# The tierratech®



### Ultrasonic Cleaning Equipment for the **AUTOMOTIVE INDUSTRY**



#### 

#### We offer solutions

TierraTech<sup>®</sup> is a leading international company involved in the manufacturing and distribution of Ultrasonic Cleaning Equipment and Systems.

The Motor Clean series offers equipment and ultrasonic cleaning systems designed specially for professionals of the motoring world.

At TierraTech<sup>®</sup>, we know and understand the cleaning needs of the industry, so we have developed the most efficient cleaning system, ensuring an optimum quality in the cleaning processes of our clients.

Equipment from the Motor Clean series offer indisputable advantages over traditional cleaning systems.

They are the best choice for degreasing, decarbonising and descaling engine pieces and components since they achieve the best results for being able to access the most hard-to-reach pieces regardless of their complexity and with no effort.

Our technical sales team is highly qualified thus enabling us to offer a personalised service and advice, and an ability to meet the needs of each client. With standard equipment available for immediate despatch, you will have the most advanced and efficient ultrasonic cleaning technology at your facilities.

Our wide range (21 standard equipments) allows us to recommend the equipment that suits best your needs. For special needs we design a tailor-made equipment according to your requirements.

At TierraTech<sup>®</sup>, we comply with the highest quality standards in all our processes, certified by TÜv Rheinland with registration No. 0.04.09057, according to the ISO 9001:2008 Quality Standard.





February 2019





#### TierraTech® worldwide

TierraTech<sup>®</sup> is located directly in Spain, Mexico, USA and France; Countries where we have design, production and sales facilities. In addition to our subsidiaries, we have an extensive distribution network in more than 30 countries, providing commercial and technical support to all our customers worldwide.



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#### Customers







#### Motor Clean in the automotive industry

#### **Applications**





- High-quality cleaning, regardless of whether the pieces have internal recesses or parts that are hard to reach.
- Reduces energy costs.
- Reduces labour time, benefiting other tasks in the production process.
- Technology is cleaner and more environmentally friendly, thanks to waste separation in the unit (oils, sludge, water).
- Savings in water and cleaning products by immersion cleaning.

The Motor Clean series includes equipment with capacities ranging from 30 to 8000 litres specially designed to clean engines, components and accessories.

This equipment covers the following needs: vehicle workshops, diesel injection workshops, truck workshops, ship engine repairs and cogeneration, aeronautics, grinding workshops, engine rebuilding workshops, turbocharger workshops, etc.

#### Applica

The efficiency of the TierraTech<sup>®</sup> ultrasonic cleaning systems over automotive pieces is outstanding. Oils, grease and carbon build-ups are removed quickly and efficiently. The Motor Clean series is specially designed to clean all types of components related to engines, such as engine blocks, cylinder heads, turbochargers, injectors or particle filters, as well as for cleaning brakes, gearboxes, radiators, transmission systems, etc.

This range of equipment uses a working frequency of 40 kHz (sweep system +2%), which is the most adequate for cleaning in the motor industry because it achieves optimal cleaning without damaging any soft materials such as aluminium, magnesium, brass, etc. For other, more specific, types of cleaning, we use other frequencies such as 40-09 kHz (Multifrequency) to clean electronic boards or certain soft materials where the quality requisite of the reconstructor is very high and 28 kHz (sweep system  $\pm$ 2%) in the cleaning of certain large steel pieces in industrial and naval engineering.



#### **General workshop**

Daily cleaning of all kinds of pieces in general workshops becomes a complex task if you do not have the adequate cleaning means. Ultrasonic cleaning is ideal for removing different types of dirt (grease, carbon deposits, oils, etc.) in pieces such as cylinder heads, pumps, particle filters, etc., both on the surfaces and parts which are hard to reach, reducing the effort and time employed by traditional systems.

#### **Diesel injection workshops**

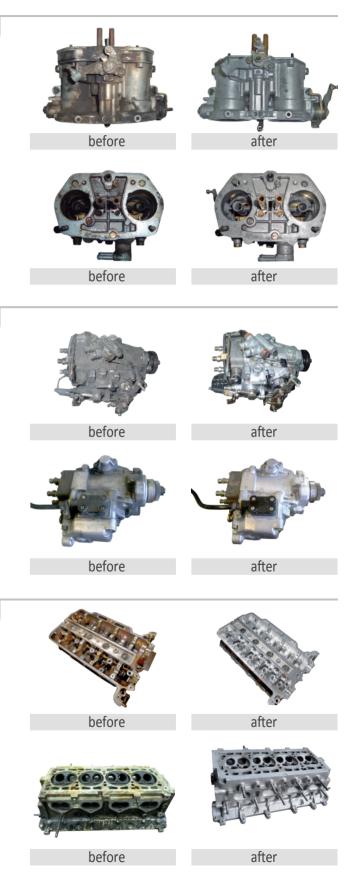
Cleanliness plays an important role in diesel injection laboratories, both in respect of the quality of the final result and productivity. Ultrasonic cleaning is ideal for these laboratories, because it enables cleaning the pumps in a maximum of 10-15 minutes without having to dismantle them and once dismantled in another 10 minutes we have complete assurance that all the internal conduits are perfectly clean, thus avoiding the typical problem that arises when a repair is carried out without adequate cleaning.

#### **Grinding workshops**

Regardless of the type of grinding to be carried out or the piece to be treated, ultrasonic cleaning ensures an optimum finish and precision in the grinding industry. Removes carbon deposits, oils and grease, as well as the usual residue we find in cylinder heads and engine blocks easily. The use of ultrasonic cleaning considerably reduces the time employed in cleaning, obtaining the highest quality and avoiding the use of acids, brushes and grit blasting, simplifying the cleaning process and removing the bottleneck all grinding workshops have in this part of the process.







#### **Turbocharger workshops**

Ultrasonic cleaning is the fastest and most efficient solution for turbocharger workshops because it removes carbon deposits and burnt oils, regardless of the complexity of the turbocharger structure. It also allows cleaning a great number of turbochargers in one single process, which improves quality and production times compared to traditional processes.



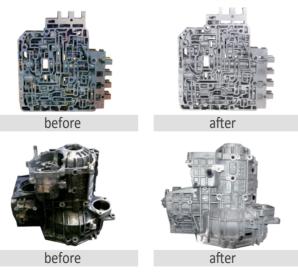
#### **Engine rebuilding work**

In engine rebuilding work, ultrasonic cleaning prevails as an efficient, fast and adaptable system for any place within the production chain. Ultrasonic cleaning removes all kinds of residue in cylinder heads, valves, pistons, engine blocks, commutators, alternators, etc. caring for the most delicate surfaces and ensuring an optimum finish both for later assembly processes and the final presentation of the engines.



#### **Gearbox repair shops**

In these repair shops, cleaning the pieces from the transmission system is a daily necessity that requires a fast and efficient system. The Motor Clean series covers this requirement, regardless of the complexity of the piece or amount of pieces to be cleaned, removing grease, oils and metallic shavings for instance, fast and efficiently, without the hard-to-access pieces becoming a challenge.



#### Marine

The Motor Clean series has large capacity equipment ideal for cleaning large pieces.

The naval sector finds our ultrasonic cleaning equipment the most adequate option for the maintenance and repair of all types of engines because they facilitate the cleaning of pieces such as heat interchangers, cylinder heads, turbochargers, intercoolers, tube bundle, coolers or propellers, and other large and heavy pieces, thus reducing the time and effort involved with the traditional systems.

#### **Heavy machinery**

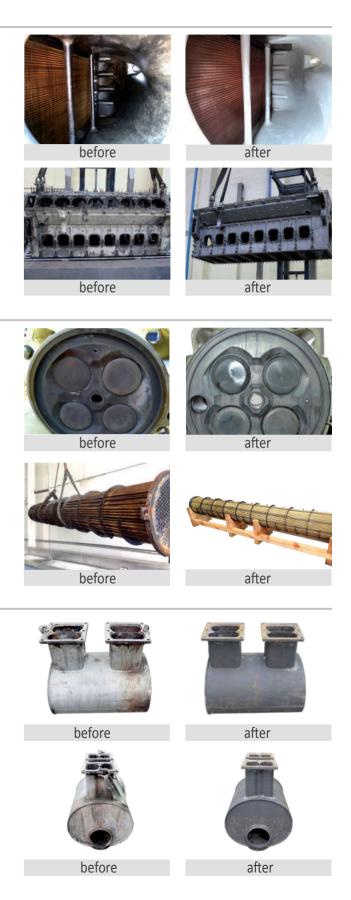
The harsh working conditions to which this type of machinery is subjected to makes preventive maintenance a fundamental task to lengthen their useful life and ensure smooth operation. The Motor Clean ultrasonic cleaning equipment facilitates cleaning radiators, cylinder heads, engine blocks, transmissions, hydraulic systems and working tools, such as shovels or chains, thus contributing towards a proper maintenance that favours efficient work of heavy machinery and decreases the possibility of unexpected breakdowns.

#### **Aeronautics**

The precision of ultrasonic cleaning helps both the manufacturers of the components, as well as MRO centres to satisfy the highquality requirements and the strict safety standards of the industry. In an industry where safety is essential, the Motor Clean series are indispensable for the cleaning of hydraulic systems, heat interchangers, engine pieces, injection pumps, vanes, etc. since it does not damage the materials or modify the dimensions or geometry of the surfaces. The frequencies used for aeronautical applications are 40 kHz (sweep system ±2%) and 40-90 kHz, multi-frequency.







#### Standard Model

#### **Standard Model**





73 dB. Max.



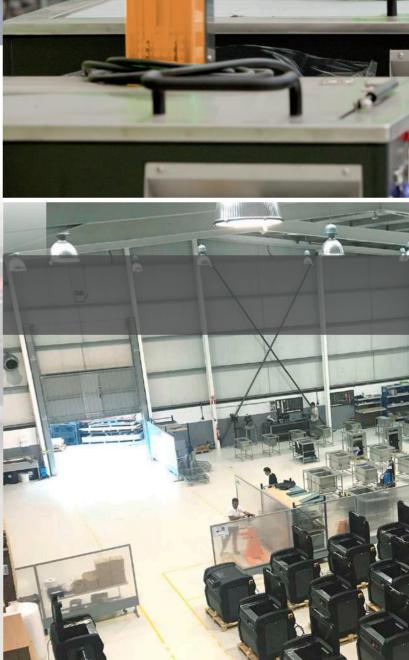
**Fastest cleaning** 



28 kHz (sweep system) 40 kHz (sweep system) 40-90 kHz Multi-frequencie Our frequencies



The Motor Clean standard series includes equipment with capacities ranging from 30 to 8000 litres, specially designed to clean, degrease, decarbonise and descale all sorts of pieces, components and accessories. All the equipment in this series, from 75 litres upward, incorporate an elevating platform to facilitate loading and manipulating pieces. Optionally, and depending on the application, we have water filtering and treatment systems, to adapt the standard system to the appropriate conditions required by our client.



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#### Large stocks available **INMEDIATE DELIVERY**

#### MOT-30 - 30 litres



Capacity: 30 litres

Power supply: 240V

Weight: 34kg

Heat resistance: 2x350W

Ultrasonic power: 600W (1200W p-p)

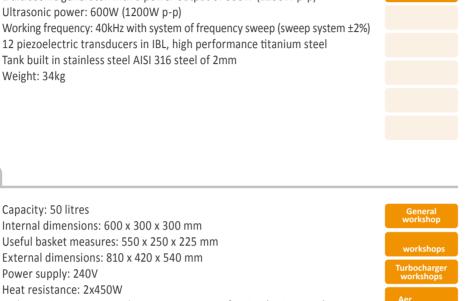
#### MOT-50 - 50 litres

MOT-75 - 75 litres



#### Capacity: 50 litres Internal dimensions: 600 x 300 x 300 mm Useful basket measures: 550 x 250 x 225 mm External dimensions: 810 x 420 x 540 mm Power supply: 240V Heat resistance: 2x450W 1 ultrasonic generator with an output power of 700W (1400W p-p) Ultrasonic power: 700W (1400W p-p) Working frequency: 40kHz with system of frequency sweep (sweep system ±2%) 14 piezoelectric transducers in IBL, high performance titanium steel Tank built in stainless steel AISI 316 steel of 2mm Weight: 40kg

12 piezoelectric transducers in IBL, high performance titanium steel



#### Standard Model

#### MOT-75N - 75 litres



Capacity: 75 litres Useful measures: 620 x 325 x 260 mm External dimensions: 1170 x 735 x 900 mm Power supply: 240V Heat resistance: 2250W IBL, high performance titanium steel. Ultrasonic power: 800W (1600W p-p) Tank built in AISI 304 stainless steel of 2mm Maximum load capacity: 30kg Optional: filter for sludge and waste system Weight: 130kg

#### MOT-150N - 150 litres



Capacity: 150 litres Useful measures: 670 x 415 x 335 mm External dimensions: 1270 x 825 x 920 mm Power supply: 240V / 400V Heat resistance: 3750W Ultrasonic power: 1700W (3400 p-p) IBL, high performance titanium steel. Tank built in AISI 304 stainless steel of 2mm Maximum load capacity: 60kg Optional: filter for sludge and waste system Weight: 175 kg

#### MOT-300N - 300 litres



Capacity: 300 litres Useful measures: 860 x 520 x 385 mm External dimensions: 1520 x 1020 x 1030 mm Power supply: 400V Heat resistance: 7500W Ultrasonic power: 3000W (6000W p-p) Tank built in AISI 304 stainless steel of 2mm Maximum load capacity: 250kg Auxiliary tank for the separation of lubricants and oils Optional: filter for sludge and waste system Weight: 300kg



Capacity: 75 litres
Internal dimensions: 700 x 350 x 400 mm
Useful basket measures: 650 x 300 x 290 mm
External dimensions: 960 x 550 x 900
Power supply: 240V
Heat resistance: 3x450W
1 ultrasonic generator with a power output of 800W (1600W p-p)
Ultrasonic power: 800W (1600W p-p).
Working frequency: 40kHz with system of frequency sweep (sweep system ±2%)
16 piezoelectric transducers in IBL, high performance titanium steel
Tank built in stainless steel AISI 316 steel of 2mm
Weight: 71kg



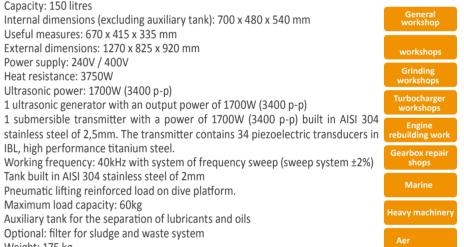


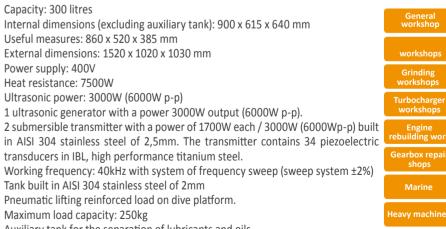
Internal dimensions (excluding auxiliary tank): 650 x 390 x 470 mm

1 ultrasonic generator with a power output of 800W (1600W p-p) 1 submersible transmitter with a power of 800W (1600W p-p) built in AISI 304 stainless steel of 2,5mm. The transmitter contains 16 piezoelectric transducers in

- Working frequency: 40kHz system of frequency sweep (sweep system ±2%)
- Pneumatic lifting reinforced load on dive platform.
- Auxiliary tank integrated for the separation of lubricants and oils







#### **Standard Model**

#### MOT-400N - 400 litres



Capacity: 400 litres

Power supply: 400V

Heat resistance: 7500W

Useful measures: 1060 x 520 x 410 mm

Ultrasonic power: 3400 (6800W p-p)

Maximum load capacity: 250kg

External dimensions: 1720 x1020 x 1080 mm

Tank built in AISI 304 stainless steel of 2mm

Optional: filter for sludge and waste system

Pneumatic lifting reinforced load on dive platform.

Auxiliary tank for the separation of lubricants and oils

Internal dimensions (excluding auxiliary tank): 1100 x 615 x 690 mm

1 ultrasonic generator with a power output of 3400 (6800W p-p)

Working frequency: 40kHz with system of frequency sweep (sweep system ±2%)

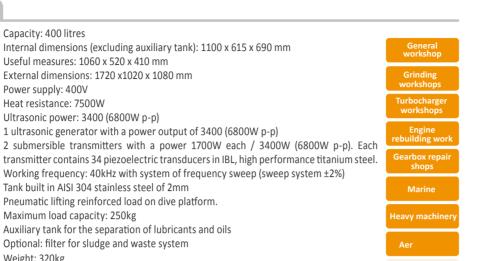
#### MOT-600N - 600 litres



#### MOT-1000N - 1000 litres



Capacity: 1000 litres Internal dimensions: 1500 x 810 x 875 mm	Grinding workshops
Useful measures: 1410 x 720 x 570 mm External dimensions: 2820 x 1390 x 1100 mm (incl. auxiliary tank and distribution board).	Turbocharge workshops
Power supply: 400V Heat resistance: 2x7000W	Engine rebuilding wo
Ultrasonic power: 6800W (13600W p-p) 2 generators of ultrasound with a power output of 6800W (13600W p-p) 4 submersible transmitter with a power of 1700W each / 6800W. (13600W p-p). Each	Gearbox repa shops
transmitter contains 34 piezoelectric transducers in IBL, high performance titanium steel.	Marine
Working frequency: 40kHz with system of frequency sweep (sweep system ±2%)	Heavy machin
Tank built in AISI 304 stainless steel 2mm Pneumatic lifting reinforced for loading, batting and unloading platform.	
Maximum load capacity: 500kg Auxiliary tank for the separation of lubricants and oils	
Optional: filter for sludge and waste system	



#### Standard Model

#### MOT-2000N - 2000 litres



Capacity: 2000 litres Internal dimensions: 1750 x 1100 x 1080 mm Useful measures: 1650 x 910 x 790 mm Power supply: 400V Heat resistance: 2x9000W Ultrasonic power: 10200W (20400W p-p) Tank in AISI 304 stainless steel 2mm Maximum load capacity: 1000kg Auxiliary tank for the separation of lubricants and oils Optional: filter for waste and sludge system Weight: 1250kg

#### MOT-3000N - 3000 litres



Capacity: 3000 litres Internal dimensions: 2050 x 1200 x 1205 mm Useful measures: 1930 x 990 x 880 mm Power supply: 400V Heat resistance: 2x12000W Ultrasonic power: 13600W (27200W p-p) Tank built in AISI 304 stainless steel 2,5mm Maximum load capacity: 1500kg Optional: filter for waste and sludge system Peso: 1850kg

#### MOT-4000N - 4000 litres



Capacity: 4000 litres Internal dimensions: 2400 x 1500 x 1260 mm Useful measures: 2280 x 1380 x 890 mm Power supply: 400V Heat resistance: 2x15000W Ultrasonic power: 20400W (40800W p-p) steel.

Tank built in AISI 304 stainless steel 3mm Maximum load capacity: 1500kg Auxiliary Tank for the separation of lubricants and oils Optional: filter for waste and mud system Weight: 2800kg

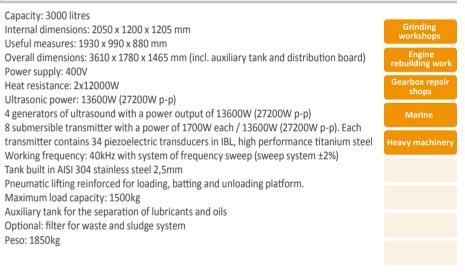


Weight: 550kg



External dimensions: 3130 x 1610 x 1345 mm (incl. auxiliary tank and distribution board).

- 3 generators of ultrasound with a power output of 10200W (20400W p-p)
- 6 submersible transmitter with a power of 1700W each / 10200W (20400Wp-p). Each transmitter contains 34 piezoelectric transducers in IBL, high performance titanium steel
- Working frequency: 40kHz with system of frequency sweep (sweep system ±2%)
- Pneumatic lifting reinforced for loading, batting and unloading platform



Overall dimensions: 4090 x 2260 x 1560 mm (incl. auxiliary tank and distribution board)

- 6 generators of ultrasound with a power output of 20400W (40800W p-p)
- 12 submersible transmitter with a power of 1700W each / 20400W (40800W p-p). Each transmitter contains 34 piezoelectric transducers in IBL, high performance titanium
- Working frequency: 40kHz with system of frequency sweep (sweep system ±2%)
- Pneumatic lifting reinforced for loading, batting and unloading platform.

#### **Standard Model**

#### Applicatons by industries

#### MOT-8000 - 8000 litres



	Capacity: 8000 litres Internal dimensions: 3000 x 2000 x 1500 mm	Engine rebuilding v
ŕ	Useful measures: 2900 x 1900 x 1180 mm Overall dimensions: 3950 x 2575 x 1800 mm	Marine
	Power supply: 400V Heat resistance: 4x15000W	Heavy machi
	Ultrasonic power: 34000W (68000W p-p)	
	10 generators of ultrasound with a power output of 34000W (68000W p-p)	
	20 submersible transmitter with a power of 1700W each / $34000W$ (68000W p-p) each transmitter contains 34 piezoelectric transducers in IBL, high	
	performance titanium steel Working frequency: 40kHz with system of frequency sweep (sweep system	
	±2%) Tank built in AISI 304 stainless steel 3mm	
	Optional: filter for waste and sludge system Weight: 3500kg	

#### Motor Clean models and specifications

Model	Tankage	Internal dimmensions (mm)	Useful measures (mm)	Ultrasonic power	Frequency	heating	Pneumatic Ioading capacity (kg)	Waterflow System
MOT-30	30L	550 x 300 x 250	500 x 250 x 175	600 W (1200 p-p)	40 KHz (sweep sys. ±2%)	2 x 350W	-	_
MOT-50	50L	600 x 300 x 300	550 x 250 x 225	700 W (1500 p-p)	40 KHz (sweep sys. ±2%)	2 x 450 W	-	-
MOT-75	75L	700 x 350 x 400	650 x 300 x 290	800 W (1600 p-p)	40 KHz (sweep sys. ±2%)	3 x 450 W	-	_
MOT-75N	75L	650 x 390 x 470	620 x 325 x 260	800 W (1600 p-p)	40 KHz (sweep sys. ±2%)	2250 W	30 kg	$\checkmark$
MOT-150N	150L	700 x 480 x 540	670 x 415 x 335	1700 W (3400 p-p)	40 KHz (sweep sys. ±2%)	3750W	60 kg	$\checkmark$
MOT-300N	300L	900 x 615 x 640	860 x 520 x 385	3000 W (6000 p-p)	40 KHz (sweep sys. ±2%)	7500 W	250 kg	$\checkmark$
MOT-400N	400L	1100 x 615 x 690	1060 x 520 x 410	3400 W (6800 p-p)	40 KHz (sweep sys. ±2%)	7500 W	250 kg	$\checkmark$
MOT-600N	600L	1300 x 735 x 665	1230 x 650 x 410	5100 W (10200 p-p)	40 KHz (sweep sys. ±2%)	9000 W	350 kg	$\checkmark$
MOT-1000N	1000L	1500 x 810 x 875	1410 x 720 x 570	6800 W (13600 p-p)	40 KHz (sweep sys. ±2%)	2x7000 W	500 kg	$\checkmark$
MOT-2000N	2000L	1750 x 1100 x 1080	1650 x 910 x 790	10200 W (20400 p-p)	40 KHz (sweep sys. ±2%)	2 x 9000 W	1000 kg	$\checkmark$
MOT-3000N	3000L	2050 x 1200 x 1205	1930 x 990 x 880	13600 W (27200 p-p)	40 KHz (sweep sys. ±2%)	2 x 12000 W	1500 kg	$\checkmark$
MOT-4000N	4000L	2400 x 1500 x 1260	2280 x 1380 x 890	20400 W (40800 p-p)	40 KHz (sweep sys. ±2%)	2 x 15000 W	1500 kg	$\checkmark$
MOT-8000	8000L	3000 x 2000 x 1500	2900 x 1900 x 1180	34000 W (68000 p-p)	40 KHz (sweep sys. ±2%)	4 x 15000 W	*	$\checkmark$

All specifications are subject to changes

\*Hydraulic lifting system 2000 - 7000kg







urernators commut pistons	Gearbo <sub>ldes</sub>	Heat interchanges, cuis heads, values, cuis motors, values, cuis	when the second	ounargers engine Injection pumps, hydraulic circuits, vanes, etc.	
/ork	Gearbox repair shops	Marine	Heavy machinery	Aeronautics	
				$\checkmark$	
	$\checkmark$	$\checkmark$	✓	✓	
	$\checkmark$	$\checkmark$	$\checkmark$	✓	
	$\checkmark$	$\checkmark$	✓	<b>√</b>	
	$\checkmark$	$\checkmark$	$\checkmark$	✓	
	$\checkmark$	$\checkmark$	$\checkmark$		
	$\checkmark$	$\checkmark$	✓		
	$\checkmark$	$\checkmark$	✓		
		$\checkmark$	$\checkmark$		
		✓	$\checkmark$		

#### **Special Model**

In addition to the standard model, we also manufacture models made to measure and Multi-stage systems. These units are designed for companies with special cleaning needs, be it for the characteristics of the pieces to be cleaned or for the requirements of their fabrication process. They can incorporate several processes such as rinsing, drying or different treatments other than cleaning.

Right from the start, we have worked in tandem with our clients seeking the specific solution best suited to their needs. **Examples of special equipment:** 

#### MOT-3X1000 US+A+S: Ultrasonic cleaning + Rinsing + Drying

High-powered ultrasound system and three stages for cleaning, rinsing and drying turbo chargers.



#### MOT-75+AC+S: Ultrasonic cleaning + Warm Rinsing + Drying

Multistage equipment with ultrasonic cleaning plus warm rinsing and drying, designed for cleaning injection pumps.



#### **Special Model**

#### MOT-2X150NS + Passivation with bubbles



#### MOT-150NS+V

Tailor-made equipment for the cleaning of interchangers with water circulating system and filters to retain sludge and internal shavings.

10000000







Special equipment developed on ZF-internal standards for their plant in Saarbrücken (Germany).

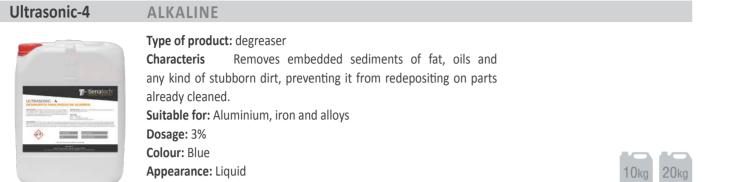
> Special 150 litre capacity equipment and water circulating system and heat exchanger verification. Tierra Tech jointly with Voith Turbo develop 4 models with a capacity of 150, 300, 400 and 600 litres to supply all their workshops and associates worldwide.

#### **Cleaning Product**

Ultrasonic-7W

#### **Cleaning Product**

Ultrasonic-22



Features: Cleaning and descaling charcoal. To achieve these results it



#### Type of product: degreaser The strongest alkaline degreaser for ferro Suitable for: Ferrous materials **Dosage:** 3-5% Colour: white Appearance: powder

ALKALINE

|--|

#### ALKALINE



Type of product: degreaser and decarbo Alkaline cleaner form Characteris surfaces and also to remove phosphate Suitable for: Iron Dosage: 5% Colour: White Appearance: powder

#### **Ultrasonic-A**

#### **TENSO-ACTIVATOR**



**Type of product:** degreasing additive **Characteris** Additive for degreasing Dosage: 0,2%-0,5% Colour: red Appearance: liquid

#### **Ultrasonic-B**



\$a\$ ====

#### **TENSO-ACTIVATOR**

Type of product: degreasing additive Characteris Aditive for degreasing de **Dosage:** 0,2%-0,5% Colour: yellowish Appearance: liquid

ALKALINE
Type of product: degreaser.
Characteris Cleaning and descaling of grease, oils and all types of
stubborn dirt, preventing it from setting on clean parts again.
Suitable for: All types of materials and metals (including aluminium
and its alloys).

10kg

25kg 30kg

25kg



**Ultrasonic-5P** 

#### **Ultrasonic-20**

ALKALINE

Dosage: 3%

Color: white.

Appearance: powder.

ALKALINE

Dosage: 3%

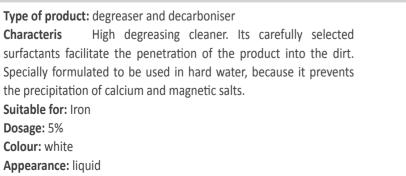
Color: beige.

Appearance: liquid.

Product type: degreaser.

should be used together with Ultrasonic-A.

Suitable materials: iron, galvanized steel and aluminum.

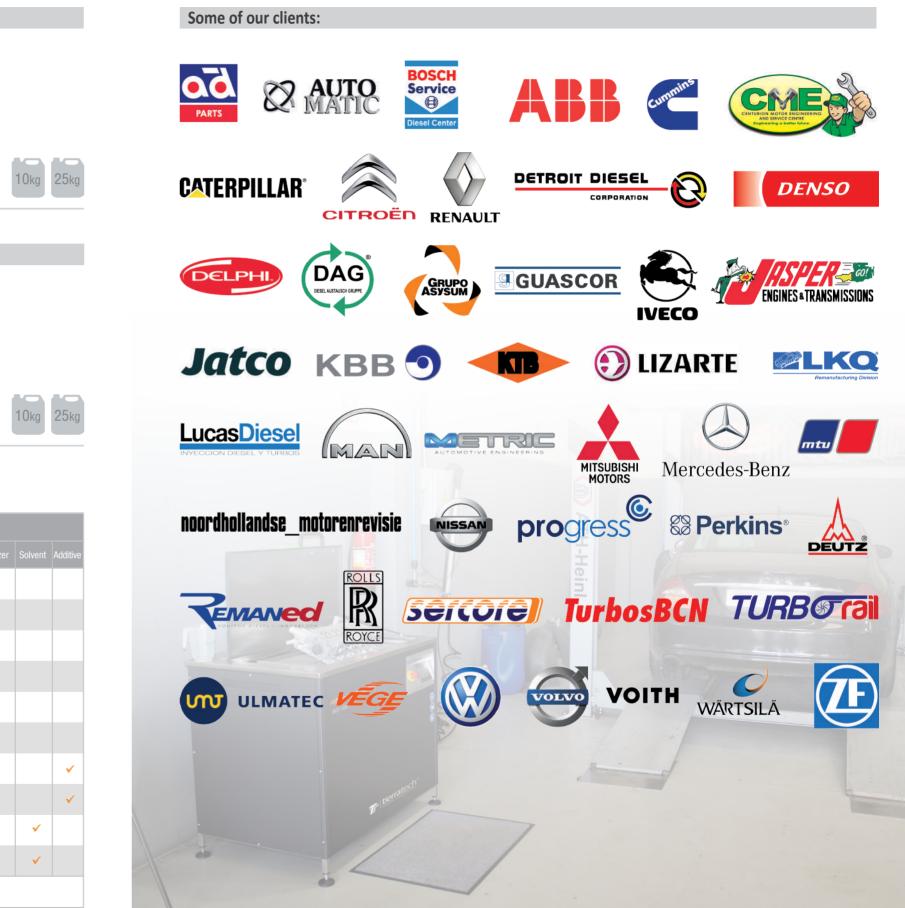






ous metals.			
		10kg	25kg
niser nulated to degrease steel layers.			
		10kg	25kg
detergents, tensoactivator			
	10kg	25kg	30kg
etergents, tensoactivator			
	10kg	25kg	30kg

#### **Cleaning Product**



Ultrasonic-51	PAIN
	Type o Charac period paints, Suitab Dosage Colour Appea

# PAINT STRIPPINGType of product: paint stripperCharacterisWhen hot, it has unique stripping properties in shortperiods of time for synthetic resins, primers, paints and baked powderpaints, water paints and very resistant cataphoretic coatings..Suitable for: AluminiumDosage: 100%Colour: yellowishAppearance: Liquid



PAINT STRIPPING Type of product: paint stripper Characteris When hot it has the ability to remove stains on synthetic resins, baked paints, primers, water paints and cataphoretic coatings. Suitable for: Iron Dosage: 50% Colour: Brownish Appearance: Liquid

#### **Products and specifications**

		How to use		Suitable material				Waste to be removed				Type of product					
Product		Concentration in water (%)	Bath temperature					Electronic plates			Carbon	Paint		Decarboniser			Additive
	Ultrasonic-4	3%	40-80°C	✓	✓				✓	✓			✓				
	Ultrasonic-7W	3%**	40-80°C	~	✓				✓	~			✓				
	Ultrasonic-5P	3%	40-80°C	✓	✓				✓	✓			✓				
ALKALINE	Ultrasonic-20	5%	40-80°C		✓				✓	✓			✓	✓			
	Ultrasonic-22	5%	40-80°C		✓				✓	✓			✓	✓			
	Ultrasonic-23	5%	40-80°C		✓				~	✓			✓	✓			
TIVATOR	Ultrasonic-A	0,2-0,5%*	40-80°C	✓	✓						✓			✓			~
TENSO-AC	Ultrasonic-B	0,2-0,5%*	40-80°C	✓	~						✓			✓			×
PING	Ultrasonic-51	100%	40-80°C	✓								~				~	
STRIP	Ultrasonic-54	50%	40-80°C		✓							~				✓	
	Observations:		ed with Ultrason ed with Ultrason														



# **The tierratech**®

#### Tierra Tech® Spain

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