



Sismat Uluslararası
Arıtma Makinaları
İnşaat Mühendislik
Sanayi ve Tic. A.Ş.



THICKENERS



THICKENERS

Thickening is a process applied for having a high ratio of solid materials by removing the excess amount of water present in sludge. Even the minimum rate of increase (such as 3-6 %) obtains a significant decrease rate of total sludge volume (50%). It provides a cost-effective solution because of the reason that smaller treatment plants can be needed.

Thickeners are the commonly used equipment for increasing the density of solid wastes coming from water and wastewater treatment and transmitting it to the dewatering plant. The higher density of the sludge results in the reduction of the sludge flow and the size of the subsequent sludge dewatering steps.

Similar to circular scrapers, Sismat Uluslararası presents two types of circular thickeners as following:

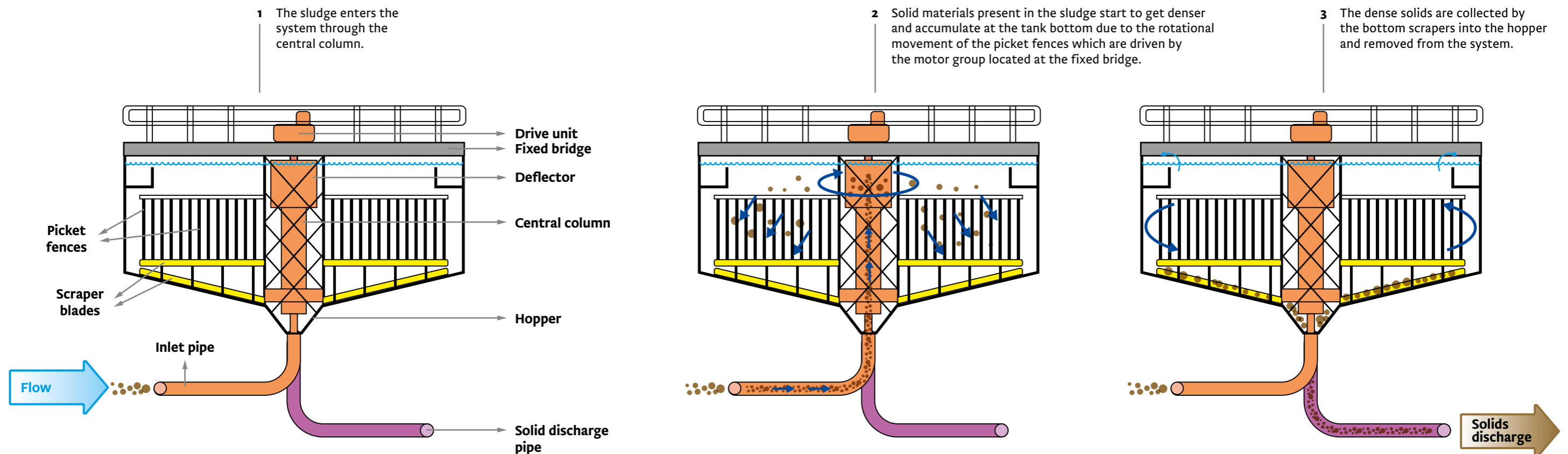
- Central driven fixed bridge circular thickeners
- Peripheral driven rotating bridge circular thickeners

CENTRAL DRIVEN FIXED BRIDGE CIRCULAR THICKENERS

Sismat Uluslararası provides central driven fixed bridge circular thickeners which are generally used for small and medium size basins. They have two scraper arms with bars controlled by a central drive unit fixed on the bridge. The thickening and scraping mechanism is directly connected with the drive unit by means of a central shaft or a cage construction. They are equipped with picket fences placed within the basin to help accelerate the settling of solids. Sismat Uluslararası Central Driven Fixed Bridge Circular Thickeners are mainly made up of a central drive structure, bottom scraper blades, picket fences and tension bar.

WORKING PRINCIPLE

Sismat Uluslararası Central Driven Fixed Bridge Circular Thickeners have a shaft or column located at the centre of the basin. The sludge to be thickened enters the system through an inlet pipeline located under the column, or can be introduced through the top of the deflector if it has a mechanism with shaft instead of column. The column is covered with a cage construction to be able to rotate the scraper blades and picket fences. The picket fences, generally mounted on the scraper blades, are rotated by the driving mechanism placed on the fixed bridge. The sludge becomes denser by time with the help of the rotational movement of picket fences and the dense particles are settled down. The scraper blades at the bottom sweep them into a hopper and remove from the system. For continuously fed sludge thickeners, the supernatant is collected by weirs which are installed at periphery. The supernatant is drawn off to a return flow treatment process.



FEATURES AND BENEFITS OF SISMAT ULUSLARARASI CENTRAL DRIVEN FIXED BRIDGE CIRCULAR THICKENERS

- Robust and reliable design
- Trouble-free operation
- Easy-to-install
- High efficient mechanism
- High sludge concentration provided
- Available for basins in small and medium sizes
- Adjustable blades and pickets
- Low energy consumption

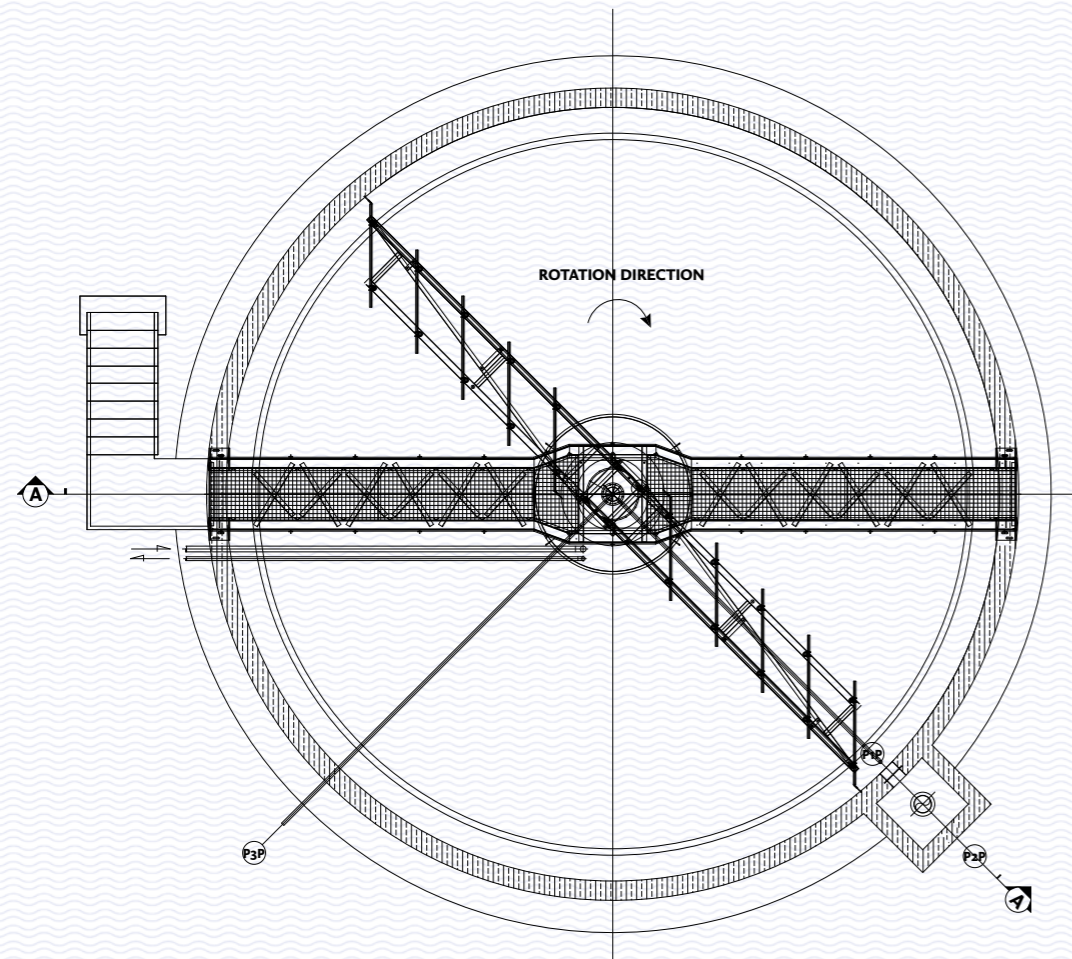
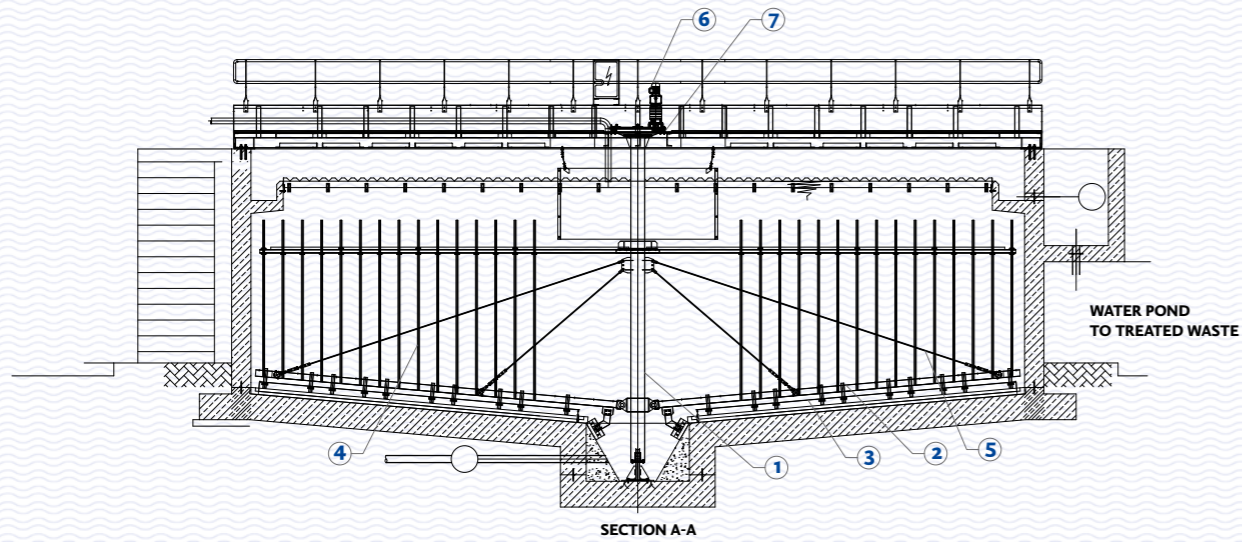
APPLICATIONS

- Water treatment plants
- Municipal wastewater treatment plants
- Industrial wastewater treatment plants
 - Chemical industry,
 - Coal industry, etc.
- Metallurgical fields

FACTS

- Diameter up to 30 m
- Rate between 1.5 m/min and 3 m/min

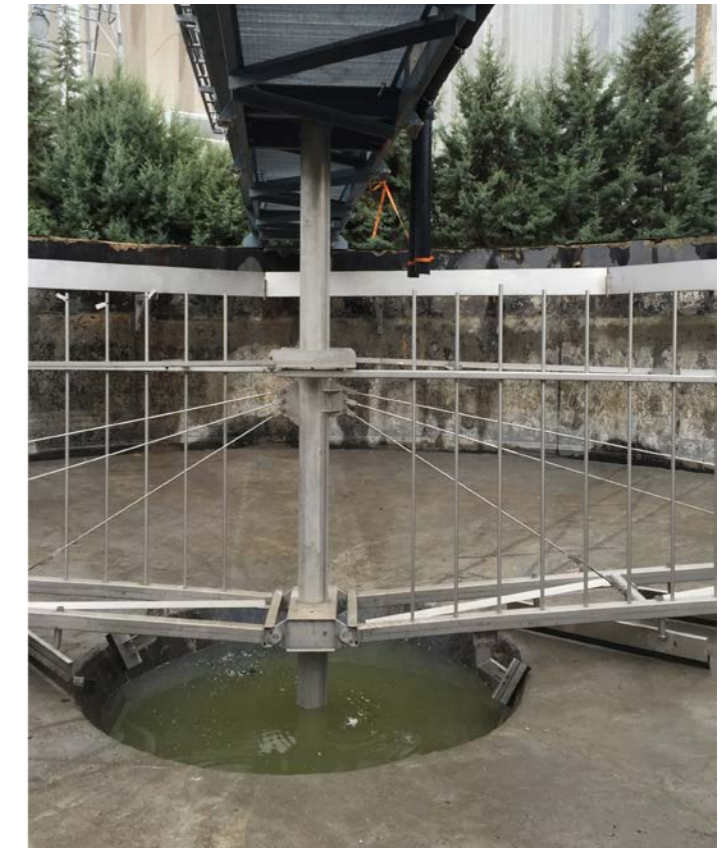
Typical Central Driven Fixed Bridge Circular Thickener & Components



Typical drawings are for information only.

OUR CENTRAL DRIVEN FIXED BRIDGE CIRCULAR THICKENER COMPONENTS

	Central Driven Fixed Bridge Circular Thickener Components	Materials Available
1	Shaft	Carbon steel or stainless steel grade, AISI304, AISI304L, AISI316, AISI316L, AISI316Ti, DUPLEX or SUPER DUPLEX
2	Bottom scraper frame	Carbon steel or stainless steel grade, AISI304, AISI304L, AISI316, AISI316L, AISI316Ti, DUPLEX or SUPER DUPLEX
3	Scraper blades	Cord Fabric Rubber
4	Picket fences	Carbon steel or stainless steel grade, AISI304, AISI304L, AISI316, AISI316L, AISI316Ti, DUPLEX or SUPER DUPLEX
5	Tension bar	A2, A4
6	Drive unit	-according to norm of manufacturer
7	Fasteners	A2, A4 , DUPLEX or SUPER DUPLEX



PERIPHERAL DRIVEN ROTATING BRIDGE CIRCULAR THICKENERS

Sismat Uluslararası provides peripheral driven rotating bridge circular thickeners which are cost-effective for larger basins. They have scraper arms with bars controlled by a peripheral drive unit rotating with the travelling bridge that can be manufactured as full- or half-bridge according to the tank diameter. Peripheral driven bridge can also be fabricated in steel. They are equipped with picket fences placed within the basin to help accelerate the settling of solids. For signal exchange silver or gold coated slip rings are often used to obtain high efficiency in signalization. Sismat Uluslararası Peripheral Driven Rotating Bridge Circular Thickeners are mainly made up of a central pivot structure, bottom scraper blades, picket fences and drive unit.

WORKING PRINCIPLE

Sismat Uluslararası Peripheral Driven Rotating Bridge Circular Thickeners are designed for consolidating of sludge coming from primary, secondary or chemical treatment units. Influent sludge is fed to the centre of the tank for settlement and thickened sludge is pushed to central conical hopper by scraper blades. Thickened sludge is drawn off either hydrostatically or by a pump and sent to further sludge processing steps. Picket fence arrangements prevent air pockets and ensure proper mixing of sludge. Picket fences are generally installed on scraper arms in order to provide gentle mixing of the settled sludge for better consolidation. For continuously fed sludge thickeners, the supernatant is collected by weirs which are installed at periphery. The supernatant is drawn off to a return flow treatment process.

FEATURES AND BENEFITS OF SISMAT ULUSLARARASI PERIPHERAL DRIVEN ROTATING BRIDGE CIRCULAR THICKENERS

- Durable and safe construction
- Simple operation
- Ease of maintenance
- Available for basins in larger size
- High efficient system
- High sludge concentration provided
- Adjustable blades and pickets
- Low capital and operating cost
- Low energy cost

APPLICATIONS

- Water treatment plants
- Municipal wastewater treatment plants
- Industrial wastewater treatment plants
 - Mineral processing industry,
 - Non-metallic mineral processing industry, etc.
- Metallurgical fields

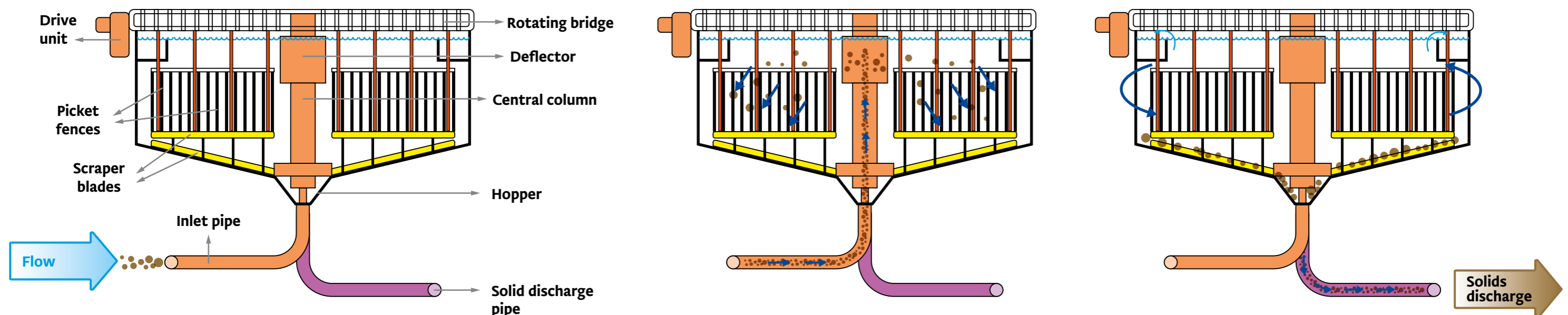
FACTS

- Diameter up to 30 m
- Rate between 1.5 m/min and 3 m/min

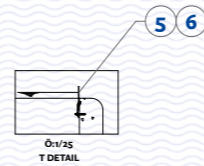
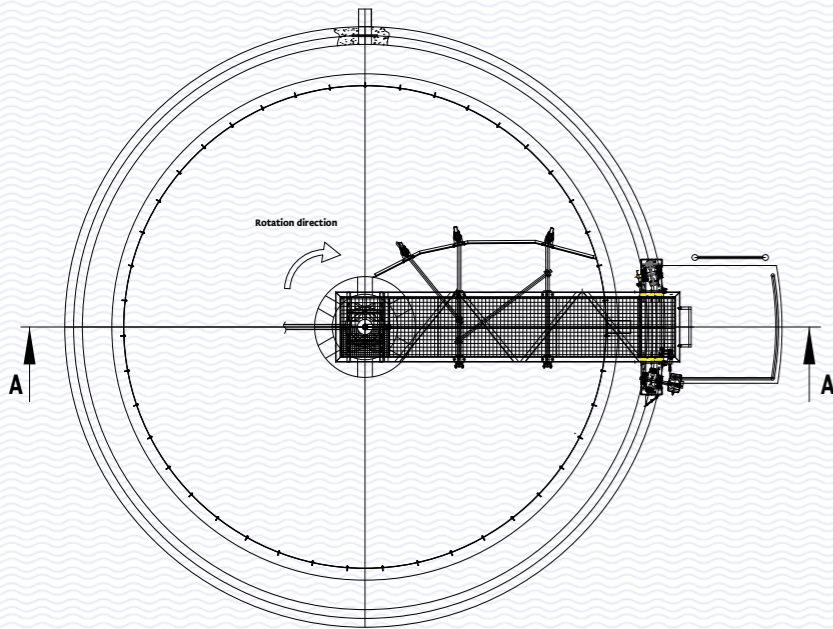
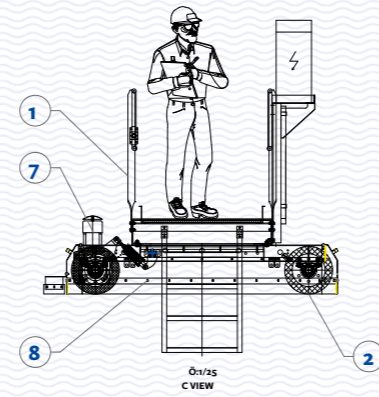
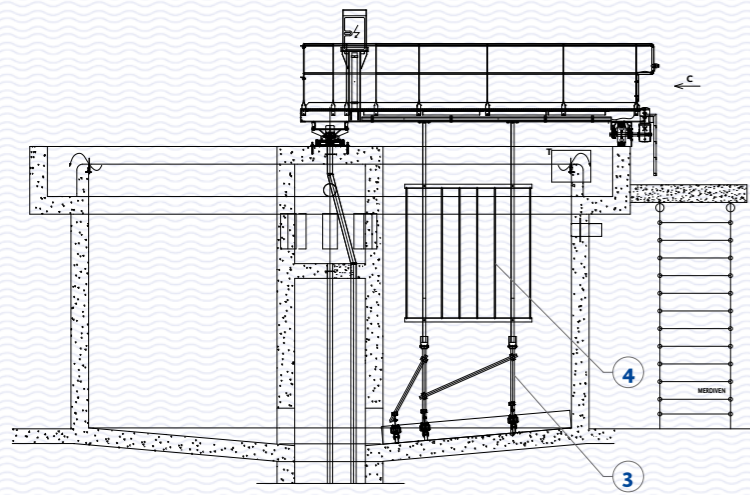
1 The sludge enters the system through the central column.

2 Solid materials present in the sludge start to get denser and accumulate at the tank bottom due to the rotational movement of the picket fences which are driven by the travelling motor group at the basin's periphery.

3 The dense solids are collected by the bottom scrapers into the hopper and removed from the system.



Typical Peripheral Driven Rotating Bridge Circular Thickener & Components



OUR PERIPHERAL DRIVEN FIXED BRIDGE CIRCULAR THICKENER COMPONENTS

	Peripheral Driven Fixed Bridge Circular Thickener Components	Materials Available
1	Bridge	Carbon steel or stainless steel grade, AISI304, AISI304L, AISI316, AISI316L, AISI316Ti, DUPLEX or SUPER DUPLEX
2	Bogie	Carbon steel or stainless steel grade, AISI304, AISI304L, AISI316, AISI316L, AISI316Ti, DUPLEX or SUPER DUPLEX
3	Bottom scrapers	Carbon steel or stainless steel grade, AISI304, AISI304L, AISI316, AISI316L, AISI316Ti, DUPLEX or SUPER DUPLEX
4	Picket fences	Carbon steel or stainless steel grade, AISI304, AISI304L, AISI316, AISI316L, AISI316Ti, DUPLEX or SUPER DUPLEX
5	Weir	Carbon steel or stainless steel grade, AISI304, AISI304L, AISI316, AISI316L, AISI316Ti, DUPLEX or SUPER DUPLEX
6	Baffle plate	Carbon steel or stainless steel grade, AISI304, AISI304L, AISI316, AISI316L, AISI316Ti, DUPLEX or SUPER DUPLEX
7	Drive unit	-according to norm of manufacturer
8	Fasteners	A2, A4 , DUPLEX or SUPER DUPLEX





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Sisnat Uluslararası Arıtma Makinaları
İnşaat Mühendislik San. ve Tic. A. Ş.
Address: Gebze Güzeller Organize Sanayi Bölgesi (GGOSB)
Fatih Sultan Mehmet Cd. 5/1 Gebze/Kocaeli/Türkiye
Telephone : +90 262 751 12 54
Fax: +90 262 751 12 56