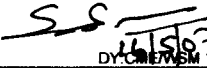
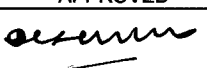






ITEM NO.	L	
1	17	
2	20	

MATERIAL : MS TO IS:2062

ALL DIMENSIONS ARE IN mm UNLESS SPECIFIED OTHERWISE.  
PERMISSIBLE DEVIATION FOR UNTOLERANCED DIMENSIONS AS PER IS:2102 CLASS 'm'

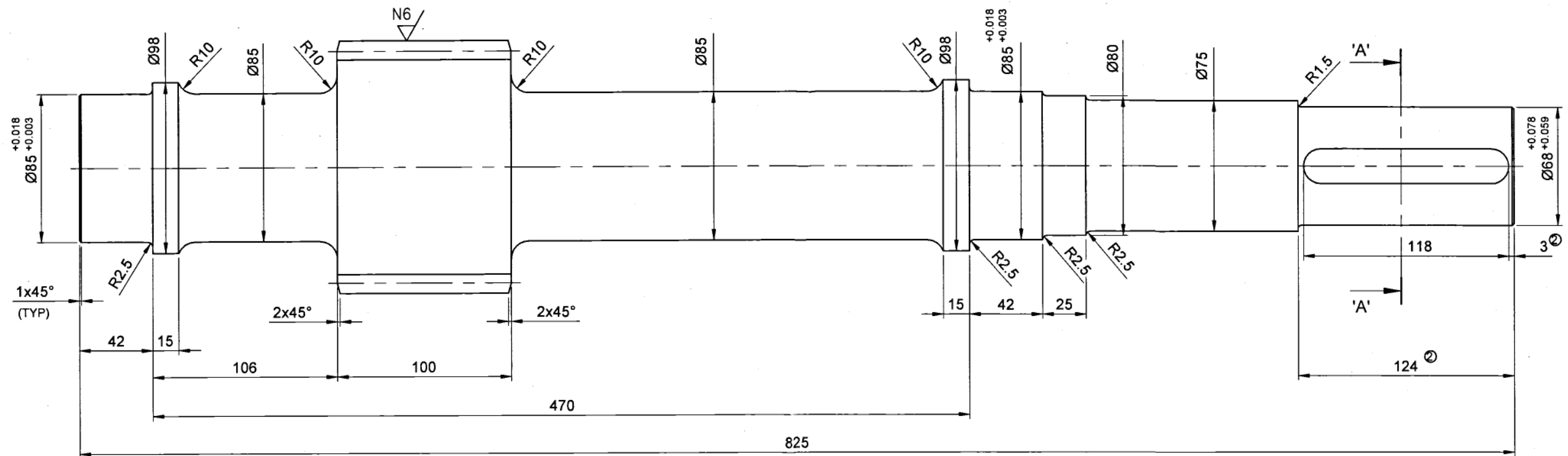
DEVELOPMENTAL ITEM

 DYC/ME/MSM APPROVED		<b>INDIAN RAILWAYS</b>		REF DRG.	
 V.M.W.S.M. REVIEWED		<b>SPACER</b>		SCALE	
 P.V.S. VERIFIED		FOR 2 <sup>ND</sup> INPUT SHAFT GEARING ASSY. OF MH GEAR BOX-35/10T CRANE (1&2)		AME/D  24-4-02 SSE/D  20/4/02 CHD  13.02.07 DRN Ravi 06.02.07	
<b>RAIL WHEEL FACTORY</b> <b>BANGALORE</b>		ALT. DRG. No.		701 0144 1 1950	
		JOB No.		4944 SHEET OF	

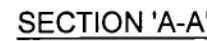
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Verified  
Digitally signed by  
Anantharaju D  
Date: 2026.03.13  
11:35:32 +05'  
Reason: IREPS-CRIS  
Location: New Delhi

N8 ✓ [ N6 ✓ ]

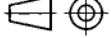
*Stacy*






No. OF TEETH	24
D.P.	5(H)
X1	0.2923
OUTSIDE DIA.	145.093 <sup>+0.0</sup> <sub>-0.1</sub>
CALIPER SETTING W	W4
BASE TANGENT SPAN DIM. OVER 4 TEETH	55.528 <sup>±0.025</sup>
LP	1000.877
α	22 ½° LH



MATL: En-24 (T CONDITION)  
HEAT TREATED TO 55 TONS / in<sup>2</sup>.  
HARDNESS : 270 - 310 BHN.

ITEM	QTY.	DESCRIPTION	MATL/SPECN		REMARKS			
INDIAN RAILWAYS			REF DRG.					
PINION SHAFT-24T, 5M (MH-2) FOR MAIN HOIST GEAR BOX OF EOT-1 (40/12.5T) & EOT-2 (35/10T)			SCALE	Dy.CME/QS	d.mano		24/12/15	
			NTS	SSE/D				
				CHD	Rajeev		24/12/25	
				DRN	KIRAN	24.12.25		
					KRS	18.05.87		
			PROJECTION	ALT	<input checked="" type="checkbox"/> (1) <input checked="" type="checkbox"/> (2)			
RAIL WHEEL FACTORY BANGALORE			DRG.No. 721 0144 10320					
			JOB No. 86		SHEET 1 OF 1			

 DY CME/M	 VM/	 AWM/M
APPROVED	REVIEWED	VERIFIED

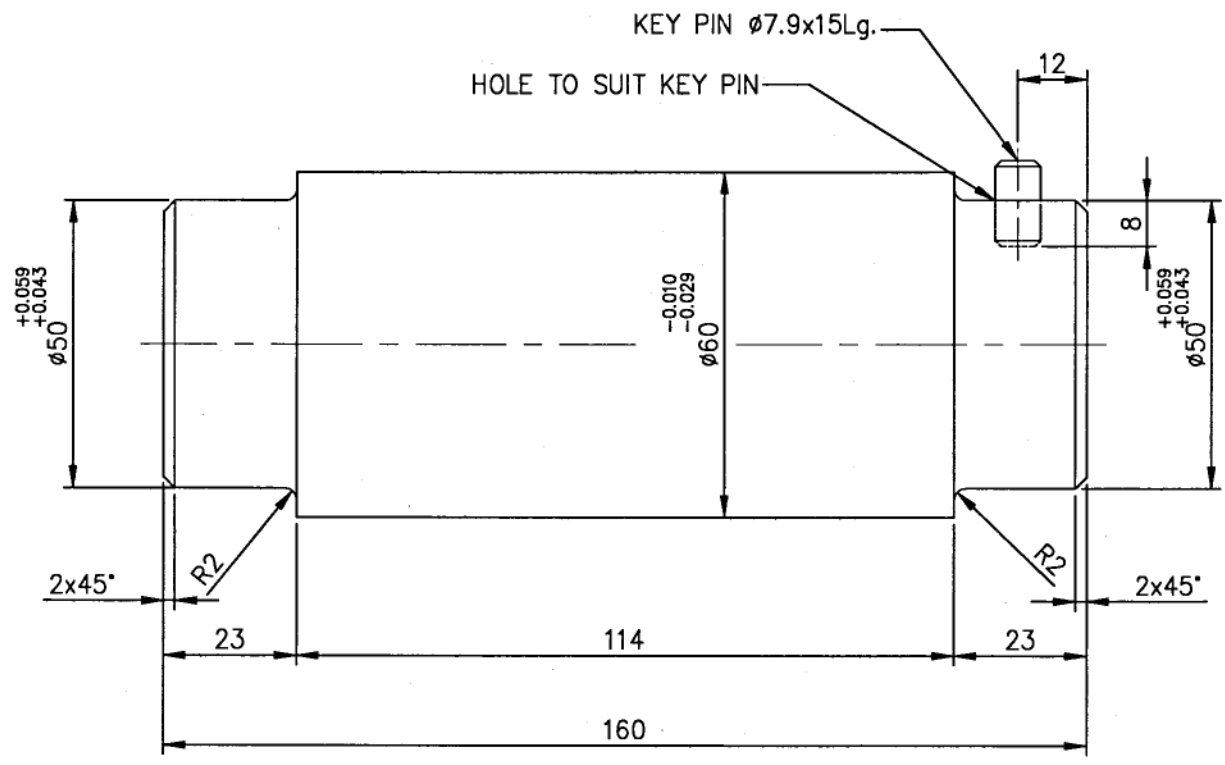
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Date: 2026.05.13 11:37:57 GMT  
Reason: IREPS-CRIS Location: New Delhi

ALL DIMENSIONS ARE IN mm UNLESS SPECIFIED OTHERWISE.  
PERMISSIBLE DEVIATION FOR UNTOLERANCED DIMENSIONS AS PER IS:2102 CLASS 'm'

Gr. NUMBER	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12
Rq, $\mu\text{m}$	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50

PERMISSIBLE DEVIATION FOR ANGULAR DIMENSIONS (mm)		TOLERANCE CLASS PERMISSIBLE DEVIATIONS FOR RANGES OF LENGTHS IN mm OF THE SHORTER SIDE OF ANGLE CONCERNED	
DESIGN DESCRIPTION	UP TO 10	OVER 10 TO 50	OVER 50 TO 120
FINE	±1°	±0° 30'	±0° 20'
MEDIUM	±1° 30'	±1°	±0° 30'
COARSE	±2°	±1° 30'	±1°
VERY COARSE	±3°	±2°	±1° 30'

DO NOT SCALE DRAWING	N8	ALT	DESCRIPTION	JOB No.	APPROVED
		①	MATERIAL SPECIFICATION HAS BEEN CHANGED.	8123	
		07.01.26			



MATL: C60E/En-9  
NORMALIZED, HARDNESS - 201 BHN.

ALL DIMENSIONS ARE IN mm UNLESS SPECIFIED OTHERWISE.  
PERMISSIBLE DEVIATION FOR UNTOLERANCED DIMENSIONS AS PER IS:2102 CLASS 'm'

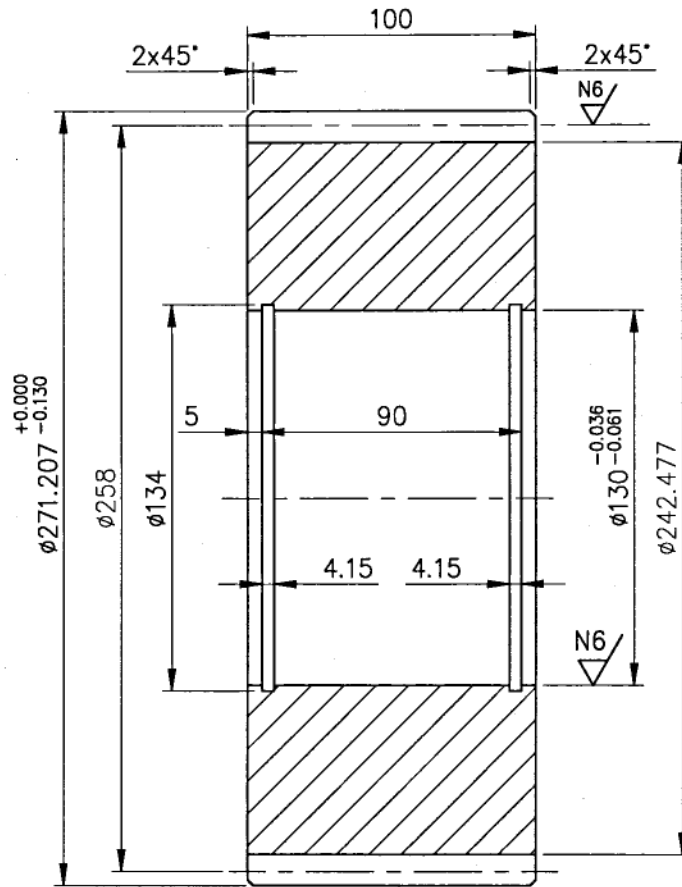
DEVELOPMENTAL ITEM

INDIAN RAILWAYS		REF DRG.	
PIN & KEY PIN		SCALE	Dy.CME/QS
FOR MAIN HOIST GEAR BOX		SSE/D	07/01/26
OF EOT-1(40/12.5T) & EOT-2 (35/10T) CRANE		CHD	07/01/26
RAIL WHEEL FACTORY BANGALORE		KIRAN	07.01.26
VERIFIED		Ravi	31.01.07
Gr. NUMBER N1 N2 N3 N4 N5 N6 N7 N8 N9 N10 N11 N12		ALT. ①	
Ra μm 0.025 0.05 0.1 0.2 0.4 0.8 1.6 3.2 6.3 12.5 25 50		DRG.No. 711 0144 1 1930	
JOB No. 4942		SHEET OF	

Signature  
Verified  
Digitally signed  
Anantharaju D  
Date: 2026.02.13  
11:28:58  
Reason: IREPS-CRIS  
Location: New Delhi

PERMISSIBLE DEVIATION FOR ANGULAR DIMENSIONS (mm)	PERMISSIBLE DEVIATION FOR BASIC SIZE RANGE	PERMISSIBLE DEVIATION FOR ANGULAR DIMENSIONS (mm)	PERMISSIBLE DEVIATION FOR BASIC SIZE RANGE
OVER 120 UP TO 400	OVER 120 UP TO 400	OVER 120 UP TO 400	OVER 120 UP TO 400
± 0° 5'	± 0° 5'	± 0° 5'	± 0° 5'
± 0° 10'	± 0° 10'	± 0° 10'	± 0° 10'
± 0° 15'	± 0° 15'	± 0° 15'	± 0° 15'
± 0° 30'	± 0° 30'	± 0° 30'	± 0° 30'
± 1°	± 1°	± 1°	± 1°
± 2°	± 2°	± 2°	± 2°
± 3°	± 3°	± 3°	± 3°
± 4°	± 4°	± 4°	± 4°
± 5°	± 5°	± 5°	± 5°
± 6°	± 6°	± 6°	± 6°
± 7°	± 7°	± 7°	± 7°
± 8°	± 8°	± 8°	± 8°
± 9°	± 9°	± 9°	± 9°
± 10°	± 10°	± 10°	± 10°
± 11°	± 11°	± 11°	± 11°
± 12°	± 12°	± 12°	± 12°
± 13°	± 13°	± 13°	± 13°
± 14°	± 14°	± 14°	± 14°
± 15°	± 15°	± 15°	± 15°
± 16°	± 16°	± 16°	± 16°
± 17°	± 17°	± 17°	± 17°
± 18°	± 18°	± 18°	± 18°
± 19°	± 19°	± 19°	± 19°
± 20°	± 20°	± 20°	± 20°

DO NOT SCALE DRAWING	N8 / [ N6 / ]	ALT ② 20.01.26	DESCRIPTION MATERIAL SPECN. & GEAR DATA HAVE BEEN CHANGED	JOB No. 8123	APPROVED
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GEAR DATA		
TYPE OF GEAR	SPUR	
NO OF TEETH	Z	43
MODULE	$m_n$	6
CORRECTION FACTOR	X	+0.1039
OUT SIDE DIAMETER		271.207 <sup>+0.000</sup> / <sub>-0.130</sub>
BASE TANGENT SPAN GAUGE	$W_5$	83.748 <sup>83.658</sup> / <sub>83.611</sub>

MATERIAL : 18CrNiMo7-6

HEAT TREATED TO 55 TONS/IN<sup>2</sup>  
HARDNESS : 58-62 HRc.

ALL DIMENSIONS ARE IN mm UNLESS SPECIFIED OTHERWISE.

PERMISSIBLE DEVIATION FOR UNTOLERANCED DIMENSIONS AS PER IS:2102 CLASS 'm'

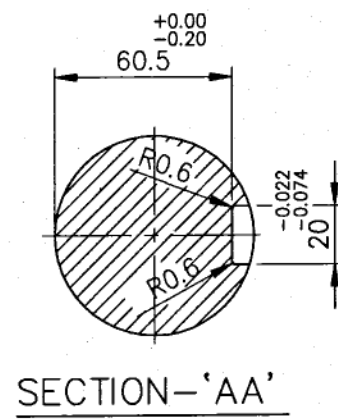
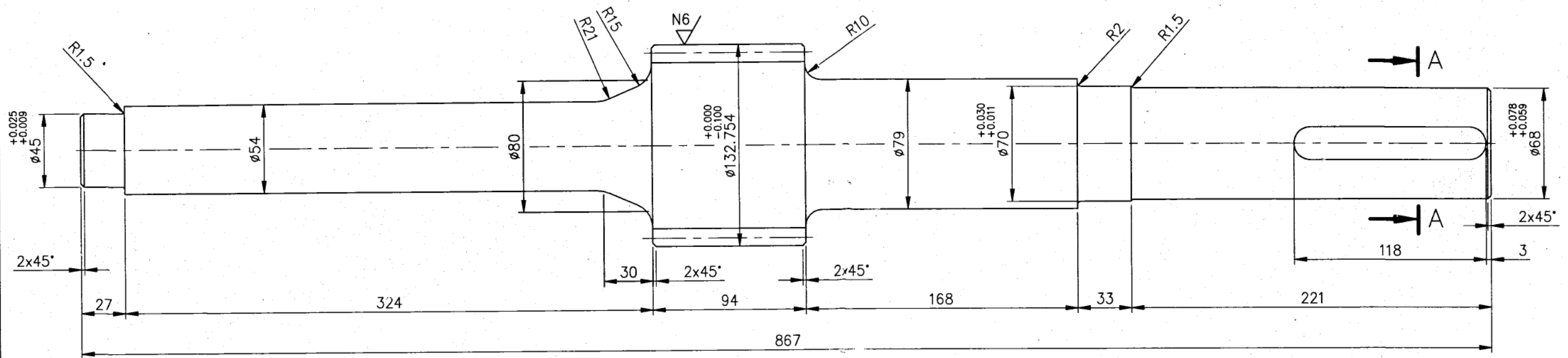
INDIAN RAILWAYS		REF DRG.	
PLANET WHEEL-43T, MODULE 6		SCALE	Dy.CME/QS
FOR MAIN HOIST GEAR BOX		SSE/D	20.01.26
OF EOT-1 (40/12.5T) CRANE		CHD	Ravi 20/01/26
RAIL WHEEL FACTORY		PROJECTION	KIRAN 20.01.26
BANGALORE		DRN	Ravi 23.08.12
VERIFIED		ALT. ②	
DRG.No.		721 0144 1 2690	
JOB No. 5938		SHEET OF	

Signature Not Verified  
Digitally Signed  
Anantharaju D  
Date: 20/01/26  
Time: 11:30:39 AM  
Reason: IREPS-CRIS  
Location: New Delhi



[illegible]

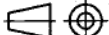
DO NOT SCALE DRAWING





GEAR DATA		
TYPE OF GEAR	SPUR	
NO OF TEETH	Z	20
MODULE	$m_n$	6
CORRECTION FACTOR	X	+0.066
OUT SIDE DIAMETER	132.754 $\begin{smallmatrix} +0.000 \\ -0.100 \end{smallmatrix}$	
CALIPER SETTING W. BASE TANGENT SPAN DIMN. OVER 3 TEETH - $w_3$	46.234	46.168
		46.130

MATERIAL : 18CrNiMo7-6  
HEAT TREATED TO 55 TONS/IN<sup>2</sup>  
HARDNESS : 58-62 HRC.

DEVELOPMENTAL ITEM

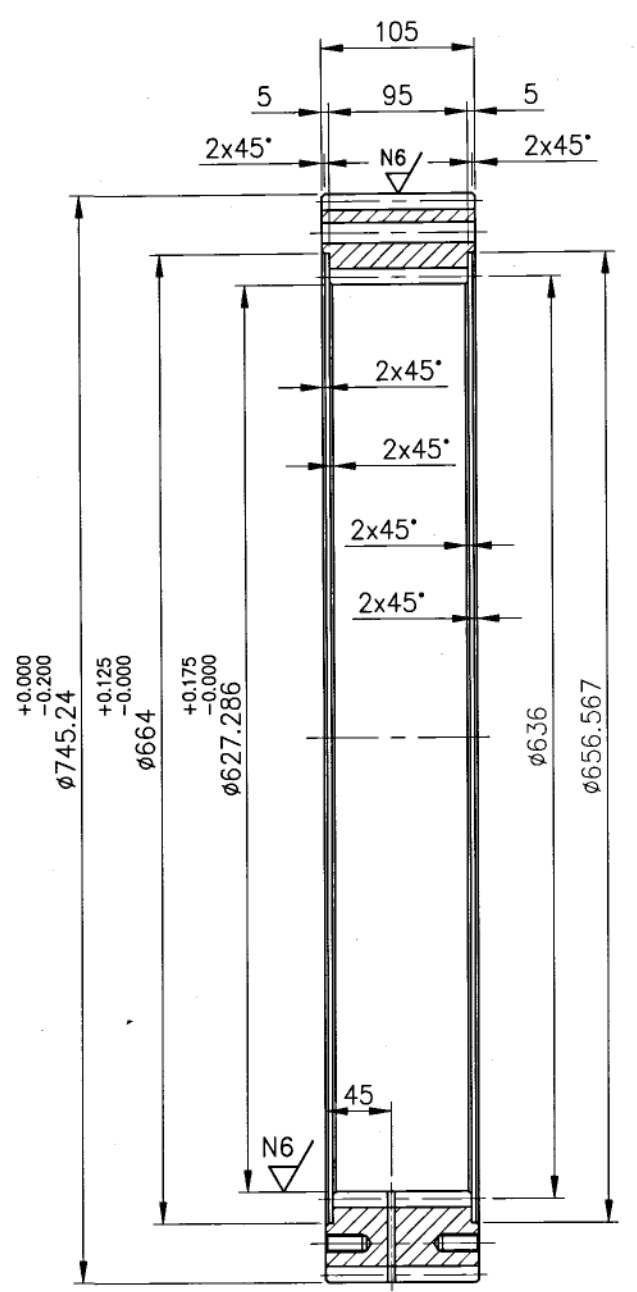
INDIAN RAILWAYS		REF DRG.									
SUN PINION SHAFT-20T, MODULE 6 (MH-1)  FOR MAIN HOIST GEAR BOX OF EOT-1 (40/12.5T) CRANE		SCALE	Dy.CME/P	11/10/78							
			SSE/D								
			CHD	11.10.25							
			DRN	KIRAN	06.10.25						
				RAVI	23.08.12						
PROJECTION	ALT	①									
RAIL WHEEL FACTORY BANGALORE		DRG.No. 711 0144 1 2700									
		JOB No. 5938				SHEET OF					

RAIL WHEEL FACTORY  
BANGALORE

 DY CME/W-II	WM/	 AW/AMM
APPROVED	REVIEWED	VERIFIED

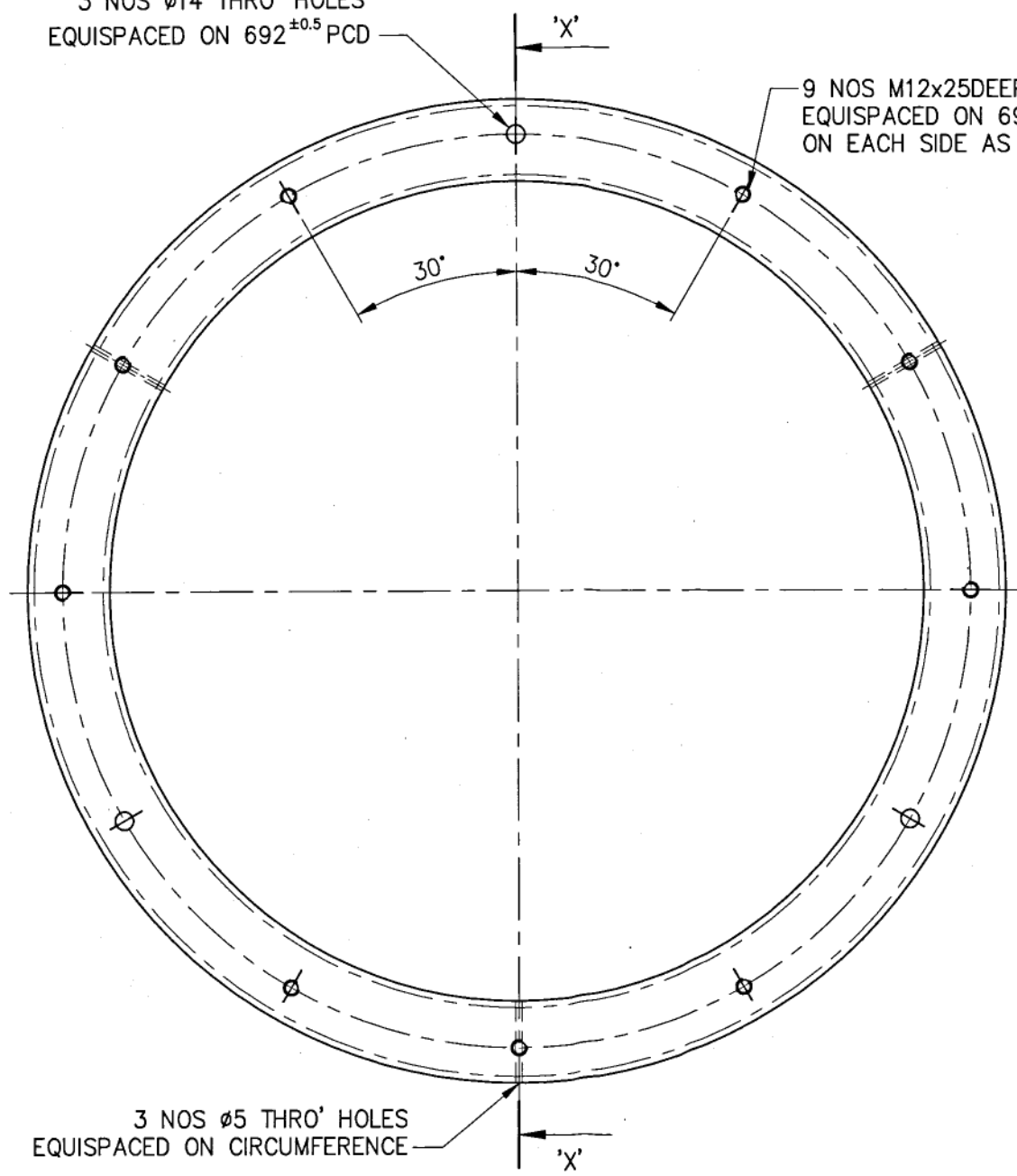
IS: 2102 (PART-1)-1993 OR ISO 2768-1: 1989									
PERMISSIBLE DEVIATION FOR ANGULAR DIMENSIONS (mm)									
TOLERANCE CLASS									
DESIGN DESCRIPTION									
PERMISSIBLE DEVIATIONS FOR RANGES OF LENGTHS IN mm									
UP TO 10 OVER 10 UP TO 30 OVER 30 UP TO 50 OVER 50 UP TO 120 OVER 120 UP TO 400 OVER 400									
1 FINE									
2 MEDIUM									
3 COARSE									
4 VERY COARSE									

DO NOT SCALE DRAWING



SECTION 'X-X'

3 NOS Ø14 THRO' HOLES  
EQUISPACED ON 692<sup>±0.5</sup> PCD



ALT	DESCRIPTION	JOB No.	APPROVED
① 23.01.26	GEAR DETAILS HAVE BEEN MODIFIED. MATL. HAS BEEN CHANGED FROM En-8 TO 34CrNiMo6/En-24	8178	<i>[Signature]</i>

EXTERNAL GEAR DATA	
TYPE OF GEAR	HELICAL
NO OF TEETH	Z 134
NORMAL MODULE	m <sub>n</sub> 5.08 (5 DP)
CORRECTION FACTOR	X -0.1691
OUT SIDE DIAMETER	745.24 <sup>+0.000</sup> <sub>-0.200</sub>
HELIX ANGLE	δ 22.5° RH
CALIPER SETTING W. BASE TANGENT SPAN DIMN. OVER 19 TEETH - W <sub>19</sub>	288.797
	288.633
	288.557

INTERNAL GEAR DATA	
TYPE OF GEAR	SPUR
NO OF TEETH	Z 106
NORMAL MODULE	m <sub>n</sub> 6
CORRECTION FACTOR	X -0.2739
INSIDE DIAMETER	627.286 <sup>+0.175</sup> <sub>-0.000</sub>
ROLLER DIAMETER	DM 10.5
DIMENSION BETWEEN ROLLERS	Mdk 624.677/624.455

MATL: 34CrNiMo6 / En-24  
HARDNESS : 270 TO 310 BHN.

INDIAN RAILWAYS		REF DRG.	
GEAR-134/106T FOR MAIN HOIST GEAR BOX OF 40/12.5T CRANE		SCALE	Dy.CME/QS
		SSE/D	
		CHD	<i>[Signature]</i> 23.01.26
		DRN	KIRAN 23.01.26 Ravi 23.08.12
RAIL WHEEL FACTORY BANGALORE		ALT ①	
		DRG.No.	711 0144 1 2710
		JOB No.	5938
		SHEET	OF

<i>[Signature]</i> DY.CME/24/01/26	WM/	AWM/MMS
APPROVED	REVIEWED	VERIFIED

DO NOT SCALE DRAWING

N6 / [N6]

ALT	DESCRIPTION	JOB No.	APPROVED
① 20.01.26	MATERIAL SPECIFICATION HAS BEEN CHANGED.	8123	

SECTION-AA

SECTION-BB

ARM TO BE STRESS RELIEVED BEFORE MACHINING

GROOVE 2Wx1DEEP

ITEM-A

ITEM-B

VIEW-'XX'

MATL : C60E / En-9  
NORMALIZED, HARDNESS - 201 BHN.

NOTE:  
THE ITEM TO BE MANUFACTURED WITH FORGED MATERIAL ONLY

INDIAN RAILWAYS		REF DRG.	
SPIDER ARM FOR MAIN HOIST GEAR BOX OF EOT-1 (40/12.5T) CRANE	SCALE	Dy.CME/QS	20.01.26
	SSE/D	Raj	20.01.26
	CHD	KIRAN VIJAY	20.01.26
	DRN	VIJAY	30.05.23
RAIL WHEEL FACTORY BANGALORE		ALT ①	
		JOB No. 7798 SHEET 1 OF 1	

ALL DIMENSIONS ARE IN mm UNLESS SPECIFIED OTHERWISE.  
PERMISSIBLE DEVIATION FOR UNTOLERANCED DIMENSIONS IS: 2102 CLASS 'm'

GC NUMBER N1 N2 N3 N4 N5 N6 N7 N8 N9 N10 N11 N12  
Ra um 0.025 0.050 0.102 0.40 1.6 3.2 6.3 12.5 25 50

REF 701014413080

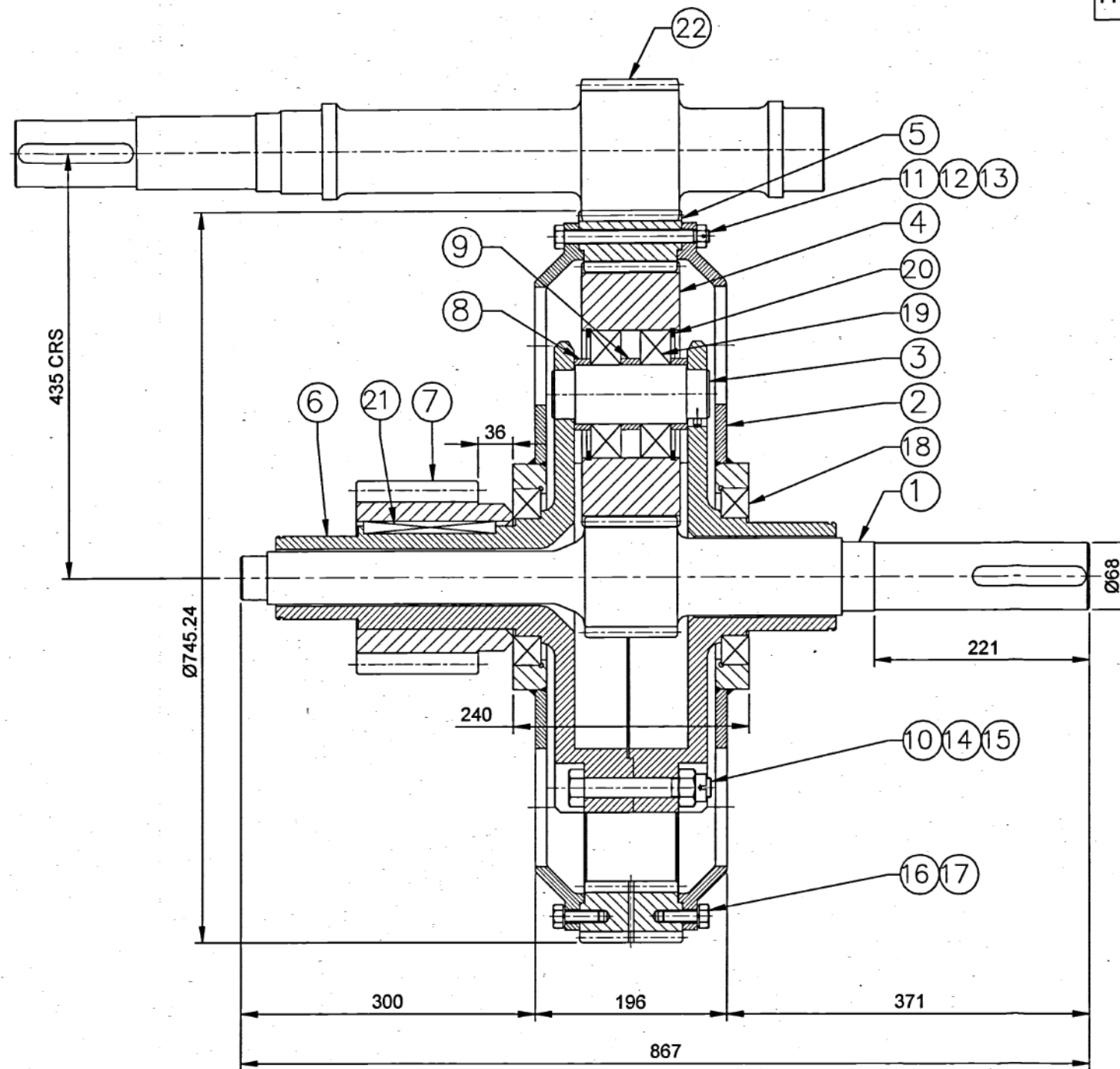
ALL DIMENSIONS ARE IN mm UNLESS SPECIFIED OTHERWISE.  
PERMISSIBLE DEVIATION FOR UNTOLERANCED DIMENSIONS IS: 2102 CLASS 'm'

Gr. NUMBER N1 N2 N3 N4 N5 N6 N7 N8 N9 N10 N11 N12  
Ra, um 0.025 0.05 0.1 0.2 0.4 0.8 1.6 3.2 6.3 12.5 25 50

REF 701014413080



ALT	DESCRIPTION	JOB No.	APPROVED
① 11.02.26	ITEM NO. 22 HAS BEEN ADDED IN THE DRAWING. REF. DRG. Nos. FOR ITEM Nos. 1 TO 7 HAVE BEEN UPDATED. '(MH-1 & MH-2)' ADDED IN THE TITLE.	8191	



22	1	PINION SHAFT (MH-2)	721 0144 10320		
21	1	PARALLEL KEY 20x12x135	IS:2048		
20	4	CIRCLIP LIGHT B Ø130 E	IS:3075		
19	4	SPHERICAL ROLLER BEARING 60x130x31	NO:21312		MAKE: SKF/FAG/NTN
18	2	SINGLE ROW DEEP GROOVE BALL BEARING 120x180x28	NO:6024		MAKE: SKF/FAG/NTN
17	18	SPRING WASHER A12	IS:3063		
16	18	HEX SCREW M12X35Lg	IS:1364		
15	4	MS SPLIT PIN Ø4.6 X 40 Lg	IS:549		
14	4	CASTLE NUT M20	IS:2232-P-6		
13	3	MS SPLIT PIN Ø3.2 X 30 Lg	IS:549		
12	3	HEXAGONAL SLOTTED NUT Gr(P) M12			
11	3	HEX BOLT M12x155Lg	IS:1364, P-4.6		
10	4	M20 X 120 Lg BOLT	IS:226/2063		
9	2	SPACER	701 0144 1 1950 ITEM-2		
8	4	SPACER	701 0144 1 1950 ITEM-1		
7	1	PINION	701 0144 1 3540		
6	1	SPIDER ARM	711 0144 1 3490		
5	1	GEAR 134/106 T	711 0144 1 2710		
4	2	PLANET WHEEL	721 0144 1 2690		
3	2	PIN & KEY PIN	711 0144 1 1930		
2	2	GEAR HOUSING	711 0144 1 3510		
1	1	SUN PINION SHAFT	711 0144 1 2700		
ITEM	QTY.	DESCRIPTION	MATL/SPECN	WT.	REMARKS

INDIAN RAILWAYS

SUN PLANETARY GEAR ASSEMBLY  
FOR MAIN HOIST GEAR BOX (MH-1 & MH-2)  
OF 40/12.5T CRANE NO.1

RAIL WHEEL FACTORY  
BANGALORE

REF DRG.	SCALE	Dy CME/QS	11/02/26
	SSE/D		
	CHD	Rge	11/02/26
	DRN	KIRAN VIJAY	11.02.26
	ALT	①	02.06.23
DRG. No.	711 0144 13500		
JOB No.	7802	SHEET 1 OF 1	

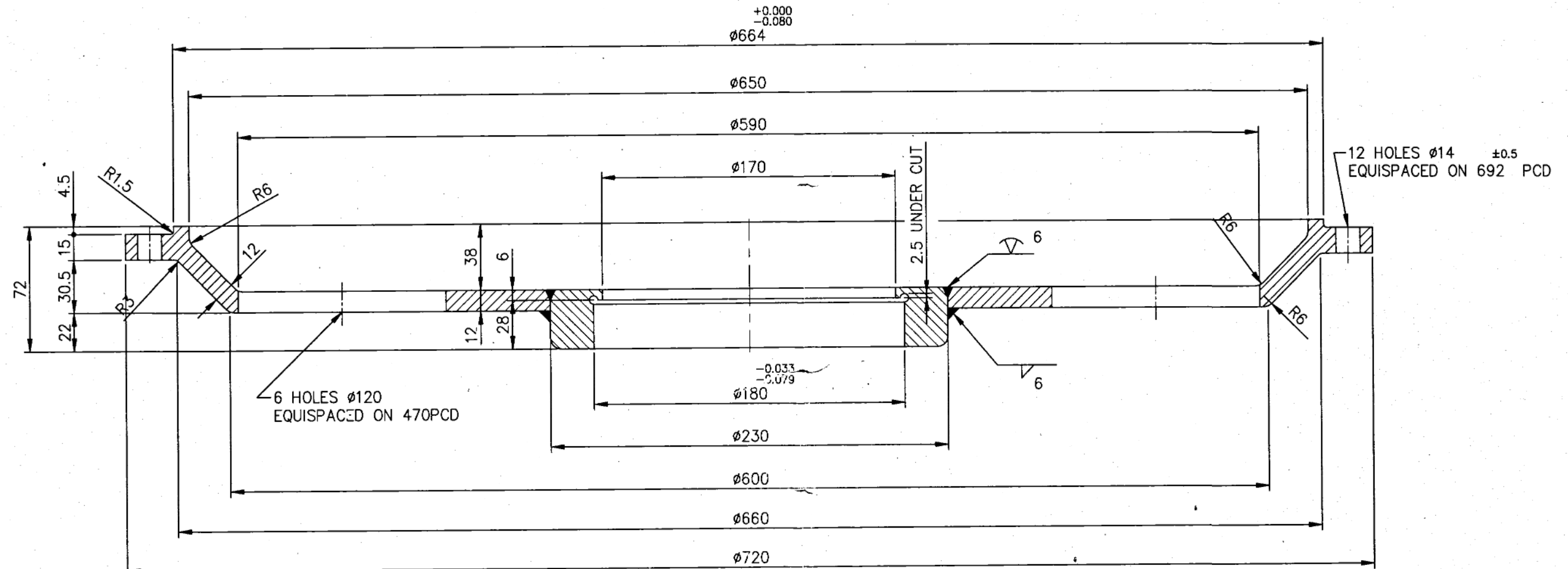
APPROVED	REVIEWED	VERIFIED

ALL DIMENSIONS ARE IN mm UNLESS SPECIFIED OTHERWISE.  
PERMISSIBLE DEVIATION FOR UNTOLERANCED DIMENSIONS AS PER IS:2102 CLASS 'm'

Gr. NUMBER	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12
Ro. um	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50



ALT	DESCRIPTION	JOB No.	APPROVED
① 06.10.25	MATERIAL SPECIFICATION HAS BEEN CHANGED.	8123	<i>[Signature]</i>



MATL: FE410WB, IS 2062

INDIAN RAILWAYS		REF DRG.										
GEAR HOUSING FOR MAIN HOIST GEAR BOX OF 40/12.5T EOT CRANE-1		SCALE	Dy.CME/P		11/10/17							
		NTS	SSE/D									
			CHD		8/11.10.25							
		PROJECTION	DRN		KIRAN		06.10.25					
							21.06.23					
RAIL WHEEL FACTORY BANGALORE		ALT	①									
		DRG.No. 711 0144 13510										
		JOB No. 7812					SHEET OF					

ALL DIMENSIONS ARE IN mm UNLESS SPECIFIED OTHERWISE.  
PERMISSIBLE DEVIATION FOR UNTOLERANCED DIMENSIONS AS PER IS.2102 CLASS 'm'

SURFACE ROUGHNESS VALUE	Gr. NUMBER	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12
	Ra, $\mu\text{m}$	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50

