

OUR ESTEEMED CLIENTS



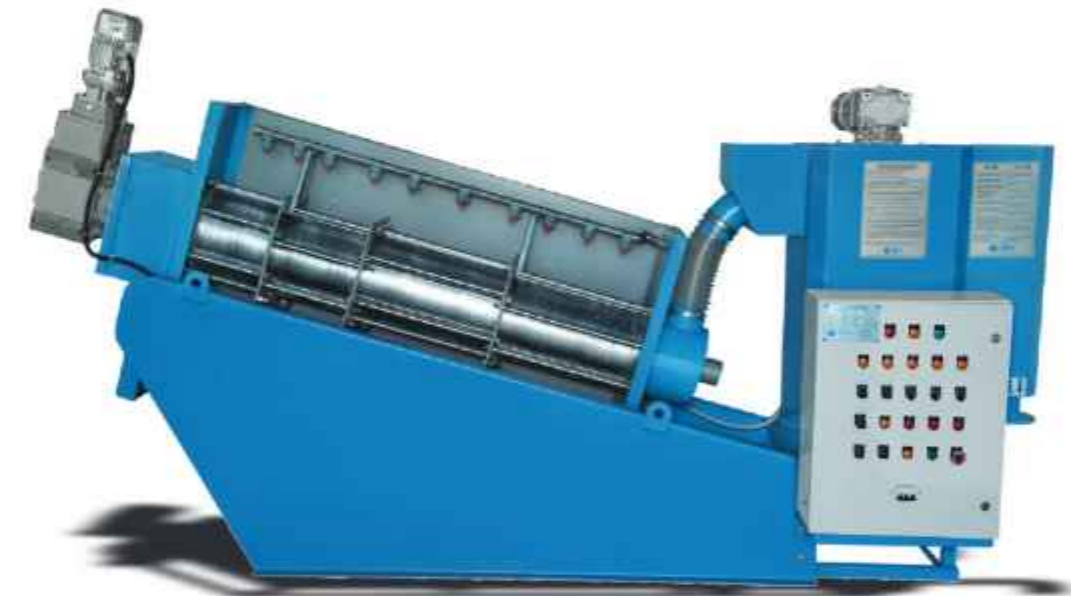
An ISO 9001-2015 Company  
dynamicequipments.co.in



**Dynamic Equipments Private Limited**  
Environmentally Conscious



# MULTI-DISC SCREW PRESS DOSING SYSTEM AGITATORS - MIXERS



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**Dynamic Equipments Private Limited**  
Environmentally Conscious



A company that has been trusted since decades for changing the way of manufacturing in different segments. We provide the latest technology with high quality standards.

We are environmentally conscious and we look forward to support you by providing unique machine for your waste water management. We believe that cost is no long forgotten and only the quality is remembered forever. This the mantra that we follow at DEPL.

**"Our Quality and service are our success tools"**

## Company Overview

Dynamic Equipments Private Limited (DEPL) which was founded in the year 1993 as a textile power-looms manufacturing company based out of Ahmedabad. DEPL is one of the affiliate of Dynamic Group.

The group has diversified Dynamic Equipments Private Limited, into wastewater & sludge treatment equipment by launch of its first series of Multi Disc Screw Press for solid liquid separation application in sanitary and industrial sectors.

Currently, DEPL offers solid liquid separation solution for more than 24 models and capacities ranging from 0.5 cum to 45 cum/hr for upto 10% w/w solids concentration. With a dedicated design engineering and product development division our products have an application of intensive cutting-edge research and development. Moreover, with an experience of making 150000 equipment, Dynamic group has extensive experience in precision manufacturing which reflects in the quality, workmanship and built of its Multi Disc Screw Press.



## Infrastructure

Dynamic equipments have it's manufacturing facilities at Ahmedabad

spread over

**60,000**  
Sq.Ft. land

and in it have factory dome of

**45,000**  
Sq.Ft

We have our own in house facilities such as Design Department, Fabrication Workshop, CNC Laser Cutting Division, CNC Bending, CNC Turning and Vertical Milling Division and Strong team of Sales and service support.

# Agitators & Mixers



Applications for mixing and agitation we offer

## Sludge & Slurry mixing

Sludge or slurry which is mixture of liquid and solids with a concentration of solids up to 10% solids w/w involves an optimized design and sturdy construction to handle high reverse torque generated due to very high viscosity and specific gravity of the fluid.

We have installation in many applications like

- Biogas slurry mixer
- STP, WTP & ETP sludge sump mixer
- Raw effluent mixing in collection tank with high solids concentration

## Mixers for dosing tanks and reactions vessels

Mixing of dosing tanks becomes very critical for homogenizing the dosing solution so that there is optimized dosing and there is minimum economical loss due to overdosing.

Flocculators for water and wastewater treatment plant

Flash mixers-for water treatment and chemical reaction

# Chemical Dosing System

We provide chemical dosing system for variety of chemicals & solutions as described below:

- Caustic dosing system
- Polyelectrolyte dosing system
- HCl dosing system
- H<sub>2</sub>SO<sub>4</sub> dosing system
- Hypochlorite dosing system
- Antiscalant dosing system
- RO plant chemical dosing system



# Polyelectrolytes For Dewatering

We just don't supply polyelectrolytes, we help you buy them !!

## How we help you choose the right solutions?

Date: 21-Dec-22	<b>R&amp;D Report</b>	Prepared by: Paakaj Golla
Document Code:	R&D/18/12/22/RA-CHEM	
Company Name:	RA-CHEM PHARMA PVT.LTD	
Sample Characteristics:	Fluid Waste (ILI TDS/BIO SLUDGE/COOLING TOWER)	
Sample Drawn by:	Vikal Chaudhary	
Treatability Carried out by:	Harshad Solvi	

<b>3. Results &amp; discussion</b>			
Company Name:	RA-CHEM PHARMA PVT.LTD		
Electrolyte:	Poly electrolyte		
Sample Name:	High TDS	Bio Sludge	Cooling Tower
Sample Taken for analysis:	200 ml	200 ml	200 ml
Duration of study:	2 days	4 days	2 days
Initial pH:	8.50	8.80	5.60
Initial TSS:	67384 mg/l	53119.17 mg/l	2221.17 mg/l
Initial Chloride:	64886.40 mg/l	18011.30 mg/l	2786.30 mg/l
Used Poly electrolyte type (CMBHC):	245 CMB	245 CMB	245 CMB
PAC Concentration:	-	1%	-
PAC dosing mg:	-	20 mg	-
Poly Concentration:	0.1 %	0.1 %	0.1 %
Poly dosing mg:	3.2 mg	20 mg	6 mg
After Treatment pH:	7.10	8.00	6.70
After Treatment TSS:	4248.95 mg/l	306.10 mg/l	116.25 mg/l
After Treatment Chloride:	75437.60 mg/l	754.36 mg/l	1780.34 mg/l
Ability of flocculation:	99.97 %	85 %	91 %

- Objective:**
  - Assessment of sludge volume removing efficiency and Polyelectrolyte for effectiveness in coagulating the raw water provided from RA-CHEM PHARMA PVT.LTD
  - Testing sludge concentration

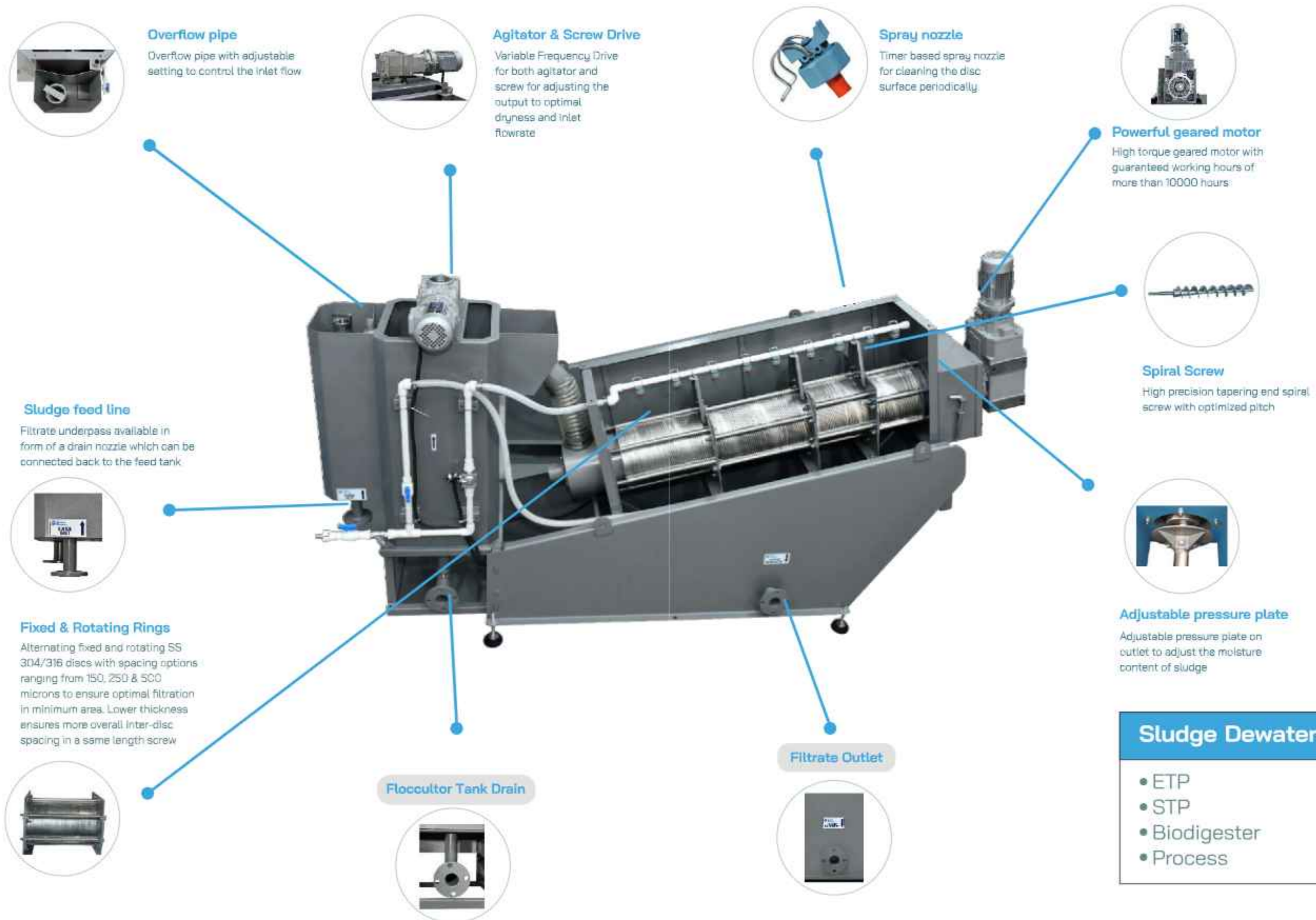
- Methodology:**
  - Study - 01: Sludge volume removing efficiency (% of sludge volume settles in 500 ml beaker)**
    - The effectiveness of different kinds of poly is examined through random dose to the samples and select the poly for the further treatment
    - The fluid sludge samples were divided in 200 ml of each sample and Industrial Grade Poly



Raw Sample Coagulated supernant and sludge separated by decanting into a beaker

Rigorous Lab testing for selection of right type and amount of DWPE

# Multi Disc Screw Press - Solid Liquid Separation Technology



**Sludge Dewatering for**

- ETP
- STP
- Biodigester
- Process

## Working Principle - Stages of Sludge Dewatering

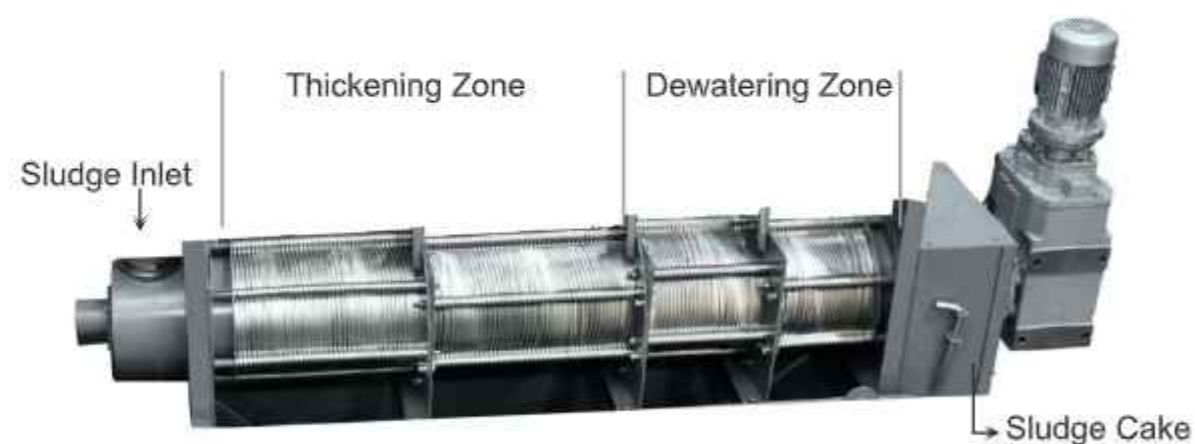
### Flocculation

Floc formation is carried out by surface charge stabilization with the help of polyelectrolyte as per sludge characteristics by trial with different polyelectrolytes. This operation takes place in the flocculation tank of the screw press supported by the paddle type agitator at 4-8 RPM



### Thickening

After flocs are formed the affinity of solids with the water reduces and a significant portion of water is separated through the gap between discs by draining action. This operation takes place in the thickening zone i.e. the initial 50% of the screw length



### Dewatering

The thickened sludge is now displaced gradually toward the tapering end of the screw, which pushes the thickened sludge towards the pressure plate to squeeze out the remaining moisture so that the cake dropped is of >20-21% w/w consistency

### Filtrate Recycling

The filtrate is then recycled to the collection tank by gravity or by pumping

## Multi Disc Screw Press vs Centrifuge vs Filter Press

A typical case of 10 cum/hr feed flow @ 2% solids w/w

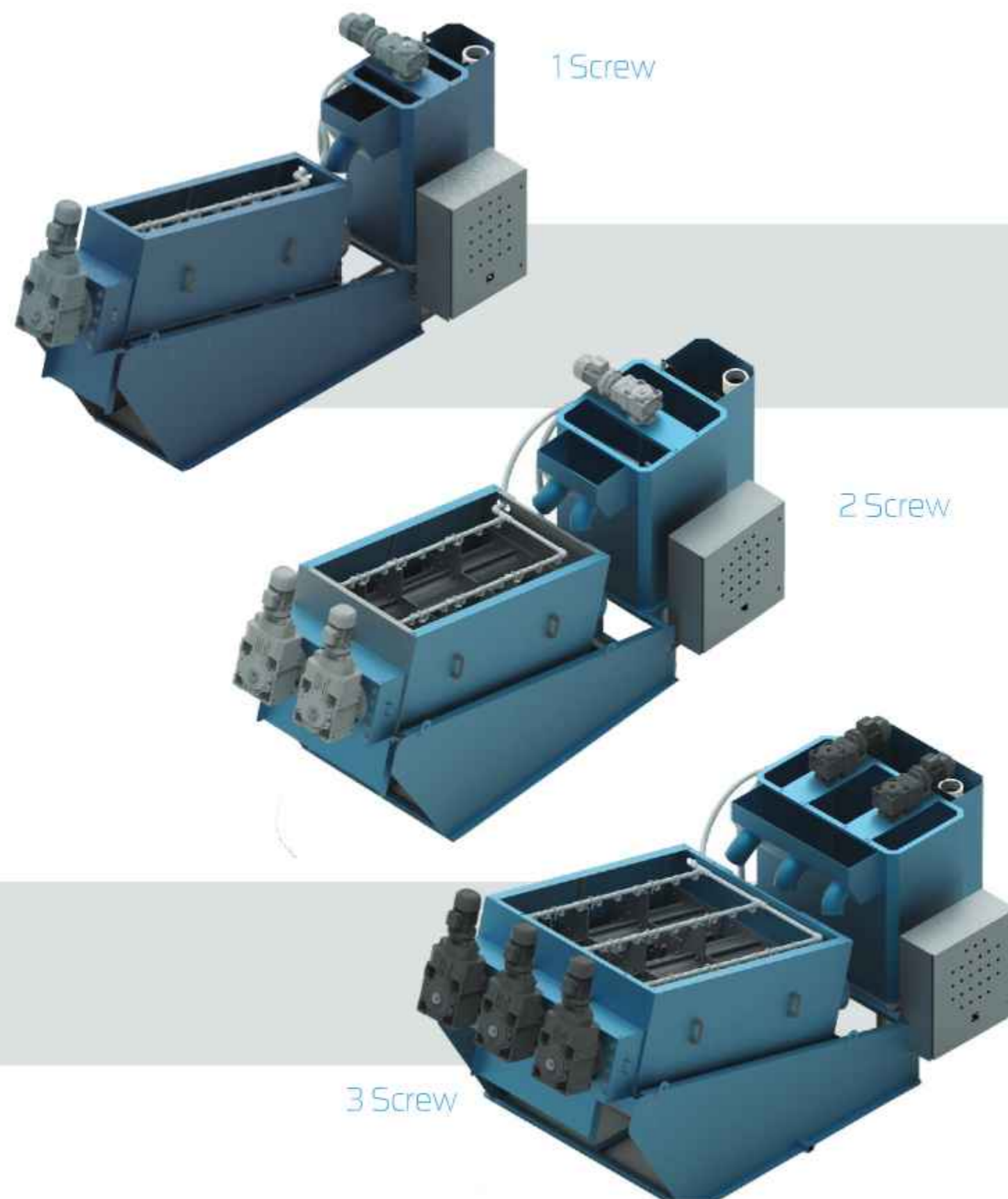
Parameter	Multi Disc Screw Press	Centrifuge Decanter	PP Filter Press
Power Consumption	1kW *	20kW *****	5kW ***
Maintenance-Mechanical	Operated at only 4 RPM with almost zero wear & tear; Complete built is in SS 304/316 *	Operated at around 4000 RPM with high chances of major wear & tear; Only water contact parts are in SS and rest is in MSEP *****	Replacement of cloth due to clogging. Build is generally MSEP thus high corrosion potential **
Solid Content of Sludge Dewatered	20-25%w/w (75-80% moisture)	18-20%w/w (80-82% moisture) ***	20-25%w/w (75-80% moisture) *
CAPEX	10% higher than owning a centrifuge or filter press ***	Highest cost in the category *****	Lowest cost **
Recurring CAPEX	Almost zero *	Very High due to vibrations and bearing replacement *****	Medium mostly requires replacement of filter cloth ***
Chemical Cost	50% of that from centrifuge when processing biological sludge **	Highest requirement of polyelectrolyte *****	Almost same as the Screw Press **
Noise & Vibrations	No noise and vibrations as all moving parts are at low RPM *	Very high noise level *****	No Noise as no moving parts except the feed pump *
Labor Cost	No labor cost of manual handling of sludge as it is in continuous application *	No labor cost of manual handling of sludge as it is in continuous application *	Very high labor intensive due to cleaning of cloth and changing the cloth *****

## Model Selection

SR.	NAME	SCREW DIMENSION	No of screw
1	MEERA 01 ECO	Φ100 X 1235MM	1
2	MEERA 01	Φ100 X 1660MM	1
3	MEERA 51	Φ150 X 1660MM	1
4	MEERA 52	Φ150 X 1660MM	2
5	PRUTHVI 01	Φ200 X 2250MM	1
6	PRUTHVI 02	Φ200 X 2250MM	2
7	PRUTHVI 51	Φ250 X 2310MM	1
8	PRUTHVI 52	Φ250 X 2310MM	2
9	PRUTHVI 53	Φ250 X 2310MM	3
10	VAYU 01	Φ300 X 2310MM	1
11	VAYU 02	Φ300 X 2310MM	2
12	VAYU 51	Φ350 X 2310MM	1
13	VAYU 52	Φ350 X 2310MM	2
14	AGNI 01	Φ400 X 2880MM	1
15	AGNI 02	Φ400 X 2880MM	2
16	AGNI 03	Φ400 X 2880MM	3

## Machine USP Chart

SR.	MATERIAL	BRAND
1	STAINLESS STEEL 304/316	JINDAL STAINLESS LIMITED (JSL)
2	MACHINE BODY PAINT ( PRIMER- UNIVERSAL)	JOTUN (NETHERLANDS)
3	BODY INNER SIDE PAINT (PRIMER- UNIVERSAL)	JOTUN (NETHERLANDS)
4	ELECTRICAL PANNEL PAINT (RAL 9010- WHITE)	POWDER COATING
5	ELECTRICAL PANNEL CABLES	RR KABEL
6	PANNEL SWITCH GEAR	SCHNEIDER/MITSHUBISHI
7	PUSH BUTTON	ACTUATOR
8	CONTROL CARD	DYNAMIC EQUIPMENTS PVT LTD (DEPL)
9	AC DRIVES	DANFOSS/MITSHUBISHI
10	GEAR BOX & MOTOR FOR SCREW & MIXING AGITATOR	BONFIGLIOLI/ROTO MOTIVE / NORD EQUIVQLENT
11	HOSE	DUPLON
12	BALL VALVE	AUDCO (L & T) / U-FLOW/EQUIVALENT
13	SOLENOID VALVE	U-FLOW/ROTEX/ EQUIVALENT



# How to rightly size your sludge dewatering equipment?

- First question – What is your plant capacity ? If it's a ETP/STP/WTP plant
- Typically, sludge generation is a function of the plant capacity and the type of wastewater

Plant type	% sludge generation of total plant capacity (design)
STP – Normal	1.5-3% (1.5%)
STP – SBR Government	1%
ETP - Textile	6-10%
ETP - Food	5-10%
ETP (General)	55
ETP - Pharmaceutical	6-10%
ETP- General	8%
WTP - Government	1.5%

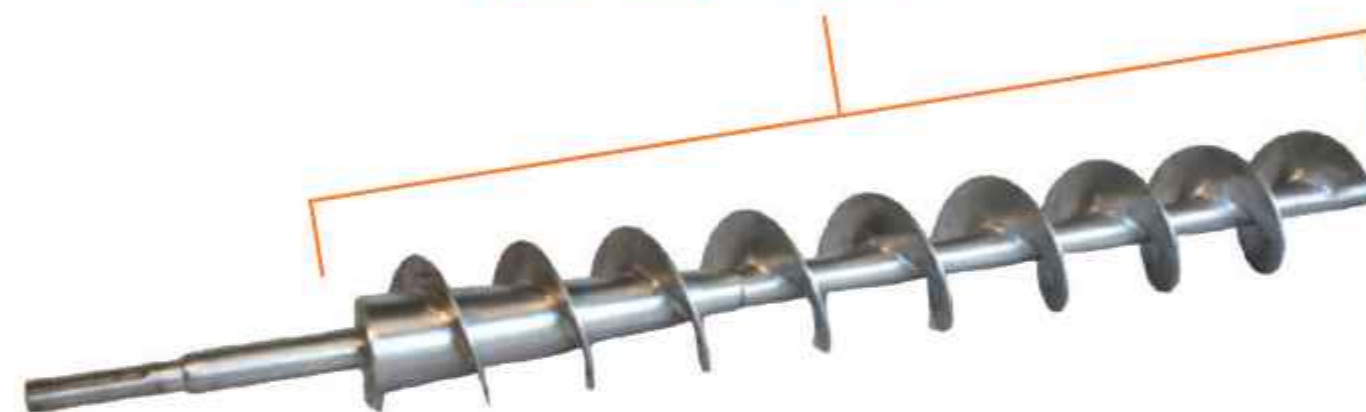
### Example

If plant capacity is **1000 cum/day** then the **sludge generation @ 1.5% = 15 cum/day** and considering horus of operation as 20, the machine capacity = 0.75 cum/hr

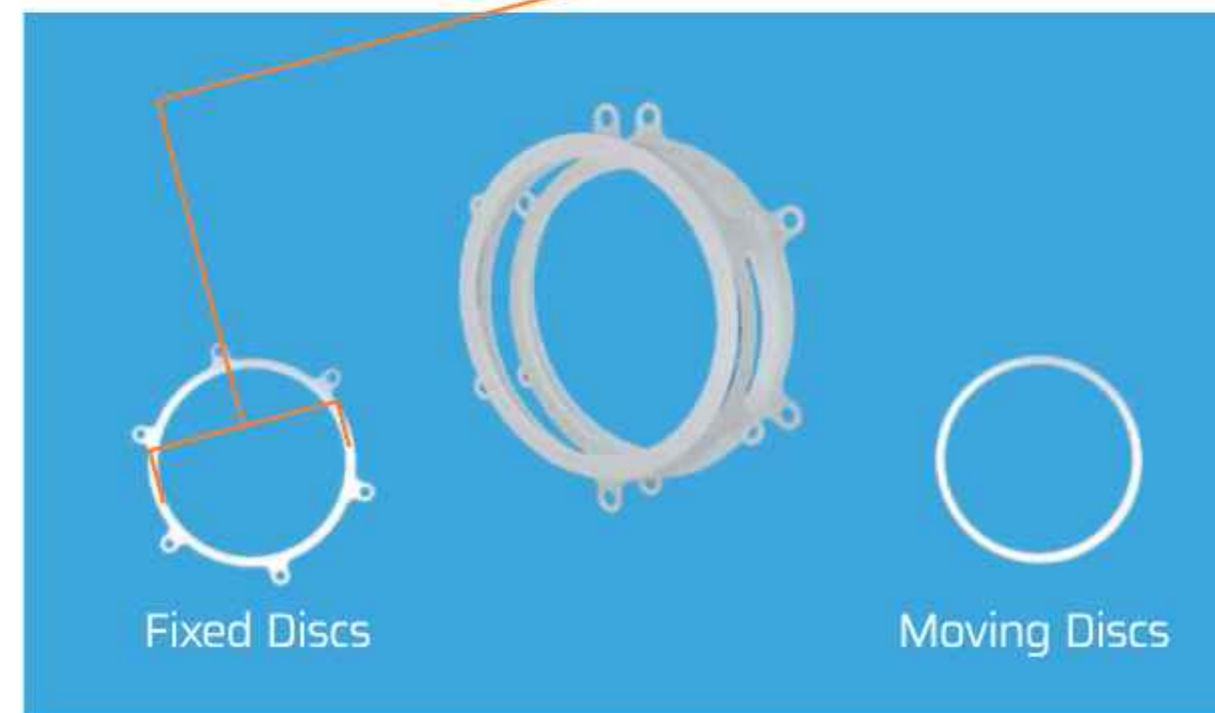
# Most common mistake while selecting screw press !!!

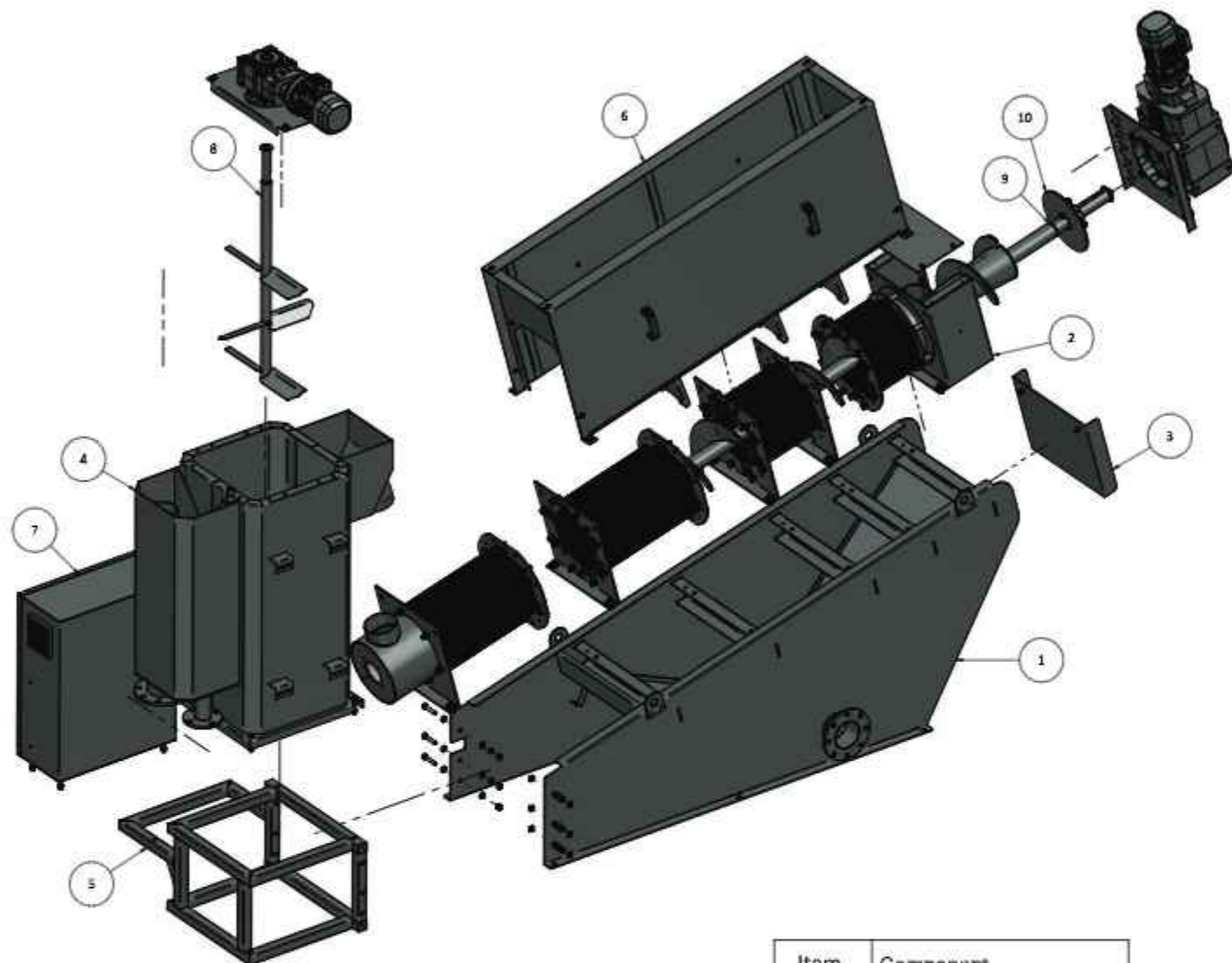
- Screw Diameter (ID of the fixed ring)
- Screw Length - Effective (Only filtration area)
- Spacing of disc (micron spacing between 2 disc)

Ask for effective length



Ask for ID fixed ring





Item No.	Component
1	Structure
2	Screw Body Assembly
3	Sludge Cake Outlet Plate
4	Mixing Tank
5	Mixing Tank Stand
6	Cover set
7	Control Panel
8	Agitator Shaft
9	Screw
10	Pressure Plate



## Why Us?

We are a 45-year-old group with legacy of building >1,75,000 machines in textile, construction and foundry, now diversified in wastewater since 2020.

At DEPL, we differentiate on 4 major aspects

**1. Workmanship** & World Class built quality due to 5 decade of manufacturing experience

**2. Service, Service & Service** - 3 words on which our Sales is built through the years

**3. Transparency** - Our rigorous testing inhouse, we donot compromise on the critical design parameters like screw length and diameter

**4. Overall cost of ownership** - Our NABL sludge testing lab is equipped with the highly trained chemist for support on reducing the chemical cost and overall cost of ownership"