

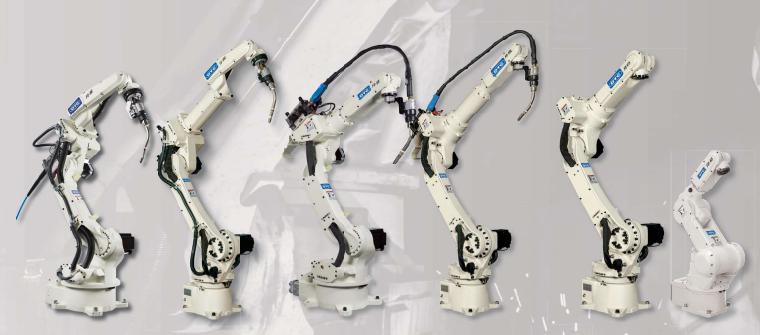
overall weld quality.

COMPLETE ROBOTIC ARC WELDING SYSTEMS

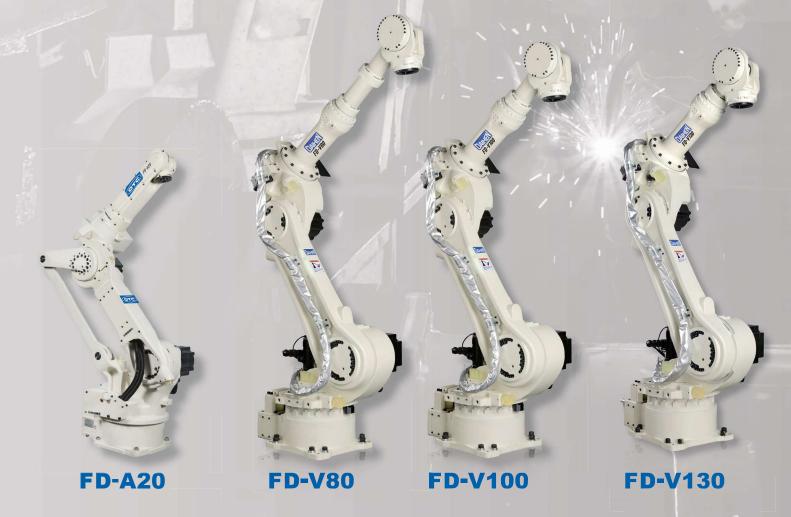
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ble, this robot is highly versatile at welding in confined spaces and complicated fixtures. The coaxial cable of the FD-B6 also helps improve

THE IDEAL SOLUTION FOR AUTOMATION OF WELDING



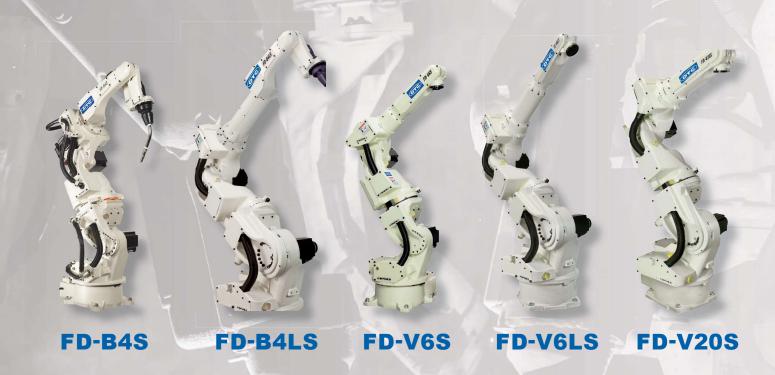
FD-B6 FD-B6L-S2 FD-V8 FD-V8L-S2 FD-V25-S2 FD-H5



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 robots include a FD21 robot controller and a teach pendant.





Intuitive Operation
Touch panel and jog dial
ensure easy operation.



Quality Control FunctionsEasy quantitative management of welding procedures.



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



FD21 TEACH PENDANT

Redesigned for comfortable, extended use

- 66% less arm fatigue
- Weight reduced by 15%
- · Grip redesigned with comfortable 3D contouring
- Easy-to-press keypad with lighter press force
- · Keypad delivers tactile <click> feedback
- Raised features on keypad for tactile, "no-look" navigation
- Added two (2) quick-keys for HOME SCREEN and MENU for faster navigaion
- Redesigned for reliability
- Weld-spatter-resistant border around touch-screen
- Pluggable teach pendant cable for rapid damaged cable replacement
- Hanger hook is now a replaceable, wear item
- Touch-screen upgraded
- Improved resolution and contrast
- Faster response
- Finer touch resolution
- · Supports touch-screen only program editing
- Scroll with swiping action
- On-screen keypad for numeric entry
- Menu icons for tablet/phone-like operation

FD21 ROBOT CONTROLLER

Versatility to "Connect" with facilities, devices and users.

- Easily "CONNECTS" with peripheral equipment through simplified system configuration
- "CONNECTS" from anywhere in the world
- Expanded motion control via "connectable" external axis unit
- Improved "Connectivity" for multiple robots and multiple auxiliary axes
- Enhance your system by "connecting" commercial peripherals
- Offline teaching "CONNECTS" you to uninterrupted production

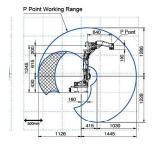




RANGE OF MOTION MANIPULATOR WORKING RANGE / SPECIFICATIONS



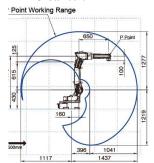
FD-B6 Standard



Reach	1445mm
Payload	6kg
Axes	6
Repeatability	± 0.08mm



FD-V8 Standard



Reach	1402mm
Payload	8kg
Axes	6
Repeatability	± 0.08mm



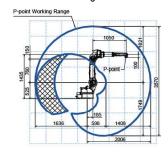
FD-B6L-S2 Long Reach



Reach	2008mm
Payload	6kg
Axes	6
Repeatability	± 0.08mm



FD-V8L-S2 Long Reach



Reach	2006mm
Payload	8kg
Axes	6
Repeatability	± 0.08mm



FD-V25-S2 Standard



Reach	1710mm
Payload	25kg
Axes	6
Repeatability	± 0.08mm



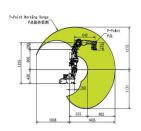
FD-H5 Compact

		P-po	int working rang	je
1	15	.35*	2.40° (61 mm)	
30.16" (766 mm)	3.74	mm)		2.76" (70 mm) 14.57" (370 mm)
23.94	(95 mm)		-	12 99" (330 mm)
(608 mm)			3.94" "(100 mm)" 10.59"	
	23.50" — (597 mm) 34.09"	-	(269 mm) 26.22*	
+	(866 mn 19.69" 500 mm)	n)	(666 mm)	

Reach	866mm
Payload	5kg
Axes	6
Repeatability	± 0.08mm



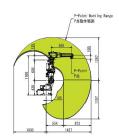
FD-B4S



Reach	1435mm
Payload	4kg
Axes	7
Repeatability	± 0.08mm



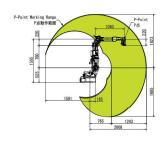
FD-V6S



Reach	1427mm
Payload	6kg
Axes	7
Repeatability	± 0.08mm



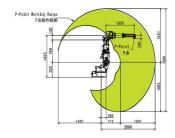
FD-B4LS



Reach	2008mm
Payload	4kg
Axes	7
Repeatability	± 0.08mm



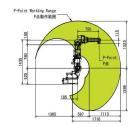
FD-V6LS



2006mm
6kg
7
± 0.08mm



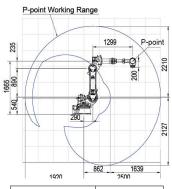
FD-V20S



Reach	1710mm
Payload	20kg
Axes	7
Repeatability	± 0.08mm



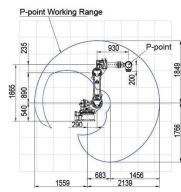
FD-V80



Reach	2500mm
Payload	80kg
Axes	6
Repeatability	± 0.08mm



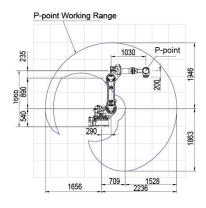
FD-V130



Reach	2139mm
Payload	130kg
Axes	6
Repeatability	± 0.08mm



FD-V100



Reach	2236mm
Payload	100kg
Axes	6
Repeatability	± 0.08mm



FD-A20

500mm	\		-	750_	
150					115
1				\P-p	point 2
1435					
525		A	4		

Reach	1664mm
Payload	20kg
Axes	6
Repeatability	± 0.07mm

Specifications: Manipulator for 6 axis

			FD-B6	FD-B6L-S2	FD-V8	
Model			NB6	NB6L	NV8	
Number of axes		es	6	6	6	
Max	kimum cap	acity	13.2 lbs (6kg)	13.2 lbs (6kg)	17.6 lbs (8kg)	
Pos	itional repe	eatability	±0.003" (±0.08mm) ⁽¹⁾	±0.002" (±0.05mm) ⁽¹⁾	±0.003" (±0.08mm) ⁽¹⁾	
Hor	izontal Rea	ach	56.88" (1445mm)	79.06" (2008mm)	55.29" (1402mm)	
		90.67" (2430mm)				
Driv	ing capaci	ty	3132 W	4632 W	3016 W	
		J1 (Rotation)	±170° (±50°)(2)	±170° (±50°)(2)	±170° (±50°)(2)	
ge	Arm	J2 (Lower arm)	-155° to +90° (3)	-155° to +100°	-155° to +90° (3)	
Working Range		J3 (Upper arm)	-170° to +245° (4)	-170° to +190°	-170° to +190°	
king		J4 (Swing)	±155°(±170°) (5)	±155° (±170°) ⁽⁵⁾	±180°	
Wor	Wrist	J5 (Bending)	-45° to +225°(6)	-45° to +225°(6)	-50° to +230°	
	_	J6 (Twist)	±205°(±360) ^(5,6)	± 205° (±360°) ^(5,6)	±360°	
		J1 (Rotation)	4.19 rad/s {240°/s} (3.32 rad/s {190°/s}) (2)	3.93 rad/s[225°/s] (3.05 rad/s [175°/s]) (2)	4.19 rad/s {240°/s} (3.32 rad/s {190°/s}) ⁽²⁾	
pee	Arm	J2 (Lower arm)	4.19 rad/s {240°/s}	3.58 rad/s[205°/s]	4.19 rad/s {240°/s}	
Motion speed		J3 (Upper arm)	4.01 rad/s {230°/s}	3.84 rad/s[220°/s]	4.01 rad/s {230°/s}	
lotio		J4 (Swing)	7.50 rad/s {430°/s}	7.50 rad/s {430°/s}	7.50 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}	
	>	J6 (Twist)	11.00 rad/s {630°/s}	11.00 rad/s {630°/s}	11.00 rad/s {630°/s}	
Ф	r Se	J4 (Swing)	10.5 N•m	10.5 N•m	17.6 N•m	
loa	Allowable moment	J5 (Bending)	10.5 N•m	10.5 N•m	17.6 N•m	
/able	₹ŭ	J6 (Twist)	5.9 N•m	5.9 N•m	7.8 N•m	
allow	ole t of	J4 (Swing)	0.28 kg•m²	0.28 kg•m²	0.43 kg•m²	
Wrist allowable load	Allowable moment of inertia	J5 (Bending)	0.28 kg•m²	0.28 kg•m²	0.43 kg•m²	
>	All Mor	J6 (Twist)	0.06 kg•m²	0.06 kg•m²	0.09 kg•m²	
Arm		tional area	3.57 m² x 340°	6.37 m ² x 340°	3.11 m² x 340°	
Env	rironmental	conditions	32 to 11	3° F (0 to 45° C), 20 to 80% RH	(no condensation)	
Mas	ss / weight		320 lbs (145kg)	611 lbs (277kg)	613 lbs (278kg)	
Max	kimum loac	of upper arm	22.05 lbs (10kg) ⁽⁷⁾	44.09 lbs (20kg) ⁽⁶⁾	44.09 lbs (20kg) ⁽⁷⁾	
Inst	allation me	thod	Floor/0	Ceiling/Wall		
Pair	nt color		White (Munsell notation 10GY 9/1)			

- (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.

FD-V8L-S2	FD-H5	FD-V25-S2
NV8L	NH5	NV25
6	6	6
13.2 lbs (6kg)	11.02 lbs (5kg)	44.09 lbs (25kg)
±0.002" (±0.05mm) ⁽¹⁾	±0.002" (±0.05mm) ⁽¹⁾	±0.002" (±0.04mm) ⁽¹⁾
78.98" (2006mm)	34.09" (866mm)	67.32" (1710mm)
140.55" (3570mm)	54.1" (1374mm)	117.28" (2979mm)
4800 W	1440 W	5400 W
±170° (±50°)(2)	±170° (±50°) ⁽²⁾	±170° (±50°)(2)
-155° to +100°(3)	-125° to +90°	-155° to +100° (3)
-170° to +260°(4)	-140° to +245°	-170° to +260°(4)
±180°	±190°	±180°
-50° to +230°	-30° to +210°	-50° to +230°
±360°	±360°	±360°
3.93 rad/s[225°/s] (3.05rad/s [175°/s]) ⁽²⁾	3.49 rad/s {200°/s} (2.79 rad/s {160°/s}) ⁽²⁾	3.93 rad/s{225°/s} (3.05rad/s {175°/s}) ²⁾
3.58 rad/s[205°/s]	3.49 rad/s {200°/s}	3.58 rad/s {205°/s}
4.45 rad/s[255°/s]	4.54 rad/s {260°/s}	4.45 rad/s {255°/s}
7.85 rad/s[450°/s]	6.63 rad/s {380°/s}	7.85 rad/s {450°/s}
7.50 rad/s (430°/s)	6.63 rad/s {380°/s}	7.68rad/s{440°/s}
11.00 rad/s (630°/s)	8.95 rad/s {510°/s}	10.60rad/s{605°/s}
17.6 N•m	11.9 N•m	2.6 N•m
17.6 N•m	11.9 N•m	52.6 N•m
7.8 N•m	5.21 N•m	24.5 N•m
0.43kg•m²	0.303kg•m²	1.24kg•m²
0.43kg•m²	0.303kg•m²	1.24kg•m²
0.09kg•m²	0.061kg•m²	0.33kg•m²
7.48 m² x 340°	1.22 m ² x 340°	5.27 m ² x 340°
602 lbs (273kg)	128 lbs (58kg)	613 lbs (278kg)
44.09 lbs (20kg) ⁽⁵⁾	2.21 lbs (1kg) ⁽⁶⁾	22.05 lbs (10kg) ⁽⁵⁾

- 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 power supplies
- Improved vibration restraining control provides smooth robot movement
- Built-in mechanical shock sensor
- Single source technology all components are manufactured by OTC DAIHEN
- Highly versatile design supports most welding applications

Specifications: Manipulator for 7-axis

			FD-B4S	FD-B4LS	FD-V6S	FD-V6LS
Model			NB4S	NB4LS	NV6S	NV6LS
Number of axes		axes	7	7	7	7
Ма	ximum ca	pacity	8.8 lbs (4kg)	8.8 lbs (4kg)	13.23 lbs (6kg)	13.23 lbs (6kg)
Pos	itional rep	eability	±0.003" (±0.08mm) ⁽¹⁾	±0.003" (±0.08mm) ⁽¹⁾	±0.003" (±0.08mm) ⁽¹⁾	±0.003" (±0.08mm) ⁽¹⁾
Н	orizontal R	leach	56.50" (1435mm)	79.06" (2008mm)	55.29" (1427mm)	78.98" (2006mm)
\	/ertical Re	ach	96.30" (2446mm)	138.75" (3508mm)	90.67" (2424mm)	137.95" (3504mm)
D	riving cap	acity	3550W	5650W	3600W	6000W
		J1 (Rotation 1)	±170°	±170°	±170°	±170°
	Ε	J2 (Lower arm)	-145° to +70°	-145° to +70°	-145° to +70°	-145° to +70°
	Arm	J7(Rotation 2)	±90°	±90°	±90°	±90°
ange		J3 (Upper arm)	-170° to +142.6°	-170°~ +154°	-170°~ +149°	-170° to +160°
Working Range		J4 (Swing)	±155°	±155°	+/- 180°	±180°
orki	Wrist	J5 (Bending)	-45° to +225°(2)	-45° to +225°(5)	-50°~ +230° ⁽²⁾	-50° to +230° (2)
>		J6 (Twist)	±205 ^{o(2)}	±205°(2)	+/- 360° ⁽²⁾	±360° (2)
		J1 (Rotation 1)	3.66 rad/s (210°/s)	3.40 rad/s (195°/s)	3.66 rad/s (210°/s)	3.40 rad/s (195º/s)
	Arm	J2 (Lower arm)	3.66 rad/s (210°/s)	3.49 rad/s (200°/s)	3.66 rad/s (210°/s)	3.49 rad/s (200°/s)
	Ā	J7(Rotation 2)	3.14rad/s (180°/s)	2.79rad/s (160°/s)	3.14rad/s (180°/s)	2.79rad/s (160°/s)
eed	peed	J3 (Upper arm)	3.66 rad/s (210°/s)	3.49 rad/s (200°/s)	3.66 rad/s (210°/s)	3.49 rad/s (200°/s)
Motion speed		J4 (Swing)	7.33 rad/s (420°/s)	7.33 rad/s (420°/s)	7.33 rad/s (420°/s)	7.33 rad/s (420°/s)
lotio	Wrist	J5 (Bending)	7.33 rad/s (420°/s)	7.33 rad/s (420°/s)	7.33 rad/s (420°/s)	7.33 rad/s (420°/s)
2		J6 (Twist)	10.5 rad/s (600°/s)	10.5 rad/s (600°/s)	10.82 rad/s (620°/s)	10.82 rad/s (620º/s)
р	ole nt	J4 (Swing)	10.1 N*m	10.1 N*m	11.8 N*m	11.8 N*m
owable load	Allowable moment	J5 (Bending)	10.1 N*m	10.1 N*m	9.8 N*m	9.8 N*m
vable	₹E	J6 (Twist)	2.94 N*m	2.94 N*m	5.9 N*m	5.9 N*m
	ole t of	J4 (Swing)	0.38kg*m²	0.38kg*m ²	0.30kg*m ²	0.30kg*m ²
Wrist all	Allowable moment of inertia	J5 (Bending)	0.38kg*m²	0.38kg*m ²	0.25kg*m ²	0.25kg*m ²
>	E E	J6 (Twist)	0.03kg*m ²	0.03kg*m ²	0.06kg*m ²	0.06kg*m ²
,	Arm cross-sectional area		2.57 m ² x 340°	5.28 m ² x 340°	5.28 m ² x 340°	5.40 m ² x 340°
E	Environme	ental conditions		32 to 113° F	(0 to 45° C), 20 to 80% F	RH (no condensation)
	Mass	s / weight	416.67 lbs (189kg)	707.68 lb (321kg)	392.42lb(178 kg)	696.67lbs (316kg)v
М	aximum lo	ad of upper arm	22.05 lbs (10kg) ⁽³⁾	22.05 lbs (10kg) ⁽³⁾	22.05 lbs (10kg) ⁽³⁾	44.09 lbs (20kg) ⁽³⁾
Ins	tallation m	nethod	Floor			
Paint color		or	White (Munsell notation 10GY 9/1)			

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

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

FD-V20S

NV20S

7

44.09lbs (20kg)

±0.003" (±0.08mm)(1)

67.32" (1710mm)

114.69"(2913mm)

6600W

±170°

-145° to +70°

±90°

-1710° to +160°

±180°

-50° to +230° (2)

±360° (2)

3.40 rad/s (195°/s)

3.32 rad/s (190°/s)

3.14 rad/s (180°/s)

6.98 rad/s (400°/s)

6.98 rad/s (400°/s)

10.5 rad/s {600°/s}

43.7N*m

43.7N*m

19.6 N*m

1.09 kg*m²

1.09 kg*m²

0.24kg*m²

3.91m² x 340°

707.69lbs (321kg)

44.09lbs (20kg)(3)

ULTRA-FLEX Series

The ULTRA-FLEX SERIES arc welding robots are OTC DAIHEN's solution to avoid interference with the work and tooling without changing the position and/or attitude of the robot. Access to a proper welding position is possible without a positioner. The result is savings in space and costs compared to a conventional 6-axis sytem.

Five models available. A perfect robot for every application.



Specifications: Manipulator for FD-V100 SERIES

			FD-V80	FD-V100	FD-V130			
Model			NV80	NV100	NV130			
Number of axes		6	6	6				
Max	ximum cap	pacity	176.37 lbs (80 kg)	220.46 lbs (100 kg)	286.60 lbs (130 kg)			
Pos	sitional rep	eatability	±0.003" (±0.08mm)					
Hor	rizontal Re	each	2500 mm 2236 mm 2139 mm		2139 mm			
Ver	tical Reac	h	4337 mm	3809 mm	3615 mm			
Driv	ving capac	city		15100W				
		J1 (Rotation)		±180°				
nge	Arm	J2 (Lower arm)		-155° to +90°				
y Rai		J3 (Upper arm)		-185° to +220°				
Working Range		J4 (Swing)		±360°				
Wo	Wrist	J5 (Bending)		-35° to +215°				
		J6 (Twist)		±360°				
		J1 (Rotation)	2.44 rad/s (140°/s)					
eq	Arm	J2 (Lower arm)	1.92 rad/s (110°/s)					
Motion speed		J3 (Upper arm)		2.44 rad/s (140°/s)				
otion	Į.	J4 (Swing)	3.05 rad/s (175º/s)					
Ĭ	Wrist	J5 (Bending)	3.05 rad/s (175°/s)					
		J6 (Twist)	4.45 rad/s (255°/s)					
ō	ple	J4 (Swing)	433.0 N•m	433.0 N•m 721.0 N•m				
e loa	Allowable moment	J5 (Bending)	433.0 N•m	433.0 N•m 721.0 N•				
vable	₹E	J6 (Twist)		294.0 N•m				
allo	ble it of a	J4 (Swing)	31.4 kg•m² 6		0.0 kg•m²			
Wrist allowable load	Allowable moment of inertia	J5 (Bending)	31.4 kg•m²	60.0	0 kg•m²			
>	₽ E	J6 (Twist)	11.9 kg•m²	11.9 kg•m² 33.7 kg•m²				
Arn	n cross-se	ctional area	9.53 m ² x 360°	7.56 m ² x 360°	6.83 m ² x 360°			
Enν	Environmental conditions		32 to 113° F (0 to 4	5° C), 20 to 80% RH (no	condensation)			
Mas	ss / weigh	t	780 kg	770kg	765 kg			
Max	ximum loa	d of upper arm	50 kg ⁽²⁾					
Inst	tallation m	ethod	Floor/Ceiling					
Paint color			White (Munsell notation 10GY 9/1)					

Optimized for the speed, lifting capacity

- Slim wrist and upper arm
- Small mounting footprint
- DeviceNet
- Discrete I/O
- Pneumatic lines
- User application cable conduit (Robot base-toshoulder routing included)

Specifications: Manipulator FD-A20

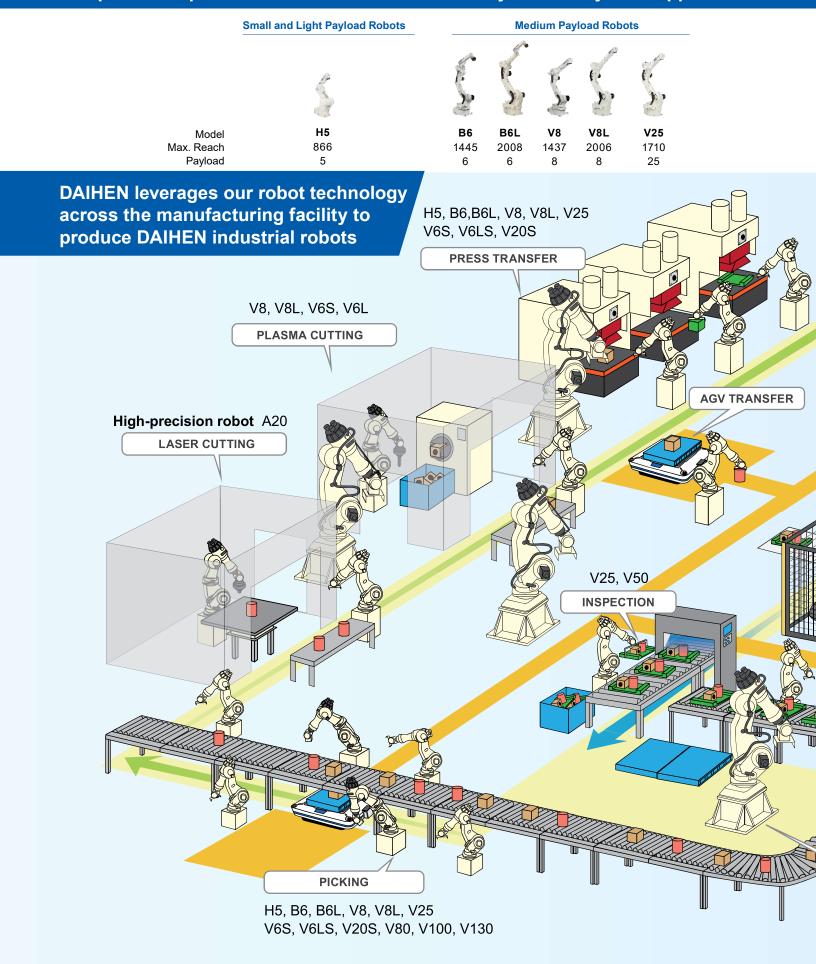
			FD-A20	
Model			NA20	
Number of axes		es .	6	
Max	kimum capa	acity	44.09 lbs (20kg)	
Pos	itional repe	eatability	±0.003" (±0.07mm) ⁽¹⁾	
Hor	izontal Rea	ich	1664mm	
Vert	tical Reach		2030mm	
Driv	ring capacit	ty	7900W	
		J1 (Rotation)	±170°	
nge	Arm	J2 (Lower arm)	-70° to +60°	
Working Range		J3 (Upper arm)	-140° to +240°(2)	
rking	+	J4 (Swing)	±180°	
% Mo	Wrist	J5 (Bending)	-50° to +230°	
		J6 (Twist)	±360°	
	_	J1 (Rotation)	3.40 rad/s(195°/s)	
eq	Arm	J2 (Lower arm)	3.32 rad/s(190°/s)	
Motion speed		J3 (Upper arm)	3.14 rad/s(180°/s)	
otion	Wrist	J4 (Swing)	6.98 rad/s(400°/s)	
Š		J5 (Bending)	6.98 rad/s(400°/s)	
		J6 (Twist)	10.5 rad/s(600°/s)	
g	ble	J4 (Swing)	43.7N•m	
Wrist allowable load	Allowable moment	J5 (Bending)	43.7N•m	
vabl	₹⊑	J6 (Twist)	19.6N•m	
allo	ble it of a	J4 (Swing)	1.09kg•m²	
Vrist	Allowable moment of inertia	J5 (Bending)	1.09kg•m²	
>	₽ E i	J6 (Twist)	0.24kg•m²	
Arm	Arm cross-sectional area		3.32m²×340°	
Env	Environmental conditions		32 to 113° F (0 to 45° C), 20 to 80% RH (no condensation)	
Mas	ss / weight		783 lbs (355kg)	
Max	kimum load	of upper arm	44.09 lbs (20kg) ⁽³⁾	
Inst	allation me	thod	Floor/Ceiling	
Paint color			White(Munsell 10GY9/1)	

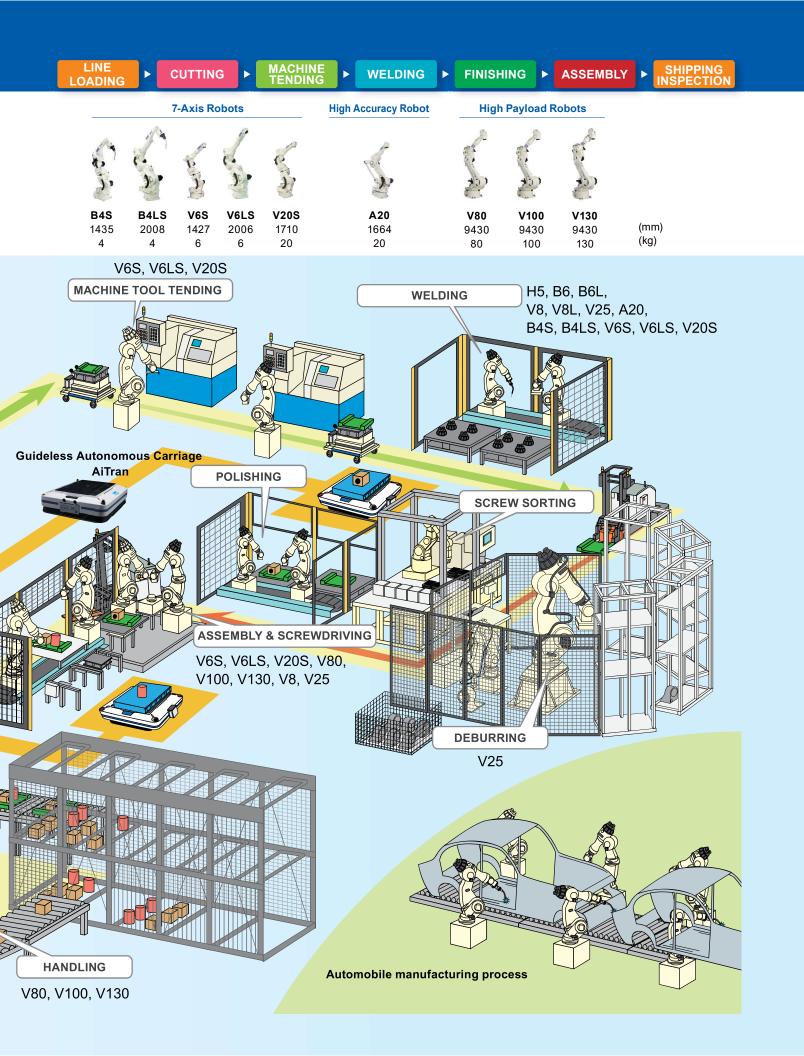
- High tracking accuracy throughout the entire robot work envelope.
- High accuracy delivered in both straight-line and small-arc applications.
- The best choice for laser welding and cutting, TIG, and other tasks requiring high accuracy.

Notes

- 1. Positional repeatability of the tool center point (TCP) value complies with the JIS-B-8432 Standard.
- 2. The working range of the J3 axis is restricted to -140 degrees to +165 degrees when floor-based welding is applied.
- 3. The capacity of the upper arm varies with the wrist capacity.

Complete lineup of industrial robots to meet all of your factory floor applications!





SINGLE SOURCE ADVANTAGE

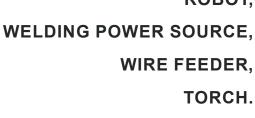
Our single source approach is simple: we provide all the equipment needed for robotic or manual arc welding. One call solves it all!

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

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WE PROVIDE IT ALL.



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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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