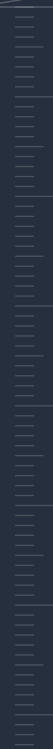
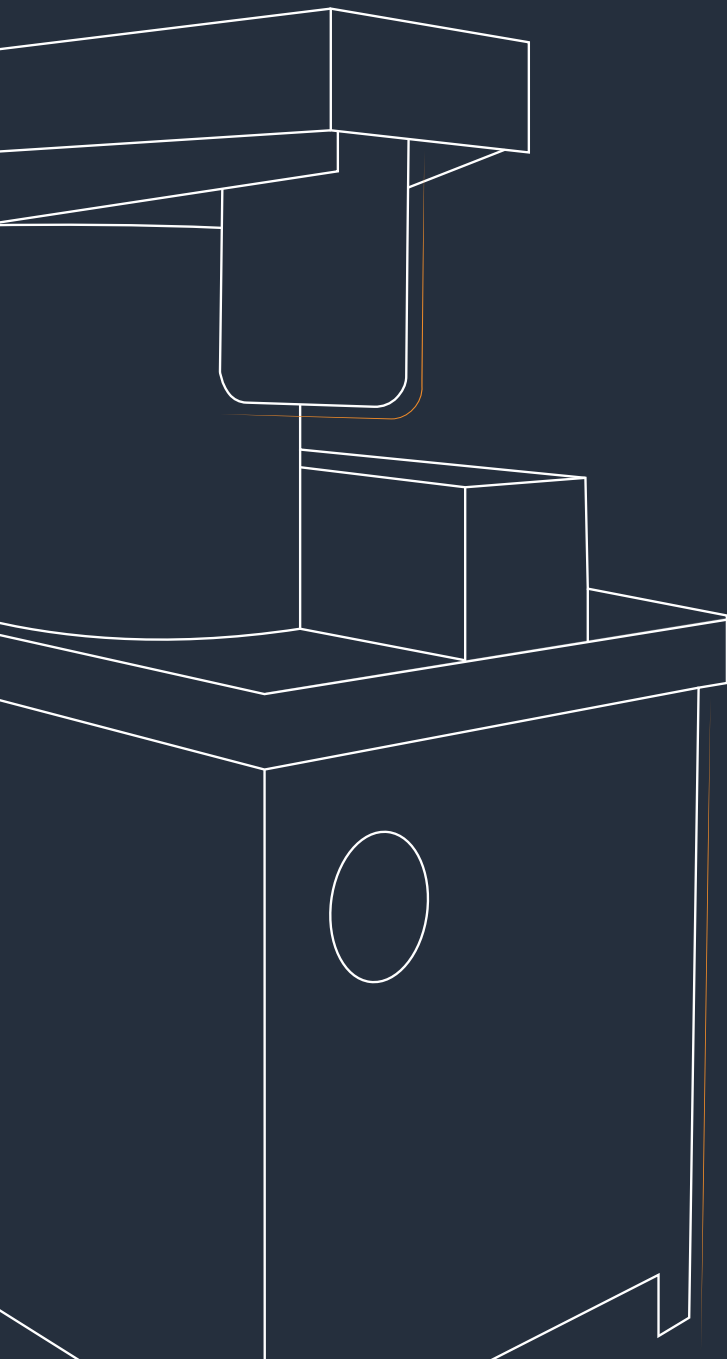




Process water recycling systems Chemical waste water treatment systems

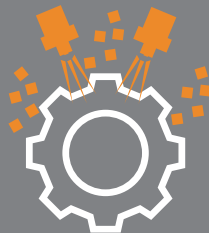


Mass Finishing



High-performance equipment and innovative technologies – productive and cost-effective

Shot Blasting



Customer-oriented equipment technology and intelligent process solutions – long-lasting and energy-efficient

AM Solutions



Comprehensive solutions for additive manufacturing, especially 3D post processing equipment

>80

More than 80 years of **experience**



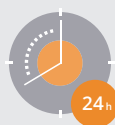
15 locations –
over **150** distributors –
over **1,500** employees across the globe



Worldwide **Customer Experience Center**



More than **15,000**
different types of media and compounds



Our technical service –
round-the-clock support



Transfer of professional knowledge
by certified trainers

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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 well 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.



Fully automatic system Z 1000 ASS II-Turbo

Applications

Mass finishing – Rösler centrifuges are the standard for the successful separation of solids from industrial liquids.

Other applications

- ▶ Machining/grinding centers: Maintenance of coolants/lubricants and grinding oil
- ▶ Technical ceramics: Maintenance of the process water for saw cutting, grinding and polishing
- ▶ Glass industry: Technical applications, optical glass, etc.
- ▶ Solar/wafer production: Saw cutting, grinding
- ▶ Paint booths: Maintenance of the overspray collecting water curtain
- ▶ ECM processes: Maintenance of the electrolytes
- ▶ High pressure water jet blasting: Cleaning and removal of coatings in the aerospace industry
- ▶ Reclamation: of gold, silver, copper, etc. from process liquids
- ▶ General sludge dewatering: 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 know how?



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



- 1** Process water prior to treatment
- 2** Process water after addition of process water cleaner - (The solid particles now combined into larger "flocs" are easier to separate and precipitate.)
- 3** Process water after passing through a centrifuge (The solid particles were deposited as sludge on the wall of the rotating drum.)

Process water cleaner (recycling systems)

Liquid cleaners for recycling

Type	AR 8401	AR 8403	AR 8404	AR 8405	AR 8407
Function	Cationic polymers for effective process water recycling				
Usage	either as delivered or after dilution with water at the ratio 1:1 up to 1:10 about 0.1 – 1.0 kg/m ³				

Pulverprodukte für die Kreislaufpflege

Type	AR 7120	AR 7134
Function	Process water cleaners in powder shape allow the effective removal of oil and grease from recycling systems; minimal salt buildup in the process water	
Usage	Depending on the contamination 0.1 kg/m ³ -1.0 kg/m ³	

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.

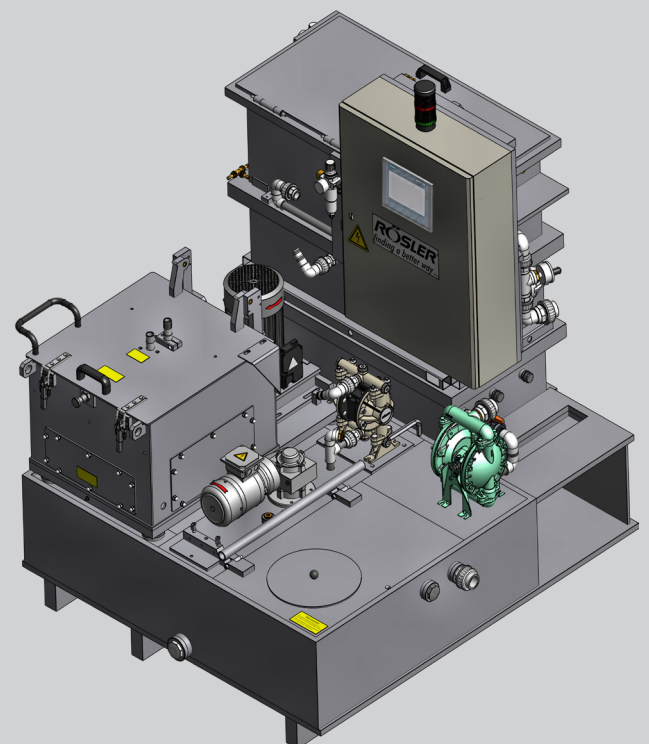
Impressive engineering

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



Z 800 K HA Turbo-Floc® with dirty water and clean water tank

Z 800 HA Turbo-Floc® with dirty water tank



Type	Z 800 HA Turbo-Floc®	Z 800 K HA Turbo-Floc®
Max. rotational speed (RPM)	2,930	2,930
Max. "g" value	1,750	1,750
Max. sludge volume (l) basket capacity (kg) ²	11 28	11 28
Max. capacity ¹ (l/h)	1,200	1,200
Installed power (kW)	5.0	5.0
Average power draw (kW)	2,2	2,2
Dirty water tank (l)	250	340
Clean water tank (l)	-	400
Cooling of the process water	-	optional
Automatic water and compound replenishment dosing system	optional	optional

¹ With mass finishing process water: Depending on the load with solids and the desired cleaning effect

² Density 2,5 g/cm³

Compact centrifuge RZ 60 M-V-KB

Manual sludge removal

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) ²	1.8 4.5
Max. capacity ¹ (l/h)	400
Installed power (kW)	1.5
Dirty water/clean water tank (l)	25/35

¹ With mass finishing process water: Depending on the load with solids and the desired cleaning effect

² Density 2.5 g/cm³

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

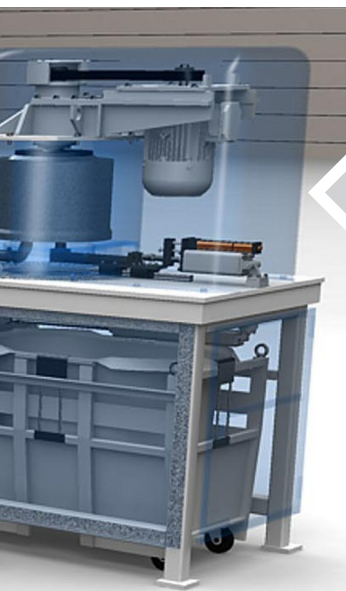
- ▶ Fully automatic operation, controlled by PLC
- ▶ Turbo-Floc® package for the addition of process water cleaner
- ▶ Vibration control of the centrifuge motor with automatic stop function
- ▶ Powerful main drive with speed control
- ▶ Precision balanced drum made from aluminum; alternatively made from 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



Z 1000 ASS-II-Turbo



Z 1000 ASS-II-Turbo Tandem



Type	Z 1000 ASS-II-Turbo
Max. rotational speed (RPM)	2,650
Max. "g" value	1,716
Drum capacity (kg) ²	55
Max. capacity ¹ (l/h)	2,500
Installed power (kW)	11
Average power draw (kW)	2.2
Dirty water tank (l) optional ³	700/1,000/2,000
Clean water tank (l) optional ³	700/1,000/2,000
Cooling of the process water	optional
Automatic water and compound replenishment dosing system	optional

¹ With mass finishing process water: Depending on the load with solids and the desired cleaning effect

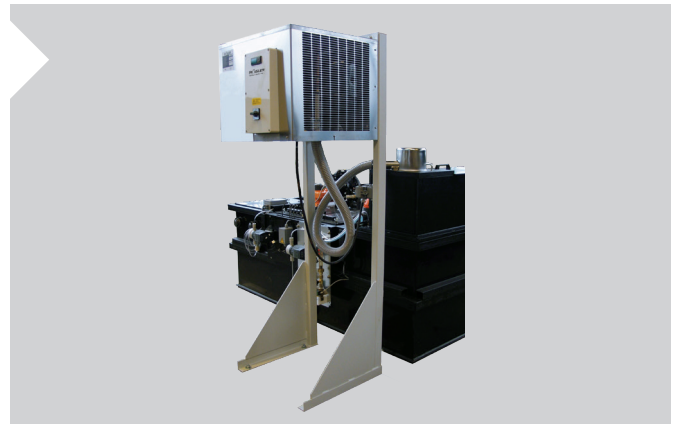
² Density 2.5 g/cm³

³ Higher volumes of liquids upon request

ACCESSORIES FOR RECYCLING SYSTEMS

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.

► Technical details, combination and individual tanks:

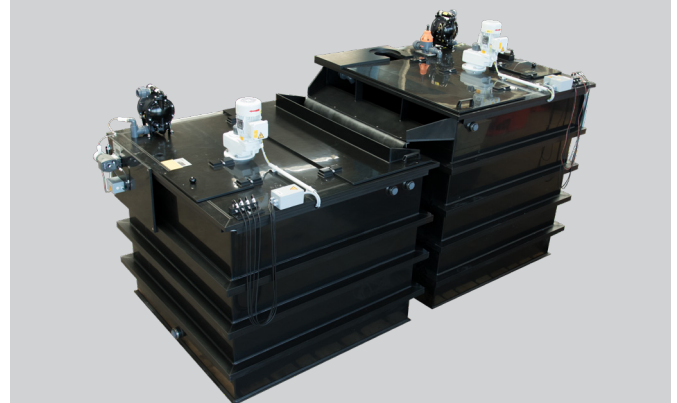
- Sturdy, reinforced plastic tanks made from high quality polyethylene
- Easily changeable pre-screen at the dirty water tank inlet
- Level indicator by float switch with "full" alarm
- Angled tank bottom for easy emptying of the tank
- Stirrer built into the dirty water tank; also available for the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

► Pump (lifting) station:

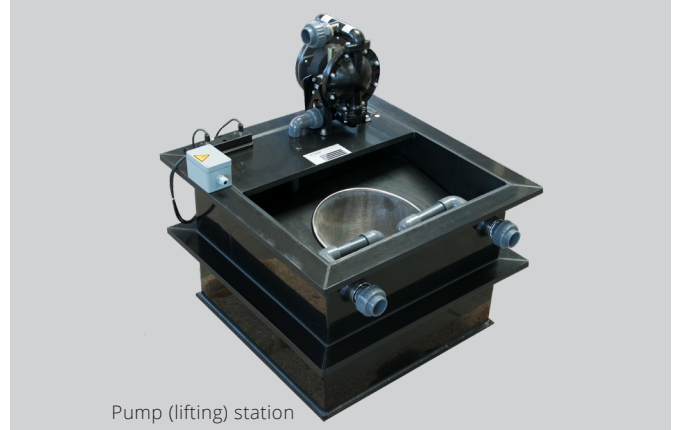
- For supply of the dirty water from the mass finishing machine to the centrifuge
- Sturdy tank with angled bottom (3 sides)
- Compressed air diaphragm pump controlled by the water level
- Screen for catching coarse solid particles
- Level indicator by float switch with "full" alarm



Combination tank



Individual tank



Pump (lifting) station

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)



Recirculation tank, model R 350 AB

Type	R 150 AB	R 350 AB	R 750 AB	R 1100 AB
Tank volume (l)	150	350	750	1,100
Suitable for waste water volumes (l/h)	ca. 30	ca. 70	ca. 150	ca. 220
Tank dimensions lxbxh (mm)	700 x 400 x 580	1,150 x 760 x 520	1,990 x 970 x 520	1,990 x 1,310 x 520
Inlet height dirty water (mm)	450	440	440	440

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 can-

not 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

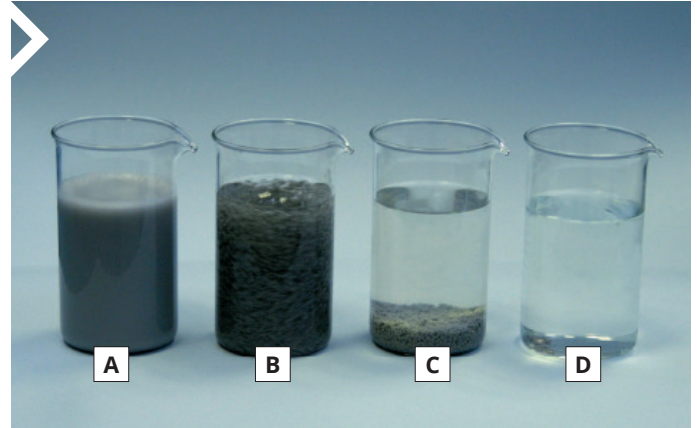
The dirty water is cleaned in batches by precipitation and flocculation:

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 and 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.

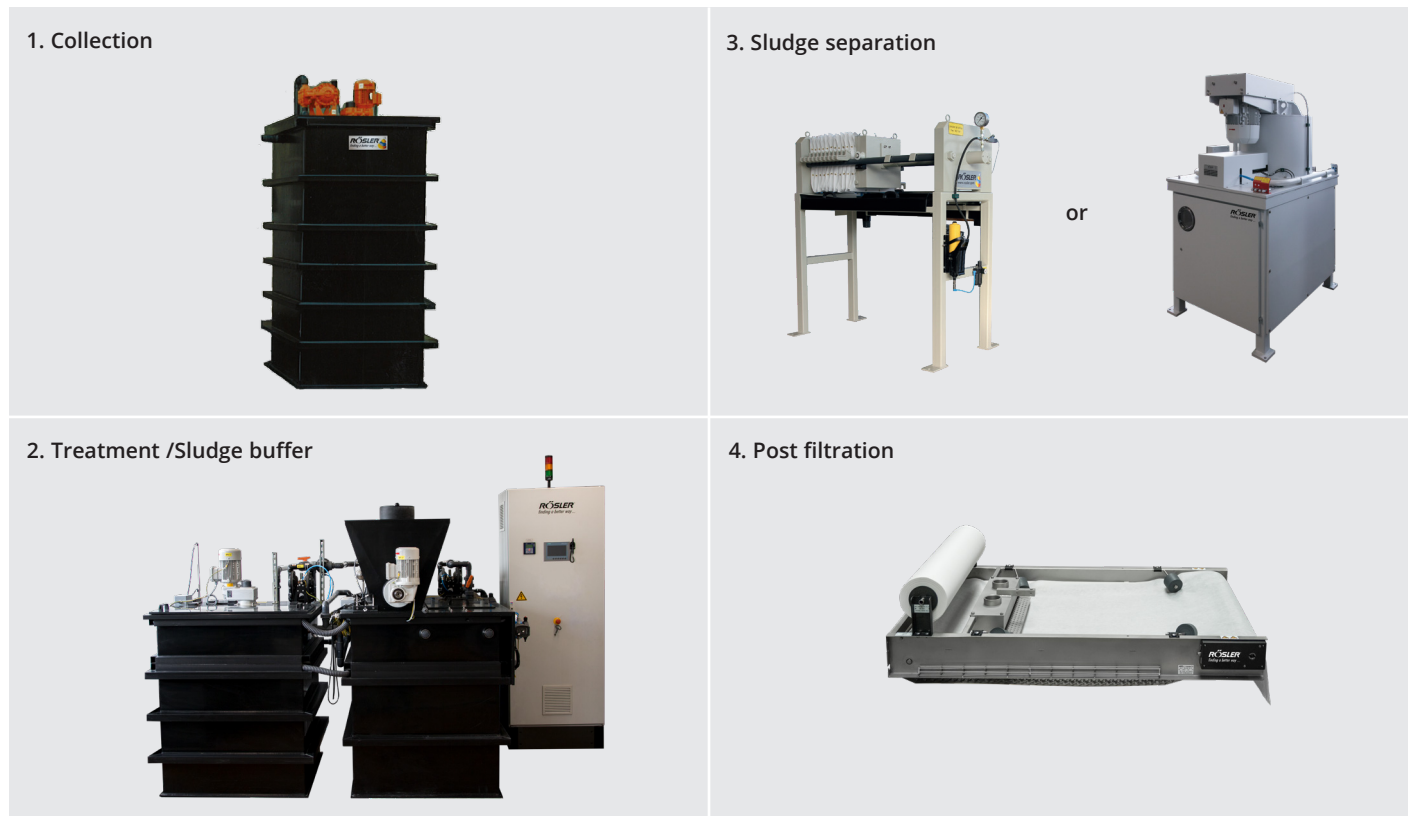


AWA 500 C-SF

Automatic systems AWA...K-FP and 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 neu-

tralization, 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.



Type	Performance	Thin sludge	Filter size/ Quantity of filter plates
Semi-automatic	AWA 500 C-SF	500 l/batch	Dual bag filter 2 x 120 l
	AWA 1000 C-SF	1,000 l/batch	Dual bag filter 2 x 120 l
	AWA 1000 C-FP	1,000 l/batch	Filter press 4/15/30 St. ¹
	AWA 2000 C-FP	2,000 l/batch	Filter press 4/15/30 St. ¹
Fully automatic	AWA 1000 K-FP	1,000 l/h	Filter press 4/15/30 St. ¹
	AWA 2000 K-FP	2,000 l/h	Filter press 4/15/30 St. ¹
	AWA 4000 K-FP	4,000 l/h	Filter press 6/15/25 St. ¹
	AWA 1000 K-RZ	1,000 l/h	Centrifuge RZ 150 A -
	AWA 2000 K-RZ	2,000 l/h	Centrifuge RZ 150 A -
	AWA 4000 K-RZ	4,000 l/h	Centrifuge RZ 150 A -

¹ Volume of filter plates 3.2 l or 10 l

MEDIA AND COMPOUNDS

In addition to our machine program, we also offer the most comprehensive range of media and compounds in the world. All our consumable products have been developed and produced in-house with „Made in Germany“ quality. With over 80 years of

experience in the field of surface finishing we can provide our customers with tailormade processes for new applications and solutions for product improvement and cost reductions.

Stable and repeatable finishing processes are our specialty.



The world's largest range of media and compounds

With around 15,000 products our portfolio of consumables is the largest in the world. It includes ceramic and plastic grinding and polishing media, compounds and process water cleaners. All our consumables can be individually adapted to the needs and requests of our customers.



Our ceramic media production



Quality

Our production complies with the most stringent environmental standards and is subject to strict quality controls per DIN EN ISO 9001 and 50001.

Excellent product availability

Our central warehouse in Germany stocks more than 8,000 tons of media and compounds. In addition, our global network of branches and many of our channel partners maintain warehouses with consumables close to our customers.

CUSTOMER EXPERIENCE CENTER

MASS FINISHING

A major strength of the Rösler business approach is that **we look at all aspects of a finishing task**. The equipment and the processes are individually tailored to the respective finishing requirements, but also to their optimal integration into the customer's manufacturing operation. Most of the Rösler sales

branches have their own **Customer Experience Centers (CEC)**, equipped with the latest finishing equipment.

To investigate the various finishing possibilities, in our CEC we are conducting **processing trials** with the work pieces of our respective customers.



Process development and process optimization

Our all-around approach guarantees perfect finishing solutions. This includes processing trials, process development, selection of the right machinery and a professional after sales service.

In our CEC, equipped with ultra-modern equipment, we can run practically any mass finishing process.

State-of-the-art **physical and chemical measuring** equipment represents a vital tool for process development and optimization.

The entire focus of our specialists in the engineering and R & D departments is on developing **tailormade finishing solutions**.

Product development and optimization

The enormous depth of the Rösler product range, **CEC around the world** and our well-equipped laboratory at the Untermerzbach location in Germany are an excellent basis for the development of innovative and cost-efficient products in the field of mass finishing.

All our products, be it consumables, finishing equipment, vibratory motors, process water cleaning centrifuges, as well as work piece handling systems and post processing equipment like dryers, are **developed and manufactured** in-house. Such a high manufacturing depth is unparalleled in our industry.

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