

SCOPE OF WORK, TECHNICAL SPECIFICATION AND OTHER TERMS & CONDITIONS FOR SUPPLY, INSTALLATION, COMMISSIONING & TRAINING OF HIGH PRECISION MANUAL TOOL ROOM LATHES WITH ACCESSORIES.

1) TECHNICAL SPECIFICATION AND TERMS & CONDITIONS:

I	<p>SCOPE:</p> <p>Supply, installation, commissioning & training of 2 no's of High precision manual tool room lathes with accessories.</p> <p>MACHINE DESCRIPTION AND APPLICATIONS:</p> <p>The intended high precision manual tool room lathes shall be capable of machining (turning, grooving, thread cutting etc.) of parts made of material like, titanium alloys, hardened alloy steels, nickel alloys etc for aerospace applications. The offered machine shall have DRO for 3 axes with features like control panel for spindle speed pre-selection, digital spindle speed indication, spindle start/stop and spindle reverse.</p> <p>The offered machine shall be built with geometrical accuracies confirming to DIN 8605/ISO or equivalent acceptance standards.</p>	
II	TECHNICAL SPECIFICATIONS:	
Sl. No	Description	Specification values
1.0	MACHINE CAPACITIES:	
1.1	Height of center over bed	100 ± 10 mm
1.2	Swing over carriage	110 ± 10 mm
1.3	Swing over bed	200 ± 20 mm
1.4	Center height over carriage	55 ± 5 mm
1.5	Distance between centers	460 ± 50 mm
1.6	Type of bed	Hardened and grounded flat bed
1.7	Material of bed	Cast iron
2.0	HEAD STOCK / SPINDLE:	
2.1	Type of Drive	AC motor drive with continuously variable speed
2.2	Spindle Material	Hard and ground alloy steel
2.3	Spindle nose type	Camlock

2.4	Spindle through bore	20 mm (minimum)
2.5	Spindle speed range	100-3000 rpm or better
2.6	Spindle run-out	≤ 0.0005 mm
2.7	Spindle power	4.0 kW (minimum)
3.0	CARRIAGE:	
3.1	Longitudinal travel of carriage on bed (Z-axis)	400 ± 10 mm
3.2	Transverse travel of cross slide (X-axis)	100 ± 10 mm
3.3	Top slide travel	80 mm (minimum)
3.4	Hand wheels for manual movement of X-axis and Z-axis shall have graduations in mm..	Essential feature
4.0	FEED & THREADS:	
4.1	Working feed range for longitudinal traverse (Z-axis)	0.02-0.2 mm/rev or better
4.2	Metric threads pitch range	0.3-3 mm or better
4.3	Inch threads pitch range	60-8 TPI or better
4.4	Automatic stop facility (electro-mechanical/electronic drive) during thread cutting operation to control the thread length shall be available.	Essential feature
5.0	TAILSTOCK:	
5.1	Internal taper of sleeve	Morse taper
5.2	Quill diameter	30 mm (minimum)
5.3	Quill travel	70 mm (minimum)
6.0	TOOLING SYSTEM:	Multifix type
6.1	Cross section of the tool shank	12mm X 12mm (nominal)
7.0	DIGITAL READ OUT (DRO): 3 axes Digital read out (DRO) for longitudinal travel, cross travel & top slide travel	Essential feature
7.1	Resolution of longitudinal travel (Z Axis)	0.001mm
7.2	Resolution of cross travel (X Axis)	0.001mm
8.0	GEOMETRICAL ACCURACIES	Shall confirm to DIN 8605 / ISO or equivalent standards
8.1	Flatness of bed lengthwise	0.020 mm / 1000mm or better
8.2	Run-out at internal taper of the spindle	≤ 0.0005 mm

8.3	Parallelism of spindle axis with the bed in horizontal plane	0.005 mm / 200 mm or better
9.0	Milling Attachment with integral motor/ motor speed control	Essential feature
10.0	COOLANT SYSTEM;	Required
10.1	Coolant tank capacity	Party shall provide details
10.2	Pump power	Party shall provide details
11.0	ELECTRICAL CONNECTIONS & SUPPLY:	
11.1	Purchaser will provide electrical power supply with 415V \pm 10%, 50Hz \pm 5%, 3 phase and neutral 4-wire system. Offered machine shall be compatible with this power supply.	
11.2	The electrical insulation shall be fully tropicalized and electric system shall be suitable for operation on the specified supply.	
11.3	Electrical control panels shall confirmed to CE or equivalent safety norms	
11.4	Party shall provide total capacity of the machine in kVA rating.	

III	ESSENTIAL ACCESSORIES:	
	Party shall provide break up cost for each item in Part-2: Price bid only.	
SL NO.	DESCRIPTION	Qty per machine
01	3 axes Digital Read Out (DRO) for longitudinal travel, cross travel & top slide travel	01 set
02	Coolant system	01 set
03	Chips sieve	01 no
04	Rear sheet metal guard	01 no
05	Cam lock high precision 3 Jaw scroll chuck of dia 125 mm (nominal) with one set of forward & reverse jaws	01 set
06	Soft jaws for above high precision 3 Jaw scroll chuck of dia 125 mm	10 sets
07	Cam lock high precision 4 jaw independent chuck of dia 125mm (nominal) with one set of forward & reverse jaws	01 set
08	Lever operated collet chuck for head stock(W25)	01 set.
09	Draw in collets (dia 0.5 mm to 25.0mm in steps of 0.5 mm) (nominal)	01 set
10	Quick change tool post MULTIFIX –A	05 nos

11	Foundation & Leveling elements	01 set
12	Change gears	01 set
13	Milling attachment with integrated motor along with necessary driving device / plate, pressure regulator, collets (1 to 13mm in steps of 1mm, 1.5mm and 2.5mm), and suitable frequency converter and mounting elements.	01 set
14	Dividing head / attachment for W25	01 no
15	Live and dead centers for headstock & tailstock	01 set
16	Auto transformer with suitable capacity for the machine	01 no
17	Drill Chuck keyless (1-13mm) (nominal)	04 nos
18	Standard tool holders (Size-12mm x 12mm size)	05 nos
19	Suitable reduction bushes for tailstock Mo.2 / Mo.1	01 no
20	Machine lamp	01 No
21	Test mandrel	01 No
22	Live centers	04 Nos

IV	KIT OF MAINTENANCE CONSUMABLES:	
1.0	Party shall submit offer for one set Kit of maintenance consumables which are required for trouble free operation of the machine on two shift basis for a period of two years.	
2.0	Party shall provide detailed list of maintenance consumables with Qty in Part-1: Technical Bid. Note: offers indicating cost in Part-1: Technical Bid will be disqualified. Cost break up for each item shall be provided in Part-2: Price Bid only.	
3.0	Party shall ensure the availability of spares and service support for a period of ten (10) years of operation of the machine from the date of commissioning and acceptance.	
V	TECHNICAL DOCUMENTATION: In case of order, Two sets of following technical documentation in hard copy plus one set soft copy (for each machine) in ENGLISH shall be supplied along with machine.	
1	Operator's instruction manual	
2	Assembly drawings / foot print and installation instructions (with a check list)	
3	Actual machine acceptance test results	
4	Preventive maintenance check list, troubleshooting charts and guidelines	

VII	OTHER TERMS & CONDITIONS:
1.0	HERITAGE OF SUPPLIER:
1.1	The bidder/manufacturer/ supplier should have manufactured, supplied & commissioned at least 05 numbers of high precision manual tool room lathes with spindle runout of 0.0005 mm or better of same/ similar specifications to any Defence / Government establishments / Public sectors in India. Offers not meeting the above criteria will not be considered .
1.2	The Bidder shall provide reference list of organizations (with contact details, year of supply etc.) to whom the above mentioned class of machines have been supplied which are being used in Defence / Govt. Establishments/ Public sectors in India. Purchaser reserves the right to visit above referred organizations for verification / validation. In case of enquiry by Purchaser about the machine tool supplied with references provided by the bidder is not satisfactory, such offer will be not be considered .
1.3	Party shall provide standard acceptance test chart (geometric accuracy protocol as per DIN 8605/ISO or equivalent standards) duly filled with actual values for any previously/ recently supplied same/ similar specification machine confirming to the accuracies given in Clause No: 8.0.
1.4	In case of order, all items ordered shall be supplied in ONE LOT without any part / short shipment, before the expire of delivery period.
2.0	DOCUMENTS TO BE SUBMITTED ALONG WITH OFFER:
2.1	Detailed technical specification of the offered machine, such as description of basic machine, essential, constructional features etc.
2.2	Printed catalogue /technical literature / technical write up/ foot print of the offered machine shall be supplied along with the offer. Sketches are not acceptable.
2.3	List of all the standard, essential & kit of maintenance consumables offered. (Quantity & cost break-up for each item shall be provided in Part-2: Price Bid). Note: Offers with Cost element in Part-1: Technical Bid will not be considered.
2.4	Country of origin details.
2.5	Machine Layout drawing of the offered machine model indicating the shop floor space required.
2.6	Un-priced (without price component) copy of Part-2: Price bid .
3.0	PREDELIVERY INSPECTION (PDI) & MACHINE ACCEPTANCE CRITERIA AT MANUFACTURE'S SITE:
3.1	LPSC at its discretion may depute engineers for PDI, otherwise actual machine acceptance accuracy test results (geometric accuracy protocol as per DIN 8605/ISO or equivalent standards) shall be submitted to LPSC for according dispatch clearance for the machines after scrutiny and satisfactory acceptance of accuracy test result.

3.2	The manufacturer / supplier shall indicate the purchaser well in advance regarding probable date of readiness of the machine for pre-delivery inspection. After readiness of the ordered machine along with accessories for pre-delivery inspection, Purchaser's team will visit the manufacturer's site and carryout following inspections.
3.3	Compliance of machine specification as per the ordered technical specification.
3.4	All standard, essential & optional accessories and spares as per the ordered specifications.
3.5	Machine accuracies test results (Positional & Geometric accuracies) of the ordered machine.
3.6	All features of the ordered machine, control system, software & accessories as per the ordered technical specification.
3.7	All the material and tools required to carry out pre-delivery inspection tests at manufacturer's site shall be arranged by the manufacturer / supplier.
3.8	Despatch clearance for the machine will be accorded after satisfactory Pre-Delivery Inspection (PDI) of machine by LPSC Engineers at manufacturer's work place.
3.9	Purchaser will bear to & fro air travel, boarding, lodging and other incidental expenses for Purchaser's representative's visit to Manufacturer's site for PDI.
3.10	In case, LPSC does not depute Engineers to carryout PDI of the machine at Manufacture's site, party shall submit actual machine acceptance accuracy test results (geometric accuracy protocol as per DIN 8605/ISO or equivalent standards) to LPSC to accord dispatch clearance for the machine after scrutiny and satisfactory acceptance of test results confirming to the accuracies given in Clause No: 8.0
4.0	INSTALLATION AND COMMISSIONING OF MACHINE AT PURCHASER'S SITE; LPSC, BENGALURU, KARNATAKA, INDIA:
4.1	Installation and commissioning of supplied machines is under manufacturer / Supplier's scope.
4.2	All the equipment such as assembly / integration tools, instruments, test mandrels etc. required for installation & commissioning of the machines is under Supplier's scope.
4.3	Foundation kit / leveling elements like foundation bolts, nuts, vibro mounts, etc required for machine foundation & leveling shall be provided by Supplier
4.4	Commissioning shall be carried out by the trained Manufacturer's / Supplier's/ authorized service provider engineers only at Purchaser's site.
4.5	Earthing requirements, if any, shall be projected to Purchaser well in advance.
4.6	Metric system of measurement shall be followed in all specifications , drawings, manuals etc.

5.0	MACHINE INSPECTION & ACCEPTANCE TESTS AT PURCHASER'S SITE; LPSC, BENGALURU, KARNATAKA, INDIA:
5.1	Manufacturer / Supplier shall demonstrate /prove all the machine geometrical accuracies as per manufacturer's acceptance plan for acceptance of the machine at Purchaser's site.
5.2	All the tools, instruments, test mandrels, man power etc required to carry out machine accuracy acceptance tests (geometrical accuracies) at Purchaser's site during installation & commissioning shall be arranged by Supplier only
5.3	The final acceptance of the machine shall be after successful installation, commissioning, testing & demonstration and satisfactory acceptance of the machine at Purchaser's site
6.0	TRAINING AT PURCHASER'S SITE: Party shall impart training for a period of 2 days to the Purchaser's personnel on operation and maintenance aspects of the machines after successful commissioning at Purchaser's site.
7.0	WARRANTY: Entire machine inclusive of all systems, essential and optional accessories ordered shall be warranted for a period of 12 months from the date of machine acceptance. During warranty period, manufacturer/ supplier/ authorized service provider shall carryout two preventive maintenance visits at no additional cost. Each visit shall be for a period of ONE working day (minimum).
8.0	NON-COMPREHENSIVE ANNUAL MAINTENANCE CONTRACT: The Party shall compulsorily undertake non-comprehensive AMC for the supplied machines supplied for a period of THREE YEARS after completion of warranty period. The Service shall be carried out by OEM or Authorized & trained service provider for undertaking AMC. Necessary authorization certificate shall be provided along with offer. This is an important criteria and offer not meeting this requirement will not be considered . The Address and contact details of Indian authorized service provider shall be furnished along with the offer. The scope of AMC shall be as per Enclosure-1 attached.
9.0	PACKING:
9.1	Packing of machine is under Supplier's scope.
9.2	Road worthy packing with proper markings to prevent damage / loss in transit and to withstand all weather / transit hazards shall be provided.

10.0	DELIVERY TERMS:
10.1	Free On Road (FOR): LPSC, Bengaluru, Karnataka, India
10.2	In case of order, all items ordered shall be supplied in ONE LOT without any part / short shipment, before the expiry of delivery period.
10.3	Delivery place: LPSC, Bengaluru, Karnataka, India.
10.4	MODE OF DISPATCH:
10.5	By Road
11.0	DELIVERY SCHEDULE: Delivery schedule shall be within 04 months (nominal) from the date of receipt and acceptance of Purchase Order.
12.0	PAYMENT TERMS: 100% payment shall be made through RTGS within 30 days of receipt, installation, commissioning, training and acceptance of the items at Purchaser's site.
13.0	LIQUIDATED DAMAGES (LD): a) Delivery schedule mentioned in the order/contract shall be the essence of the order. b) In case if supplier fail to deliver the item within the time specified or take any extension thereof, LD @ 0.5% (Zero Point Five Percent) of the order value or part thereof of the undelivered item for each completed calendar week of delay shall be recovered from supplier's bill. c) However, total LD shall not exceed 10% (Ten Percent of the Order Value).
14.0	INSTRUCTIONS TO TENDERERS:
14.1	The suppliers shall submit their offers in two parts separately as under: Part-1 :Techno-commercial bid (un-priced) (Price element should not be marked in the Part-1: Technical Bid. If available such offer will not be considered for evaluation) Part-2 : Price bid
14.2	PART-1 : TECHNO-COMMERCIAL BID: This part should contain: a) Technical details and specifications together with technical catalogues. b) All commercial conditions. c) Deviations, if any, to tender specifications shall be brought out very clearly.

	<p>d) Unpriced copy of Part-2: Price bid (details without prices).</p> <p>Note :</p> <p>a) Price component shall not be indicated in the Part- 1: Technical bid.</p> <p>b) Techno-commercial bid shall clearly indicate technical details, payment terms, security deposit, performance bank guarantee, liquidated damages, delivery terms, validity of offer, delivery period, AMC details etc.</p> <p>c) Comments like YES, AGREED, WILL BE GIVEN AT THE TIME OF SUPPLY, CONFIRMED, WILL BE COMPLIED etc. are to be avoided where ever numerical values are required to be mentioned.</p>
14.3	<p>Part-2: PRICE BID:</p> <p>Prices shall be indicated only in Part-2 Price Bid. The price bid shall contain following details:</p> <p>a) Cost for basic machine confirming to technical specification of tender document.</p> <p>b) Break-up cost for essential accessories</p> <p>c) Cost of maintenance consumables (With item wise quantity & cost breakup)</p> <p>d) Cost for technical documentation</p> <p>e) Cost for installation, commissioning and training</p> <p>f) Cost for Non-comprehensive Annual Maintenance Contract (AMC) for a period of 3 years after expiry of warranty period</p>
15.0	IMPORTANT INSTRUCTIONS:
15.1	Bidder shall furnish details of Supplier's Banker
15.2	The offer shall be valid for a minimum period of 120 days from the tender due date.
15.3	Income tax will be deducted at source, if applicable.
16.0	<p>PRICE COMPARISION:</p> <p>Price comparison during evaluation of offers will be based on:</p> <p>a) Cost of Basic machine, essential accessories & warranty.</p> <p>b) Installation, commissioning & training charges, packing charges & delivery terms.</p> <p>Note: Cost for optional accessories and maintenance consumables will not be considered for cost comparison.</p>

A	NON-COMPREHENSIVE ANNUAL MAINTENANCE CONTRACT (AMC)
1.0	<p>The party shall compulsorily undertake non-comprehensive AMC for a period of three (3) years after the expiry of warranty period. The offer shall be in Indian rupees only since the non-comprehensive AMC shall be carried out only by OEM or service provider authorized & trained by OEM.</p> <p>Party shall provide breakup cost for 1st year, 2nd year and 3rd year separately in Part-2: Price bid. The scope shall be one preventive maintenance visits per year and duration shall be of 01 day per visit (minimum). The scope shall also include any number of breakdown visits.</p>
2.0	<p>TYPE OF CONTRACT:</p> <p>The proposed Annual Maintenance Contract shall be of Non-Comprehensive type.</p>
3.0	<p>PERIOD OF CONTRACT:</p> <p>The contract shall be valid for a period of 3 years after expiry of standard warranty period. However, it shall be open to purchaser to terminate the contract at any time during its currency by giving ONE MONTH notice in writing.</p>
4.0	<p>PREVENTIVE MAINTENANCE:</p> <p>a) The authorized & trained Indian service provider shall perform two preventive maintenance visits in one year. Total number of preventive maintenance visits for 3 years shall be 03 visits.</p> <p>b) The party shall offer lump sum charges for preventive maintenance of the machine, which shall include charges like, local conveyance, service charges, miscellaneous expense & to and fro charges.</p> <p>c) In case the service engineer is from outstation, the party shall offer lump sum charges for preventive maintenance of the machine, which shall include boarding/lodging, conveyance charges, service charges & miscellaneous expenses including conveyance.</p>

5.0	<p>BREAKDOWN MAINTENANCE:</p> <p>a) The authorized service provider shall attend to any number of breakdown calls per year, immediately within 48 hours of intimation during the contract period.</p> <p>b) The party shall offer lump sum charges on per man day basis towards breakdown maintenance of the machine which shall include charges like, local conveyance, service charges & any other expense including to and fro charges.</p>
6.0	<p>PAYMENT TERMS:</p>
6.1	<p>Preventive Maintenance charges shall be paid yearly basis (once every year) on completion of each satisfactory service.</p>
6.2	<p>Income Tax, as applicable shall be deducted at source</p>
7.0	<p>The Department shall not be responsible for any injury to Contractor/ supplier's personnel, or damage to his equipment caused at Purchaser's site.</p>

