

Technical Specification for Tender no.2021-22/01

2021-22/01/01_Microprocessor controlled Injection Moulding Machine 400-450T (SERVO)

Sl. No	Item	Unit	Specification
Injection Unit			
1	Shot Capacity (in GPPS)	g	1600 and above
2	Screw Diameter	mm	70-90
3	Screw L/D Ratio	-	Specify
4	Injection Pressure	bar	1400 and above Multi stage
5	Injection Speed	mm/sec	Maximum upto 250
6	Injection Rate	cc/sec	300 and above
7	Plasticizing Rate (Gpps)	gm/sec	60 and above
8	Screw Speed	rpm	140 and above
9	Heating Capacity	kw	Specify
Clamping Unit			
10	Clamp Force	ton	400-450
11	Mould Opening Stroke	mm	750 and above
12	Maximum Daylight	mm	1600 and above
13	Minimum Mould Height	mm	Specify
14	Maximum Mould Height	mm	800 and above
15	Platen Size	mm	1000 X 1000 and above
16	Distance Between Tie Rod	mm	800 X 800 and above
17	Ejector Stroke	mm	150 and above (Multi point and Multi Stage)
18	Ejector Force	Kn	Min. 100
19	Mould Weight Capacity	kg	3500 and above.
20	Hydraulic Multiple Core Pulling Unit	-	4 Core pulling
21	Multi Stage Air Ejection	-	Specify and Quote (Minimum 5 point)
22	Clamping Mechanism	-	Please Specify
General			
23	T Slot Platen	-	T Slot is Preferred
24	Injection unit on LM guides	-	Specify and Quote
25	Robot Interface	-	Specify and Quote
26	Hot Runner Interface	-	Specify and Quote (Minimum 4 Zones)
27	Interface for Gas Assisted Injection	-	Specify and Quote
28	Water inlet & outlet manifold for Mould cooling	-	Min. 12/12 Channel
29	Computer connectivity	-	Specify
30	Hopper loader cum drier	-	Specify and Quote for suitable capacity
31	Essential/Standard spares	-	Specify and Quote (Standard Tool Kit, NRV, Thermocouple, Band Heater, Short/Extended Nozzle, SSR, Proximity Switch, Limit Switch, Mould Clamps, T-Nut and Studs, Etc.,)
32	Safety	-	Specify the Special safety provisions
33	Motor / Pump Type	-	Servo
34	Motor load	-	Specify
35	Machine Dimensions (LxWxH)	-	Specify
36	Total connected load	-	Specify

37	Max. Power consumption @ full machine capacity	-	Specify (lower power consumption will be preferred)
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2021-22/01/02_Microprocessor Controlled Automatic Injection Moulding machine 350 - 400 T (SERVO)

Sl. No	Item	Unit	Specification
Injection Unit			
1	Shot Capacity (In GPPS)	gms	1250 and above
2	Screw Diameter	mm	70 - 80
3	Screw L/D Ratio	-	Specify
4	Injection Pressure	bar	1600 and above Multistage
5	Injection Speed	mm/sec	Maximum upto 250
6	Injection Rate	cc/sec	Min. 300
7	Plasticizing Rate (GPPS)	gm/sec	Min.50
8	Max. SCREW SPEED	rpm	Min. 130
9	Heating Capacity	kw	Plz specify (lower preferred)
Clamping Unit			
10	Clamp Force	ton	350 - 400
11	Mould Opening Stroke	mm	Min. 700
12	Maximum Daylight	mm	1150 and above
13	Minimum Mould Height	mm	Max. 300
14	Maximum Mould Height	mm	Min. 450 and above
15	Platen Size	mm	min. 1000 x 1000 and above
16	Distance Between Tie Rod	mm	Min. 700 X 700 and above
17	Ejector Stroke	mm	Minimum 200 (Multi point and Multi Stage) Specify
18	Ejector Force	ton	Min. 10
19	Mould Weight Capacity	kg	2500 and above.
20	Power pack unit for Hydraulic Multiple core pulling	-	Minimum 4 core pulling
21	Multi stage Air Ejection	-	Specify (Minimum 5 point)
22	Clamping Mechanism	-	Toggle Preferred
General			
23	T Slot Platen	-	Specify and Quote (T Slot is Preferred)
24	Latest Square Platen	-	Specify and Quote
25	Water inlet & outlet manifold for Mould cooling	-	Min. 10/10 Channel
26	Computer connectivity	-	Through Ethernet or HDMI cable
27	Total connected load	-	Max. 80 KW - lower preferred
28	Energy meter along with machine	-	Specify and Quote
29	Max. Power consumption @ full machine capacity	-	lower preferred
30	Motor - servo drive	-	Specify and Quote
31	Essential/Standard spares	-	Specify and Quote One set of (Standard Tool Kit, NRV, Thermocouple, Band Heater, Short/Extended Nozzle, SSR, Proximity Switch, Limit Switch, Mould Clamps, T-Nut and Studs.)
32	Safety	-	Specify the Special safety provisions

33	Machine Dimensions (LxWxH)	-	Specify and Quote
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2021-22/01/03_All Electric, Microprocessor Controlled Injection Moulding Machine 180-200T

Sl. No	Item	Unit	Specification
Injection Unit			
1	Shot Capacity (In GPPS)	g	450 and above
2	Screw Diameter	mm	45 - 60
3	Screw L/D Ratio	-	Specify
4	Injection Pressure	bar	1600 and above
5	Injection Speed	mm/sec	160 and above
6	Injection Rate In Air	cc/sec	200 and above
7	Plasticizing Rate (GPPS)	gm/sec	Specify
8	Max. Screw Speed	rpm	Specify
9	Heating Capacity	kw	Specify
Clamping Unit			
10	Clamp Force	ton	180-200
11	Mould Opening Stroke	mm	510 and above
13	Maximum Daylight	mm	1050 and above
14	Minimum Mould Height	mm	Specify
15	Maximum Mould Height	mm	Specify
16	Platen Size	mm	750 x 750 and above
17	Distance Between Tie Rod	mm	550 X 550 and above
18	Ejector Stroke	mm	130 and above
19	Ejector Force	ton	3 and above
20	Mould Weight Capacity	kg	Specify
21	Powerpack for hydraulic core pulling	-	specify and quote (Minimum 2 core pulling)
22	Multi stage Air Ejection	-	Specify and Quote (Minimum 5 point)
General			
24	T Slot Platen	-	Specify
27	Robot Interface	-	Specify and Quote
28	Hot Runner Interface	-	Min. 4 Zones
29	Interface for Gas Assisted Injection	-	Specify
30	Water inlet & outlet manifold for Mould cooling	-	Min. 10/10 Channel
31	Computer connectivity	-	Specify
32	Hopper loader cum drier	-	Minimum 75 kg capacity hopper.
33	Essential/Standard spares	-	Specify and Quote for 1 set (Standard Tool Kit, NRV, Thermocouple, Band Heater, Short/Extended Nozzle, Nozzle Spanner, SSR, Proximity Switch, Limit Switch, Mould Clamps, T-Nut and Studs, Etc.,)

2021-22/01/04_All Electric, Microprocessor Controlled Injection Moulding Machine 275-300T

Sl. No	Item	Unit	Specication
Injection Unit			

1	Shot Capacity (In GPPS)	g	1000 and above
2	Screw Diameter	mm	55-70
3	Screw L/D Ratio	-	Specify
4	Injection Pressure	bar	1400 and above
5	Injection Speed	mm/sec	160 and above
6	Injection Rate In Air	cc/sec	200 and above
7	Plasticizing Rate (GPPS)	gm/sec	Specify
8	Max. SCREW SPEED	rpm	Specify
9	Heating Capacity	kw	Specify
Clamping Unit			
10	Clamp Force	ton	275-300
11	Mould Opening Stroke	mm	600 and above
13	Maximum Daylight	mm	1200 and above
14	Minimum Mould Height	mm	Specify
15	Maximum Mould Height	mm	Specify
16	Platen Size	mm	940 x 940 and above
17	Distance Between Tie Rod	mm	660 X 660 and above
18	Ejector Stroke	mm	150 and above
19	Ejector Force	ton	5 and above
20	Mould Weight Capacity	kg	Specify
21	Powerpack for hydraulic core pulling	-	specify and quote (Minimum 2 core pulling)
22	Multi stage Air Ejection	-	Specify and Quote (Minimum 5 point)
General			
24	T Slot Platen	-	Specify
27	Robot Interface	-	Specify and Quote
28	Hot Runner Interface	-	Min. 4 Zones
29	Interface for Gas Assisted Injection	-	Specify
30	Water inlet & outlet manifold for Mould cooling	-	Min. 10/10 Channel
31	Computer connectivity	-	Specify
32	Hopper loader cum drier	-	Minimum 75 kg capacity hopper.
33	Essential/Standard spares	-	Specify and Quote for 1 set (Standard Tool Kit, NRV, Thermocouple, Band Heater, Short/Extended Nozzle, Nozzle Spanner, SSR, Proximity Switch, Limit Switch, Mould Clamps, T-Nut and Studs, Etc.,)

2021-22/01/05_Microcompounding Machine			
Sl. No	Item	Unit	Specication
1	Polymer to be processed	-	Machine capable of processing polymers, Bio Polymers etc for R&D or laboratory purpose i.e. bench top model preferred
2	Type of Screw rotation		Parellel co-rotating twin screw extruder
3	Twin Screw Diameters	mm	8 - 12
4	Volume of material	cm3	7
5	Max. Screw Speed	rpm	400
6	Max. Screw Torque per screw	Nm	4 to 8
7	Max. Temperature range	C	upto 420
8	Max. Melt pressure	Bar	300 to 500

9	bench top water bath for cooling of stand	-	Please specify
10	Volumetric or gravimetric dosing system for contious filling of extruder	-	Please specify
11	Dosing location for powder and liquids, Exchangeable barrel & screw elements type, Ingegrated control, water cooling and vacuum unit, Pressure transducer , Melt Temperature transducer , pelletizer, automatic bypass operation for circulation/extrusion	-	Please specify
12	Loader with vertical force feeder	-	Please specify
13	Max. Drive power	KW	Please specify
14	Total connected load	KW	Please specify
15	Set of die inserts to allow quick change of the die diameter. Should contain a set of threaded die nozzle inserts with diameters: 0.5, 1.0, 1.5, 2.5 and 3.0 mm	-	Please specify and quote
16	Control System	-	Microprocessor type
17	Synchronisation of Extruder drive with Haul off unit etc	-	Please specify
18	Safety	-	Please specify
19	Machine dimensions(LxWxH)	-	Please specify
20	Essential Spares	-	Please specify
21	a. set of Thermocouples		
	b. set of Heater		
	c. Pressure transducer		
	d. Melt temperature transducer		
	e.split barrel elements, PC based software etc.		
22	Screw made of Stainless steel 1.4122 cr coated	-	Please Specify
23	Stainless steel bareel (HRC55) or similar material with additional sensor port	-	Please Specify
24	Air compressor with drier suitable for above machine	-	Please Specify & Quote
25	Small bench top chiller for cooling main feeding port and bareel cooling port	-	Please Specify & Quote

26	Sheet die set for twin screw extruder- 30 mm wide sheet die with adjustable slit gheight 0.1 to 1.1 mm with temperature controller, flexible lip with adjustable screws	-	Please Specify & Quote
27	Sheet takeoff system for twin screw extruder	-	Please Specify & Quote

2021-22/01/06_Micro injection Moulding Machine			
Sl. No	Item	Unit	Specification
Injection Unit			
1	Max. stroke volume	cm3	4 to 8
2	Screw Diameter	mm	12 to 14 mm
3	Screw L/D Ratio	-	Specify
4	Injection Pressure	bar	1800 and above
5	Injection Speed	mm/sec	60 and above
6	Injection Rate	cc/sec	20 and above
7	Plasticizing Rate (GPPS)	gm/sec	Specify
8	Max. SCREW SPEED	rpm	Specify
9	Heating Capacity	kw	Specify
Clamping Unit			
10	Clamp Force	KN	60 to 100
11	Mould Opening Stroke	mm	80 and above
12	Maximum Daylight	mm	specify
13	Minimum Mould Height	mm	80
14	Maximum Mould Height	mm	170
15	Platen Size	mm	250 x 250 and above
16	Distance Between Tie Rod	mm	160 X 155 and above
17	Ejector Stroke	mm	30 and above
18	Ejector Force	KN	Please spcify
19	Mould Weight Capacity	kg	Specify
General			
20	Control	-	Microprocessor type
21	Air Ejection	-	Specify and Quote
22	Servo drive or Electric drive	-	Specify
23	Hopper capacity	L	Specify
24	Total connected Load	KW	Specify
25	Mould cooling circuit	-	Specify and Quote
26	Computer connectivity	-	Specify
27	Water Chiller unit suitable for above machine	-	Specify and Quote
28	Mould for Test specimen for Tensile, Izod, Charpy, disc as per ASTM or ISO	-	Specify and Quote
29	Air commpressor with Drier unit suitable for above machine	-	Specify and Quote

30	Essential/Standard spares	-	Specify and Quote for 1 set (Standard Tool Kit, Thermocouple, Band Heater, Nozzle, Mould Clamps, Etc.)
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2021-22/01/07_Twin Screw Extruder			
Sl. No	Item	Unit	Specication
1	Extruder Type	-	Co-Rotating twin screw extruder Segmental type - Both Barrel / screw with cooling of screw & Barrel , venting System.
2	Screw Dia	mm	Max - 25 mm
3	L/D Ratio	-	Min - 40/1
4	D0/Di	-	Min - 1.55
5	Main Gear Box	-	High torque gear box
6	Screw rpm	-	Min - 600 rpm
7	Nomination torque	-	Min - 40 Nm
8	Specific Torque	-	Min - 7Nm/cm2
9	Electrical control Panel	-	Digital Temperature Controller, Melt Pressure Indicator, Melt Temperature Indicator, Ammeter for Extruder dynamic Load, Tachometer for Screw Speed.
10	Water Bath	-	SS Water bath with rollers is Provided guiding the strands cooling.
11	Vaccum Degassing System	-	With Vaccum pump provided for degassing.
12	Air Knife	-	Suitable Capacity.
13	Strand Pelletizer	-	Suitable capacity of above machine.
14	Output	Kg/hr.	Max - 25
Feeding System			
15	Single Screw Volumetric Feeder	Kg/hr.	Suitable Capacity of Machine.
16	Twin screw feeder	Kg/hr.	Material Feeding - Low Density Material like Natural Fiber/Filler and Powder, etc.
17	Application	-	R&D, Compounding of all Engineering Polymers, Polymer blends & alloys, Fiber (Natural/Glass) Reinforced thermoplastics & R&D of Bio Polymers etc.
18	Dosing location for powder and liquids, Exchangeable barrel & screw element type, Integrated control, water cooling and vacuum unit, Pressure transducer, Melt temperature transducer, Pelletizer, automatic bypass operation for circulation/extrusion	-	Please specify
19	Loader with vertical force feeder	-	Please specify
20	Max. Drive Power	KW	Please specify
21	Total Connected Load	KW	Please specify

22	Set of die inserts to allow quick change of the die diameter. Should contain a set of threaded die nozzle inserts with diameters : 0.5, 1.0, 1.5, 2.5 and 3.0 mm	-	Please specify
23	Control System	-	Microprocessor Type
24	Synchronization of Extruder drive with Haul off unit etc	-	Please Specify
25	Safety	-	Please specify
26	Machine Dimensions (LXWXH)	-	Please Specify
27	Essential Spares		
	a. Set of Thermocouples	-	Please specify
	b. Set of Heaters		
	c. Pressure Transducer		
	d. Melt Temperature Transducer		
	e. Split barrel elements, PC based software etc.,		
28	Screw made of Stainless Steel 1.4122 or coated	-	Please Specify
29	Stainless Steel barrel (HRC55) or similar material with additional sensor port	-	Please Specify
30	Air Compressor with drier suitable for the above machine	-	Please specify and quote.