



HIGH DENSITY THICKENERS

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Sedimentation

The Delkor High Density Thickener was a result of clients requiring higher underflow densities and improved water recoveries without extra cost in pumping system for transport. By increasing the height of the mud bed within the thickener Delkor was able to achieve densities that were not possible in a standard high rate unit.

These units have higher side walls and a steeper floor slope to maximize densities. Delkor has developed test work programs that can size these units from lab scale tests and scale them up to full size plant thickeners.

Higher densities resulted in the drive requiring more torque; as well the raking mechanism was being swept through higher viscosity material. Delkor's range of drives up to 14MNm of torque can easily handle these high yield stresses. The raking system minimizes drag whilst improving underflow density.

Benefits

- High Underflow Densities – transportable with conventional pumps (centrifugal)
- Good Overflow Clarities
- Efficient High Torque Drives
- Low Drag Raking Systems
- Installed Units up to 99m Diameter
- In-Ground or Elevated Tanks
- FEA Design Capabilities
- Low Friction Rake Lift

General operation of High Density Thickener

The High Density Thickener functions on the following principles:

- The inlet feed is diluted to its optimum flocculation and / or compaction level.
- Flocculated particles settle through the hindered settling zone with higher densities occurring in the compression zone.
- Rakes push the compressed material to the centre for withdrawal. The rakes also aid in the dewatering of the material.
- The clarified liquor discharges into a circumferential launder at the top of the tank.

Control philosophy

The typical control of a high density thickener is as follows:

- Underflow density to control underflow slurry withdrawal. Bed mass pressure (optional)
- Flocculant dosing is controlled by means of a bed level detection device.
- Torque is monitored using hydraulic or electric input
- Overflow clarity is measured using a turbidity device as an option.

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HIGH DENSITY THICKENERS APPLICATIONS



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Sedimentation

Conventional, High Rate, High Density, Ultrasep and Paste Thickeners treat a variety of materials in a number of different industries.

Mineral Processing

- Material
 - Gold
 - Silver
 - Platinum Group
 - Diamond
 - Base Metals
 - Copper
 - Iron
 - Coal
 - Nickel
 - Mineral Sands
 - Uranium
 - Aluminium/Bauxite
- Application
 - Grinding
 - Leach
 - Concentrate
 - Tailings
 - Counter Current Decantation (CCD)
 - Paste Backfill
 - Clarification
 - HDS (High Density Slurry)

Water Treatment and Waste Water

- Sewage Treatment
- De-salination
- Water purification

Chemical / Industrial

- Refineries
- Smelters
- Cement Industry

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For further information, contact your regional Delkor office.

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- High Rate Thickeners
- High Density Thickeners
- Paste Thickeners
- Ultrasep Thickeners
- Conventional Thickeners