



BELT FILTER PRESSES
TYPE 400



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BELT FILTER PRESS DESCRIPTION

Belt filter presses type "400" main characteristic is their low price thanks to the project optimization aimed to use simple and reliable components.

Most of the sludge dewatering plants achieve the maximum satisfaction by using this type of machines.

Belt filter presses type "400" are manufactured in different models in order to meet the sludge characteristics and quantity to be dewatered.

THE MAIN FEATURES OF EACH MODEL ARE:

Quantity of pressing rollers:

5 7 9 11

Filtering belts width:

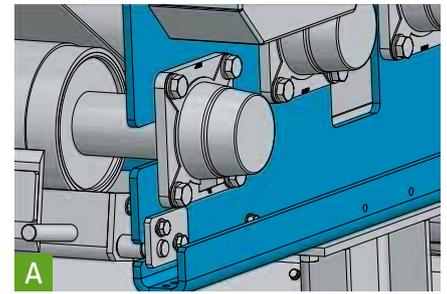
800 1200 1600 2000 2500
2600 3000

Accessories on board of the machine:

- Predewatering Drum
- Mixer
- Predewatering Drum and Mixer

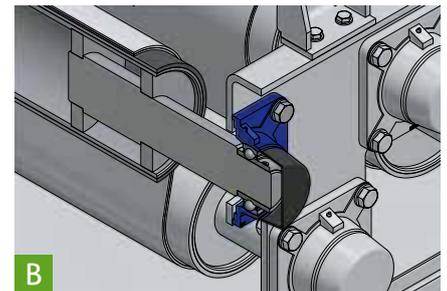
BEARING FRAME

Made of two very thick carbon steel plates (on request, SST), fixed to each other by means of profiles and welded to form a stiffen perfectly levelled unit. The whole structure is protected by sand-blasting type Sa 2.5, then by a zinc-aluminium alloy hot spraying and finally covered by a layer of bicomponent polyurethanic resin. Bolts and nuts are made of SST A2 AISI 304. (Ref. A)



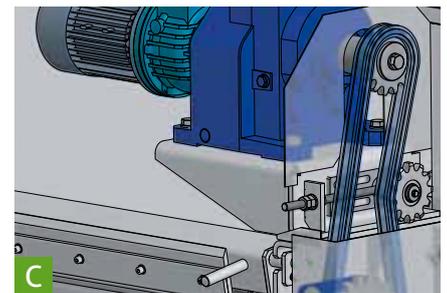
ROLLERS

The pressing, tensioning, transmission and sludge discharge rollers are protected by a layer of 8mm of rubber. The motorized pressing roller and the trajectory correction one are coated by 8 mm. of rectified rubber layer. All the rollers are supported by ball bearings type 'Y' which are suitably sized and guarantee a perfect impermeability. (Ref. B)



FILTERING BELTS

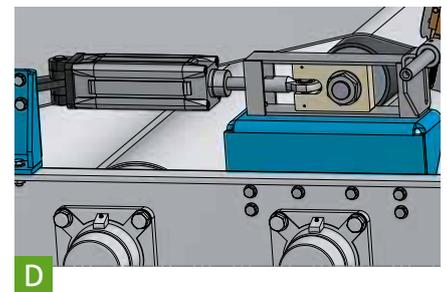
The filter press is equipped with SST clipper seam belts, protected by epoxy resins.



BELTS TRACTION SYSTEM

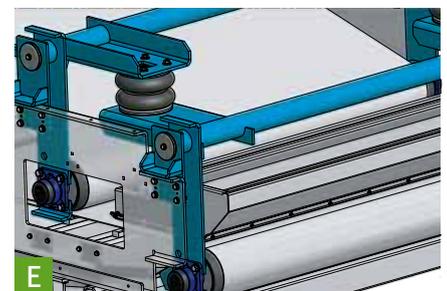
Models with belts width of 800, 1200, 2000 mm.: it consists of a worm motor variator with speed manual adjustment, directly keyed to the roller; Models with belts width of 1600, 2500, 2600, 3000 mm.:

it consists of an epicyclic motor variator connected to a traction roller by a toothed crown and chains protected by carters. (Ref. C)



BELTS GUIDE SYSTEM

Pneumatic type with proportional action probes to keep the belts continuously centered and one upon the other. (Ref. D)

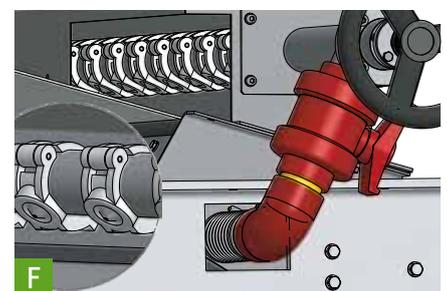


BELTS TENSION SYSTEM

It consists of pneumatic jacks with air springs which keep the belts tensioned. (Ref. E)

BELTS WASHING SYSTEM

It consists of spray header pipes equipped with nozzles which can be cleaned by a special device with brushes which can be operated from outside. The header pipes are protected by carters which avoid the aerosol effect and collect the belts washwater separately. The whole system is made of SST AISI 304. (Ref. F)



WATER COLLECTING PANS

They are completely made of SST AISI 304l and equipped with suitable slopes and outlet pipes.

SAFETY AND ALARMS DESCRIPTION

Belt filter presses type "400", manufactured in different models, are equipped with safety devices in accordance with the the law (2006/42/CE A11. IIA)

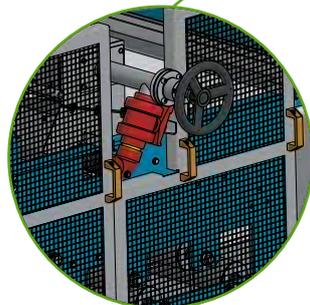
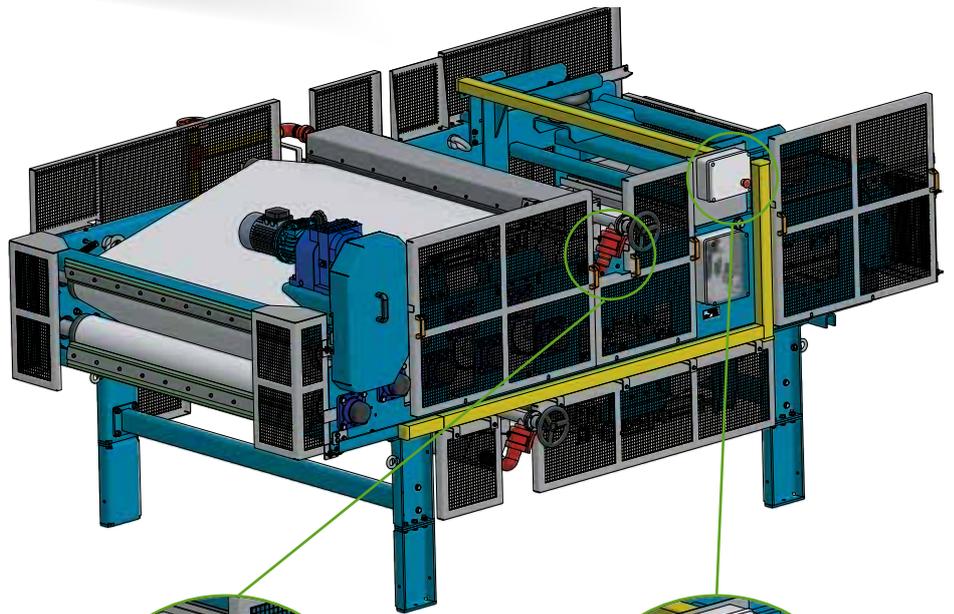
ELECTRIC AND PNEUMATIC PLANTS ON BOARD OF THE MACHINE

Electric plant in waterproof casing with terminal strips for all the power cables and signals.

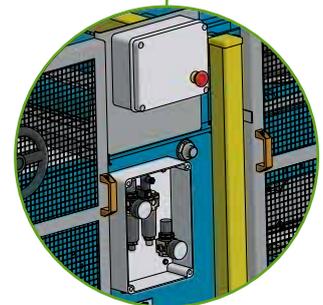
The machine is also equipped with a pneumatic plant complete with reduction filters and manometers to adjust the belts tension and the speed of the trajectory correction devices. All the conduits of the electric cables and the air pipes are made of self-extinguishing PVC, in accordance with the law.

SAFETY AND ALARMS

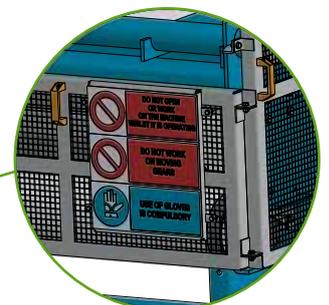
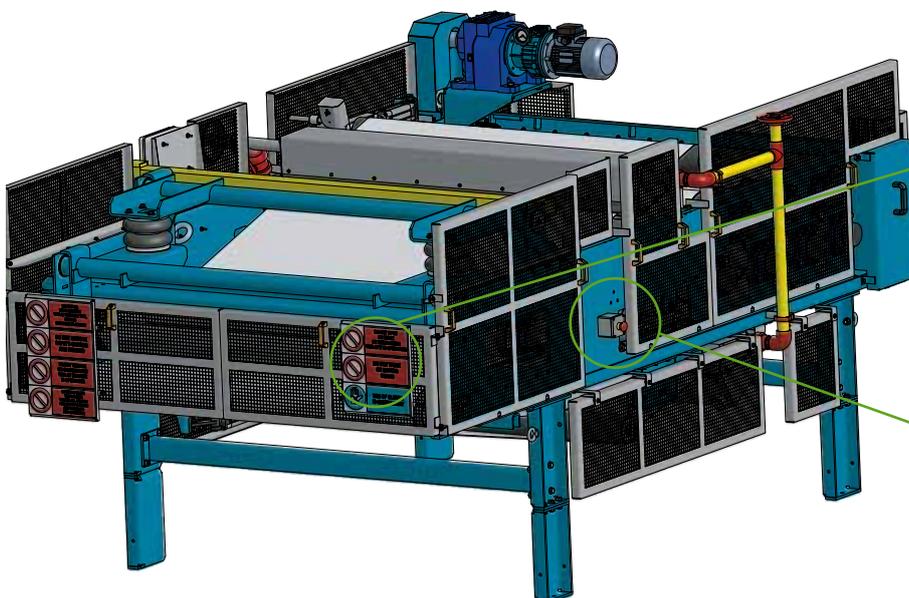
The machine is equipped with push-buttons and limit switches to give alarm and stop when the belts tend to move out of the rollers (a malfunction of the belts trajectories control system). As regards the safety, the machine is protected by grating panels and protecting structures wherever the operator runs the risk to hurt himself (EEC regulations) in case of a careless operation.



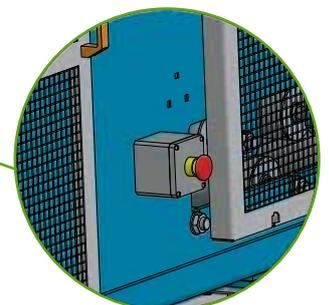
Fixed protection gratings



Emergency button



Safety signs



Emergency button

PROCESS AND OPERATION PRINCIPLES

SLUDGE DISTRIBUTION AND DRAINAGE BY GRAVITY

The sludge, which has been previously thickened in the predewatering drum (or the motorized mixer), is conveyed in a suitable area placed between the tensioning roller of the lower belt and the beginning of the drainage by gravity zone. This area has the function to distribute the sludge uniformly onto the belt whole width.

To this purpose, at its outlet, it is equipped with a blade which can be adjusted in height and inclination. This blade levels the sludge carried ahead by the belt, which, being pressed, is uniformly distributed and starts draining by gravity. (Ref. A)

WEDGE ZONE

After the drainage by gravity, the sludge passes through a wedge zone where the pressure on the sludge layer increases slightly because of a series of seven idler and adjustable rollers placed both above and below the belts. This is useful to drain a fair quantity of water before the sludge reaches the proper pressing zone. (Ref. B)

PRESSING ZONE

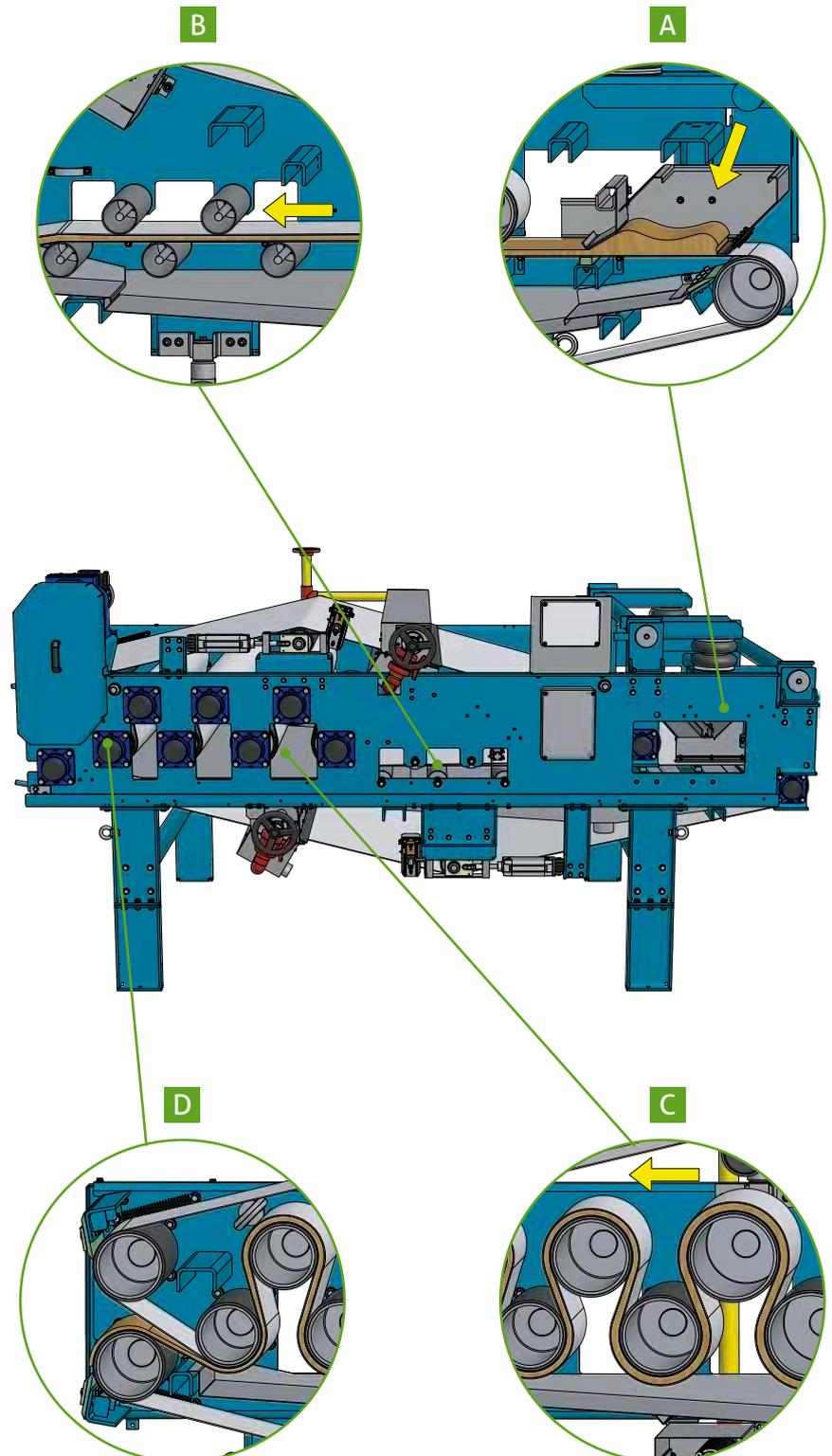
The sludge is now gradually pressed while going forward and winding around rollers with decreasing diameters.

The main factors to obtain a high pressing efficiency are:

- a good permeability of the belt which must be chosen according to the type of sludge to be treated;
- high and increasing pressure while the sludge goes forward and winds around the rollers. (Ref. C)

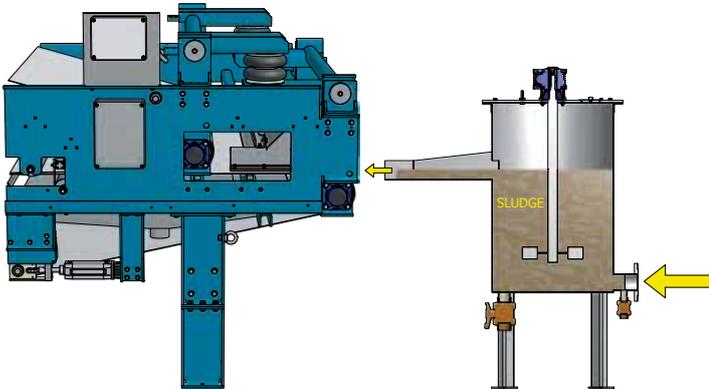
CAKE BREAKAWAY

At the end of the process, when the two filtering belts move apart and wind around the traction rollers, the sludge layer tends to detach by itself; anyway, the action is completed by two scraping doctor blades (one for each roller). (Ref. D)



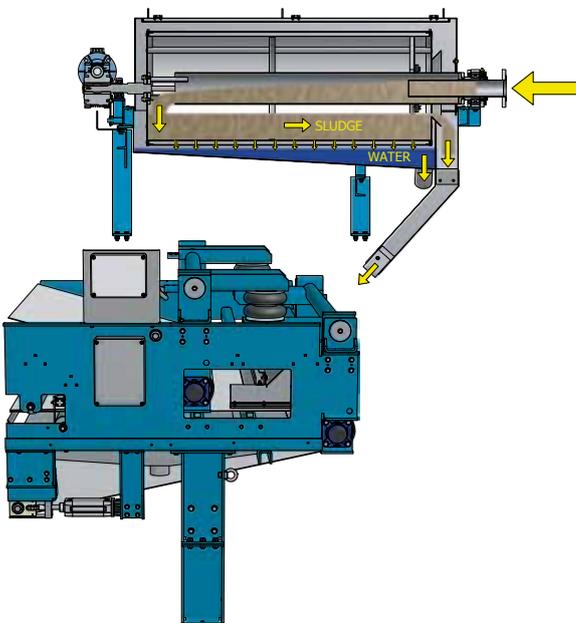
PROCESS AND OPERATION PRINCIPLES - PRETREATMENT

Here follow the different kind of sludge pretreatment upstream the Belt Filter Press



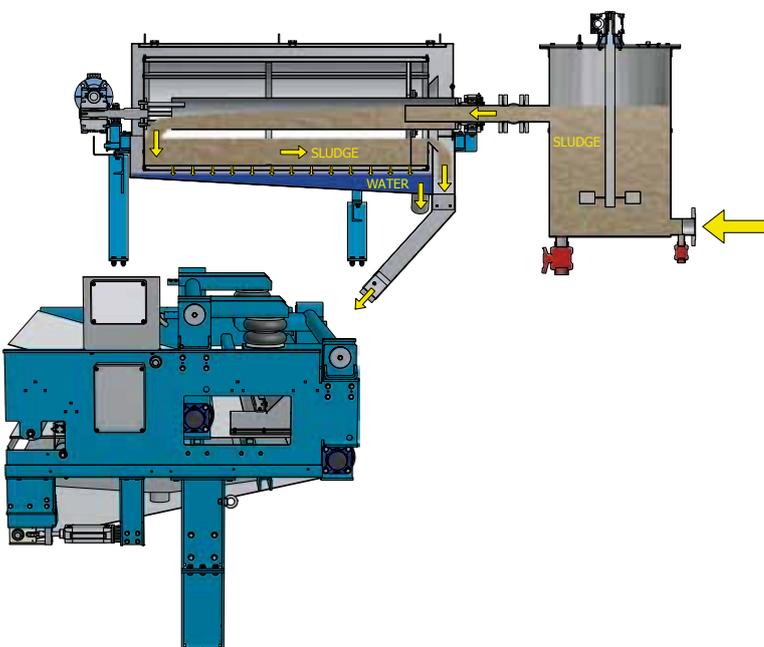
MOTORIZED MIXER

Completely made of carbon steel or stainless steel. It consists of a cylindrical tank and a stirrer capable to mix the sludge and the polymer solution completely. In this way, a suspension of flocs which can quickly release the water onto the filtering belt is obtained.



PREDEWATERING DRUM

Completely made of SST AISI 304, it is installed to mix the sludge and the polymer solution, as well as to remove the water from the suspension resulting from the drum cloth filtering action. On diluted sludge, the belt press throughput can increase up to 60%.



MOTORIZED MIXER + PREDEWATERING DRUM

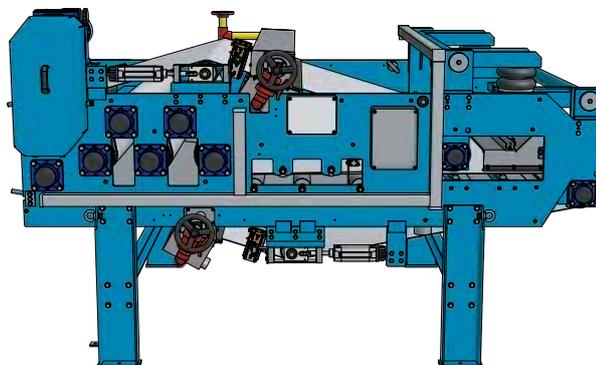
In case of a liquid sludge that must be flocculated for a longer time, there is the possibility to install a motorized mixer upstream the predewatering drum.

MODELS

The Belt filter presses type 400 can be divided in 4 groups:

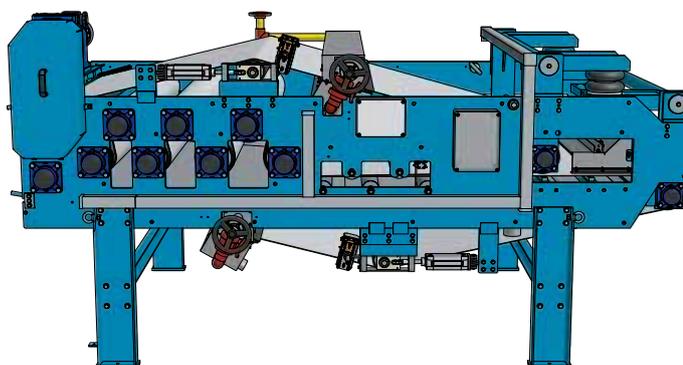
EM405

800 mm BELT
1200 mm BELT
1600 mm BELT
2000 mm BELT



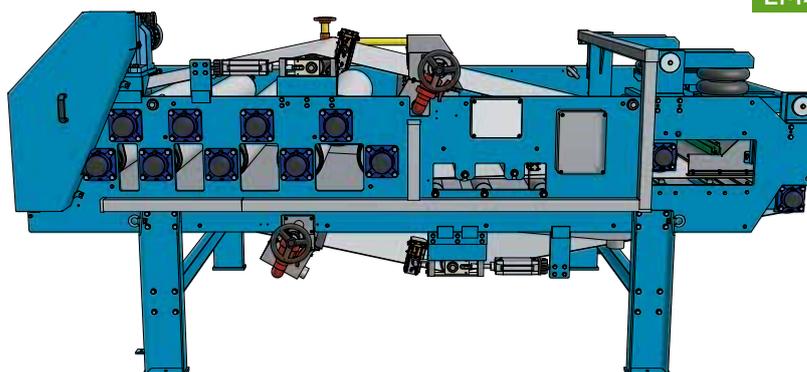
EM407

1200 mm BELT
1600 mm BELT
2000 mm BELT
2500 mm BELT
3000 mm BELT



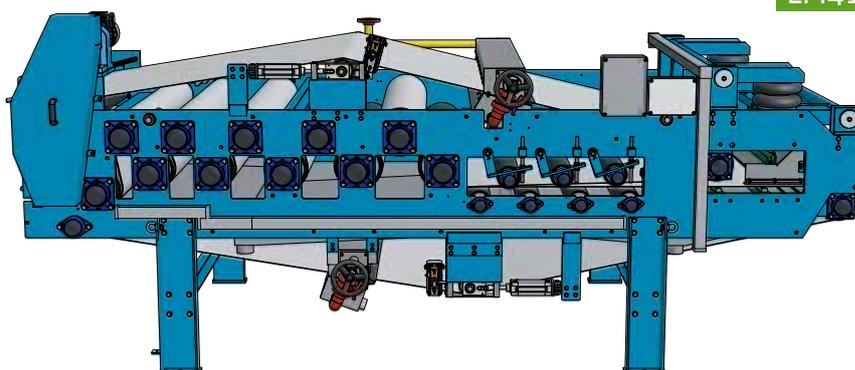
EM409

1600 mm BELT
2000 mm BELT



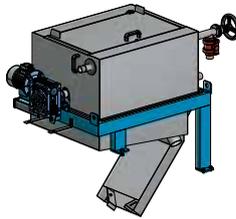
EM411

1600 mm BELT
2000 mm BELT
2500 mm BELT
2600 mm BELT
3000 mm BELT

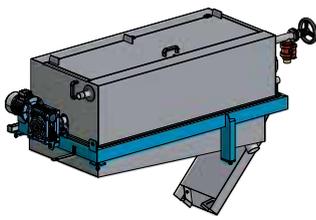


POSSIBLE COMBINATIONS

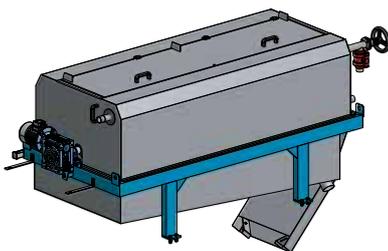
PREDEWATERING DRUM



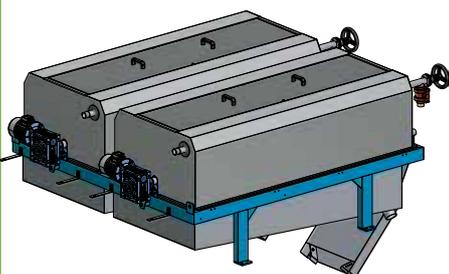
MODEL B (600X750mm)



MODEL B1 (600X1500mm)



MODEL B3S (800X2000mm)

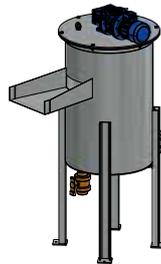


MODEL 2B3S

MOTORIZED MIXER



MODEL MNV (400X1000mm)

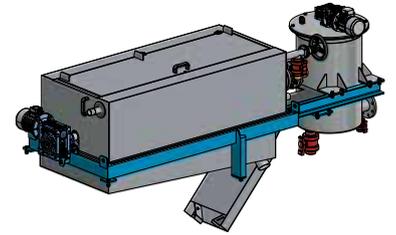


MODEL M2NV (640X1000mm)

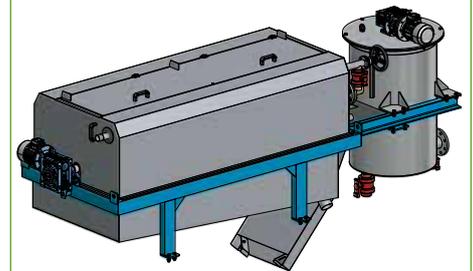


MODEL M3NV (800X1250mm)

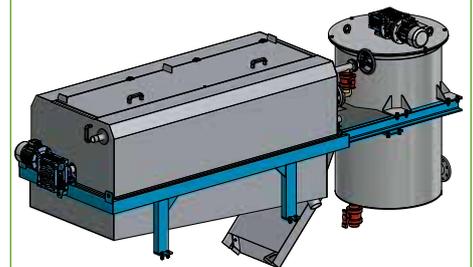
PREDEWATERING DRUM + MOTORIZED MIXER



MODEL B1+M1NV



MODEL B3S+M2NV



MODEL B3S+M3NV



ECOMACCHINE

Via Vandalino, 6 - 10095 Grugliasco (Torino) ITALY
Telephone +39 0114028611 - FAX +39 0114028627
www.ecomacchine.it ecomacchine@ecomacchine.it