

## Thune screw presses for sludge – the innovative screw press design for high dry contents

In almost every pulp and paper mill sludge is generated and has to be taken care of. Squeezing out as much liquid as possible before final disposal is of utmost importance in order to fulfil environmental legislation within economically reasonable limits. Voith now has an advanced screw press specially designed for sludge dewatering in its product portfolio.

### New revolutionary design

On starting design work for the Thune screw press for sludge some fundamental criteria were obvious. The machine must be sufficiently robust and stable to withstand the high torques generated when squeezing out the maximum amount of liquid from sludge. Operation must be easy and reliable. Bearing in mind the high wear often seen in sludge applications, easy maintenance is also a crucial factor. And to be competitive, the cost per ton of sludge treated must be acceptable for the customer.

To comply with these basic criteria, some secondary criteria also needed to be defined. Total weight of the sludge presses must be similar to or

lower than the same size Thune pulp presses. And the dewatering per screen area must be higher than for comparable sludge presses on the market.

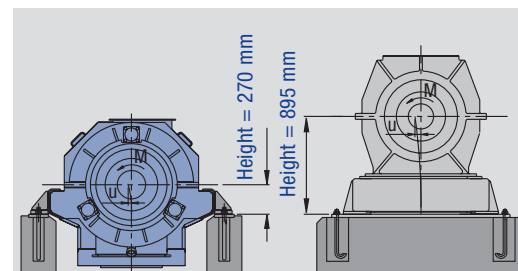
In the new design, the forces generated when squeezing to maximum dryness are distributed much more evenly over the machine length than is the case with conventional screw presses. This is achieved by integrating the discharge housing, inlet section and screen supports into the machine frame. In addition, the centreline of the complete screw press has been lowered to minimize machine height above the foundations. The result is a very robust and stable machine with minimum deflection, even at the highest torques.

### Thune screw press for sludge

- Screw press centerline is close to the foundations for minimizing deflection
- Main components are integrated into the machine frame for even distribution of forces and for a very robust and stable machine
- Robust bearing arrangement enables reverse operation at full load

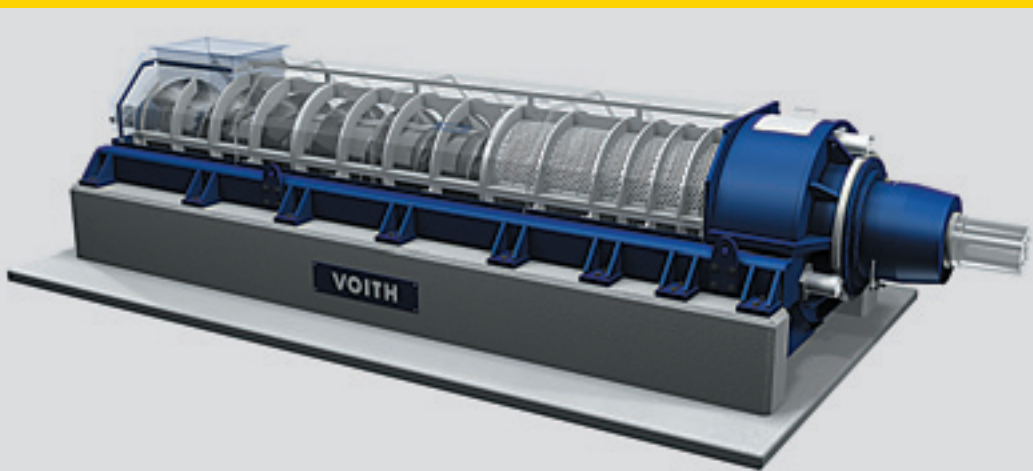
With 80 years of accumulated experience in designing screw presses the Thune design engineers have, of course, also designed a very service-friendly machine and built in sound, proven technology such as the Wear-Less segments.

*Thune screw press for sludge.*



*The Thune screw press for sludge (on the left) compared with a standard screw press.*

*With the new Thune design for sludge, the height of the press above the foundations has been radically reduced.*





Voith product manager Lars Smedsrud with his new baby at Adolf Jass, Schwarza, Germany.

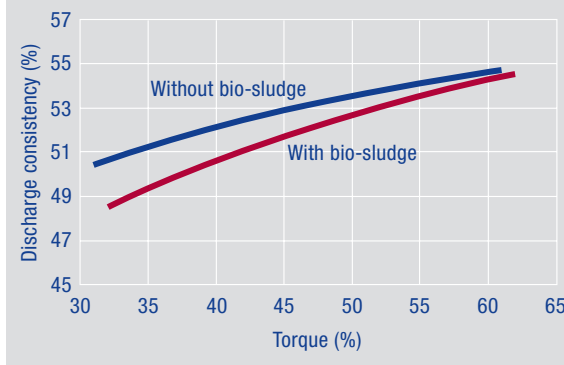


**Customer Comment**



**Håkan Ohlsson**  
Production Manager,  
Örebro Kartong,  
Sweden

“When we needed to replace our old wire press we entrusted Voith Paper in Norway to supply the new sludge dewatering system. From the very first project meetings we have had only positive experience with the service and the Voith people involved. Even with sludge tonnages considerably above the guaranteed values we have stable operation and only minimum attention is required. With the service agreement recently signed with Voith Paper we expect the system to continue its successful operation for years to come.”



Discharge consistency in the Thune sludge press obtained at different torque settings.

**First installation of an SPS70 screw press for sludge**

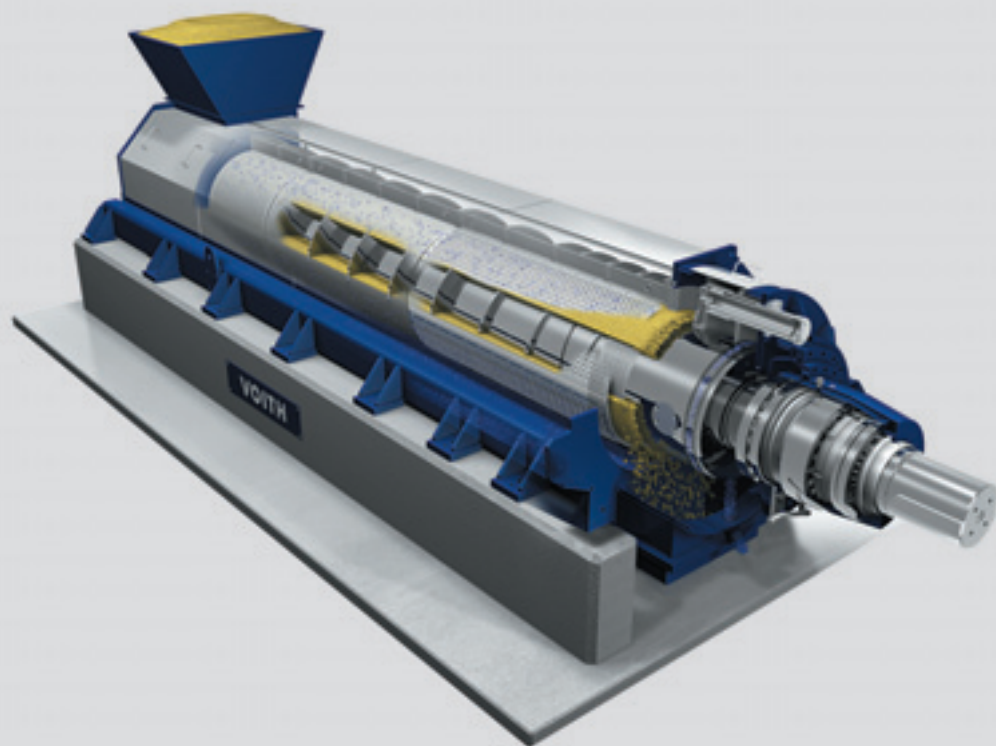
In February 2005 the first Thune screw press for sludge started up at the Adolf Jass Schwarza mill near Rudolstadt in Germany. This green-field mill, for which Voith delivered the entire process technology from stock preparation to winder, produces fluting and testliner from 100% recovered paper. Since start-up, the SPS70 sludge press has been in con-

tinuous operation and after only two months it was already operating better than the expected values. All fine rejects and sludges in the mill are fed to the Thune sludge press for final mechanical dewatering. Fine screen rejects, DAF rejects and bio-sludge, are fed via a Meri BlueDrain gravity table to the Thune sludge press. Cleaner rejects and pre-screened sewer material are sent to the Thune sludge press after pre-dewatering in a Meri Sediphant.

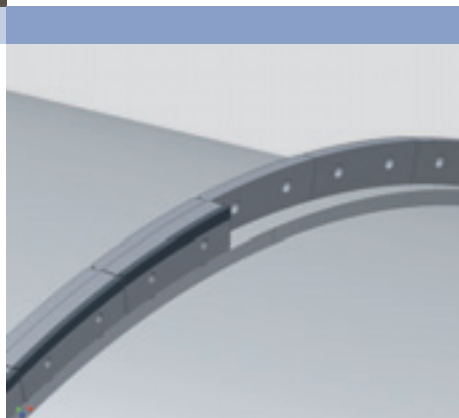


*WearLess segments are mounted on the last screw flight at the discharge end of the screw press.*

*Different wear-resistant materials are used, based on the application requirements. Replacing a worn segment with a new one takes only a few minutes and with the bolt-on solution the segments are always exactly positioned.*



*Material flow.*



Variations in feed to the sludge press are handled by an integrated torque control system. In this way a constant discharge consistency is obtained for varying sludge flows and different sludge compositions.

Voith Paper's headquarters for dewatering technology in Tranby, Norway would like to express thanks to all the people involved at Adolf Jass Schwarza for their support and assistance in helping to make this a success story. There is always a certain

risk when agreeing to include a prototype in a project, but without confidence in a new product winners are not made!

### **System supply capability**

The dewatering group at Tranby supplies screw presses for sludge not only for large projects. The group also has the capability to take on smaller system supplies in the sludge dewatering business. One such example is the system delivery to Örebro Kartong in Sweden (see Customer Comment on page 26) where a system consisting of a Meri Elephant filter and a Thune screw press were the main components. The delivery

included all necessary pumps, valves, instrumentation, piping, foundations etc. as well as local PLC for control of the system, making it a complete supply package. The system, which replaced an old wire press, has now been running smoothly for more than two years.

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