



## **Instruction Manual**

### **Ultrasonic Defoamer for foam compression action**

## Disclaimer

The information in this brochure corresponds to our current state of knowledge. However, it is not to be understood as a warranty for certain characteristics or for suitability of the products for certain applications.

Our general contractual terms apply in this regard, and reference should also be made to these terms with regard to liability. No industrial property rights of any kind are granted to the user along with this brochure, nor are any assurances made with regard to a licence. Corresponding separate agreements would be necessary for this purpose. The suitability of the products for particular applications may only be checked with our own specialists.



Read and precisely follow the information in this operating manual before unpacking the unit and putting it into operation!

The unit may only be used, maintained, and repaired by people, who are familiar with the operating manual and the applicable regulations on work safety and accident prevention.

## Preface

We are very pleased that you chose to buy a SINAPTEC defoaming unit. We are convinced that you will achieve a maximum degree of economy of operation and product quality when using this unit.

The purpose of this manual is to give the purchaser and the user all the information they need in terms of the handling, assembly, operation, and care of the ultrasonic defoamer. To ensure that your system is always in an operational state, you should take note of and follow all the tips and instructions contained within this manual.



## Explanation of symbols and signs

Please pay particular attention to sections of text with the following symbols:



**Note!**

*Very important information or operational note on how to use the ultrasonic equipment.*



**Caution!**

*Describes the serious hazards to the health of people or damage to equipment that may result from disregard.*



**Danger electricity!**

*Indicates a potential personal injury hazard. It describes a danger of electricity or electrical shock and advise caution from a wide range of potential danger.*



**Commandment!**

*Ear protectors must be worn. Shows the need to wear safety equipment in the workplace*

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# 1 TRANSPORT



Equipment may only be transported by suitable trained personnel.  
Please note the transport advice on the packaging

## 1.1 Receiving the delivery

The despatch containers for machines and equipment withstand normal loads during transport by road, rail, and air. After receipt, please make sure that all parts agree with the packaging list and that there is no visible damage. If damage is established, inform the transport company immediately and keep the packaging as proof.

Our standard package must contain:

| Product                                                                                                                                                          | Quantity |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Electrical Cabinet including: <ul style="list-style-type: none"> <li>NexTgen Ultrasonic Generator</li> <li>Power cable</li> <li>Wall mounting bracket</li> </ul> | 1        |
| Ultrasonic cable (L=15m)                                                                                                                                         | 1        |
| Ultrasonic defoamer including: <ul style="list-style-type: none"> <li>Transducer</li> <li>Booster</li> <li>Horn Ø48mm</li> <li>Support plate</li> </ul>          | 1        |
| Compressed Air Pipe Ø6mm (L=10m)                                                                                                                                 | 2        |

## 1.2 Transport damage

The transport company is responsible for damage which occurs during transport. A complete report precisely describing the damage must be submitted to the transport company and serves as the basis for the claim for damages.

Damage to or loss of goods supplied by us must be reported to us immediately and confirmed by a copy of the report.

## 2 PRECAUTIONS AND WARRANTY CONDITIONS

### 2.1 Risks and safety recommendations



- The equipment may only be operated after reading the supplied instruction manual in its entirety.
- The working is only guaranteed with the ultrasonic equipment provided with the generator.
- The working of the generator is guaranteed for a certain length of cable (between the generator and the ultrasonic equipment). A length of 15m is acceptable. Contact us for longer lengths.



- The using of another ultrasonic equipment with the power unit is forbidden and can damage the generator.
- SINAPTEC disclaims all responsibility and guarantee in case of intervention or modification in the electronic command unit and/or in the ultrasonic equipment.
- **The ultrasonic defoamer must be cooled by compressed air. If this recommendation is not respected, the temperature of the transducer can increase and break down the unit. In this last case, SINAPTEC disclaims all guarantee. An inlet pressure of 1 to 2 bars is necessary to guarantee cooling. It must be dry, clean air.**
- During use, there are risks of burns by touching the horn, and risk of damage touching the horn with an object.
- The generator shall be protected against ingress of moisture and corrosive dust. No liquid may be permitted to enter the housing.
- Do not immerse vibrating parts in liquids or foams.
- Do not hit the Generator cabinet with any type of heavy tooling.
- Do not hit the Transducer/Emitter structure with any type of heavy tooling.
- Do not carry out maintenance work on the Transducer/Emitter structure or mechanical mount while the system is operating.
- When the ultrasonic cable is not connected to the transducer, replace the protective cap to maintain IP66 protection. If the cap is not put on and the cable is not connected, the transducer is no longer waterproof.
- The compressed air taps at the inlet and outlet must be connected during the cleaning phase, otherwise water will penetrate inside the transducer.
- Use only the fastening system provided to hold the ultrasonic defoamer.
- The Transducer/Emitter shall be OFF during CIP cleaning or hot/cold water wash. If left ON, this will cause damage to the unit.



- Before connecting or disconnecting cables, the equipment shall always be switched off. Electrical mains plug shall be removed: ensure that your hands are dry and only grasp cables by the plug.

- Do not leave the Generator cabinet door open unless for maintenance.
- Do not leave the generator unattended when the cabinet door is open for maintenance.
- Do not apply 3 phase electrical power to unit.
- The ultrasonic cable (from the electrical cabinet or on the ultrasonic blower) is a permanent connect. Any attempts to remove/disconnect the cable while ultrasound is ON will cause permanent damage to the Transducer/Emitter.



- When working near the ultrasonic transducer suitable ear protection should be worn. If hearing protection is not applicable in the work area, it is also possible to place the defoamer in a soundproof box.

## 2.2 Engineer standards and conditions of use

|                                                           |                                                                     |
|-----------------------------------------------------------|---------------------------------------------------------------------|
| <b>Conformity</b>                                         | CE                                                                  |
| <b>Ambient conditions:</b>                                | Noncondensing, average relative humidity 20 to 90%                  |
| <b>Temperature range:</b><br><b>(Ambient temperature)</b> | Transport/Storage: -20 to +70 degree<br>Operation: +5 to +40 degree |
| <b>Leakage current:</b>                                   | > 10mA toward PE                                                    |
| <b>Safety measures against:</b><br><b>(generator)</b>     | Short-circuit, overload, excess temperature                         |
| <b>Protection electrical cabinet</b>                      | IP66 (when the door is closed, and all cable glands are tightened). |
| <b>Protection ultrasonic defoamer</b>                     | IP66 (when ultrasonic cable and compressed air pipes are plugged).  |

## 2.3 Environmental conditions

Electrical cabinet including ultrasonic generator must not be installed at places where they are exposed to unfavourable environmental conditions.

These includes:

Combustible, oily, or harmful damp or dust, excessive humidity, extreme vibrations, or temperatures.

Ultrasonic defoamer must not be installed at places where they are exposed to unfavourable environmental conditions.

These includes:

Combustible, oily, or harmful damp or dust, extreme vibrations, or temperatures.

The function of the NexTgen ultrasonic generator is affected by the ambient temperature. The generator must be installed in a way that the maximum allowable temperature is in no case exceeded. The ambient temperature must be controlled. The



permissible ambient temperature goes from 5 °C to 40 °C. If the required temperature cannot be kept, an appropriate system (cooling, etc.) must be used.

### **3 GENERAL DESCRIPTION**

The ultrasonic processing system provided is dedicated to the defoaming of liquids for bottle or can filling lines. The purpose of the system is not to eliminate foam but to compress foam down in the can or bottle into a denser foam with smaller bubble characteristics. This enables the foam control system to deliver significant productivity gains, filling line efficiency gains, reduced waste, reduced contamination, energy & water saving and quality improvements.

The main industrial sectors affected by the technology are brewery, beverage, dairy and chemical.

There are three components in the system:

#### **3.1 NexTgen Ultrasonic generator**

The purpose of the NexTgen generator is to convert the mains power supply (230V  $\pm$ 50Hz) into a 20kHz sinusoidal signal with an amplitude proportional to the vibration amplitude expected at the converter output.

The electronic generator is configured in such a way that the vibration amplitude at the transducer output is maintained at the predefined level whatever the load conditions when the system is used within its nominal characteristics.

The electronic generator is totally autonomous and has regulation loops allowing to perfectly regulate the optimal frequency of the acoustic system and the expected vibratory amplitude. It also has fast protections to protect against short-circuits, overloads, excessive temperatures, ...

The generator is supplied in an IP66 stainless steel electrical cabinet and can be started and stopped either locally or by a remote control (+24V or dry contact) to be wired by a trained user. A cable gland under the cabinet is dedicated to the passage of this cable. This allows, for example, to activate the ultrasounds only during the operation of the bottling / canning line.

#### **3.2 Ultrasonic defoamer**

The ultrasonic defoamer is made up of a transducer, a booster and a horn dedicated to defoaming.

Transducer convert the electrical energy received from a generator into mechanical energy in the form of high frequency vertical vibrations. They accomplish this by using the principles of piezoelectricity, which is the generation of electricity or electric polarity by compressing a crystalline substance.

Boosters serve two purposes: Provide a mounting point for the stack assembly, and either amplify or reduce the amplitude.

The horn at the end of the assembly has a geometry studied to create an acoustic sound wave responsible for the anti-foam action. The power of this acoustic sound wave can be adjusted by a potentiometer on the front of the electrical cabinet.

The whole, called defoamer, is supplied in a cylindrical IP66 stainless steel unit. It shall be installed on the bottling or can line in such a way that the acoustic sound wave is directed towards the target foam.

### 3.3 Ultrasonic cable

The purpose of the ultrasonic cable is to transmit the electrical signal between the electronic generator and the transducer.



Modifications to this cable are NOT permitted. Any modification may affect system performance and will void any warranty on the system.

When in use, the ultrasonic cable must be fully extended. Tight bends or coils should be avoided as much as possible.

The cable should be deployed in such a way that it is protected from excessive mechanical stress.

The cable is clearly identified at each end. It is connected from the dedicated female connector under the electrical cabinet to the male connector above the ultrasonic defoamer.

## 4 INSTALLATION

### 4.1 General

The ultrasonic defoamer shall be installed in the location where the defoaming action is required.

The electrical cabinet can be deployed some distance away determined by the length of the ultrasonic cable (15m).

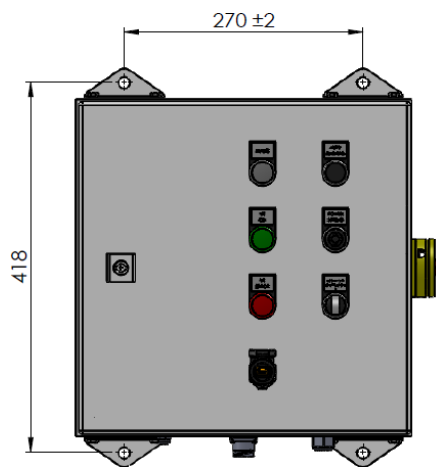
Before permanently fixing the electrical cabinet, ensure that the distance between the cabinet and the defoamer is such that the ultrasonic cable can be routed without undue stress/strain without interfering with other equipment or causing a trip hazard.

### 4.2 Electrical cabinet

The electrical cabinet is designed to be fixed vertically to the wall by 4 firmly anchored screws.

The drilling diameter of the fixing brackets is 13mm. We recommend using M12 screws (not provided). Their lengths will depend on the type of wall support and is the responsibility of the installer.

The centre distance of the holes to be drilled is given by the following figure.



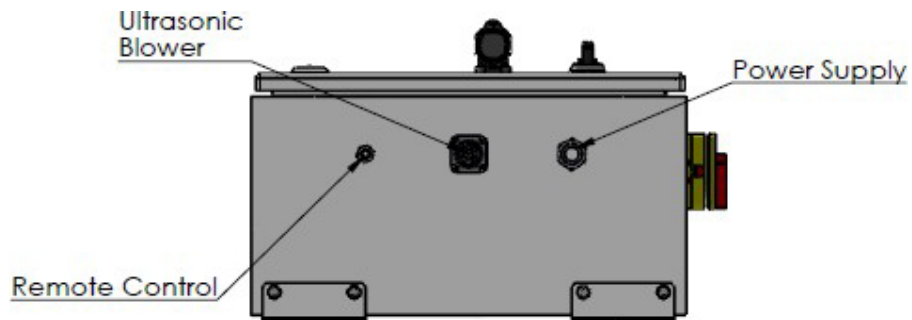
When fixing the electrical cabinet ensure that there is suitable clearance all around the unit to allow for:

- Opening the door. The door is hinged on the right side of the unit when viewing the unit from the front.
- Making the required electrical connection to the mains supply via the lower bulkhead.
- Connecting and disconnecting the ultrasonic cable.
- Connecting and disconnecting a remote On/Off cable if required.
- Operating the electrical mains Isolator switch on the righthand bulkhead of the unit.
- Access to all front panel controls.
- Visibility of indicators.

### 4.3 Electrical

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There are three electrical connections to the electrical cabinet to be considered. These are placed on the lower bulkhead of the cabinet and shown schematically in the picture below:



**Power Supply**

The electrical cabinet is supplied with a 3G1.5mm<sup>2</sup> power cord 2m long with an EU plug, type F.

*Other length or plug on demand.*



The plug type F must be connected to a socket of the same type which must be earthed and protected with 16A.

TYPE F



**Ultrasonic defoamer**

The ultrasonic cable is plugged into the connector at the middle of the lower bulkhead. Before attempting to attach the ultrasonic cable connector, remove the protective cap from the bulkhead socket on the electrical cabinet. During connector insertion, ensure the connector on the cable is correctly aligned with the socket on the electrical cabinet. Once the plug is inserted into the socket, lock it by turning one-third turn to the right.



When routing the cable to the transducer avoid routing the cable next to any other potentially sensitive cables.

Do not trail the cable across open floor areas, avoid trip hazards.



The housing of the defoamer is connected to the protective earth by the ultrasonic cable.



**Remote control**

This is via a cable gland PG7 on the lower bulkhead of the cabinet and is only required if remote control functionality is required. If remote control operation is not required, leave the cable gland closure in place. Ensure this is fitted correctly to maintain the IP rating of the cabinet.

If the remote-control line is to be used, remove the cable gland closure, pass your cable inside the cabinet, and wire it as described below:

Left screw terminal block [15]: +24V Remote On/Off  
Right screw terminal block [16]: 0V Remote On/Off

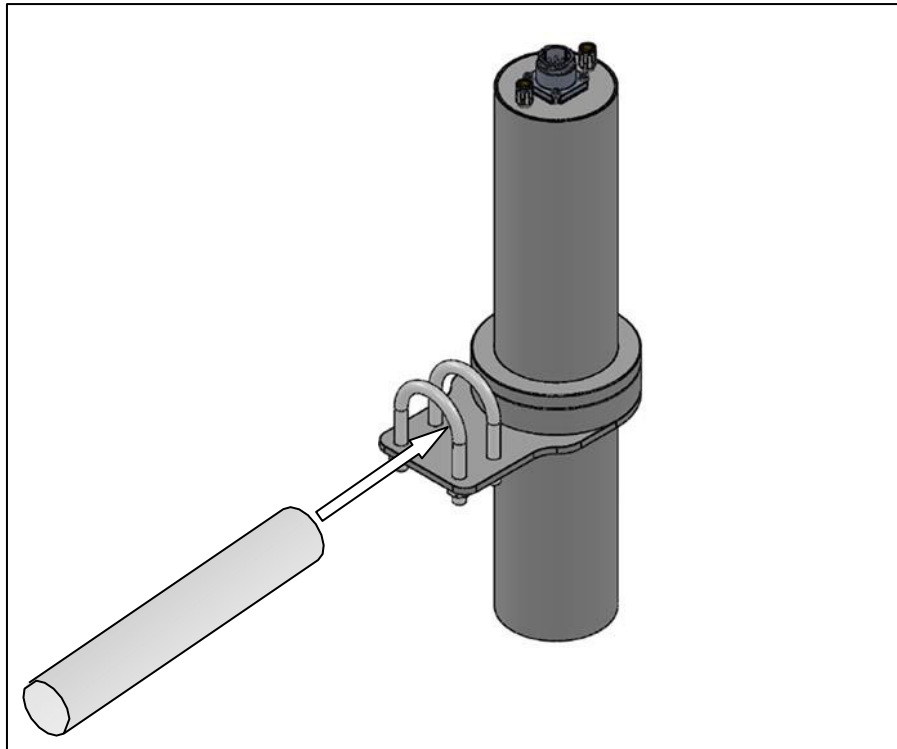
**+24V****0V**

## 4.4 Ultrasonic defoamer

### 4.4.1 General

The ultrasonic defoamer is designed to be installed vertically so that the vibrating side of the horn faces the foam.

The defoamer assembly is equipped with a mounting bracket. The user must provide a Ø42.4mm tube to fix the unit on the production line via the 2 threaded stirrup for ISO pipe.



The defoamer assembly weighs approximately 6 kg. The 4 M8 nuts must be tightened so that the assembly is perfectly rigid above the filling line.

### 4.4.2 Position of defoamer above the filling line

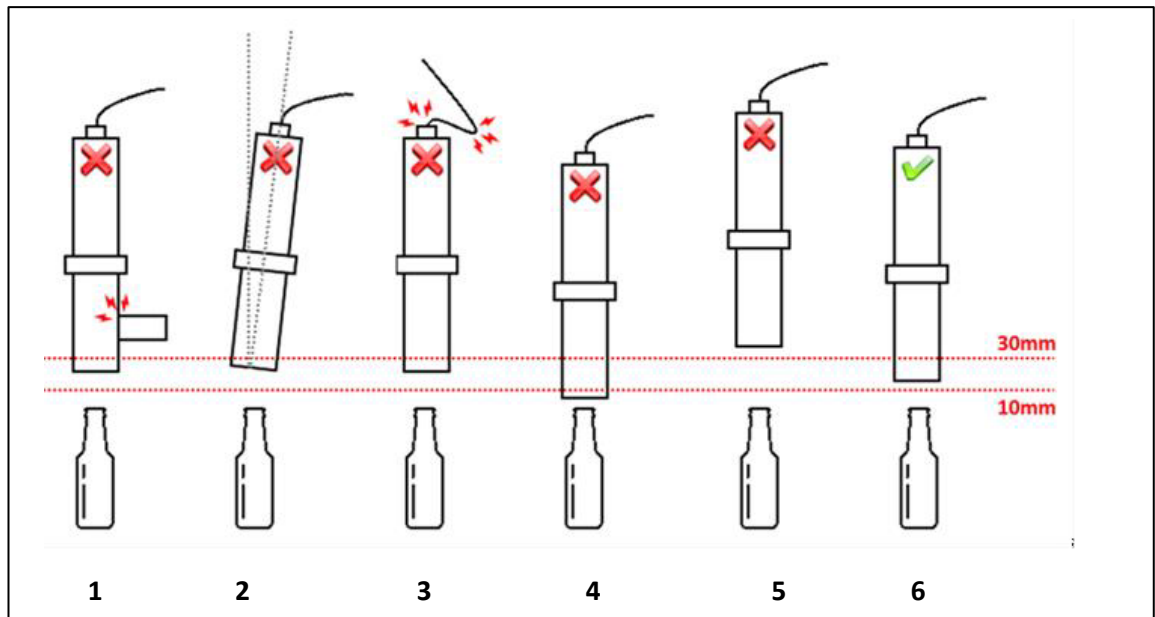
When fixing the unit above the filling line ensure that there is suitable clearance to

- Allow for attaching and detaching the interconnecting cable.
- Allow for wash-down operations where required.
- Allow for optimising the height of the transducer radiating face above the expected foam location.
- Avoid any contact between the defoamer and any other mechanical or electrical components.

When attaching the defoamer assembly, ensure that the vibrating surface of the horn is set at an optimum distance of 40-50mm from the bottles/cans. It is also important to ensure that the defoamer is centred in the path of the bottles/cans.

The defoamer should point vertically downwards, avoid angular misalignment.

Refer to the picture below to avoid installation problems:



For most beverages or chemicals, putting the defoamer at 10 to 30mm from the bottle/can is optimised.

1. Avoid all mechanical contact with ultrasonic defoamer.
2. Axial misalignment will reduce performance.
3. Avoid cable and connector obstruction.
4. Putting the defoamer too close to bottle/can will reduce performance.
5. Putting the defoamer too far from bottle/can will reduce performance.



**Beer can:** Putting the defoamer at 40 to 50mm from the can is optimised.



**Beer bottle:** Putting the defoamer at 30 to 40mm from the bottle is optimised.

### 4.4.3 Position of defoamer along the filling line

#### **Beverage bottling line**

For a typical beverage bottling line, the preferred position for the transducer is halfway around the star wheel between the filler and the capper. The precise position may need optimising depending upon where over-foaming occurs on the filler line.

#### **Beverage can line**

For a typical beverage can line, the preferred position is halfway on the can conveyor between filler and capper. However, this could vary depending on where the over-foaming is occurring on the filling line.

#### **Beer bottling line**

For a typical beer bottling line, the preferred position is 10 to 100mm before the high pressure jetter on the star wheel section between the filler and the capper.

#### **Beer can line**

For a typical beer can line, the preferred position is directly before the last bubble breaker and seamer entrance on a can line conveyor (within 200mm of seamer entrance)

### 4.4.4 Connecting the defoamer

Once the ultrasonic defoamer is in place on the filling line, the ultrasonic cable should be plugged at the connector on the defoamer upper bulkhead. Ensure that the connection is correctly made.

Ensure the ultrasonic cable is not impeded in anyway. Avoid undue mechanical stress and strain.

Finally, connect the compressed air inlet and outlet pneumatic pipes. There is no dedicated inlet or outlet tapping.

During operation, the defoamer must be cooled by dry, clean air and a pressure of 2 to 3 bars. Make sure that the pneumatic pipes are never obstructed to guarantee good cooling of the defoamer.



Once the ultrasonic cable and the pneumatic pipes are connected, the protection index of the defoamer is IP66.



## 5 OPERATING INSTRUCTIONS

### 5.1 Verification before production

The ultrasonic defoamer must be cooled via one of the two Ø6mm air inlets. There is no distinction between air inlet and air outlet. An inlet pressure of 1 to 2 bar is required to guarantee cooling. It shall be dry and clean air. The cooling air must be autonomous for each ultrasonic defoamer.



It is the responsibility of the operator to regularly check the quality of the air circuit. It must be dry and clean air.

Autotuning on the front of the electrical cabinet must be performed before each start of the machine. The purpose of this operation is to check the integrity of the ultrasound equipment and find the working frequency of the acoustic assembly (avoids the protection of the generator when starting the ultrasound).

Check the fouling of the horn. It must be in a good state of cleanliness at the start of production. Particular attention should be paid to the top of the horn which may be dirty from previous production.



Never disassemble the ultrasonic defoamer for cleaning.

Never use a brush or tool that could scratch or damage the horn.



The horn must be cleaned with a damp cloth, possibly assisted by detergents and disinfectants recommended for food use.

After cleaning, check that the horn is completely dry before starting the ultrasound.

### 5.2 Verification during production

During prolonged operation (>10min), it is necessary to ensure that the cooling air circuit operates continuously so as not to cause the transducer to overheat and break.

Even during production, the fouling of the horn must be checked regularly. If too much product accumulates on the horn, it may be necessary to raise the ultrasonic defoamer slightly.

When an unscheduled stoppage of production, it is recommended that the maintenance operator ensures that the precautions listed above for a start-up of production are validated.

### 5.3 Electrical cabinet

Once installed the system can be operated from the front panel of the electrical cabinet.

Ensure all required electrical connections have been made. Ensure the transducer is correctly and securely positioned on the filling line.

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1. Switch on Mains supply to Generator using the isolator switch on the right-hand bulkhead.



2. When the mains supply is switched on the generator enters a quiescent state. There is no electrical output to the transducer.

The white lamp "MAINS" is illuminated.



3. Immediately afterwards, the red lamp "US ERROR" is illuminated, symbolizing the start-up phase of the ultrasonic generator.
4. When the generator has finished starting, the red lamp is switched off.



5. Autotuning must be performed to ensure that the "generator-transducer" assembly is compliant.
6. Press the "Autotuning" push button on the front panel to initiate the operation.



7. During autotuning (about 2 seconds), the generator performs a diagnostic on the ultrasonic defoamer to check its frequency and impedance. During this phase, the green lamp is illuminated. At the end, the green lamp is switched off.



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8. Check the amplitude set via the knob on the front panel. Default value: 80% (mark 8 on the knob).



9. To activate the transducer in local mode, turn to the right the Start/stop button.

The green lamp is illuminated.



10. To deactivate the transducer, turn to the middle the start/stop button.

The green lamp is switched Off.



11. To activate the remote control, turn to the left the start/stop button.

The transducer will be activated when an external command will be received by the ultrasonic generator.



12. In the event of a fault the front panel red lamp will be illuminated. The power output to the transducer will be disabled.

To clear a fault, turn to the middle the start/stop button



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13. To completely disable the generator unit, use the mains isolation switch on the right-hand bulkhead.



## 5.4 Ultrasonic generator

The LED on the front side of the generator indicates the status of the equipment:

| Colour       | Status   | Correspondence           |
|--------------|----------|--------------------------|
| Green/Red    | Blinking | Start-up in progress     |
| Yellow       | Fix      | Autotuning required      |
| Yellow/Green | Blinking | Autotuning in progress   |
| Blue         | Fix      | Ready                    |
| Green        | Fix      | Ultrasounds in operation |
| Green        | Blinking | Ultrasounds in break     |
| Red          | Fix      | Alarm                    |
| Orange       | Fix      | Setting error            |

## 5.5 Diagnostic

When an alarm occurs, the LED logo lights red and ultrasounds are automatically switch off, and the default output is activated.

The generator is equipped with a self-protection device to protect against:

- output over current (overload, short circuit, ...),
- excessive temperature,
- output overload likely to damage the ultrasound device,
- too high frequency drifts of the transducer set.

To obtain detailed information about the default, it is possible to connect a computer to the ultrasonic generator via the ethernet port on the front of the electrical cabinet. The NexTgen software is available for download in START version (free).

## 5.6 Troubleshooting

If the generator does not turn on at powering up (LED logo off), check the following points:

- Check that the power cable of the electrical cabinet is well plugged on an electrical outlet which has a voltage as required.
- Ensure the cable is not defective.
- Check the circuit breaker dedicated to the generator in the electrical cabinet.
- Check the electrical connection from the circuit breaker to the ultrasonic generator.
- Check the fuse(s) for mains protection and, if necessary, replace it with a fuse of the same type.

If the generator turns on at powering up but switches into protection when starting up ultrasounds, check the following points:

- Perform an autotuning and retry to start ultrasound.
- Inside the electrical cabinet, check that the US connectors are properly connected and that the cables are not defective.
- Ensure that the ultrasonic defoamer is attached properly.

- Decrease the power level set point via the potentiometer on the electrical cabinet door.

If the problem is not resolved after performing these steps, and you have spare parts, successively change the cable, the ultrasonic defoamer then the generator to identify the origin of the fault.

## **5.7 Cleaning and maintenance**

The generator does not require any maintenance.

However, the ultrasonic defoamer should be checked from time to time and kept clean from the outside.

## 6 TECHNICAL INFORMATION

### 6.1 Electrical cabinet

|                               |                                                                                                                                                                                                                   |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Reference</b>              | ARM-BLOW-1                                                                                                                                                                                                        |
| <b>Material</b>               | Stainless steel 304L                                                                                                                                                                                              |
| <b>Mains supply</b>           | 230 V <sub>AC</sub> ± 10% / 50-60Hz Single phase 16A, 110v                                                                                                                                                        |
| <b>Dimension</b>              | 380 x 380 x 210 mm                                                                                                                                                                                                |
| <b>Weight</b>                 | 15.4 kg                                                                                                                                                                                                           |
| <b>Power cord<sup>1</sup></b> | 3G1.5mm <sup>2</sup> (L=2m) with EU plug Type F                                                                                                                                                                   |
| <b>Controls</b>               | Isolation switch (Right-hand bulkhead)                                                                                                                                                                            |
|                               | Autotuning (Front panel)                                                                                                                                                                                          |
|                               | Amplitude control knob (Front panel)                                                                                                                                                                              |
|                               | Start/Stop US (Front panel)                                                                                                                                                                                       |
|                               | 3 positions button: Remote / 0 / Local: <ul style="list-style-type: none"> <li>• Turn to left: Remote control.</li> <li>• Turn to right: Start US in local mode.</li> <li>• Vertical position: Stop US</li> </ul> |
| <b>Indicators</b>             | Mains On, white lamp (Front panel)                                                                                                                                                                                |
|                               | Sonics On, green lamp (Front Panel)                                                                                                                                                                               |
|                               | Default, red lamp (Front Panel)                                                                                                                                                                                   |
| <b>Input/Output</b>           | Ethernet port (Front Panel)                                                                                                                                                                                       |
|                               | Power Input, Gland PG13 (Lower bulkhead)                                                                                                                                                                          |
|                               | Ultrasonic Output, SAURIO socket (Lower bulkhead)                                                                                                                                                                 |
|                               | Remote control input, Gland PG7 (Lower bulkhead)                                                                                                                                                                  |
| <b>Option</b>                 | Wall mounting brackets (*4)                                                                                                                                                                                       |

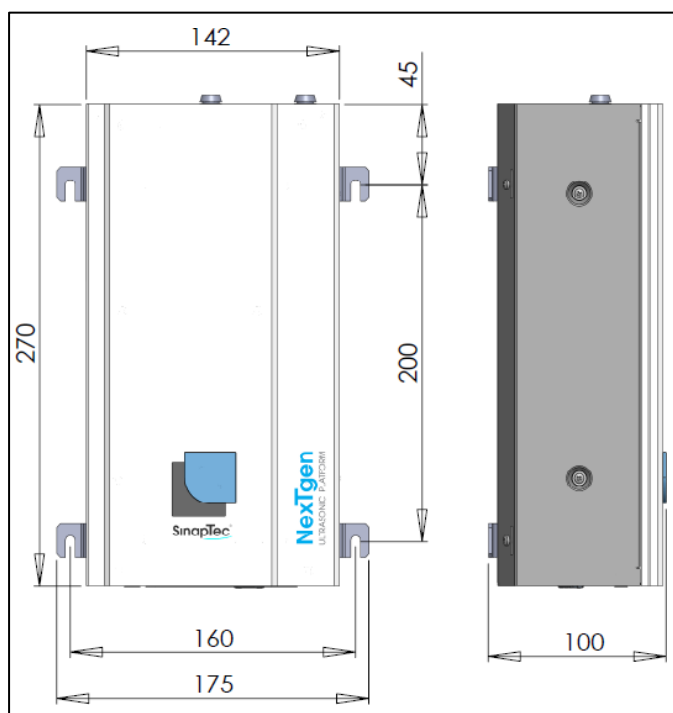
<sup>1</sup> Other lengths or plug on demand.

## 6.2 Ultrasonic generator

### 6.2.1 Equipment specification

|                                                  |                                                               |
|--------------------------------------------------|---------------------------------------------------------------|
| <b>Reference</b>                                 | I500-BLO-20K                                                  |
| <b>Maximum power</b>                             | 500 W <sub>RMS</sub>                                          |
| <b>Power supply</b>                              | 230 V <sub>AC</sub> ± 10% / 50-60Hz Single phase 6A           |
| <b>Operating frequency</b>                       | 20kHz nominal ±1kHz                                           |
| <b>Dimensions (H x W x D) without connectors</b> | 270 x 175 x 100 mm                                            |
| <b>Weight</b>                                    | 3.7 kg                                                        |
| <b>Communication ports</b>                       | RJ45 ETHERNET or RS485                                        |
| <b>Control modes</b>                             | Frequency and amplitude regulations                           |
| <b>Supplied accessories</b>                      | I/O female connectors                                         |
| <b>Protection index</b>                          | IP40 / NEMA 1<br>IK06. Cabinet is IP66                        |
| <b>Electronic protection</b>                     | Overvoltage/excess current at output<br>Excessive temperature |

### 6.2.2 Dimensions



|                                                                    |             |
|--------------------------------------------------------------------|-------------|
| <b>Required space upper portion (power supply &amp; US output)</b> | 60 mm       |
| <b>Required space lower portion (input/output connections)</b>     | 40 mm       |
| <b>Mounting system</b>                                             | 4 screws M5 |

### 6.2.3 Power and ultrasound connections

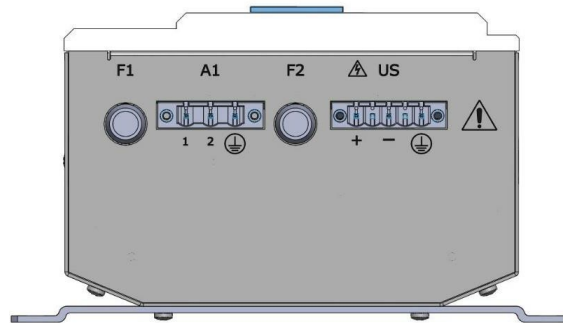


Instruction Manual - Ultrasonic Defoamer for foam compression action

The ultrasonic generator is delivered for a connection to electric installation under 230V<sub>AC</sub>. (110V on request).



For your security, the equipment must be plugged to grounded socket of the electrical installation.



| Ref | Function                        | Terminal                            | Features                                                                                             |
|-----|---------------------------------|-------------------------------------|------------------------------------------------------------------------------------------------------|
| US  | Ultrasound transducer           | 1: US (+)<br>2: US (-)<br>3: Ground | $V_{US} = 750 V_{rms} \text{ max}$<br>$I_{US} = 4 A_{rms} \text{ max}$<br>High voltage coaxial cable |
| A1  | Power supply 230V <sub>AC</sub> | 1: Phase<br>2: Neutral<br>3: Ground | 230 V <sub>AC</sub> / 50 Hz $\pm$ 10% / 6 A                                                          |
| F1  | Fuse                            |                                     | 230 V <sub>AC</sub> : 10 AT                                                                          |
| F2  | Fuse                            |                                     | 230 V <sub>AC</sub> : 10 AT                                                                          |



For ultrasonic connection, use coaxial cable of type RG58 C/U.

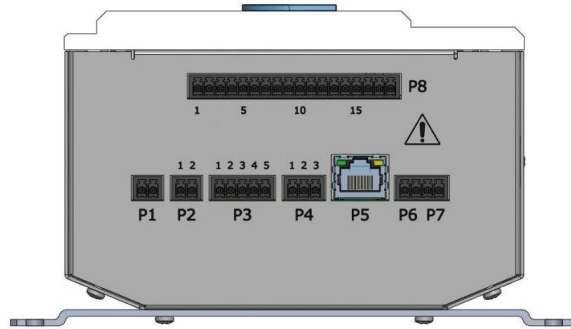
The metal braid of the coaxial cable must be connected on the terminal US (-)

The central heart of the coaxial cable must be connected on the terminal US (+)

The galvanized copper braid is covered with a black PVC sheath of diameter 5,5mm

## 6.2.4 Interface connections

The interface connections to be established are shown in the following table:



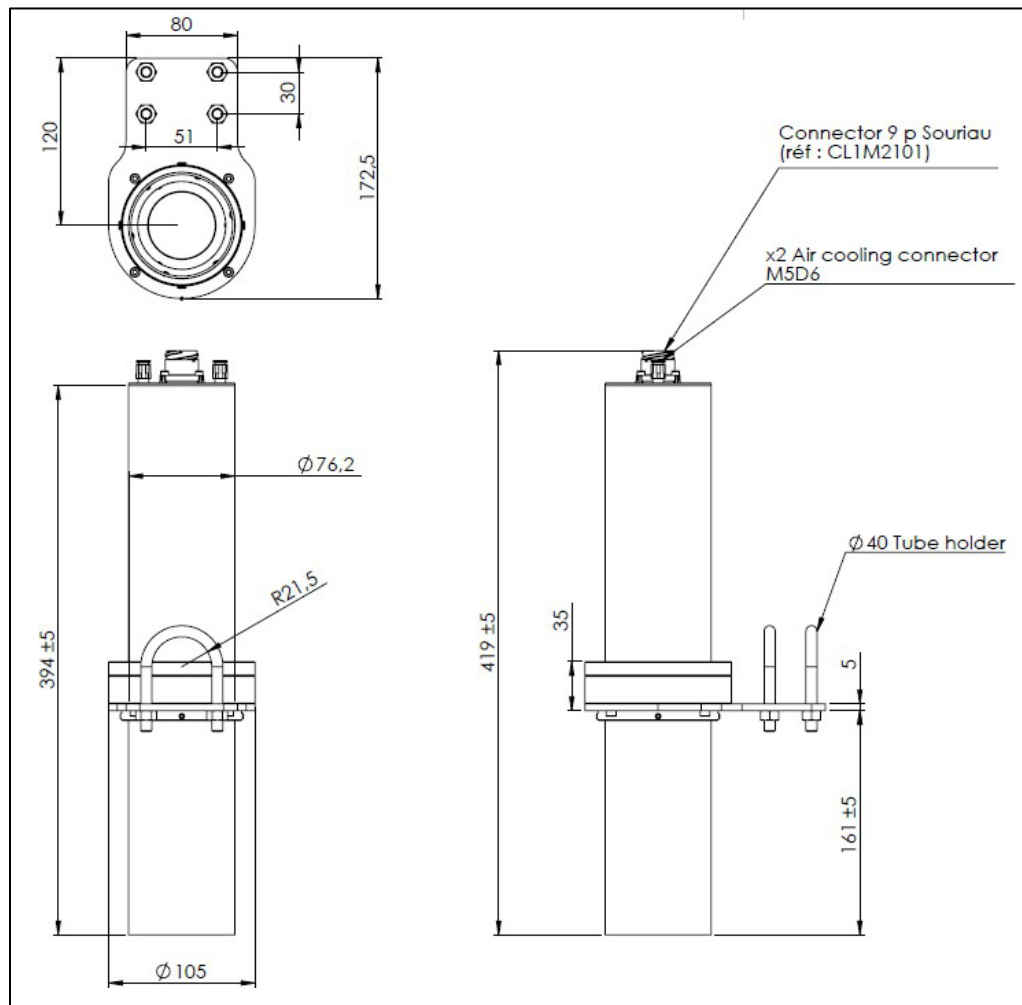
| Ref  | Function          | Terminal                                                                  | Features                                                                                   |
|------|-------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| P1   | Analog output     | 1: AO (-)<br>2: AO (+)                                                    | Output configuration:<br>[0-10V] → [0-300W]                                                |
| P2   | Start/Stop US     | 1: On/off<br>2: Com                                                       | Dry contact                                                                                |
| P3   | Default output    | 1: NO contact<br>2: Common<br>3: NC contact<br>4: Not used<br>5: Not used | Relay breaking power:<br>2 A / 30 V <sub>DC</sub><br>2 A / 48 V <sub>AC</sub>              |
| P4   | RS485             | 1: Data+<br>2: Data-<br>3: GND                                            | Twisted pair cable<br>RS485 half-duplex / Modbus RTU                                       |
| P5   | Ethernet          |                                                                           | RJ45, Ethernet / Modbus TCP                                                                |
| P6-7 | Analog input      | 1: +10V<br>2: AI (+)<br>3: AI (-)<br>4: GND                               | Amplitude Input:<br>[0-10V] → [0-100%]                                                     |
| P8   | Analog input      | 1: AI (+)<br>2: AI (-)                                                    | Not used                                                                                   |
|      | Temperature input | 3: White<br>4: Red<br>5: Red                                              | Not used                                                                                   |
|      | Digital input     | 6: On/off<br>7: Com                                                       | Not used                                                                                   |
|      | Digital input     | 8: On/off<br>9: Com                                                       | Autotuning                                                                                 |
|      | Switch macros     | 10: Bit 1<br>11: Bit 2<br>12: Bit 3<br>13: Com                            | Not used                                                                                   |
|      | Not used          | 14                                                                        | Not used                                                                                   |
|      | Digital output    | 15: 24V <sub>DC</sub> , ext.<br>16: 0V, ext.                              | NPN open collector transistor<br>US status                                                 |
|      | Digital output    | 17: On/Off<br>18: Com                                                     | Relay breaking power:<br>6 A / 30 V <sub>DC</sub><br>2 A / 230 V <sub>AC</sub><br>Not used |

## 6.3 Ultrasonic defoamer

### 6.3.1 Equipment specification

|                                 |                      |
|---------------------------------|----------------------|
| <b>Reference</b>                | DEFOAMER-20K-D48-C   |
| <b>Maximum power</b>            | 200 W <sub>RMS</sub> |
| <b>Nominal frequency</b>        | 20kHz ± 300Hz        |
| <b>Dimensions (H x W x D)</b>   | 418 x 76 x 173 mm    |
| <b>Weight</b>                   | 6 kg                 |
| <b>Housing material</b>         | Stainless steel 316L |
| <b>Horn material</b>            | Titanium TA6V Gr5    |
| <b>Blowing optimal distance</b> | 9mm from horn        |
| <b>Protection index</b>         | IP66                 |

### 6.3.2 Dimensions



## 7 NEXTGEN SOFTWARE

### 7.1 Introduction

The NexTgen software was designed to be compatible with any generator from the NexTgen range.

There are two levels of access to the NexTgen software:

- The **START Edition** contains the most essential functions. This is a freeware. However, most of the advanced options are disabled.
- The **ADVANCED Edition** is ideal for tuning and control of the ultrasound process. This version requires a license distributed by SinapTec.

In terms of main functions, the **START Edition** includes the following:

- Simple adjustment instructions for frequency and amplitude,
- Display useful common variables (frequency, power)
- Diagnosis of the acoustic assembly (generator, converter, horn, ...)
- Generator status display (ON/OFF, errors, ...)
- Generator network management (changing addresses)

In the **ADVANCED Edition**, the following functions are available:

- Macro setup advanced functions (duration, cycles, regulation...)
- Graph display for measurement channels (power, frequency, voltage, current, impedance, energy, etc). Acquisition from 1 to 1000 Hz.
- Event log (errors, macros changes, ...)
- Diagnostic tools (impedance curve, capacity measurement, ...)
- Data Logger



A complete and detailed documentation of the NexTgen software is available on request. The rest of the document briefly presents the useful functions for diagnosing the ultrasonic equipment

## 7.2 Configure Ethernet connection

Connect an ethernet cable between the electrical cabinet and your computer. You can use an Ethernet cable or a crossover cable for this connection.

NexTgen generators are set by SinapTec to have a static address by default:

- **IP address:** 192.168.1.10
- **Subnet mask:** 255.255.255.0

You must change the IP address of your computer to connect to the NexTgen device. The procedure to configure your computer's IP address is described below:

1. Open **Start » Control Panel**.
2. In the search box, type *card*.
3. Under **Network and Sharing Centre**, click **View Network Connections**.
4. Right click on the connection you want to change and click **Properties**. It is possible that you must provide the administrator with a password or a confirmation.
5. Click the Network Management tab.
6. Under **This connection uses the following items**, click **Internet Protocol Version 4 (TCP / IPv4)**, and click **Properties**.
7. Select **Use the following IP address**.
8. Change the following settings:
  - **IP address:** 192.168.1.xxx, where xxx is a number of your choice different of 10.
  - **Subnet Mask:** 255.255.255.0
  - **Gateway:** <blank>
  - **DNS server:** <blank>
9. Click **OK** to confirm.

Your computer is now configured to communicate with a NexTgen generator by direct wired connection.

## 7.3 Connection to the generator

This section will serve as a tutorial to help you quickly connect your computer to a NexTgen device.

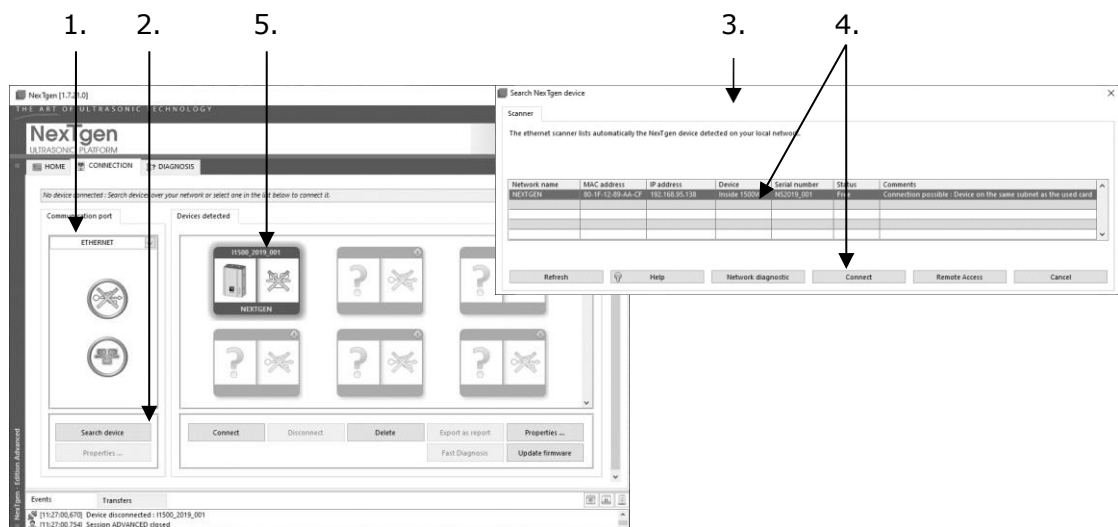
Click on the **CONNEXION** tab in the NexTgen software.

1. In the **Communication Port** section, select the ETHERNET connection, or click the ETHERNET connection icon that will turn to green automatically.
2. Click **Search Device**.
3. A sound wave icon appears and automatically lists the detected NexTgen devices on your local network.
4. Select the generator you want to work with and click **Connect**.



A generator declared as busy indicates that another user is already logged (PC, PLC ...). The device is not yet available.

5. The NexTgen software connects to the device and retrieves, from it, all the setting parameters on your computer. The generator is added on the top of the list of detected devices. Thus, you can quickly find it at the next use.



After connecting to the generator, a new tab, whose name corresponds to the model and serial number of the generator, appears.

## 7.4 Software diagnostic

Fast diagnostics consists in executing all the diagnostics activated on the ultrasonic generator in one click. The aim is to get at the end of this operation an easily exploitable diagnosis report giving an operating state of the ultrasonic system (ultrasonic stack + generator).

1. In the NexTgen software, connect to the generator and click the **CONNEXION** tab.
2. Click the button **Fast diagnosis**.



1. Click **start**. In a sequenced way, the software performs the 3 diagnosis and then retrieves the event history.
2. Click **stop**, to stop the current diagnosis.
3. After the operation click **save** to save the data in the form of a report.



The report can be sent to your dealer for analysis.

## 8 DECLARATION OF CONFORMITY

|                                                                                                                                                                                                                                                                                                                                       |                                     |                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                      | <b>EU DECLARATION OF CONFORMITY</b> |  |
| <p>Manufacturer: <b>SINAPTEC</b><br/>         Synergie Park<br/>         7 Avenue Pierre &amp; Marie Curie<br/>         59260 LEZENNES<br/>         Phone: +33 (0)3 20 61 03 89<br/>         Fax: +33(0)3 20 61 72 98<br/> <a href="http://www.sinaptec.fr">http://www.sinaptec.fr</a><br/>         E-mail: sinaptec@sinaptec.com</p> |                                     |                                                                                     |
| <p><u>Equipment:</u> <b>Ultrasonic generator</b></p>                                                                                                                                                                                                                                                                                  |                                     |                                                                                     |
| <p><u>Model :</u> <b>INSIDE 500</b></p>                                                                                                                                                                                                                                                                                               |                                     |                                                                                     |
| <p>The object of the declaration described above is in conformity with the relevant Union harmonization legislation:</p>                                                                                                                                                                                                              |                                     |                                                                                     |
| <p><b>Low voltage 2014/35/UE</b><br/>         Standard EN 61010-1: 2011<br/>         Safety requirements for electrical equipment for measurement, control and laboratory use</p>                                                                                                                                                     |                                     |                                                                                     |
| <p><b>Directive CEM 2014/30/UE</b><br/>         Standard EN 61000-6-2: 2006<br/>         Electromagnetic compatibility (CEM)<br/>         Generic standards – Immunity for industrial environments</p>                                                                                                                                |                                     |                                                                                     |
| <p>Standard EN 61000-6-4: 2007 + A1 (2011)<br/>         Electromagnetic compatibility (EMC)<br/>         Generic standards – Emission standard for industrial environments</p>                                                                                                                                                        |                                     |                                                                                     |
| <p><b>RoHS II 2011/65/UE dated 8th of June 2011</b><br/>         Standard EN 50581: 2012</p>                                                                                                                                                                                                                                          |                                     |                                                                                     |
| <p>Signed for and on behalf of SinapTec</p>                                                                                                                                                                                                                                                                                           |                                     |                                                                                     |
| <p>Lezennes, August 23, 2023</p>                                                                                                                                                                                                                                                                                                      |                                     |                                                                                     |
| <p>Pascal Tierce, President</p>                                                                                                                                                                                                                                                                                                       |                                     |                                                                                     |