

A dynamic splash of clear blue water against a white background, with many small droplets and bubbles in the air.

**matec**  
*machinery technology*

*Dried up to the last Drop*

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*Worldwide leader in water treatment and silt dewatering plants*

*"A great company for great projects"*





### Matec High Pressure Technology

HPT allows our machine to reach pressures which surpass our competitors' to obtain better results. Working at higher pressure means using better and more resistant components, from the feeding pump to the filter press framework.

MATEC is a worldwide leader in the design and manufacturing of filtration and purification plants for waste water and silt. We design, manufacture and install complete and turnkey plants in any sector which deals with waste water and silt. The most important ones are mining, aggregates, sand and gravel, stone, concrete, ceramics, plastic and glass. We have developed extensive experience over 10 years and thousands of successful projects all across the world. Through our systems we can guarantee the best results, allowing any working site to reach its maximum efficiency and production. Because Matec systems maximize the returns of the plant, recovering precious materials and reducing disposal costs.

We can provide our customers with the best quality machines, also thanks to components by top brands and the best assistance service.

Matec headquarters are in Massa, Tuscany, Italy. Our workshop and offices cover a 5000 m<sup>2</sup> area, here we design and manufacture all our machines to offer 100% Made in Italy products.

Matec is a well-established presence in every continent and we have developed branch offices in America, Brazil and India, plus a global dealer network. Through our warehouses and dealers, we can easily supply the spare parts you need and give assistance. The need of constantly keeping a high level of both service and operational skills must be translated into a strong integration between Customer's needs and the daily comparison to the evolution of our reference markets. Our company mission is creating values through the supply of cutting edge products and services for customer's greatest satisfaction, at the same time respecting mankind and the environment.

1500 installations in the world

Over 100 countries

4 factories ITALY USA BRAZIL INDIA

Global dealer network



Matteo and Massimo, the owners



Our staff



*"Innovation, Engineering, Manufacturing  
installation 100% Made in Matec"*



**matec**<sup>®</sup>  
machinery technology

**matec**  
machinery technology

**matec**

**matec**

**matec**



## MINING COAL AND IRON-ORE

In the mining sector, the filter press is used for the tailing and the concentrate recovering. Coal mines have to deal with the problem of disposing of the uneconomic material, by-product of the coal production. Especially, Matec machines can dewater the waste fines suspended in water, recover them, clean water and eliminate tailing ponds.

Matec filter press is also used in the concentrate recovering. For this application, the cake output must have a very low residual moisture, 6 or 7%, and Matec filters can reach it through the installation of membrane plates which squeeze further and the core blow accessory to dry the cakes more.

Processed rocks, coal and clay may contain a wide range of heavy materials, such as arsenic, lead, cadmium, chromium, iron, manganese, aluminum and nickel.



## AGGREGATES - SAND AND GRAVEL

Aggregates like gravel and in particular sand, because of their applications, need to be washed to recover fine particles and eliminate the silt which adheres to their surfaces. Usually, the water used for sand washing can be recycled by using settling ponds in which heavier particles settle down and where they are collected from the bottom to be stocked. Recovery and storage of these materials, which must be disposed of with excavators, trucks and personnel at a later stage, have significant costs for aggregate production industry, also due to the fact that it is necessary to dedicate a large area to these operations. Matec filter press allows to get rid of settling ponds and produces dry cakes easy to stock and dispose of, it also recovers water which is particularly important in dry areas.



## STONE CUTTING MARBLE AND GRANITE

In marble, granite and stone working, either in quarries or workshops or stone processing factories, water has multiple applications. From cutting to polishing, water is necessary to avoid the over-heating of tools and reduce dust produced in various processes. Then, water needs to be treated in order to be re-used in the closed production cycle or to be discharged in the environment safely. Matec filter press is perfect to produce dry cakes with a 15% residual moisture and recover 99% of water, occupying the minimum amount of space.



## CONCRETE AND TUNNELING

The water used for the washing of trucks and mixers must be treated in order to be recovered and cement remains must be disposed of or recovered at the end of the working cycle.

MATEC offers two options in their plants for the clarification of water derived from pump and cement mixer washing in concrete and cement plants. Before the filtration and purification process is carried out by the filter press, the residue can be processed by a screw separator or a dewatering screen in order to separate and select aggregates.



## RECYCLING AND SOIL WASHING

The recycling sector is the one dedicated to the recovery of material deriving from crushing processes and soil washing. The material has to be washed to remove the polluting part, decontaminating it. The system works with attrition cells, special tanks where the sand is agitated to eliminate contaminants through attrition, then the material is filtrated by the filter press. An important application is for the recovery of construction materials.



## GLASS CERAMIC

In the glass workshops, the water must be treated to remove the residue deriving from glass working.

Whereas in the ceramic sector, the filter press can be used for the disposal of the slurry deriving from ceramic working or for the preparation of the ceramic pulp for the ceramic production process.



## CHEMICAL, PLASTIC, INDUSTRIAL APPLICATION

Matec machines and plants can be applied to other sectors. Wherever there is slurry to be treated Matec is the best solution on the market.

# DECANTER TANKS

*Matec manufactures decanter tanks for the clarification of waste water.  
Both vertical decanter tanks and horizontal thickeners can be designed by  
our engineers.  
Our projects can guarantee thickening as well as clarification.*

## **The clarification and thickening process:**

The waste water is collected in a concrete pit or a steel tank, from which it is sent to the thickener/clarifier by a submersible pump. Flocculant mixture is added in the waste water pipe. In the silo, the mud sinks to the bottom and thickens, when the required density is reached the mud is discharged into the mud tank (Bifang), while the clarified water overflows into the drain gutter at the top of the decanter and it is collected in the clean water tank/pit, ready to be reused. Matec offers the quickest clarification process for any type of waste water.

*"Stainless steel forever"*







# FLOCCULANT PLANTS

The flocculant system by Matec is 100% automatic to guarantee the most efficient mixture.

It mixes a biodegradable polyelectrolyte with clean water and sends it into the decanter to speed up clarification.

*"Save flocculant,  
help the environment"*





**Doson System**



**Screw metering pump**



**Piston pump**

## **Cocly**

Cocly is the automatic powder metering accessory. It adjusts the powder automatically and it starts the water inlet valve and the stirrer.

Cocly produces up to 50,000 liters of product without stopping and it is completely autonomous.

Cocly is fully made of stainless steel and comprises:

Hopper: 25-50-75-100 Kg

Screw metering pump

Digital or manual regulator

## **Doson**

Doson is a photocell-based system patented by MATEC for monitoring and adjusting the flocculant according to the amount of suspended solid particles in the water. The Doson system regularly takes few samples of the sludge pumped to the decanter silo. It analyzes the samples in a closed chamber and, by using electronic sensors, it measures the amount of solid particles contained in the known sludge volume and also the decantation speed in that specific time of the cycle. Then, it automatically adjusts the dosage of the product according to the amount of materials it contains, so the water is always clarified in the best possible way. This result is reached by increasing or decreasing the amount of polyelectrolyte, minimizing the consumption of the product and preventing the problems that can be caused by an excessive amount of the polyelectrolyte. The Doson system is essential when the properties of the sludge to treat change during the days, both in terms of rates or types of solid particles.

30% product saving

Guaranteed clarified water

Fully automatic system

# FILTERPRESSES

**The strength of water, the power of fire and the hardness of earth.**

An ancient technology serving the future. Filter presses are based on a simple, ancient principle, invented by the Romans to press olives and grapes. Today's technology brings the filter press back to the present as a modern, invaluable tool. Simplicity, flexibility and effectiveness make it essential for many industries. Matec's philosophy focuses on the relentless search for harmony between the productive requirements of a modern company and environmental safeguarding. The filter press dehydrates the sludge by squeezing all the water out of it (recovering about 90% of it) into dry cakes of pressed sludge, which can be handled, moved and are ready to be reused or disposed of.

**TT2 FAST** – The fastest discharging system on the market

**HPT 16/21 BAR** – Higher pressure for better results

**GASSER SHAKER** – Pneumatic shaking to discharge it all

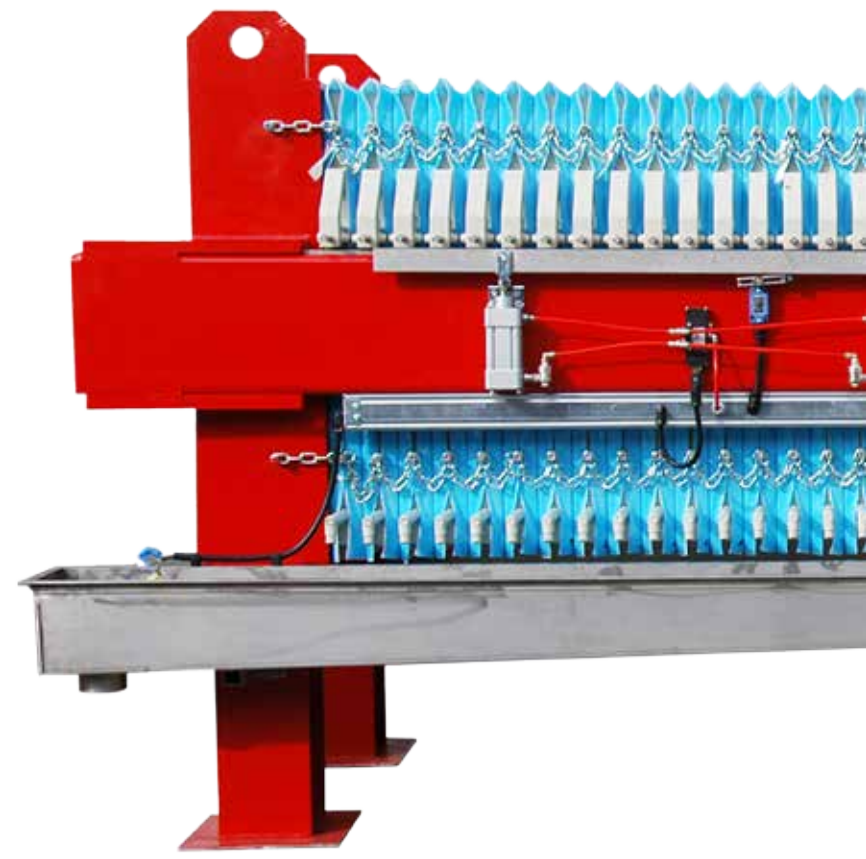
*"Dried up to the last drop"*







Ignis machine with cover





1000x1000 - 30 plates



1000x1000 - 20 plates

### Benefits

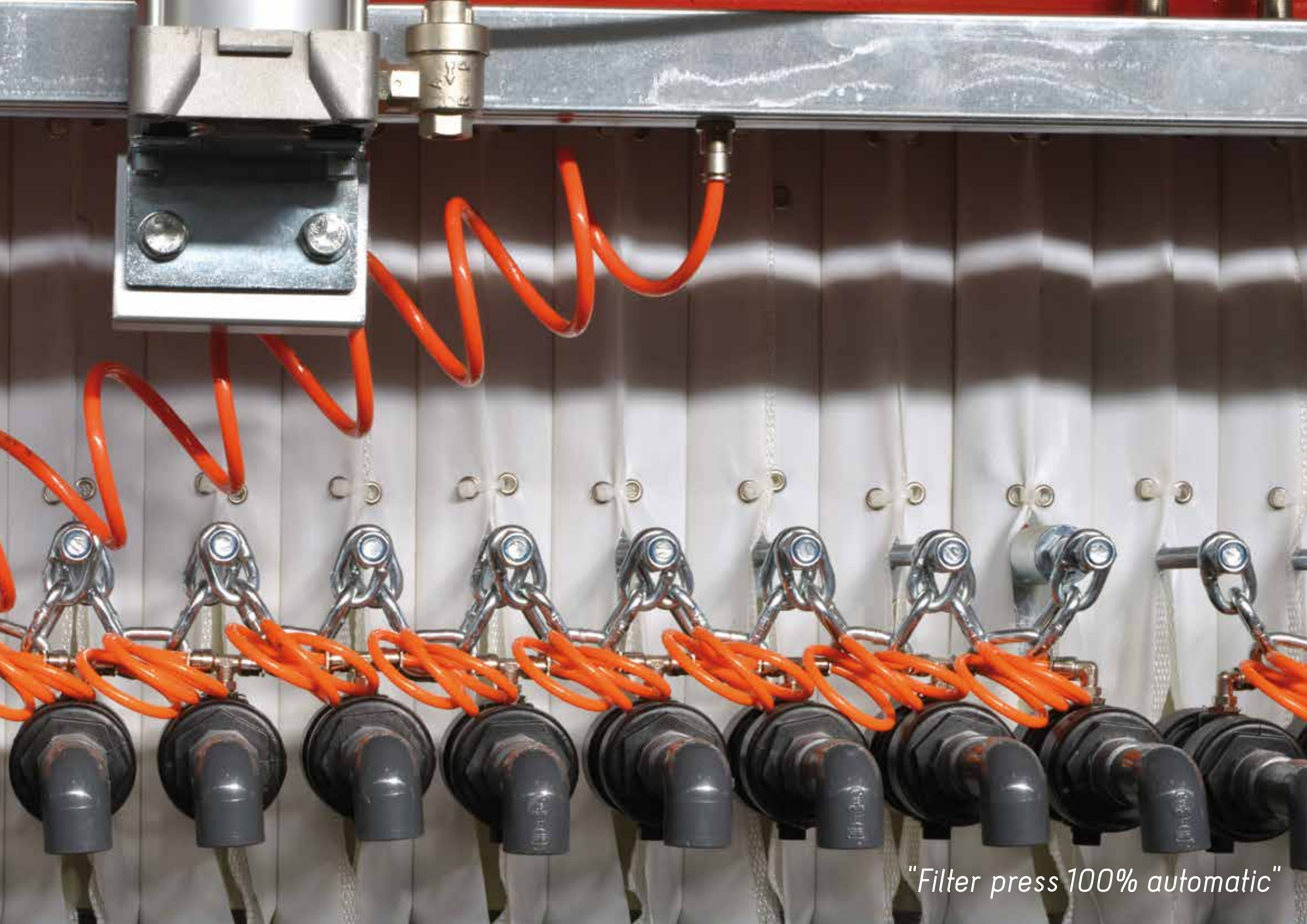
- 100% Made in ITALY. 100% Made in Tuscany
- HPT (High Pressure Technology) to work up to 16/21 BAR
- Gasser Shakers for discharging the cakes perfectly
- Real automatic washing for a complete washing
- Filter cloths attached with strips and rubber connections for an easy replacement
- Open filtrate design to allow a simple and swift identification of damaged filter cloths
- Allen Bradley PLC with remote monitoring and assistance
- Machines made of single-block steel from thick slabs
  - Plasma, laser or water-jet manufacturing process
  - First choice components by major manufacturers
  - Various accessories to perfect your system
- Different models for the best economical/technical solution

### TT2 FAST

Filters with 50 or more plates include the TT2 Fast model (fast opening):  
The TT2 Fast opening can discharge the cakes for 200 plates in less than 4 minutes

Matec uses components by the top brands:





*"Filter press 100% automatic"*





### **TT2 FAST patent**

The discharging time is a dead time in the productive cycle, so the faster is the opening, the greater are the savings. It basically works through one steel bar per side which is moved by dedicated oleodynamic cylinder which start pulling to open the plate pack.

### **GASSER SHAKER patent**

Through the Gasser Shaker system, Matec can guarantee the perfect discharging of cakes from the plates. It shakes the plates automatically in order to avoid that some mud remains attached to the plates.



### **Automatic Real Washing**

The filter press can be equipped with an automatic washing system for plates and cloths. The system is composed by one valve, one system of pipes on the mud head side of the filter press, and discharging valves on every single plate. The feeding pump sends clean water to wash the residual mud. The system washes the plates 20 by 20. The frequency of the washing cycle is set through the operator panel.

### **Mud Cake Washing**

Special mud with chemicals may require the washing of the cakes with clean water to lower chemicals' level below the "special mud" threshold. The clean water is pumped inside the chambers before the discharging. The squeezing is usually associated to this accessory.

### **Squeezing**

When cakes with a very low residual moisture are needed, Matec filter press can be equipped with membrane plates. Water is pumped into the special plates which grow in volume to squeeze the cake and lower the moisture.

### **Core Blow**

The core blow system is a system conceived to clean out the residual liquid mud which remains in the diffusion conduit which goes through the plates.

It is done when the filtration cycle has ended, but before the cake discharging.

The filter press is equipped with a compressed air system that pump air from the mobile plate to remove the residual liquid mud from the plates.

The blown mud is discharged into the mud homogenizer tank again or into the waste water pit.

### **Cake Dryer**

The cake dryer system is installed to lower the residual moisture of the cakes by injecting air into the filter press. The air dries the cakes and is discharged through the drainage system.

### **Drip Tray**

The Drip Tray System is a system conceived to prevent the dripping of water on the already discharged mud cakes. It works automatically, controlled by the PLC and moved by a dedicated motor / gearbox system. The tray is placed under the filter press during the filtration cycle and it shifts away when the filter press opens for the cakes' discharging.

# PUMPS & BIFANG

The pump is the beating heart of the filter press and which one you choose will influence the performances of the plant, in terms of number of cycles and m<sup>3</sup> of produced sludge per hour. The pump type is also responsible for the mud moisture percentage of the cakes.

The Bifang is the Matec homogenizer or buffer tank which receives the thickened mud from the decanter.

**HPT**<sup>®</sup>  
HIGH PRESSURE  
**TECHNOLOGY**  
**16BAR**

**HPT**<sup>®</sup>  
HIGH PRESSURE  
**TECHNOLOGY**  
**21BAR**

*"High pressure  
for better results"*

## *Single case centrifugal pump*

The centrifugal pump for the filter press feeding guarantees the maximum speed filling and a final mud cake with low residual moisture. It can be installed with double speed motors for a homogenous filling of the filter, with the first speed, and more compact cakes, with the second one. Centrifugal pumps can be supplied with a motor controlled by an inverter.

## *Double case centrifugal pump*

By using double case centrifugal pumps, it is possible to reach performances which double the ones obtained with single case pumps, that is to say an increased mud dehydration and an operating pressure up to 21 BAR.



Single case pump



The Bifang is the sludge homogenizer tank. It collects the sludge discharged by the silo and it keeps it homogenized at the right density by using one or more stirrers, according to the dimension of the tank. The Bifang sends its sludge to the filterpress, to be filtered and dried. The Matec Bifang has four level probes:

- one to detect when the tank is filled up, the shortest one;
- one which goes down to the bottom detects when the tank is empty;
- one probe which sends the signal to stop the pump;
- one which sends the signal to restart the pump.



Double case pump



# MOBILE PROJECTS

THE CUBE

INNOVATION 100% MOBILE



*"Industry and environment  
must coexist"*







*"From the factory to the working site"*



Matec has designed and manufactured the first mobile plant in the filtration sector: an ambitious project, another great success. The complete plant consists of different containers dedicated to the different part of a filtration plant:

- One (or more) for the filter press(es), which is placed inside it and provided with a screw conveyor to take away the dried mud. Everything is conceived, designed and manufactured to perfection. The filter press container is delivered with all the connections already made. Each side and the top are usually covered with 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 can be split into two parts, one for clean water necessary to the flocculant preparation and one for other uses (e.g. collecting water from a hydrocyclone);
- One for a small control station and the Bifloc, the plant for the flocculant preparation and dosing.

The Cube needs no civil works and no fixed anchoring. You just choose where to place it and connect it to the feeding grids, all the containers are pre-wired.

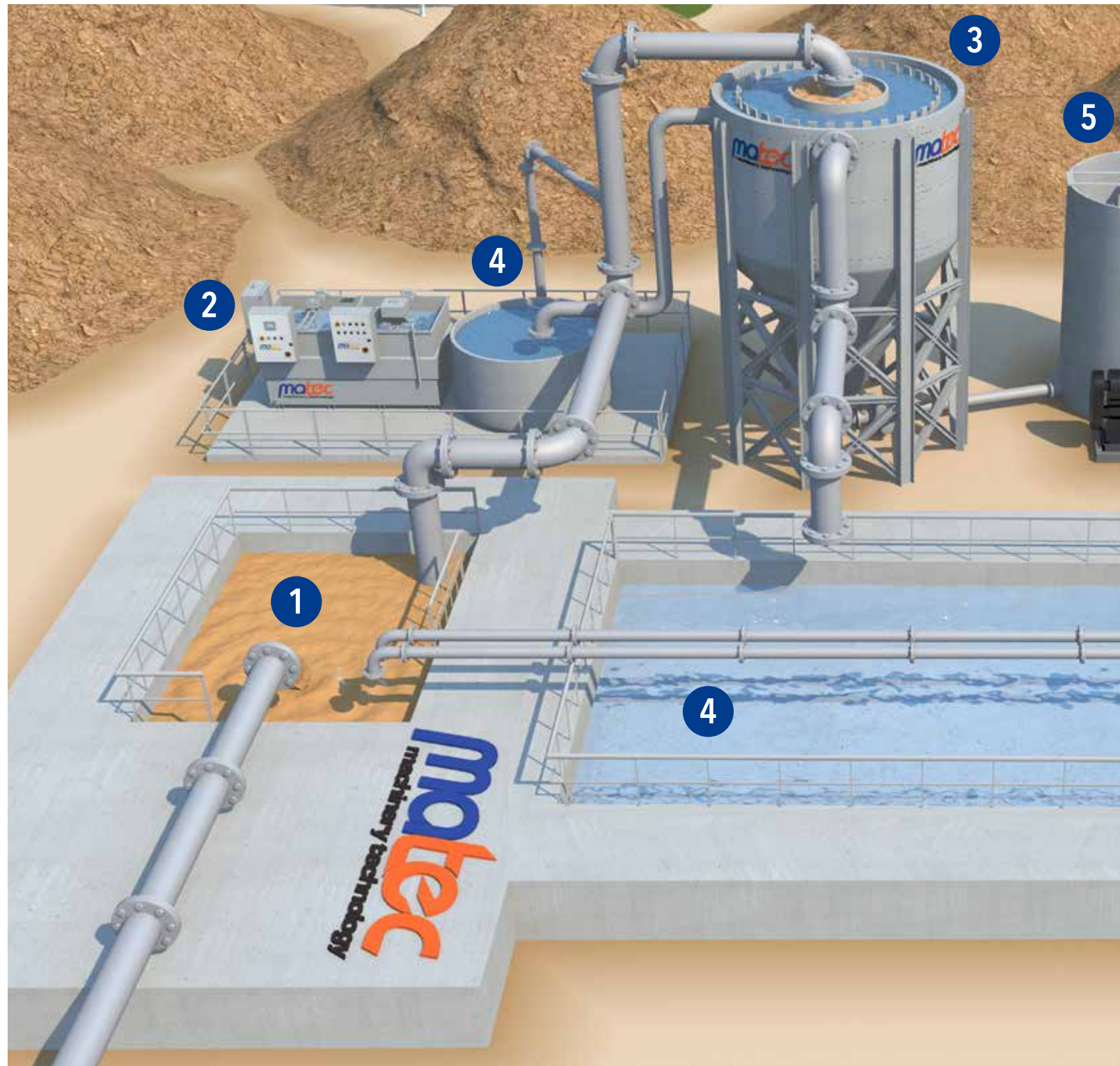
Matec has created the first mobile plant in the sector of waste water and sludge filtration and purification. Easy to install, from the factory on site and ready to work, the Cube is what will change the waste water treatment.

The screw conveyor below the filter press to extract the dry mud



## PLANT LEGEND

- ① Dirty Water Pit
- ② Bifloc Flocculant Station
- ③ Deep Cone Thickener
- ④ Clean Water Pit/Tank
- ⑤ Bifang Homogenizer Tank
- ⑥ HPT Pump
- ⑦ TT2 Fast TERRAE Filter Press  
1500x2000/200 plates







## PLANT DESCRIPTION

The waste water from washing is collected into the dirty water tank **1**

→ The submersible pump sends the dirty water in the deep cone vertical thickener **3**

→ Flocculant prepared by the Bifloc **2** is injected in the dirty water pipe, before entering the vertical thickener **3**

→ Inside the thickener **3**, the decantation process takes place.

→ Purified water overflows from the top of the thickener **3** and ends into the clean water collecting pit/tank **4**

→ Residual mud is sent into the Bifang homogenizer tank **5**

→ The filter press **7** closes and the HPT pump **6** sends the mud into it.

→ The New TT2 Fast opens the filter press **7** in sections and the dry cakes are discharged.



# Matec factories and offices





*Matec S.r.l.*

*Via Aurelia Ovest, 383*

*54100 Massa (MS) Italy*

*[www.matecitalia.com](http://www.matecitalia.com)*

*[info@matecitalia.com](mailto:info@matecitalia.com)*

