

BELTDRYER BD 3000/11

Whanganui (NZ)



BD 3000/11 belt dryer with distributor/dosing unit and condenser

In 2018 SEVAR installed the first belt dryer in New Zealand, ordered by **Hawkins Infrastructure**. The **Belt Dryer of size BD 3000/11** dries 28,000 t/a of digested, dewatered sewage sludge. The sewage sludge occurs at the Whanganui District Council's municipal wastewater treatment plant. The WWTP is located not far from Lake Tasman and the airport. Whanganui District Council began the construction of the new wastewater treatment plant in 2016. Completion took place in the year 2018. The plant is designed to serve 40,000 residents as well as an industrial load with a 300,000 PE connection size.

The reasons for operating the drying plant were to **reduce sludge volume** and make sludge disposal safer and easier. By choosing a thermal drying process, the guidelines of the **US EPA Class A Rule 503 are met**.

Stabilized sewage sludge is mechanically dewatered with centrifuges to a minimum of 17 - 20% DS and pumped to the dryer. In a **twin-shaft mixer** the dewatered sludge is mixed with a portion of the dried sludge to 30% DS. This gives the sludge a **higher dry matter content and a favorable volume-surface-ratio for an efficient process**.

The feeding unit, installed above the Dryer inlet module distributes the wet sewage sludge evenly onto the 3 m belt made of stainless steel. The material is slowly dried in a hot air stream at temperatures up to 130 °C for more than one hour. At the end of the upper belt, the drying temperature is about 130 °C and the sludge is dried to a dry solids content of approx. 50% DS. On the lower belt, which moves more slowly and in the opposite direction, the sludge is further dried to at least 90% DS. The drying air is generated by a **natural gas burner**. This is mixed with recycled drying gas. The exhaust gas flow is condensed in a **spray condenser** and the excessive part of it directed to the biofilters. The spray condenser is operated indirectly with final effluent of the WWTP as cooling medium.

The dried pathogen-free sludge passes through a roller mill and screen and is stored in a silo.

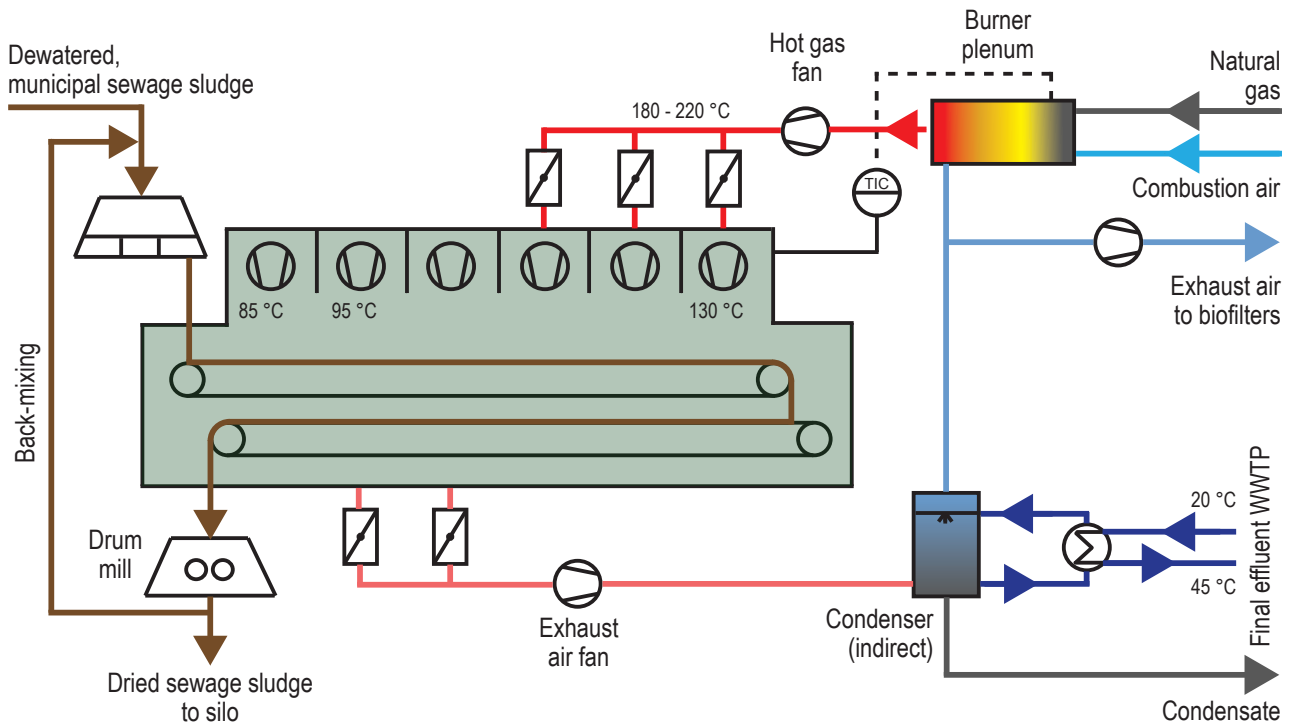


Burner (red) with combustion chamber and subsequent supply air fan for transporting the hot gas into the belt dryer



Feed unit with distribution slide and roller press

FUNCTIONAL PRINCIPLE



Source: SEVAR AG

TECHNICAL SPECIFICATION

Scope of supply:	Belt dryer BD 3000/11 with backmixing, burner, spray condenser, indirect cooling with effluent from wastewater treatment plant
Type of drying:	Complete drying
Heating source:	Direct heating by combustion of natural gas; drying temperature in the range of 85 - 130 °C
Material:	Digested, dewatered municipal sewage sludge
DS input:	20% (min. 17%)
DS output:	> 90%
Throughput:	30,000 t _{OS} /a, (3,750 kg/h) / 6,000 t _{TR} /a
Water evaporation:	3,000 kg H ₂ O/h
Operating hours:	24 h/d, fully automatic
Commissioning:	2018

SEVAR AG

SEVAR AG emerged in 2020 from the environmental technology division of Haarslev Industries A/S. The over 30 years proven **technology of belt drying** is continued under the already wellknown name SEVAR with a motivated team. The young German company with headquarters and production near Karlsruhe is supported by an international network of partners and agents.

SEVAR designs and manufactures equipment for the **thermal treatment of municipal and industrial sewage sludge**, biomass and digestate. The treatment of the humid exhaust air resulting from the drying process with **condensation and odor control** is also considered. Reference plants are available for visiting worldwide.

We reserve the right to alter the specifications at any time without prior notice.