
AMCON

Sludge dewatering technology

 ***VOLUTE***TM



THERE'S ONLY ONE ORIGINAL

VOLUTE™ Dewatering Press Unlike Any Other

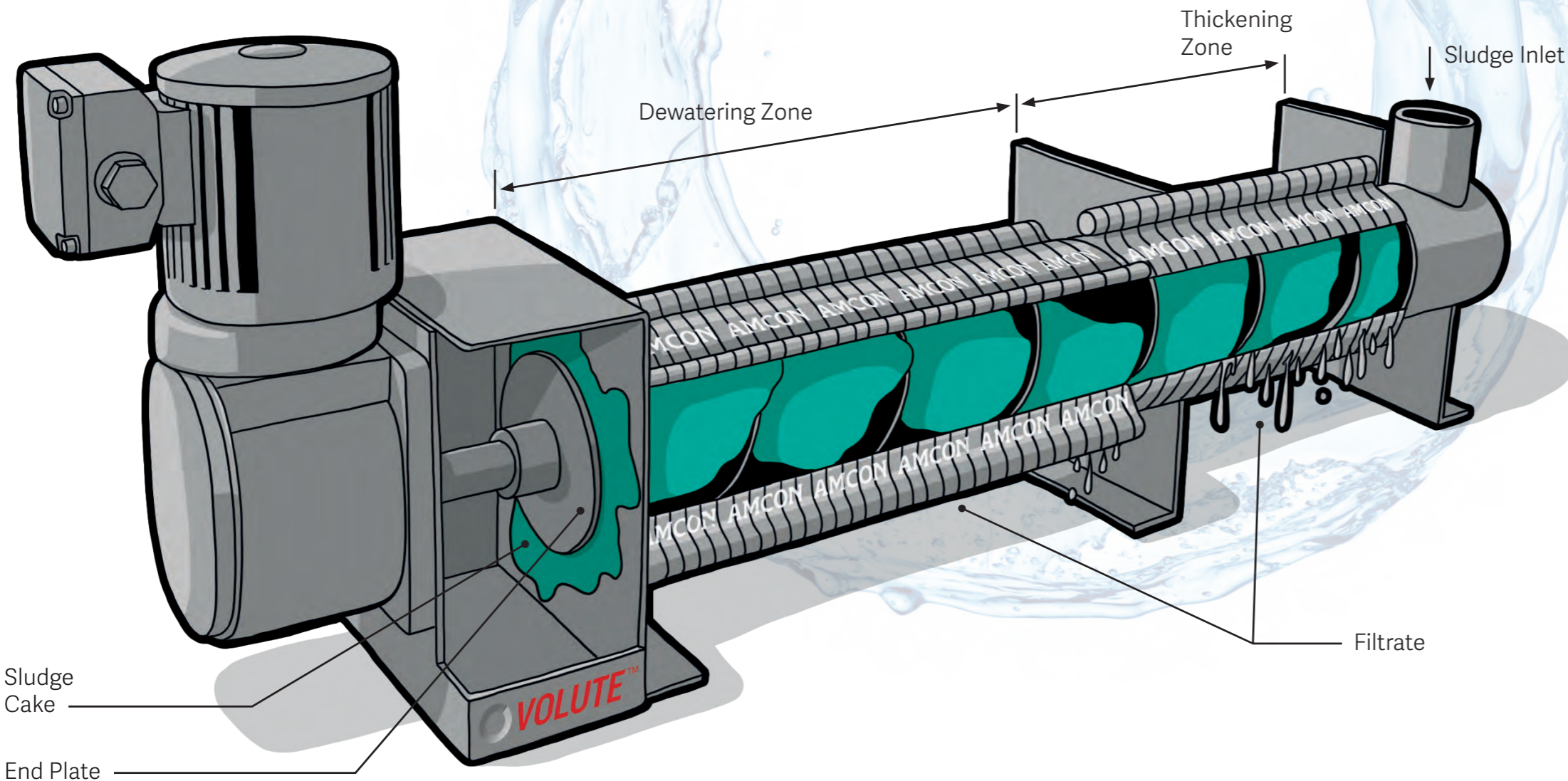
The performance of dewatering equipment is enhanced by removing clogging which could considerably block the discharge of the filtered liquid. AMCON's dewatering press is equipped with a unique technology, which allows sludge dewatering while automatically self-cleaning the filter mesh. This enables stable and constant dewatering without depending on high amount of water consumption to prevent clogging.



Our aim is to:
"Provide amenity and convenience beyond expectation."

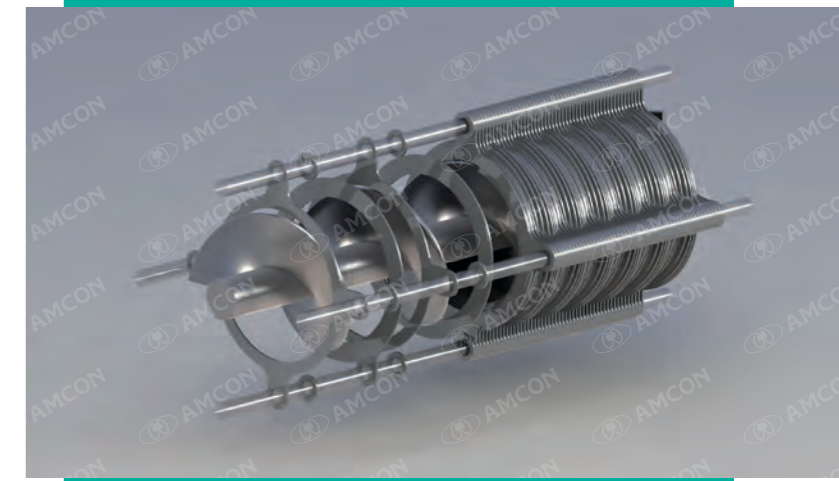
In 1991, AMCON brought VOLUTE™ into the world where nobody had ever seen such a unique filter element. AMCON's previous experience as an operator of sludge dewatering equipment and wastewater treatment plants urged us to develop a user-friendly sludge dewatering press.

After 10 years, we completed the development of VOLUTE™ technology, the filter elements with multiple layered Rings. Continuous efforts to develop and improve the technology are to provide the wastewater treatment facilities with efficient, stable and reliable sludge dewatering system.



VOLUTE™ technology

VOLUTE™ is constructed of a filter element that consists of two types of Rings: Fixed Rings and Moving Rings; and a screw that thrusts the filter element and transfers and pressurizes the sludge. The gaps between the Rings and the screw pitch are designed to get gradually narrower in the direction of the sludge cake outlet. The inner pressure of the filter element increases due to the volume compression effect, which thickens and dewateres the sludge.



Advantages of VOLUTE™



Easy operation and maintenance

Intuitively understandable operation system adopted. Monitoring of the operation settings is very easy. A 24-hour unattended operation is possible without daily maintenance.



No pre-thickening required

There is no need to pre-thicken the sludge. VOLUTE™ has got 2 built-in thickening functions, the first one in the Thickening Flocculation Tank and the second one in the VOLUTE™ cylinder. One compact unit can thicken and dewater the sludge all at once.



Water-saving

VOLUTE™ prevents filter mesh from clogging with its unique self-cleaning mechanism, reducing the need of huge amounts of rinsing water to prevent clogging.



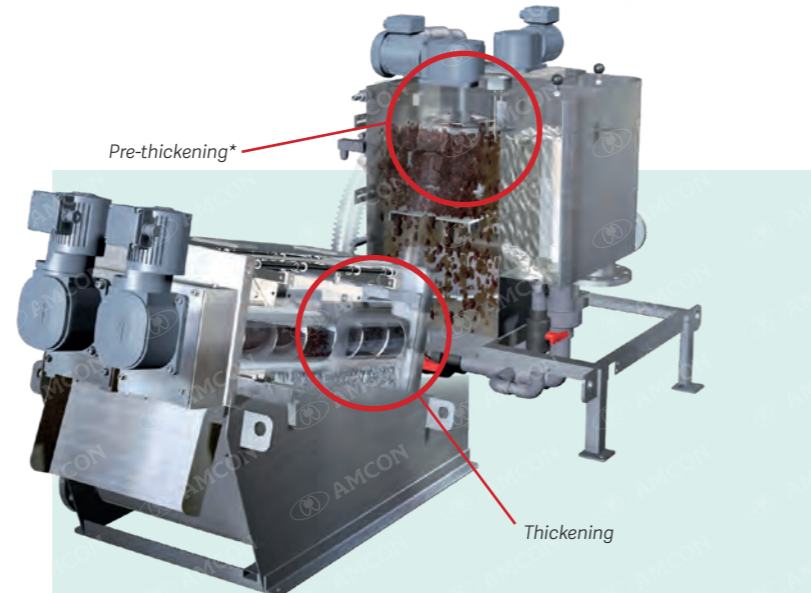
Power saving

The screw, which is the main component of VOLUTE™, rotates very slowly at a rate of 2 to 4 rpm so it consumes very little energy and is thus economical.



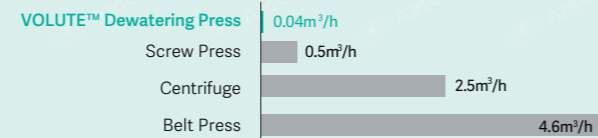
Low noise/Low vibration

Because VOLUTE™ has no high speed rotating body, there is no concern about noise and vibration. A comfortable work environment is secured.



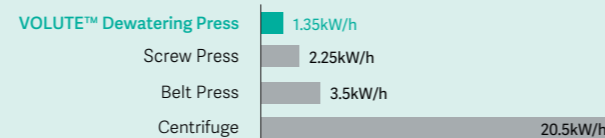
* Pre-thickening is a standard function of VOLUTE™ GS series. More information about GS series can be found further in this brochure.

Comparison of rinsing water consumption of various sludge dewatering equipment (throughput 45 kg-DS/h)



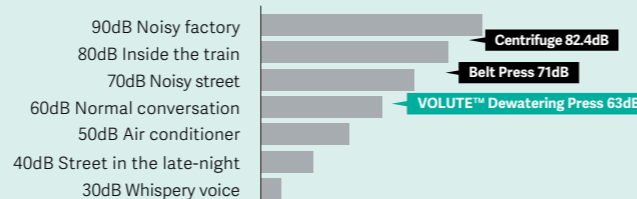
*Figures are based on research by AMCON

Comparison of power consumption of various sludge dewatering equipment (throughput 30 kg DS/h).



*Figures are based on research by AMCON

Sludge dewatering equipment noises compared to those of daily life.



*Figures are based on research by AMCON



High Resistance to Oily Sludge

The self-cleaning mechanism makes VOLUTE™ an ideal solution to dewater oily sludge, which often causes clogging. Most of other dewatering technologies have difficulties to treat this kind of sludge.



Small Footprint

VOLUTE™ can be installed in places where placement of other technologies would not be possible. This makes VOLUTE™ a wise choice for the customers, who are considering the replacement of existing dewatering equipment.



Two-year Warranty

As a standard, all products come with a two-year warranty. There is an option to extend it to up to 4 years.



Suitable to Various Applications

Municipal water and wastewater treatment plants, industrial waste treatment plants, food/beverage production plants, dairy farming, meat processing plants, chemical manufacturing plants, machinery manufacturing plants, metal processing plants, laundry wastewater, etc.



Expandable throughput

The throughput of VOLUTE™ can be easily expanded ad hoc by adding a cylinder unit if an extendable base is chosen. In case of sludge production increase, the customer easily and immediately handles the situation.

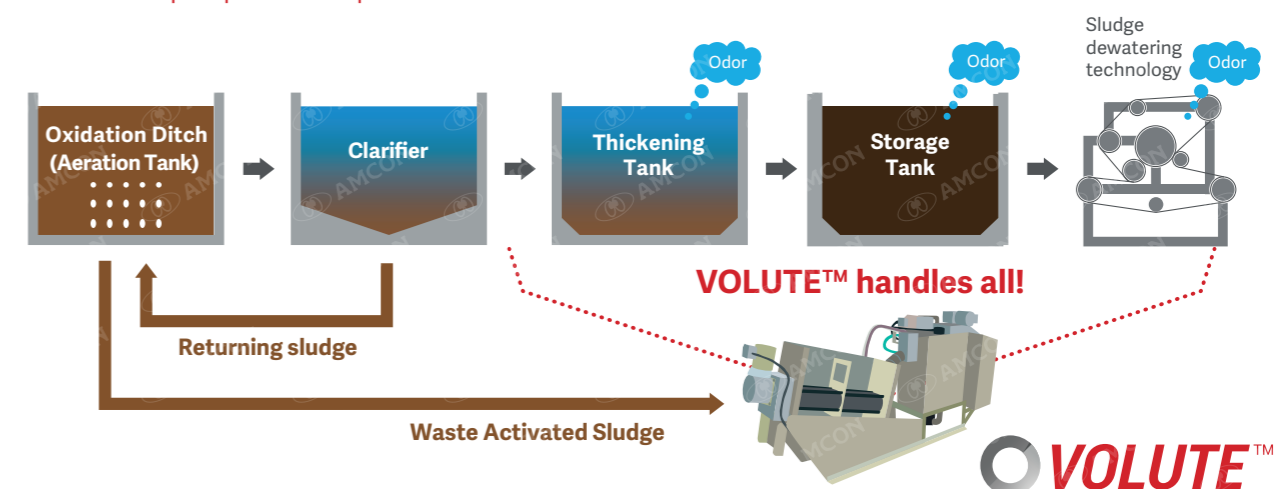
VOLUTE™ introduced a revolution in sludge treatment – Direct dewatering from aeration tank

In the past times, sludge was commonly thickened before dewatering, but the development of VOLUTE™ Dewatering Press, consisting of a filter drum with both thickening and dewatering zone, changed this notion.

Thanks to the unique structure, VOLUTE™ Dewatering Press can handle low concentrated sludge at 0.2% directly without any pre-thickening stage and is used in a great number of small-scale sewage treatment plants over the world for dewatering sludge directly from aeration tank.

Advantages of direct dewatering from aeration tank

- 1) Reduction of investment costs for thickening, storage equipment and operation costs
- 2) Removing odor by dewatering fresh aerobic sludge
- 3) Reduction of the phosphorus load present in the treated wastewater

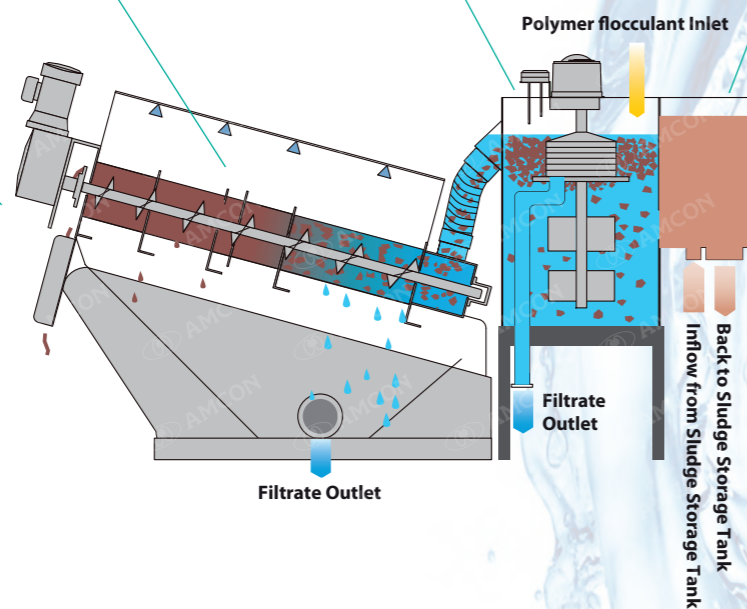
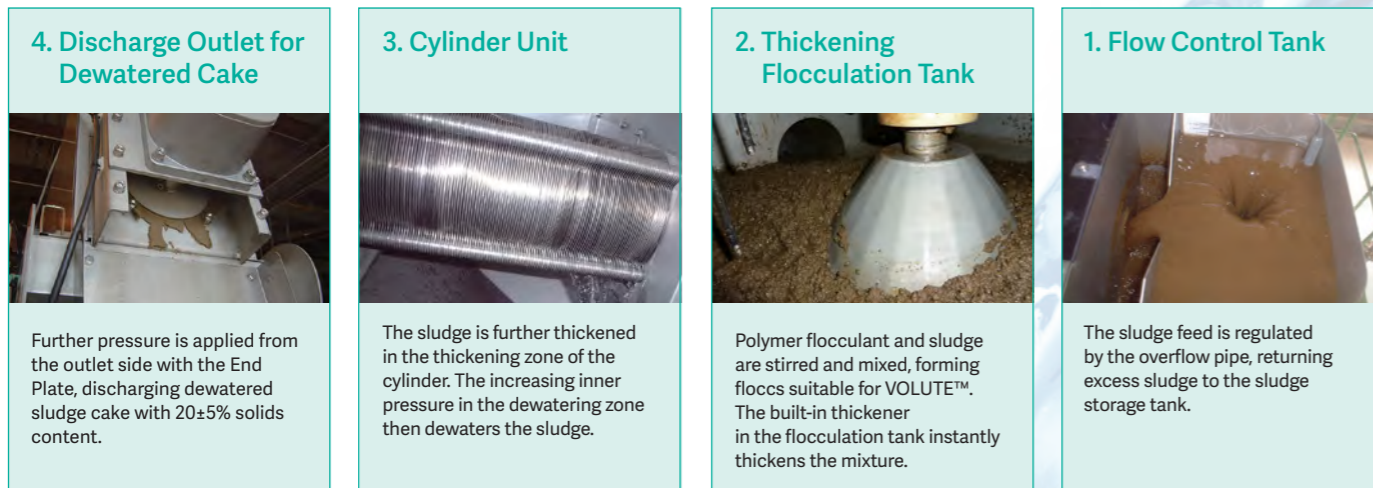


Presented to the public for the first time as a result of joint research of AMCON and Japan Sewage Agency in 1998.

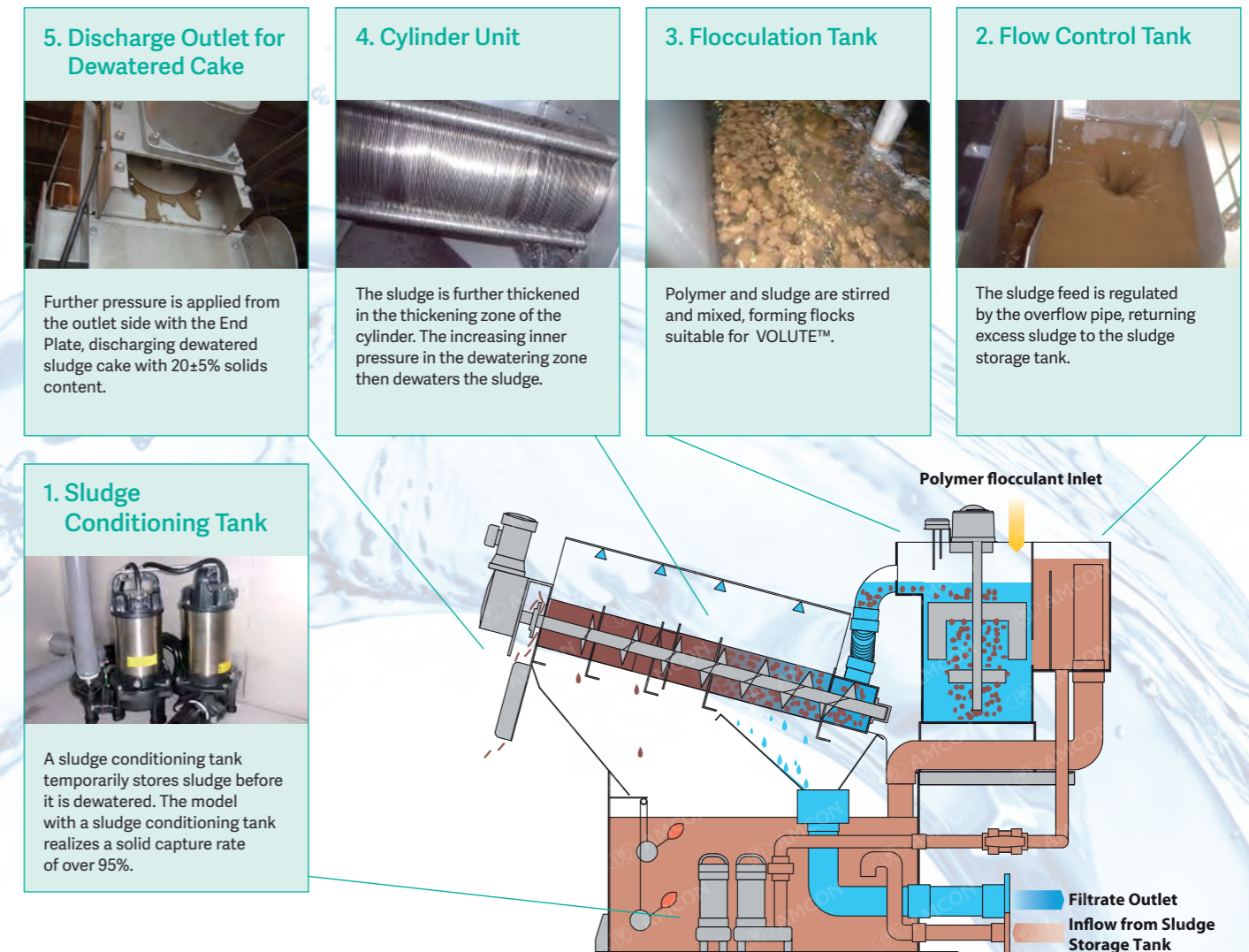
Process Flow

There are two types of main body configurations (with/without sludge conditioning tank) available, based on customer requirements.

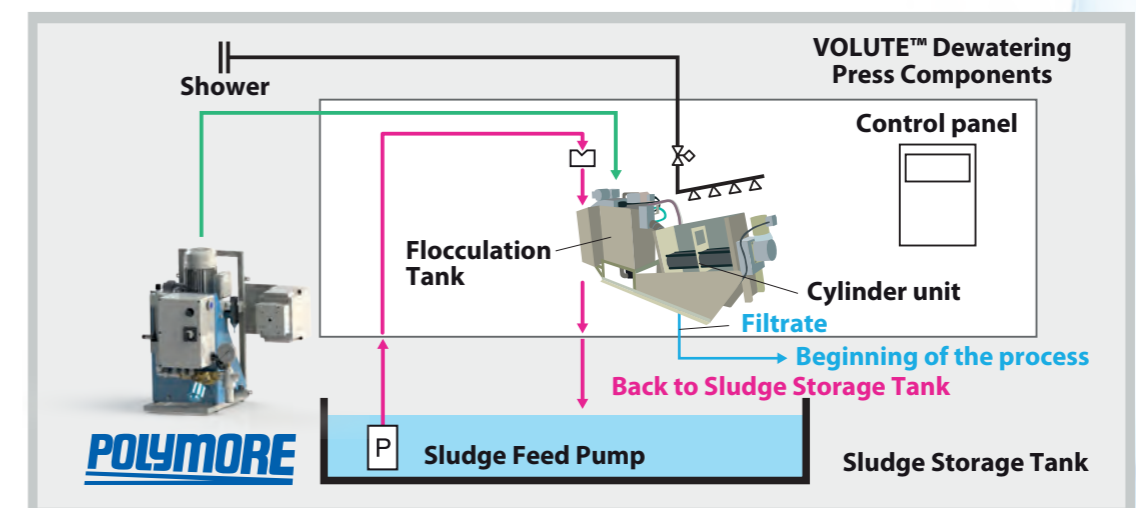
Model without sludge conditioning tank (GS Series)



Model with sludge conditioning tank (EC Series)



Flow sheet

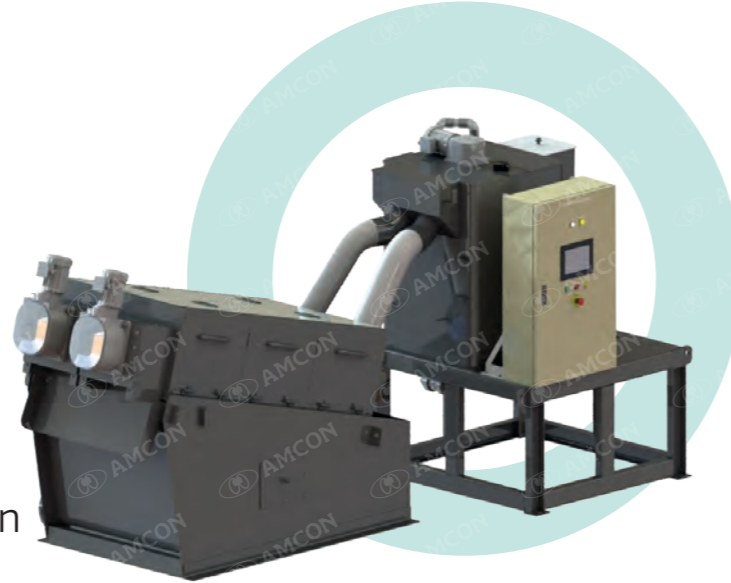


For process flow animation follow the link below.
<https://www.amcon-eu.com/process-flow/>

Sludge Dewatering Press

VOLUTE™

FS Series



A basic model with a wide range of throughputs. This model is not equipped with the conditioning tank nor with Thickening Flocculation Unit. With an HMI control panel provided as standard, various automation options are available.

Specifications List



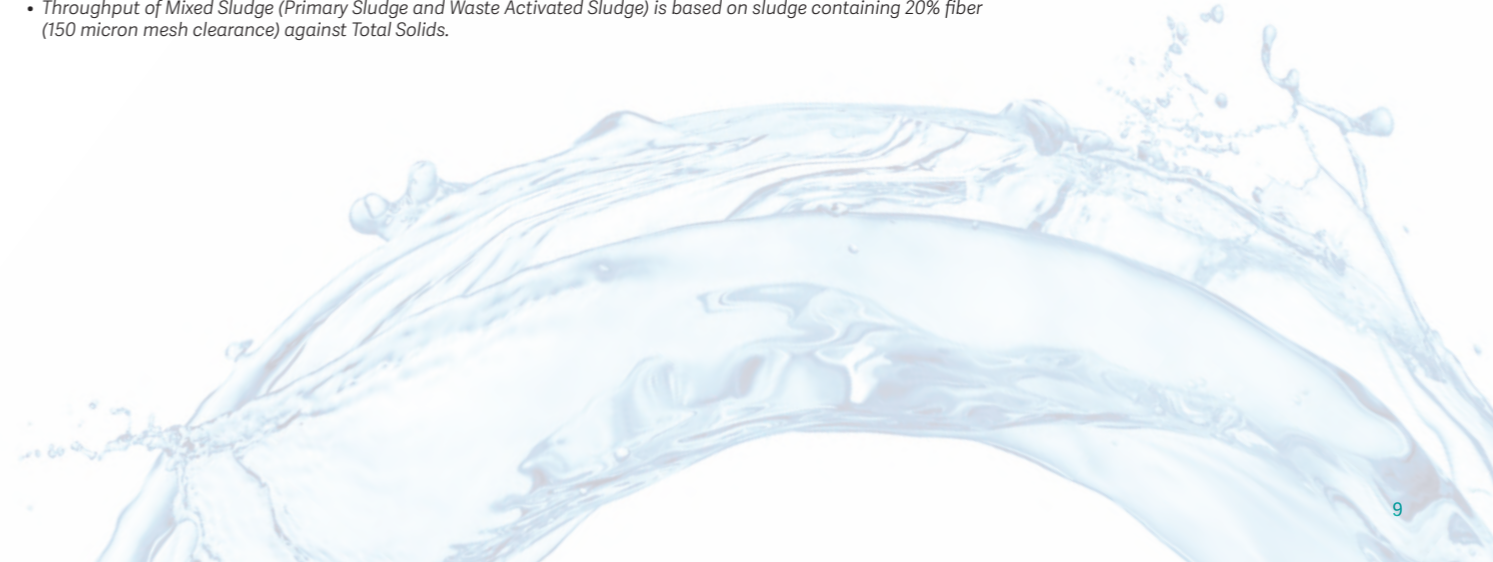
Model	Dimensions [mm]			Total Power Consumption [kW]	Weight [kg]	
	L	W	H		Empty	Operation
FS-101	1780	750	1180	0.2	200	260
FS-131	1935	750	1180	0.2	220	270
FS-132	2026	867	1180	0.3	370	585
FS-201	2535	858	1300	0.3	455	603
FS-202	2614	1058	1613	0.73	905	1270
FS-301	3178	963	1808	0.74	895	1185
FS-302	3484	1290	1808	1.11	1395	2075
FS-351	3859	1143	2289	1.87	1570	2170
FS-352	3948	1463	2289	3.75	2710	3660
FS-401	4778	1335	2240	2.25	1940	3250
FS-402	4816	1623	2247	4.5	3380	4830
FS-403	5306	2247	2247	6.7	5310	7770
FS-404	6057	3200	2247	9	7510	12360

• The above figures apply to models with one chemical inlet. There are models with two chemical inlets available, please contact us for details.
 • Specifications are subject to change without notice. Please, contact us for the most up to date technical information.

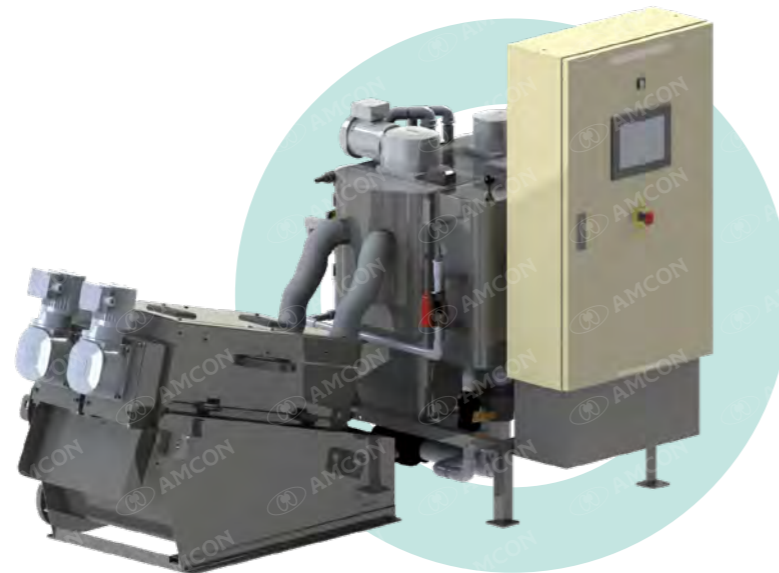
Throughput

Model / Sludge Concentration (TS)	Raw Wastewater /Waste Activated Sludge / Chemically Precipitated Sludge		Dissolved-air Flotation Sludge		Mixed Raw Sludge (Sewage Sludge)
	0.2%	1.0%	2.0%	5.0%	3.0%
FS-101	~ 2kg-DS/h (~ 1.0m³/h)	~ 3kg-DS/h (~ 0.3m³/h)	~ 5kg-DS/h (~ 0.25m³/h)	~ 10kg-DS/h (~ 0.2m³/h)	~ 13kg-DS/h (~ 0.43m³/h)
FS-131	~ 4kg-DS/h (~ 2.0m³/h)	~ 6kg-DS/h (~ 0.6m³/h)	~ 10kg-DS/h (~ 0.5m³/h)	~ 20kg-DS/h (~ 0.4m³/h)	~ 26kg-DS/h (~ 0.87m³/h)
FS-132	~ 8kg-DS/h (~ 4.0m³/h)	~ 12kg-DS/h (~ 1.2m³/h)	~ 20kg-DS/h (~ 1.0m³/h)	~ 40kg-DS/h (~ 0.8m³/h)	~ 52kg-DS/h (~ 1.74m³/h)
FS-201	~ 9kg-DS/h (~ 4.5m³/h)	~ 13kg-DS/h (~ 1.3m³/h)	~ 22kg-DS/h (~ 1.1m³/h)	~ 44kg-DS/h (~ 0.88m³/h)	~ 57kg-DS/h (~ 1.9m³/h)
FS-202	~ 18kg-DS/h (~ 9.0m³/h)	~ 26kg-DS/h (~ 2.6m³/h)	~ 44kg-DS/h (~ 2.2m³/h)	~ 88kg-DS/h (~ 1.76m³/h)	~ 114kg-DS/h (~ 3.8m³/h)
FS-301	~ 20kg-DS/h (~ 10.0m³/h)	~ 30kg-DS/h (~ 3.0m³/h)	~ 50kg-DS/h (~ 2.5m³/h)	~ 100kg-DS/h (~ 2.0m³/h)	~ 130kg-DS/h (~ 4.33m³/h)
FS-302	~ 40kg-DS/h (~ 20m³/h)	~ 60kg-DS/h (~ 6.0m³/h)	~ 100kg-DS/h (~ 5.0m³/h)	~ 200kg-DS/h (~ 4.0m³/h)	~ 260kg-DS/h (~ 8.67m³/h)
FS-351	~ 40kg-DS/h (~ 20m³/h)	~ 60kg-DS/h (~ 6.0m³/h)	~ 100kg-DS/h (~ 5.0m³/h)	~ 200kg-DS/h (~ 4.0m³/h)	~ 260kg-DS/h (~ 8.67m³/h)
FS-352	~ 80kg-DS/h (~ 40m³/h)	~ 120kg-DS/h (~ 12m³/h)	~ 200kg-DS/h (~ 10m³/h)	~ 400kg-DS/h (~ 8.0m³/h)	~ 520kg-DS/h (~ 17.3m³/h)
FS-401	~ 67kg-DS/h (~ 33.5m³/h)	~ 100kg-DS/h (~ 10.0m³/h)	~ 160kg-DS/h (~ 8.0m³/h)	~ 320kg-DS/h (~ 6.4m³/h)	~ 416kg-DS/h (~ 13.8m³/h)
FS-402	~ 133kg-DS/h (~ 66.5m³/h)	~ 200kg-DS/h (~ 20.0m³/h)	~ 320kg-DS/h (~ 16.0m³/h)	~ 640kg-DS/h (~ 12.8m³/h)	~ 832kg-DS/h (~ 27.7m³/h)
FS-403	~ 200kg-DS/h (~ 100.0m³/h)	~ 300kg-DS/h (~ 30.0m³/h)	~ 480kg-DS/h (~ 24.0m³/h)	~ 960kg-DS/h (~ 19.2m³/h)	~ 1248kg-DS/h (~ 41.6m³/h)
FS-404	~ 267kg-DS/h (~ 133.5m³/h)	~ 400kg-DS/h (~ 40.0m³/h)	~ 640kg-DS/h (~ 32.0m³/h)	~ 1280kg-DS/h (~ 25.6m³/h)	~ 1664kg-DS/h (~ 55.4m³/h)

- Throughput above is calculated as approximate and may vary depending on sludge condition. Please, contact us for model selection.
- Throughput of each model is based on sludge cake with 20±5% solids content.
- There is no specific upper limit to the inlet sludge concentration, however, the targeted sludge must be flowable.
- Throughput of DAF Sludge is based on sludge containing much fat, oil, and grease such as meat processing applications, and others.
- Throughput of Mixed Sludge (Primary Sludge and Waste Activated Sludge) is based on sludge containing 20% fiber (150 micron mesh clearance) against Total Solids.



Sludge Dewatering Press VOLUTE™ GS Series



A high-end model including Thickening Flocculation Unit (TFU).

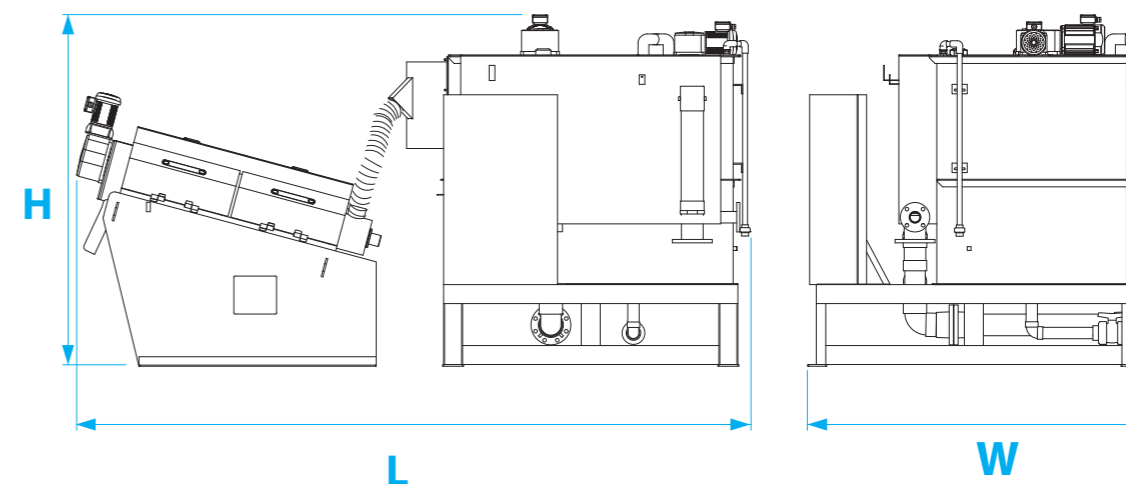
The TFU prethickens sludge with the possible throughput increase as high as 50% compared with FS model. This model is very suitable for raw wastewater applications. With an HMI control panel provided as standard, various automation options are available.

Specifications List



Model	Dimensions [mm]			Total Power Consumption [kW]	Weight [kg]	
	L	W	H		Empty	Operation
GS-101	1899	1140	1440	0.40	330	530
GS-131	2043	1140	1440	0.40	340	540
GS-132	2043	1167	1440	0.50	410	600
GS-201	2593	1153	1440	0.48	605	825
GS-202	3228	1493	1854	1.29	1470	2100
GS-301	3824	1439	1854	1.30	1272	1922
GS-302	4044	1728	1854	1.67	1815	2820
GS-303	4224	2028	1854	2.04	2315	3595
GS-351	4500	1660	2250	2.43	2195	3165
GS-352	5185	1910	2289	5.95	4120	6750
GS-353	5429	2310	2289	7.45	5130	9280
GS-354	5579	2860	2289	8.95	6650	11120

Layout Drawings



Throughput

Model / Sludge Concentration (TS)	Raw Wastewater /Waste Activated Sludge / Chemically Precipitated Sludge	
	0.2%	1.0%
GS-101	~ 3kg-DS/h (~1.5m³/h)	~ 4.5kg-DS/h (~0.45m³/h)
GS-131	~ 6kg-DS/h (~3.0m³/h)	~ 9kg-DS/h (~0.9m³/h)
GS-132	~ 12kg-DS/h (~6.0m³/h)	~ 18kg-DS/h (~1.8m³/h)
GS-201	~ 13kg-DS/h (~6.5m³/h)	~ 20kg-DS/h (~2.0m³/h)
GS-202	~ 26kg-DS/h (~13.0m³/h)	~ 40kg-DS/h (~4.0m³/h)
GS-301	~ 30kg-DS/h (~15.0m³/h)	~ 45kg-DS/h (~4.5m³/h)
GS-302	~ 60kg-DS/h (~30.0m³/h)	~ 90kg-DS/h (~9.0m³/h)
GS-303	~ 90kg-DS/h (~45.0m³/h)	~ 135kg-DS/h (~13.5m³/h)
GS-351	~ 60kg-DS/h (~30.0m³/h)	~ 90kg-DS/h (~9.0m³/h)
GS-352	~ 120kg-DS/h (~60.0m³/h)	~ 180kg-DS/h (~18.0m³/h)
GS-353	~ 180kg-DS/h (~90.0m³/h)	~ 270kg-DS/h (~27.0m³/h)
GS-354	~ 240kg-DS/h (~120.0m³/h)	~ 360kg-DS/h (~36.0m³/h)

• Throughput above is calculated as approximate and may vary depending on sludge condition. For model selection, please contact us.
• Throughput of each model is based on sludge cake with 20±5% solids content.

Sludge Dewatering Press VOLUTE™ EC Series



The EC series standard model VOLUTE™ dewatering press consists of the basic configuration and a sludge conditioning tank.

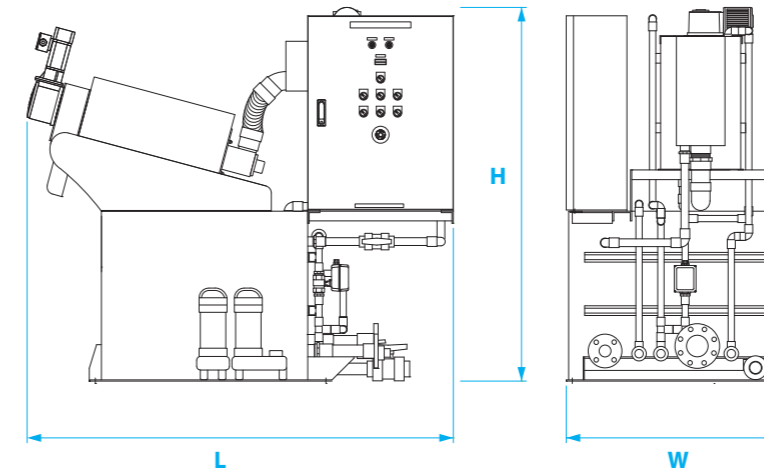
Specifications List



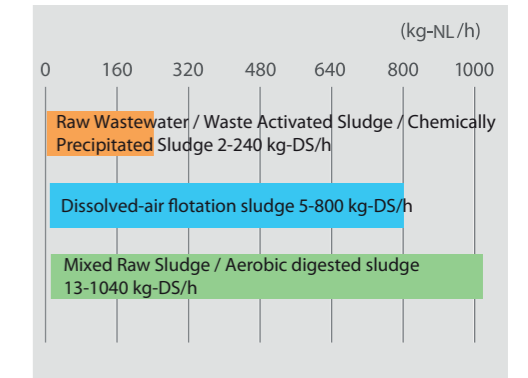
Model	Dimensions [mm]			Total Power Consumption [kW]	Weight [kg]	
	L	W	H		Empty	Operation
EC-101	1831	770	1718	0.7	360	770
EC-131	1970	770	1718	0.7	440	855
EC-201	2564	887	1768	0.8	650	1350
EC-202	2564	1155	1768	1.23	800	1570
EC-301	3327	1037	2224	1.34	960	2070
EC-351	3878	1370	2250	2.47	1690	2670
EC-352	4159	2061	2250	4.5	2730	3910
EC-353	4424	2610	2250	7.1	3940	5710
EC-354	4944	3631	2250	9.3	5680	8740

• Total power consumption may vary depending on the selection of submersible pump.
• The specifications are subject to change without notice. Please, contact us for the most up to date technical information.

Layout Drawings



Throughput Range



Throughput

Model / Sludge Concentration (TS)	Raw Wastewater /Waste Activated Sludge / Chemically Precipitated Sludge		Dissolved-air Flotation Sludge		Mixed Raw Sludge (Sewage Sludge)
	0.2%	1.0%	2.0%	5.0%	3.0%
EC-101	~ 2kg-DS/h (~1.0m³/h)	~ 3kg-DS/h (~0.3m³/h)	~ 5kg-DS/h (~0.25m³/h)	~ 10kg-DS/h (~0.2m³/h)	~ 13kg-DS/h (~0.43m³/h)
EC-131	~ 4kg-DS/h (~2.0m³/h)	~ 6kg-DS/h (~0.6m³/h)	~ 10kg-DS/h (~0.5m³/h)	~ 20kg-DS/h (~0.4m³/h)	~ 26kg-DS/h (~0.87m³/h)
EC-201	~ 8kg-DS/h (~4.0m³/h)	~ 12kg-DS/h (~1.2m³/h)	~ 20kg-DS/h (~1.0m³/h)	~ 40kg-DS/h (~0.8m³/h)	~ 52kg-DS/h (~1.73m³/h)
EC-202	~ 16kg-DS/h (~8.0m³/h)	~ 24kg-DS/h (~2.4m³/h)	~ 40kg-DS/h (~2.0m³/h)	~ 80kg-DS/h (~1.6m³/h)	~ 104kg-DS/h (~3.47m³/h)
EC-301	~ 20kg-DS/h (~10m³/h)	~ 30kg-DS/h (~3.0m³/h)	~ 50kg-DS/h (~2.5m³/h)	~ 100kg-DS/h (~2.0m³/h)	~ 130kg-DS/h (~4.33m³/h)
EC-351	~ 40kg-DS/h (~20m³/h)	~ 60kg-DS/h (~6.0m³/h)	~ 100kg-DS/h (~5.0m³/h)	~ 200kg-DS/h (~4.0m³/h)	~ 260kg-DS/h (~8.67m³/h)
EC-352	~ 80kg-DS/h (~40m³/h)	~ 120kg-DS/h (~12m³/h)	~ 200kg-DS/h (~10m³/h)	~ 400kg-DS/h (~8.0m³/h)	~ 520kg-DS/h (~17.3m³/h)
EC-353	~ 120kg-DS/h (~60m³/h)	~ 180kg-DS/h (~18m³/h)	~ 300kg-DS/h (~15m³/h)	~ 600kg-DS/h (~12m³/h)	~ 780kg-DS/h (~26m³/h)
EC-354	~ 160kg-DS/h (~80m³/h)	~ 240kg-DS/h (~24m³/h)	~ 400kg-DS/h (~20m³/h)	~ 800kg-DS/h (~16m³/h)	~ 1040kg-DS/h (~34.7m³/h)

• Throughput above is calculated as approximate and may vary depending on sludge condition. Please, contact us for model selection.
• Throughput of each model is based on sludge cake with 20±5% solids content.
• There is no specific upper limit to the inlet sludge concentration, however, the targeted sludge must be flowable.
• Throughput of DAF Sludge is based on sludge containing much fat, oil, and grease such as meat processing application and others.
• Throughput of Mixed Sludge (Primary Sludge and Waste Activated Sludge) is based on sludge containing 20% fiber (150 micron mesh clearance) against Total Solids.

Sludge Dewatering Press VOLUTE™ ES-051



The smallest mechanical dewatering press in the world. The ES-051 model provides economic benefits for remote facilities, such as cottages, military camps, and others.

Specifications List



Model	Dimensions [mm]			Total Power Consumption [kW]	Weight [kg]	
	L	W	H		Empty	Operation
ES-051	1095	738	1100	0.2	155	175

• The figures above apply to models with one chemical inlet. There are models with two chemical inlets available, please, contact us for more information.
 • The specifications are subject to change without notice. Please, contact us for the most up to date technical information.

Throughput

Model / Sludge Concentration (TS)	Raw Wastewater /Waste Activated Sludge / Chemically Precipitated Sludge		Dissolved air Flotation Sludge		Mixed Raw Sludge (Sewage Sludge)
	0.2%	1.0%	2.0%	5.0%	3.0%
ES-051	~ 0.5kg-DS/h (~0.25m³/h)	~ 1kg-DS/h (~0.1m³/h)	~ 2kg-DS/h (~0.1m³/h)	~ 4kg-DS/h (~0.08m³/h)	~ 5kg-DS/h (~0.17m³/h)

Sludge Thickener VOLUTE™ VT Series



The thickener of VT series thickens sludge with a concentration of 1% or less to sludge with the concentration of 4 to 6%.

Specifications List

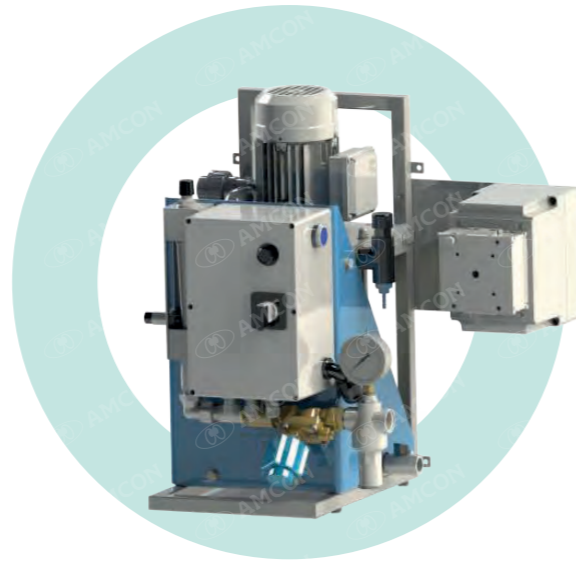


Model	Capacity (Inflow) [m³/h]	Dimensions [mm]			Total Power Consumption [kW]	Weight [kg]	
		L	W	H		Empty	Operation
VT-101	~ 1	1772	901	1250	0.3	160	290
VT-131	~ 3	1772	901	1250	0.3	170	300
VT-201	~ 10	2436	901	1737	1.15	360	680
VT-301	~ 30	3463	1320	2026	1.5	840	1650
VT-302	~ 60	4778	1685	2026	3	1500	4200
VT-303	~ 90	4978	1930	2026	4.45	1950	5550

• The capacity figures concern waste activated sludge from biological treatment with TS 0.4% and thickening up to 4% with polymer.
 • Figures above are calculated as approximate and may vary depending on sludge condition. Please, contact us for model selection.

Polymer Make-up System – emulsion

POLYMORE



An in-line polymer mixing and dosing unit. POLYMORE perfectly complete VOLUTE™ solution as it is compact, simple to operate, precise, and delivers great results.

Specifications List

POLYMORE

Polymore Model	Max. pump for neat poly [kg/h]	Max. dissolving water [L/h]	Dimensions [mm]		
			L	W	H
micro 0,5	0,12	30 fixed	500	425	540
mini 3-0,6	0,6	180	520	420	535
duo 40-6,0	6	2 400	640	505	590
midi 300-54	54	18 000	800	630	1020

• This is a sample of the product range, ranging from smallest to largest details. Please, contact us for specific details.

Polymer Make-up System - powder

CS Series



The polymer make-up system is designed to automatically dilute powder polymer to a specific concentration. This device is beneficial to sludge dewatering, or to various wastewater treatment processes such as DAF.

Specifications List

Model	Dissolving Capacity [L/h]	Hopper Capacity [L]	Dimensions [mm]			Total Power Consumption [kW]	Weight [kg]	
			L	W	H		Empty	Operation
CS-600	600	40	1500	830	1700	0.9	180	980
CS-1100	1100	60	1740	1120	1800	0.9	240	1580
CS-1500	1500	60	2230	1110	1830	1.2	260	1940
CS-1900	1900	60	2750	1060	1830	1.2	280	4350
CS-3000	3000	60	2980	1280	1990	1.5	350	3900

• Polymer dosing pump is not included within the scope of supply of this product. We will select the corresponding pump based on your requirement. Please, consult us.

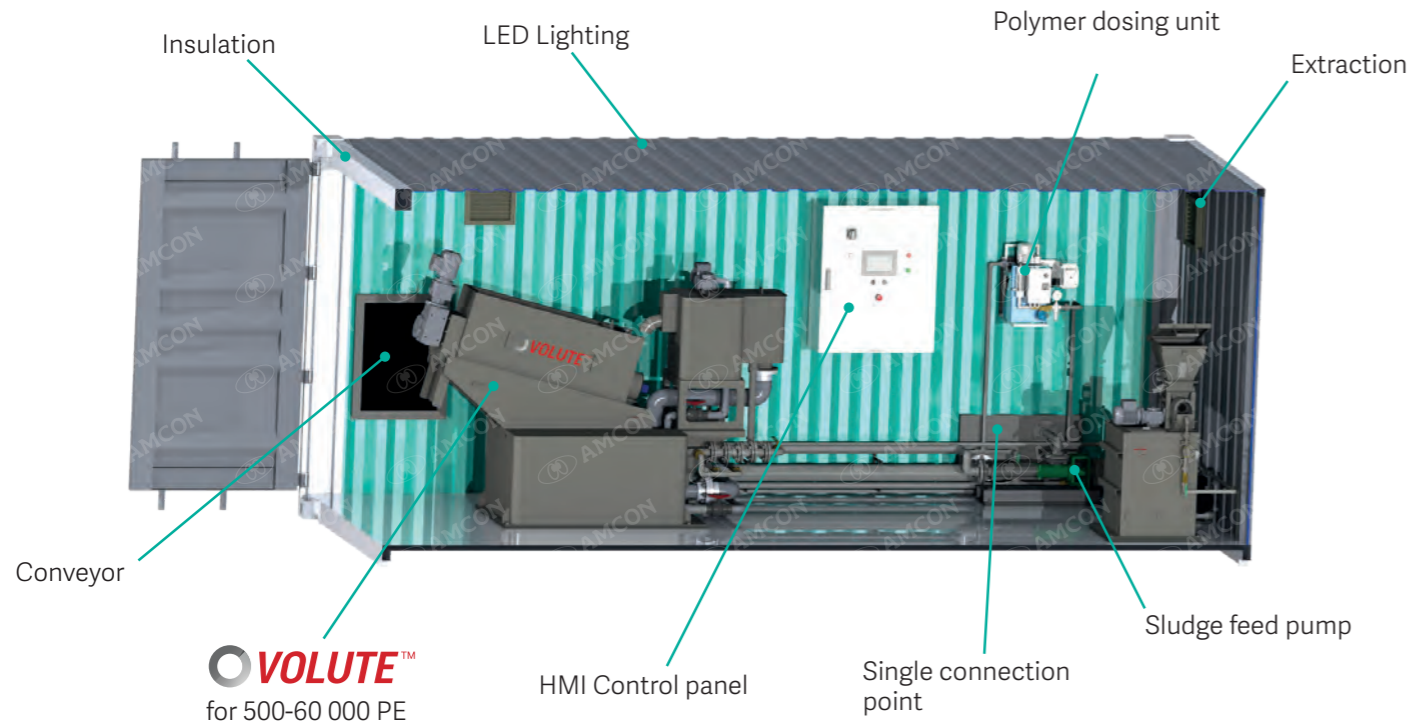
ALL IN ONE

Your containerized solution

VOLUTE™ has been providing the genuine solution to sludge dewatering since 1991

Benefits

- Plug & Play
- Construction costs eliminated
- Fully mobile
- Compact, occupies only 30 m²
- No expansion costs
- Heated
- Low maintenance



YESfloc®

Wastewater treatment chemicals

YESfloc® for sludge dewatering

We have carefully selected and have been periodically updating our list of most suitable flocculants for sludge dewatering based on our more than 40 year experience in sludge dewatering industry. We will gladly recommend a suitable polymer for your needs.

The YESfloc. flocculant selection is available in various forms including dispersion, emulsion, and powder. Specification of each product differs in terms of molecular weight, charge density, viscosity, and active content.

YESfloc® for DAF sludge reduction

The interest of our customers is to reduce the sludge disposal cost as much as possible. Our know-how of chemical and wastewater treatment processes enables us to help you to reduce the volume of your DAF sludge and contribute to the total cost optimization of your sludge treatment. This will save you from installing an "oversized" dewatering machine.

YESfloc. PG/SG, organic coagulants reduce sludge production by up to 30%. A problem with conventional metal coagulants is they generate chemical sludge - our organic coagulants do not! With the removal of this chemically generated sludge the efficiency of the DAF unit is improved.

www.chem-engi.com

References





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