

Machinery SI. No. 2021-22/02/01

Conventional Lathe Machine		
Sl.No.	Specifications with Unit	Range/Value
Make		To be specified by the Bidder
Model		To be specified by the Bidder
1	Height of the Center - mm	125-150
2	Centre distance - mm	450-500
3	Maximum Swing over bed - mm	250-300
4	Swing over cross slide - mm	140-150
5	Carriage	
5.1	Cross slide travel - mm	80-100
5.2	Dial Graduation of Cross slide - mm	0.05
5.3	Top slide travel - mm	100-150
5.4	Dial Graduation of Top slide - mm	0.05
5.5	Angular Swivel graduation - deg.	±45
5.6	Maximum Tool Section - mm	16x16
6	Tailstock	
6.1	Spindle travel - mm	80-100
6.2	Taper in spindle	MT3
6.3	Hand wheel dia. graduation - mm	0.05
7	Spindle	
7.1	Spindle bore dia. - mm	35-50
7.2	Collect capacity - mm	25-35
7.3	Spindle speed - rpm	60-3000 or better
8	Feeds & Threads	
8.1	Longitudinal feeds - Mm/min // mm/Rev	24/0.03-0.7
8.2	Cross feeds - Mm/min //mm/rev	24/0.15-0.35
8.3	Metric threads - mm	32/0.15-12
8.4	US & Whitworth threads - TPI	39/90-2 TPI
8.5	Module threads - mm	37/0.1 to 2.5

8.6	Diametrical threads	27/8-200
9	Accessories	
9.1	Ø160 mm x 3jaw self center chuck	Set of accessories suitable to the machine
9.2	Four Jaw chuck (ø 160 mm) with Adapter	
9.3	MT5 – MT3 center sleeve	
9.4	MT3 – male center	
9.5	Quick change tool post	
9.6	Electric coolant system with splash guard	
9.7	4 way Tool post	
9.8	5c Quick acting collet attachment	
9.9	Hand wheel type collet attachment	
9.10	Set of collets - size 5 mm to 20 mm – step of 1 mm	
9.11	Collet Holders	
9.12	Dog carriers dia. 20 mm, dia. 30 mm	
9.13	Splash Guards	
9.14	Revolving Center	Set of accessories suitable to the machine
9.15	Drill Chuck	
9.16	Reduction sleeve- MT3-MT2, MT2-MT1	
9.17	Fixed & Traveling steady rest	
9.18	Extra change gears– for inches, module & DP threads	
9.19	Face plate(200mm)	
9.20	Driver plate	
9.21	Service tools	
9.22	Machine Lamp	
9.23	Live & Dead Center	
9.24	Foot Brake	
9.25	Chuck guard	
9.26	Tools kit	
9.27	One set of manuals	
9.28	Coolant Pump (0.25 - 0.5 HP)	
9.29	Anti vibration pads	
10	Others	
11	General features :	

11.1	The specification of feed drive motors with make, model no., max. & nominal torque	Bidder to specify the features of the machine
11.2	Preferably the guideways of all axes should have telescopic type protective covers with adequate sealing on joints to prevent seepage of dust & coolant oil inside. Guide ways should be of hardened steel with hardness HRC 60 or more	
11.3	The machine must have rigid streamlined and vibration free construction. All gears must be case hardened and ground and all the slides should be rigid to withstand heavy stock removal. It should have independent main drive and feed drive motors. Anti-vibration pad is to be provided for reach leg of the machine.	
11.4	Each axis should have electrical limit switches interlocked with feed/ rapid drive as well as mechanical stopper	
12	Any Others Accessories	Bidder to specify and quote if any other accessories available /required for smooth running of the machine.
13	Terms & Conditions	Manufacture/Supplier should have sizable installations of same or better model worldwide and at least Five in India which is education institutions centrally funded institution. A Satisfactory Performance certificate from two institutions to be provided for eligibility. Bidder should submit complete contact details
		Equipment should be CE certified
		Authorization Letter from OEM
		List of clients in last five years to be provided.
14	Scope of supply	Bidder should submit complete scope of supply (Machine, standard accessories, Optional Accessories etc with make model) in the technical bid with our price. Bidder should supply complete start up package necessary to prove the machine and provide training.
15	INSTALLATION, COMMISSIONING AND TRAINING	

15.1	Installation and commissioning requirements	Bidder should state the space required and condition of floor and any other requirements for installation of the machine and equipments. State clearly the specifications of electrical requirement. Vendor should carry out installation and commissioning of the machine and its accessories on a turnkey basis.
15.2	Training and documentation	<p>Training should be provided during installation. Training content and plan to be submitted. Training faculty must have adequate experience in this field.</p> <p>The vendor should supply the necessary manuals such as</p> <ul style="list-style-type: none"> Instruction Maintenance and troubleshooting Training Installation and Commissioning Handling of accessories
15.3	Warranty	The whole system and its accessories should be given two years warranty for the machine and three years for the spindle replacement and service against any design, manufacturing and workmanship defects from the date of installation and commissioning.
15.4	Technical support and service	Manufacturer should have established after sales & service network in India. The vendor shall have local service and application office and infrastructure to attend by visit within 48 hours of need. Technical support personnel must have adequate experience in this field. Technical support personnel details should be submitted. Name and address of the authorized service centre/ partner in India along with the certificate of authorization should be attached.
15.5	Annual Comprehensive Maintenance Contract (ACMC) as optional	Vendor should quote for Annual Comprehensive Maintenance Contract for the whole system and accessories supplied after the completion of performance warranty period. Supplier has to provide service support within 48 hours. Calibration of the machine shall be a part of warranty and ACMC. It shall also be mandatory to perform calibration after every major repair or breakdown

Machinery Sl. No. 2021-22/02/02

Tool Room Automatic Lathe Machine		
Sl.No.	Specifications with Unit	Range/Value
Make		To be specified by the Bidder
Model		To be specified by the Bidder
1	Height of the Center - mm	125
2	Centre distance - mm	500
3	Maximum Swing over bed - mm	250
4	Swing over cross slide - mm	140
5	Carriage	
5.1	Cross slide travel - mm	90
5.2	Dial Graduation of Cross slide - mm	0.05
5.3	Top slide travel - mm	100
5.4	Dial Graduation of Top slide - mm	0.05
5.5	Angular Swivel graduation - deg.	±45
5.6	Maximum Tool Section - mm	16x16
6	Tailstock	
6.1	Spindle travel - mm	80-100
6.2	Spindle Bore - mm	38
6.3	Taper in spindle	MT3
6.4	Hand wheel dia. graduation - mm	0.05
7	Spindle	
7.1	Spindle bore dia. - mm	38
7.2	Collect capacity - mm	26
7.3	Spindle speed - rpm	60-3000
8	Feeds & Threads	
8.1	Longitudinal feeds - Mm/min // mm/Rev	24/0.03-0.7
8.2	Cross feeds - Mm/min //mm/rev	24/0.15-0.35
8.3	Metric threads - mm	32/0.15-12

8.4	US & Whitworth threads - TPI	39/90-2 TPI
8.5	Module threads - mm	37/0.1 to 2.5
8.6	Diametrical threads	27/8-200
9	Accessories	
9.1	Ø160 mm x 3jaw self center chuck	Set of accessories suitable to the machine
9.2	Four Jaw chuck (ø 160 mm) with Adapter	
9.3	MT5 – MT3 center sleeve	
9.4	MT3 – male center	
9.5	Quick change tool post	
9.6	Electric coolant system with splash guard	
9.7	4 way Tool post	
9.8	5c Quick acting collet attachment	
9.9	Hand wheel type collet attachment	
9.10	Set of collets - size 5 mm to 20 mm – step of 1 mm	
9.11	Collet Holders	
9.12	Dog carriers dia. 20 mm , dia. 30 mm	
9.13	Splash Guards	
9.14	Revolving Center	Set of accessories suitable to the machine
9.15	Drill Chuck	
9.16	Reduction sleeve- MT3-MT2, MT2-MT1	
9.17	Fixed & Traveling steady rest	
9.18	Extra change gears– for inches, module & DP threads	
9.19	Face plate(200mm)	
9.20	Driver plate	
9.21	Service tools	
9.22	Machine Lamp	
9.23	Live & Dead Center	
9.24	Foot Brake	
9.25	Chuck guard	
9.26	Tools kit	
9.27	One set of manuals	
9.28	Coolant Pump (0.25 - 0.5 HP)	

9.29	Anti vibration pads	
10	Others	
11	General features :	
11.1	The specification of feed drive motors with make, model no., max. & nominal torque	Bidder to specify the features of the machine
11.2	Preferably the guideways of all axes should have telescopic type protective covers with adequate sealing on joints to prevent seepage of dust & coolant oil inside. Guide ways should be of hardened steel with hardness HRC 60 or more	
11.3	The machine must have rigid streamlined and vibration free construction. All gears must be case hardened and ground and all the slides should be rigid to withstand heavy stock removal. It should have independent main drive and feed drive motors. Anti-vibration pad is to be provided for reach leg of the machine.	
11.4	Each axis should have electrical limit switches interlocked with feed/ rapid drive as well as mechanical stopper	
12	Any Others Accessories	Bidder to specify and quote if any other accessories available /required for smooth running of the machine.
13	Terms & Conditions	Manufacture/Supplier should have sizable installations of same or better model worldwide and at least Five in India which is education institutions centrally funded institution. A Satisfactory Performance certificate from two institutions to be provided for eligibility. Bidder should submit complete contact details
		Equipment should be CE certified
		Authorization Letter from OEM
		List of clients in last five years to be provided.
14	Scope of supply	Bidder should submit complete scope of supply (Machine, standard accessories, Optional Accessories etc with make model) in the technical bid with our price. Bidder should supply complete start up package necessary to prove the machine and provide training.
15	INSTALLATION, COMMISSIONING AND TRAINING	

15.1	Installation and commissioning requirements	Bidder should state the space required and condition of floor and any other requirements for installation of the machine and equipments. State clearly the specifications of electrical requirement. Vendor should carry out installation and commissioning of the machine and its accessories on a turnkey basis.
15.2	Training and documentation	Training should be provided during installation. Training content and plan to be submitted. Training faculty must have adequate experience in this field.
		The vendor should supply the necessary manuals such as
		Instruction
		Maintenance and troubleshooting
		Training
		Installation and Commissioning
15.3	Warranty	The whole system and its accessories should be given two years warranty for the machine and three years for the spindle replacement and service against any design, manufacturing and workmanship defects from the date of installation and commissioning.
15.4	Technical support and service	Manufacturer should have established after sales & service network in India. The vendor shall have local service and application office and infrastructure to attend by visit within 48 hours of need. Technical support personnel must have adequate experience in this field. Technical support personnel details should be submitted. Name and address of the authorized service centre/ partner in India along with the certificate of authorization should be attached.
15.5	Annual Comprehensive Maintenance Contract (ACMC) as optional	Vendor should quote for Annual Comprehensive Maintenance Contract for the whole system and accessories supplied after the completion of performance warranty period. Supplier has to provide service support within 48 hours. Calibration of the machine shall be a part of warranty and ACMC. It shall also be mandatory to perform calibration after every major repair or breakdown

Machinery Sl. No. 2021-22/02/03

Turret Lathe Machine		
Sl.No.	Specifications with Unit	Range/Value
Make		To be specified by the Bidder
Model		To be specified by the Bidder
1	Height of the Center - mm	125-150
2	Centre distance - mm	450-500
3	Maximum Swing over bed - mm	250-300
4	Swing over cross slide - mm	140-150
5	Carriage	
5.1	Cross slide travel - mm	80-100
5.2	Dial Graduation of Cross slide - mm	0.05
5.3	Top slide travel - mm	100-150
5.4	Dial Graduation of Top slide - mm	0.05
5.5	Angular Swivel graduation - deg.	±45
5.6	Maximum Tool Section - mm	16x16
6	Turret	
6.1	Working travel - mm	Minimum 100
6.2	Tool Stations - Nos.	6
6.3	Tool Holder Bore - mm	19.05
7	Spindle	
7.1	Spindle bore dia. - mm	35-50
7.2	Collect capacity - mm	25-35
7.3	Spindle speed - rpm	60-3000 or better
8	Feeds & Threads	
8.1	Longitudinal feeds - Mm/min // mm/Rev	24/0.03-0.7
8.2	Cross feeds - Mm/min //mm/rev	24/0.15-0.35
8.3	Metric threads - mm	32/0.15-12
8.4	US & Whitworth threads - TPI	39/90-2 TPI

8.5	Module threads - mm	37/0.1 to 2.5
8.6	Diametrical threads	27/8-200
9	Accessories	
9.1	Ø160 mm x 3jaw self center chuck	Set of accessories suitable to the machine
9.2	Four Jaw chuck (ø 160 mm) with Adapter	
9.3	MT5 – MT3 center sleeve	
9.4	MT3 – male center	
9.5	Quick change tool post	
9.6	Electric coolant system with splash guard	
9.7	4 way Tool post	
9.8	5c Quick acting collet attachment	
9.9	Hand wheel type collet attachment	
9.10	Set of collets - size 5 mm to 20 mm –step of 1 mm	
9.11	Collet Holders	
9.12	Dog carriers dia. 20 mm , dia. 30 mm	
9.13	Splash Guards	
9.14	Revolving Center	Set of accessories suitable to the machine
9.15	Drill Chuck	
9.16	Reduction sleeve- MT3-MT2, MT2-MT1	
9.17	Fixed & Traveling steady rest	
9.18	Extra change gears– for inches, module & DP threads	
9.19	Face plate(200mm)	
9.20	Driver plate	
9.21	Service tools	
9.22	Machine Lamp	
9.23	Live & Dead Center	
9.24	Foot Brake	
9.25	Chuck guard	
9.26	Tools kit	
9.27	One set of manuals	
9.28	Coolant Pump (0.25 - 0.5 HP)	
9.29	Anti vibration pads	

10	Others	
11	General features :	
11.1	The specification of feed drive motors with make, model no., max. & nominal torque	Bidder to specify the features of the machine
11.2	Preferably the guideways of all axes should have telescopic type protective covers with adequate sealing on joints to prevent seepage of dust & coolant oil inside. Guide ways should be of hardened steel with hardness HRC 60 or more	
11.3	The machine must have rigid streamlined and vibration free construction. All gears must be case hardened and ground and all the slides should be rigid to withstand heavy stock removal. It should have independent main drive and feed drive motors. Anti-vibration pad is to be provided for reach leg of the machine.	
11.4	Each axis should have electrical limit switches interlocked with feed/ rapid drive as well as mechanical stopper	
12	Any Others Accessories	Bidder to specify and quote if any other accessories available /required for smooth running of the machine.
13	Terms & Conditions	Manufacture/Supplier should have sizable installations of same or better model worldwide and at least Five in India which is education institutions centrally funded institution. A Satisfactory Performance certificate from two institutions to be provided for eligibility. Bidder should submit complete contact details
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		Authorization Letter from OEM
		List of clients in last five years to be provided.
14	Scope of supply	Bidder should submit complete scope of supply (Machine, standard accessories, Optional Accessories etc with make model) in the technical bid with our price. Bidder should supply complete start up package necessary to prove the machine and provide training.
15	INSTALLATION, COMMISSIONING AND TRAINING	

15.1	Installation and commissioning requirements	Bidder should state the space required and condition of floor and any other requirements for installation of the machine and equipments. State clearly the specifications of electrical requirement. Vendor should carry out installation and commissioning of the machine and its accessories on a turnkey basis.
15.2	Training and documentation	<p>Training should be provided during installation. Training content and plan to be submitted. Training faculty must have adequate experience in this field.</p> <p>The vendor should supply the necessary manuals such as</p> <ul style="list-style-type: none"> Instruction Maintenance and troubleshooting Training Installation and Commissioning Handling of accessories
15.3	Warranty	The whole system and its accessories should be given two years warranty for the machine and three years for the spindle replacement and service against any design, manufacturing and workmanship defects from the date of installation and commissioning.
15.4	Technical support and service	Manufacturer should have established after sales & service network in India. The vendor shall have local service and application office and infrastructure to attend by visit within 48 hours of need. Technical support personnel must have adequate experience in this field. Technical support personnel details should be submitted. Name and address of the authorized service centre/ partner in India along with the certificate of authorization should be attached.
15.5	Annual Comprehensive Maintenance Contract (ACMC) as optional	Vendor should quote for Annual Comprehensive Maintenance Contract for the whole system and accessories supplied after the completion of performance warranty period. Supplier has to provide service support within 48 hours. Calibration of the machine shall be a part of warranty and ACMC. It shall also be mandatory to perform calibration after every major repair or breakdown

Machinery SI. No. 2021-22/02/04

Vertical Milling Machine		
Sl. No.	Specification with Unit	Range/Value
Make		To be specified by the Bidder
Model		To be specified by the Bidder
1	Work Table Area - mm	(1000 to 1400) x (250 to 400)
2	Swivel range of table to both sides - deg	45
3	Longitudinal movement - mm	600-800
4	Cross (Transverse) movement - mm	250 – 300
5	Vertical movement - mm	300 – 500
6	Spindle	
6.1	Spindle Speed range - rpm	45 – 3900 or better
6.2	Spindle Taper	NST # 30 or R8 or Better
7	Feed	
7.1	Nos. of feed	9 or better
8	Feed Range (Progression 1.25)	
8.1	Longitudinal mm/min	32 - 800 or better
8.2	Vertical - mm/min	4-200 or better
9	Rapid Transverse	
9.1	Longitudinal - mm/min	650 or better
9.2	Traverse - mm / min	400 or better
9.3	Vertical mm / min	400 or better
10	Milling spindle motor	3HP
11	Accessories	
11.1	Collet Holders ISO -40	
11.2	Morse Taper Adapter	
11.3	End Mill Holder	
11.4	Face Mill Arbor	
11.5	Shell End Mill Arbor	
11.6	Drill chuck arbor	
11.7	Set of Collet (3-25mm)	
11.8	Precision Machine Vice 6"	
11.9	Clamping Kit	
11.10	Coolant System with splash guard	
11.11	Machine Lamp	
12.2	Oil gun	
12.3	One set of manuals	
12.4	Vice without swivel base	
12.5	Universal Dividing Head with Chuck & Tailstock	
12.6	Vice with swivel base	
12.7	Hydraulic Vice	

12.8	Hand Operated Circular Table	
12.9	Vertical Indexing head	
13	Set of T-Bolt and Clamp	
13.1	One set of Service Tools, Keys	
14	Others	
15	General features :	
15.1	The specification of feed drive motors with make, model no., max. & nominal torque	
15.2	Preferably the guideways of all axes should have telescopic type protective covers with adequate sealing on joints to prevent seepage of dust & coolant oil inside. Guide ways should be of hardened steel with hardness HRC60 or more	
15.3	The machine must have rigid streamlined and vibration free construction. All gears must be case hardened and ground and all the slides should be rigid to withstand heavy stock removal. It should have independent main drive and feed drive motors.	
15.4	Each axis should have electrical limit switches interlocked with feed/ rapid drive as well as mechanical stopper	

E-Tender No. CIPET-IPT/KOCHI/E-TENDER/TOOL.MAC/2021-22/02

Machinery SI. No. 2021-22/02/05

Vertical Milling Machine with DRO		
SI. No.	Specification with Unit	Range/Value
Make		To be specified by the Bidder
Model		To be specified by the Bidder
1	Work Table Area - mm	(1000 to 1400) x (250 to 400)
2	Swivel range of table to both sides - deg	45
3	Longitudinal movement - mm	600-800
4	Cross (Transverse) movement - mm	250 – 300
5	Vertical movement - mm	300 – 500
6	Spindle	
6.1	Spindle Speed range - rpm	45 – 3900 or better
6.2	Spindle Taper	NST # 30 or R8 or Better
7	Feed	
7.1	Nos. of feed	9 or better
8	Feed Range (Progression 1.25)	
8.1	Longitudinal mm/min	32 - 800 or better
8.2	Vertical - mm/min	4-200 or better
9	Rapid Transverse	

9.1	Longitudinal - mm/min	650 or better
9.2	Traverse - mm / min	400 or better
9.3	Vertical mm / min	400 or better
10	Milling spindle motor	3HP
11	Accessories	
11.1	Collet Holders ISO -40	
11.2	Morse Taper Adapter	
11.3	End Mill Holder	
11.4	Face Mill Arbor	
11.5	Shell End Mill Arbor	
11.6	Drill chuck arbor	
11.7	Set of Collet (3-25mm)	
11.8	Precision Machine Vice 6"	
11.9	Clamping Kit	
11.10	Coolant System with splash guard	
11.11	Machine Lamp	
12.2	Oil gun	
12.3	One set of manuals	
12.4	Vice without swivel base	
12.5	Universal Dividing Head with Chuck & Tailstock	
12.6	Vice with swivel base	
12.7	Hydraulic Vice	
12.8	Hand Operated Circular Table	
12.9	Vertical Indexing head	
13	Set of T-Bolt and Clamp	
13.1	One set of Service Tools, Keys	
14	DRO	Suitable for the Machine
15	General features :	
15.1	The specification of feed drive motors with make, model no., max. & nominal torque	
15.2	Preferably the guideways of all axes should have telescopic type protective covers with adequate sealing on joints to prevent seepage of dust & coolant oil inside. Guide ways should be of hardened steel with hardness HRC60 or more	
15.3	The machine must have rigid streamlined and vibration free construction. All gears must be case hardened and ground and all the slides should be rigid to withstand heavy stock removal. It should have independent main drive and feed drive motors.	
15.4	Each axis should have electrical limit switches interlocked with feed/ rapid drive as well as mechanical stopper	
16	Others	

Machinery SI. No. 2021-22/02/06

Horizondal Milling Machine		
SI No.	Specifications	Range/ Value with unit
Make		To be specified by the Bidder
Model		To be specified by the Bidder
1	AXIS TRAVEL:	
1.1	X-AXIS	700 MM
1.2	Y-AXIS	200 MM
1.3	Z-AXIS	300 MM
2	TABLE:	
2.1	LENGTH	1200 MM
2.2	WIDTH	300 MM
2.3	T-SLOT WIDTH	16 MM
2.4	NUMBER OF STD T-SLOTS	3
3	FEED :	
3.1	MOTOR	2.2 KW (3HP)
3.2	CUTTING FEED	1200 MM/MIN
4	SPINDLE :	
4.1	RATING	7.45 KW (10HP)
4.2	MAX. SPEED	2000 RPM
4.3	TAPER	BT40/ISO40
4.4	MAX WEIGHT ON TABLE	300 KGS
5	STANDARD ACCESSORIES	
5.1	MACHINE LAMP	
5.2	TOOLS KIT	
5.3	COOLANT PUMP	
5.4	ONE SET OF MANUAL	
5.5	CLAMPING KIT	
5.6	ANTI-VIBRATION PAD	
5.7	VERTICAL MILLING ATTACHMENT	
5.8	SUITABLE ELECTRICALS	
6	Others	
7	General features :	
7.1	The specification of feed drive motors with make, model no., max. & nominal torque	
7.2	Preferably the guideways of all axes should have telescopic type protective covers with adequate sealing on joints to prevent seepage of dust & coolant oil inside. Guide ways should be of hardened steel with hardness HRC60 or more	

7.3	The machine must have rigid streamlined and vibration free construction. All gears must be case hardened and ground and all the slides should be rigid to withstand heavy stock removal. It should have independent main drive and feed drive motors.	
7.4	Each axis should have electrical limit switches interlocked with feed/ rapid drive as well as mechanical stopper	

E-Tender No. CIPET-IPT/KOCHI/E-TENDER/TOOL.MAC/2021-22/02

Machinery SI. No. 2021-22/02/07

Universal Milling Machine with DRO		
Sl. No.	Specification with Unit	Range/Value
Make		To be specified by the Bidder
Model		To be specified by the Bidder
1	Work Table Area - mm	(1200 – 1400) x (300 – 400)
2	Swivel range of table to both sides - deg	45
3	Longitudinal movement - mm	600-850
4	Cross (Transverse) movement - mm	250 – 500
5	Vertical movement - mm	300 – 510
6	Spindle	
6.1	Spindle Speed range - rpm	40 – 1800 or better
6.2	Spindle Taper	ISO-40
7	Feed	
7.1	Nos. of feed	9 or better
8	Feed Range	
8.1	Longitudinal mm/min	32 - 800 or better
8.2	Vertical - mm/min	4-200 or better
9	Rapid Transverse	
9.1	Longitudinal - mm/min	850 or better
9.2	Traverse - mm / min	850 or better
9.3	Vertical mm / min	175 or better
10	Milling spindle motor kW	2.2 or better
11	Feed motor - kW	1.5 or better
12	Safe load on table - kg	200 or better
13	Accessories	
13.1	Collet Holders ISO -40	
13.2	Morse Taper Adapter	
13.3	End Mill Holder	
13.4	Face Mill Arbor	
13.5	Shell End Mill Arbor	
13.6	Drill chuck arbor	
13.7	Set of Collet (3-25mm)	
13.8	Precision Machine Vice 6”	
13.9	Clamping Kit	

13.1	Coolant System with splash guard	
13.11	Machine Lamp	
13.12	Oil gun	
13.13	One set of manuals	
13.14	Vice without swivel base	
13.14	Universal Dividing Head with Chuck & Tailstock	
13.15	Vice with swivel base	
13.16	Hydraulic Vice	
13.17	Hand Operated Circular Table	
13.18	Vertical Indexing head	
13.19	Set of T-Bolt and Clamp	
13.2	One set of Service Tools, Keys	
14	DRO	Suitable for the machine
15	General features :	
15.1	The specification of feed drive motors with make, model no., max. & nominal torque	
15.2	Preferably the guideways of all axes should have telescopic type protective covers with adequate sealing on joints to prevent seepage of dust & coolant oil inside. Guide ways should be of hardened steel with hardness HRC60 or more	
15.3	The machine must have rigid streamlined and vibration free construction. All gears must be case hardened and ground and all the slides should be rigid to withstand heavy stock removal. It should have independent main drive and feed drive motors.	
15.4	Each axis should have electrical limit switches interlocked with feed/ rapid drive as well as mechanical stopper	

E-Tender No. CIPET-IPT/KOCHI/E-TENDER/TOOL.MAC/2021-22/02

Machinery SI. No. 2021-22/02/08

Universal Radial Drilling Machine		
Sl.No.	Specifications with Unit	Range/Value
Make		To be specified by the Bidder
Model		To be specified by the Bidder
1	Max. Drilling Capacity in Steel & CI - mm	50 & 60
2	Drilling Radius Max./ Min. - mm	250-1200
3	Vertical Traverse of Arm - mm	1000-1400
4	Horizontal Traverse of Arm - mm	800-1000
5	Column Diameter - mm	250-300
6	Cross travel - mm	1000-1200
7	Morse Taper in Spindle - MT-5	MT-5
8	Number of Speeds	12 or better
9	Range of Speed - RPM	40-1440
10	Angle of Arm Rotation - deg.	360
11	Angle of Drill Head Rotation - deg.	360
12	Spindle Travel - mm	300-500
13	Motor - HP	5HP or better

14	Range of Spindle Feed - mm/rev	0.09 to 1.20
15	Accessories	
15.1	Box Shape Worktable - mm	375 -600
15.2	Machine Vise 8"	Set of accessories suitable to the machine
15.3	Taper / Reduction sleeves	
15.4	Quick Change Drill Chuck	
15.5	Coolant Equipment	
15.6	Machine Lamp	
15.7	Drifts	
15.8	One set of manuals	
15.9	One set of Service Tools, Keys	
16	Others	Bidder to specify and quote if any other accessories available /required for smooth running of the machine
17	General features :	
17.1	The specification of feed drive motors with make, model no., max. & nominal torque	Bidder to specify the features of the machine
17.2	Preferably the guide ways of all axes should have telescopic type protective covers with adequate sealing on joints to prevent seepage of dust & coolant oil inside. Guide ways should be of hardened steel with hardness HRC60 or more	
17.3	The machine must have rigid streamlined and vibration free construction. All gears must be case hardened and ground and all the slides should be rigid to withstand heavy stock removal. It should have independent main drive and feed drive motors.	
17.4	Each axis should have electrical limit switches interlocked with feed/ rapid drive as well as mechanical stopper	
18	Any Others Aecessories	Bidder to specify and quote if any other accessories available /required for smooth running of the machine.
19	Terms & Conditions	<p>Manufacture/Supplier should have sizable installations of same or better model worldwide and at least Five in India which is education institutions centrally funded institution. A Satisfactory Performance certificate from two institutions to be provided for eligibility. Bidder should submit complete contact details</p> <p>Equipment should be CE certified</p> <p>Authorization Letter from OEM</p> <p>List of clients in last five years to be provided.</p>
20	Scope of supply	Bidder should submit complete scope of supply (Machine, standard aecessories, Optional Aecessories etc with make model) in the technical bid without price.Bidder should supply complete start up package necessary to prove the machine and provide training.
21	INSTALLATION, COMMISSIONING AND TRAINING	

21.1	Installation and commissioning requirements	Bidder should state the space required and condition of floor and any other requirements for installation of the machine and equipments. State clearly the specifications of electrical requirement. Vendor should carry out installation and commissioning of the machine and its accessories on a turnkey basis.
21.2	Training and documentation	Training should be provided at the times of installation. Minimum of 5 days training for five persons which includes basic & advanced level training. Training content and plan to be submitted. Training faculty must have adequate experience in this field.
		The vendor should supply the necessary manuals such as
		Instructions
		Maintenance and troubleshooting
		Training
		Installation and Commissioning
21.3	Warranty	The whole system and its accessories should be given two years warranty for the machine and three years for the spindle replacement and service against any design, manufacturing and workmanship defects from the date of installation and commissioning.
21.4	Technical support and service	Manufacturer should have established after sales & service network in India. The vendor shall have local service and application office and infrastructure to attend by visit within 48 hours of need. Technical support personnel must have adequate experience in this field. Technical support personnel details should be submitted. Name and address of the authorized service centre/ partner in India along with the certificate of authorization should be attached.
21.5	Annual Comprehensive Maintenance Contract (ACMC) as optional	Vendor should quote for Annual Comprehensive Maintenance Contract for the whole system and accessories supplied after the completion of performance warranty period. Supplier has to provide service support within 48 hours. Calibration of the machine shall be a part of warranty and ACMC. It shall also be mandatory to perform calibration after every major repair or breakdown

E-Tender No. CIPET-IPT/KOCHI/E-TENDER/TOOL.MAC/2021-22/02

Machinery Sl. No. 2021-22/02/09

Shaper Machine		
Sl. No.	Specifications	Range/Value
Make		To be specified by the Bidder
Model		To be specified by the Bidder
1	CAPACITY:	
1.1	LENGTH OF RAM STROKE	650 MM
1.2	LENGTH OF RAM	1235 MM
1.3	LENGTH X WIDTH OF RAM BEARING	900 X 300 MM
1.4	MAX / MIN DISTANCE FROM TABLE TO RAM	450 / 150 MM
2	TABLE:	

2.1	WORKING SURFACE OF TABLE	650 X 370 MM
2.2	HORIZONTAL TABLE TRAVEL MAX	635 MM
2.3	MAX VERTICAL TABLE TRAVEL	400 MM
2.4	ANGULAR MOVEMENT OF TABLE	±60 DEGREE
3	TOOL HEAD:	
3.1	MAX TOOL SHANK SIZE	40 X 25 MM
3.2	MAX VERTICAL TRAVEL OF TOOL SLIDE	190 MM
3.3	MAX SWIVEL TOOL HEAD	±60 DEGREE
4	SPEED AND FEED:	
4.1	NUMBER OF RAM SPEED/STROKE (NOS.)	4
4.2	RANGE OF RAM STROKE (PER MINUTE)	Oct-80
4.3	RANGE OF TABLE FEED PER STROKE	0.2 TO 0.9
4.4	ELECTRIC EQUIPMENT: MAIN MOTOR	3 HP
4.5	V BELT SECTION	B-58
4.6	MOTOR STARTER	5 AM
5	STANDARD ACCESSORIES:	
5.1	MACHINE LAMP	
5.2	TOOLS KIT	
5.3	COOLANT PUMP	
5.4	ONE SET OF MANUAL	
5.5	CLAMPING KIT	
5.6	ANTI-VIBRATION PAD	
5.7	SUITABLE ELECTRICALS	
6	Others	Bidder to specify and quote if any other accessories available /required for smooth running of the machine
7	General features :	
7.1	The specification of feed drive motors with make, model no., max. & nominal torque	Bidder to specify the features of the machine
7.2	Preferably the guide ways of all axes should have telescopic type protective covers with adequate sealing on joints to prevent seepage of dust & coolant oil inside. Guide ways should be of hardened steel with hardness HRC60 or more	
7.3	The machine must have rigid streamlined and vibration free construction. All gears must be case hardened and ground and all the slides should be rigid to withstand heavy stock removal. It should have independent main drive and feed drive motors.	
7.4	Each axis should have electrical limit switches interlocked with feed/ rapid drive as well as mechanical stopper	
8	Any Others Aecessories	Bidder to specify and quote if any other accessories available /required for smooth running of the machine.
9	Terms & Conditions	<p>Manufacture/Supplier should have sizable installations of same or better model worldwide and at least Five in India which is education institutions centrally funded institution. A Satisfactory Performance certificate from two institutions to be provided for eligibility. Bidder should submit complete contact details</p> <p>Equipment should be CE certified</p> <p>Authorization Letter from OEM</p> <p>List of clients in last five years to be provided.</p>

10	Scope of supply	Bidder should submit complete scope of supply (Machine, standard accessories, Optional Accessories etc with make model) in the technical bid without price. Bidder should supply complete start up package necessary to prove the machine and provide training.
11	INSTALLATION, COMMISSIONING AND TRAINING	
11.1	Installation and commissioning requirements	Bidder should state the space required and condition of floor and any other requirements for installation of the machine and equipments. State clearly the specifications of electrical requirement. Vendor should carry out installation and commissioning of the machine and its accessories on a turnkey basis.
11.2	Training and documentation	Training should be provided at the times of installation. Minimum of 5 days training for five persons which includes basic & advanced level training. Training content and plan to be submitted. Training faculty must have adequate experience in this field.
		The vendor should supply the necessary manuals such as
		Instructions
		Maintenance and troubleshooting
		Training
11.3	Warranty	Installation and Commissioning
		Handling of accessories
11.3	Warranty	The whole system and its accessories should be given two years warranty for the machine and three years for the spindle replacement and service against any design, manufacturing and workmanship defects from the date of installation and commissioning.
11.4	Technical support and service	Manufacturer should have established after sales & service network in India. The vendor shall have local service and application office and infrastructure to attend by visit within 48 hours of need. Technical support personnel must have adequate experience in this field. Technical support personnel details should be submitted. Name and address of the authorized service centre/ partner in India along with the certificate of authorization should be attached.
11.5	Annual Comprehensive Maintenance Contract (ACMC) as optional	Vendor should quote for Annual Comprehensive Maintenance Contract for the whole system and accessories supplied after the completion of performance warranty period. Supplier has to provide service support within 48 hours. Calibration of the machine shall be a part of warranty and ACMC. It shall also be mandatory to perform calibration after every major repair or breakdown



Machinery SI. No. 2021-22/02/10

Horizontal Hydraulic Surface Grinding Machine			
Sl.No.	Items	Units	Specification
Make		To be specified by the Bidder	
Model		To be specified by the Bidder	
1	Table Clamping Area	mm	1000 x 500
2	Maximum Grinding Width	mm	500
3	Maximum Distance between Grinding Wheel & Table	mm	600
4	Self-Acting Longitudinal traverse of the table	mm	1050
5	Cross table traverse , hydraulic	mm	570
6	Table traverse speed range per minute	Mtr.	1.5 to 18 meters
7	Automatic cross feed range per stroke at each reversal	mm	0.5 to 10
8	Fine feed graduation- Vertical	mm	0.001
9	Fine feed graduation-Cross	mm	0.001
10	Max. Vertical traverse of wheel head spindle from table	mm	750
11	Size of Grinding Wheel (Dia.x Width x Bore)& Speed of the Wheel	mm , RPM	300 x 50 x 76 , 2000
12	Accessories		
12.1	Machine Lamp	Set of accessories suitable to the machine	
12.2	Diamond Tool with holder		
12.3	Coolant splash guard		
12.4	Wheel balancing stand		
12.5	wheel Puller with extracting nut		
12.6	Wheel guard		
12.7	One set of manuals		
12.8	One set of Service Tools, Keys, allen keys, Spanner		
12.9	Grinding wheel (Al2O3) – 02 Nos.		
13	Others		

14	General features :	
14.1	Bed is a single piece high tensile strength casting, heavily ribbed for better vibration damping and shock absorption ensuring rigidity to the machine	Bidder to specify the features of the machine
14.2	Precision scraped V & Flat guideways for table with forced feed continuous lubrication.	
14.3	Rectangular, box type turcite lined guideways for wheel head.	
14.4	Rapid movement of wheel head by electric motor for faster setting.	
14.5	Hydraulically operated auto in feed at each table reversal along with inching feed.	
14.6	Built in motor drive to the grinding wheel head.	
14.7	Hollow spindle for better coolant supply to ensure full power utilisation.	
14.8	Grinding head tilting facility for hollow grinding.	
14.9	Speed regulation of table with remote operated proportional valve. Table stroke sensed by limit switches.	
14.10	Built in safety interlocks&Hydraulic table traverse for infinitely variable speed and smooth reversal.	

E-Tender No. CIPET-IPT/KOCHI/E-TENDER/TOOL.MAC/2021-22/02

Machinery SI. No. 2021-22/02/11

CYLINDRICAL GRINDING MACHINE		
SI No.	Specifications	Range/ Value with Units
Make		To be specified by the Bidder
Model		To be specified by the Bidder
1	TYPE	HYDRAULIC
2	CENTRE HEIGHT	200 MM
3	GRINDING DETAILS:	
3.1	MAX. GRINDING DIAMETER	200 MM
3.2	MAX. GRINDING LENGTH	750 MM
3.3	MAX. GRINDING DIAMETER (INTERNAL GRINDING)	5-200 MM
3.4	ADMIT BETWEEN CENTRE	800 MM
3.5	TABLE SPEED MIN/MAX	100/4000 MM/MIN
3.6	TABLE SWIVEL	± (3 – 10)
4	WORK HEAD AND TAIL STOCK:	
4.1	SPEED OF WORK HEAD SPINDLE	25-350 RPM
4.2	MORSE TAPER IN WORK HEAD	MT-4
4.3	SWIVEL OF WORK HEAD	± (30-45) DEGREE
4.4	MORSE TAPER IN TAIL STOCK	MT-4
5	WHEEL HEAD AND WHEEL SPEED:	
5.1	GRINDING WHEEL DIAMETER:	400 MM

5.2	GRINDING WHEEL WIDTH	40 MM
5.3	GRINDING WHEEL BORE	76.2 MM
5.4	SPEED OF THE GRINDING WHEEL	2000 RPM
6	INTERNAL GRINDING ATTACHMENT:	
6.1	GRINDING SPINDLE DIAMETER	60
6.2	MAX. QUILL LENGTH	81
6.3	QUILL DIAMETER	15
6.4	MIN. & MAX. DIA. OF HOLE GRINDING	16-150
6.5	SPINDLE SPEED	8000 RPM
7	ELECTRICAL MOTORS :	
7.1	WHEEL HEAD MOTOR	3HP
7.2	WORK HEAD MOTOR	1 HP
7.3	HYDRAULIC PUMP MOTOR	1 HP
7.4	COOLANT PUMP MOTOR	0.15 HP
7.5	INTERNAL GRINDING ATTACHMENT MOTOR	1 HP
8	ACCESSORIES:	
8.1	MOTORS ELECTRICAL PANEL, PUMP ARE FITTED ON THE MACHINE, POLY V-BELT, COOLANT TANK WITH PIPING, GRINDING WHEEL WITH ONE FLANGE, 2 DEAD CENTRES, TRUE CHUCK FLANGE, TWO POINT STEADY REST., THREE POINT STEADY REST., SET OF OIL SEALS	
8.2	THREE JAW CHUCK (Ø150MM)	
8.3	FOUR JAW CHUCK (Ø 150MM)	
8.4	DOGS & CARRIERS (5 – 30 MM)	
8.5	INTERNAL GRINDING ATTACHMENT	
8.6	MACHINE LAMP	
8.7	DIAMOND TOOL WITH HOLDER	
8.8	COOLANT SPLASH GUARD	
8.9	WHEEL BALANCING STAND	
9	WHEEL PULLER WITH EXTRACTING NUT	
9.1	WHEEL GUARD	
9.2	ONE SET OF MANUALS	
9.3	ONE SET OF SERVICE TOOLS, KEYS, ALLEN KEYS, SPANNER	
9.4	GRINDING WHEEL (AL2O3) / SIC – 02 NOS.	
9.5	ANTI VIBRATION PADS	
10	General features :	
10.1	Training and documentation	Training should be provided during installation. Training content and plan to be submitted. Training faculty must have adequate experience in this field.
		The vendor should supply the necessary manuals such as
		Instruction
		Maintenance and troubleshooting
		Training
10.2	Warranty	Installation and Commissioning
		Handling of accessories
		The whole system and its accessories should be given two years warranty for the machine and three years for the spindle replacement and service against any design, manufacturing and workmanship defects from the date of installation and commissioning.

10.3	Technical support and service	Manufacturer should have established after sales & service network in India. The vendor shall have local service and application office and infrastructure to attend by visit within 48 hours of need. Technical support personnel must have adequate experience in this field. Technical support personnel details should be submitted. Name and address of the authorized service centre/ partner in India along with the certificate of authorization should be attached.
10.4	Annual Comprehensive Maintenance Contract (ACMC) as optional	Vendor should quote for Annual Comprehensive Maintenance Contract for the whole system and accessories supplied after the completion of performance warranty period. Supplier has to provide service support within 48 hours. Calibration of the machine shall be a part of warranty and ACMC. It shall also be mandatory to perform calibration after every major repair or breakdown

E-Tender No. CIPET-IPT/KOCHI/E-TENDER/TOOL.MAC/2021-22/02

Machinery/Software SI. No. 2021-22/02/12

CAM Software (10 User Perpetual License)		
Scope of Work		Supply, Installation and Training of Computer Aided Manufacturing Software with Real Time Virtual Machine Environment 3D CNC Simulator & Computer based Multimedia CNC Trainer packages
Sl. No.	Item	Specification
1	Computer Aided Manufacturing Software (10 User Perpetual License)	Capable of programming for VMC, HMC, CNC Lathe, CNC Turn Mill, Multi-Tasking, Swiss Machines, 5 Axis Wire EDM, CNC Grinding.
		The licensing of the software should be perpetual with hardware dongle with free software upgradation for next 5 years from the date of installation.
		Machine alarm pop-up within the software to check the travel limit of machine.
		Feature Exchange and Associativity for Native CAD files.
		Capability of NC codes generation for solid / surface based simultaneous 3 Axis machining.
		Post processor and full machine simulation should be provided / developed for the machines made available at the institute and also to be proved on machines during the AMC period.
		Software with machining cloud add-in to connect to cutting tool digital library of any major cutting tool manufacturer.
		Availability of own simulation engine to eliminate dependency of any third-party software for checking simulation of Full Machine Kinematics, Parts, Tools, Tool Holders, Fixture etc.

		Ability to produce detailed machining report containing Process sequence, Cycle time, Tool usage, Tools count, RPM, Feed length, Rapid length etc. in MS Office formats.
		Ability for Automatic airtime detection and Stock Automation in each machining strategy to avoid waste tool path motions and to optimize cycle time.
		Capability to programme for high-speed machining on milling and turning.
		Capability to programme beyond 5 Axis. If yes, please mention the maximum limit for Milling & Turning.
		5 days Software Familiarization and CNC Turning & Milling Programming Training (including Training materials, Practicing models) should be provided by OEM Certified Trainer to the faculties at CIPET Kochi and Participation Certificates to be issued to all participants. One Job Prove Out should be done followed by training by vendor.
		All future updates, upgrades, new versions & new controls, consoles or contents added are to be supplied & Refreshment training also to be provided without any additional cost during the AMC period
		Online and phone technical support should be provided after the training and implementation period until AMC period. Technical support personnel must have adequate experience in this field.
		Software OEM should have a technical centre and engineers in India for uninterrupted technical support. The vendor shall attend all support requirements within 48 hours of need.
		Vendor should provide unlimited number of additional Student License in future for practicing purpose.
		Vendor shall provide the detailed list of clients in India.
		Vendor should support all promotion activities carried out by CIPET Kochi for the supplied CAM software and also organize one Webinar for every 6 months and one Faculty Development Programme for every year jointly with CIPET Kochi during the AMC period.
2	Real Time Virtual Machine Environment 3D CNC Simulator	Ability to simulate all operations of lathe & machining centers and NC programs for Turning & Milling - manually written or generated from CAM software.
		Ability to simulate popular CNC systems and control panels.
		Ability to simulate - MDI, JOG, door open/close, spindle on/off, collisions, spindle rotation, chips, coolant, etc.
		Ability for machine simulation in 3D graphics with dynamic rotation, zoom, pan, canned cycles, macros, tool set and work offsets etc.
		Ability for program editing, console operation, part inspection on screen with vernier, micrometer, Roughness measurements based on cutting parameters, G-codes and M-codes validation with G-code debugging tool, etc.
		Ability to CAPTURE and REPLAY for detailed investigations.
		Ability to conduct online tests for trainees using knowledge base.
		Options for Network Monitor for training, Student management and Test paper management
		Support of latest Fanuc, Siemens, Mitsubishi, etc. CNC systems by exactly replicating their CNC console panels.

		Simulation must show flow of chips, coolant, with realistic sounds of machining operations.
		Video recording, storage and replay of simulation must be possible for offline skill assessment.
		Trainers must be able to add own exercises, send, and receive exercises to/from Trainees.
		All future updates, upgrades, new versions & new controls, consoles or contents added are to be supplied & Refreshment training also to be provided without any additional cost during the AMC period
		One day Software Familiarization Training including Training materials should be provided by the vendor / OEM and all support requirements should be attended within 48 hours of need.
3	Computer based Multimedia CNC Trainer	Self-Learning system for CNC milling and turning with contents covering - Machine construction, Machining operations, Cutting tools, Tool holding, Cutting parameters, Work holding, CNC programming concepts.
		All future updates, upgrades, new versions & new controls, consoles or contents added are to be supplied & Refreshment training also to be provided without any additional cost during the AMC period
		One day Software Familiarization Training including Training materials should be provided by the vendor / OEM and all support requirements should be attended within 48 hours of need.
2	<u>GENERAL TERMS & CONDITIONS</u>	
2.1	The above Software should be supplied with latest versions and with required post-processors. The working language for the software shall be English.	
2.2	The Software should be supplied in DVD/CD media for latest Windows OS.	
2.3	The license must be perpetual and standalone & user manual and hardware key to be supplied for individual licenses.	
2.4	Warranty & AMC: Bidder should specify the warranty period from the date of acceptance of installation and training.	
2.5	The Installation and training will be the responsibility of the supplier.	
2.6	During the above period of maintenance, any upgrades released will be supplied free of cost.	
2.7	Training: Total 7 Days Training shall be provided at the site after installation.	