FANUC \( \alpha-iD \) Series

FANUC \( iD \) Series Wire EDM machines have been completely re-engineered from the ground up for superior cutting speed and accuracy, surface finishes, economy of operation and ease of maintenance. Above all, they offer the exceptional reliability for which FANUC is known. So, if you need a dependable, versatile, precision wire EDM, the new FANUC \( iD \) Series offers \textit{performance without the fuss!}

- High-performance CNC coupled to digital servo technology
- Extremely rigid thermally insulated base casting
- Designed for high cutting speeds and exceptional reliability
- Advanced AWF enables extended unmanned operation

FANUC 310iS-WA... the World's Most Powerful EDM CNC

- Control up to 16 axes
- Large 15" touch panel LCD
- Easy to operate
- USB and ethernet I/Os

Excellent Economy

- Longer consumable life
- Lower running cost
- Lower maintenance
- Compact space-saving design
High Precision
- New thermally insulated high-rigidity casting
- Linear glass scales (X & Y)
- Upgraded AI pulse control
- Twin servo wire tension control
- Inverter-controlled water temperature management
- Servo water level control

Long Axis Travels

<table>
<thead>
<tr>
<th>Model</th>
<th>X x Y x Z Axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>oID-10</td>
<td>in: 14.5 x 10.6 x 10.2</td>
</tr>
<tr>
<td></td>
<td>mm: 370 x 270 x 260</td>
</tr>
<tr>
<td>1iD-12</td>
<td>in: 23.6 x 15.7 x 12.2</td>
</tr>
<tr>
<td></td>
<td>mm: 600 x 400 x 310</td>
</tr>
<tr>
<td>1iD-16</td>
<td>in: 23.6 x 15.7 x 16.2</td>
</tr>
<tr>
<td></td>
<td>mm: 600 x 400 x 412</td>
</tr>
</tbody>
</table>

High Reliability
- Air jet AWF
- Dual servo tensioning system
- No-drag seal plate structure
- 100% Made in Japan
High-Speed, High-Precision Cutting with AI Pulse Control

**AI Pulse Control**
- “R” Technology improves accuracy and surface finishes, reduces number of passes
- Accurately counts the number of effective discharge pulses and maximizes cutting speed without sacrificing precision
- Ensures uniformity of energy density and discharge gap, enabling high-precision cutting at high speeds
- Improved discharge monitoring cycle is 4 times faster than that of conventional machines
- Direct servo control in real-time (not via the CNC) enables greater accuracy at higher cutting speeds

**Multi-Level Figures**
- AI pulse control optimizes cutting speeds even on stepped, multi-level or irregularly shaped figures

**Nano Interpolation**
- CNC issues commands to the servo in nanometers (0.001 μm)
- Eliminates the accumulation of axis movement errors
- Smoother axis movement improves part precision
**AI Pulse Control**
- Accurately controls discharge energy and cutting speed to ensure high-precision corners
- Prevents undercutting

**Excellent Circularity**
- AI Pulse Control and nano interpolation enable smooth axis motion — even at high speeds — for excellent circularity

**Superior Surface Finishes**
- Optional microfinish (MF) power supply delivers extra-fine discharge for surface finishes to 1.5 μmRz or better
- With an isolation jig, finishes to 0.7 μmRz or better can be achieved

---

**WORK WIRE**
- Material: Tungsten carbide
- Thickness: 20mm
- Wire: Ø 0.20 BS

**MEASUREMENT CONDITIONS**
- Horizontal Direction
- Length: 2.0mm
- Cut Off: 7 X 0.25mm
- Filter: Gaussian

**SURFACE FINISH**
- Ra: 0.0763 μm
- Rz: 0.5417 μm
- Rt: 0.6652 μm

---

**Cutting Samples**
- 20mm/60mm fitting
- Irregular tapered fittings
- Involute gear
- Multi-level fitting

---

All results were obtained under FANUC-designated cutting and measurement conditions.
Rigid Construction and Engineering Enhancements Ensure Greater Stability and Smoother Cutting

**High-Rigidity Casting**
- Symmetrical CAD-designed casting is 40% more rigid than prior models
- Thermal compensation ensures machining accuracy
- Pyramid machine design and oversized bed eliminate table overhang for greater cutting rigidity — even with heavy workpieces

**Improved Lower Guide Assembly**
- Improved lower guide construction increases rigidity
- Eliminates heat source
- Sealed bearing for longer life

**Patented Seal Plate Design**
- Clean water chamber reduces accumulation of cutting debris (swarf) on the seal
- Prevents loss of cutting precision due to increased resistance
- Eliminates V-pack seals around lower arm
- Partitioned transparent seal plate for easy maintenance
- Clear plate readily shows dirt deposits and indicates need to clean the unit

**Inverter-Controlled Cooling System**
- High-precision inverter-controlled chiller system provides dielectric fluid temperature control to ±0.1°C

**AC Servo Water Level Control**
- Servo-driven drain gate eliminates shock due to solenoid operation
- Minimizes resulting lines on workpiece
- Ensures optimum water levels for varying thickness workpieces
Redesigned AWF Provides Flawless 10-Second Threading and Precise Wire Tension Control

**Air Jet AWF**
- High-speed AWF delivers flawless wire feeding in 10 seconds or less
- New air jet transport system for upper pipe improves AWF accuracy, reliability, and speed
- A unique thermal fusion and annealing system guarantees straight and very sharp wire
- Anneals wire across full Z-axis travel
- .004” - .012” wire capable

**Annealing and Thermal Fusion**
- Current
- Tension
- Annealing
- Thermal fusion
- Tension

**Air Jet and Water Jet**
- Upper pipe air jet
- Upper guide water jet

**Intelligent Retry**
- Feed and retraction control
- Deflection detection
- Start-hole search

**Without Annealing**
- **With Annealing**

**Simple Upper Guide Assembly**
- Sharp wire tip
- Sharp wire is more easily routed through very small clearance die guides
- Straighter annealed wire is more easily channeled through cutting grooves or start holes

**Twin AC Servo Wire Tension Control**
- Brake servo motor
- Feed servo motor

**AI Wire Break Repair Function**
- Rethreads wire near the break point without returning to start hole position
- Ideal when the wire kerf narrows due to workpiece distortion or swarf
- Reduces rethreading time by eliminating need to return to start hole position

**Sharp Wire Tip**
- Simple Upper Guide Assembly
- Twin AC Servo Wire Tension Control
- AI Wire Break Repair Function
Powerful New CNC Simplifies Programming, Operation, and Maintenance

Large 15" Touch Screen
- Larger LCD touch screen displays considerably more information for faster, easier operation
- One-touch screen selection using dedicated menu keys
- Split-screen feature displays more information

Simple, Yet Sophisticated Drawing
- Speeds drawing even of extremely detailed work pieces
- Indicator shows actual cutting wire position in real-time
- Auto-pan feature continually recenters drawing during cutting process

Setup and Maintenance
- Special screens allow faster machine and part setups
- Reminder screens prompt scheduled routine maintenance and alarms indicate the need for immediate action

Easily Accessible Universal Input/Outputs
- Programs or data can be easily input or saved using removable media such as USB memory sticks or compact flash cards
- Ethernet port for network I/O
Remote Monitoring and Programming

**CUT MONITOR i / ROBOTIC CELL**

**Remote Monitoring System**

- **Cut Monitor i System** enables remote real-time machine/job status monitoring and recording.
- Allows operator to make remote changes to cutting conditions and to send/receive CNC programs.
- Notifies operator of machine alarms or successful job completion through e-mails to computers, cell phones, or PDAs.

**Robotic Automation**

**Robotic Cell**

- Floor-, overhead-, or track-mounted robot enables automatic loading and unloading of workpieces for extended unmanned operation.
- Exclusive cell control software simplifies scheduling, monitoring, and tracking of machines/jobs; allows flexible queuing of different job types.

**Methods EDM Training and Service**

With 7 regional technical centers and a national network of knowledgeable dealers, Methods EDM can provide operator training, technical support, upgrades, parts, and service to maximize the productivity of your FANUC Wire EDM.

![Image of CUT MONITOR i / ROBOTIC CELL diagram]

![Image of Robotic Cell]

![Image of Methods EDM Training and Service]
Productivity- and Accuracy-Enhancing Options

- **MF Microfinish Power Supply**
- **Rotary Probe**
- **Automatic Dropdown Door**
- **66-Pound Wire Spooler**
- **Tooling Packages**
- **Wire Cutter**
- **Warning Light**

**Rotary Axis**
- For simultaneous rotary-, X-, and Y-axis cutting. Optional 5-axis CNC control is required for simultaneous rotary-, X-, Y-, U-, and V-axis cutting.

**HQ Power Supply for Cutting PCD**
- Optimized for cutting PCD
- Dramatically improves surface finish and accuracy with as few as 1 rough and 2 skim cuts
- Minimizes damage to PCD edges even during long-term cutting
### EDM Machine

<table>
<thead>
<tr>
<th>Specification</th>
<th>α0iD-10</th>
<th>α1iD-12</th>
<th>α1iD-16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Workpiece Size (Standard)</td>
<td>27.6 x 23.6 x 9.8</td>
<td>41.3 x 32.3 x 12.1</td>
<td>41.3 x 32.3 x 16.1</td>
</tr>
<tr>
<td>Maximum Workpiece Weight</td>
<td>1100</td>
<td>3550</td>
<td>3550</td>
</tr>
<tr>
<td>Table Travels (X &amp; Y Axes)</td>
<td>14.6 x 10.6</td>
<td>23.6 x 15.7</td>
<td>23.6 x 15.7</td>
</tr>
<tr>
<td>U &amp; V Axis Travels</td>
<td>± 2.362</td>
<td>± 3.937</td>
<td>± 3.937</td>
</tr>
<tr>
<td>Z Axis Travels</td>
<td>10.2</td>
<td>12.2</td>
<td>16.2</td>
</tr>
<tr>
<td>Maximum Cutting Speed (Brass wire)</td>
<td>31.0</td>
<td>31.0</td>
<td>31.0</td>
</tr>
<tr>
<td>Table Feedrate</td>
<td>1 ~ 50</td>
<td>1 ~ 50</td>
<td>1 ~ 50</td>
</tr>
<tr>
<td>Auto Wire Feed (AWF)</td>
<td>standard</td>
<td>standard</td>
<td>standard</td>
</tr>
<tr>
<td>Wire Diameter</td>
<td>Ø .004 ~ .012</td>
<td>Ø .004 ~ .012</td>
<td>Ø .004 ~ .012</td>
</tr>
<tr>
<td>Maximum Wire Spool Weight</td>
<td>35</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Wire Feedrate</td>
<td>0 ~ 590</td>
<td>0 ~ 590</td>
<td>0 ~ 590</td>
</tr>
<tr>
<td>Wire Tension</td>
<td>200 ~ 2500</td>
<td>200 ~ 2500</td>
<td>200 ~ 2500</td>
</tr>
<tr>
<td>Positioning Accuracy</td>
<td>± .0001</td>
<td>± .0001</td>
<td>± .0001</td>
</tr>
<tr>
<td>Machine Weight</td>
<td>4000</td>
<td>6700</td>
<td>6900</td>
</tr>
<tr>
<td>FANUC 310is-WA Touchscreen Control</td>
<td>inches</td>
<td>15.2</td>
<td>15.2</td>
</tr>
<tr>
<td>Maximum Programming Memory (Additional capacity available w/Flash and USB drives)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>megabytes</td>
<td>4 MB</td>
<td>4 MB</td>
</tr>
</tbody>
</table>

### Dielectric Tank

<table>
<thead>
<tr>
<th>Specification</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank Capacity</td>
<td>145</td>
<td>301</td>
<td>278</td>
</tr>
<tr>
<td>Paper Filter (Cartridge type)</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Deionizer (ion exchange resin)</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Inverter Chiller</td>
<td>standard</td>
<td>standard</td>
<td>standard</td>
</tr>
</tbody>
</table>

### Power Supply

<table>
<thead>
<tr>
<th>Specification</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Power Supply</td>
<td>standard</td>
<td>standard</td>
<td>standard</td>
</tr>
<tr>
<td>AC Power Supply (Switchable)</td>
<td>AC / DC</td>
<td>AC / DC</td>
<td>AC / DC</td>
</tr>
<tr>
<td>Pulse Generator (Transistor driven)</td>
<td>standard</td>
<td>standard</td>
<td>standard</td>
</tr>
<tr>
<td>Microfinish Power Supply</td>
<td>optional</td>
<td>optional</td>
<td>optional</td>
</tr>
<tr>
<td>Input Power Supply (3-phase, 60 Hz VAC ± 10%)</td>
<td>200/220</td>
<td>200/220</td>
<td>200/220</td>
</tr>
<tr>
<td>KVA</td>
<td>13</td>
<td>13</td>
<td>13</td>
</tr>
</tbody>
</table>
Corporate Headquarters:

64 Union Avenue
Sudbury, MA 01776
TEL: (978) 443-5388
FAX: (978) 440-9405

Regional Technical Centers:

Charlotte     (704) 587-0507
Chicago       (847) 783-6800
Denver        (303) 216-1300
Detroit       (248) 624-8601
Los Angeles   (714) 521-2507
Phoenix       (602) 437-2220

1-877-MMT-4CNC
methodsmachine.com