**Eco Cut O: The Revolution – Oil Cutting Speed = Water Cutting Speed**

Sodick’s latest innovation Eco Cut O makes it possible for Oil Dielectrics to achieve the same cutting speeds as Water Dielectrics, achieving a surface finish of 0.15µmRa and beyond.

**Advantages of Cutting in Oil**

- **Advanced Oil-Based Wire EDM Technology**
  - EDM is a machining method of removing material by discharge heat, by which its surface is melted and vaporized. When Tungsten Carbide (WC) materials are processed in water dielectric, the cobalt, the bonding material, is depleted. This results in lowering the hardness of the material surface. On the other hand, cobalt depletion is eliminated in oil dielectric. Thanks to the recast layer, its surface is hardened and increases the life of the tool. Furthermore, another advantage of oil dielectric is rust protection of the workpiece. It can also reduce the consumption of filters because of smaller spark gap and therefore removed material.

- **The Oil-based machining enables fine control of the discharge gap, achieving a surface quality of oil dielectric.**

**AP250L Machine Specifications**

- **Machine Model:** AP250L Oil/Water Model
- **Max. workpiece height (WxDxH):** 400 x 270 x 100 mm (flushing)
- **Max. workpiece weight:** 80 kg
- **X/Y/Z axis travel:** 250 x 150 x 120 mm
- **U x V axis travel:** 35 x 35 mm
- **Taper angle:** ± 7° (Work. thickness 100mm)
- **Wire diameter:** ø 0.05 - ø 0.20 mm (ø 0.03 mm optional)
- **Wire tension:** 3 ~ 25N
- **Max. wire speed:** 250 mm/sec.
- **Distance from floor to table top:** 1080 mm
- **Machine tool dimensions (W x D x H):** 2395 x 2692 x 2095 mm (incl. power supply, dielectric tank, and wire bucket)
- **Machine weight:** 3900 kg (Incl. CNC and Dielectric tank)
- **Total power input:** 3-phases 50/60Hz 10 KVA

**Dielectric tank**

- **Standard Features:**
  - ECO Cut O (Oil model only)
  - Super PIKA O/W
  - Thermally stable machine construction
  - FT II (Fine Pick-up Function)
  - Energy saving circuit
  - Linear Motor (X,Y,U,V axis)
  - Dielectric cooling unit
  - Linear scale (X,Y,U,V axis)
  - AWT (Automatic Wire Threader)

- **Dielectric tank:**
  - **Dimensions:** 280 x 240 x 300 mm
  - **Capacity:** 375 liter
  - **Fluid filtration method (Water):** Replaceable paper filter (One inner pressure cylinder type)
  - **Fluid filtration method (Oil):** Replaceable paper filter (Two inner pressure cylinder type)

**Specifications AP250L**

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**Eco Cut O (Oil model only)**

- **Super PIKA O/W**
- **Thermally stable machine construction**
- **FT II (Fine Pick-up Function)**
- **Energy saving circuit**
- **Linear Motor (X,Y,U,V axis)**
- **Dielectric cooling unit**
- **Linear scale (X,Y,U,V axis)**
- **AWT (Automatic Wire Threader)**

**Create your future**

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**Sodick Contact**
Pursuit of the Highest Accuracy and Quality

Oil Cutting Technology Since 1981

Sodick has developed the cutting technology in oil dielectric since 1981. Wire EDM with oil dielectric has always been the best solution for high-accuracy and high-quality surface finish because of the smaller discharge gap (~1μm). On the other hand, the smaller gap has also resulted in slower cutting speed. Thanks to Sodick’s know-how and experience through years, Sodick has developed a new generation ECOPUO. ECO PUO realizes further improvement on cutting speed and number of cuts with oil dielectric. To achieve the surface finish of 1μm Ra, it requires twice the cutting time as water dielectric.

Thermally Stable Machine Construction

The AP250L benefits from a thermocouple gauge design made from high-temperature resistant materials to create a high rigidity and thermally stable structure. The power supply has been separated from the work tank, which has been generated does not adversely affect the machine’s accuracy. Furthermore, the oil and dielectric are circulated through machine construction to control the thermal influence.

Ceramic Components

The AP250L is built using in-house made ceramic components for worktable, worktank, upper/lower arms etc. Ceramics has a low coefficient of thermal expansion, light in weight, high rigidity, resistant to ageing and high electrical insulation properties, therefore an ideal material for accuracy, stability, efficiency and quality. These are the fundamentals of a class leading multi-EDM machine.

Fully Supported Table Design

The machine table has been configured so the table is fully supported over the full stroke of the axis movements, thus ensuring high accuracy and stability by the well-planned design.

Cross Roller Guide

To complement the linear motor drive performance, cross roller guides are employed on AP250L. Advantages of cross roller guides: Guided weight bearing capability, High rigidity, Rigid structure, Linear motion actions.

Linear Motor Drive

Linear motors are direct, abrasion-free drives with unrivalled acceleration, positioning accuracy and backlash which is an ideal drive for high precision applications. At high dynamic applications, stability, for precise machining and performance, doesn’t demand too time and ensures maintenance free. The accuracy of linear motion is guaranteed for 10 years after the installation.

The new “LPZW” Controller

The 15th generation electrical discharge technology “LPZW” has adopted the “Re-active Action Control” in enabling simultaneous control of highspeed electrical discharge and axis movements by using some communication technology of Ballscrew.

Automatic Wire Tensioner

Sodick’s high-speed automatic wire tensioner is compatible with wire diameters from 0.05 to 0.20mm. The new system is equipped for the use of stainless and nickel-chrome wire enabling the high accuracy. The machine can be further tailored to meet exacting requirements with the 0.03 mm diameter wire option (Factory Option Only).

Wire Tension Control

An important mechanism in the efficient and trouble-free operation of the AP250L is the Advanced Wire Tension System which delivers smooth, reliable and versatile operation, covering a wide range of wire diameters from 0.05 to 0.20mm. The machine can be further tailored to meet exacting requirements with the 0.03 mm diameter wire option (Factory Option Only).

3-sided Automatic Tank Door

3-sided automatic tank door enables access to worktank from both sides of the machine, ensuring exceptionally user-friendly operation. A further benefit of the 3-sided worktank door is the simplified installation of a Robot (Option) which can be positioned on the left hand side of work tank.

Super PIKA-O

“Super PIKA-O” is the super finish circuit which Sodick has developed for Wire-cut EDM with all electrodes. It minimizes machining energy, resulting in an excellent surface finish which significantly reduces and in some cases eliminates the need for subsequent polishing and other finishing operations.

Intelligent Q’vic EDW

Intelligent Q’vic EDM directly imports 3D models and extracts automatically cutting contour to be machined by the Wire EDW directly imports 3D models and extracts automatically cutting contour to be machined by the Wire EDM. This process removes manual inspection that takes hours, significantly reduces the inspection time and makes the machine ready for immediate production. A new mechanism has been developed that automatically and accurately recognizes 3D models and positions the machine for optimal cutting. This new mechanism also allows for faster setup time and reduces the risk of human error.

Automatic Wire Threader

Sodick’s high-speed automatic wire threader is compatible with wire diameters from 0.05 to 0.20mm. The used wire is inserted into the rear of the machine. The machine can be further tailored to meet exacting requirements with the 0.03 mm diameter wire option (Factory Option Only).

ECO Friendly Operation

ECO PUO realizes unrivaled cutting speed in oil dielectric, resulting in short production time and less wire consumption. Because of a smaller discharge gap in oil dielectric, consumption of filters is also minimized compared with water dielectric machines.