microdiamant

Metallography

Consumables for sample preparation

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Microdiamant – Your first choice for high-performance diamond products.

Comprehensive product range
From blades to engineered diamond slurries – Microdiamant offers a competitive product range of consumables for metallography.

Quality
Microdiamant consumables for metallographic sample preparation are your guarantee of consistent performance and perfect surfaces. With more than 60 years of experience, the quality of Microdiamant products sets the benchmark in our industry. Worldwide.

High performance
Microdiamant is synonymous for maximized surface finishing performance. Our products help you to obtain the desired result in the least amount of time. Customized diamond products have set a new standard for process results and economics.

Competent application consulting
The optimal use of our products is our goal – and your profit. With our extensive product range we can offer you a complete preparation proposal offer for a variety of materials. Ask about our preparation instructions.

Product range

Cutting

Mounting

Grinding

Diamond slurries

Polishing

Diamond compounds

microdiamant

Cutting

Diamond-, CBN- and bakelite-bonded cutting blades

Cutting

Bakelite-bonded cutting discs
The sample preparation starts with the cutting. Depending on the composition and hardness of the sample, we recommend cutting discs with different bonding hardness.
For ductile metals like titanium, we use cutting discs with a special geometry that enable free cutting.

Diamond- or CBN-bonded cutting discs
Diamond or CBN (cubic boron nitride) cutting discs are suitable for very hard and brittle materials due to the better quality and long tool life.

Cooling lubricant for the cutting
In order to achieve optimal cooling of the bakelite-bonded cutting discs, and the best possible lubrication of the diamond / CBN cutting discs, we advise the use of cooling lubricants.

Application recommendations
The following points should be observed to obtain an optimal separation cut:
- Clamp every cutting disc with a flange that has a diameter of at least $^{2}/_{3}$ of the cutting disc.
- For diamond / CBN cutting discs, check the openness of the bonding regularly and sharpen with a dressing stone if necessary.
- For the use of the cooling lubricant, it is not the quantity but the correct pressure (minimum 2 bar) that is crucial for the best possible result.
- Pay attention to continuous cooling during the cutting; no flying sparks or copious smoke formation must occur.

Mounting

Hot and cold mounting consumables, accessories

Mounting

Hot mounting consumables
Microdiamant only uses granulates as hot mounting consumables so that less soiling from dust arises during the machining. All products are shipped with instructions and comply with the current safety regulations.

The following hot mounting consumables are available from stock:

Packaging unit
Standard container:
2.5, 20 or 25 kg in airtight plastic buckets.

Other container sizes by agreement.

EPO
Mineral-filled epoxy resin (>80 °C) with good edge sharpness and minimal shrinkage.
Color: black

BAK
Phenolic resin filled with wood chips (>100 °C) for standard samples.
Color: black, red, green

BAK-L
Phenolic resin filled with graphite (>100 °C), electrically conductive.
Color: black

BAK-S
Phenolic resin filled with glass fibers (>100 °C), small gap width and high embedding quality.
Color: black

DAP
Reinforced diallyl phthalate ¬resin (>80 °C) for small parts with tighter requirements for gap width.
Color: black

CLEAR
Transparent methacrylate¬ resin (>100 °C) for transparent mounting of specimens.
Color: transparent

Cold mounting consumables
Cold mounting consumables are suitable for preparing samples of heat-sensitive materials as well as for the simultaneous, efficient manufacture of multiple individual samples.

The following 2-component mounting materials are available from stock:

MDG-K
MDG-K is a transparent standard mounting material consisting of powder and hardener. It is typically processed in a 2:1 mixture and has a hardening time of 8 to 10 minutes.
MDG-KP Powder in 2.5, 5 and 10 kg containers
MDG-KL Hardener in 500 ml and 1 l bottles

MDG-B
MDG-B is a blue colored, liquid mounting material. The standard mixing ratio is 2:1, the hardening time is 8 to 10 hours.
MDG-BP Resin in 1, 5 and 10 l bottles
MDG-BL Hardener in 500 ml and 1 l bottles

MDG-CBP
MDG-CB is an mounting material that allows sample preparation with small gap width and low shrinkage. It is white and has a hardening time of 6 to 8 minutes.
MDG-CBP Powder in 2.5, 5 and 10 kg containers
MDG-CBL Hardener in 500 ml and 1 l bottles

C1000
C1000 is an mounting material that does not develop any harmful vapors during hardening and thus can also be used without a fume extractor. The mounting material is colored blue and has a hardening time of 6 to 8 minutes.
C1000 Powder in 1, 5 and 10 kg containers
C1000 MMA Hardener, MMA-free, in 500 ml bottles

Order information
All cold mounting materials are also available as a set (resin plus hardener). Please refer to our price list for details.




Mounting accessories

The range of accessories for mounting include silicone molds, fixing clips and gloves. These products are characterized by an outstanding price/performance ratio. Please refer to our price list for the various items and sizes.

Grinding

Resin- and metal-bond diamond grinding pads, abrasive paper

Grinding with diamond grinding pads

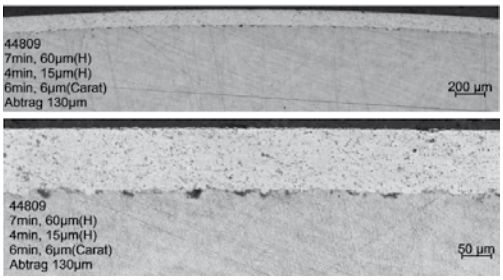
Diamond grinding pads

In addition to the already well-known PLATO, APOLLO and CARAT diamond grinding pads that have been used successfully for sample machining in metallography for many years, Microdiamant has now expanded the range of grinding pads with the SQUADRO fine grinding pad. Microdiamant is thus setting new standards in the trend to fine grinding that is increasingly replacing polishing.

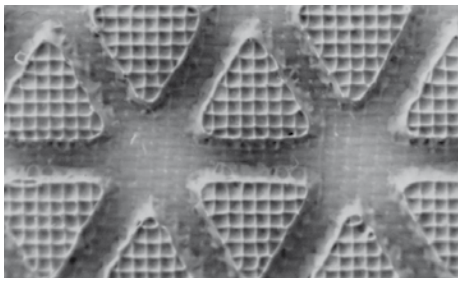
With the range of grinding pads from Microdiamant it is possible to machine up to 80% of all sample materials and coatings. Thanks to the wide range of diamond grain sizes from 3 µm to 251 µm, all process steps from rough grinding to fine grinding can be covered. Afterwards, it is only necessary to perform one or at the most two polishing steps using diamond slurries and polishing pads.

Advantages of diamond grinding pads

- The tool lifetimes of the APOLLO and SQUADRO diamond grinding pads are approx. 500 to 1,000 times longer than those of SiC grinding papers.
- APOLLO diamond grinding pads have a high removal rate and thus save a great amount of machining time.
- SQUADRO diamond grinding pads achieve a surface quality that allows polishing to be performed immediately afterwards. A lapping process is no longer necessary.
- Only water is needed for the cooling. For very demanding applications, SQUADRO can be used together with the lubricant LUB1 X20 to increase the material removal rate and surface quality.
- Microdiamant diamond grinding pads have a unique structure and can be used immediately without sharpening.
- The diamond grinding pads are self-sharpening thanks to the special resin bond.



HVOF coating



SQUADRO structure

PLATO

Metal-bond diamond grinding pad

For non-metallic samples such as ceramics, glass and rock samples we recommend the diamond grinding pad PLATO. The diamond particles on the surface are metal-bonded and ensure a high and steady removal, even in very hard materials. PLATO diamond grinding pads do not need to be pre-processed or dressed. Due to the high diamond concentration and quality the pad is self-sharpening. This grinding pad is suitable for almost all cooling lubricants because of its metal binding. In the field of stone processing even the dry usage is possible.

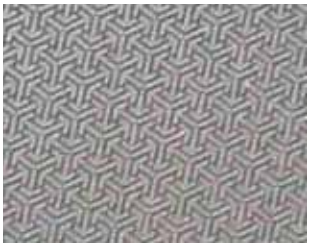
Removal
9.0 0 — 10

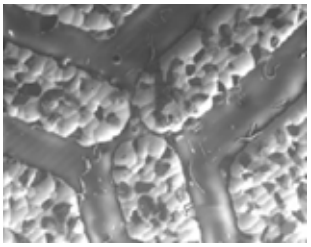
Edge sharpness
7.0 0 — 10

Life
8.0 0 — 10

Properties	
Diameter	200/250/300 mm, larger diameters on request (up to 760 mm)
Diamond size	125/75/54/10 µm
Diamond type	RBM
Bond type	metal-bond
Mounting	stainless steel carrier / self-adhesive (PSA)

Application recommendations	
Max speed	15 m/s
Grinding pressure	13 N/cm^2 for ceramics
Coolant	water, alcohol, oil, emulsion
Typical applications	rough and fine grinding of non-metallic samples, embedded and non embedded samples





Self-sharpening The PLATO diamond grinding pads do not have to be dressed thanks to the self-sharpening effect. This prolongs the service life, minimizes costs and increases reproducibility.

Precision size range Due to the narrow grain size spread, the number of particles with the same size is maximized, or fine and big grain fraction is reduced. This allows high material removal rates and excellent surface qualities.

Flexible backing The flexible backing absorbs vibrations and reduces material fracturing, at the same time corrosion is prevented.

Consumption indicator The wear of the abrasive pad is indicated by the white coloration of the pellets.

Clean work For cooling only running water is required. The pellets can be cleaned with a brush (without the addition of acid) under running water.

Order information
Part number 30630
PLATO diamond grinding pad
250 mm – 75 µm
self-adhesive (PSA)

Packing unit
1 piece per box

PLATO

Diameter	Grit size	Part number self-adhesive (PSA)	Part number metal carrier
200 mm	125 µm	30420	304201
250 mm	125 µm	30620	306201
300 mm	125 µm	30720	307201
200 mm	75 µm	30430	304301
250 mm	75 µm	30630	306301
300 mm	75 µm	30730	307301
200 mm	54 µm	30471	304711
250 mm	54 µm	30673	306731
300 mm	54 µm	30773	307731
200 mm	10 µm	30472	304721
250 mm	10 µm	30672	306721
300 mm	10 µm	30772	307721

Larger diameters on request

APOLLO-S

Resin-bond diamond grinding pad

APOLLO-S is a self-sharpening, flexible diamond grinding pad for flat- and fine grinding applications, replacing traditional SiC paper pad in grinding of various materials. Precision graded diamond and optimized grit concentration lead to short process times, flat surfaces and superior edge sharpness.

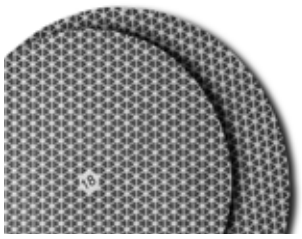
Removal
8.0 0 — 10

Edge sharpness
7.0 0 — 10

Life
8.0 0 — 10

Pad diameter	Bond	Diamond size	Diamond type
200mm	resin	125 µm	FRD
250mm	resin	75 µm	FRD
300mm	resin	54 µm	FRD
350mm	resin	18 µm	RBM

larger diameters on request



Max speed	15m/s
Grinding pressure	5-7 N/cm^2 for steel and comparable materials 13 N/cm^2 for ceramics
Typical application	Rough and fine grinding of metallic and non-metallic materials Embedded and unembedded samples
Mounting	Stainless steel plate with special grip surface / flexible adhesive backing
Coolant	Water

Self-sharpening Dressing is not necessary due to the self-sharpening characteristics, leading to prolonged life time, reduced costs and high repeatability.

Precision graded micron diamond sizes Narrow particle size distribution maximizes the amount of particles of the same size while fine and coarse particles are minimized. This feature allows for both high process reproducibility and superior results in surface quality.

Flexible base The flexible base absorbs vibrations and thus reduces material fractures and prevents corrosion.

Usage indicator The surface of the diamond grinding pad turns white to indicate end of life.

Clean workspace Only water needed as coolant, resulting in clean workspace and easy cleaning of workpiece.

Order information
Part number 32200
APOLLO-S diamond grinding pad
200mm – 125 µm
with adhesive backing

Packing unit
1 piece per box

Pad diameter	Diamond size	Part number Adhesive backing	Part number Stainless steel backing
200mm	125 µm	32200	322001
250mm	125 µm	32210	322101
300mm	125 µm	32220	322201
350mm	125 µm	32230	322301
200mm	75 µm	32250	322501
250mm	75 µm	32260	322601
300mm	75 µm	32270	322701
350mm	75 µm	32280	322801
200mm	54 µm	32010	320101
250mm	54 µm	32110	321101
300mm	54 µm	32170	321701
350mm	54 µm	32190	321901
200mm	18 µm	32011	320111
250mm	18 µm	32111	321111
300mm	18 µm	32171	321711
350mm	18 µm	32191	321911

SQUADRO-M / SQUADRO-H

Resin-bond diamond grinding pad

SQUADRO-M and SQUADRO-H are innovative diamond grinding pads that extends fine grinding to single-micron grit sizes. They replace conventional lapping processes, achieving superior results in terms of material removal rate, surface quality, work piece geometry and tool life. SQUADRO diamond grinding pads provide for an easy, clean and efficient fine grinding process.

Properties	
Diameter	200/ 250/ 300/ 350 mm, larger diameters (up to 760 mm) on request
Diamond size	60 µm/ 30 µm/ 15 µm/ 6 µm/ 3 µm
Diamond type	RBM
Bond type	SQUADRO-M: resin, medium hard; SQUADRO-H: resin, hard
Base	textile base
Mounting	stainless steel carrier/ self-adhesive (PSA)
Abrasive layer thickness	0,4 mm

Application recommendations	
Max speed	15 m/s
Grinding pressure	5-7 N/cm^2 for steel and comparable materials 13 N/cm^2 for ceramics
Coolant	Water
Typical applications	SQUADRO-M: Fine grinding of metals, ceramics and glasses SQUADRO-H: Fine grinding of hard materials, ceramics and sharp-edged workpieces

Fine grinding with unmatched precision SQUADRO-M and SQUADRO-H enable fine grinding of various materials with diamond micron sizes down to 3 µm and matches surface qualities previously only achieved with lapping processes – easy, clean, efficient.

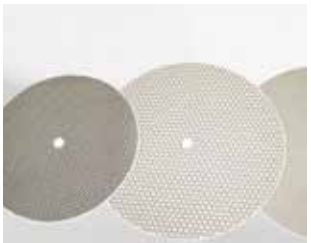
Innovative design SQUADRO diamond grinding pads consist of micron diamond abrasives embedded in a structured matrix of high-performance polymers. The resin structures are mounted on a textile base, which absorbs vibrations and thus improves surface quality.

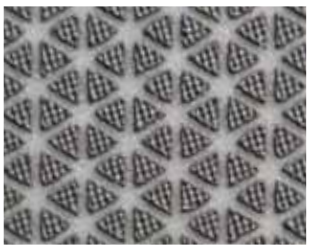
Removal
8.0 0 — 10

Edge sharpness
7.0 0 — 10

Surface quality
8.0 0 — 10

Life
9.0 0 — 10





Precision graded micron diamond sizes A narrow particle size distribution allows for both superior surface quality and highest material removal rate.

Easy handling SQUADRO can be used on any standard lapping or polishing machine. The mounting options (stainless steel carrier or self-adhesive backing) are designed for quick and easy changes of grit size.

Long tool life The massive abrasive layer allows for long tool life, minimal set-up time and low process cost.

Self-sharpening SQUADRO diamond grinding pads can be used out of the box without dressing. Thanks to the self-sharpening bond system, the diamond grinding pads do not require conditioning during the process to continuously achieve excellent grinding results.

Clean process Working with SQUADRO is environmentally friendly and clean. Cooling is done by water or our lubricant LUBX20, no diamond slurries or lubricants are needed.

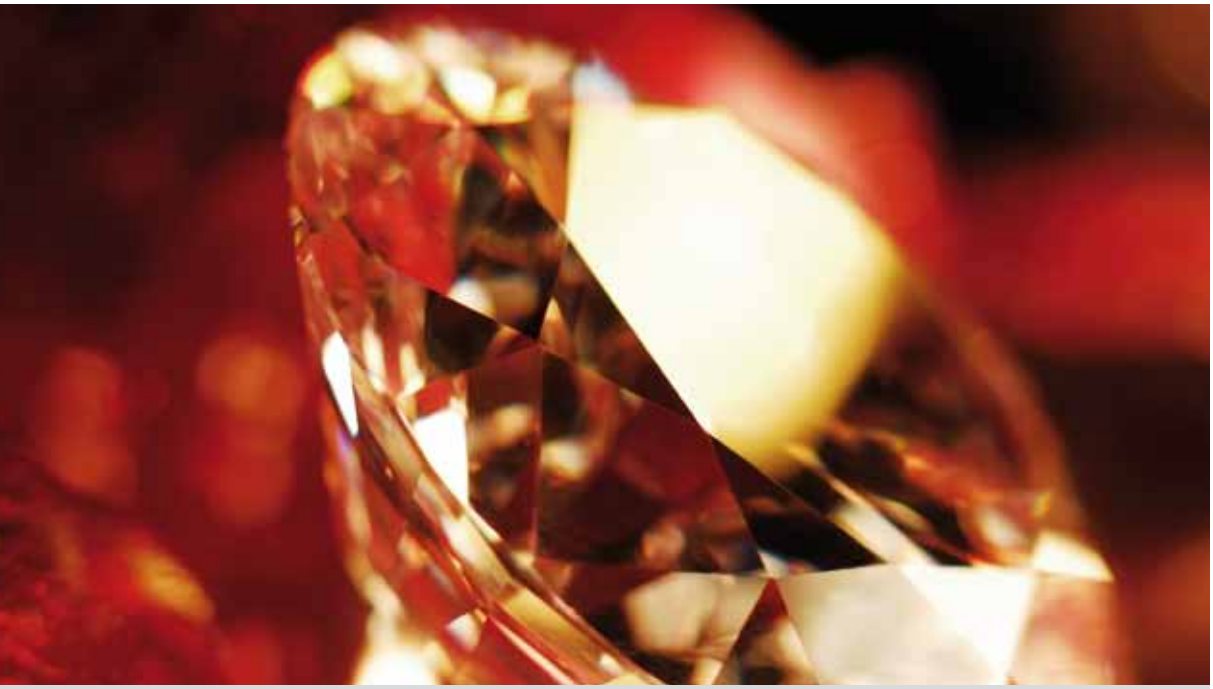
Versatile SQUADRO can be used to grind a wide range of materials such as steel, stainless steel, steel alloys, optical glasses, various crystals, industrial ceramics, ceramic seals and other materials.

Order information
Part number 3344152
SQUADRO-H diamond grinding pad
250 mm – 15 µm
self-adhesive (PSA)

Packing unit
1 piece per box

		SQUADRO-M		SQUADRO-H	
Diamond size	Diameter	Part number self-adhesive	Part number Metal carrier	Part number self-adhesive	Part number Metal carrier
60 µm	200 mm	334601	335601	3344601	3354601
	250 mm	334602	335602	3344602	3354602
	300 mm	334603	335603	3344603	3354603
	350 mm	334604	335604	3344604	3354604
30 µm	200 mm	334301	335301	3344301	3354301
	250 mm	334302	335302	3344302	3354302
	300 mm	334303	335303	3344303	3354303
	350 mm	334304	335304	3344304	3354304
15 µm	200 mm	334151	335151	3344151	3354151
	250 mm	334152	335152	3344152	3354152
	300 mm	334153	335153	3344153	3354153
	350 mm	334154	335154	3344154	3354154
6 µm	200 mm	334061	335061	3344061	3354061
	250 mm	334062	335062	3344062	3354062
	300 mm	334063	335063	3344063	3354063
	350 mm	334064	335064	3344064	3354064
3 µm	200 mm	334031	335031	3344031	3354031
	250 mm	334032	335032	3344032	3354032
	300 mm	334033	335033	3344033	3354033
	350 mm	334034	335034	3344034	3354034

Larger diameters on request (max. 760 mm)



CARAT

Resin-bond diamond grinding pad

CARAT is a self-sharpening diamond grinding pad for fine-grinding applications, replacing traditional SiC paper. Brittle materials such as nitride and oxide layers on steel can be ground without chipping, materials with low dimensional stability can be processed without deformation. Short process times, flat surfaces and superior edge sharpness are achieved due to precision graded diamond and optimized grit concentration.

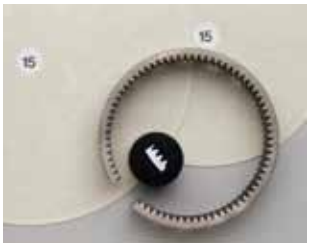
Removal
7.0 0 — 10

Edge sharpness
7.0 0 — 10

Life
8.0 0 — 10

Pad diameter	Bond	Diamond size	Diamond type
200mm	resin	15 µm	MSY
250mm	resin	6 µm	MSY
300mm	resin	3 µm	MSY

larger diameters on request



Max speed	15m/s
Grinding pressure	5 – 7 N/cm^2 for steel and comparable materials 13 N/cm^2 for ceramics
Typical application	Fine grinding of metallographic samples and brittle materials
Mounting	Stainless steel plate with special grip surface / flexible adhesive backing
Coolant	Water

Self-sharpening Dressing is not necessary due to the self-sharpening characteristics, leading to prolonged life time, reduced costs and high repeatability.

Precision graded micron diamond sizes Narrow particle size distribution maximizes the amount of particles of the same size while fine and coarse particles are minimized. This feature allows for both high process reproducibility and superior results in surface quality.

Flexible base The flexible base absorbs vibrations and thus reduces material fractures and prevents corrosion.

Clean workspace Only water needed as coolant, resulting in clean workspace and easy cleaning of workpiece. Important, do not use alcohol as coolant of for cleaning!

Order information
Part number 33001
CARAT diamond grinding pad
200 mm – 15 µm
with adhesive backing

Packing unit
1 piece per box

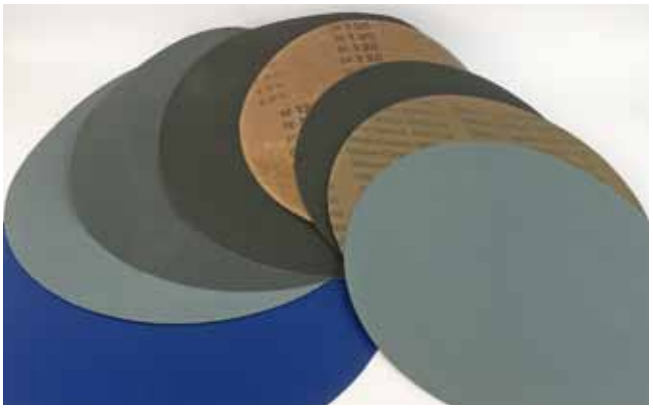
Pad diameter	Diamond size	Part number Adhesive backing	Part number Stainless steel backing
200mm	15 µm	33001	330011
250mm	15 µm	33002	330021
300mm	15 µm	33003	330031
200mm	6 µm	33011	330111
250mm	6 µm	33012	330121
300mm	6 µm	33013	330131
200mm	3 µm	33021	330211
250mm	3 µm	33022	330221
300mm	3 µm	33023	330231

larger diameters on request

Grinding with grinding paper and foil

Grinding paper

In addition to the diamond grinding pads, Microdiamant also provides the complete range of conventional, high-quality wet grinding papers. These are available with various backings: standard for clamping ring systems, self-adhesive and with PET backing for silicone mounting discs such as our Fast Fix.
The diameters 200, 230, 250, 300 and 350 mm, in the grain size range from P80 to P4000, are available from stock.



Wet grinding paper

Grinding foils

Grinding foils are better if long tool life and high quality are required. These are available with two different backings: self-adhesive, and with PET backing for silicone mounting discs. The grinding foils are available from stock in the diameters 200, 250, 300 and 350 mm.

Microdiamant provides grinding foils in 3 grain types:

- Ceramic bonding with zirconium for the pre-grinding with a high material removal rate from P100 to P800
- Silicon for fine grinding from 3 to 40 µm
- Diamond for fine grinding of minerals and rock samples from 0.5 to 40 µm

Grinding foils

Diamond slurries

Engineered and universal-use slurries

Diamond slurries

Ready-to-use diamond slurries from Microdiamant achieve constantly high material removal rates and best surface qualities. The costs for manufacturing and finishing can be reduced. The innovative slurry technology enables one to fully utilize the potential of the precision size ranged micron diamond powder. Performance-enhancing additives increase the removal rates. Stabilizers prevent the sedimentation of the diamond particles, thus increasing the process stability and simplifying the handling. Specially developed dispersion technologies prevent surface defects caused by diamond agglomerates.

Diamond slurries with integrated lubricant
Diamond slurries with integrated lubricants are easy to use and guarantee consistently good process results. The water-based, stabilized formulation is odorless and keeps the diamond particles stabilized in slurry over a long time. Due to the low viscosity, very high removal rates are achieved with low consumption.

Diamond slurries for use with lubricant
Diamond slurries for use with lubricants have a high concentration of diamonds. They are used with an appropriate lubricant so the polishing processes can be exactly matched to the particular requirements.

Diamond slurry type APEX-TOP / APEX-TOP-DUO

Water soluble diamond slurry for metallographic sample preparation

Description

APEX-TOP and APEX-TOP-DUO are water soluble high-performance diamond slurries, optimized for metallographic applications. The novel formulation employs SmartMicron diamond abrasives to create mirror-finish, defect-free surfaces at unrivalled material removal rates. The APEX-TOP and APEX-TOP-DUO slurry family is available in precision-graded diamond sizes from 1 to 6 micron. Typical application is the polishing of all metallic and ceramic samples, as well as coated or composite samples.
APEX-TOP diamond slurries are used in combination with separate Microdiamant lubricants. APEX-TOP-DUO is formulated as a 2-in-1 slurry with integrated lubricants.

Slurry type	Diamond type	Viscosity	Stability	pH Value
APEX-TOP 1-6 µm	SMP (SmartMicron)	125 cP	stabilized	8.0
APEX-TOP-DUO 1-6 µm	SMP (SmartMicron)	150 cP	stabilized	8.0

Carrier liquid	APEX-TOP: water soluble, for usage with lubricants APEX-TOP-DUO: water soluble, with integrated lubricants
Typical application	lapping and polishing of metallographic samples, metal and ceramic parts
Typical lapping plate	polishing pad or metal lapping plate
Density	1.00 g/cm^3

APEX-TOP and APEX-TOP-DUO diamond slurries are available in the polishing sizes from 1 to 6 micron, in concentrations adapted for metallographic sample preparation. They achieve significantly higher performance than conventional mono- and polycrystalline diamond slurries, both on polishing pads and on metallic lapping plates. The water soluble slurry is formulated to meet highest standards for work safety and environmental properties.

Note: The slurries are **not** suitable for use in slurry-circulation processes.

APEX-TOP lubricant	Base	Remarks
LUBRICANT YELLOW	Water, alcohol	standard applications
LUBRICANT BLUE	Alcohol	standard applications

The APEX-TOP-DUO 2-in-1 diamond slurries are single-bottle, ready-to-use slurries with lubricants integrated into the slurry formulation.

Order example
Part number 4W3S1000V1
APEX-TOP 3 µm
Quantity 7 l
Packing unit 1 l
Shipment 7 x 1 l

Packing units
Bottles 250 ml, 500 ml, 1 l
If not specified, we use 1 l bottles

Diamond size	Packing unit	APEX-TOP Part number	APEX-TOP-DUO Part number
1 µm	250 ml	4W1S250V1	4W1S250V2
	500 ml	4W1S500V1	4W1S500V2
	1 l	4W1S1000V1	4W1S1000V2
2 µm	250 ml	4W2S250V1	4W2S250V2
	500 ml	4W2S500V1	4W2S500V2
	1 l	4W2S1000V1	4W2S1000V2
3 µm	250 ml	4W3S250V1	4W3S250V2
	500 ml	4W3S500V1	4W3S500V2
	1 l	4W3S1000V1	4W3S1000V2
6 µm	250 ml	4W6S250V1	4W6S250V2
	500 ml	4W6S500V1	4W6S500V2
	1 l	4W6S1000V1	4W6S1000V2

Lubricant	Packing unit	YELLOW Part number	BLUE Part number
	1 l	47200	47010
	10 l	47201	47011

Diamond slurry type POLY-TOP-DUO / MAGNUM-TOP-DUO

Water soluble diamond slurry with integrated lubricants

Description

POLY-TOP-DUO and MAGNUM-TOP-DUO are water soluble diamond slurries with integrated lubricants (2-in-1). Designed as cost-effective, universal application diamond slurries, they are available in precision-graded diamond sizes from 1/10 to 30 micron. While POLY-TOP-DUO slurries use high-performance polycrystalline diamond type DP as abrasive, MAGNUM-TOP-DUO slurries contain monocrystalline diamond type MSY. Excellent wetting properties and low viscosity of the formulation guarantee very high material removal rates and low slurry consumption. Typical applications include lapping and polishing of metallographic samples, metals (ferrous or non-ferrous), optical components and ceramic parts.

Slurry type	Diamond type	Viscosity	Stability	pH Value
POLY-TOP-DUO 1/10-6 µm	DP (polycrystalline)	150 cP	stabilized	8.0
POLY-TOP-DUO 9-15 µm	DP (polycrystalline)	470 cP	stabilized	8.0
MAGNUM-TOP-DUO 1/10-6 µm	MSY (monocrystalline)	150 cP	stabilized	8.0
MAGNUM-TOP-DUO 9-30 µm	MSY (monocrystalline)	470 cP	stabilized	8.0

Carrier liquid	water soluble, with integrated lubricants
Typical application	lapping and polishing of metallographic specimens, metal and ceramic parts
Typical lapping plate	polishing pad or metal lapping plate
Density	1.03 g/cm^3

POLY-TOP-DUO and MAGNUM-TOP-DUO diamond slurries are available in standard sizes between 1/10 and 30 micron, in specifically matched concentrations. They can be used effectively on polishing pads as well as on metallic lapping plates. The water soluble slurry is formulated to meet highest standards for work safety and environmental properties.

Note: The slurries are not suitable for use in slurry-circulation processes.

Order example

Part number 4W9P2500V2
POLY-TOP-DUO 9 µm
Quantity 5 l
Packing unit 2.5 l
Shipment 2 × 2.5 l

Packing units

Bottles 250 ml, 500 ml, 1 l, 2.5 l
Containers 10 l
If not specified, we use 2.5 l bottles

Diamond size	Packing unit	POLY-TOP-DUO Part number	MAGNUM-TOP-DUO Part number
1/10 µm	250 ml	4W010P250V2	4W010M250V2
	500 ml	4W010P500V2	4W010M500V2
	1 l	4W010P1000V2	4W010M1000V2
	2.5 l	4W010P2500V2	4W010M2500V2
	10 l	4W010P10000V2	4W010M10000V2
1/4 µm	250 ml	4W025P250V2	4W025M250V2
	500 ml	4W025P500V2	4W025M500V2
	1 l	4W025P1000V2	4W025M1000V2
	2.5 l	4W025P2500V2	4W025M2500V2
	10 l	4W025P10000V2	4W025M10000V2
1 µm	250 ml	4W1P250V2	4W1M250V2
	500 ml	4W1P500V2	4W1M500V2
	1 l	4W1P1000V2	4W1M1000V2
	2.5 l	4W1P2500V2	4W1M2500V2
	10 l	4W1P10000V2	4W1M10000V2
3 µm	250 ml	4W3P250V2	4W3M250V2
	500 ml	4W3P500V2	4W3M500V2
	1 l	4W3P1000V2	4W3M1000V2
	2.5 l	4W3P2500V2	4W3M2500V2
	10 l	4W3P10000V2	4W3M10000V2
6 µm	250 ml	4W6P250V2	4W6M250V2
	500 ml	4W6P500V2	4W6M500V2
	1 l	4W6P1000V2	4W6M1000V2
	2.5 l	4W6P2500V2	4W6M2500V2
	10 l	4W6P10000V2	4W6M10000V2
9 µm	250 ml	4W9P250V2	4W9M250V2
	500 ml	4W9P500V2	4W9M500V2
	1 l	4W9P1000V2	4W9M1000V2
	2.5 l	4W9P2500V2	4W9M2500V2
	10 l	4W9P10000V2	4W9M10000V2
15 µm	250 ml	4W15P250V2	4W15M250V2
	500 ml	4W15P500V2	4W15M500V2
	1 l	4W15P1000V2	4W15M1000V2
	2.5 l	4W15P2500V2	4W15M2500V2
	10 l	4W15P10000V2	4W15M10000V2
30 µm	250 ml	–	4W30M250V2
	500 ml	–	4W30M500V2
	1 l	–	4W30M1000V2
	2.5 l	–	4W30M2500V2
	10 l	–	4W30M10000V2

Diamond slurry type POLY-TOP/ MAGNUM-TOP

Water soluble diamond slurry for usage with lubricants

Description

POLY-TOP and MAGNUM-TOP are water soluble, universal application diamond slurries, available in precision-graded diamond sizes from 1/10 and 45 micron. They are used in combination with separate lubricants, allowing for optimal in-process control and minimal slurry consumption. While POLY-TOP slurries use high-performance polycrystalline diamond type DP as abrasive, MAGNUM-TOP slurries contain monocrystalline diamond type MSY. The sophisticated slurry formulation guarantees excellent surface quality, highest material removal rate and easy handling thanks to robust stabilization. Typical applications include lapping and polishing of metallographic samples, metals (ferrous or non-ferrous), optical components and ceramic parts.

Slurry type	Diamond type	Viscosity	Stability	pH Value
POLY-TOP 1/10-1 µm	DP (polycrystalline)	90 cP	stabilized	8.0
POLY-TOP 3-15 µm	DP (polycrystalline)	125 cP	stabilized	8.0
MAGNUM-TOP 1/10-1 µm	MSY (monocrystalline)	90 cP	stabilized	8.0
MAGNUM-TOP 3-45 µm	MSY (monocrystalline)	125 cP	stabilized	8.0

Carrier liquid	water soluble, for usage with lubricants
Typical application	lapping and polishing of metallographic specimens, metal and ceramic parts
Typical lapping plate	polishing pad or metal lapping plate
Density	1.00 g/cm^3

POLY-TOP and MAGNUM-TOP diamond slurries are available in standard sizes between 1/10 and 45 micron, in specifically matched concentrations. They can be used effectively on polishing pads as well as on metallic lapping plates. The water soluble slurry is formulated to meet highest standards for work safety and environmental properties.

Note: The slurries are not suitable for use in slurry-circulation processes.

Lubricant	Base	Remarks
LUBRICANT YELLOW	Water, alcohol	standard applications
LUBRICANT YELLOW-S	Water	usage on pitch plates

Slurries with integrated lubricants: the 2-in-1 slurries POLY-TOP-DUO and MAGNUM-TOP-DUO are single-bottle, ready-to-use slurries with lubricants integrated into the slurry formulation.

Order example

Part number 4W6P1000V1
POLY-TOP 6 µm
Quantity 5 l
Packing unit 1 l
Shipment 5 × 1 l

Packing units

Bottles 250 ml, 500 ml, 1 l
If not specified, we use 1 l bottles

Diamond size	Packing unit	POLY-TOP Part number	MAGNUM-TOP Part number
1/10 µm	250 ml	4W010P250V1	4W010M250V1
	500 ml	4W010P500V1	4W010M500V1
	1 l	4W010P1000V1	4W010M1000V1
1/4 µm	250 ml	4W025P250V1	4W025M250V1
	500 ml	4W025P500V1	4W025M500V2
	1 l	4W025P1000V1	4W025M1000V1
1 µm	250 ml	4W1P250V1	4W1M250V1
	500 ml	4W1P500V1	4W1M500V1
	1 l	4W1P1000V1	4W1M1000V1
3 µm	250 ml	4W3P250V1	4W3M250V1
	500 ml	4W3P500V1	4W3M500V1
	1 l	4W3P1000V1	4W3M1000V1
6 µm	250 ml	4W6P250V1	4W6M250V1
	500 ml	4W6P500V1	4W6M500V1
	1 l	4W6P1000V1	4W6M1000V1
9 µm	250 ml	4W9P250V1	4W9M250V1
	500 ml	4W9P500V1	4W9M500V1
	1 l	4W9P1000V1	4W9M1000V1
15 µm	250 ml	4W15P250V1	4W15M250V1
	500 ml	4W15P500V1	4W15M500V1
	1 l	4W15P1000V1	4W15M1000V1
30 µm	250 ml	–	4W30M250V1
	500 ml	–	4W30M500V1
	1 l	–	4W30M1000V1
45 µm	250 ml	–	4W45M250V1
	500 ml	–	4W45M500V1
	1 l	–	4W45M1000V1

Lubricant	Packing unit	YELLOW Part number	YELLOW-S Part number
	1 l	47200	472071
	10 l	47201	47207

Diamond slurry type POLY / MAGNUM-GREEN

Alcohol-based diamond slurry

Description

POLY and MAGNUM-GREEN are alcohol-based diamond slurries, available in precision-graded diamond sizes from 1/4 to 15 micron. Polycrystalline diamond type DP is used as abrasive in POLY slurries, while MAGNUM GREEN slurries use monocrystalline diamond type MSY. The water-free formulation qualifies these slurries for polishing corrosion-sensitive materials such as zinc and others.

Both slurries can be used in combination with LUBRICANT BLUE to enhance in-process control and minimize slurry consumption.

Slurry type	Diamond type	Viscosity	Stability
POLY 1/4-15 µm	DP (polycrystalline)	90 cP	stabilized
MAGNUM-GREEN 1/4-15 µm	MSY (monocrystalline)	90 cP	stabilized

Carrier liquid	alcohol-based, water-free
Typical application	lapping and polishing of metallographic specimens high removal rate
Typical lapping plate	polishing pad
Density	0.82 g/cm^3

POLY and MAGNUM-GREEN slurries are simply sprayed onto the polishing pad prior to processing. During the actual process only LUBRICANT BLUE is added. Alternatively, LUBRICANT YELLOW (water-based) can be used.
Due to the very low viscosity and surface tension, alcohol-based diamond slurries achieve higher material removal rates compared to water-based diamond slurries.

Order example

Part number 4A6P1000A2
Diamond slurry
POLY 6 µm
Quantity 5 ltr
Packing unit 1 ltr
Shipment 5 × 1 ltr

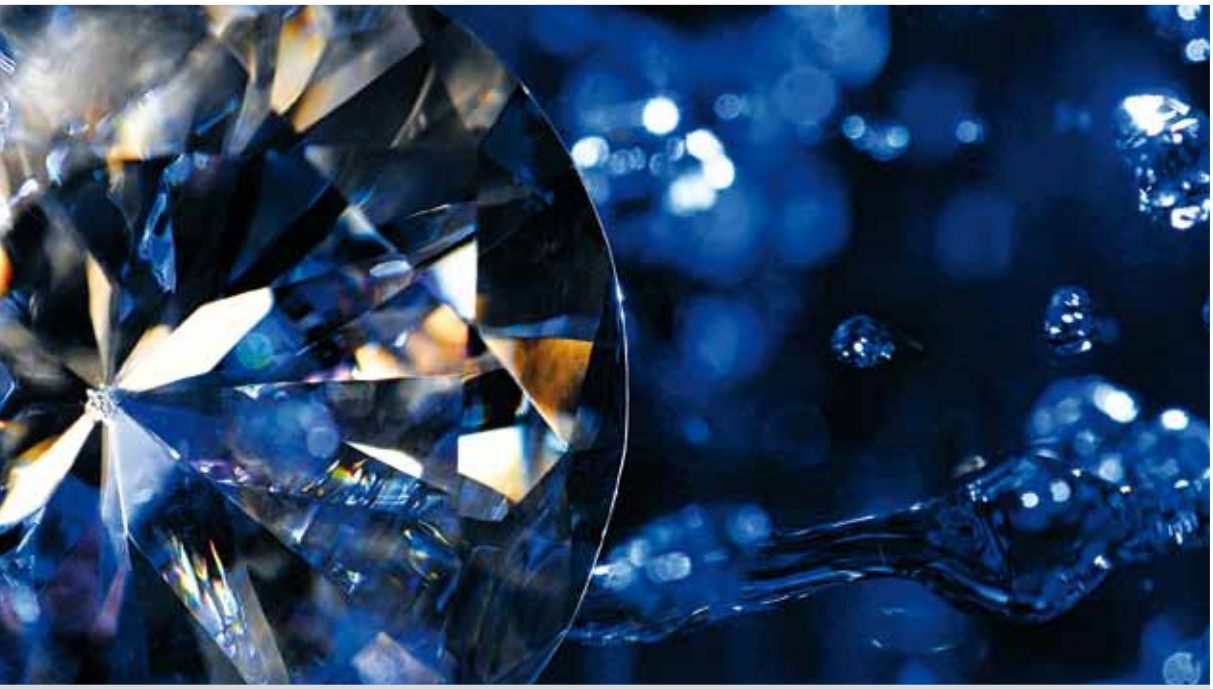
Packing units

Bottles 250 ml, 500 ml, 1 ltr
If not specified, we use 1 ltr

Diamond size	Packing unit	POLY Part number	MAGNUM-GRÜN Part number
¼ µm	250 ml	4A025P250A2	4A025M250A1
	500 ml	4A025P500A2	4A025M500A1
	1 l	4A025P1000A2	4A025M1000A1
1 µm	250 ml	4A1P250A2	4A1M250A1
	500 ml	4A1P500A2	4A1M500A1
	1 l	4A1P1000A2	4A1M1000A1
3 µm	250 ml	4A3P250A2	4A3M250A1
	500 ml	4A3P500A2	4A3M500A1
	1 l	4A3P1000A2	4A3M1000A1
6 µm	250 ml	4A6P250A2	4A6M250A1
	500 ml	4A6P500A2	4A6M500A1
	1 l	4A6P1000A2	4A6M1000A1
9 µm	250 ml	4A9P250A2	4A9M250A1
	500 ml	4A9P500A2	4A9M500A1
	1 l	4A9P1000A2	4A9M1000A1
15 µm	250 ml	4A15P250A2	4A15M250A1
	500 ml	4A15P500A2	4A15M500A1
	1 l	4A15P1000A2	4A15M1000A1

Lubricant	Base	Remarks
LUBRICANT BLUE	alcohol	to be used only with POLY/MAGNUM-GREEN
LUBRICANT BLUE-K	glycol	Concentrate without alcohol (mixing ratio 1 part lubricant: 9 parts alcohol) to be used only with POLY/MAGNUM-GREEN
LUBRICANT YELLOW	water	water-based lubricant

Lubricant	Packing unit	BLUE Part number	BLUE-K Part number	YELLOW Part number
	1 l	47010	47012	47200
	10 l	47011	–	47201



OPS Slurry / AF Slurry
for final polishing

Description

The final polishing step of metallographic samples is determined by the material. In order to achieve the required surface quality for micro-evaluations, Microdiamant provides oxide polishing slurries with colloidal silica or aluminum oxide (alumina).

OPS Slurries

also known as «Silica»

Description	Volume	Grit size	Part number
O.P.S. oxide polishing slurry	1 l	0,05 µm	48210
O.P.S. oxide polishing slurry	10 l	0,05 µm	48211

AF Slurries

also known as «Aluminia»

Description	Volume	Grit size	Part number
Aluminum oxide slurry concentrate AF-2	1 l	0,5 µm	48010
Aluminum oxide slurry concentrate AF-2	10 l	0,5 µm	480101
Aluminum oxide slurry concentrate AF-2	1 l	0,2 µm	480102
Aluminum oxide slurry concentrate AF-1	1 l	0,2 µm	48011
Aluminum oxide slurry concentrate AF-1	10 l	0,2 µm	48012
Aluminum oxide slurry ready-to-use OPA	10 l	0,5 µm	48152

Application recommendation
Mixing ratio concentrate / DI water 1:5

In addition to ready-to-use slurries Microdiamant also offers pure Aluminia powder. Thus, the customer has the option to mix the application-specific water-based slurry themselves. There are grit sizes in the range of 0.1 to 1 µm in packing units of 1, 5, 10 or 20 kg available.

Diamond spray

Spray for metallography

Description

Microdiamant has developed highly concentrated polycrystalline diamond sprays for hand polishes or sample preparation without the use of a suspension dosing system. The diamond spray in pressurized spray cans with a volume of 200 ml is an universally usable product for polishing cloths as well as on lapping plates and discs.

The excellent formulation of the spray and the high pressure of the spray can guarantee optimal diamond distribution. In grains of ¼ to 15 microns, a good stock removal is achieved with high-gloss polish.

The polycrystalline diamond sprays are available from stock.

Polishing pads

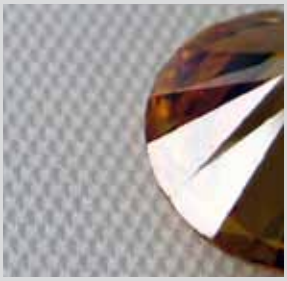
Standard products Metallography

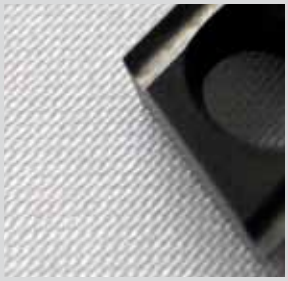
Matching diamond type and size with your process requirements ensures first-class results.

Diamond type selection

Polycrystalline diamond is best suited for lapping and polishing of both extremely hard and soft materials. Thanks to its unique characteristics, maximum material removal rates and superior surface quality are achieved. Monocrystalline synthetic diamond is relatively inexpensive to produce and therefore widely used for grinding, lapping and polishing applications. Natural diamond is preferred for the production of electroplated diamond tools. Nanodiamond is a nano-material used in a variety of applications and research projects.

	Stock removal		Polishing	
Polishing pad	**QUICK-STEP**	**JIVE-PLUS EB (embossed)**	**STEP-PLUS**	**SAMBA-N**
Material	Hard synthetic fibre	High density laminated polishing pad	Medium hard synthetic fiber cloth	Medium hard woven wool polishing cloth
Typical applications	First choice for pre-polishing. Very high removal rate on all materials	Double-side or single-side polishing of hard materials	Good removal rate and superb finishing on almost all materials	Fine polishing of larger workpieces, excellent for manual preparation
Typical diamond size	6-20 µm	2-20 µm	1-6 µm	1-15 µm
Thickness	0.5 mm	2.0 mm	0.65 mm	0.33 mm
Shore hardness (Shore A)	97 Shore A	96 Shore A	96 Shore A	87 Shore A
Diameter (Standard) Diameter (Custom)	200/250/300/350 mm max. 1300 mm	N/A max. 1250 mm	200/250/300/350 mm max. 1300 mm	200/250/300/350 mm max. 1300 mm
Backing	self-adhesive (PSA) diameter 200/250/300/350 available with metal disc	self-adhesive (PSA)	self-adhesive (PSA) diameter 200/250/300/350 available with metal disc	self-adhesive (PSA) diameter 200/250/300/350 available with metal disc





Polishing		Superfine polishing		
JAZZ-PLUS	**FOX-PLUS**	**SWING-PLUS**	**ALUPOL-PLUS**	**MAMBO**
Non woven polishing pad, PU impregnated	Flocked universal polishing pad	Flocked universal polishing cloth with very low flock density	Flocked universal polishing cloth with extremly high flock density	Chemically resistant, spongy oxide polishing cloth
Good removal rate and superb finish on metals and optical materials	Good removal rate and superb finishing on all kinds of metals	Polishing pad for superfinishing.	Perfect cross-over pad, for diamond and oxide polishing.	Final finishing with oxide polishing slurries
1-6 µm	1-15 µm	0.1-6 µm	0.1-3 µm, CMP	CMP
0.7 mm	0.85 mm	0.7 mm	0.6 mm	1.5 mm
75 Shore A	59 Shore A	88 Shore A	82 Shore A	65 Shore A
200/250/300/350 mm max. 1300 mm	200/250/300/350 mm max. 1300 mm	200/250/300/350 mm max. 400 mm	200/250/300/350 mm max. 1300mm	200/250/300/350 mm max. 1300 mm
self adhesive (PSA) diameter 200/250/300/350 available with metal disc	self-adhesive (PSA) diameter 200/250/300/350 available with metal disc	self-adhesive (PSA) diameter 200/250/300/350 available with metal disc	self-adhesive (PSA) diameter 200/250/300/350 available with metal disc	self-adhesive (PSA) diameter 200/250/300/350 available with metal disc





Microdiamant not only offers polishing pads but as well high performance diamond slurries that work best with the corresponding pad. We gladly assist you in selecting the best suited combination of diamond slurry and polishing pad to achieve best process results.

Part number	QUICK-STEP	JIVE-PLUS [1]	STEP-PLUS	SAMBA-N	JAZZ-PLUS	FOX-PLUS	SWING-PLUS	ALUPOL-PLUS	MAMBO
Self-adhesive, standard dimensions (packing unit=5 pieces)									
D=200 mm	49010	–	49110	49724	49450	49600	49210	49730	49310
D=250 mm	49020	–	49120	49725	49451	49601	49220	49731	49320
D=300 mm	49030	–	49130	49726	49542	49602	49230	49732	49330
D=350 mm	49033	–	49135	49727	49453	49604	49235	49733	49342
Self-adhesive, non-standard dimensions available on request (packing unit=1 piece)									
Dmax	1300 mm	1250 mm	1300 mm	1300 mm	1300 mm	1300 mm	400 mm	1300 mm	1300 mm
Metal disc, standard dimensions (packing unit=5 pieces)									
D=200 mm	49800	–	49810	49860	49845	49850	49820	49870	49830
D=250 mm	49801	–	49811	49861	49846	49851	49821	49871	49831
D=300 mm	49802	–	49812	49862	49847	49852	49822	49872	49832
D=350 mm	49803	–	49814	49863	49848	49853	49823	49873	49833

[1] Only available in custom diameters, self-adhesive

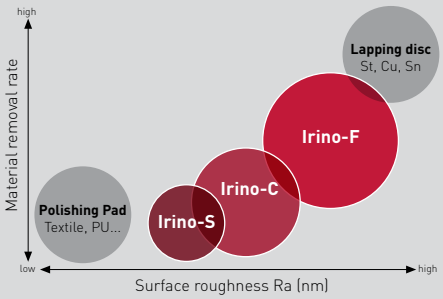
pending Swiss patent

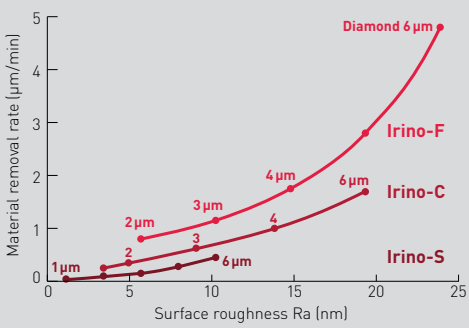
IRINO

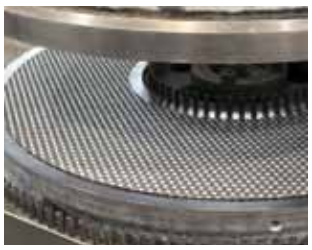
Composite polishing pad

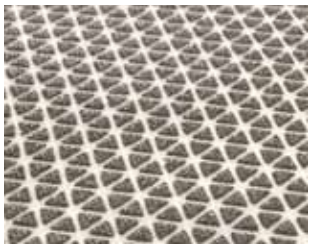
The novel IRINO composite polishing pad is closing the gap between lapping on metal plates and polishing on pads. Combined with application tailored diamond slurries from Microdiamant, IRINO allows for high surface qualities and impressive stock removal rates at the same time. The polishing pad comes with a self-adhesive or magnetic backing. As such, it can be applied to any existing metal carrier plate, which makes it very user friendly.

	IRINO-F hard bonding	**IRINO-C** medium-hard bonding	**IRINO-S** soft bonding
Matrix	Steel resin	Copper resin	Tin resin
Base	woven base, self-adhesive backing		
Hardness	50 – 55 Shore A	48 – 52 Shore A	45 – 50 Shore A
Film thickness	0.6 ± 0.04 mm		
Diameter	200 to 760 mm one-piece, larger than 760 mm multi-piece		
Applications	Stock removal/polishing Sapphire, steel (soft or hardened), optical components, ceramics	Polishing Optical components ceramics, steel	Fine polishing Optical components ceramics, non-ferrous metals









IRINO composite polishing pads are used with diamond slurries. Microdiamant offers application tailored, stabilized diamond slurries in both water soluble and oil based carriers. We will gladly assist you in the selection of the most suitable product.

IRINO Highlights

- Innovative composite polishing pad combines lapping and polishing principles
- Surface finishes down to 1 nm Ra
- Material removal rates similar to soft metal lapping plates
- Provides excellent work piece geometry and flatness, without edge round-off
- Dressable system, suitable for single-side and double-side machines
- Best results if used with water soluble or oil based diamond slurries from Microdiamant

Design and working principle

IRINO polishing pads consist of a polymer matrix in which the finest metal powders are embedded. The polishing pad is being charged with diamond particles by the supply of diamond suspension. The embedded diamond grains facilitate the stock removal on the work piece. The continuous wear of the polishing pad over its service life prevents clogging of the pad. The patterned surface of the IRINO pad helps to improve the slurry flow and exchange, even for double sided machines.

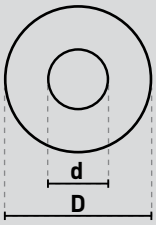
Order information
Part number 354301
IRINO-F, Ø 300 mm
self-adhesive

Packing unit
1 piece per box

Standard sizes (Metallography)

	Diameter	Part number self-adhesive (PSA)	Part number Metal Carrier
IRINO-F hard bonding	200 mm	354201	355201
	250 mm	354251	355251
	300 mm	354301	355301
	350 mm	354351	355351
IRINO-C medium-hard bonding	200 mm	354202	355202
	250 mm	354252	355252
	300 mm	354302	355302
	350 mm	354352	355352
IRINO-S soft bonding	200 mm	354203	355203
	250 mm	354253	355253
	300 mm	354303	355303
	350 mm	354353	355353

Custom-engineered IRINO composite polishing pads on request.



Diameter please specify when ordering.

D = Outer diameter in mm
d = Inner diameter in mm, only if central opening desired

Order Diamond slurry

Diamond slurries

Microdiamant offers application tailored, stabilized diamond slurries in both water soluble and oil based carriers. We will gladly assist you in the selection of the most suitable product.

Diamond compounds

Water, oil and alcohol based diamond compounds

Best results are achieved if diamond compound type and size are carefully matched with your process requirements.

Diamond type selection
Polycrystalline diamond is best suited for lapping and polishing of both extremely hard and soft materials. Thanks to its unique characteristics, maximum material removal rates and superior surface quality are achieved. Monocrystalline synthetic diamond is relatively inexpensive to produce and therefore widely used for grinding, lapping and polishing applications. Nanocluster diamond is a nano-material used in a variety of optical applications and research projects.

Key properties of diamond compound types:

Solubility
The solubility depends on the carrier. Water- and alcohol soluble carrier ensure easy cleaning, where as oil-based carrier prevent corrosion.

Diamond type
The diamond type defines the performance of the diamond compound directly. Polycrystalline diamnond (DP) has an amorphous structure with no cleavage planes and provides higher rates of material removal. Monocrystalline diamond (MSY) is relatively inexpensive in production and therefore widely used for grinding, lapping and polishing applications.

Grading
The particle size distribution has a direct influence on results in surface roughness and quality. Precision grading with narrow particle size distribution ensures a high performance and allows to fine tune the diamond size in order to meet surface roughness specifications.

Diamond concentration
Material removal rate and thus processing time depend on diamond concentration.
A high diamond concentration guarantees optimum processing results.

Compound type	Sparkling U/P	Sparkling U/M	Sparkling O/P	Sparkling O/M
Solubility	Oil- water- alcohol	Oil- water- alcohol	Oil	Oil
Diamond type	DP - polycrystalline	MSY -monocrystalline	DP -polycrystalline	MSY -monocrystalline
Grading	Precision size range	Precision size range	Precision size range	Precision size range
Diamond concentration	High	High	High	High
Packing	Syringe	Syringe	Syringe	Syringe
Packing unit	5 - 10 - 20 gram	5 - 10 - 20 gram	5 - 10 - 20 gram	5 - 10 - 20 gram
Applications	Universal compound for polishing of mold and other surfaces, all materials, no lubricant needed.	Universal compound for polishing of mold and other surfaces, all materials, no lubricant needed.	Corrosion-free polishing of all materials, automatic and hand polishing processes, no lubricant needed.	Corrosion-free polishing of all materials, automatic and hand polishing processes, no lubricant needed.

Sparkling W/M	Sparkling FAS/P	Sparkling FAS/M	Sparkling BUP/M	Sparkling OPT/XP	Sparkling OPT/DP	Sparkling ST/M
Water	Oil- alcohol	Oil- alcohol	Oil- alcohol	Water	Water	Oil- alcohol
MSY -monocrystalline	DP -polycrystalline	MSY -monocrystalline	MSY -monocrystalline	XP -nanocluster	DP -polycrystalline	MSY -monocrystalline
Precision size range	Precision size range	Precision size range	Precision size range	Precision size range	Precision size range	Precision size range
High	High	High	Extra high	Extra high	Extra high	Extra high
Syringe	Syringe	Syringe	Jar	Syringe	Syringe	Stick
5 - 10 - 20 gram	5 - 10 - 20 gram	5 - 10 - 20 gram	400 - 1000 gram	5 - 10 - 20 gram	5 - 10 - 20 gram	10 - 20 - 40 gram
Polishing of nonferrous alloys and HSS steels, heat resistant, automatic and hand polishing, with or without lubricant yellow.	For all hard steel coatings, automatic and hand polishing, without lubricant.	For all steels, automatic and hand polishing, without lubricant.	Used on fiber, nylon and hair brushes, for de burring of cutting tools or polishing of surfaces, without lubricant.	Polishing of optical lenses and prism, hard optical materials, automatic and hand polishing, without lubricant.	Polishing of optical lenses and prism, hard optical materials, automatic and hand polishing, without lubricant.	For all materials, hand polishing, easy handling, without lubricant.

Diamond compounds are used in various applications. Microdiamant has an extensive know-how of the different uses and can assist you in selecting the best product for your application.

Selecting the right diamond size

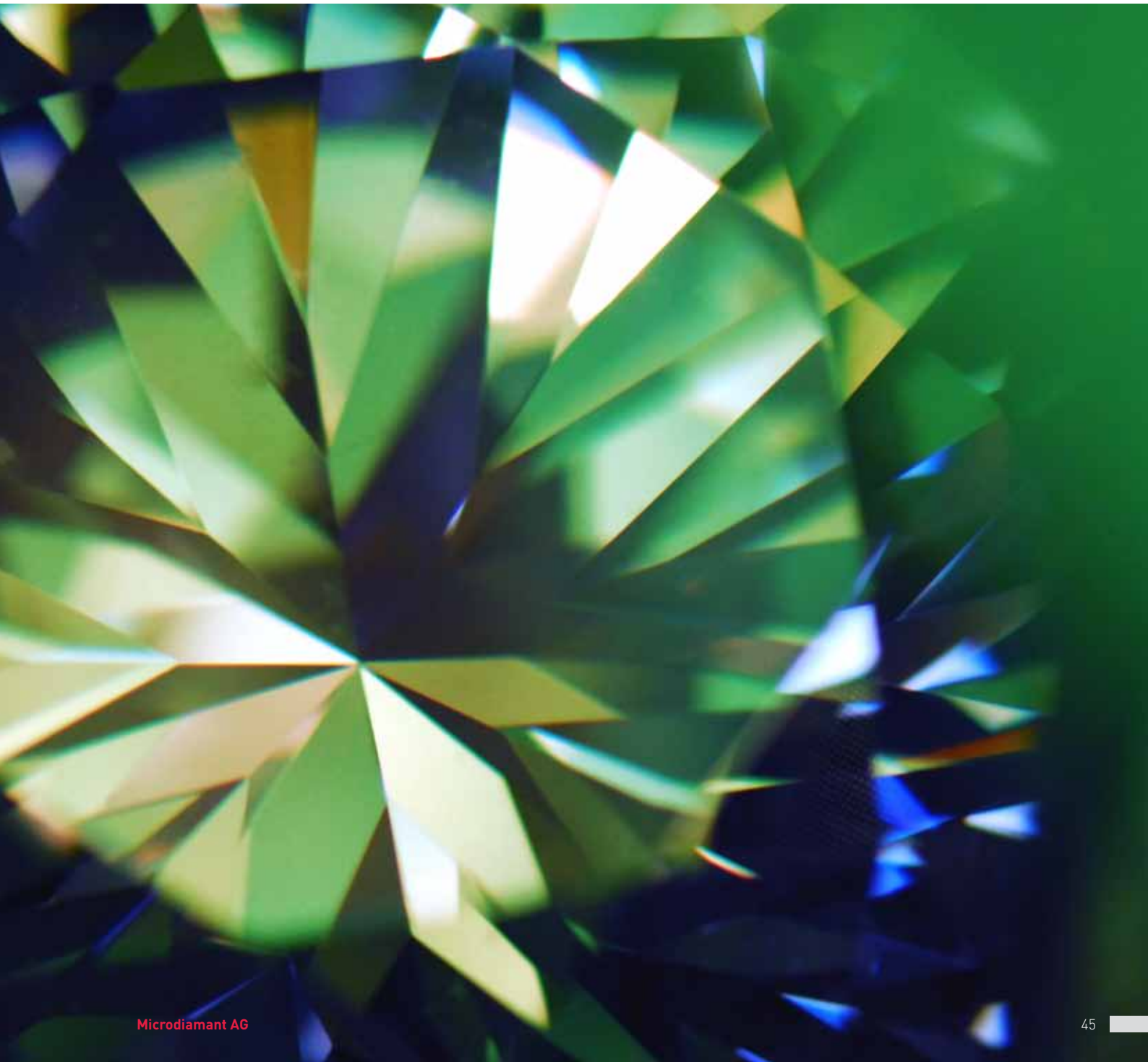
The choice of the diamond size is determined by the surface quality requirements, or respectively, by the function of the surface coating. Precision graded diamond guarantee the highest performance and reproducibility levels.

Syringe (polycrystalline diamond)	Syringe (monocrystalline diamond)	Stick	Jar
Sparkling U/P [1]	Sparkling U/M	Sparkling ST/M	Sparkling BUP/M
Sparkling O/P [1]	Sparkling O/M		
Sparkling FAS/P [1]	Sparkling FAS/M		
	Sparkling OPT/XP		
1/4 µm	1/4 µm		
1 µm	1 µm	1 µm	
3 µm	3 µm	3 µm	3 µm
6 µm	6 µm	6 µm	6 µm
9 µm	9 µm	9 µm	9 µm
15 µm	15 µm	15 µm	
20 µm	20 µm	25 µm	
30 µm	30 µm		
	45 µm		
	70 µm		
	90 µm		

microdiamant

Preparation instructions

Non-binding recommendations for sample preparation



Preparation instructions

Sample preparation
The preparation of metallographic samples has the objective of providing the true structure for the qualitative and quantitative analysis. Increasingly fine layers of material are removed in a succession of work operations. Microdiamant has developed various preparation instructions, matched to the specific material used in each case, so that the results are reproducible and the structure is presented without artifacts.

Systematic preparation
The sample must meet the following requirements to achieve a significantform of preparation:
- No deformation
- No scratches
- No chipping
- No mixing with foreign elements
- No relief formed
- No edge rounding
- No thermal influence

In order to meet these requirements, in a systematic preparation procedure the individual preparation steps must be executed in the correct sequence and without preparation errors. In addition to clean, consistent working methods, it is important to check the polishing pressure, process time, direction and speed of rotation, and to precisely control the addition of diamond slurry and lubricant.

Consumables
Only high-quality consumables are suitable for these demanding objectives. Microdiamant represents maximum performance in matters of surface quality and removal rate. Specifically optimized to the particular application, Microdiamant products achieve first-class process results and cost-effectiveness.

Preparation instruction for Al 2

Material: Al + Al alloys
Examination: Structure
Sample: Bakelite mounted sample 40 mm Diameter

Step	Medium	Type of abrasive	Lubricant	Time (min)	Force (N)	Speed (rpm)	Direction head/ platen
Grinding I	**SiC grinding paper / foil**	**P240**	Water	till plane	35	300	⇉
Grinding II	**SiC grinding paper / foil**	**P600**	Water	3	30	300	⇉
Grinding III	**SiC grinding paper / foil**	**P1200**	Water	3	25	300	⇉
Polishing I	**QUICK-STEP**	**MAGNUM-TOP-DUO 6 µm**	Lubricant Yellow	3	35	300	⇆
Polishing II	**SWING-PLUS**	**POLY-TOP-DUO 1 µm**	Lubricant Yellow	4-5	25	150	⇆
Final Polishing	**MAMBO**	**O.P.S.**	rinse water last 20 s.	2-3	25	150	⇆

Notes

Step 1,2,3 Use water as coolant/lubricant LUBX20

Step 4,5 MAGNUM-TOP-DUO/POLY-TOP-DUO: water-based suspension for manual or automatic dosage. Can be used without lubricants.

Step 6 Moisten MAMBO pad before usage with de-ionized water. After O.P.S. polishing rinse with de-ionized water for 10 s.

Preparation instructions for other materials are also available.
We will be pleased to provide these as required.

Preparation instruction for Cast iron

Material: Cast iron
Exsamination: Structure, spheritic graphite, micro view, defects
Sample: Bakelit mounted sample 40 mm Diameter

Step	Medium	Type of abrasive	Lubricant	Time (min)	Force (N)	Speed (rpm)	Direction head/ platen
Rough grinding	**SQUADRO**	**60 µm (P220)**	Water	till plane	35	300	⇉
Intermediate grinding	**SQUADRO**	**15 µm (P1200)**	Water	3	30	300	⇉
Fine grinding	**SQUADRO**	**15 µm (P1200)**	Water	3	25	300	⇉
Final polishing	**MAMBO**	**AF-2**	rinse water last 20 s.	2-3	25	150	⇆

Notes

1/3 Use water as coolant/lubricant LUBX20

4 Moisten MAMBO pad before usage with de-ionized water. After AF-2. polishing rinse with de-ionized water for 10 s.

Preparation instructions for other materials are also available.
We will be pleased to provide these as required.

Preparation instruction for Ceramic

Material: Ceramics
Exsamination: Structure, porosity, macro view
Sample: Akrylis/Epoxy-mounted sample 40 mm Diameter

Step	Medium	Type of abrasive	Lubricant	Time (min)	Force (N)	Speed (rpm)	Direction head/ platen
Rough Grinding	**PLATO II**	**54 µm (P220)**	Water	till plane	35	300	⇉
Intermediate Grinding	**PLATO II**	**25 µm (P600)**	Water	3	30	300	⇉
Polishing I	**QUICK-STEP**	**POLY-TOP-DUO 9 µm**	Lubricant Yellow	3	30	300	⇆
Polishing II	**STEP-PLUS**	**POLY-TOP-DUO 3 µm**	Lubricant Yellow	4-5	30	150	⇆
Polishing III	**FOX-PLUS**	**POLY-TOP-DUO 1 µm**	Lubricant Yellow	4-5	30	150	⇆

Notes

1/2 Use water as coolant/lubricant LUBX20

3/5 POLY-TOP-DUO: water-based suspension for manual or automatic dosage. Can be used without lubricants.

Preparation instructions for other materials are also available.
We will be pleased to provide these as required.

Preparation instruction for Cu + Brass

Material: Copper, Brass, Zn/Sn alloys
Examination: Structure, micro view, defects
Sample: Bakelite mounted sample 40 mm Diameter

Step	Medium	Type of abrasive	Lubricant	Time (min)	Force (N)	Speed (rpm)	Direction head/ platen
Rough Grinding	**SiC grinding paper / foil**	**P360**	Water	till plane	35	300	⇉
Intermediate Grinding	**SiC grinding paper / foil**	**P600**	Water	3	35	300	⇉
Polishing I	**QUICK-STEP**	**MAGNUM-TOP-DUO 9 µm**	Lubricant Yellow	3-4	35	150	⇆
Polishing II	**STEP-PLUS**	**MAGNUM-TOP-DUO 3 µm**	Lubricant Yellow	3-4	25	150	⇆
Final Polishing	**MAMBO**	**O.P.S.**	rinse water last 20 s.	3-4	25	150	⇆

Notes

1/2 Use water as coolant/lubricant

2/3 MAGNUM-TOP-DUO: water-based suspension for manual or automatic dosage. Can be used without lubricants.

4 Moisten MAMBO pad before usage with de-ionized water. After O.P.S. polishing rinse with de-ionized water for 10 s.

Preparation instructions for other materials are also available.
We will be pleased to provide these as required.

Preparation instruction for Hard Steel 2

Material: Hard steel, HSS, HRC > 65
Examination: Structure, Inclusions, Micro view / defects
Sample: Bakelite mounted sample, 40 mm Diameter

Step	Medium	Type of abrasive	Lubricant	Time (min)	Force (N)	Speed (rpm)	Direction head/ platen
Rough Grinding	**APOLLO-S**	**(P150)**	Water	till plane	35	300	⇉
Intermediate Grinding	**SQUADRO**	**30 µm (P500)**	Water	3	35	300	⇉
Polishing I	**SQUADRO**	**15 µm (P1200)**	Water	3	35	300	⇉
Polishing II	**SQUADRO**	**6 µm**	Water	3	35	300	⇉
Polishing III	**SWING-PLUS**	**POLY-TOP-DUO 1 µm**	Lubricant Yellow	4-5	25	150	⇆
Final polishing	**MAMBO**	**AF-2**	rinse water last 20 s.	2-3	25	150	⇆

Notes

Step ¼ Use water as coolant/lubricant LUBX20

Step.5 POLY-TOP-DUO: water-based suspension for manual or automatic dosage. Can be used without lubricants.

Step.6 Moisten MAMBO pad before usage with de-ionized water. After AF-2. Polishing rinse with de-ionized water for 10 s.

Preparation instructions for other materials are also available.
We will be pleased to provide these as required.

Preparation instruction for Steel Express 2

Material: Plain steel, cast iron
Exsamination: Ferrit/Perlit, Graphite in cast iron, Macro view / Welding nuts, Hardness testing
Sample: Bakelit mounted sample, 40 mm Diameter

Step	Medium	Type of abrasive	Lubricant	Time (min)	Force (N)	Speed (rpm)	Direction head/ platen
Rough Grinding	**SQUADRO**	**60 µm (P220)**	Water	till plane	35	300	⇉
Fine Grinding	**SQUADRO**	**15 µm (P1200)**	Water	3	35	300	⇉
Polishing	**STEP-PLUS**	**POLY-TOP-DUO 3 µm**	Lubricant Yellow	4-5	25	150	⇆

Notes

[1] Use water as coolant/lubricant LUBX20

Preparation instructions for other materials are also available.
We will be pleased to provide these as required.

Preparation instruction for Ti + Ti alloys

Material: Ti + Ti alloys
Examination: Structure, micro view, defects
Sample: Bakelite mounted sample 40 mm Diameter

Step	Medium	Type of abrasive	Lubricant	Time (min)	Force (N)	Speed (rpm)	Direction head/ platen
Rough Grinding	**SQUADRO**	**60 µm (P220)**	Water	till plane	35	300	⇉
Intermediate Grinding	**SQUADRO**	**15 µm (P1200)**	Water	3	30	300	⇉
Fine Grinding	**SQUADRO**	**3 µm**	Water	3	25	300	⇉
Polishing	**ALUPOL-PLUS**	**POLY-TOP-DUO 1 µm**	Lubricant Yellow	4-5	25	150	⇆
Final Polishing	**MAMBO**	**O.P.S.**	rinse water last 20 s.	2-3	25	150	⇆

Notes

Step.1,2,3 Use water as coolant/lubricant LUBX20

Step.4 POLY-TOP-DUO: water-based suspension for manual or automatic dosage. Can be used without lubricants.

Step.5 Moisten MAMBO pad before usage with de-ionized water. After O.P.S. polishing rinse with de-ionized water for 10 s.

Preparation instructions for other materials are also available.
We will be pleased to provide these as required.

Our expertise results from continuous process improvements over three generations of the Spring-family.

Many things have changed since Rudolf Spring founded the business in 1952. Yet through three generations we have always maintained and fostered the values of an owner-managed company – quality, reliability and agility. The independence of our company promotes long-term thinking and a sustainable business strategy. In today's fast-paced, globalized world, these key values are important factors in ensuring that Microdiamant remains your reliable, professional partner.

Microdiamant's company culture incorporates a strong customer focus while paying careful attention to detail. It is crucial to first identify specific customer needs. Customer satisfaction is achieved only after all expectations have been met – in every respect and down to the smallest detail.

Our worldwide network is the key to maintaining pro-active partnerships with our customers around the globe.

Microdiamant is represented through local partners in some twenty countries in Europe, Asia and America. Please visit www.microdiamant.com/company/contact-worldwide for contact details in your country.

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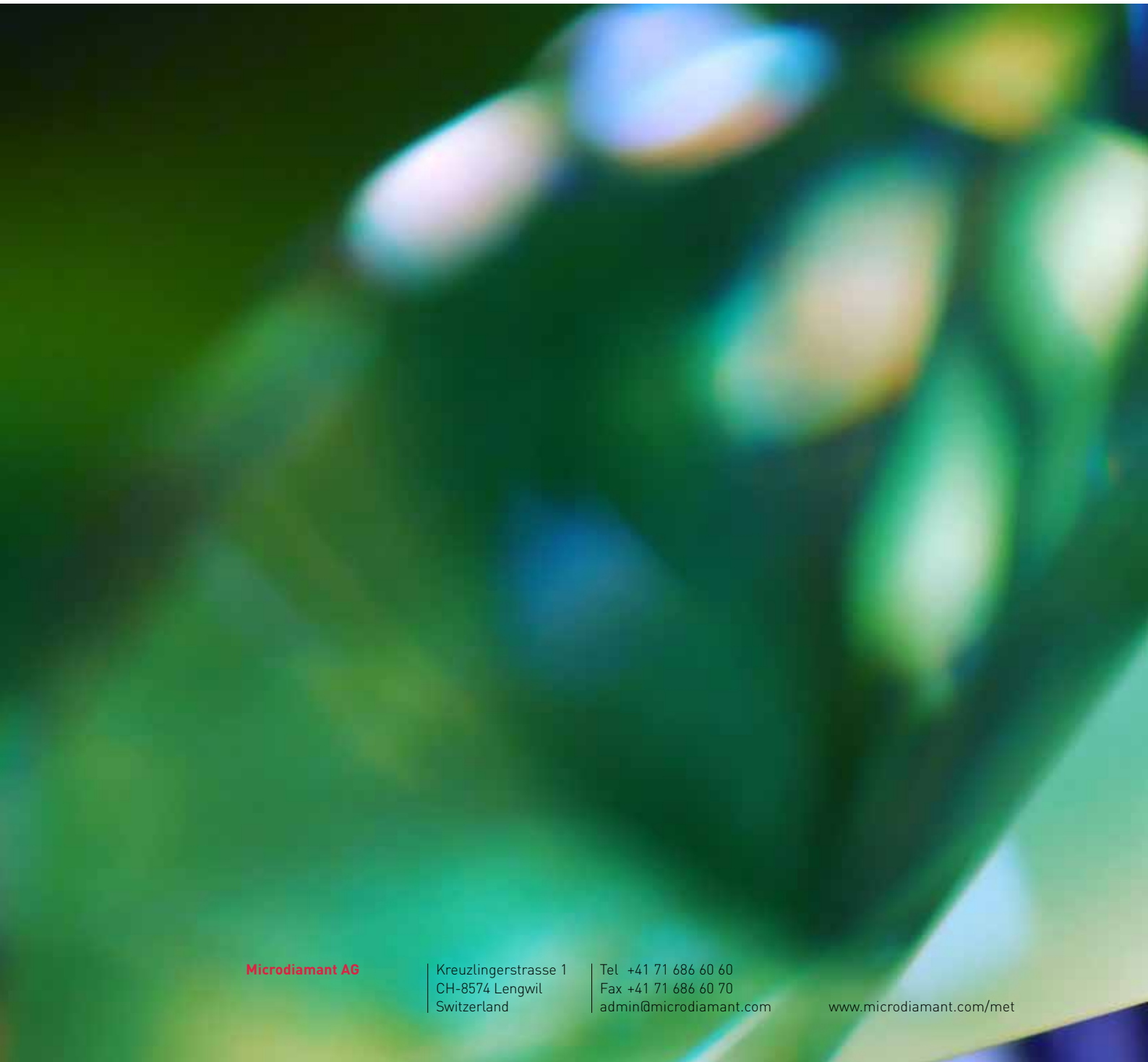

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