

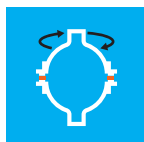


SONIMAT

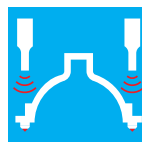
Europe Technologies group

Designer of **THERMOPLASTIC WELDING SOLUTIONS**

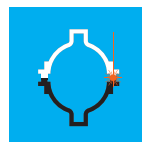
*Automotive
Consumer goods
Medical*



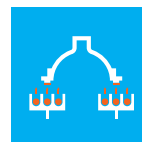
SPIN



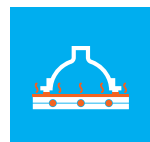
ULTRASOUND



LASER



INFRARED



HOT PLATE



THERMOPLASTIC WELDING

**INFRARED
HOT PLATE
LASER
SPIN
ULTRASOUND**

SUMMARY

HPW: HOT PLATE AND INFRARED WELDING PRESSES.....	4
HPW RANGE	6
HPW 0.25 HORIZONTAL BLADE.....	7
HPW 0.25 VERTICAL BLADE	8
HPW 1.0 HORIZONTAL BLADE	9
HPW 1.0 HORIZONTAL HORIZONTAL TURNTABLE	10
HPW 1.0 VERTICAL BLADE.....	11
HPW 1.5XL VERTICAL BLADE.....	12
RSW: DUAL SERVO-SPIN WELDER.....	13
RSW RANGE.....	14
RSW EMBADABLE COLUMN	15
RSW LIGHT CURTAIN	16
ESW: SERVO ULTRASONIC PRESS SYSTEM	17
ESW RANGE.....	18
ESW EMBEDABLE COLUMN	19
ESW LIGHT CURTAIN	20
ESW BI-MANUAL	21
LSW: LASER WELDING MACHINES	22
LSW RANGE	24
LSW TURNTABLE	25
LSW SIMPLE WORKSTATION.....	26
ULTRASONIC GENERATOR - SONIMAT	27
ULTRASONIC TOOLINGS.....	28
SERVICES	29
SONIMAT'S OTHER FIELDS OF EXPERTISE	30

ABOUT US

SONIMAT is specialized in thermoplastic welding and offers its expertise and know-how to many customers in high-demanding business sectors (automotive, medical, plastics, etc.)

SONIMAT has been a pioneer in the development of a **digital ultrasonic welding** to guarantee the best quality and repeatability of thermoplastic welding and assembly.

As a consequence, SONIMAT, in 1999, based its strategy on a **digital ultrasonic generator proprietary development** to control the entire process and obtain an optimum plastic welding.

Beyond the ultrasonic process, welding expertise and offerings include **spin, laser, hot plate and infrared processing**.

SONIMAT benefits from a unique understanding which allows us to offer the most innovating and optimal performance products.

From design to manufacturing of your products, processes and machines, our technicians and engineers provide the best quality service and a personalized answer to your demands..

«To fit your requirements, our range of standard products can be fully personalized.»

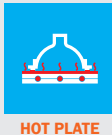
HPW: HOT PLATE AND INFRARED WELDING PRESSES



Our range of HPW presses (hotplate or infrared welding) has been designed to meet the most demanding specifications:

- Fast electrical axis
- Short cycle time
- Repeatability of welds

Our solution is a fully digital press that is accurate and fast accommodating both hot plate and infrared technologies.



DUAL SENSOR

FULL ELECTRIC

GUARANTEED QUALITY

- Robust mechanical design
- Precision of the brushless axis
- Designed, assembled and controlled by our staff

INTEGRABILITY

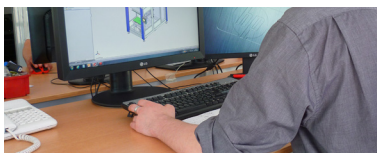
- On modern and automated production lines

Our machines have been designed to work as single stations, or integrated on automatic assembly lines. In operator mode, the ergonomic and safety requirements are perfectly respected.

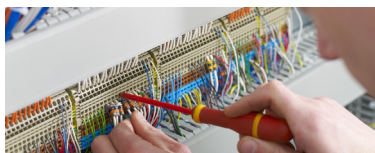
WELDABLE MATERIALS

PE, POM, PP, PA, PBT, PPA, PPS

TURNKEY SOLUTIONS



Pre-project
Expertise
Co-development
Feasibility
Prototype



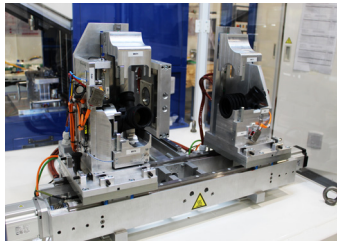
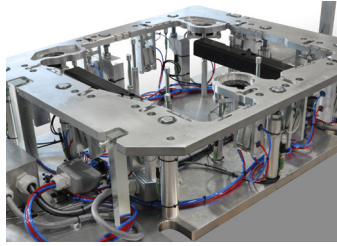
Manufacturing
Design - Engineering
Mechanical
Assembly
Automatism



On site
Installation
Training
After sales services

TOOLING AT ITS BEST

- **Engineering office :**
Engineering, assembly, development of your specific tools
- **Standard clamping module**
- **Quick change of tools**
- **Design without mechanical stop**
- **Ergonomic design to facilitate :**
Production, maintenance and access to tools



"SONIMAT designs and manufactures the specific tooling for your machine."

CHARACTERISTICS

Perfect mastery of
stopping values

Repeatability of
the process

Mastery of
penetration speed

Optimised
productivity gain

Intuitive IHM
interface



- 1**
- Colour touchscreen operator interface
 - Intuitive and user-friendly command menus
 - Recording and display of the welding cycle data
 - Automatic recognition of tools and loading of associated programs
 - Complete process traceability

- 2**
- Electrical table movement up to 300mm/s with an accuracy of +/- 0.02mm

- 3**
- Electric hotplate movement up to 2m/s

- 4**
- Evolutive operator protection
 - Robot communication on front face with SONIMAT exchange protocol (standard)

- 5**
- Dual Sensor force control

HPW RANGE

	HPW 0.25	HPW 0.25	HPW 1.0	HPW 1.0 TT	HPW 1.0	HPW 1.5XL
Blade type	Horizontal	Vertical	Horizontal	Horizontal	Vertical	Horizontal
Loading method	Front					
Safety light curtain	Yes					
Depth (mm)	1746	1326	2465	2995	2139	3 325
Width (mm)	1245	1245	1365	1365	1545	1803
Height (mm)	2068	1931	2517	2517	2503	2697
Welding force (daN)	250		1 000			1 500
Tooling dimensions (mm)	300x600	200x300	400x750	400x750	400x460	680x1325
Working height (mm)	930 to 1050					
Tension (V)	380/400V 50Hz Tri+N+T					
Air pressure (Bars)	6					
Acoustic level (dB)	<80					
Weld line time (sec)	<1.5					
Heating element max travel (mm)	500	400	520	520	610	1 000
Heating element max speed (mm/s)	1 000		2 000			
Tooling max travel : superior or right (mm)	150		200		157.5	350
Tooling max travel : lower or left (mm)	150		200		157.5	200
Tooling maxspeed (mm/s)	300					
Distance tray/slide (mm)	600	300	798	798	315	814
Heating zones (3650W/zone)	2		4			
Number of programmes	15					
Defective part management	Yes					
Pneumatic tool management	Yes					

Options

SONIMAT provides many different options for the range of hotplate and infrared welding.

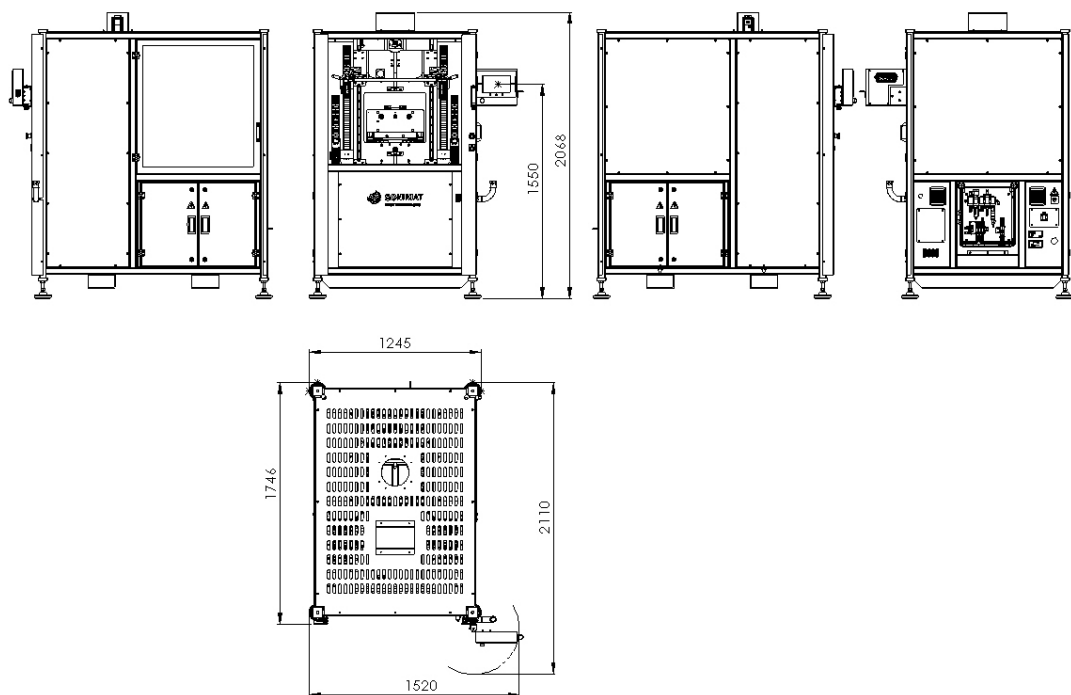
	HPW 0.25	HPW 0.25	HPW 1.0	HPW 1.0 TT	HPW 1.0	HPW 1.5XL
Additional heating zones	x	x	x	x	x	x
Screen on articulated arm	x	x	x	x	x	x
Side roller shutters	x	x	x	x	-	x
Remote control module (EWON)	x	x	x	x	x	x
Customer specific painting	x	x	x	x	x	x
Turntable	x	-	x	x	-	x
Communication bridge (supervision)	x	x	x	x	x	x
Hatch and sensitive edge	x	-	x	x	-	x
Translation of the technical file in all languages (excluding French)	x	x	x	x	x	x
Machine approval by accredited body	x	x	x	x	x	x
Removable screen for installation on 2 sides	x	x	x	x	x	x
Robot communication	x	x	x	x	x	x

HPW 0.25 | Horizontal blade



- 1 Touchscreen interface
- 2 Table and hot plate electrically driven
- 3 Operator safety light curtain
- 4 Operator protective door

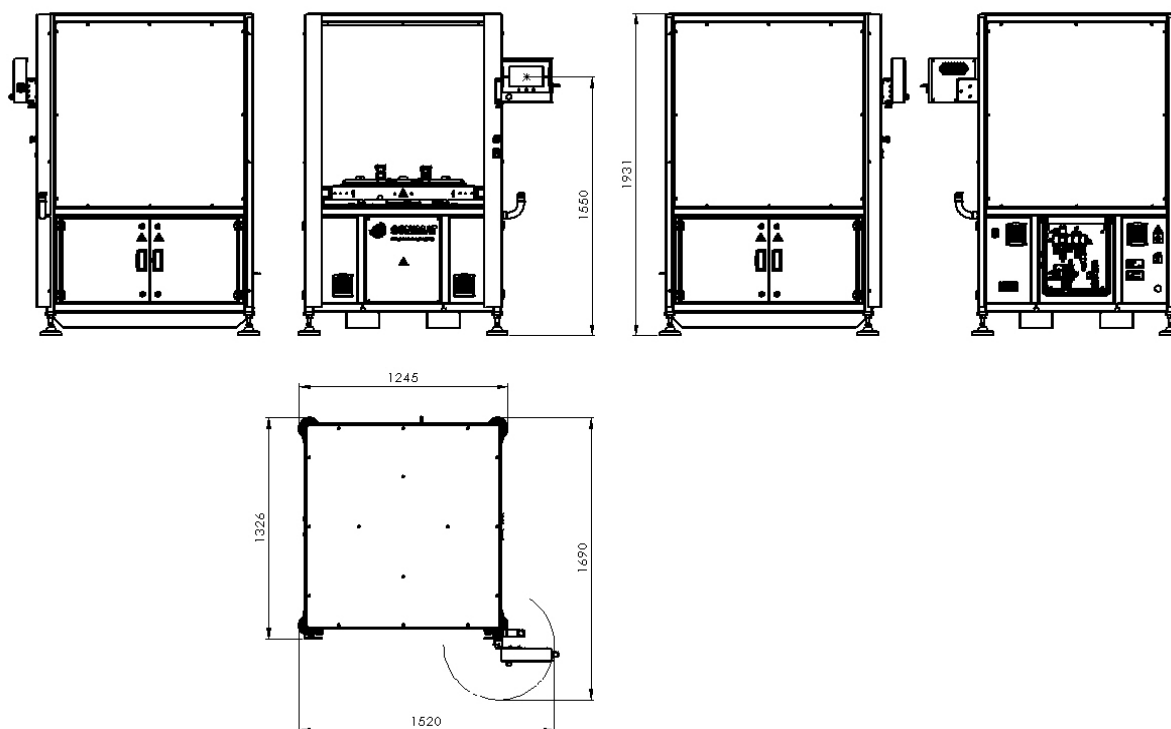
Technical plans - HPW 0.25 Horizontal blade



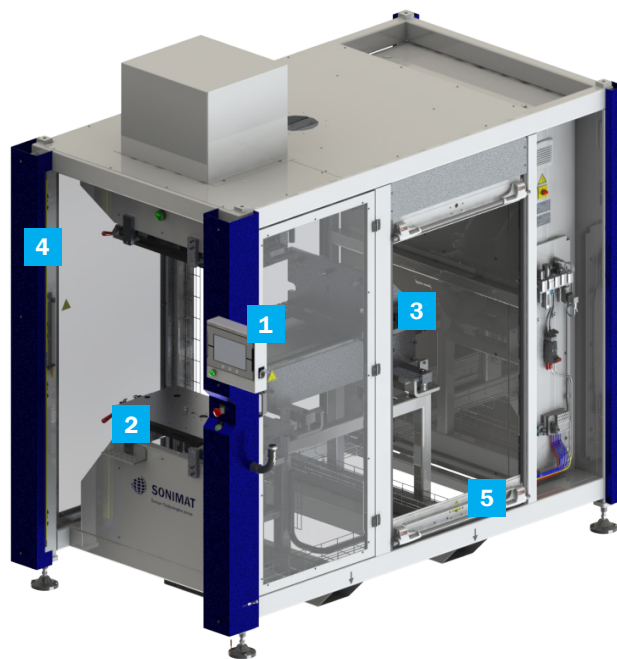
HPW 0.25 | Vertical blade

- 1** Touchscreen interface
- 2** Table and hot plate electrically driven
- 3** Operator safety light curtain

Technical plans - HPW 0.25 Vertical

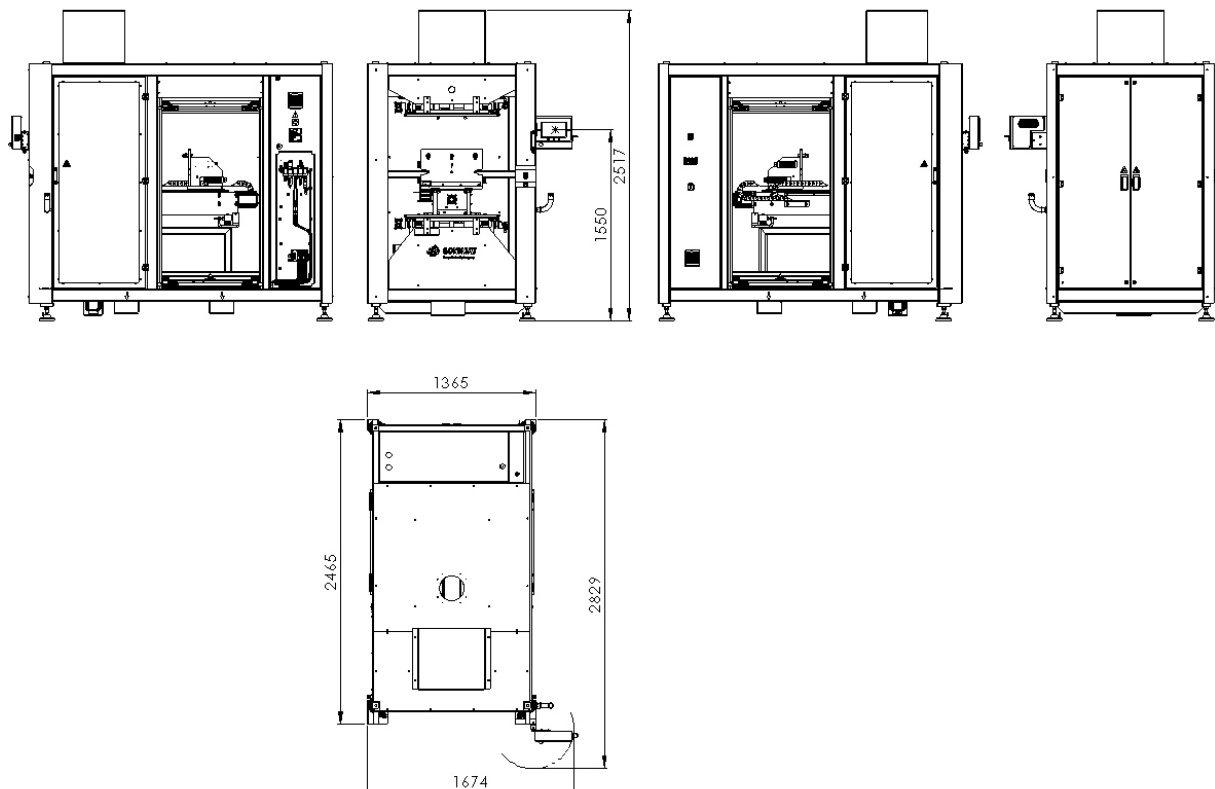


HPW 1.0 | Horizontal blade



- 1** Touchscreen interface
- 2** Table electrically driven
- 3** Hot plate electrically driven
- 4** Operator safety with light curtain
- 5** Operator protection shutter

Technical plans - HPW 1.0 Horizontal blade

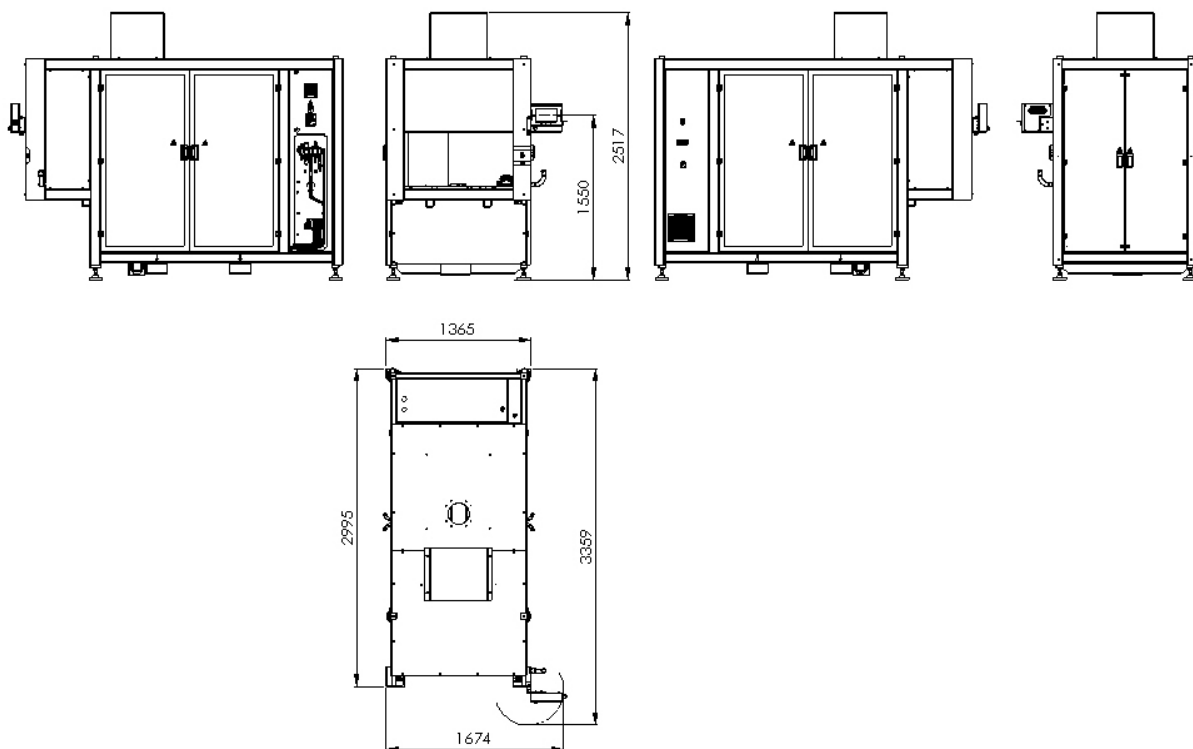


HPW 1.0 Horizontal | Horizontal Turntable

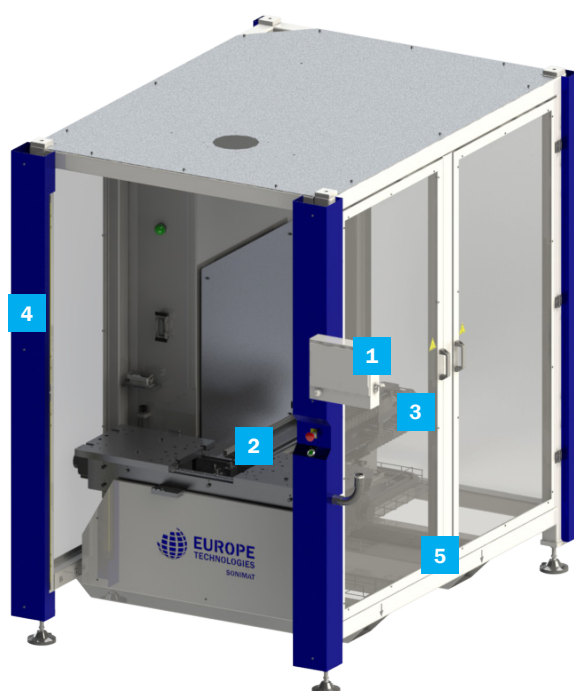


- 1 Touchscreen interface
- 2 Table electrically driven
- 3 Hot plate electrically driven
- 4 Operator safety light curtain
- 5 Operator safety doors
- 6 Turntable

Technical plans - HPW 1.0 turntable

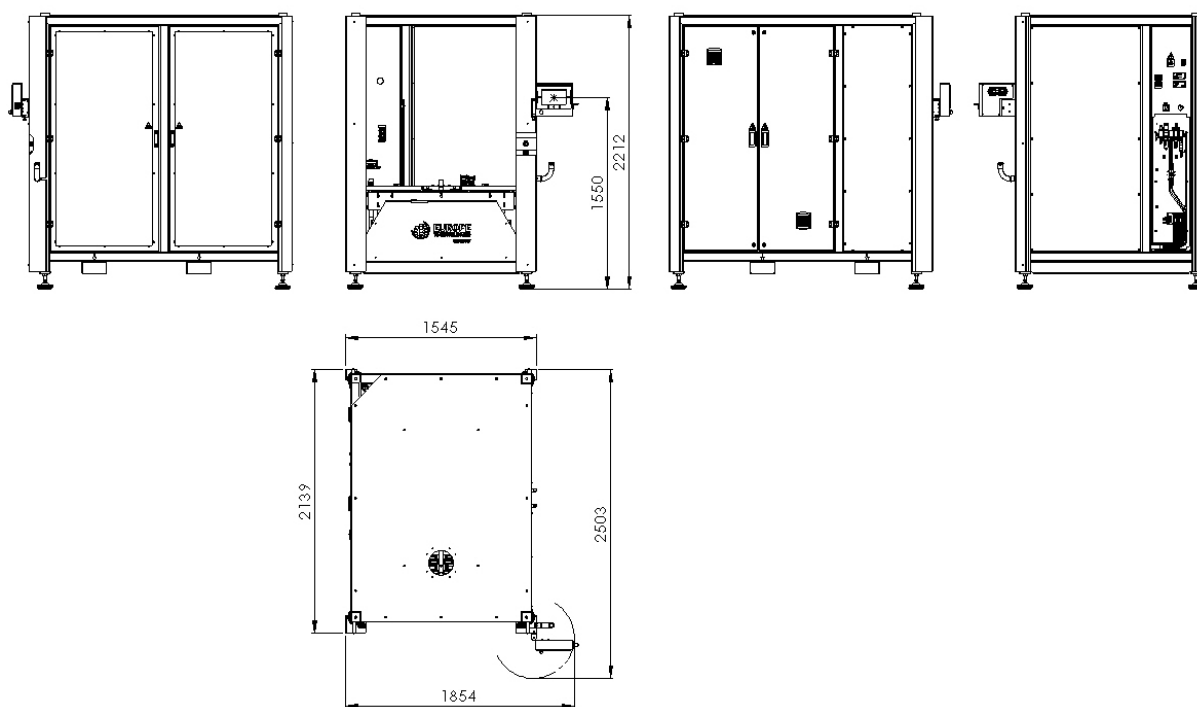


HPW 1.0 | Vertical blade

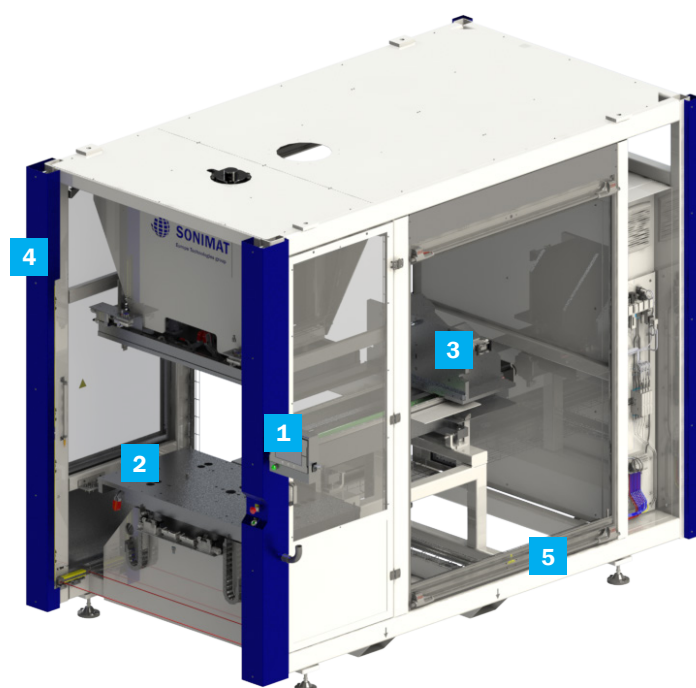


- 1 Touchscreen interface
- 2 Table electrically driven
- 3 Hot plate electrically driven
- 4 Operator safety light curtain
- 5 Operator safety doors

Technical plans - HPW 1.0 vertical

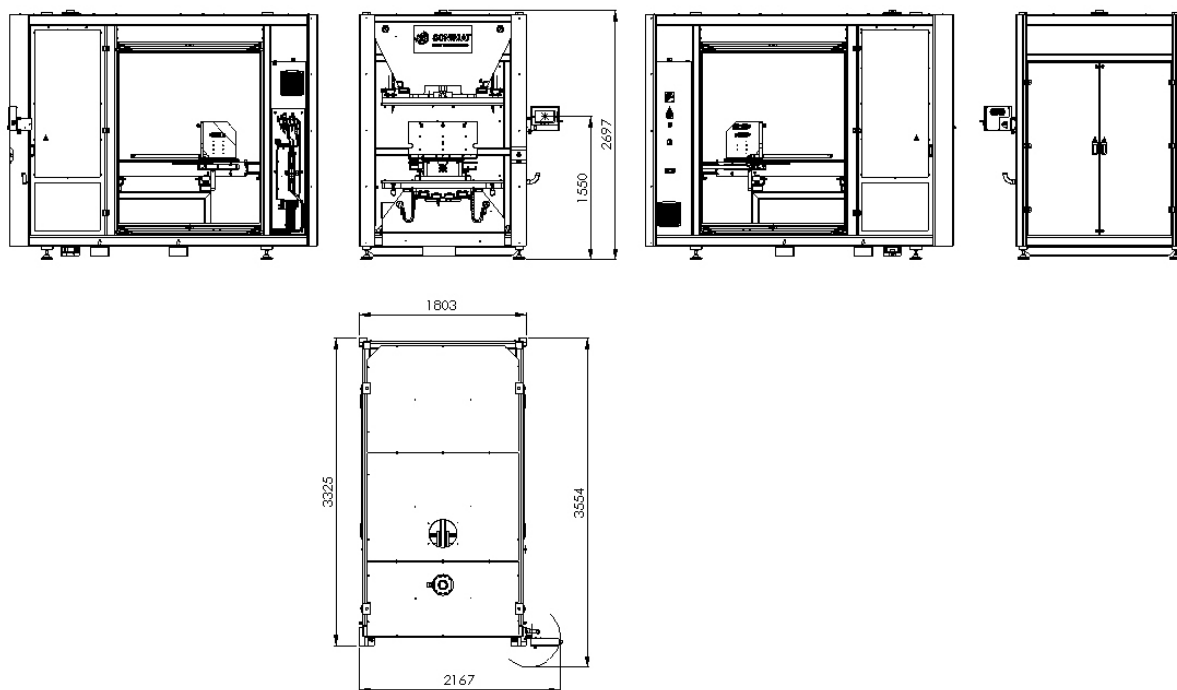


HPW 1.5XL | Vertical blade

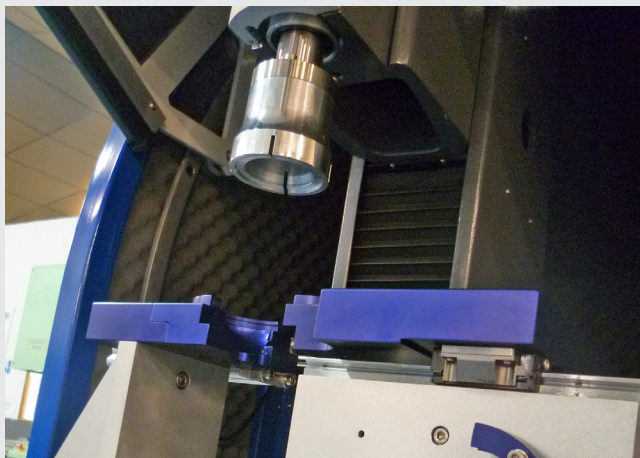


- 1 Touchscreen interface
- 2 Table electrically driven
- 3 Hot plate electrically driven
- 4 Operator safety with light-curtain
- 5 Operator safety shutter

Technical plans - HPW 1.5XL Vertical Blade



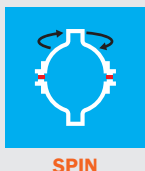
RSW : DUAL SERVO-SPIN WELDER



Our range of RSW machines (rotary friction welding) has been designed to meet the most demanding specifications:

- Respect of angular dimensions
- Fast electric axes
- Repeatability of welds
- Ergonomic and intuitive machines

We fulfill those criteria with a dual servo welder.



DUAL SERVO

FULL ELECTRIC

GUARANTEED QUALITY

- Robust mechanical design
- Precision of the electric axis
- High accuracy of the rotary drive
- Designed, assembled and controlled by our staff

INTEGRABILITY

On modern automated production lines

Our machines have been designed to work as stand-alone stations, or to be integrated on automatic assembly lines with a robot in front to load / unload components. Ergonomics and operator safety concepts are more than fulfilled.

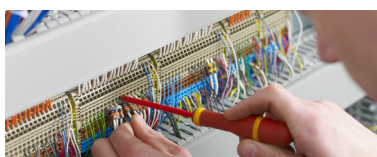
WELDABLE MATERIALS

POM, PPA, PE, PP, PS, PBT, PA, ABS

TURNKEY SOLUTIONS



Pre-project
Expertise
Co-development
Feasibility
Prototype



Manufacturing
Design - Engineering
Mechanical
Assembly
Automatism



On site
Installation
Training
After sales services

TOOLING AT ITS BEST

- **Engineering office:**
Engineering, assembly, development of your specific tools
- **Ergonomic design:**
Production, maintenance and access to tools
- **Standardized workpiece clamping**

**" SONIMAT is expert
in the design and
realization of tools
with a guaranteed
result.**

CHARACTERISTICS

Perfect mastery of
stopping values

Repeatability of
the process

Mastery of
penetration speed

Optimised
productivity gain

Column available
as stand alone
with connection
and electrical box

RSW RANGE

	RSW
Column distance / head axis (mm)	215
Base plate / head low position distance (mm)	150
Base plate / head high position distance (mm)	600
Clamping force (daN)	250
Motor torque (rated Nm)	15.9
Motor torque (peak Nm)	47.7
Column stroke (mm)	450
Spindle power (kW)	5
Spindle speed (rpm)	3500
Descent speed (mm/s)	300

Options

SONIMAT provides various options for its range of spin welding machines (RSW).

	RSW
Screen on articulated arm (access to both sides of the machine)	x
Remote control module (EWON)	x
Customer specific painting	x
Turntable	x
Communication bridge (supervision)	x
Hatch and sensitive edge	x
Translation of the technical file in all languages (excluding French)	x
Machine approval by accredited body	x
Removable screen for installation on 2 sides	x
Robot communication	x
Remote HMFI	x
Pneumatic energy	x

RSW | Embeddable column

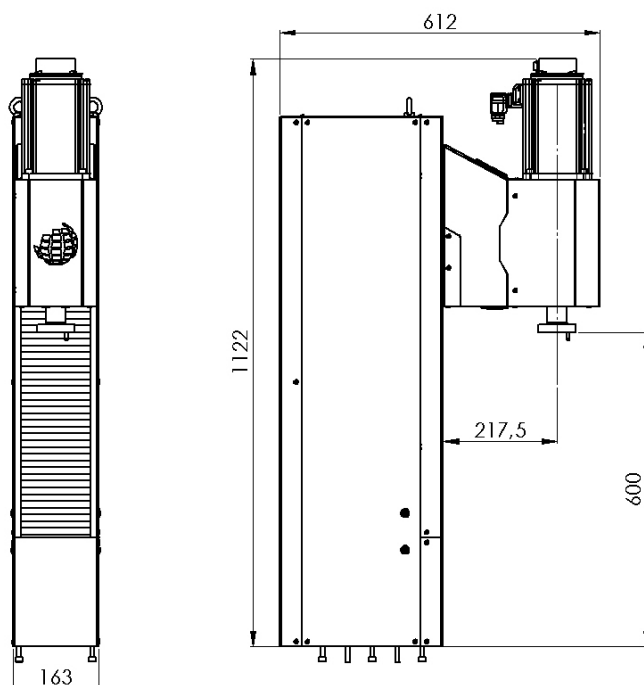


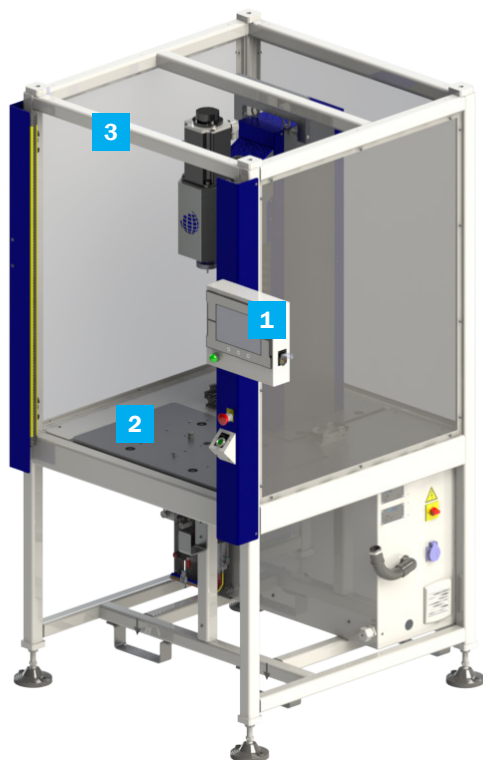
1 Mechanical design

- ± 0.02 mm accuracy of Z-axis position
- ± 0.1 degree rotation accuracy
- Column rigidity

2 Up to 450 mm stroke for greater versatility and easy loading / unloading of even more complex assemblies

Technical plans - RSW embeddable column



RSW | Light curtain**1** Interface

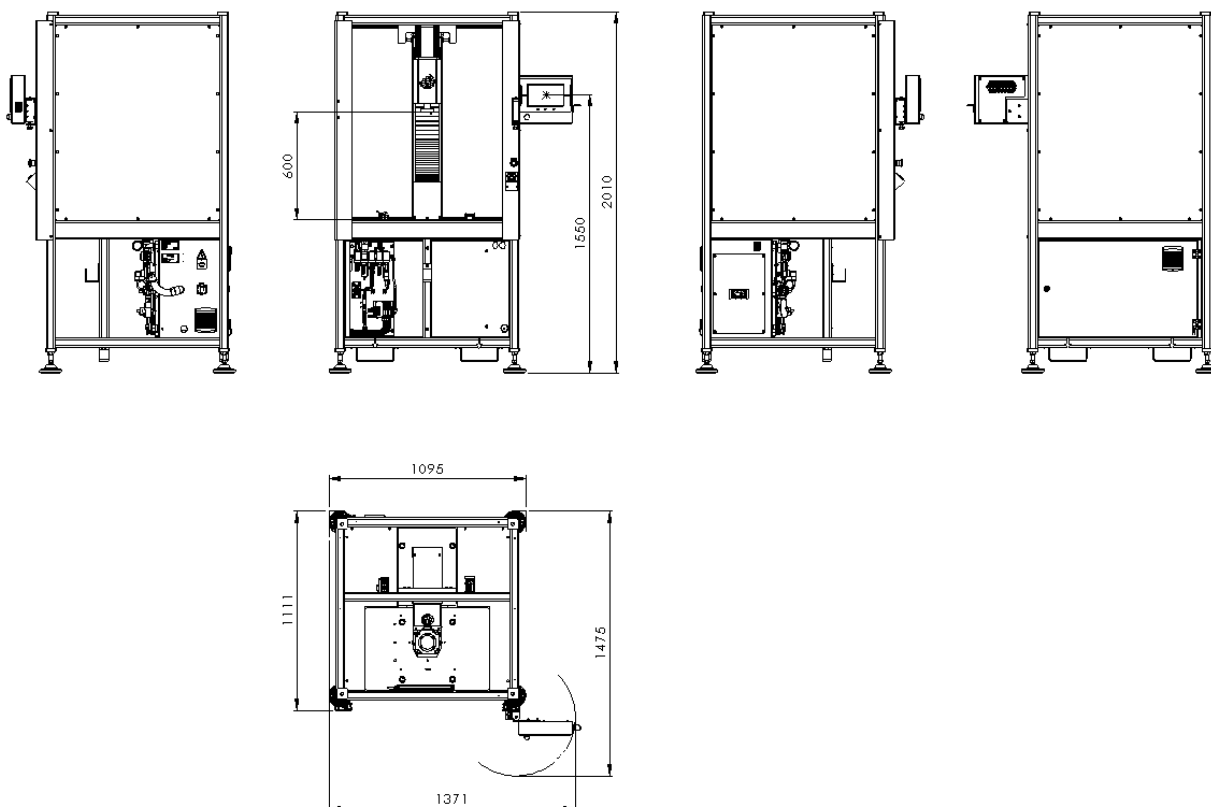
- Touch-sensitive
- Intuitive programming
- Displays of weld curves
- Recovery of production data

2 Integrated management of tooling

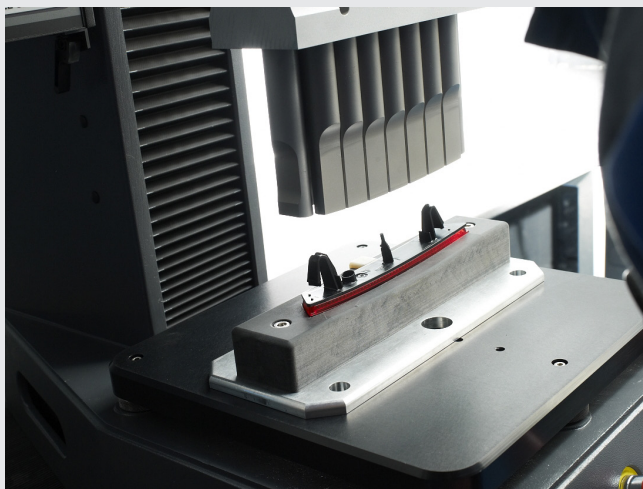
- Tooling kinematics
- Dual sensor control
- Integrated pneumatic cabinet

2 Open chassis for maximum accessibility

Technical plans - RSW light curtain

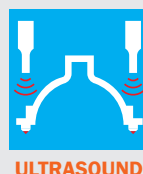


ESW: SERVO ULTRASONIC PRESS SYSTEM



To fulfil your most stringent plastic welding requirements, SONIMAT has developed its range of ESW ultrasonic presses.

With more than 20 years of experience in the plastic assembly industry, the result is this scalable, integrable, user-friendly, repeatable and accurate press.



SERVO

FULL ELECTRIC

GUARANTEED QUALITY

- Design, assembled and control in our workshops
- Precision of the electrical axis
- Digital generation of the ultrasonic signal



WELDABLE MATERIALS ABS, ABS-PC, PC, PA, PMMA, PP, PS

INTEGRABILITY

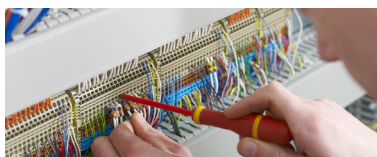
- On modern and automated production lines

Our machines have been designed to work as single stations, or integrated on automatic assembly lines. In operator mode, the ergonomic and safety requirements are perfectly respected.

TURNKEY SOLUTIONS



Pre-project
Expertise
Co-development
Feasibility
Prototype



Manufacturing
Design - Engineering
Mechanical
Assembly
Automatism



On site
Installation
Training
After sales services

TOOLING AT ITS BEST

Converters - boosters - sonotrodes - anvils

- Internal engineering office
- Integrated mechanical workshop
- Control laboratory

Design and manufacture of 100% French acoustic units:
generator, converters, booster,
sonotrodes and anvils

CHARACTERISTICS

Configurations	20 KHz	30 KHz	40 KHz
800 W			x
1000 W	x	x	x
1500 W	x	x	
2000 W	x		
3000 W	x		

ESW RANGE

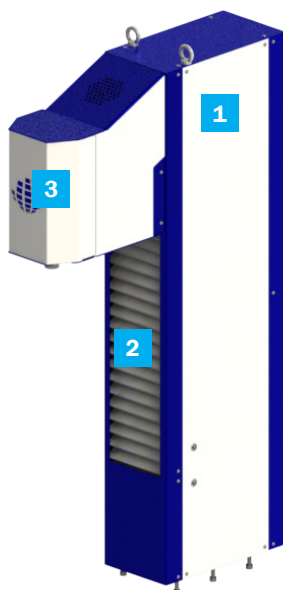
	ESW
Working height (mm)	930 to 1050
Tension (V)	220
Acoustic level (dB)	<80
Claping force (daN)	250
Tool size (mm)	350x350
Max head stroke (mm)	450
Head/table distance (mm)	655
Max head speed (mm/s)	300

Options

SONIMAT provides different options for its range of ultrasonic welding presses.

	ESW
Screen on articulated arm (access to both sides of the machine)	x
Remote control module (EWON)	x
Customer specific painting	x
Turntable	x
Communication bridge (supervision)	x
Hatch and sensitive edge	x
Translation of the technical file in all languages (excluding French)	x
Machine approval by accredited organism	x
Removable screen for installation on 2 sides	x
Robot communication	x
Remote HMFI	x
Soundproof enclosure	x
Multi-heads	x
Tape applicator	x
Pneumatic energy	x

ESW | Embeddable Column



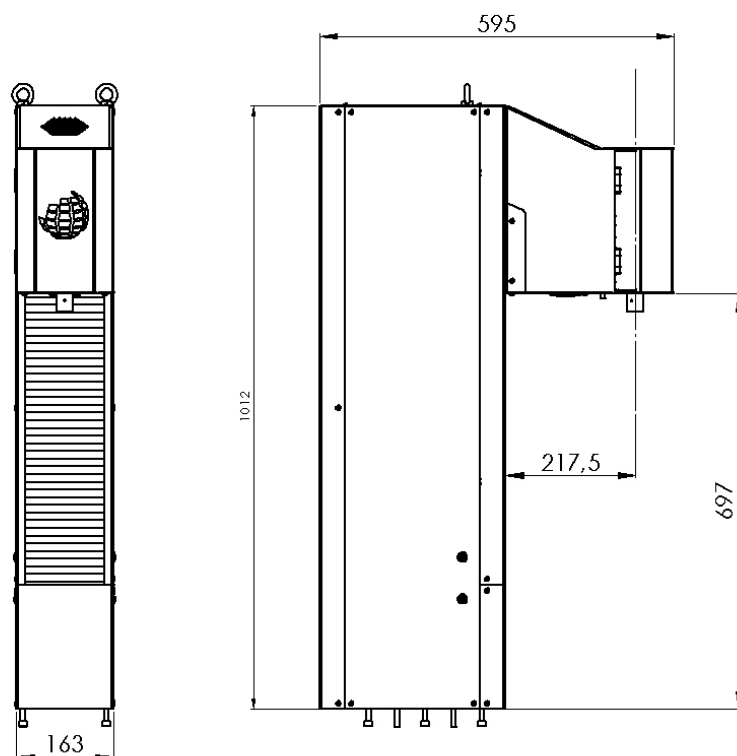
1 Mechanical design

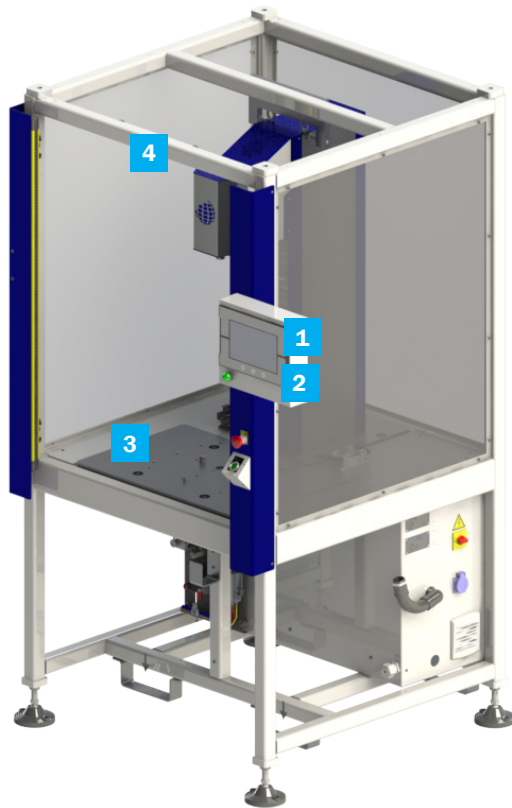
- ± 0.02 mm accuracy of Z-axis position
- Column rigidity

2 Up to 450 mm stroke for greater versatility and easy loading / unloading of even more complex assemblies

3 Quick change of the acoustic set

Technical plans - ESW embeddable column



ESW | Light curtain**1** Interface

- Touch-sensitive
- Intuitive programming
- Displays of weld curves
- Recovery of production data

2 Production data recovery (traceability)

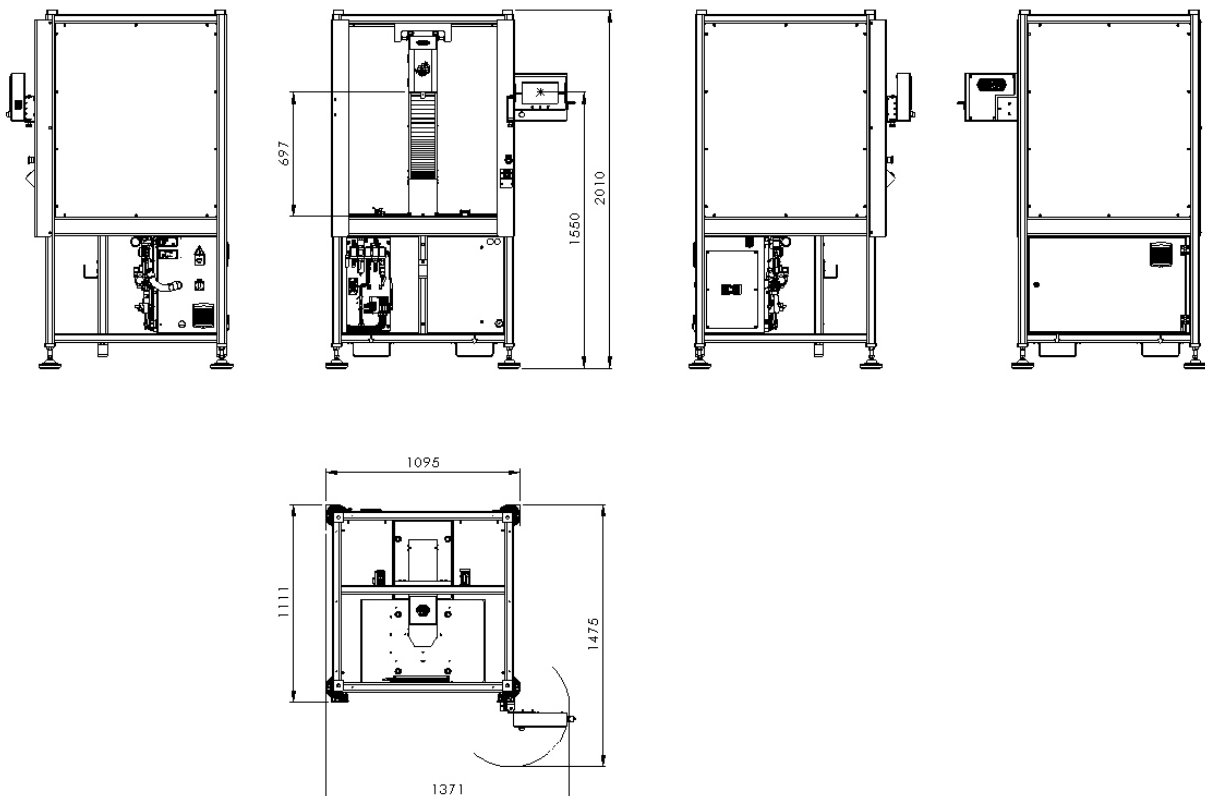
- Intuitive programming
- Working mode: Constant effort or constant speed
- Stop setpoint: Time, distance, energy

3 Integrated management of tooling

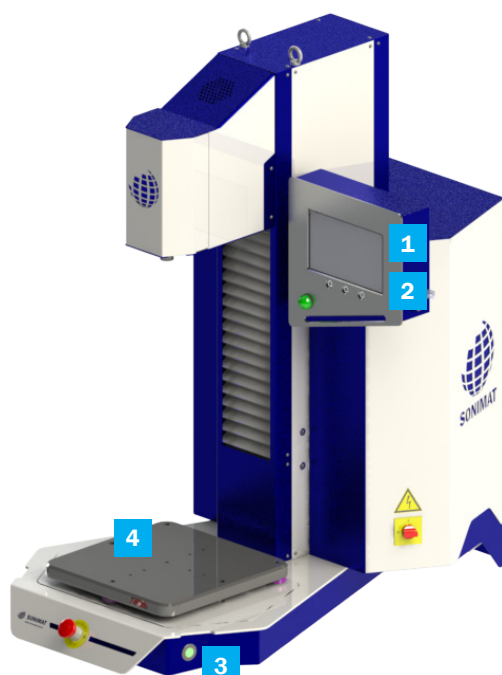
- Tooling kinematics
- Dual sensor control
- Integrated pneumatic cabinet

4 Open chassis for maximum accessibility

Technical plans - ESW light curtain



ESW | Bi-manual



1 Interface

- Touch-sensitive
- Intuitive programming
- Displays of weld curves
- Recovery of production data

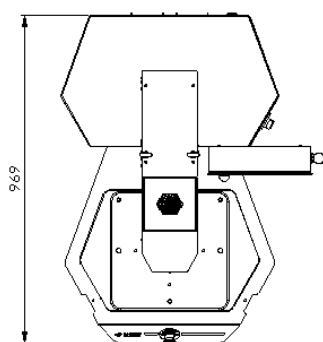
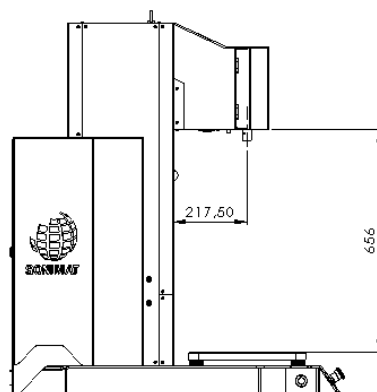
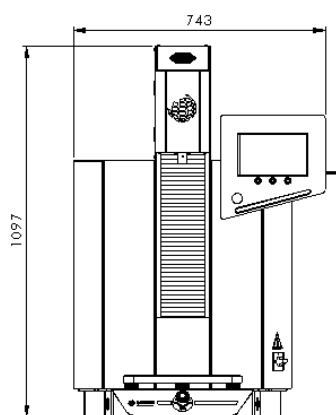
2 Production data recovery (traceability)

- Intuitive programming
- Working mode: Constant effort or constant speed
- Stop setpoint: Time, distance, energy

3 Operator safety via bi-manual control

4 Tripod adjustment of the table flatness

Technical plans - ESW bi-manual



LSW: LASER WELDING MACHINES

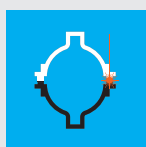


This laser welding technique uses the transparency of two superimposed materials:

- One is transparent to the laser energy
- while the other absorbs it.

The laser beam is focused at the junction of the two parts, passes through the transparent material and melts the absorbent material.

Welding plastics this way creates a solid bond resulting from the rapid cooling of the assembly after the laser beam passes.



LASER

MADE IN
FRANCE



SERVO

FULL ELECTRIC

GUARANTEED QUALITY

- Robust mechanical design
- Precision of the brushless axis
- Designed, assembled and controlled by our staff

INTEGRATION - On modern, automated production lines

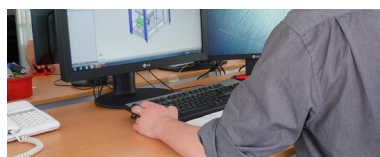
Our machines have been designed to work as single stations, or integrated on automatic assembly lines. In operator mode, the ergonomic and safety requirements are perfectly respected. Technical specificities

TECHNICAL SPECIFICATIONS

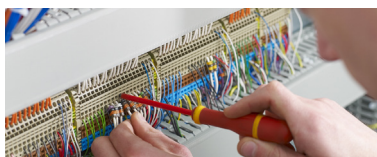
For this welding process, pressure control is essential. A clamping tool provides the contact pressure on the two parts to be assembled for uniform heat transfer between the two connecting elements.

WELDABLE MATERIALS PC, PA, PP, PS, PMMA, POM, PBT, PE

TURNKEY SOLUTION



Pre-project
Expertise
Co-development
Feasibility
Prototype



Manufacturing
Design - Engineering
Mechanical
Assembly
Automatism



On site
Installation
Training
After sales services

TOOLING AT ITS BEST

- **Engineering office:**
Engineering, assembly, development of your specific tools
- **Standard clamping module**
- **Design without mechanical stop**
- **Ergonomic design to facilitate:**
Production, maintenance and access to tools

"SONIMAT designs and manufactures the specific tooling for your machine."

ADVANTAGES

SONIMAT laser technology has many advantages:



Welding without contact

- Autonomous effort management/regulation
- No blade fooling
- No vibration

High performance and quality welds

- Waterproof without dust
- Invisible and aesthetic
- Repeatable
- Strong mechanical resistance
- Short time cycle
- Axis precision

Reduced cost

- All along the time life of the machine
- Energy efficiency
- Easy prototyping

TYPE OF WELDS

Scanner

Nearly simultaneous contour scanning
Two scanner work surface options : 115x115mm or 230x230mm

LSW GENERATORS

Our 150W and 200W water and air laser generators ensure a high operation linearity. Our generators have the following advantages:

- Improved repeatability of the weld
- Cycle time optimisation
- Simplified communication



LSW RANGE

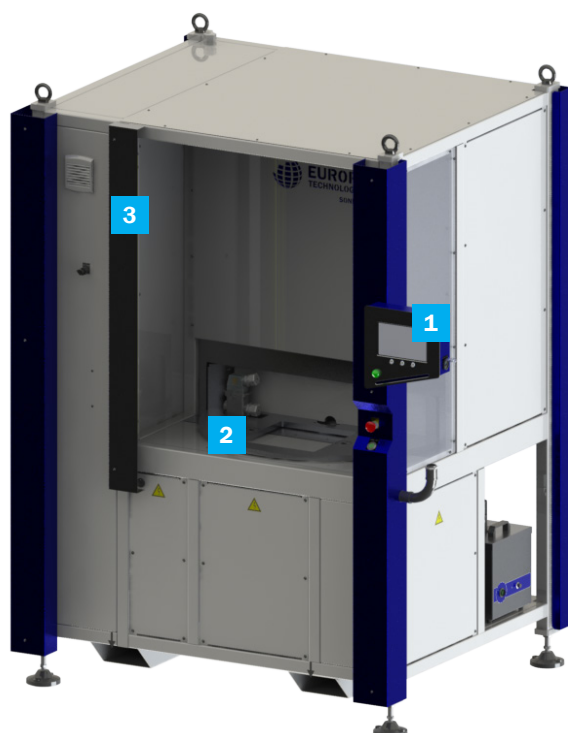
	Diode	Fibre
Optical Power (W)	200 to 400W	
Wave length (nm)	980	1070
Fibre length (m)	5	
Optical fibre care diameter (µm)	300	200
Distance from Focal (mm)	480	
Spot dimension (mm)	Ø2.5 / Ø4.2 / Ø6.3	Ø1.7 / Ø2.5 / Ø4.2
Power supply		
Supply voltage (V)	230V 50/60Hz	
Dimensions		
Rack (mm)	150 x 350 x 300	460 x 560 x 600
Environment		
Storage temperature (°C)	5 - 50	5 - 50
Operating temperature (°C)	15 - 35	15 - 50
Cooling	Air type PELTIER or Water Chiller	Air type PELTIER or Water Chiller

Options

SONIMAT provides different options for its laser welding range.

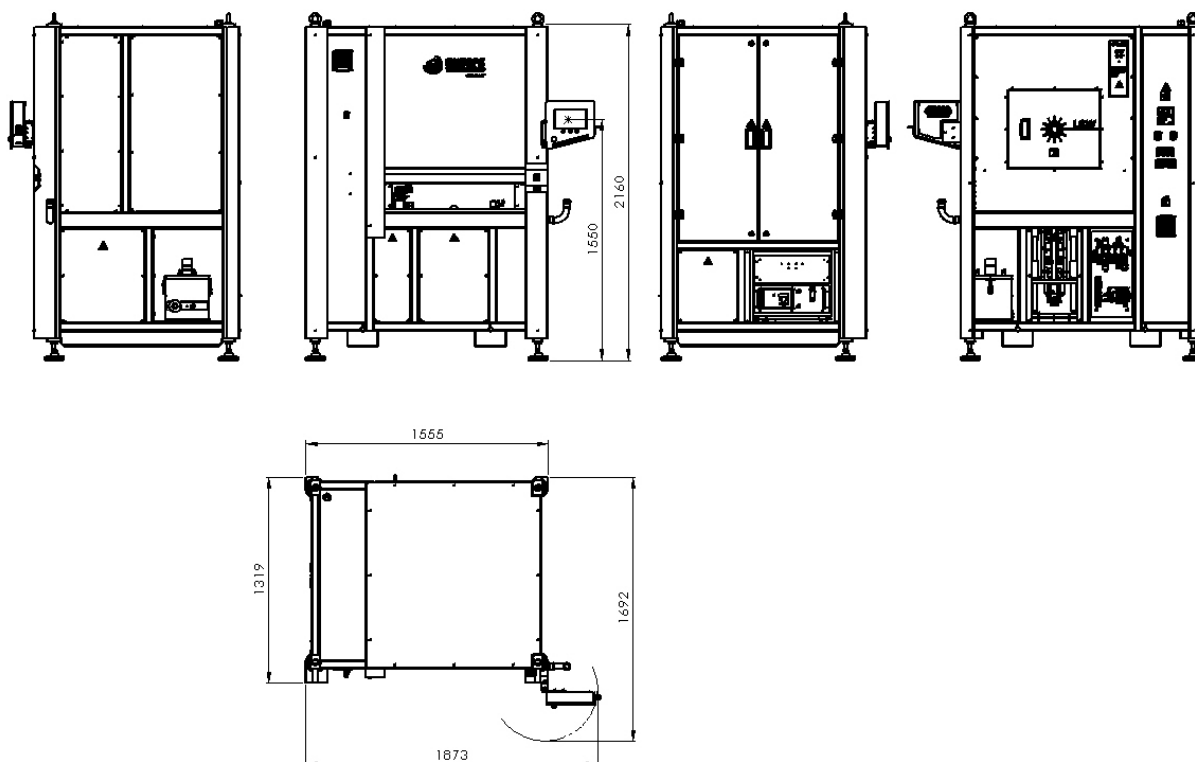
	LSW
Screen on articulated arm (access to both sides of the machine)	x
Remote control module (EWON)	x
Customer specific painting	x
Turntable	x
Communication bridge (supervision)	x
Hatch and sensitive edge	x
Translation of the technical file in all languages (excluding French)	x
Machine approval by accredited organism	x
Removable screen for installation on 2 sides	x
Robot communication	x
Remote HMF1	x
Pneumatic energy	x

LSW | Turntable

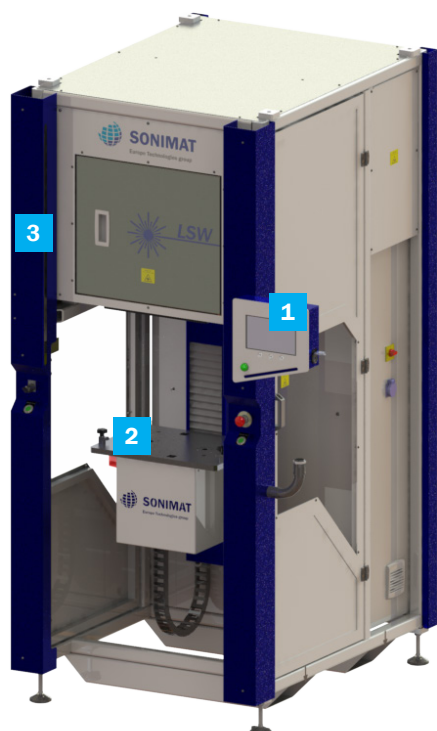


- 1 Touchscreen operator interface
- 2 Turntable with work area in a darkroom
- 3 Operator safety light curtain

Technical plans - LSW turntable

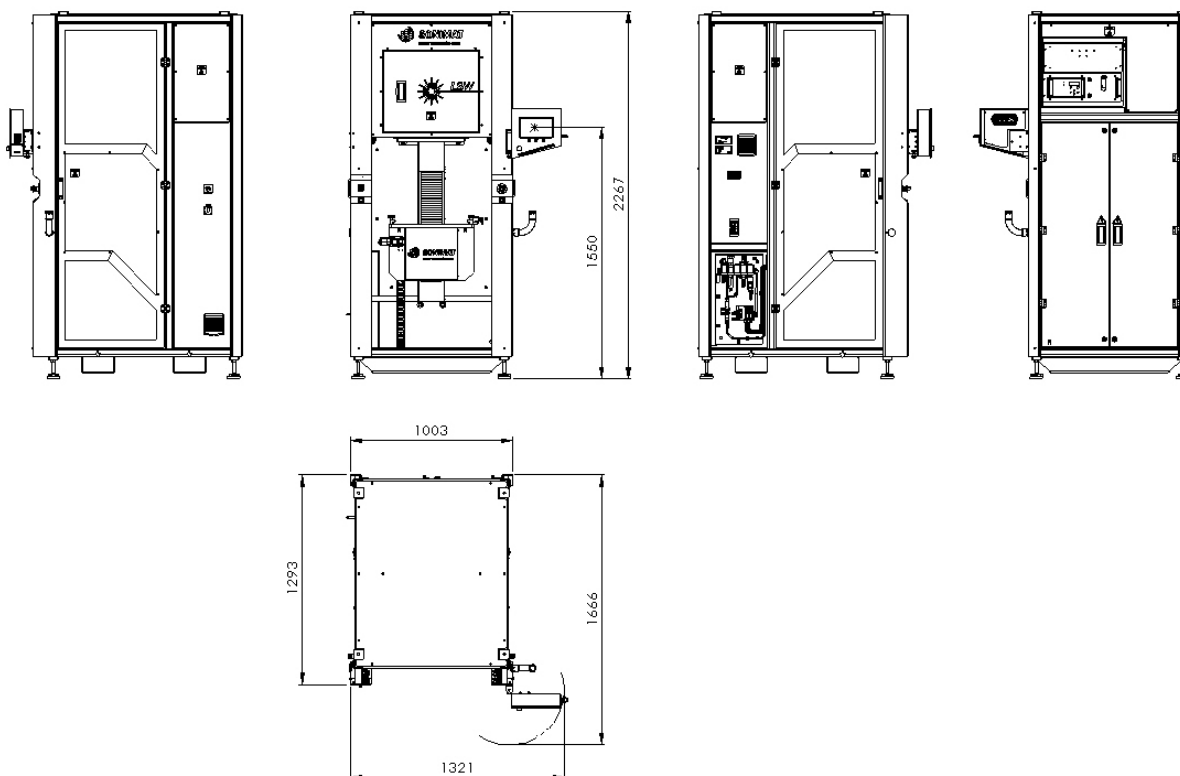


LSW | Simple workstation



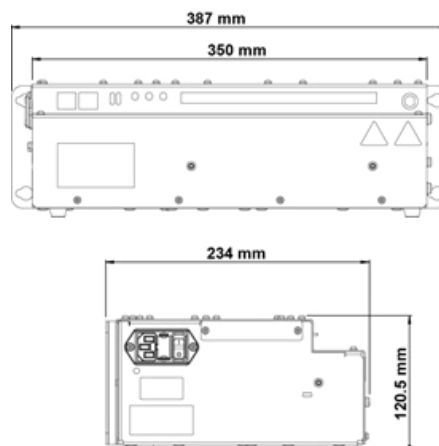
- 1** Touchscreen operator interface
- 2** Turntable with work area in a darkroom
- 3** Operator safety light curtain

Technical plans - LSW simple workstation



ULTRASONIC GENERATOR - SONIMAT

Fully digital conception - easy integration in electrical box



TECHNICAL CHARACTERISTICS

Two processors ST Microelectronics :
Ultrasonic control and communication control

Automatic search for optimum working frequency.

Real-time digital pursuance of the frequency

Generator control :

- Front side
- Analogue / digital on front side (terminals)
- Ethernet on front side with Modbus/IP protocole

Generator programming :

- On side
- 2 microcontrollers programmed with Jtag

Adjustable range :

- By analogue reference
- By numerical adress

Real-time display of power and frequency

Defect PNP signals

Constant amplitude regardless of:

- Pneumatic stress conditions
- Used power
- Main variations

Power ramp control

Security dedicated to power over intensity (time of response <1μs)

Power-supply : 230 V mono 50 / 60 Hz

- Link Ethernet modbus/IP
- KEP connectable console
- European connectors
- Power connector BNC HT
- Technology based on IGBT 4th generation
- Rate > 90%
- Integrated air cooling and and filter
- Modular generator in electrical box
- Suitable system for both panels or legs integration
- Weight : 6.5 kg

AVAILABLE CONFIGURATIONS

Frequency	Model	Power (W)
20 KHz	GT2010	1000
	GT2015	1500
	GT2030	3000
30 KHz	GT3010	1000
	GT3015	1500
40 KHz	GT4010	1000

ULTRASONIC TOOLINGS

With more than 20 years of experience on the ultrasonic process and applications, SONIMAT manufactures, adjusts and controls a wide range of ultrasonic toolings.

CONVERTERS

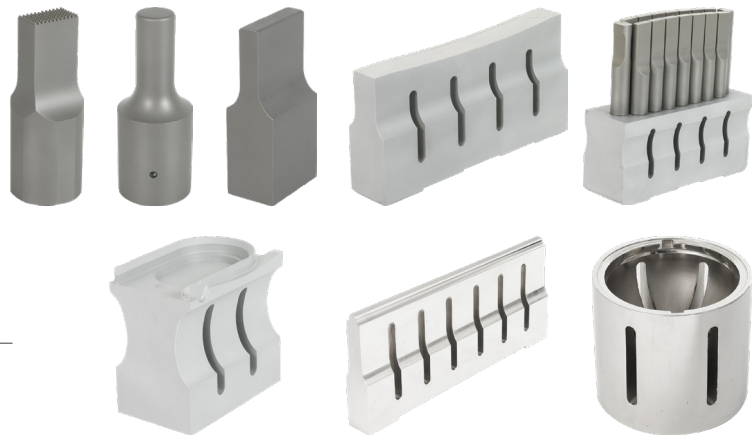
- Standard, amplified, compact design, press model
- Without hood, with standard hood or impermeable hood
- BNC or LEMO connection



SONOTRODES

Models

- Shovel sonotrodes
- Bar stock sonotrodes
- Block Sonotrodes
- Bicylindrical sonotrodes
- Spool sonotrodes
- Flatted sonotrodes
- Bell sonotrodes



Materials

- Hardened steel / Titanium / Aluminum
- Carbide coating
- Titanium nitriding
- Burnishing steel

ANVILS

Materials

- Aluminum anvil
- Resin casted into aluminum base
- 3D resin printing



BOOSTERS



SERVICES

ENGINEERING OFFICES

Special designing
Design with SolidWorks
Final element computation
Dynamic simulation

MECHANICAL WORKSHOP

Integrated mechanical workshop
Electro-erosion with wire
Machining centre
Conventional milling machine
Conventional digital lathe

CONTROL

Control and frequency
regulation
Tracking sheet

SERVICES

SONIMAT brings its expertise from feasibility study to mass production thanks to a specialized team, with 20 years of experience, from development to industrialization of parts:



Analysis of the
product/function/
material pair



Recommendation
of adapted welding
processes



Design of the joint
plan of the parts



Production of
competitive welding
machines

AND THIS, THROUGH INTEGRATED SERVICES AND MEANS

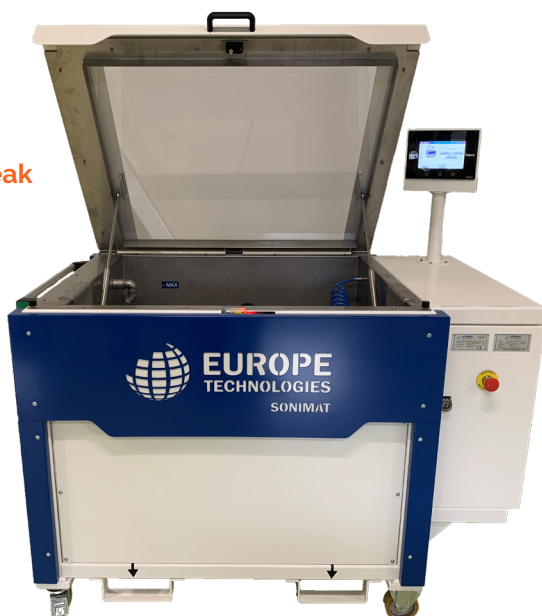
From a SONIMAT **proprietary mold**, we make parts with your materials allowing the material/process qualification to recommend the welding technology.

We define **joint plans** for part optimization.

And, we have developed many means of control:

- Transparency measurement of the parts at the laser wavelength
- Burst and leak test bench
- Camera to analyze weld seams

Burst and leak
test bench



Transparency
measurement
system

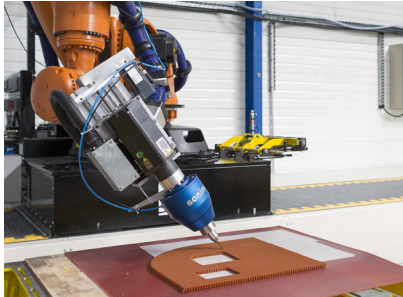


This expertise allows us to provide our customers with support at each stage of the project:

Feasibility study ► Project consultation ► Call for tender ► Prototype and pre-serie ► Serie

We offer to work with your team to determine the optimum welding characteristics.

SONIMAT'S OTHER FIELDS OF EXPERTISE



COMPOSITE CUTTING AND WELDING

SONIMAT develops its own ultrasonic welding and cutting solution for composite and honeycomb materials. Either manual or fully embedded, they perfectly fit in robot cells, CNC machines or cutting tables.



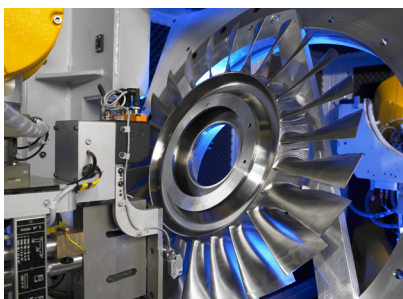
PACKAGING AND SEALING

Using SONICELL® ultrasonic technology in continuous and intermittent sealing processes, SONIMAT offers to its customers the most innovating and optimal performance products for the best and repeatable hermetic seal.



FOOD SLICING

Ultrasonic slicing offers a perfect and repeatable cutting for a wide variety of food products. Sonimat's processes allow constant portion slicing of all shapes and thickness without product loss. Our systems fit perfectly in special-purpose machines and robot cells.



ULTRASONIC IMPACT SURFACE TREATMENT

Using STRESSONIC® technologies to improve fatigue life cycle of metal parts. It is a mechanical cold impact treatment of the surface of metallic components or structures. Surface treatment applications include shot peening, ultrasonic needle peening or peen forming, and weld impact treatment (UIT/HFMI).



THERMOPLASTIC WELDING

**INFRARED
HOT PLATE
LASER
SPIN
ULTRASOUND**



SONIMAT

Europe Technologies group

OUR FACILITIES

Welding Plastics - Automotive - Medical - Consumer Goods

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260 rue Santos Dumont

01200 VALSERHÔNE - France

Phone : +33 (0)4 74 73 40 79

Ultrasonic processes

SONIMAT

27 rue Saint Exupéry - BP 50031

86140 LENCLOÎTRE - France

Phone : +33 (0)5 49 19 42 22

Welding and cutting: Composite - Food industry - Packaging - Non woven

SONIMAT

ZA L'espérance

85600 MONTAIGU-VENDEE - France

Phone : +33 (0)228 150 723

Ultrasonic impact surface treatment solutions

SONIMAT - SONATS

2 rue de la Fonderie

44470 CARQUEFOU - France

Phone : +33 (0)2 51 70 04 94

www.sonimat.com / www.sonats-et.com