

SARIX

3D MICRO EDM MACHINING

SARIX.COM 

**HIGH PRECISION
MICRO EDM MACHINES**

FOR

**MICRO EDM DRILLING
HIGH SPEED DRILLING
3D MICRO EDM MILLING
MICRO EDM SINKING**



SARIX Micro EDM Technology

SARIX Micro EDM Drilling

High precision drilling

We lead the way in high-precision drilling for small holes, with diameters ranging from 10 μm to 4.0 mm, delivering burr-free holes of the highest quality.

High speed drilling

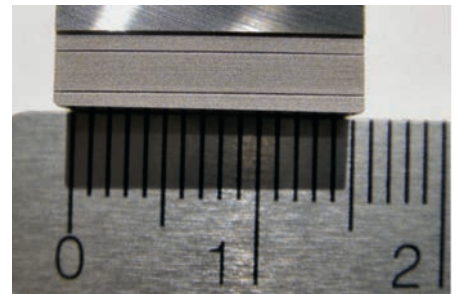
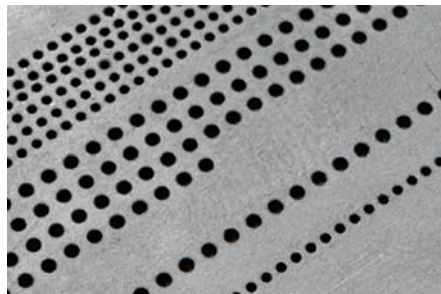
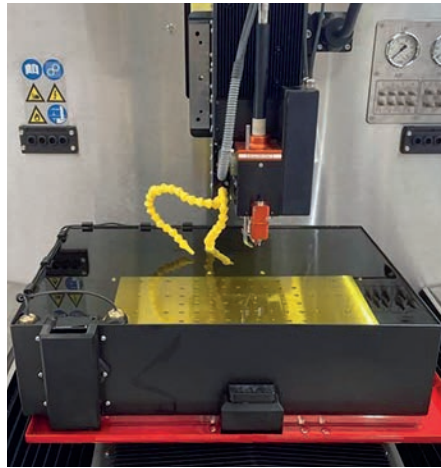
With the **SX-HPS** generator, we offer solutions for rapid holes drilling of several materials as carbide, steel and special alloys.

In aerospace as well as in stamping tools, it achieves high removal rates with minimal remelting layer and no cracks. Submerged tank solutions with high speed filling allow better drilling in safety conditions.

Deep Hole Drilling

We excel in extreme deep drilling across all diameters. Use our **SX-MDH** (Micro Deep Hole) for 0.10 mm holes up to 15 mm deep, and the **SX-HPS** generator to achieve 0.8 mm holes up to 230 mm deep.

We meet your most demanding micro drilling challenges!



SARIX 3D Micro EDM Milling

3D Micro EDM milling

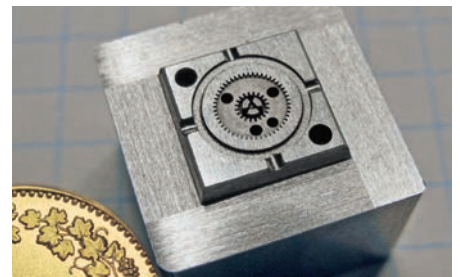
Our technology enables 3D cavity milling without requiring form electrodes. We use high-precision solid carbide micro-electrodes and CAM-generated milling paths to achieve machining accuracy superior to die sinking.

High finishing

The wide range of parameters and Micro erosion energies of the **PULSAR** generator achieves surface qualities down to Ra 0.05 μm .

Micro electrode shaping

Cylindrical or shaped electrodes can be formed and measured directly on the machine, eliminating any handling and clamping error.



SARIX Micro EDM Die Sinking

Micro cavity sinking

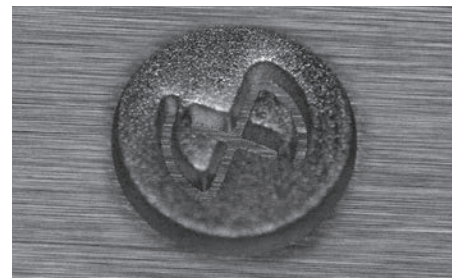
The **PULSAR** generator offers specific ultra-low wear technologies for the use of shaped micro-electrodes.

Corner finishing

Perfect control of electrode wear and use of high frequency generator pulses makes corners with extremely small radius down to 3 μm .

Micro-electrode form shaping

Indexed rotating spindle creates electrodes of different shapes on the **SX-Arianne** and measures them on the on-board laser device.



SARI~~X~~ Application markets



AUTOMOTIVE

Injection holes

Mass production high precision holes

- Perfect cylindrical hole with straightness control
- Reverse taper hole down to \varnothing 0.10 mm – depth up to 1.5 mm
- High repeatability multi-angle spray hole nozzle
- Mass production high precision and quality capability

injectors – nozzles – spray liners – flow controllers

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MICRO MECHANICS

Tools – Micro holes

From simple hole up to high precision finished hole

- High speed and high precision start hole drilling without deviation
- Deep hole drilling with high aspect ratio, \varnothing 0.10 mm on 15-20 mm depth
- Step holes and complex forms with surface finishing down to Ra 0.05 μ m
- Micro hole down to \varnothing 0.010 mm

wire start holes – stamping tools – guiding tools – micro grippings – nozzles – micro dies

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AEROSPACE

Injection and cooling holes

High speed drilling and precision holes

- High-speed hole drilling without entry angle limitation
- High-speed drilling quality without recast layer or cracks
- Perfect round holes without back wall touch
- Fan-shaped/diffuser holes drilled on the cooling holes

injection nozzles and ramps – swirlers – diffusers – blades – vanes – shrouds – flow valves

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MICRO MOLD

Plastic and metal molding

High precision 3D multi-level complex micro-molding cavities

- ± 1 μ m tolerance using simple round precision electrode
- Perfect gear profile for micro modules with high surface wall finishing
- Shaped edges on wall/floor 3D forms without bottom radius
- Multi step injection points with smooth taper profile

gears – rotors – connectors – optical lens – spacers – leaf spring housings

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MEDICAL

Surgical implants and instruments

Perfect holes without defects and alterations

- Micro hole down to \varnothing 0.010 mm
- Perfect round holes 5° entry angle
- Holes without entry/exit burrs on tubing cross section
- Holes without porosity and without heated zone

needles – tubings – instruments – medical devices – surgical components

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TEXTILE

Spinnerets and textile tools

Form holes with high surface finishing

- High precision round and shaped holes
- Drilling with high surface finishing down to Ra 0.05 μ m
- Perfect hole entry without burrs and without overheating layer
- Production of unlimited holes sequence

spinneret dies – wire needles – wire guiding fingers

BEHIND INNOVATIVE MICRO-MACHINING TECHNOLOGY



Since 1993, **SARIX**, we have pursued an ongoing commitment to the development of ultra-precise micro-dimensioning technologies for medium-sized Micro-machining. This high precision philosophy, which underpins the design and modularity of **SARIX** machines, guarantees an innovative approach for our customers.

PULSAR generator

With the innovative **ADP®** Analog Digital Pulse, **DPM®** digital Direct Pulse Motion and fibre optic communication, ensure rapid response and precision in Micro-machining on the following generator modules covering all applications:

- SX-MPS** Micro Pulse Shape main generator for a wide range of Micro-machining tasks
- SX-MFPS** Micro Fine Pulse Shape generator for machining between $50 \div 30 \mu\text{m}$ and $Ra 0.15 \div 0.10 \mu\text{m}$
- SX-UFPS** Ultra Fine Pulse Shape generator for $Ra 0.10 \div 0.05 \mu\text{m}$
- SX-HPS** High Power pulse Shape generator up to 4.0 mm hole size

More options:

- SX-BTD** Advanced breakthrough detection for fast hole drilling
- SX-SLS** Wizard for automatic drilling/milling parameters search on new materials

ENTER INTO THE SARIX SMART CONNECTED INTERACTIVE INDUSTRY 4.0

The **SARIX** machines are ready for Industry 4.0. They improve efficiency of large structured companies and small workshops enabling them to reap the benefits of digitization.

SARIX DIGITAL SERVICES, SX-SDS, offers on-board customized instructions for preventive and prescriptive maintenance. It guides operators and maintenance technicians to keep the machine running optimally and reduce operating costs.

SARIX Industry 4.0 implements the **OPC-UA** protocol to connect with a Manufacturing Execution System (MES). This integration allows real-time monitoring and data driven decisions, optimizes production processes and ensures maximum efficiency and productivity.



SX-SH-WIRE Post-processor to program wire cutting starting holes directly from the wire cutting CAM (available for selected CAM).

PROTECT YOUR INVESTMENT – STAY AT THE CUTTING EDGE FOR YEARS TO COME

Choosing **SARIX** means investing in cutting-edge machinery and partnering with a proactive team focused on your long-term success. We recognize the need to keep machines current as technology progresses. Our **SARIX** machine upgrade packages ensure continuous evolution across all machines.

Customized updates are always available on request.

FREE LIFETIME CNC software updates with every service!

SX-CNC UPGRADE

Enhance your operations with the advanced **SX-HMI** touch-screen and an IP65 stainless steel keyboard. It includes program generation from DXF files and on-board editing.

UPGRADE WITH PULSAR GENERATOR

Replace older generators with **PULSAR** generator, optical fiber communication and the newest generator modules.



IMPROVE YOUR PROCESS WITH OUR TECHNOLOGY APPLICATION CENTER

Featuring a full range of **SARIX** machine configurations, our technology center is where our process engineers handle product sampling, craft turn-key solutions, host customized seminars on our technology, and provide dedicated support for all your processing challenges.

SARIX Machines

Table-top for
high speed drilling

SX80-hpm

Compact high
precision machining

SX100-hpm

Micropart production
on 3–5 axis

SX200-hpm



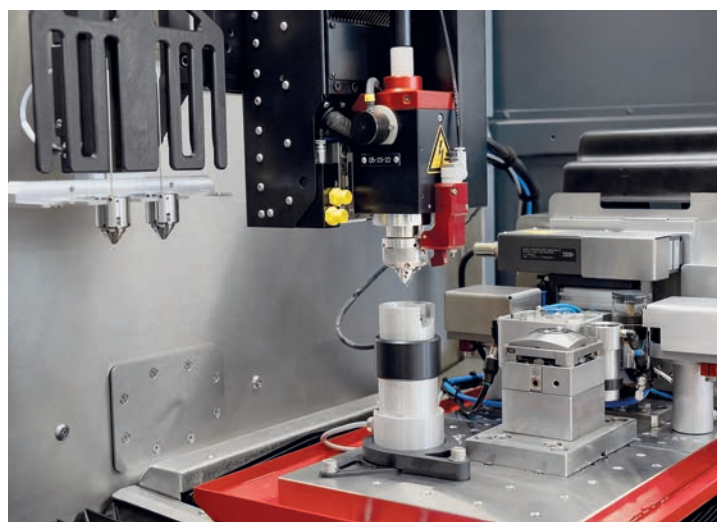
X = 300, Y = 150, Z = 200	TRAVEL AXIS (mm) X = 300, Y = 150, Z = 200	X = 350, Y = 200, Z = 200
	POSITIONING PRECISION ± 2.0 µm, Resolution = 0.1 µm Linear axis 1200 mm/min	
AXIS FEED RATE	TABLE SIZE AND LOAD L = 510, l = 270 load of ~25 kg	L = 700, l = 510 load of ~50 kg
DIELECTRIC UNIT	Deionized water or oil dielectric unit (with fire extinguishing) SX-DA capacity 75 liters – High capacity on request	
HIGH PRESSURE FLUSHING	70 bar through electrode tube	
POWER SUPPLY	400 V – 3 Ph/ 50 Hz Power 2 kVA	
L = 850, l = 905, h = 1400 Bench L = 1800, l = 800, h = 2100 650 kg	DIMENSIONS (mm) L = 1300, l = 1300, h = 2200 1'000 kg	L = 1730, l = 1940, h = 2300 1'400 kg
OPTIONS	Rotary A/B axis, collect changer SP12-AC, wire dress electrode shaping SX-Arianne, W400 for SX100 and SX200	

Automatic electrode collet changer SP12-AC

The **SP12-AC** collet changer is a quick-change system for up to 4 collets of varying diameters, significantly cutting down machine setup time.

This system eliminates the need for realignment when switching collet types or electrode diameters.

A collet change for a different diameter electrode takes less than 30 seconds, while collet alignment remains intact throughout changes.



SARIX Machines

Fast drilling
on 6–8 axis

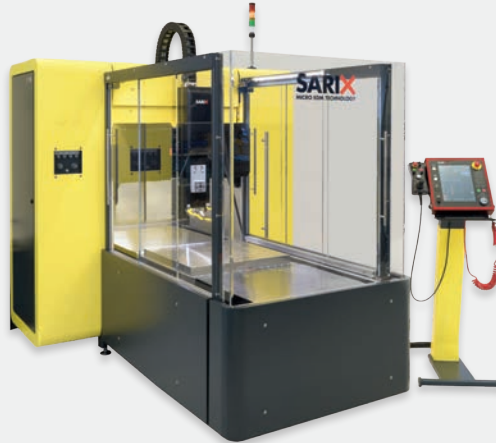
SX200-Aero

Micro drilling on
long and heavy parts

SX200L

Micro drilling on
7–8 axis on large parts

MACHline



X = 350, Y = 200, Z = 150 W = 400	TRAVEL AXIS (mm) X = 600, Y = 1100, Z = 150 W = 400	X = 850, Y = 500, Z = 100 W = 480, L (Z2) = 100
± 2.0 µm, Resolution = 0.1 µm	POSITIONING PRECISION ± 4.0 µm, Resolution = 0.1 µm	± 5.0 µm, Resolution = 0.1 µm
AXIS FEED RATE	Linear axis 1200 mm/min	
L = 700, I = 510 load of ~50 kg	TABLE SIZE AND LOAD L = 500, I = 500 load of ~1100 kg	A = ± 135°, B = 360° load of ~50 kg
DIELECTRIC UNIT	Deionized water or oil dielectric unit (with fire extinguishing) SX-DA capacity 75 liters – High capacity on request	
HIGH PRESSURE FLUSHING	70 bar through electrode tube	
POWER SUPPLY	400 V – 3 Ph/ 50 Hz Power 2 kVA	
L = 1730, I = 1940, h = 2400	DIMENSIONS (mm) L = 2600, I = 2680, h = 2520	L = 2500, I = 2000, h = 2200
1'600 kg	2'000 kg	3'000 kg
OPTIONS	Rotary A/B axis, SX-Cobot, part probing, laser micro-ablation	

Automation cell SX-COBOT for SX200, SX200L and MACH Line

The **SX-COBOT** automation cell integrates all process elements, including electrodes, guides, tools, and accessories. Beyond workpiece loading, the robot can switch drilling diameters, transition from guide-assisted drilling to **3D Micro EDM Milling**, load measurement equipment, or perform additional flushing operations.

Utilizing **RFID** tags on all components, the system minimizes machine downtime and enables round-the-clock operation, including unmanned night or weekend shifts.



SARIX Features

SARIX Rotations spindle and electrode holder



SX-ROT • Manual electrode feeding spindle – Internal high pressure flushing – 3R chuck – Roundness $\pm 1 \mu\text{m}$ – Speed max 850 rpm – For collets SP02, SP03 and SP04



SX-A344L • Automatic electrode feeding and wear compensation spindle – Internal high pressure flushing – 3R chuck – Roundness $\pm 1 \mu\text{m}$ – Speed max 850 rpm – For collets SP06, SP12 and SP-MDC



SX-C-A344L • Indexable automatic electrode feeding and wear compensation spindle – Internal high pressure flushing – 3R chuck – Speed max 600 rpm – For collets SP06, SP12 and SP-MDC



SX-Revolver • Automatic electrode changer system – 8 electrodes of length 300-600 mm – Compatible with automatic spindle series SX-A344 – For collets SP06, SP12 and SP-MDC

SARIX Collets



SP02 • High precision manual electrode feeding collet – Internal high pressure flushing – Diameter range $\varnothing 0.05$ to $\varnothing 3.0 \text{ mm}$



SP06 • High precision automatic electrode feeding collet – Runout adjustment – Internal high pressure flushing – Diameter range $\varnothing 0.05$ to $\varnothing 1.5 \text{ mm}$ – Up to $\varnothing 0.99$ it fits to clamping range of 0.04 mm



SP12 • High precision quick change automatic feeding collet – Runout/tilt adjustment – Internal high pressure flushing – Diameter range $\varnothing 0.05$ to $\varnothing 1.5 \text{ mm}$ – Up to $\varnothing 0.99$ it fits to clamping range of 0.04 mm



SP-MDC • Automatic multi diameter collet – Internal high pressure flushing – Diameter ranges $\varnothing 0.2$ to 1.0 mm , $\varnothing 0.5$ to 1.5 mm and $\varnothing 1.0$ to 4.0 mm

SARIX Features and devices



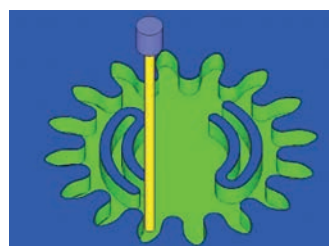
SX-Arianne • Wire Dress unit – Designed to produce micro-electrodes for micro-holes and micro-forms down to $\varnothing 10 \mu\text{m}$ – Wire $\varnothing 0.10$ and 0.20 mm



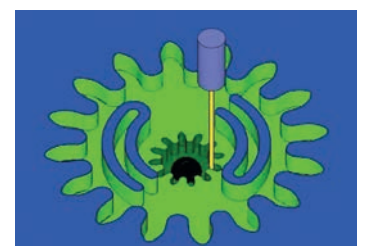
SX-Laser measuring • Laser for electrode diameter/profile measuring for SX-Arianne – Resolution of $0.10 \mu\text{m}$ – Minimum measurement of 0.005 mm

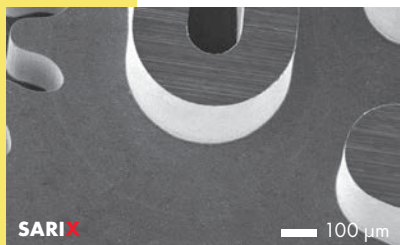
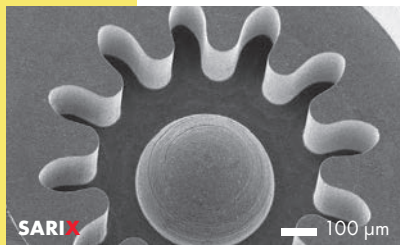
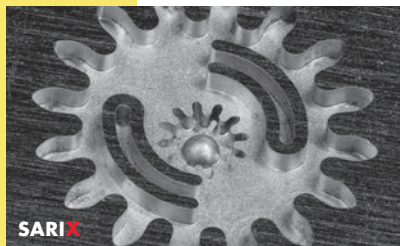
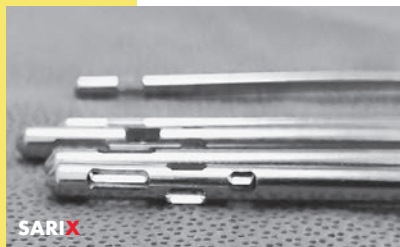
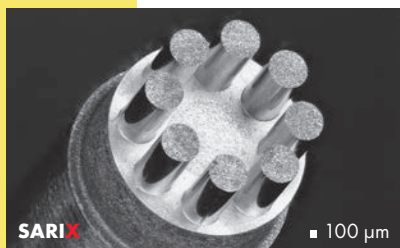


SX-Rotary A/B axis • High precision A/B axis – A rotary axis $\pm 115^\circ$ – B rotation axis 360° – Direct axis measurement – Designed for 3R or EROWA chuck – Resolution 0.0001 degrees – Workpiece holder internal flushing



SX-CAM software • 3D Micro EDM Milling CAM – Software package – SARIX post-processor – ESPRIT SolidMill licence: 2.5D, PROD, 3D and Freeform





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