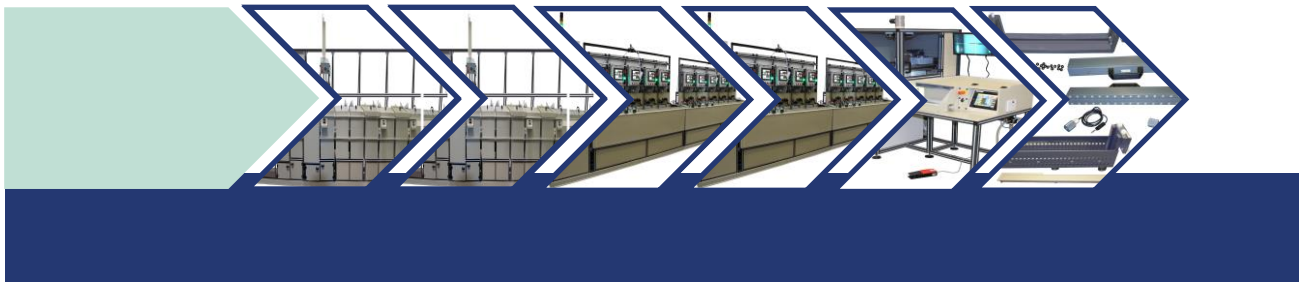
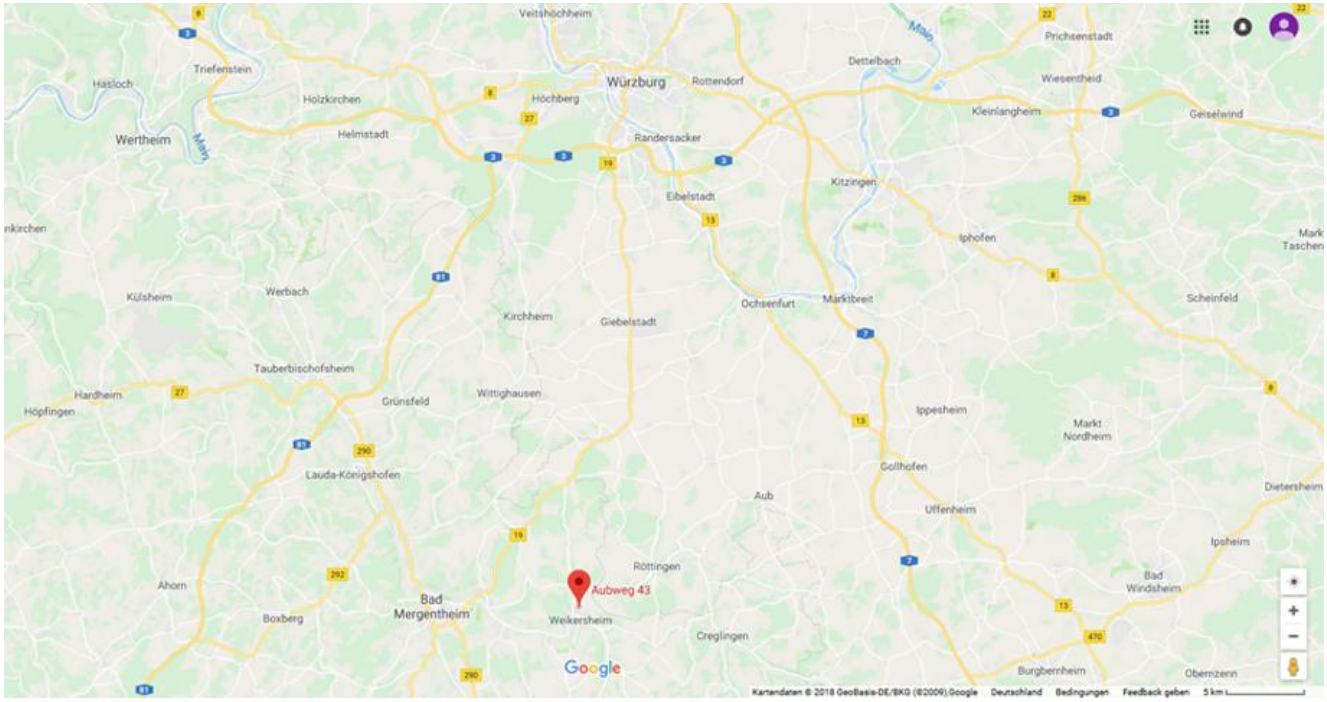
DENTAL CATALOGUE



Index

Company Location



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Traffic contacts:

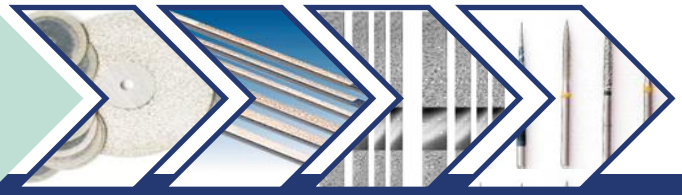
Motorway A3 from Frankfurt / Main → Exit Würzburg-Heidingsfeld

- Airport Frankfurt/Main
  - Intercity Frankfurt/Main (Airport) - Würzburg (Central Station)
- Airport Stuttgart
  - Regional train Stuttgart (Central Station) – Lauda
- Airport Nuremberg
  - Intercity Nuremberg (Central Station) – Würzburg (Central Station)
- Airport Munich
  - Intercity (Central Station) – Würzburg (Central Station)

Please ask for a detailed route description if required.
We will be pleased to meet you at Würzburg Central Station or Lauda upon being notified of your arrival time.

Our Fields of Application

Dental Industry



Flexible Discs◆Dental Burrs◆Finishing Strips

Semiconductor Industry

ID Saw Blades◆ Diamond Band Saws◆CMP Conditioner Pads

Automotive Industry

Diamond and CBN Profile Wheels ◆Diamond Dressing Rollers◆Grinding Wheels for the Gear Industry

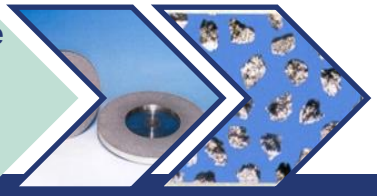
Glass and Plastics Industry

Male and Female Grinding Cones◆Edge grinding Wheels◆Band Saws

Stone Industry

Profile wheels◆Cut-off Wheels◆Milling Cutters◆Wire-Saw Beads◆Band Saws

Abrasives and Gem Stone Industry



Gem Stone Grinding Plates◆Diamond and CBN Coating

Electro-Plated Tools of different Types for various Applications

Grinding Pins◆Needle Files, Machine Files◆Cut-off Wheels ◆Hollow Drills◆Honing Tools◆Cup Wheels◆Abrasive Belts◆Band Saws

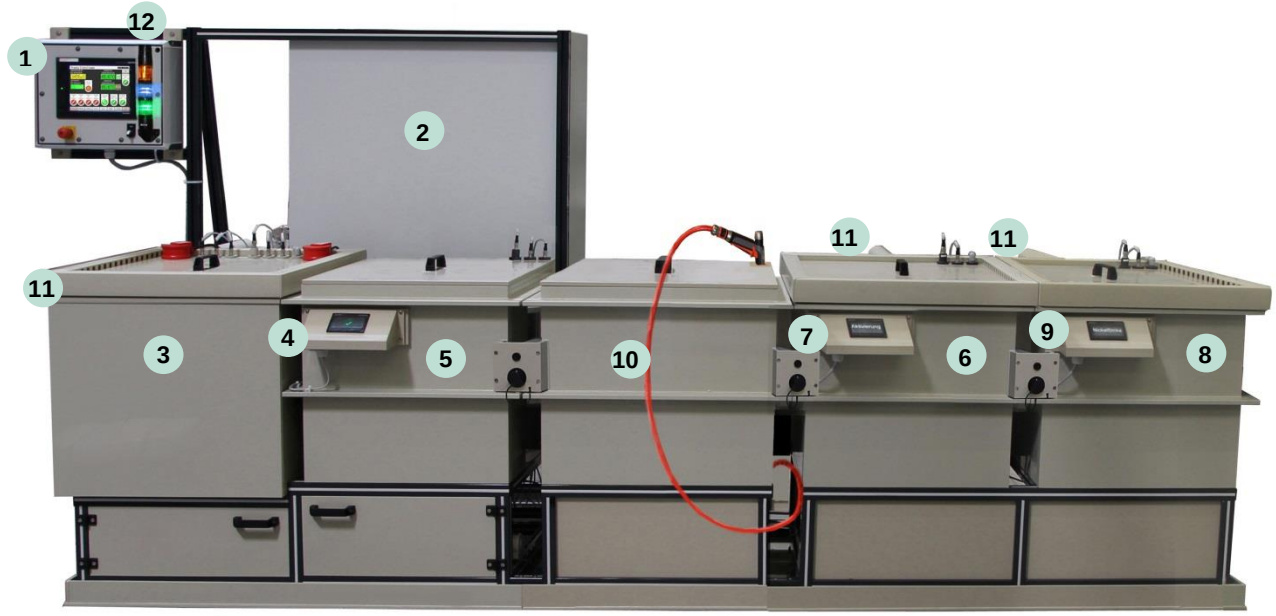
Pre-Treatment Plants VBA

- VBA 4-453/013
- VBA 4-353/453/D23
- VBA 5-353/453/D23
- VBA 5-355/455/D45
- VBA 6-353/453/D23
- VBA 6-355/455/D45

Pre-Treatment Plant VBA 4-453/013

The pre-treatment plant is for cleaning and preparing the steel blanks of grinding tools for the subsequent diamond or CBN electro-plating process.
Pre-treatment comprises a warm-process bath (degreasing), 3 cold-process baths (decapation, activation and Nickelstrike) as well as a spray stream wash station.
The parts – already fitted into the corresponding contact and holding fixtures – are transported from one bath to the next in the sequence of the single process steps. Between each process step the parts are rinsed with the provided hand spray nozzle in the spray stream wash station located between the decapation and the activation baths.
Programming and pre-set of the process and bath parameters is done by means of the Touch screen operator terminal. To control the individual process steps each process bath is fitted with a corresponding control panel.

View of system



1. Process-bath control PBS-845/001 including Touch screen operator terminal for process control and programming:
   - Temperature
   - Current
   - Voltage
   - Process time
   - Heating cycles
2. Electronics cabinet (Service access on rear side)
3. Warm-process bath (degreasing – anodic/cathodic; polarity reversible)
4. Process control panel for degreasing
5. Cold-process bath (Decapation)
6. Cold-process bath (Activation)
7. Process control panel for activation
8. Cold-process bath (Nickelstrike)
9. Process control panel for Nickelstrike
10. Spray stream wash station with hand nozzle
11. Rim exhaustion (3 pcs)
12. Signal lamp

Technical data:

- Bath volume: Process baths: appr. 180 l each; Spray stream wash station appr. 180 l
- Bath temperature: max. 80°C (degreasing bath); room temperature (all other baths)
- System dimensions (L x W x H): appr. 4107 x 790 x 1000 mm
- Power ratings. 10 KVA, 3 x 400 V, 3 x 16 A, 50 Hz
- Warm-process bath, of PP, heat insulated,
- Cold-process baths and spray stream wash station of PP
- Pipes of PP
- 1 centrifugal pump to circulate the degreasing bath
- Rim exhaustion for process baths (connection to fan, DN 160 mm)

Optional:

- Level stabilisation of process baths
- Water de-salting cartridges for autonomous deionized water supply

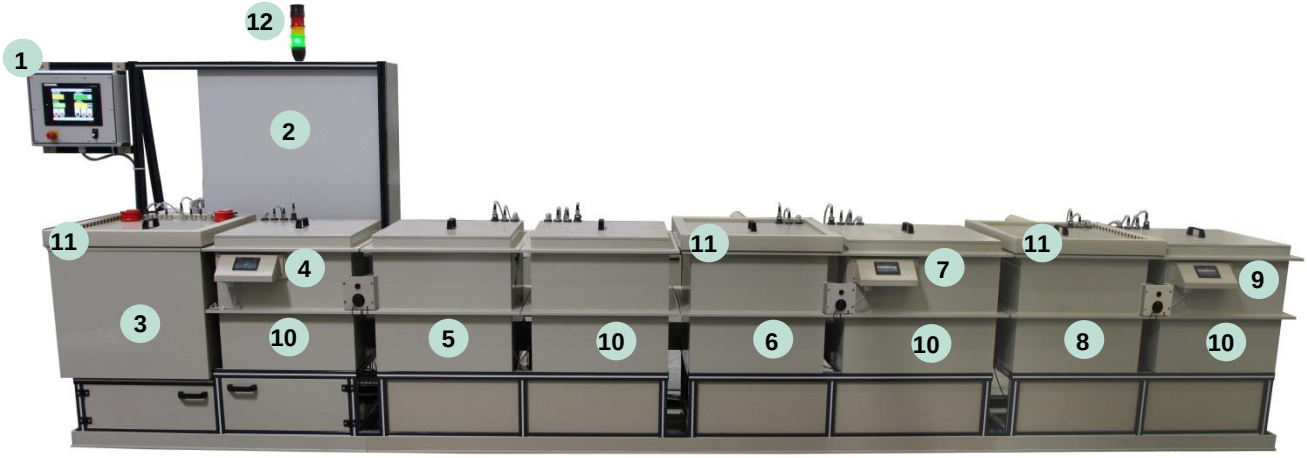
Pre-set and monitoring of the process and bath parameters by means of the Touch screen operator terminal (PBS-845/001 control)

Control panel for process control (Example: degreasing)

Pre-Treatment Plant VBA 4-353/453/D23

The pre-treatment plant serves to clean and prepare the steel blanks of grinding tools for the subsequent diamond or CBN electro-plating process.
Pre-treatment comprises a warm-process bath (degreasing), 3 cold-process baths (decapation, activation and Nickelstrike) as well as the intermediary rinsing baths. The parts – already fitted into the corresponding contact and holding fixtures – are transported from one bath to the next in the sequence of the single process steps.
Programming and pre-set of the process and bath parameters is done by means of the Touch screen operator terminal. To control the individual process steps each process bath is fitted with a corresponding control panel.

Front view



1. Process-bath control PBS-845/001 including Touch screen operator terminal for process control and programming:
   - Temperature
   - Current
   - Voltage
   - Process time
   - Heating cycles
2. Electronics cabinet (Service access on rear side)
3. Warm-process bath (degreasing – anodic/cathodic; polarity reversible)
4. Process control panel for degreasing
5. Cold-process bath (Decapation)
6. Cold-process bath (Activation)
7. Process control panel for activation
8. Cold-process bath (Nickelstrike)
9. Process control panel for Nickelstrike
10. Rinsing bath (4 pcs)
11. Rim exhaustion (3 pcs)
12. Signal lamp

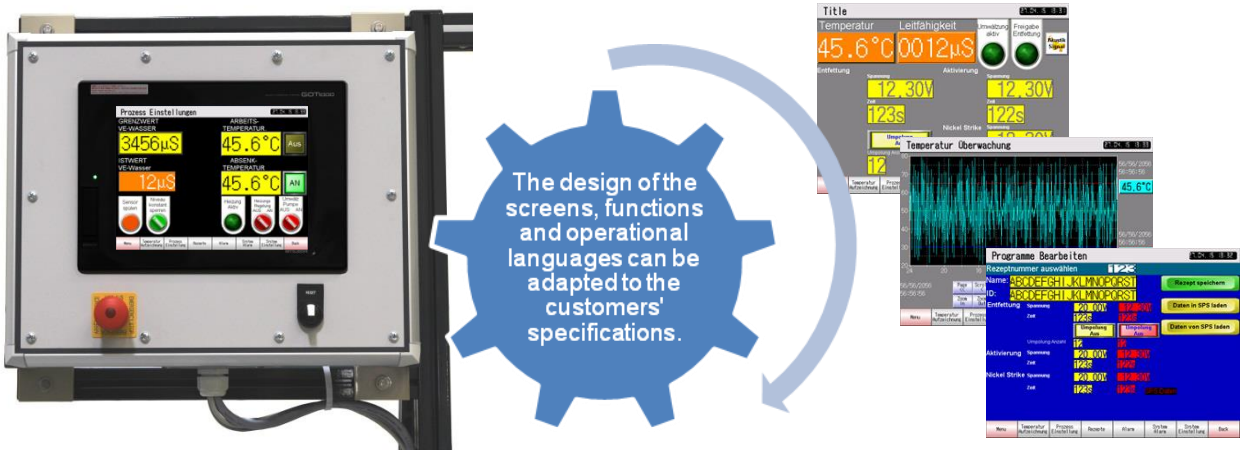
Rear view

Technical data:

- Bath volume: Process baths: appr. 180 l each; rinsing baths: appr. 180 l each
- Bath temperature: max. 60°C (degreasing bath); room temperature (all other baths)
- Dimensions (L x W x H): appr. 6100 x 708 x 1000 mm
- Power ratings: appr. 10 KVA, 3 x 400 V, 3 x 16 A, 50 Hz
- Warm-process bath, of PP, heat insulated,
- Cold-process and rinsing baths of PP
- Pipes of PP
- 1 centrifugal pump to circulate the degreasing bath
- Rim exhaustion for process baths (connection to fan, DN 76 mm)

Optional:

- Level stabilisation of process baths
- Flow-standing sink technology in the rinsing baths
- Expansion possible to a semi-automatic pre-treatment plant VBA 4-355/455/D45



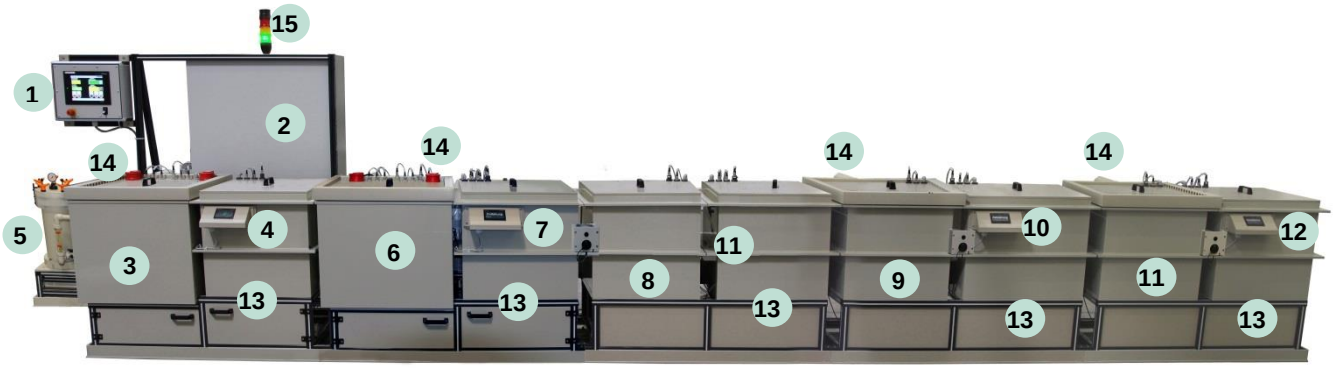
Pre-set and monitoring of the process and bath parameters by means of the Touch screen operator terminal (PBS-845/001 control)

Control panel for process control
(Example: degreasing)

Pre-Treatment Plant VBA 5-353/453/D23

The pre-treatment plant serves to clean and prepare the steel blanks of grinding tools for the subsequent diamond or CBN electro-plating process.
Pre-treatment comprises two warm-process baths (preliminary degreasing and electrolytic degreasing), 3 cold-process baths (decapation, activation and Nickelstrike) as well as the intermediary rinsing baths, as well as an oil separator for the preliminary degreasing. The parts – already fitted into the corresponding contact and holding fixtures – are transported from one bath to the next in the sequence of the single process steps.
Programming and pre-set of the process and bath parameters is done by means of the Touch screen operator terminal. To control the individual process steps each process bath is fitted with a corresponding control panel.

Front view



1. Process-bath control PBS-845/001 including Touch screen operator terminal for process control and programming:
   - Temperature
   - Current
   - Voltage
   - Process time
   - Heating cycles
2. Electronics cabinet (Service access on rear side)
3. Warm-process bath (preliminary degreasing)
4. Process control panel for preliminary degreasing
5. Oil separator
6. Warm-process bath (electrolytic degreasing – anodic/cathodic; polarity reversible)
7. Process control panel for electrolytic degreasing
8. Cold-process bath (Decapation)
9. Cold-process bath (Activation)
10. Process control panel for activation
11. Cold-process bath (Nickelstrike)
12. Process control panel for Nickelstrike
13. Standing sink (5 pcs)
14. Rim exhaustion (4 pcs)
15. Signal lamp

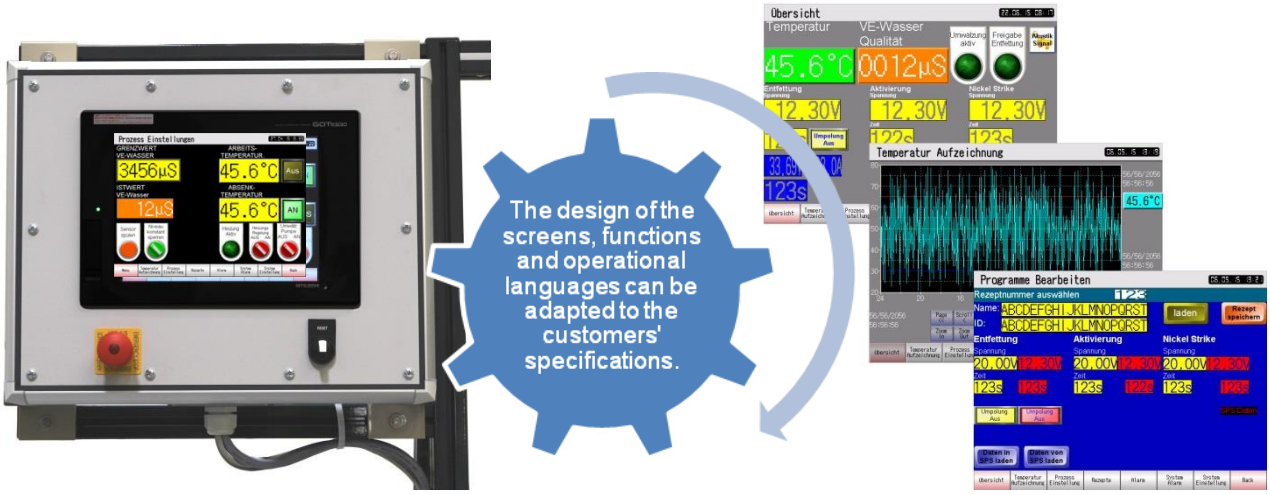
Rear view

Technical data:

- Bath volume: Process baths: appr. 180 l each; rinsing baths: appr. 180 l each
- Bath temperature: max. 80°C (preliminary degreasing); 60°C (electrolytic degreasing bath); room temperature (all other baths)
- Dimensions (L x W x H): appr. 7200 x 708 x 1000 mm
- Power ratings: appr. 15 KVA, 3 x 400 V, 3 x 16 A, 50 Hz
- Warm-process baths of PP, heat insulated,
- Cold-process and rinsing baths of PP
- Pipes of PP
- 1 centrifugal pump each to circulate the warm-process baths
- Rim exhaustion for process baths (connection to fan, DN 76 mm)

Optional:

- Level stabilisation of process baths
- Flow-standing sink technology in the rinsing baths
- Expansion possible to a semi-automatic pre-treatment plant VBA 6-355/455/D45

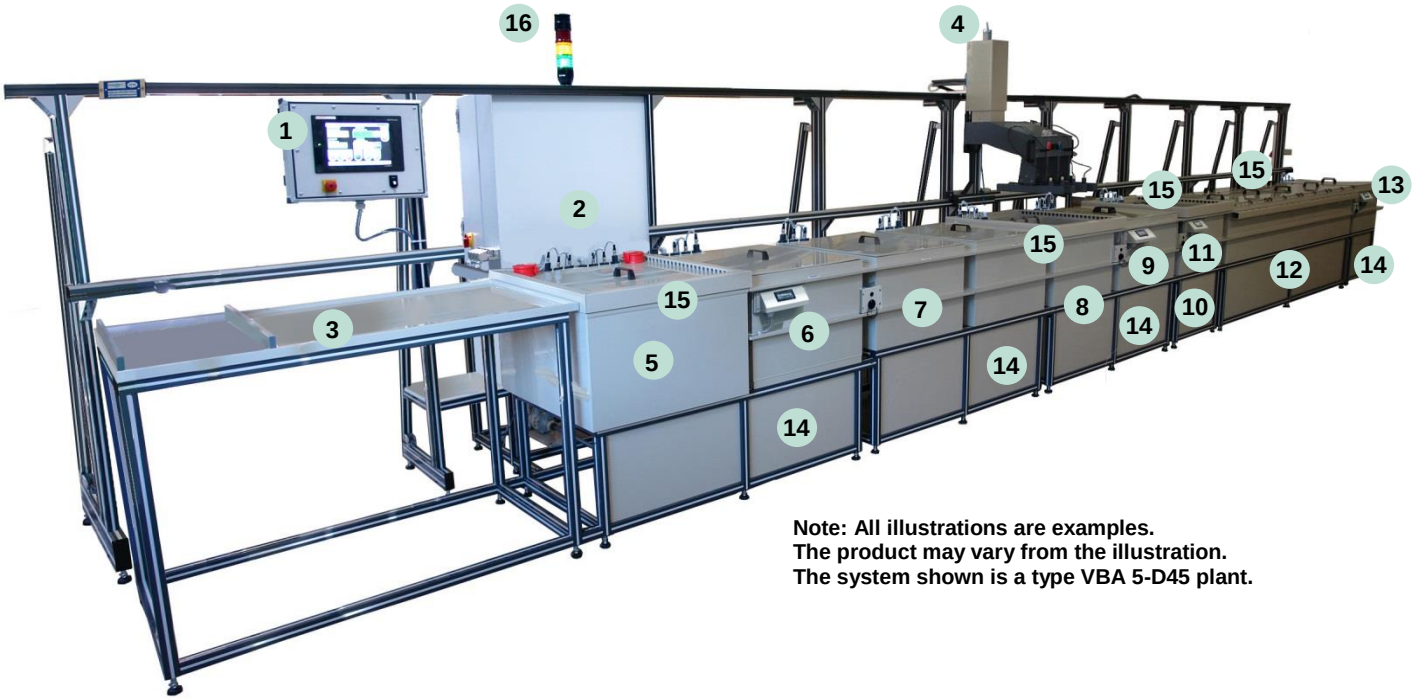


Pre-set and monitoring of the process and bath parameters by means of the Touch screen operator terminal (PBS-845/001 control)

Control panel for process control (Example: degreasing)

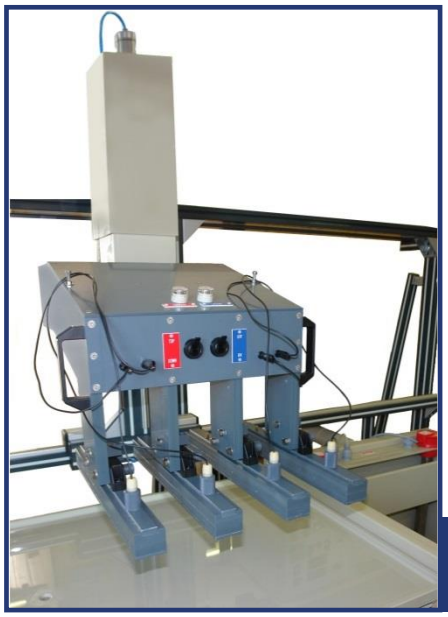
Pre-Treatment Plant VBA 5-355/455/D45

The Pre-Treatment Plant serves for cleaning and preparing the steel blanks of dental burrs, grinding pins and small tools prior to the subsequent electro-plating process. Without the appropriate pre-treatment, the parts can't be correctly electro-plated with the abrasive layer. Pre-treatment comprises 1 warm-process bath (degreasing) 3 cold-process baths (decapation, activation and Nickelstrike), an active-keeping buffer (to store the pre-treated parts which can't be immediately electro-plated) and the intermediate rinsing baths. The parts are transported – after having been mounted onto the appropriate electro-plating fixtures – from one bath to the next by means of a transport cart with a built-in lifting and lowering installation.



Note: All illustrations are examples.
The product may vary from the illustration.
The system shown is a type VBA 5-D45 plant.

1. Process bath control PBS-845/001
   Including Touch screen operator terminal for process control and programming:
   - Temperature
   - Current
   - Voltage
   - Process time
   - Heater cycles
2. Electronics cabinet
   (Service access on rear side)
3. Loading station for fixtures
4. Transport carriage for contact fixtures including lifting and lowering installation
5. Warm-process bath (Degreasing – anodic/cathodic; polarity reversible)
6. Process control panel for degreasing
7. Cold-process bath (Decapation)
8. Cold-process bath (Activation)
9. Process control panel for activation
10. Cold-process bath (Nickelstrike)
11. Process control panel for Nickelstrike
12. Cold-process bath (Active-keeping buffer)
13. Process control panel for active-keeping buffer
14. Standing sink (4 pcs)
15. Rim exhaustion (4 pcs)
16. Signal light column



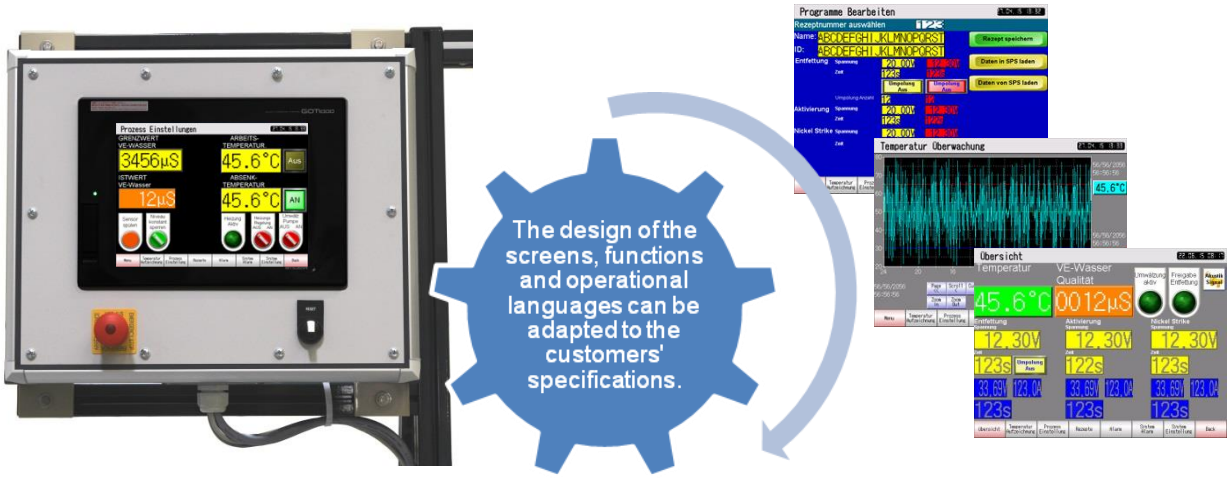
Transport carriage with lifting and lowering installation with four contact fixtures in place

Technical data:

- Bath volume: Process baths: appr. 173 l each; active-keeping buffer: appr. 745 l; Standing sinks: appr. 173 l each.
- Bath temperature: max. 60°C (degreasing bath); room temperature (all other baths)
- Dimensions (L x W x H): appr. 9620 x 1320 x 3220 mm
- Power ratings: appr. 12.5 KVA, 240 V,80 A
- 1 warm-process bath, heat insulated, of PP
- 3 cold-process baths, 4 standing sinks, 1 active-keeping buffer of PP; pipes of PP
- 1 centrifugal pump to circulate the warm-process bath
- Transport system for contact fixtures with 2 guide rails and 1 transport carriage
- Rim exhaustion for process baths (connection to fan, DN 76 mm)

Optional:

- Level stabilisation of process baths
- Flow-standing sink technology in the rinsing baths

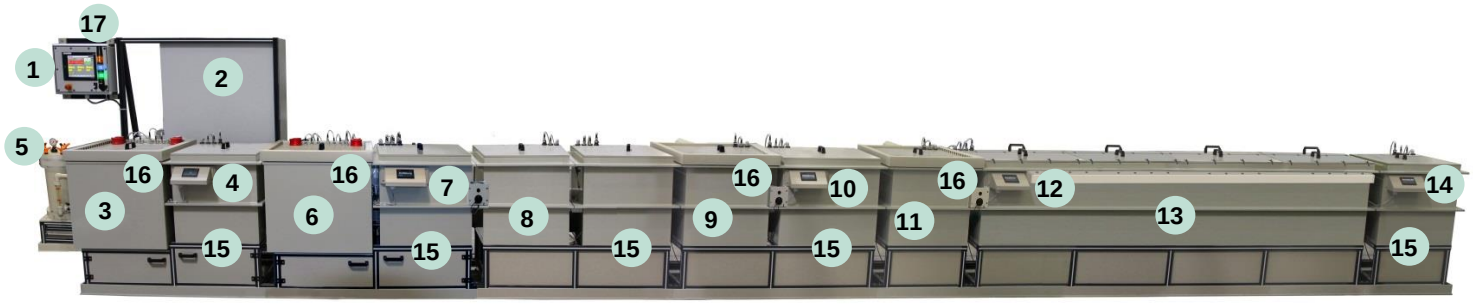


Pre-set and monitoring of the process and bath parameters by means of the Touch screen operator terminal (PBS-845/001 control)

Pre-Treatment Plant VBA 6-353/453/D23

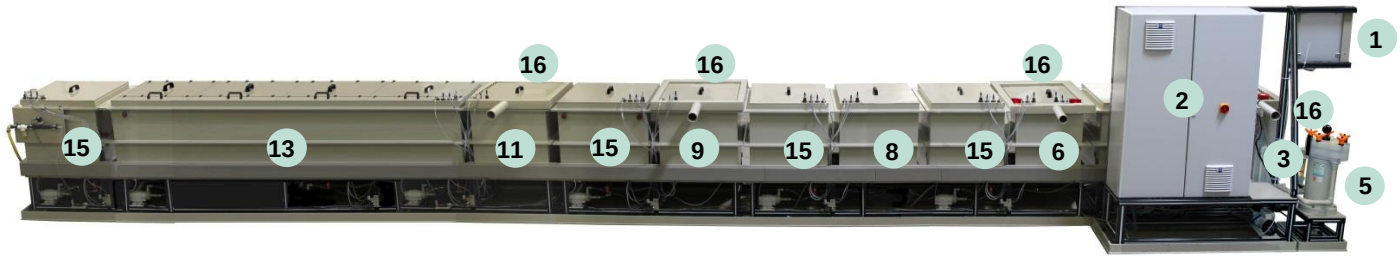
The pre-treatment plant serves to clean and prepare the steel blanks of grinding tools for the subsequent diamond or CBN electro-plating process.
Pre-treatment comprises two warm-process baths: preliminary degreasing with oil separator and electrolytic degreasing. Furthermore it comprises 3 cold-process baths: decapation, activation and Nickelstrike as well as the intermediary rinsing baths.
The parts – already fitted into the corresponding contact and holding fixtures – are transported from one bath to the next in the sequence of the single process steps.
For temporary storage of the processed parts an active-keeping buffer is provided.
Programming and pre-set of the process and bath parameters is done by means of the Touch screen operator terminal. To control the individual process steps each process bath is fitted with a corresponding control panel.

Front view



1. Process-bath control PBS-845/001 including Touch screen operator terminal for process control and programming:
   - Temperature
   - Current
   - Voltage
   - Process time
   - Heating cycles
2. Electronics cabinet (Service access on rear side)
3. Warm-process bath (preliminary degreasing)
4. Process control panel for preliminary degreasing
5. Oil separator of preliminary degreasing
6. Warm-process bath (electrolytic degreasing – anodic/cathodic; polarity reversible)
7. Process control panel for electrolytic degreasing
8. Cold-process bath (Decapation)
9. Cold-process bath (Activation)
10. Process control panel for activation
11. Cold-process bath (Nickelstrike)
12. Process control panel for Nickelstrike
13. Active-keeping buffer
14. Process control panel for active-keeping buffer
15. Standing sink (5 pcs)
16. Rim exhaustion (4 pcs)
17. Signal lamp

Rear view

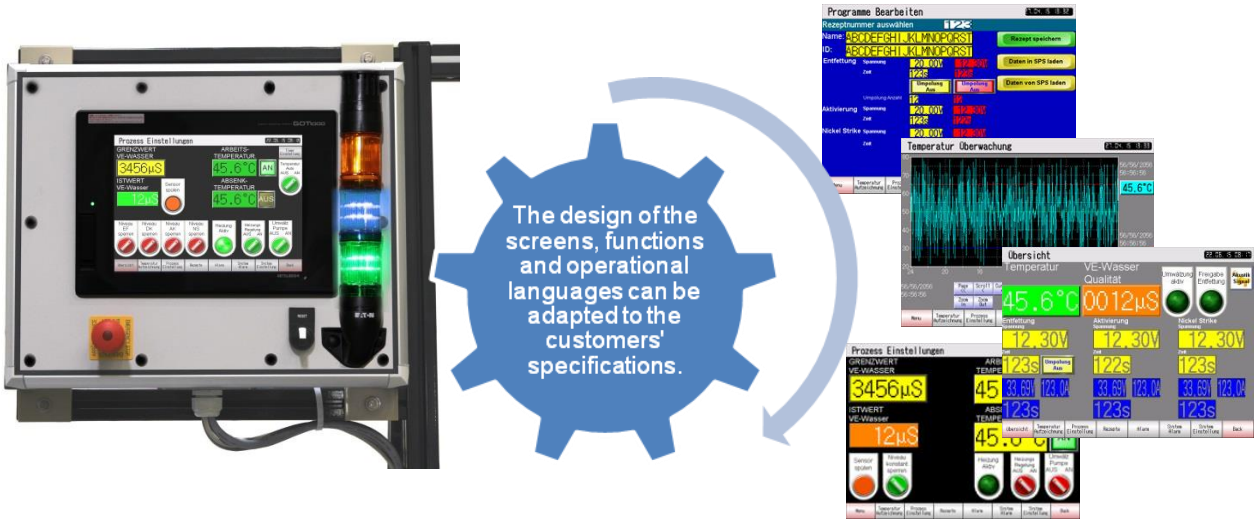


Technical data:

- Bath volume: Process baths: appr. 180 l each; rinsing baths: appr. 180 l each active-keeping buffer appr. 750 l.
- Bath temperature: max. 80°C (preliminary degreasing); 60°C (electrolytic degreasing bath); room temperature (all other baths)
- Dimensions (L x W x H): appr. 9100 x 708 x 1000 mm
- Power ratings: appr. 20 KVA, 3 x 400 V, 3 x 16 A, 50 Hz
- Warm-process baths of PP, heat insulated,
- Cold-process and rinsing baths of PP
- Pipes of PP
- 1 centrifugal pump each to circulate the warm-process baths
- Rim exhaustion for process baths (connection to fan, DN 76 mm)

Optional:

- Level stabilisation of process baths
- Flow-standing sink technology in the rinsing baths
- Expansion possible to a semi-automatic pre-treatment plant VBA 6-355/455/D45

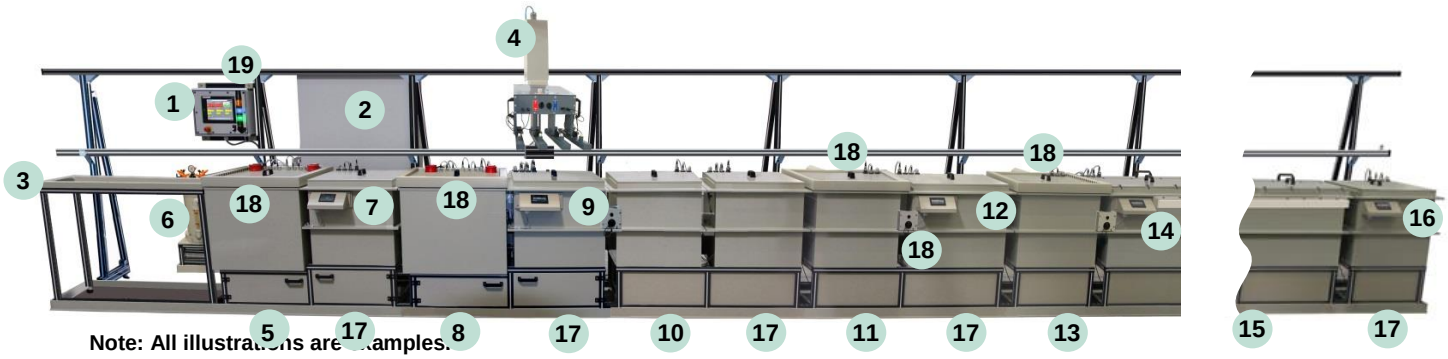


Pre-set and monitoring of the process and bath parameters by means of the Touch screen operator terminal (PBS-845/001 control)

Control panel for process control (Example: degreasing)

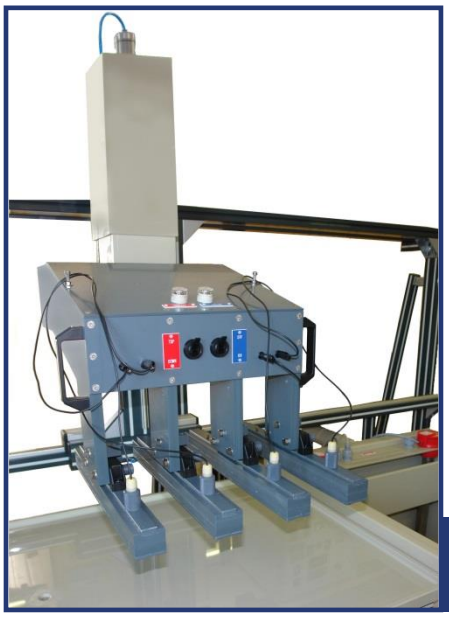
Pre-Treatment Plant VBA 6-355/455/D45

The Pre-Treatment Plant serves for cleaning and preparing the steel blanks of dental burrs, grinding pins and small tools prior to the subsequent electro-plating process. Without the appropriate pre-treatment, the parts can't be correctly electro-plated with the abrasive layer.
Pre-treatment comprises two warm-process baths: preliminary degreasing and electrolytic degreasing; 3 cold-process baths (decapation, activation and Nickelstrike), an active-keeping buffer (for temporary storage of the pre-treated parts which are not immediately electro-plated) and the intermediate rinsing baths.
The parts are transported – after having been mounted onto the appropriate electro-plating fixtures – from one bath to the next by means of a transport cart with a built-in lifting and lowering installation.
Setting of the process and bath parameters is done by means of a Touch screen operator terminal. For process control, the appropriate process control panels are provided on the individual process baths.



Note: All illustrations are examples.
The product may vary from the illustration.
The system shown is a type VBA 5-D45 plant with preliminary degreasing and electrolytic degreasing.

1. Process bath control PBS-845/001
   Including Touch screen operator terminal for process control and programming:
   - Temperature
   - Current
   - Voltage
   - Process time
   - Heater cycles
2. Electronics cabinet (service access on rear side)
3. Loading station for fixtures
4. Transport carriage for contact fixtures including lifting and lowering installation
5. Warm-process bath (Preliminary degreasing)
6. Oil separator for preliminary degreasing
7. Process control panel for preliminary degreasing
8. Warm-process bath (Electrolytic degreasing – anodic/cathodic; polarity reversible)
9. Process control panel for electrolytic degreasing
10. Cold-process bath (Decapation)
11. Cold-process bath (Activation)
12. Process control panel for activation
13. Cold-process bath (Nickelstrike)
14. Process control panel for Nickelstrike
15 Cold-process bath (Active-keeping buffer)
16 Process control panel for active-keeping buffer
17. Standing sink (5 pcs)
18. Rim exhaustion (4 pcs)
19. Signal light column



Transport carriage with lifting and lowering installation with four contact fixtures in place

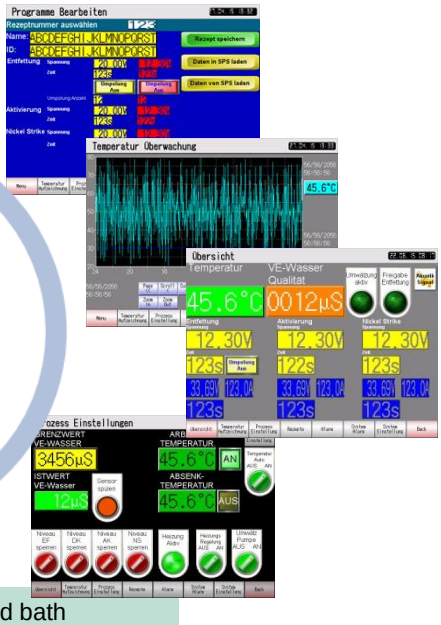
Technical data:

- Bath volume: appr. 173 l each; active-keeping buffer: appr. 745 l; Standing sinks: appr. 173 l each.
- Bath temperature: max. 80 °C (preliminary degreasing); max. 60°C (electrolytic degreasing bath); room temperature (all other baths)
- Dimensions (L x W x H): appr. 12620 x 1320 x 3220 mm
- Power ratings: appr. 15 KVA, 240 V, 80 A
- 2 warm-process baths, of PP, heat insulated
- 3 cold-process baths, 5 standing sinks, 1 active-keeping buffer of PP; pipes of PP
- 2 centrifugal pumps to circulate the degreasing baths
- Transport system for contact fixtures with 2 guide rails and 1 transport carriage
- Rim exhaustion for process baths (connection to fan, DN 75 mm)

Optional:

- Level stabilisation of process baths
- Flow-standing sink technology in the rinsing baths

The design of the screens, functions and operational languages can be adapted to the customers' specifications.



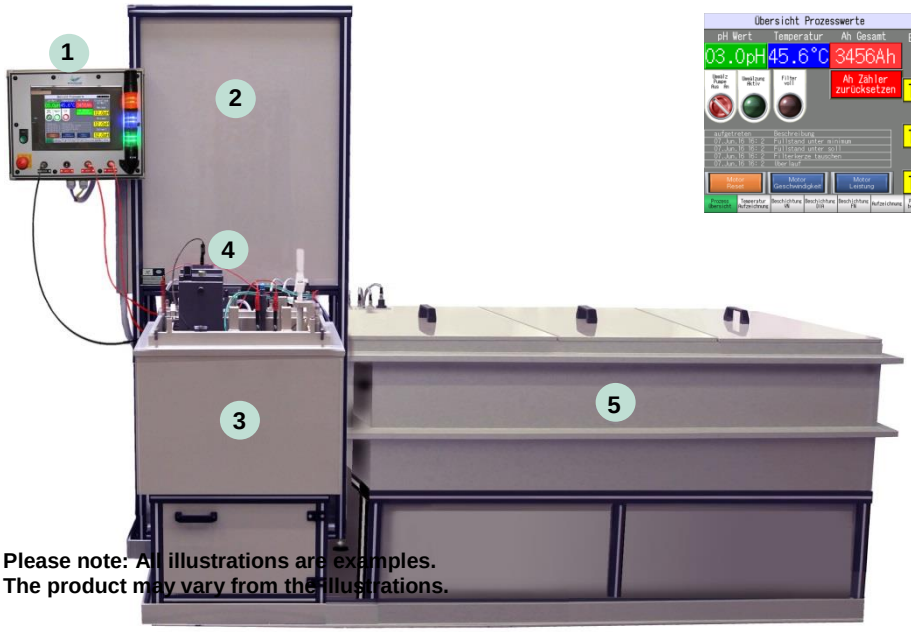
Pre-set and monitoring of the process and bath parameters by means of the Touch screen operator terminal (PBS-845/001 control)

Diamond Electro-Plating Plants DBA - Electrolytic Process

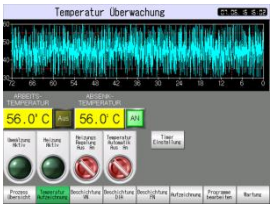
- **DBA 1-DFS / 010**
- **DBA XX-D23**

Diamond Electro-Plating Plant DBA 1-DFS / 010

Single-Tank Diamond Electro-Plating Plant
for the production of diamond flexible discs for dental applications with max. diameter between 6 and 45 mm.
Equipped with a Touch screen operator terminal for process control and adjustment, programming and monitoring the process and bath parameters, as well as a motor unit to rotate the contact fixture for a more consistent electro-plating.



Please note: All illustrations are examples.
The product may vary from the illustrations.



Touch screen operator terminal
Examples of process control and programming screens.

1. Touch screen operator terminal for process control programming, pre-set and monitoring of:

Process parameters:	Bath parameters
- Current	- Temperature
- Voltage	- pH value
- Leak current	- Level
- Time count	- Electrolyte constancy
- Lifting/lowering/rotation	- Safety sensors
	- Amin counter

   including signal lamp for operational status
2. Process regulation and control unit (PRS) in electronics cabinet
3. Electro-plating tank (heat insulated)
4. Motor unit / lifting and lowering installation
5. Three-cascade standing sink unit

The design of the screens, functions and operational languages can be adapted to the customers' specifications.

Technical data:	DBA 1-DFS/010
max. applicable outer tool Ø	6 to 45 mm (20 or 15 pcs.)
Bath volume:	approx.120 l
Bath temperature:	max. 60°C
Dimensions (L x W x H):	approx. 3650 x 1345 x 2028 mm

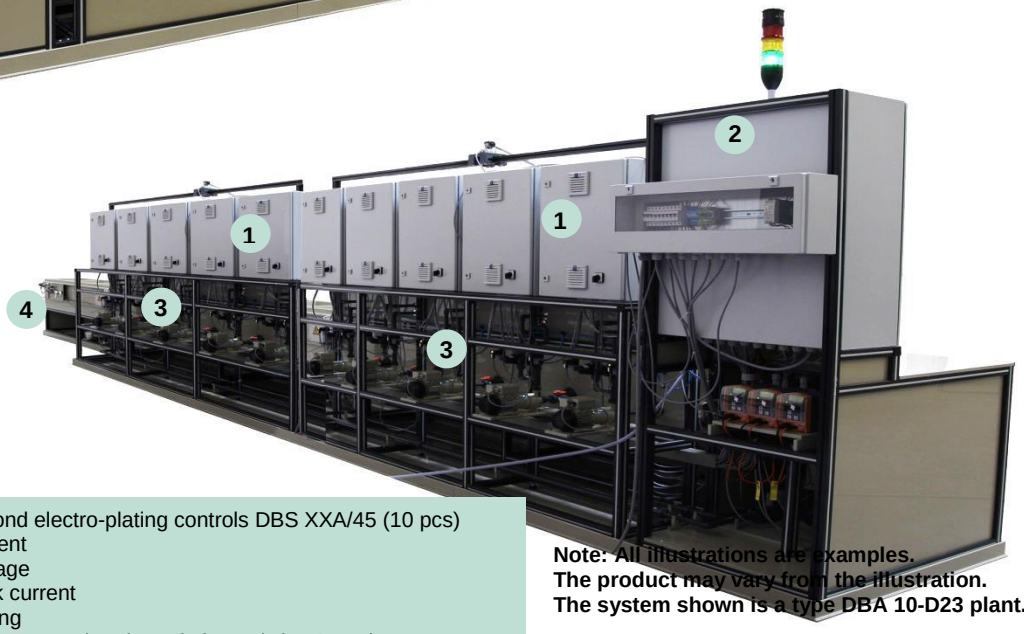
Power ratings:	approx. 2.5KVA, 240V, 16A, 50 Hz

Diamond Electro-Plating Plant DBA XX-D23

For the manufacturing of diamond electro-plated dental burrs, grinding pins, Smartphone display cutters and grinding wheels with an outer diameter of up to 150 mm; with 2 to 10 electro-plating stations.

Front view

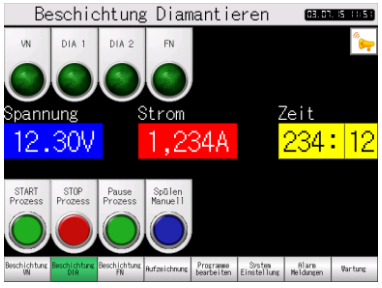
Rear view

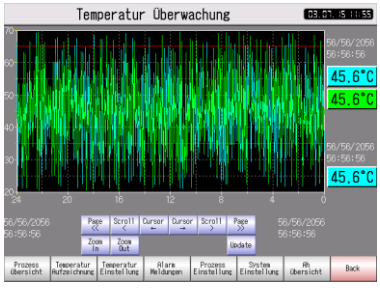


1. Diamond electro-plating controls DBS XXA/45 (10 pcs)
   - Current
   - Voltage
   - Leak current
   - Timing
2. Process control and regulation unit (PRS 745)
   - Temperature
   - pH
   - Level
   - Electrolyte stabilisation
   - Safety sensors
   - Ampère-hour counter
3. Diamond electro-plating unit (DBE, 2 pcs) with 5 electro-plating stations
4. Three-cascade standing sink unit (KSP)

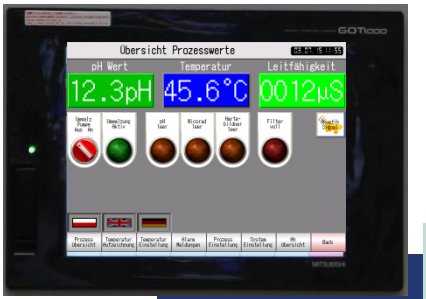
Note: All illustrations are examples.
The product may vary from the illustration.
The system shown is a type DBA 10-D23 plant.

Inside view of the PRS with reservoirs for electrolyte stabilization and pH regulation, dosing pumps, circulation pump M50, filter cartridge unit 2 x 10”, flow meter and flow adjustment valve





Examples of Touch screen operator surfaces (PRS /DBS)



Adjustment and monitoring of the bath parameters by the Touch screen operators’ terminal (PRS control)

The design of the screens, functions and operational languages can be adapted to the customers' specifications.

3-stage automatic process-run control and preset of the electro-plating parameters by the Touch screen operators’ terminal (DBS XXA-45 control).

Nickel-Stripping Plants DRA

- **DRA-1 (PP)**

Nickel-Stripping Plants DRA-1 (PP)

The nickel stripping plant, DRA, is used for the reclamation of abrasive and basic ferrous and non-ferrous blanks of electroplated diamond and CBN tools. The tools are put into a special container for the stripping process. During this process the nickel is removed from the blanks while allowing the copper based alloy and steel body not to be affected. An integrated compressed air diaphragm circulating pump is used to ensure a uniform temperature distribution allowing grits to be filtered out and into a special filter bag. After 8 to 24 hours, depending on the grit size, the stripped blanks can be taken out, cleaned, and re-coated. The diamond or CBN grits can be taken from the filter bag and be cleaned if required then sorted and used again.

1. DRS control
   - Temperature
   - Pump
   - Level control
2. Filter
3. Rim exhaustion
4. Stripping-off tank (heat insulated)
5. Circulation pump

Recommended stripping-off chemical for electroplated nickel layers:
Stripping-off chemical AKE, part 1 to 5
Stripping-off rate: max. 30 µm Ni/h (50-60°C)
max. metal loading: appr. 30g Ni/l

Technical data:	**DRA 1-300**	**DRA 1-500**
- max. tool diameter:	300 mm	500 mm
- max. tool weight:	appr. 20 kg	appr. 30 kg
- Tank volume:	appr. 115 l	appr. 330 l
- Bath temperature:	max. 75°C	max. 75°C
- Dimensions (L x W x H):	appr. 570 x 1000 x 1300 mm	appr. 770 x 1200 x 1300 mm
- Power ratings:	appr. 2,5 KVA, 230V, 16A	appr. 5 KVA, 400V, 16A
Connection for rim exhaustion:	DN75	DN75
- Heat-insulated stripping-off tank and pipes made of PP		
- Automatic level control and dry-run protection		
- Filter bag device with cleanable filter inserts		
- Compressed air diaphragm pump		

Semi- and Fully Automatic Varnishing and Colour-Ring coding systems TLA+FCA

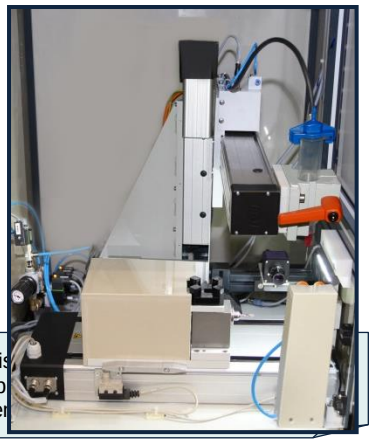
- TLA 1-D23/101
- TLA 1-D23/202
- TLA/FCA 1-D23/102
- TLA/FCA 1-D45/312
- TLA/FCA 1-D45/XXX-XXX
- SMART-LINE FCA 1-D23/702 - 802
- FCA 1-D23/XXX

Semi-Automatic Varnishing System

TLA 1-D23/101

The semiautomatic varnishing system serves for varnishing or masking prior to the electro-plating process as well as for marking with colour rings of diamond dental burrs (types FG, H and RA) and grinding pins. It is equipped with a three-axis linear guide, a camera and monitor for visual control of varnishing, a PLC controller and a Touch screen operators' terminal for programming and backup of programs.

Note: All illustrations are examples.
The product may vary from the illustrations.



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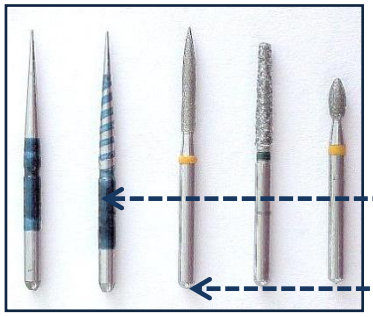
Monitor to check varnishing

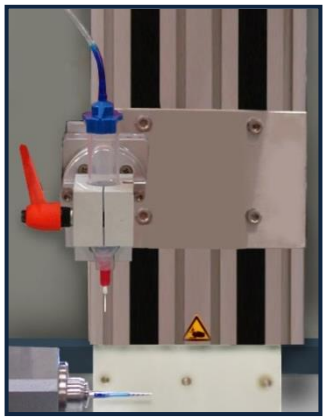


Masking varnishing in spiral form

Colour-ring coding

Standard masking varnishing

Examples of varnishing



Basic equipment

- Holding frame welded of aluminium profiles and baking enamelled
- Table surface for varnishing unit made of aluminium, baking enamelled
- Headstock with collet holding fixture and pneumatic tension unit
- Freely programmable carriage
- Carriage guide for x-y-z-axes with step motor
- Driving motor for headstock, continuously speed controlled by PLC.
- Main control with switch box
- PLC-controller

  Version: CPU-module Q-series
  Input/output addresses: 4096/8192
  Storage media: Program memory 120 kByte
  Interfaces: USB 100BASE-TX
- Graphics Display: with touch operation 8,4“ 65536 colours
  LCD type: TFT Colour-LCD, resolution : 640 x 480
- Optical control of varnishing by camera and 19” monitor
- Safety housing incl. light barrier for machine safety
- Varnish dosing incl. pressure-regulation valve for varnish cartridges 5,10, 30 and 55 cc
- Cleaning installation for dosing needle

Technical Data	
Clamping diameter:	1,6 / 2,35 / 3 / 4 / 5 / 6 / 8 / 10 mm (other diameters available on request)
Clamping depth:	Depending on length of work piece
Varnishing range:	With three freely programmable axes: varnishing zone according to program
Varnishing capacity:	**For masking:** appr. 8 - 10 pcs/min. (Blank: FG; varnishing zone 10 mm, dosing needle Ø 0.25mm) **Colour-ring coding:** appr. 12 - 15 pcs/min (2-component varnish)
Note:	All information given depends on operator and quality and precision of blank, and may therefore vary.
Program memory:	appr. 2000 dental burr types depending on varnishing range and hard disk capacity
Mandrel speed:	max. 1000 rpm
Air pressure:	5 … 7 bar, oil-free, dry
Power connection:	230 V, 50 Hz
System dimensions:	L x W x H appr. 1450 x 740 x 1450 mm

Optional expansions TLA 1-D23/101

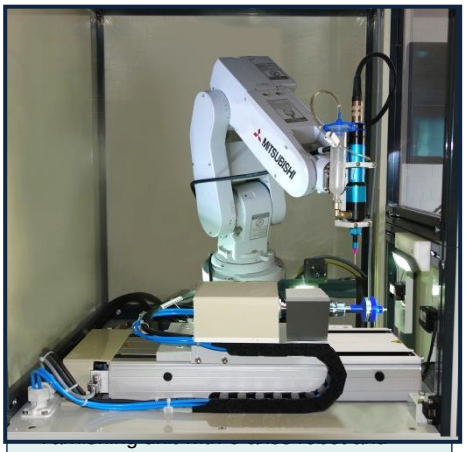
- Electronic hand wheel in connection to on-board PC for easier programming
- Laser-assisted precision zero-setting for better reproducible varnishing results
- Prearrangement of the TLA for integrating a robot for automation incl. servomotors for axes, motion controller and servo amplifier
- Volumetric dosing system for precision-dosing
- 6-axes varnishing robot for grinding points with vertical surfaces
- Enlargement of head stock fixture up to collet Ø 32 mm
- Change of power ratings to 120 V, 60 Hz

Semi-Automatic Varnishing System

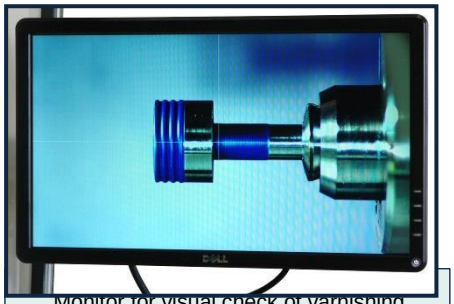
TLA 1-D23/202

The semiautomatic varnishing system TLA is for varnishing or masking prior to the electro-plating process of milling cutters for processing Smartphone displays, grinding pins and grinding wheels.
It is equipped with a PLC controller, a Touch screen operator terminal for programming and program backup, as well as a camera and monitor for visual control of the varnishing. The volumetric paint dosing guided by a 6-axes robot enables the system to apply masking also to work pieces with complex shapes.

Note: All illustrations are examples.
The product may vary from the illustrations.



volumetric dosing system

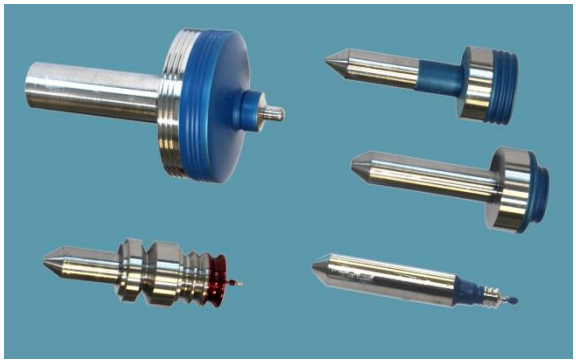


Monitor for visual check of varnishing

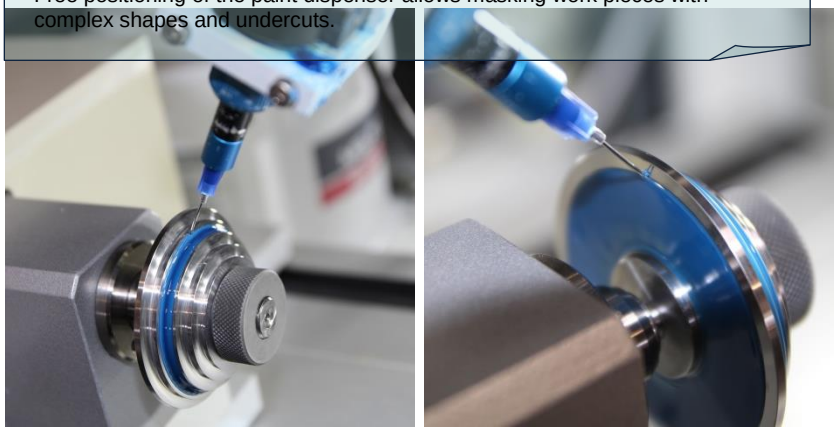
Technical Data

Clamping diameter:	1,6 / 2,35 / 3 / 4 / 5 / 6 / 8 / 10 mm (other diameters available on request)
Clamping depth:	Depending on length of work piece
Varnishing range:	Corresponding to freely programmable multi-axes robot: x = 40 mm, y = 30 mm, z = 50 mm
Varnishing capacity:	40-60 sec/ varnishing sector
Varnish types:	Masking varnish for electrolytic and electroless nickel plating
Note:	All information given depends on operator and quality and precision of blank, and may therefore vary.
Program memory:	appr. 2000 tool types depending on varnishing range and hard disk capacity
Mandrel speed:	max. 1000 rpm., continuously adjustable
Air pressure:	5 … 7 bar, oil-free, dry
Power connection:	230 V, 50 Hz
System dimensions:	L x W x H appr. 1450 x 900 x 1570 mm

Masking varnished milling cutter blanks for Smartphone displays



Masking varnishing of a grinding wheel blank.
Free positioning of the paint dispenser allows masking work pieces with complex shapes and undercuts.



Basic equipment

- Holding frame welded of aluminium profiles and baking enamelled
- Table surface for varnishing unit made of aluminium, baking enamelled
- Headstock with collet holding fixture and pneumatic tension unit
- 6-axes varnishing robot for varnishing also on vertical surfaces
- Carriage guide for x-axis with step motor
- Motor for headstock, rotation speed continuously adjustable by PLC.
- Volumetric dosing system for precision application of varnish
- Main control with switch box
- PLC-controller

  Version: CPU-module Q-series
  Input/output addresses: 4096/8192
  Storage media: Program memory 120 kByte
  Interfaces: USB 100BASE-TX
- Graphics Display: with touch operation 8,4“ 65536 colours
  LCD type: TFT Colour-LCD Resolution : 640 x 480
- Visual control of varnishing by camera and 19” monitor
- Safety housing incl. light barrier for machine safety

Volumetric varnish dosing system

Optional expansions TLA 1-D23/202

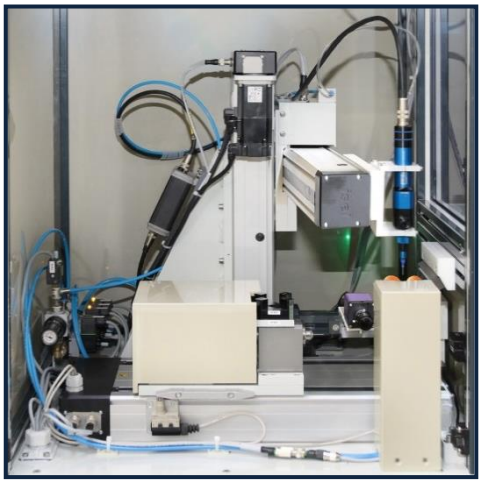
- Electronic hand wheel in connection to on-board PC for easier programming
- Laser-assisted precision zero-setting for better reproducible varnishing results
- Enlargement of head stock fixture up to collet Ø 32 mm
- Change of power ratings to 120 V, 60 Hz
- Varnish dosing incl. pressure-regulation valve for varnish cartridges 5,10, 30 and 55 cc
- Masking of grinding wheels:
  a. Up to max. Ø 100 mm
  b. Up to max. Ø 250 mm
  c. Up to max. Ø 350 mm

Semi-Automatic Varnishing System

TLA/FCA 1-D23/102

For coding with colour rings of diamond dental burrs (types FG, H, HP and RA), implant drills, milling cutters, grinding pins, spiral drills, taps and similar with a shank Ø 1.0 – 10.0 mm

Note: All illustrations are examples.
The product may vary from the illustrations.

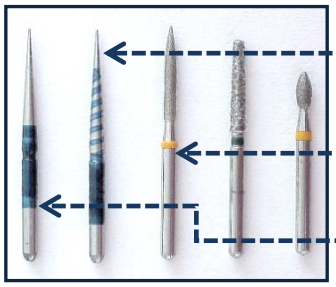


Varnishing unit with four-axes linear guide and volumetric paint dosing system VDS-145

Monitor to check varnishing

Technical Data	
Clamping diameter:	1.6 / 2.35 / 3 / 4 / 5 / 6 / 8 / 10 mm (other diameters available on request)
Clamping depth:	Depending on length of work piece
Varnishing range:	With four freely programmable axes: varnishing zone according to program
Varnishing capacity:	**For masking:** appr. 6 - 10 pcs/min. (Blank: FG; varnishing zone 10 mm, dosing needle Ø 0.25mm) **Colour-ring coding:** appr. 8 - 12 pcs/min (2-component varnish)
Note:	All information given depends on operator and quality and precision of blank, and may therefore vary .
Program memory:	appr. 2000 dental burr types depending on varnishing range and hard disk capacity
Mandrel speed:	max. 1000 rpm
Air pressure:	5 … 7 bar, oil-free, dry

Power connection:	230 V, 50 Hz
System dimensions:	L x W x H appr. 1450 x 740 x 1640 mm



Examples of masking varnishing and colour-ring coding on dental burrs

Examples of colour-ring coding on implant drills

Volumetric paint dosing system VDS-145

Basic equipment

- Holding frame welded of aluminium profiles and baking enamelled
- Table surface for varnishing unit made of aluminium, baking enamelled
- Headstock with collet holding fixture and clamping by spring and pneumatic release with footswitch
- Freely programmable carriage
- Carriage guide for x-y-z-axes with servo motors
- Drive motor for headstock, continuously speed controlled by PLC.
- Main control with switch box
- PLC-controller

Version:	Mitsubishi CPU module
Input/output addresses:	4096/8192
Storage media:	Program memory 120 kByte
Interfaces:	USB 100BASE-TX
- Graphics Display: with touch operation 8,4“ 65536 colours
  LCD type: TFT Colour-LCD, resolution : 640 x 480
- Optical control of varnishing by camera and 19” monitor
- Safety housing incl. light barrier for machine safety
- Volumetric dosing system for precision application of varnish
- Laser-assisted precision zero-setting for improved reproducible varnishing results
- Electronic hand wheel in connection with on-board PC for easier programming

Cleaning device for dosing needle

Optional expansions TLA/FCA 1-D23/102

- Prearrangement of the TLA/FCA for integrating a robot for automation incl.

servomotors for axes, motion controller and servo amplifier

- 6-axes varnishing robot for grinding points with vertical surfaces
- Enlargement of head stock fixture up to collet Ø 32 mm
- Frame design alternatively 120 / 160 cm

Automatic Varnishing System

FCA 1-D45/312

For colour-ring coding of implant drills, milling cutters, grinding pins and / or diamond dental burrs (Types FG, H and RA).

Note: All illustrations are examples. The product may vary from the illustrations.

Basic equipment

- Fully automatic colour-ring coding unit with 6-axes bent-arm robot
- Parts supply by pallets / manual loading and unloading station (different pallet sizes available on request)
- Single axis linear guide
- PLC controller
- Storage media: Program memory 120 kByte, interface: USB
- Touch screen operator's terminal 8,4"
- Varnish dosing by pressure or volumetric dosing system
- Holding frame welded of aluminium profiles and baking enamelled
- Headstock with collet holding fixture and pneumatic tension unit
- Motor for headstock, rotation speed continuously adjustable by PLC.
- Main control with switch box
- Safety housing incl. safety interrupter

Technical Data	
Clamping diameter:	1.6 / 2.35 / 3 / 4 / 5 / 6 / 8 / 10 mm (other diameters available on request)
Clamping depth:	Depending on length of work piece
Varnishing range:	With one freely programmable axis: varnishing zone according to program
Varnishing capacity:	**Colour-ring coding** approx.10 - 15 pcs/min (one or two-component varnish)

Note:	All information given depends on operator and quality and precision of blank, and may therefore vary.
Mandrel speed:	max. 1000 rpm.
Air pressure:	5 … 7 bar, oil-free, dry
Power connection:	230 V, 50 Hz
System dimensions:	L x W x H approx. 2100 x 1450 x 1800 mm

Optional expansions FCA 1-D45/312

- Varnish dosing incl. pressure-regulation valve for varnish cartridges5,10, 30 and 55 cc. (Fig. 1)
- Volumetric dosing system for precision application of varnish. (Fig. 2)

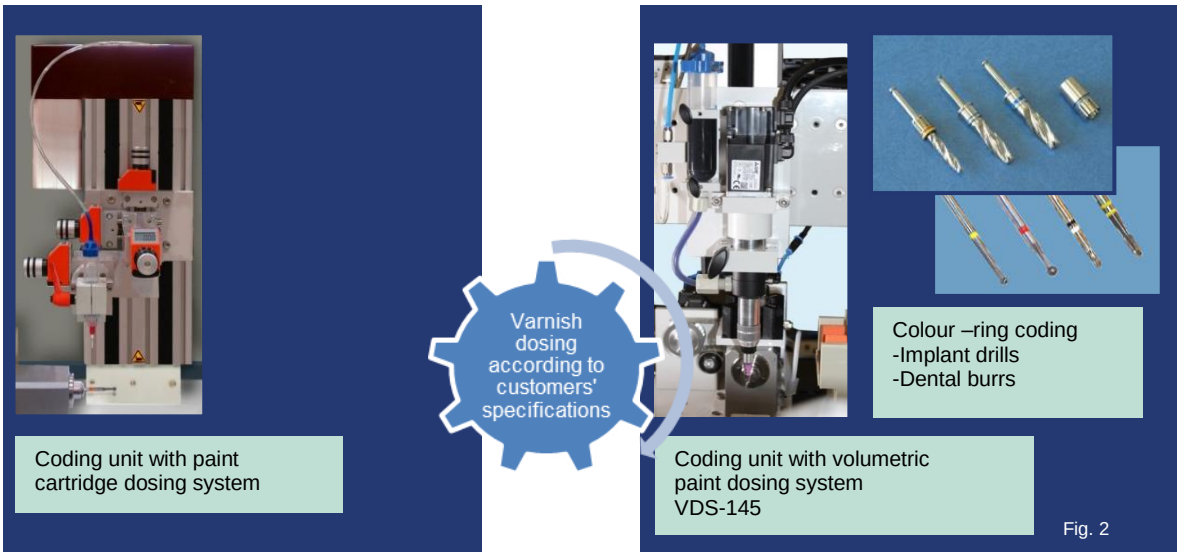


Fig. 2

- Change of power ratings to 120 V, 60 Hz
- Camera and monitor for visual check of varnishing (Fig. 3)


Fig. 3

- Enlargement of head stock fixture up to collet Ø- 32mm and increase of robot support capacity

Automatic Varnishing System

TLA/FCA 1-D45/XXX-XXX

For application of colour-ring coding and/or masking varnishing on dental burrs (types FG, H, HP and RA), implant drills, milling cutters, grinding pins, spiral bits, screw taps and similar with shank Ø 1.0 – 10.0 mm.

Front view

Figure 1

Examples of colour-ring coding, laser engraving and laser blackening on implant drills

Please note: All illustrations are examples. Depending on the customers' configuration, the product may vary from the illustrations. The product shown is a type TLA/FCA 1-D45/322-001 plant.

Rear view

Examples of masking varnishing and colour-ring coding of dental burrs

Basic equipment

- Fully automatic clamping and varnishing unit (Figure 2)
- Parts feed by holding pallets / active accumulation line
  (different pallet sizes available on demand)
- Holding frame welded of aluminium profiles and baking enamelled
- Table surface for varnishing unit made of aluminium, baking enamelled
- Headstock with holding fixture for collet; clamping of parts by spring force and pneumatic release
- Freely programmable carriage
- Carriage guide for x-y-z-axes with servo motors
- Drive motor for headstock, continuously speed controlled by PLC
- Main control with PLC and electronics cabinet
- Visual control of masking varnishing / colour-ring coding by camera and monitor
- 6-axes bent-arm robot with motorized double grip for handling of parts
- Robot control including teach box with colour/touch display
- Touch screen operator terminal (Figure 3)
- Electronic hand wheel in connection with on-board PC for easier programming
- Laser-assisted precision zero-setting for improved
  reproducible varnishing results
- Automatic calibration of dosing needle by cross-laser
- Loading and unloading areas with safety light barrier
- Safety housing including safety interrupters
- 6-station linear transport unit for holding pallets (Figure 5)
- Volumetric paint dosing system VDS-145 for precision dosing (Figure 6)

Varnishing unit with four-axes guidance and volumetric dosing system VDS-145

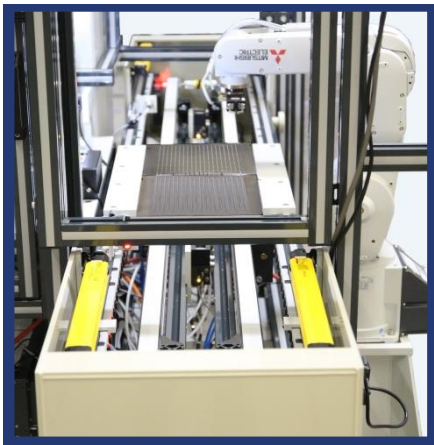
Figure 2

Monitor and Touch screen-operators terminal for process surveillance and control

Figure 3

Cleaning device for dosing needle

Figure 4



6-station linear transport unit
for holding pallets

Figure 5

Volumetric paint dosing system
VDS-145

Figure 6

Technical data	
Clamping diameter:	0,5-7 mm; 8-90 mm with additional top-mounted collet
Clamping depth:	Depending on work piece length
Varnishing range:	With four freely programmable axes: varnishing zone according to program
Varnishing capacity:	**Masking varnishing** approx. 11 - 15 pcs/min. (Blank: FG; Varnishing zone 10 mm, Ø of dosing needle 0,25mm,) **Colour-ring coding** approx. 14 - 17 pcs/min (1- or 2-component varnish)
Note:	All information given depends on operator and quality and precision of blank, and may therefore vary .
Program memory:	approx. 2000 tool types depending on varnishing range, may be expanded
Mandrel speed:	max. 4000 rpm.
Air pressure:	5 … 7 bar, oil-free, dry
Power connection:	400 V, 50 Hz
System dimensions:	L x W x H approx. 2392 x 2947 x 2690 mm

Optional expansions TLA/FCA 1-D45/002

- Module for remote maintenance, remote diagnosis, malfunction report and transmission of files by “Remote Access” for PLC controller through Web server
- GSM module to report malfunctions to an external cell phone
  (SIM carte of a cell phone network additionally required)
- Enlargement of head stock fixture up to collet Ø- 32mm
- Change of power ratings to 120 V, 60 Hz
- Operation mode from pallet to pallet, fully automatic with two-sided pallet handling unit
- Operation mode from pallet to pallet, fully automatic with circulating conveyor
- Convection drying station with integrated convection heating system
- Infrared drying station with timer controlled infrared radiant heater
- Expansion of the 6-station linear transport unit by a further 6 pallets (Length: appr. 1500mm)
- Docking station for storage stack
- Storage stack for supply of pallets for blanks / uncoded tools (displaceable)
- Supply of blanks (bulk material) with parts recognition and parts singling
- Laser engraving and blackening module (Fibre laser or ultra-short pulse laser)

SMART-LINE
Colour-Ring Coding System
FCA 1-D23/702 - 802

For colour-ring coding of implant drills, milling cutters, grinding pins and diamond dental burrs (Types FG, H and RA).

Note: All illustrations are examples. The product may vary from the illustrations.

Basic equipment

- Holding frame welded of aluminium profiles and baking enamelled
- Table surface for varnishing unit made of aluminium, baking enamelled
- Headstock with collet holding fixture; clamping by spring force and pneumatic release through footswitch
- Freely programmable carriage
- Carriage guide for Z axis by pneumatic force
- Carriage guide for X axis by servo motor
- Manually adjustable Y axis
- Motor for headstock, rotation speed continuously adjustable by PLC
- Main control with PLC and electronics cabinet
- Volumetric paint dosing system VDS-145 for precision application of varnish.

Technical Data	
Clamping diameter:	1.6 / 2.35 / 3 / 4 / 5 / 6 / 8 / 10 mm (other diameters available on request)
Clamping depth:	Depending on length of work piece

Varnishing range:	With one freely programmable axis: varnishing zone according to program
Varnishing capacity:	**Colour-ring coding:** approx.10 - 15 pcs/min (one or two-component varnish)
Note:	All information given depends on operator and quality and precision of blank, and may therefore vary.
Mandrel speed:	max. 1000 rpm
Air pressure:	5 … 7 bar, oil-free, dry
Power connection:	230 V, 50 Hz
System dimensions:	L x W x H approx. 1150 x 630 x 1640 mm

Paint dosing systems

Coding unit with paint cartridge dosing system

Fig. 1

Varnish dosing according to customers' specifications

Colour –ring coding
-Implant drills
-Dental burrs

Coding unit with volumetric paint dosing system VDS-145

Fig. 2

Optional expansions FCA 1-D23/702 - 802

- Change of power ratings to 120 V, 60 Hz
- Cleaning installation with sponge rubber rollers for dosing needle (Fig. 3)

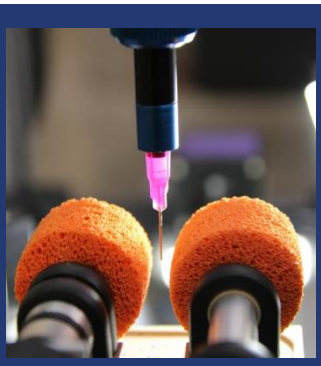


Fig. 3

- Connection for exhaustion of solvent vapours including shut-off valve (NW 76), fan not included.
- Angled adapter for inclination of dosing needle
- Enlargement of head stock fixture up to collet Ø 32 mm

Semiautomatic Colour-Ring Coding System

Semiautomatic Colour-Ring Coding System FCA 1-D23/XXX

For colour-ring coding of implant drills, milling cutters, grinding pins and / or diamond dental burrs (Types FG, H and RA).

Note: All illustrations are examples. The product may vary from the illustrations.

Basic equipment

- Single axis linear guide
- PLC controller
- Storage media: Program memory 120 kByte, interface: USB
- Touch screen operator's terminal 8,4"
- Varnish dosing by pressure or volumetric dosing system
- Holding frame welded of aluminium profiles and baking enamelled
- Headstock with collet holding fixture and pneumatic tension unit
- Motor for headstock, rotation speed continuously adjustable by PLC.
- Main control with switch box
- Safety housing incl. safety interrupter

Technical Data	
Clamping diameter:	1.6 / 2.35 / 3 / 4 / 5 / 6 / 8 / 10 mm (other diameters available on request)
Clamping depth:	Depending on length of work piece

Varnishing range:	With one freely programmable axis: varnishing zone according to program
Varnishing capacity:	**Colour-ring coding:** approx.10 - 15 pcs/min (one or two-component varnish)
Note:	All information given depends on operator and quality and precision of blank, and may therefore vary.
Mandrel speed:	max. 1000 rpm
Air pressure:	5 … 7 bar, oil-free, dry
Power connection:	230 V, 50 Hz
System dimensions:	L x W x H approx. 1065 x 740 x 1450 mm

Optional expansions FCA 1-D23/XXX

- Varnish dosing incl. pressure-regulation valve for varnish cartridges5,10, 30 and 55 cc. (Fig. 1)
- Volumetric dosing system for precision application of varnish. (Fig. 2)

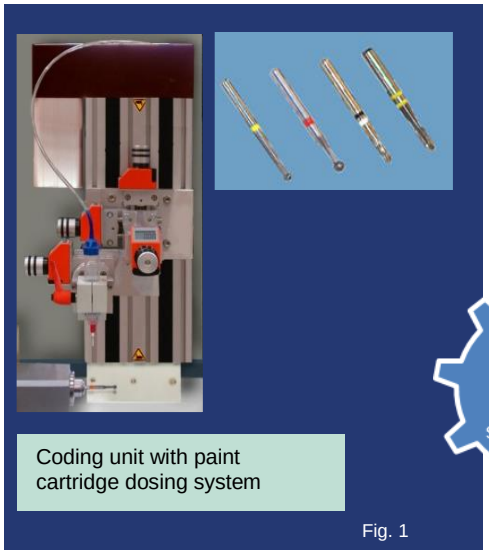


Fig. 1

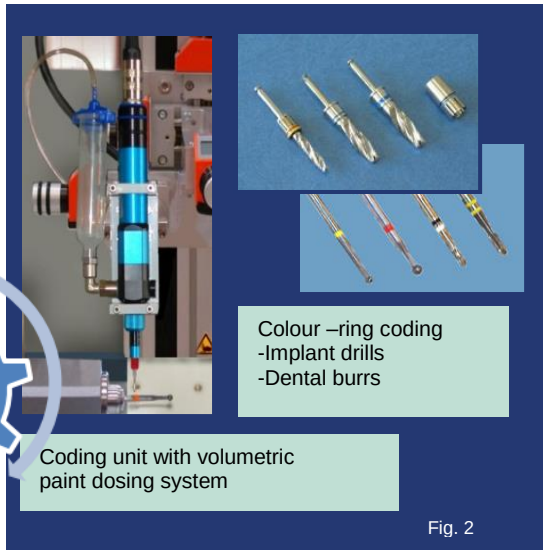


Fig. 2

- Change of power ratings to 120 V, 60 Hz
- Camera and monitor for visual check of varnishing (Fig. 3)

Fig. 3

Special Equipment for Dental Burrs FG, H, HP, RA

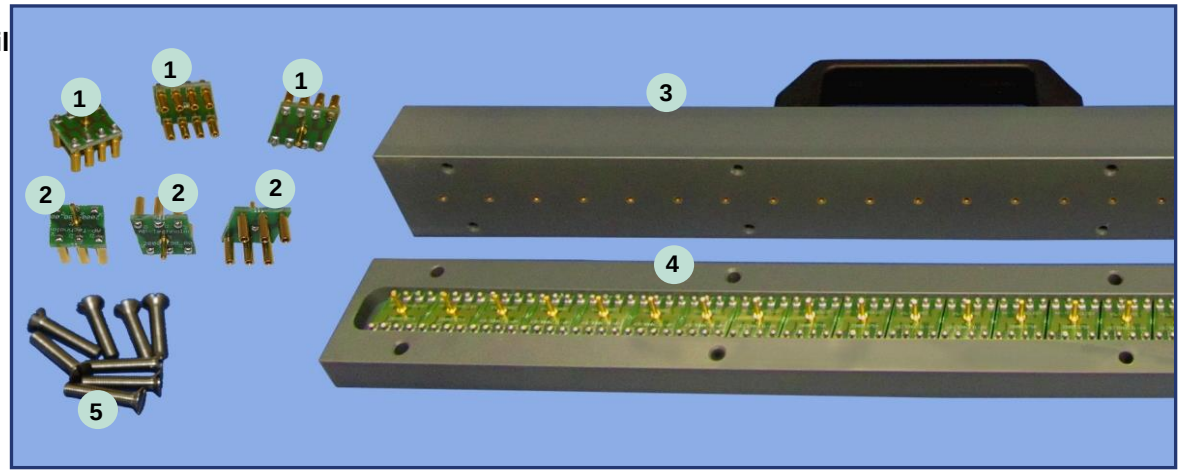
- Fixture System of the Production of Dental Burrs FG,H, HP, RA 460-2/002
- Fixture System of the Production of Dental Burrs FG,H, HP, RA 460-3/002
- Maintenance Unit for Contact Fixtures Dental FG, H, HP, RA460-2/3-002

Fixture System for the Manufacturing of Dental Burrs FG, H, HP and RA 460-2/002

Conta

1. Contact strip
2. PVC blind plug for blind-cathode connection for pre -treatment
3. Contact cable with contact plug
4. Blind cathode connection piece for contact fixture

Detail

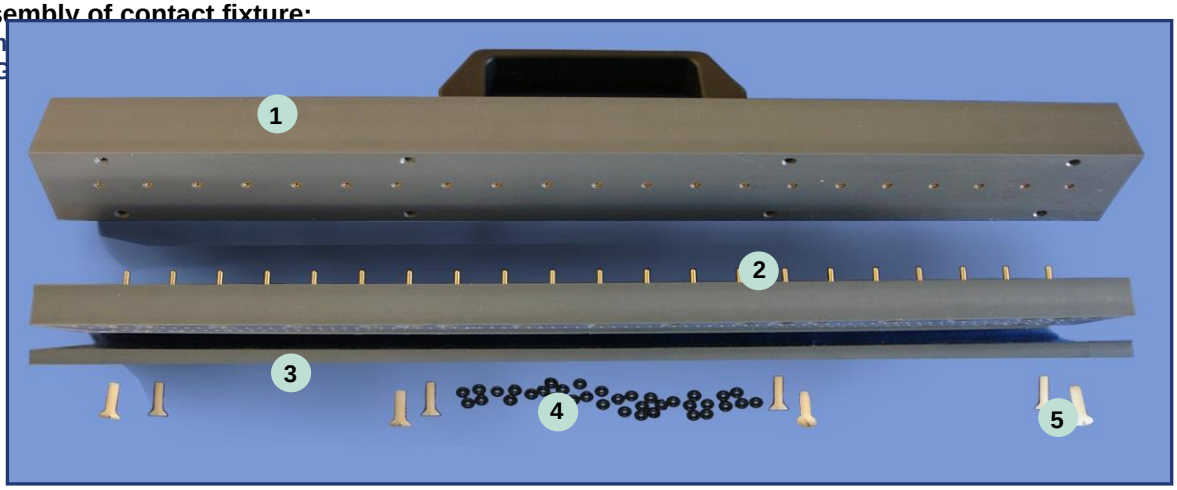


1. Contact modules FG with8 slots each (21 pcs/fixture)
2. Contact modules H, HP, RA with 6 slots each (20 pcs/fixture)
3. Contact strip – top part
4. Contact strip – bottom part
5. Titanium bolts (8 pcs)

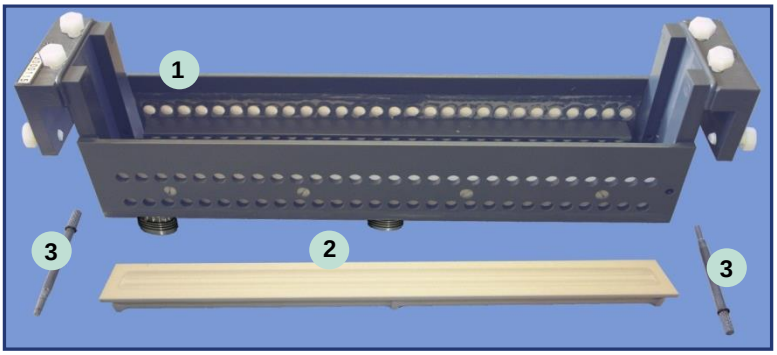
Assembly of contact fixture:

Num

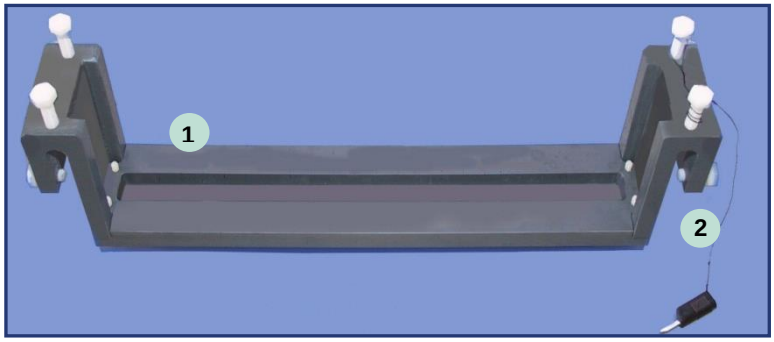
◆FG



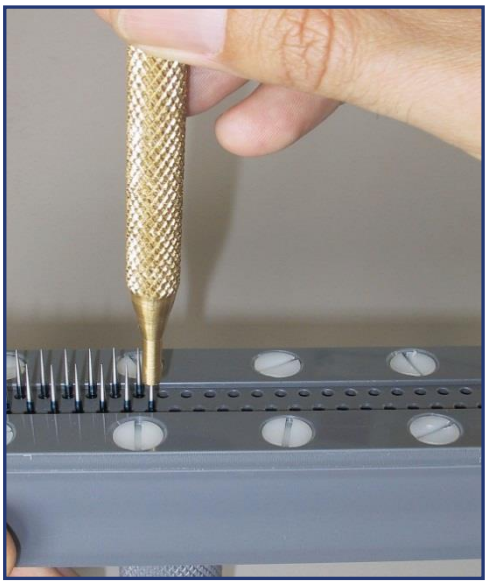
1. Contact strip – top part
2. Contact strip – bottom part with contact modules
3. Contact strip – bottom cover
4. O-rings for contact sockets
5. PP screws (30 pcs)



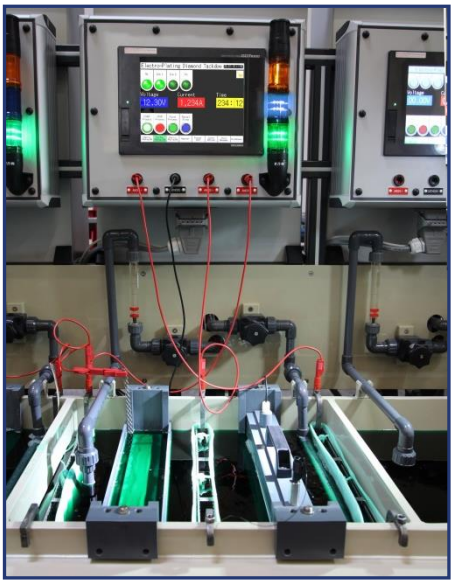
1. Holder for diamond tack-down insert with diamond retaining sieve
2. Diamond tack-down insert (trough)
3. Locking pins for diamond tack-down insert (2 pcs)



1. Pre- and finish nickel fixture
2. Blind cathode wire with plug



Push-in tool for dental burr blanks

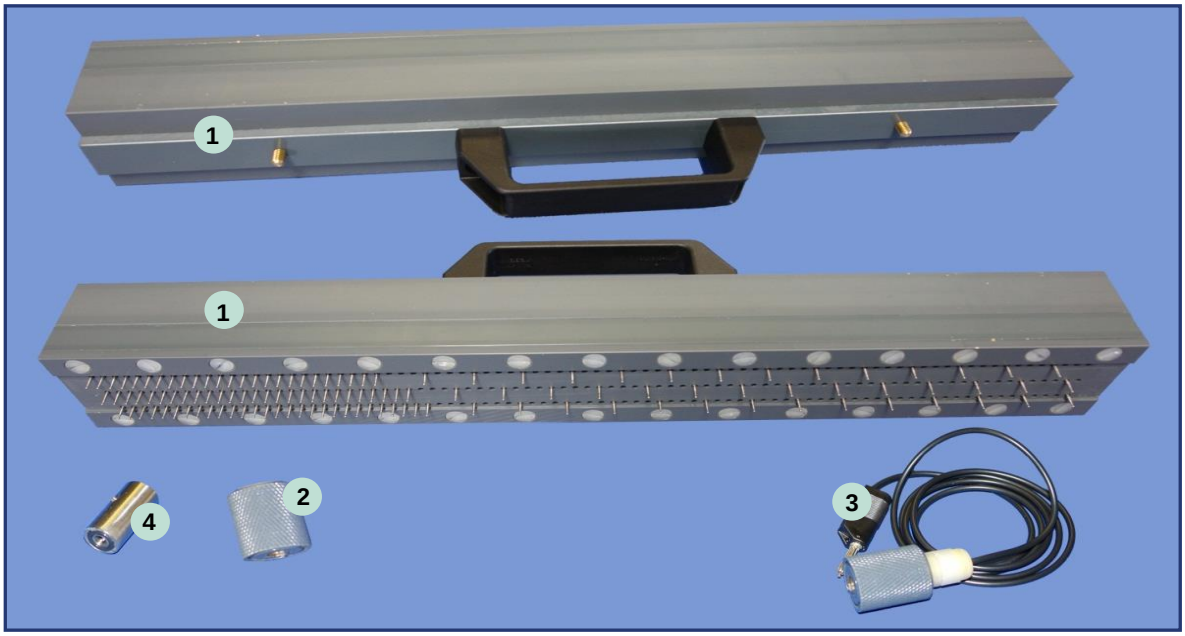


Electro-plating station with pre- and finish nickel fixture (right)
and diamond tack-down fixture (left)

Production capacity per electro-plating station:					
Grit size FEPA (US mesh)	**Process time (min)**	**Production rate (pieces)**			
		FG type		**H, HP, RA types**	
		Single shift (8 h)	Two shifts (16 h)	Single shift (8 h)	Two shifts (16 h)
D151 (100/120)	195	336	672	240	480
D107 (140/170)	120-135	504-672	1176-1344	360-480	840-960
D20 (~800)	50	1512	3192	1080	2280

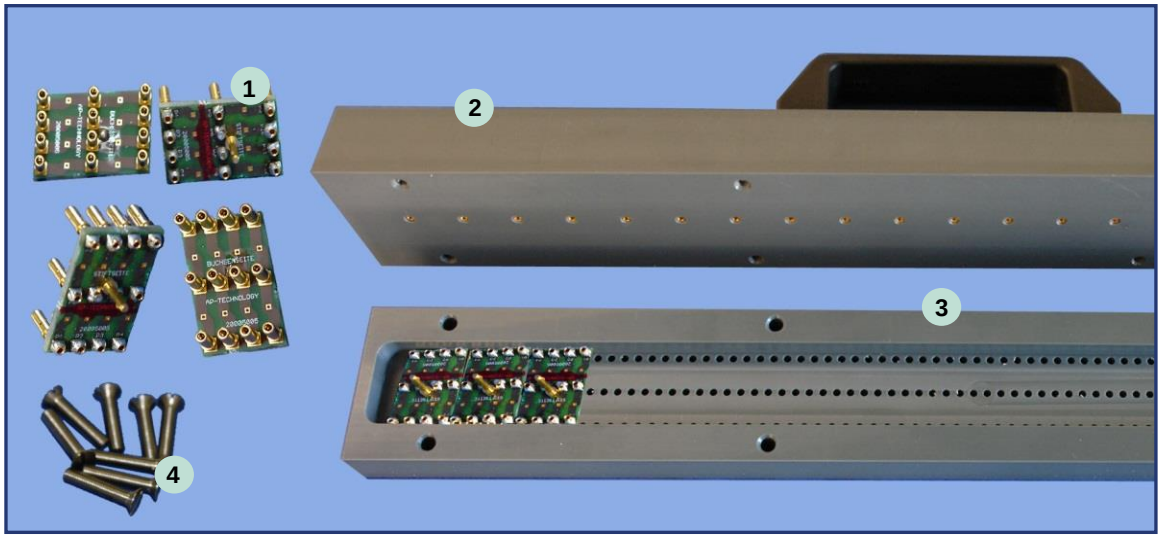
Fixture System for the Manufacturing of Dental Burrs FG, H, HP, RA 460-3/002

Contact fixture



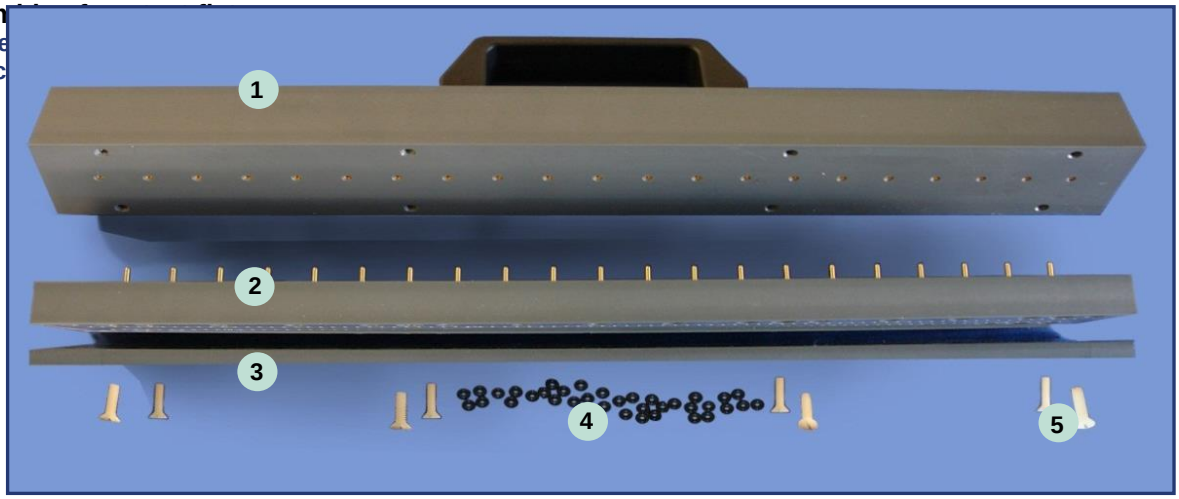
1. Contact strip
2. PVC blind plug for blind-cathode connection for pre -treatment
3. Contact cable with contact plug
4. Blind cathode connection piece for contact fixture

Detail contact modules

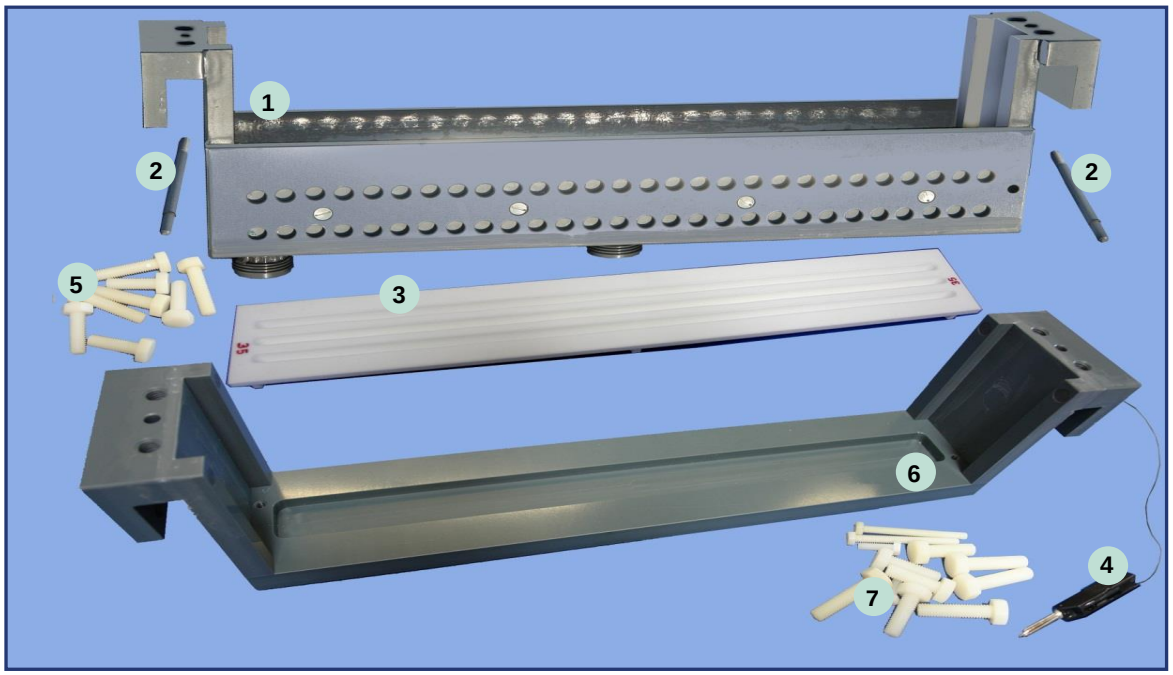


1. Contact modules FG with 12 slots each (21 pcs/fixture)
2. Contact strip – top part
3. Contact strip – bottom part
4. Titanium bolts (8 pcs)

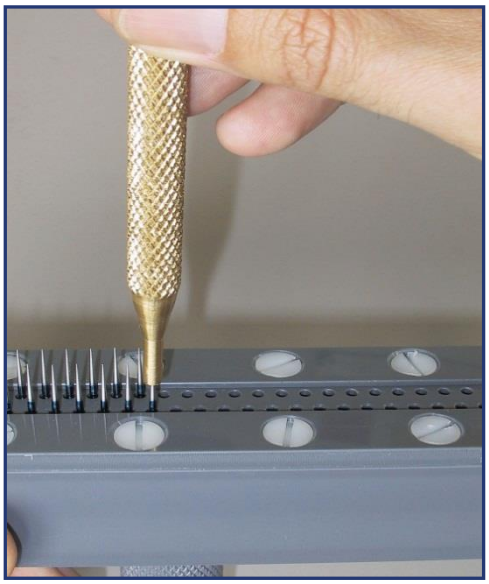
Assem
Numbe
◆FG c



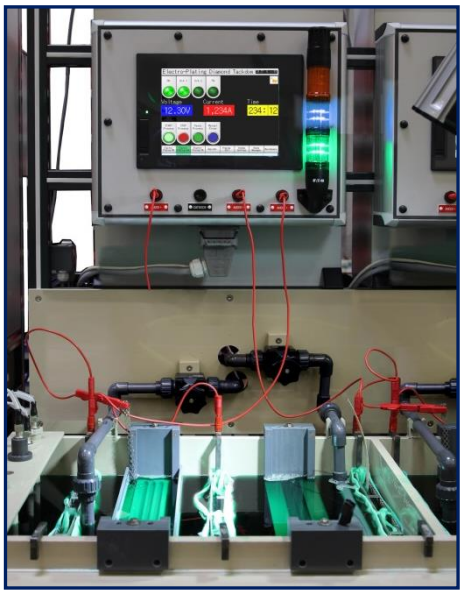
1. Contact strip – top part
2. Contact strip – bottom part with contact modules
3. Contact strip – bottom cover
4. O-rings for contact sockets
5. PP screws (30 pcs)



1. Holder for diamond tack-down insert with diamond retaining sieve
2. Locking pins for diamond tack-down insert (2 pcs)
3. Diamond tack-down insert (trough; for 35 µm grit size)
4. Blind cathode wire with plug
5. Holding and set screws for diamond tackdown fixture
6. Pre- and finish nickel fixture
7. Holding and set screws for pre-and finish nickel fixture



Push-in tool for dental burr blanks

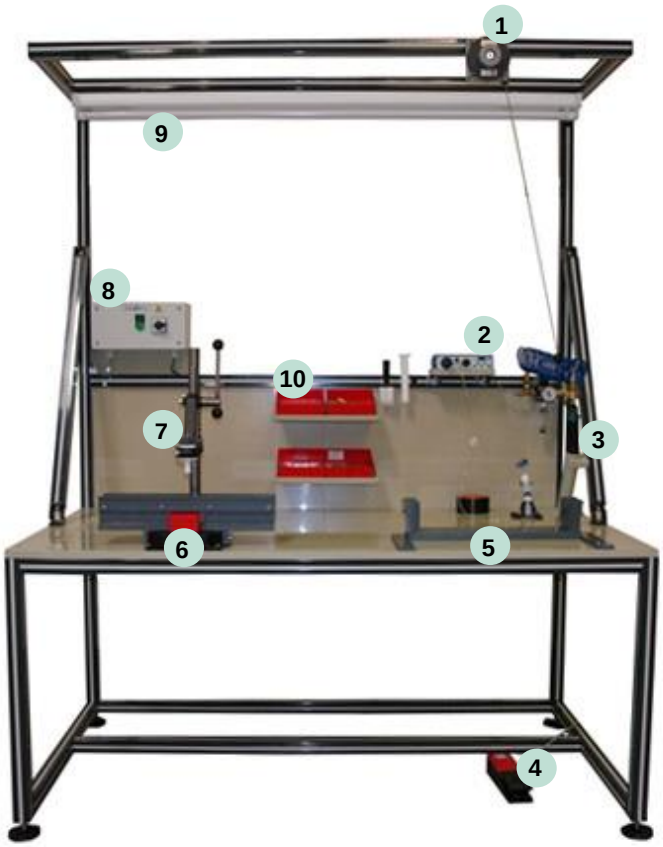


Electro-plating station with diamond tack-down fixture (left) and pre- and finish nickel fixture (right)

Production capacity per electro-plating station:					
Grit size FEPA (US mesh)	**Process time (min)**	**Production rate (pieces)**			
		FG type		**H, HP, RA types**	
		Single shift (8 h)	Two shifts (16 h)	Single shift (8 h)	Two shifts (16 h)
D151 (100/120)	195	504	1008	360	720
D107 (140/170)	120-135	756-1008	1512-2016	540-720	1080-1440
D20 (~800)				1620	3240

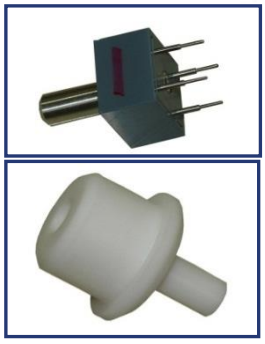
Maintenance Unit for Contact Fixtures Dental FG, H, HP, RA 460-2/3-002

Maintenance unit to ease the disassembly and assembly of the contact fixtures for dental burrs FG, H, HP and RA.
The corresponding tools and installations allow for quick and correct disassembly and assembly of the contact fixtures to preserve their function, ensure reproducible electro-plating results and prolong their service life.

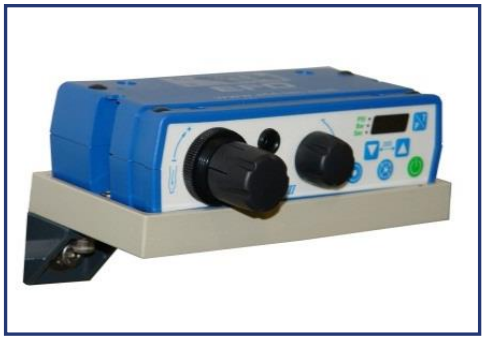


1. Spring-loaded cable spool for compressed-air hose
2. Liquid-rubber dosing unit
3. Compressed-air torque screwdriver
4. Footswitch for liquid-rubber dispensing
5. for disassembly / assembly of contact fixture
6. Position for removal of contact modules
7. Punch-out press for contact modules
8. Switch box
9. Lighting
10. Storage trays for small parts

Punch-out press for contact modules



Tool and holding adapter to punch out contact modules



Dispenser unit for liquid rubber

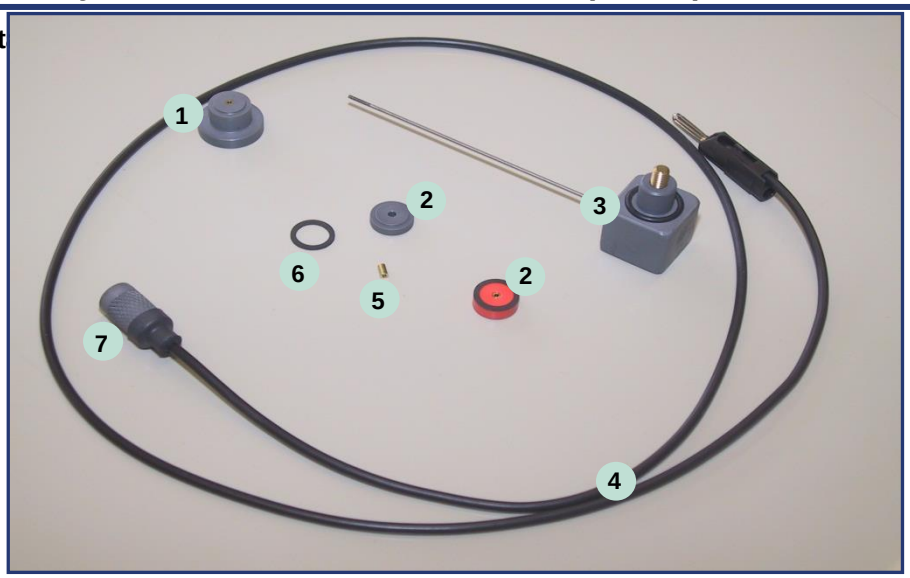
Tools for disassembly of fixtures

Special Equipment for Flexible Discs

- **Fixture System for Flexible Diamond Discs**

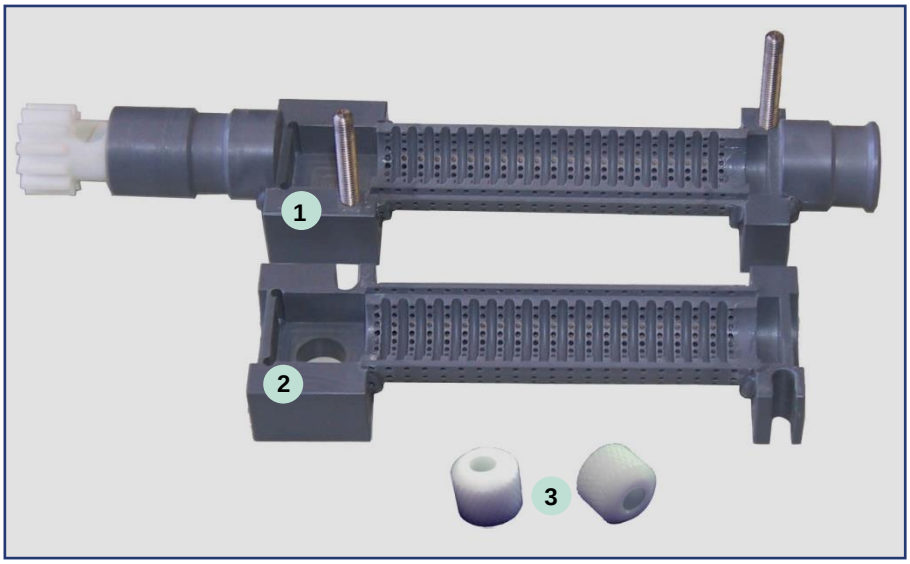
Fixture system for flexible diamond discs (Dental) - N

Cont



1. Locking piece
2. PVC spacer
3. Contact block
4. Contact cable
5. Brass contact piece
6. Seal
7. Contact plug

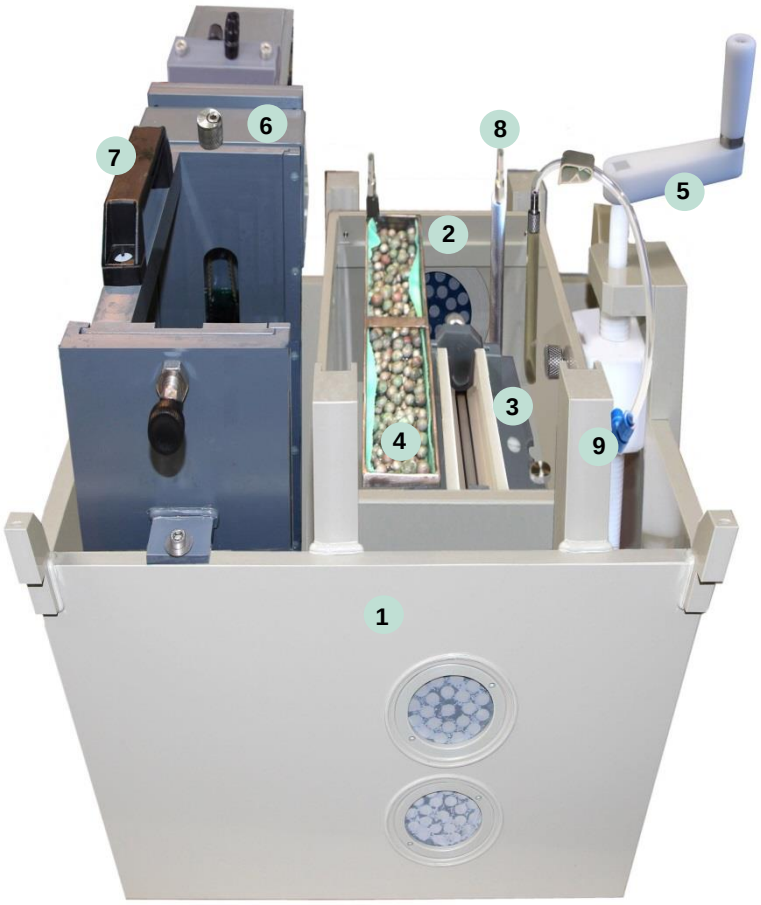
Plating and shielding fixture - components



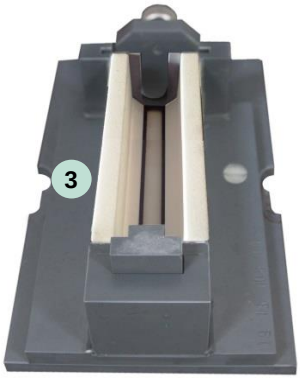
1 Electro-plating fixture – bottom part
2. Electro-plating fixture – top part
3. Quick-release nuts (2 pcs)

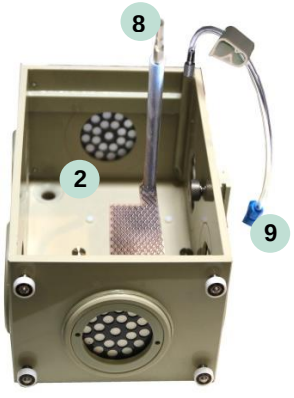
Note: All illustrations are examples. The product may vary from the illustrations.

Flexible discs electro-plating cassette with diamond tack-down fixture



1. Electro-plating cassette BKA 941
2. Diamond tackdown cassette DKA 951
3. Diamond tackdown fixture
4. Titanium anode basket box
5. Lifting and lowering installation for pre-nickel / diamond tackdown
6. Horizontal motor unit HAE
7. Holder for finish nickel fixture
8. Auxiliary anode for pre-nickel / diamond tackdown
9. Rinsing hose for electrolyte



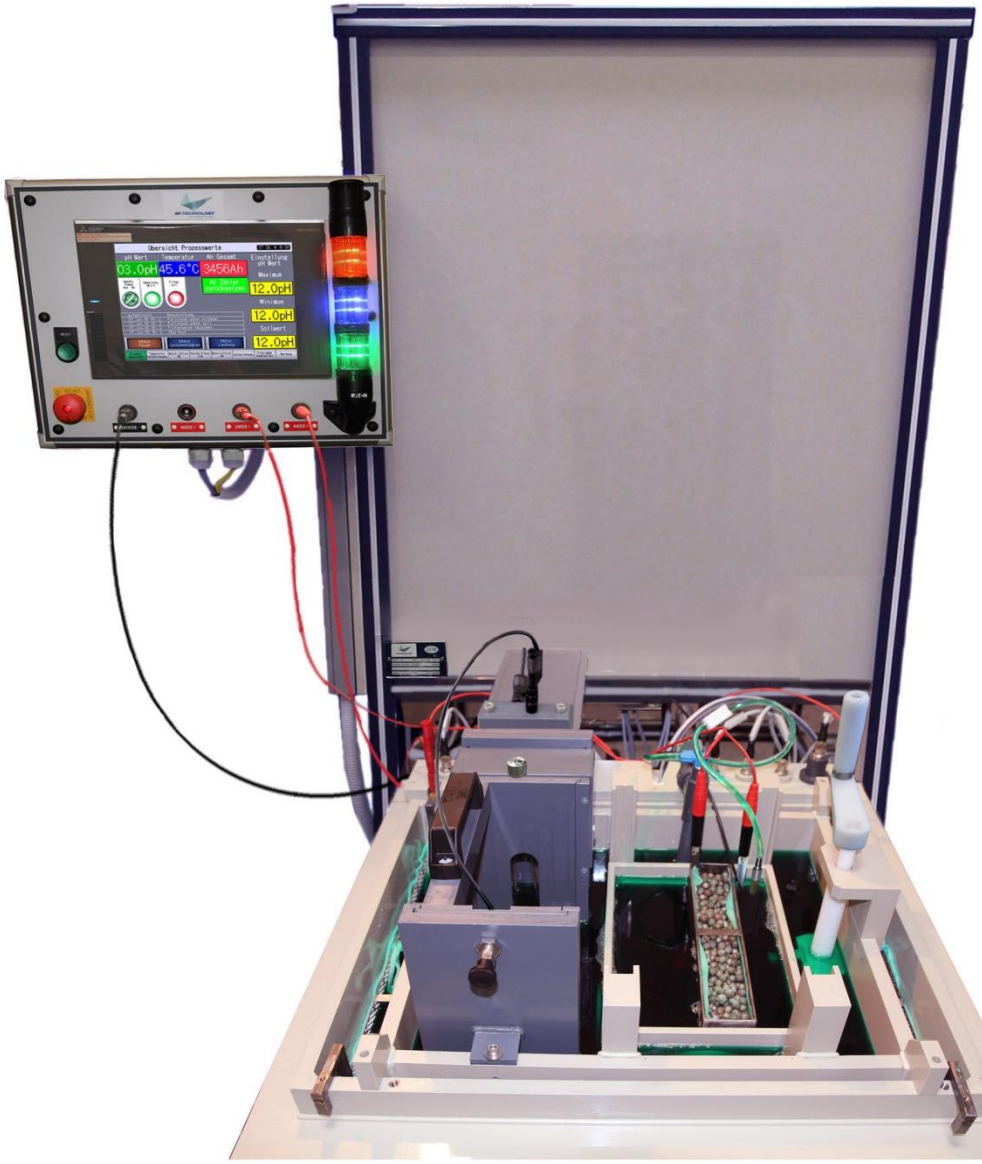


The discs are produced in sets of 10, 15 or 20 pieces.
The fixture is adapted to the respective disc type..

Possible dimensions of the flexible discs:

Outer diameter:	6 mm – 45 mm
Thickness of blank:	0,05 – 0,3 mm

Diamond Electro-Plating Control DBS XX A-45 with PLC and Touch screen
Flexible discs electro-plating cassette inserted into electro-plating station



Production capacity per electro-plating station:
(Example)

Grit size FEPA (US mesh)	**Process time (min.)**	**Production rate (pieces)**			
		19 x 0,05 mm (20 pcs.)		22 x 0,1 mm (20 pcs.)	
		Single shift (8h)	Double shift (16 h)	Single shift (8h)	Double shift (16 h)
D107 (140/170)	165	60	120	60	120
D46 (325/400)	106	80	180	80	180

Special Equipment for Finishing Strips

- **Rotation System for the Manufacturing of Diamond Foils and Finishimg Strips**

Rotation System for the Manufacturing of Diamond Foils and Finishing Strips

Diamond Electro-Plating Control DBS 50 A/45

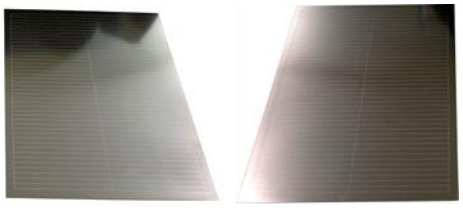
- Power ratings: 230 V, optional 110 V
- Rated current: 50A /18V DC
- Visualization and sequer
  (current, voltage, leak current, timer [time run],
  constant voltage, pumps,
  motors, valves, rotation of fixture, etc.)
  by touch screen operator terminal
- Interfaces for connectior
  or Intranet
- Individual adaptation of the touch screen functions possible.

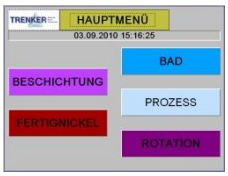
Electro-plating cassette BKA 942/002

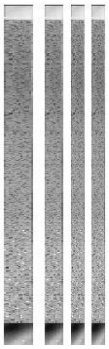
- for holding and rotation of the contact fixture during the electro-plating process
- Horizontal motor unit HAE 971/003 with reversing rotation
- Diamond retaining filters to prevent spillage of diamond grits into the electrolyte circuit

Rotation and contact fixture RKW-001

- To hold the stainless-steel foil for electro-plating. The stainless-steel foil may be pre-etched or smooth, in which case it is cut by laser to the appropriate dimensions of the finishing strips.







Production capacity/electro-plating station (pieces):

Grit size FEPA (US mesh)	Process time	Foil dimensions: 295 x 380 mm (2 pieces)	
		Strip width	1-shift (8 h)
D54 (270/325)	145 min	4 mm	1008 pcs
		6 mm	684 pcs
		8 mm	516 pcs
D30 (400/500)	90 min	4 mm	1680 pcs
		6 mm	1140 pcs
		8 mm	860 pcs

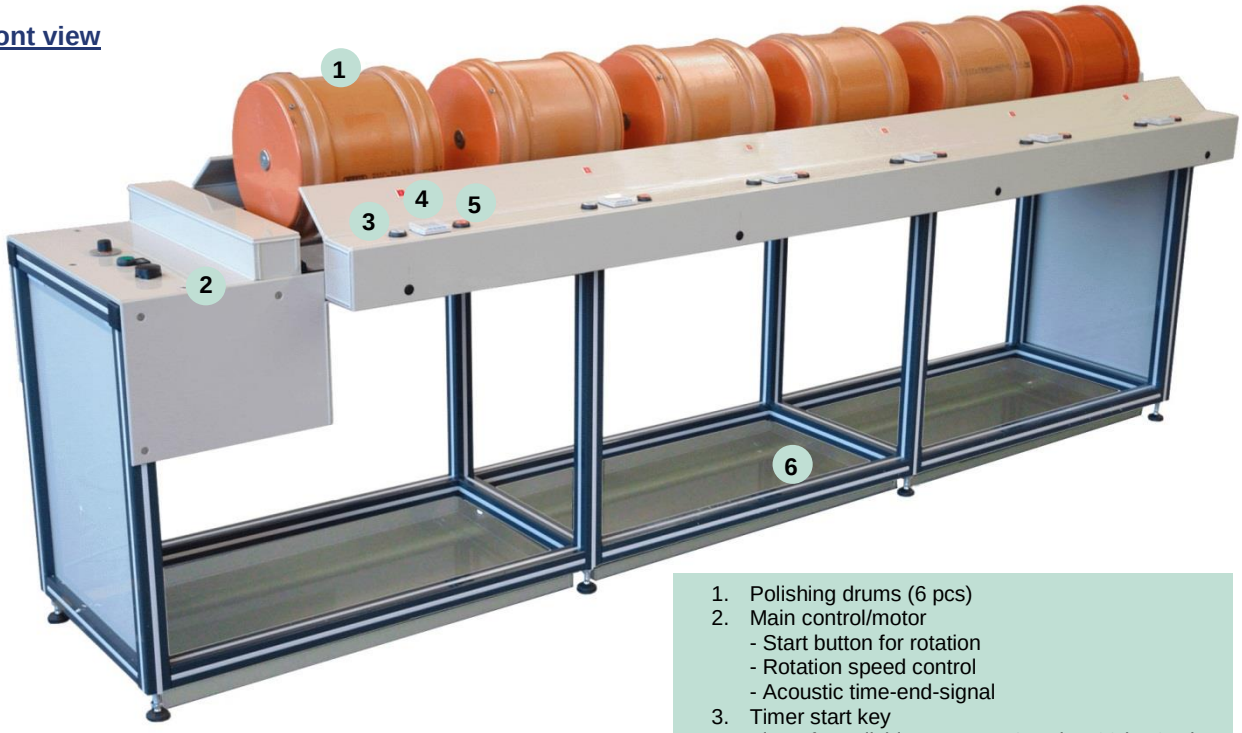
Polishing Systems

- **Drum Polishing System TPA 6-250**

Drum Polishing System TPA 6-250

For polishing dental burrs, grinding pins and similar parts.

Front view



1. Polishing drums (6 pcs)
2. Main control/motor
   - Start button for rotation
   - Rotation speed control
   - Acoustic time-end-signal
3. Timer start key
4. Timer for polishing process 01 min - 99 h 59 min
5. Timer Stop key
6. Drip collection pans (3 pcs)

- Simultaneous polishing of up to 6 different tool types
- Individual pre-set of the different polishing time intervals
- Continuous speed adjustment 3 – 20 1/min
- Polishing drums can be inserted/removed individually
- Removable drip-collection pans

Polishing drum **Type 1: Ø 250 mm, Volume 14 litres** **Type 2: Ø 200 mm, Volume 7.5 litres**

Product and Furnishing Range

Pre-treatment plants for

- Steel, brass, copper, bronze etc.
- Aluminium
- Diamond, CBN

Plants for avoidance and treatment of waste water

- Recirculation of rinsing waters
- Reverse osmosis systems
- Vacuum evaporators

Diamond electro-plating plants for manufacturing

- Dental instruments
- Tools for machining marble, granite, gem stones, tungsten carbide, steel, glass, ceramics, silicon, plastics, special materials
- Pieces for wear resistance
- Sharpening steels etc.

Electroless nickel plants for

- High-precision grinding tools
- Diamond and CBN coating

Special equipment to optimize the plating process

- Contact fixtures
- Diamond tackdown fixtures
- Masking fixtures
- Lifting and lowering tables
- Rotation units
- Rivet system for flexible discs

Rotational reverse-plating plants for the production of

- Diamond dressing rollers
- Intenal plating

Special plants such as e.g.

- Varnishing systems for dental burr blanks

Stripping plants for

- Electro-plated nickel
- Electroless nickel

Engineering and consulting

Systems according to customers‘ specification

Accessories and chemicals