Kemet

PRECISION LAPPING AND POLISHING SYSTEMS









Contents

MACHINES	1-12
15” to 120” Lapping Machines	1-5
Spherical Lapping	6
Chemical Mechanical Polishing	7-8
Internal Lapping	8
Match Lapping	9
Dual Face Lapping	10
Geological Thin Section Lapping	11-12
Specialist Lapping Machines	12
CONSUMABLES	**13-22**
Lapping Plates	13-15
Conditioning Rings	15
Diamond Compound / Paste	16
Liquid Diamond	17-18
Lubricating Fluids	18
Conventional Abrasives	18-19
Lapping Oil	19
Abrasive Pastes & Powders	19
Polishing Pads / Cloths	20
Lapping Film	21
Workholding & Fixtures	22
Polishing Stand with Paper	22
ACCESSORIES	**23-26**
Lapping Machine Maintenance	23
Dispenser Systems	23-24
Flatness Measuring Equipment	23 & 25
Portable / Hand Lapping Kits	26
CLEANING & TECHNICAL SUPPORT	**27-30**
Ultrasonic Cleaners	27-28
Lapping Service	29
Kemet Technical Support	30

bsi. ISO 9001 Quality Management

Ordering Information

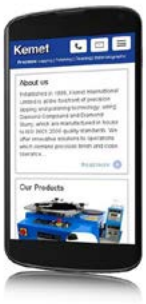
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Precision Lapping Services at Great prices, even for small volumes



Catalogue version: 1804



Kemet Precision Lapping and Polishing Systems

Since 1938, Kemet has been at the forefront of precision polishing technology, producing diamond pastes, slurries and composite lapping/polishing materials in our purpose built facilities strictly manufactured to ISO 9001:2015 quality standards.

Kemet Precision Lapping and Polishing Systems offer the most efficient and reliable method of producing precise surface geometry and finish whether flat, contoured or spherical. Our machines and systems are at the forefront of today's advanced lapping technology, especially when used with Kemet Diamond products. Kemet Diamond quality and grading enables reliable precision lapping to be performed in production situations.

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 Kemet are here to provide you with the technical support to overcome all your lapping, polishing and cleaning challenges.

Industries and Applications

Aerospace
Pumps and Valves
Turbine Parts
Engine Assemblies
Spacers

Technical Ceramics
Alumina - Zirconia
Silicon Carbide
Piezo Ceramics
Ferrite

Data Storage
Disc Drive Heads
CD Moulds
Laminations
Smart Phones

Tool and Die
Moulds and Inserts
Printing Plates
Slitter Knives
Extrusion Dies

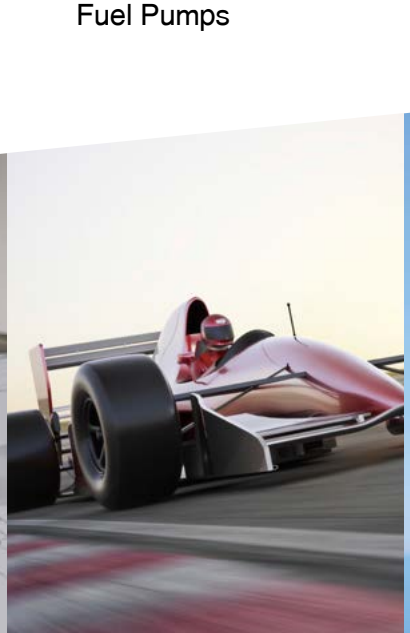
Electro Optics
Plano Optics
Laser Rods and Prisms
Fibre Optics
Sensors
Sapphire
ALN

Automotive
Diesel Injectors
Airbag Initiators
Piston Rings
Fuel Pumps

Pumps & Valves
Fuel Pumps
Hydraulic Pumps
Mechanical Seals
Gate Valves

Medical Devices
Fibre Scopes
Surgical Instruments
Hip and Knee Joints
Pacemaker Parts









Lapping Machines

Kemet's Advanced Lapping Technology

Kemet offers a comprehensive range of standard lapping and polishing systems for use across all industrial sectors. Special purpose machines can also be developed for specific applications.

Benefits:

- Faster polishing process
- One operation surface finish
- Faster material removal
- Pre set parameters
- Reduced rejections
- Semi skilled operation
- Significant reduction in lapping costs
- Reduced inspection requirements
- Optimum geometry and surface finish
- Better utilisation of machine time
- Cleaner environment conditions

Lapping Machine Options



Open Face

The open face machines are for use where work pieces are either large in size and can be lapped under their own weight or where pressure application by hand weights is sufficient.



Pneumatic Lift

The pneumatic lift machines will raise and lower the weights and also apply pressure where necessary. All are fitted with mandatory safety controls.

Kemet Lapping Machine Capacity Chart

Components per conditioning ring based on typical loading of approximately 60% ring surface area.

Machine Model (No of Rings)	Diameter of Parts (mm)																									
	6	7.5	9	10.5	12	13.5	15	18	22	26	30	34	38	42	46	50	54	60	70	80	90	100	110	120	130	140
15 (3 Rings)	275	175	118	86	60	50	40	27	18	12	10	8	6	5	4	3	2	2	2	1	1	1	1	1	1	1
20 (3 Rings)	-	-	-	-	150	114	90	63	39	33	21	17	14	10	9	7	6	5	3	3	2	2	1	1	1	1
24 (3 Rings)	-	-	-	-	210	165	132	87	57	42	33	24	18	15	13	10	9	7	5	4	3	3	2	2	1	1
24 (4 Rings)	-	-	-	-	150	114	90	63	39	33	21	17	14	10	9	7	6	5	3	3	2	2	1	1	1	1
36 (3 Rings)	-	-	-	-	-	-	-	204	93	93	69	60	42	33	29	24	21	17	12	10	7	6	5	4	3	2
36 (4 Rings)	-	-	-	-	-	-	-	156	72	72	54	39	33	25	33	20	15	12	10	8	5	5	3	2	2	2
48 (4 Rings)	-	-	-	-	-	-	-	-	132	132	99	75	60	48	39	33	29	24	17	14	12	8	7	5	5	4
56 (4 Rings)	-	-	-	-	-	-	-	-	204	204	150	117	100	76	62	52	44	35	26	20	16	12	10	8	8	6
72 (4 Rings)	-	-	-	-	-	-	-	-	-	-	-	204	164	132	108	92	78	62	44	35	26	21	18	16	14	10
84 (4 Rings)	-	-	-	-	-	-	-	-	-	-	-	-	-	185	152	129	109	88	63	47	38	30	24	20	17	15

The above data is for using standard loading procedures. It is often possible to extend the capacity of a machine utilising special workholding arrangements and fixtures.

Conditioning Ring Spec		Machine Model								
		15	20	24	36	48	56	72	84	120
Inside Diameter (mm)	3 Rings	140	191	248	368	505	578	-	-	-
	4 Rings	-	-	209	322	432	530	692	813	1016

Kemet 15/20 Models

The bench-mounted Kemet 15 and 20 Lapping Machines have a rigid metal construction with a height-adjustable worktable. The machines incorporate a digital Process Timer and a fully automatic Liquid Diamond Dispensing System.



Features & Benefits:

- Variable speed
- Bench mounted
- Produces optically flat surfaces with high precision surface finish
- Fully controllable Kemet Electronic Dispensing System accurately meters diamond abrasive onto the lapping plate - Reduces lapping costs
- Only small quantities of diamond abrasive and non-toxic fluids are used - Reduces waste
- Built in abrasive system for conditioning Kemet Composite Plates
- Easily transportable
- Electrical System complies with EN 60 204
- Easy to adapt for special lapping applications

Options:

- Lift off disc system on model 15”
- Fixed speed
- Pneumatic lift on model 20”

Other Versions:

- Col-K Chemical polishing version (see page 7)
- Clipper Blade sharpening machine

Machine Model		15	20
Lapping Plate outside Diameter		381 mm	508 mm
Lapping Plate Speed		70 rpm	70 rpm
No. of Conditioning Rings		3	3
Conditioning Ring inside Diameter		140 mm	191 mm
Max load per Conditioning ring		39 Kg	53 Kg
Height of Open Face Machine		670 mm	700 mm
Height of Pneumatic Lift Machine		N/A	965 mm
Working Height		310 mm	385 mm
Depth of Machine		660 mm	780 mm
Width of Machine		760 mm	883 mm
Standard Electrical Supply		220v-1Ph-50Hz or 380v or 415v 3Ph-50Hz	
Main Drive Motor		0.37 kW	0.75 kW
Abrasive pump motor		0.18 kW	0.18 kW
Approx. Weight	Open Face	136 kg	200 kg
	Pneumatic	N/A	385 kg

Recommended Accessories	Machine Model	
	15	20
Cast Iron Conditioning Rings - Solid - Set of 3	360204	360818
Cast Iron Conditioning Rings - Serrated - Set of 3	360203	361027
Zytel Roller Bearing Assemblies - Set of 6	360212	360212
O-rings for Zytel Bearings - Set of 6	360270	360270
Flatness Gauge	361304	

Recommended Consumables	Machine Model	
	15	20
Cast Iron Serrated Lapping Plate (Pre-lapped)	362400	362402
Cast Iron Solid Lapping Plate (Pre-lapped)	362401	362403
Kemet Copper Lapping Plate	351102	351103
Kemet Copper SP2 Lapping Plate	351159	351964
Kemet Iron Lapping Plate	351002	351081
Kemet PR3 Lapping Plate	351340	351374
Kemet Tin Lapping Plate	351305	351320
Kemet XL Lapping Plate	351356	351375
Kemet XP Lapping Plate	351202	351266

Huge range of other accessories and consumables available for the Kemet 15 & 20 Models

Lift Off Disc System	Machine Model	
	15	20
Aluminium Drive Plate	361002	362255
Aluminium Lift Off Disc	361001	362290
Kemet Iron Lift Off Disc	351025	E09714
Kemet Copper Lift Off Disc	351121	E09715
Kemet XP Lift Off Disc	351226	E10063
Kemet Tin Lift Off Disc	351314	E10103

Kemet 24/36 Models

Both Kemet 24 and 36 machines have rigid welded tubular section steel frames, supporting the gearbox, drive motor and worktable. With the option of a diamond dispensing system they also house an integral abrasive compound feed and waste tanks behind lift-off panels. The Kemet 36 machine incorporates a soft starting feature, which smoothly accelerates the Kemet Composite or cast iron lapping plate from stand still to full speed (optional extra for Kemet 24).



Open Face Version

Features & Benefits:

- Produces optically flat surfaces with high precision surface finish
- Fully controllable Kemet Electronic Dispensing System accurately meters diamond abrasive onto the Kemet Composite Lapping Plate, reducing lapping costs and waste
- Built in abrasive system for conditioning Kemet Composite Lapping Plates
- Suitable for large parts or large volume production
- Electrical System complies with EN 60 204

Options:

- Variable speed up to 70 rpm
- Temperature control
- 3 or 4 conditioning rings
- Col-K chemical polishing versions
- Light curtain or full Perspex guarding available

Option		Open Face		Pneumatic Lift	
Machine Model		**24**	**36**	**24**	**36**
Height		920 mm	960 mm	1925 mm	1960 mm
Working Height		-	-	1150 mm	1270 mm
Width		1200 mm	1435 mm	1240 mm	1505 mm
Depth		1350 mm	1640 mm	1350 mm	1640 mm
Approx. Weight		575 kg	1165kg	700kg	1250kg
Lapping Plate outside Diameter		610 mm	914 mm	610 mm	914 mm
Lapping Plate Speed		58 rpm	58 rpm	58 rpm	58 rpm
Nº of Conditioning Rings		3 or 4	3 or 4	3 or 4	3 or 4
Conditioning Ring inside Diameter	**3 ring**	248 mm	368 mm	248 mm	368 mm
	4 ring	210 mm	322 mm	210 mm	322 mm
Max load per Conditioning ring	**3 ring**	250 Kg	350 Kg	250 Kg	350 Kg
	4 ring	200 Kg	300 Kg	200 Kg	300 Kg
Main Drive Motor		1.5 kW	4 kW	1.5 kW	4 kW
Abrasive pump motor		0.18 kW	0.18 kW	0.18 kW	0.18 kW
Air Requirements		4 Bar min	4 Bar min	4 Bar min	4 Bar min
Standard Electrical Supply		220v or 380v or 415v 3Ph-50Hz			

Electronic Dispensing Equipment Standard on all above Models (see page 21)

Kemet 40 also available with Kemet Lapping Plate outside diameter 1016mm. Three cast iron serrated conditioning rings, inside diameter 406mm.

Recommended Accessories	Machine Model	
	24	**36**
Cast Iron Conditioning Rings - Solid for 3 Ring Machine - Set of 3	360679	360186
Cast Iron Conditioning Rings - Serrated for 3 Ring Machine - Set of 3	360208	360278
Cast Iron Conditioning Rings - Solid for 4 Ring Machine - Set of 4	360680	360681
Cast Iron Conditioning Rings - Serrated for 4 Ring Machine - Set of 4	360274	360682
Zytel Roller Bearing Assemblies - Set of 6	360214	-
O-rings for Zytel Bearings - Set of 6	360672	360270
Roller Bearing Assemblies - Set of 6	360213	360259
O-rings for Roller Bearings - Set of 24	-	360659
Flatness Gauge	361304	

Recommended Consumables	Machine Model	
	24	**36**
Cast Iron Serrated Lapping Plate (Pre-lapped)	362404	362406
Cast Iron Solid Lapping Plate (Pre-lapped)	362405	362407
Kemet Copper Lapping Plate	351106	351124
Kemet Copper SP2 Lapping Plate	351177	351965
Kemet Iron Lapping Plate	351006	351010
Kemet PR3 Lapping Plate	351357	351343
Kemet Tin Lapping Plate	351306	351315
Kemet XL Lapping Plate	351376	351377
Kemet XP Lapping Plate	351206	351227

Huge range of other accessories and consumables available for the Kemet 24 & 36 Models

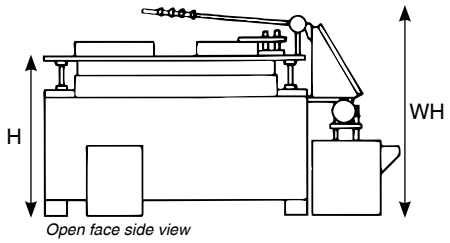
Kemet 48/56 Models

These Precision Diamond Flat Lapping & Polishing Machines, are available as open face and pneumatic lift with a diamond dispensing system. Equipped with a serrated lapping plate consisting of 16 segments for the Kemet 48 and 24 segments for the Kemet 56, the individual cast iron segments are faced with Kemet Composite material bolted to a support plate.

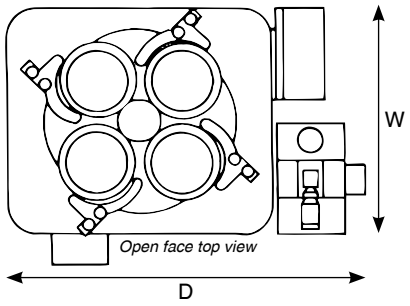
Features & Benefits:

- Higher capacity
- 3 or 4 conditioning rings
- Heavier and larger parts (up to 505 mm for Kemet 48 and 578 mm for Kemet 56)
- Water cooling option available

Option		Open Face		Pneumatic Lift	
Machine Model		**48**	**56**	**48**	**56**
Height (H)		1010 mm	1030mm	2350 mm	2260 mm
Working Height (WH)		-	-	1390 mm	1400 mm
Width (W)		1510 mm	1700 mm	1510 mm	1700 mm
Depth (D)		2000 mm	2020 mm	2520 mm	2520 mm
Approx. Weight		3400 kg	4100 kg	4000 kg	5000 kg
Lapping Plate outside Diameter		1219 mm	1422 mm	1219 mm	1422 mm
Lapping Plate Speed		48 rpm	48 rpm	48 rpm	48 rpm
Conditioning Ring inside Diameter	**3 ring**	505 mm	578 mm	505 mm	578 mm
	4 ring	432 mm	530 mm	432 mm	530 mm
Max load per Conditioning ring	**3 ring**	375 Kg	400 Kg	375 Kg	400 Kg
	4 ring	325 Kg	350 Kg	325 Kg	350 Kg
Main Drive Motor		7.5 kW	11 kW	7.5 kW	11 kW
Abrasive pump motor		0.18 kW	0.18 kW	0.18 kW	0.18 kW
Abrasive Tank capacity		115 Litres	115 Litres	115 Litres	115 Litres
Waste tank capacity		37 Litres	37 Litres	37 Litres	37 Litres
Standard Electrical Supply		220V or 380V or 415V 3 Ph 50Hz			



Open face side view



Open face top view

Recommended Accessories	Machine Model	
	48	**56**
Cast Iron Conditioning Rings - Solid for 4 Ring Machine - Set of 4	360235	360749
Cast Iron Conditioning Rings - Solid for 3 Ring Machine - Set of 3	360662	
Cast Iron Conditioning Rings - Serrated for 4 Ring Machine - Set of 4	360642	
Cast Iron Conditioning Rings - Serrated for 3 Ring Machine - Set of 3	360833	360910
Roller Bar Bearing Assembly	360729	360869
Flatness Gauge	361304	

Recommended Consumables	Machine Model	
	48	**56**
Cast Iron Segments for 3 Rings - Set of 16	360265	361860
Cast Iron Segments for 4 Rings - Set of 16	360776	362216

Huge range of other accessories and consumables available for the Kemet 48 & 56 Models


Pneumatic Lift Version

Kemet 72/84/120 Models

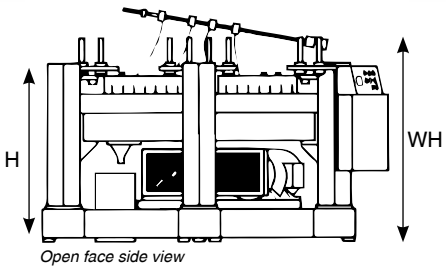
For larger lapping applications Kemet offer machines with a 72”, 84” or 120” plate.

Features & Benefits:

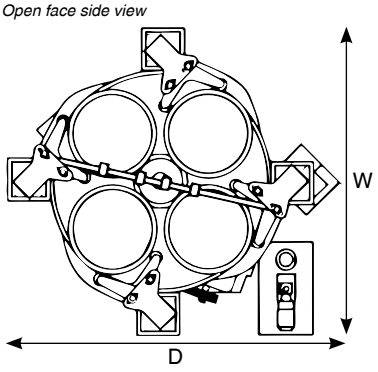
- Set within a mesh guard, a side mounted motor transmits the drive via multiple v-belts to a mechanical reduction gearbox at the centre of a cruciform shaped steel structure.
- Four stations, the roller yokes mounted on hollow section upright columns at the end of each arm, which also support the trough around the lap plate.
- Electronic soft start to smooth accelerate the lap plate to full speed is time adjustable to suit individual process conditions.
- Suitable for use with conventional abrasive slurries or Kemet Diamond slurries.
- Free-standing conventional abrasive reservoir/stirrer/pump supplies four individually adjustable feeds to each of the stations.
- Electronic diamond dispenser and stirrer unit provides fully controlled metering of liquid diamond and lubricating fluid to each station, via dispensing bars and spray heads, to ensure even distribution and minimise consumable costs and waste.
- Water cooling option available



Open Face Version



Open face side view



Option	Open Face			Pneumatic Lift		
Machine Model	**72**	**84**	**120**	**72**	**84**	**120**
Approx. Height (H)	1350 mm	1500 mm	*	2764 mm	*	*
Working Height (WH)	-	-	-	*	*	*
Approx. Width (W)	3026 mm	2600 mm	*	3026 mm	2600 mm	*
Approx. Depth (D)	3073 mm	2600 mm	*	3073 mm	2600 mm	*
Approx. Weight	6000 kg	9000 kg	*	10000 kg	12000 kg	*
Lapping Plate outside Ø	1829 mm	2134 mm	3000 mm	1829 mm	2134 mm	3000 mm
Approx. Lapping Plate Speed	30 rpm	20 rpm	18 rpm	36 rpm	20 rpm	18 rpm
No. of Conditioning Rings	4	4	4	4	4	4
Conditioning Ring inside Ø	692 mm	813 mm	1025 mm	692 mm	813 mm	1025 mm
Max load per Conditioning ring	2000 Kg	2250 Kg	*	2000 Kg	2250 Kg	*
Main Drive Motor	15 kW	30 kW	*	15 kW	30 kW	*
Abrasive pump motor	0.18 kW	0.18 kW	0.18 kW	0.18 kW	0.18 kW	0.18 kW
Abrasive Tank capacity	117 Litres	117 Litres	132 Litres	117 Litres	117 Litres	132 Litres
Waste tank capacity	37 Litres	37 Litres	57 Litres	37 Litres	37 Litres	57 Litres
Standard Electrical Supply	220V or 380V or 415V 3 Ph 50Hz					

** Designed to customer specification*

KemiSphere - Bench Top Spherical Lapping Machine

The Kemisphere is a small single station spherical lapping and polishing machine ideal for either matching 2 spherical forms together or, with appropriate tooling, it has the ability to lap and polish spherical forms to better than 5µm roundness with a mirror finish. It's a perfect replacement for jobs currently hand lapped together, and its bench top design makes it a useful addition to any workshop involved in spherical lapping.



Features & Benefits:

- 3 motors with independent variable speed control
- Simple tooling change
- HMI control with 20 programme memory
- Low running costs
- Manual and jog facility provided for setting
- Fully guarded with interlocks and safety circuit
- Single button process start
- Eye level controls
- Dimensions 480 (W) x 628 (D) x 971 (H) mm
- CE marked. Electrical supply 230V-single phase-50Hz
- Sweep setting from 0-45 degrees fully adjustable
- Clock wise and counter clockwise rotation of lap motor
- Digital Timer
- Product code: 359875



Orthopaedic Hip Ball polished with Spherical Lapping Machine

Kemet Spherical Lapping Machine

The Kemet Spherical Lapping Machine laps and polishes pre-machined spherical balls and cups to a mirror finish with roundness usually better than 3 microns.



Features & Benefits:

- 6 motors all with independent variable speed to provide complete control
- Size: 1600 (W) x 820 (D) x 2500 (H) mm
- Lapping and polishing pressures applied pneumatically
- Simple change from ball to cup polishing action
- Average process time less than 5 mins
- Manual and jog facility provided for setting up
- Fully guarded with auto lifting door access
- Comes complete with initial tooling set
- Full manual and training provided
- Low running costs
- Dual process timers
- Single button process start
- Lighting provided
- Smooth and silent running
- CE marked
- Electrical supply 230Vsingle phase-50Hz
- Air: 3 bar max

KemCol - Super Finishing Machines

The KemCol Super Finishing machines are based on the popular Kemet range of lapping and polishing machine, but incorporate stainless steel elements in place of painted components for longer life, and contamination free polishing. They come as standard with an integrated Kemet aKu-Disp fully programmable peristaltic pump system, and either ceramic faced, or stainless steel conditioning rings. The machines are ideal for chemo mechanical polishing and Cerium Oxide based polishing applications. Cerium oxide suspensions and powders available upon request.



Machine Model	15	20	24
Height (mm)	400	700	920
Working Height (mm)	310	385	-
Width (mm)	800	883	1200
Depth (mm)	650	780	1350
Nett Weight (kgs)	90	200	575
Polishing Pad Diameter (mm)	380	508	610
No of conditioning rings	3	3	3 or 4
Inside diameter of conditioning rings (mm)	140	191	248
Main Motor (kW)	0.37	0.75	1.5
Product code	359876	359872	*



Mirror Finish

Features & Benefits:

- Stainless steel worktable surrounding polishing pad
- Polished stainless steel yokes for easier cleaning
- Stainless steel drive plate
- Aluminium lift off disc system optional
- Ceramic faced or stainless steel conditioning rings for contamination free polishing
- aKu-Disp fully programmable peristaltic pump unit fitted as standard
- Suitable for Kemet magnetic polishing pad system for easy pad change

Col-K Polishing Media	5 litres	10 litres	20 litres
Col-K	600212	600238	600204
Col-K (NC)	600199	600239	600202

aKu-Disp Spares	Code
Spare Peristaltic Head Unit with Tube	362520
aKu-Disp Feedarm	362514
Spare Tubing (1 meter)	363109



The aKu-Disp is designed to work in conjunction with the lapping machine. It links to the machines main timer system and the stirrer function operates as soon as power is on the unit and has manually operated variable speed controls for both the pump and stirrer. More details of the aKu-Disp on page 24.

Recommended Accessories	Machine Model		
	15	20	24
Set of 3 Ceramic Faced Conditioning Rings	361522	361982	361528
Stainless Steel Plastic Faced Conditioning Rings	362235	361874	361539
Stainless Steel Support Plate (For Polishing Pads)	362033	*	*
Aluminium Lift Off Disc	361001	362290	-
Aluminium Drive Plate	361002	362255	-
Thin Metal Disc (For use with magnetic system)	342563	*	*
Magnetic Disc	345773	*	345774

Recommended Consumables	Machine Model		
	15	20	24
CHEM-H Polyurethane Polishing Pad	341865	341789	341786
PSU-M Chemo-Textile Cloth for Cerium	341011	341059	341012
MRE Short Napped Final Polishing Pad	341715	*	341877

** Available on request*

Kemet DiaCol - Lapping / Polishing / Super Finishing Machine

The Kemet DiaCol has been developed as a single machine that is able to lap and polish components using the complete range of processes from conventional lapping with a cast iron plate and aluminium oxide or silicon carbide slurries, precision diamond lapping and polishing with a Kemet composite lapping plate and Kemet's diamond slurries and super finishing CMP (Chemo Mechanical polishing) using a CHEM-H pad and COL-K polishing media. Machine available in 15", 20" and 24".

Features & Benefits:

- Stainless Steel adjustable worktable, conditioning ring, roller bearing assemblies and pressure weights
- Epoxy coated support plate
- Conventional abrasive system
- Kemet Diamond dispensing system and stirrer
- Ceramic faced or stainless steel conditioning rings for contamination free polishing
- Kemet AkuDisp fully programmable peristaltic pump unit fitted as standard
- Suitable for Kemet magnetic polishing pad system for easy pad change

Up until now, Kemet machines have been able to run both conventional and diamond processes, but any CMP polishing required a separate machine. This is because the CMP polishing process is corrosive. The DiaCol overcomes all these challenges for longer life and contamination free polishing with the parts that come into contact with COL-K being either epoxy coated, stainless steel, or aluminium.



Product	Code
Kemet DiaCol 15	359867
Kemet DiaCol 20	359859
Kemet DiaCol 24	359869

Kemet Internal Lapping Machine

The Internal Lapping Machine has been designed to accurately lap internal valve faces. This lapping machine will process internal faces up to 300mm (3" to 16") in diameter, producing a flatness of 0.001mm. Depending on the material and the tooling, anything from a standard matt finish to a high mirror polish can be obtained. The Kemet Internal Lapping Machine can quickly be changed to a standard lapping machine, allowing the flatness of the laps, which generate the flatness of the recessed internal face, to be maintained on the same machine. This means that a single machine can produce the required flatness on the lap tooling and then generate the same flatness on the internal faces, a bonus in terms of cost and footprint.

Features & Benefits:

- Bespoke holding plate designed to customer/component requirements
- Includes full set of laps to suit application
- Variable Speed up to 70 rpm
- Capable of processing valves from 3" - 16"
- Short process times & easy to use
- Integrally mounted high torque drive unit with 0.37kW (0.5HP) motor
- Sealed maintenance free reduction gearbox
- Electronic digital timer with variable time ranges
- Yoke arm which can apply additional pressure when required
- Electrical: 230V-single phase-50Hz
- Product code: 359706



Kemtech Spherimatch - Match Lapping Machine

The Kemtech Spherimatch provides an automated method to match lap two valve halves, or similar components, together: For example - matching the concave barrel of a hydraulic piston pump to its convex swash plate. These faces need a perfectly matching radius to maintain performance and minimise leakage.

The Spherimatch enables the removal of even deep scoring and final match lapping of bodies up to 400mm high and ranging from 75mm diameter up to 250mm.



Specification

- Match laps parts from 75 to 250mm diameter and up to 400mm high
- Fabricated steel body with adjustable levelling feet
- Heavy duty adjustable worktable
- Integrally mounted high torque drive unit with 0.37kW (0.5HP) motor
- Sealed maintenance free reduction gearbox
- Electronic digital timer with variable time ranges
- 3 jaw chuck
- Lap plate speed variable up to 70 rpm
- Variable speed sweep action
- Electrical: 230V-single phase-50Hz or 110V-single phase-60Hz
- Initial supply of lapping abrasives included along with full instructions in their use
- Product code: 359599

With a fully programmable process timer, this versatile machine can match lap curved or flat surfaces, of the same or different materials, with variable rotation speeds up to 70 rpm and a range of sweep arm strokes and speeds to suit the components being lapped.

Used in combination with Kemet's diamond compounds and conventional aluminium oxide pastes, the Spherimatch is an essential tool for any hydraulic servicing centre.

Kemet offer free tests complete with a full test report showing process times and stages for each pair of parts.



Match lapped 125mm piston pump body and swash plate

One component part is held in a fully guarded, three jaw chuck with reversible jaws and the opposing part located under the sweep arm with a specially designed location and anti-rotation fixture. Pressure is applied to the top part being lapped.

Kemtech Twin Lap 50 & 120 - Dual Face lapping

The Kemet Twin Lap machine is a small but versatile bench mounted machine ideally suited for small workshops and laboratories. It comes fully equipped and ready to use and is suitable for lapping components up to 52mm diameter (2”) and up to 10mm thick. In certain circumstances larger components can be accommodated.

Technical Specifications - Twin Lap 50	
Height	600mm
Depth	785mm
Width	830mm
Capacity	Ø174.45mm (6.8”) lapping plate, solid or serrated. Ø52mm (2”) maximum part diameter
Nett Weight	170kg (includes plate and accessories)
Max Component Mass	20 Kg
Standard Tooling	Cast iron, lap plate Grade 300 Ø174.45mm (6.8”) OD x Ø87.3mm (3.43”) ID x 13mm (0.51”) thick 5mm usable
Electrical supply	1 phase, 50/60 Hz, 110 or 230 volts
Product code	359857



The machine is belt driven and built on a fabricated base to minimise noise and vibration. Machine feet eliminate vibration transfer to and from the floor. This design gives the operator a shorter reach to the plate and easy access underneath for maintenance. The main lap plate can rotate both directions, and the work holder will automatically oscillate.

The machine will operate with a free abrasive compound such as silicon carbide, alumina or boron carbide, suspended in a oil or water based vehicle or a Diamond Compound. The compound is fed onto the lap plate from a free-standing system via a peristaltic pump.

As with all lapping machines of the Dual Face lapping type, we recommend that the lap plates are re-conditioned using conditioning gears on a regular basis. The machine can also be fitted with diamond dispensing equipment and special complementary lap plates.

The machines come fully equipped and ready to run. The controls are housed in a single steel console attached to the base frame at a convenient working height. In all cases the lapping operation is controlled by a multi range adjustable timer or optional DTI mode.

Features & Benefits:

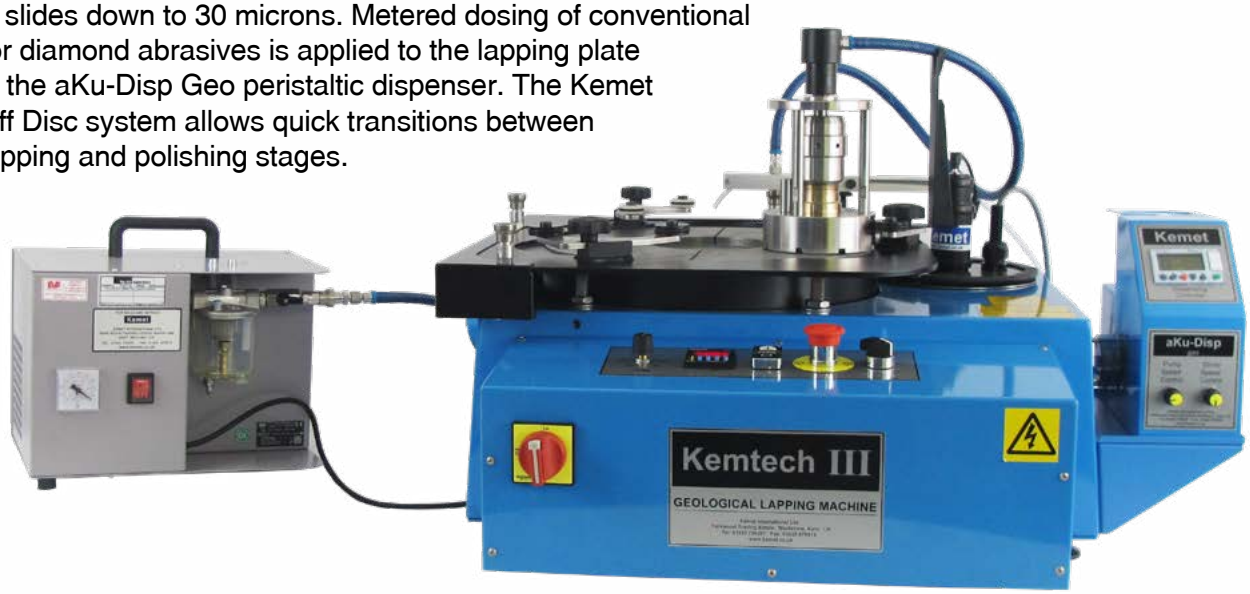
- Heavy duty fabricated steel body
- Gear reducer, 125 rpm max plate speed
- 2 Adjustable motor drives
- Outer gear speed 0 - 111 rpm 60W DC drive
- Inner gear speed 0 - 125 rpm 60W DC drive
- Electronic digital timer, 0.1 second to 999 hours
- 0.3 Litre compound distribution system with Peristaltic pump & Stirrer
- 2 Individually adjustable feed arms
- Operator controls at 24VDC
- Interlocked guarding
- Abrasive slurry distribution system with reservoir tank
- CE compliant
- Stainless steel 304 wetted parts
- Waste tank

Options:

- TwinLap 50 for components <50 mm dia x 10mm thick
- TwinLap 120 for components <120 mm dia x 10mm thick

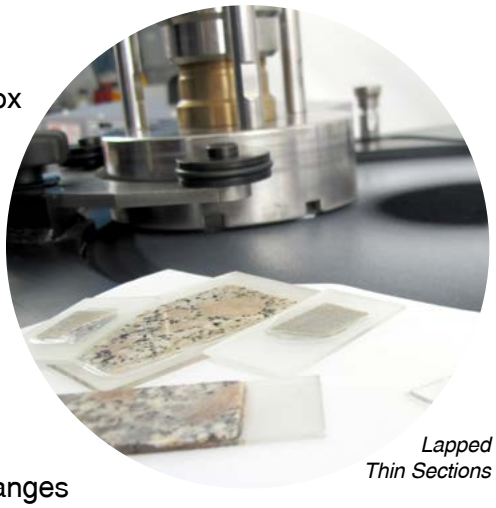
Kemtech III Geological Lapping Machine

The Kemtech III Geological lapping machine is able to accurately lap and polish thin sections mounted on glass slides down to 30 microns. Metered dosing of conventional and/or diamond abrasives is applied to the lapping plate using the aKu-Disp Geo peristaltic dispenser. The Kemet Lift Off Disc system allows quick transitions between the lapping and polishing stages.



Features & Benefits:

- Integrated abrasive tank with stirrer
- Sealed maintenance free reduction gearbox
- Cast iron Serrated Lift Off Disc or Aluminium Lift Off Disc
- Variable Speed up to 70 rpm
- Water Trap and Filter
- Stand-alone vacuum pump
- aKu-Disp Geo accurate peristaltic dispensing system for metered dosing
- Capacity for up to 3 vacuum jigs with diamond faced stoppers
- Electronic digital timer with variable time ranges



Lapped Thin Sections

Technical Specifications	
Height	400 mm
Working Height	310 mm
Width	800 mm
Depth	650 mm
Nett Weight	90Kgs
No of jig stations	3
Main Motor	0.37kW
Product code	359975

Also available in 20" with driven rings as an option.



Vacuum Jigs (to suit slides)	Code
4 x (76 x 26 mm) or 2 x (76 x 51 mm)	362072A
6 x (52 x 26 mm)	362072B
1 x (100 x 100 mm)	362072C
6 x (48 x 28 mm)	362072D
3 x (45 x 60 mm)	362072E
Rotaid rotation assist post	362895
Setting stand	361986
Cast iron setting test block (127 mm diameter)	361773

The Kemet Vacuum Jig is a precision workholding and sizing fixture. The Jig is suitable for accurately sizing Geological thin sections, wafers, crystals and any precision parts where parallelism and precision finish are required.

Recommended Accessories	Code
Set of 3 Cast Iron Serrated Conditioning Rings	360203
Set of 3 Plastic Faced Conditioning Rings	361521
380 mm Cast Iron Serrated Lift Off Plate	362433
380 mm Aluminium Lift Off Disc	361001
380 mm Aluminium Drive Plate	361002
380 mm Thin Metal Disc (For use with magnetic system)	345563
380 mm Magnetic Disc	345773

Recommended Consumables		Code
Diamond Suspension (Water based mono diamond)	9 Micron AQUAPOL-M	219442
	6 Micron AQUAPOL-M	219448
	3 Micron AQUAPOL-M	219440
	1 Micron AQUAPOL-M	219450
Green Silicon Carbide Powder F600 1Kg		361513
380 mm PSU-M Chemo-Textile Cloth		341011
380 mm MRE Short Napped Final Polishing Pad		341715

aKu-Disp	Code
aKu-Disp unit	362820
Integration kit for Kemtech III 110V	362823
Integration kit for Kemtech III 230V	362822

Kemet 300L Models

The Kemet 300L machines are fitted with a serrated cast iron or Kemet Composite Lift-Off Disc to suit the application. A single control ring is located in a ring style holder and runs between 3 rollers. This is adjustable for both height and position.

Recommended Accessories	
Hand weight	345450
Serrated Cast Iron Conditioning Ring	345434

Technical Specifications	
Lapping Plate outside Diameter	300 mm
Lapping Plate Speed	0 - 130 rpm
Conditioning Ring inside Diameter	125 mm
Conditioning Ring Outside Diameter	140 mm
Standard Electrical Supply	220V-single phase-50Hz or 110V-single phase-60Hz
Main Drive Motor	High Torque Motor (1 HP) 0.75kW
Dimensions (mm)	420 x 730 x 350
Weight	37kg
Product code	345459



Kemet 300 LVAC Polishing Machine

The Kemet 300 LVAC special purpose polishing machine is a smaller alternative to the Kemtech 15 geological lapping machine for polishing geological mounted samples.

Technical Specifications	
Lapping Plate outside Diameter	300 mm
Lapping Plate Speed	0 - 130 rpm
Conditioning Ring inside Diameter	125 mm
Conditioning Ring Outside Diameter	140 mm
Standard Electrical Supply	220V-single phase-50Hz or 110V-single phase-60Hz
Main Drive Motor	High Torque Motor (1 HP) 0.75kW
Dimensions (mm)	420 x 730 x 350
Weight	37kg
Product code	345467



The machine has a 300mm diameter plate with drive elements mounted on a heavy duty aluminium alloy casting, giving vibration free operation and silent running. A water inlet with a control valve are standard features while the control panel has a process timer, variable speed control and forward / reverse control switch. The machine has it's own vacuum pump and connectors to suit Kemet vacuum jigs, which are available as an optional extra (see page 11).

Special Purpose & Bespoke Machines

As well as these standard flat, spherical, match and internal lapping machines, Kemet also offer a bespoke machine manufacturing service for applications where an off the shelf system is not available. This can be as basic as converting a hand finishing operation to an automated process, or as complex as a conveyor fed single piece lapping system capable of producing a finished part every 9 seconds. No application is too small for consideration.



Lapping Consumables

Kemet Composite Lapping Plates

Manufactured from a homogeneous mixture of synthetic resins, metal particles and key bonding/hardening. The plates are designed for Kemet's advanced lapping technology, perfectly compatible with Kemet Liquid Diamond.

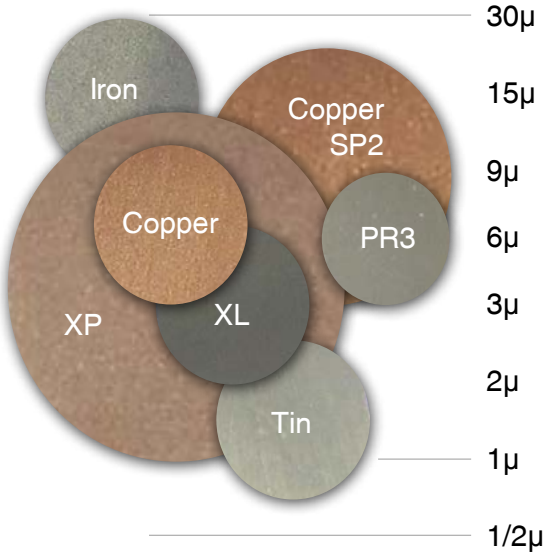
- Holds diamond particles firmly, ensuring both efficient stock removal and repetitive component surface finish.
- Ductile qualities cushion the diamond particles, preventing damage to the workpiece.
- Produced in varying hardness values so that even the softest material can be safely lapped with diamond particles without the fear of impregnation.
- Easy control for optimum flatness.
- Lapping/polishing plates available to fit all makes of lapping machines with plate diameters up to 3000mm.
- Dissipates heat and prevents laminar flow of lapped surfaces.
- Supplied with a cast iron backing plate for maximum stability.
- Recommended when high precision flatness and surface finish are required.

Composite Material	Plate Diameter (inches)			
	15	20	24	36
Kemet Copper	351102	351103	351106	351124
Kemet Copper SP2	351159	351964	351177	351965
Kemet Iron	351002	351081	351006	351010
Kemet PR3	351340	351374	351357	351343
Kemet Tin	351305	351320	351306	351315
Kemet XL	351356	351375	351376	351377
Kemet XP	351202	351266	351206	351227

Custom sizes and grooving are available.

Composite Material	Description
Kemet Iron	The most commonly used plate. For general purpose stock removal and lapping operations.
Kemet Copper	Used to lap softer materials where fine lapping and polishing are the primary requirements.
Kemet Copper SP2	Can be used for lapping or polishing hard and medium hardness materials.
Kemet PR3	Used to generate highly reflective surface finish. Ideal for pre-pad polishing for minimum roll off.
Kemet XL	Replacement for Lead/Tin plate, used for mirror polishing.
Kemet XP	Gives improved flat polished surfaces on many materials. Flat mirror-like surfaces can be produced on many hard materials.
Kemet Tin	One of the softest Kemet Plates used for mirror polishing with fine grades of Kemet Liquid Diamond.

Diamond Grade



Lapping Plate Grooving

Lapping plates can be supplied grooved to suit specific applications. A cross hatched pattern is common on Cast Iron Hand Lapping plates and Dual Face Machine plates and gives increased stock removal rates due to the additional cutting edges generated on each groove. A Spiral groove pattern is used primarily when polishing parts that need to have a good surface finish and flatness, allowing contamination to be carried away from the cutting surface and making it easier to keep the lapping plate contact surface flat. The edges of the groove maintain good stock removal even through the diamond particle size may be small.

Annular Grooved Plates

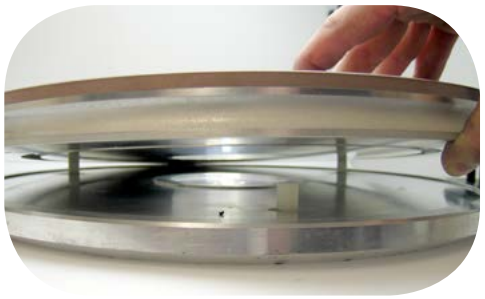
These plates are designed for precision shoulder lapping of a wide range of parts, such as fuel pump gear faces and pressure relief valve caps. These are bespoke manufactured and the groove width and depth of plates need to be specified when ordering.



Lift Off Disc System

Suitable for multistage processing when workshop space is a premium or budget constraints only allow a single machine. Kemet Lapping Plates are available as Lift-Off Discs in 15” and 20” diameter. Discs are supplied mounted on an aluminium backing plate, which locates onto an aluminium drive plate by means of three pegs. Lift Off Discs can be easily changed and are recommended for light duty work where general flatness and precision finish are required.

Description	15”	20”
Aluminium Drive Plate	361002	362255
Aluminium Lift Off Disc	361001	362290
Kemet Iron Lift Off Disc	351025	E09714
Kemet Copper Lift Off Disc	351121	E09715
Kemet XP Lift Off Disc	351226	E10063
Kemet Tin Lift Off Disc	351314	E10103



Kemet Composite Lapping Rods

For use with Kemet’s diamond compounds, Kemet composite rods are manufactured from a homogeneous mix of synthetic resins, metal particles and other materials. Produced in a variety of hardness values, the softest materials can be safely lapped with Kemet Diamond compound. They are commonly used to improve the surface quality of parts previously lapped using Kemet Helilaps.

Type	Diameter Size (mm)		
	25x150	50x150	75x150
Kemet Iron	352101	352102	352103
Kemet Copper	352104	352105	352106
Kemet XP	352113	352108	352114
Kemet Tin	352107	352116	352163



Granite Surface Plate

Measuring 300 x 230 x 50mm with 0.0001inch accuracy. Perfect for lapping tools or checking setups on small engineering projects. For longer life Lapping film or wet and dry paper can also be used as the grinding agent. Weight: 13.2kg



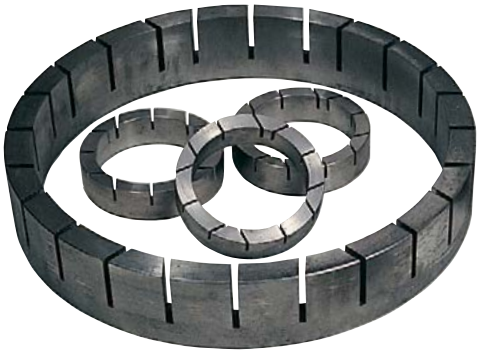
Kemet offer a refacing service when the Kemet Composite material falls below 3mm thickness.



Diamond Dressing Ring

For rapid correction of Kemet Lapping Plates. Supplied with Grit 80 diamond pellets glued to the cast iron conditioning ring. A 36" diamond dressing ring can correct a +25µm convex plate in 17 minutes. A Kemet 15" diamond dressing ring can correct a +15µm convex plate in 2 minutes. Other sizes available upon request.

Lapping Machine	Dressing Ring
Kemet 15	362677
Kemet 24	362678
Kemet 36	362668



Conditioning Rings

Cast Iron Conditioning Rings available as solid or serrated. Replacements are available to fit most flat lapping machine models. Custom built diamond plated conditioning rings available in a variety of Grit sizes, including Grit 60 and Grit 120. Plastic faced and ceramic faced conditioning rings are also available and these are used for polishing rather than lapping operations.

Lapping Machine	Solid (CI)		Serrated (CI)	
	3 Ring	4 Ring	3 Ring	4 Ring
Kemet 15	360204	-	360203	-
Kemet 20	360818	-	361027	-
Kemet 24	360679	360680	360208	360274
Kemet 36	360186	360681	360278	360682
Kemet 40	*	*	360683	*
Kemet 48	360662	360235	360833	360642

** Available on request*



Cast Iron Lapping Plates

Kemet offer a wide range of cast iron lapping plates to suit most lapping machines. (Other sizes available on request)

Cast Iron Lapping Plates (Pre-lapped)	Plate Diameter (inches)			
	15	20	24	36
Serrated	362400	362402	362404	362406
Solid	362401	362403	362405	362407



Cast Iron Hand Lapping Plates

The Cast Iron plates are made from high quality, low porosity grey cast iron (Grade 300 to BS1452). These are used with an abrasive grit, applied in paste form to give a uniform dull matt finish on a wide variety of metallic and non-metallic materials.

Description	Disc Diameter				Square (WxLxH)
	6"	8"	12"	18"	12" x 12" x 2"
Hand Lap Plate c/hatch grooves	361021	360835	360198	360707	362473
Hand Lap Plate solid	361738	361739	360264	360762	-



Soft Metal Hand Lapping Plates

The Soft Metal plates are made of Tin.

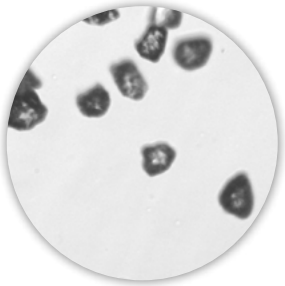
Description	6"	12"
Hand Lap Plate SOFT METAL	361049	361046

Kemet offer a wide range of standard and special Diamond Products formulated and manufactured in our quality controlled laboratories. Each is a special blend of diamond powder with a specific grading and concentration in a chemical carrier to give the optimum:

- Stock removal and surface finish.
- Ease of cleaning.
- Temperature resistance.
- Lubricity to prevent drying out.

With changing technology, new Kemet Diamond Products are continually being developed to meet specific requirements. These products may well incorporate different types of diamond to suit the application such as synthetic or natural, monocrystalline or polycrystalline powder, suspended in a wide range of chemical carriers.

Our laboratories can also help to develop formulations specific to your application.



Micron	Grade
0.1	140,000*
0.25	25,000*
1	14,000*
3	8,000*
6	3,000*
8	1,800*
14	1,200*
25	600
45	300
60	230
90	170

**Estimated*

- **Diamond Grading**
  The exceptionally close grading standards developed by Kemet exceed many international standards and guarantee that Kemet Diamond Products are manufactured to the closest tolerances.
- **Quality Control**
  Microscopic and computer analysis of the diamond powder ensures that it is exactly the correct grading and shape to maximise cutting performance.
- **Consistency of Performance**
  Strictly manufactured to ISO 9001:2008 quality assurance standards - our guarantee that the quality will be consistent.
- **User Friendly**
  Manufactured from the highest purity chemicals - safe to use and friendly to the environment.

We use only the best quality virgin diamond powder and the highest purity chemicals in Kemet Diamond Products.

Diamond Compound / Paste

	Micron	Colour	Grade	Type KD		
				5g AppliKator	10g syringe	20g Syringe
Final Polishing	1/10	Grey	C2	111002	111126	111095
	1	Blue	C1	111005	111129	111098
			C2	111006	111130	111099
			C3	111007	111131	111100
	3	Green	C1	111008	111132	111101
			C2	111009	111133	111102
			C3	111010	111134	111103
Lapping & Polishing	6	Yellow	C1	111012	111136	111105
			C2	111013	111137	111106
			C3	111014	111138	111107
	8	Red	C1	111015	111139	111108
			C2	111016	111140	111109
			C3	111017	111141	111110
	14	Brown	C1	111019	111143	111112
			C2	111020	111144	111113
			C3	111021	111145	111114
Rapid Stock Removal	25	Mahogany	C1	111022	111146	111115
			C2	111023	111147	111116
			C3	111024	111148	111117
	45	Purple	C1	111025	111149	111118
			C2	111026	111150	111119
			C3	111027	111151	111120
	60	Orange	C1	111028	111152	111121
			C2	111029	111153	111122
	90	Cream	C1	111030	111154	111123
			C2	111031	111155	111124

Each micron size is available in a range of concentrations:- (C1 lowest concentration; C4 highest concentration).

For hand lapping applications Kemet offer a huge range of Diamond Compounds for rapid stock removal, superfine surface finish, lapping and pre-polishing. Micron sizes ranging from 1/10 to 90, soluble in either oil (Type L), water (Type W) or both (Type KD). High thermal stability of the chemical carrier ensures that Kemet Diamond Compound resists frictional heat, remains stable, and keeps its suspension properties under operating conditions. For our full range, please view our website or tool room catalogue.



Ultrasonic Cleaners and Fluids on pages 29-30



Liquid Diamond

Our range of Kemet Liquid Diamond products are available as oil soluble, water soluble or as emulsions. The chemical composition of the carrier fluids is carefully controlled to ensure that they are compatible both with the Kemet Lapping Plate and the components being lapped.

- Precision graded diamond particles in a fluid.
- Optimum viscosity and chemical composition of each Liquid Diamond Product gives fast stock removal with the ability to produce superfine surface finishes.
- Suitable for dispensing with the Kemet Electronic Dispensing System thus eliminating wastage and reducing lapping costs.
- Specially formulated Liquid Diamond Products enable parts to be easily cleaned.

TYPE K (Oil / water emulsion)* VOC

An excellent, low viscosity oil/water emulsion suitable for all general purpose lapping.

TYPE O (Oil based) VOC*

An excellent, general purpose, low viscosity oil based suspension suitable for heavy parts and high volumes.

Micron		TYPE K						TYPE O					
		400g			2000g			400g			2000g		
		Standard	Strong	Extra Strong	Standard	Strong	Extra Strong	Standard	Strong	Extra Strong	Standard	Strong	Extra Strong
A	1	211004	211024	-	211084	211105	-	216004	216024	-	216085	216104	-
	2	211005	211025	-	-	-	-	216005	216025	216045	216081	216105	216136
	3	211006	211026	211046	211086	211106	211126	216006	216026	216046	216086	216106	216137
	4.5	211007	211027	211047	211087	211107	211127	216007	216027	216047	216087	216108	216138
B	6	211008	211028	211054	211088	211108	211128	216008	216028	216048	216088	216107	216139
	8	211009	211029	-	211089	211109	211129	216009	216029	216049	216089	216109	216140
	10	211010	211030	211050	211132	211110	211130	216016	216030	216050	216095	216110	216141
	14	211011	211031	211051	211091	211111	211131	216011	216031	216051	216092	216111	216142
C	25	211012	211032	211052	211092	211112	211133	216012	216032	216052	216090	216112	216143
	45	211013	211033	211053	-	-	-	216013	216033	216053	216094	216113	216144

A = *Final Polishing* **B** = *Lapping & Pre-polishing* **C** = *Rapid Stock Removal*

DiaCarb - For Polishing Carbon and Carbide Seals

Dia-Carb offers just the right amount of "wetting" of the cast iron plate, enabling the required "polish" to be achieved on Carbon, Tungsten Carbide and Silicon Carbide seal faces in much shorter process times - perfectly polished mechanical seal faces every time. If you need advice on polishing carbon or carbide mechanical seal faces, or if you would like your current process assessed completely free of charge with no obligation, contact Kemet International.

DiaCarb Product Code	
400g	2000g
219200	219201

* ZERO Volatile Organic Compounds (VOC) - not classified as an atmospheric pollutant and offer health and safety benefits. VOCs are organic chemicals that have a high vapour pressure at ordinary room temperature, some of which can be dangerous to human health and/or cause harm to the environment.

FastCut (Water based) Liquid Diamond

FastCut offers a water based solution that, in tests, exceed the performance of oil based products by as much as 25%.

- The latest generation of water soluble liquid diamond
- Excellent stock removal
- Easy to clean
- Non-foaming
- Zero VOCs (volatile organic compounds)
- Available from 1 Micron to 25 Micron in 400g or 2000g
- Lubricating Fluid Type W9 recommened with FastCut Liquid Diamond (Product code: 301527)

Micron	Product Code	
	400g	2000g
1	219416	219417
3	219418	219419
6	219420	219421
8	219422	219423
14	219424	219425
25	219426	219427

Lubricating Fluids

- Assists Kemet Diamond Products to cut and polish more effectively by absorbing frictional heat and diluting the lapping residue.
- Lubricant performance remains stable even when under high pressure.
- Manufactured from high purity chemicals.



Type	Description	Soluble in	Colour	450ml Trigger spray	2.5 Litres	25 Litres
OS	Recommended when polishing tooling, moulds and similar components.	Oil	Blue	301203	301103	301112
GW2	Developed for use with Kemet Diamond Suspension, particularly when used with Kemet Lapping Plates. (GW2 is odourless)	Water	Light green	301514	301108	-
K	Assists smooth running of the lapping operation and helps to ensure a cleaner process.	Oil	Clear	301178	301124	301125
R OS2	For use where water is not permitted.	Oil	Red	301513	301512	-
BLUE	Improves cutting and polishing performance on cloths or plates. For use with Alcohol based suspension.	Water	Blue	301200	301156	-
W9	Recommended for use with FastCut Liquid Diamond	Water	Clear	-	301527	-

Kemox

Kemox is a conventional lapping abrasive that has been suspension treated so that the abrasive particles do not settle out into a hard sediment in the bottom of the abrasive tank. Kemox is available in water soluble (Kemox-W) or oil soluble (Kemox-O) formulations in 5 or 20 Litres. The abrasive concentration is always correct and eliminates the health and safety risk of adding powder to oil.



Product	Size	Code	Description
Kemox O-960	5 Litre	300101	Oil Based. Finest surface finish on soft components
Kemox O-950	5 Litre	300102	Oil Based. Finer surface finish on soft components
Kemox O-900	5 Litre	300103	
Kemox O-800	5 Litre	300104	Oil Based. General aluminium oxide lapping where a scratch free matt lap is required
Kemox O-800S	5 Litre	300112	
Kemox O-800 (Fine)	5 Litre	300107	
Kemox O-800 FHC	5 Litre	300109	
Kemox O-400	5 Litre	300105	Oil Based. Plate conditioning and matt lapping where good stock removal and a matt lap is required
Kemox O-400S	5 Litre	300111	
Kemox W-950	5 Litre	300152	Water based where oil can't be used. Finer surface finish on soft components
Kemox W-800	5 Litre	300143	Water based
Kemox W-400	5 Litre	300141	
Kemox SF	5 Litre	300199	Mirror polishing of aluminium



Kemlap

Lubrication is necessary for a smooth running condition between the lap plate and conditioning rings and to help evenly disperse the abrasive product on the lap plate.

Lapping vehicle used with any abrasive powder should be properly matched in order to give the best cutting action possible, maintain even dispersion of abrasive throughout the lapping surface, and produce uniform finishes. The proper lapping vehicle in conjunction with the right abrasive will reduce lapping time and reduce the amount of slurry needed to complete the job. A typical mix would be 1kg of abrasive to 5 Litres of lapping oil. Kemlap is available in 2.5, 20 & 200 Litres.



Col-K

A Liquid polish used on Kemet Chem Cloth to produce the ultimate in high quality mirror polishes on polishing machines. A part abrasive, part chemical polishing action makes Col-K well suited to polishing difficult materials such as Stellite and Cobalt Chrome. Also available in non crystallising version called Kemet Col-K (NC).

Unit	Col-K	Col-K (NC)
1 Litre	600262	600261
5 Litres	600212	600199
20 Litres	600204	600202



Lapping Pastes & Powders

Kemet manufacture a wide range of abrasive lapping pastes. Our range of Silicon Carbide and Aluminium Oxide pastes have many applications but are particularly suited to the lapping of mechanical seals and valve seats. The pastes are **water soluble** and safe to use.

Product	Type	Micron	FEPA Grade	Pastes	Powders	
				1kg	5 kg	25kg
Green Silicon Carbide	Fine	3	1200	361547	361537	361616
		5	1000	361552	361535	361536
	Medium	7	800	362616	-	-
		9	600	361514	361563	361631
		17	400	361551	361512	361579
	Coarse	23	360	361548	-	-
		30	320	361558	-	-
		37	280	361538	361532	361629
		75	180	-	361541	361653
Black Silicon Carbide	Medium	9	600	-	361562	361651
		22.8	360	-	361648	361649
	Coarse	37	280	-	361646	361647
		53	230	-	361644	361645
		75	180	361549	-	-
		109	120	361689	-	-
White Aluminium Oxide	Fine	3	1200	361544	-	-
		5	1000	361624	-	-
	Medium	7	800	361545	361676	361615
		9	600	361543	361555	361614
		13	500	361546	-	-
	Coarse	23	360	361542	361554	361561

Kemet Polishing Pads

Flat polished surfaces on many softer materials can only be produced with polishing pads. Available to suit most grinder/polisher and flat lapping machines, Kemet offer the widest range of self-adhesive and metallic backed polishing pads. These are generally split into three types: Chemo-textile, Nap and Synthetic Silk

Name	Type	Description	Use with Recommended Diamond Micron size	ø (mm) Supplied in pk of 10				Colour
				300	380	610	914	
PSU-M	**Chemo-textile** These are manufactured to the highest standards with accurately controlled uniform thickness. Self-adhesive. Non-woven pads manufactured specially for polishing processes.	These medium and hard chemo-textile cloths are for smoothing and polishing operations.	15 micron and finer	341010	341011	-	341035	
PSU-MM (magnetic)				341813	341814	341837	341838	
NLH	**Nap Cloths** For final polishing stages of preparation, Kemet Nap Type Cloths are available with a range of softness and nap length. They give a more gentle polish, and are ideal for softer specimens and components. All cloths are self-adhesive unless marked 'plain'.	A longer, stiffer nap cloth.	6 micron and finer	341206	341248	-	-	
NLH-M (magnetic)				341267				
CHEM-H		For use with a chemical mechanical polishing process with colloidal silica suspension.		341784	341865	341786	341866	
Chem-HM (magnetic)				341853	341854	341856	341855	
MRE		Synthetic flock on a flexible waterproof carrier. A more heavy duty cloth	6 micron and finer	341714	341715	-	341942	
MRE-M (magnetic)				341817	341818	341819	341828	
ASFL	**Synthetic Silk** Durable woven structure, developed for finishing metal specimens and components.	Synthetic silk pad with durable woven structure for mirror finishing of most metals.	6 micron and finer	341111	341112	341113	341140	
ASFL-M (magnetic)				341177	341178	341179	-	
MSFL		Will polish metal flat, and to a mirror finish.	3 micron and finer	341755				

Other sizes available on request.

Type	Description	Square (mm)
		127 x 127
Sphericloth A	For general purpose, single use spherical polishing pads.	341998
Sphericloth B		341966
NLH	For high gloss spherical polishing	341276

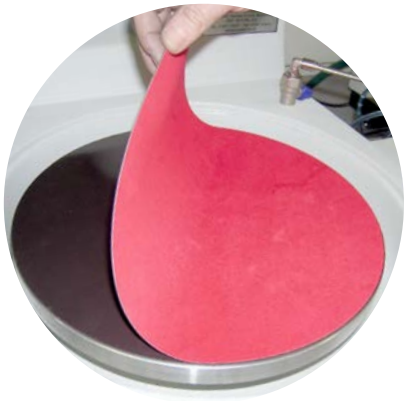
Supplied in packs of 10

Magnetic Polishing Pad Systems

The Kemet magnetic disc system is suitable for Kemet's range of magnetic polishing pads (marked 'magnetic' above), diamond grinding and fine grinding discs, and any magnetic consumable from other suppliers.

- Easy to change and cloths last longer
- No adhesive breakdown problems
- Faster and cleaner cloth changes
- No metal disc involved so safe to use

Magnetic Disc Size	Code
Ø 200 mm	345770
Ø 250 mm	345771
Ø 300 mm	345772



Diamond Lapping Film



Kemet precision coated diamond abrasive lapping film products are specifically engineered to meet all your ultra-fine, consistent polishing and final finishing requirements.

- Wide range of engineered, tightly-graded micron-sized particles. Ensures consistent, long-lasting polishing. Generates scratch free surfaces; achieving Ra values under 1 micro-inch on hard materials, including HVOF depositions. Improves coolant access at point of contact
- Proprietary resin system improves adhesion to substrate
- Uniform 3 mil polyester film backing, ensures film flatness and improved part geometry
- Compatible with most machinery attachments and all coolants, allowing quick film replacement
- Long life and offers high yields, reduced rework, and uses fewer steps for lowest total abrasive costs

Microns	Roll Width	Roll Length	Disc Diameter	Sheet Size
1, 3, 9	>/= 12"	50' - 150'	>/= 12"	>/= 12" x 12"
9, 15, 30, 45, 60, 76, 100	>/= 12"	50' - 150'	>/= 12"	>/= 12" x 12"
1, 3, 6	>/= 12"	50' - 150'	>/= 12"	>/= 12" x 12"

Standard roll </= widths 50, 100 and 200 mm. Other </= widths are available on request.



Micron	230 x 280 mm	Ø 300 mm
0.5	362901	362997
1	362549	362998
3	362550	363004
6	362902	363002
9	362903	363001
15	362040	363000
30	362904	362999

Kemet Diamond Lapping Film, Plain Backed

Aluminium Oxide Lapping Film



Tightly graded aluminium oxide coated onto a 0.3mm thickness polyester film backing. Available with or without PSA (pressure sensitive adhesive).

- Excellent surface finish
- Reduces overall process time
- Produces high yields
- Non-slurry processing

Micron	Colour	Code
0.3	White	361706
1	Green	361707
3	Pink	361708
5	Brown	362420
6	Blue	361709
12	Yellow	361710
30	Green	361711
40	Blue	361712
60	White	361713

216 x 280 mm sheet plain backed Aluminium Oxide Lapping Film - Supplied in packs of 50

Workholding and Holders

Workholding is one of the most important factors when carrying out a lapping operation. The flatness of a part can be adversely affected by incorrect workholding.

Non skid pads for all machines can be supplied, together with blank workholding discs. This is placed directly on top of the parts which have been positioned inside the conditioning ring.

Lapping Machine	Diameter	Thickness	Code
Kemet 15	138mm	3mm	360206
Kemet 15	138mm	6mm	360678
Kemet 20	189mm	3mm	362460
Kemet 24 (3 ring)	246mm	3mm	360269
Kemet 24 (3 ring)	246mm	6mm	360232
Kemet 36 (3 ring)	366mm	3mm	360280
Kemet 36 (3 ring)	366mm	6mm	360285
Kemet 48 (3 ring)	503mm	6mm	360248
Kemet 56 (3 ring)	576mm	6mm	362498



Kemet Facing kit

The Kemet facing kit consists of a non-skid rubber pad. This pad can be fixed to the bottom surface of the hand weight. The hand weight with the pad is then placed directly on top of the parts which have been positioned inside the conditioning ring. Lapping can occur and the parts will not skid out of position.

Lapping Machine	Code
Kemet 15	361503
Kemet 24	361504
Kemet 36	361509



Non-slip Film (material)

The Non-slip material has a protective film on both sides, which will keep the material clean until ready to use.
Dimensions: 406 mm x 9 m

Product	Code
Dycem	361505



Foam Tape

Double sided self-adhesive foam tape.
Dimensions: 3 mm thick, 50 mm wide and 25 m long.

Product	Code
Foam Tape	361506



Polishing Stand with Paper

Recommended for polishing workpieces to produce reflection needed for viewing under monochromatic light sources.
The heavy-duty polishing table is provided with a tensioning mechanism for smooth pulling of the polishing paper.
Table dimensions 350 x 280 mm.

Hand Polishing Paper (Grit 2000)	Code
10 m x 305 mm	362183
50 m x 305 mm	362162

Product	Code
Polishing Stand	361560



Lapping Accessories



Lapping Machine Maintenance Kit

This Kit is used for the general maintenance of the Kemet 36 (and larger) Diamond Lapping machines.

The Kit comprises of:

1 Grease gun (compatible with the grease cartridge)
1 Oil gun with end fitting compatible with the male fitting found on the Lapping machine.
1 Litre of gearbox oil
1 EP2 grease cartridge

Product	Code
Lapping Machine Maintenance Kit	362220



Flatness Gauges

The Kemet 9” Flatness Gauge is used to monitor a lapping plate’s flatness and to give an indication of the flatness the plate will produce on a given part size. The gauge comes with a calibrated single-sided master setting block and is supplied with instructions.

- Span of Gauge: 9.29” (236mm)
- 1 Micron Accuracy
- Recalibration service available
- Suitable for lapping plates 15” to 36” diameter

Product	Code
9” Flatness Gauge	361304



Colour Coded Flatness Gauge

Colour Coded Flatness Gauge Kit (Available for 24” & 36” Lapping Plates) for easier use of the Flatness Gauge.

Product	Code
Colour Coded Flatness Gauge Kit *(Different kits available depending on machine & setup)*	Contact Kemet



aKu-Disp Peristaltic Dispenser

The Kemet aKu-Disp is designed to work in conjunction with Kemet Lapping Machines. The aKu-Disp operates whilst the machine is running to provide accurate metered dosing of abrasive slurry to the lapping/polishing application.The unit’s stirrer function begins to operate as soon as power is switched on and variable speed controls for both the pump and stirrer can be adjusted.

Features

- Variable speed stirrer and pump controls
- Constant movement of fluid in tubes when on standby to avoid hardening of abrasive
- Can operate as a stand-alone unit
- Auxiliary contact relay for timer integrated control
- Priming function to charge pipe and spray head prior to use
- Voltage: 230V-1phase-50Hz
- Variety of integration kits available

Product	Code
aKu-Disp unit	362820

Electronic Dispenser System







The Kemet Electronic Dispenser distributes Liquid Diamond and Lubricating Fluid by means of touch sensitive settings. The digital display shows dispensing intervals, durations and air pressure at a glance. The dispenser achieves great accuracy, eliminating wastage and simplifying cost control.

The Kemet Liquid Diamond Stirrer Unit maintains a consistent distribution of diamond particles within the slurry by using a small non-contaminant plastic coated paddle magnet, which ensures even diamond suspension. The Kemet Dual Dispensing Bar can be positioned to dispense Liquid Diamond and Lubricating Fluid accurately on to the plate without spray bounce.

- Supplied as standard with Kemet Flat Lapping and Polishing Machines and Plates
- Easily fitted to existing conventional Flat Lapping Machines to improve productivity
- Fully controlled metering of Liquid Diamond and Lubricating Fluid using independent pressure and time settings
- Electrical system complies with EN 60 204.
- Can also be used as a standalone unit for bespoke applications that require controlled dispensing
- Dispenser Service Kit available to keep the unit in optimal use - Product Code: 362530

Electronic Dispenser

Height	Width	Depth (exc. air filter)	Nett Weight	Code
150 mm	230 mm	150 mm	3.74kg	360499



Dispenses Kemet Liquid Diamond and Lubricating Fluid automatically at pre-set intervals in conjunction with a lapping and polishing machine cycle timer.

Air requirements: 1 Bar min - 5 Bar max. **Air pressure:** Dual circuit. **Air pressure display:** Bar or psi
Adjustable duration of spray: 1-9 seconds. **Adjustable intervals of spray:** 1-999 seconds
Spray memory: Standard. **Manual override:** Standard
Electrical supply: 110V or 220V - 240V / 50Hz or 60Hz (self adjusting for supply voltage & frequency)



Liquid Diamond Stirrer Unit

Height	Width	Depth	Power		Code
120 mm	90 mm	215 mm	50Hz or 60Hz	230V	360534
				110V	360536

Quiet electric unit has fully variable speed control and is provided with a magnetic stirrer paddle also holds the bottle for the lubricating fluid.



Single Spray Head

Length	Code
250 mm	360514
380 mm	360512

Supplied with bottle, cap and plastic tubing.



Dual Dispensing Bar & Bottles

Type	Length	Reach	Adjustable Height	Section of head	Bottle capacity	Code
Standard	340 mm	260 mm	100 mm	20 x 20 mm	400ml	360511
Long	495 mm	415 mm	100 mm	20 x 20 mm	400ml	360510

Supplied complete with two bottles and plastic tubing. Fully adjustable head for vertical and radial positioning.



Monochromatic Light Source

Produces clear flatness readings when used with Kemet Optical Flats. The compact designed light is easily transportable and uses a sodium long-life light source. Supplied with a flatness reading interpretation chart.

- Detachable power lead with on / off switch at the side
- Supplied with compliance certificate and instructions
- CE marked

Description	Code
Monochromatic Light - 230v	361201
Monochromatic Light - 110v	361211
18 W Sodium lamp	361204

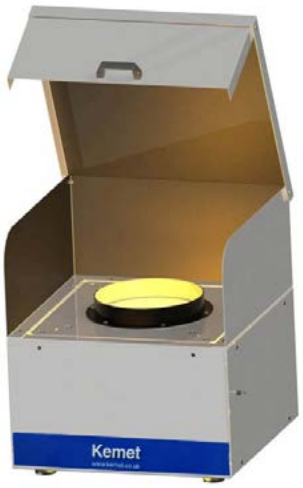


Optical Flats

Produced from Quartz, Kemet Optical Flats are available in single and double sided, 1/4 and 1/10* light band accuracy, in sizes from 25mm up to 400mm diameter**. They are supplied with Certificate of Conformity with full traceability to international standards. Special optical flats are available on request. Kemet offers an optical flat reconditioning and calibration service.

Size	Single Sided		Double Sided	
	1/4	1/10	1/4	1/10
25mm	361220	361221	361237	361238
50mm	361222	361223	361215	361239
75mm	361224	361225	361705	361240
100mm	361226	361227	361210	361241
125mm	361228	361229	361242	361214
150mm	361123	361231	361216	361243
200mm	361232	361233	361219	361244
250mm	361234	361235	361217	361245
300mm	361218	361236	361246	361247

** Higher accuracy available on request.*
*** Larger sizes made to order with configurations such as squares, rectangles and donut shapes and custom thickness are available.*



Optical Flat Stands

Large optical flats (250mm diameter and above) are heavy. If they are placed directly onto a thin component such as mechanical seals, they can cause distortion of the component and incorrect light band readings. Kemet Optical Flat Stands allow the part to be placed onto the optical flat surface meaning there is no distortion. They also allow a single large optical flat to be used on a wide range of part sizes.

Optical Flat Cleaning and Care Kit



This Kit is used for cleaning Kemet Optical Flats. Taking special care of these will ensure accuracy and long service.

The Kit comprises of:

1 Soft Optical Lens Brush
1 Kemet Lens Klean Fluid 250ml
1 pack of Kemet Sphericloths (Containing 25)
1 pack of Kemet Moist Lens Wipes (Containing 20)
1 pack of Kemet Dry Lens Wipes (Containing 20)
Full Instructions included.

Product	Code
Optical Flat Cleaning and Care Kit	362555

Kemet Portable Hand 3 Lap Kit

Suited for flat lapping and polishing by hand. It contains three lapping plates, each with its own grade of Kemet Diamond Compound. This makes it possible to process many components in three stages, from lapping through to polishing. Each lapping plate is backed with anti-slip matting and aluminium backing plate.



Description & Contents	Code
Kemet Iron Lap Plate (for lapping), Kemet XP Lap Plate (for smoothing), Kemet Tin Lap Plate (for polishing) all150mm diameter on an aluminium backing plate. 1 x 10g Kemet Diamond Compound Applikation Stick - 25 Micron. 1 x 10g Kemet Diamond Compound Applikation Stick - 8 Micron. 1 x 10g Kemet Diamond Compound Applikation Stick - 3 Micron. 1 x Kemet OS Lubricating Fluid. 1 x Aluminium case with Operating Instructions.	352206

Kemet Carbon Seal Lapping Kit

Kemet have developed a portable kit for dry lapping of carbon mechanical seals. The kit consists of a lapped aluminium substrate and 5 superfine abrasive discs. The specially designed discs allow carbon seals to be lapped without the need for any added loose abrasive. This alleviates loose abrasive impregnation into the carbon face.



Description & Contents	Code
300mm diameter Kemet lapping plate. Kemet portable case for ease of transport. Special polishing discs (Pack 5). Consumables to extend the life of the lapping discs	352565

Kemet Hand Lap Kits

Components lapped and/or polished by hand in minutes rather than hours. Ideal for components manufactured from ceramics, tungsten carbide, ni-resist etc. Kemet portable hand lapping kits are also ideally suitable for low volume production, when optimum surface finish is required, and where it is not economical to purchase a lapping or polishing machine.



Type	Plate (348mm dia)	Contents	Applikation Stick	Code
Type L Kit (Lapping)	Kemet Iron	1 x 10g Kemet Diamond Compound Applikation Stick. 1 x Kemet OS Lubricating Fluid. 1 x Aluminium case with Operating Instructions.	25 Micron	352216
Type P Kit (Polishing)	Kemet XP		3 micron	352208
Type SP Kit (Super Polishing)	Kemet XL		3 micron	352370

Pressure Relief Valve Lapping Kit

Incorrect lapping and or the use of improper equipment is a major contributor to seat leakage, which in turn leads to high emission rates and costs in loss of process. Kemet have produced a lapping kit that can be used on Tyco, Crosby, and Anderson Greenwood pressure relief valves.



Description & Contents	Code
15 Lapping / Polishing blocks, double sided (D through T2 orifice sizes). 1 x Applikator of 3 Micron Kemet Diamond Compound. 1 x Applikator of 14 Micron Kemet Diamond Compound. Bramet Silicon Carbide self adhesive papers. Grades 60, 120, 180, 320 Grit. Housed in strong plastic case (Weight approx 11.5 Kg).	352900



Ultrasonic Cleaning & Fluids

Although they are useful processes, lapping and polishing will always leave contaminants (abrasives, liquids, particles of the component material) on the parts when the process has finished.

Experience tells us that aqueous ultrasonic cleaning is the best solution for removing contamination from lapped and polished parts because the ultrasonic action is “searching” enough for complex parts, whilst at the same time gentle enough to not damage the flat lapped/polished surface. Even mirror polished surfaces can be cleaned in this way without degrading the polished finish.

Kemet have a full range of the most advanced ultrasonic cleaning equipment with new technology that assures maximum cleaning results whatever the condition within the tank. Ideal for multiple part cleaning, or validated part cleaning along with spray cleaning solutions for single part inspection.



Kemet also have a programme of over 400 aqueous cleaning detergents (see page 26). No solvents are used, making the process kinder to the environment and to personnel. Rinsing, dewatering and hot air drying units can be supplied to complete and complement the cleaning process.

For high volume production we can supply multi stage washing rinsing and drying systems, with or without handling systems, and fully enclosed, if required.



Dasty Industrial Degreaser

For hand cleaning, this product is extremely effective for thoroughly degreasing all mechanical parts as well as large surfaces and perfect for cleaning off 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.

- **Dasty can be used in diluted form in ultrasonic cleaning machines - contact Kemet for more information.**

Size	Code
1 Litre	362936
Box of 12	362962

Kemet Cleaning Chemicals

Kemet offer the finest in biodegradable cleaning fluids. These are specialist formulated concentrated detergents available in neutral, alkaline and acid types. The detergents work in two ways:

- Reduces surface tension and intensifies ultrasonic cavitation
- Dissolves and binds the dirt which has been loosened by the ultrasonics.

Product	Sizes	Description
TURBO CLEAN (Spray Wash)	2.5 Ltr 20 Ltr	This is Aluminium and steel cleaner with double the cleaning power. Requires less than half normal volume to provide even quicker, more efficient & effective cleaning. Low foaming and suitable in spray wash/turbo wash machines.
KEMGOLD	2.5 Ltr 20 Ltr	KEMGOLD is fast, safe and biodegradable. It is extremely versatile and as well as traditional parts washers found in automotive workshops. It is particularly effective at removing oil, grease, carbon and dirt, without damage to softer metals, seals, plastic and rubber components plus Safe on soft alloys and precious metals. Ideal for hand washing or spray machines and ultrasonic cleaning applications.
Ultra Sonic 2 Pak Cleaner	20 Ltr	Two part paint & carbon remover for use on aluminium, reactive & ferrous metals in heated agitator cleaning tanks such as KEMET Ultrasonic cleaner machines. Inhibited, extra strength.
ROBOT 90 premix liquid	2.5 Ltr 20 Ltr	This is designed for the removal of rust, oil, paint, grease and carbon in a hot tank solution. Recommended for ultrasonic cleaning applications. Not suitable for non-ferrous materials.
ROBOT 90 powder	20 Ltr	This is designed for the removal of rust, oil, paint, grease and carbon in a hot tank solution and recommended for ultrasonic cleaning applications. Not suitable for non-ferrous materials.
KEMET BLUE	2.5 Ltr 20 Ltr	Kemet Blue is a concentrated solution for the effective cleaning of alloys. Good for Auto and light engine carbies (makes them look new again). Recommended for ultrasonic cleaning applications.
KEMGREEN	2.5 Ltr 20 Ltr	Non-caustic high concentrate cleaner/degreaser ideal in removing grease, oil, grime from car engine parts, and many other places where grease might gather. This powerful detergent to be used at recommended concentration for hand washing or spray machines.
KEMULTRA	20 Ltr	KemUltra is a versatile product suitable for a wide range of operations in production engineering. Industrial process cleaning in a wide range of modern equipment including spray, Dip, flood wash and Ultrasonic cleaning. Capable of removing difficult soiled oils, greases, carbon and other metalworking contaminations.
KEMRINSE	2.5 Ltr 20 Ltr	KemRinse is a phenol and nitrite free soluble oil. It forms a transparent emulsion. KemRinse is designed to cover the widest range of metalworking operations. Suitable for metal cutting and grinding of ferrous and non-ferrous materials, including copper and its alloys, aluminium and its alloys including high silicon grades, stainless steel and ceramic materials.

Manual Cleaning Solutions

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
2.5 Litres	Metal	302108
25 Litres	Metal	302101
200 Litres	Metal	302105



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

Kemet Technical Centre



Lapping and Polishing Services

If your components require optimum flatness to perform to specification, if they are difficult to lap, or you have a particularly tight deadline to meet, Kemet's Sub Contract Service is the answer. We're renowned for our service, reliability and quality, and we specialise in fast turnaround times.

Our machines are equipped with both standard and special lapping plates to enable us to process most types of components. We are able to lap and/or polish components up to 530mm diameter (approx 21").

All work is returned with a Certificate of Conformity covering the generated surface finish and flatness, relative to the customer's drawing or specification.

Process Development

We regularly assist customers by developing new products and processes, utilising the very latest in precision flat lapping technology. Customers' samples are evaluated, free-of-charge. Comprehensive reports are issued covering all aspects of the process, including details of abrasive, lapping plate, workholding, inspection, cleaning and the likely consumable costs involved. Here are some of the materials we are able to process:

Acrylic	Carbon	Ferrite	Nimonic Steel	Stainless steel
Alloys	Carbon Fibre	Fibre Optic	Nickel	Steel
Alumina	Cast iron	Film Guide	Piston Rings	Steel (Hard)
Aluminium	Ceramic	Gallium Arsenide	Plastic	Titanium
Aluminium Nitride	Chrome Plate	Germanium	Polyethermide	Tool Steel
Anodised Aluminium	Cobalt Chrome	Glass	Quartz	Toughened Steel
Beryllium Copper	Compact Disc	Gold	Sapphire	Tungsten carbide
Bone	Concrete Cement	Graphite	Silicon	Tungsten Copper
Boron Carbide	Copper	Inconel (Cobalt/Nickel)	Silicon Aluminium Alloy	Vulcanised Fibre
Brass	Diamond Tools	Keronite (ceramic)	Silicon Carbide	Zinc Selenide
Bronze	Epoxy Resin	Molybdenum	Sintered Materials	Zirconate (Lead) Titanate

If a material does not appear in the list, please contact Kemet on **+44 (0)1622 755287**. All processed samples are returned with detailed technical process reports including detailed surface finishing measurements, free of charge.

Free Lapping Trials

Before **After**

Medical Device Lapped & Polished



Before **After**

Steel Lapped & Polished



Kemet After Sales Service and Support

Our expertise is available to you through our in-house technical specialists, a team of Technical Representatives and an extensive network of overseas Subsidiary Companies and Distributors.

Kemet provide continuous technical support for both prospective and current customers to ensure that any problems are correctly and quickly resolved.


Kemet Australia

Training

Tailor-made training courses are delivered regularly in our Technical Centre or at a customers' premises. On completion of a course, participants are awarded a certificate. Typical subjects are:

- Theory of lapping and polishing
- Setting up and operating machines
- Flatness control and measurement
- Product cleaning and inspection
- Types of abrasive
- Lapping plate types
- Workholding methods
- Surface finish measurement

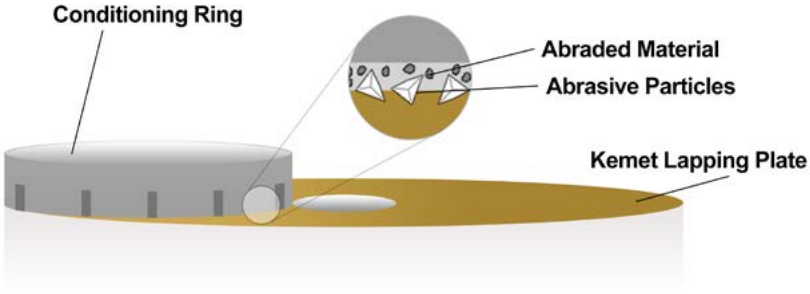
Flat Lapping Q&A

What is Lapping?

Lapping is a surface finishing process that improves surfaces that have previously been ground or fine turned. Lapping can produce many different types of finish, from a dull grey matt lap to a mirror polish. Depending on the material being lapped, and the method of lapping.

Why do we need to Lap?

- To produce a fine surface finish
- To produce sealing surfaces
- To produce sharp cutting edges
- To produce flat stress free surfaces
- To produce a datum face
- To improve the wear resistant properties of surfaces



What is Polishing?

Polishing is often carried out after a lapping operation, to produce the ultimate in surface finish. Some of the common reasons for polishing are:

- To produce mirror surfaces
- To improve appearances
- To obtain the optimum sealing surfaces
- To optically measure flatness
- To improve electrical contact
- To improve the optical qualities of materials

What is Diamond Lapping?

Diamond lapping is a material removal method using fixed diamond abrasive particles which produce chips off the component material. The process of making chips with a sharp abrasive grain produces the lowest amount of deformation in the component while giving the highest removal rate.

Diamond abrasive is pushed into the lapping plate surface, by a chamfer on the leading edge of the conditioning rings.

What is Conventional Lapping?

In conventional lapping, the abrasive (aluminium oxide or silicon carbide) is applied in a carrying vehicle (Lapping Oil) onto a hard surface such as cast iron. The particles cannot be pressed into the surface and be secured there, so they roll and move freely in all directions. They hammer small particles out of the sample surface, introducing deep deformations. This takes place because the free moving abrasive particle is not able to produce a real "chip" of the component surface. Conventional lapping produces only grey matt finishes.

What is Diamond Polishing?

Diamond Polishing uses the same mechanism as Diamond lapping. However by using successively small grain sizes of 8, 6 and 3 micron diamond, with softer Kemet plates and polishing pads with higher resilience, polishing can remove the deformations and scratches from lapping.

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