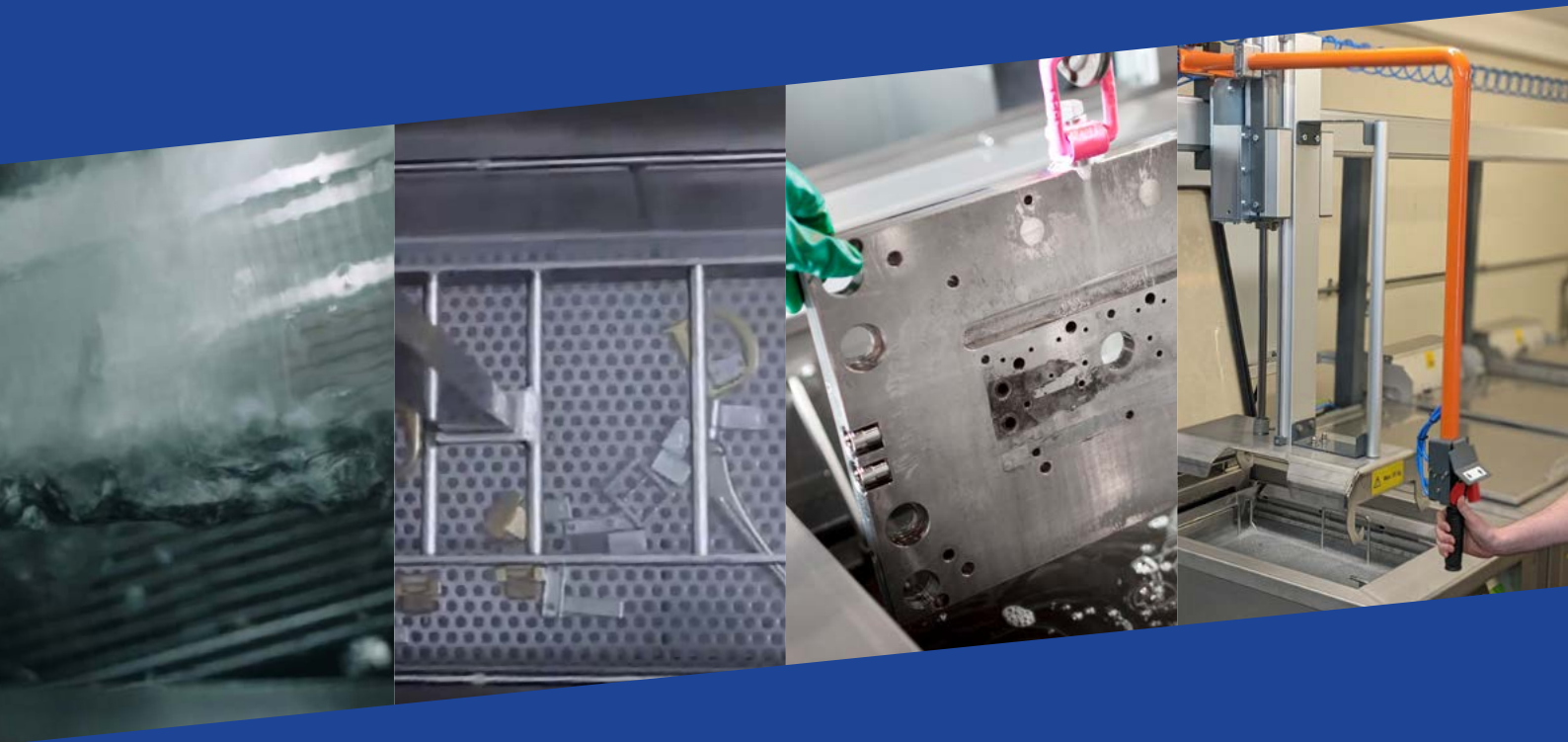


# Kemet

**Precision** Lapping | Polishing | Cleaning | Materialography

## PRECISION CLEANING SYSTEMS



Kemet International Ltd, Parkwood Trading Estate, Maidstone, Kent, ME15 9NJ, UK

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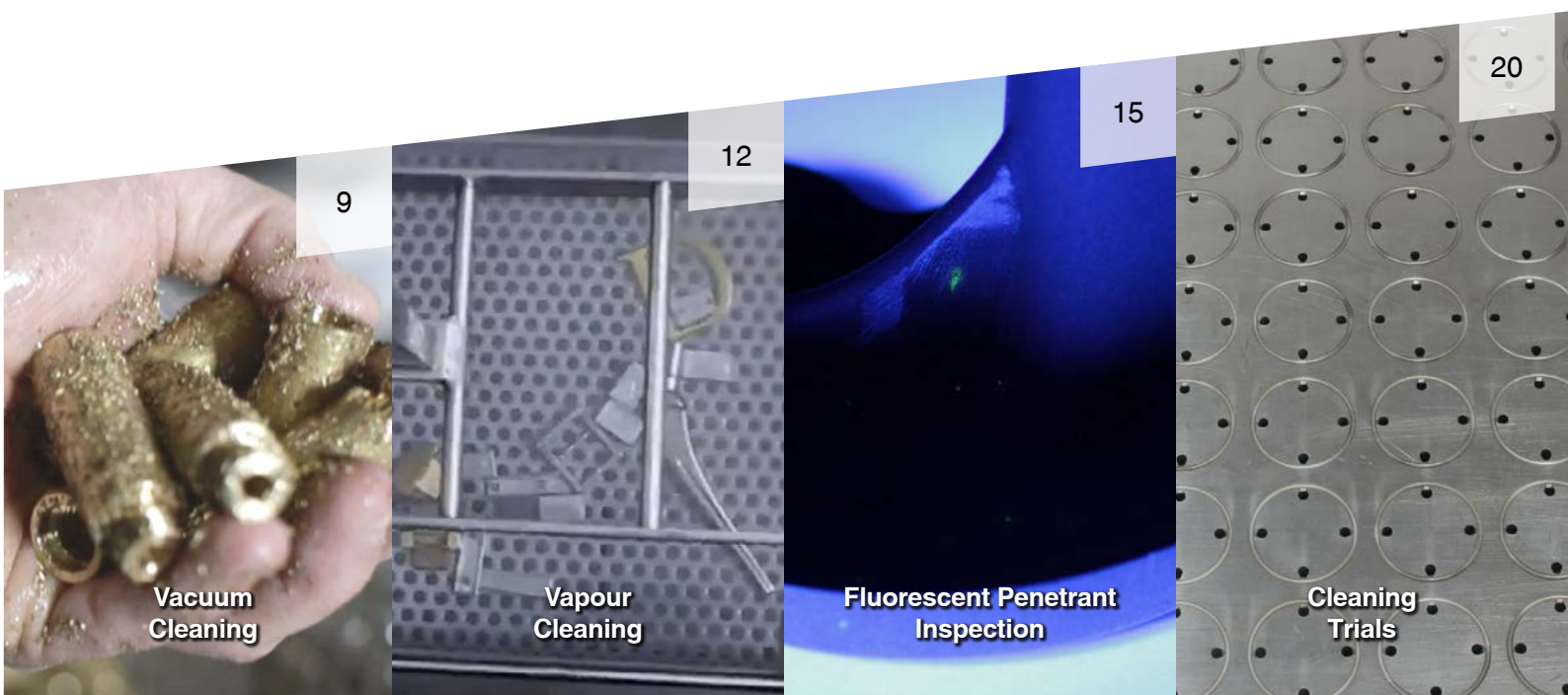
**Free Cleaning Trials to find your perfect solution**

# Kemet International Ltd

Kemet International Ltd has been a leader in precision polishing technology since 1938, producing top-quality diamond pastes and composite lapping/polishing materials in our purpose-built facilities to ISO 9001:2015 standards. The company recognises the importance of cleaning as a critical aspect of the final production process, allowing for precise inspection of parts before use.

To provide the best possible cleaning solutions for a wide range of contaminants and materials, Kemet has established partnerships with leading companies in ultrasonic cleaning, spray washing, vacuum cleaning, cleaning fluids, and water treatment. This collaboration has resulted in a comprehensive range of products and processes, but the company is also prepared to conduct custom research and development for more challenging applications.

Kemet offers both aqueous and solvent processes, as well as a comprehensive range of cleaning fluids and wastewater treatment solutions as the UK distributor for NGL fluids. The company provides free cleaning fluid trials to help customers find the ideal solution for their needs. With a strong global presence, spearheaded by companies in nine countries, Kemet is well-equipped to provide technical support to customers all over the world. With over 85 years of experience, the company is committed to providing the highest level of customer support and expertise to tackle any cleaning challenge.





# Ultrasonic Cleaning in Manufacturing Industries - Versa Genius+

Advances in technological development set ever higher requirements for component cleanliness in today's manufacturing industries. The Versa Genius+ represents the 4th generation of the popular Versa range. It boasts many features as well as innovative Genius ultrasonic technology. The Versa Genius+ offers a perfect match with your requirements for cleanliness, productivity and Environmental, Health and Safety (EHS).

## Main benefits

- Modular - flexible process configuration for optimal cleaning result
- Compact - small footprint
- Smart - high productivity combined with excellent EHS

## Main characteristics

- Tank sizes from 50-180 litres
- Load capacity up to 50 kg
- Washing, rinsing and drying modules
- Bath maintenance modules
- Process automation and material handling modules

## Features

- Enhanced cleaning performance
- Flexible
- Easy to use
- Energy efficient
- Safe & reliable
- Easily serviced

## Main applications

- Automotive
- Metal
- Machinery
- Electronics
- Aviation
- Maintenance
- Medical

The Versa Genius+ cleaning line offers washing, rinsing and drying modules and additional options. Its scope can range from single manually operated units to a fully automated multi stage line. Versa Genius sets new standards in design with thoughtful details in fluid connections, agitation and control features to give a more functional, flexible and energy efficient system.

## Modules Available

- Ultrasonic Cleaners (with cascade and side transducer options)
- Jet wash tanks for water (with AIII Solvent option)
- SonicJet wash tanks (with side transducer option)
- Spray wash tanks
- Rinse tanks (with cascade option)
- Hot air dryers

- Fully automatic basket handling and process control - increased productivity and process stability
- Transporter design that minimizes particle contamination, together with optional laminar flow boxes on the encapsulation make the line suitable also for clean room applications.

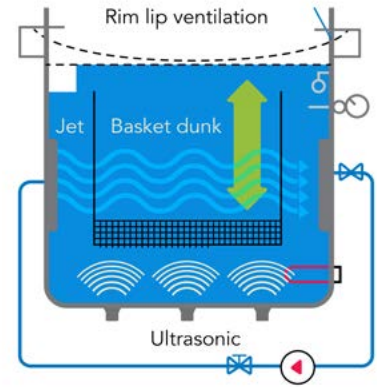


## Genius Ultrasonic Technology

- Fully digital technology - fast and energy efficient
- Advanced diagnostics - performance monitoring and service capabilities
- Automatic adaptation of generator parameters - constant maximum performance.

### Optional features

- Automatic filling (Automatic initial filling and top up during operation. Level switches monitor the liquid level and consequently open and close a solenoid valve.)
- Automatic purge (Adds fresh water automatically in conjunction with treatment cycle by opening a solenoid valve.)
- Automatic detergent concentration regulation (Detergent concentration of bath is regulated automatically based on conductivity.)
- Conductivity measurement (Conductivity measurement probe installed in tank. Value displayed on operating panel.)
- pH measurement (pH probe vessel inserted in closed circulation loop. Value displayed on operating panel.)



### Control system

- 5 user programs can be stored with (where applicable)
  - Treatment time
  - Temperature
  - Ultrasonic power setting
  - Booster
  - Temperature interlock
  - Dunking (optional)
  - Circulation with automatic Stop&Go control (optional)
  - Automatic filling (optional)
  - Automatic purge (optional)
- Temperature limit
- 7-day timer for heating and optional closed loop circulation
- Dry run protection
- Motor and generator fault alarm

Technical information (Ultrasonic Cleaner)	Versa Genius+ 50	Versa Genius+ 120	Versa Genius+ 180
Basket dimensions, internal (mm)	267 x 367 x 206(h)	367 x 567 x 315(h)	430 x 610 x 395(h)
Load capacity, parts (kg)	10	26	39
Module dimensions, external (mm)	549 x 971 x 968(h)	653 x 1174 x 968(h)	723 x 1217 x 968(h)
Filling volume (l)	46	120	180
Heating power (W)	2000	3000	5000
Ultrasonic effect nom/peak (W)*	600/ 1200	1200/2400	2400/4800
Ultrasonic frequency (kHz)**	27	27	27

\* Transducers bonded to tank base. Side transducer versions also available. \*\*37 kHz also available  
Internal dimension "height" of the basket is the distance from bottom of the basket to the liquid surface when tank filled up to the overflow weir.



Assists with manual handling of baskets through the process - more ergonomic and safe operation

Horizontal movement takes place on a passive linear guide - precise positioning with light manual input

A control arm with integrated thumb switches for controlling the pneumatic lifting - easy to use

# Corus - Tool & Mould Ultrasonic Cleaning Tanks

Ultrasonic cleaning in the maintenance of moulds reduces manual input and wear, resulting in large cost savings. The technique is perfect for plastic, rubber and die cast moulds and tools.

- The Corus units are intended for general maintenance cleaning applications.
- Tank dimensions are based on Euro pallet standard.
- Cleaned parts are to be placed into cleaning tank in a wash basket.
- Each unit is an independent module.
- Modules can be placed next to each other to form a line with washing and rinsing stages.
- System can be further complemented with storage tanks, filtration, Ergo Station, chain hoist etc.

## Options

- Baskets, single lifting point with gripper
- Lifting beams, same support points as for basket
- Rim lip ventilation channel and fan
- Lift off, hinged and pneumatic operated lids
- Closed loop circulations
- Storage tanks VG50, VG140,
- VG140HD with vertical pump
- Noise suppression kit 85 > 71dB
- Chain hoists

## Construction

- Each module is an independent unit
- Modern and cost effective sheet metal construction
- Valves at the back
- Adjustable feet
- Raised lip at tank edge

## Genius Ultrasonic Technology

- Automatic adaptation of generator parameters - constant maximum power
  - Measurement of the load
  - Frequency regulation (/30 sec)
  - Power regulation
  - Operating in optimal point puts the power into cleaning and minimises energy losses.
- Fully digital technology - extremely controllable and energy efficient
- Advance diagnostics - performance monitoring and service capabilities
- Ready for IoT

## Main applications

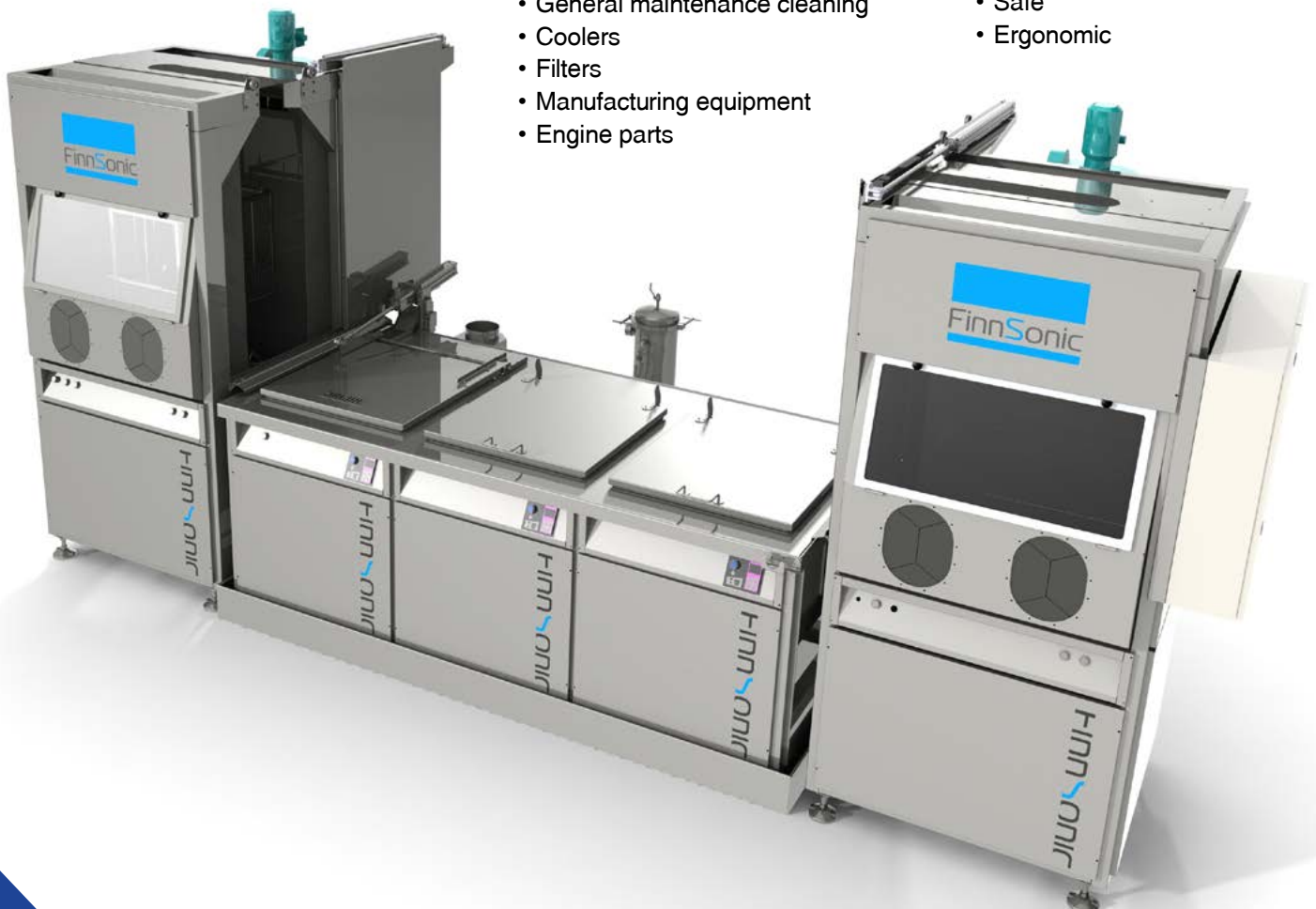
- Tool and mould cleaning
  - Plastic injection moulds
  - Die casting
  - Rubber moulds
  - Glass packing moulds
  - Extrusion tools
- General maintenance cleaning
- Coolers
- Filters
- Manufacturing equipment
- Engine parts

## Loading concept

- Basket supports at tank edge
- Manual / hoist basket
- Lifting beam

## Ergo station

- Inspection, flushing, air blast
- Safe
- Ergonomic





Technical information	Corus 120	Corus 240	Corus 360	Corus 480
External dim. (WxDxH) (mm)	670 x 900 x 917	980 x 1045 x 970	1230 x 1351 x 1120	1690 x 1551 x 1120
Tank effective dim. (WxDxH) (mm)	340 x 645 x 484	654 x 449 x 603	904 x 673 x 758	1324 x 873 x 758
Wash basket internal dim. (WxDxH) mm	300 x 538 x 442	604 x 400 x 516	808 x 600 x 658	1208 x 800 x 658
Displacement reserve (l)	14	46	60	100
Liquid volume (l)	135	286	670	1200
Load capacity (kg)	100	200	300	350
Heating power (kW)	3	5	9	18
Ultrasonic Power nom/ peak (kW)	1.2 / 2.4	2.4 / 4.8	3.6 / 7.2	4.8 / 9.6
Connected load (kW)	5	8.3	13.6	23.8
Voltage (VAC)	380/220 - 415/240 3-phase, neutral and ground			



- The Corus HD units are intended for maintenance cleaning of tools and moulds.
- Each unit is an independent module.
- Modules can be placed next to each other to form a line with washing, rinsing and drying stages.
- Typical process consists of two steps/ tank modules: ultrasonic wash complemented with immersion rinsing/ hot passivation.
- Tank dimensions are based on typical injection mould sizes.
- Cleaned parts are to be placed into tank either in a wash basket or hung on a lifting beam.
- Both baskets and lifting beams are compatible with the standard tank designs. System can be further complemented with storage tanks, filtration, Ergo Station, chain hoist etc.

Technical information	Corus 120HD	Corus 240HD	Corus 360HD	Corus 480HD	Corus 600HD	Corus 720HD	Corus 840HD	Corus 1200HD
Max mould recommended size dim. (WxDxH) (mm)	400 x 250 x 400	450 x 300 x 450	600 x 400 x 600	800 x 400 x 600	1000 x 400 x 800	1200 x 400 x 900	1000 x 700 x 800	1200 x 700 x 900
Tank effective dim. (WxDxH) (mm)	339 x 645 x 484	654 x 449 x 603	724 x 473 x 758	964 x 473 x 758	1163 x 473 x 958	1400 x 500 x 1100	1200 x 800 x 1000	1400 x 800 x 1100
Wash basket internal dim. (WxDxH) mm	300 x 538 x 435	604 x 400 x 515	668 x 400 x 658	868 x 400 x 658	Lifting beam			
Displacement reserve (l)	14	48	80	100	146	180	220	270
Liquid volume (l)	135	286	410	500	815	1100	1300	2200
Load capacity (kg)	100	200	300	500	1000	1300	1600	2000
Heating power (kW)	3	5	9	9	18	18	27	36
Ultrasonic Power nom/ peak (kW)	1.2 / 2.4	2.4 / 4.8	3.6 / 7.2	4.8 / 9.6	6 / 12	7.2 / 14.4	8.4 / 16.8	12 / 24
Connected load (kW)	5	8.3	13.6	14.8	23.8	26	36	48
Voltage (VAC)	380/220 - 415/240 3-phase, neutral and ground							

## FinnSonic Corus X

When special dimensions are needed, FinnSonic Corus X is the answer. The modules can be tailor made according to the customer's current needs. The modules are designed with smart design automation that is based on a parametric model. In turn, this produces cost-efficiency and fast delivery times.

**All of the above models include;** Booster/Sweep/Degas, Ultrasonic frequency - 30 kHz, Temperature range Ambient - 80°C, Filling valve - R ½", Drain valve - R 1 ¼", Overflow weir/ valve - R 1 ¼", Level sensor - Float type

All machines comply with Electromagnetic Compatibility Directive (EMC) 2014/30/EU Low Voltage Directive (LVD) 2014/35/EU + EN 61439-2





## Corus Activa

The load handling system features robust and safe double guides and cylinders on the load platform lifting system. The insulated lid with gas springs retains heat in the tank while ensuring operator safety. The platform's dunking movement enables fast and uniform washing. The state-of-the-art FinnSonic Genius ultrasonic technology maintains constant maximum performance and cleanliness with automatic frequency and power regulation. Ultrasonic transducers on both sides provide full coverage without dampening from sludge accumulation. The heating function enhances detergent cleaning power. Pneumatic lid actuation for Corus Activa 480 model.

Technical information	Corus Activa 240	Corus Activa 360	Corus Activa 480
Load platform dimensions and usable height (mm)	800 x 500 x h400	1100 x 600 x h400	1250 x 700 x h650
Load capacity (kg)	250	250	500
Tank capacity (l)	309	498	898
Ultrasonic effect (nominal) (kW)	2.4	3.6	4.8
Heating effect (kW)	12	15	30
Voltage (VAC)	380/220 - 415/240 3-phase, neutral and ground		

## Bespoke Aqueous Systems

In addition to the range of standard systems, Kemet can design and produce bespoke systems to suit your application. Ranging from a robust single unit to a multi tank, automated ultrasonic cleaning system.

It is important to tailor a complete cleaning solution to match a specific application as this ensures that the cleaning costs, both power consumption and consumable costs, are kept to the minimum. For example, a general purpose cleaning detergent may successfully clean contaminated components, but if it is not targeted specifically for the job, you could find the detergent may need replenishing far more frequently than a tailored product.

Kemet can offer over 300 different detergents, all with slightly different characteristics, to ensure the optimum efficiency of your cleaning process.





# Optima - Modular Ultrasonic Cleaning Lines

The Optima lines are flexible, high performance component cleaning solutions. A wide range of manufacturing industries rely on Optima for the most stringent cleanliness requirements and highest volume throughputs.

## Treatment tank modules with

- Ultrasonic
- Jet
- SonicJet
- Rinsing
- Spray
- Hot air drying
- Vacuum drying
- Widest range of options including
  - Basket dunking
  - Basket rotation

## Tank sizes

- 150 l up to in excess of 10 m<sup>3</sup>

## Basket dimensions

- From 400 x 300 x 300(h) mm to custom sizes
- Long models with a basket length of several meters

## Load weights

- 35 kg up to in excess of 10 tons

## Ultrasonic agitation

- 1.2 kW up to in excess of 30 kW
- 20, 30 and 40 kHz frequencies available

## Bath maintenance options

- Storage tanks
- Particle filtration
- Oil separation
- Automatic filling and dosing
- ...and many more

## Material handling and process automation options

- Easy lift, pneumatic assisted basket handling of up to 50 kg capacity
- Chain hoist assisted basket handling 50 - 1000 kg
- Load platforms for automatic tank specific lifting / dunking from 40 - 1000 kg
- Fully automatic material handling and process control with multibasket operation
  - 100, 200, 400, 1000 kg
  - Custom versions
  - Protected by a safety fence or fully encapsulated
  - Conveyor systems

## Options:

- Jet turbulence 200 l/min
- Air bubble agitation
- Basket dunking 100 kg
- Safety thermostat
- Rim lip ventilation channels
- Heated storage tank WS120
- Auto purge
- Automatic refilling
- Automatic detergent dosing
- Cascade equipment
- Drain pump
- Hot air dryers
- Automatic lid for dryer
- HEPA filter
- PTM 50 Easy Lift
- Loading table for PTM50
- MBT100 automatic transporter



## Mi Range - Peak Performance Cleaning for Demanding Parts

The Mi range is a compact and fast solution to conventional industrial parts cleaning needs. Operating the unit as well as cleaning and maintenance of the parts is simple and effortless.

The modules are made of stainless steel for demanding conditions and heavy use. The Mi machine can be expanded into a modular multi-stage washing system, if needed. The washing process can be enhanced with a host of options, thus creating even more cost savings.

On the Mi range of ultrasonic cleaners, the control systems allow you to:



- Maintain an effective work day schedule with 7 day timer for control of heating on/off requirements.
- Activate treatment from your own PLC with the external control feature.
- Maintain the process integrity by controlling maximum temperature during the entire cleaning process.
- Optimise the process with the temperature interlock to ensure that temperature cannot be changed from the panel and the process will not begin before set temperature is reached.
- Store programs and select from the memory for individual part cleanliness requirements.

The ultrasonic technology provides constant maximum performance

- Automatic measuring of load - frequency and power regulation
- Fully digital generator - well-adjusted and energy efficient
- Advanced diagnostics - performance monitoring and service capabilities
- Top level of cleanliness

Options include stands, side transducers, hinged lids and many more accessories.

Ultrasonic Cleaner	M80I	M120I	M160I	Hot Air Dryer	M80DR
Volume (l)	80	120	160	External dimensions (mm)	920 x 460 x 680(h)
External dimensions mm	760 x 460 x 720(h)	740 x 580 x 750(h)	1340 x 460 x 770(h)	Weight (kg)	65
Tank dimensions mm	585 x 330 x 400(h)	585 x 450 x 455(h)	1180 x 330 x 400(h)	Tank dimensions (mm)	For one basket
Internal Wash basket dimensions (mm)	540 x 290 x 310(h)	540 x 400 x 360(h)	1110 x 280 x 310(h)	Heating power (W)	3300
Ultrasonic power W nom./ peak	1200/2400	1200/2400	1200/2400 (M160I/2400 - 2400/4800)	Temperature range (°C)	Ambient - 80°C 200W, 700m <sup>3</sup> /h
Ultrasonic frequency (kHz)*	30	30	30	Fan	Suction from right end, blow from left end of chamber
Heating power (W)	2000	4000	6000	Voltage	220-240V-single phase-50Hz
Voltage	220-240V-single phase-50Hz/60Hz	400-415V-three phase-50Hz/60Hz	400-415V-three phase-50Hz/60Hz	Frequency (Hz)	50
Filling valve	R 1/4	R 1/4	R 1/4	Connected load (W)	3500
Drain valve	R 3/4	R 3/4	R 3/4	Fuses T = slow	16A
Overflow weir/ valve	R 3/4	R 3/4	R 3/4	Connecting load (W)	3200
Connecting load (W)	3200	5200	7200		

Internal dimension "height" of the basket is the distance from bottom of the basket to the liquid surface when tank filled up to the overflow weir.  
\* 40 kHz also available.

# Kemet Light-Industrial Ultrasonic Cleaners for Precision Cleaning

The K-Sonic Benchtop ultrasonic cleaners are available in 3 sizes the K-sonic 6, 12 & 30, catering for all your smaller component cleaning requirements. All tanks can be heated, starting at 30°C and increasing by 5°C increments up to a maximum temperature of 80°C, an LED display light indicating when the set temperature is achieved. The K-sonic features a continuous ON mode, which enables continuous running for up to 6 hours, as well as individual 1-5 minutes, increasing to 5 minutes increments after up to a 30-minute cycle time. A small audio buzz alerts the operator when the cleaning cycle ends.

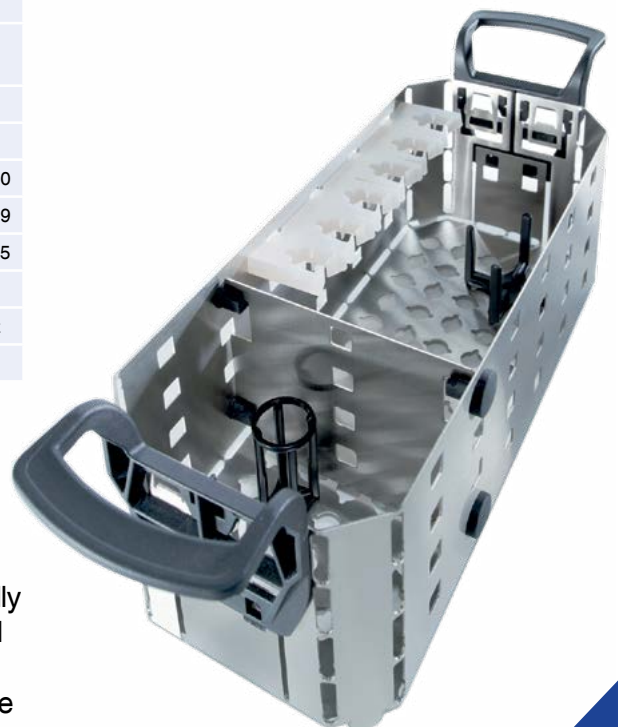
The tank, basket and housing are fabricated from stainless steel, the cleaner standing on four non-slip feet to ensure any pooling water is kept away from the electronics. A waste valve at the back is controlled by a side-mounted handle. The K-sonic benchtop cleaners have practical carry handles and the lid can also be used as a drip tray for loading and unloading.

Operating at 37Khz the switchable function modes ensure the hardware performance meets your process requirements, Eco mode is for cleaning sensitive materials. The ultrasonic cavitation operates with less power to minimise cavitation damage on soft materials whilst also reducing the noise level and mechanical impact on the tank, thus increasing the life of the tub. Dynamic mode optimises the sound field distribution ensuring peak performance for stubborn hard-to-remove contamination.



Technical information	K-Sonic 6	K-Sonic 12	K-Sonic 30
Tank total volume (l)	5.9	12.9	27.5
Recommended tank operating capacity (l)	4.3	10	22
Ultrasonic power effective (W)	150	200	300
Heating power (W)	400	800	1200
Unit ext. dim. W/D/H (mm)	370 x 225 x 280	380 x 315 x 330	575 x 375 x 330
Tank int. dim. W/D/H (mm)	280 x 130 x 149	275 x 215 x 199	475 x 270 x 199
Basket int. dim. W/D/H (mm)	195 x 105 x 50	250 x 195 x 135	450 x 255 x 135
Weight (kg)	5.1	7.5	11.0
Voltage	230V-single phase-50Hz or 110V-single phase-60Hz		
Product Code	359482K	359484K	359486K

The punched pattern on the baskets base and side walls, complement an assortment of versatile pins. The perforations are positioned to enable optimum cavitation access to the items being cleaned. Items ranging from large industrial components to delicate laboratory glassware, tiny watch parts, and intricate pieces of jewellery, can be individually secured. Using this smart arrangement increases the potential number of components that can be cleaned in one load of the basket and improve productivity levels through the efficient use of water, cleaning agents, energy and time.





# Vacuum Cleaning using Modified Alcohols

**99% Recovery of material waste, reduction of management costs, high economic benefits, sustainability and innovation**

Used mainly with modified alcohols. Benefits of the machines are:

- Minimal loss of solvent significantly reducing process cost and environmental impact
- Distillation, separation, and filtration of contaminants allows oils to be reused in machining processes and swarf/particles to be reused or economically disposed of.
- Uses modified alcohols with a flash point of more than 60°C under vacuum, so machines do not have to be manufactured to ATEX approved rates, reducing build cost.
- Ethernet connection providing online diagnosis of technical issues and predictive maintenance.
- Cleans component areas that are hard to reach with Aqueous/HFE solvents, including blind holes and tubes.



The latest generation KP modified alcohol washing machines, operate in a complete vacuum treatment cycle in all phases, ensuring excellent cleaning of finished products from wastage and oily substances, without releasing harmful substances into the environment.

The systems use a combination of spray, basket rotation, aqueous cleaning, modified alcohols hydrocarbons, hydrocarbons HFE and ultrasounds.



All KP products guarantee a drastic reduction in consumption by halving the processing cycles thus obtaining a perfect degree of cleaning thanks to the essential contribution made by the integrated ultrasound system and the use of “universal” washing liquids with low environmental impact. The washing cycle may vary according to the pieces to be treated thanks to the supplied software equipped with a microchip which allows the system to manage multiple loading stations with relative washing and finishing cycles.

The ideal applications are recommended according to the quantities to be treated, the quantity of contamination, the size of the semi-finished products.

Kleen Power Technology is appreciated in the fields of precision mechanics, automotive, heat treatment, oleodynamic components, springs, moulded components, fashion accessories, jewelry, watches, components for furniture, medical, dental, cookware, cutlery, and electronics.

Distillation and the continuous filtration of modified alcohols and hydrocarbons used for washing and for the finishing of metal components that need treatment, with the aid of filters that allow the complete separation of the emulsions from the water with continuous automatic discharge, allows the total recovery of the dried and deodorised metal fillings already in the filter, and the recovery of 99% of the emulsifying oils present in the product that needs treatment.

The reuse of perfectly clean metal scraps and emulsifying oils, both recovered during the washing cycles of the washing machines, are put back in the production chain with remarkable economic advantages for the company and ecological for the environment including the working one, thus corresponding to the virtuous circular economic model.





# Vacuum Cleaning using Modified Alcohols

Model	Load Dimensions (mm)	Weight (kg)	Dimensions (mm)	Cycles (hours)	Loading Platform*
KP 30	200 x 300 x 150	30	1400 x 1400 x 2000	4 - 6	Manual
KP.EASY 50	300 x 450 x 200	50	1600 x 1600 x 2400	3 - 4	Manual
KP.EASY 100	600 x 450 x 200	100	1800 x 1800 x 2600	3 - 4	Manual
KP.EASY 150	900 x 450 x 200	150	2100 x 2400 x 2800	4 - 8	Automatic
KP.EASY 200	1200 x 450 x 200	200	2300 x 2500 x 3000	4 - 8	Automatic
KP.HYBRID 30	200 x 300 x 150	30	1400 x 1400 x 2000	4 - 8	Manual
KP.HYBRID 50	300 x 450 x 200	50	2000 x 2000 x 2600	4 - 8	Manual
KP.HYBRID 100	600 x 450 x 200	100	2400 x 2200 x 2800	4 - 8	Automatic
KP.HYBRID 150	900 x 450 x 200	150	2400 x 3000 x 3000	4 - 8	Automatic
KP.HYBRID 200	1200 x 450 x 200	200	2400 x 3000 x 3000	4 - 8	Automatic
KP.HD 50	300 x 450 x 270	50	1800 x 2100 x 2700	4 - 8	Manual
KP.HD 100	450 x 600 x 270	100	2300 x 2400 x 2800	4 - 8	Manual or Automatic
KP.HD 150	450 x 900 x 250	150	2300 x 2600 x 2800	4 - 8	Automatic
KP.HD 200	450 x 1200 x 200	200	2300 x 2800 x 2800	4 - 8	Automatic
KP.HMA 50	300 x 450 x 200	50	1800 x 1800 x 2600	4 - 8	Manual
KP.HMA 100	600 x 450 x 200	100	1900 x 2100 x 2800	4 - 8	Manual or Automatic
KP.HMA 150	900 x 450 x 200	150	2150 x 2400 x 3000	4 - 8	Automatic
KP.HMA 200	1200 x 450 x 200	200	2500 x 2400 x 3000	4 - 8	Automatic
KP.MAX 400	1200 x 450 x 300	400	2450 x 3300 x 3100	3 - 6	Manual or Automatic
KP.MAX 600	600 x 1000 x 600	600	2450 x 3300 x 3100	3 - 6	Manual or Automatic
KP.MAX 800	800 x 1200 x 800	800	2450 x 3300 x 3100	3 - 6	Manual or Automatic

### Manual or Automatic Loading Platforms\*

The cleaning machines can be equipped with manual loading platform with roller conveyor which allows coplanar movement that facilitates the manual loading and unloading. Certain models can be equipped with an automatic tray and lid which allows greater control in the movement of the baskets during the washing cycles. All automation operations connected to the functions of the washing machine, are controlled by the management software specifically programmed by the technical office.





# Vapour Degreasing Cleaner using Solvents

The cleaning process in the Vapour Degreasers consists of several essential phases to achieve a perfect result. The safe solvent reaches a temperature between 40 - 45 ° C, the solvent vapours condense on the workpiece surface. Much of the contamination flows with the solvent from the workpiece and ends up in the cooking tank. After this pre-cleaning, the part is placed in a second tank. The immersion in the clean solvent and the ultrasonic agitation thoroughly clean the workpiece. Then, the part goes through a distilled solvent vapor zone, the vapor purge removes any residual oil or grease residue. Cooling coils above the vapor phase condense the solvent so that it flows back into the machine. The liquid is thus continuously distilled and reused.

Thanks to the low temperature of the entire process, you degrease thermally sensitive workpieces without risk. The low surface tension means you can easily clean small bulk goods or workpieces with complex geometries.

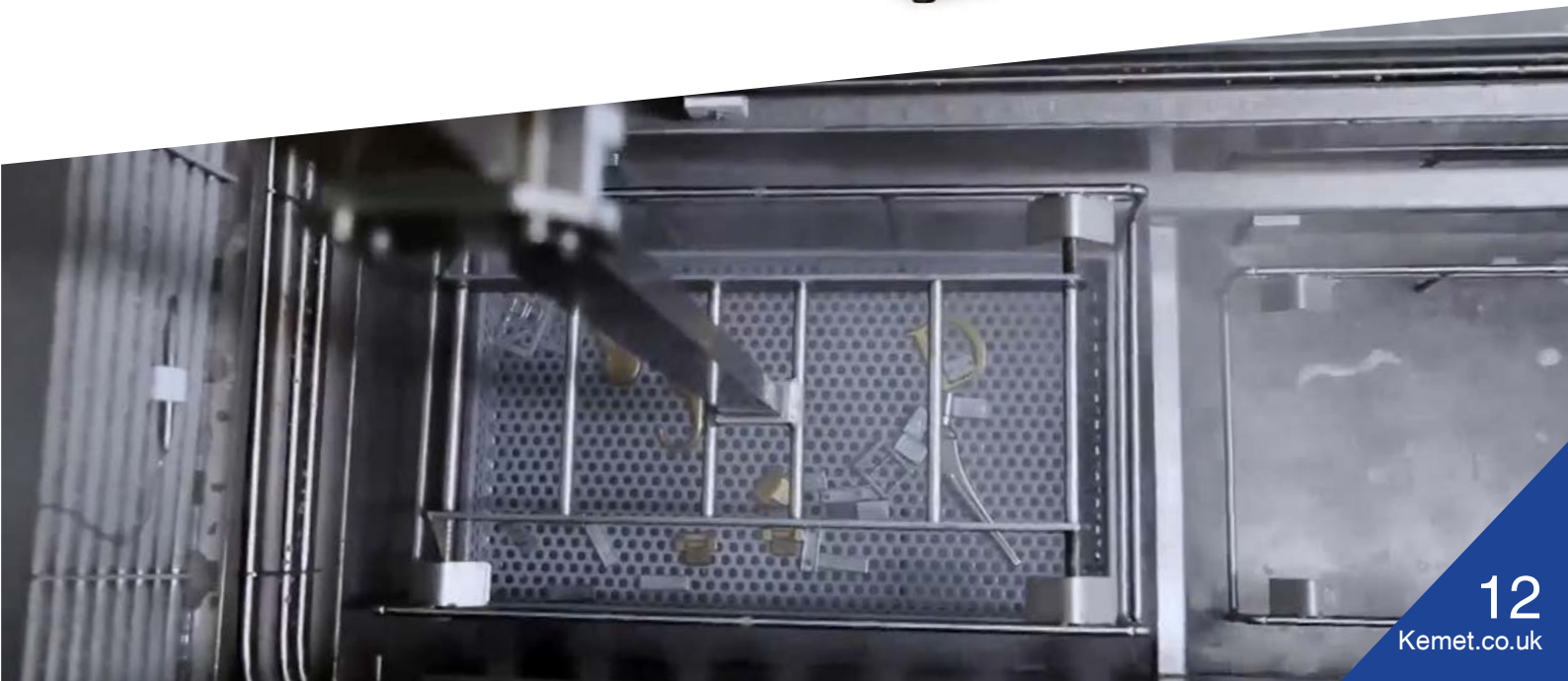
The dimensions vary from handy and mobile (approx. 622 x 870 x 1050 mm) to a compact machine (approx. 2000 x 1000 x 3000 mm).

## Benefits

- Super fast, cycle time of about 5 to 6 minutes
- Hand warm, clean and dry end result
- Based on non-flammable solvents
- No risk of corrosion, because no water is used
- Low energy consumption, less than half of traditional heated systems
- Small footprint, takes up little space
- Environmentally friendly
- Optionally manually or fully automated
- Nice touchscreen for programming the cycle

## Applications

- Removal of fats, oils, inks, polishing and lapping pastes
- Degreasing for control in the measuring room
- Degreasing of small mould inserts
- Cleaning of precision mechanical parts
- NOT SUITABLE for the removal of water based pollution



# Spray Washers

We can offer top loading single stage spray washing machines. Cleaning parts prior to maintenance or between production phases is often necessary, not only for technical reasons, but also for operator comfort. The Spintec wash machine is the ideal solution for cleaning parts quickly and in a closed chamber for a better working environment.



- Cleans parts fast and efficiently
- Easy to control with digital operating timer and temperature control
- Durable materials: stainless steel chamber, spray pipes, nozzles, pump and valves
- Safe and ergonomic working environment: lid with gas springs, safety switch and exhaust connections
- Level controller protects functions from dry running
- Air gun for drying of the parts and adjustable feet for easy installation, standard in all machines

## Options

- Loading trolley for ergonomically moving heavier loads
- Removable basket gives more possibilities for material handling in production
- 7-day timer heats the liquid up according to the operation schedules
- Closed loop filtration cleans the wash liquid particle free and prolongs wash liquid lifespan time
- Oil separator removes free oil from wash liquid and reduces waste liquid volumes
- Automatic refill and detergent dosing ensure consistent cleaning result for longer production series
- Heat insulation saves energy in cooler environments

Name	Spintec 60	Spintec 82	Spintec 105	Spintec 125
Body Diameter (mm)	600	820	1050	1250
Load max (kg)	80	150	200	300
Load height max. fixed basket (mm)	300	400	500	640
Load height max. removable basket (mm)	-	360	460	600
Container volume (l)	50	120	220	450
External Dimensions	Width	755	950	1250
	Length	1000	1250	1500
	Height (lid closed)	1150	1250	1350
	Height (lid open)	1550	1750	2000
Pump capacity (l/min)	60	120	140	190
Pump pressure (Bar)	1.5	2	3	3.2
Heating (kW)	4	4	7.5	15

## Recommended Non-foaming Cleaning Fluids for Spintec Spray Washer

Type	Package Size	Product Code	PH approx	Dilution % Suggested	Temp °C Suggested	Suggested Use	Comments
Decoclean 440	25 Litre	362945	13	1 - 3%	50 - 80°C	Heavy contamination on Ferrous metals only	Do not use on Non-ferrous metals. Rinse well
Decospray TM	25 Litre	363162	9.6	1 - 3%	60 - 70°C	Removes oils and does not attack metals	It temporarily protects the parts against oxidation
Decospray HT13	25 Litre	363163	14	2 - 3%	70 - 75°C	Removes oils from Non-ferrous materials	Very high degreasing power
Decoclean 347	25 Litre	-	14	3 - 5%	50 - 60°C	For medical components	Leaves a protective film, which does not restrain or influence further operations

# Closed Loop Filtration Systems

A range of fluid handling options help achieve the required cleanliness level and cut operating costs. The closed loop filtration and oil removal options increase the life of wash and rinse liquids whilst providing more consistent cleaning results.

Free oil can be removed from the wash liquid by a storage tank with an oil separation system while a spray bar enables effective surface skimming to the overflow weir.

## Closed Loop Rinse Water Regeneration

Organics removal by active carbon and demineralization by ion exchange resin (Closed loop circulation: treatment tank > pump > active carbon > ion exchange resin > treatment tank). Conductivity meter ST3, measuring range 0-50  $\mu\text{S}/\text{cm}$ .

**External dimensions (mm)** - 1020 x 340 x 1100 (h)

**Filling volume (l)** - 2x 32

**Temperature range** - Ambient - 60°C

**Pump** - Centrifugal pump Grundfos CM 3-4, 1-phase, 5 l/min, 2 bar, Seal AQQE. Slide valve for flow adjustment.

**Filter Vessel** - 2 x P2S bag, Pressure gauges, Isolation valves, Drain valves Vent valves (One charge of active carbon and ion exchange resin included in delivery)



## Closed Loop Filtration P2S

Particle filtration (Closed loop circulation: treatment tank > pump > filter > treatment tank)

**External dimensions (mm)** - 510 x 330 x 1100 (h)

**Filling volume (l)** - 32

**Temperature range** - Ambient - 80°C

**Pump** - Centrifugal pump Grundfos CM 3-4, 1-phase, 15 - 65 l/min, 2 bar, Seal AQQE. Slide valve for flow adjustment.

**Filter Vessel** - P2S bag, Pressure gauge, Isolation valves, Drain valve, Vent valve (1 pc 50 micron P2S filter bag included in delivery)



## Closed Loop Filtration 20"

Particle filtration (Closed loop circulation: treatment tank > pump > filter > treatment tank)

**External dimensions (mm)** - 510 x 340 x 1100 (h)

**Filling volume (l)** - 5

**Temperature range** - Ambient - 80°C

**Pump** - Centrifugal pump Grundfos CM 3-4, 1-phase, 15 - 65 l/min, 2 bar, Seal AQQE. Slide valve for flow adjustment.

**Filter Vessel** - 20" cartridge, Pressure gauge, Isolation valves, Drain valve, Vent screw (1 pc 50 micron 20" cartridge filter included in delivery)



## Closed Loop Circulation Without Filter Housing

Closed loop circulation: treatment tank > pump > treatment tank

**External dimensions (mm)** - 510 x 340 x 600 (h)

**Filling volume (l)** - 2

**Temperature range** - Ambient - 80°C

**Pump** - Centrifugal pump Grundfos CM 3-4, 1-phase, 15 - 65 l/min, 2 bar, Seal AQQE. Slide valve for flow adjustment. Pressure gauge





# Fluorescent Penetrant Inspection

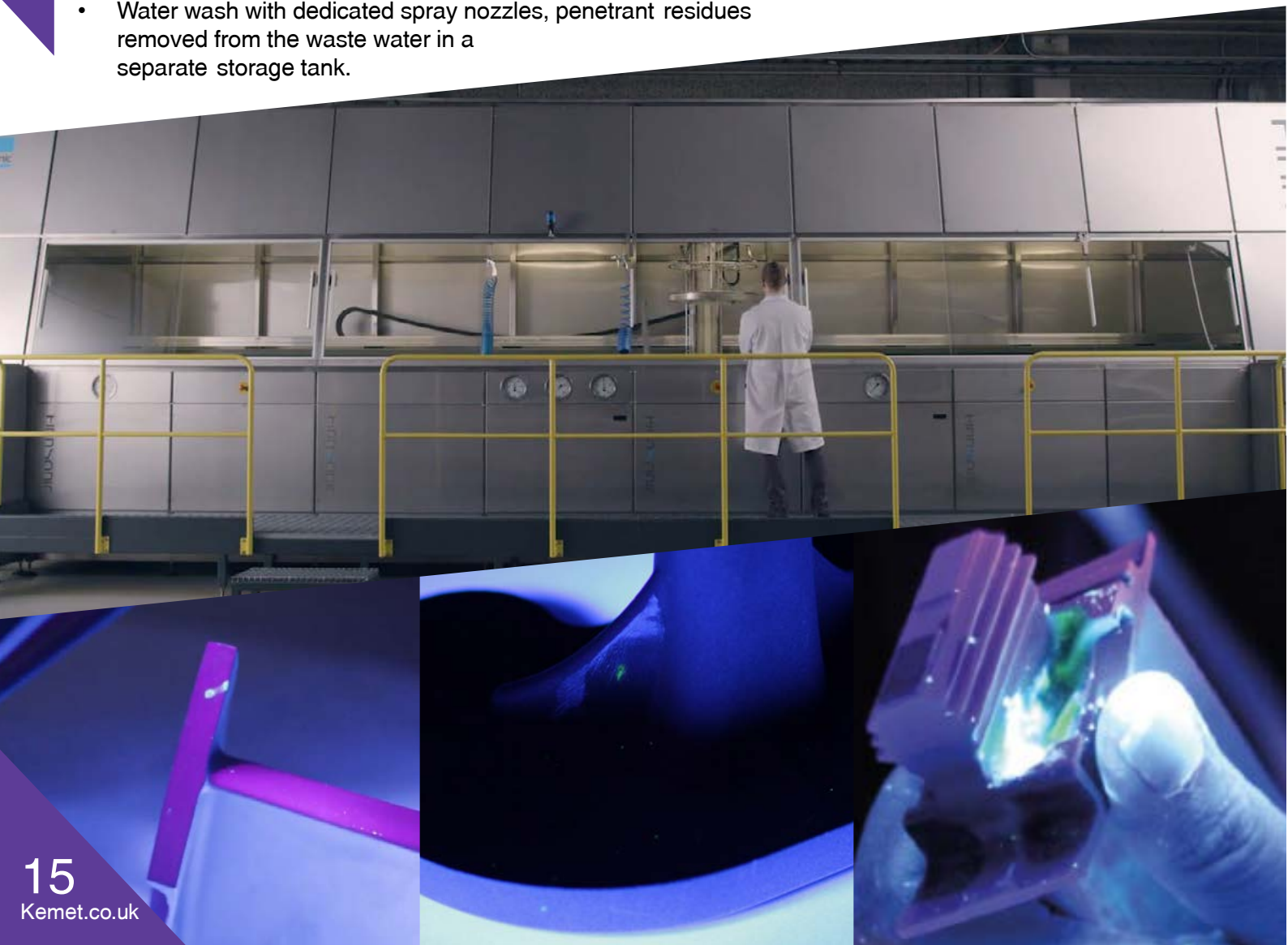
Fluorescent penetrant inspection is one form of non-destructive testing. It involves the application of fluorescent dye to the surface of an object in order to detect any possible faults. The FPI method is used in many different industries.

In the aviation industry, parts cleaning and non-destructive testing (NDT) are closely related. The surfaces of objects to be inspected during servicing and repairs are cleaned using chemical or mechanical methods to remove scale, rust and dirt. If necessary, coatings which may affect the inspection are also removed. When manufacturing new parts, objects are e.g. anodized or pickled and non-destructive testing is then used to determine the flawlessness of the parts.

The process control will ensure a repeatable operation of each batch within the set parameters. The combination of automation and manual operation provides a streamlined and maintainable NDT inspection. Flexible automation, integrated waste water handling and extraction systems create cost savings for process chemicals, labour and energy consumption.

## Main benefits of NDT systems

- An intelligent combination of automation and manual handling results in savings of labour costs
- The automatic FPI line ensures process safety and high capacity with minimal operator involvement.
- Traceability and reliability of inspection
- Pre-cleaning with ultrasonic
- Low consumption of process chemicals and operational costs
- User friendly operator interface with data collection of each batch for quality control and traceability.
- Buffering infeed conveyor, various conveyor sizes available on request.
- Automatic electrostatic penetrant spray with rotation of the carrier, PLC controlled contact time.
- The carriers can hold parts with various sizes and shapes.
- Water wash with dedicated spray nozzles, penetrant residues removed from the waste water in a separate storage tank.



# Passivation Automatic Lines

Automatic and encapsulated multi-stage Passivation machines for the Aerospace and Medical industries, includes six to nine stages. The passivation is one of the final stages of the production, so when the products finish the passivation line, they typically go into a clean room where they are being sterilized and packed. The passivation lines are fully integrated, the tunnel system to the clean room from the passivation line have laminar flow units to comply with ISO 7 clean room area. Other specific features include;

- Material 316 instead of 304
- Control for the passivation bath (Detects the nitric concentration with monitor and control)
- Batch reporting and data logging
- '21 CFR part 11' Validation software.



## Passivation Machine Function Description

Parts are loaded in to a wash basket on the loading conveyor. Conveyor moves the basket to pick up point where transporter picks it up and places it to first tank. Basket is processed automatically through washing, rinsing and drying stages according to preselected wash program. Multi basket transporter provides automatic vertical and horizontal movement of wash baskets through the cleaning process stages. The control system supports simultaneous treatment of multiple baskets in the process. After treatment, washed basket is placed on unloading conveyor and parts can be removed by the operator. Loading and unloading conveyors provide a buffer of three baskets as standard. Extended buffer is available as an option.

## Example Passivation line setup:

Stage	Function	Media	Treatment time min.
1	Ultrasonic cleaning	RO water + Galvex 2001, 60°C	8
2	Immersion rinsing	RO water, ambient	8
3	Passivation	RO water + Decomet 10-15%, 40 - 65°C	8
4	Immersion rinsing	RO water, ambient	8
5	Ultrasonic cleaning	DI water, 60°C	8
6	Immersion rinsing	DI water <4,3ÿS/cm, 60°C	8
7	Drying, metals	Fine filtered air, 70°C	12

# Kemet Cleaning Chemicals

Kemet offer the finest in biodegradable cleaning fluids. These are specialist formulated concentrated detergents available in neutral, alkaline and acid types. Kemet are a distributor of NGL Nordic A/S with more than 300 high performance formulations providing a solution to most cleaning challenges. Some of the more commonly used solutions are as follows:



Application / Contamination	Type	pH	Product, compatibility and benefits	Package Size	Product Code	Function
Polishing compounds, soluble oil, light pollutions	Mild alkaline	8.1	<b>GALVEX SU 737</b> - For Steel, Silver, Brass, Titanium, Zamak	5 Litre	362988	Ultrasonic cleaning
			Excellent emulsification and solubilisation of greasy substances. Leaves a temporary film that protects the surface from oxidation. Leaves a hydrophobic surface which facilitates the drying.	25 Litre	362989	
		8.7	<b>GALVEX 20.01</b> - Stainless steel, Titanium, Copper alloys Aluminium, Precious metals, Silver	10 Litre	363145	
			Suitable for medical sector. Can be used as finishing product. Leaves a hydrophilic surface. Can be used in surface preparation prior to passivation.	25 Litre	363146	
		10	<b>GALVEX 20.02</b> - For all metals except carbides	5 Litre	363473	
	No harmful components. High efficiency on brushed, satin and stippled parts (complex geometry). Increases wettability. Easily rinsed off, can be used as a finishing product	25 Litre	363179			
	Strong alkaline	12.6	<b>RODACLEAN 2018</b> - For Titanium, Ceramics, Steels, Stainless steels	5 Litre	363758	
			No harmful components. Suitable for medical sector. Can be used in surface preparation prior to passivation.	25 Litre	363035	
		12.65	<b>VACUKLEEN 2018</b> - For Titanium, Ceramics, Steel/Stainless steel, Carbides and hard metals	10 Litre	363395	
			Excellent preparation of surfaces prior to vacuum metallisation (P.V.D). Does not attack cobalt. Excellent wetting properties. Favourably substitutes solvents.	25 Litre	363258	
Free iron oxide removal	Passivation	2.4	<b>DECOMET</b> - For All metals and materials specific to the medical sector	10 Litre	363154	Soaking
			Ideal for the passivation of stainless steel as an alternative to nitric acid. Safe use due to its citric acid base. Leaves no traces after drying.	25 Litre	363155	
Neat oil, polishing compounds	Mild alkaline	9.9	<b>DECOSPRAY TM</b> - For all metals (except carbides), Synthetic materials	25 Litre	363162	Spray or ultrasonic cleaning (Can be used in vacuum system)
	Strong alkaline	12.3	<b>VACUKLEEN 440</b> - For Titanium, Steels, Stainless steels, Carbides, Precious metals, Plastic materials	10 Litre	363396	
			Favourably substitutes solvents. Preparation of surfaces prior to P.V.D. Used in pre-degreasing. Oil separator is necessary. Does not attack cobalt.	25 Litre	363259	
12.3	<b>DECOCLEAN 440</b> - For Steel, Stainless Steels, Ceramics	25 Litre	362945			
	Can be used for pre-degreasing. Requires an oil separator. Non-foaming product.					
Anticorrosion additive	Alkaline	11.1	<b>KORROSTOP 5000</b> - For all metals	5 Litre	363150	Rinsing
			Biodegradable. Used as additive in final rinsing bath with demineralised water.	25 Litre	363151	
Deoxidation, brightening effect	Acidic	2.0	<b>RODASTEL 30</b> - For all metals	25 Litre	362947	Ultrasonic cleaning
Setters cement, wax, glue	Solvent	N/A	<b>ALLSTRIP</b> - For all metals, including galvanised metal	5 Litre	363167	Ultrasonic cleaning or Vacuum system
			Does not contain NEP. Excellent alternative to acetone. This product is not inflammable, (flash point > 65°C).	25 Litre	363168	

**Kemet recommend that any cleaning fluid should be tested on a sample of the component to be cleaned to ensure it does not damage the material and offer free trials to establish the optimum process.**



Cleaning fluids continued...

Type	Package Size	Product Code	pH approx	Dilution % Suggested	Temp °C Suggested	Suggested Use	Comments
H14	20 Kg	360475	14	3 - 30%, Suggest 15%	60 - 85°C 85°C optimum	Mould cleaning, carbon removal, Steels, Ceramics / Glass	Powerful detergent. Will etch or attack non-ferrous materials. Steel may discolour at high temperature
S3	5 Litre	361441	2.5	10 - 15%	40 - 70°C	Tarnish, light corrosion of most materials. Brightens jewellery and coins	Protect ferrous materials after cleaning. Not suitable for some plated metals
	25 Litre	361283					
I	5 Kg	360480	1	5 - 10%, Start at 5%	25 - 60°C Start 25°C	Rust and oxide removal on all materials. Restore white ceramics	Will etch all materials and brighten some non-ferrous. Cold rinse, dry immediately. Protect ferrous
	20 Kg	360481					
A9	5 Kg	360477	9.5	3-15%, Suggest 10%	40-60°C	Nearly neutral to suit all materials	Temperature above 40°C can change the colour of non-ferrous materials. Inhibitor, short duration at 1-3%
	20 Kg	360478					

## Industrial Degreasers

### C70 Solvent Cleaning Fluid

A versatile and highly efficient cleaning and degreasing fluid with a fast evaporation rate for removing grease, oil and residues from all metals and ceramics. Supplied in a pressurised container, complete with detachable extended spray tube for reaching into the most difficult areas, C70 contains **no** ozone depleting substances.

Size	Container	Code
500ml	Aerosol	302114
500ml	Aerosols (Pk 12)	302115



### CO - 42 Cleaning Fluid

Designed for cold use and applied by spray, brush, cloth or full immersion, CO42 is a highly efficient degreasing fluid similar in performance to 1.1.1 Trichloroethane, but without the ozone depleting properties.

Size	Container	Code
450ml	Trigger Spray	302103
5 Litres	Metal	302102
25 Litres	Metal	302101
200 Litres	Metal	302105



- C70 and CO-42 are **NOT** approved for use at elevated temperatures or in ultrasonic cleaning machines.

### Dasty Industrial Degreaser

For manual cleaning, this product is extremely effective for thoroughly degreasing all mechanical parts as well as large surfaces and perfect for cleaning lapping residue. Thanks to its ultra-concentrated formula, Dasty easily removes grease, mineral oil, scale, etc. and is biodegradable, safe for shipping and contains no ozone depleting chemicals.

Size	Code
1 Litre	362936
Box of 12	362962



Before & after, cleaning Lapping Plate with Dasty



# Free Cleaning Trials & Technical Support

At our dedicated cleaning test centre in Kent, we have the latest demonstration and test facilities to develop cleaning processes tailor made to the customer's requirements. We are able to undertake free of charge cleaning trials using a large variety of cleaners and solutions.

We have a team of Technical Representatives throughout the UK who can advise on Kemet's cleaning range and capabilities including:

- Factory Acceptance testing, commissioning and training
- Test and demonstration; on site or at Kemet's facilities
- Kemet's own chemists, to give advice
- Servicing contracts
- Extensive range of concentrated detergents
- Cleaning Specialists



We have access to NGL's Laboratories where their chemists study, formulate, develop and manufacture cleaning solutions. They offer cleaning solutions for watch parts, jewellery, silverware, medical, micro-mechanics, electronics, electroplating, vacuum deposits and ophthalmic optics, sun lenses and precision optics.

- Preliminary tests, results and checks save time in the development of customer projects
- Process validation and approval
- Guidance and assistance in preparing specifications for an equipment investment

At Kemet, we pride ourselves on finding the ideal cleaning solution for each customer based on their individual needs. If you would like to arrange cleaning trials with us please call **+44(0) 1622 755287**

Below are a few examples of our **FREE** cleaning tests.

Before

After

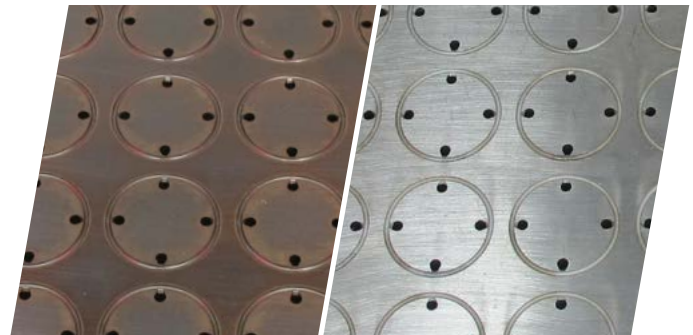
Automotive Parts cleaned



Before

After

Injection Mould Plate cleaned

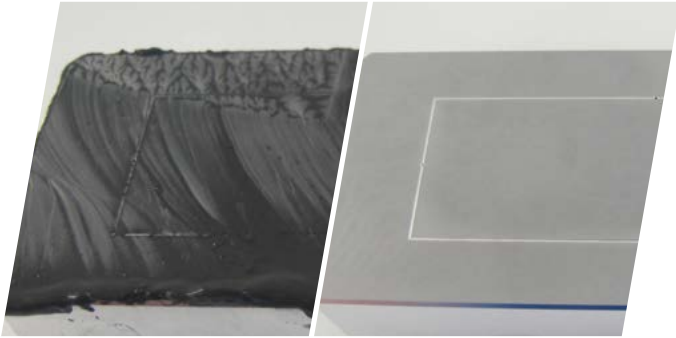




Before

After

Aluminium (Aluminium oxide lapping residue)



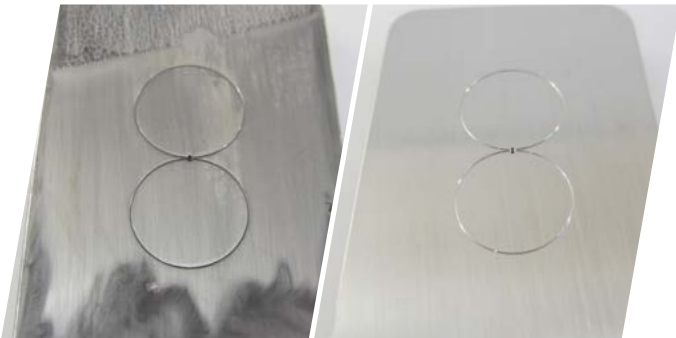
Before

After

Aircraft Hydraulic Pipe Line cleaned



Aluminium (Diamond lapping residue)



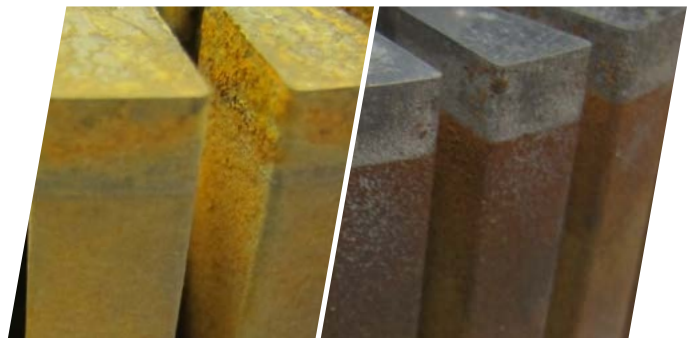
Injection Mould cleaned



Copper Pipes cleaned



Die Cast Mould cleaned



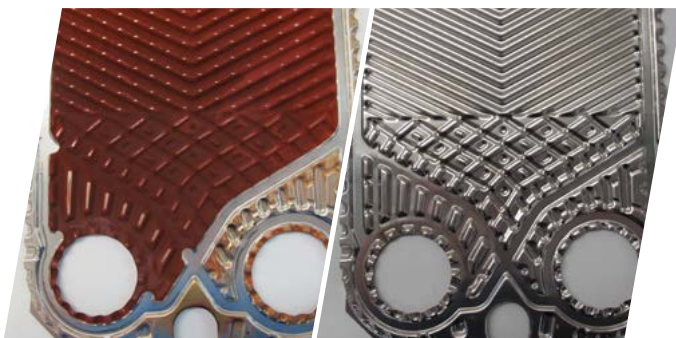
Thermal deburring removed



Borosilicate Glass cleaned



Plate Heat Exchanger cleaned



Medical part cleaned





# Kemet



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