

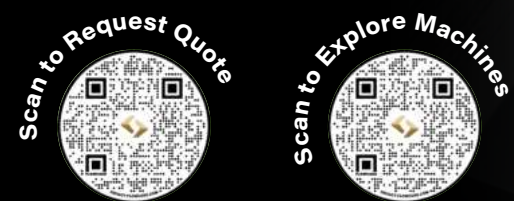


ALN iGroove+ Series

Advancement by Design

The future of wire machining is here.

- 4-Axis Flat Rigid Linear Motor Drive System
- Digital-PIKA-W Plus
- Next-Generation Smart Pulse Wire Control
- Sodick M-4 Link Motion Controller
- Thermally Stable Ceramic Work Zone
- 0.002" Wire Diameter Option
- Wire Tension Servo
- Three-Sided Rise/Fall Work Tank
- Energy Conservation Pumps, Up to 20% Energy Reduction



ALN400G iGroove+



ALN600G iGroove+



ALN800G iGroove+

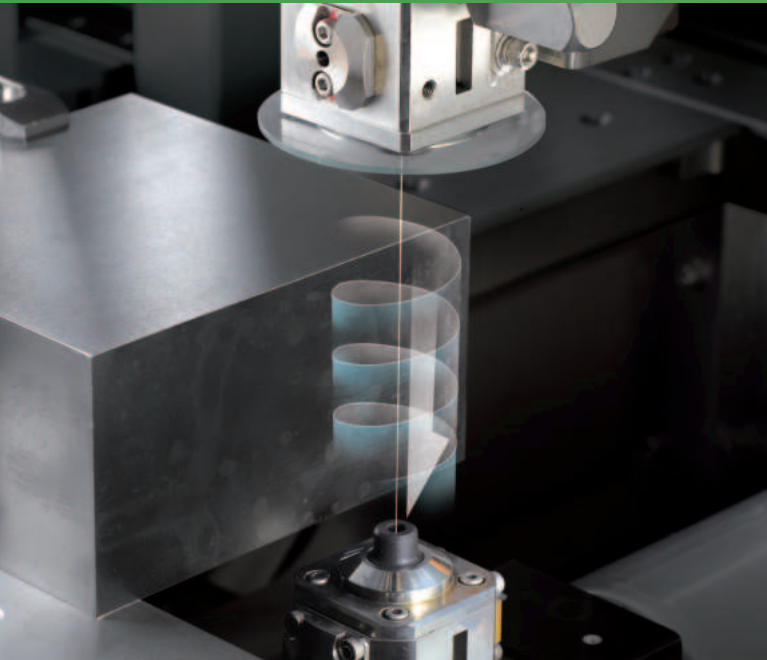


ALN600GH iGroove+



ALN800GH iGroove+

* Some photos may include options



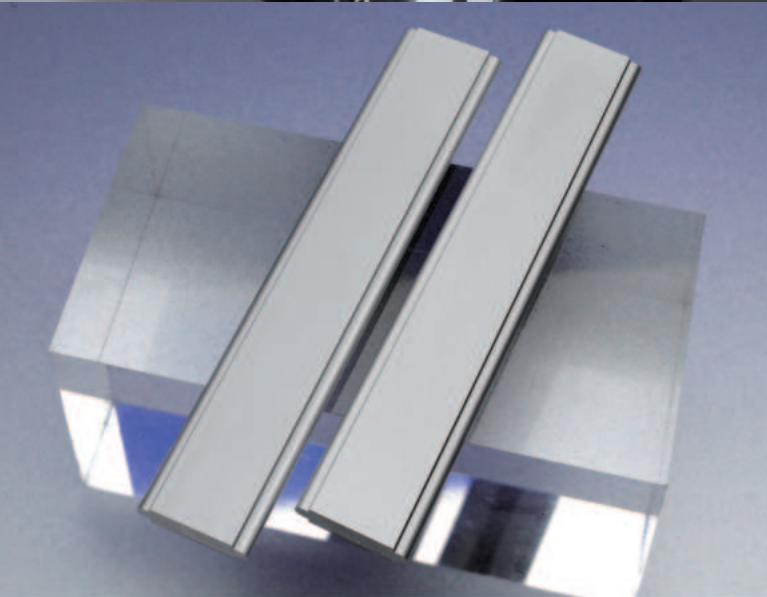
iGroove+ Wire Rotation Technology

Reduce wire consumption by up to 30%.

This next-generation wire rotation technology allows a new wire surface to be constantly used for finishing from the top to the bottom of the workpiece.

This is especially suited to finishing thick plate workpieces. It offers innovative machining performance including stable machining dimensions, improvement of surface scoring, and reduced wire consumption.

| | |
|----------------------|-------------------------|
| Machine | ALN600G iGE+ |
| Machining Material | SKD11 |
| Plate Thickness | 3.94" (100 mm) |
| Dimensional Accuracy | ± 1.5 μm or less |
| No. of Cuts | 3 |



NEW Stepcut Technology

Improve accuracy without compromising speed.

This machining capability dramatically improves groove and step machining performance over a wide range of applications. It permits machining at the same speed as under standard conditions while significantly improving accuracy in material that has rapidly changing material thickness, such as stepped shapes.

* The machining data indicated here is based on Sodick's specified conditions, machining environment and measurement standards. * Options may be included in the contents.



TH COM Technology

High-Precision Thermal Displacement Correction and Total Temperature Control System

All models in the ALN series are equipped as standard with the AIM (AI Maintenance) environmental temperature diagnosis function and TH COM thermal displacement correction function that can handle everything from high-accuracy to rough temperature environments, in addition to a logging function and temperature display of the machine tool surroundings.



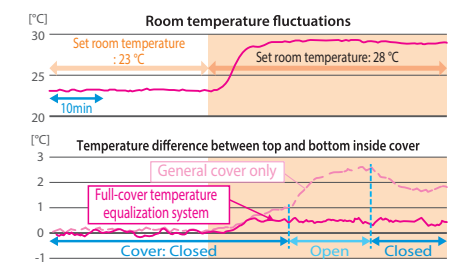
AIM Environmental Temperature Diagnosis



TH COM Temperature Logging



Full-Cover Specification Machine Temperature Equalization



S3 Core - Option

End-to-End Automation

The new "S3 CORE" automatic core processing device supports a fully unmanned operation from rough machining to finishing and allows easy linking to a workpiece transport robot system.



New automatic core processing device "S3 CORE"



Linking to robot system



On-board measurement system

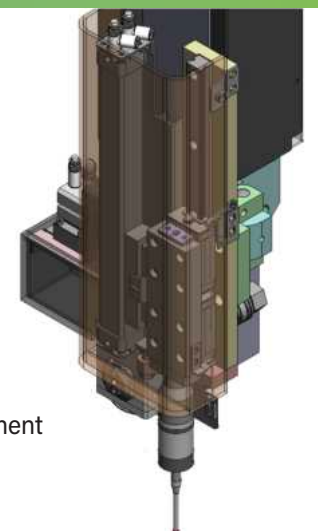
Renishaw Touch Probe - Option

High-Precision Inspection

This option allows you to rapidly machine and inspect components for greater efficiency and accuracy.

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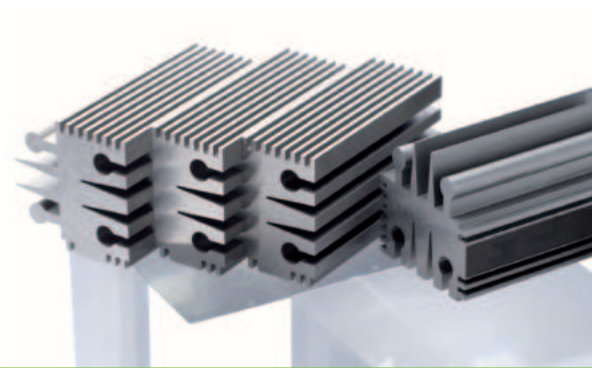
* The surface roughness unit Rz is used based on JIS B0601:2001 and ISO4287:1997/ISO1302:2002.



TMP Control II

High speed and high accuracy of rough and semi-finish machining for improved surface roughness and corner shape.

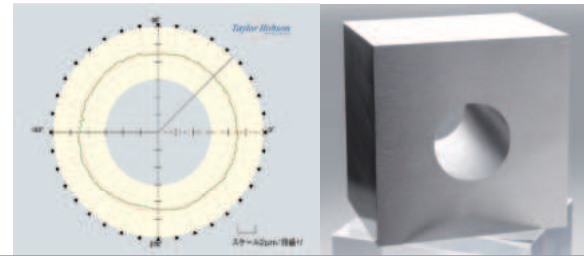
| | |
|-----------------------------|---------------------------------|
| Machine Tool | ALN400G iGroove+ |
| Workpiece Material | SKD11 |
| Thickness | 1.57" (40 mm) |
| Machining Accuracy | ±3 μm |
| Surface Roughness | Ra 1.37 μm (Rz 9.76 μm) |
| Wire φ 0.008" (0.2 mm) Wire | φ 0.008" (0.2 mm) Wire |
| Machining Time | 2 hour 25 min (per 1 component) |



Roundness

Achieves roundness accuracy of ±1.86 μm.

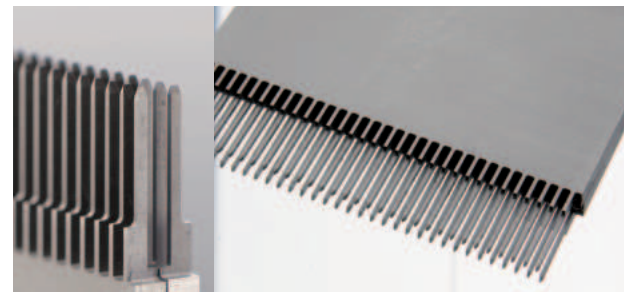
| | |
|--------------------|---|
| Machine Tool | ALN400G iGroove+ |
| Workpiece Material | SKD11 |
| Thickness | 1.57" (40 mm) |
| Machining Accuracy | ±1.86 μm φ 0.79" (20 mm) round machining |



Micro Machining

2 layer core pin machining, equipped to handle changing material thickness with superior stability.

| | |
|--------------------|--|
| Machine Tool | ALN400G iGroove+ thin wire specification |
| Workpiece Material | SKD11 |
| Thickness | 0.01"-0.04" (0.25mm-1mm) (Thickness of machining portion) 33 pins, 2 layers |
| Pitch | 0.02" (0.6 mm) |
| Machining Accuracy | ±1.86 μm |
| Surface Roughness | Ra 0.24 μm (Rz 2.05 μm) |
| Wire | φ 0.04" (0.1 mm) |



Corner Machining

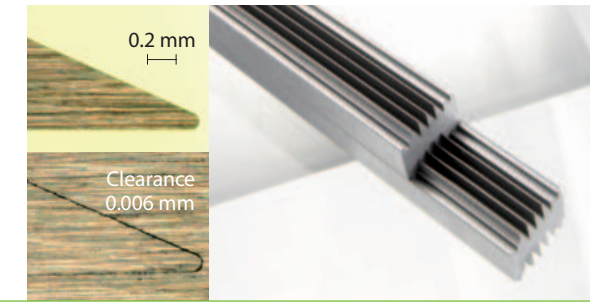
Improved machining accuracy of fine corners and outer corners accurately reproduces tooth tip shapes which require high accuracy.

| | |
|---------------------------|-------------------------|
| Machine Tool | ALN400G iGroove+ |
| Workpiece Material | SKD11 |
| Thickness | 0.787" (20 mm) |
| Machining Accuracy | ±2 μm |
| Surface Roughness (Die) | Ra 0.23 μm (Rz 2.03 μm) |
| Surface Roughness (Punch) | Ra 0.35 μm (Rz 2.75 μm) |
| Wire | φ .008" (0.2 mm) Wire |

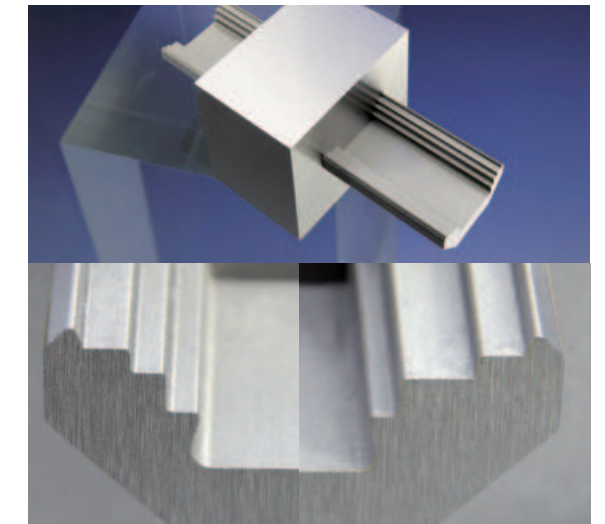


RELIABLY ACCURATE FINE R SHAPES

| | |
|--------------------|-------------------------|
| Machine Tool | ALN400G iGroove+ |
| Workpiece Material | Cemented Carbide |
| Thickness | 1.57" (40 mm) |
| Machining Accuracy | ±2 μm |
| Surface Roughness | Ra 0.11 μm (Rz 0.96 μm) |
| Wire | φ 0.0039" (0.1mm) Wire |



| | |
|--------------------|---|
| Shape | R0.006" (0.15 mm), R0.009" (0.20 mm), R0.02" (0.5 mm) |
| Clearance | 2 μm/side |
| Machine Tool | ALN600G iGroove+ |
| Workpiece Material | SKD11 |
| Thickness(Die) | 0.79" (20 mm) |
| Thickness(Punch) | 2.36" (60 mm) |
| Machining Accuracy | ±2 μm |
| No. of Cuts | 3 |
| Wire | φ 0.0098" (0.25 mm) |



* Options may be included in the contents.

* The surface roughness unit Rz is used based on JIS B0601:2001 and ISO4287:1997/ISO1302:2002.



Thick Workpieces

CEMENTED CARBIDE PRECISION SHAPES

| | |
|--------------------|-------------------------|
| Machine Tool | ALN600G iGroove+ |
| Workpiece Material | Cemented Carbide |
| Thickness | 3.15" (80 mm) |
| Surface Roughness | Ra 0.27 µm (Rz 2.35 µm) |
| Wire | φ 0.008" (0.2 mm) |



BARREL-FREE EFFECT CONTROL II

| | |
|--------------------|-------------------|
| Machine Tool | ALN600G iGroove+ |
| Workpiece Material | SKD11 |
| Thickness | 3.94" (100 mm) |
| Wire | φ 0.01" (0.25 mm) |



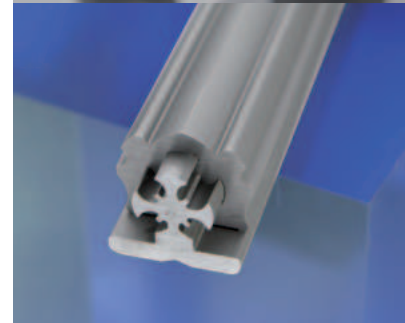
SHAPE MACHINING FOR THICK SPRING-SHAPED COMPONENTS

| | |
|--------------------|-------------------------|
| Machine Tool | ALN600G iGroove+ |
| Workpiece Material | SKD11 |
| Thickness | 9.84" (250 mm) |
| Surface Roughness | Ra 0.26 µm (Rz 2.09 µm) |
| Wire | φ 0.008" (0.2 mm) |



Stable Shape Accuracy, Fitting in 3 Cuts

| | |
|--------------------|-------------------------|
| Machine Tool | ALN600G iGroove+ |
| Workpiece Material | SKD11 |
| Thickness | 9.84" (250 mm) |
| Surface Roughness | Ra 0.61 µm (Rz 4.50 µm) |
| Wire | φ 0.008" (0.2 mm) |

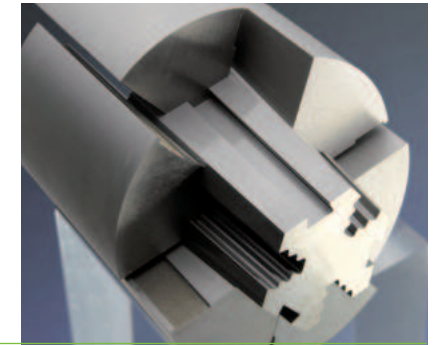


High-Quality Slide Machining

Long tapered fitting machining supported by the Taper Flex Neo Option

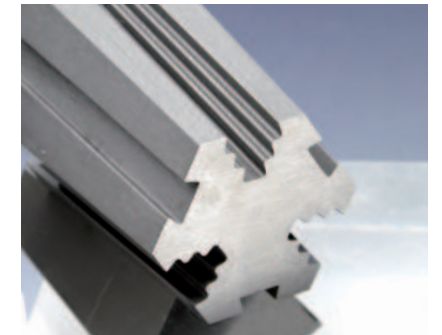
SLIDE CORE | 5 DEGREE TAPERED ANGLE

| | |
|--------------------|-------------------------|
| Machine Tool | ALN600G iGroove+ |
| Workpiece Material | SKD11 |
| Thickness | 1.57" (40 mm) |
| Machining Accuracy | ±2.5 µm |
| Surface Roughness | Ra 0.35 µm (Rz 2.76 µm) |
| Wire | φ 0.008" (0.2 mm) Wire |



TAPERED CORE | 5 DEGREE TAPERED ANGLE

| | |
|--------------------|-------------------------|
| Machine Tool | ALN600G iGroove+ |
| Workpiece Material | SKD11 |
| Thickness | 1.57" (40 mm) |
| Machining Accuracy | ±2.5 µm |
| Surface Roughness | Ra 0.36 µm (Rz 2.71 µm) |
| Wire | φ 0.008" (0.2 mm) |

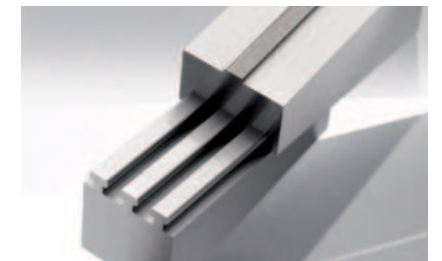


Long 10 Degree Taper Machining

| | |
|--------------------|-------------------------|
| Machine Tool | ALN600G iGroove+ |
| Workpiece Material | SKD11 |
| Thickness | 7.87" (200 mm) |
| Machining Accuracy | ±5 µm |
| Surface Roughness | Ra 0.32 µm (Rz 2.69 µm) |
| Wire | φ 0.01" (0.25 mm) Wire |



| | |
|--------------------|-------------------------|
| Machine Tool | ALN400G iGroove+ |
| Workpiece Material | SKD11 |
| Thickness | 1.57" (40 mm) |
| Machining Accuracy | ±2 µm |
| Surface Roughness | Ra 0.23 µm (Rz 2.18 µm) |
| Wire | φ 0.008" (0.2 mm) Wire |





LQ Message Machine Monitoring Software

Efficient. Precise. Productive.

Live Status Updates

LQ Message's interactive graphical user interface allows for real time viewing of machine status. If an error or halt occurs on the machine, the user interface will provide a diagnosis of the issue.

CSV/XML File Data Utilization

Sodick machines' data is recursively updated and stored in files. This gives users the flexibility to use external graphical software to further visualize data to identify trends and bottlenecks in machine operation.

Real-Time Machining

LQ Message's interface provides data for every machine in real-time, including important information such as the position of machine's axes, progress updates on running program, graph of daily cycle times, and more..

Slack/LINE Message Integration

Application interfacing allows for an instant notification system that notifies changes in a machine's status and any errors that occur. These messages are sent to a specified text channel that permissible users can access anytime and anywhere.

S-Viewer

Standard IoT Software

Centrally manage the operating status of the registered machine tools (NC units) to quickly discover temporary stoppages, even from remote locations. This can cut downtime and improve the machine tool operating rate.



Sodick IoT- Option

A powerful IoT platform for machine tools that can be accessed from anywhere, anytime using a smartphone, tablet, PC, or other device.

- Batch monitor machine tool states, rates, consumables information, and more.
- Get real-time production insights on how to reduce downtime and improve productivity.
- Check NC screen from a remote location.
- Receive fast, remote support for NC version upgrades, videophone and chat functions, and more.
- Connect to machine tools compatible with MTCConnect or OPC UA and monitor operating states.



Large-Capacity Automated Workpiece Transport System

ERC80 (EROWA Robot Compact80)-Option

Maximum transportation load: 176.37 lbs (80 kg)
Maximum magazine positions: 24 (When using the 3-magazine option: 36)

When a large number of workpieces are being processed, continuous machining is possible by setting as large a number of workpieces as possible beforehand on the machining table. However, in this case the standard NC program that is created becomes complicated, and the workpiece setup also requires a long work time.

Automation of workpiece transport enables optimum workpiece space utilization, a drastic shortening of setup time on the machine tool, and improved machine tool operating rate.



SPW CNC Power Supply Unit

Sodick has been working for many years to develop the world's best wire-cut electric discharge machine tools. The ALN Series offers flexible control from high peak currents for efficient rough machining to ultra-fine discharge pulses for micro finishing.



Direct Acquisition of 3D Solid Models

"Intelligent Q3vic EDW"

2D Automatic Programming Support

"Heart NC"

19-inch Touch Panel

Machining Condition Search Function

Search for optimal conditions from database compiled over many years.

Options to Expand Machining Range

- "SPW-E" multi-axis machining CNC
- HTP high-voltage circuit for difficult-to-machine materials

Gadget Functions

Access one-touch Z-axis limit, idling fluid surface function, AIM (AI Maintenance), resistivity management, environment temperature management, temperature readings of each part, filter pressure, automatic wire threading status, and S-Viewer in one place.

Digital-PIKA-W / W Plus

High frequency digital finishing circuit

Discharge pulses controlled at the nanosecond level achieve highly efficient machining. This can improve the finished surface quality and significantly reduce the machining time and the number of machining passes, even for high plate thickness, fine, or high inclination machining where finishing is difficult.

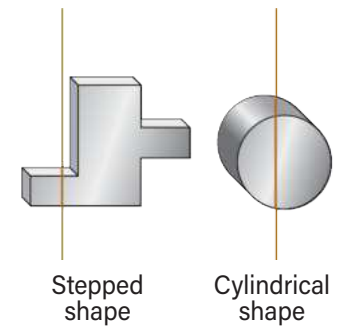


Stepcut

Improved accuracy for stepped shapes

New groove and step machining function that handles high plate thicknesses

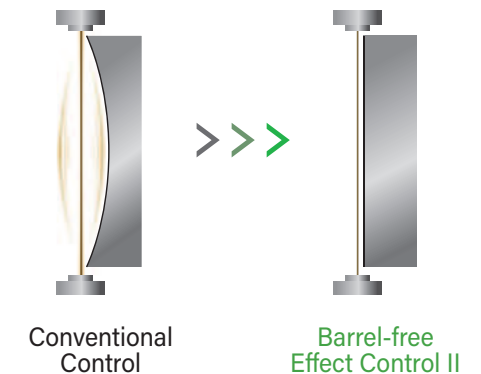
A function to optimize the machining of stepped shapes that can be used from rough machining to finishing. It is easy to set up from the icon on the machining condition screen and supports a wide range of plate thicknesses from 0.39"-7.87" (10-200 mm) (steel: 7.87" (200 mm), cemented carbide: 3.94" (100 mm)).



Barrel-Free Effect Control II

Improved shape precision for first machining of thick plate workpieces

The wire vibrates slightly when machining arcs in thick plate workpieces to suppress the barreling (residual/bite-in) phenomenon that tends to occur in the middle part of the workpiece. This control suppresses the amount of barreling to within 4 μm during the first machining of thick plate workpieces with a plate thickness from 3.94"-11.81" (100-300 mm), which dramatically improves the workpiece shape precision and finishing accuracy of small radius corner parts.



TMP Control II

Rz 1.5 μm after 6 machining passes

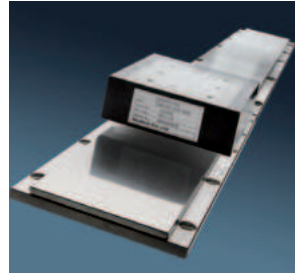
Improves the machining speed and enhances surface roughness and corner precision for rough/ intermediate machining.



Super-BS Ultra High-Speed Electrolysis-Free Machining

Prevents oxidation, softening, and pitting corrosion of the machined surface due to the electrolysis phenomenon.





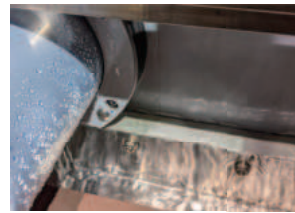
4-Axis XYUV Flat Rigid Linear Motor Drive

Sodick's proprietary linear motors achieve both accurate positioning and high-speed operation.



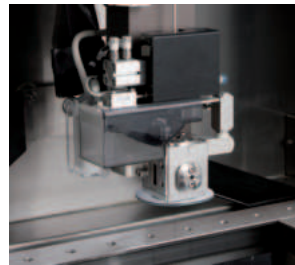
Ceramic Parts

The incorporation of ceramic components provides resistance to thermal expansion as while eliminating the possibility of rust on these components.



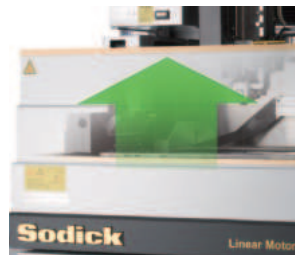
Slide Plate Cleaning

Self-cleaning function to prevent adhesion of sludge on the seal plate.



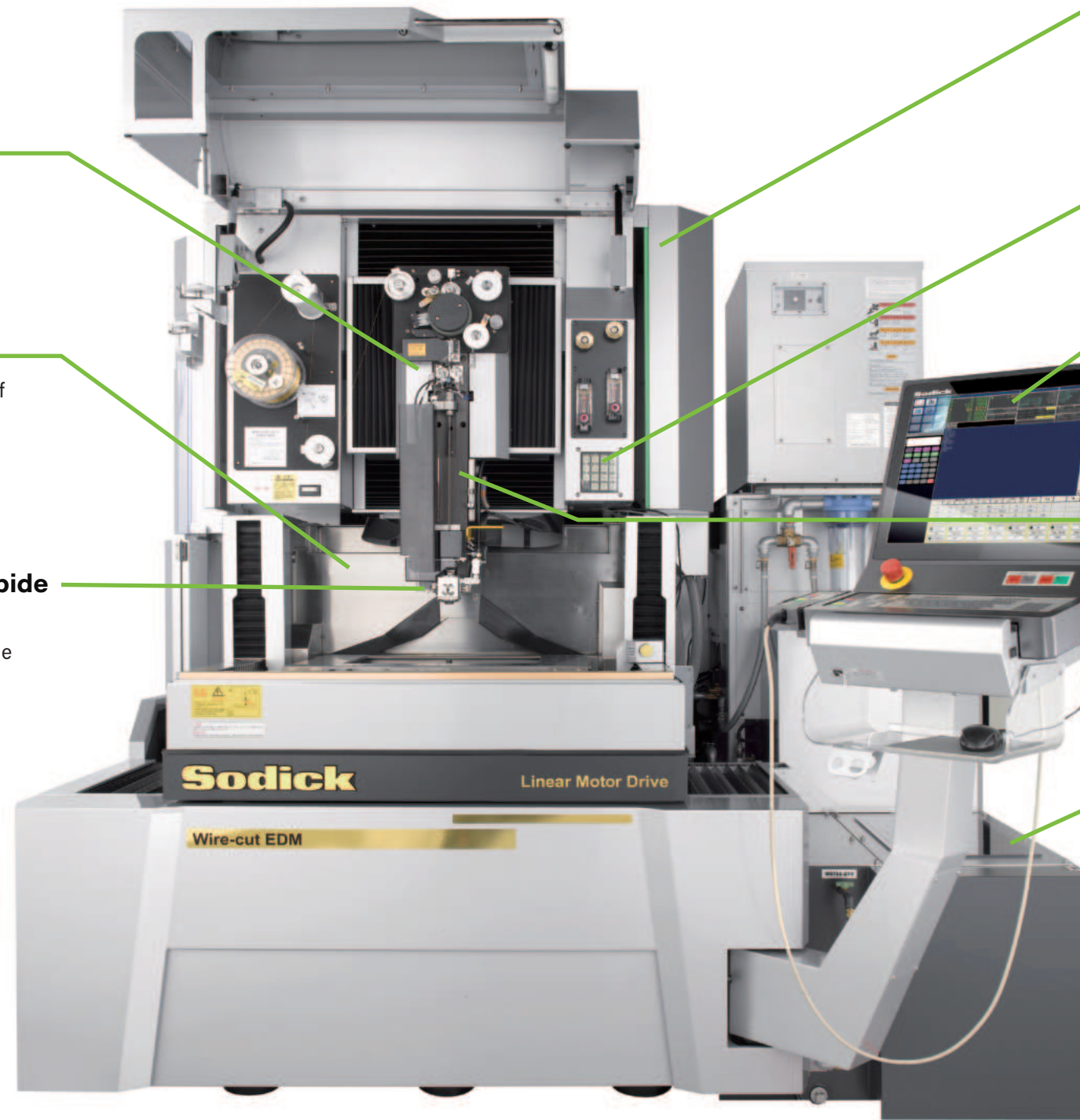
Vertical Type Power Feed Carbide Contact Adjustment

Lever is used for attaching and detaching the carbide contact. The maintenance can be performed without removing the workpiece and tooling.



Three-Sided Automatic Vertical Machining Tank

A machining tank that automatically moves up and down and completely opens up from the front, left, and right sides. It is very compatible with workpiece transport robots and facilitates easy workpiece setup.



Three-color LED Signal indicates the operating state



Matching Run Halt

Flush Adjustment Valve / Machine Tool Operation Panel

Operating State Indicator with Three-Color LED Signal

- 19 inch touch panel
- Keyboard
- Remote control

Automatic Wire Threading Unit FJ-AWT

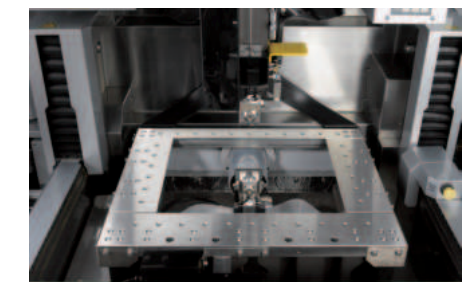
A high-performance device that automates wire threading for all shapes. It offers a high connection rate and incorporates diverse functions.

Newly Designed Service Tank

With improved performance and a quadruple filter

Four-Sided Workpiece Table

The wire running system and workpiece fixed parts have an insulated structure. Stainless steel is used for the machining tank to suppress deterioration with age due to machining fluid and sludge.



*Options may be included in the photos.



Flat Rigid Linear Motors

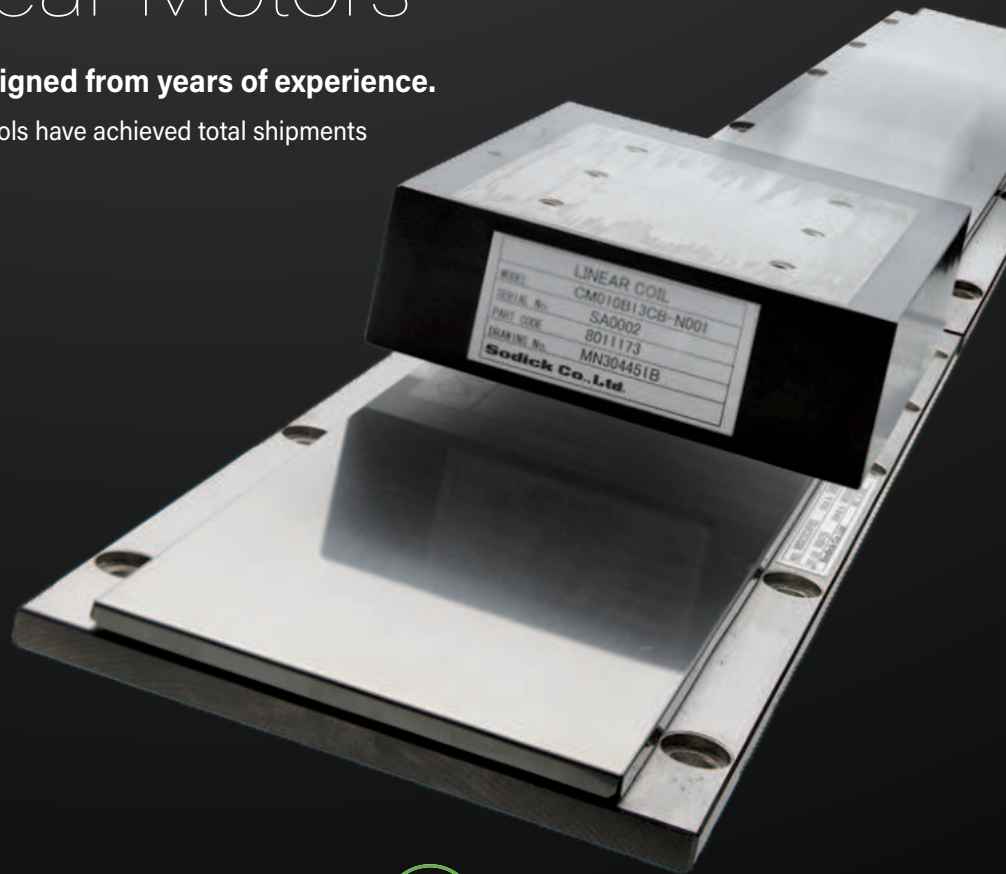
High-quality, user-friendly model designed from years of experience.

Sodick's flat rigid linear motor drive machine tools have achieved total shipments of more than 60,000 units.



4-Axis Flat Rigid Linear Motor Drive

High-speed, high-precision flat rigid linear motors are mounted on XYUV axes. With no mechanical contact and a simple structure, there is no wear or deterioration. Flat rigid linear motors make the ALN series an eco-friendly drive system with high stability that does not require periodic replacement, unlike a ball screw drive system. Boasting a track record of over 60,000 units, the flat rigid linear motor drive system continues to provide unchanging machining quality.



Dynamic Accuracy

Sodick's maintenance-free flat rigid linear motor drive system maintains its initial accuracy throughout the life of the machine tool (10 years or more). Because they use a non-contact method without ball screws, flat rigid linear motor drives minimize the risk of losing accuracy over time.



Zero Backlash

In the "ball screw drive method" used for drives in other machine tools, a slight delay occurs because the clearance that is generated when the driving direction changes to the reverse direction. This is called backlash. Since Sodick's linear motor drive system uses a non-contact drive with no mechanical contact, the risk of backlash is non-existent.

* Some photos may include options.



10-Year Positioning Accuracy Guarantee

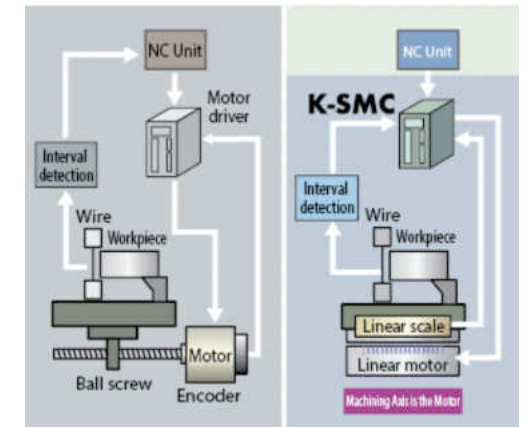
Our 4-axis EDM machine tools guarantee the highest precision machining for at least 10 years with no maintenance required.



Sodick Motion Controller (K-SMC)

Efficiently controls the drive system and the wire system.

- Optimal Discharge Control in Real Time**
 The command from the NC unit is automatically optimized for machining. High-discharge efficiency improves machining accuracy and reduces machining time.
- Direct Tension Servo**
 Advanced resolution of the tension detection values enables more stable and highly precise tension control.



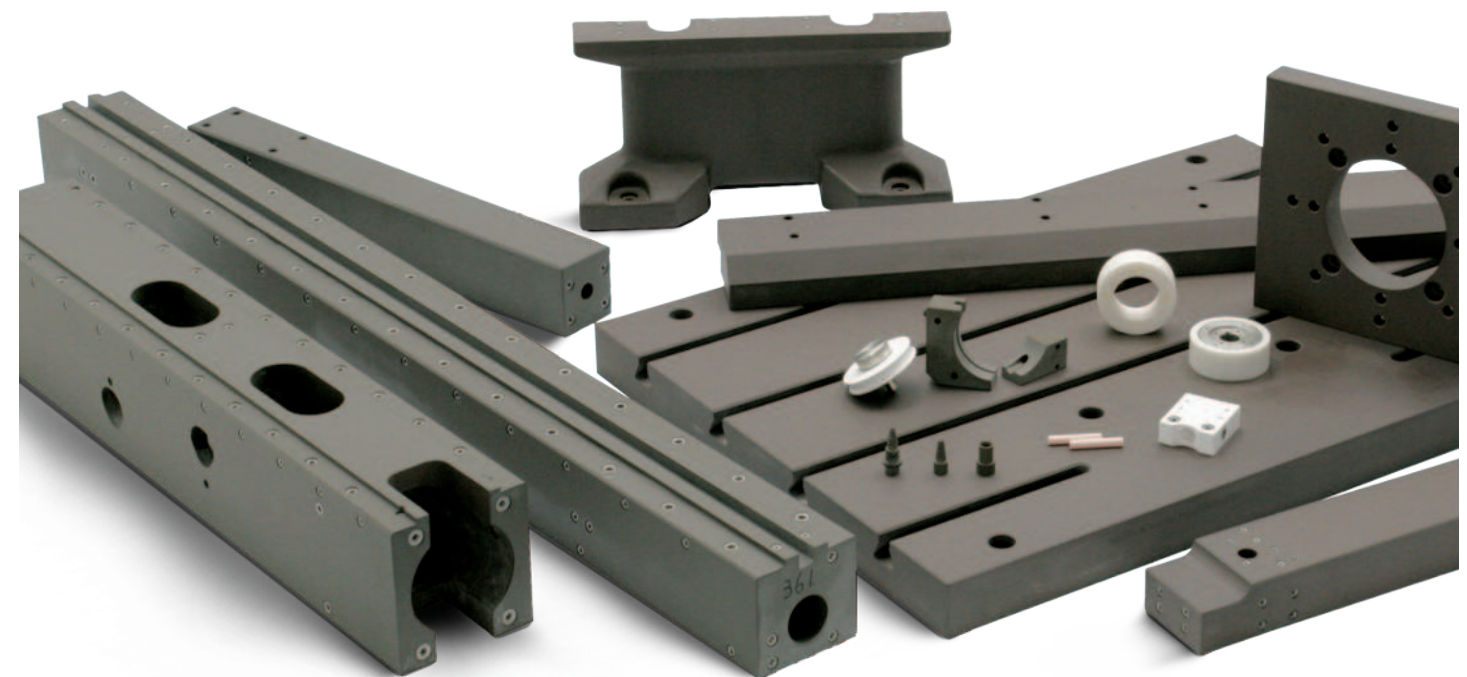
Sodick Ceramic Components

Insulation components for the most efficient discharge and eco-friendly operation, manufactured in-house by Sodick.

Ceramic has excellent wear resistance, corrosion resistance, and heat resistance, with hardness close to that of a diamond, as well as high insulation properties. With a small coefficient of thermal expansion, it is effective for thermal displacement against ambient temperature changes. The lightweight material of Sodick's ceramic components also significantly decreases motor load and doesn't deteriorate over time.

Ceramic components developed and manufactured by Sodick:

- Ceramic upper guide arm
- Ceramic lower guide arm
- Ceramic surface plate
- Four ceramic bases on workpiece stand
- Pulley for the wire tension part
- Wire discharge winding rollers





Construction that supports even higher machining accuracy

- Optimized rib arrangement reduces weight, improves rigidity
- Flattening by micron-order scraping is performed on all machine tools
- Ceramics are used in the wire running system to maintain lightness, insulation, and rigidity

Repeated simulations using CAE analysis were carried out during the design of the AL Series to achieve high rigidity by optimizing the loads during operation. The TH COM thermal displacement correction function that can handle everything from high-accuracy to rough temperature environments is installed as standard to achieve high precision and high efficiency while maintaining stable productivity throughout long-time machining.

Furthermore, it allows temperature control using graphic displays of the environmental temperature and allows the machine tool environment to be checked from the annual temperature history.

Newly designed service tank

The newly designed service tank provides a more stable machining environment and improves ease-of-maintenance. The three-tank structure that completely separates fresh water and the machining fluid after use. It prevents sludge contamination during machining and provides a more ideal machining environment.

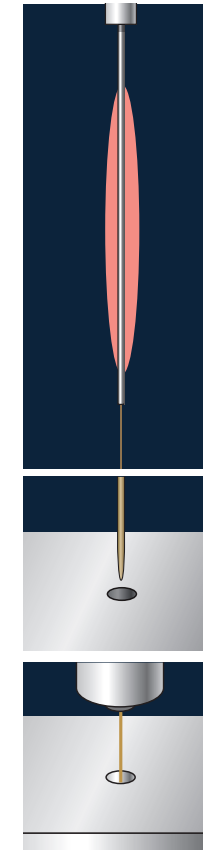
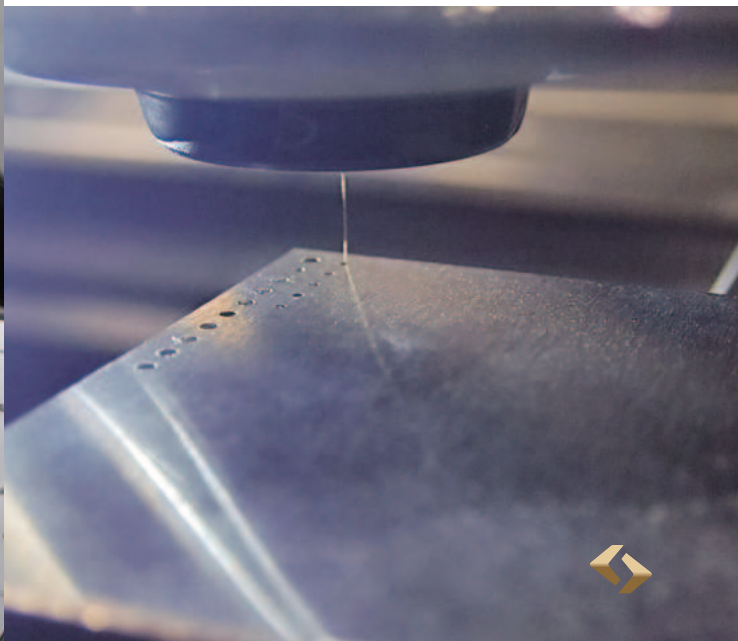
The large maintenance window makes it easy to clean the tank where chips tend to collect trends on a graph. Not applicable to ALN800G.





This is the latest automatic wire threader that improves productivity and ease-of-setup with a high connection rate both in air and liquid.

It can accommodate all types of wires and offers not only start hole threading but also threading and resumption of machining after the wire breaks. It incorporates many functions that further improve the connection rate and allow stable threading even in stepped, hollow, and curved shapes.



1. Straightens the wire

Wire annealing function
Heating the wire by Joule heating improves the straightness of the wire. Excellent in straightness, and the jet-less connection is recommended even for wire threading under water.

Wire tip processing
When the wire cannot be connected within a specified number of times, the tip of the wire is connected and melted by heat to a shape that can be connected easily then, the wire is inserted through the start hole.

2. Inserts wire into the start hole

Wire connection retry function
The retry function can be set when the wire cannot be connected smoothly due to a curled wire or a poor start hole.

3. Connects the wire

Pop-up search function
Precisely repeated operations of lifting and lowering the wire by the force of air passes the wire through the lower hole.

Starts Machining

Wire breakage recovery function
When a wire breaks while machining, the wire is automatically connected and resumes machining.

Sludge removal function
The sludge removal function using air or fresh water on the upper and lower guides contributes to maintaining accuracy.



AWT dice guide AW T Dice(FJ)



Upper side wire guide Dice AQ-1U (T)



Lower side wire guide Dice (Color)

Reduces Setup Time

Idling Liquid Level Function

Automatically adjusts the machining fluid level to directly below the work stand. Matches the machine tool and machining fluid temperatures to reduce the setup time.

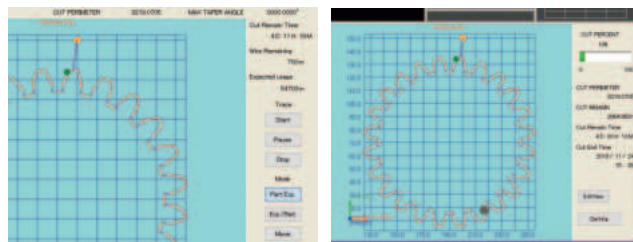
Z-Axis Linked Liquid Level Control

Since a mechanism to automatically track the liquid level accordingly without manually changing the liquid level depending on the thickness of the workpiece. This function can also support automation easily.

Machining End Time Prediction

The machining time remaining and the machining end time can be checked on the NC screen.

Predicting the machining end time in advance makes it possible to improve the working time efficiency.



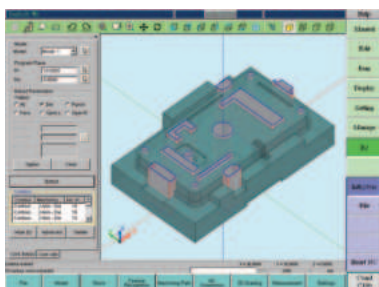
Graphics screen

Run screen

IntelligentQ3vic EDW

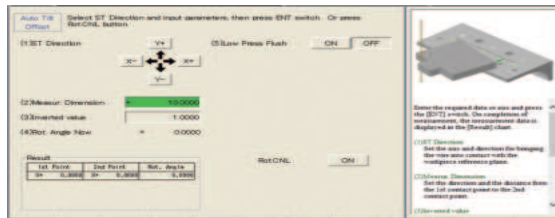
3D solid models (Parasolid only) can be imported directly. The operator can establish a consistent and highly efficient manufacturing flow by automatically extracting machining contours from a solid model.

In addition, drawing and extracting contours from 2D shapes is easy, and conventional data (DXF, ASC) can be imported.



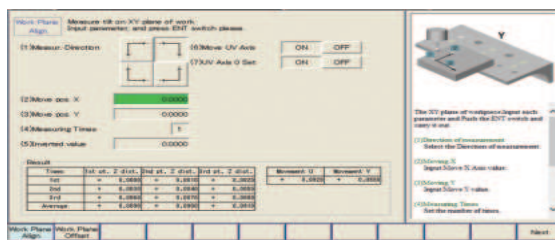
Automatic Workpiece Alignment Correction

Automatically measures and corrects the tilt of the workpiece through contact sensing.



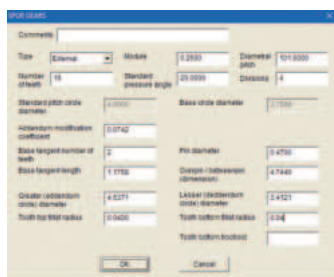
Workpiece Plane Correction

This function is for correcting the workpiece plane so that the upper surface of the workpiece is perpendicular to the wire. A reference probe is attached, and automatically measures the inclination at any 3 points on the upper surface of the workpiece to correct the plane.



Heart NC + 2D Automatic Programming Support

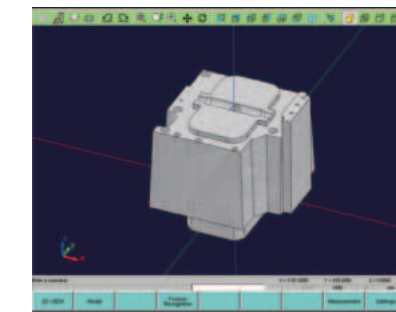
2D automatic programming support function which can create machining shapes. Programs for different T/B shapes, involute gears, coreless shapes, and free form curves can be created. Reads data created by other CAD/CAM in DXF format, and outputs a machining program.



Example of Heart NC Operation Screen Gear shapes can be created easily just by entering the number of teeth and modules. It also allows keyway shapes to be easily created.

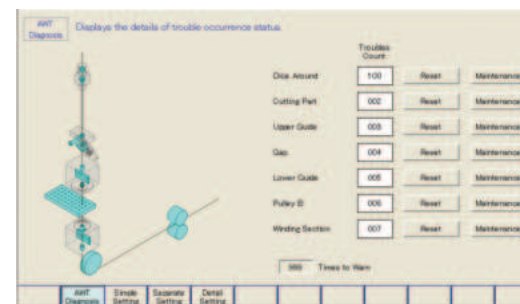
Heart NC + 3D Module (Option)

This is an option for adding 3D data to the 2D automatic programming support function Heart NC Solid models are displayed in 3D view and after the machining contour is extracted, the contour shape can be transferred to 2D view. During this process, taper information can also be added automatically for import.



AWT Diagnostic Function

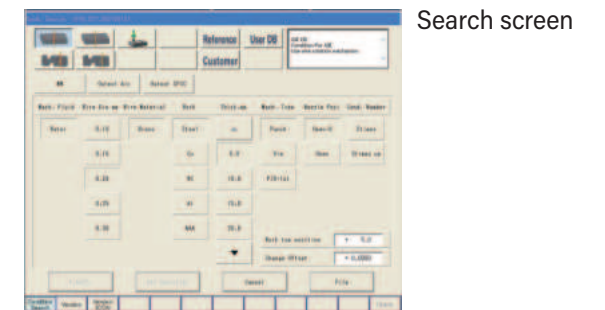
Diagnoses the cause of the automatic wiring problems and informs when maintenance is due according to the setting for the number of errors. The details of the maintenance performed at each position can also be checked.



Machining Conditions Search Function

This function automatically outputs an NC program from the database when information such as the wire diameter, workpiece material, and plate thickness is input. The interactive input by selecting items lets anyone easily perform machining under the optimal machining conditions.

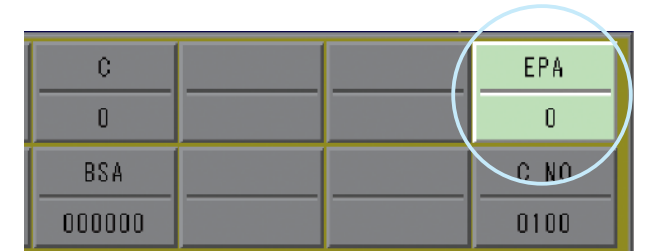
The program can be fine-tuned to match the priority parameters such as machining accuracy and speed. A user database is also provided for the customers to register their own original conditions.



Search screen

Easy Parameter Adjustment (EPA)

At any time, machining conditions can be adjusted with the shortest procedure. Finish machining continues as is even when the machining speed is changed.



New automatic core processing device

S3CORE (Option)

An automatic core collection device enhances simplicity, stability, and safety. The main unit consists simply of a magnet and a cylinder, and is easy to handle and maintain. It enables stable operation with no damage to the workpiece.

Machining material: Corresponds to ferromagnetic workpiece material such as steel material.

Machining form: Machining with upper and lower guide in close contact

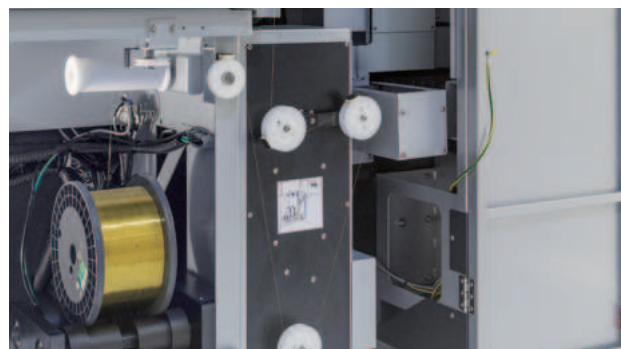
Equipment parts: Equipment installation to upper guide, collecting box
* The travel has limitations.



Built-In 44.09 lbs (20 kg) Wire Feeder (Option)

The built-in type 44.09 lbs (20 kg) wire feeder allows simple and safe installation of 44.09 lbs (20 kg) wire bobbins in the machine tool. (This is an upgrade from the standard 17.64 lbs (8 kg) wire bobbin capacity.)

- Extends the wire bobbin replacement interval and permits long-term automatic operation.
- Supports efficient production in the machining of multi-cavity components and difficult to machine materials, which require continuous machining for long hours in many cases.



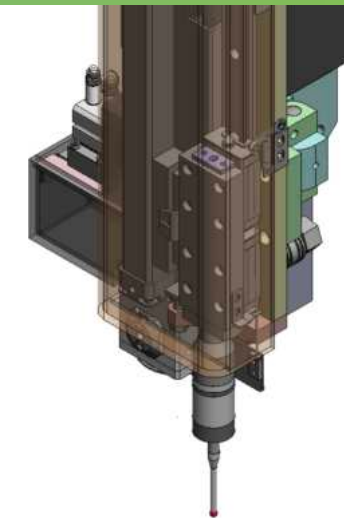
Horizontal Jumbo Feeder (Option)

Mounts 44.09 lbs (20 kg), 66.14 lbs (30 kg), or 110.23 lbs (50 kg) wire bobbins horizontally in the machine tool. * Other accessories are added. Please contact our sales representative for details.



Renishaw Touch Probe (Option)

This option allows you to rapidly features that are not accessible to the normal wire path.



Taper Flex NEO (Option)

This is a tool and built-in software for adjusting and measuring tapered angles for high accuracy taper machining.

Taper Flex Neo 30t

Taper Flex Neo 60t

Use the tool with the thickness closest to the workpiece, 1.18"/2.36" (30/60 mm)

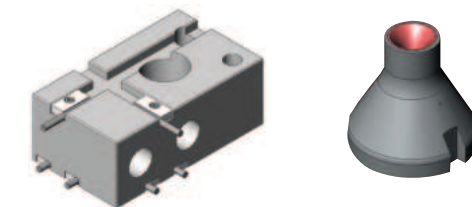
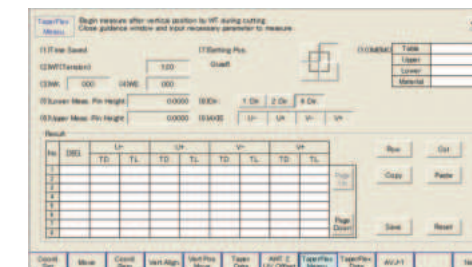
(Use "Taper Flex Neo 30t" for taper machining of 10 degrees or more.)

Taper Flex 45-NEO

This option comes with an upper/lower nozzle added to the Taper Flex Neo 30t as a set.

The combination of the nozzle and dice enable precise machining of taper angles up to 45 degrees.

* Separate R dice for wide angle tapers are required.



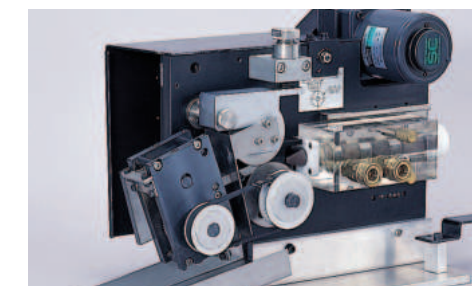
WS-4P/WS-5P (Option)

A W-axis can be added when this option is installed on the workpiece stand. A rotary table able to withstand water immersion that permits multi-axis indexing and simultaneous machining. * Other multi-axis options are also required.



L-CUT (Option)

A wire cutter that cuts the discharged used wire into small pieces. Extends the intervals between wire bucket replacements.
* Supports wire diameters from ϕ 0.006"/0.01" (0.15-0.3mm)



High-quality products from the team you trust.

Offering a full line of quality wire for all machine makes and models, and quality consumables at competitive prices, Sodick makes stocking consumables effortless. Your dedicated consumables representative can help you automate your process and unlock your OEM tooling discount.



Quick Response Time

You can expect real-time service and quick product delivery every time from your dedicated consumables expert at Sodick.



Customized Consumables Programs

Your internal account manager will learn about your operations to make suggestions for your specific needs.



High Quality Products

Tested and proven OEM products are the most reliable on the market, minimizing risk to your machine and workpiece while giving you the highest quality output possible.



Sodick's Original Wire

HQ Wire / Plus Wire (Hard brass electrode wire)

- It has an extremely smooth surface that enables high-precision machining, achieving a high wire connection rate that facilitates work with excellent straightness.
- High-precision wire with stable quality is also superior in taper machining.
- Available for a wide range of applications, from roughing to finishing in standard machining.
- Wire: $\varphi 0.004'' / \varphi 0.1 \text{ mm}$, $\varphi 0.006'' / 0.15 \text{ mm}$, $\varphi 0.008'' / \varphi 0.2 \text{ mm}$, $\varphi 0.010'' / \varphi 0.25 \text{ mm}$, $\varphi 0.012'' / 0.3 \text{ mm}$



Procut Z+

Hard brass electrode wire

- Thin but tough, flexible enough to handle both fast and slow machining, this high-performance, high-speed machining wire is resistant to wire breakage.
- It achieves excellent surface quality, especially in the finishing area.
- Wire: $\varphi 0.010'' (\varphi 0.2 \text{ mm})$



Sodick's Genuine Wire Guide

Dice (Color)

- Dice guide excellent in cost performance. Since an optimum guide entrance angle is adopted, the wire guide is suitable to a wide range of automatic wire threading.
- The dice are color-coded according to the hole diameter to prevent incorrect mounting.



Sodick's Genuine Wire Guide

Dice AQ-1U (W)

- Dice guide for a Sodick automatic wire threading unit Fixed Jet AWT (Type V) equipped machine.



Features and Options

○ Standard specification ▲ Option × Option not available

| Features & Options | Specification | ALN400G iGE+ | ALN600G iGE+ | ALN600GH iGE+ | ALN800G iGE+ | ALN800GH iGE+ |
|--|---|--------------|--------------|---------------|--------------|---------------|
| Tip Processing Unit | | ○ | ○ | ○ | ○ | ○ |
| Fixed Jet AWT (Type A) | | ○ | ○ | ○ | ○ | ○ |
| Wire Tension Servo | | ○ | ○ | ○ | ○ | ○ |
| Linear Scale (Absolute Type) | Each X, Y, U V Axis: 0.01 μm | ○ | ○ | ○ | ○ | ○ |
| Air Filter | | ○ | ○ | ○ | ○ | ○ |
| Four-Sided Workpiece Stand | | ○ | ○ | ○ | ○ | ○ |
| Z-Axis Linked Water Level Control | | ○ | ○ | ○ | ○ | ○ |
| Machining Tank Door Up/Down Mechanism | 3-Sided Automatic Up/Down Type | ○ | ○ | ○ | ○ | ○ |
| Idling Water Level Function | | ○ | ○ | ○ | ○ | ○ |
| CE Specification (Factory Order Only - ALC Series) | | ▲ | ▲ | ▲ | ▲ | ▲ |
| Remote Control | | ○ | ○ | ○ | ○ | ○ |
| Mouse | | ○ | ○ | ○ | ○ | ○ |
| LAN | | ○ | ○ | ○ | ○ | ○ |
| S-Viewer | | ○ | ○ | ○ | ○ | ○ |
| LED Light | | ○ | ○ | ○ | ○ | ○ |
| Intelligent Q3 vic EDW(*) | | ○ | ○ | ○ | ○ | ○ |
| Heart NC | | ○ | ○ | ○ | ○ | ○ |
| Heart NC + 3D Module | | ▲ | ▲ | ▲ | ▲ | ▲ |
| Virus Infection Prevention | | ○ | ○ | ○ | ○ | ○ |
| Dedicated Keyboard | | ○ | ○ | ○ | ○ | ○ |
| LED Signal Light | | ○ | ○ | ○ | ○ | ○ |
| Thin Wire AWT ø0.05 Specification (with High Voltage Circuit) | ø0.002" (ø0.05 mm) | ▲ | ▲ | ▲ | ▲ | ▲ |
| 44 lb (20 kg) Wire Feeder | Built-In Type | ▲ | ▲ | ▲ | ▲ | ▲ |
| Horizontal Jumbo Feeder | 110.23 lb (50 kg) | ▲ | ▲ | ▲ | ▲ | ▲ |
| L-Cut | ø0.0059" - ø0.012" (ø0.15 mm - ø0.3 mm) | ▲ | ▲ | ▲ | ▲ | ▲ |
| WS-4P | 8-Axis Version Upgrade (*) | ▲ | ▲ | ▲ | ▲ | ▲ |
| WS-5P | 8-Axis Version Upgrade (*) | ▲ | ▲ | ▲ | ▲ | ▲ |
| S3 CORE | | ▲ | ▲ | ▲ | ▲ | ▲ |
| Taper Flex Neo 30t | | ▲ | ▲ | ▲ | ▲ | ▲ |
| Taper Flex Neo 60t | | ▲ | ▲ | ▲ | ▲ | ▲ |
| Taper Flex 45-Neo | Guide ordered separately | ▲ | ▲ | ▲ | ▲ | ▲ |
| On-Board Camera Type Measuring System | | ▲ | ▲ | ▲ | ▲ | ▲ |
| AVC (Automatic Vertical Alignment Fixture) | | ▲ | ▲ | ▲ | ▲ | ▲ |
| TH COM | | ○ | ○ | ○ | ○ | ○ |
| High Voltage Circuit (Supports Difficult to Machine Materials) | HTP | ▲ | ▲ | ▲ | ▲ | ▲ |
| UPS (Uninterruptible Power Supply) | | ▲ | ▲ | ▲ | ▲ | ▲ |
| RS232C | | ▲ | ▲ | ▲ | ▲ | ▲ |
| Signal tower | | ▲ | ▲ | ▲ | ▲ | ▲ |
| Multi axis specification (8-AXIS compatible) | Synchronous 8-axis SPW-E (*) | ▲ | ▲ | ▲ | ▲ | ▲ |
| Q3vic Satellite (*) | | ▲ | ▲ | | | |
| Rust-less (anchor-proof, corrosion-proof) | ANCS | ▲ | ▲ | | | |



Machine Tool Specifications

| Machine Tool Specifications | ALN400G iGE+ | ALN600G iGE+ | ALN600GH iGE+ | ALN800G iGE+ | ALN800GH iGE+ |
|--|---|--|--|--|--|
| Machine Tank Inner Dimensions (W x D) | 33.46" x 24.02" (850 x 610 mm) | 41.34" x 27.95" (1,050 x 710 mm) | 41.34" x 27.95" (1,050 x 710 mm) | 55.51" x 43.70" (1,410 x 1,110 mm) | 51.69" x 41.65" (1,312 x 1,058 mm) |
| X-Axis Travel | 15.75" (400 mm) | 23.62" (600 mm) | 23.62" (600 mm) | 31.50" (800 mm) | 31.50" (800 mm) |
| Y-Axis Travel | 11.81" (300 mm) | 15.75" (400 mm) | 15.75" (400 mm) | 23.62" (600 mm) | 23.62" (600 mm) |
| Z-Axis Travel | 9.84" (250 mm) | 13.78" (350 mm) | 19.69" (500 mm) | 19.69" (500 mm) | 28.74" (315 to 31.89) (730 (80 to 810) mm) |
| U-Axis x V-Axis Travel | 5.91" x 5.91" (150 x 150 mm) | 5.91" x 5.91" (150 x 150 mm) | 5.91" x 5.91" (150 x 150 mm) | 7.87" x 7.87" (200 x 200 mm) | 7.87" x 7.87" (200 x 200 mm) |
| Max. Taper Angle | ±25° (Plate thickness: 5.12" (130 mm)) | ±25° (Plate thickness: 5.12" (130 mm)) | ±25° (Thickness: 5.12" (130 mm)) | ±25° (Plate thickness: 5.12" (130 mm)) | ±30° (Thickness: 5.12" (130 mm)) |
| Max. Workpiece Size (W x D x H) | 23.62" x 18.5" x 9.45" (600 x 470 x 240 mm) | 31.50" x 22.44" x 13.39" (800 x 570 x 340 mm) | 31.50" x 22.44" x 19.69" (800 x 570 x 500 mm) | 49.21" x 40.16" x 19.69" (1,250 x 1,020 x 500 mm) | 51.18" x 40.94" x 31.50" (1,300 x 1,040 x 800 mm) |
| Max. Weight of Workpiece | 1,102.31 lbs (500 kg) | 2,204.62 lbs (1000 kg) | 2,204.62 lbs (1000 kg) | 6,613.87 lbs (3,000 kg) | 6,613.87 lbs (3,000 kg) |
| Wire Diameter | 0.004" to 0.01" (0.10 mm to 0.3 mm) *1 | 0.004" to 0.01" (0.10 mm to 0.3 mm) *1 | ø0.004" to 0.01" (0.10 mm to 0.3 mm) *1 | ø0.004" to 0.01" (0.10 mm to 0.3 mm) *1 | ø0.007" to 0.01" (0.20 mm to 0.3 mm) *1 |
| Wire Tension | 3 to 23 N | 3 to 23 N | 3 to 23 N | 3 to 23 N | 3 to 23 N |
| Max. Wire Feed Speed | 16.54 in/sec (420 mm/sec) | 16.54 in/sec (420 mm/sec) | 16.54 in/sec (420 mm/sec) | 16.54 in/sec (420 mm/sec) | 16.54 in/sec (420 mm/sec) |
| Distance From Floor to Table Upper Surface | 39.17" (995 mm) | 39.17" (995 mm) | 39.17" (995 mm) | 39.17" (995 mm) | 45.28" (1,150 mm) |
| Machine Dimensions (W x D x H) | 86.22" x 95.47" x 86.81" (2,190 x 2,425 x 2,205 mm) | 99.41" x 107.68" x 90.35" (2,525 x 2,735 x 2,295 mm) | 111.02" x 105.91" x 104.33" (2,820 x 2,690 x 2,650 mm) | 130.32" x 133.07" x 106.10" (3,310 x 3,380 x 2,695 mm) | 162.20" x 137.79" x 132.48" (4,120 x 3,500 x 3,365 mm) |
| Machine Installation Dimensions (W x D) | 135.43" x 144.09" (3,440 x 3,660 mm) | 148.62" x 159.84" (3,775 x 4,060 mm) | 160.24" x 160.04" (4,070 x 4,065 mm) | 180.71" x 187.40" (4,590 x 4,760 mm) | 214.56" x 181.10" (5,450 x 4,600 mm) |
| Machine Weight (Power Supply Included) | 7,054.79 lbs (3,200 kg) | 9,479.88 lbs (4,300 kg) | 10,427.87 lbs (4,730 kg) | 12,125.42 lbs (5,500 kg) | 14,550.51 lbs (6,600 kg) |
| Air supply | 0.5 MPa 30 NL/min | 0.5 MPa 30 NL/min | 0.5 MPa 30 NL/min | 0.5 MPa 30 NL/min | 0.5 MPa 30 NL/min |
| Total Electric Capacity | 3-phase 50/60 Hz 13 kVA *2 | 3-phase 50/60 Hz 13 kVA *2 | 3-phase 50/60 Hz 13 kVA *2 | 3-phase 50/60 Hz 13 kVA *2 | 3-phase 50/60 Hz 13 kVA *2 |

*1 Less than ø0.004" (0.1 mm) is optional. *2 Electric capacity ø0.008" (0.2 mm) when wire is used.



Service Tank Specifications

| Service Tank Specifications | ALN400G iGE+ | ALN600G iGE+ | ALN600GH iGE+ | ALN800G iGE+ | ALN800GH iGE+ |
|-----------------------------------|--|--|--|--|--|
| External Dimensions (W x D x H) | 30.51" x 88.58" x 86.81" (775 x 2,250 x 2,205 mm) | 34.25" x 102.56" x 85.83" (870 x 2,605 x 2,180 mm) | 45.87" x 94.49" (1,165 x 2,400 mm) | 59.25" x 116.14" (1,505 x 2,950 mm) | 85.83" x 120.08" x 74.80" (2,180 x 3,050 x 1,900 mm) |
| Capacity | 208.70 gal (790 L) | 264.17 gal (1,000 L) | 335.49 gal (1,270 L) | 396.26 gal (1,500 L) | 660.43 gal (2,500 L) |
| Machining Fluid Filtration Method | Paper Filter Replacement Type (4 Cylinder Inner Pressure Type) | Paper Filter Replacement Type (4 Cylinder Inner Pressure Type) | Paper Filter Replacement Type (4 Cylinder Inner Pressure Type) | Paper Filter Replacement Type (4 Cylinder Inner Pressure Type) | Paper Filter Replacement Type (4 Cylinder Inner Pressure Type) |
| Demineralizer | Ion Exchange Resin (4.76 gal (18 L) Specification) | Ion Exchange Resin (4.76 gal (18 L) Specification) | Ion Exchange Resin (4.76 gal (18 L) Specification) | Ion Exchange Resin (4.76 gal (18 L) Specification) | Ion Exchange Resin (4.76 gal (18 L) Specification) |
| Weight (empty) | 992.08 lbs (450 kg) | 1,102.31 lbs (500 kg) | 1,554.26 lbs (705 kg) | 1,763.70 lbs (800 kg) | 2,425.09 lbs (1,100 kg) |

Power Supply Specifications

| CNC Power Supply Unit SPW | |
|--|--|
| Power Supply Input Specification | AC 200 V 50/60 Hz |
| NC Unit | Multi-Tasking OS, M4-LINK Method |
| User Memory Capacity | Editing Space: 100,000 Blocks, Saving Space: 30 M Bytes |
| Memory Device | SSD, External Memory |
| Input Method | External Memory, Touch Panel, Sodick Original Hard Keyboard, LAN |
| Display Method | 19-inch TFT-LCD |
| Printable Characters | Kanji (JIS Level 1 Kanji Characters), Alphabet, Numerical Characters, Etc. |
| Keyboard | Standard 101 Keyboard, Function Key |
| Input Range | ±999999.999/±99999.9999/±9999.99999/±999.99999 (Changeable) |
| Electric Discharge Machining Condition Registration Function | 10,000 Conditions can be registered (C0000 to C9999) |
| Offset Function | 10,000 conditions can be registered (H0000 to H9999) |
| Program Sequence Number Specification | Setting from N000000000 to N999999999 |
| Sub-Program, Number of Nested Loops | 50 |
| Q Command, Number of Nested Loops | 7 |
| Coordinate Value | 60 |
| Number of Simultaneously Controlled Axes | 4 Axes Max (SPW-E: 8 Axes Max) |
| Min. Command Unit | 0.001 μm |
| Min. Drive Unit | 0.01 μm (X, Y, U, V Axes) |
| Max. Feed Speed | X, Y-Axis Max. 9.84'/min (3 m/min), Z-Axis: 6.56' (2 m/min) |
| Position Detection Method | Can Be Used Semi-Closed or Fully Closed (Glass Scale) |
| Drive System | Flat Rigid Linear Motors XUYV |
| Editing | In-Process Editing, Multi Editing of Two Files on One Screen |
| Graphics Function | XY, YX, and XZ Planes, Drawing while Machining, Machining Position, 3-Dimensional Machining, Zoom In, Zoom Out, Rotation, Background Drawing, etc. |
| Software | Intelligent Q3vic, Heart-NC, Virus Infection Prevention, ECO Mode, S-Viewer, AIM |
| Remote Controller | Jog (Multi-Step Switching), OFF, ACK, HALT, ENT |

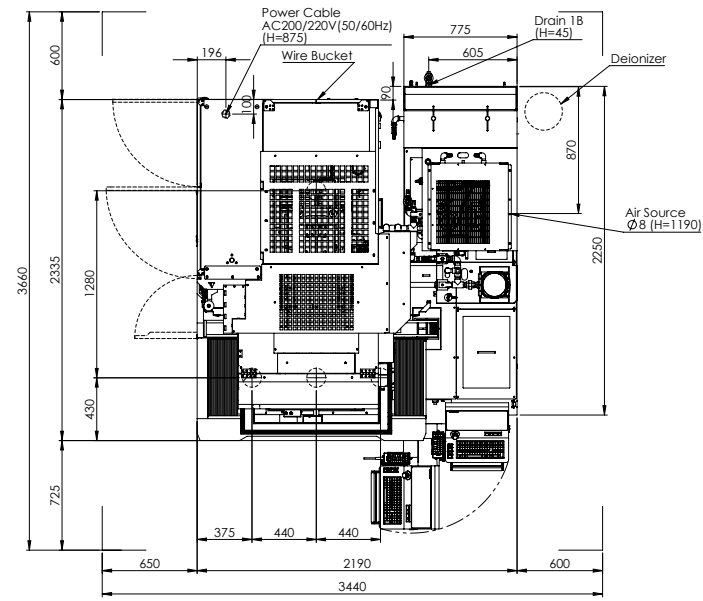
Installation Specifications

Consider the following items before selecting the installation location of the machine tool.

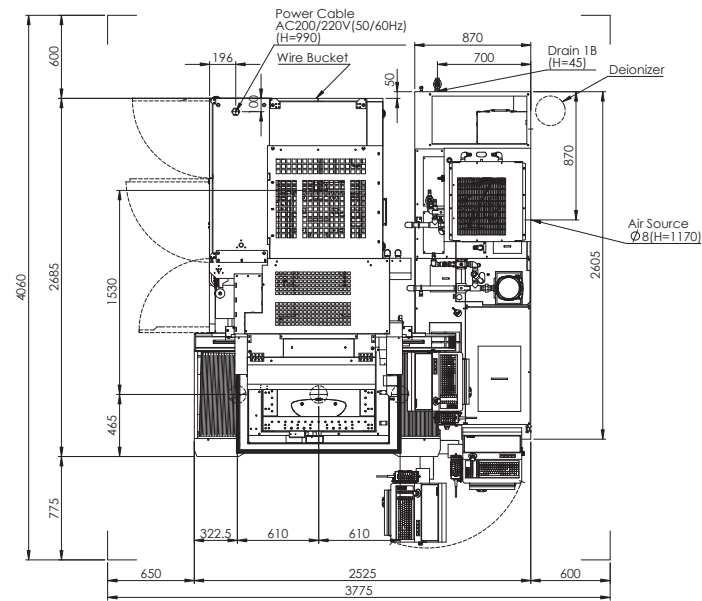
| Machine Tool Installation Environment | |
|--|--|
| Required Space | Space Indicated in Layout Drawing |
| Installation Floor | Location which can sufficiently support the machine tool weight or foundation construction is required. Location where vibration and impact are not transmitted. Recommended reference values: Vibration level of 0.1 m/s ² (0.01G) and maximum amplitude of 1 μm or less |
| Atmosphere | Locations without Dust |
| Temperature, Humidity Environment | Location with little temperature change; Recommended: About 68 ±1 oF Operating temperature range: 50 to 95 oF (10 to 35 oC) Location where direct sunlight, ventilation from air conditioners, and exhaust heat from other equipment does not directly contact the machine tool Humidity: 30 to 75% (No condensation) |
| Measures Against Electromagnetic Interference | Shielded room may be required. |
| Accompanied Construction | |
| Electrical Construction | |
| Power Supply Input Specification | 3-Phase AC200V ±10% 50/60 Hz |
| Input Cable | 3-Phase Input and Ground: 0.63in2 (16mm ²) x 4 core (Booster Power Supply: 0.98in2 (25mm ²) x 4 core) |
| Breaker | Breaker Current: 50 A for Standard Power Supply, 75 A for Booster Power Supply Inverter Circuit Compatible, Electric Leakage Sensitivity Current: 100 mA 200 mA |
| Air Pressure Power Source | |
| Supply Air Pressure | 0.5 MPa or More |
| Supply Flow Rate | 30 NL/min (ANR) or More (Recommended Air Compressor Output of 0.75 kW or More) |



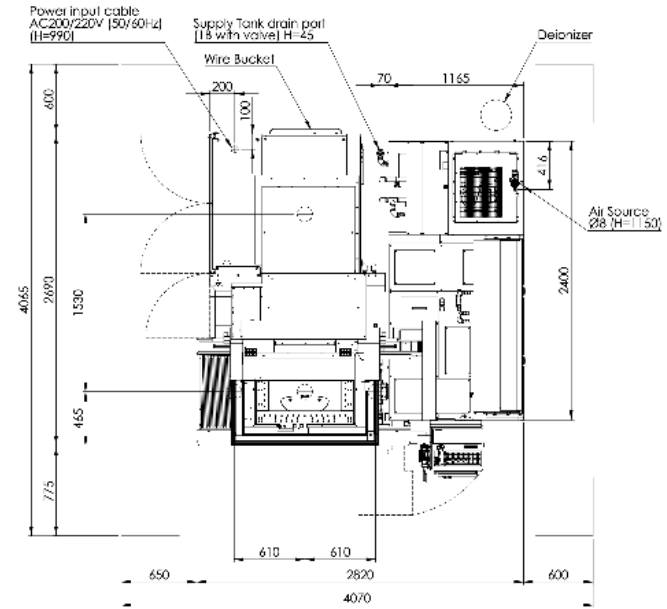
ALN400G iGroove+



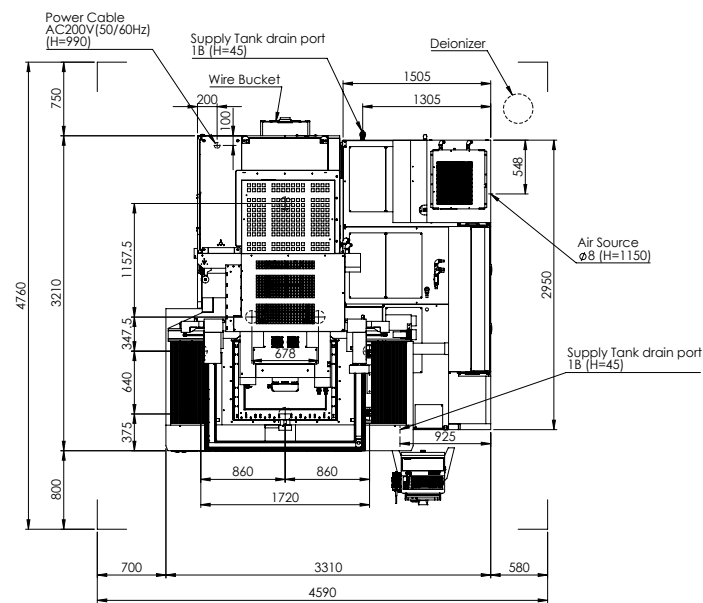
ALN600G iGroove+



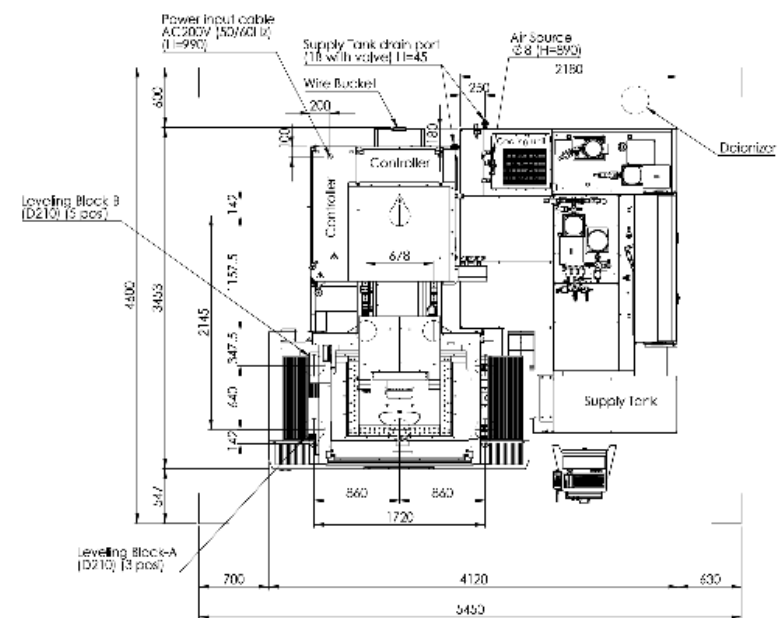
ALN600GH iGroove+



ALN800G iGroove+



ALN800GH iGroove+



- The export of Sodick's products and its related technologies (including softwares) is regulated under Japan's Foreign Exchange and Foreign Trade Law. In addition, because some of these products may be subject to re-export restrictions under the Export Administration Regulations (EAR) of the United States, please contact Sodick before exporting/supplying these products overseas.
- PROCUT Z+ WIRE is a registered trademark of Sodick Co., Ltd.
- Due to ongoing research, specifications are subject to change without prior notice.
- This catalog contains illustrations and drawings, and some may include certain options.
- The machining data in this catalog is based on conditions, machining environment, and measurement standards that have been specified by Sodick.
- The surface roughness unit Rz is used based on JIS B0601:2001 and ISO4287:1997/ISO1302:2002.
- The "SPW" and "SPW-E" are CNC power supply units only for wire-cut EDM.
- The information in this catalog is current as of November 2023.



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