

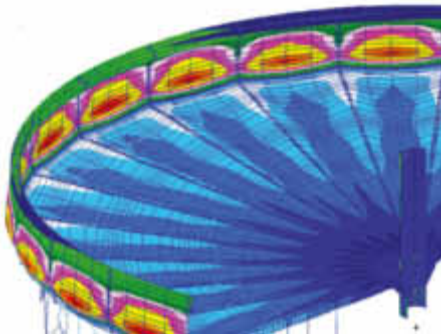
ANDRITZ Thickener

Thickening • Clarification • CCD Circuits •
Paste Technology

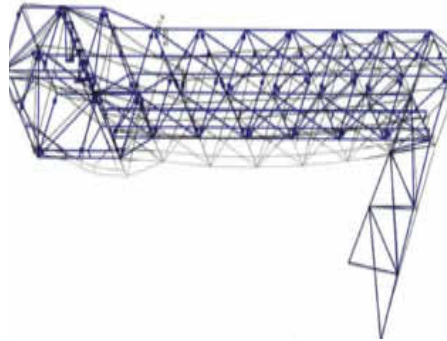


Thickener design

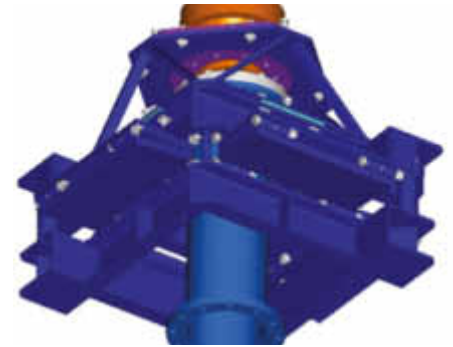
Benefits and features



Thickener tank - CFD



Bridge - FEA



Direct drive head

ANDRITZ is able to offer proven technologies in all major industries. ANDRITZ has more than thirty five years of experience in designing, installing, and testing thickeners in diverse applications and we have achieved a comprehensive reference list spanning both the local and international markets.

Features:

- Automatic rake lift
- Low maintenance mechanisms
- Thixotropic rake design
- Auto load sensing
- Auto dilution
- Scum and oil removal

The ANDRITZ philosophy of supply is to present to the user the most effective and technically viable system. This is especially important where very high densities are required. In this case, high density tails deposition can be achieved with thickeners and a combination of horizontal vacuum belt filters and gravity dewatering belts.

Design:

ANDRITZ has implemented the most modern engineering technologies in the development of a new generation thickener:

- **Computational Flow Dynamic (CFD) modelling of process parameters**
- **Finite Element Analysis (FEA) for optimal weight : strength ratio**
- **Dynamic earthquake evaluations**
- **Hydrodynamic response to earthquake loading**
- **3D parametric modelling**
- **Detailed life cycle calculations on all mechanical components, guaranteeing 100 000 hours operating life, or longer if necessary**

The utilisation of these design techniques has allowed ANDRITZ to supply thickeners for the most stringent, and demanding applications.

- **Minimised number of tank support columns, allowing maximum space, and access to underflow pumping equipment**
- **Cost effective tanks, rakes, and bridges in a variety of materials of construction, incl. stainless steel**
- **Bolted tank design**
- **Adjustable/replaceable rake blades**

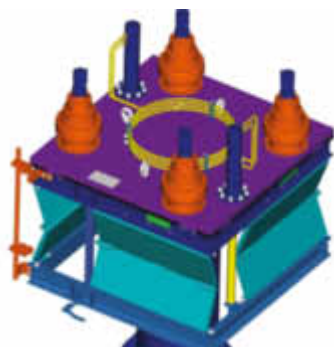
Drive Heads:

ANDRITZ has re-launched their entire range of drive heads in response to industry's ever increasing need for cost effective, durable, and low maintenance units:

- **Unlimited range of drive head designs available**
- **Hydraulic or electric drive**
- **Extensive range available to suit all applications**
- **Excellent maintenance and inspection access in and around the drive head**
- **Fully automated drive control including auto load sensing for consistent underflow quality**
- **Reversible or variable speed hydraulic units**

Paste and underground technology

Customized solutions



Slab hinge lift arrangement



ANDRITZ Underground settler



Underground mechanism

Mixing & Counter Current Decantation (CCD) technology

- CCD dilution pump/mixers allowing "flat" designs and elimination of elevation differences between CCD thickeners.
- Close to "perfect" inter-stage mixing, maximizing soluble recovery. High levels of closed circuit dilution negate the negative effects of surging underflow pumps.
- Bulk closed circuit dilution technology (35% to 5% solids) using thickener overflow taken from the overflow weirs.
- Accurate and adjustable feed dilution (within 1%) to optimize flocculant usage.

Auto dilution

- The optimum percentage feed solids will ensure maximum flocculation and achievement of maximum fluxes (t/m²/day)
 - Consistent underflow quality
 - Efficient washing in CCD circuits

Paste technology

ANDRITZ thickeners incorporate:

- Auto dilution & flocculant mixing systems designed to optimise flocculant / feed mixing
- Good mixing assists in agglomerating many individual flocculants, which, when compressed, release extra water
- Feed distribution systems that:-
 - introduces the flocculated material into a „consolidated bed“
 - in this bed, new material interacts with old, to further grow the flocculant material
- Picket fence rakes assist with water release from the compacting sludge
- Low profile and low viscosity rake designs. These designs allow easy release of water and minimise flocculated solids hang up

ANDRITZ Testwork

- ANDRITZ testwork starts in the laboratory. This includes a series of standard settling tests plus tests that include:
 - compaction/time curves
 - ANDRITZ mini slump
 - mini flume
 - maximum gravitational compaction tests and rake action
- From the work, ANDRITZ is able to provide a design to allow clients to evaluate their optimum deposition scenario
- Thereafter, ANDRITZ can offer on site pilot plant work and assistance to verify material characteristics and rheology
- The ANDRITZ philosophy is that the deposition of high density tails requires a combination of disciplines. For this reason, ANDRITZ normally work with a combination of technologies and slurry pumping experts to provide the client with a cohesive study that addresses all aspects of the clients deposition requirements.

9.5m diameter ANDRITZ Underground settler with a 7m side wall and 60 deg cone. The raking system uses the standard ANDRITZ low profile design inclined between 10 and 60 deg depending on the application.

Subsequent designs on underground systems considered lower floor slope angles.



9.5mØ steep cone settler



35mØ uranium CCD thickener



Coal tailings thickener



40mØ half span bridge



Hydraulic power pack

ANDRITZ Delkor (Pty) Ltd.

76 Kyalami Boulevard
Kyalami Business Park
Kyalami, Gauteng, South Africa
Phone: +27 (11) 466 2361
separation.za@andritz.com

ANDRITZ Technologies Ltd.

9 Tian Bao Road, West City Industry,
Zone, Chan Cheng District
Foshan, Guangdong 528000, P.R. China
Phone: +86 (757) 8296 9222
separation.cn@andritz.com

ANDRITZ Chile Ltda.

Isidora Goyenechea 3600, Oficina 202
Santiago de Chile, Chile
Phone: +56 (2) 462 4600
separation.cl@andritz.com

**ANDRITZ Separation,
(India) Private Ltd.**

No. 6 Vanagaram Road, Ayyanambakkam
Chennai 600 095, India
Phone: +91 (44) 4399 1111
separation.in@andritz.com

**ANDRITZ Separation Industria e Comercio
de Equipamentos de Filtraco Ltda.**

Rua Progresso, 450
Pomerode SC, 89107-000, Brazil
Phone: +55 (47) 3387 9100
separation.bra@andritz.com

ANDRITZ Pty Ltd.

37 Colemans Road
Carrum Downs VIC 3201, Australia
Phone: +61 (3) 8773 4888
separation.au@andritz.com

ANDRITZ AG

Stattegger Strasse 18
8045 Graz, Austria
Phone: +43 (316) 6902 0
separation@andritz.com
www.andritz.com