

牙科目录

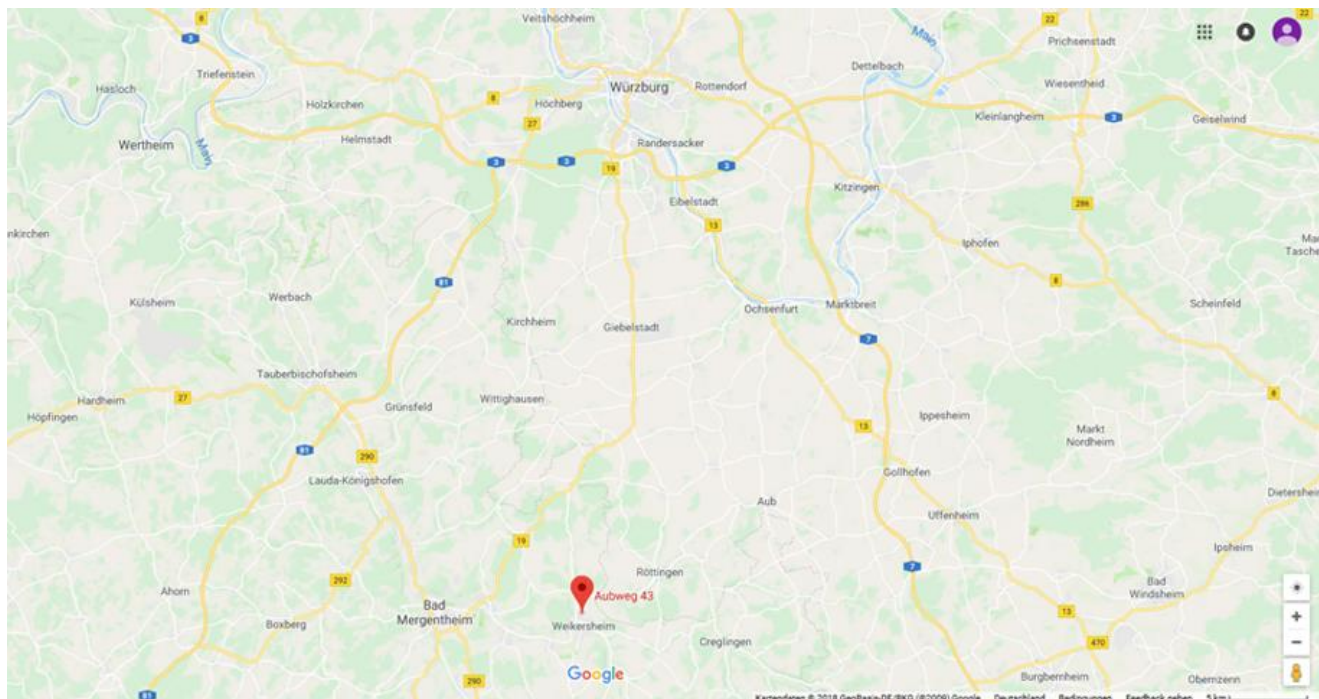
DENTAL CATALOGUE



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公司位置 Company Location



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 www.abrasiveplant-technology.com/

交通连接 Traffic contacts:

高速公路 A3 从法兰克福/美茵河 → 出口基青根-施瓦察赫
 Motorway A3 from Frankfurt / Main → Exit Würzburg-Heidingsfeld

- 法兰克福/美茵河机场 Airport Frankfurt/Main
 法兰克福/美茵河（机场）城际列车 – 维尔茨堡（中央火车站）
 Intercity Frankfurt/Main (Airport) – Würzburg (Central Station)
- 斯图加特机场 Airport Stuttgart
 斯图加特区域列车（中央火车站）– 劳达
 Regional train Stuttgart (Central Station) – Lauda
- 纽伦堡机场 Airport Nuremberg
 纽伦堡城际列车（中央火车站）– 维尔茨堡（中央火车站）
 Intercity Nuremberg (Central Station) – Würzburg (Central Station)
- 慕尼黑机场 Airport Munich

注:如果有需要请询问详细路线。

请通知我们到达时间，我们将会 在维尔茨堡中央火车站迎接你们。

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

我们的应用领域 Our Fields of Application

牙科工业 Dental Industry



软磨片 Flexible Discs • 牙钻 Dental Burrs • 磨光带 Finishing Strips

半导体工业 Semiconductor Industry



内孔锯片 ID Saw Blades • 金刚石带锯机 Diamond Band Saws • 化学机械抛光垫片 CMP Conditioner Pads

汽车工业 Automotive Industry



金刚石和立方氮化硼磨轮 Diamond and CBN Profile Wheels • 金刚石修整滚轮 Diamond Dressing Rollers • 用于齿轮制造工业的磨轮 Grinding Wheels for Gear Industry

玻璃和塑料工业 Glass and Plastics Industry



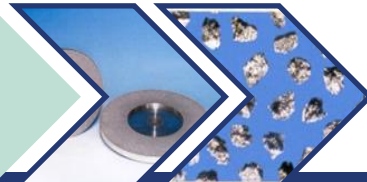
锥形砂轮和锥形套筒 Male and Female Grinding Cones • 磨边轮 Edge grinding Wheels • 带锯 Band Saws

石材工业 Stone Industry



磨轮 Profile wheels • 切割砂轮 Cut-off Wheels • 铣刀 Milling Cutters • 线锯烧结串珠 Wire-Saw beads • 带锯 Band Saws

磨料和宝石工业 Abrasives and Gem Stone Industry



钻石研磨盘 Gem Stone Grinding Plates • 金刚石和立方氮化硼电镀 Diamond and CBN Coating

不同应用的各种电镀工具 Electro-Plated Tools of different Types for various Applications



磨针 Grinding Pins • 什锦挫, 机器挫 Needle Files, Machine Files • 切割砂轮 Cut-off Wheels • 空心钻杆 Hollow Drills • 珩磨工具 Honing Tools • 杯形砂轮 Cup Wheels • 砂带 Abrasive Belts • 带锯 Band Saws

钢，铜，黄铜，和青铜材料的预
处理设备 VBA
Pre-Treatment Plants
for Steel, Brass, Copper and
Bronze Materials VBA



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

预处理设备 Pre-Treatment Plant VBA 4-453/013

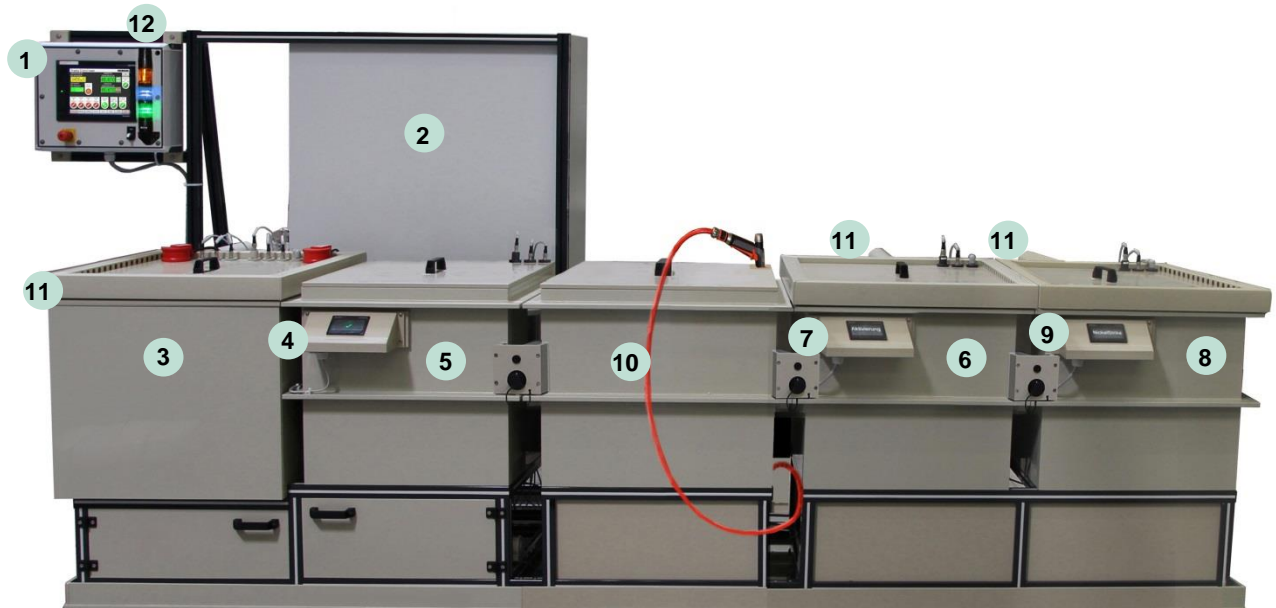
该预处理设备用于清洗和准备研磨工具的钢件，为后续金刚石或立方氮化硼电镀操作作准备。预处理包括一个温水处理槽（去脂），3个冷水处理槽（酸洗，活化和化学镀镍）以及中间过程的洗涤槽。这些已经安装在相应的接触和固定装置上的部件将按照操作步骤的顺序被转移到不同的处理槽中。每个步骤中间部件会在酸洗和活化当中的清洗站在喷射流中被喷嘴清洗。编程，操作和槽参数的预设通过终端触摸屏实行。每个处理槽配有的控制面板可以控制单个操作步骤。

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.

前视图 View of system



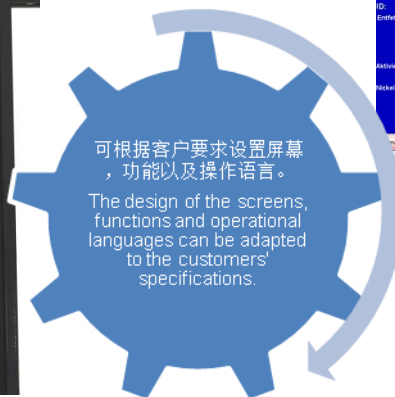
- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. 处理槽调控 PBS-845/001
包括用于操作控制和编程的终端触摸屏：
Process-bath control PBS-845/001
including Touch screen operator terminal for
process control and programming:
-温度 Temperature
-电流 Current
-电压 Voltage
-处理时间 Process time
-加热循环 Heating cycles</p> <p>2. 电子机柜 Electronics cabinet
(在背面打开 Service access on rear side)</p> | <p>3. 温水处理槽（去脂-阳极/阴极；极性可逆）
Warm-process bath (degreasing – anodisc/cathodic;
polarity reversible)</p> <p>4. 去脂的操作控制面板 Process control panel for de</p> <p>5. 冷水处理槽（酸洗） Cold-process bath (Decapation)</p> <p>6. 冷水处理槽（活化） Cold-process bath (Activation)</p> <p>7. 活化的操作控制面板
Process control panel for activation</p> <p>8. 冷水处理槽（化学镀镍）
Cold-process bath (Nickelstrike)</p> <p>9. 化学镀镍的操作控制面板
Process control panel for Nickelstrike</p> <p>10. 带喷嘴的喷射流清洗站
Spray stream wash station with hand nozzle</p> <p>11. 周边抽吸装置（3台） Rim exhaust (3 pcs)</p> <p>12. 信号灯 Signal lamp</p> |
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Technical data:

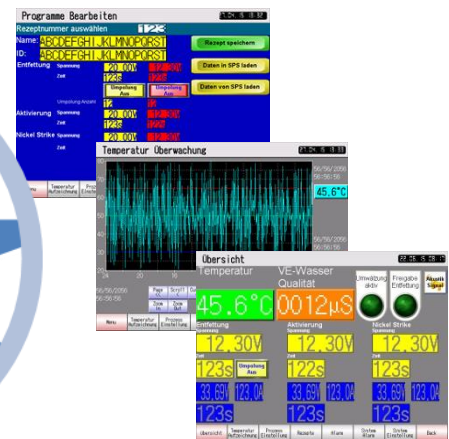
- 槽容量: 处理槽: 每个大约 180 升; 喷射流清洗槽: 每个大约 180 升
Bath volume: Process baths: appr. 180 l each; Spray stream wash station appr. 180 l
- 槽温: 最高 80°C (去脂槽); 室温 (其他所有的槽)
Bath temperature: max. 80°C (degreasing bath); room temperature (all other baths)
- 规格 (长 x 宽 x 高): 大约 4107 x 790 x 1000 mm
System dimensions (L x W x H): appr. 4107 x 790 x 1000 mm
- 额定功率: 大约 10 千伏安, 3x400 伏, 3x 16 安, 50 赫兹
Power ratings. 10 KVA, 3 x 400 V, 3 x 16 A, 50 Hz
- 温水处理槽, 聚丙烯材质, 隔热
Warm-process bath, of PP, heat insulated,
- 冷水处理槽和喷射流清洗槽, 聚丙烯材质
Cold-process baths and spray stream wash station of PP
- 聚丙烯管道
Pipes of PP
- 一个用于循环温水处理槽的离心泵
1 centrifugal pump to circulate the degreasing bath
- 处理槽的周边抽吸装置 (连接到通风设备, 公称直径 76 毫米)
Rim exhaustion for process baths (connection to fan, DN 160 mm)

可选 Optional:

- 处理槽液面稳定 Level stabilisation of process baths
- 水除盐盒用于自动去离子水供应 Water de-salting cartridges for autonomous deionized water supply



可根据客户要求设置屏幕, 功能以及操作语言。
The design of the screens, functions and operational languages can be adapted to the customers' specifications.



通过终端操作触摸屏设置和监控操作及槽参数 (PBS-845/001 控制)

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



控制操作的控制面板（例如：去脂）
Control panel for process control
(Example: degreasing)



023
-353/453/D23

该预处理设备用于清洗和准备研磨工具的钢件，为后续金刚石或立方氮化硼电镀操作作准备。

预处理包括一个温水处理槽（去脂），3个冷水处理槽（酸洗，活化和化学镀镍）以及中间过程的洗涤槽。这些已经安装在相应的接触和固定装置上的部件将按照操作步骤的顺序被转移到不同的处理槽中。

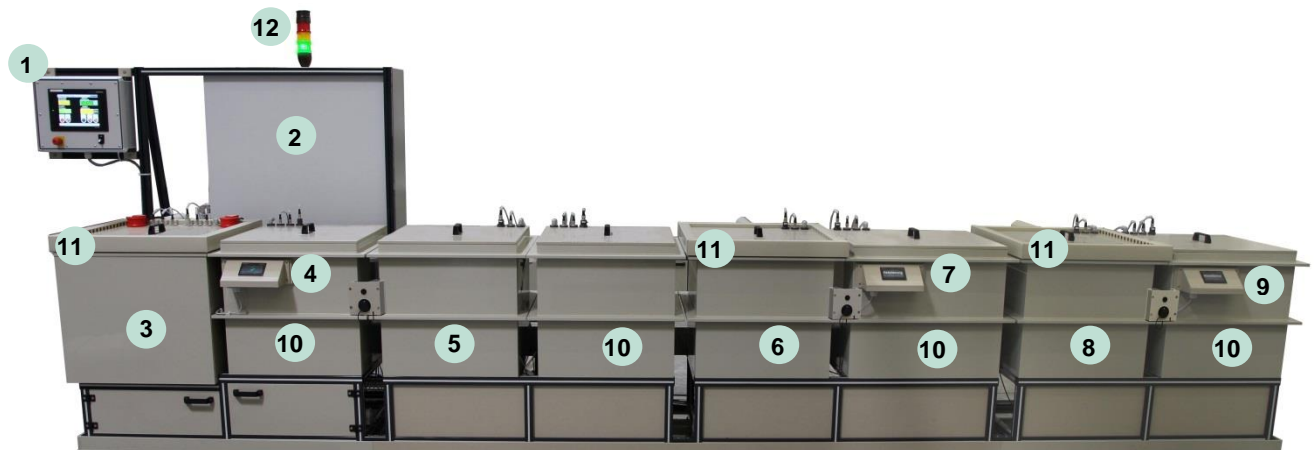
编程，操作和槽参数的预设通过终端触摸屏实行。每个处理槽配有的控制面板可以控制单个操作步骤。

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.

前视图 Front view



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| <p>1. 处理槽调控 PBS-845/001
包括用于操作控制和编程的终端触摸屏：
Process-bath control PBS-845/001
including Touch screen operator terminal for
process control and programming:
-温度 Temperature
-电流 Current
-电压 Voltage
-处理时间 Process time
-加热循环 Heating cycles</p> <p>2. 电子机柜 Electronics cabinet
(在背面打开 Service access on rear side)</p> | <p>3. 温水处理槽（去脂-阳极/阴极；极性可逆）
Warm-process bath (degreasing – anodisc/cathodic;
polarity reversible)</p> <p>4. 去脂的操作控制面板 Process control panel for de</p> <p>5. 冷水处理槽（酸洗） Cold-process bath (Decapation)</p> <p>6. 冷水处理槽（活化） Cold-process bath (Activation)</p> <p>7. 活化的操作控制面板
Process control panel for activation</p> <p>8. 冷水处理槽（化学镀镍）
Cold-process bath (Nickelstrike)</p> <p>9. 化学镀镍的操作控制面板
Process control panel for Nickelstrike</p> <p>10. 静态漂洗槽（4台） Rinsing bath (4 pcs)</p> <p>11. 周边抽吸装置（3台） Rim exhaustion (3 pcs)</p> <p>12. 信号灯 Signal lamp</p> |
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后视图 Rear view



技术参数 Technical data:

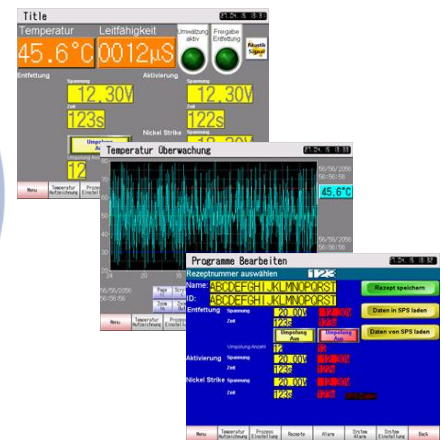
- 槽容量：处理槽：每个大约 180 升；静态洗涤槽：每个大约 180 升。
Bath volume: Process baths: appr. 180 l each; rinsing baths: appr. 180 l each
- 槽温：最高 60 摄氏度（去脂槽）；室温（其他所有的槽）
Bath temperature: max. 60°C (degreasing bath); room temperature (all other baths)
- 规格（长 x 宽 x 高）：大约 6100x708x1000 毫米 Dimensions (L x W x H): appr. 6100 x 708 x 1000 mm
- 额定功率：大约 10 千伏安，3x400 伏，3x 16 安，50 赫兹
Power ratings: appr. 10 KVA, 3 x 400 V, 3 x 16 A, 50 Hz
- 温水处理槽，聚丙烯材质，隔热， Warm-process bath, of PP, heat insulated,
- 冷水处理槽和静态漂洗槽，聚丙烯材质 Cold-process and rinsing baths of PP
- 聚丙烯导管 Pipes of PP
- 一个用于循环温水处理槽的离心泵 1 centrifugal pump to circulate the degreasing bath
- 处理槽的周边抽吸装置（连接到通风设备，公称直径 76 毫米）
Rim exhaustion for process baths (connection to fan, DN 76 mm)

可选: Optional:

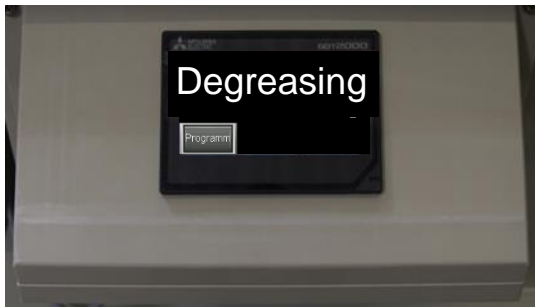
- 处理槽水平面稳定 Level stabilisation of process baths
- 静态漂洗槽的流动冲洗技术 Flow-standing sink technology in the rinsing baths
- 可以扩展到半自动化的预处理设备 VBA 4-355/455/D45
Expansion possible to a semi-automatic pre-treatment plant VBA 4-355/455/D45



可根据客户要求设置屏幕，功能以及操作语言。
The design of the screens, functions and operational languages can be adapted to the customers' specifications.



通过终端操作触摸屏设置和监控操作及槽参数（PBS-845/001 控制） Pre-set and monitoring of the process and bath parameters by means of the Touch screen operator terminal (PBS-845/001 control)



控制操作的控制面板（例如：去脂）
Control panel for process control
(Example: degreasing)



预处理设备 Pre-Treatment Plant VBA 5-353/453/D23

该预处理设备用于清洗和准备研磨工具的钢件，为后续金刚石或立方氮化硼电镀操作作准备。预处理包括 2 个温水处理池（初步去脂与电解去脂），3 个冷水处理池（酸洗，活化和化学镀镍），中级去脂与初步去脂的油分离器。这些已经安装在相应的接触和固定夹具上的部件将按照操作步骤的顺序被转移到不同的处理槽中。

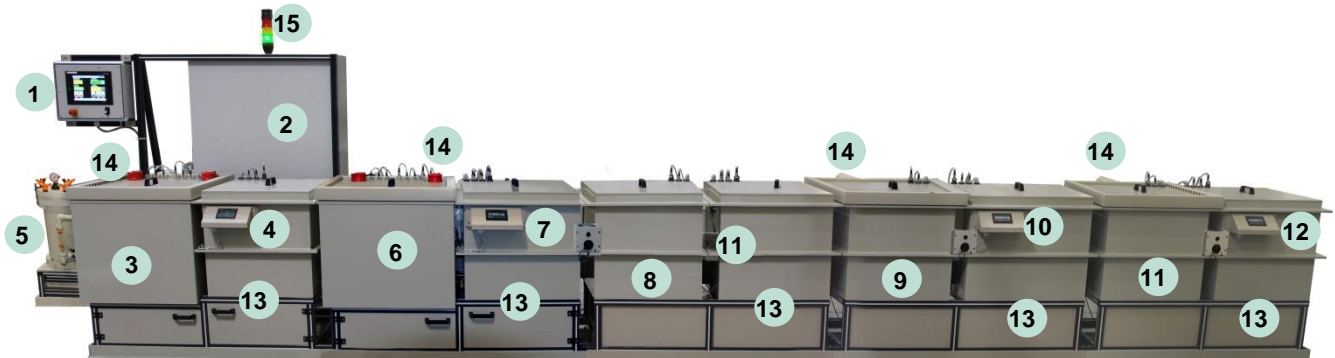
编程，操作和槽参数的预设通过终端触摸屏实行。每个处理槽配有的控制面板可以控制单个操作步骤。

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.

前视图 Front view



- | | |
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| <p>1. 处理槽调控 PBS-845/001
Process-bath control PBS-845/001
包括用于操控与编程的触屏终端
including Touch screen operator terminal for process control and programming:
- 温度 Temperature
- 电流 Current
- 电压 Voltage
- 处理时间 Process time
- 加热循环 Heating cycles</p> <p>2. 电子柜 Electronics cabinet
(从背面打开) (Service access on rear side)</p> <p>3. 温水处理槽（初步去脂）
Warm-process bath (preliminary degreasing)</p> <p>4. 控制初步去脂的触控板
Process control panel for preliminary degreasing</p> | <p>5. 油分离器 Oil separator</p> <p>6. 温水处理槽（电解去脂-阳极/阴极；极性可逆）
Warm-process bath (electrolytic degreasing – anodic/cathodic; polarity reversible)</p> <p>7. 控制电解去脂的触控板
Process control panel for electrolytic degreasing</p> <p>8. 冷水处理槽（酸洗）Cold-process bath (Decapation)</p> <p>9. 冷水处理槽（活化）Cold-process bath (Activation)</p> <p>10. 控制活化的触控板 Process control panel for activation</p> <p>11. 冷水处理槽（化学镀镍）Cold-process bath (Nickelstrike)</p> <p>12. 控制化学镀镍的触控板 Process control panel for Nickelstrike</p> <p>13. 静态漂洗槽（5台）Standing sink (5 pcs)</p> <p>14. 周边抽吸装置（4台）Rim exhaustion (4 pcs)</p> <p>15. 信号灯列 Signal lamp</p> |
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Rear view



Technical data:

- 槽容量：处理槽：每个大约 180 升；静态洗涤槽：每个大约 180 升。
Bath volume: Process baths: appr. 180 l each; rinsing baths: appr. 180 l each
- 槽温：最高 80 摄氏度（初步去脂槽）；60 摄氏度（电镀去脂槽）；室温（其他所有的槽）
Bath temperature: max. 80°C (preliminary degreasing); 60°C (electrolytic degreasing bath); room temperature (all other baths)
- 规格（长 x 宽 x 高）：大约 7200 x 708 x 1000 mm
Dimensions (L x W x H): appr. 7200 x 708 x 1000 mm
- 额定功率：大约 10 千伏安，3x400 伏，3x 16 安，50 赫兹
Power ratings: appr. 15 KVA, 3 x 400 V, 3 x 16 A, 50 Hz
- 温水处理槽，聚丙烯材质，隔热
Warm-process baths of PP, heat insulated,
- 冷水处理槽和静态漂洗槽，聚丙烯材质
Cold-process and rinsing baths of PP
- 聚丙烯管道
Pipes of PP
- 一个用于循环温水处理槽的离心泵
1 centrifugal pump each to circulate the warm-process baths
- 处理槽的周边抽吸装置（连接到通风设备，公称直径 76 毫米）
Rim exhaustion for process baths (connection to fan, DN 76 mm)

可选 Optional:

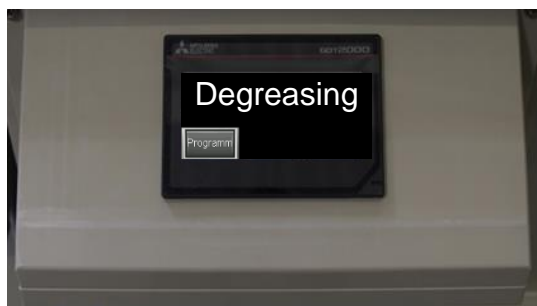
- 处理槽液面稳定 Level stabilisation of process baths
- 静态漂洗槽的流动冲洗技术 Flow-standing sink technology in the rinsing baths
- 可以扩展到半自动化预处理设备 VBA 6-355/455/D45
Expansion possible to a semi-automatic pre-treatment plant VBA 6-355/455/D45



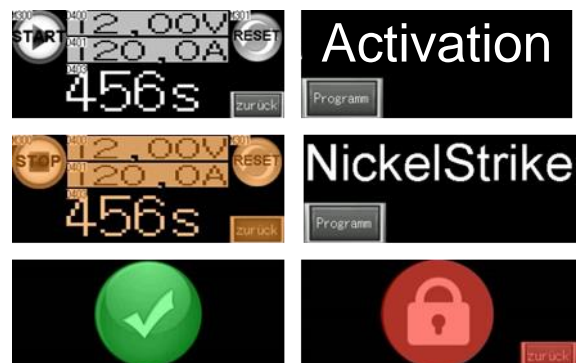
可根据客户要求设置屏幕，功能以及操作语言。

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

通过终端操作触摸屏设置和监控操作及槽参数 (PBS-845/001 控制)
Pre-set and monitoring of the process and bath parameters by means of the Touch screen operator terminal (PBS-845/001 control)



控制操作的控制面板 (例如: 去脂)
Control panel for process control (Example: degreasing)

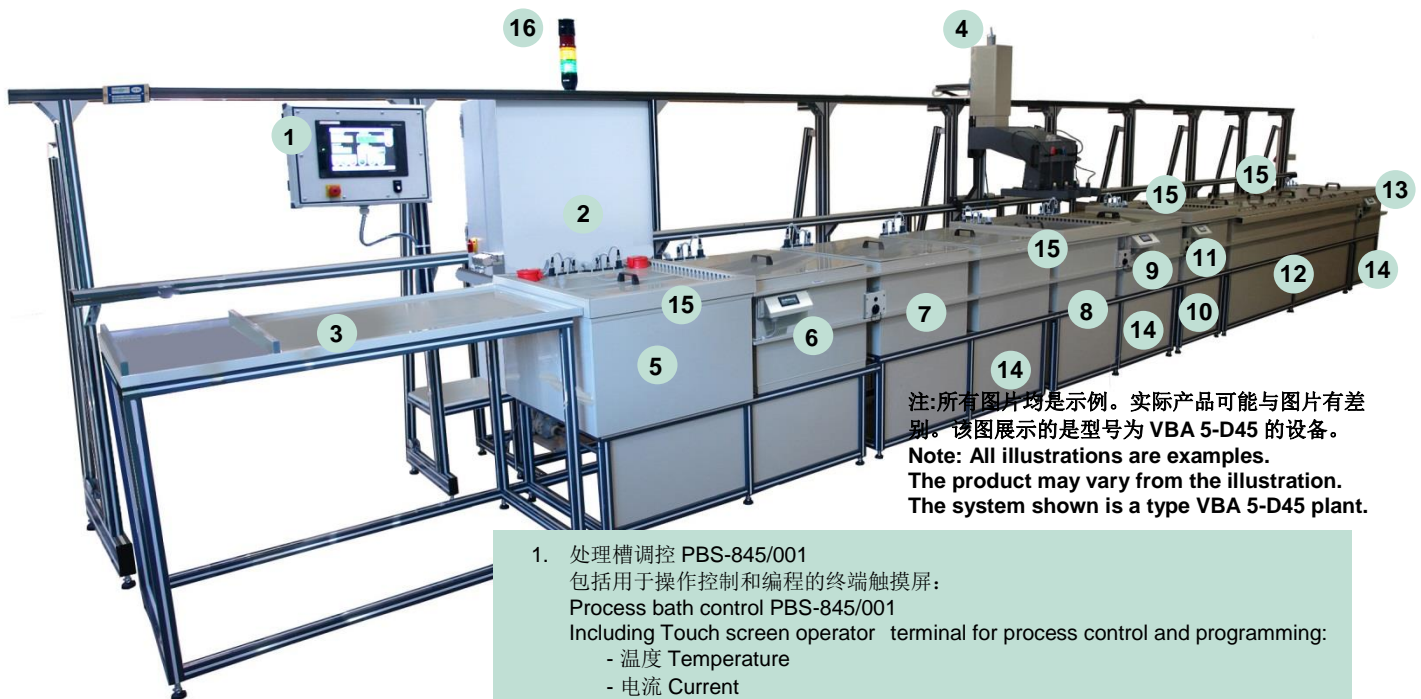


预处理设备 VBA 5-355/455/D45

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

该预处理设备用于清理和准备随后将被电镀的牙科工具，磨棒和小工具的钢质基体。没有适当预处理的工件将不能被磨料层正确地电镀。预处理包括一个温水处理槽（去脂），三个冷水处理槽（酸洗，活化，化学镀镍），一个保持活化的缓冲槽（用于储存已被预处理，但不能立刻被电镀的工件）以及中间漂洗槽。这些被安装在相应的电镀设备上的部件将通过一个带有升降装置的运输机被转移到不同的处理槽中。

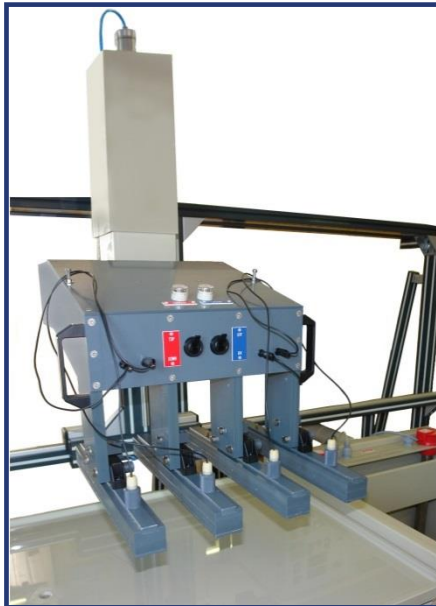
The Pre-Treatment Plant serves for cleaning and preparing the steel blanks of dental burrs, grinding pins and small tools prior to the subsequent electro-plating process. Without the appropriate pre-treatment, the parts can't be correctly electro-plated with the abrasive layer. Pre-treatment comprises 1 warm-process bath (degreasing) 3 cold-process baths (decapitation, 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.



注：所有图片均是示例。实际产品可能与图片有差别。该图展示的是型号为 VBA 5-D45 的设备。

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

1. 处理槽调控 PBS-845/001
包括用于操作控制和编程的终端触摸屏：
Process bath control PBS-845/001
Including Touch screen operator terminal for process control and programming:
 - 温度 Temperature
 - 电流 Current
 - 电压 Voltage
 - 处理时间 Process time
 - 加热循环 Heater cycles
2. 电子机柜 Electronics cabinet
(在背面打开 Service access on rear side)
3. 设备的装载站 Loading station for fixtures
用于接触设备，带有升降装置的运输机
4. Transport carriage for contact fixtures including lifting and lowering installation
温水处理槽（去脂-阳极/阴极；极性可逆）
5. Warm-process bath (Degreasing – anodic/cathodic; polarity reversible)
6. 去脂的操作控制面板 Process control panel for degreasing
7. 冷水处理槽（酸洗） Cold-process bath (Decapation)
8. 冷水处理槽（活化） Cold-process bath (Activation)
9. 活化的操作控制面板 Process control panel for activation
10. 冷水处理槽（化学镀镍） Cold-process bath (Nickelstrike)
11. 化学镀镍的操作控制面板 Process control panel for Nickelstrike
12. 冷水处理槽（保持活化的缓冲槽） Cold-process bath (Active-keeping buffer)
13. 保持活化缓冲槽的操作控制面板 Process control panel for active-keeping buffer
14. 静态漂洗槽（5台） Standing sink (5 pcs)
15. 周边抽吸装置（4台） Rim exhaustion (4 pcs)
16. 信号灯列 Signal light column



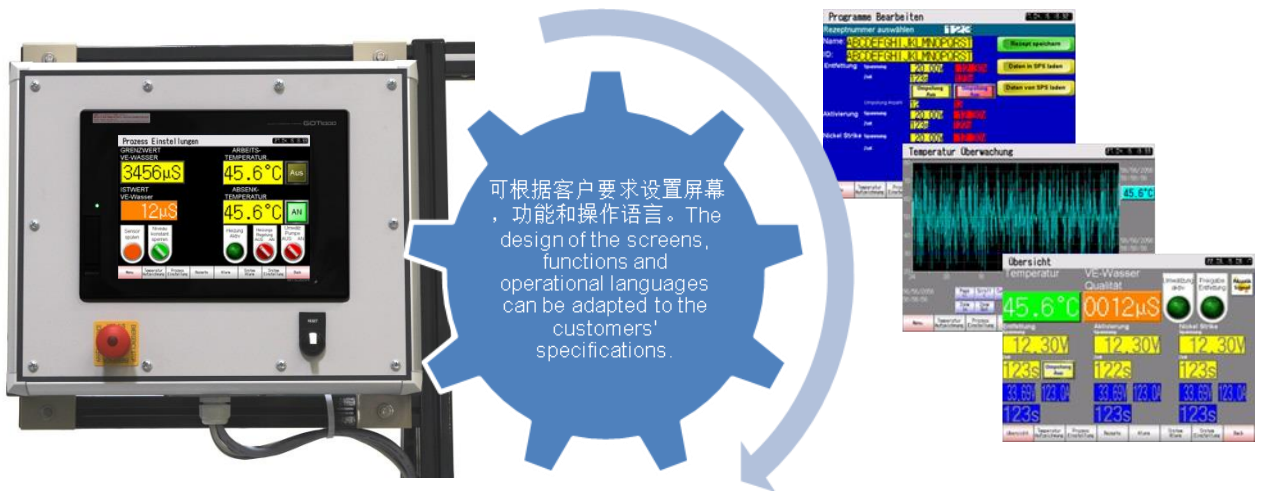
运输机带有升降装置和四个接触装置
Transport carriage with lifting and lowering
installation with four contact fixtures in place

技术参数 Technical data:

- 槽容量：处理槽：每个大约 173 升；保持活化缓冲槽：大约 745 升；
静态漂洗槽：每个大约 173 升
Bath volume: Process baths: appr. 173 l each; active-keeping buffer: appr. 745 l;
Standing sinks: appr. 173 l each.
- 槽温：最高 60 摄氏度（去脂槽）；室温（其他所有的槽）
Bath temperature: max. 60°C (degreasing bath); room temperature (all other baths)
- 规格（长 x 宽 x 高）：大约 9620 x 1320 x 3220 毫米
Dimensions (L x W x H): appr. 9620 x 1320 x 3220 mm
- 额定功率：大约 12.5 千伏安，240 伏，80 安 Power ratings: appr. 12.5 KVA, 240 V, 80 A
- 1 个温水处理槽，隔热，聚丙烯材质 1 warm-process bath, heat insulated, of PP
- 3 个冷水处理槽，4 个静态漂洗槽，1 个保持活性活化槽，聚丙烯材质；管道聚丙烯材质
3 cold-process baths, 4 standing sinks, 1 active-keeping buffer of PP; pipes of PP
- 聚丙烯管道 Pipes of PP
- 一个用于循环去脂槽的离心泵 1 centrifugal pump to circulate the degreasing bath
- 接触夹具的运输系统。带 2 根导轨以及 1 节运输车厢
Transport system for contact fixtures with 2 guide rails and 1 transport carriage
- 处理槽的周边抽吸装置（连接到通风设备，公称直径 76 毫米）
Rim exhaustion for process baths (connection to fan, DN 76 mm)

可选: Optional:

- 处理槽水平面稳定 Level stabilisation of process baths
- 静态漂洗槽的流动冲洗技术 Flow-standing sink technology in the rinsing baths



通过终端操作触摸屏设置和监控操作及槽参数（PBS-845/001 控制）

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

预处理设备 Pre-Treatment Plant VBA 6-353/453/D23

该预处理设备用于清理和准备金刚石电镀工序前的磨削工具基体。该预处理包括 2 个温水处理槽：内置油分离器的初步去脂与电解去脂。以及 3 个冷水处理槽：酸洗，活化，化学镀镍以及中间漂洗槽。这些设备已经被安装到相应的接触与支撑夹具上，并且根据操作顺序的被移动到依次的处理槽。内置保持活性缓冲槽用于暂时存储预处理的工件。操作过程与处理槽的程序参数通过触屏终端设置。处理槽配置了触控板，可对每一步工序进行操作。

The pre-treatment plant serves to clean and prepare the steel blanks of grinding tools for the subsequent diamond or CBN electro-plating process.

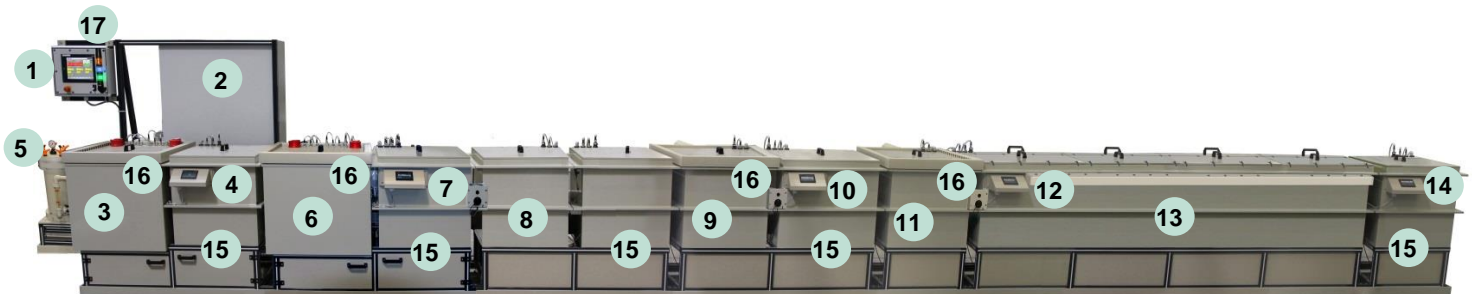
Pre-treatment comprises two warm-process baths: preliminary degreasing with oil separator and electrolytic degreasing. Furthermore it comprises 3 cold-process baths: decapation, activation and Nickelstrike as well as the intermediary rinsing baths.

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.

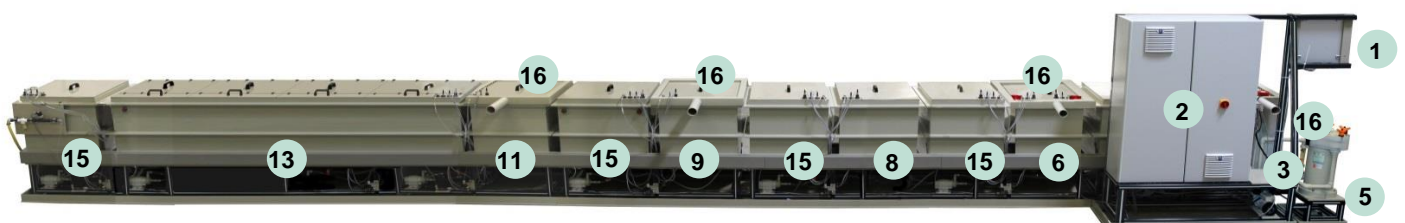
For temporary storage of the processed parts an active-keeping buffer is provided.

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.

前视图 Front view



- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. Process bath control PBS-845/001
处理槽调控 PBS-845/001
Including Touch screen operator terminal for process and programming
包括用于操控与编程的触屏终端</p> <ul style="list-style-type: none"> - Temperature 温度 - Current 电流 - Voltage 电压 - Process time 处理时间 - Heater cycles 加热循环 <p>2. Electronics cabinet 电子柜
(service access on rear side) 背面打开</p> <p>3. Warm-process bath (degreasing)温水处理槽（去脂）</p> <p>4. Process tableau for degreasing 控制去脂的触控板</p> <p>5. Oil separator for degreasing 去脂油分离器</p> | <p>6. Warm-process bath (electrolytic degreasing – anodic/cathodic; polarity reversible)
温水处理槽（电解去脂-阳极/阴极;极性可逆）</p> <p>7. Process tableau for electrolytic degreasing 控制电解去脂的触控板</p> <p>8. Cold-process bath (Decapation) 冷水处理槽（酸洗）</p> <p>9. Cold-process bath (Activation) 冷水处理槽（活化）</p> <p>10. Process tableau for activation 控制活化的触控板</p> <p>11. Cold-process bath (Nickelstrike) 冷水处理槽（化学镀镍）</p> <p>12. Process tableau for Nickelstrike 控制化学镀镍的触控板</p> <p>13. Active-keeping buffer 保持活性缓冲槽</p> <p>14. Process tableau for active-keeping buffer 控制保持活性缓冲槽的触控板</p> <p>15. Standing sink (5 pcs) 静态漂洗槽（5台）</p> <p>16. Rim exhaustion (4 pcs) 抽吸装置（4台）</p> <p>17. Signal light column 信号灯列</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



Technical data:

- 槽容量: 处理槽: 大约 180l 每个; 静态漂洗槽: 大约 180l 每个保持活性缓冲槽: 大约 750 l;
Bath volume: Process baths: appr. 180 l each; rinsing baths: appr. 180 l each active-keeping buffer appr. 750 l.
- 槽温: 最高 80°C (去脂槽); 最高 60°C (初步电解槽); 室温 (其他所有的槽)
Bath temperature: max. 80°C (preliminary degreasing); 60°C (electrolytic degreasing bath); room temperature (all other baths)
- 规格 (长 x 宽 x 高): 大约 9100 x 708 x 1000 mm
Dimensions (L x W x H): appr. 9100 x 708 x 1000 mm
- 电流接入值: 大约 20 KVA, 3 x 400 V, 3 x 16 A, 50 Hz
Power ratings: appr. 20 KVA, 3 x 400 V, 3 x 16 A, 50 Hz
- 温水处理槽: PP 材质, 隔热
Warm-process baths of PP, heat insulated,
- PP 材质的冷水处理槽与漂洗槽
Cold-process and rinsing baths of PP
- PP 材质的管道
Pipes of PP
- 1 个用于循环去脂槽的离心泵
1 centrifugal pump each to circulate the warm-process baths
- 处理槽的周边抽吸装置 (连接到通风设备, 直径 76 mm)
Rim exhaustion for process baths (connection to fan, DN 76 mm)

可选 Optional:

- 处理槽液面稳定 Level stabilisation of process baths
- 漂洗槽的流动冲洗技术 Flow-standing sink technology in the rinsing baths
- 可扩展为半自动预处理设备 VBA 6-355/455/D45
Expansion possible to a semi-automatic pre-treatment plant VBA 6-355/455/D45



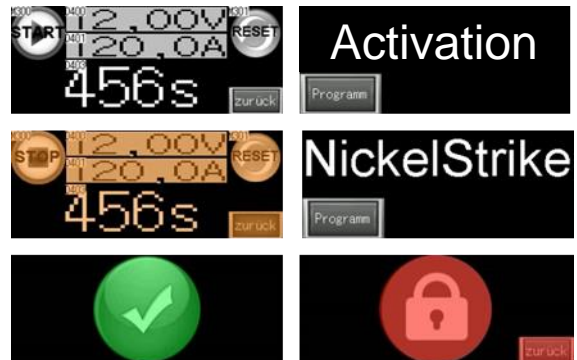
The design of the screens, functions and operational languages can be adapted to the customers' specifications.

可根据客户要求设置屏幕, 功能和语言

Pre-set and monitoring of the process and bath parameters by means of the Touch screen operator terminal (PBS-845/001 control)
通过触屏终端设置和监程序作及槽参数 (PBS-845/001 控制)



Control panel for process control
(Example: degreasing)
控制操作程序的触控板
举例：去脂



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

预处理设备 VBA 5-355/455/D45

该预处理设备用于清理和准备随后将被电镀的牙科工具,磨棒和小工具的钢质工件。没有经过适当预处理的工件将不能被磨料层正确地电镀。

预处理包括 2 个温水处理槽: 初步去脂与电解去脂; 三个冷水处理槽(酸洗,活化,化学镀镍),一个保持活化的缓冲槽(用于暂时储存已经过预处理,但不会立刻被电镀的工件)以及中间漂洗槽。

这些被安装在相应的电镀夹具上的工件-通过一个带有升降装置的运输机被移动到不同的处理槽中。

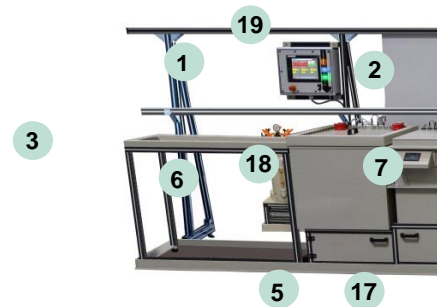
程序与槽参数的设置通过触屏终端操作完成。处理槽分别配备了过程控制面板用于过程控制

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.

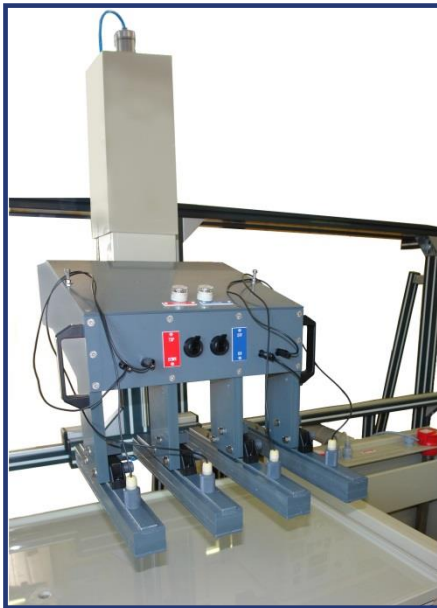
Setting of the process and bath parameters is done by means of a Touch screen operator terminal. For process control, the appropriate process control panels are provided on the individual process baths.



1. 处理槽调控 PBS-845/001 Process bath control PBS-845/001
包括用于操作控制和编程的触屏终端
Including Touch screen operator terminal for process control and programming:
 - 温度 Temperature
 - 电流 Current
 - 电压 Voltage
 - 处理时间 Process time
 - 加热循环 Heater cycles
2. 电子柜 (从背面打开) Electronics cabinet (service access on rear side)
3. 夹具装载区 Loading station for fixtures
4. 接触夹具运输车厢, 含升降装置
Transport carriage for contact fixtures including lifting and lowering installation
5. 温水处理槽 (初步去脂) Warm-process bath (Preliminary degreasing)
6. 用于初步去脂的油分离器 Oil separator for preliminary degreasing
7. 初步去脂的控制面板 Process control panel for preliminary degreasing
8. 温水处理槽 (电解去脂-阳极/阴极; 极性可逆)
Warm-process bath (Electrolytic degreasing – anodic/cathodic; polarity reversibl
9. 电解去脂的控制面板 Process control panel for electrolytic degreasing
10. 冷水处理槽 (酸洗) Cold-process bath (Decapation)
11. 冷水处理槽 (活化) Cold-process bath (Activation)
12. 活化的控制面板 Process control panel for activation
13. 冷水处理槽 (化学镀镍) Cold-process bath (Nickelstrike)
14. 化学镀镍的控制面板 Process control panel for Nickelstrike
15. 冷水处理槽 (保持活化缓冲槽) Cold-process bath (Active-keeping buffer)
16. 保持活化缓冲槽的控制面板 Process control panel for active-keeping buffer
17. 静态漂洗槽 (5 个) Standing sink (5 pcs)
18. 抽吸装置 (4 个) Rim exhaustion (4 pcs)
19. 信号灯列 Signal light column

注:所有图片均是示例。实际产品可能与图片有差别。该图展示的是型号为 VBA 5-D45 的设备,带初步去脂电解去脂功能

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.



运输机带有升降装置与 4 个夹具
Transport carriage with lifting and lowering installation
with four contact fixtures in place

技术数据 Technical data:

- 槽容量: 处理槽: 每个大约 173l; 保持活化缓冲槽: 大约 745l;
静态漂洗槽: 每个大约 173l
Bath volume: appr. 173 l each; active-keeping buffer: appr. 745 l;
Standing sinks: appr. 173 l each.
- 槽温:最高 80 °C (初步去脂槽);最高 60°C(电解去脂槽);室温(其他所有的槽)
Bath temperature: max. 80 °C (preliminary degreasing); max. 60°C (electrolytic degreasing bath);
room temperature (all other baths)
- 规格 (长 x 宽 x 高): 大约 12620 x 1320 x 3220 mm
Dimensions (L x W x H): appr. 12620 x 1320 x 3220 mm
- 额定功率:大约 15 KVA, 240V, 80A
Power ratings: appr. 15 KVA, 240 V, 80 A
- 2 个温水处理槽:PP 材质, 隔热
2 warm-process baths, of PP, heat insulated
- 3 个冷水处理槽, 5 个漂洗槽, 1 个保持活性缓冲槽, PP 材质, 管道 PP 材质
3 cold-process baths, 5 standing sinks, 1 active-keeping buffer of PP; pipes of PP
- 2 个用于循环去脂槽的离心泵
2 centrifugal pumps to circulate the degreasing baths
- 接触夹具的运输系统, 配有 2 根导轨与 1 个运输箱
Transport system for contact fixtures with 2 guide rails and 1 transport carriage
- 处理槽的周边抽吸装置 (连接到风扇, DN 75 mm)
Rim exhaustion for process baths (connection to fan,, DN 75 mm)

可选 Optional:

- 处理槽液面稳定 Level stabilisation of process baths
- 静态漂洗槽的流动冲洗技术
Flow-standing sink technology in the rinsing baths



通过终端操作触摸屏预设和监控处理及槽参数 (PBS-845/001)
Pre-set and monitoring of the process and bath parameters by means of the Touch screen operator terminal (PBS-845/001 control)

金刚石电镀设备 DBA
Diamond Electro-Plating Plants DBA



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

金钢石电镀设备 DBA 1-DFS / 010

Diamond Electro-Plating Plant DBA 1-DFS / 010

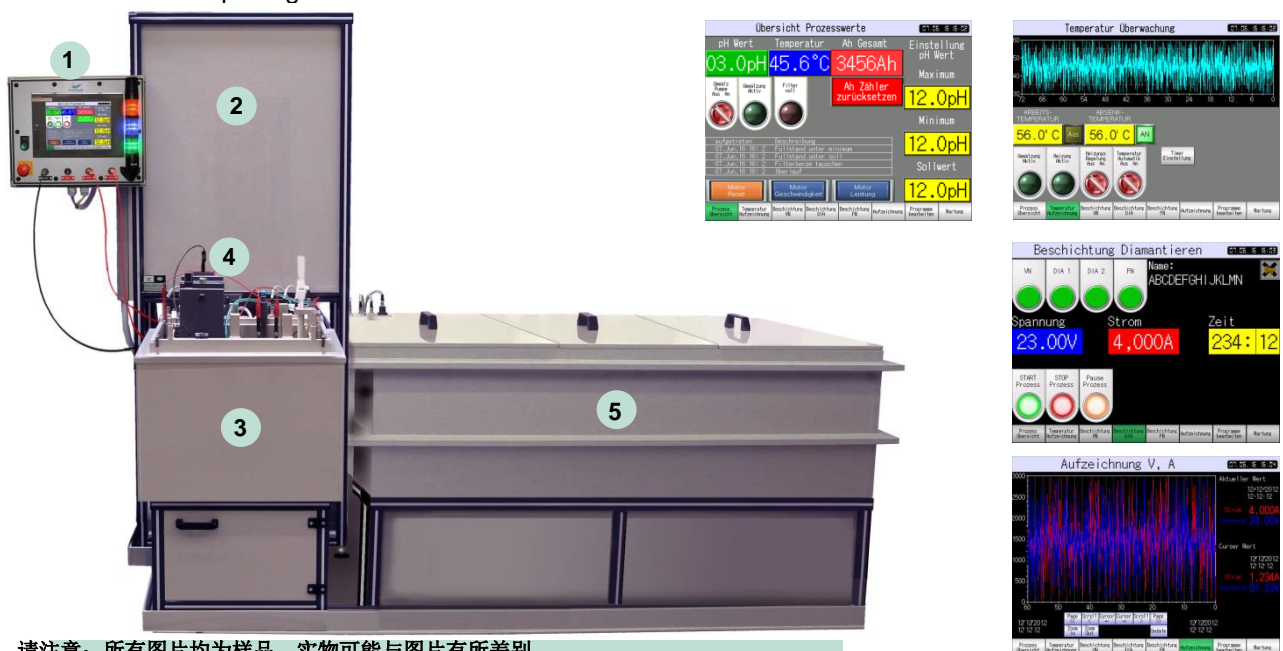
单槽金刚石电镀设备 Single-Tank Diamond Electro-Plating Plant

用于生产直径在 6mm 至 45mm 之间的牙科应用的金刚石软膜片。

配备有触屏操作终端用于控制处理过程，调节编程与监控过程以及槽参数，还配有一个驱动单元用于旋转接触夹具，实现更加便捷的电镀。

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.



请注意：所有图片均为样品，实物可能与图片有所差别
 Please note: All illustrations are examples.
 The product may vary from the illustrations.

触屏操作终端用于控制与参数的设置和监控
 Touch screen operator terminal for process control, programming, pre-set and monitoring of:

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 进程参数 Process parameters:
- 电流 Current
- 电压 Voltage
- 泄漏电流 Leak current
- 计时器 Time count
- 起降装置 Lifting/lowering/rotation | 槽参数 Bath parameters:
- 温度 Temperature
- pH 值 pH value
- 液面 Level
- 电解液稳定 Electrolyte constancy
- 安全传感器 Safety sensors
- 安培/分钟计数器 Amin counter |
|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|

- 包括运行状态的信号灯列 including signal lamp for operational status
2. 置于开关柜中的操作调节和控制装置
 Process regulation and control unit (PRS) in electronics cabinet
 3. 电镀槽（隔热）Electro-plating tank (heat insulated)
 4. 电动机/升降装置 Motor unit / lifting and lowering installation
 5. 三联式静态漂洗槽 Three-cascade standing sink unit

Touch screen operator terminal
 Examples of process control and programming screens.
 终端操作触摸屏
 示例：控制操作和编程的显示屏

可根据客户需求设定屏幕，功能和操作语言。
 The design of the screens, functions and operational languages can be adapted to the customers' specifications.

技术数据 Technical data:	DBA 1-DFS/010
最大适用 Ø max. applicable outer tool Ø	6 至 45mm (20 或 15 件) 6 to 45 mm (20 or 15 pcs.)
槽容积 Bath volume:	大约 approx.120 l

槽温度 Bath temperature:	最高 max. 60°C
规格 (长 x 宽 x 高) Dimensions (L x W x H):	大约 approx. 3650 x 1345 x 2028 mm
电流接入值 Power ratings:	大约 approx. 2.5KVA, 240V, 16A, 50 Hz

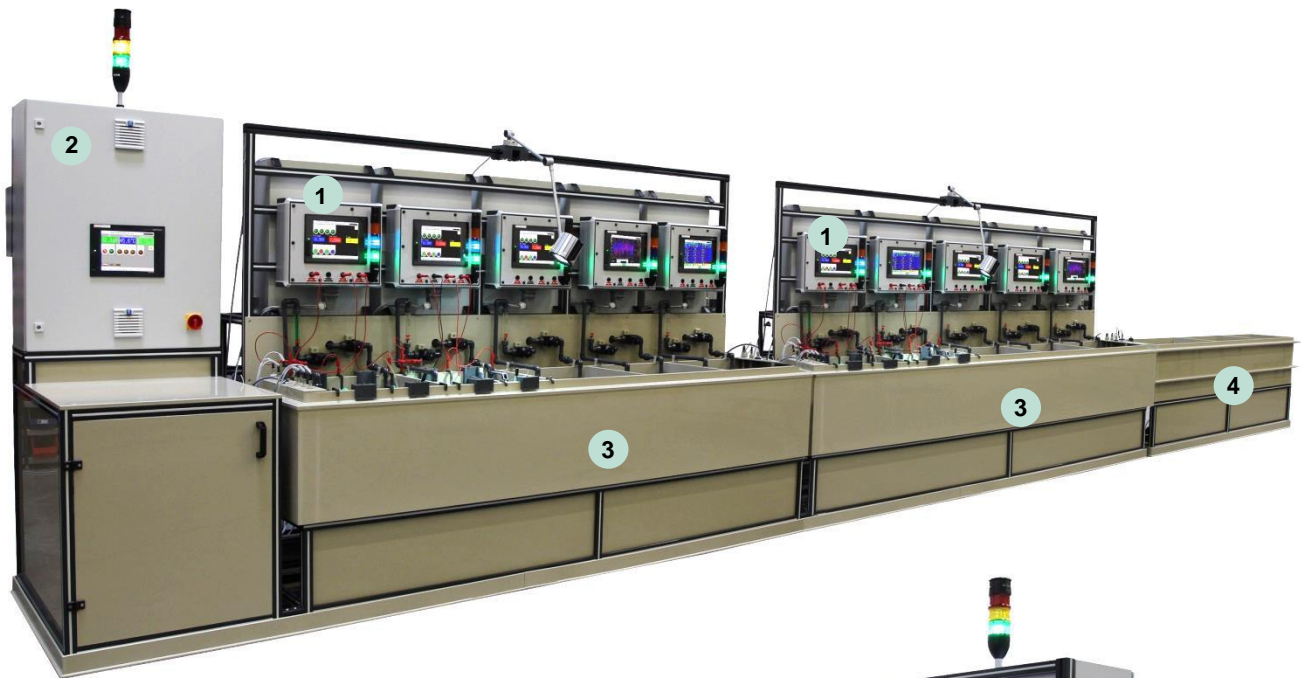
金刚石电镀设备 DBA XX-D23

Diamond Electro-Plating Plant DBA XX-D23

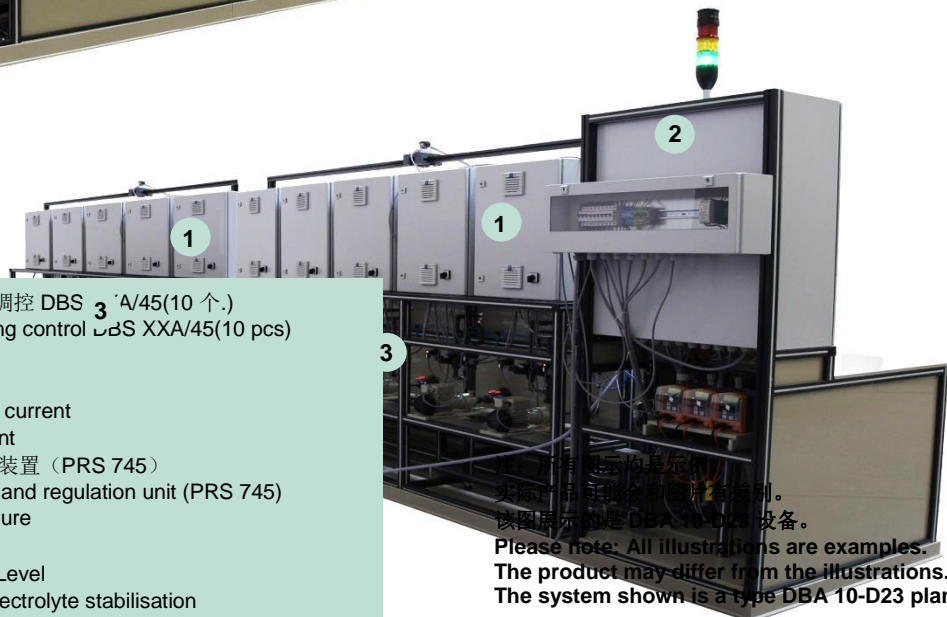
用于生产被金刚石电镀的牙科工具，磨棒，智能手机显示屏铣刀和外直径不超过 150mm 的磨轮，共有 2 到 10 个电镀站。

For the production of electro-plated diamond 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.

前视图 Front view



后视图 Rear view

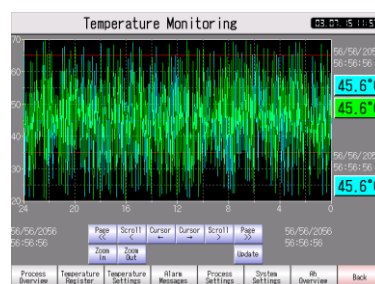
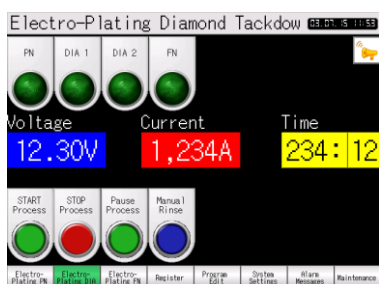


1. 金刚石电镀调控 DBS XXA/45(10 个.)
Diamond electro-plating control DBS XXA/45(10 pcs)
 - 电流 Current
 - 电压 Voltage
 - 泄漏电流 Leak current
 - 用时 Time count
2. 操作控制和调节装置 (PRS 745)
Process control and regulation unit (PRS 745)
 - 温度 Temperature
 - PH-值 pH
 - 电镀液水平 Level
 - 电镀液恒定 Electrolyte stabilisation
 - 安全传感器 Safety sensors
 - 安培/分钟计数器 Amin counter
3. 金刚石电镀装置 (DBE, 2 台) 每台有 5 个电镀站
Diamond electro-plating unit (DBE, 2 pcs) with 5 electro-plating stations each
4. 三联式静态漂洗槽 (KSP)
Three-cascade standing sink unit (KSP)

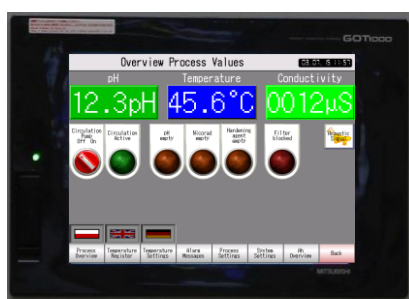
所有图示均为示例。
实际产品可能与图示有所不同。
该图展示的是 DBA 10-D23 设备。
Please note: All illustrations are examples.
The product may differ from the illustrations.
The system shown is a type DBA 10-D23 plant.



带有维持电镀液稳定的储存池，PH 值调节，剂量泵，M50 循环泵，2 X 10“蚀式过滤器，流量计和流量阀的 PRS 装置的内视图。
 Inside view of the PRS with reservoirs for electrolyte stabilization and pH regulation, dosing pumps, circulation pump M50, filtering cartridge unit 2 x 10", flow meter and flow adjustment valve



触摸屏操作界面（PRS/DBS）示例
 Examples of Touch screen operator surfaces (PRS /DBS)



通过终端操作 触摸屏设置和监控槽参数（PRS 调控）
 Adjustment and monitoring of the bath parameters' terminal (PRS control)



通过终端操作触摸屏调控 3 阶段自动程序操作和预设电
镀参数(DBS XXA-45 调控)

3-stage automatic process-run control and preset of
the electro-plating parameters by the Touch screen
operators' terminal

剥离设备 DRA Stripping
Plants DRA



- DRA-1 (PP 聚丙烯)

镍剥离设备 DRA-1 (聚丙烯) Nickel-Stripping Plants DRA-1 (PP)

该镍剥离设备，DRA,用于收回金刚石砂粒和被电镀的金刚石，立方氮化硼工具的黑色金属和有色金属毛坯。这些工具将会在剥离过程中被放入一个特殊的容器中。在这个过程中镍将会从毛坯上去除，但铜合金和钢体不会受到影响。一个内置的压缩空气隔膜循环泵确保了均匀的温度分配，使得金刚石砂粒被过滤出并进入一个特殊的滤袋中。经过 8 到 24 小时，根据砂粒的大小，被剥离的毛坯能够被取出，清洁以及再镀。这些金刚石或者立方氮化硼砂粒能够被从滤袋中取出，清洁，如果有需要，可以被分类以及再使用。

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 调控器 DRS control
-温度 Temperature
- 泵 Pump
- 水平面调控 Level control
2. 过滤器 Filter
3. 周边抽吸装置 Rim exhaustion
4. 剥离槽 (隔热)
Stripping-off tank (heat insulated)
5. 循环泵 Circulation pump

建议使用如下化学制品，用于电镀镍层剥离：
剥离化学制品 AKE，1-5 部分
剥离速度:最大 30 $\mu\text{m Ni/h}$ (50-60 摄氏度)
最大金属沉积:大约 30 g Ni/l

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

技术数据 Technical data:	DRA 1-300	DRA 1-500
- 最大可放置工件直径 max. tool diameter:	300 毫米 300 mm	500 毫米 500 mm
- 最大工件重量 max. tool weight:	大约 20 千克 appr. 20 kg	大约 30 千克 appr. 30 kg
- 槽容量 Tank volume:	大约 115 升 appr. 115 l	大约 330 升 appr. 330 l
- 槽温度 Bath temperature:	最高 75 摄氏度 max. 75°C	最高 75 摄氏度 max. 75°C
- 规格 (长 x 宽 x 高) Dimensions (L x W x H):	大约 570 x 1000 x 1300 毫米 appr. 570 x 1000 x 1300 mm	大约 770 x 1200 x 1300 毫米 appr. 770 x 1200 x 1300 mm
- 接入电流值 Power ratings:	大约 2,5 千伏安, 230 伏, 16 安 appr. 2,5 KVA, 230V, 16A	大约 5 千伏安, 400 伏, 16A 安 appr. 5 KVA, 400V, 16A
接入周边抽吸装置 Connection for rim exhaustion:	公称直径 75 DN75	公称直径 75 DN75
- 隔热剥离槽和聚丙烯导管 Heat-insulated stripping-off tank and pipes made of PP		
- 自动水平面调控和干燥保护 Automatic level control and dry-run protection		
- 滤袋装有可清洗滤芯 Filter bag device with cleanable filter inserts		
- 压缩空气隔膜循环泵 Compressed air diaphragm pump		

上漆系统 TLA+FCA
Varnishing 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

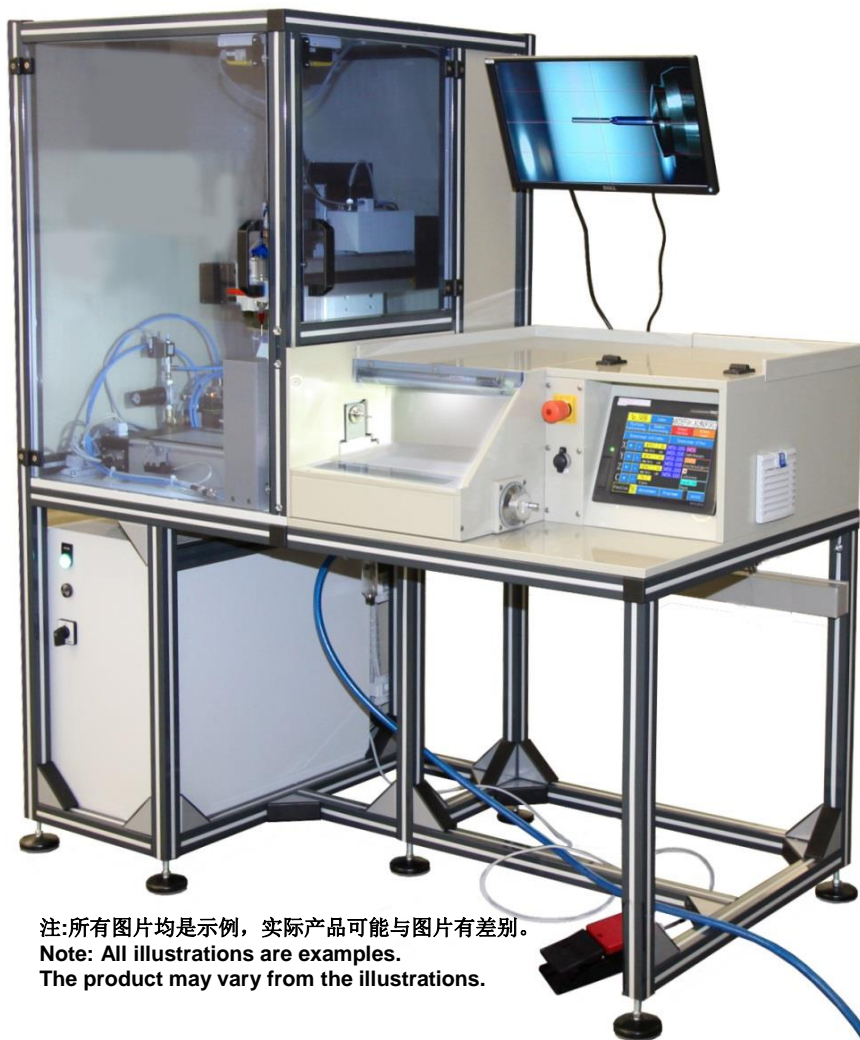
半自动上漆系统

Semi-Automatic Varnishing System

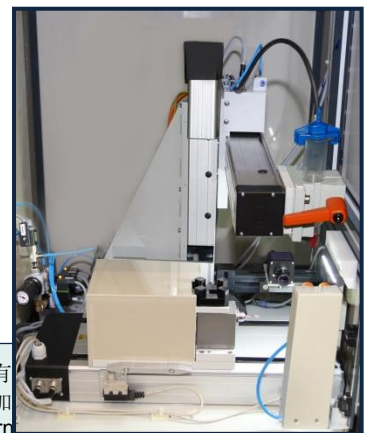
TLA 1-D23/101

该半自动上漆系统 TLA 用于电镀前的绝缘上漆或保护涂层，以及金刚石牙钻（型号 FG-，H-和 RA）和磨棒的色环编码。该系统配有一个三轴导轨，一个摄像头和用于视控喷涂的显示屏，一个 PLC 控制器以及一个用于编程和程序备份的终端操作触摸屏。

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.



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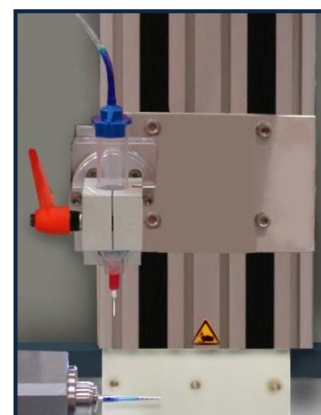


带有
力加
Varn
and pressure based varnish dosing
system



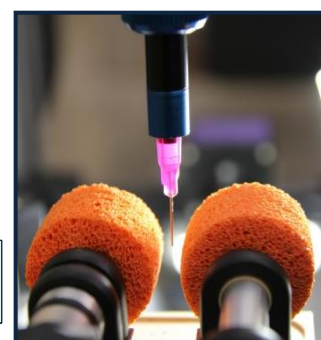
用于监控上漆的显示屏
 Monitor to check varnishing

技术参数 Technical Data	
夹持直径 Clamping diameter:	1,6 / 2,35 / 3 / 4 / 5 / 6 / 8 / 10毫米(可应要求提供其他尺寸) 1,6 / 2,35 / 3 / 4 / 5 / 6 / 8 / 10 mm (other diameters available on request)
夹持深度 Clamping depth:	根据工件长度 Depending on length of work piece
上漆范围 Varnishing range:	带有三个可自由编程的轴: 按照程序确定上漆区 With three freely programmable axes: varnishing zone according to program
上漆能力 Varnishing capacity:	上绝缘漆:约 8 - 10个/分钟 (毛坯: FG;上漆区10毫米, 配量针直径0.25mm,) 色环编码:约12 - 15个/分钟 (双组份漆料) 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)
注: Note:	所有提供的数据与操作员, 毛坯的质量与精度有关并可能因此产生差异。 All information given depends on operator and quality and precision of blank, and may therefore vary .
程序存储器: Program memory:	根据上漆范围和硬盘容量约有2000个牙钻类型 appr. 2000 dental burr types depending on varnishing range and hard disk capacity
心轴转速 Mandrel speed:	最大 1000 转每分钟 max. 1000 rpm
气压 Air pressure:	5 ... 7 巴, 无油, 干燥 5 ... 7 bar, oil-free, dry
连接电源: Power connection:	230 伏, 50 赫兹 230 V, 50 Hz
设备规格 System dimensions:	长x 宽 x 高 约1450 x 740 x 1450 毫米 L x W x H appr. 1450 x 740 x 1450 mm



基本设备 Basic equipment

- 烤漆铝型材质的固定框架
Holding frame welded of aluminium profiles and baking enamelled
- 上漆装置的桌面由烤漆铝型材制成
Table surface for varnishing unit made of aluminium, baking enamelled



加药针清洗装置
Cleaning installation for dosing needle

- Driving motor for headstock, continuously speed controlled by PLC.
- 主控制开关盒 Main control with switch box
 - 可编程序控制器 PLC-controller

版本: CPU模块Q系列	Version: CPU-module Q-series
输入/输出地址:4096/8192	Input/output addresses: 4096/8192
储存媒介: 程序存储器120 kByte	Storage media: Program memory 120 kByte
接口: USB 100BASE-TX	Interfaces: USB 100BASE-TX
 - 带有8,4寸的触摸屏画面显示, 65536色
液晶屏类型TFT彩色液晶显示屏, 分辨率: 640 x480
Graphics Display:with touch operation 8,4" 65536 colours
LCD type:TFT Colour-LCD Resolution: 640 x 480
 - 通过摄像头和19寸的显示屏视控上漆 Optical control of varnishing by camera and 19" monitor
 - 安全屋包括确保设备安全的挡光板 Safety housing incl. light barrier for machine safety
 - 漆料配量包括用于5, 10, 30, 55毫升 墨盒的压力调控阀
Varnish dosing incl. pressure-regulation valve for varnish cartridges 5,10, 30 and 55 cc
 - 加药针清洗装置 Cleaning installation for dosing needle

可选扩展项TLA 1-D23/101

Optional expansions TLA 1-D23/101

- 连接设备电脑的电子手轮, 更方便程序设置
Electronic hand wheel in connection to on-board PC for easier programming
- 激光辅助精密置零, 用于改进重复上漆效果
Laser-assisted precision zero-setting for better reproducible varnishing results
- 在TLA系统为实现自动化整合机器人时的准备包括轴的伺服电动机, 运动控制器和伺服放大器。
Prearrangement of the TLA for integrating a robot for automation incl. servomotors for axes, motion controller and servo amplifier
- 用于精确配量的容积配量系统 Volumetric dosing system for precision-dosing
- 为磨棒垂直表面上漆的6轴机器人
6-axes varnishing robot for grinding points with vertical surfaces
- 主轴承可扩大至直径为32毫米的夹具头架 Enlargement of head stock fixture up to collet Ø 32 mm
- 可更改电流接入值为120 伏, 60 赫兹 Change of power ratings to 120 V, 60 Hz

半自动上漆系统

Semi-Automatic Varnishing System

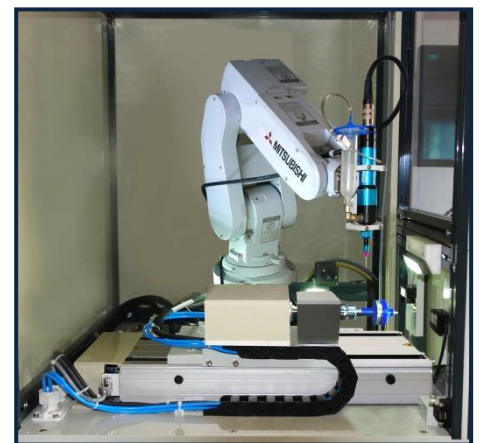
TLA 1-D23/202

该半自动上漆系统 TLA 用于在铣刀（用于切割智能手机显示屏），磨棒和磨轮被电镀前绝缘上漆或保护层。该系统配备一个可编程序控制器，一个用于编程和程序备份的终端操作触摸屏以及一个用于目视监控上漆的摄像头和显示屏。

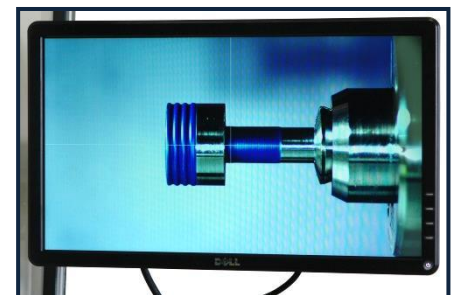
由一个六轴机器人引导的容积漆料配量系统实现了为复杂形状工件上绝缘漆。

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.

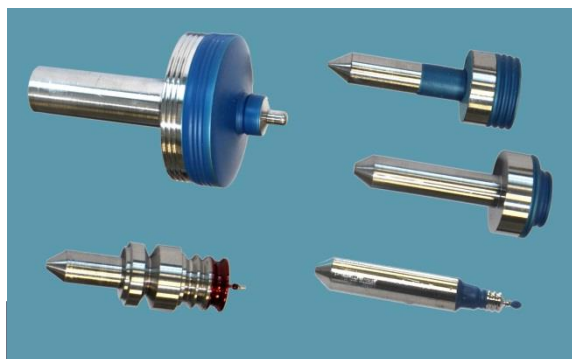


上漆装置，带 4 轴直形导轨与计量加药上漆
Varnishing unit with four-axes linear guide and volumetric paint dosing



上漆监控屏 Monitor to check varnishing

技术参数 Technical Data	
夹持直径 Clamping diameter:	1,6 / 2,35 / 3 / 4 / 5 / 6 / 8 / 10 m毫米1,6 / 2,35 / 3 / 4 / 5 / 6 / 8 / 10 mm (可应要求提供其他尺寸) (other diameters available on request)
夹持深度 Clamping depth:	根据工件长度 Depending on length of work piece
上漆范围 Varnishing range:	根据可自由编程的多轴机器人确定: x = 40毫米, y = 30毫米, z = 50毫米 Corresponding to freely programmable multi-axes robot: x = 40 mm, y = 30 mm, z = 50 mm
上漆能力: Varnishing capacity:	40-60秒每上漆扇区 40-60 sec/ varnishing sector
漆料类型 Varnish types:	用于电镀镍和化学镀镍的绝缘漆 Masking varnish for electrolytic and electroless nickel plating
注: Note:	所有提供的数据与操作员, 质量和毛坯的精度有关并可能因此产生差异 All information given depends on operator and quality and precision of blank, and may therefore vary.
程序存储器 Program memory:	根据上漆范围和硬盘容量大约2000个工具类型 appr. 2000 tool types depending on varnishing range and hard disk capacity
心轴转速 Mandrel speed:	最大 1000 转每分钟, 可持续调控 max. 1000 rpm., continuously adjustable
气压 Air pressure:	5.7 巴, 无油, 干燥 5 ... 7 bar, oil-free, dry
连接电源 Power connection:	230 伏, 50 赫兹 230 V, 50 Hz
设备规格: System dimensions:	长x 宽x 高约1450 x 900 x 1570 毫米 L x W x H appr. 1450 x 900 x 1570 mm



Masking varnished milling cutter blanks for Smartphone displays

注: 所有视图均是示例。实际产品和图片有差别。
Note: All illustrations are examples.



磨轮毛坯的绝缘漆 Masking varnishing of a grinding wheel blank.

上漆装置的自由定位功能可以为带有凹槽的复杂形状工件上漆
Free positioning of the paint dispenser allows masking work pieces with complex shapes and undercuts.

基本设备 Basic equipment

- 烤漆铝型材质的固定框架
Holding frame welded of aluminium profiles and baking enamelled
- 上漆装置的桌面由烤漆铝型材制成
Table surface for varnishing unit made of aluminium, baking enamelled
- 主轴承带有夹头的支撑夹具和气动张紧装置

- Headstock with collet holding fixture and pneumatic tension unit
为磨棒垂直表面上漆的6轴机器人
6-axes varnishing robot for varnishing also on vertical surfaces
- 带有步进电动机的X轴导引托架
Carriage guide for x-axis with step motor
- 主轴承的电动机，通过PLC可持续调控转速
Motor for headstock, rotation speed continuously adjustable by PLC.
- 用于精确配量的容积配量系统
Volumetric dosing system for precision application of varnish
- 主控制开关盒
Main control with switch box
- 可编程控制器调控 PLC-controller
- 版本: CPU模块Q系列
Version: CPU-module Q-series
- 输入/输出地址: 4096/8192
Input/output addresses:4096/8192
- 储存媒介: 程序存储器120 kByte
Storage media:Program memory 120 kByte
- 接口: USB 100BASE-TX
Interfaces: USB 100BASE-TX
- 图像显示屏，触摸操作8.4寸65536色
Graphics Display: with touch operation 8,4" 65536 colours
液晶屏类型:TFT彩色LCD, 分辨率: 640 x 480
LCD type: TFT Colour-LCD, Resolution : 640 x 480
- 通过摄像头和19寸显示屏视控上漆 Visual control of varnishing by camera and 19" monitor
- 安全屋包括确保设备安全的挡光板 Safety housing incl. light barrier for machine safety



可选性扩展 Optional expansions TLA 1-D23/202

- 电动手轮和设备电脑连接，便于编程
Electronic hand wheel in connection to on-board PC for easier programming
- 激光辅助精密置零，用于改进重复上漆效果
Laser-assisted precision zero-setting for better reproducible varnishing results
- 主轴承可扩大至直径为32毫米的夹具头架 Enlargement of head stock fixture up to collet Ø 32 mm
- 可更改电源接入值为120 伏, 60赫兹 Change of power ratings to 120 V, 60 Hz
- 漆料配量包括用于5, 10, 30, 55毫升墨盒的压力调控阀5, 10, 30 和55cc
Varnish dosing incl. pressure-regulation valve for varnish cartridges 5,10, 30 and 55 cc
- 磨轮的绝缘漆Masking of grinding wheels:
 - a. 至最大直径100毫米 Up to max. Ø 100 mm
 - b. 至最大直径250毫米 Up to max. Ø 250 mm
 - c. 至最大直径350毫米 Up to max. Ø 350 mm

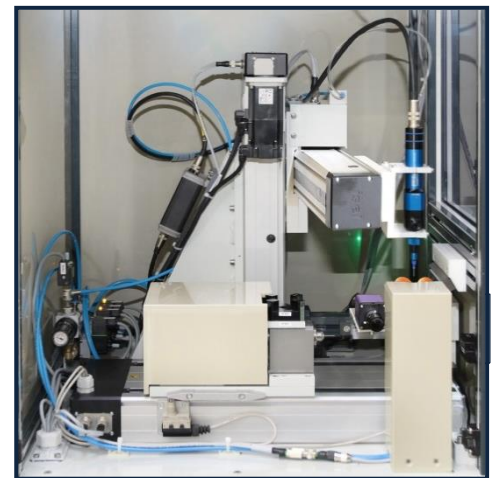
半自动上漆系统

Semi-Automatic Varnishing System

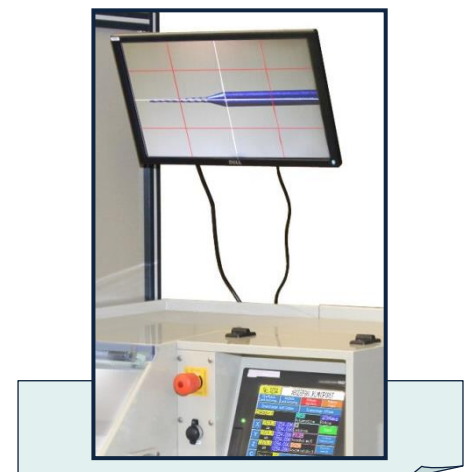
TLA/FCA 1-D23/102

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 \varnothing 1.0 – 10.0 mm.

用于牙钻（型号 FG, H, HP 和 RA），植入钻，铣刀，植入钻，螺旋钻头，螺丝攻等相似品的色环点胶编码与/或绝缘上漆。柄 \varnothing 1.0 – 10.0 mm.



上漆装置，带 4 轴直形导轨与体积计量加药
VDS-145
Varnishing unit with four-axes linear guide
and volumetric paint dosing VDS-145



注:所有图片均是示例，实际产品可能与图片有差别
Note: All illustrations are examples.
The product may vary from the illustrations.

Technical Data 技术参数	
Clamping diameter: 夹持直径	1,6 / 2,35 / 3 / 4 / 5 / 6 / 8 / 10 mm (other diameters available on request) 1,6 / 2,35 / 3 / 4 / 5 / 6 / 8 / 10 mm (可应要求提供其他尺寸)
Clamping depth: 夹持深度	根据工件长度 Depending on length of work piece
Varnishing range: 上漆范围	With three freely programmable axes: varnishing zone according to program 带有三个可自由编程的轴: 按照程序确定上漆区
Varnishing capacity: 上漆能力	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) 上绝缘漆: 约 6 - 10个/分钟 (毛坯: FG; 上漆区10mm, 配量针直径0.25mm,) 色环编码: 约 8 - 12个/分钟 (双组份漆料)
Note: 注	All information given depends on operator and quality and precision of blank, and may therefore vary. 所有提供的数据与操作员, 毛坯的质量与精度有关并可能因此产生差异。
Program memory: 程序存储器	appr. 2000 dental burr types depending on varnishing range and hard disk capacity 根据上漆范围和硬盘容量约有2000个牙钻类型
Mandrel speed: 心轴转速	max. 1000 rpm 最大 1000 转每分钟
Air pressure: 气压	5 ... 7 bar, oil-free, dry 5 ... 7 巴, 无油, 干燥
Power connection: 连接电源	230 V, 50 Hz
System dimensions: 设备规格	L x W x H appr. 1456 x 740 x 1640 mm 长 x 宽 x 高 约 1456 x 740 x 1640 毫米



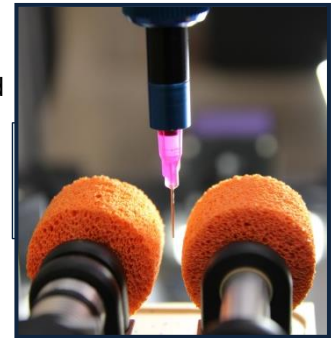
Examples of masking varnishing and colour-ring coding on dental burrs
保护涂层与牙钻色环编码示例



Volumetric paint dosing system VDS-145
容积上漆配量系统 VDS-145

Basic equipment 基本设备

- Holding frame welded of aluminium profiles and baking enamelled
烤漆铝型材质的固定框架
- Table surface for varnishing unit made of aluminium, baking enamelled
上漆装置的桌面由烤漆铝型材制成
- Headstock with collet holding fixture and pneumatic clamping unit
主轴承带有夹头的支撑夹具和气动张紧装置
- Freely programmable carriage
可自由编程的托架
- Carriage guide for x-y-z-axes with step motor
带有步进电动机的X-Y-Z轴导引托架
- Drive motor for headstock, continuously speed controlled by PLC.
主轴承的电动机，通过PLC可持续调控转速
- Main control with switch box 主控制开关盒
- PLC-controller PLC控制器
Version:版本 CPU-module Q-series
Input/output addresses:输入/输出地址 4096/8192
Storage media:存储介质 Program memory程序存储器 120 kByte
Interfaces:接口 USB 100BASE-TX
- Graphics Display: with touch operation 8,4" 65536 colours
图像显示屏: 触摸操作8.4寸65536色
LCD type: TFT Colour-LCD Resolution : 640 x 480
液晶屏类型: TFT彩色LCD, 分辨率: 640 x 480
- Optical control of varnishing by camera and 19" monitor
通过摄像头和19寸显示屏视控上漆
- Safety housing incl. light barrier for machine safety
安全屋包括确保设备安全的挡光板
- Volumetric dosing system for precision application of varnish
用于精确配量的容积配量系统
- Laser-assisted precision zero-setting for improved reproducible varnishing results
激光辅助精密置零，用于改进重复上漆效果
- Electronic hand wheel in connection with on-board PC for easier programming
连接设备电脑的电子手轮，更方便程序设置



Optional expansions TLA/FCA 1-D23/102 可选扩展项

- Prearrangement of the TLA/FCA for integrating a robot for automation incl. servomotors for axes, motion controller and servo amplifier
在TLA/FCA系统为实现自动化整合机器人时的准备包括轴的伺服电动机，运动控制器和伺服放大器。

- 6-axes varnishing robot for grinding points with vertical surfaces
为磨棒垂直表面上漆的6轴机器人
- Enlargement of head stock fixture up to collet Ø 32 mm
主轴承可扩大至直径为32毫米的夹具头架
- Change of power supply to 120 V, 60 Hz
可更改电流接入值为120 V, 60 Hz

自动上漆系统

Automatic Varnishing System

TLA/FCA 1-D45/312

用于种植体钻头，铣刀，磨棒和/或者金刚石牙钻(类型 FG, H 和 RA)
For colour-ring coding of implant drills, milling cutters, grinding pins and /
or diamond dental burrs (Types FG, H and RA).



注：所有图片均是示例，实际产品可能与图片有差别。
Note: All illustrations are examples. The product may vary from the illustrations.

基本设备 Basic equipment

- 带有 6 轴曲臂机器人的全自动色环编码装置
Fully automatic colour-ring coding unit with 6-axes bent-arm robot
- 通过托盘/手动装载和卸载站进行零部件供应（可应要求提供不同尺寸的托盘）
Parts supply by pallets / manual loading and unloading station (different pallet sizes available on request)
- 单轴线性导轨 Single axis linear guide
- PLC 控制 PLC controller
- 储存媒介：程序内存 120 kByte，接口 USB Storage media: Program memory 120 kByte, interface: USB
- 终端操作触摸屏 8,4 寸 Touch screen operator's terminal 8,4"
- 通过压力或者容积配量系统配量漆料 Varnish dosing by pressure or volumetric dosing system

- 由烤漆铝型材制成的框架 Holding frame welded of aluminium profiles and baking enamelled
- 主轴承带有夹头固定装置和气动张紧装置 Headstock with collet holding fixture and pneumatic tension unit
- 主轴承电动机，通过 PLC 可持续调控转速
Motor for headstock, rotation speed continuously adjustable by PLC.
- 主控制开关盒 Main control with switch box
- 安全屋包括安全开关 Safety housing incl. safety interrupter

➤ 技术数据 Technical Data

夹持直径 Clamping diameter:	1.6 / 2.35 / 3 / 4 / 5 / 6 / 8 / 10 毫米(可应要求提供其他尺寸) 1.6 / 2.35 / 3 / 4 / 5 / 6 / 8 / 10 mm other diameters available on request)
夹持深度 Clamping depth:	根据工件长度 Depending on length of work piece
上漆范围 Varnishing range:	带有一个可自由编程的轴：按照程序确定上漆区 With one freely programmable axis: varnishing zone according to program
上漆能力 Varnishing capacity:	色环生产:约10 - 15个/分钟 (单组份或双组份漆料) Colour-ring production: approx. 10 - 15 pieces per minute (one or two-component varnish)
注:Note:	所有提供的数据与操作员，质量和毛坯的精度有关并可能因此产生差异 All information given depends on operator and quality and precision of blank, and may therefore vary.
心轴转速 Mandrel speed:	最大 1000 转/分钟 max. 1000 rpm.
气压 Air pressure:	5 ...7 巴，无油，干燥 5 ... 7 bar, oil-free, dry
连接电源 connection:	230 伏, 50 赫兹 230 V, 50 Hz
设备规格 System dimensions:	长x宽x高约为2100 x1450 x1800毫米 L x W x H approx. 2100 x 1450 x 1800 mm

可选性扩展 Optional expansions TLA/FCA 1-D45/312

- 漆料配量包括 5, 10, 30 和 55 毫升漆料墨盒的压力控制阀。(图 1)
Varnish dosing incl. pressure-regulation valve for varnish cartridges 5, 10, 30 and 55 cc. (Fig. 1)
- 用于精确配量的容积配量系统。(图 2)
Volumetric dosing system for precision application of varnish. (Fig. 2)



带有漆料墨盒配量系统的编码装置
Coding unit with paint cartridge dosing system

Fig. 1



带有漆料容量配积系统的编码装置
Coding unit with volumetric paint dosing system VDS-145

Fig. 2

色环编码
Colour -ring coding
-种植体钻头
Implant drills
-牙钻 Dental burrs

- 可更改电流接入值为 120 伏，60 赫兹

Change of power ratings to 120 V, 60 Hz

- 用于目视检查上漆的摄像头和显示屏 (图 3)

Camera and monitor for visual check of varnishing (Fig. 3)



- 主轴承可扩大至固定直径为 32 毫米的夹头，并且可以增加机器人承载能力

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

自动上漆系统

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 \varnothing 1,0 – 10,0 mm.

用于牙钻（型号 FG, H, HP 和 RA），植入钻，铣刀，植入钻，螺旋钻头，螺丝攻等相似品的色环点胶编码与/或绝缘上漆。柄 \varnothing 1,0 – 10,0 mm.

Front view 前视图



Figure 1 图1



Examples of colour-ring coding, laser engraving and laser blackening on implant drills
植入钻上的色环点胶编码，激光雕刻和激光黑化示例

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.
请注意：所有图示均为样品。根据客户具体配置，产品可能与图片有差别。所示图例为 TLA/FCA 1-D45/322-001 装置

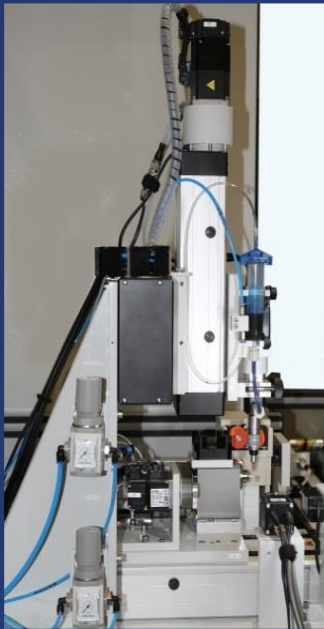


Examples of masking varnishing and colour-ring coding of dental burrs
牙钻上的绝缘上漆与色环点胶编码示例

Rear view 后视图



- Fully automatic clamping and varnishing unit (Figure 2)
全自动夹紧与上漆单元 (图2)
- Parts feed by holding pallets / active accumulation line
(different pallet sizes available on demand)
通过托盘/活动管路补给零件 (可根据需求提供不同的托盘尺寸)
- Holding frame welded of aluminium profiles and baking enamelled
支撑框架铝型材, 焊接, 烤漆
- Table surface for varnishing unit made of aluminium, baking enamelled
上漆单元的桌子表面为铝材质, 烤漆
- Headstock with holding fixture for collet; clamping of parts by spring force and pneumatic release
头架带夹头夹具; 通过弹簧力和气动释放夹紧零件
- Freely programmable carriage 可自由编程的运输厢
- Carriage guide for x-y-z-axes with servo motors
x-y-z轴带伺服电机的运输厢导轨
- Drive motor for headstock, continuously speed controlled by PLC
头架的驱动马达, 通过PLC持续调速
- Main control with PLC and electronics cabinet
PLC主控制与电子柜
- Visual control of masking varnishing / colour-ring coding by camera and monitor
通过摄像头和显示屏视控绝缘上漆/色环点胶编码
- 6-axes bent-arm robot with motorized double grip for handling of parts
带有电动双握爪的6轴曲臂机器人, 用于处理零件
- Robot control including teach box with colour/touch display
机器人控制包括彩色/触控显示屏的教学盒
- Touchscreen operator terminal (Figure 3)
触屏操作终端 (图3)
- Electronic hand wheel in connection with on-board PC for easier programming
与PC连接的电子手轮, 更快捷的编程
- Laser-assisted precision zero-setting for improved reproducible varnishing results
激光辅助精确置零, 用于改进的可重复的上漆效果
- Automatic calibration of dosing needle by cross-laser
加料针的交叉激光用于自动校准
- Loading and unloading areas with safety light barrier
装载与卸载区, 带安全光栅
- Safety housing including safety interrupters
安全屋包括安全开关
- 6-station linear transport unit for holding pallets (Figure 5)
6站线性运输单元, 用于装托盘 (图5)
- Volumetric paint dosing system VDS-145 for precision dosing (Figure 6)
容积漆料加料系统 VDS-145 用于精确加料 (图6)



Varnishing unit with four-axes guidance and volumetric dosing system VDS-145
容积漆料加料系统 VDS-145 的四轴引导与容积加料系统

Figure2 图 2



Monitor and Touchscreen-operators terminal for process surveillance and control
用于过程监视与控制的监视器与触屏操作终端

Figure3 图 3



Cleaning device for dosing needle
加料针清洗装置

Figure4 图 4



6-station linear transport unit for holding pallets
装托盘的 6 站式线性运输单元

Figure 5 图 5



Volumetric paint dosing system VDS-145
容积漆料加料系统 VDS-145

Figure 6 图 6

Technical data 技术参数	
Clamping diameter: 夹持直径:	0,5-7 mm; 8-90 mm with additional top-mounted collet 0,5-7 mm; 8-90 mm, 有额外的顶部安装的夹头
Clamping depth: 夹持深度:	Depending on work piece length 根据工件长度
Varnishing range: 上漆范围:	With four freely programmable axes: varnishing zone according to program 有四个可自由编程的轴: 上漆范围根据程序设置
Varnishing capacity: 上漆能力:	Masking varnishing approx. 11 - 15 pcs/min. (Blank: FG; Varnishing zone 10 mm, Ø of dosing needle 0,25mm.) 绝缘上漆: 大约11 - 15 pcs/min. (坯件: FG; 上漆区域10mm, 加料针Ø 0.25mm) Colour-ring coding approx. 14 - 17 pcs/min (1- or 2-component varnish) 色环编码: 大约14 - 17 pcs/min (1-2份漆料)
Note 备注:	All information given depends on operator and quality and precision of blank, and may therefore vary . 所有提供的数据与操作员以及坯件的质量和精度有关, 因此可能有差异
Program memory: 程序内存	approx. 2000 tool types depending on varnishing range, may be expanded 大约2000工具型号, 根据上漆范围可扩大
Mandrel speed: 芯轴速度	max. 最大 4000 rpm.
Air pressure 气压:	5 ... 7 bar, oil-free, dry 5...7 巴, 无油, 干燥
Power connection 电源连接:	400 V, 50 Hz
System dimensions: 系统规格:	L x W x H approx. 2392 x 2947 x 2690 mm 长x宽x高 大约2392 x 2947 x 2690 mm

Optional expansions 可选性扩展 TLA/FCA 1-D45/XXX-XXX

- Module for remote maintenance, remote diagnosis, malfunction report and transmission of files by "Remote Access" for PLC controller through Web server
远程维护模块, 远程诊断, 失灵报告, 通过PLC控制器的网页服务器实现文件的“远程传输”
- GSM module to report malfunctions to an external cell phone (SIM card of a cell phone network additionally required)
GSM模块用于将故障报告到外部移动电话 (需要额外的有移动网络的SIM卡)
- Enlargement of head stock fixture up to collet Ø- 32mm
头架夹具可扩展至夹头Ø- 32mm
- Change of power ratings to 120 V, 60 Hz 电源接入值可更改至120 V, 60 Hz
- Operation mode from pallet to pallet, fully automatic with two-sided pallet handling unit
操作模式因托盘而异, 全自动的双边托盘处理单元
- Operation mode from pallet to pallet, fully automatic with circulating conveyor
操作模式因托盘而异, 全自动带循环运输机
- Convection drying station with integrated convection heating system
具有一体式对流加热系统的对流干燥站
- Infrared drying station with timer controlled infrared radiant heater
具有定时控制红外辐射加热器的红外干燥站
- Expansion of the 6-station linear transport unit by a further 6 pallets (Length: appr. 1500mm)
通过另加的6个托盘可扩展6站式线性运输单元 (长度: 大约1500mm)
- Docking station for storage stack 用于堆栈的坞站
- Storage stack for supply of pallets for blanks / uncoded tools (displaceable)
堆栈用于坯件/未编码工具的托盘的供应 (可拆卸)
- Supply of blanks (bulk material) with parts recognition and parts singling
坯件的供应 (散装材料), 具有识别零件与挑选零件的功能

- Laser engraving and blackening module(Fibre laser or ultra-short pulse laser)
激光雕刻和黑化模块（光纤激光器或超短脉冲激光）

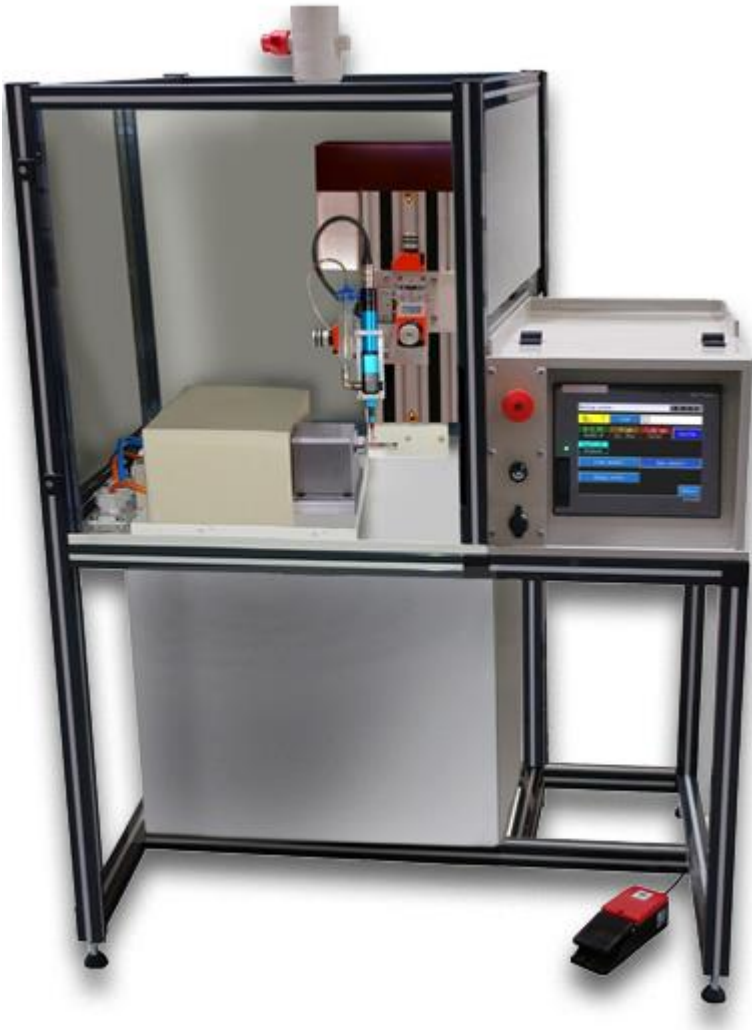
智能型色环编码系统

SMART-LINE Colour-Ring Coding System

FCA 1-D23/702 - 802



用于植入钻头，铣刀，磨棒和/或者金刚石牙钻的色环编码。（型号 FG, H 和 RA）
For colour-ring coding of implant drills, milling cutters, grinding pins and diamond dental burrs (Types FG, H and RA).




注：所有图片均是示例。实际产品可能与图片有差别。
Note: All illustrations are examples. The product may vary from the illustrations.

基本设备 Basic equipment


- 由烤漆铝型材制成的框架
Holding frame welded of aluminium profiles and baking enamelled
- 上漆单元桌面铝材质，烤漆
Table surface for varnishing unit made of aluminium, baking enamelled
- 主轴承带有夹头固定夹具；通过弹簧力以及脚踏气动释放 夹紧
Headstock with collet holding fixture; clamping by spring force and pneumatic release through footswitch
- 可自由编程的导轨
Freely programmable carriage
- Z 轴导轨滑架的气动张紧
Carriage guide for Z axis by pneumatic force
- X 轴导轨滑架的伺服电机(FCA 1-D23/702)
Carriage guide for X axis by servo motor (FCA 1-D23/702)
- X 轴可手动调整(FCA 1-D23/802)
Manually adjustable X axis (FCA 1-D23/802)
- Y 轴可手动调整
Manually adjustable Y axis
- 主轴承马达，PLC 持续调控转速
Motor for headstock, rotation speed continuously adjustable by PLC
- PLC 与电子柜的主控制
Main control with PLC and electronics cabinet

技术参数 Technical Data	
夹持直径: Clamping diameter:	1.6 / 2.35 / 3 / 4 / 5 / 6 / 8 / 10 mm (可应要求提供其他尺寸) 1.6 / 2.35 / 3 / 4 / 5 / 6 / 8 / 10 mm (other diameters available on request)
夹持深度: Clamping depth:	根据工件长度 Depending on length of work piece
上漆范围: Varnishing range:	带有一个可自由编程的轴: 按照程序确定上漆区 With one freely programmable axis: varnishing zone according to program
上漆能力: Varnishing capacity:	色环编码: 约10 - 15个/分钟 (单份或双组份漆料) Colour-ring coding: approx. 10 - 15 pcs/min (one or two-component varnish)
备注 Note:	所有提供的数据与操作员, 质量和毛坯的精度有关并可能因此产生差异 All information given depends on operator and quality and precision of blank, and may therefore vary.
心轴转速 Mandrel speed:	最大 1000 转/分钟 max. 1000 rpm
气压: Air pressure:	5 ...7 巴, 无油, 干燥 5 ... 7 bar, oil-free, dry
电源连接 Power connection:	230 V, 50 Hz
系统规格: System dimensions:	长x宽x高 大约1150 x 630 x 1640 mm L x W x H approx. 1150 x 630 x 1640 mm



漆料加药系统 Paint dosing systems



根据压力进行漆料配量的系统的编码单元
Coding unit with pressure based paint dosing system



漆料加药根据客户要求 Varnish dosing according to customers' specifications

色环编码
Colour -ring coding
-植入钻 Implant drills
-牙钻 Dental burs

带有漆料配量系统 VDS-145 的编码单元
Coding unit with volumetric paint dosing system VDS-145

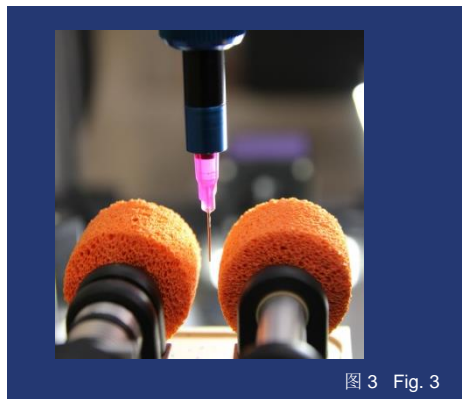
图 1 Fig. 1

图 2 Fig. 2

可选性扩展 FCA 1-D23/702 – 802 Optional expansions FCA 1-D23/702 - 802

- 更改电流接入值为 120 V, 60 Hz Change of power ratings to 120 V, 60 Hz
- 清洗装置，带有用于加药针清洗的海绵橡胶辊（图 3）

Cleaning installation with sponge rubber rollers for dosing needle (Fig. 3)



- 溶剂蒸汽抽吸连接，包括关闭阀（NW 76），不含风扇
Connection for exhaustion of solvent vapours including shut-off valve (NW 76), fan not included.
- 角度适配器，用于倾斜的加药针
Angled adapter for inclination of dosing needle
- 主轴承夹具可扩大至夹头 \varnothing 32 mm
Enlargement of head stock fixture up to collet \varnothing 32 mm

半自动色环编码系统

Semiautomatic Colour-Ring Coding System

FCA 1-D23/XXX



用于种植体钻头，铣刀，磨棒和/或者金刚石牙钻的色环编码。（型号 FG, H 和 RA）
For colour-ring coding of implant drills, milling cutters, grinding pins and / or diamond dental burrs (Types FG, H and RA).



注：所有图片均是示例。实际产品可能与图片有差别。
Note: All illustrations are examples. The product may vary from the illustrations.

基本设置 Basic equipment

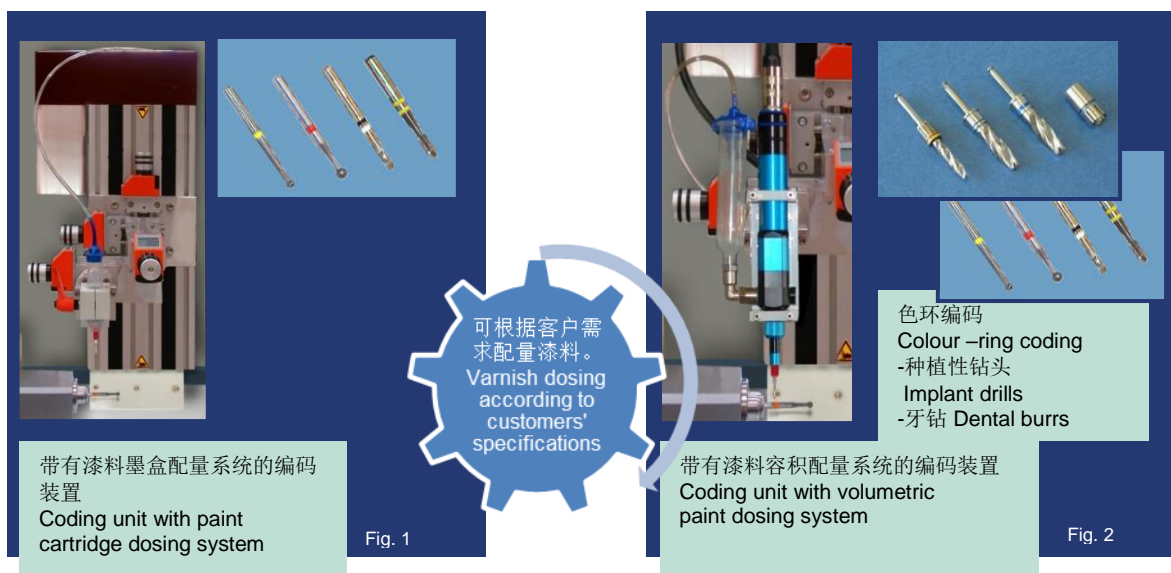
- S 单轴线性导轨 Single axis linear guide
- PLC 控制 PLC controller
- 存储媒介：程序内存 120 KB，接口：USB
Storage media: Program memory 120 kByte, interface: USB
- 终端操作触摸屏 8,4 寸
Touch screen operator's terminal 8,4"
- 通过压力或容积配量系统配量漆料
Varnish dosing by pressure or volumetric dosing system
- 由烤漆铝型材制成的框架
Holding frame welded of aluminium profiles and baking enamelled
- 主轴承带有固定夹头装置 和气动张力装置
Headstock with collet holding fixture and pneumatic tension unit
- 主轴承驱动机，通过 PLC 可持续调控转速。
Motor for headstock, rotation speed continuously adjustable by PLC.
- 主控制开关盒
Main control with switch box
- 安全围栏包括安全开关
Safety housing incl. safety interrupter

技术数据 Technical Data	
夹持直径 Clamping diameter:	1.6 / 2.35 / 3 / 4 / 5 / 6 / 8 / 10 毫米 (可应要求提供其他尺寸) 1.6 / 2.35 / 3 / 4 / 5 / 6 / 8 / 10 mm other diameters available on request)
夹持深度 Clamping depth:	根据工件长度 Depending on length of work piece
上漆范围 Varnishing range:	带有一个可自由编程的轴：按照程序确定上漆区 With one freely programmable axis: varnishing zone according to program
上漆能力 Varnishing capacity:	色环生产:约10 - 15个/分钟（单组份或双组份漆料） Colour-ring coding: approx.10 - 15 pcs/min (one or two-component varnish)
注:Note:	所有提供的数据与操作员，质量和毛坯的精度有关并可能因此产生差异 All information given depends on operator and quality and precision of blank, and may therefore vary.
心轴转速 Mandrel speed:	最大 1000 转/分钟 max. 1000 rpm

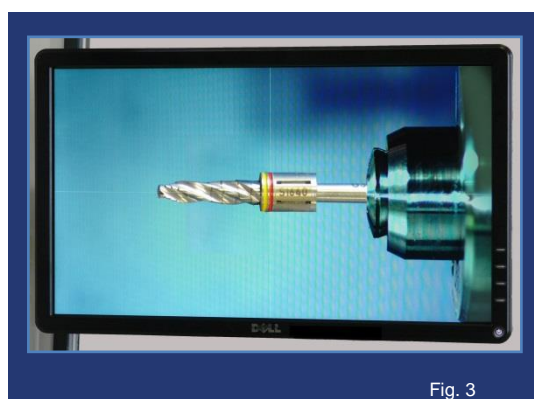
气压 Air pressure:	5 ...7 巴, 无油, 干燥 5 ... 7 bar, oil-free, dry
连接电源 Power connection:	230 伏, 50 赫兹 230 V, 50 Hz
设备规格 System dimensions:	长x宽x高约为1065 x740 x1450毫米 L x W x H approx. 1065 x 740 x 1450 mm

可选性扩展 Optional expansions FCA 1-D23/XXX

- 漆料配量包括 5, 10, 30 和 55 毫升漆料墨盒的压力控制阀。(图 1)
Varnish dosing incl. pressure-regulation valve for varnish cartridges 5, 10, 30 and 55 cc. (Fig. 1)
- 用于精确配量的容积配量系统。(图 2)
Volumetric dosing system for precision application of varnish. (Fig. 2)



- 可更改电流接入值为 120 伏, 60 赫兹
Change of power ratings to 120 V, 60 Hz
- 用于目视检查上漆的摄像头和显示屏(图 3)
Camera and monitor for visual check of varnishing (Fig. 3)



用于牙钻型号 FG,H,HP,RA 的特殊设备
Special Equipment for Dental
Burrs FG, H, HP, RA

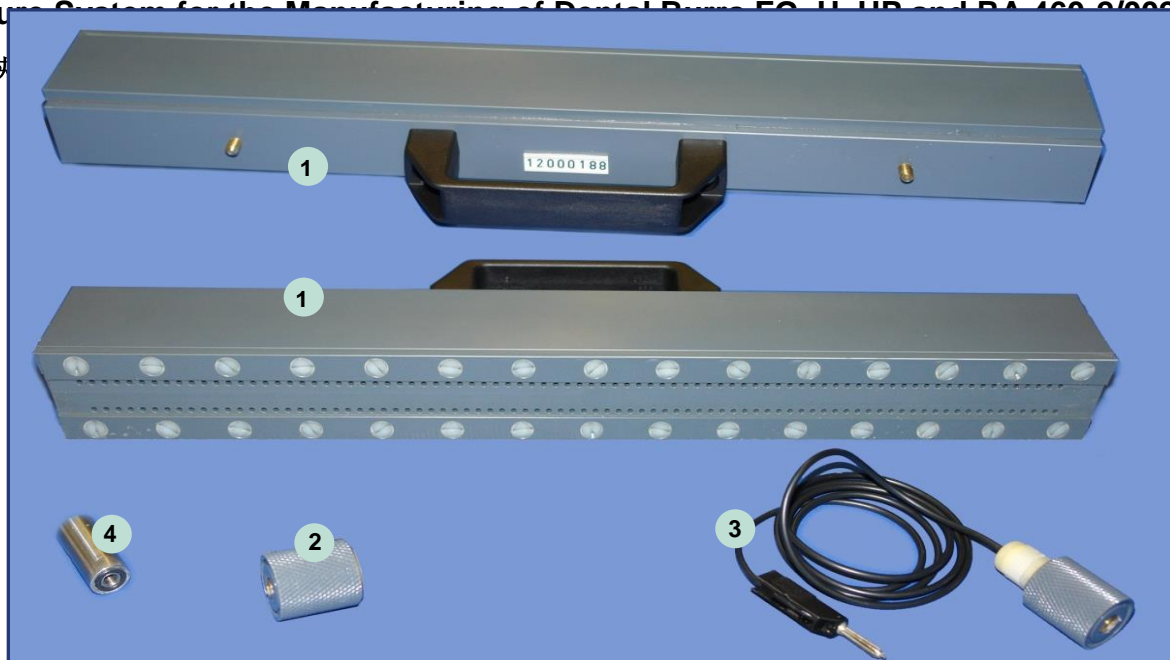


- 生产牙钻型号 FG,H, HP, RA 460-2/002 的夹持系统
Fixture System for the Production of Dental Burrs FG,H, HP, RA 460-2/002
- 生产牙钻型号 FG,H, HP, RA 460-3/002 的夹持系统
Fixture System for the Production of Dental Burrs FG,H, HP, RA 460-3/002
- 牙钻型号 FG,H, HP, RA 460-2/3-002 的接触夹具的维护装置
Maintenance Unit for Contact Fixtures Dental FG, H, HP, RA460-2/3-002

生产牙钻的夹持系统 FG, H, HP 以及 RA 460-2/002 型号

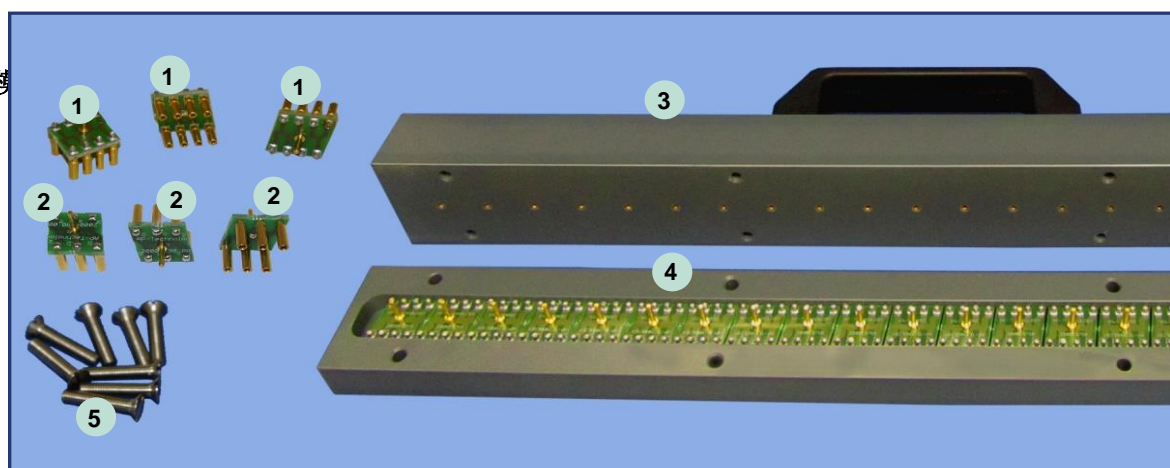
Fixture System for the Manufacturing of Dental Burs FG, H, HP and RA 460-2/002

接触夹



1. 接触板条 Contact strip
2. 预处理时连接盲阴极的聚氯乙烯绝缘插头
PVC blind plug for blind-cathode connection for pre-treatment
3. 带有接触插头的连接线 Contact cable with contact plug
4. 接触夹具的盲阴极连接部分 Blind cathode connection piece for contact

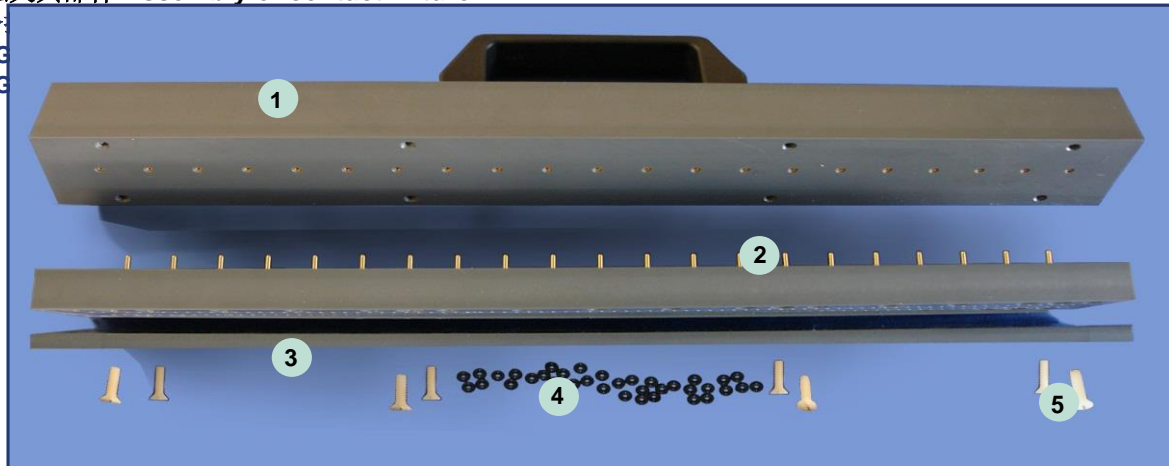
接触模块



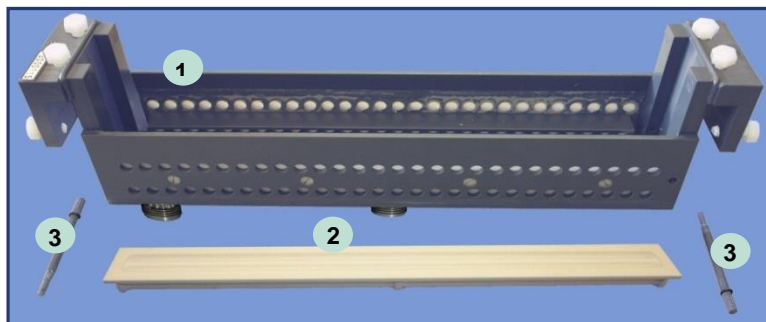
1. 接触模块 FG, 每个带有 8 个插槽 (21 件/夹具)
Contact modules FG with 8 slots each (21 pcs/fixture)
2. 接触模块 H, HP, RA, 每个带有 6 个插槽 (20 件/夹具)
Contact modules H, HP, RA with 6 slots each (20 pcs/fixture)
3. 接触板条-顶部 Contact strip – top part
4. 接触板条-底部 Contact strip – bottom part
5. 钛材质螺丝 (8 个) Titanium bolts (8 pcs)

接触夹具部件 Assembly of contact fixture:

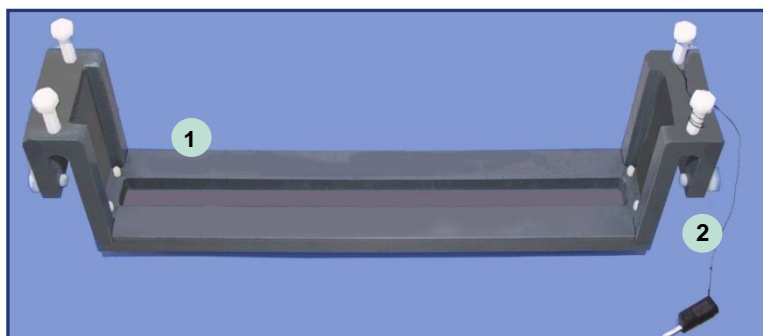
每个
◆FG
◆FG



1. 接触板条-顶部 Contact strip – top part
2. 接触板条-底部，带有接触模块
Contact strip – bottom part with contact modules
3. 接触板条-底部 Contact strip – bottom cover
4. 接触插座的 O 型环 O-rings for contact sockets
5. 聚丙烯螺丝钉 (30 个) PP screws (30 pcs)

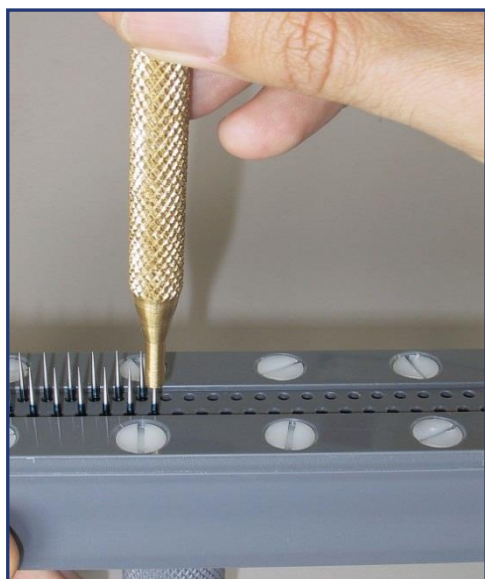


1. 带有金刚石保留筛的金刚石固定支架 Holder for diamond tack-down insert with diamond retaining sieve
2. 金刚石固定插件 (槽) Diamond tack-down insert (trough)
3. 金刚石固定插件锁紧螺栓 Locking pins for diamond tack-down insert (2 pcs)

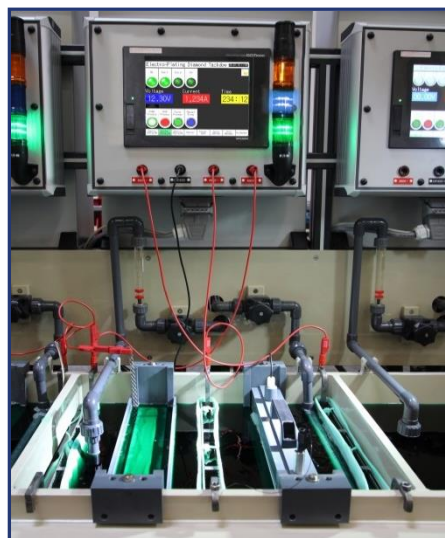


1. 预镀镍与亮镍夹具 Pre- and finish nickel fixture
2. 盲阴极线，带插头 Blind cathode wire with plug





牙钻毛坯插入工具
Push-in tool for dental burr blanks



带有预镀镍与亮镍夹具（右）以及金刚石固定夹具（左）的电镀站
Electroplating station with pre- and finish nickel fixture (right) and diamond tack-down fixture (left)

每个电镀站的生产能力 Production capacity per electro-plating station:

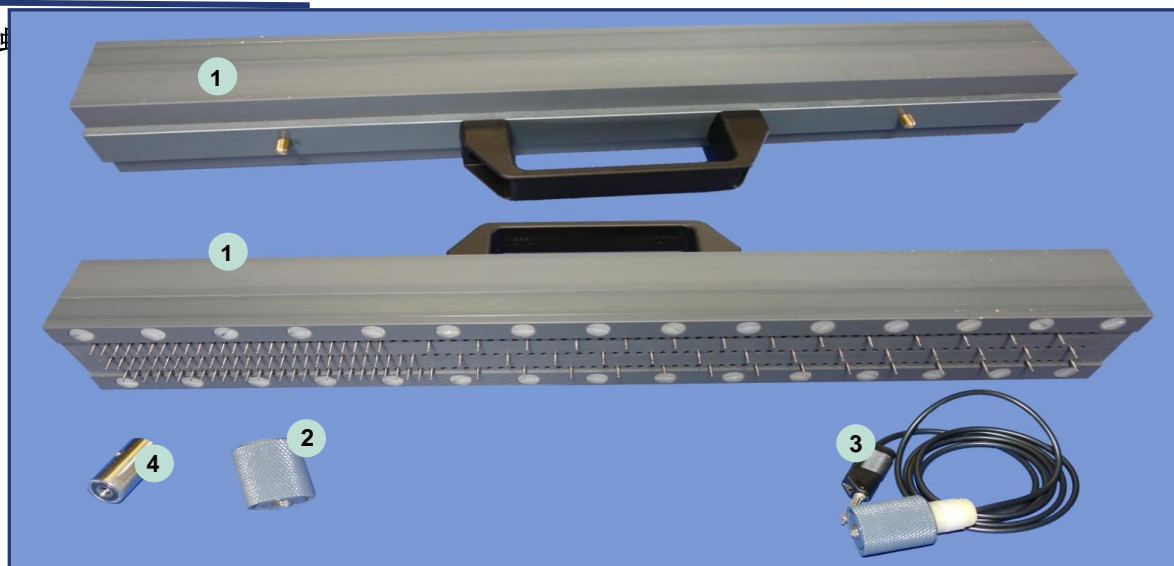
砂粒大小 Grit size 欧洲标准 FEPA (US mesh)	处理时间 (分) Process time (min)	生产速度 (件) Production rate (pieces)			
		FG 型号 FG type		H,HP,RA 型号 H, HP, RA types	
		一班制 (8 小时) Single shift (8 h)	二班制 (16 小时) Two shifts (16 h)	一班制 (8 小时) Single shift (8 h)	二班制 (16 小时) Two shifts (16 h)
D151 (100/120)	195	336	672	240	480
D107 (140/170)	120-135	504-672	1176-1344	360-480	840-960
D20 (~800)	50	1512	3192	1080	2280

生产牙钻的夹持系统 FG 460-3/002

Fixture System for the Manufacturing of Dental Burrs FG 460-3/002

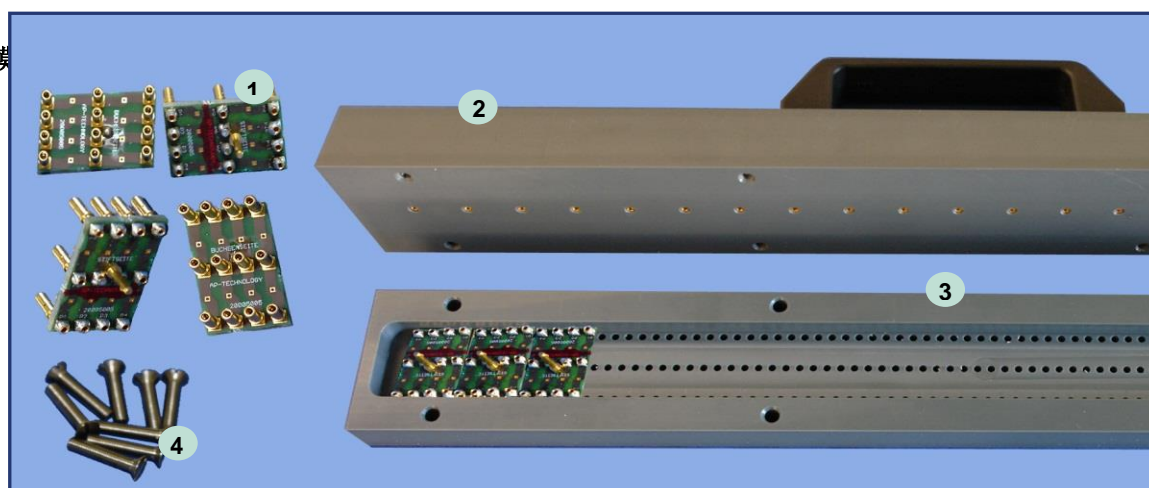
(球形 ≤ 1.0 毫米) (Ball shape ≤ 1.0 mm)

接触



1. 接触板条 Contact strip
2. 预处理中连接盲阴极的聚氯乙烯绝缘插头
PVC blind plug for blind-cathode connection for pre-treatment
3. 带有接触插头的连接线 Contact cable with contact plug
4. 接触夹具的盲阴极连接部分 Blind cathode connection piece for contact

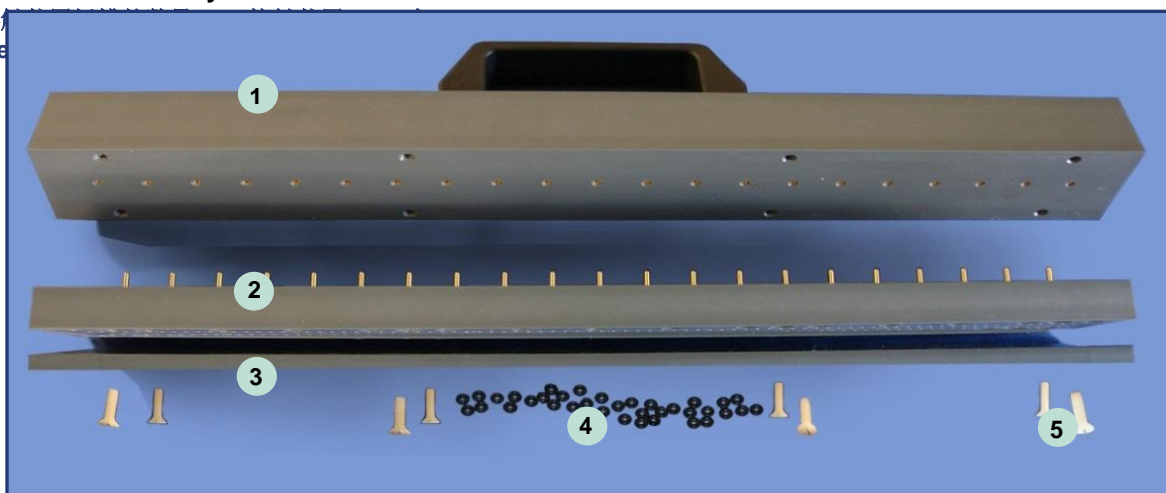
接触模



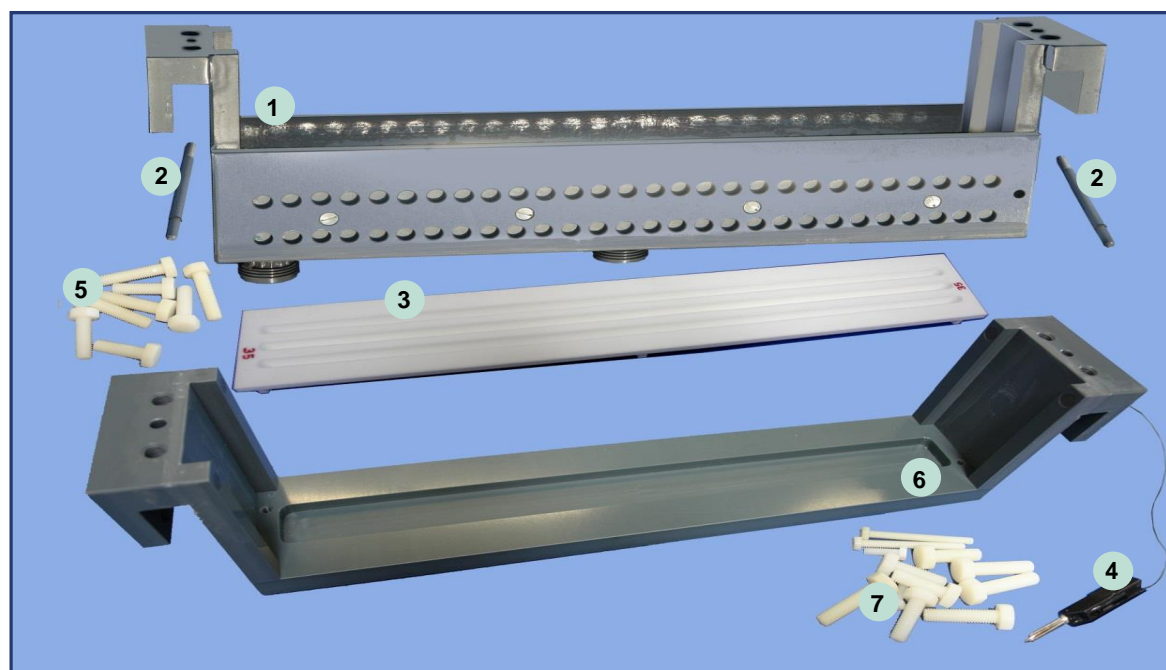
1. 接触模板 FG, 每个带有 12 个插槽 (21 个/夹具)
Contact modules FG with 12 slots each (21 pcs/fixture)
2. 接触板条-顶部 Contact strip – top part
3. 接触板条-底部 Contact strip – bottom part
4. 钛材质螺丝 (8 个) Titanium bolts (8 pcs)

夹持装置部件 Assembly of contact fixture

每个接
Number



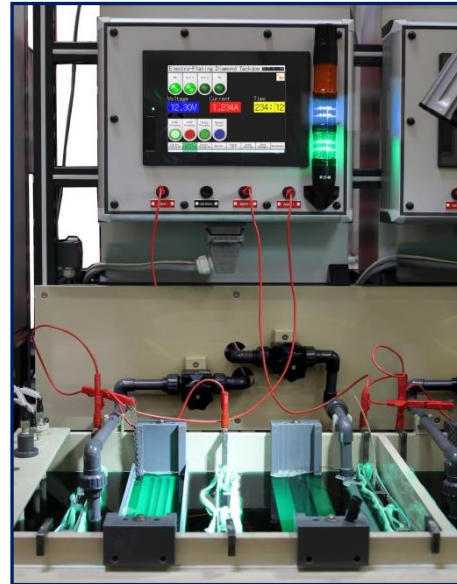
1. 接触板条- 顶部 Contact strip – top part
2. 接触板条- 底部带有接触模板
Contact strip – bottom part with contact modules
3. 接触板条- 底板 Contact strip – bottom cover
4. 接触插座的 O 环 O-rings for contact sockets
5. 聚丙烯螺丝钉 (30 个) PP screws (30 pcs)



1. 带有金刚石砂粒保留筛板的金刚石固定部件
Holder for diamond tack-down insert with diamond retaining sieve
2. 金刚石固定插件的防松栓 (2 个)
Locking pins for diamond tack-down insert (2 pcs)
3. 金刚石固定插件 (槽;适用于 35 μm 砂粒尺寸)
Diamond tack-down insert (trough; for 35 μm grit size)
4. 带有插头的盲阴极线 Blind cathode wire with plug
5. 金刚石固定夹具的固定和设定螺丝钉
Holding and set screws for diamond tackdown fixture
6. 预镀和亮镍夹具 Pre- and finish nickel fixture
7. 预镀和亮镍夹具的固定和调节螺丝钉
Holding and set screws for pre-and finish nickel fixture



钻头毛坯的插入工具
Push-in tool for dental burr blanks



带金刚石固定夹具（左）与预镀和亮镍夹具（右）的电镀站，
Electro-plating station with diamond tack-down fixture (left) and pre- and finish nickel fixture (right)

每个电镀站的生产能力 Production capacity per electro-plating station:			
砂粒大小 Grit size 欧洲标准 FEPA (US mesh)	处理时间 (分) Process time (min)	生产速度 (件) Production rate (pieces)	
		FG 种类 FG type	
		一班制 (8 小时) Single shift (8 h)	两班制 (16 小时) Two shifts (16 h)
D151 (100/120)	15	500	1008
D107 (140/170)	120	1512	1512-2016
D20 (~800)	5	500	4536

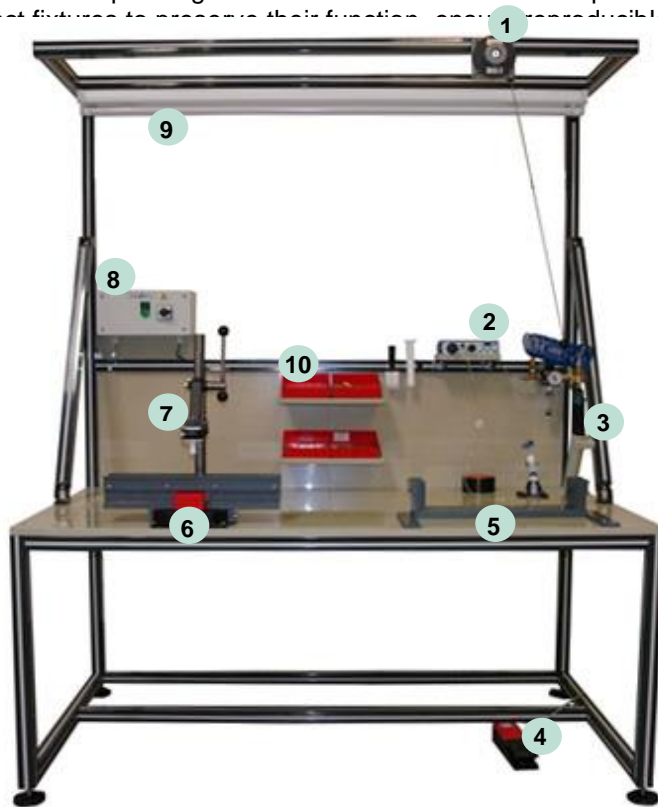


牙科接触夹具 460-2/002+460-3/002 FG, H, HP, RA 的维修装置

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

该维修装置使得牙钻接触夹具 FG, H, HP and RA 的拆卸和组装更加简便。相应的工具和安装能够快速准确拆卸和组装接触夹具，从而维护它们的功能，确保电镀成果的再生产以及延长它们的服务寿命。

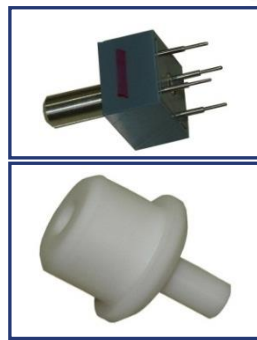
Maintenance unit to ease the disassembly and assembly of the contact fixtures for dental burrs FG, H, HP and RA. The corresponding tools and installations allow for quick and correct disassembly and assembly of the contact fixtures to preserve their function, ensure reproducible electro-plating results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



1. 压缩空气软管的滑车组
Spring-loaded cable spool for compressed-air hose
2. 液体橡胶计量器
Liquid-rubber dosing unit
3. 压缩空气扭矩螺丝刀
Compressed-air torque screwdriver
4. 用于配量液体橡胶的脚踏开关
Footswitch for liquid-rubber dispensing
5. 拆卸或者安装接触夹具的地方
for disassembly / assembly of contact fixture
6. 移除接触模块的地方
Position for removal of contact modules
7. 接触模块的顶出器
Punch-out press for contact modules
8. 开关盒 Switch box
9. 照明 Lighting
10. 小部件的储放盒
Storage trays for small parts



接触模块的顶出器
Punch-out press for contact modules



用于顶出接触模块的工具和固定接头
Tool and holding adapter to punch out contact modules

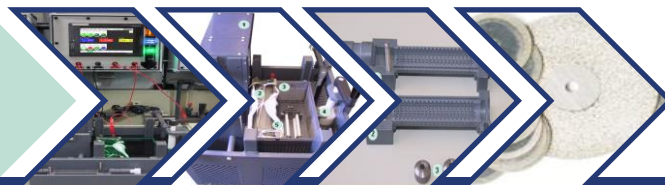


液体橡胶的分配装置
Dispenser unit for liquid rubber



拆卸夹具的工具
Tools for disassembly of fixtures

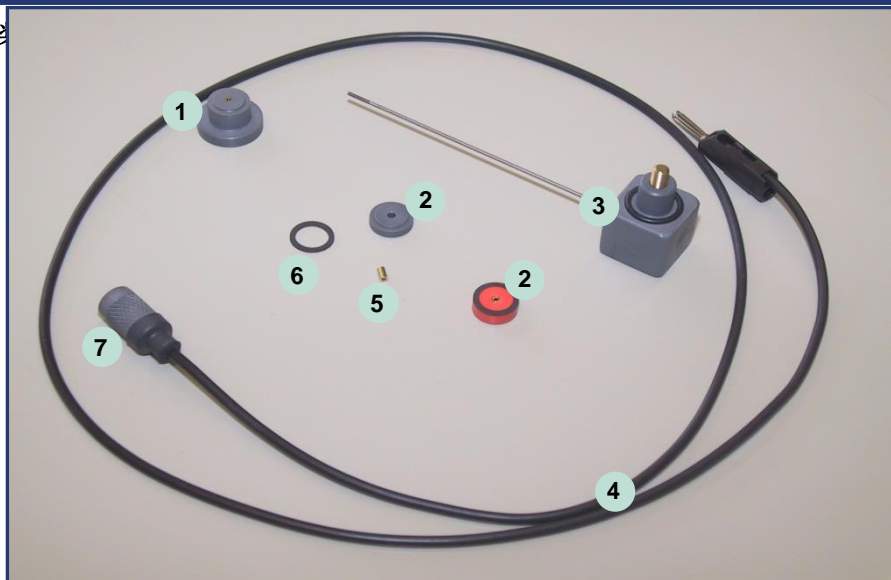
用于软磨片的特殊设备
Special Equipment for Flexible
Discs



- 金刚石软磨片夹持系统 Fixture System for Flexible Diamond Discs

金刚石软磨片夹持系统 Fixture system for flexible diamond discs (Dental) - N

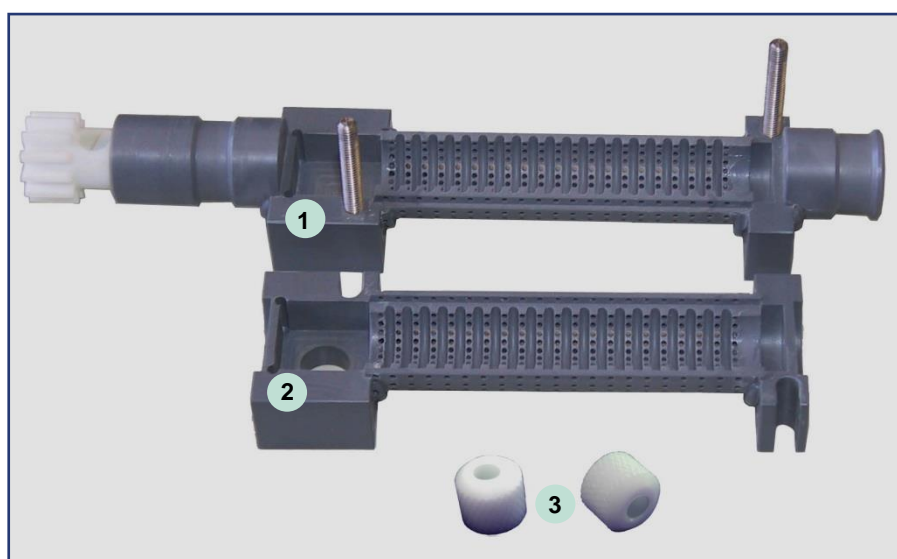
接触



1. 锁紧件 Locking piece
2. 聚氯乙烯垫片 PVC spacer
3. 接触块 Contact block
4. 连接线 Contact cable
5. 黄铜触件 Brass contact piece
6. 密封圈 Seal
7. 接触插塞 Contact plug



电镀和屏蔽装置 - 组件 Plating and shielding fixture - components



1. 电镀夹具-底部 Electro-plating fixture – bottom part
2. 电镀夹具-顶部 Electro-plating fixture – top part
3. 钛合金快速锁紧螺帽(2个) Quick-release nuts (2 pcs)

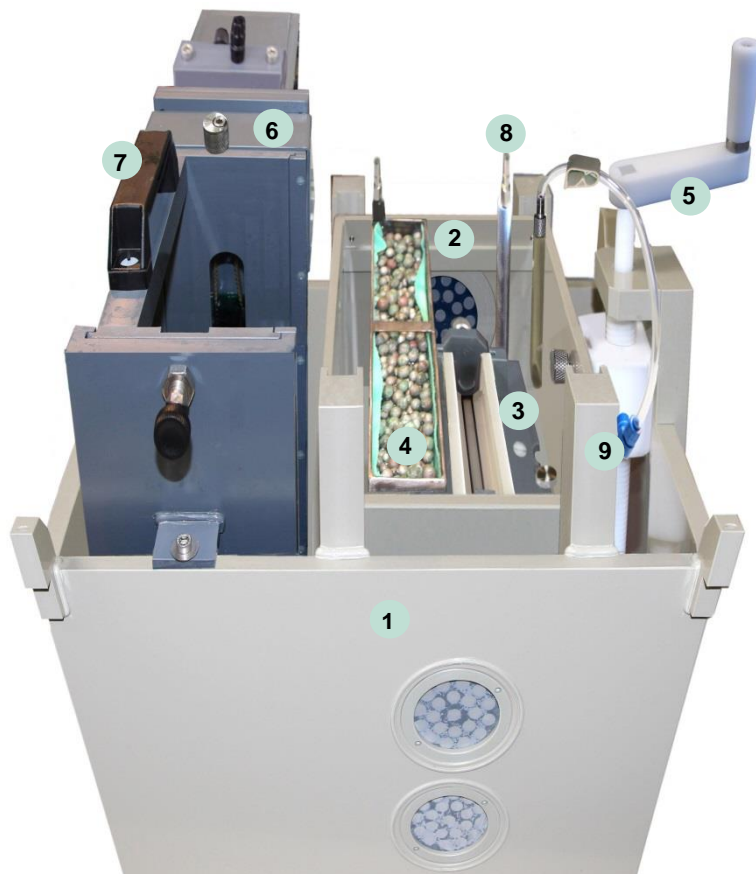


注：所有图片均为示例。实物可能与图示有所差异。

Note: All illustrations are examples. The product may vary

带有金刚石固定夹具的软磨片电镀盒

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



1. 电镀盒 Electro-plating cassette BKA 941
2. 金刚石固定盒 Diamond tackdown cassette DKA 951
3. 金刚石固定夹具 Diamond tackdown fixture
4. 钛阳极篮子 Titanium anode basket box
5. 预镀镍/金刚石固定的升降装置 Lifting and lowering installation for pre-nickel / diamond tackdown
6. 水平电动机 Horizontal motor unit HAE
7. 亮镍夹具把手 Holder for finish nickel fixture
8. 预镀镍/金刚石固定的辅助阳极 Auxiliary anode for pre-nickel / diamond tackdown
9. 电解液的漂洗软管 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.
 该磨片将被 10,15 或者 20 片一组生产。该装置适合各种磨片种类。

软磨片可能的尺寸 Possible dimensions of the flexible discs:

外直径 Outer diameter: 6 mm – 45 mm

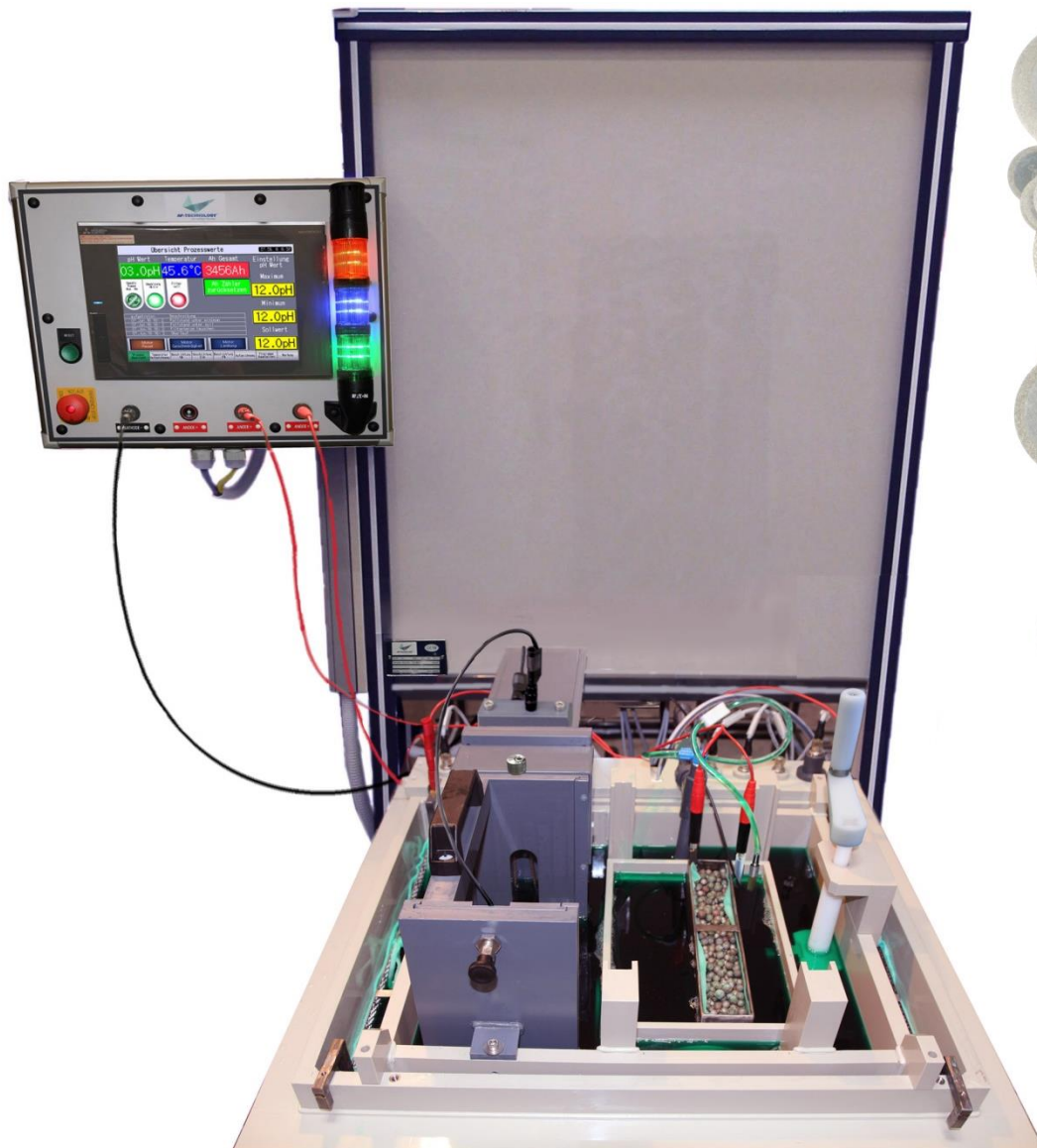
毛坯厚度 Thickness of blank: 0,05 – 0,3 mm

带 PLC 与触屏的金刚石电动调控 DBS XX A-45

Diamond Electro-Plating Control DBS XX A-45 with PLC and Touch screen

软磨片电镀盒内置于电镀站

Flexible discs electro-plating cassette inserted into electro-plating station



每个电镀站的生产能力（例子）

**Production capacity per electro-plating station:
 (Example)**

砂砾尺寸 Grit size	处理时间 (分)	生产速度 (个) Production rate (pieces)	
		19 x 0,05 mm (20 pcs.)	22 x 0,1 mm (20 pcs.)

FEPA (US mesh)	Process time (min.)	一班制 Single shift (8h)	两班制 Double shift (16 h)	一班制 Single shift (8h)	两班制 Double shift (16 h)
D107 (140/170)	165	60	120	60	120
D46 (325/400)	106	80	180	80	180

用于磨光带的特殊设备
Special Equipment for Finishing Strips



- 生产金刚石薄膜和磨光带的旋转系统
Rotation System for the Manufacturing of Diamond Foils and Finishing Strips

生产金刚石薄膜和磨光带的旋转系统

Rotation System for the Manufacturing of Diamond Foils and Finishing Strips

金刚石电镀调控 DBS 50 A/45

Diamond Electro-Plating Control DBS 50 A/45

- 额定功率: 230 伏, 可选 110 伏 Power ratings: 230 V, optional 110 V
- 额定电流: 50 安 /18 伏直流 Rated current: 50A /18V DC
- 通过终端操作显示屏进行处理参数的可视性和顺序控制 (电流,电压,泄露电流, [运行时间], 恒定电压,泵,马达, 阀门, 旋转夹具等等。) Visualization and sequence control of process parameters (current, voltage, leak current, timer [time run], constant voltage, pumps, motors, valves, rotation of fixture, etc.) by touch screen operator terminal
- 连接外置计算机, 手提电脑或者笔记本电脑 Interfaces for connection to external PC, Laptop or Intranet
- 触摸屏功能可进行个性化设置 Individual adaptation of the touch screen functions possible.



电镀盒 BKA 942/002

Electro-plating cassette BKA 942/002

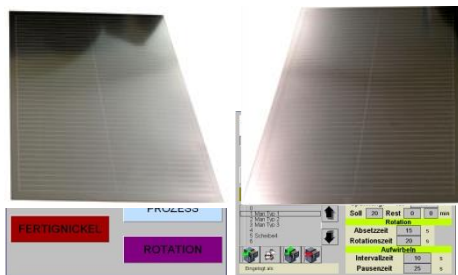
- 用于电镀过程中接触夹具的固定和旋转 for holding and rotation of the contact fixture during the electro-plating process
- 带反向旋转的水平马达装置 HAE 971/003 Horizontal motor unit HAE 971/003 with reversing rotation
- 金刚石保留过滤器防止金刚石砂粒在电解液循环中溢出 Diamond retaining filters to prevent spillage of diamond grits into the electrolyte circuit



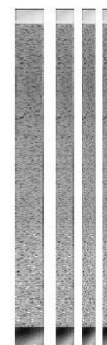
旋转和接触装置 RKW-001

Rotation and contact fixture RKW-001

- 用于固定电镀的不锈钢箔。该不锈钢箔可能是被预腐蚀的或者平整的, 在此情况下不锈钢箔会按照磨光带的尺寸被激光切割。 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.



TRENKER ROTATION HAUPT	
03.09.2010 15:25:52	
Diamanteren	Drehung Manuell
Uch. Wick. 45	Rechts
Absetzzeit 5	
Diamanteren Sektor	
Einbetten	
Wickel Lenk. 90	Sektoren 10
Wickel Wickel 90	Absetzzeit 120
Erwartet 25	
Start Prog	Stop Prog
Start Sekt G	Stop Sekt N

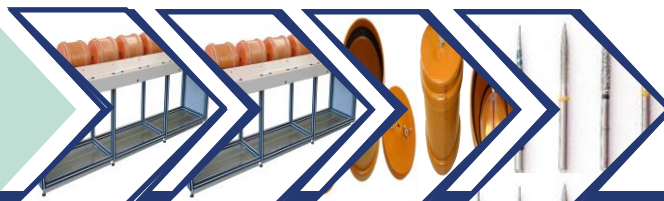


生产能力/电镀站 (台)

Production capacity / electro-plating station (pieces):

砂粒大小 Grit size 欧洲标准 FEPA (US mesh)	处理时间 Process time	箔尺寸:295 x 380 mm (2 张) Foil dimensions: 295 x 380 mm (2 pieces)	
		条宽 Strip width	1 班制 (8 小时) 1-shift (8 h)
D54 (270/325)	145 分 145 min	4 毫米 4mm	1008 张 1008 pcs
		6 毫米 6mm	684 张 684 pcs
		8 毫米 8mm	516 张 516 pcs
D30 (400/500)	90 分 90 min	4 毫米 4mm	1680 张 1680 pcs
		6 毫米 6mm	1140 张 1140 pcs
		8 毫米 8mm	860 张 860 pcs

抛光滚筒系统
Polishing Systems



- 抛光滚筒系统 TPA 6-250
Drum Polishing System

滚筒抛光系统 TPA 6-250 Drum Polishing System TPA 6-250

用于抛光牙钻，磨棒以及类似的工具。For polishing dental burrs, grinding pins and similar parts.

前视图 Front view



- 1 抛光滚筒 (6 个) Polishing drums (6 pcs)
- 2 主控制器/驱动器 Main control/motor
 - 开始旋转按钮 Start button for rotation
 - 旋转速度控制 Rotation speed control
 - 时间结束声响提示信号 Acoustic time-end-signal
- 3 定时器启动键 Timer start key
- 4 抛光过程定时器 01 min - 99 h 59 min
Timer for polishing process 01 min - 99 h 59 min
- 5 定时器停止键 Timer Stop key
- 6 油滴收集盘 (3 个) Drip collection pans (3 pcs)

- 可以同时抛光至多 6 个不同类型工件。Simultaneous polishing of up to 6 different tool types
- 个性化预设不同的抛光时间。Individual pre-set of the different polishing time intervals
- 持续调控转速 3 – 20 1/分钟 Continuous speed adjustment 3 – 20 1/min
- 抛光滚筒可以单独安装或拆卸 Polishing drums can be inserted/removed individually
- 可拆卸的油滴收集盘 Removable drip-collection pans

抛光滚筒 类型 1:直径 250 毫米,容量 14 升 类型 2:直径 200 毫米,容量 7.5 升

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



产品和供货目录 Product and Furnishing Range

预处理设备用于

Pre-treatment plants for

- 钢铁，黄铜，铜，青铜等等
Steel, brass, copper, bronze etc.
- 铝 **Aluminium**
- 金刚石，立方氮化硼
Diamond, CBN

用于避免和处理废水的设备

Plants for avoidance and treatment of waste water

- 漂洗水的再循环
Recirculation of rinsing waters
- 反渗透系统
Reverse osmosis systems
- 真空蒸发器
Vacuum evaporators

金刚石电镀设备用于生产

Diamond electro-plating plants for manufacturing

- 牙科工具 **Dental instruments**
- 用于处理大理石，花岗岩，宝石，碳化钨，钢，玻璃，陶瓷，硅胶塑料和特殊材料
Tools for machining marble, granite, gem stones, tungsten carbide, steel, glass, ceramics, silicon, plastics, special materials
- 耐磨件
Pieces for wear resistance
- 磨刀钢 **Sharpening steels etc.**

化学镀镍设备用于

Electroless nickel plants for

- 高精度研磨工具
High-precision grinding tools
- 金刚石和立方氮化硼电镀
Diamond and CBN coating

优化电镀过程的特殊装置

Special equipment to optimize the plating process

- 接触装置 **Contact fixtures**
- 金刚石上砂装置
Diamond tackdown fixtures
- 屏蔽装置 **Masking fixtures**
- 升降台
Lifting and lowering tables
- 旋转装置 **Rotation units**
- 软性磨片的铆接系统
Rivet system for flexible discs

旋转式凹版电镀设备用于生产

Rotational reverse-plating plants for the production of

- 金刚石修整滚轮
Diamond dressing rollers
- 内部电镀 **Internal plating**

特殊设备，比如

Special plants such as e.g.

- 用于牙钻毛坯的上漆设备
Varnishing systems for dental burr blanks

剥离设备用于

Stripping plants for

- 电镀镍 **Electro-plated nickel**
- 化学镍 **Electroless nickel**

工程和咨询

Engineering and consulting

根据客户需求设计装备

Systems according to customers' specification

附件和化学制品

Accessories and chemicals