

# **SINGLE SOURCE ADVANTAGE**

Our single source approach is simple: we provide all the equipment needed for robotic or manual arc welding. One call solves it all!

- · Seamless digital integration for maximum control
- · Reduced maintenance time for greater uptime and productivity
- · Expert service from experienced support staff

ROBOT, WELDING POWER SOURCE, WIRE FEEDER, TORCH—WE PROVIDE IT ALL.

# **SEAMLESS SOLUTIONS**

Our cells can provide arc welding solutions for a range of parts from small to large size, with minimal operator movement required and little to no part positioning. The compact designs reduce required manufacturing floor space. All cells include an arc welding robot, a robot controller, a teach pendant and a positioner.







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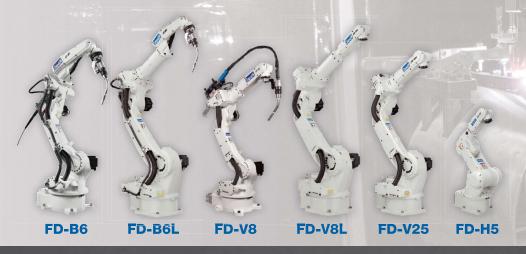




# CHANGING THE FUTURE OF MANUFACTURING

**OPTIMUM TEACHING** 

Easy teaching, even for a two-electrode torch.



Our arc welding robots are ideal for many welding and air plasma cutting applications. They can be used for mild steel, stainless steel, aluminum, titanium and other exotic metals. While some models feature a compact design, robots can handle a variety of jobs ranging from small to large in size. All arc welding robots include an FD11 robot controller and a teach pendant.

# THE IDEAL SOLUTION FOR AUTOMATION OF WELDING



Intuitive Operation
Touch panel and jog dial
ensure easy operation.



Quality Control Functions
Easy quantitative management
of welding procedures.



Compact and Eco-Friendly
Space-saving design with
reduced standby power
consumption

# FD-B6

The FD-B6 arc welding robot represents our newest in robotic innovations. Sporting a unique design with a through-arm co-axial cable, this robot is highly versatile at welding in confined spaces and complicated fixtures. The coaxial cable of the FD-B6 also helps improve overall weld quality.



# **SMOOTH OPERATION SMART CONTROLLER**



### Compact and light weight 27% lighter than previous model, making teaching sessions easier.

smaller than previous model, making it easier to handle in tight spaces.

# Smooth teaching Touch panel provides simple operation.

Jog dial allows simple adjustment.

Smooth backups makes data saving and reading easy.





#### Electric conservation

Up to 50% reduction in power onsumption using the power conservation mode (energy conservation timer function and external servo OFF function)

Minimal maintenance Addition of axes is simple and fast. 30% fewer parts.

Space conservation model. Additional clearance above the

#### **FD TEACHING PENDANT**

- · Welding condition guide function helps you find better welding conditions with one-touch operation.
- · Jog dial can scroll through teaching programs, adjust wire aiming position, do wire inching and retract movement, and can provide intuitive operation for multiple items.
- One-touch access with the touch panel reduces the number of times keys are pressed.
- · Improved display increases readability.
- · Iconified operation buttons increases readability.

#### **FD11 Robot Controller**

- · Windows XP based open architecture
- Large memory capacity and 40 Input / 40 Output control signals
- · Advanced PLC functions allow for ladder diagram editing directly through the teaching pendant
- Network capabilities connects to Ethernet, DeviceNet, and PROFIBUS connections (may require additional hardware)
- Improved operability with corrective teaching quickly improves welding quality.
- Improved movement performance by increasing the robot response speed to weld start signals. Arc start failures are reduced and high quality bead appearance is achieved. By greatly reducing residual vibrations, high-speed approaches are possible.
- Improved space utilization by reducing the height of the controller
- •Increased reliability with easy troubleshooting reduces downtime. Data is backed up when a welding error occurs to troubleshoot and find the problem. Traceability can be done by connecting a computer.

# RANGE OF MOTION MANIPULATOR WORKING RANGE / SPECIFICATIONS





Reach

Axes

Reach

Axes

Payload

Payload



1445mm

6 kg



# P Point Working Range

FD-V8 Standard

	Reach	1437mm		
	Payload	8kg		
	Axes	6		
	Repeatability	± 0.08 mm		



Repeatability ± 0.08 mm



2010mm

6 kg







ED-VOL Long Reach

I D-VOL Long	1100011		
Reach	2006mm		
Payload	8kg		
Axes	6		
Repeatability	± 0.08 mm		



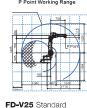
Repeatability ± 0.08 mm



Reach

Axes

Payload

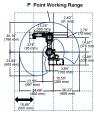


1710mm

25 kg

Repeatability ± 0.07 mm





FD-H5 Compact

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Reach	866mm		
Payload	5 kg		
Axes	6		
Repeatability	± 0.05 mm		

# **Specifications: Manipulator**

			FD-B6	FD-B6L	FD-V8	FD-V8L	FD-H5	FD-V25
Model			NB6	NB6L	NV8	NV8L	NH5	NV25
Number of axes		es	6	6	6	6	6	6
Maximum capacity		acity	13.2 lbs (6kg)	13.2 lbs (6kg)	17.6 <b>l</b> bs (8kg)	17.6 <b>l</b> bs (8kg)	11 <b>l</b> bs (5kg)	55 lbs (25kg)
Positional repeatability		eatability	±0.003" (±0.08mm) <sup>(1)</sup>	±0.003" (±0.08mm) <sup>(1)</sup>	±0.003" (±0.08mm) <sup>(1)</sup>	±0.003" (±0.08mm) <sup>(1)</sup>	±0.002" (±0.05mm) <sup>(1)</sup>	±0.003" (±0.08mm) <sup>(1)</sup>
Horizontal Reach		ach	56.88" (1445mm)	79.05" (2008mm)	56.57" (1437mm)	78.98" (2006mm)	34.09" (866mm)	67.32" (1710mm)
Vertical Reach		ı	84.80" (2154mm)	140.71" (3574mm)	98.27" (2496mm)	140.55" (3570mm)	54.1" (1374mm)	117.28" (2979mm)
Driving capacity		ity	3132 W	4832 W	3016 W	5000 W	1440 W	5600 W
Working Range		J1 (Rotation)	±170° (±50°)(2)	±170° (±50°)(2)	±170° (±50°)(2)	±170° (±50°)(2)	±170° (±50°)(2)	±170° (±50°)(2)
	Arm	J2 (Lower arm)	-155° to +90°	-155° to +100° (3)	-155° to +90°	-155° to +100°(3)	-125° to +90°	-155° to +100°
		J3 (Upper arm)	-170° to +245°	-170° to +190°	-170° to +190°	-170° to +260°(4)	-140° to +245°	-170° to +260°(4)
		J4 (Swing)	±155°	±155°	±180°	±180°	±190°	±180°
	Wrist	J5 (Bending)	-45° to +225°(5)	-45° to +225°(5)	-50° to +230°	-50° to +230°	-30° to +210°	-50° to +230°
		J6 (Twist)	±205°(5)	±205°(5)	±360°	±360°	±360°	±360°
	_	J1 (Rotation)	4.19 rad/s (240°/s) 3.32 rad/s (190°/s)	3.40 rad/s (195°/s) 3.05 rad/s (175°/s)	4.19 rad/s (240°/s) 3.32 rad/s (190°/s)	3.40 rad/s (195°/s) 3.05 rad/s (175°/s)	3.49 rad/s (200°/s) 2.79 rad/s (160°/s)	3.40 rad/s (195°/s) 3.05 rad/s (175°/s)
ped	Arm	J2 (Lower arm)	4.19 rad/s (240°/s)	3.49 rad/s (200°/s)	4.19 rad/s (240°/s)	3.49 rad/s (200º/s)	3.49 rad/s (200°/s)	3.32 rad/s (200º/s)
Motion speed		J3 (Upper arm)	4.01 rad/s (230°/s)	3.49 rad/s (200°/s)	4.01 rad/s (230°/s)	3.49 rad/s (200°/s)	4.54 rad/s (260°/s)	3.14 rad/s (200°/s)
Notio		J4 (Swing)	7.50 rad/s (430°/s)	7.50 rad/s (430°/s)	7.50 rad/s (430°/s)	7.50 rad/s (420°/s)	6.63 rad/s (380°/s)	6.98 rad/s (430°/s)
2	Wrist	J5 (Bending)	7.50 rad/s (430°/s)	7.50 rad/s (430°/s)	7.50 rad/s (430°/s)	7.50 rad/s (420°/s)	6.63 rad/s (380°/s)	6.98 rad/s (430°/s)
	-	J6 (Twist)	11.00 rad/s (630º/s)	11.00 rad/s (630º/s)	11.00 rad/s (630°/s)	10.99 rad/s (630°/s)	8.95 rad/s (510°/s)	10.47 rad/s (630%s)
_	t Se	J4 (Swing)	10.5 N•m	10.5 N•m	17.6 N•m	17.6 N•m	11.9 N•m	52.6 N•m
loac	Allowable moment	J5 (Bending)	10.5 N•m	10.5 N•m	17.6 N•m	17.6 N•m	11.9 N•m	52.6 N•m
Wrist allowable load	₹ E	J6 (Twist)	5.9 N•m	5.9 N•m	7.8 N•m	7.8 N•m	5.21 N•m	24.5 N•m
allov	ole t of	J4 (Swing)	0.28kg•m²	0.28kg•m²	0.43kg•m²	0.43kg•m²	0.303kg•m²	1.24kg•m²
Vrist	Allowable moment of inertia	J5 (Bending)	0.28kg•m²	0.28kg•m²	0.43kg•m²	0.43kg•m²	0.303kg•m²	1.24kg•m²
>	₽ E E	J6 (Twist)	0.06kg•m²	0.06kg•m²	0.09kg•m²	0.09kg•m²	0.061kg•m²	0.33kg•m²
Arm cross-sectional area		ctional area	3,59 m² x 340°	6,37 m <sup>2</sup> x 340°	3.14 m² x 340°	7.48 m² x 340°	1,22 m <sup>2</sup> x 340°	5,27 m <sup>2</sup> x 340°
Environmental conditions		l conditions	32 to 113° F (0 to 45° C), 20 to 80% RH (no condensation)					
Mass / weight			319 lbs (145kg)	612 lbs (287kg)	308 <b>l</b> bs (140kg)	601 lbs (273kg)	128 lbs (58kg)	612 <b>l</b> bs (278kg)
Maximum load of upper arm		d of upper arm	22 lbs (10kg) <sup>(6)</sup>	44 lbs (20kg) <sup>(6)</sup>	22 lbs (10kg) <sup>(6)</sup>	44 lbs (20kg) <sup>(6)</sup>	2.2 lbs (1kg) <sup>(6)</sup>	22 lbs (10kg) <sup>(6)</sup>
Installation method		ethod	Floor/Ceilir	ng/Wall				
Paint color			White (Mur	nsell notation 10GY 9/1)				

- NOTES:

  (1) The value of the positional repeatability is at the tool center point (TCP) in compliance with ISO 9283.

  (2) The value in parentheses indicates wall mounted.

  (3) Working range of J2 axis may be restricted when wall mounted.

  (4) The operation range of the J3 axis is restricted to -170° to -205°) when floor based welding is applied.

  (5) Working range of the J6 axis may be restricted by the position of the J5 axis.

  (6) When loading, the maximum payload as the end effector.

  (7) This value changes according to placement and load conditions of the wrist.

power supplies · Improved vibration

restraining control provides smooth robot movement

• Through-arm cable design improves torch reach & wire feeding · Offers a wide working range with an independently articulated arm · Seamless digital connection with all OTC DAIHEN brand welding

 Built-in mechanical shock sensor

· Single source technology - all components are manufactured by OTC DAIHEN

· Highly versatile design supports most welding applications

These specifications are subject to change without prior notice.