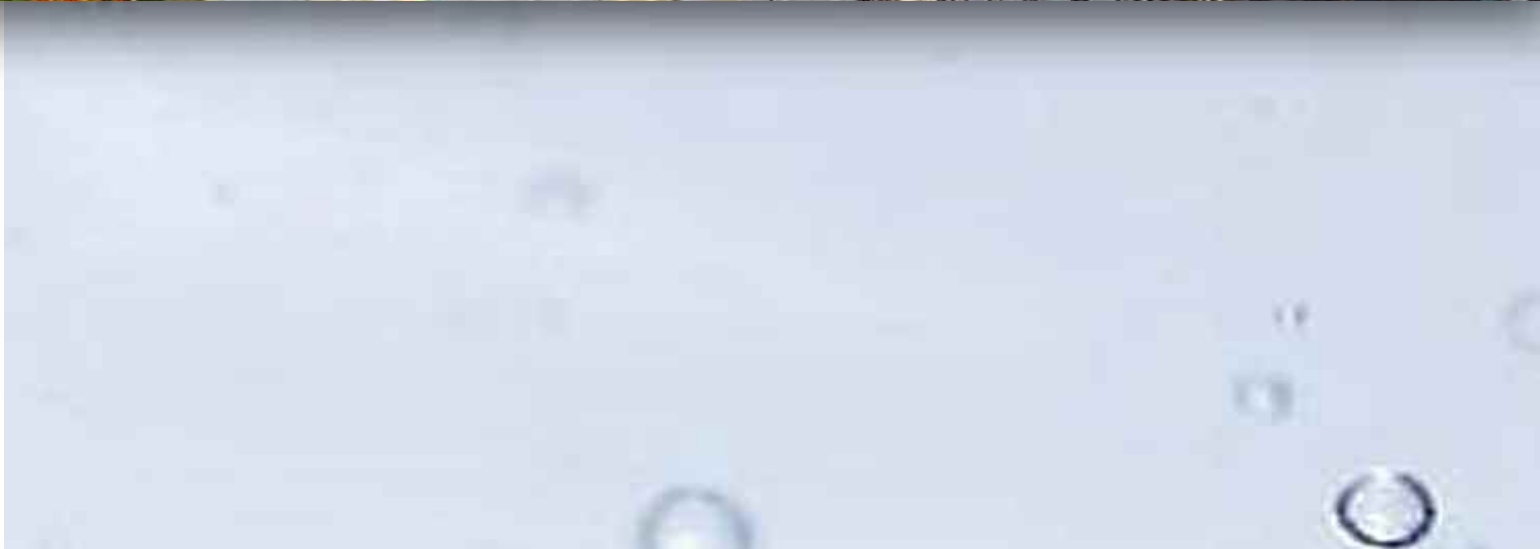


# EXPERIENCE AND EXPERTISE IN SEWAGE TREATMENT





# YOUR STRONG PARTNER IN ENVIRONMENTAL ENGINEERING

**WERKSTOFF + FUNKTION**  
GRIMMEL WASSERTECHNIK GMBH is a leading company in water and sewage treatment engineering. Its focus is on general liquid/solid separation with applications both in the public sector and industry. The company's innovative ideas in process engineering and design are based on several decades of experience, gained by its founder Walter Grimmel and his committed workforce, as well as on substantial knowledge in mechanical and plant engineering, accumulated over a period of many years. This enables W + F to develop contemporary solutions in user-friendly and efficient engineering. The innovative strength of the company is borne out by numerous patents and unique technical implementations.

**WERKSTOFF + FUNKTION** employs a workforce of over 30 experienced engineers, technicians, administrators and workmen. It's a highly motivated team, continually open to new approaches and ideas. Both

staff and management share the same vision: state-of-the-art environmental engineering for the benefit and satisfaction of its users and the environment.

Research and development in water and sewage treatment are seen as absolutely fundamental by **WERKSTOFF + FUNKTION**. An efficient order handling procedure, with one-stop shopping, is just as crucial as the customised design of components and machinery. **W + F** warrants the highest quality, from production to assembly, and has a fair, well-trained service team who ensure a good level of durability for machinery and system groups. The company's base is located centrally within Germany, in Ober-Mörlen, 30 km (19 miles) north of Frankfurt am Main, and has a nationwide sales network as well as reliable international partnerships, all of them with the customer at the focus of attention.



# COUNTERFLOW SCREENS

## Counterflow coarse screen GSR

This screen is particularly effective if it precedes sensitive equipment such as heavily impacted fine screens, pumping stations and tank inlets, where it ensures optimum separation of coarse material and protects downstream components. Made of stainless steel, the screen can be set up with gap widths of 12 to 100 mm. A counterflow coarse screen performs outstandingly well, even with large channel widths up to 3 metres and channels depths down to 8 metres. The floodable screen grid makes this machine ideal for use not only in emergency bypass channels, but also in channels without an emergency bypass option. What makes this screen so suitable is its operational safety and robustness, even outdoors.



## Counterflow fine screen GSFR

The counterflow fine screen GSFR is another innovative piece of machinery designed by our company. Made in the same proven quality, it can be used for removing very fine components from the water flow. The special features of this design are a floodable screen grid, scraped by an allround rake, and at least one rake reaching into the screen grid which is open at the top. One major benefit of this floodable screen grid is that there is no need for an emergency bypass channel which would otherwise have to form part of the structure. This type of screen also makes it possible to replace screen grids which previously had to be scraped

manually in existing emergency bypass channels. Instead, the screening of such a channel can be automated. The screen can be supplied with gap widths between 6 and 150 mm. The number of scrapers and therefore the scraping intervals are variable, thus warranting high-performance scraping action.



To suit their specific process engineering requirements, our customers can choose between counterflow coarse and fine screens.





# FINE SCREENS

## Flat fine screen

Whenever fine material needs to be stopped from entering a sewage plant inlet, the most sensible choice is this patented flat fine screen, available in gap widths between 0.5 and 8 mm. Due to the special design of this screen, gap widths can be changed easily and cost-effectively at a later stage, when the screen is already in use. The screen can be used in channel widths and depths up to 2.5 metres. Thanks to its clear, robust and operation-friendly design in stainless steel and the hydraulic flow capacities that are feasible, this screen is regarded as highly convincing by specialists. This screen ensures maintenance-free scraping. There is no need for



lubrication, tensioning or indeed the replacement of wear-and-tear elements. It has proved its suitability for everyday use, especially in inlets with a high proportion of mineral components.

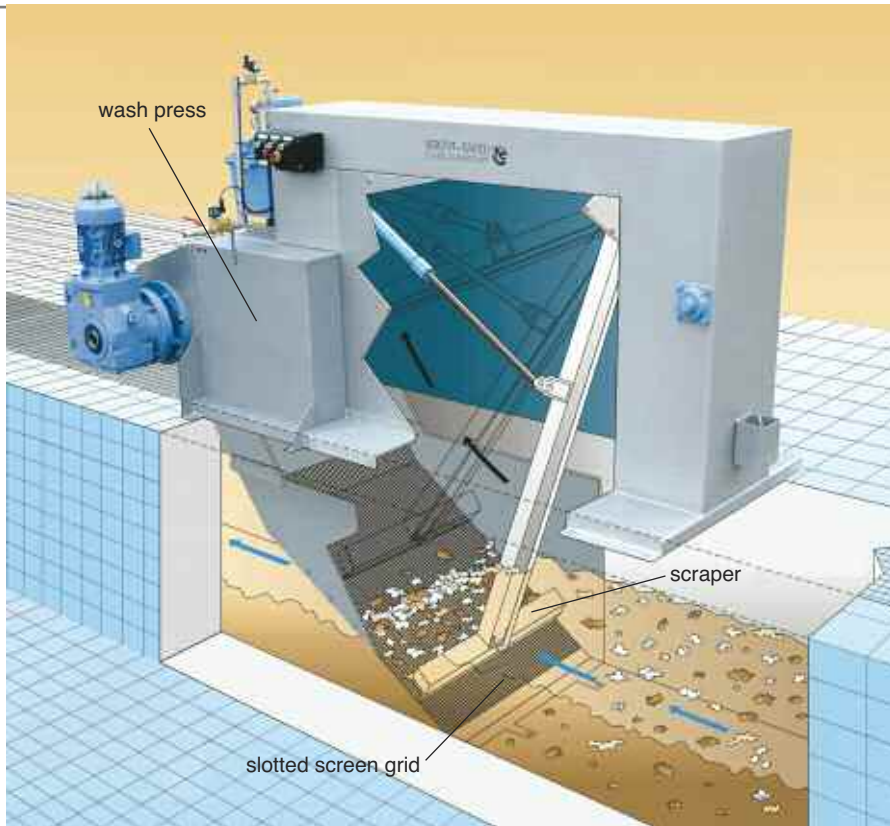


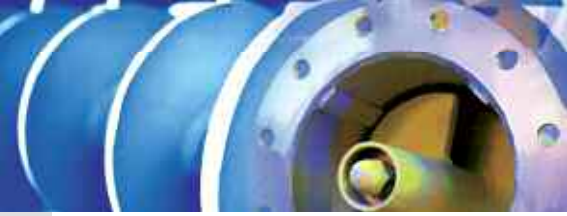
## Round fine screen

A round fine screen shares the highly positive qualities of a flat fine screen, thus benefiting from our positive and wide-ranging collective experience with a compact container design. Like in a flat fine screen, the integrated washing press ensures that screenings are efficiently washed and compacted. This machine is highly reliable and has proved its worth in combination with a grit trap / compact system or as a central inlet screen and also as a sludge acceptance station.



To ensure the safe and robust operation of equipment for the removal of solids we recommend our well proven slotted screen grids.





# TREATMENT OF SCREENED MATERIAL



To ensure that screened material is given the best possible wash even under extreme conditions, we recommend intensive cyclone washers as space-saving devices to supplement the washing presses of a flat or round fine screen. This unit is based on very simple and

therefore reliable technology. The faecal materials that have disintegrated and been washed as a result of hydrodynamic forces move back onto the grid and thus in the opposite direction in which the screened material is conveyed. This makes it unnecessary to use

complex drainage facilities or filtration tanks. Further components that should be considered for the treatment of screened material are our spiral conveyors and our screening, screw and piston presses.



# GRIT WASHING UNITS



W+F grit washing units are designed in such a way that they can wash the grit in wastewater treatment plants and also grit coming from sewer flushing, while ensuring that the result complies with the legal requirement of less than 5% dry weight of organic content. By adding washing water and scavenging air to the grit volume in the grit washer, lighter organic active ingredients are separated from the grit and flushed out from the grit volume. This process is supported by a slowly rotating, robust mixing rake. The washed and drained grit is carried off by a discharge screw. Grit is now available in a form that allows its cost-effective further use. Grit washing units are made by W+F in two versions, depending on the customer's preferences. Any pre-dewatered mixture of grit and

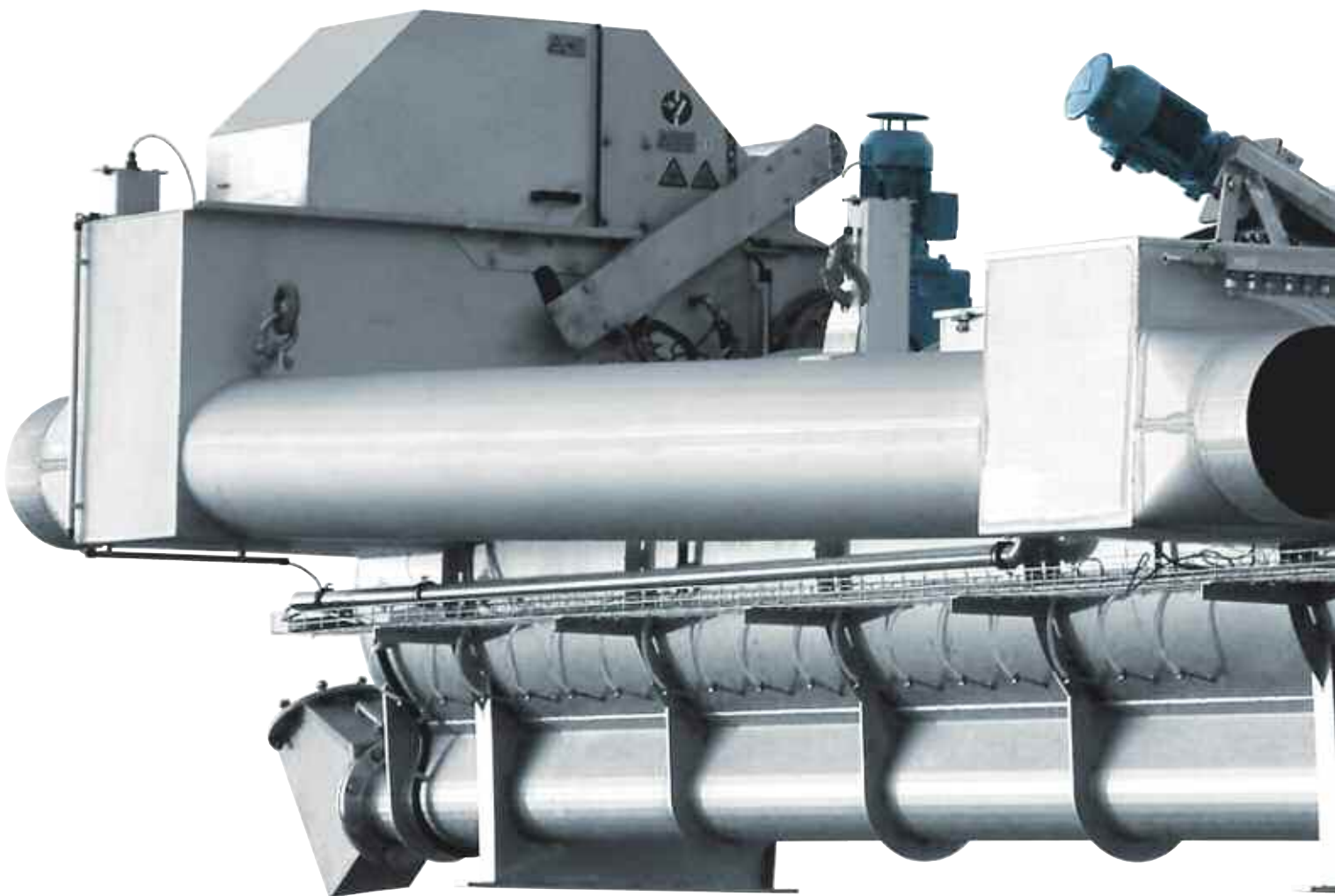
organic material coming, for instance, directly from a compact unit or from a grit wash classifier is best handled by a grit washer of the type SWA/T. The grit washing

unit of the type SWA/N is a model that allows direct wet charging via a centrifugal or air lift pump in the sump of a grit trap.





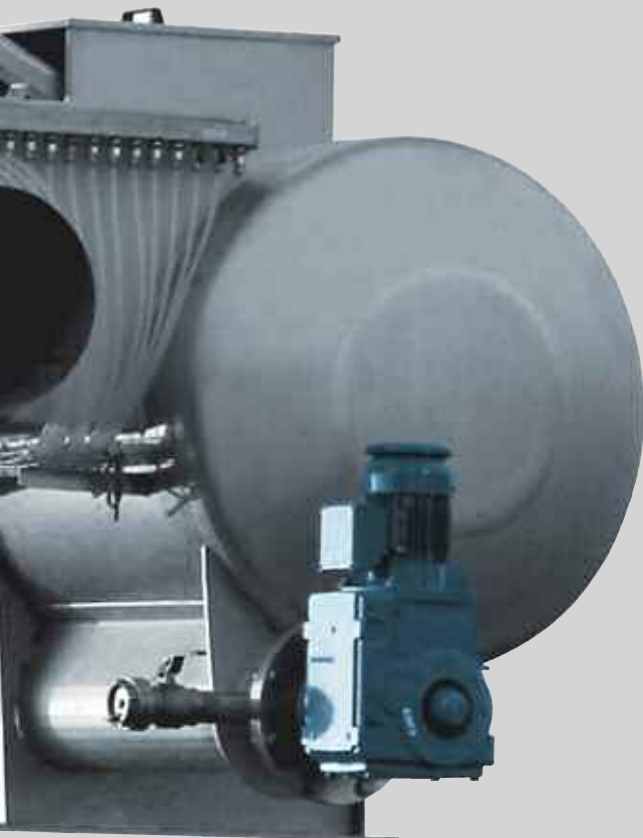
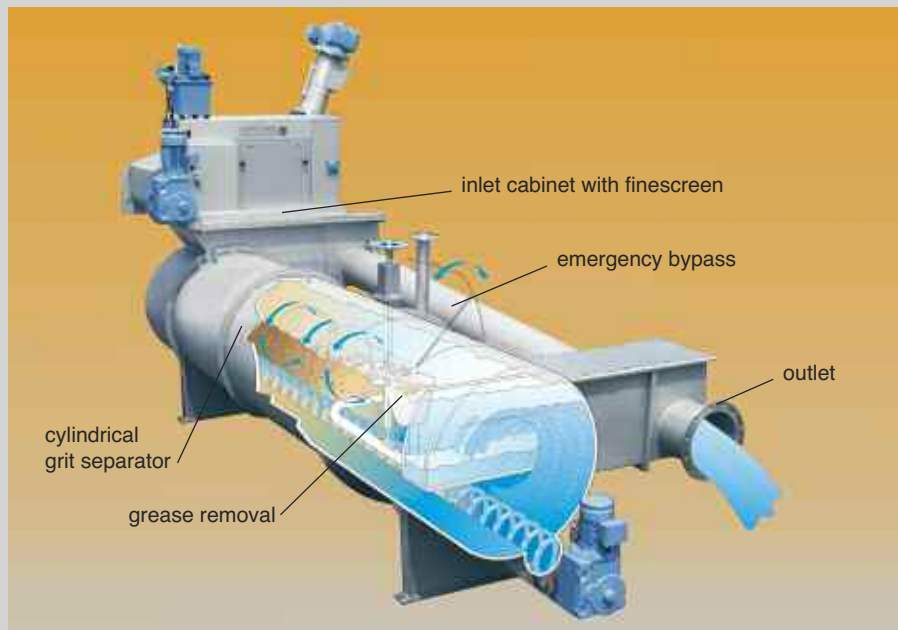
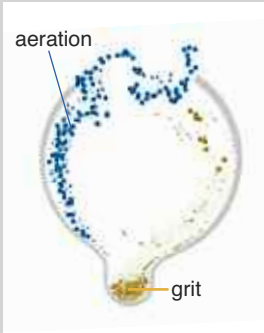
## COMPACT UNIT WS



A W+F cylindrical grit separator / compact unit WS allows mechanical pre-cleaning, the treatment of screening material and the removal of grit in one go, saving up to 50% space compared with a conventional compact unit. However, great separation performance is just as good, and the unit is far more

easily accessible for operational purposes. It can separate grit, grease, coarse material and suspended solids. Grit removal is up to 95% for a grain size of at least 0.2 mm. There is no need for additional maintenance. Moreover, a unit of this kind does not require any separate chain scrapers for

grease or floating solids. Thanks to the integrated washing press for screenings and an efficient method to remove grease and floating solids, it requires very little maintenance and is extremely resistant to wear and tear. The difference between a WS cylindrical grit separator / compact unit and a



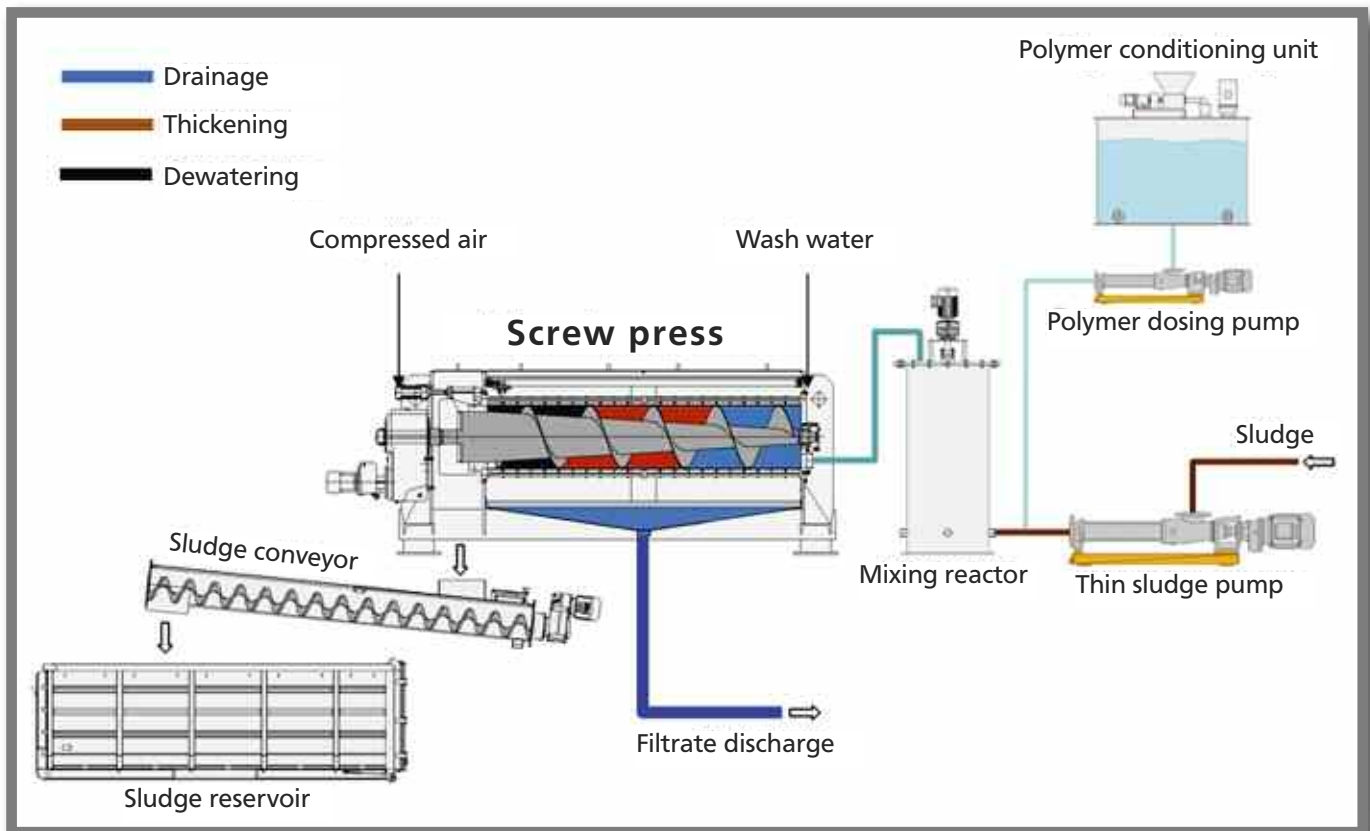
conventional machine is partly that it needs less energy. This is due to the lower invert level of the inlet and the low head loss of its grit trap aeration. Another benefit over conventional systems is the reduction of construction costs for setting up the unit. WS compact units are usually the most

cost-effective solutions for mechanical pre-cleaning purposes. Throughout operation the tangential wastewater inlet, ensures the desired turbulence, thanks to course bubble aeration along the grit trap. Optimised in this way, the flow ensures far better separation for short grit

traps. This was in fact proved. The WS cylindrical grit separator/ compact unit can be delivered with an integrated self-activating emergency bypass pipe. W+F is the first and only manufacturer to offer this innovation which saves complex structural modifications.



# SLUDGE DEWATERING



In addition to its mechanical pre-cleaning units, which have proved their worth for many decades, WERKSTOFF + FUNKTION has now expanded its product range to include a screw press for continuous sludge dewatering as a technical solution to this process engineering requirement. This approach has numerous highly convincing W + F features, such as

structural simplicity, serviceability, good accessibility, extremely low maintenance and energy costs. The piping and conveyor systems that are required for the entire dewatering unit can be set up in a way that suits the needs of each customer. To ensure the necessary sludge conditioning, it is also possible to add polymer conditioning stations to the entire system. A

user-friendly control panel with a handy interface and the required wiring, linking it to the machinery and the periphery, can all be provided by W + F as part of the package.

Sludges from municipal and industrial sewage treatment plants and production processes are drained for economic and environmental reasons. This engineering process could be done by a sludge screw press.

Due to the very slow relative movement between the strainer basket and the screw press as well as trouble-free start-up after shutdown, 24-hour operation of the screw press works very well indeed and has been tried and tested in practice. There is absolutely no need for the rather cumbersome procedure of shutting the system down every day and then starting it up again.

To provide customers with reliable details about achievable dewatering results, W+F has a range of trial units available, including some very small ones.





# SCRAPERS AND AGITATORS



W + F scrapers cover a wide range of applications: Whether the challenge is to scrape grit, to remove floating solids from a water surface or to clear sludge from the bottom of a tank, W + F has excellent customised solutions, based on tried and tested mechanical engineering. All scrapers are characterised by excellent usability and low maintenance requirements. Moreover, they are state-of-the-art

while using a wide range of different materials. Different versions are available for the clearance of floating solids, with either fully or semi-automatic removal of floating sludge. They can also be customised and can be used for long tanks if required.



Based on the development of mixing reactors, W + F has had many decades of experience in homogenisation and in the deposit-free operation of activated sludge tanks. The efficient W + F agitators with dry mounted actuator units are used vertically, with or without a mixing reactor system. W + F can also supply the relevant peripherals, such as operating platforms and ventilation.







WERKSTOFF + FUNKTION  
GRIMMEL WASSERTECHNIK GMBH



*ideen die klären*

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