



移动高压GMP清洗机 MOBILE HIGH PRESSURE GMP WASHER

IBC料仓 反应釜 油罐车 单、双锥等



上海弋凌流体机械设备有限公司
Shanghai Yiling fluid machinery equipment Co., Ltd

移动高压GMP清洗机——Mobile High Pressure GMP Washer

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INNOVATIVE SOLUTIONS

创新解决方案

Cleaning unit pharmaceutical grade, suitable for washing bins, drums and bio reactors (with or without agitators). It provides reliable, repeatable and verifiable results to meet the requirements of the pharmaceutical industry.

药品级清洗装置，适用于清洗料仓、桶和生物反应器（带或不带搅拌器）提供可靠、可重复、可验证的结果，满足制药行业的要求。

The hydrokinetic nozzle provides a 360° movement over a defined time period. It is automatic with a water consumption of < 40L/min. The cleaning time varies between 5 to 10 minutes for full coverage. The water and time reduction for cleaning a bioreactor will be reduced by >90% compared with manual cleaning

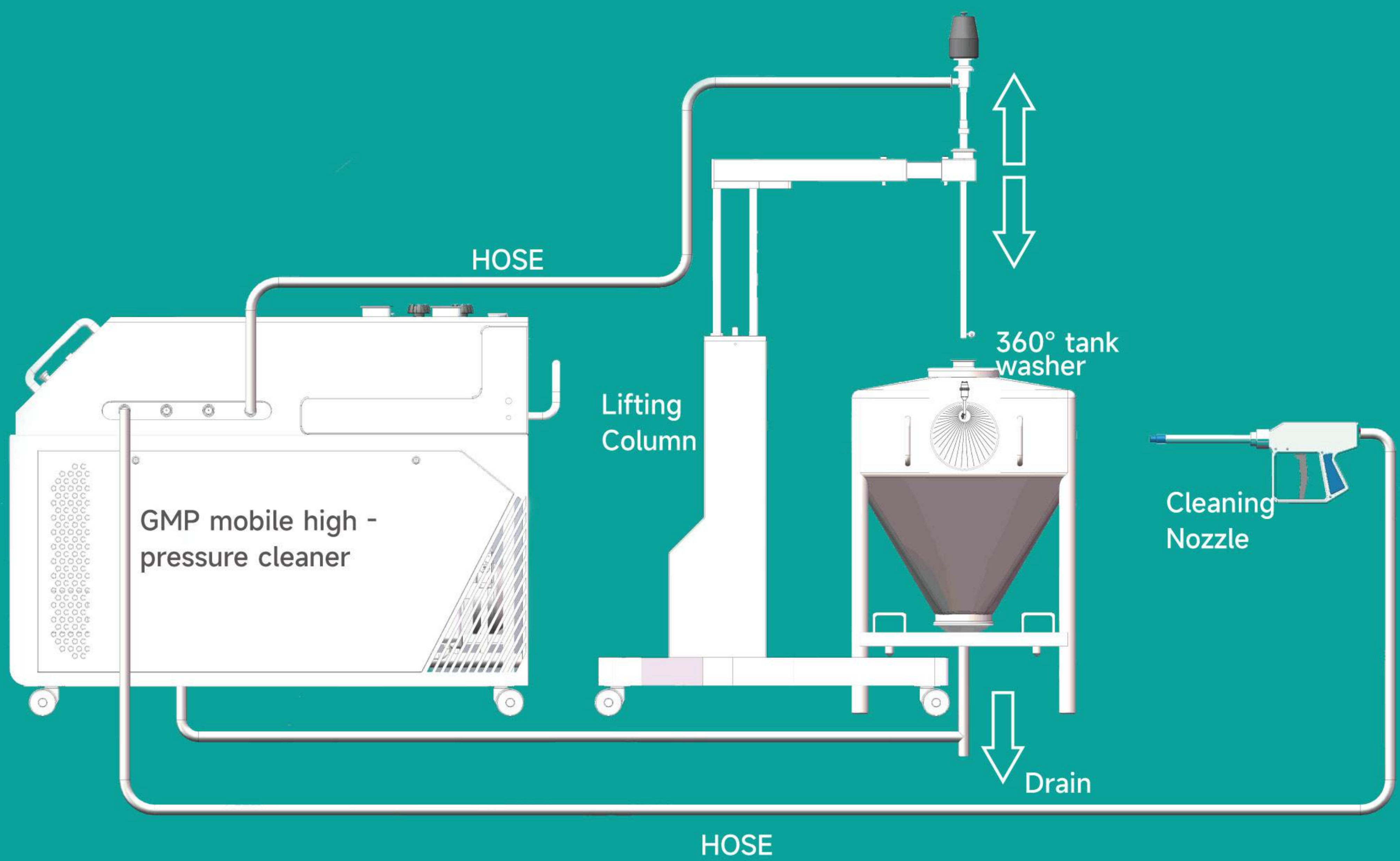
流体动力喷嘴在规定的时段内提供360°运动。全自动，耗水量<40L/min，清洗时间5-10分钟，全覆盖。与手动清洗相比，清洗生物反应器所需的水和时间将减少90%以上。



LAYOUT OF A SIMPLE CLEANING STATION

布局简单的清洗站

- | | | |
|------------------------|-------------------------------|-------------------------|
| Cold Water
冷水 | Detergent 1
洗涤剂 | Hand Jet Gun
手持式喷射枪 |
| Warm Water
温水 | Detergent 2
洗涤剂 | Cleaning Nozzle
清洗喷嘴 |
| Purified Water
纯净水 | Electrical Connection
电气连接 | System Drain
系统排水管 |
| Compressed Air
压缩空气 | | |



TECHNICAL SPECIFICATIONS

技术规格

<div>Structure</div> <div>结构</div>	<div>Frame and housing made of stainless steel AISI 304, with noise and heat reduction, equipped with 4 wheels.</div> <div>框架和外壳采用不锈钢AISI 304制造，具有噪音和散热，配备4个车轮。</div>
<div>Pump</div> <div>高压泵</div>	<div>High pressure pump designed for the direct connection to the facility utilities, pump head made of stainless steel AISI 316.</div> <div>高压泵设计为直接连接对设施公用设施，泵头采用AISI 316不 锈钢制成。</div>
<div>Washing system (nozzles)</div> <div>洗涤系统(喷嘴)</div>	<div>2 connections to the hydrokinetic nozzles and/or lances,specifically designed for the application.</div> <div>2个与水动力喷嘴和/或喷管的连接;专门为应用程序设计</div>
<div>Detergent dosing</div> <div>洗涤剂剂量</div>	<div>2 detergent dosing pumps for direct injection of detergents</div> <div>2个洗涤剂加药泵，用于直接注入洗涤剂</div>
<div>Utility connections</div> <div>公用工程接口</div>	<div>Cold-, warm- and pure water</div> <div>冷水、温水和纯净水</div>
<div>Compressed air connection</div> <div>压缩空气连接</div>	<div>Filtered process air for blowing out the piping system</div> <div>过滤工艺空气，用于吹出管道系统</div>
<div>Control system</div> <div>控制系统</div>	<div>iemens SPS S7 with integrated HMI (Touch Screen). Graphical visualization of the de process and the process parameters.</div> <div>西门子SPS S7集成HMI(触摸屏)。图形化的过程和过程参数的可视化</div>
<div>Interfaces</div> <div>界面</div>	<div>Printer interface and interface to a local network.</div> <div>打印机接口和本地网络接口。</div>

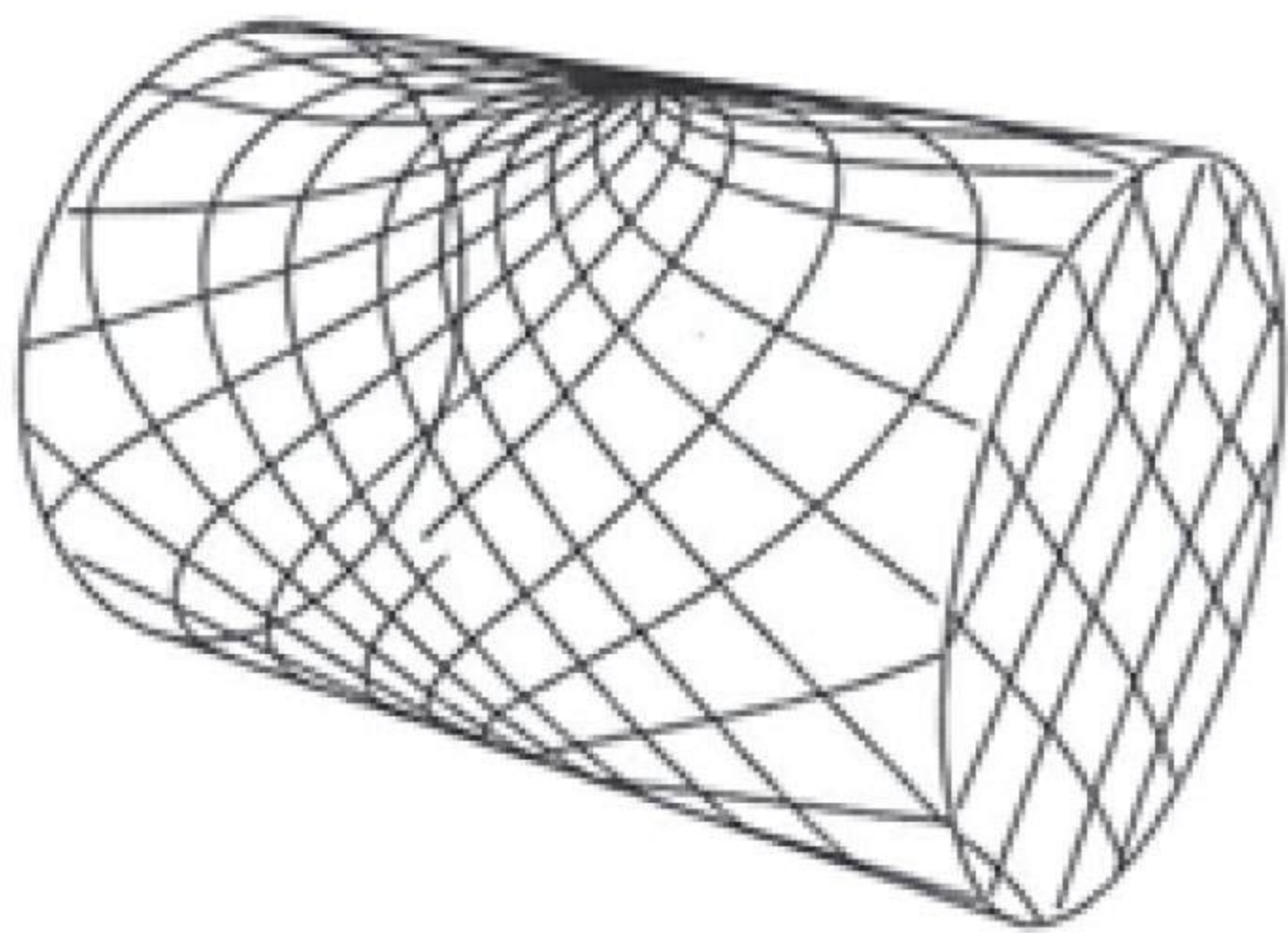
Connections 接线	Electrical connection 3 x 380V, 50Hz. 电气连接 3*380V 50Hz。
Water connection (customer) 水需求（用户）	Pressure 1.5–3 bar Flow max. 40 l/min Temperature max. 90°C
Compressed air (customer)	6–8 bar, 70 Nm3/h 压缩空气
Dimensions (LxWxH)	1650mm x 750mm x 1350mm
Weight 重量	500KG
Output performance 输出性能	Cleaning Jet Gun: 清洗枪 70-80Bar Max。40L/min Hand Jet Gun: 手持式喷枪 30-35Bar Max 23L/min

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MOBILE HIGH PRESSURE
GMP WASHER



CLEANING PATTERN

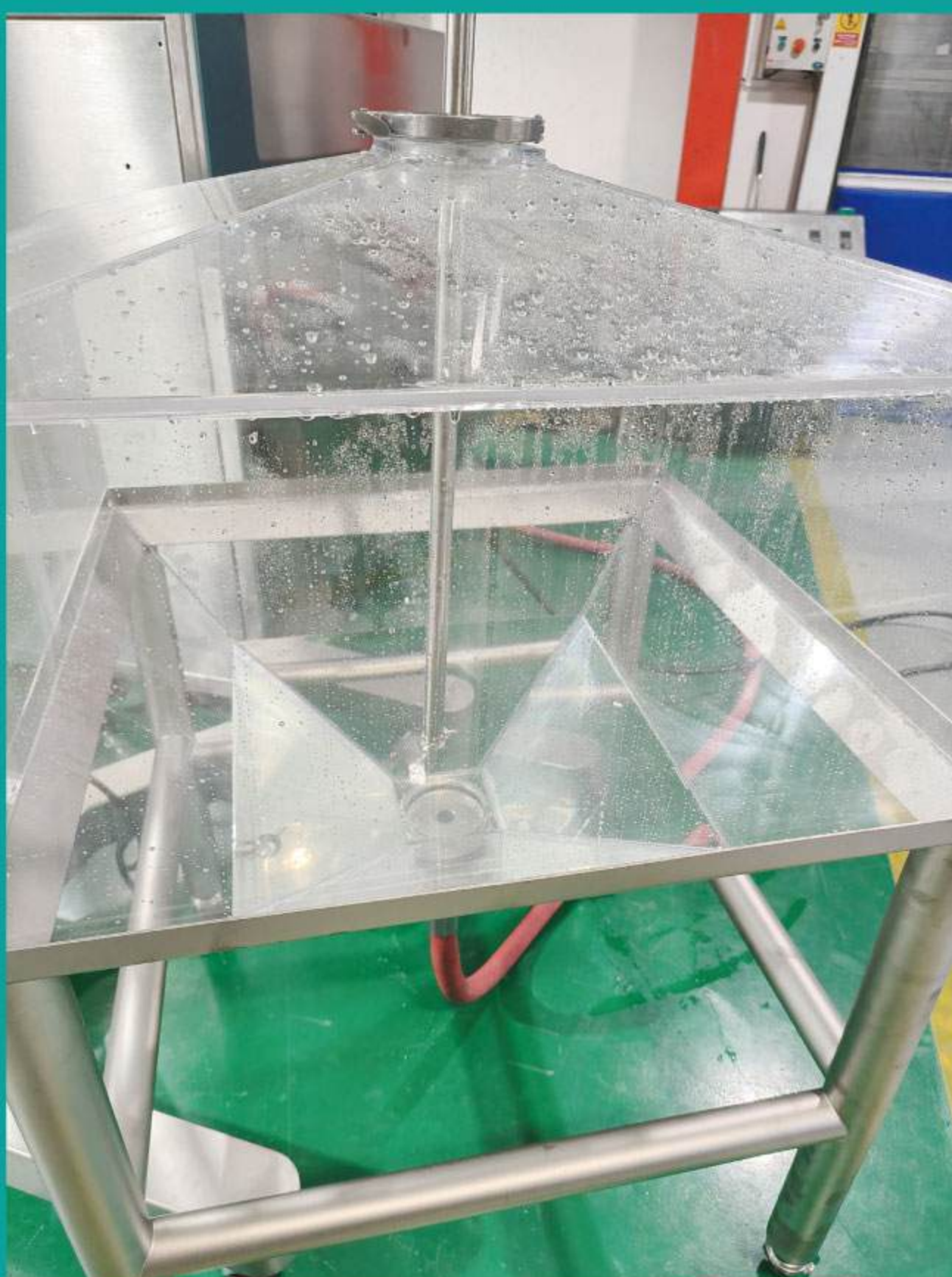
清洗模式



初始



最终



COMMISSIONING, IQ/OQ AND FAT/SAT 调试、IQ/OQ和FAT/SAT

The cleaning machines are completed in the factory, installed on the in-house test bench, started up and calibrated by Eling specialists. As part of the internal factory test (pre-commissioning), the conformity of the machine is demonstrated in documented way. During a factory acceptance test (FAT), the cleaning machine can be checked and accepted. The commissioning on site as well as the training of the operating and maintenance personnel is carried out by qualified Eling specialists. Installation and Operational Qualification (IQ / OQ) and also Performance Qualification (PQ) support can be provided based on defined test specifications.

清洗设备在工厂完成后，安装在厂内试验台架上，启动并由弋凌专家进行校准。作为内部工厂测试（预验收）的一部分，机器的符合性以文档形式予以证明。

在工厂验收测试（FAT）期间，可以对清洗设备进行检查和接受。由合格的弋凌专家在现场进行调试和对操作及维护人员进行培训。

可根据定义的测试规范提供安装和运行确认（IQ/OQ）以及性能确认（PQ）支持。



PROCESS-SAFETY / REPRODUCIBILITY CONTROL

过程安全性/可重现性 控制

The machine is controlled via a modern Siemens Control-system which stands for reliability, flexibility and worldwide support. The visualization (HMI) runs on a Siemens TP Comfort Panel. The cleaning cycles are individually configured to be adapted to the soiling and the specific requirements of the wash-load.

The integrated user management on the software allows easy configuration of the access-levels of each user-group. Specific user-group have different access-rights; therefore, configuration or changes on cleaningprocesses can only be made by authorized personal.

Process data monitoring and trending of relevant parameters is available in the control concept and can be set individually, depending on the washing recipe.

这台机器由西门子的现代控制系统控制，代表着可靠性、灵活性和全球支持。可视化（HMI）运行在西门子TP Comfort面板上。清洗周期可以根据污垢情况和洗涤负载的具体要求进行个性化设置。

软件中的集成用户管理功能可轻松配置每个用户组的访问级别。特定用户组具有不同的访问权限，因此只有授权人员才能进行清洗过程的配置或更改。

控制概念中提供了过程数据监控和相关参数的趋势分析功能，可根据洗涤配方进行个性化设置。

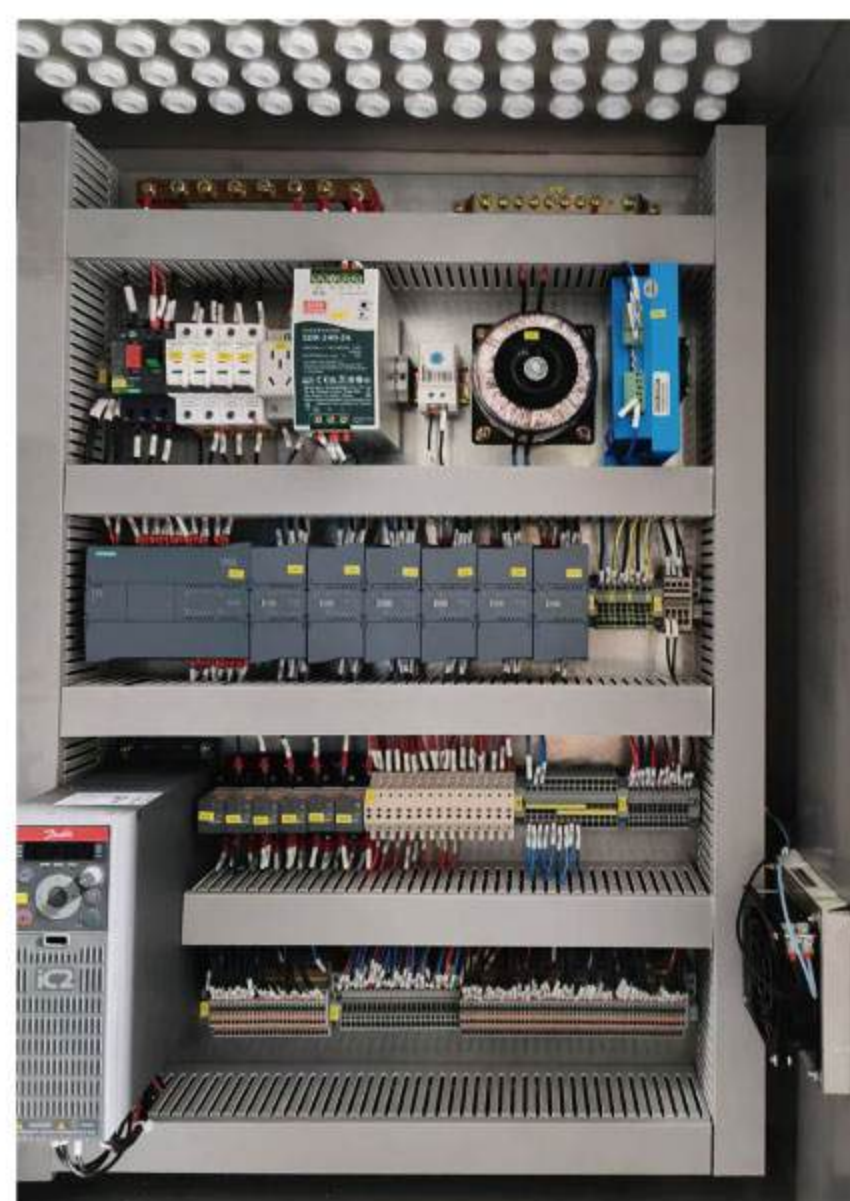


INTEGRATION IN CUSTOMER NETWORKS

客户网络集成

Integration into customer networks can be executed in different ways. Possible interfaces are Siemens Profinet, Ethernet and USB. MES System-connection (manufacturing execution system), via a customer-side DCS System (distributed control system), eg for sending or receiving the cleaning recipes. MES System-connection via SCADA-functionality (Supervisory control and data acquisition) by Siemens software. Document-network for data-storage on a fileserver with active directory for machine-generated pdf. PAN-connection (Personal area network), for time-synchronisation, user- log-in and machine generated protocols; OPC (OLE for process control).

客户网络集成可以采用多种方式。可能的接口包括西门子Profinet、以太网和USB。通过客户侧的DCS系统（分布式控制系统）与MES系统（制造执行系统）进行连接，例如用于发送或接收清洗配方。通过西门子软件的SCADA（监控和数据采集）功能与MES系统进行连接。使用文件服务器上的活动目录进行数据存储的文档网络，用于存储由机器生成的PDF文件。使用PAN（个人区域网络）进行时间同步、用户登录和机器生成的协议；OPC（用于过程控制的OLE）。



Profinet-Communication





让清洗符合规范要求！
Make the cleaning meet the
requirements of the specifications!

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