nijhuis INDUSTRIES

NIJHUIS SCREW PRESS

Cost-effective sludge dewatering solution

With its longstanding industrial experience, Nijhuis Industries has developed a cost-effective screw press system (NSP) to dewater sludge without high fibers or abrasive solids, including, both physical-chemical biological types of sludge.

Sludge dewatering treatment with NSP effectively generates dewatered cake with high dry solids content and a good quality of centrate water, resulting in significant sludge volume reduction. Hence, costs associated with sludge disposal will be minimized.

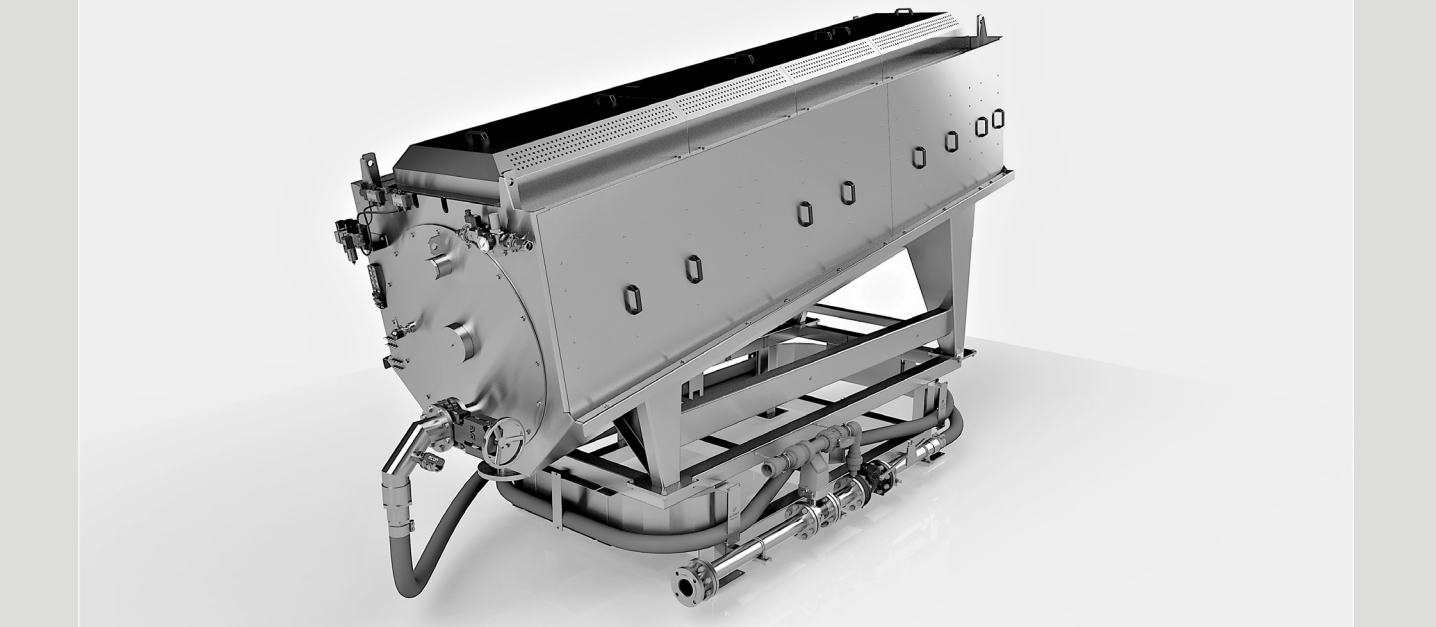
The **NSP unit** consists of pre-assembled components which enable the dewatering system to be flexible and easy to install, either as part of a total wastewater treatment solution project or as a stand-alone system in a new or existing plant. Furthermore, the smart configuration of the polymer mixing system reserves small footprint and is adaptive to different sludge types or conditions.

APPLICATIONS

- Physical-chemical sludge and biological sludge
- New and/or exisiting wastewater treatment plants

CUSTOMER BENEFITS

1. Cost-effective & flexible sludge dewatering solution
2. No pre-dewatering needed
3. Dewatered cake 20 +-5% DS for physical-chemical sludge, 16 +-3% DS for aerobic biological sludge
4. Solids capture of more than 95%, reducing filtrate treatment cost
5. Automatic washing system, reducing operational downtime
6. Adaptable to different sludge types
7. Small footprint
8. Little metallic wear and tear.
9. Low energy consumption and low noise
10. Low maintenance



Type	Max. hydraulic capacity @ DS 3-6% (m3/h)	Max. sludge load (kg DS/h)	Installed power (kW)
NSP 20	0,8	55	0.37
NSP 40	1,8	130	0,55
NSP 70	3,9	255	1,1
NSP 90	7,7	450	1,5

*Specifications for reference only, depending on the sludge type.

Technical Description

Prior to dewatering process, the sludge stream needs to be mixed with polymer to achieve the optimal dewatering performance.

The polyelectrolyte injection and flow-controlled mixing system can also be adapted to specific sludge mixing energy requirements, thanks to the in-line check valve with lever and weight.

The polymer mixing system is installed at the base of the NSP unit without impact on the footprint. The flocculation process and mixing energy can be optimized according to the sludge types by adapting the mixing hose.

The working principle of the NSP unit is based on mechanical dewatering by means of a dewatering screw pressing within a wedge wire drum, which is divided in 3 main sections: the drainage section, thickening section, and dewatering section.

The dewatering screw is installed in the center of the drum to transport the sludge through the drum sections. The speed of transport screw is automatically controlled by a pressure sensor at the inlet of the NSP unit. The pressure on the sludge can be controlled and optimized according to the requirements of dewatered cake DS and filtrate quality.

1. Sludge inlet + poly mixing system

2. Inlet screw press

3. Wedge wire drum + screw

4. Filtrate discharge A

5. Filtrate discharge B

6. Sludge discharge

7. Washing system

8. Screw motor