

# PLUMBING FIXTURES

SHL's Expertise in Grinding and Polishing Produces  
the Perfect Finish





Sheet metal construction

Sandwich construction

Sandwich with noise insulation



## COMPONENTS FOR LOADING AND UNLOADING

Take one step closer to lights-out manufacturing with us. We will design your material staging and removal processes so that you can choose the right system for loading and unloading. We can offer you the following systems:

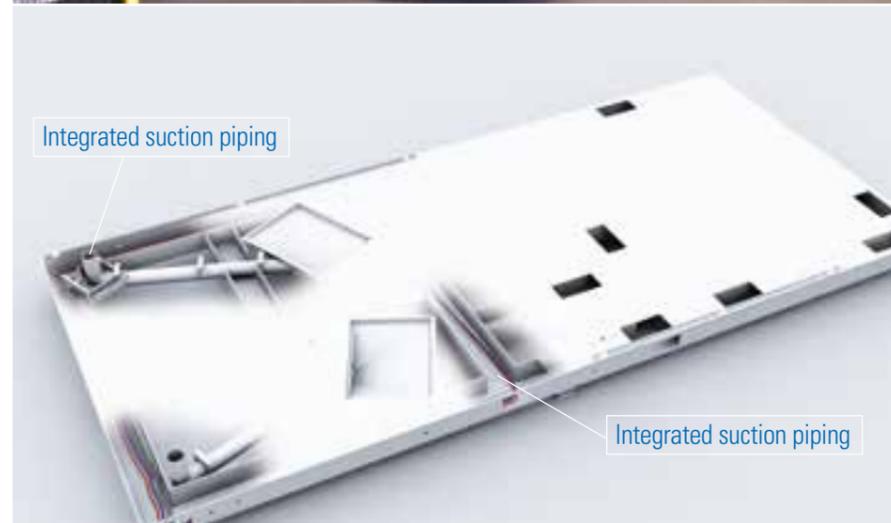
## ENCLOSURES

Versatile, flexible, and modular

Together, we create the right solution that takes your wishes, the technical specifications, and your budget into account. We can offer you a full range of options from a simple protective cage to a noise-insulated compartment. Other options include:

### Enclosures in various designs

- Protective mesh cage
- Aluminum-wood construction
- Sheet metal construction
- Compartments made of sandwich panels
- Compartments made of sandwich panels with added noise insulation



Integrated suction piping

Integrated suction piping

FLOOR SOCK



### FIG. 1 | ROTATING CAROUSEL MAGAZINE

A base frame with a variety of material transfer racks enable efficient loading and unloading, even with large batch sizes.

### FIG. 2 | SLIDING TABLES

Pneumatically driven sliding tables (single or double) in the standard sizes of 600x400, 800x600, and 805x895 allow customized transfer racks to be used. Depending on the features selected, you will experience precision loading and unloading or even loading and unloading during the machining process.

### FIG. 3 | REVOLVING TABLES

Much like the sliding table, this revolving table can be designed as a fixed-station rotary indexing table in order to accept even more transfer racks.

### FIG. 4 | TRANSFER SYSTEM

A transfer system can buffer virtually any number of transfer racks. Special coding can enable you to run a "chaotic" production process.

### FIG. 5 | ALIGNMENT SYSTEM

Parts are aligned using feelers, lasers, or cameras.

Cutting-edge options with automation equipment from SHL AG.

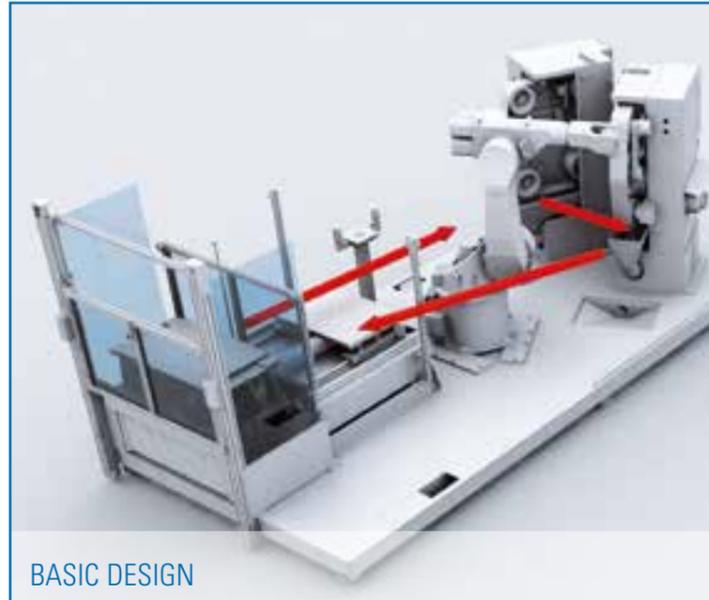
# MACHINE AND PLANT DESIGN

Greater efficiency through logical and strategic concepts

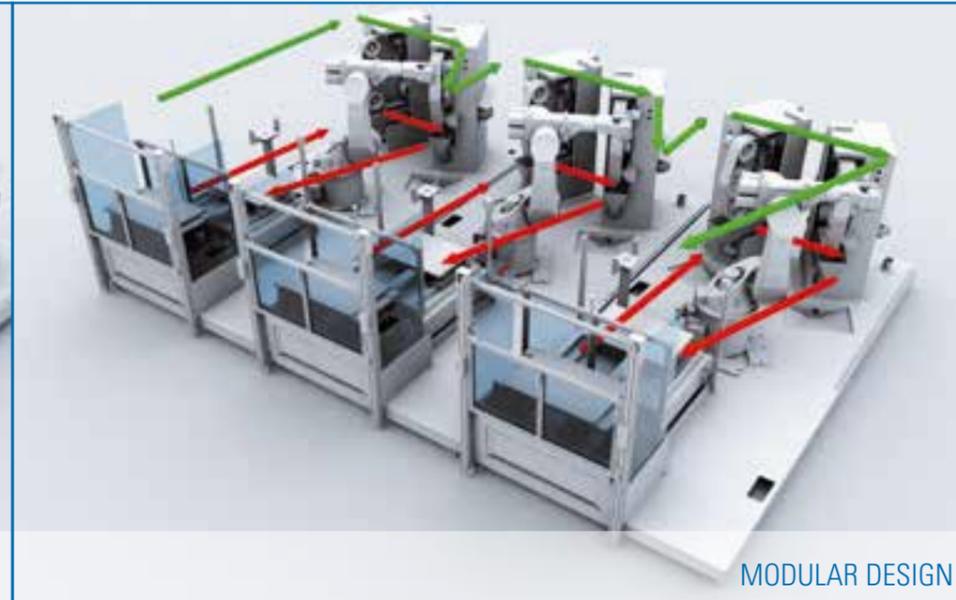
## BASIC DESIGN

- Basic design for very simple grinding and polishing tasks.
- Grinding and polishing cells cannot be expanded.

- + Very affordable
- + Very simple tasks are performed economically
- + Small footprint
- No flexibility once the cell is complete
- Can perform only very simple tasks



BASIC DESIGN



MODULAR DESIGN

## MODULAR DESIGN

- Our modular design helps keep your cost of first-time automation low.
- Grinding and polishing cells can be expanded at any time.
- Production can be set up based on assembly line or workshop principles.

- + Maximum flexibility
- + Redundancy
- + Program compatibility
- More expensive than the basic design.

- ➔ **Workshop principle**
- ➔ **Assembly line principle**

## FLEX DESIGN

- Multiple tools available within the polishing cell provide maximum flexibility.
- Highly complex tasks can be performed using multiple tools.
- One robot executes every task in one setting.
- Extremely precise tolerances since there is no need for re-chucking.

- + Maximum flexibility
- + High rate of production
- + Extremely precise tolerances
- + Maximum relief for your employees
- More expensive than the portfolio design
- Costly investment



FLEX DESIGN

## PORTFOLIO DESIGN

- The grinding and polishing cell is set up for a specific range of parts (homogeneous).
- Known tasks can be performed using the appropriate tools.
- The ideal concept for dividing the required task among multiple robots, maximizing output.

- + Maximum cost-efficiency for parts range x
- + Ideal use of plant capacity
- + Maximum relief for your employees
- + Maximum output
- Limited flexibility if there are significant changes in the range of parts

# SAMPLE SOLUTIONS

Customized industrial solutions

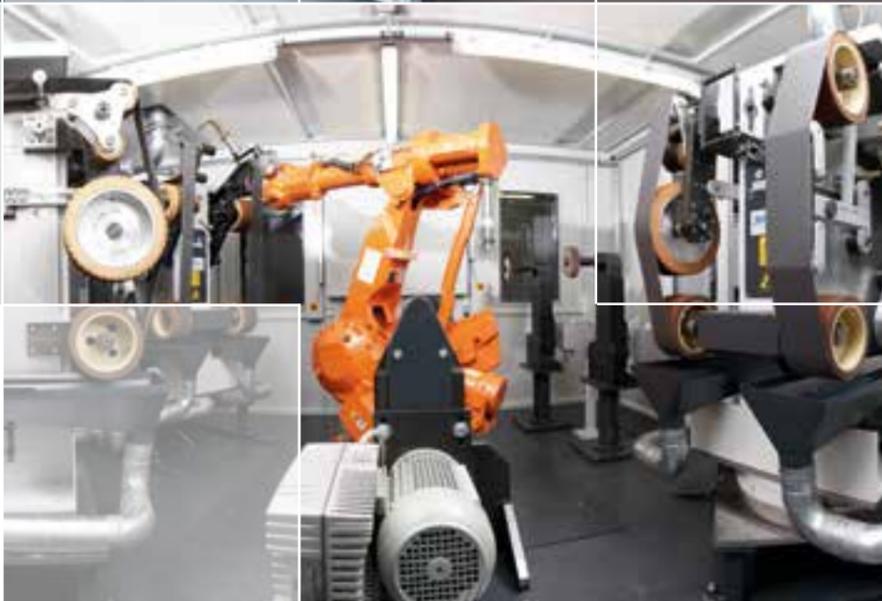
## SAWING CELL

Sample solution: sawing cell with sandwich construction on a base plate with built-in floor vacuum and pre-installed, protected supply lines.

**Fig. 1** Slicing with a circular saw blade



**Fig. 2** Grinding with an extra unit (optional)



## GRINDING CELL

Sample solution: grinding cell with sheet metal construction on a pallet, multiple processing steps using different grinding tools, central robot, loading and unloading of parts from the sides.



**Fig. 3** Polishing of fixtures



## POLISHING CELL

Sample solution: polishing cell with sheet metal construction on a pallet, multiple processing steps using different polishing tools, central robot, loading and unloading of parts from the sides.

## TECHNOLOGY CENTER

At our technology center, we conduct feasibility studies, quality assessments, and productivity evaluations. Our goal is to test the reference sample's specifications, both in terms of surface quality and the cycle time specified by the customer for calculating profitability in the process study to determine its feasibility and the steps in the process.

## TRAINING

Qualified experts sharing their knowledge for your success: the SHL AG training center. Engineering know-how is important to the development of your personnel and your business. It is therefore key to making your company successful. Our training center offers comprehensive basic and advanced training for your engineering personnel. We can also conduct training at your facility using our mobile training cell.

## MAINTENANCE

Constant servicing, maintenance, and data security make your plants more reliable and efficient, reducing downtime. Keep your knowledge up to date and protect your investment with an SHL service contract.

## AFTER SALES

More flexibility, high efficiency, and reliable processes: We offer you far more than our pioneering high-tech solutions for automated surface finishing. Even if your equipment is integrated into your process, you can benefit from our proven AFTER-SALES program.

- Hotline
- Maintenance
- Optimization
- Training
- Emergency repair service
- Equipment conversion
- Data security

## TURNKEY

Our SHL 360° Service: your worry-free package for your investment in SHL technologies. End-to-end project planning, starting with initial consultation on integrating our systems into your processes and offering continued support for the life of your equipment.





Headquarters in Böttingen, Germany

## MANY YEARS OF HIGH-TECH SPECIALIZATION

Our company is your one-stop shop when it comes to finding solutions for manufacturing processes. SHL plans, designs, and produces robots and systems for grinding, polishing, deburring, brushing, and milling as well as for a variety of handling tasks.

To date, our qualified specialists from different areas of expertise have enabled the technology company, based in Böttingen, to execute over 2,000 projects around the world for businesses in diverse industries, such as plumbing fixtures, automotive parts, door fittings, medical equipment, and household appliances.

That makes SHL one of the largest suppliers of automation systems in the fields of grinding, polishing, and deburring.



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