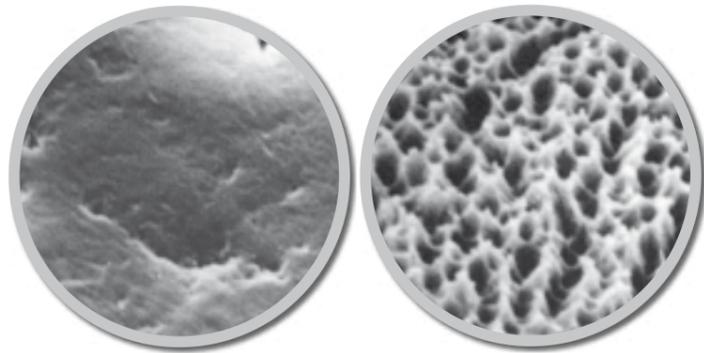
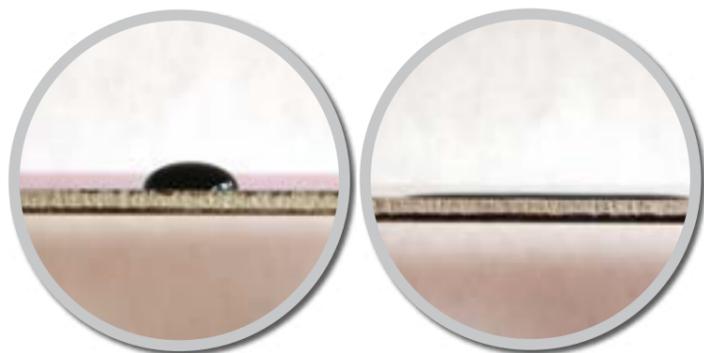


Plasma technology as an environmentally friendly and efficient supplement to chemical bonding agents lends itself to many processes for the pretreatment of components in dental technology .



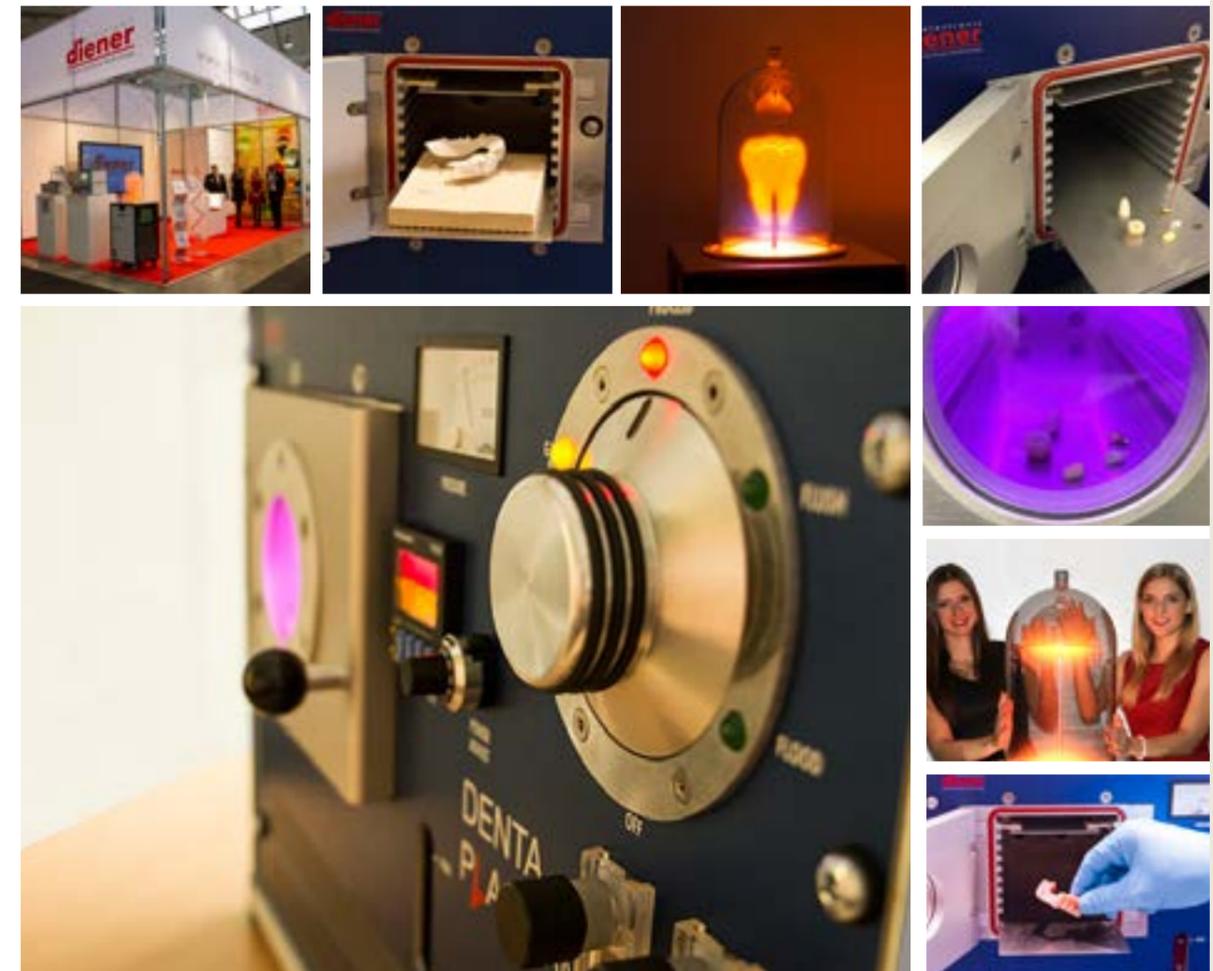
Surface etching as an optimal retention base for all adhesive and composite surfaces , (comparison before / after)



Optimal wettability (comparison before / after)

DENTAPLAS MAN

Low pressure plasma systems for dental laboratories



Plasma activation , precision cleaning and etching of the following materials :
PEEK, PEKK, Acetal (POM), PE, PA, PMMA, Metals (NM, NNM, Titanium), Zirconia and Ceramics.



Low pressure plasma systems for dental laboratories

The surface treatment of dental works with low pressure plasma shows the following advantages:

Activation and etching for better adhesion

Plasma allows a form-locking and seamless combination of high end plastics (ie. PEEK/PEKK) with other materials.

Activation and etching of surfaces with an ionized mix of oxygen and argon gas in many cases allows abdication of primers.

Oxygen radicals increase the surface energy and the bombardement with argon atoms create a sandblasting-effect, changing the surface topography in the nano-scales. Herewith a retention-base is provided.

By reducing or preventing adhesives, the risk for allergic patients will be minimized. Also, for the dental lab, an interesting cost reducing potential can be realized.

The following materials can be activated, intensive cleaned and etched with Plasma:

PEEK, PEKK, Acetal (POM), PE, PA, or PMMA, Metalls (NM, NNM, Titanium), Zirconia and Ceramics.

Reduction of germs

At a process temperature of approx. 60°C germs and viruses will be destroyed, turned into the gas phase and vacuumed by the integrated pump. Due to the form-locking, seamless properties of plasma, working-parts with complex geometries can be intensive-cleaned.

Environment protection

Plasma is an outstanding environment protective technology. It works with a standard power supply of 110/230 V. Using a high-vacuum of 0.3 mbar, the consumption of process gasses (Oxygen/Argon) is extremely low.

The DENTAPLAS MAN offers:

- simple and safe handling
- low process temperatures
- integrated vacuum pump
- two process gases (Oxygen and Argon)

DENTAPLAS MAN

Our competitive starter-system with manual control. Plasma mappings, supply of process-gases as well as technical performance are identical to the DENTAPLAS PC system.



Technical Data

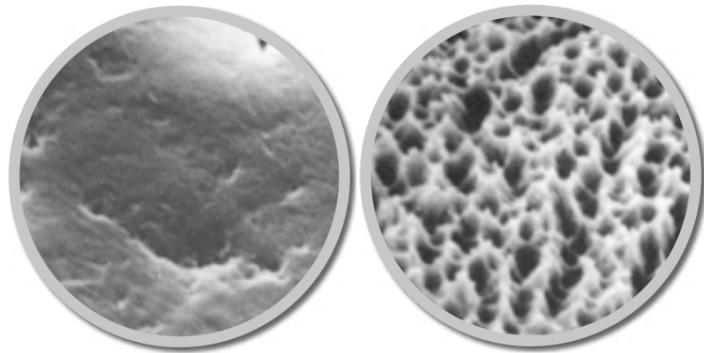
case: Aluminium
H: 350 mm (13.8")
W: 590 mm (23.2")
D: 600 mm (23.6")
weight: 62 kg
chamber: Aluminium
internal dimensions:
H: 111 mm (4.4")
W: 103 mm (4.1")
D: 285 mm (11.2")

semi-automatic process control
vacuum pump integrated

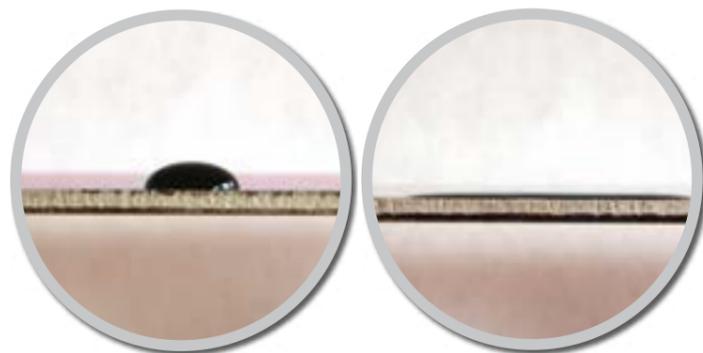
2 connection for gas supply
(process gases and pressure reducers are not included in delivery)



Plasma technology as an environmentally friendly and efficient supplement to chemical bonding agents lends itself to many processes for the pretreatment of components in dental technology .



Surface etching as an optimal retention base for all adhesive and composite surfaces , (comparison before / after)



Optimal wettability (comparison before / after)

DENTAPLAS PC

Low pressure plasma systems for dental laboratories



Plasma activation , precision cleaning and etching of the following materials :
PEEK, PEKK, Acetal (POM), PE, PA, PMMA, Metalls (NM, NNM, Titanium), Zirconia and Ceramics.

Diener electronic GmbH + Co. KG
Plasma Surface Technology
Nagolder Str. 61
72224 Ebhausen

Tel.: +49 (0) 74 58 - 999 31 - 551
Fax: +49 (0) 74 58 - 999 31 - 50
E-Mail: jooss@plasma.de
Web: www.plasma.com/dental



Low pressure plasma systems for dental laboratories

The surface treatment of dental works with low pressure plasma shows the following advantages:

Activation and etching for better adhesion

Plasma allows a form-locking and seamless combination of high end plastics (ie. PEEK/PEKK) with other materials.

Activation and etching of surfaces with an ionized mix of oxygen and argon gas in many cases allows abdication of primers.

Oxygen radicals **increase the surface energy** and the bombardement with argon atoms create a **sandblasting-effect**, changing the surface topography in the nano-scales. Herewith a **retention-base** is provided.

By reducing or preventing adhesives, the **risk for allergic patients will be minimized**. Also, for the dental lab, an interesting **cost reducing** potential can be realized.

The following materials can be activated, intensive cleaned and etched with Plasma:

PEEK, PEKK, Acetal (POM), PE, PA, or PMMA, Metals (NM, NNM, Titanium), Zirconia and Ceramics.

Reduction of germs

At a process temperature of approx. 60°C **germs and viruses** will be destroyed, turned into the gas phase and vacuumed by the integrated pump. Due to the **form-locking**, seamless properties of plasma, working-parts with complex geometries can be intensive-cleaned.

Environment protection

Plasma is an **outstanding environment protective** technology. It works with a standard power supply of 110/230 V. Using a high-vacuum of 0.3 mbar, the consumption of process gasses (Oxygen/Argon) is extremely low.

The DENTAPLAS PC offers:

- simple and safe handling
- optimized processes according to materials
- automatic course of action
- low process temperatures
- integrated vacuum pump
- two process gases (Oxygen and Argon)



Technical Data

case:	Aluminium
	H: 350 mm (13.8")
	W: 590 mm (23.2")
	D: 600 mm (23.6")
weight:	62 kg
chamber:	Aluminium
internal dimensions:	
	H:111 mm (4,4")
	W:103 mm (4.1")
	D: 285 mm (11.2")

PC control with defined and automatically running processes
vacuum pump integrated

2 connection for gas supply
(process gases and pressure reducers are not included in delivery)



Literature

Micarelli C., Canullo L, Baldissara A., Clementini M., Abutment screw removal torque values before and after plasma cleaning; Clinical Oral Implant Research, 2012; 23 Suppl. 7: 72

Canullo L., Micarelli C., Clementini M., Carinci F. Cleaning procedures on customized abutments: Microscopical, microbiological and chemical analysis; Clinical Oral Implant Research, 2012; 23 Suppl 7:55-56

Canullo L., Gotz W., Cell growth on titanium disks treated by plasma of Argon: Experimental study; Clinical Oral Implant Research, 22(9), 2011: 1082-3

Clementini M., Canullo L., Micarelli C.; Fibroblast growth on titanium disks treated by argon plasma: an in vitro triple-blinded study; European Journal of Oral Implantology, 6 (Suppl. Spring), 2013: S29-S30

Canullo L, Peñarrocha D, Clementini M, Iannello G, Micarelli C. Impact of plasma of argon cleaning treatment on implant abutments in patients with a history of periodontal disease and thin biotype: radiographic results at 24-month follow-up of a RCT. Clin. Oral Impl. Res. 00, 2013, 1-7

Canullo L., Gotz W.; Peri-implant hard tissue response to glow-discharged abutments: Prospective study. Preliminary radiological results; Annals of Anatomy, 2012; 194:174-478

Canullo L., Micarelli C., Clementini M.; Effect of titanium abutment plasma cleaning on peri-implant bone level changes: randomized controlled trial, preliminary results; Poster, Winner, Prize Martignoni, AIOP Congress Bologna, 22 - 24 Novembre 2012

Canullo L., Micarelli C., Clementini M.; Hard tissue response to argon plasma cleaning treatment on titanium abutments: 2 year follow-up RCT; European Journal of Oral Implantology

Canullo L, Micarelli C, Lembo-Fazio L, Iannello G, Clementini M.; Microscopical and microbiologic characterization of customized titanium abutments after different cleaning procedures. Clin. Oral Impl. Res. 00, 2012, 1-9.

Koban I, Matthes R, Hübner NO, Welk A, Meisel P, Holtfreter B, Sietmann R, Kindel E, Weltmann KD, Kramer A, Kocher T (2010). Treatment of Candida albicans biofilms with low temperature plasma induced by dielectric barrier discharge and atmospheric pressure plasma jet. New Journal of Physics 12:073039

Koban I, Duske K, Jablonowski L, Schröder K, Nebe B, Sietmann R, Weltmann KD, Hübner NO, Kramer A, Kocher T (2011). Atmospheric Plasma Enhances Wettability and Osteoblast Spreading on Dentin In Vitro: Proof-of-Principle. Plasma Processes and Polymers 8(10):975-982.

Koban I, Holtfreter B, Hübner NO, Matthes R, Sietmann R, Kindel E, Weltmann KD, Welk A, Kramer A, Kocher T (2011). Antimicrobial efficacy of non-thermal plasma in comparison to chlorhexidine against dental biofilms on titanium discs in vitro - proof of principle experiment. Journal of Clinical Periodontology 38(10):956-965.

Duske K, Koban I, Kindel E, Schröder K, Nebe B, Holtfreter B, Weltmann KD, Kocher T (2012). Atmospheric plasma enhances wettability and cell spreading on dental implant metals. Journal of Clinical Periodontology 39(4):400-407.

Zhao G¹, Schwartz Z, Wieland M, Rupp F, Geis-Gerstorfer J, Cochran DL, Boyan BD High surface energy enhances cell response to titanium substrate microstructure. J Biomed Mater Res A. 2005 Jul 1;74(1):49-58.

Daeschlein G, Scholz S, Arnold A, von Podewils S, Haase H, Jünger M (2012). In vitro susceptibility of important skin and wound pathogens against low temperature atmospheric pressure plasma jet (APPJ) and dielectric barrier discharge plasma (DBD). Plasma Process Polym. 2012, 9, 380 - 389

DENTAPLAS IMP

Chair side low pressure plasma system for dental surgery



Fast intensive cleaning and activation of abutments, superstructures and prostheses.

Diener electronic GmbH + Co. KG
Plasma Surface Technology
Nagolder Str. 61
D-72224 Ebhausen
Germany

Tel.: +49 (0) 74 58 - 999 31 - 551
Fax: +49 (0) 74 58 - 999 31 - 50
E-Mail: jooss@plasma.de
Web: www.plasma.com/dental



The reduction of germs and viruses by plasma

- promotes a non-inflammatory meso structure
- secures a better fixation of components and thus reduces the risk of infections
- supports the prophylaxis of peri-implantitis
- reduces the failure-risk of fixations of screws
- increases the wettability of surfaces



Technical Data

case: Aluminum
H: 350mm (13.8")
W: 210mm (8.3")
D: 350mm (13.8")

weight: 19kg

chamber: Aluminum

internal dimensions:
H: 80mm (3,1")
W: 80mm (3,1")
D: 100mm (3.9")

generator: 100 kHz
40W

vacuum pump integrated
power supply: 110V/230V

1 connection for process gases
(process gases and pressure reducers are not included in delivery)

