

SLUDGE TREATMENT EQUIPMENT

CATALOG



Our job is to

"Provide amenity and convenience which are beyond expectation."

Advantages of Volute

High Resistance to Oily Sludge

The self-cleaning mechanism enables Volute to be ideal to dewater oily sludge, which easily causes clogging and is difficult to treat with other types of dewatering equipments.

Small Footprint

Volute can be installed in places where placement would not be possible with other technologies. This makes Volute suitable to customers who are considering the replacement of existing dewatering equipment.

Power saving

The screw which is the main component of Volute rotates very slowly at a rate of 2 to 4 rpm, so that it consumes very low power and thus economical.

Applicable for Various Applications

Municipal water and wastewater treatment plants, Industrial waste treatment plants, Food/beverage production plants, Dairy farming, Meat processing plants, Chemicals manufacturing plants, Machinery manufacturing plants, Metal processing plants, Laundry wastewater, etc.

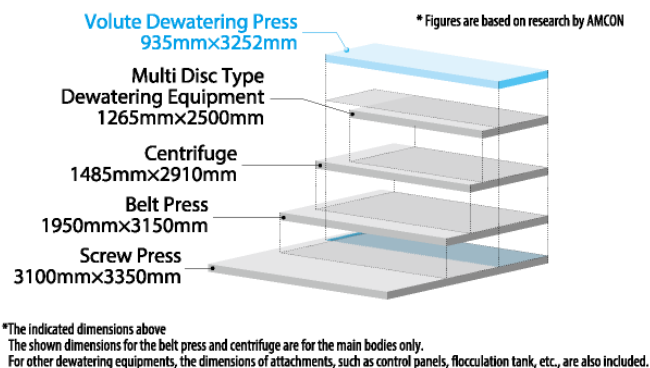
Easy operation/Easy maintenance

Full automatic 24-hour operation without an operator on-site is possible with automatic operation control using various sensors. Moreover, daily maintenance is minimized, requires no skilled labor.

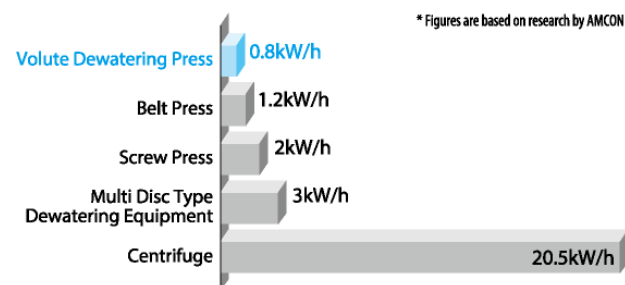
Water-saving

Volute prevents filter mesh from clogging with its unique self-cleaning mechanism, removing the need for huge amounts of water for clogging prevention.

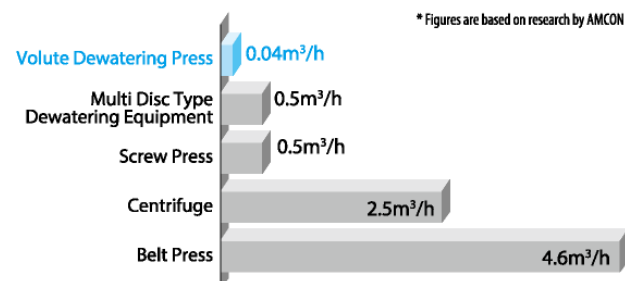
Footprint comparison image



Comparison of power consumption among sludge dewatering equipments (throughput 30 kg-DS/h)



Comparison of spray washing water consumption among dewatering equipments (throughput 30 kg-DS/h)



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 equipments and wastewater treatment plants urged us to develop a user-friendly machine.

After 10 years, we completed the development of Volute technology, the filter elements with multiple layered Rings. Continuous efforts for development and improvement of the technology are being made to make the facilities more user-friendly and convenient.

Low noise/Low vibration

Because Volute has no rotating body with high speed, there is no concern about noise and vibration.

A comfortable work environment can be secured.

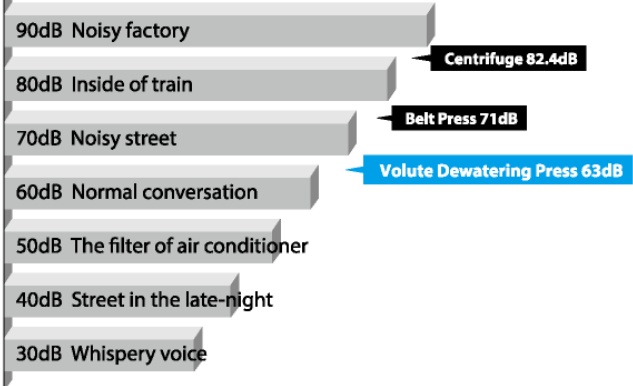
Two-year Warranty and After Sales Service

All products are accompanied with a two-year warranty.

We focus on after-sales service that makes the operator on site feels comfortable to operate and maintain.

Comparison between noise of dewatering equipment and daily life noise

*Figures are based on research by AMCON



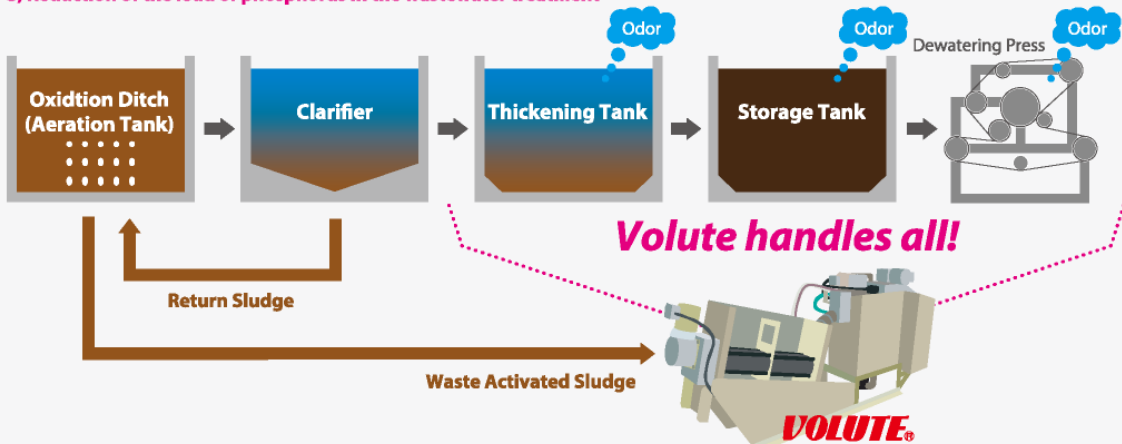
Revolution in sludge treatment Volute introduced - Direct dewatering from oxidation ditch* -

In the past times, sludge was commonly thickened before dewatering, but the development of Volute Dewatering Press, consisting of a filtering 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 in Japan for dewatering sludge directly from oxidation ditch.

Advantages of direct dewatering from oxidation ditch

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

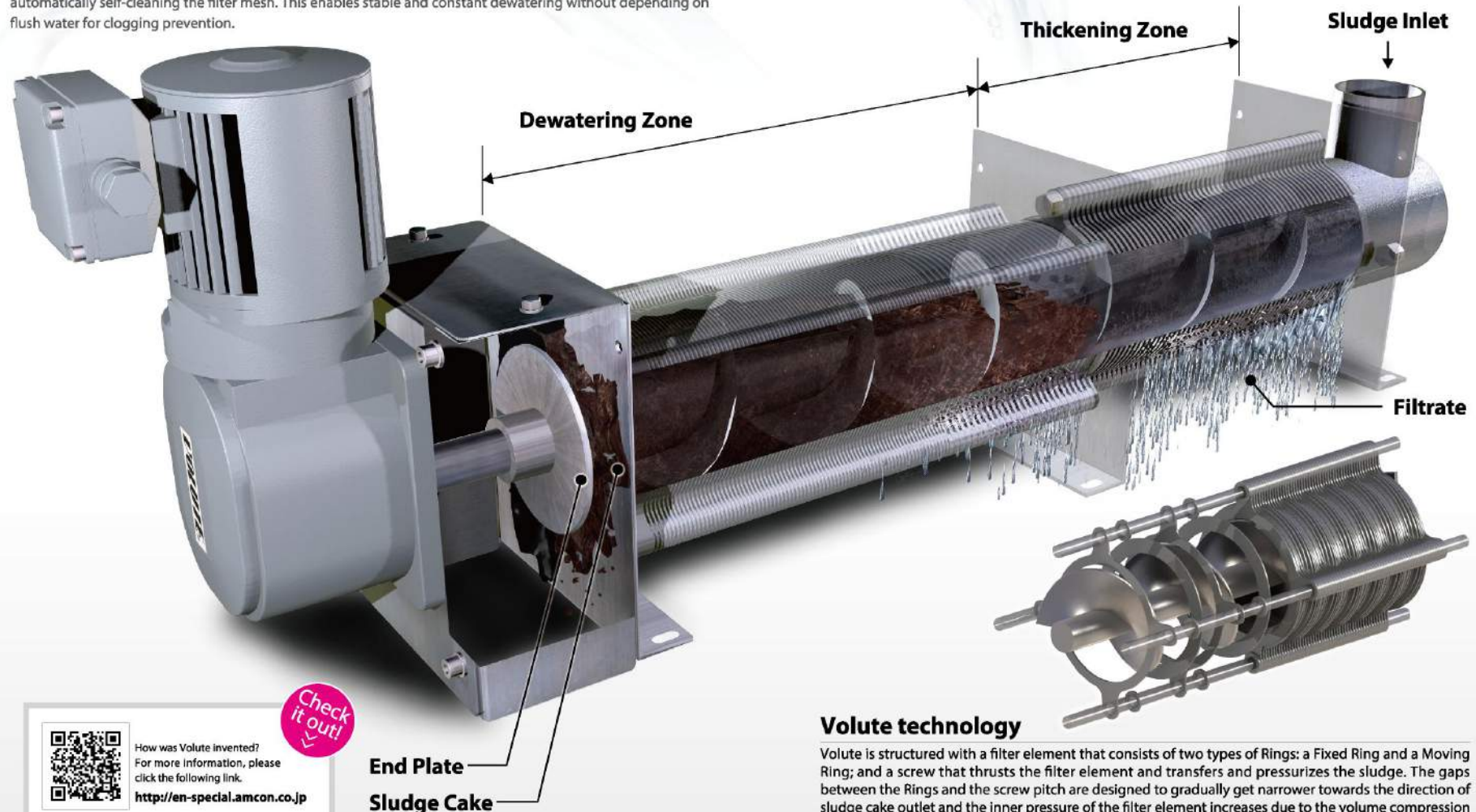


*Demonstrated for the first time ever in the world as a result of the joint research of AMCON and Japan Sewage Works Agency in 1998.

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 unique Volute technology, which allows dewatering sludge while automatically self-cleaning the filter mesh. This enables stable and constant dewatering without depending on flush water for clogging prevention.



Check
it out!



How was Volute invented?
For more information, please
click the following link.
<http://en-special.amcon.co.jp>

Volute technology

Volute is structured with a filter element that consists of two types of Rings: a Fixed Ring and a Moving Ring; 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 gradually get narrower towards the direction of sludge cake outlet and the inner pressure of the filter element increases due to the volume compression effect, which thickens and dewateres the sludge.

Process Flow

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

Model without sludge conditioning tank

3 Cylinder Unit



Sludge is instantly thickened at the thickening zone in the precedent stage, and dewatered at the dewatering zone in the subsequent stage under increasing inner pressure.
*Thickener contains no dewatering zone.

2 Flocculation Tank

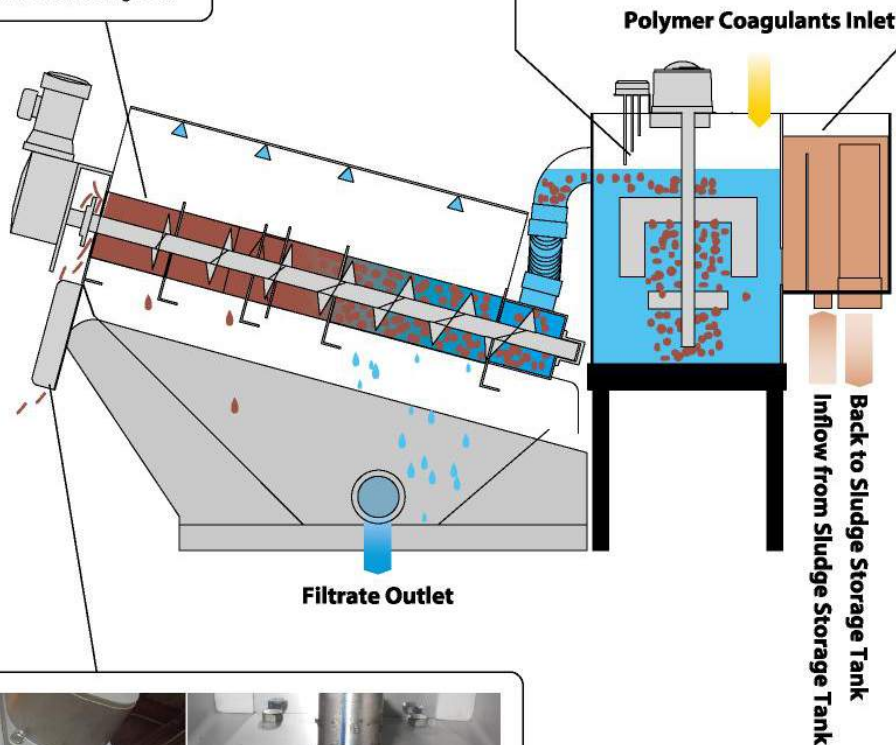


Polymer and sludge are stirred and mixed, forming flocks suitable for Volute.

1 Flow Control Tank



Sludge feed is regulated with the overflow pipe, returning excess volume to the sludge storage tank.



4 Discharge Outlet for Dewatered Cake / Discharge Outlet for the Thickened Sludge

Further pressure is applied from the outlet side with the End Plate, discharging dewatered cake with $20 \pm 5\%$ solids content. With a thickener, thickened sludge is discharged.
*Thickener is not equipped with End Plate.



For process flow animation,
please click the following link.
<http://goo.gl/zRVK9e>

Check
it out!

Model with sludge conditioning tank

4 Cylinder Unit



Sludge is instantly thickened at the thickening zone in the precedent stage, and dewatered at the dewatering zone in the subsequent stage under increasing inner pressure.

3 Flocculation Tank



Polymer and sludge are stirred and mixed, forming flocks suitable for Volute.

2 Flow Control Tank

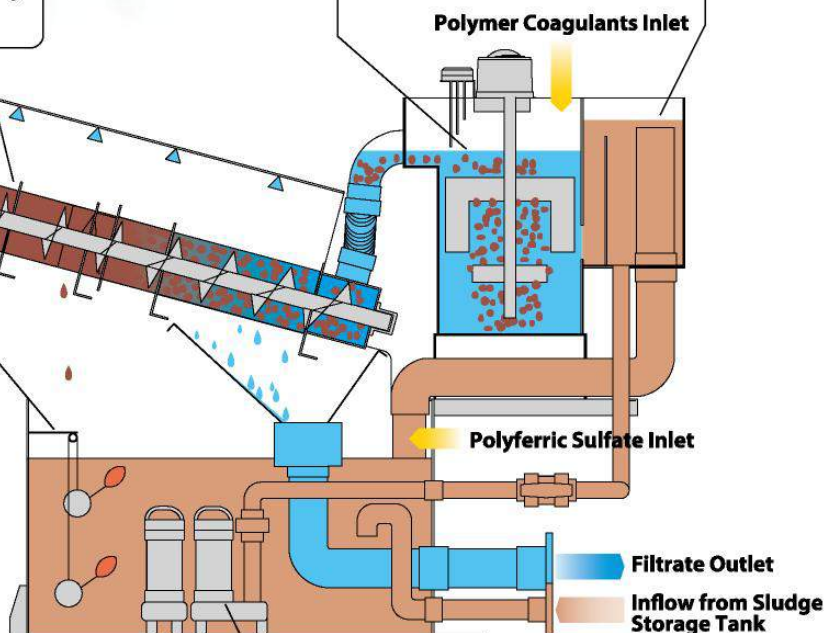


Sludge feed is regulated with the overflow pipe, returning excess volume to the sludge conditioning tank.

5 Discharge Outlet for the Dewatered Cake



Further pressure is applied from the outlet side with the End Plate, discharging dewatered cake with $20 \pm 5\%$ solids content.

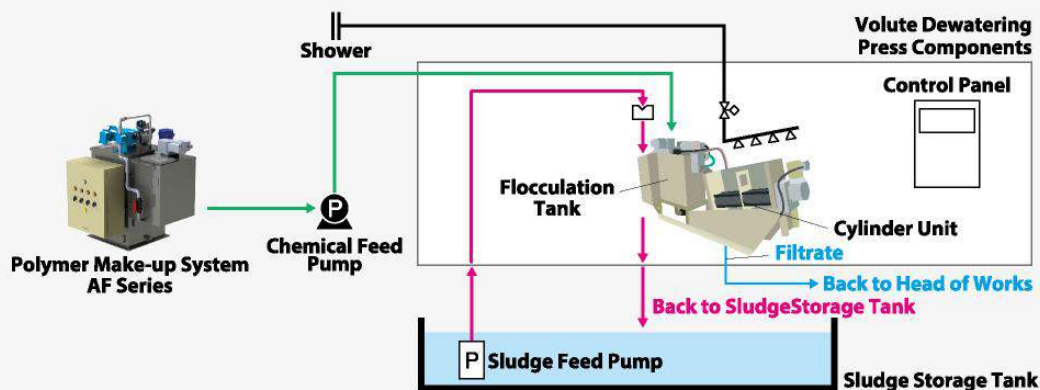


1 Sludge Conditioning Tank



A sludge conditioning tank temporarily stores sludge before it is dewatered. The model with a sludge conditioning tank realizes a high solid capture rate higher than 95%. When required, the conditioning tank can be used as a reactor tank for inorganic flocculant.

Flow Sheet

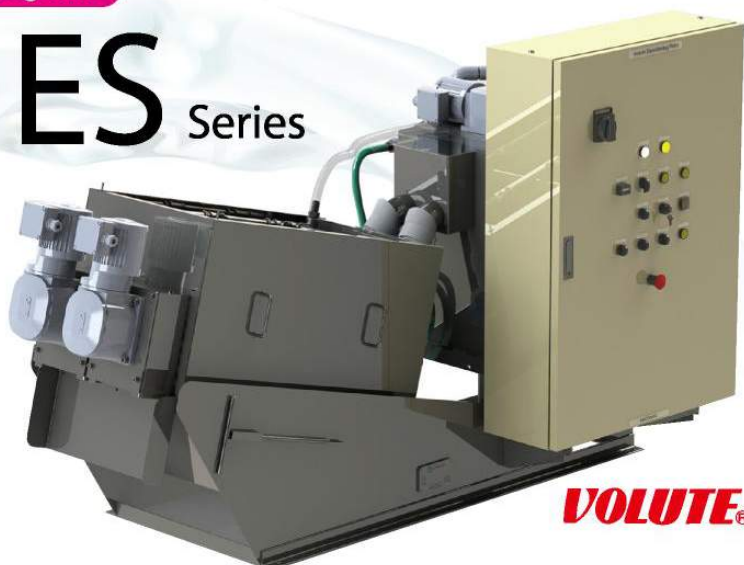


Model without sludge conditioning tank

Sludge Dewatering Press Volute

ES Series

ES series comprises of models with basic functions at affordable price and are recommended for entry models. ES series lineup also includes models capable of handling large amount of sludge.

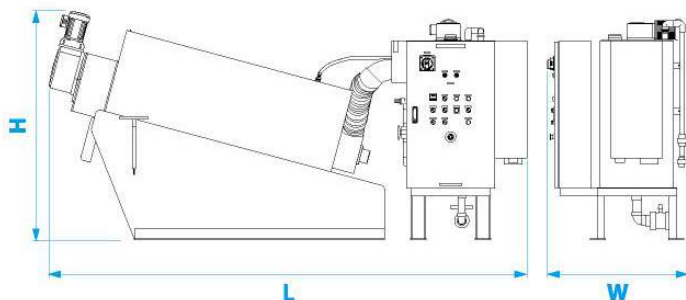


Specifications List

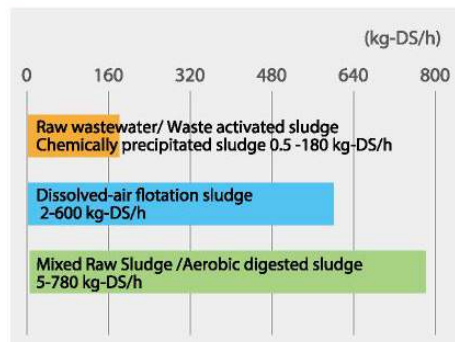
Model	Dimensions(mm)			Total Power Consumption(kW)	Weight(kg)	
	L	W	H		Empty	Operation
ES-051	1095	749	1100	0.2	160	180
ES-101	1816	756	1180	0.2	240	330
ES-131	1959	756	1180	0.2	250	345
ES-132	2059	910	1180	0.3	340	485
ES-201	2501	879	1232	0.3	300	450
ES-202	2501	935	1410	0.8	600	810
ES-301F	3252	935	1553	0.8	855	1245
ES-302F	3452	1245	1553	1.2	1310	1990
ES-303F	3602	1590	1553	1.95	1795	2765
ES-351	3844	1160	2258	1.9	1570	2170
ES-352	4144	1550	2258	3.75	2660	3610
ES-353	4424	2100	2258	6	3860	5360

*The above figures are for models with one chemical inlet. We also have models with two chemical inlets, so please contact us for details.

Layout Drawings



Throughput Range



Throughput

	Raw Wastewater /Waste Activated Sludge / Chemically Precipitated Sludge		Dissolved-air Flotation Sludge		Mixed Raw Sludge / Aerobic Digested Sludge (Sewage Sludge)
Sludge Concentration (TS)	0.2%	1.0%	2.0%	5.0%	3.0%
ES-051	~ 0.5kg-DS/h (~ 0.25m ³ /h)	~ 1kg-DS/h (~ 0.1m ³ /h)	~ 2kg-DS/h (~ 0.1m ³ /h)	~ 4kg-DS/h (~ 0.08m ³ /h)	~ 5kg-DS/h (~ 0.17m ³ /h)
ES-101	~ 2kg-DS/h (~ 1.0m ³ /h)	~ 3kg-DS/h (~ 0.3m ³ /h)	~ 5kg-DS/h (~ 0.25m ³ /h)	~ 10kg-DS/h (~ 0.2m ³ /h)	~ 13kg-DS/h (~ 0.43m ³ /h)
ES-131	~ 4kg-DS/h (~ 2.0m ³ /h)	~ 6kg-DS/h (~ 0.6m ³ /h)	~ 10kg-DS/h (~ 0.5m ³ /h)	~ 20kg-DS/h (~ 0.4m ³ /h)	~ 26kg-DS/h (~ 0.87m ³ /h)
ES-132	~ 8kg-DS/h (~ 4.0m ³ /h)	~ 12kg-DS/h (~ 1.2m ³ /h)	~ 20kg-DS/h (~ 1.0m ³ /h)	~ 40kg-DS/h (~ 0.8m ³ /h)	~ 52kg-DS/h (~ 1.73m ³ /h)
ES-201	~ 8kg-DS/h (~ 4.0m ³ /h)	~ 12kg-DS/h (~ 1.2m ³ /h)	~ 20kg-DS/h (~ 1.0m ³ /h)	~ 40kg-DS/h (~ 0.8m ³ /h)	~ 52kg-DS/h (~ 1.73m ³ /h)
ES-202	~ 16kg-DS/h (~ 8.0m ³ /h)	~ 24kg-DS/h (~ 2.4m ³ /h)	~ 40kg-DS/h (~ 2.0m ³ /h)	~ 80kg-DS/h (~ 1.6m ³ /h)	~ 104kg-DS/h (~ 3.47m ³ /h)
ES-301F	~ 20kg-DS/h (~ 10m ³ /h)	~ 30kg-DS/h (~ 3.0m ³ /h)	~ 50kg-DS/h (~ 2.5m ³ /h)	~ 100kg-DS/h (~ 2.0m ³ /h)	~ 130kg-DS/h (~ 4.33m ³ /h)
ES-302F	~ 40kg-DS/h (~ 20m ³ /h)	~ 60kg-DS/h (~ 6.0m ³ /h)	~ 100kg-DS/h (~ 5.0m ³ /h)	~ 200kg-DS/h (~ 4.0m ³ /h)	~ 260kg-DS/h (~ 8.67m ³ /h)
ES-303F	~ 60kg-DS/h (~ 30m ³ /h)	~ 90kg-DS/h (~ 9.0m ³ /h)	~ 150kg-DS/h (~ 7.5m ³ /h)	~ 300kg-DS/h (~ 6.0m ³ /h)	~ 390kg-DS/h (~ 13m ³ /h)
ES-351	~ 40kg-DS/h (~ 20m ³ /h)	~ 60kg-DS/h (~ 6.0m ³ /h)	~ 100kg-DS/h (~ 5.0m ³ /h)	~ 200kg-DS/h (~ 4.0m ³ /h)	~ 260kg-DS/h (~ 8.67m ³ /h)
ES-352	~ 80kg-DS/h (~ 40m ³ /h)	~ 120kg-DS/h (~ 12m ³ /h)	~ 200kg-DS/h (~ 10m ³ /h)	~ 400kg-DS/h (~ 8.0m ³ /h)	~ 520kg-DS/h (~ 17.3m ³ /h)
ES-353	~ 120kg-DS/h (~ 60m ³ /h)	~ 180kg-DS/h (~ 18m ³ /h)	~ 300kg-DS/h (~ 15m ³ /h)	~ 600kg-DS/h (~ 12m ³ /h)	~ 780kg-DS/h (~ 26m ³ /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.

* There is no certain upper limitation on inlet sludge concentration, however, the target sludge must be flowable.

* Throughput of DAF Sludge is based on sludge containing much fat, oil, and grease such as meat processing applications etc.

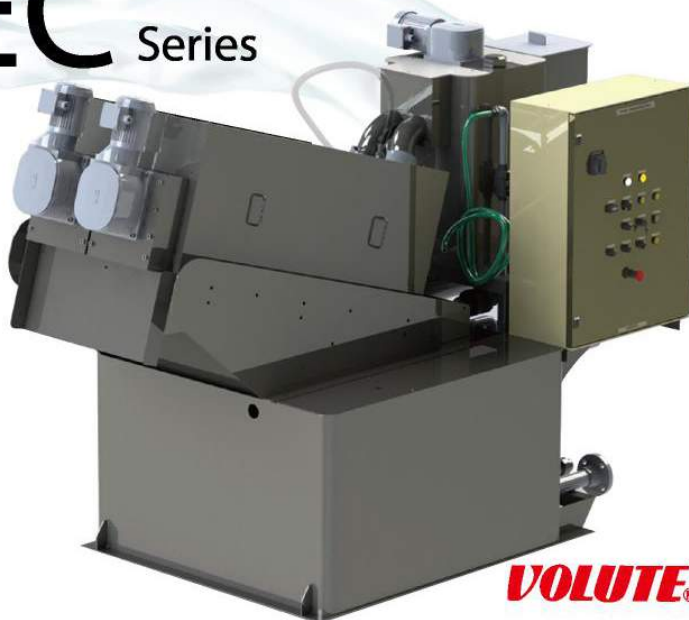
* Throughput of Mixed Sludge (Primary Sludge and Waste Activated Sludge) and Aerobically Digested Sludge is based on sludge containing 30% fiber(75 micron mesh clearance) against Total Solids.

Model with sludge conditioning tank

Sludge Dewatering Press Volute

EC Series

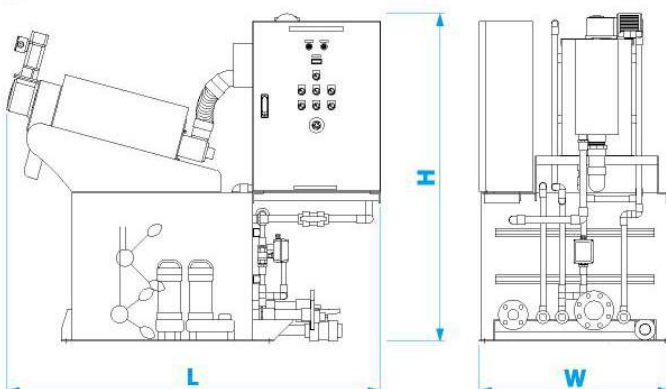
EC series standard model Volute dewatering presses consist of the basic configuration and a sludge conditioning tank.



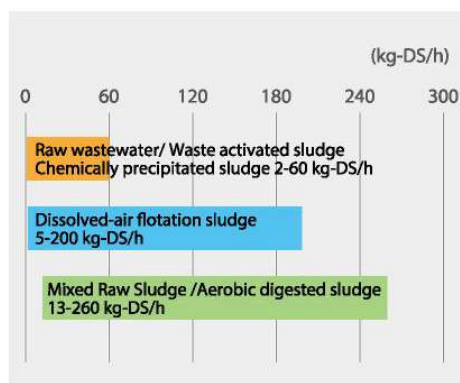
Specifications List

Model	Dimensions(mm)			Total Power Consumption(kW)	Weight(kg)	
	L	W	H		Empty	Operation
EC-101	1756	700	1540	0.65	250	650
EC-102	1756	900	1540	0.7	300	800
EC-131	1757	700	1540	0.7	265	665
EC-132	1757	900	1540	0.8	330	830
EC-133	1847	1100	1540	0.9	400	1050
EC-202	2485	1180	1728	1.45	850	1800
EC-203	2591	1495	1728	1.8	1055	2355
EC-204	2665	1780	1728	2.7	1450	3100
EC-205	2741	2085	1728	2.9	1800	3700

Layout Drawings



Throughput Range



Throughput

	Raw Wastewater /Waste Activated Sludge / Chemically Precipitated Sludge		Dissolved-air Flotation Sludge		Mixed Raw Sludge / Aerobic Digested Sludge (Sewage Sludge)
Sludge Concentration (TS)	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-102	~ 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-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-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 (~ 1.73m³/h)
EC-133	~ 12kg-DS/h (~ 6.0m³/h)	~ 18kg-DS/h (~ 1.8m³/h)	~ 30kg-DS/h (~ 1.5m³/h)	~ 60kg-DS/h (~ 1.2m³/h)	~ 78kg-DS/h (~ 2.6m³/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-203	~ 24kg-DS/h (~ 12m³/h)	~ 36kg-DS/h (~ 3.6m³/h)	~ 60kg-DS/h (~ 3.0m³/h)	~ 120kg-DS/h (~ 2.4m³/h)	~ 156kg-DS/h (~ 5.2m³/h)
EC-204	~ 32kg-DS/h (~ 16m³/h)	~ 48kg-DS/h (~ 4.8m³/h)	~ 80kg-DS/h (~ 4.0m³/h)	~ 160kg-DS/h (~ 3.2m³/h)	~ 208kg-DS/h (~ 6.93m³/h)
EC-205	~ 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)

*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.

*There is no certain upper limitation on inlet sludge concentration, however, the target sludge must be flowable.

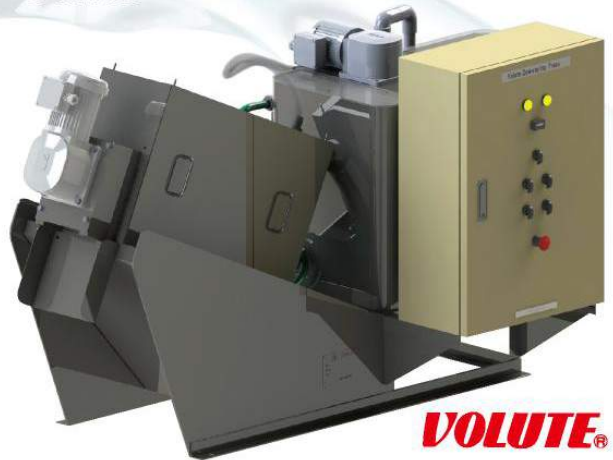
*Throughput of DAF Sludge is based on sludge containing much fat, oil, and grease such as meat processing applications etc.

*Throughput of Mixed Sludge (Primary Sludge and Waste Activated Sludge) and Aerobically Digested Sludge is based on sludge containing 30% fiber(75 micron mesh clearance) against Total Solids.

Sludge Thickener Volute Series

Thickener VT series thickens sludge with concentration of 1% or less to that with a concentration of 4 to 6%.

This mechanical thickening will constantly produce stable thickened sludge, which is difficult with gravity thickening. It is possible to install as pre-thickener for your existing belt press or centrifuge to improve their dewatering performance. Furthermore, even in some facilities where the dewatered cakes are not easily transported, the volume of sludge to be disposed of can be reduced by thickening and yet it is still easily transported (pumped) as it is still in liquid form.



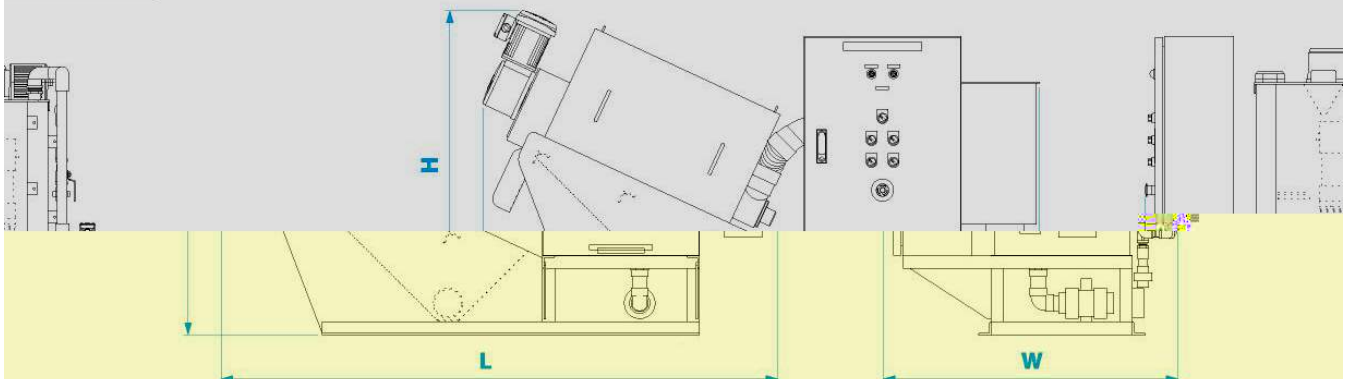
Specifications List

Model	Throughput (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	4078	1685	2026	4.15	2020	5545

* Capacity is based on waste activated sludge from biological treatment with TS 0.4% and thickening up to 4% with polymer.

* Throughput above is calculated as approximate and may vary depending on sludge condition. For model selection, please contact us.

Layout Drawings



Polymer Make-up System **AF** Series

AF Series are designed to dissolve liquid polymer, which are used for sludge dewatering and various other wastewater treatment systems, automatically to the specified concentrations of polymer. Automation of dissolving work will drastically save labor cost.

Save labor by fully automatic operation

Just refill the tank with a polymer coagulant stock solution, and the device will do the rest from measurement to dissolution.

Constant concentrations

The concentrations of the diluted polymer coagulants are kept consistent as the device automatically measures the stock solution and dilution water.

Interlocked operation with sludge dewatering press or another machine

The device keeps monitoring the dissolving tank and the stock solution tank using sensors. When the level of the polymer coagulant stock solution is low or when supply of dilution water is inadequate, the device automatically stops and sends a warning signal to external equipment.

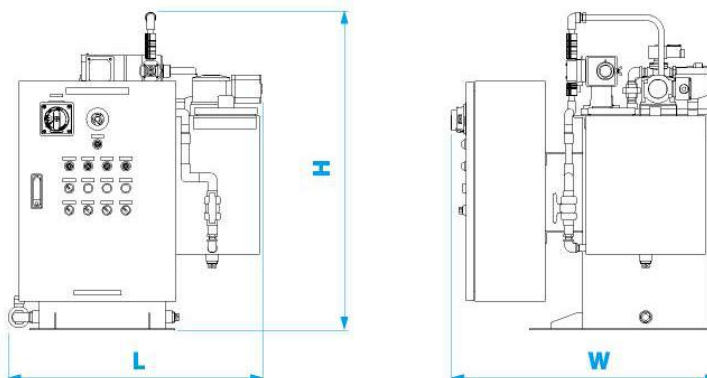


Specifications List

Model	Dissolving Capacity (L/h)	Dimensions (mm)			Total Power Consumption(kW)	Weight (kg)		Applicable AMCON Dewatering Press
		L	W	H		Empty	Operation	
AF-50SG	600	808	811	1010	0.22	120	260	EC-101 to 203 ES-101 to 301
AF-70SG	1350	1331	1087	1230	0.57	210	650	EC-204 to 205 ES-302 to 353

* 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.

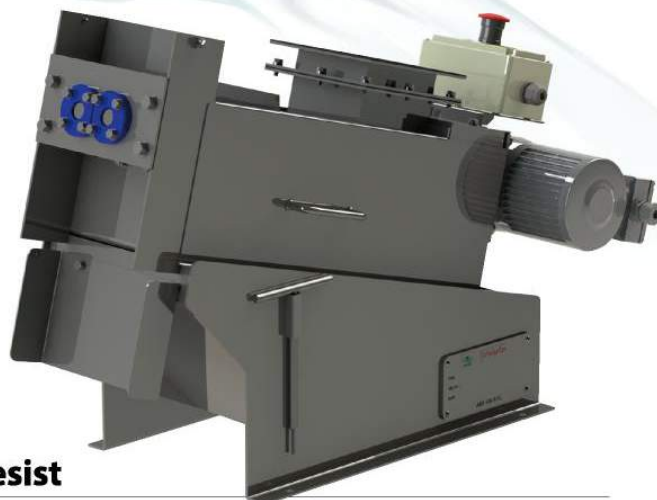
Layout Drawings



Waste Dry Film Photoresist Dewatering Press

TV-50F

TV-50F is designed to dewater waste photoresist generated from photoresist patterning processes, such as PCB manufacturing. Today, one of the key challenges with business management is reduction of waste generated from production process. TV-50F reduces waste photoresist with high dewatering capacity and helps reduce disposal cost. TV-50F is compact: 844 mm long, 363 mm wide and 555 mm high. It does not require large space.



Easier handling of waste photoresist

Before dewatered, waste dry film photoresist is mixed with photoresist remover and the water content is very high. The waste is a strong alkali. It is hazardous and it must be handled carefully in transport and disposal not to spill it. The waste, after dewatered by TV-50F, is like grated cheese and it won't drip the remover solution. That will improve the working environment for transport and disposal.



Before treatment



After treatment

Case Study

Production capacity	360,000 m ² /year (30,000 m ² /month)
Waste generation	60 t/year
Waste disposal cost	100 yen/kg or 20,000 yen/drum

Waste reduction by dewatering	50%
Dewatering capacity	30 kg-WET/h max.

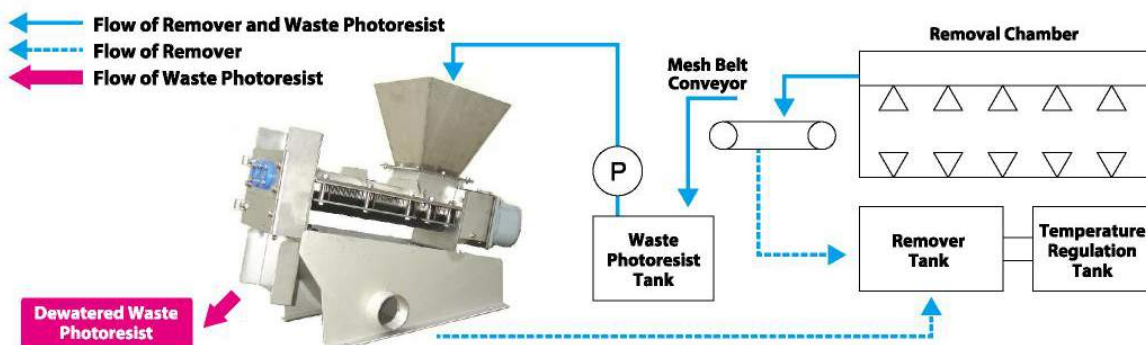
*This cost does not include transport, equipment maintenance, operation and running costs.

Specifications List

Model	Input (kg-WET/h)	Dimensions(mm)			Total Power Consumption(kW)	Weight(kg)
		L	W	H		
TV-50F	~30	844	363	555	0.1	60

* The hopper for feeding material is optional.

Example of use of TV-50F





AMCON INC.

<http://en.amcon.co.jp>

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