WB Furniture Application Seminar
2013中国水性家具涂装及应用论坛

17th October 2013, Hangzhou

2013年10月17日，杭州

演讲主题 Topic

板式家具辊涂技术与应用

Technology and Application of the Roller Coating on flat furniture components

BÜRKLE

演讲嘉宾 Guest Speaker

Dietmar Meinert

技术参数 Technical data

工作宽度 Working width:

•标准 Standard	1300	mm	（杭州贝高BHZ）
•最小 Small width	700	mm	（德国贝高BFS）
•更大 Large working width	1600, 1900, 2300	mm	（德国贝高BFS）

进给速度 Feed Speed :

•最低 Lowest speed	0,8	m/min
•最高 Highest speed	100	m/min

•家具辊涂线速度范围在 Speed range for furniture lines is in between 10 – 50 m/min. 杭州贝高辊涂线进给速度为 The speed of the roller coating lines made in Hangzhou is in between 8 – 20 m/min。

辊涂的优点 Advantage of roller coating

- 效率高 Effective method
- 可用于小批量的手工作业 Can be used with small lots in the handcraft
- 可用于大批量的工业生产 Can be used with large lots in the industry
- 优异的表面质量 Excellent surface qualities
- 无损失 Loss-free application, no overspray
- 使用环保涂料（高粘度，低溶剂含量） Environmental friendly lacquers with high viscosity and less solvents
- UV涂料干燥时间短 Short drying times through UV curable lacquers
- 可快速触及并叠放工件 Immediate access and stackable components
- 对于入门使用来说，投资少，占用空间小 Only few space and low investment is required for a starter kit

紧凑型辊涂线 Compact finishing line KA

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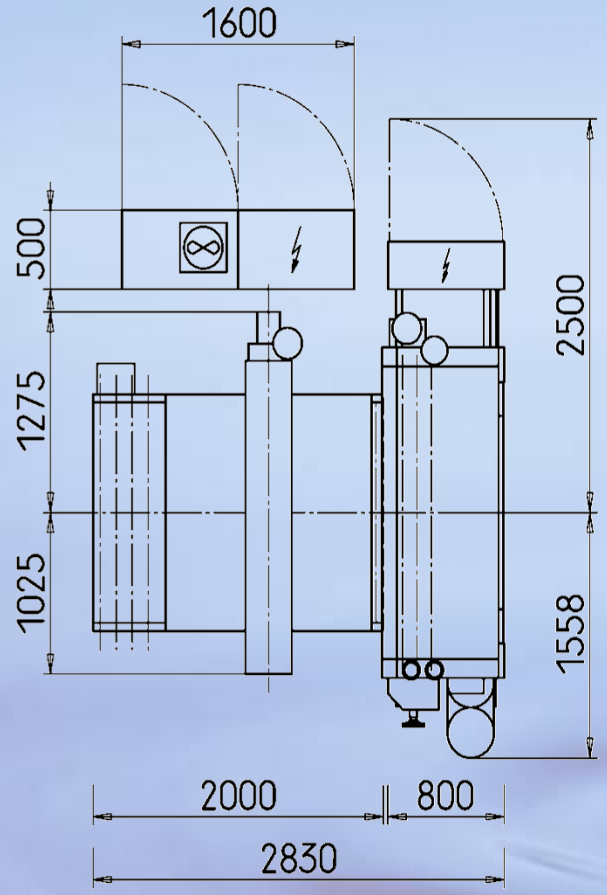
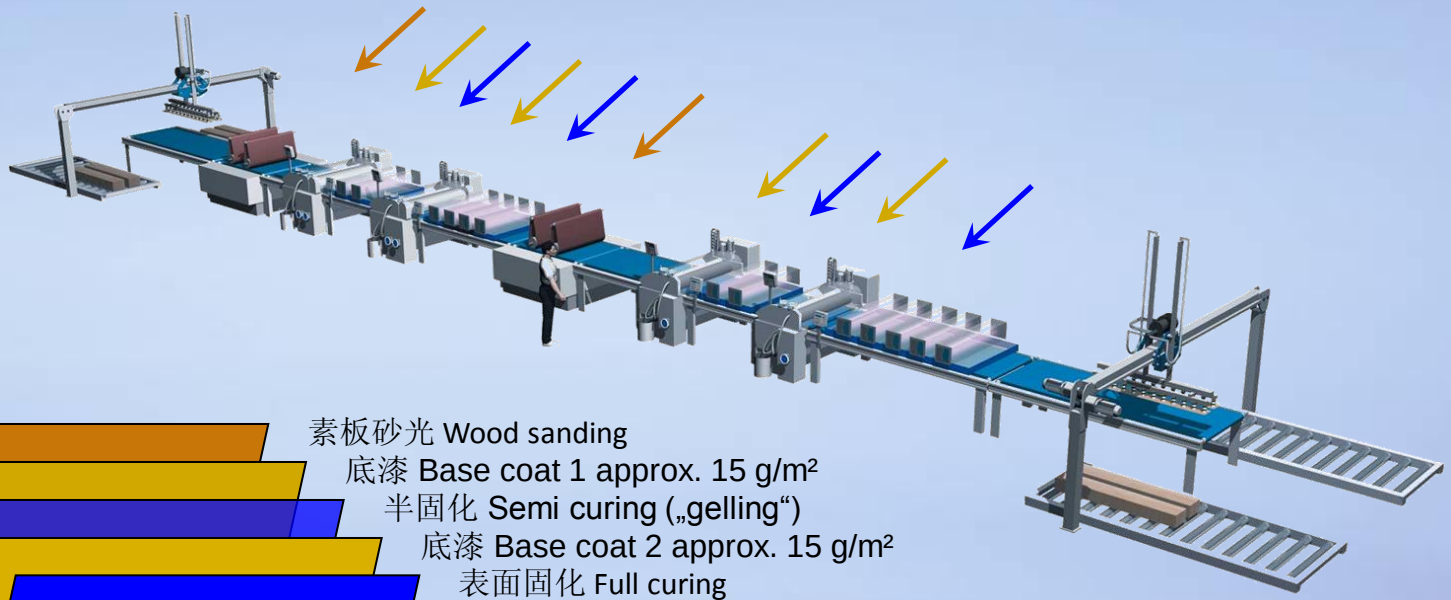
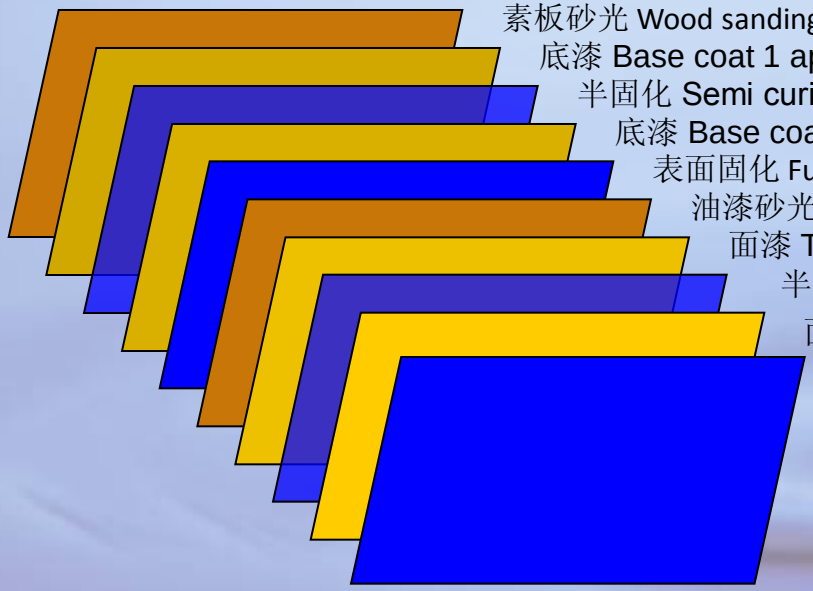


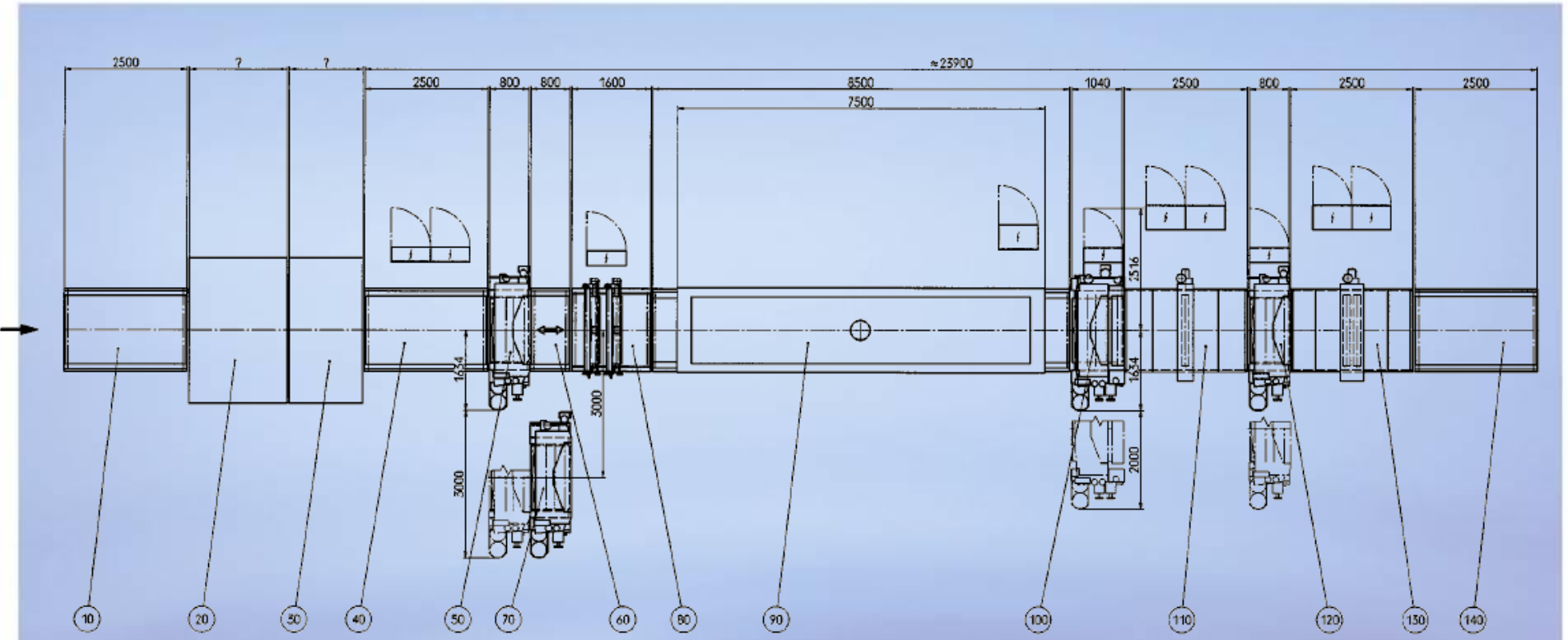
辊涂线 Finishing line





素板砂光 Wood sanding
底漆 Base coat 1 approx. 15 g/m²
半固化 Semi curing („gelling“)
底漆 Base coat 2 approx. 15 g/m²
表面固化 Full curing
油漆砂光 Lacquer sanding
面漆 Top coat 1 approx. 5 g/m²
半固化 Semi curing („gelling“)
面漆 Top coat 2 approx. 5 g/m²
全固化 Full curing

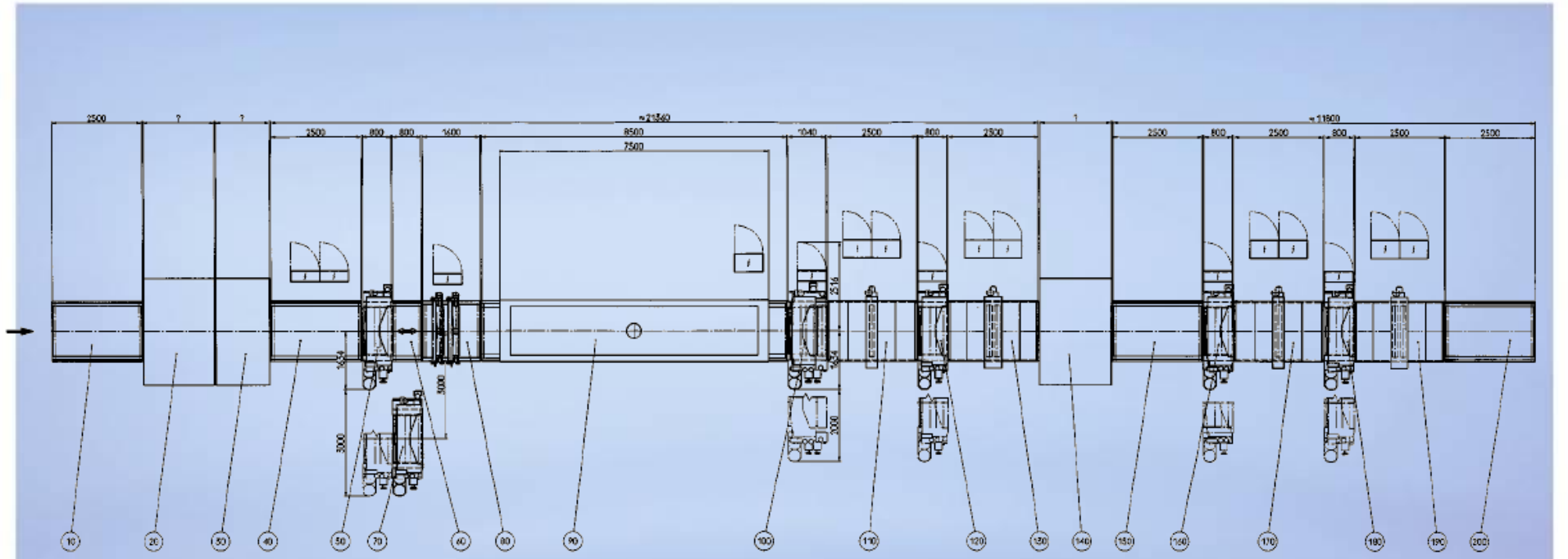
半条线方案 Half line solution



木皮饰面及实木家具板件辊涂线方案（每面过两次）

Example of a lacquering line for veneered furniture components and solid wood (half solution for 2 passes per side)

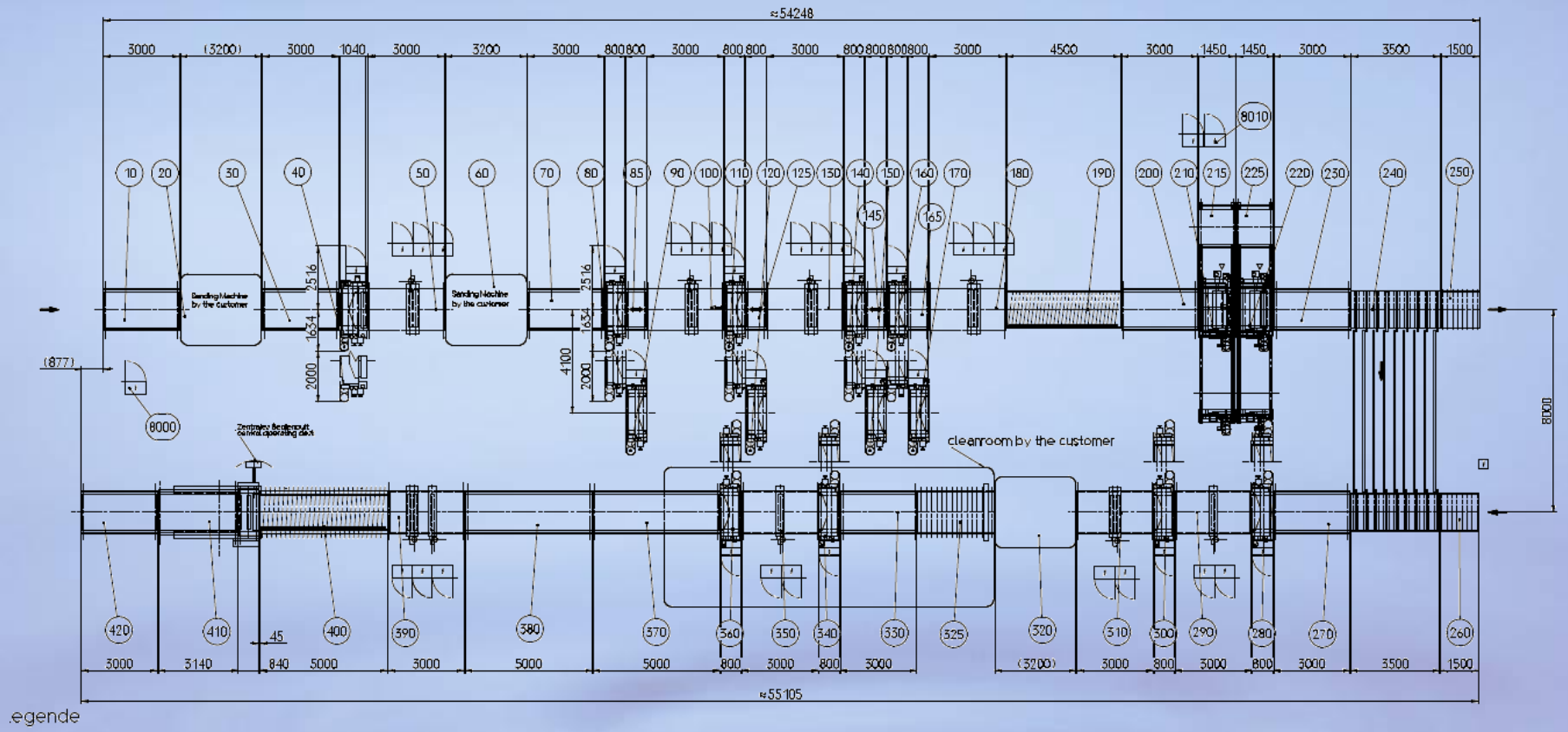
完整线方案 Full line solution



木皮饰面及实木家具板件辊涂线方案（每面一次通过完成）

Example of a lacquering line for veneered furniture components and solid wood (full solution, 1 pass per side)

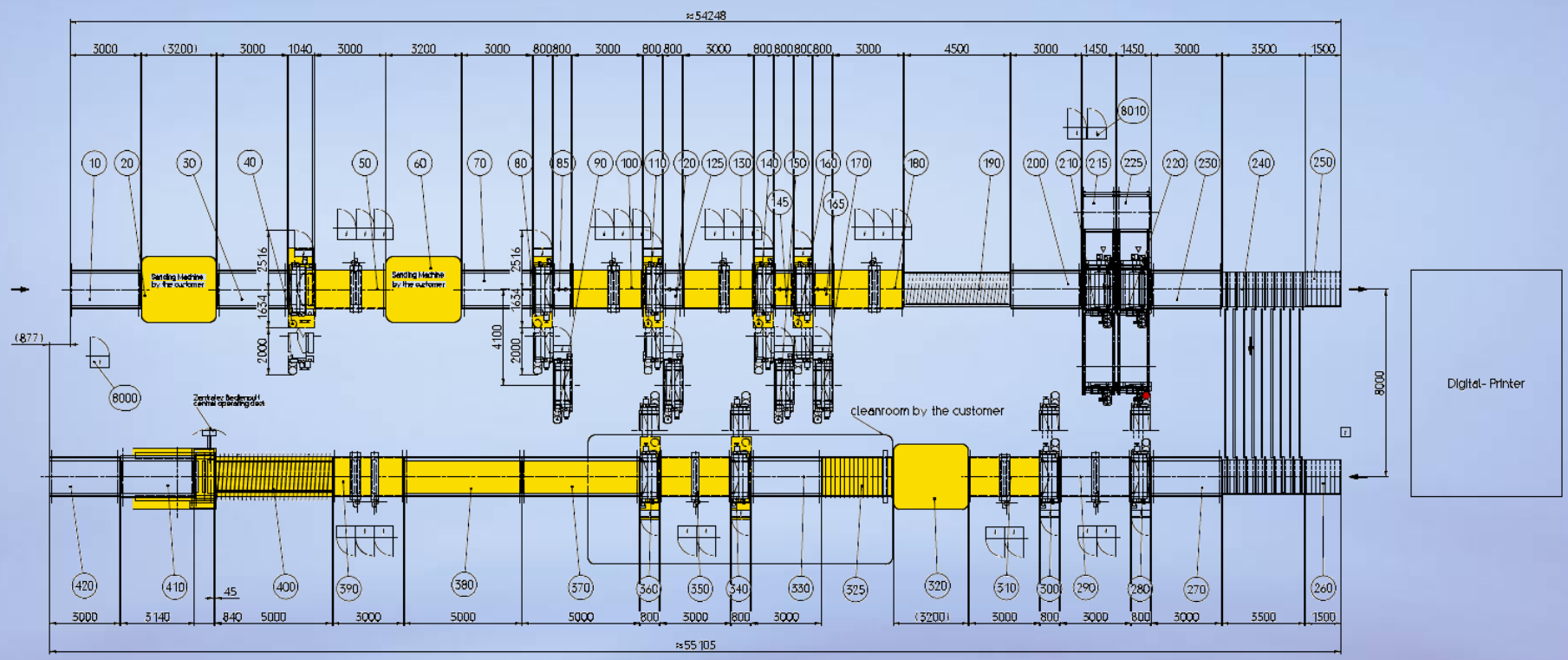
复合线方案 Complex line solution



适合不同产品的复合辊涂线

Complex finishing line for various products

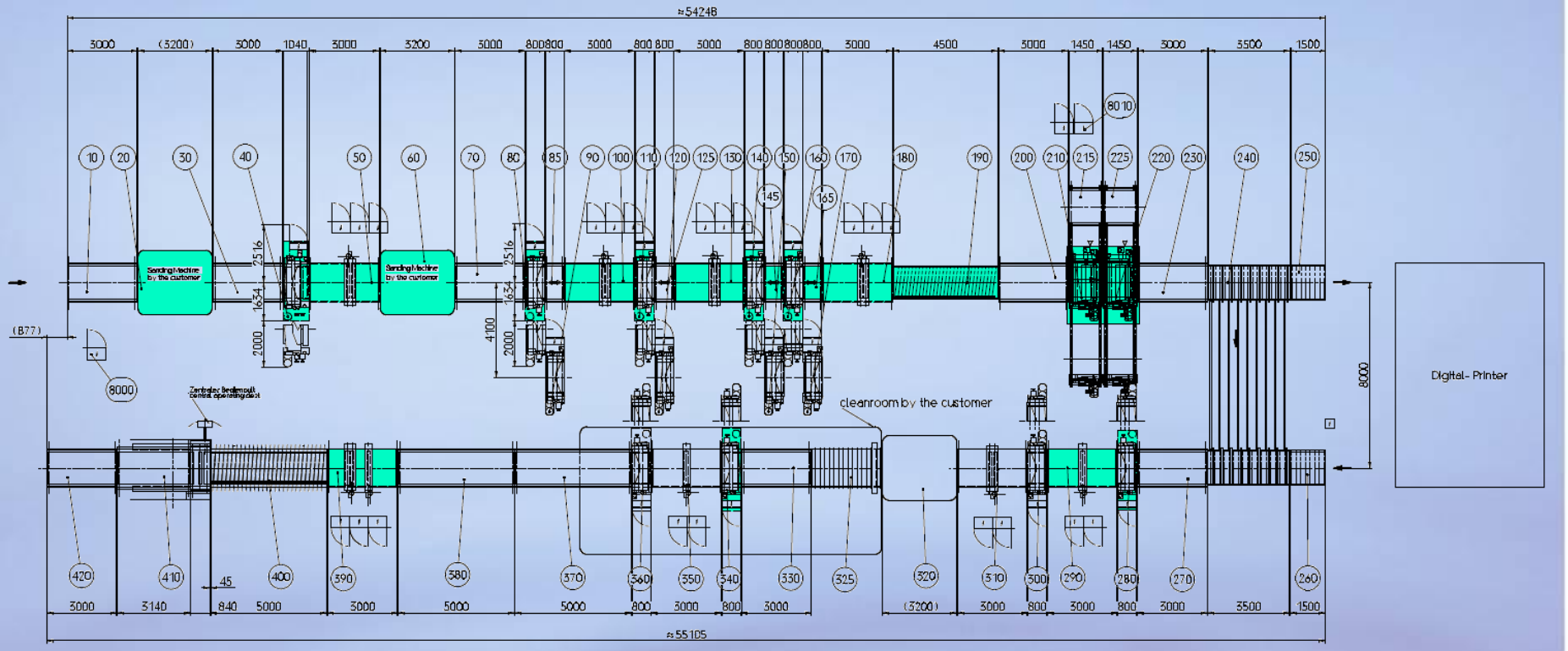
复合线应用 Application - 1



MDF素板实色辊涂，高光

Uni coloured products on raw MDF, high gloss

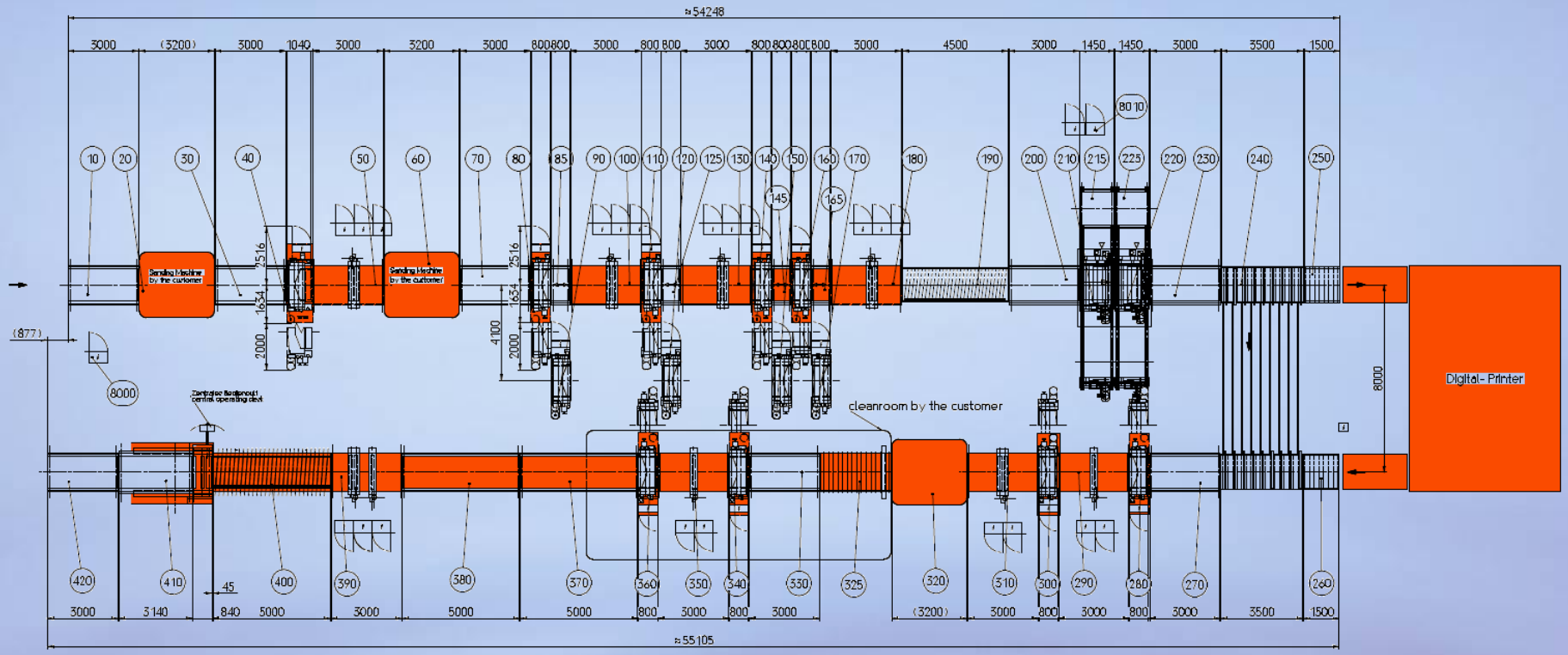
复合线应用 Application - 2



素板MDF印刷，中光

Printed products on raw MDF, semi gloss

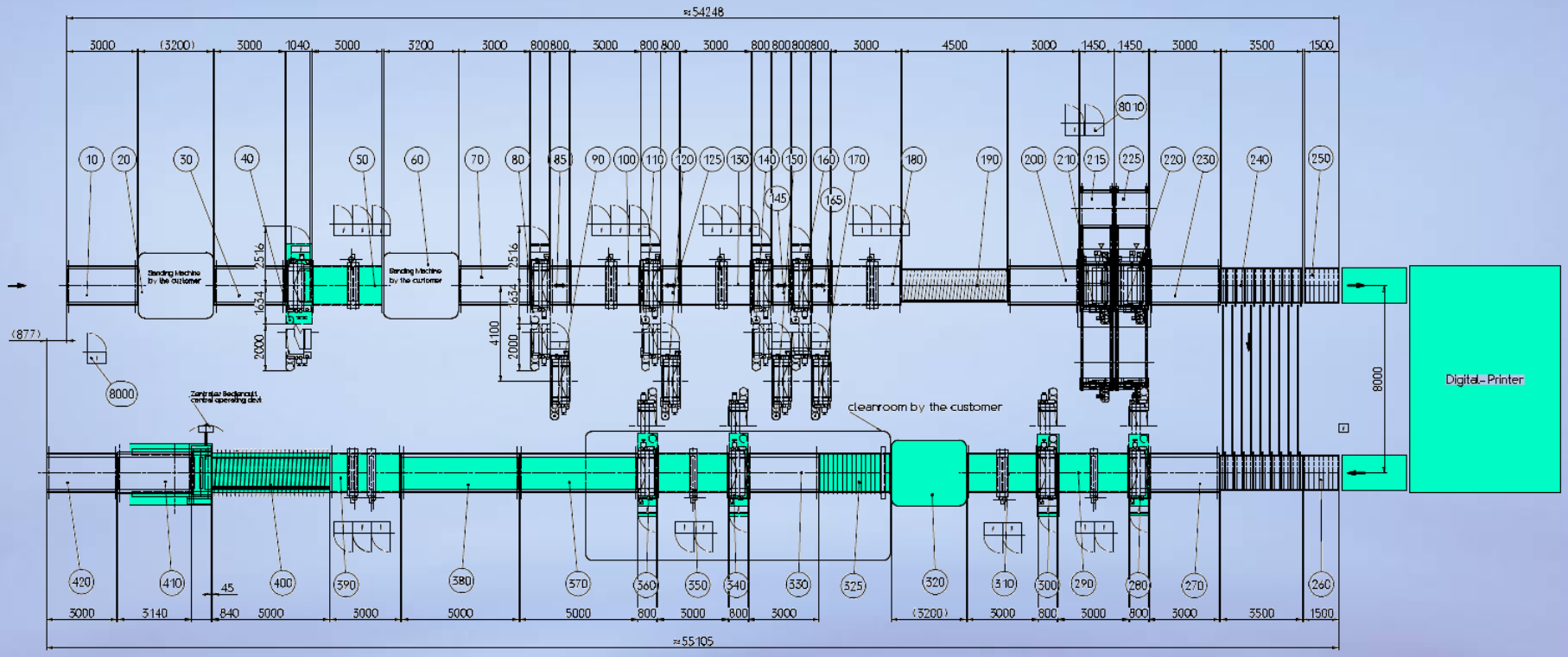
复合线应用 Application - 3



三聚氰胺饰面MDF数字印刷，高光

Melamine faced MDF, digital print, high gloss

复合线应用 Application - 4



三聚氰胺饰面MDF数字印刷，高光

Melamine faced MDF, digital print, high gloss

印刷机 Grain printing machines-DRUMA

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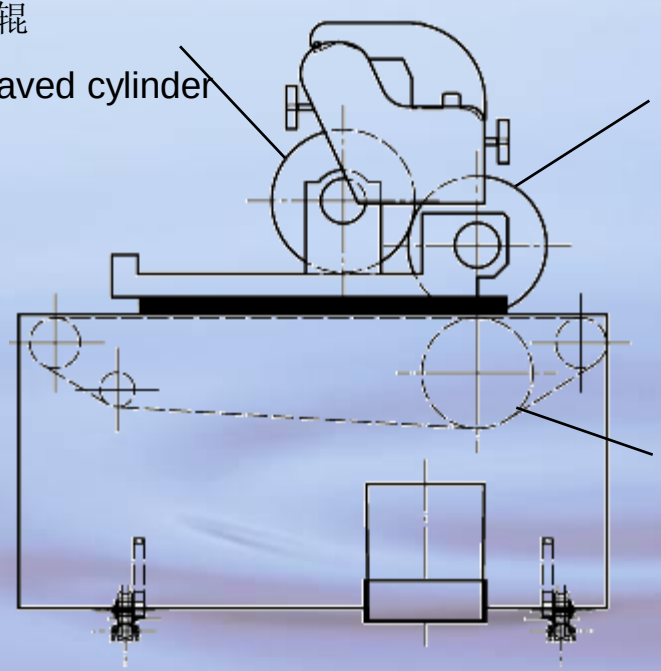
印花辊

Engraved cylinder



橡胶覆面涂布辊

Rubber covered applying roller

橡胶覆面反向承压辊

Rubber covered counter-pressing roller

传统UV固化机的节能套件
Energy-saving package for conventional UV-Units

变压器技术是传统的UV机的电力供应装置
Transformer technics are traditionally used for the electric power supply on UV systems.

优点 Advantages are :

•可靠 Solid, reliable technology

•低投入成本 Low investment costs

缺点 Disadvantages are :

•效率低 Lower efficiency

•灯管功率调整仅有三档 Lamp power is adjustable in 3 steps only (50% / 75% or 100%) of the specific lamp power

•不均匀的电网负荷 Uneven network load

•有限的可控性 Limited controllability

传统UV固化机的节能套件
Energy-saving package for conventional UV-Units

使用电子电源系统替代变压器
With the electronic power supply unit Buerkle offers a modern alternative for replacing the transformers

优点 Advantages are :

•灯管功率无级可调 25% - 100%
Power steplessly adjustable from 25% to 100% of the specific lamp power

•待机时能源消耗可降至最低
consumption can be reduced in standby mode to a minimum.

•配电子电源的灯管可在1s后完成满功率辐射 UV lamps with an electronic power supply achieve full emitting power already after 1 second.
⇒未有板件通过时灯管功率也会降低 The lamp power can be reduced also in gaps between work piece batches.

•电子电源相较于变压器，效率更高，节能至少 5% - 10% Higher efficiency of an electronic power supply than with a transformer enable energy savings of at least 5% - 10%.

•更低的启动电流和一均匀的电网负载，允许更小的熔断保护 Lower start-up currents and a homogeneous network load allow for a smaller fuse protection.
⇒ 安装的成本更低 Cost benefits for the installation.

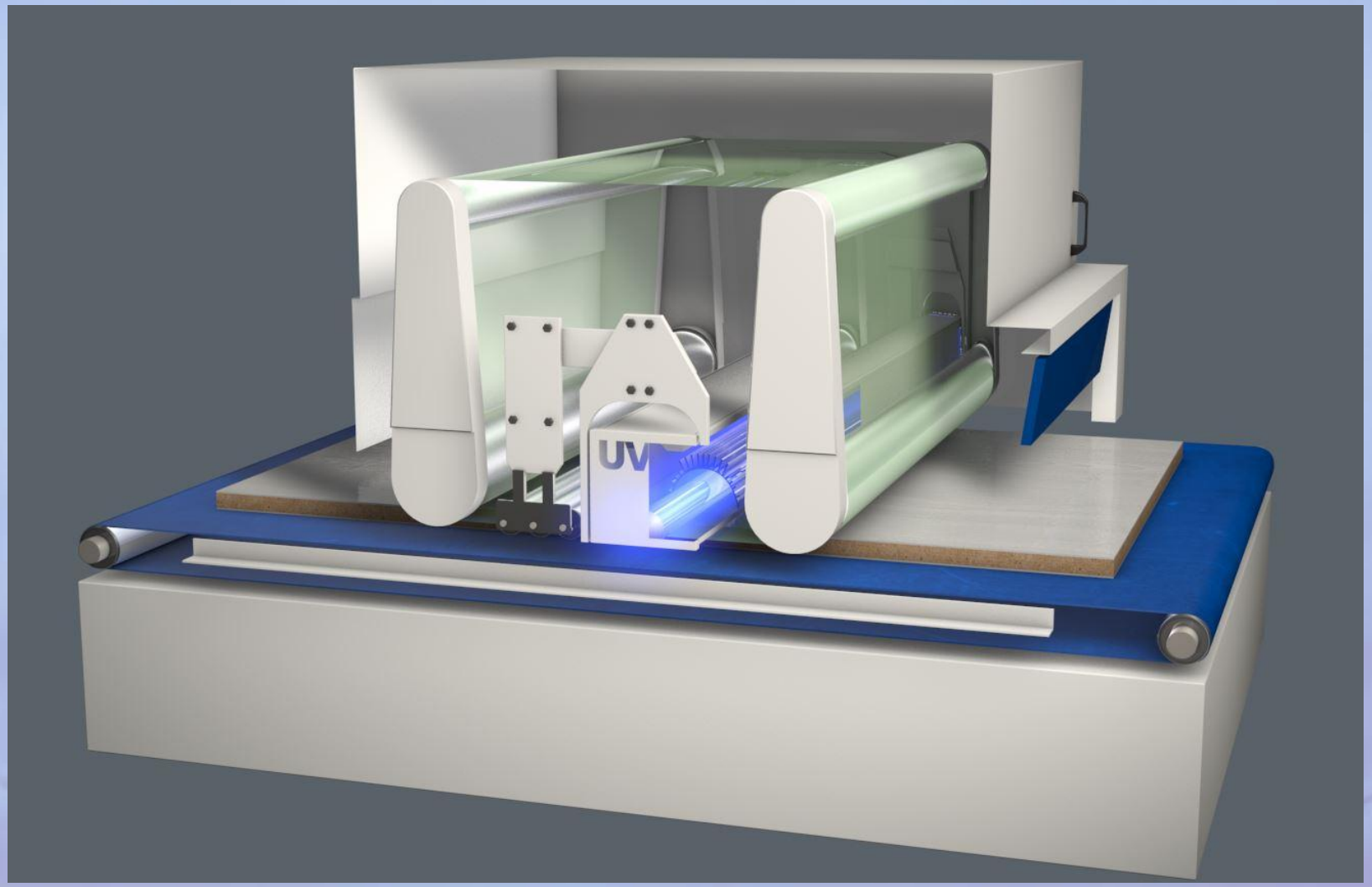
UV-LED

新开发的UV-LED模块的优点
Advantages of the newly developed UV-LED modules are:

- 功率节省近80% Power savings of almost 80 %.
- 灯管寿面15000小时 Lifetime of Light Emitting Diodes are 15.000 hrs.
- 功率调整Power adjustment 可从 from 0 – 100%
- 无需排气装置，无臭氧产生 No need for any exhaust system, no ozone
- 对工件无热辐射，无起火风险 No heat generation for work pieces and risk of fire
- 整个工作宽度内辐射均匀 Uniform radiation over the entire working width

	UV (Conv.)	UV-LED (air cooled)	
Power requirement approx.	**32 kW**	**7 kW**	**Nearly 80 % actual savings**

UV Lam-Inert 技术Technology



UV Lam-Inert 技术Technology

UV Lam-Inert 技术的应用领域 Fields of application for the UV Lam-Inert Technology :

- 高涂布量（40 – 60 g/m²）的涂料可经一台辊涂机被精细涂布及固化 = 减少涂装线长度进而减少投入成本High application amounts (40 - 60 g/m²) can be very smoothly applied and cured in a single passage with 1 roller coater only = reduction of the length of a coating line and reduction of investment costs!
- 精细的涂饰表面，减少后续砂削量 = 减少生产成本 Homogeneous application of lacquer or filler reduces the necessary removal in downstream sanding stations = reduction of production costs!
- 为高光涂饰提供优异的前提条件 Provides excellent pre-conditions for high-gloss finishings
- 通过使用不同的特殊薄膜可实现不同的涂饰亮度水平 By using different micro-structured foils the gloss levels can be affected.
- 惰性环境大大减少了对UV辐射性能的需求 = 减少能源消耗 Inert conditions reduce the need for UV radiation performance significantly = reduction of energy consumption!

UV Lam-Inert 技术Technology

今年末贝高德国总部的创新中心将会制作出一台这样的设备共测试及参观用
By the end of this year a machine will be available for trials and visits in our Innovation-Centre in Freudenstadt!

PLATFORM WATERBORNE 水性平台 | FOR A GREEN WORLD 水性引领绿色生活

Thank you

for your attention!

Waterborne China Platform
水性平台（中国）