

Bottom sludge scraper Z2000

Scrapes the sediment layer from the underside

The Z2000 bottom sludge scraper is used all over the world. It is designed for continuous sludge transport and performs well in all sedimentation processes, including grit chambers.

The scraper can be powered by hydraulics or electric motors. A lever system and a number of wedge-shaped sections are welded together to form a single unit so that they function as a moving floor in the tank.

Hydrodynamically designed sections

The Z2000 is based on the forward and return movement of the hydrodynamically designed sections. The concave faces of the sections transport the sediment towards the sludge pit. During the return movement, the wedge-shaped parts of the sections slide under the sludge blanket. The speed of the return movement is roughly twice that of the forward movement. This gives continuous transport of the sludge.

The shape of the sections has been arrived at as a result of extensive scientific tests. Experiments in testing tanks have shown that the concave shape offers the optimum solution with different types of sludge and at different scraping speeds, as well as produces the best thickening results.

The sediment layer is scraped off from the underside

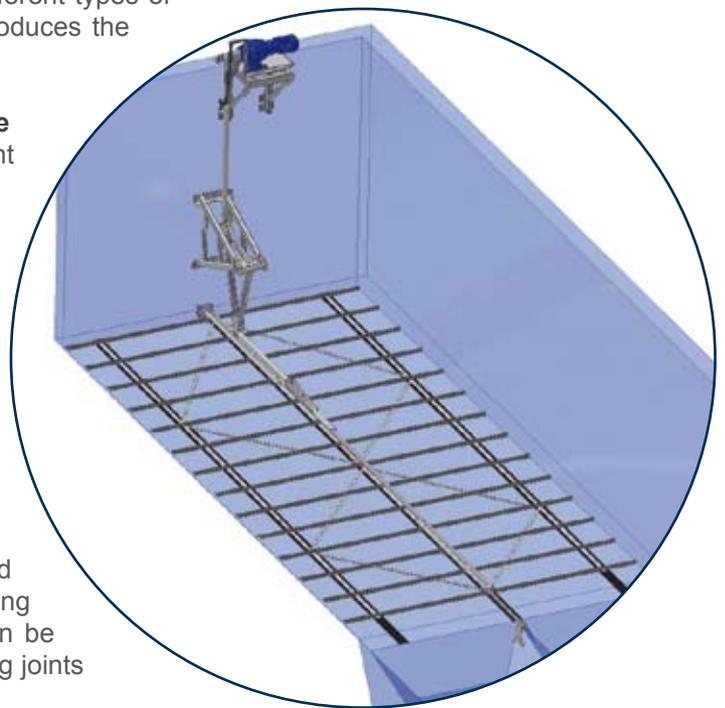
The concave faces of the wedges scrape the sediment blanket from the underside. During the return movement, which is twice as fast as the forward movement, the wedges slide under the blanket. This means that the sedimentation process is uninterrupted.

Where the solids content of the sludge is so low that no blanket is formed, the action of the scraper creates a constant flow of sludge towards the sludge pit, thickening the sludge while scraping it. The stroke of the scraper is always longer than the distance between the sections.

Easy to adapt for use in existing tanks

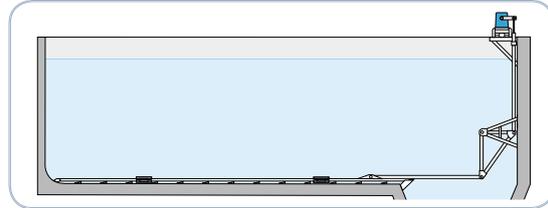
The scraper gives the same results whether it is pulled or pushed. This offers flexibility when it comes to locating the drive. With a hydraulic drive, the cylinder can even be located in the water, in which case the number of moving joints is reduced from four to one.

A further point is that, for the Z2000, there is no need for the bottom of the tank to be completely level. The scraper works even if the bottom slopes to one side or has long dips. The Z2000 can even cope with variations in the width of the tank. However, the tank should be horizontal or slope towards the sludge pit.



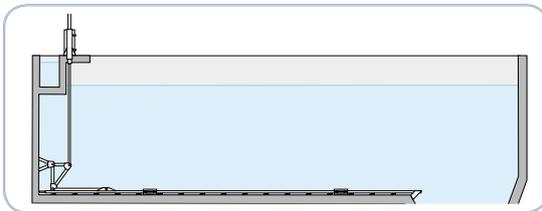
The adaptable bottom sludge scraper

The examples here show that the Z2000 can be adapted to suit widely varying needs since the location of the drive is not critical. It is also suitable for practically all rectangular tanks, and can be adapted where there are pillars in the tank. Contact our sales team if you would like to see further design suggestions.



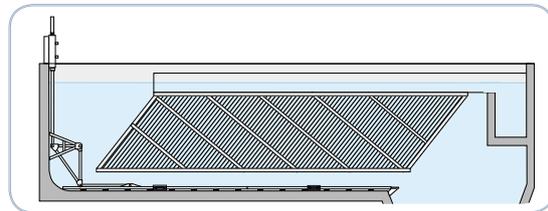
Z 2011–Z2015.

Electrically operated drawn scraper.



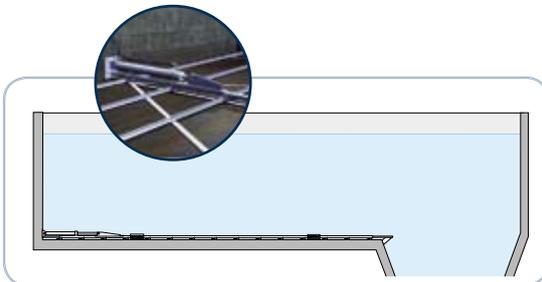
Z 2001/2

Hydraulically-operated propelled scraper with a central cylinder frame, mounted on a concrete base.



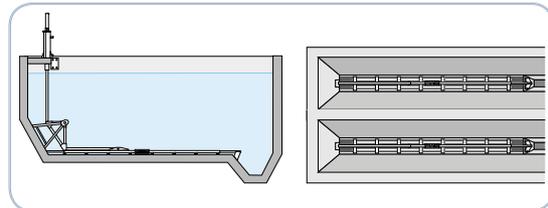
Z 2001/2

Hydraulically-operated propelled scraper with eccentric cylinder frame. Here the scraper is combined with lamellas. The low profile of the scraper creates plenty of extra space for the lamella package.



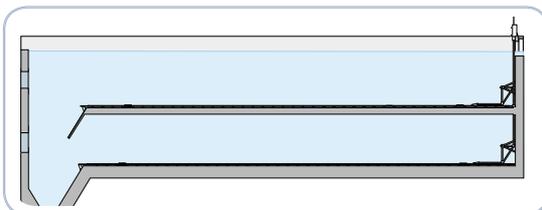
Z 2003/4

Version with horizontal hydraulic cylinder, available with a drawn or propelled scraper.



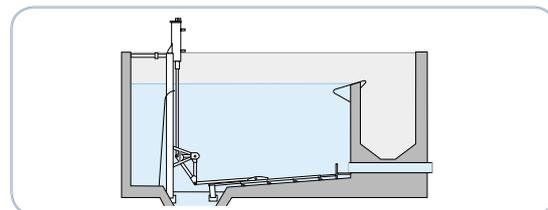
Z 2001/2

Standard version installed in a grit chamber. The scraper may be drawn or propelled.



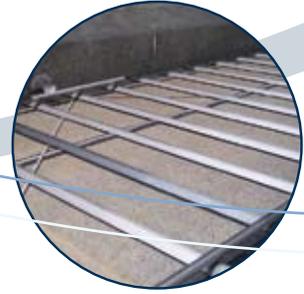
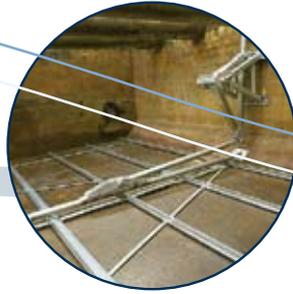
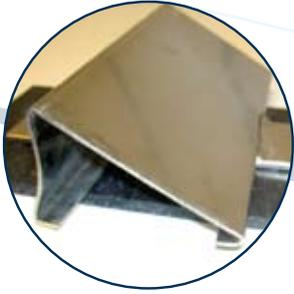
Z 2005

Scraper installed in a sedimentation tank with an intermediate bottom and shared power system. The scraper may be drawn or propelled.



Z 2001/2

Scraper installed in a flotation tank. The scraper may be drawn or propelled.



The scraper runs on slides

The wedge sections rest on three or five steel bars, depending on the width of the tank. They move on longitudinal slides of high-density polyethylene (HDPE). Wear is thus reduced to a minimum, and the slides usually last five to ten years.

The slides are easily secured to the concrete floor with hammer fixings. Where the tank is made of steel, fastening brackets welded to the bottom of the tank are used. The slides are easy to replace.

Simple to install and maintain

The Z2000 is simple to install. Only two people are needed to do the job. An ordinary scraper normally takes about one week to install. Components for our standard scraper are always in stock.

The scraper needs very little maintenance. Stresses and strains are low because there are few moving parts and the forces involved are small. The wedge sections run on polyethylene (HDPE) slides for low friction. The power demand is therefore small, resulting in un-demanding operating conditions and long life. All material underwater is non-rusting.

Hydraulic or electric power

With hydraulic power, single- or multiple-motor units drive the sludge scrapers. The units, which operate at low pressure, are fitted with flow control valves so that the scraper speed on the forward and return strokes can be adjusted. The maximum pressure is set on delivery with a relief valve on the unit.

Standard components are used throughout. In the hydraulic unit we use an environment-friendly oil. For waterworks, an oil with foodstuffs approval is used.

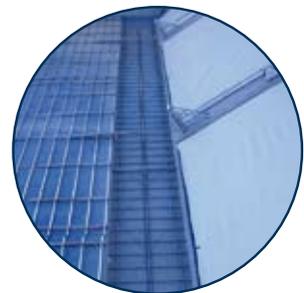
Alternatively, the scraper can be electrically powered, in which case the speed is controlled with a frequency converter. An electrically-powered scraper needs less maintenance.

Flexible drive positioning

The drive mechanism can be positioned at the most convenient end of the tank. This makes it easier to adapt the scraper to fit in with existing features such as walkways, tank dimensions, the position of hydraulic units and other practical aspects. Generally, there is no need to modify existing tanks before installing a scraper.

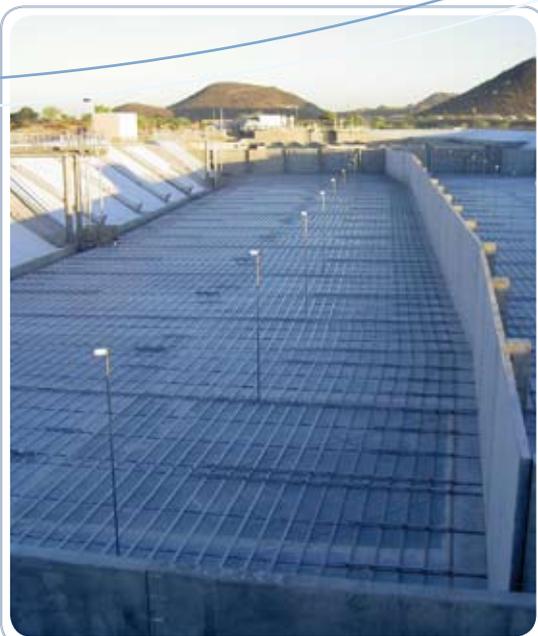


The scraper is tailor-made to match the design of the tank.

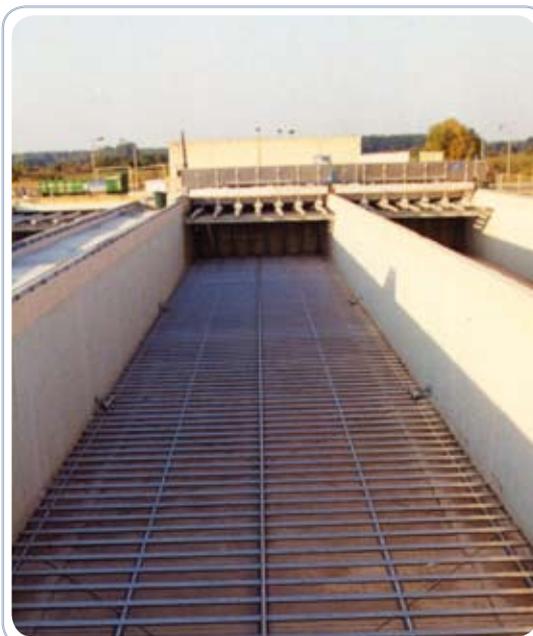


The Z2000 bottom scraper can be used as a "Cross Collector".





Union Hills drinking-water purification plant, Phoenix, AZ, USA. Thirty-six Z2002 bottom scrapers.



Schönerlinde wastewater treatment plant. Germany. Twelve Z2002s.

Features of the Z2000 bottom sludge scraper

- Few moving parts
- Low maintenance
- Continuous sludge removal
- No interruption of the sedimentation process
- Reliable
- Easy to adapt for use in existing tanks
- Acts as a thickener
- Scrapes the entire bottom

Technical specifications of the Z2000

Application	In rectangular sedimentation tanks for wastewater treatment plants, drinking-water purification plants and industrial processes. Can also be installed under lamella packages or in flotation plants.
Type of sludge	Suitable for most types of sludge with a solids content of 0.5 to 6 percent.
Maximum dimensions	L = 100 m, B = 13 m, max area 700 m ²
Sliders	6 mm thick polyethylene (HDPE 1000)
Material quality	Stainless steel ASTM 304 L or acid-resistant steel ASTM 316 L