

DIMENSION MEASURING MACHINE FOR MISC COMPONENTSInput

- (i) Name of Hardware: **Modified Tail Unit for W P Shell Assembly** (Drg No.TSU R&D 02 attached)

Dimensions to be measured

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
01	Outer Dia	33.80 - 0.20
02	Under cut Dia	32.50 - 0.10
03	Collar OD	36.00 - 0.20
04	Total Height	16.50 ± 0.10
05	Big Hole Dia	6.50 ± 0.10
06	Small Hole Dia	3.00 - 0.10
07	Dia of Wire	1.016 (19 swg)
08	Coils of Wire	10 Nos
09	Pin for Fin OD	3.20- 0.10
10	Total Length of Fins	51.00± 0.20
11	Length of Fins upto Step	35.60± 0.20
12	Thickness of Brass Sheet	1.00
13	Rivetting of Fins	Proper
14	Weight of Al.Plug	36 + 5 gms
15	Weight of Pin Stay Fin	2 + 0.50 gms
16	Weight of Pin for Fin	11.5 + 2 gms
17	Weight of Spring	1.5 + 0.5 gms

- (ii) Name of Hardware: **Al. Disc for Bal. Weight WP Shell** [Drg No.TSU/R&D/158 attached]

Dimensions to be measured

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
01	Outer Dia	36.00 - 0.20
02	Thickness	1.00 ± 0.10

- (iii) Name of Hardware: **Balancing Weight for WP Shell** [Drg No.TSU/R&D/003 attached)

Dimensions to be measured

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
01	Length	30.5 ± 0.20
02	Inner Dia	25.4 ± 0.50
03	Depth of ID	11.25 ± 0.20
04	Outer Dia	35.9 - 0.20
05	Weight	85 ± 2 gms

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

(iv) Name of Hardware: Bal. weight for TSS SOFT NOSE [Drg No.TS / R&D 242(CAD) attached

Dimensions to be measured

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
01	Outer Dia	31.5 ± 0.5
02	Thickness	3.5 ± 0.5
03	Weight	23 ± 4 gms

(v) Name of Hardware: 1.0 sec Delay tube Empty (Drg No.TSG-009 attached)

Dimensions to be measured

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
1	Height	14.45 ± 0.50mm
02	Inner Dia	5.80 + 0.10mm
03	Hole Dia	1.50 x 4 holes at 90°
04	Distance from one edge to center of holes	3.75 - 0.25
05	Thread size	M.10 x 1.25P
06	Weight	1.7 gms

(vi) Name of Hardware: 2.0 sec Delay tube Empty (Drg No.TSG-0016 attached)


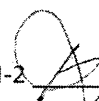






Dimensions to be measured

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
01	Height	17.50 ± 0.50
02	Inner Dia	5.80 + 0.10
03	Hole Dia	1.50 x 4 holes at 90°
04	Distance from one edge to center of holes	3.75 - 0.25
05	Thread size	M.10 x 1.25P
06	Weight	2 gms

(vii) Name of Hardware: 2.2 sec Delay tube Empty [Drg No.TSU/R&D/236A attached)

Dimensions to be measured

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
01	Height	25.00 ± 0.10
02	Inner Dia	5.80 + 0.10
03	Hole Dia	3.8 + 0.10
03	Thread Dia	11.95 x 1.25P
04	Weight	4.57 gms

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

(viii) Name of Hardware: 5.0 sec Delay tube for TSS Soft Nose (Drg No.TSU/R&D 236 attached)

Dimensions to be measured

S.No.	Parameters	Dimensions as per drg. with deviations allowed in mm
01	Height	25.00 ± 0.50
02	Inner Dia	5.80 - 0.10
03	Hole Dia	3.80 ± 0.10
04	Thread Dia	11.95 x 1.25P
05	Weight	4.57 gms

(ix) Name of Hardware: Cap Chamber (Drg No.TSG-0008 attached)

Dimensions to be measured

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
01	Total Height	14.75 ± 0.10
02	Outer Dia	14.35 - 0.10
03	Inner Dia	5.74 - 0.05
04	Thread size	M.10 X 1.25P
05	Outer Dia Upper	11.88 - 0.12
06	Weight	8 gms

(x) Name of Hardware: Spacer 14.5 mm with washer for Normal Shell (Drg No.TSS-0243 & TSU/R&D/230 attached)

Dimensions to be measured

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
01	Height	14.50 ± 0.15
02	Outer dia	36.00 - 0.20
03	Ist Step ID	31.00 ± 0.15
04	2 nd Step ID	27.00 ± 0.15
05	Hole ID	10.00 ± 0.15
06	I st Step Height	7.00 ± 0.15
07	2 nd Step Height	5.50 ± 0.15
	<u>Washer</u>	
01	Outer dia	31.00 ± 0.20
02	Inner Dia	8.00 ± 0.20
03	Thickness	3.00 ± 0.20

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

(xi) Name of Hardware: **Spacer (E) with LDPE washer** (Drg No.TSS-0202 attached)

Dimensions to be measured

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
01	Height	30.48 - 0.25
02	Outer dia	35.56 - 0.25
03	Collar Outer Dia	19.05 - 0.13
04	Collar Height	7.11 - 0.25
05	Inner Dia 1 st Step	27.94 + 0.25
06	Inner Dia 2 nd Step	23.62 - 0.25
07	Collar Inner Dia	10.16 + 0.25
08	Inner Depth	21.00 ± 0.20
09	Weight	14 gms
<u>Washer</u>		
09	Outer Dia	28.50 ± 0.10
10	Hole Dia	8.00 ± 0.10
11	Thickness	3.00 ± 0.10
12	Weight	1.6 gms

(xii) Name of Hardware: **Cap for Delay Tube** (Drg No.TSU/R&D/161A attached)

Dimensions to be measured

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
1.	Height	10.00 - 0.10
2.	Outer Dia	14.75 + 0.20
3.	Hole Dia	4.00 + 0.10
4.	Inner Dia	12.75 + 0.10
5.	Thread	M.10 x 1.25 P

(xiii) Name of Hardware: **HDPE Ring for TSS Soft Nose (1+2+3 mm)** (Drg No.TSU/R&D/257 attached)

Dimensions to be measured

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
<u>1 mm Ring</u>		
01	Outer Dia	30.00 - 0.50
02	Inner Dia	25.00 - 0.50
03	Thickness	1.00 ± 0.10
<u>2mm Ring</u>		
01	Outer Dia	30.00 - 0.50
02	Inner Dia	25.00 - 0.50
03	Thickness	2.00 ± 0.10
<u>3 mm Ring</u>		
01	Outer Dia	30.00 - 0.50
02	Inner Dia	25.00 - 0.50
03	Thickness	3.00 ± 0.20

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

(xiv) Name of Hardware. HDPE Rings for T S Shell (1+2+3+4mm)(Drg No. TSS-1238 attached)

Dimensions to be measured

S/No.	Parameters	Dimensions as per drg. with deviations allowed in mm
<u>1 mm Ring</u>		
01	Outer Dia	33.79 ± 0.50
02	Inner Dia	25.40 ± 0.50
03	Thickness	1.00 ± 0.10
<u>2mm Ring</u>		
01	Outer Dia	33.79 ± 0.50
02	Inner Dia	25.40 ± 0.50
03	Thickness	2.00 ± 0.20
<u>3 mm Ring</u>		
01	Outer Dia	33.79 ± 0.50
02	Inner Dia	25.40 ± 0.50
03	Thickness	3.00 ± 0.30
<u>3 mm Ring</u>		
01	Outer Dia	33.79 ± 0.50
02	Inner Dia	25.40 ± 0.50
03	Thickness	4.00 ± 0.30

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)	<u>CALIBRATION:-</u> 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.



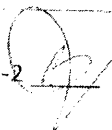






PO _____ M-1 _____ M-2 _____ M-3 GS M-4 Perks Co-M-1 _____ Co-M-2 A Co-M-3 ls Co-M-4 em

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

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

DIMENSION MEASURING MACHINE FOR MISC 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	CALIBRATION:- 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 BE ABLE TO CHECK WHOLE BODY ANODIZING OF ALUMINUM COMPONENTS WHEREVER APPLICABLE.	Physical Verification by BOOs	
10	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 

11	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	
12	MACHINE SHOULD BE COMPACT TO FIT IN TO SAVE SPACE AND EASY TO ACCESS FOR REPAIR AND MAINTENANCES.	Physical Verification by BOOs	
13	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.	
14	USER MANUAL WITH REQUIRED ILLUSTRATIONS TO BE PROVIDED WITH MACHINE.	Physical Verification by BOOs	
15	INSTRUCTION ON REPAIR & MAINTENANCE TO BE PROVIDED WITH MACHINE.	Physical Verification by BOOs	
16	RUNNING SPARE PARTS WITH ILLUSTRATED LIST SHOULD BE PROVIDED WITH MACHINE.	Physical Verification by BOOs	
17	OPERATIONAL TRAINING SHOULD BE ARRANGED FOR 1 WEEKS FOR MINIMUM 15 PERS.	Physical Verification by BOOs	
18	REPAIR AND MAINTENANCE TRAINING SHOULD BE ARRANGED FOR 1 WEEKS FOR MINIMUM 10 PERS.	Physical Verification by BOOs	
19	SPECIFIC GAUGES AND MAINTENANCE TOOLS SHOULD BE PROVIDED WITH MACHINE.	Physical Verification by BOOs	
20	<u>GUARANTEE / WARRANTY:-</u> 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	
21	AMC PERIOD SHOULD BE 05 YEARS AFTER EXPIRY OF GUARANTEE / WARRANTY PERIOD.	Physical Verification by BOCs	

PO [Signature]
 M-1 [Signature]
 M-2 [Signature]
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 Co-M-1 [Signature]
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 Co-M-3 [Signature]
 Co-M-4 [Signature]