LAM PLAN®

POLISHING TECHNOLOGY®

Metallography 2016

Super finish polishing Metallography

LAM PLAN METALLOGRAPHY a complete solution for total effectiveness

Materials and quality standards are constantly changing. LAM PLAN can become your ideal partner, providing technical solutions and fully bespoke methods, enabling you to guarantee flawless, fully reproducible results.

Methods and consulting

The LAM PLAN testing laboratory guarantees a solution adapted to your surface preparation needs. This is based on a range of innovative products and our years of experience across a wide range of superfinishing applications. LAM PLAN will help you achieve all of your objectives in the best, most effective possible way.

Products and supports

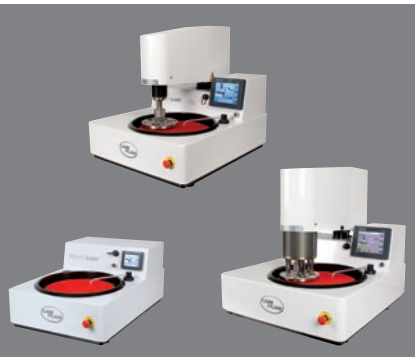
From the raw materials to the final production phase, for all of your metallographic sample preparations, LAM PLAN is here to provide consumables and products adapted to each step of the process: cutting, embedding, pre-polishing and superfinishing.

Our range of machines

Whether you achieve research or quality control metallographic samples, LAM PLAN can offer a full range of machines for the job. Each model meets specific and complementary requirements that we've been able to develop thanks to our years of experience and expertise in the field.

Technical assistance and maintenance

By fitting your metallography department with LAM PLAN equipment, you'll also benefit from the expertise of our technicians. We guarantee full oversight; essential to the smooth working order of your laboratory.

CUTTING	EMBEDDING	POLISHING
		
CUTLAM® micro CUTLAM®	PRESSLAM®	SMARTLAM® MASTERLAM®

Cutting

CUT-OFF MACHINES

CUTLAM® micro 1.1

Laboratory economic micro cutting machine

The CUTLAM® micro 1.1 is the new LAM PLAN laboratory micro-cutting machine. It is a simple and economical machine. It is designed for precision cuts on the most sensitive materials.

The CUTLAM® micro 1.1 allows you to include a versatile and robust machine in your laboratory within a reasonable budget. Its speed range and cutting chamber capacity will enable you to use it in many applications with a variety of cutting wheels (diamond, Al2O3, etc.) up to 150 mm diameter.

The work piece is held by a vice-holding arm. The knob, located outside the cutting chamber, allows a **micrometric movement of the Z-axis.**

A whole sample holder range is available, for clamping pieces and materials of any kind.

The cutting feed is controlled with the sliding weight system, allowing you to fine tune the load applied to the piece. This system is particularly suitable for delicate and slow cuts.

Technical data

Wheel Ø	75 to 150 mm
Shaft Ø	12,7 mm
Standard flanges Ø	50 mm
Lateral arm displacement	Stroke 25 mm (accuracy 0,02 mm)
Preload weight	1 x 200 g
Vertical mouvement	Manual
Cooling	Recirculation system, 10 liters, 800 liters/min pump driven by the machine
Motor power	0,18 kW
Rotational speed	Variable, from 50 to 1500 rpm
Protection	Transparent hood with opening security sensor
Voltage	230 Volts - 50 Hz single phase
Dim. L x H x D	390 x 390 x 340 mm - H canopy open: 630 mm
Weight	25 kg
Reference	60 CTM10 00

Equipment

Recirculation coolant system, 10 liters	60 CTM10 10
Cylindrical sample holder with clamping screw: Ø 12 to 50 mm max	60 CTM03 10

Equipped with an **independent filter / decanting / recirculation tank,** you can easily make slow cuts in optimum conditions of cooling.

Based on a robust aluminium frame clad in a painted metal body, the CUTLAM® micro 1.1 is stable and vibration free. The hinged transparent hood avoids any spraying outside the machine and allows easy access for clamping vices on the arm. The hood is fitted with a safety device which stop immediatly the cutting wheel motor in case of opening.

Available accessories

Set of flanges Ø 35 mm for Ø 75 to 100 mm cut-off wheels	60 CTM01 10
Set of flanges Ø 50 mm for Ø 125 to 150 mm cut-off wheels	60 CTM01 20
Cylindrical sample holder clamping by screw: Ø 12 to 50 mm max	60 CTM03 10
V sample holder clamping by screw: Ø 30 mm max	60 CTM03 20
Vice sample holder clamping by screw: Ø 12 mm max	60 CTM03 30
Vice sample holder double V clamping by screw: Ø 12 mm max	60 CTM03 40
Sample holder with multi screw clamping: for irregular parts	60 CTM03 50

CUTLAM® micro 2.0

The CUTLAM® micro 2.0 is a compact laboratory micro-cutting machine intended for precision cuts on the most sensitive materials. The speed range and the cutting chamber capacity make this machine incredibly versatile. You can use it for a wide range of applications with a great variety of cut-off wheels (diamond, Al2O3…) up to a diameter of 200 mm.

The sample is held in position using a vice-tightened holding arm and the wheel located outside the cutting chamber enables a micrometric movement along the Z axis, **you can track the movement visually on the screen** (accurate to 0,02 mm). Thanks to the zeroing system, very accurate parallel cuts can be performed.

A wide range of vices is available, enabling you to clamp any type of component or material.

The cutting progress is either controlled manually or with a counterweight system specially adapted to delicate cuts. A rocker arm compensates for the on part weight, and another enables you to adjust the applied load with precision.

Technical data

Wheel Ø	75 to 200 mm
Shaft Ø	12,7 mm
Standard flanges Ø	50 mm
Lateral arm displacement	Stroke 80 mm (accuracy 0,02 mm)
Preload weight	2 x 200 g
Vertical mouvement	Manual
Cooling	Recirculation system, 10 liters, Decantation tank, 2 chambers, Input 100 µm filter, 800 liters/h pump driven by the machine
Motor power	0,6 kW
Rotational speed	Variable, from 200 to 4000 rpm (Slow speed in option 50 to 1000 rpm)
Protection	Transparent hood with locking system
Voltage	230 Volts - 50 Hz single phase
Dim. L x H x D	430 x 300 x 450 mm - H canopy open: 644 mm
Weight	40 kg
Reference	60 CTM20 00

Equipment

Recirculation coolant system, 10 liters
Cylindrical sample holder with clamping screw: Ø 12 to 50 mm max

Option

Slow speed 50 to 1000 rpm

Laboratory precision micro cutting machine

The 3.5" tactile screen lets you select the different functions using an easy to use, **intuitive interface**.

Fitted with a **large-capacity** (10 liters, large for the machine's size) independent filtration / decanting / **recirculation tank**, it is easy to perform long cuts under ideal cooling conditions. The CUTLAM® Micro 2.0 has been designed to simplify maintenance and cleaning operations: the base of the cutting chamber is lined to prevent the loss of small pieces and components, a 100µm fabric filter at the decanter inlet filters out the largest particles, and the remainder of the filtration is accomplished by decanting into the compartmented tank.

Built upon a robust, mechanically welded chassis sheathed with a painted sheet-steel body, the CUTLAM® Micro 2.0 is particularly stable and is not prone to vibration, saving you valuable laboratory workspace. The hinged transparent hood ensures hygiene and safety thanks to an automatic shut-off if opened during cutting, and also gives you easy access to the component clamps.

Available accessories

Set of flanges Ø 35 mm for Ø 75 to 100 mm cut-off wheels	60 CTM01 10
Set of flanges Ø 50 mm for Ø 125 to 150 mm cut-off wheels	60 CTM01 20
Set of flanges Ø 75 mm for Ø 200 mm cut-off wheels	60 CTM01 30
Multi-screw sample holder for irregular parts	60 CTM03 50
Screw vice sample holder: max Ø 12 mm	60 CTM03 30
Screw V-shape sample holder: max Ø 24 mm	60 CTM03 20
Screw double vices sample holder : max Ø 12 mm	60 CTM03 40
Screw cylindrical sample holder: Ø 12 mm to 50 mm	60 CTM03 10

CUTLAM® micro 3.0

High-precision automatic 2 axis* cutting machine

Designed for laboratories looking for an automatic machine adapted to high-precision, long and difficult cuts.

The CUTLAM® micro 3.0 is a bench-top compact cutting machine offering astonishing capacities. Thanks to its cutting wheel and table multiple motion possibilities and the feed speed control system the most complex work is possible.

*optional 3rd axis (X)

Large-capacity compact cutting machine

Fitted with a large-capacity: 320 x 540 mm cutting chamber, it is equipped with a grooved aluminum table, sized 210 x 210 mm, and stainless steel interchangeable pallets.

The large capacity of the CUTLAM® micro 3.0 relies on the use of a 230 mm cut-off wheel, combined with a vertical movement range of 100 mm (Z axis) and a longitudinal movement range of 270 mm (Y axis).

Precision

The positioning of the axes, which can be seen on screen, is 0,01mm accurate. Feed speed while cutting can be set from 0,1 to 20 mm/sec.

User-friendly interface to always be in control

The large touch-screen allows you to select the different functions using an easy to use, intuitive interface.

All the positioning and cutting parameters are continuously visible on screen. The use of a joystick allows a fast positioning of the cut-off wheel; while in automatic and semi-automatic modes, an estimation of the remaining cutting time appears.

Three cutting modes are available: manual, semi-automatic and automatic.

300 programs can be stored in the built-in memory, including: start position, feed speed, rotational speed, cutting mode.

Efficiency: 5 key points for higher productivity:

- A powerful motor of 1,1kW.
- A sequential cutting mode for a maximum cooling.
- Ingenious feed speed control:

  The feed speed is preset, and will be automatically reduced if the load on the cutting wheel increases. The preset speed returns when the load on the wheel decreases.

  It improves the quality of the cut by limiting the heat damages on the samples.

  Suitable for irregular samples and/or materials with heterogeneous hardness.

  It prevents the wheel from breaking in case of overload.

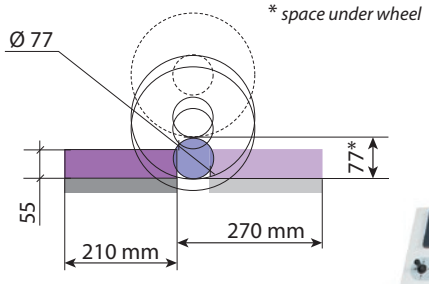
  It allows you to always work at maximum speed without any risk of damage.
- For repetitive parallel cuts, the CUTLAM® micro 3.0 may be equipped with the manual or motorized cross-feed table (X axis) option.
- An independent cooling/recirculation system, composed of a 100µ washable filter, and a 30L decanting tank with multi-point nozzle, insures excellent cooling of the sample and the cutting wheel even during intensive use.

▸ Technical data

Wheel Ø	75 to 230 mm
Shaft Ø	12,7 mm
Standard flanges Ø	75 mm
Passage under the wheel	70 mm (with Ø 230 mm wheel)
Max cutting capacity	Ø 77 mm (with Ø 230 mm wheel)
Vertical movement	Z axis 100 mm automatic
Longitudinal movement	Y axis 270 mm automatic
Transversal movement	X axis 55 mm manual or 50 mm motorised (option)
Cooling	Recirculation system, 30 liters decantation tank, 2 chambers, Input 100 µm filter, 800 liters/h pump driven by the machine
Motor power	1,1 kW
Rotational speed	Variable, from 1000 to 4000 rpm.
Cutting modes	Manual, semi-automatic, automatic
Feed speed control	from 0,1 to 20 mm/sec. programmable automatic control of feed / power continuous or sequential
Lightening	LED
Protection	Transparent hood with locking system
Voltage	230 V - 50 Hz single phase
Dimensions L x H x D	620 x 470 x 750 mm (H canopy open 812 mm)
Weight	80 kg
Reference	60 CTM30 00

CUTLAM® micro 3.0 - Ø 230 mm

Theoretical cutting capacity



▸ Available accessories

Set of flanges Ø 35 mm for Ø 75 to 100 mm cut-off wheels	60 CTM01 10
Set of flanges Ø 50 mm for Ø 125 to 150 mm cut-off wheels	60 CTM01 20
Set of flanges Ø 75 mm for Ø 230 mm cut-off wheels	60 CTM01 30
Independent double vice (right and left) screw tightening	60 CT200 40
Right vice with fast tightening, small model	60 CTM32 00
Left vice with fast tightening, small model	60 CTM33 00
Cabinet: 1 drawer, 1 storage in the door + Integration of the recirculation tank	60 M0100 00

▸ Options

Manual cross-feed table (X axis), to cut parallel slices stroke 55 mm, accuracy 0,01 mm	60 CTM31 00
Motorised cross-feed table (X axis), to cut parallel slices stroke 50 mm, accuracy 0,01 mm	60 CTM34 00
Positioning laser	60 CTM35 00

60 CTM31 00

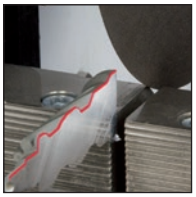
60 CTM34 00

60 CTM01 10/20/30

60 CT200 40

60 CTM32 00

60 CTM33 00



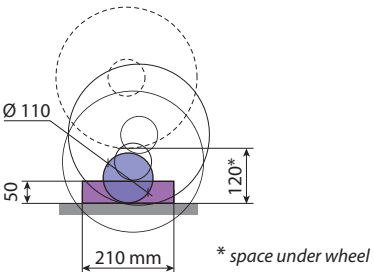
60 CTM35 00

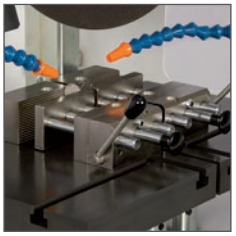
60 M0100 00

CUTLAM® 1.1

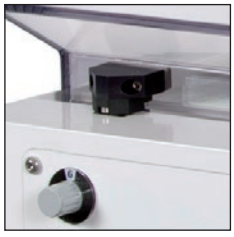
The CUTLAM® 1.1 is a bench-mounted cutting machine for a wide range of applications. Robust and easy to use, with a deported motor design this machine has a very large cutting capacity.

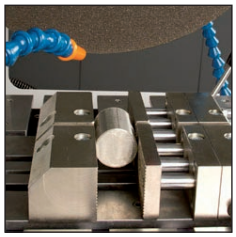
The CUTLAM® 1.1 allows you to equip your laboratory with a simple, versatile and reasonably-priced machine made from high-quality components.





Manual cutting machine vertical-motion





The **fully-opening hood** and deported motor allows an easy access to the **spacious cutting table** made from corrosion-resistant cast-iron. The 4 perpendicular grooves enable you to clamp components of thicknesses up to 120 mm. The CUTLAM® 1.1 can be fitted with **Ø 250 mm-300 mm cut-off wheels.**

Fitted with a speed adjuster and a powerful 3.8 kW motor, the CUTLAM® 1.1 is **perfect for intensive use**.

The high-capacity recirculation system with pre-filter and decanter compartments ensures **optimum lubrication and cooling** by a multi-point spray. The cutting chamber is illuminated by an LED tube.To ensure complete **user safety**, the hood is locked during cutting and the motor employs an electric brake when stop.

An **external shower head** combined with a tilted cutting chamber base makes cleaning easy, and a inlet filter ensures that your samples do not fall down the **large-diameter outlet pipe**.

▸ Technical data

Wheel Ø	250-300 mm
Shaft Ø	25,4 mm
Flanges Ø	80 mm
Max cutting capacity	Ø 110 mm (with Ø 300 mm wheel)
Space under wheel	120 mm (with Ø 300 mm wheel)
Vertical mouvement	Manual
Cooling	Recirculation system, 60 liters, on casters, Integrated cleaning system, with shower head lockated outside the cutting chamber
Motor power	3,8 kW
Rotational speed	Variable, from 1000 to 4000 rpm
Table	Grooved treated cast iron, 400 x 300 mm
Type of groove	T groove 12 mm (2 longitudinals, 2 transversals)
Lightening	LED
Protection	Transparent hood with locking system when operating
Body	Strong steel casing powder coated
Voltage	400 Volts - 50 Hz (3 phases + earth)
Dim. L x H x D	630 x 650 x 820 mm - H canopy open: 820 mm
Weight	125 kg
Reference	60 CT110 00

▸ Accessories

Fast tightening double vice system	60 CT200 20
Screw tightening double vice system	60 CT200 40
Universal clamping vice 61	60 08128220
Cabinet: 1 drawer, 1 storage in the door + Integration of the recirculation tank	60 MO100 00
Cross-feed table (x-axis) to cut parallel slices	60 CT205 20

CUTLAM® 2.0

Manual cutting machine
Dual-movement, vertical and oscillating

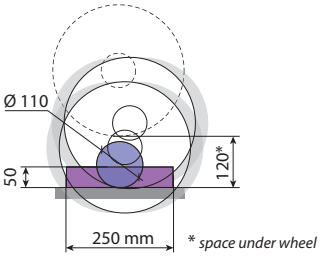
The CUTLAM® 2.0 is a highly versatile machine, especially adapted to laboratory and factory environments.

The **oscillating movement** feature brings significantly **increased performance** on a number of levels:
- It makes work easier due to a lower effort applied to the disc,
- It increases cutting capacity along the length of the component,
- It reduces heating through improved lubrication,
- It improves yield by reducing cutting time (the oscillation may be locked in if necessary),
- The oscillating movement may be motorized as an additional feature.

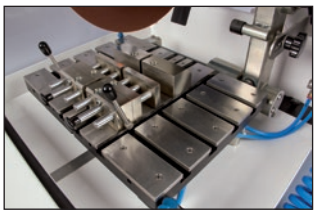
The spacious cutting table is made up of a treated aluminum base and interchangeable stainless steel plates, and is easily accessible thanks to a fully opening hood and deported motor. The 8 perpendicular grooves enable you to install any sort of vice and clamp parts up to 110 mm thick. The cutting capacity of the CUTLAM® 2.0 can be increased even further with an **optional kit for Ø 350 mm cutting wheels.** The openings on the left and right of the hood enable to work on longer parts.

The standard model is fitted with a powerful 3.8 kW motor and variable speed, specially adapted to the machine's cutting capacity. The available speed range enables you to treat all types of material.

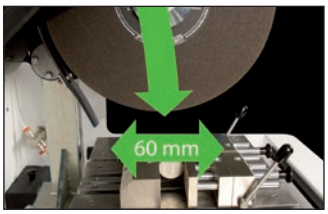
CUTLAM 2.0 - Ø 305 mm oscillation 60 mm



Kit for Ø 350 cutting wheel



Large and accessible stainless steel table 400 x 300 mm



Dual-movement, vertical and oscillating.

The high-capacity recirculation system with pre-filter and decanter compartments ensures optimum lubrication and cooling by a multi-point hose. The cutting chamber is illuminated by an LED tube.

To ensure complete user safety, the hood is locked during cutting and the motor employs an electric brake when not in use.

An external shower head combined with a tilted cutting chamber base makes cleaning easy, and a filter ensures that your samples do not fall down the large-diameter outlet pipe.

▸ Technical data

Wheel Ø	250-300 mm (350 mm in option)
Shaft Ø	25,4 mm
Flanges Ø	80 mm
Max cutting capacity	Ø 110 mm or 45 x 250 mm (with Ø 300 mm wheel) + opening on left and righthand side for long materials
Passage under the wheel	120 mm (with Ø 300 mm wheel)
Vertical movement	Manual
Oscillating movement	Manual (automatic in option), increases cutting capacity, reduces heating
Cooling	Recirculation system, 60 liters, on casters Integrated cleaning system, with shower head fixed outside the cutting chamber
Motor power	3,8 kW
Rotational speed	Variable, from 1000 to 4000 rpm
Table	Grooved stainless steel, 400 x 300 mm
Type of groove	T groove 12 mm (4 longitudinals, 4 transversals)
Lightening	LED
Protection	Transparent hood with locking system
Body	Strong powder coated steel casing
Voltage	400 Volts - 50 Hz (3 phases + earth)
Dimensions L x H x D	630 x 650 x 820 mm - H canopy open: 1000 mm
Weight	135 kg
Reference	60 CT200 00

▸ Available accessories

Fast tightening double vice system	60 CT200 20
Screw tightening double vice system	60 CT200 40
Universal clamping vice 61	60 08128220
Cabinet: 1 drawer, 1 storage in the door + Integration of the recirculation tank	60 MO100 00

▸ Options

Automatic oscillating movement with variable speed, controlled directly on the front of the machine.	60 CT201 00
Kit for Ø 350 cutting wheel	60 CT203 00

CUTLAM® 3.0

The CUTLAM® 3.0 is a highly versatile machine, adapted to both laboratories and production facilities.

This machine is ideal for repetitive tasks such as production control, for example. The oleo pneumatic system enables precise feed and cutting torque adjustments, guaranteeing excellent quality reproducible cuts.

There are three cutting modes available:

- Automatic sequential

The wheel's descent is fully automatic and progresses in sequence for optimal cooling. You can intervene regardless of the feed speed and on the cutting torque. The machine shuts off automatically at the end of the procedure.

- Semi-automatic

The operator controls the descent using a push button, in either assisted or continuous mode according to the pre-set torque.

- Manual

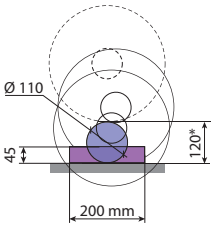
The automatic feed system is off-line, and the operator manually controls the cut using the lever to the right of the machine.

The spacious cutting table consists of a treated aluminum base and interchangeable stainless steel plates, and is easily accessible thanks to a fully opening hood and deported motor. The 8 perpendicular grooves enable you to install any sort of vice and clamp parts up to 110 mm thick. The openings on the left and right of the hood, enable you to work with longer parts.

The standard model is fitted with a powerful 3.8 kW motor with adjustable speed, specially adapted to the machine's cutting capacity. The available speed range enables you to treat all types of material.

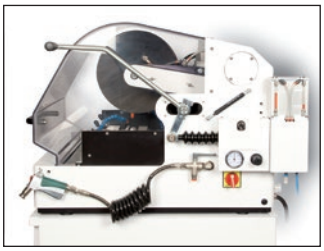
Automatic and manual cutting machine Vertical-motion

CUTLAM 3.0 - Ø 305 mm



** space under wheel*

Coolant recirculation system, 60 liters, 2 compartments, 100 µm filter integrated



The high-capacity recirculation system with pre-filter and decanter compartments ensures optimum lubrication and cooling by a multi-point hose. The cutting chamber is illuminated by an LED tube.

To ensure complete user safety, the hood is locked during cutting and the motor employs an electric brake when not in use.

An external shower head combined with a tilted cutting chamber base makes cleaning easy, and a filter ensures that your samples do not fall down the large-diameter outlet pipe.

▸ Technical data

Wheel Ø	250-300 mm
Shaft Ø	25,4 mm
Flanges Ø	80 mm
Max cutting capacity	Ø 110 mm or 45 x 250 mm (with Ø 300 mm wheel) + opening on left and righthand side for long materials
Passage under the wheel	120 mm (with Ø 300 mm wheel)
Vertical mouvement	Automatic and manual
Cooling	Recirculation system, 60 liters, on casters Integrated cleaning system, with shower head fixed outside the cutting chamber
Motor power	3,8 kW
Rotational speed	Variable, from 1000 to 4000 rpm
Table	Grooved stainless steel, 400 x 300 mm
Feed speed of the wheel arm	From 5 to 300 mm/min in work
Type of groove	T groove 12 mm (4 longitudinals, 4 transversals)
Lightening	LED
Protection	Transparent hood with locking system
Body	Strong powder coated steel casing
Voltage	400 Volts - 50 Hz (3 phases + earth)
Dimensions L x H x D	630 x 650 x 820 mm - H canopy open: 1000 mm
Weight	145 kg
Reference	60 CT30A 00

▸ Available accessories

Fast tightening double vice system	60 CT200 20
Screw tightening double vice system	60 CT200 40
Universal clamping vice 61	60 08128220
Cabinet: 1 drawer, 1 storage in the door + Integration of the recirculation tank	60 MO100 00

CUTLAM® 4.0

High-capacity automatic cutting machine

The CUTLAM® 4.0 is designed especially for manufacturing companies with high standards who are looking for high-quality and reliable equipment for heavy-duty use with great cutting capacity.

The CUTLAM® 4.0 is a pedestal-mounted single-block machine with an integrated recirculation / decanter tank. The wheel's vertical descent can be **controlled automatically** (oleo pneumatic) **or manually** using the joystick. The maximum cutting descent is 240 mm.

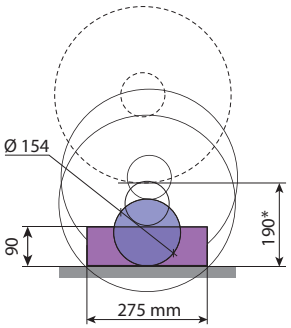
Adapted for intensive use on heavy components, the CUTLAM® 4.0 is fitted with a powerful 5.5 kW motor. The wheel's speed is adjustable from 1000 to 4000 rpm, the feed speed is also adjustable. **2 cutting modes are available:** sequential automatic with adjustable frequency or continuous.

An end of cycle sensor shuts off the machine and automatically raises the wheel after each operation.

The controls are easy to use and intuitive: they are centralized on the 5.7" arm-mounted touch-screen.

The wide cast-iron clamp bench has 6 T-longitudinal grooves and 5 transversal grooves, and as an optional extra may be made mobile along the X and Z axes.

CUTLAM 4.0 - Ø 400 mm



** space under wheel*

The hood opening clears 3 sides, guaranteeing easy loading of heavy or bulky parts. Removable gates to the left and right enable you to cut long bars.

The multi-point hose over the wheel and part ensures optimum cooling for high-quality cuts and consistent results.

In the standard configuration, the work area is illuminated by an adjustable spotlight, and an external shower head is provided for cleaning the cutting area.

In order to optimize your equipment according to your needs, a variety of accessories and optional extras are available.

▸ Technical data

Wheel Ø	300 to 400 mm
Shaft Ø	25,4 mm
Flanges Ø	100 mm
Max cutting capacity	Ø 154 mm or 145 x 160 mm or 90 x 275 mm (with Ø 400 mm wheel) + opening on left and righthand side for long materials
Passage under the wheel	190 mm (with Ø 400 mm wheel)
Vertical movement	Manual
Cooling	Recirculation system, 140 liters, on casters Integrated cleaning system, with shower head lockated outside the cutting chamber
Motor power	5,5 kW
Rotational speed	Variable, from 1000 to 4000 rpm
Feed speed of the wheel arm	From 5 to 200 mm/min in work
Table	Double grooved treated cast iron, 400 x 400 mm
Type of grooves	T groove 12 mm (6 longitudinals, 5 transversals)
Lightening	LED
Protection	Hood with locking system
Body	Strong powder coated steel casing
Pneumatic feeding	6 bars filtered 5 µ compressed air
Electrical power	6 kW cumulative
Electrical consumption	24 Ah
Voltage	400 Volts - 50 Hz (3 phases + earth)
Dimensions L x H x D	818 (+ 300 mm with control panel) x 1802 x 1280 mm
Weight	650 kg
Reference	60 CT40A 00

▸ Available accessories

Independent double vice (right and left) with fast tightening system	60 CT400 20
Universal clamping vice 61	60 08128220

▸ Options

Table with manual longitudinal displacement (Y axis) of 180 mm stroke	60 CT401 00
Table with manual tranversal displacement (X axis) of 120 mm stroke	60 CT402 00
Positioning laser	60 CT403 00

CUTLAM® 5.0

High-capacity 2 axis* programmable and automatic cutting machine

The CUTLAM® 5.0 is a pedestal-mounted machine with an integrated recirculation/decanter tank. It represents the ultimate equipment in terms of high-capacity programmable automatic cutting machines. Power and advanced control of the cutting steps will guarantee first class efficiency and productivity.

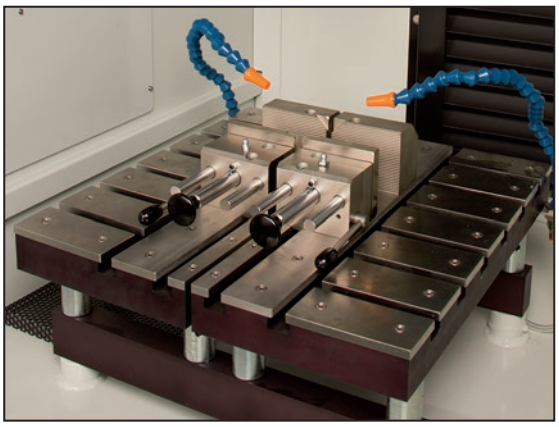
Wheel and table movements

Fitted In standard with a wheel Ø 355 mm, automatic vertical and longitudinal movement. The automatic transverse movement is carried out by an optional cross-feed table.

Controls

Programming is performed via a large touch screen with a graphical interface that ensures you an intuitive use and therefore immediate handling. All positional and cutting parameters are continuously visible on the screen. Fast positioning of the cutting point is provided by the use of a joystick.

*optionnal 3rd axis (X)



A spacious cutting chamber: L 408 x 422 mm, with openings on both right and left sides for the cutting of long samples.

The internal memory allows you to store 300 programs that you can import/export via USB.

Easy programming

Depending on the location of the samples on the table, and on its dimensions, the screen will indicate the various necessary and possible moves in order to complete the cut. This data can then be saved.

All cutting modes are possible

- Automatic or manual cutting.
- Continuous automatic cutting with ingenious feed speed control:

  The feed speed is preset, and will be automatically reduced if the load on the cutting wheel increases. The preset speed returns when the load on the wheel decreases.

  It improves the quality of the cut by limiting the thermal damages over the samples.

  Suitable for irregular samples and/or materials with heterogeneous hardness.

  It prevents the wheel from breaking in case of overload.

  It allows you to always work at maximum speed without any risk of damage.
- Automatic sequential cutting for maximum cooling.
- Plunge cutting, horizontal feed cutting and oscillating cutting.
- Repetitive parallel cutting.

Equipement

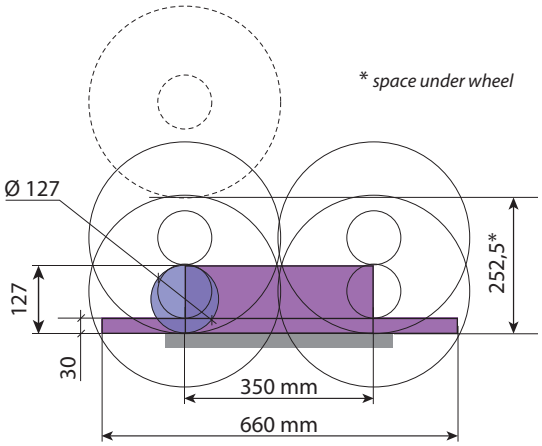
A high-capacity, independent cooling/recirculation system (140 liters) is located under the machine. The multi-point nozzles insure excellent cooling of the sample and the cutting wheel even during intensive use.

Fast cleaning is made possible thanks to an exterior shower head and a carefully designed cutting chamber.

The wide cutting table L 408 x D 433 mm consists of two independent parts. 4 longitudinal grooves and 6 transverse grooves that allow to fix all kinds of clamping systems available as options or on the market.

CUTLAM® 5.0 - Ø 355 mm

Theoretical cutting capacity



The work area is lit by a LED spotlight.

Technical data

Wheel Ø	355 mm (400 mm option)
Shaft Ø	25,4 mm
Standard flanges Ø	100 mm
Max cutting capacity	Ø 127 mm (with Ø 355 mm wheel) + opening on left and right hand side for long materials
Space under the wheel	252,5 mm (with Ø 355 mm wheel)
Vertical movement	Z axis stroke 350 mm, speed from 0,1 to 25 mm/sec, speed advance 50 mm/sec
Longitudinal movement	Y axis stroke 350 mm, speed from 0,1 to 25 mm/sec, fast advance 50 mm/sec
Transversal movement	X axis stroke 120 mm (option)
Cooling	Recirculation system, 140 liters, on casters, 1500 liters /h pump, Integrated cleaning system, with shower head lockated outside the cutting chamber
Motor power	5,5 kW
Rotational speed	Variable, from 1000 to 4000 tr/min.
Table	Treated aluminum and stainless steel table made of 2 parts, total area L 408 x D 422 mm
Type of grooves	T-slots 12 mm (4 linear, 6 transversal)
Lightening	Adjustable spotlight
Protection	Hood with locking system
Body	Strong powder coated steel casing
Pneumatic feeding	6 bars filtered 5 µ compressed air
Electrical power	12 kW cumulative
Electrical consumption	32 Ah
Voltage	400 Volts - 50 Hz (3 phases + earth)
Dimensions L x H x D	877 (+ 600 mm with control panel) x 1727 x 1800 mm (H canopy open 2272 mm)
Weight	750 kg
Reference	60 CT50A 00

Available accessories

Independent double vice (right and left) with fast tightening system, medium size	60 CT400 20
Universal clamping vice 61	60 08128220

Options

Motorised cross-feed table (X axis), stroke 120 mm, accuracy 0,05 mm	60 CT501 00
Machine with cutting wheel Ø 400 mm (instead Ø 350 mm)	60 CT503 00

60 CT503 00

60 CT501 00

60 08128220

60 CT400 20

CUTLAM® support cabinet

Solid steel, specially painted cabinet made for the CUTLAM range.

Its door and top drawer can receive tools and cut-off wheels and space is made available to house the recirculation tank. The structure is very stable, with adjustable feet in order to use included wheels if you need to move the complete cutting unit.

Dimensions L x H x D: 630 x 800 x 835 mm.

Reference: 60 M0100 00

Vices and clamping tools

		CUTLAM® Micro		CUTLAM®			
Designations	**References**	**1.1**	**2.0**	**1.1**	**2.0**	**3.0**	**4.0**
Multi-screw sample holder for irregular parts	60 CTM03 50	X	X				
Screw vice sample holder: max Ø 12 mm	60 CTM03 30	X	X				
Screw V-shape sample holder: max Ø 24 mm	60 CTM03 20	X	X				
Screw double vices sample holder : max Ø 12 mm	60 CTM03 40	X	X				
Screw cylindrical sample holder: Ø 12 mm to 50 mm	60 CTM03 10	X	X				
Double vice with fast tightening system (left and right side of the wheel) 2 x 2 elements vice, without sole, to obtain maximal lenght clamping. Jaw width 80 mm - Jaw height 45 mm T-slot 12 mm screw included Lever left and right	60 CT200 20			X	X	X	
Double vice with screw tightening system (left and right side of the wheel) 2 x 2 elements vice, without sole, to obtain maximal lenght clamping. Jaw width 80 mm - Jaw height 45 mm T-slot 12 mm screw included	60 CT200 40			X	X	X	
Universal clamping KOPAL 61.	60 08128220			X	X	X	X
Double vice with fast tightening system (left and right side of the wheel) 2 x 2 elements vice, without sole, to obtain maximal lenght clamping. Jaw width 80 mm - Jaw height 70 mm T-slot 12 mm screw included	60 CT400 20			X	X	X	X

60 CTM03 50

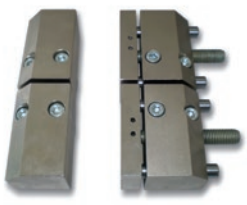
60 CTM03 30

60 CTM03 20

60 CTM03 40

60 CTM03 10

60 CT200 20



60 CT200 40

60 08128220

Transversal table

▸▸ CUT-OFF WHEELS

High performance cut-off wheels

LAM PLAN high performance cut-off wheels are available in three versions: GREEN H1, YELLOW H2 and WHITE H4.

These wheels were elaborated according to a well-defined specification (high quality abrasive and binder), which allows attaining high cutting performances. Usable on all cut-off machines available on the market, these cut-off wheels allow attaining such a quality level that downstream polishing operations will be shortened. Especially designed for production cutting or large dimensional cutting, they will reduce your operating costs. The constancy of the obtained results is guaranteed by a rigorous and controlled manufacturing process.

The table below contains the information to determine the cut-off wheel to be used according to the material to be cut.

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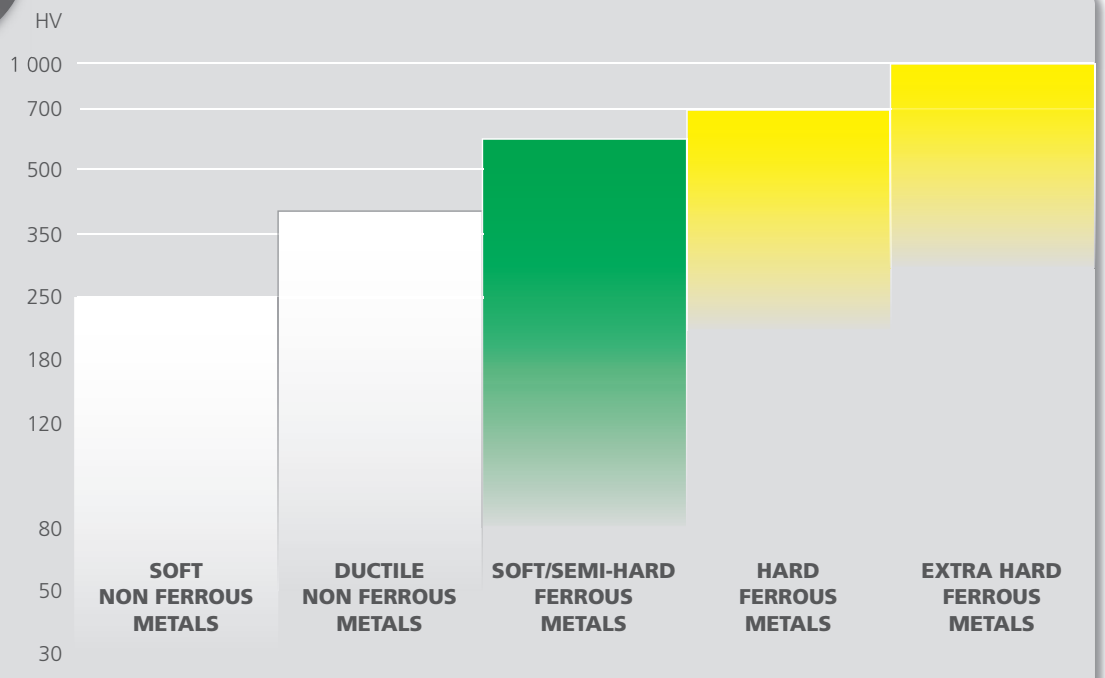


Types	WHITE H4	WHITE H4	GREEN H1	YELLOW H2	YELLOW H2
References 250 x 32 x 1,5 mm	**05 85040 40** (replaces DOUBLE WHITE 05 80225 40)	**05 85040 40** (replaces DOUBLE WHITE 05 80225 40)	**05 83010 40** (replaces GREEN 05 83000 40)	**05 83020 40** (replaces YELLOW 05 84000 40)	**05 83020 40** (replaces YELLOW 05 84000 40)
References 305 x 32 x 2 mm	**05 85040 50** (replaces DOUBLE WHITE 05 80225 50)	**05 85040 50** (replaces DOUBLE WHITE 05 80225 50)	**05 83010 50** (replaces GREEN 05 83000 50)	**05 83020 50** (replaces YELLOW 05 84000 50)	**05 83020 50** (replaces YELLOW 05 84000 50)
References 350 x 32 x 2,5 mm	**05 85040 60**	**05 85040 60**	**05 83010 60**	**05 83020 60**	**05 83020 60**
References 400 x 32 x 3 mm	**05 85040 70**	**05 85040 70**	**05 83010 70**	**05 83020 70**	**05 83020 70**

Precision cut-off wheels

Combine performance and versatility

Elaborated according to a very rigorous specification, these cut-off wheels offer the user a precision cutting thanks to the characteristics of its binder and the quality of its abrasives.

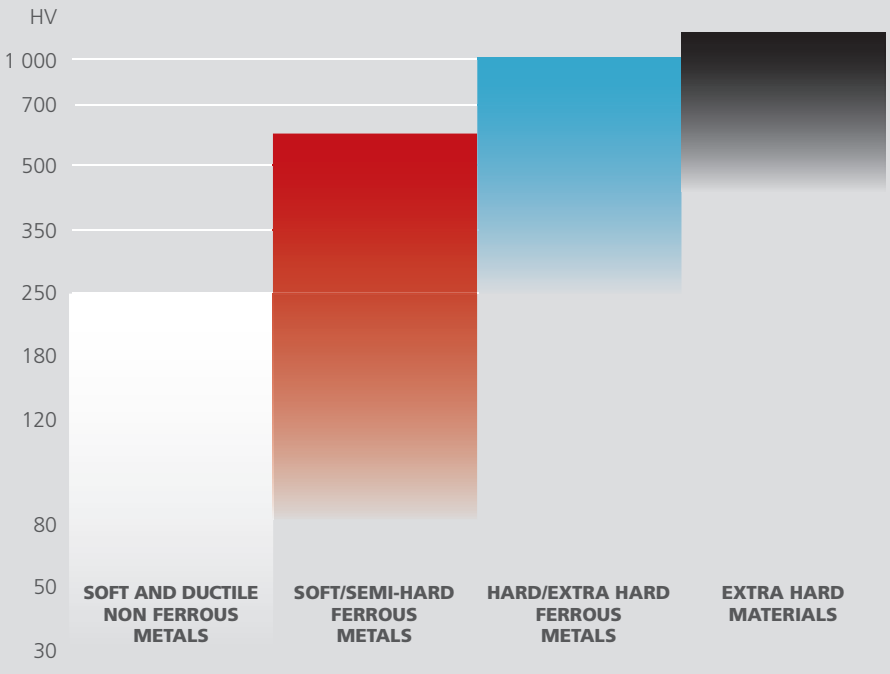
Usable on all cut-off machines, these wheels give a cut-off quality which allows reducing the duration of the downstream operations. Their low wear significantly reduces cost prices.

LAM PLAN precision cut-off wheels are available in 4 versions according to their hardness and the abrasive used in their composition : WHITE wheels (SiC), RED wheels (Al2O3), BLUE wheels (Al2O3), and BLACK wheels (diamond).

The visual colour code facilitates memory.

The table below will help you to determine the right cut-off wheel choice for the material to be cut.

LAM PLAN ADVISES YOU



Type	WHITE	RED	BLUE	BLACK
Reference 305 x 32 x 1.5 mm	05 80025 50	05 80016 50	05 80013 50	
Reference 305 x 32 x 1.3 mm				05 82335 50
Reference 254 x 32 x 1 mm				05 82335 40
Reference 250 x 32 x 1.5 mm	05 80025 40	05 80016 40	05 80013 40	
Reference 230 x 22 x 1.2 mm	05 80025 30	05 80016 30	05 80013 30	
Reference 203 x 25.4 x 1 mm	05 80025 20	05 80016 20	05 80013 20	
Reference 203 x 12.7 x 0.8 mm				05 82130 30
Reference 152 x 12.7 x 0.5 mm				05 82129 30
Reference 150 x 12.7 x 0.45 mm	05 80025 10	05 80016 10	05 80013 10	
Reference 125 x 12.7 x 0.45 mm	05 80025 90	05 80016 90	05 80013 90	
Reference 127 x 12.5 x 0.4 mm				05 82129 20
Reference 102 x 12.7 x 0.3 mm				05 82129 10

High performance cut-off wheels

Material types	Dimensions mm	Qty/box	References
GREEN H1 (Al_2O_3)			
Soft – Semi-hard steels	250 x 32 x 1,5	10	05 83010 40
	305 x 32 x 2	10	05 83010 50
	350 x 32 x 2,5	10	05 83010 60 NEW
	400 x 32 x 3	10	05 83010 70 NEW
YELLOW H2 (Al_2O_3)			
Treated steels – Special steels	250 x 32 x 1,5	10	05 83020 40
	305 x 32 x 2	10	05 83020 50
	350 x 32 x 2,5	10	05 83020 60 NEW
	400 x 32 x 3	10	05 83020 70 NEW
WHITE H4 (SiC)			
Non ferrous materials Cast irons Stainless steel	250 x 32 x 1,5	10	05 85040 40
	305 x 32 x 2	10	05 85040 50
	350 x 32 x 2,5	10	05 85040 60 NEW
	400 x 32 x 3	10	05 85040 70 NEW

Precision cut-off wheels on small cross section or tube

Material types	Dimensions mm	Qty/box	References
RED (Al_2O_3)			
Soft – Semi-hard steels	125 x 12,7 x 0,45	5	05 80016 90 NEW
	150 x 12,7 x 0,45	5	05 80016 10 NEW
	203 x 25,4 x 1	10	05 80016 20
	230 x 22 x 1,2	10	05 80016 30
	250 x 32 x 1,5	10	05 80016 40
	305 x 32 x 1,5	10	05 80016 50
BLUE (Al_2O_3)			
Treated steels – Special steels	125 x 12,7 x 0,45	5	05 80013 90 NEW
	150 x 12,7 x 0,45	5	05 80013 10 NEW
	203 x 25,4 x 1	10	05 80013 20
	230 x 22 x 1,2	10	05 80013 30
	250 x 32 x 1,5	10	05 80013 40
	305 x 32 x 1,5	10	05 80013 50
WHITE (SiC)			
Non ferrous materials Cast irons Stainless steel	125 x 12,7 x 0,45	5	05 80025 90 NEW
	150 x 12,7 x 0,45	5	05 80025 10 NEW
	203 x 25,4 x 1	10	05 80025 20
	230 x 22 x 1,2	10	05 80025 30
	250 x 32 x 1,5	10	05 80025 40
	305 x 32 x 1,5	10	05 80025 50

Material types	Dimensions mm	Qty/box	References
BLACK (Diamond)			
All sintered materials Ceramic Cermet CW and SiC Glass, silica, quartz High metal content materials	102 x 12,7 x 0,30	1	05 82129 10
	127 x 12,7 x 0,40	1	05 82129 20
	152 x 12,7 x 0,5	1	05 82129 30
	203 x 12,7 x 0,8	1	05 82130 30
	254 x 32 x 1	1	05 82335 40
	305 x 32 x 1,3	1	05 82335 50

Cutting fluid 721

Reduce heating.

Conditioned in concentrated form, the 721 fluid also plays the role of a corrosion inhibitor. It protects as well the parts and the machine. Dilute 5 to 15% in water.

SERIES 721

Property	Type	Quantity	Reference
Recyclable concentrated fluid: eliminates heating	721	5 litres	07 50721 50

FILTER FOR CUTLAM® NEW

Designations	Quantity	Reference
Fabric filter for recirculation vat CUTLAM MICRO® 2.0	1	60 00574 90
Fabric filter for recirculation vat CUTLAM® 1.1 - 2.0 - 3.0 - Micro 3.0	1	60 00141 90
Fabric filter for recirculation vat CUTLAM® 4.0	1	60 00576 90

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In practice...

- Work under an integral protection to prevent any risk to the user in case of a false manipulation liable to shatter the wheel.
- Avoid too high a cutting pressure to prevent burning the part and maintain a regular pressure adjusted to the material.
- Lubricate abundantly the cutting area using preferably the LAM PLAN® series 721 fluid.
- To prevent any risk of corrosion due to condensation, it is indispensable to leave the cut-off machine cover open between each usage.

Adaptor rings

Designations	Ø mm	Quantity	References
Adaptor ring for inner diameter-PVC	25,4 / 12,7	5	60 00370 90
	25,4 / 22	5	60 00372 90
	32 / 25,4	5	60 00374 90
Adaptor ring for inner diameter-Steel	25,4 / 12,7	5	60 00369 90
	25,4 / 22	5	60 00371 90
	32 / 25,4	5	60 00373 90

Mounting

▸▸ MOUNTING PRESS

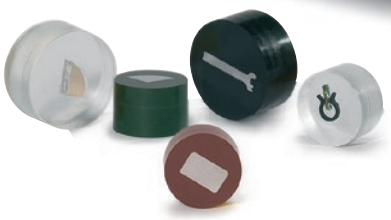
PRESSLAM® 1.1

Easy-to-use, productive, automatic hot mounting press

The PRESSLAM® 1.1 is a multi-purpose, easy-to-use, automatic hot mounting press that will allow you to achieve high production levels. All parameters are accessible via a 5.7" colour touch screen. The graphic interface guides you intuitively through the different settings, which you can then store and reuse at will. It is also possible to import/export predefined hot mounting parameters via the machine's USB port. All phases are visible on the screen during the hot mounting cycle and can be modified at any time.

▸ Technical data

Capacity	Ø 25,4 to Ø 50 mm
Heating system	4 x 600 W around mould
Temperature range	20 to 200°C
Heating cycle	0 to 30 min
Cooling cycle	0 to 30 min
Pressure	0 to 1,600 daN
Double mounting	Yes - all diameter
Program backup	300 with USB connection
Pressurization modes	4 different modes
Chamber closing	half turned canopy with a safety chamber
Mould changing	Quick, without connectors – Electric or hydraulic
Preheating mode	Yes (cleared after 6 min without manipulation)
Water saving	Yes (up to 25%)
Voltage	230 V – 50 Hz single-phase
Pneumatic feed	6 to 10 bar
Dimensions L x D x H	250 x 470 x 680 mm
Weight	72 kg (depending on mould size)
Reference	60 PL110 00



Close

Safety position

Open

Independent cooling unit, allow using of PRESSLAM®1.1 without water supply

Each function can be adjusted separately and 4 pressurisation modes are available along with **a function reducing the amount of water used for cooling.** As soon as the PRESSLAM 1.1 is switched on, it runs a preheating cycle that is cleared after 6 minutes without user intervention. The 20 to 200°C temperature range makes it possible to use all resins available on the market.

Access to the coating chamber is wide open for a sample positioning and filling facility. The locking unlocking of the coating chamber is quick and effortless by a canopy and a 1/4 turn locking lever.

Exclusive safety device

The raise of the sample, after the mounting cycle, is possible only when the safety canopy is located in its intermediary position. This device creates a safety chamber, where the sample will stay even when a sticking case could appear.

The PRESSLAM® 1.1 is equipped with a main heating unit, which houses the removable cylinder. The standard heating unit covers diameters from 25,4 to 40 mm and a specific element is available for a diameter of 50 mm.

The mould may be changed without tools and without electrical or hydraulic connections. Changing the full heating unit takes only few minutes.

The PRESSLAM® 1.1 is the ideal link in your mounted sample production line. It is a compact machine that is both easy to use and easy to maintain and will allow you to increase your productivity while maintaining unrivalled flexibility.

Heating unit for mould assembly
Ø 25.4 (1"), 30, 40, 1"¼ and 1"½

Heating unit for mould assembly
Ø 50 and 2"

Spacer for double mounting

▸ Available accessories

Characteristics	References
Heating unit for Ø 25.4 (1"), 30, 40 mm, 1"1/4 and 1"1/2	60 PL2H1 00
Heating unit for Ø 50 mm and 2"	60 PL2H2 00
Mould assembly Ø 25,4 mm or 1"	60 PL1C1 00
Mould assembly Ø 30 mm	60 PL1C2 00
Mould assembly Ø 40 mm	60 PL1C4 00
Mould assembly Ø 50 mm	60 PL1C5 00
Mould assembly Ø 1"1/4	60 PL1C2 10
Mould assembly Ø 1"1/2	60 PL1C4 10
Mould assembly Ø 2"	60 PL1C5 10
Spacer Ø 25,4 mm or 1" for double mounting	60 PL2I1 00
Spacer Ø 30 mm for double mounting	60 PL2I2 00
Spacer Ø 40 mm for double mounting	60 PL2I4 00
Spacer Ø 50 mm for double mounting	60 PL2I5 00
Spacer Ø 1"1/4 for double mounting	60 PL2I2 10
Spacer Ø 1"1/2 for double mounting	60 PL2I4 10
Spacer Ø 2" for double mounting	60 PL2I5 10

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▸ Chart for LAM PLAN resins (examples)

Resin	Heating time (min)				Cooling time (min)				Pressure (daN)				Temperature (°C)				Pressure mode
Mould Ø (mm)	Ø 25,4	Ø 30	Ø 40	Ø 50	Ø 25,4	Ø 30	Ø 40	Ø 50	Ø 25,4	Ø 30	Ø 40	Ø 50	Ø 25,4	Ø 30	Ø 40	Ø 50	All diameter
Epoxy (633)	3	3	4	6,5	3	3	3	3	800	1000	1200	1300	180	180	180	180	
Phenofree	3	3	4	5	3	3	3,5	3,5	1000	1000	1200	1300	175	175	175	175	

Pressurized mounting device M.M.806

M.M.806 to improve the performances of cold mounting resins.

Thanks to its pneumatic system, the device allows preventing any formation of bubbles and pores without changing the physical and chemical properties of the resins. The device releases a pressure of 2.0 bars adapted to the specific properties of rapid polymerization resins. Reliable and easy to use, M.M.806 is equipped with a safety valve which prevents overpressurization. The device is compact with a resin body and a steel container.

Polymerization lamp M.M.866

M.M.866, the blue light polymerization device allows accelerating the polymerization of the mounting resin 601.2.

Polymerization in 20 min.

Designations	Characteristics	References
PRESSURE DEVICE M.M.806		
Cold mounting pneumatic device	Elimination of air bubbles in the mountings Shrinkage limitation Better penetration of mounting resin	08 00806 00
POLYMERIZATION LAMP M.M.866		
Blue light mounting device	For polymerization of light-curing resins Equipped with a timer.	08 0866 10

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For your information

- The sample can be extracted from the mounting by a thermal or physical shock.

HOT MOUNTING RESINS

To respond to all metallographic control and research situations, LAM PLAN developed and tested a range of hot mounting resins which allow obtaining perfectly adapted mountings regardless of the undertaken study. Each mounting resin is characterized by very specific physical and chemical qualities.

Phenolic mounting resins 602, 622, 632 and 642

With their mineral loads, these coloured mounting resins allow rapidly mounting all types of minerals. The usage of various colours (602, 622, 642) makes identification easier and varies the contrast for edge examinations.
To facilitate your mountings and obtain optimum and constant mechanical properties, Lam Plan integrated in the phenolic mounting resin 622 red a new additive which allows controlling the baking condition (pink = not baked, red = optimally baked).
The phenolic mounting resin 632 black loaded with glass fibres has a very low shrinkage property and a good resistance to abrasion; it is recommended for soft to semi-hard materials.


602 green


622 red


632 black


642 black

Epoxy mounting resin 633 et 634

The black epoxy mounting resin is loaded with glass fibres with high mineral loads. It is ideal for mountings intended for edge examinations of hard to extra hard materials thanks to its resistance to abrasion, its very high hardness and absence of shrinkage.
The 634 is a fine powder epoxy resin, used for examination of edges samples.


633


634

Acrylic mounting resins 616 and 616.2

The acrylic mounting resin 616 is perfectly transparent and adapted to most materials. Mainly used to view the evolution of the grinding of the sample.
Perfectly transparent without a cotton effect, the acrylic mounting resin 616.2 is resistant to alcohol, and therefore ideal for work with alcohol-based polishing products or requiring a cleaning phase with ethanol, isopropyl alcohol or other.


616


616.2

Copper mounting resin 604.3

Conductive mounting resin for examinations with SEM or electrolytic etching device. A pure copper based resin of very homogeneous consistency, the conductibility of your mountings is optimized. The use of ultra pure materials eliminates the risk of an analysis error.


604.3

Graphite mounting resin 617

Conductive phenolic mounting resin loaded with graphite (without copper and without metals or alloys) for SEM examinations.


617

PHENOFREE Resins

New phenol-free and formaldehyde-free thermosetting mounting resin.

In line with its ecological commitment, LAM PLAN proposes on the market the first effective alternative to phenol metallographic mounting resins which are liable to release phenol (and/or formaldehyde) during baking.
The PHENOFREE mounting resin is intended for the technical mounting of all types of materials for material examinations or edge examinations. It advantageously replaces the traditional phenol mouting resins with the same hardness and less shrinkage than a phenol mounting resin.
The range of PHENOFREE resins consists of 3 coloured resins – grey, white and red – to make the identification of your metallographic samples easier. They are particularly adapted for the polishing of hard materials. The white Phenofree resin may prove to be in some cases a good alternative to the use of epoxy resins.

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Material	Resin	Characteristics	Volumetric shrinkage	Colour	Polymerization time *
Phenol	602 622 642	Fast curing	Low	Green Red Black	5 to 10 min
Phenol	632	Good resistance to abrasion	Very low	Black	5 to 10 min
Epoxy	633	Extra hard	Very low	Black	5 to 10 min
Epoxy	634	Extra hard (fine grain)	Very low	Black	5 to 10 min
Acrylic	616	Excellent transparency	Low	Transparent	5 to 10 min
Acrylic	616.2	Transparent, resistant to alcohol	Low	Transparent	5 to 10 min
Copper	604.3	High conductibility	Low	Coppery	10 min
Graphite	617	Conductive	Low	Black	5 to 10 min
Composite	PHENOFREE 1 PHENOFREE 2 PHENOFREE 3	No phenol	Low	Grey Red White	10 to 15 min

** Depends on the machines characteristics.*

Hot mounting resins

Characteristics	Quantities kg	References
602		
Green phenol powder All materials for a current check	2,5	06 00602 20
	10	06 00602 10
604.3		
Resin copper powder For electrolytic polishing	2	06 00604 30
616		
Transparent acrylic powder Viewing of the sample during and after polishing All materials	2,5	06 00616 20
	10	06 00616 10
616-2		
Transparent acrylic powder Viewing of the sample during and after polishing Resistant to alcohol	2,5	06 06162 20
	10	06 06162 10
617		
Black conductive phenol powder (graphite) For SEM examinations	1,5	06 00617 00
622		
Red phenol powder Visual control of baking All material for a current check	2,5	06 00622 20
	10	06 00622 10
632		
Black phenol powder, loaded with glass fibres Hard and semi-hard materials (>400 HV)	2,5	06 00632 20
	10	06 00632 10
633		
Black epoxy powder, loaded with glass fibres Edge examinations Very high hardness – No shrinkage	2,5	06 00633 20
	10	06 00633 10
634		
Black epoxy powder, fine grain Edge examinations of intricated samples Very high hardness – No shrinkage	2,5	06 00634 20
642		
Black phenol powder All materials for a current check	2,5	06 00642 20
	10	06 00642 10
PHENOFREE 1		
Grey composite powder Multi-purpose, hard	2,5	06 PF010 20
	10	06 PF010 10
	25	06 PF010 50
PHENOFREE 2		
Red composite powder Multi-purpose, very hard	2,5	06 PF020 20
	10	06 PF020 10
	25	06 PF020 50
PHENOFREE 3		
Grey composite powder Multi-purpose, hard	2,5	06 PF030 20
	10	06 PF030 10
	25	06 PF030 50

▸▸ COLD MOUNTING RESINS

Mainly intended for the metallography research sector, the LAM PLAN range of cold mounting resins offers many technical and economic advantages. The cold mounting resins are the solution for samples which do not withstand too high a pressure or temperature. In addition, they allow responding in a simple and efficient way to timely needs by circumventing the investment of a hot mounting press. You can precisely adjust the mounting volumes or the shape of the moulds, simultaneously for a large quantity of samples.

601.2

Acrylic resin 601.2

The fluidity of this transparent mounting resin and its very low shrinkage ensure a maximum penetration ratio in the cavities. It is ideal for microelectronics, optics and microsystem applications. Compatible for conventional scanning electron microscopy (SEM) examinations. Mono-component resin easy to dose and manipulate (no loss). Polymerization with low temperature rise in 20 minutes in the blue light device M.M.807 + 10 minutes for the surface varnish. With no disturbing odour, it is resistant to alcohol and acids.

CRISTAL

Epoxy resin RESINA CRISTAL

The viscosity of this resin before polymerization facilitates its implementation and confers on it the required properties for a good impregnation of porous samples. Shrinkage is limited to the minimum and can completely disappear by the passage of the sample in the pressure device LAM PLAN M.M.806. Perfect transparency allows examining the sample throughout grinding and polishing. In addition, it is delivered in a small bottle with an integrated very practical doser.

605

Methyl methacrylate resin 605

Multi-purpose, it is adapted to most materials for the rapid mounting of current samples. The viscosity of this resin can be varied by changing the proportions of the liquid + powder mixture. Resistant to the main acids used in laboratories.

609

Methyl methacrylate resin 609

A perfectly transparent resin used for precision parts, notably those of the electrical or electronics industry. It renders the sample perfectly visible, which allows analyzing precise points. It must be used with the pneumatic device M.M.806 to obtain an optimum transparency. The methyl methacrylate resin 609 is available in the Plastichrome version – 5 transparent colours to simplify the classification of samples.

607.2

Polyester resin 607.2

Ideal for difficult cases. Modified polyester based resin for complex shaped metallographic samples. Its shrinkage characteristics and its hardness allow preparing the most delicate samples and carrying out edge examinations of the samples. Its mechanical characteristics render it particularly efficient on very hard materials. Resistant to the main acids used in laboratories.

Materials	Resin	Characteristics	Volumetric shrinkage	Colour	Polymerization
Acrylic	601.2	Mono component fluid, low heating	Very low	Transparent	Curing < 20 min in blue light device + 10 min for the varnish
Epoxy	RESINA CRISTAL	Without heating	Zero if used with pressure device M.M.806	Transparent	Curing : 10 hours
Methyl methacrylate	605	Multi-purpose	Correct	Green	Fast curing < 10 min
Methyl methacrylate	609	Excellent transparency if used with pressure device M.M.806	Correct	Transparent = colourless + 5 colours (Plastichrome range)	Fast curing < 10 min
Modified polyester	607.2	Hardness	Very low (<0.2%)	White	Fast curing < 10 min

LAM PLAN ADVISES YOU

Cold mounting resins - Series 600

601.2

Characteristics	Quantities	References
Transparent acrylic Mono component	Kit: resin (1 litre) + varnish (100 ml)	06 00601 00
	Resin (1 litre)	06 01601 00
	Varnish (100 ml)	06 01602 00

605

Green methyl methacrylate Bi-component (powder + liquid)	Kit: powder (1 kg) + catalyst (500 ml)	06 00605 00
	Catalyst (500 ml)	06 00615 00
	Kit: powder (10 kg) + catalyst (5 litres)	06 00605 10
	Catalyst (5 litres)	06 00615 10

607-2

White modified polyester Bi-component (powder + liquid)	Kit: powder (1 kg) + catalyst (500 ml)	06 06072 00
	Catalyst (500 ml)	06 06172 00
	Kit: powder (10 kg) + catalyst (5 litres)	06 06072 10
	Catalyst (5 litres)	06 06172 10

609

Transparent methyl methacrylate Bi-component (powder + liquid)	Kit: powder (1 kg) + catalyst (500 ml)	06 00609 00
	Catalyst (500 ml)	06 00619 00
	Kit: powder (10 kg) + catalyst (5 litres)	06 00609 10
	Catalyst (5 litres)	06 00619 10

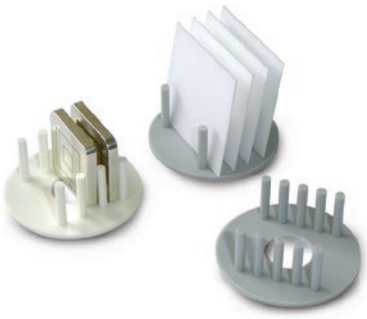
609

Characteristics	Quantities	Colours	References
Transparent coloured methyl methacrylate Bi-component (powder + liquid)	Kit: powder (1 kg) + Catalyst (500 ml)	BLUE	06 0071B 00
		YELLOW	06 0071J 00
		ORANGE	06 0071O 00
		RED	06 0071R 00
		GREEN	06 0071V 00

RESINA CRISTAL

Transparent epoxy Bi-component (2 liquids)	Kit: liquid (1000 ml) + hardener (500 ml)	06 007RC 00

▸▸ ACCESSORIES



Blade holder

For the vertical positioning of thin parts, for use with cold mounting resin.

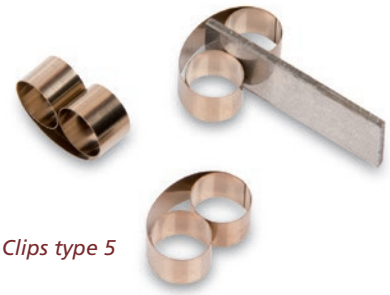
Types	Quantities	Thicknesses mm	References
Blade holder series 690	100	1	06 00690 10
Blade holder series 691	100	2	06 00690 20
Blade holder series 692	100	3	06 00690 30

Clips type 3

Holding clips

Plastic clips and type 3 clips for use with cold mounting resin.
Clip type 5 for use with hot mounting resin.

Types	Characteristics	Quantities	References
Clips type 3	Plastic, raised	100	06 00694 00
Clips type 5	Metal	100	06 00693 00



Clips type 5

Moulds with removal bottom

Mainly used for the transparent mounting resins (601.2, 609, RESINA CRISTAL).

Types	Quantities	Dimensions mm	References
681	5	25	06 00681 10
	5	30	06 00681 20
	5	32	06 00681 30
	5	40	06 00681 40

Flexible rectangular cold mounting moulds

Specifically for cold mounting resin, adapted to complex and non standard shapes, many dimensions available, made of a flexible material to facilitate mould removal.

Types	Quantities	Dimensions mm	References
Flexible 670	5	70 x 30 x 40	06 00670 10
	5	100 x 42 x 30	06 00670 20
	5	120 x 50 x 30	06 00670 30
	5	100 x 70 x 30	06 00670 40
Kit: 4 items	1	70 x 30 x 40	06 00670 00
	1	100 x 42 x 30	
	1	120 x 50 x 30	
	1	100 x 70 x 30	

Flexible cylindrical cold mounting moulds

Available in all standard diameters for central and individual pressure sample holders, made of a flexible material to facilitate mould removal.

Types	Quantities	Dimensions mm	References
Flexible 625	5	Ø 25	06 00625 00
Flexible 630	5	Ø 30	06 00630 00
Flexible 632	5	Ø 32	06 00632 00
Flexible 640	5	Ø 40	06 00640 00
Flexible 650	5	Ø 50	06 00650 00
Flexible 660	5	Ø 60	06 00660 00

Universal sample-holder mould Series 610

The LAM PLAN universal sample-holder is a smart and economical system which combines the functions of both mould and sample-holder for cold mounting processes using any kind of liquid resin.

See details page 107.

Cups and spatulas

Carton cups and wooden spatulas to mix cold mounting resins.

CARTON CUPS			
Characteristics	**Quantities**	**Capacity ml**	**References**
To mix cold mounting resins	200	200	06 00696 00
KIT: CARTON CUPS AND SPATULAS			
To mix cold mounting resins	400 cups and 400 spatulas		06 00698 00

Micro engraver

To mark and identify samples.

M.M.886	
Characteristics	**Reference**
Speed : 0 – 20 000 rpm Clamping jaw : Ø 1.58 mm – Ø 2.35 mm – Ø 3.175 mm	10 88630 00

Charge element for resin

The Voluma spheres are ceramic balls used as a sole or base. They allow increasing the hardness of the mounting resins and decrease their shrinkage in order to reduce fallen edge effects. They are adapted to all types of hot or cold mounting resins ; available in various colours to personalize samples.

VOLUMA SPHERES		
Characteristics	**Quantities cm³**	**References**
3-colour kit	3 bottles of 250	06 007SV 00
Blue	250	06 007SV 20
Ivory	250	06 007SV 30
Red	250	06 007SV 10

Mould removal agent

SOLILUB		
Characteristics	**Quantities**	**Reference**
Anti-stick powder for hot mounting process	Can of 50 g	06 00683 00

Polishing

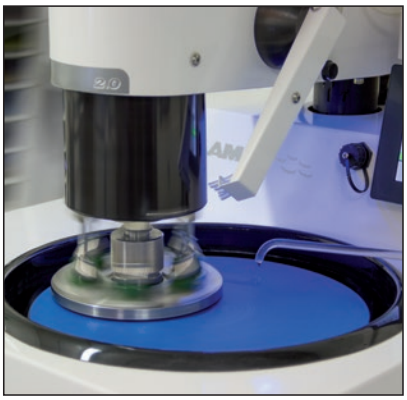
POLISHING MACHINES

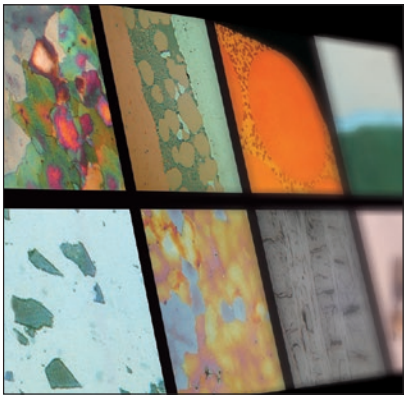
A full range of intuitive machines

Polishing is a key element in the production of a metallographic sample, thus choosing the right solution for your needs in polishing machine is essential.

User comfort, silence, reliability and ease of maintenance are among the many criteria that have guided the development of LAM PLAN range. All functional and maintenance operations are simplified to help you achieve your goals in an optimized way.

Whether you work in metallography research or production control, we have a polisher which meets your expectations. Each model meets specific responds to complementary needs, each innovation is a reflection of our field experience.





SMARTLAM® 2.0

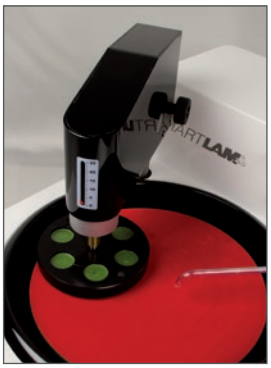
The most versatile polishing machine

The SMARTLAM®2.0 is a compact, single-plate polishing machine that gives you a wide range of possibilities both in manual and semi-automatic polishing. Ergonomic and easy-to-use, the SMARTLAM®2.0 is entirely controlled by a colour touch screen equipped with an intuitive interface. The internal memory can store 9 programs that can be exported via the USB port.

The power of the bidirectional rotation, variable-speed, constant-torque motor and the possibility to use plates with a diameter from 200 to 300 mm are exclusive assets that will allow you to face up to all situations encountered in metallographic research polishing.

Upgrade the SMARTLAM® polishing machine with the SPRINGLAM® mechanical pressure head option, central-pressure sample holders and use of the M.M.909 M programmable dosing unit slaved to the machine, you will have a very efficient, semi-automatic polishing system.

Friendly interface with large touchpanel



With the SPRINGLAM® head use the SMARTLAM® as a semi-automatic polisher.

Cleaning has never been easier: spinning fonction, removable watering pipe, quick removable bowl.

M.M. 909 M

▸ Technical data

Plate capacity	Ø 200 – 300 mm
Body	Steel, coated with epoxy paint
Bowl	Removable resin basin for easy cleaning
Controls	3.5" colour touch screen to control the machine: start/stop, timer, speed and direction of plate, water solenoid valve
Plate rotation speed	Variable from 20 to 650 rpm
Rotation	Clockwise / counter-clockwise
Programming	Load 9 programs
Export	USB connection
Connection	Slave connector for dosing unit
Water inlet	Removable pipe with flow-rate adjustment and safety solenoid valve
Power max	0.75 kW
Voltage	230 V – 50 Hz single-phase
Dimensions L x H x D	450 x 300 x 650 mm
Weight	30 kg
Reference	60 SL200 00

▸ M.M.909 M dosing unit: technical data

Distribution system	Distribution of 3 different liquids via peristaltic pumps
Controls	Touch screen
Pumps	3 peristaltic pumps, with 1 outlet to drive an external pump
Electrical power supply	220 V single-phase – 50 Hz
Dosing machine communication	1 x 24 V input for machine servoing
Option	Replacement of a standard peristaltic pump by a high flow rate pump for high-viscosity products
Reference	08 00799 10

▸ Available accessories

Removable Ø 200 mm flat lapped aluminium plate	08 82701 00
Removable Ø 250 mm flat lapped aluminium plate	08 82703 00
Removable Ø 300 mm flat lapped aluminium plate	08 82704 00

▸ Options
SPRINGLAM® pressure head to use the SMARTLAM® as a semi-automatic polisher

Variable pressure thanks to the 0 - 250 N spring Attachment system for central sample-holder	60 SL222 00

MASTERLAM® 1.0

Automatic polishing machine with central pressure, oscillating head* and stock removal control*.

Automatic, single-plate Ø 250 to 300 mm polishing machine with bidirectional rotation and variable speed. Touch screen controls, intuitive and user-friendly interface. MASTERLAM® machines are equipped with the best programming, parameter storage and export technologies. Control of the 4-circuit DISTRILAM®* dosing system directly integrated.

The MASTERLAM® 1.0 is equipped with a powerful central-pressure head, bidirectional rotation, variable speed and pressure. The distinctive feature of this polishing head is the oscillation function* with oscillation configurable both for amplitude and frequency.

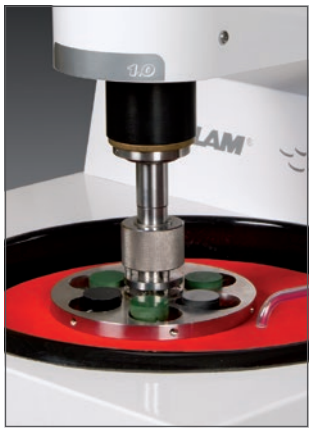
Use of the oscillating head will allow you to achieve unrivalled levels of performance and versatility: the quality of flatness results is improved, stock removal is increased, the service life of polishing supports is increased (uniform wear due to use of the entire surface of the plate).

The MASTERLAM® 1.0, with the oscillation* option, is particularly efficient for polishing large-sized samples and for finishing and appearance polishing of mechanical prototypes or micro-series components.

A stock removal control system with an automatic "stop at measurement" function is also available (accurate to 0.05 mm).

Technical data

Plate capacity	Ø 250 to 300 mm
Body	Steel, coated with epoxy paint
Bowl	Removable resin basin for easy cleaning
Controls	5.7 inch colour touch screen
Plate speed	Variable, from 20 to 650 rpm Bidirectional rotation
Head speed	Variable, from 10 to 150 rpm Bidirectional rotation
Applicable load	5 to 400 N Central Pressure
Capacity	Sample size in central pressure 6 X Ø 40 mm
Head oscillation function	Adjustable speed and amplitude (option)
Stock removal control function	Stock removal measure system with automatic stop, accurate to 0.05 mm (option)
Workspace lighting	LED
Water inlet	Removable pipe, with flow rate adjustment and safety solenoid valve
Programming	60 storable programs, USB connector to backup programs and Ethernet port for networking
Cumulative machine power	1.1 kW
Voltage	230 V – 50 Hz single-phase
Pneumatic feed	6 bars
Dimensions L x H x D	550 x 670 x 580 mm
Weight	80 kg
Reference	60 ML100 00



The MASTERLAM® 1.0 is a high-performance machine intended for intensive use such as in-production inspections.

**equipment available as an option.*

DISTRILAM®

Automatic dosing unit DISTRILAM® controlled by machine touch panel (4 circuits).

MASTERLAM® 2.0

Automatic polishing machine with individual pressure head.

Automatic, single-plate Ø 250 to 300 mm polishing machine, bidirectional rotation and variable speed.

The MASTERLAM® 2.0 is based on the same technology as the MASTERLAM® 1.0 with, in this configuration, a powerful individual-pressure head equipped with 6 pistons and a central drive allowing quick exchange of sample holders. This is the machine "par excellence" in control laboratories for polishing heterogeneous samples singly or simultaneously in batches of 6.

Technical data

Plate capacity	Ø 250 to 300 mm
Body	Steel, coated with epoxy paint
Bowl	Removable resin basin for easy cleaning
Controls	5.7 inch colour touch screen
Plate speed	Variable, from 20 to 650 rpm Bidirectional rotation
Head speed	Variable, from 10 to 150 rpm Bidirectional rotation
Applicable load	0 to 100 N Individual pressure
Capacity	Sample size in individual pressure 1 - 6 X Ø 50 mm
Workspace lighting	LED
Water inlet	Removable pipe, with flow rate adjustment and safety solenoid valve
Programming	60 storable programs, USB connector to backup programs and Ethernet port for networking
Cumulative machine power	1.1 kW
Voltage	230 V – 50 Hz single-phase
Pneumatic feed	6 bars
Dimensions L x H x D	550 x 670 x 580 mm
Weight	85 kg
Reference	60 ML200 00

Sedimentation tank 30L with pump controlled by the machine

MASTERLAM® 3.0

Automatic polishing machine with central and individual pressure and oscillating head*.

Automatic, single-plate Ø 250 to 300 mm polishing machine, bidirectional rotation and variable speed.

This machine has all the functions that make the MASTERLAM® range outstanding and, on this model, a **specific new "combo" head.** The MASTERLAM® 3.0 is the metallographic polishing machine without concession. Polishing can be carried out with central pressure or individual pressure and with oscillation*.

The MASTERLAM® 3.0 is based on the same technology as the MASTERLAM® 1.0 with, in this configuration, a powerful central and individual pressure head equipped with 6 pistons. Changing sample holders is quick and the pressure mode is controlled directly on the screen without having to touch the head, thus, you can switch from one pressure mode to another in a few seconds.

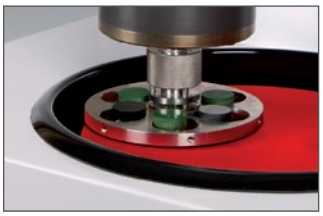
Advanced combo-head

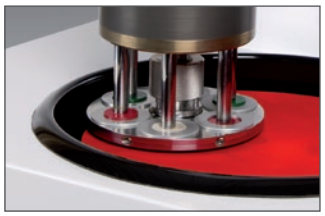
Total versatility for metallographic research or production control applications.

**equipment available as an option.*

Technical data

Plate capacity	Ø 250 to 300 mm
Body	Steel, coated with epoxy paint
Bowl	Removable resin basin for easy cleaning
Controls	5.7 inch colour touch screen
Plate speed	Variable, from 20 to 650 rpm Bidirectional rotation
Head speed	Variable, from 10 to 150 rpm Bidirectional rotation
Applicable load	5 to 400 N Central Pressure 5 to 100 N Individual Pressure
Capacity	Sample size in central pressure 6 X Ø 40 mm Sample size in individual pressure 1 - 6 X Ø 50 mm
Head oscillation function	Adjustable speed and amplitude (option)
Workspace lighting	LED lamp
Water inlet	Removable pipe, with flow rate adjustment and safety solenoid valve
Programming	60 storable programs, USB connector to backup programs and Ethernet port for networking
Cumulative machine power	1.1 kW
Voltage	230 V – 50 Hz single-phase
Pneumatic feed	6 bars
Dimensions L x H x D	550 x 670 x 580 mm
Weight	85 kg
Reference	60 ML300 00





Available accessories for MASTERLAM® 1.0, 2.0, 3.0

Automatic DISTRILAM® dosing unit controlled by machine screen (4 circuits)	60 MLD00 00
Removable Ø 250 mm flat lapped aluminium plate	08 82703 00
Removable Ø 300 mm flat lapped aluminium plate	08 82704 00
Sample holders: CP (central pressure) and IP (individual pressure)	

MASTERLAM® 1.1

Large diameter, automatic polishing machine with central pressure and motorised oscillating head.

Automatic, single-plate Ø 350 to 400 mm polishing machine, bidirectional rotation and variable speed.

With the MASTERLAM® 1.1, you will find all the technical characteristics and user friendliness of the MASTERLAM® 1.0 but with a bigger plate diameter and more power.

The MASTERLAM®1.1 is a central-pressure machine. It is equipped with a 2.2 kW main motor, a 250 W head motor and applicable pressure may reach 450 N.

Using the **oscillating head** allows you to make use of the entire surface of the **350 or 400 mm diameter** plate: the quality of flatness results is improved, stock removal is increased and the service life of polishing supports is increased (uniform wear due to use of the entire surface of the plate).

Plate Ø 400 mm

The specific capacities of the MASTERLAM® 1.1 allow it to cope with the most difficult applications, particularly in terms of large polishing surfaces where the torque and pressure required exceed the capabilities of standard equipment.

Technical data

Plate capacity	Ø 350 to 400 mm
Body	Steel, coated with epoxy paint
Bowl	Removable resin basin for easy cleaning
Controls	5.7 inch colour touch screen
Plate speed	Variable, from 20 to 650 rpm Bidirectional rotation
Head speed	Variable, from 10 to 150 rpm Bidirectional rotation
Applicable load	5 to 450 N Central Pressure
Capacity	Sample size in central pressure 6 X Ø 60 mm
Head oscillation function	Adjustable speed and amplitude
Workspace lighting	LED
Water inlet	Removable pipe, with flow rate adjustment and safety solenoid valve
Programming	60 storable programs, USB connector to backup programs and Ethernet port for networking
Motor power	2.2 kW
Head motor power	250 W
Voltage	230 V – 50 Hz single-phase (25A)
Pneumatic feed	6 bars
Dimensions L x H x D	800 x 712 x 597 mm
Weight	110 kg
Reference	60 ML110 00

Accessories for polishing machines

Aluminium plate

Clamping ring

CP sample holder

IP sample holder

Reducer rings

Levelling device

Designations	References	SMARTLAM® 2.0	MASTERLAM® 1.0	2.0	3.0	1.1
PLATES AND SUPPORTS						
Ø 200 mm flat lapped aluminium plate	08 82701 00	X				
Ø 230 mm flat lapped aluminium plate	08 82702 00	X				
Ø 250 mm flat lapped aluminium plate	08 82703 00	X	X	X	X	
Ø 300 mm flat lapped aluminium plate	08 82704 00	X	X	X	X	
Ø 400 mm flat lapped aluminium plate	08 82706 00					X
Clamping ring for Ø 200 mm plate	08 80523 20	X				
Clamping ring for Ø 230 mm plate	08 80523 30	X				
Clamping ring for Ø 250 mm plate	08 80523 40	X	X	X	X	
Clamping ring for Ø 300 mm plate	08 80523 50	X	X	X	X	
SAMPLE HOLDERS AND ACCESSORIES						
CP sample holder, Ø 160 mm, w/ 6 x Ø 20-40 mm water drop cells	06 MLC10 00		X		X	
CP sample holder, Ø 160 mm, w/ 6 x Ø 30 mm cells	06 MLC30 00		X		X	
CP sample holder, Ø 160 mm, w/ 6 x Ø 40 mm cells	06 MLC40 00		X		X	
CP sample holder, Ø 160 mm, w/ 5 x Ø 50 mm cells	06 MLC50 00		X		X	
CP sample holder, Ø 160 mm, w/ 3 rectangular 40 – 70 mm cells	06 MLC12 00		X		X	
CP sample holder, Ø 160 mm, w/ 3 rectangular 25 – 34 mm cells	06 MLC14 00		X		X	
PC sample holder, Ø 210 mm, without cavity	06 MLC01 00					X
IP sample holder, Ø 160 mm, w/ 6 x Ø 50 mm cells	06 MLI10 00			X	X	
Kit: 6 x Ø 40 mm reducer rings	06 MLIK5 00			X	X	
Kit: 6 x Ø 38 mm reducer rings	06 MLIK4 00			X	X	
Kit: 6 x Ø 32 mm reducer rings	06 MLIK3 00			X	X	
Kit: 6 x Ø 30 mm reducer rings	06 MLIK2 00			X	X	
Kit: 6 x Ø 25 mm reducer rings	06 MLIK1 00			X	X	
Levelling device for CP sample holder, Ø 160 mm, 3 mm depth	06 MLP01 00		X			
DISPENSER						
Automatic dosing unit DISTRILAM	60 MLD00 00		X	X	X	X

Diaphragm compressor

NEW

Diaphragm compressor for laboratories that are not equipped with a compressed air network. Silent operating.

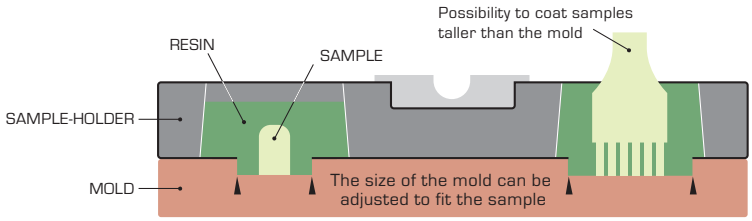
Flow	Pressure	Dimensions L X H X D	Reference
50 l/min	8 bar	330 x 500 x 330 mm	60 COM00 00

Universal sample-holder mould

The LAM PLAN universal sample-holder mould is a smart and economical system which combines the functions of both mounting mould and sample-holder for cold mounting processes using any kind of liquid resin. This system has been developed as two removable parts: the metallic universal sample-holder with non-stick coating and a special silicon-based flexible mould to embed your cold mouting samples.

Use

The 610 sample-holder can be used on both automatic and semi-automatic machines. It is directly compatible with the SMARTLAM 2.0 fitted with the SPRINGLAM pressure arm. An adaptor kit is available for use with an automatic machine with motorized head.



Position-tracing line to remove and replace coated item

UNIVERSAL SAMPLE-HOLDERS MOULD - SERIES 610

Designations	References	SMARTLAM® 2.0 with SPRINGLAM	MASTERLAM® 1.0 MASTERLAM® 3.0
Ø 110 mm with 6-cavity Ø 28 mm mould	06 00612 20	Ø 200 mm	
Ø 145 mm with 3 x 6-cavity moulds including 6 x Ø 40 mm, 6 x Ø 35 mm and 6 x Ø 32 mm	06 00614 10	Ø 250 - 300 mm	Ø 250 - 300 mm
Ø 145 mm with 3 x 6-cavity moulds including 6 x Ø 30 mm, 6 x Ø 25 mm and 6 x Ø 20 mm	06 00614 20	Ø 250 - 300 mm	Ø 250 - 300 mm
Ø 145 mm with 3-cavity Ø 50 mm mould	06 00614 30	Ø 250 - 300 mm	Ø 250 - 300 mm
Ø 145 mm with 2 x 3-cavity rectangular moulds including 3 x 30 x 55 mm and 3 x 18 x 55 mm	06 00614 40	Ø 250 - 300 mm	Ø 250 - 300 mm
Ø 160 mm with 6-cavity Ø 36 mm mould	06 00612 40	Ø 250 - 300 mm	Ø 250 - 300 mm
Ø 170 mm with 10-cavity Ø 28 mm mould	06 00612 50	Ø 300 mm	Ø 300 mm
Universal sample-holder ADAPTOR KIT for MASTERLAM 1.0 and 3.0	06 K0010 00		X

- In order to use the universal sample-holders with the polishing machine SMARTLAM 2.0, the machine must be fitted with a SPRINGLAM pressure arm.

- The universal sample-holders are not compatible with the individual pressure polishing machine MASTERLAM 2.0.

SPRINGLAM pressure arm

▸▸ FIXING ACCESSORIES

The discs and plates FAS®, FMS®, X LAM® and FIX LAM® allow you to easily fix all your discs whether self-adhesive or not for simplified manipulations.

Self-adhesive CAMEO®DISK and polishing cloths

FAS® disc

Aluminium or PVC plates

Self-adhesive CAMEO®DISK and polishing cloths

FAS®M disc

Magnetic plates

FAS®

The solution for adhesive fixing.

The FAS® system facilitates the sticking and unsticking of all self-adhesive supports (abrasive papers, grinding and polishing discs). It avoids the tedious cleaning of plates dirtied by glue remains whenever a self-adhesive disc is removed.

The patented material comprising the FAS® system allows combining the softness and regularity of the abrasion of a flexible coating with the inherent flatness obtained with a metal support.

Available in 2 versions:

- FAS®: rigid self-adhesive, fixes to your machine's plate, regardless of the diameter. Its small thickness (1 mm) guarantees the initial inherent flatness of the master plate.
- FAS®-M: magnetic, equipped with an adaptable support on a magnetic plate.

Magnetic CAMEO®DISK

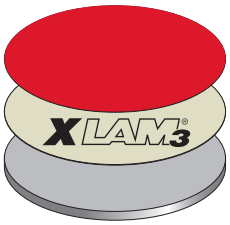
FMS disc

Aluminium or PVC plates

FMS

The fixing system by magnetic attachment.

The FMS magnetic disc sticks to all types of support plates. It is also available in an FMS plate and adapts to all existing machines.



Magnetic or non-adhesive cloths Series X LAM®

X LAM®3 disc

Aluminium or PVC plates

X LAM®3 NEW

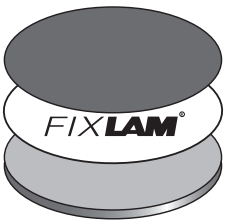
X LAM®3: the fixing system by contact.

The X LAM®3 disc consists of an adhesive or magnetic side which is fixed to the polishing machine's plate and an active side which allows holding X LAM®3 series polishing cloths (without adhesive) and CAMEO®DISK magnetic grinding discs.

The new X LAM®3 is recommended when very high sticking is requiered. Long life.

The X LAM®3 is available in large diametres :

- X LAM®3: adhesive backside.
- X LAM®3-M: magnetic backside.



Non-adhesive abrasive papers

FIX LAM® disc

Aluminium or PVC plates

FIX LAM®

The repositionable adhesive system.

The FIX LAM® allows maintaining the non-adhesive abrasive papers thanks to a repositionable adhesive surface.

Available in two versions :

- FIX LAM®: adhesive backside.
- FIX LAM®-M: magnetic backside.

Applications table

	Machine equipment	
	Aluminimum plate	Magnetic plate
Non-adhesive abrasive paper	FIX LAM®	FIX LAM®-M
Magnetic CAMEO®DISK Non-adhesive polishing cloth	X LAM®	X LAM®-M
Self-adhesive CAMEO®DISK Self-adhesive abrasive paper Self-adhesive polishing cloth	FAS®	FAS®-M
Magnetic CAMEO®DISK Magnetic polishing cloth	FMS	-

LAM PLAN ADVISES YOU

FAS® fixing system

FAS® DISCS			
Characteristics	**Quantities**	**Ø mm**	**References**
Self-adhesive backside	1	200	05 FAS00 20
	1	230	05 FAS00 30
	1	250	05 FAS00 40
	1	300	05 FAS00 50
	1	400	05 FAS00 80
FAS®-M DISCS			
Magnetic backside	1	200	05 FAS0M 20
	1	230	05 FAS0M 30
	1	250	05 FAS0M 40
	1	300	05 FAS0M 50
	1	400	05 FAS0M 80

FMS fixing system

FMS DISCS			
Characteristics	**Quantities**	**Ø mm**	**References**
Self-adhesive backside	1	200	08 82801 10
	1	230	08 82802 10
	1	250	08 82803 10
	1	300	08 82804 10
	1	400	08 82807 10
FMS PLATES			
Aluminium plate equipped wih an FMS disc adaptable on polishing machines	1	200	08 82801 00
	1	230	08 82802 00
	1	250	08 82803 00
	1	300	08 82804 00
	1	400	08 82807 00

X LAM®3 fixing system

X LAM®3 DISCS			
Self-adhesive backside	1	200	04 XLAM3 20
	1	250	04 XLAM3 40
	1	300	04 XLAM3 50
	1	350	04 XLAM3 90
	1	400	04 XLAM3 80
X LAM®3-M DISCS			
Magnetic backside	1	200	04 XLAM3M 20
	1	250	04 XLAM3M 40
	1	300	04 XLAM3M 50
	1	350	04 XLAM3M 90
	1	400	04 XLAM3M 80

FIX LAM® fixing system

FIX LAM® DISCS			
Characteristics	**Quantities**	**Ø mm**	**References**
Self-adhesive backside	5	200	05 40000 20
	5	230	05 40000 30
	5	250	05 40000 40
	5	300	05 40000 60
FIX LAM®-M DISCS			
Magnetic backside	5	200	05 4000M 20
	5	230	05 4000M 30
	5	250	05 4000M 40
	5	300	05 4000M 60

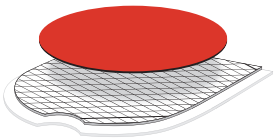
CLEANING AND STORAGE ACCESSORIES

Extend the service life of your discs thanks to the discs and plates storage system.

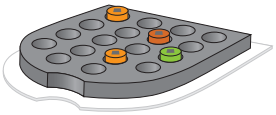
BOX LAM® 300

The BOX LAM® 300 allows storing discs and plates up to Ø 300 mm. Delivered with 10 sliding aluminium shelves, which may be equipped, among others, with a foam template to store your samples. The large transparent cover and the shelf arrangement allow an optimum visibility of the stored products.

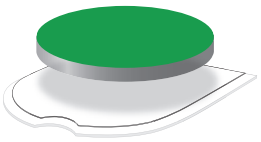
Accessories



Diamond tip plexiglass shelf, specially studied for the storage of adhesive discs



Foam template for the storage and protection of samples



Smooth white PVC protection for the storage of plates

BOX LAM®

The BOX LAM® is an economic piece of furniture to arrange and store in a dust-free space 6 grinding and polishing discs, particularly removable self-adhesive cloths up to 300 mm Ø.
The BOX LAM® is equipped with a transparent closing flap, 6 shelves and a storage drawer.

COVER LAM®

The COVER LAM® is a self-adhesive protection disc which is applied to the clean and polished sample to efficiently preserve its surface condition and protect it from ambient environment attacks. The COVER LAM® does not require any cleaning of the polished sample after it has been removed.

Ultrasonic cleaning tanks M.M.80 and M.M.275

The efficiency of ultrasonic cleaning.

The ultrasonic process is the most used to clean the parts because it guarantees a rapid and efficient result, while avoiding the deterioration of the materials. 2 tank capacities are available: 0.8 and 2.75 litres.
The tank, consisting of a container and a basket made of stainless steel, is equipped with a timer from 0 to 30 minutes.

LAM® 15

Technical wipings of samples without micro-scratches.

The LAM®15 cloth allows you to eliminate and wipe off easily the halos left by cleaning liquids or water.

BOX LAM® storage system

BOX LAM® DISCS PRESERVATIVE UNIT			
Characteristics	**Quantities**	**Dimensions mm**	**Reference**
Economic model for 6 self-adhesive discs	1	W 340 x D 340 x H 450	08 BL100 00

BOX LAM® 300 storage system

PLATE AND DISC STORAGE PRESERVATIVE UNIT			
Characteristics	**Quantities**	**Dimensions mm**	**References**
Storage for 10 discs or plates up to Ø 300 mm and storage for samples (according to options)	1	W 400 x D 490 x H 470	08 BL300 00
FOAM TEMPLATE			
Storage template for samples, self-adhesive foam	2	W 320 x D 330 x H 10	08 BL300 20
"DIAMOND" PLEXIGLASS SHELF			
Self-adhesive diamond tip plexiglass shelf specially studied for the storage of adhesive discs	2	W 320 x D 330 x H 2	08 BL300 40
PVC PROTECTION			
Self-adhesive protection sheet made of smooth white PVC	10	W 320 x D 330	08 BL300 60

COVER LAM® protection system

COVER LAM®			
Characteristics	**Quantities**	**Ø mm**	**Reference**
Disc for the protection of metallographic samples after polishing	100	50	08 COV00 00

Cleaning devices

ULTRASONIC CLEANING TANK M.M.80			
Characteristics	**Quantities**	**Capacities litre**	**References**
Stainless steel container with stainless steel basket Timer from 0 to 30 minutes	1	0,8	60 US100 00
ULTRASONIC CLEANING TANK M.M.275			
Stainless steel container with stainless steel basket Timer from 0 to 30 minutes	1	2,75	60 US200 00

Cleaning products

DETERGENT 742		
Characteristics	**Quantities**	**References**
Detergent for ultrasonic cleaning tank (dilution < 10% in water)	5 litres	08 01742 10
	1 litre	08 01742 00
TECHNICAL WIPINGS LAM 15		
Cloths 320 x 400 mm	2 x 24 cloths	08 LAM15 00
Cloths 80 mm Ø	400	08 LAM15 20

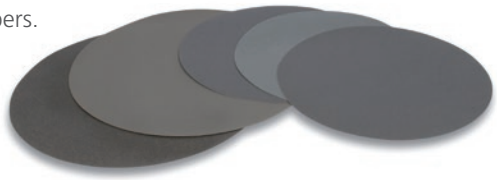
GRINDING AND PRE-POLISHING DISCS

Standard SiC abrasive papers

Available from P80 to P4000 of 200 to 400 mm Ø.

The LAM PLAN abrasive papers respond to very strict quality standards. The calibration of the silicon carbide grains is guaranteed for the European standards FEPA regardless of their sizes (P80 to P4000).

The resistance of the resins used to maintain the abrasive grains gives to the LAM PLAN abrasive papers a high resistance to heat and moisture. The orientation of the grains is obtained by an electrostatic process. The choice of the support paper (thickness and basis weight) is adapted to the grain's thickness used to reduce the wear of the abrasive papers. The paper is made impermeable in its mass and on the surface.



Excellence SiC abrasive papers

Available from P80 to P1200 of Ø 200 to 400 mm.

The standard checks of the abrasive paper generally manufactured in large quantities are sometimes insufficient to avoid that complete disc series are outside the standards required by our Metallography laboratory, LAM PLAN creates the Excellence Range and its double guarantee.

The Excellence abrasive papers boxes belong to the same manufacture batch and the individual check of each part guarantees the use of a quality abrasive paper.

	Grain sizes																		
FEPA standard	60	80	-	120	-	180	220	-	-	320	-	-	500	-	800	1000	1200	2400	4000
Number of US grains	60	80	100	120	150	180	220	-	240	-	280	320	-	360	400	-	600	800	1000
Grain Ø (microns)	260	200	160	125	93	76	68	58	52	46	39	35	30	25	22	18	14	10	5

LAM PLAN ADVISES YOU

- The patented FAS® system is the indispensable accessory. The FAS® is a support disc which allows positioning and unsticking without any problem the LAM PLAN self-adhesive abrasive papers on all machines. It avoids the cleaning of the plates and renders the tearing of the abrasive during usage impossible (see all our fixing systems - page 36).
- The use of non-adhesive abrasive papers is facilitated by the use of the FIX LAM® fixing system (see page 36).
- For self-adhesive abrasive papers, use the FAS® or X LAM® systems (see accessories page 36).

Standard SiC abrasive papers

Boxes of 100 pieces

Ø 200 mm		
	Self-adhesive	Non-adhesive
FEPA grains	References	References
P80	05 60080 20	05 50080 20
P120	05 60120 20	05 50120 20
P180	05 60180 20	05 50180 20
P240	05 60240 20	05 50240 20
P320	05 60320 20	05 50320 20
P400	05 60400 20	05 50400 20
P600	05 60600 20	05 50600 20
P800	05 60800 20	05 50800 20
P1000	05 61000 20	05 51000 20
P1200	05 61200 20	05 51200 20
P2400	05 62400 20	05 52400 20
P4000	05 64000 20	05 54000 20

Ø 230 mm		
	Self-adhesive	Non-adhesive
FEPA grains	References	References
P80	05 60080 30	05 50080 30
P120	05 60120 30	05 50120 30
P180	05 60180 30	05 50180 30
P240	05 60240 30	05 50240 30
P320	05 60320 30	05 50320 30
P400	05 60400 30	05 50400 30
P600	05 60600 30	05 50600 30
P800	05 60800 30	05 50800 30
P1000	05 61000 30	05 51000 30
P1200	05 61200 30	05 51200 30
P2400	05 62400 30	05 52400 30
P4000	05 64000 30	05 54000 30

Ø 250 mm		
	Self-adhesive	Non-adhesive
FEPA grains	References	References
P80	05 60080 40	05 50080 40
P120	05 60120 40	05 50120 40
P180	05 60180 40	05 50180 40
P240	05 60240 40	05 50240 40
P320	05 60320 40	05 50320 40
P400	05 60400 40	05 50400 40
P600	05 60600 40	05 50600 40
P800	05 60800 40	05 50800 40
P1000	05 61000 40	05 51000 40
P1200	05 61200 40	05 51200 40
P2400	05 62400 40	05 52400 40
P4000	05 64000 40	05 54000 40

Ø 300 mm		
	Self-adhesive	Non-adhesive
FEPA grains	References	References
P80	05 60080 50	05 50080 50
P120	05 60120 50	05 50120 50
P180	05 60180 50	05 50180 50
P240	05 60240 50	05 50240 50
P320	05 60320 50	05 50320 50
P400	05 60400 50	05 50400 50
P600	05 60600 50	05 50600 50
P800	05 60800 50	05 50800 50
P1000	05 61000 50	05 51000 50
P1200	05 61200 50	05 51200 50
P2400	05 62400 50	05 52400 50
P4000	05 64000 50	05 54000 50

Ø 305 mm		
	Self-adhesive	Non-adhesive
FEPA grains	References	References
P80	05 60080 70	05 50080 70
P120	05 60120 70	05 50120 70
P180	05 60180 70	05 50180 70
P240	05 60240 70	05 50240 70
P320	05 60320 70	05 50320 70
P400	05 60400 70	05 50400 70
P600	05 60600 70	05 50600 70
P800	05 60800 70	05 50800 70
P1000	05 61000 70	05 51000 70
P1200	05 61200 70	05 51200 70
P2400	-	05 52400 70
P4000	-	05 54000 70

Ø 400 mm		
	Self-adhesive	Non-adhesive
FEPA grains	References	References
P80	05 60080 80	05 50080 80
P120	05 60120 80	05 50120 80
P180	05 60180 80	05 50180 80
P240	05 60240 80	05 50240 80
P320	05 60320 80	05 50320 80
P400	05 60400 80	05 50400 80
P600	05 60600 80	05 50600 80
P800	05 60800 80	05 50800 80
P1000	05 61000 80	05 51000 80
P1200	05 61200 80	05 51200 80

Excellence SiC abrasive papers

Boxes of 50 pieces

Ø 200 mm		
	Self-adhesive	Non-adhesive
FEPA grains	References	References
P80	05 10080 20	05 00080 20
P120	05 10120 20	05 00120 20
P180	05 10180 20	05 00180 20
P240	05 10240 20	05 00240 20
P320	05 10320 20	05 00320 20
P400	05 10400 20	05 00400 20
P600	05 10600 20	05 00600 20
P1200	05 11200 20	05 01200 20

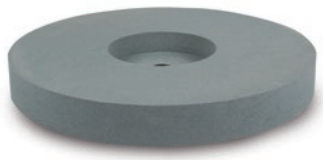
Ø 230 mm		
	Self-adhesive	Non-adhesive
FEPA grains	References	References
P80	05 10080 30	05 00080 30
P120	05 10120 30	05 00120 30
P180	05 10180 30	05 00180 30
P240	05 10240 30	05 00240 30
P320	05 10320 30	05 00320 30
P400	05 10400 30	05 00400 30
P600	05 10600 30	05 00600 30
P1200	05 11200 30	05 01200 30

Ø 250 mm		
	Self-adhesive	Non-adhesive
FEPA grains	References	References
P80	05 10080 40	05 00080 40
P120	05 10120 40	05 00120 40
P180	05 10180 40	05 00180 40
P240	05 10240 40	05 00240 40
P320	05 10320 40	05 00320 40
P400	05 10400 40	05 00400 40
P600	05 10600 40	05 00600 40
P1200	05 11200 40	05 01200 40

Ø 300 mm		
	Self-adhesive	Non-adhesive
FEPA grains	References	References
P80	05 10080 50	05 00080 50
P120	05 10120 50	05 00120 50
P180	05 10180 50	05 00180 50
P240	05 10240 50	05 00240 50
P320	05 10320 50	05 00320 50
P400	05 10400 50	05 00400 50
P600	05 10600 50	05 00600 50
P1200	05 11200 50	05 01200 50

Grinding wheels

The LAM PLAN grinding wheels are used to grind samples on automatic high-speed grinding machines. They are available in two qualities : Al2O3 – grain 60 and SiC – grain 150.



▸ Applications table

Wheels	Applications	Lubricant
Al2O3 – grain 60	For grinding of soft, ductile materials < HV200	Water
SiC – grain 150	For grinding of all materials > HV200	

1 piece

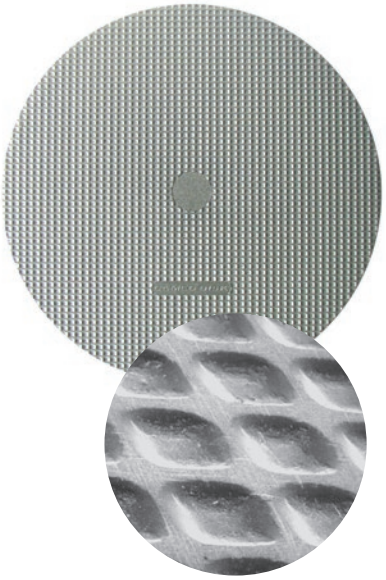
GRINDING WHEEL : Al_2O_3 – Grain 60	
Ø mm	Reference
355	05 M0060 80

1 piece

GRINDING WHEEL : SiC – Grain 150	
Ø mm	Reference
355	05 M0150 80

GRINDING AND PRE-POLISHING DISCS CAMEO®DISK

CAMEO®DISK

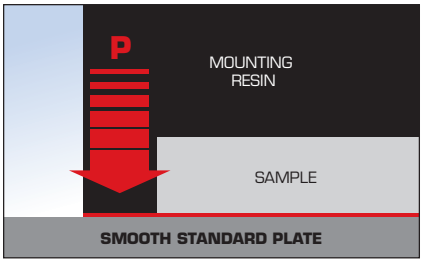


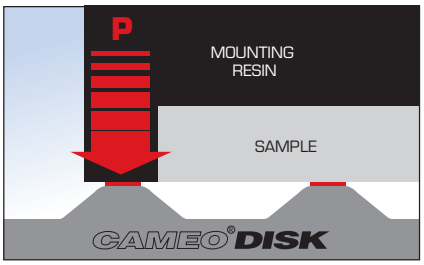
Grinding and polishing are key steps in the preparation of a metallographic sample. It is the quality of these steps which will condition and optimize the rest of the process. At the end of the grinding step, the sample's aspect must be uniform and regular without altering the inherent flatness or the material. The CAMEO®DISK's performances in terms of stock removal reduce the work time on the part, thereby guaranteeing the sample's inherent flatness, an indispensable condition to succeed with your metallographic study.

A patented honeycomb cell structure

Stock removal

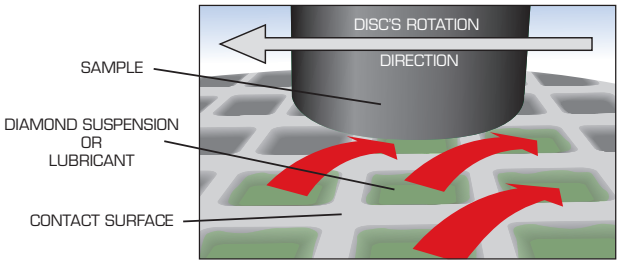
The CAMEO®DISK honeycomb cell structure allows decreasing the surface in contact with the sample to be polished. The pressure required to grind the sample is much less than that generally applied during the use of a solid disc. The equipment is less stressed and the risks of tearing out the grinding disc are significantly reduced.





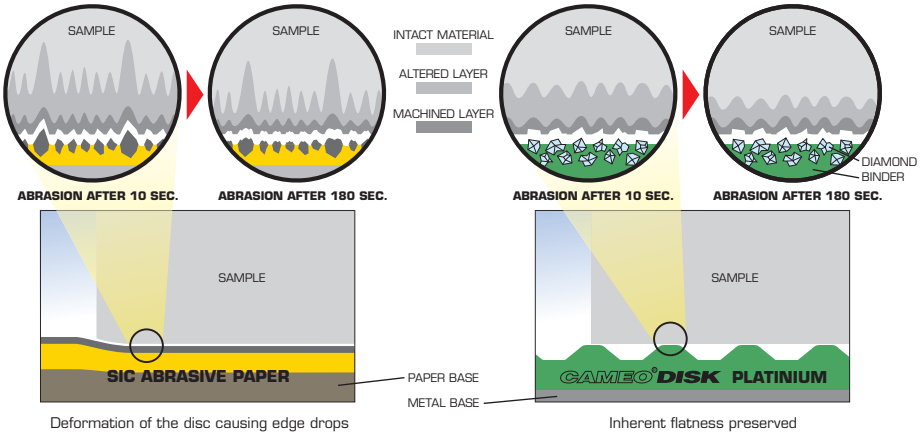
Reproducibility

The profile of the honeycomb cells was specially studied to optimize the circulation of the lubricant from one cavity to another. The abrasion residues are evacuated, guaranteeing a constant abrasive power and therefore a regularity of the result throughout the grinding and polishing steps.



Preparation quality

For a process usually performed with several SiC abrasive papers, LAM PLAN proposes to you a single, reusable disc: the CAMEO®DISK. Contrary to SiC abrasive papers, CAMEO®DISK's constant abrasion prevents the formation of deep disturbed layers during the first few seconds of machining.

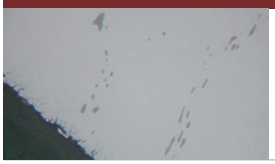


Deformation of the disc causing edge drops

Inherent flatness preserved

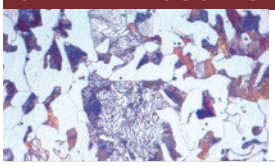
Metallographic process examples

ALLIED STEEL



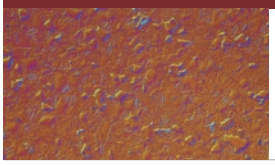
Water	Water	Neodia 3M
CAMEO Platinium 1	CAMEO Platinium 4	3TL1

SEMI-HARD / SOFT STEEL



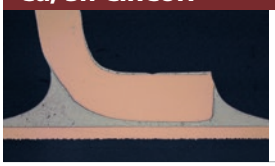
Water	Neodia 6M	Neodia 3M	Neodia 1M
CAMEO Platinium 2	CAMEO Gold	2TS3	4FV1

TITANIUM TA6V



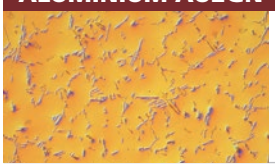
Neodia 6P	Neodia 6P	Final liquid
CAMEO Silver	2TT1	4MP1

Cu, Sn CIRCUIT



Water	Neodia 6M	Neodia 1P	Neodia 1P
CAMEO Platinium 3	CAMEO Gold	3SE2	4FV1

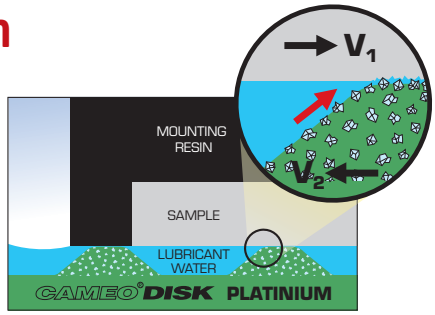
ALUMINIUM AU2GN



Water	Neodia 6M	MM140	MM140
Abrasive paper P600	CAMEO Gold	2TS3	4FV1

CAMEO®DISK Platinium 0, 1, 2, 3 and 4

The CAMEO®DISK Platinium discs are diamond discs (fixed abrasive) which are ideal for a rapid grinding of metallographic samples.
The use of diamond integrated in the CAMEO®DISK Platinium honeycomb cell structure allows preserving a constant stock removal throughout the operation, which prevents the appearance of edge drops, including on samples of heterogeneous hardness.



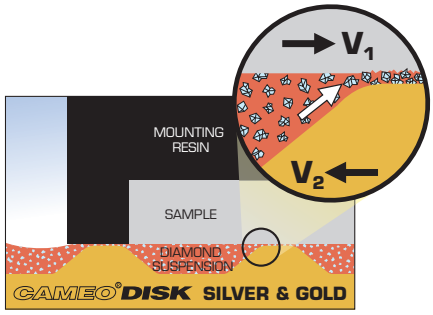
Booster

Improve the efficiency of CAMEO®DISK Platinium, keep the efficiency constant in time. **Further information on page 131.**

Booster for CAMEO®DISK Platinium

CAMEO®DISK Silver & Gold

The CAMEO®DISK Silver & Gold discs are non diamond grinding discs developed to be used with Bio DIAMANT® abrasive products (free abrasives). Combined with the large NEODIA® abrasives range, the latest products of the Bio DIAMANT® abrasive range, they allow treating all types of materials.
The patented CAMEO®DISK honeycomb cell structure allows the uniform, regular distribution of the periodically pulverized diamond abrasive suspension. The use of the abrasive suspension is optimized, thereby reducing the diamond product's consumption.



CAMEO®DISK are available in magnetic or self-adhesive versions and can be associated with the various LAM PLAN® fixing systems (see pages 108 to 110).

LAM PLAN ADVISES YOU

▸ **Applications table**

CAMEO®DISK	Equivalences	Applications	Fluid/Suspension
Platinium 0 Brown Platinium 1 Blue Platinium 2 Green Platinium 3 Yellow Platinium 4 Red	SiC paper P80 SiC paper P120 SiC paper P240 SiC paper P600 SiC paper P1200	For polishing hard materials (> 120 HV)	Water
Silver		For grinding of semi-hard, hard and very hard materials (> 200HV)	Diamond suspension Neodia® M or P or Primeo 6 to 15 µm
Gold		For grinding soft and non ferrous materials	Diamond suspension Neodia® M or P or Primeo 3 to 6 µm

To guarantee constancy in the results, CAMEO®DISKs must be periodically grinded with adequate abrasive stones.

CAMEO®DISK Platinium 0, 1, 2, 3 and 4

Boxes of 1 piece + 1 abrasive stone

PLATINIUM 0 BROWN		
	Self-adhesive	Magnetic
Ø in mm	References	References
200	09 CA170 20	09 CA570 20
230	09 CA170 30	09 CA570 30
250	09 CA170 40	09 CA570 40
300	09 CA170 50	09 CA570 50

PLATINIUM 1 BLUE		
	Self-adhesive	Magnetic
Ø in mm	References	References
200	09 CA140 20	09 CA540 20
230	09 CA140 30	09 CA540 30
250	09 CA140 40	09 CA540 40
300	09 CA140 50	09 CA540 50

PLATINIUM 2 GREEN		
	Self-adhesive	Magnetic
Ø in mm	References	References
200	09 CA150 20	09 CA550 20
230	09 CA150 30	09 CA550 30
250	09 CA150 40	09 CA550 40
300	09 CA150 50	09 CA550 50

PLATINIUM 3 YELLOW		
	Self-adhesive	Magnetic
Ø in mm	References	References
200	09 CA160 20	09 CA560 20
230	09 CA160 30	09 CA560 30
250	09 CA160 40	09 CA560 40
300	09 CA160 50	09 CA560 50

PLATINIUM 4 RED		
	Self-adhesive	Magnetic
Ø in mm	References	References
200	09 CA180 20	09 CA580 20
230	09 CA180 30	09 CA580 30
250	09 CA180 40	09 CA580 40
300	09 CA180 50	09 CA580 50

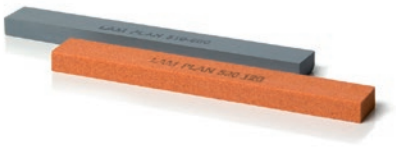
NEW

Booster for CAMEO®DISK Platinium (see page 131): maintains the efficiency of the CAMEO®DISK without using the abrasive stone.

Dressing tool

2 pieces

ABRASIVE STONES FOR CAMEO®DISK Platinium		
Types	Characteristics	Reference
Grain 120 for Platinium 0 & 1	6 x 13 x 100 mm	98 59121 00
Grain 400 for Platinium 2	6 x 13 x 100 mm	98 59401 00
Grain 600 for Platinium 3 & 4	6 x 13 x 100 mm	98 59601 00



CAMEO®DISK Silver & Gold

Boxes of 2 pieces + 1 abrasive tool

SILVER		
	Self-adhesive	Magnetic
Ø in mm	References	References
200	09 CA120 20	09 CA520 20
230	09 CA120 30	09 CA520 30
250	09 CA120 40	09 CA520 40
300	09 CA120 50	09 CA520 50

GOLD		
	Self-adhesive	Magnetic
Ø in mm	References	References
200	09 CA130 20	09 CA530 20
230	09 CA130 30	09 CA530 30
250	09 CA130 40	09 CA530 40
300	09 CA130 50	09 CA530 50

Dressing tool

DIAMOND TOOL FOR CAMEO®DISK Silver & Gold		
Characteristics	Quantities	Reference
100 x 15 x 5 mm	1	98 BD001 00

▸▸ POLISHING CLOTHS & PADS

TOUCHLAM®

When the super finish stage is started, it is indispensable to use a cloth perfectly adapted to its need. LAM PLAN proposes a new generation of TOUCHLAM® polishing cloths. These cloths were developed to privilege easy usage, durability and result quality thanks to the introduction of new materials and treatments in their manufacture.

To facilitate removal of the protective foil stickers, TOUCHLAM® discs now come with a tab.

Designed for automatic and manual polishings, our cloths are available in all commonly used diameters according to several fixing modes: self-adhesive, magnetic and X LAM®.

▸ **Self-adhesive polishing cloths** benefit from a new extra thin rigid support between the active surface and the new fixing adhesive, guaranteeing a general enhanced inherent flatness and easy positioning on the FAS® disc.

▸ **Magnetic polishing cloths** are equipped with a new flexible magnetic backside, preventing any permanent mechanical deformation (fold) and the risk of cut during manipulation. They adhere magnetically to the FMS disc.

▸ **X LAM® polishing cloths** benefit from a construction which improves their inherent flatness and their resistance when they are used with the XLAM® support disc.

Depending on your result requirements, LAM PLAN advises you on your selection of cloths. The main criteria taken into account in the choice of a cloth are its abilities to remove material, ensure inherent flatness and guarantee a degree of finish (page 122).

Special attention was paid to the packaging of our polishing cloths, which have become 100% recyclable. We decided to and have reduced by 80% the quantity of inner and outer packaging plastics.

These new packagings consolidate the Eco-Commitment approach adopted by our company.

Self-adhesive cloth on FAS® support

Magnetic cloth on FMS® support

X LAM® cloth on X LAM® support

See all the LAM PLAN fixing systems (pages 36 to 38)

TOUCHLAM® cloths

TOUCHLAM® 2FC1

(replaces 416)

Impregnated non-woven fibres.
Stock removal, finish on extra hard materials.
Usable with diamond abrasives of 3 to 9 µm.

TOUCHLAM® 2TT1

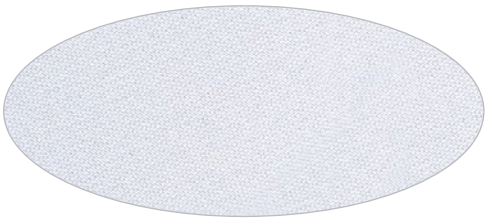
(replaces 415 and NEW LAM® Yellow)

Taffeta woven synthetic fibres.
Stock removal and inherent flatness on difficult materials.
Usable with diamond abrasives of 6 to 15 µm.

TOUCHLAM® 2TS3

(replaces 410 and 4X4)

Extra-thin satin woven natural fibres.
Excellent inherent flatness, finish, preservation of inclusions and preservation of edges on all materials.
Usable with diamond abrasives of 2 to 9 µm.



TOUCHLAM® 2TS4

(replaces MM414 and NEW LAM® Orange)

Satin woven natural fibres.
Excellent inherent flatness, finish, preservation of edges.
Specially on sample composed of materials of various hardnesses or with coating. Long service life.
Usable with diamond abrasives of 1 to 6 µm.

TOUCHLAM® 3SE2

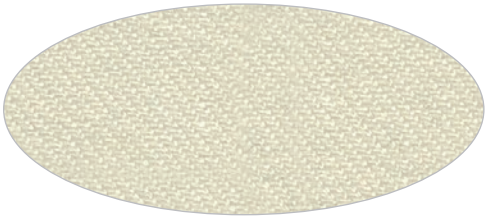
(replaces Touchlam 3SE1)

Woven synthetic silk fibres.
Cloth for finish and inherent flatness on soft materials.
May be used with diamond abrasives from 1 to 3µm.

TOUCHLAM® 3TL1

(replaces 4X3)

Highly resistant woven wool fibres.
Adapted for the finish of non-mounted samples.
Long service life.
Usable with diamond abrasives of 3 to 6 µm.



TOUCHLAM® 3FV1

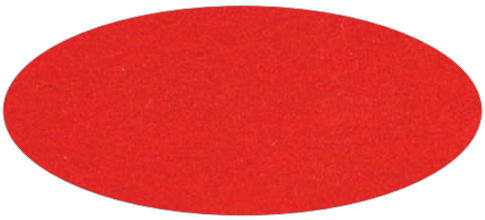
(replaces 432 and 442)

Semi-hard flocked short viscose fibres.
Super finish, preservation of the inherent flatness on mounted hard materials.
Usable with diamond abrasives of 1 to 3 µm.

TOUCHLAM® 4FV1

(replaces MM431 and NEW LAM® Red)

Soft flocked long viscose fibres.
High super finish on a wide variety of materials, including very soft materials.
Usable mainly with diamond abrasives of 0.25 to 3 µm, but also with alumina suspension and colloidal silica.



TOUCHLAM® 4MP1

(replaces Aquablack)

Microporous polyurethane foam.
Adapted to sensitive samples requiring an extreme super finish chemical abrasives.
Usable with oxides or colloidal silica.

TOUCHLAM® 4MP2

Microporous polyurethane foam.
High thickness. Long service life.
Usable in production process.
Usable with oxides or colloidal silica.

LAM PLAN ADVISES YOU

Summary table

TOUCHLAM® cloths	Replaces	Characteristics				Applications
		SR*	Flatness	Finish	Super finish	
2FC1	416	+	+			Fine grinding of soft materials Polishing of hard to extra hard materials
2TT1	415 / NEW LAM® Yellow	+	+			Rough polishing on ductile materials
2TS3	410 / 4X4		+	+		Fine polishing (intermediary) on all materials Final polishing on hard materials
2TS4	MM414 / NEW LAM® Orange		+	+		Fine polishing (intermediary) on all materials
3SE2	Cameo® White and 3SE1		+	+		Fine polishing (intermediary) on soft materials
3TL1	4X3			+		Medium to fine polishing on semi-hard to hard materials
3FV1	432				+	Final polishing on semi-hard to hard materials
4FV1	NEW LAM® Red / MM431				+	Final polishing on semi-hard to hard materials
4MP1	Aquablack				+	Chemical/mechanical polishing on varied materials
4MP2					+	Chemical/mechanical polishing on varied materials. Long service life

**Stock Removal*

TOUCHLAM® cloths

Boxes of 5 pieces

2FC1

	Self-adhesive	Magnetic	X LAM
Ø mm	References	References	References
200	2FC10A02005	2FC10M02005	2FC10X02005
230	2FC10A02305	2FC10M02305	2FC10X02305
250	2FC10A02505	2FC10M02505	2FC10X02505
300	2FC10A03005	2FC10M03005	2FC10X03005
400	2FC10A04005		

2TT1

	Self-adhesive	Magnetic	X LAM
Ø mm	References	References	References
200	2TT10A02005	2TT10M02005	2TT10X02005
230	2TT10A02305	2TT10M02305	2TT10X02305
250	2TT10A02505	2TT10M02505	2TT10X02505
300	2TT10A03005	2TT10M03005	2TT10X03005
400	2TT10A04005		

2TS3

	Self-adhesive	Magnetic	X LAM
Ø mm	References	References	References
200	2TS30A02005	2TS30M02005	2TS30X02005
230	2TS30A02305	2TS30M02305	2TS30X02305
250	2TS30A02505	2TS30M02505	2TS30X02505
300	2TS30A03005	2TS30M03005	2TS30X03005
400	2TS30A04005		

2TS4

	Self-adhesive	Magnetic	X LAM
Ø mm	References	References	References
200	2TS40A02005	2TS40M02005	2TS40X02005
230	2TS40A02305	2TS40M02305	2TS40X02305
250	2TS40A02505	2TS40M02505	2TS40X02505
300	2TS40A03005	2TS40M03005	2TS40X03005
400	2TS40A04005		

3SE2 NEW

	Self-adhesive	Magnetic	X LAM
Ø mm	References	References	References
200	3SE20A02005	3SE20M02005	3SE20X02005
230	3SE20A02305	3SE20M02305	3SE20X02305
250	3SE20A02505	3SE20M02505	3SE20X02505
300	3SE20A03005	3SE20M03005	3SE20X03005
400	3SE20A04005		

3TL1			
	Self-adhesive	Magnetic	X LAM
Ø mm	References	References	References
200	3TL10A02005	3TL10M02005	3TL10X02005
230	3TL10A02305	3TL10M02305	3TL10X02305
250	3TL10A02505	3TL10M02505	3TL10X02505
300	3TL10A03005	3TL10M03005	3TL10X03005
400	3TL10A04005		

3FV1			
	Self-adhesive	Magnetic	X LAM
Ø mm	References	References	References
200	3FV10A02005	3FV10M02005	3FV10X02005
230	3FV10A02305	3FV10M02305	3FV10X02305
250	3FV10A02505	3FV10M02505	3FV10X02505
300	3FV10A03005	3FV10M03005	3FV10X03005
400	3FV10A04005		

4FV1			
	Self-adhesive	Magnetic	X LAM
Ø mm	References	References	References
200	4FV10A02005	4FV10M02005	4FV10X02005
230	4FV10A02305	4FV10M02305	4FV10X02305
250	4FV10A02505	4FV10M02505	4FV10X02505
300	4FV10A03005	4FV10M03005	4FV10X03005
400	4FV10A04005		

4MP1			
	Self-adhesive	Magnetic	X LAM
Ø mm	References	References	References
200	4MP10A02005	4MP10M02005	4MP10X02005
230	4MP10A02305	4MP10M02305	4MP10X02305
250	4MP10A02505	4MP10M02505	4MP10X02505
300	4MP10A03005	4MP10M03005	4MP10X03005
400	4MP10A04005		

4MP2			
	Self-adhesive	Magnetic	X LAM
Ø mm	References	References	References
200	4MP20A02005	4MP20M02005	4MP20X02005
230	4MP20A02305	4MP20M02305	4MP20X02305
250	4MP20A02505	4MP20M02505	4MP20X02505
300	4MP20A03005	4MP20M03005	4MP20X03005
400	4MP20A04005		

ABRASIVE: LIQUID PREPARATIONS

Bio DIAMANT® abrasive suspensions

For many years the LAM PLAN R&D Department has been committed to developing advanced products which are more user health oriented and aimed at preserving the environment without compromising effectiveness.

Total procurement and traceability warranty.

Conformity to the REACH regulation.

LAM PLAN set up all the arrangements needed for its application in order to guarantee the quality and availability of all its products over the long term. All the substances contained in our preparations comply with the REACH regulation's specifications. To facilitate your administrative formalities, all the Safety Data Sheets (SDS) of our products conform to the legislation in force and can be downloaded on www.lamplan.fr/fds.

Bio DIAMANT® abrasive suspensions NEODIA® M and P

In direct line with our famous Bio DIAMANT® range, the new NEODIA® diamond abrasive suspensions go even further in terms of performance, efficiency and user comfort. The NEODIA® diamond suspension is a top-of-the-range product featuring exceptional performances.

Enhanced roughness
The quality of the used abrasive, the tight criteria of calibration and concentration, as well as the use of new generation water-based binders allow obtaining better roughness results while preserving a high stock removal. The binder consistency allows under a cutting action starting at the first seconds of usage.

Free of VOCs
The new NEODIA® diamond suspensions are composed of a specific new generation binder; this liquid is free of volatile organic compounds (VOCs). The NEODIA® diamond suspension is of course biodegradable at more than 70% in accordance with the criteria of our Bio DIAMANT® label. Non toxic and harmless, they are neutral; the user's work conditions are thus respected.

Biodegradable packaging: reduction of your activity's environmental impact
For the first time in the polishing industry a diamond suspension is packaged in a plastic bottle of vegetal origin which is 100% biodegradable and compostable according to the standard 13 432 (for 200 and 400 ml packagings).

NEODIA®
LIQUIDE DIAMANT
DIAMOND LIQUID

LAM PLAN received the 2011 Innovation Prize awarded by the Association of Thermal and Surface Treatments for its VOC-free diamond suspensions

Bio DIAMANT® M.M. 140 finishing liquid

High yield emulsion for the super finish of all materials.
High concentration.
Cleaning with solvent or detergent 742.

Bio DIAMANT® Pulmatic 310 and 320P liquids

For large surface polishing.

The Pulmatics are proposed in a practical packaging for a very good distribution of the product over the work surface. They are free of any propulser gas (pumped ambient air).

Pulmatic 310 is a monocrystalline diamond liquid of a medium alcohol based concentration.

Pulmatic 320P is a polycrystalline diamond liquid of a medium alcohol based concentration.

Finishing liquids

Final finishing liquid

Aqueous suspension of non-agglomerated nanometric silica stabilized in an alkaline medium. Used to carry out super finish polishings to obtain ultra low roughness. Very easy-to-use and applicable on all types of materials.

▸ **Usage recommendation:** dilute 10 to 20% in water.

L1 finishing liquid

Final polishing suspension specially formulated for mechano-chemical polishing.
During usage, the active substances of the solution embrittle the surface to be polished, thereby optimizing the efficiency of the abrasive grains. Allows combining performances (stock removal) and polishing quality. Recommended for titanium and its alloys.

▸ **Usage recommendation:** ready-to-use preparation.

L2 finishing liquid

Composite solution of ceramic oxides and silicas. Ideal to prepare your surfaces before the super finish step. Recommended for the polishing of aluminium and its alloys.

▸ **Usage recommendation:** ready-to-use preparation.

ALPLAN liquids

New final polishing solutions composed of aluminium oxides of a very high purity.
These alumina preparations are subjected to a pushed de-agglomeration treatment, which allows obtaining polishings of excellent quality. Easy-to-use, ALPLAN solutions are usable on all types of materials.

▸ **Usage recommendation:** use pure or diluted up to 50% with water.

Bio DIAMANT® abrasive suspensions

NEODIA®M

		200 ml	Refill: 400 ml	Refill: 1 l	Refill: 2,5 l
Types	µm	References	References	References	References
1/4 M	1/4	02 97460 80	02 97460 60	02 97460 20	02 97460 30
1 M	1	02 01460 80	02 01460 60	02 01460 20	02 01460 30
2 M	2	02 02460 80	02 02460 60	02 02460 20	02 02460 30
3 M	3	02 03460 80	02 03460 60	02 03460 20	02 03460 30
6 M	6	02 06460 80	02 06460 60	02 06460 20	02 06460 30
9 M	9	02 09460 80	02 09460 60	02 09460 20	02 09460 30
14 M	14	02 14460 80	02 14460 60	02 14460 20	02 14460 30

Diamond suspension / Monocrystalline product / Does not have to be agitated

NEODIA®P

		200 ml	Refill: 400 ml	Refill: 1 l	Refill: 2,5 l
Types	µm	References	References	References	References
1/4 P	1/4	02 97469 80	02 97469 60	02 97469 20	02 97469 30
1 P	1	02 01469 80	02 01469 60	02 01469 20	02 01469 30
2 P	2	02 02469 80	02 02469 60	02 02469 20	02 02469 30
3 P	3	02 03469 80	02 03469 60	02 03469 20	02 03469 30
6 P	6	02 06469 80	02 06469 60	02 06469 20	02 06469 30
9 P	9	02 09469 80	02 09469 60	02 09469 20	02 09469 30
14 P	14	02 14469 80	02 14469 60	02 14469 20	02 14469 30

Diamond suspension / Polycrystalline product / Does not have to be agitated

M.M.140

Characteristics	Type	Packaging	Reference
High yield emulsion for the finish of all materials	M.M.140	250 ml	02 MM140 00

Bio DIAMANT® Pulmatic

SERIES 310 – 75 g				
Characteristics	**Concentrations**	**Types**	**µm**	**References**
Monocrystalline diamond Optimum distribution of the abrasive on the polishing supports Alcohol base	Medium	025 313	1/4	03 97313 00
		1 313	1	03 01313 00
		2 313	2	03 02313 00
		3 313	3	03 03313 00
		6 313	6	03 06313 00
		8 313	8	03 08313 00
		10 313	10	03 10313 00
		14 313	14	03 14313 00
		25 313	25	03 25313 00
		40 313	40	03 40313 00
SERIES 320P - 75 g				
Polycrystalline diamond Optimum distribution of the abrasive on the polishing supports Alcohol base (free of water) Special hydrophobic products	Strong	025 323P	1/4	03 97323 00
		1 323P	1	03 01323 00
		2 323P	2	03 02323 00
		3 323P	3	03 03323 00
		6 323P	6	03 06323 00
		8 323P	8	03 08323 00
		10 323P	10	03 10323 00
		14 323P	14	03 14323 00
		25 323P	25	03 25323 00
		40 323P	40	03 40323 00

Finishing liquids

FINAL LIQUIDS			
Characteristics	**Types**	**Packagings**	**References**
Final polishing on polishing cloth All materials	Final liquid	500 g	05 NL008 00
	Final liquid	5 litres	05 NL008 40
	L1 liquid - Titanium	1 litre	05 NL0L1 00
	L2 liquid - Aluminium	1 litre	05 NL0L2 00
ALPLAN			
ALPLAN is used pure or diluted up to 50% with water	Grain size 0.05 µm	1 litre	05 AP005 00
	Grain size 0.25 µm	1 litre	05 AP025 00
	Grain size 1 µm	1 litre	05 AP100 00
	Grain size 3 µm	1 litre	05 AP300 00

Manual dispensers to be filled

MANUAL DISPENSERS		
Designations	**Quantities**	**References**
200 ml biodegradable bottle + Vaporizer – white	1	08 00514 00
400 ml biodegradable bottle + Sprayer – green	1	08 00513 00
Sprayer – green	1	08 00503 00
500 ml PET bottle + sprayer – red	1	08 00502 00

200 ml *400 ml* *500 ml*

ABRASIVE: COMPOUND PREPARATIONS

Bio DIAMANT® sticks - Series 122 and 123P

For a manual use and a dosing control.

The diamond paste is distributed according to a precise dosage thanks to a drum graduated every 0.2 g. The diamond paste is repetitively loaded on the polishing cloth without any contact with fingers. The pastes and sticks are used with lubricants types 702 or 704. The product's colour marking facilitates its identification.

The doser sticks series 122 are composed of a monocrystalline diamond paste of a strong concentration.

The doser sticks series 123P are composed of a polycrystalline diamond paste of a strong concentration.

LAM PLAN ADVISES YOU

Indicative quantities necessary to load a new cloth

Cloth Ø mm	150	200	250	300	400
Woven	0,2 g	0,2 g	0,4 g	0,4 g	0,6 g
Flocked	0,3 g	0,4 g	0,5 g	0,6 g	0,7 g

Bio DIAMANT® Pastes - Series 100

Incomparable abrasive compounds.

Designed for all grinding and polishing work, the Bio DIAMANT® Pastes contain a diamond powder free of any impurity, guaranteeing its cutting power. The perfectly calibrated grains are uniformly suspended in chemically pure ingredients. A formulation which provides a more uniform and more fluid abrasive film allows an immediate abrasion of the part to be polished. The concentration of the pastes has a direct effect on the polishing's execution rate: a high concentration is the guarantee of a high yield. Available in two ranges: mono-crystalline products, cleanable with water or alcohol, and polycrystalline products cleanable with alcohol.

Reading of the type, Example :

Paste type: 6 103
Grain size: 6 microns
Series: 100

Bio DIAMANT® STICKS SERIES 122 – 20 g

Characteristics	Concentrations	Types	µm	References
Monocrystalline diamond Consumption control Facilitated distribution Coloration by grain size Cleaning with water or alcohol	Strong	025 122	1/4	01 97122 20
		1 122	1	01 01122 20
		3 122	3	01 03122 20
		6 122	6	01 06122 20
		9 122	9	01 09122 20
		15 122	15	01 15122 20

Bio DIAMANT® STICKS SERIES 123P – 20 g

Polycrystalline diamond Consumption control Facilitated distribution Coloration by grain size Cleaning with water or alcohol	Strong	025 123P	1/4	01 97123 20
		1 123P	1	01 01123 20
		3 123P	3	01 03123 20
		6 123P	6	01 06123 20
		9 123P	9	01 09123 20
		15 123P	15	01 15123 20

Bio DIAMANT® PASTES SERIES 100 – 10 g

Monocrystalline diamond For all materials Cleaning with water or alcohol Coloration by grain size	Strong	010 103	1/10	01 99103 00
		025 103	1/4	01 97103 00
		1 103	1	01 01103 00
		2 103	2	01 02103 00
		3 103	3	01 03103 00
		6 103	6	01 06103 00
		8 103	8	01 08103 00
		14 103	14	01 14103 00

LUBRICANTS

Lubricant M.M.702

Lubricant to be used to optimize polishings with diamond pastes series 100 and Bio DIAMANT® sticks series 122 and 123P. Ready-to-use, it ensures an excellent dispersion of the abrasive and prevents the risks of heating the material during polishing. This lubricant is easily cleaned with water, alcohol or aqueous detergents (detergent 742).

Lubricant M.M.704

Alcohol-based lubricant, it is perfectly suitable for polishing samples sensitive to corrosion. Ready-to-use, it ensures a strong cooling during the work.
This lubricant is particularly recommended for the polishing of ductile materials.
For cleaning, it is recommended to use the detergent 742 or alcohols like isopropyl alcohol.

LUBRICANTS SERIES 700

Characteristics	Types	Packagings	References
Recommended as an addition to LAM PLAN diamond pastes and sticks Water base	M.M.702	1 litre	07 MM702 30
	M.M.702	5 litres	07 MM702 40
Recommended as an addition to LAM PLAN diamond pastes and Pulmatic Alcohol base	M.M.704	1 litre	07 00704 30
	M.M.704	5 x 1 litre*	07 00704 40

** packaging linked to transport restrictions*

Booster for CAMEO®DISK Platinium

Booster fluid is a new lubricant especially developed to be applied on the CAMEO®DISK Platinium during the polishing step. Its specific formulation facilitates the use of the CAMEO®DISK Platinium 1, 2, 3 and 4.
Ready to use, this new lubricant maintains the efficiency of the CAMEO®DISK constant in time and avoids the use of an abrasive stone.

The main advantages are:

- Improves the efficiency of the cameo disks,
- Keeps the efficiency constant in time,
- Reduces the consumption of water,
- Universal use, can be used on all kind of material,
- Ready to use.

BOOSTER FOR CAMEO®DISK PLATINIUM

Characteristics	Packaging	Reference
Ready to use lubricant fluid	5 litres	07 BP030 40

Distributed by:

Metallography 2016

POLISHING TECHNOLOGY ®

For 50 years LAM PLAN has been developing high performance abrasive solutions to help you meet your requirements of surface finishing.

Specialist of polishing technologies, we offer you our skills and expertise to assist you in an increasingly fine control of your lapping and polishing issues.

Every day our teams set in the most varied sectors, effective and environmental friendly processes, from R&D to recommendation and implementation of high performance abrasive solutions.

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