Motoman’s revolutionary dual-arm DIA10 robot provides “human-like” flexibility of movement to meet your automation needs

FEATURES & BENEFITS
- Both robot arms can work together to accomplish intricate tasks
- Single NX100 robot controller directs movement of all axes of the robot
- Handles 10 kg (22.1 lb) payload per arm; 20 kg (44.1 lb) payload possible when using both arms
- Best-in-class wrist performance characteristics for your most demanding material handling tasks
- Repeatability: ±0.1 mm (±0.004")
- Reach: 1,100 mm (43.3") per arm from centerline of base rotation to tool mounting surface
- Opens up a wide range of applications to be performed by robots
- Thru-arm hose and cable routing

High-Speed, Dual-Arm Robot with “Human-Like” Flexibility

The DIA10 robot provides high-speed motion with two seven-axis arms that provide enhanced, “human-like” flexibility of movement. This revolutionary, innovative design makes the DIA10 robot ideally suited for a wide variety of assembly, packaging, part transfer, machine tending and other handling tasks that formerly could only be done by people. The unique DIA10 features 15 axes of motion (seven axes per arm, plus a single axis for base rotation).

The DIA10 robot has a 10 kg (22.1 lb) payload per arm, a 1,100 mm (43.3") reach per arm (from centerline of base rotation to tool mounting surface), and a repeatability of ±0.1 mm (0.004"). Both robot arms can work together on one task to double the payload or handle unwieldy products. The two arms can also be used independently to perform tasks concurrently and improve productivity. The DIA10 robot can transfer a part from one of its arms to the other. One robot arm can hold the part while the other arm performs operations on the held part.

Advanced NX100 Controller

The DIA10 robot is controlled by the Motoman NX100 robot controller that features a robust PC architecture, Windows® CE programming pendant, and easy-to-use INFORM III programming language.

The NX100 offers unmatched multiple axes control capability to maximize flexibility while minimizing cost of integration and eliminating risk of robot collisions. Dual-channel safety features include enhanced E-stop functionality, integrated speed monitoring, manual brake release switches, and compliance with both ANSI/RIA R1506-1999 and Canadian safety standards.

The NX100 controller offers unmatched connectivity through standard Ethernet and other network options, including: DeviceNet, ControlNet, Profinet-DP, and EtherNet/IP. The programming pendant features a color touch-screen display that can be configured as a custom HMI (Human Machine Interface) with buttons and status indicators.
DIA10 SPECIFICATIONS

Structure: Articulated
Mounting: Floor
Controlled Axes: 15 (7 axes per arm and 1 rotary axis)
Payload: 10 kg (22.1 lbs)/arm
Horizontal Reach per Arm: 1,100 mm (43.3”)
Vertical Reach: 1,440 mm (56.7”)
Repeatability: ±0.1 mm (±0.004”)
Rotation-Axis (Waist): ±180°
S-Axis (Lifting): ±180°
U-Axis (Upper Arm): ±180°
R-Axis (Upper Arm Twisting): ±180°
B-Axis (Wrist Pitch/Yaw): ±180°
T-Axis (Wrist Twisting): ±180°
Maximum Speed:
- Turning-Axis: 7th-Axis: 170°/s
- U-Axis: 7th-Axis: 170°/s
- R-Axis: 250°/s
- B-Axis: 250°/s
- T-Axis: 500°/s
Approximate Mass: 220 kg (485.1 lbs)
Power Consumption: 4.2 kVA
Allowable Moment of Inertia:
- R-Axis: 31.4 N•m
- B-Axis: 31.4 N•m
- T-Axis: 19.6 N•m

NX100 CONTROLLER SPECIFICATIONS*

Structure: Free-standing, enclosed type
Dimensions (mm): 650 (w) x 1,200 (h) x 650 (d) (25.6” x 47.2” x 25.6”)
Approximate Mass: 150-250 kg (330.8-551.3 lbs.)
Cooling System: Indirect cooling
Ambient Temperature:
- During operation: 0° C (32° F) to 45° C (113° F)
- During transmit and storage: -10° C (14° F) to +60° C (140° F)
Relative Humidity: 90% max. non-condensing
Primary Power Requirements: 3-phase, 240/480/575 VAC at 50/60 Hz
Grounding: Grounding resistance: ≤100 ohms
Separate ground required
Digital I/O:
- Standard I/O: 40 inputs/40 outputs consisting of 16 system inputs/16 system outputs, 24 user inputs/24 user outputs
- Optional PNP: 1,024 inputs/1,024 outputs
Position Feedback: By absolute encoder
Drive Units: Servo packs for AC servo motors
Accel/Decel: Software servo control
Program Memory: 60,000 steps, 10,000 ladder instructions
Pendant Dim. (mm): 199 (w) x 338 (h) x 60 (d) (7.8” x 13.3” x 2.4”)
Pendant Playback Buttons: Teach, Play, Remote, Servo On, Start, Hold, Emergency Stop, Edit Lock (Play Mode Enabled on Controller)
Concurrent I/O Ladder: 10,000 instructions
Multi Tasking: Up to 8 concurrent jobs
Fieldbus: DeviceNet Master/Slave, AB RIO, Profibus, Interbus-S, M-Net, CC Link, EtherNet IP/Slave
Ethernet: 10 Base T/100 Base TX
E-Stop: Controlled stop
Safety: Dual-channel Emergency Stop Pushbuttons, 3-position Enable Switch, Manual Brake Release

*See NX100 Controller data sheet (DS-232) for complete specifications

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