Process water recycling systems
Chemical waste water treatment systems
Rösler provides total finishing solutions

When it comes to surface finishing, Rösler is known to offer complete, well-engineered process solutions. Based on our comprehensive knowledge of mass finishing and shot blasting technologies, we can provide our customers with practically unlimited finishing solutions. In our state-of-the-art test lab, we conduct meaningful test trials to develop the optimum finishing processes for our customers because only complete solutions yield the best results. We are not simply offering specific surface finishing processes but we are also supplying perfectly matched auxiliary equipment and consumables. This approach has proven to be highly successful and has established Rösler as the global technological and market leader, with groundbreaking innovations and extremely high quality standards.

In more than 60 countries we support our customers with a comprehensive network of Rösler sales branches and independent distributors.

Rösler is the only supplier in its field maintaining test labs all over the world, where we develop process solutions under actual operating conditions and select the most suitable equipment. This approach saves our customers not only long travel distances and high freight costs, but it also provides them with products and processes that have been extensively tested by our specialists under the most severe operating conditions.

Global network of test labs

- Test labs for mass finishing and shot blasting at the Rösler headquarters in Untermerzbach:
  - More than 95 mass finishing and shot blast machines.
  - About 2,700 m² (27,000 sqft) workspace.
- Our teams in USA, Great Britain, France, Netherlands, Belgium, Spain, Turkey, Romania, Italy, Austria, Switzerland, Russia, Brazil, Serbia and India provide similar test lab services.

Complete solutions

Besides demanding high quality, environmentally safe and efficient products, our customers also prefer to purchase all process components from one single source. That is why we offer not merely the processing equipment but the complete package with perfectly matched consumables. This guarantees the best finishing results and absolute process safety. Our global service teams take care of the delivery and the installation for you. Qualified engineers train our customers right at their location. And of course, our after-sales service members will answer all of your questions. Quick supply of all spare parts and professional consultation by our experienced process specialists ensure that your finishing processes are always running smoothly.

Rösler Academy

Professional knowledge within a highly systematic framework

In hands-on and effective seminars our Rösler professional trainers, certified by TÜV Rheinland, provide you with theoretical and practical knowledge about mass finishing and shot blasting as well as Lean Management.

You will find a complete list of our seminars under www.rosler-academy.com

DIN EN ISO 9001 and 50001
Process water recycling

For ecological and economic reasons recycling of the process water in connection with industrial manufacturing operations is highly desirable. The principle of the 2-phase separation of solids/liquids with centrifugal force has become the standard for modern process water cleaning systems, which ensures process stability. Powerful systems, combined with sophisticated process technology, allow for a wide range of applications, reaching way beyond just mass finishing processes.

How it works

The dirty water, contaminated with solid particles, is transferred directly from the mass finishing machine to the centrifuge or through a pump station (lifting station). A pre-screen collects larger contaminants at the inlet of the collecting tank. The premature settlement of the solid particles to the bottom of the collecting tank is prevented with a built-in electric stirrer. The dirty water is continuously supplied to the rotating aluminum drum of the centrifuge with a compressed air diaphragm pump. The high centrifugal force created by a rotational drum speed of up to 3,000 RPM ensures that even very small and lightweight solid particles are deposited as solid sludge on the drum wall. The cleaned liquid is picked up by a collecting tube and returned to the mass finishing machine (or other users). After a preset time the sludge can be removed from the drum by simply lifting the specially designed polyurethane sludge basket out of the drum. In automatic centrifuges the sludge is mechanically removed with a peeling knife scraping it from the drum wall. Depending on the required water volume multiple mass finishing machines can be connected to one process water recycling system.

Rösler Turbo-Floc® system

The proprietary Turbo-Floc® system from Rösler augments the mechanical cleaning performance of centrifuges with special process water cleaners, thus producing process water qualities that meet the most stringent requirements. The process water cleaners combine tiny solid particles into larger flocs, which can then be removed from the process water very effectively. The compounds required for the actual mass finishing process are not touched and are returned to the processing machine. Special cleaning agents even remove oil and emulsified substances from the process water.

Depending on the required water volume and the specific application we can offer automatic peeling centrifuges, type Z 1000 ASS II-Turbo, and semi-automatic basket centrifuges, type Z 800 HA Turbo-Floc® or Z 800 K HA Turbo-Floc®.

The result

- Very clean work pieces
- High process stability
- Long uptimes of the process water

Process water cleaner (recycling systems)

Liquid cleaners for recycling

<table>
<thead>
<tr>
<th>Type</th>
<th>AR 8401</th>
<th>AR 8403</th>
<th>AR 8404</th>
<th>AR 8405</th>
<th>AR 8407</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>Cationic polymers for effective process water recycling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usage</td>
<td>0.1 kg/m³ up to 1.0 kg/m³</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Powder cleaners for recycling

<table>
<thead>
<tr>
<th>Type</th>
<th>AR 7120</th>
<th>AR 7134</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>Process water cleaners in powder shape allow the effective removal of oil and grease from recycling systems; minimal salt buildup in the process water</td>
<td></td>
</tr>
<tr>
<td>Usage</td>
<td>Depending on the contamination 0.1 kg/m³ - 1.0 kg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Applications

Mass finishing

Rösler centrifuges are the standard for the successful separation of solids from industrial liquids

Other applications

- Machining/grinding centers:
- Technical ceramics:
- Glass industry:
- Solar/water production:
- Paint booths:
- ECM processes:
- High pressure water jet blasting:
- Reclamation:
- General sludge dewatering:
- Maintenance of coolants/lubricants and grinding oil
- Maintenance of the process water for saw cutting, grinding and polishing
- Technical applications, optical glass, etc.
- Saw cutting, grinding
- Maintenance of the overspray collecting water curtain
- Maintenance of the electrolytes
- Cleaning and removal of coatings in the aerospace industry
- Reduction of the residual water content prior to sanitary landfill disposal

Environmentally friendly consumables are the best path to optimum process water treatment

Rösler is the only supplier who offers a comprehensive equipment range but also produces ceramic and plastic media, mass finishing compounds, waste water and process water cleaners. Thousands of recycling and wastewater cleaning systems are successfully running at our customers all over the world. Why don't you take advantage of our knowhow?
Process water recycling systems

Centrifuges Z 800 HA Turbo-Floc® + Z 800 K HA Turbo-Floc®

Manual sludge removal

The semi-automatic basket centrifuges stand out with their excellent separation performance and their compact design allowing them to be placed in direct vicinity of the mass finishing equipment. The centrifuge itself, controls, dirty water and clean water tanks are all integrated into one unit. Of course, the heart of the system is the centrifuge designed and built by Rösler.

Impressive engineering

- Precision balanced drum made from aluminum; alternatively made from stainless steel for corrosive liquids
- Easy to maintain design of the filling system and the collecting tube
- Special guiding cone for optimum separation results
- Automatic discharge of residual liquid from the drum
- Special sludge basket for simple removal of the sludge
- Controls with modern PLC controller, fully installed and ready to run
- Feeding of the dirty process water by adjustable compressed air diaphragm pump (pulse controlled)
- Sturdy, reinforced plastic tanks made from high quality polyethylene
- Easily changeable pre-screen at the dirty water tank inlet
- Level indicator by float switch with “full” alarm
- Angled tank bottom for easy emptying out of the tank
- Stirrer built into the dirty water tank
- Separate clean water tank; optional
- Sturdy, wear resistant diaphragm pump technology
- Locking of the centrifuge lid electrically controlled
- Automatic water and compound replenishment dosing systems; optional
- Turbo-Floc® package for the addition of process water cleaner; optional

Turbo-Floc® package for the addition of process water cleaner; optional

Type | Z 800 HA Turbo-Floc® | Z 800 K HA Turbo-Floc®
--- | --- | ---
Max. rotational speed (RPM) | 3,160 | 3,160
Max. "g" value | 2,010 | 2,010
Max. sludge volume (l) basket capacity (kg) | 15 | 15
| 22 | 22
Capacity (l/h) | 100 - 1,200 | 100 - 1,200
Installed power (kW) | 5.0 | 5.0
Average power draw (kW) | 1.6 | 1.7
Dirty water tank (l) | 250 | 340
Clean water tank (l) | - | 400
Cooling of the process water | - | -
Automatic water and compound replenishment dosing system | optional | optional

Manual sludge removal

Compact centrifuge RZ 60 M-V-KB

The semi-automatic 2-phase centrifuge is ideal for applications with low solid particle loads. They can be employed for mass finishing as well as for all kinds of other industrial liquids.

- Compact, movable unit
- Coated steel tank
- Easy to maintain design of the filling system and the collecting tube
- Special sludge basket for simple removal of the sludge
- Drum made from aluminum
- Combined dirty and clean water tank with feeding pumps
- PLC controls
- Locking of the centrifuge lid electrically controlled
- Plug & Play system

Type | RZ 60 M-V-KB
--- | ---
Max. rotational speed (RPM) | 4,100
Max. "g" value | 1,800
Max. sludge volume (l) basket capacity (kg) | 1.8 | 3
Capacity (l/h) | 100 - 400
Installed power (kW) | 1.5
Dirty water/clean water tank (l) | 25/35

With mass finishing process water: Depending on the load with solids and the desired cleaning effect
Centrifuge Z 1000 ASS-II-Turbo

Automatic sludge removal

The special feature of the fully automatic recycling centrifuges is the automatic peeling of the sludge from the drum wall after the centrifugal cleaning cycle. The sludge simply drops into a sludge wagon below the centrifuge.

A technology that sets new standards

- Fully automatic operation, controlled by PLC
- Turbo-Floc® package for the addition of process water cleaner
- Vibration control of the centrifuge motor with automatic stop function
- Powerful main drive with speed control
- Precision balanced drum made from aluminum; alternatively made from stainless steel for corrosive liquids
- Feeding of the clean water to the mass finishing machine(s) by compressed air diaphragm pump
- Feeding of the dirty process water by adjustable compressed air diaphragm pump (pulse controlled)
- Easy to maintain design of the filling system and the collecting tube
- Electronically controlled linear movement of the peeling knife, made from wear resistant stainless steel
- Residual sludge pan with self-cleaning function, pneumatically actuated movement
- Movable sludge wagon, can be tilted for easy unload (optional with frame for big bag)
- Automatic water and compound replenishment dosing system / optional

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### Centrifuge Z 1000 ASS-II-Turbo

<table>
<thead>
<tr>
<th>Type</th>
<th>Z 1000 ASS-II-Turbo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. rotational speed (RPM)</td>
<td>2,770</td>
</tr>
<tr>
<td>Max. “g” value</td>
<td>2,000</td>
</tr>
<tr>
<td>Max. sludge volume (l)</td>
<td>38</td>
</tr>
<tr>
<td>Drum capacity (kg)</td>
<td>30</td>
</tr>
<tr>
<td>Capacity 1 (l/h)</td>
<td>800 – 3,500²</td>
</tr>
<tr>
<td>Installed power (kW)</td>
<td>11</td>
</tr>
<tr>
<td>Average power draw (kW) ³</td>
<td>6.5</td>
</tr>
<tr>
<td>Dirty water tank (l) optional</td>
<td>700/1,000/2,000</td>
</tr>
<tr>
<td>Clean water tank (l) optional</td>
<td>700/1,000/2,000</td>
</tr>
<tr>
<td>Cooling of the process water</td>
<td>optional</td>
</tr>
<tr>
<td>Automatic water and compound replenishment dosing system</td>
<td>optional</td>
</tr>
</tbody>
</table>

1 With mass finishing process water: Depending on the load with solids and the desired cleaning effect
2 With a lower solid particle load 12,000 l/h
3 Higher volumes of liquids upon request

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3. Rösler recirculation tank, type R... AB

For many mass finishing applications with low process water volumes a Rösler high performance centrifuge might not be the most economical choice. In these cases a recirculation tank can be a cost efficient alternative.

The dirty process water from the mass finishing machine is fed into the recirculation tank equipped with multiple cascades resulting in the precipitation/separation of metal and media fines. The clean water passing through the last cascade is returned to the mass finishing machine with a pulse controlled compressed air diaphragm pump.

Filling of the recirculation tank with water takes place with the simultaneous injection of the required compound.

Technical details:
- Sturdy, re-enforced plastic tanks made from high quality polyethylene
- Removable partitions facilitate the cleaning of the tank
- Adjustable compressed air diaphragm pump (pulse controlled)

### 1. Constant temperature of the process water

A constant process water temperature is desirable for equipment and process reasons. With some mass finishing machines, especially with centrifugal disk finishing machines, the friction energy in the work bowl is transformed into heat, which has to be dissipated by the process water. High process water temperatures can cause deteriorating finishing results and can even cause damage to the processing equipment. Cooling systems, precisely calibrated to the equipment performance, prevent a dangerous temperature rise in the process water, ensuring a stable process.

### 2. Recycling tanks

The capacity of the recycling tanks is individually adapted to the required process water volume.

- **Combination tanks:**
  - A single tank assembly with two chambers for dirty water and clean water with a volume of 2 x 700 liters

- **Individual tanks:**
  - Separate dirty water and clean water tanks with volumes of either 2 x 1,000 liters or 2 x 2,000 liters

- **Technical details, combination and individual tanks:**
  - Sturdy, reinforced plastic tanks made from high quality polyethylene
  - Easily changeable pre-screen at the dirty water tank inlet
  - Level indicator by float switch with ‘full’ alarm
  - Angled tank bottom for easy emptying of the tank
  - Stirrer built into the dirty water tank; also available for the clean water tank (optional)
  - Sturdy, wear resistant diaphragm pump technology
  - Wide overflow channel for the internal cleaning loop

- **Pump (lifting) station:**
  - For supply of the dirty water from the mass finishing machine to the centrifuge
  - Sturdy tank with angled bottom (3 sides)
  - Compressed air diaphragm pump controlled by the water level
  - Screen for catching coarse solid particles
  - Level indicator by float switch with ‘full’ alarm

### Technical details:
- Sturdy, reinforced plastic tanks made from high quality polyethylene
- Removable partitions facilitate the cleaning of the tank
- Adjustable compressed air diaphragm pump (pulse controlled)

<table>
<thead>
<tr>
<th>Type</th>
<th>R 150 AB</th>
<th>R 350 AB</th>
<th>R 750 AB</th>
<th>R 1100 AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank volume (l)</td>
<td>150</td>
<td>350</td>
<td>750</td>
<td>1,500</td>
</tr>
<tr>
<td>Suitable for waste water volumes (lph)</td>
<td>up to 30</td>
<td>up to 70</td>
<td>up to 150</td>
<td>up to 220</td>
</tr>
<tr>
<td>Tank dimensions lxbxh (mm)</td>
<td>700 x 400 x 580</td>
<td>1,150 x 760 x 520</td>
<td>1,990 x 970 x 520</td>
<td>1,990 x 1,310 x 520</td>
</tr>
<tr>
<td>Inlet height dirty water (mm)</td>
<td>450</td>
<td>440</td>
<td>440</td>
<td>440</td>
</tr>
</tbody>
</table>
Wastewater cleaning system AWA...

Chemical wastewater treatment systems based on the principle “precipitation/flocculation” are rounding off our product portfolio. They are employed whenever process water recycling cannot be utilized: Processing of multiple metals in a mass finishing system, particularly high quality requirements for the surface finish or mass finishing processes with acidic compounds.

How it works
The dirty water is cleaned in batches by precipitation and flocculation:
Stage A: Collection of a batch of dirty water
Stage B: Treatment by precipitation and flocculation
Stage C: Sedimentation of the flocs
Stage D: Filtration/sludge dewatering, possibly recycling

Treatment process
For the removal of the contaminations from the dirty water to below the legally permissible limits we offer cleaning agents that are individually adapted to the requirements of our customers:
- Flocculants
- Flocculation support compounds
- Neutralizing agents
- Combination products

These products come in liquid or powder form.

Semi-automatic systems AWA...C-SF und AWA...C-FP

The product type C-SF und C-FP is ideal for effective precipitation/flocculation of small dirty water volumes, which do not have to be automated but require a high degree of process safety. Buffering and treatment takes place in a single, low profile tank that allows the direct gravity feeding of the liquid from the mass finishing machine into the tank. Dewatering of the sludge can be done with filter bag or filter press.

Automatic systems AWA...K-FP und AWA...K

For continuous dirty water volumes over 500 liters/h we recommend the utilization of automatic treatment systems.

The PLC controller monitors and controls the supply of dirty water, its neutralization, the dosing of the flocculant, the sludge dewatering and the final control filtration of the clean water. Dewatering of the sludge can take place with chamber filter press or centrifuge.

<table>
<thead>
<tr>
<th>Type</th>
<th>Performance</th>
<th>Thixotropic</th>
<th>Filter size/Quantity of filter plates</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWA 500 C-SF</td>
<td>500 l/batch</td>
<td>Dual bag filter</td>
<td>2 x 120 l</td>
</tr>
<tr>
<td>AWA 1000 C-SF</td>
<td>1,000 l/batch</td>
<td>Dual bag filter</td>
<td>2 x 120 l</td>
</tr>
<tr>
<td>AWA 1000 C-FP</td>
<td>1,000 l/batch</td>
<td>Filter press</td>
<td>15/30 St.</td>
</tr>
<tr>
<td>AWA 2000 C-FP</td>
<td>2,000 l/batch</td>
<td>Filter press</td>
<td>4/15/30 St.</td>
</tr>
<tr>
<td>AWA 4000 C-FP</td>
<td>4,000 l/batch</td>
<td>Filter press</td>
<td>6/15/25 St.</td>
</tr>
<tr>
<td>AWA 1000 K-FP</td>
<td>1,000 l/h</td>
<td>Filter press</td>
<td>4/15/30 St.</td>
</tr>
<tr>
<td>AWA 2000 K-FP</td>
<td>2,000 l/h</td>
<td>Filter press</td>
<td>4/15/30 St.</td>
</tr>
<tr>
<td>AWA 4000 K-FP</td>
<td>4,000 l/h</td>
<td>Filter press</td>
<td>6/15/25 St.</td>
</tr>
<tr>
<td>AWA 1000 K-RZ</td>
<td>1,000 l/h</td>
<td>Centrifuge RZ 150 A</td>
<td>-</td>
</tr>
<tr>
<td>AWA 2000 K-RZ</td>
<td>2,000 l/h</td>
<td>Centrifuge RZ 150 A</td>
<td>-</td>
</tr>
<tr>
<td>AWA 4000 K-RZ</td>
<td>4,000 l/h</td>
<td>Centrifuge RZ 150 A</td>
<td>-</td>
</tr>
</tbody>
</table>

Volume of filter plates: 2 or 101