

**Leiblein**

world of liquids



## Vacuum Belt Filter

Technologies for solid/liquid separation

## The vacuum belt filter

For filtration and sludge dewatering

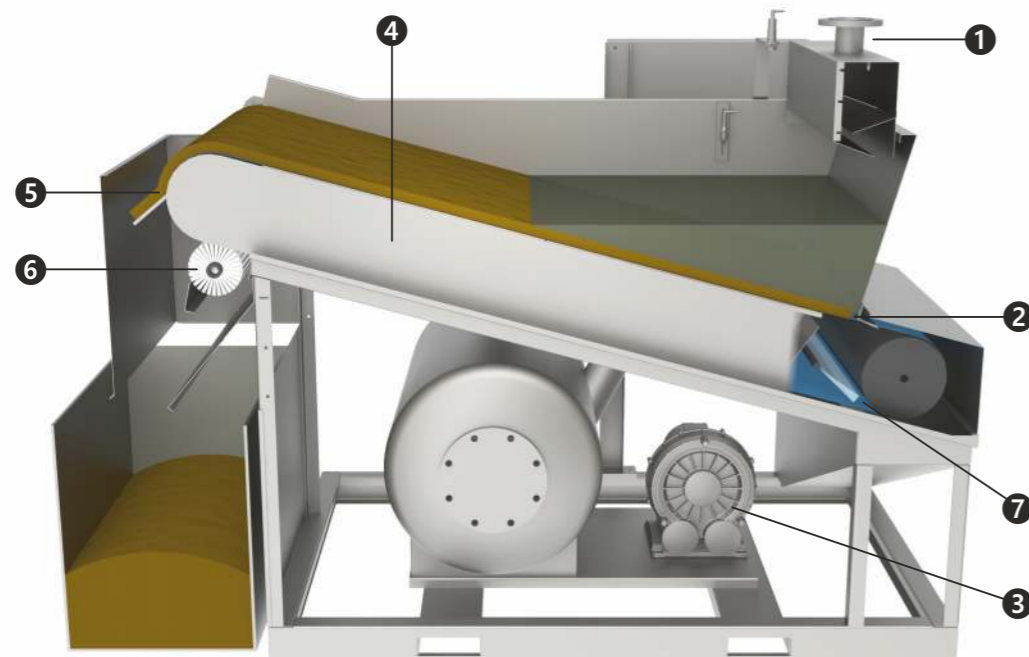
The vacuum belt filter is used for the filtration of liquids and dewatering of sludges. Unlike hydrostatically working filters, the filtration is made by gravity with additional vacuum support. As a result, higher throughputs and better dewatering of the filter cake can be achieved. Depending on the application, filter fleeces or endless filter belts are used.

In many applications, the vacuum belt filter provides an effective alternative to belt filter presses or chamber filter presses as well as centrifuges.



## Functional principle of the vacuum belt filter

Technology made by Leiblein



### Filtering and dewatering with vacuum

The untreated water is fed into the filter from the top and is spread evenly over the entire filter belt width via the inlet box (1). The filter belt is fed below the water level (2). Here, in the lower parts, the filtration process takes place while further up there is the dewatering of the filter cake. Via a side channel (3) air is sucked off continuously from the filter

chamber (4), whereby a slight vacuum is created on the side of the filtrate. As soon as the liquid level exceeds a certain level, the vacuum is broken and the filter belt clocks on. The resulting filter cake is separated from the tape by a scraper (5). The belt is then cleaned with a brush roller (6) and rinsed with additional high-pressure flushing nozzles (7).

## Areas of application of the vacuum belt filter

Versatile application possibilities

Vacuum belt filters are suitable for liquids that are recirculated because there are no chemical changes of the medium due to exclusively physical filtration. A combination of filtration and sludge dewatering on one device is possible for small amounts of waste water.

- **Metal processing industry**  
e.g. filtration of coolant lubricants, decreasing baths, washing water and process water
- **Gravel and sand industry**  
e.g. sludge dewatering from washing water treatment
- **Steel industry**  
e.g. dewatering of scale sludges that accrue in the treatment of cooling water from rolling or continuous casting
- **Recycling industry**  
e.g. filtration and dewatering of washing water from recycling of electronic scrap, car shredder or plastic; treatment of washing water from waste incineration slags
- **Natural stone industry**  
e.g. filtration and dewatering of grinding water when cutting and processing natural stone
- **Food processing industry**  
e.g. sludge dewatering of vegetable washing water
- **Municipal waste water treatment**  
e.g. thickening of sewage sludge before digestion tank, dewatering of sewage sludge

Often the vacuum belt filter is combined with a lamella clarifier, since the sludge can be led directly from the lamella separator to the vacuum belt filter for further dewatering without intermediate buffer.

### High efficiency

Your benefits with our vacuum belt filter

- High throughput and dewatering performance due to vacuum support and inclined belt position
- No consumables through endless filter belts
- Optimum utilization of the belt: floated material is removed together with the sediment on the discharge side
- Filtrate can be used for rinsing the belt
- Resistant to fluctuating inlet conditions
- Low investment and operating costs compared to other sludge dewatering technologies such as centrifuges and chamber filter presses



## Design

### *Types and materials*

The vacuum belt filter is equipped as standard with an endless belt. Alternatively, it is also possible to have a filter fleece instead.

**Material:** stainless steel

**Filter belt:** stainless steel, plastic

**Filter fleece:** polyester, viscose, polypropylene  
in fineness 5 – 100 µm

Alternative materials on request.

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Every vacuum belt filter is designed for your special application. Furthermore we provide pilot plants and rental units for all our products.



Special construction



Vacuum belt filter with lamella clarifier and rotary screen

You have questions about the treatment of your medium?  
Do not hesitate and contact us!  
**We would be pleased to advise you.**



Leiblein GmbH  
Adolf-Seeber-Str. 2  
74736 Hardheim  
GERMANY

E-mail: [leiblein@leiblein.com](mailto:leiblein@leiblein.com)

Phone: +49 (0) 6283 - 2220 0  
Fax: +49 (0) 6283 - 2220 50

Internet: [www.leiblein.com](http://www.leiblein.com)