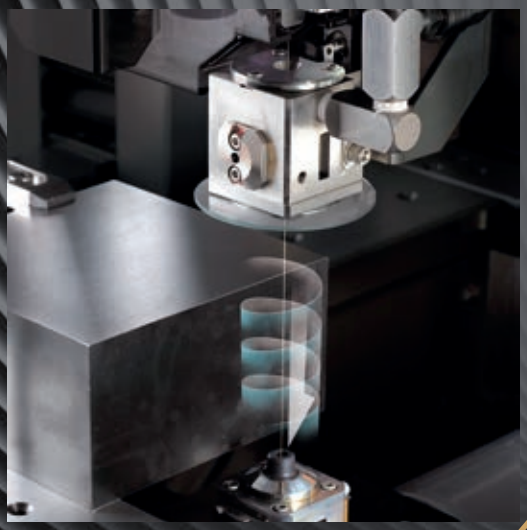
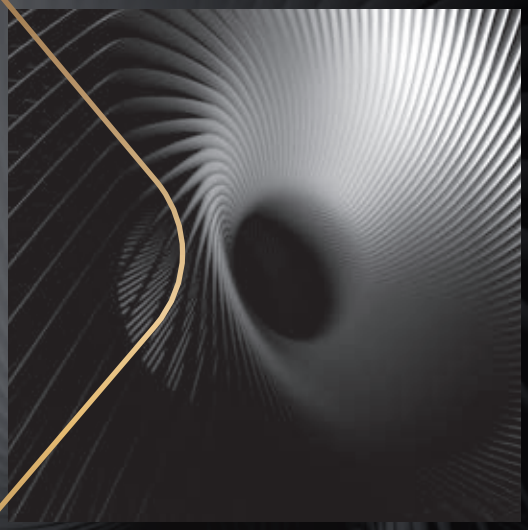
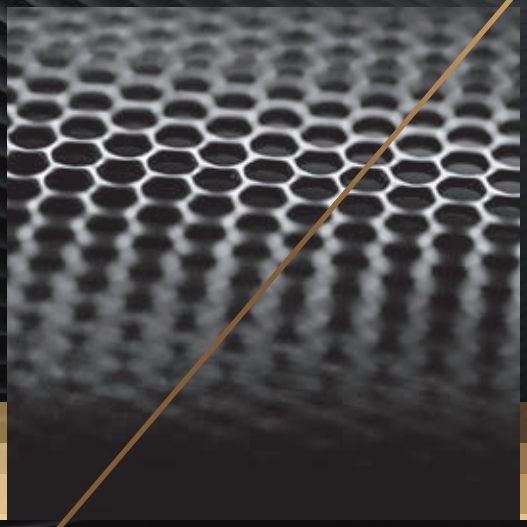






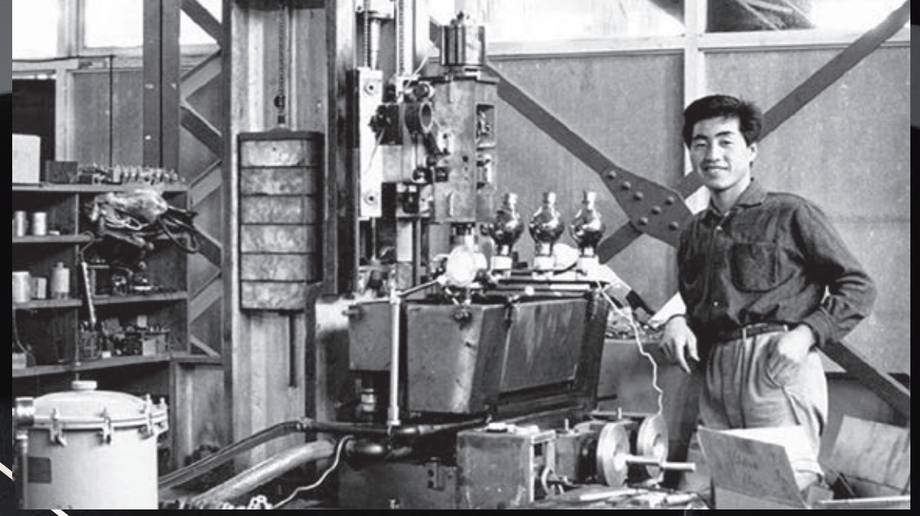
European Corporate Brochure

Sodick

Create your future

Contents

Thinking Global Acting Local



01

Our History

In 1960, Sodick founder Toshihiko Furukawa, was working for a domestic machine tool manufacturer in Tokyo. He wanted to find a way of overcoming technical issues with Electrical Discharge Machines (EDMs) and began studying electrical theory at university.

In 1963, his hard work paid off and led to the discovery of the Non-Consumable Electrode Circuits, from which he successfully developed the world's first non-consumable electrode transistor power supply. He later went on to develop the Loran machining method, which allows the sides of a workpiece to be accurately machined.

By resolving problems with machine accuracy, these discoveries and technological developments paved the way for the rapid uptake of electrical discharge machines, and revolutionised the world of metal machining.

Since the company inception in 1976, Sodick have always listened to the feedback of its customers, consistently doubling its efforts to make useful contributions to manufacturing.

The Sodick Group, under the founding spirit of "Create," "Implement," and "Overcome Difficulties," aims to provide the highest value to its customers and strives to contribute to a sustainable society, as a company that "Creates Your Future".

Sodick's commitment to meeting the demands of its customers spurred the company to develop a suite of technological innovations, which resulted in the successful construction of superior electrical discharge machines. With a passion for innovation, Sodick continue to champion product development in a range of new sectors.

EUROPEAN HEADQUARTERS

£7.5 MILLION INVESTMENT

TEMPERATURE CONTROLLED SHOWROOM

EUROPEAN HUB FOR PARTS AND CONSUMABLES

SPECIALISED TECHNICAL FACILITIES

02

European Headquarters

In May 2004, Sodick established two new European headquarters, Sodick Europe Ltd in England and Sodick Deutschland GmbH in Germany.

Sodick Europe

In May 2019 the European headquarters moved to Warwick, England. Sodick Europe offers full sales, service, and marketing support for the whole of the European market. Warwick is also the main European hub for spare parts and consumables, and has a large showroom that displays the machines.

The European headquarters employ a team of talented, multi-lingual professionals, who are always on hand to provide information, literature, and technical specifications on all Sodick machines, in addition to support the network of dealerships.

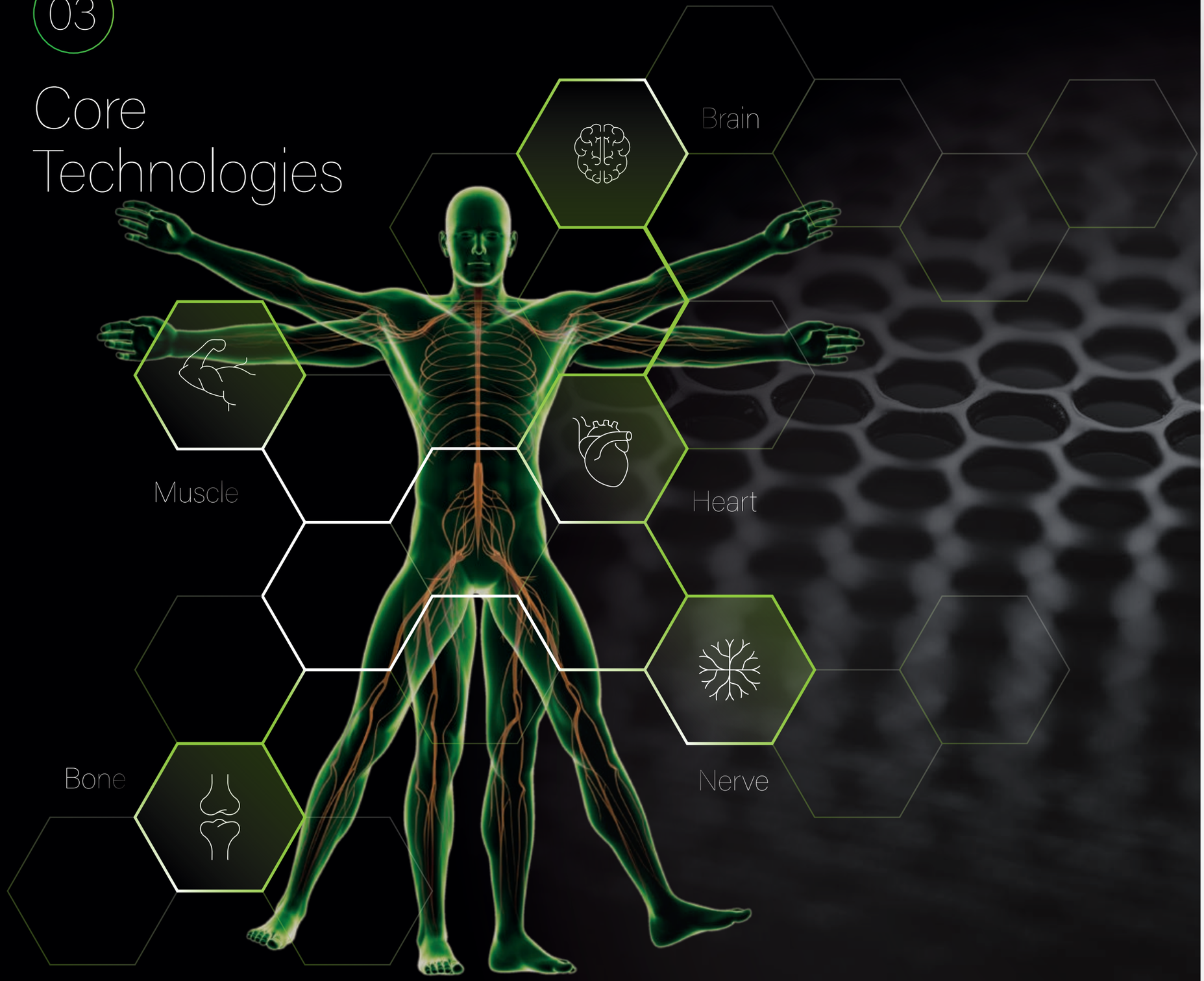
The commitment to the European network does not stop at sales. It applies equally to providing advice and support in all technical aspects of applications and training.

Sodick Deutschland

Sodick Deutschland is located in Düsseldorf and houses a technical centre for their customers. The technical support centre opened in 2006 to meet rapidly growing demands.

03

Core Technologies



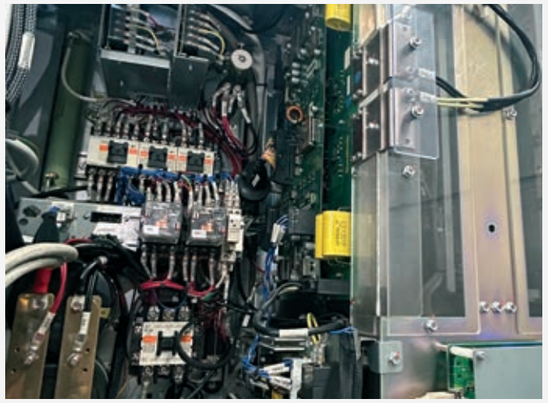
The Supply Unit is the Heart of an Electrical Discharge Machine

The history of Sodick's technological developments started with the creation of Electrical Discharge Power.

Generally, high speed processing begins with a pulse current being generated in a stable condition with the pulse control regulating the current. The current is repeatedly generated through the power circuit, sending a 1000A current within 1 microsecond. The finishing pulse current is repeatedly generated in a stable condition by nano level pulse control.

As for Die-Sinker EDMs, a stable pulse is generated by a pulse control system that regulates the pulse width and current value to optimum levels, in order to perform "nano wear" electrode machining without reducing the electrode.

These are collectively called an electrical discharge power supply and are the heart of the driving force for high performance (travelling just 30cm is expected, even in one nanosecond of light travel).



The NC unit is the Brain of Sodick Machines

An NC Unit is a numerical control unit that uses numeric value information and a servo mechanism to control the movement of machine tools and robots.

An NC Unit showcases a machine's performance. Sodick NC technology utilises the idea of attaching an NC Unit to freely control motors in Electrical Discharge Machines. In order to achieve high-quality processing without compromising accuracy, development of the original NC Unit specified for Electrical Discharge Machine became necessary.

The new iteration of the NC Unit was developed to maximise the ability of Sodick products, ensuring a high-quality processing performance that could not be replicated. Additionally, the NC Unit was developed to be adapted to each machine tool, providing flexibility through a main-machine interface, as the hardware was based on a PC.

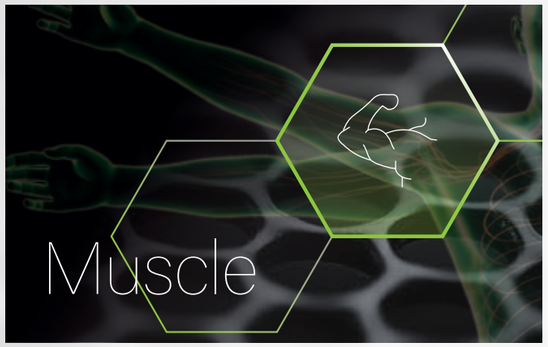
The Ceramics are the Bones of Sodick Machines

Ceramics are vital materials in ultra-precision processing because of their extremely small thermal replacement.

Ceramics Product Development, due to its extremely low coefficient of thermal expansion, ceramic is the ideal material to use in EDM machines. In addition to its perfect rigidity, light weight, and electrical insulation properties, ceramic is not affected by wear.

In the beginning, Sodick only manufactured parts necessary for Sodick machines, but due to high demand, Sodick ceramics manufacturing department became an independent operation.

Now, in addition to Sodick machines, Sodick work in-house to supply ceramics to companies that produce measuring devices and semiconductor manufacturing system.



The Linear Motors are the Muscles of Sodick Machines

Linear Motors demonstrate superiority in transition speed and positioning precision when compared to ball-screw motors. They achieve high speed, high precision movement whilst successfully decreasing energy consumption. Since there is little machinery contact, Linear Motors provide high response and long-term stability.

Features of Sodick Linear Motors

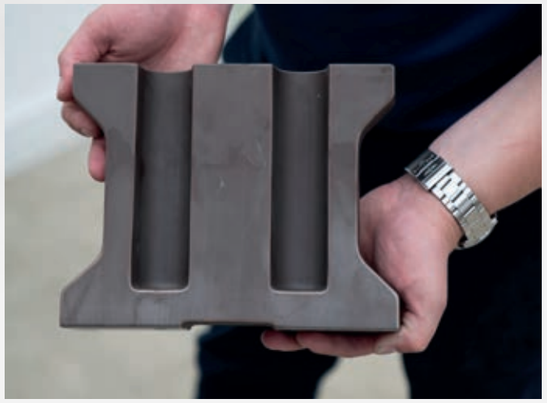
- Capable of positioning down to 1nm in a precision machine with speeds of over 100m/min in high-speed machines, and has the ability to accelerate over 5G in high acceleration machines
- Patented cooling method of AC cored Linear Motors
- Eliminates the need of ball-screws

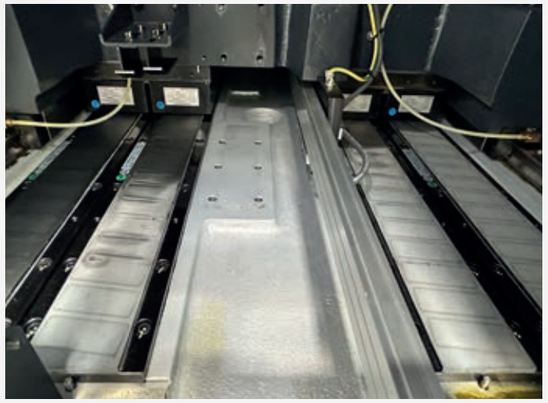
The Motion Controller is the Nerve of Sodick Machines

The conventional positioning method is the NC Unit monitors discharge gap and sends feedback through the motor driver.

In contrast, Sodick's in-house built motion controller directly monitors the discharge gap, condition and controls the discharge spark in real-time without any delays.

This provides unrivalled high-precision positioning with high sensitivity.





04

Machines

Established in 1988, the Sodick Thai factory is the main production plant for the entire Sodick Group.

With the latest equipment, the factory produces the most advanced machines worldwide.

Wire EDM

Sodick Wire-cutting EDM achieves exceptional performance at high speeds, high accuracy, and with a superior surface finish.

Featuring Sodick's patented rigid Linear Motor technology, the wire EDMs provide the highest accuracy and the best part quality.

iGroove+ Technology

Patented by Sodick, iGroove+ technology rotates the wire during the skim-cut operation so that workpieces are machined from top to bottom with the unconsumed surface of the wire.

In addition, Sodick's iGroove rotation mechanism provides additional control over the wire, combining the best ecological solution with the highest quality of EDM machining.

- Minimises wire consumption
- Increases surface quality
- Improves geometric accuracy
- Reduced power consumption
- Energy efficient

Die-Sinker EDM

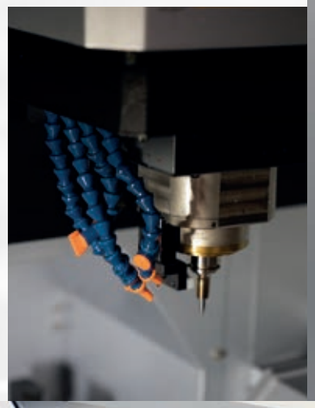
With high speeds and low electrode wear, Sodick Sinker EDM provides high accuracy and fine finishes alongside Linear Motor technology.

Hole Drilling EDM

High precision and high speed, Sodick small Hole EDM machines are easy to operate and machine difficult-to-cut carbide and heat-treated workpieces.

High-Speed Milling

Next-level Vertical Machining Centers featuring Sodick's patented Linear Motor technology, designed and built for high-speed precision milling and unmatched accuracy.



Injection Moulding

Sodick Injection Moulding machines come with a two-stage plunger injection system (V-LINE® System), achieving ultra-precision injection moulding every time.

05

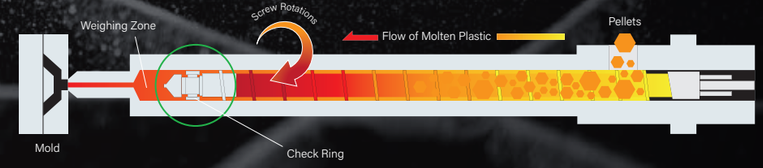
V-Line Technology

Sodick developed the revolutionary V-LINE® technology to deliver high-precision moulding. By separating the plasticisation and injection processes, a stable molten state is achieved with highly accurate repeatable mould filling.

eV-LINE
Injection Molding Machine

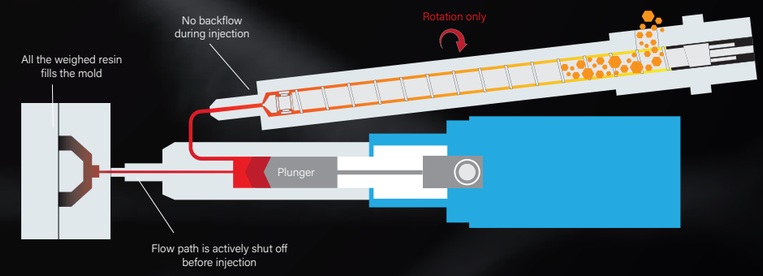
Traditional Inline Screw System

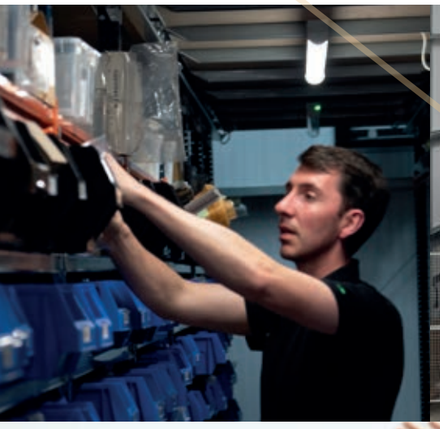
Pellets are melted by screw rotations and a heater. The plastic flows through the gap in the ring and is weighed. The check ring closing is dependent on the backflow of resin and cannot be controlled causing unstable weighed values.



V-LINE® System

As the screw rotates in the same position, the plastic receives the same thermal history. The exact amount of molten plastic for injection is fed to the plunger and the screw advances to shut of the flow path, preventing backflow.





30

NEARLY 50 YEARS MANUFACTURING

GLOBAL MARKET LEADERS

INNOVATION IN TECHNOLOGIES

PRECISION AND QUALITY

06

Parts and Consumables

EDM machines work harder and faster than ever before, with technological developments constantly pushing the boundaries of what is possible to achieve ever-greater levels of productivity and accuracy.

As a world leader in EDM technology, Sodick develops and manufactures not only the most productive EDM machines, but also a range of consumables expressly designed to keep equipment operating at optimal efficiency.

To get the very best from your EDM machine, you need to be using the most consistent, high-quality consumables for your application and your machine - genuine Sodick EDM consumables that you can rely on for:

- Quality
- Accuracy
- Consistency
- Reliability

07

Warranty

Sodick guarantee the materials and workmanship in addition to the positional accuracy of the Linear Motors for 10 years from the date of installation.

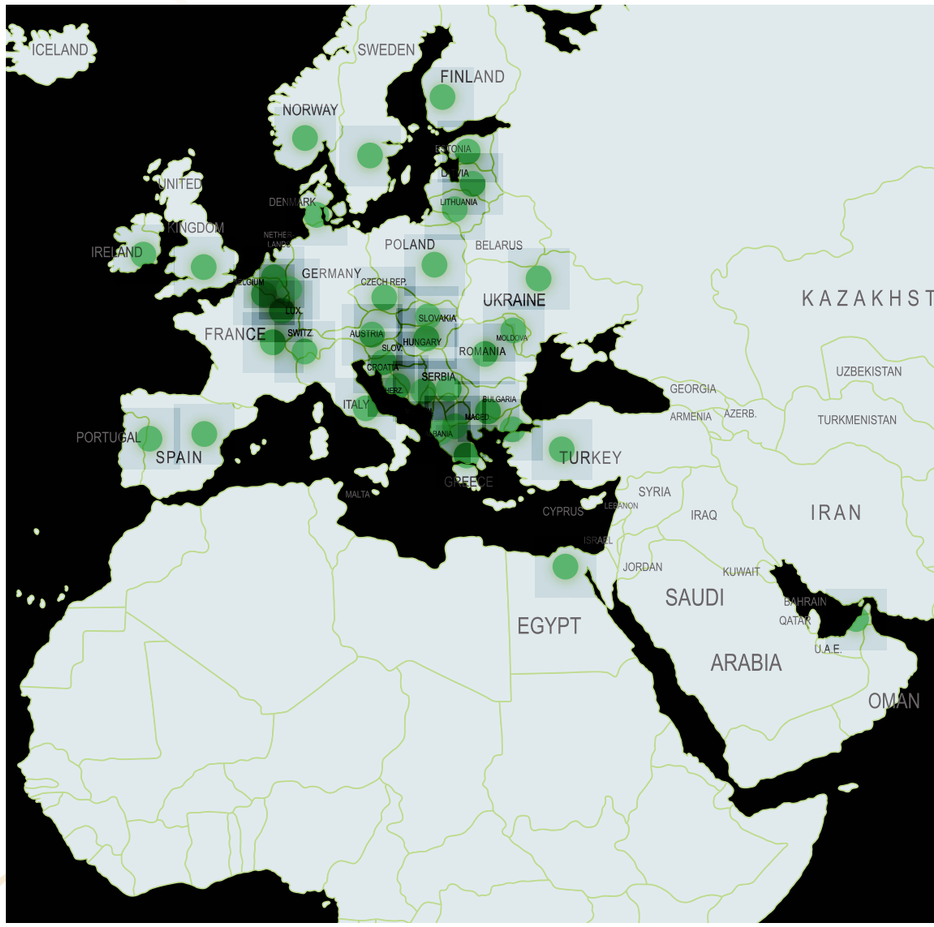
The warranty covers any defective materials or manufacturing faults which may appear during this period. Repair and replacement will be performed by a factory trained engineer approved by Sodick.

Sodick recommend only the use of Sodick approved consumable products and spare parts.

08

Sales and Support

Any company that wants to become an industry leader must be committed to the highest possible quality standards, and for Sodick this commitment goes far beyond sales. Sodick provide technical advice and support in all areas from applications to training and offer the very best in customer care.



PROMOTING GREEN PROCUREMENT

REDUCING ENVIRONMENTAL IMPACT

MANAGEMENT OF HARMFUL CHEMICALS

MEMBER OF CO^2 REDUCTION INITIATIVE

9

Sustainability

Sodick Group, under the founding spirit of "Create, Implement and Overcome," aims to provide the highest value to customers, and strives to contribute for a sustainable society as a company that "Creates Your Future".

We are championing sustainability by:

- Promoting green procurement
- Reducing environmental impact of business activities
- Strengthened and improved management of harmful chemicals
- Taking part in the CO^2 Reduction Initiative

In Japan, compliance with the Energy Conservation Law will be required by 2030, and Sodick have set their sights on the use of renewable energy.

In Sodick offices, initiatives are being promoted to reduce CO^2 emissions. These include effective use of the "Cool Biz" energy-saving campaign (cooler business attire to cut down on air conditioning usage) and teleconference systems.

The introduction of teleconference systems at Sodick's domestic offices and overseas subsidiaries reduces travel for meetings and business discussions, thereby helping to reduce energy consumption.

Sodick is also actively working to reduce the amount of CO^2 emissions from business activities, proactively using energy from natural sources, and have installed solar power generation systems on the roof, Sodick Thailand, the Kaga Plant, and the Miyazaki Plant of Sodick F.T.

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Sodick

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