

**ANNEXURE A TO  
TENDER NO. 23.27.0000.167.78.4112316.21.22  
DATED 03 AUGUST 2021**

**DETAILS OF THE MACHINE**

Sl. No	Specification	A/U	Qty
(a)	(b)	(c)	(d)
	<b>CNC Cylindrical Grinding Machine</b> with all standard and additional accessories as per specification below :	No	01
1	Model No : To be mentioned		
2	Purposes/uses of Machine : To be described (Video will have to be provided if available)		
3	<b>Country of Origin</b> : <b>Group - A</b>		
4	<b>Country of Manufacturer</b> : <b>Group - A</b>		
5	<b>Country of Assembling</b> : <b>Group - A</b>		
6	<b>Port of Shipment</b> : <b>Group - A</b>		
7	<b>Major Parts</b> : <b>Group - A</b> (All Servo motors, Spindle Motor, Control system including servo drives, Lead Screw, Hydraulic Pump, Lead Screw, Main body, Pneumatic actuators, Vector drive if available and electronics PCB cards)		
8.	<b>Specification:</b>		
a.	Grinding Length : 1000 ~ 1200 mm		
b.	Centre Height : 160~200 mm		
c.	Maximum Grinding Diameter : 300 mm~ 400 mm		
d.	<b>Table – Z Axis :</b>		
	(1) Traverse Distance : (1100 ~1200) mm		
	(2) Traverse Speed (Minimum-Maximum) : 0.01 mm/min (minimum) ≥ 12 m/minutes (maximum )		
	(3) Minimum programmable increment (diameter) : 0.001 mm		
	(4) HPG increments/Electronic hand wheel increment : 0.001, 0.01, 0.1 mm		
	(5) Table swivel included angle (Minimum) : -4° (CCW) & 8° (CW)		
e.	<b>Work Head :</b>		
	(1) Speed range (minimum), Continuously variable : 0 ~ 650 RPM		
	(2) Live spindle taper : MT 4/ MT 5		
	(3) Dead spindle taper : MT4/ MT 5		
	(4) Swivel angle minimum : 105°(+90°to-15°)		
	(5) Three jaw independent chuck : Chuck dia 100 ~ 200 mm		
	(6) Motor Minimum : To be mentioned		
f.	<b>Wheel head –X Axis :</b>		
	(1) Total in feed : (200~300) mm		
	(2) Feed Rate (minimum) : (0.001 ~ 0.6) mm/min		
	(3) Minimum programmable increment (diameter) : 0.001 mm		
	(4) HPG increments : 0.001, 0.01, 0.1 mm		
	(5) Wheel motor power : To be mentioned		
g.	Grinding wheel size (Outside diameter × width × bore diameter) : (400~450) mm x(40~50) mm x 203 mm		
h.	Spindle speed (Max) : 2500 rpm		
j.	Hydraulic Steady rest dia (minimum) range : 10~60 mm		

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k.	<b>Tailstock :</b>					
	(1)	Spindle taper (standard)	: MT4/MT5			
	(2)	Poppet travel	: 30~80 mm			
	l.	Control type	: FANUC/SIEMENS/HAAS Series with external diagnosis monitor			
	m.	Display monitor	: 10.4 Inches Color Screen or bigger			
	n.	Memory capacity	: To be mentioned			
	p.	Power Supply	: 380~400V, 3Phase, 50Hz			
	q.	Automatic Wheel dresser (CNC control)	: To be mentioned			
	r.	Additional accessories and attachment for each machine :				
		(1)	Grinding Wheel (Standard Size, serial g)			: 02 Pieces
		(2)	Blade Type Diamond Wheel Dresser			: 02 Pieces
		(3)	Dead Center (MT4/MT5)			: 02 Pieces
		(4)	Air Gun			: 01 Pieces
		(5)	Water Gun			: 01 Pieces
		(6)	Tool Box			: 01 Set
(7)		Wheel Balancer	: 01 Pieces			
(8)	Wheel Flange	: 02 Pieces				
s.	Air Dryer with Filter and Automatic Voltage Regulator must be supplied with each machine which is suitable for the machine	: 01 No. each				
2.	<b>Condition :</b>					
a.	The Machine must be able to perform External Cylindrical grinding (Straight and Taper).					
b.	All accessories, attachments, tools, Diamond Wheel dresser, fixture etc. required to perform the above mentioned operation must be supplied and mentioned with price in offer.					
c.	If there is any advance feature/attachment available (which is not mentioned here) to perform extra jobs in addition to the jobs mentioned above must be mentioned with price in offer.					
d.	Standard cooling, lighting, lubricating & control system (Software & Hardware) must be provided with the machine.					
e.	1 x User/ programming manual in English (Hard & Soft copy) must be supplied with the machine.					
f.	1 x Operation, 1 x Maintenance and Repair manual (Hard & Soft copy) with parts catalogue and circuit diagram of electrical devices in English to be supplied with the machine. These books must contain the following topics/items: (1) <b>Operation Manual</b> : Hydraulic, Pneumatic, Electrical, Electronic and Mechanical operational circuit and component diagrams with their detail working principles & description. Simulation/Animation of major items working/operation to be included in the soft copy. (2) <b>Maintenance and Repair Manual</b> : Detail troubleshooting & repair procedure as well as maintenance and safety system.					
g.	Machine installation, commissioning & trial run must be completed by the supplier within one month (30 days) from the date of arrival of the machines at BOF.					
h.	<b>Local Training</b> : Duration of training should be at least 06 working days. <b>Following information must be given as under :</b>					
	<b>Ser</b>	<b>Training</b>	<b>Details</b>	<b>Supplier's Opinion</b>		
(1)	Local Training after machine installation	Trainer Type (Local/ Foreign) : To be mentioned				
		Number of Trainer : At least 01 (One) foreign expert. Trainer must be expert on operation/ application and repair & maintenance on Electrical, Mechanical & Hydraulic system				

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(a)	(b)	(c)	(d)
	<p><b><u>Training</u></b></p> <p>a. Machine Operators Training : 03 working days. b. Machine maintenance, trouble shooting and repair training : 03 working days.</p> <p><b><u>Topics:</u></b></p> <p>(i) Details operation of electrical, electronics, pneumatic system, hydraulic system and mechanical system with diagrams in details. (ii) Control system: program loading and unloading, debugging, editing and servo drive and servo motors interconnection and parameter setting in details. (iv) Troubleshooting: Artificial problems to be created by removing sensors and changing the parameters of servo drive and servo motors then faults diagnosis and repair procedures. (v) Safety procedures.</p>		
	<p>j. <b><u>Foreign training Proposal</u></b> : A 02 (Two) Members BOF Team would go for operation and maintenance training to the supplier`s factory for a duration of 04 (Four) working days. Cost of Air Ticket, Pocket money, food, accommodation &amp; medical (if needed) will be borne by BOF.</p>		
	<p>k. <b><u>Pre-shipment Inspection</u></b> :</p> <p>(1) Pre-shipment Inspection (PSI) will be carried out by BOF at the discretion of BOF authority and all cost will be borne by BOF. The team may be comprised of 02 (Two) BOF personnel for a period of 03 (Three) working days excluding journey period. (2) Supplier must submit details plan of PSI (Modus Operandi)</p>		
	<p>l. Warranty for one year after acceptance.</p>		
	<p>m. Fast and slow moving spares with quoted price must be given with the offer including yearly escalation (minimum for ten years).</p>		
	<p>n. Automatic wheel dressing system must be in-built in the machines. Ten (10) pieces of diamond wheel dresser must be supplied for each machine.</p>		
	<p>p. Machine must have external diagnosis system.</p>		
	<p>q. All drives and motor must be of same control system.</p>		
	<p>r. The supplier must give Service support for ten years after installation of the machines.</p>		
	<p>s. Mother factory of country of origin must give i.e authenticated certificated to other factories of Manufacturing/ Assembling.</p>		
	<p>t. If any component/part of the machine is from the country other than the machine manufacturing country then the name of the country (which also must be of group 'A' country) must be mentioned with the component/part.</p>		

**Terms & Conditions**

Supplier must mention their compliance on the following mentioned points :

1. A principal/manufacture can submit **only one offer through one local agent** for any individual item. Offers through multiple local agents by same principle/manufacture will be **treated as rejected**.
2. To ensure unhindered LC handling the principal must provide a certificate to confirm that their LC operating bank has RMA (Relationship Management Agreement) with the local Banks of Bangladesh.
3. Supplier must **clearly mention** (in the technical offer) that as principal/manufacture they poses necessary **export permit** from the concern ministry or any other authority of their country. They must also submit a certificate in this regards as per the attached specimen format at Annex F.

RESTRICTED

4. Before signing the contract, Performance Guarantee @ 10% of total LC value is to be submitted by the Principal in favour of Commandant, Bangladesh Ordnance Factories, Gazipur Cantonment, Gazipur through any scheduled Bank located in Bangladesh (As per the format at Annex D).
5. A separate **certificate should be provided** by the principal **originally signed** (Computerized or digitally edited signature will not be accepted) stating that they are aware of the requirement of the PG and if the contract is awarded they will be bound to provide the PG as per the format at Annex E, otherwise administrative action will be taken against the principal and local agent
6. The stores should be supplied to BOF at **supplier's cost**.
7. On arrival of the stores at BOF, the supplier must complete installation, commissioning, trial run & trial production within 01(one) month (from the date of entry at BOF). Otherwise, penalty will be imposed at the rate of 2% but not less than 1% and will not exceed 10% of the total CFR/LC value (As applicable).
8. If the supplier fails to deliver the stores within the stipulated period, the followings will be applicable:
  - a. Cancel the contract and/or
  - b. Decision at the discretion of BOF.
9. Inspectorate is the authority in all matters pertaining to Inspection. Any verdict by the inspectors regarding rejection, acceptance, and/or deviation of machine involving price reduction will be treated as final and will not be subject to arbitration.
10. The Supplier must submit the following **attested documents** with the schedule :
  - a. **Trade License**
  - b. **Tin Certificate**
  - c. **Up to date VAT Registration certificate.**