GMAW & Pulse GMAW Machines for Manual and Automated Welding Applications

Your Key to the Future of Welding

GMAW & Pulse GMAW specialists with DC Stick and DC TIG modes
SIGNIFICANTLY REDUCES WELDING COSTS, VERSATILE AND EXPANDABLE

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

**Ferritic Stainless Modes**
Cr-Fe solid wire
Applications include:
- Mufflers
- Exhaust systems
- Kitchen counters
- Kitchen sinks

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

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

Zinc Coated Steels

Applications include:
- Transportation
- Bridge & highway
- Agriculture
- Water & marine

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.
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)

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.
STANDARD USB PORT
Collect and easily transfer data from one machine to others.
## Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Welbee Inverter</th>
<th>Welbee Inverter</th>
<th>Welbee Inverter</th>
<th>Welbee Inverter</th>
<th>Welbee Inverter</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td>WB-M350</td>
<td>WB-M350L</td>
<td>WB-M500</td>
<td>WB-P400</td>
<td>WB-P500L</td>
</tr>
<tr>
<td><strong>Number of phases</strong></td>
<td>3</td>
<td>1*</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Rated frequency</strong></td>
<td>50/60Hz</td>
<td>50/60Hz</td>
<td>50/60Hz</td>
<td>50/60Hz</td>
<td>50/60Hz</td>
</tr>
<tr>
<td><strong>Rated input voltage</strong></td>
<td>208/230V</td>
<td>460V</td>
<td>208/230V</td>
<td>460V</td>
<td>208/230V</td>
</tr>
<tr>
<td><strong>Input voltage range</strong></td>
<td>±10%</td>
<td>±10%</td>
<td>±10%</td>
<td>±10%</td>
<td>±10%</td>
</tr>
<tr>
<td><strong>Rated input power</strong></td>
<td>15.3kVA 13.1kW/14.9kVA 13.9kW</td>
<td>15.0kVA 13.3kW/14.8kVA 13.8kW 10.9kVA 8.1kW</td>
<td>15.6kVA 13.4kW/15.3kVA 13.9kW 15.6kVA 13.8kW/11.8kVA 8.8kW</td>
<td>11.5kVA 8.9kW 8.9kVA 11.8kVA 8.8kW</td>
<td>25.2kVA 22.6kW 18.2/18.0kVA Pulse: 54.3/49.5A DC 19.0kVA 17.9kVA Pulse: 20.7kVA 18.5kW</td>
</tr>
<tr>
<td><strong>Rated input current</strong></td>
<td>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</td>
<td></td>
<td></td>
<td></td>
<td>DC: 50.5/45.0A Pulse: 54.3/49.5A</td>
</tr>
<tr>
<td><strong>Rated output current</strong></td>
<td>350A</td>
<td>250A</td>
<td>350A</td>
<td>250A</td>
<td>500A</td>
</tr>
<tr>
<td><strong>Rated load voltage</strong></td>
<td>3.15V</td>
<td>26.5V</td>
<td>3.15V</td>
<td>26.5V</td>
<td>39.0V</td>
</tr>
<tr>
<td><strong>Rated output current range</strong></td>
<td>30 - 350A</td>
<td>30 - 250A</td>
<td>30 - 350A</td>
<td>30 - 250A</td>
<td>30 - 500A</td>
</tr>
<tr>
<td><strong>Rated output voltage range</strong></td>
<td>12.0 - 31.5V</td>
<td>12.0 - 26.5V</td>
<td>12.0 - 31.5V</td>
<td>12.0 - 26.5V</td>
<td>12.0 - 45.0V</td>
</tr>
<tr>
<td><strong>Maximum no-load voltage</strong></td>
<td>71/78V</td>
<td>70V</td>
<td>71/78V</td>
<td>70V</td>
<td>81V</td>
</tr>
<tr>
<td><strong>Rated duty cycle</strong></td>
<td>60%</td>
<td>60%</td>
<td>60%</td>
<td>60%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Number of welding conditions</strong></td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operating temperature range</strong></td>
<td>14º F to 104º F (-10 to +40º C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operating humidity range</strong></td>
<td>less than 50%, 104º F (40º C), less than 90%, 68º F (20º C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Storage Temperature Range</strong></td>
<td>-13º F to +131º F (-25 to +55º C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Storage humidity range</strong></td>
<td>less than 50%, 104º F (40º C), less than 90%, 68º F (20º C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dimensions (W x D x H)</strong></td>
<td>15.6 x 28.0 x 31.9 in. (395 x 710 x 810mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mass</strong></td>
<td>183 lbs (83kg)</td>
<td>185.2 lbs (84kg)</td>
<td>170 lbs (77kg)</td>
<td>185.2 lbs (84kg)</td>
<td>178.6 lbs (81kg)</td>
</tr>
</tbody>
</table>

### For DC TIG scratch start

By 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.
Your Key to the Future of Welding

WB-M350L
WB-P400 WAVE PULSE
WB-M500
WB-M350
WB-P500L WAVE PULSE
• 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

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

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.
IDEAL FOR SMALL WELDING APPLICATIONS

DC Constant Voltage Spool-Gun Arc Welding Machine

MIG-135

MIG-135 Complete Package

INCREDBILE 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
**SIMPLE OPERATION**

![MIG-135 Operation Panel]

**High Stability with Less Operator Fatigue**

**SIMPLE OPERATION**

**SPECIFICATIONS**

**MIG-135 Welding Power Source**

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

**WTG-43 Spool Gun**

<table>
<thead>
<tr>
<th>Applicable Wire Diameter</th>
<th>Mild Steel .025&quot; .030&quot; (0.6mm, 0.8mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aluminum .025&quot; .030&quot; (0.6mm, 0.8mm)</td>
</tr>
<tr>
<td></td>
<td>Stainless Steel .025&quot; (0.6mm)</td>
</tr>
<tr>
<td>Rated Current</td>
<td>135A</td>
</tr>
<tr>
<td>Rated Duty Cycle</td>
<td>20%</td>
</tr>
<tr>
<td>Cooling Method</td>
<td>Air Cooling</td>
</tr>
<tr>
<td>Cable Length</td>
<td>25 ft. (8m) 60 ft (18m) with optional extension</td>
</tr>
<tr>
<td>Weight of Main Body</td>
<td>2.5 lbs (1.1 kg)</td>
</tr>
</tbody>
</table>

**Amazing Welding Results**

**Spooled Wire for the MIG-135**

<table>
<thead>
<tr>
<th>Wire Material</th>
<th>Wire Diameter</th>
<th>Weight of Wire (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild Steel Wire</td>
<td>.025&quot; (0.6mm)</td>
<td>1.1 lbs. (500g)</td>
</tr>
<tr>
<td>MB-50-025</td>
<td>.030&quot; (0.8mm)</td>
<td>1.1 lbs. (500g)</td>
</tr>
<tr>
<td>Aluminum Wire</td>
<td>.025&quot; (0.6mm)</td>
<td>0.44 lbs (200g)</td>
</tr>
<tr>
<td>MB-4043-025</td>
<td>.030&quot; (0.8mm)</td>
<td>0.44 lbs (200g)</td>
</tr>
<tr>
<td>Stainless Steel Wire</td>
<td>.040&quot; (1.0mm)</td>
<td>0.44 lbs (200g)</td>
</tr>
<tr>
<td>MB-308L-030</td>
<td>.025&quot; (0.6mm)</td>
<td>1.1 lbs (500g)</td>
</tr>
<tr>
<td>MB-309LSI-023</td>
<td>.023&quot; (0.6mm)</td>
<td>1.1 lbs (500g)</td>
</tr>
<tr>
<td>MB-316L-025</td>
<td>.025&quot; (0.6mm)</td>
<td>1.1 lbs (500g)</td>
</tr>
<tr>
<td>Silicon Bronze Wire</td>
<td>.025&quot; (0.6mm)</td>
<td>0.44 lbs (200g)</td>
</tr>
<tr>
<td>MB-SIB-025</td>
<td>.030&quot; (0.8mm)</td>
<td>0.44 lbs (200g)</td>
</tr>
<tr>
<td>MB-SIB-030</td>
<td>.030&quot; (0.8mm)</td>
<td>0.44 lbs (200g)</td>
</tr>
</tbody>
</table>

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.

**OTC DAIHEN INC. (Headquarters)**

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5311 W. T. Harris Blvd., West Charlotte, NC 28269

**OTC DAIHEN INC. (Atlanta Branch)**

2964 Northeast Parkway NW
Atlanta, GA 30360

**OTC DAIHEN INC. (Detroit Branch)**

22241 Roethel Drive, Suite A
Novi, MI 48375

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

<table>
<thead>
<tr>
<th>Frequency</th>
<th>50Hz</th>
<th>100Hz</th>
<th>200Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross Section</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wide Bead</td>
<td>Narrow Bead</td>
<td>Increased Penetration</td>
<td></td>
</tr>
</tbody>
</table>

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

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.
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.

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

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.

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.

<table>
<thead>
<tr>
<th>DC PULSE</th>
<th>AC PULSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weld Current: 50A, Weld Voltage: 15V, Travel Speed: 31.5 IPM, Material: A5052 Aluminum, Gap: 1mm (.040”)</td>
<td></td>
</tr>
</tbody>
</table>
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.

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.

DW-300 Welding Power Supply

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Name</td>
<td>CM-741</td>
</tr>
<tr>
<td>Model Name</td>
<td>CMRE-741</td>
</tr>
<tr>
<td>Model Name</td>
<td>AF-4001</td>
</tr>
<tr>
<td>Welding Modes</td>
<td>AC Wave Pulse MIG, DC Wave Pulse MIG, AC Pulse MIG, DC Pulse MIG, DC Pulse MAG</td>
</tr>
<tr>
<td>Weld Current</td>
<td>210A</td>
</tr>
<tr>
<td>Weld Voltage</td>
<td>23V</td>
</tr>
<tr>
<td>Travel Speed</td>
<td>21.7 IPM</td>
</tr>
<tr>
<td>Weld Wire</td>
<td>A5183 Aluminum, 1/16&quot;</td>
</tr>
</tbody>
</table>

SPECIAL SPECIFICATIONS

D-Series Wire Feeders

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Name</td>
<td>CM-741</td>
</tr>
<tr>
<td>Model Name</td>
<td>CMRE-741</td>
</tr>
<tr>
<td>Model Name</td>
<td>AF-4001</td>
</tr>
<tr>
<td>Style</td>
<td>Semi-automatic</td>
</tr>
<tr>
<td>Style</td>
<td>Automatic &amp; Robotic Retrofit</td>
</tr>
<tr>
<td>Style</td>
<td>OTC DAIHEN Robots</td>
</tr>
<tr>
<td>Wire Feed Speed</td>
<td>866 in./min (22 m/min)</td>
</tr>
<tr>
<td>Usable Wire Diameters</td>
<td>Mild Steel: .024&quot; - 1/16&quot; (0.6mm - 1.6mm)</td>
</tr>
<tr>
<td></td>
<td>Stainless Steel: .030&quot; - 1/16&quot; (0.8mm - 1.6mm)</td>
</tr>
<tr>
<td></td>
<td>Hard Aluminum: .040&quot;, .3/64&quot;, 1/16&quot; (1.0mm, 1.2mm, 1.6mm)</td>
</tr>
<tr>
<td></td>
<td>Soft Aluminum: .040&quot;, .3/64&quot;, 1/16&quot; (1.0mm, 1.2mm, 1.6mm)</td>
</tr>
<tr>
<td>Weight</td>
<td>28.6 lbs. (13 kg)</td>
</tr>
<tr>
<td>Weight</td>
<td>15.4 lbs. (7 kg)</td>
</tr>
<tr>
<td>Weight</td>
<td>8.8 lbs. (4 kg)</td>
</tr>
<tr>
<td>External Dimensions</td>
<td>8.5&quot; x 21.4&quot; x 13.6&quot; (215mm x 543mm x 350 mm)</td>
</tr>
</tbody>
</table>

DTA Acquires the right to change specifications without notice.

OTC DAIHEN INC.
(Headquarters)
1400 Blauer Dr., Tipp City, OH 45371
Ph: 937-667-0800 • Fax: 937-667-0885

Branch Offices: Atlanta, Georgia
Charlotte, North Carolina
Monterrey, Mexico
Novi, Michigan

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**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.

**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.

**DL-350 vs. Conventional Inverter Machine**

<table>
<thead>
<tr>
<th>Shield Gas: CO₂, Weld Current: 250A, Weld Voltage: 25.5V, Travel Speed: 80 cm/min, Plate Thickness: 4.5mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional Welder</td>
</tr>
</tbody>
</table>

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

### STANDARDS SPECIFICATIONS

**DL-350 Welding Power Supply**

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Name</td>
<td>DL-350</td>
</tr>
<tr>
<td>Welding Modes</td>
<td>CO₂ / MAG / MIG (Stainless Steel), available in Electrode Positive (Standard &amp; High Speed) and Electrode Negative</td>
</tr>
<tr>
<td>Rated Input Voltage</td>
<td>208±10% (50 / 60 Hz)</td>
</tr>
<tr>
<td>Number of Phases</td>
<td>3-phase</td>
</tr>
<tr>
<td>Rated Input</td>
<td>18.2 kVA (16.6 kW)</td>
</tr>
<tr>
<td>Rated Duty Cycle</td>
<td>60%</td>
</tr>
<tr>
<td>Rated Output Current</td>
<td>350 A</td>
</tr>
<tr>
<td>Rated Load Voltage</td>
<td>36 V</td>
</tr>
<tr>
<td>Output Current Range</td>
<td>30 ~ 350 A</td>
</tr>
<tr>
<td>Output Voltage Range</td>
<td>12 ~ 36 V</td>
</tr>
<tr>
<td>Maximum No-Load Voltage</td>
<td>85 V</td>
</tr>
<tr>
<td>Max. Program Storage</td>
<td>100 programs</td>
</tr>
<tr>
<td>Temperature Rise</td>
<td>+320°F (+160°C)</td>
</tr>
<tr>
<td>External Dimensions</td>
<td>11.8&quot; x 27.8&quot; x 23.4&quot; (300mm x 705mm x 595mm)</td>
</tr>
<tr>
<td>Weight</td>
<td>126 lbs. (57.2 kg)</td>
</tr>
</tbody>
</table>

**D-Series Wire Feeders**

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

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.

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Simple Operation and Perfect Welds from Arc Start to End

Total Solutions from the Single Source Provider

Smaller & Lighter
80 kHz IGBT
Digital Inverters

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

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Fax: 937-667-0885

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(Atlanta Branch)
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OTC DAIHEN INC.
(Detroit Branch)
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Novi, MI 48375

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

Specifications subject to change without notice.

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

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
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...

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- K5439E00 Fully Enclosed Wire Reel Cover
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<th>CM-741U</th>
<th>CMRE-741</th>
<th>AF-4011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Style</td>
<td>Semiautomatic</td>
<td>Auto &amp; Robot Retrofit</td>
<td>OTC-DAIHEN Robots</td>
</tr>
<tr>
<td>Wire Feed Speed</td>
<td></td>
<td>866 in. / min. (22 m/min.)</td>
<td></td>
</tr>
<tr>
<td>Usable Wire Diameters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild Steel</td>
<td>inch (.030), .035, .040, .045, (.052), (1/16); mm (0.8), .09, 1.0, 1.2, (1.4), (1.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stainless Steel</td>
<td>inch (.030), .035, .040, .045, (.052), (1/16); mm (0.8), .09, 1.0, 1.2, (1.4), (1.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hard Alum (AL/MG)</td>
<td>.040, 3/64, 1/16 in. (1.0, 1.2, 1.6 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soft Aluminum</td>
<td>3/64, 1/16 in. (1.2, 1.6 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>28.6 lb (13 kg)</td>
<td>15.4 lb (7 kg)</td>
<td>9.3 lb (4.2 kg)</td>
</tr>
<tr>
<td>External Dimensions</td>
<td>8.5 x 21.4 x 13.6 inches (215 x 543 x 350 mm)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

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
**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 bus 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

**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.

**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.

**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.

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

**Tailor Made Arc Control**
80 kHz IGBT Inverter Output
Arc Process Control
- Voltage Arc Control
- Dynamic Arc Control
- Current Arc Control
- Arc Length Control
- Wire Feed Control

---

**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.

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

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• Wa
• Synergic or individual control of voltage and wire feed speed
• Adjustable pulse waveform via function key
• Factory optimized pulse waveforms
• Three phase automatic input voltage selection
• Smaller & lighter 80 kHz IGBT digital inverter
• Digital CAN buss interface with OTC DAIHEN robots
• 100 Job memory
• one-touch control to repeat or recall weld accomplished by the Touch Panel and reading the LED indications.
• Setting of weld conditions such as welding conditions can be accessed by special functions by the operator without having to go inside the Welding Power computer automatically selects the ideal arc length control.
• Conventional GMAW machines typically incorporate only constant voltage (CV) characteristics. When tip-to-work distance changes in penetration.
• Newly Developed T-MAC System Supports Multiple Arc Length Characteristic Controls
• Constant Penetration Control
• for Hard Wire Applications
• Three Phase
• Single Phase
• Three Phase
• 50/60 Hz
• 200V / 230V / 460V
• 230V / 460V
• Three Phase
• 460V
• 187–253V, 414–506V
• 207–253V, 414–506V
• 24.7
• 22.5
• 31A
• 50A
• 500A
• 470A
• 12–36V
• 12–45V
• 12–31V
• 12-45V
• 30–350A
• 30–250A
• 30–250A
• 30-500A
• 40.8A / 36.9A / 20.5A
• 45.2A / 25.3A
• 31A
• 80% 100%
• 60%
• 80%
• 100%
• +320°F (+160°C)
• +14 ~ 104°F (-10 ~ +40°C)

DM-350

<table>
<thead>
<tr>
<th></th>
<th>DM-350</th>
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</tr>
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<tbody>
<tr>
<td>CV</td>
<td>Three Phase</td>
<td>Single Phase</td>
</tr>
<tr>
<td></td>
<td>50/60 Hz</td>
<td>50/60 Hz</td>
</tr>
<tr>
<td>Three Phase</td>
<td>200V / 230V / 460V</td>
<td>230V / 460V</td>
</tr>
<tr>
<td>Single Phase</td>
<td>230V / 460V</td>
<td>230V / 460V</td>
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<tr>
<td></td>
<td>16.3</td>
<td>11.6</td>
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<td></td>
<td>13.8</td>
<td>8.6</td>
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<td>40.8A / 36.9A / 20.5A</td>
<td>45.2A / 25.3A</td>
</tr>
<tr>
<td></td>
<td>350A</td>
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<td>31.5V</td>
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<td>12–36V</td>
<td>12–31V</td>
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<td></td>
<td>59/65/56V</td>
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<tr>
<td></td>
<td>60%</td>
<td>80%</td>
</tr>
<tr>
<td></td>
<td>+320°F (+160°C)</td>
<td>+14 ~ 104°F (-10 ~ +40°C)</td>
</tr>
<tr>
<td></td>
<td>9.8 in x 25.2 in x 21.6 in. (250 mm x 640 mm x 544 mm)</td>
<td>11.8 in x 24.8 in x 25.8 in (300 mm x 655 mm x 630 mm)</td>
</tr>
<tr>
<td></td>
<td>85.8 lb (39 kg)</td>
<td>123 lb (56 kg)</td>
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## D-SERIES SPECIFICATIONS

<table>
<thead>
<tr>
<th><strong>ITEM</strong></th>
<th><strong>DP-400</strong></th>
<th><strong>DP-500</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>Mode</strong></td>
<td>Pulse CV (Standard CV Ratings not shown)</td>
<td>Three Phase</td>
</tr>
<tr>
<td><strong>Number of Phases</strong></td>
<td>Three Phase</td>
<td></td>
</tr>
<tr>
<td><strong>Rated Frequency</strong></td>
<td>50/60 Hz</td>
<td></td>
</tr>
<tr>
<td><strong>Rated Input Voltage</strong> (Auto Select)</td>
<td>208V / 230V</td>
<td>460V</td>
</tr>
<tr>
<td><strong>Input Voltage Range</strong></td>
<td>208/230 ±10%</td>
<td>460 ±10%</td>
</tr>
<tr>
<td><strong>Rated Input KVA</strong></td>
<td>21.4</td>
<td>23.6</td>
</tr>
<tr>
<td><strong>Rated Input kW</strong></td>
<td>19.5</td>
<td>21.5</td>
</tr>
<tr>
<td><strong>Rated Input Current</strong></td>
<td>53.7A</td>
<td>29.6A</td>
</tr>
<tr>
<td><strong>Rated Output Current</strong></td>
<td>400A</td>
<td></td>
</tr>
<tr>
<td><strong>Rated Load Voltage</strong></td>
<td>34V</td>
<td></td>
</tr>
<tr>
<td><strong>Rated Output Current Range</strong></td>
<td>30–400A</td>
<td></td>
</tr>
<tr>
<td><strong>Rated Output Voltage Range</strong></td>
<td>12–38V</td>
<td></td>
</tr>
<tr>
<td><strong>Max. No-Load Voltage</strong></td>
<td>92V</td>
<td></td>
</tr>
<tr>
<td><strong>Rated Duty Cycle</strong></td>
<td>50% (60% Standard CV)</td>
<td></td>
</tr>
<tr>
<td><strong>Max. Program Storage</strong></td>
<td>100</td>
<td></td>
</tr>
<tr>
<td><strong>Temperature Rise</strong></td>
<td>+320°F (+160°C)</td>
<td></td>
</tr>
<tr>
<td><strong>Usable Temperature Range</strong></td>
<td>+14 ~ 104°F (-10 ~ +40°C)</td>
<td></td>
</tr>
<tr>
<td><strong>External Dimensions</strong> (W x D x H without handles)</td>
<td>9.8 in. x 25.2 in x 21.4 in. (250 mm x 640 mm x 544 mm)</td>
<td>11.8 in. x 25.7 in x 23.4 in. (300 mm x 653mm x 595mm)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>99.2 lb (45 kg)</td>
<td></td>
</tr>
</tbody>
</table>

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 func-
  tion 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

**Newly Developed Digital Reactor**
Precisely controlled output current and waveform are very effective for reducing spatter.

**Instantaneous Arc Starting**

**Short Circuit Period**

**Arc Period**

- Voltage characteristic is controlled during the arc period
- Current waveform is controlled precisely during the short circuit period
**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

![Wave Pulse for Aluminum](image)

- 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

**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

![Robotic Welding Solutions](image)

- 1/8" (3.2 mm) Mild Steel Fillet Weld with .045" (1.2 mm) E70S-3 Mild Steel Wire at 64 in./min.
- 16 gauge (1.6 mm) A5052 Aluminum Plate Butt Welded With 3/64" (1.2 mm) A5356 Aluminum Wire
Advancing the Science of GMAW Applications

Synchro Short-Pulse Control for Hard Wire Applications

Wave Pulse for Aluminum

- Synchro Short-Pulse Waveform
- Current control at pulse period short-circuit time
- Instantaneous short-circuit current control
- Automatic digital reactor control

Wave frequency is adjustable from 0.5 to 30 Hz

- Proven to reduce porosity and crack susceptibility
- 1/8" (3.2 mm) Mild Steel Fillet Weld with .045" (1.2 mm) E70S-3 Mild Steel Wire at 64 in./min.
- 16 gauge (1.6 mm) A5052 Aluminum Plate Butt Welded With 3/64" (1.2 mm) A5356 Aluminum Wire

Robotic Welding Solutions

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)
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**

- **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

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

Input voltage range 207V – 253V 414V – 506V

Wire Feeders Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>CMXL-231U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Style</td>
<td>2 Drive Roll - Semiautomatic</td>
</tr>
<tr>
<td>Wire Feed Speed</td>
<td>708 in./min. (18 m/min.)</td>
</tr>
<tr>
<td>Wire Size</td>
<td>.030&quot;, .035&quot;, .045&quot;, .052&quot;, 1/16&quot;</td>
</tr>
<tr>
<td>Wire Type</td>
<td>Solid, Flux Cored</td>
</tr>
<tr>
<td>Weight</td>
<td>30.9 lbs. (14 kg)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>W: 7.9 x D: 19.0 x H: 11.5 inches</td>
</tr>
</tbody>
</table>

*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 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

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)

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

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

OTC - DAIHEN Inc.
(Atlanta Branch)
2964 Northeast Parkway NW
Atlanta, GA 30360

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
### 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

<table>
<thead>
<tr>
<th>Cutting Thickness (in.)</th>
<th>1/2</th>
<th>3/4</th>
<th>1</th>
<th>1-1/2</th>
<th>2</th>
<th>2-1/2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild Steel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stainless Steel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Capable of clean cutting nearly 2-inch carbon steel, the D-12000 is a safe and economical alternative to oxy-fuel 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

<table>
<thead>
<tr>
<th>Power Supply</th>
<th>Name</th>
<th>TRC-121</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting Mode</td>
<td>Air Plasma Cutting</td>
<td></td>
</tr>
<tr>
<td>Number of Phases</td>
<td>Three Phase</td>
<td></td>
</tr>
<tr>
<td>Rated Input Voltage (Auto-Select)</td>
<td>230/460 ±10% (50/60Hz)</td>
<td></td>
</tr>
<tr>
<td>Rated Input</td>
<td>28.3kW</td>
<td></td>
</tr>
<tr>
<td>Rated Output Current</td>
<td>120 A</td>
<td></td>
</tr>
<tr>
<td>Rated Output Current Range</td>
<td>30-120 A</td>
<td></td>
</tr>
<tr>
<td>Rated Duty Cycle</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Temperature Rise</td>
<td>+320°F (+160°C)</td>
<td></td>
</tr>
<tr>
<td>External Dimensions</td>
<td>17.8” x 30.7” x 32.4” (453mm x 780mm x 823mm)</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>384.0 lbs. (174.0 kg)</td>
<td></td>
</tr>
</tbody>
</table>

### Available Torches

<table>
<thead>
<tr>
<th>Model</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-12000</td>
<td>CTZW-1201 CTZWM-1201 CTPW-1201 CTPWM-1201 CTW-1201 CTWM-1201</td>
</tr>
</tbody>
</table>

### Consumable Torch Parts

<table>
<thead>
<tr>
<th>Torch Model</th>
<th>Max. Current (A)</th>
<th>Type</th>
<th>Tip</th>
<th>Electrode</th>
<th>Shield Cup</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTZW-1201 (M), (L), (P)</td>
<td>30 50 80 120</td>
<td>Standard</td>
<td>H839K03 H839K02 H839K01 H839G03</td>
<td>H839M00 H839G02</td>
<td></td>
</tr>
<tr>
<td>CTZW-1201</td>
<td>120</td>
<td>Gouging</td>
<td>H839K04</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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
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.

COMPLETE ROBOTIC ARC WELDING SYSTEMS
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.

**Easy teaching, even for a two-electrode torch.**

**CHANGING THE FUTURE OF MANUFACTURING**

**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.

**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**
## RANGE OF MOTION MANIPULATOR WORKING RANGE / SPECIFICATIONS

### SMOOTH OPERATION

**TEACH PENDANT**
- **Compact and light weight**
  - 25% lighter than previous model, making teaching sessions easier.
  - 40% smaller than previous model, making it easier to handle in tight spaces.
- **Smooth teaching**
  - Jog dial provides simple operation. Jog dial allows simple adjustment.
- **Smooth backups**
  - USB memory slot makes data saving and USB memory slot.
- **Electric conservation**
  - Up to 85% reduction in power consumption using the power conservation mode (energy conservation timer function and external sensor OFF function).
- **Minimal maintenance**
  - Additional clearance above the controller.
- **Space conservation**
  - 35% fewer parts.
- **Improved operability with corrective teaching**
  - Quickly improves response speed to weld start signals. Arc start failures are greatly reduced, residual vibrations are greatly 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**
  - During downtime, data is backed up when a welding error occurs to troubleshoot and find the problem. Traceability can be done by connecting a computer.

### SMART CONTROLLER

**FD11 Robot Controller**
- **Windows XP based open architecture**
- **Large memory capacity and 40 Input / 40 Output control signals**
- **Advanced PLC functions**
  - Allow 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.弧 start failures are greatly 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**
  - During downtime, data is backed up when a welding error occurs to troubleshoot and find the problem. Traceability can be done by connecting a computer.

### FD TEACHING PENDANT

- **Welding condition guide function**
  - Helps 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.**

### FD V6L Long Reach

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

### FD-B4L Long Reach

- **Reach**
  - 2006 mm
- **Payload**
  - 4 kg
- **Axes**
  - 6
- **Repeatability**
  - ± 0.08 mm

### FD-B4 Standard

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

### FD-B4L Standard

- **Reach**
  - 1411 mm
- **Payload**
  - 6 kg
- **Axes**
  - 6
- **Repeatability**
  - ± 0.08 mm

### FD-V20 Standard

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

### FD-V6 Compact

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

### Table: MANIPULATOR WORKING RANGE / SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Reach (mm)</th>
<th>Payload (kg)</th>
<th>Axes</th>
<th>Repeatability (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FD-B4L</td>
<td>2006</td>
<td>4</td>
<td>6</td>
<td>± 0.08</td>
</tr>
<tr>
<td>FD-B4</td>
<td>1411</td>
<td>4</td>
<td>6</td>
<td>± 0.08</td>
</tr>
<tr>
<td>FD-V6</td>
<td>1402</td>
<td>6</td>
<td>6</td>
<td>± 0.08</td>
</tr>
<tr>
<td>FD-V20</td>
<td>1710</td>
<td>20</td>
<td>6</td>
<td>± 0.07</td>
</tr>
<tr>
<td>FD-V6L</td>
<td>2006</td>
<td>6</td>
<td>6</td>
<td>± 0.08</td>
</tr>
</tbody>
</table>

### Figures

- **Figures of FD-B4, FD-B4L, FD-V6, FD-V6L, FD-V20, FD-V6 Compact**

---

[Image of robot controller]

[Image of teaching pendant]

[Image of range of motion diagrams]

---
### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>FDB4</th>
<th>FDB4L</th>
<th>FDV6</th>
<th>FDV6L</th>
<th>FDV20</th>
<th>FDH5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of axes</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum capacity</td>
<td>8.82 lbs (4 kg)</td>
<td>8.82 lbs (4 kg)</td>
<td>13.23 lbs (6 kg)</td>
<td>13.23 lbs (6 kg)</td>
<td>44.09 lbs (20 kg)</td>
<td>11.02 lbs (5 kg)</td>
</tr>
<tr>
<td>Positional repeatability</td>
<td>±0.003” (±0.08 mm) (1)</td>
<td>±0.003” (±0.08 mm) (1)</td>
<td>±0.003” (±0.08 mm) (1)</td>
<td>±0.003” (±0.08 mm) (1)</td>
<td>±0.000” (±0.07 mm) (1)</td>
<td>±0.002” (±0.05 mm) (1)</td>
</tr>
<tr>
<td>Lowest end load</td>
<td>5.71 lbs (2.55 kg)</td>
<td>13.64 lbs (6.18 kg)</td>
<td>31.56 lbs (14.3 kg)</td>
<td>31.56 lbs (14.3 kg)</td>
<td>102.54 lbs (46.54 kg)</td>
<td>20.51 lbs (9.3 kg)</td>
</tr>
<tr>
<td>Allowable moment</td>
<td>1.09 ft-lbs (1.50 Nm)</td>
<td>2.18 ft-lbs (3.00 Nm)</td>
<td>4.36 ft-lbs (5.90 Nm)</td>
<td>4.36 ft-lbs (5.90 Nm)</td>
<td>13.07 ft-lbs (17.6 Nm)</td>
<td>2.61 ft-lbs (3.50 Nm)</td>
</tr>
<tr>
<td>Arm cross-sectional area</td>
<td>6.37 m² x 340”</td>
<td>6.37 m² x 340”</td>
<td>7.48 m² x 340”</td>
<td>7.48 m² x 340”</td>
<td>2.67 m² x 340”</td>
<td>1.22 m² x 340”</td>
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<tr>
<td>Environmental conditions</td>
<td>32 to 113°F (0 to 45°C)</td>
<td>20 to 80% RH (no condensation)</td>
<td>32 to 113°F (0 to 45°C)</td>
<td>20 to 80% RH (no condensation)</td>
<td>32 to 113°F (0 to 45°C)</td>
<td>20 to 80% RH (no condensation)</td>
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<tr>
<td>Mass / weight</td>
<td>340 lbs (154 kg)</td>
<td>611 lbs (277 kg)</td>
<td>317 lbs (144 kg)</td>
<td>602 lbs (273 kg)</td>
<td>613 lbs (273 kg)</td>
<td>128 lbs (58 kg)</td>
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<tr>
<td>Maximum load of upper arm</td>
<td>22.05 lbs (10 kg)</td>
<td>44.09 lbs (20 kg)</td>
<td>22.05 lbs (10 kg)</td>
<td>44.09 lbs (20 kg)</td>
<td>44.09 lbs (20 kg)</td>
<td>2.2 lbs (1 kg)</td>
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<tr>
<td>Installation method</td>
<td>Floor/Ceiling/Wall</td>
<td></td>
<td></td>
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<tr>
<td>Paint color</td>
<td>White (Munsell notation 10GY 9/1)</td>
<td></td>
<td></td>
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</tbody>
</table>

### MANIPULATOR

<table>
<thead>
<tr>
<th>Axis</th>
<th>J1 (Rotation)</th>
<th>J2 (Lower arm)</th>
<th>J3 (Upper arm)</th>
<th>J4 (Swing)</th>
<th>J5 (Bending)</th>
<th>J6 (Twist)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>±170° to +50° (5)</td>
<td>-155° to +100° (5)</td>
<td>-170° to +190°</td>
<td>±155°</td>
<td>-45° to +225°</td>
<td>±205°</td>
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<tr>
<td>Speed</td>
<td>3.66 rad/s (210°/s)</td>
<td>3.66 rad/s (210°/s)</td>
<td>3.66 rad/s (210°/s)</td>
<td>3.66 rad/s (210°/s)</td>
<td>7.33 rad/s (420°/s)</td>
<td>3.03 rad/s</td>
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<tr>
<td>Torque</td>
<td>0.03 kg•m</td>
<td>0.03 kg•m</td>
<td>0.03 kg•m</td>
<td>0.03 kg•m</td>
<td>0.03 kg•m</td>
<td>0.03 kg•m</td>
</tr>
<tr>
<td>Mass</td>
<td>67.32” (1710 mm)</td>
<td>67.32” (1710 mm)</td>
<td>67.32” (1710 mm)</td>
<td>67.32” (1710 mm)</td>
<td>67.32” (1710 mm)</td>
<td>67.32” (1710 mm)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>9.14 mm</td>
<td>9.14 mm</td>
<td>9.14 mm</td>
<td>9.14 mm</td>
<td>9.14 mm</td>
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<tr>
<td>Paint color</td>
<td>White</td>
<td>White</td>
<td>White</td>
<td>White</td>
<td>White</td>
<td>White</td>
</tr>
</tbody>
</table>

### CONTROLLER / TEACH PENDANT

| Dimension | 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 (no 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 x 19.19 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 |

### NOTES:
(1) The value of the positional repeatability is at the tool center point (TCP) in compliance with ISO 6983.
(2) The value in parentheses indicate used mounted.
(3) Working range of J2 axis may be restricted when floor based welding is applied.
(4) Working 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) The value changes according to placement and load conditions of the wrist.

These specifications are subject to change without prior notice.
PRE-ENGINEEREED SYSTEMS OVERVIEW

OTC DAIHEN Inc.
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<td>ECO-ARC 200B</td>
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<td>ECO-ARC 200L</td>
<td>10</td>
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<td>PT-ARC 600</td>
<td>14</td>
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<td>PT-ARC 600B</td>
<td>16</td>
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<td>SERVO-ARC 600</td>
<td>18</td>
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<td>SERVO-ARC 600B.</td>
<td>20</td>
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<tr>
<td>SERVO-ARC 720</td>
<td>22</td>
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<tr>
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<td>26</td>
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<td>28</td>
</tr>
<tr>
<td>TRI-ARC 1000</td>
<td>30</td>
</tr>
</tbody>
</table>
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

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)

**Details:**
- Pneumatic shutter 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. 2000kg
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
**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)
**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
**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
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
**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

![Image of SERVO-ARC 600B diagram]

-Welbee Power Source
-Optional Torch Cleaning Station
-Basic Base
-Safety Fencing Assembly (Arc Flash Curtain not shown)
-FD-V6 Robot Manipulator
-Fence Header

-60” Table Top
-Light Curtain Assembly

- FD11 Control Cabinet
-Main Electrical Cabinet Mounted On Fencing
-Access Door (LH Side)
-Arc Flash Guard

-Header

-FD-V6 Robot
-Manipulator

-Optional Torch Cleaning Station
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)
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
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 – 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

Table May Require Additional Side Guarding for Safety
Load Station Entry is dependent on size of table used
Tilt Turn Requires Smaller Load Station Entry
Tilt Turn May Require Additional Side Guarding for Safety
Optional Torch Cleaning Station
Stationary Table
Tilt/Turn Positioner
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)

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
**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)
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.

**Specifications**

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

Specifications

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

- 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 (±135°), 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 tbl. (Option)
- The voltage detection wire and the connection terminal let the low spatter welding power supply DL350 perform optimally are provided as standard.
<table>
<thead>
<tr>
<th>Motor / Specifications</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.2kW</strong></td>
<td></td>
</tr>
<tr>
<td>Part Number W-L02641</td>
<td></td>
</tr>
<tr>
<td>Output Power: 1200W</td>
<td></td>
</tr>
<tr>
<td>Rated Speed: 2000 rpm</td>
<td></td>
</tr>
<tr>
<td>Rated Torque: 5.7 N•m</td>
<td></td>
</tr>
<tr>
<td>Maximum Torque Peak: 16 N•m</td>
<td></td>
</tr>
<tr>
<td>Inertia (Rotor + Brake): 6.1x10⁻⁴ kg•m² (Rotor), 0.5x10⁻⁴ kg•m² (Brake)</td>
<td></td>
</tr>
<tr>
<td>Static Friction Torque on Brake: 9.0 N•m or more</td>
<td></td>
</tr>
<tr>
<td>Weight: 18 lbs (8.3kg)</td>
<td></td>
</tr>
</tbody>
</table>

| **2.0kW**              |            |
| Part Number W-L02152   |            |
| Output Power: 2000W    |            |
| Rated Speed: 2000 rpm  |            |
| Rated Torque: 9.5 N•m  |            |
| Maximum Torque Peak: 30 N•m |        |
| Inertia (Rotor + Brake): 12.2x10⁻⁴ kg•m² (Rotor), 0.5x10⁻⁴ kg•m² (Brake) | |
| Static Friction Torque on Brake: 12 N•m or more | |
| Weight: 27 lbs (12.3kg) |            |

| **4.5kW**              |            |
| Part Number W-L02157   |            |
| Output Power: 4700W    |            |
| Rated Speed: 2000 rpm  |            |
| Rated Torque: 22.5 N•m |            |
| Maximum Torque Peak: 54 N•m |        |
| Inertia (Rotor + Brake): 55.0x10⁻⁴ kg•m² (Rotor), 5.1x10⁻⁴ kg•m² (Brake) | |
| Static Friction Torque on Brake: 42 N•m or more | |
| Weight: 61.7 lbs (28.0kg) |            |
## OPTIONAL EQUIPMENT

### Torch Cleaning Equipment

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nozzle Cleaning Machine (100VAC Input)</td>
<td>K-2724</td>
</tr>
<tr>
<td>Nozzle Cleaning / Cutting Machine (100VAC Input)</td>
<td>K-2725</td>
</tr>
<tr>
<td>Wire Cutting Machine (100VAC Input)</td>
<td>K-2726</td>
</tr>
<tr>
<td>Spring Reamer &amp; Vacuum Cleaner (100VAC Input)</td>
<td>L-10748</td>
</tr>
<tr>
<td>Step Down Transformer (Required for all Stations)</td>
<td>VC500J</td>
</tr>
</tbody>
</table>

#### For Cleaning and Cutting Stations

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>13mm Reamer Drill (#8 Nozzle)</td>
<td>5096-145</td>
</tr>
<tr>
<td>13mm Reamer Bushing (#8 Nozzle)</td>
<td>5096-148</td>
</tr>
<tr>
<td>16mm Reamer Drill (#10 Nozzle)</td>
<td>5096-146</td>
</tr>
<tr>
<td>16mm Reamer Bushing (#10 Nozzle)</td>
<td>5096-149</td>
</tr>
<tr>
<td>19mm Reamer Drill (#12 Nozzle)</td>
<td>5096-147</td>
</tr>
<tr>
<td>19mm Reamer Bushing (#12 Nozzle)</td>
<td>5096-150</td>
</tr>
</tbody>
</table>

#### For Cut and Cleaning Stations

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shearing Blade for Wire Cutter</td>
<td>5096-306</td>
</tr>
<tr>
<td>Shearing Blade for Wire Cutter</td>
<td>5096-307</td>
</tr>
</tbody>
</table>

| Clean Kit Stand Assembly | 1L0298B00 |

### Robotic Zone Kits

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Station Zone Kit for FD-V6 / FD-B4</td>
<td>1L0448A00</td>
</tr>
<tr>
<td>2 Station Zone Kit for FD-V6L / FD-B4L</td>
<td>1L0370A00</td>
</tr>
<tr>
<td>3 Station Zone Kit for FD-V6L / FD-B4L</td>
<td>1L0396A00</td>
</tr>
<tr>
<td>400mm Robot Pedestal for FD-V6/B4 &amp; FD-V6L/B4L</td>
<td>L-3626</td>
</tr>
<tr>
<td>800mm Robot Pedestal for FD-V6/B4 &amp; FD-V6L/B4L</td>
<td>L-3626-800</td>
</tr>
</tbody>
</table>

For more information on DAIHEN Inc., visit our website at [www.daihen-usa.com](http://www.daihen-usa.com) or e-mail us at sales@daihen-usa.com.
**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.

**Heat distortion during welding?**

- **TRUE**
  - Tracking Sensor (FD-AR, FD-TR, FD-LT)

- **FALSE**
  - Deviation Finder (FD-WD, FD-SFH, FD-QD, FD-WDH)

**Welding seams are not straight?**

**Giving you the best choice from a wide selection...**

**... for the best welding results and quality!**

**Tracking Sensors**

- Mild Steel, Stainless
  - FD-AR (Through Arc Sensor)
  - FD-LT (Laser Sensor)
  - FD-TR (TIG Arc Sensor)

- Aluminum
  - FD-WD (Touch Sensor)

- TIG Welding
  - FD-SFH, FD-QD (Laser Search)

**Deviation Finders**

- Most Common
  - FD-WD (Touch Sensor)

- Aluminum, Fast & Stable
  - FD-SFH, FD-QD (Laser Search)

- Scale, Rusty Surface
  - FD-WDH (HV Touch Sensor)

* High Voltage

---

**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.

**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.

---

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- TIG Welding
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- High-reliability and versatility.

**FD-SFH**

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- Full operation from teaching pendant.

**FD-QD**

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- 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.

---

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.
**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.

<table>
<thead>
<tr>
<th>Deviation Detection</th>
<th>NO (use with FD-WD / FD-DD / FD-SFH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>Mild Steel, Stainless (Solid or Cored Wire)</td>
</tr>
<tr>
<td>Applicable Range</td>
<td>Fillet Joints, Lap Joints (3mm or more), V-groove (First path)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.5mm (0.02&quot;)</td>
</tr>
<tr>
<td>Remarks</td>
<td>Weaving motion is required.</td>
</tr>
</tbody>
</table>

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

Deviation finding using the welding wire.

<table>
<thead>
<tr>
<th>Real-time Tracking</th>
<th>NO (use with FD-AR / FD-TR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>Mild Steel, Stainless (Not recommended for Aluminum)</td>
</tr>
<tr>
<td>Applicable Range</td>
<td>Lap Joints (3mm or more), Most other joints</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±1mm (0.04&quot;)</td>
</tr>
<tr>
<td>Remarks</td>
<td>Easy to understand &amp; easy to use.</td>
</tr>
</tbody>
</table>

**FD-TR TIG ARC SENSOR**

Real-time height tracking sensor for TIG applications.

<table>
<thead>
<tr>
<th>Deviation Detection</th>
<th>NO (use with FD-WD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>Mild Steel, Stainless, Aluminum (Other materials available)</td>
</tr>
<tr>
<td>Applicable Range</td>
<td>Fillet, Lap, Corner, Butt Welds</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.5mm (0.02&quot;)</td>
</tr>
<tr>
<td>Remarks</td>
<td>100% control from the teaching pendant via a dedicated menu.</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Real-time Tracking</th>
<th>NO (use with FD-AR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>Mild Steel, Stainless, Aluminium (Other materials available)</td>
</tr>
<tr>
<td>Applicable Range</td>
<td>Lap Joints, (1mm or more), Fillet Joint, Corner Joint and many more, &quot;Not applicable for mirrored surfaces.&quot;</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.2mm (0.008&quot;)</td>
</tr>
<tr>
<td>Remarks</td>
<td>Adaptive technology with gap recognition.</td>
</tr>
</tbody>
</table>

**FD-DD QUICK DETECT LASER SEARCH**

High-speed, stable deviation detector via laser beam.

<table>
<thead>
<tr>
<th>Real-time Tracking</th>
<th>NO (use with FD-AR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>Mild Steel, Stainless, Aluminium (Other materials available)</td>
</tr>
<tr>
<td>Applicable Range</td>
<td>Lap Joints, (1mm or more), Fillet Joint, Corner Joint and many more, &quot;Not applicable for mirrored surfaces.&quot;</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±1mm (0.04&quot;)</td>
</tr>
<tr>
<td>Remarks</td>
<td>Mounting position leaves much room for torch accessibility in the production environment.</td>
</tr>
</tbody>
</table>

**FD-DT LASER TRACKING**

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

<table>
<thead>
<tr>
<th>Deviation Detection</th>
<th>Under Development (for details)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>Mild Steel, Stainless, Aluminium (Other materials available)</td>
</tr>
<tr>
<td>Applicable Range</td>
<td>Lap Joints, (1mm or more), Fillet Joint, Corner Joint and many more, &quot;Not applicable for mirrored surfaces.&quot;</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.5mm (0.02&quot;)</td>
</tr>
<tr>
<td>Remarks</td>
<td>Dedicated menu can provide user-friendly and easy to use operation.</td>
</tr>
</tbody>
</table>

**Application Examples**

- Motorcycle Parts
- Ship Structure
- Motorcycle Parts
- Ship Structure
- Motorcycle Parts
- Ship Structure

**Application Example**

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

**Remarks**

- 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.
- 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.