



DAIHEN Inc.

ADVANCED WELDING & ROBOTIC SYSTEMS

GMAW & Pulse GMAW Machines for Manual and Automated Welding Applications

We/bee

NANOTECHNOLOGY

WB-P500L**WB-P400****WB-M350L****WB-M500****WB-M350**

GMAW & Pulse
GMAW specialists
with DC Stick and
DC TIG modes



Your Key to the Future of Welding

SIGNIFICANTLY REDUCES WELDING COSTS, VERSATILE AND EXPANDABLE



NANOTECHNOLOGY

Welbee introduces nanotechnology to the welding industry with OTC-DAIHEN's proprietary LSI chip delivering ultra-high speed and precise waveform control. The result is high precision, and high quality welding of virtually any metal.

Dust penetration into the precision parts is reduced by about **98%!!**



ELIMINATES the need for EXPENSIVE HELIUM GAS MIXTURES!

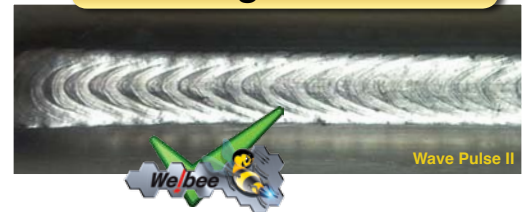
Austenitic Stainless Modes

Cr-Ni-Fe solid wire

Applications include:

- Chemical plants
- Power plants
- Food processing
- Dairy equipment

98% Argon + 2% CO₂



Ferritic Stainless Modes

Cr-Fe solid wire

Applications include:

- Mufflers
- Exhaust systems
- Kitchen counters
- Kitchen sinks

90% Argon + 10% CO₂



HIGH DURABILITY AND LOW MAINTENANCE

Welbee side air flow structure

- **High dust resistance** – Reliability is dramatically improved by adopting a separation structure preventing dust from entering electronic components.
- **Easy maintenance** – The cooling fan speed is precisely controlled according to the machine duty cycle or ambient air temperature to further minimize dust entry and reduce electrical cost. Additionally, you can easily clean out with shop air without opening the case.



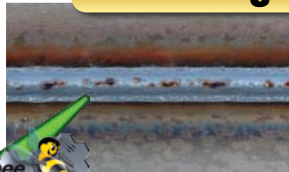
SAVE TIME and MONEY! Utilize standard shielding gases already in your plant!

Carbon Steels

80% Argon + 20% CO₂



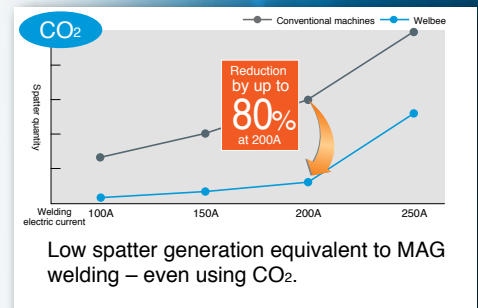
75% Argon + 25% CO₂



- Excellent results with a wider variety of shielding gases
- Compensates for inconsistent gas mixtures

Conventional
Pulse GMAW

We/bee
DRAMATICALLY
REDUCES
SPATTER

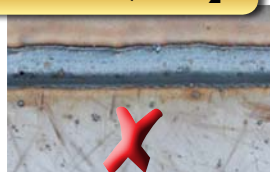
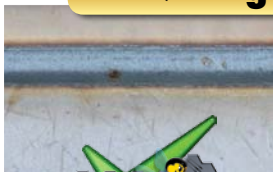


Zinc Coated Steels

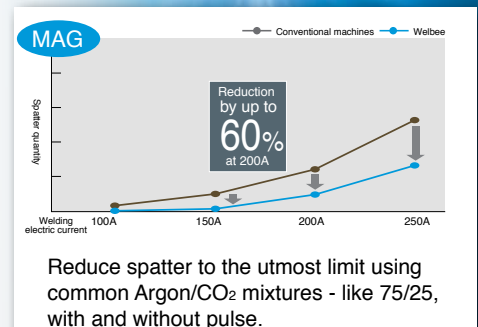
Applications include:

- Transportation
- Bridge & highway
- Agriculture
- Water & marine

75% Argon + 25% CO₂



Conventional Pulse GMAW
produces an erratic arc with
excessive spatter and porosity.

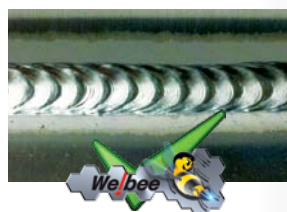


Aluminum

Precision pulse waveform control virtually eliminates even the fine spatter attributed with aluminum MIG welding.

In addition, you can easily achieve a TIG-like bead appearance with OTC's enhanced and patented Wave Pulse process. This low frequency pulse GMAW process modulates both wire feeding and pulse current achieving beautiful high speed welds with improved metallurgical benefits. Ask us for more details.

100% Argon



We/bee
Your Key to the Future of Welding

A MULTITUDE OF NETWORKING, MONITORING AND DATA COLLECTION CAPABILITIES

OPTIONAL WELD DATA MONITOR

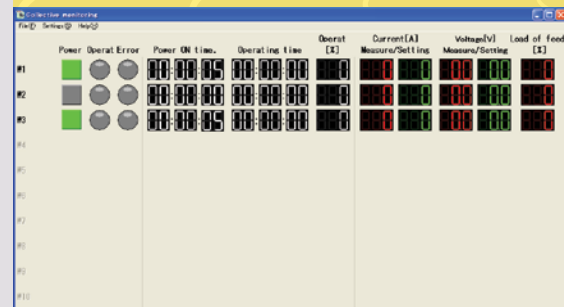
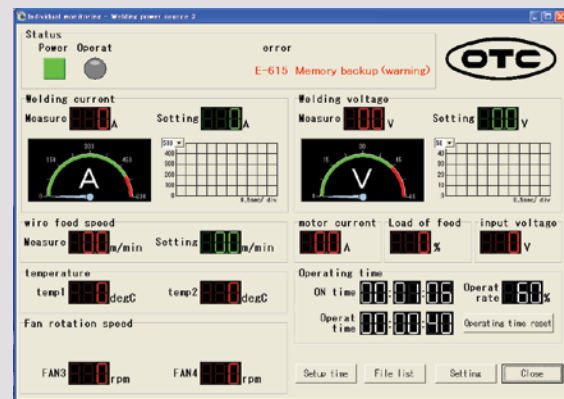
– Collect large quantities of detailed data through USB or network. Accordingly, you can confirm details of when and what happened and thereby improve quality control through traceability as well as troubleshooting.



OPTIONAL ANDROID™ TABLET APP

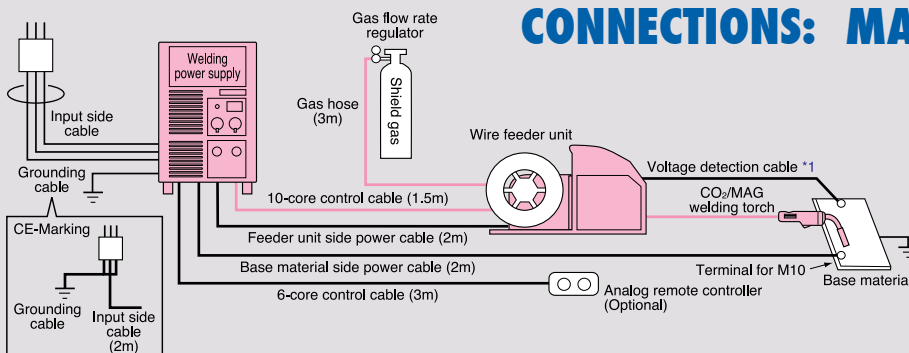
- Remote control of front panel operations
- Graphical monitoring of current and voltage
- Upper/Lower limit alarm functions
- Welding result monitor
- Welding condition database
- Maintenance (troubleshoot & backup)

Individual screen



Collective control screen

CONNECTIONS: MANUAL WELDING



The parts in this color are standard components.
(CO₂/MAG air cooling specification)

*1 Use the K5791G00 voltage detection cable (5m) attached to the welding power supply unit. (Only for Low spatter model)

The voltage detection cable is not necessary when you do not use the low-spatter-generation type.

We/bee



FD
SERIES
ROBOTS

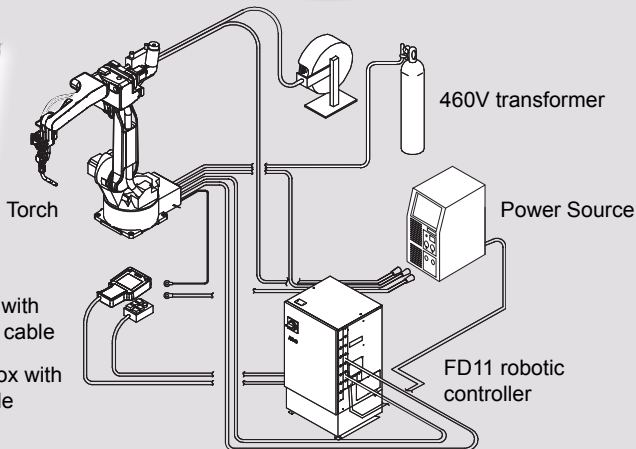


STANDARD USB PORT

Collect and easily
transfer data from one
machine to others.



FD
SERIES
ROBOTS



SPECIFICATIONS

Specifications		Welbee Inverter WB-M350				Welbee Inverter WB-M350L				Welbee Inerter WB-M500	Welbee Inverter WB-P400		Welbee Inverter WB-P500L
Model		WB-M350				WB-M350L				WB-M500	WB-P400		WB-P500L
Number of phases		3		1*		3		1**		3	3		3
Rated frequency		50/60Hz				50/60Hz				50/60Hz	50/60Hz		50/60Hz
Rated input voltage		208/230V	460V	208/230V	460V	208/230V	460V	208/230V	460V	460V	208/230V	460V	460V
Input voltage range		208/230V ±10%	460V ±10%	208/230V ±10%*	460V ±10%	208/230V ±10%	460V ±10%	208/230V ±10%**	460V ±10%	460 V±10%	208/230V ±10%	460V ±10%	460V ±10%
Rated input power		15.3kVA 13.1kW/ 14.9kVA 13.0kW	15.0kVA 13.3kW	11.3kVA 8.4kW/ 11.2kVA 8.3kW	10.9kVA 8.1kW	15.6kVA 13.4kW/ 15.3kVA 13.3kW	15.6kVA 13.8kW	12.1kVA 8.9kW/ 11.8kVA 8.8kW	11.5kVA 8.6kW	25.2kVA 22.6kW	DC 18.2/18.0kVA 16.3/16.8kW Pulse 19.6/19.7kVA 18.1/18.1kW	DC 19.0kVA 17.9kW Pulse 20.7kVA 18.5kW	25.2kVA, 24.1kW
Rated input current		42.5/37.4A	18.8A	54.2/48.8A	23.7A	43.3A/38.5A	19.6A	58.0/51.3A	25.0A	31.7A	DC:50.5/45.0A Pulse:54.3/49.5A	DC:23.8A, Pulse:25.9A	31.6A
Rated output current		350A		250A		350A		250A		500A	400A		500A (DC), 400A (Pulse)
Rated load voltage		31.5V		26.5V		31.5V		26.5V		39.0V	34.0V		39.0V (DC), 34.0V (Pulse)
Rated output current range		30 - 350A		30 - 250A		30 - 350A		30 - 250A		30 - 500A	30 - 400A		30 - 500A
Rated output voltage range		12.0 - 31.5V		12.0 - 26.5V		12.0 - 31.5V		12.0 - 26.5V		12.0 - 45.0V	12.0 - 36.0V		12.0 - 39.0V
Maximum no-load voltage		71/78V	70V	71/78V	70V	70/79V	70V	71/78V	70V	81V	83/92V	80V	92V
Rated duty cycle		60%	60%	60%	60%	60%	60%	60%	60%	100%	60% (DC), 50% (Pulse)	60% (DC), 50% (Pulse)	60% (DC), 80% (Pulse)
Number of welding conditions		100											
Operating temperature range		14º F to 104º F (-10 to +40º C)											
Operating humidity range		less than 50%, 104º F (40º C), less than 90%, 68º F (20º C)											
Storage Temperature Range		-13º F to +131º F (-25 to +55º C)											
Storage humidity range		less than 50%, 104º F (40º C), less than 90%, 68º F (20º C)											
Dimensions (W x D x H)		15.6 x 28.0 x 31.9 in. (395 x 710 x 810mm)											
Mass		183 lbs (83kg)				185.2 lbs (84kg)				170 lbs (77kg)	185.2 lbs (84kg)		178.6 lbs (81kg)
For DC TIG scratch start	Rated input power	12.5kVA 10.0kW 11.9kVA 10.0kW	12.3kVA 10.5kW	8.6kVA 6.4kW 8.6kVA 6.3kW	8.9kVA 6.4kW	12.8kVA 10.5kW 12.5kVA 10.5kW	12.5kVA 10.9kW	9.1kVA 6.7kW 9.0kVA 6.6kW	2kVA 6.8kW	13.7kVA 12.2kW	14.8kVA 12.6kW 14.5kVA 12.6kW	14.5kVA 13.0kW	14.1kVA 12.6kW
	Rated output current	350A		250A		350A		250A		400A	400A		400A
	Rated load voltage	26.0V		26.0V		26.0V		26.0V		26.0V	26.0V		26.0V
	Rated output current range	10 - 400A		10 - 250A		10 - 400A		10 - 250A		10 - 400A	10 - 400A		10 - 400A
	Rated duty cycle	60%		60%		60%		60%		100%	50%		93%
For DC STICK scratch start	Rated input power	13.6kVA 11.2kW 13.1kVA 11.1kW	13.3kVA 11.6kW	12.2kVA 9.2kW 12.1kVA 9.1kW	12.2kVA 9.1kW	13.3kVA 11.4kW 13.2kVA 11.5kW	13.2kVA 11.7kW	12.6kVA 9.5kW 12.4kVA 9.4kW	12.5kVA 11.1kW	12.5kVA 12.2kW	13.3kVA 11.2kW 12.9kVA 11.2kW	12.8kVA 11.5kW	12.8kVA 11.4kW
	Rated output current	300A		250A		300A		250A		300A	300A		300A
	Rated load voltage	32.0V		30.0V		32.0V		30.0V		32.0V	32.0V		32.0V
	Rated output current range	20 - 350A		20 - 250A		20 - 300A		20 - 250A		20 - 300A	20 - 300A		20 - 300A
	Rated duty cycle	60%		60%		60%		60%		100%	50%		100%

When supplying 208V -10% (less than 188V) single phase input power...

* With WB-M350 an increase in arc voltage will be required if the output current is more than 200A.

** With WB-M350L there will be an increase in spatter if the output current is more than 150A.
Change the settings from low spatter mode to standard DC mode for better performance.

Welbee



WB-P500L **WAVE PULSE**



WB-P400 **WAVE PULSE**



WB-M350



WB-M350L

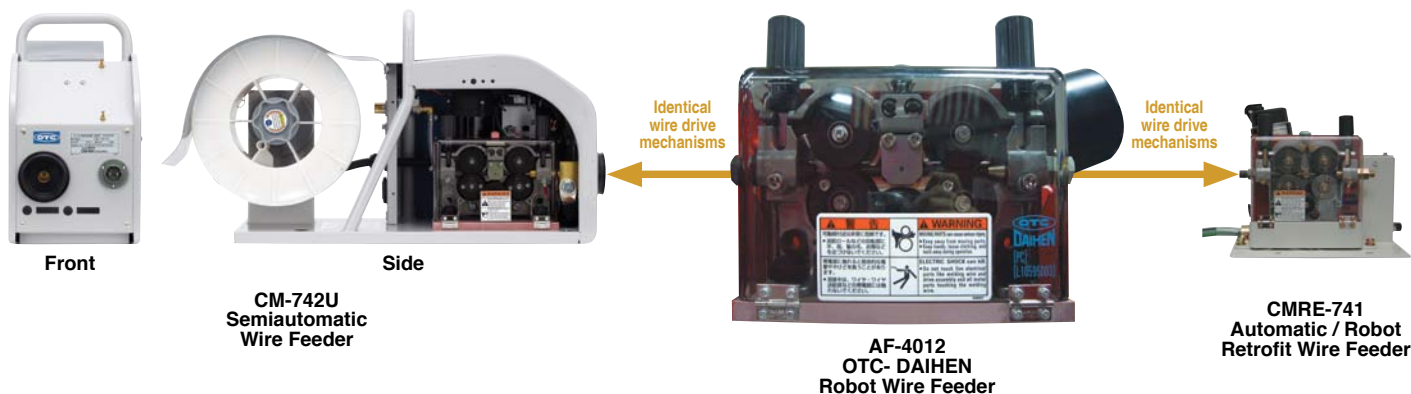


WB-M500



Your Key to the Future of Welding

WIRE FEEDERS



- All wire feeders feature 4-feed rolls for increased drive force for any wire alloy including soft aluminum
- All control circuits are built-in the power source offering incredible durability
- Fully enclosed wire drive mechanism keeps out dirt and grime
- Standard wire cover flap keeps dirt and grime away from the welding wire
- Fully enclosed wire reel cover available as an option
- Suitable for OTC-DAIHEN MIG guns or any other major brand

OTC-DAIHEN wire feeders come set up for hard wires and air cooled torches as standard features. The following items are available as options...

- K5870E00 Aluminum Wire Kit
- K5870D00 Water Cooled Hardware Kit
- K5870C00 Tweco #5 connection kit
- K5870V00 Voltage Detection Adapter Kit
- Fully Enclosed Wire Reel Cover (Please call for details)

WIRE FEEDER SPECIFICATIONS

ITEM		CM-742U	CMRE-741	AF-4012
Style		Semiautomatic	Auto & Robot Retrofit	OTC-DAIHEN Robots
Wire Feed Speed		866 in. / min. (22 m/min.)		
Usable Wire Diameters	Mild Steel	inch (.030), .035, .040, .045, (.052), (1/16); mm (0.8), .09, 1.0, 1.2, (1.4), (1.6)		
	Stainless Steel	inch (.030), .035, .040, .045, (.052), (1/16); mm (0.8), .09, 1.0, 1.2, (1.4), (1.6)		
	Hard Alum (AL/MG)	.040, 3/64, 1/16 in. (1.0, 1.2, 1.6 mm)		
	Soft Aluminum	3/64, 1/16 in. (1.2, 1.6 mm)		
Weight		28.6 lb (13 kg)	15.4 lb (7 kg)	9.3 lb (4.2 kg)
External Dimensions (W x D x H)		8.51 x 23.2 x 14.6 inches (206 x 589 x 372 mm)	N/A	N/A

For more information on **OTC** brand products from DAIHEN Inc., visit our website at www.daihen-usa.com, or send us e-mail at sales@daihen-usa.com.



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Monterrey, Mexico
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MIG-135

DC Constant Voltage Spool-Gun Arc Welding Machine



IDEAL FOR SMALL WELDING APPLICATIONS



INCREDIBLE WELDING PERFORMANCE

Ideal for Thin Sheet Metal Welding

The MIG-135 utilizes small diameter wires (.025" and .030"), which allows for high speed welding of extremely thin materials.

Incredible welding performance, and the eliminated need for slow, more tedious TIG processes!

Smooth Welding at Incredible Lengths

Got a job that requires a long reach? No problem!

The WTG-43 spool gun allows users to weld at distances up to 60 feet (with optional cable) from the welder for total versatility on any job.

Standard cable length of the WTG-43 is 25 feet.

Four Weld Mode Versatility

The MIG-135 comes with four separate welding modes:

1. MAG Welding of Mild Steel
2. MIG Welding of Aluminum
3. MIG Welding of Stainless Steel
4. Arc Spot Welding

Possible Applications

- Auto body repair
- Sign channel letters
- Steel furniture
- Air conditioning ducts
- Control cabinets
- Kitchen appliances
- Aluminum doors and sashes
- Hand railing
- Ornamental iron

High Stability with Less Operator Fatigue

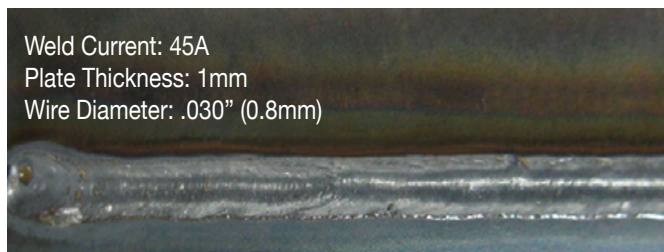
SIMPLE OPERATION



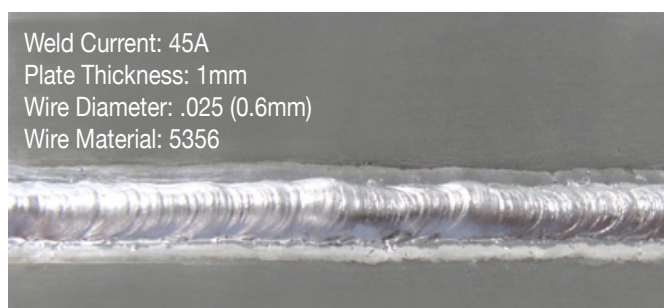
Simple Selection of Welding Conditions
Want high performance? Getting the optimal welding parameters with the MIG-135 couldn't be any easier.

Simply set the control knobs to the appropriate plate thickness and wire diameter, and the machine automatically provides optimal output.

Amazing Welding Results



Mild Steel



Aluminum

SPECIFICATIONS

MIG-135 Welding Power Source

Rated Output Current	135A
Rated Input Voltage	Single Phase 230 / 460 / 575V
Rated Max. Input Current	19.1 / 9.6
Rated Input kVA	4.4 kVA
Rated Duty Cycle	20%
Output Current	Mild Steel 20 ~ 135A Aluminum 40 ~ 80A Stainless Steel 40 ~ 90A
Dimensions	13.5" x 25" x 17.8" (342 mm x 635 mm x 452mm)
Weight	154 lbs. (60kg)

WTG-43 Spool Gun

Applicable Wire Diameter	Mild Steel .025", .030" (0.6mm, 0.8mm) Aluminum .025", .030" (0.6mm, 0.8mm) Stainless Steel .025" (0.6mm)
Rated Current	135A
Rated Duty Cycle	20%
Cooling Method	Air Cooling
Cable Length	25 ft. (8m) 60 ft (18m) with optional extension.
Weight of Main Body	2.5 lbs (1.1 kg)

Spooled Wire for the MIG-135

Mild Steel Wire	MB-50-025	.025" (0.6mm)	1.1 lbs. (500g)
	MB-50-030	.030" (0.8mm)	1.1 lbs. (500g)
Aluminum (4043) Wire	MB-4043-025	.025" (0.6mm)	0.44 lbs (200g)
	MB-4043-030	.030" (0.8mm)	0.44 lbs (200g)
	MB-4043-040	.040" (1.0mm)	0.44 lbs (200g)
Aluminum (5356) Wire	MB-5356-025	.025" (0.6mm)	0.44 lbs (200g)
	MB-5356-030	.030" (0.8mm)	0.44 lbs (200g)
Stainless Steel Wire	MB-308L-025	.025" (0.6mm)	1.1 lbs (500g)
	MB-308L-030	.030" (0.8mm)	1.1 lbs (500g)
	MB-309LSI-023	.023" (0.6mm)	1.1 lbs (500g)
	MB-316L-025	.025" (0.6mm)	1.1 lbs (500g)
Silicon Bronze Wire	MB-SIB-025	.025" (0.6mm)	0.44 lbs (200g)
	MB-SIB-030	.030" (0.8mm)	0.44 lbs (200g)



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ADVANCED WELDING & ROBOTIC SYSTEMS

DA-300P Digital AC + DC Hybrid Pulsed TIG Welding Machine

Inverter D SERIES



The DA-300P

Variable AC Frequency Control

The DA-300P features an all-new AC Frequency variable control system that provides the ideal conditions for various aluminum thin plate welding applications. The AC Frequency has a greater arc concentration when compared with conventional machines, making it possible to obtain the desired weld penetration and heat input.

The AC Frequency control can be set between 50 and 200 Hz for desired frequency and bead shape, while keeping noise in the production environment to a minimum.

AC Frequency Control

Even when the AC frequency is increased, there is only a slight decrease in welding current, resulting in consistent weld quality.

Features & Benefits

- Improved arc concentration improves overall welding capabilities, from fillet welds to thin plate materials.
- Several different welding modes (Aluminum, Steel, Stainless) that improve weld quality.
- Silent Pulse function improves thin plate weld material.
- AC frequency range from 50 ~ 200 Hz improves heat input control.
- Improved instant arc starts.
- AC+DC Hybrid mode provides long life for Tungsten electrode.
- Capable of Standard, Hard, and Soft AC waveforms for high quality aluminum welding.
- Support for both manual and robotic applications.
- User-friendly touch panel.
- Analog and digital remote pendants optionally available.
- Improved crater fill repeat function that prevents damage to the electrode and base material.

Variable AC Frequency Control Examples

The DA-300P comes equipped with new AC Frequency Variable Control, which provides the following features:

- Improved arc concentration improves overall welding capabilities, from fillet welds to thin plate materials
- Controllable heat input allows for increased bead width in thin plate butt welding, and easier control of preventing burn-through for thin plate materials

Even if the AC frequency increases, the weld current remains largely unchanged, providing uniform welding quality.

AC Frequency and Weld Penetration Comparison

Frequency	50Hz	100Hz	200Hz
Cross Section			
	Wide Bead	Narrow Bead Increased Penetration)	

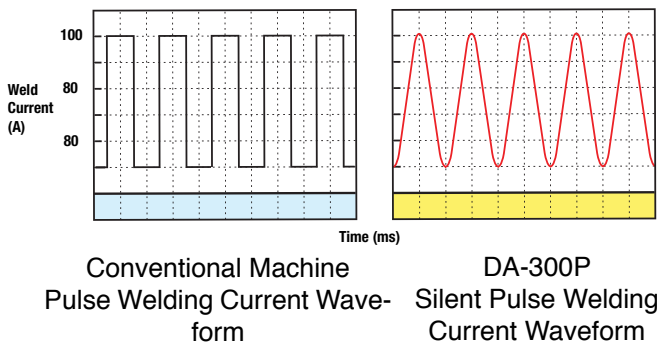
Weld Current: 200A, Travel Speed: 40 cm/min, Plate Thickness: 6mm (A5052)

Advanced AC + DC Hybrid TIG Welding Technology

Silent Pulse Feature

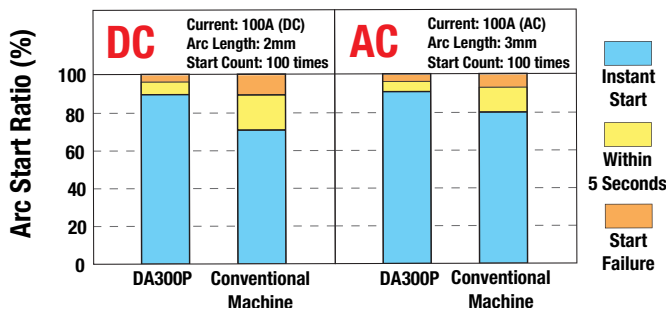
The new Silent Pulse Feature of the DA-300P reduces the arc noise from the DC pulse wave, resulting in the following key advantages:

- Prevention of burn-through and heat distortion of thin materials through heat input control.
- Concentrated welding arc since average welding current is not reduced.
- Substantially improved working environment due to reduced arc noise.



Instant Arc Start Improvements

Higher rate of successful instant arc starts: the digital reactor of the DA-300P improves over previous generations of TIG welding machines.



STANDARD SPECIFICATIONS

Item		Specification
Model Name		DA-300P
Rated Input Voltage		460 ± 10% (50 / 60 Hz)
Number of Phases		Three Phase
Rated Input	AC TIG	12.6kVa (9.5kW)
	DC TIG	12.1kVa (9.1kW)
	Stick Welding	12.9kVa (9.7kW)
Rated Duty Cycle		40%
Maximum No-Load Voltage		66 V
Rated Load Voltage	AC TIG	22 V
	DC TIG	22 V
	Stick Welding	30 V
DC Output Current	DC TIG	4 ~ 300 A
	Stick Welding	10 ~ 250 A
AC TIG Output Current	AC Wave Type	Hard 10 ~ 300 A
		Normal 10 ~ 300 A
		Soft 10 ~ 200 A
AC+DC Hybrid Output Current	AC Wave Type	Hard 10 ~ 300 A
		Normal 10 ~ 300 A
		Soft 10 ~ 200 A
Initial - Crater Fill Current (TIG only)	AC Wave Type	Hard 10 ~ 300 A
		Normal 10 ~ 300 A
		Soft 10 ~ 200 A
	DC	4 ~ 300 A
Gas Pre-flow Range		0.1 ~ 20 sec
Gas Post-flow Range		0.1 ~ 30 sec
Up-slope Range		0.1 ~ 10 sec
Down-slope Range		0.1 ~ 10 sec
Pulse Frequency Range		0.1 ~ 500 Hz
Pulse Width		50 % (Adjustable to 5~95%)
AC Frequency Range		50 ~ 200 Hz
Cleaning Width Adjust		-30 ~ 30 (Electrode Positive Duration 5~50%)
AC+DC Change-over Frequency		0.1 ~ 50 Hz
Crater Fill Control		On, Off, Repeat
Arc Spot Timer		0.1 ~ 10 sec
Max. Program Storage		100 programs
Temperature Rise		+320° F (+160° C)
External Dimensions		9.8" x 25.2" x 21.5" (250mm x 640mm x 545mm)
Weight		101.0 lbs. (45.8 kg)



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CAT. NO. 458

ADVANCED WELDING & ROBOTIC SYSTEMS

DW-300 Digital AC / DC MIG Pulse Arc Welding Machine

D Inverter
SERIES



The DW-300

Features & Benefits

- Designed for both manual and robotic applications.
- Capable of welding very thin materials less than .030" (0.8mm).
- Controllable heat input and penetration to avoid burn-through even when gaps exist.
- Reduces heat input 30~40% at the same wire feed rate as DC MIG processes to minimize distortion.
- Greater gap tolerance makes parameter setting less sensitive.
- Capable of 5 weld processes: AC Wave Pulse MIG, DC Wave Pulse MIG, AC Pulse MIG, DC Pulse MIG, DC Pulse MAG.
- Less welding fumes and cleaner bead appearances for aluminum applications.
- Digital turbo startup function improves arc starting performance.
- 36 pre-optimized pulse wave forms for different wire types and diameters.
- Custom wave forms can also be stored to memory.
- Wave pulse mode offers a TIG-like bead appearance on aluminum.
- Controllable penetration ratios.
- Synchro MIG feature (via taught weaving function for Daihen robots) allows for optimal welding of thin-to-thick material.
- Ability to switch between AC and DC robotic processes on-the-fly for materials that vary in thickness.

Revolutionary AC MIG Technology

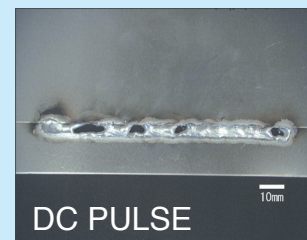
Are you tired of burn-through during thin plate welding? Do parts suffer from gaps that cannot be bridged? Do you spend a lot of time cleaning parts afterwards? Need to find a solution? Look no further than the DW-300 from OTC DAIHEN.

The DW-300 is the most advanced welding power supply to enter the market. By utilizing special AC wave-forms that allow adjustment of the electrode negative (EN) half cycle, the DW-300 is capable of controlling the heat input. These features realize welding of thin plate material with greatly reduced heat distortion, and incredible gap bridging technology.

For welding thicker materials, the DW-300 supports a maximum output current of 300 Amps, which allows for stable welding and penetration for medium-thick plates.

DC vs. AC Comparison

Below is a comparison of welds run on thin material with the exact same weld settings. The difference is the AC Pulse MIG process is much cooler and therefore does not burn-through.



Weld Current: 50A, Weld Voltage: 15V, Travel Speed: 31.5 IPM,
Material: A5052 Aluminum, Gap: 1mm (.040")

Advanced AC MIG Welding Technology

AC MIG Welding at 300A

Previous generation AC MIG welding machines were capable of achieving weld currents up to 200 Amps, which limited the welding current range. The DW-300 has a maximum rated output current of 300A, which provides more extensible usage in your production environment.



**Weld Current: 210A,
Weld Voltage: 23V,
Travel Speed: 21.7 IPM,
Weld Wire: A5183
Aluminum, 1/16"**

Incredible Gap Bridging Technology

The DW-300 adopts a new synergic AC pulse arc control system that simplifies parameter setting. The EN current, time, welding voltage, and welding current are all automatically set by directly changing the EN ratio. Weld deposition can be individually adjusted since changing EN ratio does not change the set weld current, and heat input to the base material does not change.

EN Ratio	Bead Appearance	Cross Section
0%		
10%		
20%		

Weld Current: 80A, Travel Speed: 31.5 IPM, Base Metal: A5083, Plate Thickness: .059", Weld Wire: A5356, 1/16" diameter

Included Welding Modes

Welding Method	Applicable Wire	Wire Diameter
AC Wave Pulse	Hard Aluminum	.040", 3/64", 1/16" (1.0mm, 1.2mm, 1.6mm)
	Soft Aluminum	1/16" (1.6mm)
DC Wave Pulse	Hard Aluminum	.040", 3/64", 1/16" (1.0mm, 1.2mm, 1.6mm)
	Soft Aluminum	1/16" (1.6mm)
AC Pulse MIG	Hard Aluminum	.040", 3/64", 1/16" (1.0mm, 1.2mm, 1.6mm)
	Soft Aluminum	1/16" (1.6mm)
	Stainless Steel	.030", .035", .040", .045" (0.8, 0.9, 1.0, 1.2mm)
	Mild Steel	.030", .035", .040", .045" (0.8, 0.9, 1.0, 1.2mm)
DC Pulse MIG	Hard Aluminum	.040", 3/64", 1/16" (1.0mm, 1.2mm, 1.6mm)
	Soft Aluminum	1/16" (1.6mm)
	Stainless Steel	.030", .035", .040", .045" (0.8, 0.9, 1.0, 1.2mm)
DC Pulse MAG	Mild Steel	.030", .035", .040", .045" (0.8, 0.9, 1.0, 1.2mm)

OTC DAIHEN Inc. reserves the right to change specifications without notice.

STANDARD SPECIFICATIONS

DW-300 Welding Power Supply

Item	Specification
Model Name	DW-300
Welding Modes	AC Wave Pulse MIG, DC Wave Pulse MIG, AC Pulse MIG, DC Pulse MIG, DC Pulse MAG
Rated Input Voltage	460 ± 10% (50 / 60 Hz)
Number of Phases	3-phase
Rated Input	18 kVA (16 kW)
Rated Duty Cycle	80%
Rated Output Current	300 A
Rated Load Voltage	29 V
Output Current Range	30 ~ 300 A
Output Voltage Range	12 ~ 36 V
Maximum No-Load Voltage	81 V
Max. Program Storage	100 programs
Temperature Rise	+320° F (+160° C)
External Dimensions	11.8" x 27.8" x 23.4" (300mm x 705mm x 595mm)
Weight	145.5 lbs. (66.0 kg)

D-Series Wire Feeders

Item	Specification		
Model Name	CM-741	CMRE-741	AF-4001
Style	Semi-automatic	Automatic & Robotic Retrofit	OTC DAIHEN Robots
Wire Feed Speed	866 in. / min (22 m/min)		
Usable Wire Diameters	Mild Steel	.024" ~ 1/16" (0.6mm ~ 1.6mm)	
	Stainless Steel	.030" ~ 1/16" (0.8mm ~ 1.6mm)	
	Hard Alum.	.040", .3/64", 1/16" (1.0mm, 1.2mm, 1.6mm)	
	Soft Alum.	1/16" (1.6mm)	
Weight	28.6 lbs. (13 kg)	15.4 lbs. (7 kg)	8.8 lbs. (4 kg)
External Dimensions	8.5" x 21.4" x 13.6" (215mm x 543mm x 350 mm)	N/A	N/A



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ADVANCED WELDING & ROBOTIC SYSTEMS

DL-350 Digital Low Spatter / Low Heat Input Arc Welding Machine

Inverter D SERIES



The DL-350

Features & Benefits

- Significant reduction in spatter for CO₂ / MIG / Stainless Steel DC welding applications.
- Support for low-alloy, high-strength steels.
- Thin plate welding mode greatly improves welding quality for thin plate applications.
- Capable of welding very thin materials less than .030" (0.8mm).
- Greater gap tolerance for thin optimized automation settings.
- Less welding fumes and cleaner bead appearances.
- Digital turbo startup function improves arc starting performance.
- 27 pre-optimized wave forms for different wire types and diameters, and different gases.
- Custom wave forms can also be saved.
- Improves penetration ratios.
- Reduces arc outage, prevalent in older machines.

Revolutionary Spatter Reduction Control

Would you like to reduce your overhead costs by reducing the amount of wire used and labor required for cleaning up spatter? Wouldn't it be nice to reduce the amount of spatter in your facility while producing cleaner welds? Look no further than the DL-350 from OTC DAIHEN.

The DL-350 is the world's first CO₂ / MIG / Stainless Steel welding machine to feature a dedicated Spatter Reduction Control, which reduces the amount of spatter generated by up to 75% when compared with conventional welding machines. The results are much cleaner welds with virtually no spatter, which greatly improves production efficiency in terms of overhead costs (wire, cleaning labor) and improved part appearance.



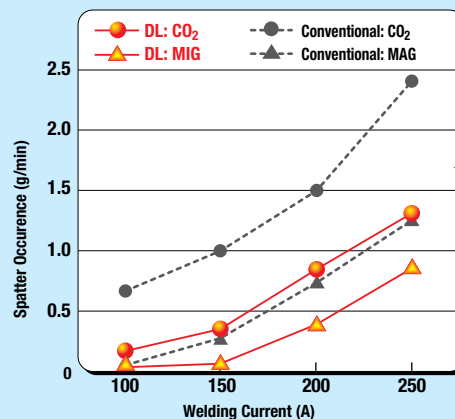
Conventional Welder



DL-350

Shield Gas: CO₂, Weld Current: 250A, Weld Voltage: 25.5V, Travel Speed: 80 cm/min, Plate Thickness: 4.5mm

DL-350 vs. Conventional Inverter Machine



Reduction of spatter by as much as 3/4 when compared to conventional welding machines.



Conventional Welder






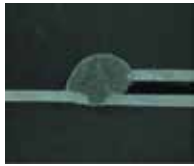
DL-350

Advanced CO₂ / MAG / MIG Welding Technology

EN Thin Plate Welding Mode

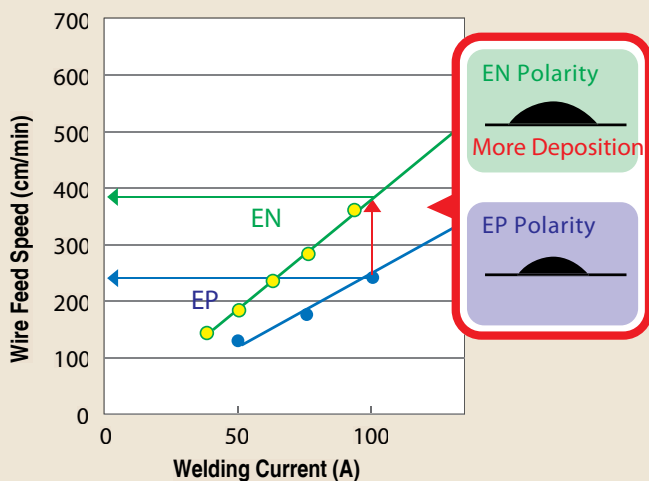
Welds even very thin plate materials: the DL-350 utilizes an Electrode Negative (EN) welding mode to limit the heat input to the material. EN welding mode improves the welding of thin plates by:

- Protecting from burn-through of thin plate materials (less than 1mm in thickness).
- Providing higher rates of deposition at the (see below).
- Reducing the heat input to the material, which results in less heat distortion.

Gap	Bead Appearance	Cross Section Macro
0mm		
1mm		

EN Thin Plate Welding Mode for 0.7mm Material

Deposition Rates of EN Mode vs. EP Mode



At the same current, EN Polarity has about 1.5 times more deposition as an EP Polarity weld, which makes EN mode ideal for welding gaps of thin plate materials.

STANDARD SPECIFICATIONS

DL-350 Welding Power Supply

Item	Specification
Model Name	DL-350
Welding Modes	CO ₂ / MAG / MIG (Stainless Steel), available in Electrode Positive (Standard & High Speed) and Electrode Negative
Rated Input Voltage	208 ± 10% (50 / 60 Hz)
Number of Phases	3-phase
Rated Input	18.2 kVA (16.6 kW)
Rated Duty Cycle	60%
Rated Output Current	350 A
Rated Load Voltage	36 V
Output Current Range	30 ~ 350 A
Output Voltage Range	12 ~ 36 V
Maximum No-Load Voltage	85 V
Max. Program Storage	100 programs
Temperature Rise	+320° F (+160° C)
External Dimensions	11.8" x 27.8" x 23.4" (300mm x 705mm x 595mm)
Weight	126 lbs. (57.2 kg)

D-Series Wire Feeders

Item	Specification	
Model Name	CMRE-741	AF-4001/AF4011
Wire Feed Speed	866 in. / min (22 m/min)	
Usable Wire Diameters	Mild Steel	.024" ~ 1/16" (0.6mm ~ 1.6mm)
	Stainless Steel	.030" ~ 1/16" (0.8mm ~ 1.6mm)
Weight	28.6 lbs. (13 kg)	
External Dimensions	8.5" x 21.4" x 13.6" (215mm x 543mm x 350mm)	



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DAIHEN Inc.

CAT. NO. A446C

ADVANCED WELDING & ROBOTIC SYSTEMS

DP-400/DP-500/DM-350/DM-500 Digital Controlled DC Inverter Arc Welding Machines

Simple Operation and Perfect Welds from Arc Start to End

D Inverter **SERIES**

Total Solutions from the
Single Source Provider

DP-400 and DP-500
PULSED MAG - PULSED MIG
CO₂ - MAG - MIG - FCAW

DM-350 and DM-500
CO₂ - MAG - MIG - FCAW

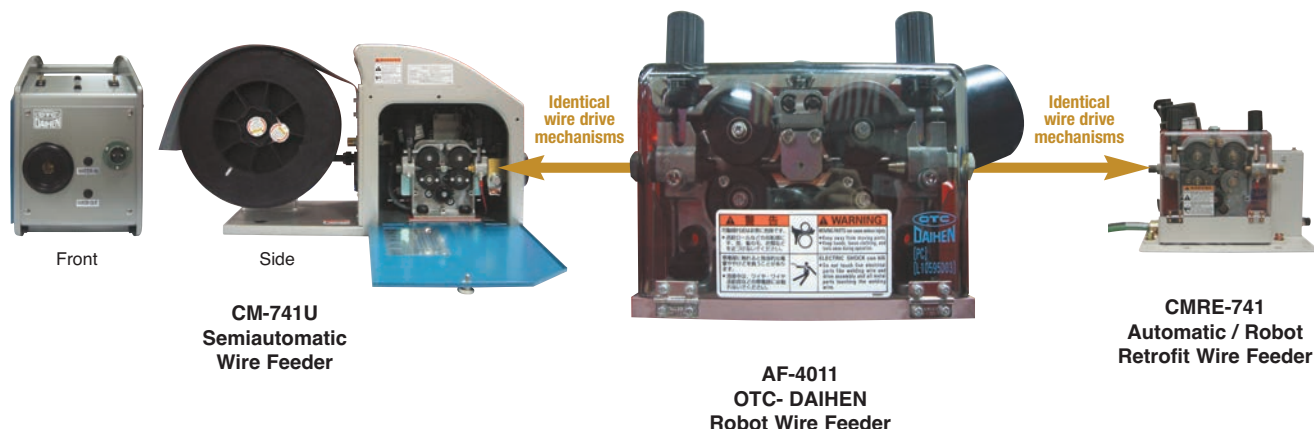
CM-741U
SEMI-AUTOMATIC
WIRE FEEDER

Smaller & Lighter
80 kHz IGBT
Digital Inverters



WIRE FEEDERS

D-SERIES WIRE FEEDERS



- All wire feeders feature 4-feed rolls for increased drive force for any wire alloy including soft aluminum
- All control circuits are built-in the power source offering incredible durability
- Fully enclosed wire drive mechanism keeps out dirt and grime
- Standard wire cover flap keeps dirt and grime away from the welding wire
- Fully enclosed wire reel cover available as an option
- Suitable for OTC-DAIHEN MIG guns or any other major brand

OTC-DAIHEN wire feeders come set up for hard wires and air cooled torches as standard features. The following items are available as options...

- K5735E00 Aluminum Wire Kit
- K5439E00 Fully Enclosed Wire Reel Cover
- K5735000 Water Cooled Hardware Kit

Wire Feeders				
ITEM		CM-741U	CMRE-741	AF-4011
Style		Semiautomatic	Auto & Robot Retrofit	OTC-DAIHEN Robots
Wire Feed Speed		866 in. / min. (22 m/min.)		
Usable Wire Diameters	Mild Steel	inch (.030), .035, .040, .045, (.052), (1/16); mm (0.8), .09, 1.0, 1.2, (1.4), (1.6)		
	Stainless Steel	inch (.030), .035, .040, .045, (.052), (1/16); mm (0.8), .09, 1.0, 1.2, (1.4), (1.6)		
	Hard Alum (AL/MG)	.040, 3/64, 1/16 in. (1.0, 1.2, 1.6 mm)		
	Soft Aluminum	3/64, 1/16 in. (1.2, 1.6 mm)		
Weight		28.6 lb (13 kg)	15.4 lb (7 kg)	9.3 lb (4.2 kg)
External Dimensions (W x D x H)		8.5 x 21.4 x 13.6 inches (215 x 543 x 350 mm)	N/A	N/A

Specifications subject to change without notice.

For more information on **OTC** brand products from DAIHEN INC. visit our web site at daihen-usa.com, or send us E-mail at sales@daihen-usa.com



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DP-400 / DP-500

DP-400 / DP-500 ULTRA HIGH QUALITY PULSE & CV GMAW

- DP-400 rated 400A, 50% duty cycle
DP-500 rated 500A, 60% duty cycle / 350A, 100% duty cycle
- 100 Job memory
- Digital CAN buss interface with OTC DAIHEN robots
- Smaller & lighter 80 kHz IGBT digital inverter
- Three phase automatic input voltage selection
- Factory optimized pulse waveforms
- Adjustable pulse waveform via function key
- Synergic or individual control of voltage and wire feed speed
- Wave Pulse function for TIG like welds on aluminum
- Large 7 segment digital LED numeric display
- Function key for advanced programming
- Cooling fan control: High, Low, and Off
- Very stable pulsed arc as low as 25 amp
- Digital Turbo start and digital burn-back control improves arc starting
- Consistent arc length despite changes in wire extension
- Industrial HMI (Key Pad) operation panel
- Optional pre-set modes available for a variety of wire alloys
- Tool-Free Dinse twist lock connectors for secondary output

Digital Meters are Easy to Read in Dim Areas

Both Current and Voltage are displayed during welding, with the average current and voltage being displayed after welding is terminated. Additionally, Digital Diagnostics or error codes are displayed to assist troubleshooting.

Welding Condition Memory

Storage Function (100 conditions)
Welding Memory Play Back Function of welding conditions can be accessed by one-touch control to repeat or recall weld conditions.

Function Key

Front Panel Control allows setting of special functions by the operator without having to go inside the Welding Power Source.

Choice of Welding Modes

Setting of weld conditions such as weld-wire type and wire diameter are easily accomplished by the Touch Panel and reading the LED indications.

Operators Can Easily Set Conditions

Precise setting of Amps and Volts can be accurately achieved to 1.0 Amp and 0.1 Volt, in addition to other parameters.

Arc Characteristics

Hard to soft arc characteristics can be chosen for a variety of applications.

A Variety of Functions

Touch panel control for various user-friendly functions to achieve high quality welding.

Optional Modes

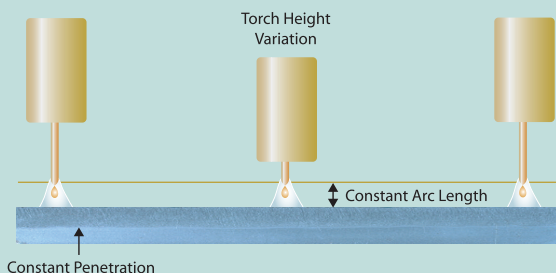
Software is available for exotic alloys or special applications.



DP-400 Key Pad Operation Panel

Constant Penetration Control for Hard Wire Applications

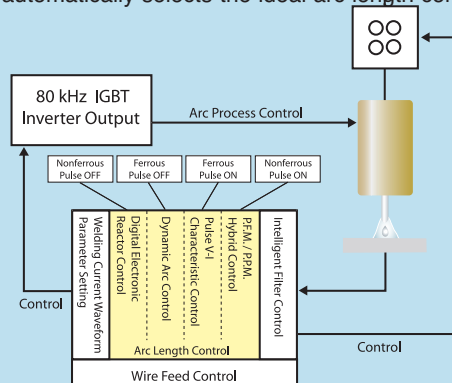
Simply switch it on and it keeps the depth of penetration at a constant level even when tip-to-work distance fluctuates as shown. (Not applicable for aluminum.)
Conventional GMAW machines typically incorporate only constant voltage (CV) characteristics. When tip-to-work distance fluctuates amperage will fluctuate causing changes in penetration.



Newly Developed T-MAC System Supports Multiple Arc Length Characteristic Controls

Tailor Made Arc Control

Complete digitalization delivers four (4) types of arc length control for every welding process. Select the welding process on the front panel and the microcomputer automatically selects the ideal arc length control.





DM-350



DM-500

DM-350		DM-500	
CV			
Three Phase	Single Phase	Three Phase	
50/60 Hz			
208V / 230V / 460V	230V / 460V	460V	
187–253V, 414–506V	207–253V, 414–506V	414–506V	
16.3	11.6	24.7	
13.8	8.6	22.5	
40.8A / 36.9A / 20.5A	45.2A / 25.3A	31A	
350A	250A	500A	470A
31.5V	26.5V	39V	37.5V
30–350A	30–250A	30-500A	
12–36V	12–31V	12-45V	
59/65/56V	65/56V	87V	
60%		80%	100%
30			
+320°F (+160°C)			
+14 ~ 104°F (-10 ~ +40°C)			
9.8 in x 25.2 in. x 21.6 in. (250 mm x 640 mm x 544 mm)		11.8 in x 24.8 in x 25.8 in (300 mm x 655 mm x 630 mm)	
85.8 lb (39 kg)		123 lb (56 kg)	

D-SERIES SPECIFICATIONS



DP-400



DP-500

ITEM	DP-400		DP-500
Mode	Pulse CV (Standard CV Ratings not shown)		
Number of Phases	Three Phase		
Rated Frequency	50/60 Hz		
Rated Input Voltage (Auto Select)	208V / 230V	460V	460V
Input Voltage Range	208/230 $\pm 10\%$	460 $\pm 10\%$	460 $\pm 10\%$
Rated Input kVA	21.4	23.6	23.8
Rated Input kW	19.5	21.5	22.2
Rated Input Current	53.7A	29.6A	29.9A
Rated Output Current	400A		500A
Rated Load Voltage	34V		39.0V
Rated Output Current Range	30-400A		30-500A
Rated Output Voltage Range	12-38V		12-45V
Max. No-Load Voltage	92V		99V
Rated Duty Cycle	50% (60% Standard CV)		100% @ 350A / 60% @ 500A
Max. Program Storage	100		
Temperature Rise	+320°F (+160°C)		
Usable Temperature Range	+14 ~ 104°F (-10 ~ +40°C)		
External Dimensions (W x D x H without handles)	9.8 in. x 25.2 in x 21.4 in. (250 mm x 640 mm x 544 mm)		11.8 in. x 25.7 in. x 23.4 in. (300 mm x 653mm x 595mm)
Weight	99.2 lb (45 kg)		119 lb (54kg)

Specifications subject to change without notice.

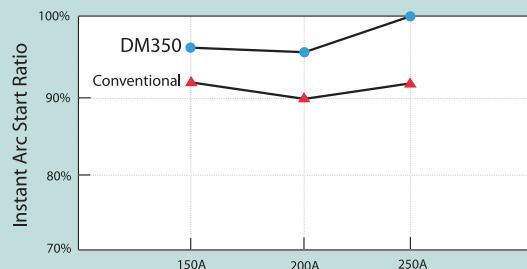
DM-350 / DM-500 CV GMAW WITH REDUCED SPATTER

- DM-350 rated 350A, 60% duty cycle
DM-500 rated 500A, 80% duty cycle / 470A, 100% duty cycle
- 30 program memory
- Digital CAN buss interface with OTC - DAIHEN robots
- Smaller & lighter 80 kHz IGBT digital inverter
- Single & three phase automatic voltage selection
- High speed digital reactor drastically reduces spatter
- Cooling fan: High, Low, and Off
- Industrial HMI (Key Pad) operation panel
- Synergic or individual control of voltage and current (wire feed speed)
- Combination of digital start and digital burn-back control function improves arc starting
- Large 7 segment digital LED numeric display
- Simple push buttons for JOB storage/call-up, and process programming
- Function key for advanced programming
- Consistent arc length despite changes in wire extension
- Tool-Free Dinse twist lock connectors for secondary output



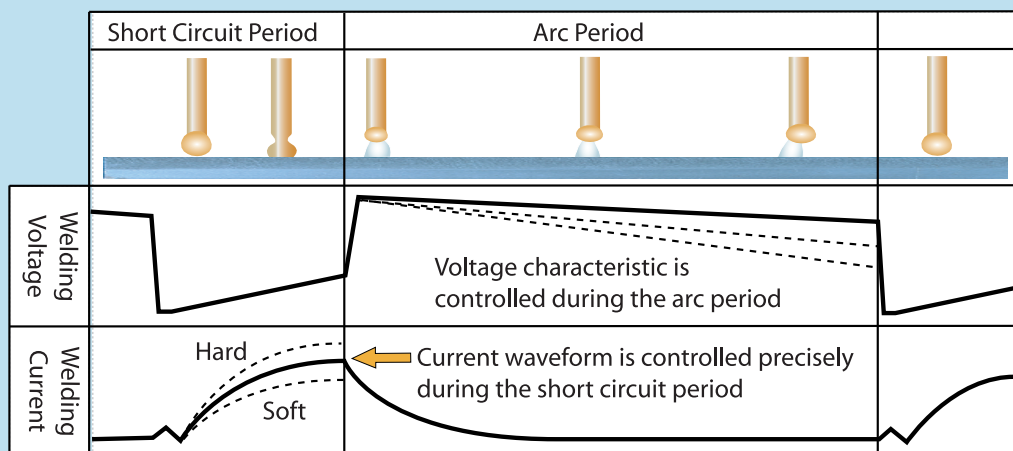
DM-350 Key Pad Operation Panel

Instantaneous Arc Starting



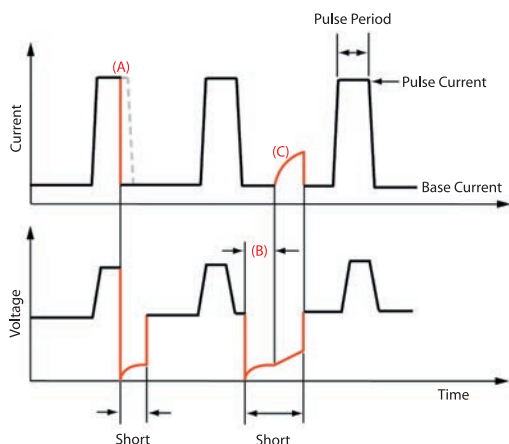
Newly Developed Digital Reactor

Precisely controlled output current and waveform are very effective for reducing spatter.



Advancing the Science of GMAW Applications

Synchro Short-Pulse Control for Hard Wire Applications

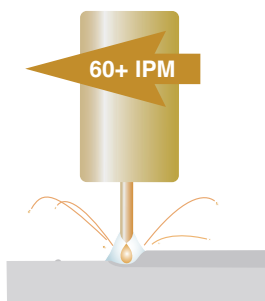


Synchro Short-Pulse Waveform

- (A) Current control at pulse period short-circuit time
- (B) Instantaneous short-circuit current control
- (C) Automatic digital reactor control

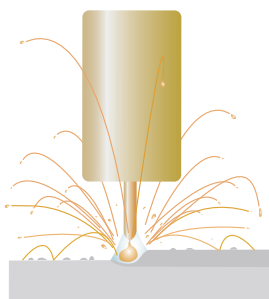


1/8" (3.2 mm) Mild Steel Fillet Weld with .045" (1.2 mm) E70S-3 Mild Steel Wire at 64 in./min.



Synchro Short-Pulse

Allows the use of a very short and rigid arc length enabling very high travel speeds with minimal spatter and consistent droplet transfer



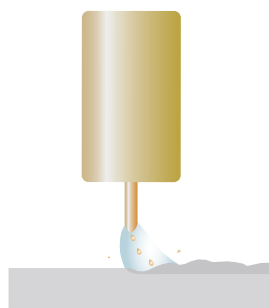
Conventional Pulsed GMAW

Reduced arc length

Conventional machines cannot control the intrinsic short circuiting spikes that occur with a reduced arc length, thereby creating excessive spatter with irregular droplet size and transfer.

Increased arc length

The use of a longer arc length minimizes spatter, however the arc becomes softer and tends to drag creating inconsistent bead profiles and penetration



Wave Pulse for Aluminum

- Wave Pulse utilizes a superimposed low frequency pulse for hard and soft aluminum
- The most obvious benefit is the TIG bead appearance as shown in the weld photo below
- Wave frequency is adjustable from 0.5 to 30 Hz
- Proven to reduce porosity and crack susceptibility



16 gauge (1.6 mm) A5052 Aluminum Plate Butt Welded With 3/64" (1.2 mm) A5356 Aluminum Wire



High Pulse



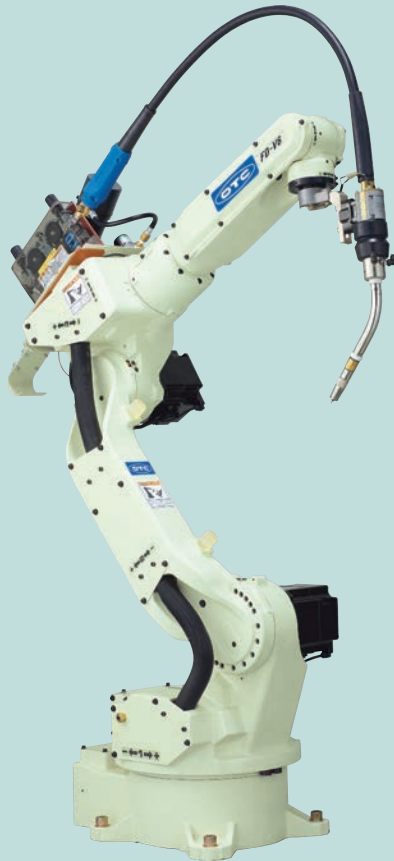
Low Pulse



Superimposed low frequency pulse waveform

Robotic Welding Solutions

OTC DAIHEN Arc Welding Robot Package



AX21 -Series
Controller

D-Series
Power Source

AF-4011
Wire Feeder

FD Series
Robot

Existing Robot Retrofit Packages



CMRE-741
Wire Feeder

D-Series
Power Source

Get the total robotic welding solution by combining the D-Series with one of our FD Series arc welding robots offering seamless integration and advanced features such as Retract start, Synchro MIG & TIG, Feed Control MIG, networking, arc data monitoring and much more.

The D-Series can also easily adapt to a multitude of other manufacturers robots. Our universal interface and retrofit wire feeder options make combining any D-Series Inverter welding machine a snap.

Call and ask how we can integrate a system for you.

D SERIES HARDWARE OPTIONS

Analog

Remote Pendant

Takes priority over the HMI key pad on the power source for setting weld current (WFS), arc voltage, and wire inching. 10 ft. cable with optional extensions.



Digital

Remote Pendant

Provides the ability to set all welding parameters from this unit or the front panel of the power source. 10 ft. cable with optional extensions.

(DM-350 pendants shown)



HD500

**Solid State SCR Controlled
Arc Welding Machine**



Heavy Duty Output - Great Value



CO2 - MAG - FCAW

The HD500 is an economical solution for the most demanding GMAW and Flux Cored arc welding applications.

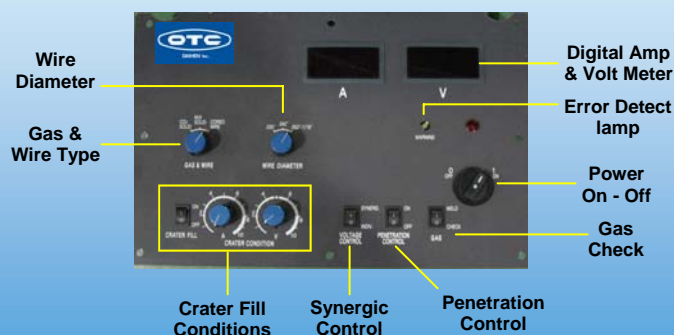
Rated 500 Amp at 50% duty cycle (363 Amp at 100%) the "Heavy Duty" HD500 provides high quality welding performance from thin sheet metal to thick plate.

Versatility

- Ideal for use with mild steel and stainless steel wires - solid or flux cored
- Very stable arc with 100% CO₂ or Argon / CO₂ mixtures on mild steel
- Positive output terminals for high and low inductance helps minimize spatter in any output range
- Standard 15 ft. remote pendant provides wire feed speed, arc voltage, and wire inching control at the work area
- Optional extension cables up to 66 feet available for remote pendant and wire feeder
- Built-in running gear with cylinder rack and steering handle
- 115V - 6 amp auxiliary power receptacle
- Pre-wired 7 ft. primary input power cable
- Wire slow-down on / off switch for improved arc starts
- On / off switch for Fan-on-demand for power saving or extended cooling
- Light weight wire feeder with control circuits built-in the power source for durability (See details on back page)



Simple Control Panel provides Advanced Functionality



- **Wire Diameter - Gas & Wire Type Switch**
- Presets ideal fixed conditions to ensure a good arc start, arc end, and spatter control
- **Digital Amperage & Voltage Meters**

- **Crater Fill Function**
- Adjust output to easily fill the crater at the weld end
- Controls initial condition when selected (internal dip switch)
- Provides cruise control
- **Synergic (One-Knob) Control**
- Combines wire feed speed (Amperage) and arc voltage to easily go from thin sheet to thick plate welding by adjusting only one knob - Ideal for less experienced operators
- **Penetration Control**
- Delivers uniform penetration even when tip-to-work distance varies
- **Gas Check Switch**
- Activates gas flow to pre-set flow rate with no machine output to avoid wasting welding wire
- **Warning Lamp (Error Detection)**
- Fully illuminates or flickers depending upon error type
- Trouble shooting guide identifies errors

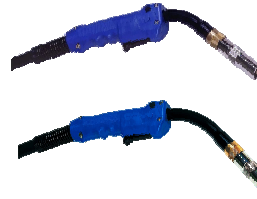
Specifications - Power Source, Wire Feeder, and Torches

Power Sources Specifications

Model	CPHD-500 (C0207)	CPHD-500 (C0208)
Rated input voltage	AC 230V 3Phase	AC 460V 3Phase
Input voltage range	207V – 253V	414V – 506V
Rated input power	31.5 kVA (28kW)	
Rated input current	79.1A	39.5A
Rated output current	500A	
Rated load voltage	45V	
Output current range	50 – 500A	
Output voltage range	15 – 45V	
Max. no-load voltage	65V	
Rated duty cycle	50%	
Temperature rise	320° F	
Temperature range	14 - 104° F	
Mass	364 lbs (165kg)	
Dimensions (in)	W : 16.1 X D: 26.0 X H: 37.2	

OTC Air Cooled Steel Torches

Tweco #4 Style Power Pin



WT3510-S(M,L)UT

- 350 Amp

WT4000-S(M,L)UT

- 400 Amp

Tweco #5 Style Power Pin



WT5000-S(M,L)UT

- 500 Amp

- Available Lengths: S - 10 ft.
M - 15 ft.
L - 20 ft.

- Torches shown are rated 60% duty cycle with 100% CO₂ shielding gas

Wire Feeders Specifications

Model	CMXL-231U
Style	2 Drive Roll - Semiautomatic
Wire Feed Speed	708 in./min. (18 m/min.)
*Wire Size	.030", .035", .045", .052", 1/16"
Wire Type	Solid, Flux Cored
Weight	30.9 lbs. (14 kg)
Dimensions	W: 7.9 x D: 19.0 x H: 11.5 inches

*Notes:

- Factory installed .035"/.045" dual sided drive rolls
- .052", 1/16" dual sided drive rolls provided as standard accessory
- .030" drive roll available as an option

Wire feeder accepts virtually any brand torch

New wire feeder is designed to use any brand of torch with a Tweco #4 style power pin, including OTC - DAIHEN torches (Tweco #5 connection available as an option)

Wire Feeder Standard Features



15 ft. Gas Hose, Control Cable, Remote Control Cable, and Positive Side Welding Cable with Dinse Connector

Built-In Wire Straightener

Equipped with .035" - .045" Drive Rolls

Wire Pressure Adjustment Handle

Tweco #4 Power Pin Connection

Torch Trigger Lead Connection

Fasteners for Remote Pendant

For more information on  brand products from DAIHEN Inc. please visit our web site at www.daihen-usa.com.



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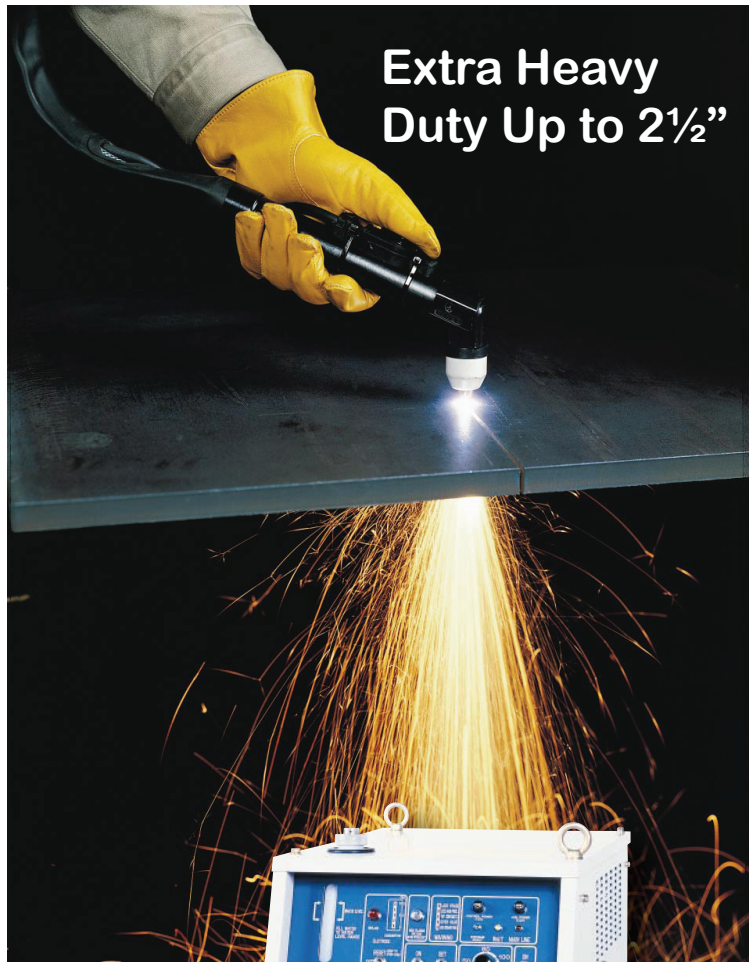
OTC - DAIHEN Inc.
(Detroit Branch)
22241 Roethel Drive
Suite A
Novi, MI 48375



CAT. NO. A352A

ADVANCED WELDING & ROBOTIC SYSTEMS

D-12000 Air Cutting Plasma System



Total Solutions from the Single Source Provider

Features and Benefits

- Production cuts up to 2 inches
- Maximum cuts up to 2-1/2 inches
- Water cooled – 100% duty cycle
- Built-in water circulator extends torch and consumable life
- Faster, safer, and more economical than oxy-fuel on 1" carbon steel
- Superior gouging capabilities
- I/O receptacle for automated cutting
- Built-in torch guard function (Alarm indicates replacement time of tip and electrode)
- Wide operation area (Up to 100 ft. torch option)
- Advanced safety protection circuits
- Fully variable output
- Cruise control
- Pulsed pilot arc start reduces electrode wear
- Diagnostic Indicators for troubleshooting
- Wheels provided for greater maneuverability

Cutting Thickness (in.)	1/2	3/4	1	1-1/2	2	2-1/2
Mild Steel	CLEAN CUT RANGE					
Stainless Steel						
Aluminum						

Featuring
"TORCH GUARD"



Capable of clean cutting nearly 2-inch carbon steel, the D-12000 is a safe and economical alternative to oxyfuel cutting. This system offers more unique, user-friendly features than any machine in its class.

Upon turning on the power source a self-diagnosis function takes place that will not allow the system to operate if an abnormal condition exist. Indicator lamps identify operational problems. Alarms will sound when unsafe conditions happen such as removing torch consumables with control power on.

Our patented "TORCH GUARD" feature monitors electrode consumption and indicates replacement time avoiding torch head damage from over use of the electrode.

Exceptional Value for Heavy Duty Applications

- The D-12000's built-in water circulator provides very efficient cooling of the torch head, and circulates water directly inside the electrode for extended consumable life. Compressed air is used for cutting and cooling the torch, thereby eliminating the need for expensive gases.
- The narrow plasma arc produces cut quality equal to oxyfuel with minimal or no dross, and virtually no heat-affected zone.
- A trigger-hold function can be turned on to provide cruise control for long cuts and automatic cutting applications.
- Durable torches are available in a multitude of lengths and torch head configurations for both semi-automatic and automatic cutting. The unique torch design and start circuit maximize consumable life to provide extended trouble free efficient use.

Specifications

Power Supply	Name	TRC-121
	Cutting Mode	Air Plasma Cutting
	Number of Phases	Three Phase
	Rated Input Voltage (Auto-Select)	230/460 \pm 10% (50/60Hz)
	Rated Input	28.3kW
	Rated Output Current	120 A
	Rated Output Current Range	30-120 A
	Rated Duty Cycle	100%
	Temperature Rise	+320° F (+160° C)
	External Dimensions	17.8" x 30.7" x 32.4" (453mm x 780mm x 823mm)
	Weight	384.0 lbs. (174.0 kg)
Torch See Available Torches	Standard Model	CTZW-1201
	Rated Current	120 A
	Rated Duty Cycle	100%
	Cable Length	33 ft.



Available Torches

	Model	Type
D-12000	CTZW-1201	33 ft. Long Handle
	CTZWM-1201	66 ft. Long Handle
	CTPW-1201	33 ft. Machine
	CTPWM-1201	66 ft. Machine
	CTW-1201	33 ft. Short Handle
	CTWM-1201	66 ft. Short Handle

Consumable Torch Parts

Torch Model	Max. Current (A)	Type	Tip	Electrode	Shield Cup
CTZW-1201 (M), (L), (P)	30	Standard	H839K03	H839M00	H839G02
	50		H839K02		
	80		H839K01		
	120		H839G03		
	120	Gouging	H839K04		

For more information on **OTC** brand products from DAIHEN INC. visit our web site at daihen-usa.com, or send us E-mail at sales@daihen-usa.com



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Monterrey, Mexico
Novi, Michigan



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.



FD *Friendly series*



COMPLETE ROBOTIC ARC WELDING SYSTEMS

888-OTC-ROBO

www.daihen-usa.com

FD-B4

FD-B4L

FD-V6

FD-V6L

FD-V20

FD-H5

North American Corporation Headquarters

1400 Blauser Dr, Tipp City, Ohio 45371 / Phone: (937) 667-0800

Demonstration Centers

Novi, MI Branch Office
Davenport, IA Branch Office
Atlanta, GA Branch Office

Charlotte, NC Branch Office
Monterrey, Mexico Branch Office
Leon, Mexico Branch Office



Member of DAIHEN Group

DAIHEN INC.

www.daihen-usa.com



FD *Friendly series*

CHANGING THE FUTURE OF MANUFACTURING

OPTIMUM TEACHING

Easy teaching, even for a two-electrode torch.



FD-B4

FD-B4L

FD-V6

FD-V6L

FD-V20

FD-H5

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-B4

The FD-B4 arc welding robot's streamlined, through-arm coaxial cable increases mobility in tight workspaces and improves wire feeding for better overall weld quality. Compact design makes it simple and easy to weld in confined spaces or complicated fixtures.





SMOOTH OPERATION

TEACH PENDANT

SMART CONTROLLER

FD11



Compact and light weight
27% lighter than previous model, making teaching sessions easier.
40% 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
USB memory slot makes data saving and reading easy.



Electric conservation
Up to 50% reduction in power consumption 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
20% less volume than previous model.
Additional clearance above the controller.

FD TEACHING PENDANT

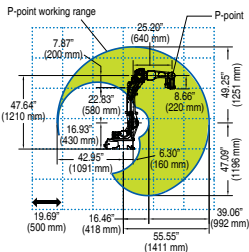
- Welding condition guide function helps you find better welding conditions with one-touch operation.
- Jog dial can scroll through teaching programs, adjust wire aiming position, do wire inching and retract movement, and can provide intuitive operation for multiple items.
- One-touch access with the 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.

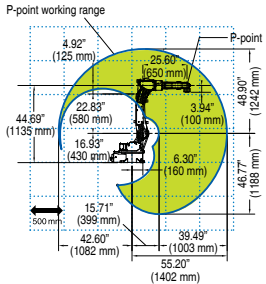
RANGE OF MOTION

MANIPULATOR WORKING RANGE / SPECIFICATIONS



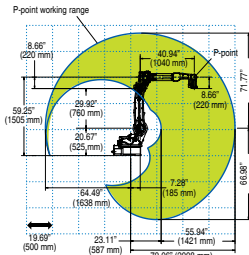
FD-B4 Standard

Reach	1411mm
Payload	4 kg
Axes	6
Repeatability	± 0.08 mm



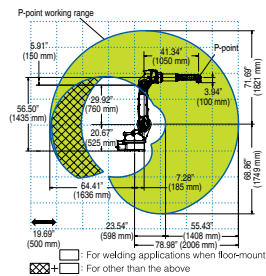
FD-V6 Standard

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



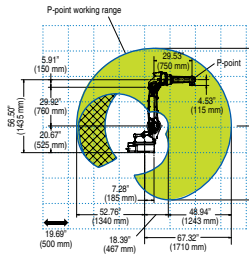
FD-B4L Long Reach

Reach	2008mm
Payload	4 kg
Axes	6
Repeatability	± 0.08 mm



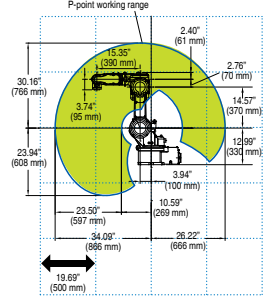
FD-V6L Long Reach

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



FD-V20 Standard

Reach	1710mm
Payload	20 kg
Axes	6
Repeatability	± 0.07 mm



FD-H5 Compact

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

SPECIFICATIONS

MANIPULATOR

			FD-B4	FD-B4L	FD-V6	FD-V6L	FD-V20	FD-H5
Model			NB4	NB4L	NV6	NV6L	NV20	NH5
Number of axes			6					
Maximum capacity			8.82 lbs (4 kg)	8.82 lbs (4 kg)	13.23 lbs (6 kg)	13.23 lbs (6 kg)	44.09 lbs (20 kg)	11.02 lbs (5 kg)
Positional repeatability			±0.003" (±0.08 mm) ⁽¹⁾	±0.003" (±0.08 mm) ⁽¹⁾	±0.003" (±0.08 mm) ⁽¹⁾	±0.003" (±0.08 mm) ⁽¹⁾	±0.003" (±0.07 mm) ⁽¹⁾	±0.002" (±0.05 mm) ⁽¹⁾
Horizontal Reach			55.55" (1411 mm)	79.06" (2008 mm)	55.29" (1402 mm)	78.98" (2006 mm)	67.32" (1710 mm)	34.09" (866 mm)
Vertical Reach			96.34" (2447 mm)	138.75" (3575 mm)	90.67" (2430 mm)	140.55" (3570 mm)	117.28" (2979 mm)	54.1" (1374 mm)
Driving capacity			2550 W	4650 W	2600 W	5000 W	5600 W	1440 W
Working Range	Arm	J1 (Rotation)	±170° (±50°) ⁽²⁾	±170° (±50°) ⁽²⁾	±170° (±50°) ⁽²⁾	±170° (±50°) ⁽²⁾	±170° (±50°) ⁽²⁾	±170° (±50°) ⁽²⁾
		J2 (Lower arm)	-155° to +90°	-155° to +100° ⁽³⁾	-155° to +90°	-155° to +100° ⁽³⁾	-155° to +100°	-125° to +90°
		J3 (Upper arm)	-170° to +180°	-170° to +190°	-170° to +190°	-170° to +260° ⁽⁴⁾	-170° to +260° ⁽⁴⁾	-140° to +245°
	Wrist	J4 (Swing)	±155°	±155°	±180°	±180°	±180°	±190°
		J5 (Bending)	-45° to +225° ⁽⁵⁾	-45° to +225° ⁽⁵⁾	-50° to +230°	-50° to +230°	-50° to +230°	-30° to +210°
		J6 (Twist)	±205° ⁽⁵⁾	±205° ⁽⁵⁾	±360°	±360°	±360°	±360°
Motion speed	Arm	J1 (Rotation)	3.66 rad/s (210°/s) 3.32 rad/s (190°/s) ⁽²⁾	3.40 rad/s (195°/s) 3.05 rad/s (175°/s) ⁽²⁾	3.66 rad/s (210°/s) 3.32 rad/s (190°/s) ⁽²⁾	3.40 rad/s (195°/s) 3.05 rad/s (175°/s) ⁽²⁾	3.40 rad/s (195°/s) 3.05 rad/s (175°/s) ⁽²⁾	3.49 rad/s (200°/s) 2.79 rad/s (160°/s) ⁽²⁾
		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)	3.32 rad/s (190°/s)	3.49 rad/s (200°/s)
		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)	3.14 rad/s (180°/s)	4.54 rad/s (260°/s)
	Wrist	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)	6.98 rad/s (400°/s)	6.63 rad/s (380°/s)
		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)	6.98 rad/s (400°/s)	6.63 rad/s (380°/s)
		J6 (Twist)	10.5 rad/s (600°/s)	10.5 rad/s (600°/s)	10.82 rad/s (620°/s)	10.82 rad/s (620°/s)	10.5 rad/s (600°/s)	8.95 rad/s (510°/s)
Wrist allowable load	Allowable moment of moment	J4 (Swing)	10.1 N•m	10.1 N•m	11.8 N•m	11.8 N•m	43.7 N•m	11.9 N•m
		J5 (Bending)	10.1 N•m	10.1 N•m	9.8 N•m	9.8 N•m	43.7 N•m	11.9 N•m
		J6 (Twist)	2.94 N•m	2.94 N•m	5.9 N•m	5.9 N•m	19.6 N•m	5.21 N•m
	Allowable moment of inertia	J4 (Swing)	0.38 kg•m²	0.38 kg•m²	0.30 kg•m²	0.30 kg•m²	1.09 kg•m²	0.303 kg•m²
		J5 (Bending)	0.38 kg•m²	0.38 kg•m²	0.25 kg•m²	0.25 kg•m²	1.09 kg•m²	0.303 kg•m²
		J6 (Twist)	0.03 kg•m²	0.03 kg•m²	0.06 kg•m²	0.06 kg•m²	0.24 kg•m²	0.061 kg•m²
Arm cross-sectional area			2.94 m² x 340°	6.37 m² x 340°	3.14 m² x 340°	7.48 m² x 340°	5.27 m² x 340°	1.22 m² x 340°
Environmental conditions			32 to 113° F (0 to 45° C), 20 to 80% RH (no condensation)					
Mass / weight			340 lbs (154 kg)	611 lbs (277 kg)	317 lbs (144 kg)	602 lbs (273 kg)	613 lbs (278 kg)	128 lbs (58 kg)
Maximum load of upper arm			22.05 lbs (10 kg) ⁽⁶⁾	44.09 lbs (20 kg) ⁽⁶⁾	22.05 lbs (10 kg) ⁽⁶⁾	44.09 lbs (20 kg) ⁽⁶⁾	44.09 lbs (20 kg) ⁽⁶⁾	2.2 lbs (1 kg) ⁽⁶⁾
Installation method			Floor/Ceiling/Wall					
Paint color			White (Munsell 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.

SPECIFICATIONS

CONTROLLER / TEACH PENDANT

	FD11 Controller
Dimensions	Inches: 22.83 W x 21.34 D x 25.59 H mm: 580 W x 542 D x 650 H
Mass	Approximately 137 lbs (62 kg)
Ambient temperature range	32 to 113° F (0 to 45° C)
Ambient relative humidity range	20 to 80% RH (non condensing)
Power supply	3-phase 480/240 VAC ±10%, 50/60 Hz with integrated transformer
“General purpose physical I/O”	40 inputs, 40 outputs
Memory capacity	160,000 instructions by PTP instruction in a single mechanism
Number of task programs	9,999
External memory	USB (Robot Control: 1 slot, Teach Pendant: 1 slot)
Color	Munsell notation 10GY 9/1

	Teach Pendant
Dimensions	Inches: 6.89 W x 12.83 D x3.19 H mm: 175 W x 326 D x 81 H
Mass	Approximately 2.4 lbs (1.08 kg)
Operation device	Axis keys, TP selector switch, jog dial, enable switch, operation ready ON key, emergency stop button, USB memory slot (1 slot)
Display	5.7 inches, 640x480 pixels, 65536 colors, touch panel, LED backlit
Cable length	26.25 ft (8 m) standard 49.21 ft (15 m) optional

These specifications are subject to change without prior notice.

PRE-ENGINEERED **SYSTEMS OVERVIEW**



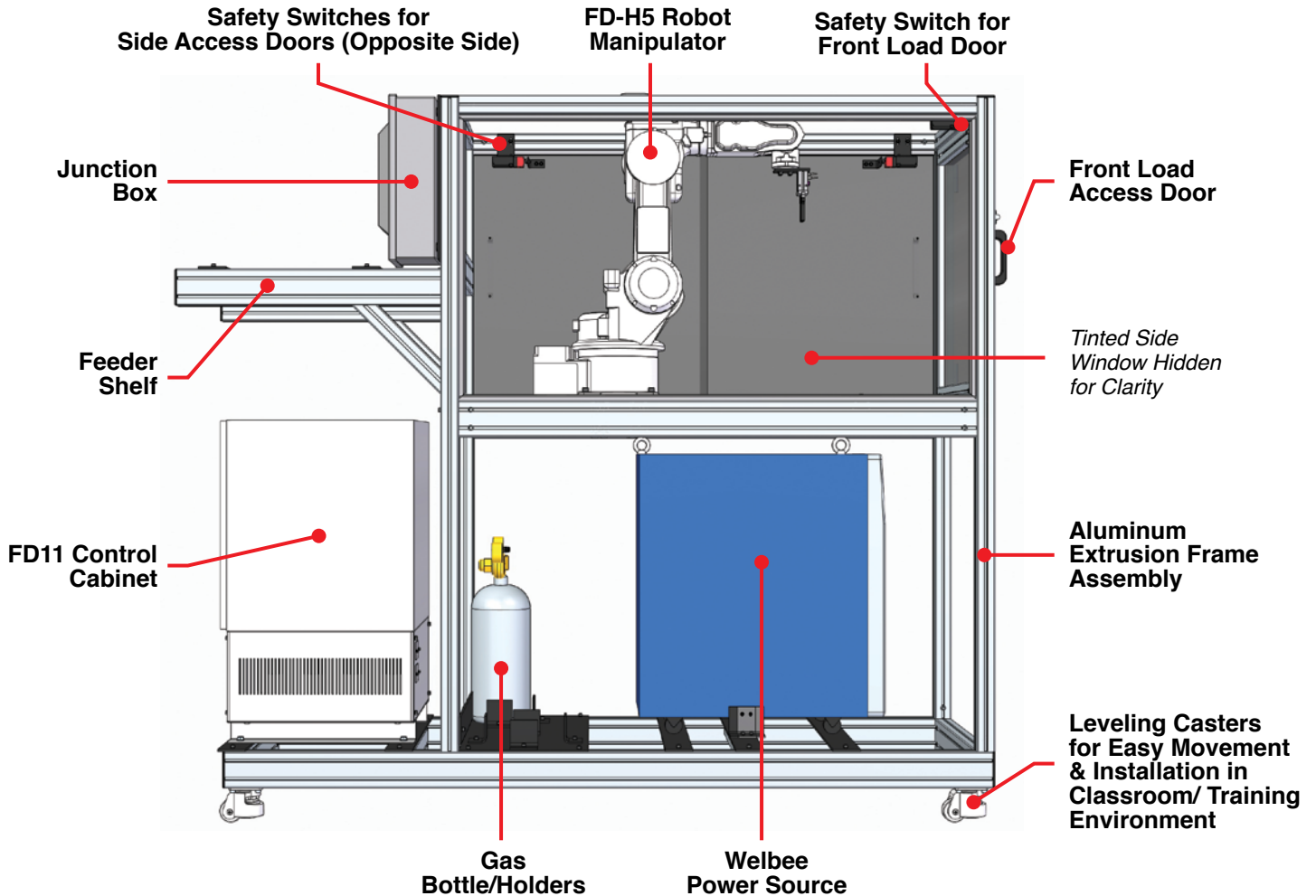
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CONTENTS

Arc Welding Cell	Page
ED-ARC 100	4
ECO-ARC 200	6
ECO-ARC 200B	8
ECO-ARC 200L	10
ECO-ARC 200LB.	12
PT-ARC 600	14
PT-ARC 600B	16
SERVO-ARC 600	18
SERVO-ARC 600B.	20
SERVO-ARC 720	22
SERVO-ARC 720B.	24
DT-ARC 500	26
ROTA-ARC 1000.	28
TRI-ARC 1000	30

ED-ARC 100

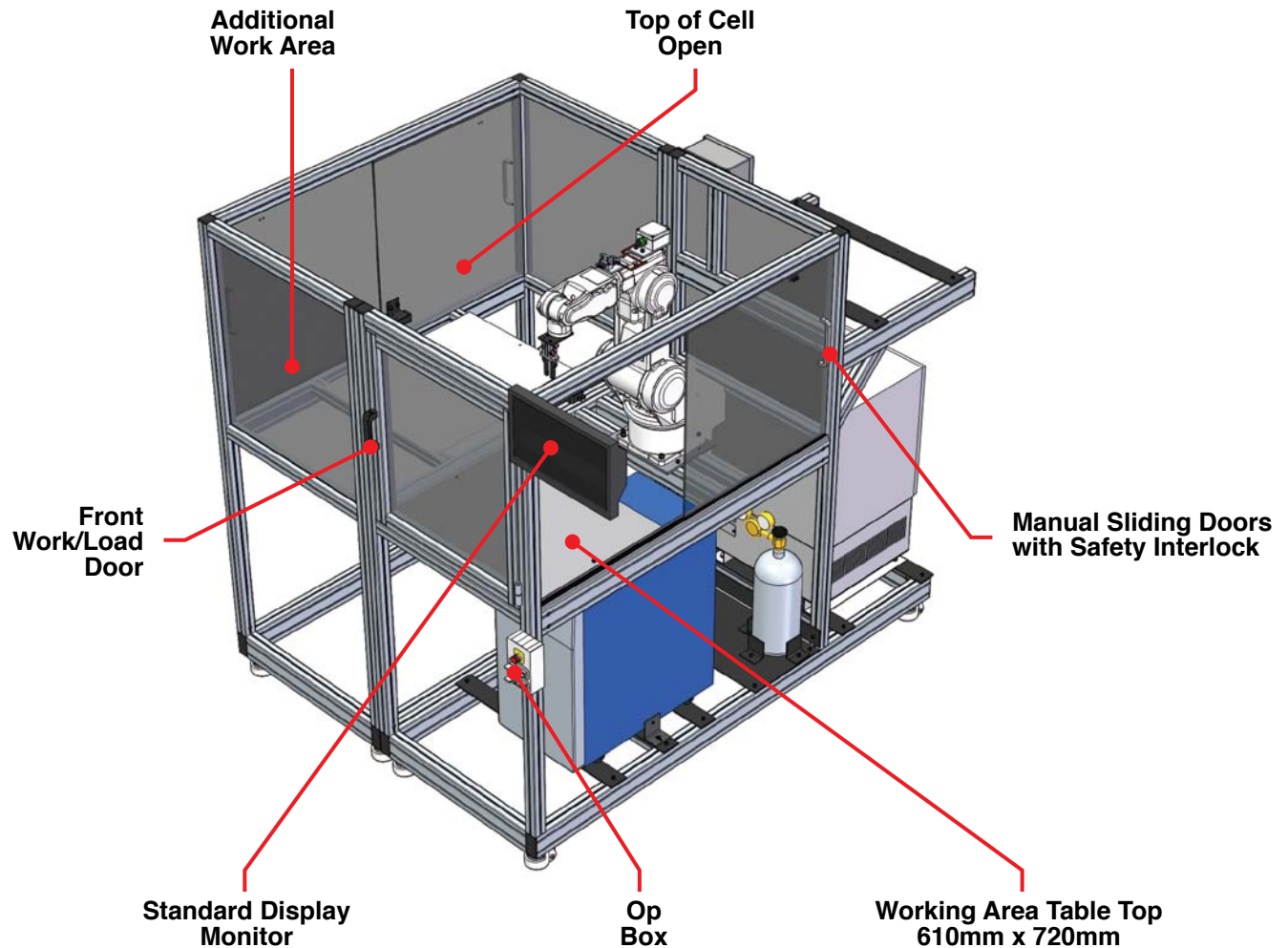


Standard Option:

ED-ARC 100 – Mobile, fully enclosed arc welding training station with compact robot manipulator (FD-H5)

Details:

- Lightweight aluminum frame and polycarbonate arc flash enclosure
- Flat table top surface with 610mm x 720mm work area
- Height of work area 1177mm
- Maximum payload: 250kg
- Leveling casters for stable installation/easy movement when needed
- Weight – Approx. 550kg
- Front load access door with tinted window with safety interlock
- Side access door with tinted window for load/maintenance with safety interlock
- Tinted Panels provide better light in work area for training visibility and operator safety
- Shelf mounted welding power source
- Standard Display Monitor



Specifications:

Footprint Dimensions:

Width: 820mm (32.3")
 Height: 2014mm (79.3")
 Depth: 2230mm (87.8")

Manipulator Type:

- FD-H5



FD-H5

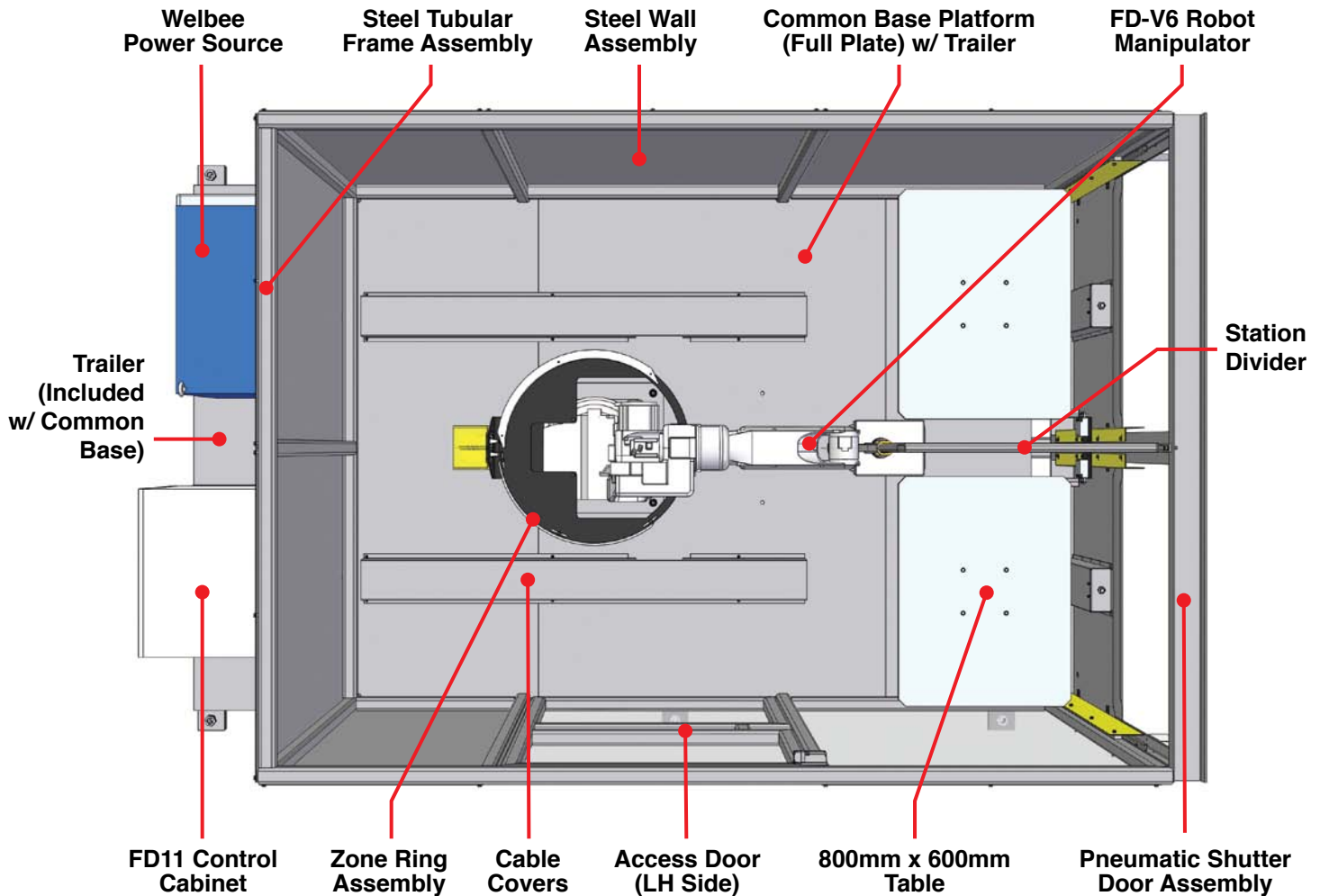
Available I/O Slots:

32 Inputs/32 Outputs
 (Additional Power Supply needed for Outputs)

Additional Options:

- Optional Additional Work Area
 - Adds additional space by adding to the extruded frame and removing the long side panel without sliding doors
 - May require adding a zone kit for station designation

ECO-ARC 200



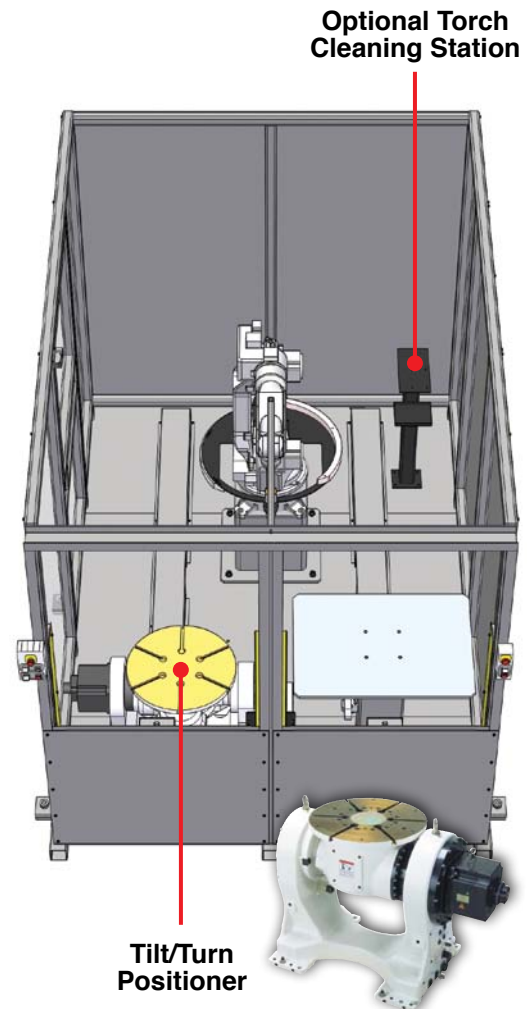
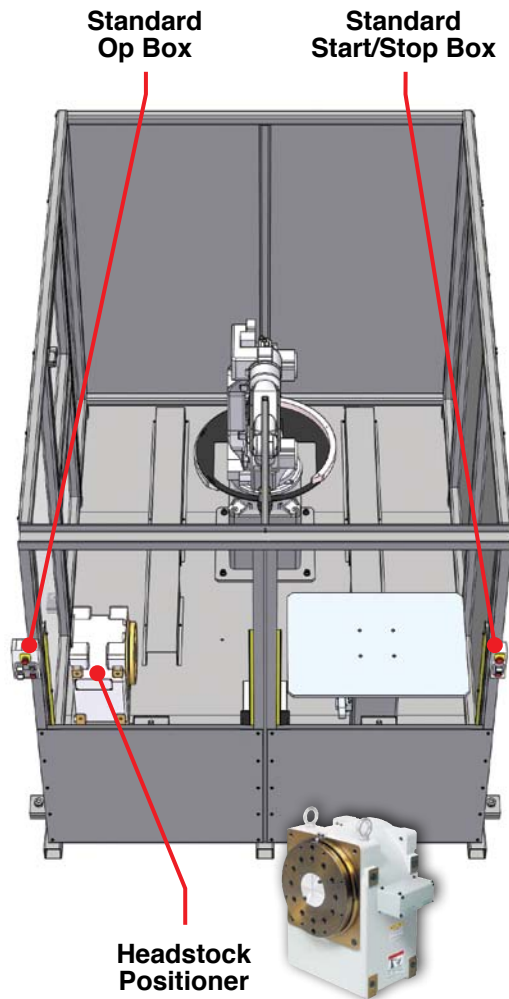
Standard Option:

ECO-ARC 200 – 2 stationary tables with standard robot manipulator (FD-V6)

- Tabletop Dimensions: 800mm x 600mm
- Weight – Approx. 2000kg

Details:

- Pneumatic shutter doors
- Zone Ring for station designation
- Standard fork lift pockets in base for easy movement
- Steel wall station divider



Specifications:

Footprint Dimensions:

Width: 2194mm (86.4")
 Height: 2158mm (85.0")
 Depth: 3430mm (135.0")

Manipulator Types:

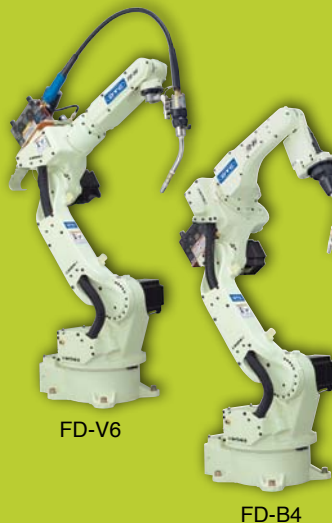
• FD-V6 • FD-B4

Cell Options:

• 2 Stationary Tables
 • Positioner/Table
 • 2 Positioners

Headstock Options:

• A2PB-250 • A2PB-500 • A2PB-1000



Tilt/Turn Options:

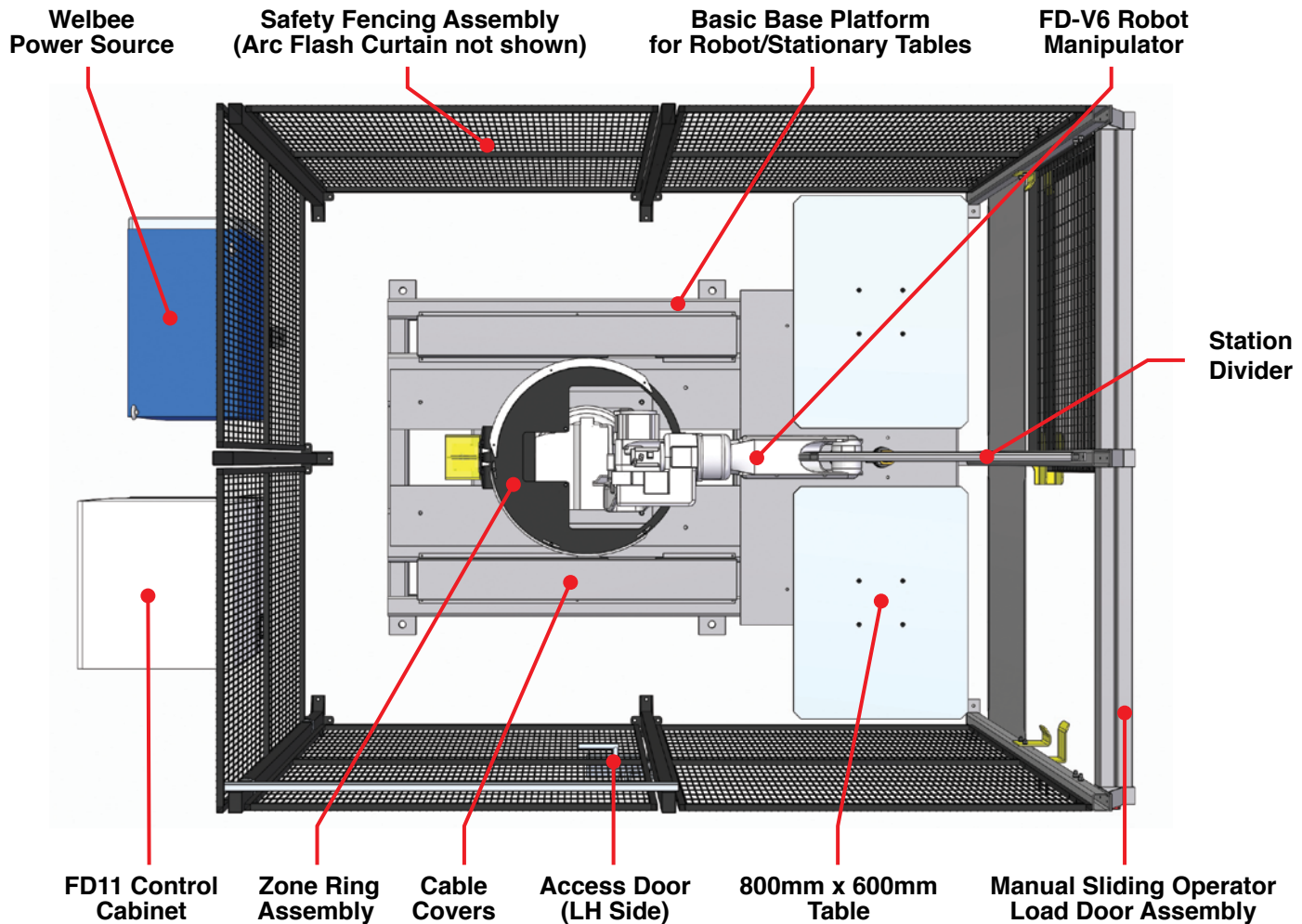
• A2PF-300 • A2PF-500 • A2PF-1000

Available I/O Slots: 28 Inputs/26 Outputs
 (Additional Power Supply needed for Outputs)

Other Options:

- Basic Base Design (ECO-ARC 200B)
- Safety Fencing on Floor
- Safety Fencing on Full Base
- Access Door on RH Side
- Manual Sliding Door Assembly
- Station Lighting
- Torch Cleaning Station
- Fixture Mounting Pattern in Table Top
- Extended I/O

ECO-ARC 200B

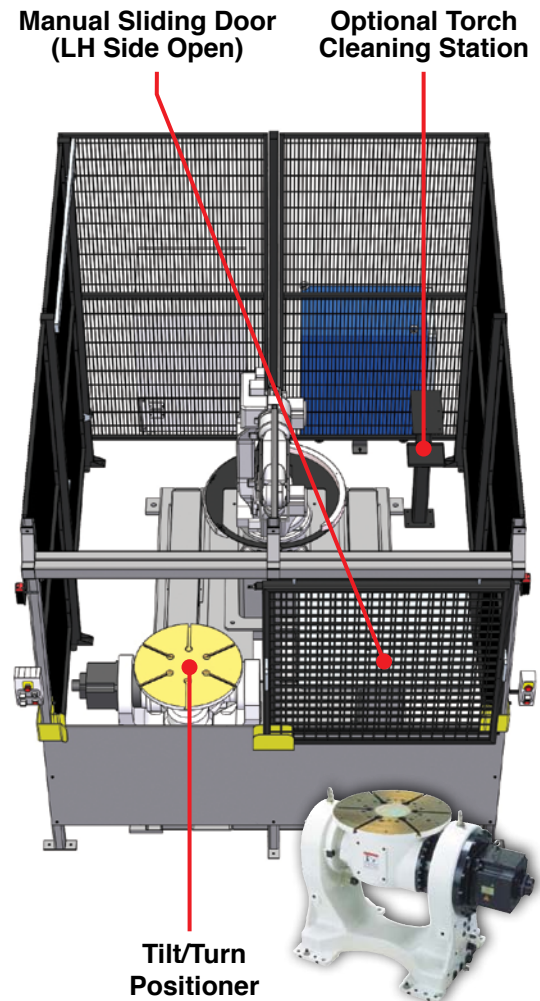
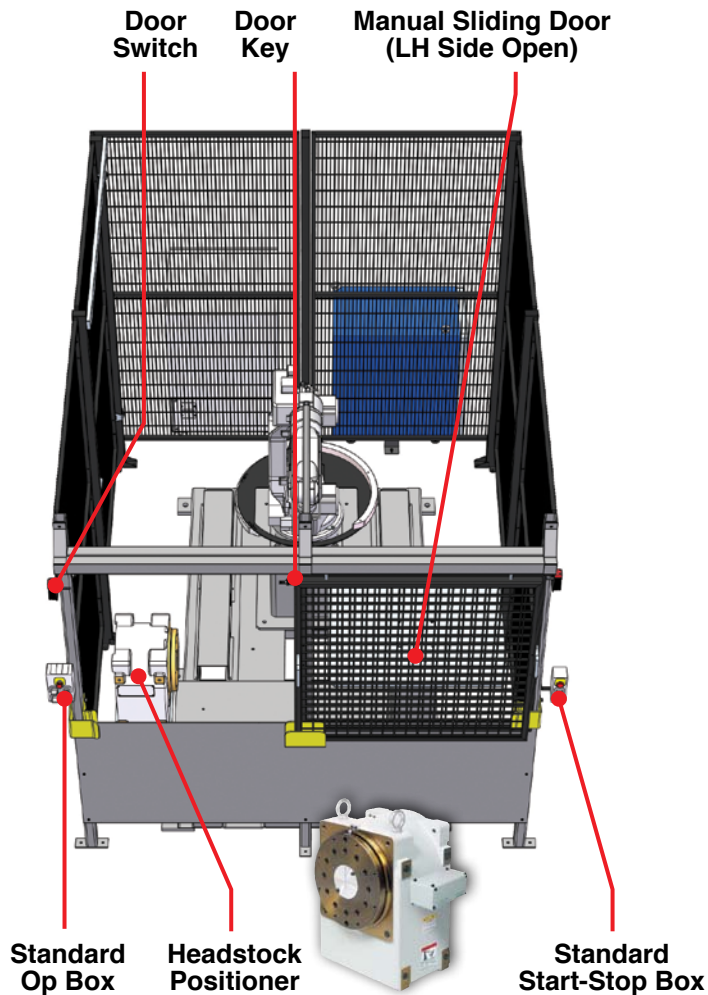


Standard Option:

ECO-ARC 200B – 2 stationary tables with standard robot manipulator (FD-V6)

Details:

- Manual sliding operator load doors
- Zone Ring for station designation
- Standard fork lift pockets in base for easy movement
- Steel wall station divider
- Tabletop Dimensions: 800mm x 600mm
- Weight – Approx. 1500kg
- Floor mounted safety fencing w/ arc flash curtains



Specifications:

Footprint Dimensions:

Width: 2140mm (84.2")
Height: 2200mm (86.6")
Depth: 3420mm (134.6")

Manipulator Types:

- FD-V6
- FD-B4

Cell Options:

- 2 Stationary Tables
- Positioner/Table
- 2 Positioners

Headstock Options:

- A2PB-250
- A2PB-500
- A2PB-1000



Tilt/Turn Options:

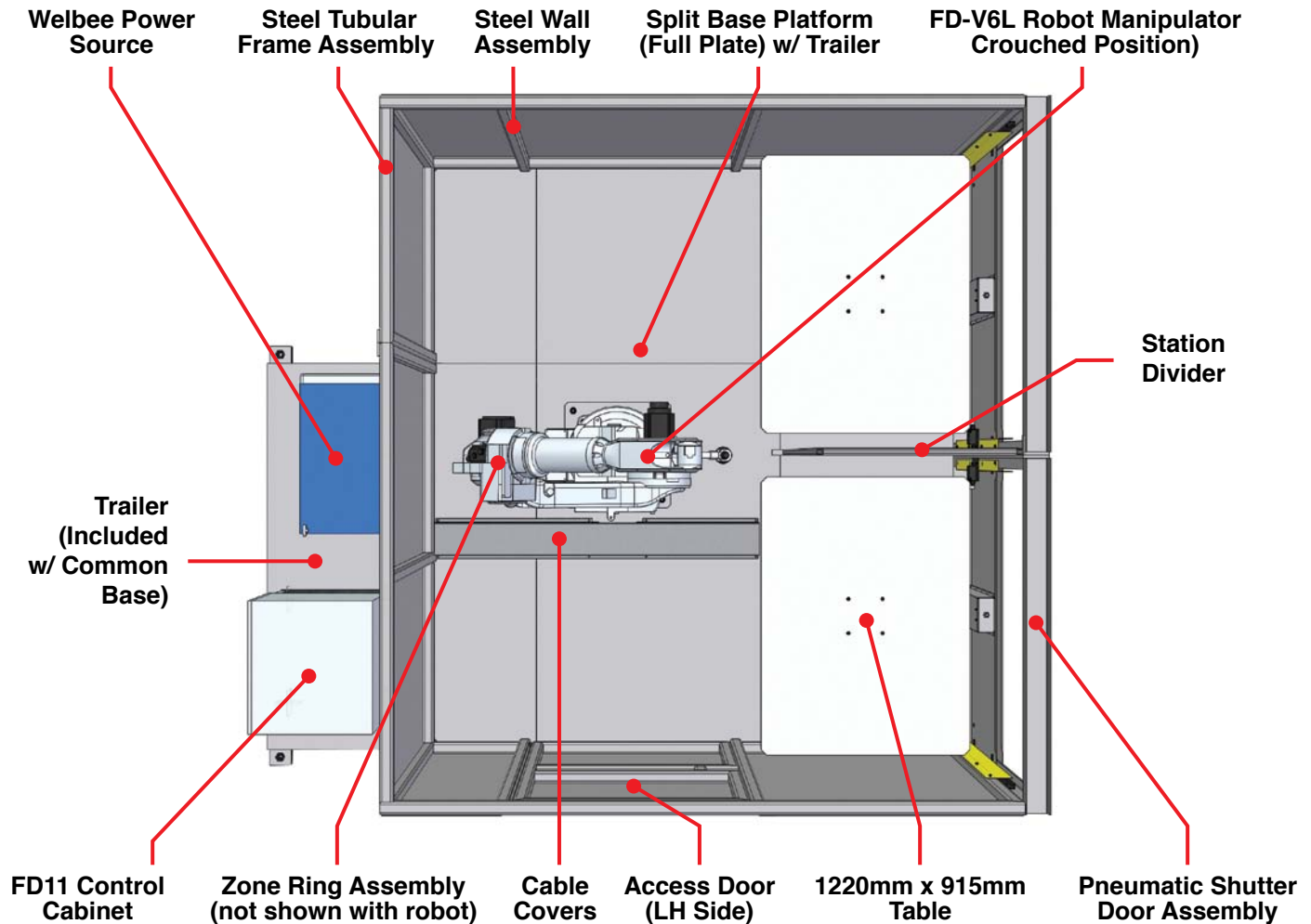
- A2PF-300
- A2PF-500
- A2PF-1000

Available I/O Slots: 28 Inputs/26 Outputs
(Additional Power Supply needed for Outputs)

Other Options:

- Full Base Design (ECO-ARC 200)
- Mesh Fencing on Full Base
- Access Door on RH Side
- Pneumatic Shutter Door Assembly
- Station Lighting
- Torch Cleaning Station
- Fixture Mounting Pattern in Table Top
- Extended I/O
- Trailer (Base)

ECO-ARC 200L

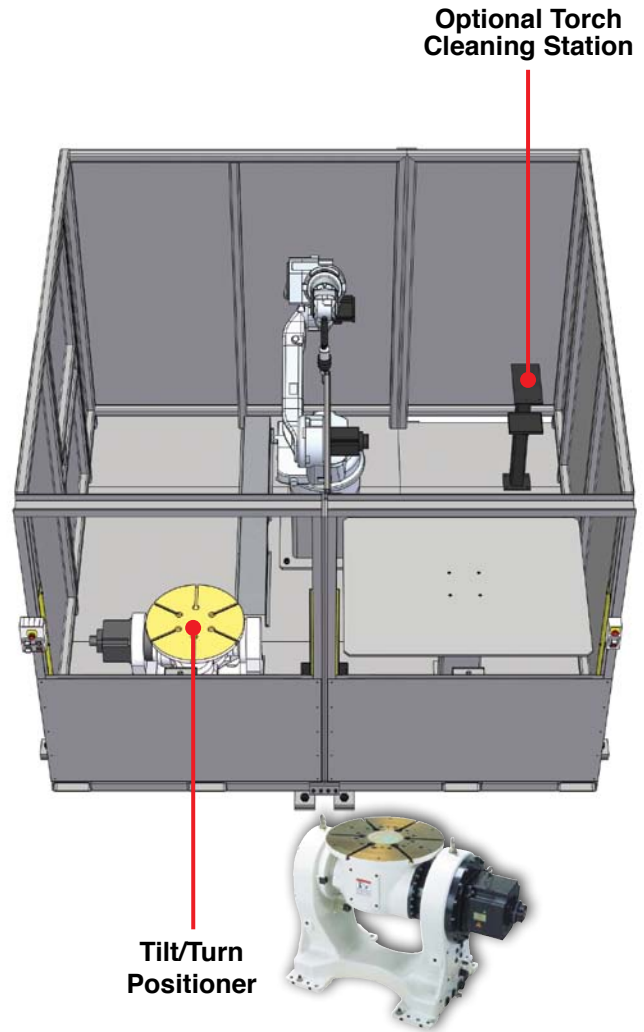
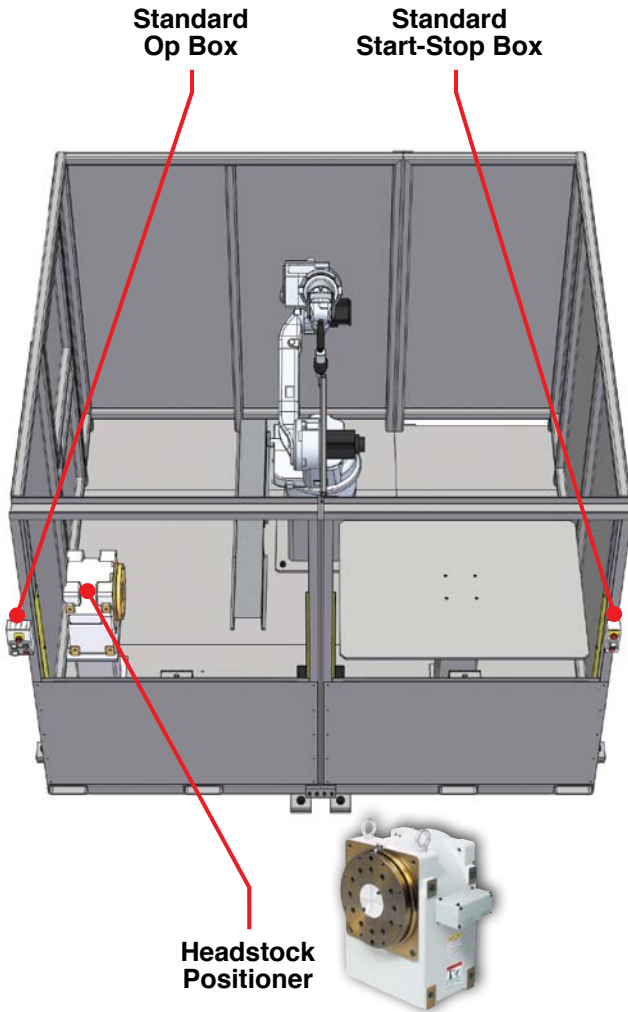


Standard Option:

ECO-ARC 200L – 2 stationary tables with long reach robot manipulator (FD-V6L)

Details:

- Pneumatic shutter doors
- Zone Ring for station designation
- Standard fork lift pockets in split base for easy movement
- Steel wall station divider
- Table Top Dimensions: 1220mm x 915mm
- Weight – Approx. 3500kg



Specifications:

Footprint Dimensions:

Width: 3394mm (133.6")

Height: 2148mm (84.6")

Depth: 4065mm (160.0")

Manipulator Types:

- FD-V6L
- FD-B4L

Cell Options:

- 2 Stationary Tables
- Positioner/Table
- 2 Positioners

Headstock Options:

- A2PB-250
- A2PB-500
- A2PB-1000



Tilt/Turn Options:

- A2PF-300
- A2PF-500
- A2PF-1000

Available I/O Slots:

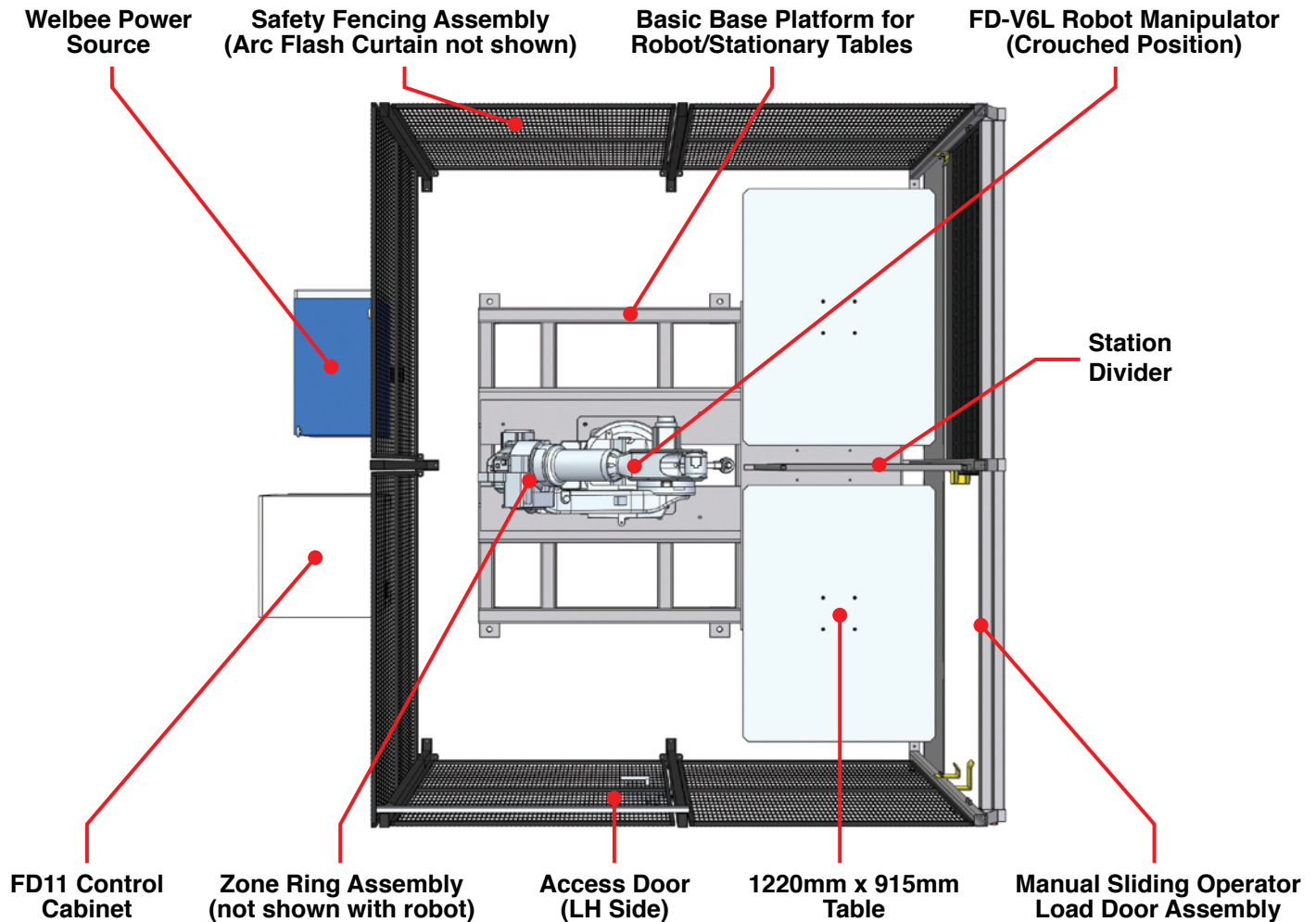
28 Inputs/26 Outputs

(Additional Power Supply needed for Outputs)

Other Options:

- Basic Base Design (ECO-ARC 200LB)
- Safety Fencing on Floor
- Safety Fencing on Full Base
- Access Door on RH Side
- Manual Sliding Door Assembly
- Station Lighting
- Torch Cleaning Station
- Fixture Mounting Pattern in Table Top
- Extended I/O

ECO-ARC 200LB

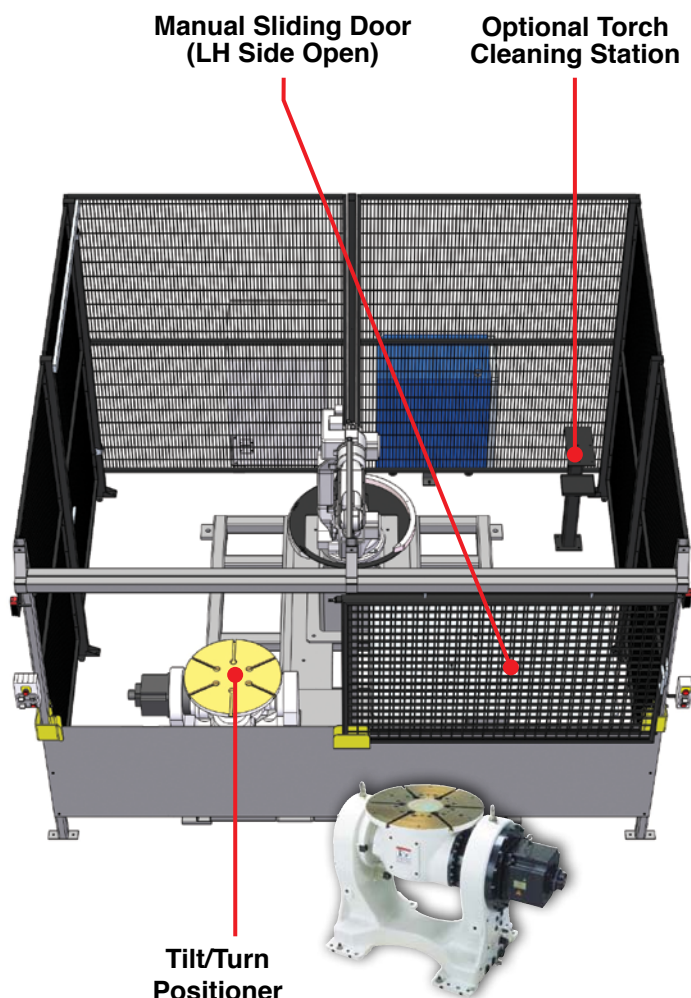
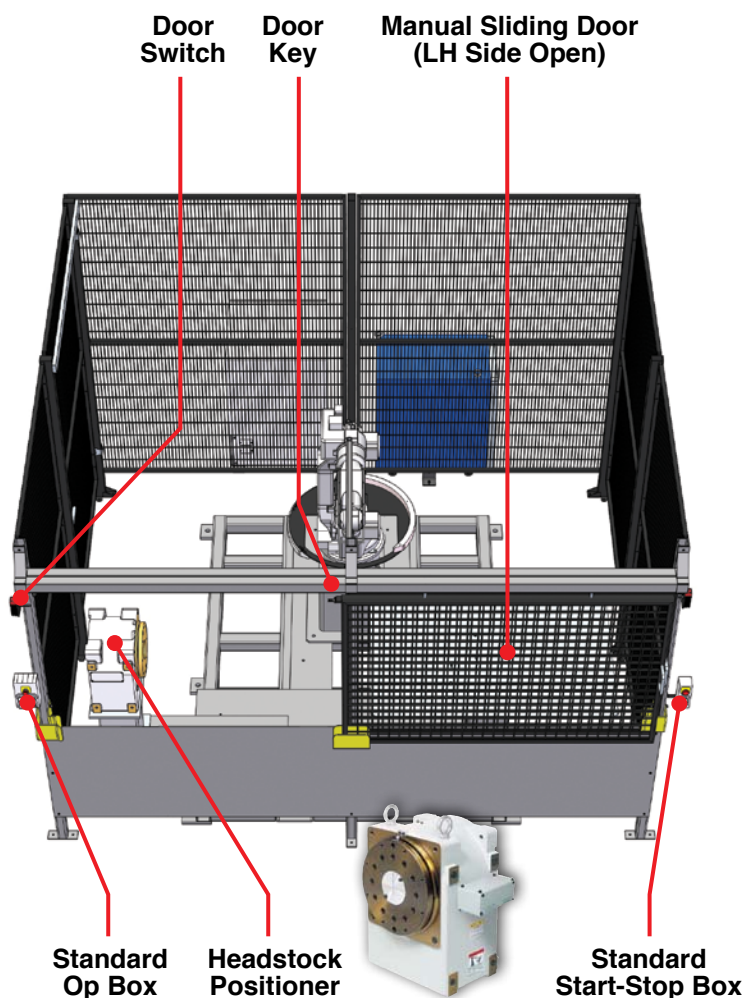


Standard Option:

ECO-ARC 200LB – 2 stationary tables with long reach robot manipulator (FD-V6L)

Details:

- Manual sliding operator load doors
- Zone Ring for station designation
- Standard fork lift pockets in base for easy movement
- Steel wall station divider
- Tabletop Dimensions: 1220mm x 915mm
- Weight – Approx. 2000kg
- Floor mounted safety fencing w/ arc flash curtains



Specifications:

Footprint Dimensions:

Width: 3294mm (129.7")

Height: 2200mm (86.6")

Depth: 3726mm (146.7")

Manipulator Types:

- FD-V6L
- FD-B4L

Cell Options:

- 2 Stationary Tables
- Positioner/Table
- 2 Positioners

Headstock Options:

- A2PB-250
- A2PB-500
- A2PB-1000



Tilt/Turn Options:

- A2PF-300
- A2PF-500
- A2PF-1000

Available I/O Slots:

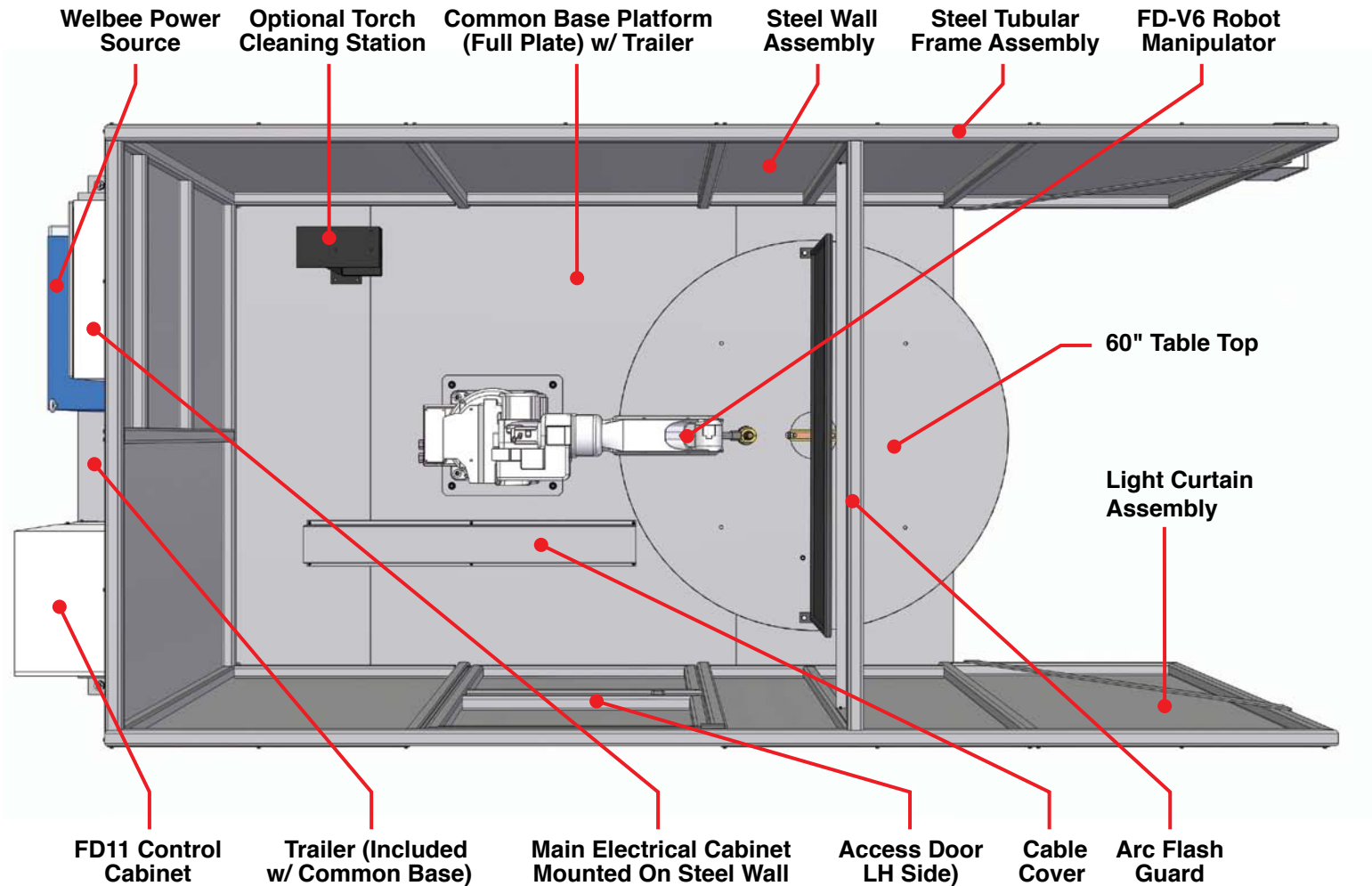
28 Inputs/26 Outputs

(Additional Power Supply needed for Outputs)

Other Options:

- Full Base & Wall Design (ECO-ARC 200L)
- Mesh Fencing on Full Base
- Access Door on RH Side
- Pneumatic Shutter Door Assembly
- Station Lighting
- Torch Cleaning Station
- Fixture Mounting Pattern in Table Top
- Extended I/O
- Trailer (Base)

PT-ARC 600

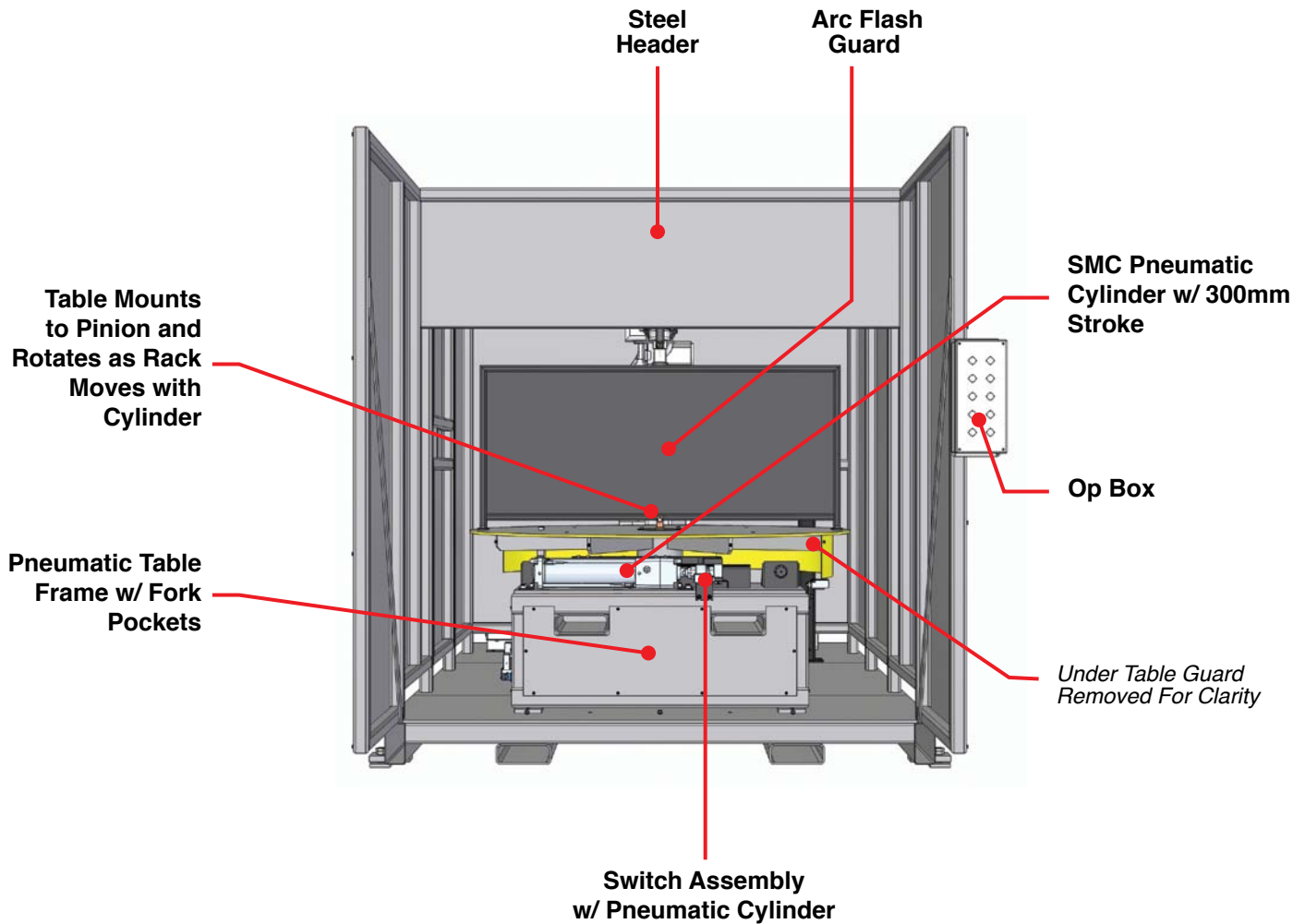


Standard Option:

PT-ARC 600 – 60" pneumatic indexing table

Details:

- SMC 300mm Stroke Pneumatic Cylinder
- Omron 1495mm Light Curtains
- Omron Limit Switches for station designation
- Index Speed (180°) - 4.2 seconds
- Work Capacity – 250kg/side
- Weight – Approx. 3500kg
- Standard fork lift pockets
- Rack and Pinion Design



Specifications:

Footprint Dimensions:

Width: 2200mm (86.6")
 Height: 2235mm (88.0")
 Depth: 4584mm (180.5")

Manipulator Types:

- FD-V6
- FD-B4



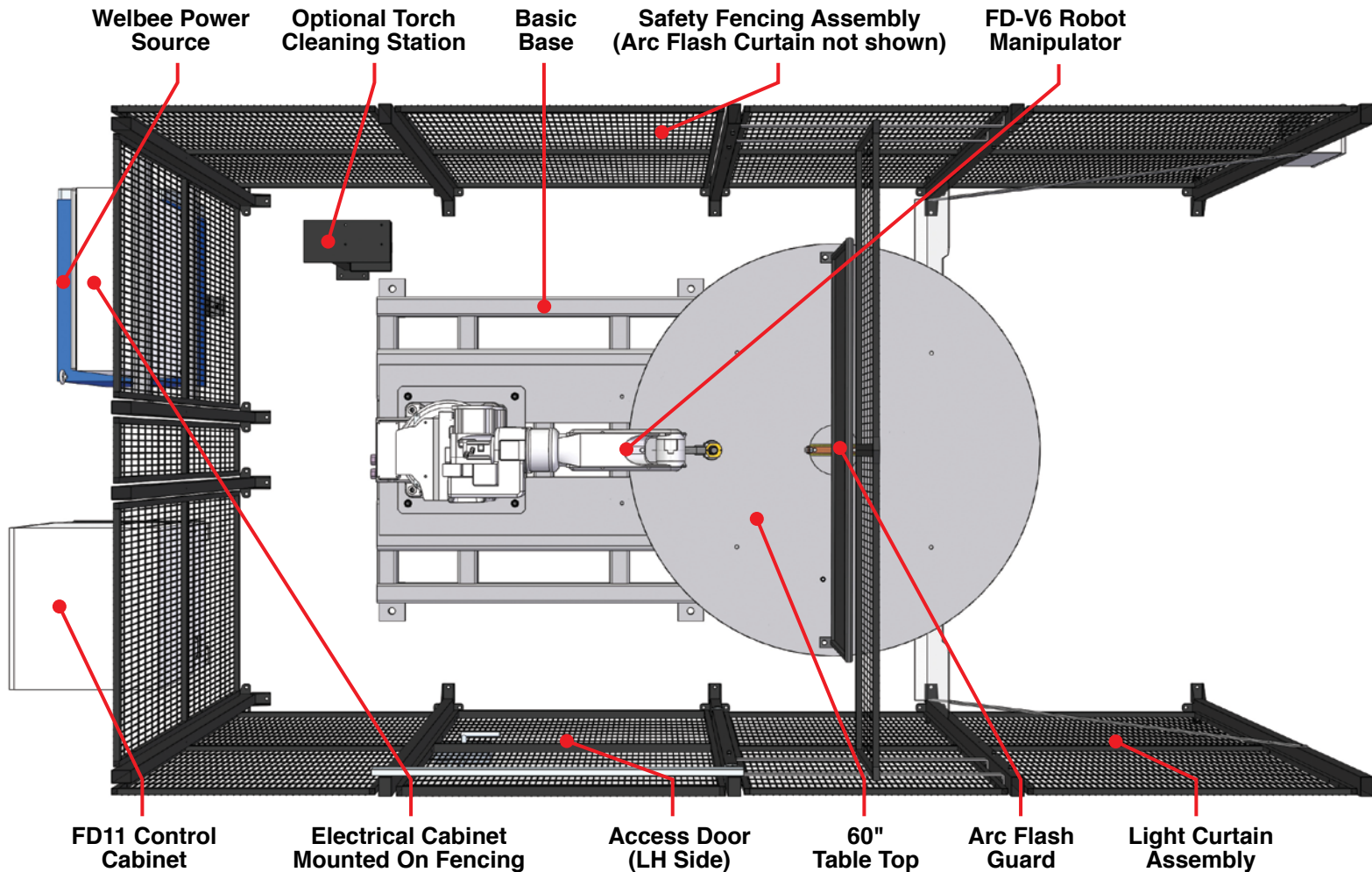
Available I/O Slots:

22 Inputs/21 Outputs
 (Additional Power Supply needed for Outputs)

Additional Options:

- Fixture mounting pattern in table top
- Torch cleaning station
- Station Lighting
- Access door on RH side
- Safety Fence on Full Base
- Basic Layout (PT-ARC 600B)
- Extended I/O

PT-ARC 600B

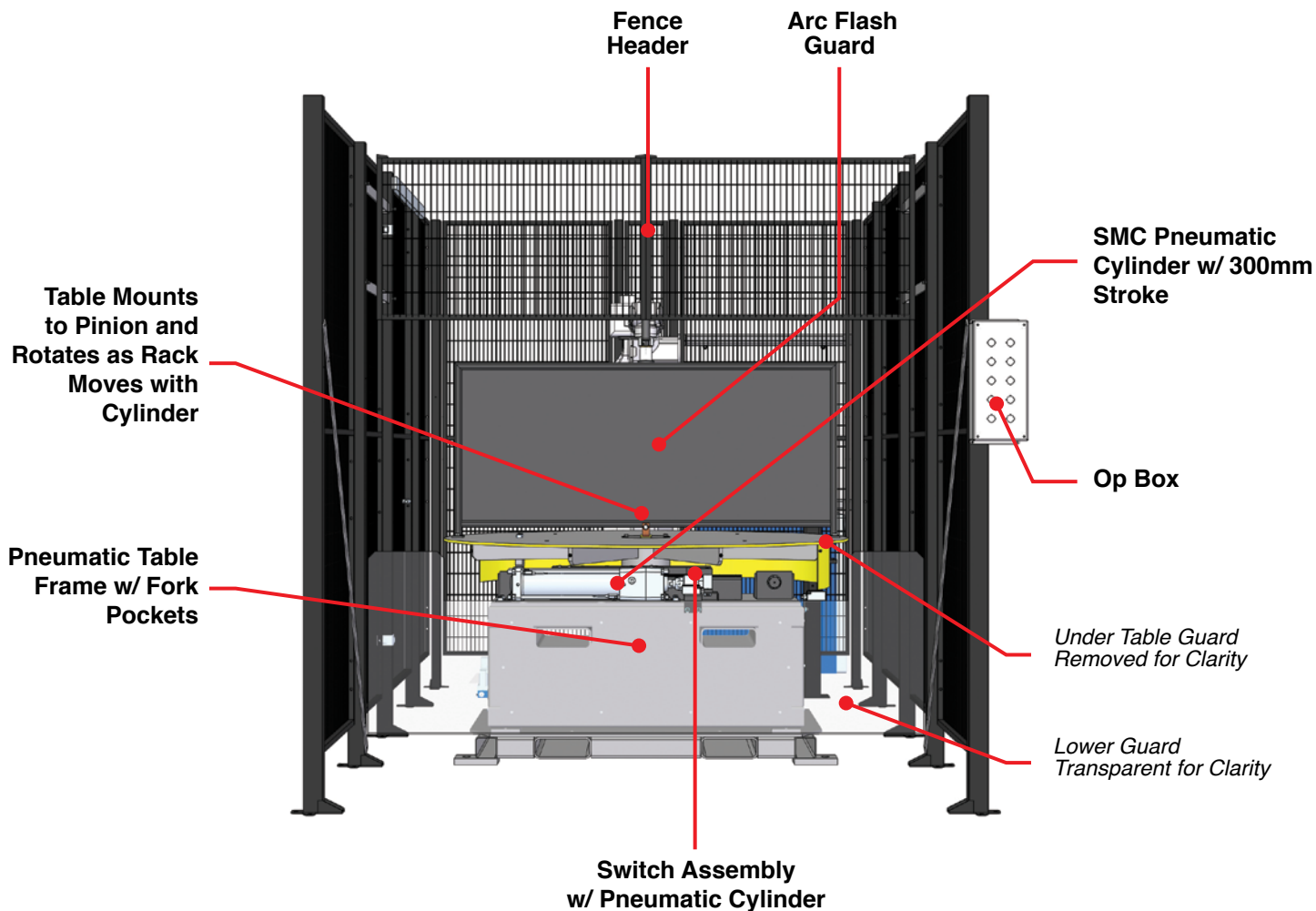


Standard Option:

PT-ARC 600B – 60" pneumatic indexing table

Details:

- SMC 300mm Stroke Pneumatic Cylinder
- Omron 1495mm Light Curtains
- Omron Limit Switches for station designation
- Index Speed (180°) - 4.2 seconds
- Work Capacity – 250kg/side
- Weight – Approx. 2000kg
- Standard fork lift pockets
- Rack and Pinion Design
- Floor mounted safety fencing w/ arc flash curtains



Specifications:

Footprint Dimensions:

Width: 2187mm (86.1")
 Height: 2200mm (86.6")
 Depth: 4564mm (179.7")

Manipulator Types:

- FD-V6
- FD-B4



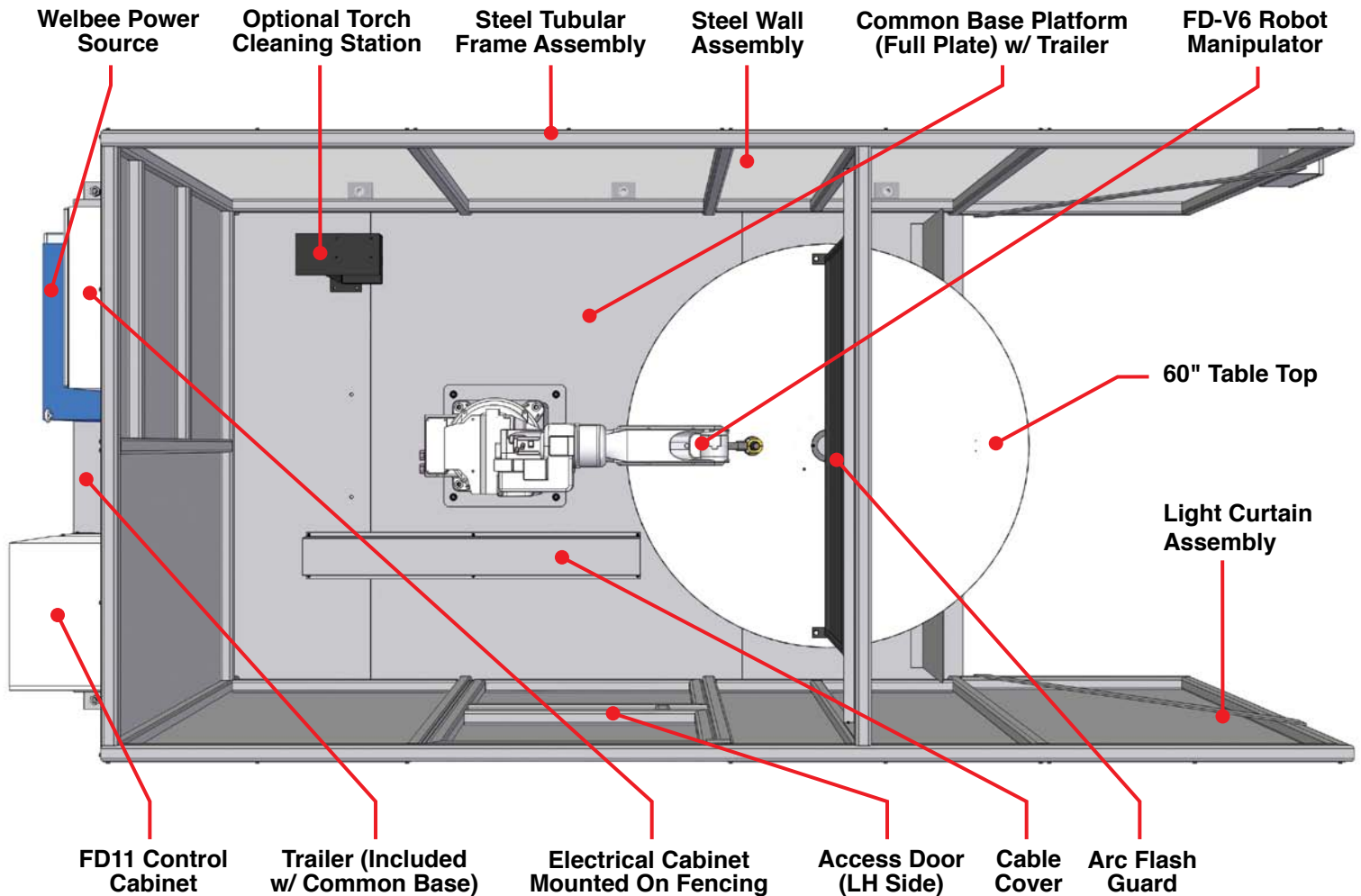
Available I/O Slots:

28 Inputs/26 Outputs
 (Additional Power Supply needed for Outputs)

Additional Options:

- Fixture mounting pattern in table top
- Torch cleaning station
- Station Lighting
- Access door on RH side
- Standard Layout (PT-ARC 600)
- Extended I/O

SERVO-ARC 600



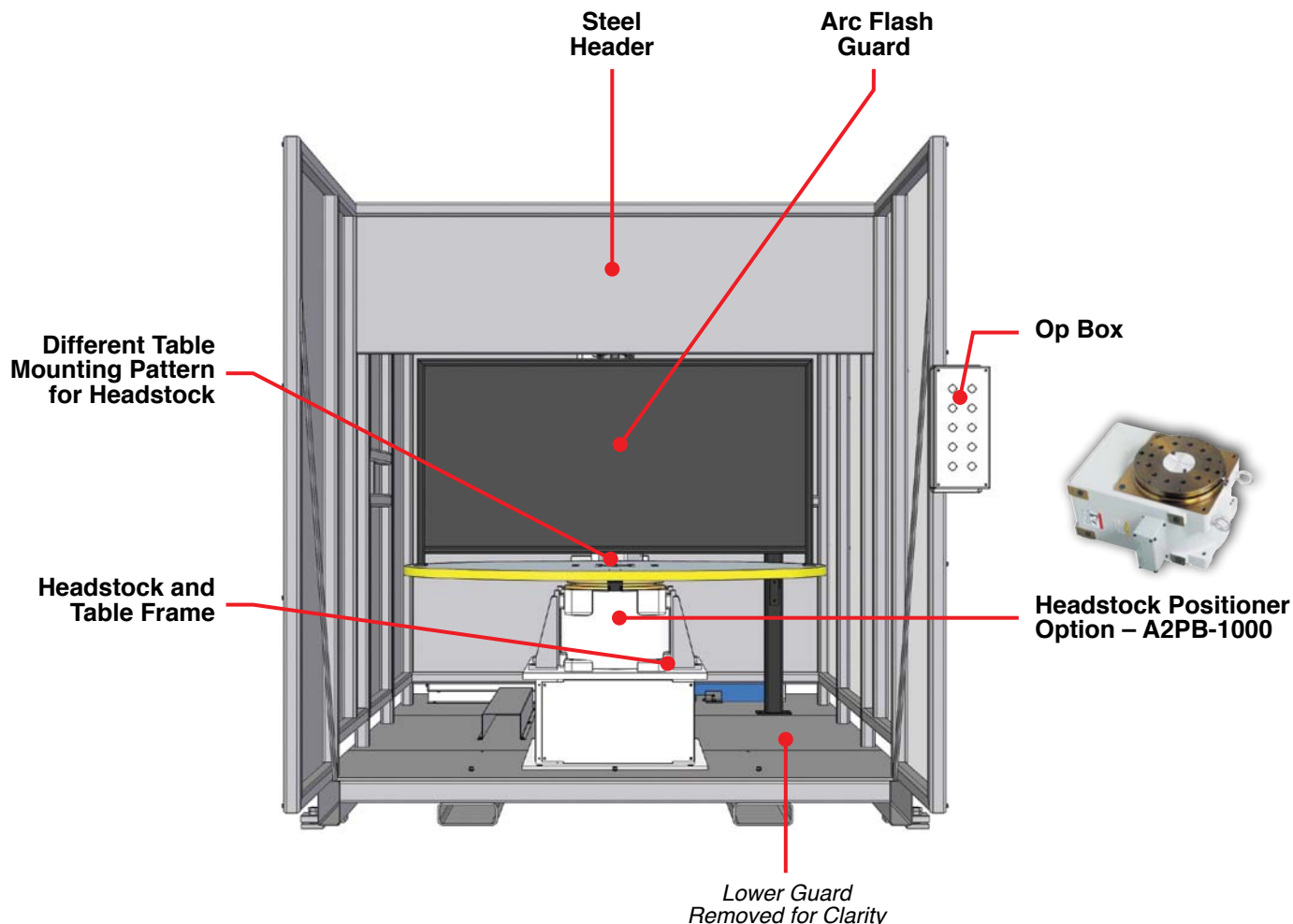
Standard Option:

SERVO-ARC 600 – 60" servo-driven indexing table

Details:

- 1.2kW Servo-motor, RV-40E Gearbox
- Omron 1495mm Light Curtains
- Omron Switch/Two Actuators for station designation
- 3" through hole diameter in table top
- Index Speed (180°) - 4.2 seconds

- Work Capacity – 250kg/side
- Weight – Approx. 3000kg
- Standard fork lift pockets



Specifications:

Footprint Dimensions:

Width: 2200mm (86.6")
 Height: 2235mm (88.0")
 Depth: 4584mm (180.5")

Manipulator Types:

- FD-V6
- FD-B4



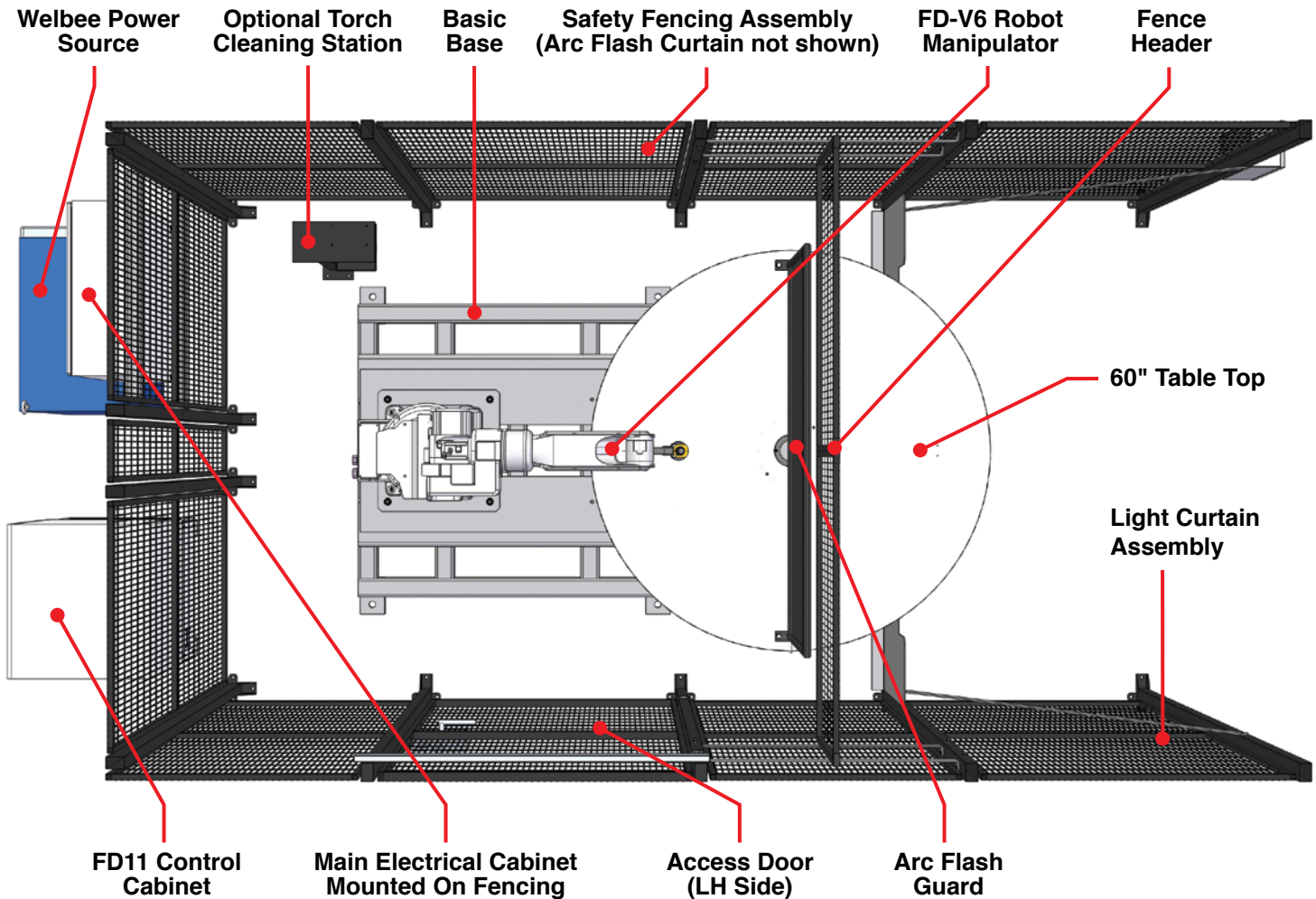
Available I/O Slots:

23 Inputs/24 Outputs
 (Additional Power Supply needed for Outputs)

Additional Options:

- A2PB-1000 Headstock instead of servo-table
- Fixture mounting pattern in table top
- Torch cleaning station
- Station Lighting
- Access door on RH side
- Safety Fence on Full Base
- 48" Table Top
- Basic Layout (SERVO-ARC 600B)
- Extended I/O

SERVO-ARC 600B

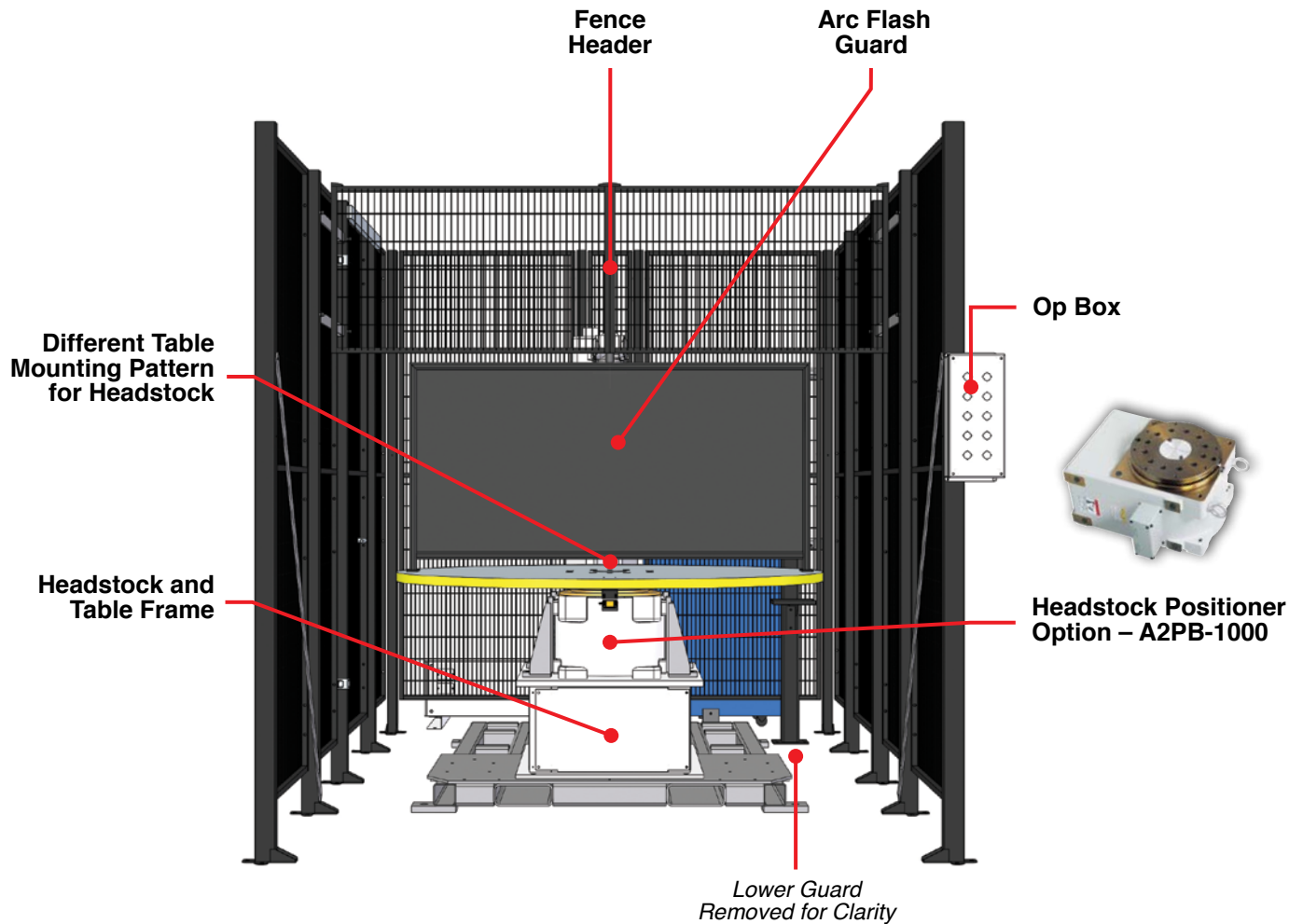


Standard Option:

SERVO-ARC 600B – 60" servo-driven indexing table

Details:

- 1.2kW Servo-motor, RV-40E Gearbox
- Omron 1495mm Light Curtains
- Omron Switch/Two Actuators for station designation
- 3" through hole diameter in table top
- Index Speed (180°) - 4.2 seconds
- Work Capacity – 250kg/side
- Weight – Approx. 2000kg
- Standard fork lift pockets
- Floor mounted safety fencing w/ arc flash curtains



Specifications:

Footprint Dimensions:

Width: 2187mm (86.1")
 Height: 2200mm (86.6")
 Depth: 4564mm (179.7")

Manipulator Types:

- FD-V6
- FD-B4

Available I/O Slots:

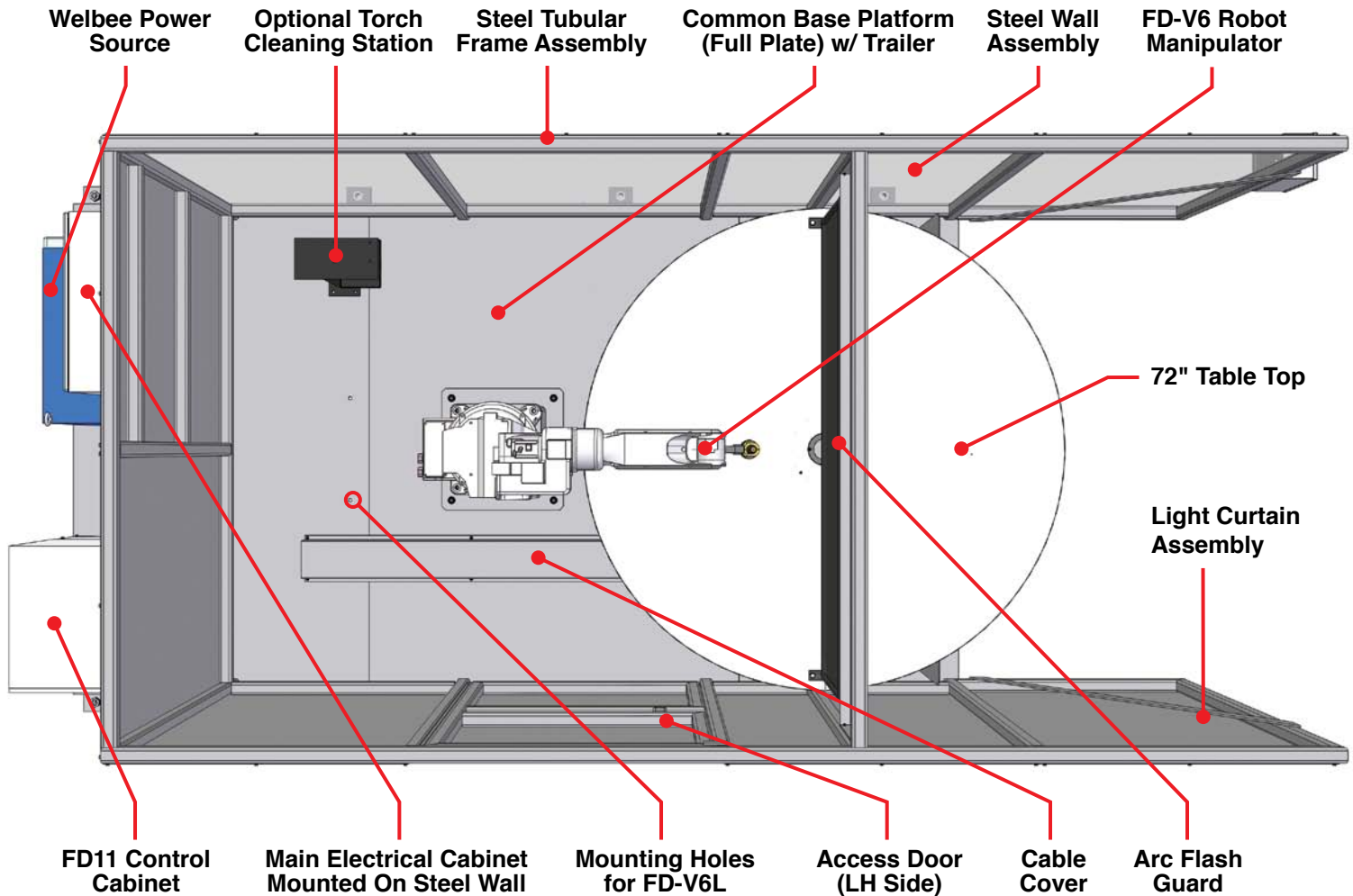
23 Inputs/24 Outputs
 (Additional Power Supply needed for Outputs)



Additional Options:

- A2PB-1000 Headstock instead of servo-table
- Fixture mounting pattern in table top
- Torch cleaning station
- Station Lighting
- Access door on RH side
- Safety Fence on Full Base
- 48" Table Top
- Standard Layout (SERVO-ARC 600)
- Extended I/O
- Trailer (Base)

SERVO-ARC 720



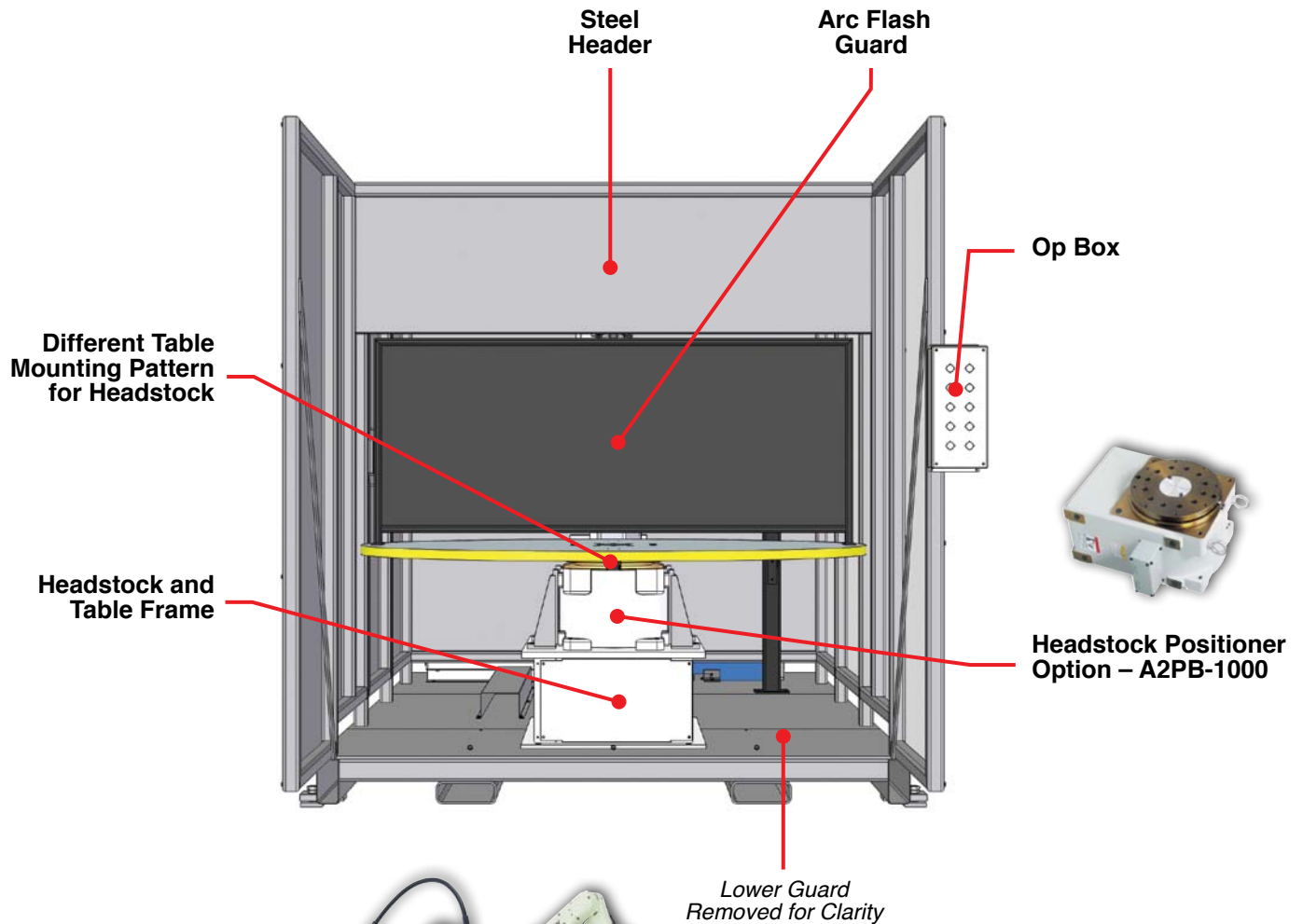
Standard Option:

SERVO-ARC 720 – 72" servo-driven indexing table

Details:

- 1.2kW Servo-motor, RV-40E Gearbox
- Omron 1495mm Light Curtains
- Omron Switch/Two Actuators for station designation
- 3" through hole diameter in table top
- Index Speed (180°) - 4.2 seconds

- Work Capacity – 250kg/side
- Weight – Approx. 3200kg
- Standard fork lift pockets



Specifications:

Footprint Dimensions:

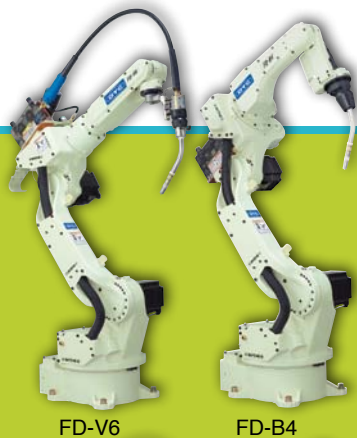
Width: 2200mm (86.6")
 Height: 2235mm (88.0")
 Depth: 4584mm (180.5")

Manipulator Types:

- FD-V6, FD-V6L
- FD-B4, FD-B4L

Available I/O Slots:

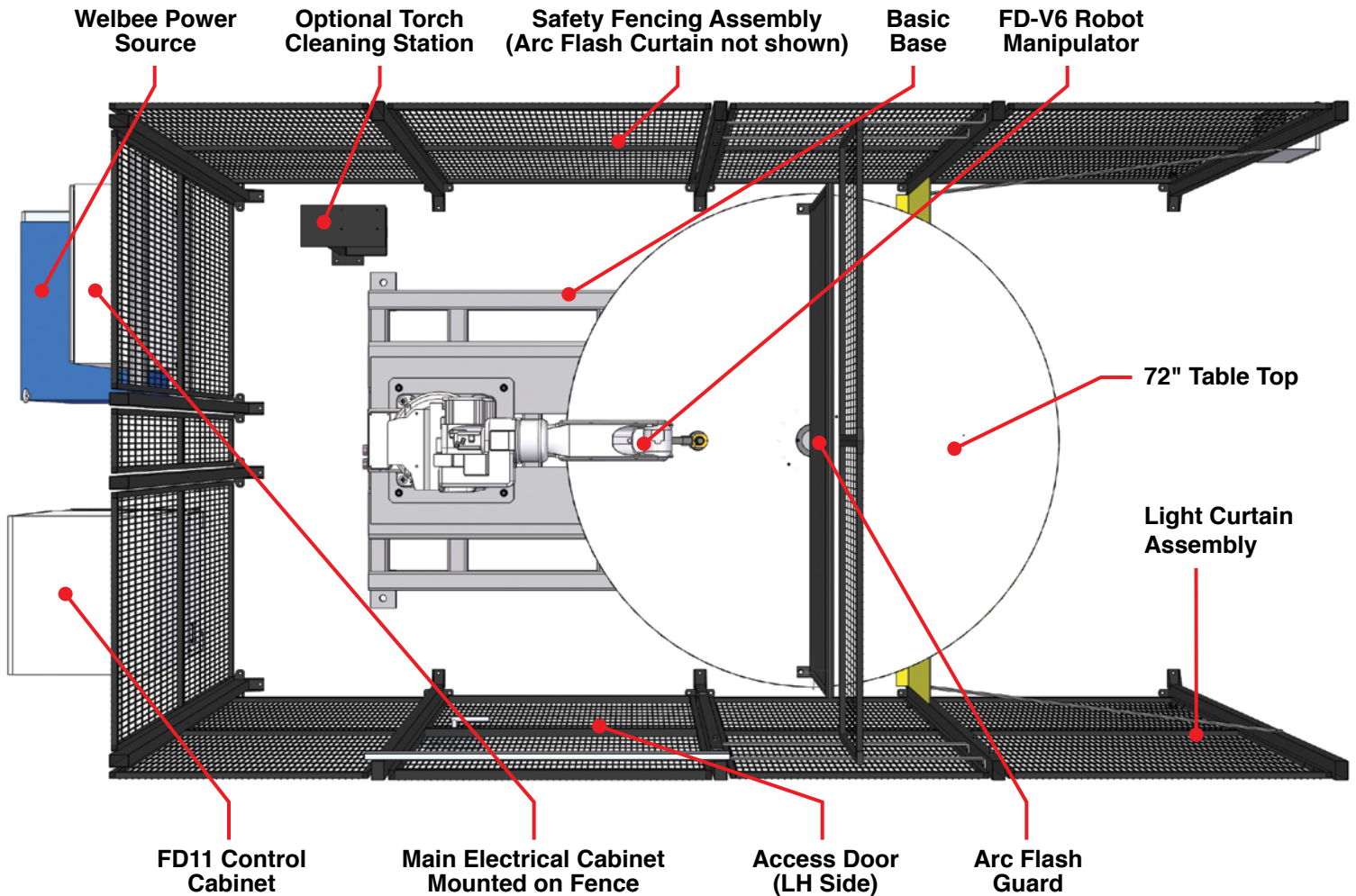
23 Inputs/24 Outputs
 (Additional Power Supply needed for Outputs)



Additional Options:

- A2PB-1000 Headstock instead of servo-table
- Fixture mounting pattern in table top
- Torch cleaning station
- Station Lighting
- Access door on RH side
- Safety Fence on Full Base
- Dual Manipulators
- Basic Layout (SERVO-ARC 720B)
- Extended I/O

SERVO-ARC 720B

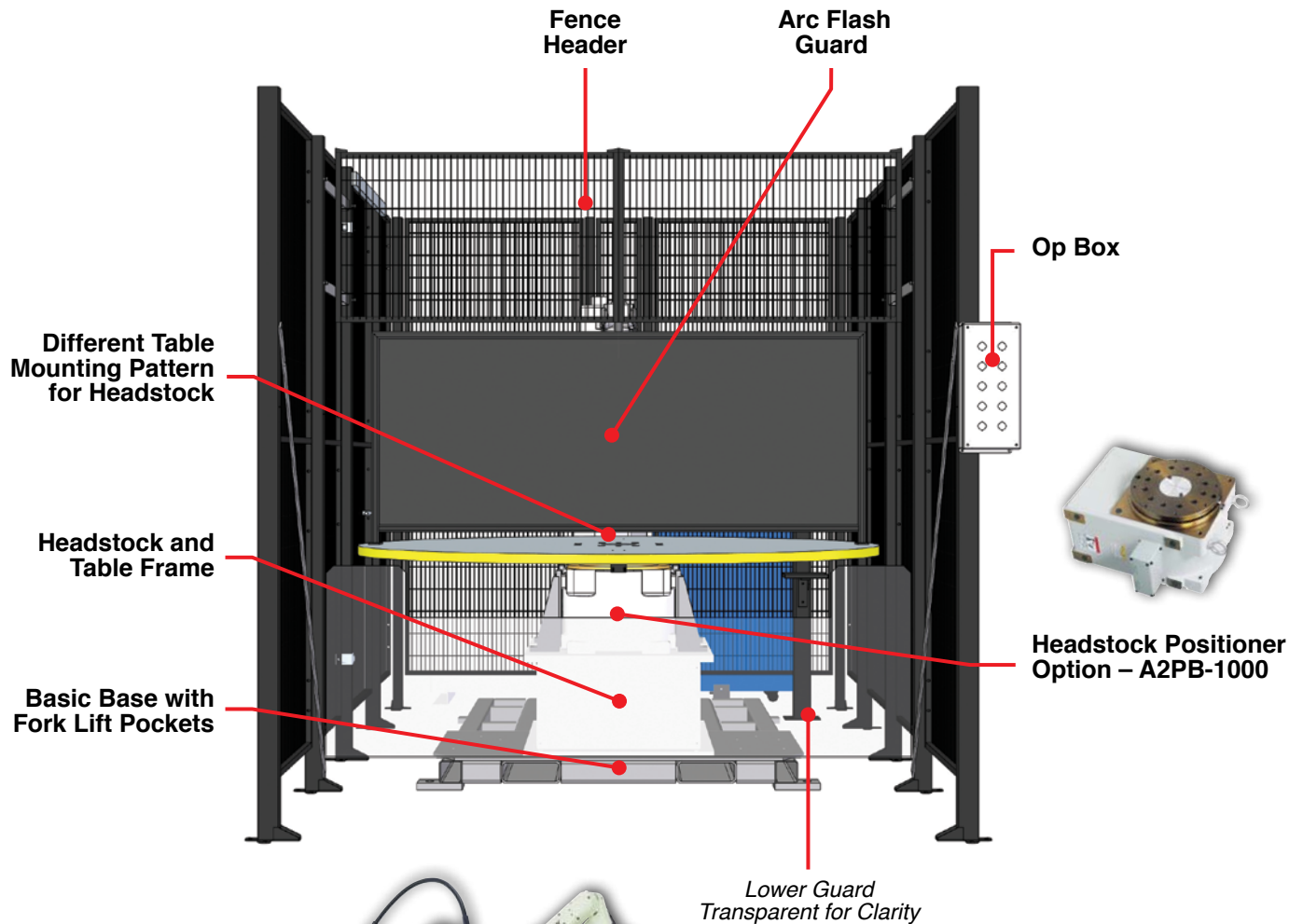


Standard Option:

SERVO-ARC 720B – 72" servo-driven indexing table

Details:

- 1.2kW Servo-motor, RV-40E Gearbox
- Omron 1495mm Light Curtains
- Omron Switch/Two Actuators for station designation
- 3" through hole diameter in table top
- Index Speed (180°) - 4.2 seconds
- Work Capacity – 250kg/side
- Weight – Approx. 2200kg
- Standard fork lift pockets
- Floor mounted safety fencing w/ arc flash curtains



Specifications:

Footprint Dimensions:

Width: 2187mm (86.1")
 Height: 2200mm (86.6")
 Depth: 4564mm (179.7")

Manipulator Types:

- FD-V6, FD-V6L
- FD-B4, FD-B4L

Available I/O Slots:

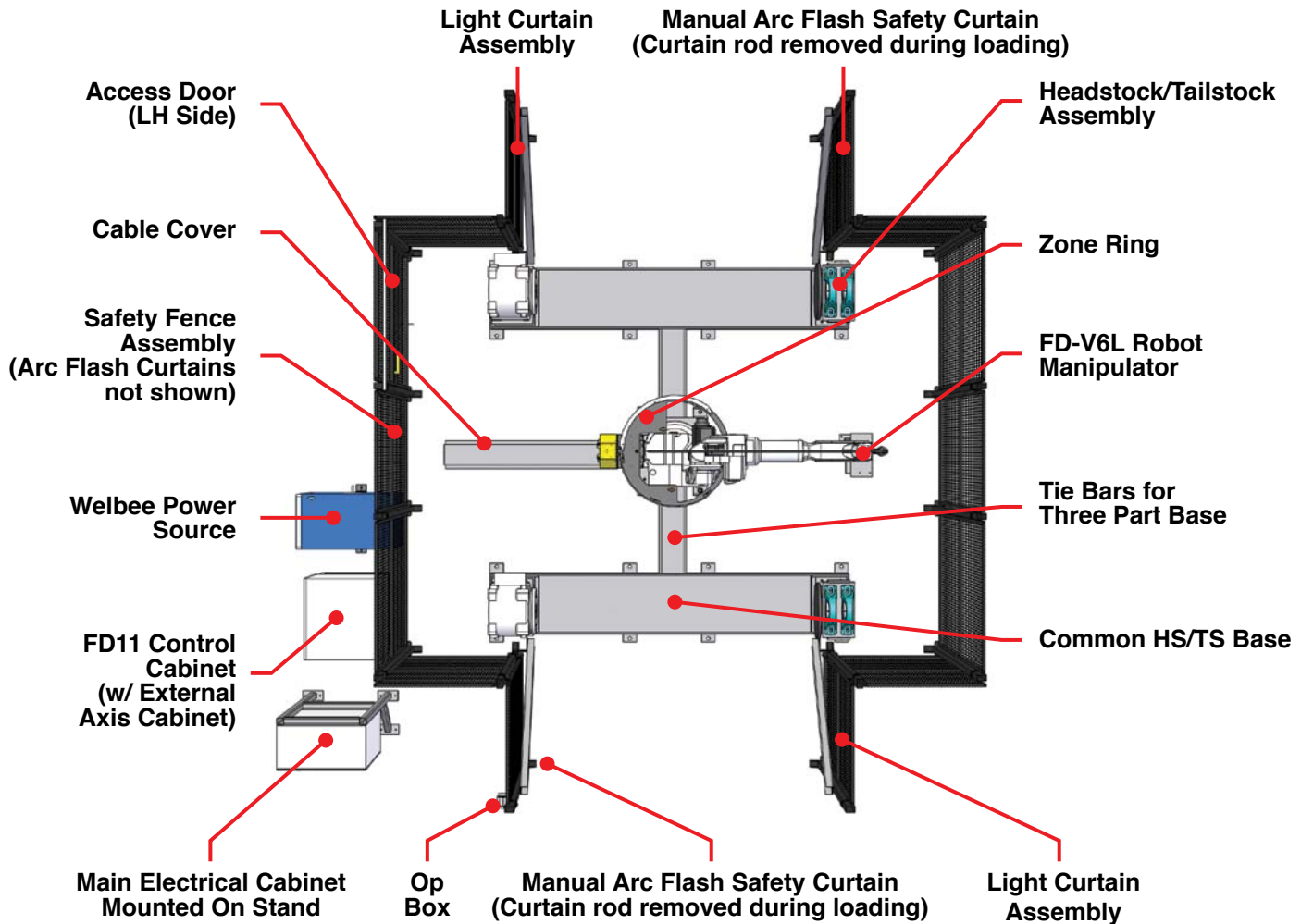
23 Inputs/24 Outputs
 (Additional Power Supply needed for Outputs)



Additional Options:

- A2PB-1000 Headstock instead of servo-table
- Fixture mounting pattern in table top
- Torch cleaning station
- Station Lighting
- Access door on RH side
- Dual Manipulators
- Standard Layout (SERVO-ARC 720)
- Extended I/O
- Trailer (Base)

DT-ARC 500

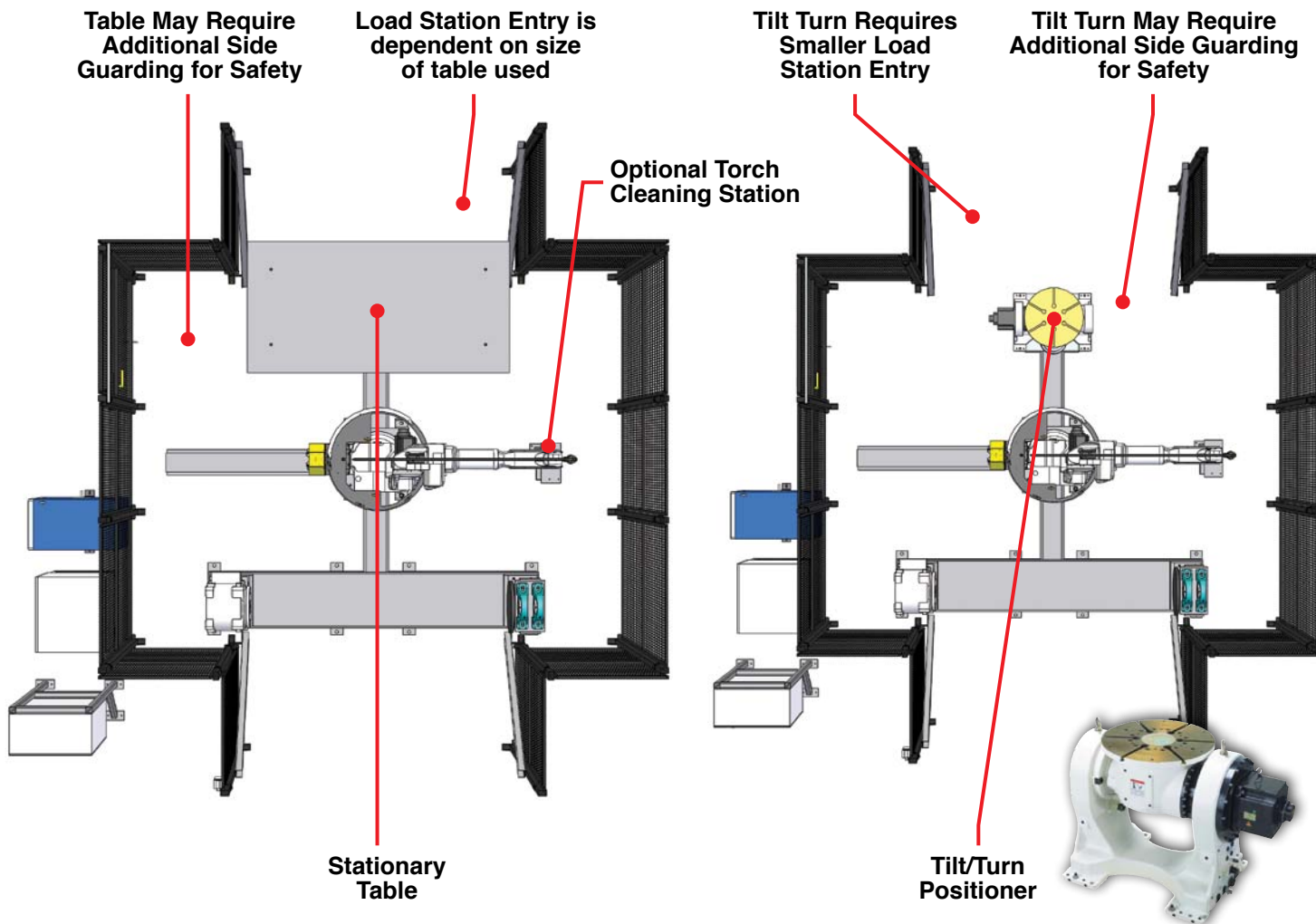


Standard Option:

DT-ARC 500 – Dual Servo-controlled Head and Tailstock Positioning Cell

Details:

- Dual A2PB-500 Headstock positioners
- Work Capacity – 500kg/side
- Omron 1495mm Light Curtains
- Manual arc flash safety curtain at individual operator stations
- Weight – Approx. 3000kg
- Common base for HS/TS Assembly
- Three part base connected with tie bars
- Standard HS/TS span: 2000mm
- Maximum span: 3100mm
- HS/TS swing diameter: 1000mm
- Zone Ring for station designation
- Access door on LH side
- Arc flash curtain for cross station protection
- Floor mounted safety fencing w/ arc flash curtains



Specifications:

Footprint Dimensions:

Width: 4188mm (165")
 Height: 2360mm (93")
 Depth: 5770mm (227")

Manipulator Types:

• FD-V6L • FD-B4L

Cell Options:

• Stationary Table(s)
 • H/S-T/S Assembly(s)
 • Tilt/Turn Positioner(s)

Headstock Options:

• A2PB-250 (250kg) • A2PB-1000 (1000kg)



Tilt/Turn Options:

• A2PF-300 (300kg) • A2PF-500 (500kg)
 • A2PF-1000 (1000kg)

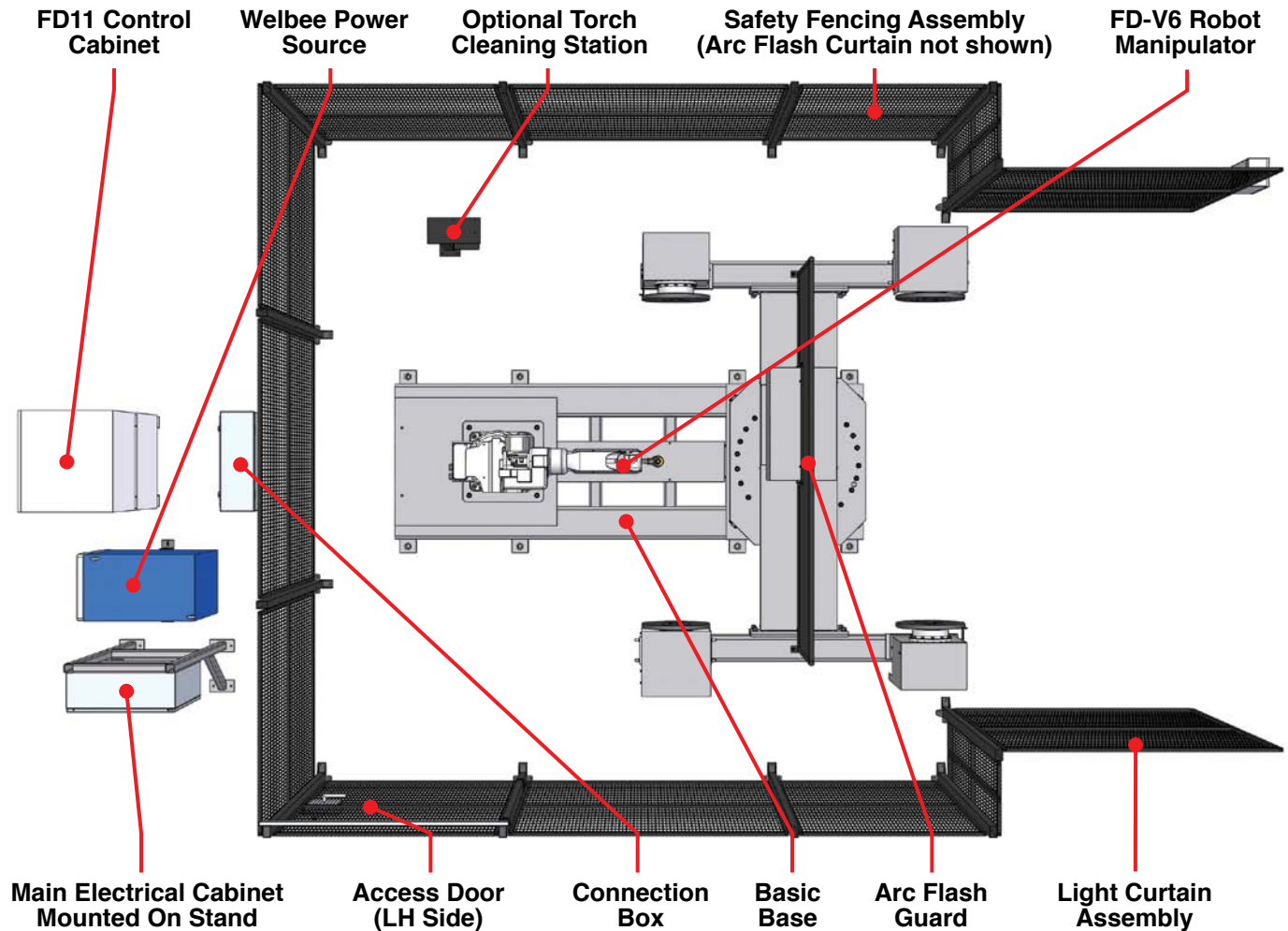
Available I/O Slots:

15 Inputs/24 Outputs
 (Additional Power Supply needed for Outputs)

Additional Options:

- Roll up arc flash door at individual operator stations – OTC design or Frommelt
- Full Base w/ steel wall assembly
- 120° configuration
- Torch cleaning station
- Access door on RH side
- Utility Trailer
- Multiple Manipulators w/ platform (connected with tie bars)
- Extended I/O

ROTA-ARC 1000

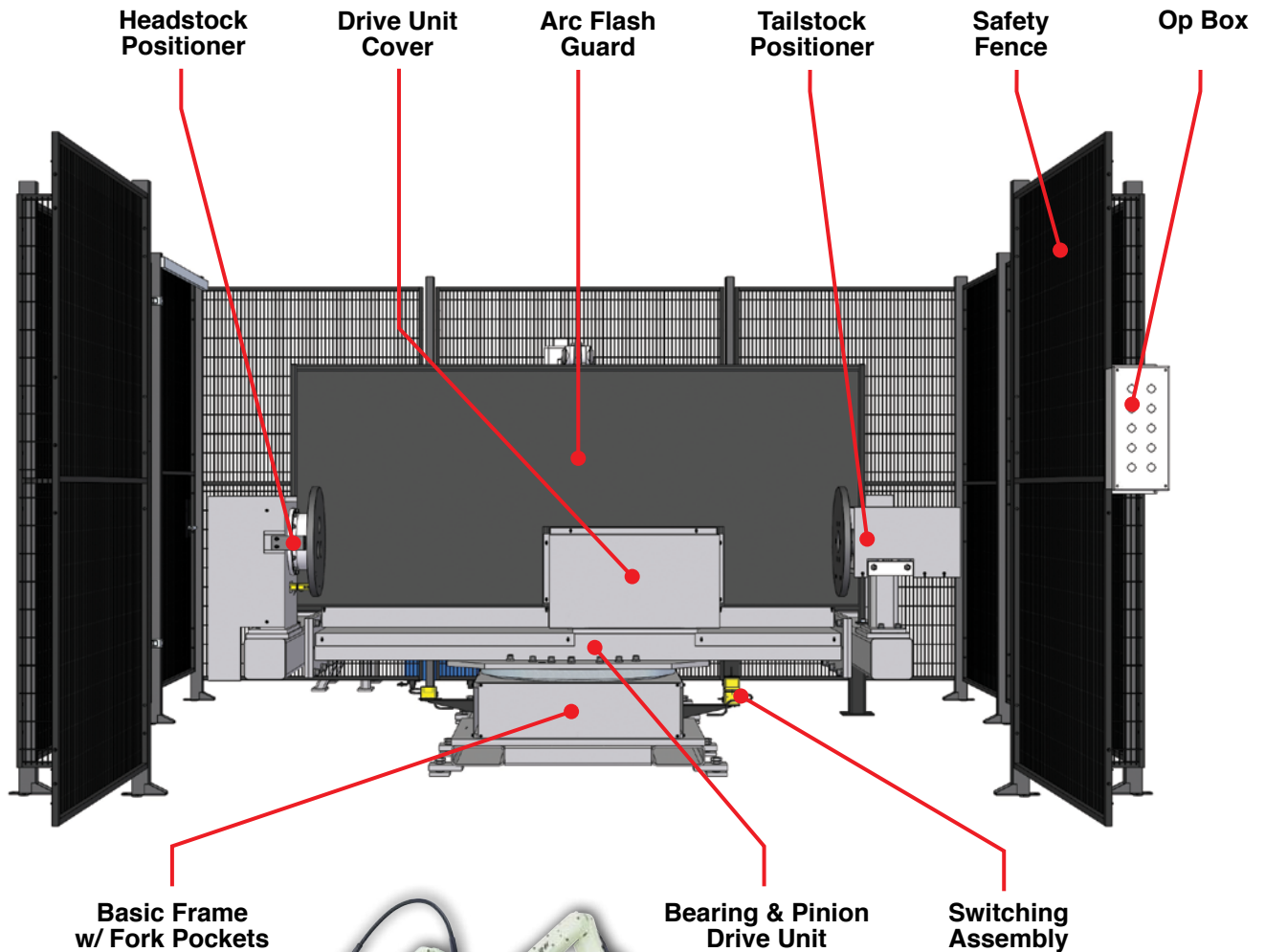


Standard Option:

ROTA-ARC 1000 – Rotating H-Frame
w/ (2) Headstock/Tailstock assemblies

Details:

- 3-Axis, Servo-controlled Positioner
- 4.5 kW motor for main axis rotation
- Omron 1495mm Light Curtains
- Omron Limit Switches for station designation
- Center mounted arc flash shield
- Index Speed (180°) - 6 seconds
- RV-110E gear box
- Work Capacity – 1000kg/side
- Weight – Approx. 2500kg
- Standard fork lift pockets in base
- Bearing and Pinion Design
- Standard HS/TS span: 1500mm
- HS/TS swing diameter: 1000mm
- Floor mounted safety fencing w/ arc flash curtains



Specifications:

Footprint Dimensions:

Width: 3398mm (133.8")

Height: 2200mm (86.6")

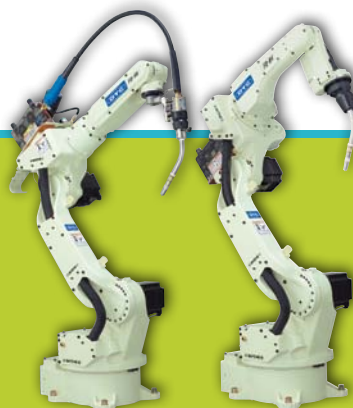
Depth: 6115mm (240.7")

Manipulator Types:

- FD-V6 • FD-V6L
- FD-B4 • FD-B4L

Available I/O Slots:

28 Inputs/26 Outputs
(Additional Power Supply needed for Outputs)



FD-V6

FD-B4



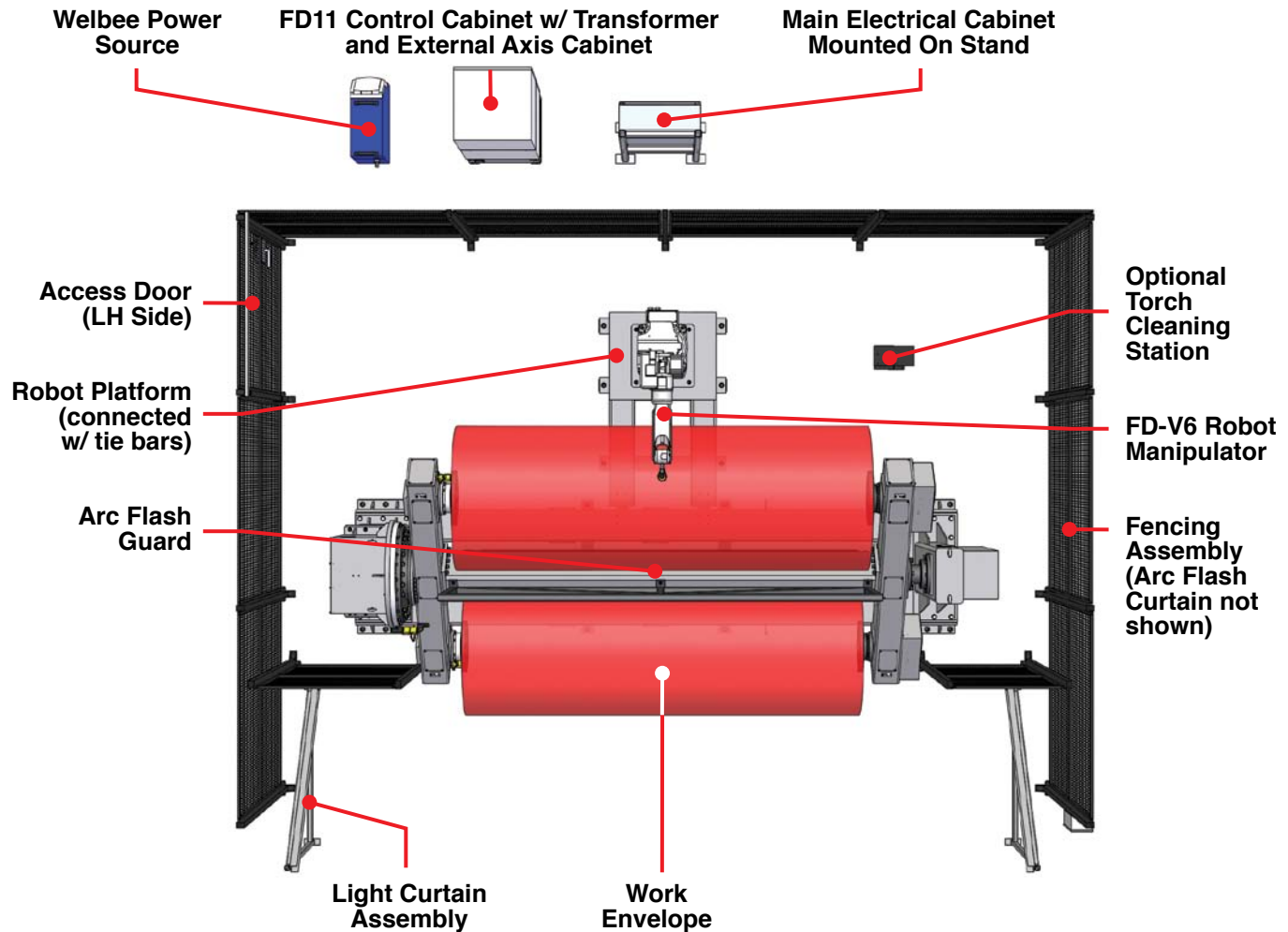
FD-V6L

FD-B4L

Additional Options:

- HS/TS span of 2000mm max.
(with FD-V6L/FD-B4L Manipulators)
- Torch cleaning station
- Access door on RH side
- Utility Trailer
- Multiple Manipulators w/ platform
(connected with tie bars)
- Extended I/O

TRI-ARC 1000

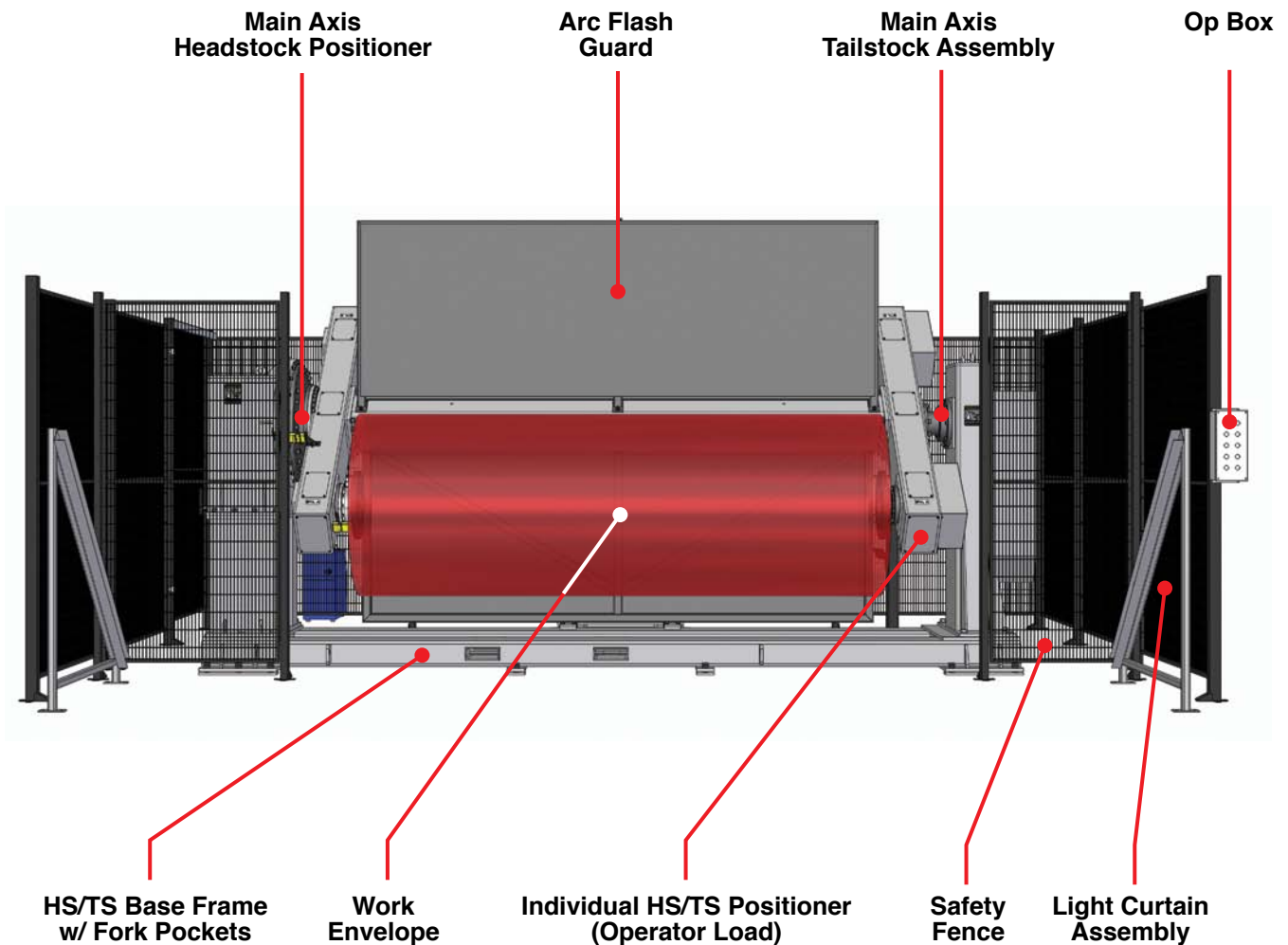


Standard Option:

TRI-ARC 1000 – Rotating Ferris Wheel
w/ (2) Headstock/Tailstock assemblies

Details:

- 3-Axis, Servo-controlled Positioner
- 4.5 kW motor for main axis rotation
- RV-320E Gear box for main axis
- Omron 1495mm Light Curtains
- Single Load/Unload point
- 2 kW motor for individual axis rotation
- RV-110E Gear box for individual axis
- Work Capacity – 1000kg/side
- Weight – Approx. 4100kg
- Standard fork lift pockets in base
- Standard HS/TS span: 3000mm
- Index Speed - 5 seconds
- HS/TS swing diameter: 1050mm
- Robot platform connected with tie bars
- Floor mounted safety fencing w/ arc flash curtains



Specifications:

Footprint Dimensions:

Width: 6258mm (246.4")
 Height: 3048mm (120")
 Depth: 5736mm (225.8")

Manipulator Types:

- FD-V6L
- FD-B4L

Available I/O Slots:

1 Input/10 Outputs
 (Additional Power Supply needed for Outputs)



Additional Options:

- HS/TS span of 3500mm max.
- Torch cleaning station
- Access door on RH side
- Utility Trailer
- Multiple manipulators w/ platform (connected with tie bars)
- Extended I/O (recommended)



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HEADSTOCK POSITIONERS

Features

- The 5 sides of the housing are provided with tapped holes, which permit random mounting positions allowing various jig systems to be set up
- A hole through the center of the rotary table enables easy routing of cables and hoses
- A secondary terminal for welding (500A) is provided as standard built-in equipment
- Can be used as a single-axis, double support positioner in combination with the tailstock and stand (optional)
- Application signal cable and 4 air inlet ports can be fed through the center of the table (optional)
- Voltage detection wire and connection terminal to let the low spatter welding power supply DL350 to perform optimally are provided as standard.



Model A2PB-250



Model A2PB-500



Model A2PB-1000

Specifications

Model Number	A2PB-250	A2PB-500	A2PB-1000
Maximum Payload Capacity	250kg	500kg	1000kg
Rotating Speed	2.6 rad/s (150°/sec)	2.1 rad/s (120°/sec)	1.3 rad/s (172°/sec)
Allowable Rotating Moment	206 N•m	490 N•m	1078 N•m
Positional Repeatability	±0.1mm (Position at R300mm)	±0.1mm (Position at R300mm)	±0.1mm (Position at R300mm)
Stop Position	Any Position	Any Position	Any Position
Mass (Weight)	110kg	170kg	220kg

2 AXIS POSITIONERS

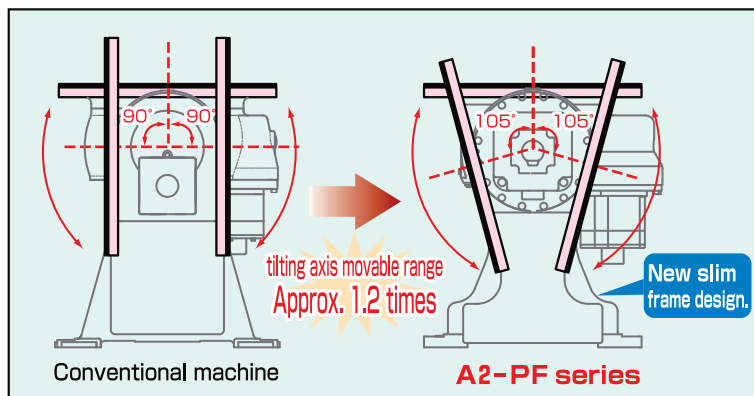
High speed motion increases production efficiency – An increase in the maximum rotation speed of the tilting axis by 2.5 times and in rotation axis by 2 times was achieved in comparison with the conventional machine 300kg payload type.

Continuous welding (100% duty cycle) at 500A can be standard – providing a collecting brush additionally as an option can increase the maximum welding current up to 1000A at 60% duty cycle.

Our product line includes a model with a maximum payload capacity of 1000kg for large workpieces.



Model A2PF-1000



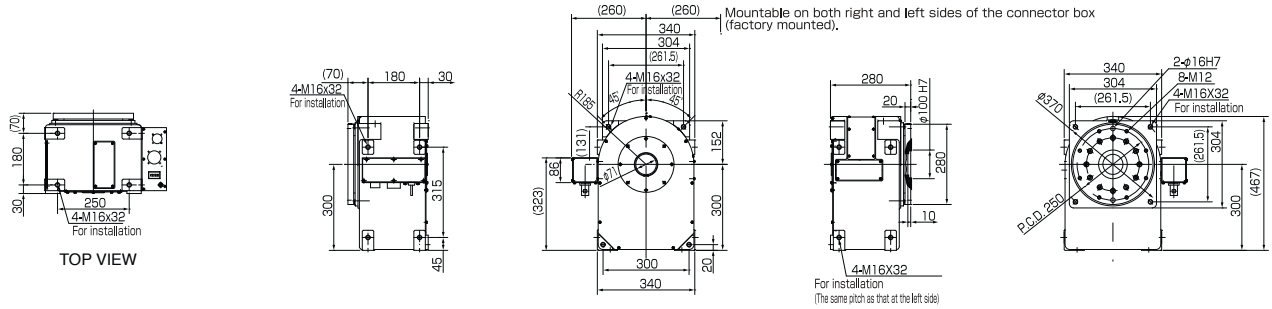
- Streamlining of the frame increases the movable range of the inclined axis by 1.2 times in comparison with that of the conventional machine. (the ratio in case of mounting a jig and workpiece (Ø600mm or less) larger than that of the face plate)
- Because the inclined axis falls down to both sides ($\pm 135^\circ$), a workpiece can be carried in and out easily and an optimal welding posture can be taken
- The application cable (for signal) and 4 air inlet ports can be fed through the center of the table. (Option)
- The voltage detection wire and the connection terminal let the low spatter welding power supply DL350 perform optimally are provided as standard

Specifications

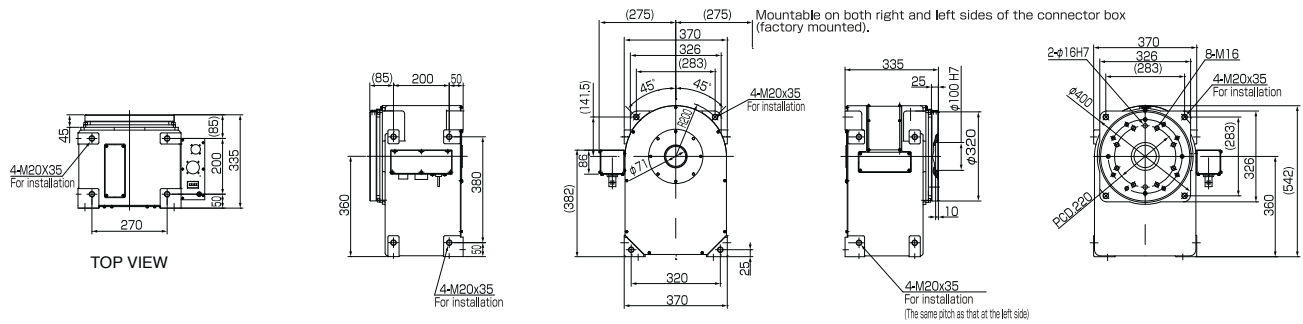
Model Number	A2PF-300	A2PF-500	A2PF-1000
Maximum Payload Capacity	300kg	500kg	1000kg
Rotating Speed	3.1 rad/s (180°/sec)	2.8 rad/s (162°/sec)	2.9 rad/s (166°/sec)
Tilting Speed	2.2 rad/s (125°/sec)	1.5 rad/s (84°/sec)	1.4 rad/s (82°/sec)
Allowable Rotating Moment	294 N•m	392 N•m	882 N•m
Allowable Tilting Moment	882 N•m	1347 N•m	3704 N•m
Positional Repeatability	± 0.08 mm (Position at R250mm)	± 0.08 mm (Position at R250mm)	± 0.08 mm (Position at R250mm)
Stop Position	Any Position	Any Position	Any Position
Mass (Weight)	260kg	260kg	470kg

POSITIONER DIMENSIONS

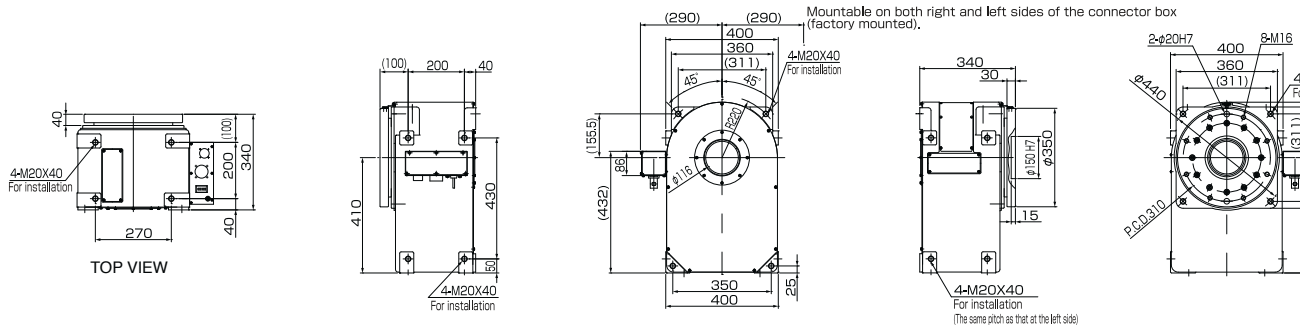
A2PB-250 Dimensions



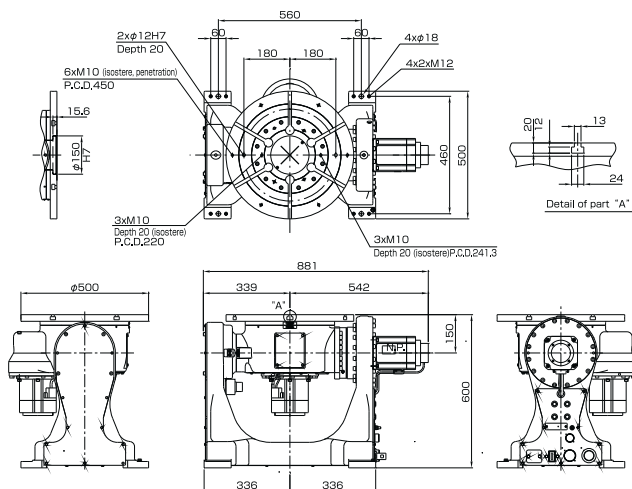
A2PB-500 Dimensions



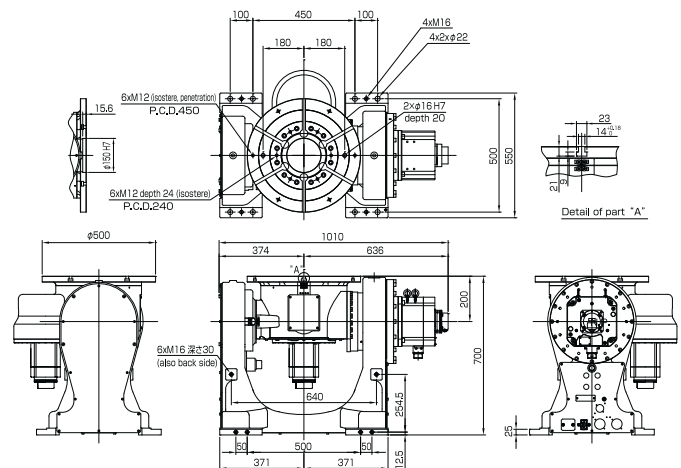
A2PB-1000 Dimensions



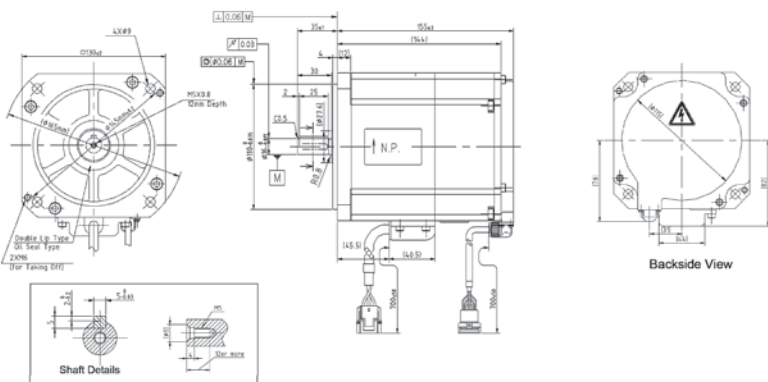
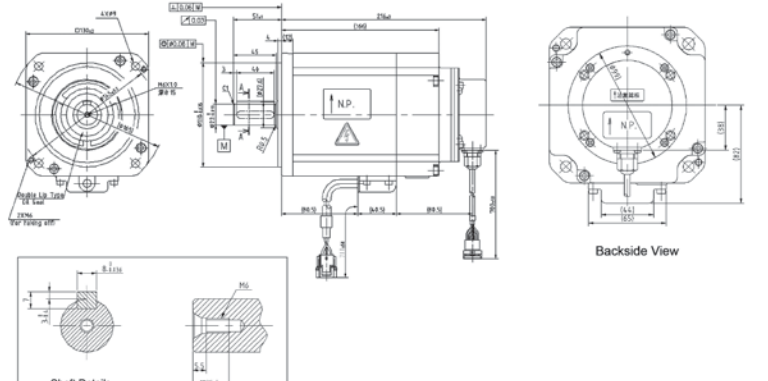
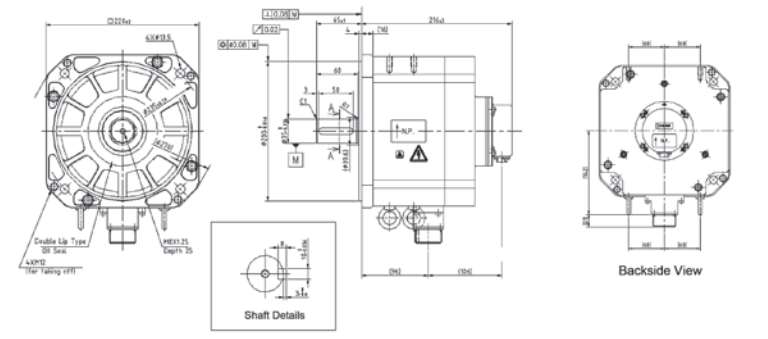
A2PF-300, A2PF-500 Dimensions



A2PF-1000 Dimensions



EXTERNAL AXIS PACKAGES

Motor / Specifications	Dimensions								
<p>1.2kW</p> <p>Part Number W-L02641</p> <p>Output Power: 1200W Rated Speed: 2000 rpm Rated Torque: 5.7 N•m Maximum Torque Peak: 16 N•m Inertia (Rotor + Brake): 6.1×10^{-4} kg•m² (Rotor), 0.5×10^{-4} kg•m² (Brake) Static Friction Torque on Brake: 9.0 N•m or more Weight: 18 lbs (8.3kg)</p> <table border="0"> <tr> <td>Assembling:</td><td>Running:</td></tr> <tr> <td>Max F_R: 640 N</td><td>Max F_R: 640 N</td></tr> <tr> <td>Max F: 1300 N</td><td>Max F: 340 N</td></tr> <tr> <td>Max F1: 1300 N</td><td>Max F1: 340 N</td></tr> </table>	Assembling:	Running:	Max F _R : 640 N	Max F _R : 640 N	Max F: 1300 N	Max F: 340 N	Max F1: 1300 N	Max F1: 340 N	 <p>Technical drawings for the 1.2kW motor (W-L02641) showing front, side, and backside views, along with shaft details. Dimensions are in mm.</p>
Assembling:	Running:								
Max F _R : 640 N	Max F _R : 640 N								
Max F: 1300 N	Max F: 340 N								
Max F1: 1300 N	Max F1: 340 N								
<p>2.0kW</p> <p>Part Number W-L02152</p> <p>Output Power: 2000W Rated Speed: 2000 rpm Rated Torque: 9.5 N•m Maximum Torque Peak: 30 N•m Inertia (Rotor + Brake): 12.2×10^{-4} kg•m² (Rotor), 0.5×10^{-4} kg•m² (Brake) Static Friction Torque on Brake: 12 N•m or more Weight: 27 lbs (12.3kg)</p> <table border="0"> <tr> <td>Assembling:</td><td>Running:</td></tr> <tr> <td>Max F_R: 1700 N</td><td>Max F_R: 640 N</td></tr> <tr> <td>Max F: 1400 N</td><td>Max F: 340 N</td></tr> <tr> <td>Max F1: 1400 N</td><td>Max F1: 340 N</td></tr> </table>	Assembling:	Running:	Max F _R : 1700 N	Max F _R : 640 N	Max F: 1400 N	Max F: 340 N	Max F1: 1400 N	Max F1: 340 N	 <p>Technical drawings for the 2.0kW motor (W-L02152) showing front, side, and backside views, along with shaft details. Dimensions are in mm.</p> <p>Note: All dimensions above are in [mm]</p>
Assembling:	Running:								
Max F _R : 1700 N	Max F _R : 640 N								
Max F: 1400 N	Max F: 340 N								
Max F1: 1400 N	Max F1: 340 N								
<p>4.5kW</p> <p>Part Number W-L02157</p> <p>Output Power: 4700W Rated Speed: 2000 rpm Rated Torque: 22.5 N•m Maximum Torque Peak: 54 N•m Inertia (Rotor + Brake): 55.0×10^{-4} kg•m² (Rotor), 5.1×10^{-4} kg•m² (Brake) Static Friction Torque on Brake: 42 N•m or more Weight: 61.7 lbs (28.0kg)</p> <table border="0"> <tr> <td>Assembling:</td><td>Running:</td></tr> <tr> <td>Max F_R: 2300 N</td><td>Max F_R: 1500 N</td></tr> <tr> <td>Max F: 1900 N</td><td>Max F: 490 N</td></tr> <tr> <td>Max F1: 1900 N</td><td>Max F1: 490 N</td></tr> </table>	Assembling:	Running:	Max F _R : 2300 N	Max F _R : 1500 N	Max F: 1900 N	Max F: 490 N	Max F1: 1900 N	Max F1: 490 N	 <p>Technical drawings for the 4.5kW motor (W-L02157) showing front, side, and backside views, along with shaft details. Dimensions are in mm.</p>
Assembling:	Running:								
Max F _R : 2300 N	Max F _R : 1500 N								
Max F: 1900 N	Max F: 490 N								
Max F1: 1900 N	Max F1: 490 N								

OPTIONAL EQUIPMENT

Torch Cleaning Equipment

Item		Part Number
		K-2724
		K-2725
		K-2726
Spring Reamer & Vacuum Cleaner (100VAC Input)		L-10748
Step Down Transformer (Required for all Stations)		VC500J
For Cleaning and Cleaning & Cut Stations	13mm Reamer Drill (#8 Nozzle)	5096-145
	13mm Reamer Bushing (#8 Nozzle)	5096-148
	16mm Reamer Drill (#10 Nozzle)	5096-146
	16mm Reamer Bushing (#10 Nozzle)	5096-149
	19mm Reamer Drill (#12 Nozzle)	5096-147
	19mm Reamer Bushing (#12 Nozzle)	5096-150
For Cut and Cleaning & Cut Stations	Shearing Blade for Wire Cutter	5096-306
	Shearing Blade for Wire Cutter	5096-307
Clean Kit Stand Assembly		1L0298B00

Robotic Zone Kits

Item	Part Number
2 Station Zone Kit for FD-V6 / FD-B4	1L0448A00
2 Station Zone Kit for FD-V6L / FD-B4L	1L0370A00
3 Station Zone Kit for FD-V6L / FD-B4L	1L0396A00
400mm Robot Pedestal for FD-V6/B4 & FD-V6L/B4L	L-3626
800mm Robot Pedestal for FD-V6/B4 & FD-V6L/B4L	L-3626-800

For more information on brand products from DAIHEN Inc., visit our website at www.daihen-usa.com, or send us e-mail at sales@daihen-usa.com.



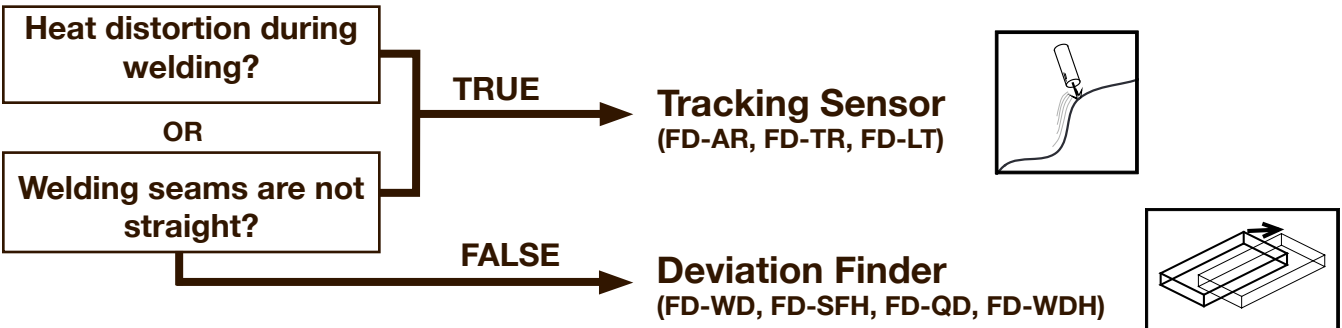
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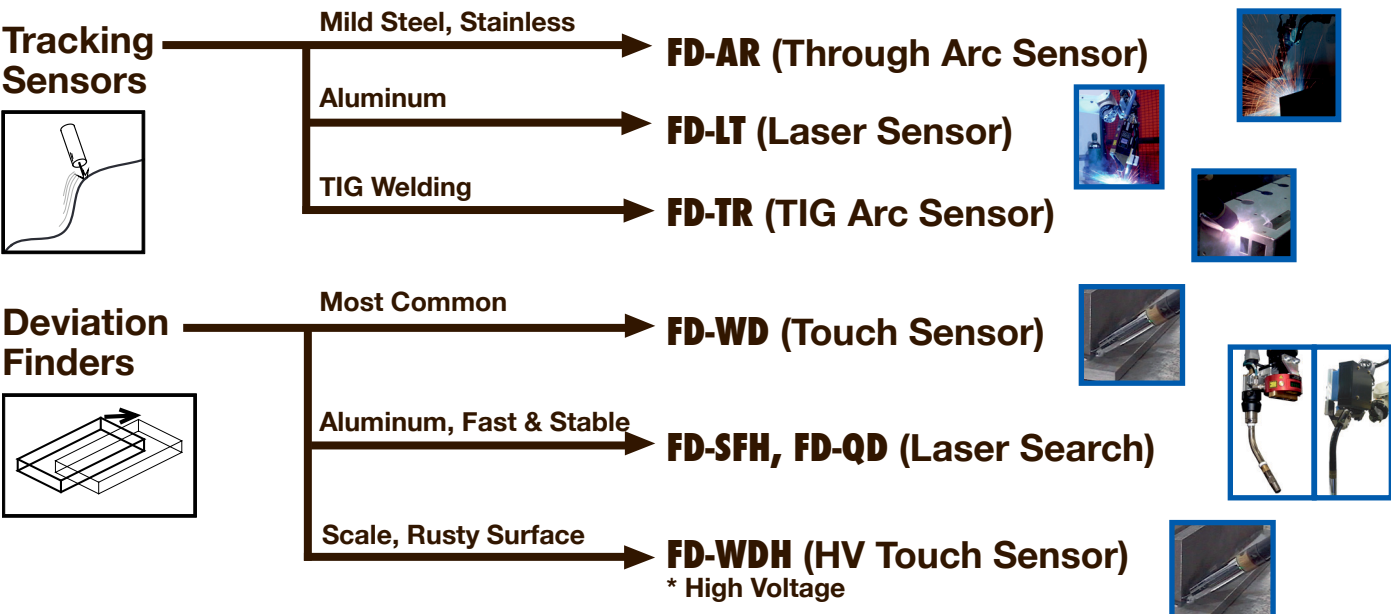
Sensor Selection Guide

Frequently Asked Questions

- Q1. What is a robotic sensor?
- A1. A robotic sensor is a system that detects variations in parts and compensates for the variation by shifting the robotic programs.
- Q2. When is it effective and/or applicable?
- A2. A sensor is effective when it is difficult to keep programmed points in consistent locations and there are part accuracy problems requiring the operator to frequently adjust taught robot points. When this occurs, sensors can be used to automatically shift the welding points.
- Note: Sensors cannot create teaching programs – it can only shift the current programs. Teaching an initial program is always required.
- Q3. How can we determine which sensor is best?
- A3. DAIHEN can provide various types of sensors for almost any situation. Please refer to the chart below to find the best sensor for your application.



Giving you the best choice from a wide selection...
... for the best welding results and quality!



For more information on **OTC** brand products from DAIHEN Inc., visit our website at www.daihen-usa.com, or send us e-mail at sales@daihen-usa.com.



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ADVANCED WELDING & ROBOTIC SYSTEMS

CAT. NO. 466B

Sensing Solutions – Seam Tracking / Laser Search / Laser Tracking / Arc Sensor



FD-AR
Through the Arc Seam Tracking

- Simple & Easy operation.
- No additional torch components for easy maintenance.
- Most popular sensor worldwide.
- High-reliability and versatility.

FD-SFH
Laser Search Sensor

- High Speed and High Accuracy Laser Line Beam Sensor.
- Robot Teaching Assist Function that decreases teaching time.
- Full operation from teaching pendant.

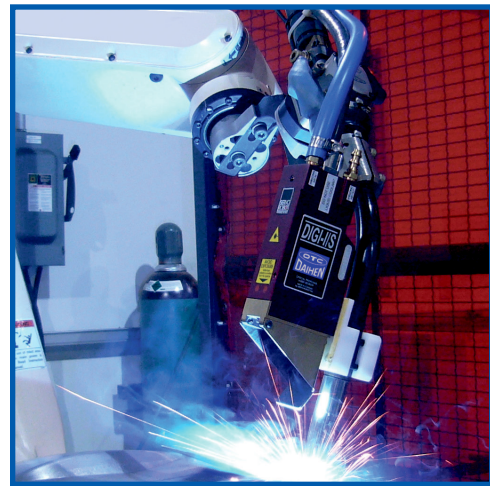


Going beyond your expectations...



FD-QD
Laser Search Sensor

- Unique sensing functions with lower costs.
- Designed for arc welding applications.
- Full operation from teaching pendant.



FD-LT
Laser Tracking Sensor

- High-end technology for high-end applications.
- Designed for arc welding environments.
- Relatively compact and low maintenance.



FD-WD (H)
Touch Sensor

- Conventional sensing with modern functions.
- Simple and easy to use maintenance.

Leading Sensing Technology...
... from the Leading Company in Welding Innovations

Basic Sensors

Conventional Concepts with improved Functionality and Operation

OTC makes welding equipment, OTC knows “what is welding”, and OTC knows “what we need to do” to ensure the highest possible quality of welding.

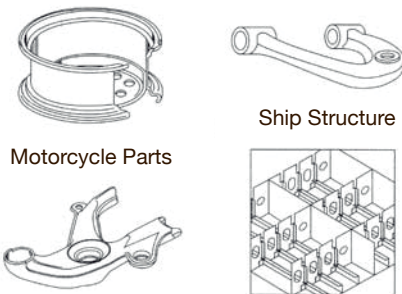
FD-AR ARC SENSOR

Real-time Seam Tracking Sensor using Through-Arc Tracking.



Deviation Detection	NO (use with FD-WD / FD-QD / FD-SFH)
Material	Mild Steel, Stainless (Solid or Cored Wire)
Applicable Range	Fillet Joints, Lap Joints (3mm or more), V-groove (First path)
Welding Methods	CO2, MAG, MAG Pulse
Welding Machine	DM350, DP400, DP500
Welding Torch	DAIHEN CO ₂ / MAG Torch (Air Cooled / Water Cooled)
Accuracy	±1mm (0.04")
Remarks	Weaving motion is required.

Application Examples



- Ideal for mid to thick plate Mild Steel and Stainless applications.
- Settings and controls in the teaching pendant are in a dedicated, user-friendly menu.
- Easy to understand & easy to use.

FD-WD (WD-H) WIRE DETECTION TOUCH SENSING

Deviation finding using the welding wire.

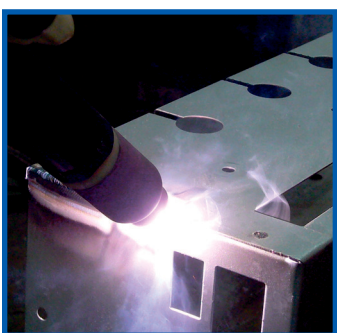


Real-time Tracking	NO (use with FD-AR / FD-TR)
Material	Mild Steel, Stainless (Not recommended for Aluminum)
Applicable Range	Lap Joints (3mm or more), Most other joints
Accuracy	±1mm (0.04")
Welding Machine	All OTC DAIHEN machines
Welding Torch	DAIHEN CO ₂ / MAG Torch (Air Cooled / Water Cooled)
Combination	FD-AR2 / FD-TR2 (with probe)

- Simple yet quite versatile.
- Various functions for many applications.
- Dedicated designed menu in teaching pendant.
- Programmable command can increase range of usability.

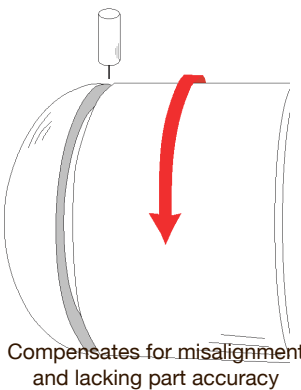
FD-TR TIG ARC SENSOR

Real-time height tracking sensor for TIG applications.



Deviation Detection	NO (use with FD-WD)
Material	Mild Steel, Stainless, Aluminum (Other materials available)
Applicable Range	Fillet, Lap, Corner, Butt Welds
Accuracy	±0.5mm (0.02")
Welding Machine	All OTC DAIHEN TIG machines
Welding Torch	DAIHEN TIG Torch (Air Cooled / Water Cooled)
Combination	FD-WD (with probe)

Application Example



- 100% control from the teaching pendant via a dedicated menu.
- Simple configuration that can be connected to any type of OTC DAIHEN TIG machine.
- Stable and accurate tracking.

Advanced Sensors with Laser Technologies

New Sensing Possibilities with Laser Technologies

Got an application that requires the highest degree of accuracy? OTC DAIHEN’s advanced laser technologies are the ultimate solution for ensuring the best weld quality & part consistency.

FD-SFH SUPER FAST LASER SEARCH

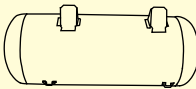
Extremely fast and accurate, stable deviation detector via laser beam.



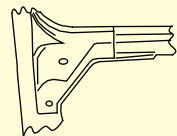
Real-Time Tracking	NO (use with FD-AR)
Material	Mild Steel, Stainless, Aluminum (Other materials available)
Applicable Range	Lap Joints, (1mm or more), Fillet Joint, Corner Joint and many more. *Not applicable for mirrored surfaces.
Accuracy	±0.2mm (0.008")
Welding Machine	All OTC Machines
Welding Torch	350A Air Cooled MAG Torch (Other torches are available by special order)
Basic Functions	Laser Probe, Groove Data Acquisitions
Combination	FD-AR (for Tracking)

- Joint detection as low as .5 sec, reducing cycle time compared to the FD-QD.
- Adaptive technology with gap recognition.
- Mounting position leaves much room for torch accessibility in the production environment.

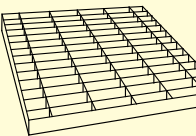
Laser Application Examples



Pressure Tank (Flair Lap)



Body Frame (Thin Plate Lap)



Gutter Plate (Inconsistent Fit-up)

FD-QD QUICK DETECT LASER SEARCH

High-speed, stable deviation detector via laser beam.

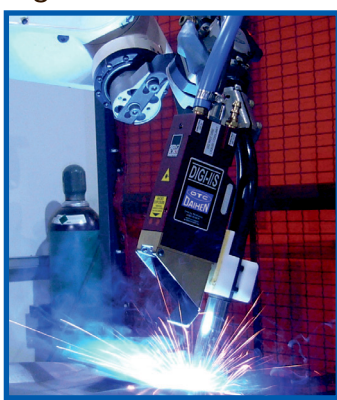


Real-Time Tracking	NO (use with FD-AR)
Material	Mild Steel, Stainless, Aluminum (Other materials available)
Applicable Range	Lap Joints, (1mm or more), Fillet Joint, Corner Joint and many more. *Not applicable for mirrored surfaces.
Accuracy	±1mm (0.04")
Welding Machine	All OTC Machines
Welding Torch	350A Air Cooled MAG Torch (Other torches are available by special order)
Basic Functions	Laser Probe, Groove Data Acquisitions
Combination	FD-AR (for Tracking)

- Unique concept sensing system with better versatility for deviation detection
- Simple usage: similar with wire touch sensor but obtains better results using laser technology.
- Fully integrated functions developed by DAIHEN.

FD-LT LASER TRACKING

High-end laser with real-time seam tracking sensor.



Deviation Detection	Under Development (Ask for details)
Material	Mild Steel, Stainless, Aluminum (Other materials available)
Applicable Range	Lap Joints, (1mm or more), Fillet Joint, Corner Joint and many more. *Not applicable for mirrored surfaces.
Accuracy	±0.5mm (0.02")
Welding Machine	All OTC Machines
Welding Torch	350A Air Cooled MAG Torch (Other torches are available by special order)
Basic Functions	Start, End Point Search 3D Seam Tracking
Combination	FD-AR (for Tracking)

- Dedicated menu can provide user-friendly and easy to use operation.
- Advanced 3D tracking technologies can provide stable and accurate tracking results.
- Full support of equipment (Robot, Welder and sensor) from one company.

