

Motoman HC10DT Human Collaborative Robot

Designed for a wide selection of applications, the 6-axis HC10DT human-collaborative robot is simple, safe and easy to program robotic arm with a payload of up to 10 kg (22 lbs).

Operator's safety is assured by a Power and Force Limit technology that stops the robot in case of contact with an operator. The robot arm can be hand guided by an operator and robot positions and gripper operation can be registered via the "Easy Teaching Switch Box". These features offer time saving during the robot programming. In addition, robot programming is available through the easy-to-use touchscreen Smart Pendant with built-in Smart Frame technology,

Easily adaptable, the HC10DT can be integrated with existing automation infrastructure, and it meets established safety standards, enabling humans to safely work with robots.

The HC10DT robot can operate without additional protective measures like a safety fence, depending on the risk assessment. This saves space and costs. Its installation area is very flexible and therefore able to operate at different workplaces.

The HC10DT is paired with the advanced YRC1000micro controller, the smallest robot controller in its class, that can be installed in either a vertical or horizontal position, as well as within a 19-inch rack. The YRC1000micro sports functions & performance optimized for transfer and assembly applications. The YRC1000micro offers easy connectivity to peripherals, high speed and high precision motion control, and advanced safety functions.



Features

- Collaborative robot enables humans to safely work with robots
 - Power and force limiting technology protects the operator
 - Arm geometry designed to avoid pinch points (finger protection)
 - No safety fence - depending on the application. Offers reduced cost and space requirements
- Industry 4.0 integration and functionality built in
- 10 kg (22 lb) payload with 1200 mm (47.3") reach
- Simple and easy to program with easy teaching
 - Move the robot arm directly via hand guiding function: easy teaching mode with a switch box



Robot Specifications

Structure: 6 Axis articulated arm

Axis Movement	Range	Maximum Speed	Allowable Moment	Allowable Moment of Inertia
S-Axis (Swivel Base)	±110°	130°/s		
L-Axis (Lower Arm)	+110°	130°/s		
U-Axis: (Upper Arm)	+355°/-5°	180°/s		
R-Axis: (Arm Roll)	±180°	180°/s	27.4 N • m	0.78 kg • m ²
B-Axis: (Wrist Bend)	±180°	250°/s	27.4 N • m	0.78 kg • m ²
T-Axis: (Tool Flange)	±180°	250°/s	9.8 N • m	0.1 kg • m ²

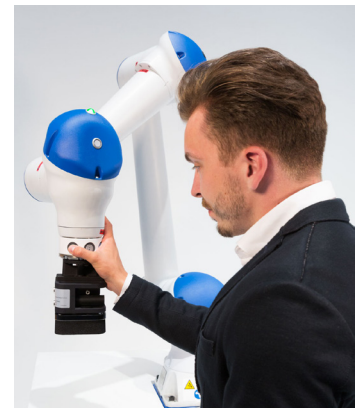
Maximum Reach: 1200 mm (47.3")

Repeatability: ±0.1 mm (±0.004")

Weight: 48 kg (105.8 lbs)

Power Consumption: 1 kVA

Payload: 10 kg (22 lbs)



Industry 4.0 for Education

MOTOMAN HC10DT Human Collaborative Robot

Standard Programming Pendant

- Dimensions:** 152 (W) x 299 (H) x 53 (D) mm
6.0" (W) x 11.8" (H) x 2.1" (D)
- Weight:** 0.73 kg / 1.61 lbs
- Display:** 5.7-inch color LCD, touch panel 640 x 480 pixels
- IEC Protection Class:** IP54
- Cable Length:** Standard: 8 m, max: 20 m (optional).



Smart Programming Pendant

- Capacitive touchscreen smart device:**
10.1" WXGA TFT Display
1280 x 800 pixels
LED back light touch panel

- Dimensions:** 215 (W) x 283 (H) x 68.5 (D) mm
8.5" (W) x 11.1" (H) x 2.7" (D)

- Weight:** 1.12 kg / 2.5 lbs



YRC1000micro Controller Specifications

- Optimized acceleration/ deceleration control improves robot cycle time up to 10%
- High path accuracy control enables increased path precision
- Single controller-to-robot cable for easy setup and improved cable reliability
- Easily connects to peripheral devices
- Faster ladder scanning time and fast I/O speed for little to no communication lag for advanced system devices
- Built-in preventative maintenance tools to prolong system life
- 3D Robot simulation on pendant to confirm programmed coordinates
- Functional Safety Unit already integrated.

- Dimensions:** 425 (W) x 125 (H) x 280 (D) mm
16.7" (W) x 4.9" (H) x 11.0" (D)

- Weight:** 10.5kg / 23.2 lbs

- Ambient Temperature:** 0°C to +40°C (operation)
-10°C to +60°C (storage)

- Type of Control:** Software servo control

- Communications:** 1 (10BASE-T/100BASE-TX)

- Digital I/Os:** Specialized signals: 7 inputs and 1 output
General signals: 8 inputs and 8 outputs
(8 transistor outputs)

- IEC Protection Class:** IP20

- Programming Capacity:** JOB: 200,000 steps, 10,000 instructions
CIO ladder: 1,500 steps max.

- Expansion Slots:** PCI express: 2 slots

- Positioning System** Serial communications (absolute encoder)

- Power Requirements** Single-phase 200/230 VAC (+10% to -15%),
50/60 Hz (±2%)

- Safety Features:** Integrate FSU (Functional Safety Unit) for
position monitoring (32 zones), speed limiting,
tool monitoring, graphic pendant setup.



Yaskawa Certification

Students who complete the MotoMan Robotics curriculum are eligible to become Certified as a MotoMan Operators and/ or Programmers. At the completion of each course, the course concludes with a practical exam which the student must pass before taking the Certification exam.

Candidates that successfully complete the practical exam are then eligible to take the final certification exam to be certified and receive a certificate of completion



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