

APPENDIX-Y  
DIMENSION MEASURING MACHINE FOR PLASTIC COMPONENTS

Input

(i) Name of Hardware: **Stun Grenade Modified** (Drg No.TSU/R&D/232 attached)

Dimensions to be measured

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
	<b><u>Body</u></b>	
01	OD	56.20 - 0.20
02	Collar OD	60.00 ± 0.50
03	Inner dia thread portion	49.5 x 2.5P + 0.20
04	Collar Thickness	3.50 ± 0.10
05	Height	64.00 + 0.20
06	Thread Length upto collar	10.00 ± 0.20
07	Start of thread	5 ± 0.20
08	Weight	33 ± 2 gm
	<b><u>H Plate</u></b>	
01	Height	19 ± 0.20
02	OD	49.5 x 2.5P
03	ID	44.50
04	Thread for DT	M.10 x 1.25P
05	Weight	11 ± 1 gm
06	Under cut nearby D/T housing	1.13 x 1.25
07	OD of Delay Tube housing	12.50 ± 0.20
	<b><u>CAP</u></b>	
01	Outer Dia Upper	56.50 ± 0.20
02	Outer Dia Lower	61.20 ± 0.20
03	Inner Dia	49.50 + 0.50
04	Inner Dia at threaded portion	55.5 - 0.20 x 2.5P
05	Striker Housing OD	28.00 + 0.50
06	Total Height	40.30 ± 0.50
07	I <sup>st</sup> Step Height	12.50 ± 0.20
08	II <sup>nd</sup> Step Height	20.00 ± 0.20
09	Striker Housing thread	M.22 x 1.5P
10	D/ Tube Housing thread	M.10 x 1.25P
11	Striker Housing Depth	7.80 - 0.20
12	D/ Tube Housing OD	12.50 ± 0.20
13	Weight	25 ± 1 gm

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(ii) Name of Hardware: Container for Dye Marker Gde (Drg No: TSUR&D 132 & TSUR&D 198 attached )

Dimensions to be measured

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
<b>Container</b>		
01	Outer dia	56.2 - 0.50
02	Inner dia	49.5
03	Thread Dia inside body	49.5 + 0.20 x 2.5P x 1.35 Depth
04	Thread Dia outside body	55.5 - 0.20 x 2.5P x 1.35 Depth
05	Length of thread inside body	22 ± 0.50
06	Collar Outer dia	60 - 0.50
07	Length of thread outside body	10 ± 0.20
08	Start of thread from end	5 ± 0.20
09	Depth of container body	94 ± 0.50
10	Length of vertical Knurling area	24 ± 0.50
11	Thickness	3.5 ± 0.20
12	Height	97.5 ± 0.25
13	Weight	58 ± 3 gm
<b>CAP</b>		
01	Collar Height	14 ± 0.20
02	Collar dia	61.20 ± 0.20
03	Inner dia	49.50 + 0.50
04	Thread Dia inside cap	55.5 x 2.5P x 1.35 Depth
05	D/T Housing height	2.5 ± 0.20
06	OD Striker Housing	28 + 0.50
07	Thread for DT	M10 X 1.25 P
08	Height	43.80 ± 0.50
09	Striker housing thread size	M22 X 1.5 P
10	Weight	28 ± 2 gms
<b>CBT</b>		
01	Inner dia	13.5 ± 0.25
02	Outer dia	16 ± 0.25
03	Height	74.2 ± 0.25
04	Length of thread	8.5 ± 0.25
05	Thread Dia	17 x 1.5 P
06	Thickness	1.25
<b>H plate</b>		
01	Total Height	19 ± 0.25
02	OD	49.50 - 0.20 x 2.5P x 1.35 Depth
03	Delay Tube Housing OD	12.50 ± 0.25
04	Thread size of Delay Tube	M.10 X 1.25 P
05	CBT Housing thread Dia	15.5 X 1.5 P
06	CBT Housing OD	19 ± 0.25

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Name of Hardware: Container for Tear Smoke Gde (Drg No. TSU R&D 134A attached)

**Dimensions to be measured**

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
<b>container</b>		
01	Outer dia	56.20 - 0.50
02	Inner dia	49.50 + 0.20
03	Collar dia	60.00 ± 0.50
	Thread Dia outside body	55.5 - 0.20 x 3.5P x 1.5 Depth to suit with Cap
04	Length of thread outside body	12.00 ± 0.20
05	Collar Thickness	3.50 + 0.20
06	Emission hole Dia.	7.00 ± 0.20 x 2 Holes at 180°
07	Thickness of body at Bottom	3.5 ± 0.20
08	Distance from base to E/hole	63.50 ± 0.45
09	Total Height	97.50 ± 0.25
<b>Cap</b>		
01	Inner dia	49.50 + 0.20
02	Outer Dia at Lower portion	61.20 ± 0.20
03	Outer dia at upper portion	56.50 ± 0.20
04	Striker Housing OD	28.00 + 0.50
05	Lower Portion Height	15.50 ± 0.20
06	Upper Portion Height	14.00 ± 0.20
07	D/Tube housing OD	12.50 ± 0.20
08	Striker housing Thread	M 22 x 1.5P
09	D/Tube housing Thread	M 10 x 1.25P
10	Thread Dia inside Cap	M 55.5 - 0.20 x 3.5P x 1.5 Depth to suit with body

(iv) Name of Hardware: T S Shell Plastic Soft Nose Modified (Drg No. 235C attached)

**Dimensions to be measured**

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
01	Height	178.30 ± 0.20
02	Outer Dia	38.00 ± 0.20
03	Inner Depth	152.00 ± 0.20
04	Igniter OD	35.90 ± 0.20
05	Length of hole from Top	60.00 ± 0.20
06	Length between hole to hole	40.00 ± 0.20
07	Emission Hole Dia	5.00 x 4 Holes
08	Delay tube housing thread	12 x 1.25 P
09	Inner Dia	32.00 ± 0.20
10	Thread Dia inside body	35 x 3P (Sq.thread) x 12mm depth
<b>CAP</b>		
01	OD of Cap	38.00 ± 0.20
02	Thread Dia of Cap	35 x 3P (Sq.thread) x 12 ± 0.10
03	Inner Dia of Cap	35.00 - 0.20
04	Weight	65 - 2 gms

PO M-1 M-2 M-3 M-4 Co-M-1 Co-M-2 Co-M-3 Co-M-4

(v) Name of Hardware: Container for Colour Smoke Gde (Drg No. TSU R&D 23 is attached)

Dimensions to be measured

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
<b>container</b>		
01	Outer dia	56.20 - 0.50
02	Inner dia	49.50 - 0.20
03	Collar dia	60.00 + 0.50
04	Thread Dia outside body	55.5 - 0.20 x 3.5P x 1.5 Depth to suit with Cap
05	Length of thread outside body	12.00 ± 0.20
06	Collar Thickness	3.50 + 0.20
07	Emission hole Dia.	7.00 ± 0.20 x 2 Holes at 180° at bottom in vertical and 2 Holes at 180° at top in horizontal directions i.e in opposite directions together
08	Thickness of body at Bottom	3.5 ± 0.20
09	Distance from base to Top E/hole	63.50 ± 0.25
10	Distance between E/Holes	40 - 0.20
11	Total Height	97.50 ± 0.25
<b>Cap</b>		
01	Inner dia	49.50 + 0.20
02	Outer Dia at Lower portion	61.20 ± 0.20
03	Outer dia at upper portion	56.50 ± 0.20
04	Striker Housing OD	28.00 + 0.50
05	Lower Portion Height	15.50 ± 0.20
06	Upper Portion Height	14.00 ± 0.20
07	D/Tube housing OD	12.50 ± 0.20
08	Striker housing Thread	M 22 X 1.5 P
09	D/Tube housing Thread	M 10 X 1.25 P
10	Thread Dia Inside Cap	M 55.5 - 0.20 x 3.5P x 1.5 Depth to suit with body

PO NS M-1 NS M-2 NS M-3 NS M-4 NS Co-M-1 NS Co-M-2 NS Co-M-3 NS Co-M-4 NS

(vi) Name of Hardware: HDPE Stun Shell (Drg No.TSUR&D 157 attached)

**Dimensions to be measured**

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
<b><u>Body</u></b>		
01	Height	160.00 ± 0.50
02	Outer Dia	37.54 ± 0.20
03	Inner Dia	31.00 ± 0.20
04	Thread Dia	35.20 - 0.20 (knuckle thread to suit with igniter)
05	Length of thread	16.20 ± 0.20
<b><u>Ignitor</u></b>		
01	Thread Dia	35.20 + 0.20(knuckle thread to suit with shell body)
02	Length of thread	17.20 ± 0.20
03	OD upper	38.00 ± 0.20
04	OD Lower	36.00 ± 0.20
05	Height Upper	20.20 ± 0.20
06	Height Lower	23.00 ± 0.25
07	Delay tube housing height	11.00 ± 0.20
08	Delay tube housing OD	13.00 ± 0.10
09	Delay tube housing thread	M10 x 1.25P

**Output**

Passed - \_\_\_\_\_ Numbers  
Rejected - \_\_\_\_\_ Numbers

**RATE** - 1000 Nos / HOUR

**QUALITATIVE REQUIREMENTS:-**

1)	ALL MOVING PARTS OF MACHINE SHOULD BE CORROSION RESISTANT, FLAME AND SPARK PROOF AND MADE OF ISI / CLASS APPROVED QUALITY MATERIAL.
2)	IN CASE OF MALFUNCTIONING, THE MACHINE SHOULD HAVE AUTOMATIC TRIPPING SYSTEM ALONGWITH AUDIO AND VISUAL INDICATORS.
3)	MACHINE SHOULD HAVE EARTHING FACILITY/STATIC DISCHARGE PANEL.
4)	ALL ELECTRICAL EQUIPMENTS/COMPONENTS FITTED IN THE MACHINE SHOULD BE OF REPUTED BRAND AND OF ISO CERTIFIED COMPANY.
5)	SHOULD BE ABLE TO COUNT AND SEGREGATE ACCEPTED & REJECTED QUANTITY OF INSPECTED HARDWARES ENUMERATING SPECIFIC FAULT.
6)	<b><u>CALIBRATION:-</u></b> i) MACHINE ERROR SHOULD BE ZERO. ii) CAN MEASURE UPTO 0.001MM iii) CALIBRATION CERTIFICATE IS REQUIRED FROM CLASS APPROVED AUTHORITIES.
7)	DIGITAL READING WITH PROGRAMMABLE MEASUREMENT AS PER DRAWING.
8)	MACHINE SHOULD BE ABLE TO MEASURE ALL THE PARAMETERS OF HARDWARES BASED ON PRE-PROGRAMMED INPUT.

PO AD M-1 J M-2 A M-3 BY M-4 PO Co-M-1 S Co-M-2 S Co-M-3 hw Co-M-4 hw

9)	MACHINE SHOULD HAVE PROVISION TO ADJUST DIMENSION VALUES AND FIN REVISED DIMENSIONS.
10)	ALL ELECTRIC WIRING AND ELECTRICAL COMPONENTS SHOULD BE PROPERLY CASED AND FLAME PROOF AND EASILY ACCESSIBLE FOR REPAIR AND MAINTENANCES.
11)	MACHINE SHOULD BE COMPACT TO FIT IN TO SAVE SPACE AND EASY TO ACCESS FOR REPAIR AND MAINTENANCES.
12)	BASIC STRUCTURE OF MACHINE SHOULD BE MADE OF ISI / CLASS APPROVED QUALITY METAL, RESISTANT TO CORROSION / RUSTING AND FLAME.
13)	USER MANUAL WITH REQUIRED ILLUSTRATIONS TO BE PROVIDED WITH MACHINE.
14)	INSTRUCTION ON REPAIR & MAINTENANCE TO BE PROVIDED WITH MACHINE.
15)	RUNNING SPARE PARTS WITH ILLUSTRATED LIST SHOULD BE PROVIDED WITH MACHINE.
16)	OPERATIONAL TRAINING SHOULD BE ARRANGED FOR 1 WEEKS FOR MINIMUM 15 PERS.
17)	REPAIR AND MAINTENANCE TRAINING SHOULD BE ARRANGED FOR 1 WEEKS FOR MINIMUM 10 PERS.
18)	SPECIFIC GAUGES AND MAINTENANCE TOOLS SHOULD BE PROVIDED WITH MACHINE.
19)	<b>GUARANTEE / WARRANTY:-</b> i) MACHINE SHOULD HAVE 2 YEARS GUARANTEE / WARRANTY AFTER COMMISSIONING. ii) PREVENTIVE MAINTENANCE ONCE IN 3 MONTH DURING GUARANTEE / WARRANTY PERIOD. iii) GUARANTEE/ WARRANTY WILL BE COMPREHENSIVE i.e INCLUSIVE OF SPARE PARTS.
20)	AMC PERIOD SHOULD BE 05 YEARS AFTER EXPIRY OF GUARANTEE / WARRANTY PERIOD.

PO MS M-1 d M-2 A M-3 GS M-4 Pds Co-M-1 S Co-M-2 J Co-M-3 ds Co-M-4 am

**DIMENSION MEASURING MACHINE FOR PLASTIC COMPONENTS**

SL NO	QUALITATIVE / REQUIREMENTS	METHODOLOGY	COMPLIED / NOT COMPLIED
1	ALL MOVING PARTS OF MACHINE SHOULD BE CORROSION RESISTANT, FLAME AND SPARK PROOF AND MADE OF ISI / CLASS APPROVED QUALITY MATERIAL.	The firm should submit national / International accredited Lab test report for this aspect.	
2	IN CASE OF MALFUNCTIONING, THE MACHINE SHOULD HAVE AUTOMATIC TRIPPING SYSTEM ALONGWITH AUDIO AND VISUAL INDICATORS.	The firm should submit national / International accredited Lab test report for this aspect & Physical Verification by BOOs	
3	MACHINE SHOULD HAVE EARTHING FACILITY/STATIC DISCHARGE PANEL.	Physical Verification by BOOs	
4	ALL ELECTRICAL EQUIPMENTS/COMPONENTS FITTED IN THE MACHINE SHOULD BE OF REPUTED BRAND AND OF ISO CERTIFIED COMPANY.	The firm should submit national / International accredited Lab test report for this aspect	
5	SHOULD BE ABLE TO COUNT AND SEGREGATE ACCEPTED & REJECTED QUANTITY OF INSPECTED HARDWARES ENUMERATING SPECIFIC FAULT.	Physical Verification by BOOs	
6	<b>CALIBRATION:-</b> i) MACHINE ERROR SHOULD BE ZERO. ii) CAN MEASURE UPTO 0.001MM iii) CALIBRATION CERTIFICATE IS REQUIRED FROM CLASS APPROVED AUTHORITIES.	The firm should submit national / International accredited Lab test report for this aspect	
7	DIGITAL READING WITH PROGRAMMABLE MEASUREMENT AS PER DRAWING.	Physical Verification by BOOs	
8	MACHINE SHOULD BE ABLE TO MEASURE ALL THE PARAMETERS OF HARDWARES BASED ON PRE-PROGRAMMED INPUT.	Physical Verification by BOOs	
9	MACHINE SHOULD HAVE PROVISION TO ADJUST DIMENSION VALUES AND FIX REVISED DIMENSIONS.	Physical Verification by BOOs	

PO

M-1

M-2

M-3

M-4

Co-M-1

Co-M-2

Co-M-3

Co-M-4

10	ALL ELECTRIC WIRING AND ELECTRICAL COMPONENTS SHOULD BE PROPERLY CASED AND FLAME PROOF AND EASILY ACCESSIBLE FOR REPAIR AND MAINTENANCES.	The firm should submit national / International accredited Lab test report for this aspect & Physical Verification by BOOs
11	MACHINE SHOULD BE COMPACT TO FIT IN TO SAVE SPACE AND EASY TO ACCESS FOR REPAIR AND MAINTENANCES.	Physical Verification by BOOs
12	BASIC STRUCTURE OF MACHINE SHOULD BE MADE OF ISI / CLASS APPROVED QUALITY METAL, RESISTANT TO CORROSION / RUSTING AND FLAME.	The firm should submit national / International accredited Lab test report for this aspect.
13	USER MANUAL WITH REQUIRED ILLUSTRATIONS TO BE PROVIDED WITH MACHINE.	Physical Verification by BOOs
14	INSTRUCTION ON REPAIR & MAINTENANCE TO BE PROVIDED WITH MACHINE.	Physical Verification by BOOs
15	RUNNING SPARE PARTS WITH ILLUSTRATED LIST SHOULD BE PROVIDED WITH MACHINE.	Physical Verification by BOOs
16	OPERATIONAL TRAINING SHOULD BE ARRANGED FOR 1 WEEKS FOR MINIMUM 15 PERS.	Physical Verification by BOOs
17	REPAIR AND MAINTENANCE TRAINING SHOULD BE ARRANGED FOR 1 WEEKS FOR MINIMUM 10 PERS.	Physical Verification by BOOs
18	SPECIFIC GAUGES AND MAINTENANCE TOOLS SHOULD BE PROVIDED WITH MACHINE.	Physical Verification by BOOs
19	<b>GUARANTEE / WARRANTY:-</b> i) MACHINE SHOULD HAVE 2 YEARS GUARANTEE / WARRANTY AFTER COMMISSIONING. ii) PREVENTIVE MAINTENANCE ONCE IN 3 MONTH DURING GUARANTEE / WARRANTY PERIOD. iii) GUARANTEE/ WARRANTY WILL BE COMPREHENSIVE i.e INCLUSIVE OF SPARE PARTS.	Physical Verification by BOOs
20	AMC PERIOD SHOULD BE 05 YEARS AFTER EXPIRY OF GUARANTEE / WARRANTY PERIOD.	Physical Verification by BOOs

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