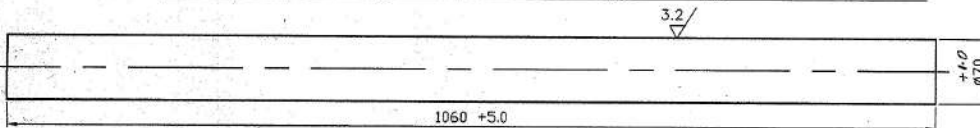


# MATERIAL FOR PREPARATION OF COLD SWAGING BLANK



VETTED FOR MATERIAL ONLY  
 VETTED FOR MATERIAL ONLY  
 AS PER LAST DC (B) NO  
 23330 DT 12-02-96

FOR SQAO  
 SQAE (A) TIRUCHI  
 27/11/2002  
 (Gd. THARAK RAM)  
 PSCC

1. MACRO-ETCH TEST:-  
 BETTER THAN OR EQUIVALENT TO C1,R1,S1 OF ASTM E-381-84  
 FOR PLATE No.1, AND NIL FOR PLATE No.2  
 SELECTION OF SAMPLES:-  
 (1) 2 Nos. FROM A BULK UPTO 10 MT.  
 (2) 3 Nos. FROM A BULK OVER 10 MT.

2. NONMETALLIC INCLUSION RATING TEST TO CIM.50  
 ACCEPTANCE STANDARD AS LAID DOWN IN JSS 9510-06  
 SELECTION OF SAMPLE:-  
 (1) 3 Nos. FROM A BULK UPTO 10 MT.  
 (2) 4 Nos. FROM A BULK OVER 10MT.

3. DETERMINATION OF INCLUSION CONTENT TO IS:4163  
 INCLUSION CONTENT SHALL NOT EXCEEDS:-  
 A - 1.5 (THIN) NIL (THICK) -  
 B - 1.5 (THIN) NIL (THICK) -  
 C - 1.5 (THIN) NIL (THICK) -  
 D - 1.5 (THIN) -0.5 (THICK) -

4. SELECTION OF SAMPLES :-  
 1. 2 Nos. FROM A BULK UPTO 10 MT.  
 2. 3 Nos. FROM A BULK OVER 10 MT.

5. SPECIAL TECHNICAL REQUIREMENTS :  
 100% OF BLANKS ARE CHECKED FOR HARDNESS  
 TWO BLANKS FROM A BATCH ARE CHECKED FOR -  
 MECHANICAL PROPERTIES  
 ( ONE BLANK WITH MAXIMUM HARDNESS AND  
 ONE BLANK HAVING MINIMUM HARDNESS )

6. MATERIAL FOR INDIA  
 CODE REF. C OF JSS 9510-06, 2012  
 HARDENED AND TEMPERED CONDITION  
 ESR QUALITY MATL ( AS PER CLAUSE 4-1 )

**7. GENERAL NOTES:-**

- 1. DIMENSIONS ARE IN mm.
- 2. SCALE 1:2
- 3. CURVATURE ALONG THE LENGTH SHOULD NOT EXCEED 1.75mm.
- 4. 100% OF BLANKS ARE SUBJECTED TO HARDNESS TEST.
- 5. HARDNESS IS CHECKED ON BOTH THE SIDES OF THE BLANK AND ALSO IN THE MIDDLE.
- 6. BEFORE HARDENING THE BLANKS ARE TO BE NORMALISED
- 7. MATERIAL :- 30XH2M/A GOST 5160-70, GOST 4543-71 & TY B3-41-86 ESR QUALITY MATERIAL
- 8. REFER DRG. No. TEND A 1003-1D FOR MACHINED BLANK
- 9. HARDNESS DIFFERENCE ON THE SAME BLANK NOT TO EXCEED 20HB.
- 10. WEIGHT OF THE BLANK 37Kgs. APPROX.
- 11. SEE OBD 0000 303 A3 FOR TENSILE AND IMPACT TEST.
- 12. BLANKS ARE TO BE DELIVERED AFTER SKIN TURNING AND IN HEAT-TREATED CONDITION (HARDENING WITH TEMPERING) -  
 (BRINELL HARDNESS IMPRESSION 3.3 - 3.7 mm  $\phi$  / 269 - 341 BHN )
- 13. BLANKS ARE TO BE DELIVERED AFTER HEAT TREATMENT, (HARDENING & TEMPERING) AND THEN SKIN TURNING  
 BRINELL HARDNESS IMPRESSION 3.3 - 3.7 mm  $\phi$  (269 - 341 BHN)

CERTIFIED CORRECT COPY  
 OF APPROVED DRAWINGS  
 AT THIS DATE.....  
 17.11.2020  
 Design & Drawing Office  
 Ordnance Factory,  
 Tiruchirappalli-620016  
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M	Sl. No. 4, 5 & 6 only added. Sl. No. 7 added, General Note Sl. No. 12 cancelled. Sl. No. 13 introduced. SRP 0.022 Amended SRP 0.022. DA NO. 02/03 DT 17/02/02	Yd 17/02/02.
L	1. P. 0.020, 1.5. 0.015, 1.5 SRP 0.03 was changed to P. 0.015, 1.5. 0.010, 1.5 SRP 0.022. REG. CQA (MET) NO. MQA-1175/B DL. 23-8-02. ESR QUALITY MATL. INCLUDED DA NO. 05/02	Yd 05/02.
K	NOTE NO. 12 NEWLY INTRODUCED NEW NEGATIVE PREPARED. DA NO. 02/02	Yd

**ORDNANCE FACTORY**  
 TIRUCHIRAPPALLI - 16

DRAWN <i>Sankar</i>	CHECKED Jandam	I/C - DDO	OIC - DDO <i>[Signature]</i>	APPROVED ON: 6/02 <i>[Signature]</i> Jt.GM/M	SHEET No: 1 SHEETS : 2	DRG. No.: 62 C 1003 200 N 3
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CERTIFIED CORRECT COPY  
OF APPROVED DRAWINGS  
AT THIS DATE.....

17.11.2020

Design & Drawing Office  
Ordnance Factory,  
Tiruchirappalli-620016

VETTED FOR MATERIAL  
ONLY

VETTED FOR MATERIAL ONLY  
AS PER LAST DC (I) NO  
2339C DT 12-07-96

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FOR SQAQ  
SQAE (A) TRICOU

*[Signature]*  
18/06/02  
27/9/2022  
(G.N. THARAKARAM)  
PSCO

CHEMICAL COMPOSITION OF THE MATERIAL 30XH2M0A		MECHANICAL PROPERTIES						
C	0.27 - 0.34	NAME OR No. OF THE PART	1-3A 6P11	GRADE OF STEEL : 30XH2M0A				HARDNESS
Si	0.17 - 0.37							
Mn	0.30 - 0.60	NAME OR No. OF SPECIFICATION	GOST 5160-70 TY B3-41-86	TECHNICAL PROPERTIES REQUIRED NOT LESS THAN				3.3-3.7 mm 341-269 HB
Cr	0.60 - 0.90			RELATIVE		IMPACT STRENGTH MJ/m <sup>2</sup> (Kgf.M/cm <sup>2</sup> )	ELONGATION %	
Ni	2.00 - 2.40	YIELD LIMIT Kgf/mm <sup>2</sup>	ULTIMATE STRENGTH Kgf/mm <sup>2</sup>					9
Mo	0.20 - 0.30							
V	0.10 - 0.18							
P-0.015 MAX								
S-0.010 MAX								
Cu	0.2 MAX							
TOTAL MASS FRACTION OF S+P ≤ 0.022								

PROCESS CHART FOR HEAT TREATMENT

SL. No.	NAME OF OPN.	EQUIPMENT	CAPACITY PCS	TEMPERATURE °C		TIME HOUR		COOLING CONDITION			NOTE
				IN THE FURNACE WHEN CHARGING	OF METAL HEATED	OF HEATING WITH EQUALISING	HOLDING AT SPECIFIED TEMPERATURE	COOLING MEDIUM	TEMPERATURE OF COOLING MEDIUM	RATE OF COOLING	
1.	NORMALIZING	FURNACES WITH REMOVABLE BOTTOM ( BOGIE HEARTH FURNACE )	198-200	---	880	6-8	1	ON AIR			
2.	HARDENING	SHIELD FURNACE	48	800	880	1.5	3	OIL WATER	30-60°C		
3.	PRELIMINARY TEMPERING	CHAMBER FURNACE	116	600	600	3-4	2-3	AIR			
4.	STRAIGHTENING	TWO SIDED ECCENTRIC PRESS	---	---	---	---	---	---			
5.	FINAL TEMPERING	CHAMBER FURNACE	116	600	650	3-4	2-3	AIR			

AMENDED AS PER GOST 4543-71, JIS B 5513 LETTER No. 7020/MSF/12-7mm AD/17-02-20-4-17  
ON 12/10/02. ALSO MATC. YR. AMENDED AS PER 24-00.001/17 20/02/02

ORDNANCE FACTORY  
TIRUCHIRAPPALLI-16

<i>[Signature]</i> DRAWN	<i>[Signature]</i> CHECKED	1/C - DDO	<i>[Signature]</i> OIC/DDO	5/02 APPRD. ON:	<i>[Signature]</i> JT.GM/M	SHEET No: 2 SHEETS : 2	DRG. No.: 62 C 1003 200 N3
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POST 8165-70 For Director, R&B, Govt. of India