

SR Settling grate

To separate easily settling particles in the point of washing the set of all-plastic grates has been designed. It is a welded piece, which can be installed directly by embedding into concrete, equipped with the drainage pipe and the adjustable screen. The function of the longitudinal sand catcher has been achieved in this way. Cover grates are made of composite polyester.

SN Settling tank

Waste water accumulation and simultaneous gravitational separation of petroleum substances is provided for by the settling tank. The function of this element is irreplaceable in the waste water treatment line. From the structural point of view the tank is designed as a plastic welding piece with circumferential stiffeners and technological screens, which ensure the required function. It is a self-supporting structure and thus creating the opportunity to install it into the lower building construction with subsequent lying of concrete around it or it can be placed as a free standing unit on the building floor without any additional works.

ZNF Treated water tank

Treated water is accumulated in a tank with simultaneous treatment through the sorption cartridge before it is used again. This water may be used in the washing process, if a pressure station is implemented, or ex-

Type	Dimensions B x H (mm)	Dimensions L (mm)	Weight (kg/m)
SR 500 x 300	500 x 300	1,000 – 10,000	24
SR 500 x 500	500 x 500	1,000 – 20,000	32

Type	Dimensions (mm)	Volume (m ³)	Weight (kg/m)
SN1	3,140 x 1,160 x 1,510	4.5	270
SN1 kombi	3,140 x 1,110 x 1,550	4.3	330
SN2	3,140 x 1,640 x 1,510	6.8	360
SN3	4,140 x 1,660 x 1,510	9	450
SN5	4,140 x 2,160 x 2,020	16	830
SN10	6,140 x 3,160 x 3,020	54	2,000

Type	Dimensions (mm)	Volume (m ³)	Weight (kg/m)
ZNF0.5	Ø 730 x 1,350	0.5	25
ZNF1	1,430 x 830 x 1,510	1.5	75
ZNF2	1,730 x 930 x 1,510	2	90
ZNF3	2,030 x 1,030 x 1,510	2.5	110
ZNF5	2,430 x 1,230 x 1,510	3.5	140
ZNF10	2,430 x 1,230 x 2,010	4.8	180

cessive water may be discharged from the washing system after treatment through the sorption cartridge. Discharging to the public sewerage system can be performed directly from the KOFI device. The highest

quality of water is achieved after implementation of the sorption and adsorption cartridges into the ZNF tank. It consists of the sorption textile fabric and granulated activated carbon.



Main characteristics

Waste water treatment plants of the KOFI type range are compact treatment devices intended for continual treatment of waste water. The original range has been extended with additional sizes and innovated using new measurement and control elements. Use of the mentioned devices is subjected to the condition that processes of waste water chemical flocculation with subsequent separation by means of filtration and settling are applied. This creates wide opportunities to use devices of this type range. At present the output of the range varies between 0.5 up to 10 m³/hour represented with 6 compact sizes. The device with the output of 10 m³/hour is structural extension of the KOFI 5 and is intended for large technological units. On the contrary, a totally new structure of the KOFI mini, which applies flocculation only in combination with filtration, is the response to requirements of customers. The main output range consists of units with outputs of 0.5, 1, 2, 3, 5 and 10 m³/hour in the compact version with all necessary parts.



Possibilities to use KOFI WWTPs for treatment of waste water:

- produced by washing of vehicles by manual and automatic washing lines
- produced by washing of agricultural, transport and road machines
- produced in motor workshops
- produced in transport companies
- produced at fuel stations
- produced in hall washers
- for water treatment, in which it is possible to apply coagulation, settling and filtration processes

Description of the function

The device follows physical and chemical principles of coagulation, neutralisation, flocculation, settling and filtration. Chemical agents are dosed into waste water and activate the coagulation process. Floccules produced during the coagulation process are separated in a flow reactor after pH modification and flocculation. Chemical processes

take place in the system of static mixers with subsequent flowing through the flocculation zone into the separation space of the cylindrical reactor. Uniform distribution of the mixture is performed by the flocculation distributor. This creates suitable conditions for separation processes. Settling or filtration by means of the suspended floccules layer and the suspended filter provide for reliable separation and thickening of suspended substances. Sludge is drawn to the dewatering container on a regular basis and treated water enters the sewer or the treated water tank for recovery. The whole process is controlled and monitored by the integrated PLC.

The control system of WWTP provides for:

- pH measurement and control
- conductivity measurement and control
- ORP (Oxidising Reduction Potential) measurement
- measurement of instant and total quantity of water flowed through
- measurement of discharged water temperature
- measurement and displaying of the device operating hour counter
- measurement and displaying of the filter wash counter
- measurement and displaying the time to the end of individual filtration steps
- automatic recovery of the filter in accordance with its pollution
- monitoring and signalling the exceeding of values – pH, flowrate, conductivity, ORP, chemical levels
- time controlled mixing of solutions in the preparation tank
- displaying the fault statuses

Type	Output (m ³ /hour)	Dimensions (mm)	Power absorbed	Weight empty/full (kg)
Mini 0.5	0.3 – 0.5	1,062 x 780 x 1,620	0.94	90
Mini 1	0.6-1	1,300 x 800 x 1,620	0.94	110



Quality of treated water

Depending on application of the device, treated water may be discharged to the public sewer, used for recovery with occasional removal or, after implementation of a sorption filter, discharged to surface waters.

KOFI mini 0.5, 1

The device with such the structure, which allows using the coagulation process and subsequent pressure filtration, for small-size car washes with the output of 6 m³/hour for the KOFI 0.5 mini series and 12 m³/hour for KOFI 1 mini. The system of precise digital dosing and pressure filtration allow treating waste water while keeping consumption of chemical solutions at minimum. Sludge and washing water are discharged to the settling tank, from which they are transported for disposal.



Type	Output (m ³ /hour)	Dimensions (mm)	Power absorbed	Weight empty/full (kg)
KOFI 1	1	1,590 x 740 x 1,900	1.15	130/860
KOFI 2	2	1,830 x 930 x 2,310	1.35	150/1,600
KOFI 3	3	2,030 x 1,130 x 2,310	1.56	180/2,200
KOFI 5	5	2,640 x 1,640 x 2,610	1.56	270/4,300
KOFI 10	10	3,450 x 2,040 x 2,610	2.17	380/5,500

KOFI 1-10

The proven structure with the vertical cylindrical reactor contains tanks with stirrers for preparation of operation solutions. This allows variability in using dry or liquid concentrates. High safety is achieved also thanks to enclosure of chemical parts. Devices of this generation contain also the mobile sludge – dewatering unit.

Gravitational dewatering through a textile fabric results in the increase of solid portion and the reduction of produced sludge. Digital dosing pumps allow precise process control and optimum dosing. All processes are monitored by the control system and conditions are presented on the display. The operator access is provided for through the alphanumeric keyboard.

The main objective is providing a customer with a highly reliable device at the European level from domestic production with full engineering and technological support of the service base.

Additional equipment

If the KOFI WWTP is used for treatment of water produced from washing of machines the system of additional equipment for particular construction objects is designed. The modular system creates opportunities to combine recommended sizes and ver-

sions of additional equipment. Sets of settling grates for washing points, settling and accumulation tanks, treated water tanks, sorption filters, pressure stations for recycled water have been worked out in this way.

