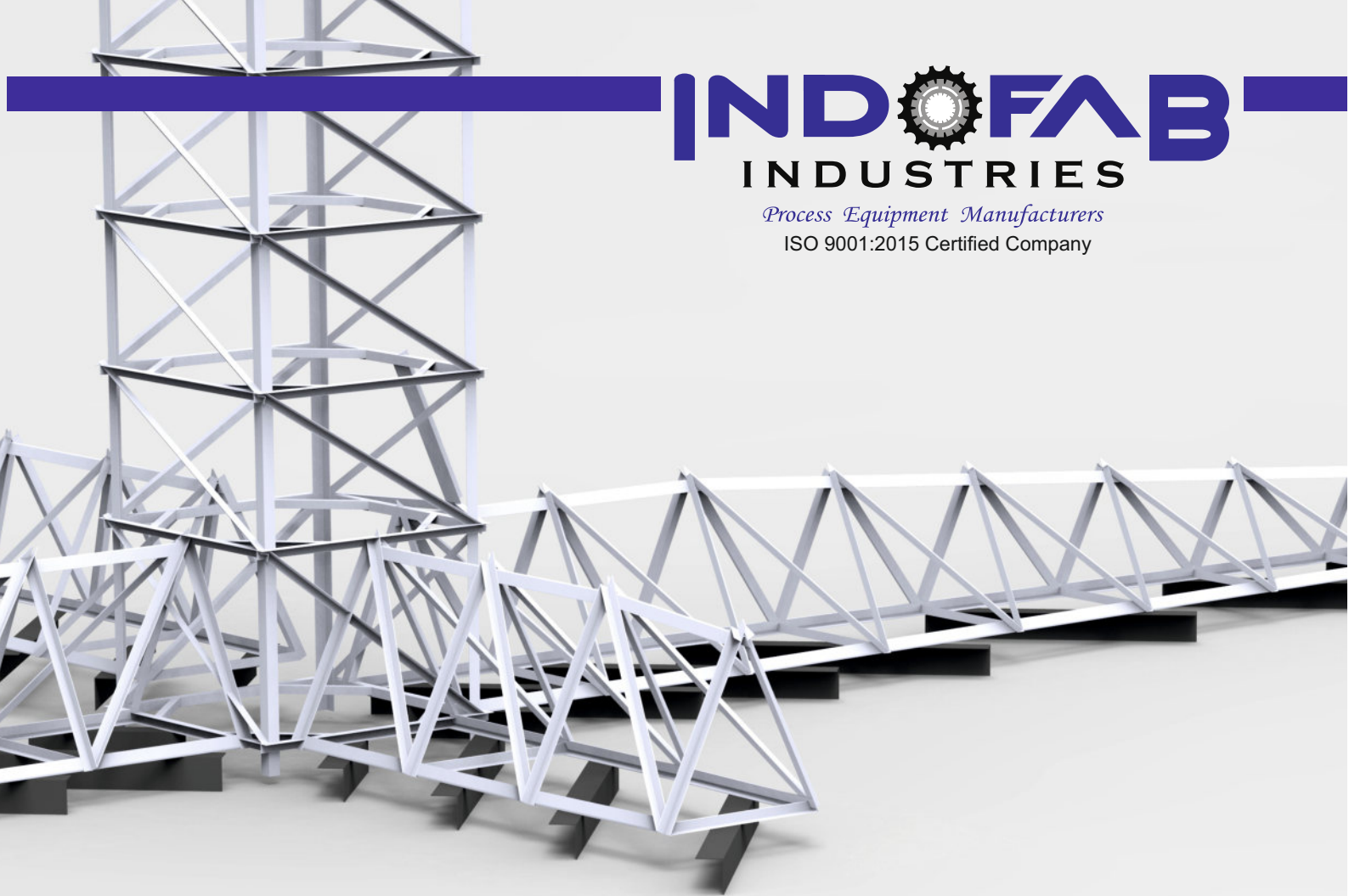




*Process Equipment Manufacturers*  
ISO 9001:2015 Certified Company



# *Process Equipment Manufacturers*

SEDIMENTATION | FILTRATION | MIXING

SEDIMENTATION



## INTRODUCTION

**Sedimentation** is the process of letting suspended solids settle by gravity. This is accomplished by decreasing the velocity of the slurry/liquid being treated to nearly half the settling rate of suspended solids in a tank.

We also assist your team to establish detention time, settling rate/overflow rate and settling area for the design flow necessary for sizing of the settling tank for various process applications.

Commonly known as gravity settlers by process engineers these are tanks where solids are settled naturally or with chemical aid and concentrated slurry is removed as underflow and clarified liquid as overflow.

A mechanism is used in these gravity settlers, to scrape the settled sludge at the bottom of the tank towards the central sludge pit continuously. The mechanism is driven by a "Drive System" mounted on the support beams or concrete pier at the top of the tank. The liquid overflows through the peripheral weir at defined loading to ensure desired velocity resulting in proper clarification

At INDOFAB we specialize in design of the mechanism to ensure proper sedimentation process and efficient sludge removal with appropriate "Drive systems" to handle the torque requirement of various range of settled sludge for different applications.

The different types of "MECHANISMS" are described below :

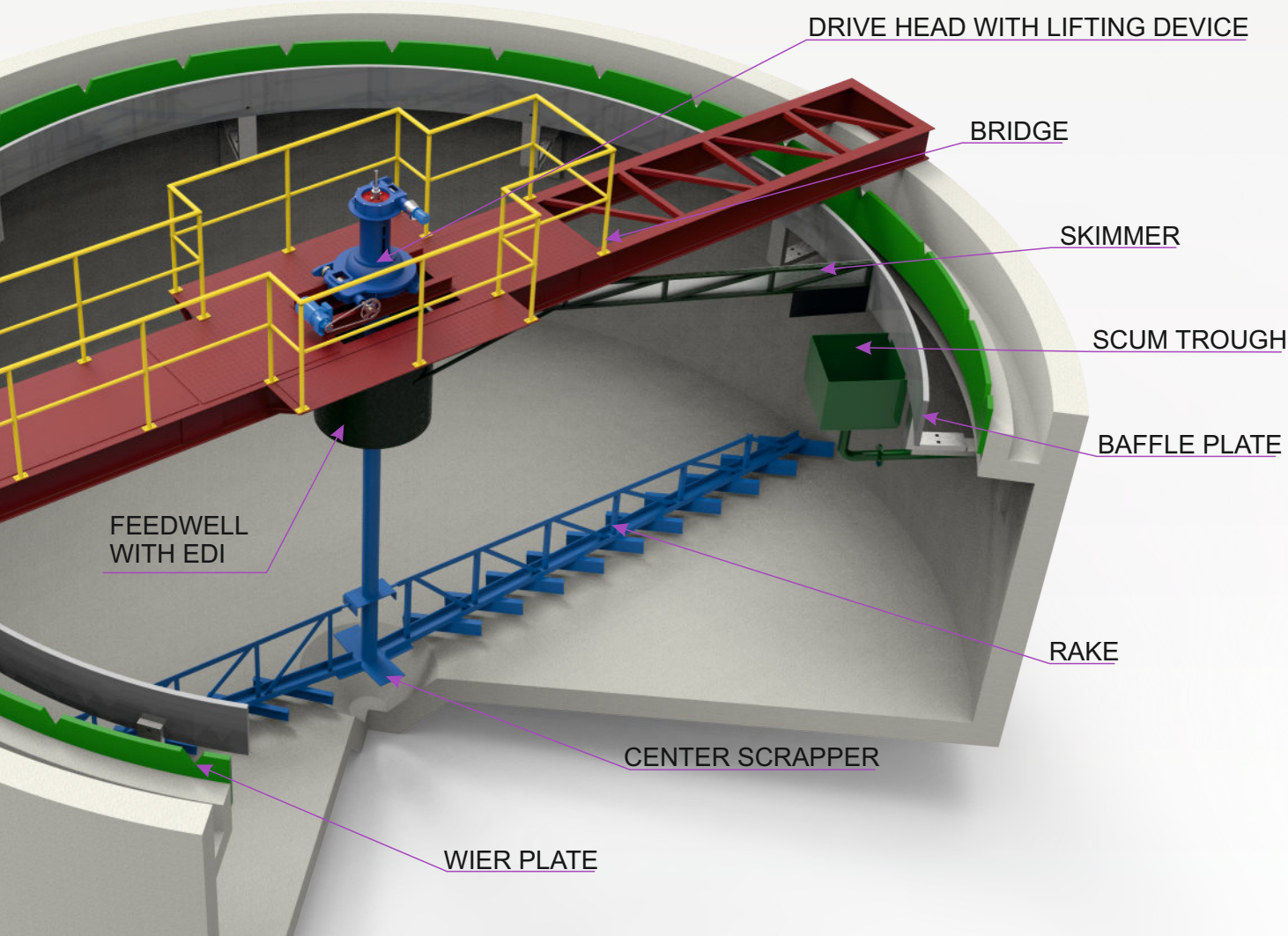
## BRIDGE MOUNTED MECHANISMS

### Alias A-TYPE / FIXED BRIDGE / CENTRAL DRIVEN MECHANISMS

In this type of Mechanism Design a High Torque Drive / Drive Head is supported by a fixed bridge spanning the tank known as mechanism support and Central shaft suspends both rake arms to sweep full tank bottom once or twice every revolution. The load/Torque on the rake arm is defined by the process & the concentration which in turn dictates the complete Mechanism Design. A carefully Designed Mechanism ensures the process runs flawlessly for decades together. A feed well is often used to kill the turbulence, ensuring the sludge blanket at bottom or overflow hydraulics are not affected. Optionally Skimmers, Weirs, Baffles, Sludge Sampling systems (TSDP) are offered. A Typical Drive System for above mechanism comprises of Cast Worm Wheel driven by Alloy steel Worm & Worm Shaft enclosed in cast iron Housing & cover, Inturn driven by a helical / worm gear box & motor. When deployed for Thickening applications in mainly Inorganic slurries the drives are equipped with Motorized or Hydraulic auto lifting mechanism to cater high % of solids and overcome frequent overloads.

These types of Mechanisms are used as:

• Clarifiers	: 3 Mtr Dia. To 45 Mtr Dia.
• Solids Contact Clarifiers (HRSCC)	: From 4 Mtr Dia. To 40 Mtr Dia.
• Thickeners	: 3 Mtr Dia. To 36 Mtr Dia.
• Clariflocculators	: From 5 Mtr Dia. To 18 Mtr. Dia. With Standard Drives and Central Large Flocculator
• De-Gritting / Bowl Rake Classifiers	: 2.5 Mtr to 8 Mtr. Dia.
• Detritor / De-gritter	: 2.5 Mtr Dia. To 12 Mtr.







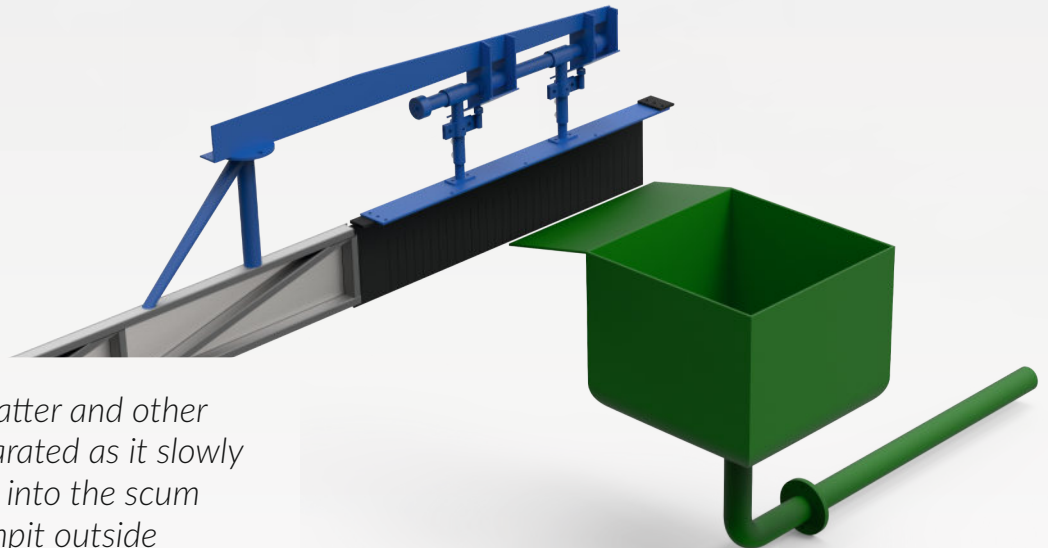
## LIFTING ASSEMBLY

*Motorised lifting device enables lifting of scrapper mechanism during operation with increase in load & vice versa. Coupled with appropriate mechanical / digital overload it operates (lifts) automatically ensuring safe operations at high / surge loads.*

## SKIMMER ARM & SCUM TROUGH

*The rotating skimmer sweeps the surface of clarifier with a blade attached to skimmer arm.*

*Grease, free oils, organic matter and other floatable materials are separated as it slowly spirals around and is swept into the scum trough for discharge in slumpit outside sedimentation tank*



## RAKE WITH BLADES



*Rake arms with scrapping blades & sweeping squeezers while rotating sweep the entire tank bottom. Each rotation of rake arms generates a spiral sweep to move settled sludge towards discharge cone at center.*

*Different sweep profiles made for different applications based on Indofab's design expertise.*

## COLUMN MOUNTED MECHANISMS:

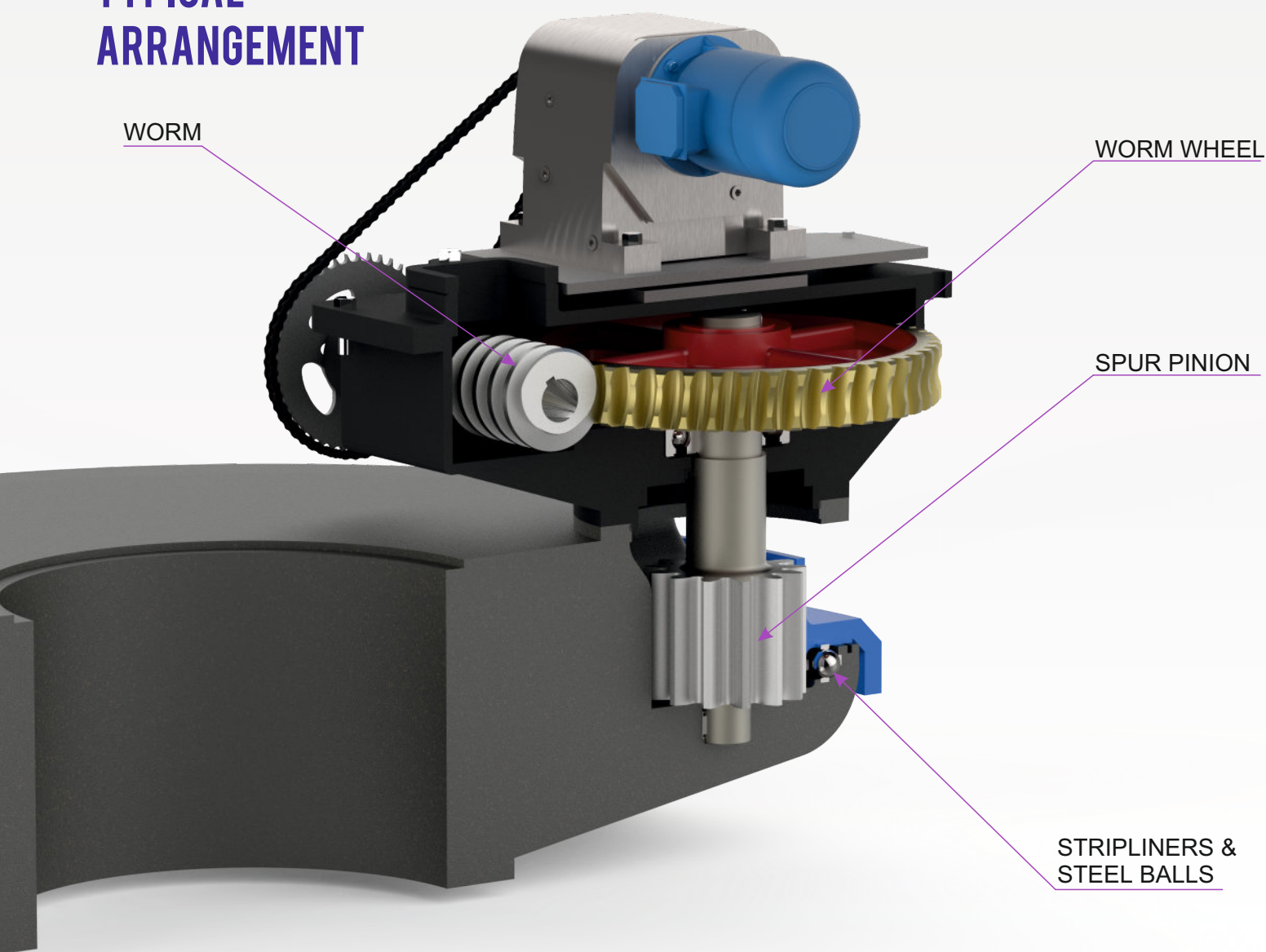
### Alias S-TYPE / PIER MOUNTED / CENTRAL DRIVEN

These Mechanisms are supported by a stationary centre column of steel or concrete. The centre column supports the drive and rake mechanisms, while the truss extending from the centre pier to the tank periphery supports the walkway, power lines and feed launder. These systems are generally preferred for larger diameters and heavy duty applications due to the sturdy Turn Table Drives & Heavy Structural design of Centre Cage suspending the Long & short rake arms. A feed well is often used to kill the turbulence, ensuring the sludge blanket at bottom or overflow hydraulics are not affected. Optionally Skimmers, Weirs, Baffles, Sludge Sampling systems (TSDP) are offered. A Typical drive systems consists of a Heavy Duty Turn Table mounted on Centre Pier & supporting the rotary Internal Gear suspending the Centre Cage. The Cast Internal gear is inturn driven by alloy steel pinion. A typical Upper Worm & Wheel with Housing & cover drives the Pinion from top. The Whole Drive System is completed when a Motor and Helical Gear box drives the upper worm & wheel system as shown in the typical arrangement below.

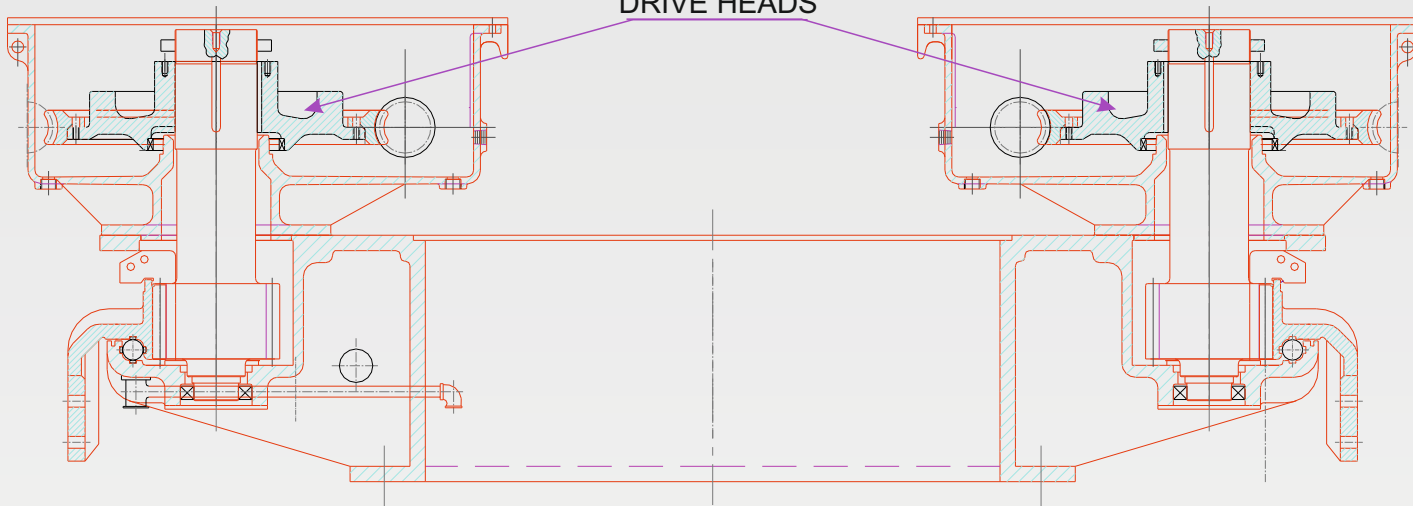
These types of Mechanisms are used for:

• Clarifiers	: 12 Mtr Dia. To 52 Mtr Dia.
• Solids Contact Clarifiers (HRSCC)	: From 20 Mtr Dia. To 48 Mtr Dia.
• Thickeners	: 12 Mtr Dia. To 44 Mtr Dia.
• Clariflocculators	: From 12 Mtr to 65 Mtr Dia. With options of Special Bevel or Combination Drives.
• De-Gritting : Detritor /De-gritter	: 8 Mtr Dia. To 20 Mtrs.

## TYPICAL ARRANGEMENT



STAGE 1  
DRIVE HEADS

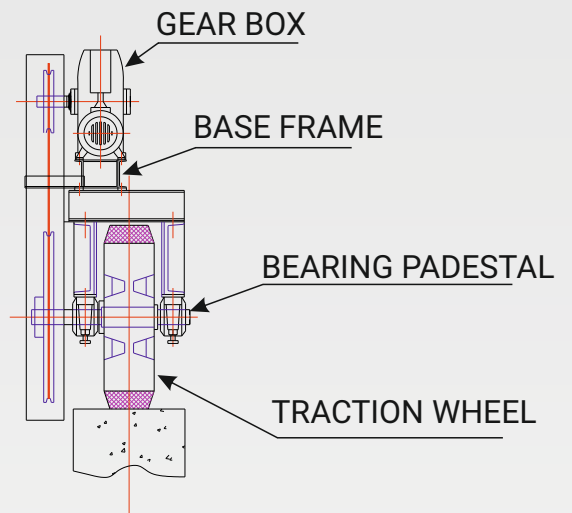
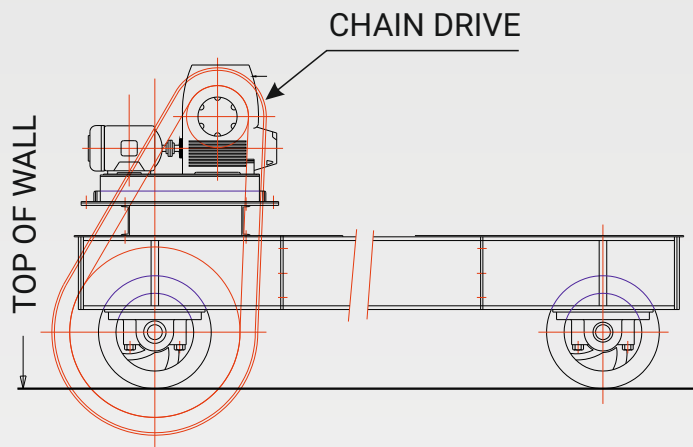


## HEAVY DUTY DUAL PINION DRIVE

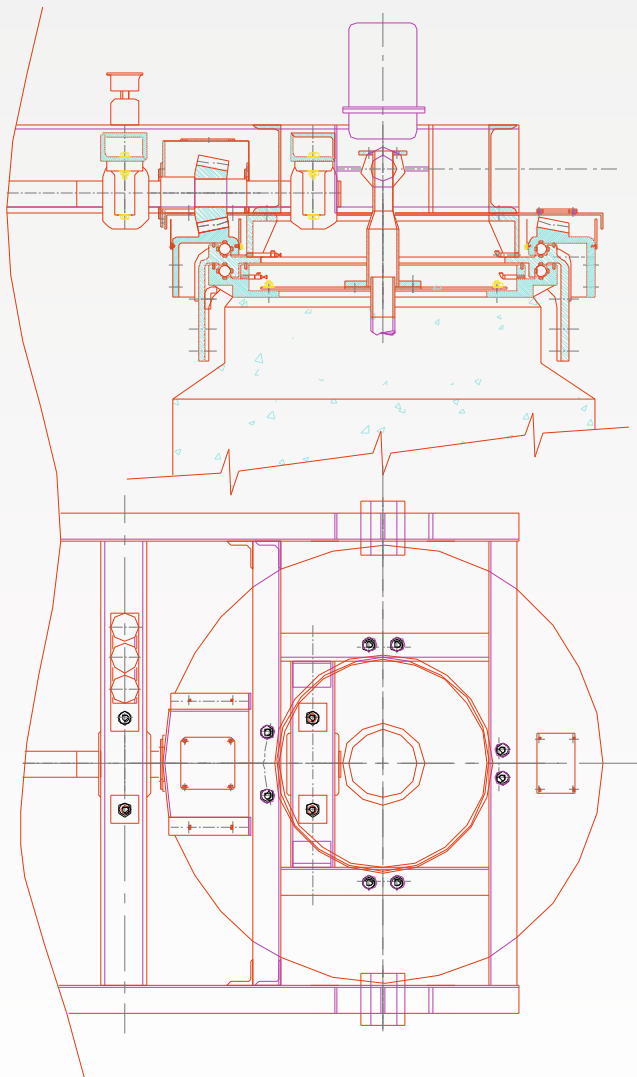
STAGE 1  
DRIVE HEAD

COLUMN MOUNTED  
DRIVEHEAD

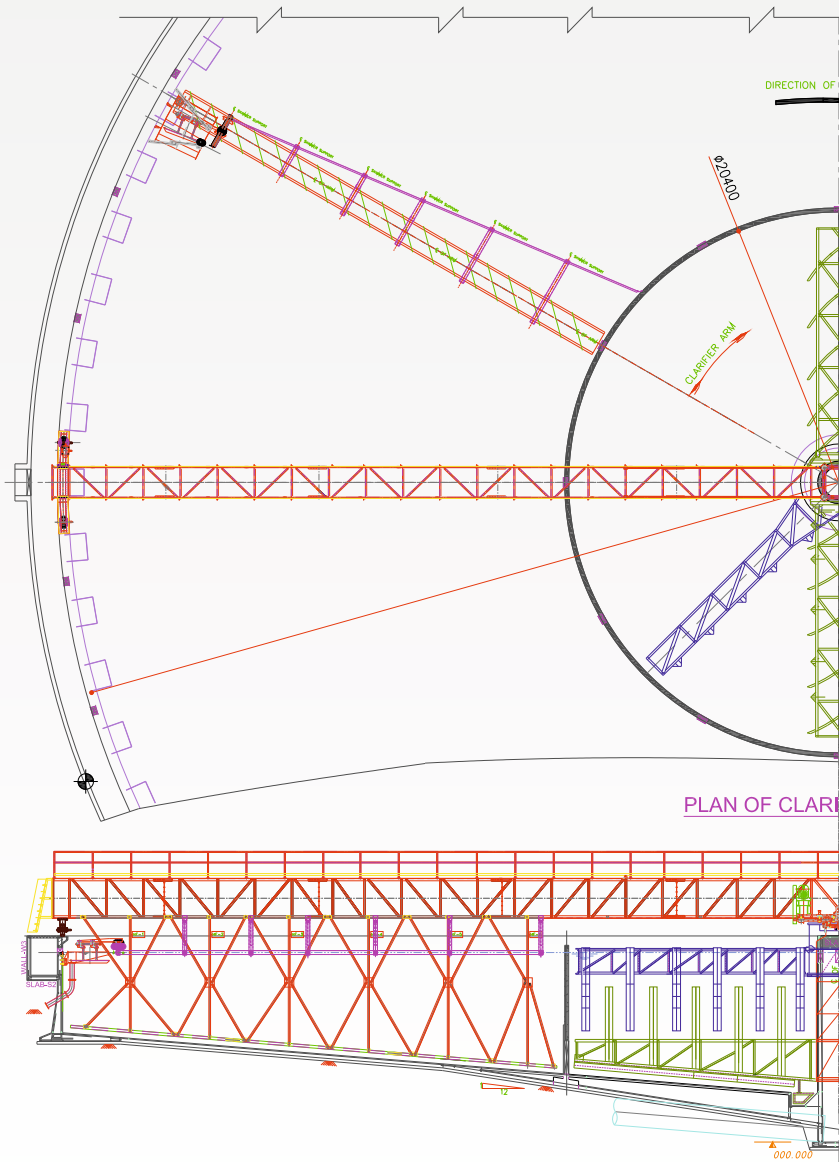




## TRACTIONCARRIAGE ASSEMBLY



## CENTRAL DRIVE ASSEMBLY





## PERIPHERAL DRIVEN MECHANISMS

### Alias ROTATING BRIDGE / TRACTION DRIVEN MECHANISMS

Traction Mechanisms are considered more economical with lower solid content they are with single rake arm suspended from rotating bridge, & having a single Worm Gear box & Motor Driving the Peripheral Traction wheels. The system mainly consists of a Central Turn Table of suitable rating with a Pivot arrangement on which rests the rotating bridge; A carriage with two PU or Rubber Lined Wheels carries & rotates the bridge from the periphery along the Circular path of tank.

The Traction Mechanisms are preferred for Large diameters with Single as well as double sweep which can be achieved by putting two drives or designing a centre cage + rake arms suspended from rotating bridge. Skimmers, Scum Trough & Baffles with these mechanisms can be very sturdy in design and are offered as an optional feature.

These types of Mechanisms are used for :

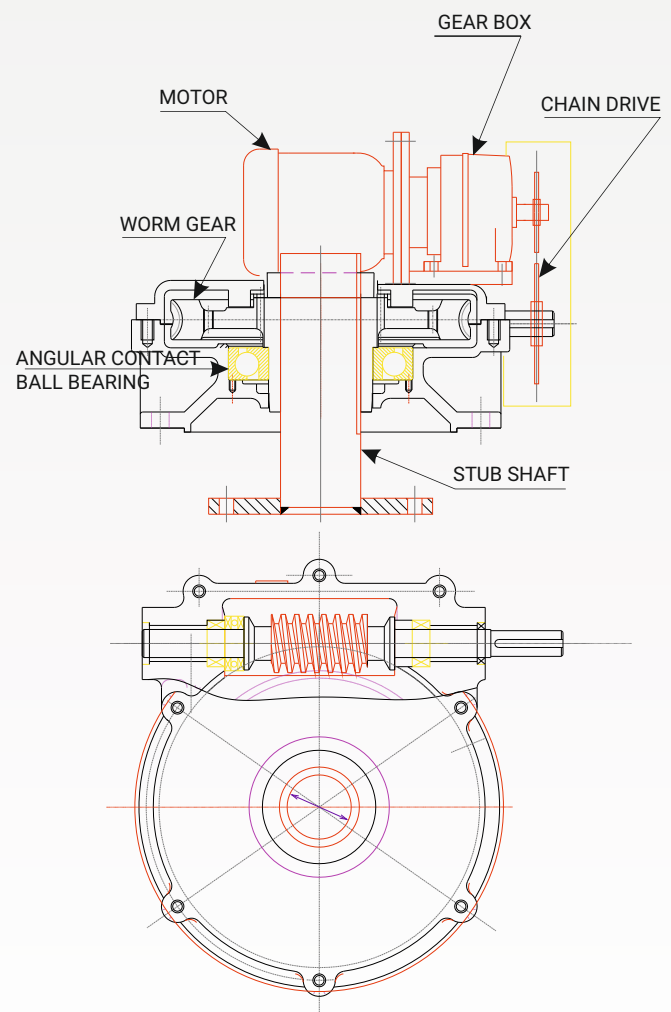
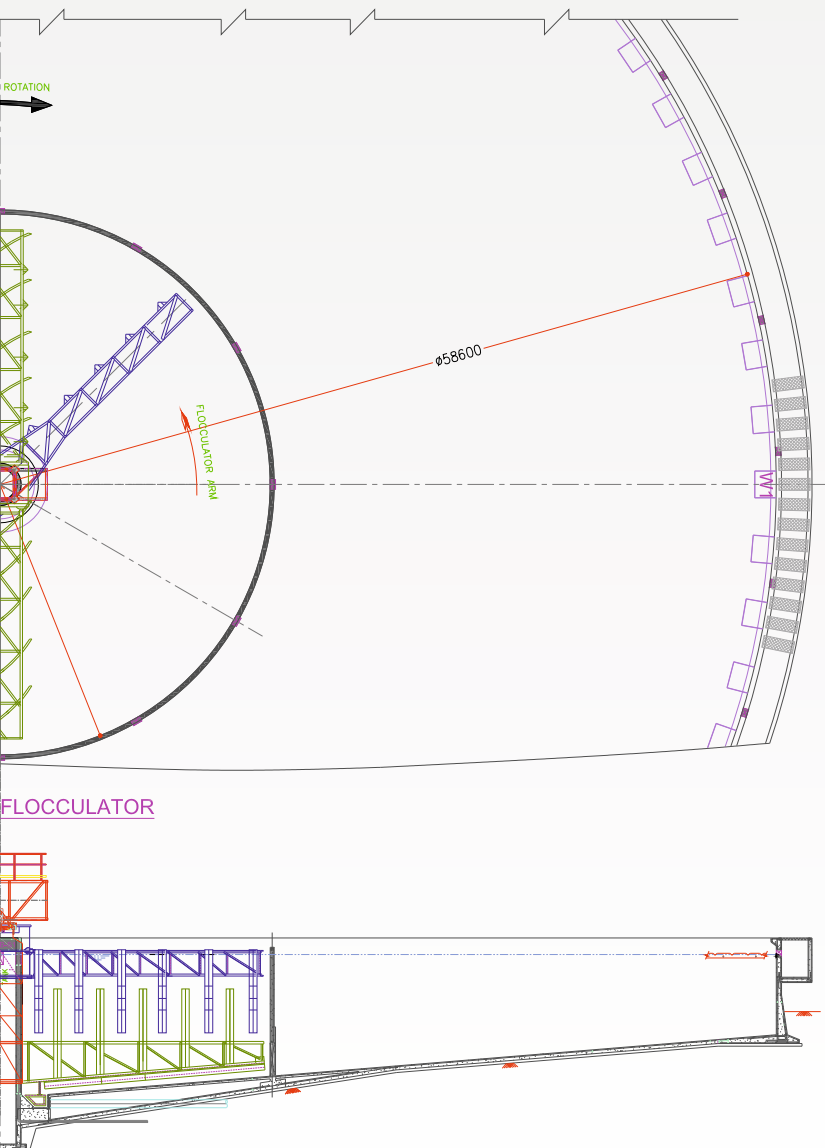
- |                     |   |
|---------------------|---|
| • Clarifiers        | : 9 Mtr Dia. To 68 Mtr Dia.                                 |
| • Thickeners        | : Organic/Biological Sludge From 14 Mtr Dia. To 60 Mtr Dia. |
| • Clariflocculators | : From 10 Mtr Dia. To 68 Mtr. Dia.                          |
- With options of 1/2/3/4 Circulating Flocculators or Central Large Flocculator with Special Drive

## MATERIAL OF CONSTRUCTION

Sedimentation Equipment's Preferred Material of Construction (MOC) for Various components offered to our clients are mainly in Mild Steel Epoxy Painted, Mild Steel with Hot Dip Galvanized; Mild Steel FRP Lined; Mild Steel Rubber Lined, AISI 304/L, AISI 316/L. Selection of MOC are normally recommended by Process Designers/consultants/clients based on slurry/liquid characteristics & application.

### TYPICAL APPLICATIONS :

- Removal of Mud, Flocs, Slow settling Suspended Solids in WTP, ETP & STP.
- Industrial Applications for settling & concentrating mud, ore, trade wastes, lime, chemical salts, beneficiation processes.



## FLOCCULATOR DRIVE ASSEMBLY

# INDOFAB INDUSTRIES

Process Equipment Manufacturers

ISO 9001:2015 Certified Company

INDOFAB INDUSTRIES is a well-known name for supply of Quality Process Equipments for past 35 years. The company has its legacy of working with top notch EPC contractors and Consultants, serving large size Project requirements for Government & Private Organizations.

INDOFAB is an ISO 9001:2015 Certified company for **Design & Manufacture** of Industrial Process Equipments in the field of solid-liquid separation; working for diverse Industries like WTP, ETP, STP, Municipal/Industrial Water & Waste Water Treatment, Paper & Pulp, Mineral Processing & Ore Beneficiation and Milk of Lime Plants.

The company has In-house Design, Testing, Pilot Facilities for Establishing its designs & continues to deploy latest Analysis/Design tools for Process Equipment Design. Combined with In-house Manufacturing Capacity with over 44000 Sq.Ft. Working area with 8 EOT Cranes facilitates working of about 100+ team turning out more than 1150 tons of steel per annum.

Strategically located facilities in & around **Mumbai** our office & manufacturing facilities are easily accessible for representatives, heavy vehicles & port facilities. We at INDOFAB are glad to retain more than 75% of our repeat clients due to our efficient after sales **spares & services** for decades together.

Few of our Esteemed Clients / Consultants we work for



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