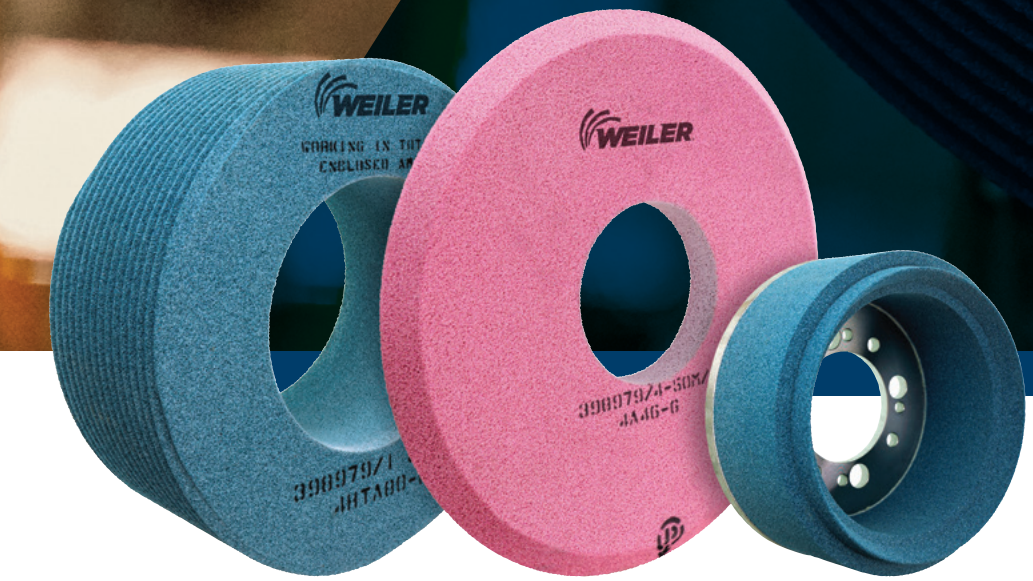
Gear Grinding:
Driving Precision One Micron at a Time

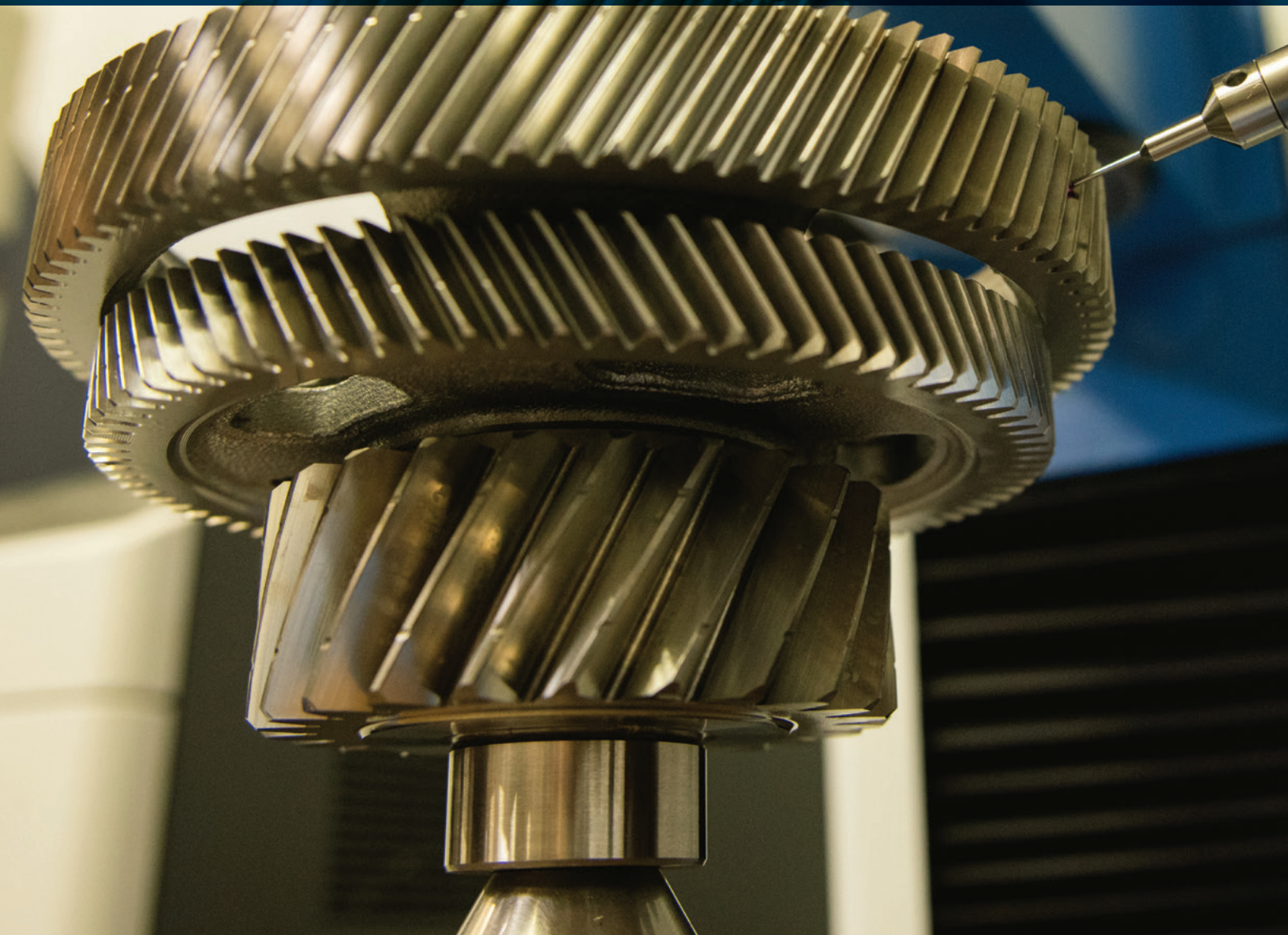


weilerabrasives.com

Helping You

IMPROVE QUALITY, INCREASE CONSISTENCY, & DELIVER ON-TIME

To Your Customers.



As industries like automotive, energy, heavy equipment, and aerospace continue to grow and evolve, expectations for gear manufacturers are increasing.

Weiler Abrasives can help.

We offer a unique combination of industry-leading technology, expertise, and service to help improve your gear grinding operations now and in the future.

PARTNERSHIP

We are committed to your long-term success in a competitive market.

- Access to a team of experts around the world dedicated to providing ongoing support
- New innovations help you meet environmental standards and sustainability expectations
- Relationships with original equipment manufacturer (OEM) partners to develop industry changing solutions

TECHNOLOGY

We develop innovative solutions tailored to your needs.

- World-class research, development, and manufacturing capabilities keep your business ahead of the competition
- Engineered solutions tailored to your specific applications
- Proprietary technologies and global access to abrasive grains provide flexibility and freedom to develop limitless solutions

SERVICE

We help you maximize operational efficiency through technical support and on-time delivery.

- On-site technical support and education to keep your grinding process optimized and your people safe
- On-site testing and process documentation to guarantee repeatable results
- Stable supply and local inventory to keep your business running smoothly and reduce your inventory burden

WEILER PROCESS SOLUTIONS

Bringing Process, Expertise, and Partnership Together.

In today's competitive manufacturing landscape, improving high-volume production processes is crucial for a business to meet the demands of its customers and achieve profitability goals. When it comes to surface conditioning, having a partner you trust is crucial to realizing your continuous improvement objectives.

The **WEILER PROCESS SOLUTIONS** (WPS) program delivers customized solutions based on your specific application needs. The program leverages the latest technology and on-site technical expertise to optimize high-volume production manufacturing processes for customers. WPS makes it easier to achieve your cost savings and productivity improvement goals.

WPS is designed to identify opportunities to make improvements that will immediately impact your business by driving down the total cost per part, increasing productivity, or both. Through the WPS program, Weiler Abrasives brings technical support and experience to your facility and works with your team to develop a tailored solution that achieves your objectives.

Benefits of WPS

- Reduce cycle times and eliminate production bottlenecks to **improve throughput**
- **Reduce total cost per part**
- Minimize rework and reduce waste
- Improve energy efficiency and sustainability for your business
- Reduce working capital commitment by optimizing consumable inventory
- Reduce process variability to improve part quality and consistency

Cutting Lead Times and Offering Peace of Mind.

We recognize that your operation is more than just grinding gears. While it's a single part of your operation, it can have a significant impact on everything. We know the challenges of not having the right gear grinding wheel can lead to extensive lead times, quality issues, and idle machines.

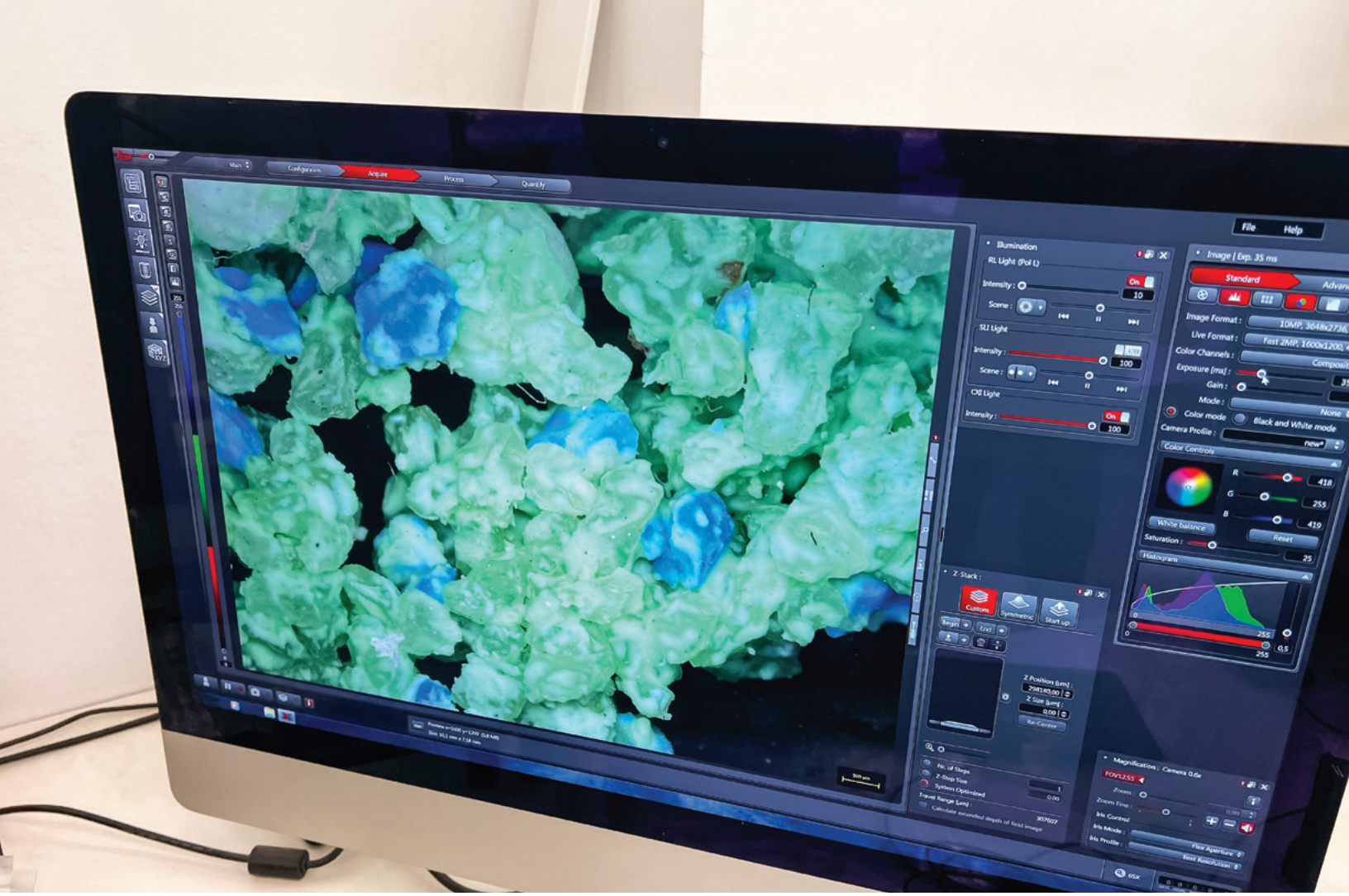
Precision Express is our answer to the industry challenge of waiting months for a gear grinding wheel. We understand the urgency of servicing your customers, so we prioritize "on-time" delivery of our precision gear grinding wheels directly to you.

Once you partner with Weiler Abrasives, we go the extra mile. Precision Express matches an in-house profiling cell with on-hand stock, cutting your lead times from months to days. Whether you see a spike in demand or need a custom profile at a moment's notice, you can count on us for consistent availability and delivery. We prioritize your uptime and ensure a hassle-free experience, so you can focus on what matters most—delivering exceptional results to your customers.

"The key differentiator is lead time. We can't be waiting for a grinding wheel and then miss our customer's date."

- Thomas Alaniva, President, Rave Gear

TECHNOLOGY THAT MAXIMIZES GRINDING PERFORMANCE

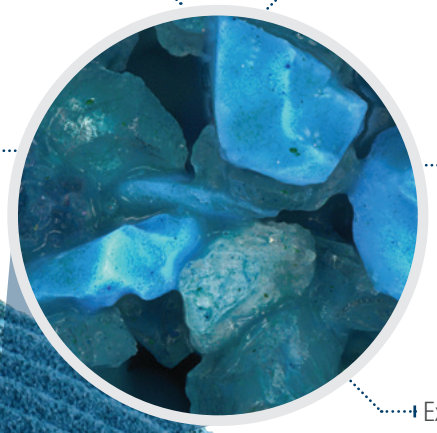


Our V59 Bond Technology Addresses Your Unique Needs With Flexibility and Precision.

Advanced formulation provides **superior grain retention**, which improves wheel life and efficiency

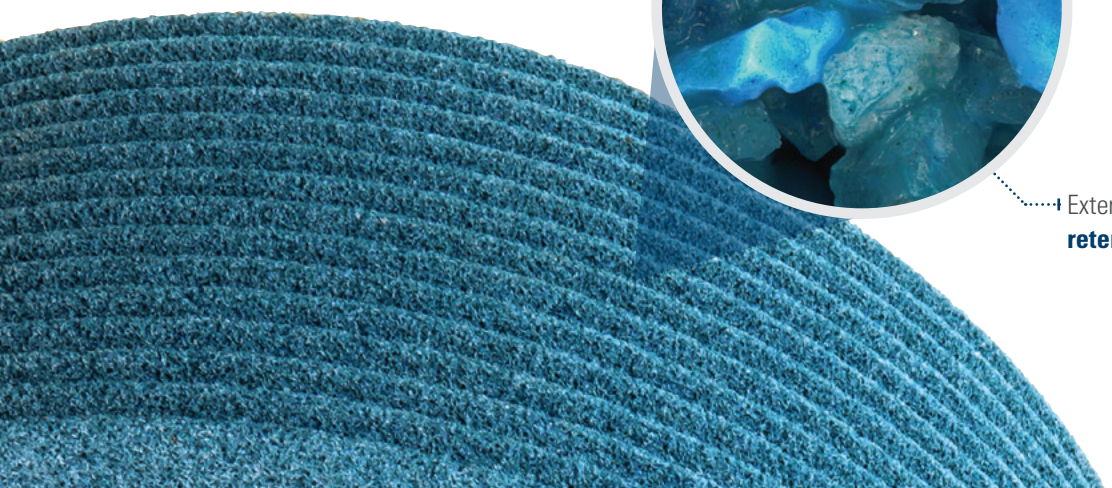
Advanced production processes provide **consistent grinding results**, reducing scrap and rework

Dynamic porosity **lowers grinding temperatures** and increases efficiency without burning the part



Exceptional material removal rates **reduce grinding cycle times**

Extended wheel life **improves profile retention** and **reduces dressing frequency**



SINGLE PROFILE WHEELS

Weiler Single Profile Wheels provide industry-leading material removal rates (MRR), making them ideal for grinding from solid or finishing large gears. These wheels also grind cool, which is critical when grinding opposing teeth simultaneously. The Weiler team customizes each wheel formulation to meet your specific grinding needs, ensuring that you can grind any material or size gear type the job calls for.

Extended wheel life improves profile retention and reduces dressing frequency.

Dynamic porosity lowers operating temperatures when grinding large contact areas.

Industry-leading material removal rates make these wheels ideal for grinding from solid.

High-performance abrasive grains maximize material removal rates without burning or damaging the gear.

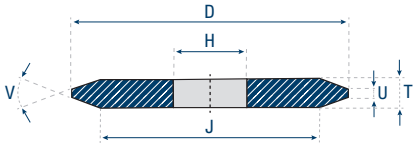
PERFORMANCE TIERS

TIER	TECHNOLOGY	ATTRIBUTES	VALUE
Max Performance	V59-MAX	Dual high performance ceramic abrasive paired with superior V59 bond technology	Maximum cut rate Longest wheel life Superior form holding ability Large depth of cuts
High Performance	V59	Engineered aluminum oxide abrasive paired with high performing V59 bond technology	High material removal rate Cool cutting Reduced dressing
Performance	V35	Premium aluminum oxide abrasive paired with V35 bond technology	Exceptional surface finish Low to medium removal rates Excellent cost performance

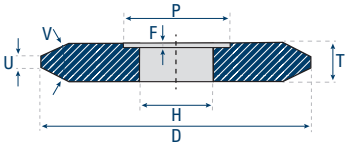
WHEEL CONFIGURATIONS

Wheel dimensions are configured based on machine capabilities and the size of the gear tooth being produced. When using a wider faced grinding wheel, single or double recesses can be added to aid in mounting a wider grinding wheel on a shorter arbor shaft.

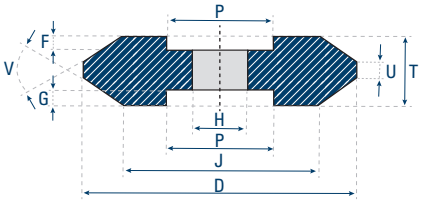
4N



5Y17



7Y3



KEY: D (Outer Diameter) mm / F (Recess Depth Side A) mm / G (Recess Depth Side B) mm / H (Inner Diameter) mm / J Calculation mm / P (Recess Diameter) mm
T (Thickness) mm / U (Face Flat Width) mm / V (Angle) Degrees

SPECIFICATIONS

	Minimum	Maximum
Diameter (mm)	150	610
Arbor Hole (mm)	20	254
Thickness (mm)	20	127
V Angle (Deg)	Application Specific	
Max Operating Speed	63 m/s	

Shape	Typical Thickness Range (mm)
4N	<40
5Y17	40-60
7Y3	>60

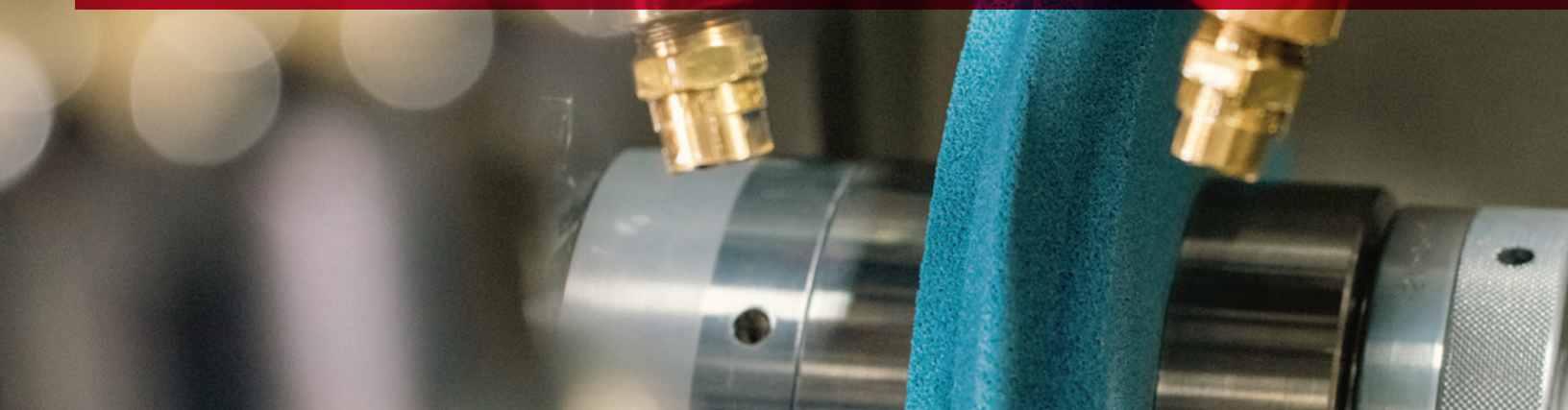
Common Equipment	
Gleason	Kapp
Klingelnberg	Liebherr
Samputensili	

ARTICLE

Published February 2024 in Gear Technology Magazine

Four Tips to Optimize Quality and Reduce Cycle Time in Gear Tooth Profile Grinding

Optimizing quality and reducing cycle time in profile grinding requires attention to detail. Dennis Brown, Weiler Abrasives technical sales manager, shares four best practices for improving profile grinding operations.



WORM WHEELS

Weiler Worm Wheels offer precision and reliability in continuous-generation grinding processes. These wheels help optimize grinding operations by providing fast cycle times and reducing dressing frequency. Hybrid worm wheels are also available to simplify roughing and finishing into a single process.

These wheels provide consistent grinding, which helps gear manufacturers achieve the necessary tolerances and surface finish in high-volume gear production operations.

Fast cutting and exceptional form holding on small module gears to optimize throughput.

Advanced profiling capabilities reduces inline wheel adjustments and increases cycle times.

Proprietary abrasive grain blend achieves maximum material removal rates while exceeding surface finish requirements.

Maximize multi-tooth grinding operations with wheels designed for operational speeds up to 80m/s.

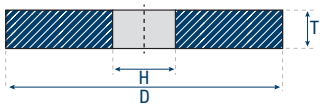
PERFORMANCE TIERS

TIER	TECHNOLOGY	ATTRIBUTES	VALUE
Max Performance	V59-MAX	Dual high performance ceramic abrasive paired with superior V59 bond technology	Maximum cut rate Longest wheel life Superior form holding ability Large depth of cuts
High Performance	V59	Engineered aluminum oxide abrasive paired with high performing V59 bond technology	High material removal rate Cool cutting Reduced dressing
Performance	V35	Premium aluminum oxide abrasive paired with V35 bond technology	Exceptional surface finish Suitable for low to medium removal rates Excellent cost performance

WHEEL CONFIGURATIONS

Worm wheels are available with or without a profile. The threads are dressed to ensure the side of the thread tooth delivers a precise pressure angle to the workpiece. Profiled wheels are available with up to 7 starts and can meet tolerances of 0.5-12.

1ZB



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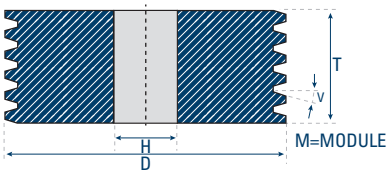


KEY: # (Number of Starts) / D (Outer Diameter) mm / H (Inner Diameter) mm / M (Module) / T (Thickness) mm / V (Angle) Degrees

SPECIFICATIONS

	Minimum	Maximum
Diameter (mm)	95	450
Arbor Hole (mm)	40	160
Thickness (mm)	75	250
Pressure V Angle (Deg)	Application Specific	
Starts	1	7
Module	0.5	12
Max Operating Speed	63 m/s	

Common Equipment	
Gleason	Hoeffer
Kapp	Klingelnberg
Liebherr	Reishauer

READ CASE STUDY

Weiler experts helped a gear manufacturer eliminate their bottleneck in the grinding process, allowing them to meet increased production demands.

44% Fewer Passes Per Part

51% Dressing Fequency Reduction

27% Cycle Time Reduction

BEVEL GEAR GRINDING

Weiler Bevel Gear Grinding Wheels are designed to meet the demands of both static and continuous bevel gear applications. These wheels can be customized for straight and spiral bevel gear teeth, ensuring exact profiles for your grinding application. With customizable wheel profiles, versatile mounting options, and comprehensive configurations, Weiler's bevel wheels deliver increased material removal rates, tighter tolerances, and superior surface finishes.

High-performance abrasive grain blend achieves maximum material removal rates without burning or damaging the gear.

Precision-formed profiles shorten setup time and dressing cycles.

Mounting options for all wheel types and sizes simplify machine set up.

Profiles able to accommodate straight or spiral bevel gear grinding.

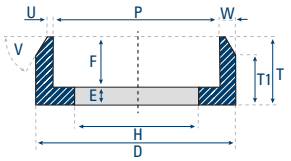
PERFORMANCE TIERS

TIER	TECHNOLOGY	ATTRIBUTES	VALUE
Max Performance	V59	High performance ceramic abrasive paired with superior V59 bond technology	Maximum cut rate Longest wheel life Superior form holding ability Large depth of cuts
High Performance	V35	Engineered aluminum oxide abrasive paired with V35 bond technology	Medium material removal rate Cool cutting Reduced dressing
Performance	V57	Premium aluminum oxide abrasive paired with V57 bond technology	Exceptional surface finish Low to medium removal rates Excellent cost performance

WHEEL CONFIGURATIONS

Bevel grinding wheel shapes are machine setup-specific. Profiles for ready-to-use products can be applied using tight-tolerance CNC finishing processes. Unprofiled wheels are also available. Wheel mounting variations include a standard arbor hole, a nut-inserted back, and a glued-to-steel plate.

6PZ



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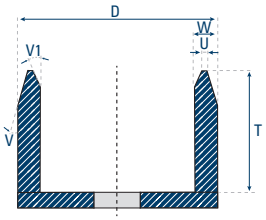

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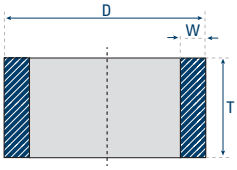

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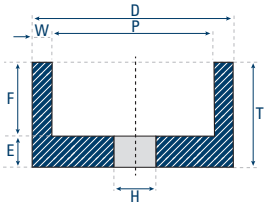


* Mounted to Custom Backing Plate

KEY: D (Outer Diameter) mm / E (Back Thickness) mm / F (Recess Depth Side A) mm / G (Recess Depth Side B) mm / H (Inner Diameter) mm / J (Calculation) mm
P (Recess Diameter) mm / T (Thickness) mm / T1 (Calc) mm / U (Face Flat Width) mm / V (Angle) Degrees / V1 (Secondary Angle) Degrees
W (Rim Thickness) mm

SPECIFICATIONS

	Minimum	Maximum
Diameter (mm)	75	400
Arbor Hole (mm)	25	150
Thickness (mm)	25	150
Max Operating Speed	63 m/s	

Common Equipment	
Gleason	Klingelnberg

"I just don't want to be a gear supplier. I want to be a partner. And I think Weiler has done a good job of doing that with Rave."

- Thomas Alaniva, President, Rave Gear

HOB SHARPENING WHEELS

Optimize the gear milling process with Weiler Hob Sharpening Wheels. Specially designed to make hob cutter maintenance straightforward, our sharpening wheels ensure that your cutting tools maintain their peak performance.

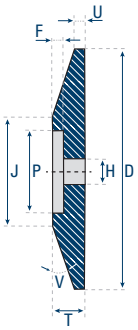
PERFORMANCE TIERS

TIER	TECHNOLOGY	ATTRIBUTES	VALUE
Max Performance	V59	Single high performance ceramic abrasive paired with superior V59 bond technology	Maximum cut rate Longest wheel life Superior form holding ability Large depth of cuts
High Performance	V35	Engineered aluminum oxide abrasive paired with V35 bond technology	Medium to high material removal rate Cool cutting Reduced dressing
Performance	V57	Premium aluminum oxide abrasive paired with advanced V57 bond technology	Exceptional surface finish Low to medium removal rates Excellent cost performance

WHEEL CONFIGURATIONS

Hob sharpening grinding wheels are offered in several sizes and shapes to fit the machine offset requirements of both CNC and manual hob sharpeners.

3K4



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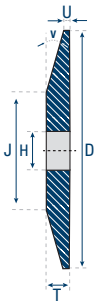

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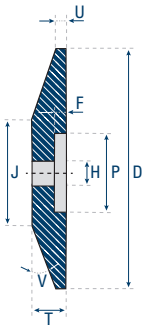

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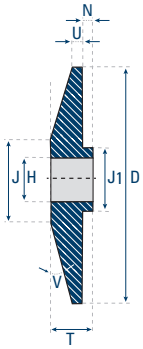

SPECIFICATIONS

	Minimum	Maximum
Diameter (mm)	100	400
Arbor Hole (mm)	25	125
Thickness (mm)	10	75
Max Operating Speed	63 m/s	

Common Equipment	
Klingelnberg	Kapp

GEAR DEBURRING

Weiler Abrasives offers a complete line of high-performance power brushes for operations where burr removal is necessary. To learn more about gear deburring solutions, please refer to our Gear Deburring brochure.

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