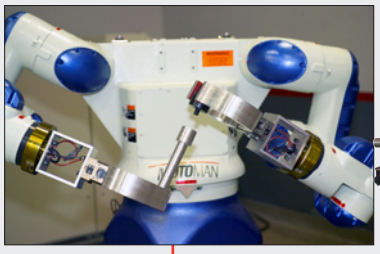
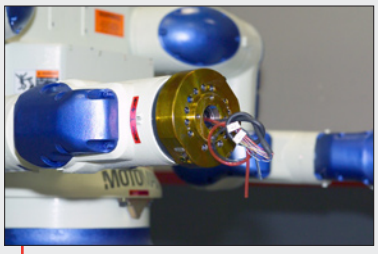
MOTOMAN
a YASKAWA company

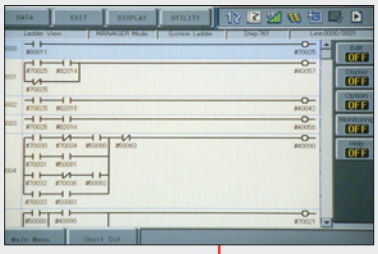
Motoman's revolutionary dual-arm DA20 robot provides "human-like" flexibility of movement to meet your automation needs



"JIGLESS" ASSEMBLY



THRU-ARM CABLE AND HOSE ROUTING



LADDER EDITOR

ASSEMBLY • PACKAGING • HANDLING
MACHINE TENDING • PART TRANSFER

DA20

Payload: 20 kg/arm

FEATURES & BENEFITS

- Single NX100 robot controller directs movement of all axes of the robot
- Handles 20 kg (44.1-lb) payload per arm; 40 kg (88.2 lbs) payload possible when using both arms
- Best-in-class wrist performace characteristics for your most demanding material handling tasks
- Repeatability: ±0.1 mm (±0.004")
- Reach: 765 mm (30.1") per arm from centerline of base rotation to tool mounting surface
- Opens up a wide range of applications to be performed by robots

High-Speed, Dual-Arm Robot with "Human-Like" Flexibility

The DA20 dual-arm robot provides high-speed motion with two six-axis arms that provide enhanced, "human-like" flexibility of movement, opening up a wide range of applications to be performed by robots. This revolutionary, innovative design makes the DA20 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 DA20 features 13 axes of motion (six axes per arm, plus a single axis for base rotation).

The DA20 robot has a 20 kg (44.1 lb) payload per arm, a 765 mm (30.1") 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 to double the payload or accomplish intricate tasks. In addition, both robot arms can perform tasks independently without degradation of throughput. The DA20 robot can also transfer a part from one of its arms to the other with no need to re-grip the part. It also provides "jigless" operation, allowing one robot arm to hold the part while the other performs the required process(es).

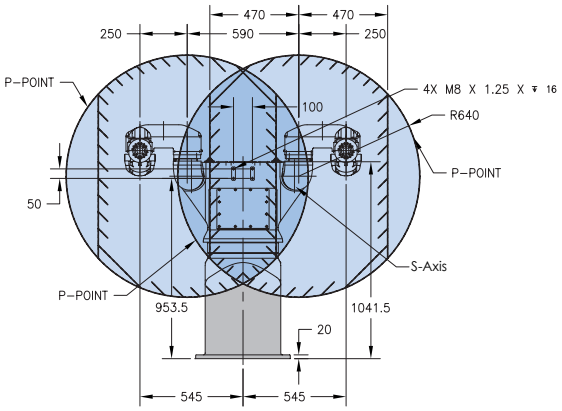
Advanced NX100 Controller

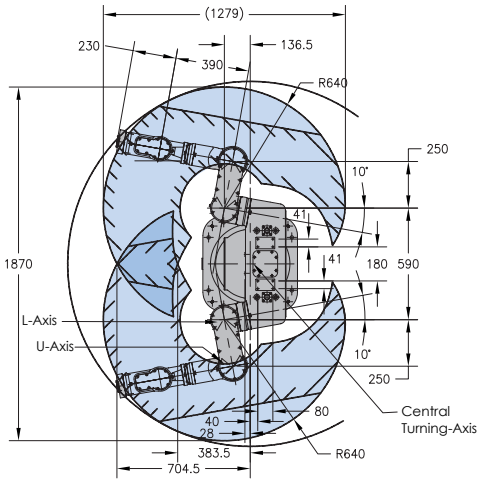
The DA20 robot is controlled by the Motoman NX100 robot controller that features a robust PC architecture, Windows® CE programming pendant, and easy-to-use INFORM III programming language.

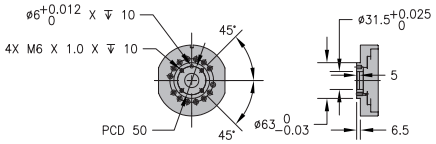
The NX100 offers unmatched multiple axes control capability to maximize flexibility while minimizing cost of integration and eliminating risk of robot collisions. Dual-channel safety features include enhanced E-stop functionality, integrated speed monitoring, manual brake release switches, and compliance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

DA20 Robot



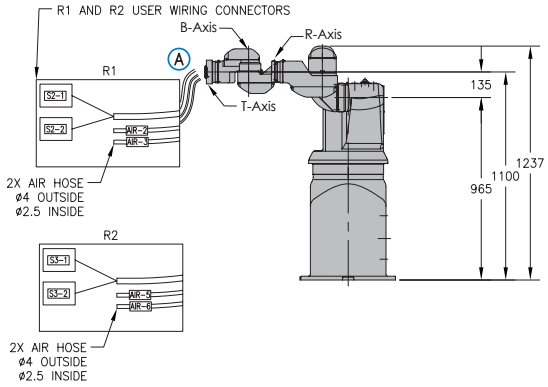




VIEW A

Note: Best robot production rates will be obtained within the sweet spots of the work envelope designated by ▨

All dimensions are metric (mm) and for reference only. Please request detail drawings for all design/engineering requirements.



DA20 SPECIFICATIONS

Structure		Articulated
Mounting		Floor
Controlled Axes		13 (6 axes per arm and 1 rotary axis)
Payload		20 kg (44.1 lbs)/arm
Horizontal Reach per Arm		765 mm (30.1")
Vertical Reach		640 mm (25.2")
Repeatability		±0.1 mm (±0.004")
Maximum Motion Range	Central Turning Axis S-Axis (Turning) L-Axis (Lower Arm) U-Axis (Upper Arm) R-Axis (Upper Arm Twist) B-Axis (Wrist Pitch/Yaw) T-Axis (Wrist Twist)	±180° R1: +80°/-190° R2: +190°/-80° +230°/-30° +215°/-35° ±180° ±120° ±180°
Maximum Speed	Turning-Axis S-Axis L-Axis U-Axis R-Axis B-Axis T-Axis	170°/s 170°/s 170°/s 170°/s 300°/s 300°/s 580°/s
Approximate Mass		240 kg (529.2 lbs)
Power Consumption		4.2 kVA
Allowable Moment	R-Axis B-Axis T-Axis	58.8 N • m 58.8 N • m 29.4 N • m
Allowable Moment of Inertia	R-Axis B-Axis T-Axis	4 kg • m^2 4 kg • m^2 2 kg • m^2

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	250 kg (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 signals: 40 inputs/40 outputs consisting of 16 system inputs/16 system outputs, 24 user inputs/24 user outputs Maximum signals: 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 and 10,000 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	10,000 lines
Multi Tasking	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	Emergency Stop Pushbuttons, 3-position Enable Switch, Brake Release Switches Meets ANSI/RIA R15.06-1999 and Canadian safety standards

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