OUR RANGE OF PLUG&SPRAY DEVICES
TO BE USED AS COMPONENTS OR EVALUATION KITS

MICRONICE™ TECHNOLOGY

P&S-T45
Plug&Spray Integrated Tank

P&S-360
Plug&Spray Omnidirectional

Compact & lightweight– Silent operation– Monodispersed aerosol – Variable flowrate
No liquid pressure – No temperature rise – Low energy – No dead volume

P&S-T45 Kit with integrated tank enables you to nebulize small amounts of liquid in the vertical down. It is ideal for applications requiring control of micro-volumes as for medical or technical aerosols or deposition of thin films. It is used to evaluate the nebulization capacity of liquids.

P&S-360 Kit with remote tank enables you to aerosolize large amounts of liquid with omnidirectional orientation (360 °), head-up through its pump. This multi-use kit fits all your needs especially in humidification or dissemination in the air. It is used for continuous operation for deposit applications.

To cover all your needs, we offer you a choice of three droplet sizes *:

- **4 Microns**
  - Fine aerosols
  - Surfaces don’t get wet

- **12 Microns**
  - Diffusion, humidification
  - Surfaces don’t get wet

- **40 Microns**
  - Liquid deposition
  - Wet surfaces

*Other droplet sizes are available on request and under conditions
*The droplet sizes were measured with NaCl 0.9% water solution as a reference. It is possible that they change slightly with the sprayed liquid.
OUR TECHNOLOGY
MICRONICE™

PRINCIPLE

The TEKCELEO patented MICRONICE™ technology is a breakthrough spray technology based on a very low energy consumption amplified piezoelectric mesh vibratory aerosol generator. Thanks to the expertise of our team, we have developed a micro-perforated membrane device which, when vibrating at a certain frequency, expels the liquid as fine droplets perfectly calibrated by tiny holes (monodispersed). (Droplets distribution measurements upon request: Sympatec Helos particle size analyser).

BENEFITS

- Compact and lightweight electronic nebulization device without speed and pressure from the liquid
- MICRONICE™ nebulization technology using a vibrating membrane, developed and patented by TEKCELEO
- Mono dispersed aerosol (centered on a specific particle size)
- Different types of liquids can be nebulized
- No temperature rise (no liquid alteration and no changing state)
- Low energy consumption (batteries or rechargeable cells) (hand-held devices)
- Capacity to generate small droplets (< 5 µm)
- Silent operating
- Ability to nebulize micro-volumes (electronic control)
- Droplet size can be selected by design
- No dead volume (liquid completely nebulized)

APPLICATION EXAMPLES

- **Bio decontamination**: Contamination control of small or medium volumes. Chamber decontamination. Biocide atomization.
- **Drop deposit of micro-volumes**: chemical reagents, organic samples, ink, nano suspensions, thin organic and metallic layers...
- **Chemical molecules deposit** for surface treatment.
- **Diffusion**: perfume, fragrance, pheromone...
- **Aerosoltherapy**: respiratory route drug delivery.
- **Precise humidification**: room, materials, organic tissues...
- Evaporative cooling.
- **Chemical analysis**: source of monodispersed particles.
PLUG & SPRAY

Integrated Tank P&S-T45
Preliminary data subject to change without notice

MAIN CHARACTERISTICS
- Product: water-based solution, alcoholic solution and suspensions
- Particle size: 4µm or 12 µm (standard)
- Flow rate: 1ml/min or 3ml/min
- Variable flow rate: from 30% to 100% (PWM)
- Vertical tilt: max. 45°
- Energy consumption: < 3W
- Battery operated or plugged into the power supply
- Response time: ≤ 1 ms
- Noise: <35dBA

**P&S-T45 KIT COMPONENTS**

Aerosol head generator with tank
ECU (aerosol head)
Cable ECU-aerosol head
Cable power supply
Accessory: tripod

**TECHNICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Aerosol head type</th>
<th>Droplet size</th>
<th>Flow rate</th>
<th>GSD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>4 µm ± 1 µm</td>
<td>1 mL/min ± 0.2 ml</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>12 µm ± 3 µm</td>
<td>3 mL/min ± 0.5 ml</td>
<td>1.7</td>
<td></td>
</tr>
</tbody>
</table>

(1) Other particle sizes are available on request
(2) The particle size and the flow rate depend on the liquid
(3) Geometric Standard Deviation

Electronic Control Unit (specific software for each head type)
- Power supply: Mains or built in rechargeable battery
- ON/OFF button or TTL signal to the BNC.
- PWM Interface: 3.3 Vdc (option)
- Cable main-ECU length: 200 cm (78 inch)
- Cable ECU-aerosol head length: 60 cm (24 inch)
HOW TO ORDER?

To order a kit, please provide us with the references of the items you would like to purchase:

<table>
<thead>
<tr>
<th>Plug &amp; Spray</th>
<th>References P&amp;S-T45</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIT (P&amp;S-XXX-YY)*</td>
<td>P&amp;S-T45-M04 P&amp;S-T45-M12</td>
</tr>
<tr>
<td>Aerosol Head (H-XXX-YY)**</td>
<td>H-T45-M04 H-T45-M12</td>
</tr>
<tr>
<td>Accessories</td>
<td>Tripod TRIPOD</td>
</tr>
</tbody>
</table>

* XXX: Nebulizer Type  ** YY: Aerosol head (droplet size)
  T45 – Integrated Tank  M04 - 4 microns
  360 – Remote Tank (omnidirectionnal)  M12 - 12 microns
  * H: Nebulizer Head
**MAIN CHARACTERISTICS**

- **Product:** water-based solution, alcoholic solution, and suspensions
- **Particle size:** 4µm, 12µm or 40µm.
- **Flow rate:** Resp. 1ml/min, 3ml/min, 25ml/min
- **Variable flow rate:** from 30% to 100% (PWM)
- **Aerosol orientation:** 360° (omnidirectional)
- **Energy consumption:** < 3W
- **Response time:** ≈ 1 ms
- **Noise:** <35dB

**P&S-360 KIT COMPONENTS**

- **Aerosol Head**
- **ECU Aerosol**
- **ECU Pump + (Fan)**
- **Accessory:** Pump or (fan)
- **Plastic tubes**
- **Connecting cables**
- **Cable mains-ECU**
- **Accessory:** Tripod

**TECHNICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Aerosol head type</th>
<th>Droplet diameter(1)</th>
<th>Flowrate(2)</th>
<th>GSD(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 µm ± 1 µm</td>
<td>1 mL/min ± 0,2 ml</td>
<td>1,4</td>
<td></td>
</tr>
<tr>
<td>12 µm ± 3 µm</td>
<td>3 mL/min ± 0,5 ml</td>
<td>1,7</td>
<td></td>
</tr>
<tr>
<td>40 µm ± 3 µm</td>
<td>25 mL/min ± 2 ml</td>
<td>1,8</td>
<td></td>
</tr>
</tbody>
</table>

(1) Other particle sizes are available on request  
(2) The particle size and the flow rate depend on the liquid  
(3) Geometric Standard Deviation

<table>
<thead>
<tr>
<th>Electronic Control Unit (specific software for each head type)</th>
<th>ECU Pump/Fan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply : mains or built in rechargeable battery</td>
<td>Power supply : mains</td>
</tr>
<tr>
<td>ON/OFF button or TTL signal to the BNC.</td>
<td>Controlled by aerosol head ECU</td>
</tr>
<tr>
<td>PWM Interface : 3,3 Vdc (option)</td>
<td>Cable ECU-aerosol head length: 60 cm (24 inch)</td>
</tr>
<tr>
<td>Cable main-ECU length : 200 cm (78 inch)</td>
<td>Cable main-ECU length : 200 cm (78 inch)</td>
</tr>
<tr>
<td>Cable ECU-aerosol head length: 60 cm (24 inch)</td>
<td>Cable ECU(aerosol)-ECU(pump) length: 100 cm</td>
</tr>
</tbody>
</table>

www.tekceleo.com  
Tel : +33 4 92 28 05 16 – contact@tekceleo.fr  
1047, route des Dolines – Business Pole 2  
06560 Valbonne France
HOW TO ORDER?

To order a kit, please provide us with the references of the items you would like to purchase:

<table>
<thead>
<tr>
<th>Plug &amp; Spray</th>
<th>References P&amp;S-360</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>KIT</strong> <em>(P&amp;S-XXX-YY)</em></td>
<td>P&amp;S-360-M04</td>
</tr>
<tr>
<td></td>
<td>P&amp;S-360-M12</td>
</tr>
<tr>
<td></td>
<td>P&amp;S-360-M40</td>
</tr>
<tr>
<td><strong>Aerosol Head</strong> <em>(H-XXX-YY)</em>*</td>
<td>H-360-M04</td>
</tr>
<tr>
<td></td>
<td>H-360-M12</td>
</tr>
<tr>
<td></td>
<td>H-360-M40</td>
</tr>
<tr>
<td><strong>Accessories</strong></td>
<td>Reservoir: TANK</td>
</tr>
<tr>
<td></td>
<td>Tripod: TRIPOD</td>
</tr>
</tbody>
</table>

* XXX: Nebulizer Type  
145 – Integrated Tank  
360 – Remote Tank (omnidirectional)  
* H: Nebulizer Head

** YY: Aerosol head (droplet size)  
M04 - 4 microns  
M12 - 12 microns  
M40 - 40 microns

[1] OEM ECU units without metallic cases are available on demand to be integrated in your system.
[2] On demand, a unique ECU can run several nebulizers.
PLUG & SPRAY
Electronic Control Unit Kit (ECU)

Technical specification of the ECU KIT (Aerosol):

- Supply Voltage 12 V dc (other voltage upon request)
- Energy consumption: < 3VA
- Battery operated (autonomy 1:30 hour) or main power.
- Supply and control of the nebulizer head (nozzle)
- Automatic liquid detection ON/OFF
- Control of the ECU Accessories (Pump and/or Fan)
- Control of the aerosol flow rate through the BNC connector
- ON/OFF control options:
  - ON/OFF button (manual)
  - TTL signal via the BNC connector
  - Frequency signal (PWM conversion) via the BNC connector (see table)
  - Supply voltage (ON) or not (OFF)
- Each nozzle type (M04, M12 or M40) needs a specific software
- Each ON/OFF control needs a specific software
- ECU KIT is able to control the ECU Accessories via a RCA connector.
- In and Out pins are: jack connector for 12V dc supply, RCA connector for controlling the ECU Accessories, BNC connector for ON/OFF or flow rate control, output connector for the nebulizer head.

Table for ON/OFF and flowrate frequencies correspondence

<table>
<thead>
<tr>
<th>Frequency (Hz)</th>
<th>Period (ms)</th>
<th>Flow rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>2,500</td>
<td>0%</td>
</tr>
<tr>
<td>460</td>
<td>2,174</td>
<td>0%</td>
</tr>
<tr>
<td>461</td>
<td>2,169</td>
<td>0%</td>
</tr>
<tr>
<td>506</td>
<td>1,967</td>
<td>34%</td>
</tr>
<tr>
<td>566</td>
<td>1,766</td>
<td>44%</td>
</tr>
<tr>
<td>629</td>
<td>1,564</td>
<td>53%</td>
</tr>
<tr>
<td>734</td>
<td>1,362</td>
<td>63%</td>
</tr>
<tr>
<td>862</td>
<td>1,161</td>
<td>72%</td>
</tr>
<tr>
<td>1043</td>
<td>0,959</td>
<td>81%</td>
</tr>
<tr>
<td>1321</td>
<td>0,757</td>
<td>91%</td>
</tr>
<tr>
<td>1800</td>
<td>0,556</td>
<td>100%</td>
</tr>
<tr>
<td>2500</td>
<td>0,400</td>
<td>100%</td>
</tr>
</tbody>
</table>

[1] OEM ECU units without metallic cases are available on demand to be integrated in your system.
[2] On demand, a unique ECU can run several nebulizers.