



**CASTING DRAWING**

**UN CONTROLLED COPY**

1. DIMENSIONS ARE IN mm.
2. SCALE :- 1:1
3. FIRST ANGLE PROJECTION
4. HARDNESS AFTER PRELIMINARY HEAT-TREATMENT HB 269 MAX.
5. UN-SPECIFIED CASTING RADIUS 2 mm.
6. DRAFT ANGLE AS PER GOST 3212-80.
7. CASTING DEFECTS ON NON-MACHINED SURFACES ARE ALLOWED AS PER GOST 3-4365-79.
8. CORRECTION OF CASTING DEFECTS IS ALLOWED
9. ON SURFACE A NON-FLATNESS IS ALLOWED NOT MORE THAN 0.5 mm.
10. IMPACT STRENGTH SHOULD BE CONTROLLED ON SAMPLES.
11. CLEANING - SAND BLASTING
12. WEIGHT OF THE CASTING 120 Kgs
13. MATERIAL - ~~23XC2MP11Y~~ **23XC2MP11Y**
14. SPECIAL TEST - MAGNETIC FLOW DETECTION
15. SURFACE FINISH - MAXIMUM
16. CASTING BELONGS TO GROUP 11 OST 3-4365-79 ( SPECIAL PURPOSE CASTINGS)

CHEMICAL COMPOSITION OF THE MATERIAL 23XC2MP11Y

|    |             |
|----|-------------|
| C  | 0.20 - 0.24 |
| Si | 1.8 - 2.0   |
| Mn | 0.5 - 0.8   |
| Cr | 0.6 - 0.9   |
| Mo | 0.25 - 0.30 |
| V  | 0.10 - 0.15 |
| S  | 0.025 MAX.  |
| P  | 0.025 MAX.  |
| H  | 10 MAX.     |

MECHANICAL PROPERTIES OF THE MATERIAL 23XC2MP11Y

|                     |                         |
|---------------------|-------------------------|
| ULTIMATE STRENGTH   | 140 Kgf/mm <sup>2</sup> |
| YIELD STRENGTH      | 130 Kgf/mm <sup>2</sup> |
| RELATIVE ELONGATION | 6%                      |
| IMPACT STRENGTH     | 4 KgfM/cm <sup>2</sup>  |

CERTIFIED CORRECT COPY OF APPROVED DRAWINGS AT THIS DATE: 17.11.2020

Designed & Drawing Office: Ordnance Factory, Tiruchirappalli-600016

MAT. 23XC2MP11Y. MECH. PROPERTIES.  
 ULTIMATE STRENGTH 130 kgf/mm<sup>2</sup> AND YIELD STRENGTH 110 kgf/mm<sup>2</sup> ARE ALSO BE ACCEPTABLE.

CASTINGS AND TEST BARS ARE SUBJECTED TO FOLLOWING HEAT-TREATMENT :-  
 a. PRELIMINARY HEAT-TREATMENT ( PRIOR TO MACHINING )  
 1) NORMALIZING AT TEMPERATURE 1000°±20° C FOR 1-2 HOURS.  
 2) TEMPERING AT TEMPERATURE 720°±20° C FOR 4 HOURS.  
 HEAT-TREATMENT AFTER MACHINING FOR TEST BAR ONLY (AS PER FOLLOWING SEQUENCE OF OPN.  
 1) HARDENING AT TEMPERATURE 1000°±20° C SOAKING TIME IS ONE HOUR, COOLING IN OIL.  
 2) TEMPERING AT TEMPERATURE 200°±20° C FOR 4 HOURS.  
 HEATING FOR NORMALIZING AND HARDENING IS TO BE CARRIED OUT WITH PROTECTION OF CASTINGS FROM DECARBURIZATION AND OXIDATION.

1. ACCEPTANCE OF CASTING IS CARRIED OUT AS PER GOST 977-75 PARAGRAPH TWO AND THREE BUT WHILE MANUFACTURING CASTING AS PER MELTED MODEL AS PER OST 3-4365-79
2. MECHANICAL PROPERTIES OF STEEL IS DETERMINED ON THE SPECIMENS CUT FROM THE TEST BARS AS PER GOST 977-75 AFTER CARRYING-OUT COMPLETE HEAT-TREATMENT PROCESS.
3. TENSILE TEST IS CARRIED OUT AS PER GOST 1497-73 ON CYLINDRICAL SPECIMEN WITH DIAMETER 10 mm WITH LENGTH 50 mm. TESTS ON SPECIMENS (SAMPLES) IN 5 mm DIAMETER WITH 25 mm LENGTH IS PERMITTED
4. DETERMINATION OF IMPACT STRENGTH IS CARRIED OUT AS PER GOST 9454-78 ON THE SPECIMEN OF TYPE I AT NORMAL TEMPERATURE AND AS PER 9454-78 AT LOW TEMPERATURE

VETTED FOR MATERIAL ONLY AS PER LAST DC (1) No. 1 / LETTER No. MQA-3/TS/21/21.6.97

INDI. NATL. AND RADIOGRAPHIC TEST ADDED IN SHEET NO. 2 SHEETS: 1/2

|   |                              |            |
|---|------------------------------|------------|
| ① | DA NO. 007/25 of 9-2-95      | M/AV       |
| ② | DRG. ADVANCED TO 03          | U/S        |
| ③ | ANGLE 90° ± 1' WTS 90° ± 10' | U/S        |
| ④ | SIDE VIEW CORRECTED          | U/S        |
| ⑤ | STORE DRG. NO ADDED          | U/S        |
| ⑥ | AMENDMENTS                   | SIG & DATE |

GUIDE LINES FOR PROCUREMENT AND INSPECTION OF INVESTMENT CASTINGS REF. CONTROLLERATE OF QUALITY ASSURANCE (METALS) TIRUCHIRAPALLI LETTER NO MQA-1/QA/1.2 DE. 05 MAY 1994.

|         |         |          |          |           |
|---------|---------|----------|----------|-----------|
| Redrawn | Checked | Approved | F/M PROJ | A/WM/PROJ |
|---------|---------|----------|----------|-----------|

ORDNANCE FACTORY TIRUCHIRAPALLI-16

FOR COMPONENT NO 2A42-05-033 - CONNECTING LINK RIGID  
 DRG NO: 64 C 5033 250 G3

INDIGENOUS MATERIAL

IS: 10343 Gr. 4D OR B: 3146 Pl. 1-74, TYPE CLA-5 GRADE 'B'  
 IS: 10343 Gr. 4D, CASTING TO BE HEAT-TREATED TO ACHIEVE 41.5-51.5 HRC  
 SEPARATELY CAST TEST BARS SHALL MEET THE SPECIFIED MECH. PROPERTIES  
 INCLUDING IZOD IMPACT VALUE 14J/MIN.

OR

~~BS: 3146. Pl. 1: 1974, TYPE CLA-5 GRADE 'B'~~

RADIOGRAPHIC TEST

(a) RADIOGRAPHIC ACCEPTANCE STANDARD OF THE CASTING SHOULD BE AS PER RSTM-E-192

(b) 100% OF THE ADVANCE SAMPLE (NOT LESS THAN 5) WILL BE SUBJECTED TO RADIOGRAPHIC TEST.

(c) RADIOGRAPHIC TEST OF ADVANCE SAMPLE WILL BE CARRIED OUT BY CQA(MET) ICHAPUR.

OR

THE AREA QUALITY ASSURANCE OFFICER CONCERNED WOULD GET THE RADIOGRAPHIC TEST DONE IN HIS PRESENCE AND FORWARD THE PLATES TO CQA (MET) ICHAPUR FOR SENTENCE AND APPROVAL OF THE MOULD.

(d) BULK PRODUCTION WOULD COMMENCE ONLY AFTER MOULD AND MATERIAL HAS BEEN APPROVED BY CQA(MET) ICHAPUR.

(e) 5% OF THE CASTING SELECTED AT RANDOM FROM <sup>THE</sup> BULK WOULD BE SUBJECTED TO RADIOGRAPHIC TEST. THIS MAY BE DONE UNDER THE ARRANGEMENT OF THE AREA QUALITY ASSURANCE OFFICER AND SENTENCE MAY BE AWARDED BY HIM BASED ON THE STANDARD OF THE ADVANCE SAMPLES CLEARED BY CQA(MET) ICHAPUR.

REF. :- CONTROLLERATE OF QUALITY ASSU(W) JABALPUR LETTER NO. 50431/CQAW/QA-11

DATED 14 MARCH 95.

CONTROLLERATE OF QUALITY ASSU (M) ICHAPUR

L. NO. MQA-3/LIW/3/W DE 03 MAY 1995

INDIGENOUS MATERIAL: IS 10343 Gr 4E WITH C7. 0.45-0.50 AND MECHANICAL PROPERTIES AS SPECIFIED IN SPECIFICATION FOR THE GRADE  
AUTHORITY: CQA (METALS) ICHAPUR, L. NO. MQA-3/TSIB DE. 21-6-1997

IS: 10343-1999, GDE 18Q

CERTIFIED CORRECT COPY  
 OF APPROVED DRAWINGS  
 AT THIS DATE.....

17.11.2020

Design & Drawing Office  
 Ordnance Factory,  
 Tiruchirappalli-620016

UN CONTROLLED COPY

G 8 DA.No.003/16 Dt.26.02.16

|            |                              |                 |
|------------|------------------------------|-----------------|
| F 7        | DA NO. 044/97<br>Dt. 30-6-97 | 30/6/97         |
| E 6        | DA. NO. 70/95<br>Dt. 7/8/95  | Sadh            |
| D 5        | DA. 020/95<br>Dt. 11-4-95    | Sadh<br>11-4-95 |
| AMENDMENTS | DESCRIPTIONS                 | SIG. & DATE     |

|               |          |                                       |                  |   |
|---------------|----------|---------------------------------------|------------------|---|
| SHEETS 2/2    | APPROVED | <br>P. M. V. 12.4.95<br>1/C.30mm D&DO | ORDNANCE FACTORY | COMPONENT NO.<br>242-05-033                         |
| Sadh<br>DRAWN | CHECKED  |                                       | TIRUCHIRAPALLI   | CONNECTING LINK RIGID<br>DRG. NO.<br>64C 5033250 G3 |