



Ingwenya Mineral Tech Pvt. Ltd.

Mineral Upgradation Specialists



IMT - High Rate Thickener

IMT specialises in design, engineering and manufacture of high rate and high density thickeners for efficient and almost solid free water recovery in Mineral and coal beneficiation plants.

A team of personnel having combined experience of more than 150 years in the thickener designs and operations, **IMT** has successfully established as one of the leading manufacturers of high rate thickeners in the mineral & coal industries.

Water recovery thickeners are basically gravity separation systems and how effective they are is determined by the clarity of the overflow and the high density of the underflow.

It is well established that if the solids are provided with lesser resistance for settling and liquid is provided with clear path to rise to the top, the gravity separation system will deliver high density underflows and clear water overflows.

The factors affecting the above fundamental requirement are the optimum percentage of solids in the feed, controlled feed with retention for building up of the solids mass, availability of settling area for the solids to evenly settle, continuous and uniform removal of the settled solids with least amount of the liquid and these are addressed well in **IMT** High Rate Thickeners.



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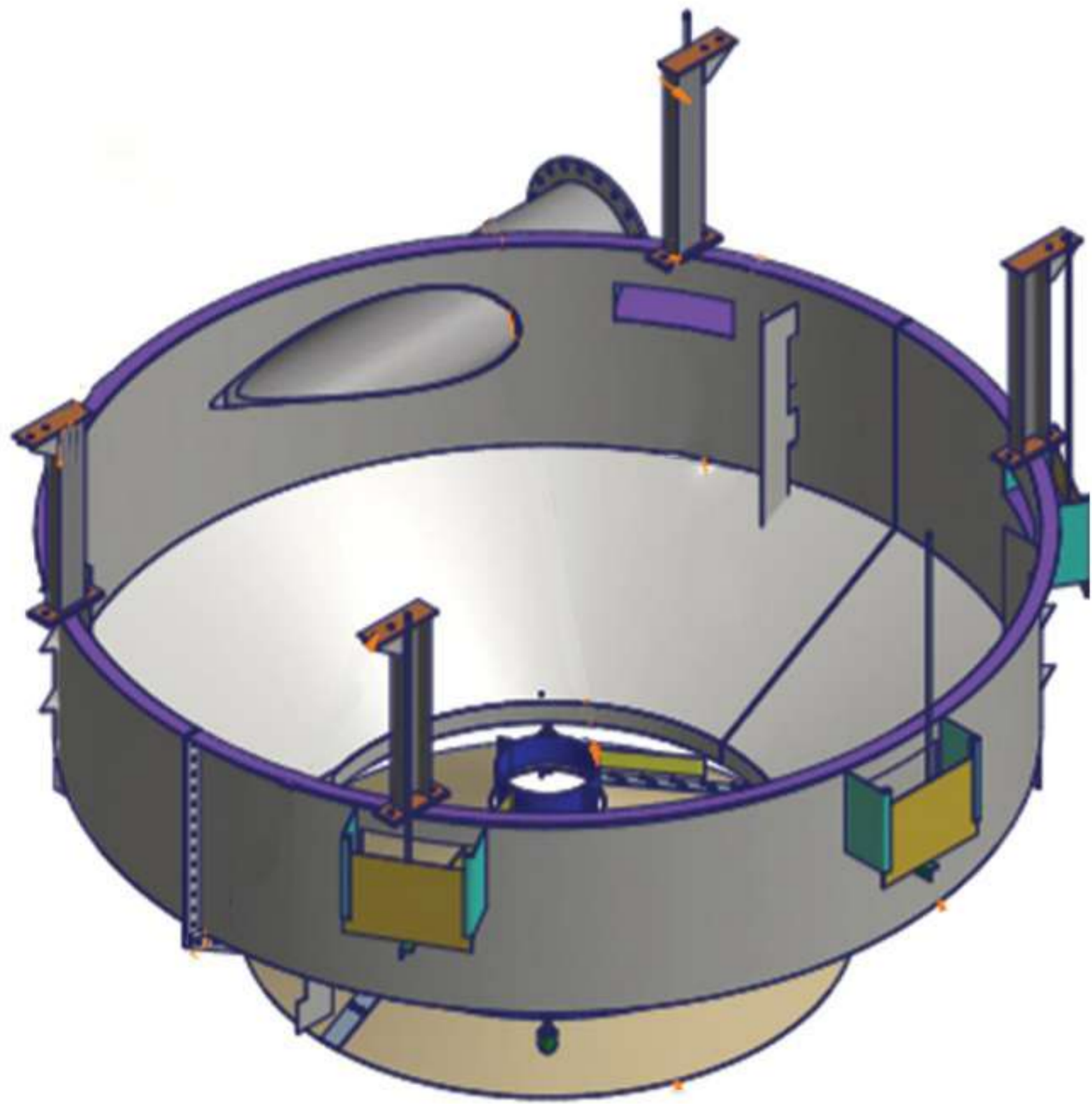
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Some of the critical features incorporated in **IMT** thickeners are,

- 🌐 Rake speeds designed typically at **10 m/min** tip velocity so as to ensure quick and uniform removal of the solids settled.
- 🌐 Heavy duty drive heads with K factor at minimum 30 (for fps system) to withstand shock loads.



- 🌐 Built in Auto dilution Feed well to ensure that the percentage solids in the feed is always maintained at an optimum and uniform levels.

- 🌐 Feed well design incorporate uniform mixing of the flocculants, adequate retention time for agglomeration of solids to heavier size particle for faster settlings.



- 🌐 Feed well with uniform distribution with the thickener tank to ensure that 360° distribution thus utilising 100% settling area available in the tank.

- 🌐 Process design adopts both raise rate and solids loading rates to ensure that thickeners are never undersized.

Typical design factors considered for various applications are,

No.	Description	Rise rate- m/hr	Solids loading rate - sq. m/ton/day
1	Iron ore fines - Concentrate	2.5 to 3.5	0.1 to 0.12
2	Iron ore fines - Tailings	2.5 to 3.0	0.08 to 0.2
3	Coal fines tailings	2.2 to 2.8	0.15 to 0.2
4	Clean coal fines	2.0 to 2.5	0.15 to 0.2
5	Blast furnace dust	0.08 to 3.0	0.15 to 0.2





Automatic flocculent and chemical dosing systems

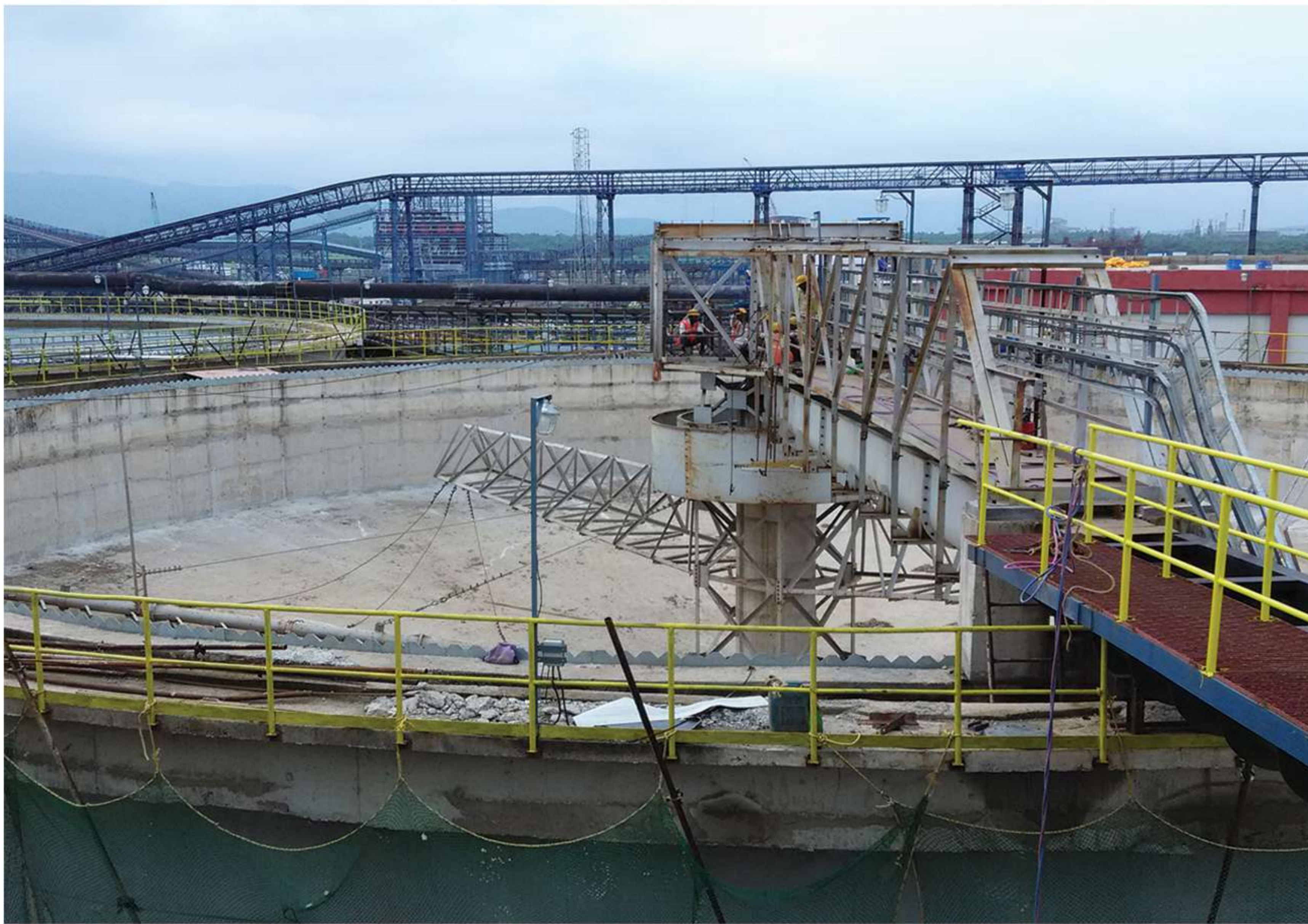


- Fully automatic flocculent dosing system offered as ancillary equipment so as to ensure that the gravity separation system functions most efficiently.
- For small capacity thickeners, compact and small foot-print systems offered with preparation tank mounted on the dosing tank.
- For large capacity thickeners, big size tanks for dosing and preparation are offered and for extra large thickeners triple tank designs are offered.
- Auto-diluted flocculent solutions delivery upto thickener feed well is included as a standard inclusion with the system.
- All wetted parts and flocculent powder handling parts are constructed in stainless steel material as a standard design.





Cable torque thickeners & Bolted design thickeners







IMT has developed cable torque thickeners for lighter duty applications where the underflow solids concentration **does not exceed 20- 25%** and typical applications are chemical industry effluents, Blast furnace dust and even for Coal tailings.

The advantage of the cable torque thickeners are the drive duty is medium without any mechanical or Hydraulic lifting arrangement and has inherent design strength to overcome the sludge accumulation and continue operations without any break.



IMT has developed bolted construction design for the thickener tank and tank supports up to **14 m** diameter which reduces the construction time and for fast gestation projects this design is well suited. Other advantage of bolted design construction tanks are the thickeners can be relocated easily when the project operations require shifting from one point to another.

IMT being a total solution providing company offers following services.

-  Process sizing and setting up design parameters for mechanical designs.
-  Complete design of the steel tanks with finite element analysis.
-  Design, manufacture and supply the equipment.
-  Erection and commissioning of the equipment.

