

SP165

HIGH-SPEED, HIGH-PAYLOAD DESIGN

KEY BENEFITS

Single robot-to-controller cable connection enables fast setup

High-speed robot motion reduces air-cut time for spot gun

Flexible wrist motion range simplifies programming of complicated parts

SPECIFICATIONS

165 kg payload with spot harness

180 kg payload without spot harness

2,702 mm horizontal reach

3,393 mm vertical reach

0.05 mm repeatability

APPLICATION

Spot Welding

CONTROLLER

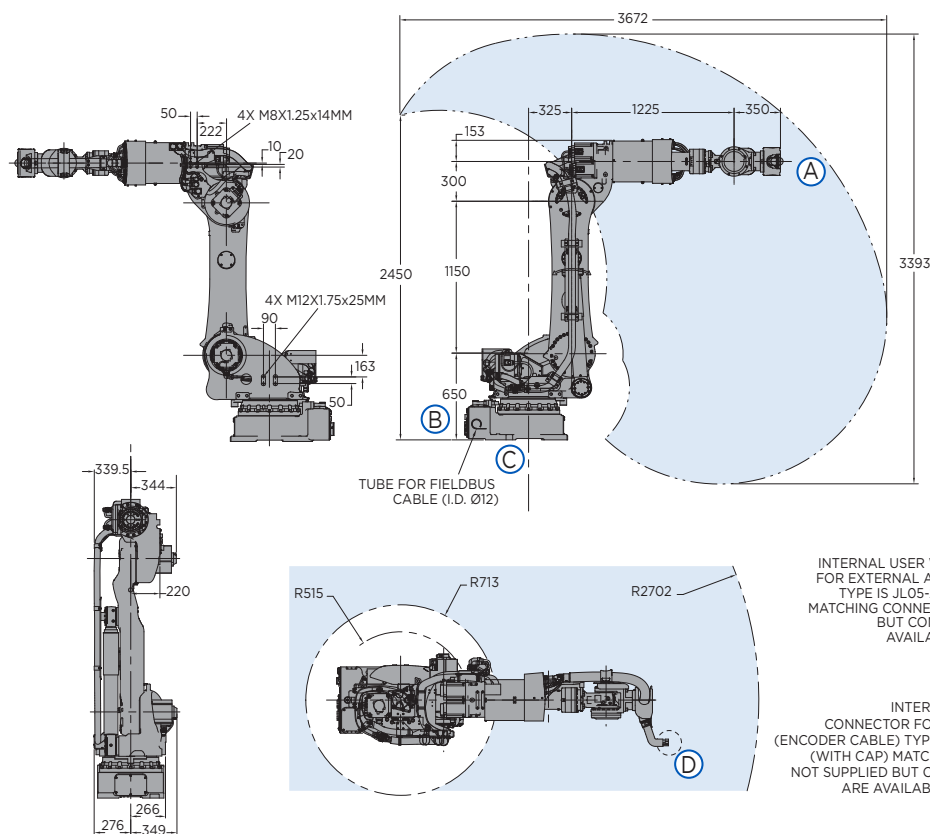
YRC1000



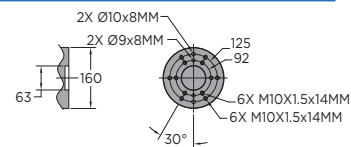
Spot harness not shown

- Powerful, six-axis robot features exceptionally fast axis speeds and acceleration to reduce air-cut time and increase production output.
- Wide wrist motion range eliminates interference and improves application flexibility.
- Slim profile design allows reaching into confined spaces and close proximity placement of robots for high-density workcells.
- Integrated spot harness improves wrist flexibility and reduces downtime.
- Servo gun and DC timer technology optimized for productivity and quality.
- Spot monitoring and waveform graphing helps check and troubleshoot welding conditions.
- Controller connectivity provides simple wiring to spot timers.
- Robot pendant application for programming Medar® and Nadex® brand timers.
- Cable installation tube facilitates fieldbus routing through the S-axis.
- Single power and control cable reduces wiring time and increases work efficiency.
- Spot harness connections
 - Connections from base to upper arm
 - DeviceNet signal and power
 - Connections from base to wrist (gun)
 - Servo motor and encoder
 - Air hose (2) 6.5 mm ID, (1) 8 mm ID
 - Water hose (4) 8 mm ID
 - Weld power (2) 22 mm², (1) 14 mm²
 - Transformer thermostat (3) 0.75 mm²
 - User I/O (9) twisted pair + (1) 0.3 mm²
- Modular robot harness design for improved diagnostics and maintenance.
- Home position data can be saved without battery connection for easy maintenance.
- The SP165 has an IP67-rated wrist and an IP54 body standard.
- Compact YRC controller utilizes the lightweight standard teach pendant with intuitive programming.

SP165 ROBOT

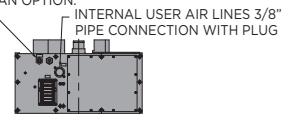


VIEW A

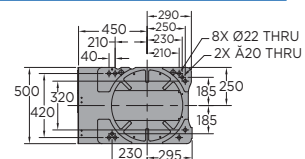


VIEW B

INTERNAL USER WIRING CONNECTOR (BASE SIDE)
TYPE JL05-2A24-29PC (WITH CAP) MATCHING CONNECTOR
IS NOT SUPPLIED BUT COMPLETE WIRING CABLES ARE
AVAILABLE AS AN OPTION.



VIEW C



VIEW D

INTERNAL USER WIRING CONNECTOR
FOR EXTERNAL AXIS (POWER CABLE)
TYPE IS JL05-2A18-1SC (WITH CAP)
MATCHING CONNECTOR NOT SUPPLIED
BUT COMPLETE CABLES ARE
AVAILABLE AS AN OPTION.

INTERNAL USER WIRING
CONNECTOR FOR EXTERNAL AXIS
(ENCODER CABLE) TYPE JL05-2A20-29SC
(WITH CAP) MATCHING CONNECTOR
NOT SUPPLIED BUT COMPLETE CABLES
ARE AVAILABLE AS AN OPTION.

INTERNAL USER AIR LINES
3/8" PIPE CONNECTION WITH PLUG

INTERNAL USER WIRING
CONNECTOR (CASING SIDE)
TYPE JL05-2A24-28SC
(WITH CAP) MATCHING
CONNECTOR NOT SUPPLIED
BUT COMPLETE CABLES ARE
AVAILABLE AS AN OPTION.

All dimensions are metric (mm) and for reference only.
Request detailed drawings for all design/engineering requirements.

SPECIFICATIONS

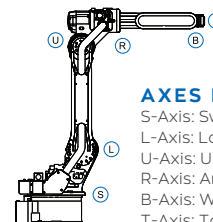
Axes	Maximum motion range	Maximum speed	Allowable moment	Allowable moment of inertia
	degrees	°/sec	N·m	kg·m ²
S	±180	125	-	-
L	+76/-60	115	-	-
U	+90/-86	125	-	-
R	±210*	182	951	88
B	±125*	175	951	88
T	±210*	265	618	46.3

* Motion range limited by spot harness
Mounting Options: Floor

Item	Unit	SP165
Controlled axes		6
Maximum payload	kg	165
Repeatability	mm	0.05
Horizontal reach	mm	2,702
Vertical reach	mm	3,393
Weight	kg	1,020
Internal user I/O cable		24 conductors w/ ground
Internal user air line		(1) 3/8" connection
Power requirements		380-480 VAC
Power rating	kVA	5

OPTIONS

- Robot risers and base plates
- Extended length manipulator cables
- Wide variety of fieldbus cards
- External axes
- Functional Safety Unit (FSU)
- MotoSight™ 2D and 3D vision



AXES LEGEND

S-Axis: Swivel Base
L-Axis: Lower Arm
U-Axis: Upper Arm
R-Axis: Arm Roll
B-Axis: Wrist Bend
T-Axis: Tool Flange

YASKAWA

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