Schedule of supply

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1. List of Goods and Related Services

Workshop name: Machine Shop

Workshop name: Machine Shop							
Delivery Address: Mahatma Gandhi Government Engineering College Kotla (Jeori), Teh-Rampur, District – Shimla (HP) – 172101						**Delivery Time (in days): not more than 180**	
Item No.	**Name of Goods or Related Services**	**Description**	**Unit of Measurement**	**Quantity**	**Unit Price (including GST)**	**Total Price (Including GST)**	**Remarks** (Please mention) Page number of detailed information brochure having make and model no.
1.	Outside Caliper	300mm	No.	6			
2.	Inside Caliper	300mm	No.	6			
3.	Pipe cutting machine	14"	No.	1			
4.	Number Punch	0 to 9	Set	1 set			
5.	Letter Punch	A to Z	Set	1 set			
6.	Tool Holder	(5/16,3/8,1/4)”	No.	2 each			
7.	Depth Gauge	300mm	No.	1			
8.	Bench Drilling M/C	Drilling capacity in steel (MS): dia 23 mm Tapping capacity in steel (MS): M14 mm Spindle Nose taper: MT12 Spindle stroke max for drilling: 125mm Spindle stroke max for tapping: 100mm	No.	1			

		Nos. of spindle speed:8 Range of spindle speed: 56-1400 rpm Column diameter:80 mm Spindle to column face: 240 mm Clamping area on work table: 240*240 mm*mm Base plate working area: 250*250 mm*mm Main motor power:1 HP					
9.	Twist Drill Bit	(15,18,20,22)mm	No.	2 each			
10.	Screw Driver	(6,8,10)”	No.	2 each			
11.	Lathe cutting tool	HSS 100x12 mm, HSS 150x15mm	No.	3 Each			
12.	Knurling tool Swivel type	Swivel Type	No.	1			
13.	Knurling tool cross type	Cross type	No.	1			
14.	universal central gauge	Universal	No.	4			
15.	Tool Holder	G.M.V 37" 3/4"	No.	2			
16.	Boring Tool Holder	Length 120mm width 8mm C.S	No.	4			
17.	Double ended pedestal grinder	200mm wheel rough and smooth with twist drill grinding attachment single phase 220volt	No.	1			
18.	Bench Grinder	Power Input 600 W, No Load Speed (50/60 Hz) 3600 rpm, Disc Diameter 200 mm, Grinding Disc Width 25 mm, Grinding Disc Bore 32 mm, Weight (Approx) 15 kgs	No.	1			
19.	Capstan Lathe Machine	Length of Bed 700 mm Power 2 HP Range of Spindle Speeds 3	No.	1			

		Swing Over Bed 298 MM Bed Width: 200 mm Spindle Bore: 20 mm Layout Horizontal Automation Grade: Semi-Automatic Height Of Centre: 150 mm Material Cast Iron, CAPSTAN LATHE MACHINE CAPACITY 15MM, 20 MM, 25 MM, 32 MM, 40 MM, 50 MM, 60 MM					
20.	Cutt Off Saw/Metal Cutter	Cutting disc diameter 355 mm, Cutting disc bore 25.4 mm No-load speed 3,800 rpm Rated input power 2,200 W Cutting capacity at rectangle 45º mitre 107 x 115 mm Cutting capacity at square 45º mitre 110 x 110 mm Cutting capacity at L-profile 45º mitre 115 x 115 mm Tool dimensions (width x length x height) 256 x 520 x 400 mm Cutting capacity at rectangle 0º 100 x 196 mm Cutting capacity at square 0º 119 x 119 mm Cutting capacity at L-profile 0º 130 x 130 mm Total vibration values (Cutting metal) Vibration emission value ah 2.5 m/s² Uncertainty K 1.5 m/s²	No.	2			
21.	Hydraulic Hacksaw	Capacity of Square bar 200 millimeter V-belt if not required, please select NA 4 Pieces Blade size 16 inch Capacity of Round Bar 250 millimeter	No.	1			

		Electric motor 2 horsepower V belts Required Yes Stroke 140 Motor Speed, rpm 1440 Number of Strokes per min 120 Body Material Mild Steel Height 1100 millimeter Width 800 millimeter Length 1400 millimeter Warranty 3 years					
22.	Radial Drilling Machine	Spindle Travel 250 mm Spindle Speed (RPM x Steps) 88-2600 x 8 Lifting Motor 0.5 HP/1440 RPM Lifting Motor V belt B-23/B-24 Diameter of RAM 78 mm Max / Min Distance Spindle Nose to Base 850/250 mm Machine Measurement (L x B x H) 1350 x 850 x 1825 mm Tapping in MS 20 mm Drilling in MS 40 mm Drilling in CI 45 mm Spindle Hole Taper MT-4 Max Min Distance Spindle Center to Column 905/385 mm Maximum Drilling Radius 990 mm Diameter of Column 170 mm Available Rough Boring in MS 60, 75 mm Available Drill Head Motor 1.5 HP/960 RPM, 1.5HP/1440 RPM Available Head Motor V belt B-46, B-47 Automation Grade Automatic Work Table Dimension 300 x 300 x	No.	1			

		385 mm Spindle Auto feed Ranges 0.05 and 0.06 mm/rev **Standard Accessories**: Motor Pulley **Extra Accessories:** Electrical Motors "V" Belts Coolant Pump with Coolant Tank Drill Chuck & Arbor Work Table Tapping Control Panel Board Keyless Drill Chuck & Arbor Tapping Attachment (Mechanical) Extra Long column Electrical Panel Board in R40BA					
23.	Pillar Drilling M/C	Range of Spindle Speed 86-3000 Rpm Drilling Capacity 20mm Base Size 460 x 320 mm Drilling Capacity (Steel) 20mm Distance from Spindle Nose to Pillar Surface 640mm Type of Drilling Machine: Pillar Spindle Travel 150mm Power 1 hp Table Size 280mm Drilling Capacity in Cast Iron 20mm Tapping Capacity 20mm Taper in Spindle MT-3 Number of Spindle Speed 4 Speed Spindle Speed Range 86-3300 Rpm Drilling Capacity : 19mm Spindle Center : 200mm Spindle Travel : 150mm Spindle nose to Base Distance : 640mm	No.	2			

		Spindle Nose to Table Distance : 400mm Table Travel : 270mm Taper in Spindle : MT3 Table Size : 280mm Base Size : 460 x 320 mm Column Length : 1200 mm Range to Speed : 86 – 3300					
24.	Trainer Center Lathe	Model:QMT-6, Bed Length=1800mm, Height of centre=170mm, Bed Width=240mm, Bed Type:2V-2 Flat, Swing Over Bed: 200mm, Swing over slide=200mm, Spindle Bore=40mm, Spindle Noise: MT-5A-2-4, No of Spindle Speed-8, RPM:40-1000, Admit Between Center:1000mm, Tail Stock Sleeve:MT3, Metric Thread No: 0.5 -7, Thread Per Inch No: 4TPI-48TPI, Lead Screw: 4TPI, Lead Screw Diameter: 25.4mm, **Accessories Required:** Electric Coolant Pump with Tank & Fittings, Taper Turning Attachment, Steady Rest, Follow Rest, Face Plate, Rear Tool Post with Long Cross Slide, Self Centering Chuck with Back Plate, Machine Lamp Thread Dial Indicator, 10” Dog Chuck fitted with Back Plate, Square Tool Post, Two Nos. Dead Centres, Centre Adaptor. Warranty: 3 years,	No.	5			

		Annual Maintenance: Required.					
25.	Shaper Machine	Automation Grade Semi-Automatic Speed 1440 RPM Overall Dimension (L x W x H) 1980 x 1067 x 1600 mm No. Of HP 2 HP V-Belt B-55 Main Switch Starter R & F Switch Dia. of Clutch Pulley 318 mm Cone Pulley Belt 3 nos. Range of Table Feed per Stroke 0.229 Range of Ram Speeds in Strokes per Minute 12-24-48-72 Minute Length & Width of Base 1630 mm x 610 mm , **Capacity:** Length of Ram :- 1245 mm Length of Ram Stroke :- 610 mm Length & width of Ram Bearing :- 915 mm x 279 mm A maximum distance of Table to Ram :- 457 mm A minimum distance of Table to Ram :- 89 mm **Table** The working surface of Table :- 483 mm x 330 mm Maximum Table Travel Horizontal :- 610 mm Maximum Table Travel Vertical :- 406 mm Angular Movement of Table on Either Sides :- 60 L 60 R **Tool Head**	No.	2			

		Maximum Size of Tool Shank Accommodated :- 51 mm x 21 mm Maximum Vertical Travel of Tool Side :- 152 mm Maximum Swivel of Tool Head :- 60 L 60 R **Standards Accessories** Vice Handle Lubrication System					
26.	Universal Grinding Machine	**Product Specification** Grinding wheel size (dia.x width x hole) 300X40X127 MM / 400X50X127 MM Grinding wheel motor (HP) 2.2 kw / 3.7 kw Bore Size (mm): 80 MM Machine Type: AUTOMATIC AND SEMI AUTOMATIC Grinding Capacity Centre Height-100/130mm/Center distance-450/750 mm/Grinding Length-400/650 mm Automation Grade Automatic Capacity Centre Height-100/130mm/Center distance-450/750 mm/Grinding Length-400/650 mm,Max. Swing dia of Chuck 300 [450, 600] mm Max./Min Grinding diameter 150 [200] /5 mm Maximum Grinding depth 120 mm Workhead Spindle Nose A2-6 [A2-8] Internal Grinding spindle Belt Drive-upto 35,000 RPM / HF Drive upto1,05,000 RPM OD grinding Wheel size 400 x 50 mm,	No.	1			

		Tailstock taper MT2 Spindle taper MT4 Noise emitted by Machine in db as per IS 10998:1984 (latest) 85, **Accessories:** Left hand tailstock with centre, Wheel guard with bracket, Splash guard for cylindrical grinding attachment, Jaw steady, Instruction manual, Indexing suitable for work head with set of Indexing ring, Wheel guard, Spanner set, Grinding wheel flange set, Reduction sleeves Morse					
27.	Universal Milling Machine	Type- Universal Table Total Area (Length x Width) (mm x mm)-1200x300, Table Clamping Area (Length xWidth), mm x mm= 1000X250, Width of T slot: 16mm, No of T- Slots:3, Table Transverse: Automatic and Manual, Longitudinal Table Transverse in mm: 600 mm, Cross Table Transverse in mm: 230 mm, Vertical Transverse in mm:425mm, Swivel of Milling Head to either side in vertical plane for vertical milling in degree: 45, Swivel of Table to either side of horizontal plane in Degree:45, Number of Spindle Speed : 8, Spindle Speed range in rev/min:50-800, Type and Size of Spindle Nose: ISO	No.	1			

		40 Number of Feeds available-09, Feed range for Longitudinal in mm/min- 20-575, Feed range for Transverse in mm/min- 30-220, Feed range for Vertical in mm/min-10-400, Rapid Transverse Feed range for Longitudinal & Cross in mm/min-900, Rapid Transverse Feed range for vertical in mm/min-400, Max Feed Force in KN-5, Size of Milling Arbor-As per ISO 40 for Medium Duty Milling Machine, Spindle Motor Power in Kw-2.2KW, Feed Motor power in KW-1KW, Size of the machine (L x W x H) (mm x mm x mm)-1300X800X1350, **All the standard Accessories including** (Machine vice with swivel base 200mm, Self Centering vce 10-80 mm, Stub Milling Arbor dia 16,22,27,32 & 40 mm, Collet Holder with set of conical collets size5,6,8,10,12 &20 mm, End mill holders dia 5,6,8,10,16&20 mm, Reduction sleeve type B size MT1,MT2,MT3&MT4, Milling Arbor for Universal milling size dia 22x500&,dia 27x500mm), Single lever hand operated vertical indexing head 12 notches 3 jaw					

		chuck, 160 mm dia,Vertical Milling head.					
28.	CNC Lathe Trainer	MACHINE SPECIFICATIONS • X – Axis Travel 150 mm • Z – Axis Travel 200 mm • Chuck Size 100 mm • Maximum Turning Diameter 30 mm • Maximum Turning Length 150 mm • Swing Over Cross Slide 80 mm • Spindle Nose Taper MT3 • Standard Cutting Tool Size 16 x 16 mm • Spindle Motor 2 H.P DC Motor (300 - 3000 RPM) • Resolution 0.005 mm • Repeatability ± 0.01 mm • Automatic Lubrication Points Provided • Interpolation Linear, Circular • Programmable Feed Rate 0- 800 mm/Min. • Rapid Feed Rate 0- 1200 mm/Min. • Control System Industrial Control System • Turret 8 Station (Electro–Pneumatic) • Coolant System 40 Liters. (Programmable) • Lubrication Centralized (Programmable) • Axis Motor Servo Motor • Mains Supply 230 V AC, Single Phase • Machine Dimensions Approx. 1500 x 900 x 1500 mm • Total Weight Approx. 900 Kg. **On screen Live Video for Machining**	No.	1			

		/Cutting Tool etc. MPG For JOG and Tool offset, manual movement. Vitrtual CNC software with Fanuc controll					
29.	CNC Milling Trainer	1MACHINE SPECIFICATIONS • X – Axis Travel 250 mm • Y – Axis Travel 175 mm • Z – Axis Travel 200 mm • Table Size 500 x 200 mm • Spindle Nose to Table Top 40 – 190 mm • Spindle to Column 110 mm • Spindle Inside Taper BT 30 / BT 40 • Maximum Tool Size Diameter 12 mm, Length 70 mm • Spindle Motor 2 H.P DC Motor with 3000 RPM • Resolution 0.005 mm • Repeatability ± 0.01 mm • Automatic Lubrication Points Provided • Interpolation Linear, Circular • Programmable Feed Rate 0- 800 mm/Min.(X,Y,Z) • Rapid Feed Rate 0- 1200 mm/Min.(X,Y,Z) • Control System Industrial Control System • Automatic Tool Changer 12 Station (Pneumatic) (Geneva Mechanism) • Lubrication Centralized (Programmable) • Axis Motor Servo Motor • Mains Supply 230 V AC, 1 Phase For Machine and 3 Phase 415 V AC for ATC	No.	1			

		• Machine Dimensions Approx. 1200 x 1200 x 1800 mm • Total Weight Approx. 1200 Kg. **On screen Live Video** for Machining /Cutting Tool etc. MPG For JOG and Tool offset manual movement.					
Note: Supporting Wall Charts of the Machinery and equipments are to be provided by the supplier.							

2. Delivery and Completion Schedule

The delivery period shall start as of *date of Signing the Contract*

Item No	Description of Goods or Related Services	Delivery Schedule (Duration)	Delivery Location	Required Arrival Date of Goods or Completion Date for Related Services
1 To 29	As per Schedule 1 – List of Goods and Related Services	Within 180 Days from the Signing of the contract.	**Mahatma Gandhi Govt. Engg. College Kotla (Jeori), Tehsil Rampur, Distt. Shimla, Himachal Pradesh. PIN 172101**	Within 180 Days from the Signing of the contract.

3. Technical Specifications

Item no	Name of Goods or Related Services	Technical Specifications of Item and/or Bureau of Indian Standards (BIS) (if applicable) reference	Features	Accessories	Spare parts	Documents	Installation & Training	Warranty of Equipment/parts
1.	Outside Caliper	300mm						3 years
2.	Inside Caliper	300mm						3 years
3.	Pipe cutting machine	14"			1 extra blade	manual	yes	3 years
4.	Number Punch	0 to 9						3 years
5.	Letter Punch	A to Z						3 years
6.	Tool Holder	(5/16,3/8,1/4)"						3 years
7.	Depth Gauge	300mm						3 years
8.	Bench Drilling M/C	Drilling capacity in steel (MS): dia 23 mm Tapping capacity in steel (MS): M14 mm Spindle Nose taper: MT12 Spindle stroke max for drilling: 125mm Spindle stroke max for tapping: 100mm Nos. of spindle speed:8 Range of spindle speed: 56-1400 rpm Column diameter:80 mm Spindle to column face: 240 mm				Manual	yes	3 years

		Clamping area on work table: 240*240 mm*mm Base plate working area: 250*250 mm*mm Main motor power:1 HP						
9.	Twist Drill Bit	(15,18,20,22)mm						3 years
10.	Screw Driver	(6,8,10)"						3 years
11.	Lathe cutting tool	HSS 100x12 mm, HSS 150x15mm						3 years
12.	Knurling tool Swivel type	Swivel Type						3 years
13.	Knurling tool cross type	Cross type						3 years
14.	universal central gauge	Universal						3 years
15.	Tool Holder	G.M.V 37" 3/4"						3 years
16.	Boring Tool Holder	Length 120mm width 8mm C.S						3 years
17.	Double ended pedestal grinder	200mm wheel rough and smooth with twist drill grinding attachment single phase 220volt		eye protection, gloves, diamond dresser		manual	yes	3 years
18.	Bench Grinder	Power Input 600 W, No Load Speed (50/60 Hz) 3600 rpm, Disc Diameter 200 mm, Grinding Disc Width 25 mm, Grinding Disc Bore 32 mm, Weight (Approx) 15 kgs		eye protector, gloves,	1 extra set of wheel	manual	yes	3 years

19.	Capstan Lathe Machine	Length of Bed 700 mm Power 2 HP Range of Spindle Speeds 3 Swing Over Bed 298 MM Bed Width: 200 mm Spindle Bore: 20 mm Layout Horizontal Automation Grade: Semi-Automatic Height Of Centre: 150 mm Material Cast Iron, CAPSTAN LATHE MACHINE CAPACITY 15MM, 20 MM, 25 MM, 32 MM, 40 MM, 50 MM, 60 MM		standard accesoories and attachment		Instruction manual, testing document	yes	3 years
20.	Cutt Off Saw/Metal Cutter	Cutting disc diameter 355 mm, Cutting disc bore 25.4 mm No-load speed 3,800 rpm Rated input power 2,200 W Cutting capacity at rectangle 45º mitre 107 x 115 mm Cutting capacity at square 45º mitre 110 x 110 mm Cutting capacity at L-profile 45º mitre 115 x 115 mm Tool dimensions (width x length x height) 256 x 520 x 400 mm Cutting capacity at rectangle 0º 100 x 196 mm Cutting capacity at square 0º 119 x 119 mm Cutting capacity at L-profile 0º 130 x 130 mm Total vibration values (Cutting metal) Vibration emission value ah 2.5 m/s² Uncertainty K 1.5 m/s²		eye protector, gloves,	2 extra blades	Instruction manual, testing document	yes	3 years

21.	Hydraulic Hacksaw	Capacity of Square bar 200 millimeter V-belt if not required, please select NA 4 Pieces Blade size 16 inch Capacity of Round Bar 250 millimeter Electric motor 2 horsepower V belts Required Yes Stroke 140 Motor Speed, rpm 1440 Number of Strokes per min 120 Body Material Mild Steel Height 1100 millimeter Width 800 millimeter Length 1400 millimeter Warranty 3 year		V-belt : 4 Pieces		Instruction manual, testing document	yes	3 years
22.	Radial Drilling Machine	Spindle Travel 250 mm Spindle Speed (RPM x Steps) 88-2600 x 8 Lifting Motor 0.5 HP/1440 RPM Lifting Motor V belt B-23/B-24 Diameter of RAM 78 mm Max / Min Distance Spindle Nose to Base 850/250 mm Machine Measurement (L x B x H) 1350 x 850 x 1825 mm Tapping in MS 20 mm Drilling in MS 40 mm Drilling in CI 45 mm Spindle Hole Taper MT-4 Max Min Distance Spindle Center to Column 905/385 mm Maximum Drilling Radius 990 mm Diameter of Column 170 mm Available Rough Boring in MS 60,		Electrical Motors "V" Belts Coolant Pump with Coolant Tank Drill Chuck & Arbor Work Table Tapping Control Panel Board Keyless Drill Chuck & Arbor Tapping Attachment (Mechanical) Extra Long column		Instruction manual, testing document	yes	3 years

		75 mm Available Drill Head Motor 1.5 HP/960 RPM, 1.5HP/1440 RPM Available Head Motor V belt B-46, B-47 Automation Grade Automatic Work Table Dimension 300 x 300 x 385 mm Spindle Auto feed Ranges 0.05 and 0.06 mm/rev **Standard Accessories**: Motor Pulley **Extra Accessories:** Electrical Motors "V" Belts Coolant Pump with Coolant Tank Drill Chuck & Arbor Work Table Tapping Control Panel Board Keyless Drill Chuck & Arbor Tapping Attachment (Mechanical) Extra Long column Electrical Panel Board in R40BA		Electrical Panel Board in R40BA				
23.	Pillar Drilling M/C	Range of Spindle Speed 86-3000 Rpm Drilling Capacity 20mm Base Size 460 x 320 mm Drilling Capacity (Steel) 20mm Distance from Spindle Nose to Pillar Surface 640mm Type of Drilling Machine: Pillar Spindle Travel 150mm Power 1 hp Table Size 280mm Drilling Capacity in Cast Iron 20mm Tapping Capacity 20mm			V Belts-2	Instruction manual, testing document	yes	3 years

		Taper in Spindle MT-3 Number of Spindle Speed 4 Speed Spindle Speed Range 86-3300 Rpm Drilling Capacity : 19mm Spindle Center : 200mm Spindle Travel : 150mm Spindle nose to Base Distance : 640mm Spindle Nose to Table Distance : 400mm Table Travel : 270mm Taper in Spindle : MT3 Table Size : 280mm Base Size : 460 x 320 mm Column Length : 1200 mm Range to Speed : 86 – 3300						
24.	Trainer Center Lathe	Model:QMT-6, Bed Length=1800mm, Height of centre=170mm, Bed Width=240mm, Bed Type:2V-2 Flat, Swing Over Bed: 200mm, Swing over slide=200mm, Spindle Bore=40mm, Spindle Noise: MT-5A-2-4, No of Spindle Speed-8, RPM:40-1000, Admit Between Center:1000mm, Tail Stock Sleeve:MT3, Metric Thread No: 0.5 -7, Thread Per Inch No: 4TPI-48TPI, Lead Screw: 4TPI, Lead Screw Diameter: 25.4mm, **Accessories Required:** Electric Coolant Pump with Tank & Fittings, Taper Turning Attachment,		Accessories Required: Electric Coolant Pump with Tank & Fittings, Taper Turning Attachment, Steady Rest, Follow Rest, Face Plate, Rear Tool Post with Long Cross Slide, Self Centering Chuck with Back Plate, Machine Lamp Thread Dial Indicator, 10” Dog Chuck fitted with Back		Instruction manual, testing document	yes	3 years

		Steady Rest, Follow Rest, Face Plate, Rear Tool Post with Long Cross Slide, Self Centering Chuck with Back Plate, Machine Lamp Thread Dial Indicator, 10" Dog Chuck fitted with Back Plate, Square Tool Post, Two Nos. Dead Centres, Centre Adaptor. Warranty: 3 years, Annual Maintenance: Required.		Plate, Square Tool Post, Two Nos. Dead Centres, Centre Adaptor. Waranty: 3years, Annual Maintenance: Required.				
25.	Shaper Machine	Automation Grade Semi-Automatic Speed 1440 RPM Overall Dimension (L x W x H) 1980 x 1067 x 1600 mm No. Of HP 2 HP V-Belt B-55 Main Switch Starter R & F Switch Dia. of Clutch Pulley 318 mm Cone Pulley Belt 3 nos. Range of Table Feed per Stroke 0.229 Range of Ram Speeds in Strokes per Minute 12-24-48-72 Minute Length & Width of Base 1630 mm x 610 mm , **Capacity:** Length of Ram :- 1245 mm Length of Ram Stroke :- 610 mm Length & width of Ram Bearing :- 915 mm x 279 mm A maximum distance of Table to Ram :- 457 mm A minimum distance of Table to Ram :- 89 mm **Table**		Drill Chuck & Arbor Standards Accessories Vice Handle Lubrication System		Instruction manual, testing document	yes	3 years

		The working surface of Table :- 483 mm x 330 mm Maximum Table Travel Horizontal :- 610 mm Maximum Table Travel Vertical :- 406 mm Angular Movement of Table on Either Sides :- 60 L 60 R **Tool Head** Maximum Size of Tool Shank Accommodated :- 51 mm x 21 mm Maximum Vertical Travel of Tool Side :- 152 mm Maximum Swivel of Tool Head :- 60 L 60 R **Standards Accessories** Vice Handle Lubrication System						
26.	Universal Grinding Machine	**Product Specification** Grinding wheel size (dia.x width x hole) 300X40X127 MM / 400X50X127 MM Grinding wheel motor (HP) 2.2 kw / 3.7 kw Bore Size (mm): 80 MM Machine Type: AUTOMATIC AND SEMI AUTOMATIC Grinding Capacity Centre Height-100/130mm/Center distance-450/750 mm/Grinding Length-400/650 mm Automation Grade Automatic Capacity Centre Height-100/130mm/Center distance-450/750 mm/Grinding Length-		Left hand tailstock with centre,Wheel guard with bracket,Splash guard for cylindrical grinding attachment,Jaw steady,Instruction manual,Indexing suitable for work head	Diamond dresser-2	Instruction manual, testing document	yes	3 years

		400/650 mm,Max. Swing dia of Chuck 300 [450, 600] mm Max./Min Grinding diameter 150 [200] /5 mm Maximum Grinding depth 120 mm Workhead Spindle Nose A2-6 [A2-8] Internal Grinding spindle Belt Drive-upto 35,000 RPM / HF Drive upto1,05,000 RPM OD grinding Wheel size 400 x 50 mm, Tailstock taper MT2 Spindle taper MT4 Noise emitted by Machine in db as per IS 10998:1984 (latest) 85, **Accessories:** Left hand tailstock with centre, Wheel guard with bracket, Splash guard for cylindrical grinding attachment, Jaw steady, Instruction manual, Indexing suitable for work head with set of Indexing ring, Wheel guard, Spanner set, Grinding wheel flange set, Reduction sleeves Morse		with set of Indexing ring,Wheel guard,Spanner set,Grinding wheel flange set,Reduction sleeves Morse				
27.	Universal Milling Machine	Type- Universal Table Total Area (Length x Width) (mm x mm)-1200x300, Table Clamping Area (Length xWidth), mm x mm= 1000X250, Width of T slot: 16mm, No of T- Slots:3, Table Transverse: Automatic and Manual, Longitudinal Table Transverse in mm: 600 mm,		Stub Milling Arbor dia 16,22,27,32 & 40 mm, Collet Holder with set of conical collets size5,6,8,10,12 &20 mm, End mill holders dia		Instruction manual, testing document	yes	3 years

		Cross Table Transverse in mm: 230 mm, Vertical Transverse in mm:425mm, Swivel of Milling Head to either side in vertical plane for vertical milling in degree: 45, Swivel of Table to either side of horizontal plane in Degree:45, Number of Spindle Speed : 8, Spindle Speed range in rev/min:50-800, Type and Size of Spindle Nose: ISO 40 Number of Feeds available-09, Feed range for Longitudinal in mm/min- 20-575, Feed range for Transverse in mm/min- 30-220, Feed range for Vertical in mm/min-10-400, Rapid Transverse Feed range for Longitudinal & Cross in mm/min-900, Rapid Transverse Feed range for vertical in mm/min-400, Max Feed Force in KN-5, Size of Milling Arbor-As per ISO 40 for Medium Duty Milling Machine, Spindle Motor Power in Kw-2.2KW, Feed Motor power in KW-1KW, Size of the machine (L x W x H) (mm x mm x mm)-1300X800X1350, **All the standard Accessories including** (Machine vice with swivel base 200mm,		5,6,8,10,16&20 mm, Reduction sleeve type B size MT1,MT2,MT3& MT4, Milling Arbor for Universal milling size dia 22x500&,dia 27x500mm),Single lever hand operated vertical indexing head 12 notches 3 jaw chuck, 160 mm dia,Vertical Milling head.Tapping Control Panel Board				

		Self Centering vce 10-80 mm, Stub Milling Arbor dia 16,22,27,32 & 40 mm, Collet Holder with set of conical collets size5,6,8,10,12 &20 mm, End mill holders dia 5,6,8,10,16&20 mm, Reduction sleeve type B size MT1,MT2,MT3&MT4, Milling Arbor for Universal milling size dia 22x500&,dia 27x500mm), Single lever hand operated vertical indexing head 12 notches 3 jaw chuck, 160 mm dia,Vertical Milling head.						
28.	CNC Lathe Trainer	MACHINE SPECIFICATIONS • X – Axis Travel 150 mm • Z – Axis Travel 200 mm • Chuck Size 100 mm • Maximum Turning Diameter 30 mm • Maximum Turning Length 150 mm • Swing Over Cross Slide 80 mm • Spindle Nose Taper MT3 • Standard Cutting Tool Size 16 x 16 mm • Spindle Motor 2 H.P DC Motor (300 - 3000 RPM) • Resolution 0.005 mm • Repeatability ± 0.01 mm • Automatic Lubrication Points Provided • Interpolation Linear, Circular • Programmable Feed Rate 0- 800 mm/Min. • Rapid Feed Rate 0- 1200 mm/Min.		Standard accessories, Annual maintenance, software upgradation etc		Instruction manual, testing document	yes	3 years

		• Control System Industrial Control System • Turret 8 Station (Electro–Pneumatic) • Coolant System 40 Liters. (Programmable) • Lubrication Centralized (Programmable) • Axis Motor Servo Motor • Mains Supply 230 V AC, Single Phase • Machine Dimensions Approx. 1500 x 900 x 1500 mm • Total Weight Approx. 900 Kg. **On screen Live Video for Machining /Cutting Tool etc.** MPG For JOG and Tool offset, manual movement. Vitrtual CNC software with Fanuc controll						
29.	CNC Milling Trainer	1MACHINE SPECIFICATIONS • X – Axis Travel 250 mm • Y – Axis Travel 175 mm • Z – Axis Travel 200 mm • Table Size 500 x 200 mm • Spindle Nose to Table Top 40 – 190 mm • Spindle to Column 110 mm • Spindle Inside Taper BT 30 / BT 40 • Maximum Tool Size Diameter 12 mm, Length 70 mm • Spindle Motor 2 H.P DC Motor with 3000 RPM • Resolution 0.005 mm • Repeatability ± 0.01 mm • Automatic Lubrication Points		Standard accessories,Annual maintainance, software upgradation etc		Instruction manual, testing document	yes	3 years

		Provided • Interpolation Linear, Circular • Programmable Feed Rate 0- 800 mm/Min.(X,Y,Z) • Rapid Feed Rate 0- 1200 mm/Min.(X,Y,Z) • Control System Industrial Control System • Automatic Tool Changer 12 Station (Pneumatic) (Geneva Mechanism) • Lubrication Centralized (Programmable) • Axis Motor Servo Motor • Mains Supply 230 V AC, 1 Phase For Machine and 3 Phase 415 V AC for ATC • Machine Dimensions Approx. 1200 x 1200 x 1800 mm • Total Weight Approx. 1200 Kg. **On screen Live Video** for Machining /Cutting Tool etc. MPG For JOG and Tool offset, manual movement.						
Note: Supporting Wall Charts of the Machinery and equipments are to be provided by the supplier.								

4. Drawings

Not Applicable