

# RESTORATIVE TECHNIQUES

PRACTICAL SOLUTIONS - TECHNICAL EXPERTISE & SUPPORT

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## INTRODUCING THE THERMATECH® RANGE

**ThermaTech® is a modular system designed for safety, usability and ease of transit. Smart, compact and at the forefront at cutting edge efficiency, the ThermaTech® is the perfect solution to your restoration needs.**

ThermaTech® is a modular range of super-heated water cleaning equipment, producing a liquid spray at 150°C. It is highly effective at melting and removing many paints, surface treatments, chewing gum, wax, oil/bitumen and organic matter from a wide range of substrates, often without the addition of chemicals.

The ThermaTech® is ideally suited for large scale, external and internal projects. It is built in 110v, 120v or 230v, with dual voltage module options. Or self-contained from a power source by use of the diesel pump module. Designed specifically for reliability using high quality, recyclable materials, the ThermaTech® is able to reduce its reliance on chemicals and boost the performance of milder agents.

By using high efficiency motors and minimal water, it yields positive results for COSHH and REACH in safety and environmental risk assessments.



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## SPOTLIGHT ON THE ADVANTAGES OF THE THERMATECH® RANGE

Comparing the ThermaTech® and other super-heated water systems

We are sometimes asked about the difference between a ThermaTech® and other machines in the industry. These machines use super-heated water to remove a range of coatings and soilings from different substrates. The ThermaTech® offers many advantages over other systems – and not just in terms of site safety, reliability and portability, since it also exceeds their performance. The ThermaTech® range of equipment is protected under two fully granted patents.

### WIDE RANGE OF WATER PRESSURE SETTINGS

While the standard pressure of the 110v ThermaTech® is adjustable from 20 to 140 bar, it can be used with pressure-reducing guns to attain pressures lower than 20 bar for small-scale, gentle cleaning of the most delicate substrates; and the optional 230v pump can reach 160 bar at 9.5 litres per minute.

Other types of system can only reach a maximum pressure of 100 bar (even with smaller nozzles). So ThermaTech® has approximately 50% more performance in terms of pressure, as well as in terms of water volume from the pump.

Both the Standard and INOX ThermaTech® can support two operators working simultaneously from one pump and boiler for localised masonry cleaning. The use of a splitter after the burner will share the water flow to two standard nozzles. Each operator can expect 50-60 bar, at temperatures of 125-150°C, depending on model.

### DIGITAL TEMPERATURE CONTROL

ThermaTech®'s temperature control is tightly regulated, helping to ensure an even spray shape, and temperature is fully adjustable up to 150°C according to the required applications. The boiler temperature is controlled by a digital thermostat, which checks temperature ten times a second, giving a precise output. This keeps the super-heated jet 'in focus' and prevents overheating or undercooling. The digital thermostat increases fuel efficiency, as it is frequently 'topping up' the heat. It doesn't have to 'catch up' with a major temperature drop and then waste fuel in an overheating episode.

Other systems are controlled by an analogue thermostat, which relies on expansion of glycerin in a probe to operate a switch at the end of a small copper pipe. This has a delay, which can cause the super-heated jet to become out-of-focus steam vapour. On cooling down, the burner may not cut the heating back in before the temperature gets as low as 120°C.

### HIGH PERFORMANCE WATER FLOW RATE

ThermaTech®'s standard 110v electric pump can achieve water flow rates of up to 9 litres per minute at 140 bar (this is user-variable from approx. 3 litres per minute upwards). Others are limited to a flow rate in the range of 3-6 litres per minute, some achieving 6 litres per minute only at a pressure of 100 bar maximum.

### PORTABILITY AND EASE OF ASSEMBLY

ThermaTech® is modular by design. Its pump and fuel tank/jerrycan can easily be separated from the other components of the machine to keep the weight of the parts manageable when it is being transported. The boiler unit can be loaded and unloaded easily by one person. Two castor wheels take half the weight of the boiler on the vehicle bed while loading is in progress. The boiler remains on four wheels even when it is on its back. The boiler unit is on four pneumatic wheels, which are of a quick-release design for easy change or repair of tyres, or if the boiler is to be skid-mounted.

### CHOICE OF NOZZLES AND SPRAY ANGLES

Thanks to ThermaTech®'s extra 50% performance, its standard-type nozzle is angled at 40 degrees, allowing for a faster rate of work at a similar intensity, with the 50% wider spray pattern giving a more even gentle clean. Others are limited to a 25 degree angle or less (this is like comparing a narrow-tip pen with a broad-tip pen, the broader tip giving faster, more even results).

### HIGH-QUALITY HOSE

ThermaTech® uses high-pressure twin wire hoses assembled by Restorative Techniques. Each hose uses a skive-type ferrule - this ensures a 'no rubber' contact within the crimp that could otherwise fail once heat is applied. Every hose assembled has a unique I.D. tag. This gives traceability for testing purposes as well as asset monitoring for owners. Hoses are clearly marked blue to signify 'cold', and red to signify 'hot'. Construction of an 8mm (5/16") bore reduces the hose surface area, and increases water velocity; both of these properties reduce heat loss. This hose is made to order for Restorative Techniques at several kilometres at a time.

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**BUILD QUALITY OF COUPLINGS**

On ThermaTech®, all the high-pressure couplings are m22 hand-turn threads in brass. These are guaranteed against corrosion from descaling and have no internal moving parts. Alternatives are quick-release couplings that employ bearings for latching. These can seize, and the joint can then fail under pressure.

**BUILD QUALITY OF PUMP**

ThermaTech® exceeds the most up-to-date electrical safety standards. All the electrics for ThermaTech® pump are within a fully sealed watertight box, including the capacitors. The use of IP67 plugs and connectors is standard to protect from water ingress. The pump uses a higher-current contactor for switching the motor load, which is much more reliable than a rocker-switch. The pump unit also has over-current and under-voltage protection. Due to the performance of the pump unit, we can attach rotary surface cleaners to the machine for large paving cleaning.

Because the cold pump unit has a second outlet, it can be used for ‘priming’ when pulling water from a barrel or tank. The ThermaTech® additionally supports the connection of a second boiler through this outlet to run two operators off separate boilers. The second pump connection can also be useful for ‘dumping’ the water pressure when disconnecting the machine, so that the operator does not have to go back to the gun.

**BUILD QUALITY OF FRAME**

In ThermaTech®, all frame tubes have 1.5mm-thick walls, and all panel work is in 1.5mm stainless steel. Its very strong construction allows for many lifting and tie-down points.

**FUEL FILTRATION PERFORMANCE AND MONITORING**

ThermaTech®’s fuel system comprises 5-stage filtration to eliminate breakdowns caused by dirty fuel. A fuel filter condition gauge has ‘good’ and ‘change’ clearly visible on the control panel.

**SUMMARY**

The ThermaTech® system is designed specifically to meet or exceed the requirements for performance, portability, reliability and safety of professionals working in masonry conservation, while remaining competitive on cost.

When the ThermaTech® was being developed, many ‘off the shelf’ components did not meet requirements. Restorative Techniques approached specialist manufacturers to produce many of these parts to their own design, all being sourced within the European area. The only components sourced from outside the EU are the pneumatic wheels.

**KEY TECHNICAL DETAILS OF THE THERMATECH® RANGE**

- ✓ IP67 rating on pump controls and electronics, exceeding current regulations.
- ✓ Pump units have secondary outlets allowing for: operatives to depressurise the system from the base unit (as opposed to depressurising from the trigger); easy priming when running from a static water supply (i.e. a barrel or bowser); and even two boiler units to be run in tandem from one pump.
- ✓ Ground-up design incorporates environmentally responsible manufacturing processes with very little non-recyclable waste produced.
- ✓ 24v controls exceed current regulations and provide a safer working environment.
- ✓ Five-stage contamination separation in the fuel system ensures good, clean fuel supply, achieving best possible boiler efficiency.
- ✓ All switches have ‘under-volt’ and ‘over-current’ protection, which protects against the effects of improper power supply and overloading.
- ✓ A visual gauge on the control panel allows operatives to gain an indication of the condition of the fuel filter, meaning routine maintenance can be carried out before it causes a problem.
- ✓ ThermaTech® utilises a particular angle of nozzle (40 degree), where most systems make use of 25 degree angled nozzles, that as well as being narrower in scope, will potentially provide slower and reduced work rates (and therefore increase labour costs), plus there is an increased risk of substrate damage.

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## THE THERMATECH® RANGE: A PINNACLE OF USER-FRIENDLY DESIGN

Designed for one person to load into and out of most vehicles safely. Can be transported in multiple positions.


Digital primary temperature control achieves more accurate temperatures, with less fluctuation, providing better efficiency.

Removable fuel tank with lockable pick-up device minimises risk of serious fuel spillage on site.

Colour-coded high-pressure hoses aid quick set-up times and improve safety awareness. Cold hoses are blue; hot hoses are red.

Numerous in-built safety features to keep machine, operatives and public safe.

Designed to be run on various fuel types\* (or a mixture thereof) without adjustment to the fuel delivery system.



We have always found Jamie and others in the Restorative Techniques office extremely helpful in the support and guidance they offer and a pleasure to work with.

**EMMA NORRIS,  
HUMPHRIES & JONES**



This was the perfect piece of equipment for this delicate job. We knew we wouldn't have to go back to re-do the job after using the ThermoTech®.

**LEE LABAS,  
LABAS CONSTRUCTION**

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## THE THERMATECH® STANDARD MODEL

The ThermoTech® Standard model is the machine of choice in the historic building and structures industry, and in certain commercial or industrial cleaning projects. It has been developed to meet a demand for cleaning and coating removal on sensitive substrates. The Standard Model has all the features previously mentioned in ‘Introducing the ThermoTech® Range’.

The ThermoTech® Standard Model is supplied with the following:

- 1 x ThermoTech® ‘Standard’ Boiler (main module on the 4 wheels)
- 1 x ThermoTech® 110/230V Electric Pump (Electric Pump unit to hang onto main module)
- 1 x 20 Litre Steel Jerrycan in Silver
- 1 x 20 Metre High Pressure, Super-heated Rated, Twin Wired, Water Hose (red)
- 1 x 10 Metre High Pressure, Super-heated Rated, Twin Wired, Water Hose (red)
- 1 x Gun/Trigger
- 2 x Lances; 1 Short Lance Fitted with HP Nozzle & 1 Long Lance Fitted with HP
- 1 x 25 Metre IP67 Electric Cable\*
- 5 Litre Descaler

\* Type of voltage dependant on choice of pump i.e; 1x 25 Metre IP67 Electric Cable, Yellow, 6mm² for 110v OR, 1x 25 Metre IP67 Electric Cable, Blue, 4mm² for 230v



- ✓ The Standard model has a 50% higher volume/ pressure output than other machines in its class. This enables the use of 40 degree spray angle nozzles as standard. Offering a controlled, faster rate of work.
- ✓ It is highly fuel efficient, a 20 litre jerrycan will last 3.5-4 hours at full flow/temperature. Up to 6 hours at reduced flow/temperature.
- ✓ Fitted with both digital and analogue temperature controls.
- ✓ Steel heater coil as standard, rated to 200 bar pressure.
- ✓ Full temperature of 150°C is maintained up to 80-90 bar pressure. (Higher pressures up to 140 bar will reduce total working temperature).
- ✓ All-steel construction burner unit offers good strength to-weight ratio.
- ✓ Pump performance will run rotary surface cleaners. The burner will maintain the maximum rated temperature of 120°C of the surface cleaner.
- ✓ 2-operator setup will offer 50-55 bar to each operator at ~125°C.
- ✓ Digital temperature control has only a 2°C hysteresis. This delivers a smooth temperature at the nozzle, keeping the water jet ‘in focus’.



Click on the image above see a demonstrational video and explanation



## CASE STUDY: MONUMENT CLEANING WITH LABAS CONSTRUCTION

Labas Construction is a Vancouver, British Columbia, based master-craft masonry restoration company. Built on a family foundation of over 35 years in the industry, Labas Construction offers masonry restoration and monument cleaning servicing Western Canada. The jobsite is the oldest cemetery in Vancouver, it dates back to 1886. Labas Construction was contracted to carry out the cleaning of a war memorial monument constructed in 1926. The monument is cherished and very popular among visitors who come to see it and take pictures of it.

### THE PROBLEM

The client was concerned about several issues with this monument. They didn't want the marble to be damaged in the cleaning. They were also concerned about removing the lead lettering. There was a red wax that was poured on the monument, most important was that the cleaning actually removes the wax. Since this was a significant monument they wanted to preserve it the best they could by not damaging the stone.

### THE SOLUTION

For this job we used the ThermaTech® unit with the standard nozzle, high heat of 150°C and low pressure. This combination cleaned off the wax without damaging the monument and getting it back to its original state.

### THE OUTCOME

The client was so impressed with the results that he was lost for words. The difference before and after was outstanding. Not only did the ThermaTech® clean the monument, but it preserved the marble, didn't damage the lead lettering and completely removed the red wax.

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## THE THERMATECH® INOX MODEL



The latest Heater Module known as 'INOX' has been developed to meet a demand for higher performance, particularly for paint removal and large scale cleaning. It also incorporates a number of other innovations that aren't available on the standard system.

- ✓ The INOX has a 50% higher heat output than the ThermaTech® standard system. This enables it to reach full temperature (150°C) at full pressure if required. The standard system is limited to 80-90 bar at full temperature or around 125°C at 140 bar.
- ✓ Extra heat output allows two operators simultaneously to work at reduced pressure but full temperature, for light or sensitive cleaning.
- ✓ The INOX heater module is fitted with an hour meter.
- ✓ INOX incorporates voltage control apparatus for high flexibility when running from the pump/generator option. The INOX is compact, fitting within the same outer frame as the standard model and is the same weight.
- ✓ The INOX coil has a maximum working pressure rating of 250 bar. The standard ThermaTech® model is 200 bar.
- ✓ INOX has the thermostat controller programmed for even more accurate temperatures to be set and maintained (the standard model is already by far the best in its class).
- ✓ The INOX burner unit has stainless steel inner and outer casings. The burner cone, electrodes and other items are of heavier gauge construction. However, the heat exchanger coil is shorter (and lighter) enabling the unit to remain at the same weight. The shorter coil (and greater heat output) enables much faster warming-up and shutting down times.
- ✓ It is highly efficient, used at the same temperature and flow settings, the INOX offers lower fuel consumption.
- ✓ The INOX heater module is built in 24v as standard. Coupled to the ThermaTech® pump/generator, the complete system is 24v and so does not require PAT testing. This offers much safer electrical operation than mains power.
- ✓ The 24v INOX can be fitted with a 'drop-on' transformer, enabling it to be run directly from a mains power supply.
- ✓ INOX is also fitted with the combination of features that gave the standard ThermaTech® its original patent; modular arrangement, jerrycan fuel tank, 4 detachable wheels, electronic temperature control, static water priming etc.



Click on the image above see a demonstrational video and explanation



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## THERMATECH® INOX ELECTRIC PUMP MODEL

The ThermaTech® INOX, Electric Pump system is supplied with the following:

1 x ThermaTech® INOX Boiler\*

1 x ThermaTech® 110v/230v INOX Electric Pump (Electric Pump unit, to hang onto main module)

1 x 20 Litre Stainless Steel Silver Jerrycan

1 x 20 Metre High Pressure, Super-heated Rated, Twin Wired, Water Hose (red)

1 x 10 Metre High Pressure, Super-heated Rated, Twin Wired, Water Hose (red)

1 x Gun/Trigger

2 x Lances; 1 Short Lance Fitted with HP Nozzle & 1 Long Lance Fitted with HP Nozzle

1 x 25 Metre IP67 Electric

5 Litre Descaler



\* (main module on the 4 wheels) & Drop in Transformer 110v/230v - 24v fitted (inside stainless side panel)

\*\* Type of voltage dependent on choice of pump, i.e.; 1 x 25 Metre IP67 Electric Cable, Yellow, 6mm<sup>2</sup> for 110v OR, 1 x 25 Metre IP67 Electric Cable, Blue, 4mm<sup>2</sup> for 230v.

“

Although the Memorial still suffers from the same problems, cleaning is now needed less often than before, and the ThermaTech® has been specified for all future maintenance.

**DBR LONDON LTD,  
ROYAL ARTILLERY MEMORIAL**

[CLICK FOR FULL CASE STUDY >>](#)

“

The appearance of the church is much improved and the interior environment is showing the benefit of removing the non-breathable paint from masonry.

**AVV SOLUTIONS,  
PRIVATE ESTATE PROJECT**

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“

We were very impressed with the outcome as was the client. They were excited to have the look of their original brick back on the house.

**LEE LABAS,  
LABAS CONSTRUCTION**

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## THERMATECH® DIESEL POWERED PUMP/GENERATOR



The ThermoTech® diesel powered pump/generator is a complete innovation in the restoration field. Invented and developed by Restorative Techniques, it has been designed with reliability and performance in mind, without the need for compromise with regards to size and weight. The revolutionary design and features of this unit are protected by a new patent (the second patent granted to the ThermoTech® range of equipment).

The compact diesel engine drives the pump direct, which cuts out the

reliance on a vee belt driving a high powered pump. The engine also drives a generator to provide more than 500 watts of power for the boiler from a 16A socket.

When combined with the new INOX model of ThermoTech® boiler, the system will run at an incredible 170 bar, 9.5 litres per minute, with the power to still continuously maintain 150°C. This performance capability means that the system is able to function at the same level of efficiently,

## ADVANTAGES OVER ELECTRIC PUMP RUNNING ON GENERATOR:

- Just one unit for water and electricity
- No petrol needed, as the system runs completely on diesel
- There's a large weight saving, as there is no longer a need for combining a 5kva generator and electric pump
- Up to 170 bar working pressure at 9.5 litres per minute (electric 140 bar @ 9 litres per minute)
- Extremely compact! It can hang on boiler or be placed on floor as own unit. A wheel kit is also available for portability
- Low volt outputs for spotlighting or for the charging of personal equipment such as cameras, phones etc
- Less than 1 litre per hour fuel consumption; even at maximum output

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## THERMATECH® INOX DIESEL GENERATOR & PUMP MODEL - WITH ELECTRIC START & PULL CORD

- 1 x ThermaTech® INOX Boiler (main module on the 4 wheels)
- 1 x ThermaTech® INOX Compact Power Unit, Electric Start - Combined Pump/Generator Unit
- 1 x 20 Litre Stainless Steel Silver Jerrycan
- 1 x 20 Metre High Pressure, Super-heated Rated, Twin Wired, Water Hose (red)
- 1 x 10 Metre High Pressure, Super-heated Rated, Twin Wired, Water Hose (red)
- 1 x Gun/Trigger
- 2 x Lances; 1 Short Lance Fitted with HP Nozzle & 1 Long Lance Fitted with HP Nozzle
- 5 Litre Descaler

\* Diesel powered pump/generator module, to hang onto main module and power complete system. (For when off-grid).



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## ACCESSORIES

The ThermaTech® range of machinery will support many accessories to help optimise productivity with least impact. Many of these attachments are an ideal solution to help carry out other special tasks, whilst potentially reducing fatigue for the operator.



### SUCTION HOSE KIT

This kit comprises of a 4m long 19mm bore hose, wire reinforced for suction. One end has a weighted filter foot with non return valve, the other end is a suction type GEKA claw connection. Claw is included for the pump fitting.



### SUCTION HOSE EXTENSION

This is a 4 metre long 19mm bore hose, wire reinforced for suction. Both ends are GEKA suction type claw fittings. This extends the suction hose kit by a further 4 metres. Not to be used for vertical suction as the 4m limit will be exceeded.



### BREAK TANK

This is a Blue Barrel converted for use as a water reservoir. If your site water supply cannot quite keep up with the consumption required by the ThermaTech® (up to 9.5 litres per minute), then this tank will build up a reserve of water for longer run time without having to stop. Automatic 'shut off' internally by use of a float valve. Input via standard hosepipe connection. Output via GEKA claw fitting (a double claw suction hose is required between tank and ThermaTech® pump).



### IN-LINE LOW PRESSURE FILTER

If the water supply may be contaminated with particles, the small filter on the pump inlet may become overwhelmed with debris, causing frequent cleaning of the filter. This in-line cartridge filter clips to the pumps inlet and increases the filtration capacity.



### IN-LINE HIGH PRESSURE FILTER

For use on the end of the trigger/gun. This filter catches any particles of debris such as limescale deposits that may be too large to fit through a nozzle tip. Highly recommended to be used with the rotary surface cleaners (smaller aperture nozzles are at a greater risk of blocking). To clean out the filter, simply backwash by connecting it to the ThermaTech® pump's secondary outlet. This is not an alternative to regular descaling of the ThermaTech® system.



### GEKA CLAW

Claw fitting for connection of suction hoses to the ThermaTech® pump.



### HOSELOCK FITTING

Hosepipe fitting for connection of 'Standard' quick release hosepipe to the ThermaTech® pump.

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**3/4" FILTER WASHER/ STRAINER**

This filter must always be fitted in the pump inlet connection.



**EP80/90 GEAR OIL**

Oil for use in the head of the ThermaTech® pump unit. 400ml is required per oil change. For use after 50 hours of use from new and then annually.



**EXTENSION CABLE**

25 metre extension lead made from Arctic cable. Both ends are watertight IP67 connections.

- 4mm 2 Arctic Blue, 16 amp connections. For 230v applications
- 6mm 2 Arctic Yellow, 32 amp connections. For 110/120v applications



**5KVA TRANSFORMER (3.6KVA CONTINUOUS) 230V INPUT, 110V OUTPUT**

IP67 16 amp connector in, 1 x 32 amp & 2 x 16 amp sockets output. Requires power adaptor for plugging directly into a domestic 230v socket.



**POWER ADAPTOR**

This Adaptor converts a standard wall plug to a 16 amp connector.

- UK Standard Plug
- European 'Schuko' plug
- Other worldwide options available on request



**IN-LINE RCD (RESIDUAL CURRENT DEVICE)**

A safety device for use on 230v equipment. 16 amp male plug and female connector to fit in-line of power supply. 30mA trip in <30mS.



**STAINLESS STEEL DRIP TRAY**

Drip tray designed to fit between wheels under the ThermaTech® boiler and jerrycan. In the event of damage to the jerrycan the tray holds >150% of the jerrycan capacity. Often a site requirement.



**20L DESCALER**

A 9% solution of Hydrochloric acid. For use at removing limescale deposits from super-heated systems. Any hard water passing through a form of heater will deposit scale, this needs regular attention before blockages occur.

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**20L JERRYCAN**

- Mild Steel coated in silver paint
- Stainless Steel in polished finish
- Spouts also available for fuelling of other equipment



**CHIMNEY DUCT ADAPTOR**

Stainless Steel constructed adaptor for converting the rectangular exhaust into 5” round for ducting of exhaust fumes. Applications such as van mounted units, behind scaffold sheeting or any location inadequately ventilated. 5” flexible flue can be separately sourced.

- INOX model only
- ‘Standard’ model does not require an adaptor. Due to the oval exhaust, the flexible flue can be pipe clipped direct



**2 OPERATOR SET-UP**

For connecting 2 operators to work simultaneously from 1 ThermaTech®. This kit comprises - high pressure ‘Y’ splitter, 1 x 10 metre high pressure red hose, 1 x 20 metre high pressure red hose, Gun/Trigger, 300mm short bent lance (standard 40 degree nozzle fitted), 600mm long straight lance (standard 40 degree nozzle fitted)

For information on performance output with this set-up, please see product information for each ThermaTech® model.



**HIGH PRESSURE RED HOSE**

**400 BAR WORKING PRESSURE, 155°C TWIN WIRE, 5/16” (8MM) BORE**

- 10 metre hose with M22 Male x Female ends
- 20 metre hose with M22 Male x Female ends



**HIGH PRESSURE HOSE REELER**

A stainless steel reeler for the red high pressure hose. It has been designed to be self-standing, or hang on the side panel of the ThermaTech®. It includes 30 metres of red high pressure hose. Longer capacity can be fitted (up to 50 metres) however the weight will significantly increase and care has to be taken to spool the hose in neatly. The high pressure swivel is also stainless steel and rated to rotate at the full temperature and pressure.



**‘STANDARD’ GUN/TRIGGER**

This trigger has on/off control of water flow. Safety lock on handle for accidental operation. Patented low trigger force technology reduces fatigue to the operator when using this gun for hours at a time.



**‘PRESSURE REDUCING’ GUN/TRIGGER**

This trigger is the same as the ‘Standard’ for on/off control of water flow, but also incorporates a pressure reducer/flow restrictor. The operator can make adjustments to the nozzle pressure whilst working. Care needs to be taken to the original setting of the pump pressure as to not overload the supply (Information sheet included).



**‘DETAIL’ GUN/TRIGGER**

Designed for small scale, intricate work. Nozzle is fitted directly in the end of a short tube with a 25 degree nozzle spray angle as standard. This trigger is the same as the ‘Standard’ for on/off control of water flow, but also incorporates a pressure reducer/flow restrictor. The operator can make adjustments to the nozzle pressure whilst working. Care needs to be taken to the original setting of the pump pressure as to not overload the supply (Information sheet included).

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**‘STUMPY NOZZLE’**

Nozzle fitted direct to connector. This reduces the working distance of the lance to 25mm. Often used in abseil work. Standard 40 degree nozzle fitted unless other angle is requested.



**SHORT LANCE**

All lances are fitted with 40 degree nozzles unless specified otherwise.

- 300mm lance straight
- 300mm Lance with 15 degree bend



**LONG LANCE**

All lances are fitted with 40 degree nozzles unless specified otherwise.

- 600mm lance straight
- 600mm Lance with 15 degree bend



**‘SPINNER/TURBO’ LANCE**

A pencil jet of water exiting a rotating ceramic ball creating an intense, moving spray. This nozzle is suitable for cleaning or coating removal that requires more ‘mechanical’ force. Examples include but not limited to - heavy mud or moss from paving, loose or flaky paint from a solid substrate, barnacles from boat hulls etc. Only rated at 120°C due to the moving parts. Not suitable for heritage work.



**‘CUSTOM’ LANCE**

Please contact us with your requirements. Options are:

- Any length pipe up to 2 metres
- Any bend angle up to 180°
- Swivelling head option
- Any nozzle type, angle or aperture fitted
- Sliding side handle option



**LANCE EXTENSION**

Lance pipe with M22 male and M22 female end with lockable sliding handle.

- 1 metre long
- 1.5 metre long
- 2 metre long
- Other sizes up to 2 metre on request



**ROTARY SURFACE CLEANERS**

These type cleaners consist of a Stainless Steel enclosure with a skirt, mounted on wheels. Within the enclosure are 2 nozzles either end of a rotating spray bar. These surface cleaners cover very large ground in a short time but are limited to 120°C due to the rotating parts. Only suitable for cleaning (not paint stripping). These units can be available with vacuum ports for use with the ThermaVac™ unit on request. Each unit is supplied with nozzles fitted, and a High Pressure Filter attached.



- 300mm Enclosure Mounted on 300mm Lance (Wall cleaning)
- 420mm Enclosure Mounted on 600mm Lance (floor/ paving cleaning)
- Roof Cleaner- 520mm Enclosure Mounted on 4 height adjustable wheels. Track Width can be adjusted to the tile contour/roof corrugations. Lowered and raised by hose from ridge line.

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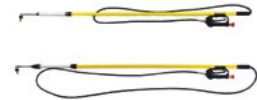
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**GEOTEXTILE MEMBRANE**

A sheet material used in the separation of solids from water. Ideal for catching debris, grease or paint flakes in the water run-off. Water percolates through the membrane, leaving behind the deposits. Can be dried out, brushed off and re-used. Sold in metre lengths at 2.1 metres wide.

**TELESCOPIC POLE**



Fibreglass/Aluminium telescopic pole that will extend either single (to 3.8 metres), or double (5.4 metres). The trigger is mounted to the pole and connects to the head via a 1/4” high pressure hose rated at 150°C. The outlet has a swivelling head to set an angle of + or - 130 degrees for use with soffits, fascia’s and gutters etc. It’s supplied with a ‘stumpy’ nozzle, but the pole outlet is standard M22 Female for use with all lance accessories.

- Single telescopic pole 2.3- 3.8 metres
- Double telescopic pole 2.3- 5.6 metres

Recommended accessories for telescopic pole:



- Shoulder strap



- Wheel kit, for maintaining set nozzle distance to surface effortlessly

**CASE STUDY: THE CENOTAPH, WHITEHALL, LONDON - DBR (LONDON)**

The Cenotaph is a tall stone war memorial on Whitehall, London. Built in 1919-20 from Portland Stone to the design of Edwin Lutyens, it features carved stone wreaths on its sides, and serves as the main national memorial of the United Kingdom commemorating soldiers who perished in the First World War. Each year on Remembrance Sunday, a memorial service and parade is held at the Cenotaph, with the Queen and senior politicians and members of the armed forces in attendance.

**THE PROBLEM**

Cleaning of the Cenotaph has to be regularly carried out, and it needs to be given an extra clean as part of the general preparations for the annual Remembrance Day Ceremony. This must be done to exacting standards while preserving the integrity of the stone.

**THE SOLUTION**

The ThermaTech® equipment from Restorative Techniques was used by skilled and experienced personnel from DBR (London) Limited to clean off accumulated road grime and atmospheric pollutants. Super-heated steam was delivered by a lance, to leave the stonework in an exemplary state. It is fortunate that there is generous space on both sides of the Cenotaph on which to site the cleaning vehicle and the ThermaTech® equipment.

**THE OUTCOME**

The Cenotaph is now in a presentable state, as befits such an important event, thanks to the cleaning work successfully carried out by DBR using the ThermaTech®. The expertly cleaned stonework, together with the special ceremonial flags, is ready to take part in the National Remembrance Ceremony for all to see with pride.





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## THERMATECH® OPTIONAL ABRASIVE ATTACHMENT

The ability to combine the use of a super-heated water system, with an adjustable and effective abrasive flow, is now viable and available through an optional abrasive attachment for ThermaTech® systems.



The ThermaTech® will have limited success with NON-Temperature responsive coatings (such as cements/ lime based paints, carbon sulphation, lime efflorescence etc).



The coatings or deposits that remain brittle at 150°C will yield to the application of abrasive, giving a ‘mechanical’ advantage. The abrasive attachment kit fits to the end of a ThermaTech® gun and can be used cold, up to 100°C temperature. The Ceramic and Stainless Steel nozzle provides a gentle diffuse mixture of water/ steam and abrasive. The abrasive pick-up straw should be pushed into a moisture resistant bag/ container of abrasive media. The connecting tube between abrasive and nozzle is 4 metres long and has an in-line abrasive flow controller.



Compatible with all Jos/Vortech abrasives (except Calcite, Recycled Glass 0-0.2).

A reduction of water pressure and increase of water temperature reduces the intensity of clean for small, localised areas.

- Complete kit (includes head, lance, HP filter, hose and pick-up straw)
- Replacement ceramic abrasive nozzle
- Replacement water jets (set of 3)

This innovative and ground-breaking combination is actually able to create a pressurised mixture of hot water and abrasive medium, whereas in the past, super-heated and steam systems would have had limited success with NON-Temperature responsive coatings (such as cements/lime-based paints, carbon sulphation, lime efflorescence etc).

Coatings or deposits that remain brittle at 150°C can however often yield to the application of abrasive, giving a ‘mechanical’ advantage and this combination of ThermaTech® with this attachment will now provide even more distinct advantages over the many other commercially available super-heated and steam systems.

This abrasive attachment kit is specifically designed to connect the ThermaTech® gun and can be used up to 100°C temperature.



Click on the image above see a demonstrational video and explanation

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## THERMATECH®’S ABRASIVE ATTACHMENT: THE FACTS

- ✓ The ceramic and stainless-steel nozzle assembly provides a gentle diffuse mixture of water/steam, air and abrasive.
- ✓ The abrasive pick-up straw should be pushed into a moisture resistant bag / container of abrasive media.
- ✓ The connecting tube between abrasive bag and nozzle is 4 metres long and has an in-line abrasive flow controller.
- ✓ A backpack arrangement for the operator is yet another option that can be added to the abrasive attachment.
- ✓ Compatible with all Jos/Vortech abrasives (except Calcite, Recycled Glass 0-0.2).
- ✓ A reduction of water pressure and an increase of water temperature reduces the intensity of clean for small, localised areas.
- ✓ The choice of abrasive is determined by the thickness, flexibility, and hardness of the deposit or coating, and the comparative resilience of the corresponding substrate.
- ✓ A range of abrasives are supplied by Restorative Techniques suitable for use with this attachment, each type of abrasive will vary in size, hardness (Mohs), particle shape and density.

## THERMATECH®’S ABRASIVE ATTACHMENT: KEY TECHNICAL DETAILS

- Ceramic and stainless-steel nozzle assembly provides a gentle diffuse mixture of water / steam, air and abrasive
- Abrasive pick-up straw should be pushed into a moisture resistant bag/ container of abrasive media
- The connecting tube between abrasive bag and nozzle is 4 metres long and has an in-line abrasive flow controller
- Compatible with all Jos/Vortech abrasives (except Calcite, Recycled Glass 0-0.2)

## USER FRIENDLY DESIGN

- Super-heated water system with adjustable and effective abrasive flow
- Works in conjunction with your existing ThermoTech® machine
- Creates a pressurised mixture of hot water and abrasive medium
- Can be used at temperatures up to 100°C

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## THERMATECH® OPTIONAL VACUUM RECOVERY UNIT - THERMAVAC™

This system has been specifically designed for use with the ThermaTech® system. It enables the superheated water to be applied to the surface within an enclosure and for the waste water and residue generated to be drawn away from the substrate.

The solid is separated from liquid within the vacuum unit and a pump contained within periodically transfers the waste water to storage vessels for later transfer/treatment or to the foul drain as appropriate.

## FEATURES AND SPECIFICATION

The system has been designed to enable full temperature (up to 150°C) to be used

Maximum pressure is adjusted using the control on the ThermaTech® pump but a secondary control enables a reduced pressure to be selected by the operator at the recovery head

The performance of one standard ThermaTech® and one ThermaVac™ unit permits the simultaneous use of two recovery heads if required

The standard recovery head has a contact area of approximately 120x120 mm

The standard ThermaVac™ unit is 110v, requires 2.2kw to operate and is fitted with a 32a plug

The pump can be left unplugged and a cap fitted to the water outlet if it is required to keep the water within the unit

The waste air outlet is fitted with a screw port. This permits a ventilation pipe to be fitted and directed either to a window opening or to a condenser to minimise condensation in the working area.

Typical water consumption of one head is likely to be around 3 litres per minute (50 mls per second)

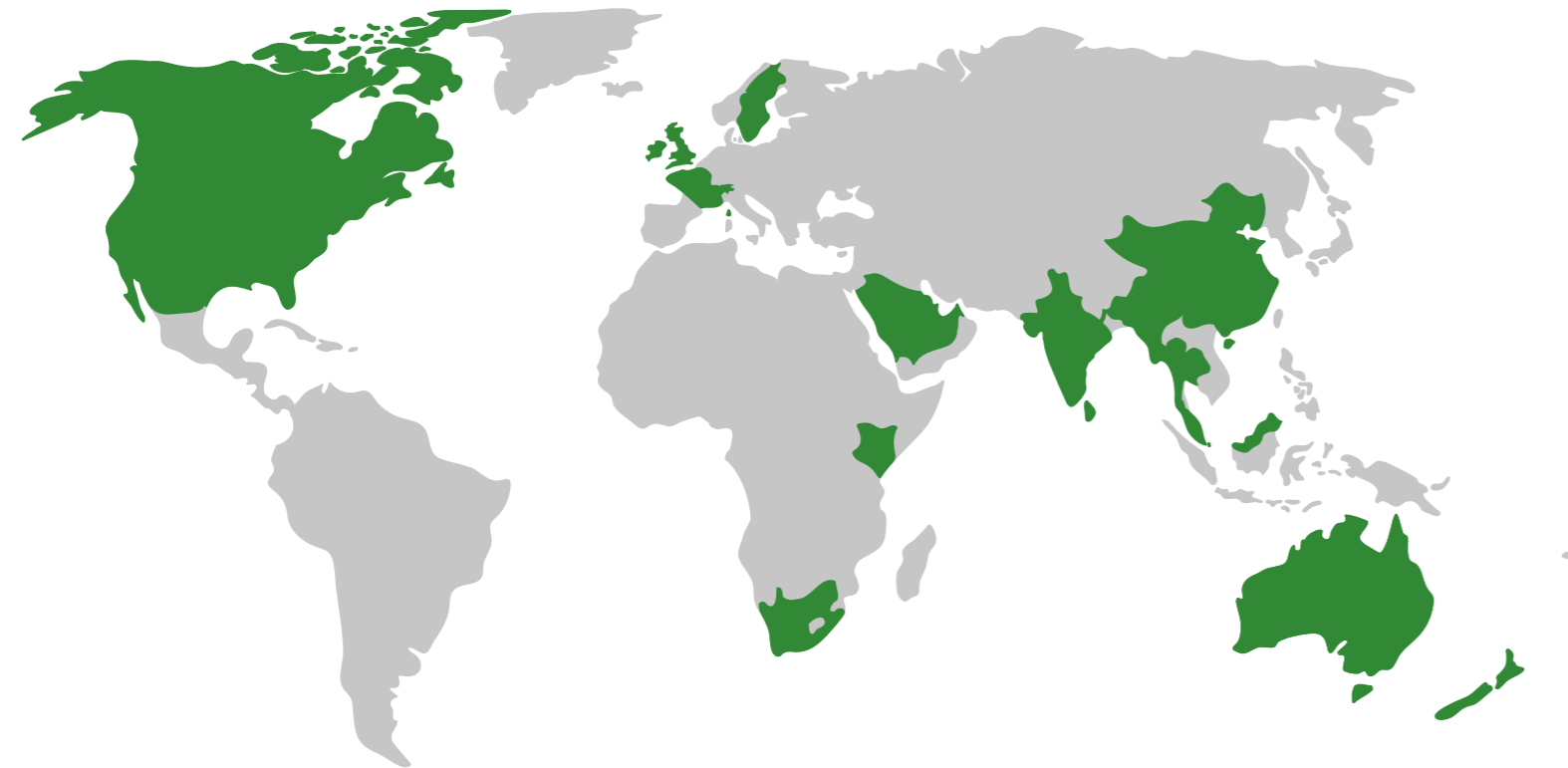
The recovery heads are fitted with a trigger enabling the water to be turned on or off instantly

With the trigger released, the recovery head can continue to be used as a vacuum tool enabling immediate recovery of any excess spray.



Click on the image opposite to see a demonstrational video and explanation

## THERMATECH® ON TOUR



As well as being a popular choice for clients in the UK, ThermaTech® also has a strong international presence having been utilised in countries such as China, Canada, France, Australia, South Africa, New Zealand and the USA, to name just a few.

## ABOUT US

### WHO ARE RESTORATIVE TECHNIQUES?

Restorative Techniques, based in the UK, is now established as a leading supplier of reliable goods and services both to the home market and for worldwide export. We are a specialist company with a wide range of in-house technical skills, including professional expertise of materials and substrates, with a reputation that is well regarded and respected for supplying safe, appropriate and effective techniques and solutions for historic restoration and conservation projects.



### WHY CHOOSE US?

What distinguishes us from many other suppliers, is that as a company we can directly draw upon approximately 100 years of experience, skills and knowledge of supplying to the historic building environment.

We are led by Jamie Fairchild, who alone brings over three decades of professional experience of technical knowledge of substrates and materials and whose expertise is often sought and in demand by many academic and research institutes, highly respected 'governing' organisations and architectural practices.

Our products are now being regularly specified and are in daily use for many landmark and notable structures and projects around the world. We employ dedicated and experienced individuals, who all work hard and care about providing a first-class service to our customers, focussing on supporting projects and all those associated with undertaking, or commissioning them. We invest time and assist specifiers and help our customers succeed, by delivering quality products, innovative solutions, in a cost effective and environmentally responsible manner, with minimal intervention and impact to substrates. We have a core technical group with backgrounds and engineering skills from design, mechanical, manufacturing and programming skills, that enables us to continue to innovate and will help us successfully achieve our core mission, of improving standards across the globe.

# CONTACT US

For more information, to arrange a demonstration or to hire or purchase a ThermaTech®, please get in touch

Email [info@restorativetechniques.co.uk](mailto:info@restorativetechniques.co.uk)

Call 01454 417 831

Go to [www.restorative-products.com](http://www.restorative-products.com)

Visit our **vimeo page** to see videos of our products in action

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T: 01454 417831 | E: [info@restorativetechniques.co.uk](mailto:info@restorativetechniques.co.uk) | [www.restorativetechniques.co.uk](http://www.restorativetechniques.co.uk)  
Restorative Techniques Ltd, Gloucester Road, Rudgeway, Bristol, BS35 3SG