



THE EXCELLENCE IN **FILTRATION**, BY NATURE



**MINING, COAL AND IRON ORE**  
DIVISION



**matec**®  
machinery technology

**WATER TREATMENT & SILT MANAGEMENT**



## WATER TREATMENT & WASHOUT SOLUTIONS

### THE EXCELLENCE IN FILTRATION, BY NATURE

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 to create values through the supply of cutting edge products and services for customer's greatest satisfaction, at the same time respecting mankind and the environment.

#### FIELDS OF APPLICATION

- ✓ MINING COAL AND IRON-ORE
- ✓ AGGREGATES - SAND AND GRAVEL
- ✓ STONE CUTTING MARBLE AND GRANITE
- ✓ CONCRETE AND TUNNELING
- ✓ RECYCLING AND SOIL WASHING
- ✓ GLASS AND CERAMIC
- ✓ CHEMICAL, PLASTIC, INDUSTRIAL APPLICATION



- ✓ 1800 INSTALLATIONS IN THE WORLD
- ✓ OVER 150 COUNTRIES
- ✓ 4 FACTORIES ITALY USA BRAZIL INDIA
- ✓ GLOBAL DEALER NETWORK



**PRODUCTIVITY**



## WATER TREATMENT & WASHOUT SOLUTIONS



### MINING, COAL AND IRON ORE DIVISION

## WATER TREATMENT IN THE MINING SECTOR – TAILING, FLOTATION AND CONCENTRATE

In the mining sector, the filter press is used for the tailing, the flotation and the concentrate.

For example coal mines (or mines of other materials) 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, recovering, cleaning water and eliminating tailing ponds.

Matec filter press is also employed 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.

Processed rocks, coal and clay may contain a wide range of heavy materials, such as:

- ✓ arsenic
- ✓ lead
- ✓ cadmium
- ✓ chromium
- ✓ iron

### THE FILTRATION PROCESS

The actual filtration process occurs in the filter pack, consisting of a customized set of plates. The cloths and under-cloths cover the filtrating surface of the plate, which has small projecting cylinders forming drainage channels. Once the filter pack is completely sealed, the filtration process begins from the head plate with the feed pump injecting the sludge into the filter plates chambers. The cake will form uniformly all across the filtrating surface and is ready for discharging once the required moisture level has been reached.



Filter press, vertical thickener and bifang in Kentucky

## MATEC GUARANTEES:



### DRY CAKES

The average residual moisture is 20%, but we can squeeze cakes to obtain 7-8% residual moisture to dispose of easily or to recover concentrate



### CLEAN WATER

The water obtained from the dewatering is clean water ready to be reused or disposed of safely.



### COMPLETE TURNKEY PLANTS





**WATER TREATMENT & WASHOUT SOLUTIONS**



**MINING, COAL AND IRON ORE  
DIVISION**

# BORN TO BE PERFECT

TURNKEY WATER TREATMENT AND FILTER PRESS  
NO PERSON, NO POLYMER, NO PROBLEMS!



**HIGH THICKNESS STEEL**



**HPT HIGH PRESSURE  
TECHNOLOGY FOR FEEDING PUMP**



**AUTOMATIC REAL WASHING**



**"GASSER" SHAKER**



**ALLEN BRADLEY AND SIEMENS TECHNOLOGY FOR PLC**



**TT2FAST THE FASTEST OPENING SYSTEM**

**TESTED 10.000 PSI ( 700 BAR )**

**OPEN FILTRATE DESIGN**

**MOISTURE < 20%**





## WATER TREATMENT & WASHOUT SOLUTIONS



### **MINING, COAL AND IRON ORE DIVISION**

#### THE FILTER PRESS

Compliance with environmental laws has become important for plant owners in most countries. Cutting-edge technologies have been developed in the industrial wastewater and slurry treatment field.

Matec technology complies with the latest environmental regulations, while maximizing the returns of the plant, through savings and earnings. That is what clients have been asking for.

Matec offers four ranges of filter presses:

ACQUAE, IGNIS, TERRAE, MAGNUM. Our machines can handle all kinds of capacities and flow rates, and are designed for heavy duty projects. Automation, top brands, 24-month warranty, HPT and TT2 Fast are what Matec can offer compared to our competitors.

#### **OUR MACHINES' FEATURES ARE:**

All made of single-block steel from thick slabs; Plasma, laser or water-jet manufacturing process; Purified water drained through external manifolds; First choice components by major manufacturers; Stainless steel accessories; High speed and high pressure hydraulic system

#### **MATEC SUPPLIES COMPLETE TURNKEY PLANTS:**

- 100% Made in Italy;
- Assembled also in North America;
- With:
- HPT (High Pressure Technology);
- Gasser Shakers;
- Real automatic washing;
- Filter cloths easy to replace;
- Open design to identify cloth damages;
- PLC with remote control and assistance;
- Variable number of plates;
- Different models for the best technical/economical solution.

**Customize your filter press system to your needs.**



Utah filtration plant







**WATER TREATMENT & WASHOUT SOLUTIONS**



***MINING, COAL AND IRON ORE  
DIVISION***

**CAPACITY  
COMPETENCE  
COURTESY**







## WATER TREATMENT & WASHOUT SOLUTIONS



**MINING, COAL AND IRON ORE  
DIVISION**

### WHAT MAKES MATEC THE BEST SOLUTION FOR YOUR BUSINESS



#### **PRESSURE**

MATEC is the only 100% HPT company using pressure up to 16 and 21 BAR



#### **OPENING TIME**

The TT2 patented system reduces discharging times of big machines from 15/20 minutes to less than 3 minutes



#### **CAPACITY**

We design and build plants to process from 0,5 to 100 m<sup>3</sup>/h, every plant is automatic and customized



#### **AUTOMATION**

MATEC produces only 100% automatic and hi-tech plants



#### **HIGH QUALITY**

Matec only uses top brands: Siemens and Allen Bradley for the electrical part, Bosch Rexroth for the mechanical part and feeding pumps 100% made in Italy



#### **WARRANTY AND ASSISTANCE**

MATEC has a technical office with 5 engineers dedicated to blueprint design, project engineering and the providing of different platforms, 1 dedicated engineer during installation, 10 technicians for the plant assembling and start-up, and for the after-sale assistance within 24/48 hours



The 2000x2000 Magnum with 4 cylinders

**FROM 400x400 TO  
2000x2000 PLATE SIZE  
FROM 3 TO 220 PLATES  
OVER 150 TPH**



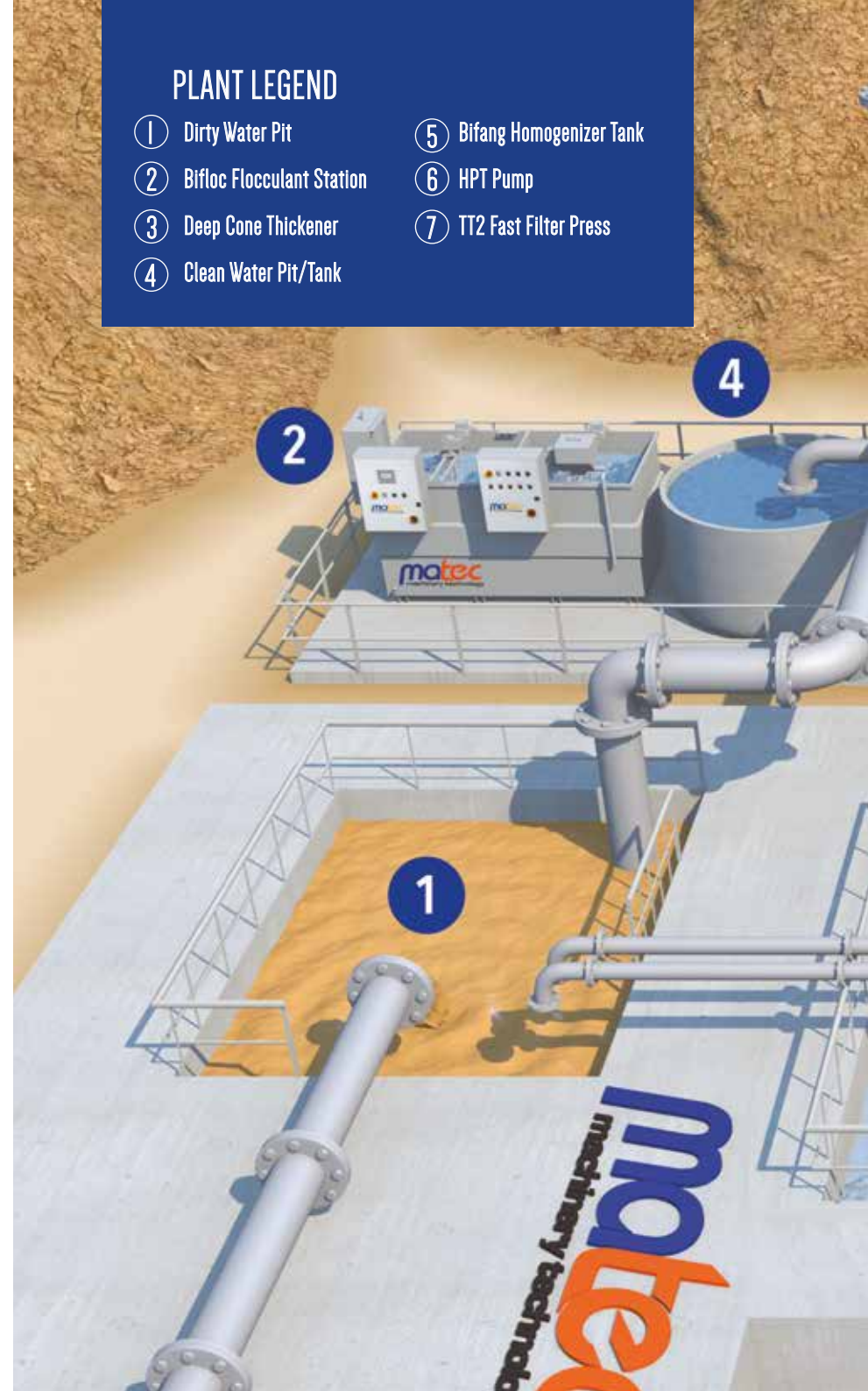


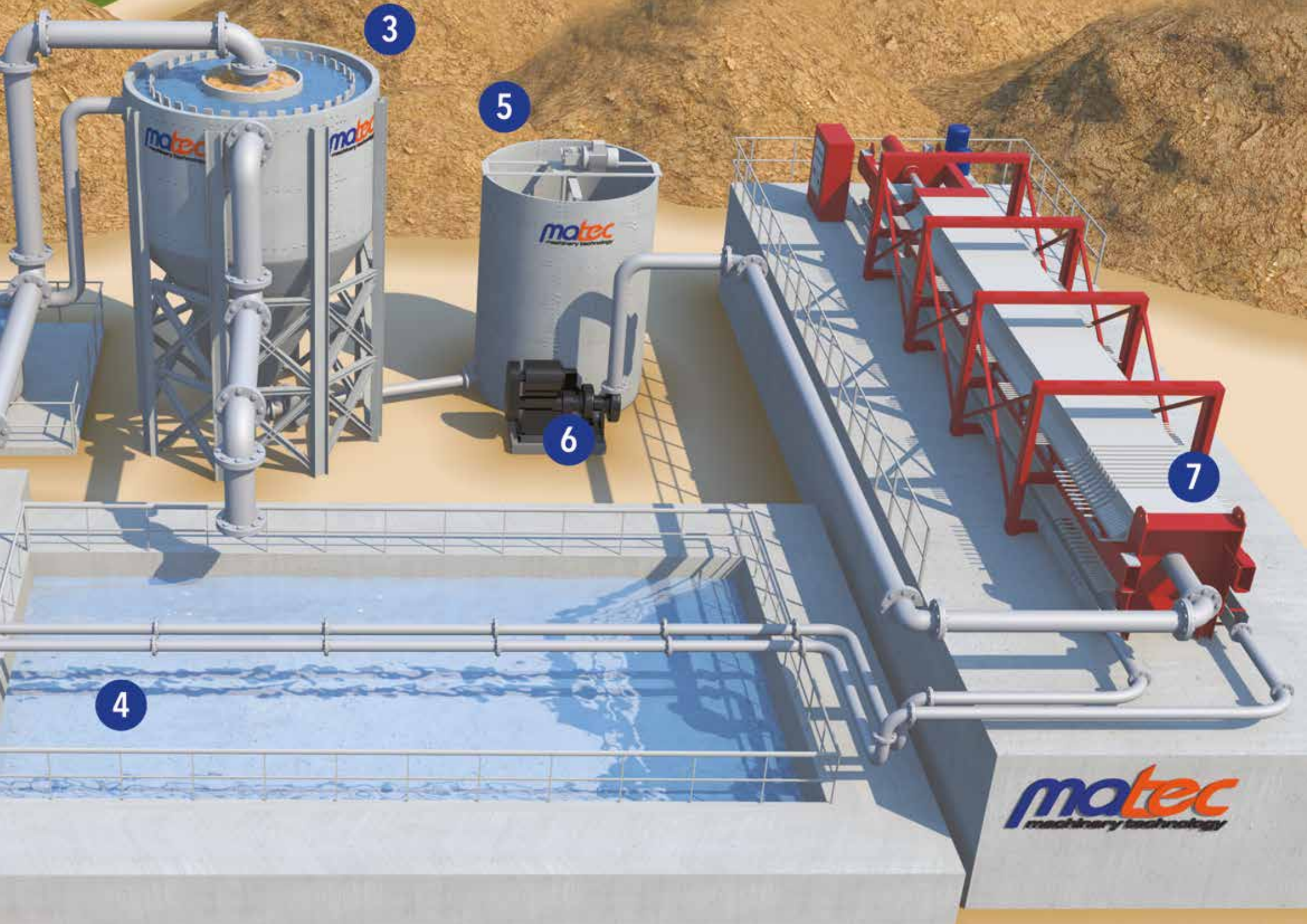
## THE PROCESS

- 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, in which 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
- Thickened 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 (for machines with over 50 plates) and the dry cakes are discharged.

## 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 Filter Press





3

5

6

4

7

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## THE EXCELLENCE IN FILTRATION, BY NATURE

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.



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

