

TLC

technolisticatalogue
Water Treatment for Heating Systems





MANTA[®] *ecologica*
Water Treatment for Heating Systems



DESCALING

WHAT IS LIMESCALE AND HOW IT IS FORMED

Limescale is formed when calcium and magnesium, bound to bicarbonate, precipitate due to changes in temperature. If there were no bicarbonates, the water would create encrustations only at its boiling temperature.

POLLUTION

Considering the enormous quantity of carbon dioxide that is emitted into the atmosphere every day, to date, all the calcium and magnesium present in water bind with the bicarbonate.



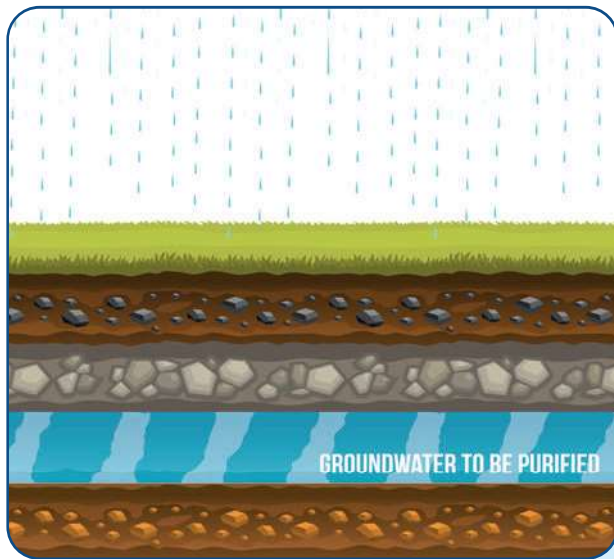
Calcium and magnesium bicarbonate are very unstable soluble salts: small changes in temperature and pH are enough to transform the calcium and magnesium bicarbonate into calcium and magnesium carbonates which, being insoluble in water, cause encrustations.

WATER PURIFICATION

The water supply can be of superficial or underground origin

SURFACE WATERS

Surface waters (basins, reservoirs, rivers, etc.) present serious problems when they must be purified as they incorporate the gases they encounter in the atmosphere when they fall in the form of rain, snow or hail, as well as all the pollutants that man has distributed in the soil.



GROUND WATER

Groundwater is deep water that has leaked into the ground.

This percolation causes the water to be filtered and, in this way, the soil absorbs all the pollutants that the water has, in turn, absorbed during precipitation and contact with the soil.

All this makes purification easier, also due to the fact that these waters, not being affected by atmospheric agents, do not change their chemical-physical characteristics.

WATER HARDNESS

Water (H_2O) is a solvent capable of dissolving also the minerals of the layers of the soil it crosses and, if these minerals are based on calcium and magnesium carbonates, the water is enriched with salts in a soluble form: **bicarbonate of calcium and magnesium**.

The **hardness of the water** represents the **sum of calcium and magnesium** present in the water.

The **unit of measurement of hardness is the French degree °f** and each French degree corresponds to 10 mg/L of calcium carbonate (scale).

If the water hardness is 30 °f it means that 300 grams of limescale are deposited in the water system every 1000 liters of water consumed.

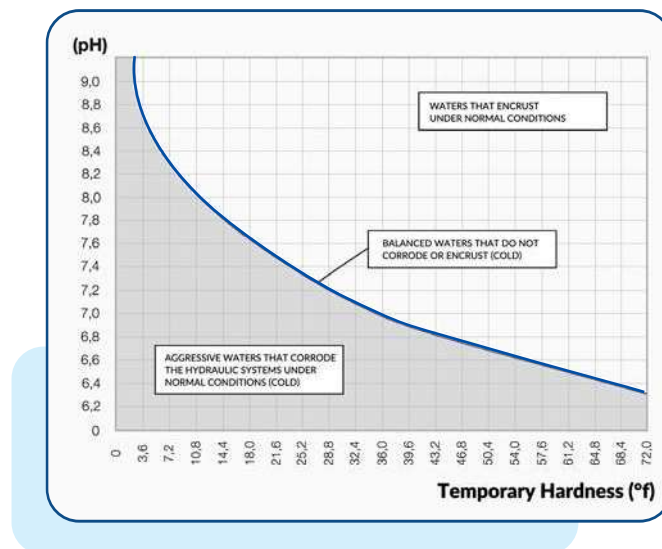
ENCRUSTING OR CORROSIVE BEHAVIORS

There are many methods to understand the encrusting or corrosive behavior of water (in the case that the CO_2 has not been neutralized in the dissolution of the minerals).

Tilman Diagram:

The most common, for water under normal conditions, i.e. cold, is the **Tilman diagram**, which relates the pH and the hardness due to bicarbonates (temporary hardness) and allows us to understand under certain conditions if the water has an encrusting behaviour (above the line) or a corrosive one (below the line).

Near the curve the water is in equilibrium, it does not encrust nor corrode.



Langelier Index:

Another method is the calculation of the **Langelier index** which is used when the water temperature is different from normal conditions: **by relating the pH, conductivity, temperature, calcium hardness and alkalinity**, it identifies the behavior of the water under those conditions.

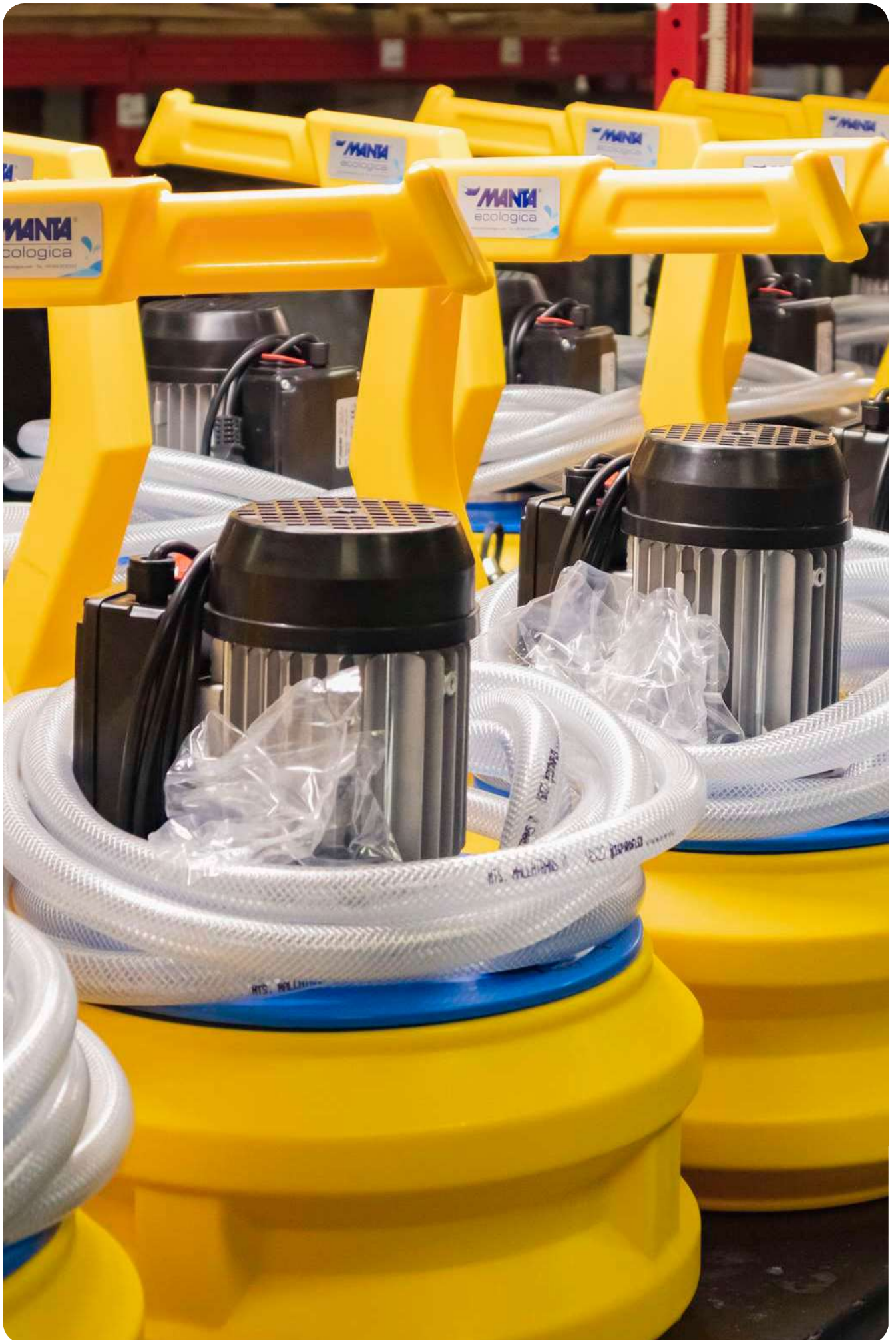
A positive index is the origin of encrustations, a negative index is the origin of corrosion, an index close to zero is equivalent to water which, under certain conditions, does not encrust nor corrode.



ENCRUSTATION



CORROSIONS



DESCALING PUMPS



The Boss range of descaling pumps represent the ideal solution to descale boilers, wall hanging and free standing boilers, water heaters, plastic moulding machines, evaporation towers, heat exchangers, coils, fridge groups and chillers. Our pumps are effective, easy to operate and easy to maintain.

ADVANTAGES

- THE WIDEST RANGE IN THE SECTOR
- ACCIDENTAL DRY RUNNING WILL NOT CAUSE ANY DAMAGE
- CAN OPERATE UP TO 60 °C AS STANDARD
- CAN OPERATE UP TO 70 °C UPON REQUEST
- REMOVABLE TANK IN 10" WITH NO TOOLS REQUIRED
- ALL OF THEM EQUIPPED WITH FLOW INVERTER
- COMPLIES WITH EN 60335-2-41:2003 AND EN 60335-1:2012



BOSS 8



BOSS PULCE FI



BOSS 18 FI



BOSS 22 FI



BOSS 36 FI

TO BE USED WITH

Descaling products

see page 109



BOSS 8

THE MOST POWERFUL DESCALING PUMP IN ITS CATEGORY

MINIMUM SIZE, MAXIMUM POWER

ERGONOMIC

THE MOST POWERFUL
ENGINE IN ITS
CATEGORY

EASY TO
MAINTAIN



FLOW
INVERTER

WATERTIGHT



BOSS8

PERFORMING AND COMPACT DESCALING PUMP TO ELIMINATE LIMESCALE

YOUR NEW ALLY FOR THE DESCALING OF:

- Water heaters
- Heat exchangers
- Plastic press moulding machines
- Wall-hung and floor-standing boilers



SAFE AND CERTIFIED

The **electrical box is fireproof** and the **thermal switch** allows an automatic stop before a critical temperature is reached.

This is why it is the only one in the category with **certification EN 60335-2-41: 2003 and EN 60335-1: 2012**.

The pump has been designed to be watertight: **the tank prevents acid vapors from escaping**.



GREAT PERFORMANCE

Equipped with **Flow Inverter** that guarantees to the descaling liquid to alternatively act at both side of the circuit.

BOSS 8 has a smaller tank: **to avoid the waste of chemicals** during the descaling operation.

ADVANTAGES

- Acid resistant material
- Operates up to 60°C and up to 70°C on request
- Self-protection against damage caused by dry running
- Very handy
- Easily unscrewable tank for easier maintenance

TECHNICAL FEATURES

TANK	8 L
MAX FLOW RATE	30 L/min
CONNECTIONS	1/2"
MOTOR	230 V/50 Hz/0,165 kW
PRESSURE	1 bar
DEGREE OF PROTECTION	IP 55
WEIGHT	7,5 Kg
MAX TEMPERATURE	60 °C
DIMENSIONS	H: 530mm L: 440mm P: 330mm

CODE 300601020

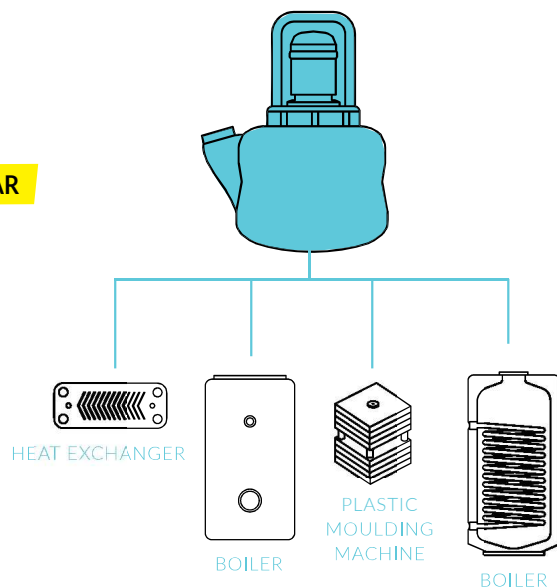
PACK 1 PC

€ 515,00/pc

BOSS 18 FI (with Flow Inverter)



Descaling pump for boilers, water heaters, heat exchangers, plastic press moulding machines, wall-hung and floor-standing boilers.



ADVANTAGES AND BENEFITS

- Acid resistant material
- Operates up to 60 ° C and up to 70 ° C on request
- Self-protection against damage caused by dry running
- Hose clips / handles
- Easy removable tank
- Restores the optimal heat exchange
- Reduces energy consumption and lowers bills
- Extends the life of descaled devices
- Compliant to EN 60335-2-41:2003 and EN 60335-1:2012

TECHNICAL FEATURES

	BOSS 18 FI
TANK	18 L
MAX FLOW RATE	30 L/min
CONNECTIONS	1/2"
MOTOR	230 V/50 Hz/ 0,165 kW
PRESSURE	1 bar
WEIGHT	9,5 kg
MAX TEMPERATURE	60° C
DIMENSIONS	H: 500 mm L: 360 mm D: 360 mm

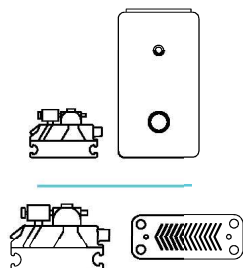
FI - CODE 300601003

PACK. 1 PC

€ 599,00/pc

BOSS PULCE FI (with Flow Inverter) ⚙️

Descaling pump for small heat exchangers, boilers, water heaters and wall-hung boilers.



- The lightest on the market
- Requires only 500 ml of liquid to work
- Shoulder strap

TANK	3,5 L
MAX FLOW RATE	8 L/min
CONNECTIONS	1/2"
MOTOR	12VD.C./D.C./0,04 kW
PRESSURE	3,5 bar
WEIGHT	3,5 kg
MAX TEMPERATURE	50° C
DIMENSIONS	H: 270 mm L: 350 mm D: 170 mm

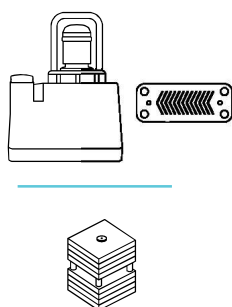
CODE 300601001

PACK. 1 PC

€ 600,00/pc

BOSS 22 FI (with Flow Inverter) ⚙️

Descaling pump for boilers, water heaters, heat exchangers, plastic press moulding machines, wall-hung and floor-standing boilers.



- Acid resistant material
- Suitable for small and medium heat exchangers
- Dry running will not damage pump
- Compliant to EN 60335-2-41:2003 and EN 60335-1:2012

TANK	22 L
MAX FLOW RATE	30 L/min
CONNECTIONS	1/2"
MOTOR	230 V/50 Hz - 0,165 kW
PRESSURE	1 bar
WEIGHT	9,5 kg
MAX TEMPERATURE	60° C
DIMENSIONS	H: 500 mm L: 350 mm D: 350 mm

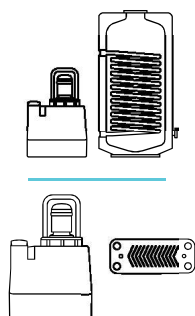
CODE 300601005

PACK. 1 PC

€ 621,00/pc

BOSS 36 FI (with Flow Inverter) ⚙️

Descaling pump for boilers, water heaters, heat exchangers, cooling systems, plastic press moulding machines, evaporation towers, wall-hung and floor-standing boilers.



- Suitable for medium heat exchangers
- Dry running will not damage pump
- Operates up to 60° C and up to 70° C on request
- Compliant to EN 60335-2-41:2003 and EN 60335-1:2012

TANK	36 L
MAX FLOW RATE	48 L/min
CONNECTIONS	3/4"
MOTOR	230 V/50 Hz/0,29 kW
PRESSURE	1,5 bar
WEIGHT	11 kg
MAX TEMPERATURE	60° C
DIMENSIONS	H: 630 mm L: 350 mm D: 350 mm

CODE 300601007

PACK. 1 PC

€ 835,00/pc

ACCESSORIES

TERMINAL BAGS

Bags for terminal connections of 1/2" and 3/4" made of: no. 2 hose holders with ring and lids + no. 2 hose clamps.



CODE	HOSE HOLDER	PCS PER BOX	PRICE
300610001	1/2"	1	€ 17,00/pc
300610002	3/4"	1	€ 17,00/pc

CONNECTIONS

Connections bag suitable for connection and extension of more pipes, made of: 2 pcs (1/2 - 3/8") MF; 2 pcs 1/2 - 3/8") MM; 2 pcs (3/4 - 1/2") MM; 2 pcs (3/4-3/4") FF.



CODE	PCS PER BOX	PRICE
300610003	1	€ 33,50/pc

HE DESCALER ADAPTOR

Adaptor suitable for the descaling of plate heat exchangers.

It guarantees the complete cleaning of the heat exchanger, avoiding the circulation of the acid inside the system.



CODE	CONNECTIONS	PCS PER BOX	PRICE
300610004	3/4"	1	€ 136,50/pc

ACID TANK 18-22-36

Tank with CopMan threaded lid and gasket for chemicals carriage. Removable in 10" with no tools required.



CODE	TANK CAPACITY	PCS PER BOX	PRICE
300610006	18 litres	1	€ 120,00/pc
300610007	22 litres	1	€ 109,00/pc
300610008	36 litres	1	€ 141,00/pc

RUOTE 36

Shockproof, practical wheels with screw clutch to facilitate pump BOSS 36 handling.

Each pack is composed of four wheels.



CODE	DIMENSIONS	PCS PER BOX	PRICE
300610009	ø: 60 mm	1	€ 42,00/pc

DESCALING CHEMICALS



Descaling chemical products are formulated with special corrosion and antifoam inhibitors. They are designed to circulate inside the pipes eliminating the incrustations generated by precipitation of calcium and magnesium salts.

Removing the scale will restore the systems' thermal properties and flow rates. The descaling products are circulated using the Boss, as well as the powerflushing pumps Hyperflush plus, Transformer Combi HF. Neutralization is necessary after each descaling procedure to remove acid residues.

ADVANTAGES

- RANGE OF LIQUID AND POWDER PRODUCTS
- SUITABLE FOR ALL METALS
- COLOUR CHANGE AT THE END OF THE DESCALING ACTION
- SUITABLE FOR "TRANSFORMER HYPERFLUSH"



DETEX PLUS



DETEX FE



DETEX PLURIMETAL



BP DECALSANIT PLUS



NEUTRAL POWDER

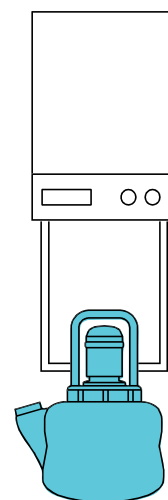
EQUIPMENT

Boss descaling pumps





Acid descaling liquid with high concentration, non fumigant, for heat exchangers in copper and steel systems, efficient for the removal of the toughest scale.



ADVANTAGES AND BENEFITS

- Acid product with high concentration
- Colour change
- No interaction with ferrous metals
- Removal of hard scale
- Restores the optimal heat exchange
- Reduces energy consumption
- Savings in bills
- Reduced descaling time

TECHNICAL FEATURES

COLOUR CHANGE	Active/exhausted	Red-Yellow
ODOUR		Characteristic
pH		<1
DOSAGE		10-15%
SPECIFIC WEIGHT		1,07 kg/L

5 kg - CODE 300501004

PACK. 3 PCS

€ 37,00/pc

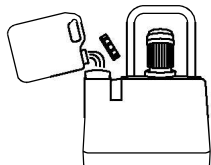
10 kg - CODE. 300501005

PACK. 1 PC

€ 70,50/pc

DETEX FE

Concentrated strong descaling liquid for heat exchangers and copper or steel cooling circuits. It does not damage ferrous materials.



- No damage to ferrous materials.
- Colour change
- Suitable for removal of heavy scale
- Fast acting

COLOUR CHANGE active/exhausted	Red-Yellow
ODOUR	Pungent
pH	<1
DOSAGE	10-15%
SPECIFIC WEIGHT	1,05 Kg/L

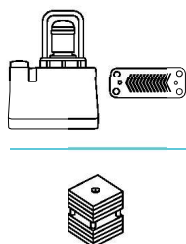
10 kg - CODE 300501015

PACK. 1 PC

€ 37,00/pc

DETEX PLURIMETAL

Non-fumigant acid descaling liquid with special corrosion inhibitors for steel, stainless steel, copper, cast iron, aluminum, brass, tin, light alloys, zinc-plated surfaces.



- Non corrosive
- Non fumigant
- No interaction with zinc
- Suitable for all metals

COLOUR CHANGE active/exhausted	Red-Yellow
ODOUR	Characteristic
pH	<1
DOSAGE	10-15%
SPECIFIC WEIGHT	1,08 Kg/L

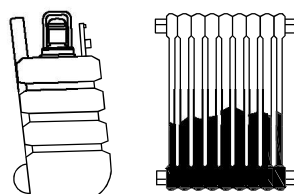
10 kg - CODE 300501011

PACK. 1 PC

€ 114,50/pc

BP DECALSANIT PLUS

Acid-based liquid capable of dissolving stratifications formed by limestone and ferrous oxidations, suitable for heating / cooling systems as well as general encrusted pipes. Particularly suitable for silicon aluminium heat / cooling generators.



- Low corrosivity
- Easy handling and storage
- Biodegradable
- No interaction with ferrous metals

COLOUR	Colorless
ODOUR	Mild characteristic
pH AT 10%	1,5
DOSAGE	1% - 5%
SPECIFIC WEIGHT	1,35 kg/L

10 L - CODE. 300807004

PACK. 1 PC

€ 277,00/pc

NEUTRAL POWDER

Concentrated product in powder designed for rapid neutralization of acid-based chemical descalers.



- Neutralizing alkaline solution
- Quick and safe neutralization
- Eliminates acid residues
- Concentrated powder

COLOUR	Colorless
ODOUR	Odorless
pH	11
DOSAGE	3-5%
SPECIFIC WEIGHT	1,2 Kg/L

1 KG - CODE 300502E02

PACK. 6 PCS

€ 12,00/pc

10 KG - CODE 300502003

PACK. 1 PC

€ 64,00/pc

CONTACTS

www.mantaecologica.com/en

export@mantaecologica.com
academy@mantaecologica.com
info@mantaecologica.com

Manta Ecologica S.r.l.

Viale Archimede, 45
37059 Zevio (VR) - Italy
Tel. +39 0458731511
P. IVA 00780420964
C.F. 04455560153

 Manta Ecologica International

 Manta Ecologica International

 [mantaecologica](https://www.youtube.com/mantaecologica)

