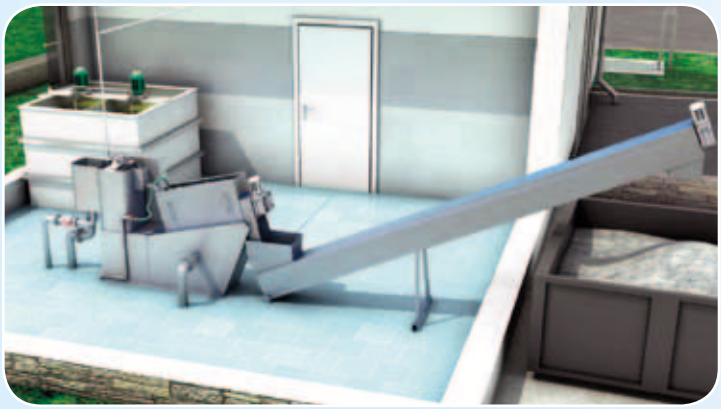
Asio®
Wastewater and water treatment

AS–DEHYDRATOR

AS–DEHYDRATOR is used in sludge thickening and dewatering processes. The equipment is lightweight and small and it can operate in automated-mode operations with a minimum demand for maintenance and servicing procedures. The equipment is manufactured in an integral capacity range from 10 to 200 kg of dry matter per hour. Due to low capital expenditures and operating costs, the equipment is especially suitable for municipal wastewater treatment plants with the capacity from 1,000 to 10,000 PE (Population Equivalent) as well as for industrial treatment plants.



AS–DEHYDRATOR advantages

- **Low operating costs**
  The dehydrator is designed in order to prevent its clogging, which minimises the de-mand for washing water and servicing. At the same time, the dehydrator absorbed power is very low (0.2 to 3.75 kW).
- **Not only biological sludge can be dewatered**
  The dehydrator enables dewatering not only of biological sludge but also chemical and flotation sludge types.
- **Savings in construction costs**
  A thickening zone is built in the dehydrator, which eliminates the necessity of any sludge thickening before the inlet into the equipment. Together with accessories, the dewatering drum forms a compact structure that make possible to minimise space requirements.
- **Efficient dewatering**
  The equipment removes water from the sludge with low concentrations of dry matter (directly from the activation process) and produces thus a sludge cake containing of about 20% of dry matter.
- **Round-the-clock automated operations of the plant**
  The dehydrator is capable of operating in a continuous round-the-clock automated mode, incl. the flocculant preparation and dosing. Time necessary for servicing and maintenance is minimal (approx. 5 minutes per day).

Process description

The sludge dewatering process, the core of which is **AS–DEHYDRATOR**, is characteristic for its automated operations at low operating costs. Sludge is pumped into the dehydrator inlet vessel, from where it flows over a triangular overflow into the dehydrator flocculation tank. Any sludge quantities exceeding the equipment capacity are returned through the safety overflow back. The flocculation tank is stirred with a low-speed paddle mixer and a poly-meric flocculant is dosed into the incoming sludge. The flocculant solution is prepared di-rectly at the wastewater treatment plant by mixing of the agent concentrate with water in an independent tank; then it is dosed in sufficient quantities by a dosing pump into the de-hydrator. By the reaction of the flocculant with the sludge, clearly defined flakes are formed in the dehydrator flocculation tank to be subsequently brought into the dewatering drum. The drum consists of a spiral conveyor enclosed in a tube, where fixed and moving baffles take turns. By the spiral movements, the sludge is moved to a thrust plate; at the same time, the water stream squeezed out of the sludge flows away among the baffles. The filtrate, i.e. the water squeezed out of the sludge, is brought back to the wastewater treatment process, while the dewatered sludge falls out at the drum end hopper and its dry matter is usually 20%, which represents a solid mass. The dewatered sludge is then usually placed into a con-tainer and it can be used, for instance, in composting plants. It is necessary to consider that the increase in the dry matter content from 4% to 20% represents some fivefold decrease in the sludge volume, which results in a considerable reduction of transport and disposal costs.

printed 11/2016

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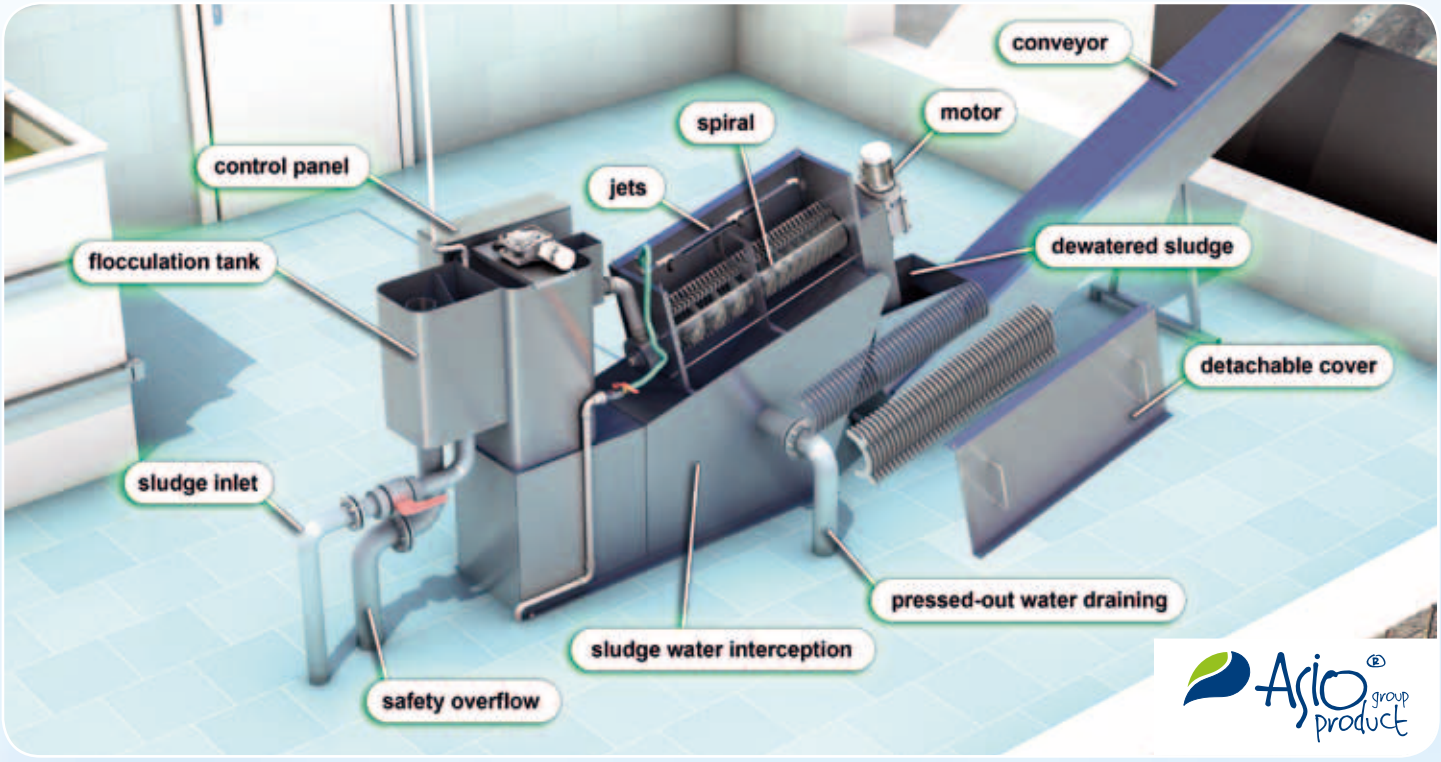
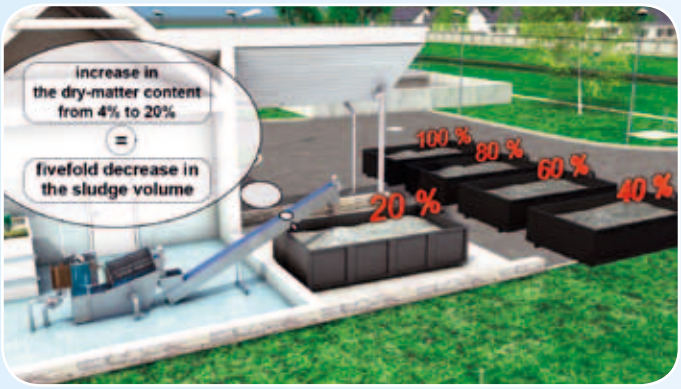
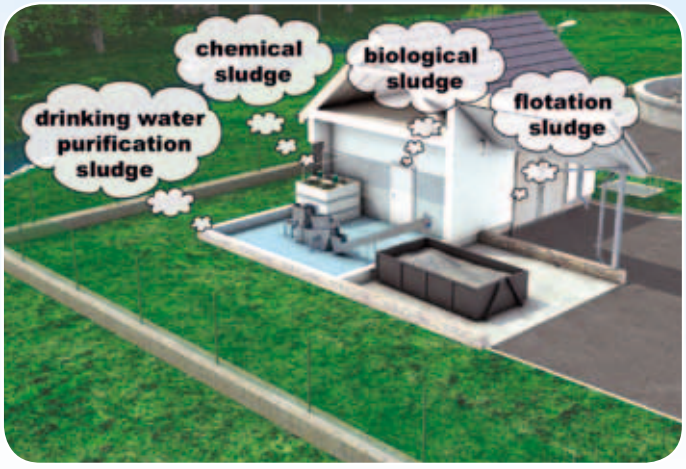


TYPE	Sludge flow rate [m³/h]			Processed dry matter [kg a.s./hour]	Equipment dimensions [mm]			Absorbed power [kW]	Washing [L/h]
	0,5% a.s.	2,5% a.s.	5% a.s.		Length	Width	Height		
131	1,20	0,40	0,20	up to 10	1969	756	1040	0,20	24
201	1,80	0,60	0,30	up to 15	2500	860	1270	0,60	32
202	3,60	1,20	0,60	up to 30	2500	935	1270	0,80	64
301	6,00	2,00	1,00	up to 50	3255	985	1600	0,80	40
302	12,00	4,00	2,00	up to 100	3455	1295	1600	1,20	80
303	18,00	6,00	3,00	up to 150	3605	1690	1600	1,95	120
304	24,00	8,00	4,00	up to 200	4140	1550	2250	3,75	144

AS–DEHYDRATOR is able to cope not only with biological treatment sludge, but it can be also used for dewatering of flotation and chemical sludge types, drinking-water purification sludge, etc. However, in order to verify the dehydrator functions with other sludge types it is always advisable to run a pilot test. ASIO, spol. s r.o. offers to run such tests for you with the use of its mobile plant. The dehydrator mounted on a trailer together with other parts of the sludge-end equipment and fitted with interconnecting hoses is capable of arriving directly to your place. After this, it will be only necessary to connect the source of water and power, prepare the flocculant solution and test the dehydrator with your sludge type in a simple procedure.





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