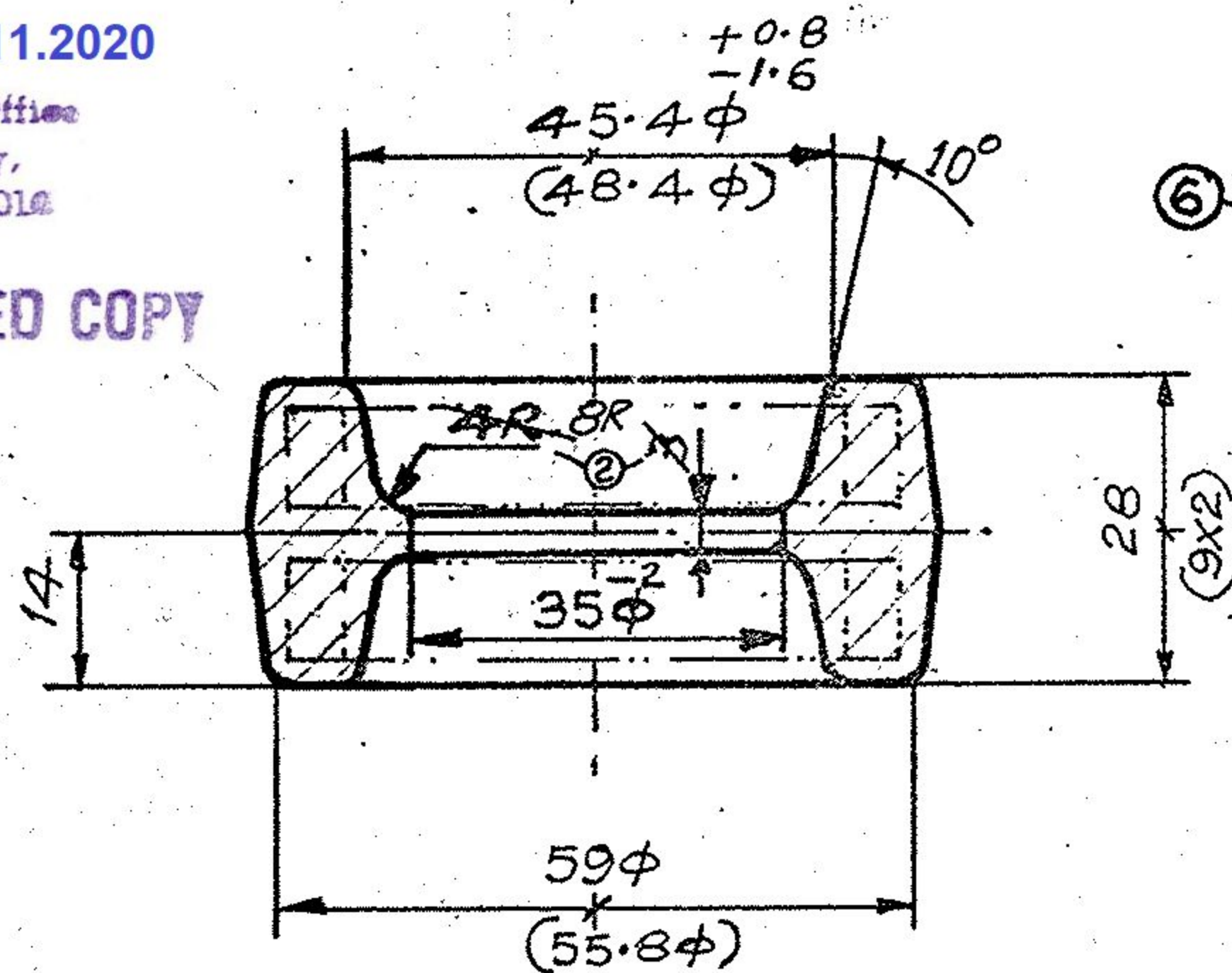


CERTIFIED CORRECT COPY
OF APPROVED DRAWINGS
AT THIS DATE.....

17.11.2020

Design & Drawing Office
Ordnance Factory,
Tiruchirappalli-620016

UN CONTROLLED COPY



FORGING DRAWING

CHEMICAL COMPOSITION OF THE MATERIAL 65C2BA-W

C	0.61 - 0.69	Si	1.50 - 2.00
Mn	0.70 - 1.00	Cr	0.30 Max.
W	0.80 - 1.20	Ni	0.25 Max.
Cu	0.25 Max.	S	0.010 Max.
P	0.02 Max.		

INDIGENOUS MATERIAL: BS 970 PL-2-88 GdE 925A60 WITH C% 0.60 TO 0.63, S% AND P% 0.015 MAX.
EACH (ESR QUALITY STEEL) MACROSTRUCTURE: BETTER THAN OR EQUIVALENT TO C1, R1, S1 FOR
PLATE I AND NIL FOR PLATE II TO IS 13015 NMIR: - 1.5 THIN SERIES MAX. FOR INCLUSIONS ABCD
AND NIL FOR THICK SERIES FIG. 2 TO IS 4162
AUTHORITY: CQA(METALS) ICHAPUR LY.NO. MQA-3/TS/BI DE.6/11-6-97

HEAT-TREATMENT PROCESS CHART

NOMENCLATURE AND IDT. NO:	STEEL GRADE	TYPE OF OPERATION	EQUIPMENT	TEMP. IN °C	TIME	COOLING MEDIUM	FIXTURE	HARDNESS INSPN. %
INNER RING C 2009	65C2BA-W	ANNEALING HEATING	ELECTRIC CHAMBER FURNACE OR SHAFT ELECTRIC FURNACE	790-810	3 HOURS	WITH FURNACE UP TO 500°C THEN IN AIR	ON TRAY	3%; BUT NOT LESS THAN 3 PIECES
DRESSING OF PLACES FOR CHECKING THE HARDNESS CHECKING OF HARDNESS								

- DIMENSIONS ARE IN mm.
- HEAT-TREATMENT ANNEALING; HARDNESS HB 302MAX.
- DE-SCALING :- PICKLING
- DISPLACEMENT IN PARTING LINE SHOULD NOT BE MORE THAN 0.5 mm
- REMAINDER FLASH ALONG DIE-PARTING LINE SHOULD NOT EXCEED 0.8 mm
- SCALE :- 1:1
- FIRST ANGLE PROJECTION
- ECCENTRICITY OF DRIFTING HOLE SHOULD NOT BE MORE THAN 1 mm
- SURFACE DEFECTS SHOULD NOT EXCEED 0.8 mm IN DEPTH.
- UN-SPECIFIED DRAFT ANGLE 7°
- UN-SPECIFIED RADII 2 mm
- ALLOWANCES ARE AS PER II CLASS GOST 7505-74 M2
- TOLERANCES ARE AS PER II CLASS GOST 7505-74 C3 AND AS FOLLOWS

VERTICAL	+1.5
	-0.7
HORIZONTAL	+1.6
	-0.8

INDIGENOUS MATL:- STEEL IS 2507-1975 DEFIG. 55 S1, G-9, SUBJECT TO ACHIEVING RECD.
HARDNESS WITH S&P 0.01 & 0.015 RESPECTIVELY. (ESR QUALITY)

22. MACRO STRUCTURE : FREE FROM ALL HARMFUL DEFECTS, EQUIVALENT OR BETTER THAN C1, R1, S1 TO ASTM E-381 OR IS: 13015-1991. INCLUSION-RATING CONTENT A, B, C AND D 1.5 THIN SERIES TO IS: 4163
REF.: SEALED DRG. NO 2A42-02-009 BY CONTROLLER OF QUALITY ASSURANCE JABALPUR Dt. 9-JUN 1993.
AMEND. NO. 17494-W dt 24-12-92
DCU) NO 17979-W dt. 2-6-94.

- DIE FORGING BY HAMMER
- NUMBER OF PARTS OBTAINED FROM ONE FORGING : 2 PIECES
 - DIMENSIONS GIVEN IN BRACKETS ARE FOR MACHINING.
 - WEIGHT OF THE FORGING 0.365Kgs. 75±1.0
 - RAW MATERIAL SIZE :- 34φ±0.4 x 68±0.1 LONG
 - MATERIAL - 65C2BA-W - 05T-3-98-80.
 - SURFACE DEFECTS: HAIR LINE CRACKS, NICKS AND SCALE PITS SHOULD NOT EXCEED 50% OF ACTUAL ONE SIDED MACHINING ALLOWANCE ACCORDING TO GOST 8479-70.
 - MARKING : LETTERING TO 5 GOST 2930-62

VET'D FOR MATERIAL ONLY
AS PER LAST DC (I) No LETTER 16
MQA-3/TS/BI dt 6/11-6-97

G 7	DA.No. 005/16 Dt. 26.05.16 (PP)
F 6	DA NO. 052/97 dt 11/8/97
E 5	DA NO. 39/97 dt 1/7/97
D 4	DA.No. 22/97 dt. 23-3-97
C 3	DA. NO. 20/93 dt. 5-4-93
B 2	DA NO 57/92 dt. 28-10-92. NOTE 19 ADDED. NOTE 9, & DIM. 3 DELETED. RADIUS 4R CHANGED TO 8R
1	STORE DRG. NO ADDED
SL. NO	AMENDMENTS SIG & DATE

CMRU JAGAUTISH
Sr. Scientific Officer
Quality Assurance Dept (Arms)
Tiruchirappalli-620016

FOR COMPONENT NO
2A42-02-009 - INNER RING

Sadhi 22-3-91	A. Srinivasa 22-3-91	3-91		22/3/91	ORDNANCE FACTORY TIRUCHIRAPALLI-16	DRG NO: 64 C 2009 200 G3
REDRAWN	CHECKED	APPROVED	F.M./PROJ	DGM II/PROJ		ALB. NO. 363/35