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3M™ Superabrasive Wheels for Cutting Tools

Tough tools for your toughest jobs.

July 2020 Edition

The products featured in this catalogue are 3M's best "go-to" wheels for cutting tool applications ranging from short runs and re-sharpening to "lights-out" and long production runs. **If you require an item that is not listed, please contact your 3M customer service representative.**

3M™ Superabrasive Wheels for Cutting Tools

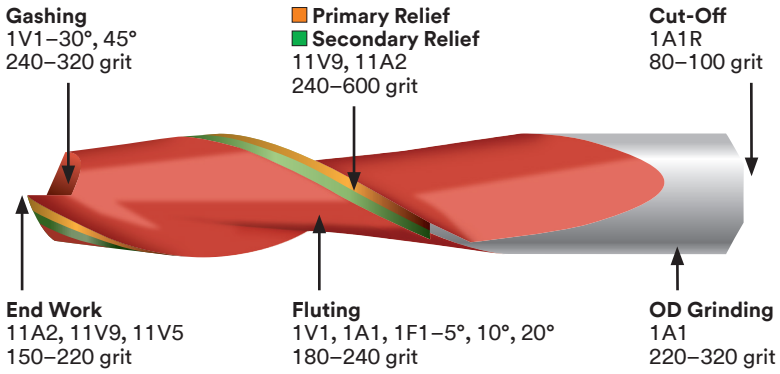
Table of Contents

Glossary

The following is a brief description of terms for the most common round tool grinding applications:

Cut-Off	Using a thin wheel to trim blanks to length. Typically used on the cutting end of the tool when re-grinding and on the shank end when forming a blank.
End Work	Grinding a small clearance, or relief angle on the face (tip) of the tool.
Fluting	Flutes are the helical or straight grooves in the body of the tool. This provides a pathway to permit the removal of chips, and to allow coolants to reach the cutting surface.
Gashing	Grinding a slot or notch along the cutting face to allow for chip flow.
OD Grinding	Grinding to final diameter.
Primary Relief	Removing material directly behind the cutting edge to provide clearance.
Secondary Relief	A slight bevel next to the primary relief.

Typical Abrasive Wheels Used for Round Tool Grinding



Where to use Diamond vs. CBN Superabrasives

Diamond	CBN (Cubic Boron Nitride)
Carbide	Tool steel
Non-ferrous metals	High speed steel
PCD	
Cermets	
Polycrystalline CBN/Diamond (PCBN)	

Round tools can be made out of any of these materials. For optimal grinding results, make sure you know what material the tools are made of.

Tips for Optimizing Your Grinding Process

1. Match the wheels to your production/process

Consider using dedicated wheels vs. one wheel for all applications.

	Length of Production Run		
	Long (Untended)	**Medium**	**Short Runs and Specials**
Optimal Wheel Properties	Form holding	Form holding/ Fast cutting	Fast cutting

2. Match wheel size (od) to the equipment capabilities

Diamond Wheels
Smaller diameter wheels can be run at higher RPM to achieve the recommended surface speed (sfpm or mps). This helps utilize more of the available horsepower. With enough HP, you can process faster, without stalling the machine.

CBN Wheels
- The higher the sfpm, the better the grinding performance
- Larger diameters help achieve higher sfpm
- CBN wheel should be run over 8,500 sfpm
- CBN wheels provide higher stock removal at higher surface speeds

3. Diamond wheels

Slower diamond grinding wheel speeds (sfpm) = faster feeds.
The slower surface speed of the grinding wheel means you can increase the feed rate. The wheel acts softer, which produces higher cutting action. This is only true for diamond on carbide.

Diamond Wheel Operating Speeds

Fluting (Hybrid, Resin and Poly Bonds)	**Gashing*** (Poly or Resin Bonds)	**OD and End Work** (Poly or Resin Bonds)
2,200 to 3,400 sfpm (11 to 17 mps)	4,500 to 6,500 sfpm (22 to 32 mps)	4,500 to 5,500 sfpm (22 to 28 mps)

*Gashing wheels provide better form retention but less stock removal. Should be run at higher rpm so the wheel will act harder.

4. CBN wheels

With CBN wheels, faster is better.
- For improved performance, operating speed should be 8,500 sfpm (44 mps) or more
- Maximum sfpm to be determined (dependent on machine capability)
- Special speed testing to guard against rotational failure is required over 10,000 sfpm

5. Grinder considerations

Does it have enough power?
Grinder must be powerful enough to maintain spindle speed at the highest required grinding load.

Is it sufficiently rigid?
- Machine must be rigid; less than .0002" deflection under side load
- Machine must be able to handle the expected tolerance of the tool
- Bearings must be in good condition

6. Coolant delivery system

- Coolant speed and pressure are just as important as coolant flow (100 psi is a good place to start)
- Position coolant nozzle to flow between the grinding wheel and the part being ground right at the point of contact
- Clean coolant is critical — contamination causes coolant to break down and affects part finish
- Maintain constant and consistent coolant temperature; Variation of more than ± 15°C (± 5°F) causes excessive variation in the tolerance of the tools
- Over-design the system where possible to optimize the flow, volume and speed of clean coolant to the grinding zone
- Dry grinding is not recommended

7. Troubleshooting

Problems	Potential Causes	Remedies
Loading of superabrasive wheel (frequent dressing cycles)	Poor dressing	Re-dress and follow dressing recommendations.
	Poor filtration, insufficient coolant	Follow coolant recommendations.
	High speed on superabrasive grinding wheel	Slow down wheel speed.
	Feeds too light	Increase removal rate.
	Grinding wheel is too hard	Change to a softer wheel.
Excessive wear of superabrasive wheel	Insufficient coolant at the grinding interface	Improve volume, pressure, nozzle design and placement.
	Low wheel speed	Increase wheel speed so it will act harder.
	Excessive feed rate	Reduce depth of cut.
	Grinding wheel is too soft	Change to a harder or thicker wheel. Increase wheel speed so it will act harder.
Excessive heat or burned workpiece	Insufficient coolant at the grinding interface	Improve volume, pressure, nozzle design and placement.
	Grinding wheel speed too fast	Decrease wheel speed.
	Excessive feed rate	Reduce depth of cut.
	Grinding wheel is too hard	Change to a softer wheel.
	Insufficient or misdirected coolant	Follow coolant recommendations.
Poor workpiece surface finish	Balance, run-out, vibration	Check spindle bearings or other machine components. Check balance and trueness of wheel.
	Grinding wheel is too coarse	Change to a finer grit wheel.
	Wheel face is loaded or glazed	Condition wheel with dressing stick.
	Poor filtration, insufficient coolant	Follow coolant recommendations.
	Grinding wheel is too soft	Change to a harder or thicker wheel. Increase wheel speed so it will act harder.

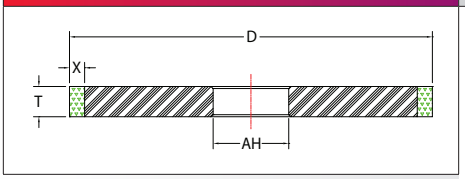
3M™ Fluting Wheels

Flutes are the helical or straight grooves in the body of the tool. This provides a pathway to permit the removal of chips, and to allow coolants to reach the cutting surface.

The wheels listed in this catalogue are intended as a general starting point for the application indicated. **These wheels are recommended for wet applications.** For dry applications or wheel configurations/grades not listed here, please contact your 3M Customer Service Representative.

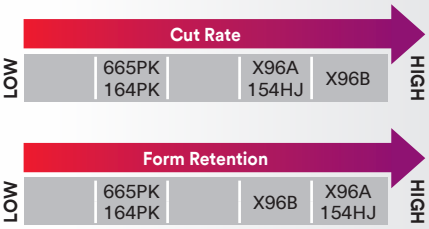
AH Key	1 = 20 mm 2 = 32 mm 3 = 1-1/4" 4 = 2"

Shape – 1A1



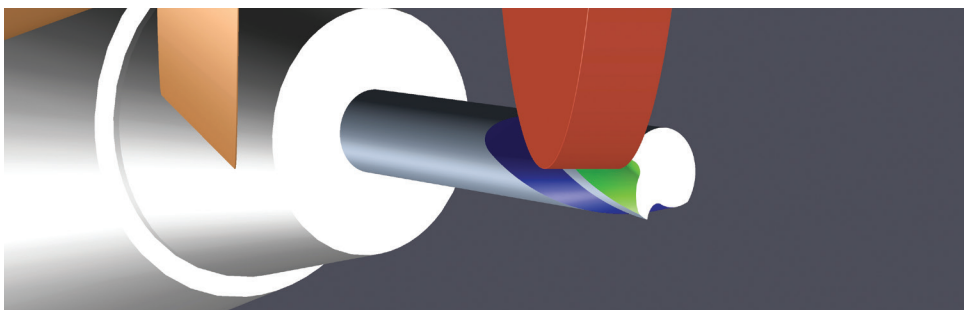
Dimensions D × T × AH (inches)	Abrasive	Grade	Bond	Product ID	Catalogue ID (see AH Key)
4 × 1/4 × AH X = 3/8	Diamond	D280	Hybrid	X96A	6004100-AH
			Hybrid	X96B	6004101-AH
		D220	Polyimide	665PK	6004102-AH
4 × 3/8 × AH X = 3/8	Diamond	D280	Hybrid	X96A	6004103-AH
			Hybrid	X96B	6004104-AH
		D220	Polyimide	665PK	6004105-AH
4 × 1/2 × AH X = 3/8	Diamond	D280	Hybrid	X96A	6004106-AH
			Hybrid	X96B	6004107-AH
		D220	Polyimide	665PK	6004108-AH
4 × 1/2 × AH X = 3/8	CBN	B180	Hybrid	154HJ	6004109-AH
			Polyimide	164PK	6004110-AH
5 × 1/4 × AH X = 3/8	Diamond	D280	Hybrid	X96A	6004111-AH
			Hybrid	X96B	6004112-AH
		D220	Polyimide	665PK	6004113-AH
5 × 3/8 × AH X = 3/8	Diamond	D280	Hybrid	X96A	6004114-AH
			Hybrid	X96B	6004115-AH
		D220	Polyimide	665PK	6004116-AH
5 × 1/2 × AH X = 3/8	Diamond	D280	Hybrid	X96A	6004117-AH
			Hybrid	X96B	6004118-AH
		D220	Polyimide	665PK	6004119-AH
5 × 1/2 × AH X = 3/8	CBN	B180	Hybrid	154HJ	6004120-AH
			Polyimide	164PK	6004121-AH
5 × 3/4 × AH X = 3/8	Diamond	D280	Hybrid	X96A	6004122-AH
			Hybrid	X96B	6004123-AH
		D220	Polyimide	665PK	6004124-AH
6 × 1/2 × AH X = 3/8	Diamond	D280	Hybrid	X96A	6004125-AH
			Hybrid	X96B	6004126-AH
		D220	Polyimide	665PK	6004127-AH
6 × 1/2 × AH X = 3/8	CBN	B180	Hybrid	154HJ	6004128-AH
			Polyimide	164PK	6004129-AH

Fluting Wheel Performance Characteristics
3M has five standard constructions that are ideal for a variety different operations.



665PK/164PK
- Polyimide resin bond
- Higher cut rate/fast stock removal
- Better form retention
- Designed for higher temperature operations

X96A/X96B/154HJ
- Hybrid bond
- Fastest cut rate
- Best form retention
- Designed for higher temperature operations than polyimide bond
- Reduced frequency of dressing and minimal "white sticking" required
- Ideal for long, uninterrupted runs



3M™ Fluting Wheels

The wheels listed in this catalogue are intended as a general starting point for the application indicated. **These wheels are recommended for wet applications.** For dry applications or wheel configurations/grades not listed here, please contact your 3M Customer Service Representative.

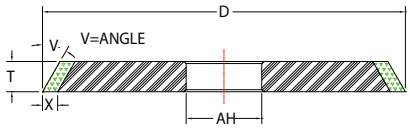
Flutes are the helical or straight grooves in the body of the tool. This provides a pathway to permit the removal of chips, and to allow coolants to reach the cutting surface.

AH Key	1 = 20 mm 2 = 32 mm 3 = 1-1/4" 4 = 2"

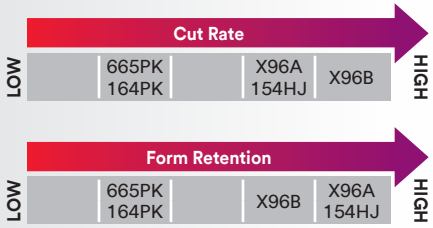
V° Key	1 = 5° 2 = 10° 3 = 15° 4 = 20°

Dimensions D × T × AH (inches)	Abrasive	Grade	Bond	Product ID	Catalogue ID (see AH Key)
4 × 1/4 × AH X = 3/8 V = 5–20°	Diamond	D280	Hybrid	X96A	6005200-AH-V
			Hybrid	X96B	6005201-AH-V
		D220	Polyimide	665PK	6005202-AH-V
4 × 3/8 × AH X = 3/8 V = 5–20°	Diamond	D280	Hybrid	X96A	6005203-AH-V
			Hybrid	X96B	6005204-AH-V
		D220	Polyimide	665PK	6005205-AH-V
4 × 1/2 × AH X = 3/8 V = 5–20°	Diamond	D280	Hybrid	X96A	6005206-AH-V
			Hybrid	X96B	6005207-AH-V
		D220	Polyimide	665PK	6005208-AH-V
4 × 1/2 × AH X = 3/8 V = 5–20°	CBN	B180	Hybrid	154HJ	6005209-AH-V
			Polyimide	164PK	6005210-AH-V
5 × 1/4 × AH X = 3/8 V = 5–20°	Diamond	D280	Hybrid	X96A	6005211-AH-V
			Hybrid	X96B	6005212-AH-V
		D220	Polyimide	665PK	6005213-AH-V
5 × 3/8 × AH X = 3/8 V = 5–20°	Diamond	D280	Hybrid	X96A	6005214-AH-V
			Hybrid	X96B	6005215-AH-V
		D220	Polyimide	665PK	6005216-AH-V
5 × 1/2 × AH X = 3/8 V = 5–20°	Diamond	D280	Hybrid	X96A	6005217-AH-V
			Hybrid	X96B	6005218-AH-V
		D220	Polyimide	665PK	6005219-AH-V
5 × 1/2 × AH X = 3/8 V = 5–20°	CBN	B180	Hybrid	154HJ	6005220-AH-V
			Polyimide	164PK	6005221-AH-V
5 × 3/4 × AH X = 3/8 V = 5–20°	Diamond	D280	Hybrid	X96A	6005222-AH-V
			Hybrid	X96B	6005223-AH-V
		D220	Polyimide	665PK	6005224-AH-V
6 × 1/2 × AH X = 3/8 V = 5–20°	Diamond	D280	Hybrid	X96A	6005225-AH-V
			Hybrid	X96B	6005226-AH-V
		D220	Polyimide	665PK	6005227-AH-V
6 × 1/2 × AH X = 3/8 V = 5–20°	CBN	B180	Hybrid	154HJ	6005228-AH-V
			Polyimide	164PK	6005229-AH-V

Shape – 1V1



Fluting Wheel Performance Characteristics
3M has five standard constructions that are ideal for a variety different operations.



665PK/164PK
- Polyimide resin bond
- Higher cut rate/fast stock removal
- Better form retention
- Designed for higher temperature operations

X96A/X96B/154HJ
- Hybrid bond
- Fastest cut rate
- Best form retention
- Designed for higher temperature operations than polyimide bond
- Reduced frequency of dressing and minimal "white sticking" required
- Ideal for long, uninterrupted runs

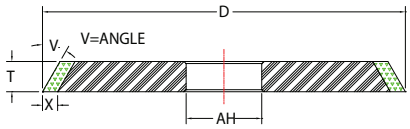
3M™ Gashing Wheels

Gashing involves grinding a slot or notch along the cutting face to allow for chip flow.

The wheels listed in this catalogue are intended as a general starting point for the application indicated. **These wheels are recommended for wet applications.** For dry applications or wheel configurations/grades not listed here, please contact your 3M Customer Service Representative.

AH Key	1 = 20 mm 2 = 32 mm 3 = 1-1/4" 4 = 2"	V° Key	1 = 30° 2 = 45°	S° Key	1 = 30° 2 = 45°

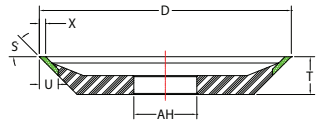
Shape – 1V1



Shape 12V9 and 11V5 are also commonly used for gashing.

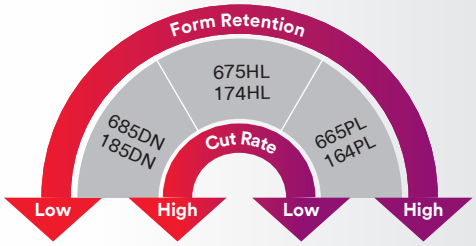
Dimensions D × T × AH (inches)	Abrasive	Grade	Bond	Product ID	Catalogue ID (see AH Key)
4 × 1/4 × AH X = 3/8 V = 30–45°	Diamond	D280	Hybrid	675HL	6006300-AH-V
			Polyimide	665PL	6006301-AH-V
4 × 3/8 × AH X = 3/8 V = 30–45°	Diamond	D320	Hybrid	675HL	6006302-AH-V
			Polyimide	665PL	6006303-AH-V
4 × 3/8 × AH X = 3/8 V = 30–45°	CBN	B220	Polyimide	164PL	6006304-AH-V
			Resin	185DN	6006305-AH-V
5 × 3/8 × AH X = 3/8 V = 30–45°	Diamond	D320	Hybrid	675HL	6006306-AH-V
			Polyimide	665PL	6006307-AH-V
5 × 3/8 × AH X = 3/8 V = 30–45°	CBN	B220	Polyimide	164PL	6006308-AH-V
			Resin	185DN	6006309-AH-V
6 × 3/8 × AH X = 3/8 V = 30–45°	Diamond	D280	Hybrid	675HL	6006310-AH-V
			Polyimide	665PL	6006311-AH-V

Shape – 12V9



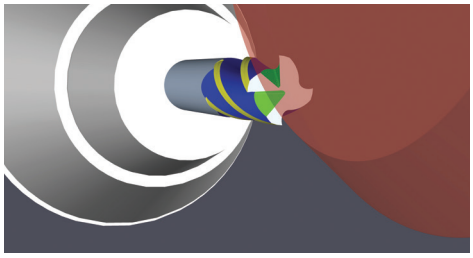
4 × 3/4 × AH X = 1/8, U = 3/8 S = 30–45°	Diamond	D320	Hybrid	675HL	6006312-AH-S
			Polyimide	665PL	6006313-AH-S
			Resin	685DN	6006314-AH-S
4 × 3/4 × AH X = 1/8, U = 3/8 S = 30–45°	CBN	B220	Hybrid	174HL	6006315-AH-S
			Polyimide	164PL	6006316-AH-S
			Resin	185DN	6006317-AH-S
5 × 3/4 × AH X = 1/8, U = 3/8 S = 30–45°	Diamond	D320	Hybrid	675HL	6006318-AH-S
			Polyimide	665PL	6006319-AH-S
			Resin	685DN	6006320-AH-S
5 × 3/4 × AH X = 1/8, U = 3/8 S = 30–45°	CBN	B220	Hybrid	174HL	6006321-AH-S
			Polyimide	164PL	6006322-AH-S
			Resin	185DN	6006323-AH-S

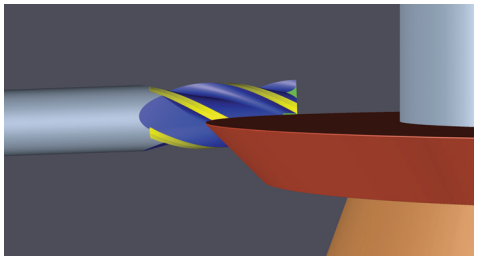
Wheel Performance Characteristics



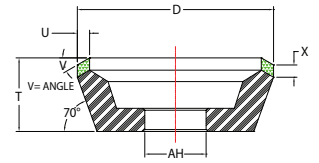
- Less form retention
- Shorter production runs
- Free cutting
- Fast cutting

- Best form retention
- Close tolerances
- Long wheel life
- Long production runs
- Slower cut rate





Shape – 11V5



4 × 1-1/2 × AH U = 1/4, X = 1/4 V = 30°	Diamond	D320	Hybrid	675HL	6006324-AH
			Polyimide	665PL	6006325-AH
			Resin	685DN	6006326-AH

3M™ Primary and Secondary Relief Wheels

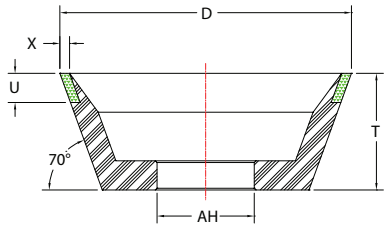
The wheels listed in this catalogue are intended as a general starting point for the application indicated. **These wheels are recommended for wet applications.** For dry applications or wheel configurations/grades not listed here, please contact your 3M Customer Service Representative.

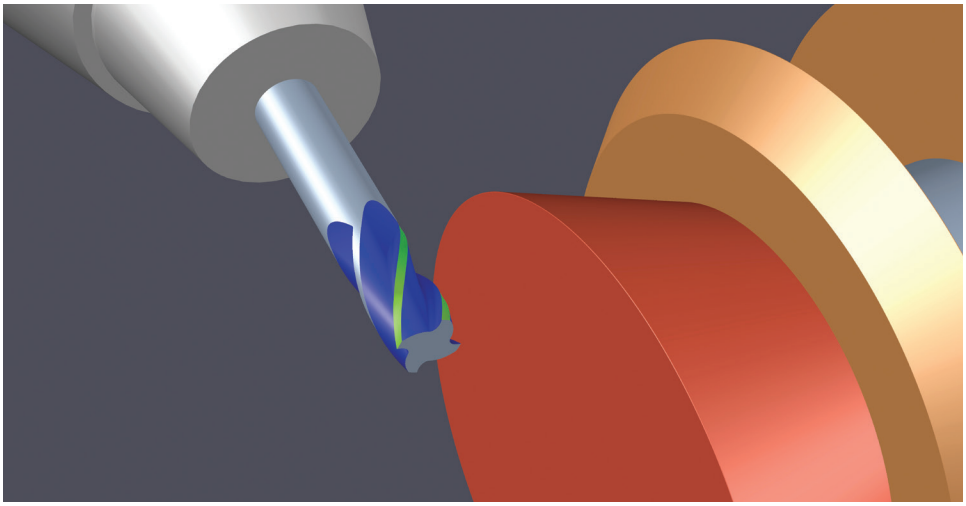
Cutting edges are typically "relieved" to enhance chip clearance. Primary relief involves removing material directly behind the cutting edge. For secondary relief, a slight bevel is ground next to the primary relief.

AH Key	1 = 20 mm 2 = 32 mm 3 = 1-1/4" 4 = 2"

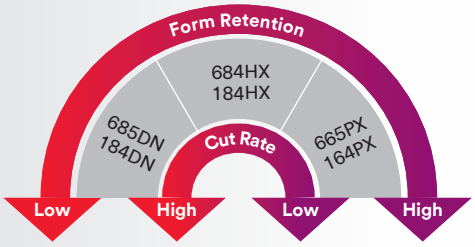
Dimensions D × T × AH (inches)	Abrasive	Grade	Bond	Product ID	Catalogue ID (see AH Key)
3-3/4 × 1-1/2 × AH X = 1/8 U = 3/8	Diamond	D280	Hybrid	684HX	6007400-AH
			Polyimide	665PX	6007401-AH
			Resin	685DN	6007402-AH
3-3/4 × 1-1/2 × AH X = 1/8 U = 3/8	Diamond	D320	Hybrid	684HX	6007403-AH
			Polyimide	665PX	6007404-AH
			Resin	685DN	6007405-AH
3-3/4 × 1-1/2 × AH X = 1/8 U = 3/8	CBN	B220	Hybrid	184HX	6007406-AH
			Polyimide	164PX	6007407-AH
			Resin	184DN	6007408-AH
5 × 1-3/4 × AH X = 1/8 U = 7/16	Diamond	D280	Hybrid	684HX	6007409-AH
			Polyimide	665PX	6007410-AH
			Resin	685DN	6007411-AH
5 × 1-3/4 × AH X = 1/8 U = 7/16	Diamond	D320	Hybrid	684HX	6007412-AH
			Polyimide	665PX	6007413-AH
			Resin	685DN	6007414-AH
5 × 1-3/4 × AH X = 1/8 U = 7/16	CBN	B220	Hybrid	184HX	6007415-AH
			Polyimide	164PX	6007416-AH
			Resin	184DN	6007417-AH

Shape – 11V9





Wheel Performance Characteristics
3M™ Superabrasive Wheels are available in a variety of constructions, each with its own unique characteristics. Choose the 3M Wheel with the best balance of form retention and cut rate for your application.



- Less form retention
- Shorter production runs
- Free cutting
- Fast cutting

- Best form retention
- Close tolerances
- Long wheel life
- Long production runs
- Slower cut rate

3M™ Wheels for End Work

End work involves grinding a small clearance, or relief angle on the face (tip) of the tool to reduce the contact area between the tool and the workpiece.

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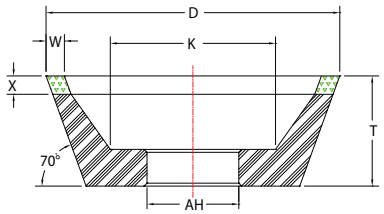
AH Key	1 = 20 mm 2 = 32 mm 3 = 1-1/4" 4 = 2"

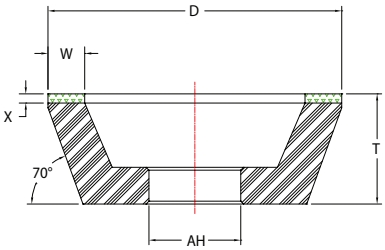
W Key	1 = 1/4" 2 = 3/8"

Shape – 11V2



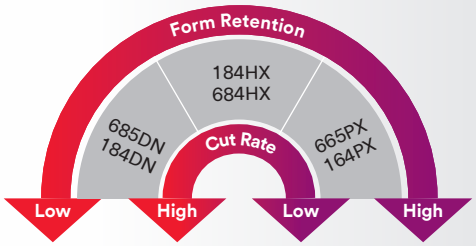
Dimensions D × T × AH (inches)	Abrasive	Grade	Bond	Product ID	Catalogue ID (see AH Key)
4 × 1-1/2 × AH X = 1/4 W = 1/4	Diamond	D280	Hybrid	684HX	6008500-AH
			Polyimide	665PX	6008501-AH
			Resin	685DN	6008502-AH
4 × 1-1/2 × AH X = 1/4 W = 1/4	Diamond	D320	Hybrid	684HX	6008503-AH
			Polyimide	665PX	6008504-AH
			Resin	685DN	6008505-AH
4 × 1-1/2 × AH X = 1/4 W = 1/4	CBN	B220	Hybrid	184HX	6008506-AH
			Polyimide	164PX	6008507-AH
			Resin	184DN	6008508-AH

Shape – 11A2



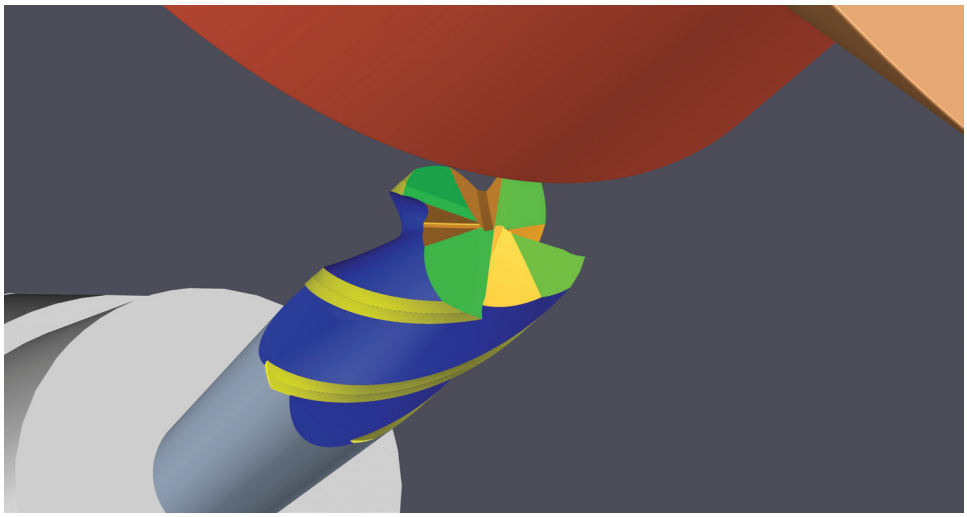
4 × 1-1/4 × AH X = 1/4 W = 1/4–3/8	Diamond	D280	Hybrid	684HX	6008509-AH-W
			Polyimide	665PX	6008510-AH-W
			Resin	685DN	6008511-AH-W
4 × 1-1/4 × AH X = 1/4 W = 1/4–3/8	Diamond	D320	Hybrid	684HX	6008512-AH-W
			Polyimide	665PX	6008513-AH-W
			Resin	685DN	6008514-AH-W
4 × 1-1/4 × AH X = 1/4 W = 1/4–3/8	CBN	B220	Hybrid	184HX	6008515-AH-W
			Polyimide	164PX	6008516-AH-W
			Resin	184DN	6008517-AH-W
5 × 1-1/2 × AH X = 1/4 W = 1/4–3/8	Diamond	D280	Hybrid	684HX	6008518-AH-W
			Polyimide	665PX	6008519-AH-W
			Resin	685DN	6008520-AH-W
5 × 1-1/2 × AH X = 1/4 W = 1/4–3/8	Diamond	D320	Hybrid	684HX	6008521-AH-W
			Polyimide	665PX	6008522-AH-W
			Resin	685DN	6008523-AH-W

Wheel Performance Characteristics
3M™ Superabrasive Wheels are available in a variety of constructions, each with its own unique characteristics. Choose the 3M Wheel with the best balance of form retention and cut rate for your application.



- Less form retention
- Shorter production runs
- Free cutting
- Fast cutting

- Best form retention
- Close tolerances
- Long wheel life
- Long production runs
- Slower cut rate



3M™ Trizact™ Diamond Polishing Wheel 685DC — Improving Tool Performance

Breakthrough technology allows fast, dependable CNC polishing of cutting tools!

The new 3M™ Trizact™ Diamond Polishing Wheel 685DC is based on an advanced 3M technology that delivers a smooth, mirror finish on carbide and other tool materials. It can help make polishing easier, more efficient and consistent, by replacing hand-polishing methods such as SiC brushes, stones and abrasive pastes. And it is designed for use on a variety of CNC grinding machines, for seamless integration into existing manufacturing processes.

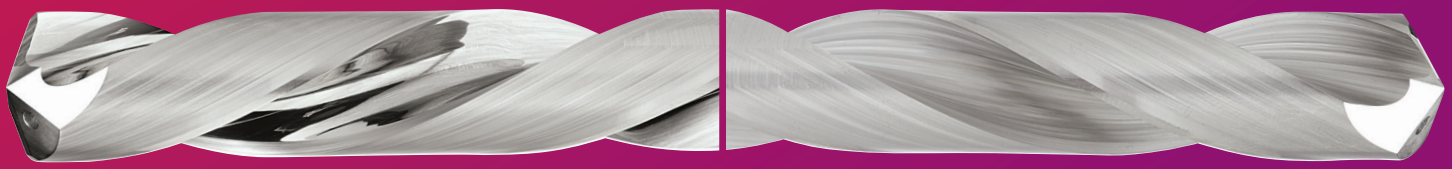
With the development of the 3M™ Trizact™ Diamond Polishing Wheel 685DC, tool manufacturers now have the potential to add new value to their products, by building in more customer-pleasing features, including:

- Improved chip flow, reduced loading — especially beneficial for tough-to-machine materials
- Less heat and friction — tools last longer
- Cleaner, more consistent cut
- Improved tool aesthetics

3M™ Trizact™ Diamond Polishing Wheels are loaded with diamond particles throughout the entire wheel. As the wheel wears, fresh, sharp diamonds are constantly exposed to the workpiece, resulting in faster, more consistent cutting throughout the life of the wheel.

Polishing Benefits

Polishing round tools to a mirror finish can significantly improve tool life and quality by helping the tool stay cooler and sharper. In addition, a polished tool allows chips to evacuate more easily — particularly on titanium, aluminum, composites and wood.



Tool Polished with 685DC

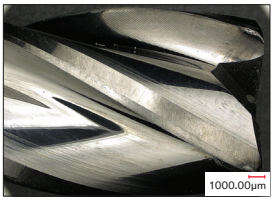
Conventional Tool Finish
Tools supplied by Form Tool Technology, Inc.

Cutting Edge Quality Comparison

Tool Description:
1/2 inch 4 flute carbide end mill

Application Description:
Slot milling, 1/2 inch depth, 15-5 stainless steel

Note: Polished tool performance may vary by application.



Used Polished End Mill

Used Unpolished End Mill

Ordering Information

Contact: 3MSupport.ASDPGF.US@mmm.com

Wheel Shape: 1A8

Diameter: 3, 4, 5, 6, 7 and 8"

Thickness: 1/8–3/4" (in 1/16" increments)

Arbor Holes: Sized to your specification, with a minimum 1/2" diameter.

Made-to-order (not in stock).

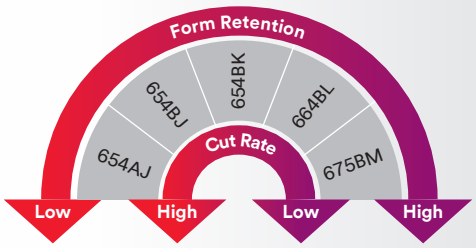
3M™ Cut-Off Wheels

3M™ Cut-Off wheels are thin abrasive wheels used to trim blanks to length. They are typically used on the cutting end of the tool when re-grinding and on the shank end when forming a blank.

The wheels listed in this catalogue are in stock and intended as a general starting point for the application indicated. Many other wheel configurations and grades are available. Contact your 3M Customer Service Representative.

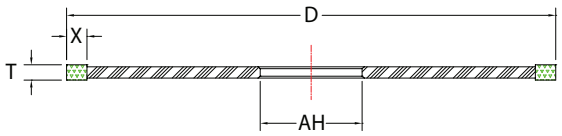
Shape – 1A1R

Cut-Off Wheel Performance Characteristics



- Less form retention
- Shorter production runs
- Free cutting
- Fast cutting
- Best form retention
- Long wheel life
- Long production runs
- Slower cut rate

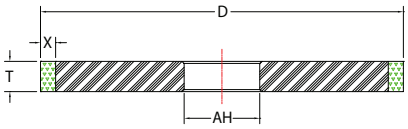
Dimensions D × T × AH (inches)	Abrasive	Grade	Product ID	Catalogue ID
6 × 0.035 × 1-1/4 X = 0.250	Diamond	D100	654BJ	6010600
			654BK	6010601
			675BM	6010602
		D120	664BL	6010603
			654AJ	6010604



OD Step Grinding

Tool shank preparation for TruTech applications.

Shape – 1A1



Dimensions D × T × AH (inches)	Abrasive	Grade	Product ID	Catalogue ID
7 × 3/8 × 1-1/4	Diamond	D220	645BI	6010605
7 × 1/2 × 1-1/4	Diamond	D220	645BI	6010606

Truing and Dressing

3M™ Dressing Wheels

Silicon carbide dressing wheels are used to true and dress superabrasive grinding wheels.

Dimensions D × T × AH (inches)	Abrasive*	Grade	Product ID	Catalogue ID
8 × 1/4 × 1-1/4	Silicon Carbide	GC80	400TH	6010607
		GC120	400TH	6010608
		GC220	400TH	6010609
8 × 3/8 × 1-1/4	Silicon Carbide	GC80	400TH	6010610
		GC120	400TH	6010611
		GC220	400TH	6010612
8 × 1/2 × 1-1/4	Silicon Carbide	GC80	400TH	6010613
		GC120	400TH	6010614
		GC220	400TH	6010615

***GC** = Green Silicon Carbide. Standard quality, softer construction provides freer and faster cut.

3M™ Dressing Sticks

The most common means of dressing superabrasive wheels. Made of aluminum oxide or silicon carbide in popular sizes.

1/2 × 1/2 × 4	Aluminum Oxide	AO150	200TG	6010616
		AO220	200TH	6010617
3/4 × 3/4 × 4	Aluminum Oxide	AO150	200TG	6010618
		AO220	200TH	6010619
1 × 1 × 6	Aluminum Oxide	AO150	200TG	6010620
		AO220	200TH	6010621

Custom Wheel Request for Quote

To place an order, specify: Shape, Dimension, Mineral, Grade, Product ID

Check Appropriate Box ☐ **Customer Order** ☐ **Information Only**

Customer	**Distributor**
Company	Company
Address	Address
City, Province, Postal Code	City, Province, Postal Code
Contact/Title	Contact/Title
Phone	Phone

Note: This information is collected in order to respond to your request for a quote.

1. Application Description

☐ High Volume Production (more than 50 pieces per batch)
☐ Custom Production (up to 50 pieces)
☐ End Work
☐ Fluting
☐ Gashing
☐ OD Grinding
☐ Primary Relief
☐ Secondary Relief
☐ Resharpening
☐ Wheel Pack (several applications)
☐ Other: _____

2. Tool Description

☐ Carbide ☐ Other: _____
☐ High Speed Steel
Tool Type: _____
Size: _____

3. Grinding Equipment Description

☐ CNC Grinder
☐ Manual
☐ Other: _____

If CNC Grinder...what is the model? HP: _____
☐ Anca
☐ Rollomatic
☐ Tru Tech
☐ Walters
☐ Other: _____

4. Coolant Type

☐ Straight Oil
☐ Water Based
☐ Other: _____

5. Current Wheel Specification

☐ 3M
☐ 3M NaxoForce
☐ Other Brand: _____
Specification: _____

6. Wheel Size and Grade Description

Wheel Shape	Diameter	Thickness	Hole	Grade	Also Specify:
1A1					X=
1A1R					X=
1V1					X= V=
11A2					X= W=
11V9					X= U=
12V9					X= U= S=
Other:					
Other:					

7. Performance Improvement Desired

☐ Faster Fluting
☐ Improved Finish
☐ Less Frequent Dressing
☐ Less Frequent Truing
☐ Other: _____

Can't find what you need?

If you don't see what you need in this catalogue, simply provide us with the information above, and we'll help you select the optimal product for your application.

Contact 3M Customer Service for more information:
3MSupport.ASDPGF.US@mmm.com
Phone: 1-800-364-3577

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