

Nordic Primary – Extensive primary filtration design

The modern Waste Water Treatment Plant (WWTP) design Nordic Primary has radically illuminated the benefits of primary filtration in modern pre-treatment processes to:

- Provide high level of treatment
- Reduce energy requirements
- Decrease plant footprint
- Lower overall carbon footprint
- Higher valuable sludge than conventional primary sedimentation designs

By extensive removal of primary solids during early stages of WWTP, significant benefits for the downstream biological stages' efficiency are seen, as much of the inert particular matter is removed. The primary filtration sludge generated taken out early, normally contains much more energy to be utilized within the digester.

The technology could be used for capacity expansion of existing wastewater treatment plants where space and land are often restricted within urban cities. The complete treatment plant is often built above ground without concrete basins. The first stage of MevaScreen and MevaPress are proven to efficiently reduce microplastics and screenings for combustion. Sand and grit are separated before the water passes the DynaBelt filter and DynaDrum microscreens.

The primary sludge is pressed to the degree suitable for the digester. Typical Nordic Primary design is a separation without use of chemicals, but more ambitious SS removal or phosphate removal could be performed with the same equipment but with the support by polyelectrolytes and coagulants.

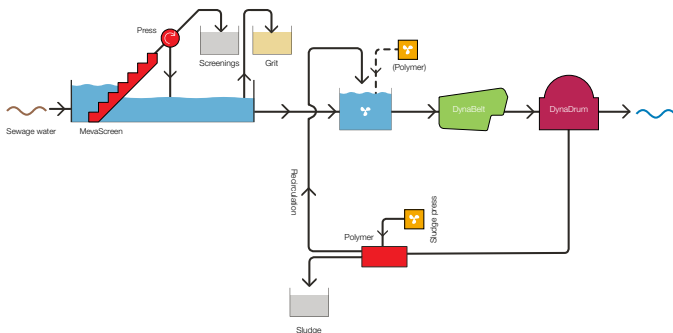
Main benefits of Nordic Primary

Extensive treatment efficiency: The primary filtration removal of gross solids results in a filtered wastewater with a higher ratio of dissolved Biological Oxygen Demand (BOD) to total BOD than conventional primary clarification systems and with improved particle TSS size distribution.

Reduced footprint and operating costs: The complete process can be installed on 1/4th the footprint, and for about 50% of the total construction cost.

Reduced energy requirements and high energy recovery: The complete process can achieve same/better quality effluent using as low amount of energy as 0.12 kWh/m³ treated water. The primary solids collected from the microscreens are characterized by high energy content. They may be digested anaerobically to produce biogas.

The Nordic Primary filtration design enables the further secondary and tertiary continuous filtration design with DynaSand reducing up to 70% less energy or about 0.3 kWh/m³ treated water and much lower footprint than conventional basin-based WWTP.



	Input values	Output values
SS:	150-500 mg/l	5-25 mg/l
BOD:	150-500 mg/l	>75% reduction (with coagulants)
P-tot:	1-5 mg/l	> 0.5 mg/l (with coagulants)

