ULTRASONIC PROCESSOR FOR LAB'S

SiLabTec

PASCAL TIERCE
SinapTec president

« For 35 years now, our team made out of researchers and engineers have been working on understanding and making use of power ultrasonic properties. This experience, implemented both in numerous industrial fields and in innovation, highlighted the essential prerequisite which is the mastering of ultrasound at the lab scale, what is the key to success for scale-up and industrial production. »

35 YEARS

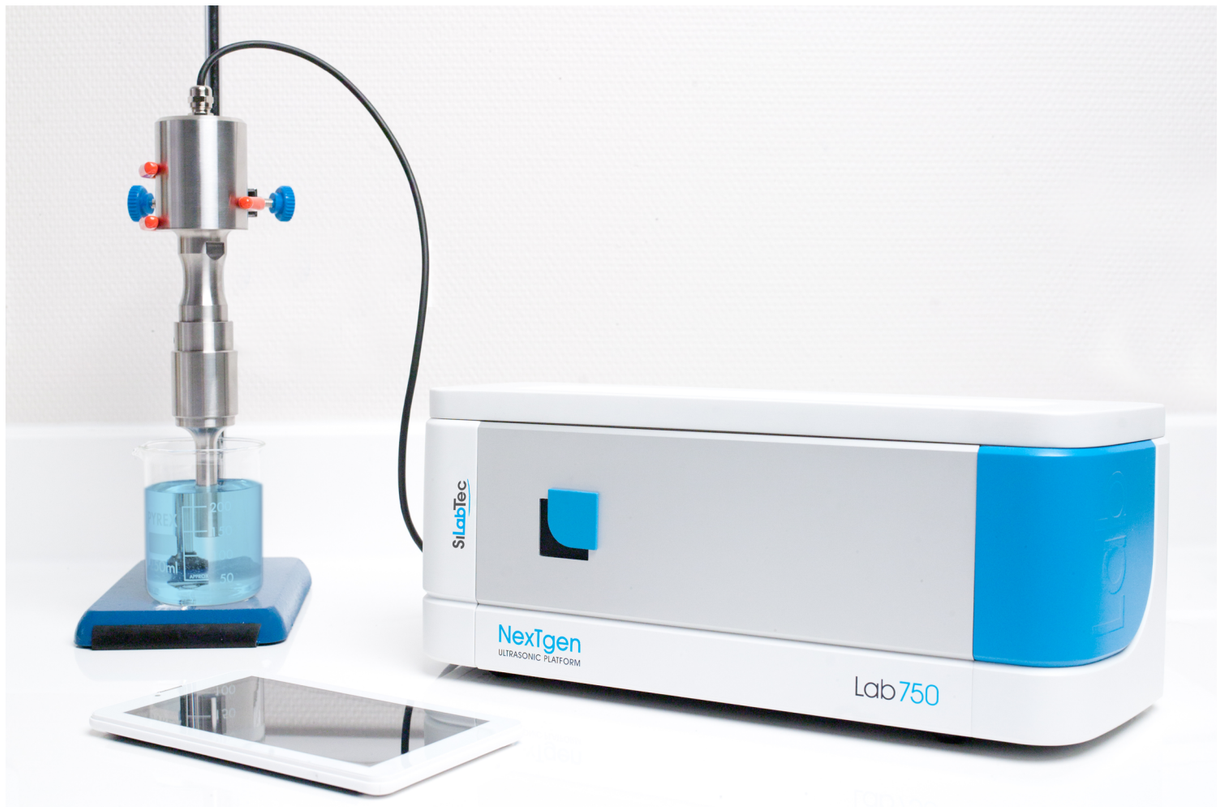
\+ TEAM
ULTRASOUND
EXPERIENCE AND INNOVATION
KEY FOR SUCCESS

+ RESEARCH AND DEVELOPMENT
ELECTRONIC AND SOFTWARE ENGINEERS
SIGNAL PROCESSOR

ULTRASOUND AND LABORATORY

Our experience in industry combined with our researches on ultrasonic production equipments, convinced us of the importance to develop a totally new and innovative laboratory tool to make it available for the scientific community.

This tool is the result of close collaboration between our electronics and software engineers and our ultrasound experts. The implementation of the latest signal processor technologies and the daily work of our technicians to ensure the quality of ultrasound results permitted to optimize the processor performances at the highest level and to integrate it in innovative functionalities never seen on the market.



THE UNIQUE ULTRASONIC PROCESSOR FOR LAB'S APPLIED RESEARCH

An excellent understanding of the ultrasound physics mechanisms, associated with the implementation of equipments in many industrial and innovative fields, give us great expertise to develop and manufacture ultrasound energy production systems.

PROCESSOR - POWER

This innovative equipment delivers the best technology thanks to the integratic of a signal processor similar to the kind used in smartphones. Every millisecon this processor ensures that the energy transferred to the media treated mastered and realised in the best conditions, whatever its complexity. Th equipment offers precision and high reactivity to frequency changes induced by the slightest trial conditions modifications.

The PC board, driven by algorithms developed by our engineers, is all the more reliable and robust. The generator maximum power has been designed for high levels and provides an instantaneous intensity permitting to meet the transducer and probe most important requirements...

+

BLUETOOTH INTERFACE PRECISION AND VELOCITY RELIABLE AND ROBUST FLEXIBILITY

EQUIPMENTS

To make scale-up easier, the Ultrasonic Processor for Lab's is available in several versions:

+ THE LABORATORY BEST-SELLER

Lab for axial probes

Perfectly adapted to small volumes and high local intensities. The choice of the probe is crucial to its performances. This tool is available in 3 different power and frequency models: Lab120, Lab500, and Lab750.

Available frequencies : 12Khz / 20 Khz / 35Khz

+ COMPACT AND CONVIVIAL

Lab for radial probe

Friendly to implement, this tool produces an exceptional power density and permits the evaluation of a continuous process.

Available frequencies : 20 Khz

+ POWERFUL AND EFFICIENT

Lab for pipe processor

Combining efficiency and aesthetics, it is the best tool to realize trials for future industrial scale-up.

Available frequencies : 22 Khz

TECHNICAL CHARACTERISTICS

NexTgen Ultrasonic Pack						
INFORMATIONS TECHNIQUES	Lab120 for axial probes	Lab500 for axial probes	Lab750 for axial probes	Lab750 for axial probes	Lab750 for radial probes	Lab750 for pipe processor
Frequency (kHz)	35	20	12	20	20	22
Max. RMS Power	120	500	750	750	750	750
Typical probe	Probe 3mm	Probe 13mm	Probe 20mm	Probe 20mm	/	/
Max. displacement	Up to 140µm	140µm	150µm	60µm	/	/
Max. Volume power	/	/	/	/	750W/l	660W/l

NexTgen Ultrasonic power supply						
Continuous mode	yes	yes	yes	yes	yes	yes
Pulse mode	yes	yes	yes	yes	yes	yes
Voltage (V)	110-240	220-240	220-240	220-240	220-240	220-240
Other voltage	-	on request	on request	on request	on request	on request
Dimensions (LxWxH)	330x145x148mm	390x145x148mm				
Weight (Kgs)	3,5kg	4,3kg	4,5kg	4,5kg	4,5kg	4,5kg
Remote start/stop	Pushbutton/ Footswitch (Option)					
Touch screen interface	LabTablet					
Communication and control	Ethernet	Ethernet	Ethernet	Ethernet	Ethernet	Ethernet
PC soft «NexTgen LabPremium»	Optionnal	Optionnal	Optionnal	Optionnal	Optionnal	Optionnal
Temperature sensor	Optionnal	Optionnal	Optionnal	Optionnal	Optionnal	Optionnal
MONITORING						
Microprocessor based	**Digital signal Processpr**					
Automatic tuning	Yes (start frequency and max-min frequency are adjustable with «advanced software»)					
Automatic amplitude-compensation (power/ displacement)	Displacement				Power	
Phase control	Real time phase / frequency control					
CONTROL / SETTING PARAMETERS	**Managed by our software PC «LabPremium»**					
Frequency	Set the auto-tune range					
Power/Amplitude	10% to 100% max power					
Timer	from 0,5s to 10h					
Pulse / cycle repe-tition	from 1 to 10000					
Multiple sequencer program	up to 10 programs					
Marche/ Arrêt	Bouton poussoir/Pédale/Logiciel					
Start/Stop	Pushbutton/Footswitch/Software					
Stop conditions	Pushbutton/Footswitch/software/time/energy/temperature (with temperature option) setting					
DATA TREATMENT	**Managed by our software PC «LabPremium»**					
Real time display	3 real time curves during the process					
Post treatment data	Excel exportation for statistical post analysis					
Frequency measurement	Frequency/Phase					
Wattmeter	RMS Power on transducer					
Energy measurement	Energy with possible stop conditions on energy level					
Temperature measurement	Temperature from external sensor (option)					
Elapsed time indicator	oui					

LABTABLET - BLUETOOTH - INTERFACE

To make it intuitive, the electronic generator is directly driven by a touchpad. Connected via bluetooth, the touchpad allows to make adjustments closer to the lab bench and to change the test conditions with great flexibility.

The intuitive interface promotes a fast handling of the equipment. Only the essential information appears on screen, to change instantaneously the settings, visualize and follow tests conditions...

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EASE OF USE
INTUITIVE
TRACEABILITY

NETWORKING

The device has an Ethernet connection which, associated to the “NexTgen Advanced” PC software, facilitates the subsequent processing of all ultrasonic data, temperature...

Save and find all the information that are related to previous trials, ensure traceability using the data export...

THE UNIQUE ULTRASONIC PROCESSOR FOR LAB'S FUNDAMENTAL RESEARCH

CUP-HORN
LOW & HIGH FREQUENCY

The cup-horn is a sonoreactor dedicated to laboratory scale applications and enabling sonication in a resonating chamber.

The frequency range available with this equipment makes it an ideal partner for the study of the unique parameter which makes high and low frequencies different, namely the nature of cavitation. Therefore, it becomes easy to discover and study the unique effect of frequency on a product, a chemical reaction or an application. Then the choice of a larger scale equipment becomes more precise and design operations are facilitated.

The double-jacketed reactor available with the ultrasonic base enables working at constant temperature, and digitally monitoring this temperature with a PT100 probe and the intelligence of our NexTgen software.

MECHANICAL OR CHEMICAL EFFECTS OF ULTRASOUNDS

The equipment is available in a wide range of frequencies and enables preferential study either of the mechanical or chemical effects of ultrasound with minimization of the possible variables. As a result, the conclusions of the effects observed are only linked only to the equipment frequency.

Low frequency Cup Horns are available at 22, 28, 40, 80 and 100kHz. These will allow a preferential physical action on the sonicated medium by significant shear stresses.

The high frequency Cup-Horns are available at 100, 200, 380 and 500 kHz. These will make it possible to act on a molecular scale by the production of chemical radicals without adding solvent, and without additional chemical input. These radicals have a real interest in chemical reactivity and / or in the activation of a reaction.

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IDEAL PARTNER
PRECISION AND VELOCITY
RELIABLE AND ROBUST
FLEXIBILITY

TECHNICAL CHARACTERISTICS

Cup-Horn					
TECHNICAL INFORMATION	**Lab500 for Cup Horn Low Power**				
Frequency (kHz)	22	28	40	80	100
Max. RMS Power	50				
Max. power density (W/L) (standard configuration)	175				
Standard reactor height (mm)	58				
Max. double-jacketed reactor useful volume (mL) (standard)	285 (other volume on request)				
Transducer dimensions (diam. x H) (mm)	119 x 125		119 x 90	119 x 125	119 x 90

NexTgen Ultrasonic power supply	
Max output RMS power	500
Continuous mode	yes
Pulse mode	yes
Voltage (V)	220-240
Other voltage	On request
Dimensions (LxWxH) (mm)	390x145x148
Weight (Kgs)	4,3
Remote start/stop	Pushbutton / footswitch (Option)
Touch screen interface	LabTablet
Multi-frequency control	No
Communication and control	Ethernet
PC software included	NexTgen LabPremium
Temperature sensor	Optionnl (PT100)
MONITORING	
Microprocessor based	**Digital signal processor**
Automatic tuning	Yes (start frequency and max-min frequency are adjustable with «LabPremium» software)
Automatic amplitude compensation	Displacement
Phase control	Real time phase / frequency control
CONTROL / SETTING PARAMETERS	**Managed by our LabPremium software**
Frequency	Set the auto-tune range
Amplitude	from 10% to100%
Timer	from 0,5s to 10h
Pulse / cycle repetition	from 1 to 10000
Multiple sequencer program	up to 10 programs
Start / Stop	Pushbutton/Footswitch/Software
Start conditions	Pushbutton/Footswitch/software/Time/Temperature (with temperature sensor)
Stop conditions	Pushbutton/Footswitch/Time/Energy/Temperature (with temperature sensor)
DATA TREATMENT	**Managed by our LabPremium software**
Real time data processing	3 real time curves during operation
Data post processing	Export to Excel for statistcal post analysis
Frequency measurement	Frequency / Phase
Power measurement	Transducer RMS power
Energy measurement	Energy with available stop condition
Temperature measurement	Temperature from external sensor (option)
Elapsed time indicator	yes

Cup-Horn					
INFORMATIONS TECHNIQUES	**Lab500 for Cup Horn High Power**				
Fréquence (kHz)	22	28	40	80	100
Max. RMS Power	150				
Max. power density (W/L) (standard configuration)	526	405	411	405	411
Standard reactor height (mm)	58	43	58	43	58
Max. double-jacketed reactor useful volume (mL) (standard)	285 (other volume on request)	370 (other volume on request)	365 (other volume on request)	370 (other volume on request)	365 (autre volume sur demande)
Transducer dimensions (diam. x H) (mm)	119 x 125	155x125	130x90	155x125	130x90

NexTgen Ultrasonic power supply		
Max. output RMS power	500	
Continuous mode	yes	
Pulse mode	yes	
Voltage (V)	220-240	
Other voltage	On request	
Dimensions (LxWxH) (mm)	390x145x148	
Weight (Kgs)	4,3	
Remote start/stop	Pushbutton / footswitch (Option)	
Touch screen interface	LabTablet	
Multi-frequency control	No	
Communication and control	Ethernet	
PC software included	NexTgen LabPremium	
Temperature sensor	Optionnel (PT100)	
MONITORING		
Microprocessor based	**Digital signal processor**	
Automatic tuning	Yes (start frequency and max-min frequency are adjustable with «LabPremium» software)	
Automatic amplitude compensation	Displacement	Power
Phase control	Real time phase / frequency control	
CONTROL / SETTING PARAMETERS	**Managed by our LabPremium**	
Frequency	Set the auto-tune range	
Amplitude	from 10% to 100%	
Timer	from 0,5s to 10h	
Pulse / cycle repetition	from 1 to 10000	
Multiple sequencer program	up to 10 programs	
Start / Stop	Pushbutton/Footswitch/Software	
Start conditions	Pushbutton/Footswitch/software/Time/Temperature (with temperature sensor) setting	
Stop conditions	Pushbutton/Footswitch/Time/Energy/Temperature (with temperature sensor)	
DATA TREATMENT	**Managed by our LabPremium software**	
Real time data processing	3 real time curves during operation	
Data post processing	Export to Excel for statistcal post analysis	
Frequency measurement	Frequency / Phase	
Power measurement	Transducer RMS power	
Energy measurement	Energy with available stop condition	
Temperature measurement	Temperature from external sensor (option)	
Elapsed time indicator	yes	

Cup-Horn				
INFORMATIONS TECHNIQUES	**Lab HF for Cup Horn**			
Frequency (kHz)	100	200	380	500
Max. output RMS power	100		80	75
Max. power density (W/L) (standard configuration)	351		281	263
Standard reactor height (mm)	58			
Max. double-jacketed reactor useful volume (mL) (standard)	285 (other volule on request)			
Transducer dimensions (diam. x H) (mm)	119 x 90			

NexTgen Ultrasonic power supply	
Max output RMS power	1000
Continuous mode	yes
Pulse mode	yes
Voltage (V)	220-240
Other voltage	On request
Dimensions (LxWxH) (mm)	400x142x148
Weight (Kgs)	5,3
Remote start / stop	Footswitch (option)
Touchscreen interface	No
Multi-frequency control	yes
Communication and control	Ethernet
PC software included	NexTgen Advanced
Temperature sensor	Optionnal (PT100 with external temperature contol box)
MONITORING	
Microprocessor	Digital signal processor
Automatic tuning	No (fixed frequency managed by the Advanced software)
Automatic amplitude compensation	Power
Phase control	No
CONTROL / SETTING PARAMETERS	**Managed by the Advanced software**
Frequency	Setting of the operating frequency
Amplitude	from 10% to 100%
Timer	from 0,5s to 10h
Pulse / cycle repetition	from 1 to 10000
Multiple sequencer program	up to 10 programs
Start / stop	Footswitch / software
Start conditions	Pushbutton/Footswitch/software/Time/Temperature (with temperature sensor)
Conditions arrêt	Pushbutton/Footswitch/Time/Energy/Temperature (with temperature sensor)
DATA TREATMENT	**Managed by the Advanced software**
Real time data processing	3 real time curves during operation
Data post processing	Export to Excel for statistcal post analysis
Frequency measurement	No
Power measurement	Transducer max. RMS power
Energy measurement	Energy with stop condition
Temperature measurement	Temperature from external sensor (option)
Elapsed time indicator	yes

For more than 35 years, SinapTec have been specializing in the development of innovative ultrasonic and piezoelectric solutions, intended to industry and research laboratories.

Since our beginnings, we made a point of honour working with our clients, whether for the implementation of new products or the development of customized solutions.

Today, this collaborative spirit, the know-how of our expert engineers' team, a complete technology mastering and the use of specific tools and software enable us to guaranty our clients optimal and adapted solutions.

SiLabTec

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Discover all of our generators and transducers on **www.silabtec.fr**