TECHINCAL SPECIFICATION FOR

ELECTRICALLY OPERATED WIND SCREEN WIPER ASSEMBLY COMPLETE WITH WATER SPRAY ARRANGEMENT

FOR 3-PHASE ELECTRIC LOCOMOTIVES.

Specification no.- CLW/ES/3/0674

Issue Date:

ENCLOSURE:

(i) Drg. no. 1209-08.032.023
(ii) All Part Drawings.

DRAFT

ISSUED BY:
DY. CHIEF ELECTRICAL ENGINEER/D-I
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DIST. BARDHAMAN (WEST), WEST BENGAL

PREPARED BY	CHECKED BY	APPROVED BY
SSE/DRG	AEE/D-I	DY. CEE/D-I

ALTERATION RECORD SHEET

SL. NO.	DATE OF AMENDMENT	PAGE NO.	ALT NO.	DESCRIPTION	INITIAL
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SPECIFICATION FOR ELECTRICALLY OPERATED WIND SCREEN WIPER ASSEMBLY COMPLETE WITH WATER SPRAYING ARRANGEMENT FOR 3-PHASE AC ELECTRIC LOCOMOTIVES (WAG-9 HC/WAP-7/WAP-5).

1.0 SCOPE

This specification prescribes the requirements for Design and supply of the wind screen wiper assembly complete with wiper motor, wiper arm with blade & pipe connections & water spray wind screen washing system complete for WAG-9HC/WAP-7/WAP-5 class of 3-phase electric locomotives.

2.0 CLIMATIC & ENVIRONMENTAL CONDITIONS

3.1 Maximum atmospheric Temp : Under sun 70ºC
In shade 50 ºC

Humidity : 100% saturation during rainy season

3.2 Reference site conditions : i) Ambient Temp : Max. 47 ◦C
Min. 0 ◦C

ii) Humidity : 60%

iii) Altitude : 1676 mts. above sea level.

3.3 Rain fall : Very heavy in certain areas. The locomotive will be designed to permit its running of 10 km/hr in flood water level of 200 mm above rail level.

3.4 Atmosphere during hot weather: Extremely dusty & desert terrain in certain areas.

3.5 Coastal Area : Locomotive & equipment will be designed to work in coastal areas in humid and salt laden atmosphere.

3.6 Vibration : The equipment, sub-system & their mounting arrangement will be designed to withstand vibration & shock encountered in service as per IEC 61373 (Latest) for rolling stock application.

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3.0 SCOPE OF SUPPLY

One loco set (4 Nos) of wiper assembly complete (2 LH +2 RH Wiper Assembly) are to be fitted in locos. Detailed scope of supply shall be as under:

a) One loco set consisting of 4 Nos. of wiper assembly complete (2 LH +2 RH Wiper Assembly) with wiper motor.
b) Wiper arm with blade complete and supporting arm per wiper motor.
c) One control switch box for both wiper motor (LH & RH). Control switch box to be adjusted in existing cut outs in driver desk.
d) One Control unit in each cab of loco.
e) Water spray wind screen washing system including pipe connections/tube & fittings complete (2 Set/Loco).
f) Requisite Hardware, Gaskets etc.
g) Electrical Harness with connectors.
h) Protective Switchgear for each cab.
i) Bulkhead for connecting of water piping.
j) Seal Boss wiper installation.
k) Details quantity per loco is mentioned at Assly. Drawing no. CLW/ES/3/SK-1/0674.

Any other item, not mentioned above, required for successful fitment and operation of the wiper system, shall be covered in the firm's scope.

4.0 STANDARD

Manufacturer should follow all relevant standard for manufacturing of wiper assembly complete as follows: -

STANDARD	SPECIFICATION
AISI 304	Stainless Steel 304
IS: 7827 – Part I	For wiper system
IS: 7827 – Part II	For wiper motors
IS: 7827 – Part III	For wiper arms & blades
IS: 14141	For electrical windshield washing system
IEC 60571	Railway application – Electronic equipment used on rolling stock
IEC 60068	International standard for the environmental testing of electrotechnical products.
IEC 61373	Railway application- Rolling stock equipment – Shock and vibration tests

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5.0 GENERAL AND TECHNICAL DATA

5.1 The operating speed of the wiper motor shall be adjustable between 35 and 75 strokes/minute.

5.2 Wiping angle of the winds screen wiper shall be in the range of 50° to 75°.

5.3 Recommended pressure force of the flexible wiper blade on the glass shall be 1.25 kg. maximum for wiper blade length of 508 mm ± 5.

5.4 Wiper assembly will also be provided with water spray wind screen washing systems.

6.0 DESIGN PRINCIPLE

6.1 Wiper Motor:

(i) Torque : 80 Nm to 84 Nm (approx.)
(ii) Operating voltage: 110 V ± 30% DC
(iii) Wiper slow speed (wiping speed- Slow) : (30-40) stroke/min.
(iv) Wiper high speed (wiping speed- High) : (55-75) stroke/min.
(v) Wattage of wiper motor : 100 watts (max.)
(vi) The motor should be able to give a wiping angle between 50° and 75°.
(vii) The motor will be fully EMC compliant to EN 50121-3-2:2016 and rated to IP 67.

6.2 The wiper motor will be mounted on MS bracket with powder coated to prevent corrosion. The motor is connected electrically by means of a multi-pin connector to be provided by the supplier.

6.3 A drive mechanism is provided which transfers the rotary output from the motor to the oscillation movement of the spindles.

6.4 Drive spindles (EN8 with Electroless nickel plating) that drive the wiper arms (MS with powder coat), pass through the bulkhead, connecting the drive mechanism to the wiper arm are manufactured from stainless steel, to prevent corrosion.

6.5 The wiper blade (SS with powder coated) is secured to the arm assembly using the blade clip arrangement on the arm with a blade retaining Pin with Hex Dome Nut.

6.6 All rubber components should be procured from CLW/RDSO or any other reputed source with 55% natural rubber (NR) and 30% EPDM blend and remaining percentage as additive along with graphite coating.

6.7 The wiper motor spindle is to be made of Carbon steel shaft.

6.8 The Motor is fitted with a parking mechanism so that when the wiper is disengaged it will automatically return to the park position.

6.9 The wiper arm assembly is manufactured from carbon steel with powder coated to prevent corrosion and to be of good appearance.

6.10 The tension of spring of wiper arm should be adjustable type to achieve appropriate spring tension during assembly.

6.11 One control box, control switch/knob for wiper motor to be supplied with proper mounting arrangement (Existing cut out dimension for control switch/knob is 76 mm x 60 mm). The control box is fabricated from stainless steel and polyester powder coated (black) to be of good appearance. The Control switch type should be Rotary Switch with following positions: -

- Off – Park – this will always stop the wiper in the park position.
- Slow wipe
- Fast wipe
- Push to Wash option.

6.12 The design of control unit should be in such a way that in case of failure of one wiper motor does not affect the operation/function of another wiper motor. There must be provision of isolating switches in driver's cab for isolation of defective wiper motor. In addition, Protective Switchgear of suitable rating to be provided for each cab by the supplier which shall be mounted on suitable place/ Control panel of respective cabs.

6.13 Water spray system consists of a washer tank of 10 liters capacity with suitable pumping arrangement and water spraying nozzles (min. 02 nos. per arm), water tube and reduction nipple fitted to the body of wiper assembly.

6.14 The washer tank can be filled by removing the cap located on the externally mounted filler spout. The mounting arrangement of wash tank to be provided by the supplier. The material of wash tank should be SS-304. Submersible wash pump is mounted inside the tank or Externally mounted washer pump may be provided. However, the details of functionality of wash pump with proper mounting position to be furnished by the supplier. Water pump may be operated by 24V DC in case of submersible wash pump or 110V±30% DC for externally mounted washer pump. The arrangement of power supply to the wash pump from the control unit to provided by the manufacturer. The pump supplies washer fluid to the wash jet mounted on the wiper arm, through suitable tubing.

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6.15 All Hardware to be used from CLW/RDSO approved vendors like TVS, LPS, UNBRAKO, APL, etc.

6.16 Necessary pre-wired interconnection cables to RDSO spec. ELRS/SPEC/ELC/0019 (Latest) of suitable length with suitable multi pin connectors required for interconnection between wiper system and its controls located inside the driver's cab. (Length of cable will be decided by the firm as per site requirements).

6.17 Drawing no. 1209-07.403-024, 1209-07.403-025, 1209-07.403-026, 1209-07.403-030, 1209-18.406-324, 1209-18.406-425, 1209-18.406-328, 1209-18.406-399, 1209-07.403-032 will be applicable for three phase locomotives i.e. WAG-9, WAP-7 & WAP-5.

6.18 The drawings of Cab Structure (Drg. No. 1209-08.130-511), Wind Screen Assembly (Drg. No. 1209-08.130-263), Front Sheet (Drg. No. 1209-08.130-019) of existing WAG-9HC locomotives for reference and guidance only.

7.0 INSPECTION AND ACCEPTANCE

7.1 Type Test:

Type test is to be carried out as per IS: 7827 – Part I, IS: 7827 – Part II, IS: 7827 – Part III & IS: 14141. Alternatively, IEC 60571, IEC 60068, IEC 61373 may be taken as reference against the tests mentioned in IS for which testing facilities are not available in the NABL accredited lab/In house test set up.

Type test plan shall include at least following test:

i) Endurance test for continuous 1 **(one) Million Cycle** with water pump assembly with high speed and slow speed.
ii) Test of wiper blade pressure on the glass.
iii) Operating speed of the wiper motor according to Clause 5.1.
iv) Material test certificate.

7.2 Routine Test

Routine inspection will be carried out as per requirement of IS and approved test protocol.

8.0 SUPPLY OF DOCUMENTS

8.1 Along with tender offer: -

a) The tenderer shall submit details dimension drawings of assembly and sub-assemblies.
b) Any deviation from the specified value shall be spelled out by the tenderer clearly.

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9.0 **QUALITY ASSURANCE**

As per ISO 9001.

10.0 **MARKING**

10.1 Each assembly, sub-assembly/component shall have clear readable marking on its body. The marking shall be as follows: -

A. Manufacturer's Name/Trade Mark clearly engraved/embossed.
B. Year & Month of the manufacturer.
C. Batch No.
D. Proper identification (either punched/embossed/Laser marked) of parts for wiper motor.

11.0 **GUARANTEE**

11.1 The equipment and its accessories shall be guaranteed for satisfactory performance for a period of 36 months from the date of delivery or 30 months from the date of commissioning of the locomotive whichever is earlier. All aspects of workmanship and material will be covered by the guarantee.

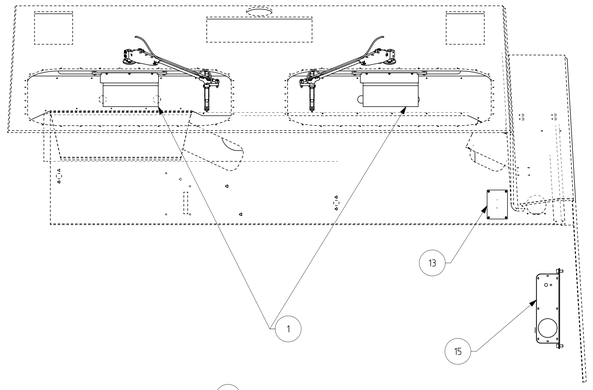
11.2 The components/material, which fails during the guarantee period, must be replaced by the manufacturer/contractor free of cost.

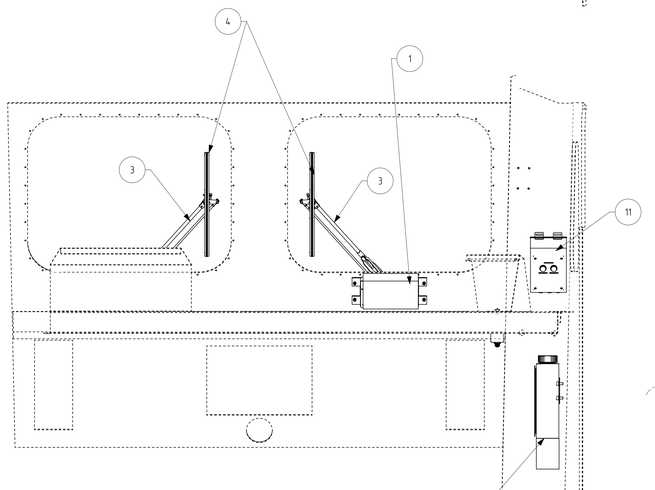
12.0 **PACKING**

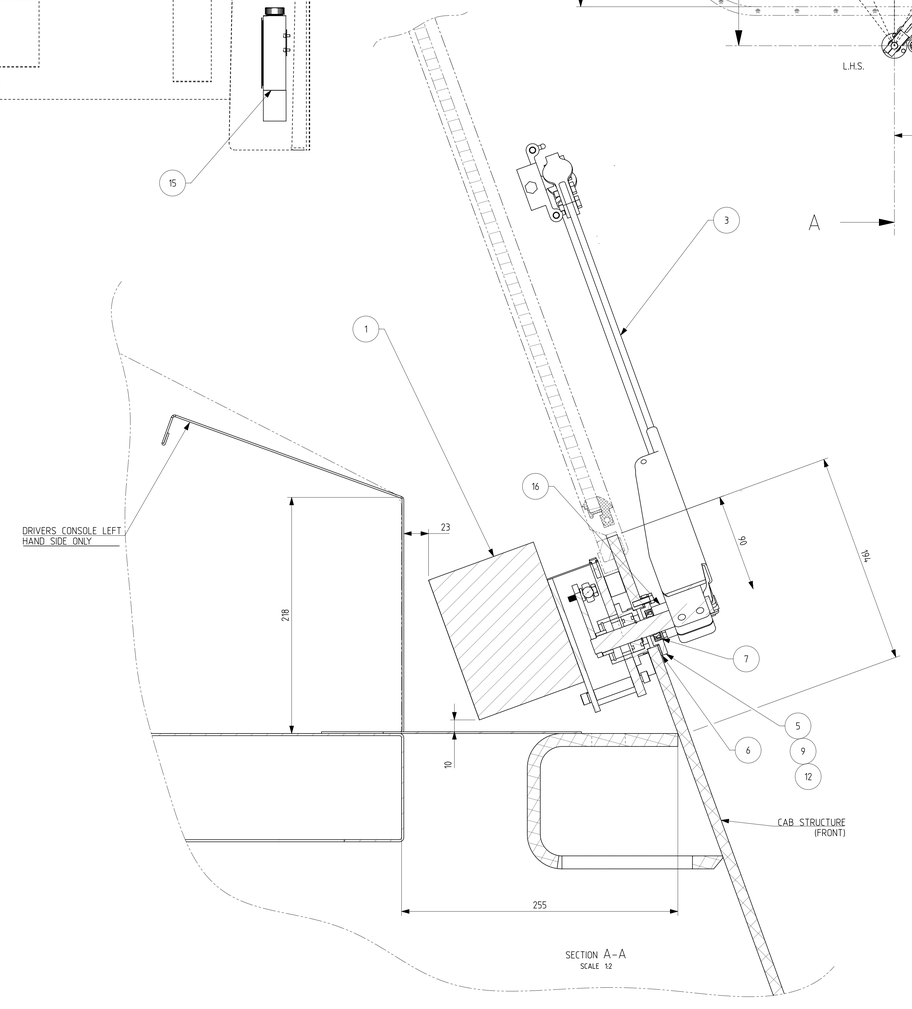
The wind screen wiper assembly will be properly packed to avoid damages during transit and storage.

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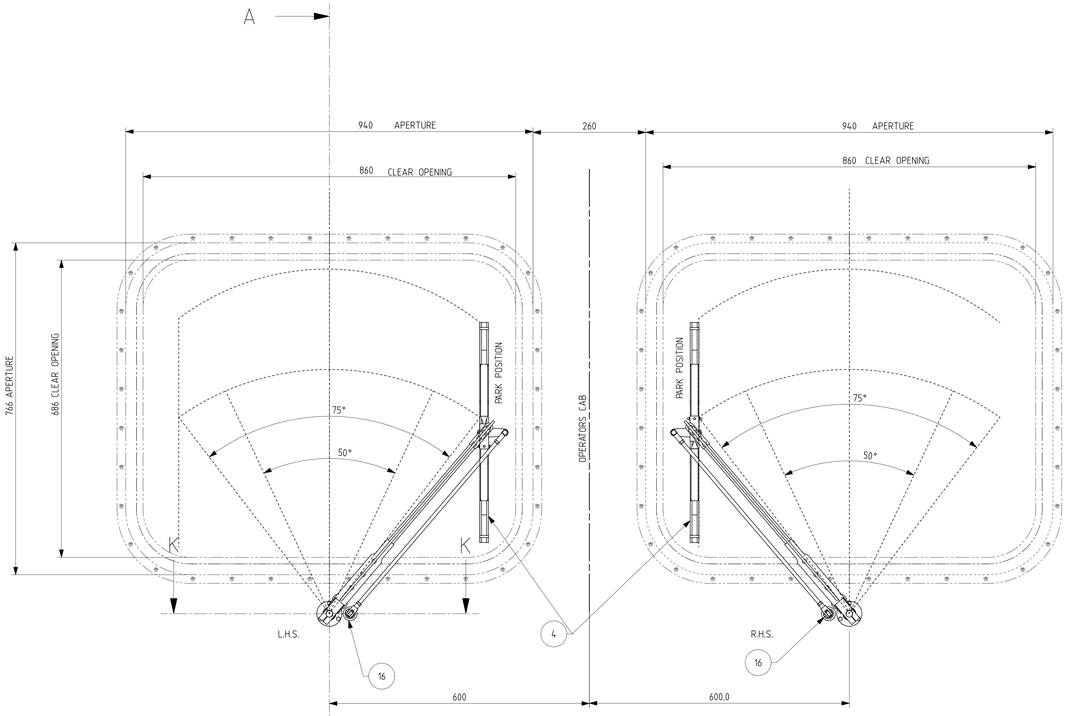
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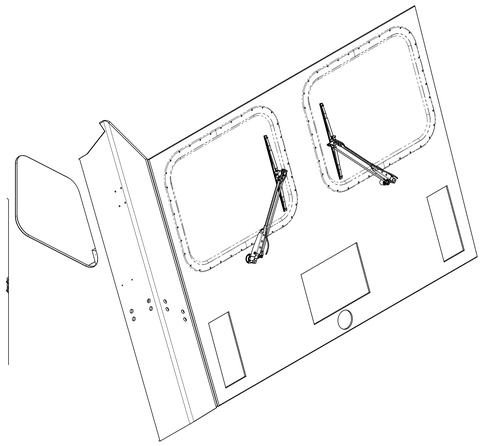


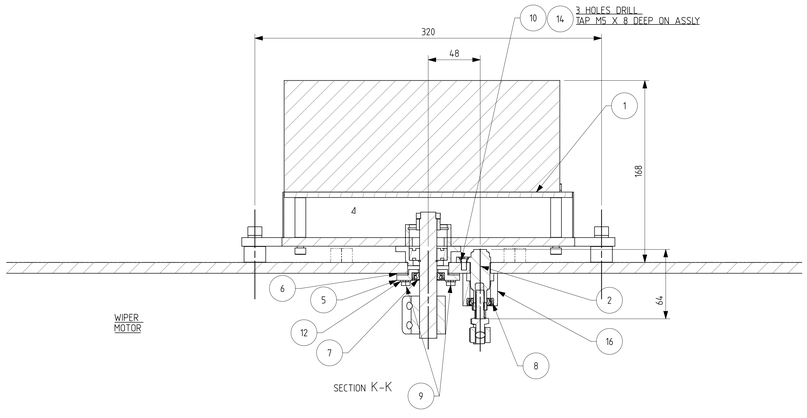


SECTION A-A
SCALE 1:2



INTERIOR VIEW NORMAL TO WIND SCREEN





SECTION K-K

NOTE:-

1. ITEMS ARE FOR 4-NOS OF WIPER ASSEMBLY COMPLETE (1 LOCO SET)
2. THE DRG. IS APPLICABLE FOR WAG-9, WAP-7 & WAP-5 ELECTRIC LOCOMOTIVE
3. MATERIAL OF WIPER ARM AND WIPER BLADE (STEEL COMPONENT) SHOULD BE PAINTED BLACK POWDERED COATING
4. ALL STANDARD HARDWARE ITEM SHOULD BE TVS/LPS/UNBRAKO MAKE

QTY/LOCO	02

REF. NO.	C&D NO.	PART DRG. NO.	DESCRIPTION	QTY.	MATL	SPECN	WT. EACH IN K.G.
16	T306/076	1209-07.403-032	SEAL BOSS WIPER INSTALLATION	2	STEEL	IS: 2062 GR. C	
15	/	CLWES/3/SK-70674	WATER RESERVOIR	1			
14	/	1209-18.406-425-003	LOCTITE - 262	1			
13	/	CLWES/3/SK-6/0674	CONTROL SWITCH BOX (ELECTRIC WIPER)	1			
12	/	1209-18.406-399-003	WASHER HELICAL SPRING LOCK 5.6 NATURAL	6	STAINLESS STEEL		
11	/	CLWES/3/SK-5/0674	CONTROL UNIT(ELECTRIC WIPER)	1			
10	T309/161	1209-18.406-328-004	SCREW-CSK HEAD M5	6	STEEL		
9	T309/160	1209-18.406-324-003	SCREW HEX HD M5X0.8 - 16 LG.	6	STAINLESS STEEL A.I.S.I. 304		
8	/	1209-07.403-030-001	OIL SEAL	2	OUTSIDE RUBBER		
7	/	1209-07.403-030-002	OIL SEAL	2	OUTSIDE RUBBER		
6	/	1209-07.403-026	Gasket	2	NEOPRENE	-	
5	/	1209-07.403-025	SEAL FLANGE (WIPER INSTALLATION)	2	STEEL		
4	/	CLWES/3/SK-4/0674	FLEXIBLE WIPER BLADE ASSEMBLY(STAINLESS) 508Lg	2			
3	/	CLWES/3/SK-3/0674	WIPER ARM COMPLETE 550 LG	2			
2	/	1209-07.403-024	BEARING AND SHAFT ASSLY.	2			
1	/	CLWES/3/SK-2/0674	ELECTRICAL WIPER MOTOR	2			

रिफ़रेंस संख्या REF. NO.	असल ड्रा. विवरण संख्या C&D NO.	अंग आरेखण संख्या PART DRG. NO.	वर्णन DESCRIPTION	मात्रा QTY.	पदार्थ MATL	विशिष्टि SPECN	प्रति भाग कि. ग्रा. WT. EACH IN K.G.

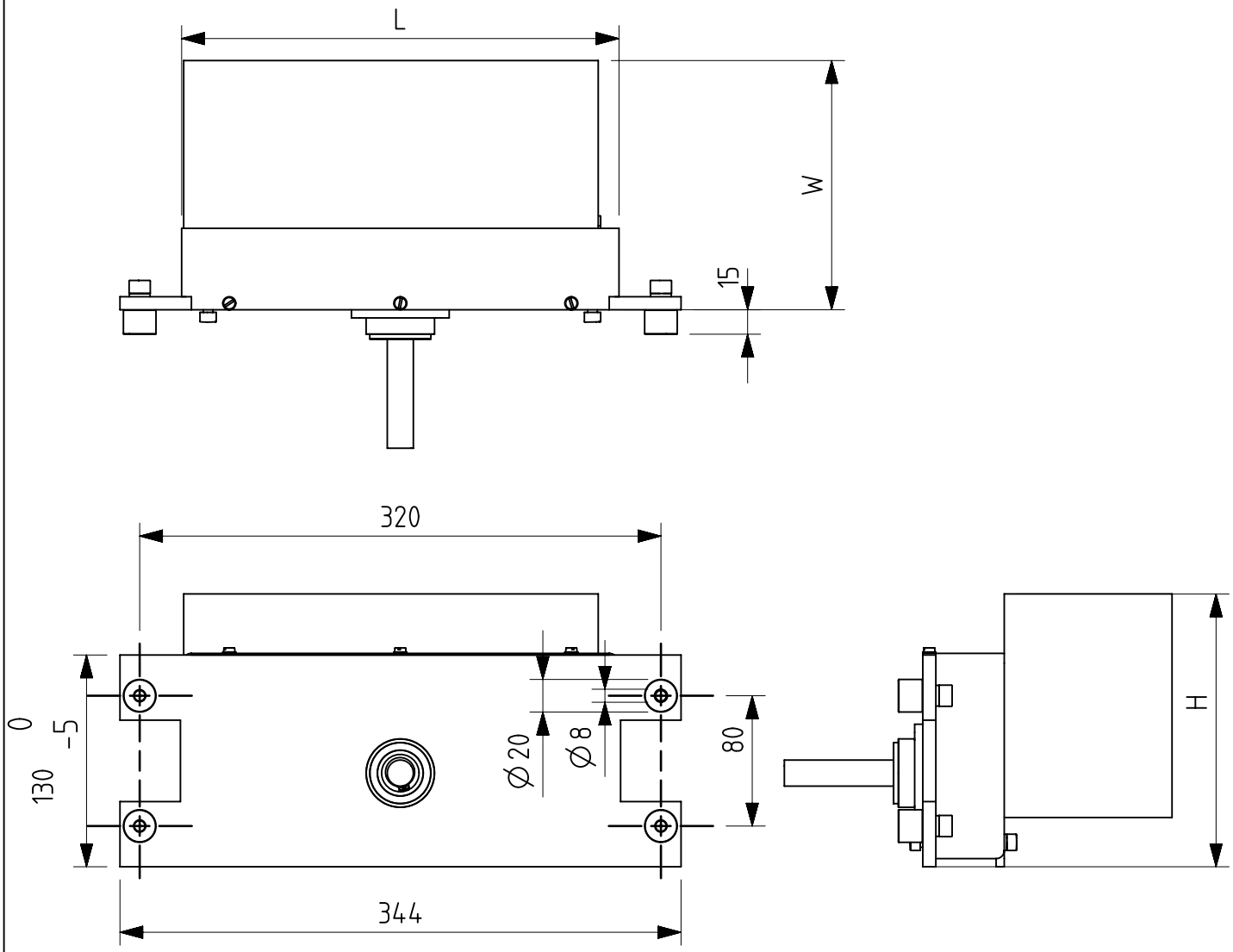
अभिरेखित DSN	
जाँच ची.आ.क. CHD 1ST	
अनुमोदित च.रे.इ. / च.रे.का. REVISED BY / CLW	
अनुमोदित फ.रे.वि.क. APPROVED BY/CLW	
दिनांक DATE	
रेखिक अनुपात SCALE	N.T.S.
पदार्थ / MAT	ACI - B

चित्तरंजन रेलइंजन कारखाना
CHITTARANJAN LOCOMOTIVE WORKS, INDIA

पदार्थ MATL	प्रति भाग कि. ग्रा. WT. EACH IN KG.
विशिष्टि SPECN	
वर्णन DESCRIPTION	WIPER INSTALLATION
आरेखण संख्या DRAWING NO.	CLWES/3/SK-1/0674
परिवर्तन संख्या ALTERATION NO.	पन्ने SHEET 1 OF 1
	A0

धातु-वेल्डन चिन्ह मा. मा., भा.3 / अ. मा. पं. .2553 WELDING SYMBOLS TO IS:813 / ISO:2553	अतिरिक्त परास – जहाँ मा. मा., .2102 / अ. मा. पं., .2788 UNSPECIFIED TOLERANCE TO IS: 2102 / ISO: 2768												परिवर्तन संख्या	प्रमोचन	वर्णन DESCRIPTION	विनर्दिष्ट संख्या SPECN. INITIAL
धातु – खुरदरा का मान मा. मा. 3073 / अ. मा. पं. .1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302	श्रेणी GRADE NO.	ए1 f	ए2 f	ए3 f	ए4 f	ए5 f	ए6 f	ए7 f	ए8 f	ए9 f	ए10 f	ए11 f	ए12 f	AL NO.	AUTHY.	
	रेंज RANGE	Ra µm	6.3-0.5	12.5-1.0	25-1.0	50-1.0	100-1.0	200-1.0	400-1.0	800-1.0	1600-1.0	3200-1.0	6400-1.0	12800-1.0			
		रेंज RANGE	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50	100			

CLW/ES/3/SK-2/0674



Note:

1. Mounting and overall dimensions shall be as per above drawing. The other dimensions of drawings are for reference only.

2. Dimensions of space for motor assly shall not exceed 268.5mm (L) X 153 mm ((W) (without spindle length x 168mm (H). The firm should manufacture wiper motor assembly of such size that must be fitted in the locomotive without any foul.
3. 4 nos. M8-mounting bolt per motor mounting plate
4. 4 nos. Ø 20 X 15mm bush should be bolted (not welded) with motor mounting plate

परिवर्तन संख्या ALT.NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित आद्यक्षर DATED INITIAL
सतह – रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302	अनिर्दिष्ट सह्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLEARANCE TO IS : 2102 / ISO : 2768		TOL. CLS.
	धातु–वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553 WELDING SYMBOLS TO IS:813 / ISO:2553		

पदांक 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
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	75-100	160-250
Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
चिन्ह SYMBOL												

अभिकल्पित DGN	
जाँचा व.अ.अ. CHD SSE	
सभीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	
अनुमोदित उ.मु.वि.अ. APPROVED DYCEE	
दिनांक DATE	
रैखिक अनुपात SCALE	1:4
संदर्भ / REF.	ALT.-

चित्तरंजन रेलइंजन कारखाना
CHITTARANJAN LOCOMOTIVE WORKS, INDIA

पदार्थ MATL	प्रति भार कि. ग्रा. WT. EACH IN KG
विशिष्टि SPECN	

वर्णन DESCRIPTION: ELECTRICAL WIPER MOTOR

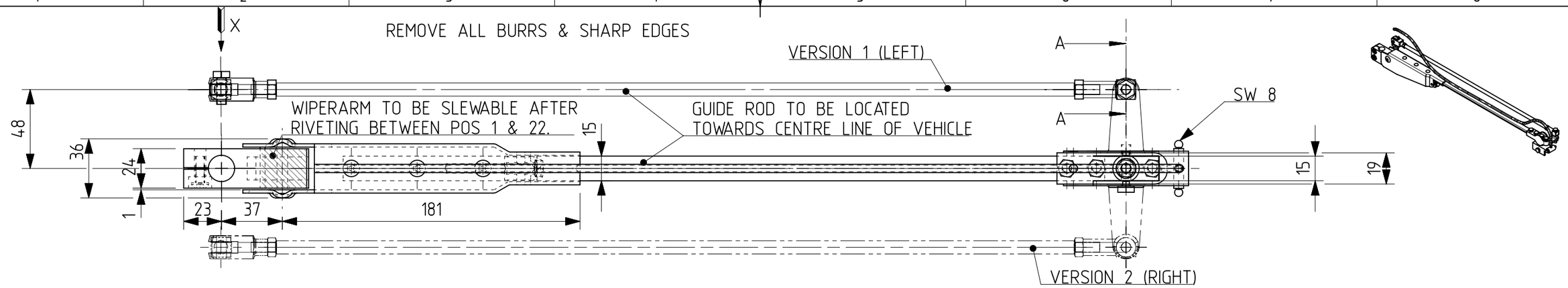
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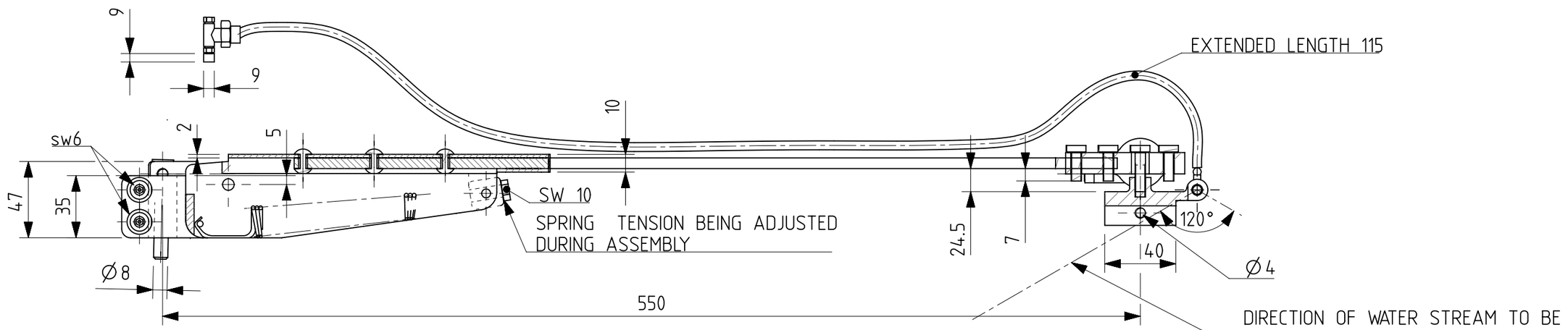
परिवर्तन संख्या ALTERATION. NO. | पर्ण SHEET 1 OF 1 | A4

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CLW/ES/3/SK-3/0674

REMOVE ALL BURRS & SHARP EDGES





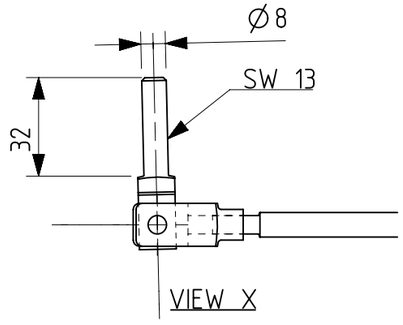
WIPER BLADE TO BE USED

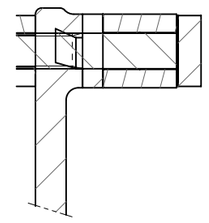
1. WITH SURFACE PROTECTION 2853525-I/ 75061/.....
2. STAINLESS, WIPER BLADE TO BE REPLACEABLE 2B53524- I/75060/.....

RADIUS OF WIPER ARM r:300 TO 800
(50 mm PER STEP; SPECIAL LENGTH POSSIBLE)

QTY./ LOCO.	2 LH, 2 RH

Mounting & Overall Dimension shall be as per Drawing. The other dimensions of drawings are for reference only





धातु–वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553 WELDING SYMBOLS TO IS:813 / ISO:2553	अनिर्दिष्ट सद्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLEARANCE TO IS : 2102 / ISO : 2768											TOL. CLS.	
	पदांक 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
सतह – रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302	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	75-100	160-250
	Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
	चिन्ह SYMBOL												

परिवर्तन संख्या ALT. NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित आद्यक्षर DATED INITIAL
1		REDRAWN IN NX WITH 3RD ANGLE PROJECTION	22-07-10

अभिकल्पित DGN	
जाँचा व.अ.अ. CHD SSE	
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	
अनुमोदित उ.मु.वि.अ. APPROVED DYCEE	
दिनांक DATE	
रैखिक अनुपात SCALE	1:2.5
संदर्भ / REF.	IA086-00418 ALT- 2

चित्तरंजन रेलइंजन कारखाना
CHITTARANJAN LOCOMOTIVE WORKS, INDIA

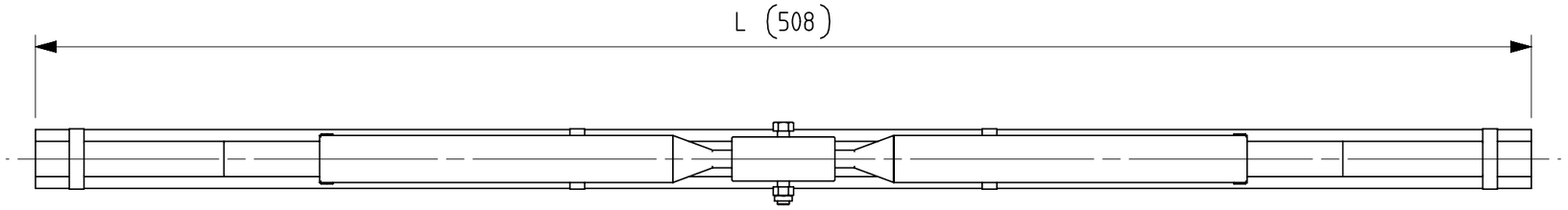
पदार्थ MATL	प्रति भार कि. ग्रा. WT. EACH IN KG
विशिष्टि SPECN	
वर्णन DESCRIPTION	WIPER ARM COMPLETE 550 LG
आरेखण संख्या DRAWING NO.	CLW/ES/3/SK-3/0674
परिवर्तन संख्या ALTERATION NO.	पर्ण SHEET 1 OF 1 — A3

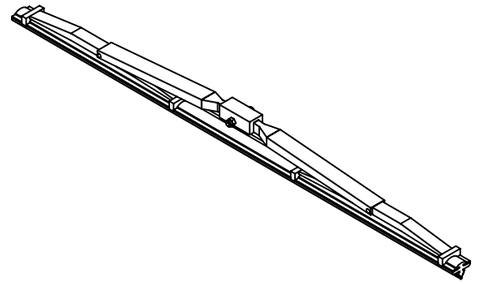
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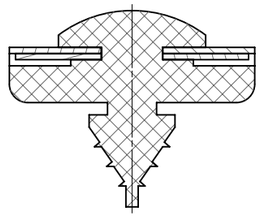
REDRAWN BY TCS

CLW/ES/3/SK-4/0674

REMOVE ALL BURRS & SHARP EDGES







SECTION A-A
SCALE 2:1

Mounting & Overall Dimension shall be as per Drawing. The other dimensions of drawings are for reference only

USED FOR LOCO WAG-9 , WAP-5 & WAP-7

REF. NO.	PART DRG. NO.	DESCRIPTION	NO./LOCO	MATL	SPECN	WT. EACH IN K.G.
		FLEXIBLE WIPER BLADE ASSEMBLY (STAINLESS) 508 Lg.	4			

अभिकल्पित DGN	
जाँचा व.अ.अ. CHD SSE	
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	
अनुमोदित उ.मु.वि.अ. APPROVED DYCEE	
दिनांक DATE	
रैखिक अनुपात SCALE	1:2
संदर्भ / REF.	IA086-00420 ALT- 2

चित्तरंजन रेलइंजन कारखाना
CHITTARANJAN LOCOMOTIVE WORKS, INDIA

पदार्थ MATL	प्रति भार कि. ग्रा. WT. EACH IN KG
विशिष्टि SPECN	
वर्णन DESCRIPTION	FLEXIBLE WIPER BLADE ASSEMBLY(STAINLESS) 508Lg
आरेखण संख्या DRAWING NO.	CLW/ES/3/SK-4/0674
परिवर्तन संख्या ALTERATION NO. 1	पर्ण SHEET 1 OF 1 — A3

परिवर्तन संख्या ALT. NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित आद्यक्षर DATED INITIAL
1		REDRAWN IN NX WITH 3RD ANGLE PROJECTION	28-06-10

धातु–वेल्डन चिन्ह
भा. मा. : 813 / अ. मा. सं. :2553
WELDING SYMBOLS TO IS:813 / ISO:2553

सतह – रुक्षता का मान
भा. मा. 3073 / अ. मा. सं. 1302
SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302

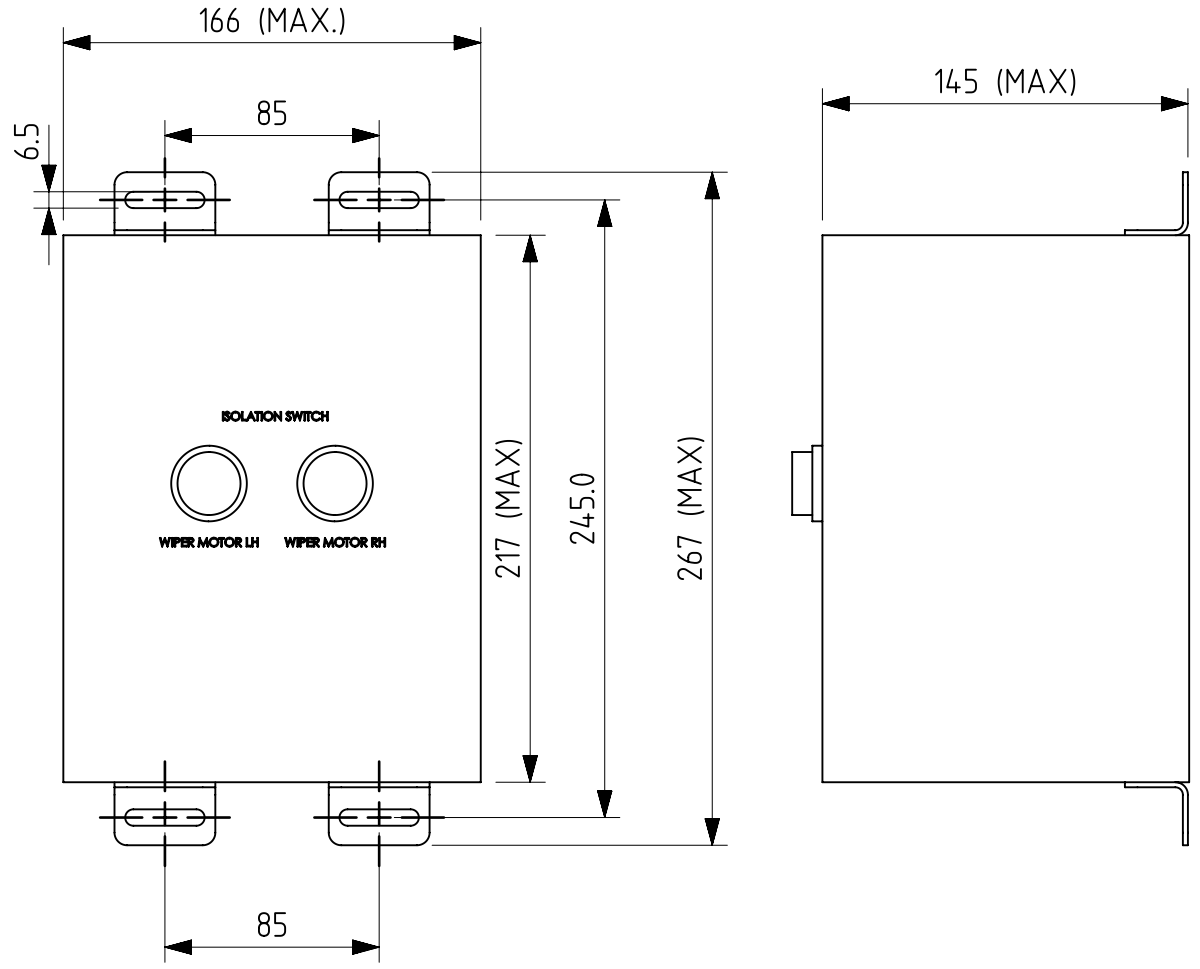
अनिर्दिष्ट सद्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768
UNSPECIFIED TOLEARANCE TO IS : 2102 / ISO : 2768

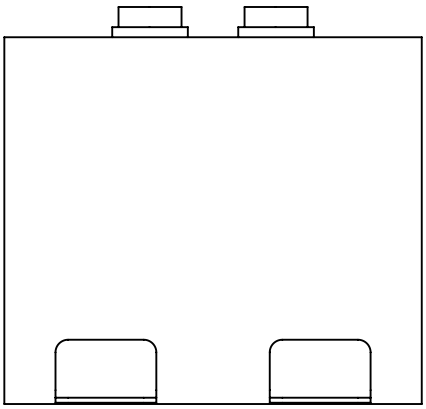
पदांक GRADE NO.	सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12	TOL. CLS.
Rz	0.16-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.8	5.0-6.3	9.0-12	16-25	30-40	50-63	75-100	160-250	
Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50	
चिन्ह SYMBOL	▽▽▽▽		▽▽▽		▽▽		▽				~~▽~~		

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REDRAWN BY TCS

CLW/ES/3/SK-5/0674





Note:

1. Mounting and overall dimensions shall be as per above drawing. The other dimensions of drawings are for reference only.
2. 4 nos M6 mounting bolt per control unit

परिवर्तन संख्या ALT.NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित आद्यक्षर DATED INITIAL

सतह – रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302	अनिर्दिष्ट सह्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLEARANCE TO IS : 2102 / ISO : 2768	TOL. CLS.
	धातु–वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553 WELDING SYMBOLS TO IS:813 / ISO:2553	

पदांक 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
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	75-100	160-250
Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
चिन्ह SYMBOL												

अभिकल्पित DGN	
जाँचा व.अ.अ. CHD SSE	
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	
अनुमोदित उ.मु.वि.अ. APPROVED DYCEE	
दिनांक DATE	
रैखिक अनुपात SCALE	1:1
संदर्भ / REF.	ALT.-

चित्तरंजन रेलइंजन कारखाना
CHITTARANJAN LOCOMOTIVE WORKS, INDIA

पदार्थ MATL	प्रति भार कि. ग्रा. WT. EACH IN KG
विशिष्टि SPECN	

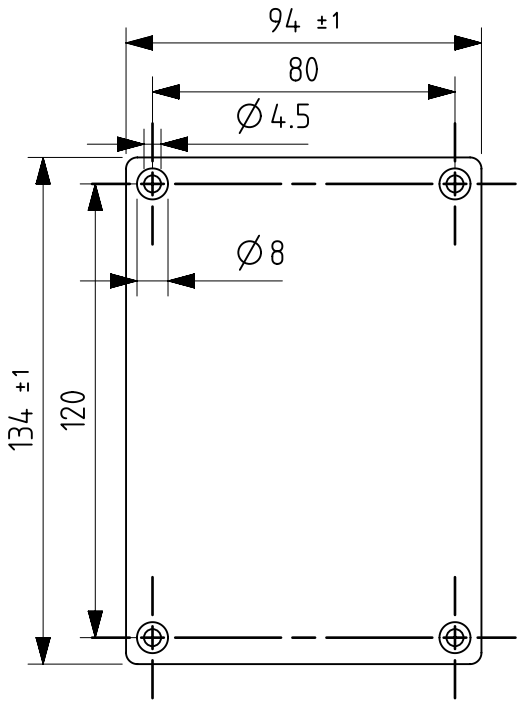
वर्णन DESCRIPTION: CONTROL UNIT(ELECTRIC WIPER)

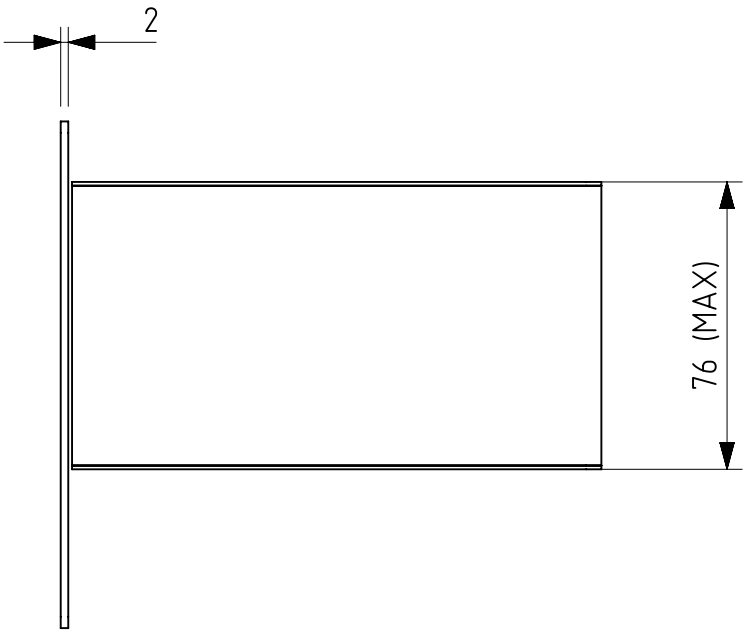
आरेखण संख्या DRAWING NO.: CLW/ES/3/SK-5/0674

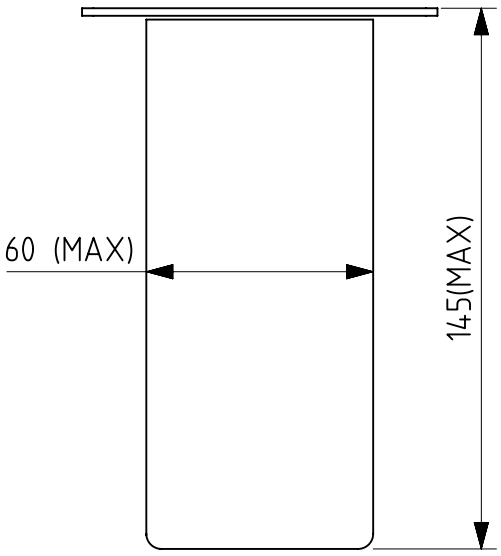
परिवर्तन संख्या ALTERATION. NO. | पर्ण SHEET 1 OF 1 | A4

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CLW/ES/3/SK-6/0674







Note:
1. Mounting and overall dimensions shall be as per above drawing. The other dimensions of drawings are for reference only.
2. Switch for push to wash may be in separate switch or facifity available alongwith rotary switch.
3. 4 nos M4 CSK mounting bolt per control switch box

परिवर्तन संख्या ALT.NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित बाद्यक्षर DATED INITIAL
सतह – रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302	अनिर्दिष्ट सह्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLEARANCE TO IS : 2102 / ISO : 2768		TOL. CLS.
	धातु–वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553 WELDING SYMBOLS TO IS:813 / ISO:2553		

पदांक 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
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	75-100	160-250
Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
चिन्ह SYMBOL												

अभिकल्पित DGN	
जाँचा व.अ.अ. CHD SSE	
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	
अनुमोदित उ.मु.वि.अ. APPROVED DYCEE	
दिनांक DATE	
रैखिक अनुपात SCALE	1:2
संदर्भ / REF.	ALT.-

चित्तरंजन रेलइंजन कारखाना
CHITTARANJAN LOCOMOTIVE WORKS, INDIA

पदार्थ MATL	प्रति भार कि. ग्रा. WT. EACH IN KG
विशिष्टि SPECN	

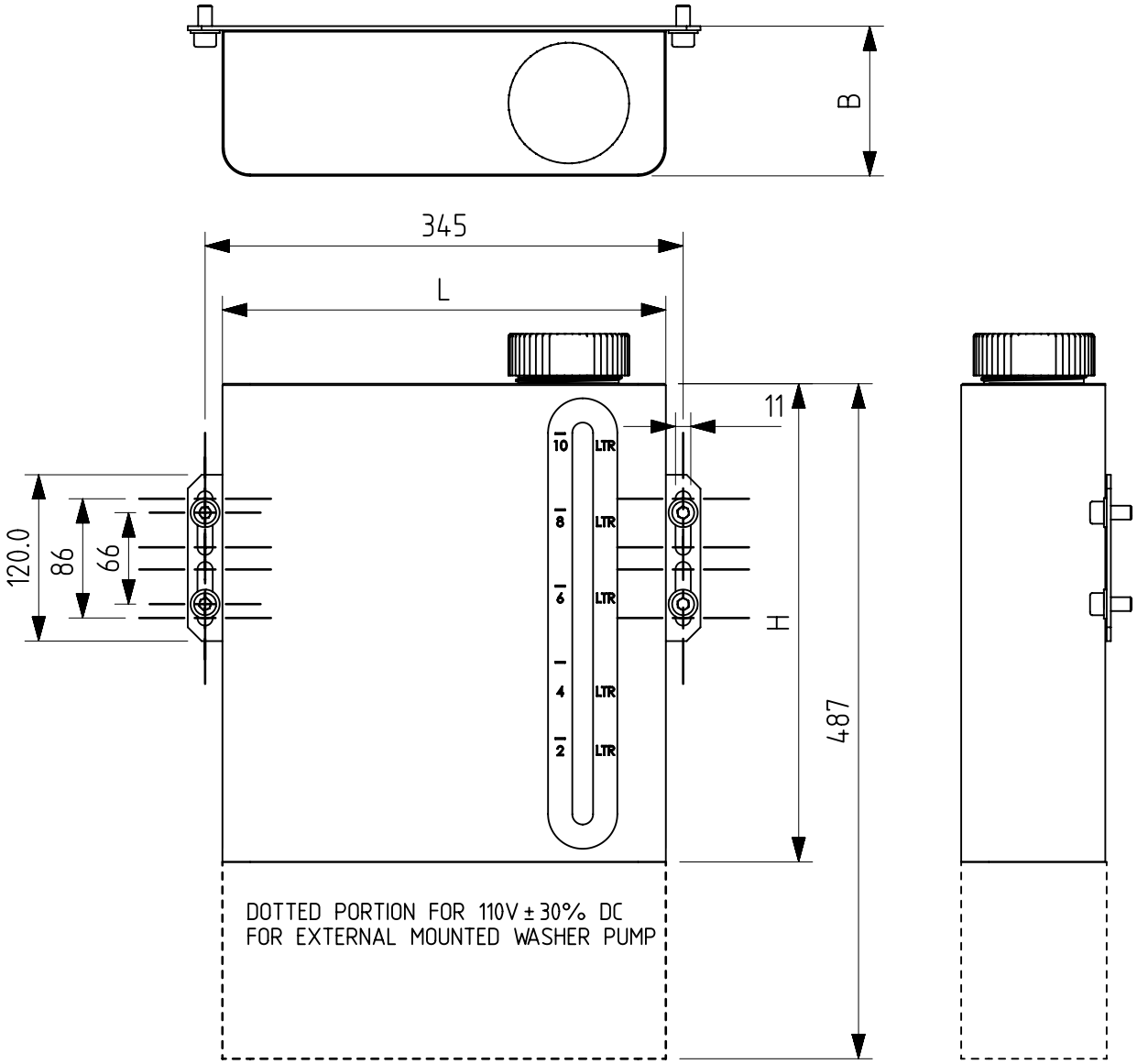
वर्णन DESCRIPTION: CONTROL SWITCH BOX (ELECTRIC WIPER)

आरेखण संख्या DRAWING NO.: CLW/ES/3/SK-6/0674

परिवर्तन संख्या ALTERATION. NO. | पर्ण SHEET 1 OF 1 | A4

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CLW/ES/3/SK-7/0674



Note:

1. Mounting and overall dimensions shall be as per above drawing.
   The other dimensions of drawings are for reference only.
2. Tank capacity shall be 10Ltrs.
3. STD. L X B X H is 305 X 104 X 360 (Max permitted deviation 15 mm).
   However tank cpacity to be maintain 10Ltrs.
4. Maximum allwable height 487mm for external mounted washer pump (110V ± 30% DC).
5. Water level in tank should be visible
6. Tank body meterial -SS 304
7. 4 nos M10 mounting bolt per tank

परिवर्तन संख्या ALT.NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित आद्याक्षर DATED INITIAL

सतह – रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302	अनिर्दिष्ट सह्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLEARANCE TO IS : 2102 / ISO : 2768	TOL. CLS.
	धातु–वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553 WELDING SYMBOLS TO IS:813 / ISO:2553	

पदांक 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
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	75-100	160-250
Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
चिन्ह SYMBOL												

अभिकल्पित DGN	
जाँचा व.अ.अ. CHD SSE	
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	
अनुमोदित उ.मु.वि.अ. APPROVED DYCEE	
दिनांक DATE	
रैखिक अनुपात SCALE	1:1
संदर्भ / REF.	ALT.-

चित्तरंजन रेलइंजन कारखाना
CHITTARANJAN LOCOMOTIVE WORKS, INDIA

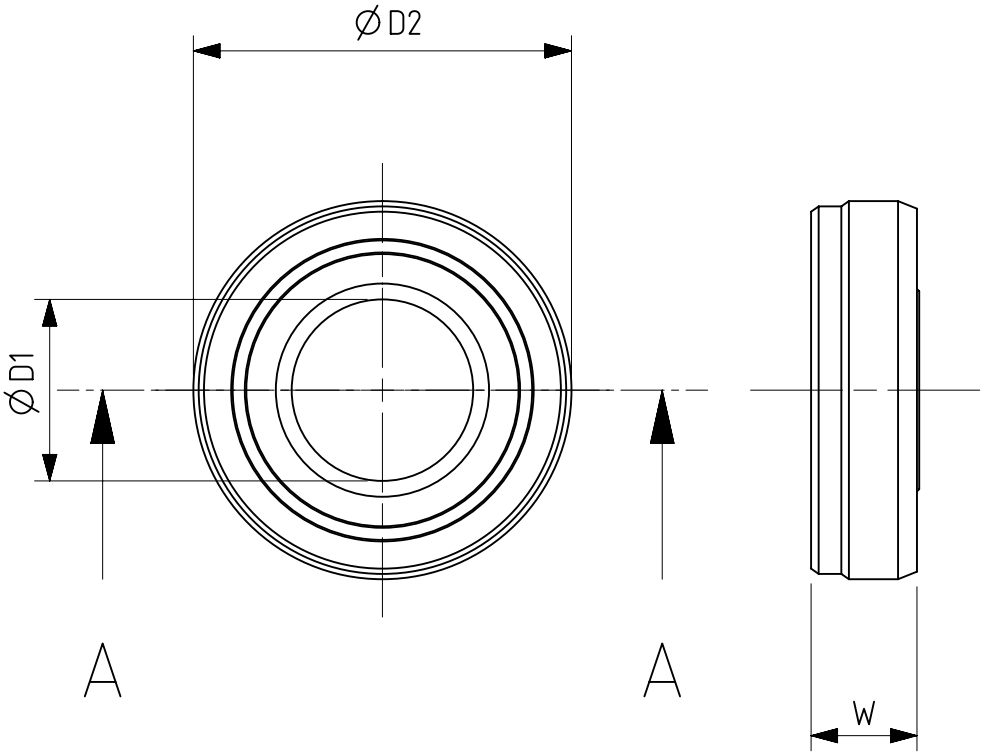
पदार्थ MATL	प्रति भार कि. ग्रा. WT. EACH IN KG
विशिष्टि SPECN	

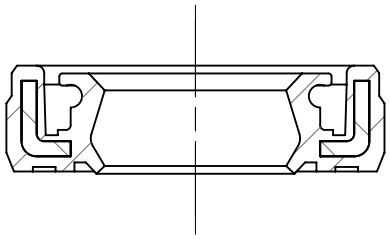
वर्णन DESCRIPTION: WATER RESERVOIR

आरेखण संख्या DRAWING NO.: CLW/ES/3/SK-7/0674

परिवर्तन संख्या ALTERATION. NO. | पर्ण SHEET 1 OF 1 | A4

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SECTION A-A

1209-07.403-030-002	16	30	7	FT2
1209-07.403-030-001	12	25	7	FT2
REF. NO	SHAFT Ø (D1)	SEAL OD(D2)	WIDTH(W)	TYPE

परिवर्तन संख्या ALT.NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित बाद्यक्षर DATED INITIAL

सतह – रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302

अनिर्दिष्ट सह्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLEARANCE TO IS : 2102 / ISO : 2768

धातु–वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553 WELDING SYMBOLS TO IS:813 / ISO:2553

TOL. CLS.

पदांक 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
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	75-100	160-250
Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
चिन्ह SYMBOL												

अभिकल्पित DGN	
जाँचा व.अ.अ. CHD SSE	
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	
अनुमोदित उ.मु.वि.अ. APPROVED DYCEE	
दिनांक DATE	
रैखिक अनुपात SCALE	1:1
संदर्भ / REF.	ALT.-

चित्तरंजन रेलइंजन कारखाना
CHITTARANJAN LOCOMOTIVE WORKS, INDIA

पदार्थ MATL	प्रति भार कि. ग्रा. WT. EACH IN KG
विशिष्टि SPECN	

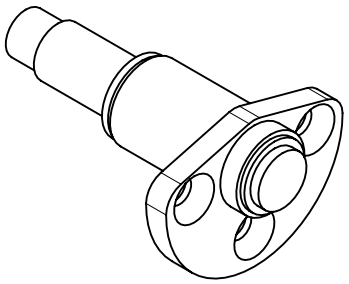
वर्णन DESCRIPTION: OIL SEAL

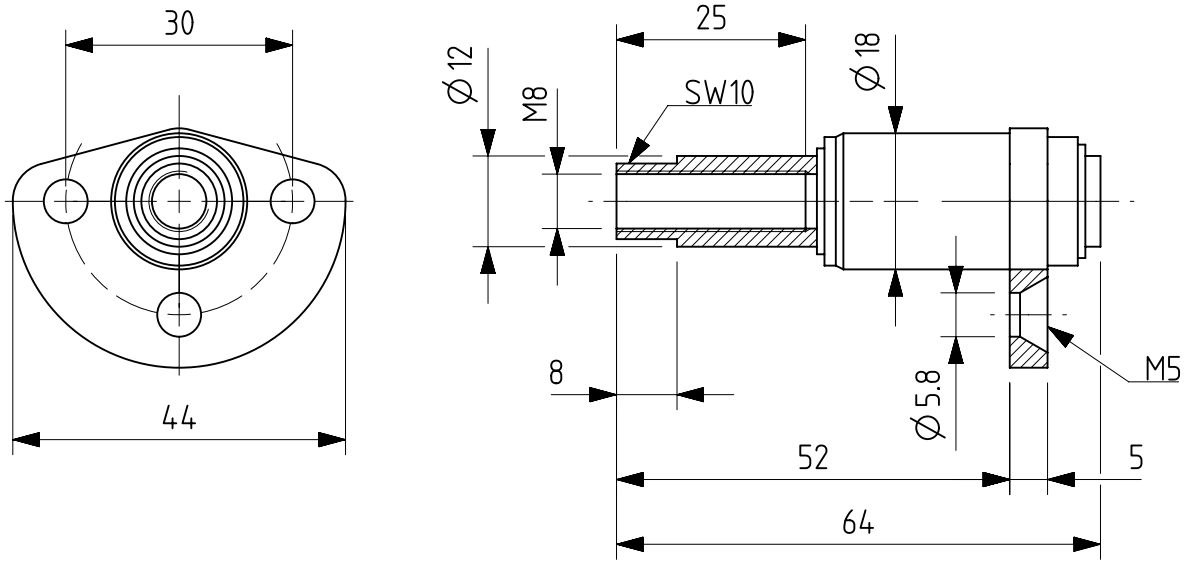
आरेखण संख्या DRAWING NO.: 1209-07.403-030

परिवर्तन संख्या ALTERATION. NO. | पर्ण SHEET 1 OF 1 | A4

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REMOVE ALL BURRS & SHARP EDGES





QTY./LOCO: 4 NOS.
USED FOR LOCO WAG-9

परिवर्तन संख्या ALT.NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित आद्यक्षर DATED INITIAL
1		REDRAWN IN NX WITH 3RD ANGLE PROJECTION	14-06-10

सतह – रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302	अनिर्दिष्ट सह्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLEARANCE TO IS : 2102 / ISO : 2768	TOL. CLS.
	धातु–वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553 WELDING SYMBOLS TO IS:813 / ISO:2553	

पदांक 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
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	75-100	160-250
Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
चिन्ह SYMBOL												

अभिकल्पित DGN	
जाँचा व.अ.अ. CHD SSE	
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	
अनुमोदित उ.मु.वि.अ. APPROVED DYCEE	
दिनांक DATE	14-08-21
रैखिक अनुपात SCALE	1:1
संदर्भ / REF.	IA082-00249 ALT.-1

चित्तरंजन रेलइंजन कारखाना
CHITTARANJAN LOCOMOTIVE WORKS, INDIA

पदार्थ MATL	प्रति भार कि. ग्रा. WT. EACH IN KG
विशिष्टि SPECN	

वर्णन DESCRIPTION: BEARING AND SHAFT ASSLY.

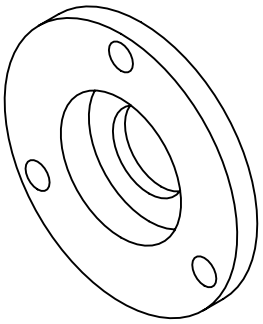
आरेखण संख्या DRAWING NO.: 1209-07.403-024

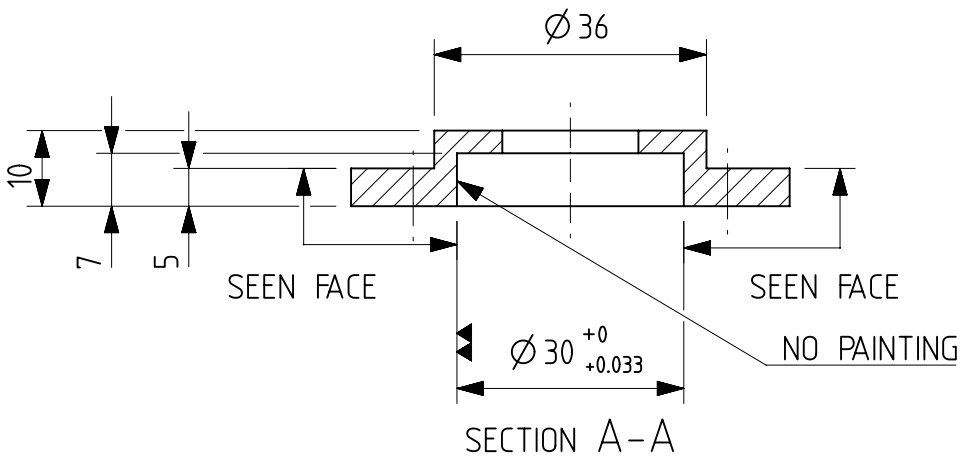
परिवर्तन संख्या ALTERATION. NO. 1 | पर्ण SHEET 1 OF 1 | A4

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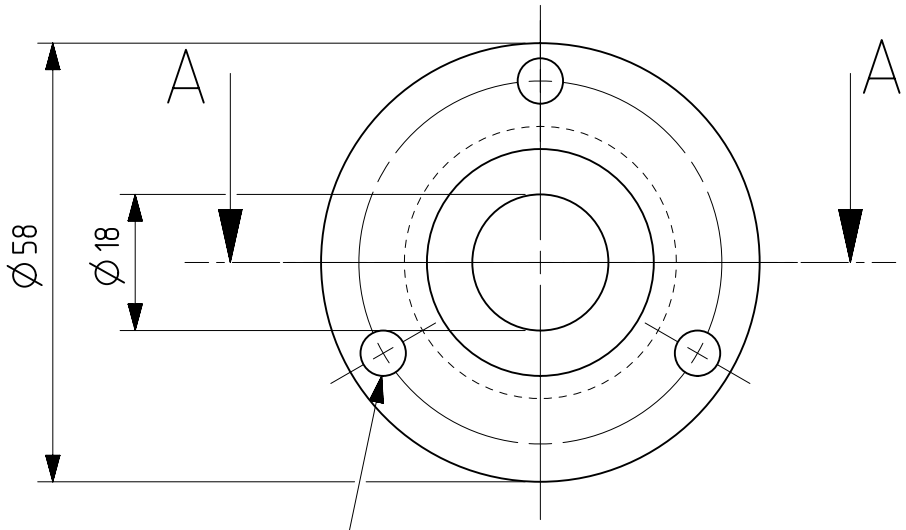
REDRAWN BY TCS

REMOVE ALL BURRS & SHARP EDGES





SECTION A-A



NOTES:-

1. PAINTING- TO ABB SPECN. ES1213

2. COLOUR-TO MATCH RAL 9003
SIGNAL WHITE ON SEEN FACE ONLY.

QTY./LOCO: 4 NOS.
USED FOR LOCO WAG-9

परिवर्तन संख्या ALT.NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित आद्यक्षर DATED INITIAL
1		REDRAWN IN NX WITH 3RD ANGLE PROJECTION	14-06-10

पदांक 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
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	75-100	160-250
Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
चिन्ह SYMBOL												

सतह – रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302

अनिर्दिष्ट सह्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLEARANCE TO IS : 2102 / ISO : 2768

धातु-वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553 WELDING SYMBOLS TO IS:813 / ISO:2553

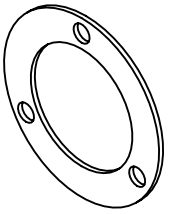
TOL. CLS.

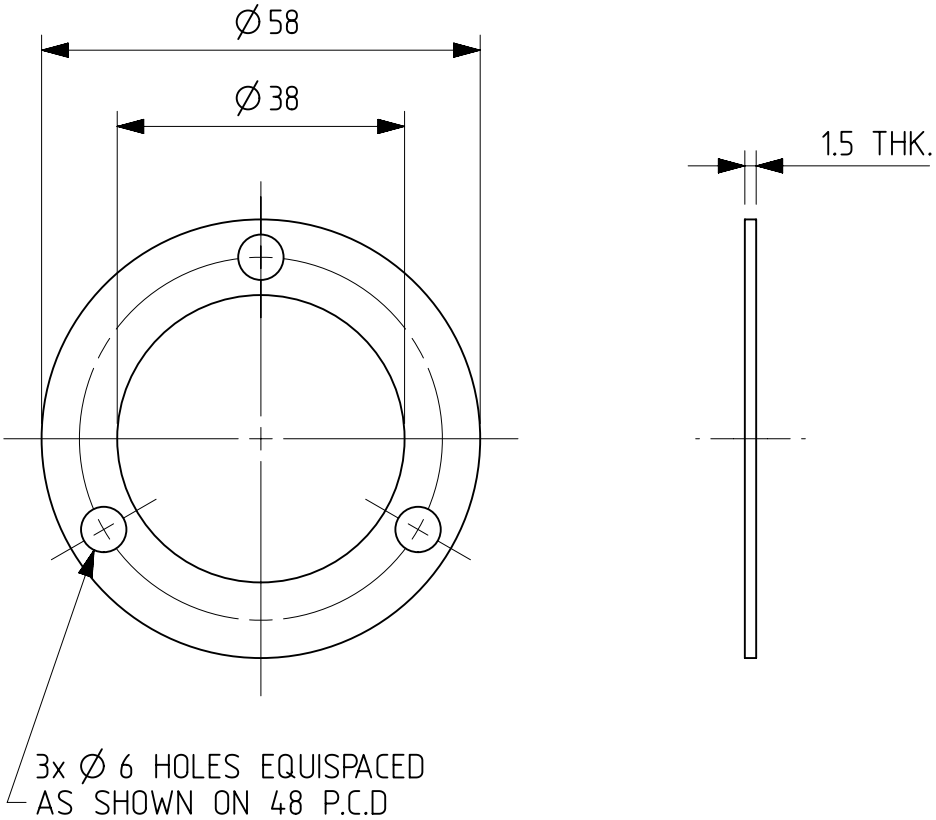
अभिकल्पित DGN	
जाँचा व.अ.अ. CHD SSE	
सभीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	
अनुमोदित उ.मु.वि.अ. APPROVED DYCEE	
दिनांक DATE	14-08-21
रैखिक अनुपात SCALE	1:1
संदर्भ / REF.	IA082-00256 ALT.-3

चित्तरंजन रेलइंजन कारखाना
CHITTARANJAN LOCOMOTIVE WORKS, INDIA

पदार्थ MATL	STEEL	प्रति भार कि. ग्रा. WT. EACH IN KG	0.1
विशिष्टि SPECN	IS: 2062 GR. C		
वर्णन DESCRIPTION	SEAL FLANGE (WIPER INSTALLATION)		
आरेखण संख्या DRAWING NO.	1209-07.403-025		
परिवर्तन संख्या ALTERATION. NO.	1	पर्ण SHEET 1 OF 1	A4

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NOTE: MATERIAL MUST NOT SWELL UNDER THE EFFECT OF OIL & WATER.

परिवर्तन संख्या ALT.NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित बाद्यक्षर DATED INITIAL
1		REDRAWN IN NX WITH 3RD ANGLE PROJECTION	14-06-10

सतह – रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302	अनिर्दिष्ट सह्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLEARANCE TO IS : 2102 / ISO : 2768	TOL. CLS.
	धातु–वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553 WELDING SYMBOLS TO IS:813 / ISO:2553	

पदांक 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
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	75-100	160-250
Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
चिन्ह SYMBOL												

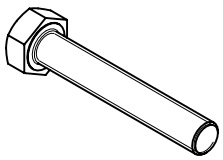
अभिकल्पित DGN	.
जाँचा व.अ.अ. CHD SSE	.
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	.
अनुमोदित उ.मु.वि.अ. APPROVED DYCEE	.
दिनांक DATE	05-02-97
रैखिक अनुपात SCALE	1:1
संदर्भ / REF. IA082-00257 ALT.- 1	

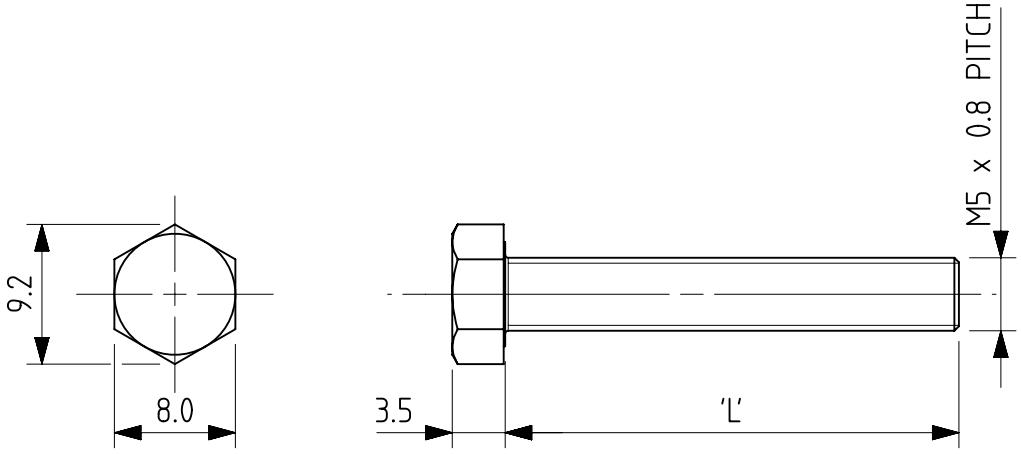
चित्तरंजन रेलइंजन कारखाना
CHITTARANJAN LOCOMOTIVE WORKS, INDIA

पदार्थ MATL	NEOPRENE	प्रति भार कि. ग्रा. WT. EACH IN KG	0.01
विशिष्टि SPECN	–		
वर्णन DESCRIPTION	Gasket		
आरेखण संख्या DRAWING NO.	1209-07.403-026		
परिवर्तन संख्या ALTERATION. NO.	01	पर्ण SHEET 1 OF 1	A4

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ISO METRIC HEXAGON HEAD SET SCREW





REF. NO.	DIMENSIONS 'L'
1209-18.406-324-001	10
1209-18.406-324-002	12
1209-18.406-324-003	16
1209-18.406-324-004	20
1209-18.406-324-005	25
1209-18.406-324-006	30
1209-18.406-324-007	35
1209-18.406-324-008	40
1209-18.406-324-009	45
1209-18.406-324-010	50
1209-18.406-324-011	

परिवर्तन संख्या ALT.NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित आद्यक्षर DATED INITIAL
0			

सतह – रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302

अनिर्दिष्ट सह्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLEARANCE TO IS : 2102 / ISO : 2768

धातु–वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553 WELDING SYMBOLS TO IS:813 / ISO:2553

TOL. CLS.

पदांक 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
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	75-100	160-250
Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
चिन्ह SYMBOL												

अभिकल्पित DGN	
जाँचा व.अ.अ. CHD SSE	
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	
अनुमोदित उ.मु.वि.अ. APPROVED DYCEE	
दिनांक DATE	26-11-20
रैखिक अनुपात SCALE	N.T.S.
संदर्भ / REF.	182-00225 ALT.-2

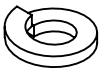
चित्तरंजन रेलइंजन कारखाना
CHITTARANJAN LOCOMOTIVE WORKS, INDIA

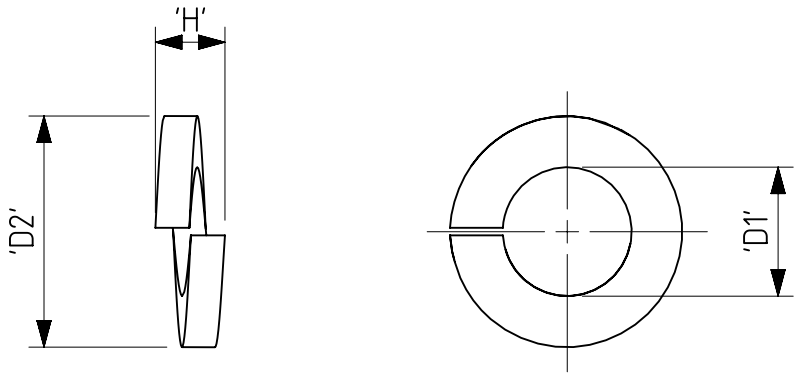
पदार्थ MATL	STAINLESS STEEL, A.I.S.I. 304
प्रति भार कि. ग्रा. WT. EACH IN KG	
विशिष्टि SPECN	IS:1364,PT-2
वर्णन DESCRIPTION	SCREW HEX HD M5 x 0.8
आरेखण संख्या DRAWING NO.	1209-18.406-324
परिवर्तन संख्या ALTERATION. NO.	0
पर्ण SHEET	1 OF 1
	A4

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1209-18.406-399

ALL DIMENSION IN mm UNLESS OTHERWISE SPECIFIED.
ISO METRIC HELICAL SPRING LOCK WASHER





REF. NO.	NOM SIZE (BOLT DIA.)	DIMENSIONS			SECTION THICKNESS
		'D1'	'D2'	'H'	
1209-18.406-399-001	3	3.4	6.2	1.84	0.90
1209-18.406-399-002	4	4.4	7.6	2.07	1.00
1209-18.406-399-003	5	5.4	9.2	2.76	1.30
1209-18.406-399-004	6	6.5	11.8	3.68	1.70
1209-18.406-399-005	8	8.6	14.9	4.60	2.10
1209-18.406-399-006	10	10.7	18.1	5.06	2.35
1209-18.406-399-007	12	12.7	21.1	5.75	2.65
1209-18.406-399-008	14	14.7	24.1	6.90	3.15
1209-18.406-399-009	16	17.0	27.4	8.05	3.70
1209-18.406-399-010	20	21.2	33.6	9.20	4.20
1209-18.406-399-011	24	25.5	40.0	11.50	5.20

SURFACE : FINISH NATURAL

परिवर्तन संख्या ALT.NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित आद्याक्षर DATED INITIAL
0			

सतह – रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302	अनिर्दिष्ट सद्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLEARANCE TO IS : 2102 / ISO : 2768	TOL. CLS.
	धातु–वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553 WELDING SYMBOLS TO IS:813 / ISO:2553	

पदांक 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
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	75-100	160-250
Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
चिन्ह SYMBOL												

अभिकल्पित DGN	
जाँचा व.अ.अ. CHD SSE	
सभीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	
अनुमोदित उ.मु.वि.अ. APPROVED DYCEE	
दिनांक DATE	21-10-20
रैखिक अनुपात SCALE	1:1
संदर्भ / REF.	182-00103 ALT.- 1

चित्तरंजन रेलइंजन कारखाना
CHITTARANJAN LOCOMOTIVE WORKS, INDIA

पदार्थ MATL	STAINLESS STEEL
प्रति भार कि. ग्रा. WT. EACH IN KG	
विशिष्टि SPECN	IS:3063
वर्णन DESCRIPTION	WASHER HELICAL SPRING LOCK NATURAL
आरेखण संख्या DRAWING NO.	1209-18.406-399
परिवर्तन संख्या ALTERATION. NO.	0
पर्ण SHEET	1 OF 1
	A4

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REDRAWN BY TCS

REF. NO.	PRODUCT	FUNCTION
1209-18.406-425-001	LOCTITE - 222	SCREW LOCK
1209-18.406-425-002	LOCTITE - 242	NUTLOCK-MED STRENGTH
1209-18.406-425-003	LOCTITE - 262	STUDLOCK-HIGH STRENGTH
1209-18.406-425-004	LOCTITE - 241	BEARINGS-MED STRENGTH
1209-18.406-425-005	LOCTITE - 680	RETAINING-V HIGH STRENGTH
1209-18.406-425-006	LOCTITE - 515	MASTER GASKET-HIGH SHEAR
1209-18.406-425-007	LOCTITE - 577	HIGH PRESSURE PIPE SEALANT
1209-18.406-425-008	LOCTITE - 271	THREADLOCK-HEAVY DUTY MED VISC'Y
1209-18.406-425-009	LOCTITE - 767	ANTISIEZE-200g AEROSOL CAN
1209-18.406-425-010	LOCTITE - 510	FLANGE SEAL
1209-18.406-425-011	LOCTITE - 542	THREAD SEAL
1209-18.406-425-012	LOCTITE - 401	BONDING MATERIAL

परिवर्तन संख्या ALT.NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित अद्याक्षर DATED INITIAL
0			

सतह – रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302
SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302

अनिर्दिष्ट सह्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768
UNSPECIFIED TOLEARANCE TO IS : 2102 / ISO : 2768

धातु–वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553
WELDING SYMBOLS TO IS:813 / ISO:2553

TOL. CLS.

पदांक 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
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	75-100	160-250
Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
चिन्ह SYMBOL												

अभिकल्पित DGN	
जाँचा व.अ.अ. CHD SSE	
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	
अनुमोदित उ.मु.वि.अ. APPROVED DYCEE	
दिनांक DATE	23-09-20
रैखिक अनुपात SCALE	1:1

संदर्भ / REF.
182-00311 ALT.-4

चित्तरंजन रेलइंजन कारखाना
CHITTARANJAN LOCOMOTIVE WORKS, INDIA

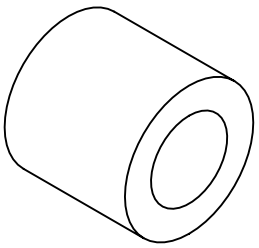
पदार्थ MATL	प्रति भार कि. ग्रा. WT. EACH IN KG
विशिष्टि SPECN	

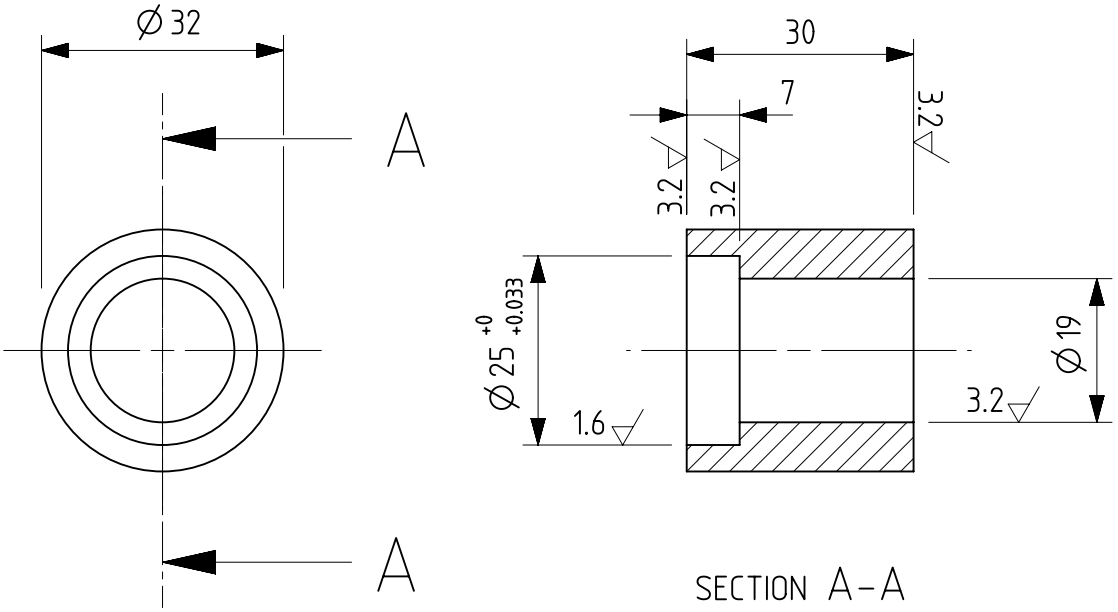
वर्णन DESCRIPTION: LOCTITE

आरेखण संख्या DRAWING NO.: 1209-18.406-425

परिवर्तन संख्या ALTERATION. NO. 0 | पर्ण SHEET 1 OF 1 | A4

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SECTION A-A

USED FOR LOCO WAG-9 & WAP-5 (1)
C&D NO. : T304/173 & B304/153
NEXT LEVEL ASSEMBLY: 1209-07.203-031 REF. NO. 7

REF. NO.	PART DRG. NO.	DESCRIPTION	NO./LOCO	MATL	SPECN	WT. EACH IN K.G.
		SEAL BOSS WIPER INSTALLATION	4	STEEL	IS: 2062 GR. C	

परिवर्तन संख्या ALT.NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित आद्यक्षर DATED INITIAL
2		REDRAWN IN NX WITH 3RD ANGLE PROJECTION	10-03-21
1	DY.CEE/D	WAP-5 CLASS OF LOCO ADDED.	03-05-11

सतह – रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302
SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302

अनिर्दिष्ट सह्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768
UNSPECIFIED TOLEARANCE TO IS : 2102 / ISO : 2768

धातु–वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553
WELDING SYMBOLS TO IS:813 / ISO:2553

TOL. CLS.

पदांक 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
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	75-100	160-250
Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
चिन्ह SYMBOL												

अभिकल्पित DGN	
जाँचा व.अ.अ. CHD SSE	
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	
अनुमोदित उ.मु.वि.अ. APPROVED DYCEE	
दिनांक DATE	10-03-21
रैखिक अनुपात SCALE	1:1
संदर्भ / REF.	IA082-00255 ALT.- 1

चित्तरंजन रेलइंजन कारखाना
CHITTARANJAN LOCOMOTIVE WORKS, INDIA

पदार्थ MATL	STEEL
प्रति भार कि. ग्रा. WT. EACH IN KG	
विशिष्टि SPECN	IS: 2062 GR. C
वर्णन DESCRIPTION	SEAL BOSS WIPER INSTALLATION
आरेखण संख्या DRAWING NO.	1209-07.403-032
परिवर्तन संख्या ALTERATION. NO.	2
पर्ण SHEET	1 OF 1
	A4

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