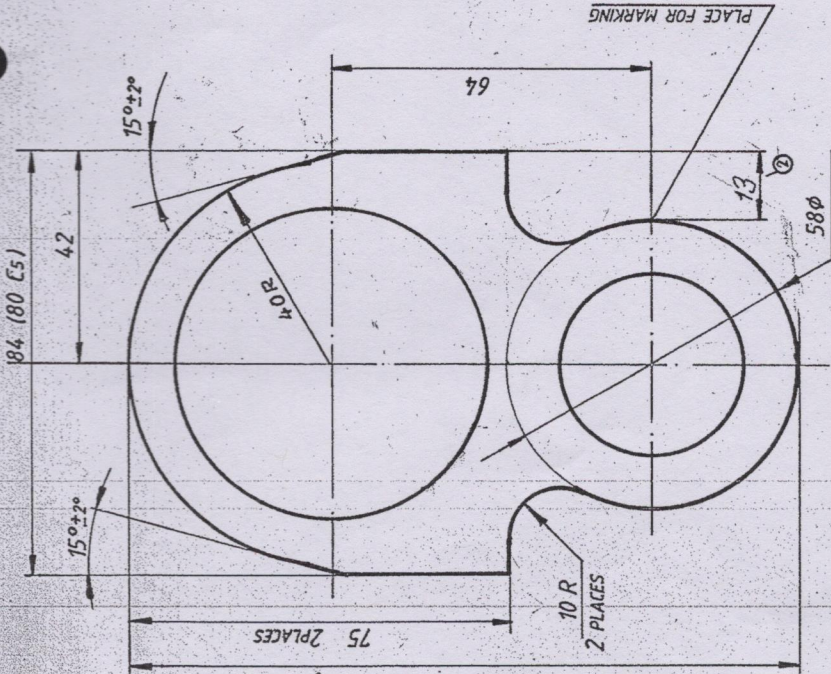


CASTING DRAWING



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 15mm.
6. DRAFT ANGLE AS PER GOST 3272-80.
7. CASTING DEFECTS ON ALL NON-MACHINED SURFACES AS PER OST 3-4365-79 ARE ALLOWED
8. CORRECTION OF CASTING DEFECTS IS PERMITTED.
9. IMPACT STRENGTH SHOULD BE CONTROLLED ON SAMPLES.
10. SHRINKAGE DEPRESSION ON SURFACE 'A' IS ALLOWED NOT MORE THAN 0.5 mm.
11. WEIGHT OF THE CASTING 2.65 Kgs.
12. MATERIAL: 23X1C2MΦ17, TS-AAH-116-78.
13. SURFACE FINISH: $R_a = 3.2$
14. CASTING BELONGS TO GROUP II OST 3-4365-79 / SPECIAL PURPOSE CASTINGS I
15. SPECIAL TEST: MAGNETIC FLAW DETECTION

16. CLEANING - SAND BLASTING

VETTED FOR MATERIAL ONLY AS PER LAST D LETTER NO. MRA-3 FTS/B/16/26-97

UN CONTROLLED COPY
CERTIFIED CORRECT COPY OF THE ORIGINAL DRAWINGS
DATE 30.01.97
DESIGN DRAWING OFFICE
ORDNANCE FACTORY, TIRUCHIRAPALLI

ORDNANCE FACTORY, TIRUCHIRAPALLI

REDRAWN
3/0/87

CHECKED
M. V. S. S. S.

APPROVED
08-88

F/M. PROJ

A/WM/PROJ

ORDNANCE FACTORY
TIRUCHIRAPALLI-16

DRG. NO. 64 C 2026 250 P 3

MECHANICAL PROPERTIES OF THE MATERIAL 23X1C2MΦ17		CHEMICAL COMPOSITION OF THE MATERIAL 23X1C2MΦ17	
ULTIMATE STRENGTH	160 Kgf/mm ²	SI	0.20 - 0.24
YIELD STRENGTH	120 Kgf/mm ²	Mn	1.8 - 2.0
RELATIVE ELONGATION	8%	Cr	0.5 - 0.8
IMPACT STRENGTH	4 KJ/m ²	Mo	0.25 - 0.30
		V	0.10 - 0.15
		S	0.025 MAX.
		P	0.025 MAX.
		N	0.010 MAX.

GUIDELINES FOR PROCUREMENT AND INSPECTION OF INVESTMENT CASTING. (REF. CONTROLLERATE OF QUALITY ASSURANCE (METALS) LETTER NO. MRA-1/QA/1/2 D8.05 MAY '84)

1. ACCEPTANCE OF CASTING IS CARRIED OUT AS PER GOST 977-75 (PARAGRAPH 2 AND 3) BUT WHILE MANUFACTURING CASTING AS PER MELTED MODELS AS PER OST 3-4365-79
2. MECHANICAL PROPERTIES OF STEEL IS DETERMINED ON THE SPECIMEN 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 14-92-73 ON CYLINDRICAL SPECIMEN WITH DIAMETER 10mm. WITH LENGTH 50mm. TESTS ON SPECIMENS (5 SAMPLES) IN 5mm DIAMETER WITH 25mm LONG IS PERMITTED.
4. DETERMINATION OF IMPACT STRENGTH IS CARRIED OUT AS PER GOST 948-78 ON THE SPECIMEN OF TYPE I AT NORMAL TEMPERATURE AND AS PER 9454-78 AT LOW TEMPERATURE.

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

INDIA MATL. AND RADIOGRAPHIC TEST REFER SHEET NO. 2.

SHEETS - 1/2

② DIM. ADDED	③ DA NO. 007195.05. 9-2-95.	④
① STORED	⑤	⑥
⑦ DRG. NO. ADDED	⑧	⑨
⑩ AMENDMENTS	⑪	⑫
⑬	⑭	⑮
⑯	⑰	⑱
⑲	⑳	㉑
㉒	㉓	㉔
㉕	㉖	㉗
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FOR COMPONENT NO 2A42-02-026 - HOLDER

INDIGENOUS MATERIAL

IS 10343 Gr. 4D OR BS 3146 Pt 1-74 TYPE CLA-5 Gr 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 Pt 1-1974, TYPE CLA-5 GRADE 'B'

RADIOGRAPHIC TEST

(a) RADIOGRAPHIC ACCEPTANCE STANDARD OF THE CASTING SHOULD BE
 AS PER ASTM E-102 ASTM E-446-84 AUTHORITY: COAW, JABALPUR
 Ly. NO. 281/301/CRAW/BMP-11/OFT/01 DT. 29 JUN 2010

(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
 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 ^{THE} 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 CITED BY CQA(MET) ICHAPUR.

REF. :- CONTROLLERATE OF QUALITY ASSU(W) JABALPUR LETTER NO. 50431/COAW/QA-11
 DATED 14 MARCH 95.

CONTROLLERATE OF QUALITY ASSURANCE (METALS) ICHAPUR
 DATED 03 MAY 1995

INDIGENOUS MATERIAL: IS 10343 Gr 4E WITH C% 0.45-0.50 AND
 MECHANICAL PROPERTIES AS SPECIFIED IN SPECIFICATION FOR THE GRADE
 AUTHORITY: CQA(METALS) ICHAPUR LY.NO. MQA-3/TS/B DT. 21-6-1997

INDIGENOUS MATERIAL :- IS: 10343 - 1999: Gr. 19Q WITH MECHANICAL PROPERTIES
 Re = 1100 MPA (MIN), Rm = 1300 MPA (MIN), % ELONGATION ON 5.65 S0 = 6.0 (MIN)
 % RED OF AREA = 25.0 (MIN.), CHARPY IMPACT VALUE = 4.0 MKS/cm² (MIN.)
 AUTHORITY: CQA(W), JABALPUR LY.NO. 281/301/CRAW/BMP-11/OFT
 DT. 29 JUN. 2010.

VETTED FOR MATERIAL ONLY
 AS PER LAST DC(C) NO.
 1995-W DT. 03-08-10

G 7	DA NO. 005/10 DT. 03-07-10	Sadhi
F 6	DA NO. 044/97 DT. 30-5-97	Sadhi
E 5	DA NO. 70/95 DT. 2-8-95	Sadhi
D 4	DA. 020/95 DT. 11-4-95	Sadhi
AMENDMENTS	DESCRIPTIONS	SIG. & DATE

C. RAJASEKAR
 St. Scientific Officer NFOR SQAO
 Asst. Quality Assurance Officer (A) TRICHY.
 TIRUCHIRAPALLI - 620004

SHEETS 2/2	APPROVED	ORDNANCE FACTORY	COMPONENT NO. 2442-02-026
DRAWN	CHECKED	TIRUCHIRAPALLI	HOLDER
			DRG. NO. G3 64C 2026 250 E3