

Sand and fat trap with mixing pump

KUNST LPTH-1-K and LPTH-2-K

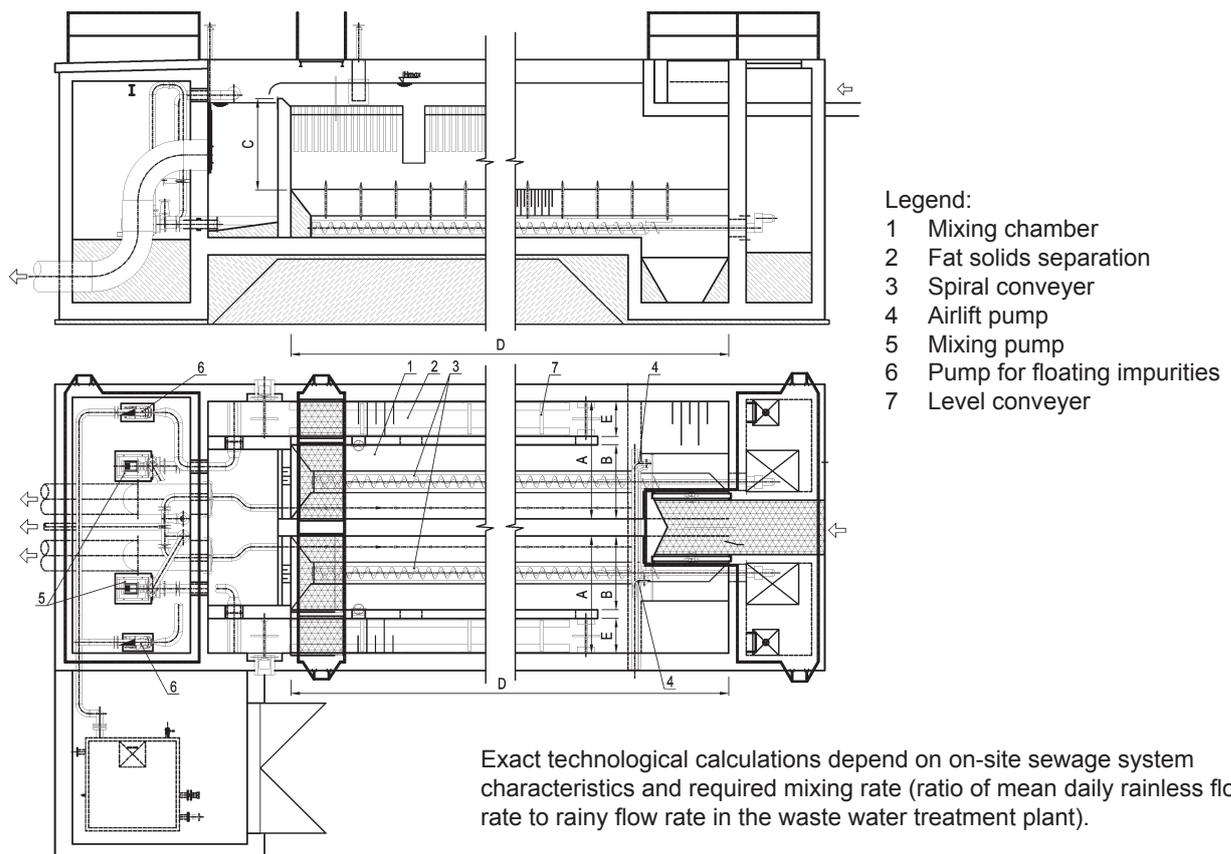


TABLE OF MAIN DIMENSIONS

Parameter	Variable /Unit	Size 1	Size 2
Daily flow rate (calculated)	$Q_d = Q_v$ (l/s)	150	250
One chamber size			
Overall width	A (m)	2,7	3,8
Rated width of mixing chamber	B (m)	1,7	2,4
Efficient depth above sand bed	C (m)	2,1	2,6
Efficient length of separation space	D (m)	15	18
Width of fat separation space	E (m)	0,8	1,2
Two chambers			
Overall flow area	S_p (m ²)	7,1	12,4
Overall efficient capacity	V_u (m ³)	107	223



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APPLICATION

The horizontal sand and fat trap (hereinafter referred to as "LPTH") is designed for separation of sand with grain size exceeding 0,2 mm and fat solids from the incoming water under mixing and their subsequent removal. It is used as upstream protection of the following equipment against abrasion and fouling due to sedimentation. This trap has been designed in cooperation with the company HYDROPROJEKT CZ a.s. and comprises all advantages of previous horizontal trap types and concurrently removes the main disadvantage of aerated grit chambers, i.e. unwished import of oxygen and loss of lightly decomposable organic matters important for biological stages in waste water treatment plants in the process of further nutrients removal. As multistage equipment, comprising coarsely purifying units such as grit trap, coarse and fine racks, this LPTH is used particularly for waste water treatment plants with capacities exceeding 10 000 EO.

FUNCTIONAL PRINCIPLE

Preliminarily treated waste water with content of sand, floating impurities and fat solids goes in the inlet chamber of the LPTH. With respect to possible highly variable inflow velocity this equipment is designed with two chambers for possibility of separation in one or in both chambers. Each chamber is divided into two parts: mixing space and fat separation space with a vertical segmented downflow baffle. The water flow is deflected perpendicularly to the LPTH axis and ascends in the cylindrical part with mixing nozzles. Sand is periodically withdrawn from the trap to the next treatment stage (a pumping pit situated on the inlet side) by means of a shaftless spiral conveyer in the bottom part of the sand bed space. The conveyer drive is installed in a dry chamber. The abrasion-resistant and metal-clad conveyer chute is designed as part of the spiral conveyer. The conveyer itself runs in permanent duty or in cycles. Sand from the pumping pit is removed periodically by means of special airlift pumps and conveyed to other peripheral equipment, such as sand separator or grit washer, to be made free of organic matters and then into a container for further disposal. Floating impurities and fat solids are periodically removed from the separation space of each chamber by means of level plastic chain racks to a hinged chute. This chute is coupled to the suction line of the sludge pumps. From here these floating impurities and fat solids are pumped e.g. into a storage tank.

Separated impurities are pumped by a storage-tank truck for final disposal, for example in sludge-digestion tanks. With respect to sludge setting in winter season the peripheral stages with floating impurities should be preferably insulated, respectively heated. It is possible to utilise non-freezing sheltered space. The space with conveyer driving units should be preferably dewatered and ventilated.

MATERIAL DESIGN

Piping, pumps, gates, spillway edges, draining and hinged chutes, metal parts of conveyers, anchoring and jointing material and service bridges are made of stainless steel, conveyer spiral and its chute are made of abrasion-resistant steel. Sludge pumps are designed in accordance with the manufacturer's specifications as agreed for the given application and medium characteristics. Non-metal parts are made from composites and abrasion-resistant plastic materials.

OPERATION AND MAINTENANCE

Operation of this equipment does not require permanent attendance and its routine maintenance should be done in compliance with instructions as stated in the operating manual. Separated sand and fat solids should be removed as needed (peripheral equipment).

DELIVERY FORM

Standard delivery includes on-site installation of the entire equipment with accessories and peripheral equipment according to a contract. Accessories (as well as particular dimensions, see chart) can be optionally changed upon agreement and technical clarification. The customer is responsible for the building part project or the final site solution can be completely projected by the manufacturer upon agreement. The same is valid also for layout of peripheral equipment.

The supplier reserves the right of changes in its deliveries contrary to graphical figures, however, in compliance with the agreed parameters.

DELIVERY DATE

According to contract.

R.č. LPTH-K 10/10-A-en