

Technical Specification for Tender no.2021-22/05 - Released in Government-e-Marketing (GeM) Portal

Lathe Machine

Sl. No.	Specification	Unit	Range/Value
1	Height of the Center	mm	200-250
2	Centre distance	mm	800-1000
3	Maximum Swing over bed	mm	400-450
4	Swing over cross slide	mm	200-250
5	Carriage		
5.1	Cross slide travel	mm	200-225
5.2	Dial Graduation of Cross slide	mm	0.05
5.3	Top slide travel	mm	100-125
5.4	Dial Graduation of Top slide	mm	0.05
5.5	Angular Swivel graduation	degree	45 (Plus & Minus)
5.6	Maximum Tool Section	mm	25 x 25
6	Tailstock		
6.1	Spindle travel	mm	100-150
6.2	Spindle dia.	mm	40-50
6.3	Taper in spindle		MT3 or MT4
6.4	Scale of Spindle graduation	mm	1
6.5	Hand wheel dia graduation	mm	0.05
6.6	Set-over adjustments	degree	45
7	Spindle		
7.1	Spindle bore dia.	mm	40-50
7.2	Collect capacity	mm	20-25
7.3	Spindle Power	Kw	Bidder to specify
7.4	Spindle speed	rpm	50-1500 or better
8	Feeds & Threads		
8.1	Longitudinal feeds	mm/Rev	0.05-2.8
8.2	Cross feeds	mm/rev	0.01-0.62
8.3	Metric threads	mm	0.5 -14
8.4	US & Whitworth threads	TPI	2 to 56
9	Accessories suitable for the machine to be Supplied and price include along with machine cost		
9.1	Ø160 mm x 3jaw self center chuck		
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		
9.1	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 to be supplied along machine. Price to be included along with 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)	
9.2	Driver plate	
9.21	Service tools	
9.22	Machine Lamp	
9.23	Live & Dead Center	
9.24	Foot Brake	
9.25	Chuck guard	
9.27	Tools kit	
9.26	One set of manuals	
9.27	Coolant Pump (0.25 - 0.5 HP)	
9.28	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 mention 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 HRC60 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 without 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	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
		· Software instruction
		· Maintenance and trouble manual
		· Training
		· Installation and Commissioning
		· Handling of accessories
· Software key (if any)		
· Software CDs		
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.
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All Geared Lathe Machine

Sl. No.	Specification	Unit	Range/Value
1	Height of the Center	mm	175-200
2	Centre distance	mm	800-1000
3	Maximum Swing over bed	mm	400-450
4	Swing over cross slide	mm	200-250
5	Carriage		
5.1	Cross slide travel	mm	250-300
5.2	Dial Graduation of Cross slide	mm	0.05
5.3	Top slide travel	mm	125-150
5.4	Dial Graduation of Top slide	mm	0.05
5.5	Angular Swivel graduation	degree	45 (Plus & Minus)
5.6	Maximum Tool Section	mm	25 x 25
6	Tailstock		
6.1	Spindle travel	mm	100-150
6.2	Spindle dia.	mm	40-50
6.3	Taper in spindle		MT5 or MT6
6.4	Scale of Spindle graduation	mm	1
6.5	Hand wheel dia graduation	mm	0.05
6.6	Set-over adjustments	degree	45
7	Spindle		
7.1	Spindle bore dia.	mm	40-50
7.2	Collect capacity	mm	20-25
7.3	Spindle Power	Kw	Bidder to specify
7.4	Spindle speed	rpm	50-1500 or better
8	Feeds & Threads		
8.1	Longitudinal feeds	mm/Rev	0.04-2
8.2	Cross feeds	mm/rev	0.02-1
8.3	Metric threads	mm	0.5 -14
8.4	US & Whitworth threads	TPI	2 to 56
9	Accessories suitable for the machine to be Supplied and price include along with machine cost		
9.1	Ø160 mm x 3jaw self center chuck		
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
9.1	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
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)
9.2	Driver plate
9.21	Service tools
9.22	Machine Lamp
9.23	Live & Dead Center
9.24	Foot Brake
9.25	Chuck guard
9.27	Tools kit
9.26	One set of manuals
9.27	Coolant Pump (0.25 - 0.5 HP)
9.28	Anti vibration pads
10	Others
11	General features :
11.1	The specification of feed drive motors with make, model no., max. & nominal torque
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 HRC60 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.

Set of accessories suitable to the machine

Bidder to specify the features 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 Aecessories	Bidder to specify and quote if any other accessories available /required for smooth running of the machine.
13	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>
14	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.
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>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.</p> <p>The vendor should supply the necessary manuals such as</p> <ul style="list-style-type: none"> · Software instruction · Maintenance and trouble manual · Training · Installation and Commissioning · Handling of accessories · Software key (if any) · Software CDs

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.

Horizontal Milling Machine

Sl. No.	Specification	Unit	Range/Value
1	Work Table Area	mm	(1200 – 1500) x (200 – 300)
2	Table Clamping Area	mm	(1200 – 1400) x (200 – 300)
3	Longitudinal movement	mm	700-800
4	Cross (Transverse) movement	mm	250 – 300
5	Vertical movement	mm	350 – 400
6	Spindle		
6.1	Spindle Speed range	rpm	45 – 1800 or better
6.2	Spindle Taper		ISO-40
6.3	Nos./ progression		12 or better / 1.4
7	Feed		
7.1	Nos. of feed		18
8	Feed Range (Progression 1.25)		
8.1	Longitudinal	mm / min	16 - 800 or better
8.2	Traverse	mm / min	16 - 800 or better
8.3	Vertical	mm / min	4-200 or better
9	Rapid Transverse		
9.1	Longitudinal	mm / min	2500 or better
9.2	Traverse	mm / min	2500 or better
9.3	Vertical	mm / min	650 or better
10	Milling spindle motor	kW	5.5 or better
11	Feed motor	kW	1.5 or better

12	Safe load on table	kg	400 or better
13	Accessories suitable for the machine to be Supplied and price include along with machine cost		
13.1	Collet Holders ISO -40 with set of conical collet sizes Dia. 5 mm , 6 mm , 8 mm ,10 mm , 12 mm & 20 mm	Set of accessories suitable to the machine	
13.2	Morse Taper Adapter MT 1 , MT2 , MT3 , MT4 & MT5		
13.3	End Mill Holder Dia. 5 mm , 6 mm , 8 mm ,10 mm , 16 mm & 20 mm		
13.4	Face Mill Arbor Dia. 16 mm , 22 mm , 27 mm ,32 mm & 40 mm		
13.5	Shell End Mill Arbor Dia. 16 mm , 22 mm ,2 mm & 40 mm		
13.6	Drill chuck arbor		
13.7	Set of Collet (3-25mm)		
13.8	Precision Machine Vice 6"		
13.9	Clamping Kit		
13.10	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		
13.15	Vice with swivel base		
13.16	Hydraulic Vice		
13.17	Set of T-Bolt and Clamp		
13.18	One set of Service Tools, Keys		
14	Others	Bidder to specify and quote if any like a kit of spares, Consumbles available	
15	General features :		
15.1	The specification of feed drive motors with make, model no., max. & nominal torque	Bidder to specify the features of the machine	
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. Anti-vibration pad is to be provided for reach leg of the machine.		

15.4	Each axis should have electrical limit switches interlocked with feed/ rapid drive as well as mechanical stopper	
16	Any Others Aecessories	Bidder to specify and quote if any other accessories available /required for smooth running of the machine.
17	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>
18	Scope of supply	Bidder should submit complete scope of supply (Machine, standard aecessories, Optional Aecessories etc with make model) in the technical bid withour price.Bidder should supply complete start up package necessary to prove the machine and provide training.
19	INSTALLATION, COMMISSIONING AND TRAINING	
19.1	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 electical requirement.Vendor should carry out installation and commissioning of the machine and its accessories on a turnkey basis.
19.2	Training and documentation	<p>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.</p> <p>The vendor should supply the necessary manuals such as</p> <ul style="list-style-type: none"> · Software instruction · Maintenance and trouble manual · Training · Installation and Commissioning · Handling of accessories · Software key (if any)

		Software CDs
19.3	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.
19.4	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.

Vertical Milling Machine

Sl. No.	Specification	Unit	Range/Value
1	Work Table Area	mm	(1200 – 1500) x (200 – 300)
2	Table Clamping Area	mm	(1200 – 1400) x (200 – 300)
3	Longitudinal movement	mm	700-800
4	Cross (Transverse) movement	mm	250 – 300
5	Vertical movement	mm	350 – 400
6	Spindle		
6.1	Quill Travel	mm	70-100
6.2	Spindle Speed range	rpm	45 – 1800 or better
6.3	Vertical milling head swivelling on both sides	deg	45
6.4	Spindle Taper		ISO-40
6.5	Nos./ progression		12 or better / 1.4
7	Feed		
7.1	Nos. of feed		18
8	Feed Range (Progression 1.25)		
8.1	Longitudinal	mm / min	16 - 800 or better
8.2	Traverse	mm / min	16 - 800 or better
8.3	Vertical	mm / min	4-200 or better
9	Rapid Transverse		
9.1	Longitudinal	mm / min	2500 or better
9.2	Traverse	mm / min	2500 or better

9.3	Vertical	mm / min	650 or better
10	Milling spindle motor	kW	5.5 or better
11	Feed motor	kW	1.5 or better
12	Safe load on table	kg	400 or better
13	Accessories suitable for the machine to be Supplied and price include along with machine cost		
13.1	Collet Holders ISO -40 with set of conical collet sizes Dia. 5 mm , 6 mm , 8 mm ,10 mm , 12 mm & 20 mm	Set of accessories suitable to the machine	
13.2	Morse Taper Adapter MT 1 , MT2 , MT3 , MT4 & MT5		
13.3	End Mill Holder Dia. 5 mm , 6 mm , 8 mm ,10 mm , 16 mm & 20 mm		
13.4	Face Mill Arbor Dia. 16 mm , 22 mm , 27 mm ,32 mm & 40 mm		
13.5	Shell End Mill Arbor Dia. 16 mm , 22 mm ,2 mm & 40 mm		
13.6	DRO (3 Axis)		
13.7	Set of Collet (3-25mm)		
13.8	Precision Machine Vice 6”		
13.9	Clamping Kit		
13.10	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		
13.15	Vice with swivel base		
13.16	Hydraulic Vice		
13.17	Set of T-Bolt and Clamp		
13.18	One set of Service Tools, Keys		
13.18	Vertical Indexing head		
13.19	Set of T-Bolt and Clamp		
13.20	One set of Service Tools, Keys		
14	Others	Bidder to specify and quote if any like a kit of spares, Consumbles available /required for smooth running of 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. Anti-vibration pad is to be provided for reach leg of the machine.	Bidder to specify the features of the machine
15.4	Each axis should have electrical limit switches interlocked with feed/ rapid drive as well as mechanical stopper	
16	Any Others Acessories	Bidder to specify and quote if any other accessories available /required for smooth running of the machine.
17	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>
18	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.
19	INSTALLATION, COMMISSIONING AND TRAINING	
19.1	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.

19.2	Training and documentation	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
		· Software instruction
		· Maintenance and trouble manual
		· Training
		· Installation and Commissioning
		· Handling of accessories
19.3	Warranty	· Software key (if any)
		· Software CDs
19.3	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.
19.4	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.

Planner Machine

S. No	Specification	Unit	Requirement
1	Length of Bed	mm	1000-1200
2	Width Between Pillar	mm	600-800
3	Height Under Cross Slide	Mm	600-800
4	Stroke of table	mm	600-700
5	Total Length of table	mm	800-1000
6	Table Width	mm	400-500
7	V center	mm	300-400
8	No of Tool Post	No	1
9	Scope of supply	Bidder should supply complete start up package necessary to prove the machine and provide training.	
10	Accessories suitable for the machine to be supplied and price include along with machine cost	Bidder to specify and quote if any other accessories available /required for smooth running of the machine.	

11	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>
12	Scope of supply	<p>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.</p>
13	INSTALLATION, COMMISSIONING AND TRAINING	
13.1	Installation and commissioning requirements	<p>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.</p>
13.2	Training and documentation	<p>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.</p> <p>The vendor should supply the necessary manuals such as</p> <ul style="list-style-type: none"> · Software instruction · Maintenance and trouble manual · Training · Installation and Commissioning · Handling of accessories · Software key (if any) · Software CDs
13.3	Warranty	<p>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.</p>

13.4	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.
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Shaping Machine

Sl. No.	Specification	Unit	Range/Value
1	Table size	mm	(500-550) x (300-350)
2	Length of Stroke	mm	600-650
3	Length of Ram	mm	1000-1200
4	Horizontal Travel of the Table	mm	600-650
5	Vertical Travel of the Table	mm	300 – 325
6	Distance between Table to Ram	mm	10– 50 (min.)
			350 – 400 (max.)
7	Vertical Travel of the Tool Slide	mm	100
8	Cross Feed per stroke Range	mm	0.250-1.5
9	Tool Shank Size	mm	25 x 25
10	Angular Movement of the Table	degree	45
11	Swivel of the Tool Head	degree	60
12	Nos.of Ram speed	Nos.	4
13	Ram Speed	Stroke / min	10 -70
14	Pwer of the motor	HP	3-4.5
Accessories suitable for the machine to be Supplied and price include along with machine cost			
15	Set of Tool holders	Set of accessories suitable to the machine to be quoted in price bid and supplied along with machine	
16	Machine Vice 6"		
17	Angle Plate 8" & 12" (01 each)		
18	Lubrication Pump		
19	Tool Kit		
20	Machine Lamp		
21	C – Clamp 4", 6" & 8" (01 each)		
22	V-Block with U-Clamp		
23	One set of manuals		
24	One set of Service Tools, Keys		
25	Others	Bidder to specify and quote if any other accessories available /required for smooth running of the machine	
General features :			
26	The specification of feed drive motors with make, model no., max. & nominal torque		

27	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	Bidder to specify the features of the machine
28	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.	
29	Each axis should have electrical limit switches interlocked with feed/ rapid drive as well as mechanical stopper	
30	Any Others Aecessories	Bidder to specify and quote if any other accessories available /required for smooth running of the machine.
31	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.
32	Scope of supply	Bidder should submit complete scope of supply (Machine, standard aecessories, Optional Aecessories etc with make model) in the technical bid withour price.Bidder should supply complete start up package necessary to prove the machine and provide training.
33	INSTALLATION, COMMISSIONING AND TRAINING	

33.1	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.
33.2	Training and documentation	<p>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.</p> <p>The vendor should supply the necessary manuals such as</p> <ul style="list-style-type: none"> · Software instruction · Maintenance and trouble manual · Training · Installation and Commissioning · Handling of accessories · Software key (if any) · Software CDs
33.3	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.
33.4	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.

CNC Lathe

Sl. No.	Specification	Unit	Range/Value
	Make	Bidder to specify	
	Model	Bidder to specify	
1	Capacity		
1.1	Swing over bed	mm	450-550

1.2	Swing over carriage	mm	200-300
1.3	Max. turning diameter	mm	250-300
1.4	Max. turning length	mm	400-450
1.5	Distance between centres	mm	400-500
2	Travel		
2.1	X-Axis Travel (Cross)	mm	150-200
2.2	Z-Axis Travel (Longitudinal)	mm	400-450
3	Main Spindle		
3.1	Spindle motor Power	KW	7.5 or better
3.2	Max. Speed	rpm	4000 or better
3.3	Spindle Bore	mm	50-60
3.4	Spindle Nose		A2-5
4	Feed Rate		
4.1	Rapid Traverse X axis	mts./min	20 or better
4.2	Rapid Traverse Z axis	mts./min	20 or better
4.3	Feed Rate	mm/min	5000 or better
5	Turret		
5.1	No. of station	Nos.	8 or better
5.2	Tool shank size	mm	20x20 or better
5.3	Boring bar dia.	mm	32 or better
5.4	Turret indexing		Bi Directional
6	Tailstock		
6.1	Quill dia	mm	60-80
6.2	Quill stroke	mm	100-120
6.3	Quill taper	-	MT4 or better
7	CNC System		
7.1	Controller		Siemens/Fanuc (Latest with complete module)
7.2	Part Program Storage	GB	Capable to store large CAM programs for continuous running
7.3	Programming Functions with editor		Complete module
8	Accuracy		
8.1	Positioning uncertainty	µm	5
8.2	Overall Axis Repeatability (X, Z)	µm	5
8.3	Part Surface Finish	µm	5
8.4	Roundness	µm	5
8.5	Turret Indexing Repeatability	µm	5
9	Accessories suitable for the machine to be Supplied and price include along with machine cost		
9.1	Programmable Tailstock with sleeves	one No.	
9.2	Automatic Tool setter	one No.	
9.3	Hydraulic 3 Jaw Chuck	one No.	
9.4	Hydraulic 4 Jaw Chuck	one No.	
9.5	Soft Jaws	two sets	
9.6	Drill Chuck	one No.	
9.7	Hydraulic Collet chuck with set of collets	One with various sizes	

9.8	Set of standard Cutting Tools with holder for replaceable inserts (for Facing,Turning, boring, threading, grooving, parting, drilling etc)	Various operation suitable various size of jobs each one No. Drills- Centre Drill and 1to 20 mm drills
9.9	Coolant System	Bidder to specify and quote suitable for the machine
9.10	Start up Tool kit	
9.11	Foot switch	
9.12	Work light	
9.13	Centralized lub. System	
9.14	Set of Rubber mounts	
9.15	Voltage Stabilizer	
9.16	Ultra Isolation transformer	
9.17	Others	Ethernet, USB ports, RS-232C Communication Ports, Set of manual (or) CD
10	Any Others Accessories	Bidder to specify and quote if any other accessories available /required for smooth running of the machine.
13	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>
14	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.
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	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
		· Software instruction
		· Maintenance and trouble manual
		· Training
		· Installation and Commissioning
		· Handling of accessories
		· Software key (if any)
· Software CDs		
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.

CNC Lathe / Milling Programming Module Simulator

Sl. No.	Items	Specification
	Make	Bidder to specify
	Model	Bidder to specify
1	CNC Programming Simulator for Turning and milling operations for FANUC / SIEMENS (or) Equivalent controllers with the following features	
1.1	Basic education	
1.2	Integrative training in programming, toolpath generation	
1.3	Machining verification through graphics simulation	
1.4	Built -In USB port , RS-232 Port	

2	GENERAL TERMS & CONDITIONS	Bidder to specify the features of the simulator.
2.1	The above Simulator Software should be supplied with latest versions	
2.2	The quote shall be supplied with reference to the module	
2.3	The license must be perpetual	
2.4	Warranty : Five years from the date of acceptance of installation	
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	
3	Any Others Accessories	Bidder to specify and quote if any other accessories available /required for smooth running of the machine.
4	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>
5	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 startup package necessary to prove the machine and provide training.
INSTALLATION, COMMISSIONING AND TRAINING		
6	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.

7	Training and documentation	Training should be provided during installation. Total training duration shall be of 07 days. Training shall be planned in two phases basic for 4 days and advanced for 3 days. 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
		· Software instruction
		· Maintenance and trouble manual
		· Training
		· Installation and Commissioning
		· Handling of accessories
		· Software key (if any)
· Software CDs		
8	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.

Surface Grinding Machine

Sl. No.	Specification	Unit	Range/Value
	Make:		Bidder to specify
	Model:		Bidder to specify
1	Working Area	mm	(1000-1200) x (500 – 600)
2	Longitudinal Travel	mm	1000-1100
3	Cross travel	mm	500-600
4	Height of the Table to Grinding Wheel	mm	500-600
5	Spindle Speed	rpm	1200-1500
6	Cross feed, Vertical feed graduation	mm	0.02 or better , 0.002 or better
7	Table traverse/ longitudinal speed Range	m/min	1-15 or better
8	Max. Vertical traverse of Wheel Head spindle from the table	mm	500-600
9	Cross feed of the table / Auto feed with micrometer graduation	mm / Stroke	0.5 - 10
10	Size of grinding wheel (dia x width x bore)	mm	(250 -400) x (25 -50) x (76 -127) or equivalent
11	Spindle motor & Hydraulic Pump Motor	KW	5.0– 7.5 & 2.25 – 3.0

12	Accessories suitable for the machine to be Supplied and price include along with machine cost	
12.1	Complete electrical with motor & Starter	Bidder should quote in price bid and supply well known branded with make, model and major specification
12.2	Permanent Magnetic Chuck	
12.3.	Diamond Tool with holder	
12.4	Coolant equipment with splash guard	
12.5	Wheel Balancing stand with mandrel	
12.6	Wheel guard	
12.7	Wheel adaptor puller	
12.8	Grinding wheel (Al ₂ O ₃) – 04 Nos.	
12.9	One set of Service Tools, Keys, Oil can, spanners	
12.10	Anti Vibration Pads	
12.11	Machine Lamp	
12.13	One set of manuals	
13	Others	
15	Terms & Conditions	The bidder must have supplied machines at other Institutes in the past (a satisfactory performance certificate from those users may be solicited if needed). Bidder should submit complete contact details.
		Manufacturer of the supplied equipment must be ISO Certified
		Authorization Letter from OEM
		List of clients in last five years to be provided.
		Manufacture/Supplier should have sizable installations of same model worldwide and at least Fives in India.
16	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.
17	INSTALLATION, COMMISSIONING AND TRAINING	
17.1	Installation and 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.

17.2	Training and documentation	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
		· Software instruction
		· Maintenance and trouble manual
		· Training
		· Installation and Commissioning
		· Handling of accessories
		· Software key (if any)
· Software CDs		
17.3	Warranty	The whole system and its accessories should be given two years warranty for replacement and service against any design, manufacturing and workmanship defects from the date of installation and commissioning.
17.4	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.

Cylindrical Grinding Machine

Sl. No.	Specification	Unit	Range/Value
	Make:		Bidder to specify
	Model:		Bidder to specify
1	Type	mm	Hydraulic
2	Centre Height	mm	150-200
3.1	Max. Grinding Diameter (OD)	mm	150-200
3.2	Max. Grinding Length	mm	600-800
3.3	Max. Grinding Diameter (Internal Grinding)	mm	15-100
4	Table Swivel	degree	± (5 - 15)
5	Work Head and Tail Stock		
5.1	Speed of work head spindle	rpm	50-500
5.2	Morse taper in work head		Bidder to specify
5.3	Swivel of work head	degree	
5.4	Morse taper in tail stock		
6	Wheel Head and Wheel speed		

6.1	Grinding Wheel diameter	mm	250-400
6.2	Grinding Wheel width	mm	30 - 50
6.3	Grinding Wheel Bore	mm	76.2-127
6.4	Speed of the Grinding Wheel	rpm	2000 or better
7	Internal Grinding Attachment		
7.1	Grinding Spindle Diameter	mm	60-80
7.2	Quill Travel	mm	25-30
7.3	Min. & Max. dia. of hole grinding	mm	16-100
7.5	Spindle Speed	rpm	Bidder to specify
8	Electrical Motors		
8.1	Wheel head motor	HP	
8.2	Work Head Motor	HP	Bidder to specify and quote required for smooth running of the machine
8.3	Hydraulic pump motor	HP	
8.4	Coolant pump motor	HP	
8.5	Internal grinding Attachment motor	HP	
9	Accessories suitable for the machine to be Supplied and price include along with machine cost		
9.1	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	Set of accessories suitable to the machine to be supplied along with machine	
9.2	Three Jaw chuck (ø 150mm)		
9.3	Four Jaw Chuck (ø 150mm)		
9.4	Dogs & Carriers (5 – 30 mm)		
9.5	Internal grinding Attachment		
9.6	Machine Lamp		
9.7	Diamond Tool with holder		
9.8	Coolant splash guard		
9.9	Wheel balancing stand		
9.10	wheel Puller with extracting nut		
9.11	Wheel guard		
9.12	One set of manuals		
9.13	One set of Service Tools, Keys, allen keys, Spanner		
9.14	Grinding wheel (Al ₂ O ₃) / SiC – 02 Nos.		
9.15	Anti vibration Pads		
10	Others	Bidder to specify and quote if any other accessories available /required for smooth running of the machine	
11	General features :		
11.1	The specification of feed drive motors with make, model no., max. & nominal torque		

11.2	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	Bidder to specify the features of the machine
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 Aecessories	
13	Terms & Conditions	Bidder to specify and quote if any other accessories available /required for smooth running of the machine.
		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 acessories, Optional Acessories etc with make model) in the technical bid withour 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>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.</p> <p>The vendor should supply the necessary manuals such as</p> <ul style="list-style-type: none"> · Software instruction · Maintenance and trouble manual · Training · Installation and Commissioning · Handling of accessories · Software key (if any) · Software CDs
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.

Radial Drilling Machine - 25MM

Sl. No.	Specification With Unit	Range / Value
	Make:	Bidder to specify
	Model:	Bidder to specify
1	Max. Drilling Capacity in Steel & CI - mm	50 & 60

2	Drilling Radius Max./ Min. - mm	(1200-1500) / (450– 600)
3	Vertical Traverse of Arm - mm	700-800
4	Horizontal Traverse of Arm - mm	700-800
5	Column Diameter - mm	350-400
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	40-1800 or better
10	Angle of Arm Rotation - deg.	360
11	Angle of Drill Head Rotation - deg.	360
12	Spindle Travel - mm	300-400
13	Motor - HP	2.25 HP or better
14	Feed	Manual & Auto feed Both type
15	Accessories suitable for the machine to be Supplied and price include along with machine cost	
15.1	Box Shape Worktable	Set of accessories suitable to the machine
15.2	Machine Vise 8"	
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 Acessories	Bidder to specify and quote if any other accessories available /required for smooth running of the machine.
19	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.
20	Scope of supply	Bidder should submit complete scope of supply (Machine, standard acessories, Optional Acessories etc with make model) in the technical bid withour price. Bidder should supply complete start up package necessary to prove the machine and provide training.
INSTALLATION, COMMISSIONING AND TRAINING		
21	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 electical requirement. Vendor should carry out installation and commissioning of the machine and its accessories on a turnkey basis.
22	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
		· Software instruction
		· Maintenance and trouble manual
		· Training
		· Installation and Commissioning
· Handling of accessories		

23	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.
24	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.