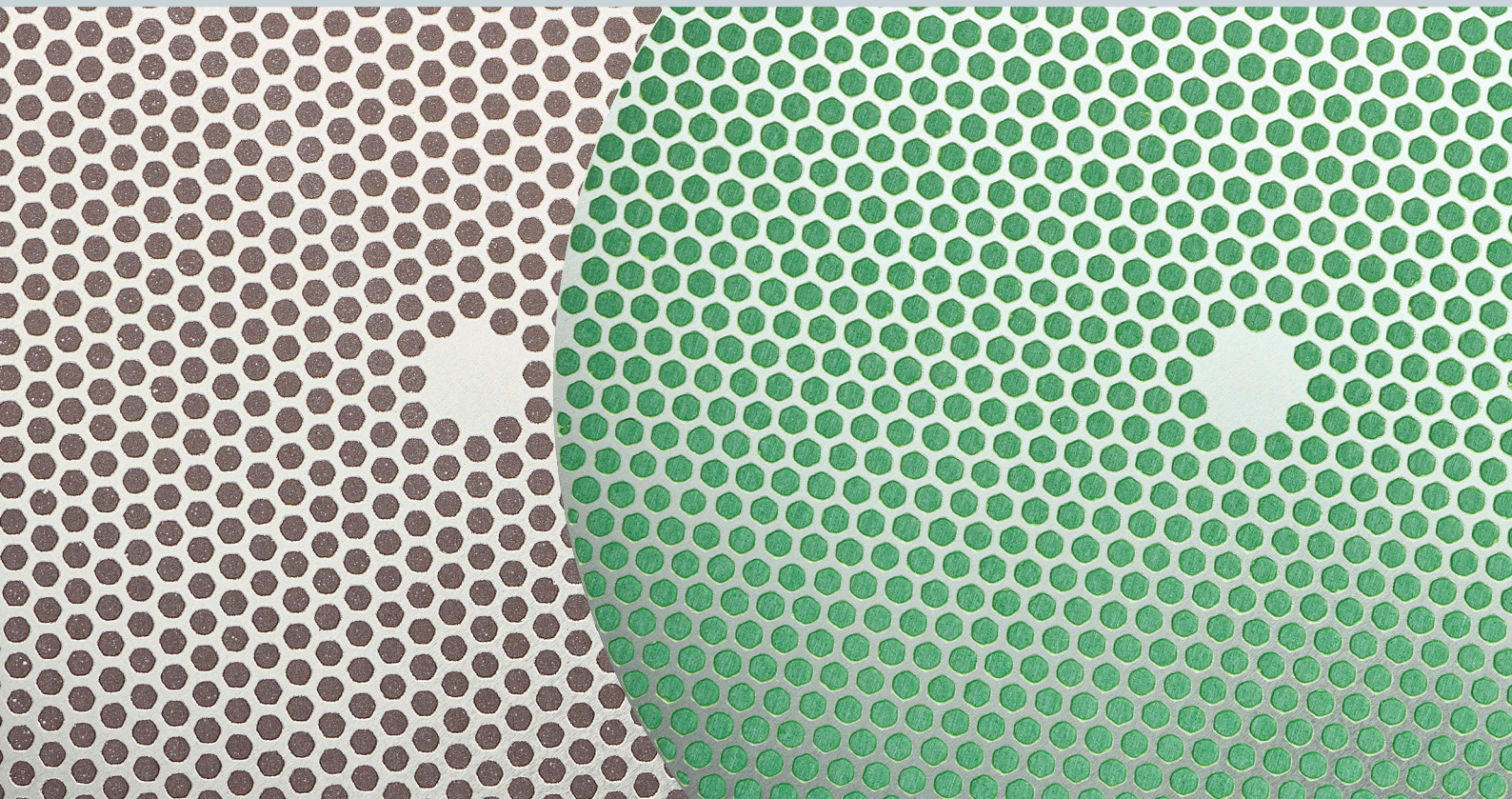


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DEEP DIVE INTO MD-ALLEGRO & MD-LARGO

Test, data and proofs



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FASTER RESULTS WITH CONSISTENT REMOVAL & EXTENDED SURFACE LIFETIME

MD-Allegro and MD-Largo surfaces are used in many metallographic labs to ensure accurate preparation of a wide range of materials. The updated surface pattern of MD-Allegro and MD-Largo ensures higher and more constant removal – giving you greater efficiency, retained planeness, and a longer surface lifetime.

- ✓ **Save time in your preparation steps** with higher and more constant removal
- ✓ Higher dosing achieves **higher removal**, allowing for further reductions to preparation time without the risk of aquaplaning
- ✓ **Increase efficiency** by preparing more specimens per surface with a longer surface lifetime
- ✓ Retain **great planeness**

All performance tests in this document compare the updated pattern of MD-Allegro and MD-Largo to the previous pattern



HIGHER REMOVAL FOR FASTER PREPARATION

The updated pattern on our MD-Allegro and MD-Largo surfaces ensures even higher average removal. As a result, you can significantly shorten your 9 µm preparation step while removing the same amount of material.

How much time can you save in your 9 µm step?

The updated MD-Largo surface has a 34% higher removal on free cutting steel. This means you can reduce your 9 µm preparation step equally with our updated MD-Largo surface.

Material	Surface	Previous surface pattern [µm/min]	Increase in removal [µm/min] in updated surface pattern [%]
Hardened steel	Allegro	5.1	+19%
Hardened steel, carbides	Allegro	4.2	+23%
Alumina, mounted	Allegro	-	-
Free cutting steel	Largo	1.3	+34%
Copper	Largo	4.7	+15%
Aluminum (6082)	Largo	4.0	+24%



The duration of your 9 µm
preparation step is directly
related to the removal rate.

Reduce your
preparation
time by up to

34%



ACCELERATE YOUR 9 μm STEP WITH INCREASED DOSING

The amount of suspension you add to the MD-Allegro or MD-Largo surface impacts how much material you remove.

The equation is simple: The more you dose, the more you can remove, enabling you to reduce your preparation time while achieving the same result. A positive side effect of higher dosing is that the need for cleaning the MD-Allegro or MD-Largo surface becomes less important since the surface itself is more self-cleaning and therefore requires less frequent cleaning.

Maximize output with faster steps

An increased dosing level results in a higher removal (up to 94% depending on the material). As a result, you can reduce the process time for that step accordingly and still remove the same amount of material.

		Low dosing level* High dosing level*		
Material	Surface	Removal rate [μm/min]	Removal rate [μm/min]	Increase in removal: Low to High dosing level [%]
Hardened steel, Arne	MD-Allegro	6.4	8.0	25%
Hardened steel, Sverker	MD-Allegro	4.7	5.0	6%
Free cutting steel	MD-Allegro	1.0	1.9	94%
Copper	MD-Largo	5.7	6.3	10%
Aluminum (6082)	MD-Largo	3.4	5.2	53%
Stainless, 304	MD-Largo	1.2	1.5	29%

* Low dosing level corresponds to dosing level 7 on a Tegramin-30 (pre-dosing level is 3).
High dosing level corresponds to dosing level 10 on a TegramIn-30 (pre-dosing level is 3)

A shorter step reduces wear on the surface, and you experience a longer surface lifetime. This enables you to prepare more specimens with the same surface, achieving higher efficiency.

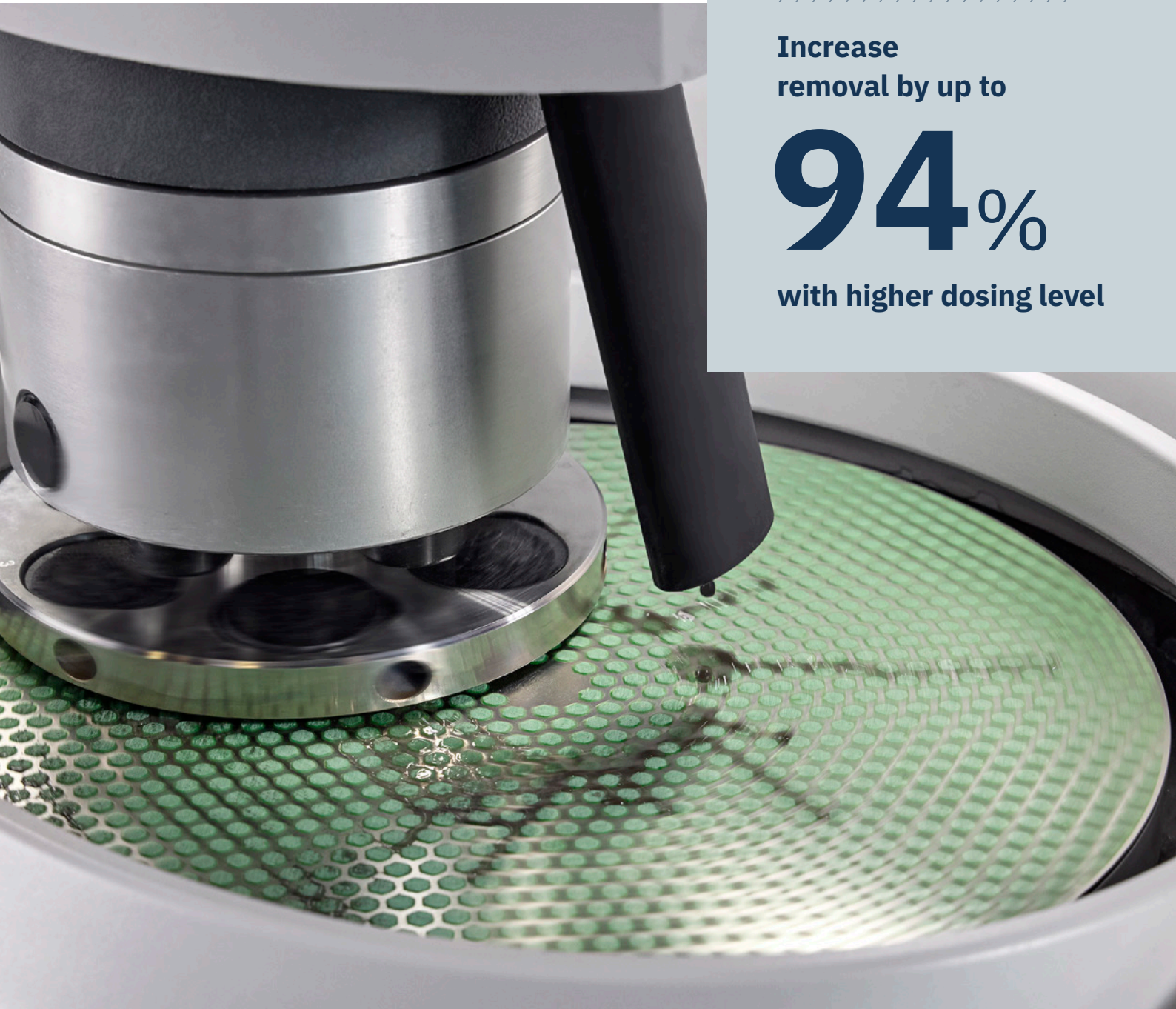
Low dosing, longer preparation time**High dosing, reduced process time**

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**Increase
removal by up to**

94%

with higher dosing level





PREPARE MORE SPECIMENS WITH LONGER-LASTING SURFACES

Internal Struers testing shows a significant increase in the lifetime of the updated MD-Allegro and MD-Largo surfaces compared to our previous versions.

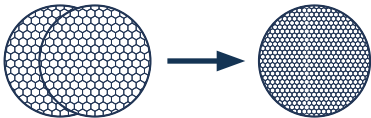
This means you can prepare more specimens on each MD-Allegro and MD-Largo surface, significantly boosting your **MD surface efficiency**.

How increased lifetime and great removal boost efficiency

The updated MD-Allegro and MD-Largo pattern offers a significantly longer lifetime. Depending on the application, the combination of the longer lifetime and the higher removal gives you up to 135% more removal across the surface’s entire lifetime compared to our previous MD-Allegro and MD-Largo surfaces.

Material	Surface	Life increase [updated]	Total increase in removal per MD surface [%]
Aluminum (6082)	MD-Largo	+110%	+135%
Titanium gr5	MD-Largo	+45%	+40%
Induction steel	MD-Allegro	+55%	+100%
AISI D6 tool steel	MD-Allegro	+33%	+100%

Surface lifetime test data conducted with six specimens (30mm dia.) per specimen holder



Double
the lifetime
of your surface

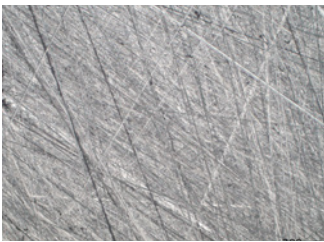
MAINTAIN QUALITY WITH OPTIMUM PLANENESS

Achieving planeness in your 9 μm plane grinding step is essential for a good final preparation result.

The updated pattern on our MD-Allegro and the MD-Largo surfaces retains great planeness, so you get an optimal final preparation result.

The scratch pattern on the 9 μm step for the updated MD-Allegro & MD-Largo is similar to the existing surfaces. However, it is achieved with up to 30% less preparation time on that step.

Aluminum silicon alloy



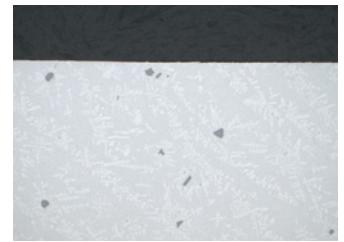
1 minute of SiC #320 (x 100)



3 minutes of fine grinding with MD-Largo and DiaPro Allegro/Largo 9 μm (x200)

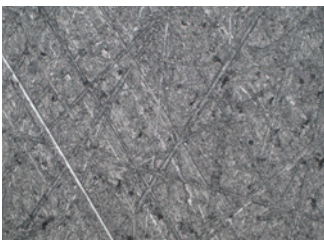


3 minutes of polishing with MD-Dac and DiaPro Dac 3 μm (x200)

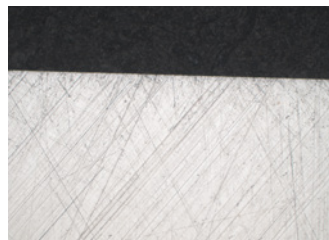


1 minute of oxide polishing with MD-Chem and OP-S NonDry 0.25 μm (x200)

Stainless steel



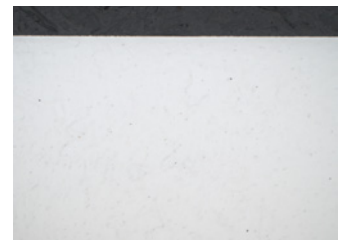
1 minute of SiC #320 plane grinding (x 100)



3 minutes of fine grinding with MD-Largo and DiaPro Allegro/Largo 9 μm (x200)

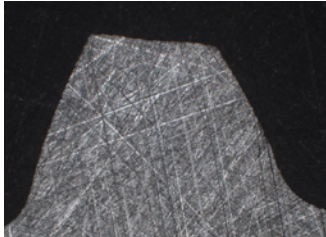


3 minutes of polishing with MD-Dac and DiaPro Dac 3 μm (x200)

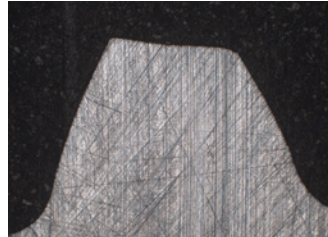


1 minute of oxide polishing with MD-Chem and OP-U NonDry 0.04 μm (x200)

Surface hardened steel



1 minute of plane grinding
with MD-Piano #220 (x50)



2 minutes of fine grinding
with MD-Allegro and
DiaPro Allegro/Largo 9µm (x50)



3 minutes of polishing
with MD-Dac and DiaPro Dac 3µm
(x50)



1 minute of oxide polishing
with MD-Chem and OP-U NonDry
0.04 µm (x50)



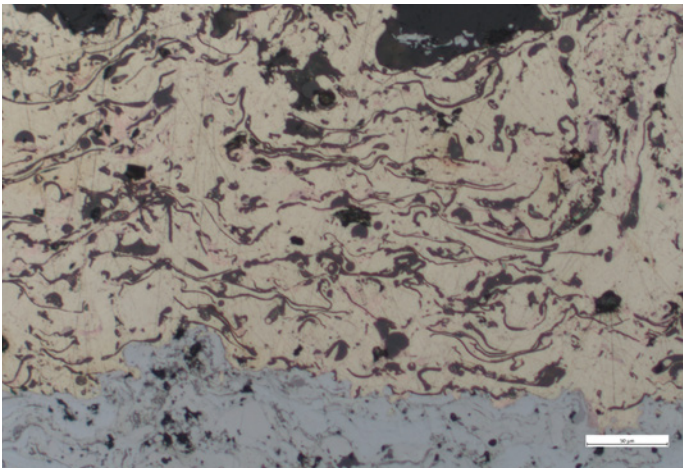
**Good edge retention is crucial for most applications.
If not achieved in the 9 µm step, it will not appear
in the final preparation result.**

NO RELIEF WITH MD-LARGO AND DIAPRO 3 μm LARGO SUSPENSION

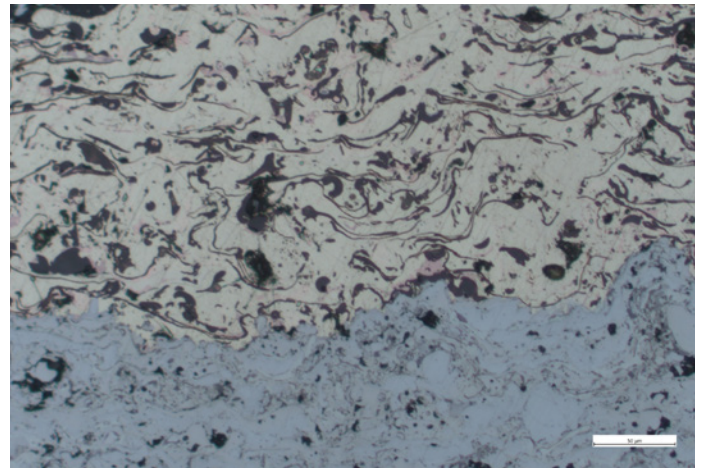
The updated MD-Largo pattern used in combination with the dedicated DiaPro Largo 3 μm suspension will give you the same great planeness and no relief as you know from the current pattern.

Surface finish on plasma spray coatings

Comparable results with the MD-Largo & DiaPro Largo 3 μm suspension.



Preparation result updated MD-Largo pattern (x 200)



Preparation previous result MD-Largo (x 200)



Great planeness and no relief is important, especially for coatings.



BOOST SAFETY WITH A WATER-BASED SUSPENSION

Health and safety are important considerations for any lab.

Our MD-Allegro and MD-Largo surfaces are optimized for use with our DiaPro All-in-One suspensions, which are water based for improved health, safety, and environmental performance.

- ✓ MD-Allegro is optimized for use with DiaPro All-in-One Allegro/Largo 9µm suspension
- ✓ MD-Largo is optimized for use with DiaPro All-in-One Allegro/Largo 9µm suspension and with DiaPro All-in-One Largo 3µm suspension
- ✓ Our DiaPro All-in-One suspensions are water based for **higher operator safety**

OPTIMIZE YOUR PROCESS WITH EXPERT SUPPORT

You can continue using the updated MD-Allegro & MD-Largo with your current parameters, such as force and dosing level, without any changes. If you would like to further optimize your method using MD-Allegro & MD-Largo with the updated pattern, our specialists are here to help. Visit our website or reach out to your local representative for tailored guidance on optimizing your process.



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“A Struers application specialist completely changed our method – and with that, we reduced our preparation time from up to 60 minutes for two to three samples to only 11 minutes”

– Mikael Berggren, Laboratory Technician,
Siemens Industrial Turbomachinery



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Ensuring certainty

Materialographic preparation and testing demand consistent, reproducible results. These come not only from your laboratory process, operators and equipment, but also your supply chain and your partners. As a Struers customer, you benefit from not only high-quality design and engineering of equipment and consumables, but also 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 groundbreaking 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 toward a better society.