

**SPECIFICATION FOR MOUNTING PRESS**

No.	Description	Requirement	Supplier's Response Yes/No	Remarks
1	Operation	Automatic electro-Hydraulic		
2	Power Source	230-250VAC,50/60Hz,1 phase		
3	Molding Pressure	1200-4400psi [80-300bar] in 100psi [5bar] increments		
4	Molding Temperature	[50-180 <sup>0</sup> C] in [10 <sup>0</sup> C] increments for cure Transoptic powder, Conductomet powder (specially used in SEM observation) and Diallyl Phthalate to mount samples		
5	Heating Power	1500Watt @ 115/230VAC		
6	Heating Time	0-20minutes in 10 second increments		
7	Cooling Time	0-30minutes in 10 second increments		
8	Mold Type	Cylindrical, including upper and lower rams and duplex mold spacer		
9	Closure Type	Insulated bayonet with piston indent		
10	Mold Diameters	1 inch (25mm)		
11	Touchpad Controls	On/Off, Heat Time, Cool Time, Molding Temperature, Molding Pressure, Mold Size, Ram Up/Down, Maunal Cool, Cycle Start, Cylinder Open, Unit of Measure, Language and also including Thermoplastic, Load and Save Methods.		
12	Thermoplastic function	Automatically sets correct parameters for thermoplastic resins such as Transoptic <sup>TM</sup> and cools the mount in a controlled, linear fashion		
13	Water Pressure	45-75psi [3-5bar]		
14	Control Voltage	24VDC		

15	Method Programmability	Preprogrammed Methods per mold size, 25 User Definable Methods		
16	Preload Pressure	0 - 400psi [0 - 30bar] in 50psi [5bar] increments		
17	Warranty	01 Years Comprehensive warranty		
18	Condition	Bidders should comment on all acts above in detail and should provide a reference document to support the claim. Failure to respond to any of the factors above will lead to technical disqualification without further information being requested from the bidder.		

# Freeze Dryer Specifications

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Annex II

No.	Description	Requirement	Supplier's Response Yes/No	Remarks
1	Freeze Dryer Type	<ul style="list-style-type: none"><li>Bench top</li></ul>		
2	Holding Capacity	<ul style="list-style-type: none"><li>2.5L To 6L</li></ul>		
3	Power INPUT	<ul style="list-style-type: none"><li>Single Phase with ground Nominal Voltage: 200/208/220/230/240VAC with UK standards</li></ul>		
4	CONTROL SYSTEM	<ul style="list-style-type: none"><li>PC/PLC with Ethernet and remote Internet connectivity</li><li>Manual and automatic operating modes</li><li>Graphic and numeric data collection</li></ul>		
5	SHELF SYSTEM	<ul style="list-style-type: none"><li>6" Diameter Shelf</li><li>-60 to +60C</li><li>Teflon-coated collector coil and chamber for processes involving corrosive compounds</li></ul>		
6	CONDENSER	<ul style="list-style-type: none"><li>External with Isolation valve</li><li>Exposed coil condenser for maximum efficiency</li><li>Hot gas defrost</li><li>0.5 L total capacity</li><li>-70C</li></ul>		
7	VACUUM	<ul style="list-style-type: none"><li>Vacuum pump with a displacement of at least 86L per minute, 0.002 mBar ultimate pressure</li><li>Advanced Proportional Vacuum control standard</li><li>Gas backfill standard</li><li>corrosion resistant vacuum pump with easy access</li></ul>		
8	REFRIGERATION	<ul style="list-style-type: none"><li>Cascade refrigeration system</li><li>HCFC/CFC-Free, non-proprietary refrigerants</li></ul>		

9	OTHER	<ul style="list-style-type: none"> <li>Sanitary style fittings on all sensor and vacuum ports</li> <li>Drying Accessories</li> <li>freeze drying glassware</li> </ul>		
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### Environmental Specifications

10	Operating temperature	-10 °C to + 55 °C		
11	Storage temperature	-10 °C to + 60 °C		
12	Humidity (without condensation)	0% – 90% (0 °C – 35 °C) 0% – 70% (35 °C – 55 °C)		

### Mechanical and General Specifications

13	Size	Less than 2 sq ft.		
14	Weight	N/A		
15	Display	LCD for display of set up and operating parameters		
16	Warranty	36 Months		
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## Annex III

<u>Specification for UV -VIS Spectrometer</u>		Bidder Response
Optical layout	Double beam optics	
Wave length range:	190nm – 1100 nm	
Photometric range:	4 abs or better	
Light source	Halogen / Tungsten + Deuterium	
Lamp interchange	Auto switching synchronized with wavelength.	
Wavelength Accuracy	0.3nm or better	
Wavelength Repeatability	0.1nm or better	
Baseline Flatness (stady lamp)	0.001Abs or better	
Scanning rate	0.5 nm/min -200nm/min or better	
Operating humidity	80% or higher	
Capable Measurements:	Transmission measurements on bulk and liquid samples, reflection measurements at fixed and variable angle, and an internal integrating sphere for diffuse reflectance measurements	
Software	<ul style="list-style-type: none"> <li>• The system should have provision for interfacing with pc and the analysis software should be capable of data collection and carry out the analysis.</li> <li>• Analyzed data should be in industry standard formats as well as made available in ASCII / CSV forms, and exportable to popular platforms like MS Excel.</li> <li>• The offered data acquisition software should run on Windows platform.</li> </ul>	
Accessories	<ul style="list-style-type: none"> <li>• Integrating Sphere Attachment</li> <li>• Set of 10mm (path) UV quartz cuvettes</li> <li>• Specular Reflectance Measurement Attachment.</li> <li>• Polarizers</li> <li>• Powdered Sample Holder</li> <li>• Film Holder</li> </ul>	
Warranty	<ul style="list-style-type: none"> <li>• 24 month Comprehensive</li> </ul>	
Country of origin	Quoted brand must originate from USA, Canada, UK, Germany, France or Japan	

## Annex IV

SPECIFICATIONS FOR ROCKWELL HARDNESS TESTER		Bidders Response
Load application	Load cell, force feedback, closed loop system	
Hardness scales	Rockwell/Superficial Rockwell, HVT, HBT, ball indentation for plastic ISO 2039/1	
Load range FH-1 Test loads	1-250kgf (2.2-551lbf) 1, 2, 2.5, 3, 5, 10, 15, 15.625, 20, 30, 31.25, 45, 50, 60, 62.5, 100, 125, 150, 187.5, 250kgf (2.2, 4.4, 5.5, 5.51, 6.6, 11, 22, 33, 34, 44, 66, 69, 79, 110, 132, 138, 220, 276, 331, 413, 551lbf) depending on model	
Rockwell scales	A, B, C, D, E, F, G, H, K, L, M, P, R, S, V	
Rockwell superficial scales	15N, 30N, 45N, 15T, 30T, 45T, 15W, 30W, 45W, 15X, 30X, 45X, 15Y, 30Y, 45Y	
Plastic ball indentation	Meets or exceeds the requirements of ISO 2039/1	
Scale resolution (depth)	0.1 micron	
Display	LCD, LED or Similar	
Standards	Complies with, or exceeds, EN/ISO, ASTM, and JIS standards	
Test cycles	Fully automatic, Load, Dwell, Unload	
Dwell time	1-99 seconds	
Data output	USB-2 (RS232), RJ45 ethernet	
Specimen accommodation	Height 300mm (11.81in) Throat 200mm (7.87in)	
Operating temperature range	10-35°C	
Operating humidity range	10-90% non-condensing	
Power	100V to 240VAC, 50/60Hz, single phase	
Warranty	1 Year Comprehensive	

## Annex V

Specification of, Melt Flow Indexers

No.	Description	Requirement	Supplier's Response Yes/No	Remarks
1	Conformance	ASTM D1238 and D3364, ISO 1133-1 and -2, BS2782, DIN 53735, JIS K7210		
2	Operating temperature	400°C max		
3	Temperature control	+/- 0.1°C		
4	Spatial temperature variation	+/- 0.1°C		
5	Temperature sensors	Platinum RTDs		
6	Timer resolution	Displayed capture time 0.01 second Internal timing interval 0.001 second		
7	Display	High Resolution LCD touch screen,		
8	Data entry	Touch screen display		
9	Communications port	USB / Ethernet		
10	Weights	Stainless steel or Aluminum, +/- 0.5% tolerance / All weights should be included		
11	Electrical	230VAC +/- 10% (must bespecified at time of order), 50/60Hz single phase,		
12	CE mark	Conforms to all applicable European CE directives		
13	Actuating switch Transducer accuracy	+/- 0.001in (ASTM) +/- 0.02mm (ISO)		
14	Motorised weight support Transducer accuracy	+/- 0.1mm (+/- 0.01in)		
15	Warranty	1 year comprehensive warranty		