

FLOTATION

AS-FLOT flotation units (capacity: from 1 to 10 m³)

For the formation of microbubbles, the AS-FLOT equipment types use a specially designed pump, which sucks-in air automatically during the pumping action. Because of this, no compressor and/or other connected equipment is necessary. Owing to this design, the AS-FLOT units are energetically and operationally undemanding as well as highly reliable.

The flotation technology principle is based on a separation process, which is used for separation of dispersed particles (either solid or fatty matter) from liquids by the use of air microbubbles.

During the flotation process, polluting particles are attached to air microbubbles and consequently brought to the water surface together, where they form flotation foam. This foam is subsequently drawn off the water surface by a wiping device. This principle is particularly suitable for cleaning of water types containing fatty substances. The flotation process is efficiency further enhanced by the use of chemical precipitation before the flotation process itself.



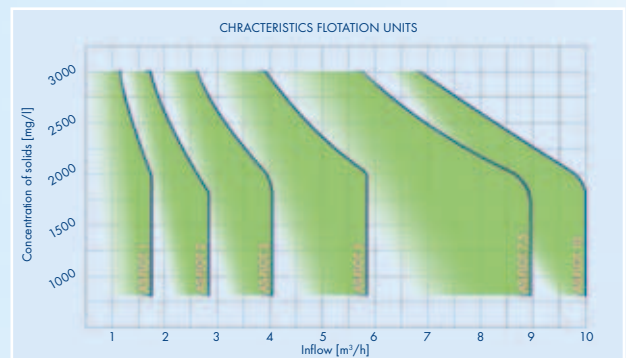
Applications

- Meat processing industry
- Cattle slaughtering
- Fish processing
- Dairies
- Cheese plants
- Breweries
- Production of potato chips, etc.

Advantages

- Low capital expenditures
- Quick installation
- Economical operations – energy savings
- Smooth formation of air microbubbles – no compressor is necessary
- High efficiency and reliability
- Low operating costs

An example of wastewater contamination in food processing industries		Usual efficiency of mechanical pretreatment methods	Usual efficiency of the AS-FLOT equipment with chemical precipitation	Usual discharge parameters from the flotation process with chemical precipitation
Indicator	mg/l			
BOD ₅	2500	5 to 10%	50 to 65%	1188 to 788
COD	4000	5 to 10%	50 to 65%	2000 to 1260
Solids	2000	15 to 20%	90%	200 to 80
Extractable substances	1000	5 to 10%	90%	100 to 45



PARAMETERS OF FLOTATION UNITS

Parameters		AS-FLOT 1	AS-FLOT 2	AS-FLOT 3	AS-FLOT 5	AS-FLOT 7,5	AS-FLOT 10
Overall height (inc. wiping)	m	1,95	2,10	2,15	2,20	2,30	2,30
Outer diameter	m	1,03	1,23	1,48	1,78	2,13	2,33
Bulk volume	m ³	0,65	1,01	1,46	2,09	3,26	3,67
Inlet pipe	mm	Ø 75					
Outlet pipe	mm	Ø110					
Flotation foam withdrawal pipe	mm	Ø160					
Sediment withdrawal pipe	mm	Ø 75					
Absorbed power*	kW	1,56	1,56	1,56	2,26	3,06	3,06
Minimum space demand	m	1,5 by 2	1,7 by 2,2	1,95 by 2,45	2,3 by 2,8	2,7 by 3,2	2,9 by 3,4

*Recycling pump & wiping

Container flotation units (capacity: from 1 to 7.5 m³)

Up to the capacity of AS-FLOT 7.5, the flotation units can be supplied in a container version – the product type: AS-ISO FLOT. The container is provided with completely installed and interconnected equipment for wastewater pre-treatment operations with the use of the flotation unit. Once the connections among the underground tanks and the container flotation unit are complete, the unit can be operated immediately.

Container advantages

- Compact technological unit
- Supply of the integrated process in the container - no fixing in the field is necessary
- Suitable solution for space shortage in interiors
- Simple transport operation

Standard container fittings and mountings

- Flotation unit, incl. accessories
- Mechanical pre-treatment
- Chemical pre-treatment
- Electrical panelboard, incl. control system

Optional equipment possibilities

- Flotation foam withdrawal pump
- Other electrical drives connected to the central panelboard of the container flotation unit
- Fixtures and fittings for underground tanks (such as screen basket, pumps, stirrers, strain gauges, etc.)



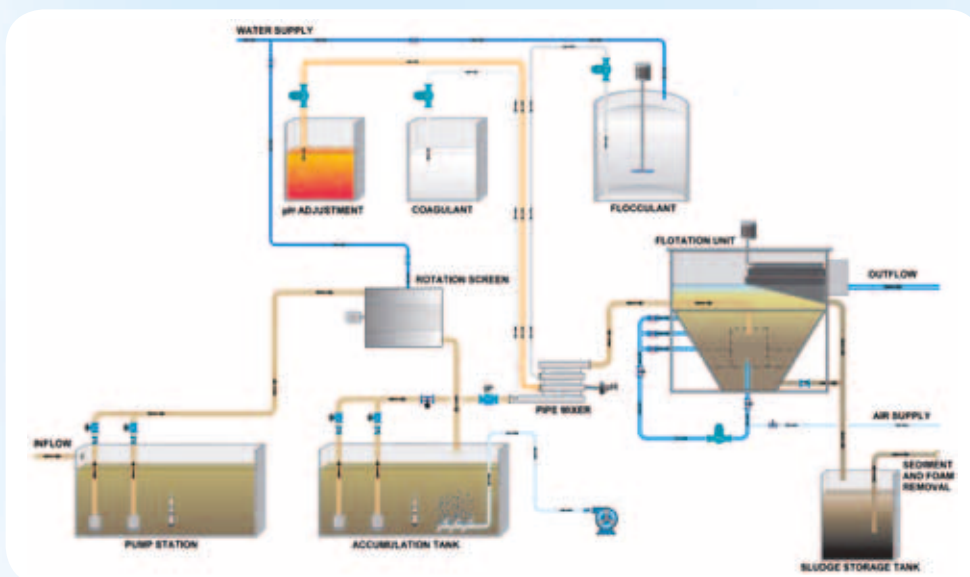
CONTAINER FLOTATION UNIT PARAMETERS

Parameters		AS-ISO FLOT 1	AS-ISO FLOT 2	AS-ISO FLOT 3	AS-ISO FLOT 5	AS-ISO FLOT 7,5
Absorbed power*	kW	2,43	2,43	2,71	3,41	4,21
Container dimensions	mm	6058 by 2438 by 2591				

* Electrical equipment

Design for wastewater pre-treatment by the flotation process

The flotation unit is designed as a part of the wastewater pre-treatment process. An example of the flotation unit use is given in the process flow diagram below.



From the pumping station, wastewater is pumped over the mechanical pre-treatment section to the accumulation tank, where it is homogenised. From the accumulation tank, the water stream is uniformly pumped over the chemical treatment section to the flotation unit. After the chemicals are dosed in, pollutants partially tend to agglomerate (forming the so-called flocculi) that are separated in the flotation unit by air microbubbles and subsequently brought to the water surface as flotation foam.

The flotation foam and sediments from the flotation unit are merged to the sludge tank. The pre-treated water stream from the flotation unit is either discharged into a sewer system or brought to a biological (final) treatment plant.