



coming soon: **piezo brush[®] PZ3**
our very small plasma handheld device

Effective plasma handheld device for manual use

Piezobrush[®] PZ3 has been designed as a compact plasma handheld device for use in laboratories, predevelopment and assembly of small series. With a maximum power consumption of 18 W, the Piezoelectric Direct Discharge (PDD[®]) technology is used to generate cold active plasma at a temperature of less than 50°C. The heart of this portable plasma device is the TDK piezo plasma generator CeraPlas™ – a high-voltage discharge device for generating cold atmospheric-pressure plasma. Plasma is used to increase the surface energy of many materials with high efficiency, as well as to reduce germs and odors.



Fields of application

- Joining technology
- Development and optimization of production processes
- Research facilities and laboratory
- Microbiology, microfluidics and food technology
- Medical and dental technology
- Prototype and architectural model making
- Small-scale production

Possible use cases

- Activation and functionalization of surfaces of various materials
- Improvement of wettability
- Optimization of bonding, painting, printing and coating processes
- Surface treatment of plastics, glass, ceramics, metals, semiconductors, natural fibres and composite materials
- Ultra-fine cleaning
- Germ and odour reduction

Technical data piezobrush[®] PZ3 of application

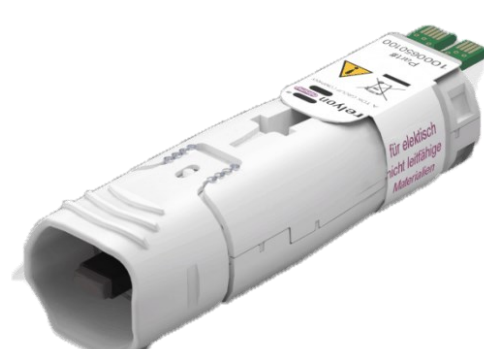
- **Electrical connection:** 110-240 V / 50-60 Hz
- **Power consumption:** max. 18 W
- **Weight:** 110 g
- **Design:** Handheld unit with plug-in power supply, integrated fan
- **Sound pressure level:** 45 dB
- **Plasma temperature:** < 50 °C
- **Treatment speed:** 5 cm²/s
- **Typical treatment distance:** 2 – 10 mm
- **Typical treatment width:** 5 – 29 mm



Modules

Different surfaces have to be activated with the appropriate accessories to achieve an ideal result. Currently two different modules are available for the **piezobrush[®] PZ3 plasma** handheld device. The PDD technology used to generate the cold plasma in **piezobrush[®] PZ3** is based on the discharge of high electric fields. Therefore, the electrical conductivity of the component to be treated is of decisive importance when choosing the modules.

Module Standard



This module is designed for the surface treatment of non-conductive substrates such as plastics, ceramics or glass. For effective treatment, a module to substrate distance of 1 to 5 mm is recommended. If uncontrolled arcing occurs on the substrate during use, the device switches off automatically. In this case the surface is at least partially conductive and should therefore be treated with the module Nearfield.

Module Nearfield



This module is used to treat (partially) electrically conductive materials such as metals, CFRP, indium tin oxide or conductive plastics. However, this module may also be necessary for the ideal treatment of materials with conductive coatings or assemblies with conductive components. With this module, the plasma only ignites when it is close enough to a conductive surface (this may also be hidden under a thin insulating layer). At a distance of a few millimeters, a violet glow is visible in the gap between module and substrate indicating that the treatment is being performed.

The device automatically detects which module is currently in the device and automatically adjusts the parameters accordingly.

Display

For process control of plasma treatment, the **piezobrush[®] PZ3** is equipped with various features that can be selected and modified via the display.

Process control:

- **Stopwatch:**
For monitoring the treatment time
- **Countdown:**
Time setting with automatic switch off function
- **Metronome:**
Acoustic feedback after defined treatment time

Power adjustment:

- Reduction of plasma power in several increments

