

Annexure-C
Vendor Confirmation to Technical Specifications

Item Description and Technical Specifications	Qty (Nos)	Bidder Confirmation
Proximity Sensor 40mm Specification: Sensing Distance: 40 MM Differential travel: 5% max. of sensing distance Sensing object: Ferrous metal Supply Voltage: 24VDC Connection: Cable socket Disconnecter (4 pin, M12) Switching Frequency: 0-10Hz Load current: 0.5 mA max. Operating current: 0 to 200 mA Indication of Operating voltage display: LED, green Indication of the switching state: LED, yellow Operation mode: PNP NO/NC Protection circuits: Reverse polarity protection, Load short-circuit protection Degree of protection: IP67 output type: 4 wire Accessories: Field attachable female cordset, PUR cable, Modular mounting bracket, Mounting aid Warranty: at least 1 year from date of acceptance at BHEL Reference Make and Model: P&F, NBN40-L2-A2-V1 NOTE: Detailed product catalogue of the offered model to be enclosed with the offer	5	
Cylinder Position Switch Specification: Sensing Distance: 2 MM Differential travel: 5% max. of sensing distance Switching element function Normally open Operation mode: AC/DC NO Sensing object: Ferrous metal Supply Voltage: 24VDC Momentary current: (20 ms, 0.1 Hz) = 3 A Switching Frequency: 0-20Hz Operating current: 0 to 300 mA Operating pressure dynamically: 3000 psi Protection: Reverse polarity & Short circuit Indicators: LED green: Power on LED red: Output status, LED red/green: Short circuit/overload indication Output type: 2 wire Connection type: Connector 7/8 inch - UN, 3 Pin Degree of protection: IP67 Material Housing: Zinc	2	

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Probe: Aluminum Warranty: at least 1 year from date of acceptance at BHEL Reference Make and Model: P&F, part no: NJ2-PD-US-2.062-V93 NOTE: Detailed product catalogue of the offered model to be enclosed with the offer		
Photoelectric Sensor Relay Specification: Sensing method: Diffuse mode sensor Detection range max: 0...1000mm Light source: LED Light type: Modulated visible red light, 630nm Reference target: Standard white 100mm x 100 mm Control elements: Sensing range adjuster With operation and Function indicator Operating Voltage: 24VDC Output switching type: Relay signal output: Relay 1 alternator (1NO/NC) Switching current: max 3A Connection: 2m fixed cable,5-wire Housing Dimension: 18mm (Width) x 62mm (Height) x 35mm (depth) Degree of protection: IP67 Housing Material: Polycarbonate Material Optical face: PMMA Product Standard: EN 60947-5-2 Warranty: at least 1 year from date of acceptance at BHEL Reference Make and Model: P&F, model: RLK31-8-1200-RT/31/115 NOTE: Detailed product catalogue of the offered model to be enclosed with the offer	20	
Pneumatic Cylinder Sensor Specification: Proximity Sensor for Pneumatic Cylinder Measuring Principle: Magneto resistive Design: For T slot Switching output: PNP NO 3 wire Rated operating voltage: 24VDC Switching Status indication: Yellow LED Prewired cable 2.5m Warranty: at least 1 year from date of acceptance at BHEL Reference Make and Model: Make- Festo Model: SMT-8M-A-PS-24V-E-2.5-0E NOTE: Detailed product catalogue of the offered model to be enclosed with the offer	25	
Draw-wire Potentiometer Specification: Draw wire potentiometer Measurement Stroke: 1800mm Linearity: 0.1% or better	1	

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Output: 4-20 mA Connector cable: 2.5m Cable output: Radial Output Signal type: Voltage divider Supply voltage: 24VDC IP degree: IP54 Operating Temperature: -20 deg. C to +80 deg. C Dimensions: Vendor to specify Warranty: at least 1 year from date of acceptance at BHEL Reference Make and Model: OPKON, DWP 1800 D I4 2M5 R Note: 1. The potentiometer is employed to measure the stroke length of pressure die cylinder in CNC tube bending machine (Pines-150). 2. Vendor to ensure compatibility with the existing systems at BHEL, Trichy. Vendor shall prove-out integration of the supplied model in case it is different from the reference model. 3. Detailed product catalogue of the model to be enclosed with the offer.		
Programmable Logic Controller (PLC) Item: Programmable Logic Controller (PLC) Details of the item: Power Supply: 100 to 240VAC, 50Hz Digital Inputs: 24 Nos (24VDC) (including 8Pt. High Speed Counter) Digital Outputs: 16 Nos Relay Output contact rated for 2A @ 250VAC Program Capacity: 16KSteps Timer/Counter: 256 Timers, 255 Counters Communication: Built-in RS232C and two RS485(Compatible with Modbus ASCII/RTU Protocol) Communication Ports IO expansion: Expandable up to 8 Max. Analog Extension Modules Programming: By Compiled Ladder logic/FB/STC from PC. Warranty: 1 year from date of acceptance at BHEL Reference Make & Model: Delta PLC - MPU with 24 DI; 16 DO(R) Main supply 100~240 V AC), Part No: DVP40ES200R Note: 1. The PLC should be compatible with DELTA's PLC Programming software and should run the existing Delta PLC Ladder Logic Program of the machine tool application in our plant without any modification. It should also compatible with Delta DVP08XP211R, DVP08XM211N and DVP04AD-E2 IO modules and it should be able to communicate and support the Delta DOP-B07S415 HMI unit loaded with existing HMI program without any modification. It should also support the Delta DOP-107CV HMI unit with the same existing HMI program. 2. Vendor to ensure compatibility with the existing systems at BHEL, Trichy. Vendor shall prove-out integration of the supplied model in case it is different from the reference model.	1	
Digital Extension Module (PLC IO Module) Item: Digital Extension Module (PLC IO Module) Details of the item: 4 Digital Inputs(24VDC), 4 Digital Outputs (Relay Output), Input supply: 24VDC Reference Make & Model: Digital extension Module: 4 DI; 4 DO Main Supply 24VDC, Part No: DVP08XP211R Warranty: 1 year from date of acceptance at BHEL	1	

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Note: 1. The Digital Extension Module should be compatible with Delta PLC DVP40ES200R. 2. Vendor to ensure compatibility with the existing systems at BHEL, Trichy. Vendor shall prove-out integration of the supplied model in case it is different from the reference model.		
Digital Extension Module (PLC IO Module) Item: Digital Extension Module (PLC IO Module) Details of the item: 8 Digital Inputs(24VDC), Input supply: 24VDC Reference Make & Model: Digital extension Module: 8 DI Main Supply 24VDC, Part No: DVP08XM211N Warranty: 1 year from date of acceptance at BHEL Note: 1. The Digital Extension Module should be compatible with Delta PLC DVP40ES200R. 2. Vendor to ensure compatibility with the existing systems at BHEL, Trichy. Vendor shall prove-out integration of the supplied model in case it is different from the reference model.	1	
Analog extension Module (PLC IO Module) Item: Analog extension Module (PLC IO Module) Details of the item: Power supply: 24VDC 4 Analog Inputs; Input Type: (-10 to 10VDC) or (0/4 ~ 20mADC); Resolution: 14 Bit Reference Make & Model: Analog extension Module: 4 AI; (-10~10VDC) + (0/4 ~ 20mADC); Reso. 14 Bit, Part No: DVP04AD-E2 Warranty: 1 year from date of acceptance at BHEL Note: 1. The Analog Extension Module should be compatible with Delta PLC DVP40ES200R 2. Vendor to ensure compatibility with the existing systems at BHEL, Trichy. Vendor shall prove-out integration of the supplied model in case it is different from the reference model.	1	
Human-Machine Interface (HMI) with touch Item: Human-Machine Interface (HMI) with touchscreen Details of the item: Screen Size: 7 inch Display Resolution: 800 x 480 pixels Display Type: TFT LCD, 65536 Colours Display Back Light: LED Back Light (half-life under room temperature 25°C > 20,000 hours) Touch screen: Yes Touch screen type: resistive Supply Voltage: 24 VDC No of Physical Com Ports: 3 serial ports + 1 USB Host + 1 USB Slave PLC communication: RS232, 422 and 485 PC communication (programming): USB and RS232 USB Host: Yes Direct connection to USB disk, Printer and Mouse: Yes Backup battery: 3V lithium battery CR2032 × 1	1	

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Ingress protection of the touch screen assembly: IP65 Operation temperature: 0°C to 50°C Programming: The HMI unit should be compatible with Delta DOP software and should be able to run the programs compiled using the software Reference Make & Model: Delta HMI: 7" HMI with touch screen, Part No: DOP-B07S415 Warranty: 1 year from date of acceptance at BHEL Note: 1. The HMI unit should be compatible with Delta PLC DVP40ES200R 2. Vendor to ensure compatibility with the existing systems at BHEL, Trichy. Vendor shall prove-out integration of the supplied model in case it is different from the reference model.		
Wheel type rotary incremental encoder Item: Wheel type rotary incremental encoder Details of the item: Type: Incremental rotary encoder Output: 1 pulse per 1mm, Totem pole output Power supply: 12#24VDC Max response frequency 180kHz Max allowable revolution: 5000rpm Output Phase: A, B Response time: 1μs Min measurement unit: 1mm Number of pulses per revolution: 250 Shaft actuator: Double wheel Wheel Circumference: 250mm Gear Ratio: 1:1 Ingress Protection: IP50 Connection type: Axial type. Reference Make & Model: Autonics Encoder: Rotary Encoder, Incremental, Wheel Type, 1 Pulse Per 1mm, Totem Pole Output, 12-24 VDC, Autonics Encoder Part No: ENC-1-1-T-24, Autonics Encoder Wheel Assembly type: ENC-P250 Warranty: 1 year from date of acceptance at BHEL Note: 1. Standard length of encoder cable shall be supplied along with the encoder. 2. Vendor to ensure compatibility with the existing systems at BHEL, Trichy. Vendor shall prove-out integration of the supplied model in case it is different from the reference model.	1	