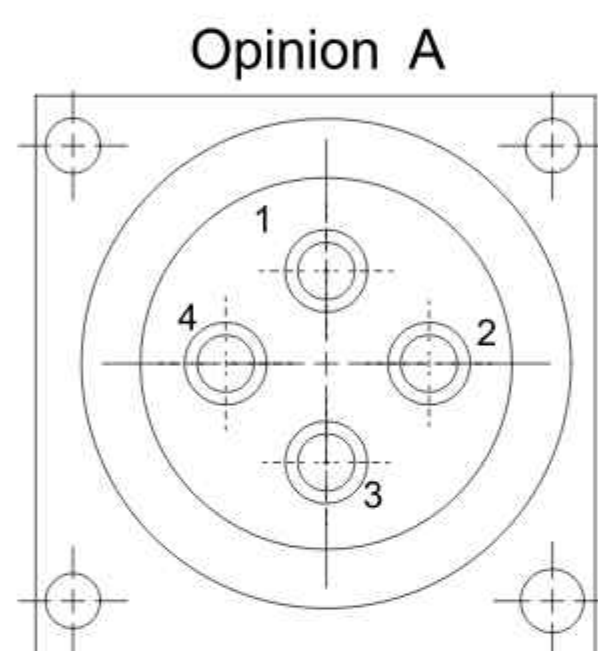
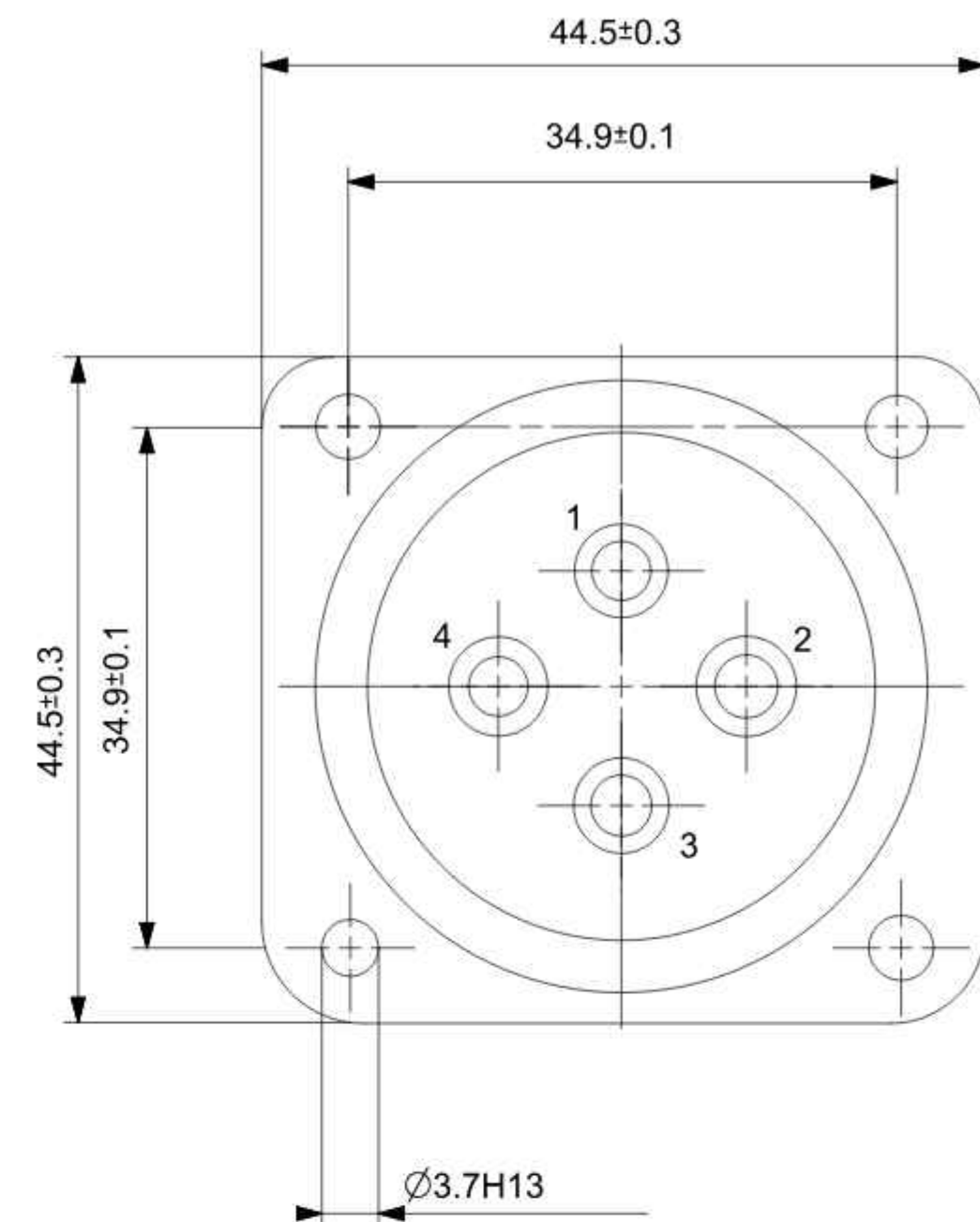
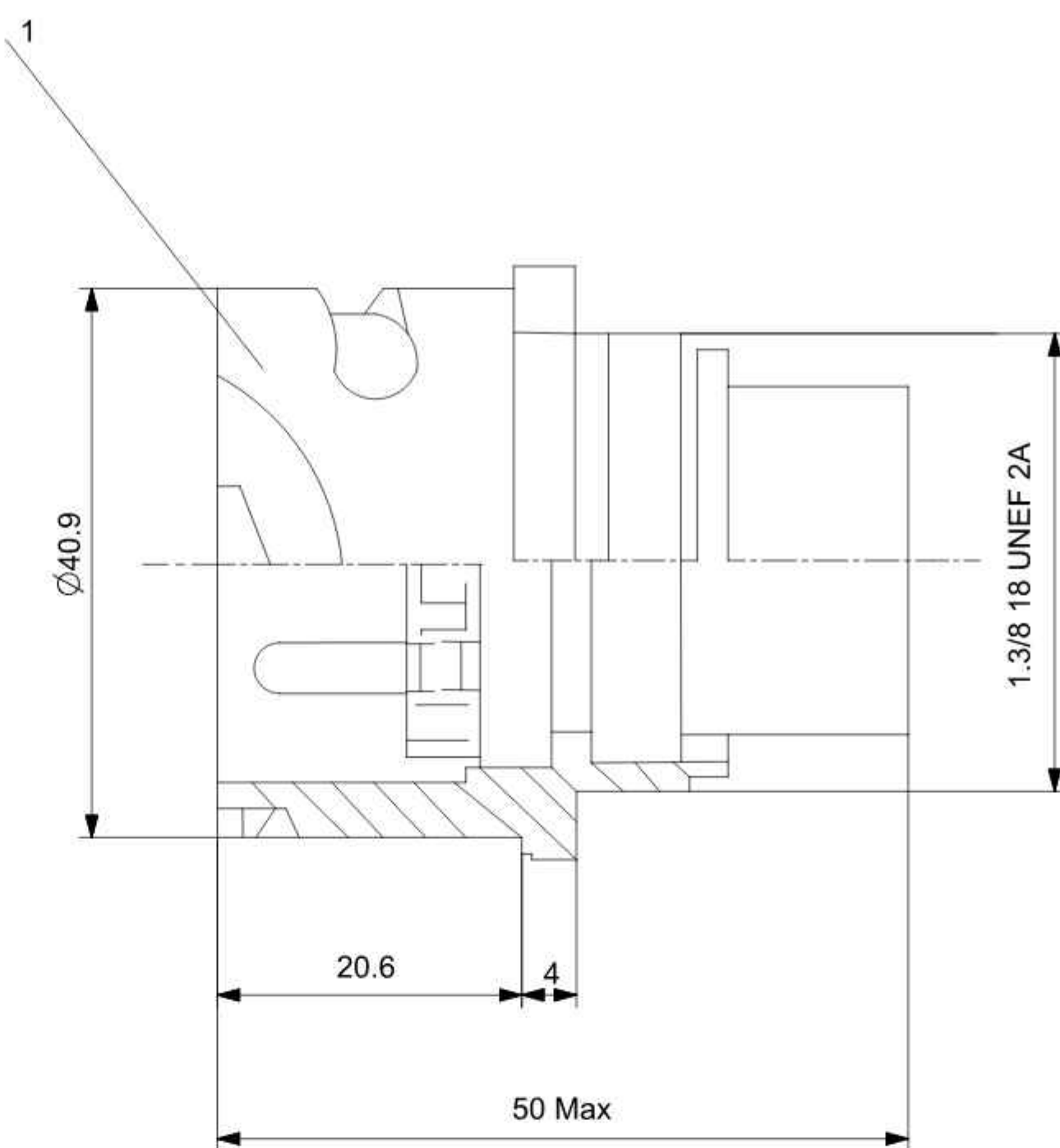


REF-10.(HBTB416397P0012)

10	HBTB416397P0012	CABLE SLEEVE SIZE 32 POM
6	3EHP431527P0002	ADAPTOR SIZE 32/28
2	3EHP431611R0002	PLUG. SIZE 28/37 POLE/LITTON
A	3EHP431609R0002	ASSEMBLY
REF. NO	ABB ID	ITEM DESCRIPTION

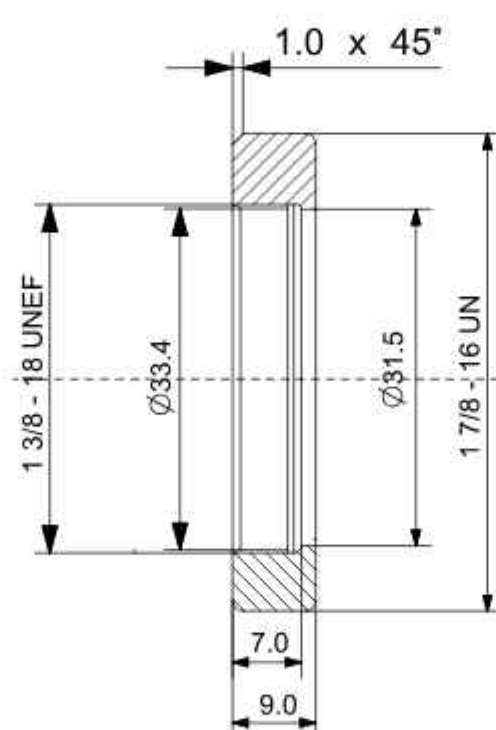
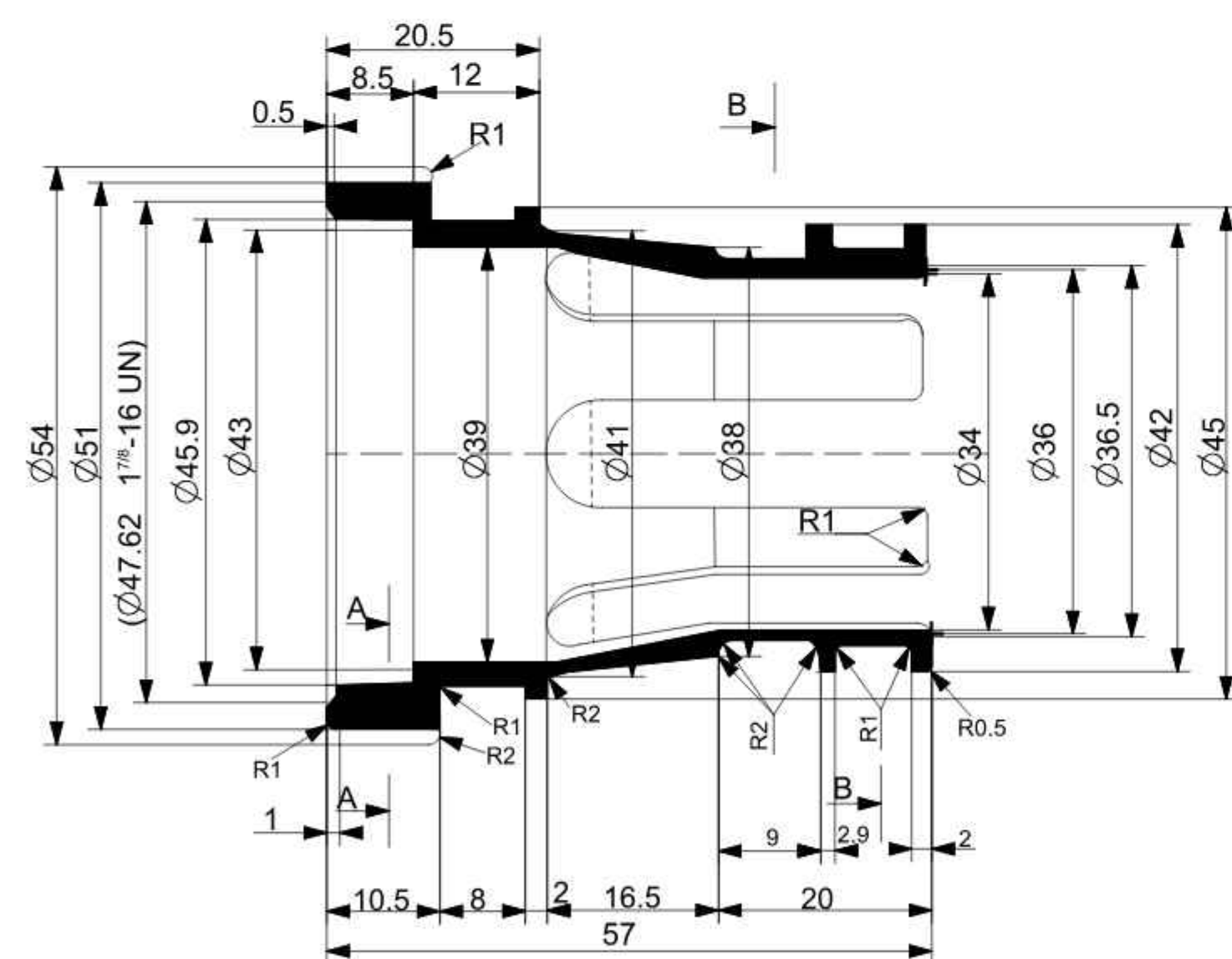
10	HBTB416397P0012	CABLE SLEEVE SIZE 32 POM
6	3EHP431527P0002	ADAPTOR SIZE 32/28
2	3EHP431611R0002	PLUG. SIZE 28/37 POLE/LITTON
A	3EHP431609R0002	ASSEMBLY
REF. NO	ABB ID	ITEM DESCRIPTION

10	HBTB416397P0012	CABLE SLEEVE SIZE 32 POM
6	3EHP431527P0002	ADAPTOR SIZE 32/28
2	3EHP431611R0002	PLUG. SIZE 28/37 POLE/LITTON
A	3EHP431609R0002	ASSEMBLY
REF. NO	ABB ID	ITEM DESCRIPTION

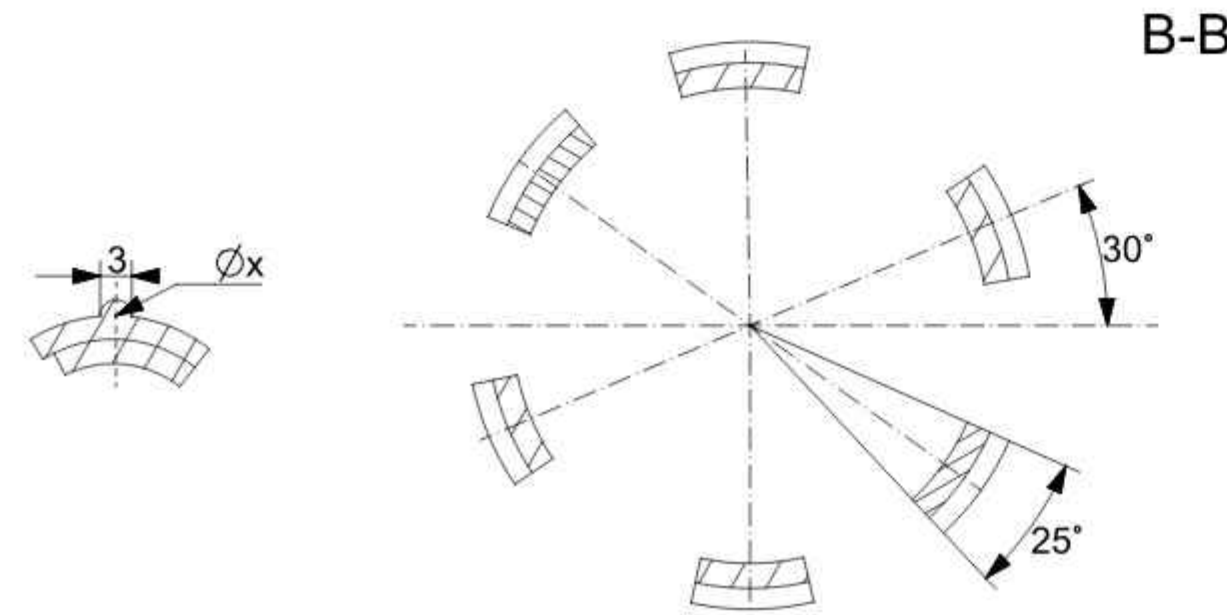


REF-A. ASSEMBLY 3EHW470071R0001

REF-2 HBTB416397R0004



HBTB416397P0014

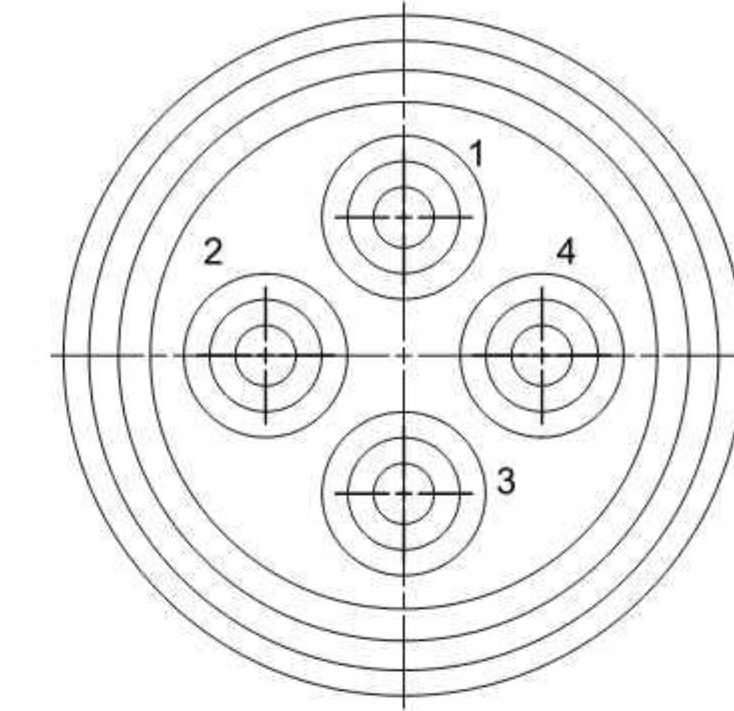
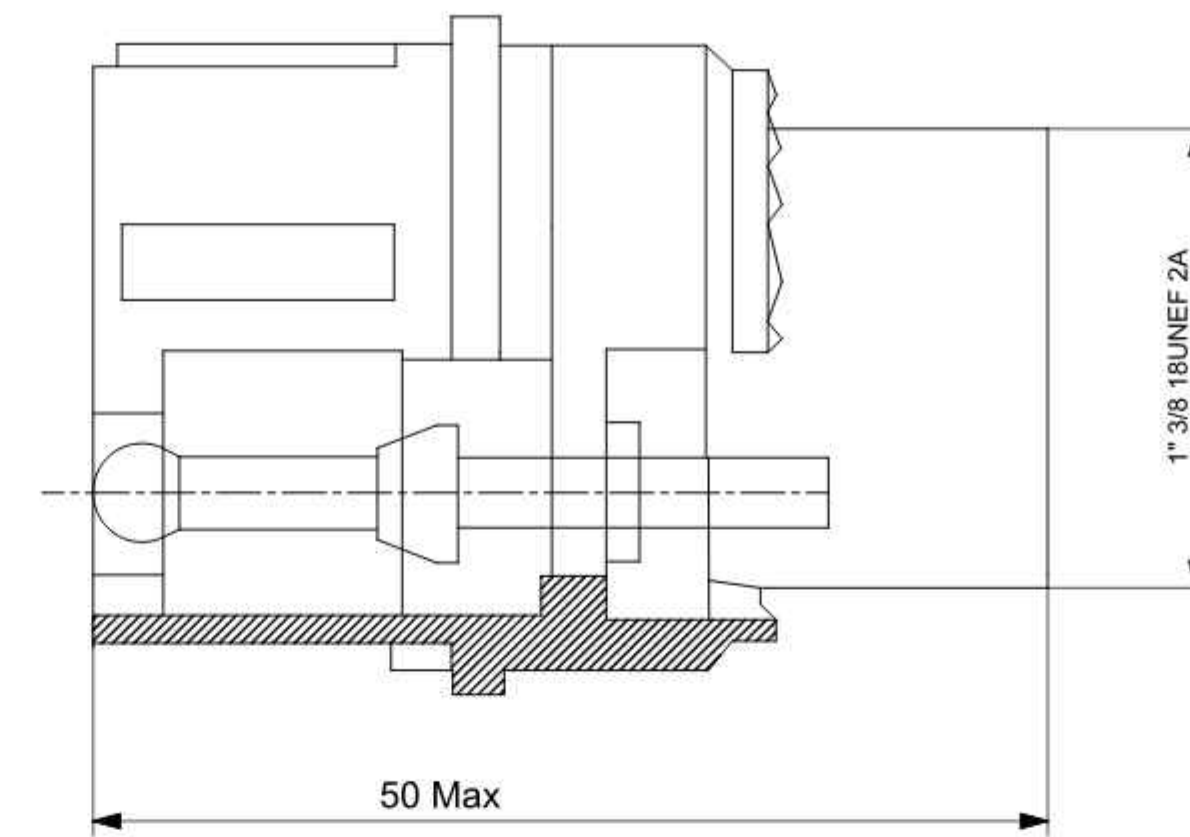


HBTB416397P0012

2	HBTB416397R0004	CA SLV INDOOR S24(32/24)
1	3EHW470072P0001	SOCKET 4P/24 PIN"N"
A	3EHW470071R0001	ASSEMBLY
REF. NO	ABB ID	ITEM DESCRIPTION

अधिष्ठाता SDO			चित्ररंजन रेलईजन् कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA	
मोबा नम्बर MOB. NO.			परी माफ़ कि. वा. NOT FOR EXHIBIT	
समीक्षित परिशिष्ट / चयनित REVIEWED BY / SEE	परामर्श MSR			
समूहनिष्ठ प्रमाणिकृत APPROVED BY/EE	विनिर्देश SPECN			
दिनांक DATE	वर्णन DESCRIPTION		SOCKET 4P24 PIN"N"	
किस्म का पदार्थ SCALE NTS	आरेख संख्या DRAWING NO.		CLWES/3/SK-70124	
निर्वाहक CHIEF ENGINEER INITIAL	ड्राइंग DWTG		परिवर्तन संख्या ALTERATION NO.	पृष्ठ PAGE 1 OF 4
वेबसाइट WEBSITE URL		अनुमति APPROVAL		

[illegible]



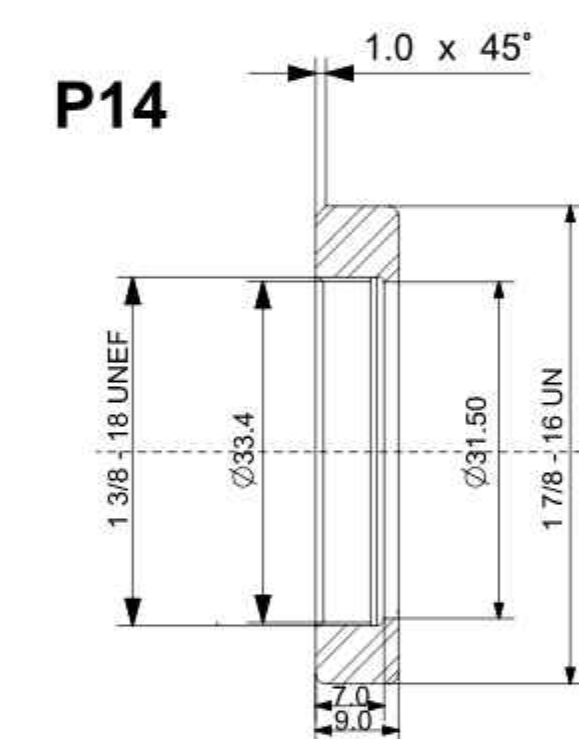
Technical drawing of a mechanical part, showing two views: a front view (top) and a side view (bottom).

Front View (Top):

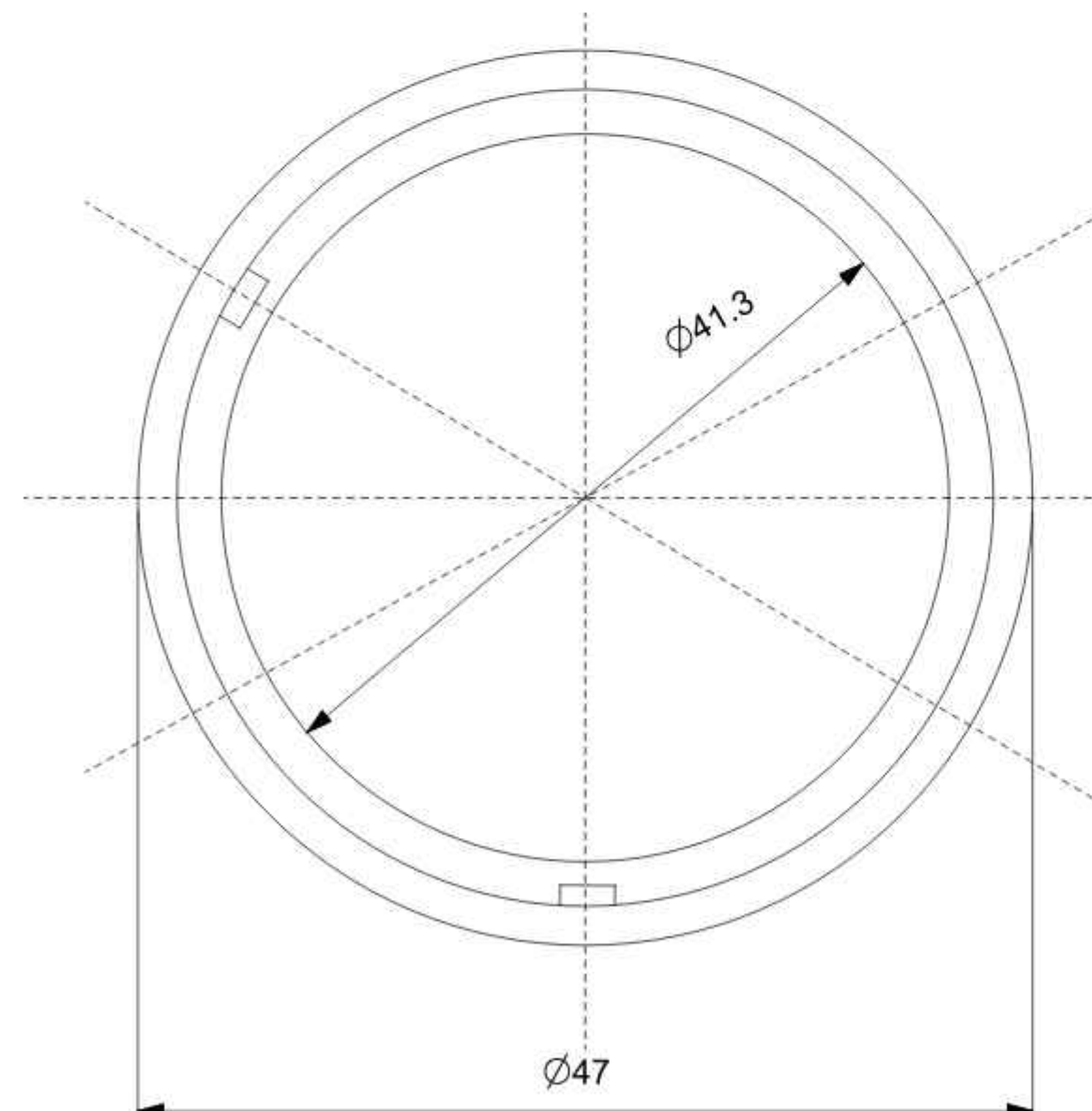
- Overall width: 20.5
- Overall height: 54
- Section A-A: Indicated by a horizontal line with arrows pointing left and right.
- Section B-B: Indicated by a vertical line with arrows pointing up and down.
- Dimensions: 0.5, 8.5, 12, 20.5, 54, 45.9, 43, 39, 41, 38, 34, 36, 36.5, 42.
- Curved surfaces: R1, R2, R0.5.
- Internal features: Two U-shaped slots with radii R1 and R2.

Side View (Bottom):

- Overall width: 57
- Overall height: 42
- Section A-A: Indicated by a horizontal line with arrows pointing left and right.
- Section B-B: Indicated by a vertical line with arrows pointing up and down.
- Dimensions: 10.5, 8, 2, 16.5, 57, 20, 9, 2.9, 2.
- Curved surfaces: R1, R2, R0.5.
- Internal features: Two U-shaped slots with radii R1 and R2.

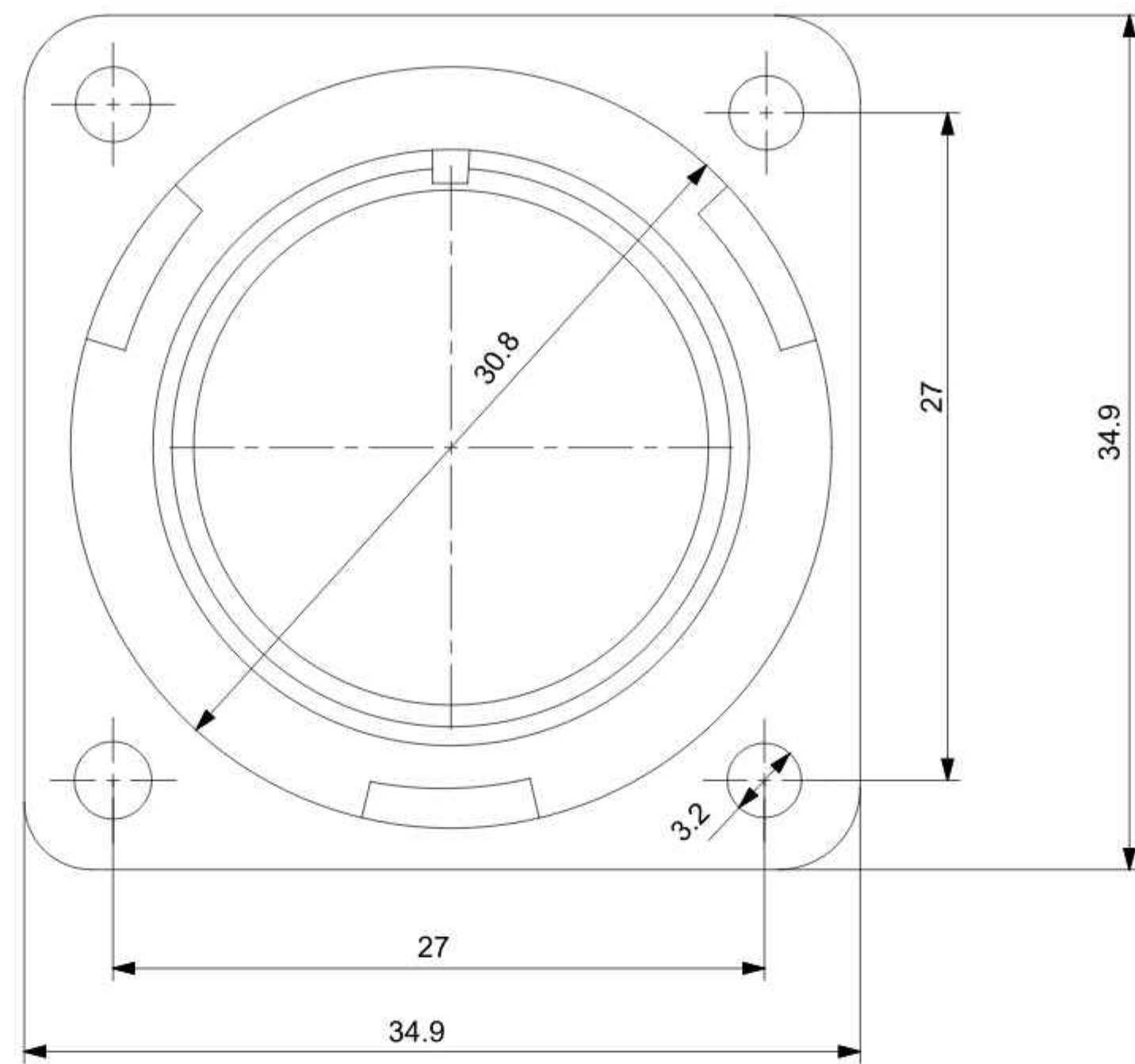


Technical drawing of a door frame assembly showing a cross-section. The drawing includes a door leaf with horizontal slats, a door frame, and a threshold. A dimension line at the bottom indicates a width of 23 units.

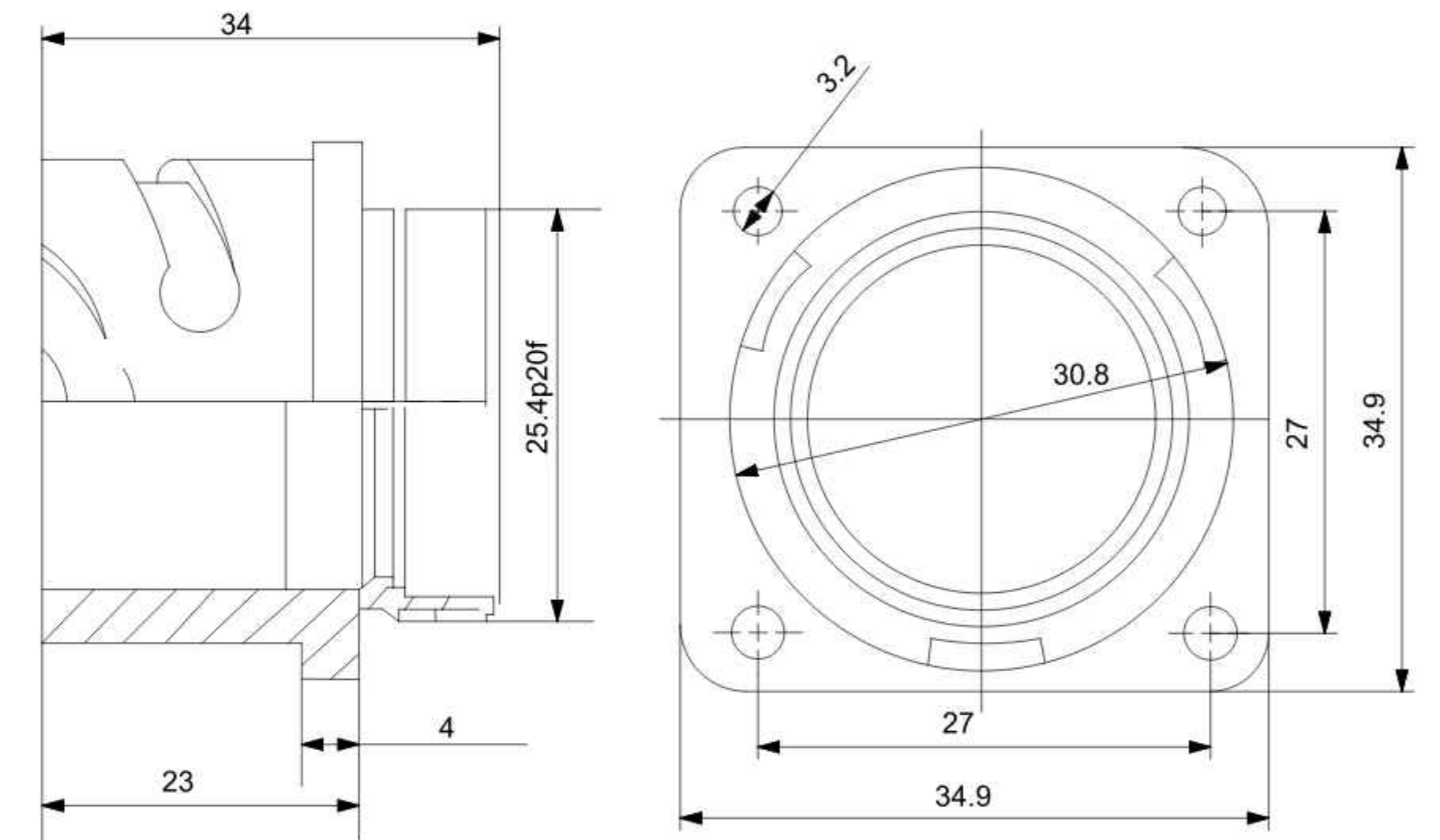


The figure consists of two schematic diagrams. The left diagram shows a cross-section of a specimen, which is a curved, shell-like structure. It has a width labeled '3' and a diameter labeled 'Øx'. The right diagram shows the specimen mounted on a turntable. The turntable is divided into sectors, and the angular positions of the specimen are indicated as 30° and 25°.

वायु-वेल्डिंग चिह्न वा. मा. : 819 / अ. मा. सं. : 2683 WELDING SYMBOLS TO IS 819 / IS 2683		अतिरिक्त सहा - सीमा वा. मा. : 2102 / अ. मा. सं. : 2768 UNDESIGNED TOLERANCE TO IS : 7992 / IS : 7168										अनुमति प्राप्त APPROVED BY:		वर्णन DESCRIPTION		PLUG 4 P BU "N" IR CA / CONNECTOR	
ग्राउंड नं. GRADE NO.		१ २ ३ ४ ५ ६ ७ ८ ९ १० ११ १२ ११ १२ १३ १४ १५ १६ १७ १८ १९ २० २१ २२										दिनांक DATE		DESCRIPTION			
सहा - कटौती का माप वा. मा. ९०७१ / अ. मा. सं. १९०२ SURFACE FINISHES VALUE TO IS ९०७१ / IS १९०२		१ २ ३ ४ ५ ६ ७ ८ ९ १० ११ १२ १३ १४ १५ १६ १७ १८ १९ २० २१ २२ २३										दिनांक SCALE		आरेख संख्या DRAWING NO.		CLW/ES/3/SK-8/0124	
चिह्न SYMBOL		१ २ ३ ४ ५ ६ ७ ८ ९ १० ११ १२ १३ १४ १५ १६ १७ १८ १९ २० २१ २२ २३										दिनांक DATE		आरेख संख्या DRAWING NO.		CLW/ES/3/SK-8/0124	
चिह्न SYMBOL		१ २ ३ ४ ५ ६ ७ ८ ९ १० ११ १२ १३ १४ १५ १६ १७ १८ १९ २० २१ २२ २३										दिनांक DATE		आरेख संख्या DRAWING NO.		CLW/ES/3/SK-8/0124	
चिह्न SYMBOL		१ २ ३ ४ ५ ६ ७ ८ ९ १० ११ १२ १३ १४ १५ १६ १७ १८ १९ २० २१ २२ २३										दिनांक DATE		आरेख संख्या DRAWING NO.		CLW/ES/3/SK-8/0124	
चिह्न SYMBOL		१ २ ३ ४ ५ ६ ७ ८ ९ १० ११ १२ १३ १४ १५ १६ १७ १८ १९ २० २१ २२ २३										दिनांक DATE		आरेख संख्या DRAWING NO.		CLW/ES/3/SK-8/0124	
चिह्न SYMBOL		१ २ ३ ४ ५ ६ ७ ८ ९ १० ११ १२ १३ १४ १५ १६ १७ १८ १९ २० २१ २२ २३										दिनांक DATE		आरेख संख्या DRAWING NO.		CLW/ES/3/SK-8/0124	
चिह्न SYMBOL		१ २ ३ ४ ५ ६ ७ ८ ९ १० ११ १२ १३ १४ १५ १६ १७ १८ १९ २० २१ २२ २३										दिनांक DATE		आरेख संख्या DRAWING NO.		CLW/ES/3/SK-8/0124	
चिह्न SYMBOL		१ २ ३ ४ ५ ६ ७ ८ ९ १० ११ १२ १३ १४ १५ १६ १७ १८ १९ २० २१ २२ २३										दिनांक DATE		आरेख संख्या DRAWING NO.		CLW/ES/3/SK-8/0124	
चिह्न SYMBOL		१ २ ३ ४ ५ ६ ७ ८ ९ १० ११ १२ १३ १४ १५ १६ १७ १८ १९ २० २१ २२ २३										दिनांक DATE		आरेख संख्या DRAWING NO.		CLW/ES/3/SK-8/0124	
चिह्न SYMBOL		१ २ ३ ४ ५ ६ ७ ८ ९ १० ११ १२ १३ १४ १५ १६ १७ १८ १९ २० २१ २२ २३										दिनांक DATE		आरेख संख्या DRAWING NO.		CLW/ES/3/SK-8/0124	
चिह्न SYMBOL		१ २ ३ ४ ५ ६ ७ ८ ९ १० ११ १२ १३ १४ १५ १६ १७ १८ १९ २० २१ २२ २३										दिनांक DATE		आरेख संख्या DRAWING NO.		CLW/ES/3/SK-8/0124	
चिह्न SYMBOL		१ २ ३ ४ ५ ६ ७ ८ ९ १० ११ १२ १३ १४ १५ १६ १७ १८ १९ २० २१ २२ २३										दिनांक DATE		आरेख संख्या DRAWING NO.		CLW/ES/3/SK-8/0124	
चिह्न SYMBOL		१ २ ३ ४ ५ ६ ७ ८ ९ १० ११ १२ १३ १४ १५ १६ १७ १८ १९ २० २१ २२ २३										दिनांक DATE		आरेख संख्या DRAWING NO.		CLW/ES/3/SK-8/0124	
चिह्न SYMBOL		१ २ ३ ४ ५ ६ ७ ८ ९ १० ११ १२ १३ १४ १५ १६ १७ १८ १९ २० २१ २२ २३										दिनांक DATE		आरेख संख्या DRAWING NO.		CLW/ES/3/SK-8/0124	
चिह्न SYMBOL		१ २ ३ ४ ५ ६ ७ ८ ९ १० ११ १२ १३ १४ १५ १६ १७ १८ १९ २० २१ २२ २३										दिनांक DATE		आरेख संख्या DRAWING NO.		CLW/ES/3/SK-8/0124	
चिह्न SYMBOL		१ २ ३ ४ ५ ६ ७ ८ ९ १० ११ १२ १३ १४ १५ १६ १७ १८ १९ २० २१ २२ २३										दिनांक DATE		आरेख संख्या DRAWING NO.		CLW/ES/3/SK-8/0124	
चिह्न SYMBOL		१ २ ३ ४ ५ ६ ७ ८ ९ १० ११ १२ 															



TECHNICAL DATA			
CONTACT	SIZE	I MAX	CONDUCTOR CROSS SECTION
-	8	73A	10.0 mm ²
5	12	41A	0.5 - 6.0 mm ²
-	16	22A	0.5 - 1.5 mm ²
OPERATING VOLTAGE 230V			
TEST VOLTAGE: 2800V			
INSULATION RESISTANCE MIN. 5000MΩ			

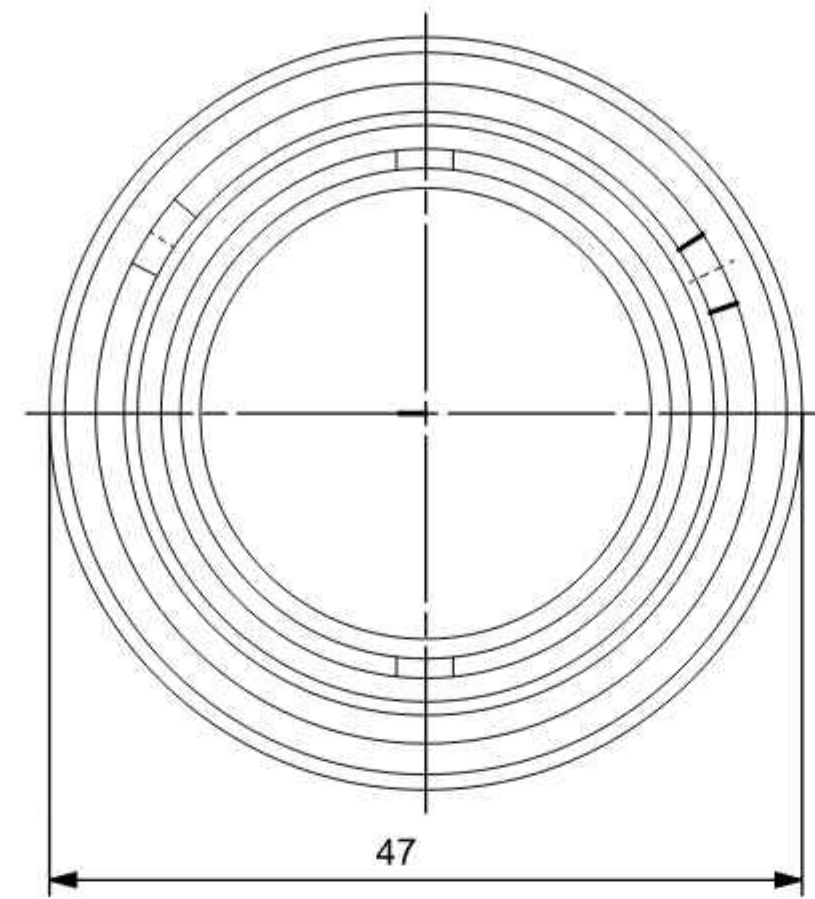


Ref-2
HBT415284P0001

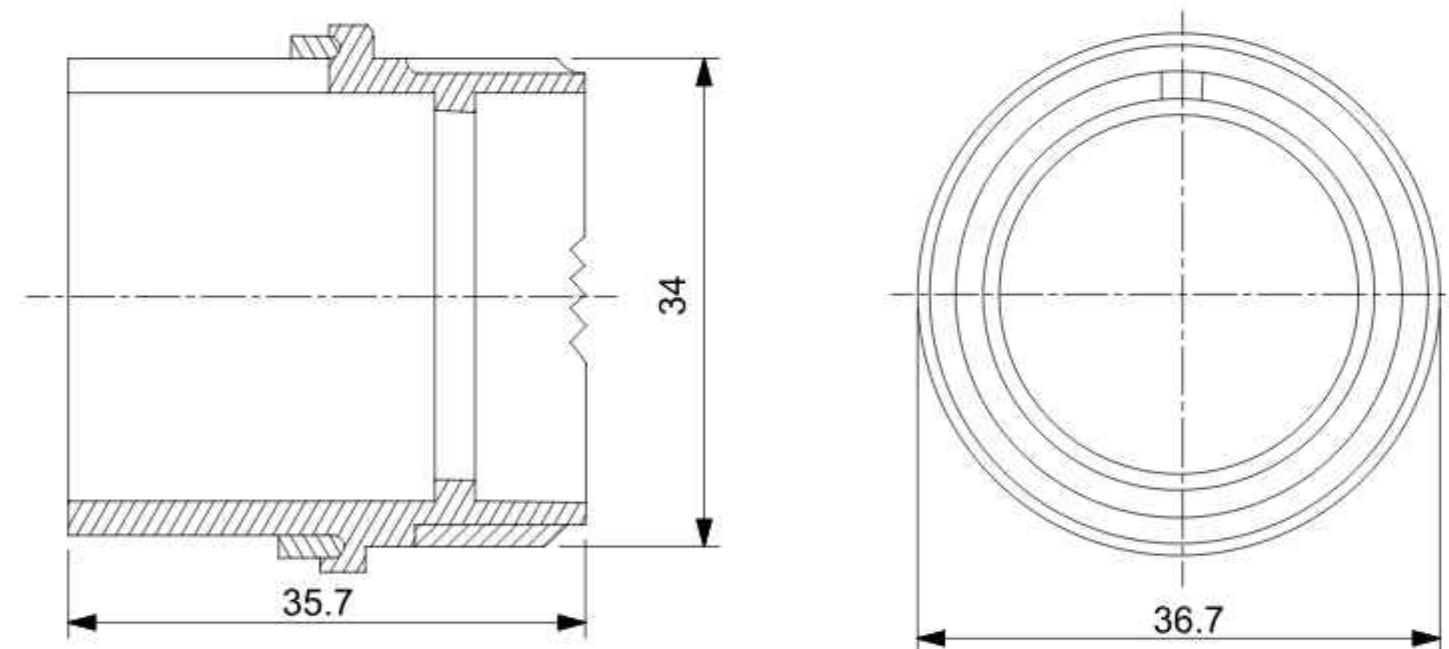
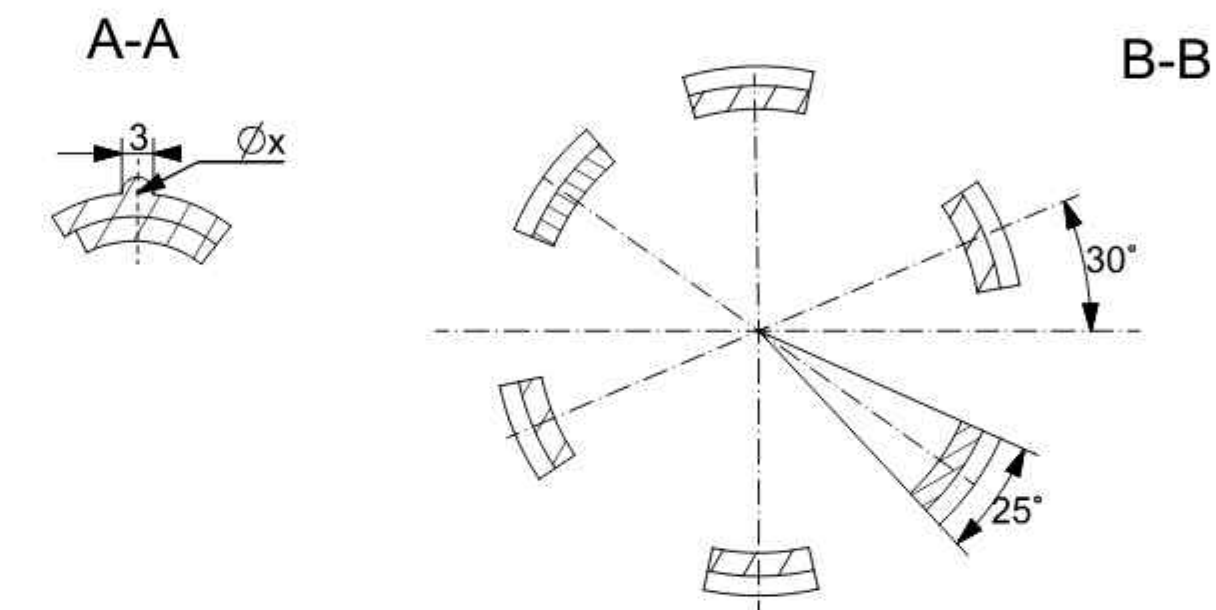
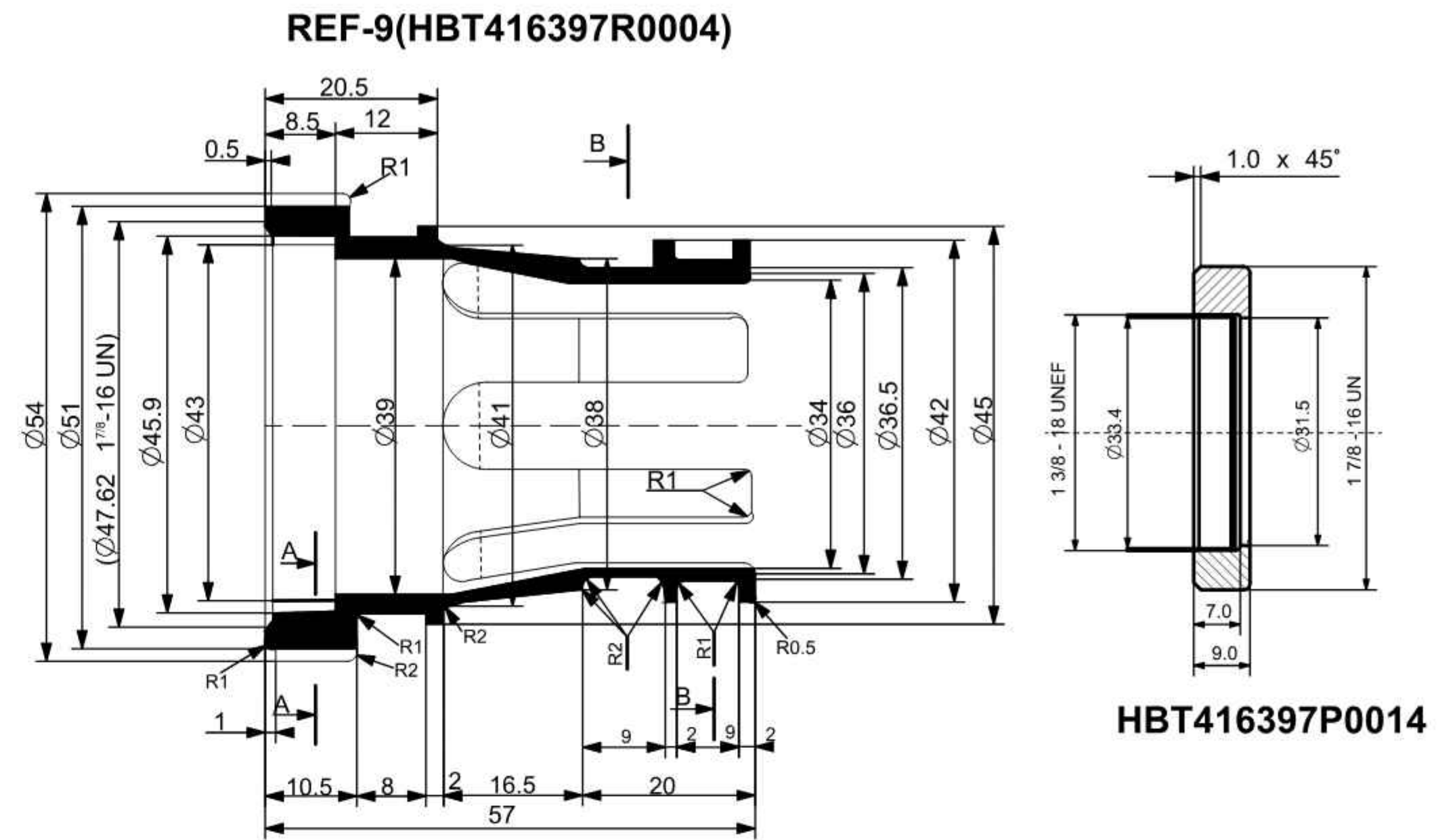
Ref-3
HBT415284P0002

3	HBT415284P0002	BUSHES TEMPLATE S18/5P
2	HBT415284P0001	PINS TEMPLATE S18/5P
1	HBT415270P0001	SOCKET BODY, SIZE 18"B"
A	HBT315075R0011	ASSEMBLY
REF. NO	ABB ID	ITEM DESCRIPTION

वायु-देलन विष भा. मा. : 019 / क. मा. सं. : 2663 HELIX-5/100 S TO 5013 / 502593	कतिरिदि सल - सीमा भा. मा. : 2102 / क. मा. सं. : 2708 UNGREFFED TOLERANCE TO 5 / 290 / 500 / 504	ID. NO. 015	APPROVED BY/EE 015	वर्गन SET OF COMPLETE SOCKET/SOCKET 5P/5S 18 PIN 'N' STR
सलस - पलस का माय भा. मा. : 3073 / क. मा. सं. : 1302 SURFACE ROUGHNESS VALUE TO 3073 / 501302	एररल GRADE NO. 1 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971			



TECHNICAL DATA			
CONT.	SIZE	I MAX	CONDUCTOR CROSS SECTION
-	8	73A	10.0 mm ²
7	12	41A	0.5 - 6.0 mm ²
-	16	22A	0.5 - 1.5 mm ²
TEST VOLTAGE: 2800V			
INSULATION RESISTANCE		MIN. 5000MΩ	

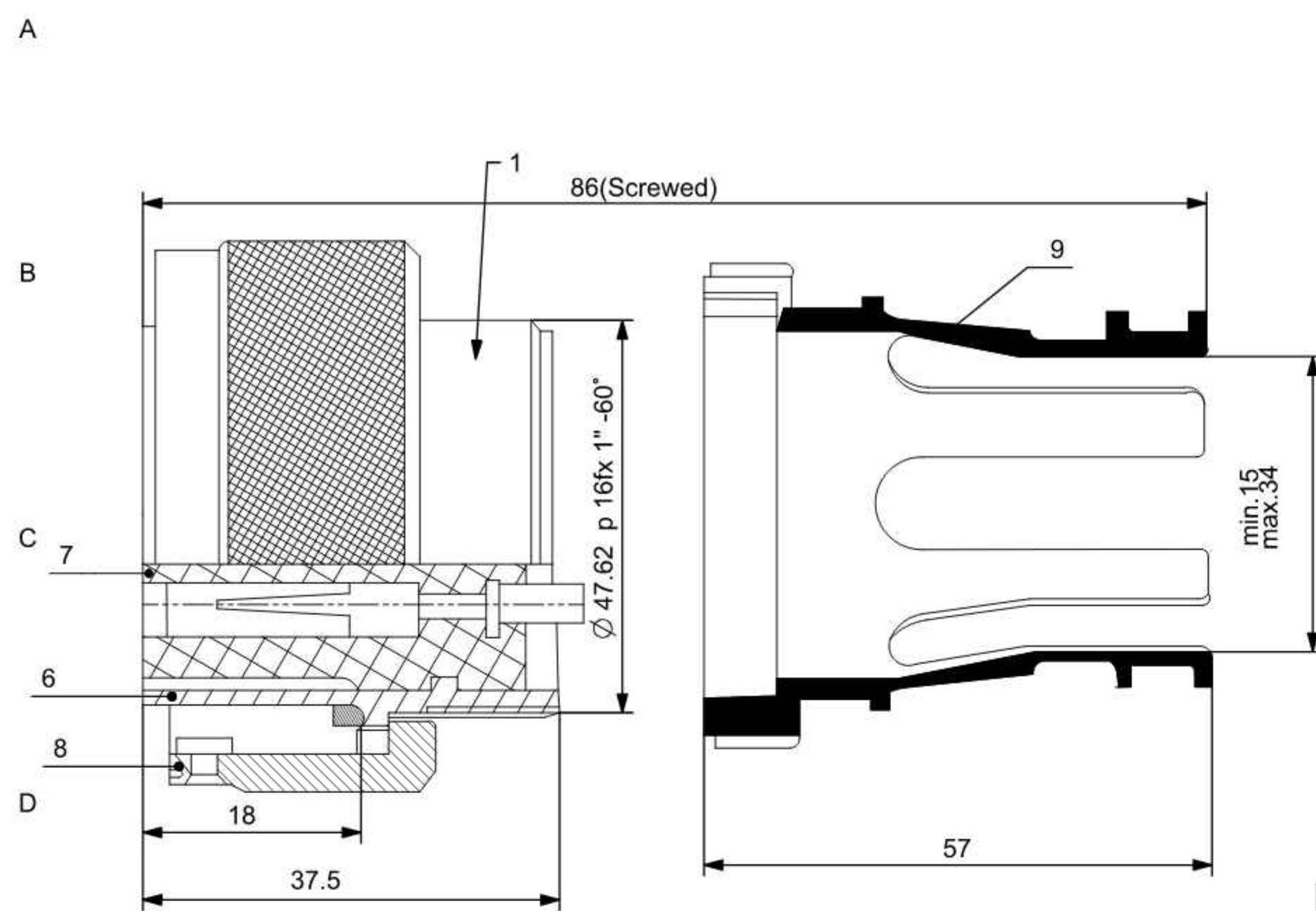
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REF-8(HBT415275P0002)

ALL DIMENSIONS ARE IN mm

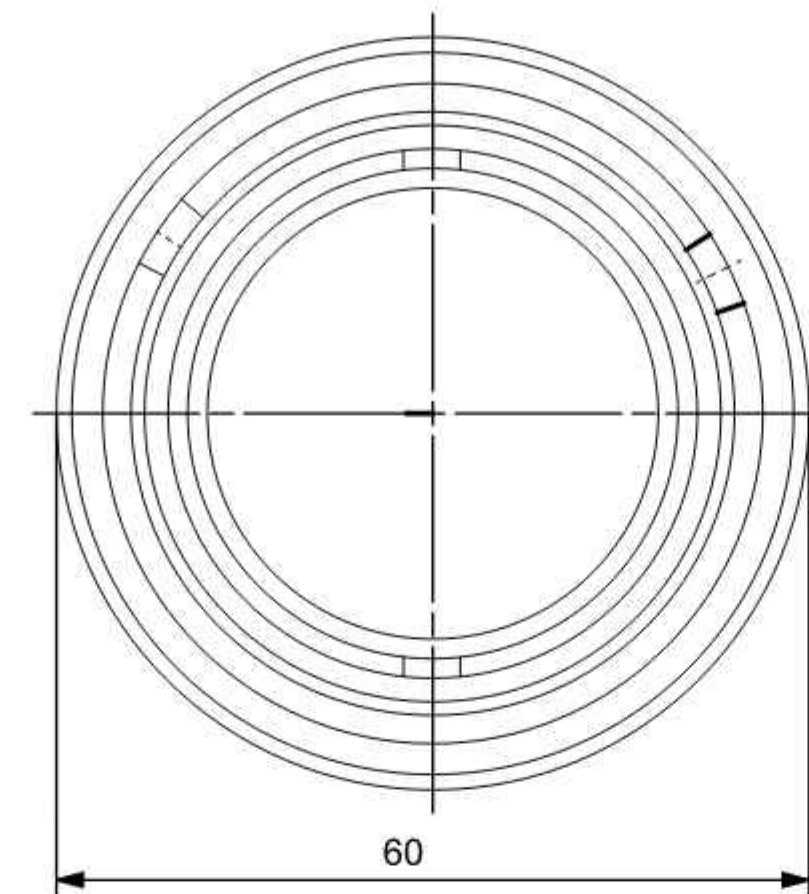
हातू-बैलम पिच	अतिथिपत्र राब - बीमा का मा.: 2102; क. मा. सं.: 2768										TO
मा. मा.: 818 / 30.मा. सं.: 2853	AMENDED RAAB TO 5/202 / 50.2768										CS
WOLING 5/180.5 TO 5/182.5	पथर	कण्टा	माप	मा. मा.	मा. सं.	मा. मा.	मा. सं.	मा. मा.	मा. सं.	मा. मा.	मा. सं.
GRANITE	102	103	104	105	106	107	108	109	110	111	112
	8.8	8.9	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9
पथर - कण्टा का माप	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	11.0
मा. मा. 5073 / 30.मा. सं.: 1802	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	12.0	12.1
SURFACE ROUGHNESS VALUE TO 5/1073 / 50.1902	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	13.0	13.1	13.2
	पथर	कण्टा	माप	मा. मा.	मा. सं.	मा. मा.	मा. सं.	मा. मा.	मा. सं.	मा. मा.	मा. सं.
	102	103	104	105	106	107	108	109	110	111	112

9	HBT416397R0004	CA SLV INDOOR S24 32/24
8	HBT 415275P0002	BAYONET,SIZE 24
7	HBT 415286P0002	BUSHES TEMPLATE, S24/7P
6	HBT 415273P0002	PLUG BODY, SIZE 24"B"
1	HBTB315110R0001	ASSEMBLY
REF. NO	ABB ID	ITEM DESCRIPTION
अधिकारिणा SIGN टीका चक्राङ्क, CHD. SISE कर्मिण कर्मिण / बहिण REVIEWED ARE. I SEE अनुमोदित चक्राङ्क, APPROVED BY:		चित्तरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA पत्र PAGE दिनांक DATE वर्णन DESCRIPTION SET OF COMPLETE PLUG/PLUG P724 SOCKET 'N' INDOOR चक्राङ्क अनुपात SCALE N.T.S. चक्राङ्क / मॉड. HBTB 3510R0001/14-
चित्र ड्राइंग ड्राइंग नं. DRAWING NO. 	परिवर्तन संख्या ALTERATION NO. 	शीट SHEET 1 OF 1 /A1

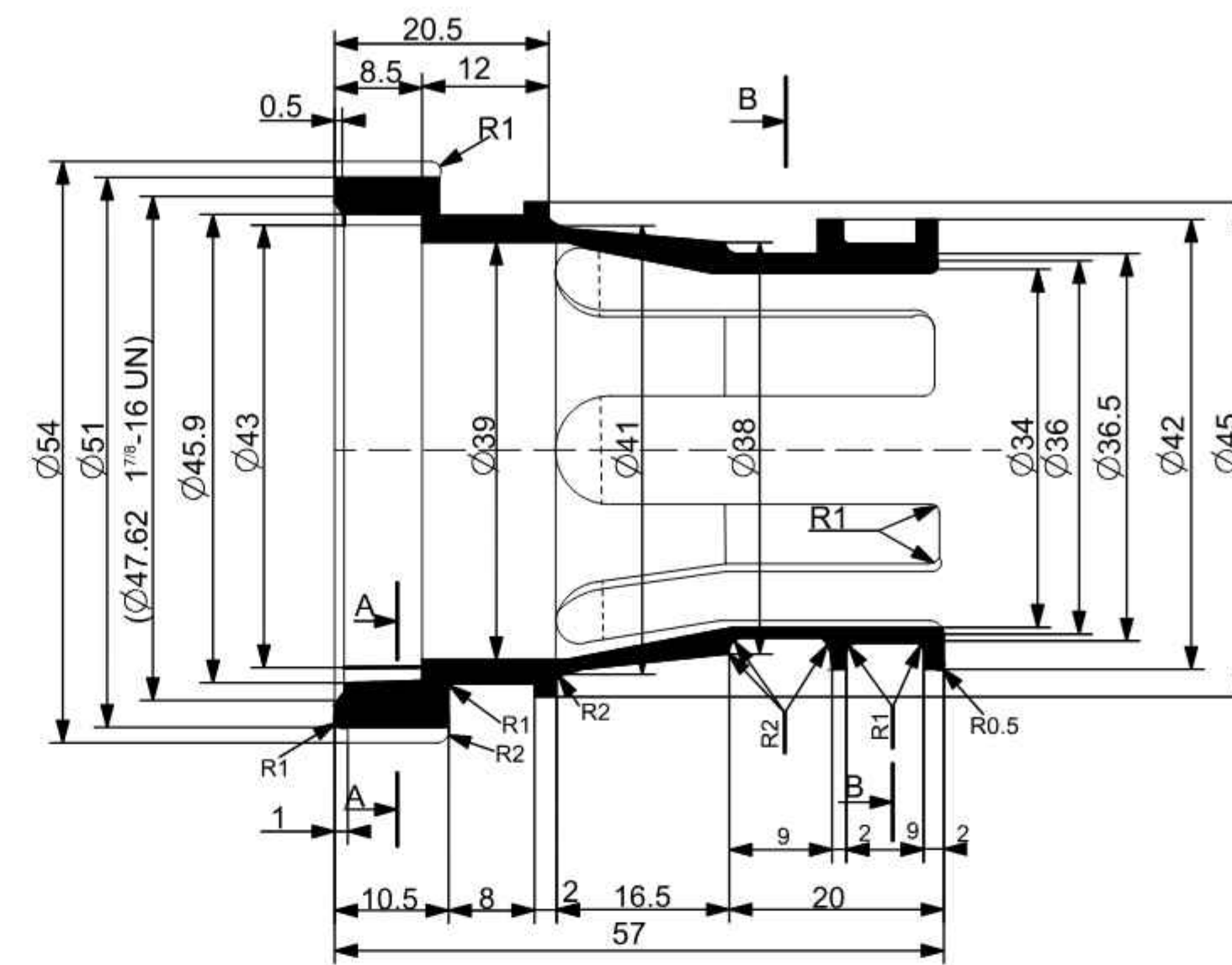


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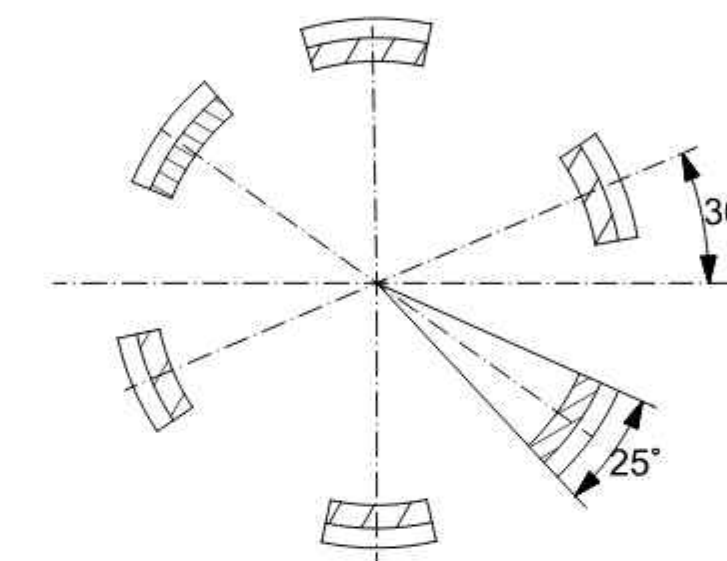
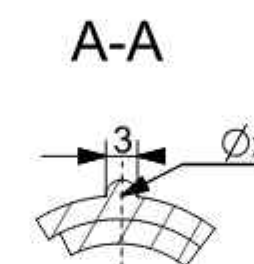
ASSEMBLY DRAWING(HBTB315111R0001)



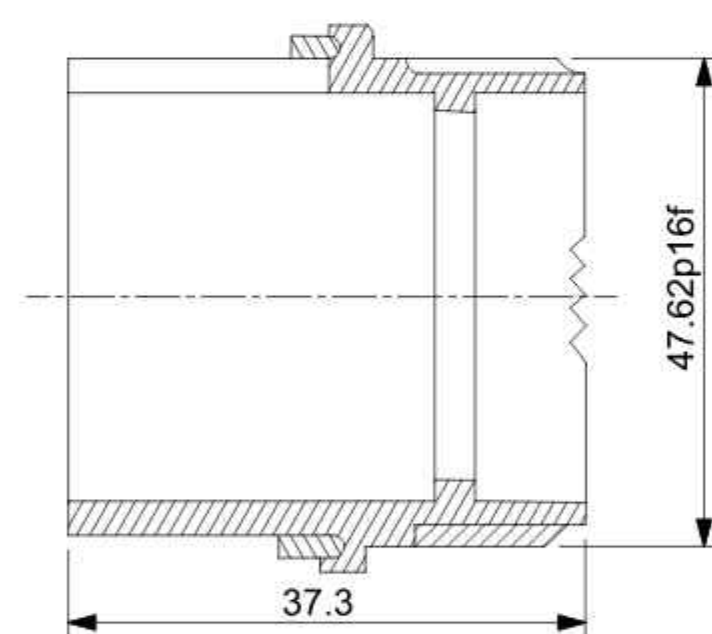
TECHNICAL DATA			
CONT.	SIZE	I MAX	CONDUCTOR CROSS SECTION
-	8	73A	10.0 mm ²
13	12	41A	0.5 - 6.0 mm ²
-	16	22A	0.5 - 1.5 mm ²
TEST VOLTAGE: 2800V			
INSULATION RESISTANCE		MIN.	5000MΩ



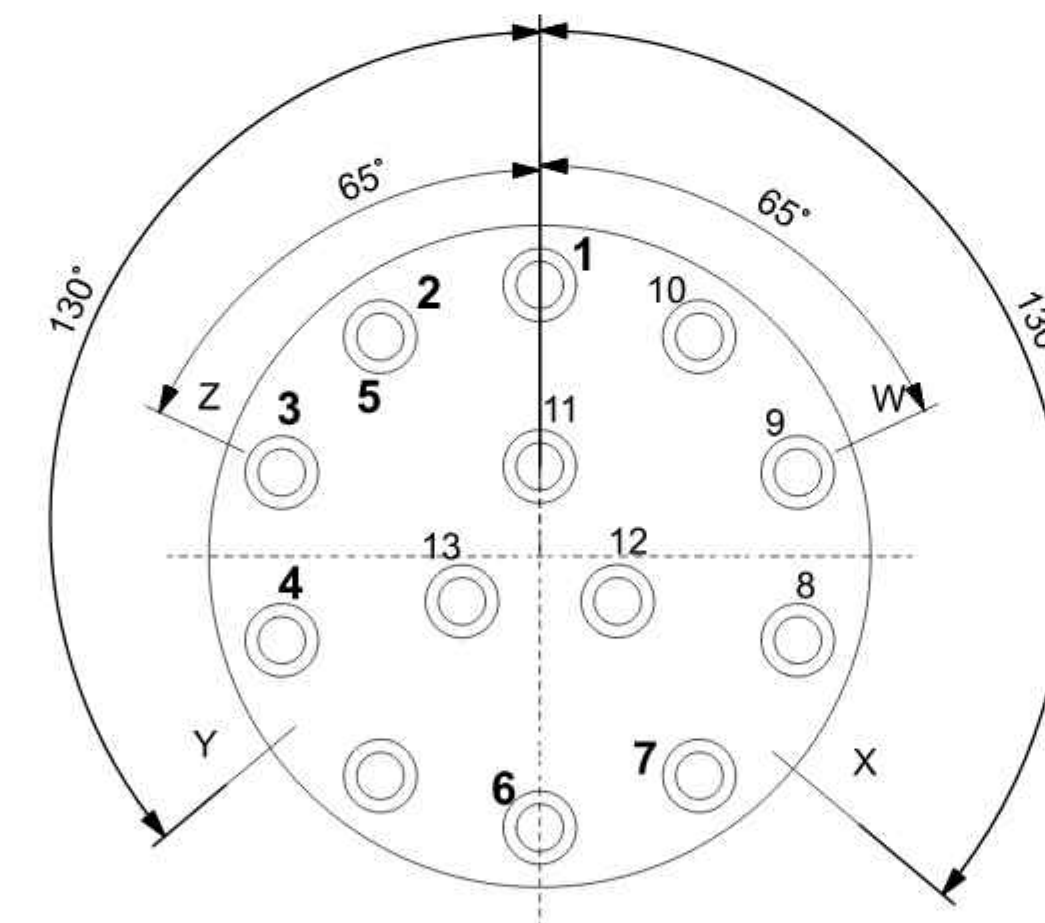
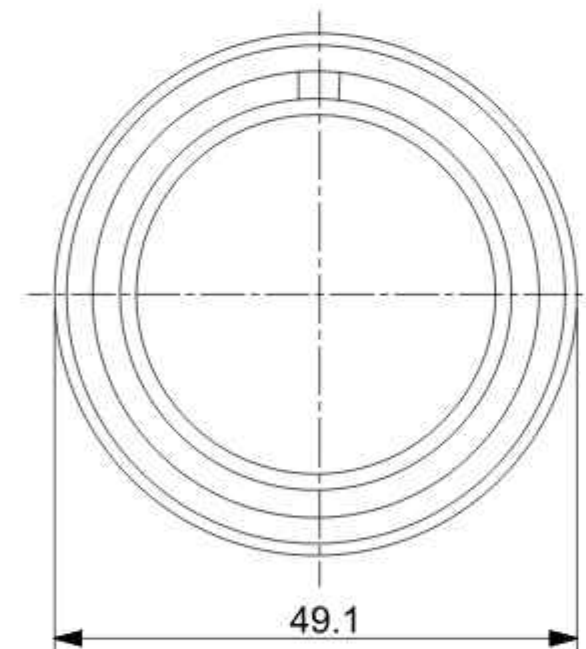
B-B



REF-9(HBTB416397P0012)



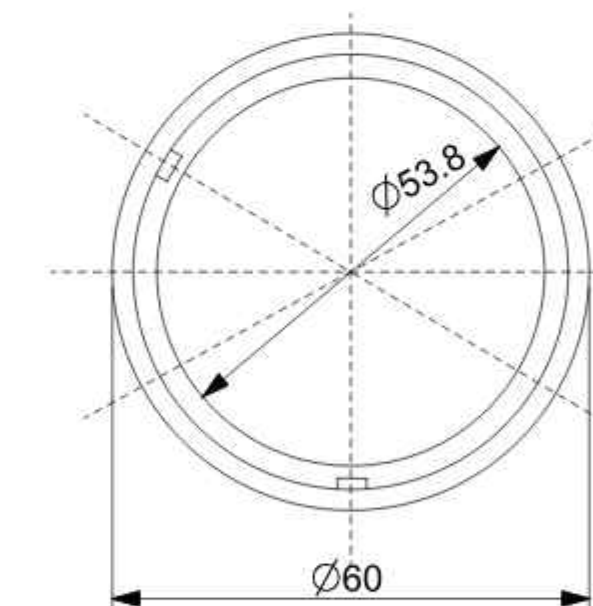
REF-6(HBT415273P0003)



REF-7(HBT415287P0002)

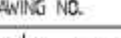


REF-8(HBT415275P0003)



SET OF COMPLETE PLUG/PLUG 13P/32 SOCKET'N' INDOOR/ with cable clamp
HBTB 315111R0011

9	HBTB416397P0012	CABLE SLEEVE SIZE 32 POM
8	HBT 415275P0003	BAYONET,SIZE 32
7	HBT 415287P0002	BUSHES TEMPLATE, S32/13P
6	HBT 415273P0003	PLUG BODY, SIZE 32"B
1	HBTB315111R0001	ASSEMBLY
REF. NO	ABB ID	ITEM DESCRIPTION

भारतीय रेल INDIA		चित्तारंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA	प्रति नाम कि. मी. 1:1 (SCALE)
लीफ्ट नम्बर LIFT NO.	पदार्थ MAT.	विनिर्देश SPECN.	
परीक्षण परमिटर / परीक्षण REVENUED METER / TEST अनुमोदित प्रमाणपत्र APPROVED BY/EE	वर्णन DESCRIPTION	SET OF COMPLETE PLUG/PLUG 13#32 SOCKET 'N' INDOOR/ with cable clamp	
दिनांक DATE			
मीटर का SCALE	N.T.S.	आरेखण संख्या DRAWING NO.	CLWES/3/SK-14/0124
भारतीय रेल INDIA	HBTB 35118/0014/0124		परिवर्तन संख्या ALTERATION NO.
		शीट SHEET	1 OF 1
			AT

ALL DIMENSIONS ARE IN mm

[illegible]

SCALE		PARTS		DRAWING NO.		CLWES/3/SK-14/0124	
INCH	MILLIMETER	SHEET	NO.	OF	TOTAL		
DATE		BY		CHECKED		APPROVED	
REV.		DESCRIPTION		DATE		BY	
1		ASSEMBLY		10/10/2018		JM	
2		REVISION		10/10/2018		JM	
3		REVISION		10/10/2018		JM	
4		REVISION		10/10/2018		JM	
5		REVISION		10/10/2018		JM	
6		REVISION		10/10/2018		JM	
7		REVISION		10/10/2018		JM	
8		REVISION		10/10/2018		JM	
9		REVISION		10/10/2018		JM	
10		REVISION		10/10/2018		JM	
11		REVISION		10/10/2018		JM	
12		REVISION		10/10/2018		JM	
13		REVISION		10/10/2018		JM	
14		REVISION		10/10/2018		JM	
15		REVISION		10/10/2018		JM	
16		REVISION		10/10/2018		JM	
17		REVISION		10/10/2018		JM	
18		REVISION		10/10/2018		JM	
19		REVISION		10/10/2018		JM	
20		REVISION		10/10/2018		JM	
21		REVISION		10/10/2018		JM	
22		REVISION		10/10/2018		JM	
23		REVISION		10/10/2018		JM	
24		REVISION		10/10/2018		JM	
25		REVISION		10/10/2018		JM	
26		REVISION		10/10/2018		JM	
27		REVISION		10/10/2018		JM	
28		REVISION		10/10/2018		JM	
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31		REVISION		10/10/2018		JM	
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33		REVISION		10/10/2018		JM	
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35		REVISION		10/10/2018		JM	
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39		REVISION		10/10/2018		JM	
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41		REVISION		10/10/2018		JM	
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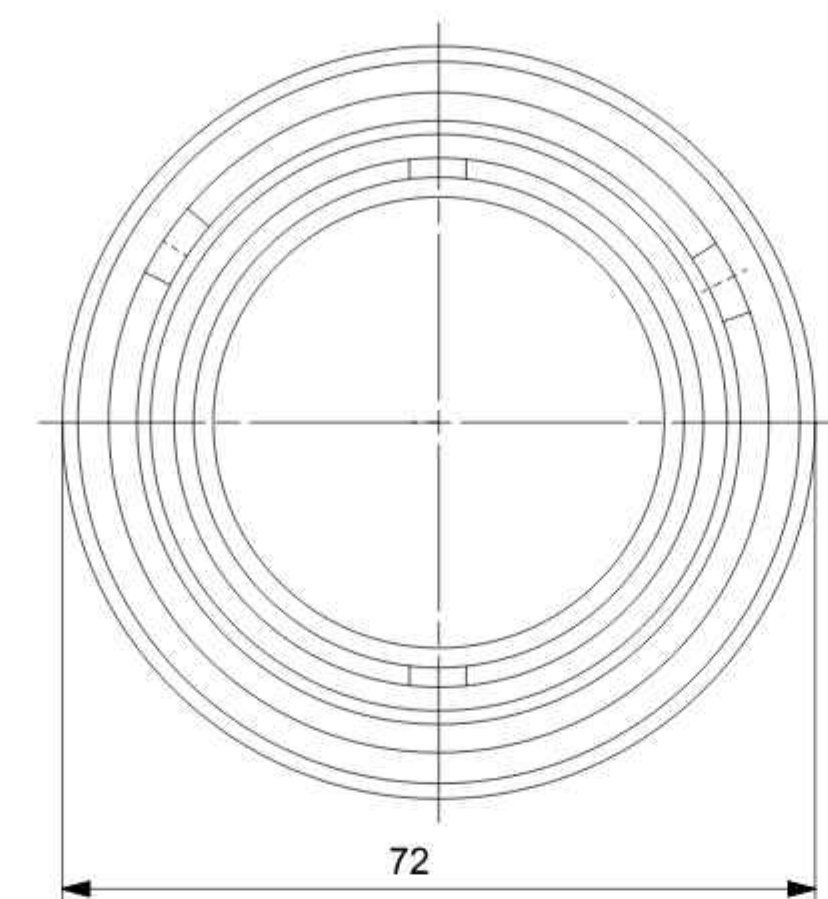
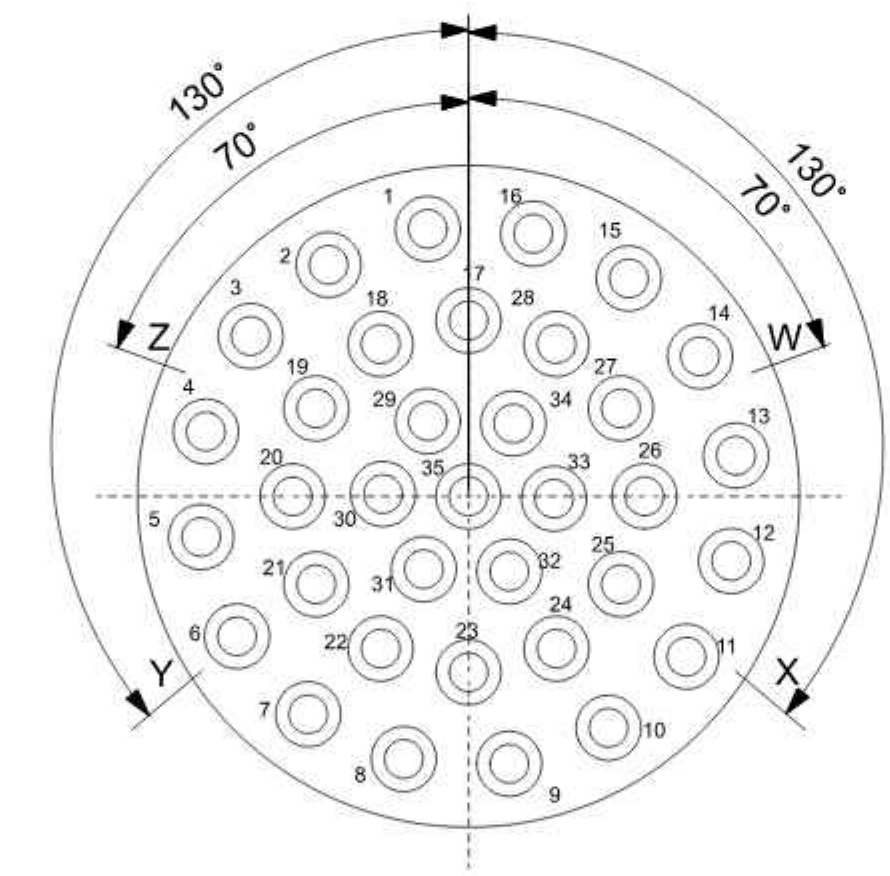


Figure 1 consists of two schematic diagrams. Diagram (A) is a cross-sectional view of the specimen, showing a central circular hole with diameter $\varnothing x$ and a width of 3 mm. Diagram (B) is a top-down view of the specimen, showing a central circular hole with diameter $\varnothing x$ and six radial slots. Each slot has a width of 3 mm and a depth of 25 mm. The slots are spaced at 30-degree intervals around the central hole.



The technical drawing consists of two views of a circular component. The left view is a cross-section showing a vertical assembly. It features a central core with a hatched pattern, surrounded by a layer with horizontal lines, and an outer casing. A dimension line at the bottom indicates a width of 24. The right view is a top-down circular view. It shows concentric circles representing the component's profile. A dimension line across the bottom indicates an outer diameter of $\varnothing 72$. Another dimension line, pointing to the inner circle, indicates an inner diameter of $\varnothing 66.45$. Dashed lines represent the component's radial symmetry.

REF-8(HBT415275P0005)

ST 35P/40 BU"N"IR KABELH./PLUG 25P/40 SKT'N' INDOOR
HBTB 315113R0011

ALL DIMENSIONS ARE IN mm

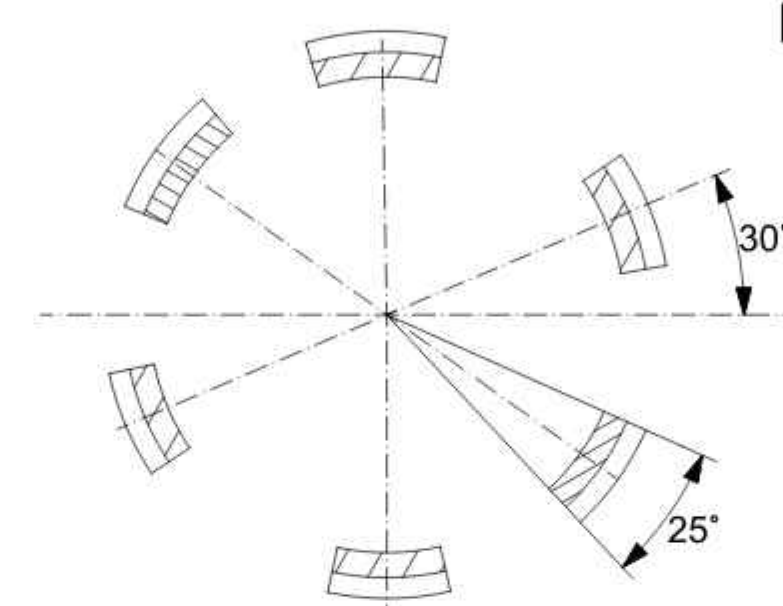
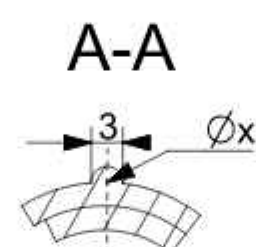
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REF-1

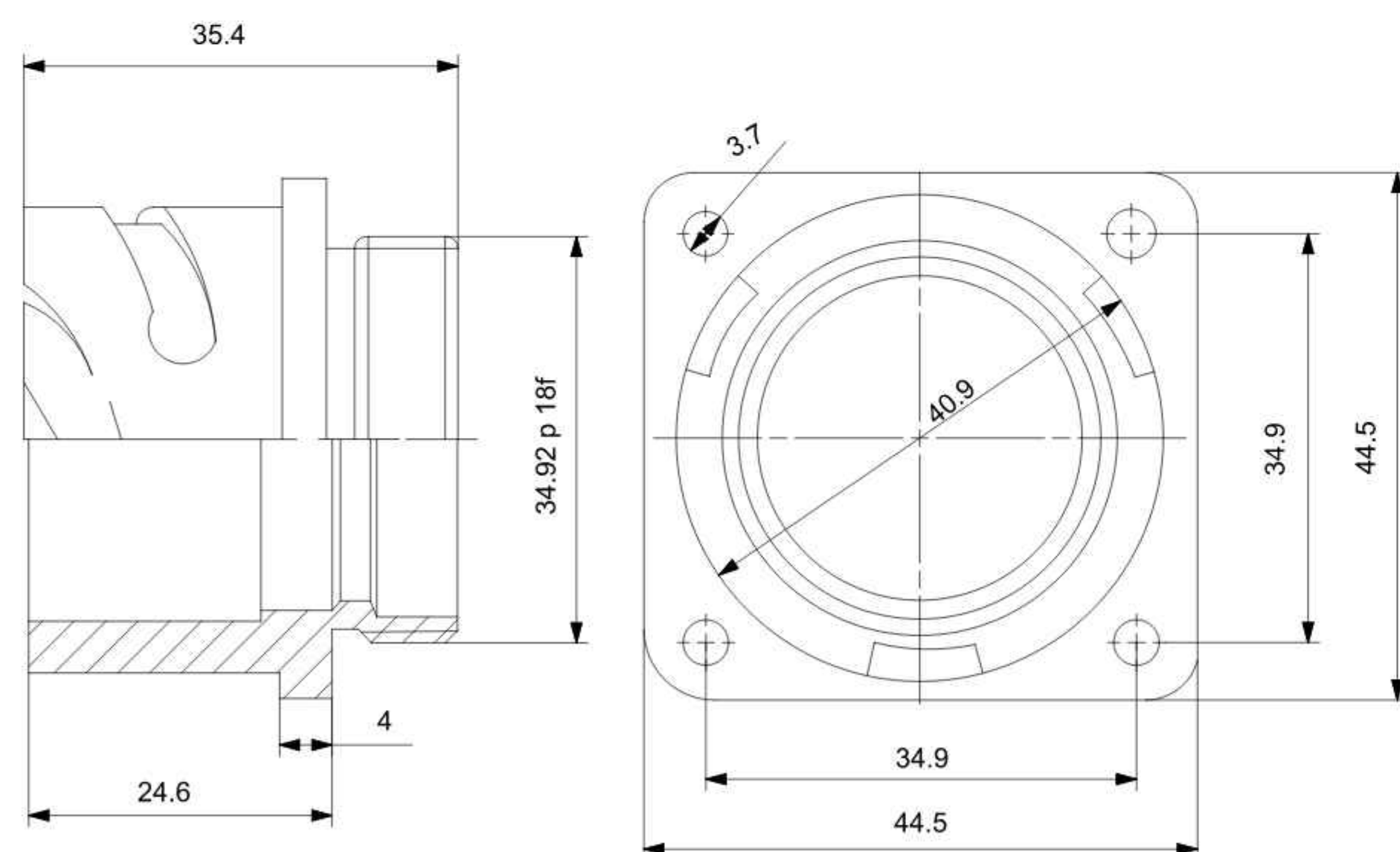
ASSEMBLY DRAWING(HBTB315158R0001)

TECHNICAL DATA			
CONT.	SIZE	I MAX	CONDUCTOR CROSS SECTION
-	8	70A	10.0 mm ²
7	12	41A	0.5 - 6.0 mm ²
-	16	22A	0.5 - 1.5 mm ²
OPERATING VOLTAGE 250V			

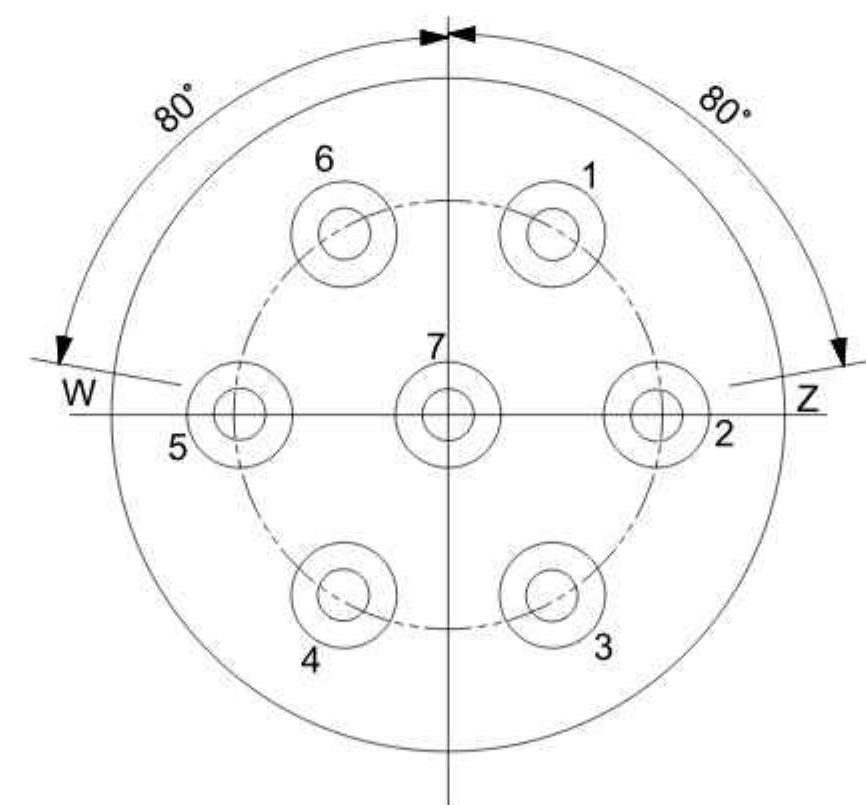
B-B



HBTB416397P0012



REF-6(HBT415270P0002)



REF-7(HBT415286P0001)

Socket 7P/24 Pin"N"(with cable clamp and Red Ring)

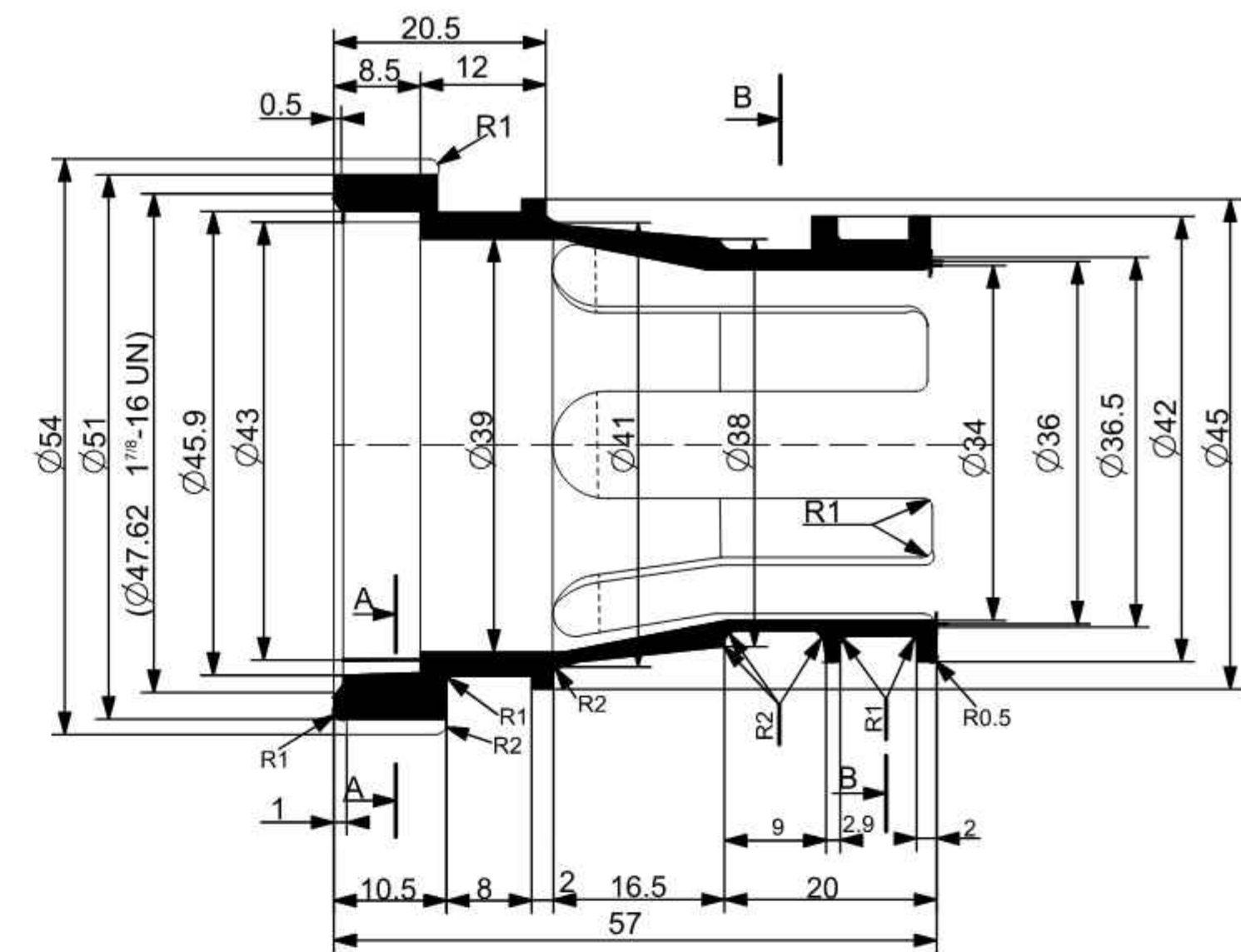
HBTB315158R0011

9	HBTB416397R0004	CA SLV INDOOR S24 (32/24)
7	HBT 415286P0001	BUSHES TEMPLATE , S24/7P
6	HBT 415270P0002	SOCKET BODY, SIZE 24 "B"
1	HBTB315158R0001	ASSEMBLY
REF. NO	ABB ID	ITEM DESCRIPTION

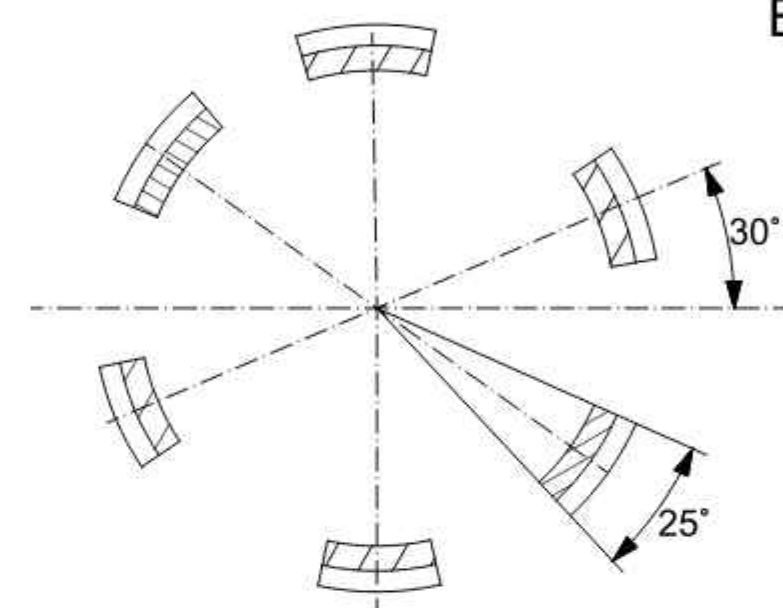
निर्धारित SIZE		चित्ररंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA	
मौलिक सामग्री (ENG. USE)		पदार्थ MSE	मूल नाम वि. सं. MR. EXCH. क्र.सं.
संश्लिष्ट विवरण / विवरण RECORDING ATT. / DET.		चिह्न SYMBOL	
अनुमोदित चयनित APPROVED TYPE		वर्ण DESCRIPTION	विशेष विवरण SPECIAL INSTRUCTIONS
दिनांक DATE		आदेश संख्या DRAWING NO.	पर्य SHEET
मूलिक अनुपात SCALE	NTS	परिवर्तन संख्या ALTERATION NO.	पर्य SHEET
संश्लि / प्र. / अ. HBTB35/SK80V1 AD-			1 OF 1
			A1

[illegible]

परिचयन संख्या AUT. NO.	प्रतिकारक AUTHY	वर्णन DESCRIPTION	विनाशित कालांतर DATE INITIAL	पर्याप्त / REF. SCALE DRAWING NO.	परिचयन संख्या ALTERATION NO.	पृष्ठ SHEET	1 OF 1	A1
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 B-B

A-A



A circular diagram representing a building layout. It features 13 numbered rooms arranged in a circle, each with a central circle and a crosshair. The rooms are numbered 1 through 13. The layout is divided into four quadrants by a vertical and a horizontal line. The quadrants are labeled with letters: W (top-left), X (bottom-left), Y (bottom-right), and Z (top-right). The angles between the lines are marked: 65° between the vertical line and the lines to rooms 1 and 13, and 130° between the horizontal line and the lines to rooms 9 and 5. Arrows indicate the direction of the angles.

REF-6(HBT415270P0003)

SET OF COMPLETE SOCKET/SOCKET 13P/32 PIN'N' INDOOR

HBTB315159R0011

9	HBTB416397P0012	CABLE SLEEVE 32 POM
7	HBT 415287P0001	PINS TEMPLATE, S32/13P
6	HBT 415270P0003	SOCKET BODY, SIZE 32"B"
1	HBTB315159R0001	ASSEMBLY
REF. NO	ABB ID	ITEM DESCRIPTION

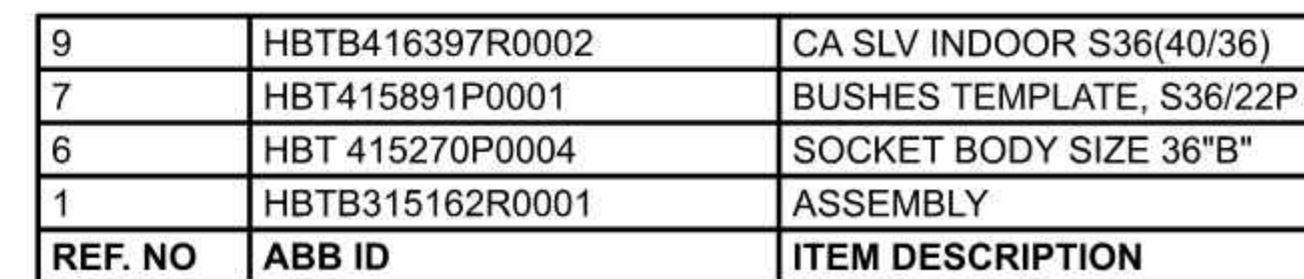
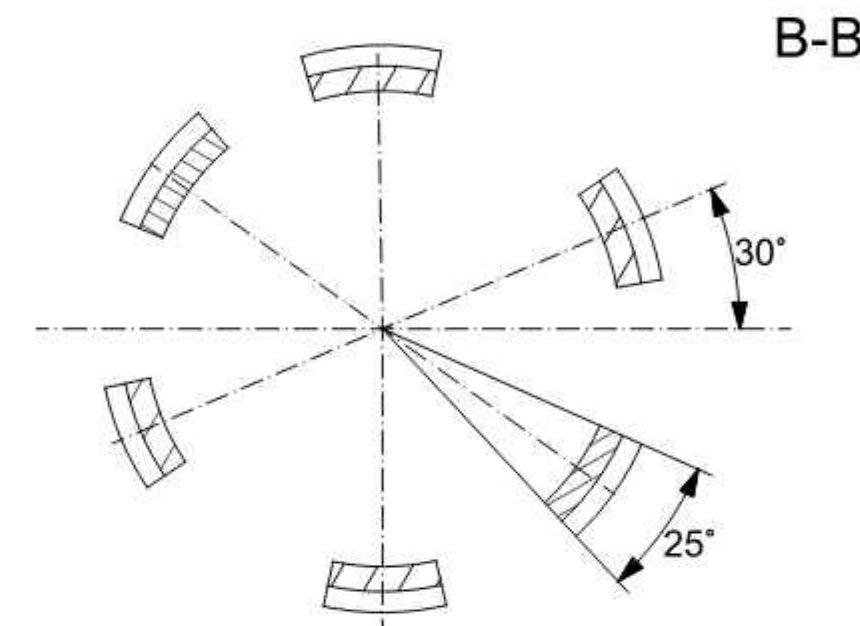
All dimensions are in mm

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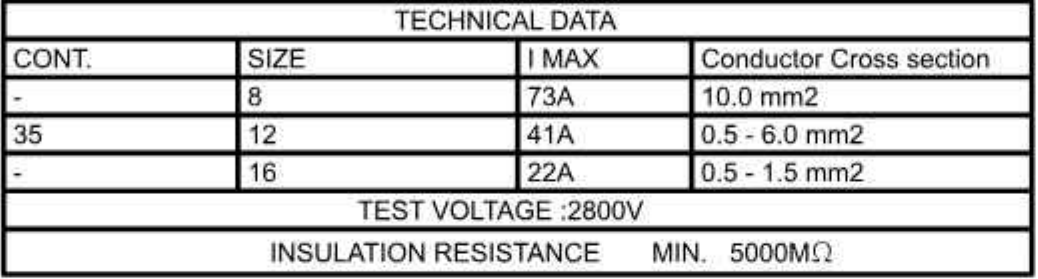


REF6. (HBT415270P0004)

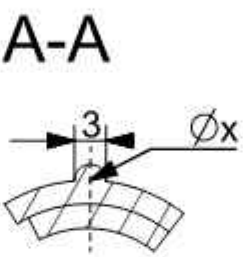
SOCKET 22P/36 PIN'N'
HBTB315161R0011

[illegible]

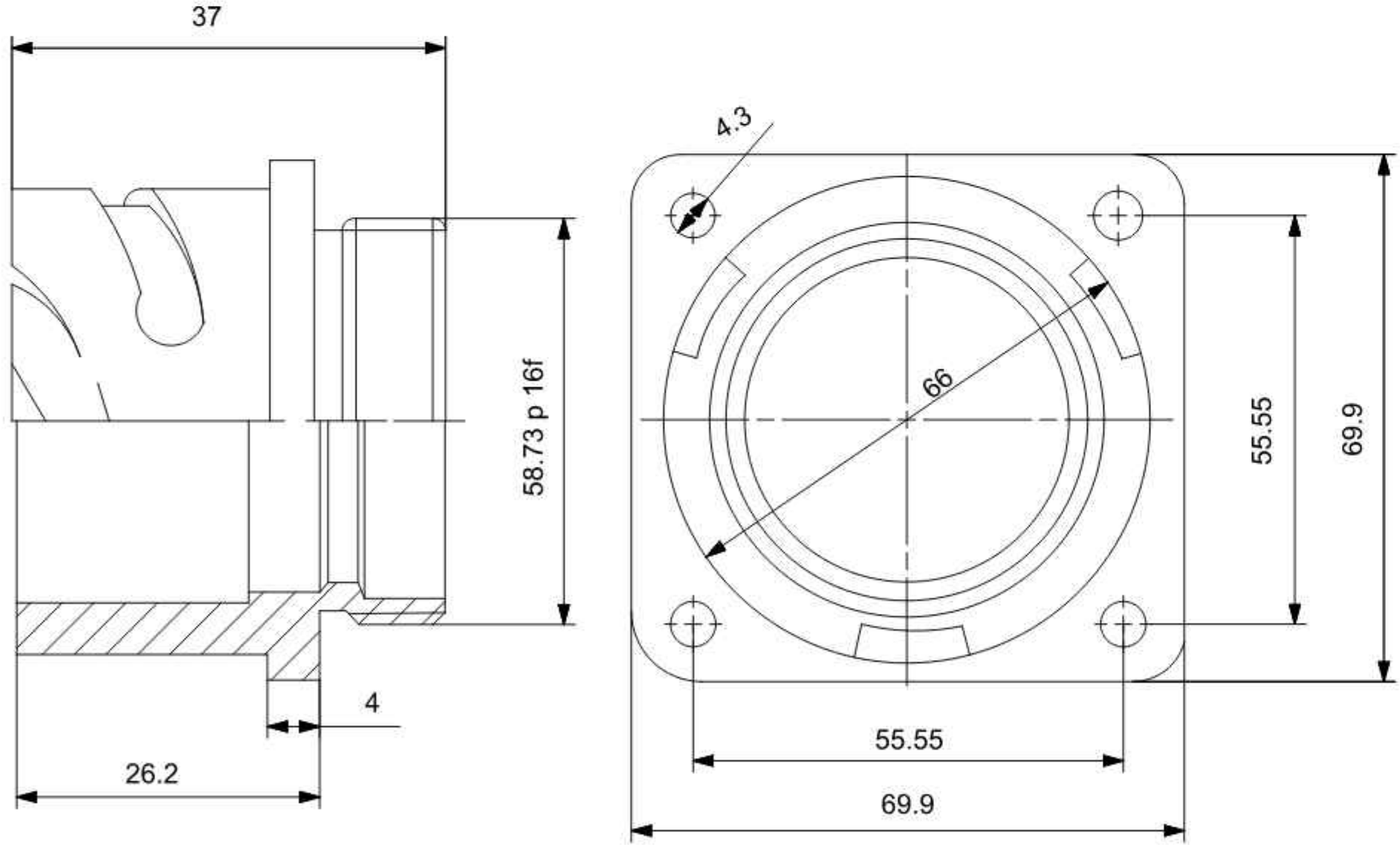
परिवर्तन संख्या AUL. NO.	प्रतिक्रिया AUTH	वर्णन DESCRIPTION	विशेष REMARKS DATED INITIAL	SCALE SCALE 1/100	ड्राइंग नं. DRAWING NO.	परिवर्तन संख्या ALTERATION NO.	पृष्ठ SHEET	OF	A1
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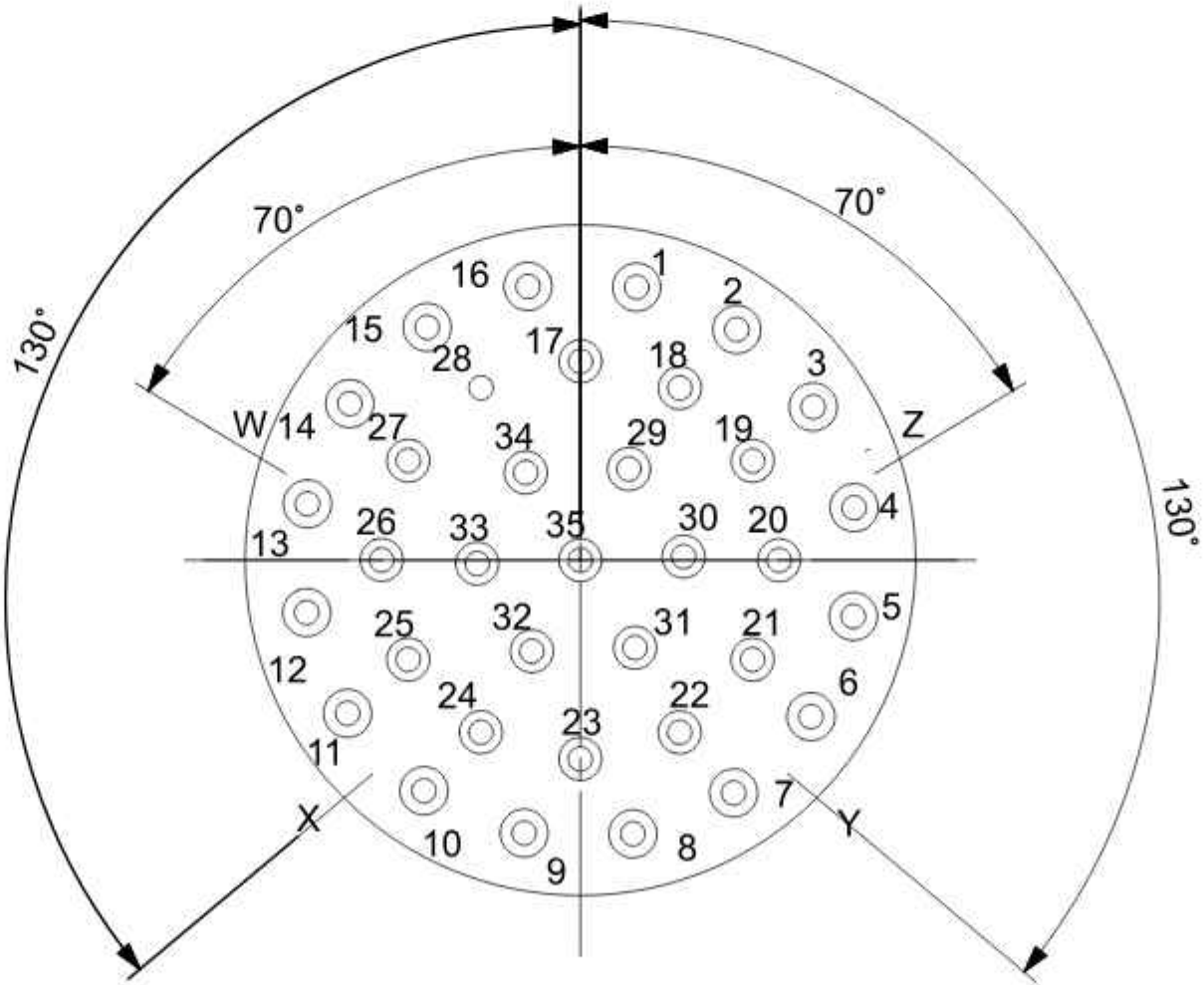
REF-1
ASSEMBLY DRAWING(HBTB315162R0001)



REF-9(HBTB416397P0011)



REF-6(HBT415270P0005)



REF-7(HBT415291P0001)

All dimensions are in mm

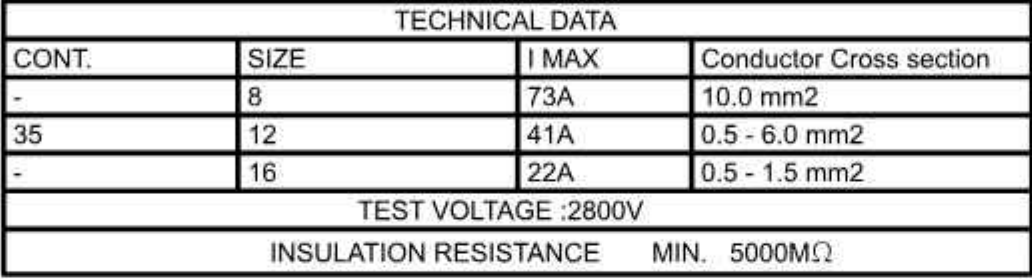
SOCKET 35P/40 PIN'N' IND

9	HBTB416397P0011	CABLE SLEEVE 40 POM
7	HBT 415291P0001	PINS TEMPLATE, S40/35P
6	HBT 415270P0005	SOCKET BODY SIZE 40"B"
1	HBTB315162R0001	ASSEMBLY
REF. NO	ABB ID	ITEM DESCRIPTION

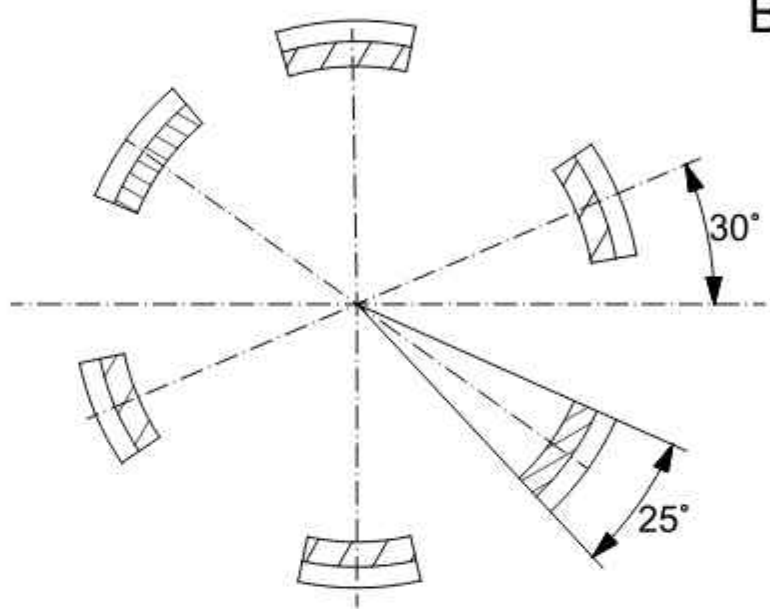
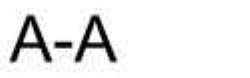
चित्रकीर्ण DIN		चित्ररंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA		
लॉक नम्बर CHK. SIZE		पर्याप्त MET.	जरी नाम कि. वा. VC. ECHN. B. 45	
समिति समीक्षा / देखीक REVIEWED ASE / SEE		निर्दिष्ट SPEC.		
अनुमोदित प्रयुजित APPROVED BY/USE		दर्शन DRAWING	SOCKET 35P/40 PIN'N' IND.	
चित्रण DTE		DESCRIPTION		
एकिक अनुपात SCALE	NTS	आरेखण संख्या DRAWING NO.	CLWES/3/SK-22/0124	
गणन / रोल HBT83516/200011 AL3		परिवर्तन संख्या ALTERATION NO.	पृष्ठ SHEET	1 OF 1
		A1		

गठित-रेवेन्यू विह		अधिकृत सच - सीमा गा. नं. 2102; अ. नं. 2102; अ. नं. 2102												TOL. U.S.	
गा. नं. ११९; अ. नं. २६६३		UNSPERF TOLERANCE TO S. 2; 102; S. 2; 102													
WELDING SCHOOL S. 2 S. 2; 102															
सच - सच गा. नं. २०७९; अ. नं. २१०२															
SURFACE ROUGHNESS VALUE TO S. 2; 102															
विह		S. 2; 102												S. 2; 102	
S. 2; 102		S. 2; 102												S. 2; 102	

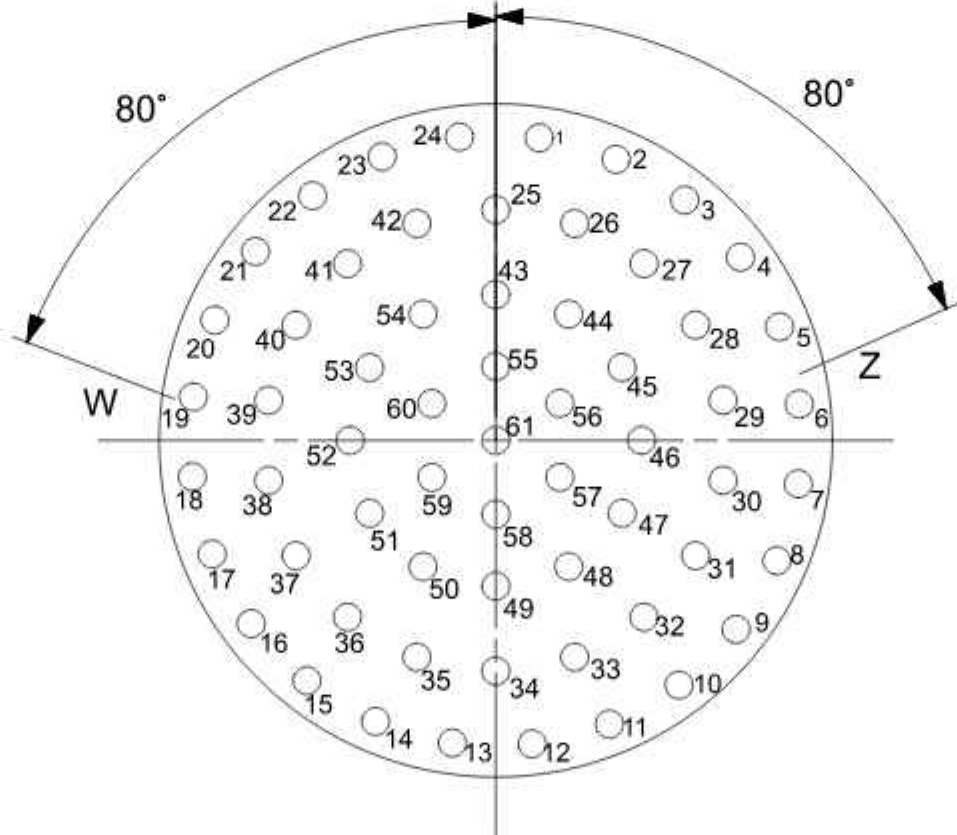
परिवर्तन संख्या ALT. NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	विचारित कक्ष DATED	संलग्न / प्र. HBTB31516Z0001-Alt-	DRAWING NO.		CWES7375R ZEP0124		
						परिवर्तन संख्या ALTERATION NO.	शीट SHEET	1 OF 1	A1



REF-1
ASSEMBLY DRAWING(HBTB315162R0001)



REF-9(HBTB416397P0011)



REF-7(HBT415293P0001)

REF-6(HBT415270P0005)

All dimensions are in mm

SET OF COMPLETE SOCKET/SOCKET 61P/40 PIN'N' INDOOR

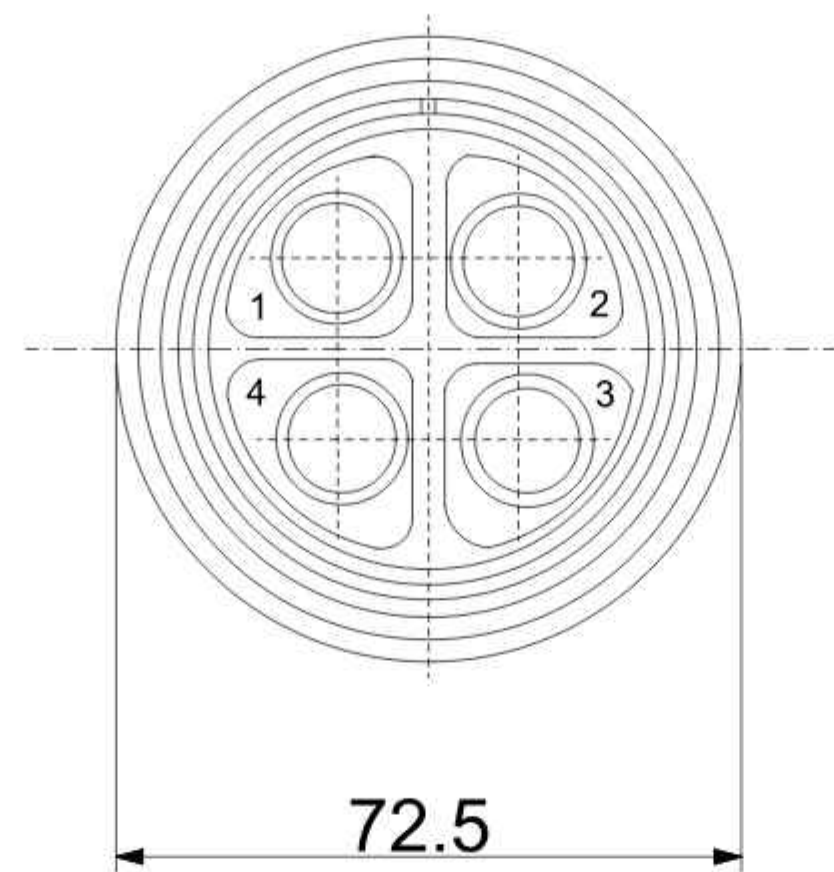
HBTB315163R0011

9	HBTB416397P0011	CABLE SLEEVE 40 POM
7	HBT 415293P0001	PINS TEMPLATE, S40/61P
6	HBT 415270P0005	SOCKET BODY SIZE 40"B"
1	HBTB315163R0001	ASSEMBLY
REF. NO	ABB ID	ITEM DESCRIPTION

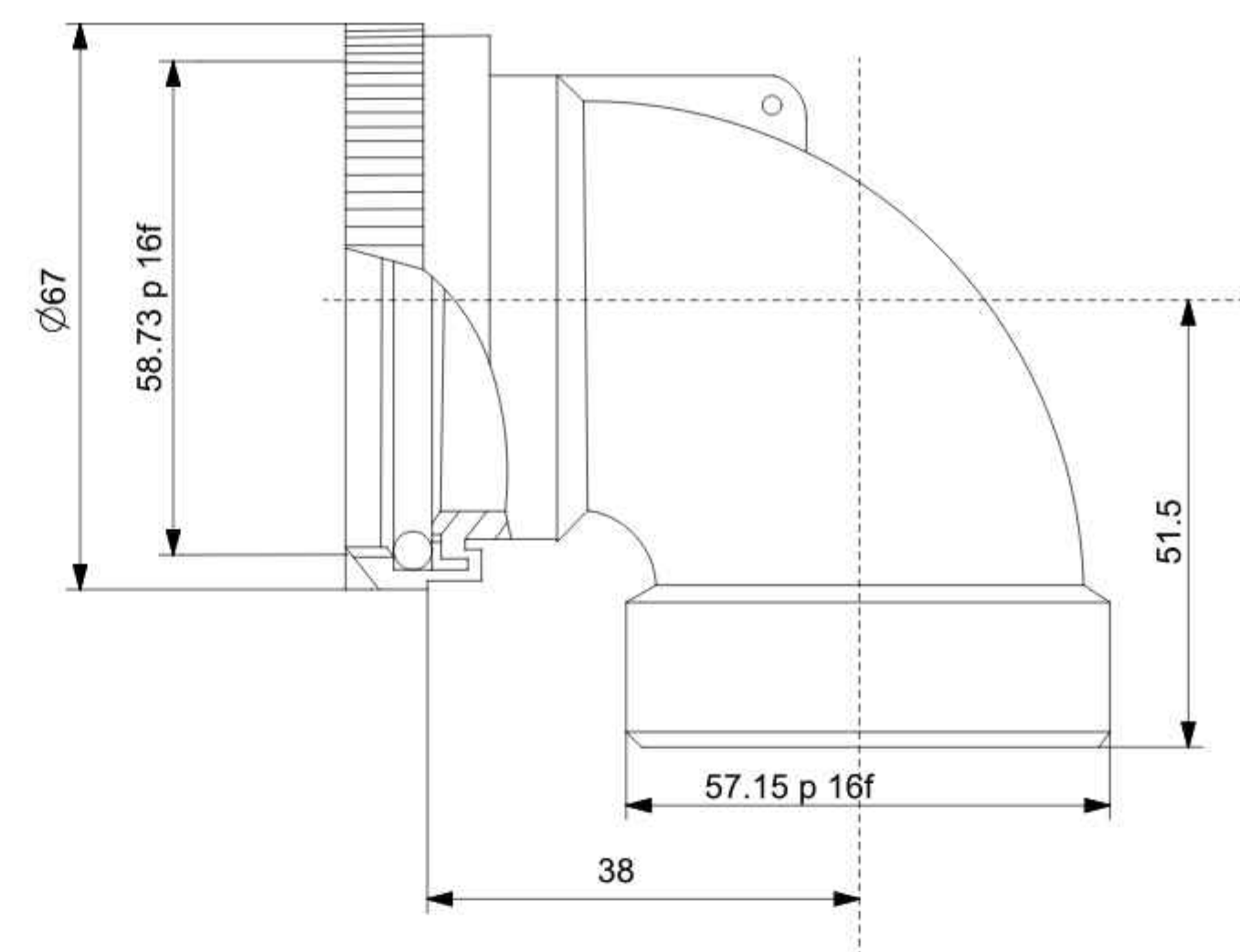
चिह्निका OR लॉग चिह्निका OR SEE समीक्षा करिए / देखिए REVIEWED BY / SEE अनुमोदित चिह्निका APPROVED BY/EE चिह्निका DATE एचके कवच SCALE चर्चा / RE: HETB35H300011 AG-		चित्तरंजन रेल्वे इंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA	प्रति पाग कि. घ.स. W/ CASH IN	प्रति पाग कि. घ.स. W/ CASH IN
	चर्चा MAIL चिह्निका SPECN	SET OF COMPLETE SOCKET/SOCKET 61P/40 PIN IN DOOR		
	चर्चा DESCRIPTION	SET OF COMPLETE SOCKET/SOCKET 61P/40 PIN IN DOOR		
	एचके कवच NTS	आरेखन संख्या DRAWING NO.	CLWES/3/SK-23/0124	
		परिचयन संख्या ALTERNATION NO.	पर्ण SHEET	1 OF 1

[illegible]

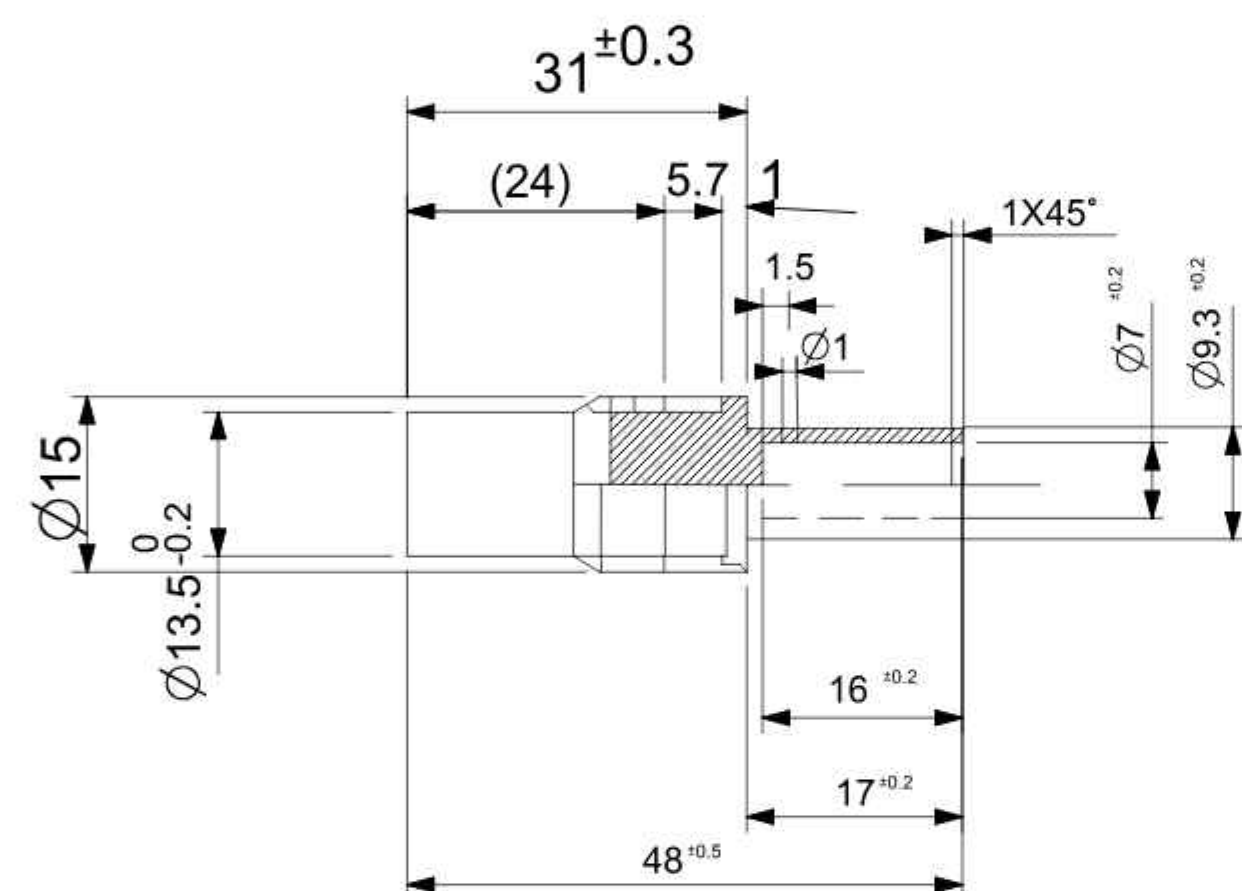
परिवर्तन संख्या ALT. NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION
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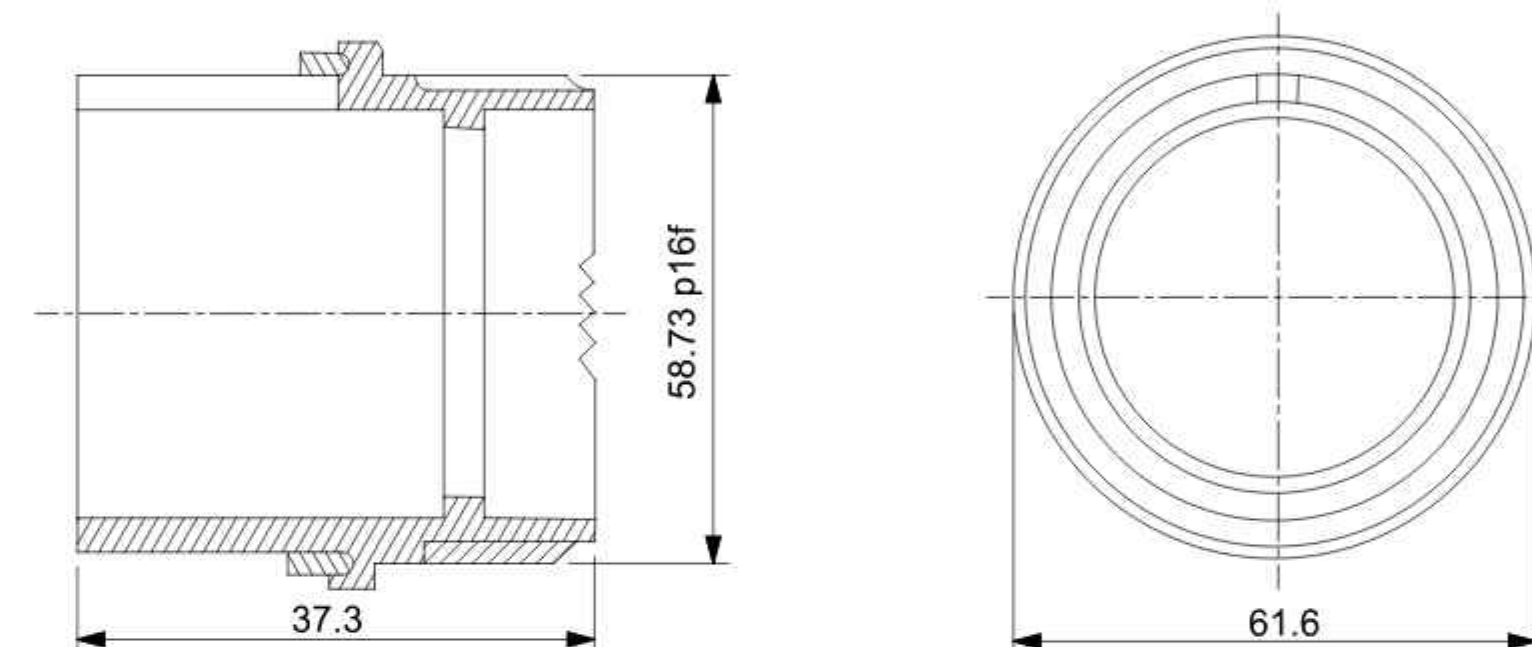
operating voltage : 750V AC/DC



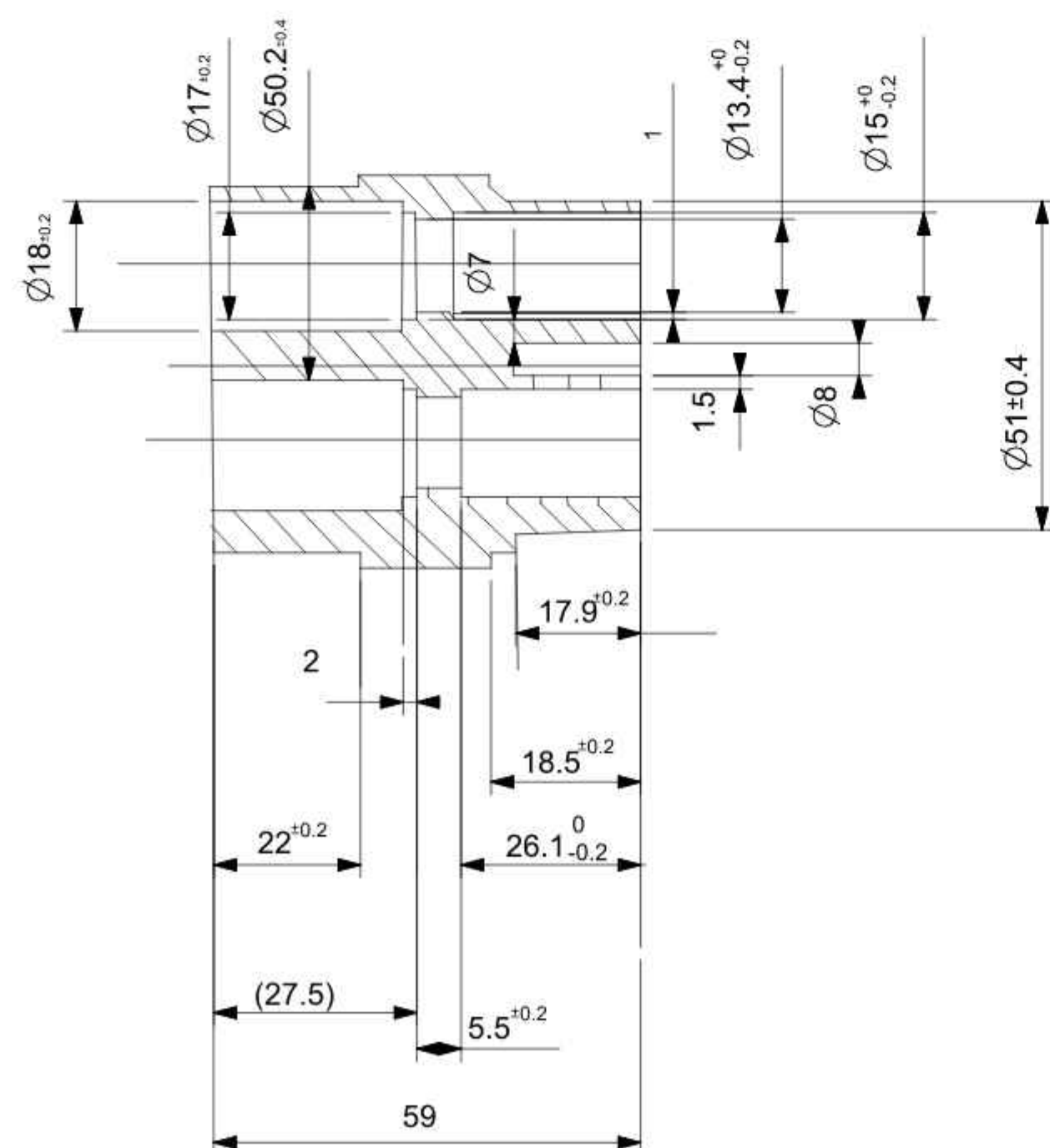
REF11(HBT415280P0005)



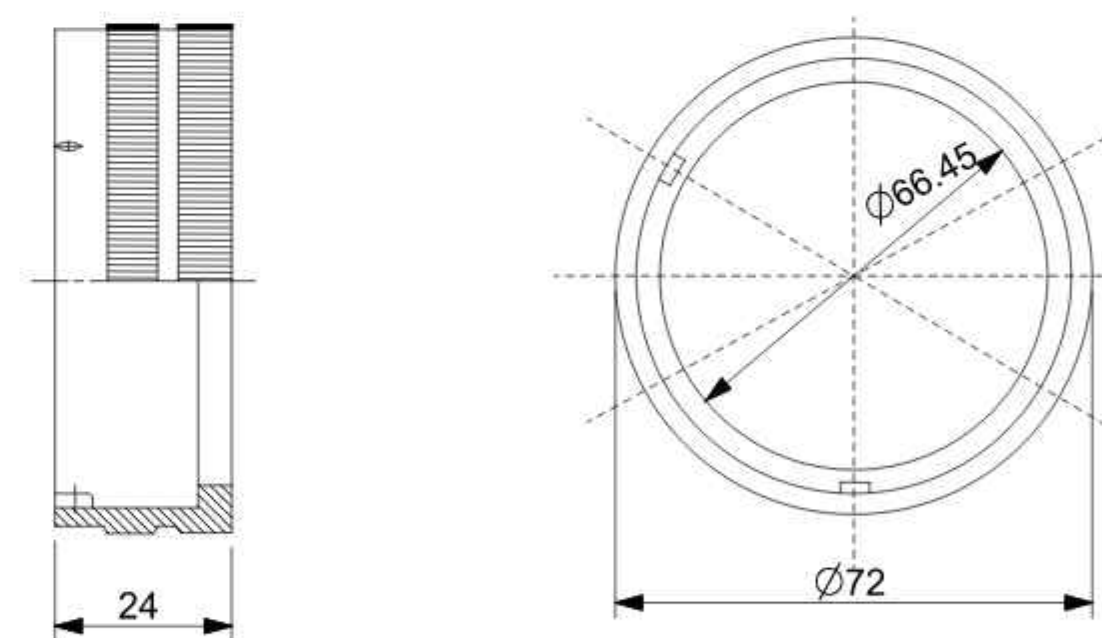
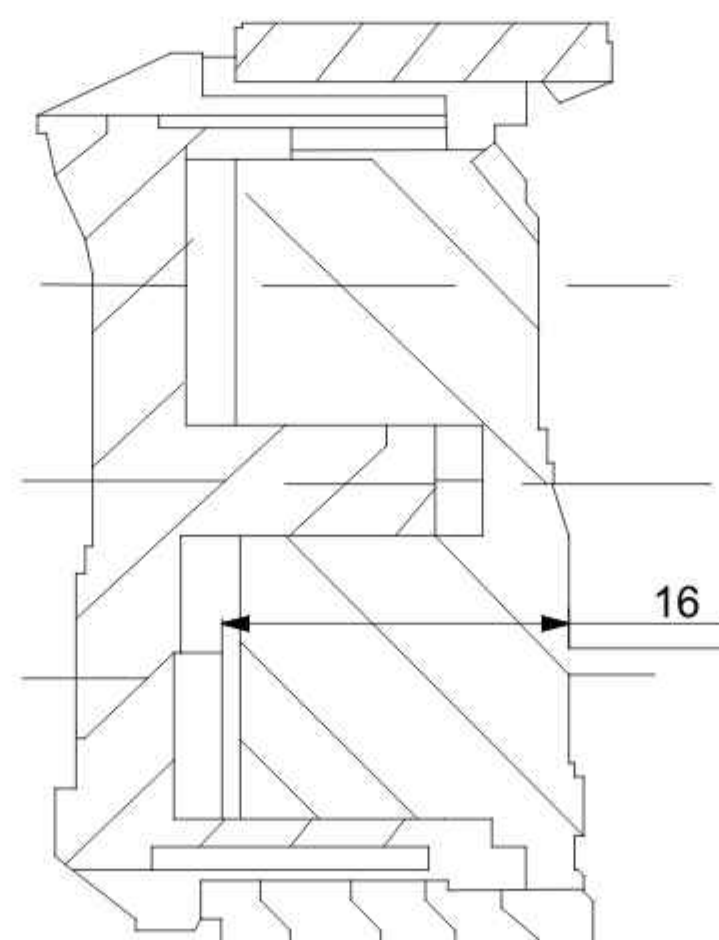
REF-21(HBTB416434P0001)



REF-6(HBT415273P0005)



REF-7(HBTB316231P0001)



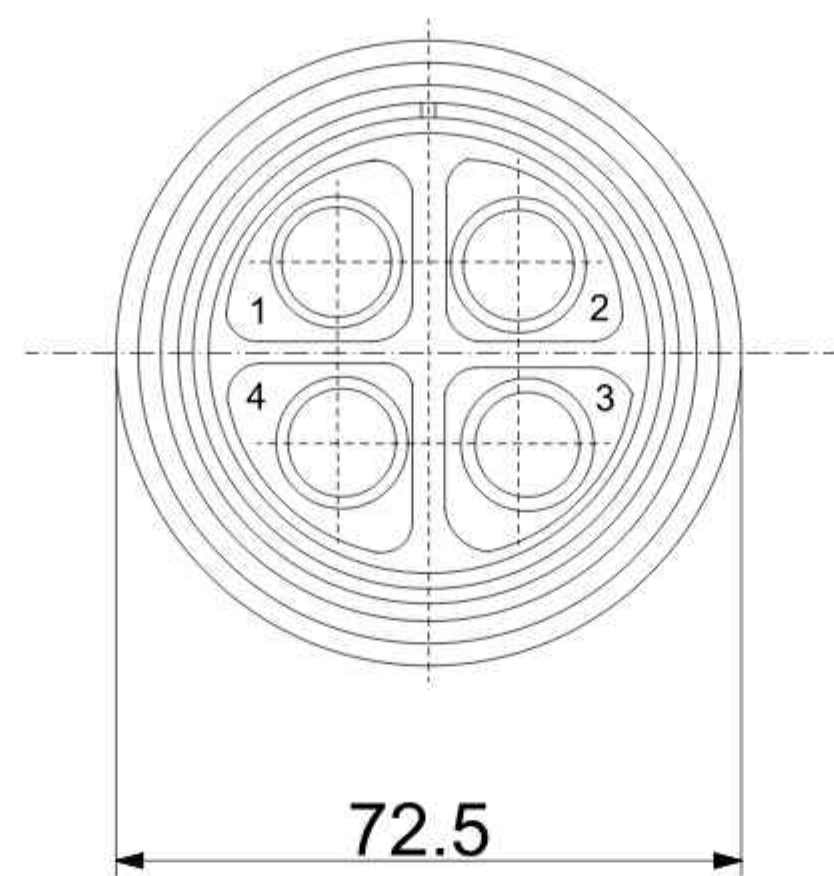
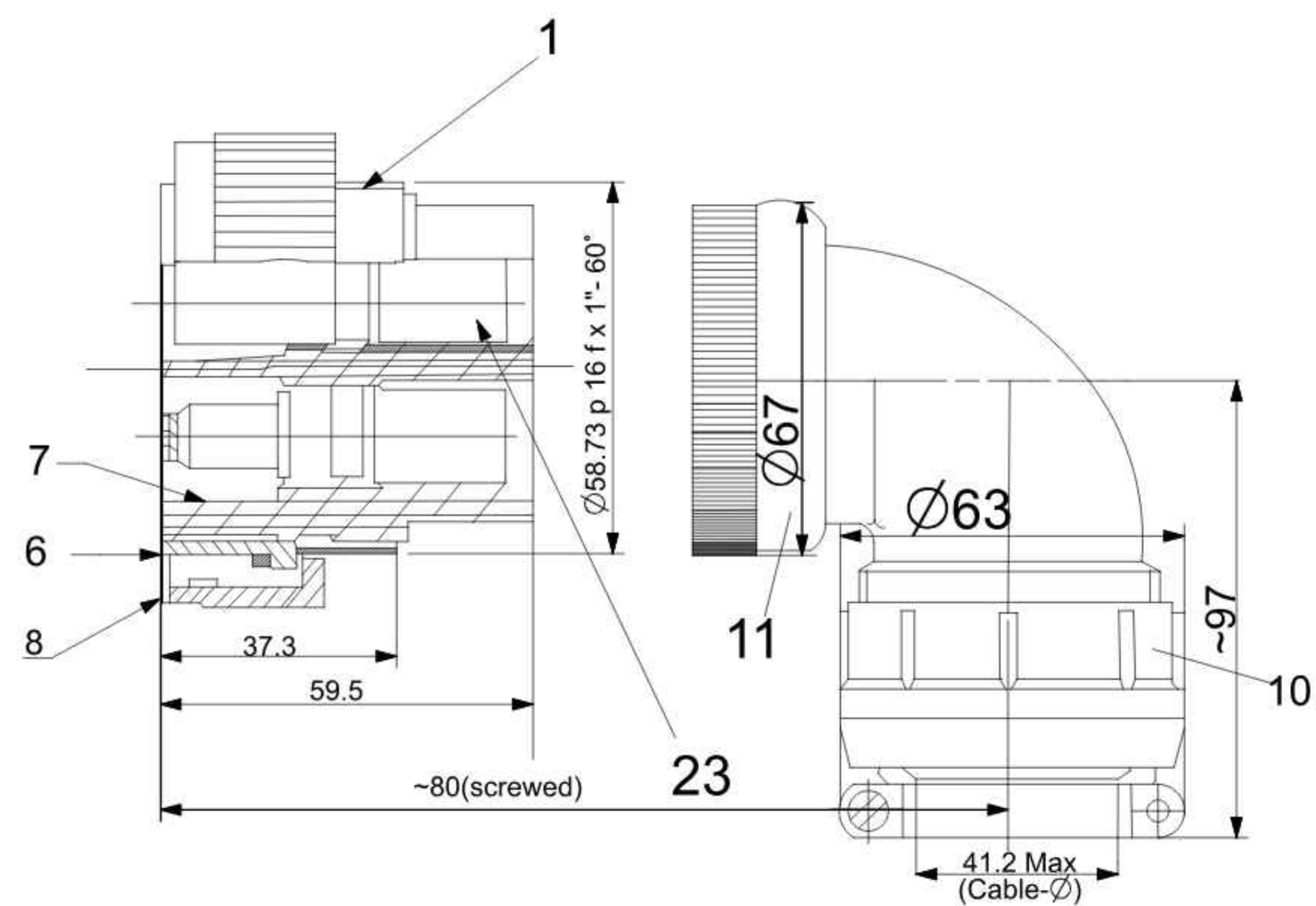
REF-8 (HBT415275P0005)

All dimensions are in mm

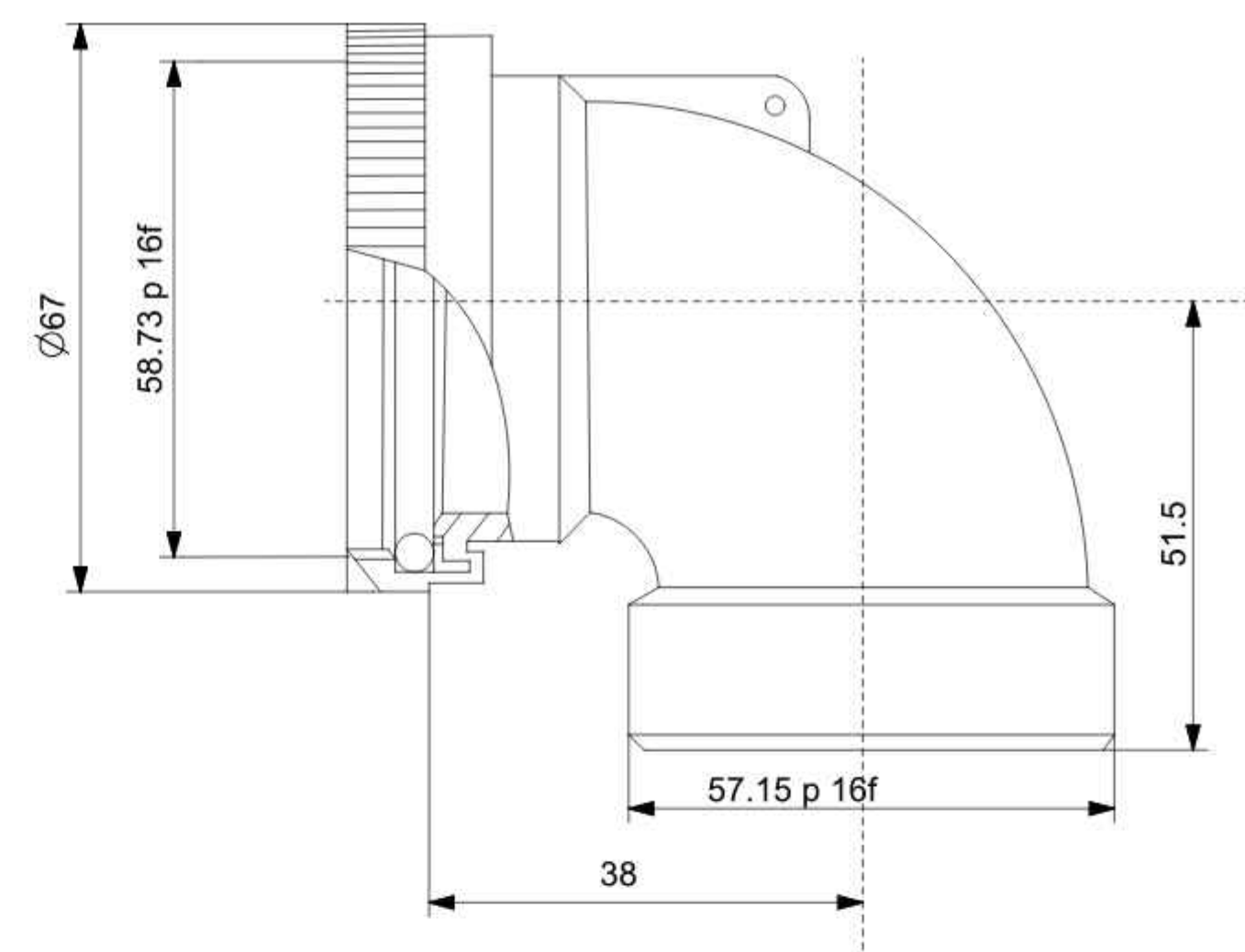
21	HBTB416434P0001	CONTACT SOCKET S.0/16 MM²
11	HBT 415280P0005	L-ADAPTOR SIZE 40
10	HBT415281P0005	METAL CLIP,SIZE 40
8	HBT 415275P0005	BAYONET, SIZE 40
7	HBTB316231P0001	TEMPLATE PLUG 4P/40
6	HBT 415273P0005	PLUG BODY, SIZE 40"B"
1	HBTB315176R0001	ASSEMBLY
REF. NO	ABB ID	ITEM DESCRIPTION

SET OF COMPLETE PLUG/L-PLUG 4P/40 SOCKET'N' INDOOR
HBTB315176R0211

[illegible]

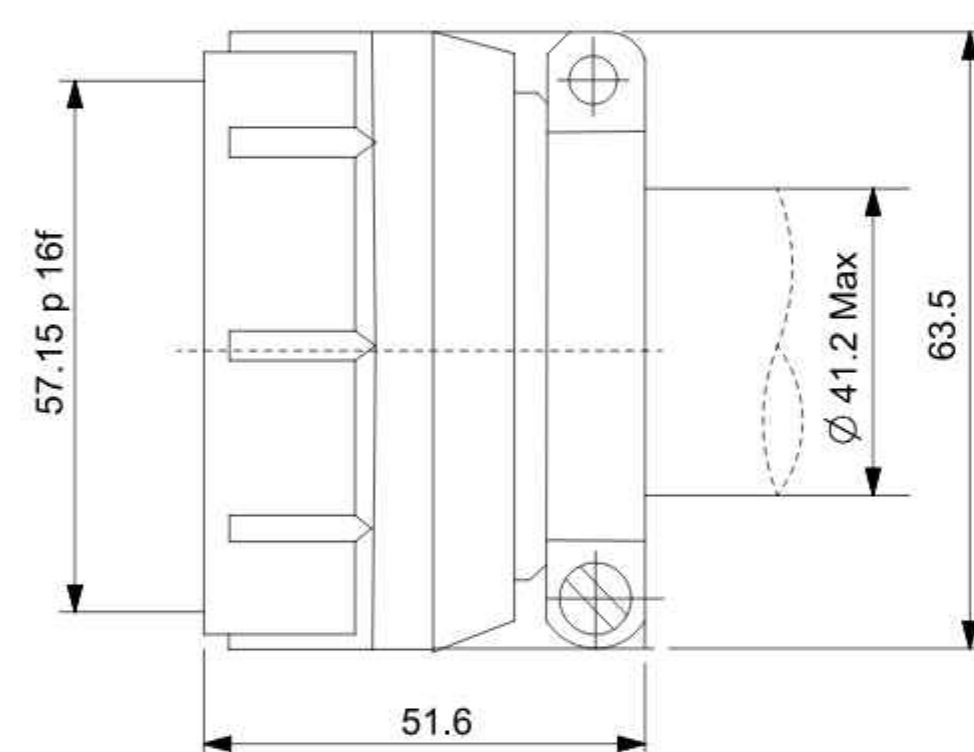


operating voltage : 750V AC/DC

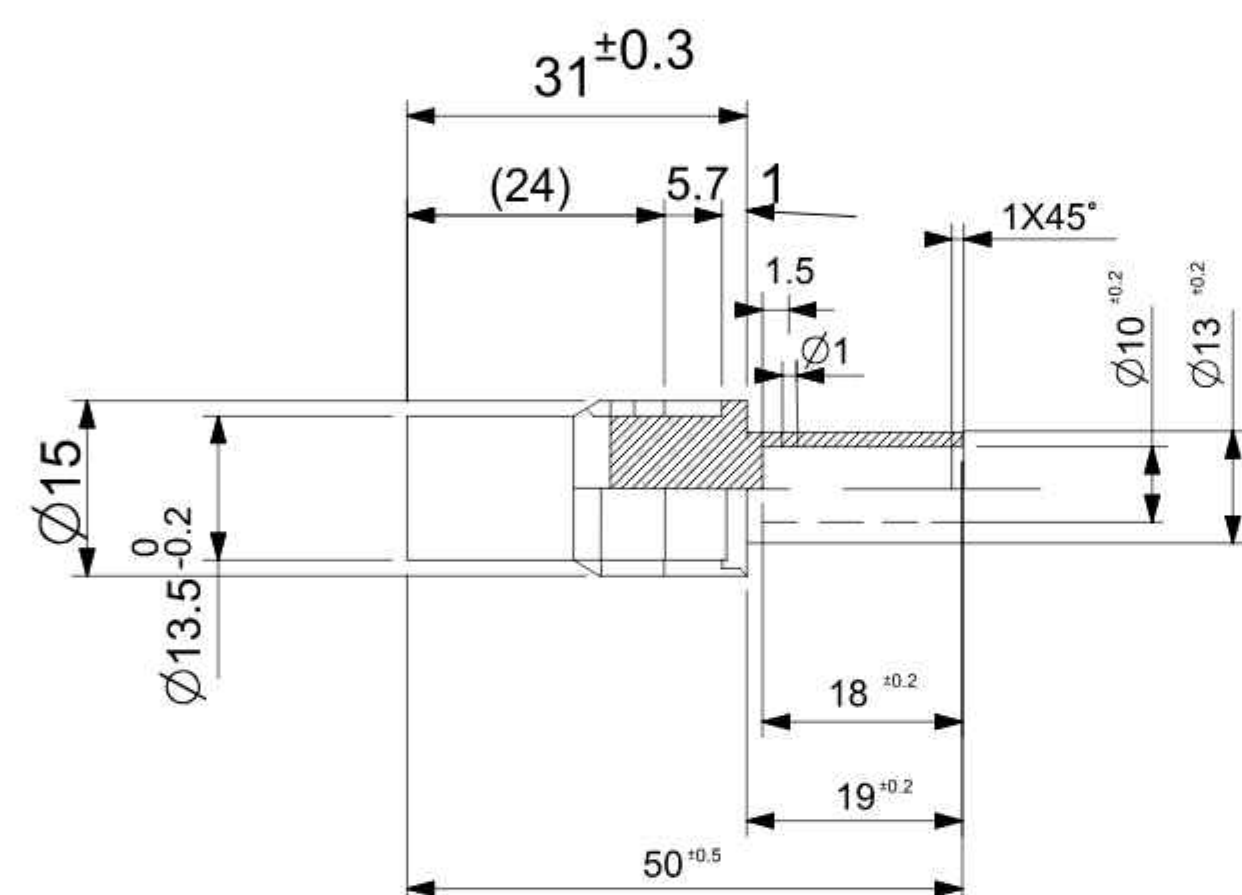


REF11(HBT415280P0005)

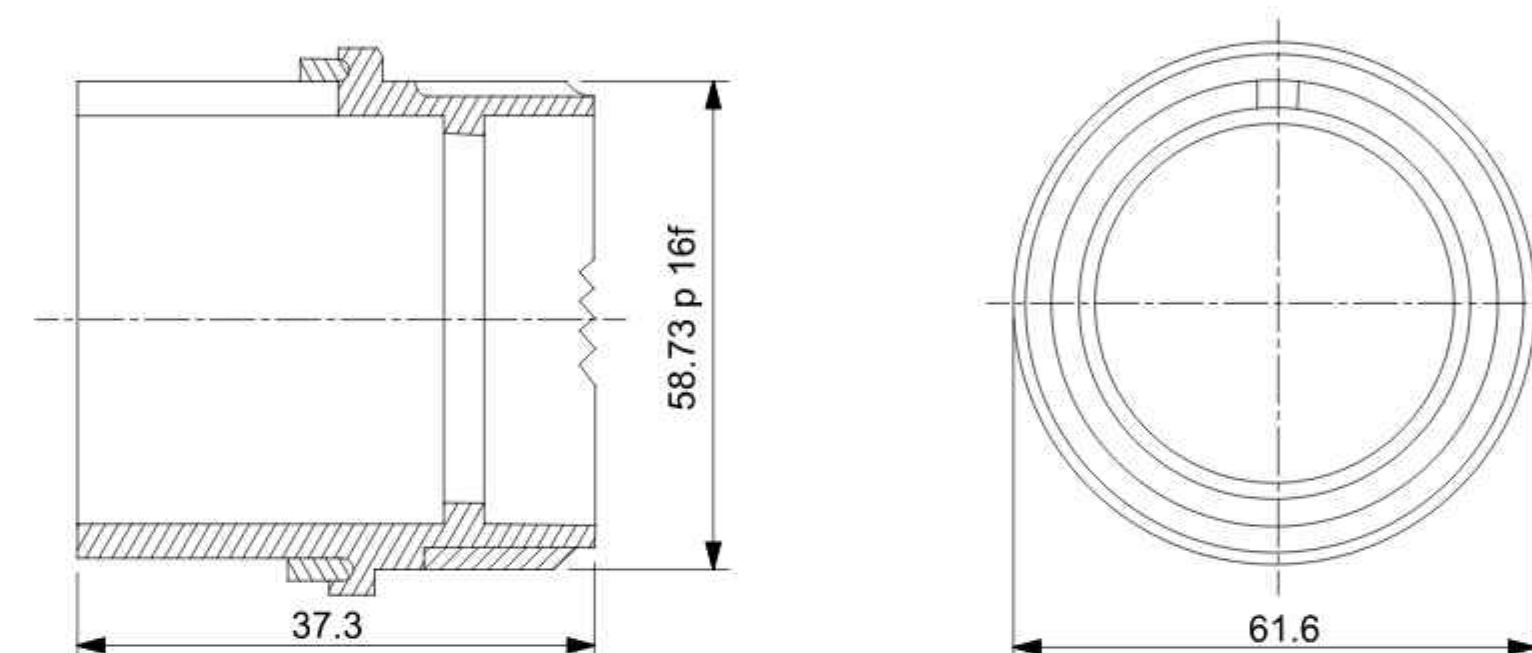
REF-1
ASSEMBLY (HBTB315176R0001)



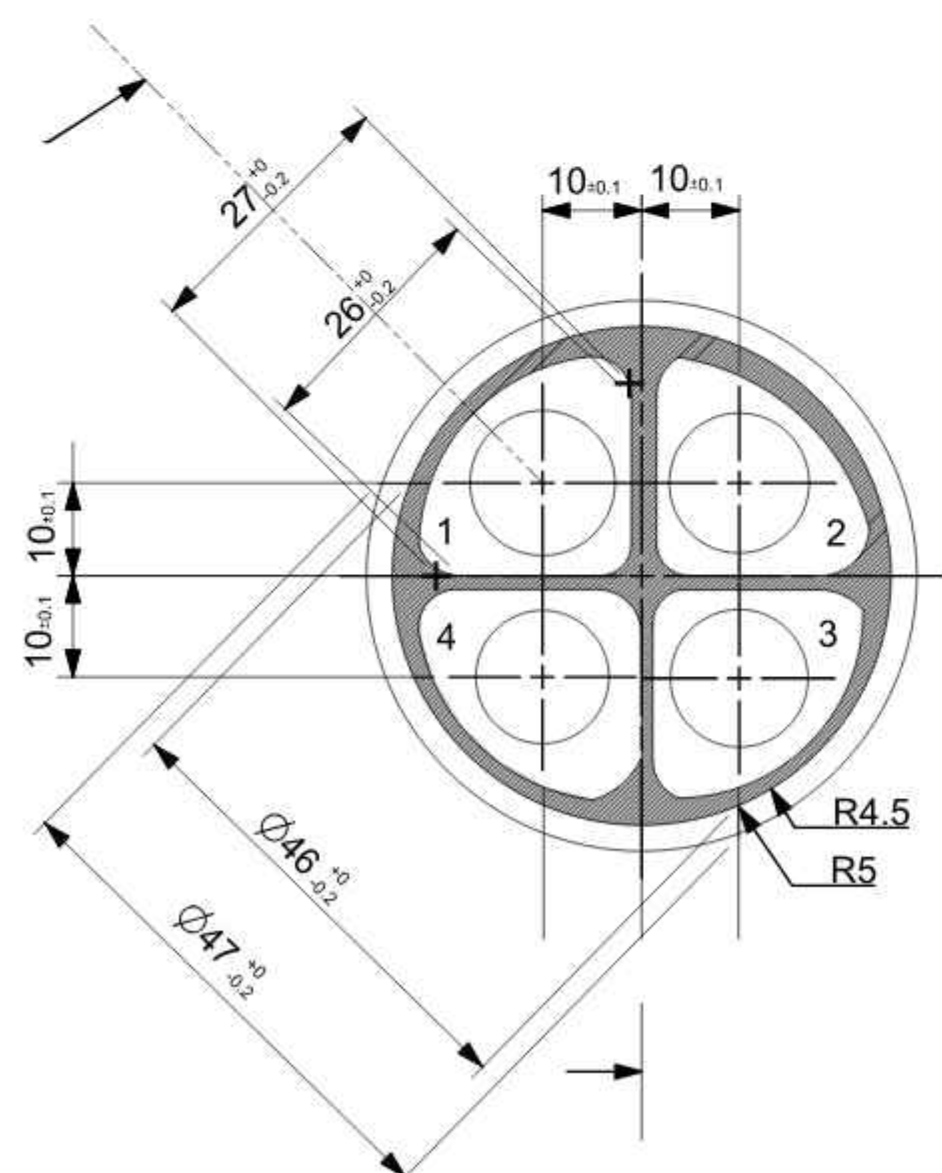
REF-10(HBT415281P0005)



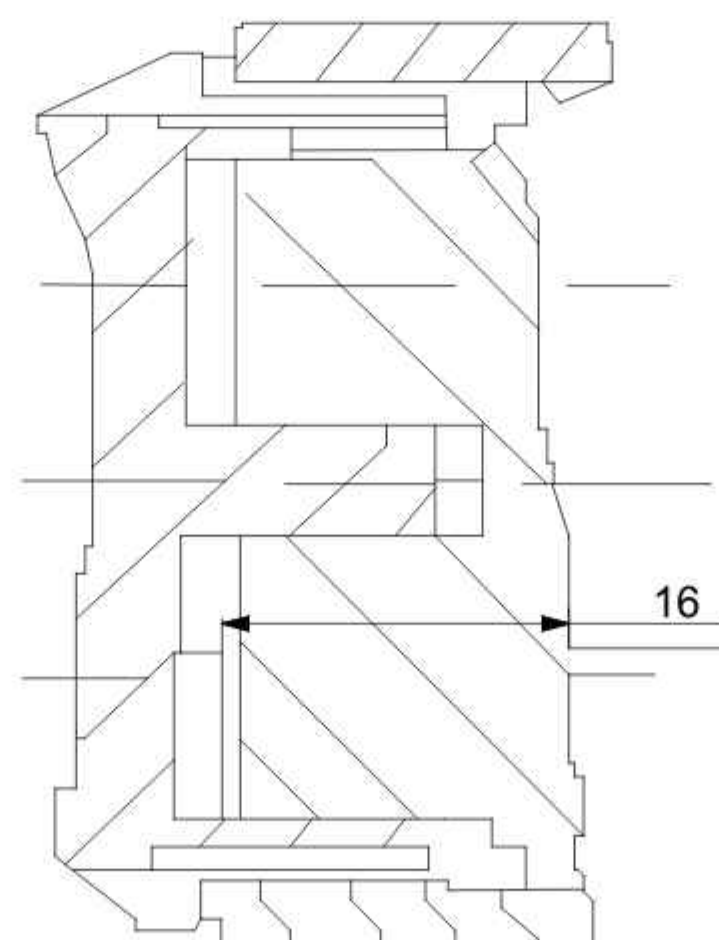
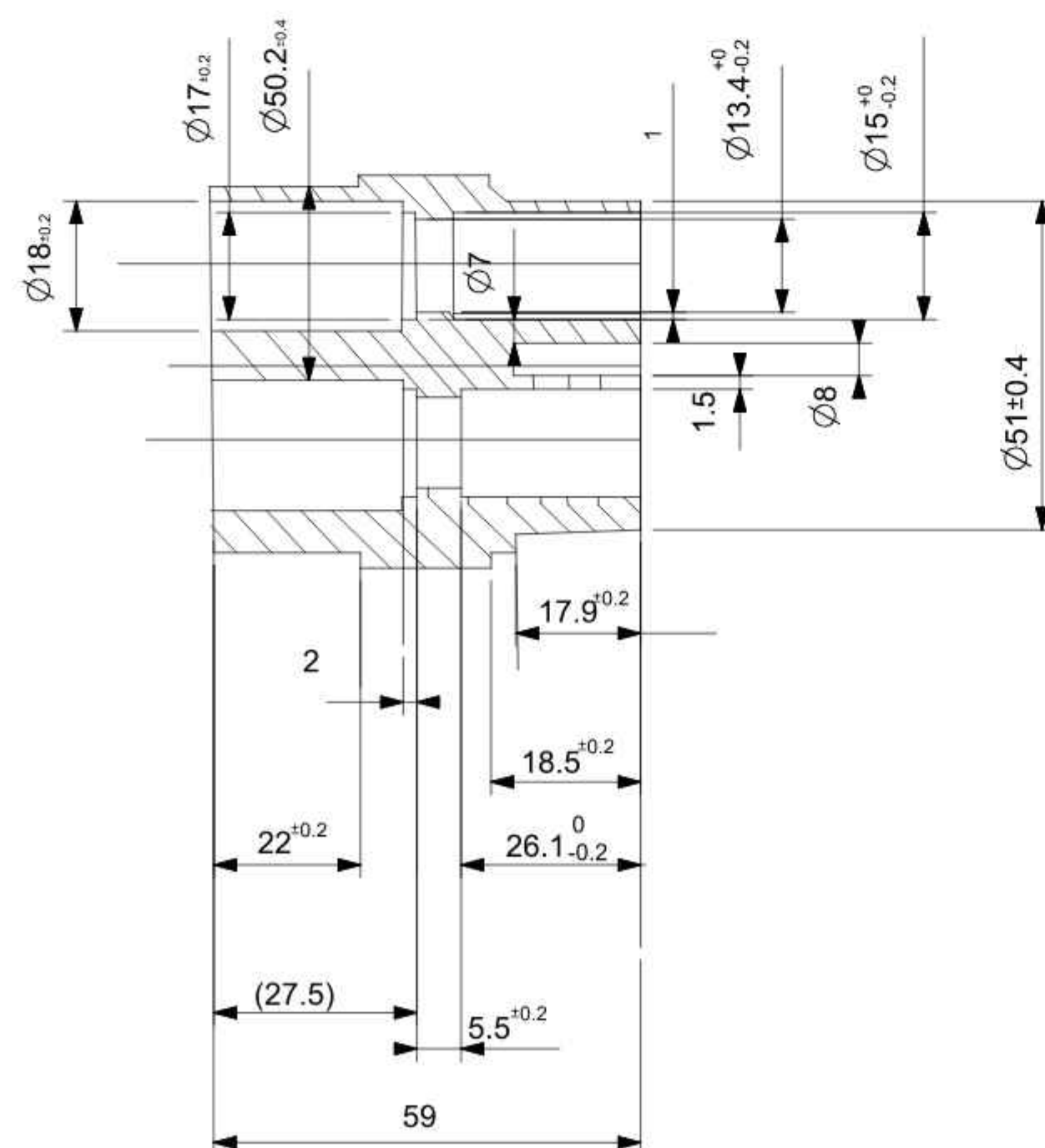
REF-23(HBTB416434P0003)



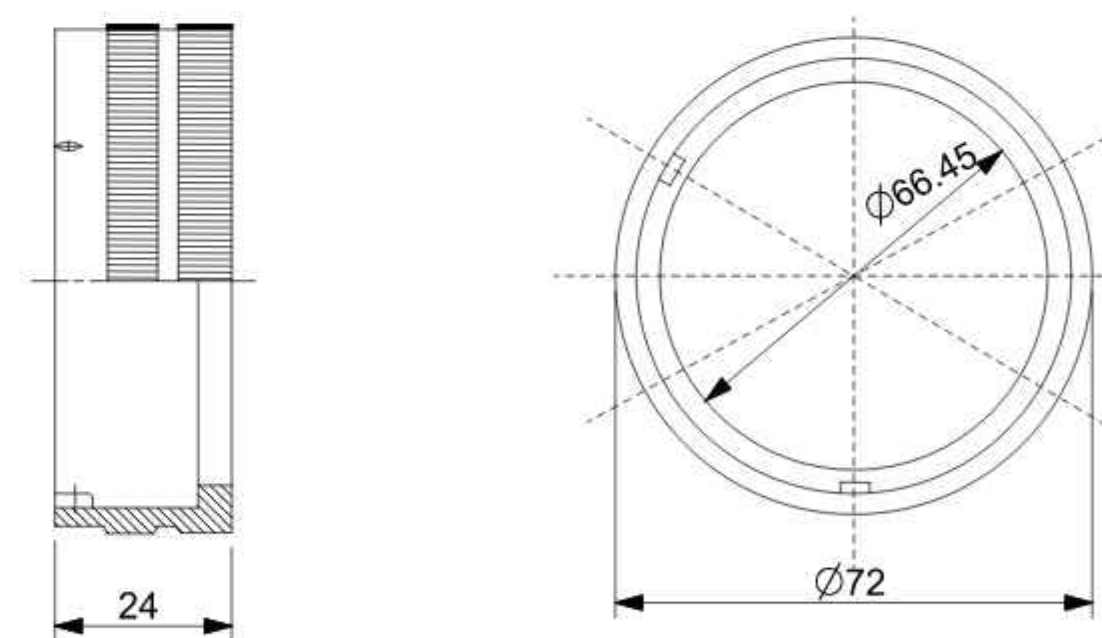
REF-6(HBT415273P0005)



REF-7(HBTB316231P0001)



SET OF COMPLETE PLUG/L-PLUG 4P/40 SOCKET'N' INDOOR
HBTB315176R0213

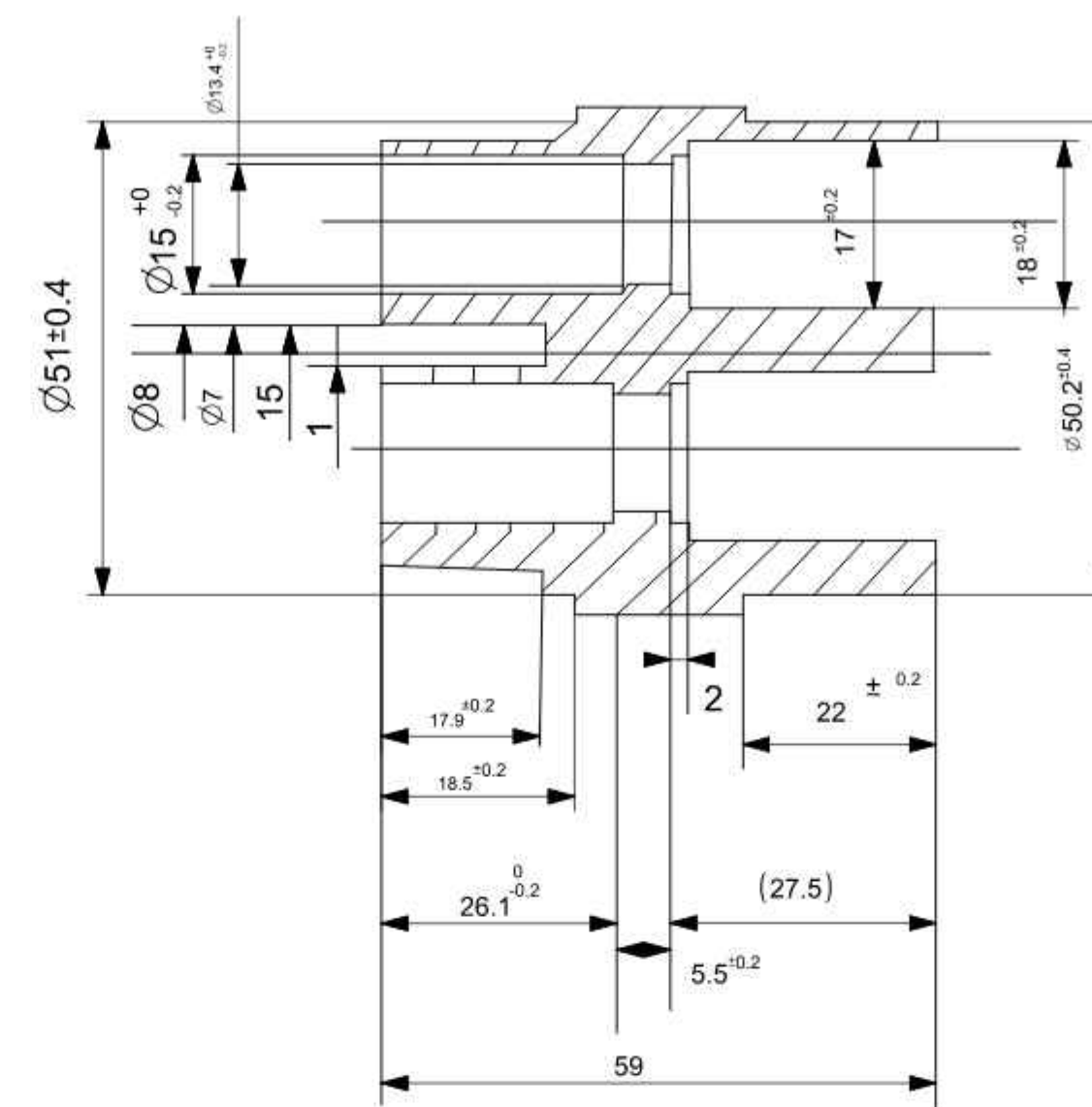


REF-8 (HBT415275P0005)

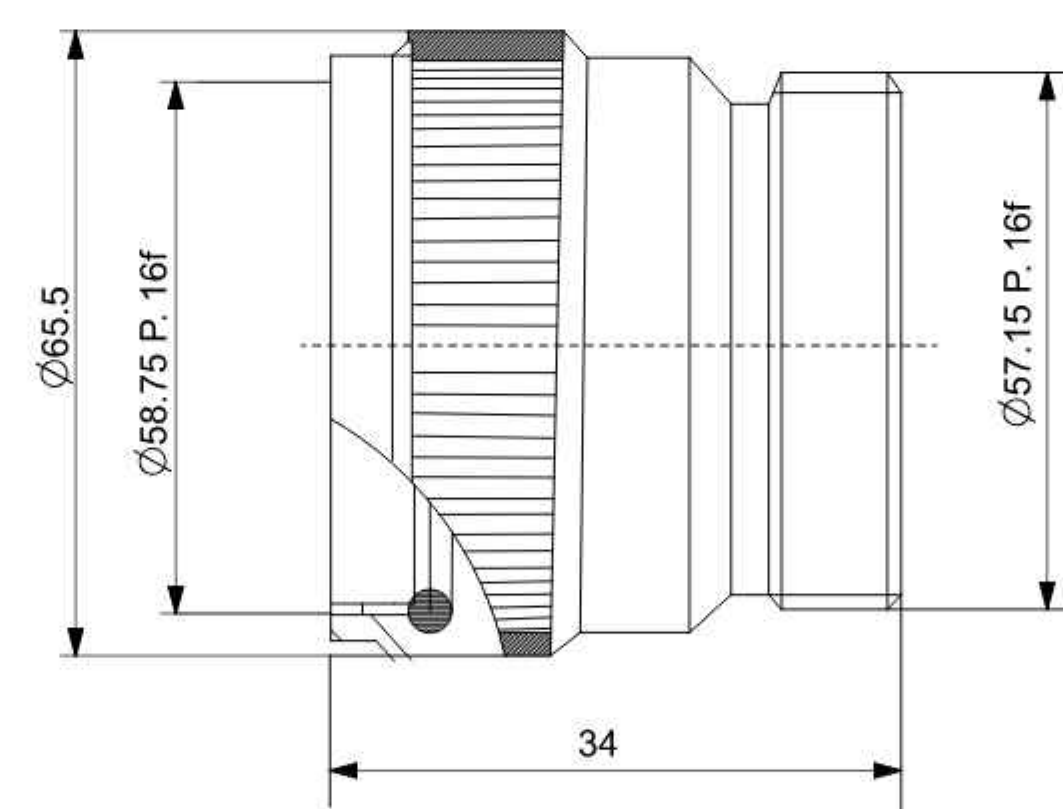
All dimensions are in mm

23	HBTB416434P0003	CONTACT SOCKET S.0/35 MM²
11	HBT 415280P0005	L-ADAPTOR SIZE 40
10	HBT415281P0005	METAL CLIP,SIZE 40
8	HBT 415275P0005	RAYONET, SIZE 40
7	HBTB316231P0001	TEMPLATE PLUG 4P/40
6	HBT 415273P0005	PLUG BODY, SIZE 40"B"
1	HBTB315176R0001	ASSEMBLY
REF. NO	ABB ID	ITEM DESCRIPTION

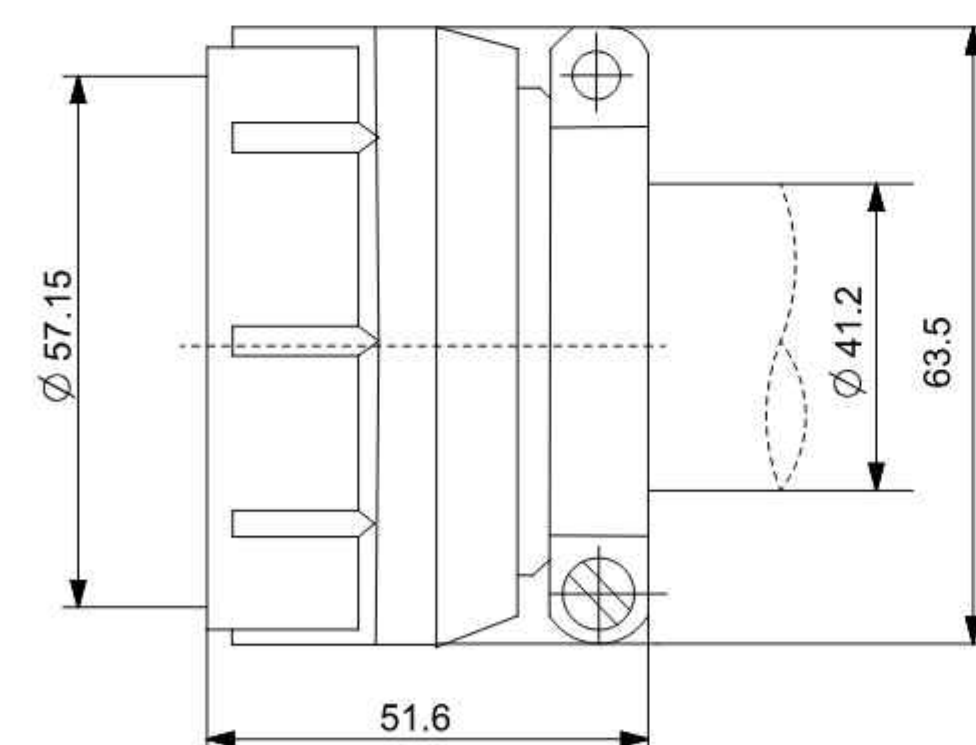
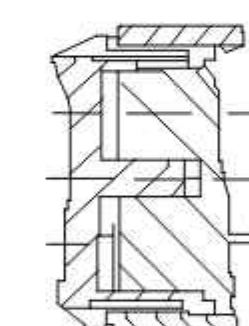
[illegible]



Ref-6 **HBT415270P0005**



Ref-9 **HBT415278P006**



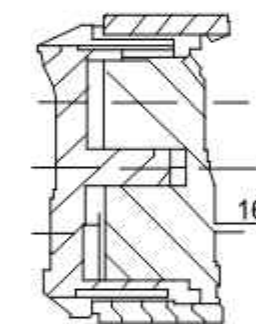
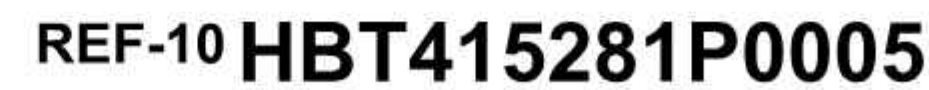
Ref-10 **HBT415281P0005**

10	HBT 415281P0005	METAL CLIP, SIZE 40
9	HBT 415278P0006	ADAPTOR STRAIGHT SIZE 40
7	HBTB316231P0002	TEMPLATE SOCKET 4P/40
6	HBT 415270P0005	SOCKET BODY, SIZE 40"B
1	HBTB315177R0001	ASSEMBLY
REF. NO	ABB ID	ITEM DESCRIPTION

SHOCKET 4P/40 PIN'N' IND
HBTB315177R0001

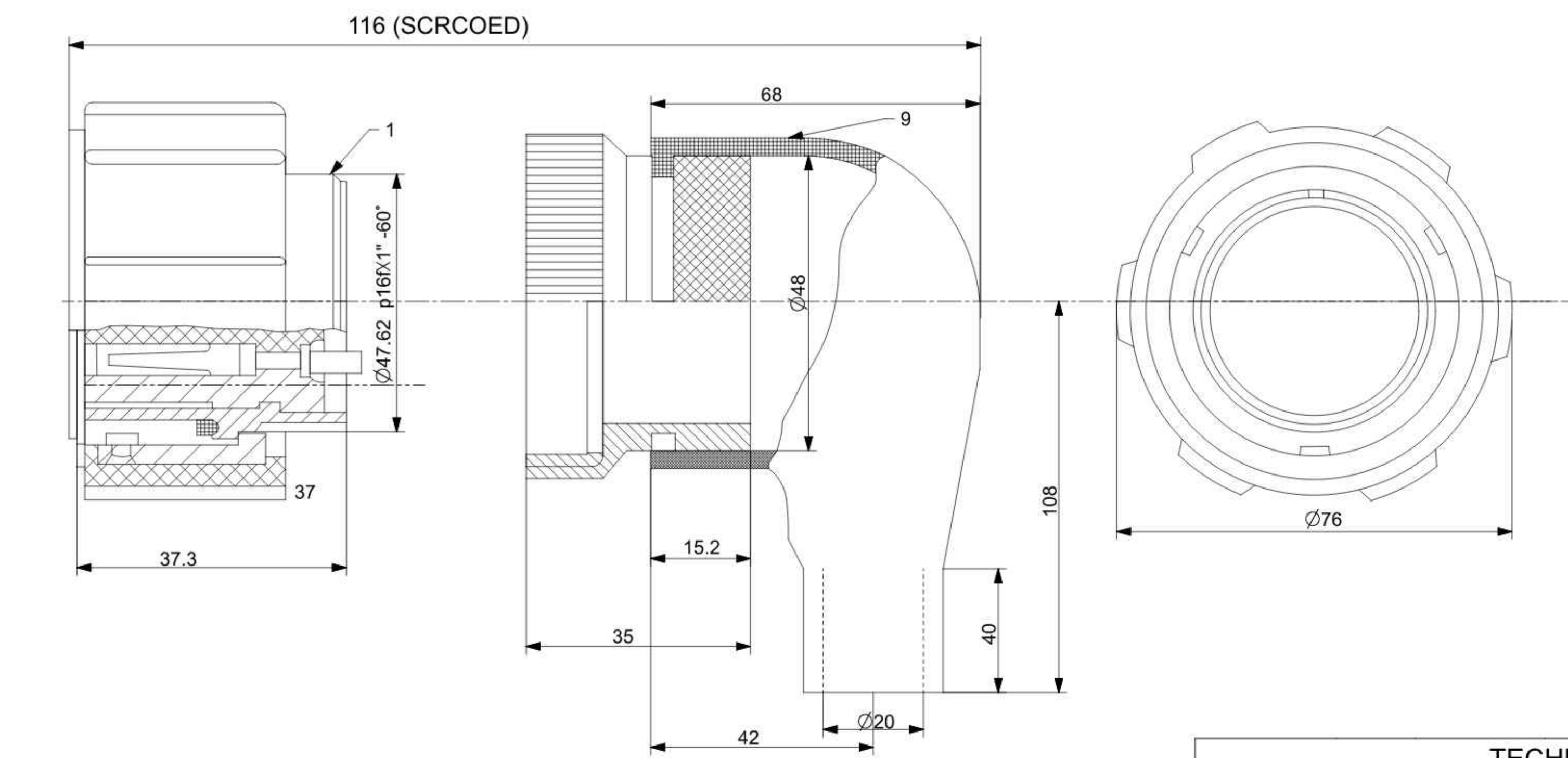
ALL DIMENSIONS ARE IN MM

कार्यालय-वेल्डिंग विभाग भा. मा. : ४१८ / क. मा. सं. : २८६६ WELDING S/190/LS 5/83 / 502533		अतिरिक्त राख - पीमा भा. मा. : 2102 / क. मा. सं. : 2768 UNPROCESSED TOLERANCE TO S : 290 / 50 : 2768 TO U.S.										अनुमोदित चयनित APPROVED BY:EE		वर्गन SHOCKET 4P/40 PINN' IND	
घटक GRAZE NO.		1 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										दिनांक DATE		DESCRIPTION	
राख - वेल्डिंग भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		Ra 1.0 0.8/5 0.8/5 0.1 0.2 0.1 0.8 1.0 1.2 0.3 0.5 7.5										घटक काटका SCALE		६:१ आरेख संख्या DRAWING NO.	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
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भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
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भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/5 20/0 20.4/0 7.5/8 10/20										परिवर्तन AUTH		वर्णन DESCRIPTION	
भा. मा. सं. : २८६६ SURFACE ROUGHNESS VALUE TO S/190/3 / 502532		10 11 12 13 14 15 16 17 18 19 20 21 22 R: 6.8/3 6.5/1 6.9/1 7.5/8 7.5/8 16.4/3 6.9/0 6.7/													



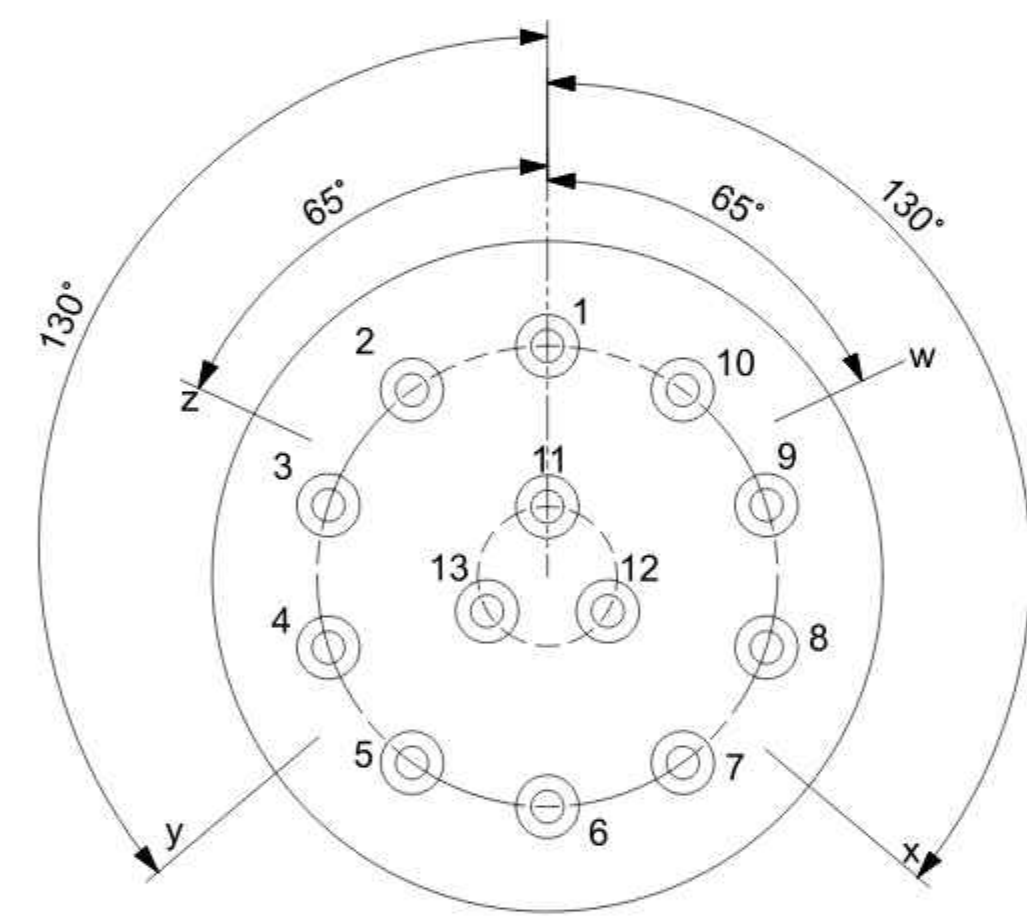
REF-9 **HBT415278P006**

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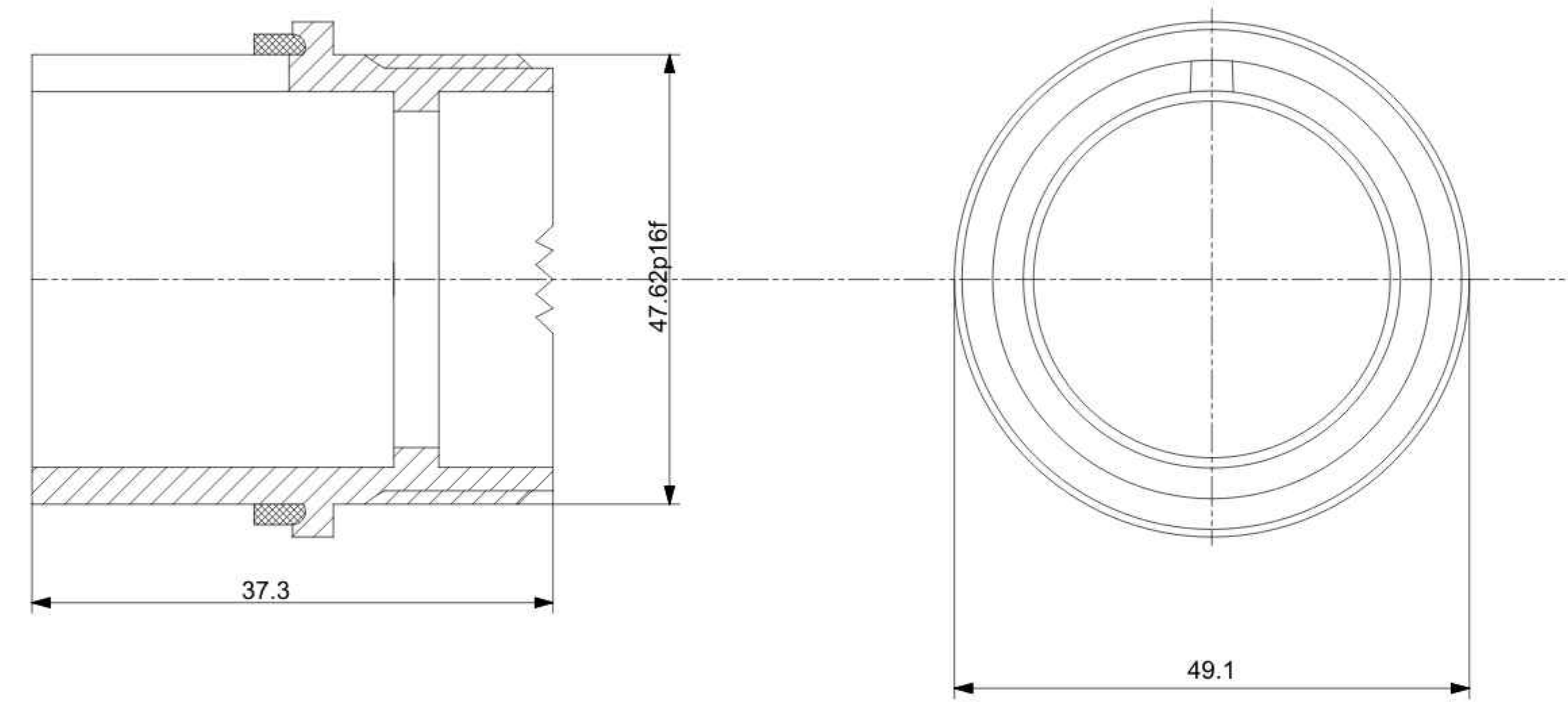


Ref- **A. ASSEMBLY (HBTB315205R0111)**

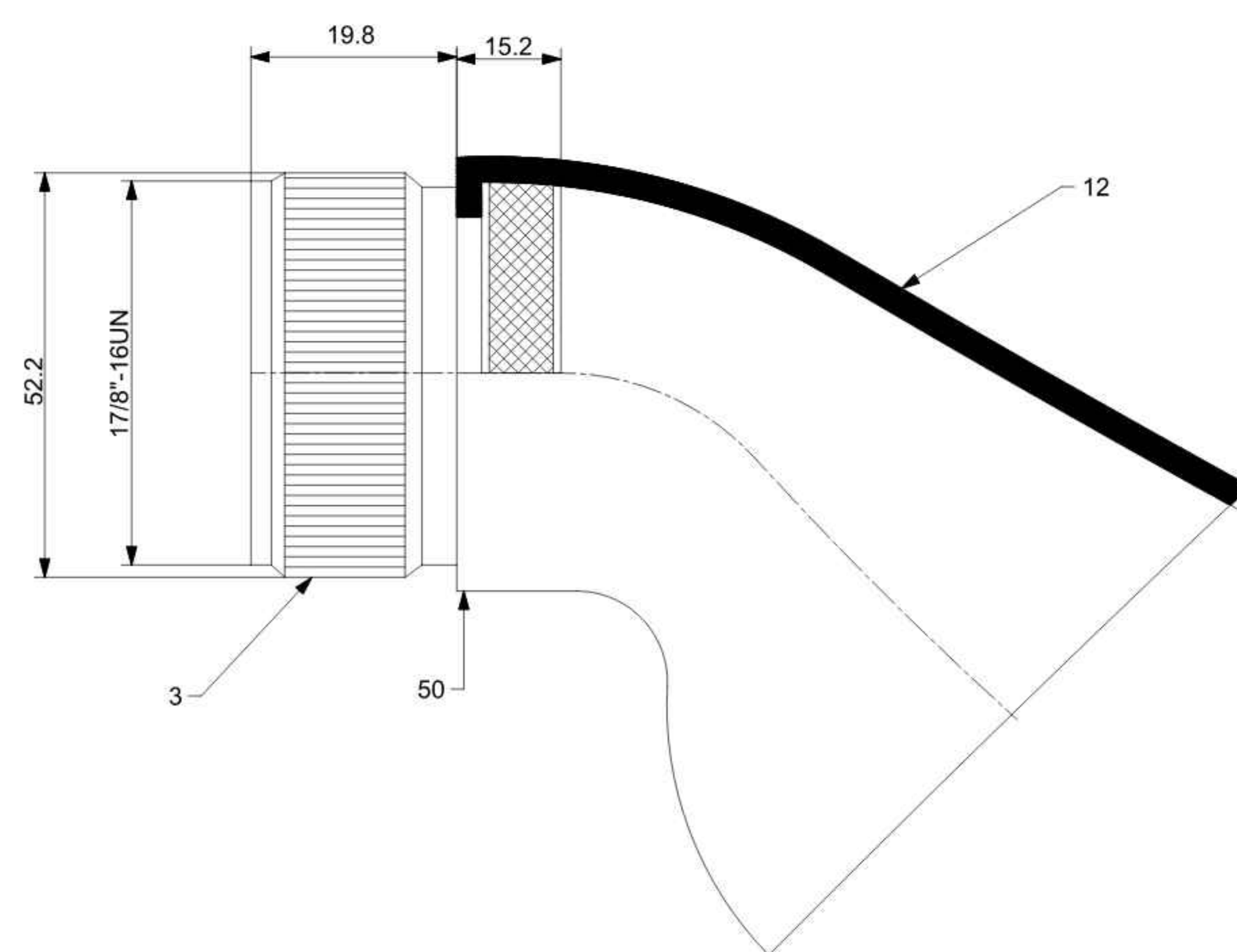
TECHNICAL DATA			
CONTACT	SIZE	I MAX	CONDUCTOR CROSS SECTION
-	8	73A	10.0 mm ²
13	12	41A	0.5 - 6.0 mm ²
-	16	22A	0.5 - 1.5 mm ²
TEST VOLTAGE: 2800V			
INSULATION RESISTANCE		MIN. 5000MΩ	



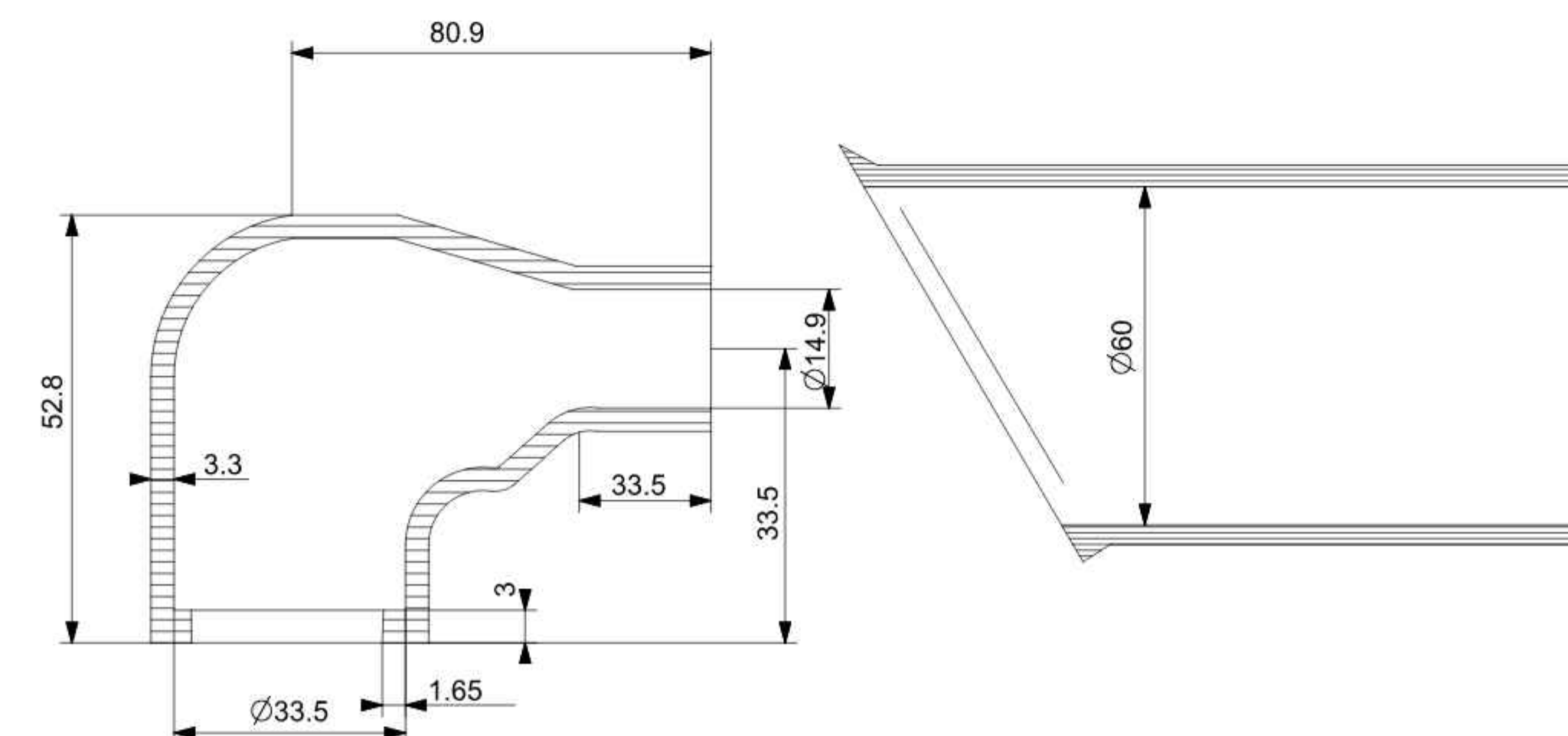
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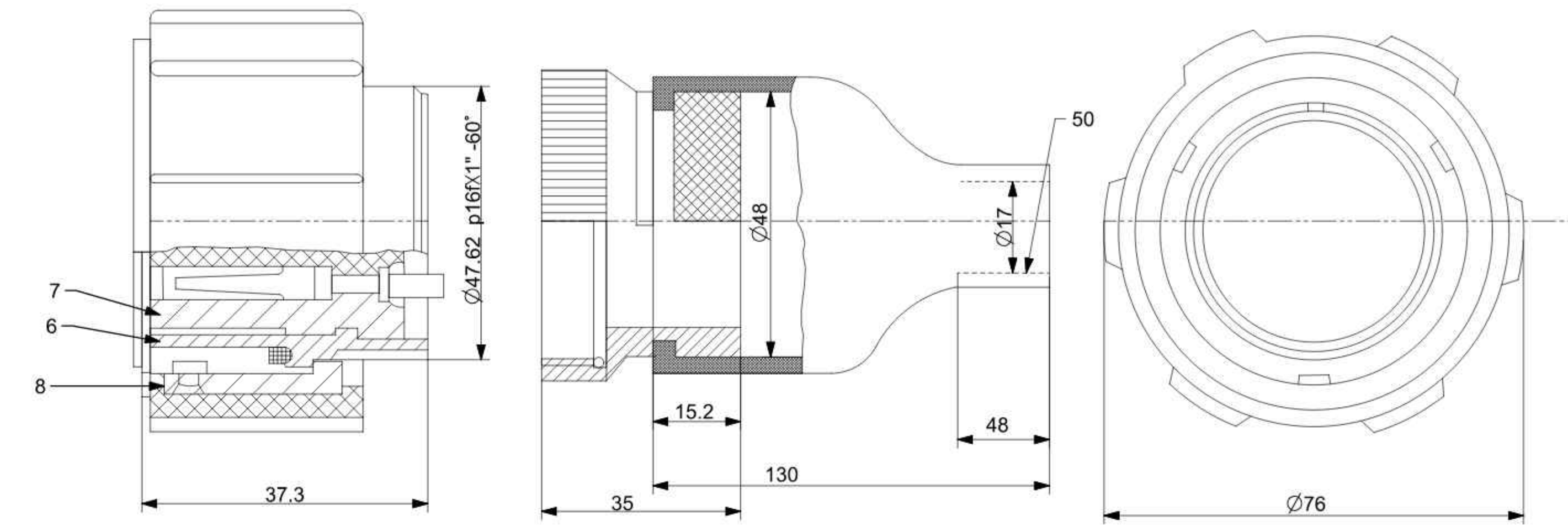
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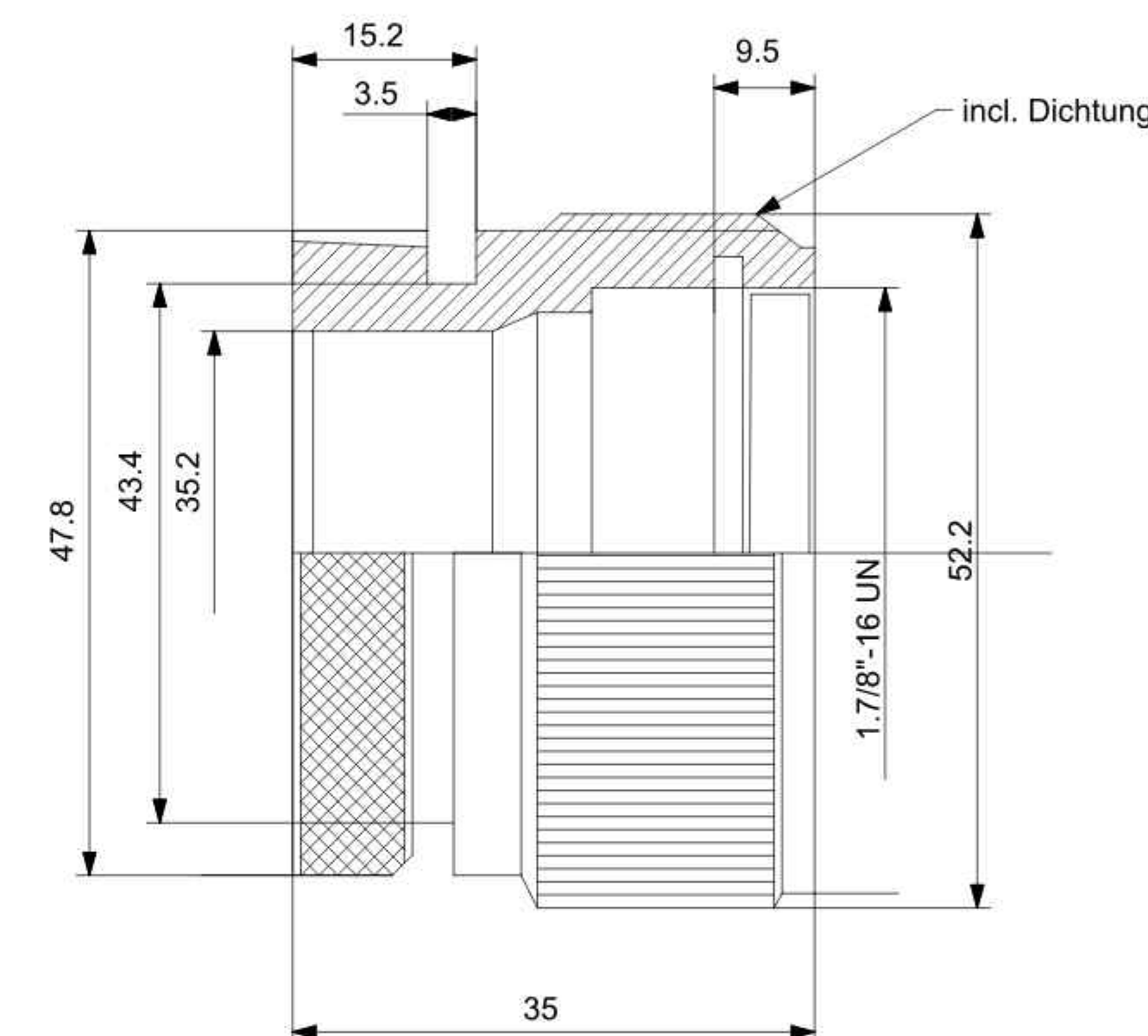
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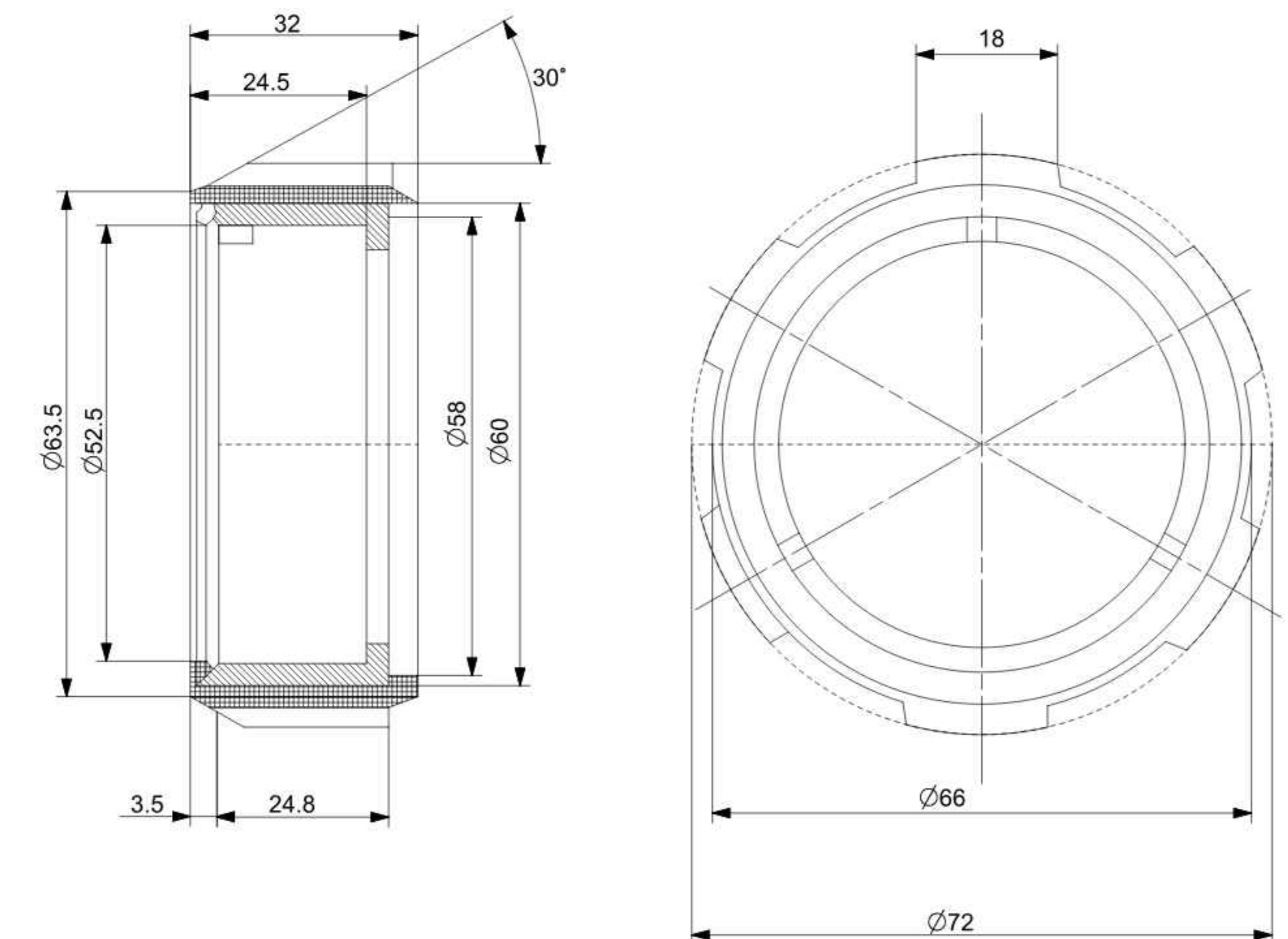
Ref-12 HBTB415391P0042



Ref-1. HBTB315204R0001



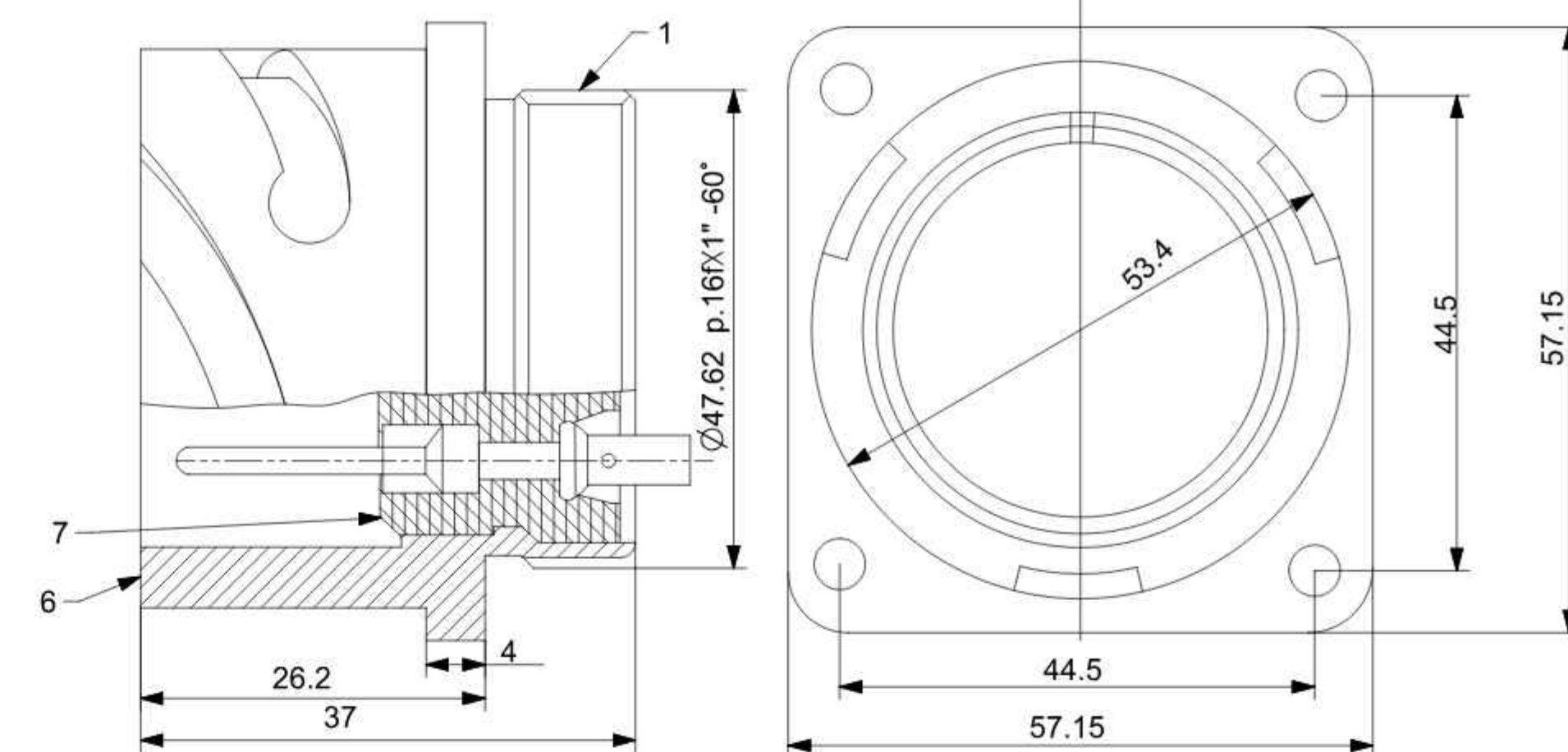
Ref-3. HBTB415390P0003



Ref-8. HBT415275P0013

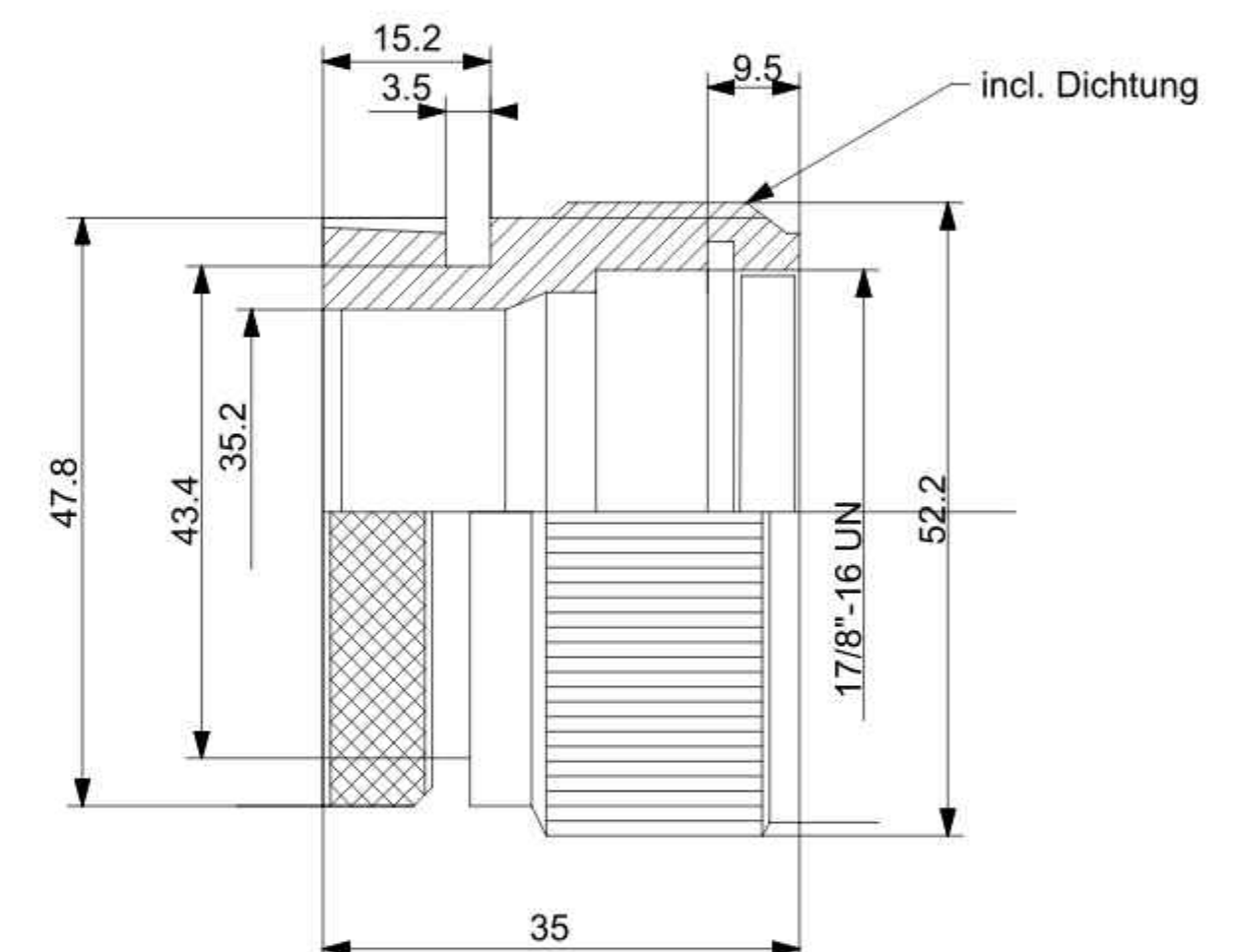
50	HBTB416371P0001	HOT MELT TAPE HMT-100A
12	HBTB415391P0042	L-SHAPE SD SLV SIZE 24/32
9	HBTB415392R0023	ADAPTOR ASSY S32, L-SHAPE
8	HBT415275P0013	BAYONET SIZE 32 OF
7	HBT415287P0002	BUSHES TEMPLATE, S32/13P
6	HBT415273P0003	PLUG BODY, SIZE 32 B
3	HBTB415390P0003	ADAPTOR SIZE 32
1	HBTB315204R0001	PLUG 13P/32 SKT 'N' OUTDOOR
A	HBTB315205R0111	ASSEMBLY
REF. NO	ABB ID	ITEM DESCRIPTION

[illegible]



Ref-1 **HBTB315159R0001**

Ref-7 HBT415287P0001



Ref-3 **HBTB415390P0003**



SOCKET 13P PIN "N" OUTDOOR
HBTB315305R0111

50	HBTB416371P0001	HOT MELT TAPE HMT 100A
12	HBTB415391P0042	L-SHAPE SD SLEEVE SIZE 24/32
9	HBTB415392R0023	ADAPTOR ASSY S-32, L- SHAPE
7	HB415287P0001	PINS TEMPLATE S32/13P
6	HB415270P0003	SOCKET BODY SIZE 32B
3	HBTB415390P0003	ADAPTOR SIZE 32
1	HBTB315159R0001	SOCKET 13P/32 PIN N
A	HBTB315305R0111	ASSEMBLY
REF. NO	ABB ID	ITEM DESCRIPTION

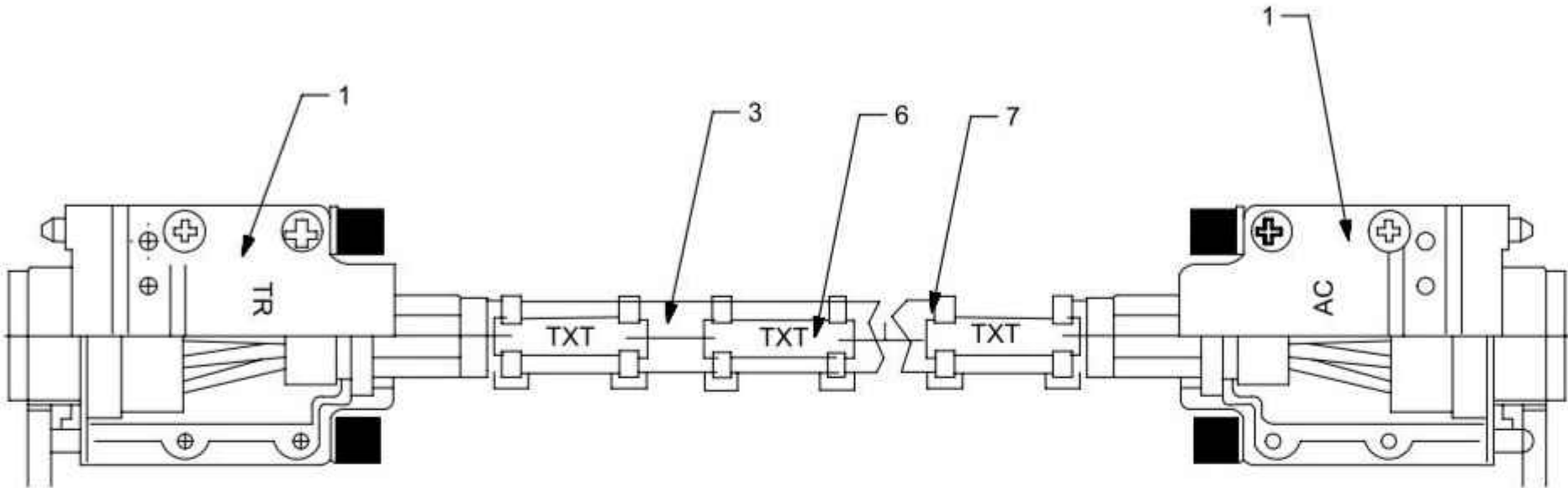
[illegible]

ALL DIMENSIONS ARE IN mm

[illegible]

परिवर्तन संख्या ALT. NO.	प्रतिकारक AUTHY	वर्णन DESCRIPTION	विभागीय अधिकारी OFFICIAL HBTB315305R0111 ALT-	पार्श्व / REF. SCALE	परिवर्तन संख्या DRAWING NO.	परिवर्तन संख्या ALTERNATION NO.	पार्श्व SHEET	पृष्ठ संख्या 1 OF 1	A1
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CABLE LENGTH(m)	TOLERANCE(m)
0-5	+0.04/-0
5-10	+0.10/-0
10-25	+0.20/-0
25-50	+0.50/-0



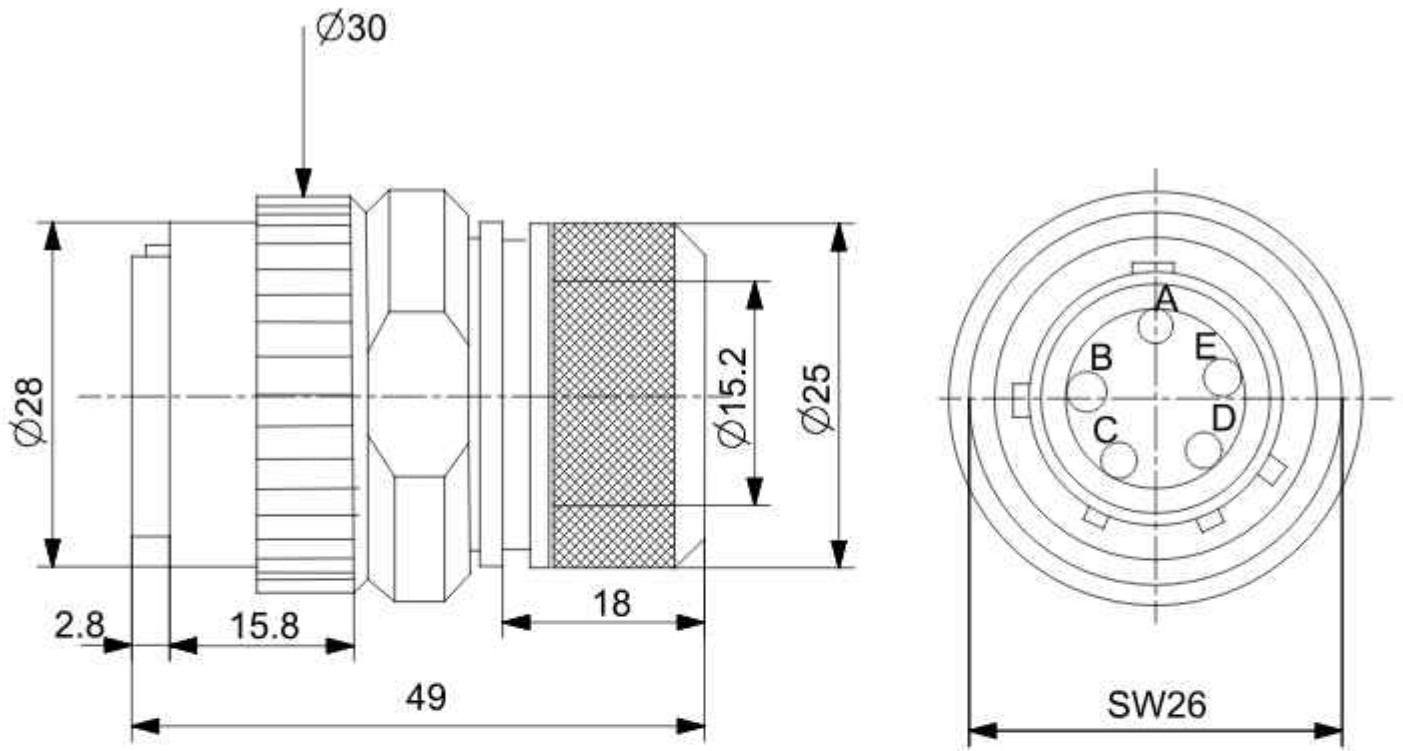
8	HESG455638P0120	CONTACT SOCKET AWG 24-20
7	NBT402938P0002	CABLE TIE 140X3.6 PA
6	3EHP416008P0001	PLATE TMS CM 10 -50 YEL
5	HBTB416489P0126	SCREEN SLLEEVE A, GSC 460
4	F415788P0108	SD SLEEVE 12 7X0.28PE5 BK
3	3EHP470000P0509	CAB 9X0.5 SCR
1	HBTB316240R0009	PLUG 9P D-SUB SIZE 1
A	ASSEMBLY	HBTB315385R0172
REF. NO	ABB ID	ITEM DESCRIPTION

All dimensions are in mm

धातु-वेल्डिंग चिन्ह भा. मा. : 813 / अ. मा. सं. : 2883 WELDING SYMBOLS TO IS:813 / ISO:2553	अनिर्दिष्ट सद्य — सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLERANCE TO IS : 2102 / ISO : 2768											TOL. CLS.	
	पदांक GRADE NO.	स1 11	स2 12	स3 13	स4 14	स5 15	स6 16	स7 17	स8 18	स9 19	स10 20	स11 21	स12 22
सतह — रूखाता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302	Rz	0.4-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.0	5.0-6.3	9.0-12	16-25	30-40	50-63	75-100	100-250
	Ro μ m	0.075	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
	चिन्ह SYMBOL												

परिवर्तन संख्या	प्राधिकार	वर्णन	DESCRIPTION	दिनांक DATED
ALT. NO.	AUTHY			INITIAL

अधिकृत DGN		 चित्तरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA	
जोडा व.अ.अ. CHD SSE			
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE		परिचय MAIL	प्रति भार कि. घा. WT. EACH IN KG
अनुमोदित स.पु.वि.अ. APPROVED DYCEE		विशिष्ट SPECN	
दिनांक DATE		वर्णन DESCRIPTION	CABLE CONNECTION/HP-9P-SG-SG-17S-21-13.0M
पैमाना अनुपात SCALE	NTS	आरेखन संख्या DRAWING NO.	CLW/ES/3/SK-35/0124
परिवर्तन संख्या ALT. NO.	प्राधिकार AUTHY	परिवर्तन संख्या ALTERATION NO.	पृष्ठ SHEET
			1 OF 1
			A3

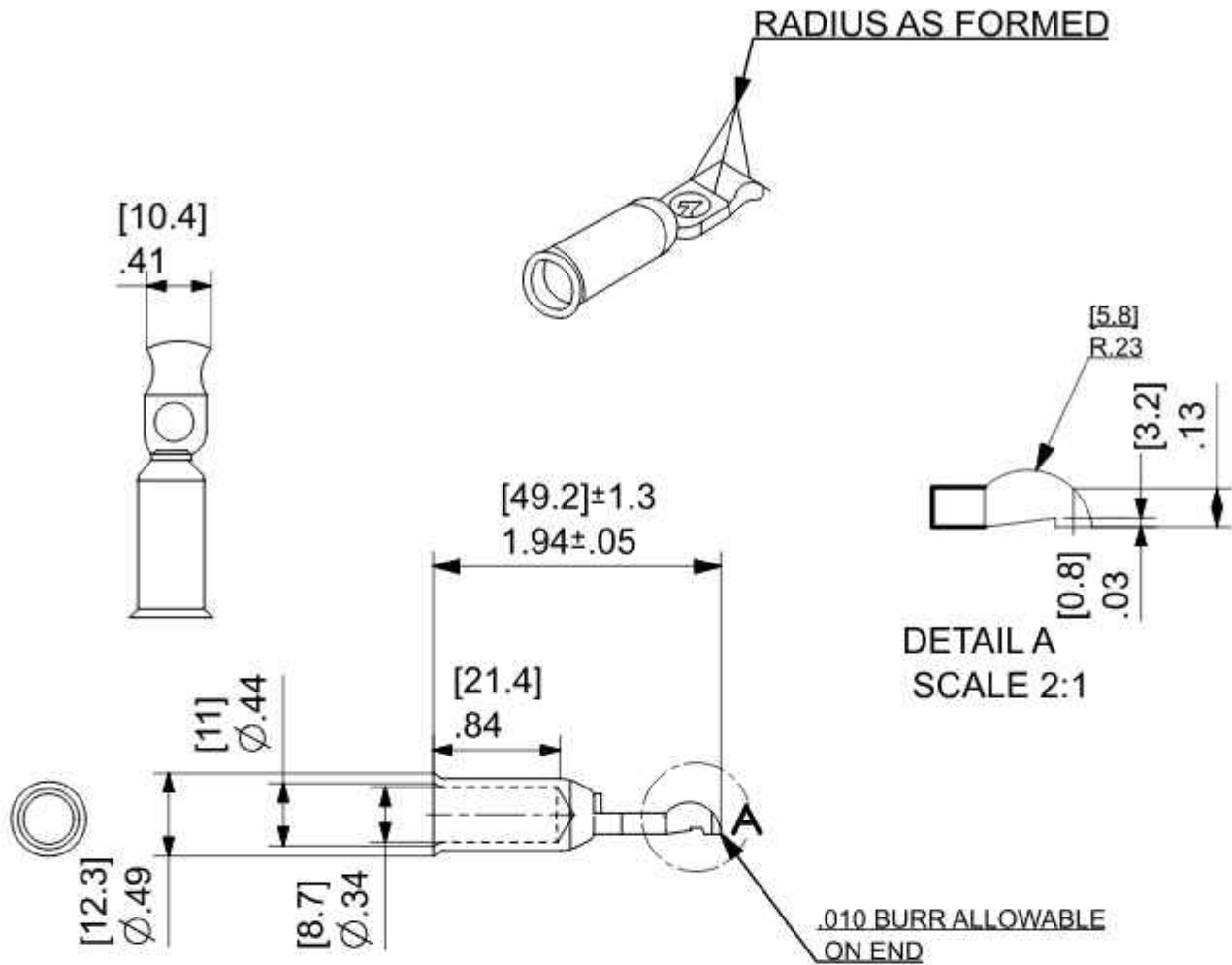


HBTB415399P0012

HBTB415399P0012 SOCKET/ PLUG,5CRIMP SOCKET S16

All dimensions are in mm

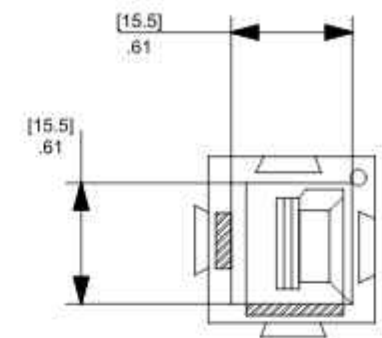
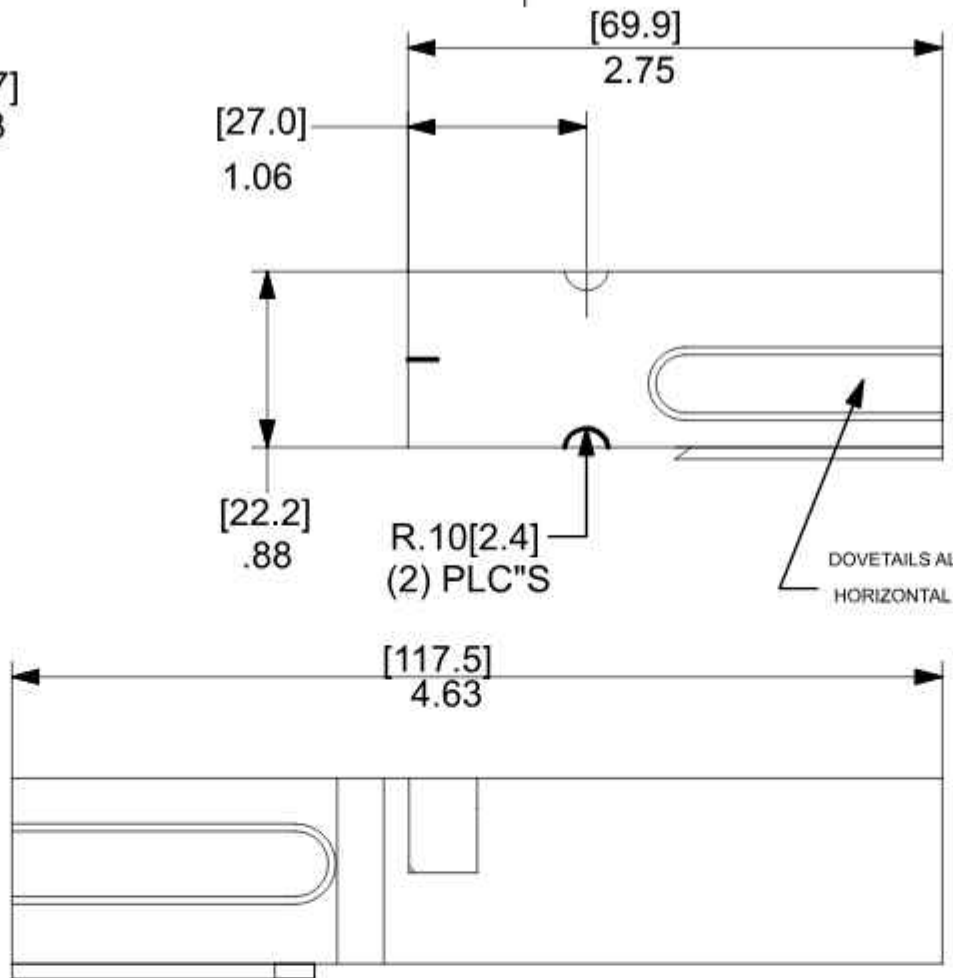
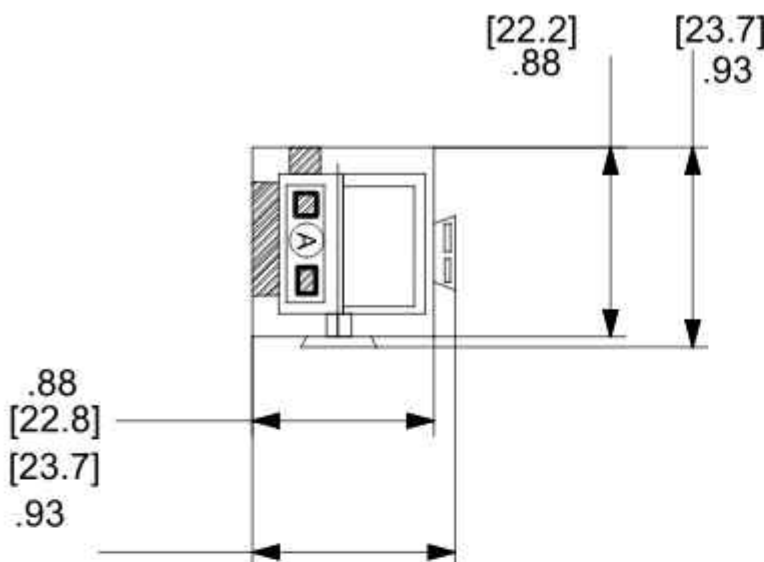
												अधिकृत DGN			चितरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA	
												जोषा व.व.व. CHD SSE			परिचय MATL	प्रति कार कि. वा. WT. EACH IN KG.
परिवर्तन संख्या ALT.NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION										दिनांक DATED	INITIAL	समीक्षा REVIEWED	AEE / SEE	विशिष्ट SPECN
संख्या - ३०७३ / अ. सं. १३०२		संख्या - २१०२ / अ. सं. २१०२										TOL. CLS.		अनुमोदित ए.यु.ए.ए. APPROVED DYCEE		
SURFACE ROUGHNESS VALUE TO IS 8013 / ISO 419		WELDING SYMBOLS TO IS 8013 / ISO 2553										दिनांक DATE		वर्णन DESCRIPTION		
पदार्थ GRADE NO.	सं१ N1	सं२ N2	सं३ N3	सं४ N4	सं५ N5	सं६ N6	सं७ N7	सं८ N8	सं९ N9	सं१० N10	सं११ N11	सं१२ N12	रेखक अनुपात SCALE	NTS	आरेखन संख्या DRAWING NO.	
Rz	0.16-0.3	0.5-0.7	0.9-1.2	1.5-2.0	2.5-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0	9.0-10.0			CLW/ES/3/SK-36/0124	
सिंह SYMBOL	0.075	0.09	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50	संख्या / REF. HBTB415399P0012AL-		परिवर्तन संख्या ALTERATION, NO.	पृष्ठ SHEET
															1 OF 1	A4



ANDERSON CONTACTS 120A X 1319

ALL DIMENSIONS ARE IN mm

												अधिकारित DGN		 चितरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA
												जोषा व.अ.अ. CHD SSE		
परिवर्तन संख्या ALT. NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION								दिनांक DATED	समीक्षा REVIEWED	अनुमोदित APPROVED	परिचय SPECN	प्रति भाग कि. व. WT. EACH IN KG.
संख्या - 30773 / 1302	अ. सं. 1302	अनिश्चित रूप - सीमा वा. सं. : 2102 / अ. वा. सं. : 2700 UNSPECIFIED TOLERANCE TO IS : 2102 / ISO : 2700 वायु-वेल्डिंग चिह्न वा. सं. : 013 / अ. वा. सं. : 12003 WELDING SYMBOLS TO IS 813 / ISO 2553								TOL. CLS.	अनुमोदित ए.ए.ए.ए. APPROVED BYCEE	दिनांक DATE	वर्णन DESCRIPTION	
पदार्थ GRADE NO.	सं.1 N1	सं.2 N2	सं.3 N3	सं.4 N4	सं.5 N5	सं.6 N6	सं.7 N7	सं.8 N8	सं.9 N9	सं.10 N10	सं.11 N11	सं.12 N12	वैश्विक अनुपात SCALE	NTS
Rz	0.16-0.3	0.5-0.7	0.9-1.2	1.5-2.0	2.5-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0	9.0-10.0		
सिंह SYMBOL	0.075	0.09	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50	संदर्भ / REF.	ALT.
													परिवर्तन संख्या ALTERATION, NO.	पृष्ठ SHEET
													13 OF 18	A4



CAT. NO.	COLOR
1321	BLUE

MATED PAIR OF HOUSINGS

NOTES:

- 1.SPRING/HOUSING ASSEMBLIES ARE UL RECOGNIZED PER FILE E26226 AND CSA CERTIFIED PER LR25154
- 2.THESE HOUSING ASSEMBLIES ACCOMMODATE ANDERSON CONTACTS FOR WIRE RANGES FROM #6 AWG TO #2 AWG.
3. FOR ASSEMBLY INSTRUCTIONS SEE DOCUMENT IS1072.
4. HOUSING : POLYCARBONATE,UL94V0.
SPRING:STAINLESS STEEL.
FOR OTHER COLORS ,CONTACT ANDERSON POWER PRODUCTS.
- 5.WHEN MATED SIDE TO SIDE ,HALF ROUNDS ALLIGN TO FORM A SLOT FOR ROLL PINS WHICH PROTECTS AGAINST ACCIDENTAL DISENGAGEMENT OF MATED HOUSINGS

JUSTIFIED AND CLOSE.

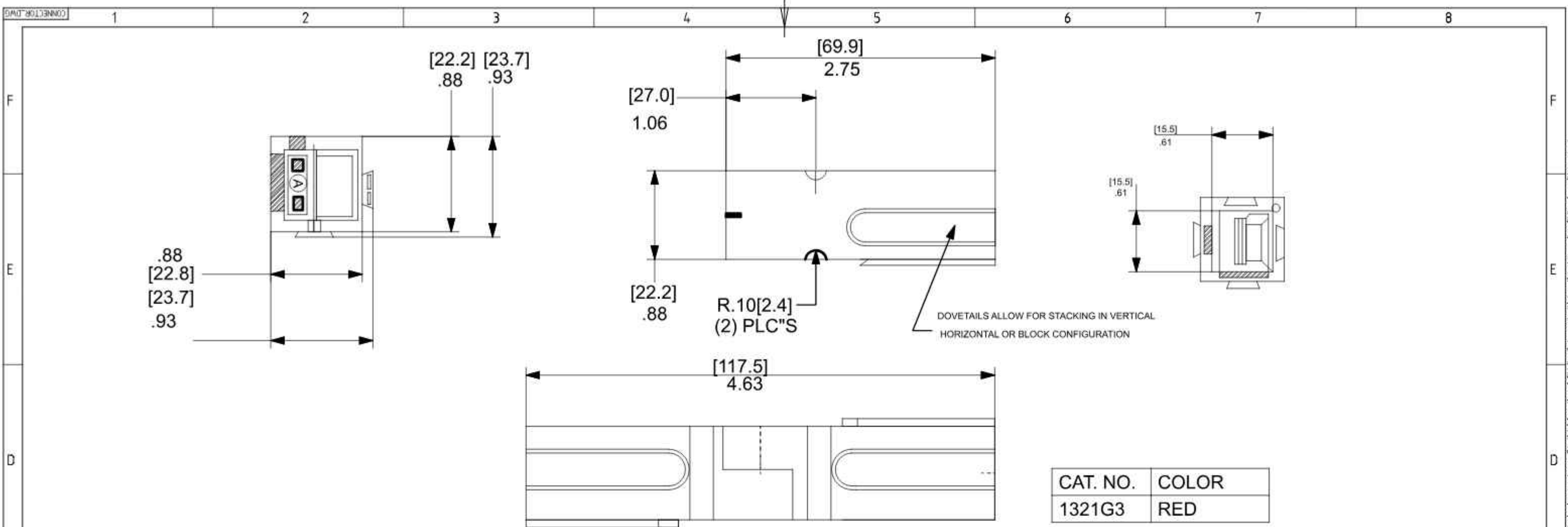
ALL DIMENSIONS ARE IN mm

धातु-वेल्डिंग चिन्ह भा. मा. : 813 / अ. मा. सं. : 2883 WELDING SYMBOLS TO IS:813 / ISO:2553	अनिर्दिष्ट सक्ष - सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLERANCE TO IS : 2102 / ISO : 2768											TOL. CLS.	
	पद्यक GRADE NO.	सं1 11	सं2 12	सं3 13	सं4 14	सं5 15	सं6 16	सं7 17	सं8 18	सं9 19	सं10 20	सं11 21	सं12 22
	Rz	0.16-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.0	5.0-6.3	9.0-12	16-25	30-40	50-63	75-100	100-250
	Ro μm	0.075	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
सतह - रुखाता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302	चिन्ह SYMBOL												

ANDERSON PLUG 120A
X1321 BLAU

परिवर्तन संख्या ALT. NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांक DATED INITIAL

अधिकृत DGN		 चित्तारंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA	
जोडा व.अ.अ. CHD SSE			
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE		परिचय MAIL	प्रति भार कि. घा. WT. EACH IN KG
अनुमोदित स.पु.वि.अ. APPROVED DYCEE		विशिष्ट SPECN	
दिनांक DATE		वर्णन DESCRIPTION	ANDERSON PLUG PP 120A
द्वैधिक अनुपात SCALE	NTS	आरेखन संख्या DRAWING NO.	CLW/ES/3/SK-40/0124
परिवर्तन संख्या ALT. NO.		परिवर्तन संख्या ALTERATION NO.	पृष्ठ SHEET
			1 OF 8
			A3

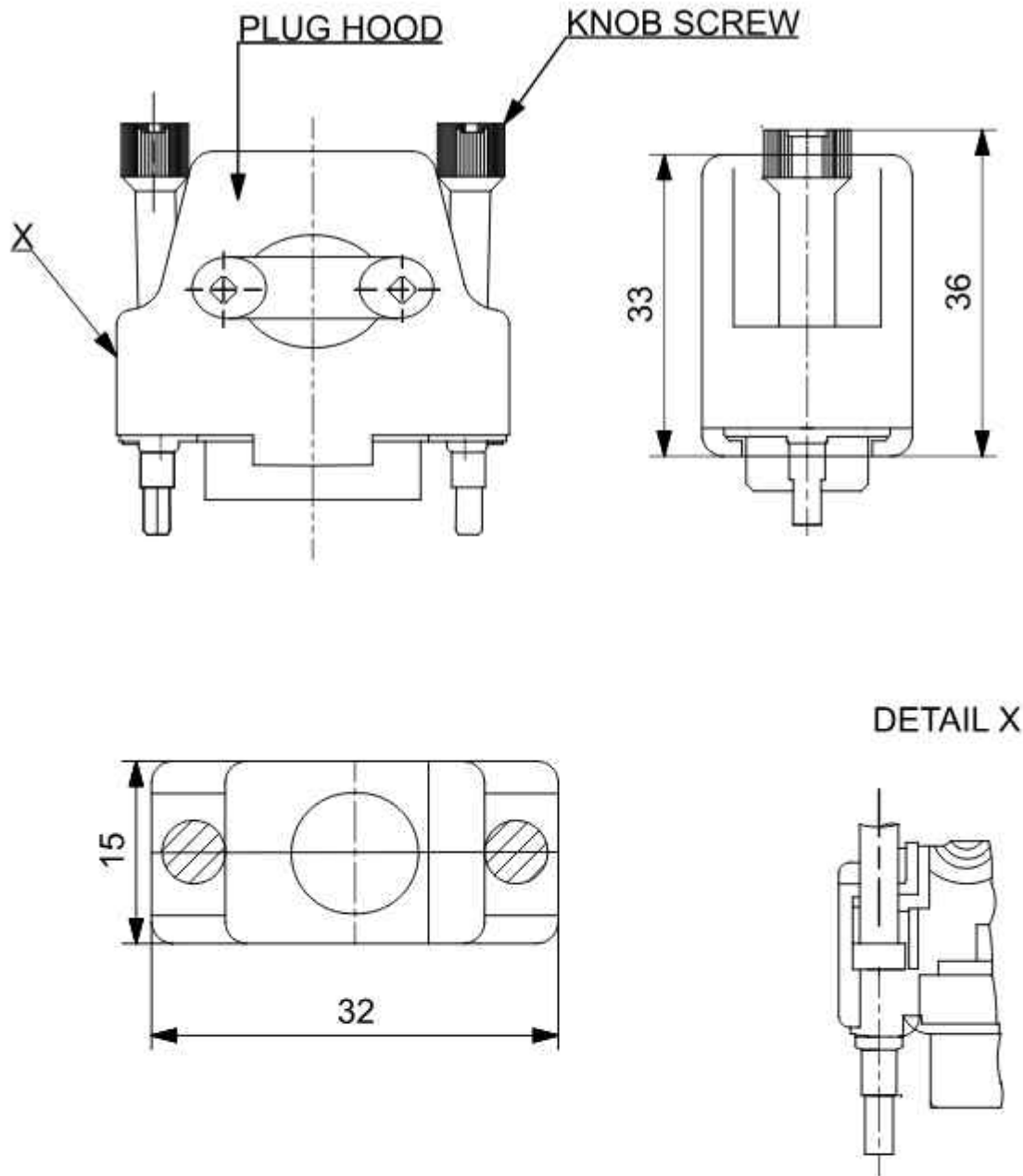


NOTES:

- 1.SPRING/HOUSING ASSEMBLIES ARE UL RECOGNIZED PER FILE E26226 AND CSA CERTIFIED PER LR25154
- 2.THESE HOUSING ASSEMBLIES ACCOMMODATE ANDERSON CONTACTS FOR WIRE RANGES FROM #6 AWG TO #2 AWG.
- 3. FOR ASSEMBLY INSTRUCTIONS SEE DOCUMENT IS1072.
- 4. HOUSING : POLYCARBONATE,UL94V0.
SPRING:STAINLESS STEEL.
FOR OTHER COLORS ,CONTACT ANDERSON POWER PRODUCTS.
- 5.WHEN MATED SIDE TO SIDE ,HALF ROUNDS ALLIGN TO FORM A SLOT FOR ROLL PINS WHICH PROTECTS AGAINST ACCIDENTAL DISENGAGEMENT OF MATED HOUSINGS

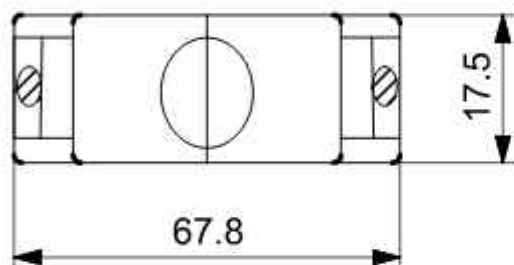
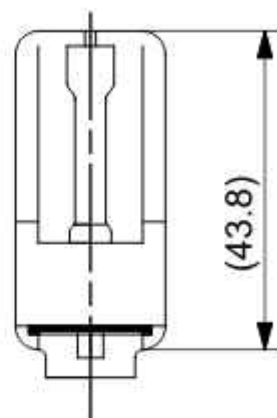
ALL DIMENSIONS ARE IN mm

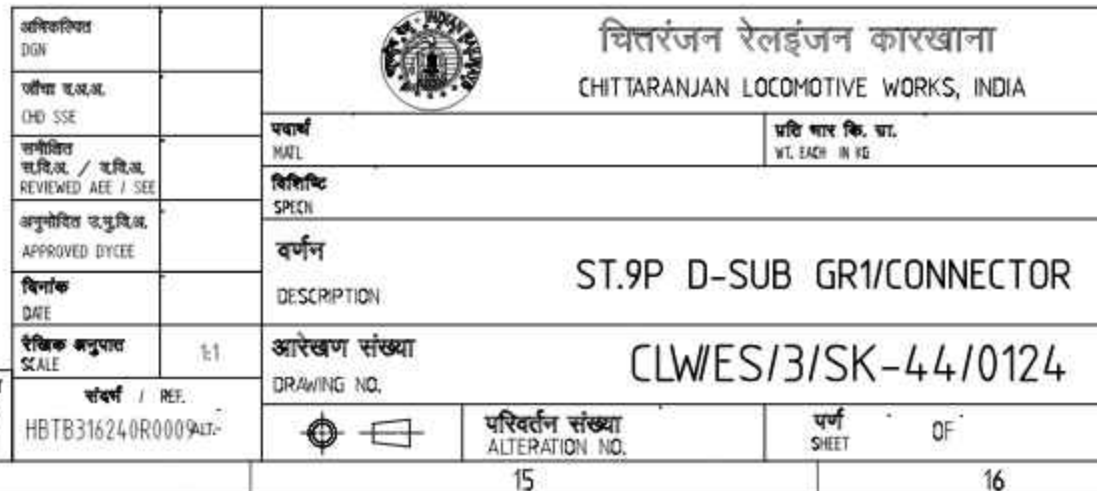
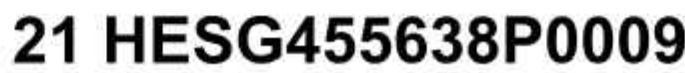
धातु-वेल्डिंग सिम्बल भा. मा. : 813 / अ. मा. सं. : 2883 WELDING SYMBOLS TO IS:813 / ISO:2553												अनिर्दिष्ट सद्य - सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLERANCE TO IS : 2102 / ISO : 2768												TOL. CLS.		ANDERSON PLUG PP 120A X1321G3ROT												APPROVED BY/CEE		वर्णन		ANDERSON PLUG PP 120A													
सतह - खुराता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302												GRADE NO.												Rz		Rz												DATE		DESCRIPTION															
												Rz												Rz		Rz												SCALE		NTS		आरेखन संख्या		CLW/ES/3/SK-41/0124											
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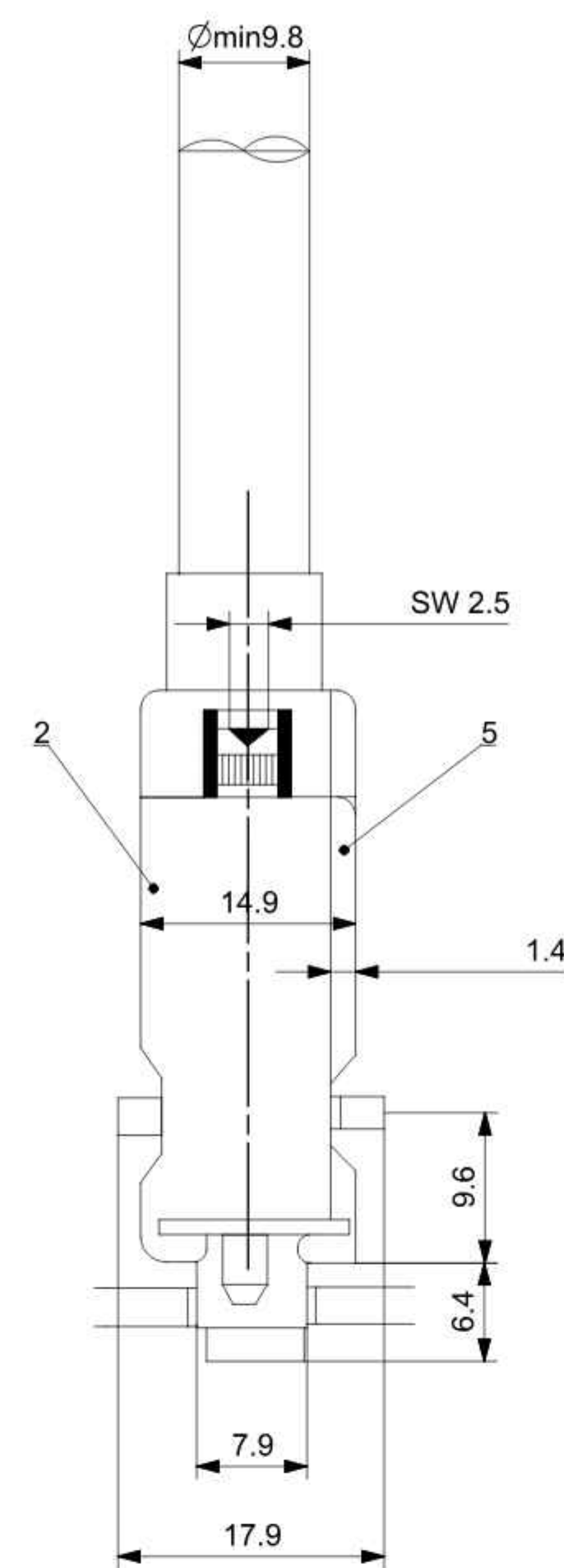
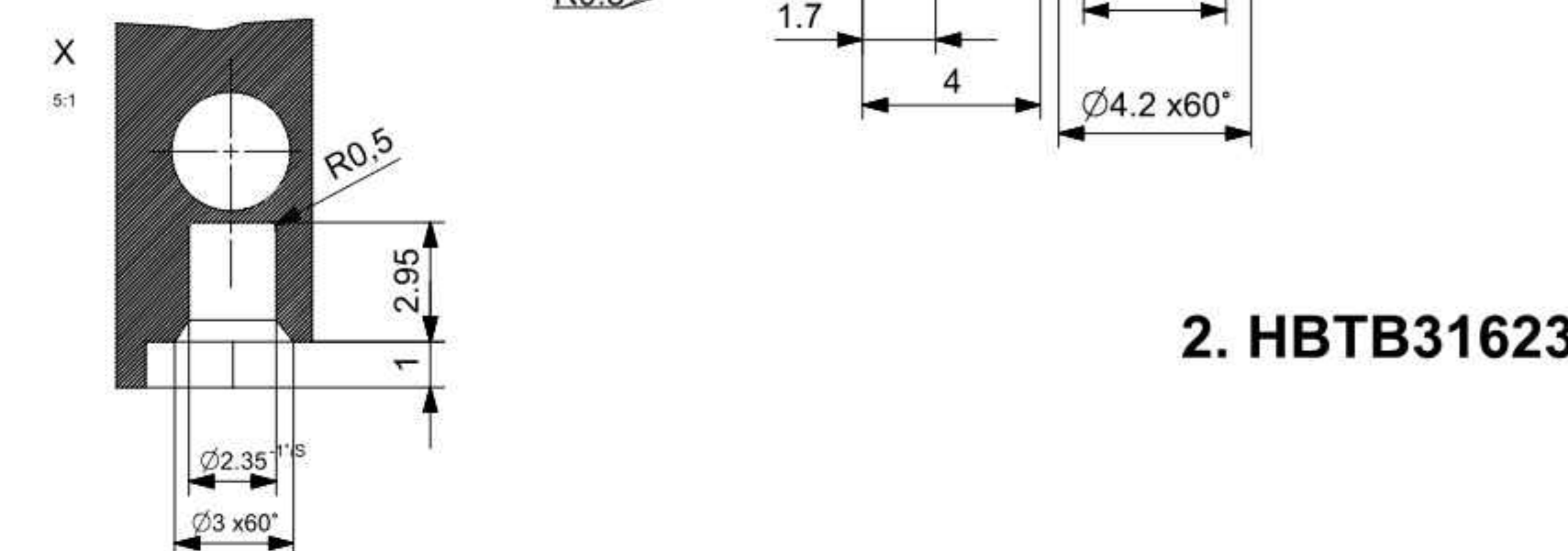
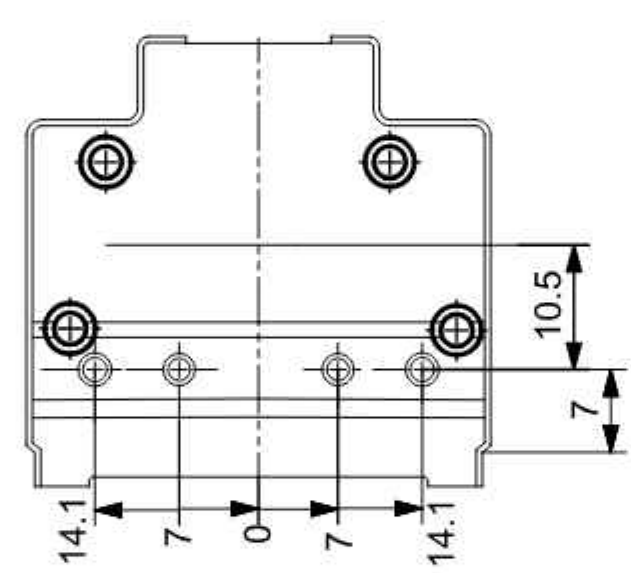
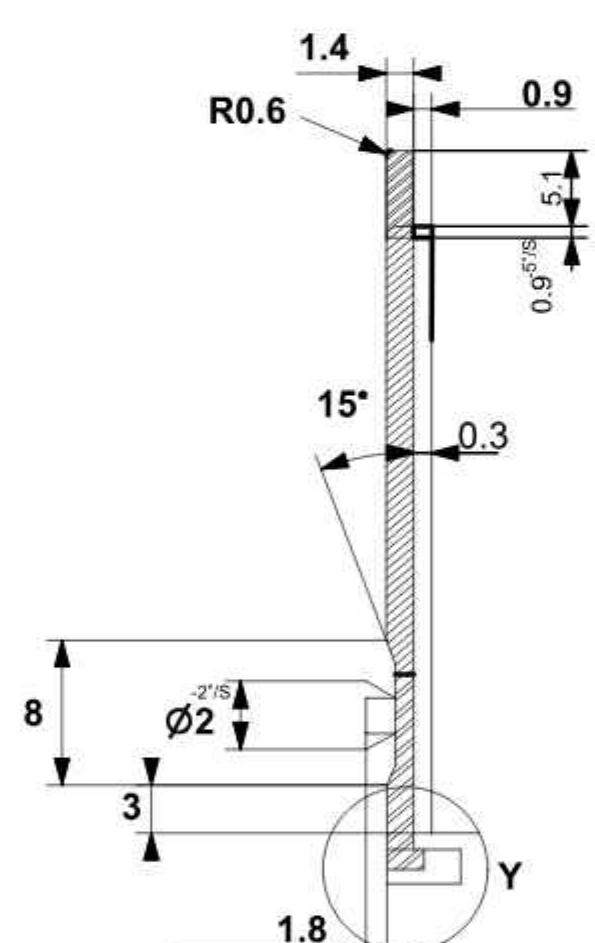
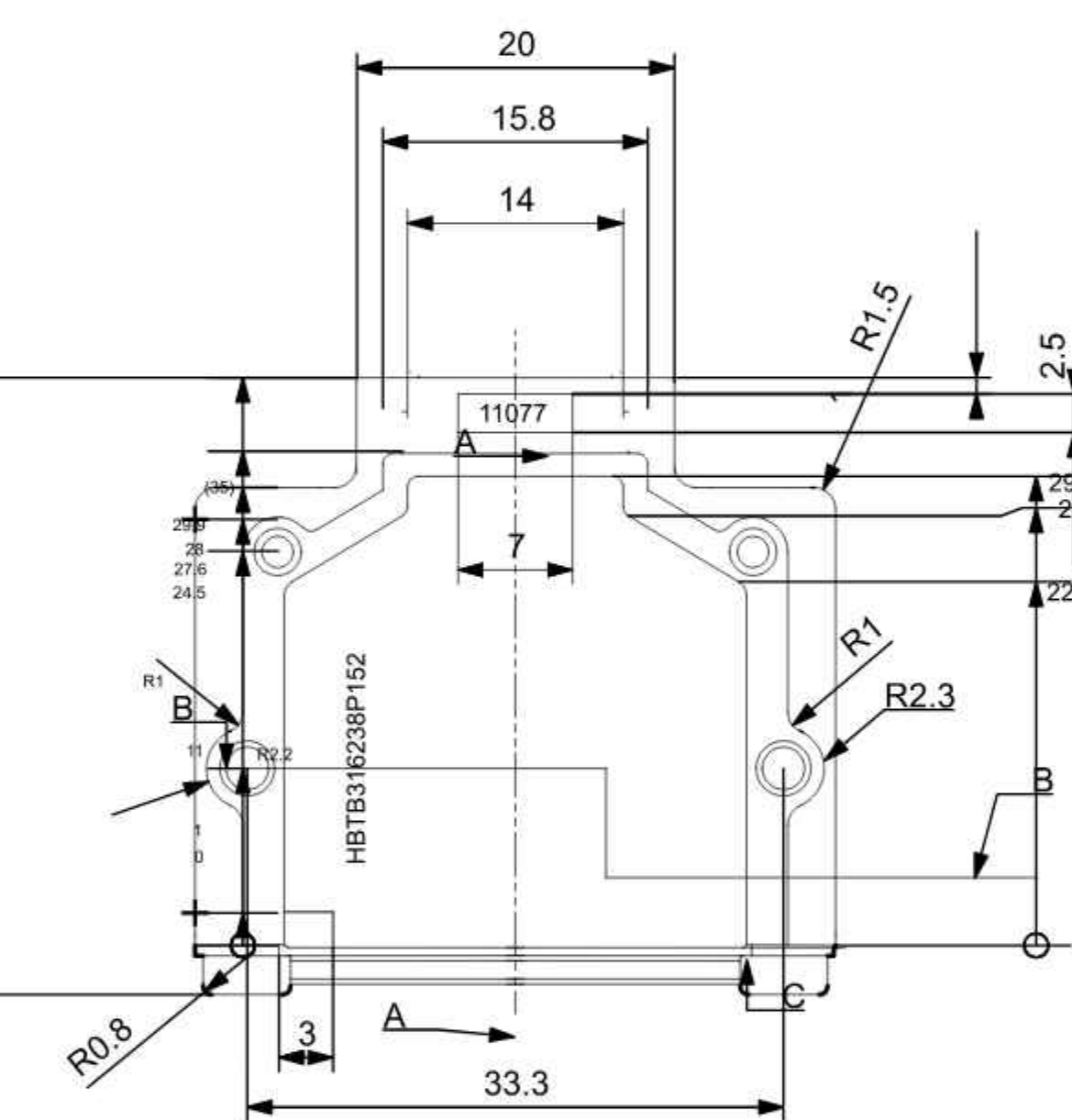
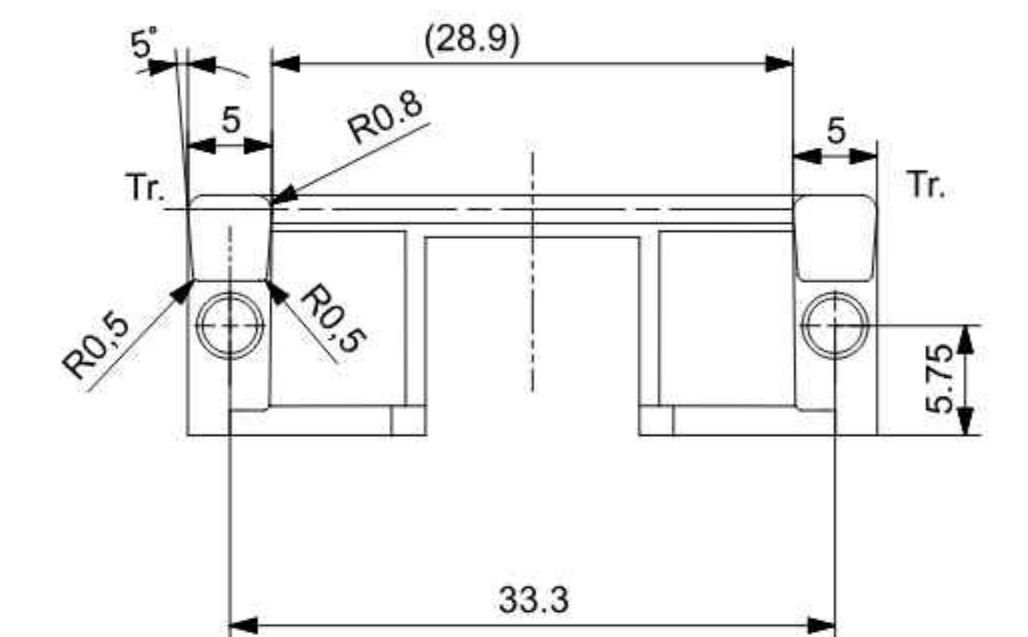
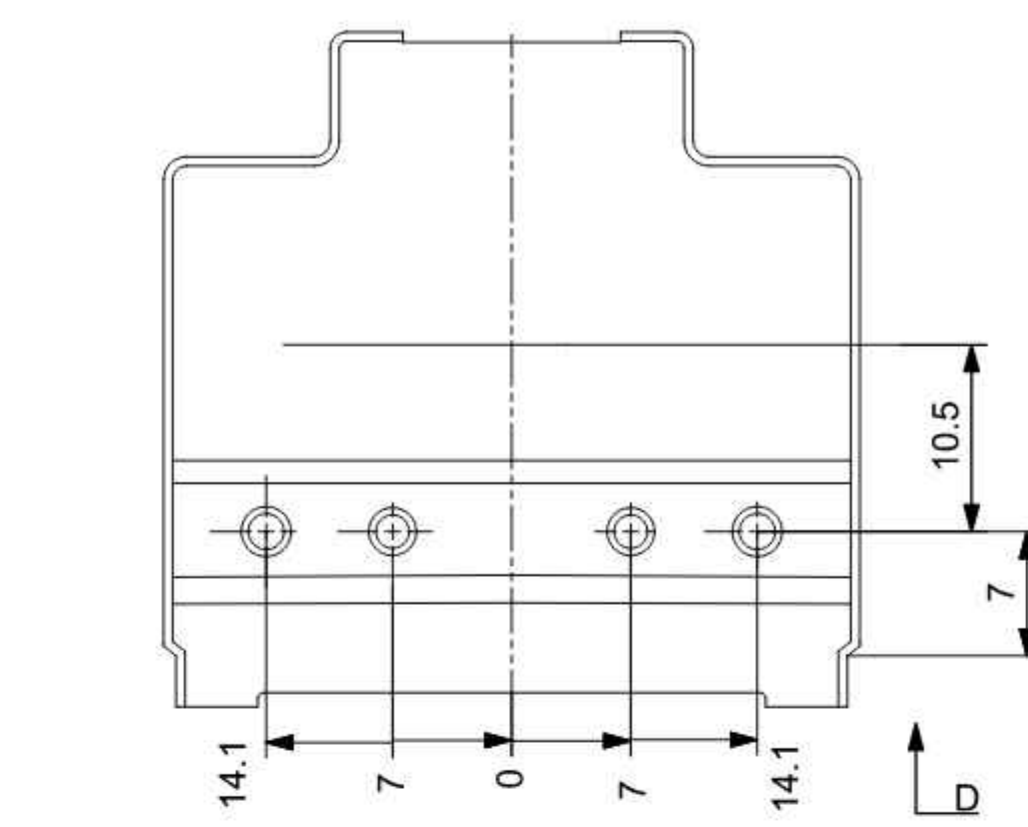
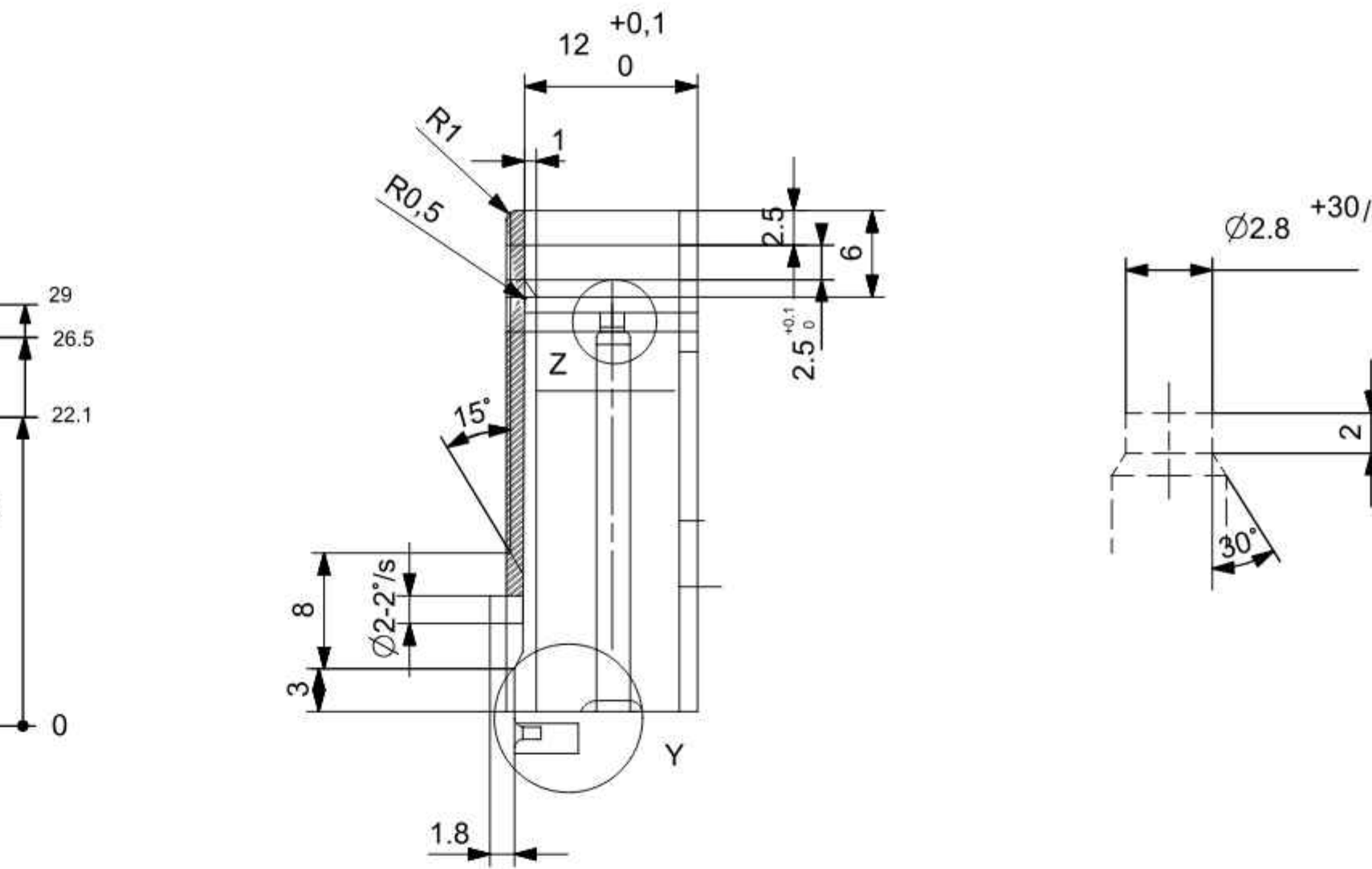
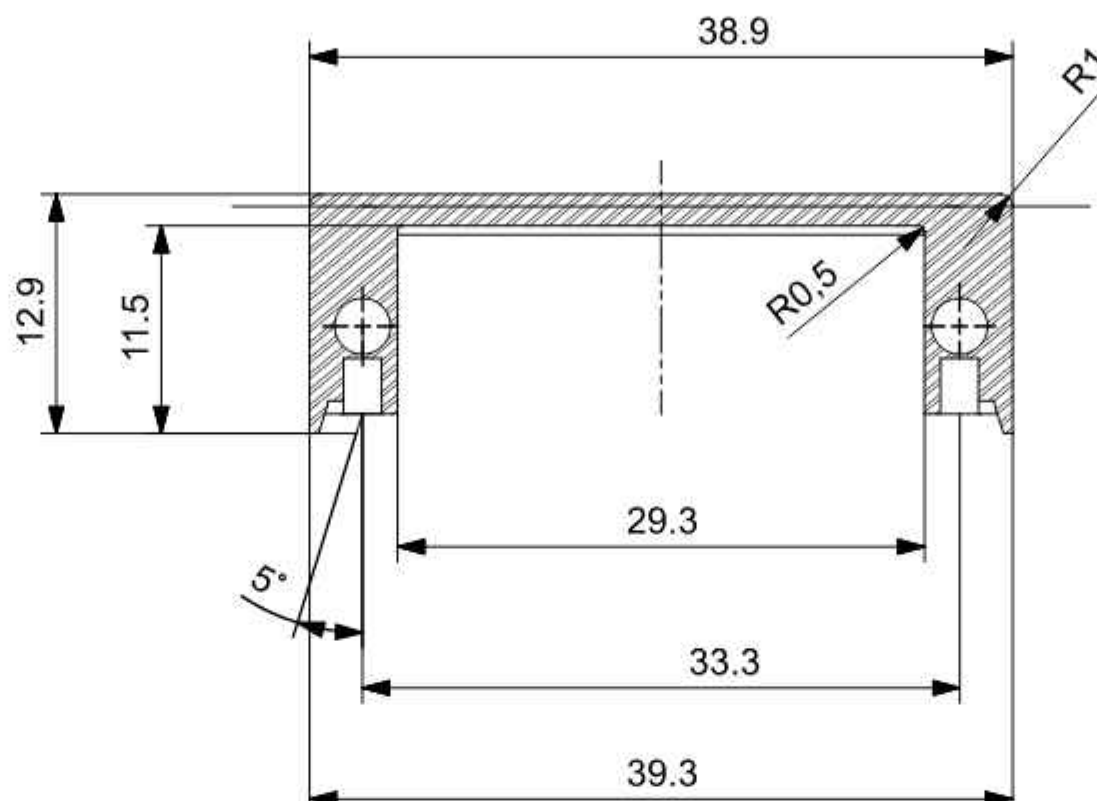


ALL DIMENSIONS ARE IN mm

												अधिकृत DGN		 चित्तरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA
												जोषा व.अ.अ. CHD SSE		
परिवर्तन संख्या ALT. NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION								दिनांक DATED	समीक्षा REVIEWED	समीक्षा REVIEWED	प्रति भाग कि. घा. WT. EACH IN KG.	
सं1 GRADE NO.	सं2 N1	सं3 N2	सं4 N3	सं5 N4	सं6 N5	सं7 N6	सं8 N7	सं9 N8	सं10 N9	सं11 N10	सं12 N11	अनुमोदित APPROVED	वर्णन DESCRIPTION	
संपादक का नाम वा. वा. 3073 / अ. वा. सं. 1302 SURGE ROUGHNESS VALUE TO IS/ISO / 50/30												अनुमोदित ए.ए.ए.ए. APPROVED BYCEE	CONNECTOR SUB-SET	
अनिर्दिष्ट स्तर -- सीमा वा. वा. : 2182 / अ. वा. सं. : 2768 UNSPECIFIED TOLERANCE TO IS : 2182 / ISO : 2768 वायु-रेलवे विभाग वा. वा. : 813 / अ. वा. सं. : 2863 WELDING SYMBOLS TO IS/ISO / ISO/2553												दिनांक DATE		
परीक्षण SCALE	सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12	आरेखन संख्या DRAWING NO.	
परीक्षण SCALE	सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12	CLW/ES/3/SK-42/0124	
परिवर्तन संख्या ALTERATION, NO.	सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12	परिवर्तन संख्या ALTERATION, NO.	
परिवर्तन संख्या ALTERATION, NO.	सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12	परिवर्तन संख्या ALTERATION, NO.	
परिवर्तन संख्या ALTERATION, NO.	सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12	परिवर्तन संख्या ALTERATION, NO.	

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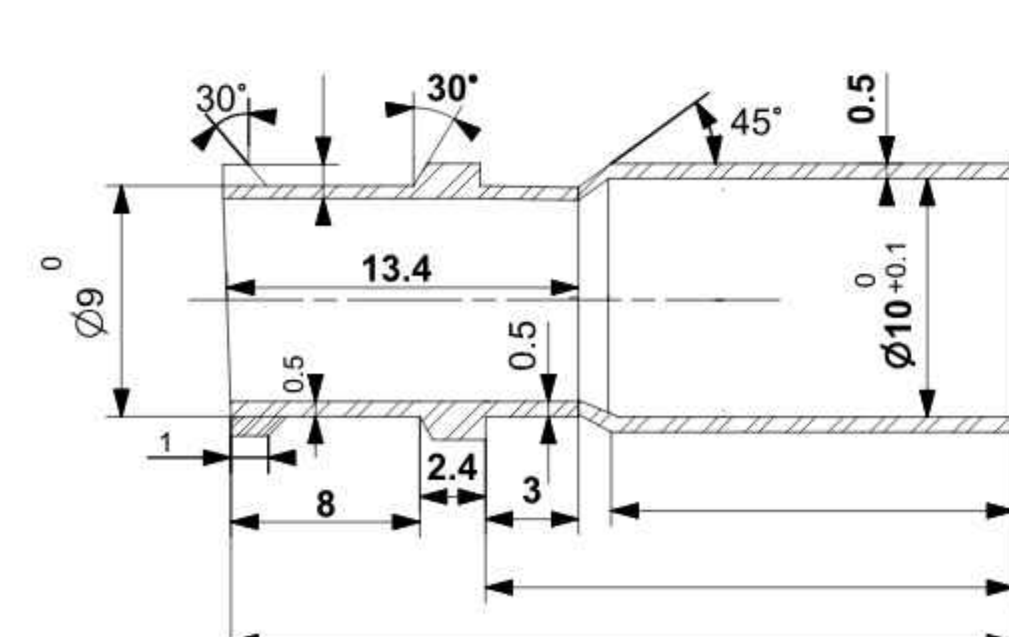
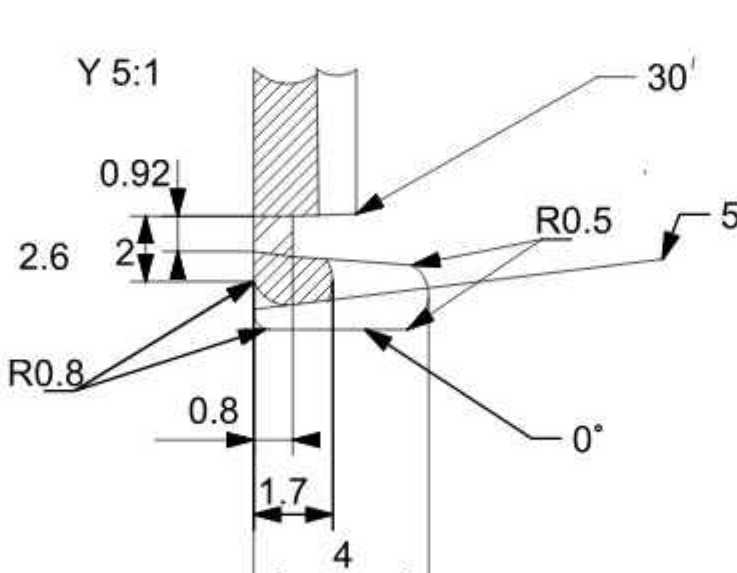
[illegible]

[illegible]

Technical drawing of a mechanical part. The drawing shows a side view with a section line B-B. Key dimensions include: a total width of 39.3, a central width of 29.3, and a right-side width of 1.9. A circular feature on the left is labeled 'X'. A fillet radius of R0.6 is indicated at the top right corner. A section line B-B is shown across the top. A dimension of 5.5/S is shown on the left side. A dimension of (29.3) is shown in parentheses. A dimension of 5.5/S is shown on the right side. A dimension of R0.5 is shown at the bottom left corner. A dimension of R0.5 is shown at the bottom right corner.

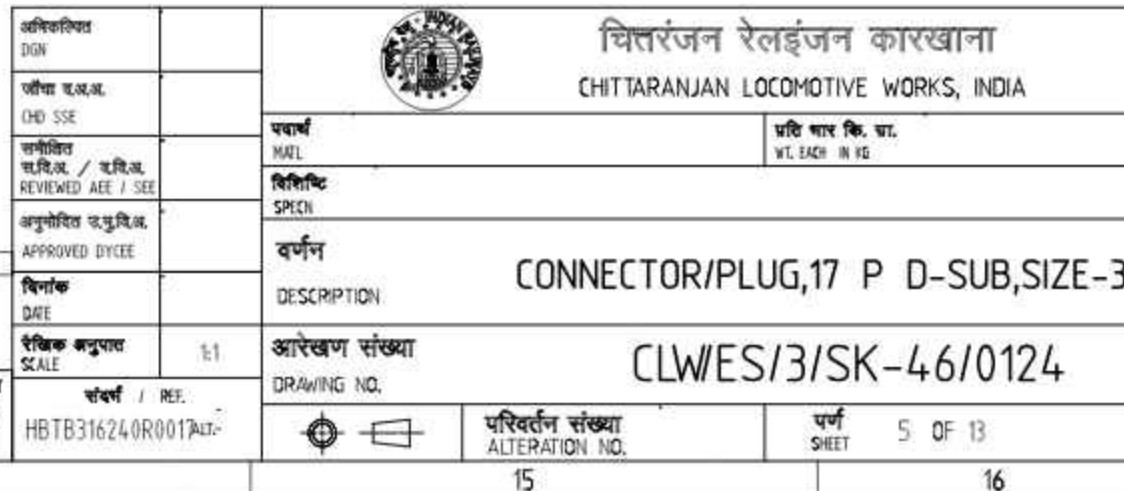
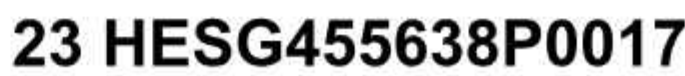
Technical drawing of a mechanical part showing a cross-section. The drawing includes the following dimensions and features:

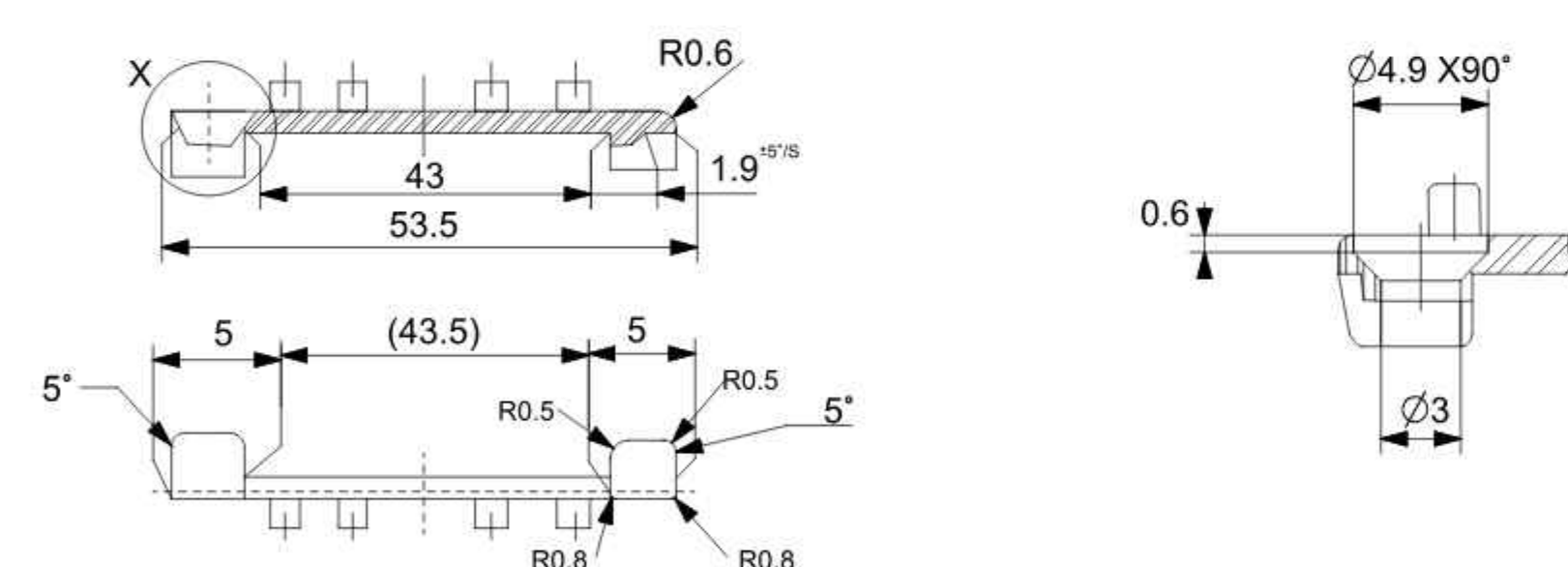
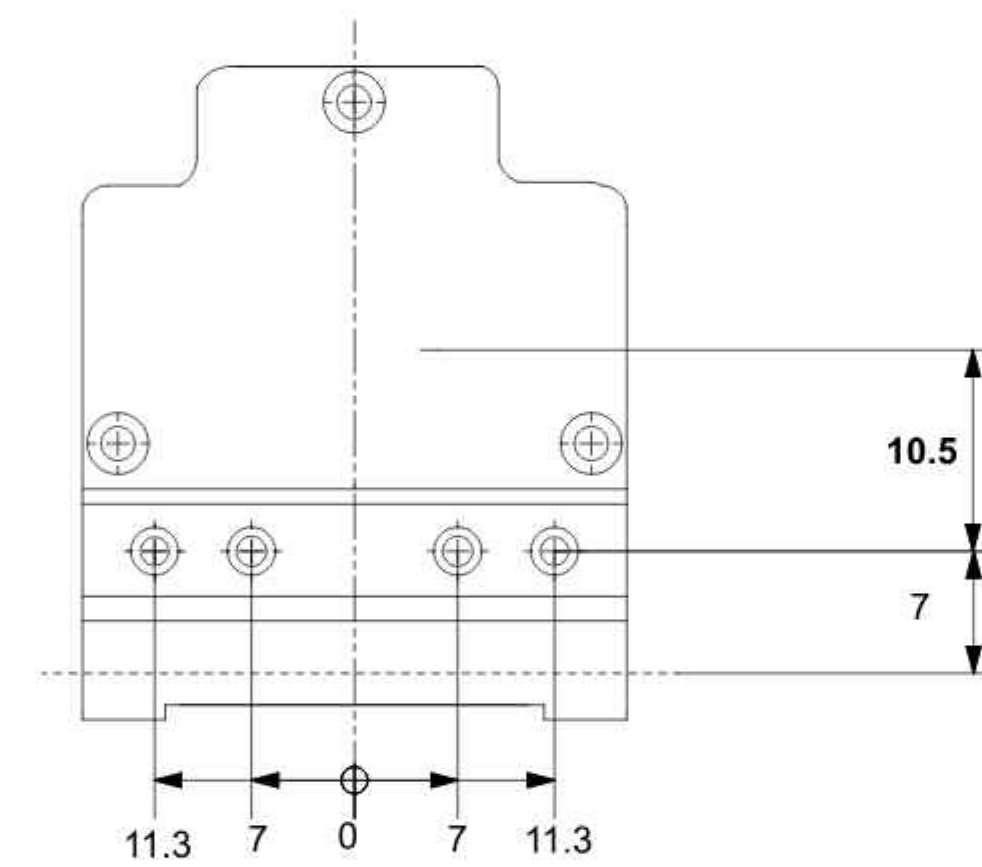
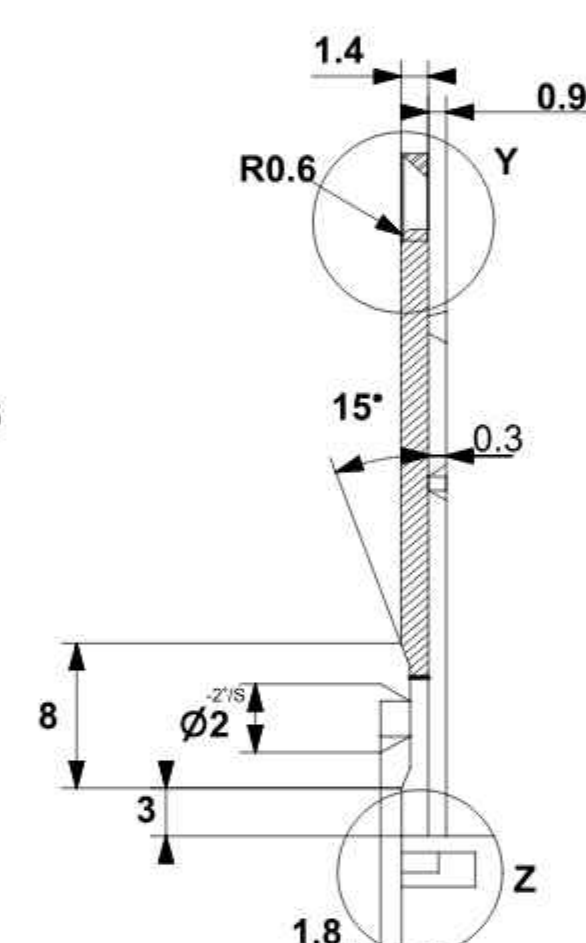
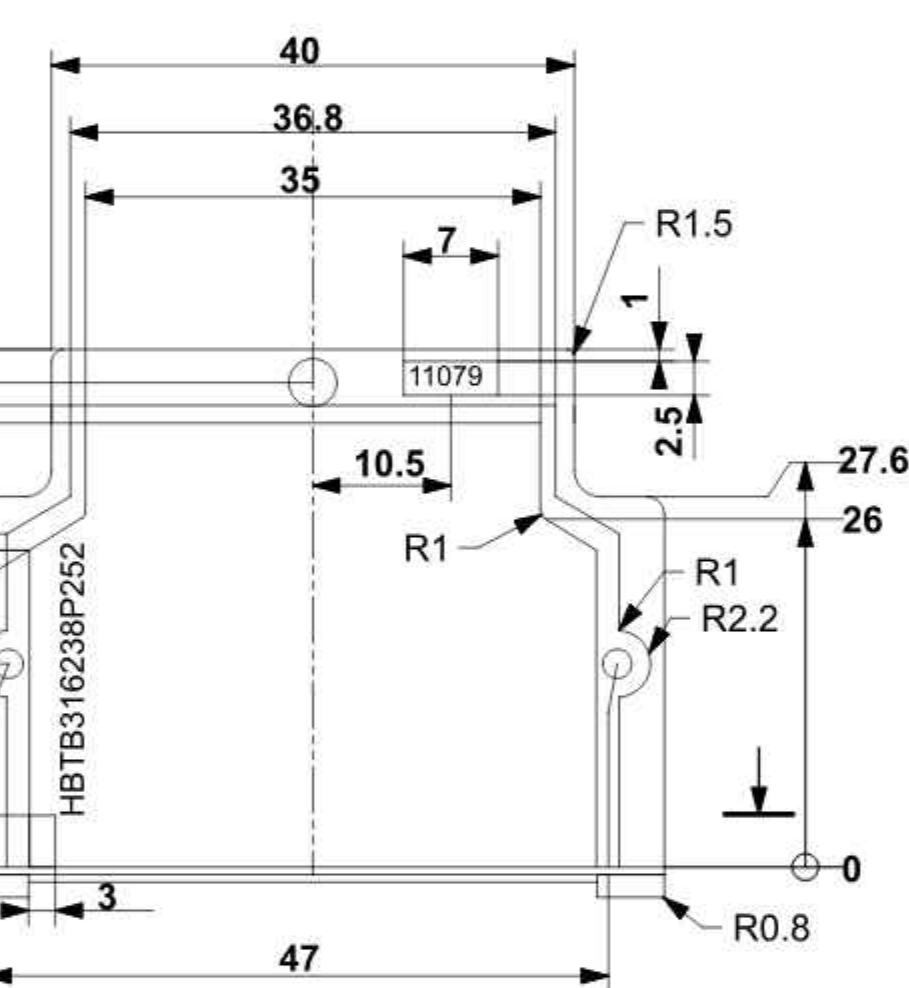
- Scale: $X 5:1$
- Feature: 0.6 (likely a fillet or chamfer dimension)
- Feature: $\varnothing 4.9 \times 90^\circ$ (likely a chamfer or thread specification)
- Feature: $\varnothing 3$ (likely a hole or internal feature dimension)



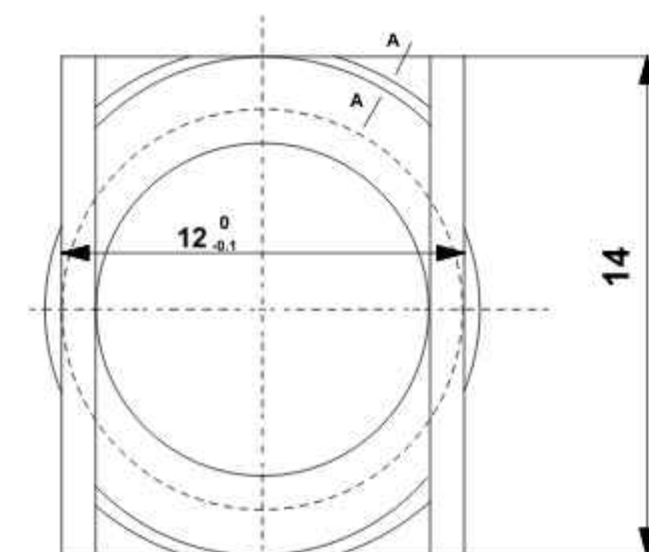
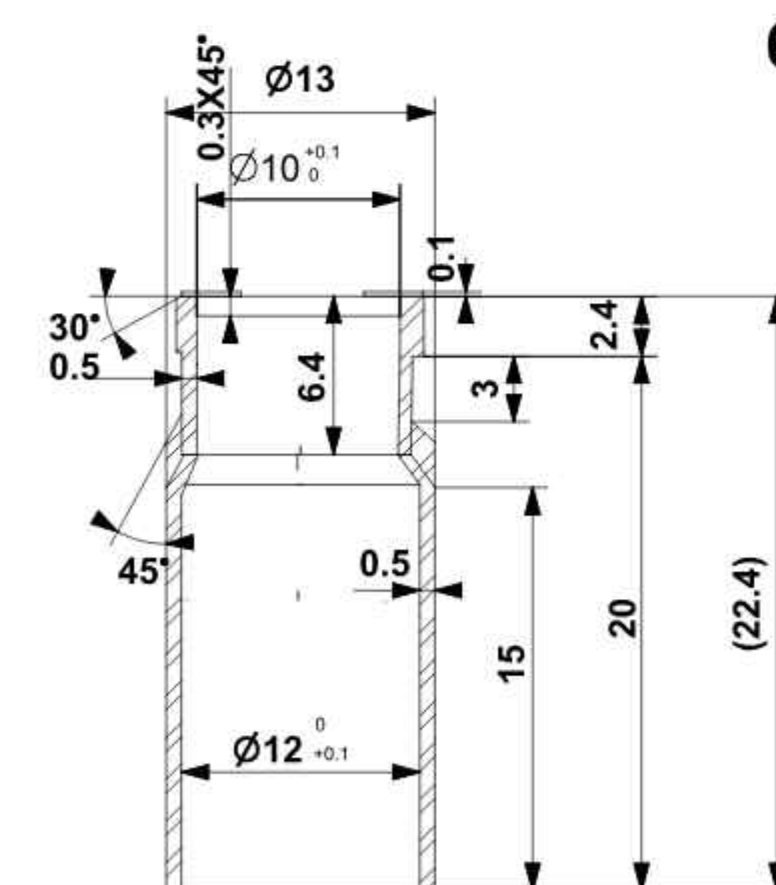
CLINCH SECTION

[illegible][illegible]

[illegible]



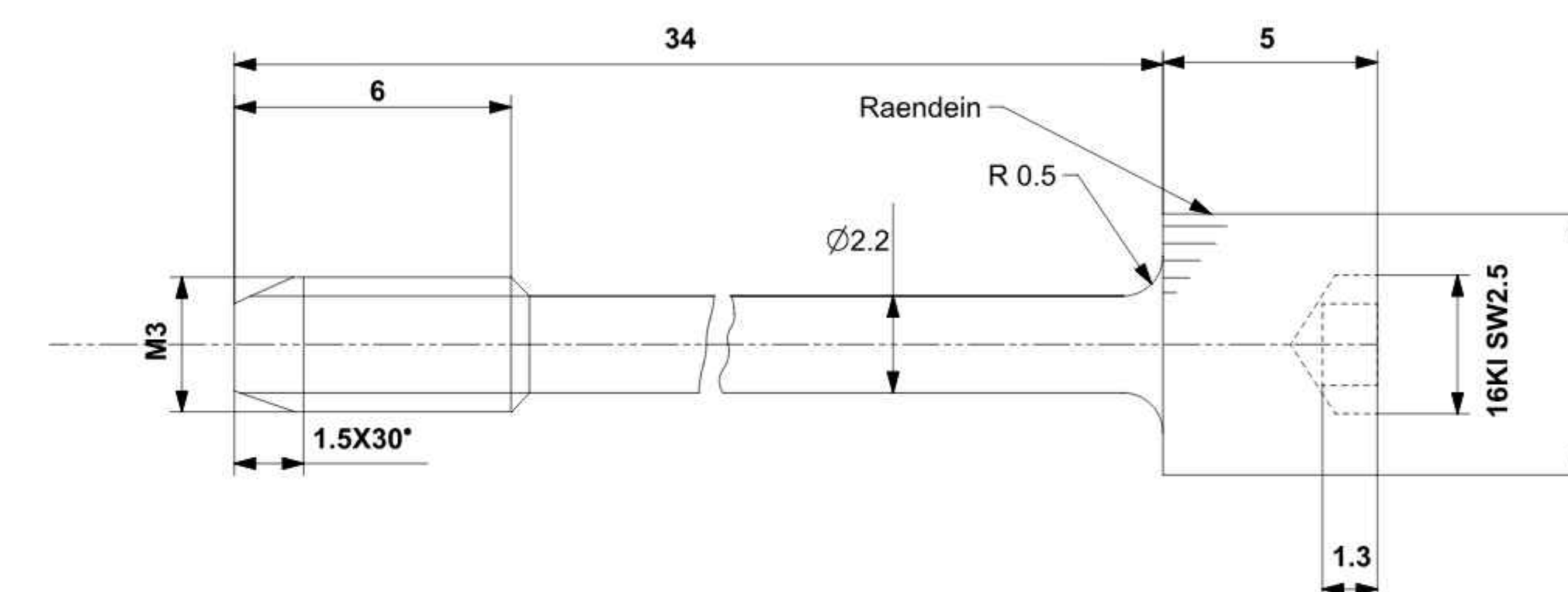
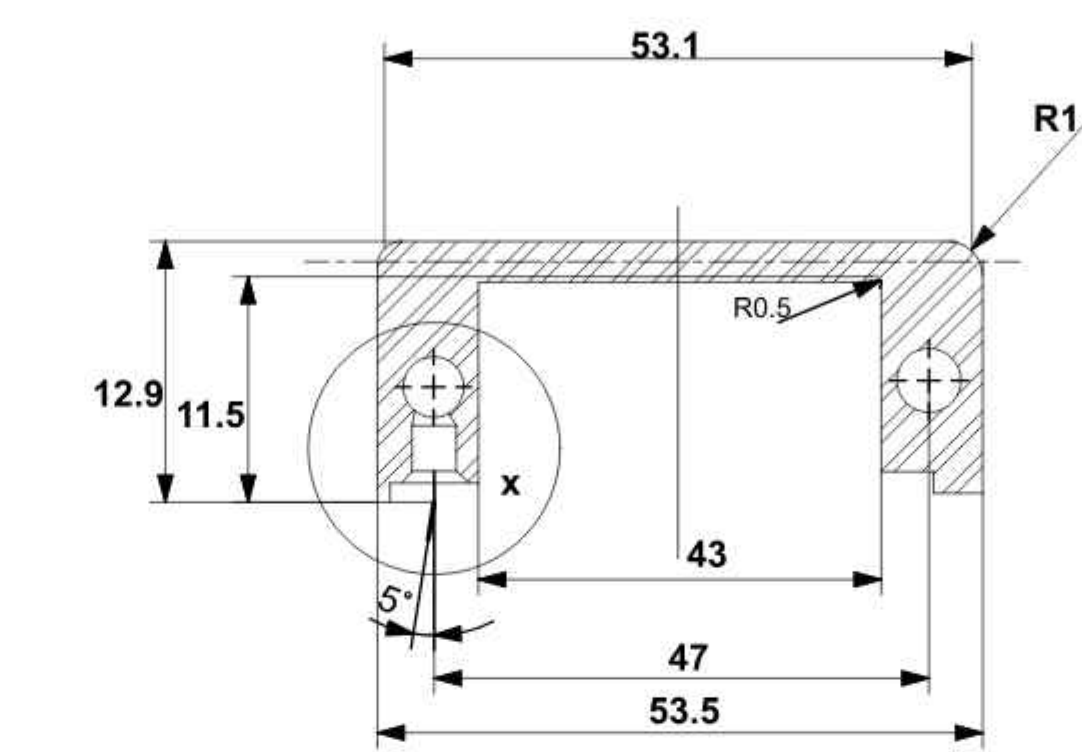
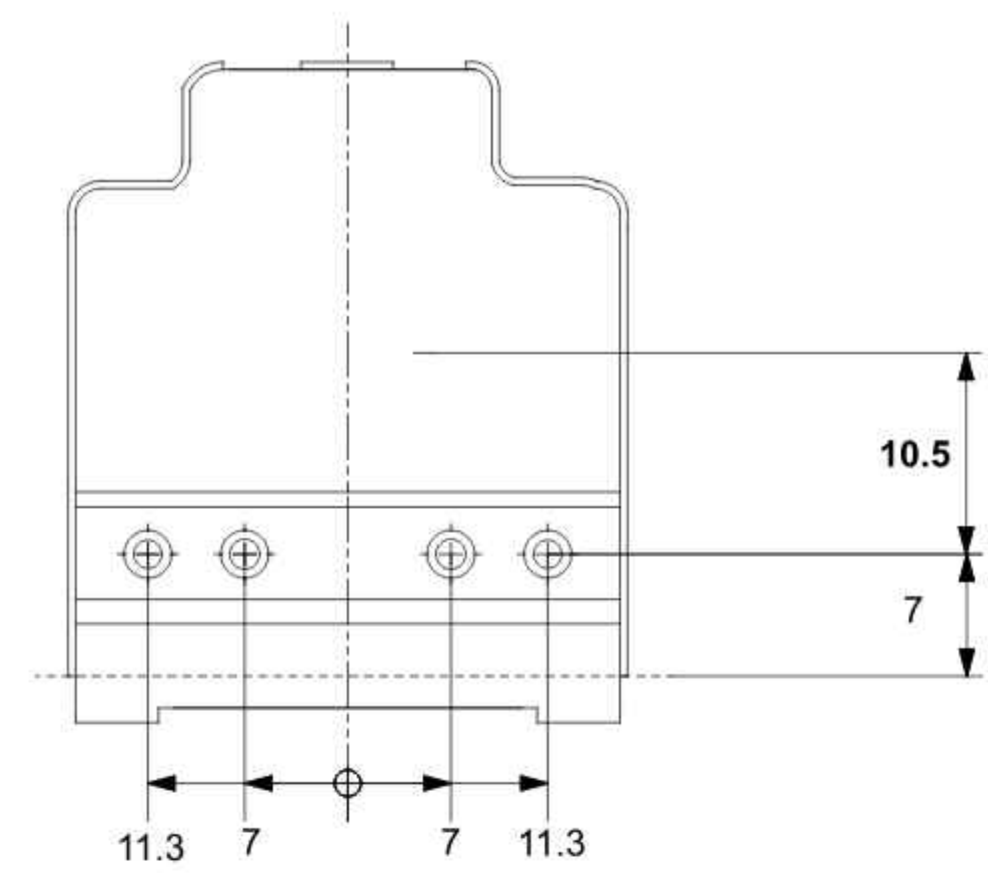
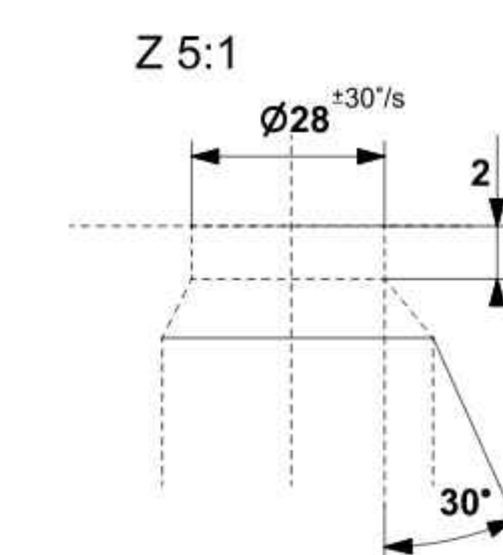
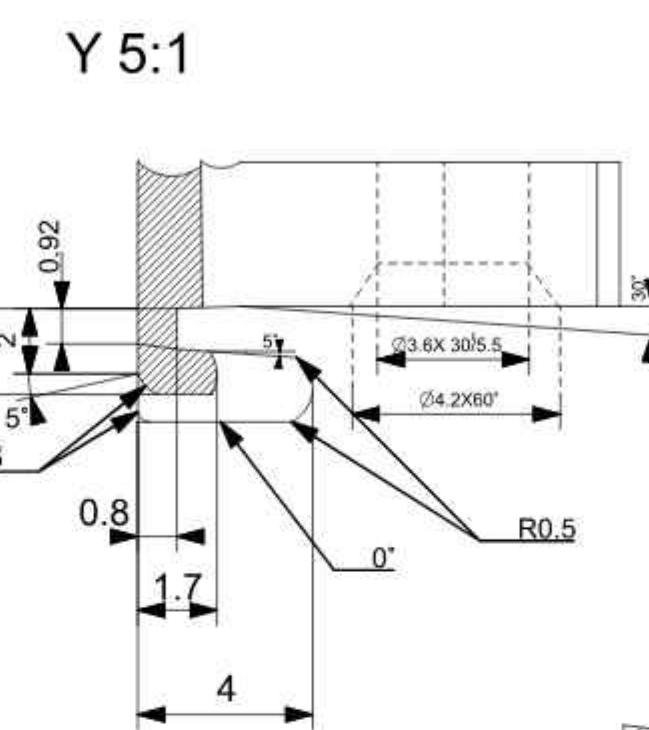
6. HBTB316238P0252



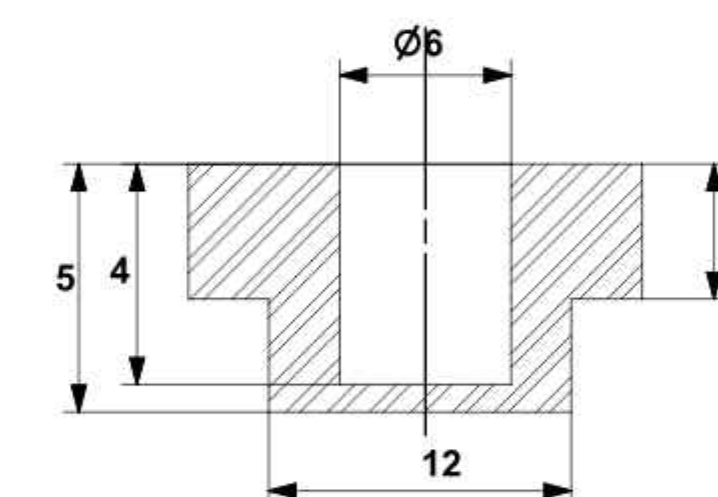
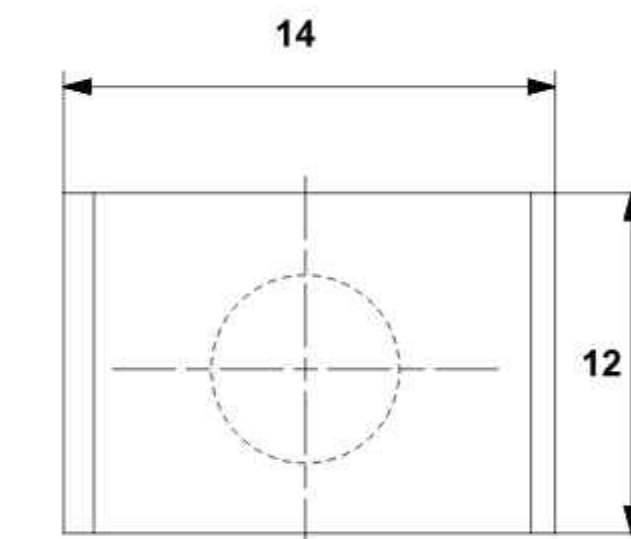
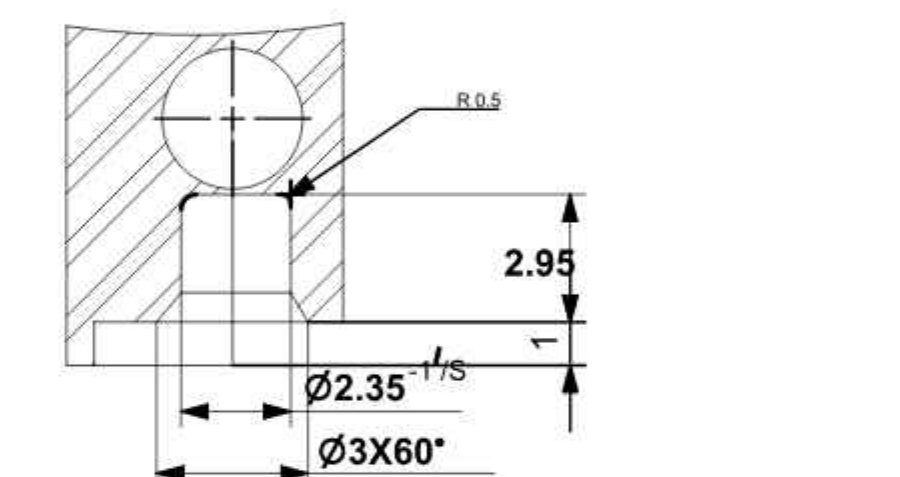
16. HBTB316239P0003



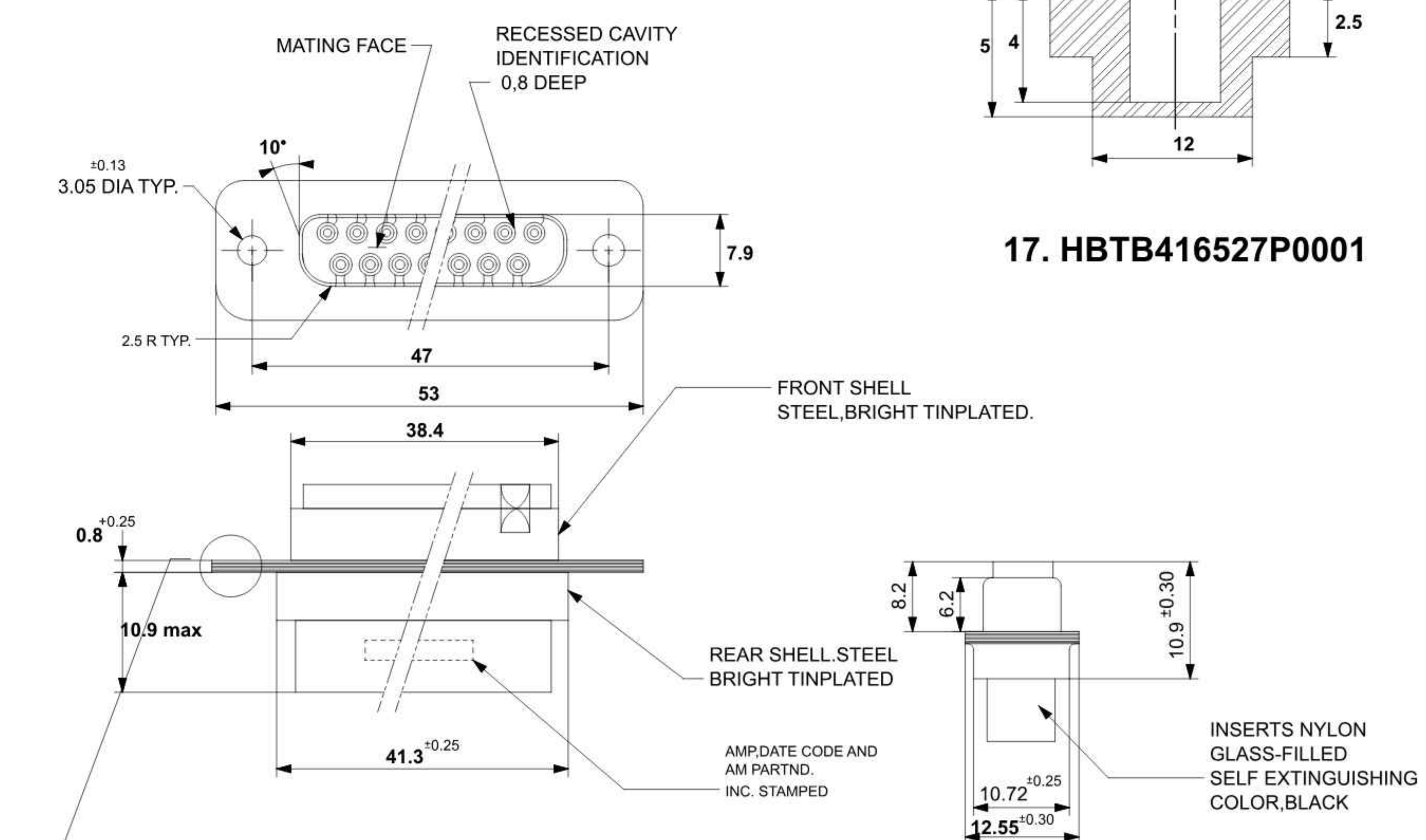
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HESG455638P0025	CONTACT BODY 25P.SUB-D	23
HBTB416527P0001	BLIND PLUG	17
HBTB316239P0003	CA-END SLEEVE, SIZE-3	16
HBTB316240P0013	CR-CS SCREW M2 5X5	13
HBTB316240P0012	CON WASHER 3.2/5.7 SST	12
HBTB416508P0001	SKT SCREW M3X34 SPECIAL	11
HBTB316238P0252	COVER SIZE 3	6
HBTB316238P0251	SUB D BODY SIZE 3	3
HBTB316240R0025	ASSEMBLY	A



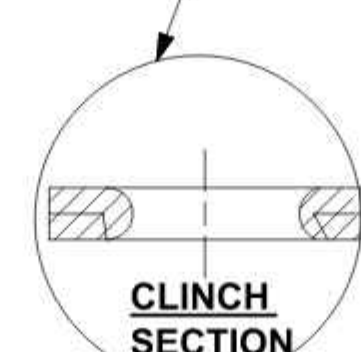
11. HBTB416508P0001



17. HBTB416527P0001

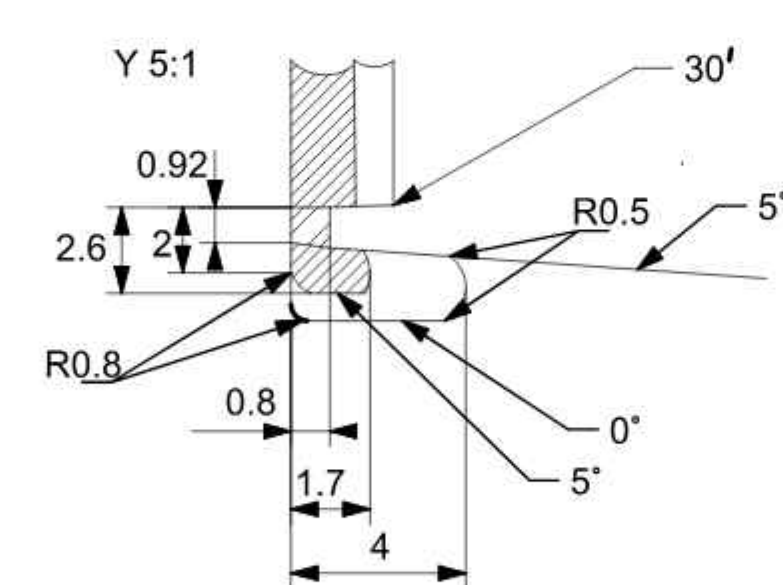
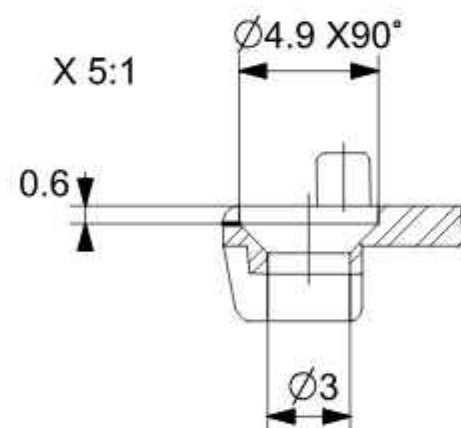
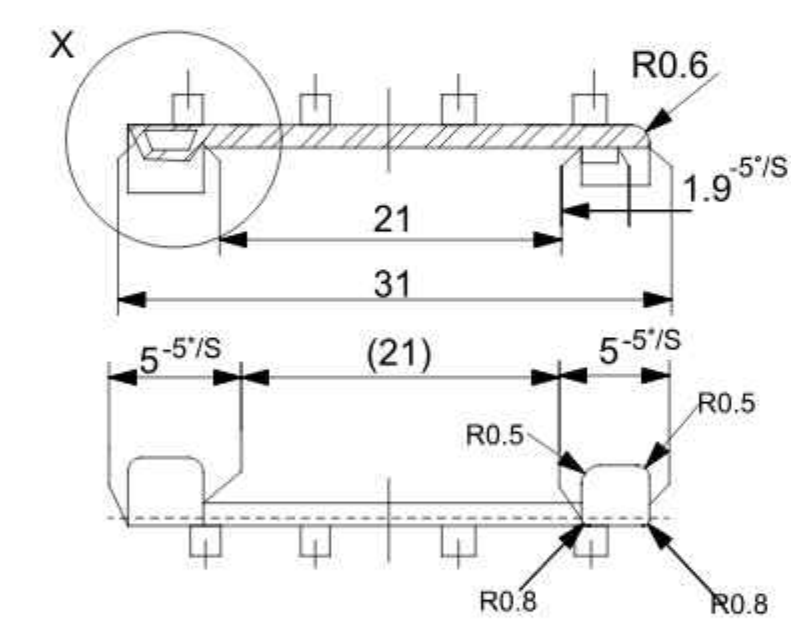
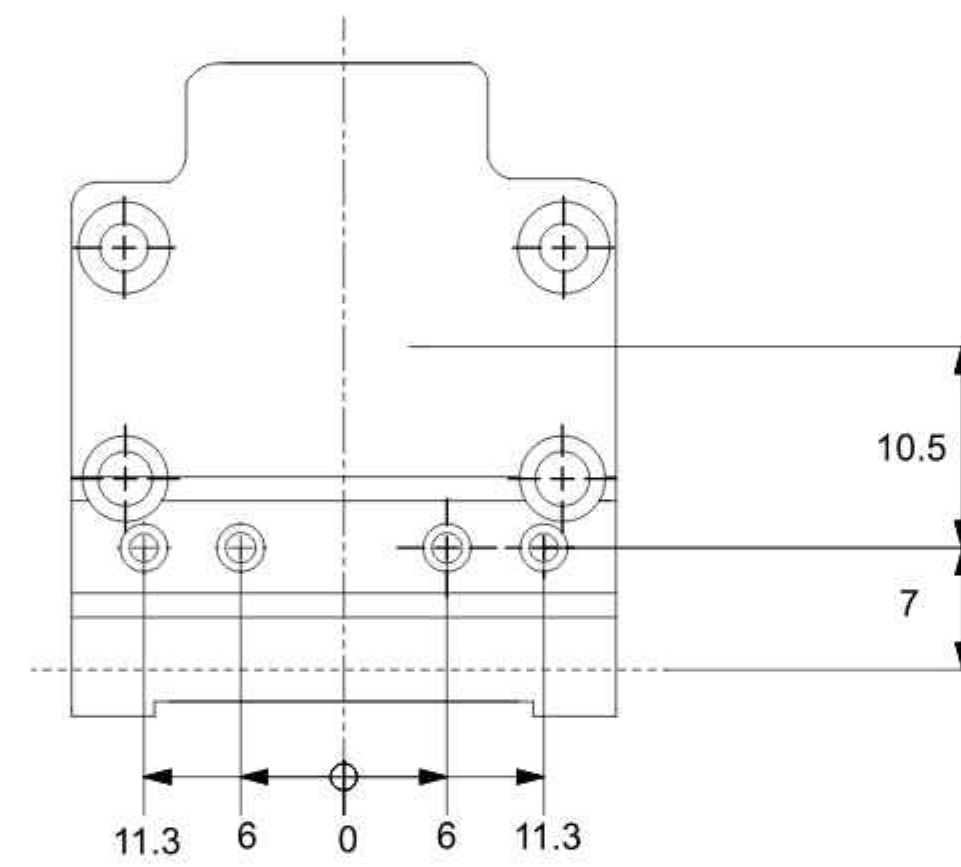
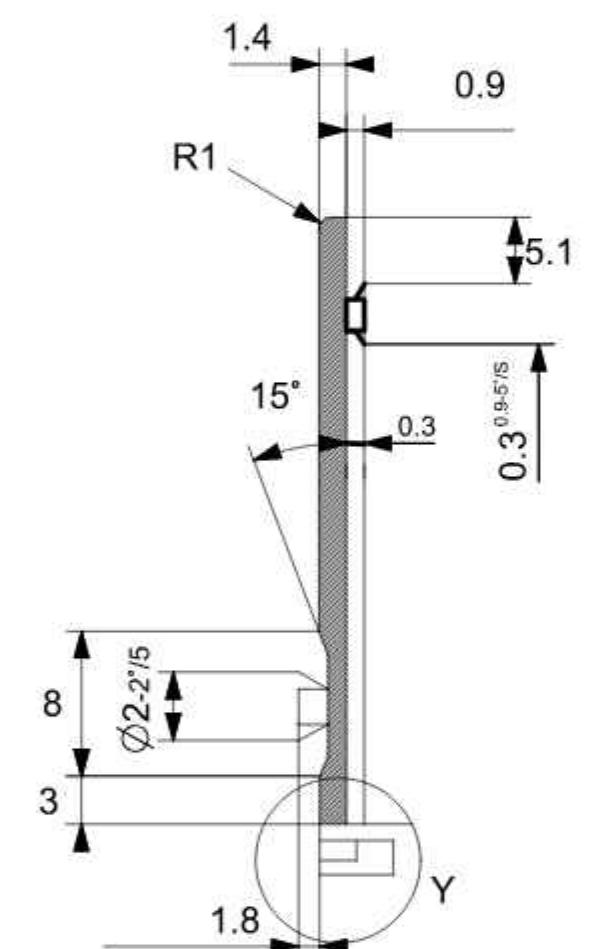
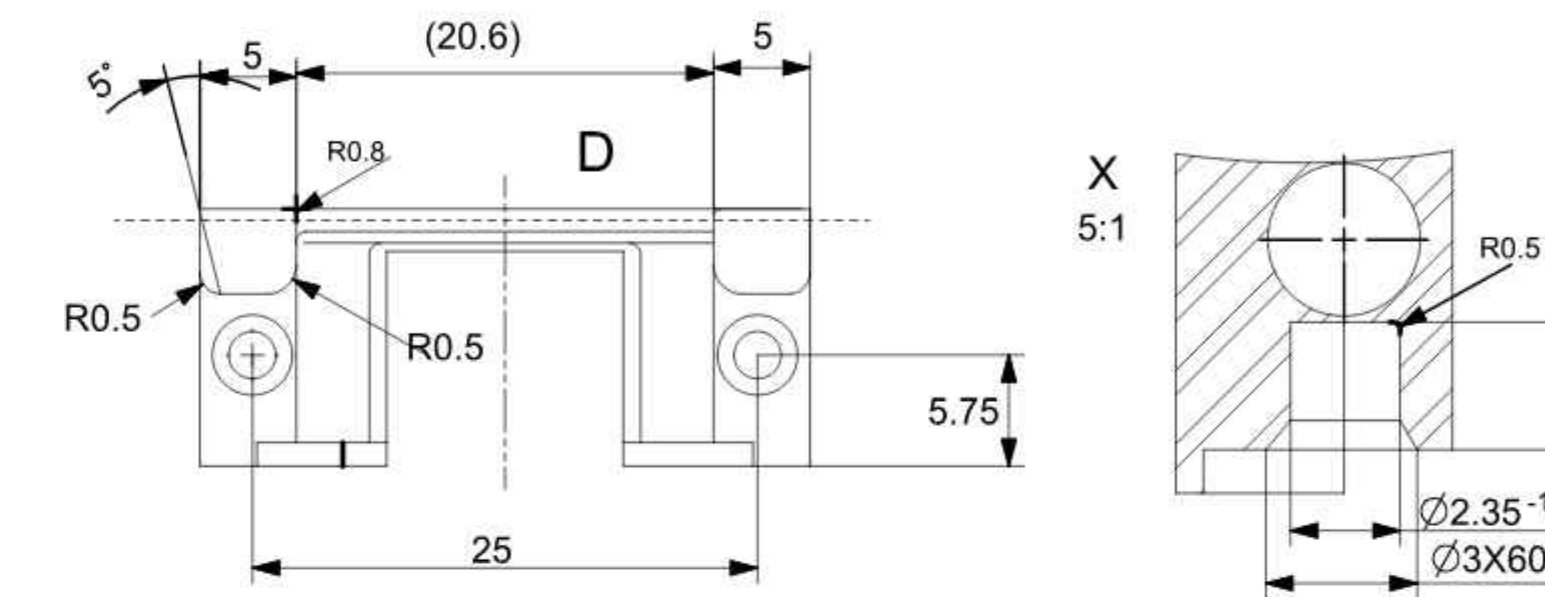
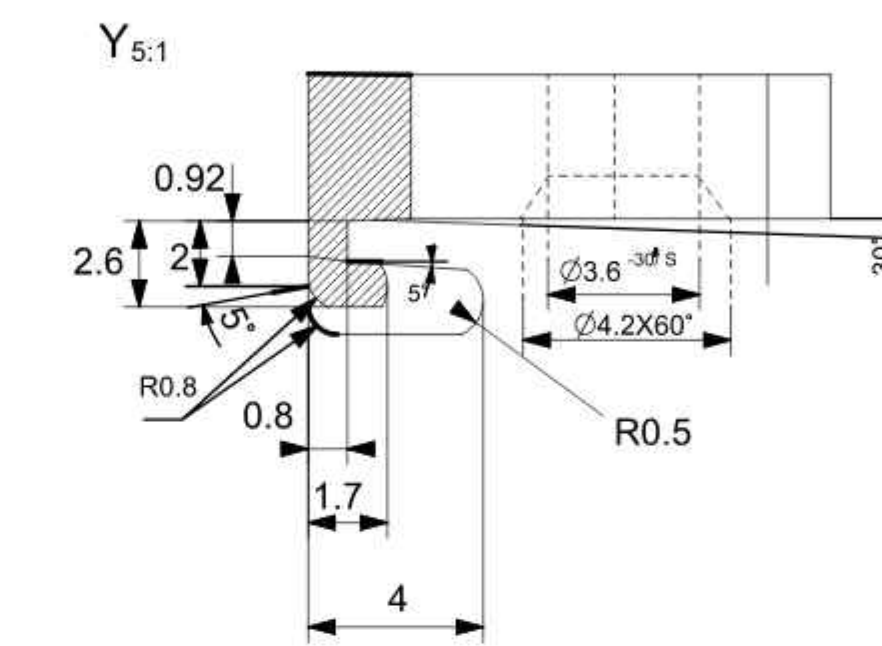
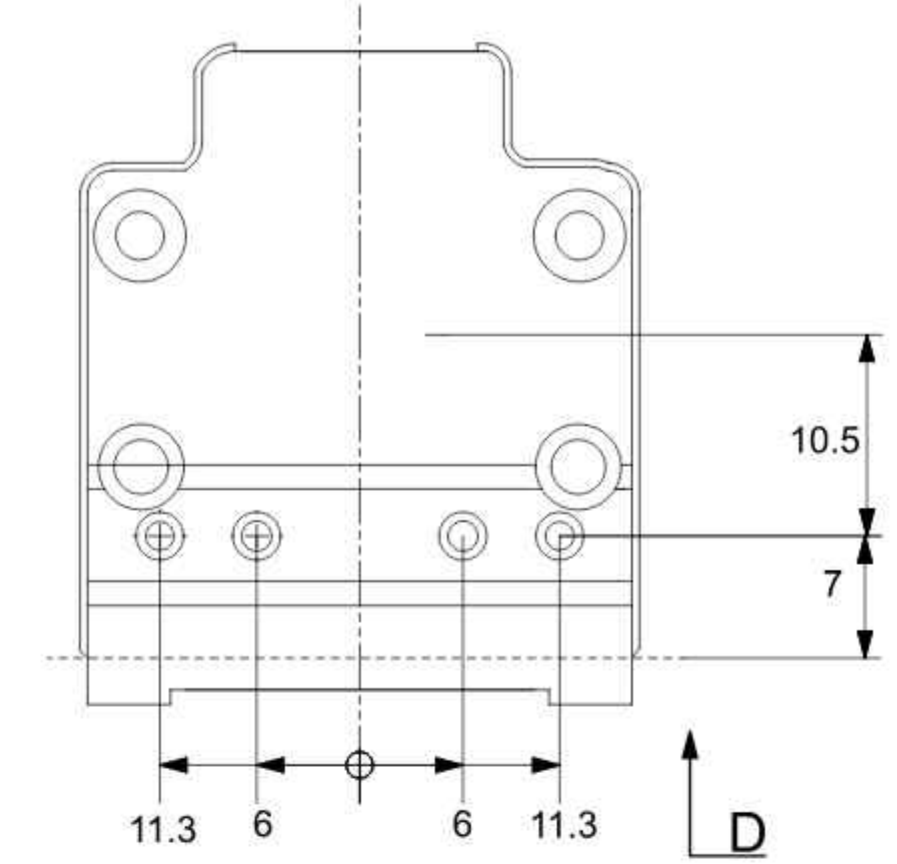
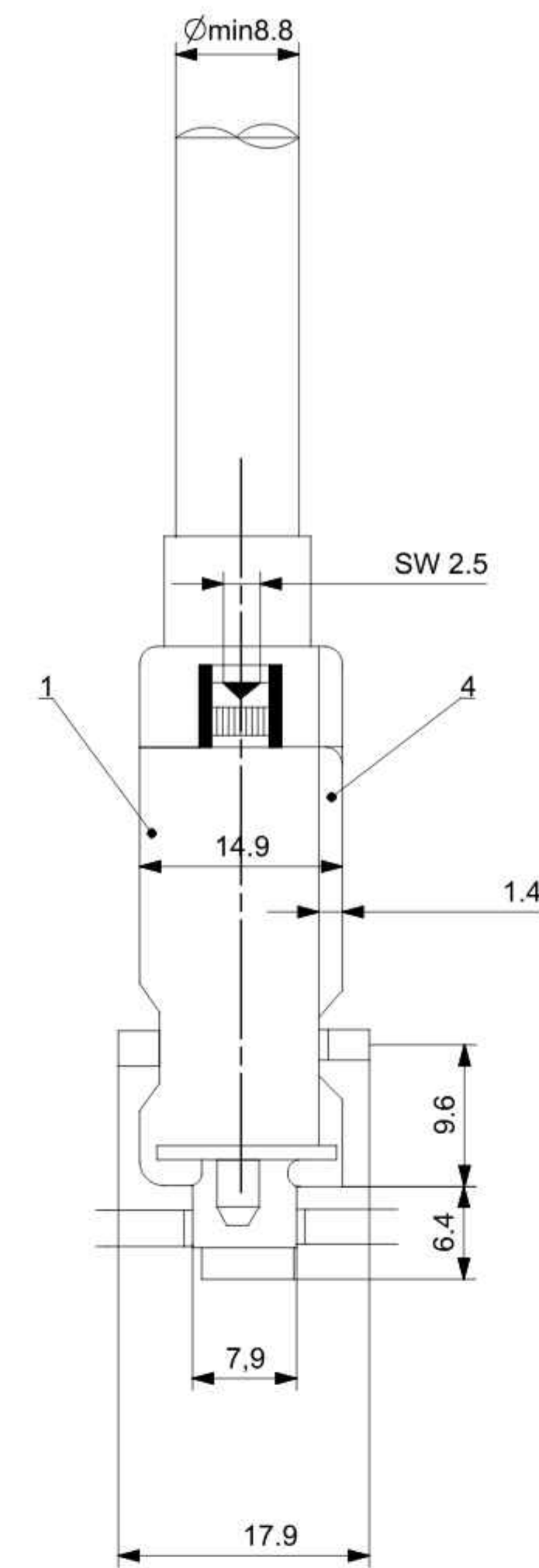


24. HESG455638P0025

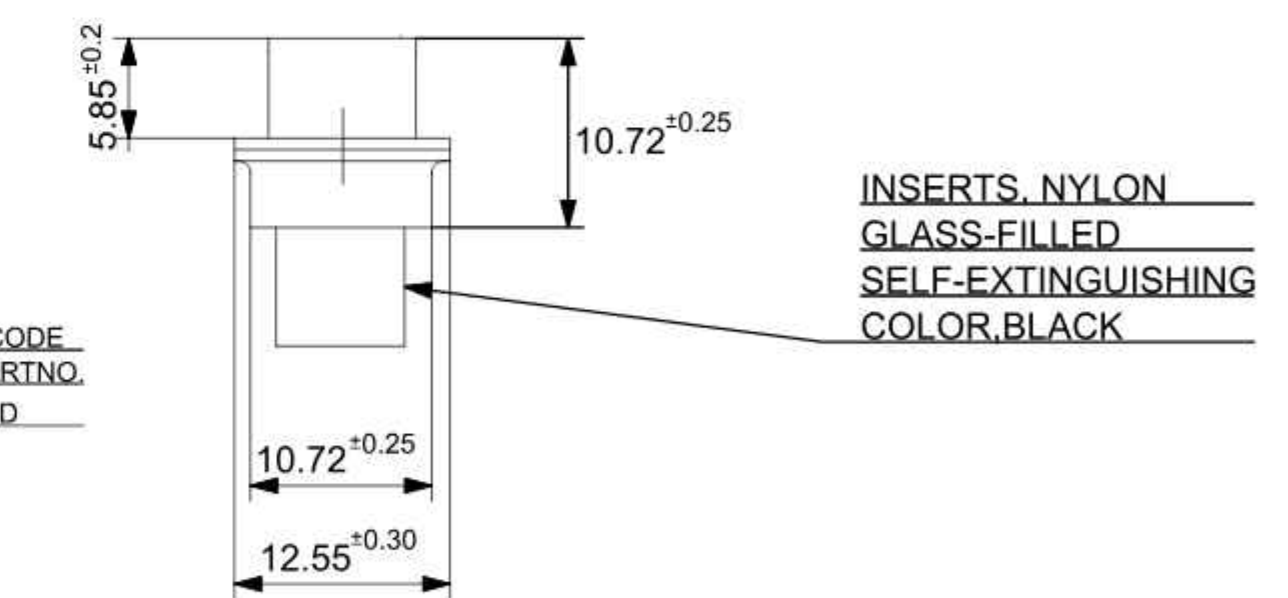
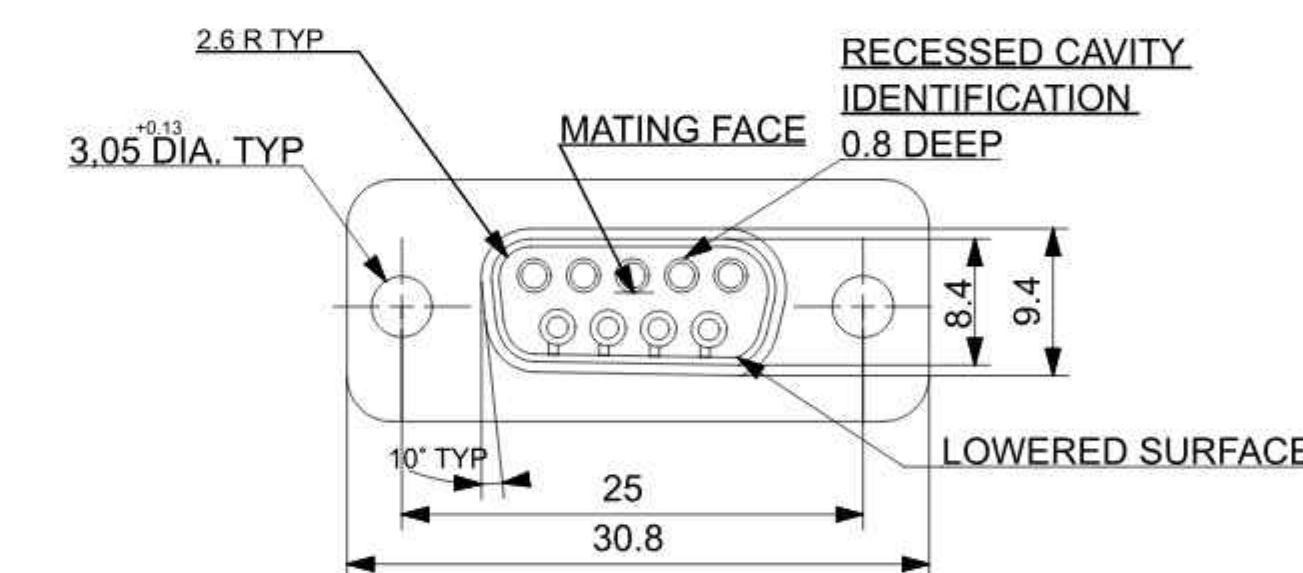
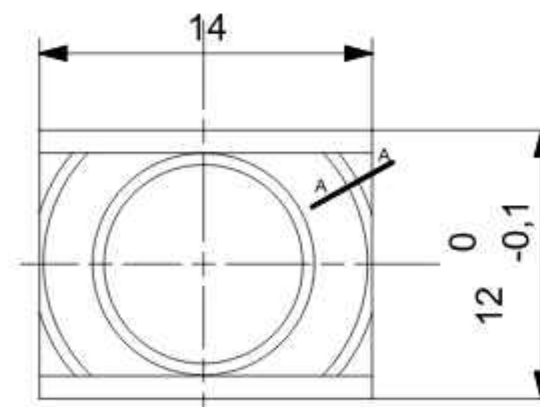
[illegible]

परिचरण संख्या	प्राप्तिकार	वर्णन	DESCRIPTION
ACT. NO.	AUTHY		
13			

1 2 3 4 5 6 7 8 9 10 11 12	13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523
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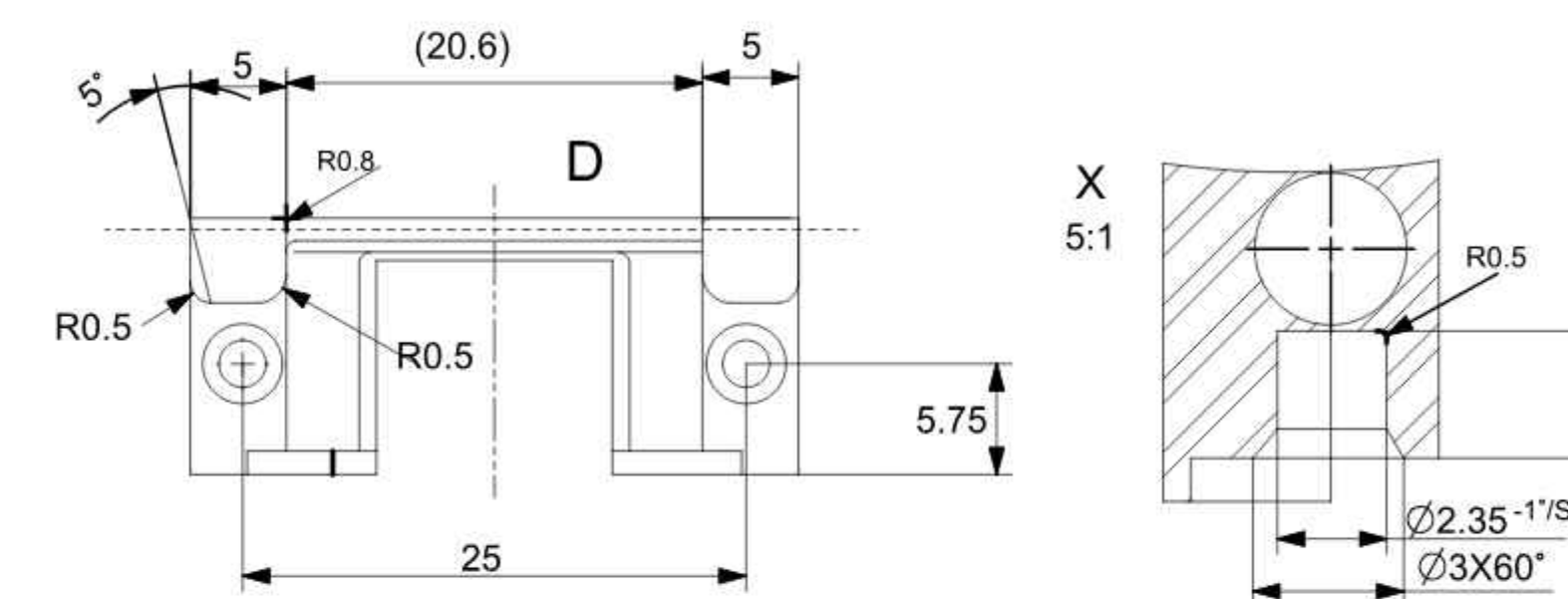
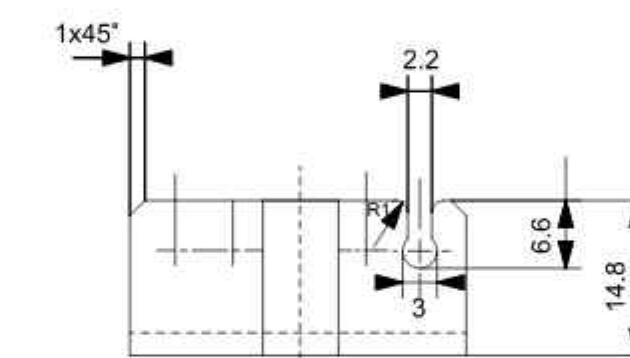
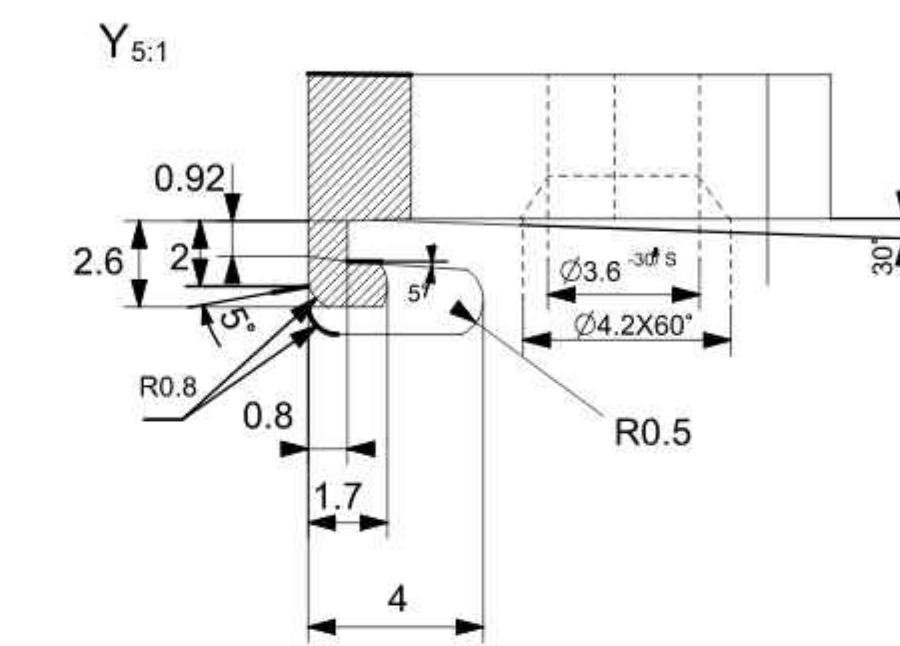
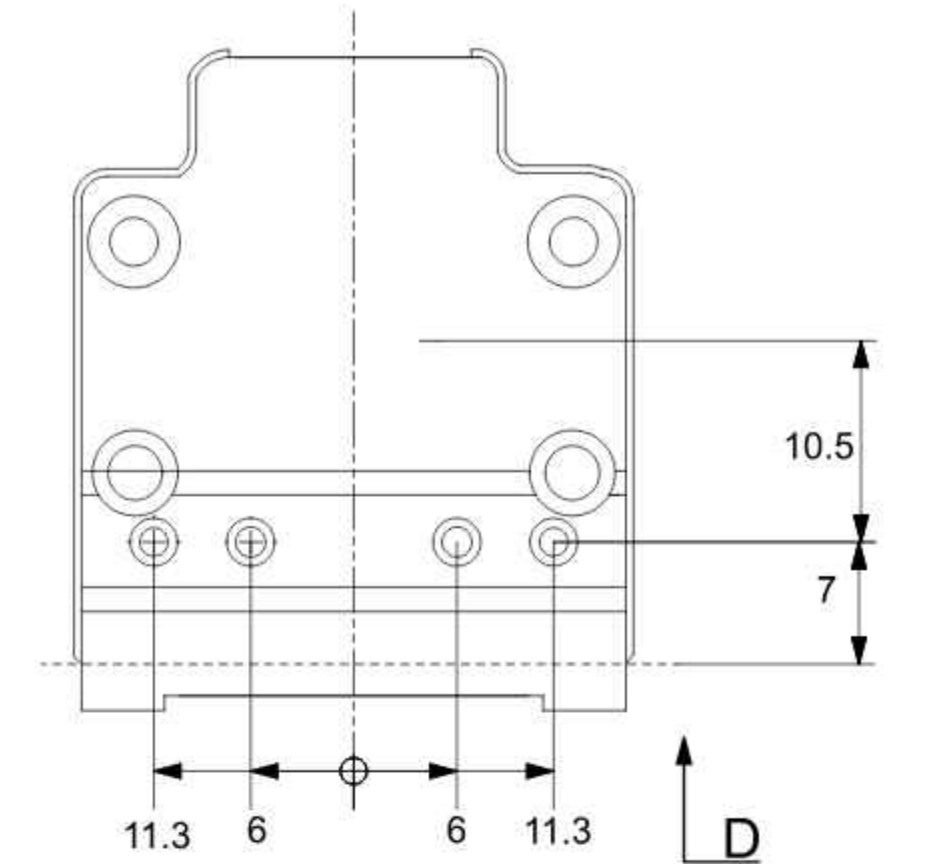
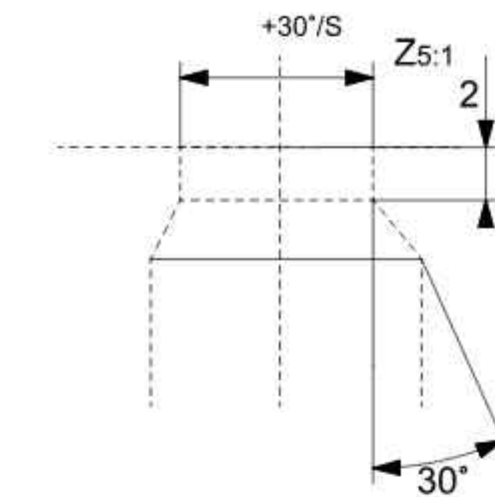
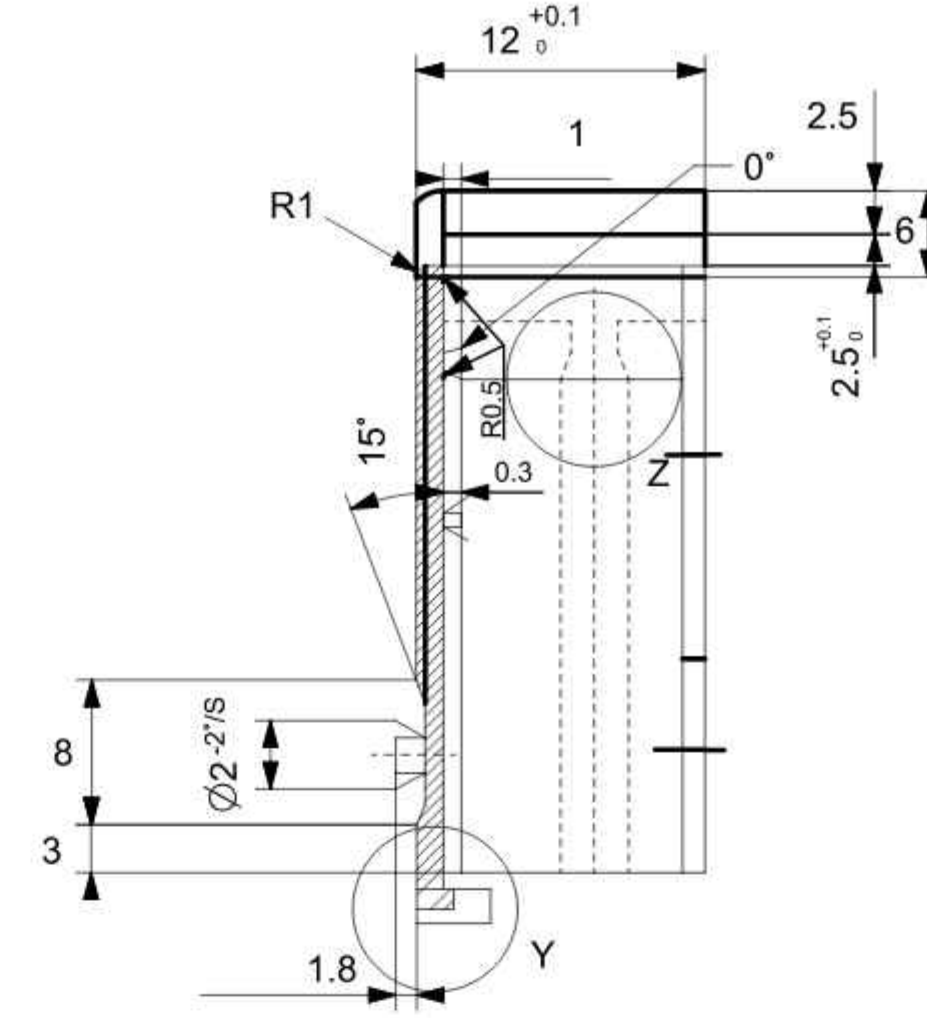
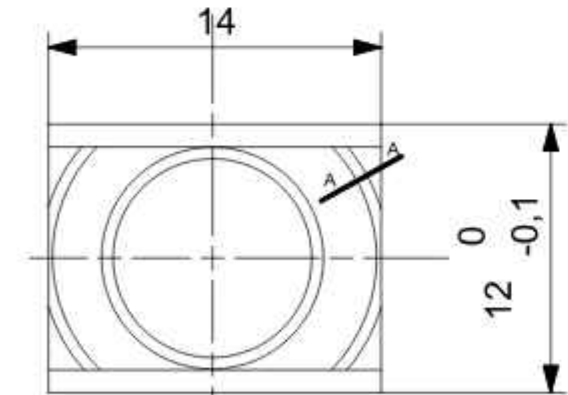
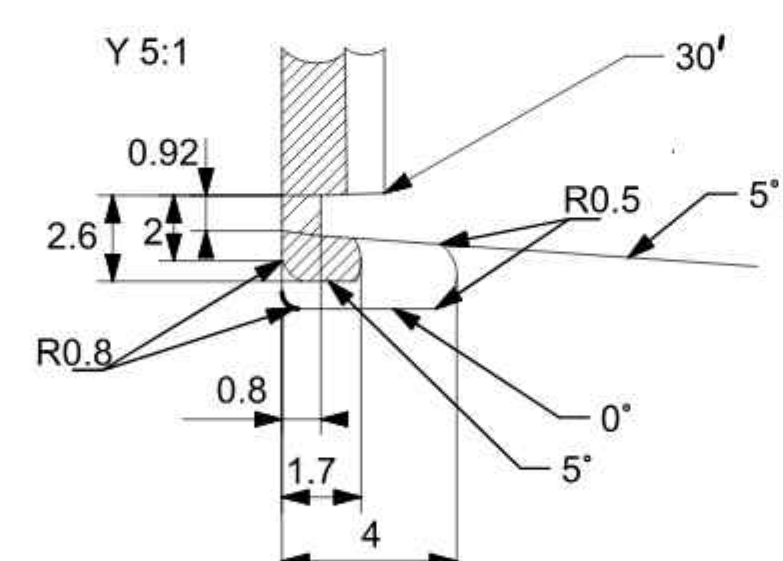
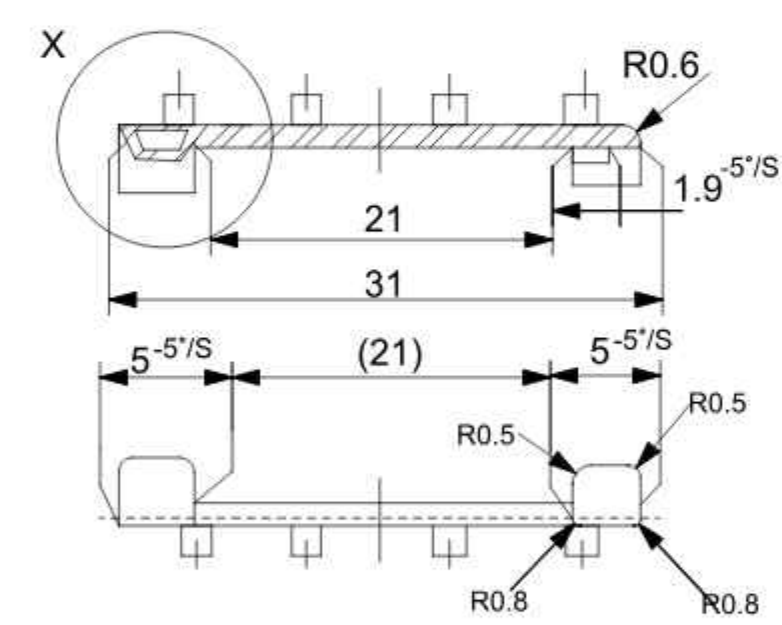
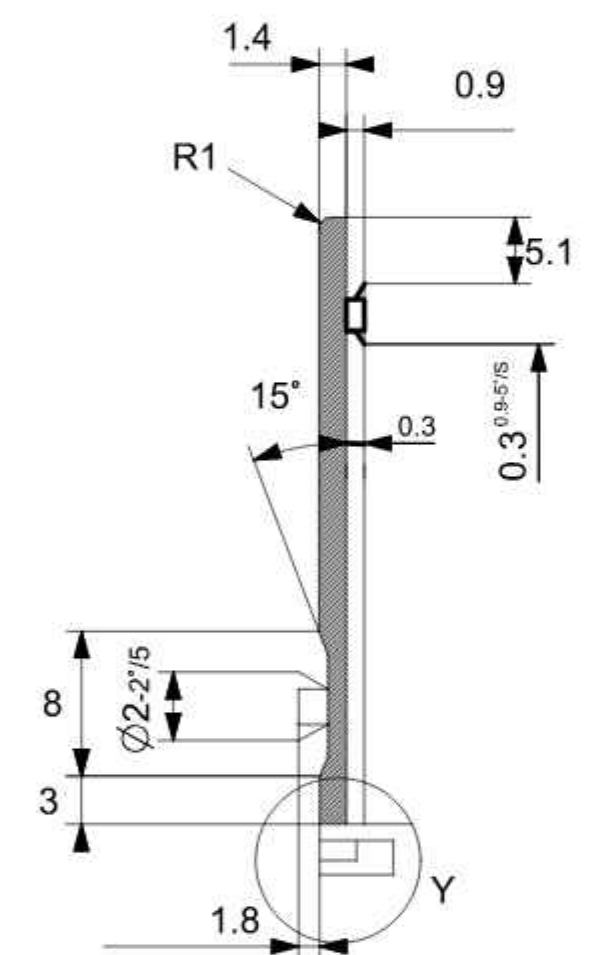
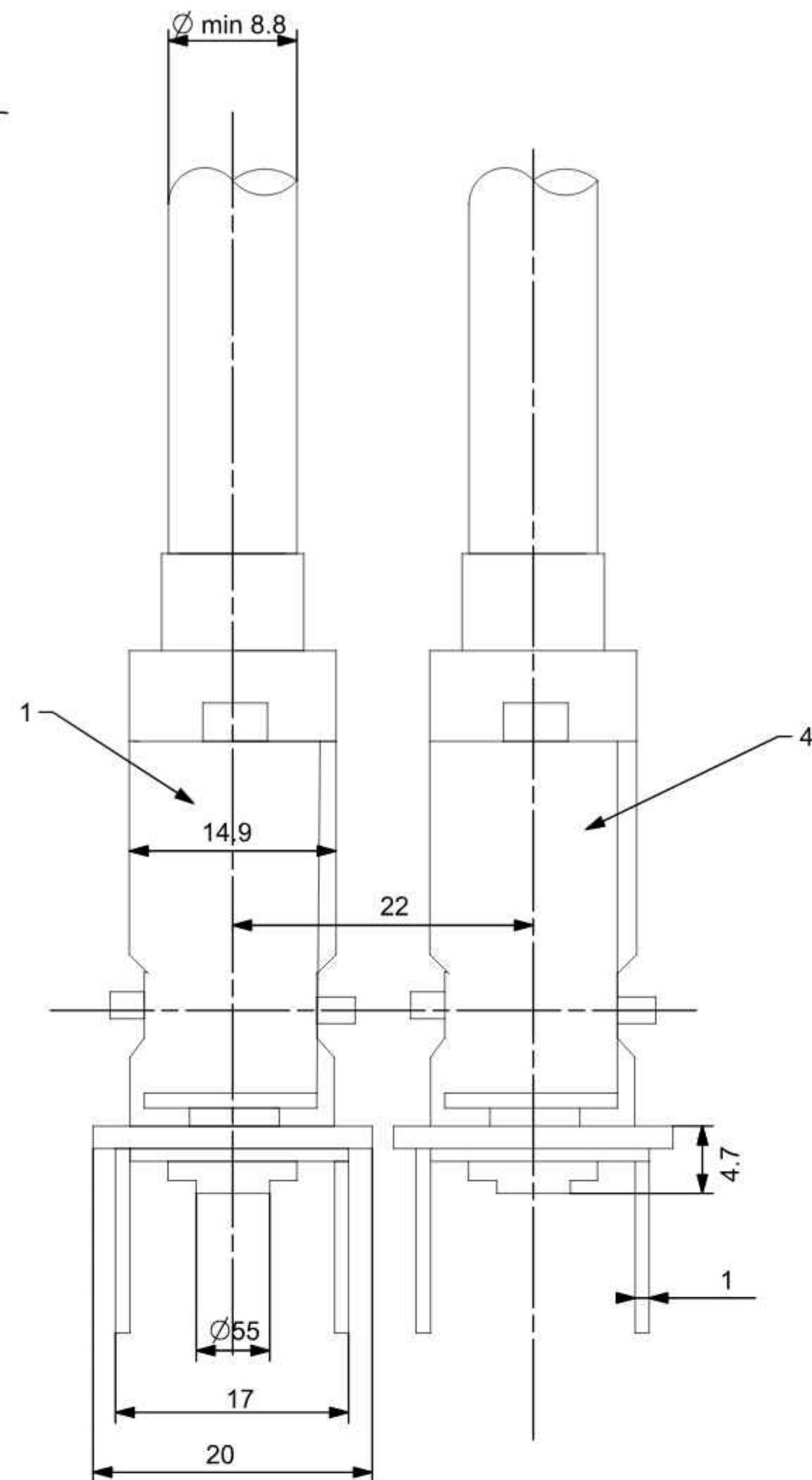
Technical drawing of a mechanical part showing dimensions: (20.4), 8, 2.4, 10, 30, Ø9.8^{+0.1}/₀, 0.5, 0.5.



HESG455639P009	PIN BODY 9P.SUB D	28
HBTB316239P0001	CR-ENO SLEEVE, SIZE-1	13
HBTB316240P0013	CA-CS SCREW M2 5x5	14
HBTB316240P0012	CON WASHER 3.2/5.7. SST	12
HBTB416508P0001	SKT SCREW M3X34 SPECIAL	11
HBTB316238P0092	COVER SIZE 1	4
HBTB316240P0091	SUB D BODY SIZE 1	1
HBTB316240R0091	ASSEMBLY	A

[illegible]

आवृत्ति DIN			चिपहरन रेलवेजन कारखाना CHITARANAN LOCOMOTIVE WORKS, INDIA	
कोड DIN 138			मॉडल 9P	कोड नं. 9P 9P, DIN 138
विवरण कोड नं. 9P, चिपहरन, भारत कोड नं. 9P, चिपहरन, भारत			स्पेस SPIN	
अनुमति नं. 9P APPROVED TYPE			डिप्टिफिकेशन PLUG, 9P D-SUB, S1 PINS	
डिप्टिफिकेशन DIN 138			कोडहरन कोड CHITARANAN	क्लॉसिफिकेशन CLWES/3/SK-48/0124
कोड नं. 9P	5.1			
चिपहरन	REG.		चिपहरन कोड CHITARANAN	कोड नं. 9P 9P, DIN 138
चिपहरन			चिपहरन कोड CHITARANAN	कोड नं. 9P 9P, DIN 138



2.6 R TYP

6.15 DIA. TYP

MATING FACE

RECESSED CAVITY IDENTIFICATION 0.8 DEEP

8.4

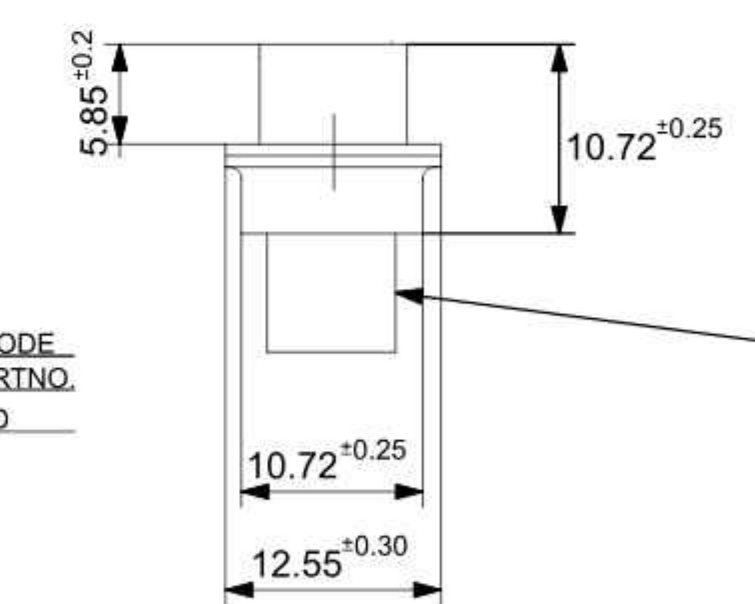
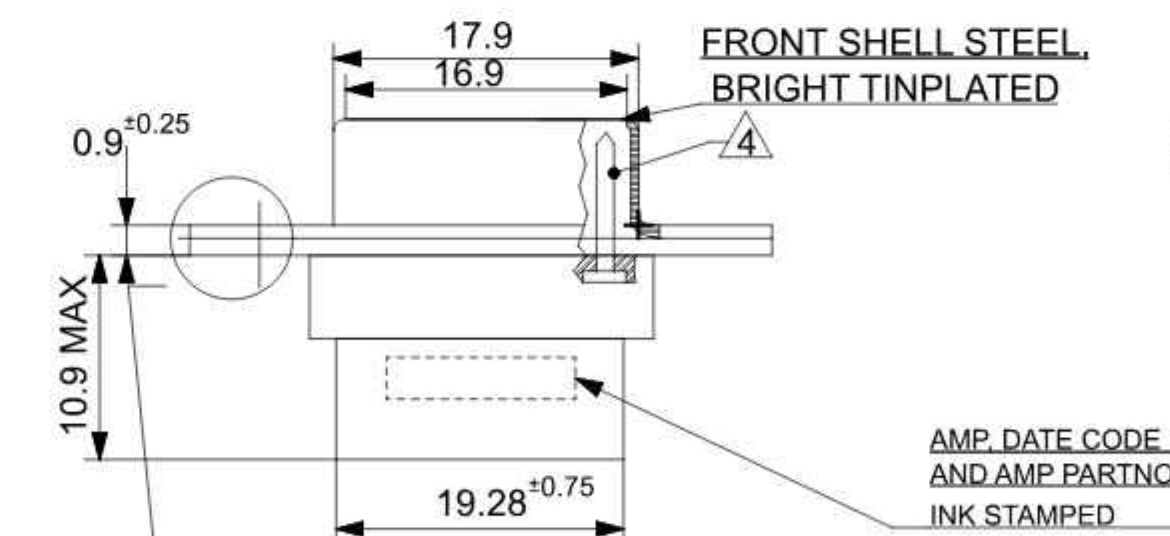
9.4

10.1 TYP

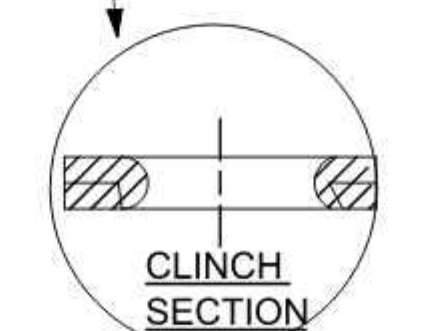
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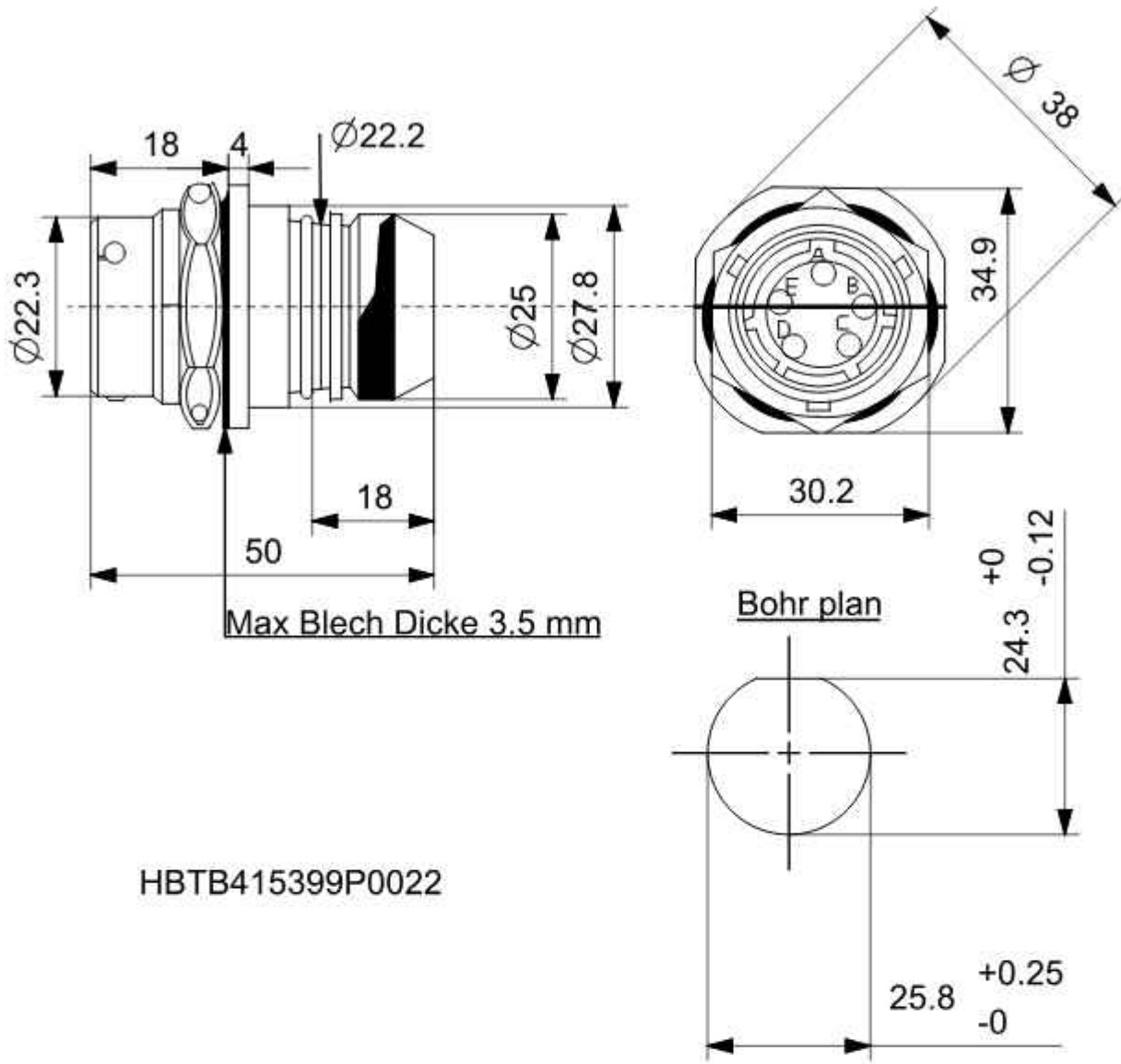
30.8

LOWERED SURFACE



INSERTS. NYLON
GLASS-FILLED
SELF-EXTINGUISHING
COLOR. BLACK

[illegible][illegible]



HBTB415399P0022

												अधिकृत DGN			चितरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA		
												प्रो. वा. अ. अ. CHD SSE					
परिवर्तन संख्या ALT. NO.	प्राधिकार AUTHY		वर्णन DESCRIPTION						दिनांक DATED INITIAL	समीक्षा REVIEWED AEE / SEE	परिचय MATL	प्रति भार कि. ग्रा. WT. EACH IN KG.					
सं. 1 सं. 2 सं. 3 सं. 4 सं. 5 सं. 6 सं. 7 सं. 8 सं. 9 सं. 10 सं. 11 सं. 12			सं. 13 सं. 14 सं. 15 सं. 16 सं. 17 सं. 18 सं. 19 सं. 20 सं. 21 सं. 22 सं. 23 सं. 24 सं. 25 सं. 26 सं. 27 सं. 28 सं. 29 सं. 30 सं. 31 सं. 32 सं. 33 सं. 34 सं. 35 सं. 36 सं. 37 सं. 38 सं. 39 सं. 40 सं. 41 सं. 42 सं. 43 सं. 44 सं. 45 सं. 46 सं. 47 सं. 48 सं. 49 सं. 50 सं. 51 सं. 52 सं. 53 सं. 54 सं. 55 सं. 56 सं. 57 सं. 58 सं. 59 सं. 60 सं. 61 सं. 62 सं. 63 सं. 64 सं. 65 सं. 66 सं. 67 सं. 68 सं. 69 सं. 70 सं. 71 सं. 72 सं. 73 सं. 74 सं. 75 सं. 76 सं. 77 सं. 78 सं. 79 सं. 80 सं. 81 सं. 82 सं. 83 सं. 84 सं. 85 सं. 86 सं. 87 सं. 88 सं. 89 सं. 90 सं. 91 सं. 92 सं. 93 सं. 94 सं. 95 सं. 96 सं. 97 सं. 98 सं. 99 सं. 100						TOL. CLS.		अनुमोदित APPROVED BYCEE	वर्णन DESCRIPTION	SOCKET/PLUG, PLUG DO 5P /14				
सुरक्षा संहिता SAFETY INSTRUCTIONS			WELDING SYMBOLS TO IS 813 / ISO 2553						दिनांक DATE								
पदार्थ GRADE NO.	सं. 1 N1	सं. 2 N2	सं. 3 N3	सं. 4 N4	सं. 5 N5	सं. 6 N6	सं. 7 N7	सं. 8 N8	सं. 9 N9	सं. 10 N10	सं. 11 N11	सं. 12 N12	दिनांक DATE	वर्णन DESCRIPTION	NTS	आरेखन संख्या DRAWING NO.	CLW/ES/3/SK-50/0124
Rz	0.16-0.3	0.5-0.7	0.9-1.2	1.5-2.0	2.5-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0	9.0-10.0		आरेखन संख्या DRAWING NO.		परिवर्तन संख्या ALTERATION, NO.	
पदार्थ SYMBOL	0.075	0.09	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50		परिवर्तन संख्या ALTERATION, NO.	परिचय MATL		परिचय MATL
HBTB415399P0022												संदर्भ / REF. HBTB415399P0022	परिचय MATL	परिचय MATL		परिचय MATL	

POS	Size	Cross Section	A(mm)	B(mm)
1025	8	2.5 mm2	2.30	4
1060	8	6 mm2	3.55	5
1100	8	10 mm2	4.60	6.35

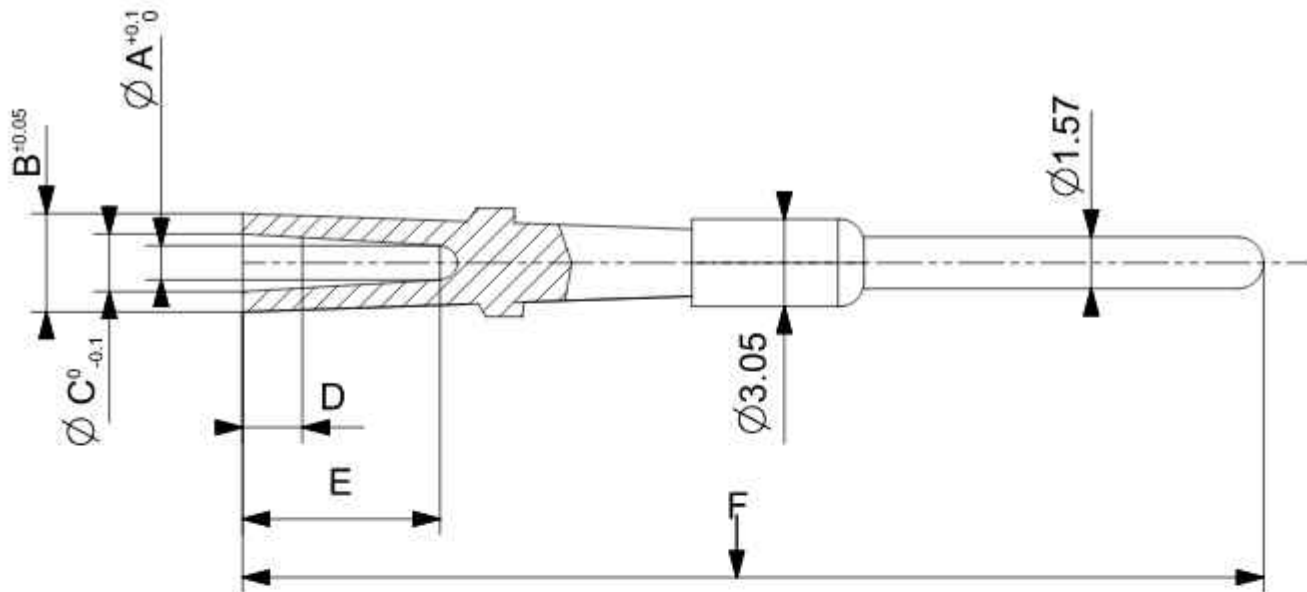
3EHW470321P1025	CONTACT PIN, SIZE 8/2,5 SQ.MM	Pos1025
3EHW470321P1060	CONTACT PIN, SIZE 8/6 SQ.MM	Pos1060
3EHW470321P1100	CONTACT PIN, SIZE 8/10 SQ. MM	Pos1100

[illegible]

POS	A	B	C	D	E	F	Size mm2
1	1.2	2.7	-	-	8.5	37.5	0.5
3	1.5	3.4	-	-	8.5	37.5	0.75-1.0
5	1.8	4	-	-	8.5	37.5	1.5
7	2.2	4	-	-	8.5	37.5	2.0-2.5
9	3	4.8	-	-	8.5	37.5	4.0
11	3.8	4.8	-	-	8.5	37.5	6.0

HBT415298P0001	CONTACT PIN 12/0.5	POS 1
HBT415298P0003	CONTACT PIN 12/1.0	POS 3
HBT415298P0005	CONTACT PIN 12/1.5	POS 5
HBT415298P0007	CONTACT PIN 12/2.5	POS 7
HBT415298P0009	CONTACT PIN 12/4.0	POS 9
HBT415298P0011	CONTACT PIN 12/6.0	POS 11

[illegible]

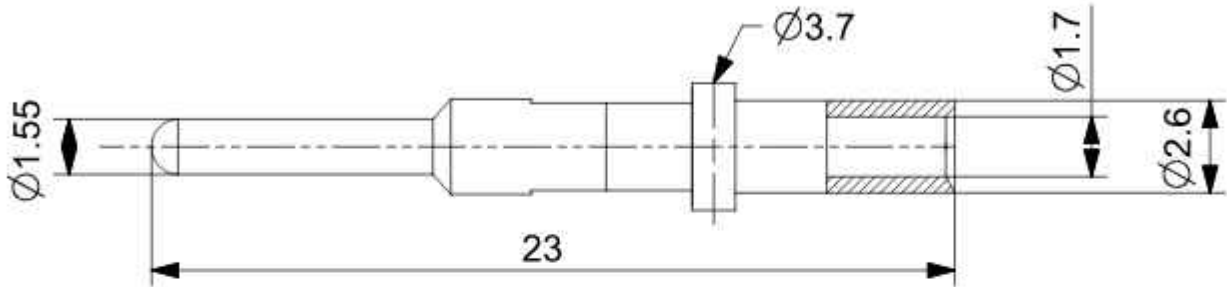


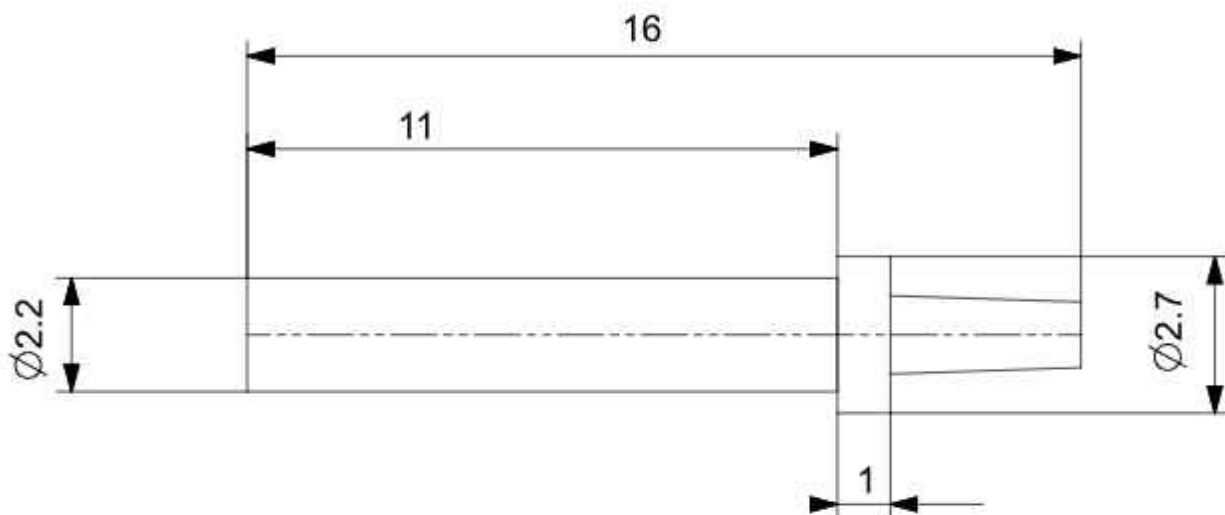
Pos	A	B	C	D	E	F	Size mm2
1	1.05	2.15	-	-	6.4	31.8	0.5
5	1.6	2.6	-	-	6.4	31.8	1
7	1.8	2.9	-	-	6.4	31.8	1.5
9	2.0	2.9	-	-	6.4	31.8	2.0(AWG14)

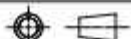
HBT415299P0001	CONTACT PIN GR 16* 0.5 MM2	POS 1
HBT415299P0005	CONTACT PIN 16/1.0	POS 5
HBT415299P0007	CONTACT PIN 16/1.5	POS 7
HBT415299P0009	CONTACT PIN GR 16/2.0/ AWG 14	POS 9

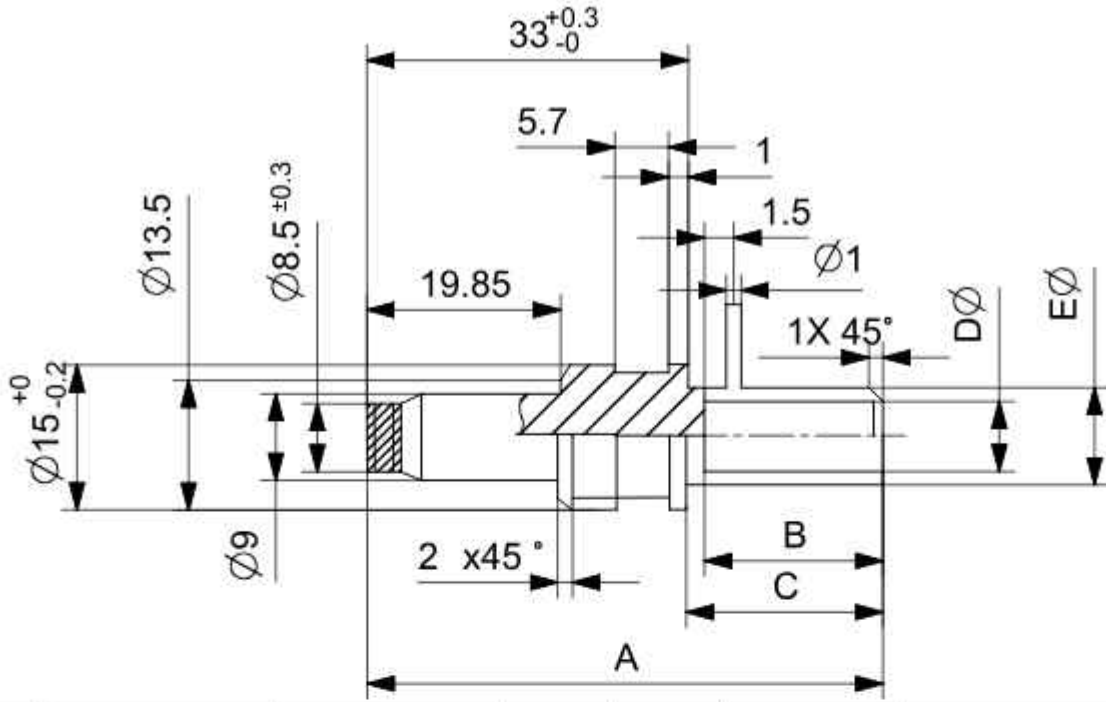
ALL DIMENSIONS ARE IN mm

परिवर्तन संख्या ALT. NO.		प्राधिकार AUTHY		वर्णन DESCRIPTION		दिनांक DATE		संशोधित REVIEWED		अनुमोदित APPROVED		चित्ररंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA	
संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		प्रति भाग कि. ग्रा. WT. EACH IN KG.	
संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		वर्णन DESCRIPTION	
संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		CONTACT PIN SIZE 16	
संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		आरेखन संख्या DRAWING NO.	
संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		CLWES/3/SK-60 to 63/0124	
संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		परिवर्तन संख्या ALTERATION, NO.	
संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		पृष्ठ SHEET	
संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		1 OF 1	
संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		A4	

[illegible]



												अधिकृत DGN		 चित्तरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA				
												जोधा व.व.व. CHD SSE						
परिवर्तन संख्या ALT.NO.	प्राधिकार AUTHY		वर्णन DESCRIPTION						विनिर्दिष्ट DATED INITIAL		समीक्षित REVIEWED AEE / SEE		प्रदर्श MATL	प्रति भार कि. गा. WT. EACH IN KG.				
संख्या का मान वा. सं. 0073 / क. वा. सं. 1302 SUMED 00000000 WJG TO 0000 / 0000			अनिर्दिष्ट सह - सीमा वा. सं. : 2102 / क. वा. सं. : 2100 UNSPECIFIED TOLERANCE TO IS : 7102 / ISO : 2100 वाह्य-रेलम विद्य वा. सं. : 013 / क. वा. सं. : 2003 WELDING SYMBOLS TO IS813 / ISO2553						TOL. CLS.		अनुमोदित ए.यु.वि.अ. APPROVED DYCEE		विनिर्दिष्ट DATE		वर्णन DESCRIPTION DUMMY CONTACT MALE GR16 BL/ DUMMY PLUG SIZE 16 BL			
पदार्थ GRADE NO.	सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12	रेलम अनुपात SCALE		NTS			
Rz	0.16-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.8	5.0-6.3	9.0-12	16-25	30-40	50-63	75-90	100-150			आरेखन संख्या DRAWING NO. CLW/ES/3/SK-65/0124			
Ra 12.5	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50						
चिह्न SYMBOL													सर्वर्ण / REF. HBTB415399P0005AUX-		 परिवर्तन संख्या ALTERATION. NO.		पृष्ठ SHEET 1 OF 1	A4



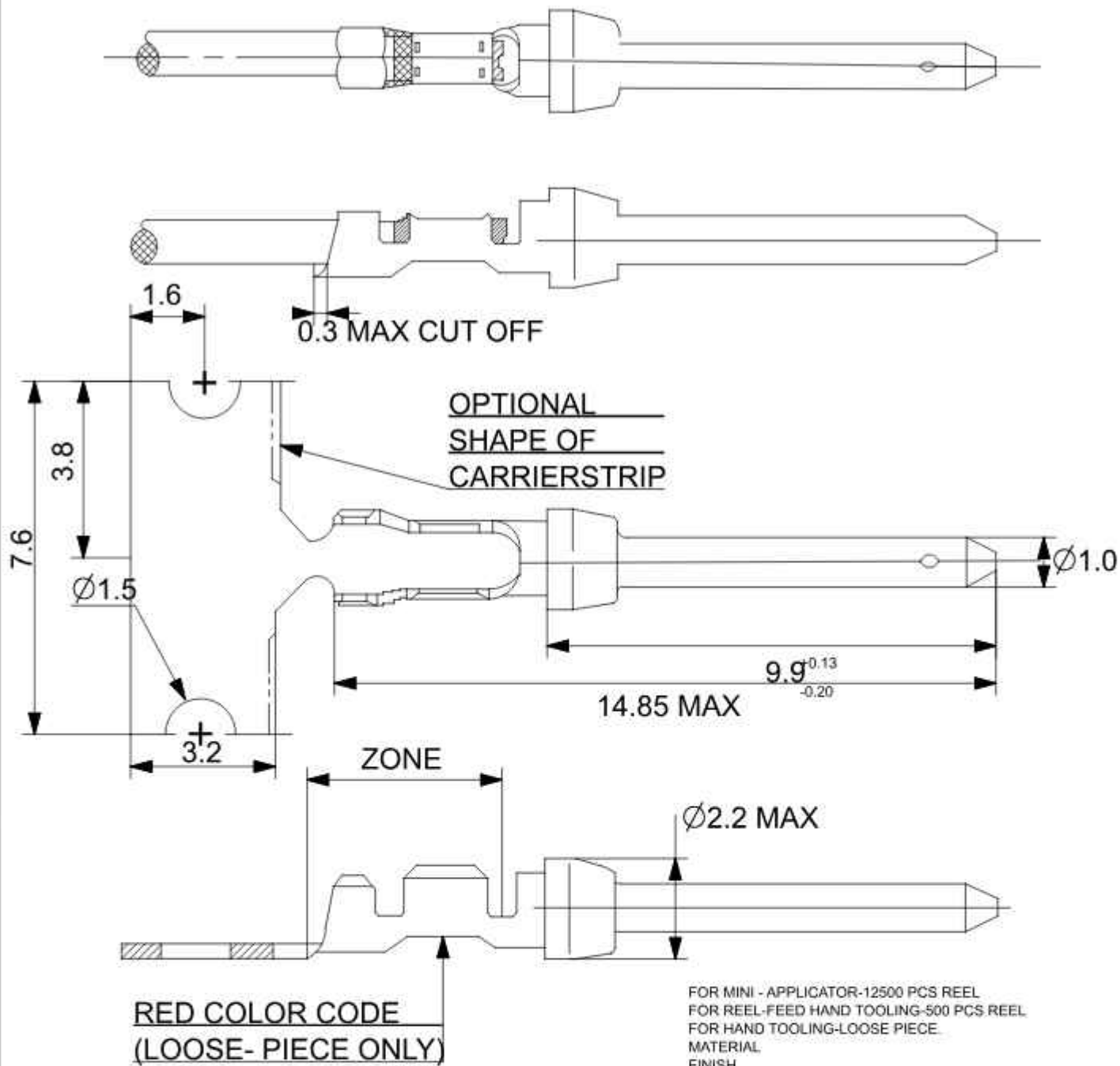
POS	CABLE CROSS SECTION	A ^{+0.5}	B ^{+0.2}	C ^{+0.2}	ØD ^{+0.2}	ØE ^{+0.2}
4	50	55	20.5	22	11.3	14.6
3	35	52	18	19	10	13
2	25	51	17	18	8.9	11.7
1	16	50	16	17	7	9.3

HBT416435P0001	CONTACT PIN GRO/ 16 MMSQ.MM	POS 1
HBT416435P0002	CONTACT PIN GRO/ 25 SQ.MM	POS 2
HBT416435P0003	CONTACT PIN GRO/ 35SQ.MM	POS 3
HBT416435P0004	CONTACT PIN GRO/ 50 SQ.MM	POS 4

ALL DIMENSIONS ARE IN mm

परिवर्तन संख्या ALT. NO.		प्राधिकार AUTHY		वर्णन DESCRIPTION		दिनांक DATE		अधिकृत DGN		चित्ररंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA	
संख्या NO.		संख्या NO.		संख्या NO.		संख्या NO.		संख्या NO.		प्रति भाग कि. वा. WT. EACH IN KG.	
संख्या NO.		संख्या NO.		संख्या NO.		संख्या NO.		संख्या NO.		वर्णन DESCRIPTION	
संख्या NO.		संख्या NO.		संख्या NO.		संख्या NO.		संख्या NO.		CONTACT PIN GRO	
संख्या NO.		संख्या NO.		संख्या NO.		संख्या NO.		संख्या NO.		आरेखन संख्या DRAWING NO.	
संख्या NO.		संख्या NO.		संख्या NO.		संख्या NO.		संख्या NO.		CLWES/3/SK-66 TO 69/0124	
संख्या NO.		संख्या NO.		संख्या NO.		संख्या NO.		संख्या NO.		परिवर्तन संख्या ALTERATION, NO.	
संख्या NO.		संख्या NO.		संख्या NO.		संख्या NO.		संख्या NO.		पृष्ठ SHEET	
संख्या NO.		संख्या NO.		संख्या NO.		संख्या NO.		संख्या NO.		1 OF 1	
संख्या NO.		संख्या NO.		संख्या NO.		संख्या NO.		संख्या NO.		A4	

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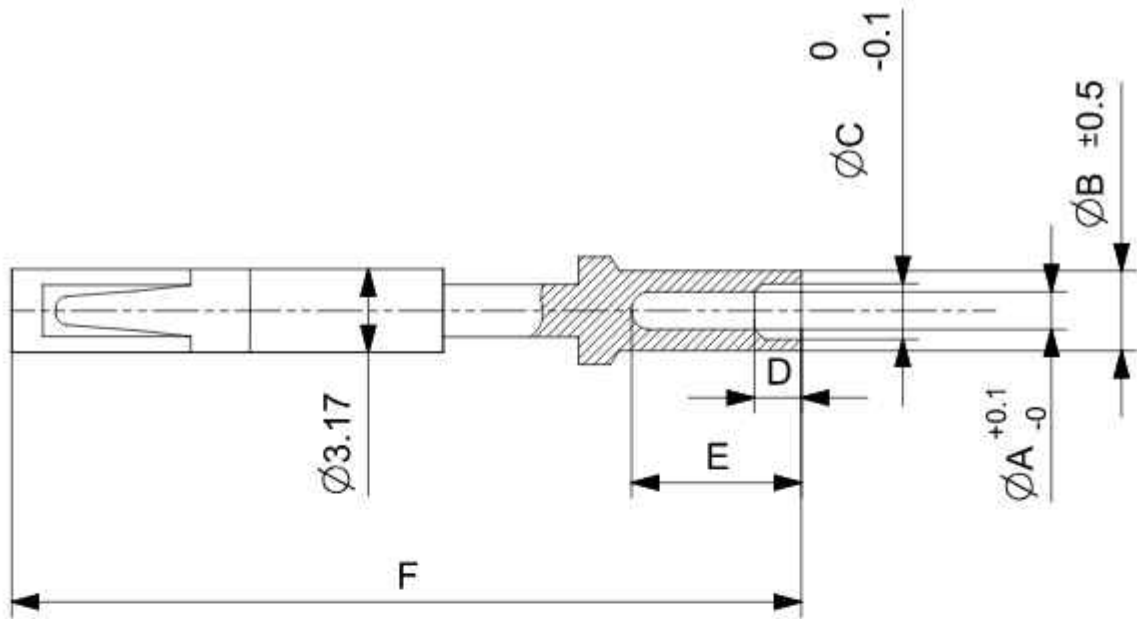


FOR MINI - APPLICATOR-12500 PCS REEL
FOR REEL-FEED HAND TOOLING-500 PCS REEL
FOR HAND TOOLING-LOOSE PIECE
MATERIAL
FINISH

-NI UNDERPLATING ALL OVER
-CONTACT AREA PLATING MEETS IEC-807-3
PERFORMANCE LEVEL 2.
-CRIMP ZONE sn PLATED.

WIRE RANGE: 24-20 AWG(0.56-0.20mm²)
INSUL. RANGE: 1.27-1.52 DIA.

				अधिकृत DGN		 चित्तरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA	
				जोषा व.व.व. CHD SSE			
परिवर्तन संख्या ALT. NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांक DATED	समीक्षा REVIEWED	अनुमोदित APPROVED	पदार्थ MTRL	प्रति भार कि. ग्रा. WT. EACH IN KG.
सं1	सं2	सं3	सं4	सं5	सं6	सं7	सं8
सं9	सं10	सं11	सं12	सं13	सं14	सं15	सं16
सं17	सं18	सं19	सं20	सं21	सं22	सं23	सं24
सं25	सं26	सं27	सं28	सं29	सं30	सं31	सं32
सं33	सं34	सं35	सं36	सं37	सं38	सं39	सं40
सं41	सं42	सं43	सं44	सं45	सं46	सं47	सं48
सं49	सं50	सं51	सं52	सं53	सं54	सं55	सं56
सं57	सं58	सं59	सं60	सं61	सं62	सं63	सं64
सं65	सं66	सं67	सं68	सं69	सं70	सं71	सं72
सं73	सं74	सं75	सं76	सं77	सं78	सं79	सं80
सं81	सं82	सं83	सं84	सं85	सं86	सं87	सं88
सं89	सं90	सं91	सं92	सं93	सं94	सं95	सं96
सं97	सं98	सं99	सं100	सं101	सं102	सं103	सं104
सं105	सं106	सं107	सं108	सं109	सं110	सं111	सं112
सं113	सं114	सं115	सं116	सं117	सं118	सं119	सं120
सं121	सं122	सं123	सं124	सं125	सं126	सं127	सं128
सं129	सं130	सं131	सं132	सं133	सं134	सं135	सं136
सं137	सं138	सं139	सं140	सं141	सं142	सं143	सं144
सं145	सं146	सं147	सं148	सं149	सं150	सं151	सं152
सं153	सं154	सं155	सं156	सं157	सं158	सं159	सं160
सं161	सं162	सं163	सं164	सं165	सं166	सं167	सं168
सं169	सं170	सं171	सं172	सं173	सं174	सं175	सं176
सं177	सं178	सं179	सं180	सं181	सं182	सं183	सं184
सं185	सं186	सं187	सं188	सं189	सं190	सं191	सं192
सं193	सं194	सं195	सं196	सं197	सं198	सं199	सं200
सं201	सं202	सं203	सं204	सं205	सं206	सं207	सं208
सं209	सं210	सं211	सं212	सं213	सं214	सं215	सं216
सं217	सं218	सं219	सं220	सं221	सं222	सं223	सं224
सं225	सं226	सं227	सं228	सं229	सं230	सं231	सं232
सं233	सं234	सं235	सं236	सं237	सं238	सं239	सं240
सं241	सं242	सं243	सं244	सं245	सं246	सं247	सं248
सं249	सं250	सं251	सं252	सं253	सं254	सं255	सं256
सं257	सं258	सं259	सं260	सं261	सं262	सं263	सं264
सं265	सं266	सं267	सं268	सं269	सं270	सं271	सं272
सं273	सं274	सं275	सं276	सं277	सं278	सं279	सं280
सं281	सं282	सं283	सं284	सं285	सं286	सं287	सं288
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सं297	सं298	सं299	सं300	सं301	सं302	सं303	सं304
सं305	सं306	सं307	सं308	सं309	सं310	सं311	सं312
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सं329	सं330	सं331	सं332	सं333	सं334	सं335	सं336
सं337	सं338	सं339	सं340	सं341	सं342	सं343	सं344
सं345	सं346	सं347	सं348	सं349	सं350	सं351	सं352
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सं393	सं394	सं395	सं396	सं397	सं398	सं399	सं400
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सं433	सं434	सं435	सं436	सं437	सं438	सं439	सं440
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सं449	सं450	सं451	सं452	सं453	सं454	सं455	सं456
सं457	सं458	सं459	सं460	सं461	सं462	सं463	सं464
सं465	सं466	सं467	सं468	सं469	सं470	सं471	सं472
सं473	सं474	सं475	सं476	सं477	सं478	सं479	सं480
सं481	सं482	सं483	सं484	सं485	सं486	सं487	सं488
सं489	सं490	सं491	सं492	सं493	सं494	सं495	सं496
सं497	सं498	सं499	सं500	सं501	सं502	सं503	सं504
सं505	सं506	सं507	सं508	सं509	सं510	सं511	सं512
सं513	सं514	सं515	सं516	सं517	सं518	सं519	सं520
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सं569	सं570	सं571	सं572	सं573	सं574	सं575	सं576
सं577	सं578	सं579	सं580	सं581	सं582	सं583	सं584
सं585	सं586	सं587	सं588	सं589	सं590	सं591	सं592
सं593	सं594	सं595	सं596	सं597	सं598	सं599	सं600
सं601	सं602	सं603	सं604	सं605	सं606	सं607	सं608
सं609	सं610	सं611	सं612	सं613	सं614	सं615	सं616
सं617	सं618	सं619	सं620	सं621	सं622	सं623	सं624
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सं657	सं658	सं659	सं660	सं661	सं662	सं663	सं664
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सं825	सं826	सं827	सं828	सं829	सं830	सं831	सं832
सं833	सं834	सं835	सं836	सं837	सं838	सं839	सं840
सं841	सं842	सं843	सं844	सं845	सं846	सं847	सं848
सं849	सं850	सं851	सं852	सं853	सं854	सं855	सं856
सं857	सं858	सं859	सं860	सं861	सं862	सं863	सं864
सं865	सं866	सं867	सं868	सं869	सं870	सं871	सं872
सं873	सं874	सं875	सं876	सं877	सं878	सं879	सं880
सं881	सं882	सं883	सं884	सं885	सं886	सं887	सं888
सं889	सं890	सं891	सं892	सं893	सं894	सं895	सं896
सं897	सं898	सं899	सं900	सं901	सं902	सं903	सं904
सं905	सं906	सं907	सं908	सं909	सं910	सं911	सं912
सं913	सं914	सं915	सं916	सं917	सं918	सं919	सं920
सं921	सं922	सं923	सं924	सं925	सं926	सं927	सं928
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सं937	सं938	सं939	सं940	सं941	सं942	सं943	सं944
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सं961	सं962	सं963	सं964	सं965	सं966	सं967	सं968
सं969	सं970	सं971	सं972	सं973	सं974	सं975	सं976
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सं985	सं986	सं987	सं988	सं989	सं990	सं991	सं992
सं993	सं994	सं995	सं996	सं997	सं998	सं999	सं1000
सं1001	सं1002	सं1003	सं1004	सं1005	सं1006	सं1007	सं1008
सं1009	सं1010	सं1011	सं1012	सं1013	सं1014	सं1015	सं1016
सं1017	सं1018	सं1019	सं1020	सं1021	सं1022	सं1023	सं1024
सं1025	सं1026	सं1027	सं1028	सं1029	सं1030	सं1031	सं1032
सं1033	सं1034	सं1035	सं1036	सं1037	सं1038	सं1039	सं1040
सं1041	सं1042	सं1043	सं1044	सं1045	सं1046	सं1047	सं1048
सं1049	सं1050	सं1051	सं1052	सं1053	सं1054	सं1055	सं1056
सं1057	सं1058	सं1059	सं1060	सं1061	सं1062	सं1063	



HBT415299P0010 (REFERRED)	CONTACT SOCKET 16/2/AWG14	11
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POS	A	B	C	D	E	F	Leiter mm ²
10	2.0	2.9	-	-	6.4	36.5	2.0(AWG 14)

परिवर्तन संख्या ALT. NO.		प्राधिकार AUTHY		वर्णन DESCRIPTION		दिनांक DATED		संशोधित REVIEWED		अधिकृत DGN		चितरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA	
संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		प्रति भाग कि. ग्रा. WT. EACH IN KG.	
संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		वर्णन SPECN	
संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		वर्णन DESCRIPTION	
संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		आरेखण संख्या DRAWING NO.	
संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		परिवर्तन संख्या ALTERATION, NO.	
संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		पृष्ठ SHEET	
संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		संशोधित संख्या ALT. NO.		पृष्ठ SHEET	

POS	SIZE	CROSS SECTION	A(mm)	B(mm)
2025	8	2.5mm2	2.30	4.0
2060	8	6.0mm2	3.55	5.0
2100	8	10.00mm2	4.60	6.35

3EHW470321P2025	CONTACT SOCKET SIZE8/2.5 MM2	POS2025
3EHW470321P2060	CONTACT SOCKET SIZE8/6 MM2	POS2060
3EHW470321P2100	CONTACT SOCKET SIZE8/10 MM2	POS2100

[illegible]

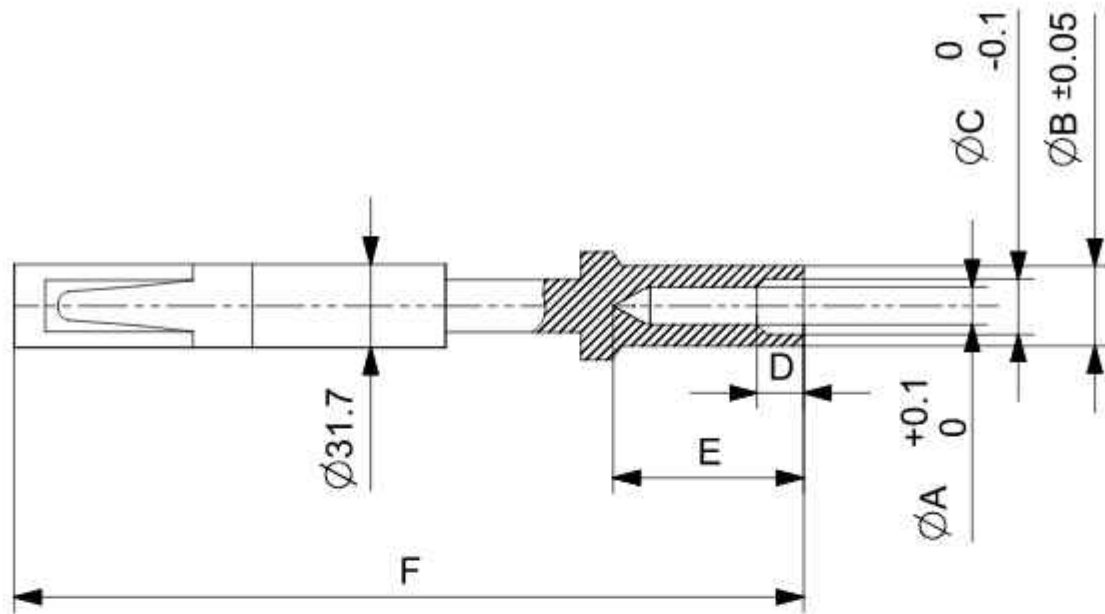


POS	ØA	ØB	ØC	D	CABLE SIZE	IDENTIFICATION CODE
3	1.8	4	-	-	1.5mm2	2

													अधिकृतित DGN				 चित्तरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA	
													जोषा व.व.व. CHD SSE					
परिवर्तन संख्या ALT.NO.		आधिकार AUTHY		वर्णन DESCRIPTION						प्रारंभिक संख्या DATED INITIAL		समीक्षित संख्या / व.व.व. REVIEWED AEE / SEE		पर्याप्त MAFL		प्रति भार कि. ग्रा. WT. EACH IN KG		
संख्या -- संख्या का मान वा. वा. 00/73 / क. वा. सं. 1902 SUNGE ROUGHNESS VALUE TO IS:813 / IS:813				अनिर्दिष्ट छद्म -- सीमा वा. वा. : 2182 / क. वा. सं. : 2188 UNSPECIFIED TOLERANCE TO IS : 2182 / IS: 2188						TOL. C.L.S.		अनुमोदित छ.पु.वि.व. APPROVED DYCEE						
				वाह-रेखन चिह्न वा. वा. : 013 / क. वा. सं. : 2188 WELDING SYMBOLS TO IS:813 / IS:2553								दिनांक DATE						
पर्याप्त GRADE NO.	सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12	भैषिक अनुपात SCALE		NTS		आरेखण संख्या DRAWING NO.	
Rz	0.16-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.8	5.0-6.3	9.0-12	16-25	30-40	50-63	75-90	100-150					CLW/ES/3/SK-76/0124	
Ra 12.5	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50	संवर्ण / REF.		ALT-		परिवर्तन संख्या ALTERATION. NO.	
चिह्न SYMBOL																	परि SHEET 1 OF 1	
																A4		

HBT415298P0004	CONTACT SOCKET 12/1.0	POS 4
HBT415298P0006	CONTACT SOCKET 12/1.5	POS 6
HBT415298P0008	CONTACT SOCKET 12/2.5	POS 8
HBT415298P0012	CONTACT SOCKET 12/6.0	POS 12
	CLW/ES/3/SK-77 TO 81/ 0124	

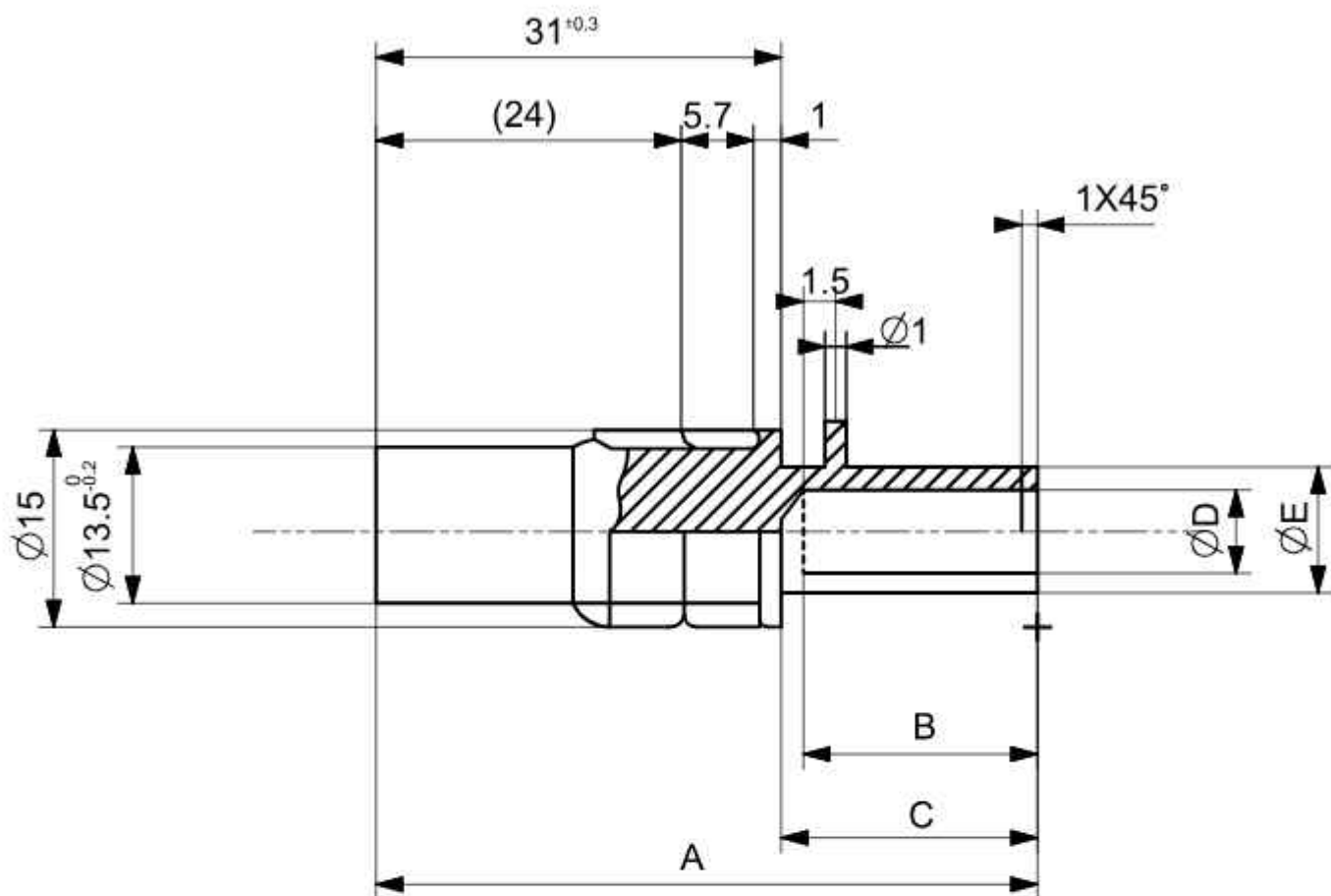
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POS	A	B	C	D	E	F	Size mm2
2	1.05	2.15	-	-	6.4	36.5	0.5
6	1.6	2.6	-	-	6.4	36.5	1
8	1.8	2.9	-	-	6.4	36.5	1.5
10	2.0	2.9	-	-	6.4	36.5	2.0(AWG14)

HBT415299P0002	CONTACT SOCKET 16/0.5	POS 2
HBT415299P0006	CONTACT SOCKET 16/1.0	POS 6
HBT415299P0008	CONTACT SOCKET 16/1.5	POS 8
HBT415299P0010	CONTACT SOCKET 16/2/AWG14	POS 10

[illegible]

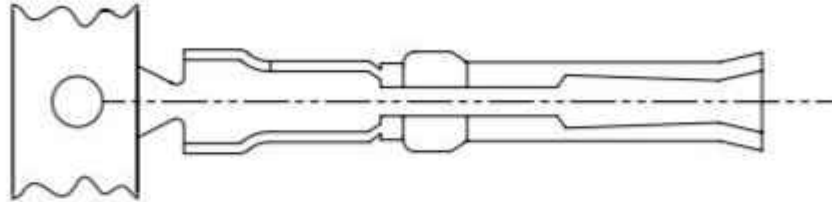


POS	CABLE CROSS SECTION	A ^{±0.5}	B ^{±0.2}	C ^{±0.2}	ØD ^{±0.2}	ØE ^{±0.2}
4	50	53	20.5	22	11.3	14.6
3	35	50	18	19	10	13

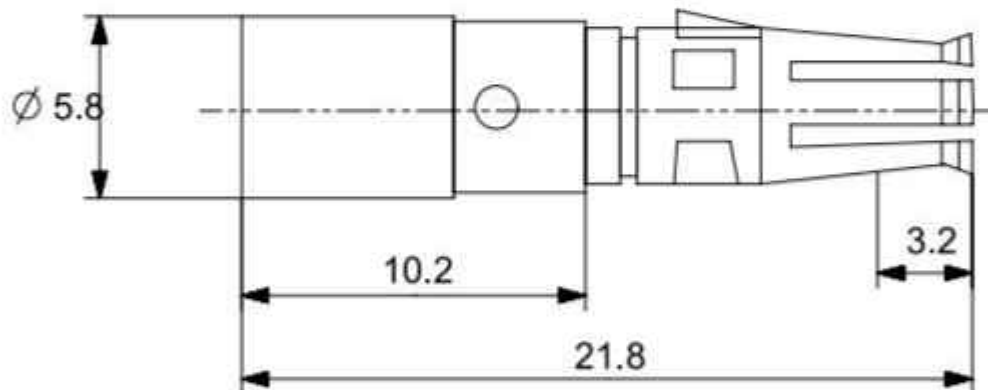
HBTB416434P0004	CONTACT SOCKET S.0/35 mm2	POS-4
HBTB416434P0003	CONTACT SOCKET S.0/50 mm2	POS-3

[illegible]

SOCKET CONTACTS(SIGNAL CONTACTS)

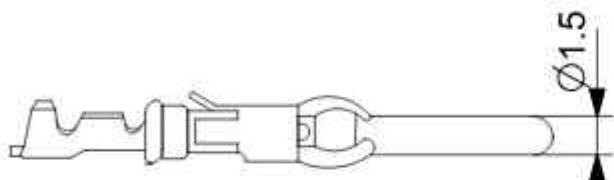


HIGH CURRENT SOCKET CRIMP CONTACTS

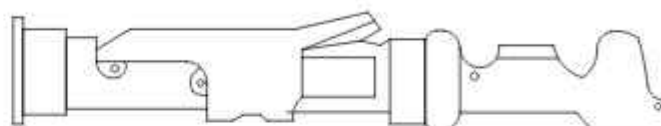


Plating: ≥ 1.3 micro meter AU over 1.3 micro meter Ni

परिवर्तन संख्या ALT. NO.		प्राधिकार AUTHY		वर्णन DESCRIPTION		निर्दिष्ट दिनांक DATED INITIAL		अधिकृत DGN		 चित्तरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA	
संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		पदार्थ MTRL CU ALLOYING	
संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		प्रति भार कि. ग्राम WT. EACH IN KG	
संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		विशेष SPECN	
संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		वर्णन DESCRIPTION CONTACT SOCKET SUB-D& CONTACT SOCKET AWG24-20	
संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		आरेखन संख्या DRAWING NO. CLW/ES/3/SK-90-91/0124	
संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		परिवर्तन संख्या ALTERATION, NO.	
संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		संशोधन संख्या ALT. NO.		पर्ण SHEET OF A4	

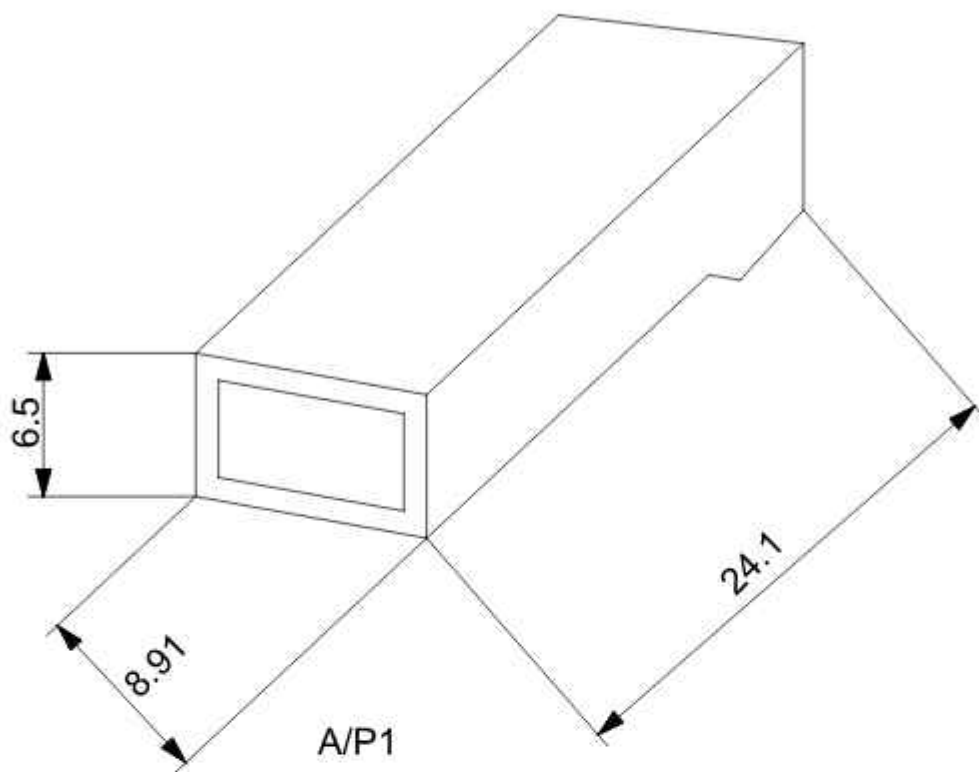


CONTACT PIN

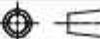


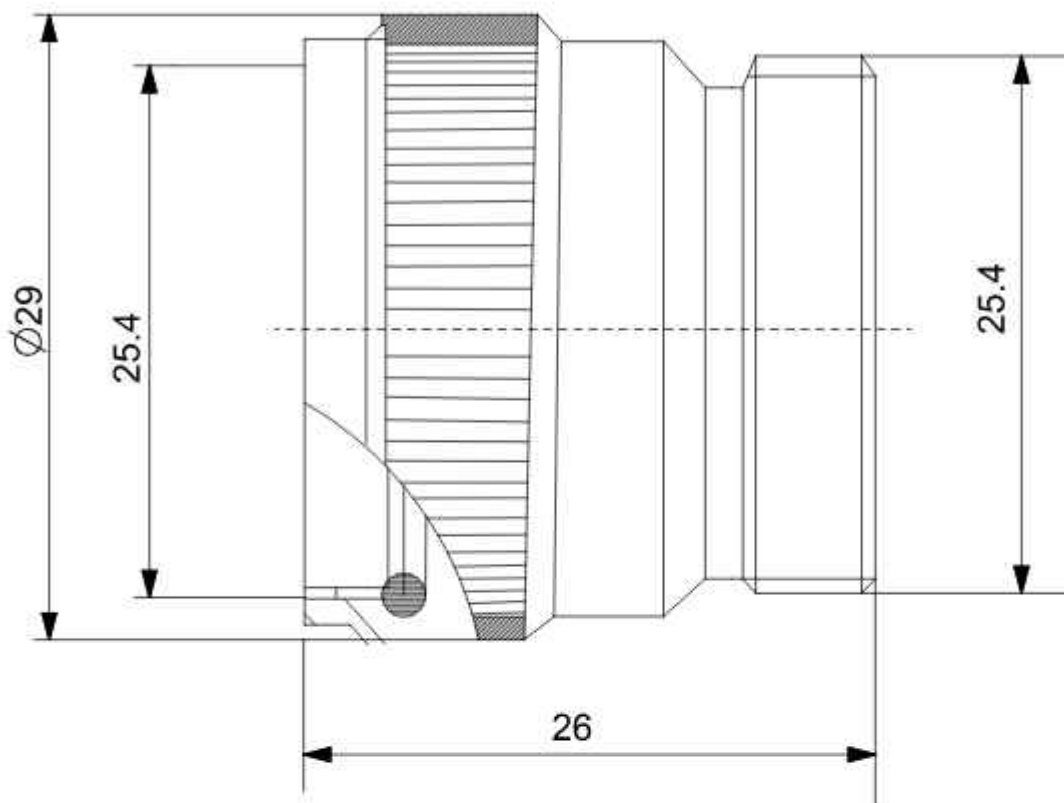
CONTACT SOCKET

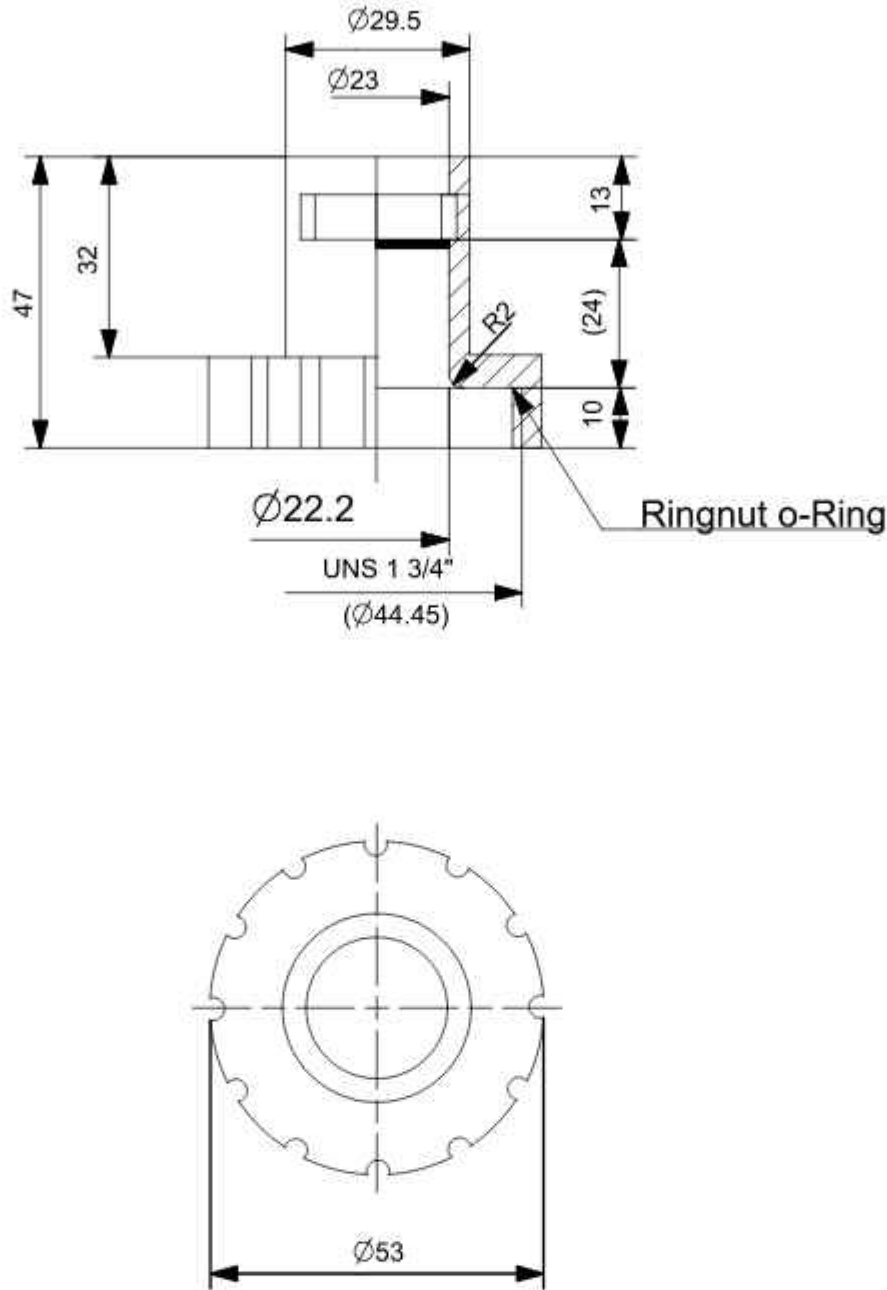
[illegible]



TYPE	MATERIAL	COLOUR	DIMENSIONS(mm)		
			W	L	M
A	POLYIMIDE	NATURAL	8.91	24.1	6.5

												अधिकृतित DGN				 चितरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA	
												जोधा ब.व.व. CHD SSE					
परिवर्तन संख्या ALT.NO.		प्राधिकार AUTHY		वर्णन DESCRIPTION				निर्दिष्ट दिनांक DATED INITIAL		समीक्षित सं.वि.व. / स.वि.व. REVIEWED AEE / SEE		पर्याय MAIL		प्रति भार कि. गा. WT. EACH IN KG			
संख्या का मान या. या. 00/03 / क. या. सं. 1302 SUNGE ROUGHNESS VALUE TO IS803 / IS2253		निर्दिष्ट संध -- सीमा या. या. : 2102 / क. या. सं. : 2102 UNSPECIFIED TOLERANCE TO IS : 7102 / IS2 : 2102				TOL. CLS.		अनुमोदित स.प्र.वि.व. APPROVED DYCEE				विशिष्ट SPECIN					
		बाहु-रेखांकन चिह्न या. या. : 013 / क. या. सं. : 2503 WELDING SYMBOLS TO IS813 / IS2253						निर्वाक DATE				वर्णन DESCRIPTION		SOCKET BODY PA			
परांक GRADE NO.		सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12	रेखिक अनुपात SCALE		NTS	
Rz		0.16-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.8	5.0-6.3	9.0-12	16-25	30-40	50-63	75-90	100-150	आरेखण संख्या DRAWING NO.		CLW/ES/3/SK-93/0124	
Ra 12.5		0.075	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50	परिवर्तन संख्या ALTERATION. NO.		पर्य SHEET 1 OF 1	
चिह्न SYMBOL														 		A4	
संख्या / REF. 3EHW470001P0001ALT-																	

[illegible]



SEAL: 2XGFN3-16
O-RING: BFI4-U43
I.P 65IEC144

												अधिकृत DGN		 चितरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA									
												जोषा व.अ.अ. CHD SSE											
परिवर्तन संख्या ALT.NO.	प्राधिकार AUTHY		वर्णन DESCRIPTION						विशेष कारण REASON INITIAL	संशोधित DATE REVIEWED	अनुमोदित APPROVED	परिचय MATL	प्रति भाग कि. ग्रा. WT. EACH IN KG.										
संख्या - ३०७३ / १३०२ सं. वा. सं. १३०२ SURGE ROUGHNESS VALUE TO 6.3 / 50.0												संशोधित सं. वा. सं. २१०२ / सं. वा. सं. २१०२ UNSPECIFIED TOLERANCE TO IS : 2702 / ISO : 2768 वाह्य-रेलवे सं. वा. सं. ११३ / सं. वा. सं. १३०३ WELDING SYMBOLS TO IS 813 / ISO 2553						TOL. C.L.S.		अनुमोदित ए.ए.ए.ए. APPROVED BYCEE		विशेष DATE	वर्णन DESCRIPTION
परांक GRADE NO.	सं१ N1	सं२ N2	सं३ N3	सं४ N4	सं५ N5	सं६ N6	सं७ N7	सं८ N8	सं९ N9	सं१० N10	सं११ N11	सं१२ N12	पैकिंग अनुपात SCALE	NTS	आरेखण संख्या DRAWING NO.	CLW/ES/3/SK-95/0124							
Rz	0.16-0.3	0.5-0.7	0.9-1.3	1.5-2.0	2.5-3.8	5.0-6.3	9.0-12	16-25	36-45	56-63	75-90	100-150											
Ro ५.०	0.075	0.09	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50											
चिह्न SYMBOL													संशोधित / REF. HBTB415393P0437ALT-			परिवर्तन संख्या ALTERATION, NO.	पृष्ठ SHEET						
														1 OF 1		A4							

