Kemet

Precision Lapping | Polishing | Cleaning | Materialography

PRECISION CLEANING SYSTEMS

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Contents

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Distributors for...

NGL

FinnSonic

iFP
INDUSTRIAL FINISHING PLANTS

Catalogue version: 2211

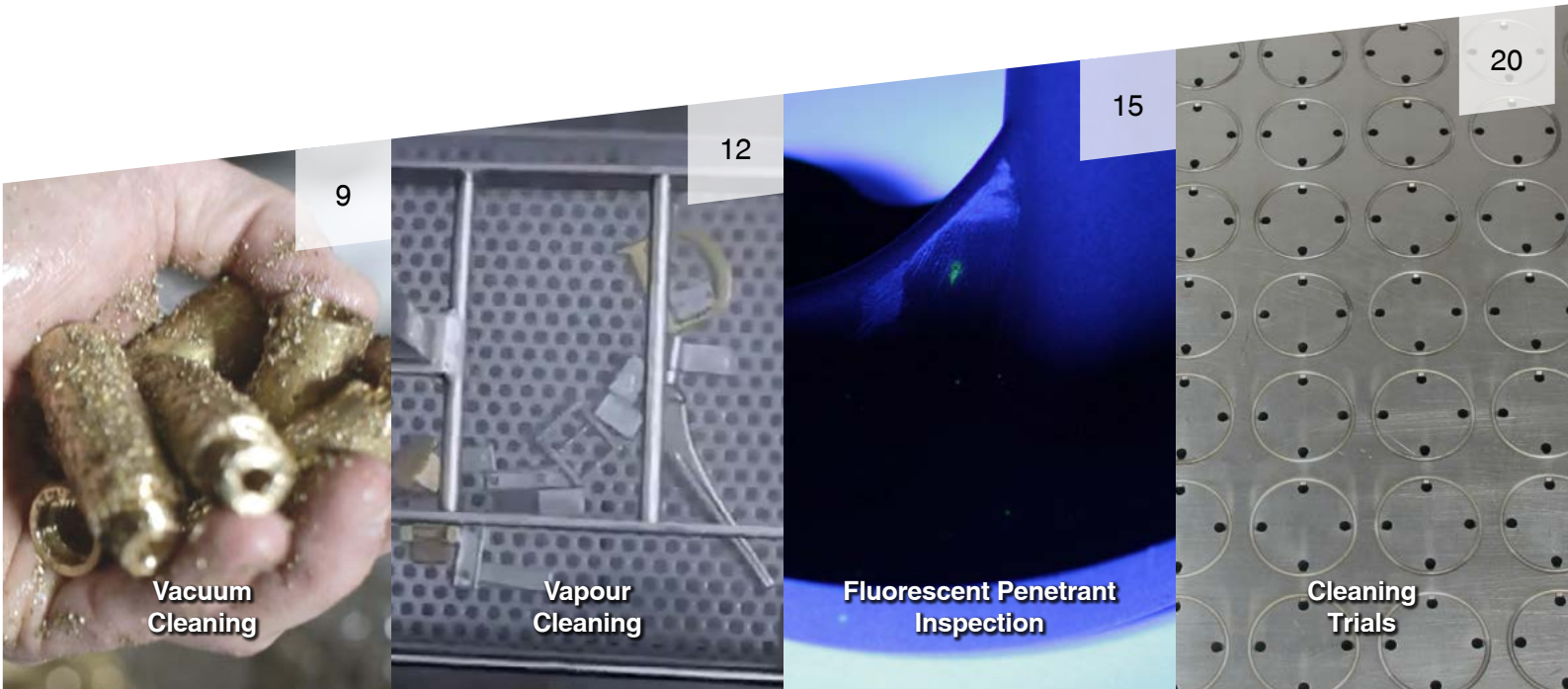
Kemet International Ltd

Since 1938, Kemet has been at the forefront of precision polishing technology, producing quality diamond pastes and composite lapping/polishing materials in our purpose built facilities. Experience has taught us that cleaning is an integral part of the final process, allowing parts to be accurately inspected prior to use.

To ensure the optimum cleaning process for specific contaminants and materials, Kemet have established strategic partnerships with world leading companies in ultrasonic cleaning, spray washing, aqueous based cleaning fluids and water treatment. Together, we have developed a comprehensive range of products and processes that cover most applications, but, if necessary, we will research and develop a bespoke cleaning process for a specific challenge.

All of our systems are designed for use with aqueous detergents, which are more environmentally friendly than solvents. Aqueous fluids also produce stronger ultrasonic cavitation action than solvents. As the UK distributor for NGL fluids, Kemet has access to over 300 cleaning solutions and waste water treatment. Free cleaning fluid trials can be arranged to find the perfect solution.

Now a truly international organisation, Kemet's activities span the world, spearheaded by companies in nine countries, all sharing the same commitment to customer support. This, along with more than 80 years' experience, means that Kemet are able to provide you with the technical support to overcome all your cleaning challenges.



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 39 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

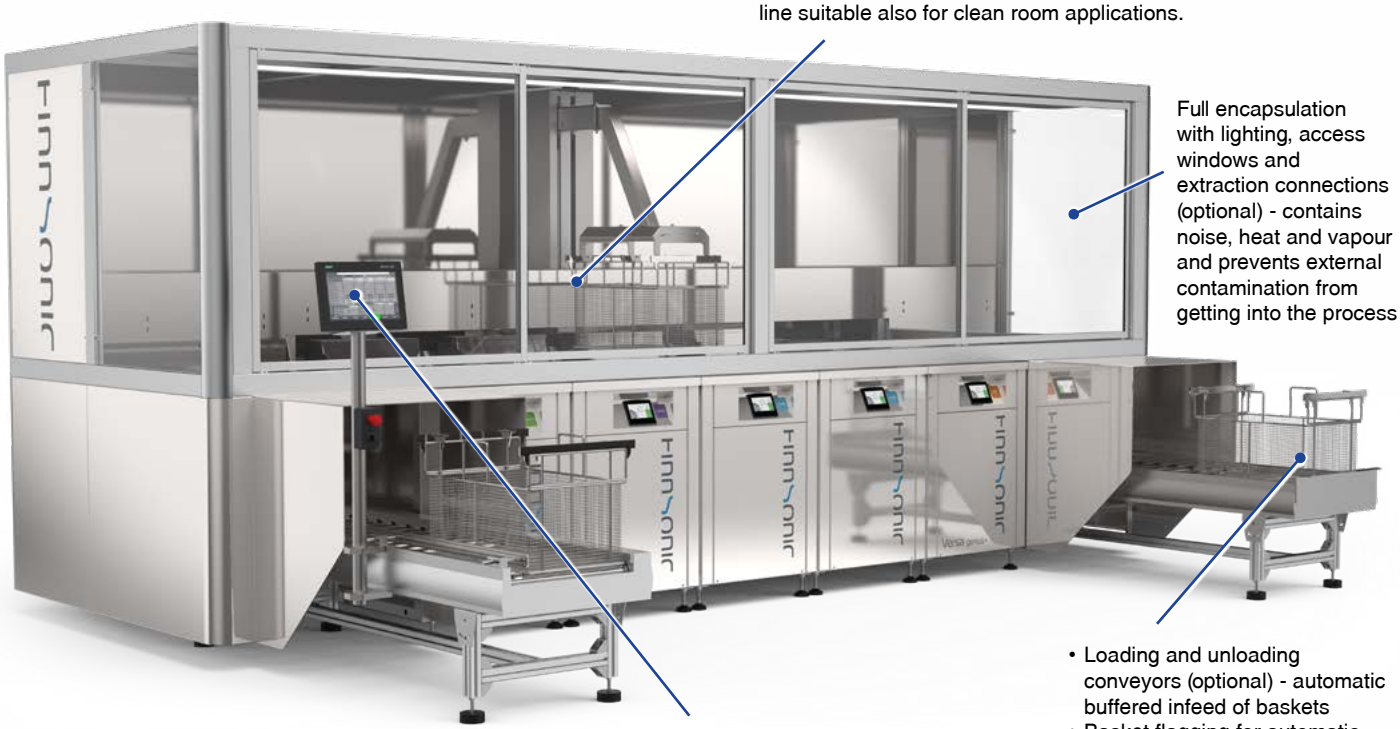
- Automotive
- Metal
- Machinery
- Electronics
- Aviation
- Maintenance
- Medical

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.



Full encapsulation with lighting, access windows and extraction connections (optional) - contains noise, heat and vapour and prevents external contamination from getting into the process

- Intuitive graphic user interface - providing clear overview of the line and easy setup of cleaning processes.
- FinnSonic NetService - secure remote support connectivity Data logging, reporting and connectivity to factory systems (optional) - supports traceability and data collection.

- Loading and unloading conveyors (optional) - automatic buffered infeed of baskets
- Basket flagging for automatic program selection (optional) - facilitates running a mix of various wash programs

Genius Ultrasonic Technology

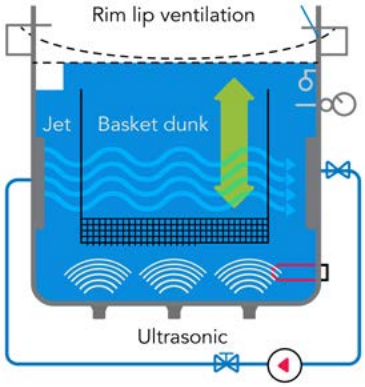
- Fully digital technology - fast and energy efficient
- Advanced diagnostics - performance monitoring and service capabilities
- Automatic adaptation of generator parameters - constant maximum performance.

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.)

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.*



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

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

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

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

Main applications

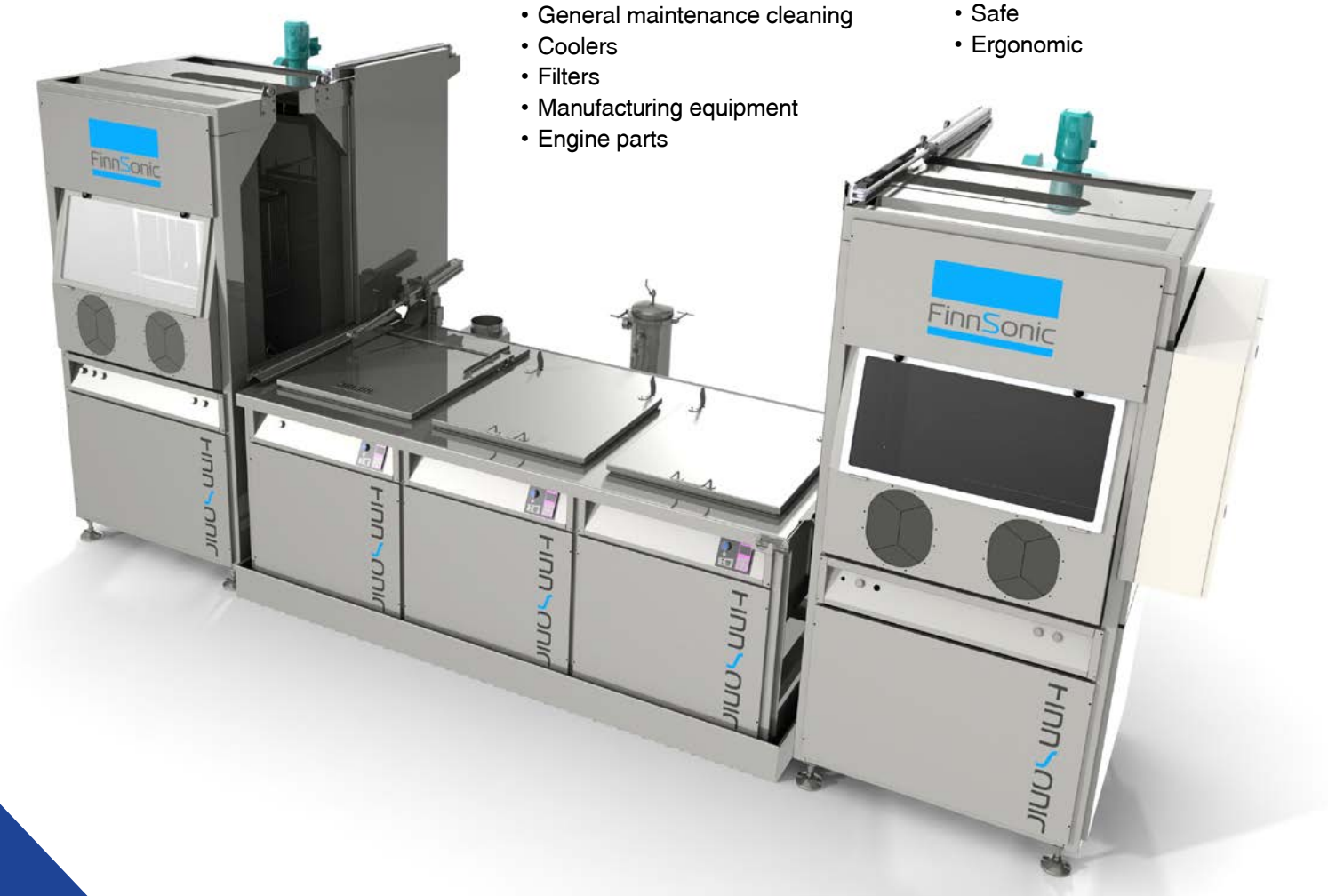
- Tool and mould cleaning
  - Plastic injection moulds
  - Die casting
  - Rubber moulds
  - Glass packing moulds
  - Extrusion tools
- General maintenance cleaning
- Coolers
- Filters
- Manufacturing equipment
- Engine parts

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 1¼", 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

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^3

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

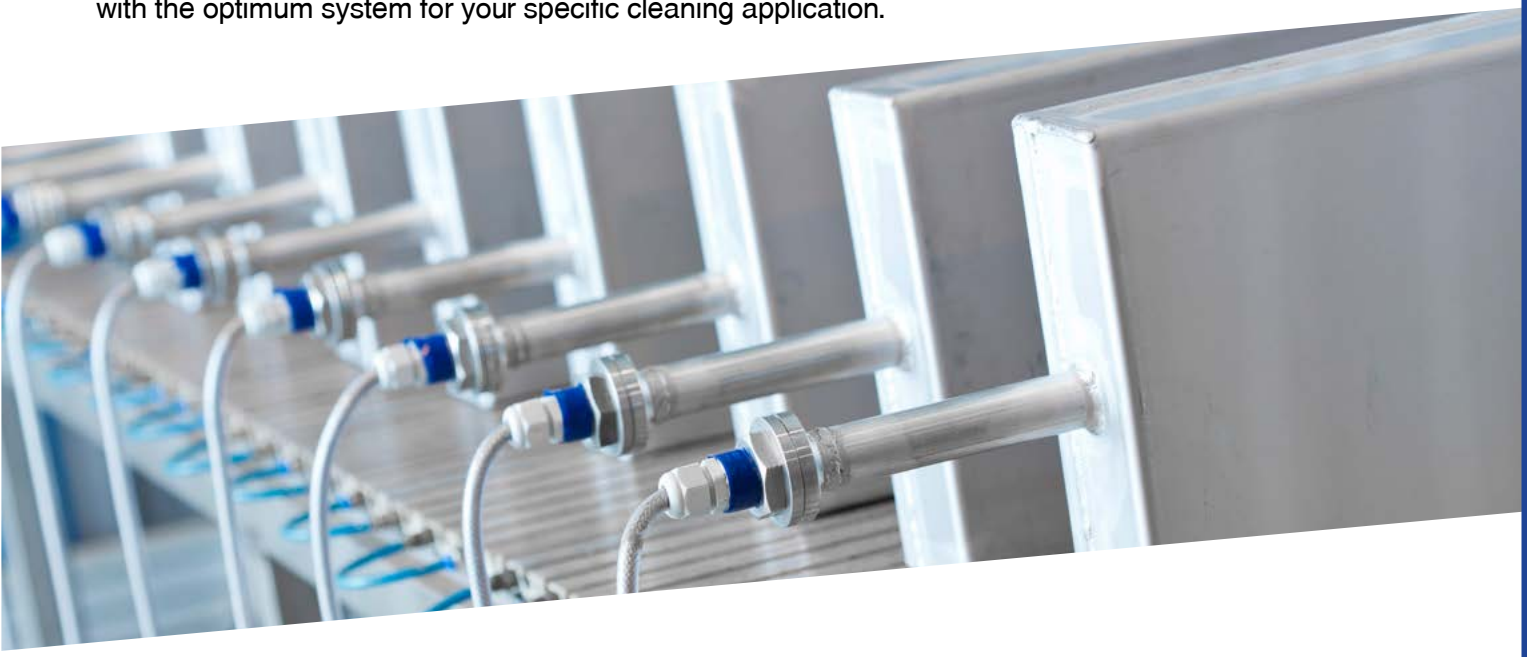
Options:

- Jet turbulation 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

Submersible Ultrasonic Transducers

Kemet also supply Submersible Ultrasonic Transducers for retrofitting into customers' existing cleaning tanks and installing into new large Industrial cleaning systems. Our range of Submersible Transducers are designed for use in heavy industrial applications where performance and reliability are vital.

If you have a requirement for an ultrasonic cleaning system but already have a suitable tank, we will assess your requirements and specify and assemble a complete package tailored to your exact needs. We can provide Submersible Transducers which add ultrasonic technology to tanks of any size, providing you with the optimum system for your specific cleaning application.

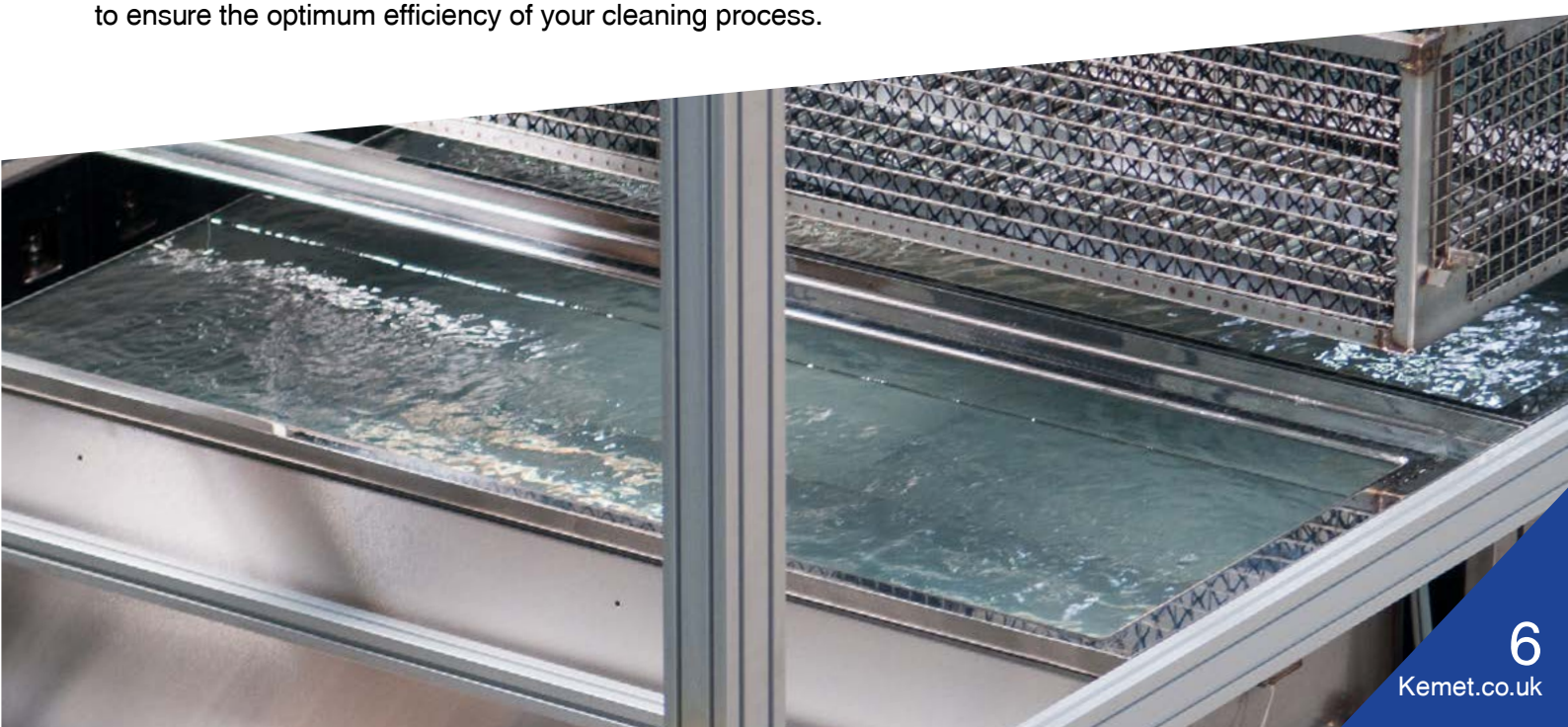


Bespoke Aqueous Systems

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.



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
Volume (l)	80	120	160
External dimensions mm	760 x 460 x 720(h)	740 x 580 x 750(h)	1340 x 460 x 770(h)
Tank dimensions mm	585 x 330 x 400(h)	585 x 450 x 455(h)	1180 x 330 x 400(h)
Internal Wash basket dimensions (mm)	540 x 290 x 310(h)	540 x 400 x 360(h)	1110 x 280 x 310(h)
Ultrasonic power W nom./ peak	1200/2400	1200/2400	1200/2400 (M160I2400 - 2400/4800)
Ultrasonic frequency (kHz)*	30	30	30
Heating power (W)	2000	4000	6000
Voltage	220-240V-single phase-50Hz/60Hz	400-415V-three phase-50Hz/60Hz	400-415V-three phase-50Hz/60Hz
Filling valve	R 1/4	R 1/4	R 1/4
Drain valve	R 3/4	R 3/4	R 3/4
Overflow weir/ valve	R 3/4	R 3/4	R 3/4
Connecting load (W)	3200	5200	7200

Hot Air Dryer	M80DR
External dimensions (mm)	920 x 460 x 680(h)
Weight (kg)	65
Tank dimensions (mm)	For one basket
Heating power (W)	3300
Temperature range (°C)	Ambient - 80°C
Fan	200W, 700m³/h Suction from right end, blow from left end of chamber
Voltage	220-240V-single phase-50Hz
Frequency (Hz)	50
Connected load (W)	3500
Fuses T = slow	16A
Connecting load (W)	3200

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

Top of the range digital generator operates piezo-ceramic transducer elements giving a powerful cleaning effect. The Booster function, for extra power, can be used for the most difficult cleaning tasks. Distribution of the ultrasonic energy is achieved by the frequency sweep to give precision cleaning throughout the tank. All models are equipped with thermostatically controlled heating to ensure optimum cleaning temperature.

Manufactured from DIN 304 stainless steel, both internally and externally, they are easy to keep clean and hygienic. A drip protector guides any unwanted water droplets away from the operating panel and the internal control circuitry is protected against water splash.

Features

- Tank made from stainless steel (DIN 304)
- High quality stainless steel mesh basket
- Boost, Sweep and Degassing function
- Easy setting of time, temperature and special functions
- Dry run heating protection and automatic switch off after 12 hours of operation
- Glass beaker system available for cleaning small parts

Technical information	Kemet 3P	Kemet 6P	Kemet 12P	Kemet 30P	Kemet 45T
Tank service volume (l)	1.9	4.3	9	20.6	45
Internal tank dimensions (mm)	240 x 137 x 100	300 x 150 x 150	300 x 240 x 200	505 x 300 x 200	500 x 300 x 300
Internal basket dimensions (mm)	198 x 106 x 50	255 x 115 x 75	250 x 190 x 115	455 x 250 x 115	455 x 270 x 194
External dimensions (mm)	300 x 179 x 214	365 x 186 x 264	365 x 278 x 321	568 x 340 x 321	615 x 370 x 467
Ultrasonic power nom/peak (W)	80/160	150/300	200/400	300/600	400
Ultrasonic frequency (kHz)	38	38	38	38	38
Heating power (W)	200	400	800	1200	1600
Voltage	230V - single phase - 50Hz				
Product Code	359480P	359482P	359484P	359486P	359488T

Accessories Available	Kemet 3P	Kemet 6P	Kemet 12P	Kemet 30P	Kemet 45T
Plastic lid	✓	✓	✓	✓	
Stainless steel lid					✓
Stainless steel basket	✓	✓	✓	✓	✓
Lid/beaker holder	✓	✓	✓	✓	
Set: lid/beaker holder, 2 beaker glasses 600ml with lid and rubber rings	✓				
Beaker Ø 95 mm, 600 ml	✓	✓			
Beaker Ø 95 mm, 1000 ml	✓	✓			

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.

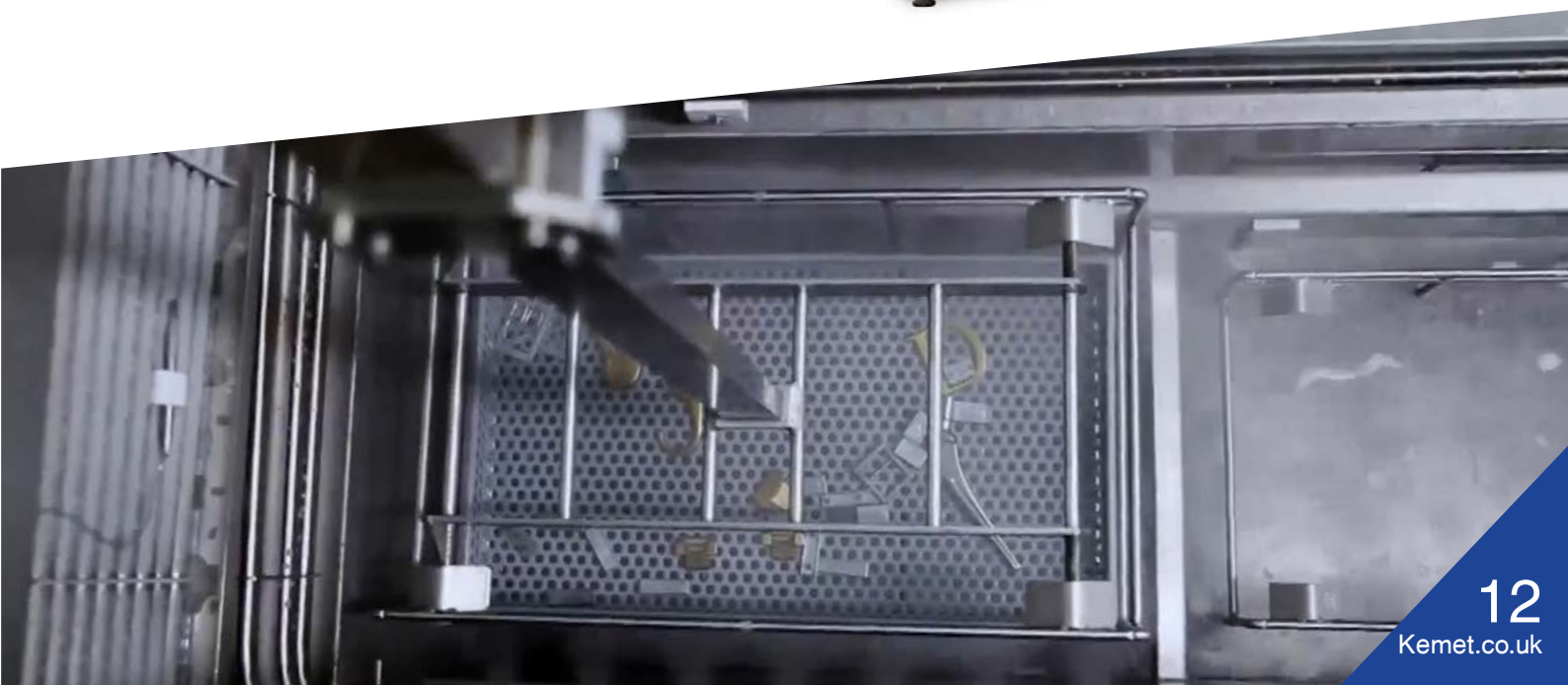
The dimensions vary from handy and mobile (approx. 622 x 870 x 1050 mm) to a compact machine (approx. 2000 x 1000 x 3000 mm).

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	1500
	Length	1000	1250	1500	1800
	Height (lid closed)	1150	1250	1350	1600
	Height (lid open)	1550	1750	2000	2400
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 µS/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

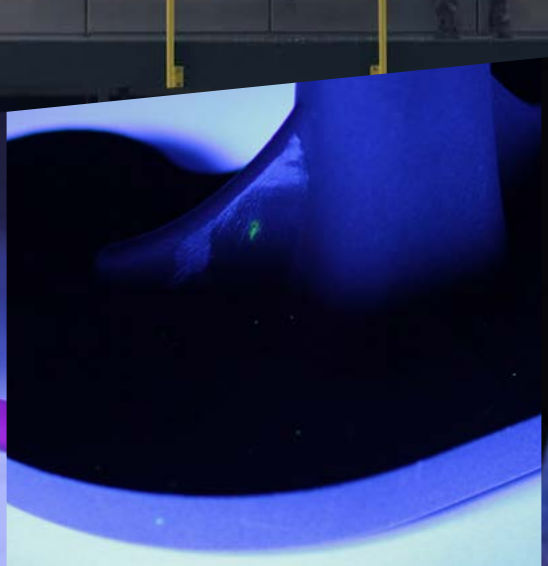
Fluorescent penetrant inspection is one form of non-destructive testing. It involves the application of fluorescent dye to the surface of an object in order to detect any possible faults. The FPI method is used in many different industries.

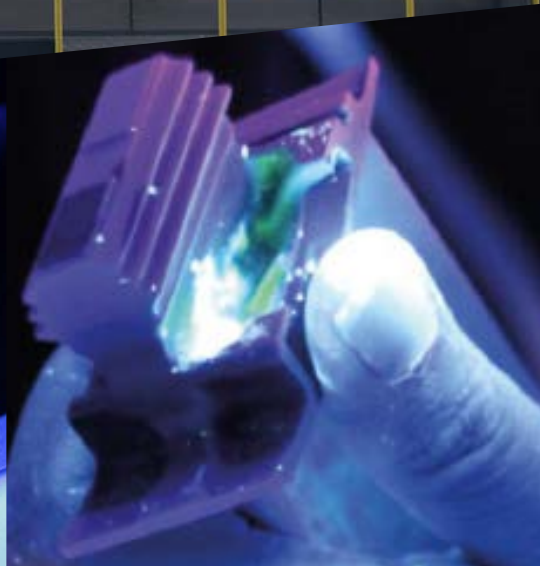
In the aviation industry, parts cleaning and non-destructive testing (NDT) are closely related. The surfaces of objects to be inspected during servicing and repairs are cleaned using chemical or mechanical methods to remove scale, rust and dirt. If necessary, coatings which may affect the inspection 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 <4,3ŶS/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	**GALVEX SU 737** - For Steel, Silver, Brass, Titanium, Zamak 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.	5 Litre	362988	Ultrasonic cleaning
				25 Litre	362989	
		8.7	**GALVEX 20.01** - Stainless steel, Titanium, Copper alloys Aluminium, Precious metals, Silver Suitable for medical sector. Can be used as finishing product. Leaves a hydrophilic surface. Can be used in surface preparation prior to passivation.	10 Litre	363145	
				25 Litre	363146	
		10	**GALVEX 20.02** - For all metals except carbides 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	5 Litre	363473	
				25 Litre	363179	
	Strong alkaline	12.6	**RODACLEAN 2018** - For Titanium, Ceramics, Steels, Stainless steels No harmful components. Suitable for medical sector. Can be used in surface preparation prior to passivation.	5 Litre	363758	
				25 Litre	363035	
		12.65	**VACUKLEEN 2018** - For Titanium, Ceramics, Steel/Stainless steel, Carbides and hard metals Excellent preparation of surfaces prior to vacuum metallisation (P.V.D). Does not attack cobalt. Excellent wetting properties. Favourably substitutes solvents.	10 Litre	363395	
				25 Litre	363258	
Free iron oxide removal	Passivation	2.4	**DECOMET** - For All metals and materials specific to the medical sector 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.	10 Litre	363154	Soaking
				25 Litre	363155	
Neat oil, polishing compounds	Mild alkaline	9.9	**DECOSPRAY TM** - For all metals (except carbides), Synthetic materials Non-foaming product. Requires an oil seperator	25 Litre	363162	Spray or ultrasonic cleaning (Can be used in vacuum system)
	Strong alkaline	12.3	**VACUKLEEN 440** - For Titanium, Steels, Stainless steels, Carbides, Precious metals, Plastic materials Favourably substitutes solvents. Preparation of surfaces prior to P.V.D. Used in pre-degreasing. Oil separator is necessary. Does not attack cobalt.	10 Litre	363396	
				25 Litre	363259	
		12.3	**DECOCLEAN 440** - For Steel, Stainless Steels, Ceramics Can be used for pre-degreasing. Requires an oil seperator. Non-foaming product.	25 Litre	362945	
Anticorrosion additive	Alkaline	11.1	**KORROSTOP 5000** - For all metals Biodegradable. Used as additive in final rinsing bath with demineralised water.	5 Litre	363150	Rinsing
				25 Litre	363151	
Deoxidation, brightening effect	Acidic	2.0	**RODASTEL 30** - For all metals Deoxidation, neutralization and activation preparation of surfaces prior to P.V.D.	25 Litre	362947	Ultrasonic cleaning
Setters cement, wax, glue	Solvent	N/A	**ALLSTRIP** - For all metals, including galvanised metal Does not contain NEP. Excellent alternative to acetone. This product is not inflammable, (flash point > 65°C).	5 Litre	363167	Ultrasonic cleaning or Vacuum system
				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	5 Kg	360474	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
	20 Kg	360475					
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**

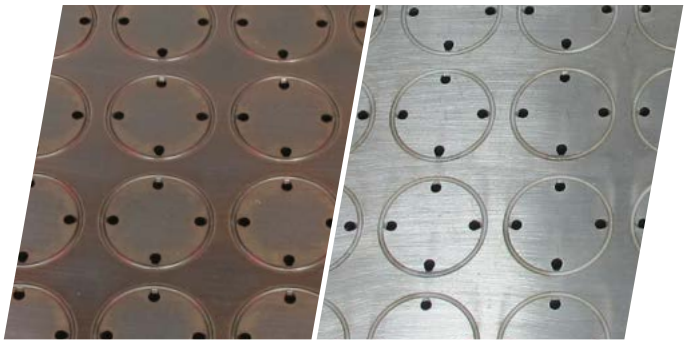
Below are a few examples of our **FREE** cleaning tests.

Before After

Automotive Parts cleaned

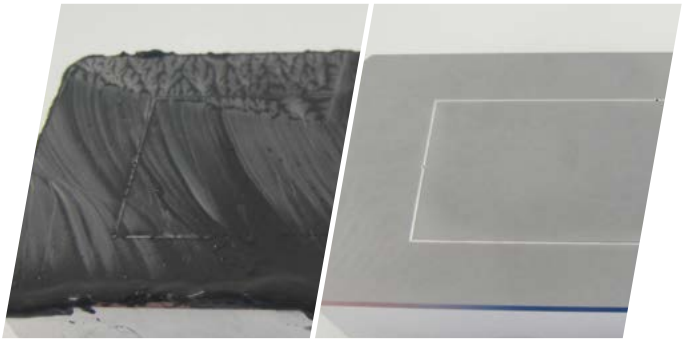
Before After

Injection Mould Plate cleaned

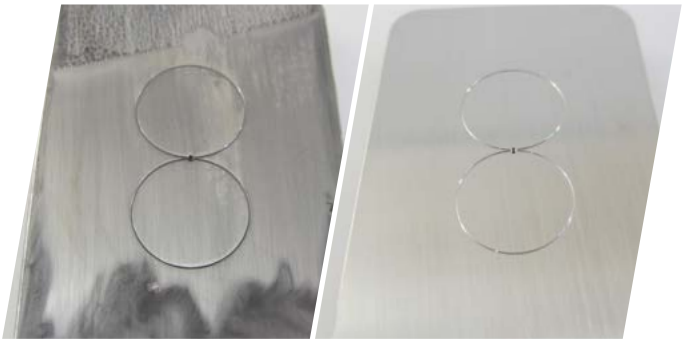


Before After

Aluminium (Aluminium oxide lapping residue)



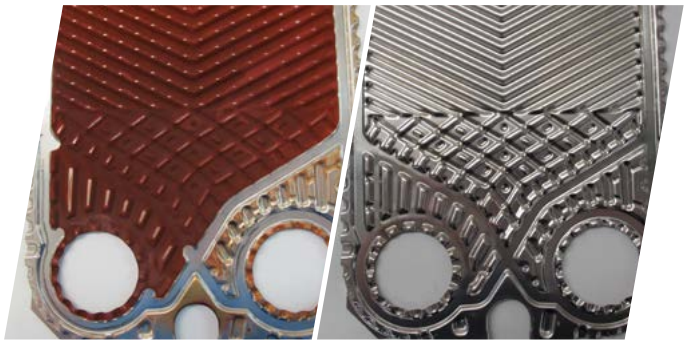
Aluminium (Diamond lapping residue)



Copper Pipes cleaned

Thermal deburring removed

Plate Heat Exchanger cleaned



Before After

Aircraft Hydraulic Pipe Line cleaned

Injection Mould cleaned

Die Cast Mould cleaned

Borosilicate Glass cleaned

Medical part cleaned

Kemet

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