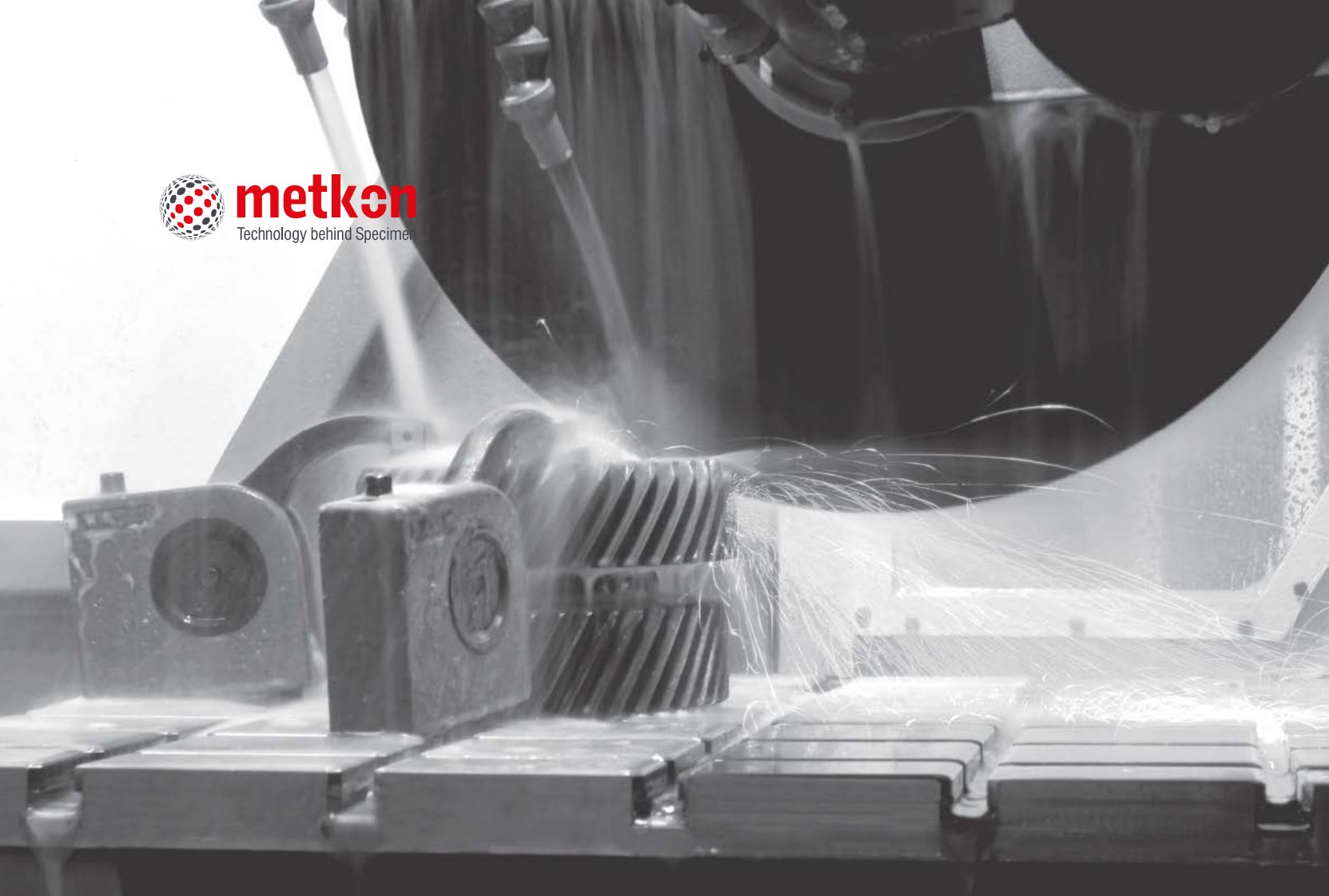




metkon
Technology behind Specimen



CONSUMABLES





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PRODUCTION



Founded in 1993 as a 3-man-enterprise, METKON today employs over 120 people. Customers around the world have trusted METKON to deliver technologically advanced solutions. Our state-of-the-art Engineering and Product Development center includes teams of engineers working together to create and test ideas that will be incorporated into instruments designed to meet customer needs.

At our in-house manufacturing facility, quality drives production. From sheet metal parts to complex mechanical assemblies, METKON produces most of the components needed in our products, allowing strict control over the entire manufacturing process in accordance with the quality standards of ISO-9001. As a final check before shipping, instruments are thoroughly tested to assure quality and functionality.





QUALITY POLICY



Being an ISO 9001-2000 certified firm, our Quality Policy is that all products and services meet the requirements of our customers.

Our objective is to justify your trust in our firm by providing quality products and services that are comprehensive and available to you when and wherever you need it.

METKON's Quality Policy is based on three fundamental principles:

- Quality is defined as conformance to requirements.
- Total Quality Management is our business philosophy.
- The benchmark for quality comprises our performance goals which are continuously measured.





CONSUMABLES FOR CUTTING

Sample preparation starts with cutting and good cutting means a good start

Selecting the right cut-off wheel ensures freedom from burn and distortion and is the best way to save time and consumables. Correct cutting produce specimens which are in perfect condition for the next preparation steps.



CUTTING

ABRASIVE CUT-OFF WHEELS

The most commonly used abrasives for the cutting of different materials are SiC and Al₂O₃

Silicon carbide is suitable for non-ferrous metals whereas aluminum oxide is preferred for ferrous metals. Hard wheels are used for cutting soft materials while soft wheels are recommended for cutting harder materials.

Metkon TRENO type wheels are used to obtain superior cut surfaces. Metkon CUTO series wheels are suitable for routine laboratory applications requiring a balance between wheel life and performance.



TRENO⁺ Plus

Series Abrasive Cut-off Wheels for use with METACUT & SERVOCUT

| Order No | Code | Diameter mm. | Arbor mm. | Thickness mm. | Abrasive Type | Recommended for Cutting | Quantities Per Pack |
|----------|----------|--------------|-----------|---------------|--------------------------------|--|---------------------|
| 19-019/S | TRENO-Ti | 250 | 32 | 1.6 | SiC | Titanium and Very Ductile Materials | 10 |
| 19-020/S | TRENO-NF | 250 | 32 | 1.6 | SiC | Non-ferrous materials | 10 |
| 19-021/S | TRENO-H | 250 | 32 | 1.6 | Al ₂ O ₃ | Soft Steels and ferrous materials <23 HRC | 10 |
| 19-022/S | TRENO-M | 250 | 32 | 1.6 | Al ₂ O ₃ | Medium Hard Steels and ferrous materials >20-35 HRC< | 10 |
| 19-023/S | TRENO-S | 250 | 32 | 1.6 | Al ₂ O ₃ | Hard Steels and ferrous materials >35-55 HRC | 10 |
| 19-024/S | TRENO-SS | 250 | 32 | 1.6 | Al ₂ O ₃ | Very Hard Steels and ferrous materials >55-70 HRC | 10 |
| 19-040/S | TRENO-NF | 300 | 32 | 2 | SiC | Non-ferrous materials | 10 |
| 19-041/S | TRENO-H | 300 | 32 | 2 | Al ₂ O ₃ | Soft Steels and ferrous materials <23 HRC | 10 |
| 19-042/S | TRENO-M | 300 | 32 | 2 | Al ₂ O ₃ | Medium Hard Steels and ferrous materials >20-35 HRC< | 10 |
| 19-043/S | TRENO-S | 300 | 32 | 2 | Al ₂ O ₃ | Hard Steels and ferrous materials >35-55 HRC | 10 |
| 19-044/S | TRENO-SS | 300 | 32 | 2 | Al ₂ O ₃ | Very Hard Steels and ferrous materials >55-70 HRC | 10 |
| 19-060/S | TRENO-NF | 350 | 32 | 2.5 | SiC | Non-ferrous materials | 10 |
| 19-062/S | TRENO-M | 350 | 32 | 2.5 | Al ₂ O ₃ | Medium Hard Steels and ferrous materials >20-35 HRC< | 10 |
| 19-063/S | TRENO-S | 350 | 32 | 2.5 | Al ₂ O ₃ | Hard Steels and ferrous materials >35-55 HRC | 10 |
| 19-064/S | TRENO-SS | 350 | 32 | 2.5 | Al ₂ O ₃ | Very Hard Steels and ferrous materials >55-70 HRC | 10 |
| 19-070/S | TRENO-NF | 400 | 32 | 3 | SiC | Non-ferrous materials | 10 |
| 19-072/S | TRENO-M | 400 | 32 | 3 | Al ₂ O ₃ | Medium Hard Steels and ferrous materials >20-35HRC< | 10 |
| 19-073/S | TRENO-S | 400 | 32 | 3 | Al ₂ O ₃ | Hard Steels and ferrous materials >35-55 HRC | 10 |
| 19-074/S | TRENO-SS | 400 | 32 | 3 | Al ₂ O ₃ | Very Hard Steels and ferrous materials >55-70 HRC | 10 |
| 19-090/S | TRENO-NF | 500 | 32 | 3.6 | SiC | Non-ferrous materials | 10 |
| 19-092/S | TRENO-M | 500 | 32 | 3.6 | Al ₂ O ₃ | Medium Hard Steels and ferrous materials >20-35 HRC< | 10 |
| 19-093/S | TRENO-S | 500 | 32 | 3.6 | Al ₂ O ₃ | Hard Steels and ferrous materials >35-55 HRC | 10 |
| 19-097/S | TRENO-M | 600 | 32 | 5 | Al ₂ O ₃ | Medium Hard Steels and ferrous materials > 20-35 HRC < | 5 |
| 19-098/S | TRENO-S | 600 | 32 | 5 | Al ₂ O ₃ | Hard Steels and ferrous materials >35-55 HRC | 5 |

TRENO-DUR

Extremely Long Life Abrasive Cut-off Wheels for use with METACUT & SERVOCUT

| Order No | Code | Diameter mm. | Arbor mm. | Thickness mm. | Recommended for Cutting | Quantities Per Pack |
|----------|-----------|--------------|-----------|---------------|--|---------------------|
| 19-026 | TRENO-DUR | 250 | 32 | 1.5 | Extremely Low Consumption Rate with Optimum Surface Quality for High Volume Cutting Operations, Cut-Check Applications, etc... | 10 |

TRENO-F

Fiber Reinforced Long Life & Durable Abrasive Cut-off Wheels for use with METACUT & SERVOCUT

| Order No | Code | Diameter mm. | Arbor mm. | Thickness mm. | Recommended for Cutting | Quantities Per Pack |
|----------|---------|--------------|-----------|---------------|--|---------------------|
| 19-027 | TRENO-F | 250 | 32 | 2.0 | Medium & Hard Steels, Fiber Reinforced | 10 |
| 19-028 | TRENO-F | 300 | 32 | 2.2 | Medium & Hard Steels, Fiber Reinforced | 10 |

TRENO-T

Ultra Thin Abrasive Cut-off Wheels for use with METACUT & SERVOCUT

| Order No | Code | Diameter mm. | Arbor mm. | Thickness mm. | Recommended for Cutting | Quantities Per Pack |
|----------|----------|--------------|-----------|---------------|---|---------------------|
| 19-031 | TRENO-HT | 250 | 32 | 1.0 | Soft Steel and ferrous materials >20-35 HRC< | 10 |
| 19-032 | TRENO-MT | 250 | 32 | 1.0 | Medium Hard Steels and ferrous materials >38-58HRC< | 10 |

CUTO

Series Abrasive Cut-off Wheels for use with METACUT & SERVOCUT

| Order No | Code | Diameter mm. | Arbor mm. | Thickness mm. | Recommended for Cutting | Quantities Per Pack |
|----------|--------|--------------|-----------|---------------|--|---------------------|
| 19-022/A | CUTO-M | 250 | 32 | 1.5 | Medium Hard Steels and ferrous materials >23-50 HRC< | 10 |
| 19-023/A | CUTO-S | 250 | 32 | 1.5 | Hard Steels and ferrous materials >50-60 HRC | 10 |
| 19-042/A | CUTO-M | 300 | 32 | 2 | Medium Hard Steels and ferrous materials >23-50 HRC< | 10 |
| 19-043/A | CUTO-S | 300 | 32 | 2 | Hard Steels and ferrous materials >50-60 HRC | 10 |

TRENO-P

Abrasive Cutting Discs for use with MICRACUT Precision Cutters

| Order No | Code | Diameter mm. | Arbor mm. | Thickness mm. | Recommended for Cutting | Quantities Per Pack |
|----------|----------|--------------|-----------|---------------|---|---------------------|
| 18-150/S | TRENO-HP | 150 | 12.7 | 0.8 | Non-ferrous materials & stainless steels | 10 |
| 18-151/S | TRENO-MP | 150 | 12.7 | 0.8 | Medium Hard & hardened Steels & ferrous materials >35-55 HRC< | 10 |
| 18-200/S | TRENO-HP | 200 | 12.7 | 1 | Non-ferrous materials & stainless steels | 10 |
| 18-201/S | TRENO-MP | 200 | 12.7 | 1 | Medium Hard & hardened Steels & ferrous materials >35-55 HRC< | 10 |

*All cut-off wheels are resin bonded.

CUTTING

DIAMOND CUT-OFF WHEELS

Metal bonded wheels are used for cutting brittle materials, such as ceramics or minerals, while resin bonded wheels are used for more ductile materials, such as sintered carbides or composites containing predominantly hard phases.

Several factors are important for choosing the appropriate wafering blade. These include: diamond concentration (low and high), diamond bond (metal plate), diamond size (fine or medium), blade diameter and blade thickness. The diamond concentration is important because it directly affects the load which is applied during cutting. For example, brittle materials such as ceramics require higher effective loads to section, whereas ductile materials such as metals require more cutting points. The result is that low concentration blades are recommended for sectioning hard brittle materials such as ceramics and high concentration blades are recommended for ductile materials containing a large fraction of metal or plastic.



DIMOS

Diamond Cutting Discs for use with SERVOCUT & METACUT

| Order No | Diameter mm. | Bond | Arbor mm. | Thickness mm. | Diamond Layer's Dep. (X)mm. | Diamond Size/ Concentration | Grain Size: [Mesh] | Recommended for Cutting |
|----------|--------------|--------------|-----------|---------------|-----------------------------|-----------------------------|--------------------|---|
| 19-250 | 254 | Metal bonded | 32 | 1.52 | 10 | Coarse/High | 60/80 | For general usage |
| 19-251 | 254 | Resin bonded | 32 | 1.52 | 6.35 | Medium/High | 100 | For hard, delicate or brittle materials |
| 19-300 | 305 | Metal bonded | 32 | 2.08 | 10 | Coarse/High | 60/80 | For general usage |
| 19-301 | 305 | Resin bonded | 32 | 1.65 | 6.35 | Medium/High | 100 | For hard, delicate or brittle materials |
| 19-400 | 406 | Metal bonded | 32 | 2.00 | 10 | Coarse/High | 60/80 | For general usage |
| 19-401 | 406 | Resin bonded | 32 | 2.41 | 6.35 | Medium/High | 100 | For hard, delicate or brittle materials |

DIMOS

Diamond Cutting Wheels for use with MICRACUT

| Order No | Diameter mm. | Bond | Arbor mm. | Thickness mm. | Diamond Layer's Dep. (X)mm. | Diamond Size/ Concentration | Grain Size: [Mesh] | Recommended for Cutting |
|----------|--------------|--------------|-----------|---------------|-----------------------------|-----------------------------|--------------------|---|
| 19-100 | 101.1 | Metal bonded | 12.7 | 0.35 | 4 | Medium/High | 150 | • For general use with ferrous and non-ferrous alloys; copper, aluminium, metal matrix composites, PCB boards, thermal spray coatings and titanium alloy. |
| 19-125 | 127 | Metal bonded | 12.7 | 0.4 | 4 | Medium/High | 150 | • For general use with ferrous and non-ferrous alloys; copper, aluminium, metal matrix composites, PCB boards, thermal spray coatings and titanium alloy. |
| 19-130 | 127 | Metal bonded | 12.7 | 0.4 | 4 | Fine/Low | 220 | • For use with hard brittle materials structural ceramics, boron carbide, boron nitride and silicon carbide. |
| 19-126 | 127 | Resin bonded | 12.7 | 0.5 | 5 | Medium/High | 150 | • Hard, delicate materials or brittle materials (cannot be used at low speeds. High speed only 950 RPM's or higher.) |
| 19-150 | 152 | Metal bonded | 12.7 | 0.5 | 4 | Medium/High | 150 | • For general use with ferrous and non-ferrous alloys; copper, aluminium, metal matrix composites, PCB boards, thermal spray coatings and titanium alloy. |
| 19-157 | 152 | Metal bonded | 12.7 | 0.5 | 4 | Fine/Low | 220 | • For use with hard brittle materials structural ceramics, carbide, boron nitride and silicon carbide. |
| 19-151 | 152 | Resin bonded | 12.7 | 0.5 | 5 | Medium/High | 150 | • For hard, delicate materials or brittle materials (cannot be used at low speeds. High speed only 950 RPM's or higher.) |
| 19-200 | 203 | Metal bonded | 12.7 | 0.81 | 5 | Medium/High | 150 | • For general use with ferrous and non-ferrous alloys; copper, aluminium, metal matrix composites, PCB boards, thermal spray coatings and titanium alloy. |
| 19-205 | 203 | Metal bonded | 12.7 | 0.81 | 5 | Fine/High | 220 | • For use with hard brittle materials structural ceramics, carbide, boron nitride and silicon carbide |
| 19-201 | 203 | Resin bonded | 12.7 | 0.88 | 5 | Medium/High | 150 | • For hard, delicate materials or brittle materials (cannot be used at low speeds. High speed only 950 RPM's or higher.) |

CBN

CBN Cutting Discs for use with MICRACUT

| Order No | Diameter mm. | Bond | Arbor mm. | Thickness mm. | Diamond Layer's Dep. (X)mm. | Diamond Size/ Concentration | Grain Size: [Mesh] | Recommended for Cutting |
|----------|--------------|--------------|-----------|---------------|-----------------------------|-----------------------------|--------------------|--|
| 19-127 | 125 | Metal bonded | 12.7 | 0.4 | 5 | Medium/high | 150 | Hard metals, iron, steel, lead and titanium, ferrous materials |
| 19-152 | 150 | Metal bonded | 12.7 | 0.5 | 5 | Medium/high | 150 | Hard metals, iron, steel, lead and titanium, ferrous materials |
| 19-202 | 200 | Metal bonded | 12.7 | 0.9 | 5 | Medium/high | 120 | Hard metals, iron, steel, lead and titanium, ferrous materials |

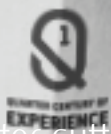
COOLING FLUIDS

| Order No | Code | Description | Type | Quantity | For use with |
|----------|------------|--|-------------|----------|--------------------|
| 19-902 | METCOOL | Nature Friendly Soluble Oil | Water-based | 5 lt. | METACUT & SERVOCUT |
| 19-905 | METCOOL II | Nature Friendly Soluble Oil | Water-based | 1 lt. | MICRACUT 152/202 |
| 19-906 | METCOOL NF | Nature Friendly Soluble Oil Perfect corrosion protection for reactive metals like copper, brass, cobalt, aluminum, tungsten carbide, etc... | Water-based | 5 lt. | METACUT & SERVOCUT |

*Recommended mix ratio is 3% Metcool to 97% water.



CONSUMABLES FOR MOUNTING



After cutting the specimen the next step is mounting. The aim of mounting is to handle small or odd shaped specimens and to protect fragile materials, thin layers or coating during preparation as well as to provide good edge retention.

Mounting produces specimens with uniform size so that it is easier to handle in automatic holders for further preparation steps.



MOUNTING

HOT MOUNTING

The most important properties of a hot mounting compound are; Hardness, Shrinkage and Viscosity.

The Hardness of the compound should match the hardness of the specimen in order to avoid uneven abrasion during grinding.
If the shrinkage during curing is large, a gap between the specimen and the mount will occur and edge will not be adequately protected.
Viscosity is important to reach to all areas.



HOT MOUNTING RESINS

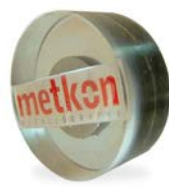
| Order No | Code | Hot Mounting Resins | Quantity | Color | Comments |
|-----------|---------|----------------------------|----------|---|---|
| 29-001 | BAK-B | Black Phenolic Powder | 1 kg |  | Standart examination of all materials Low shrinkage Heating: upto 180 C |
| 29-001/10 | BAK-B | Black Phenolic Powder | 10 kgs |  | Standart examination of all materials Low shrinkage Heating: upto 180 C |
| 29-001/20 | BAK-B | Black Phenolic Powder | 20 kgs |  | Standart examination of all materials Low shrinkage Heating: upto 180 C |
| 29-002 | BAK-R | Red Phenolic Powder | 1 kg |  | Standart examination of all materials Low shrinkage Heating: upto 180 C |
| 29-002/10 | BAK-R | Red Phenolic Powder | 10 kgs |  | Standart examination of all materials Low shrinkage Heating: upto 180 C |
| 29-002/20 | BAK-R | Red Phenolic Powder | 20 kgs |  | Standart examination of all materials Low shrinkage Heating: upto 180 C |
| 29-010 | NET | Transparent Acrylic Powder | 1 kg |  | Standart examination of all materials. Perfectly transparent |
| 29-010/10 | NET | Transparent Acrylic Powder | 10 kgs |  | Standart examination of all materials. Perfectly transparent |
| 29-011 | EPO | Epoxy, Hard | 1 kg |  | Examination of edges surface. Hard with very low shrinkage |
| 29-011/10 | EPO | Epoxy, Hard | 10 kgs |  | Examination of edges surface. Hard with very low shrinkage |
| 29-012 | DAP | Diallyphtalat | 1 kg |  | Examination of edges surface. (Coating, deposits, thermal, treatment) |
| 29-012/10 | DAP | Diallyphtalat | 10 kgs |  | Examination of edges surface. (Coating, deposits, thermal, treatment) |
| 29-014 | DAP ECO | Diallyphtalat | 1 kg |  | Examination of edges surface. (Coating, deposits, thermal, treatment) |
| 29-014/10 | DAP ECO | Diallyphtalat | 10 kgs |  | Examination of edges surface. (Coating, deposits, thermal, treatment) |
| 29-013 | CON | Conductive Bakelite powder | 0.5 kg |  | SEM examination of all materials |
| 29-099 | SMOOTH | Mould Release Spray Can | 400 ml | | - |



29-001 BAK-B



29-002 BAK-R



29-010 NET



29-011 EPO



29-012 DAP



29-013 CON

MOUNTING

COLD MOUNTING

Cold mounting is preferred for samples which are sensitive to damage from heat and pressure (like coatings, PCB, etc.) Cold mounting resins are easy to use.

DMT Acrylic cold mounting resins

- Very fast cure time
- It requires mixing in the ratio 2:1, powder to liquid. The mix is then poured into a mould and allowed to set.

EPOCOLD Epoxy cold mounting resins

- Better results in good edge protection.
- Low shrinkage and moderate hardness.



COLD MOUNTING

| Mounting Materials | Curing Time | Compounds | Mixing Ratio Volume | Mixing Time | Peak Temperature | Color |
|--------------------|-------------|---------------|---------------------------------|-------------|------------------|--------------------|
| EPOCOLD | 8 Hour | Two Liquids | Resin: 5 Part; Hardener: 1 Part | 3 Min. | 40-60°C | Clear, Transparent |
| DMT 20 | 10 Min. | Powder/Liquid | Resin: 2 Part; Hardener: 1 Part | 4-5 Min. | 80-87°C | Semi Transparent |
| DMT 35 | 5 Min. | Powder/Liquid | Resin: 2 Part; Hardener: 1 Part | 2-3 Min. | 75-80°C | Light Green, Black |
| DMT CON | 18 Min. | Powder/Liquid | Resin: 1 Part; Hardener: 1 Part | 5 Min. | 100-106°C | Black |
| DMT ACE | 6 Min. | Powder/Liquid | Resin: 2 Part; Hardener: 1 Part | 6 Min. | 82-88°C | Green, Transparent |

DMT

Acrylic Cold Mounting Resins

| Order No | Code | Cold Mounting Resins | Type | Quantity |
|----------|---------|----------------------|---------|----------|
| 29-501 | DMT 35 | Powder | Acrylic | 1000 gr |
| 29-502 | DMT 35 | Fluid | Acrylic | 500 ml |
| 29-511 | DMT 20 | Powder (Transparent) | Acrylic | 1000 gr |
| 29-512 | DMT 20 | Fluid (Transparent) | Acrylic | 500 ml |
| 29-513 | DMT CON | Powder | Acrylic | 500 gr |
| 29-514 | DMT CON | Fluid | Acrylic | 500 ml |
| 29-515 | DMT ACE | Powder | Acrylic | 1000 gr |
| 29-516 | DMT ACE | Fluid | Acrylic | 500 ml |

EPOCOLD

Epoxy Cold Mounting Resins

| Order No | Code | Cold Mounting Resins |
|----------|------------|-------------------------|
| 29-506 | EPOCOLD -H | Epoxy Hardener (200 gr) |
| 29-505 | EPOCOLD -R | Epoxy Resin (2x500 gr) |



EPOCOLD



DMT 20

ACCESSORIES

| Order No | Descriptions Fluid |
|-----------|--|
| 29-551 | Spatulas, (100 pcs) |
| 29-552 | Mixing Beakers, (10 pcs) |
| 29-553-01 | Embedding Form, ø 25 mm (5 pcs) |
| 29-554-01 | Embedding Form, ø 30 mm (5 pcs) |
| 29-555-01 | Embedding Form, ø 40 mm (5 pcs) |
| 29-556-01 | Embedding Form, ø 50 mm (5 pcs) |
| 29-601 | Stainless steel clips (100 pcs) |
| 29-602 | Plastic clips (100 pcs) |
| 29-603 | Plastic multi-clips for 5 specimens (50 pcs) |



DMT 35



DMT ACE



DMT CON



CONSUMABLES FOR GRINDING & POLISHING

In order to obtain scratch free surfaces without deformation, successive material removal by abrasives is necessary. Grinding is the next stage after sectioning. Grinding is divided into two processes: Planar grinding and Fine grinding. The purpose of planar grinding is to obtain a level surface and to remove scale, burrs or surface irregularation from the specimen.

To remove deformation from fine grinding and obtain a surface that is highly reflective, the specimens must be polished before they can be examined under the microscope. Polishing is a complex activity in which factors such as quality and suitability for the cloth, abrasive, polishing pressure, polishing speed and duration need to be taken into account. The quality of the surface obtained after the final polishing depends on all these factors and the finish of the surface on completion of each of the previous stages.



mettler
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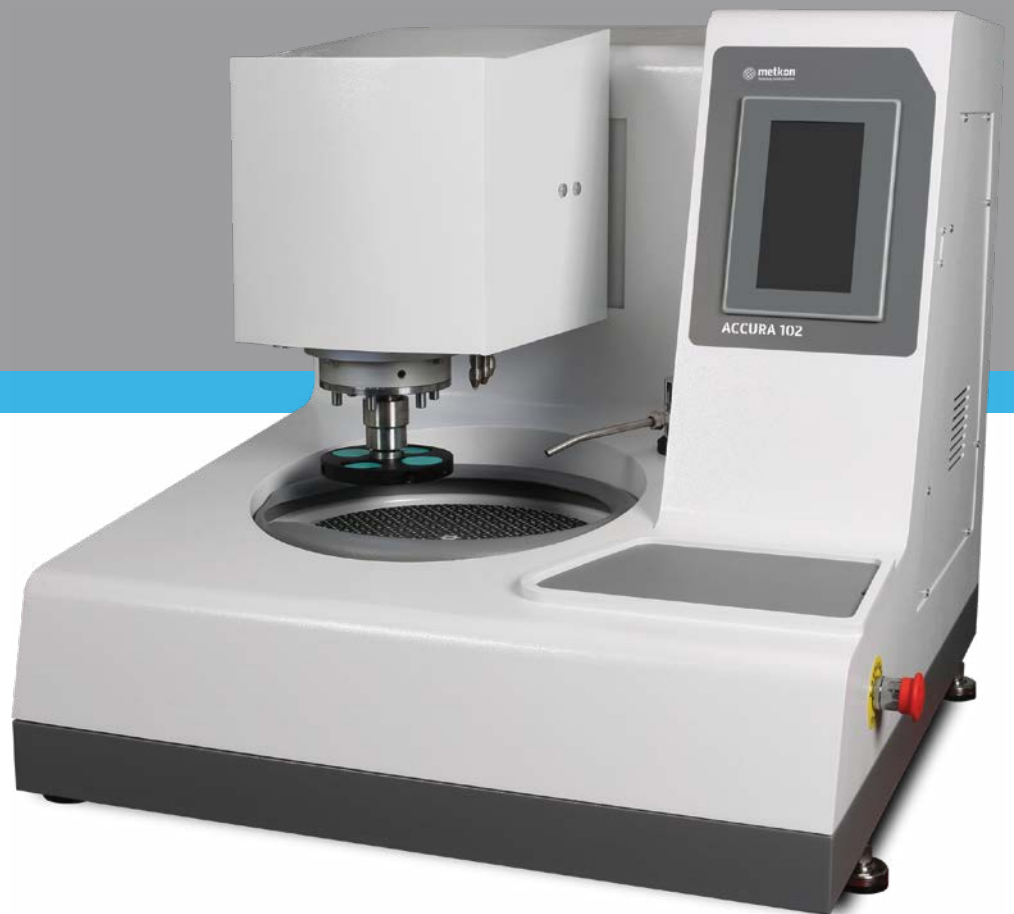
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GRINDING

PAPER GRINDING DISCS

PLAIN BACK

Coarse paper discs (up to 120 grit) are used for planar grinding. Fine grinding removes the deformations resulting from coarse grinding to make the surface ready for polishing which is the final stage. Metkon paper grinding discs are available as "Plain back" and "Foil Back" for CATCHY System.



SIC PAPER GRINDING DISCS

Plain Back

| Order No | Code | Type | Diameter | Grit Size | Quantity / Pack |
|-------------|------------|------------|----------|---------------|-----------------|
| 38-020-60 | DEMPAX | Plain Back | 200 | 60 | 2x50 |
| 38-020-120 | DEMPAX | Plain Back | 200 | 120 | 100 |
| 38-020-180 | DEMPAX | Plain Back | 200 | 180 | 100 |
| 38-020-240 | DEMPAX | Plain Back | 200 | 240 | 100 |
| 38-020-320 | DEMPAX | Plain Back | 200 | 320 | 100 |
| 38-020-400 | DEMPAX | Plain Back | 200 | 400 | 100 |
| 38-020-600 | DEMPAX | Plain Back | 200 | 600 | 100 |
| 38-020-800 | DEMPAX | Plain Back | 200 | 800 | 100 |
| 38-020-1000 | DEMPAX | Plain Back | 200 | 1000 | 100 |
| 38-020-1200 | DEMPAX | Plain Back | 200 | 1200 | 100 |
| 38-020-2500 | DEMPAX | Plain Back | 200 | 2500 | 100 |
| 38-020-4000 | DEMPAX | Plain Back | 200 | 4000 | 100 |
| 38-020-S | DEMPAX | Plain Back | 200 | Mix{120-2500} | 100 |
| 38-040-60 | DEMPAX | Plain Back | 250 | 60 | 2x50 |
| 38-040-120 | DEMPAX | Plain Back | 250 | 120 | 100 |
| 38-040-180 | DEMPAX | Plain Back | 250 | 180 | 100 |
| 38-040-240 | DEMPAX | Plain Back | 250 | 240 | 100 |
| 38-040-320 | DEMPAX | Plain Back | 250 | 320 | 100 |
| 38-040-400 | DEMPAX | Plain Back | 250 | 400 | 100 |
| 38-040-600 | DEMPAX | Plain Back | 250 | 600 | 100 |
| 38-040-800 | DEMPAX | Plain Back | 250 | 800 | 100 |
| 38-040-1000 | DEMPAX | Plain Back | 250 | 1000 | 100 |
| 38-040-1200 | DEMPAX | Plain Back | 250 | 1200 | 100 |
| 38-040-2500 | DEMPAX | Plain Back | 250 | 2500 | 100 |
| 38-040-4000 | DEMPAX | Plain Back | 250 | 4000 | 100 |
| 38-040-S | DEMPAX | Plain Back | 250 | Mix{120-2500} | 100 |
| 38-050-060 | DEMPAX | Plain Back | 300 | 60 | 2x50 |
| 38-050-120 | DEMPAX | Plain Back | 300 | 120 | 100 |
| 38-050-180 | DEMPAX | Plain Back | 300 | 180 | 100 |
| 38-050-240 | DEMPAX | Plain Back | 300 | 240 | 100 |
| 38-050-320 | DEMPAX | Plain Back | 300 | 320 | 100 |
| 38-050-400 | DEMPAX | Plain Back | 300 | 400 | 100 |
| 38-050-600 | DEMPAX | Plain Back | 300 | 600 | 100 |
| 38-050-800 | DEMPAX | Plain Back | 300 | 800 | 100 |
| 38-050-1000 | DEMPAX | Plain Back | 300 | 1000 | 100 |
| 38-050-1200 | DEMPAX | Plain Back | 300 | 1200 | 100 |
| 38-050-2500 | DEMPAX | Plain Back | 300 | 2500 | 100 |
| 38-050-4000 | DEMPAX | Plain Back | 300 | 4000 | 100 |
| 38-050-S | DEMPAX | Plain Back | 300 | Mix{120-2500} | 100 |
| 48-040-120 | DEMPAX ECO | Plain Back | 250 | 120 | 100 |
| 48-040-180 | DEMPAX ECO | Plain Back | 250 | 180 | 100 |
| 48-040-240 | DEMPAX ECO | Plain Back | 250 | 240 | 100 |
| 48-040-320 | DEMPAX ECO | Plain Back | 250 | 320 | 100 |
| 48-040-600 | DEMPAX ECO | Plain Back | 250 | 600 | 100 |
| 48-040-1000 | DEMPAX ECO | Plain Back | 250 | 1000 | 100 |
| 48-040-1200 | DEMPAX ECO | Plain Back | 250 | 1200 | 100 |

GRINDING

METKON CATCHY SYSTEM

CATCHY system has a high friction foil which makes the new SiC Foil back grinding papers stick very well and at the same time very easy to remove again.

Traditional PSA back and self adhesive grinding papers are difficult to apply, difficult to remove. The Foil back papers are removed easily, without leaving any trace of adhesive.

Water does not affect the shape of the foil at all. So it does not curl as traditional SiC Paper and stays flat and ready for immediate or later re-use



SiC PAPER GRINDING DISCS

Foil Back, CATCHY SYSTEM

| Order No | Code | Type | Diameter | Grit Size | Quantity / Pack |
|--------------|----------|-----------|----------|---------------|-----------------|
| 38-020-60F | DEMPAX-F | Foil Back | 200 | 60 | 2x50 |
| 38-020-120F | DEMPAX-F | Foil Back | 200 | 120 | 100 |
| 38-020-180F | DEMPAX-F | Foil Back | 200 | 180 | 100 |
| 38-020-240F | DEMPAX-F | Foil Back | 200 | 240 | 100 |
| 38-020-320F | DEMPAX-F | Foil Back | 200 | 320 | 100 |
| 38-020-400F | DEMPAX-F | Foil Back | 200 | 400 | 100 |
| 38-020-600F | DEMPAX-F | Foil Back | 200 | 600 | 100 |
| 38-020-800F | DEMPAX-F | Foil Back | 200 | 800 | 100 |
| 38-020-1000F | DEMPAX-F | Foil Back | 200 | 1000 | 100 |
| 38-020-1200F | DEMPAX-F | Foil Back | 200 | 1200 | 100 |
| 38-020-2500F | DEMPAX-F | Foil Back | 200 | 2500 | 100 |
| 38-020-4000F | DEMPAX-F | Foil Back | 200 | 4000 | 100 |
| 38-020-SF | DEMPAX-F | Foil Back | 200 | Mix[120-2500] | 100 |
| 38-040-60F | DEMPAX-F | Foil Back | 250 | 60 | 2x50 |
| 38-040-120F | DEMPAX-F | Foil Back | 250 | 120 | 100 |
| 38-040-180F | DEMPAX-F | Foil Back | 250 | 180 | 100 |
| 38-040-240F | DEMPAX-F | Foil Back | 250 | 240 | 100 |
| 38-040-320F | DEMPAX-F | Foil Back | 250 | 320 | 100 |
| 38-040-400F | DEMPAX-F | Foil Back | 250 | 400 | 100 |
| 38-040-600F | DEMPAX-F | Foil Back | 250 | 600 | 100 |
| 38-040-800F | DEMPAX-F | Foil Back | 250 | 800 | 100 |
| 38-040-1000F | DEMPAX-F | Foil Back | 250 | 1000 | 100 |
| 38-040-1200F | DEMPAX-F | Foil Back | 250 | 1200 | 100 |
| 38-040-2500F | DEMPAX-F | Foil Back | 250 | 2500 | 100 |
| 38-040-4000F | DEMPAX-F | Foil Back | 250 | 4000 | 100 |
| 38-040-SF | DEMPAX-F | Foil Back | 250 | Mix[120-2500] | 100 |
| 38-050-060F | DEMPAX-F | Foil Back | 300 | 60 | 2x50 |
| 38-050-120F | DEMPAX-F | Foil Back | 300 | 120 | 100 |
| 38-050-180F | DEMPAX-F | Foil Back | 300 | 180 | 100 |
| 38-050-240F | DEMPAX-F | Foil Back | 300 | 240 | 100 |
| 38-050-320F | DEMPAX-F | Foil Back | 300 | 320 | 100 |
| 38-050-400F | DEMPAX-F | Foil Back | 300 | 400 | 100 |
| 38-050-600F | DEMPAX-F | Foil Back | 300 | 600 | 100 |
| 38-050-800F | DEMPAX-F | Foil Back | 300 | 800 | 100 |
| 38-050-1000F | DEMPAX-F | Foil Back | 300 | 1000 | 100 |
| 38-050-1200F | DEMPAX-F | Foil Back | 300 | 1200 | 100 |
| 38-050-2500F | DEMPAX-F | Foil Back | 300 | 2500 | 100 |
| 38-050-4000F | DEMPAX-F | Foil Back | 300 | 4000 | 100 |
| 38-050-SF | DEMPAX-F | Foil Bac | 300 | Mix[120-2500] | 100 |

CATCHY FIX PLATE

| Order No | Code | Description |
|----------|------------|-----------------------------------|
| CFP | 39-083-200 | Ø 200 mm, Catchy Fix Plate [1 pc] |
| CFP | 39-083-250 | Ø 250 mm, Catchy Fix Plate [1 pc] |
| CFP | 39-083-300 | Ø 300 mm, Catchy Fix Plate [1 pc] |

Planar Grinding Stones for FORCIPLAN 352/VELOX 102 [1Pc]

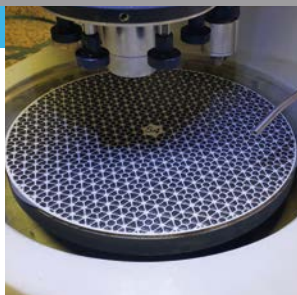
| Order No | Code | Description | Equipment |
|----------|--------|---|---------------|
| PGS-NF | 80-350 | Ø350 mm, Planar Grinding Stone, 120 grit, for non-ferrous materials | FORCIPLAN 352 |
| PGS-M | 80-351 | Ø350 mm, Planar Grinding Stone, 120 grit, for medium hard steels & cast irons | FORCIPLAN 352 |
| PGS-H | 80-352 | Ø350 mm, Planar Grinding Stone, 120 grit, for hard steels & cast irons | FORCIPLAN 352 |
| PGS-NF | 80-300 | Ø300 mm, Planar Grinding Stone, 120 grit, for non-ferrous materials | VELOX 102 |
| PGS-M | 80-301 | Ø300 mm, Planar Grinding Stone, 120 grit, for medium hard steels & cast irons | VELOX 102 |
| PGS-H | 80-302 | Ø300 mm, Planar Grinding Stone, 120 grit, for hard steels & cast irons | VELOX 102 |

GRINDING

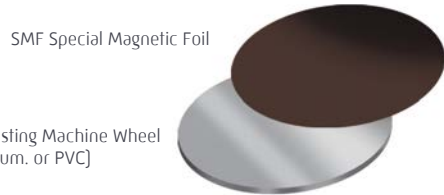
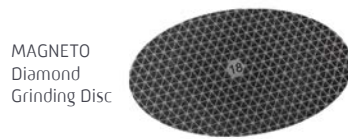
METKON MAGNETIC SYSTEM

Magnetic Preparation with METKON Magnetic System is simply and advanced way to grind and polish specimens. It reduces your operating costs and increases specimen quality. Place your SMF Special Magnetic Foil, which is self-adhesive for once and permanently on your existing working wheel (Aluminum or PVC).

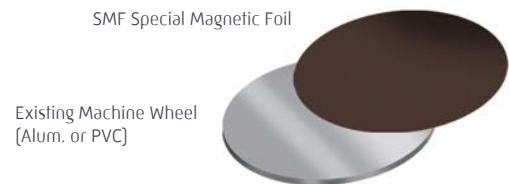
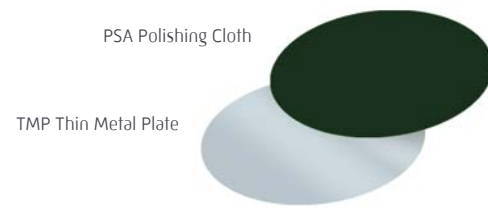
Place the Cloth (or MAGNETO) on the TMP Thin Metal Plate which you can then use as a magnetic unit to put on and remove from your disc. After the grinding or polishing operation you may remove it (non-destructively) and then place it again whenever you need. Without any material destruction!



QUICK MAGNETIC SYSTEM for MAGNETO



QUICK MAGNETIC SYSTEM for PSA POLISHING CLOTH



ABRASIVE GRADE SYSTEM

| FEPA P (Europe) | P60 | P120 | P180 | P240 | P320 | P400 | P600 | P800 | P1000 | P1200 | P2000 | P4000 |
|---------------------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|
| ANSI/CAMI (US) | 60 | 120 | 180 | 240 | 280 | 320 | 360 | 400 | 500 | 600 | 1000 | 1200 |
| Gain size (Average) | 250μ | 125μ | 82μ | 60μ | 46μ | 35μ | 26μ | 22μ | 18μ | 15μ | 10μ | 5μ |

*All Metkon grinding papers are classified according to FEPA Standards.

*The above Abrasive Grading Chart is a general overview only.

MAGNETIC SYSTEM

| Order No | Code | Magnetic System Accessories |
|------------|------|--------------------------------|
| 39-003-200 | SMF | Special Magnetic Foil, Ø200 |
| 39-003-250 | SMF | Special Magnetic Foil, Ø250 |
| 39-003-300 | SMF | Special Magnetic Foil, Ø300 |
| 39-003-350 | SMF | Special Magnetic Foil, Ø350 |
| 39-093-200 | TMP | Thin Metal Plate, Ø200 (5 pcs) |
| 39-093-250 | TMP | Thin Metal Plate, Ø250 (5 pcs) |
| 39-093-300 | TMP | Thin Metal Plate, Ø300 (5 pcs) |
| 39-093-350 | TMP | Thin Metal Plate, Ø350 (5 pcs) |

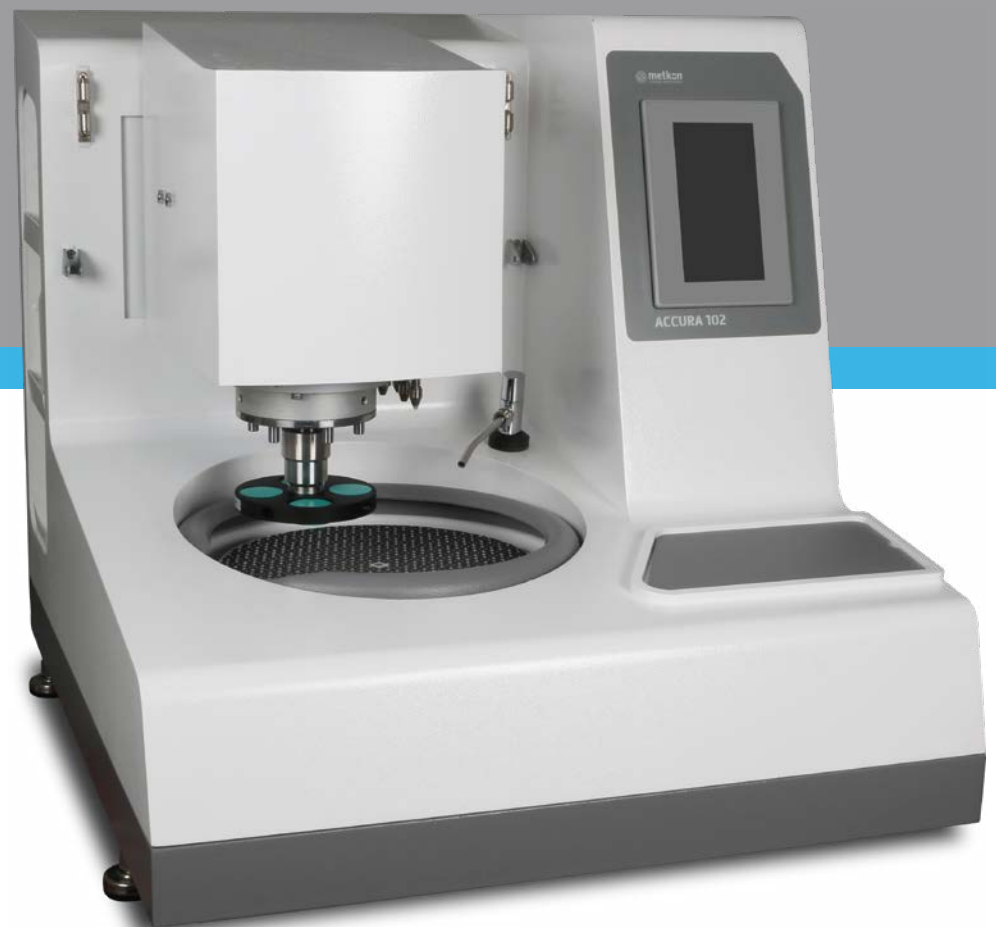
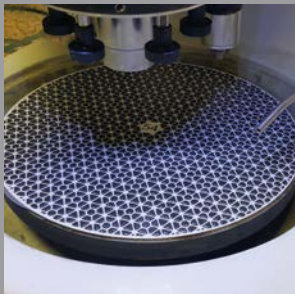
GRINDING

MAGNETO DIAMOND GRINDING DISCS

[Total Grinding Time 2 Minutes!]

MAGNETO Diamond Grinding Discs for planar grinding, fine grinding and extra fine grinding offer wonderful advantages:

- Only water is needed (No additional diamond suspensions or lubricant).
- The same disc can be used for grinding hard as well as soft materials.
- Very clean working environment.
- Very high edge sharpness and scratch free surface.
- Excellent planarity and flatness.
- Very short preparation time.



MAGNETO

MAGNETO Diamond Fine Grinding Disc

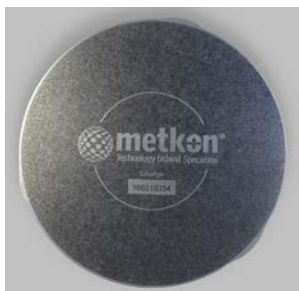
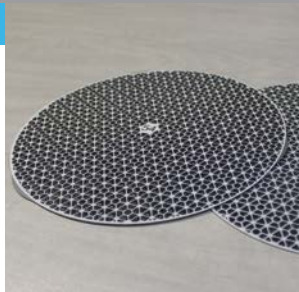
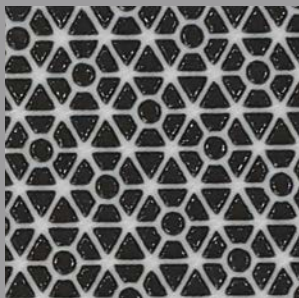
| Order No | Code | Diameter | Grit Size | Recommended for |
|------------|-------------|----------|-----------|---------------------|
| 38-020-125 | MAGNETO 125 | 200 | 125 | Planar Grinding |
| 38-040-125 | MAGNETO 125 | 250 | 125 | Planar Grinding |
| 38-050-125 | MAGNETO 125 | 300 | 125 | Planar Grinding |
| 38-020-075 | MAGNETO 75 | 200 | 75 | Planar Grinding |
| 38-040-075 | MAGNETO 75 | 250 | 75 | Planar Grinding |
| 38-050-075 | MAGNETO 75 | 300 | 75 | Planar Grinding |
| 38-060-075 | MAGNETO 75 | 350 | 75 | Planar Grinding |
| 38-020-054 | MAGNETO 54 | 200 | 54 | Planar Grinding |
| 38-040-054 | MAGNETO 54 | 250 | 54 | Planar Grinding |
| 38-050-054 | MAGNETO 54 | 300 | 54 | Planar Grinding |
| 38-060-054 | MAGNETO 54 | 350 | 54 | Planar Grinding |
| 38-020-018 | MAGNETO 18 | 200 | 18 | Fine Grinding |
| 38-040-018 | MAGNETO 18 | 250 | 18 | Fine Grinding |
| 38-050-018 | MAGNETO 18 | 300 | 18 | Fine Grinding |
| 38-060-018 | MAGNETO 18 | 350 | 18 | Fine Grinding |
| 38-020-006 | MAGNETO 6 | 200 | 6 | Extra Fine Grinding |
| 38-040-006 | MAGNETO 6 | 250 | 6 | Extra Fine Grinding |
| 38-050-006 | MAGNETO 6 | 300 | 6 | Extra Fine Grinding |
| 38-020-003 | MAGNETO 3 | 200 | 3 | Extra Fine Grinding |
| 38-040-003 | MAGNETO 3 | 250 | 3 | Extra Fine Grinding |
| 38-050-003 | MAGNETO 3 | 300 | 3 | Extra Fine Grinding |

GRINDING

MAGNETO-S SILICON CARBIDE GRINDING DISCS

MAGNETO-S Silicon Carbide Grinding Discs are developed to provide excellent specimen surfaces. It can be used for any material that SiC papers are used. It is the most modern and the best alternative of SiC papers with many advantages:

- Very cost effective. One MAGNETO-S is equal to 100 pcs of SiC grinding papers. [depending on the sample hardness and size]
- Only water is needed [No additional diamond suspensions or lubricant].
- Suitable for both ferrous and non-ferrous materials
- Very clean working environment.
- Very high edge sharpness and scratch free surface.
- Excellent planarity and flatness.
- Superior specimen surfaces.



MAGNETO-S

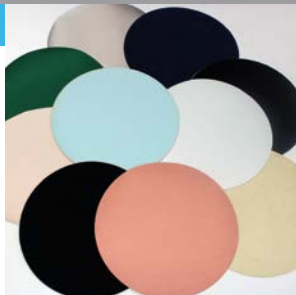
MAGNETO-S Silicon Carbide Grinding Disc

| Order No | Code | Diameter | Grit Size | Recommended for |
|-------------|----------------|----------|-----------|---------------------|
| 38-021-120 | MAGNETO-S-120 | 200 | 120 | Planar Grinding |
| 38-041-120 | MAGNETO-S-120 | 250 | 120 | Planar Grinding |
| 38-051-120 | MAGNETO-S-120 | 300 | 120 | Planar Grinding |
| 38-021-220 | MAGNETO-S-220 | 200 | 220 | Planar Grinding |
| 38-041-220 | MAGNETO-S-220 | 250 | 220 | Planar Grinding |
| 38-051-220 | MAGNETO-S-220 | 300 | 220 | Planar Grinding |
| 38-021-500 | MAGNETO-S-500 | 200 | 500 | Fine Grinding |
| 38-041-500 | MAGNETO-S-500 | 250 | 500 | Fine Grinding |
| 38-051-500 | MAGNETO-S-500 | 300 | 500 | Fine Grinding |
| 38-021-800 | MAGNETO-S-800 | 200 | 800 | Fine Grinding |
| 38-041-800 | MAGNETO-S-800 | 250 | 800 | Fine Grinding |
| 38-051-800 | MAGNETO-S-800 | 300 | 800 | Fine Grinding |
| 38-021-1200 | MAGNETO-S-1200 | 200 | 1200 | Extra Fine Grinding |
| 38-041-1200 | MAGNETO-S-1200 | 250 | 1200 | Extra Fine Grinding |
| 38-051-1200 | MAGNETO-S-1200 | 300 | 1200 | Extra Fine Grinding |

POLISHING CLOTHS












There are three types of polishing cloths; Woven, Non-Woven and Flocked.

- Woven cloths offer 'hard surface' polishing properties and guarantee flat pre-polishing, without deterioration of the edges.
- Non-woven cloths, are used on very hard materials for high precision surface finishing such as glass, quartz, sapphire and semi-conductors.
- The Flocked cloths, guarantee a super-polished finish. The polishing duration must be as short as possible, to avoid inclusions from being extracted.



POLISHING CLOTHS

Self Adhesive Back

| Order No | Code | Type | Composition | Grain Size [Mesh] | Recommended for Cutting | Color |
|----------|----------|---------------|--|--|---|---|
| 39-005- | NOWO | NonWoven | Semihard, PSA nonwoven impregnated and water-proof | Diamond 9-1 μm | Fine polishing of single crystal; glass corindon, quartz; ceramic, rocks; etc. |  |
| 39-013- | METAPO-P | Woven | Fine Woven Cloth mounted on a Composite (metal/plastic) semi rigid PSA backing. High wear resistance. | Diamond 9-6 μm | Coarse polishing of hard and semihard metallographic sections and different materials. Good flatness. |  |
| 39-033- | METAPO-B | Woven | Fine woven synthetic satin cloth mounted on a composite (metal/plastic) semi rigid PSA backing. | Diamond 3-1 μm | Final polishing of hard and semi-hard metallographic sections and different materials. Good edge retention on surface treated materials. |  |
| 39-043- | METAPO-V | Woven | Fine Woven Cloth mounted on a Composite (metal/plastic) semi rigid PSA backing. High wear resistance. | Diamond 1-0,1 μm Fine Alum | Final Polishing with extra smooth abrasion; good flatness optical finish of hard materials. |  |
| 39-015- | FEDO-6J | Flocked | Synthetic fibre flock to a PVC backing. | Diamond 6 μm | Rough polishing of most materials. |  |
| 39-025- | FEDO-3 | Flocked | Soft synthetic flock bound to a woven cotton PSA backing. To be used with water based suspensions and lubricants only. | Diamond 3 μm | Intermediate polishing of most materials. |  |
| 39-066- | FEDO-1S | Flocked | Soft synthetic flock bound to a woven cotton PSA backing. To be used with water based suspensions and lubricants only. | Diamond 1 μm | Fine polishing of most materials. |  |
| 39-067- | FEDO-1M | Flocked | Soft synthetic flock bound to a woven cotton PSA backing. To be used with water based suspensions and lubricants only. | Diamond 1 μm | Fine polishing of most materials. |  |
| 39-055- | FEDO-1N | Flocked | Very soft low nap felt bound to a PSA backing. To be used with water-based suspension and lubricants only. | Diamond 0,25 μm | Fine polishing of most materials. |  |
| 39-075- | ALSO | Flocked | Extra soft and supple cloth, PSA backed excellent chemical resistance. | Diamond 0,25 μm Fine Alum | Optical polishing of glass, single crystals, semi-conductors and soft metals. |  |
| 39-095- | WOOL | Woven | %100 wool cloth, PSA backed. | Diamond 6-3 μm | For polishing optics and metals. |  |
| 39-085- | COLLO | Chemo-Textile | Recommended cloth for Chemo-mechanical polishing operations. PSA backed. | Colloidal silica | For use with a chemical mechanical polishing process with colloidal silica suspension. Especially for non ferrous materials as well as Aluminium, Brass; etc. |  |
| 39-090- | PETRI | Chemo-Textile | The medium chemo-textile cloth for smoothing and polishing operation. | Diamond 6-1 μm Fine Alum. | For petrography: Rocks, minerals, ceramics; etc. |  |

POLISHING CLOTHS

| Order No | Code | Diameter | Color | Type | Quantity / Pack |
|------------|----------|----------|---|--------------------|-----------------|
| 39-005-200 | NOWO | 200 |  | Self Adhesive Back | 10 |
| 39-013-200 | METAPO-P | 200 |  | Self Adhesive Back | 10 |
| 39-033-200 | METAPO-B | 200 |  | Self Adhesive Back | 10 |
| 39-043-200 | METAPO-V | 200 |  | Self Adhesive Back | 10 |
| 39-015-200 | FEDO-6J | 200 |  | Self Adhesive Back | 10 |
| 39-025-200 | FEDO-3 | 200 |  | Self Adhesive Back | 10 |
| 39-066-200 | FEDO-1S | 200 |  | Self Adhesive Back | 10 |
| 39-067-200 | FEDO-1M | 200 |  | Self Adhesive Back | 10 |
| 39-055-200 | FEDO-1N | 200 |  | Self Adhesive Back | 10 |
| 39-075-200 | ALSO | 200 |  | Self Adhesive Back | 10 |
| 39-095-200 | WOOL | 200 |  | Self Adhesive Back | 10 |
| 39-085-200 | COLLO | 200 |  | Self Adhesive Back | 10 |
| 39-090-200 | PETRI | 200 |  | Self Adhesive Back | 10 |
| 39-200-SPC | MIX | 200 |  | Self Adhesive Back | 5 |
| 39-005-250 | NOWO | 250 |  | Self Adhesive Back | 10 |
| 39-013-250 | METAPO-P | 250 |  | Self Adhesive Back | 10 |
| 39-033-250 | METAPO-B | 250 |  | Self Adhesive Back | 10 |
| 39-043-250 | METAPO-V | 250 |  | Self Adhesive Back | 10 |
| 39-015-250 | FEDO-6J | 250 |  | Self Adhesive Back | 10 |
| 39-025-250 | FEDO-3 | 250 |  | Self Adhesive Back | 10 |
| 39-066-250 | FEDO-1S | 250 |  | Self Adhesive Back | 10 |
| 39-067-250 | FEDO-1M | 250 |  | Self Adhesive Back | 10 |
| 39-055-250 | FEDO-1N | 250 |  | Self Adhesive Back | 10 |
| 39-075-250 | ALSO | 250 |  | Self Adhesive Back | 10 |
| 39-095-250 | WOOL | 250 |  | Self Adhesive Back | 10 |
| 39-085-250 | COLLO | 250 |  | Self Adhesive Back | 10 |
| 39-090-250 | PETRI | 250 |  | Self Adhesive Back | 10 |
| 39-200-SPC | MIX | 250 |  | Self Adhesive Back | 5 |
| 39-005-300 | NOWO | 300 |  | Self Adhesive Back | 10 |
| 39-013-300 | METAPO-P | 300 |  | Self Adhesive Back | 10 |
| 39-033-300 | METAPO-B | 300 |  | Self Adhesive Back | 10 |
| 39-043-300 | METAPO-V | 300 |  | Self Adhesive Back | 10 |
| 39-015-300 | FEDO-6J | 300 |  | Self Adhesive Back | 10 |
| 39-025-300 | FEDO-3 | 300 |  | Self Adhesive Back | 10 |
| 39-066-300 | FEDO-1S | 300 |  | Self Adhesive Back | 10 |
| 39-067-300 | FEDO-1M | 300 |  | Self Adhesive Back | 10 |
| 39-055-300 | FEDO-1N | 300 |  | Self Adhesive Back | 10 |
| 39-075-300 | ALSO | 300 |  | Self Adhesive Back | 10 |
| 39-095-300 | WOOL | 300 |  | Self Adhesive Back | 10 |
| 39-085-300 | COLLO | 300 |  | Self Adhesive Back | 10 |
| 39-090-300 | PETRI | 300 |  | Self Adhesive Back | 10 |
| 39-200-SPC | MIX | 300 |  | Self Adhesive Back | 5 |
| 39-013-350 | METAPO-P | 350 |  | Self Adhesive Back | 10 |
| 39-033-350 | METAPO-B | 350 |  | Self Adhesive Back | 10 |
| 39-015-350 | FEDO-6J | 350 |  | Self Adhesive Back | 10 |
| 39-025-350 | FEDO-3 | 350 |  | Self Adhesive Back | 10 |
| 39-066-350 | FEDO-1S | 350 |  | Self Adhesive Back | 10 |
| 39-055-350 | FEDO-1N | 350 |  | Self Adhesive Back | 10 |
| 39-085-350 | COLLO | 350 |  | Self Adhesive Back | 10 |
| 39-350-SPC | MIX | 350 |  | Self Adhesive Back | 5 |

DIAMOND PRODUCTS

Diamond, due to its exceptional hardness and cutting capacity, has become the first choice abrasive in metallographic polishing.

Diamonds for metallographic grinding and polishing are available in two different crystalline shapes:

Polycrystalline (P) and Monocrystalline (M). Polycrystalline diamonds provide vast numbers of small cutting edges. In the metallographic preparation process these edges result in high material removal, while producing only a shallow scratch depth.

Monocrystalline diamonds are more block-shaped and provide few cutting edges. These diamonds give high material removal with a more variable scratch pattern. For high requirements, the (P)-type diamonds are chosen. The (M) type diamonds are best suited for all-purpose polishing.

METKON offers diamond products in three forms; diamond paste, diamond suspension and two in one products; a perfect mixture of diamond suspension & lubricant.

DIAMOND PASTES

Monocrystalline

| Order No | Code | Type | Diamond Mic. | Quantity |
|----------|----------|-------------|--------------|----------------|
| 39-301-M | DIAPAT-M | Water-Based | 0,25 Micron | 10 gr. syringe |
| 39-311-M | DIAPAT-M | Water-Based | 1 Micron | 10 gr. syringe |
| 39-321-M | DIAPAT-M | Water-Based | 3 Micron | 10 gr. syringe |
| 39-331-M | DIAPAT-M | Water-Based | 6 Micron | 10 gr. syringe |
| 39-341-M | DIAPAT-M | Water-Based | 9 Micron | 10 gr. syringe |

DIAMOND PASTES

Polycrystalline

| Order No | Code | Type | Diamond Mic. | Quantity |
|----------|----------|-------------|--------------|----------------|
| 39-301-P | DIAPAT-P | Water-Based | 0,25 Micron | 10 gr. syringe |
| 39-311-P | DIAPAT-P | Water-Based | 1 Micron | 10 gr. syringe |
| 39-321-P | DIAPAT-P | Water-Based | 3 Micron | 10 gr. syringe |
| 39-331-P | DIAPAT-P | Water-Based | 6 Micron | 10 gr. syringe |
| 39-341-P | DIAPAT-P | Water-Based | 9 Micron | 10 gr. syringe |

DIAMOND SUSPENSIONS

Monocrystalline

| | Code | Type | Diamond Mic. | Quantity | |
|--|----------|----------|--------------|-------------|---------------------|
| | 39-400-M | DIAPAT-M | Water-Based | 0,25 Micron | 250 ml. pump bottle |
| | 39-410-M | DIAPAT-M | Water-Based | 1 Micron | 250 ml. pump bottle |
| | 39-420-M | DIAPAT-M | Water-Based | 3 Micron | 250 ml. pump bottle |
| | 39-430-M | DIAPAT-M | Water-Based | 6 Micron | 250 ml. pump bottle |
| | 39-440-M | DIAPAT-M | Water-Based | 9 Micron | 250 ml. pump bottle |
| | 39-411-M | DIAPAT-M | Water-Based | 1 Micron | 1 lt. bottle |
| | 39-421-M | DIAPAT-M | Water-Based | 3 Micron | 1 lt. bottle |
| | 39-431-M | DIAPAT-M | Water-Based | 6 Micron | 1 lt. bottle |
| | 39-415-M | DIAPAT-M | Water-Based | 1 Micron | 5 lt. bottle |
| | 39-425-M | DIAPAT-M | Water-Based | 3 Micron | 5 lt. bottle |
| | 39-435-M | DIAPAT-M | Water-Based | 6 Micron | 5 lt. bottle |

DIAMOND SUSPENSIONS

Polycrystalline

| | Code | Type | Diamond Mic. | Quantity | |
|--|----------|----------|--------------|-------------|---------------------|
| | 39-400-P | DIAPAT-P | Water-Based | 0,25 Micron | 250 ml. pump bottle |
| | 39-410-P | DIAPAT-P | Water-Based | 1 Micron | 250 ml. pump bottle |
| | 39-420-P | DIAPAT-P | Water-Based | 3 Micron | 250 ml. pump bottle |
| | 39-430-P | DIAPAT-P | Water-Based | 6 Micron | 250 ml. pump bottle |
| | 39-440-P | DIAPAT-P | Water-Based | 9 Micron | 250 ml. pump bottle |
| | 39-411-P | DIAPAT-P | Water-Based | 1 Micron | 1 lt. bottle |
| | 39-421-P | DIAPAT-P | Water-Based | 3 Micron | 1 lt. bottle |
| | 39-431-P | DIAPAT-P | Water-Based | 6 Micron | 1 lt. bottle |

DIAMOND 2 IN 1 PRODUCT

Monocrystalline

| | Code | Type | Diamond Mic. | Quantity | |
|--|----------|----------|--------------|----------|-----------------------------|
| | 39-510-M | DUOPAT-M | Water-Based | 1 Micron | 500 ml. bottle with sprayer |
| | 39-520-M | DUOPAT-M | Water-Based | 3 Micron | 500 ml. bottle with sprayer |
| | 39-530-M | DUOPAT-M | Water-Based | 6 Micron | 500 ml. bottle with sprayer |
| | 39-540-M | DUOPAT-M | Water-Based | 9 Micron | 500 ml. bottle with sprayer |
| | 39-511-M | DUOPAT-M | Water-Based | 1 Micron | 2.5 lt. bottle |
| | 39-521-M | DUOPAT-M | Water-Based | 3 Micron | 2.5 lt. bottle |
| | 39-531-M | DUOPAT-M | Water-Based | 6 Micron | 2.5 lt. bottle |
| | 39-541-M | DUOPAT-M | Water-Based | 9 Micron | 2.5 lt. bottle |

DIAMOND 2 IN 1 PRODUCT

Polycrystalline

| | Code | Type | Diamond Mic. | Quantity |
|----------|----------|-------------|--------------|-----------------------------|
| 39-510-P | DUOPAT-P | Water-Based | 1 Micron | 500 ml. bottle with sprayer |
| 39-520-P | DUOPAT-P | Water-Based | 3 Micron | 500 ml. bottle with sprayer |
| 39-530-P | DUOPAT-P | Water-Based | 6 Micron | 500 ml. bottle with sprayer |
| 39-540-P | DUOPAT-P | Water-Based | 9 Micron | 500 ml. bottle with sprayer |

DIAMOND LUBRICANT

| | Code | Type | Quantity |
|--------|--------|-------------|----------------|
| 39-502 | DIAPAT | Water-Based | 1.0 lt. bottle |

ALUMINA & COLLOIDAL SILICA

ALU-MIK is a deagglomerated alumina polishing powder and it produces a fine surface quickly due to the lack of aggregates. ALU-MIK alumina suspensions have been developed to give the operator easy to use pre-prepared polishing media. It requires no dilution with water and can be dispensed with COL-K[NC]

Colloidal silica suspension is able to produce the ultimate in high quality mirror polishes on polishing machine. A part abrasive, part chemical polishing action makes colloidal silica well suited to polishing difficult materials such as Aluminium, Stellite and Cobalt Chrome. automating dispensing units, like DOSIMAT.

ALUMINA & COLLOIDAL SILICA

Suspensions & Powders

| Order No | Code | Alumina Product |
|----------|-----------|---|
| 39-200 | ALU-MIK | Alumina Suspension 0.05 Mic. 1.0 lt. bottle |
| 39-210 | ALU-MIK | Alumina Suspension 0.3 Mic. 1.0 lt. bottle |
| 39-220 | ALU-MIK | Alumina Suspension 1.0 Mic. 1.0 lt. bottle |
| 39-100 | ALU-MIK | Alumina Powder 0.05 Mic. 500 gr. |
| 39-110 | ALU-MIK | Alumina Powder 0.3 Mic. 500 gr. |
| 39-120 | ALU-MIK | Alumina Powder 1.0 Mic. 500 gr. |
| 39-600 | COL-K[NC] | Colloidal Silica [1 lt.] Bottle |

GRINDING

PORTABLE METALLOGRAPHY

In-situ/Field metallography is widely used for microstructure analysis on large parts (samples) that cannot be easily carried or where destructive preparation is permissible such as storage tanks, piping system, power plants, etc. In-situ Metallography allows for quick on-site evaluation of a component. There are numerous advantages in using in-situ/field metallography.



PAPER GRINDING DISCS

Self-Adhesive Back

| Order No | Code | Type | Diameter | Grit Size | Quantity / Pack |
|----------|----------|--------------------|----------|-----------|-----------------|
| 90 20 | DEMPAX-P | Self-Adhesive Back | 30 | 80 | 250 |
| 90 21 | DEMPAX-P | Self-Adhesive Back | 30 | 120 | 250 |
| 90 22 | DEMPAX-P | Self-Adhesive Back | 30 | 320 | 250 |
| 90 23 | DEMPAX-P | Self-Adhesive Back | 30 | 500 | 250 |
| 90 24 | DEMPAX-P | Self-Adhesive Back | 30 | 800 | 250 |
| 90 25 | DEMPAX-P | Self-Adhesive Back | 30 | 1200 | 250 |

POLISHING CLOTHS

Self-Adhesive Back

| Order No | Code | Type | Diameter | Grit Size | Quantity / Pack |
|----------|-------|--------------------|----------|-----------|-----------------|
| 90 36 | PORTO | Self-Adhesive Back | 30 | 0.25-1-3 | 50 |
| 90 27 | RADO | Self-Adhesive Back | 30 | 6-9 | 50 |

DIAMOND PASTES

Monocrystalline

| Order No | Code | Type | Diameter | Quantity / Pack |
|----------|----------|-------------|------------|-----------------|
| 39-301-M | DIAPAT-M | Water-Based | 0.25 μ | 10 gr. Syringe |
| 39-311-M | DIAPAT-M | Water-Based | 1 μ | 10 gr. Syringe |
| 39-321-M | DIAPAT-M | Water-Based | 3 μ | 10 gr. Syringe |
| 39-331-M | DIAPAT-M | Water-Based | 6 μ | 10 gr. Syringe |
| 39-341-M | DIAPAT-M | Water-Based | 9 μ | 10 gr. Syringe |

DIAMOND LUBRICANT

| Order No | Code | Type | Quantity |
|----------|--------|-------------|----------------|
| 39-502 | DIAPAT | Water-Based | 1.0 lt. bottle |

REPLICA SET & ETCHING

| Order No | Description |
|----------|--|
| 90 28 | Cotton rolls (100 pcs) for electrolytic etching |
| 90 40 | Replica foil 35 microns thick, to be used with acetone |
| 90 41 | Microscope slide glasses |



CONSUMABLES FOR PETROGRAPHY

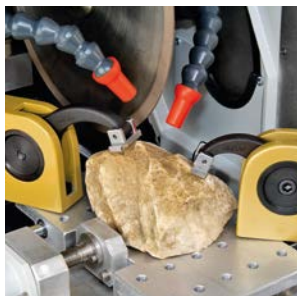
For mineralogical specimens, the surface is prepared for examination with a reflected light microscope and the preparation procedure is basically similar to the preparation of metallographic specimens.

Preparing thin sections, on the other hand, requires highly specialized equipment and skills because the specimen is extremely thin, generally around 30 microns for observations with transmitted light microscope.



PETROGRAPHY

THIN SECTIONING



SILCA

Silicon Carbide Powder for Lapping

| Order No | Code | Grit Size | Quantity |
|----------|-------|-----------|----------|
| 40-0120 | SILCA | 120 | 500 gr. |
| 40-0320 | SILCA | 320 | 500 gr. |
| 40-0400 | SILCA | 400 | 500 gr. |
| 40-0600 | SILCA | 600 | 500 gr. |
| 40-1000 | SILCA | 1000 | 500 gr. |

DIMOS

Diamond Cut-off Wheels for GEOFORM 102 & GEOCUT 302

| Order No | Code | Type | Dia. mm | Arbor mm | Description | Quantity | App. |
|----------|-------|------------------|---------|----------|---------------------------------------|----------|--------------------------|
| 19-203 | DIMOS | Continuous Blade | 200 | 12.7 | Rock, minerals, ceramics, glass, etc. | 1 | GEOFORM 102 |
| 19-252 | DIMOS | Continuous Blade | 250 | 32 | For Hard Petrographic Applications | 1 | GEOFORM 102 / GEOCUT 302 |
| 19-302 | DIMOS | Continuous Blade | 300 | 32 | For Hard Petrographic Applications | 1 | GEOCUT 302 |

CUPO


Diamond Cup Grinding Wheels for Thin Sectioning (GEOFORM 102)

| Order No | Code | Description | Quantity |
|----------|------|---|----------|
| 19-155 | CUPO | Ø175 Diamond cup grinding wheel, 65 mic | 1 |
| 19-156 | CUPO | Ø175 Diamond cup grinding wheel, 35 mic | 1 |

ACCESSORIES

For Thin Sectioning

| Order No | Description |
|----------|--------------------------------------|
| 40 40 | Special Box for Slides |
| 40 41 | Standart Slides 27x46x1.27, 144 pcs. |

A black and white photograph showing a close-up of a hand holding a small, cylindrical metal sample. The hand is positioned over a grinding stone, which is part of a sample preparation device. The background is blurred, focusing attention on the hand and the sample. The text is overlaid on the lower half of the image.

CONSUMABLES FOR SPECTROSCOPIC SAMPLE PREPARATION

Sample preparation of metals and materials have become more and more important because of the rapid development and improvement of both software as well as OES and XRF-devices during the past few years that shifts the detection limit for trace analyses

It is crucial to have the sample properly prepared. The sample needs to be both representative, homogeneous and with an even surface in order to eliminate factors that can influence the results.



SPECTROSCOPY

SPECTROSCOPIC SAMPLE PREPARATION



DEMPAX

Paper Grinding Disc for SPECTRAL 250 & 350

| Order No | Code | Type | Diameter | Grit Size | Quantity /Pack |
|---------------|-----------|-----------------|----------|-----------|----------------|
| 37-040-060-22 | DEMPAX-S | Corundum | 250 | 60 | 20 |
| 37-065-060-40 | DEMPAX-S | Corundum | 350 | 60 | 20 |
| 36-040-060-22 | DEMPAX-SZ | Zirconium oxide | 250 | 60 | 20 |
| 36-065-060-40 | DEMPAX-SZ | Zirconium oxide | 350 | 60 | 20 |

GRINDING STONES

for SPECTRAL PG 52/AG 102

| Order No | Code | Description | Grit Size | Quantity / Pack |
|----------|--------|---|-----------|-----------------|
| 80-150 | GSW 60 | AL ₂ O ₃ Grinding Stone for medium hard steels | 60 | 1 |
| 80-151 | GSR 60 | AL ₂ O ₃ Grinding Stone for cast iron and hard steels | 60 | 1 |
| 80-155 | GSW 36 | AL ₂ O ₃ Grinding Stone for medium hard steels | 36 | 1 |
| 80-156 | GSR 36 | AL ₂ O ₃ Grinding Stone for cast iron and hard steels | 36 | 1 |

TIPO

Milling Tips for SPECTRAL MM 102

| Order No | Code | Description | Quantity / Pack |
|----------|------|--|-------------------|
| 80-204 | TIPO | Milling tips for non-ferrous materials | (1 set = 10 pcs.) |
| 80-205 | TIPO | Milling tips for cast irons | (1 set = 10 pcs.) |
| 80-206 | TIPO | Milling tips for medium hard and hard steels materials | (1 set = 10 pcs.) |
| 80-207 | TIPO | Ceramic Milling tips for cast iron & steel materials (GR 1838 & GR 1839) | (1 set=10 pcs.) |



MICROLOGUES

METKON MICROLOGUE contains a number of case histories describing various sample preparation methods and the results obtained by applying these methods. It contains the conclusions of an extensive and intense work that has been conducted at METKON Application Lab. If you are interested in any MICROLOGUE Method, please download files below.

We invite the input of our customers and colleagues in industry and Academia regarding new and interesting sample preparation challenges. For further information, please contact METKON Application Lab.

APPLICATION NOTES

You can find special preparation methods regarding your specific applications including step by step information on cutting, mounting and grinding & polishing. All Application Notes are prepared by our experienced metallographers.

If you want to have proper method for your application and could not find in our Application Notes, please click here to send us your request to prepare us a special Application Note for your application.

Sample Preparation Processes

- Cutting** : SERVOCUT 302-AA Abrasive cutting machine with TRENO-M abrasive wheels [19-042]
- Mounting** : ECOPRESS 102 Automatic mounting machine with EPO Epoxy powder [29-011]
- Grinding&Polishing** : FORCIPOL 102 + FORCIMAT 52 grinding and polishing system with [33 33] sample holder [6 x Ø40mm]

| | Surface | Abrasive | Lubricant | Force per Sample, (N) | Time (Min.) | Disc speed Rotation(rpm) | Head Speed Rotation(rpm) |
|------------------|-----------------------------------|----------------------------------|---------------------------|-----------------------|-------------|--------------------------|--------------------------|
| Grinding Step 1 | MAGNETO 54 [38-040-54] | 54µ Diamond | Water | 25N | 1 min. | 300 CCW | 100 CW |
| Final Grinding | MAGNETO 18 [38-040-018] | 18µ Diamond | Water | 25N | 2 min. | 300 CCW | 100 CW |
| Polishing Step 1 | FEDO-6J [39-015-250] | DIAPAT-M 6µ [39-430-M] | DIAPAT [39-502] | 30N | 2 min. | 300 CCW | 75 CW |
| Polishing Step 2 | FEDO-3 [39-025-250] | DIAPAT-M 3µ [39-420-M] | DIAPAT [39-502] | 30N | 2 min. | 300 CCW | 75 CW |
| Final Polishing | FEDO-1S [39-066-250] | DIAPAT-M 1µ [39-410-M] | DIAPAT [39-502] | 30N | 2 min. | 250 CCW | 50 CW |

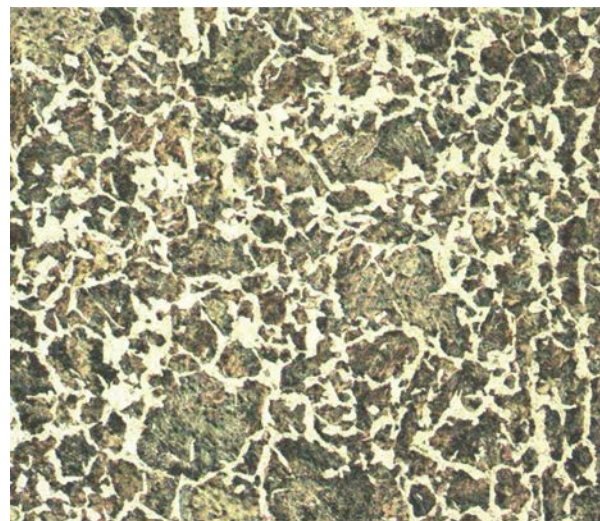
- Etching** : 2% Nital solution

Result

AISI 1050 steels are used to make which require high strength parts; as gears, crusher and backhoe parts of land and construction of the coal industry, traction hooks, gears, picks, bolts, spindles and shafts .

| Element Weight[%] | C | Si | Mn | P | S |
|-------------------|------|------|------|------|------|
| | 0,50 | 0,20 | 0,80 | 0,04 | 0,05 |

According to microstructure analysis; pearlite [dark island] and ferrite [light background] phases can be detected easily.



AISI 1050 - 100x Magnification



APPLICATION NOTE

MET-024 Preparation Of Welded Steel Sample

Sample Preparation Processes

Welding is a fabrication or sculptural process that joins materials, usually metals or thermoplastics, by causing coalescence. This is often done by melting the work pieces and adding a filler material to form a pool of molten material (the weld pool) that cools to become a strong joint, with pressure sometimes used in conjunction with heat, or by itself, to produce the weld. This is in contrast with soldering and brazing, which involve melting a lower-melting-point material between the work pieces to form a bond between them, without melting the work pieces.

Welds can be geometrically prepared in many different ways. The five basic types of weld joints are the butt joint, lap joint, corner joint, edge joint, and T-joint. Other variations exist as well—for example, double-V preparation joints are characterized by the two pieces of material each tapering to a single center point at one-half their height.

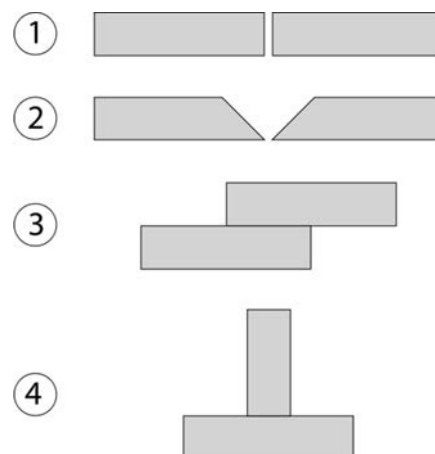
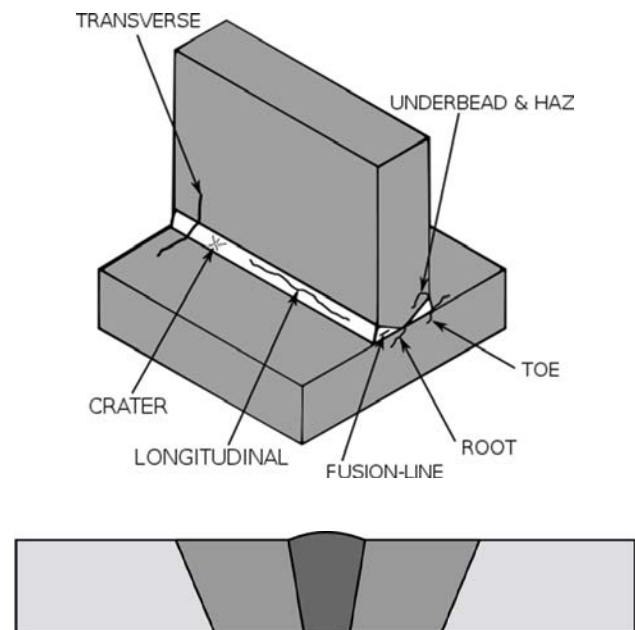


The cross-section of a welded butt joint, with the darkest gray representing the weld or fusion zone, the medium gray the heat-affected zone, and the lightest gray the base material.

In this application, chromium welded steel samples were used which they shown in the picture below.

Single-U and double-U preparation joints are also fairly common—instead of having straight edges like the single-V and double-V preparation joints, they are curved, forming the shape of a U. Lap joints are also commonly more than two pieces thick—depending on the process used and the thickness of the material, many pieces can be welded together in a lap joint geometry.

After welding, a number of distinct regions can be identified in the weld area. The weld itself is called the fusion zone—more specifically, it is where the filler metal was laid during the welding process. The properties of the fusion zone depend primarily on the filler metal used, and its compatibility with the base materials. It is surrounded by the heat-affected zone, the area that had its microstructure and properties altered by the weld. These properties depend on the base material's behavior when subjected to heat. The metal in this area is often weaker than both the base material and the fusion zone, and is also where residual stresses are found.



Common welding joint types – [1] Square butt joint, [2] V butt joint, [3] Lap joint, [4] T-joint

Application Requirements

METKON chop cutting machines METACUT series are designed for wet cutting of large and small, regularly or irregularly shaped work pieces of metallic, ceramic or composite materials.

METACUT 302 has the capacity to cut solid sections up to 115 mm in diameter. The side access port permits the sectioning of extra-long work pieces, as well.

The machine is equipped with a powerful motor, driving the cut-off wheel towards the work piece. The bottom part of the machine is a large robust alloy base casting. The cutting table is provided with T-Slots increasing the versatility so that different clamping sets can be mounted. The quick-clamping devices are removable to permit the installation of conventional clamping tools to hold larger or more intricate work pieces.



METACUT 302

| | Order Code | Description |
|----------------|------------|--|
| Equipment Used | 10 05 | METACUT 302 Abrasive Cutter |
| Attachment | GR 0013 | Quick Clamping Vise Assembly, Left |
| Cutting Fluid | 19-902 | METCOOL, Nature Friendly Soluble Oil, 5 lt |
| Cutting Disc | 19-022 | TRENO-M, Ø250 mm, for Medium Hard Steels |



FORCIPOL 202 + FORCIMAT 52

| | Order Code | Description |
|-------------------------|--------------------|---|
| Equipment Used | 36 22-250 30 12 | FORCIPOL 202, Grinding & Polishing Machine FORCIMAT 52, Automatic Specimen Mover |
| Operational Accessories | 31 21 | PVC Wheel, 250 mm |
| Operational Accessories | 31 65 | Splash Guard, 250 mm |
| Operational Accessories | 31 24 | Paper ring, 250 mm |

The FORCIPOL Series of grinding and polishing machines offer practical and economical solutions to your metallographic sample preparation needs. FORCIMAT is a microprocessor controlled sample mover designed to be used with FORCIPOL grinder / polishers. It is ideal for medium size labs where consistent results are desired. FORCIPOL 202 having two discs and variable speed range between 50 and 600 rpm.

FORCIPOL 202 is the most universal grinder/polisher, especially for labs having wide variety of materials. FORCIPOL instruments are designed to modular configuration for manual, semi-automatic and programmable automatic equipment. When only manual preparation is required, FORCIPOL Control Unit can be fitted on the FORCIPOL grinder / polisher. If automatic operation is required in the future, one of the FORCIMAT automatic heads can be installed at any time.

Sample Preparation Processes

The sample is clamped as it shown in the below photo with the quick acting clamping vise [GR 0013].



Step 1

Three cutting steps were required to obtain a small pieces of specimen.



Step 2



Step 3



Step 4

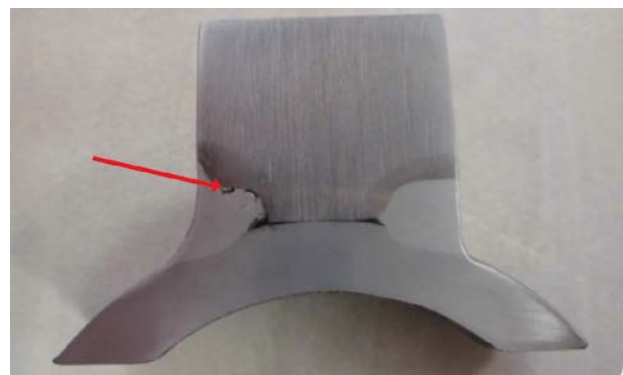
After cutting operation the samples were grinded and polished with FORCIPOL 202+FORCIMAT 52. Two different grinding operations were done to compare differences between SiC grinding paper and MAGNETO Diamond Grinding Disc.

MAGNETO Diamond Grinding Disc provided better edge retention and shorter preparation time.

After polishing operation, the sample etched 3% Nital solution and heat-affected zone can be observed.



Grinded with SiC Paper



Grinded with MAGNETO Diamond Grinding Disc

Parameters used for SiC grinding paper:

| | Grinding Step 1 | Grinding Step 2 | Grinding Step 3 | Polishing Step 1 | Polishing Step 2 |
|---------------------|---------------------|---------------------|----------------------|---------------------|----------------------|
| Surface | DEMPAX [38-040-400] | DEMPAX [38-040-800] | DEMPAX [38-040-1200] | FEDO-3 [39-025-250] | FEDO-15 [39-066-250] |
| Abrasive | 400 Grit SiC | 800 grit SiC | 1200 Grit SiC | 3 micron Diamond | 1 micron Diamond |
| Lubricant | Water | Water | Water | DIAPAT [39-502] | DIAPAT [39-502] |
| Force per sample(N) | 20 N | 25 N | 25 N | 20 N | 15 N |
| Time (min.) | 2 Min. | 2 Min. | 2 Min. | 2 Min. | 2 Min. |
| Disc Speed (rpm) | 250 CCW | 250 CCW | 250 CCW | 200 CCW | 200 CCW |

Parameters used for MAGNETO diamond grinding disc:

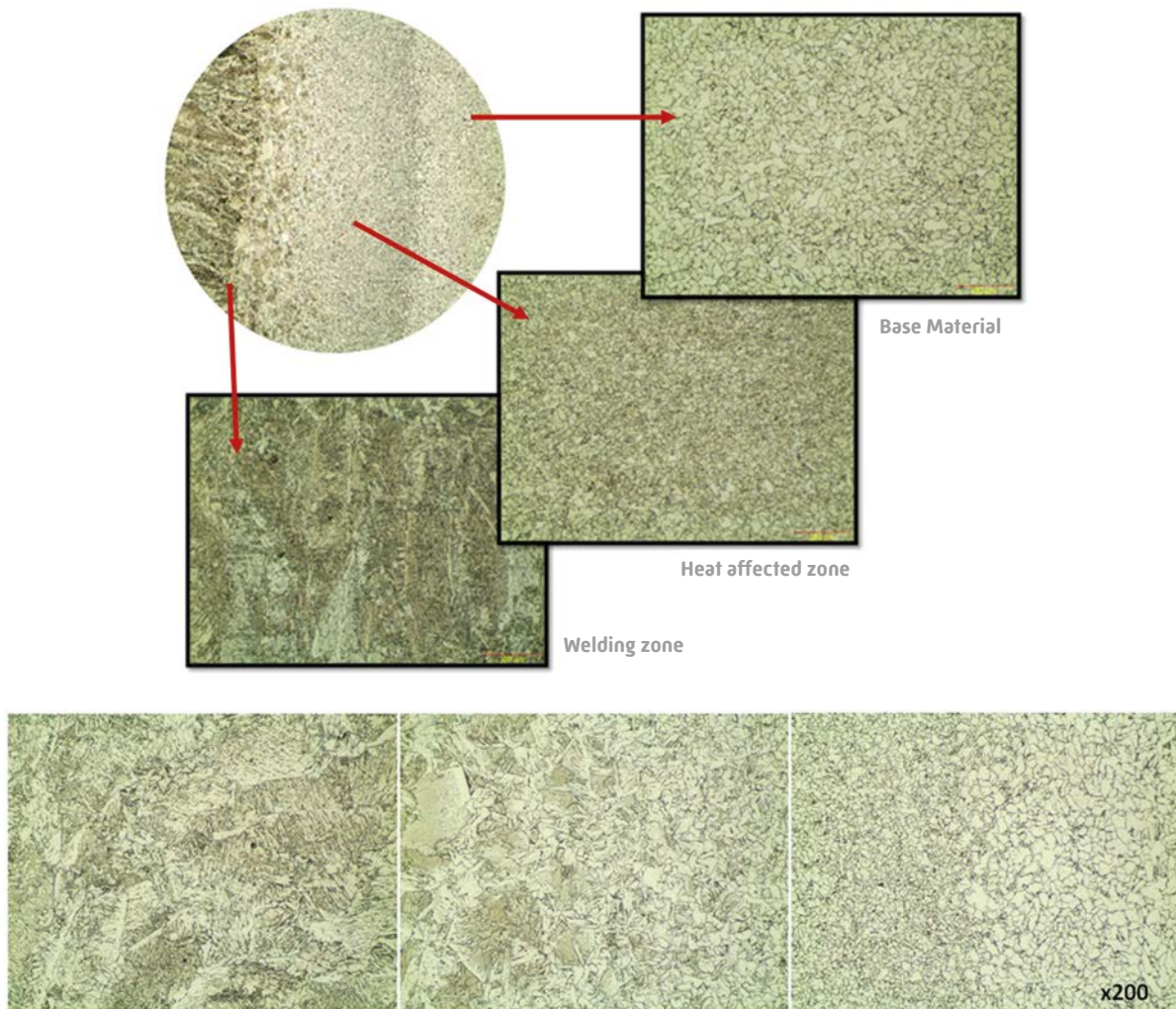
| | Grinding Step 1 | Grinding Step 2 | Polishing Step 1 | Polishing Step 2 |
|---------------------|-------------------------|-------------------------|---------------------|----------------------|
| Surface | MAGNETO 54 [38-040-054] | MAGNETO 18 [38-040-018] | FEDO-3 [39-025-250] | FEDO-15 [39-066-250] |
| Abrasive | 54 micron Diamond | 18 micron Diamond | 3 micron Diamond | 1 micron Diamond |
| Lubricant | Water | Water | DIAPAT [39-502] | DIAPAT [39-502] |
| Force per sample(N) | 20 N | 25 N | 20 N | 15 N |
| Time (min.) | 1 Min. | 2 Min. | 2 Min. | 2 Min. |
| Disc Speed (rpm) | 300 | 300 | 200 | 200 |

Result

As a result the chromium steel samples were subjected to the following operations;

Cutting → Grinding → Polishing → Etching

After the macro analysis the samples examined in IMM 901 Metallurgical Microscope [Order No: 60 01]. Welding area, heat-affected zone and base material microstructure can be seen above images.



Welding Zone → Microstructure variation from the welding zone into the base material → Base Material

NOTE

NOTE



INNOVATIVE FLEXIBILITY DYNAMISM RESPONSIVE





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Distributor:

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CNS-18-01