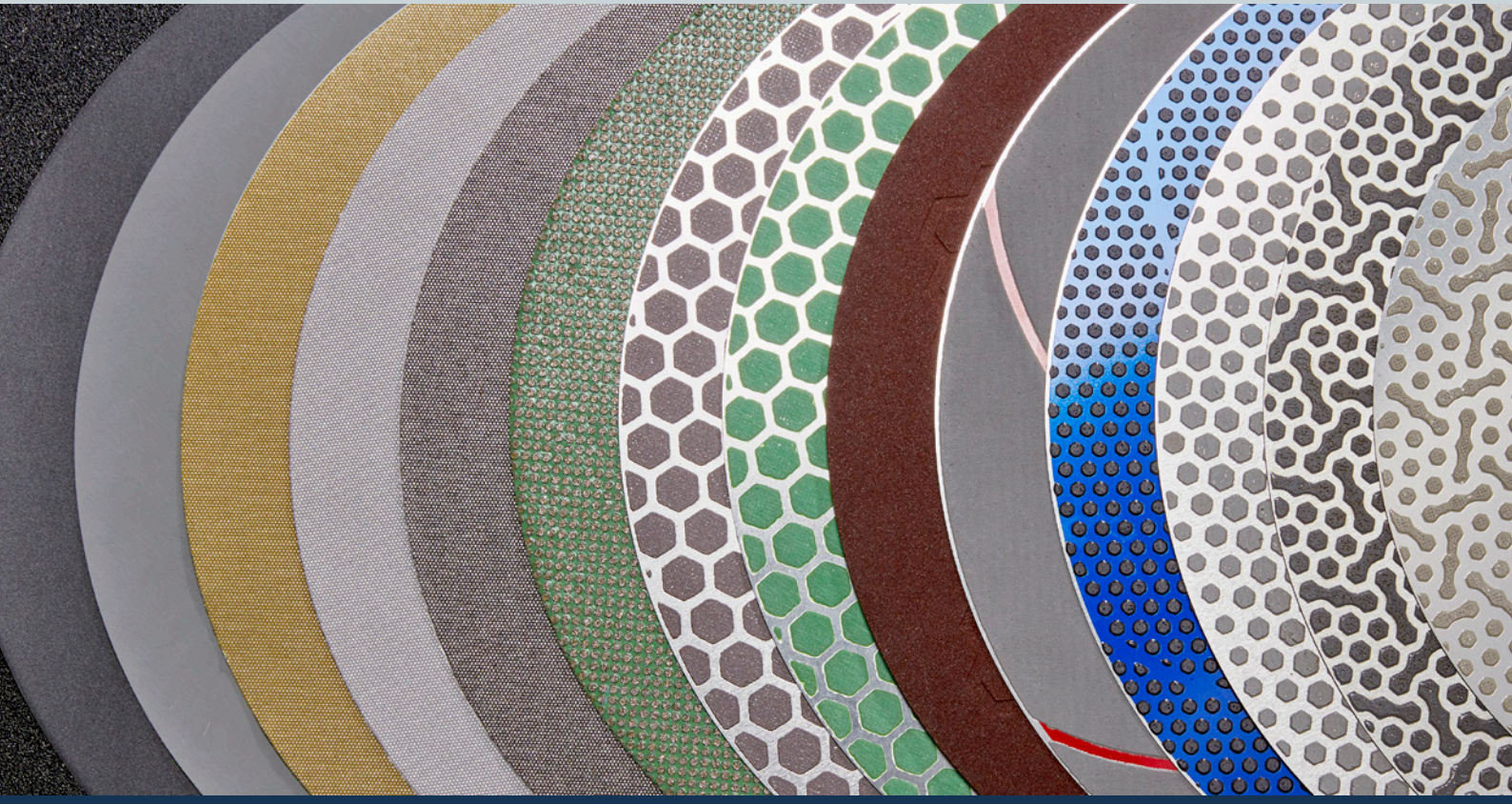
Struers
Ensuring Certainty

Struers grinding consumables

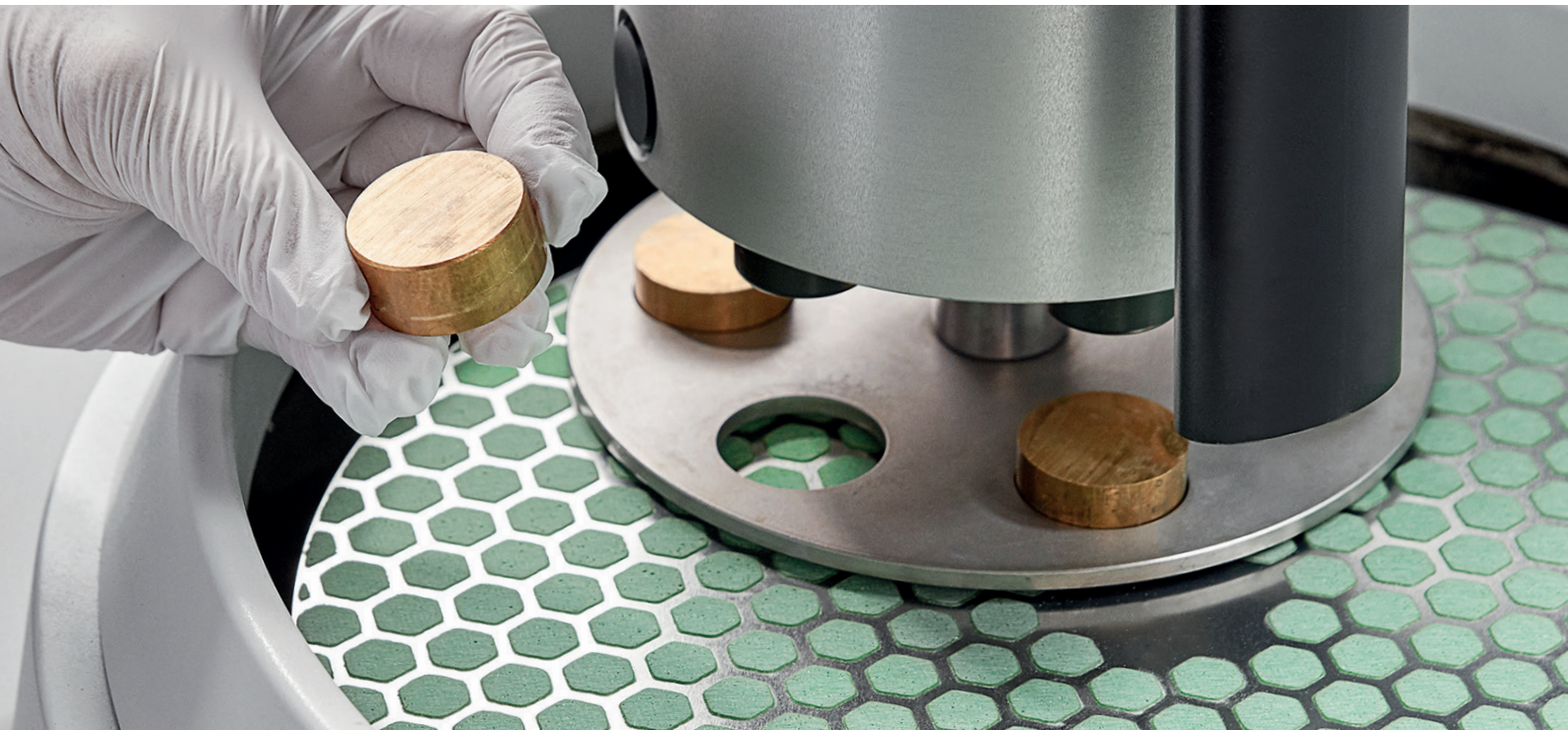
PERFECTLY PLANE

Optimize your grinding process
with Struers consumables



REPRODUCIBLE RESULTS – TIME AFTER TIME

Whatever your material and whatever your preparation goal, discover new opportunities to optimize your grinding process. Struers helps you achieve a plane specimen and eliminate artifacts as efficiently as possible based on a systematic approach to improving your methods with high quality consumables that add value to your process.



Achieve valid, accurate and reproducible results

Grinding is a critical step in the materialographic process. If you are not able to make your specimen plane in your initial grinding step you will not be able to retrieve planeness further on in your process. A specimen that is not plane or has artifacts makes verification more difficult. In a worst-case scenario, you will need to re-do your preparation – a costly set-back.

It is not just your choice of consumables that influences the quality of your preparation result and the preparation time; a systematic approach is key to delivering reproducible results. Struers application specialists can recommend an optimized method for your material and preparation goal, including value-adding consumables. These methods and consumables are based on more than 140 years of knowledge in materialography and practical experience with solutions from a wide range of industries.

Ensure certainty with a complete solutions partner

Minimize your supply chain risk and ensure uptime with high quality consumables, reliably delivered when you need them. No matter your material, there is a Struers grinding consumable for you. You can also get consumables, accessories, and equipment for all other steps of your materialographic process – from cutting to mounting, polishing, and verification – all from the one partner.

In fact, you get a complete solution with Struers. Our equipment and consumables are designed to work together to ensure accurate and reproducible results. You can also increase your skills and knowledge with onsite and online training, and maximize uptime with Struers service and support. We call this ensuring certainty – and it is why we are the partner of choice for thousands of materialographic and hardness testing professionals worldwide.

“We have not yet met a customer where we could not reduce their number of steps or reduce the time.”

– Helle Michaelsen, MSc, Business Solution & Application Director, Struers

OPPORTUNITIES TO OPTIMIZE

Ensure high quality preparation results – every time

With consumables and methods optimized for different material groups across the whole grinding and polishing process, you can achieve and maintain planeness while minimizing artifacts.

Your consumables are key to reproducibility. In a laboratory setting, a completely standardized preparation is not easy to achieve due to changes in mechanical, chemical, or volume parameters or even variations in operator experience. A high quality consumable helps to absorb sensitivity to changes in those conditions.

Get the fastest possible lead time

Whether you work in failure analysis, research and development or quality control, the lab is often under pressure to complete the preparation as quickly as possible. The right methods and consumables can remove process waste, with shorter steps or fewer steps.

High material removal often comes at the cost of deformation, increasing the time or removal needed in the following step. Struers consumables are optimized to balance these criteria to give you the fastest possible total preparation time. Surfaces that are quick to place, remove, and clean also provide shorter switch-over times.

Maximize your productivity and efficiency

Working more efficiently is not just about your preparation time, but increasing your yield or achieving the best cost per specimen. The longer the lifetime of your grinding surface, the less time is spent switching out surfaces – but you can also prepare more specimens or larger specimens with fewer surfaces. Consumables that are easy to use can also save you time, and can boost efficiency by minimizing errors and reducing the complexity for operators.

Guard your working environment

Health and safety in the lab are paramount. Companies around the world are also increasingly examining their environmental impact. Reducing your use of classified products is a better solution for both employee health and the environment. Embedded abrasives allow you to use water as a coolant instead of potentially classified products. Using water as a coolant can also allow for recirculation, which can significantly lower your water consumption.

Plane grinding is the first step of mechanical material removal. The goal is a plane specimen with minimal deformation. Depending on your material and preparation goals, you might go through multiple grinding steps. These can broadly be divided into plane grinding (PG) and fine grinding (FG).

Cutting

Mounting

Grinding/polishing

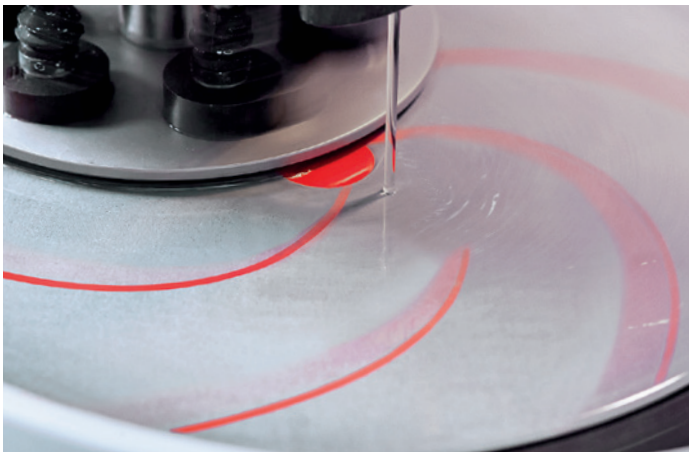
Plane grinding:
Ensures that specimens are plane for the next step

Fine grinding:
Keeps the specimen plane and removes deformation before polishing

Verification

A CONSUMABLE FOR ANY NEED

For high quality results optimized to your material...



With an MD surface dedicated to your specific material, you can achieve a plane specimen with virtually no artifacts in a short amount of time. The MD system is ideal if you work with automated setups, such as the Tegramin, AbraPol, Hexamatic, and more automated version of the LaboSystem.

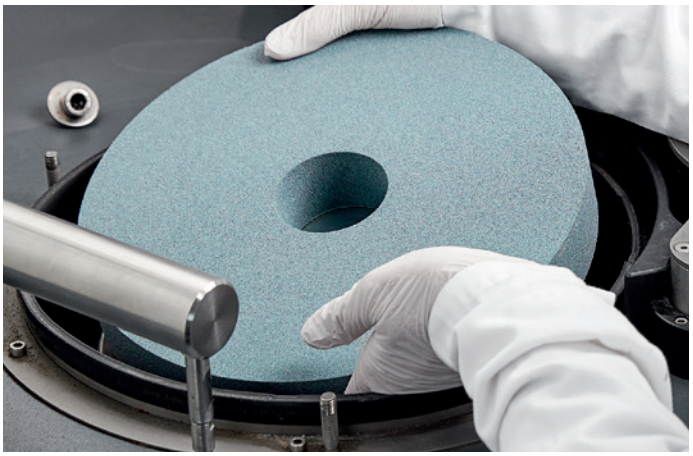
Discover our unique MD system on pages 8-9

For an all-round, flexible, and reliable solution...

If you work with many different materials and tasks, SiC Foils and Papers provide an efficient solution. Our high quality SiC Foils and Papers ensure reproducibility for those who want a fast grinding step. SiC Papers are best suited for labs with multiple stations and manual setups such as the LaboSystem, while SiC Foils are typically for automated setups.

Discover our best-in-class SiC Foils and Papers on pages 10-11

For high removal and ultra-fast plane grinding...

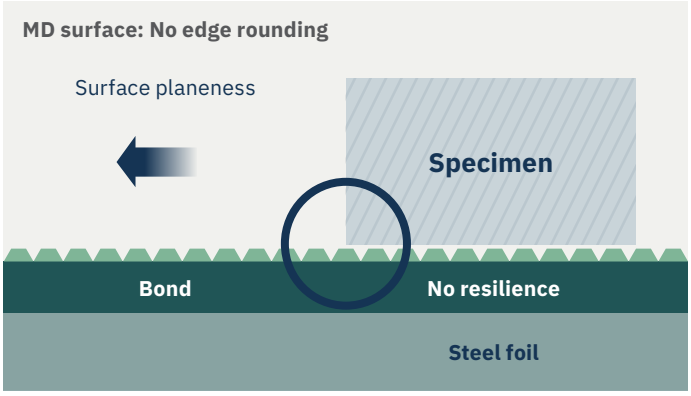


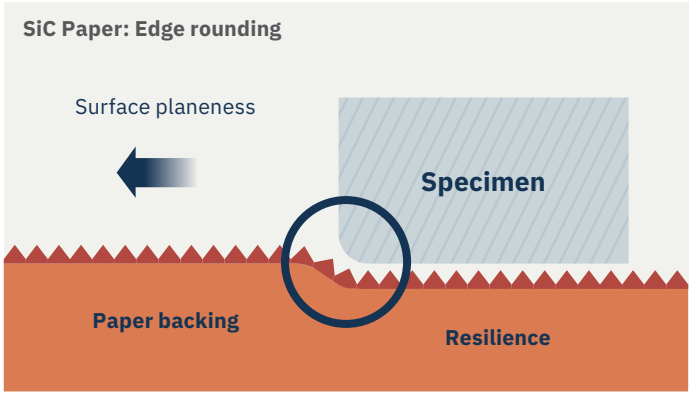
Our grinding stones and diamond grinding disc provide consistently high removal for ultra-fast plane grinding. Particularly suited for large specimens, there is a stone or disc for high removal grinding for any material. Our stones and disc require a station just for high removal grinding, such as the AbraPlan or Hexamatic, typically as part of a high-volume or high-throughput lab.

Discover our stones and diamond disc on page 12

DISCOVER MD SURFACES

Achieve superior results





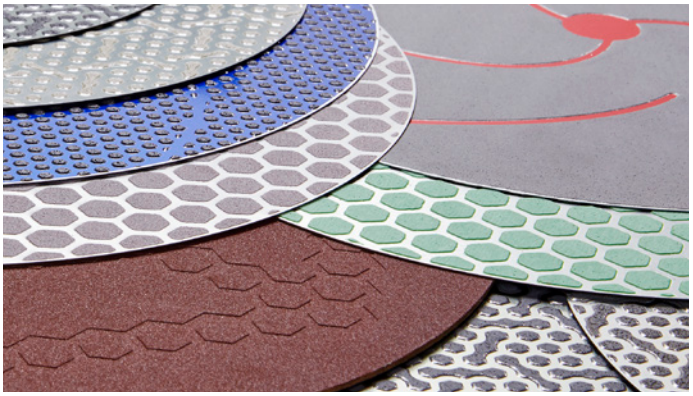
The rigid MD surface offers no resilience, ensuring a plane specimen and avoiding edge rounding, smearing, or chipping.

MD surfaces with embedded abrasives use water for cooling, which is the ideal coolant for minimizing heat.

Do you work with many different materials?

For an efficient all-round solution, see our SiC Foils and Papers on page 10.

Optimized to your material

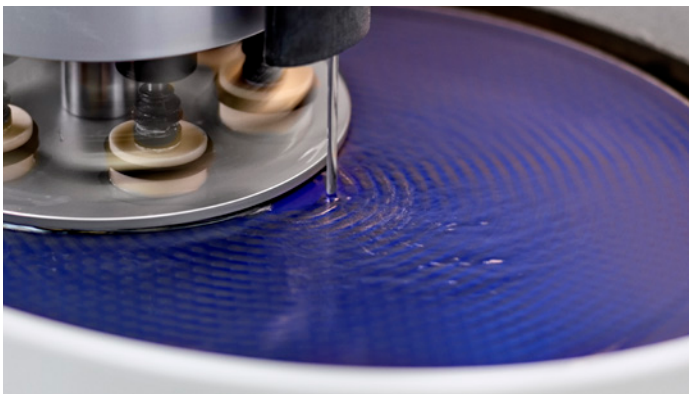


Each MD surface has a different pattern, optimized for a dedicated material group. With our wide range, you are sure to find an MD surface for your material. These patterns minimize the build-up of grinding debris to allow for consistently high removal while causing minimal deformation. With less deformation to remove in your following grinding or polishing step, you can significantly reduce your overall preparation time.

Reduce your time spent on the following steps by up to

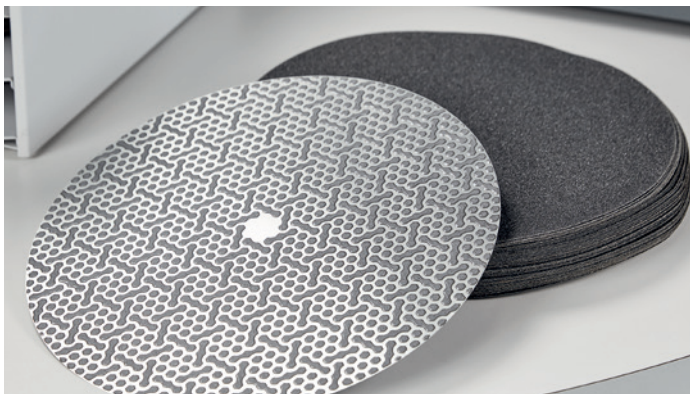
50 %

Minimize your sensitivity to errors



Maximize your reproducibility with a robust process. The embedded abrasives on the MD surface stay sharp for a long period of time and provide consistent removal to increase reproducibility. With virtually no need to run in or pre-dress the surface, the ready-to-use surface also reduces the complexity of your process.

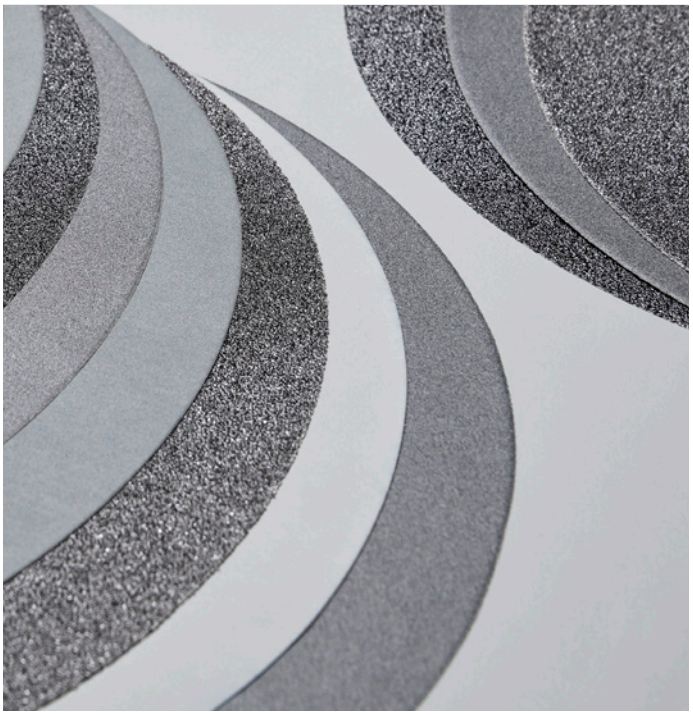
Reduce your process waste



With consistently high removal, MD surfaces have a significantly longer lifetime than SiC Foils and Papers. Each MD surface can replace up to 100 SiC Papers or Foils. Because the operator does not need to replace the surface so frequently, he or she is free to do other tasks while an automated machine does the job.

DISCOVER SiC FOILS AND PAPERS

Get consistency you can rely on



The manufacturing process aligns all the abrasive particles in the same direction and gives an equal distribution on the backing. These abrasives are sharp – and stay sharp throughout the surface's lifetime – to provide good material removal. With high quality abrasives and Struers' stringent quality control process, you can be sure that you get the same performance every time.

Maximize your process flexibility

Our SiC Foils and Papers provide an all-round, fast grinding solution, ideal for when you typically grind many different types of materials – ductile or brittle, hard or soft – as well as specimens in different sizes, mountings, and conditions. This is ideal when you may not know what specimens you can expect, and allows you to reduce the number of consumables you keep on stock.

Is edge rounding a challenge?

If you need a high quality grinding result with minimal artifacts, our MD surfaces might be the best choice for you. See their additional advantages on pages 8-9.

Our Silicon Carbide Foils and Papers are both made with the same high quality abrasives. The difference is how you attach them to your equipment. Together with our adapter discs, there is a solution for any setup.

DISCOVER STONES AND DIAMOND DISC

High removal, low deformation

In tests, Struers stones had an average removal rate of

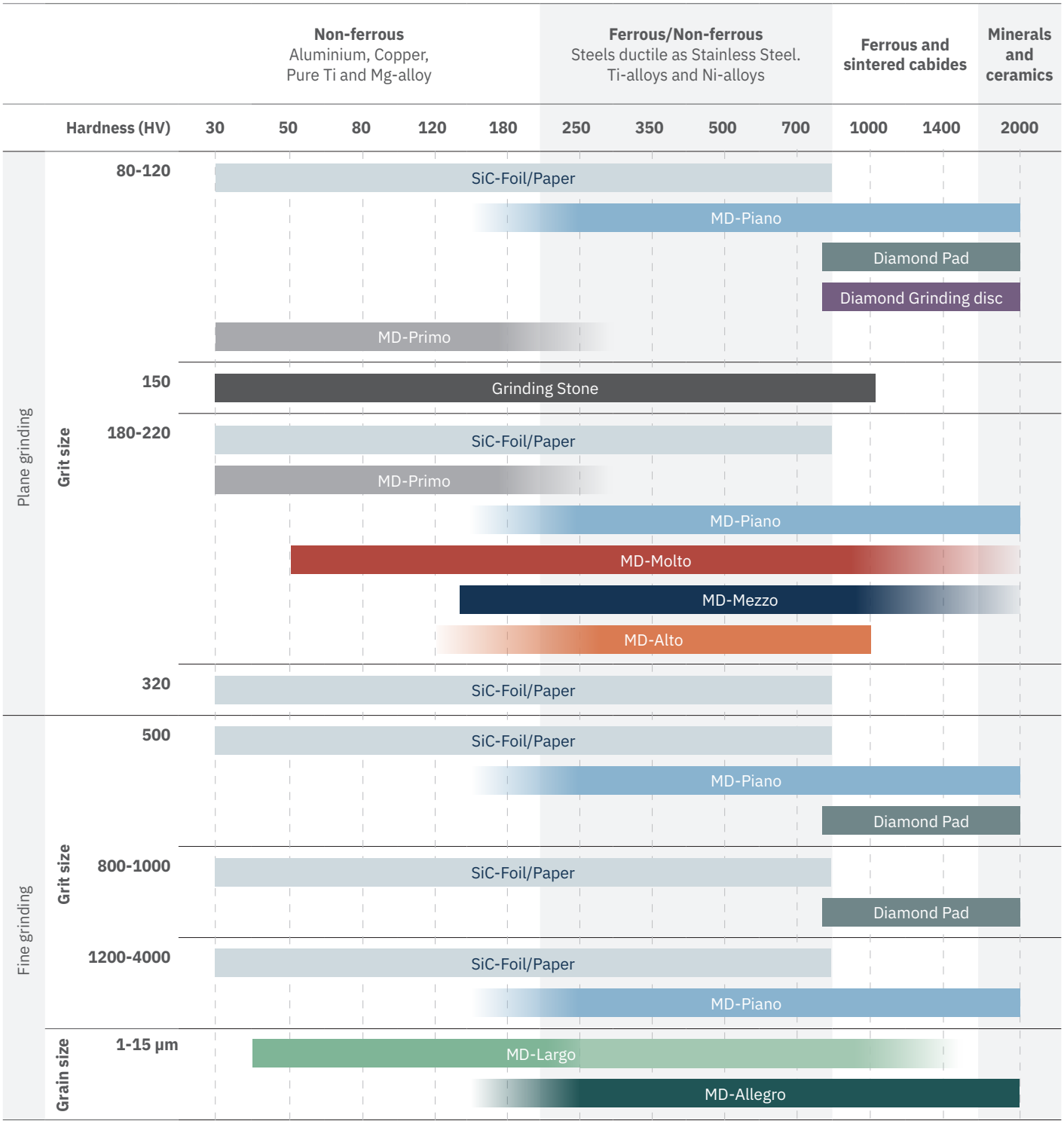
474 µm/min

For ultra-fast plane grinding, our grinding stones and diamond grinding disc are optimized to provide high, consistent removal with low deformation. This reduces the time spent on your fine grinding step and your overall preparation time – ideal for very high-volume labs, or labs that need a very fast throughput.

Plane grind any specimen

Our grinding stones and diamond grinding disc can plane grind large specimens or many smaller specimens at once, with a dedicated stone or disc for any material. Their high removal provides optimal planeness very quickly, including very uneven specimens where you might not have a materialographic cutting setup.

Whatever your need, there is a Struers grinding solution for you

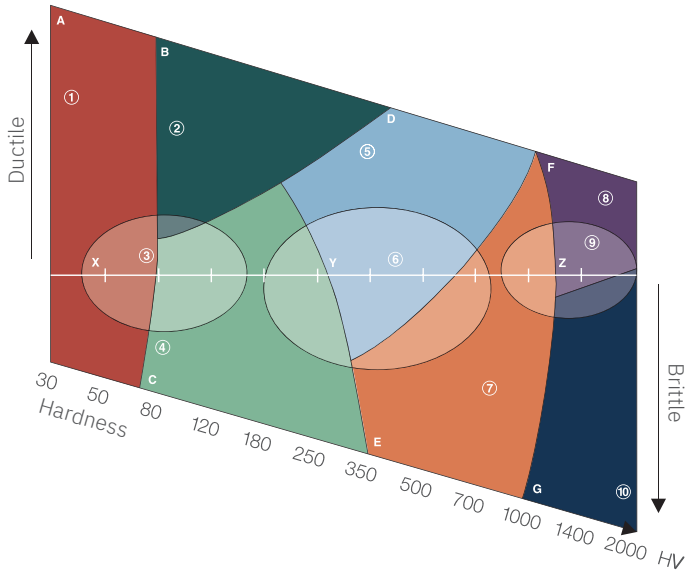


A METHOD FOR ANY MATERIAL

Optimize your process – minimize your waste

Are you looking for perfect results from your true structure? Or perhaps a few artifacts are acceptable as long as they do not disturb your analysis? No matter your preparation goal, we will help you optimize your grinding and polishing process – without over-processing. This means increasing the quality of your specimen up to your goal by eliminating artifacts such as deformation, edge rounding, scratches or pull-outs, while minimizing process waste with fewer, shorter steps.

Find the optimal process for your material based on its hardness and ductility



Find the hardness of your material on the X-axis, then move up or down the Y-axis, depending on its ductility. Learn more and see optimized methods for your material at Struers.com

Take a systematic approach to accurate, reproducible results

Trial and error is neither an accurate nor efficient approach. Based on extensive academic training and hands-on experience, our materialographic experts have developed optimized methods for any material. Simply tell us your preparation goal, and we will customize our standard method to your equipment, requirements and operator capabilities, whether your focus is on quality, safety, speed, or efficiency.

A systematic approach is key to achieving accurate, repeatable results and makes troubleshooting easier. Struers also helps you minimize random errors and maximize your reproducibility. Our high quality consumables deliver the same performance every time and help to absorb sensitivity to changes in conditions. We also provide training in methods and techniques with onsite and online courses.

Siemens reduced its titanium preparation time by more than

↓80 %

“One of our colleagues, who has worked with titanium for several years in large companies, told us that these were the best samples he had ever seen.”

– Mikael Bergren, Laboratory Technician, Siemens Industrial Turbomachinery

CHOOSE A PARTNER, NOT JUST A SUPPLIER

Maximize your uptime with consumables on delivery

Reduce your risk and keep inventory costs down with our robust global supply chain. For fast, reliable delivery, we have distribution centers across the U.S., Japan, China, Germany and Denmark.

Our ISO 9001-certified LEAN production and strict quality control ensure all consumables perform as promised and contribute to a safer workplace. You can also minimize your environmental impact thanks to our ISO 14001 certification for environmental management and commitment to low-carbon shipping.

Get total support – whatever, whenever

Grinding is just one part of the story. Our materialographic experts can help you optimize your end-to-end process through Value Stream Mapping. There are also Struers consumables and equipment for any stage in the process. These are designed to work together so you get the most out of your investment.

In fact, we are here to help you with every aspect of materialography. Whether you need to boost your skills with onsite and online training or maximize your uptime with service and support, we offer a complete solution for ensuring certainty.

98% of consumables are shipped within

48 hrs

A COMPLETE SOLUTION FOR GRINDING AND POLISHING

Select your target – and find your ideal equipment

From an automated solution for high-volume production, to a manual system for the occasional specimen, our full range of equipment covers any need. Your Struers equipment and consumables are specifically designed to work together to control all parameters of the grinding and polishing process.

For any lab setup and any preparation goal

Discover equipment

LaboSystem (M)

Fast, reliable and flexible, available in a manual or more automatic version

Tegramin (A)

Automatic, high quality specimen preparation for precise and accurate results

Discover polishing consumables for any need

Whether you are looking for high-performance consumables optimized to your specific material or you need the flexibility to work with many materials using only a few consumables, there is a Struers polishing consumable for you. Our wide range includes all-in-one suspensions, diamond suspensions, lubricants, polishing cloths, sprays, sticks and pastes. This covers any material – hard or soft, ductile or brittle, or water-sensitive.

DiaPro diamond suspensions reduce preparation times by an average of

30 %

(A) Automatic **(M)** Manual

AbraPlan (A)

High speed, powerful and precise plane grinding, designed for heavy use

AbraPol (A)

Fast, powerful grinding and polishing with a high capacity for large specimens

Xmatic (A)

Fully automated grinding and polishing solution. Designed for reproducibility, throughput and ease-of-use.

Lavamin (A)

Automatic cleaning and drying for a high volume of single specimens

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Ensuring certainty

Materialographic preparation and testing demands consistent, reproducible results. These come not only from your laboratory process, operators and equipment, but from your supply chain and your partner. As a Struers customer you benefit from high quality design and engineering of equipment and consumables, but just as much from our unique knowledge base, robust global supply chain, and expert service and applications support – where and when you need it. We call all this ensuring certainty

Struers remains dedicated to making the world a better place through the pursuit of deep scientific insights and ground-breaking technology. Today, we're your trusted partner in a fast-changing world, sharing our expertise and practical experience on a global scale. This gives you innovative solutions that help you face the future with confidence. We continue to lead the way in materialographic products and services, and to shape future developments towards a better society.

www.struers.com

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