

TENDER SPECIFICATION FOR SET OF NON METALIC PIPE USED FOR WAP-5(BO-BO) ELECTRIC LOCOMOTIVES

TENDER SPECIFICATION No.
CLW/ES/3/0413 ALT-B

ENCLOSURES:

1. ANNEXURE- I
2. DRG. NO.
 - a) CLW/ES/3/SK-1/0413
 - b) CLW/ES/3/SK-2/0413
 - c) CLW/ES/3/SK-3/0413

ISSUED BY:

DY. CHIEF ELECTRICAL ENGINEER/D/CONV.
CHITTARANJAN LOCOMOTIVE WORKS
P.O. CHITTARANJAN – 713331
DISTRICT- BURDWAN (WEST), WEST BENGAL (INDIA)

PREPARED BY	CHECKED BY	APPROVED BY
NIRANJAN KUMAR Digitally signed by NIRANJAN KUMAR Date: 2023.03.15 11:52:42 +05'30' SSE/DRG&DGN (M)	MANGLES HWAR GIRI Digitally signed by MANGLES HWAR GIRI Date: 2023.03.29 17:30:56 +05'30' SSE/DRG&DGN (M)	SYAMA PRASAD PATRA Digitally signed by SYAMA PRASAD PATRA Date: 2023.03.29 17:53:06 +05'30' DY. CEE/D/CONV

Validity unknown

Digitally signed by
 NIRANJAN KUMAR
 Date: 2023.05.10
 11:10:06 +05'30'
 Reason: IREPS-CRIS
 Location: New Delhi

ALTERATION RECORD SHEET

SL. NO.	DATE OF AMENDMENT	ALTERATION NO.	REASON	AUTHORITY
1.	19/4/2000	A	Qty./Loco for Quadrant fittings has been changed to 5 nos. Instead of 4 Nos. in the scope of supply at sheet no. 6 as per the actual requirement of the shop.	-sd-
2.	28/03/2003	B	The material of set of insulation should be fire retardant /self extinguishing properties as per IS:11731 (Part 1&2) or any other equivalent DIN,IEC standard.	-sd-
3	—	e	1) DIN-16891 deleted from clause no. 4,4.1 4.2 2 4.3 2) Test added in clause no.5 (Test clause)	
Specifications have been digitized and all alterations have been incorporated				

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NIRANJAN KUMAR Digitally signed by NIRANJAN KUMAR Date: 2023.03.15 11:53:55 +05'30'	MANGLES HWAR GIRI Digitally signed by MANGLESHWAR GIRI Date: 2023.03.29 17:31:35 +05'30'	SYAMA PRASAD PATRA Digitally signed by SYAMA PRASAD PATRA Date: 2023.03.29 17:53:33 +05'30'
SSE/DRG&DGN (M)	SSE/DRG&DGN (M)	DY. CEE/D/CONV

**SPECIFICATION FOR SET OF NON-METALLIC PIPE USED FOR
WAP-5 (BO-BO) ELECTRIC LOCOMOTIVES**

INDEX

1. **SCOPE**
2. **CLIMATE AND ENVIRONMENT CONDITION**
3. **STANDARD**
4. **TECHNICAL DATA**
5. **TEST**
6. **DRAWING**
7. **SCOPE OF SUPPLY.**

PREPARED BY	CHECKED BY	APPROVED BY
NIRANJAN KUMAR Digitally signed by NIRANJAN KUMAR Date: 2023.03.15 11:54:46 +05'30'	MANGLES HWAR GIRI Digitally signed by MANGLES HWAR GIRI Date: 2023.03.29 17:31:57 +05'30'	SYAMA PRASAD PATRA Digitally signed by SYAMA PRASAD PATRA Date: 2023.03.29 17:53:53 +05'30'
SSE/DRG&DGN (M)	SSE/DRG&DGN (M)	DY. CEE/D/CONV

SPECIFICATION FOR SET OF NON METALLIC PIPE USED FOR THREE PHASE, 5000 H.P
WAP-5(BO-BO) A.C LOCOMOTIVE

1. SCOPE:

This specification applies to smoke detector assembly pipe for 3-phase, 6000 H.P WAP-5 class locomotive for 25KV AC 50HZ system.

2. Climate and environmental conditions:-

* Maximum atmospheric temperature : Under Sun : 70°C and in shade : 50°C

* Humidity : 100% saturation during rainy season

***Reference site conditions:**

i) Ambient Temp. Max. 47°. C min .0°. C

ii) The contractor will indicate the expected temperature rise in the machine room under reference site condition.

iii) Humidity : 60%

iv) Altitude : 160m above mean sea level

*Rain Fall : Very heavy in certain areas. The locomotive will be designed to permit 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 salt laden atmosphere.

*Vibration : The equipment, sub-system and their mounting arrangement will be designed to withstand vibrations and shocks encountered in service as specified in corresponding IEC publications unless otherwise prescribed.

3. STANDARD :- As per relevant IS & IEC Standard.

4. TECHNICAL DATA:-

Smoke Detector pipe:-

Materials:- As per DIN-16891 of Acrylonitrile -Butadiene - Styrene (4BS) d25 x 1.95.

deleted

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NIRANJAN KUMAR Digitally signed by NIRANJAN KUMAR Date: 2023.03.15 11:55:17 +05'30'	MANGLES HWAR GIRI Digitally signed by MANGLESHWAR GIRI Date: 2023.03.29 17:32:20 +05'30'	SYAMA PRASAD PATRA Digitally signed by SYAMA PRASAD PATRA Date: 2023.03.29 17:54:13 +05'30'
SSE/DRG&DGN (M)	SSE/DRG&DGN (M)	DY. CEE/D/CONV

4.1 Socket Fittings:- Deleted

As per ~~DIN-16891~~ of Aerylonitrile -Butediese - styrene (4BS) d25 x 1.95.

Details description has given in the Annexure - I and Drawing no. CLW/ES/3/SK-1/0413 & CLW/ES/3/SK-2/0413

Quantity per Loco :- 8 Nos.

4.2 Quadrant Fittings d-25 :-

As per ~~DIN-16891~~ of Aerylonitrile -Butediese-styrene (4BS) d25 x 1.95.

Details description has given in the Annexure -1 and Drawing No. CLW/ES/3/SK-1/0413 & CLW/ES/3/SK-2/0413

Quantity per Loco :- 4 Nos.

4.3 T- Fitting 90 DEG d-25 : Deleted

Material :- As per ~~DIN-16891~~ of Aerylonitrile - Butediese-styrene (4BS) d25 x 1.95.

Details description has given in the Annexure-1 and Drawing No. CLW/ES/3/SK-1/0413 & CLW/ES/3/SK-2/0413

Quantity per Loco :-1 Nos.

5. TEST:- As per Relevant IS & IEC Standard. Deleted

1) Polymer Identification as per IS 7078 or equivalent

2) Fire retardant/self-extinguishing properties as per IS 11731 or IS 6746 or equivalent

3) Dimensional test as per drawing attached in specification

6. DRAWING:

a) Details description has given in the Annexure-1 and Drawing No CLW/ES/3/SK-1/0413 of smoke detector pipe.

b) Details description of socket fittings , Quadrant fitting and T-Fittings in the drawing No. CLW/ES/3/SK-2/0413 , Fig. a, b, c respectively.

c) Description of smoke detector pipe in the drg. No. CLW/ES/3/SK-3/0413 .

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NIRANJAN KUMAR Digitally signed by NIRANJAN KUMAR Date: 2023.03.15 11:56:04 +05'30'	MANGLES HWAR GIRI Digitally signed by MANGLESHWAR GIRI Date: 2023.03.29 17:32:47 +05'30'	SYAMA PRASAD PATRA Digitally signed by SYAMA PRASAD PATRA Date: 2023.03.29 17:54:33 +05'30'
SSE/DRG&DGN (M)	SSE/DRG&DGN (M)	DY. CEE/D/CONV

ANNEXURE-I**7. SCOPE OF SUPPLY:-**

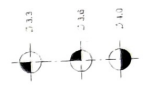
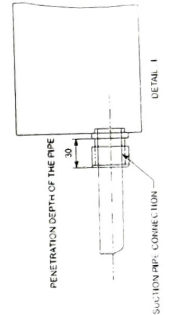
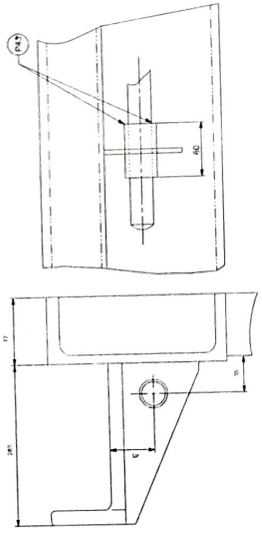
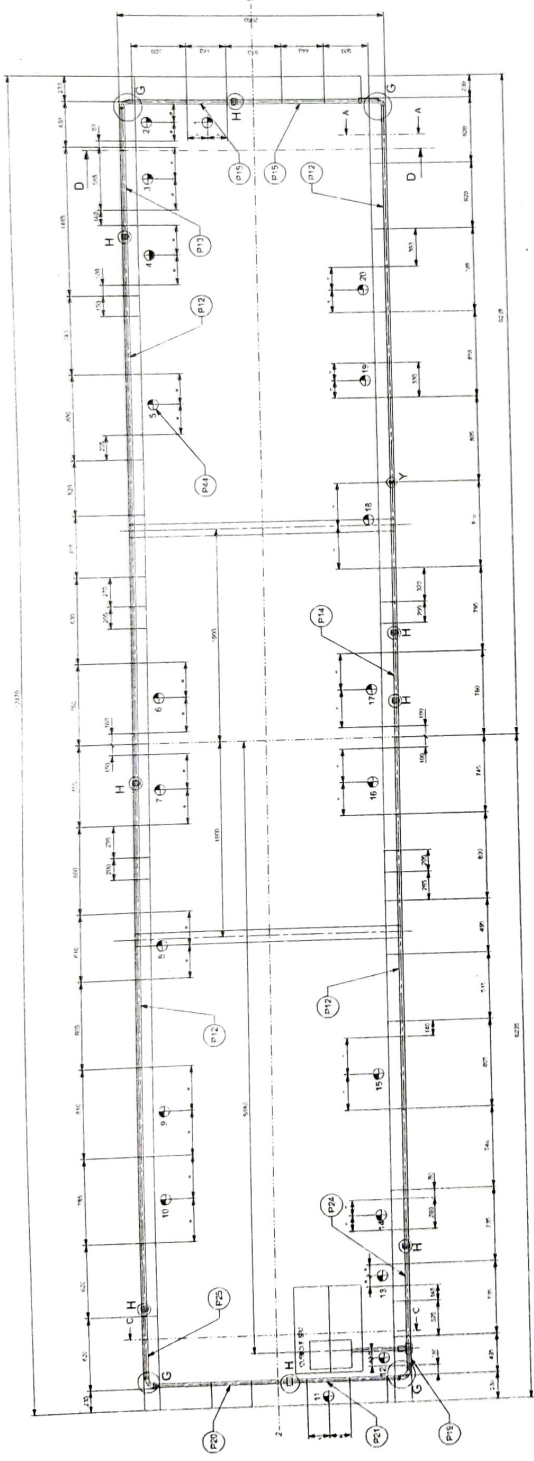
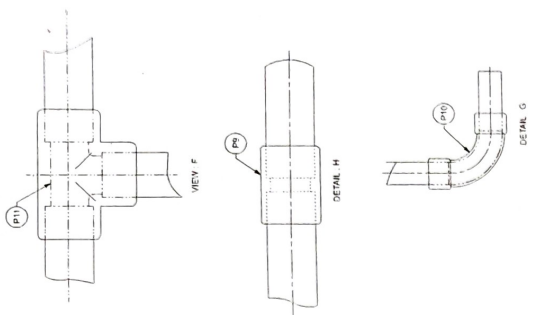
<u>Description</u>	<u>ABB Identity No.</u>	<u>Ref.Drg. No.& Item no.</u>	<u>Qty/Loco</u>
Socket Fitting d=25	- 3EHP 431362 P0002	SK-2, Fig-a	8
Quadrant Fitting d=25	- 3EHP 431362 P0010	SK-2, Fig-b	5
T-Fitting 90 DEG d=25	- 3EHP 431362 P0018	SK-2, Fig-c	1
Pipe/L = 5000	- 3EHP 431363 P0012	SK-1, P-12	4
Pipe/L = 1210	- 3EHP 431363 P0013	SK-1, P-13	1
Pipe/L = 580	- 3EHP 431363 P0014	SK-1, P-14	1
Pipe/L = 1610	- 3EHP 431363 P0015	SK-1, P-15	1
Pipe/L = 1140	- 3EHP 431363 P0016	SK-1, P-16	1
Pipe/L = 640	- 3EHP 431363 P0018	SK-1, P-18	1
Pipe/L = 240	- 3EHP 431363 P0019	SK-1, P-19	1
Pipe/L = 1480	- 3EHP 431363 P0020	SK-1, P-20	1
Pipe/L = 1260	- 3EHP 431363 P0021	SK-1, P-21	1
Pipe/L = 1000	- 3EHP 431363 P0024	SK-1, P-24	1
Pipe/L = 620	- 3EHP 431363 P0025	SK-1, P-25	1
Pipe/L = 730	- 3EHP 431363 P0017	SK-1, P-17	1

NOTE :- Smoke incoming hole of the smoke detector pipe as indicate as in the sk. no.CLW/ES/3/SK-1/0413.

General :- The tenderer should ensure smoke detector pipes are used as similar to WAP-5, 3-Phase electric locomotives manufactured by M/s. ABB for Indian Railways.

The material of set of Insulation should be fire retardant / self extinguishing properties as per IS: 11731 (part 1 & 2) or any other equivalent DIN,IEC standard.

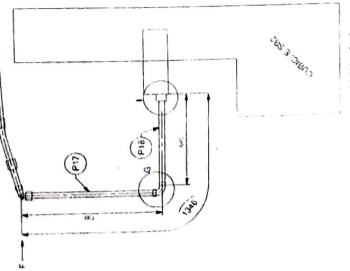
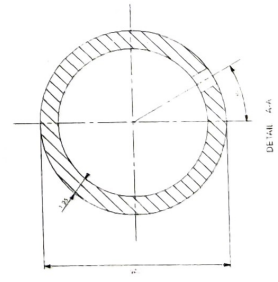
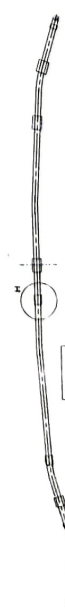
PREPARED BY	CHECKED BY	APPROVED BY
NIRANJAN KUMAR Digitally signed by NIRANJAN KUMAR Date: 2023.03.15 11:56:33 +05'30'	MANGLES HWAR GIRI Digitally signed by MANGLES HWAR GIRI Date: 2023.03.29 17:33:11 +05'30'	SYAMA PRASAD PATRA Digitally signed by SYAMA PRASAD PATRA Date: 2023.03.29 17:54:55 +05'30'
SSE/DRG&DGN (M)	SSE/DRG&DGN (M)	DY. CEE/D/CONV



NOTE: SCOTCH TAPE
1. MARK (BIPRES WITH SODIUM)
2. LENGTH (33 ALLOY)
3. LOCATE (FLEX TO THE BONES)

THE SUCCTION PIPE IS CONNECTED WITH THE ACTIVE
PIPE TO THE MAINS OF THE PIPE UNION PIECE
1. UNLOCK THE UNION PIECE OF THE PIPE CONNECTION JOINT
AND SLIDE IT OVER THE SUCCTION PIPE WHICH IS TO BE CONNECTED
2. INSERT THE PIPE INTO THE UNION PIECE AS FAR AS THE STOP APPROX. 4.00"
AND TIGHTEN UP THE UNION NOT BY HAND.

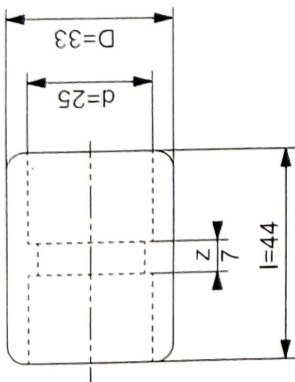
CONNECTIONS ARE ADHESIVE BONDED WITH PU 511



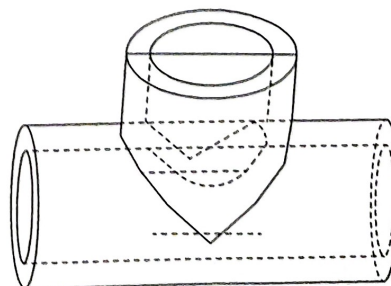
U.T. TAL. C. C.

SEE SHEET 6.8.9

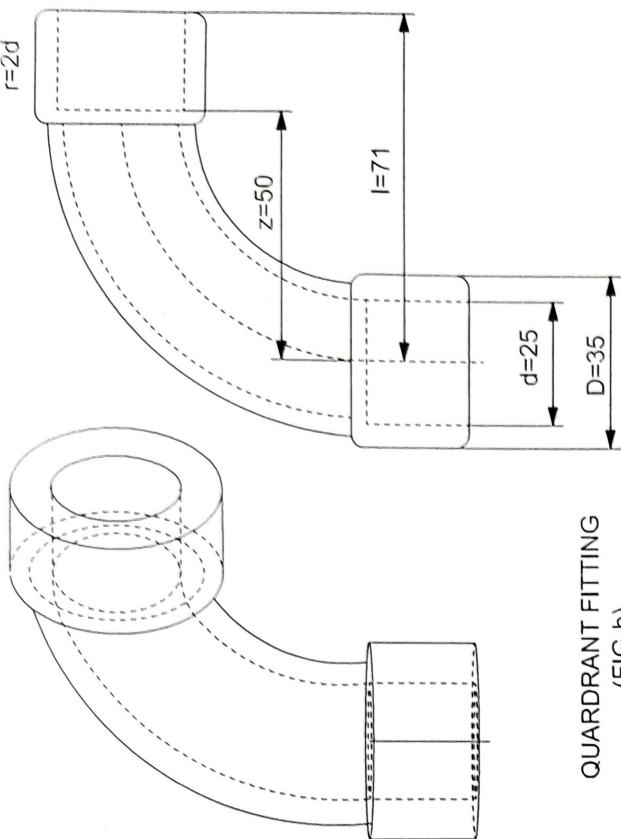
ITEM	DESCRIPTION	QTY	UNIT	REMARKS
1	PIPE 1/2" SCH 40S	100	FT	
2	PIPE 1/2" SCH 40S	100	FT	
3	PIPE 1/2" SCH 40S	100	FT	
4	PIPE 1/2" SCH 40S	100	FT	
5	PIPE 1/2" SCH 40S	100	FT	
6	PIPE 1/2" SCH 40S	100	FT	
7	PIPE 1/2" SCH 40S	100	FT	
8	PIPE 1/2" SCH 40S	100	FT	
9	PIPE 1/2" SCH 40S	100	FT	
10	PIPE 1/2" SCH 40S	100	FT	
11	PIPE 1/2" SCH 40S	100	FT	
12	PIPE 1/2" SCH 40S	100	FT	
13	PIPE 1/2" SCH 40S	100	FT	
14	PIPE 1/2" SCH 40S	100	FT	
15	PIPE 1/2" SCH 40S	100	FT	
16	PIPE 1/2" SCH 40S	100	FT	
17	PIPE 1/2" SCH 40S	100	FT	
18	PIPE 1/2" SCH 40S	100	FT	
19	PIPE 1/2" SCH 40S	100	FT	
20	PIPE 1/2" SCH 40S	100	FT	
21	PIPE 1/2" SCH 40S	100	FT	
22	PIPE 1/2" SCH 40S	100	FT	
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24	PIPE 1/2" SCH 40S	100	FT	
25	PIPE 1/2" SCH 40S	100	FT	
26	PIPE 1/2" SCH 40S	100	FT	
27	PIPE 1/2" SCH 40S	100	FT	
28	PIPE 1/2" SCH 40S	100	FT	
29	PIPE 1/2" SCH 40S	100	FT	
30	PIPE 1/2" SCH 40S	100	FT	
31	PIPE 1/2" SCH 40S	100	FT	
32	PIPE 1/2" SCH 40S	100	FT	
33	PIPE 1/2" SCH 40S	100	FT	
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49	PIPE 1/2" SCH 40S	100	FT	
50	PIPE 1/2" SCH 40S	100	FT	
51	PIPE 1/2" SCH 40S	100	FT	
52	PIPE 1/2" SCH 40S	100	FT	
53	PIPE 1/2" SCH 40S	100	FT	
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95	PIPE 1/2" SCH 40S	100	FT	
96	PIPE 1/2" SCH 40S	100	FT	
97	PIPE 1/2" SCH 40S	100	FT	
98	PIPE 1/2" SCH 40S	100	FT	
99	PIPE 1/2" SCH 40S	100	FT	
100	PIPE 1/2" SCH 40S	100	FT	



Technical drawing of a stepped shaft. The drawing shows a shaft with a total diameter of $D=35$ and a central hole of diameter $d=25$. The shaft has a total length of $l=37$. The central hole has a length of $z=18$. The shaft is divided into three sections: a central section of length $l=37$ and two end sections of length $z=18$ each. The drawing includes dashed lines to indicate the internal hole and the stepped profile.



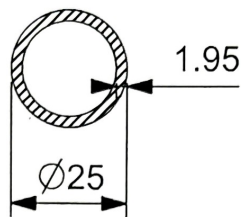
QUADRANT FITTING
(FIG-b)



QUADRANT FITTING
(FIG-b)

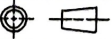
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संशोधन REVISION	संशोधन / बल्ल REVISED / USE	ड्राइंग DRAWING NO	परिवर्तन संख्या ALTERATION NO	पृष्ठ PAGE	1 OF 1
अनुमोदित प्रमुख APPROVED DATE	ड्राइंग DRAWING NO	ड्राइंग DRAWING NO	परिवर्तन संख्या ALTERATION NO	पृष्ठ PAGE	1 OF 1
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[illegible]



SECTION A-A

	P12	P13	P14	P15	P16	P18	P19	P20	P21	P24	P25	P17
L	5000	1210	580	1610	1140	640	240	1480	1260	1000	620	730

														अधिकल्पित DGN				 चित्तरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA			
														जॉचा व.अ.अ. (HD SSE)		MANGL ESHWAR R GIRI		पदार्थ MAIL		प्रति भार कि. ग्रा. WT EACH IN KG	
परिवर्तन संख्या ALT NO		प्राधिकार AUTHY		वर्णन DESCRIPTION				दिनांकित आधार DATED INITIAL		समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE		विशिष्ट SPECN									
सतह - रुकता का मान मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS 3073 / ISO 1302		अनिर्दिष्ट सद्य - सीमा मा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLERANCE TO IS 2102 / ISO 2768				TOL CLS		अनुमोदित उ.मु.वि.अ. APPROVED DYCEE		SYAMA PRASAD PATRA DESIGN OFFICER		वर्णन DESCRIPTION		SPECIFICATION FOR SET OF NON METALLIC PIPE							
		घातु-वेल्डन चिह्न मा. मा. : 813 / अ. मा. सं. : 2553 WELDING SYMBOLS TO IS 813 / ISO 2553						दिनांक DATE		25/06/98		आरेखण संख्या DRAWING NO.		CLW/ES/3/SK-3/0413							
पदांक GRADE NO	स1 N1	स2 N2	स3 N3	स4 N4	स5 N5	स6 N6	स7 N7	स8 N8	स9 N9	स10 N10	स11 N11	स12 N12	रैखिक 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	75-100	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									
चिह्न SYMBOL													संदर्भ / REF ALT								
														परिवर्तन संख्या ALTERATION NO.		पर्ण SHEET 1 OF 1					