# YASKAWA



MACHINE TENDING



THRU-ARM CABLE AND HOSE ROUTING



LADDER EDITOR

### **TOP REASONS TO BUY**

- Dexterity to perform complex tasks; dual 7-axis arms work together or independently
- Slim design optimizes space; provides "human-like" flexibility and range of motion, even in tight spaces
- Simplified tooling reduces cost
- Can be used in environments that are hazardous to humans
- Labor savings justifies capital investment



The SDA10D is a dual-arm, 15-axis robot with incredible dexterity, freedom of movement in a compact footprint. Both arms can work together dramatically simplifying end-of-arm tooling. Designed with patented servo actuators, all cables are routed through the arms.

# Slim, Dual-Arm Robot with "Human-Like" Flexibility

- Powerful actuator-based design provides "human-like" flexibility and fast acceleration.
- Superior dexterity and best-in-class wrist characteristics make slim, dual-arm robot ideally suited for assembly, part transfer, machine tending, packaging and other handling tasks that formerly could only be done by people.
- Highly flexible; 15 axes of motion (7 axes per arm, plus a single axis for base rotation).
- Internally routed cables and hoses (6 air, 12 - electric) reduce interference and maintenance, and also make programming easier.
- 10 kg payload per arm; 720 mm horizontal reach per arm; 1,440 mm vertical reach per arm; ±0.1 mm repeatability.
- Both robot arms can work together on one task to double the payload or handle heavy, unwieldy objects. Two arms can perform simultaneous independent operations.

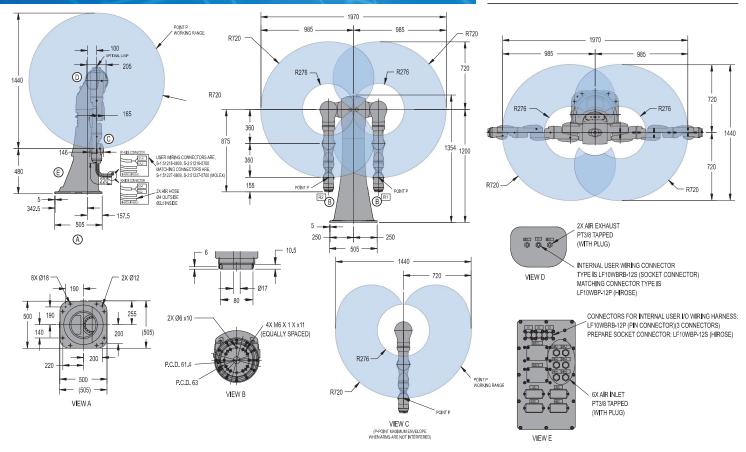
Ability to hold part with one arm while performing additional operations with other arm and to transfer a part from one arm to the other with no need to set part down.

### DX100 Controller

- Patented multiple robot control supports up to 8 robots/72 axes.
- Windows® CE programming pendant with color touch screen and USB interface.
- Faster processing speeds for smoother interpolation. Quicker I/O response.
   Accelerated Ethernet communication.
- Extensive I/O suite includes integral PLC and touch screen HMI, 2,048 I/O and graphical ladder editor.
- Supports all major fieldbus networks, including EtherNet/IP, DeviceNet, Profibus-DP and many others.
- Compliant to ANSI/RIA R15.06-1999 and other relevant ISO and CSA safety standards.
   Optional Category 3 functional safety unit.

### **SDA10D ROBOT**

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



SDA10D SP	ECIFICATIONS			
Structure		Articulated		
Mounting		Floor *		
Controlled Axes		15 (7 axes per arm plus base rotation)		
Payload		10 kg (22.1 lbs)/arm		
Horizontal Reach per Arm		720 mm (28.3")		
Horizontal Reach (P-point to P-point)		1,970 mm (77.6")		
Vertical Reach		1,440 mm (56.7")		
Repeatability		±0.1 mm (±0.004")		
Maximum Motion Range Maximum Speed	Rotation-Axis (Waist) S-Axis (Lifting) L-Axis (Lower Arm) E-Axis (Elbow) U-Axis (Upper Arm Twist) B-Axis (Wpper Arm Twist) B-Axis (Wrist Pitch/Yaw) T-Axis (Wrist Twist) Rotation-Axis (Waist) S-Axis (Lifting) L-Axis (Lower Arm) E-Axis (Elbow) U-Axis (Upper Arm Twist) B-Axis (Wrist Pitch/Yaw)	±170° ±180° ±110° ±170° ±135° ±180° ±110° ±180° 110°/s 110°/s 170°/s 170°/s 170°/s 170°/s 200°/s		
Approximate Mass	T-Axis (Wrist Twist)	400°/s 220 kg (485.1 lbs)		
Brakes		All axes		
Power Rating		2.7 kVA		
Allowable Moment	R-Axis	31.4 N • m		
	B-Axis	31.4 N • m		
	T-Axis	19.6 N • m		
Allowable Moment of Inertia	R-Axis B-Axis T-Axis	1 kg • m <sup>2</sup> 1 kg • m <sup>2</sup> 0.4 kg • m <sup>2</sup>		

	Rotation-Axis (waist)	130 7S		
	S-Axis (Lifting)	170°/s		
	L-Axis (Lower Arm)	170°/s		
Mayimum Casad	E-Axis (Elbow)	170°/s		
Maximum Speed	U-Axis (Upper Arm)	170°/s		
	R-Axis (Upper Arm Twist)	200°/s		
	B-Axis (Wrist Pitch/Yaw)	200°/s		
	T-Axis (Wrist Twist)	400°/s		
Approximate Mass		220 kg (485.1 lbs)		
Brakes		All axes		
Power Rating		2.7 kVA		
Allowable Moment	R-Axis	31.4 N • m		
	B-Axis	31.4 N • m		
	T-Axis	19.6 N • m		
Allowable Moment	R-Axis	1 kg • m²		
of Inertia	B-Axis	1 kg • m <sup>2</sup>		
oi inertia	T-Axis	0.4 kg • m <sup>2</sup>		
* Ceiling mounting available with successful application review				

	T-Axis	19.6 N • m	.	Safety	Meets ANSI/RIA R15.06-19
llowable Moment	R-Axis	1 kg • m²			CSA Z434-03
Inortia	B-Axis T-Axis	1 kg • m² 0.4 kg • m²		** See DX100 Controller data sheet (DS-399) for complete specifications	
eiling mounting available with successful application review					



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DX100 CONTROLI	LER SPECIFICATIONS**		
Dimensions (mm)	1,200 (w) x 1,000 (h) x 650 (d) 47.2" x 39.4" x 25.6")		
Approximate Mass	250 kg max. (551.3 lbs)		
Cooling System	Indirect cooling		
Ambient Temperature	During operation: 0° to 45° C (32° to 113° F) During transit and storage: -10° to 60° C (14° to 140° F)		
Relative Humidity	90% max. non-condensing		
Primary Power Requirements	3-phase, 240/480/575 VAC at 50/60 Hz		
<b>Digital I/O</b> NPN-Standard PNP-Optional	Standard I/O: 40 inputs/40 outputs consisting of 16 system inputs/ 16 system outputs, 24 user inputs/24 user outputs 32 Transistor Outputs; 8 Relay Outputs Max. I/O (optional): 2,048 inputs and 2,048 outputs		
Position Feedback	By absolute encoder		
Program Memory	JOB: 200,000 steps, 10,000 instructions CIO Ladder Standard: 15,000 steps Expanded: 20,000 steps		
Pendant Dim. (mm)	169 (w) x 314.5 (h) x 50 (d) (6.7" x 12.4" x 2")		
Pendant Weight	.998 kg (2.2 lbs)		
Interface	One Compact Flash slot; One USB Port (1.1)		
Pendant Playback Buttons	Teach/Play/Remote Keyswitch selector Servo On, Start, Hold, and Emergency Stop Buttons		
Programming Language	INFORM III, menu-driven programming		
Maintenance Functions	Displays troubleshooting for alarms, predicts reducer wear		
Number of Robots/Axes	Up to 8 robots, 72 axes		
Multi Tasking	Up to 16 concurrent jobs, 4 system jobs		
Fieldbus	DeviceNet Master/Slave, AB RIO, Profibus, Interbus-S, M-Net, CC Link, EtherNet IP/Slave		
Ethernet	10 Base T/100 Base TX		
Safety	Dual-channel Emergency Stop Pushbuttons, 3-position Enable Switch, Manual Brake Release Meets ANSI/RIA R15.06-1999, ANSI/RIA/ISO 10218-1-2007 and CSA Z434-03		