

ECO iSONIC: intelligent welding

The standard machine for universal application

The ECO iSONIC standard machine gives ultrasonic welding a new dimension: it combines high-performance ultrasonic components with high-quality construction and up-to-date control solutions. Compared with its predecessors the functionality of the ECO iSONIC has been improved and handling simplified.

A persuasive argument in favour of the ECO iSONIC is its intuitive operation and user prompting. Even without expert knowledge and in-depth training, the user will be able to achieve top-quality welding results across a wide range of different components.

In the ECO iSONIC, SONOTRONIC is offering a brilliant all-round solution from amongst pneumatic welding machines. It guarantees extremely good production reliability and quality and pays for itself within a short period of time.

Pneumatic features

- Compressed air conditioning using automatic condensate separator and analogue pressure monitoring
- Proportional directional valves for precise welding force control
- Two-channel safety valve to prevent inadvertent start-up and reversal of movement
- Integral trigger sensor for referencing
- Depth measuring system using magnetic tape length measuring system
- Welding head designed as a compact pneumatic feed unit

Mechanical features

- Welding head with adjustable, mechanical end stop
- Workpiece clamping plate designed as a swivelling plate, for rapidly establishing plane parallelism from pick-up to sonotrode
- Rigid, powder-coated column housing made from special cast aluminium (RAL 9022), switch cabinet module (RAL 7035)



Advantages

- Ultrasonic welding, sealing, cutting, stamping, riveting and embossing of thermoplastics
- Universal applications in all industries
- Intuitive touchscreen control
- Possible to exchange ultrasonic components and change application frequencies
- Extremely high degree of process reliability and quality

ECO iSONIC

- 1 Rigid column housing
- 2 Height adjustable feed unit with ultrasonic welding stack
- 3 Holding tool (application specific)
- 4 Clamping plate
- 5 Ergonomic 2-handed control
- 6 Switch cabinet
- 7 Touchscreen control
- 8 ON/OFF control switch
- 9 USB 2.0 interface (for data import/export)
- 10 Shot for extensions

ECO iSONIC: intelligent operation

Many functions for optimum welding results

The ECO iSONIC has various operating modes and monitoring functions, which make it a reliable all-rounder amongst pneumatic welding machines.

Basic operating modes

- **Time welding**
Welding to a defined preset time
- **Absolute path**
Welding to a defined size
- **Relative path**
Welding a relative preset path once a triggered reference point is reached
- **Energy**
Welding to an energy value firmly determined in advance

All operating modes can be simply monitored by inputting min. or max. values. The “amplitude”, “welding force” and “feed rate” parameters can likewise be set at the control panel.

Selectable options

- **Pre-ultrasonics**
Approach component whilst oscillating
- **Post-ultrasonics**
Retract component whilst oscillating
- **Pre-joining**
Pre-joining without application of ultrasonics
- **Contact shut-off (with additional equipment)**
Welding shut-off on contact with metal

Monitoring functions

- **Time welding**
with energy and path monitoring
- **Path welding**
with energy and time monitoring
- **Energy welding**
with path and time monitoring

Accessories (optional)

- Acoustic protection hood / booth
- Film feed unit
- Sliding table
- Further accessories on request

Machine mode

- Password-protected user levels (operator / setter)

Special setting mode function for convenient setting

- Program for machine aided tool parameterisation
- Automatic calibration function for tool changes: the setter is guided through the process by plain text instructions
- Optional teaching of the relevant welding parameter using the two-hand buttons

Technical data

Type / operating frequencies* [kHz]	20		30	35
Output [W]	1.000 / 1.500 / 2.000	3.000 / 4.000	2.000	400 / 800 / 1.200
Electrical connection [V AC]	230 + PE	3 x 400 + N + PE	230 + PE	230 + PE
Mains frequency [Hz]	50	50	50	50
Power consumption [A]	4,3 / 6,5 / 8,7	4,3 / 5,7	8,7	1,7 / 3,5 / 5,2
Short circuit current [kA]	2,9			
Compressed air connection [bar]	8			
Welding force [N]	300 – 1.646		200 – 663	200 – 663
Welding head operating stroke [mm]	100			
Height adjustment of welding unit [mm]	200			
Clamping plate [mm]	300 x 300 x 12			
Weight [kg]	130			
Dimensions (WxHxD) [mm]	650 x 1.200 x 770			

*Optional resetting of operating frequencies by exchanging ultrasonic components

ECO iSONIC: intelligent accessories

Perfectly matched are available from one source



Acoustic protection hood

The compact, space-saving acoustic protection hood is used for small parts where application is noise critical, in order to reduce the noise level. The hood is fitted with a safety lift gate.

Advantages

- Reduced noise emissions in line with current regulations of the Noise Control Act. Limit value: 80 dB(A)
- Pneumatically controlled lift gate with single-handed start and safety guard
- Front can be folded back for maintenance
- For component sizes up to max. (WxD) 300 mm x 250 mm



Acoustic protection booth

For processing larger components, the ECO iSONIC can be incorporated in a customizable acoustic protection booth to deaden the noise. The booth provides space for interchangeable holders and tools. The touchpanel for controlling the machine is fitted to the outside.

Advantages

- Reduced noise emissions in line with current regulations of the Noise Control Act. Limit value: 80 dB(A)
- Pneumatically controlled lift gate with single-handed start and safety guard
- Front can be folded back for maintenance
- Various cabin widths for component sizes up to max. (WxD) 900 – 1.700 mm x 400 mm

ECO iSONIC: intelligent accessories

Practical additions to meet every requirement



Film feed unit

A film feed unit can also be retrofitted to the ECO iSONIC to enable welds to be performed on visible areas. The film is transported between the sonotrode and the component in order to protect the latter's surface. The film transport system ensures that the system always starts on a piece of unused film.

Advantages

- To protect sensitive workpiece surfaces from being marked
- Can be selected or cancelled at the control unit
- Individually adjustable to the workpiece
- Pneumatic drive



Sliding table

For parts which, because of their geometry, cannot be directly placed under or removed from the sonotrode, the ECO iSONIC can be extended by a sliding table. The size of the component is limited by the size of the sliding table. The sliding table option may also be retrofitted.

Advantages

- For feeding tall parts under the sonotrode
- Stroke 125 mm
- Can be selected or cancelled at the control unit
- Clamping plate for plane-parallel alignment of the workpiece
- Pneumatic drive

ECO iSONIC: intelligent control

Intuitive, user-friendly operation via touchscreen

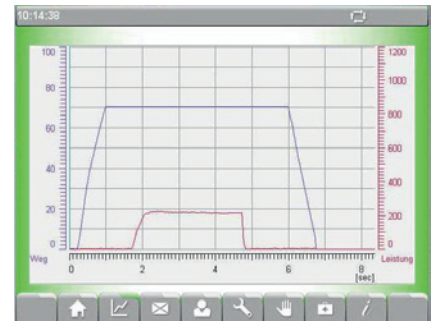
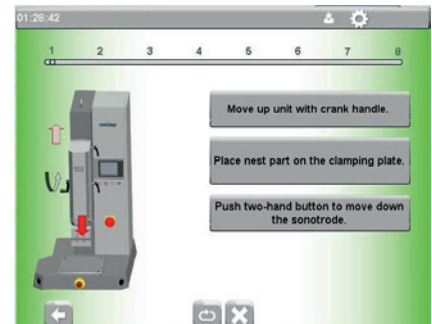
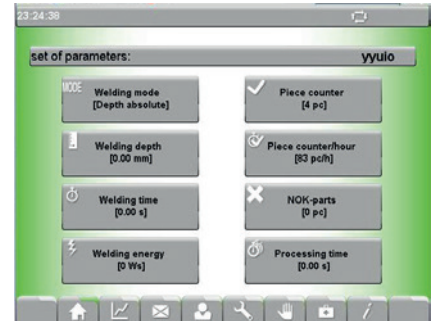
Control of the new ECO iSONIC standard ultrasonic machine is intelligently incorporated into the control concept.

Process control features

- Automatic frequency tuning to each welding stack used (no frequency teaching required)
- Automatic frequency tuning before starting each weld
- Automatic amplitude stabilisation throughout the operation
- Setting and automatic modes (password protection >> user level)
- "Welding force", "amplitude", "time", "welding depth" and "monitoring value" parameters input via the touchscreen display
- Data storage for 100 freely nameable parameter sets
- Data output via Ethernet and USB interfaces
- Permanent monitoring of work process with fault abort

Technical features of machine control

- Operation and display via 5,7" VGA color touchscreen with integral PC (128 MB, DRAM 232 kB SRAM)
- 1 RJ-45-Ethernet connection 10/100MBit
- 1 RJ-45-POWERLINK connection 10/100MBit
- 1 Interface slot for the maintenance of the field bus
- 2 USB interfaces
- Two hand safety start
- Emergency stop button
- Safety control via X20 save module
- Connection of safety signals via distributed X20 save module
- Distributed digital and analogue X20 I/O modules
- Open control concept that can be expanded (by digital and analogue I/O modules) at any time via distributed bus coupler
- Language selection



SONOTRONIC Nagel GmbH
 Headquarters
 Becker-Goering-Str. 17-25
 76307 Karlsbad
 Germany
 Phone: +49 7248 9166-0
 Fax: +49 7248 9166-144
 info@sonotronic.de
 www.sonotronic.de

SONOTRONIC, Inc.
 Branch USA
 28025 Oakland Oaks Court
 Wixom, MI 48393, USA
 Phone: +1 248 987 5970
 Fax: +1 248 987 5964
 info@sonotronic.com
 www.sonotronic.com

Linked with success.

Industries

- Automobile industry
- Plastics industries
- Packaging industry
- Food industry
- Textile industry
- Environmental sector

Products

- Ultrasonic components
- Ultrasonic systems
- Standard machines
- Special machines

Technologies

- Ultrasound
- Hot plate
- Infrared



ECO iSONIC

The intelligent ultrasonic
standard machine