

Appendix-'B'

DT/DM PREPARATION MACHINE

INPUT

EMPTY DELAY TUBE

AS PER DIMENSION MENTIONED IN APPX-'B-1'
 CHEMICAL - 17 GRANULE SIZE - 378 MICRON
 DELAY MIXER GRANULE SIZE - 378 MICRON
 DELAY COMPOSITION GRANULE SIZE - 420 MICRON

OUTPUT

FILLED DT/DM

RATE

1000 Nos/hour (Minimum)

PROCESS

FILLING AND PRESSING AS ENUMERATED IN APPENDIX-'B-1'

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 ALONG WITH 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)	MACHINE SHOULD HAVE SEPARATE HUMAN MACHINE INTERFACE(HMI)/ CONTROL PANEL FACILITY.
6)	MACHINE SHOULD HAVE VARIABLE SCOOPING/FILLING FACILITY PREFERABLY ON PLC BASED.
7)	MACHINE SHOULD OPERATE PREFERABLY ON PLC CONTROL OF IEC-61131 STANDARD
8)	MACHINE SHOULD HAVE DIGITAL DISPLAY TO INDICATE FINISHED NO'S OF PRODUCTS.
9)	MACHINE SHOULD WORK ON PNEUMATIC BASE.
10)	TUBES CONNECTING THE MACHINE TO PNEUMATIC MACHINE SHOULD BE OF REQUISITE DIMENSIONS AND ISI MAKE.
11)	MACHINE SHOULD BE ABLE TO EXTRACT PLUNGER SMOOTHLY FROM DELAY TUBE AFTER PRESSING.
12)	MACHINE SHOULD HAVE FACILITY OF DETECTION OF OMISSION AND MALFUNCTIONING AT ANY STAGES OF PROCESS AND SHOULD HAVE FACILITY TO SEPARATE THE REJECTED/ DEFECTIVE DT/DM.

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- 13) MACHINE SHOULD BE ABLE TO OPERATE WITHIN OPERATING TEMPERATURE $25 \pm 10^{\circ}$ C AND OPERATING HUMIDITY $40 \pm 15\%$.
- 14) ALL ELECTRIC WIRING AND ELECTRICAL COMPONENTS SHOULD BE PROPERLY CASED AND FLAME PROOF AND EASILY ACCESSIBLE FOR REPAIR AND MAINTENANCES.
- 15) MACHINE SHOULD BE COMPACT TO SAVE SPACE AND EASY TO ACCESS FOR REPAIR AND MAINTENANCES.
- 16) BASIC STRUCTURE OF MACHINE SHOULD BE MADE OF ISI / CLASS APPROVED QUALITY METAL, RESISTANT TO CORROSION / RUSTING AND FLAME.
- 17) USER MANUAL WITH REQUIRED ILLUSTRATIONS TO BE PROVIDED WITH MACHINE.
- 18) INSTRUCTION ON REPAIR & MAINTENANCE TO BE PROVIDED WITH MACHINE.
- 19) RUNNING SPARE PARTS WITH ILLUSTRATED LIST SHOULD BE PROVIDED WITH MACHINE.
- 20) OPERATIONAL TRAINING SHOULD BE ARRANGED FOR 1 WEEKS FOR MINIMUM 15 PERS.
- 21) REPAIR AND MAINTENANCE TRAINING SHOULD BE ARRANGED FOR 1 WEEKS FOR MINIMUM 10 PERS.
- 22) SPECIFIC GAUGES AND MAINTENANCE TOOLS SHOULD BE PROVIDED WITH MACHINE.
- 23) **GUARANTEE / WARRANTY:-**
 - iv) MACHINE SHOULD HAVE 2 YEARS GUARANTEE / WARRANTY AFTER COMMISSIONING.
 - v) PREVENTIVE MAINTENANCE ONCE IN 3 MONTH DURING GUARANTEE / WARRANTY PERIOD.
 - vi) GUARANTEE/ WARRANTY WILL BE COMPREHENSIVE i.e INCLUSIVE OF SPARE PARTS.
- 24) AMC PERIOD SHOULD BE 05 YEARS AFTER EXPIRY OF GUARANTEE / WARRANTY PERIOD.

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Appendix-'B-1'

S/ N	Items	Dimension	Filling (mg)	1 st Pressing Kg/cm ²	Filling (mg)	2 nd Pressing Kg/cm ²	Filling (mg)	3 rd Pressing Kg/cm ²	Filling (mg)	4 th Pressing Kg/cm ²	Filling (mg)	5 th Pressing Kg/cm ²	Filling (mg)
1	1 Sec Delay Tube	10 mm x 1.25 pitch, Height-14.45 ± 0.5 mm	CHEMICAL - 17 (40±5)	4-6	DM(50±5)+ DC(100±5)	4-6	CHEMICAL - 17 (50±5)	4-6	-	-	-	-	-
2	1 Sec delay tube DM	10 mm x 1.25 pitch, Height-14.45 ± 0.5 mm	CHEMICAL - 17 (50±5)+ DM(400±5)	3-3	GP(50±5)	3-3.5	-	-	-	-	-	-	-
3	2 Sec delay tube DM	10 mm x 1.25 pitch, Height-17.05 ± 0.5 mm	CHEMICAL - 17 (50±5)+ DM(400±5)	3-3.5	DM(200±5)	3-3.5	DM(100±5)+ CHEMICAL - 17 (50±5)	3-3.5	-	-	-	-	-
4	2.2 Sec delay tube	11.95 mm x 1.25 pitch, Height-25 ± 0.5 mm	CHEMICAL - 17 (50±5)	4-6	DM(50±5)+ DC(150±5)	4-6	DC(150±5)	4-6	CHEMICAL - 17 (50±5)	4-6	-	-	-
5	5 Sec delay tube	11.95 mm x 1.25 pitch, Height-25 ± 0.5 mm	CHEMICAL - 17 (50±5)	4-6	DM(50±5)+ DC(200±5)	4-6	DC(200±5)	4-6	DC(200±5)	4-6	DC(200±5)	4-6	CHEMICAL - 17 (50±5)
6	3 Sec delay tube	11.95 mm x 1.25 pitch, Height-25 ± 0.5 mm	CHEMICAL - 17 (50±5)	4-6	DM(50±5)+ DC(300±5)	4-6	DC(200±5)	4-6	CHEMICAL - 17 (100±5)	4-6	-	-	-
7	1.7 Sec delay tube	11.95 mm x 1.25 pitch, Height-25 ± 0.5 mm	CHEMICAL - 17 (50±5)	4-6	DM(50±5)+ DC(100±5)	4-6	DC(100±5)	4-6	CHEMICAL - 17 (100±5)	4-6	-	-	-

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DT/DM PREPARATION MACHINE

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 ALONG WITH 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	MACHINE SHOULD HAVE SEPARATE HUMAN MACHINE INTERFACE (HMI) / CONTROL PANEL FACILITY.	Physical Verification by BOOs	
6	MACHINE SHOULD HAVE VARIABLE SCOOPING/FILLING FACILITY PREFERABLY ON PLC BASED.	Physical Verification by BOOs	
7	MACHINE SHOULD OPERATE PREFERABLY ON PLC CONTROL OF IEC-61131 STANDARD.	The firm should submit national / International accredited Lab test report for this aspect	
8	MACHINE SHOULD HAVE DIGITAL DISPLAY TO INDICATE FINISHED NOS OF PRODUCTS.	Physical Verification by BOOs	
9	MACHINE SHOULD WORK ON PNEUMATIC BASE.	Physical Verification by BOOs	
10	TUBES CONNECTING THE MACHINE TO PNEUMATIC MACHINE SHOULD BE OF REQUISITE DIMENSIONS AND ISI MAKE.	Physical Verification by BOOs	
11	MACHINE SHOULD BE ABLE TO EXTRACT PLUNGER SMOOTHLY FROM DELAY TUBE AFTER PRESSING.	Physical Verification by BOOs	
12	MACHINE SHOULD HAVE FACILITY OF DETECTION OF OMISSION AND MALFUNCTIONING AT ANY STAGES OF PROCESS AND SHOULD HAVE FACILITY TO SEPARATE THE REJECTED/ DEFECTIVE DT/DM.	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

13	MACHINE SHOULD BE ABLE TO OPERATE WITHIN OPERATING TEMPERATURE 25 ± 10° C AND OPERATING HUMIDITY 40 ±15%.	Physical Verification by BOOs	
14	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	
15	MACHINE SHOULD BE COMPACT TO FIT IN TO SAVE SPACE AND EASY TO ACCESS FOR REPAIR AND MAINTENANCES.	Physical Verification by BOOs	
16	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	
17	USER MANUAL WITH REQUIRED ILLUSTRATIONS TO BE PROVIDED WITH MACHINE.	Physical Verification by BOOs	
18	INSTRUCTION ON REPAIR & MAINTENANCE TO BE PROVIDED WITH MACHINE.	Physical Verification by BOOs	
19	RUNNING SPARE PARTS WITH ILLUSTRATED LIST SHOULD BE PROVIDED WITH MACHINE.	Physical Verification by BOOs	
20	OPERATIONAL TRAINING SHOULD BE ARRANGED FOR 1 WEEKS FOR MINIMUM 15 PERS.	Physical Verification by BOOs	
21	REPAIR AND MAINTENANCE TRAINING SHOULD BE ARRANGED FOR 1 WEEKS FOR MINIMUM 10 PERS.	Physical Verification by BOOs	
22	SPECIFIC GAUGES AND MAINTENANCE TOOLS SHOULD BE PROVIDED WITH MACHINE.	Physical Verification by BOOs	
23	GUARANTEE / WARRANTY:- 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	
24	AMC PERIOD SHOULD BE 05 YEARS AFTER EXPIRY OF GUARANTEE / WARRANTY PERIOD.	Physical Verification by BOOs	

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