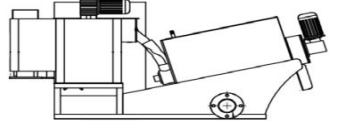
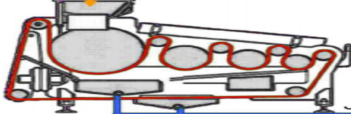
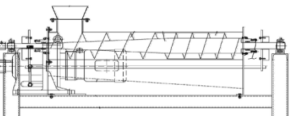
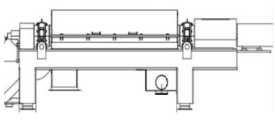
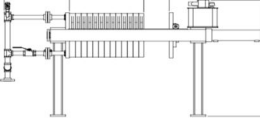


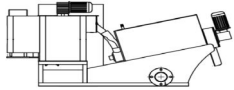
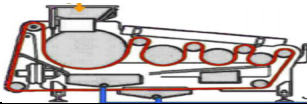
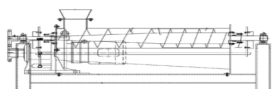
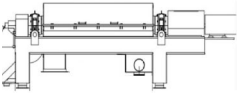


# MICRO GLOBAL SOLUTION

**DEWATERING MACHINES COMPARISON CHART**

Review/ Analysis		MICRO GLOBAL Dewatering Machine	Belt Press	Screw Press	Centrifugal Decanter	Filter Press
						
Dewatering Method	Operating System	Fixed & movable rings with variable pitch screw	Moving filter Belt	Screw and slotted cylinder	Centrifugal force generated by rotating cylinder	Hydraulic Pressure in filter cloth
	Method	<ul style="list-style-type: none"> <li>Layers of fixed and moving rings constructs cylinder. Moving rings whose bore are smaller than the feed screw diameter hence it moves with screw. Gap between fixed rings and moving ring gradually reduce towards sludge outlet.</li> <li>Moving rings prevent clogging and continuously pushes sludge out of the gaps between rings.</li> </ul>	<ul style="list-style-type: none"> <li>Mechanical pressure applied to chemically conditioned sludge, which is sandwiched between two tensioned belts.</li> <li>This machine is basically divided into three zone, first chemically conditioned sludge is put on gravity zone of belt and spreaded by deflector where filtrate is drained by gravity through a belt. In wedging solids are prepared for pressure application and sludge enters in dewatering zone where gradually increasing pressure is applied on belt for dewatering of sludge.</li> </ul>	<ul style="list-style-type: none"> <li>The filtering cylinder body is made wedge wire screen and screw.</li> <li>The wedge wire act as fine screen. As chemically conditioned sludge passes through cylinder, filtrate is drained by gravity in gravity separation zone and gets pressed in de watering zone due to reduced pitch of sludge conveying screw.</li> </ul>	<ul style="list-style-type: none"> <li>A screw is housed in high speed rotating cylinder with slight difference in speed..</li> <li>when sludge fed to rotating cylinder solids travel towards side wall of cylinder due to centrifugal force and liquid remains at center.</li> <li>due to difference in speed deposited solid gets scraped by screw conveyor. Both solid and liquid discharged from different port.</li> </ul>	<ul style="list-style-type: none"> <li>Filter press consists of a number of plates and frames, each plate is covered with filter cloth made with woven material.</li> <li>The sludge fed to the cavity surrounding with filter cloths, filtrate discharged through the system. The filtering medium retains suspended solid.</li> <li>Solid content and remaining water built a cake on the surface of the filter media and gets discharged by opening of plates and frames.</li> </ul>
Advantages		<ul style="list-style-type: none"> <li>No need of thickeners</li> <li>Low power &amp; wash water consumption.</li> <li>Also work on low concentration sludge.</li> <li>Low noise and no vibration</li> </ul>			<ul style="list-style-type: none"> <li>can be installed in food grade application</li> </ul>	<ul style="list-style-type: none"> <li>Lowest initial cost.</li> </ul>
Disadvantages			<ul style="list-style-type: none"> <li>Frequent Clogging and rupture of belt</li> <li>High power and wash water consumption.</li> <li>oily sludge can not handled.</li> <li>Continuous operation without operator is not feasible</li> <li>Maintenance is Difficult.</li> </ul>	<ul style="list-style-type: none"> <li>Frequent clogging</li> <li>In case of cylinder damage, complete cylinder to be replaced.</li> <li>Maintenance is Difficult.</li> </ul>	<ul style="list-style-type: none"> <li>High noise and vibration generation.</li> <li>High power consumption.</li> <li>High operating cost.</li> <li>Maintenance is extremely difficult</li> </ul>	<ul style="list-style-type: none"> <li>Frequently clogs.</li> <li>Incapable of handling oily sludge.</li> <li>The high pressure pump is required.</li> <li>Can not run without operator</li> </ul>
Coagulant		Required	Required	Required	Required	Required (Depends on Unit)
Water content at outlet		80% or less	80% or less	85% or more	82% or more	80% or more
Rinsing water consumption		Extremely Low (Only for shower)	High (High pressure water washing necessary)	Medium (High pressure water washing necessary)	Low	Medium (High pressure water washing necessary)
SS Recovery		95% or more	90-95%	90-95%	90-95%	95-98%
Electric Power Consumption		Very low	High	High	Extremely High	High
24 H Operation		Yes	Not Recommended	Yes	Yes	No
Maintenance		Easy	Difficult	Difficult	Difficult	Difficult
Equipment Size		Small	Large	Large	Medium	Medium
Noise/Vibration		Extremely Low	Comperatively high	Low	Extremely High	low
Thickening Tank		Not required	Required	Required	Required	Required

***COST COMPARISON CHART***

Overall Review/ Analysis		<u>MICRO Sludge Dewatering Machine</u>	<u>Belt Press</u>	<u>Screw Press</u>	<u>Centrifugal Decanter</u>
					
<b>Operating System</b>		Multiple Fixed & movable rings screw press	Movable Belt	Screw	Centrifugal force
<b>Rinsing Water</b>		0.04 m3/hr	3.0 m3/hr	0.5 m3/hr	1.0 m3/hr
<b>Electrical Power</b>	Filter body motor	0.4 kW	2.0 kW	1.5 kW	10.0 kW
	Flocculation Tank Motor	0.4 kW	Excluded in the unit	Excluded in the unit	Excluded in the unit
	<b>Total</b>	0.8 kW	2.0 kW + Flocculation Tank	1.5 kW + Flocculation Tank	10.0 kW + Flocculation Tank
<b>Installation Space</b>		3.2 m2	5.0 m2 + Flocculation Tank	4.0 m2 + Flocculation Tank	4.0 m2 + Flocculation Tank
<b>Maintenance Time</b>	Daily	5 min/day (Normally)	Same as operation time	Depends on operation condition	Depends on operation condition
	Overhaul	2 Days	Over 3 Days	Over 3 Days	Over 3 Days
<b>Flocculation Tank</b>		Unnecessary (Included in the Unit)	Required	Required	Required
<b>Thickening Tank</b>		Unnecessary (Included in the Unit)	Required (Sludge need to be thickened)	Required (Sludge need to be thickened)	Required (Sludge need to be thickened)

