



Linear motor drive precision Wire-cut EDM

VL400Q/VL600Q/VL600QH



Sodick

Core Technology

Five Core Technologies Developed In-House For Achieving The World's Highest Quality Machining

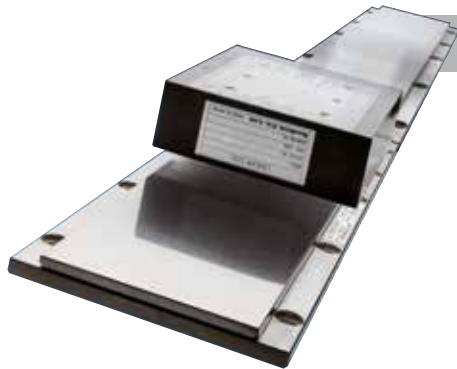
Starting with the development of electrical discharge circuits, Sodick has continued to make untiring efforts in the research and development of advanced EDMs. Sodick's philosophy has been the pursuit of the highest level of accuracy, speed and versatility of machining in order to provide the highest quality products to its customers.

Sodick's: Power Supply Units, Discharge Units, Linear Motors, Motion Controllers and Fine Ceramic Components have evolved as its five core technologies. These developments have positioned Sodick at the pinnacle of EDM technologies.

Tech 1&2

NC Power Supply Unit + Discharge Unit

Sodick's new VL wire EDM series features Sodick's latest "LN2W series" power supply unit, which is capable of high-speed, high-precision and high-efficiency machining. The outstanding performance of the LN2W series power supply with 1Gb/sec communication technology "Perfect Active Control" making use of a modern in-house designed NC system running on Windows Operating System. The user interface benefits from a 15" colour screen for ease of use and operation.



Tech 3

Linear Motor

The most outstanding features of the Sodick in-house developed and manufactured Linear Motors are high-speed axis motion and quick response, which result from wear-free motion and without the need for old-fashioned ball screws. Conventional drive systems use ball screws to convert the rotational motion of the motor into the linear motion of the axis stroke, leading to the unavoidable deterioration in the response of high speed servo motors due to back-lash and mechanical lost motion. However linear motors directly provide motion to each axis without converting rotational motion of motor to linear movements.

Tech 4

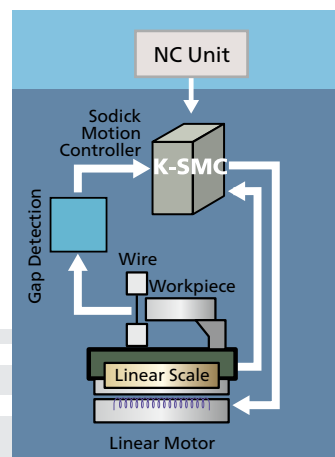
Motion Controller

In order to achieve maximum performance with a linear motor, the K-SMC motor controller is also developed in-house and incorporates Sodick control know-how accumulated over the years.

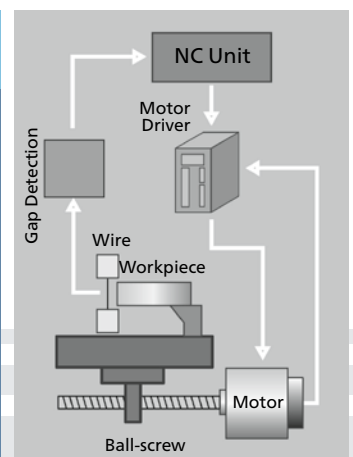
The feedback from the spark gap is directly input in to the K-SMC board allowing for instantaneous adaptation of the sparking conditions.

Absolute Linear Scales

With the introduction of new advanced absolute linear glass scales the need for referencing has been removed. Therefore, ensuring total positional control at all times and reduced setting up time.



Sodick Motion Controller



Conventional Ball Screw Drive



Tech 5

Ceramic Components

The VL Wire EDM Series benefits from the use of ceramics in critical components such as the upper & lower guide assemblies and worktable supports. Ceramics have a low co-efficient of thermal expansion, light in weight, high in rigidity, resistant to aging and excellent electrical insulation properties, therefore an ideal material for a class leading Wire EDM Machine.

Enlarged Work Tank

The 4 Sided work-table frame with large internal dimensions of 860 x 690 mm (VL400Q) / 1040 x 780 mm (VL600Q). The layout of discharge cable is re-designed to ensure the open work area. The manual rise & fall tank door enables a better access for setup.



860 x 690mm (VL400Q)

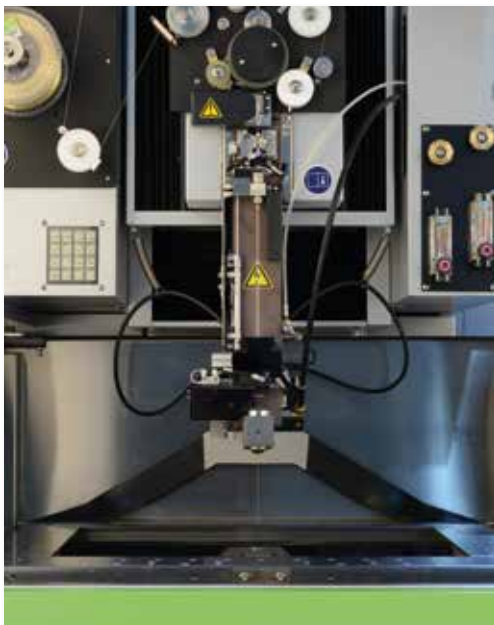
Improved Operation

The VL series features dual filtration system, works with an extra water circulation pump and self cleaning tank seals. Furthermore, tank filling time and draining time have been improved for quicker setup time.



New Automatic Wire Threader

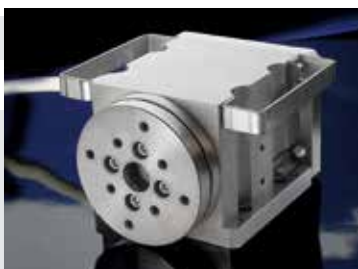
Automatic wire threading is further improved. The wire is cut by a thermal process, which sharpens the cut end of the wire, therefore the threading success rate achieves even higher reliability. It now features a "pop-up" function which automatically seeks out the start hole, this function aids unattended machining thus improving productivity. Round guides are used for upper and lower heads for further improvement of accuracy.



Improved Surface Finish

A superior surface finish can now be achieved compared to the earlier VZ Series, the new VL Series benefits from newly developed circuitry created utilizing Sodick's know-how perfected over decades. The discharge cable and work-tank design and layout has been improved to enhance the machine's performance and efficiency.

Option



VL600QH (Z 500mm)

VL600Q is available with extended Z stroke of 500mm (VL600QH). The VL600QH comes with the same features and benefits as the VL600Q, but with extra height to accommodate taller work-pieces.

Full Rotary Indexing Capability

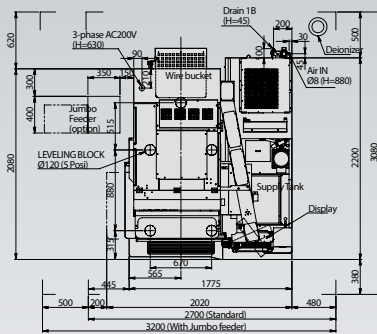
To meet the need for ever more complicated parts the VL Series can be equipped with Sodick's own WS4P/WS5P Indexers. This option allows our customers to meet the requirements of the demanding medical, aerospace and complex machining sectors.



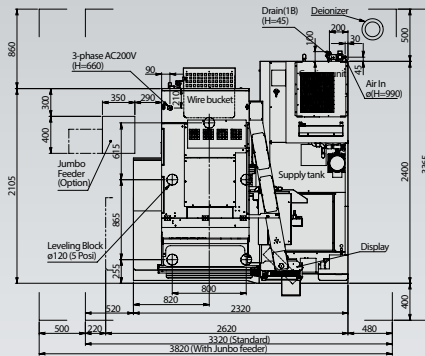
Specification

Floor Layout

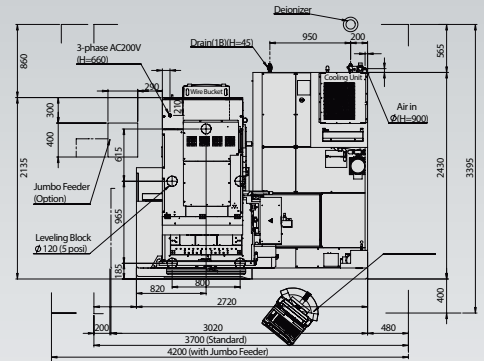
VL400Q



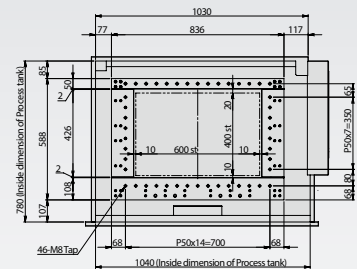
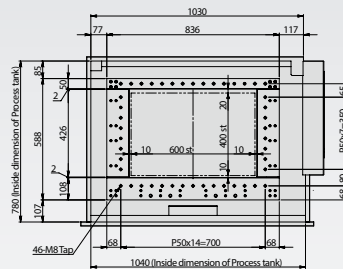
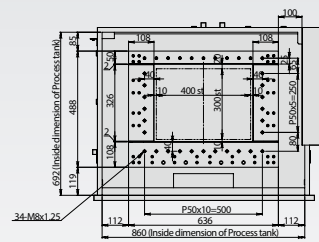
VL600Q



VL600QH



Work Table



Machine Tool	VL400Q	VL600Q	VL600QH
X x Y x Z axis travel	400 x 300 x 220 mm	600 x 400 x 270 mm	600 x 400 x 500 mm
U x V axis travel	90 x 90 mm	90 x 90 mm	90 x 90 mm
Work tank dimensions (WxD)	860 x 690 mm	1,040 x 780 mm	1,040 x 780 mm
Max workpiece weight	500 kg	850 kg	850 kg
Taper angle (at workpiece thickness of 120mm)	±15 °	±15 °	±15 °
Wire diameter	ø 0.1 ~ ø 0.3 mm	ø 0.1 ~ ø 0.3 mm	ø 0.1 ~ ø 0.3 mm
Wire feed speed (max.)	420 mm/sec	420 mm/sec	420 mm/sec
Wire tension	3 ~ 23 N	3 ~ 23 N	3 ~ 23 N
Machining method	Flushing / Submerged	Flushing / Submerged	Flushing / Submerged
Distance from floor to table top	900 mm	930 mm	930 mm
Wire bobbin weight	8 kg	8 kg	8 kg
Machine dimensions (WxDxH) (including power supply, supply tank)	2,020 x 2,310 x 1,990 mm	2,620 x 2,605 x 2,080 mm	3,020 x 2,605 x 2,540 mm
Machine installation space (WxD)	2,700 x 3,080 mm	3,320 x 3,365 mm	3,700 x 3,395 mm
Machine weight (including power supply)	2,750 kg	3,140 kg	3,450 kg
Air flow	0.5 MPa, 30 NL/min	0.5 MPa, 30 NL/min	0.5 MPa, 30 NL/min
Total power input	3-phases 50/60Hz 11 KVA	3-phases 50/60Hz 11 KVA	3-phases 50/60Hz 11 KVA

Dielectric Tank	VL400Q	VL600Q	VL600QH
External dimensions (WxDxH)	750 x 2,200 x 1,800 mm	960 x 2,400 x 1,810 mm	1,360 x 2,430 x 1,810 mm
Dielectric capacity	380 kg	420 kg	740 kg
Required amount	590 l	890 l	1,320 l
Filtration	2 replaceable paper filters (internal-pressure type)	2 replaceable paper filters (internal-pressure type)	2 replaceable paper filters (internal-pressure type)
Deionizer	Ion-exchange resin (18-lit.type)	Ion-exchange resin (18-lit.type)	Ion-exchange resin (18-lit.type)

The dielectric chillers on Sodick machines contain either fluorinated greenhouse gas R410A or R407C.

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