Linear Motor Driven Wire EDM - Where Speed Meets Accuracy

AG400L
AG600L
AG600LH

Create your future
Sodick offers Safe, Reliable, Energy-Saving and Eco-Friendly Technologies

Linear motor driven, high speed, extreme performance AG SERIES Wire EDMs
**Highly Rigid**

Sodick’s expertise in EDM innovation using 3D design systems, the latest CAE technologies and numerous simulations has made it possible to create an improved basic machine structure using optimized rib arrangements. This increases rigidity by approximately 70%. Deformation is minimized, allowing optimum performance of the high-speed, rapid acceleration-linear motors. The original design of an independent X and Y-axis, plus an efficient parts layout, lead to a longer stroke, smaller footprint and highly accurate machining capability.

**The World’s First 10 Year Positioning Accuracy Guarantee**

Since 1999, Sodick has manufactured over 25,000 linear motor drives without any defects. Based on this accomplishment, Sodick offers the industries first 10 Year Positioning Accuracy Guarantee on all linear motor driven EDMs. The initial machine accuracy of Sodick Wire EDMs can be maintained for an extended period of time with continuous and reliable machining results. Sodick’s linear motor driven Wire EDMs will never lose accuracy due to component wear. The linear motors will eliminate axles delays and provide instantaneous servo response.

**Ceramic Components**

The AG Series is constructed using ceramic components for the work stand table and other critical parts, all of which are built in-house to ensure high precision machining with better electrical insulation, abrasion resistance and rigidity. Ceramics are ideal for high precision machining due to their very low thermal expansion coefficient (less than one third than that of cast iron), high rigidity and resistance to aging.

**Super Jet AWT**

An annealing function has been added to the fastest class auto wire threading device, “Super Jet AWT”. This enables the machine to easily straighten and harden wire. Along with the conventional Pipe jet wire threading system, this function ensures higher wire threading success rates in threading a wire through a hole on a submerged workpiece or a hole with smaller diameter.

**Wire Tension Servo Function**

The wire tension servo function is standard on the AG Series, this feature helps to optimize wire tension. This function monitors the state of wire tension to adjust electric current of a servo motor in real time to ensure stable high accuracy machining with optimum wire tension. The AG400L and AG600L enable reliable and stable machining throughout the wire diameter range from Ø.002” to Ø.012” (Ø.05 to Ø.3 mm), with available options. The AG600LH enables a wire diameter range of Ø.004” to Ø.012” (Ø.1 to Ø.3 mm).

**Absolute Linear Scale**

With the use of the Heidenhain ultra-precision absolute linear scale, which is the industry standard, the start-up origin shift operation is not required, so the operability of the machine has been further enhanced.

**Environment Adaptation System**

Machine temperature is stabilized by circulating air inside the column. Heat insulation material which covers the entire column prevents the outer air from affecting the temperature inside the column. This adapts the system to the surrounding environment maximizing the advantages of the linear motor drive system.
3-Sided Rise-Fall Worktank
On the AG400L and AG600L the automatic three-sided vertical sliding tank and the square-shaped work stand feature a large setup space. The fluid level is automatically adjusted, so manual adjustment of the fluid level according to the workpiece thickness is not required. Moreover, the operator can easily check progress on machining of thin workpieces because the slide tank can be stopped in the intermediate position while machining. The AG6000L comes standard with a front door automatic sliding tank.

Easier Maintenance and Work Preparation
Three Part Filtration System
Enhanced filtration capability makes high speed and accurate machining easy to achieve. The filters can even be changed during machining.

Wire Ejection Unit
A wear resistance ejection roller and increased rigidity of the wire ejection unit have further improved the unit’s reliability. The roller’s durability can be increased as the roller’s position is adjustable.

Slide Plate Cleaning Function
The life cycle of the sealing portion of the slide plate can be extended since the machine features a cleaning function for the slide plate. This leads to a reduction of maintenance time and stable high speed machining performance.

LN2W Power Supply - High Accuracy and High Speed
The ergonomically designed control panel enables even inexperienced operators to easily handle a variety of machining tasks. The keyboard and remote controller design are built for the operator’s view point for improved operability. The large 15.1” TFT-LCD touch screen eliminates glare and is easy to view. The control panel is equipped with a tray so operators can store small tools and items.

Electrolysis Free Circuit
This circuit is designed to provide high-frequency bipolar pulses between electrodes to prevent the machining surface from suffering electrolysis depletion. For machining cemented carbide, the bonding material (cobalt) is prevented from being extracted. When the workpiece is waiting for the next operation in the dielectric fluid, the alternating voltage is controlled in the optimum state to prevent electrolysis. That leads to high quality surface finish, as well as, an extended service life of molds.

Automatic Machining Condition Selection
A database containing details on the best conditions for a particular wire diameter, workpiece material or workpiece thickness helps to ensure the best possible machine performance is achieved. The operator can make use of the conditions Sodick provides and also add to the original database with his/her own know-how.

Collision Protection
Sodick’s anti-collision circuit protects the machine from accidental collisions. The circuit constantly monitors voltage in the axes drives. When voltage exceeds a pre-determined load, the machine will automatically stop and give the operator an error message.

With a linear motor drive system, there is no mechanical connection between the linear motor drives and the table, unlike ball-screws, which can incur costly repairs in the event of a collision.

Sodick opens the door to the future of manufacturing
Numerous Options to Support Manufacturing

**Taper Flex**

The “Taper Flex” function helps to take advantage of excellent discharge characteristics and meets a variety of cutting needs from draft angle cutting to cutting of highly accurate wide angles.

Taper cutting, which has been handled with the techniques of experienced operators, can now be superbly and quickly performed by easily measuring and entering simple compensation values. Further improvement of shape accuracy is possible by feeding back the machining result.

**L Cut Wire Chopper**

Attaches to the wire ejection unit; the ejected wire is chopped into small pieces for easy disposal.

**W-Axis: Rotary/Index Table**

High-level precision rotary or indexing device which can be used even below the fluid level.

**Jumbo Feeder**

Required for long-run machining. Max. 110 lbs (50 kg) wire bobbin is available.

Further Options

- Fine Wire with AWT (LN00W)
- Signal Tower (HTP Circuit)
- GA008 (θ=.003¡”) (θ=.015¡”)
- Display system control: it is available from a 1-light system to a 3-light system.
- For machining exotic materials (example: PC10, LN20W)

Samples to Show Case

**High-Level Machining Performance**

<table>
<thead>
<tr>
<th>Workpiece Material: SKD11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness: 1.97” (50 mm)</td>
</tr>
<tr>
<td>Wire Diameter: Ø.15” (Ø.25 mm)</td>
</tr>
<tr>
<td>Surface Finish: 4.4 Ra Micro Inch (.78 µmRz)</td>
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<tr>
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</tbody>
</table>
### Machine Specifications

**AG400L**

- **Max. Workpiece Weight:** 1,102 lbs (500 kg)
- **Work Tank Inner Dimensions (W x D):** 13.45" x 24.02" (340 x 610 mm)
- **X-Axis Travel:** 15.75" (400 mm)
- **Y-Axis Travel:** 11.81" (300 mm)
- **Z-Axis Travel:** 9.84" (250 mm)
- **Machine Tool Weight:** 1,000 lbs (454 kg)
- **Total Power Input:** 2,204 W (2,000 W)

**AG600L**

- **Max. Workpiece Weight:** 4,195 lbs (1,900 kg)
- **Work Tank Inner Dimensions (W x D):** 24.02" x 47.24" (610 x 1,200 mm)
- **X-Axis Travel:** 39.37" (1,000 mm)
- **Y-Axis Travel:** 23.62" (600 mm)
- **Z-Axis Travel:** 15.75" (400 mm)
- **Machine Tool Weight:** 2,120 lbs (959 kg)
- **Total Power Input:** 8,377 W (6,300 W)

**AG600LH**

- **Max. Workpiece Weight:** 10,950 lbs (4,950 kg)
- **Work Tank Inner Dimensions (W x D):** 47.24" x 86.61" (1,200 x 2,200 mm)
- **X-Axis Travel:** 109.65" (2,750 mm)
- **Y-Axis Travel:** 109.65" (2,750 mm)
- **Z-Axis Travel:** 109.65" (2,750 mm)
- **Machine Tool Weight:** 11,243 lbs (5,100 kg)
- **Total Power Input:** 15 kVA

### Electrical System

**AG400L**

- **Power Requirement:** 200/220V ±10% with 50/60 Hz
- **Breaker:** 60A (60A - AG600LH)
- **Earthing Terminal:** 3-phase input and earth
- **Max. Sensitive Leakage:** 100 mA to 200 mA

**AG600L**

- **Power Requirement:** 3-phase 400V ±10% with 50/60 Hz
- **Breaker:** 250A (250A - AG600LH)
- **Earthing Terminal:** 3-phase input and earth
- **Max. Sensitive Leakage:** 250 mA

### Machine Environment

**AG400L**

- **Ambient Temperature:** 75°C ±10°C or less
- **Humidity:** 65% or less

**AG600L**

- **Ambient Temperature:** 75°C ±10°C or less
- **Humidity:** 65% or less

**AG600LH**

- **Ambient Temperature:** 75°C ±10°C or less
- **Humidity:** 65% or less

### For Installation

- **Required Floor Space:** Refer to the layout drawing. The required floor space is subject to change due to additional equipment.
- **Ambient Temperature:** 75°C ±10°C or less
- **Humidity:** 65% or less
- **Grounding:** Independent Class C grounding work (earth connection independently)
- **Air Compressor:** Recommended flow rate: 30 liters/min (ANR) or more (Recommended pressure: 0.5 MPa or more)

### Related Information

- **Download the PDF for more details.**
Export of our products and the related technologies (including programs) is controlled under the Foreign Exchange and Foreign Trade Law of Japan. Also, some of them are controlled under the U. S. Export Control Rules when they are re-exported. Therefore, in the case where you try to export or transfer our product from Japan, please contact our sales department.

The specifications contained in this catalog are subject to change without notice due to continual improvements.

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