mbe beyond engineering

ИНМАШ

SAYAJI

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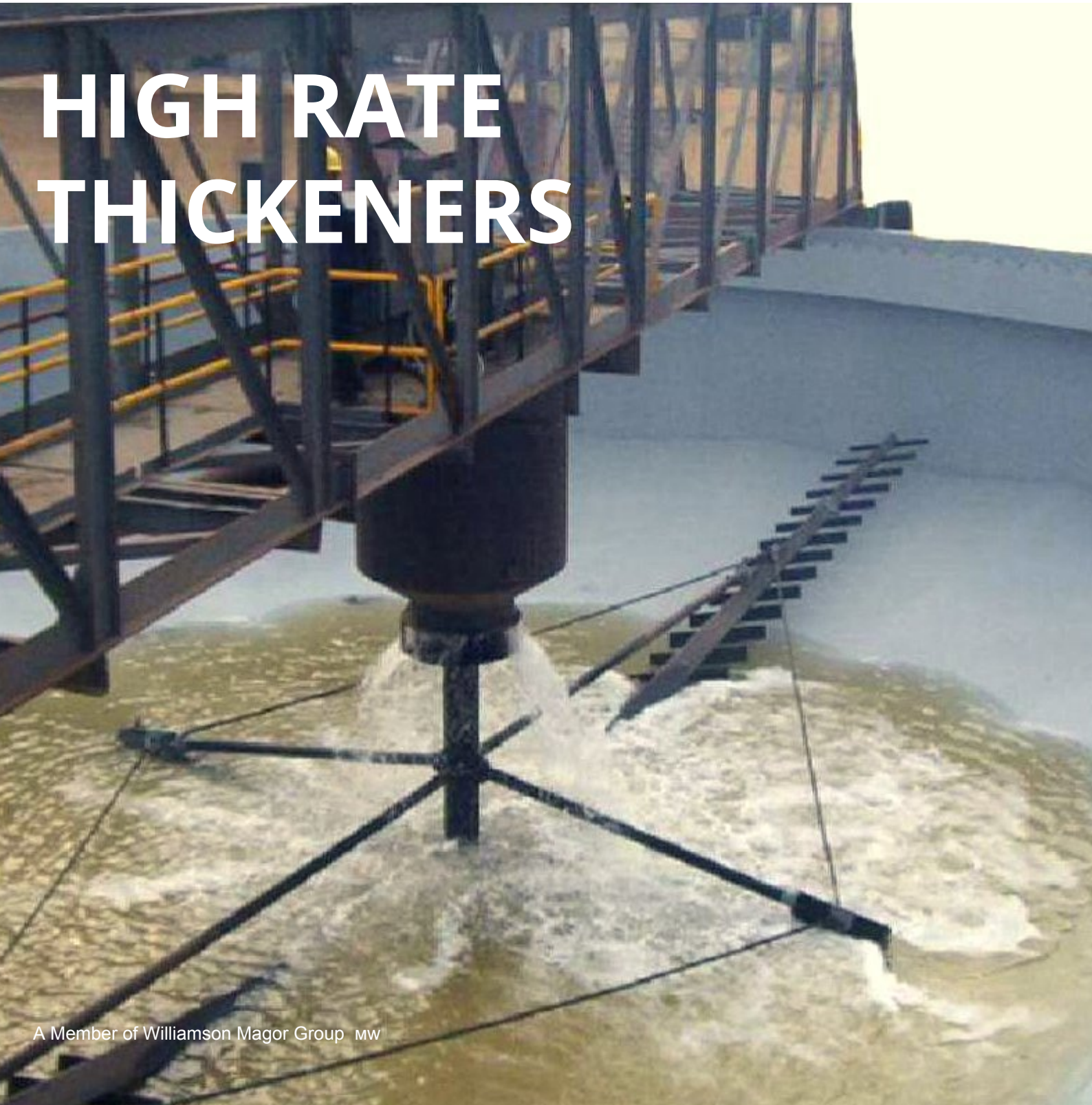
HIGH RATE THICKENERS



A Member of Williamson Magor Group MW

At MSEL, we have been designing, manufacturing and installing thickeners for over 20 years and more than 250 thickeners are operating at various locations around the world. These thickeners cater to a wide range of applications :

- **Mineral processing plants (Iron, copper, Lead , Zinc, Fluorspar, Baryte, Lime-stone, beach sand etc.)**
- **Sand washing plants**
- **Coal washeries**
- **Steel / sponge and pellet plants**
- **Chemical plants / Brine clarifiers**
- **Waste water treatment plants etc.**

Our main product offering is the High Rate Thickener (HRT) which has several special features that provide advantages over conventional thickeners. We can also offer Conventional thickeners, High compression thickeners and clarifiers.

The key advantages of a High Rate Thickener over a conventional thickener are as follows:

SMALLER DIAMETER	50% to 60% of the area of a conventional thickener
THICKER UNDERFLOW	Better performance of filters and other downstream equipment enhances the water recovery in the overflow.
CLEAR OVERFLOW	Better process operation. Pipelines and sumps devoid of sedimentation

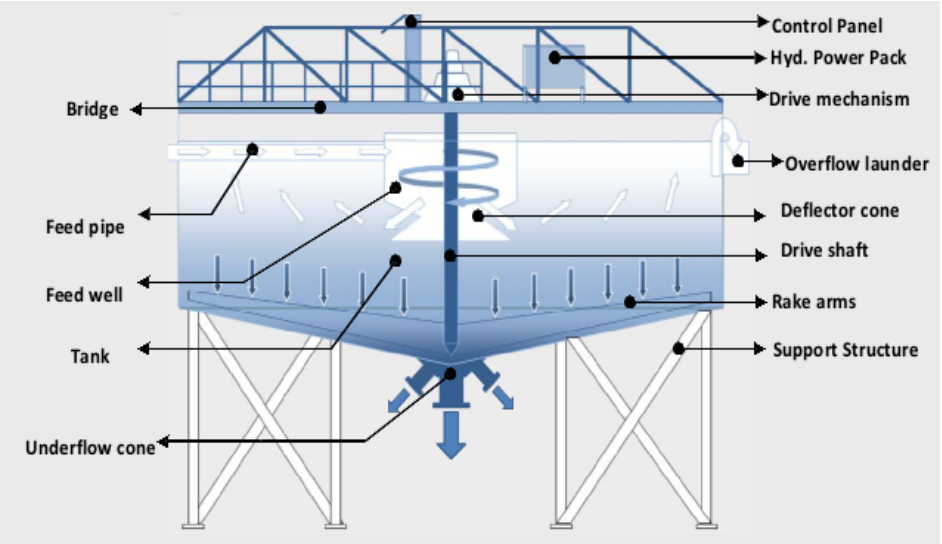
Some of key features of the MBE High Rate Thickener are

- The HRT is designed specifically to operate with flocculants and hence optimises flocculant consumption.
- The HRT has a special " McTurbo" feed well design combined with automatic feed dilution feature to ensure proper mixing of flocculant with incoming feed and facilitate proper floc formation.
- A deflector cone fitted beneath the feedwell, creates an annular gap through which feed slurry exits the fedwell at a designed velocity that will distribute the slurry evenly across the thickener area.
- The thicker underflow from a HRT implies that the rake mechanism operates at higher torque levels. This necessitates a robust drive arrangement and a failsafe torque sensing arrangement to protect the drive. The Drive arrangement in the MBE High Rate thickener comprises of a Hydraulic drive comprising of a hydraulic motor coupled to a planetary gear box.
- Special aerodynamic rake design to reduce drag and reduce torque loading.
- Fully Automatic flocculant preparation and dosing system.

THICKENER OPERATION PRINCIPLE

Slurry enters the feed well tangentially through a feed pipe. The feed slurry is pumped or fed by gravity to the thickener and shall have the energy to aid mixing of flocculent solution with it.

The feed well is sized adequately to take care of the venting of the entrapped air in the feed slurry. The de-aerated and flocculated feed is then discharged through the annular gap formed between the feed well and the deflector plate at a predetermined velocity into the main body of the thickener. This ensures the distribution of flocculated feed radially in one plane across the full thickener area as shown above. After the settling of solids, the rake arms scrape the solids towards the underflow cone for withdrawal. Liquor component raises to the upper part of the thickener to spill into the overflow launder.



FEATURES OF THE THICKENER

DRIVE MECHANISM

The combination of Hydraulic Power pack coupled with Planetary Gear box provides Robust yet a compact drive system

AUTOMATIC FLOCCULENT SYSTEM

The completely Automated Flocculent system takes care of the Flocculent Preparation and dosing.

FEED WELL

The Auto dilution principle in our feed well tank ensures automatic dilution of the feed to maintain constant % of solids and hence helps in maintaining optimum Flocculent Consumption

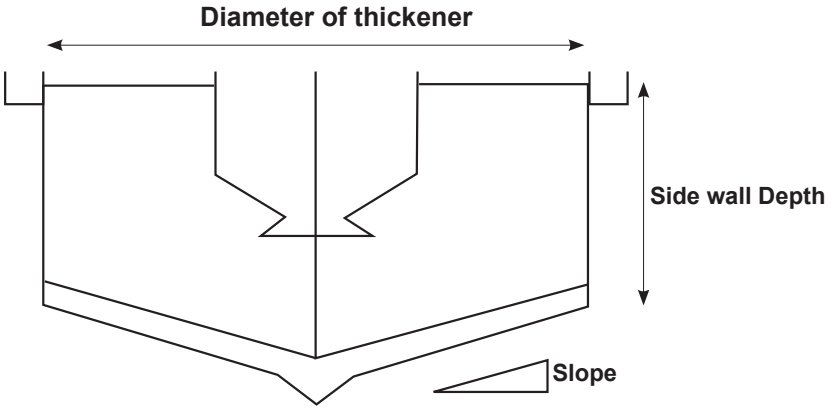
RAKE ARMS

Low drag Rake arms help in reducing the torque loading on the Thickener Drive.

DEFLECTOR CONE

Deflector cone helps to distribute the feed slurry evenly throughout the thickener area. The gap between deflector plate and feed well can be varied depending on the requirement of the application.

GENERAL DIMENSION OF THICKENERS



DIAMETER OF THICKENER (M)	SIDE WALL DEPTH (MM)	SLOPE
5-6	1800	1:4
7-8	2000	1:4
9-10	2200	1:4
11-14	2400	1:5
15-23	2400	1:6
24-28	2600	1:6
29-45	2800	1:6/1:12
46-65	3200	1:6/1:12

MBE provides end to end service for Thickeners which includes:

- Testing of Slurry to understand the sedimentation dyanamics
- Sizing, Selection & Design of Thickeners
- Engineering, manufacturing and supply of Thickeners/ Clarifiers
- Erection and Commissioning of Thickener and Mechanism
- After Sales service which includes supply of Original Spares and Service of Thickener

McNally Sayaji Engineering Ltd. (MBE) - this is a group of high-tech engineering companies, producing the highest quality products and a is world leader in the production of equipment and tools, as well as the provision of services and the development of technical solutions for the mining industry.

MBE officially received and uses for production technologies Outotec, SALA International AB, Metso and Aubema that is now part of Sandvik Mining and Construction.

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