

INTEGRATED SYSTEM OF STATISTICAL PROCESS CONTROL (SPC)
MEASUREMENT GAUGES WITH SOFTWARE FOR DIMENSIONAL INSPECTION
OF BRASS AND GILDING METAL AMMO CUPS

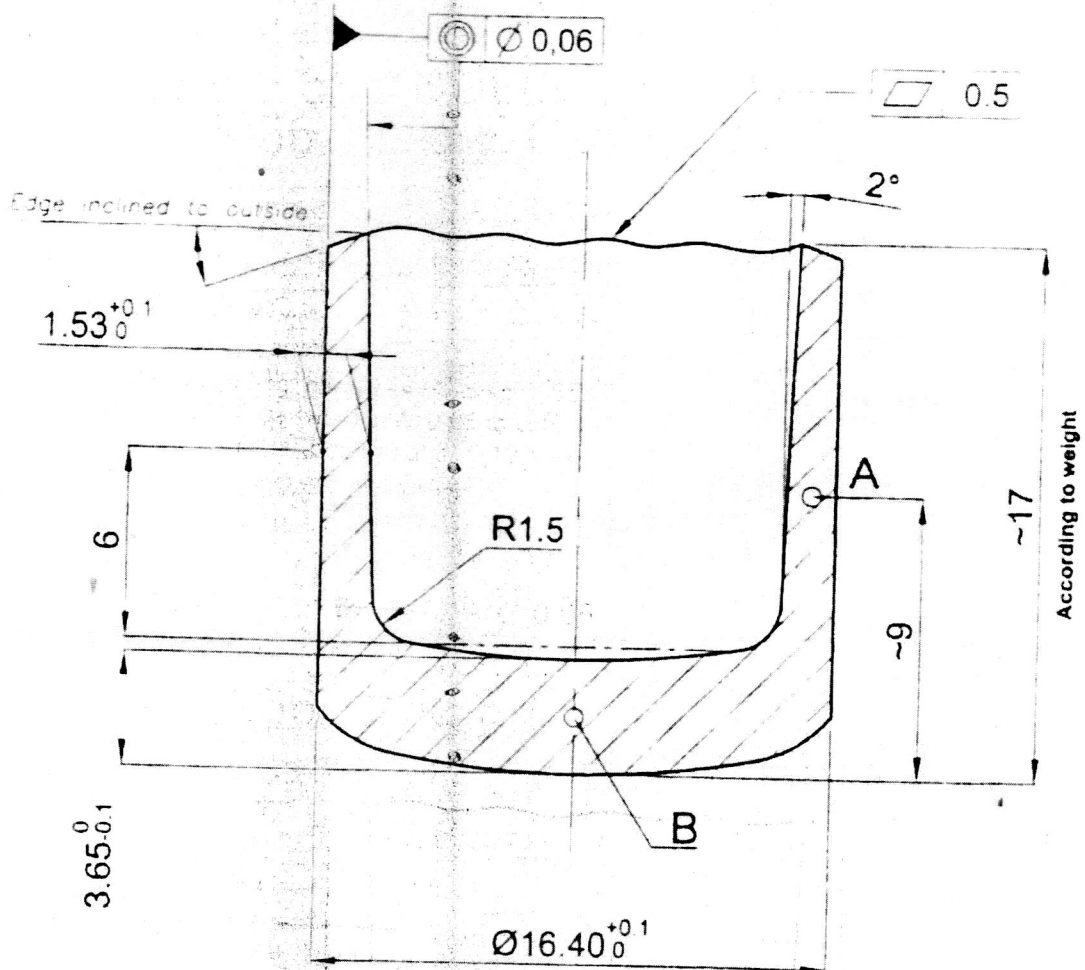
SCOPE OF WORK:

- a. Provision of complete setup including installation and commissioning.
- b. Provision of laptop / computer with software and integrated with measuring system.
- c. Provision of necessary software with administrative rights, license key & backup.
- d. Provision of complete setup separate for Case and Bullet Cups with interchangeable Mandrel / Holder for each calibre alongwith separate laptop / PC for each (Case & Bullet cups).
- e. Provision of essential spare parts for 02 years. (List of spares to be made part of offer).
- f. Software must be capable of displaying the measurements alongwith graphical displays having maximum / minimum limits, average results, frequency of test values, gaussian and standard deviations.
- g. Provision to print the reports must also be available in the software / system.
- h. Calibration certificate to be provided by supplier.
- i. Standard / Master piece for calibration will be provided by supplier.
- j. Drawing for holder / mandrels may also be supplied.
- k. The design of holder / mandrels must be suitable to hold annealed / unannealed cups.

S. #	DRAWING NO.	GAUGES REQUIRED
1	M80 / Case Cup / 01 / OM	▪ Wall Thickness Gauge ▪ Bottom Thickness Gauge ▪ Eccentricity / Wall Thickness Variation Gauge ▪ Outer Dia Gauge ▪ Height Gauge
2	M80 / Bullet Cup / 01 / OM	
3	5.56 / Case Cup / 01 / OM	
4	5.56 / Bullet Cup / 01 / OM	
5	9X19 / Case Cup / 01 / OM	
6	9X19 / Bullet Cup / 01 / OM	
7	M80 / Case Cup / 02 / SA	
8	M80 / Bullet Cup / 02 / SA	
9	5.56 / Case Cup / 02 / SA	
10	5.56 / Bullet Cup / 02 / SA	

NOTE

1 After annealing, hardness HV, 5 kg 55 / 70
 Grain size Side (wall) at A: 0.05 to 0.10
 Base (bottom) at B: 0.12 Max

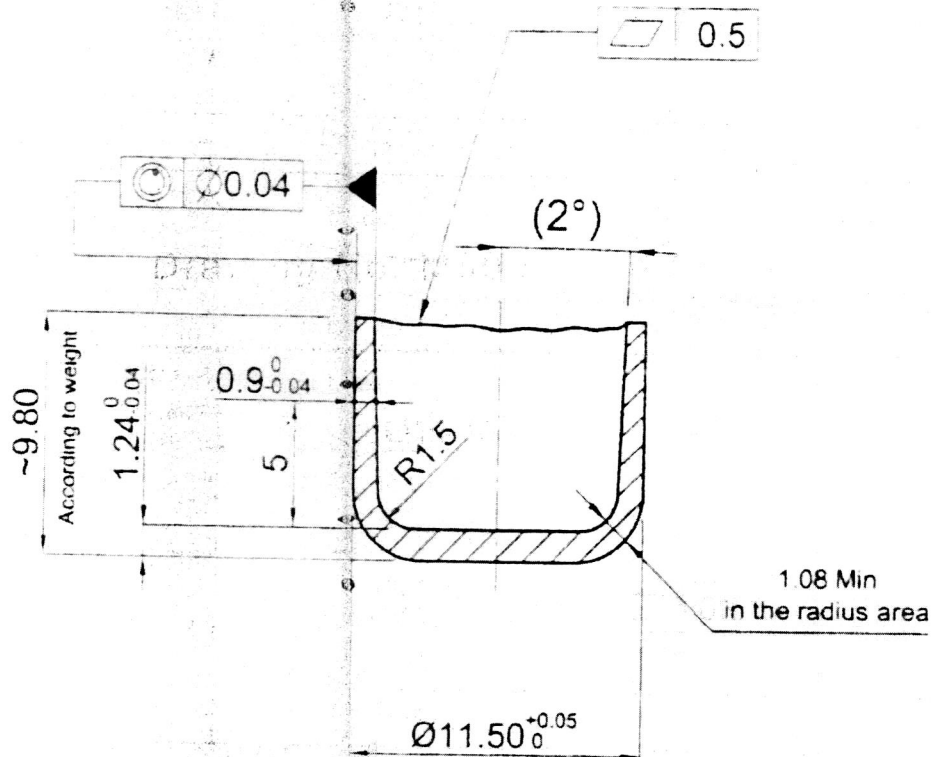


Material : Brass 70/30

Weight : 13.50 ± 0.15 g

CALIBER	7.62 x 51	Drawing No: M80 / Case Cup / 01 / OM
MACHINE		
SHEET	1/3	

Drawing No: M80 / Bullet Cup / 01 / OM



Material: Tombac 59/40

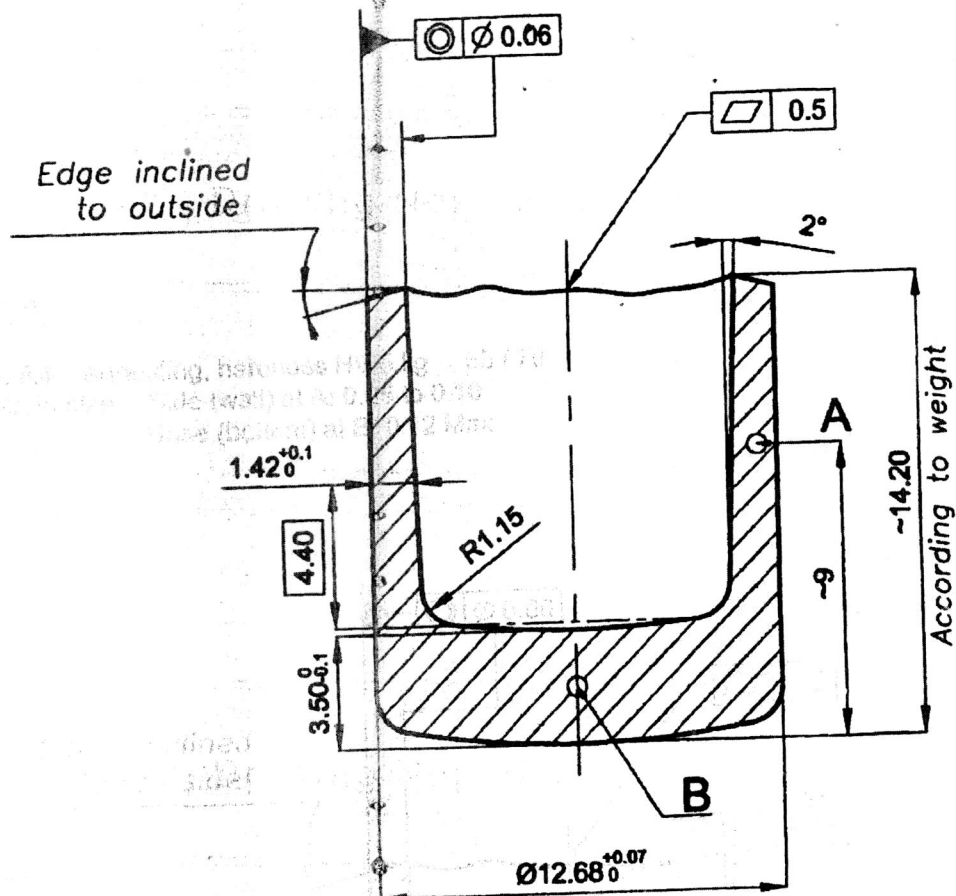
After annealing, hardness HV 3 kg 55/70

Weight: 3 ± 0.05 g

ALBER 7 62x51 M80	Drawing No: M80 / Bullet Cup / 01 / OM
MACHINE	
DATE 05/2016	
SHEET 1/3	

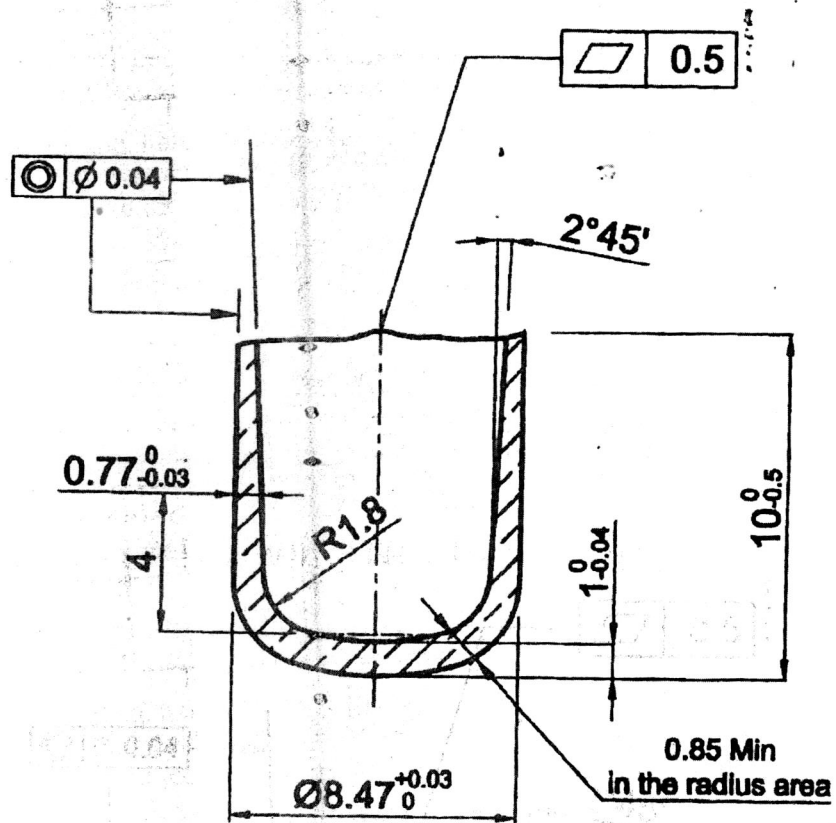
NOTE:

1. After annealing, hardness HV 5 kg 55 / 70
Grain size Side (wall) at A: 0.05 to 0.10
Base (bottom) at B: 0.12 Max



WEIGHT : 7.40 ± 0.15 g

		Drawing No: 5.56 / CASE CUP / 01 / OM
CALIBER:	5.56 x 45	
MACHINE:		
DATE:	01/2016	
SHEET:	1/3	

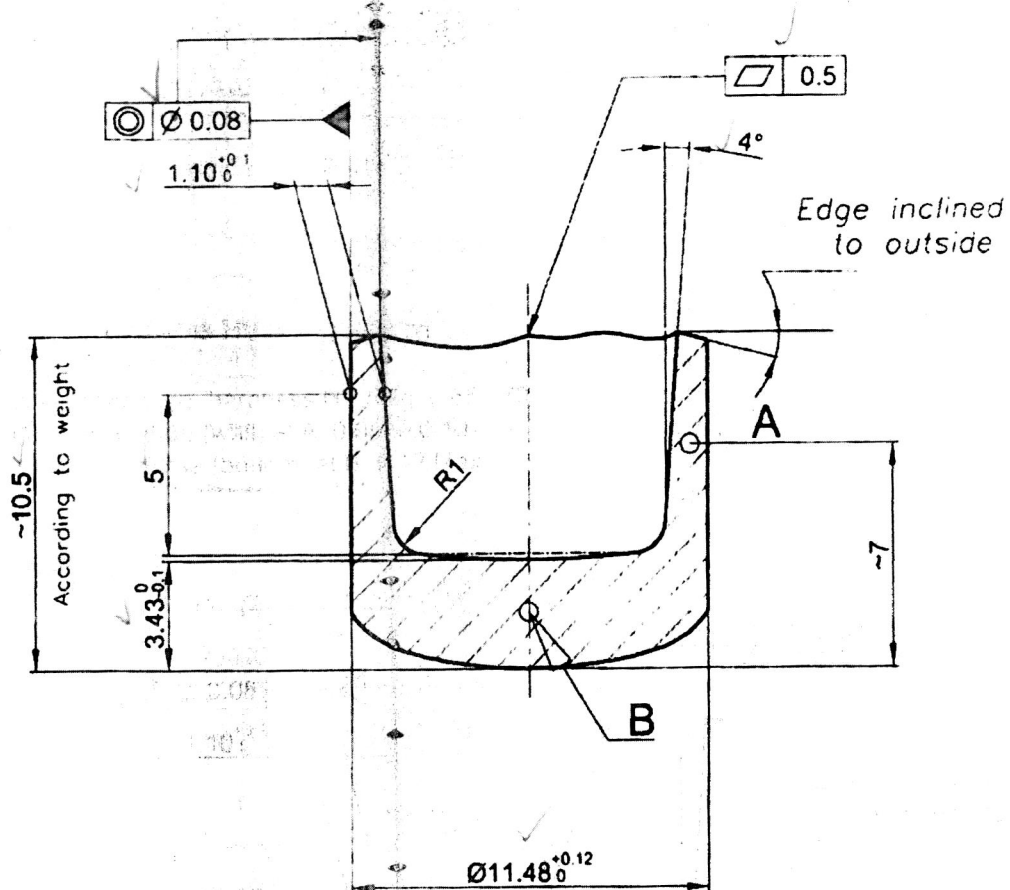


Material : Tombac 90/10
 After annealing, hardness HV 3 kg : 55 / 70
 Weight : $1,60 \pm 0,05 \text{ g}$

CALIBER : 5.56 x 45 SS109 - M193	
MACHINE :	
DATE :	01/2016
SHEET :	1/3
Drawing No: 5.56 / BULLET CUP / 01 / OM	

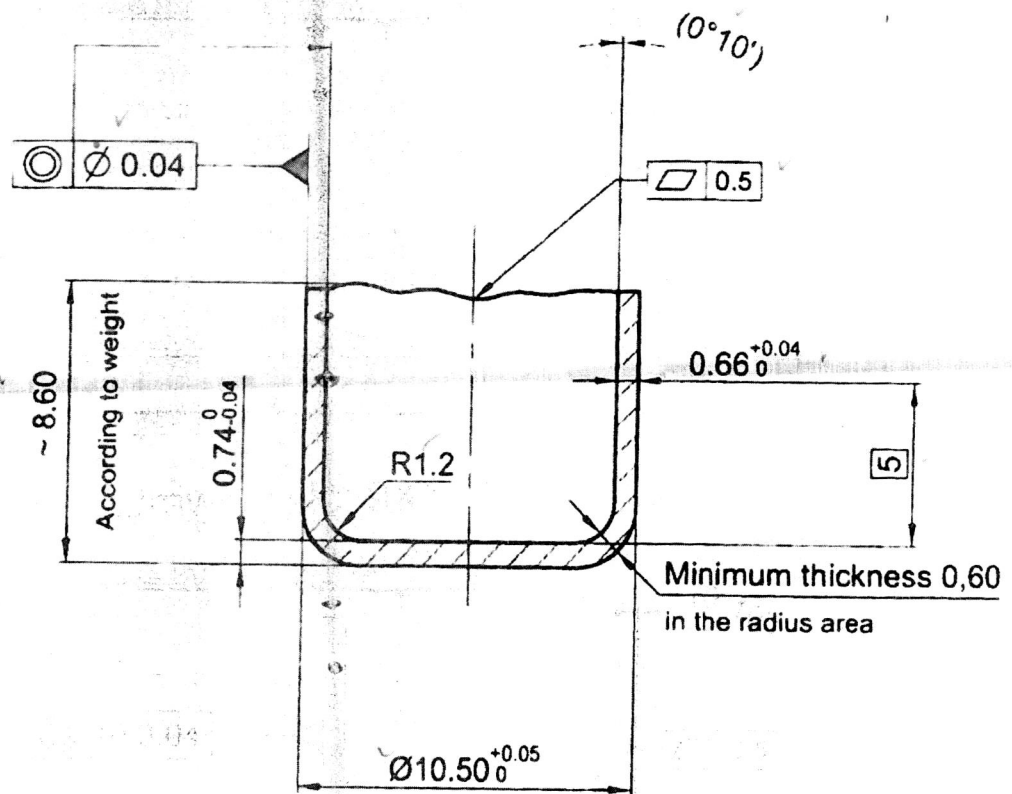
NOTE:

- 1) After annealing hardness HV 5 kg 55 / 70
Grain size Side (wall) at A: 0.05 to 0.10
Base (bottom) at B: 0.12 Max



WEIGHT : 4.80 ± 0.10 g

CALIBER	9 x 19	Drawing No: 9X19 / CASE CUP / 01 / OM
MACHINE :		
DATE : <i>21/04/2016</i>		
SHEET	1/3	

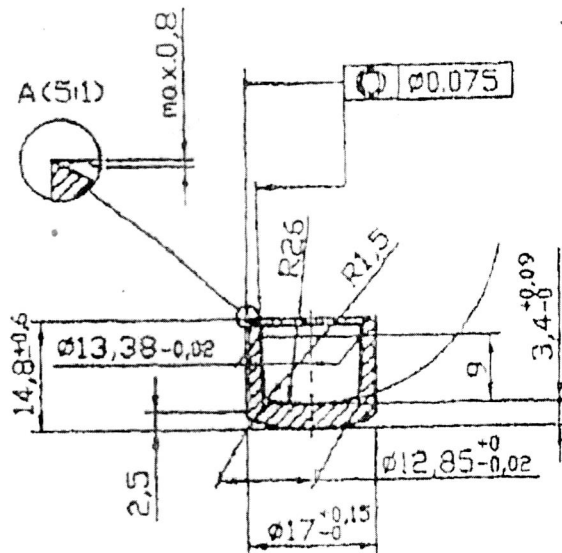


Material : Tombac 90/10.

After annealing, hardness : HV 3 Kg : 55 / 70

Weight : $1,75 \pm 0,05$ g.

CALIBER : 9 x 19		Drawing No: 9X19 / BULLET CUP / 01 / OM
MACHINE :		
DATE : 01/12/16		
SHEET : 1/3		



The Grain size should be lower than 0.060 mm

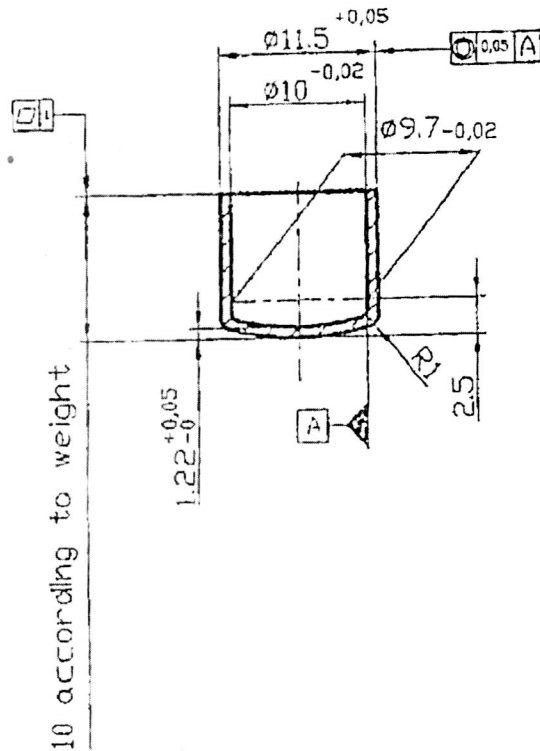
WEIGHT: 13.7g +0.30g

Cu 70% ±1

Zn 30% ±1

DET. NO.	NO. OFF.	DESCRIPTION	MATERIAL	STOCK SIZE	HEAT TREATMENT
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Drawing No: M80 / CASE CUP / 02 / SA



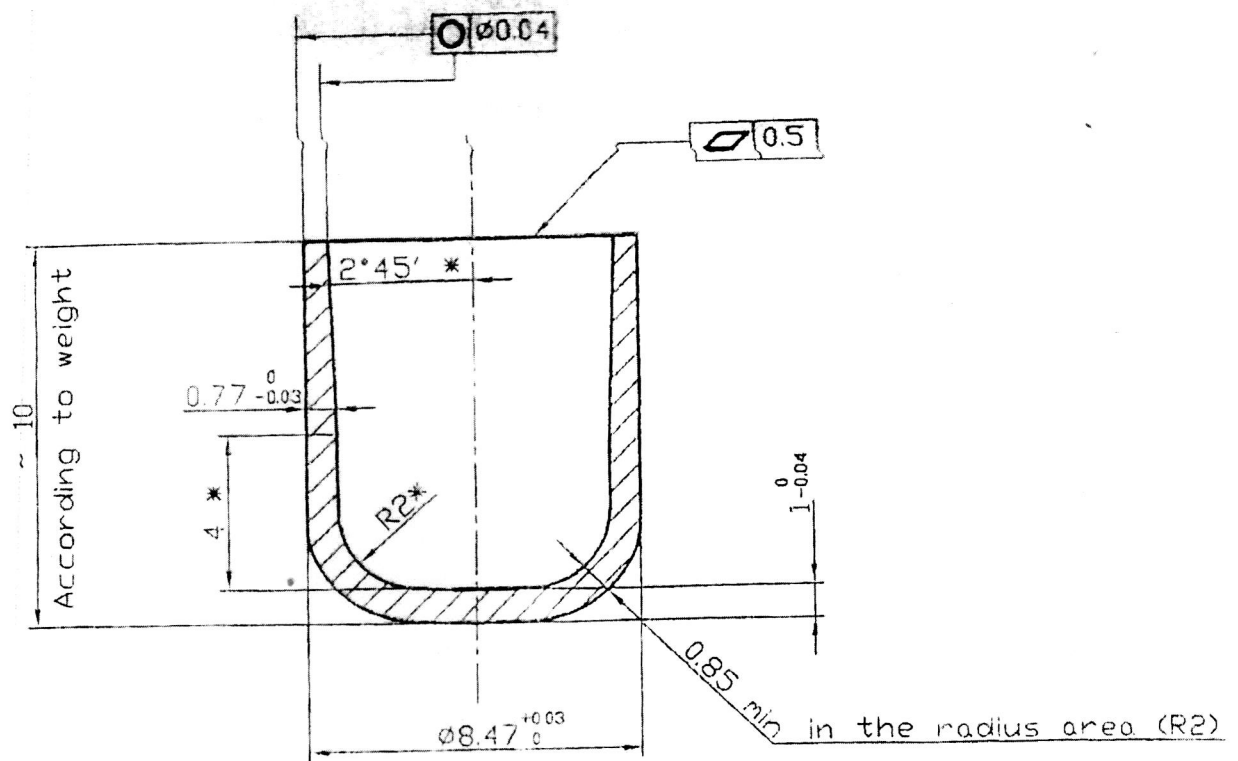
The Grain size should be lower than 0.060 mm

WEIGHT: 2.90g ±0.1g

Cu 90% ±1
Zn 10% ±1

			Tombac (90 / 10)		Hv5:55-75
DET. NO	NO.OFF	DESCRIPTION	MATERIAL	STOCK SIZE	HEAT TREATMENT

Drawing No: M80 / BULLET CUP / 02 / SA



*Tooling shape

Material : the strips will be hot-rolled , milled , cold rolled to get the suitable thickness, annealed and pickled .

Treatment : annealed

Grain size : 0.025 to 0.050 mm

Cups to be not annealed , degreased and dried

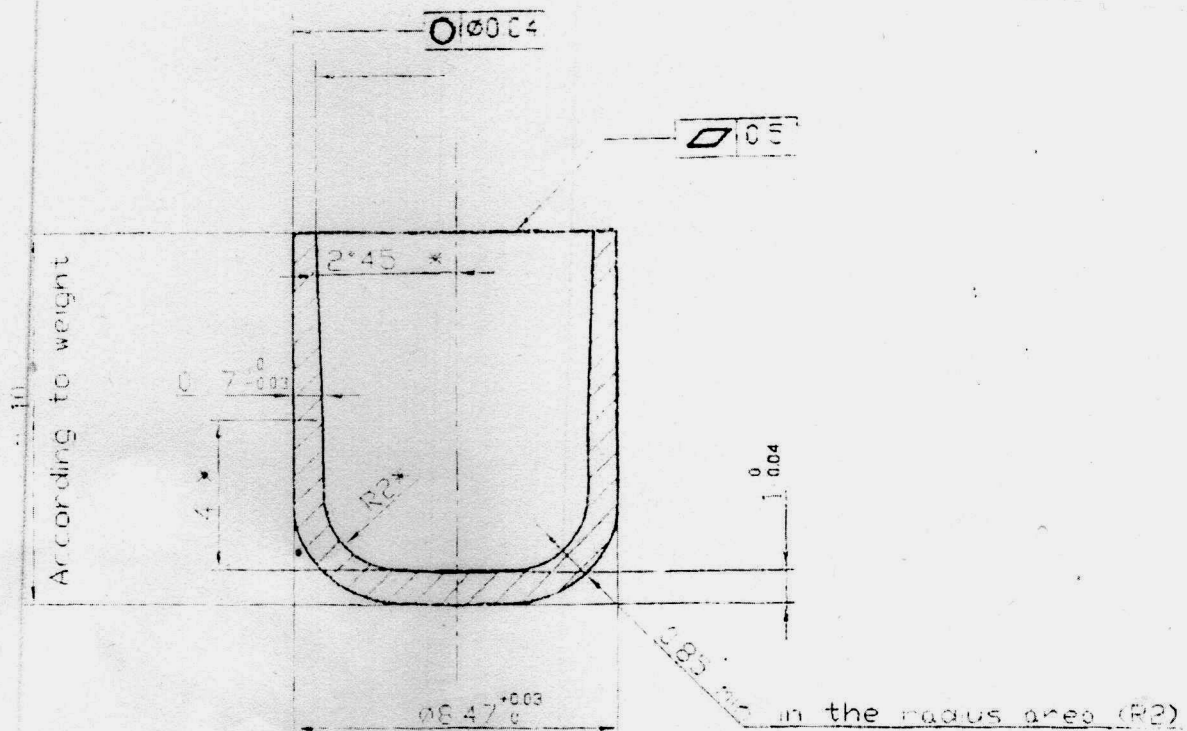
weight : $1.60 \pm 0.05g$

Cu 90% ± 1

ZN 10% ± 1

			Tombac (90 / 10)		HV 5: 65 - 85
DET. NO.	NO.OFF	DESCRIPTION	MATERIAL	STOCK SIZE	HEAT TREATMENT

Drawing No: 5.56 / CASE CUP / 02 / SA



*Tooling shape

Material : the strips will be hot-rolled , milled , cold rolled to get the suitable thickness , annealed and pickled

Treatment : annealed

Grain size : 0.025 to 0.050 mm

Cups to be not annealed , degreased and dried

weight : 1.60 +0.05g

Cu 90% ±1

ZN 10% ±1

			Tombac (90 / 10)		HV 5: 65 - 85
DET NO	NO. OFF	DESCRIPTION	MATERIAL	STOCK SIZE	HEAT TREATMENT

Drawing No. 5.56 / BULLET CUP / 02 / SA