DAIHEN

Almega Friendly series II

# Robot Product Catalog

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**DAIHEN Corporation**

4-1, Koyocho-nishi, Higashinada-ku, Kobe, Hyogo 658-0033, Japan
Phone: (Country Code 81) 78-275-2006
Fax: (Country Code 81) 78-845-8159


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- This product is made of FSC™-certified and other controlled material.

VEGETABLE OIL INK

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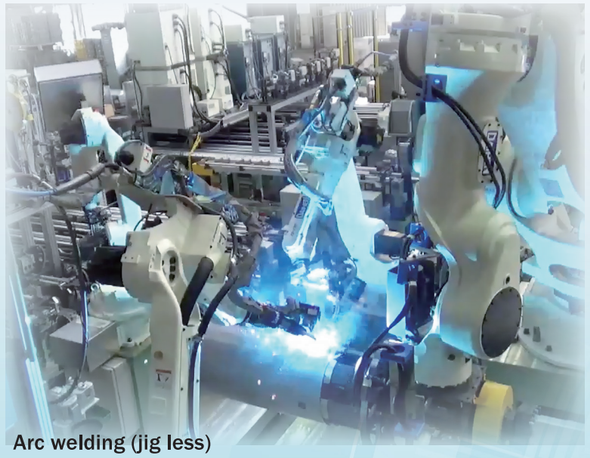
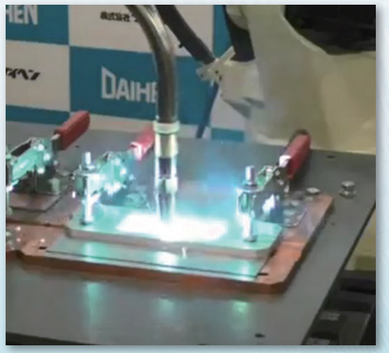
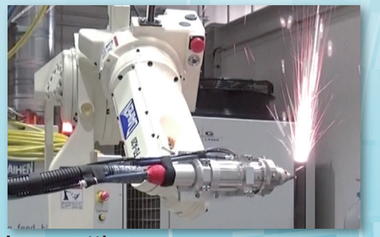
## Arc welding robot



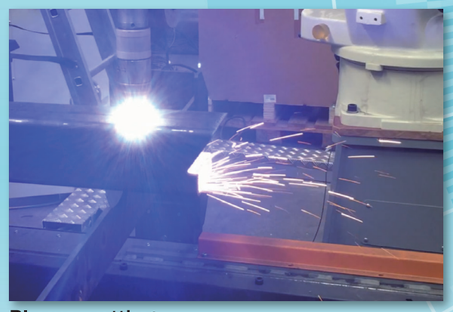
Arc welding (jig less)



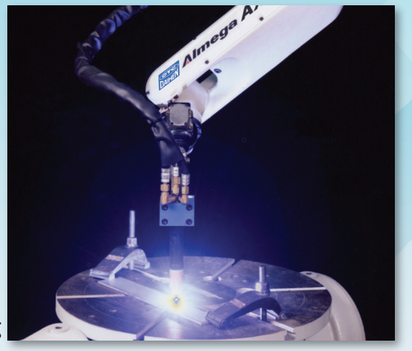
Synchro-Feed



Laser cutting

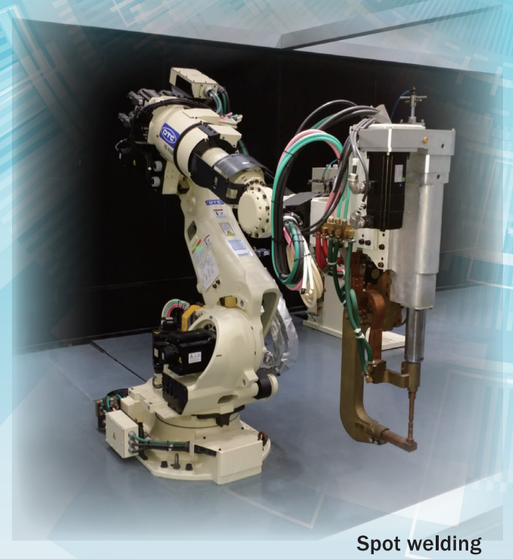


Plasma cutting



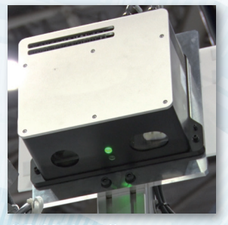
TIG welding

# DAIHEN Robot solutions meet the demands of factory automation.



Spot welding

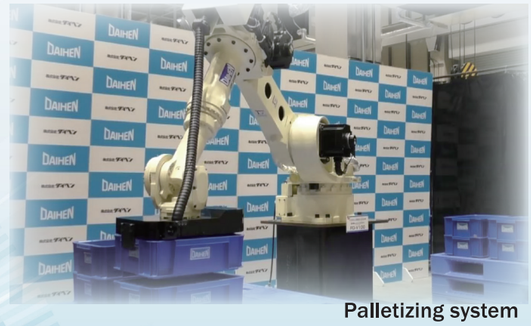
## Handling robot



3D Vision Sensor

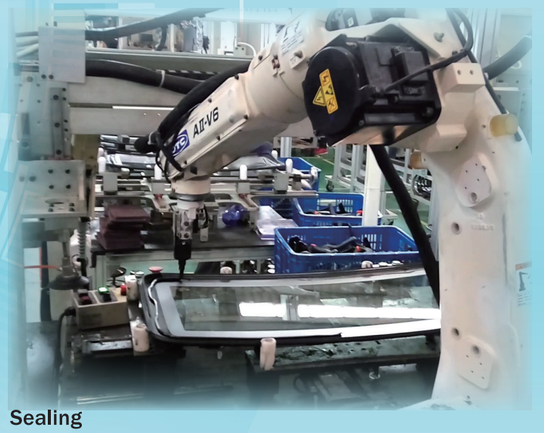
2D Vision Sensor

Picking

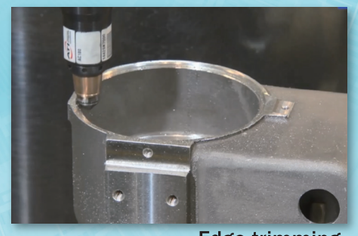


Palletizing system

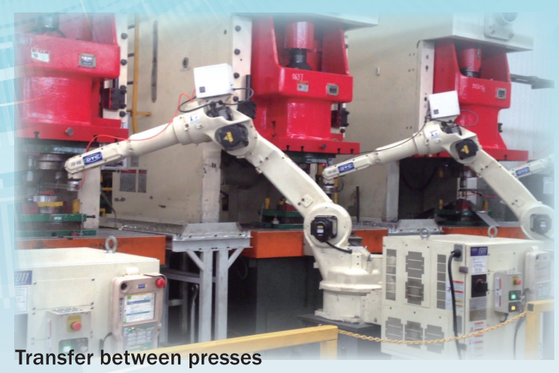
Conveyor picking



Sealing



Edge trimming



Transfer between presses

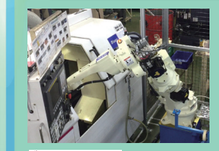
Fitting

# FD19 CONTROLLER The limitless potential of extensive "connectivity"

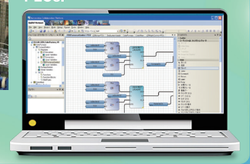
**Meet the demands from introduction to advanced automation.**

### Easily "connects" with peripheral equipment
Simple connection to the host system by built-in PLC

**High-performance built-in software PLC**



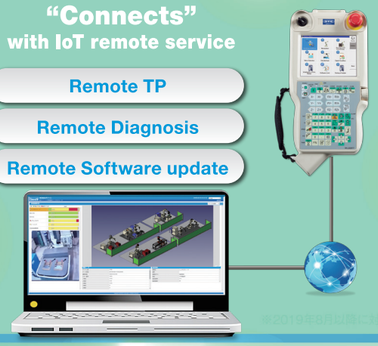
Graphical interface offers the functionality of popular PLCs.



OPC

### "Connects" with IoT remote service

- Remote TP
- Remote Diagnosis
- Remote Software update




FD19 CONTROLLER

### "Connecting" Variation
Compact body and high expandability

- Built-in amplifier and external 2-axis unit
- Supports high-capacity (7kW) motors

Increased number of "connectable" motors

*Feature available beginning January 2020

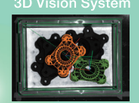
### Improved "connectivity" with welders

**Greatly improved synchronization with welders**

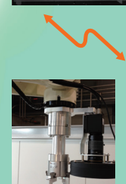
Simultaneous welding with multiple robots yields greatly improved quality.

### Enhance your system by "connecting" commercial peripherals.

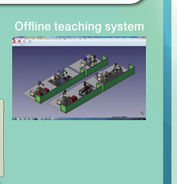
3D Vision System



- 2D/3D Vision System
- Offline teaching system
- Laser oscillator



Offline teaching system

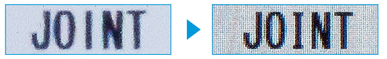




# Revolutionary Ease of Use

### Clear and legible screen

Higher contrast with clearer details



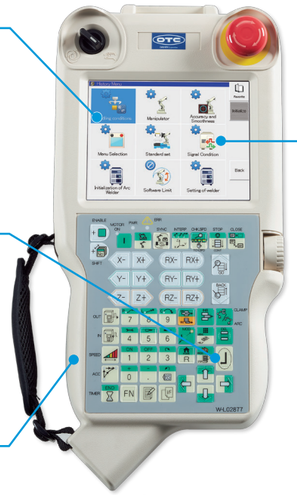

FD11 ▶ FD19

### Comfortable touch-typing

Embossed main keys

### Lightweight with ergonomic grip

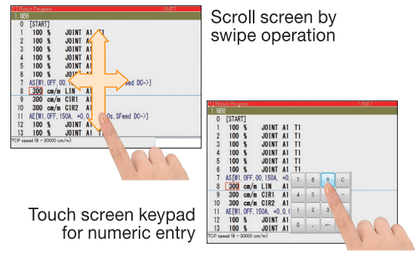
15% lighter + enhanced grip design = 66% less arm fatigue



TEACH PENDANT

### Tablet-like operation


Menu icons



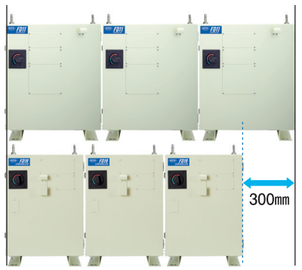
Scroll screen by swipe operation

Touch screen keypad for numeric entry

# Enhanced Basic Performance

### Small footprint

25% narrower than the previous model
Ideal for high-density installations

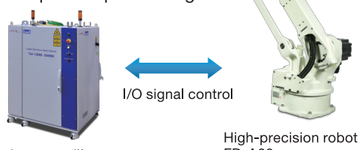




FD19 CONTROLLER

### Optimized for high-precision laser & plasma processing

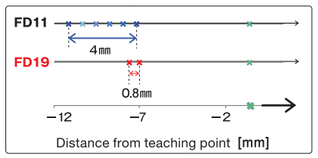
Six times faster synchronization with external devices for high-precision laser and plasma processing




Laser oscillator

High-precision robot FD-A20

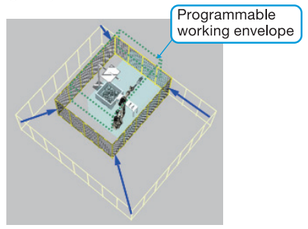
**80% reduced! the variation in the position of signal output.**




* At high speed opeartion of 10m/min.

### Complies with the latest international safety standards.

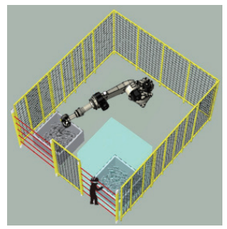
Supports multiple safety control standards for emergency stop: Cat. 4, PLe, and SIL3.




### Safer working environment

- RMU* constantly monitors robot movement.
- Restricts robot movement when worker is present in a shared area.

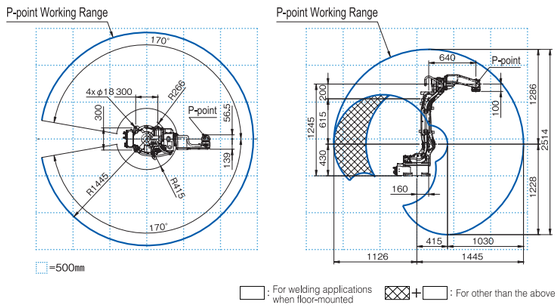
*Robot Monitoring Unit



## Internal Torch Cable Type Ideal for Arc Welding

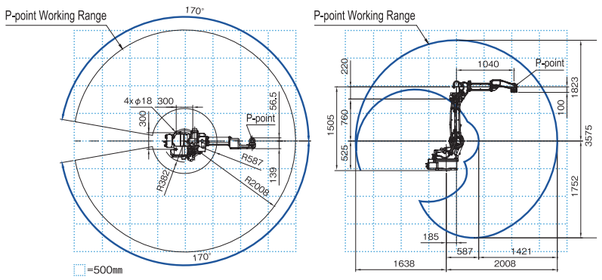
Internal cable type

### FD-B6




Internal cable type

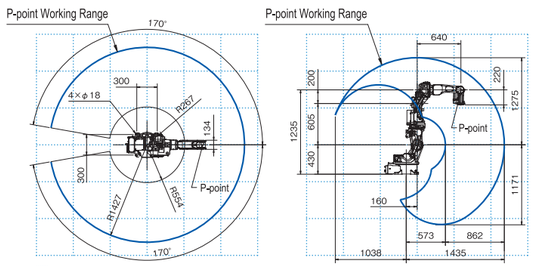
### FD-B6L




Internal cable type

### FD-B4S

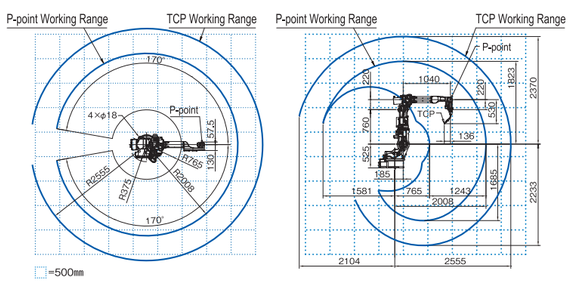
7-axis




Internal cable type

### FD-B4LS

7-axis

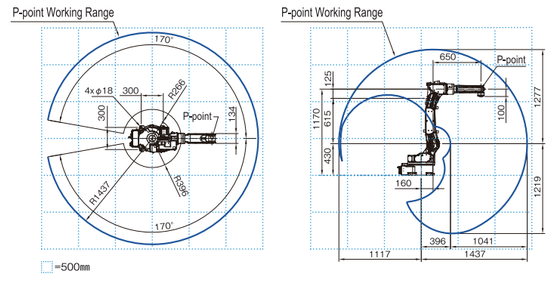



## Standard Type for Arc Welding and Small Parts Handling

*The figures below show working range of P-point with no torch mounted.

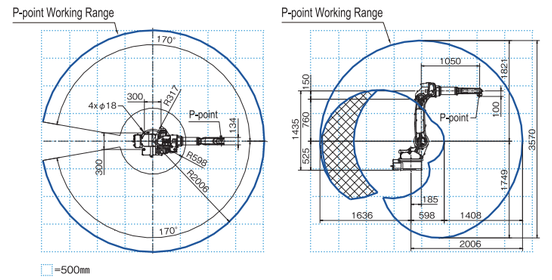
Standard type

### FD-V8




Standard type

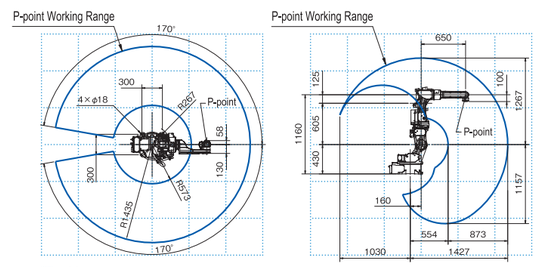
### FD-V8L




Standard type

### FD-V6S

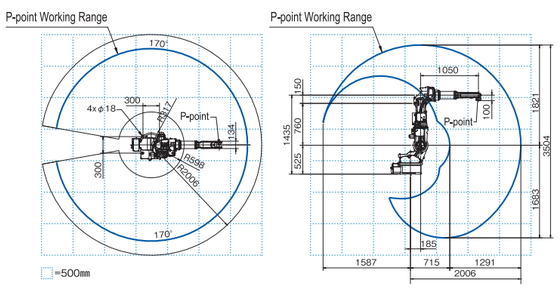
7-axis




Standard type

### FD-V6LS

7-axis



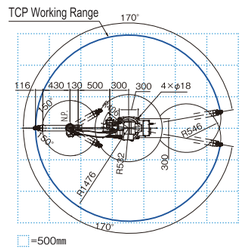


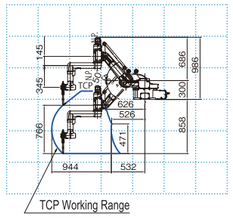

Note: Depictions of some models in this publication may differ from the actual products.

## Meets a Variety of Needs, from Space-Efficiency to High-Precision Robot

Space-efficient type

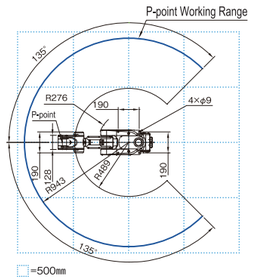
### FD-G3

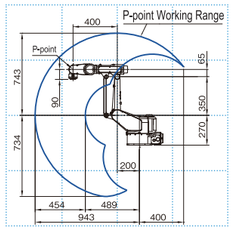



Compact & lightweight

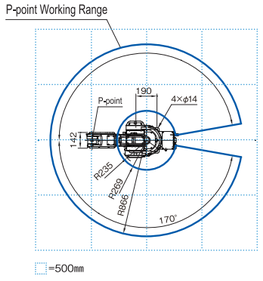
### FD-S3

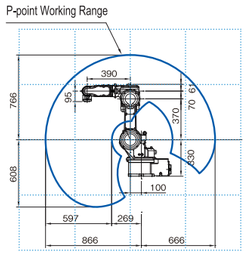



Compact & powerful

### FD-H5

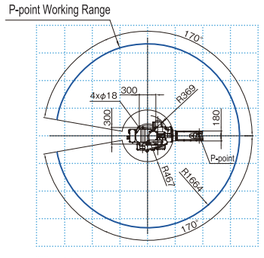


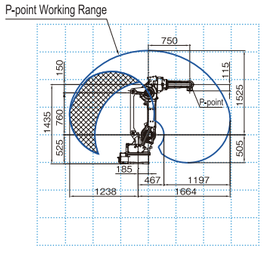




High-accuracy robot

### FD-A20

Precise operation




: For welding applications when floor-mounted

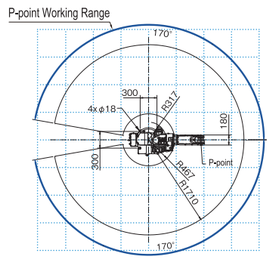
: For other than the above

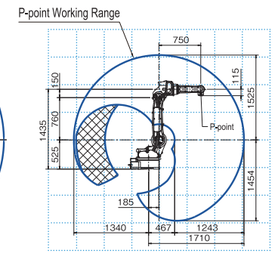
## Handles a Variety of Medium-to-High-Duty Tasks

*The figures below show working range of P-point with no torch mounted.

Versatile handling

### FD-V25



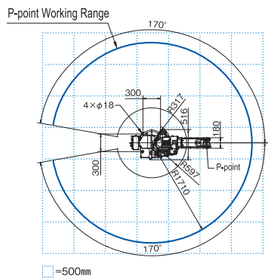

: For welding applications when floor-mounted

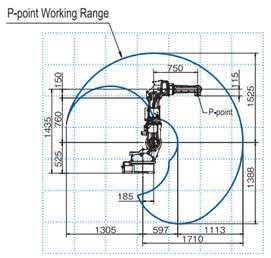
: For other than the above

Versatile handling

### FD-V20S

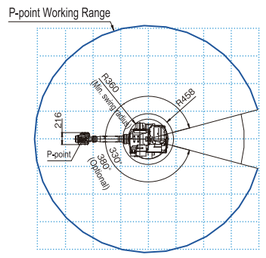
7-axis

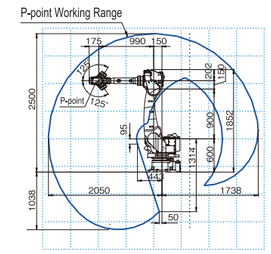



Versatile handling

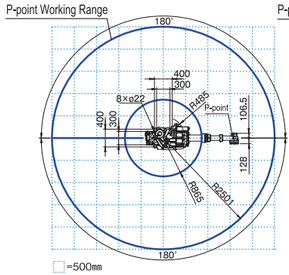
### FD-V50

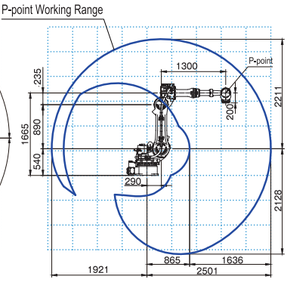



Versatile handling

### FD-V80




: For welding applications when floor-mounted

: For other than the above



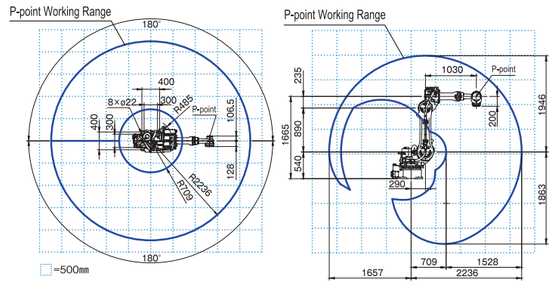
Note: Depictions of some models in this publication may differ from the actual products.

# Handles a Variety of Medium-to-High-Duty Tasks

*The figures below show working range of P-point with no torch mounted.

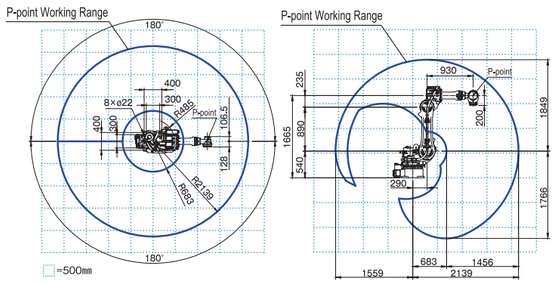
Versatile handling

## FD-V100



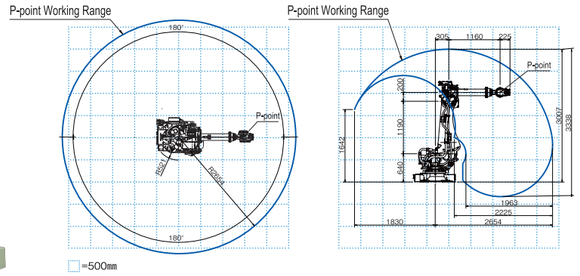

Versatile handling

## FD-V130



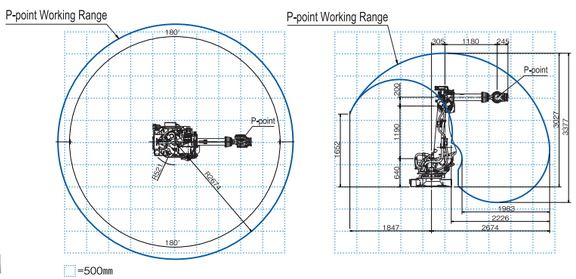

Versatile handling

## FD-V166



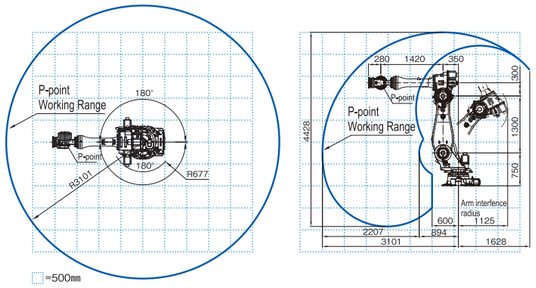

Versatile handling

## FD-V210



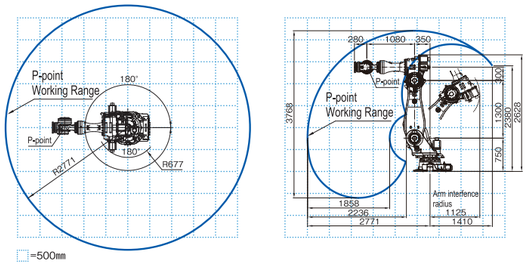

Heavy-load type

## FD-V280L



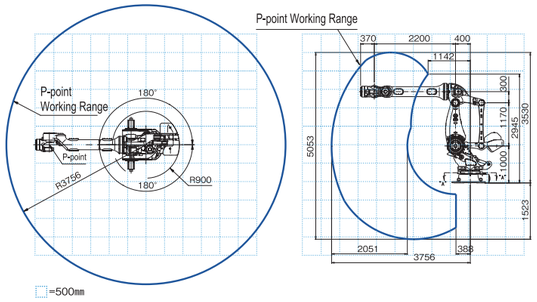

Heavy-load type

## FD-V350



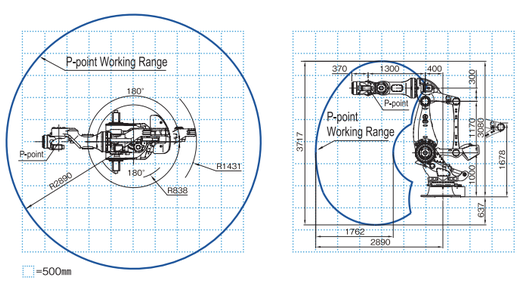

Heavy-load type

## FD-V400L




Heavy-load type

## FD-V600/V700




 Note: Depictions of some models in this publication may differ from the actual products.

## Manipulator Specifications

| | | | FD-B6 | FD-B6L | FD-B4S | FD-B4LS | FD-V8 | FD-V8L | FD-V6S | FD-V6LS |
|---|---|---|---|---|---|---|---|---|---|---|
| Model | | | NB6 | NB6L | NB4S | NB4LS | NV8 | NV8L | NV6S | NV6LS |
| Structure | | | Vertically articulated type | Vertically articulated type | Vertically articulated type | Vertically articulated type | Vertically articulated type | Vertically articulated type | Vertically articulated type | Vertically articulated type |
| Number of Axes | | | 6 | 6 | 7 | 7 | 6 | 6 | 7 | 7 |
| Wrist Capacity | | | 6kg | 6kg | 4kg | 4kg | 8kg | 8kg | 6kg | 6kg |
| Positional Repeatability (Note 1) | | | ±0.08mm | ±0.08mm | ±0.08mm | ±0.08mm | ±0.08mm | ±0.08mm | ±0.08mm | ±0.08mm |
| Driving Method | | | AC servo motor | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ |
| Driving Capacity | | | 3132W | 4832W | 3550W | 5650W | 3016W | 5000W | 3600W | 6000W |
| Positional Feedback | | | Absolute encoder | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ |
| Working Range | Arm | J1 (Rotation 1) | ±170° (±50°) (Note 2) | ±170° (±50°) (Note 2) | ±170° | ±170° | ±170° (±50°) (Note 2) | ±170° (±50°) (Note 2) | ±170° | ±170° |
| | | J2 (Front/back) | −155° to +90° (Note 3) | −155° to +100° (Note 3) | −145° to +70° | −145° to +75° | −155° to +90° | −155° to +100° | −145° to +70° | −145° to +75° |
| | | J7 (Rotation 2) | – | – | ±90° | ±90° | – | – | ±90° | ±90° |
| | | J3 (Up/down) | −170° to +245° (Note 4) | −170° to +190° | −170° to +142.6° | −170° to +154° | −170° to +190° | −170° to +260° | −170° to +149° | −170° to +160° (Note 4) |
| | Wrist | J4 (Swing) | ±155° (±170°) (Note 5) | ±155° (±170°) (Note 5) | ±155° | ±155° | ±180° | ±180° | ±180° | ±180° |
| | | J5 (Bending) | −45° to +225° | −45° to +225° | −45° to +225° | −45° to +225° | −50° to +230° | −50° to +230° | −50° to +230° | −50° to +230° |
| | | J6 (Twist) | ±205° (±360°) (Note 5,6) | ±205° (±360°) (Note 5,6) | ±205° (Note 6) | ±205° (Note 6) | ±360° (Note 6) | ±360° (Note 6) | ±360° (Note 6) | ±360° (Note 6) |
| Maximum Speed | Arm | J1 (Rotation 1) | 4.19rad/s {240°/s} (3.32rad/s {190°/s}) (Note 2) | 3.40rad/s {195°/s} (3.05rad/s {175°/s}) (Note 2) | 3.66rad/s {210°/s} | 3.40rad/s {195°/s} | 4.19rad/s {240°/s} (3.32rad/s {190°/s}) (Note 2) | 3.40rad/s (3.05) {195°/s (175°/s)} | 3.66rad/s {210°/s} | 3.40rad/s {195°/s} |
| | | J2 (Front/back) | 4.19rad/s {240°/s} | 3.49rad/s {200°/s} | 3.66rad/s {210°/s} | 3.49rad/s {200°/s} | 4.19rad/s {240°/s} | 3.49rad/s {200°/s} | 3.66rad/s {210°/s} | 3.49rad/s {200°/s} |
| | | J7 (Rotation 2) | – | – | 3.14rad/s {180°/s} | 2.79rad/s {160°/s} | – | – | 3.14rad/s {180°/s} | 2.79rad/s {160°/s} |
| | | J3 (Up/down) | 4.01rad/s {230°/s} | 3.49rad/s {200°/s} | 3.66rad/s {210°/s} | 3.49rad/s {200°/s} | 4.01rad/s {230°/s} | 3.49rad/s {200°/s} | 3.66rad/s {210°/s} | 3.49rad/s {200°/s} |
| | Wrist | J4 (Swing) | 7.50rad/s {430°/s} | 7.50rad/s {430°/s} | 7.33rad/s {420°/s} | 7.33rad/s {420°/s} | 7.50rad/s {430°/s} | 7.50rad/s {430°/s} | 7.33rad/s {420°/s} | 7.33rad/s {420°/s} |
| | | J5 (Bending) | 7.50rad/s {430°/s} | 7.50rad/s {430°/s} | 7.33rad/s {420°/s} | 7.33rad/s {420°/s} | 7.50rad/s {430°/s} | 7.50rad/s {430°/s} | 7.33rad/s {420°/s} | 7.33rad/s {420°/s} |
| | | J6 (Twist) | 11.00rad/s {630°/s} | 11.00rad/s {630°/s} | 10.5rad/s {600°/s} | 10.5rad/s {600°/s} | 11.00rad/s {630°/s} | 10.99rad/s {630°/s} | 10.82rad/s {620°/s} | 10.82rad/s {620°/s} |
| Wrist Allowable Load | Allowable Moment | J4 (Rotation) | 10.5 N·m | 10.5 N·m | 10.1 N·m | 10.1 N·m | 17.6 N·m | 17.6 N·m | 11.8 N·m | 11.8 N·m |
| | | J5 (Bending) | 10.5 N·m | 10.5 N·m | 10.1 N·m | 10.1 N·m | 17.6 N·m | 17.6 N·m | 9.8 N·m | 9.8 N·m |
| | | J6 (Twist) | 5.9 N·m | 5.9 N·m | 2.94 N·m | 2.94 N·m | 7.8 N·m | 7.8 N·m | 5.9 N·m | 5.9 N·m |
| | Allowable Moment of Inertia | J4 (Rotation) | 0.28 kg·m² | 0.28 kg·m² | 0.38 kg·m² | 0.38 kg·m² | 0.43 kg·m² | 0.43 kg·m² | 0.30 kg·m² | 0.30 kg·m² |
| | | J5 (Bending) | 0.28 kg·m² | 0.28 kg·m² | 0.38 kg·m² | 0.38 kg·m² | 0.43 kg·m² | 0.43 kg·m² | 0.25 kg·m² | 0.25 kg·m² |
| | | J6 (Twist) | 0.06 kg·m² | 0.06 kg·m² | 0.03 kg·m² | 0.03 kg·m² | 0.09 kg·m² | 0.09 kg·m² | 0.06 kg·m² | 0.06 kg·m² |
| Arm Cross-sectional Area | | | 3.59m²×340° | 6.37m²×340° | 2.57m² × 340° | 5.28m² × 340° | 3.11m²×340° | 7.48m²×340° | 2.58m² ×340° | 5.40m² ×340° |
| Environmental Conditions | | | Temp: 0 to 45°C, Hmd: 20 to 80%RH (No Condensation) | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ |
| Mass (weight) | | | 145kg | 278 kg | 189 kg | 321 kg | 140 kg | 273kg | 178 kg | 316 kg |
| Capacity of Upper Arm | | | 10 kg (Note 7) | 20kg (Note 7) | 10 kg (Note 7) | 10 kg (Note 7) | 10 kg (Note 7) | 20kg (Note 7) | 10 kg (Note 7) | 20 kg (Note 7) |
| Installation Method | | | Floor-/Ceiling-/Wall-mounted | Floor-/Ceiling-/Wall-mounted | Floor-mounted | Floor-mounted | Floor-/Ceiling-/Wall-mounted | Floor-/Ceiling-/Wall-mounted | Floor-mounted | Floor-mounted |
| Paint Color | | | White (Munsell notation 10GY 9/1) | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ |

Notes
1. Positional repeatability of the tool center point (TCP) value complies with the JIS-B-8432 Standard.
2. The value in the parentheses indicates the wall-mounting condition.
3. Working range of J6 axis may be restricted by the position of J5 axis.
4. When loading the Max. payload capacity as the end effector.
5. The capacity of the upper arm varies with the wrist capacity.
6. Working range of J2 axis may be restricted when wall-mounting.
7. The operation range of the J3 axis is restricted to −170 degrees to +205 degrees when floor-based welding is applied.
8. This value changes by placement and load conditions of a wrist.

*These specifications are subject to change without prior notice.

## Manipulator Specifications

| | | | FD-G3 | FD-S3 | FD-H5 | FD-A20 | FD-V25 | FD-V20S | FD-V50 | FD-V80 |
|---|---|---|---|---|---|---|---|---|---|---|
| Model | | | NG3 | NS3 | NH5 | NA20 | NV25 | NV20S | NV50 | NV80 |
| Structure | | | Horizontally articulated type | Vertically articulated type | Vertically articulated type | Vertically articulated type | Vertically articulated type | Vertically articulated type | Vertically articulated type | Vertically articulated type |
| Number of Axes | | | 5 | 6 | 6 | 6 | 6 | 7 | 6 | 6 |
| Wrist Capacity | | | 3kg | 3kg | 5kg | 20kg | 25kg | 20kg | 50kg | 80kg |
| Positional Repeatability (Note 1) | | | ±0.08mm | ±0.08mm | ±0.05mm | ±0.07mm | ±0.07mm | ±0.08mm | ±0.07mm | ±0.08mm |
| Driving Method | | | AC servo motor | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ |
| Driving Capacity | | | 1400W | 390W | 1440W | 7900W | 5600W | 6600W | 14750W | 15100W |
| Positional Feedback | | | Absolute encoder | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ |
| Working Range | Arm | J1 (Rotation 1) | ±170° | ±135° (±45°) (Note 2) | ±170° | ±170° | ±170° (±50°) (Note 2) | ±170° | ±165 ° | ±180° |
| | | J2 (Front/back) | ±50° | −160° to +65° | −125° to +90° | −70° to +60° | −155° to +100° (Note 3) | −145° to +75° | +80° to −135 ° | −155° to +90° |
| | | J7 (Rotation 2) | – | – | – | – | – | ±90° | – | – |
| | | J3 (Up/down) | ±150° | −130° to 125° | −140° to +245° | −140° to +240° (Note 4) | −170° to +260° (Note 4) | −170° to +160° | +260° to −146 ° | −185° to +220° |
| | Wrist | J4 (Swing) | ±210° | ±180° | ±190° | ±180° | ±180° | ±180° | ±360° | ±360° |
| | | J5 (Bending) | ±130° | −40° to +220° | −30° to +210° | −50° to +230° | −50° to +230° | −50° to +230° | ±125° | −35° to +215° |
| | | J6 (Twist) | – | ±360° (Note 6) | ±360° (Note 6) | ±360° (Note 6) | ±360° (Note 6) | ±360° (Note 6) | ±450° | ±360° |
| Maximum Speed | Arm | J1 (Rotation 1) | 2.09rad/s {120°/s} | 1.05rad/s {60°/s} | 3.49rad/s {200°/s} (2.79rad/s {160°/s}) (Note 2) | 3.40 rad/s {195°/s} | 3.40rad/s {195°/s} (3.05rad/s {175°/s}) | 3.40rad/s {195°/s} | 3.14 rad/s {180°/s} | 2.44rad/s {140°/s} |
| | | J2 (Front/back) | 2.79rad/s {160°/s} | 1.05rad/s {60°/s} | 3.49rad/s {200°/s} | 3.32 rad/s {190°/s} | 3.32rad/s {190°/s} | 3.32rad/s {190°/s} | 3.14 rad/s {180°/s} | 1.92rad/s {110°/s} |
| | | J7 (Rotation 2) | – | – | – | – | – | 2.79rad/s {160°/s} | – | – |
| | | J3 (Up/down) | 4.19rad/s {240°/s} | 1.05rad/s {60°/s} | 4.54rad/s {260°/s} | 3.14 rad/s {180°/s} | 3.14rad/s {180°/s} | 3.14rad/s {180°/s} | 3.14 rad/s {180°/s} | 2.44rad/s {140°/s} |
| | Wrist | J4 (Swing) | 9.42rad/s {540°/s} | 3.14rad/s {180°/s} | 6.63rad/s {380°/s} | 6.98 rad/s {400°/s} | 6.98rad/s {400°/s} | 6.98rad/s {400°/s} | 4.45 rad/s {255°/s} | 3.05rad/s {175°/s} |
| | | J5 (Bending) | 9.42rad/s {540°/s} | 3.14rad/s {180°/s} | 6.63rad/s {380°/s} | 6.98 rad/s {400°/s} | 6.98rad/s {400°/s} | 6.98rad/s {400°/s} | 4.45 rad/s {255°/s} | 3.05rad/s {175°/s} |
| | | J6 (Twist) | – | 3.14rad/s {180°/s} | 8.90rad/s {510°/s} | 10.5 rad/s {600°/s} | 10.47rad/s {600°/s} | 10.5rad/s {600°/s} | 6.46 rad/s {370°/s} | 4.45rad/s {255°/s} |
| Wrist Allowable Load | Allowable Moment | J4 (Rotation) | – | 7.94 N·m | 11.9 N·m | 43.7Nm | 52.6N·m | 43.7 N·m | 210 N·m | 433 N·m |
| | | J5 (Bending) | 2.5N·m | 6.47 N·m | 11.9 N·m | 43.7Nm | 52.6N·m | 43.7 N·m | 210 N·m | 430 N·m |
| | | J6 (Twist) | – | 4.12 N·m | 5.2 N·m | 19.6Nm | 24.5N·m | 19.6 N·m | 130 N·m | 294 N·m |
| | Allowable Moment of Inertia | J4 (Rotation) | 0.074 kg·m² | 0.219 kg·m² | 0.303 kg·m² | 1.09kgm² | 1.24kg·m² | 1.09 kg·m² | 30 kg·m² | 31.4 kg·m² |
| | | J5 (Bending) | 0.037 kg·m² | 0.145 kg·m² | 0.303 kg·m² | 1.09kgm² | 1.24kg·m² | 1.09 kg·m² | 30 kg·m² | 31.4 kg·m² |
| | | J6 (Twist) | – | 0.059 kg·m² | 0.061 kg·m² | 0.24kgm² | 0.33kg·m² | 0.24 kg·m² | 12 kg·m² | 11.9 kg·m² |
| Arm Cross-sectional Area | | | 0.69m² × 340° | 0.82m² × 270° | 1.22m² × 340° | 3.32m²×340° | 5.27m² | 3.91m² × 340° | 7.4 m² × 330° | 9.53m² × 360° |
| Environmental Conditions | | | Temp: 0 to 45°C, Hmd: 20 to 80%RH (No Condensation) | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ |
| Mass (weight) | | | 144 kg | 31 kg | 58 kg | 355 kg | 278 kg | 321 kg | 640 kg | 780 kg |
| Capacity of Upper Arm | | | 40 kg | 1 kg | 1 kg | 20 kg (Note 7) | 10 kg (Wrist capacity: 25kg) (Note 7) | 5 kg (Note 7) | 15 kg (Note 7) | 50 kg |
| Installation Method | | | Floor-mounted | Floor-/Ceiling-/Wall-mounted | Floor-/Ceiling-/Wall-mounted | Floor-/Ceiling-mounted | Floor-/Ceiling-/Wall-mounted | Floor-mounted | Floor-mounted | Floor-/Ceiling-mounted |
| Paint Color | | | White (Munsell notation 10GY 9/1) | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ |
| IP code | | | – | – | – | – | – | – | – | Wrist axes:IP65/67 Base axes:IP54 |

Notes
1. Positional repeatability of the tool center point (TCP) value complies with the JIS-B-8432 Standard.
2. The value in the parentheses indicates the wall-mounting condition.
3. Working range of J6 axis may be restricted by the position of J5 axis.
4. When loading the Max. payload capacity as the end effector.
5. The capacity of the upper arm varies with the wrist capacity.
6. Working range of J2 axis may be restricted when wall-mounting.
7. The operation range of the J3 axis is restricted to −170 degrees to +205 degrees when floor-based welding is applied.
8. This value changes by placement and load conditions of a wrist.

*These specifications are subject to change without prior notice.

## Manipulator Specifications

| | | | FD-V100 | FD-V130 | FD-V166 | FD-V210 | FD-V280L | FD-V350 | FD-V400L | FD-V600 | FD-V700 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Model | | | NV100 | NV130 | NV166 | NV210 | NV280L | NV350 | NV400L | NV600 | NV700 |
| Structure | | | Vertically articulated type | Vertically articulated type | Vertically articulated type | Vertically articulated type | Vertically articulated type | Vertically articulated type | Vertically articulated type | Vertically articulated type | Vertically articulated type |
| Number of Axes | | | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| Wrist Capacity | | | 100kg | 100kg | 166kg | 210kg | 280kg | 350kg | 400kg | 600kg | 700kg |
| Positional Repeatability(Note 1) | | | ±0.08mm | ±0.08mm | ±0.1mm | ±0.15mm | ±0.2mm | ±0.2mm | ±0.3mm | ±0.3mm | ±0.3mm |
| Driving Method | | | AC servo motor | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ |
| Driving Capacity | | | 15100W | 15100W | 18kW | 18kW | 30kW | ◀ | 27kW | ◀ | ◀ |
| Positional Feedback | | | Absolute encoder | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ |
| Working Range | Arm | J1 (Rotation 1) | ±180° | ±180° | ±180° | ±180° | ±180° | ±180° | ±180° | ±180° | ±180° |
| | | J2 (Front/back) | −155° to +90° | −155° to +90° | −80° to +60° | −80° to +60° | −100° to +40° | −100° to +40° | −105° to +60° | −105° to +60° | −105° to +60° |
| | | J3 (Up/down) | −185° to +220° | −185° to +220° | −146.5° to +150° | −146.5° to +150° | −147° to +130° | −180° to +130° | −130° to +30° | −140° to +30° | −140° to +30° |
| | Wrist | J4 (Swing) | ±360° | ±360° | ±360° | ±360° | ±360° | ±360° | ±210° | ±210° | ±210° |
| | | J5 (Bending) | −35° to +215° | −35° to +215° | ±135° | ±130° | ±125° | ±125° | ±120° | ±120° | ±120° |
| | | J6 (Twist) | ±360° | ±360° | ±360° | ±360° | ±360° | ±360° | ±210°(±360°)(Note 8) | ◀ | ◀ |
| Maximum Speed | Arm | J1 (Rotation 1) | 2.44rad/s{140°/s} | 2.44rad/s{140°/s} | 2.18rad/s{125°/s} | 2.01rad/s{115°/s} | 1.83rad/s{105°/s} | 1.83rad/s{105°/s} | 1.57rad/s {90°/s} | 1.57rad/s {90°/s} | 1.40rad/s {80°/s} |
| | | J2 (Front/back) | 1.92rad/s{110°/s} | 1.92rad/s{110°/s} | 2.01rad/s{115°/s} | 1.83rad/s{105°/s} | 1.83rad/s{105°/s} | 1.66rad/s {95°/s} | 1.57rad/s {90°/s} | 1.57rad/s {90°/s} | 1.40rad/s {80°/s} |
| | | J3 (Up/down) | 2.44rad/s{140°/s} | 2.44rad/s{140°/s} | 2.11rad/s{121°/s} | 1.97rad/s{113°/s} | 1.66rad/s {95°/s} | 1.66rad/s {95°/s} | 1.57rad/s {90°/s} | 1.57rad/s {90°/s} | 1.40rad/s {80°/s} |
| | Wrist | J4 (Swing) | 3.05rad/s{175°/s} | 3.05rad/s{175°/s} | 3.14rad/s{180°/s} | 2.44rad/s{140°/s} | 2.09rad/s{120°/s} | 1.92rad/s{110°/s} | 1.92rad/s{110°/s} | 1.92rad/s{110°/s} | 1.74rad/s{100°/s} |
| | | J5 (Bending) | 3.05rad/s{175°/s} | 3.05rad/s{175°/s} | 3.02rad/s{173°/s} | 2.32rad/s{133°/s} | 2.09rad/s{120°/s} | 1.92rad/s{110°/s} | 1.92rad/s{110°/s} | 1.92rad/s{110°/s} | 1.74rad/s{100°/s} |
| | | J6 (Twist) | 4.45rad/s{255°/s} | 4.45rad/s{255°/s} | 4.54rad/s{260°/s} | 3.49rad/s{200°/s} | 3.49rad/s{200°/s} | 3.14rad/s{180°/s} | 3.14rad/s{180°/s} | 3.14rad/s{180°/s} | 2.79rad/s{160°/s} |
| Wrist Allowable Load | Allowable Moment | J4 (Rotation) | 721 N·m | 721 N·m | 951 N·m | 1,337 N·m | 1921 N·m | 2750 N·m | 3450 N·m | 3450 N·m | 3450 N·m |
| | | J5 (Bending) | 721 N·m | 721 N·m | 951 N·m | 1,337 N·m | 1921 N·m | 2750 N·m | 3450 N·m | 3450 N·m | 3450 N·m |
| | | J6 (Twist) | 294 N·m | 294 N·m | 490 N·m | 720 N·m | 988 N·m | 1235 N·m | 1725 N·m | 1725 N·m | 1725 N·m |
| | Allowable Moment of Inertia | J4 (Rotation) | 60.0 kg·m² | 60.0 kg·m² | 88.9 kg·m² | 141.1 kg·m² | 400kg·m² | 400kg·m² | 600kg·m² | 600kg·m² | 600kg·m² |
| | | J5 (Bending) | 60.0 kg·m² | 60.0 kg·m² | 88.9 kg·m² | 141.1 kg·m² | 400kg·m² | 400kg·m² | 600kg·m² | 600kg·m² | 600kg·m² |
| | | J6 (Twist) | 33.7 kg·m² | 33.7 kg·m² | 45.0 kg·m² | 79.0 kg·m² | 250kg·m² | 250kg·m² | 400kg·m² | 400kg·m² | 400kg·m² |
| Arm Cross-sectional Area | | | 7.56m² × 360° | 6.83m² × 360° | 6.58m²×360° | 6.67m²×360° | 8.72m²×360° | 6.77m²×360° | 10.72m²×360° | 6.60m²×360° | 6.60m²×360° |
| Environmental Conditions | | | Temp: 0 to 45°C, Hmd: 20 to 80%RH (No Condensation) | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ |
| Mass (weight) | | | 770kg | 765kg | 1010kg | 1040kg | 1660kg | 1620 kg | 3050 kg | 2850 kg | 3320 kg |
| Capacity of Upper Arm | | | 50kg | 50kg | 45kg(90kg max.) (Note 7) | 45kg(90kg max.) (Note 7) | 25kg max.(Note 7) | 50kg max.(Note 7) | 50kg max.(Note 7) | 50kg max.(Note 7) | 25kg max.(Note 7) |
| Installation Method | | | Floor-/Ceiling-mounted | Floor-/Ceiling-mounted | Floor-mounted | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ |
| Paint Color | | | White (Munsell notation 10GY 9/1) | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ |
| IP code | | | Wrist axes:IP65/67 Base axes:IP54 | ◀ | – | – | Wrist axes:IP67P Base axes:IP54P | ◀ | ◀ | ◀ | ◀ |

Notes
1. Positional repeatability of the tool center point (TCP) value complies with the JIS-B-8432 Standard.
2. The value in the parentheses indicates the wall-mounting condition.
3. Working range of J6 axis may be restricted by the position of J5 axis.
4. When loading the Max. payload capacity as the end effector.
5. The capacity of the upper arm varies with the wrist capacity.
6. Working range of J2 axis may be restricted when wall-mounting.
7. The operation range of the J3 axis is restricted to −170 degrees to +205 degrees when floor-based welding is applied.
8. This value changes by placement and load conditions of a wrist.

*These specifications are subject to change without prior notice.

## Peripheral Equipment Jig Positioner

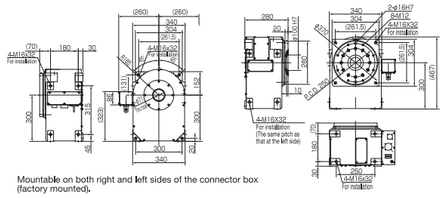
- 8 models of positioners available from 250 kg to 1,000 kg payload capacity.
- Operation of the positioner is totally controlled by the robot teaching pendant. Positioners can be operated independently or synchronized with the robot.
- High accuracy operation is made possible by the same AC servo motor and non-backlash reduction gear that is used for the robot.
- Synchronized motion when using with the OTC robot.

Positioner

# Positioner Headstock 1PB Series

- Can be used to build varied jig systems with a large degree of positioning flexibility.
- A hole through the center of the rotary table, enabling cables and hoses to be routed through easily.

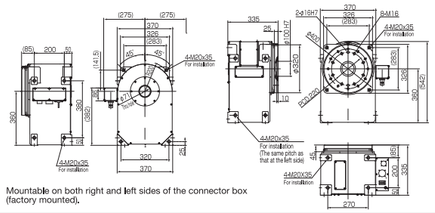
### 1PB250



Mountable on both right and left sides of the connector box (factory mounted).

| Model Name | A2PB252-E |
|---|---|
| Max. Payload Capacity | 250 kg |
| Rotating Speed | 2.6 rad/s {150°/s} |
| Allowable Rotating Torque | 206 N·m |
| Position Repeatability | ±0.1 mm (Position at R300 mm) |
| Stop Position | Random |
| Mass (Weight) | 110 kg |

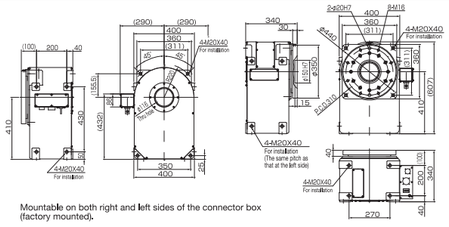
### 1PB500



Mountable on both right and left sides of the connector box (factory mounted).

| Model Name | A2PB502-E |
|---|---|
| Max. Payload Capacity | 500 kg |
| Rotating Speed | 2.1 rad/s {120°/s} |
| Allowable Rotating Torque | 490 N·m |
| Position Repeatability | ±0.1 mm (Position at R300 mm) |
| Stop Position | Random |
| Mass (Weight) | 170 kg |

### 1PB1000



Mountable on both right and left sides of the connector box (factory mounted).

| Model Name | A2PB1002-E |
|---|---|
| Max. Payload Capacity | 1000 kg |
| Rotating Speed | 1.3 rad/s {72°/s} |
| Allowable Rotating Torque | 1078 N·m |
| Position Repeatability | ±0.1 mm (Position at R300 mm) |
| Stop Position | Random |
| Mass (Weight) | 220 kg |

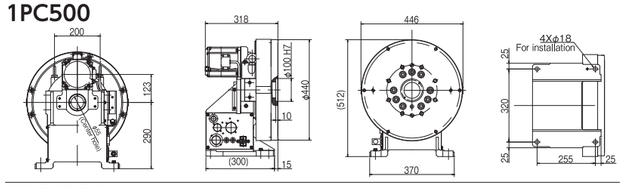
Positioner

# Positioner Headstock 1PC Series

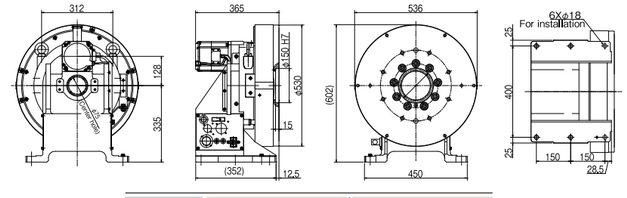
- Designed for Compact, lightweigt and easy installation.
- A hole through the center of the rotary table, enabling cables and hoses to be routed through easily.

1PC500

### 1PC500



### 1PC1000



| Model Name | PC501 | PC1001 |
|---|---|---|
| Max. Payload Capacity | 500kg | 1000kg |
| Rotating Speed | 2.1dad/s{120°/s} | 1.3dad/s{72°/s} |
| Allowable Rotating Torque | 490N·m | 1078N·m |
| Position Repeatability | ±0.1 mm (Position at R300 mm) | ±0.1 mm (Position at R300 mm) |
| Stop Position | Random | Random |
| Mass (Weight) | 110kg | 193kg |





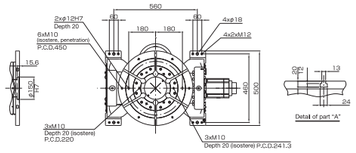
## Peripheral Equipment Jig Positioner,Slider

Positioner

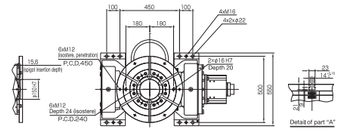
# 2-Axes Double Support Positioner 2PF Series

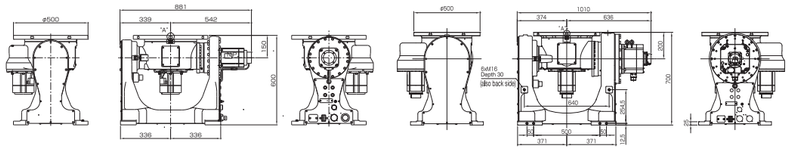
- High-speed motion increases production efficiency.An increase in the maximum rotation speed of the tilting axis by 2.5 times and in rotation axis by two times was achieved in comparison with the conventional machine 300 kg payload type.

### 2PF300・500

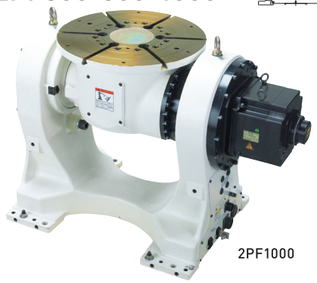


### 2PF1000





### 2PF300・500・1000



2PF1000

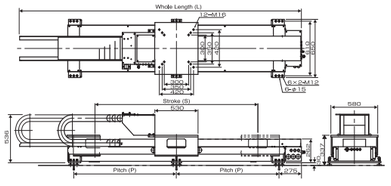
| Model Name | A2PF301-ENN | A2PF501-ENN | A2PF1001-ENN |
|---|---|---|---|
| Max. Payload Capacity | 300 kg | 500 kg | 1000 kg |
| Rotating Speed | 3.1 rad/s {180°/s} | 2.8 rad/s {162°/s} | 2.9 rad/s {166°/s} |
| Tilting Speed | 2.2 rad/s {125°/s} | 1.5 rad/s {84°/s} | 1.4 rad/s {82°/s} |
| Rotating Torque | 294 N·m | 392 N·m | 882 N·m |
| Tilting Torque | 882 N·m | 1347 N·m | 3704 N·m |
| Position Repeatability | ±0.08 mm (Position at R250 mm) | ±0.08 mm (Position at R250 mm) | ±0.08 mm (Position at R250 mm) |
| Stop Position | Random | Random | Random |
| Mass (Weight) | 260 kg | 260 kg | 470 kg |

- Sliders are available in 12 models with strokes between 1 m and 6.9 m.
- Employment of an AC servo motor and non-backlash reduction gear provides the same high accuracy operation as that of robots.
- Combination with the OTC robot allows synchronized operation.
- The cable bearer is provided in the center of the slider, which allows space-saving installation.

Slider

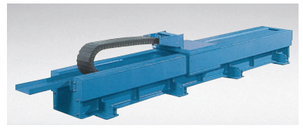
# Linear Sliders (Light Duty) Model 1SB

- A maximum of 330 kg can be loaded.
- Dust-proof structure prevents spatter, oil and dust from entering.

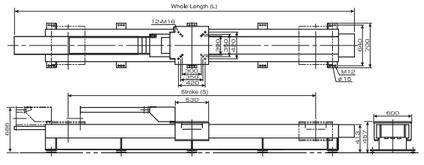


Slider

# Linear Sliders (Standard Duty) Model 1SR

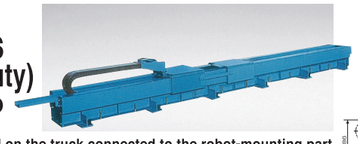


- Standard Duty with a maximum loading weight of 330 kg
- Dust-proof structure prevents spatter, oil and dust from entering.

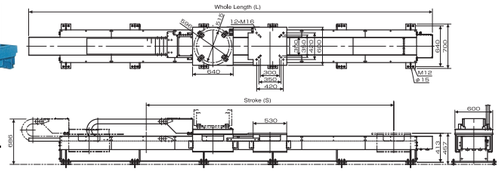


Slider

# Linear Sliders (with Carriage Duty) Model 1SR-P



- The wire pack can be mounted on the truck connected to the robot-mounting part.
- Dust-proof structure prevents spatter, oil and dust from entering.



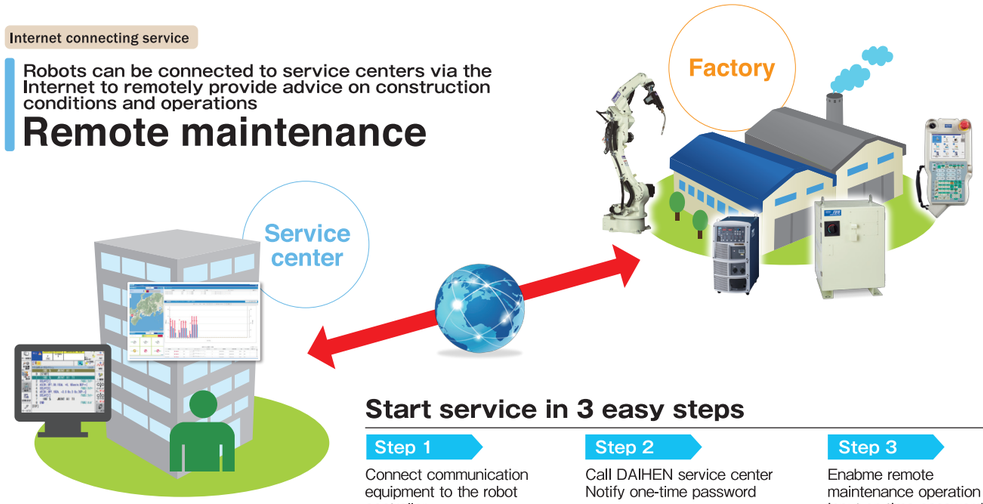
| | Model 1SB | | Model 1SR | | | | | Model 1SR-P | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model Name | A2SB102-E, A2SB202-E | | A2SR292-E, A2SR392-E, A2SR492-E, A2SR592-E, A2SR692-E | | | | | A2SR19P2-E, A2SR29P2-E, A2SR39P2-E, A2SR49P2-E, A2SR59P2-E | | | | |
| Stroke Length | 1 m, 2 m | | 2.9 m, 3.9 m, 4.9 m, 5.9 m, 6.9 m | | | | | 1.9 m, 2.9 m, 3.9 m, 4.9 m, 5.9 m | | | | |
| Max. Moving Speed | 0.3 m/s | | 0.295 m/s | | | | | 0.295 m/s | | | | |
| Max. Mounting Capacity | 330 kg | | 330 kg | | | | | 660 kg (330 kg for each table) | | | | |
| Position Repeatability | ±0.1 mm | | ±0.1 mm | | | | | ±0.1 mm | | | | |
| | A2SB102-J | A2SB202-J | A2SR292-J | A2SR392-J | A2SR492-J | A2SR592-J | A2SR692-J | A2SR19P2-J | A2SR29P2-J | A2SR39P2-J | A2SR49P2-J | A2SR59P2-J |
| Stroke S (mm) | 1000 | 2000 | 2900 | 3900 | 4900 | 5900 | 6900 | 1900 | 2900 | 3900 | 4900 | 5900 |
| Whole Length L (mm) | 2510 | 3510 | 4500 | 5500 | 6500 | 7500 | 8500 | 4500 | 5500 | 6500 | 7500 | 8500 |
| Mass (kg) | 450 | 550 | 650 | 750 | 850 | 950 | 1050 | 800 | 900 | 1000 | 1100 | 1200 |

*Ensure that the total mass of the manipulator and other peripherals does not exceed the payload capacity.

Internet connecting service

Robots can be connected to service centers via the Internet to remotely provide advice on construction conditions and operations

# Remote maintenance




## Start service in 3 easy steps

**Step 1**
Connect communication equipment to the robot controller

**Step 2**
Call DAIHEN service center
Notify one-time password

**Step 3**
Enabme remote maintenance operation and input on-time password

### ■ Customer preparations

The internet connection environment will be prepared by the customer

LTE router
・Data communication SIM card
・LAN cable
※Recomended：UD-LT1/EX(Made by IO data)(Consumable goods)

Smartphone
※Use tetherling function of Android phone.
(USB cable)

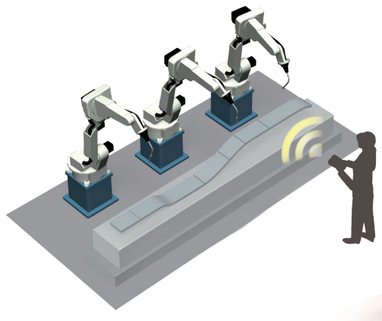
Internal LAN
・Internet connection
・LAN cable

1)Data communication charges will be borne by the customer.
2)This system uses communication equipment, so it may not be possible to use the function as intended due to communication status or interference.

Wireless teach pendant

Enables robot to be operated wirelessly. Supports all current models.

# WiTP Wireless Teach Pendant



## Reduced Teaching Burden

Because no bulky cable is required, the operator can perform teaching with ease while moving about effortlessly.

## Operates Multiple Robots with a Single Pendant

To switch between robots, simply select the desired robot number with the pendant and perform identification steps according to the guide.

## Certified for Wireless Operation — An Industry First

Features the servo block function activated by a robot emergency stop button and an enable switch.

This device has already been certified by TÜV SÜD as meeting the IEC61508 SIL2 and ISO 13849 Cat. 3 PL d standards for functional safety.
Certification No.: Z10 14 08 88597 003

Feature available beginning February 2020.

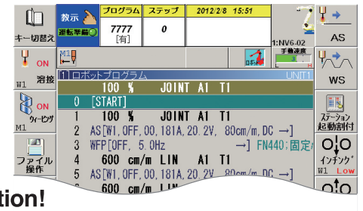


PC software

High-accuracy/high-performance teaching & simulation achieved by the same operation as that of robot!

# Offline teaching system FD-ST

## Fully compatible with the controller FD19

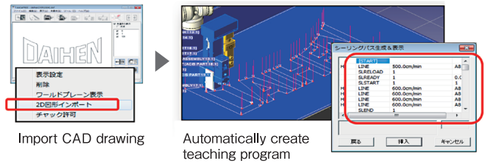


This teaching system can be operated by the same operation of the robot controller FD19. If OTC standard robot system is provided, the setup can be completed only by reading the backup data.

## New function realizing simplified operation!

### Cooperation with CAD

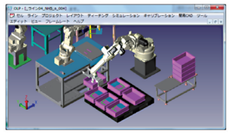
Automatically generates teaching program from CAD data.
And direct trasfer to the robot controller.



Import CAD drawing
Automatically create teaching program

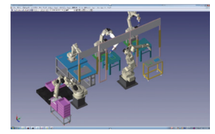
### Handling support

Simulate attach/detach action of work piece. Reduce the verification time of actual robot.



### Product line simulation

The multiple ROBOT teaching and simulation output on the PC and possible to teaching and verification for cooperation of these robots.



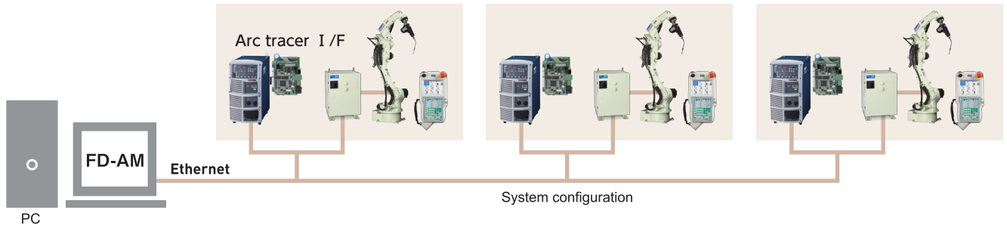
PC software

PC-based Welding Quality Control

# Robot Welding Control System FD-AM

## Simple configuration and collect all welding data.

With the teach pendant, the operator can monitor conditions during the welding process and even record welding data on a PC. This makes it possible to manage all aspects of welding, including “when, where, what and how.”




System configuration

### ■ Teach Pendant Monitor

| Item | Details |
|---|---|
| Maximum sampling frequency (Maximum sampling cycle) | 20 Hz (50 ms)<br>Maximum sampling frequency can be set individually for each monitored parameter. |
| Monitored parameters (11 in total) | Electric current, voltage, feed load, feed speed (feed device), feed speed (measurement unit)*, feed motor electric current**, gas flow quantity*, gas pressure*, welding power supply primary-side voltage**, welding power supply internal temperature**, welding power supply fan rotation rate** |
| Indication style | Numerical values indicated with a wave pattern |
| Welding result indications | Mean value, maximum value, minimum value, welding time, welding distance |

* Optional　** All models of the Welbee Invertor series only.

### ■ FD-AM (PC software)

| Item | | Details |
|---|---|---|
| Maximum sampling frequency (Maximum sampling cycle) | | 10 Hz (Electric current & voltage: 100 μs, Other: 50 ms)<br>Maximum sampling frequency can be set individually for each recorded parameter. |
| Recorded parameter | Commands (5 in total) | Electric current, voltage, feed load, feed speed (feed device) |
| | Monitored parameters (11 in total) | Feed speed (measurement unit)*, feed motor electric current**, gas flow quantity*, gas pressure*, welding power supply primary-side voltage**, welding power supply internal temperature**, welding power supply fan rotation rate** |
| Welding result indications | Real time | Mean value, maximum value, minimum value, welding time, welding distance |
| | History | Mean value, welding time, welding distance, welding abnormalities |
| Communication method | | Via Ethernet. Features automatic connection and reconnection with robots. |
| Welding point identification | | Robot control device name, program comment, work name, work serial number, welding section name |
| Abnormality monitoring function | | Divergence from command value, deviation from rated value |
| Abnormality indication | | Abnormal number and error message indication |

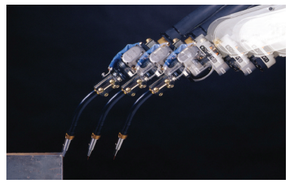
*Optional　** All models of the Welbee Invertor series only.

Workpiece position detection sensor

## Touch sensor FD-WD

### Workpiece position detection sensor by touching the welding wire

- Applicable to all the workpieces with a medium thickness or thicker.
- Most inexpensive among all workpiece position detection sensors.
- Requires no separate sensor unit because this sensor has a built-in controller.
- Allows high-speed search at up to 360 cm/min.
- A separate sensor unit (optional) is ready for hardly energized surfaces such as rust and black scale.



Tracking sensor for $CO_2$/MAG welding

## Arc sensor FD-AR

### Automatic seam tracking by weaving

- This sensor allows correction of curved workpiece or thermal distortion which can't be corrected only by detecting workpiece position.
- Applicable to workpieces with medium thickness or thicker.
- Most inexpensive among all the tracking sensors.
- Easy to use from the viewpoints of interference of workpieces and maintenance because this sensor requires no additional parts around the t orch.

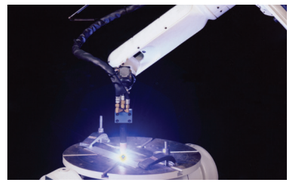
*Can't be used for tracking on aluminum.

Tracking sensor for TIG welding

## TIG arc sensor FD-TR

### Automatic seam tracking in TIG welding

- Allows arc length constant control (vertical tracking) in TIG.
- Allows stable execution of welding by keeping the arc length constant to the thermal distortion of thin plate.
- Allows high-accuracy tracking even in pulse TIG welding.
- Easy to use from the viewpoints of interference of workpieces and maintenance, because it requires no additional parts around the torch.



| | | | |
|---|---|---|---|
| Workpiece position detection | ○ (The maximum two-way displacement detection rate per site is about 5 seconds.) | × | × |
| Seam tracking | × | ○ | ○ (only vertical tracking) |
| Recognition of groove shape | × | × | × |
| Combination with other sensors | This sensor can be used together with an arc sensor or TIG arc sensor. | Combination use of the touch sensor and laser sensor is possible. | Combination use of the touch sensor and laser sensor is possible. |
| Applicable workpieces | Plate thickness: 3.2 mm or more | Plate thickness: 3.2 mm or more | (Plate thickness: 1.0 mm or more) |
| Accuracy | ±1.0 mm (provided that the bend of wire does not change) | ±1.0 mm (provided that arc and pool are stable) | ±0.5 mm (when the electrode is not worn) |
| Workpiece material | All the materials and surfaces to be energized | Iron system, stainless steel system | All the materials which can be welded |

Laser start point detection sensor

## Laser search FD-QD

### High-accuracy workpiece position detection sensor using laser

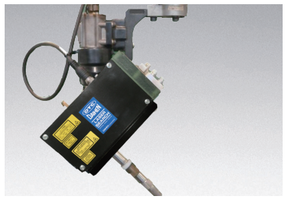
- Realizes higher speed and higher accuracy than those of the touch sensor.
- Allows high accuracy detection for a wide spectrum of applications from thin plate to medium thickness plate.
- Allows recognition of various welding joints by easy operation.
- Allows visual check of the recognition result using a teach pendant.
- Enables automatic change of the welding condition based on the recognition result.
- Can be used for applications other than welding.

High-speed and high-accuracy laser start point detection sensor

## Laser Search FD-QF

### High-speed workpiece position detection sensor using laser

- Thanks to the two-dimensional laser, the cross-section of a groove can be instantaneously detected without movement of the robot (detection time is 1/5 or less compared with that of a touch sensor).
- The high-speed and high-accuracy detection is highly adaptable to thin-plate welding.
- Also accommodates thick-plate applications with high accuracy thanks to improved environmental resistance.
- Enables automatic change of the welding condition based on the recognition result.

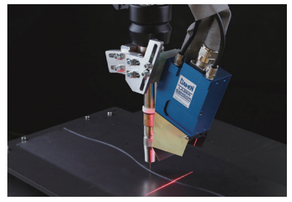


Laser tracking sensor

## Laser sensor FD-QT

### High accuracy welding line tracking by laser

- High accuracy 3D tracking for complex shape work piece.
- The sensor automatically adjusts optimal position and posture with simple teaching.
- Workpiece position detection
- For thin material and high accuracy
- Real time adjustment of welding conditions by adaptive control
- TIG welding also possible



| | | | |
|---|---|---|---|
| Workpiece position detection | ○ (The maximum two-way displacement detection rate per site is about 1.5 seconds) | ○ (The maximum one-way displacement detection rate is about 0.3 seconds.) | ○ |
| Seam tracking | × | × | ○ |
| Recognition of groove shape | ○ | ○ | ○ |
| Combination with other sensors | This sensor can be used together with the touch sensor, arc sensor or TIG arc sensor. | This sensor can be used together with the touch sensor, arc sensor or TIG arc sensor. | Unnecessary (Welding line tracking and position detection is possible.) |
| Applicable workpieces | (Plate thickness: 1.0 mm or more) | (Plate thickness: 0.5 mm or more) | Plate thickness 0.1 mm or more |
| Accuracy | ±0.5 mm (Search speed 100 cm/min or less. For stand-alone robot) | ±0.2 mm (provided that cross-sectional shape of detection area does not change) | ±0.4mm (provided that cross-sectional shape of detection area does not change) |
| Workpiece material | The surface shall not be glossy (nonmetal is permitted). | The surface shall not be glossy (nonmetal is permitted). | The surface shall not be glossy (nonmetal is permitted). |

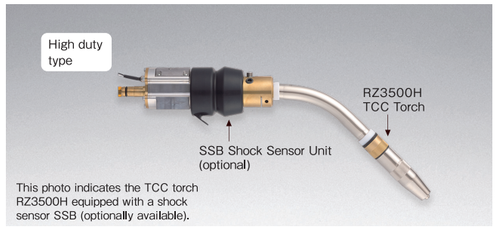




Torch for robot

Achieving stable welding operation which enables prevention of welding interruption and reduction in costs of consumables

## Forced pressurized power feeding torch (TCC torch)



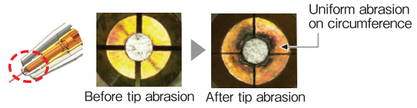

This photo indicates the TCC torch RZ3500H equipped with a shock sensor SSB (optionally available).

| Model | Maximum welding current (MAG welding) | Rated duty cycle (MAG welding) |
|---|---|---|
| RZ3500S/L/H | 350A(350A) | 80%(60%) |
| RZ3510S/L/H | 350A(250A) | 50%(50%) |
| RZW5000S/L/H | 500A(400A) | 70%(60%) |

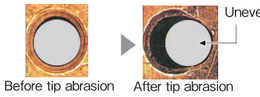
### Deviation of wire position prevented

This torch improves the deviation of wire position by about 50 percent or more compared with the standard torch.

TCC Torch




Standard torch




### Improved durability of the tip

Durability of the tip holder improved about 20 times or more compared with the standard robot tip.

### Reliable power supply

Compared to a conventional standard torch, this offers improved welding quality thanks to the stable wired power supply.

Welding peripherals

For automatic removal of spatters in the nozzle

## Air blow kit


**Only addition of the air blow kit to CO2/MAG standard torch enables quick-change into the air blow style tip body!**

### Advantages of air blow specification

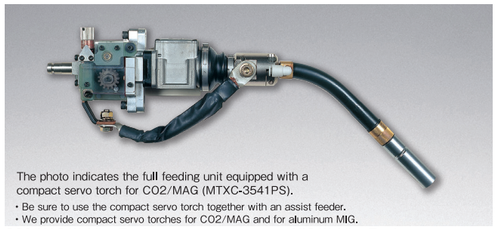
- Automatic removal of spatters in the nozzle with air, prevention of welding interruption.
- Enhancement of the life of nozzle by cooling the nozzle with air, reduction in the running cost.

Note: Compatible with RT3500*, RT5000* and RZ35***

Torch for robot

For improving welding quality

## Compact servo torch



The photo indicates the full feeding unit equipped with a compact servo torch for CO2/MAG (MTXC-3541PS).

- Be sure to use the compact servo torch together with an assist feeder.
- We provide compact servo torches for CO2/MAG and for aluminum MIG.

CO2/MAG Welding Torch

| Model | Maximum welding current (MAG welding) | Rated duty cycle (MAG welding) |
|---|---|---|
| MTXC-3541PS | 350A(250A) | 50%(50%) |
| MTXCW-5041PS | 500A(300A) | 70%(50%) |

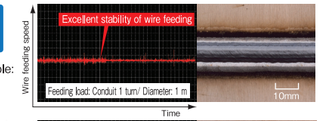
MIG Welding Torch

| Model | Maximum welding current | Rated duty cycle |
|---|---|---|
| MTXCA-3041PS | 300A | 50% |
| MTCAW-4041PS | 400A | 70% |

### Excellent stability of wire feeding

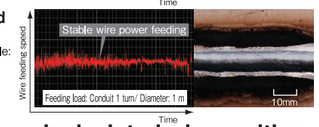
Servo Torch

Conduit cable: 5 m




Standard torch

Conduit cable: 5 m




Welding current: 200A
Wire feeding speed: 12.6 m/min.
Welding voltage: 24.0 V
Welding speed: 70 cm/min.
Wire: A5356/ϕ1.2 mm
Base metal: A5052

### Decrease in deviated wire position

The compact servo torch has realized reduction in deviated wire position to one third or lower compared with the standard torch (about 0.2 mm or less), and also reduction in welding defects such as bead deviation and burn through.

### Optional software dedicated to servo torch

RS Control

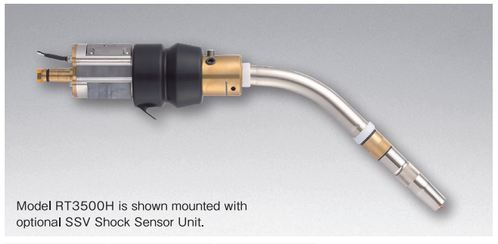
RS control realizes secure arc start by instantaneously raising the wire which makes contact with the base metal, and allows reduction of spatters at the start of welding.

- The RS control is limited in applicable robot model, welding power source, and welding mode.
- This model requires optional software.

Torch for robot

Our bestselling CO2/MAG torch compatible with a shock sensor

## Torch



Model RT3500H is shown mounted with optional SSV Shock Sensor Unit.

| Model | Maximum welding current (MAG welding) | Rated duty cycle (MAG welding) |
|---|---|---|
| RT3500S/L/H | 350A(350A) | 80%(60%) |
| RT5000S/L/H | 500A(350A) | 50%(70%) |
| RTW5000S/L/H | 500A(400A) | 70%(60%) |