

# SP165-105

## HIGH-SPEED, EXTENDED-REACH ROBOT

### KEY BENEFITS

Payload, moment and inertia ratings allow for a wide variety of applications

Single robot-to-controller cable connection enables fast setup

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

Slim profile design for high density spacing and for reaching into confined spaces

### SPECIFICATIONS

105 kg payload with spot harness

120 kg payload without spot harness

3,058 mm horizontal reach

4,105 mm vertical reach

0.05 mm repeatability

### APPLICATION

Spot Welding

### CONTROLLER

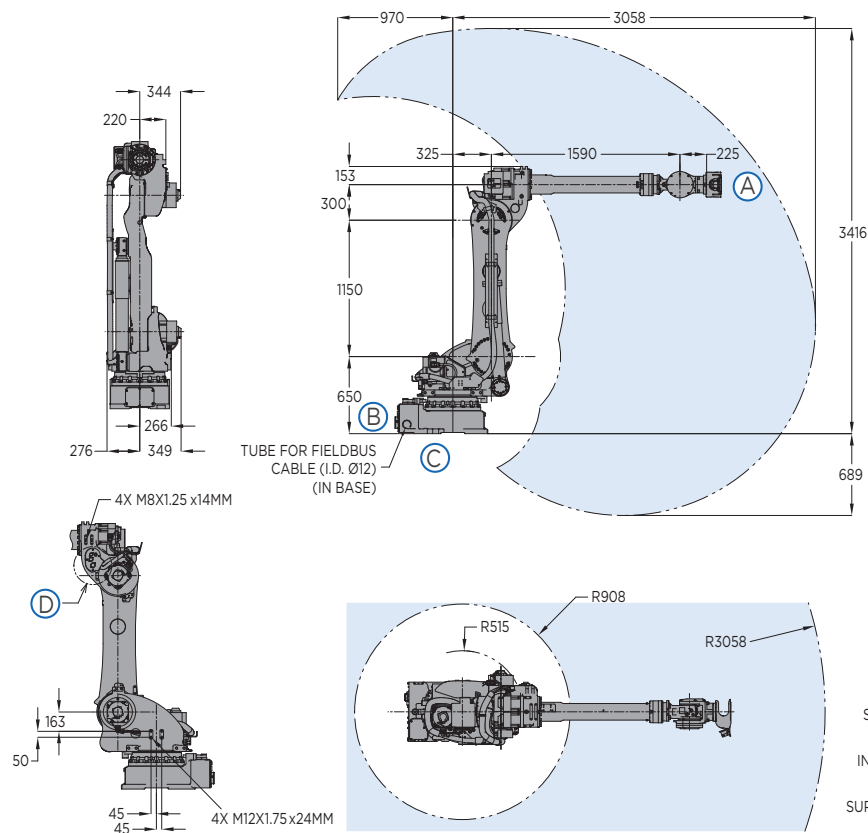
YRC1000



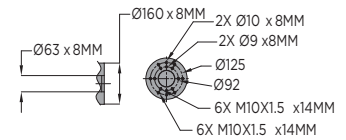
Spot harness not shown

- Powerful, six-axis, extended-reach robot features exceptionally fast axis speeds and acceleration to reduce air-cut time and increase production output.
- Ideal for processing large parts, the SP165-105 can eliminate the need for a linear track, reducing system cost and simplifying programming.
- High payload, moment and inertia ratings allow the handling of larger and heavier payloads.
- 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 mm<sup>2</sup>, (1) 14 mm<sup>2</sup>
    - Transformer thermostat (3) 0.75 mm<sup>2</sup>
    - User I/O (9) twisted pair + (1) 0.3 mm<sup>2</sup>
- Modular robot harness design for improved diagnostics and maintenance.
- Home position data can be saved without battery connection for easy maintenance.
- The SP165-105 has an IP67-rated wrist and an IP54 body standard.
- Compact YRC controller utilizes the lightweight standard teach pendant with intuitive programming.

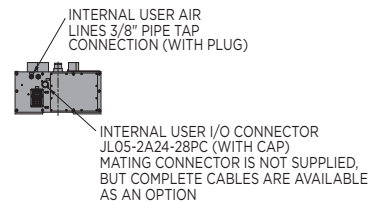
# SP165-105 ROBOT



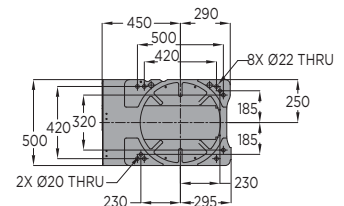
VIEW A



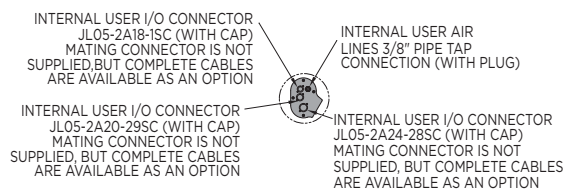
VIEW B



VIEW C



VIEW D



## SPECIFICATIONS

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

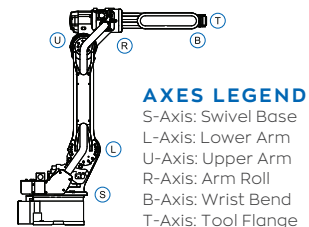
| Axes | Maximum motion range | Maximum speed | Allowable moment | Allowable moment of inertia |
|------|----------------------|---------------|------------------|-----------------------------|
|      | degrees              | °/sec         | N·m              | kg·m <sup>2</sup>           |
| S    | ±180                 | 125           | -                | -                           |
| L    | +76/-60              | 115           | -                | -                           |
| U    | +90/-86              | 125           | -                | -                           |
| R    | ±210*                | 182           | 834              | 77                          |
| B    | ±125*                | 175           | 834              | 77                          |
| T    | ±210*                | 265           | 520              | 40                          |

\* Motion range limited by spot harness  
Mounting Options: Floor

| Item                    | Unit | SP165-105               |
|-------------------------|------|-------------------------|
| Controlled axes         |      | 6                       |
| Maximum payload         | kg   | 105                     |
| Repeatability           | mm   | 0.05                    |
| Horizontal reach        | mm   | 3,058                   |
| Vertical reach          | mm   | 4,105                   |
| Weight                  | kg   | 1,090                   |
| 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
- Robot base and upper arm I/O cables
- External axes
- Functional Safety Unit (FSU)
- MotoSight™ 2D and 3D vision



# YASKAWA

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