

产品概述

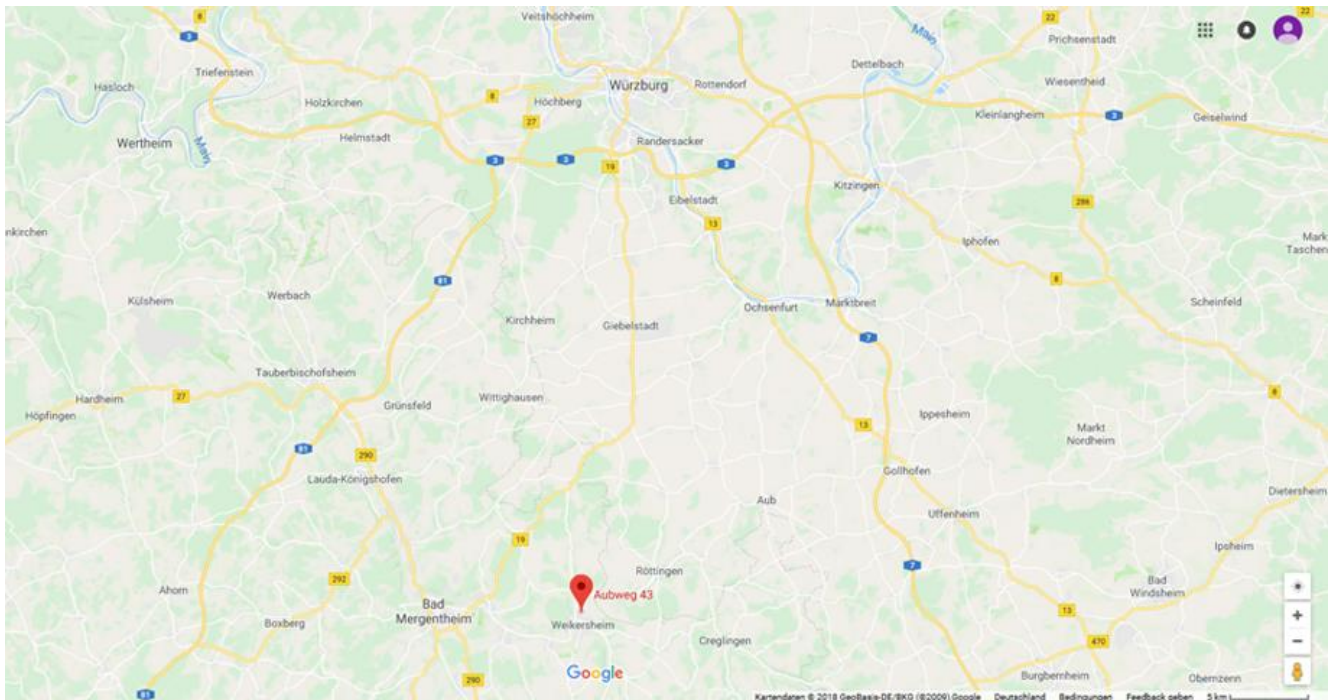
PRODUCT OVERVIEW



目录 Index

公司位置 Company Location	页 Page	3
产品应用 Applications	页 Page	4
预处理设备 VBA Pre-Treatment Plants VBA for steel, brass, copper, bronze	页 Page	5
VBA 4-453/013	页 Page	6
VBA 4-353/453/D23.....	页 Page	8
VBA 5-353/453/D23.....	页 Page	11
VBA 5-355/455/D45.....	页 Page	14
VBA 6-353/453/D23.....	页 Page	17
VBA 6-355/455/D45.....	页 Page	20
金刚石电镀设备 DBA Diamond Electro-Plating Plants DBA	页 Page	23
DBA 1-355/455 - 010.....	页 Page	24
DBA 1-355/455 - 015.....	页 Page	25
DBA 1-808/809	页 Page	27
DBA 1-455/013	页 Page	29
DBA 1-DFS/010	页 Page	31
DBA XX-355/455	页 Page	32
DBA XX-D23.....	页 Page	35
化学镀设备 CBA Electroless Plating Plant CBA	页 Page	37
CBA 1-455/001	页 Page	38
旋转式电镀设备 RNB Reverse Plating Plants RNB	页 Page	40
RNB 3-250/1-2-XXX	页 Page	41
RNB 7-250/1-6-001.....	页 Page	43
剥离设备 DRA Stripping Plants DRA	页 Page	45
DRA-1 (聚丙烯 PP).....	页 Page	46
DRA-3 (不锈钢 Stainless steel).....	页 Page	48
上漆设备 TLA+FCA Semi- and fully automatic varnishing Systems TLA+FCA	页 Page	49
TLA 1-D23/101	页 Page	50
TLA 1-D23/202	页 Page	53
TLA/FCA 1-D23/102.....	页 Page	56
TLA/FCA 1-D45/312.....	页 Page	59
TLA/FCA 1-D45/XXX-XXX	页 Page	62
SMART LINE FCA 1-D23/702 - 802	页 Page	66
FCA 1-D23/XXX.....	页 Page	69
特殊装置 – 通用 Special Equipment - General	页 Page	71
升降台 Lifting and Lowering Table	页 Page	72
旋转装置 Rotary Unit	页 Page	74
砂轮 Grinding Wheels	页 Page	76
带锯 Band Saws.....	页 Page	77
铣刀 Milling Cutters.....	页 Page	79
特殊装置 – 牙科 Special Equipment - Dental	页 Page	81
牙钻 Dental Burrs	页 Page	82
软磨片 Flexible Discs	页 Page	89
磨光带 Finishing Strips	页 Page	92
特殊系统 Special Systems	页 Page	94
滚筒抛光系统 Drum Polishing System TPA 6-250	页 Page	95
腐蚀系统 Etching System EDB 4-DPW/AL-XXX	页 Page	96
可移动金刚石冲洗装置 Mobile Diamond Rinsing Unit DSH 1-ABR/001 ...	页 Page	98
产品和供货目录 Product and Furnishing Range.....	页 Page	99

公司位置 Company Location



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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 – 维尔茨堡（中央火车站）
Regional train Stuttgart (Central Station) – Lauda - Würzburg (Central Station)
- 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
城际列车（中央火车站）– 维尔茨堡（中央火车站）
Intercity (Central Station) – Würzburg (Central Station)

注:如果有需要请问详细路线。

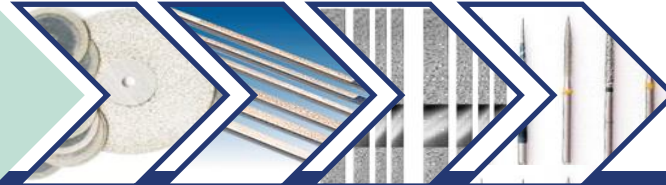
请通知我们到达时间，我们将会 在维尔茨堡中央火车站迎接你们。

Please ask for a detailed route description if required.

We will be pleased to meet you at Würzburg Central Station upon being notified of your arrival time.

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



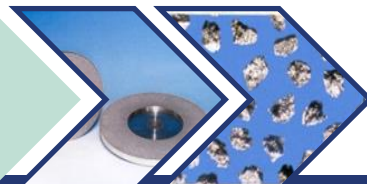
锥形砂轮和锥形套筒 Male and Female Grinding Cones • 磨边轮 Edge grinding Wheels • 带锯 Band Saws

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

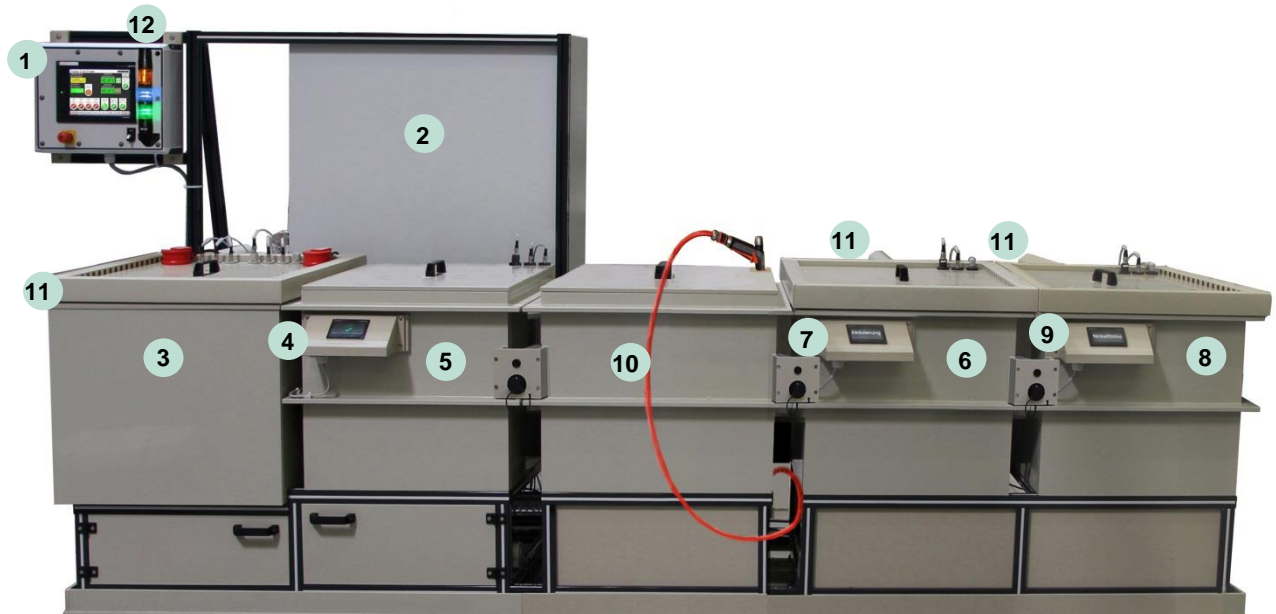
该预处理设备用于清洗和准备研磨工具的钢件，为后续金刚石或立方氮化硼电镀操作作准备。预处理包括一个温水处理槽（去脂），3个冷水处理槽（酸洗，活化和化学镀镍）以及中间过程的洗涤槽。这些已经安装在相应的接触和固定装置上的部件将按照操作步骤的顺序被转移到不同的处理槽中。每个步骤中间部件会在酸洗和活化当中的清洗站在喷射流中被喷嘴清洗。编程，操作和槽参数的预设通过终端触摸屏实行。每个处理槽配有的控制面板可以控制单个操作步骤。

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 (decapitation, 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 decapitation 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



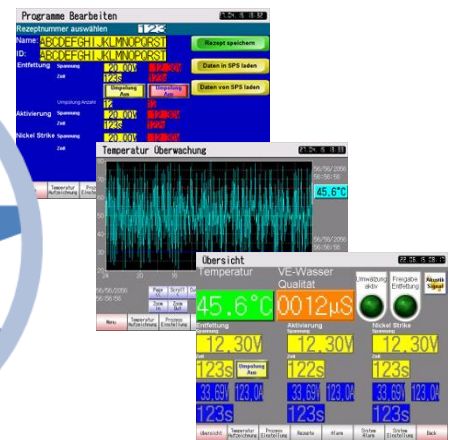
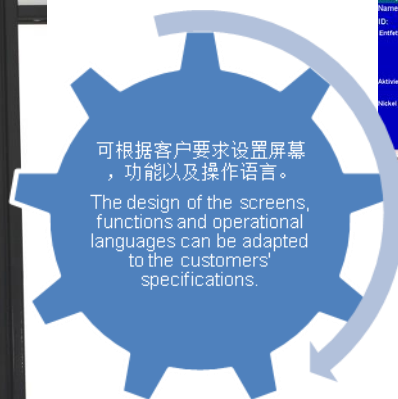
- | | |
|--|--|
| <p>1. 处理槽调控 PBS-845/001
包括用于操作控制和编程的终端触摸屏：
Process-bath control PBS-845/001
including Touch screen operator terminal for
process control and programming:
-温度 Temperature
-电流 Current
-电压 Voltage
-处理时间 Process time
-加热循环 Heating cycles</p> <p>2. 电子机柜 Electronics cabinet
(在背面打开 Service 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 – anodic/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 (Decapitation)</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> |
|--|--|

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: Processbaths: 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)

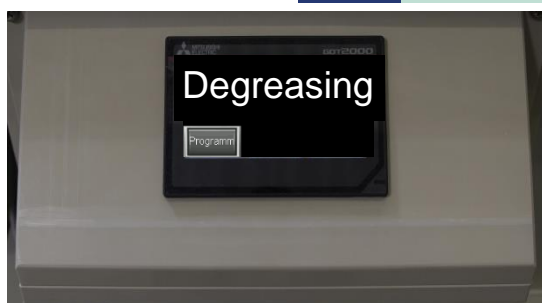
可选 Optional:

- 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



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 4-353/453/D23

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

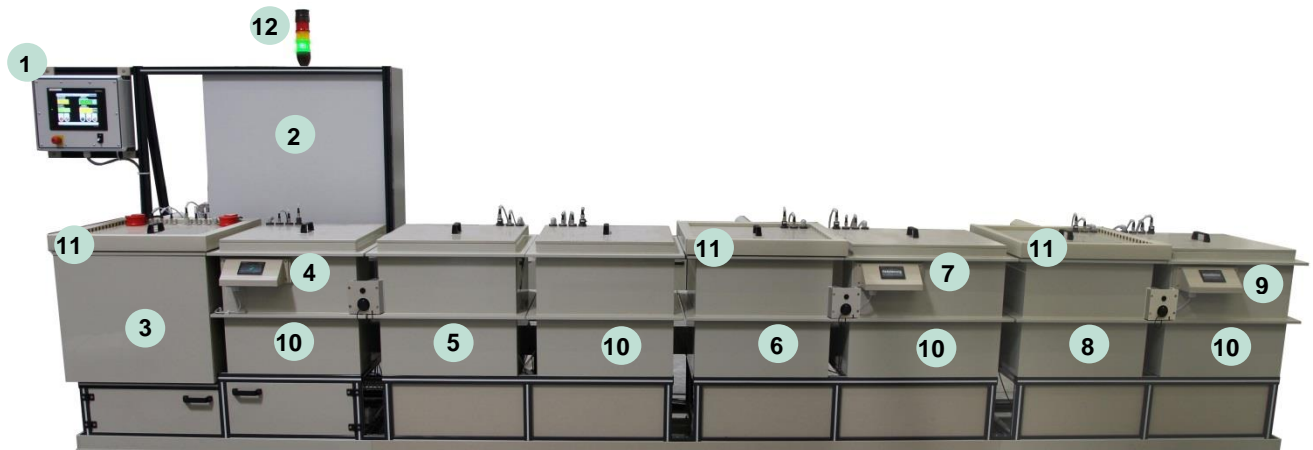
该预处理设备用于清洗和准备研磨工具的钢件，为后续金刚石或立方氮化硼电镀操作作准备。预处理包括一个温水处理槽（去脂），3 个冷水处理槽（酸洗，活化和化学镀镍）以及中间过程的洗涤槽。这些已经安装在相应的接触和固定装置上的部件将按照操作步骤的顺序被转移到不同的处理槽中。编程，操作和槽参数的预设通过终端触摸屏实行。每个处理槽配有的控制面板可以控制单个操作步骤。

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.

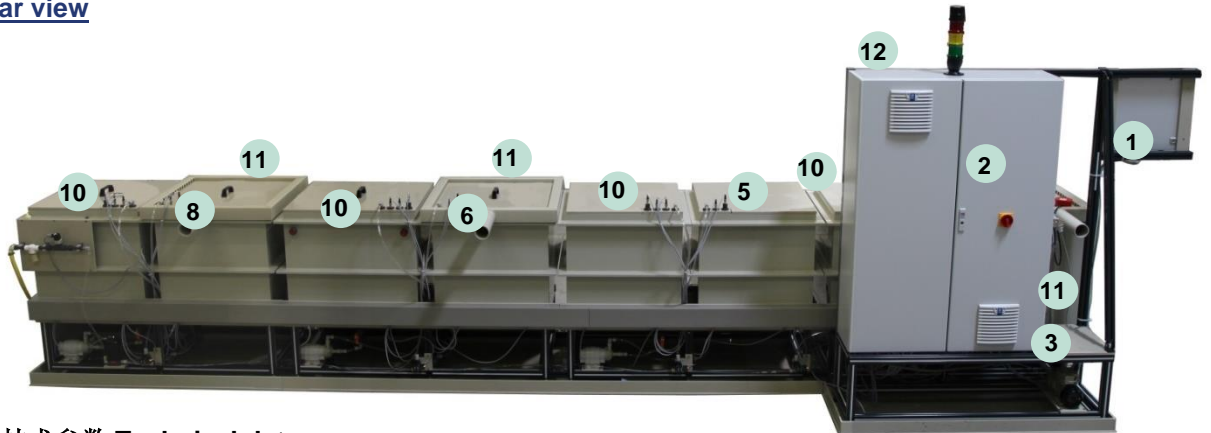
Programming and pre-set of the process and bath parameters is done by means of the Touch screen operator terminal. To control the individual process steps each process bath is fitted with a corresponding control panel.

前视图 Front view



- | | |
|--|---|
| <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 – anodic/cathodic;
polarity reversible)</p> <p>4. 去脂的操作控制面板 Process control panel for de
greasing</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> |
|--|---|

后视图 Rear view



技术参数 Technical data:

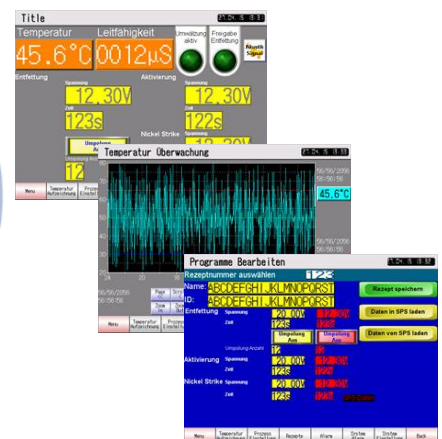
- 槽容量：处理槽：每个大约 180 升；静态洗涤槽：每个大约 180 升。
Bath volume: Process baths: appr. 180 l each; rinsing baths: appr. 180 l each
- 槽温：最高 60 摄氏度（去脂槽）；室温（其他所有的槽）
Bath temperature: max. 60°C (degreasing bath); room temperature (all other baths)
- 规格（长 x 宽 x 高）：大约 6100x708x1000 毫米 Dimensions (L x W x H): appr. 6100 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。

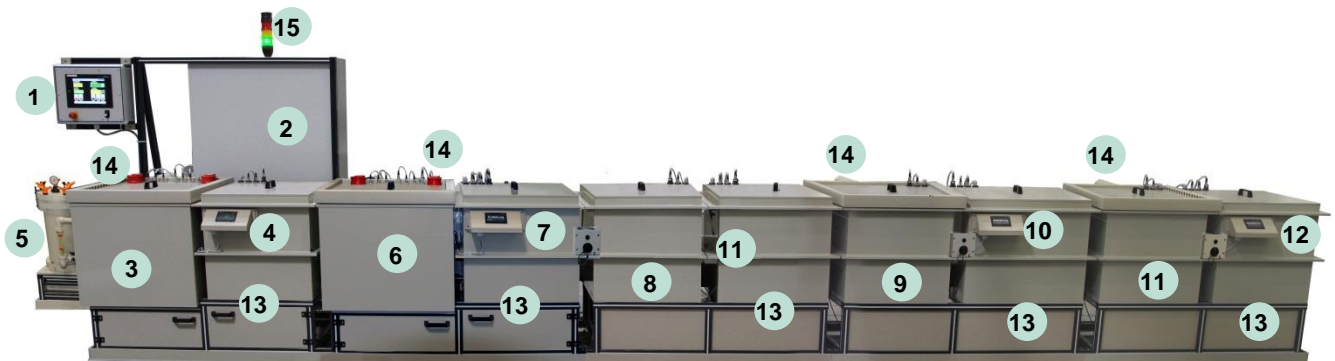
编程，操作和槽参数的预设通过终端触摸屏实行。每个处理槽配有的控制面板可以控制单个操作步骤。

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



- | | |
|---|---|
| <p>1. 处理槽调控 PBS-845/001
Process-bath control PBS-845/001
包括用于操作与编程的触屏终端
including Touch screen operator terminal for process control and programming:</p> <ul style="list-style-type: none"> - 温度 Temperature - 电流 Current - 电压 Voltage - 处理时间 Process time - 加热循环 Heating cycles <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> |
|---|---|

后视图 Rear view

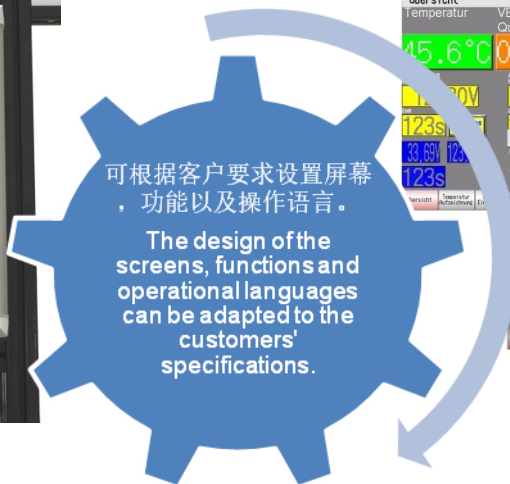


Technical data:

- 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

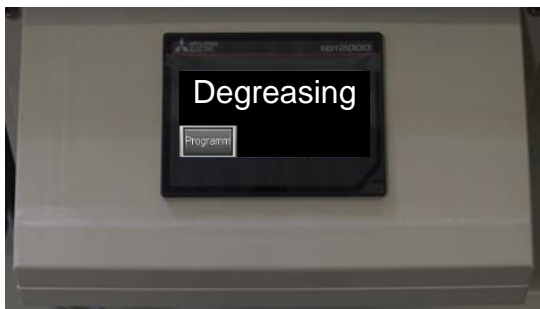


可根据客户要求设置屏幕，功能以及操作语言。

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)

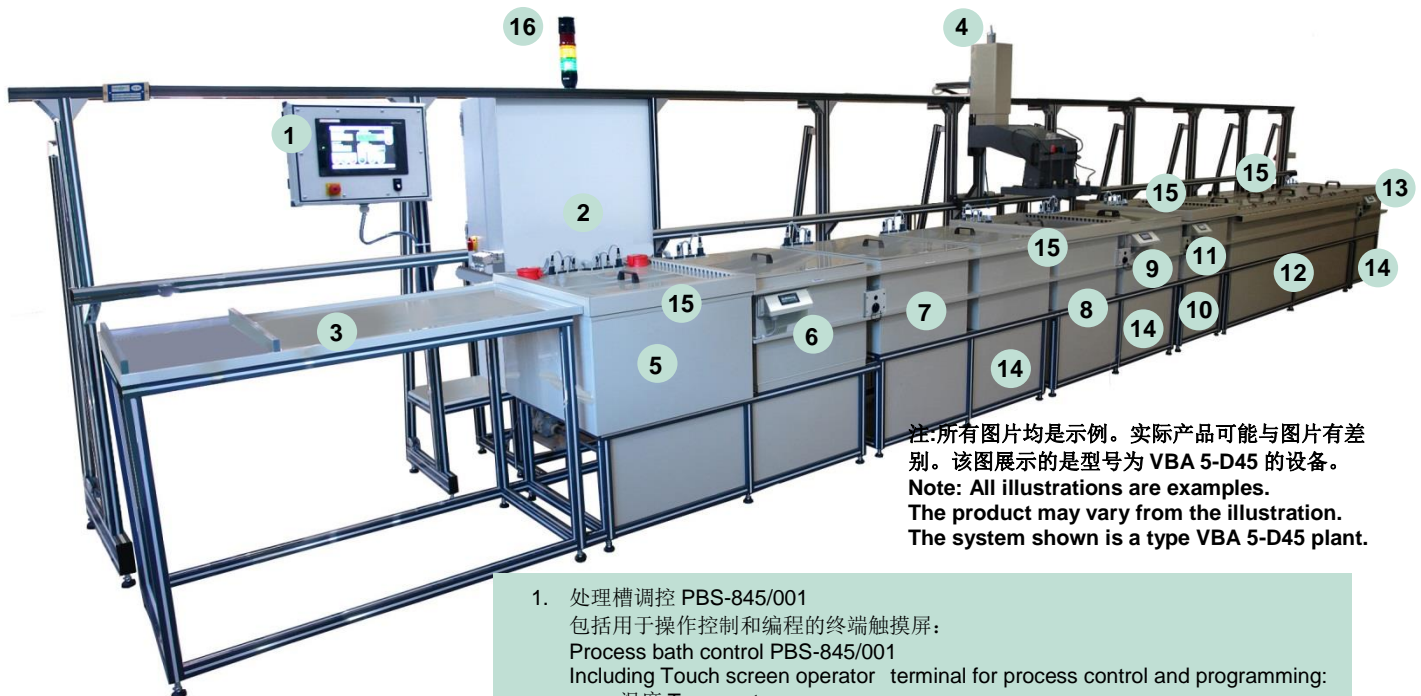


预处理设备 VBA 5-355/455/D45

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

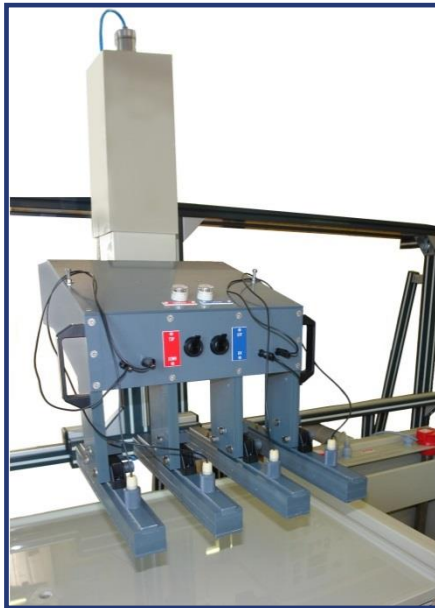
该预处理设备用于清理和准备随后将被电镀的牙科工具，磨棒和小工具的钢质基体。没有适当预处理的工件将不能被磨料层正确地电镀。预处理包括一个温水处理槽（去脂），三个冷水处理槽（酸洗，活化，化学镀镍），一个保持活化的缓冲槽（用于储存已被预处理，但不能立刻被电镀的工件）以及中间漂洗槽。这些被安装在相应的电镀设备上的部件将通过一个带有升降装置的运输机被转移到不同的处理槽中。

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 (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.



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
4. 用于接触设备，带有升降装置的运输机
Transport carriage for contact fixtures including lifting and lowering installation
5. 温水处理槽（去脂-阳极/阴极；极性可逆）
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



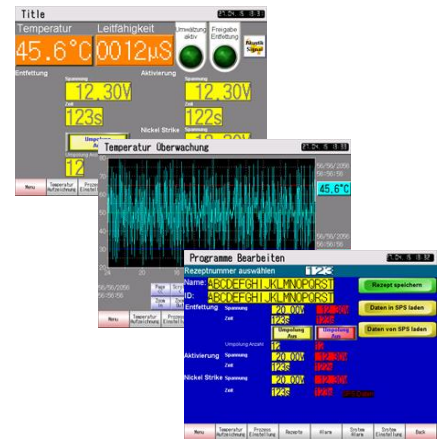
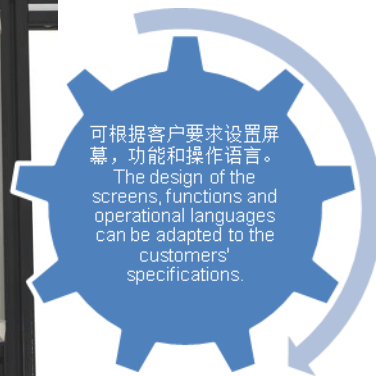
运输机带有升降装置和四个接触装置
Transport carriage with lifting and lowering installation with four contact fixtures in place

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.

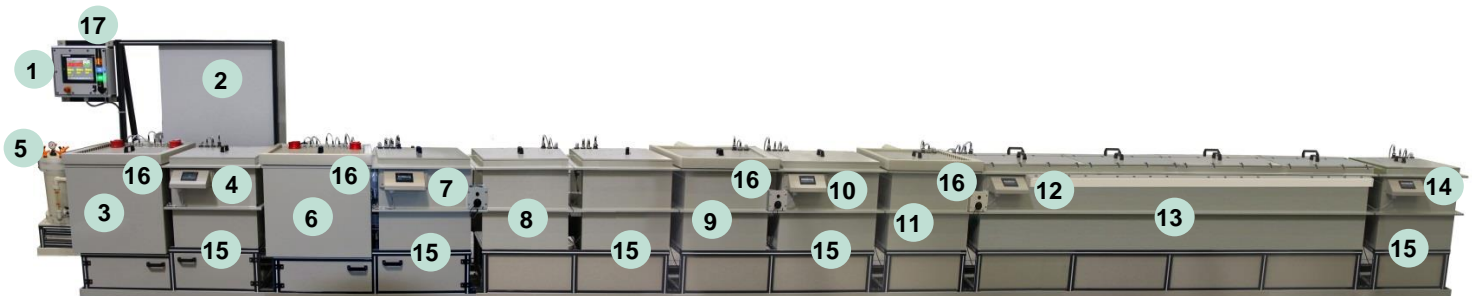
Pre-treatment comprises two warm-process baths: preliminary degreasing with oil separator and electrolytic degreasing. Furthermore it comprises 3 cold-process baths: decapation, activation and Nickelstrike as well as the intermediary rinsing baths.

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.

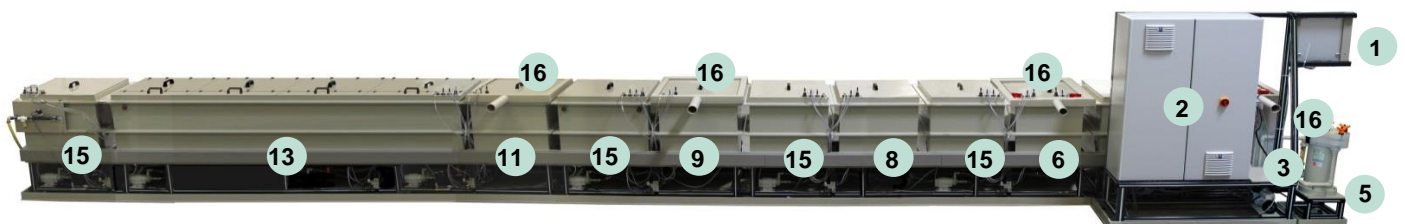
For temporary storage of the processed parts an active-keeping buffer is provided.

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



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）



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



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。

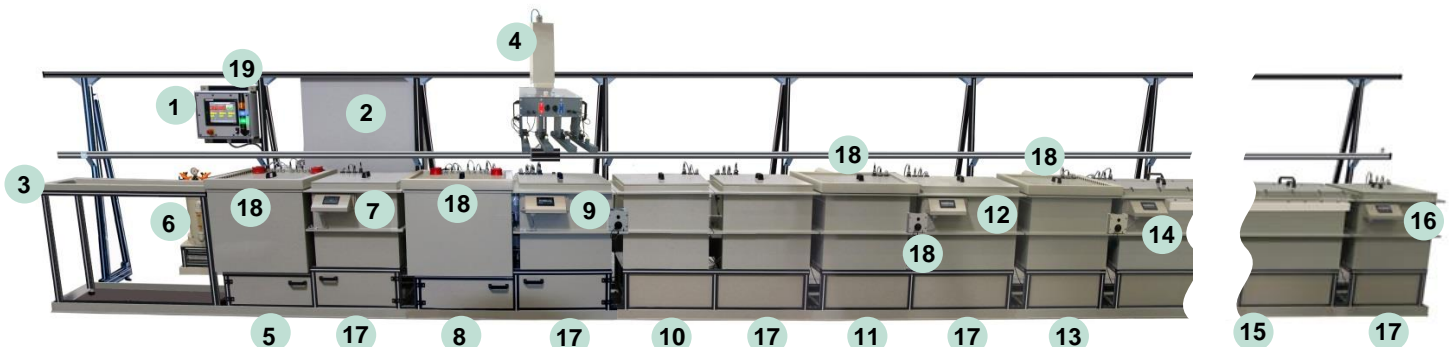
程序与槽参数的设置通过触屏终端操作完成。处理槽分别配备了过程控制面板用于过程控制

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.

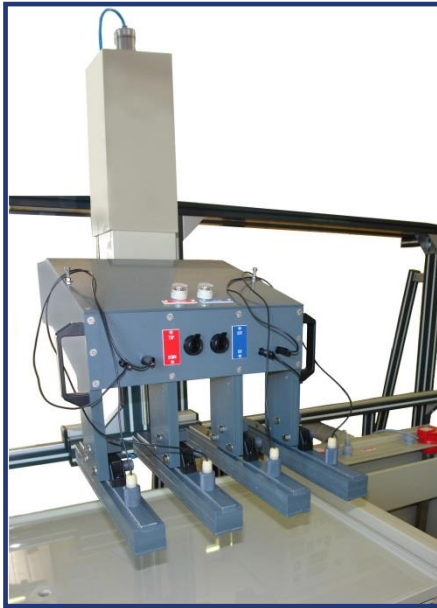
The parts are transported – after having been mounted onto the appropriate electro-plating fixtures – from one bath to the next by means of a transport cart with a built-in lifting and lowering installation.

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)

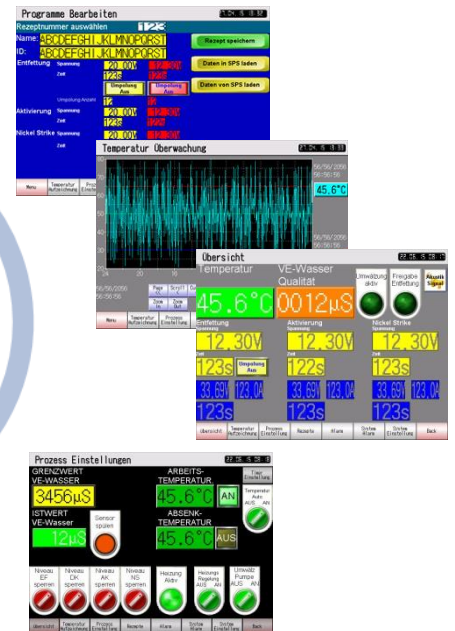
可选 Optional:

- 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



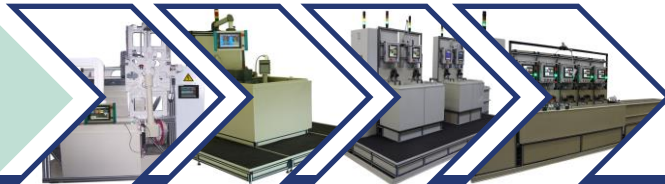
The design of the screens, functions and operational languages can be adapted to the customers' specifications.

可根據客戶要求設置屏幕，操作與運行語言。



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
- 电解过程
Diamond Electro-Plating Plants DBA
- Electrolytic Process



- DBA 1-355/455 - 010
- DBA 1-355/455 - 015
- DBA 1-808/809
- DBA 1-455/013
- DBA 1-DFS/010
- DBA XX-355/455
- DBA XX-D23

电镀设备 Diamond Electro-Plating Plant DBA 1-355/455 - 010

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

用于生产金刚石或直径 400 或 500mm 的钢制 CBN 电镀研磨工具。

终端操作触摸屏用于控制操作，设置，编程以及监控操作和槽参数。

for the production of diamond or CBN electro-plated grinding tools of steel with a max. diameter of 400 or 500 mm.

Equipped with a Touch screen operator terminal for process control and for pre-set, programming and monitoring the process and bath parameters.



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.

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

- 终端操作触摸屏的操作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: 槽参数 Bath parameters
- 电流 Current - 温度 Temperature
- 电压 Voltage - pH 值 pH value
- 泄漏电流 Leak current - 液面 Level
- 计时器 Time count - 电解液稳定 Electrolyte constancy
- 起降装置
Lifting/lowering/rotation - 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
- 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
- 电镀槽（隔热）Electro-plating tank (heat insulated)
- 槽照明 Bath lighting
- 三联式静态漂洗槽 Three-cascade standing sink unit
- 抽吸装置 Rim exhaustion
- 带有防滑格栅地面的增高工作台 Raised work platform with non-skid floor

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 1-355/010	DBA 1-455/010
最大工件 Ø max. applicable outer tool Ø	350 (400) mm	450 (500) mm
槽容积 Bath volume:	350 l	540 l
槽温度 Bath temperature:	max. 60°C	max. 60°C
规格（长 x 宽 x 高）Dimensions (L x W x H):	appr. 3854 x 2180 x 2028 mm	appr. 3954 x 2280 x 2028 mm

电流接入值 Power ratings:	appr. 2.5KVA, 240V, 16A, 50 Hz	appr. 4.5 KVA, 400 V, 32 A, 50 Hz
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金钢石电镀设备 DBA 1-355/455 - 015

Diamond Electro-Plating Plant DBA 1-355/455 - 015

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

该设备适用于零件，样品和小批量生产的产品,并且带有控制电镀液水平面升降的电镀液储槽。

终端操作触摸屏用于控制操作，设置，编程以及监控操作和槽参数。

for single parts, prototype and small mass production with electrolyte compensation tank to raise and lower the electrolyte level in the plating tank.

Touch screen operator terminal for process control and adjustment, programming and monitoring the process and bath parameters.



注：所有图片均为例示。

实际产品可能会和图片有差别

Please note: All illustrations are examples.

The product may vary from the illustrations.

终端操作触摸屏

示例：控制操作和编程的显示屏

Touch screen operator terminal

Examples of process control and programming screens.

- 终端操作触摸屏进行操作调控，
Touch screen operator terminal for process control,
编程，设置 和监控： programming, pre-set and monitoring of:
操作参数： Process parameters: 槽参数 Bath parameters
-电流 Current -温度 Temperature
-电压 Voltage - PH值 pH value
-泄漏电流 Leak current -液面高低 Level
-用时 Time count -电镀液稳定性 Electrolyte constancy
 -安全传感器 Safety sensors
 -安培/分钟计数器 Amin counter
- 置于开关柜中的操作调节和控制装置(PRS)
Process regulation and control unit (PRS) in electronics cabinet
- 电镀槽（隔热） Electro-plating tank (heat insulated)
- 电镀液储槽 Electrolyte compensation tank
- 三联式静态漂洗槽 Three-cascade standing sink unit
- 带有防滑格栅地面的增高工作台
Raised work platform with non-skid floor grating

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.

技术参数: Technical data:	DBA 1-355 / 015	DBA 1-455 / 015
最大工件外径-Ø max. applicable outer tool Ø	350 (400) mm	450 (500) mm
镀槽容积:Bath volume:	273 l	420 l
电镀液储槽容量 Capacity of the electrolyte compensation tank	max. 406 l	max. 406 l
镀槽温度 Bath temperature:	max. 80°C	max. 80°C
规格 (长 x 宽 x 高) Dimensions (L x W x H):	approx. 3570 x 2200 x 1200 / 2575 mm	approx. 3670 x 2300 x 1200 / 2575 mm
接入电值: Power ratings:	approx. 2.5KVA, 240V, 16A	approx. 2.5KVA, 400V, 16A

金刚石电镀设备 DBA 1-808/809

Diamond Electro-Plating Plant DBA 1-808/809

用于生产被金刚石和立方氮化硼电镀的外直径不超过 800 毫米的磨轮。

For manufacturing diamond and CBN electro-plated grinding wheels with a maximum outer diameter of 800 mm.



1. 磨轮的摇摆与旋转装置 Swivel and rotation unit for grinding wheel
 - 工件做水平与垂直轴向运动
Movement of the work piece along the horizontal and vertical axis
 - 电镀时工件摇摆和旋转
Swiveling and rotation of the work piece during electro-plating
2. 终端操作触摸屏: Touch screen-operator's terminal for:
 - 调控所有轴向运动 Control of all axis movements
 - 电镀槽液面调节与漂洗泵调控
Level regulation of the electro-plating tub and control of the rinsing pumps
 - 调控金刚石电镀 (DBS) 的操作参数输入
Input of the operation parameters of the diamond electro-plating control (DBS)
 - 电镀过程的调控: Control of the electro-plating process:
 - * 电流 Current
 - * 电压 Voltage
 - * 备用电流 Leak current
 - * 定时 Timing
3. 金刚石电镀槽 Diamond electro-plating tank

	设备型号 Type of system		摇摆与旋转装置的最大承受力 Max. load capacity of swivel and rotation unit
	DBA 1-808	DBA 1-809	
最大磨轮尺寸 Max. wheel dimensions	直径 500 x 250 毫米 Ø 500 x 250 mm	直径 500 x 350 毫米 Ø 500 x 350 mm	320 千克 320 kg
	直径 600 x 200 毫米 Ø 600 x 200 mm	直径 600 x 300 毫米 Ø 600 x 300 mm	
	直径 700 x 150 毫米 Ø 700 x 150 mm	直径 700 x 250 毫米 Ø 700 x 250 mm	
	直径 800 x 120 毫米 Ø 800 x 120 mm	直径 800 x 220 毫米 Ø 800 x 220 mm	

技术参数 Technical data:

- 摇摆范围 90° (± 45°), 连续 Swivel area 90° (± 45°) continuous
- 恒定和连续旋转可设置在最小 1 转/240 分, 最大 5 转/分之间
Rotation permanent and continuously adjustable from min. 1 turn/240, max. 5 rpm
- 旋转: 恒定或者间断控制 Rotation: permanent or interval controlled
- 轴向操作速度通过变频器调节 Movement speed of axes adjustable through frequency inverter
- 气动坠落保护装置 Pneumatic crash protection
- 可选择旋转方向 Selectable rotation direction
- 通过电镀液储槽升降工作槽中电镀液的水平面
Raising and lowering of electrolyte level in the plating tank possible with electrolyte compensation tank
- 在工作槽中完成预镀镍, 金刚石上砂和最终镀镍工作
Pre-nickel, diamond tackdown and finish nickel plating are done in one tank.



在摇摆和旋转装置上的磨轮 Grinding wheel mounted to swivel and rotation unit



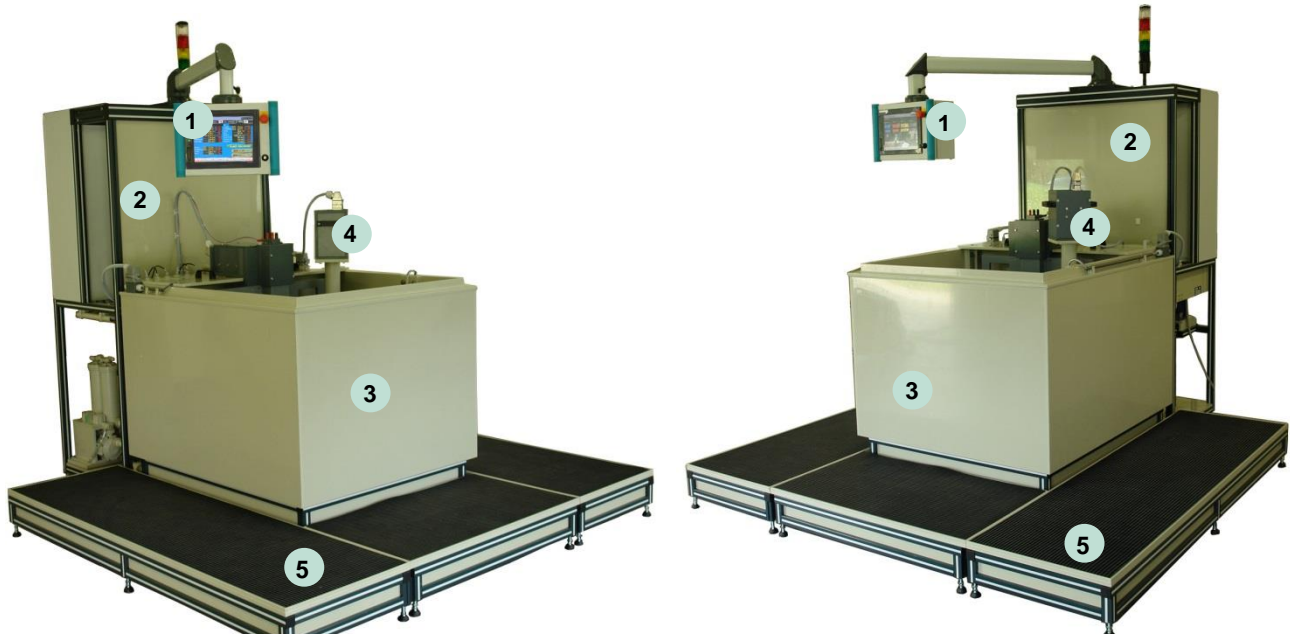
操作终端触摸屏示例
屏幕和操作功能可根据客户要求在不同的语言下设置。
Display examples of Touch screen operators' terminal. The displays and operating functions may be individually programmed according to the customer's specifications and in various languages.

金刚石电镀设备 DBA 1-455/013

Diamond Electro-Plating Plant DBA 1-455/013

生产被金刚石电镀的锯片和最大可插入直径为 600 毫米的带有升降和旋转装置的工具。

For manufacturing of diamond band saw blades and tools with a max. insertable diameter of 600 mm with lifting/lowering and rotation installation.



1. 终端操作触摸屏: Touch screen operators' terminal for:
 - 槽参数 Bath parameters
 - 操作参数 Process parameters
 - 编程 Programming
 - 电镀操作的调控 Process control
 - * 电流 Current
 - * 电压 Voltage
 - * 泄漏电流 Leak current
 - * 用时 Timing
2. PRS 操作控制与调节装置 Process control and regulation unit (PRS)
 - 温度 Temperature
 - PH 值 pH value
 - 电镀液平面稳定 Level stabilisation
 - 安全传感器 Safety sensors
 - 安培/分钟计数器 Amin counter
3. 金刚石电镀设备(DBE 1/100x120x80), 带有升降装置
Diamond electro-plating unit (DBE 1/100x120x80)
with lifting/lowering installation
4. 水平旋转装置 Horizontal rotation installation
5. 带有防滑格栅地面的增高工作台 Raised work platform with non-skid floor grille

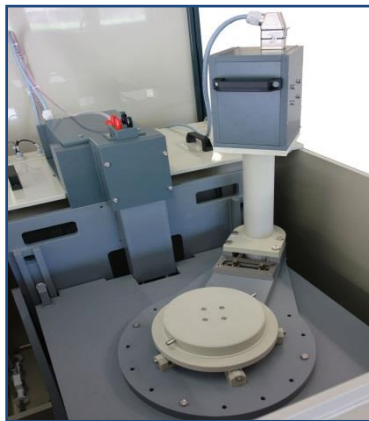


终端操作触摸屏的显示示例。屏幕和操作功能可以根据客户要求设计并可以编程为不同语言。

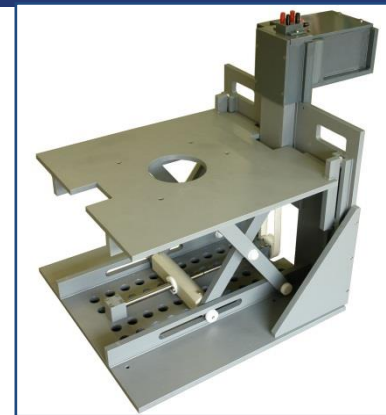
Display examples of Touch screen operators' terminal. The displays and operating functions may be individually programmed according to the customer's specifications and in various languages.



锯片的接触夹具和金刚石电镀夹具
Contact and diamond electroplating fixture for band saw blades



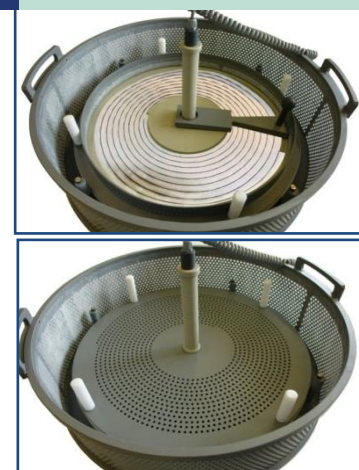
水平旋转装置
Horizontal rotation installation



升降装置
Lifting/lowering installation



DBE-1/100x120x80 电镀站带有电镀箱，旋转装置，升降装置，以及终端操作触摸屏
Electro-plating station of the DBE-1/100x120x80 with electro-plating cassette, rotation unit, lifting/lowering installation and Touchscreen operators' terminal



接触装置装有平整金刚石颗粒的刮板（上图）和隔离盘（下图）
Contact fixture with band saw blade blank and rake to equalise the diamond grits (top) and with shielding disc (bottom)

金钻石电镀设备 DBA 1-DFS / 010

Diamond Electro-Plating Plant DBA 1-DFS / 010

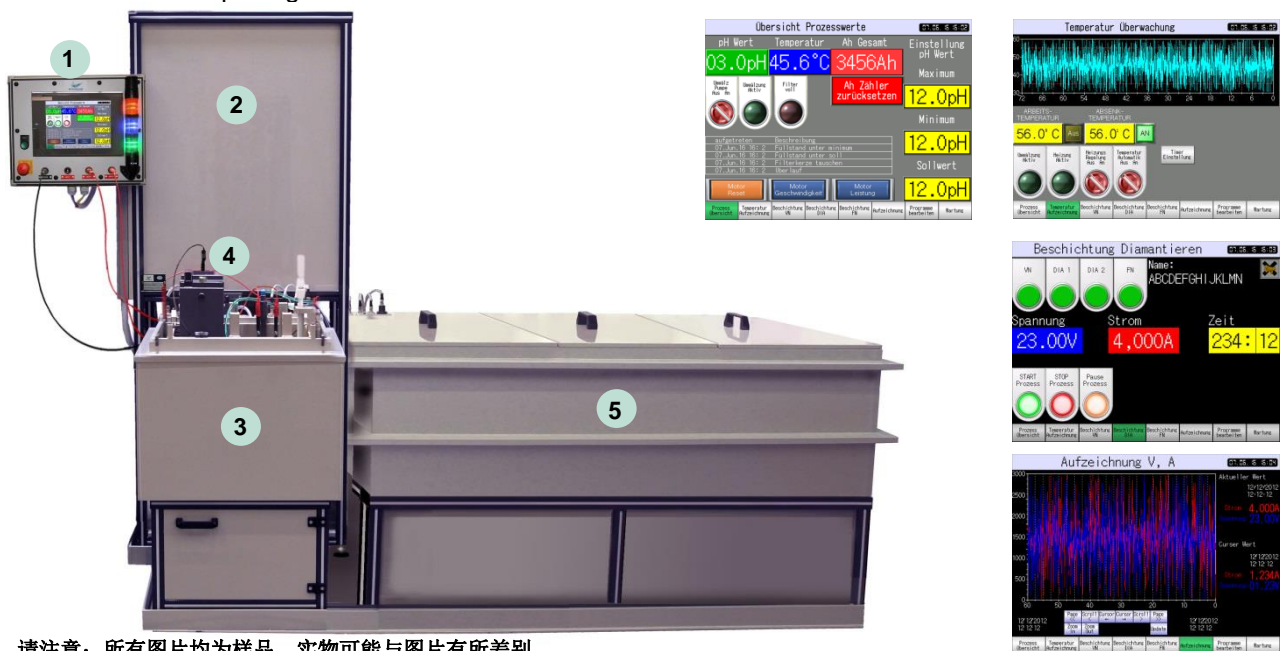
单槽金刚石电镀设备 Single-Tank Diamond Electro-Plating Plant

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.

终端操作触摸屏的操作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: | 槽参数 Bath parameters: |
| - 电流 Current | - 温度 Temperature |
| - 电压 Voltage | - pH 值 pH value |
| - 泄漏电流 Leak current | - 液面 Level |
| - 计时器 Time count | - 电解液稳定 Electrolyte constancy |
| - 起降装置 | - 安全传感器 Safety sensors |
| Lifting/lowering/rotation | - 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 X-355/455

Diamond electro-plating plant DBA X-355/455

用于生产被金刚石或立方氮化硼电镀的带有钢质基体的工件。

这些基体将在相应的设备中通过金刚石颗粒被电镀。每一个操作步骤（预镀镍，金刚石固定和亮镍）将在各个电镀槽内进行。多个电镀站可以实现同时不同工件类型的加工。多个电镀站满足了不同种类工件的同时加工。

该系统可根据客户需求配有最多 10 个电镀站。

操作控制和调节装置（PRS）用于保持操作参数的稳定和恒定。金刚石电镀调控器(DBS)控制和实现电镀过程。该调控器配有终端操作触摸屏，其语言和功能可根据客户需求进行设置。

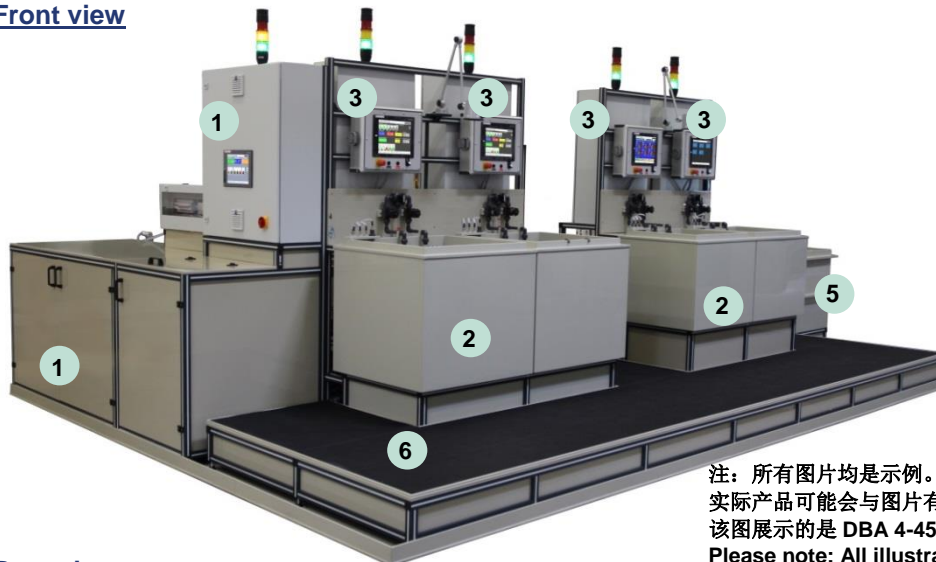
For the production of diamond or CBN electro-plated tools with steel blanks.

The blanks are electro-plated with the abrasive grits using the appropriate fixtures. All three process steps (pre-nickel, diamond tackdown and finish nickel) are carried out in the same tank. Several electro-plating stations allow for simultaneous processing of different tool types.

The system can comprise up to 10 electro-plating stations according to customers' specifications.

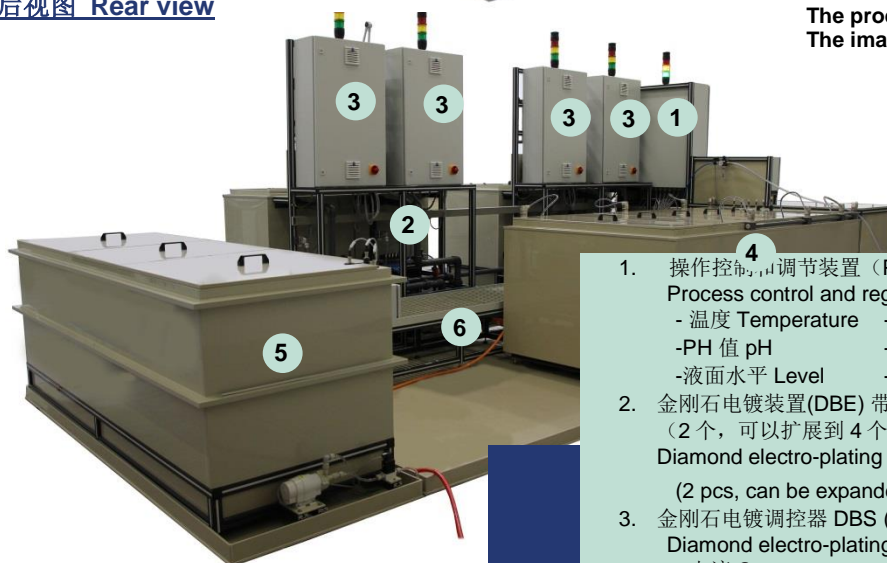
The PRS unit is for stabilisation and consistency of the process parameters. Electro-plating is carried out and monitored from the electro-plating control panels (DBS). All control panels are equipped with a Touch screen operator terminal; these can be adapted for language and customer-specific functions.

前视图 Front view



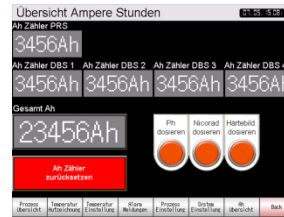
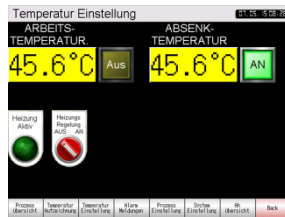
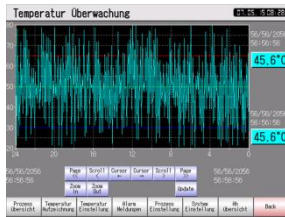
注：所有图片均是示例。
实际产品可能会与图片有差别。
该图展示的是 DBA 4-455/002。
Please note: All illustrations are examples.
The product may differ from the illustrations.
The images show a DBA 4-455/002.

后视图 Rear view

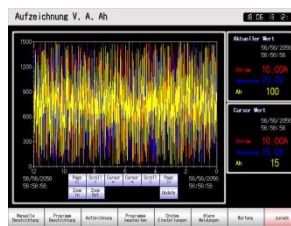
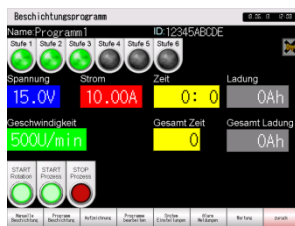
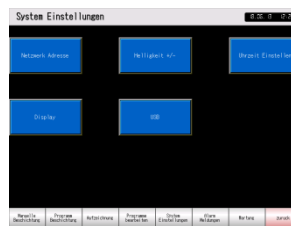


1. 操作控制及调节装置 (PRS)
Process control and regulation unit (PRS)
- 温度 Temperature - 电镀液稳定 Electrolyte stabilisation
- PH 值 pH - 安全传感器 Safety sensors
- 液面水平 Level - 安培/分钟计数器 Amin counter
2. 金刚石电镀装置(DBE) 带有 2 个工作站
(2 个, 可以扩展到 4 个, →8 个工作站)
Diamond electro-plating unit (DBE) with 2 work stations
(2 pcs, can be expanded to 4 pcs, → 8 work stations)
3. 金刚石电镀调控器 DBS (4 个)
Diamond electro-plating controls DBS (4pcs)
- 电流 Current - 泄漏电流 Leak current
- 电压 Voltage - 用时 Time count
4. 电镀液储槽 Electrolyte storage tank (EVB)
5. 三联式静漂洗槽 (KSP) 3- cascade standing sink unit (KSP)
6. 带有防滑格栅地面的增高工作台
Raised work platform with non-skid floor grille

注：所有图片均是示例。
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Please note: All illustrations are examples.
The product may differ from the illustrations.



PRS 的终端操作触摸屏（保持槽的稳定性）
示例显示：槽参数，温度记录，温度控制，AH 计数器
Touchscreen operator terminal of the PRS (Electrolyte constancy)
Display examples of both parameters, temperature recording, Temperature setting, AH-counter.



DBS 的终端操作触摸屏（操作参数，操作控制，编程）
控制和编程界面示例。
Touchscreen operator terminal of the DBS (Process parameters, process control, programming)
Display examples of control and programming screens.

技术数据 Technical data	DBA 4-455/002 (示例 example)
槽容量 Bath capacity:	电镀液储存槽: 大约 2352 升, 电镀槽: 每个大约 293 升 Electrolyte storage tank: approx. 2352 l; electro-plating tanks: approx. 293 l each
槽温度 Bath temperature:	最高 60 摄氏度 max. 60°C
规格 (长 x 宽 x 高) Dimensions (L x W x H):	大约 7037 x 4064 x 2441 毫米 approx. 7037 x 4064 x 2441 mm
电流接入值: Power ratings:	大约 13,0 千伏安, 400 伏, 32 安, 50 赫兹 approx. 13,0 KVA, 400 V, 32 A, 50 Hz
接入周边抽吸装置 Connection for rim exhaustion:	公称直径 75 毫米 DN 75 mm (可选 optional)
- 电镀液储存槽 (EVB), 隔热, 聚丙烯材质 Electrolyte storage tank (EVB), heat insulated, of PP	
- 自动电镀稳定和干燥保护 Automatic electrolyte stabilisation and dry-run protection	
- 4 个隔热电镀槽和聚丙烯管道, 可以扩展到 8 个电镀槽 4 het insulated electro-plating tanks and pipes of PP; system can be expanded to 8 electro-plating tanks	
- 槽参数和操作控制的终端操作触摸屏 Touchscreen operator terminals for bath parameters and process control	
- 1 个循环泵 M100; 4 个冲洗泵 M25, 3 个添加剂计量泵 1 circulation pump M100; 4 rinsing pumps M25, 3 dosing pumps for additives	

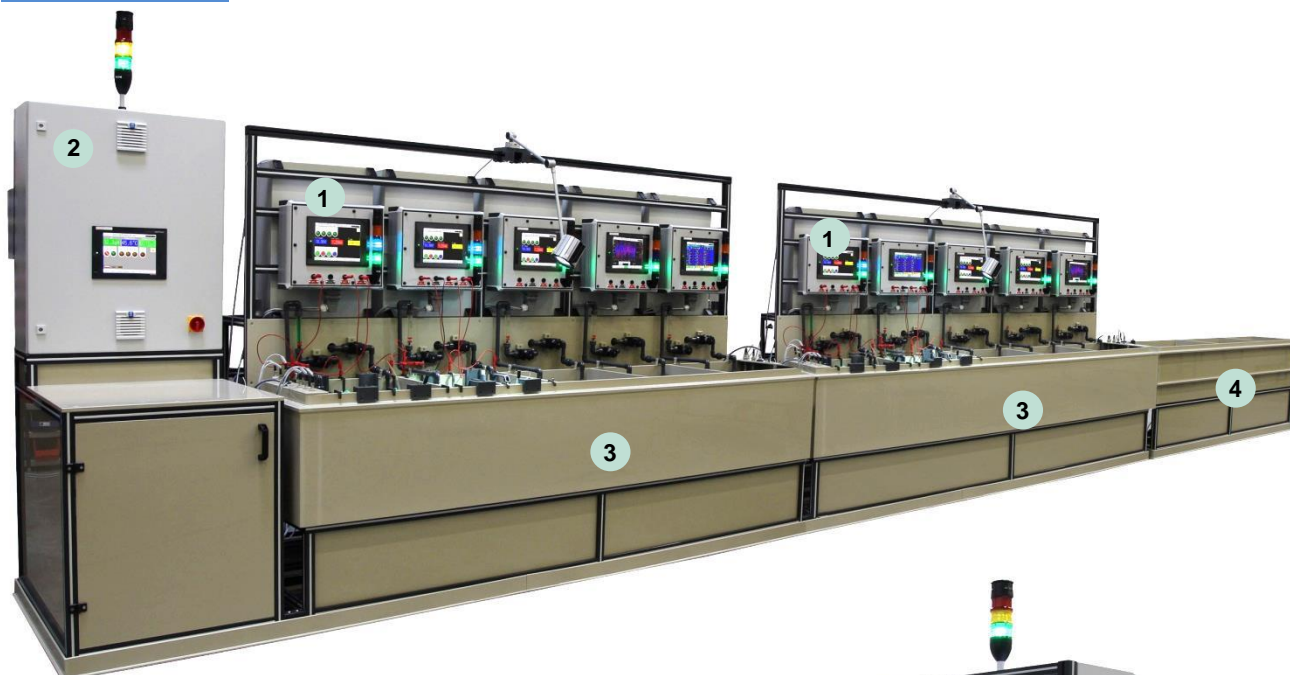
金刚石电镀设备 DBA XX-D23

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](#)

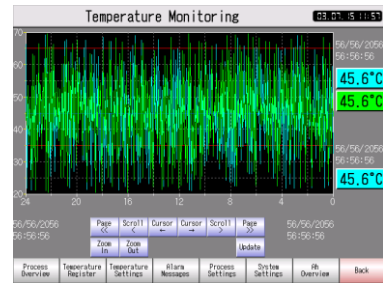


1. 金刚石电镀调控 DBS XXA/45(10 个.)
Diamond electro-plating control DBS XXA/45(10 pcs)
- 电流 Current
- 电压 Voltage
- 泄漏电流 Leak current
- 用时 Time count
2. 操作控制和调节装置 (PRS 745)
Process control and regulation unit (PRS 745)
- 温度 Temperature
- PH-值 pH
- 电镀液水平面 Level
- 电镀液恒定 Electrolyte stabilisation
- 安全传感器 Safety 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)

注：所有图示均是示例。
实际产品可能会和图片有差别。
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“烛式过滤器，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



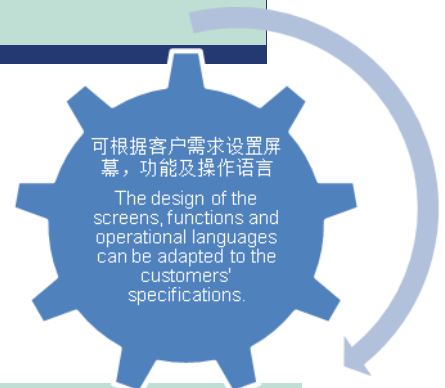
触摸屏操作界面 (PRS/DBS) 示例
 Examples of Touch screen operator surfaces (PRS /DBS)



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 by the Touch screen operators' terminal (PRS control)



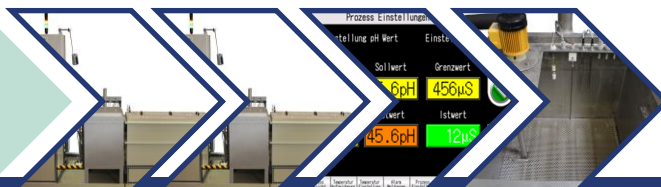
通过终端操作触摸屏调控 3 阶段自动程序操作和预设电镀参数(DBS XXA-45 调控)
 3-stage automatic process-run control and preset of the electro-plating parameters by the Touch screen operators' terminal



可根据客户需求设置屏幕，功能及操作语言

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

化学镀设备 CBA
Electroless Plating
Plant CBA
-化学过程
Electroless Process



➤ CBA 1-455/001

化学镀镍设备 Electroless-Nickel Plating Plant CBA 1-455/001

用来生产高精度的金刚石和立方氮化硼磨具和类似的工具，以及用于保护和装饰的镀镍，电镀工具的弥散镀。
For manufacturing high-precision diamond and CBN grinding pieces and similar tools, as well as for protective and decorative nickel plating and dispersion plating of electro-plated diamond tools.



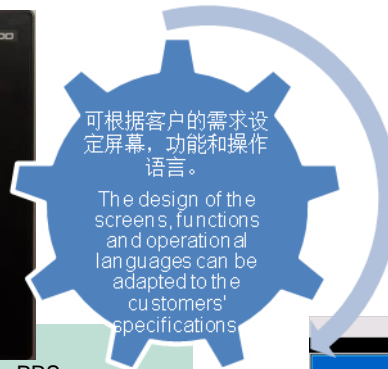
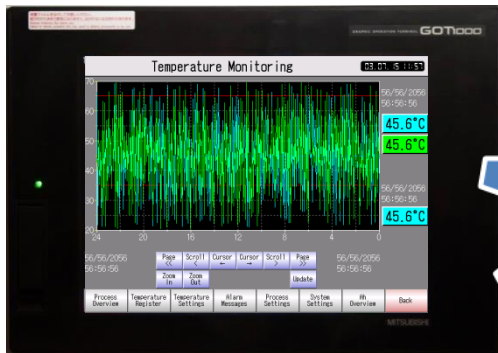
注：所有图片均为示例。实际产品可能与图片有差别。

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



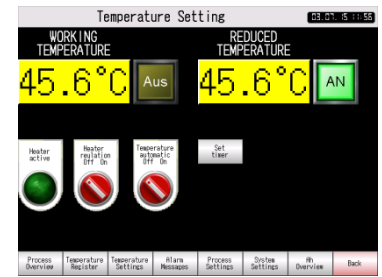
镀槽的内视图
Inside view of plating tank

1. 操作控制和调节装置
Process control and regulation unit (PRS)
 - 温度 Temperature
 - pH 调节器 regulation
 - 镍调节器 Nickel regulator
 - 用时 4 个阶段 4-stage timing
 - 槽水平面 Bath level
 - 槽参数的稳定 Stabilisation of bath parameters
 - 启动和保护电流 Starting and protection current
 - 阳极槽保护 Anodic tank protection
2. 不锈钢涂层槽 Stainless steel plating tank
 - 隔热 Heat insulated
 - 用于槽内循环的浸没离心泵
Immersed centrifugal pump for bath circulation
 - 可更换滤芯的袋式过滤装置
Filter bag unit with replaceable filter element
 - 内置的槽加热器 Built-in bath heaters
 - 内制的边缘抽吸装置
Integrated rim exhaustion
3. 三联式静态漂洗装置
Three-cascade standing sink unit (KSP)

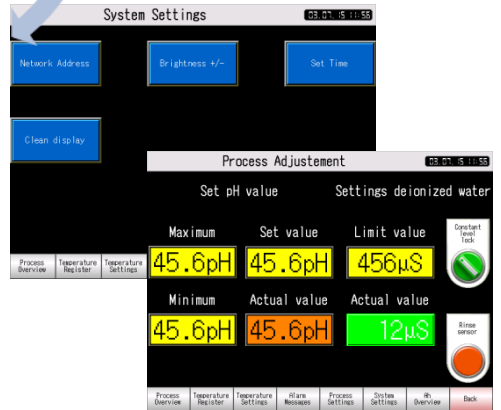


可根据客户的需求设定屏幕，功能和操作语言。

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



- Touchscreen operator terminal of the PRS
- 操作调控 Process control
 - 设置，监视和保持操作参数的恒定 Setting, monitoring and constancy of bath parameters
 - 温度记录 Temperature register
 - 启动和保护电流的开关 Release of starting / protection current
 - 调控阳极槽保护 Control of anodic tank protection
 - 泵控制 Pump control
 - 系统设置 System settings
 - 状态报告 Status report



阳极槽保护的操作面板(Protectostat)
Operation panel for anodic tank protection (Protectostat)

用于监控和保持镀槽恒定的镍调节器
Nickel regulator for monitoring and stabilization of plating bath



PRS 内视图：计量泵和镀槽化学剂的贮池
Inner view of PRS: Dosing pumps and reservoirs for regulation chemicals for plating bath



袋式过滤装置和监测镀槽的传感器
Filter bag unit and sensors for monitoring the plating bath

旋转式电镀设备 RNB
Reverse Plating Plants
RNB



- RNB 3-250/1-2-XXX
- RNB 7-250/1-6-001

旋转式凹版电镀设备 RNB 3-250/1-2-XXX

Rotational Reverse Plating Plant RNB 3-250/1-2-XXX



- 自动保持电镀液稳定
Automatic electrolyte stabilization
- 永久选择性清理
Permanent selective cleaning
- 可最多扩展到 6 个工作站
(2 个旋转电镀站和 4 个镀厚镍工作站)
Expansion to max. 6 stations
(2 rotational reverse-plating and
4 thick-nickel plating stations) possible.

1. 操作控制和调节装置(PRS)
Process control and regulation unit (PRS)
2. 旋转式凹版电镀装置(RBE)
Rotational reverse-plating unit (RBE)
3. 镀厚镍装置(DVE), 带有 2 个电镀站
Thick-nickel plating unit (DVE) with 2 electro-plating
stations
4. 1400L 氨基磺酸镍电镀液的储存池(EVB)
Electrolyte storage tank (EVB) for 1400 l nickel sulfamate
electrolyte



可根据客户需求设置屏幕，功能和操作语言。
Screen layouts, functions and operational languages to customers' specifications possible.

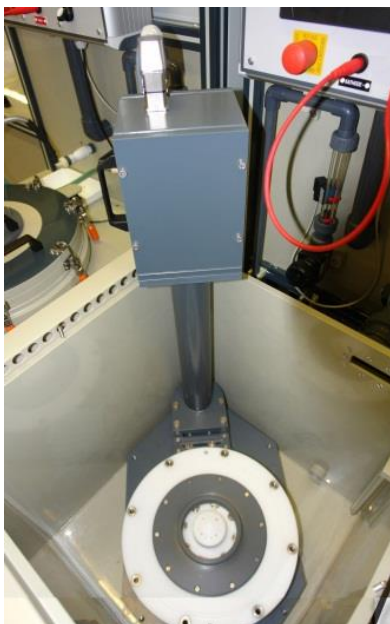
用于设置和预设槽及操作参数，操作过程，操作编程的终端操作触摸屏
Touchscreen operators' terminals for adjustment and pre-set of the bath and process parameters, process sequence control and process programming



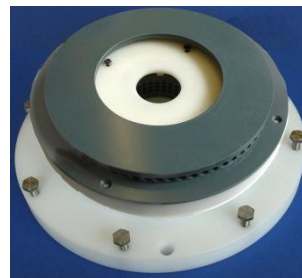
旋转式凹版电镀装置 RBE 1/45-49/001
 Rotational reverse-plating unit RBE 1/45-49/001
 - 一个带有盖子旋转电镀槽
 1 rotational plating vessel with lid
 - 带有膜片阀的流量计，用于调节电解液流量
 Flow meter and diaphragm valve for electrolyte flow regulation
 - 旋转 最大 500 转每分 Rotation max. 500 rpm
 - 一个旋转式凹版电镀调控装置 RBS 10A-45/0011
 rotational reverse-plating control RBS 10A-45/001



镀厚镍装置 DVE 2/56-56-50/001
 Thick-nickel plating unit DVE 2/56-56-50/001
 - 2 个带有周边抽吸装置的电镀槽
 2 electro-plating tanks with rim exhaustion
 - 2 个水平旋转装置 2 horizontal rotation units
 - 2 个镀厚镍调控装置 DVS 10A-45/001
 2 thick-nickel plating controls
 带有内置驱动调控装置 with built-in motor control



置于电镀槽中的水平旋转装置
 Horizontal rotation unit fitted into electro-plating tank



旋转电镀装置带有凹模，安装在模具托盘上
 Rotational reverse-plating fixture containing reverse mould, mounted onto holding platter



电镀金刚石滚轮
 Diamond profile dressing roller

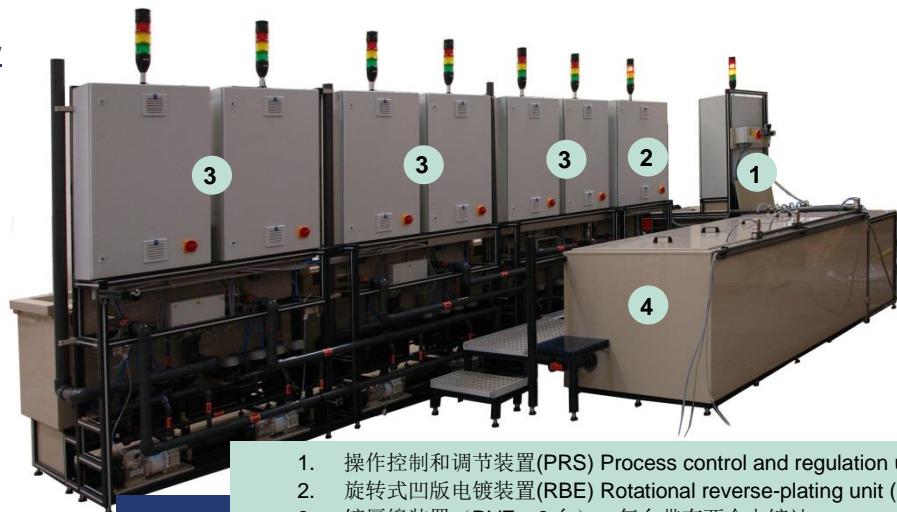
旋转式凹版电镀设备 RNB 7-250/1-6-001

Rotational Reverse Plating Plant RNB 7-250/1-6-001

前视图 Front view



后视图 Rear view



1. 操作控制和调节装置(PRS) Process control and regulation unit (PRS)
2. 旋转式凹版电镀装置(RBE) Rotational reverse-plating unit (RBE)
3. 镀厚镍装置 (DVE, 3台), 每台带有两个电镀站
Thick-nickel plating unit (DVE, 3 pcs) with two electro-plating stations each
4. 1400L 氨基磺酸镍电镀液的储存池(EVB)
Electrolyte storage tank (EVB) for 1400 l nickel sulfamate electrolyte



用于调整和预设槽及操作参数, 操作流程和操作编程的终端操作触摸屏
Touchscreen operators' terminals for adjustment and pre-set of the bath and process parameters, process sequence control and process programming

可根据客户要求设置屏幕, 功能和操作语言。
Screen layouts, functions and operational languages to customers' specifications possible.



旋转式凹版电镀装置 RBE
Rotational reverse-plating unit RBE

- 一个带有盖子的旋转电镀槽
1 rotational plating vessel with lid
- 带有膜片阀的流量计，用于调节电解液流量
Flow meter and diaphragm valve for electrolyte flow regulation
- 旋转 最大 500 转每分 Rotation max. 500 rpm
- 一个旋转式凹版电镀调控装置 RBS 10A-45/0011
Rotational reverse-plating control RBS 10A-45/001



镀厚镍装置 DVE 2/56-56-50/001
Thick-nickel plating unit DVE 2/56-56-50/001

- 2 个带有周边抽吸装置的电镀槽
2 electro-plating tanks with rim exhaustion
- 2 个水平旋转装置 2 horizontal rotation units
- 2 个镀厚镍调控装置 DVS 10A-45/0012
thick-nickel plating controls DVS 10A-45/001
- 带有内置驱动调控装置 with built-in motor control



旋转式凹版电镀装置装有凹模(最大模
外径 250mm)
Rotational reverse-plating fixture
With reverse-plating mould
max mould outer \varnothing 250 mm)



阳极棒系统(组件)
Anode rod system
(components)



电镀金刚石滚轮
Diamond profile dressing roller

剥离设备 DRA Stripping
Plants DRA



- DRA-1 (PP 聚丙烯)
- DRA-3 (Stainless Steel 不锈钢)

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.



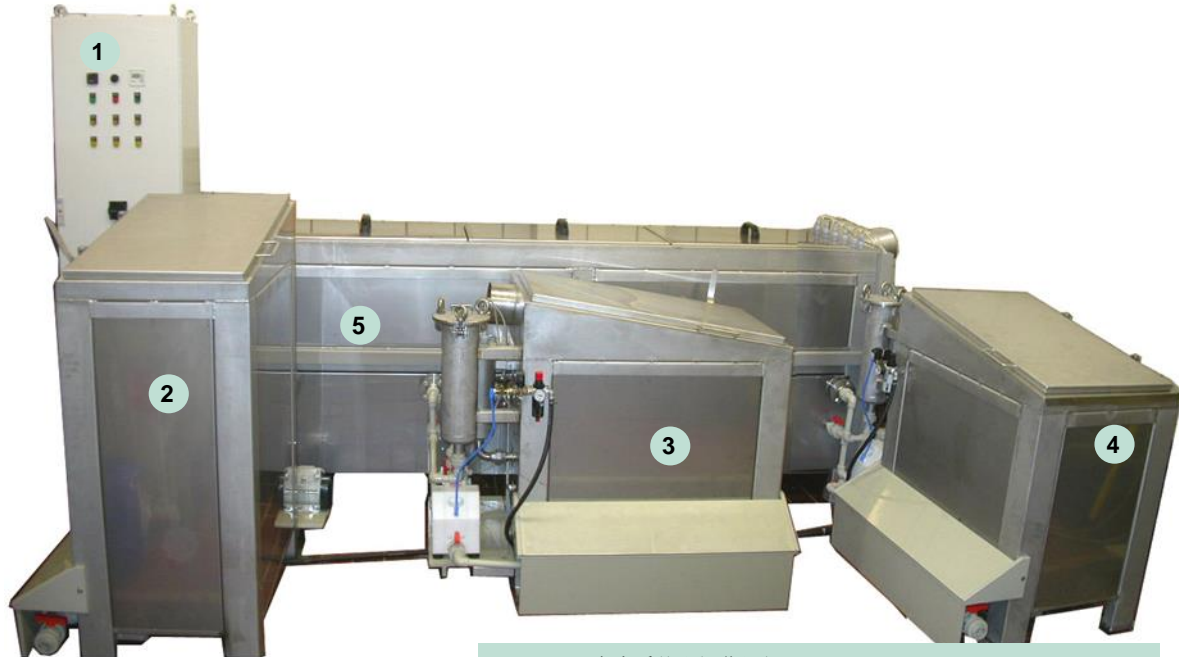
1. DRS 调控器 DRS control
-温度 Temperature
- 泵 Pump
- 水平面调控 Level control
2. 过滤器 Filter
3. 周边抽吸装置 Rim exhaustion
4. 剥离槽 (隔热)
Stripping-off tank (heat insulated)
5. 循环泵 Circulation pump

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		

镍剥离设备 DRA-3 (不锈钢) Nickel-Stripping Plant DRA-3 (Stainless steel)

三站式镍剥离设备 DRA 3-702/50-XXX
3-Station Nickel-Stripping Plant DRA 3-702/50-XXX



1. 中央系统和操作调控 Central system and process control
2. 处理站 1 Process station 1
3. 处理站 2 Process station 2
4. 处理站 3 Process station 3
5. 剥离槽的储放容器 Storage tank for stripping bath

- 剥离槽的储放容器由不锈钢制成，能快速补给水平面
Stripping bath storage tank of stainless steel for quick level compensation
- 自动保持水平面稳定 Automatic level stabilisation
- 中央控制所有处理站 Central control for all process stations
- 3 个处理站，每个配有： 3 process stations, each equipped with:
 - 不锈钢剥离槽 Stripping tub of stainless steel
 - 压缩空气隔膜循环泵 Compressed-air operated membrane pump
 - 不锈钢袋式过滤器，带有可更换滤芯
Filter bag container of stainless steel with interchangeable filter element
- 槽总容量 1200 升 Total bath capacity 1200 l
- 最大可放置工件重 350 千克每剥离槽 Max. applicable tool weight 350 kg / stripping bath
- 最大工件直径 700 毫米 Max. tool diameter 700 mm

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

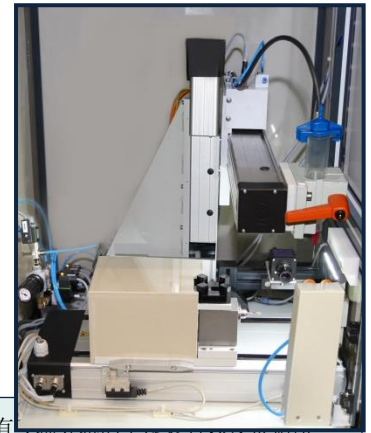
TLA 1-D23/101

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.



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.

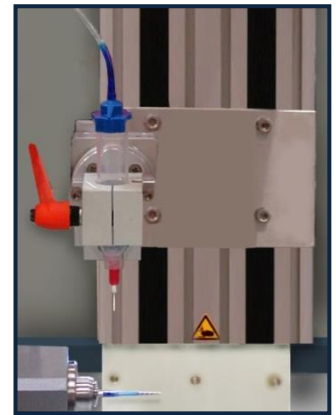


带有四轴导轨和基于压力加药的上漆系统
Varnishing unit with four-axes guide and pressure based varnish dosing system



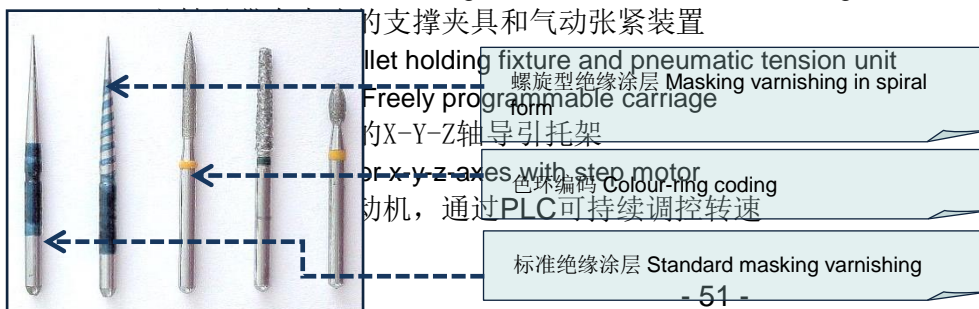
用于监控上漆的显示屏
Monitor to check varnishing

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。

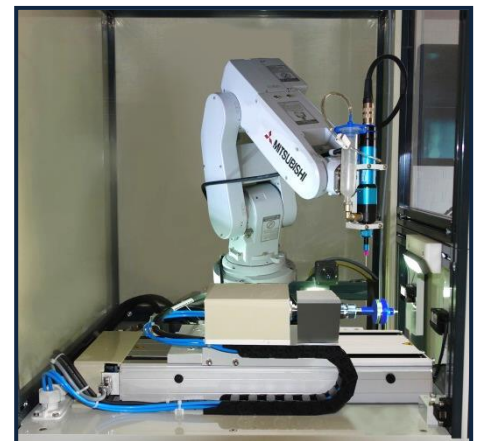
由一个六轴机器人引导的容积漆料配量系统实现了为复杂形状工件上绝缘漆。

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.



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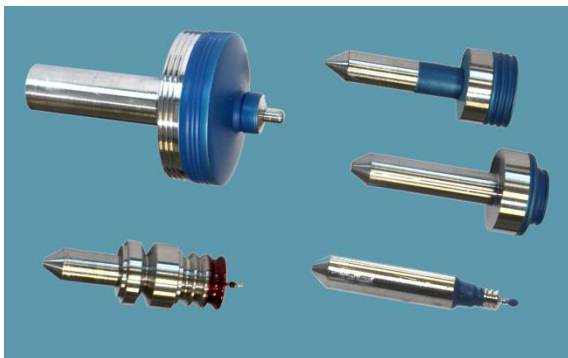


上漆装置，带 4 轴直形导轨与计量加药上漆
Varnishing unit with four-axes linear guide and volumetric paint dosing



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



上完绝缘漆后的智能手机切割铣刀毛坯
Masking varnished milling cutter blanks for Smartphone displays



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



容积漆料配量系统
Volumetric varnish
dosing system

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

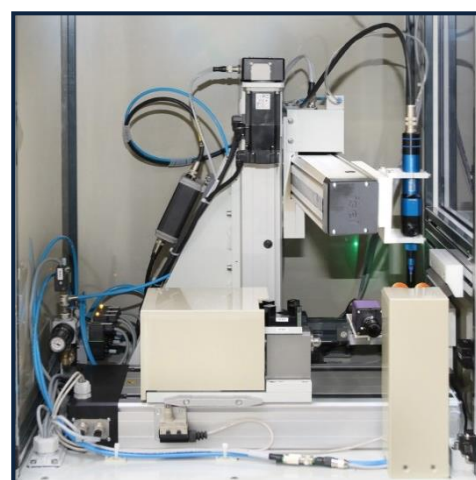
半自动上漆系统

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.



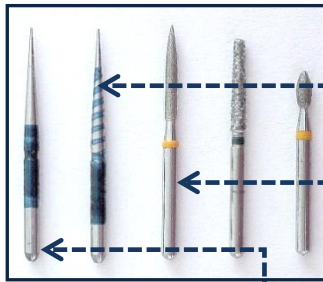
上漆装置，带 4 轴直形导轨与体积计量加药
VDS-145
Varnishing unit with four-axes linear guide
and volumetric paint dosing VDS-145



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

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. 1450 x 740 x 1640 mm 长x 宽 x 高约1450 x 740 x 1640 毫米

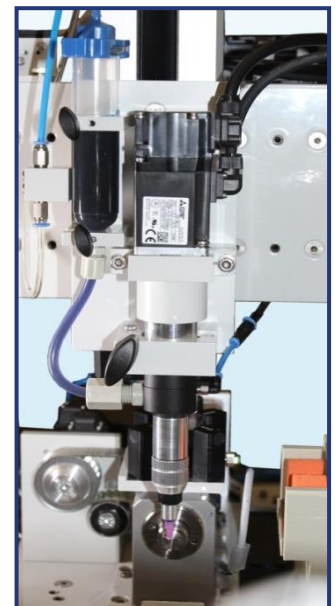


Masking varnishing in spiral form
螺旋形保护涂层

Colour-ring coding
色环编码

Standard masking varnishing
标准保护涂层

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



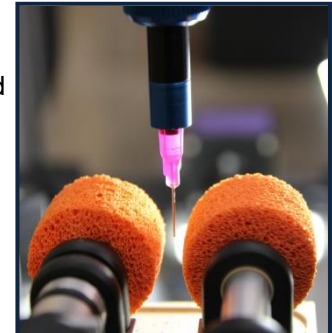
Volumetric paint dosing system VDS-145
容积上漆配量系统
VDS-145



Examples of colour-ring coding on implant drills
种植钻头上色环编码示例

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



Cleaning device
for dosing needle
加药针清洗设备

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 ratings 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.

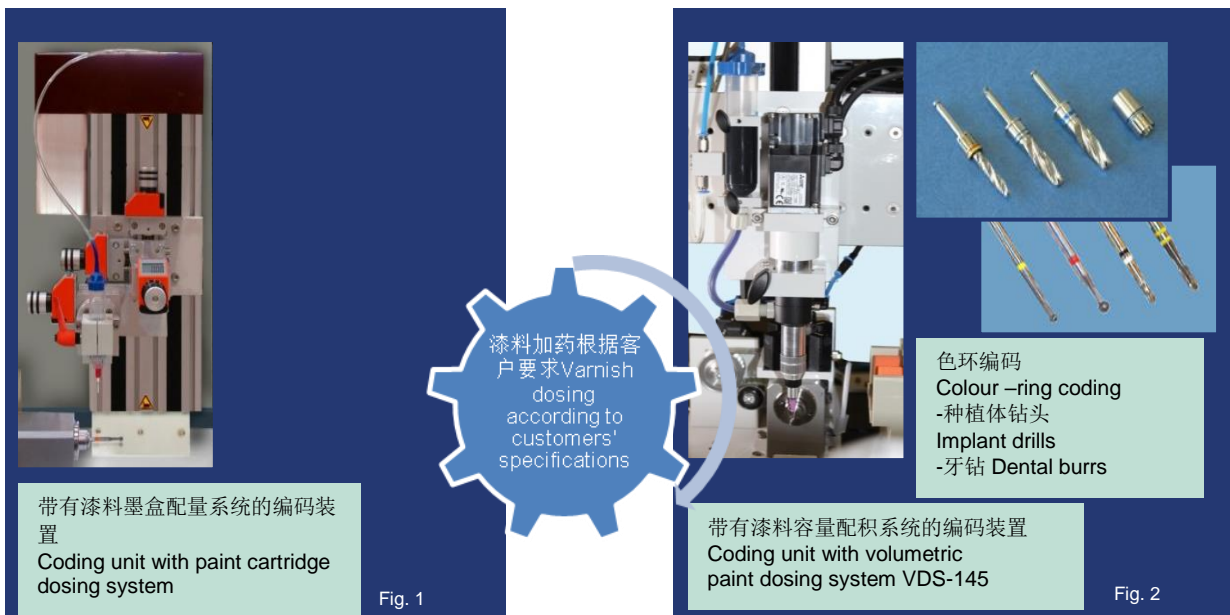
基本设备 Basic equipment

- 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 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 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)



- 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 Ø- 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

[Rear view 后视图](#)

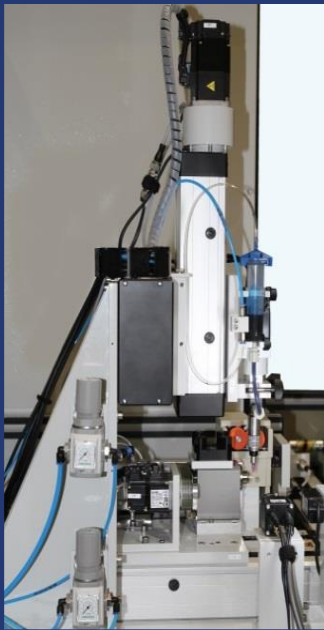


Examples of masking varnishing and colour-ring coding of dental burrs
牙钻上的绝缘上漆与色环点胶编码示例



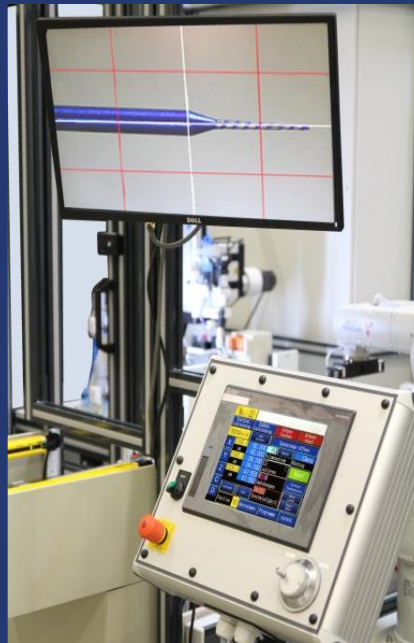
Basic equipment 基础配备

- 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)

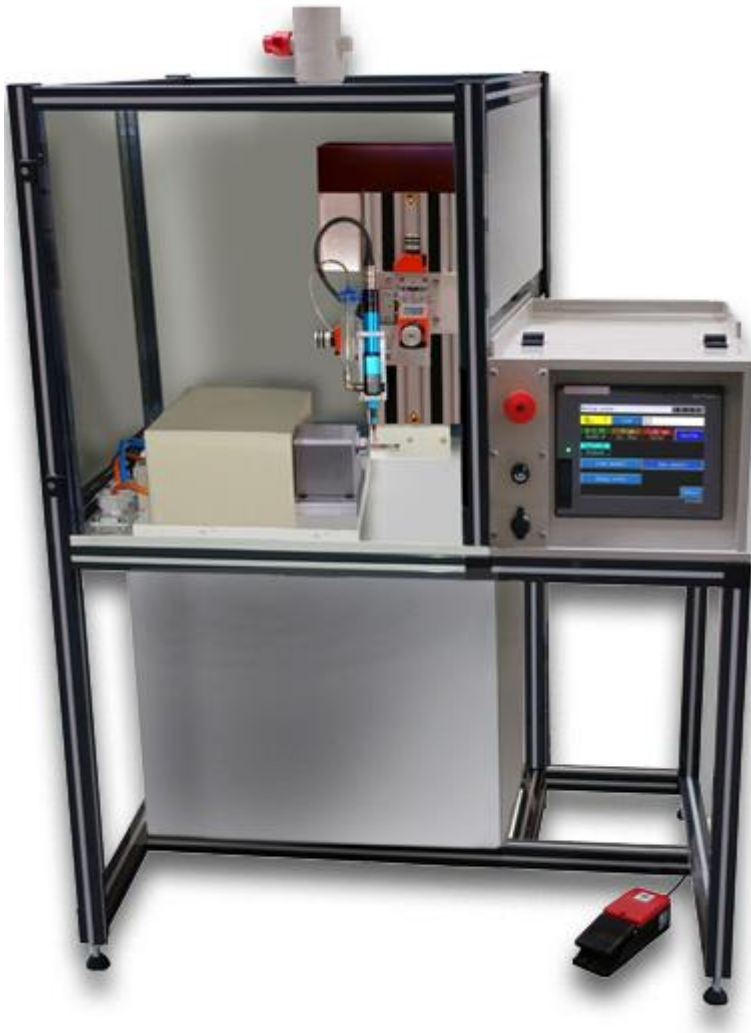
激光雕刻和黑化模块（光纤激光器或超短脉冲激光）

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

图 1 Fig. 1



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 burrs

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 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)

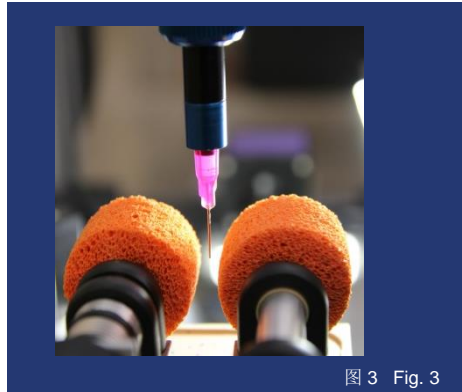


图 3 Fig. 3

- 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 Ø 32 mm
Enlargement of head stock fixture up to collet Ø 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 burs (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

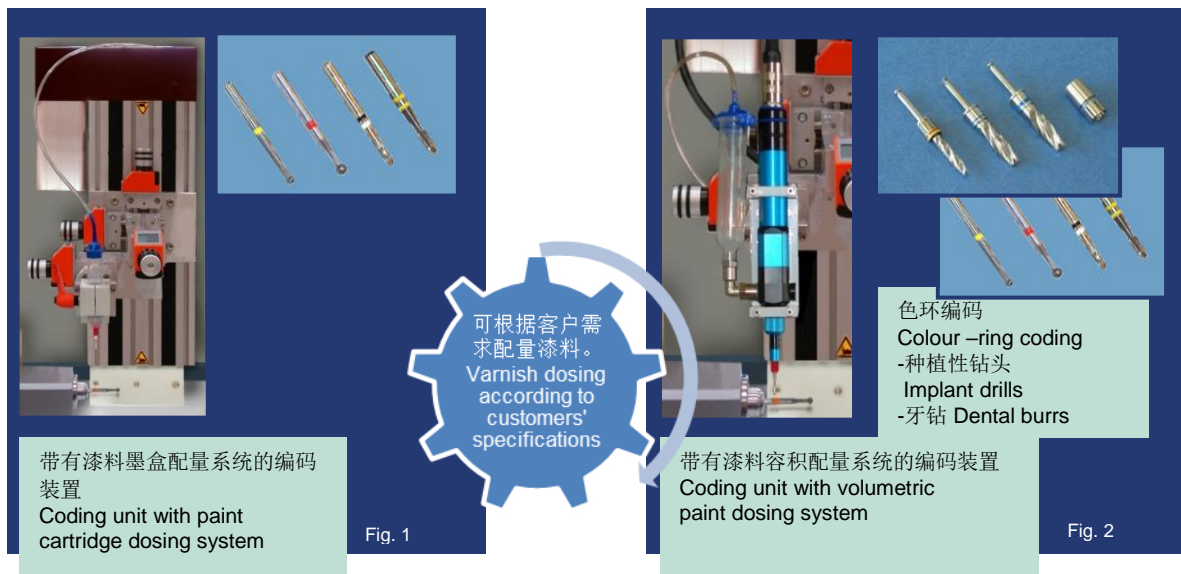
技术数据 Technical Data

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

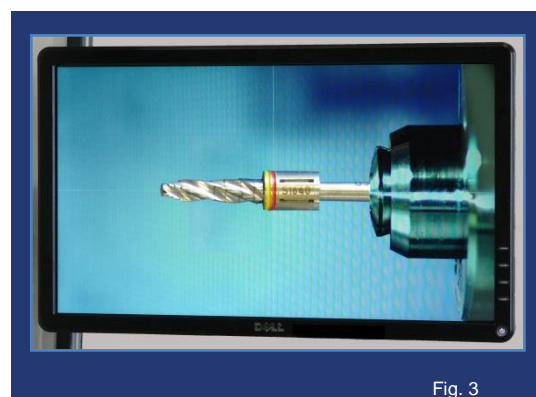
设备规格 System dimensions:	长x宽x高约为1065 x740 x1450毫米 L x W x H approx. 1065 x 740 x 1450 mm
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可选性扩展 Optional expansions FCA 1-D23/XXX

- 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)



特殊装置-通用
Special Equipment - General

- 升降台 Lifting/Lowering Tables
- 旋转装置 Rotation Units
- 砂轮夹具 Grinding Wheel Fixtures
- 带锯 Band Saws
- 铣刀 Milling Cutters

特殊目的的升降台 Special-purpose lifting/lowering table

这个带有电子马达的升降系统用于在金刚石电镀过程中工件与特殊夹具的移动。

该系统实现了各种金刚石电镀夹具或旋转装置的便捷安装。为了更简单放置金刚石砂粒或安装/移除某些工件，整个装置可以上升或下降至电子马达定义的某一位置。

按照客户要求，马达控制可以与相应的电镀处理控制集成。

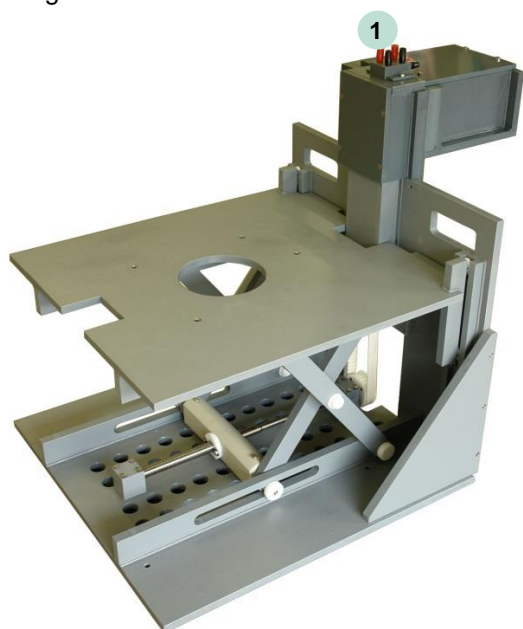
升降台有不同的尺寸，可根据已有电镀槽规格调整。

The lifting/lowering system with electric drive serves to facilitate the movement of the work pieces and special fixtures during the diamond electro-plating process.

The system allows the flexible mounting of various diamond electro-plating fixtures or rotation devices. For an easier spread-over of diamond grits or for mounting or removal of the parts, the whole mechanism can be lifted or lowered to a defined position by means of the electric motor.

The motor control can be integrated into the corresponding electro-plating or process control according to the customers' specification.

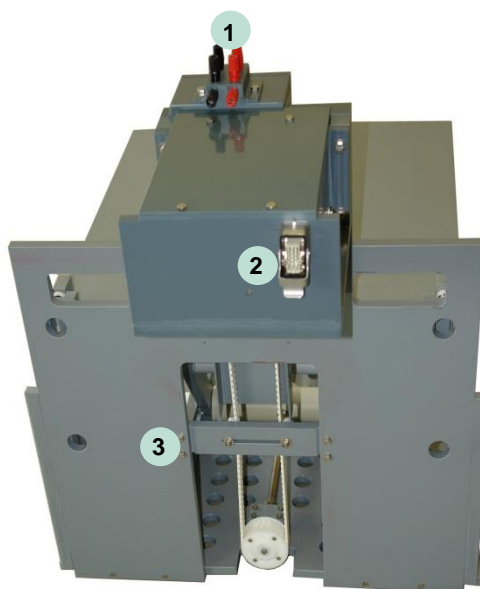
The lifting and lowering tables are available in different sizes and can be customized to fit the existing electro-plating tank dimensions.



升降台的前视图

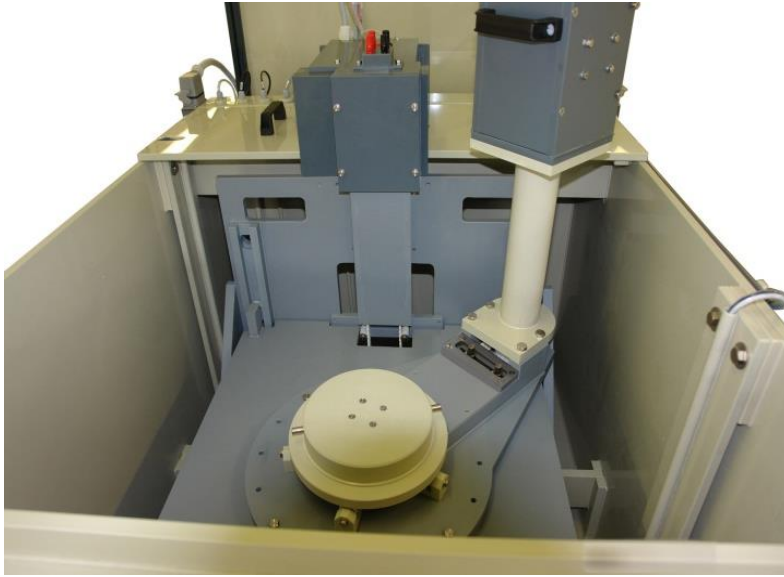
卡口或旋转装置的便捷安装，放置各个型号的电镀盒
Front view of lifting/lowering table.

Flexible mounting of a bayonet catch or a rotation unit to hold various types of electro-plating cassettes.



升降台的后视图 Rear view of lifting/lowering table.

1. 阳极/阴极连接 Anode/cathode connections
2. 马达控制连接 Motor control connector
3. 正时皮带的张力调节 Tension adjuster for timing belt



根据电镀槽规格调整的带旋转装置与卡口的升降台
Lifting/lowering table with mounted rotation unit and
bayonet catch fitted into electro-plating tank.

特殊用途旋转装置 HSR / F – 水平 Special-purpose rotary unit HSR / F horizontal

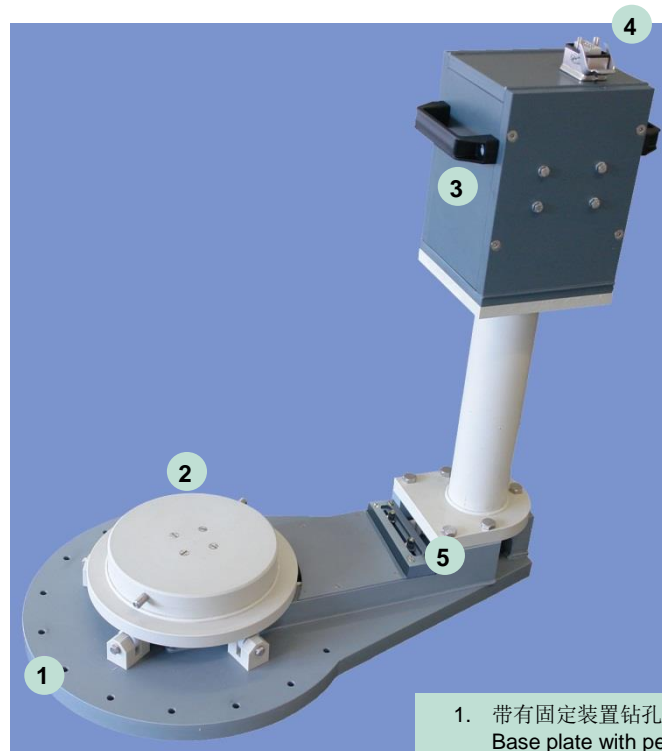
该水平旋转装置可进行一个倒转水平运动并且可实现金刚石或者立方氮化硼磨轮以及带锯的更均匀电镀。该旋转装置通常被安装在一个升降台上，但是其紧固螺栓的灵活钻孔使得它也能够被直接安装在电镀槽中。倒转速度通过一个内置在相应的电镀调控器中的电动机调控器进行调节。金刚石电镀盒或者其他部件能够通过卡口式插座被固定在接收盘上。

我们能够提供不同尺寸的旋转装置并且能根据需求使其匹配您的槽大小。

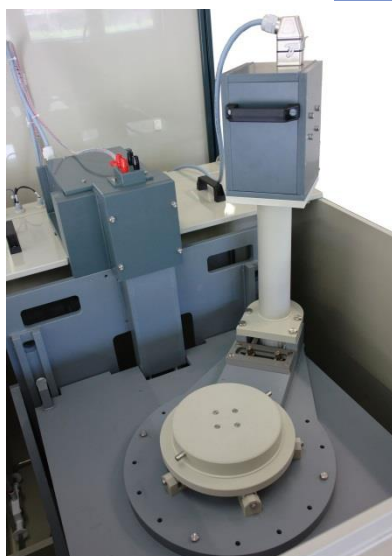
The horizontal rotary unit carries out a reversing, horizontal motion and allows a more uniform electroplating of diamond or CBN grinding wheels and band saws. The rotary unit is typically mounted onto a lifting/lowering table, its flexible drilling pattern for the fixing lugs however allows it to be mounted directly into the plating tank.

The reversing speed is adjusted by the motor control unit which is integrated into the corresponding electro-plating control regulates. Diamond plating cassettes or other devices can be clamped to the holding platter by means of the bayonet catch.

The rotary units are available in different sizes and can be customized to your specific tank dimensions.



1. 带有固定装置钻孔的底盘
Base plate with perforations for mounting lugs
2. 带有卡口式插座的旋转式固定盘
Rotating holding platter with bayonet catch
3. 电动机/保护罩 Motor / case
4. 调控器的接口 Connector for control
5. 同步齿形带的张力调节器
Tension adjuster for timing belt



安装在升降台上的水平旋转装置
Horizontal rotation unit mounted
onto lifting/lowering table

特殊用途旋转装置 HSR / G (用于磨轮, 线锯珠, 磨辊和直径最大至 130 毫米的相似工具) **Special-purpose rotary unit HSR / G for grinding wheels, wire-saw beads, grinding rollers and similar up to Ø 130 mm**

该水平旋转装置可进行一个大约 359 度的倒转水平运动并且可实现金刚石或立方氮化硼磨轮和修整滚轮的更均匀电镀。该旋转装置通常直接被安装在电镀槽上。带有工件的接触装置被放置到之前提供的槽沟中。基于工件的直径, 2 到 7 个接触夹具能够同时被处理。

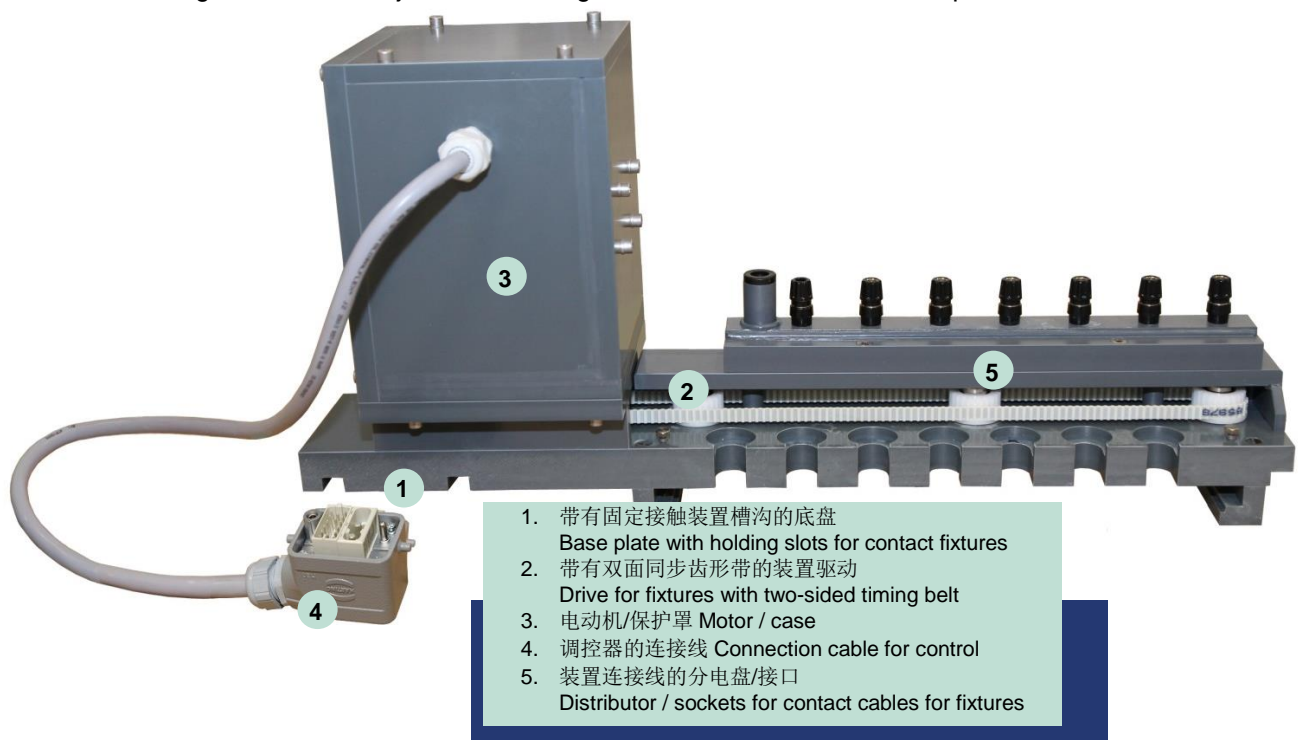
倒转速度通过一个内置在相应的电镀调控器中的电动机调控器进行调节。

我们能够提供不同尺寸的旋转装置并且能够根据需求使其与您的槽大小相匹配。握持槽的数量可以根据工件大小调整。

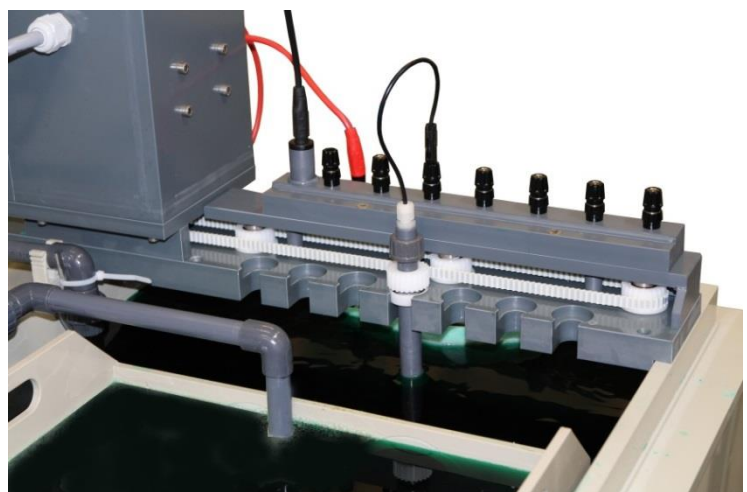
The horizontal rotary unit carries out a reversing, horizontal motion of approx. 359° and allows a more uniform electro-plating of diamond or CBN grinding wheels and dressing rollers. The rotary unit is typically mounted directly onto the electro-plating plating tank. The contact fixtures with the work pieces are placed into the provided holding slots. Depending on the diameter of the work pieces, 2 to 7 contact fixtures can be processed simultaneously.

Reversing speed is adjusted by the motor control unit which is integrated into the corresponding electro-plating control.

The rotary units are available in different sizes and can be customized to your specific tank dimensions. The number of holding slots can be adjusted according to the dimensions of the work pieces.



安装在电镀站中的旋转装置, 带有一个磨辊的接触装置
 Rotary unit fitted into electro-plating station with one contact fixture for grinding rollers



磨轮和磨辊的立方氮化硼和金刚石电镀装置系统 Fixture Systems for CBN and Diamond

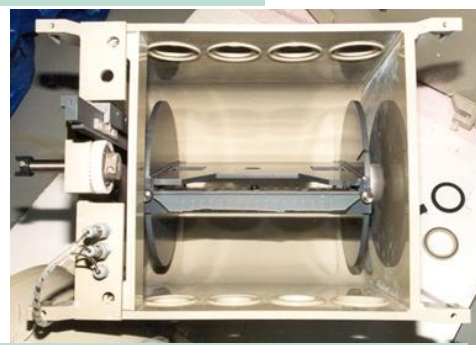
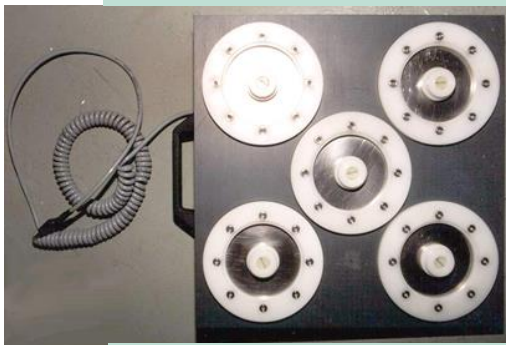
Electro-Plating of Grinding Wheels and Grinding Drums



活塞环磨轮的装置系统

Fixture system for piston-ring grinding wheels

- 单个生产或者成组生产 (一组三个)
Single production or set production (1 set = 3 pcs)
- 简单快速的组装 Quick and fast assembly
- 不需要上绝缘漆 Masking varnishing not required



内部掺入金刚石的高精度切割轮装置系统

Fixture system for diamond-penetrated precision cut-off wheels

- 微小金刚石 4-25 微米 Micro-diamond 4-25 μm
- 用于 4 个或 5 个磨轮的装置 Fixture for 4 or 5 wheels
- 磨轮尺寸 Wheel dimensions
外直径 O.D. 2.4" – 4.7"
内直径 I.D. 1.0" – 3.5"



大磨轮和磨辊的装置系统

Fixture system for large grinding wheels and grinding drums

- 夹具的稳定设计; 可通过升降装置运输
Stable design of fixture; transport with lifting device
- 通过各种垫片很容易适应不同磨轮尺寸
Easily adapted to different wheel types by means of various spacers
- 用于高预处理电流的分开电流连接
Separate current contact for high pre-treatment currents
- 不需要或只需要部分绝缘漆 No or only partial masking required.

生产金刚石带锯刀片的夹持系统

Fixture System to Manufacture Diamond Band Saw Blades

用于一次一个带有平直或者齿形边缘的带锯刀片的金刚石电镀。

该固定和接触夹具（接触夹具）通过提供的横切面硅胶线保证刀片边缘的均匀电镀。

不要求带锯刀片上绝缘漆。

带锯刀片的排列紧凑并且节省空间。

该夹具使得在要求的预处理和随后的金刚石电镀过程中无需移除带锯刀片。

该夹持系统保证了只有被电镀的表面与处理槽相接触。

For diamond electro-plating of one band saw blade at a time, with straight or toothed edge.

The holding and contact fixture (contact fixture) guarantees a uniform electro-plating of the cutting edge by means of the supplied square-section silicone cord.

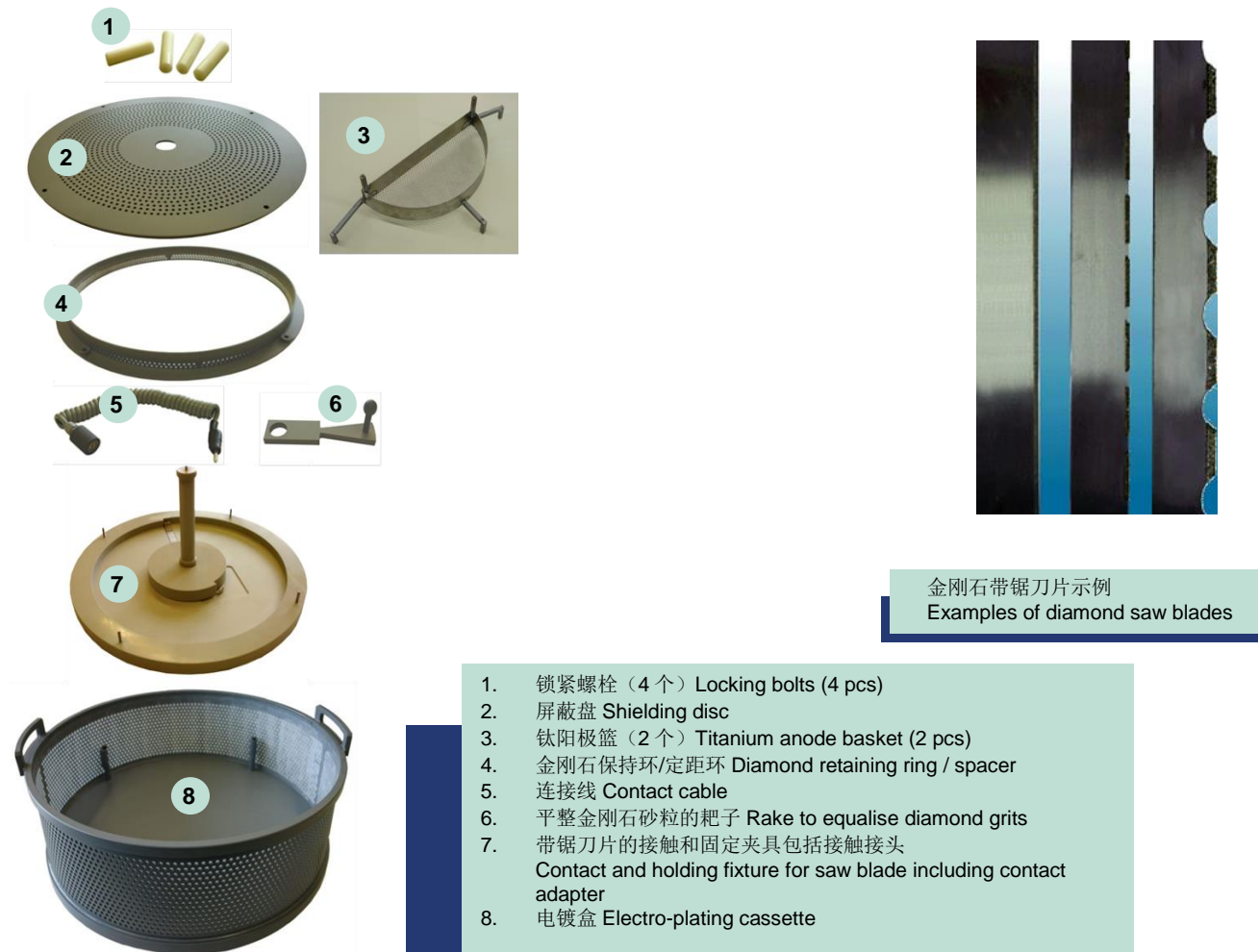
Masking of the band saw blade is not required.

The arrangement of the band saw blade is compact and space-saving.

The fixture is used for the required pre-treatment and the subsequent diamond electro-plating process without a need to remove the band saw blade.

The fixture system is designed so that only the surface areas to be electro-plated come into contact with the process baths.

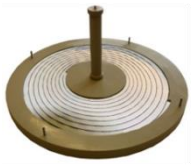
夹具组件 Fixture components



金刚石带锯刀片示例
Examples of diamond saw blades

1. 锁紧螺栓（4个） Locking bolts (4 pcs)
2. 屏蔽盘 Shielding disc
3. 钛阳极篮（2个） Titanium anode basket (2 pcs)
4. 金刚石保持环/定距环 Diamond retaining ring / spacer
5. 连接线 Contact cable
6. 平整金刚石砂粒的耙子 Rake to equalise diamond grits
7. 带锯刀片的接触和固定夹具包括接触接头
Contact and holding fixture for saw blade including contact adapter
8. 电镀盒 Electro-plating cassette

夹具部件 Fixture assembly



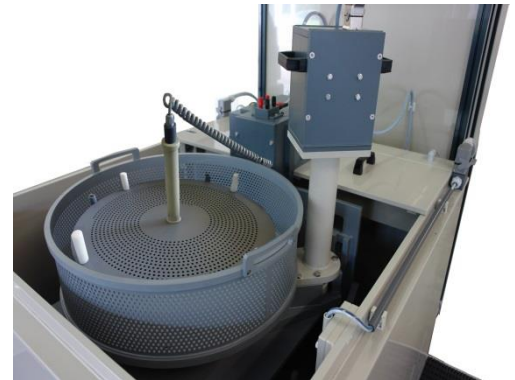
带锯刀片安装在带有横切面硅胶线的接触夹具里
Saw blade mounted into contact fixture with square-section silicone cord



带有耙子的接触夹具平整金刚石砂粒
Contact fixture with rake to equalise diamond grits distribution



带有钛阳极篮（图中不可见）的接触夹具和屏蔽盘安装在电镀盒里
Contact fixture with titanium anode baskets (not shown) and shielding disc mounted into electro-plating cassette



整个夹持系统安装在电镀槽中
Complete fixture system installed in the electro-plating tank.

用于处理智能手机显示屏的金刚石铣刀夹持系统

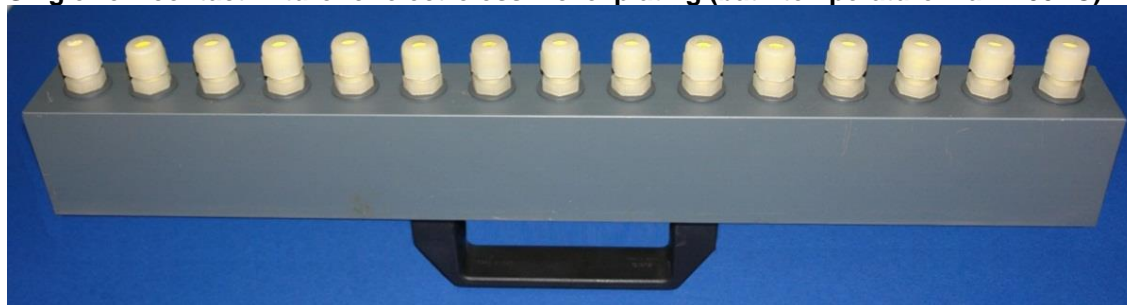
Fixture System to manufacture Diamond Cutters for Processing Smartphone Displays

接触夹具视图 View of contact fixture



单排化学镀镍接触夹具（槽温度最高 100 摄氏度）

Single-row contact fixture for electroless nickel plating (bath temperature max. 100 °C)



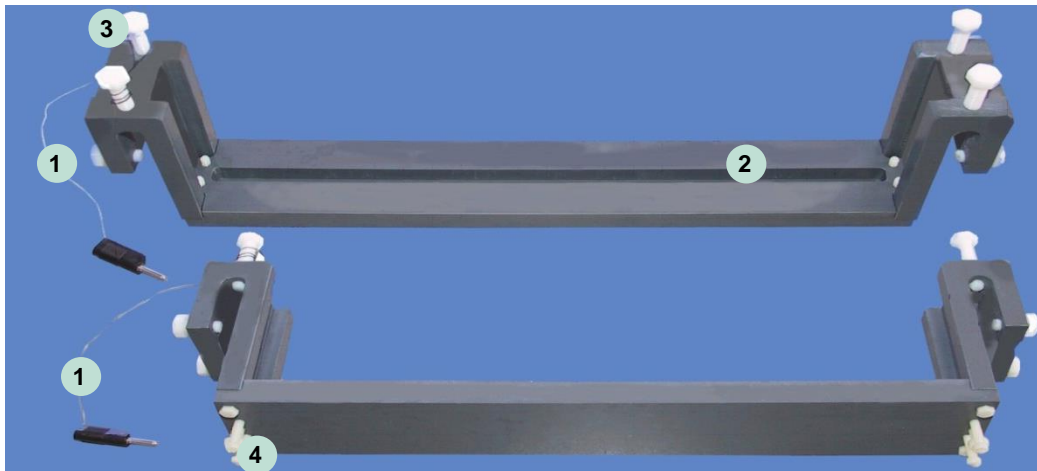
单排和双排电镀镍接触夹具（槽温度最高 60 摄氏度）

Single and double-row contact fixtures for nickel electro-plating (bath temperature max. 60 °C)

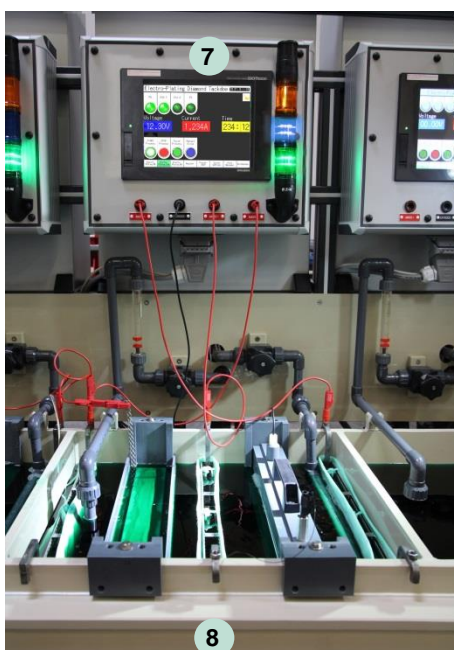
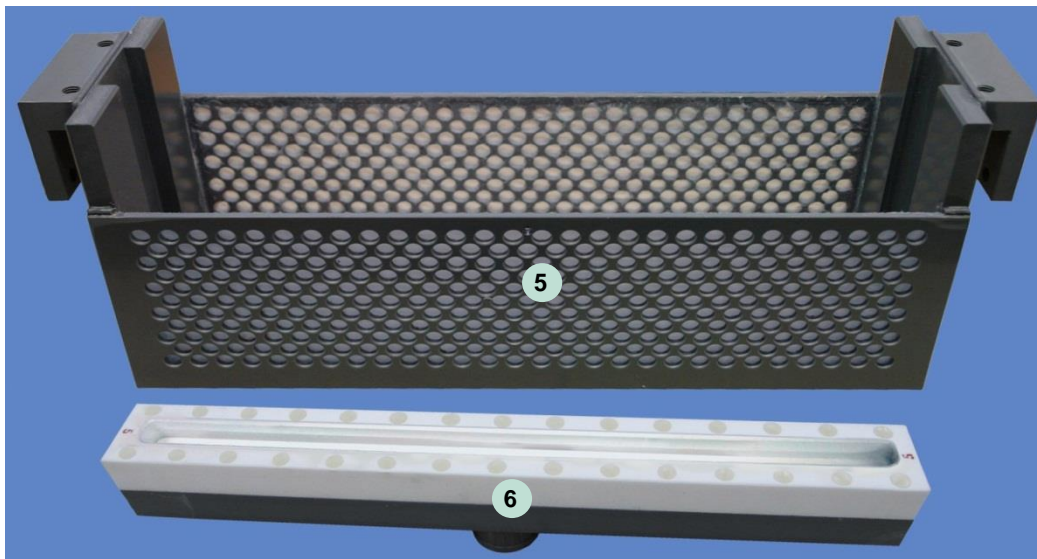


1. 接触夹具 Contact fixture
2. 带有插头的连接线 Contact cable with plug
3. 连接盲阴极的连接部分 Contact part to connect the blind cathode

预镀和亮镍装置 Pre- and finish nickel fixture

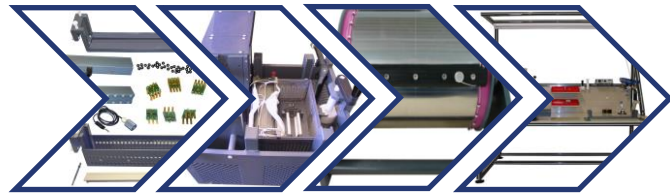


金刚石固定夹具 Diamond tackdown fixture



1. 盲阴极线和插头 Blind- cathode wire and plug
2. 用于固定阴极线的凹槽 Groove to hold blind-cathode wire
3. 预镀和亮镍的固定和调整螺丝
Mounting and adjustment screws for pre- and finish nickel fixture
4. 接触夹具高度的调整螺丝
Height adjustment screws for contact fixture
5. 金刚石固定盒，带有保留金刚石的薄纱
Diamond tackdown cassette diamond-retaining tissue
6. 金刚石固定插件，用于单排夹具（砂粒 5 微米）
Diamond tackdown insert for single-row fixture (grit size 5 μm)
7. 金刚石电镀调控器 DBS 3A-45
Diamond electro-plating control DBS 3A-45
8. 金刚石电镀站 Diamond electro-plating station

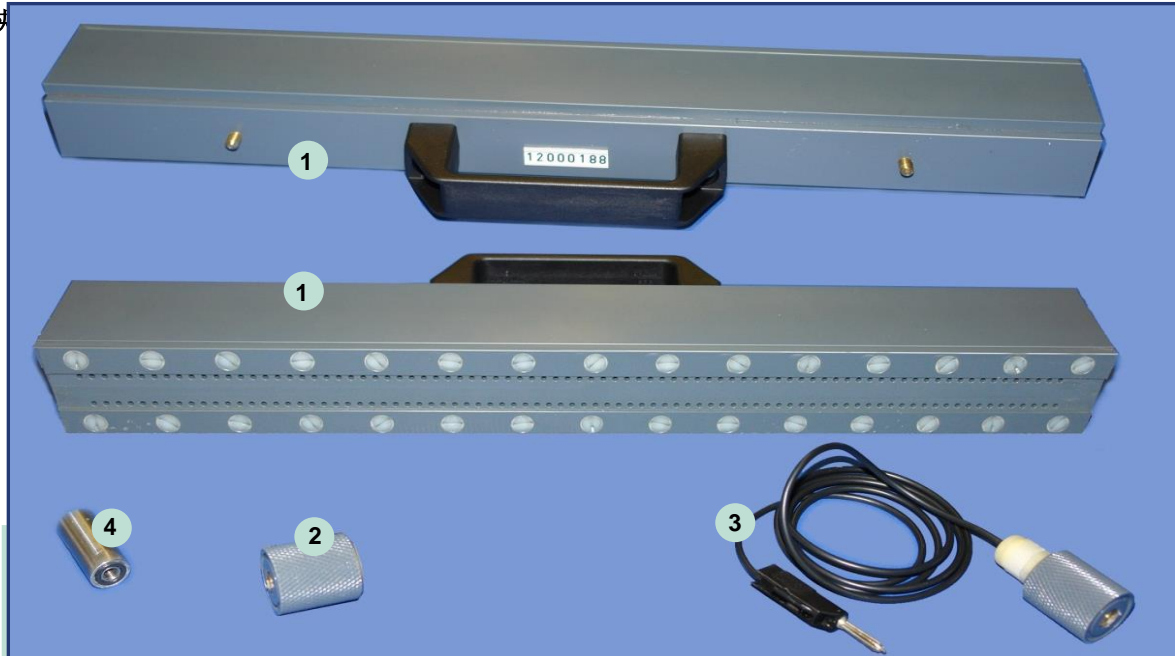
带有预镀和亮镍装置（左）以及金刚石固定装置（右）的电镀站
Electro-plating station with pre- and finish nickel fixture (left) and tackdown fixture (right)



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 Burrs FG, H, HP and RA 460-2/002

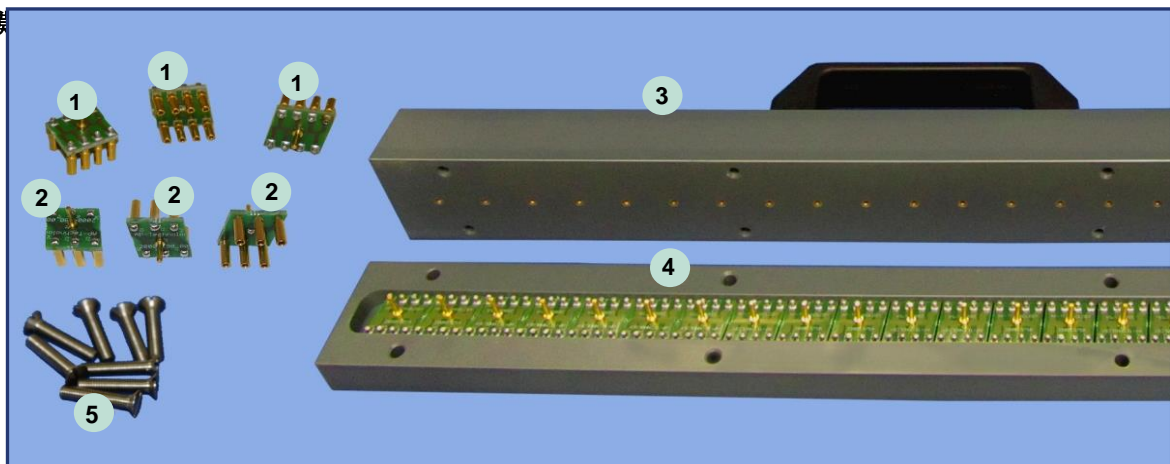
接触头



➤ 牙钻 Dental Burrs

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



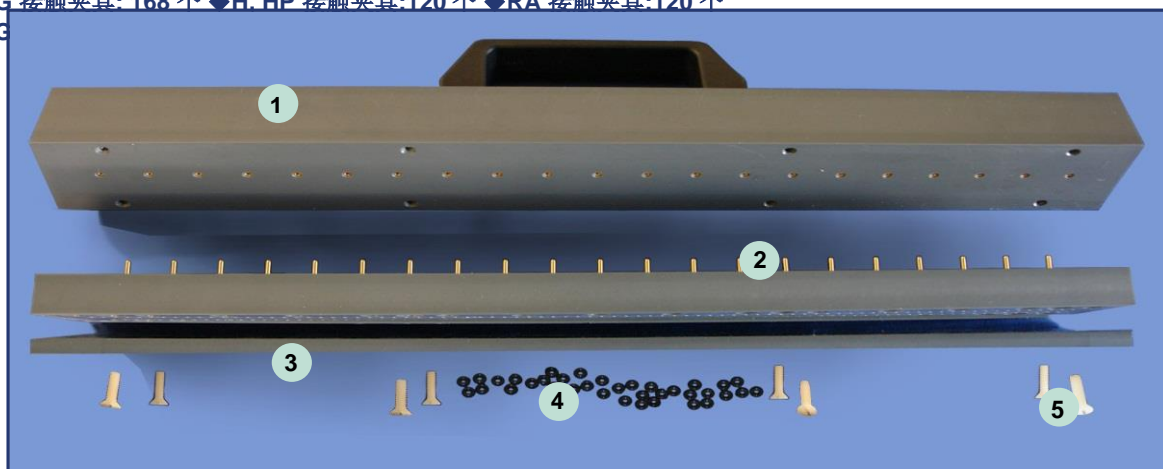
1. 接触模块 FG, 每个带有 8 个插槽 (21 件/夹具)
Contact modules FG with 8 slots each (21 pcs/fixture)
2. 接触模块 H,HP,RA, 每个带有 6 个插槽 (20 件/夹具)
Contact modules H, HP, RA with 6 slots each (20 pcs/fixture)
3. 接触板条-顶部 Contact strip – top part
4. 接触板条-底部 Contact strip – bottom part
5. 钛材质螺丝 (8 个) Titanium bolts (8 pcs)

接触夹具部件 Assembly of contact fixture:

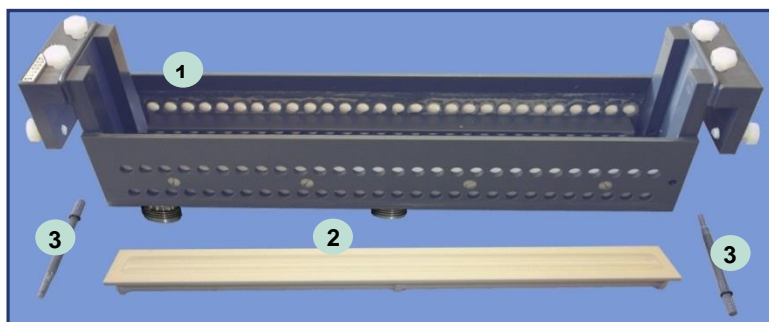
每个接触板条的插槽数量: **Number of slots per contact strip:**

◆FG 接触夹具: 168 个 ◆H, HP 接触夹具: 120 个 ◆RA 接触夹具: 120 个

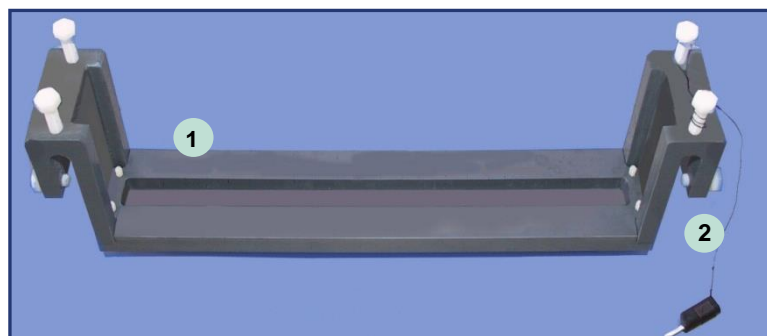
◆FG



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)

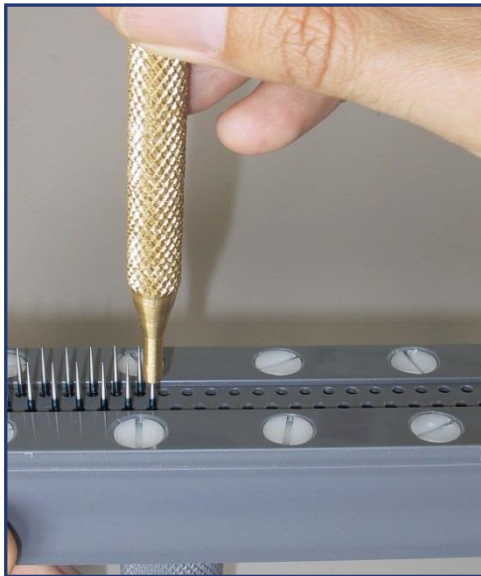


1. 带有金刚石保留筛的金刚石固定支架 Holder for diamond tack-down insert with diamond retaining sieve
2. 金刚石固定插件 (槽) Diamond tack-down insert (trough)
3. 金刚石固定插件锁紧螺栓 Locking pins for diamond tack-down insert (2 pcs)

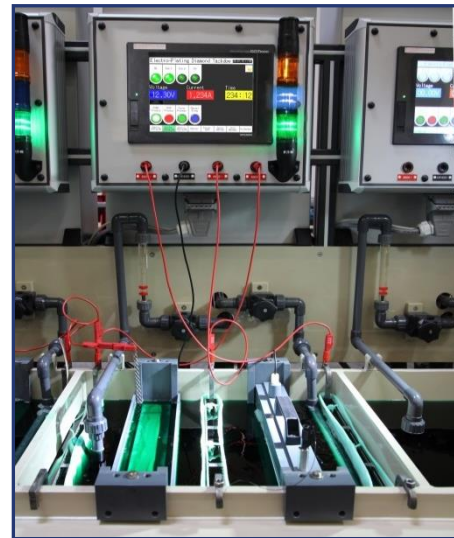


1. 预镀镍与亮镍夹具 Pre- and finish nickel fixture
2. 盲阴极线, 带插头 Blind cathode wire with plug





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)

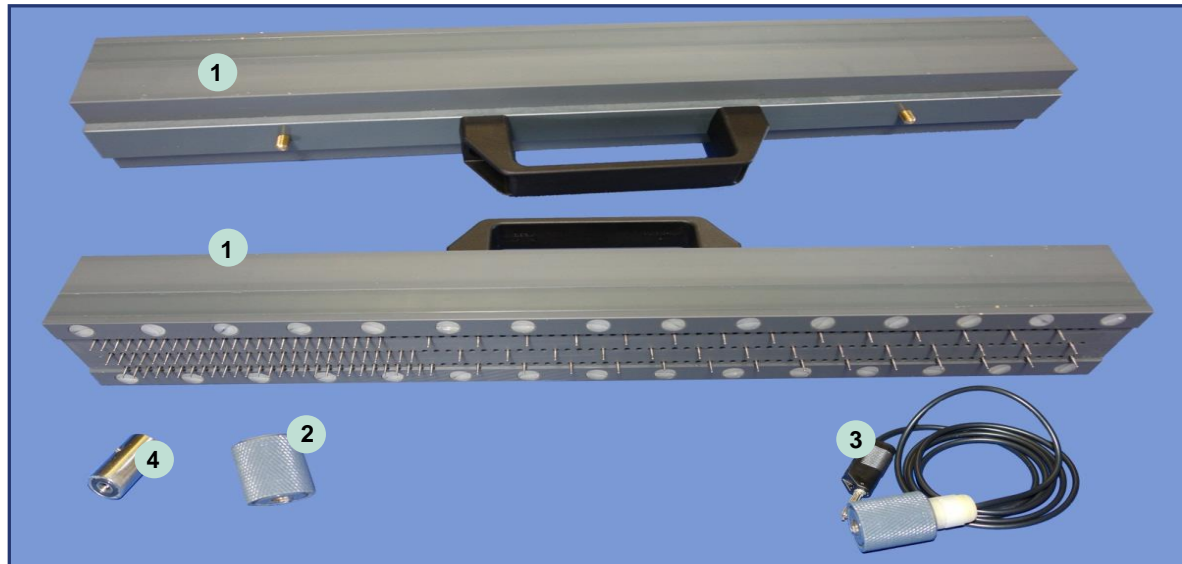
每个电镀站的生产能力 Production capacity per electro-plating station:					
砂粒大小 Grit size 欧洲标准 FEPA (US mesh)	处理时间 (分) Process time (min)	生产速度 (件) Production rate (pieces)			
		FG 型号 FG type		H,HP,RA 型号 H, HP, RA types	
		一班制 (8 小时) Single shift (8 h)	二班制 (16 小时) Two shifts (16 h)	一班制 (8 小时) Single shift (8 h)	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

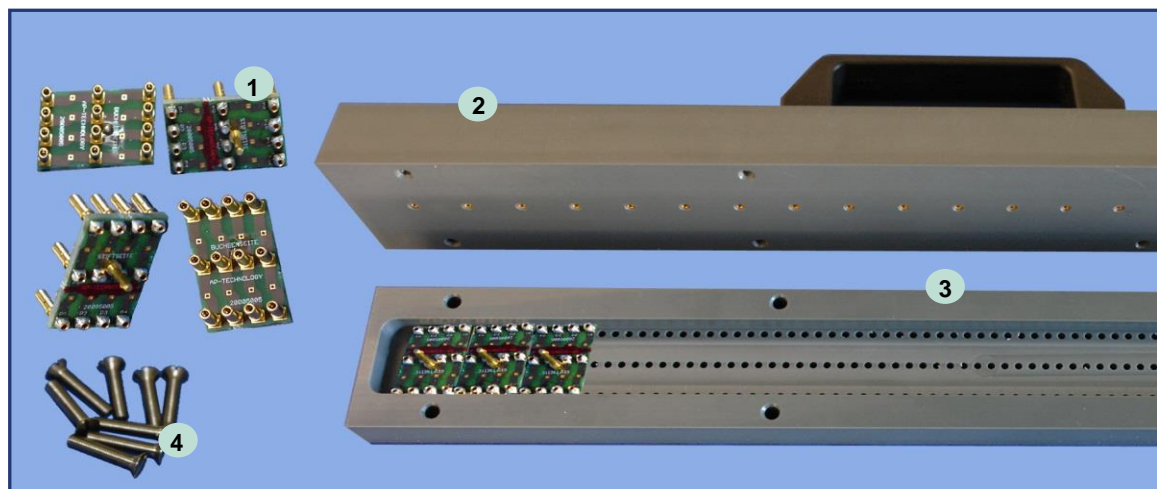
(球形 ≤ 1.0 毫米) (Ball shape ≤ 1.0 mm)

接触夹具 Contact fixture



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

接触模板细节 Detail contact modules

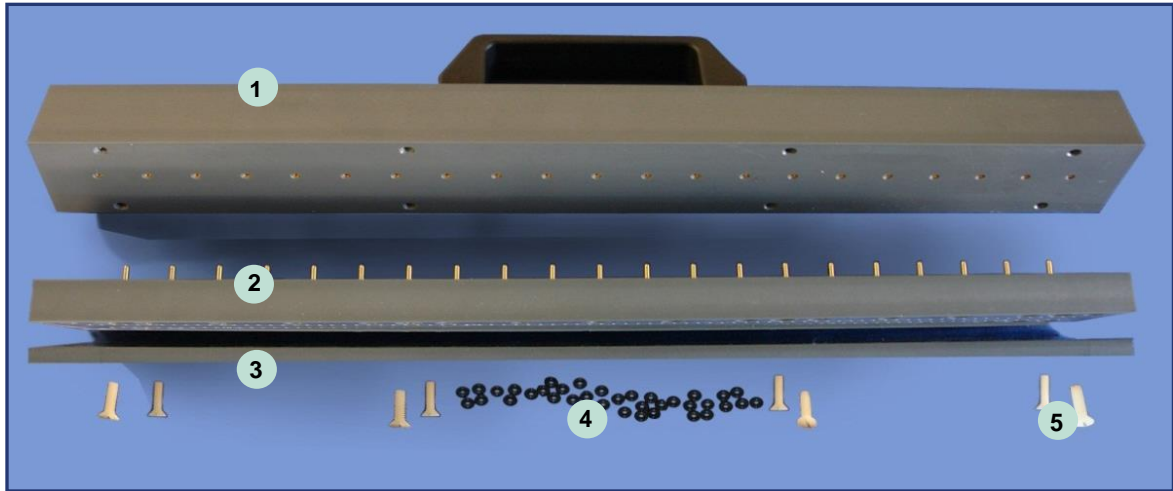


1. 接触模板 FG，每个带有 12 个插槽（21 个/夹具）
Contact modules FG with 12 slots each (21 pcs/fixture)
2. 接触板条-顶部 Contact strip – top part
3. 接触板条-底部 Contact strip – bottom part
4. 钛材质螺丝（8 个） Titanium bolts (8 pcs)

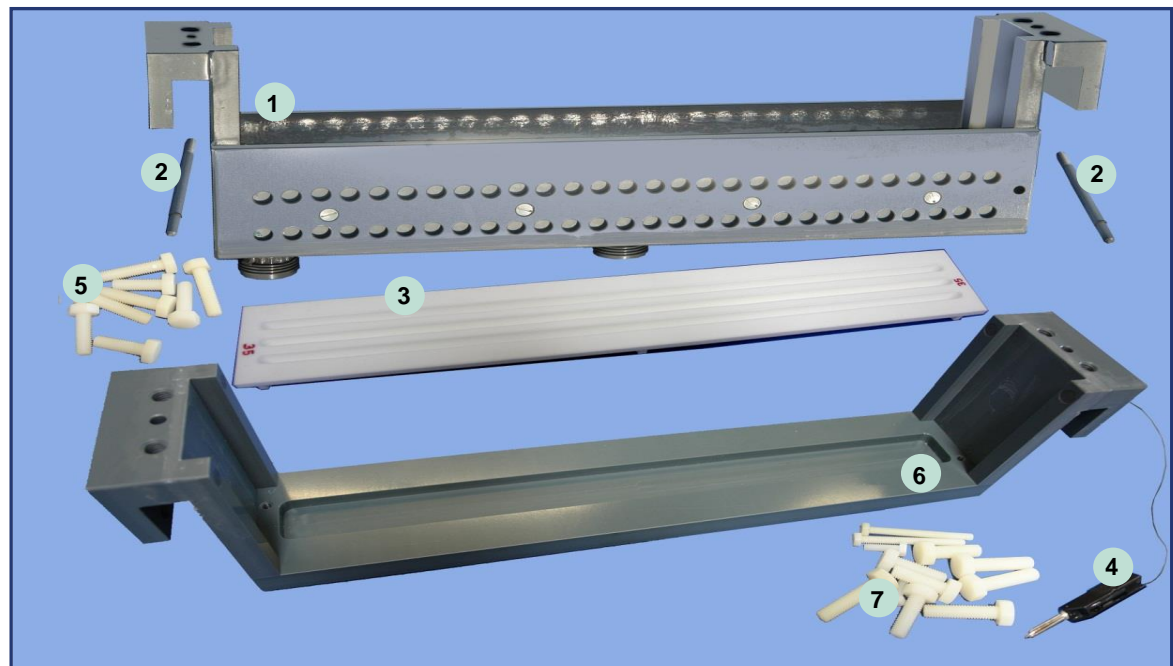
夹持装置部件 Assembly of contact fixture

每个接触装置插槽的数量: FG 接触装置: 252 个

Number of slots per contact strip: FG contact fixture: 252 pieces



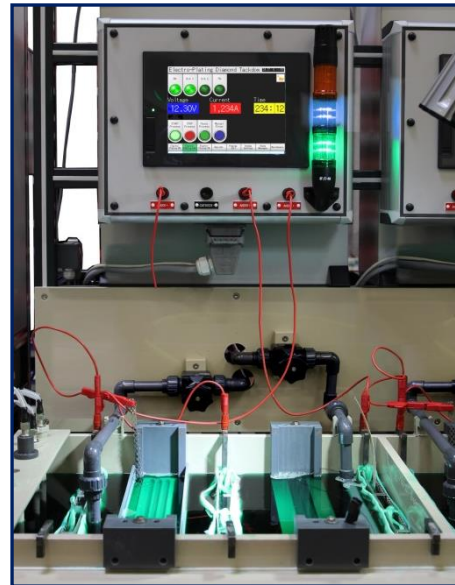
1. 接触板条- 顶部 Contact strip – top part
2. 接触板条- 底部带有接触模板
Contact strip – bottom part with contact modules
3. 接触板条- 底板 Contact strip – bottom cover
4. 接触插座的 O 环 O-rings for contact sockets
5. 聚丙烯螺丝钉 (30 个) PP screws (30 pcs)



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)	195	504	1008
D107 (140/170)	120-135	756-1008	1512-2016
D20 (~800)	5		4536

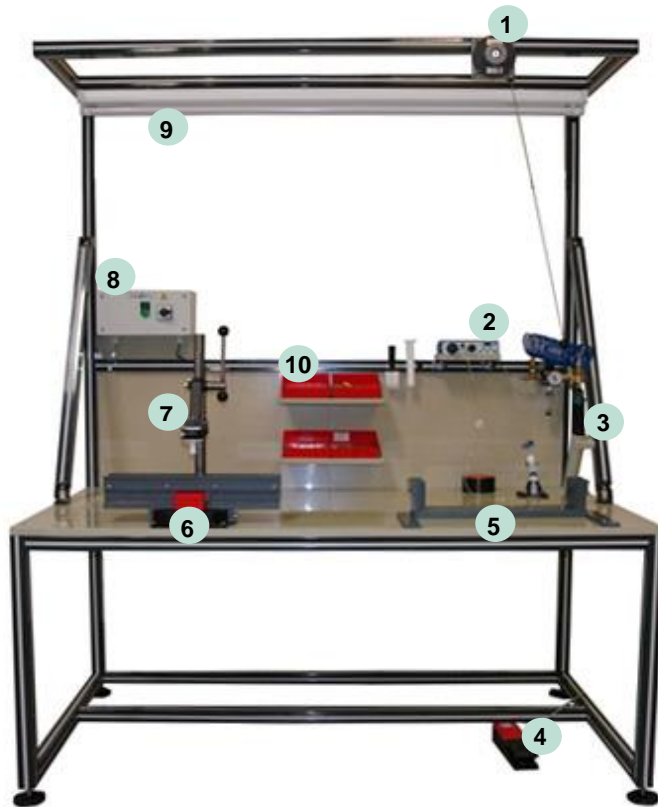


牙科接触夹具 460-2/002+460-3/002 FG, H, HP, RA 的维修装置

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。

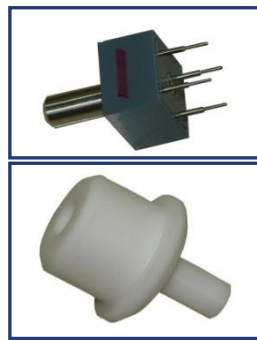
Maintenance unit to ease the disassembly and assembly of the contact fixtures for dental burrs FG, H, HP and RA. The corresponding tools and installations allow for quick and correct disassembly and assembly of the contact fixtures to preserve their function, ensure reproducible electro-plating results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



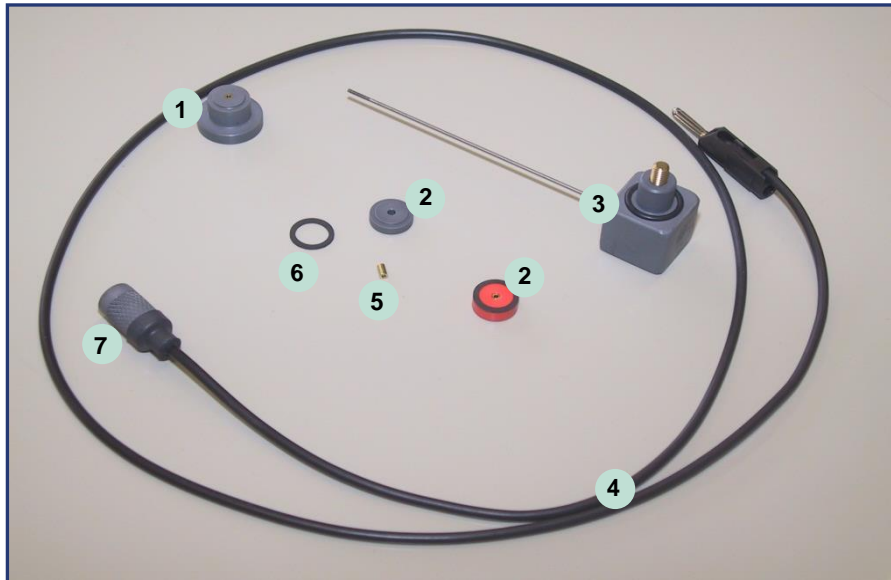
液体橡胶的分配装置
Dispenser unit for liquid rubber



拆卸夹具的工具
Tools for disassembly of fixtures

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

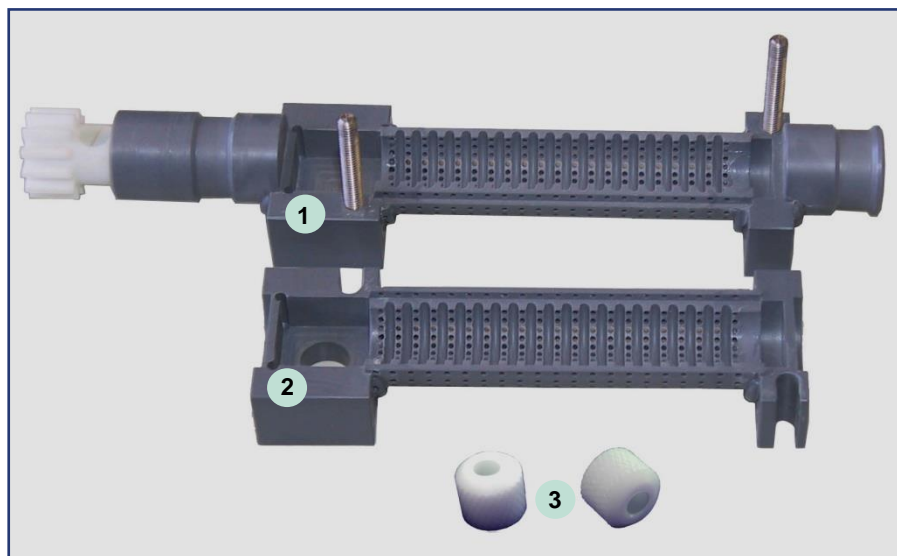
接触装置 – 组成 Contact fixture - Components



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



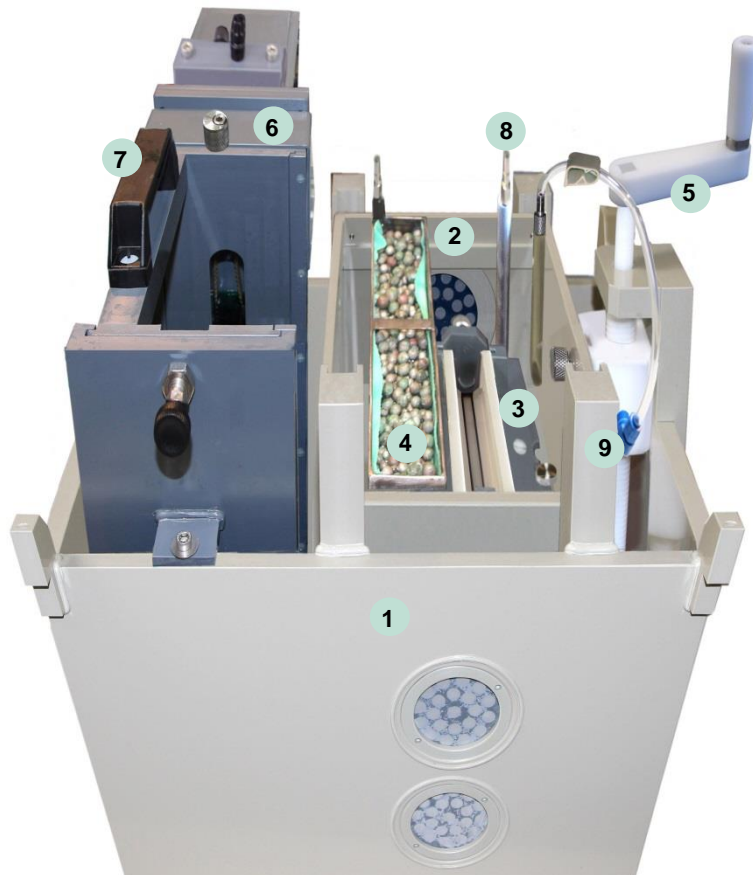
1. 电镀夹具-底部 Electro-plating fixture – bottom part
2. 电镀夹具-顶部 Electro-plating fixture – top part
3. 钛合金快速锁紧螺帽(2个) Quick-release nuts (2 pcs)



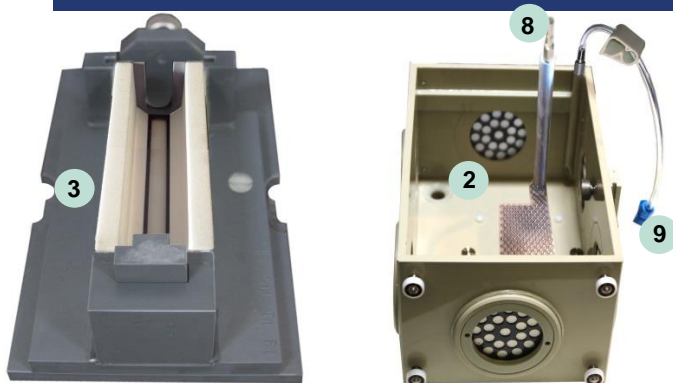
注：所有图片均为示例。实物可能与图示有所差异。
 Note: All illustrations are examples. The product may vary

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. 钛阳极篮盒子 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

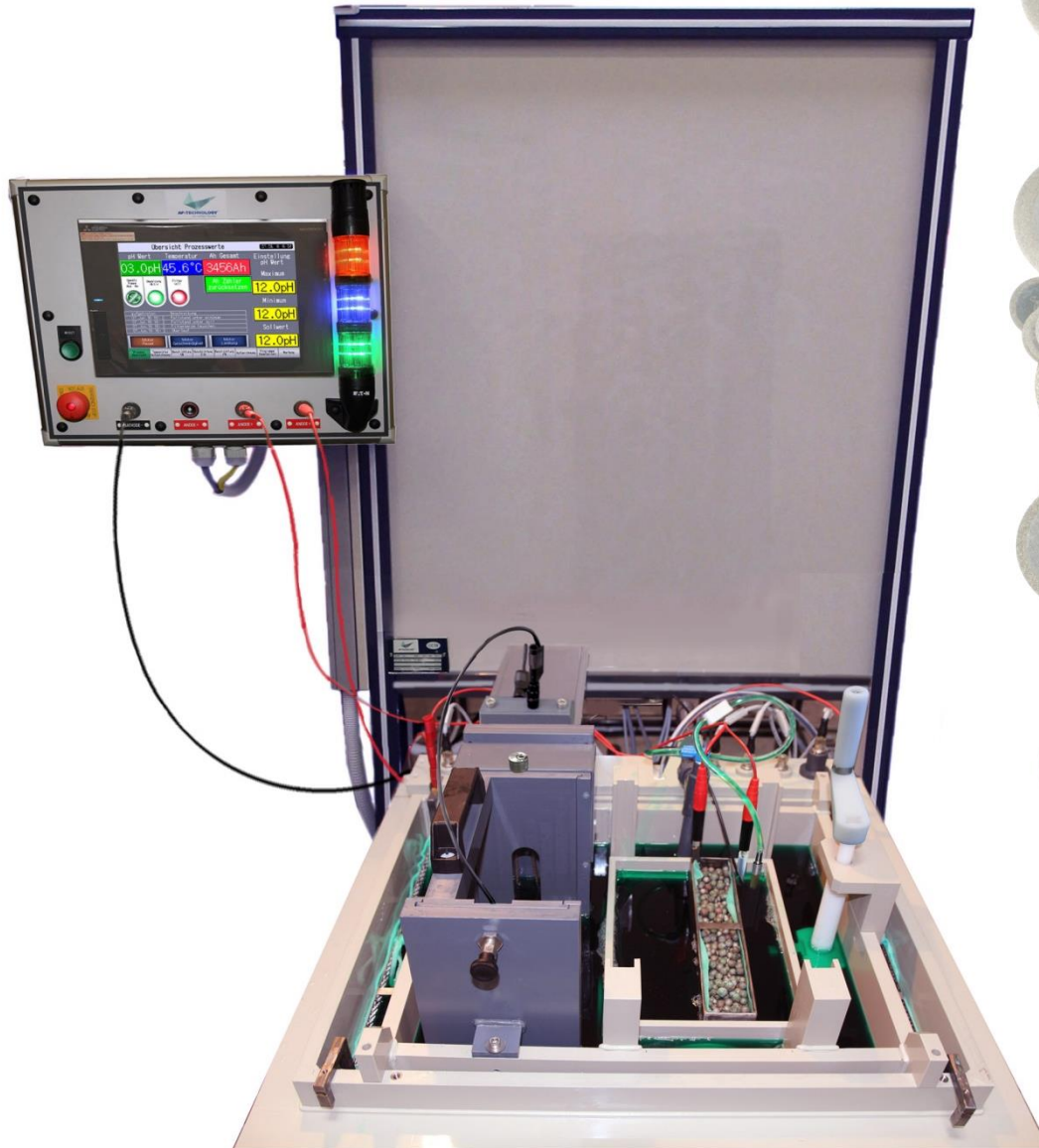
毛坯厚度 Thickness of blank: 0,05 – 0,3 mm

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 FEPA (US mesh)	处理时间 (分) Process time (min.)	生产速度 (个) Production rate (pieces)			
		19 x 0,05 mm (20 pcs.)		22 x 0,1 mm (20 pcs.)	
		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
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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 Intranet 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



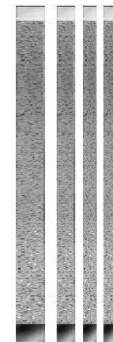
旋转和接触装置 RKW-001

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			
Uchm. Werk:	45	Unit	
Abstand:	5		
Werkst. Lese:	90	Unit	
Werkst. Waende:	90	Unit	
Erreicht:	25	%	
Start Prog	Stop Prog	N	
Start Sekt G	Stop Sekt N		

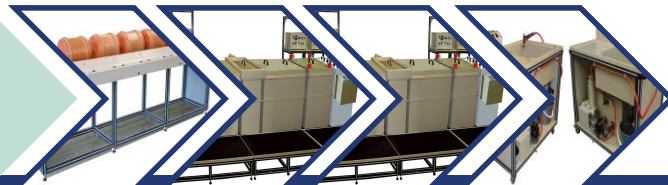


生产能力/电镀站 (台)

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

特殊系统
Special Systems



- 抛光滚筒系统 TPA 6-250
Drum Polishing System TPA 6-250
- 腐蚀系统 EDB 4-DPW/AL-XXX
Etching System EDB 4-DPW/AL-XXX
- 可移动金刚石冲洗装置 DSH 1-ABR/001
Displaceable Diamond Rinsing Unit DSH 1-ABR/001

滚筒抛光系统 Drum polishing system

用于抛光牙钻，磨棒以及类似的工具。For polishing dental burs, 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



切割刀片的腐蚀系统 EDB 4-DPW / AL-XXX 带有铝质基体 Etching system EDB 4-DPW / AL-XXX for Dicing Blades

with Aluminium Hub

用于带有铝质基体并且内部掺入金刚石的高精度切割轮（切割刀片）在电镀后的最后处理。

刀口将在腐蚀过程中显露。

该腐蚀系统包括：

- 一个腐蚀站带有一个热调控器 HS 501-01, 一个处理时间控制器 PZS 510-001, 具有 5 个可编程定时器和可视可听时间结束提示信号; 一个循环泵以及二联式静态漂洗槽;
- 一个净化槽, 包括一个周边抽吸装置以及二联式静态漂洗槽;
- 一个热洗站(脱水)用于消除切割刀片上的所有残留水分, 以使刀片表面无法形成水滴; 包括一个热控制器 HS 501-002;
- 一个干燥站包括热风机调控器 HGS 520-001 和一个处理时间调控器 PZS 510-001。

该腐蚀站允许置入 5 个腐蚀装置, 每个带有 27 个切割刀片, 从而使得 135 个零部件同时被处理。该干燥站可容纳 5 个腐蚀装置, 也就是 135 个零部件。

For the final processing of high-precision diamond-penetrated cut-off wheels (dicing blades) with aluminium hub after electro-plating.

The cutting edge is revealed by the etching process.

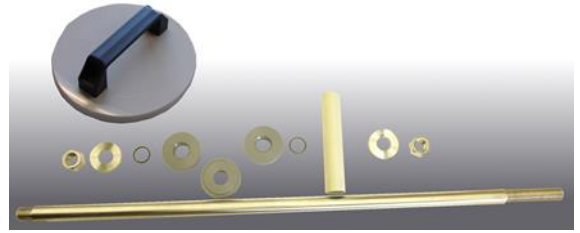
The etching system comprises:

- An etching station with a heater control HS 501-01, a process-time control PZS 510-001 with five programmable timers with visual and acoustic time-end signal; a circulation pump and a two-cascade standing sink;
- A clarifying bath including a rim exhaustion as well as a two-cascade standing sink;
- A hot-rinsing (de-watering) station to eliminate all and any water residues from the blades and thus preventing the formation of spots on the surface; including a heater control HS 501-002;
- A drying station including a hot-air blower control HGS 520-001 and a process-time control PZS 510-001.

The etching station allows the insertion of 5 etching fixtures with 27 pcs. dicing blades each, and thus the simultaneous processing of 135 parts. The drying station can accordingly hold 5 fixtures and thus 135 parts.

前视图 Front view





用于腐蚀切割刀片的固定装置，每个带有可组装 27 个切割刀片的铝质基体；成
品(左)；零件(右)
Holding fixture for the etching of dicing blades with AL-hub for 27 pcs each;
assembled (left); components (right)



可移动金刚石冲洗装置 DSH 1-ABR/001

Displaceable Diamond Rinsing Unit DSH 1-ABR/001

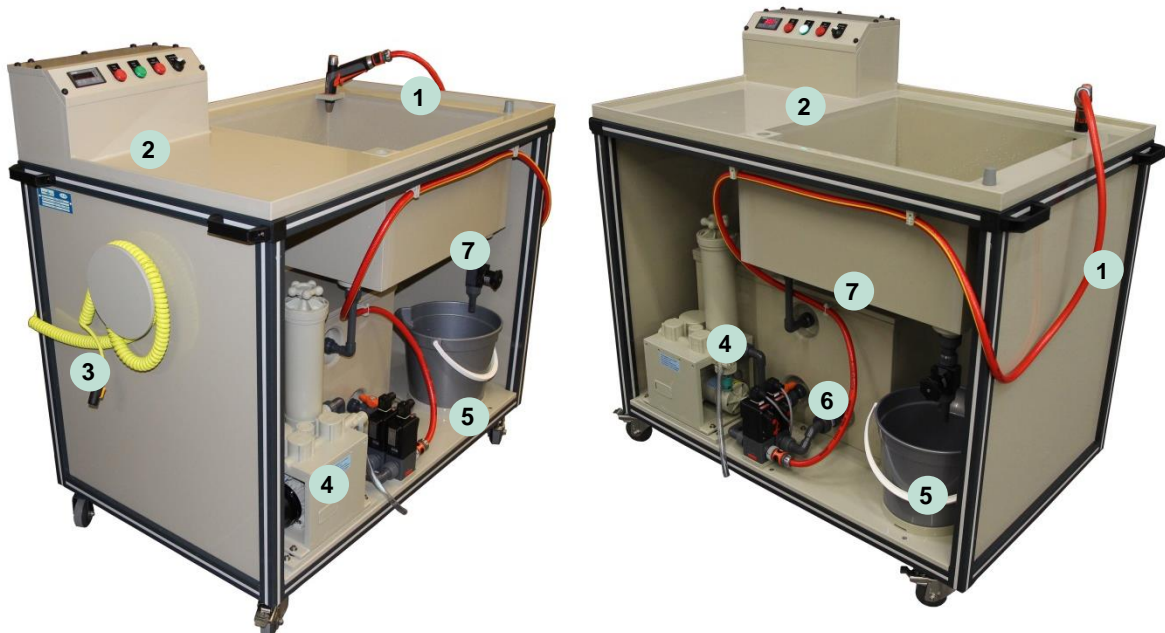
通过可移动金刚石冲洗装置可以方便，灵活地就地清洗金刚石固定或凹版电镀夹具和旋转装置，可以避免大而重的部件，比如电镀箱的长距离移动。该金刚石冲洗装置具有可储存 68 升漂洗液的储罐，一个加料泵和手持喷头。为保持工作温度，漂洗液将被引入一个封闭回路流回到储罐中，或者通过手持喷头喷出，冲洗部件。它可以通过排水管从冲洗槽流入到收集桶中（为了滤除金刚石砂粒）或者通过过滤器流回到储罐中。储罐装有水平和温度传感器。被冲洗出来的金刚石砂粒可以被过滤，清洁和再使用。

With the mobile diamond rinsing unit, an easy, flexible cleansing of the diamond tackdown or reverse-plating fixtures and rotation installations on location is possible and the need to displace large and heavy parts such as e.g. electro-plating cassettes over longer distances is obviated.

The rinsing unit has a 68 l reservoir for the rinsing solution, a feed pump and a hand spray head.

The rinsing solution is led in a closed circuit back to the reservoir in order to maintain the service temperature, or it is pumped out through the spray head to rinse the parts. It can be then emptied through the drain into the collection bucket (to filter out the diamond grits) or be pumped back into the reservoir through the filter. The reservoir is equipped level and temperature sensors.

The diamond grits which have been rinsed out can be recovered by filtering, cleaned and re-used.



前视图
Front view

后视图
Rear view



冲洗槽内视图 Inside view of rinsing tank

1. 带有喷头的冲洗管 Rinsing hose with spray head
2. 操控区 Control panel
3. 主开关电源线 Power cord with main switch
4. 加料泵/过滤器 Feed pump / Filter
5. 漂洗液/金刚石砂粒的收集桶 Collecting bucket for rinsing solution / diamond grits
6. 漂洗液储罐(68 升)带有液面水平传感器 Reservoir for rinsing solution (68 l) with level sensor
7. 冲洗槽 Rinsing tank

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