



ITEMS INCLUDE:

- Industrial Robot 6 axis – ABB / FANUC / Equivalent
- Stabilizer 1 KVA
- RobuGuide Simulation software (educational Version)

| Robotic Cell with Industry 4.0 And Simulation | | | |
|---|---------------------------------|------------------|---|
| Details of the Robot: | | | |
| SN. | Performance Features: | | Tender Specification |
| 1 | Type | | Articulated Type |
| 2 | Controlled axis | | 6-axes(J1,J2,J3,J4,J5,J6) |
| 3 | Reach | | 550mm minimum |
| 4 | Installation | | Floor, Upside-down, (Angle mount) |
| 5 | Motion range | J1 Axis Rotation | 340° |
| | (Maximum Speed) | J2 Axis Rotation | 230° |
| | | J3 Axis Rotation | 402° |
| 6 | Max. load capacity Wrist | | 4Kg |
| 7 | Allowable Load moment at wrist | J4 Axis | 8.86 Nm |
| | | J5 Axis | 8.86 Nm |
| | | J6 Axis | 4.9 Nm |
| | Allowable Load inertia at wrist | J4 Axis | 0.2 Kg m2 |
| | | J5 Axis | 0.2 Kg m2 |
| | | J6 Axis | 0.067 Kg m2 |
| 9 | Repeatability | | +/- 0.05mm |
| 10 | Mass | | 21 Kg Minimum |
| 12 | Installation environment | | Ambient temperature: 0 - 45°C |
| | | | Ambient humidity: Normally 75%RH or less. Neither dew, nor frost allowed. Vibration Acceleration: 4.9 m/s2 (0.5G or less) |

Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.

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| Robotic Cell (Structure): |
|--|
| Strong structure made up of powder coated MS or Anodized Aluminum extrusions. |
| Acrylic doors from all 4 sides will be provided |
| Minimum size of the cell will be 1600mm x 1400mm a 1600mm (Height). |
| Wheels for easy transport with braking arrangement should be provided |
| 10m power cable with standard 230V plug |
| Remote operation pendant in addition to the robot teach pendant will be provided with a buzzer depicting the robot motion should be provided |
| • Easy access door with safety switch |
| Pneumatic Gripper mounted on the robot |
| Slotted Aluminium work surface for easy customization |
| Robot controller and any other accessories required for robotic cell operation such as compressor mounted on the same mobile structure. |

Machine Tending Application:

- Pneumatic Vice: Pneumatic Vice will be provided which will be capable of holding a 20mm flat work piece. The work piece will be clamped in two directions to make sure that the locking position is achieved every single time.
- Pneumatic chuck with three jaws will be provided which will be capable of clamping a raw job of necessary weight
- Compressor of minimum 50L tank capacity will be provided for operation of pneumatic actuators
- Pneumatic double acting solenoid valves will be provided along with the rob cell.

End Effector:

- The end effector will pick up / drop at least four different components (Components of different shape or size) without the need to change the gripper or any other attachment.

Vision Inspection System:

- 2D vision sensor mounted able of performing following experiments / exercises:
- Accept / Reject of assembly
- Shape based sorting
- Shape based sorting
- Size based sorting
- Vision sensor should be of the same make as of robotic arm

Palletizing and handling Arrangement:

- A separate arrangement will be provided which will allow participants to carry out the experiments on robot handling as well as palletizing applications.

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Assembly Station:

- Separate station will be provided which can carry out the bearing assembly application. Will carry out the assembly of a bearing of at least 40mm diameter and relevant shaft. The system will include two guided cylinders for the movement of the bearing and shaft and separate guided cylinders to carry out the assembly. Required solenoid valves for the pneumatic cylinders will be provided along with the rob cell.

Input and Output Requirements:

- The robot should be provided with necessary digital inputs and digital outputs to cater for all input and output devices such as pneumatic solenoid valves.

Essential requirement:

- The machine has been built to the current standards of technology and workmanship norms of the industry. Robust design to give longer service life and provide productive use in cutting most engineering materials.
1. Three storey tower lamp should be provided.
 2. Teach pendant should be provided of the same make as of the robotic arm.
 3. Doors should be provided on at least two faces of the rob cell.

Software:

- **Robotic Simulation Software:**
- Simulation software be provided along with the robots which will be exactly the same as of the robot operating software. Programs generated on this simulation software will be able to be transferred to the robots without any modification through USB drive

Makes of Major items:

1. Control panel accessories : Schneider/SIEMENS
2. Machine structure : Mild steel, Aluminum Profiles, Stainless Steel
3. Cables : Signal Cables from LAPP. Power cable (230V) from Finolex
4. Sensors : Omron / Contrinex / Autonics
5. MCB's : Schneider/SIEMENS
6. Relays : Connect well / Omron / Phoenix
7. Contactors : Schneider/SIEMENS
8. Emergency stop: Schneider/SIEMENS
9. Pneumatics: SMC / Festo

Optional Items

1. Vision Sensor (Fanuc) : ROC-002.1
2. IIOT Module : ROC-002.2
3. Stabilizer 1kva : ROC-002.3
4. RobuGuide Simulation Software (Educational Version) : ROC-002.4

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