THE EXCELLENCE IN **FILTRATION**, BY NATURE

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DIVISION

WATER TREATMENT & SILT MANAGEMENT

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HPT HIGH PRESSURE TECHNOLOGY 16BAR

HPT HIGH PRESSURE TECHNOLOGY 21BAR

TT2 FAST OPENING TECHNOLOGY

FILTER PRESSES WITH HIGH PERFORMANCES

- COMPLETELY AUTOMATIC
- 90% WATER RECOVERING
- SLUDGE VOLUME REDUCED BY 80%
- ASSISTANCE IN 24/48 HOURS
- 36 MONTH WARRANTY
- **THE CUBE**: 100% MOBILE

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In tunneling applications, sludge arises and needs to be treated to be dispose of and to recover water.
Usually, the sludge from the digging is bentonite sludge.
Matec solution implies the use of one or more hydrocyclone phases before sending the material still to be treated to the clarification and filtration system by Matec, which will work at high pressure (21 BAR) to dehydrate the difficult bentonite sludge.

The first phase with the hydrocyclone is with machines that:

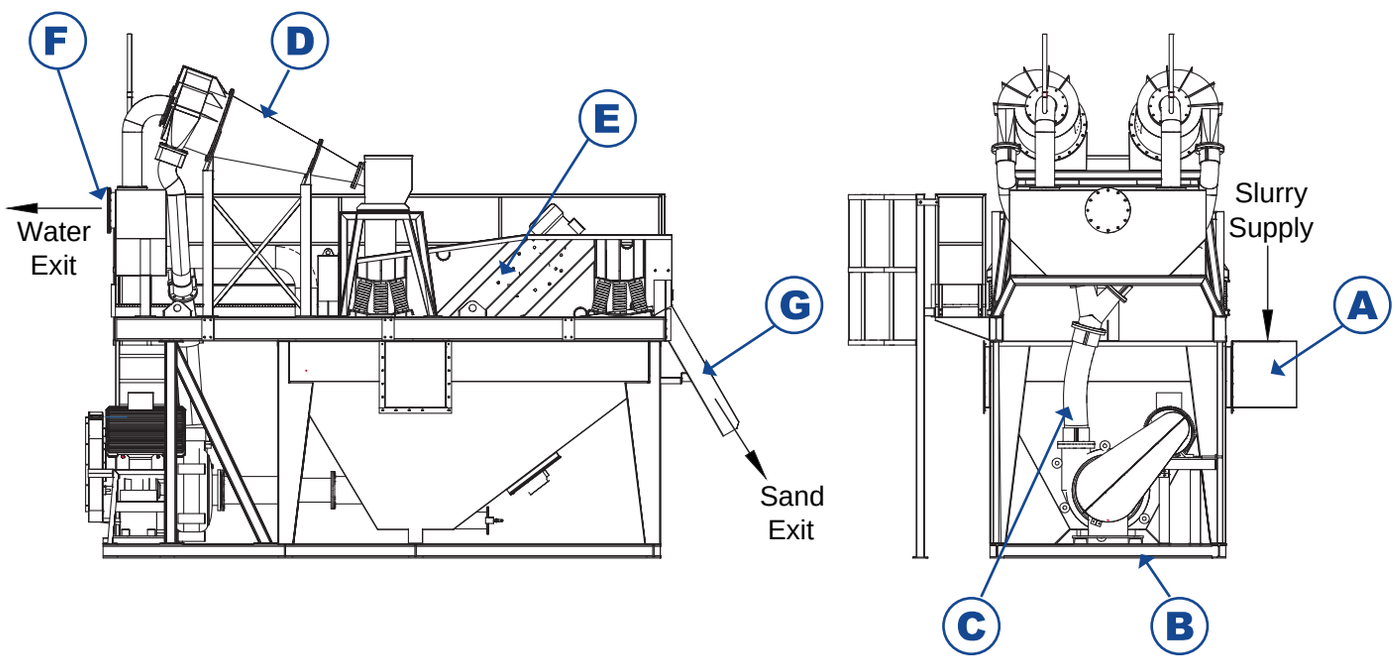
- Recover 90% of material whose size is bigger than 75 micron
- Eliminate clay and lime almost completely
- Recover material with residual moisture below 15%
- Reduce the solids in the water and the material to be treated in the water treatment plant consequently

Aggregates and sand with bentonite recovering

Fixed sludge treatment plant

This is how the hydrocyclone works:

- The slurry composed of a mixture of water, sand, silt, clay, etc. is conveyed to the storage tank through the feeding chute **(A)**.
- The pumping unit **(B) sucks up the slurry and sends it to the hydrocyclone through a pipe in anti-wear rubber with metal inserts (C).**
- The hydrocyclone **(D)**, thanks to a centrifugal movement, causes the liquid-solid separation.
- The underflow, composed of a mixture of sand over 75 microns, containing about 30% of the treated water is sent to the Dewatering Screen **(E).**
- The overflow, containing particles under 0,1 mm only, is sent to the Water Discharge Chute **(F)**, where the water discharge pipe is fitted, but which also acts as compensator in case the level of the input water is below that of the treated water.
- The Dewatering Screen fitted with a polyurethane Draining Deck drains the sand and sends it to the Sand Discharge Chute **(G).**
- The residual water comes out of the draining deck and returns to the Storage Tank.



The overflow of the hydrocyclone, with material whose size is below 75 micron, is sent to desilters that can be combined according to the required production.
These recover the material according to the used desilter, whereas its overflow can be now sent to the water and sludge treatment plant with thickener and filter press.
It is important that the filter press works at high pressure (HPT) for this kind of application, as it is necessary to obtain great results.
The filtration process in this application is standard (HPT), the water from the desilters are pumped into the thickener to be clarified.

Matec thickeners, vertical or horizontal, are designed to **guarantee the fastest and most efficient purification process**. Clean water will overflow from the top, whereas solids thickens at the bottom cone.
Once the desired thickness has been reached, the sludge is discharged into a homogenizing tank and then pumped at high pressure (21 BAR) into the Matec filter press.
The high pressure and the specifically designed cloths guarantee a short filtration time. The exclusive accessories TT2 Fast and Gasser Shakers permit to quickly discharge (less than 4 minutes for a 200 plate machine) the low residual moisture cakes (15-20%), ready to be disposed of.

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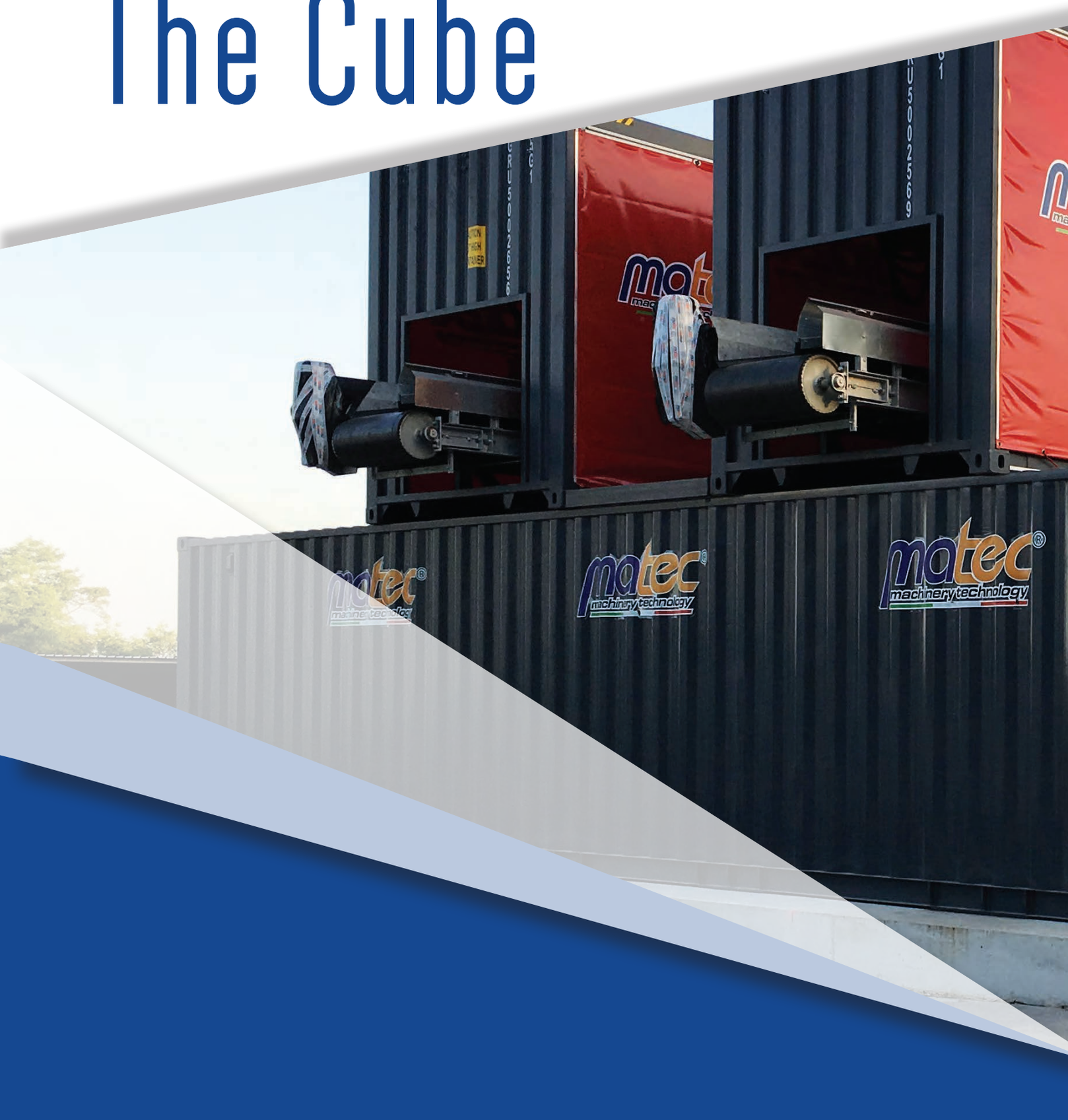
The Cube



MOBILE PURIFICATION SYSTEM

- 100% MOBILE
- 100% PRE-WIRED
- 100% ECO-FRIENDLY
- NO CIVIL WORKS

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DIVISION

The Cube

Matec has also conceived a special solution for tunneling, the Cube plant, a complete filtration and depuration plant, 100% mobile and perfect to be moved from one site to another, eliminating the expensive civil works and the installation costs (the Cube is pre-wired in our workshop, ready to work).


WATER TREATMENT
& SILT MANAGEMENT

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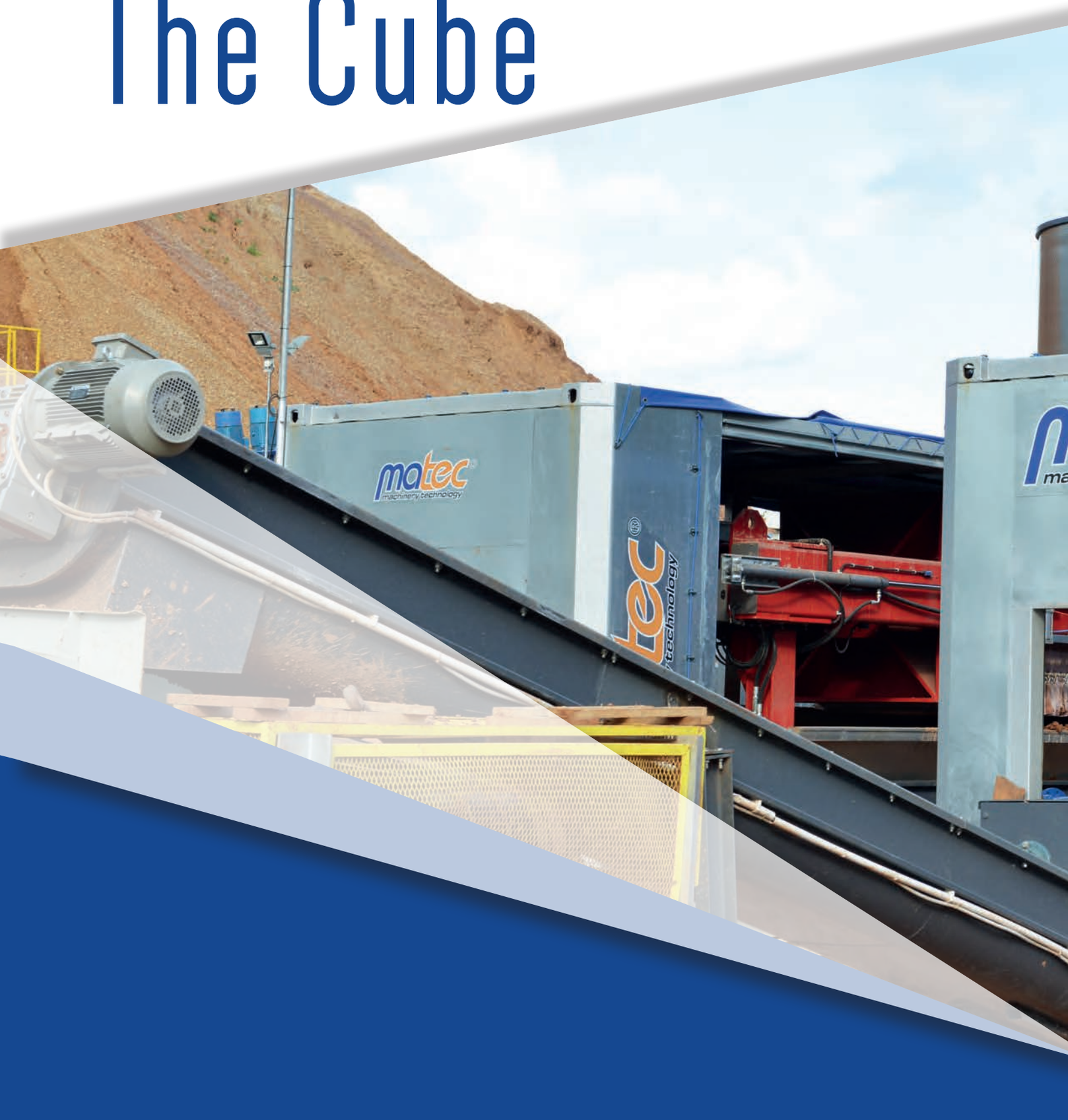
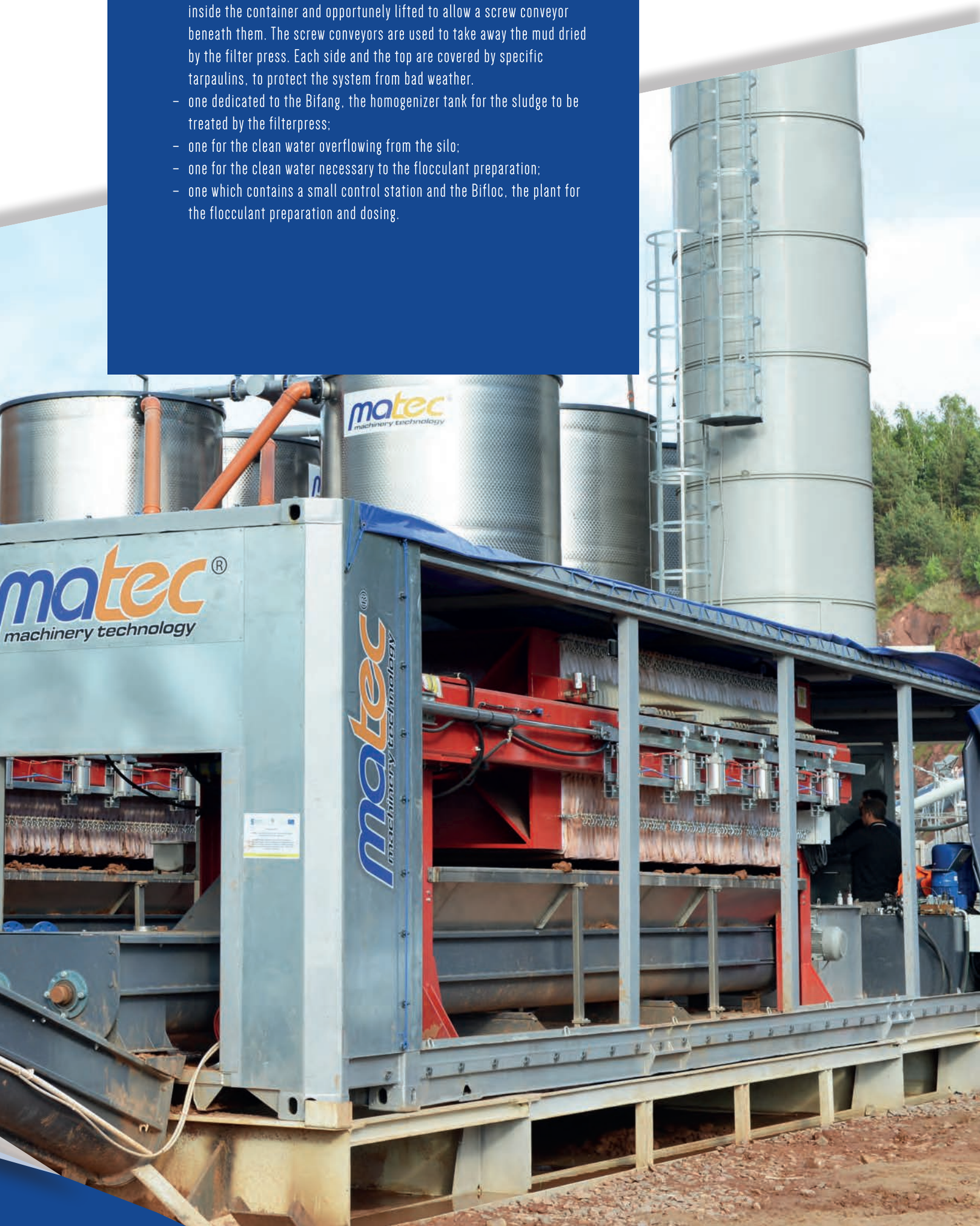
The Cube



The Cube consists of:

- one or more containers for the filter press(es). The machine is placed inside the container and opportunely lifted to allow a screw conveyor beneath them. The screw conveyors are used to take away the mud dried by the filter press. Each side and the top are covered by specific tarpaulins, to protect the system from bad weather.
- one dedicated to the Bifang, the homogenizer tank for the sludge to be treated by the filterpress;
- one for the clean water overflowing from the silo;
- one for the clean water necessary to the flocculant preparation;
- one which contains a small control station and the Bifloc, the plant for the flocculant preparation and dosing.



MATEC specializes in the design and development of waste water purification and filtration plants. We work for many different industries, the most important are: mining, aggregates, gravel, sand, stone, ceramics and glass. Our mission is the customer's satisfaction. That is why we offer timely after-sale service, as well as before-sale advice to understand the real requirements of our potential customers.

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Via Aurelia Ovest, 383 - 54100 Massa (MS) Italy
tel. +39.0585.831034 - Fax +39.0585.835598
info@matecitalia.com

www.matecitalia.com