



*PHOTO: Collaborative Robot Process Station  
(image for reference only, actual product may differ)*

### SYSTEM OVERVIEW

The **Collaborative Robot Process Station** is an advanced smart-factory training system integrating a 6-axis collaborative robot, pneumatic handling devices, PLC control, smart vision inspection, and IoT-based communication technologies. The system is designed for educational environments while being capable of producing commercially usable products, ensuring robustness and operational stability suitable for industrial training.

The station enables centralized management of all operational functions through integrated sensors, PLC control, robot control software, and monitoring platforms. Process data can be stored, analyzed, and monitored in real time. The system supports supervision, maintenance, and workplace safety management while remaining upgradeable in performance and functionality.

Dedicated software provides layout design, control configuration, motion planning, production simulation, and real-time monitoring within a unified package. The station supports mobile device-based monitoring and includes a protective case housing with structured routing of cables and pneumatic hoses through ducts and cable chains. All supplied components are brand-new and unused.

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



Export Sales: +91-9829132777  
India Sales: +91-9588842361



IT-2013, Ramchandrapura Industrial Area,  
Sitapura Extension, Jaipur-302022, India.



info@tesca.in  
www.tescaglobal.com

## TECHNICAL SPECIFICATIONS

Sl. No.	Item Name	Technical Specifications	Qty
1	<b>Product Packaging Gripper</b>	Tube inner diameter approx. 20 mm; open/close range $\geq 10$ mm; operating pressure 0.3–0.7 MPa; 2 flow control valves; capable of gripping boxes of varying width/height; 2 magnetic sensors.	<b>1 ea</b>
2	<b>Collaborative Robot Arm</b>	6 DoF (5 available); payload 3 kg; reach 630 mm; base rotation $\pm 360^\circ$ ; joint ranges J1 $\pm 180^\circ$ , J2 $\pm 90^\circ$ , J3 $\pm 150^\circ/\pm 180^\circ$ , J4–J6 $\pm 180^\circ$ ; joint speeds J1–J3 150°/s, J4–J6 180°/s; tool speed 1 m/s; repeatability $\pm 0.05$ mm; weight approx. 10 kg; IP54; BLDC motor with harmonic drive; embedded quick changer; collision detection via current sensing; mounting options floor/wall/ceiling; power 220–240 VAC, 50–60 Hz; compliant with ISO 10218-1.	<b>1 ea</b>
3	<b>Robot Control Software</b>	Includes kinematics, dynamics, collision detection; GUI for non-experts; gRPC-based DCP3 protocol; Modbus TCP support; TCP/IP over Ethernet; Python/C++ SDK; motion commands (MoveJ, MoveL, MoveC, MoveR, MoveLF, Go Home, BreakMotion, SetFrame, SetSpeedRatio); digital/analog I/O control; speed/accel tuning; teaching & jog modes; structured request/response frames.	<b>1 license</b>
4	<b>Product Packaging Box Table</b>	Mounting table for packaging boxes.	<b>1 ea</b>
5	<b>5/2 Way Single Solenoid Valve</b>	Aluminum anodized sub-base; operating pressure 0.05–1.0 MPa; flow 700 L/min (0.5 MPa); response $\leq 18$ ms; spring & internal pilot return; 24 VDC $\pm 10\%$ ; built-in LED and surge protection; manual push button.	<b>1 ea</b>
6	<b>Pneumatic Regulating Unit</b>	Regulator, filter, lubricator, pressure gauge, hand valve; proof pressure 1.5 MPa; operating 0–1.0 MPa; set range 0.05–0.85 MPa; rated flow 800 L/min; filtration 10 $\mu\text{m}$ .	<b>1 ea</b>
7	<b>PLC Control System</b>	Mitsubishi MELSEC compatible or equivalent; PSU 100–240 VAC input, DC 5/24 V output (3 A/0.6 A); 5-slot base; cyclic CPU; Ladder/SFC/Function/ST/List; USB & Ethernet; 30k steps; I/O device points 8192; I/O points 4096; internal relays 9216; input modules 2 $\times$ 16 pt; output module 1 $\times$ 16 pt; analog I/O unit $\geq 2$ CH in/out (0–5 V, 0–10 V); CC-Link master/slave unit.	<b>1 set</b>
8	<b>GOT Touch Monitor (HMI)</b>	8.4" TFT LCD; 640 $\times$ 480 resolution; 65,536 colors; LED backlight; resistive touch; memory 57 MB/128 MB; RS232, RS422/485, Ethernet, USB, SD; AC 100–240 V; SCADA-based monitoring & control.	<b>1 ea</b>
9	<b>Equipment Operation</b>	Power switch; AUTO/MANUAL selector; 2 push buttons; emergency stop; 2 pilot lamps; buzzer.	<b>1 set</b>

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



Export Sales: +91-9829132777  
India Sales: +91-9588842361



IT-2013, Ramchandrapura Industrial Area,  
Sitapura Extension, Jaipur-302022, India.



info@tesca.in  
www.tescaglobal.com

	<b>Control Section</b>		
<b>10</b>	<b>Real-Time Monitoring IP Camera</b>	1/2.8" CMOS (~2 MP); 3.8 mm lens; H.264/MJPEG; RJ45 & BNC; 1920×1080 resolution; dual streaming; PoE support.	<b>1 ea</b>
<b>11</b>	<b>Station Case</b>	600×810×1900 mm aluminum profile frame; upper/lower separation; double doors; transparent safety cover; blue panels; 4 lockable casters; 3-color tower light; control shelf; built-in SMPS DC 24 V ≥2 A; integrated area sensors (5–7 stations).	<b>1 ea</b>
<b>12</b>	<b>Vision Camera &amp; Lighting</b>	Smart vision with onboard processor; 1/3" CMOS color; M12 lens (6.2 mm AF or 8 mm MF); 640×480 & 800×600; LED ring illumination; tools: pattern, edge, circle, OCR, blob; outputs pass/fail & numeric; protocols OPC UA, EtherNet/IP, PROFINET, Modbus TCP, CC-Link; IP65; 24 VDC ±10%, 48 W max.	<b>1 ea</b>
<b>13</b>	<b>Emulation Tool</b>	Spreadsheet-based no-code interface; network discovery; vision tools; geometry/math/text functions; coordinate transforms; C# SDK; Ethernet/serial I/O; runtime data storage; VDA extraction functions.	<b>1 ea</b>
—	<b>Accessories</b>	Power cable; communication cable set; system build software; Ethernet cable (M12–RJ45); M12 PoE cable; emulation license certificate.	<b>1 lot</b>

### RANGE OF EXPERIMENTS

- Collaborative robot pick-and-place operations
- Packaging automation using robotic gripper
- Robot motion programming (joint, linear, circular)
- PLC–robot communication and I/O integration
- Vision-based inspection and robotic decision-making
- SCADA-based process monitoring
- IoT-enabled smart manufacturing workflows
- Collision detection and safety parameter configuration
- Teaching and trajectory optimization
- Industrial protocol integration (Modbus, OPC UA, EtherNet/IP)

### FEATURES

- 6-axis collaborative robot with high repeatability
- Integrated PLC, robot, vision, and IoT communication
- Smart gripper for variable-size packaging
- Real-time SCADA monitoring and mobile support
- Built-in safety compliance (ISO 10218-1)
- Embedded quick-change tool system

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



Export Sales: +91-9829132777  
India Sales: +91-9588842361



IT-2013, Ramchandrapura Industrial Area,  
Sitapura Extension, Jaipur-302022, India.



info@tesca.in  
www.tescaglobal.com

- Collision detection and safe torque sensing
- Modular and upgradeable architecture
- Fully enclosed safety housing with structured cable routing
- Suitable for Industry 4.0 robotic automation training

**SERVICES REQUIRED**

- Standard **230 V AC** power supply
- Proper earthing/grounding required

➤ **Note: All specifications are subject to revision without notice. Depicted images are for reference only and may not represent the actual product.**

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



Export Sales: +91-9829132777  
India Sales: +91-9588842361



IT-2013, Ramchandrapura Industrial Area,  
Sitapura Extension, Jaipur-302022, India.



info@tesca.in  
www.tescaglobal.com