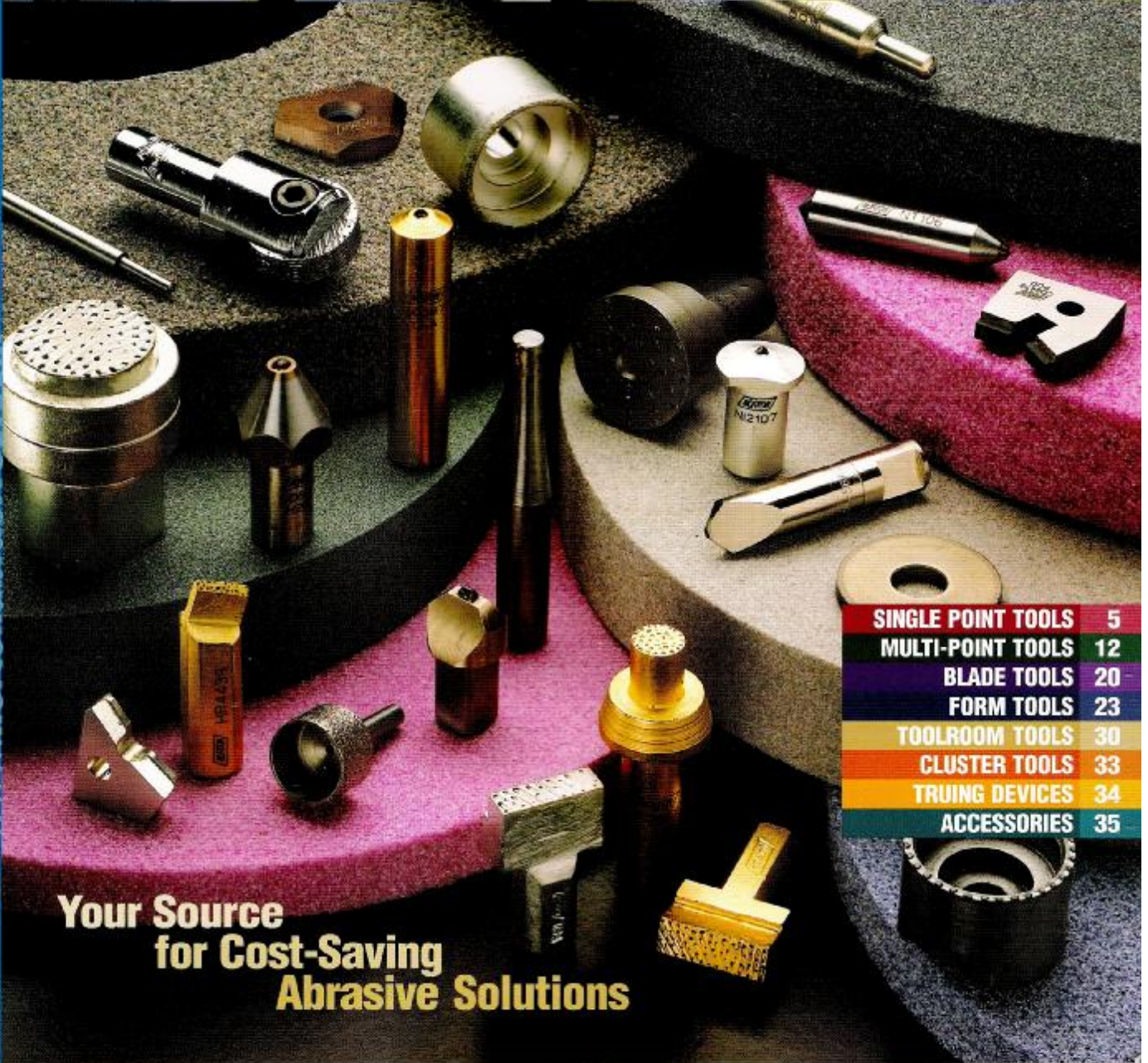


NORTON

CATALOG 106
**STATIONARY DIAMOND
DRESSING TOOLS**



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**Your Source
for Cost-Saving
Abrasive Solutions**

NORTON STATIONARY DIAMOND DRESSING TOOLS



**Minimize Your Cost Per Dress.
Maximize Your Grinding Wheel Performance!**

Norton Leads the Truing and Dressing Tool Industry in Engineering and Manufacturing Technology

Stock Tools

The broadest line of stationary diamond dressing tools and brake-controlled truing devices.

Custom-engineered Tools

We have custom tools for virtually every application. When Norton quality stock products do not fulfill your requirements for diamond quality or geometry, your Norton Distributor, Norton Sales Representative and our Product Engineering staff will work with you to ensure that you get the right stationary diamond tool for your job on a custom design basis.

Resetting and Relapping Service

Norton Diamond Tool offers expert resetting (removing single point diamond, rotating and exposing sharp, new point) and relapping (reconditioning form tool diamonds) of many of our tools – at a significant cost savings vs. new manufacture. Contact our Arden Customer Service group for a quote and return procedures.

Contact Your Norton Distributor or Norton Diamond Tool Customer Service:

Saint-Gobain Abrasives, Inc.
65 Beale Road
Arden, NC 28704

Customer Service and
Technical Assistance Phone: 828-684-2500
Fax Inquiries: 828-684-1401



Norton Product Tiering Concept

Norton offers the industry's widest selection of products at three separate value levels to meet your exact needs. Norton products are classified in BEST (gold), BETTER (blue), and GOOD (green) performance/price tiers to help you choose the right product for your specific application every time.

Diamonds are a rare commodity - the larger the stone and the better the quality, the higher the initial cost. The key to successful diamond tool purchasing and use is based on the "cost per dress." Normally, higher quality diamond dressing tools and a proactive resetting program will result in lowest "cost per dress."

In those situations where a resetting program is not feasible, or low initial cost is the primary purchasing criteria, Norton offers an extensive line of non-resettable tools.

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BEST Best Performance

- Represents products that are unmatched in the industry and provide the lowest total cost for the application.
- In many cases, these products are proprietary and only available from Norton.

BETTER Premium Performance

- Represents superior performing products for the user who requires a high level of productivity and low total cost.

GOOD Excellent Performance, Quality and Value

- Represents a value for the user who wants Norton quality products with consistent performance and very competitive prices.

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GENERAL INFORMATION

How to Use This Catalog

If you know the tool:

Use the Table of Contents to find the appropriate tool section, then match your tool to the drawings in that section.

If you don't know the tool, but know the wheel form needed:

Find the type of wheel form to be dressed using the wheel form symbols shown in the Table of Contents and throughout the book. Note the appropriate tool(s).

If you don't know the tool, but know the machine:

Use the "Stationary Diamond Tool Recommendations by Machine Type" chart on pages 36 - 39. Note the appropriate tool(s).

Then review the recommended tools' features and benefits in their catalog sections to choose the best tool for your operation. If you need engineering assistance, contact your local Norton distributor or call: Technical Assistance 828-684-2500.

Typical Wheel Forms Dressed by Stationary Diamond Tools



Straight



Tapered



Convex



Concave



Angled



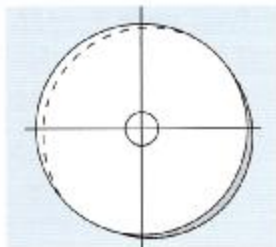
Multi-Angled

Tech Tip – Wheel Conditioning

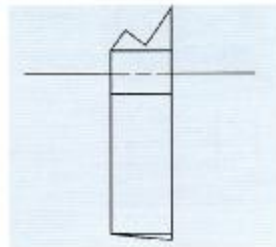
Stationary diamond dressing tools are used to condition grinding wheels. Wheel conditioning involves two operations: truing and dressing.

Truing the Wheel:

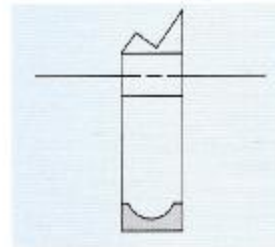
Primarily done during the initial set-up, truing involves three basic operations:



Cleaning the wheel to make it run true with the axis of rotation



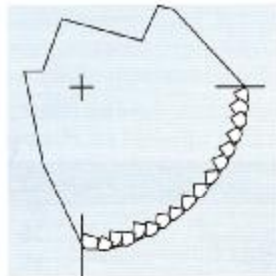
Restoring the wheel profile to proper geometry in response to wheel breakdown



Changing the profile of the wheel to the desired shape

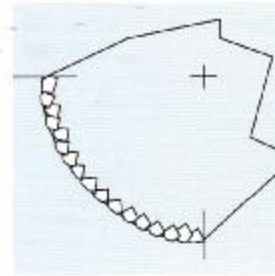
Dressing the Wheel:

Dressing is done intermittently throughout the operation – after a certain number of parts are ground, as wheel loads, closes up, etc. – to keep the wheel at peak performance.



Removing dull abrasive particles opens the wheel, increasing stock removal rates, decreasing surface finish quality.

Dulling the abrasive particles closes the wheel, increasing surface finish quality, decreasing stock removal rates.



Removing foreign material from a "loaded" wheel opens the wheel, exposing new cutting grains.

GENERAL INFORMATION

Resetting – Minimizing Your Cost

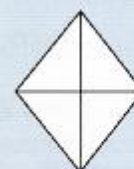
Buying a higher quality diamond is your best value, especially if you participate in a proactive resetting program. Although initial cost may be higher, the payback comes through several factors:

- Diamond durability, providing longer tool life
- Tighter form tolerances
- Consistent finish rates
- Resetting the diamond lowers the overall tooling cost

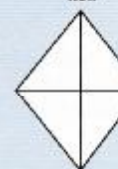
Used properly, the overall cost of a higher quality, resettable diamond will compare favorably with that of an inexpensive, non-resettable diamond. Initially, the best diamond point is selected for use. When returned, the next best diamond point is selected for resetting, and so on.

To ensure you get the best value for your diamond:

- Rotate the diamond tool ¼ turn periodically to maintain a sharp point
- Use proper flow of coolant to protect the diamond from heat which can create fracturing of the diamond
- Excessive wear on the diamond point may impact the ability to reset the diamond. The widest point of the diamond is referenced as the girth. The diamond girth is buried in a powder metal matrix. Using a diamond into the girth zone may impact the ability to reset other diamond points.



Now



1st Reset



Multiple Resettings

Guidelines for Lead Selection

Use the optimum traverse rate of a diamond tool to appropriately condition the wheel face for your grinding operation.

- Slower lead (and traverse rate) tends to close up the wheel face to provide:
 - Better finishes (low RMS/Ra readings)
 - Lower stock removal rates
- Faster lead (and traverse rate) tends to open up the wheel face to provide:
 - Faster stock removal rates ("hungry" wheel)
 - Rougher finishes (high RMS/Ra readings)

Formula for Traverse Rate Calculation

$$\text{Speed of Wheel (RPM)} \times \text{Lead Selection Per Wheel Revolution} = \text{Traverse Rate (Inches Per Minute)}$$

$$\text{RPM} = \text{SFPM} / (\text{Wheel Diameter} \times 0.262)$$

TOOL TYPE	LEAD SELECTION / TRAVERSE RATE
Single-Point Tools	Coarse Finish = .008" - .010" per wheel revolution
Form Tools	Medium Finish = .005" - .007" per wheel revolution
	Fine Finish = .002" - .004" per wheel revolution
Example – Single Point	
Wheel:	14 x 1-1/2 x 5" 5SG60-KVS
Tool:	SG5M7 (1/2 carat Single-Point)
Wheel Speed:	6500 SFPM = 1773 RPM
Stock Removal/Finish:	Medium/32 RMS
Lead Selection:	.006" per wheel revolution
Travers Rate:	1773 x .006 = 10.6" per minute traverse
Multi-Point (Grit) Tools	
Blade Tools	Coarse Finish = .023" - .030" per wheel revolution
Cluster Tools	Medium Finish = .013" - .022" per wheel revolution
	Fine Finish = .006" - .012" per wheel revolution
Example – Multi-Point	
Wheel:	7 x 1 x 1-1/4" 32A60-KVBE
Tool:	1R6J6 (1/4" round grit tool)
Wheel Speed:	6500 SFPM = 3547 RPM
Stock Removal/Finish:	Coarse/64 RMS
Lead Selection:	.024" per wheel revolution
Traverse Rate:	3547 x .024 = 85.1" per minute traverse



Positive Influences on Stationary Tools

Coolant – Dress Wet

- Use coolant with ample pressure, volume, and filtration whenever possible.
- A stationary tool used with coolant will last longer than a tool used without coolant.

Rigid Tool Holder

- A rigid tool holder will keep vibration to a minimum.
- Vibration in the tool holder will create an inconsistent surface on the grinding wheel and eventually cause the diamond in the tool to crack.

Minimal Infeeds

- Using manufacturer's suggested amounts will allow for maximum tool life.
- Avoid excessive infeeds – excessive infeed creates damaging heat and a tendency to damage the diamond.

Proper Alignment

- Blade and Chisel-type tools require proper alignment to perform correctly and obtain maximum life expectancy.

Troubleshooting Guide

PROBLEM	POSSIBLE CAUSES	SUGGESTED CORRECTION
Chatter	Tool not secure Diamond traversing too slowly Wheel loaded Worn diamond	Remount or check for worn or loose holder Use faster traverse Dress more frequently Rotate tool or replace
Burn	Tool traversing too slowly Poor coolant on part and tool Diamond too flat Diamond too large	Increase traverse rate Increase coolant flow at point of contact Rotate or replace tool Reduce size or try multi-point tool
Scratches	Wheel too rough Coolant	Slow down traverse Check filtration
Diamond lines	Traversing too fast No dwell time	Slow down dress rate Increase sparkout
Inaccuracies in parts	Cam worn Poor mounting Worn tool Tool too tight	Replace temple and follower Check mounting and alignment Check rest and locations for movement Tool is bent. Replace.
Parts too hot	Dressing too slowly Diamond too flat	Increase crossfeed rate Rotate or replace tool
Wheel is loaded	Dressed too infrequently Infeed too light	Dress more often Increase infeed amount
Wheel acts too soft	Overdressing	Reduce infeed rate and slow crossfeed
Wheel doesn't cut	Wheel closed	Increase infeed rate and increase crossfeed
Short diamond life	Vibration Lack of coolant Infeed cycle Poor mounting Hogging	Remove shock from diamond contact area Clean coolant line Reduce excessive infeed Secure tool, do not over-tighten, seat into holder properly Do not exceed recommended infeeds If single-point - rotate tool, use drag angle. If multi-point - must be flush with wheel face, increase from single-point crossfeed rate, break in tool correctly.
Diamond Breakage	Storage Pressure Temperature	Keep protected from shock Reduce heavy infeed Control sudden changes

SINGLE POINT TOOLS

Single Point Tools

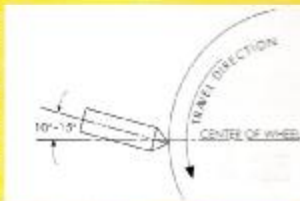
The unparalleled, Norton line of single point tools sets the industry standard for straight and simple form dressing applications. Our extensive offering of numerous, high quality diamond tools includes: resettable and non-resettable products, tools for all abrasive types (conventional and advanced ceramic grains) and the technology-leading Norton "Indexable" tool design.

Wheel Forms Dressed by These Tools



TECHtips

- Rigidly mount Single Point tools at a 10° - 15° angle to the wheel centerline with a line drawn through the center of the wheel, pointing in the direction of wheel travel.
- Point of contact should be slightly below centerline of wheel as shown.
- Use coolant whenever possible.
- Normal infeed is .001" per pass.
- Lead selections range from .002" - .010" per wheel revolution.
- Rotate the tool 1/4 turn periodically to maintain a sharp point.



To optimize applications using SG abrasives and/or tools, normal dressing parameters must change. Reduce infeed by 25%. Significant reductions in the amount of infeed and frequency of dress will result in substantially lower cost per part ground.

Formula for Traverse Rate Calculation

$$\text{WHEEL SPEED (RPM)} \times \text{LEAD/WHEEL REVOLUTION} = \text{TRAVERSE RATE (INCH/MINUTE)}$$

TOOL TYPE	LEAD SELECTION
Single-Point	Coarse Finish = .008-.010 per wheel revolution
	Medium Finish = .005-.007 per wheel revolution
	Fine Finish = .002-.004 per wheel revolution

$$\text{RPM} = \text{SFPM} \div (\text{WHEEL DIAMETER} \times 0.262)$$

- Slower traverse rates result in a closed wheel face and lower surface finish readings on the workpiece.
- Faster traverse rates result in an open wheel face that produces greater stock removal and a rougher workpiece finish.



It is the user's responsibility to refer to and comply with ANSI B7.1

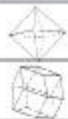
Norton Single Point Diamond Quality Level Designations

Norton adheres to the Industrial Diamond Association's standards for diamond weight tolerances.

QUALITY LEVEL	SETTABLE POINTS	STRUCTURE AND SHAPE	INTEGRITY
AA	Four settable points	Well defined octahedron or dodecahedron	Smooth surfaces, free of cracks, seams or surface imperfections
SG	Three settable points	Well defined dodecahedron with minor surface irregularities	Free of major cracks, may have seams or imperfections
A	Three settable points	Blocky, pointed structure, octahedrons or dodecahedrons, with minor surface irregularities	Free of major cracks, may have seams or imperfections
NS Norton Standard	Two settable points	Blocky structure, octahedrons, or dodecahedrons, with minor surface irregularities	May have cracks, seams or defects away from point
BCSG	One point; non-resettable	One well defined dodecahedron point	May have cracks, seams or defects away from point
BC	One point; non-resettable	Blocky-shaped octahedron with rough surface and irregularities	May have cracks/seams/defects around point. Defects may decrease average tool life

OCTAHEDRON - An 8-sided diamond which can have a maximum of six pyramid-shaped points.

DODECAHEDRON - A 12-sided diamond which can have a maximum of six broader-shaped points.



NORTON

SINGLE POINT TOOLS



Selection Guide

Stock Tools for SG Abrasive Wheels

- SG** Engineered for use on SG and Targa wheels but may also provide significant benefits when used on conventional abrasive products. These tools are furnished with top quality specially selected diamonds.
- BCSG** Economical alternative to an "SG" tool. Best choice when a disposable tool is preferred.

Stock Tools for Conventional Abrasive Wheels

- NS** Engineered for use on conventional abrasives. These high quality, value-priced tools can be used for a variety of dressing applications.
- BC** Economical alternative to an "NS" tool. Best choice when a disposable tool is preferred.

Selecting the Correct Single Point Tool:

- Identify the wheel abrasive type: A/D, S/C or Ceramic (SG)
- Determine the wheel diameter – to select the optimum carat weight
- Determine the tool holder size – to select the appropriate shank diameter

Examples of Single Point Tool Selection

- Wheel Spec: 32A46-IVBE 7" x 1/2" x 1-1/4"
Customer's machine has a 7/16" tool holder
- Tool Selections: Resetaable: NS2M7 or NSUD2 (Indexable)
Non-Resetaable: BC2M7 or BCUD2 (Indexable)
- Wheel Spec: 5SG60-JVS 10" x 1" x 3"
Customer's machine has a 3/8" tool holder
- Tool Selections: Resetaable: SG3M6
Non-Resetaable: BCSG3M6

Stock Single Point Tool Marking System

DIAMOND QUALITY	DIAMOND SIZE	SHANK DESIGN	SHANK DIAMETER
SG	1 = 1/5 (.20) carat	M	6 = 3/8"
NS	2 = 1/4 (.25) carat	J	7 = 7/16"
BCSG	3 = 1/3 (.33) carat		
BC	5 = 1/2 (.50) carat		
	7 = 3/4 (.75) carat		
	10 = 1 carat		

Example:
SG 2 M 6

Single Point Tools for Truing/Dressing SG Abrasives

SG Single Point Tools

FEATURES	BENEFITS
<ul style="list-style-type: none"> Specially selected broad-shaped, diamond Each diamond is hand selected for stone shape, quality and structural integrity Multi-purpose 	<ul style="list-style-type: none"> Withstands the increased grinding pressures of SG abrasive Consistent tool performance Accommodates most straight dressing and simple form dressing applications Stands up to SG (ceramic) abrasive sharpness; can also be used to dress conventional abrasives



BEST Resetaable SG Single Point Tools

- Norton high quality diamond and a proactive resetaing program will result in the lowest dressing cost per part

GOOD Non-resetaable BCSG Single Point Tools

- The best selection when a resetaing program is not feasible or low initial cost is the primary purchasing consideration

WHEEL DIAMETER	TOOL CARAT WEIGHT	TOOL LENGTH	TOOL DIAMETER	BEST		GOOD	
				PRODUCT NO.	3 SETTABLE PTS (2 RESETS) UPC NO.	PRODUCT NO.	NON-RESETTABLE UPC NO.
UP TO 7"	1/4 (.25)	2"	3/8"	SG2M6	66260195365	BCSG2M6	66260157007
			7/16"	SG2M7	66260195366	BCSG2M7	66260156905
8" TO 10"	1/3 (.33)	2"	3/8"	SG3M6	66260195367	BCSG3M6	66260157008
			7/16"	SG3M7	66260195368	BCSG3M7	66260156906
11" TO 14"	1/2 (.50)	2"	3/8"	SG5M6	66260195369	BCSG5M6	66260157009
			7/16"	SG5M7	66260195370	BCSG5M7	66260156907
15" TO 20"	3/4 (.75)	2"	3/8"	SG7M6	66260195371	BCSG7M7	66260156908
			7/16"	SG7M7	66260195372		
21"+	1 (1.00)	2"	7/16"			BCSG10M7	66260157010

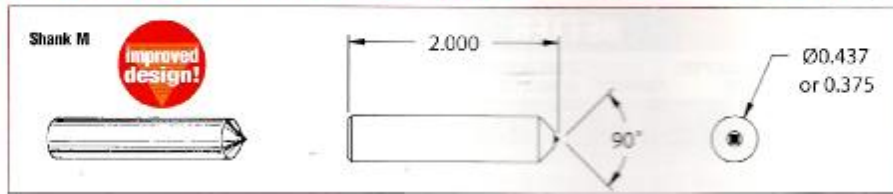
NON-STOCK SG RESETTABLE SINGLE POINT TOOLS ARE ALSO AVAILABLE.
STANDARD PACKAGE = 1 TOOL

www.nortonabrasives.com



SINGLE POINT TOOLS

Single Point Tools for Truing/Dressing SG Abrasives (CONTINUED)



Single Point Tools for Truing/Dressing Conventional Abrasives

Conventional Single Point Tools

FEATURE	BENEFIT
• Consistent diamond structure and shape	• Repeatable dressing performance
• Well defined, sharp diamond point	• Durable; maximum cost effectiveness for dressing conventional abrasives



BETTER Resettable NS (Norton Standard) Single Point Tools

- High quality diamonds, value priced
- Selection of the correct tool and a proactive resetting program will result in the lowest dressing cost per part

GOOD Non-resettable BC Single Point Tools

- The best selection when a resetting program is not feasible or low initial cost is the primary purchasing consideration

SPECcheck

Determining the Best Value

- Remember that diamonds are a rare commodity—the larger the stone and the better the quality, the higher the initial cost. The key to successful diamond tool productivity and use is based on the "cost per dress." Normally, higher quality diamonds and a proactive resetting program will result in the lowest "cost per dress."
- In those situations where a resetting program is not feasible or low initial cost is the primary purchasing consideration, Norton offers a complete line of non-resettable tools.

Stock Single Point Tool Marking System

DIAMOND QUALITY	DIAMOND SIZE	SHANK DESIGN	SHANK DIAMETER
NS	1 = 1/5 (.20) carat	M	6 = 3/8"
BC	2 = 1/4 (.25) carat	J	7 = 7/16"
	3 = 1/3 (.33) carat		
	5 = 1/2 (.50) carat		
	7 = 3/4 (.75) carat		
	10 = 1 carat		

Example:
NS 2 M 6

Non-Stock Single Point Tool Marking System

TOOL TYPE	DIAMOND SIZE	DIAMOND QUALITY	SHANK DESIGN	SHANK DIAMETER
SP	1 = 1/5 (.20) carat	AA	M	6 = 3/8"
	2 = 1/4 (.25) carat	A	J	7 = 7/16"
	3 = 1/3 (.33) carat	NS		
	5 = 1/2 (.50) carat	BC		
	7 = 3/4 (.75) carat			
	10 = 1 carat			

Example:
SP 5 A M 7

Shank J



Shank M



Please contact Customer Service at 1-828-684-2500 for all your non-stock, custom configuration questions, requests for quotes, etc.



SINGLE POINT TOOLS

SINGLE POINT TOOLS

Single Point Tools for Truing/Dressing Conventional Abrasives (CONTINUED)

WHEEL DIAMETER	TOOL CARAT WEIGHT	TOOL DIAMETER	BEST		BETTER		BETTER		GOOD	
			PRODUCT NO.	4 SETTABLE PTS (3 RESETS) UPC NO.	PRODUCT NO.	3 SETTABLE PTS (2 RESETS) UPC NO.	PRODUCT NO.	2 SETTABLE PTS (1 RESET) UPC NO.	PRODUCT NO.	NON-RESETTING UPC NO.
Stock Single Point Tools for Truing/Dressing Conventional Abrasives										
INTERNAL WHEEL	1/5 (.20)	3/8" 7/16"							BC1M6 BC1M7	66260195021 66260195022
UP TO 7"	1/4 (.25)	3/8" 7/16"					NS2M6 NS2M7	66260195116 66260195117	BC2M6 BC2M7	66260195000 66260195001
8" TO 10"	1/3 (.33)	3/8" 7/16"					NS3M6 NS3M7	66260195121 66260195122	BC3M6 BC3M7	66260195002 66260195003
11" TO 14"	1/2 (.50)	3/8" 7/16"					NS5M6 NS5M7	66260195126 66260195127	BC5M6 BC5M7	66260195004 66260195005
15" TO 20"	3/4 (.75)	3/8" 7/16"					NS7M6 NS7M7	66260195131 66260195132	BC7M6 BC7M7	66260195006 66260195007
21" +	1 (1.00)	3/8" 7/16" 7/16"					NS10M6 NS10M7 NS10J *	66260195136 66260195137 66260195135	BC10M6 BC10M7	66260195008 66260195009

Non-Stock Single Point Tools for Truing/Dressing Conventional Abrasives

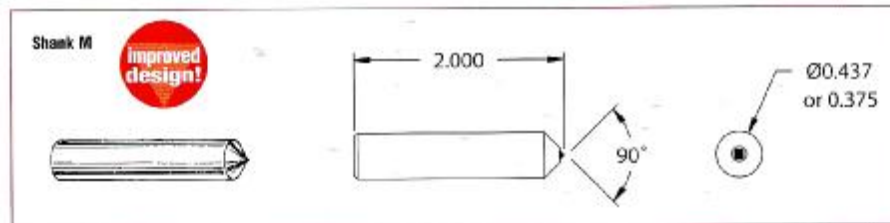
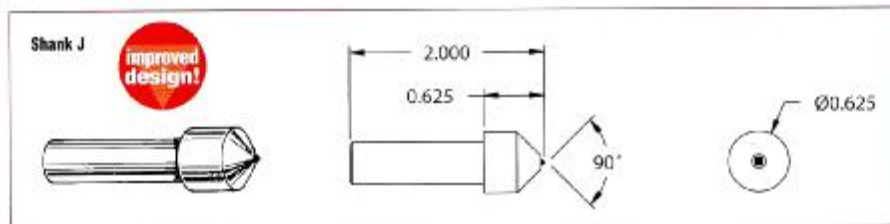
INTERNAL WHEELS	1/5 (.20)	3/8" 7/16"	SP1AAM6 SP1AAM7	66260195990 66260195991	SP1AM6 SP1AM7	66260196014 66260196015				
UP TO 7"	1/4 (.25)	3/8" 7/16"	SP2AAM6 SP2AAM7	66260195994 66260195995	SP2AM6 SP2AM7	66260196018 66260196019				
8" TO 10"	1/3 (.33)	3/8" 7/16"	SP3AAM6 SP3AAM7	66260195996 66260195999	SP3AM6 SP3AM7	66260196022 66260196023				
11" TO 14"	1/2 (.50)	3/8" 7/16"	SP5AAM6 SP5AAM7	66260196002 66260196003	SP5AM6 SP5AM7	66260196026 66260196027				
15" TO 20"	3/4 (.75)	3/8" 7/16"	SP7AAM6 SP7AAM7	66260196006 66260196007	SP7AM6 SP7AM7	66260145772 66260145778				
21" +	1 (1.00)	3/8" 7/16"	SP10AAM6 SP10AAM7	66260160468 66260196011	SP10AM6 SP10AM7	66260196034 66260196035				

NON-STOCK AA AND A DIAMOND QUALITY LEVEL RESETTABLE PRODUCTS ARE TYPICALLY USED FOR PRECISION APPLICATIONS.

ADDITIONAL NON-STOCK AVAILABILITY:

- NON-STOCK TOOLS WITH A J SHANK
- * J-SHANK TOOLS ARE AVAILABLE IN 7/16" DIAMETER WITH A 5/8" HEAD
- LARGER CARAT WEIGHT DIAMONDS

STANDARD PACKAGE = ONE TOOL



Please contact Customer Service at 1-828-684-2500 for all your non-stock, custom configuration questions, requests for quotes, etc.

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SINGLE POINT TOOLS

Indexable Single Point Tools

Indexable tools are specifically designed to alleviate any misalignment issues and are the tool of choice for CNC grinders. They feature a two-part construction with the head and shank as separate pieces. After the initial installation, operators simply turn the indexable head with a wrench, while the tool shank remains secure (and aligned) in the tool holder.

Indexable Single Point Tools

FEATURE	BENEFIT
<ul style="list-style-type: none"> Easily turned without removing tool from the holder 	<ul style="list-style-type: none"> Easier for operators to turn than conventional tools – increasing frequency of beneficial tool turning Extended life; less downtime and increased productivity
<ul style="list-style-type: none"> IMPROVED - U-Dex-It and Mini-Dex tools now have a 60° included angle head design versus the former 120° angle design 	<ul style="list-style-type: none"> Provides additional form versatility through machine and part clearance Excellent choice for regulating wheels



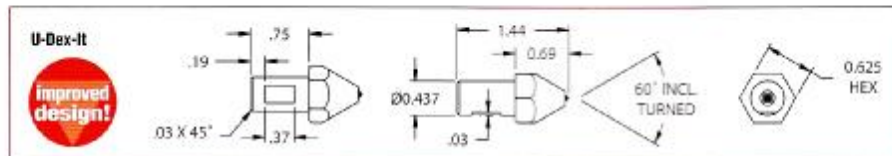
Indexable Single Point Tools for Truing/Dressing SG (Ceramic) Abrasives

GOOD Non-resettable BCSGUD U-Dex-It Indexable Single Point Tools

- These U-Dex-It tools contain specially selected diamonds to withstand increased ceramic grinding pressures
- Ideal for centerless grinders; the head can be turned, using standard 5/8" wrench, through the hole in the side of the wheel guard without removing the guard
- The best selection when a resetting program is not feasible or low initial cost is the primary purchasing consideration

WHEEL DIAMETER	TOOL CARAT WEIGHT	TOOL SIZE	PRODUCT NO.	NON-RESETTING UPC NO.
UP TO 7"	1/4 (.25)	7/16" X 1-7/16" WITH 5/8" HEAD	BCSGUD2	66260162669
8" TO 10"	1/3 (.33)	7/16" X 1-7/16" WITH 5/8" HEAD	BCSGUD3	66260162668
11" TO 14"	1/2 (.50)	7/16" X 1-7/16" WITH 5/8" HEAD	BCSGUD5	66260159894

STANDARD PACKAGE = ONE TOOL



Indexable Single Point Tools for Truing/Dressing Conventional Abrasives

BETTER Resettable Norton Standard NSUD U-Dex-It Indexable Single Point Tools

- High quality diamonds, value priced
- Ideal for centerless grinders; the head can be turned, using standard 5/8" wrench, through the hole in the side of the wheel guard without removing the guard
- Selection of the correct tool and a proactive resetting program will usually result in the lowest dressing cost per part

BETTER Resettable Norton Standard NSMD Mini-Dex Indexable Single Point Tools

- High quality diamonds, value priced
- Use a standard 7/16" wrench to turn; designed for internal, bearing race and twist drill flute machines
- Selection of the correct tool and a proactive resetting program will usually result in the lowest dressing cost per part

GOOD Non-resettable BCUD U-Dex-It Indexable Single Point Tools

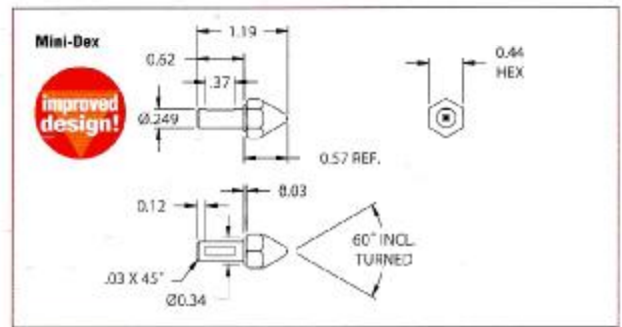
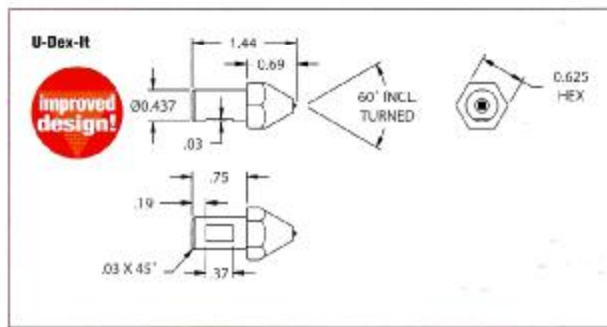
- Ideal for centerless grinders; the head can be turned, using standard 5/8" wrench, through the hole in the side of the wheel guard without removing the guard
- The best selection when a resetting program is not feasible or low initial cost is the primary purchasing consideration

SINGLE POINT TOOLS

Indexable Single Point Tools for Truing/Dressing Conventional Abrasives (CONTINUED)

WHEEL DIAMETER	TOOL CARAT WEIGHT	TOOL SIZE	BETTER		GOOD	
			PRODUCT NO.	2 SETTABLE PTS (1 RESET) UPC NO.	PRODUCT NO.	NON-RESETTABLE UPC NO.
Stock Indexable Single Point Tools for Truing/Dressing Conventional Abrasives						
UP TO 7"	1/4 (.25)	7/16" X 1-7/16" WITH 5/8" HEAD 1/4" X 1-3/16" WITH 7/16" HEAD	NSUD2 NSMD2	66260195161 66260195171	BCUD2	66260195023
8" TO 10"	1/3 (.33)	7/16" X 1-7/16" WITH 5/8" HEAD 1/4" X 1-3/16" WITH 7/16" HEAD	NSUD3 NSMD3	66260195162 66260195172	BCUD3	66260195024
11" TO 14"	1/2 (.50)	7/16" X 1-7/16" WITH 5/8" HEAD 1/4" X 1-3/16" WITH 7/16" HEAD	NSUD5 NSMD5	66260195163 66260195173	BCUD5	66260195025
15" TO 20"	3/4 (.75)	7/16" X 1-7/16" WITH 5/8" HEAD	NSUD7	66260195164		
21" +	1 (1.00)	7/16" X 1-7/16" WITH 5/8" HEAD	NSUD10	66260195165		

STANDARD PACKAGE = ONE TOOL



Internal Grinding Tools

BEST Resetable Internal Grinding Tools

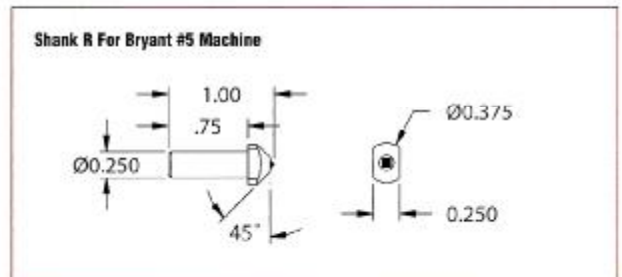
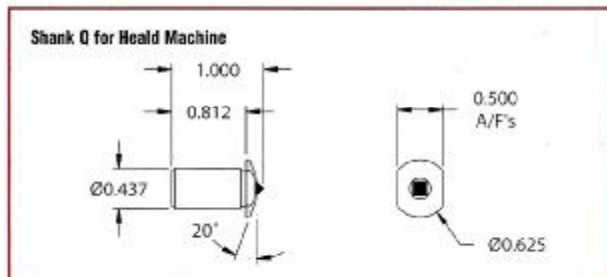
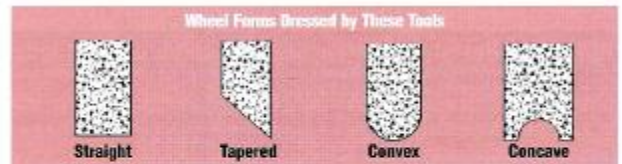
- Q style shank is used on a Heald internal grinder (resettable).
- R style shank is used on a Bryant #5 internal grinder (resettable).



BEST

MACHINE TYPE	CARAT WEIGHT	SHANK DIAMETER	TOOL LENGTH	PRODUCT NO.	2 SETTABLE PTS (1 RESET) UPC NO.
Stock Internal Grinding Tools					
HEALD	1/5 (.20)	7/16"	1"	NI21Q7	66260195180
BRYANT	1/5 (.20)	1/4"	1"	NI21R4	66260195181

STANDARD PACKAGE = 1 TOOL



SINGLE POINT TOOLS

Thread Grinding Tools

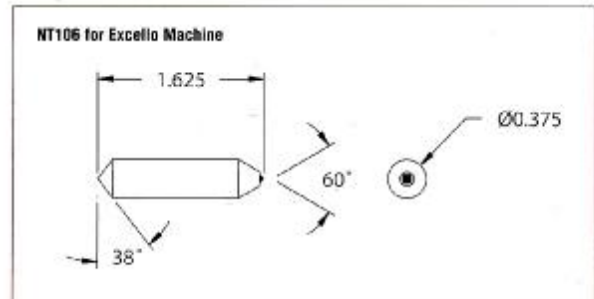
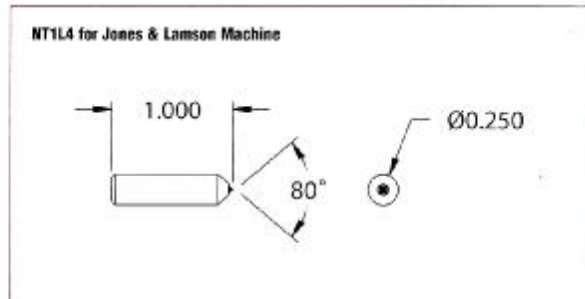
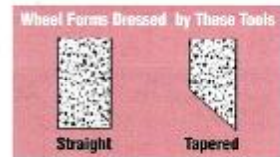
BEST Resettable SG Thread Grinding Tools

- These wheels are used on J & L and Excello thread grinding machines to accurately dress the grinding wheels that form the desired thread configuration (non-resettable).



					BEST	
MACHINE TYPE	SHANK DIAMETER	TOOL LENGTH	INCLUDED ANGLE	MAX RADIUS ON POINT	PRODUCT NO.	NON-RESETTABLE UPC NO.
Stock Thread Grinding Tools						
J & L	1/4"	1"	80°	.010"	NT1L4	66260195187
EXCELLO	3/8"	1-5/8"	60°	.010"	NT106	66260195190
Non-Stock Thread Grinding Tools						
J & L	1/4"	1"	80°	.010"	NX-57475	66260195185
EXCELLO	3/8"	1-5/8"	60°	.010"	48-4105	66260195160

STANDARD PACKAGE = 1 TOOL



Please contact Customer Service at 1-828-684-2500 for all your non-stock, custom configuration questions, requests for quotes, etc.



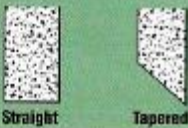
MULTI-POINT (GRIT) TOOLS

MULTI-POINT (GRIT) TOOLS

Multi-Point Tools

Since Norton conventional and high-performance Multi-Point tools never need turning or resetting, they are the most economical way to accomplish a variety of straight, tapered and step dressing operations on all sizes of cylindrical, centerless, surface and toolroom grinding wheel applications.

Wheel Forms Dressed by These Tools



Norton Multi-Point Tools

FEATURES

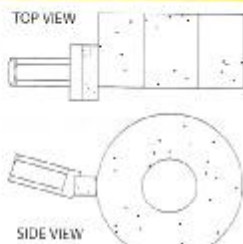
- Uniformly distributed diamonds in a tough, durable matrix
- Fresh, multiple diamond points exposed in truing operation; no turning or resetting required
- Overall diamond weight exceeds equivalent single point tool

BENEFITS

- Consistent performance throughout tool life
- Faster, more consistent straight face dressing with maximum efficiency and longer tool life than single point tools
- The most economical way to dress straight and tapered forms

TECHtips

- Multi-Point Tools – Straight Face Dressing and Truing
- Most multi-point tools are used for straight face dressing.
- Tool should have full face contact with the wheel.
- With new tool, 3-5 passes at .005" per pass should be taken to expose diamonds.
- Infeed per pass .001" - .002"
- Use coolant whenever possible.
- Use appropriate lead (and traverse rate).
- Contact Norton for proper tool selection for Targa wheels.



Formula for Traverse Rate Calculation

$$\text{WHEEL SPEED (RPM)} \times \text{LEAD/WHEEL REV.} = \text{TRAVERSE RATE (INCH/MINUTE)}$$

$$\text{RPM} = \text{SFPM} \div (\text{WHEEL DIAMETER} \times 0.262)$$

TOOL TYPE	LEAD SELECTION
Multi-Point Tools	Coarse Finish = .023 - .030 per wheel revolution
	Medium Finish = .013 - .022 per wheel revolution
	Fine Finish = .006 - .012 per wheel revolution

- Slower traverse rates result in a closed wheel face that produces less stock removal and improved workpiece finish.
- Faster traverse rates result in an open wheel face that produces greater stock removal and a rougher workpiece finish.

! It is the user's responsibility to refer to and comply with ANSI B7.1

12

SPECcheck

Selecting the Correct Multi-Point Tool

- Identify the wheel abrasive type: SG, A/O, or S/C
- Determine the wheel diameter and grit size
- Determine the tool's approach angle to the centerline of the wheel
- Identify the tool holder diameter
- Use 1E shape for angular wheel slide, cylindrical grinding and for shoulder or step truing

Examples of Multi-Point Tool Selection

Conventional Wheel Spec: 32A46-IVBE 7" x 1/2" x 1-1/4"
 Customer's machine has a 3/8" tool holder
 Tool Selection: 1R6J6

SG Wheel Spec: 5SG60-JVS 10" x 1" x 3"
 Customer's machine has a 7/16" tool holder
 Tool Selections: SG1R6J7

MULTI-POINT (GRIT) TOOLS

SPECcheck



Multi-Point Tool Diamond Section Specifications

SHAPE	WIDTH	LENGTH	DEPTH	TOOL APPROACH ANGLE TO WHEEL	FOR WHEEL DIAMETER
1A	1/4"	3/4"	5/16"	0°	Over 20"
2A	1/4"	1/2"	3/8"	0°	15" - 20"
3A	5/32"	3/8"	1/4"	0°	Over 20"
1E	5/32"	3/8"	5/16"	-	
2E	1/4"	1/2"	1/2"	-	20" x 2" and up
1R	1/4" Round		1/4"	0°	Up to 10"
2R	3/8" Round		3/8"	0°	11" - 14"



A Shape is used primarily for straight face dressing.

E Shape (double angle top face) is used for standard N-Face wheels, angular wheels, face and side truing of cylindrical wheels, and in step dressing.

R Shape is used for straight face dressing where the tool holder is perpendicular to the wheel face (no drag angle), and on thread grinding machines.

Multi-Point Tool Marking System

DIAMOND SHAPE	TOOL DIAMOND SIZE	TO DRESS GRINDING WHEELS WITH GRIT SIZE OF:	SHANK DESIGN	SHANK DIAMETER
1A	4	= 46 grit	See Page 15 for shank configuration	6 = 3/8"
2A	6	= 54 - 100 grit		7 = 7/16"
3A	8	= 120 - 150 grit	configuration	8 = 1/2"
1E	12	= 150+ grit		
2E	14	= Special Applications		
1R				
2R				

Example:

1A 6 A 7

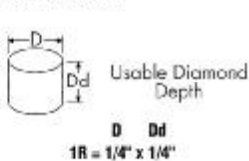
Multi-Point Tools for Truing/Dressing SG Abrasives

Tool Shape and Shank Availability

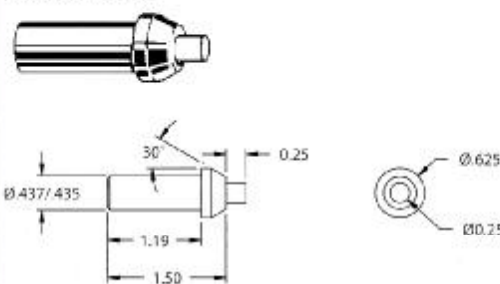
SG1R

For general purpose dressing of toolroom, cylindrical and surface grinding wheels up to 10" in diameter.

Diamond Section



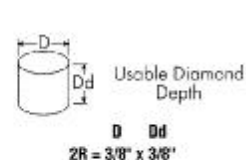
Shape SG1R Shank J



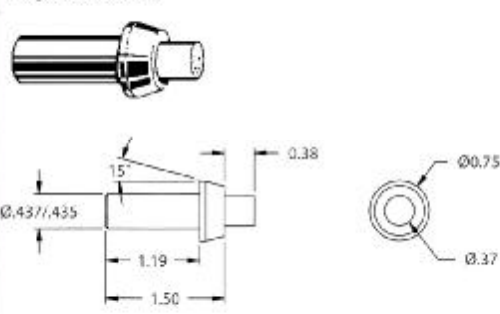
SG2R

For use on cylindrical, centerless, and surface grinding wheels 11" to 14" in diameter.

Diamond Section



Shape SG2R, Shank K



TECHtips

To optimize applications using Norton SG abrasives/tools, normal dressing parameters must change. Significant reductions in the amount of infeed and frequency of dress will result in significantly lower cost per part ground.

While all Norton SG tools have been designed to improve the efficiency of Norton SG grinding applications, they can also offer significant benefits in many applications using conventional abrasives.

When first using a Norton SG tool, make 3 to 5 passes at .005" infeed to ensure full face contact between the dressing tool and wheel face.

Reduce normal dressing infeed by half. Do not exceed infeed of .002" per pass.

The lead selection should be between .006"-.030" per wheel revolution. Faster traverse with Norton SG generally provides an open wheel face that can maximize productivity of the Norton SG abrasive.

NORTON

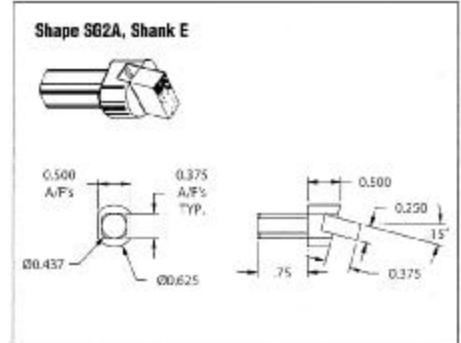
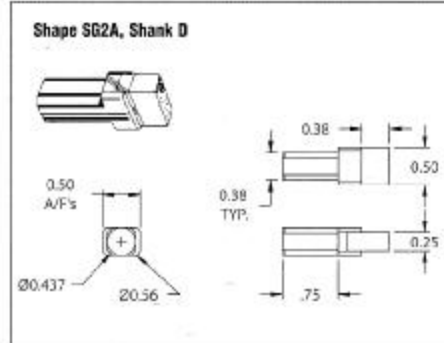
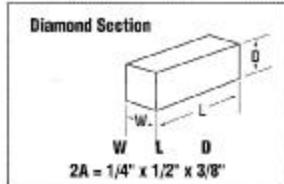
MULTI-POINT (GRIT) TOOLS

Multi-Point Tools for Truing/Dressing SG Abrasives (CONTINUED)

Tool Shape and Shank Availability (CONTINUED)

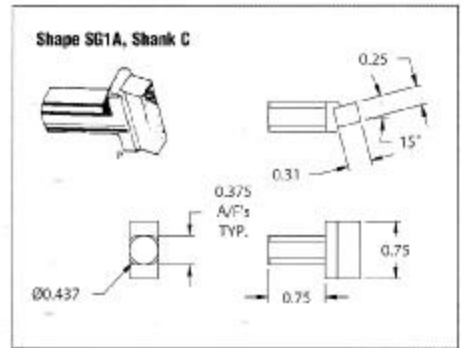
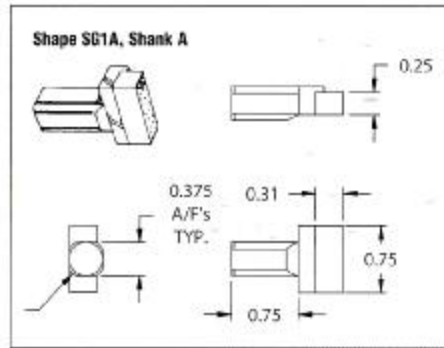
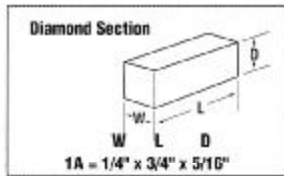
SG2A

For use on 15" to 20" diameter cylindrical, surface or centerless grinding wheels.



SG1A

For use on cylindrical, centerless and surface grinding wheels over 20" in diameter.



BEST SG Multi-Point Tools

- Designed specifically for use on SG (ceramic) abrasives, SG tools contain a higher diamond concentration to withstand the increased grinding pressures generated by the SG abrasive. These tools have improved life and dress quality; they can also offer significant benefits in many applications using conventional abrasives.

WHEEL DIAMETER	WHEEL GRIT SIZE	TOOL APPROACH ANGLE	TOOL DIAMETER	SG ABRASIVES PRODUCT NO.	UPC NO.
Stock Multi-Point Tools for Truing/Dressing SG Abrasives					
UP TO 10"	54 TO 100	0°	7/16"	SG1R6J7	66260195377
11" TO 14"	54 TO 100	0°	7/16"	SG2R6K7	66260195378
15" TO 20"	54 TO 100	0°	7/16"	SG2A6D7	66260195375
		15°	7/16"	SG2A6E7	66260195376
21" +	54 TO 100	0°	7/16"	SG1A6A7	66260195373
		15°	7/16"	SG1A6C7	66260195374

STANDARD PACKAGE = ONE TOOL



Please contact Customer Service at 1-828-684-2500 for all your non-stock, custom configuration questions, requests for quotes, etc.

MULTI-POINT (GRIT) TOOLS

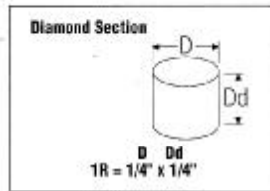
Multi-Point Tools for Truing and Straight Dressing Conventional Abrasives

Tool Shape and Shank Availability

1R

For general purpose dressing of toolroom, cylindrical and surface grinding wheels up to 10" in diameter.

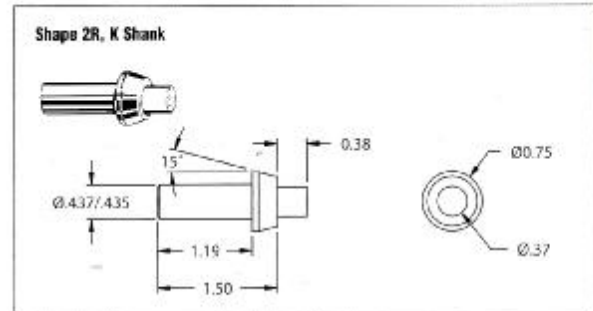
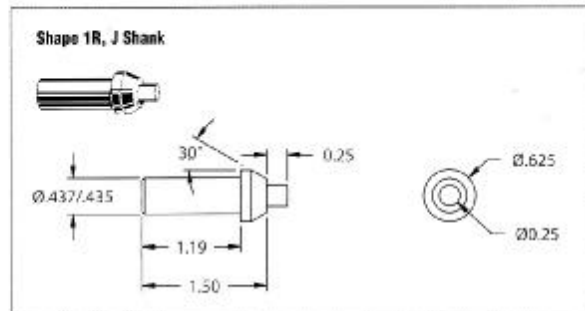
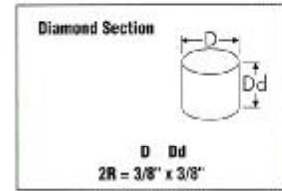
Diamond Size Availability:
6, 8



2R

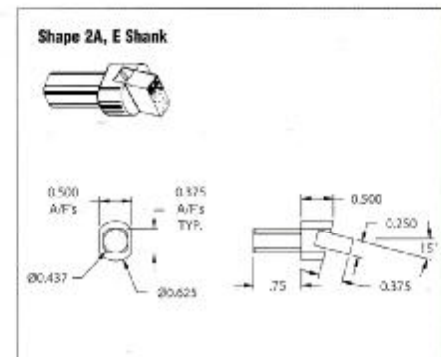
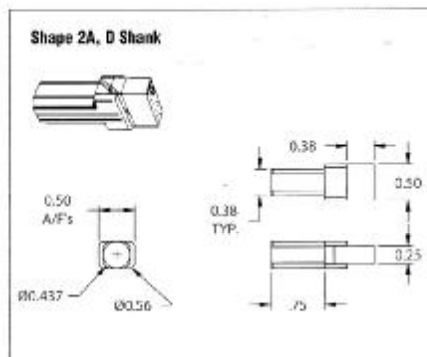
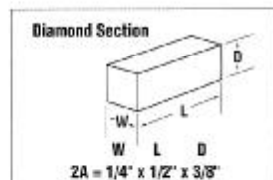
For use on cylindrical, centerless and surface grinding wheels 11" to 14" in diameter.

Diamond Size Availability: 4, 6, 8



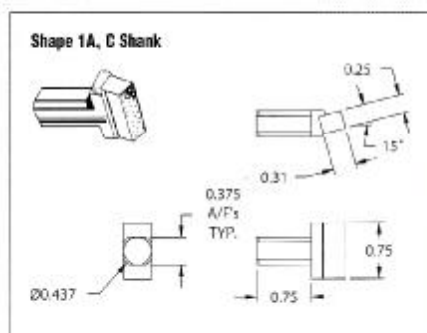
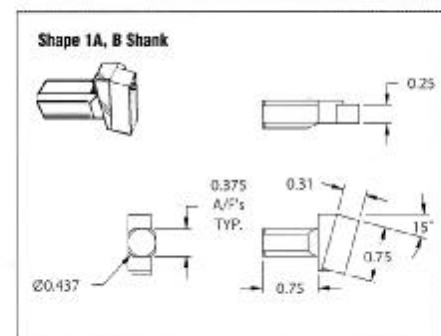
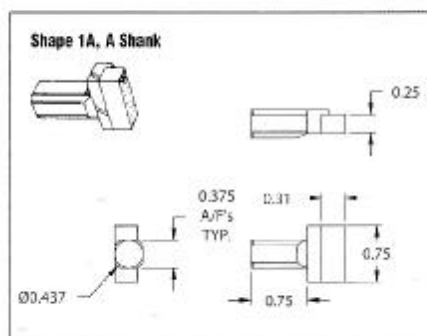
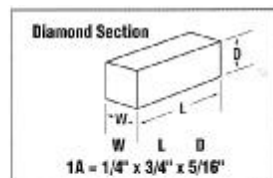
2A

For use on 15" to 20" cylindrical, surface and centerless wheels. **Diamond Size Availability:** 4, 6, 8



1A

For use on cylindrical and surface grinding wheels over 20" in diameter. **Diamond Size Availability:** 4, 6, 8



Diamond Size Key

Diamond Size	To Dress Wheel with Grit Size of:
4	46
6	54 - 100
8	120 - 150



MULTI-POINT (GRIT) TOOLS

Multi-Point Tools for Truing and Straight Dressing Conventional Abrasives (CONTINUED)

BETTER Standard Multi-Point Tools

- The best selection for use on conventional abrasives in high-production applications

WHEEL DIAMETER	WHEEL GRIT SIZE	TOOL APPROACH ANGLE	TOOL DIAMETER	PRODUCT NO.	UPC NO.
Stock Multi-Point Tools for Straight Dressing Conventional Abrasives					
UP TO 10"	54 TO 100	0°	7/16"	1R6J7	66260195068
		0°	3/8"	1R6J6	66260195085
11" TO 14"	46	0°	7/16"	2R4K7	66260195095
	54 TO 100	0°	7/16"	2R6K7	66260195096
	120 TO 150	0°	7/16"	2R8K7	66260195097
15" TO 20"	46	0°	7/16"	2A4D7	66260195045
		15°	7/16"	2A4E7	66260195048
	54 TO 100	0°	7/16"	2A6D7	66260195046
		15°	7/16"	2A6E7	66260195049
	120 TO 150	0°	7/16"	2A8D7	66260195047
		15°	7/16"	2A8E7	66260195050
21" +	46	0°	7/16"	1A4A7	66260195030
		15°	7/16"	1A4C7	66260195038
	54 TO 100	0°	7/16"	1A6A7	66260195031
		15°	7/16"	1A6B7	66260195035
		15°	7/16"	1A6C7	66260195039
		15°	7/16"	1A6C7	66260195039
Non-Stock Multi-Point Tools for Straight Dressing Conventional Abrasives					
UP TO 10"	120 TO 150	0°	7/16"	1R8J7	66260195089
		0°	3/8"	1R8J6	66260195086
21" +	46	15°	7/16"	1A4B7	66260195034
		0°	7/16"	1A8A7	66260195032
	120 TO 150	15°	7/16"	1A8B7	66260195036
		15°	7/16"	1A8C7	66260195072

STANDARD PACKAGE = ONE TOOL



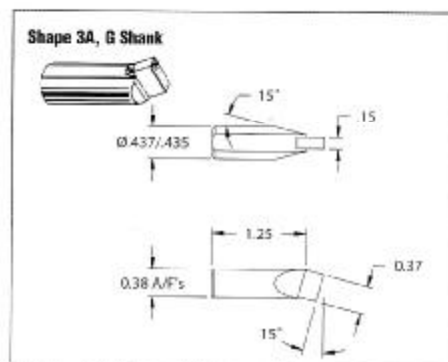
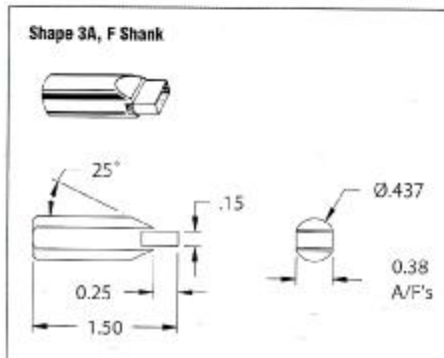
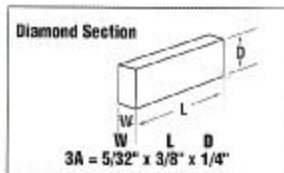
Specialty Multi-Point Tools for Dressing Conventional Abrasives

Tool Shape and Shank Availability

3A

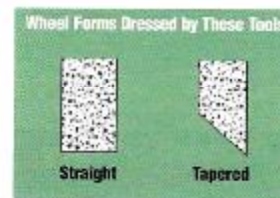
For use on all types of grinders where form, shape or step truing is required.

Diamond Size Availability:
6, 8



WHEEL DIAMETER	WHEEL GRIT SIZE	TOOL APPROACH ANGLE	TOOL DIAMETER	PRODUCT NO.	UPC NO.
Stock Specialty Multi-Point Tools for Conventional Abrasives					
ALL	54 TO 100	0°	7/16"	3A6F7	66260195055
		15°	7/16"	3A6G7	66260195975
	120 TO 150	15°	7/16"	3A8G7	66260195058
Non-Stock Specialty Multi-Point Tools for Conventional Abrasives					
	120 TO 150	0°	7/16"	3A8F7	66260195056

STANDARD PACKAGE = ONE TOOL



www.nortonabrasives.com

MULTI-POINT (GRIT) TOOLS

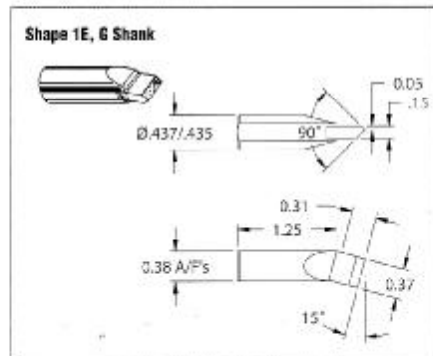
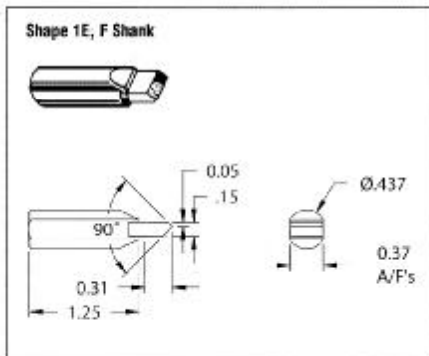
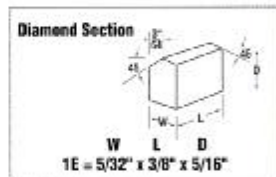
Multi-Point Tools for Angular Dressing Conventional Abrasives (CONTINUED)

Tool Shape and Shank Availability

1E

For use on angular grinding machines with wheels up to 24" in diameter.

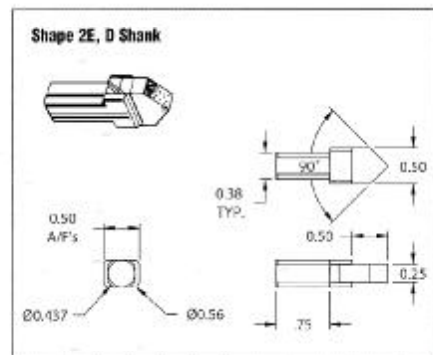
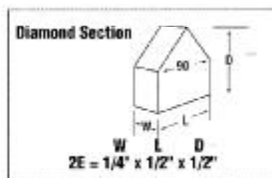
Diamond Size Availability: 6



2E

For use on angular grinding machines, with wheels up to 30" in diameter.

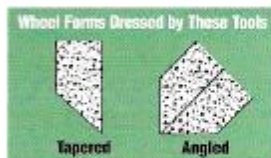
Diamond Size Availability: 6



BETTER					
WHEEL DIAMETER	WHEEL GRIT SIZE	TOOL APPROACH ANGLE	TOOL DIAMETER	PRODUCT NO.	UPC NO.
Stock Multi-Point Tools for Angular Dressing Conventional Abrasives					
ALL	54 TO 100	0°	7/16"	1E6F7	66260195080
Non-Stock Multi-Point Tools for Angular Dressing Conventional Abrasives					
ALL	54 TO 100	15°	7/16"	1E6G7	66260195081
		0°	7/16"	2E6D7	66260195083

STANDARD PACKAGE = ONE TOOL

Please contact Customer Service at 1-828-684-2500 for all your non-stock, custom configuration questions, requests for quotes, etc.



Diamond Size Key	
Diamond Size	To Dress Wheel with Grit Size of:
4	46
6	54 - 100
8	120 - 150



MULTI-POINT (GRIT) TOOLS

MULTI-POINT (GRIT) TOOLS

Multi-Point Tools for Truing/Dressing Toolroom Abrasives

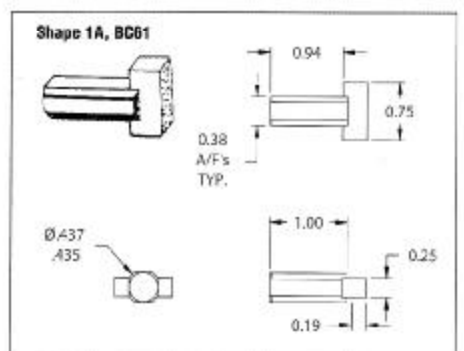
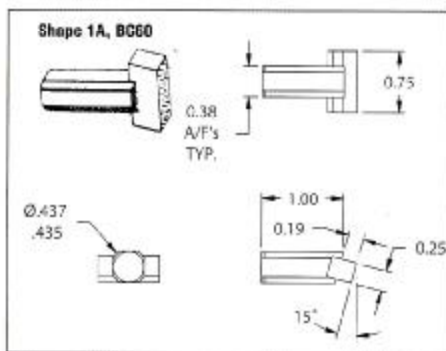
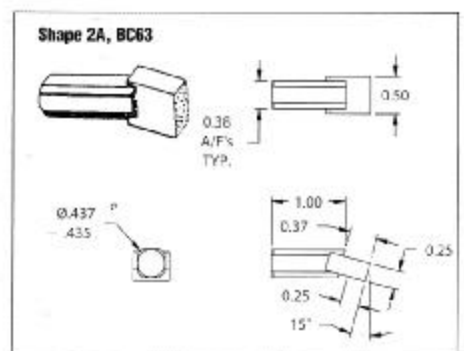
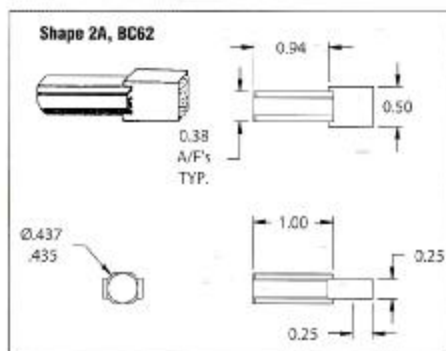
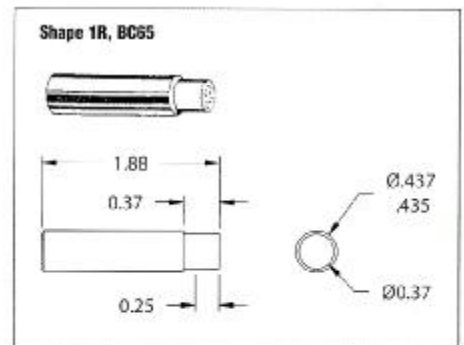
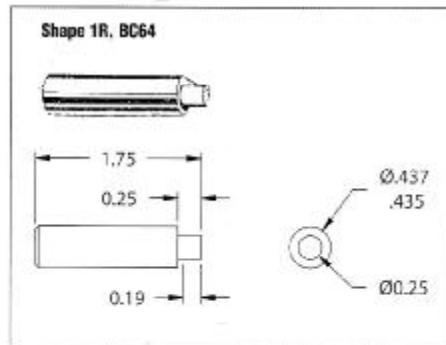
Tool Shape and Shank Availability

BC

All "BC" Multi-Point tools contain a specially selected diamond size for a broad range of dressing applications.



Refer to previous pages for each tool shape's application details.



GOOD BC Multi-Point Tools

- General purpose tools are the ideal selection for conventional toolroom applications

GOOD

WHEEL DIAMETER	WHEEL GRIT SIZE	TOOL APPROACH ANGLE	TOOL DIAMETER	PRODUCT NO.	UPC NO.
UP TO 10"	54 TO 100	0°	7/16"	BC64	66260195014
11" TO 14"	54 TO 100	0°	7/16"	BC65	66260195015
15" TO 20"	54 TO 100	0°	7/16"	BC62	66260195012
		15°	7/16"	BC63	66260195013
21" +	54 TO 100	0°	7/16"	BC61	66260195011
		15°	7/16"	BC60	66260195010

STANDARD PACKAGE = ONE TOOL

Please contact Customer Service at 1-828-684-2500 for all your non-stock, custom configuration questions, requests for quotes, etc.

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MULTI-POINT (GRIT) TOOLS

High Performance Grit Tools

Norton High Performance Grit Tools are used in the same manner as multi-point tools, but are designed to produce a superior finish. They are used on 120 - 150 grit wheels. The traverse rates are equal to or faster than ordinary tools. Mounted on standard shanks, standard High Performance Grit Tools have a 3/8" wide by .100" thick diamond impregnated blade with a greater number of sharp points than in ordinary multi-point tools.

Since High Performance Grit Tools contain a higher concentration of diamond than found in standard multi-point tools, they are well suited for Norton SG (ceramic) applications.

Typical Machines and Applications

- Large angle-head cylindrical machines, grinding shoulders, faces and bearing diameters
- Cylindrical machines used for grinding main bearings and lobes on camshafts
- Centerless machines that plunge grind on multi-diameter shafts
- Centerless machines used for step grinding

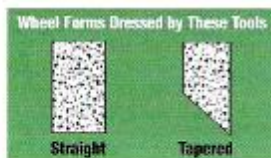
Standard High Performance Grit Tool Shapes

HP4439
HP4439 is designed for cylindrical machines, grinding thrust walls, bearing diameters, and multi-diameter shafts with radii. Shank length is 1-1/4" with 15° angle.

HP4511
HP4511 is designed for angular machines that plunge grind on multi-diameter shafts, or plunge grind on dual-wheel form grinding jobs. Shank length is 1-1/4". Tool should be mounted perpendicular to the wheel face.

HP4595
HP4595 is designed for cylindrical machines used for grinding main bearing and lobes on camshafts. Shank length is 1-1/4". Tool should be mounted perpendicular to the wheel face.

HP4596
HP4596 is designed for centerless machines used for step grinding, and for machines which perform dual-wheel grinding on transmission shafts. Shank length is 1-1/4" with 15° drag angle.



WHEEL DIAMETER	WHEEL GRIT SIZE	SHANK DIAMETER	TOOL LENGTH	BEST	
				PRODUCT NO.	UPC NO.
UP TO 20"	120 TO 150	7/16"	1-9/16"	HP4439	66260195270
UP TO 20"	120 TO 150	7/16"	1-9/16"	HP4511	66260195271
UP TO 20"	120 TO 150	7/16"	1-9/16"	HP4595	66260195272
UP TO 20"	120 TO 150	7/16"	1-9/16"	HP4596	66260195273

STANDARD PACKAGE = ONE TOOL



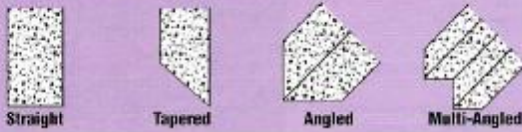
BLADE TOOLS

BLADE TOOLS

Blade Tools

With the choice of natural and synthetic diamond in three performance/price tiers, Norton blade tools can meet all your angle, step and radius dressing requirements for cylindrical, surface and centerless grinding.

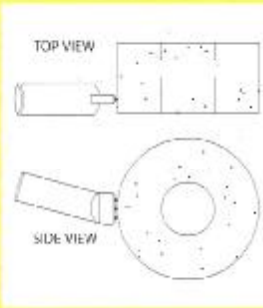
Wheel Forms Dressed by These Tools



TECHtips

Mounting Blade Tools

- Blade Tools should be mounted with the centerline of the wheel. The tool is mounted so that all the diamonds are perpendicular to the wheel face. This illustrates the proper dressing position and angle for common centerless and cylindrical applications.
- Mounted with a 15° post holder, the shank of the tool is at a 15° angle with the wheel centerline.
- On straight applications, the tool is mounted perpendicular to the wheel face with no drag angle.



How to Use Blade Tools

- Mount the tool on a flat, so that the tool is square in the holder. Tools that are offset will cause the form to cut wide.
- Mount the tool so that all the diamonds are vertical to the wheel face.
- When using a layer tool, the tool may become dull between layers. Four or five heavy infeed passes at .002" to .004" will correct this situation.
- Blade Tools are not resettable and should not be rotated.
- Use a 3/8" stream of coolant at the point of contact ensuring that both sides of the diamond section are protected.
- Use appropriate truing lead.
- Whenever mounting a new grinding wheel, make certain that the truing system is fully retracted.



It is the user's responsibility to refer to and comply with ANSI B7.1

BEST USB (Uniform Synthetic Blade) Blade Tools

- Synthetic diamond with a controlled diamond shape provides a constant cross section of diamond to the wheel throughout the life of the tool
- Provides consistent wheel conditioning from the first dress to last
- Ideal for close tolerance wheel dressing on manual and CNC grinders, long production runs, and critical form and finish applications (e.g. automotive cam, crank and valve grinding)
- Economical, long-lasting alternative to chisel-type tools for centerless form grinding
- The best choice to lower your overall dressing cost per part

BETTER Multi-Cut Blade Tools

- Manufactured with "top quality" elongated-shaped natural diamond
- The best choice when natural diamond is preferred on surface, cylindrical and centerless grinders
- Durable performing tools in a medium price range

GOOD Long Life Blade Tools

- Manufactured with "processed" elongated shaped natural diamond
- Developed as the first generation of the blade tool line for surface, cylindrical and centerless grinders
- The choice when initial price is the primary purchasing consideration

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BLADE TOOLS

USB Blade Tools



USB Blade Tool Marking System

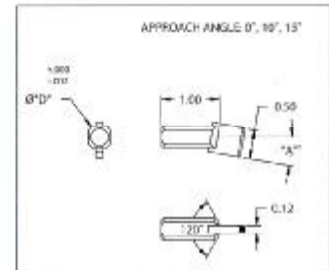
SYNTHETIC DIAMOND TYPE	NUMBER OF DIAMONDS	TOOL APPROACH ANGLE	DIAMOND SETTING POSITION	SHAFT DIAMETER	MINIMUM RADIUS TO BE DRESSED
USC = CVD	2	0°	A = Angled	7 = 7/16"	.008"
	3	10°		8 = 3/8"	.0"
	5	15°		11 = 11mm	.05"

Example:

USC 3 10 A 7

USB Blade Tools

- Use a 3/8" diameter stream of coolant directed at point of contact with the wheel.
- Normal infeed should not exceed .001" for aluminum oxide wheels. Decrease by 25% when dressing SG and by 50% when dressing TG wheels.
- To calculate traverse rate (the speed the tool moves across the wheel):
 $\text{Wheel RPM} \times .015" = \text{Traverse Rate inches/minute}$
A slower traverse rate equals lower surface finish readings.
- Mount tools with all diamonds contacting the wheel. Position row of diamonds vertically.



Multi-Cut Blade Tools

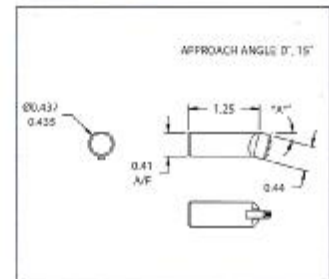


Multi-Cut Blade Tool Marking System

TOOL TYPE	NUMBER OF DIAMONDS	APPROX. DIAMETER OF DIAMONDS	MINIMUM AND CONCAVE RADIUS TO BE DRESSED
MC = 15° Drag Angle	2 = 1 layer of 2 diamonds	55 = .055"	.028"
MCS = 0° Drag Angle	3 = 1 layer of 3 diamonds	75 = .075"	.038"
		90 = .090"	.045"

Example:

MC 3 75



Long Life Blade Tools

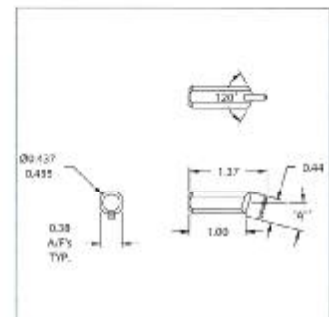


Long Life Blade Tool Marking System

TOOL TYPE	STYLE	NUMBER OF LAYERS	APPROX. DIAMETER OF DIAMONDS	MINIMUM RADIUS TO BE DRESSED
LL =	20 = 5 stones @ 15° Drag Angle	1 = 1 layer	A = .030"	.015"
Long Life	27 = 5 stones @ 0° Drag Angle	Non-stock: 2 and 3 layers are available on request	B = .040" C = .050" D = .060"	.020" .025" .030"

Example:

LL 20 1 A



BLADE TOOLS

BLADE TOOLS

Blade Tools (CONTINUED)

WHEEL DIAMETER (WIDTH <= 9")	TOOL APPROACH ANGLE	SHANK DIAMETER	USB TOOLS		MULTI-CUT TOOLS		LONG LIFE TOOLS	
			BEST		BETTER		GOOD	
			PRODUCT NO.	UPC NO.	PRODUCT NO.	UPC NO.	PRODUCT NO.	UPC NO.
Stock Blade Tools								
12" TO 17"	15°	7/16"			MC355	66260195266		
18" TO 29"	15°	7/16"			MC375	66260195267		
Non-Stock Blade Tools								
UP TO 11"	0°	7/16"			MCS255	66260148412	LL271A	66260196447
	10°	7/16"						
	15°	7/16"			MC255	66260195265	LL201A	66260196446
12" TO 17"	0°	7/16"	USC20A7	66260103532	MCS355	66260195268	LL271B	66260196449
	10°	7/16"	USC210A7	66260103534				
	15°	7/16"	USC215A7	66260103535			LL201B	66260196448
18" TO 29"	0°	7/16"	USC30A7	66260103305	MCS375	66260148417	LL271C	66260196451
	10°	7/16"	USC310A7	66260103545				
	15°	7/16"	USC315A7	66260103303			LL201C	66260196450
30" TO 36"	0°	7/16"	USC50A7	66260103306	MCS390	66260148418	LL271D	66260196453
	10°	7/16"	USC510A7	66260103555				
	15°	7/16"	USC515A7	66260103307	MC390	66260196266	LL201D	66260196452

THESE TOOLS ARE NOT RESETTABLE OR RELAPPABLE.
OTHER SHANK DIAMETERS AND CONFIGURATIONS ARE AVAILABLE.
BLADE TOOLS FOR DRESSING WHEEL WIDTHS > 9" ARE ALSO AVAILABLE.
STANDARD PACKAGE = ONE TOOL



Please contact Customer Service at 1-828-684-2500 for all your non-stock, custom configuration questions, requests for quotes, etc.

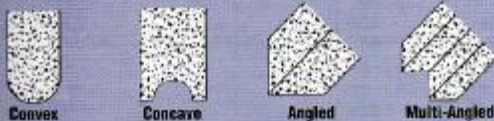
FORM TOOLS

Form Tools

Norton Form Tools have diamond lapped to specific angles and radii required for a particular application, machine, contour dressing system or CNC operation. Due to the high degree of accuracy necessary, the diamond is of special shape and quality.



Wheel Forms Dressed by These Tools



SPECcheck

Cone Point Tool Marking System

TOOL TYPE	INCLUDED ANGLE ON DIAMOND	RADIUS ON DIAMOND	CARAT WEIGHT	SHANK DIAMETER
CP	6 = 60°	5 = .005"	L = .10 - .15	6 = 3/8"
	7 = 75°	10 = .010"	M = .20 - .25	7 = 7/16"
	9 = 90°	15 = .015"	H = .33	
		20 = .020"	X = .50	
		25 = .025"		
		30 = .030"		

Example: CP 6 10 M-6

TECHtips

How to Use Form Dressing Tools

- Form Tools should be used in compliance with the guidelines established for the machine or dress.
- Proper centerline and light infeeds are essential to minimize side pressure. Excessive pressure will cause the diamond to fracture.
- Chisel Point Tools should be rotated 180° when dulling or contour problems occur.
- Cone point tools should be rotated approximately 1/4 turn daily.

Cone Point Tools



BEST Cone Point Tools

- The Norton vacuum braze technology used in the manufacturing of cone points surpasses all traditional diamond retention methods.
- Benefits of this new technology include absolute diamond retention, diamond pullout prevention during the dressing cycle, and longer tool life through multiple relaps.
- Because the diamond is accurately coned to the specific included angle and radius, these tools are ideal when the most intricate, precise forms and radii are required.
- Can be relapped.

U-Dex-It Cone Point Tool

Used for precision dressing of intricate forms and radii. Specially designed with 5/8" indexable head for easy turning during use. These tools can be relapped.

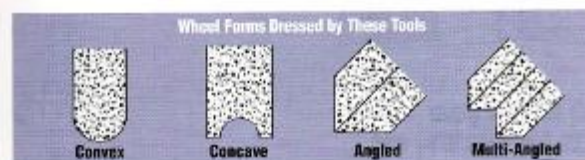
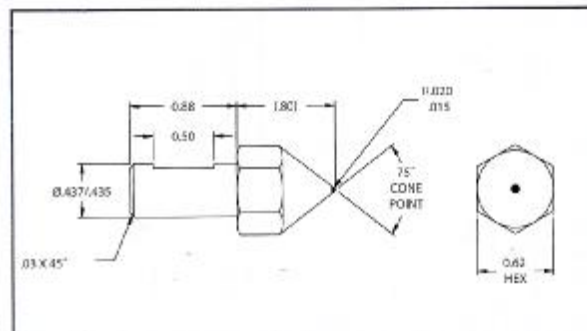
BEST

INCLUDED ANGLE ON DIAMOND	RADIUS ON DIAMOND	TOOL CARAT WEIGHT	TOOL LENGTH	SHANK DIAM.	PRODUCT NO.	RELAPABLE UPC NO.
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Stock U-Dex-It Cone Point Tool

75°	.020"	.50	1.678"	7/16"	CPUD720-7	66260158981
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STANDARD PACKAGE = ONE TOOL



NORTON

FORM TOOLS

FORM TOOLS

Cone Point Tools (CONTINUED)

Standard Cone Point Tool

These tools are used for precision dressing when the most intricate forms and radii are required. Can be relapped.

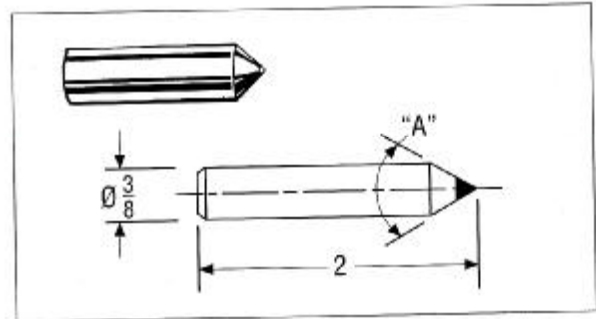
BEST

INCLUDED ANGLE ON DIAMOND	RADIUS ON DIAMOND	TOOL CARAT WEIGHT	TOOL LENGTH	SHANK DIAM.	PRODUCT NO.	RELAPPABLE UPC NO.
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Stock Standard Cone Point Tools

60°	.010"	.20 - .25	2"	3/8"	CP610M-6	66260195240
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STANDARD PACKAGE = ONE TOOL



Non-Stock Standard Cone Point Tools

SPECcheck

Cone Point Tool Marking System

TOOL TYPE	INCLUDED ANGLE ON DIAMONDS	RADIUS ON DIAMOND	CARAT WEIGHT	SHANK DIAMETER
CP	6 = 60° 7 = 75° 9 = 90°	5 = .005" 10 = .010" 15 = .015" 20 = .020" 25 = .025" 30 = .030"	L = .10 - .15 M = .20 - .25 H = .33 X = .50	6 = 3/8" 7 = 7/16"

Example: CP 6 10 M-6

TECHtips

How to Order Non-Stock Cone Point Tools

- Order by tool type, included angle, radius and carat weight required.
- Unless otherwise specified, tools will be furnished in 3/8" x 2" shank as illustrated. Prices for radii not listed and/or other included angles will be quoted upon request.
- 7/16" diameter shank is available at no additional cost.

BEST

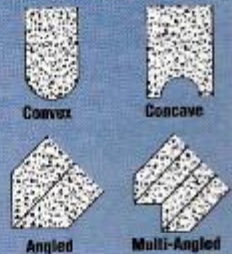
WHEEL DIAMETER	INCLUDED ANGLE ON DIAMOND	RADIUS ON DIAMOND	TOOL CARAT WEIGHT	SHANK DIAMETER	TOOL LENGTH	PRODUCT NO.	RELAPPABLE UPC NO.
Non-Stock Standard Cone Point Tools							
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	60°	.005"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CP65L-6 CP65M-6 CP65H-6 CP65X-6	66260196098 66260196100 66260196103 66260196109
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	60°	.010"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CP610L-6 CP610M-6 CP610H-6 CP610X-6	66260196099 66260195240* 66260196104 66260196110
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	60°	.015"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CP615L-6 CP615M-6 CP615H-6 CP615X-6	66260195176 66260196101 66260196105 66260196111
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	60°	.020"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CP620L-6 CP620M-6 CP620H-6 CP620X-6	66260196102 66260196106 66260196112
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	60°	.025"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CP625L-6 CP625M-6 CP625H-6 CP625X-6	66260151320 66260196107 66260196113
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	60°	.030"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CP630L-6 CP630M-6 CP630H-6 CP630X-6	66260151357 66260196108 66260196114

*STOCK

Please contact Customer Service at 1-828-684-2500 for all your non-stock, custom configuration questions, requests for quotes, etc.

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Wheel Forms Dressed by These Tools



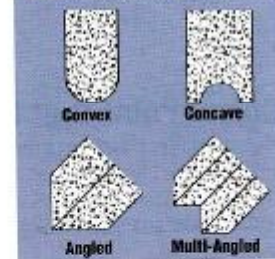
FORM TOOLS

Non-Stock Standard Cone Point Tools (CONTINUED)

BEST

WHEEL DIAMETER	INCLUDED ANGLE ON DIAMOND	RADIUS ON DIAMOND	TOOL CARAT WEIGHT	SHANK DIAMETER	TOOL LENGTH	PRODUCT NO.	RELAPPABLE UPC NO.
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	75°	.005"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CP75L-6 CP75M-6 CP75H-6 CP75X-6	66260196115 66260196117 66260196120 66260196126
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	75°	.010"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CP710L-6 CP710M-6 CP710H-6 CP710X-6	66260196116 66260195241 66260196121 66260196127
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	75°	.015"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CP715L-6 CP715M-6 CP715H-6 CP715X-6	66260196118 66260196122 66260196128
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	75°	.020"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CP720L-6 CP720M-6 CP720H-6 CP720X-6	66260196119 66260196123 66260196129
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	75°	.025"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CP725L-6 CP725M-6 CP725H-6 CP725X-6	66260151448 66260196124 66260196130
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	75°	.030"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CP730L-6 CP730M-6 CP730H-6 CP730X-6	66260196125 66260196131
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	90°	.005"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CP95L-6 CP95M-6 CP95H-6 CP95X-6	66260196132 66260196134 66260196137 66260196143
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	90°	.010"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CP910L-6 CP910M-6 CP910H-6 CP910X-6	66260196133 66260195242 66260195138 66260196144
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	90°	.015"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CP915L-6 CP915M-6 CP915H-6 CP915X-6	66260158012 66260196135 66260196139 66260196145
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	90°	.020"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CP920L-6 CP920M-6 CP920H-6 CP920X-6	66260196136 66260196140 66260196146
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	90°	.025"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CP925L-6 CP925M-6 CP925H-6 CP925X-6	66260151645 66260196141 66260196147
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	90°	.030"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CP930L-6 CP930M-6 CP930H-6 CP930X-6	66260151673 66260196142 66260196148

Wheel Forms Dressed by These Tools



Please contact Customer Service at 1-828-684-2500 for all your non-stock, custom configuration questions, requests for quotes, etc.

FORM TOOLS

Chisel Point Tools

Chisel Point Tool for Toyoda Grinders

High precision chisel point tool designed for forming intricate shapes and radii. Specifically engineered to fit **Toyoda machine series GL32 and GL4**, it can also be used on various straight and angle-head grinders – for dressing conventional and SG abrasive wheels, sizes 12" to 24". This tool can be reset/re-lapped.

BEST

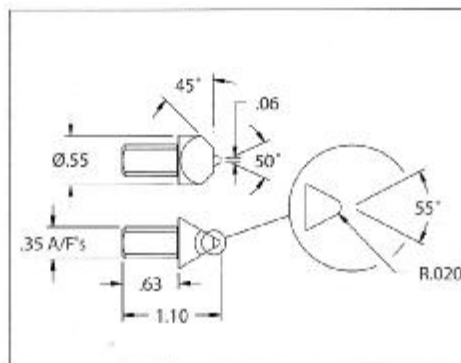
INCLUDED ANGLE ON DIAMOND	RADIUS ON DIAMOND	TOOL CARAT WEIGHT	SHANK DIAM.	TOOL LENGTH	PRODUCT NO.	RELABBLE UPC NO.
55°	.020"	.75	7/16"	1.10"	CHT520-7	66260103741

STANDARD PACKAGE = ONE TOOL

Stock Chisel Point Tool

TECHtips

Chisel Point Tools should be rotated 180° when dulling or contour problems occur.



Non-Stock Standard Chisel Point Tools

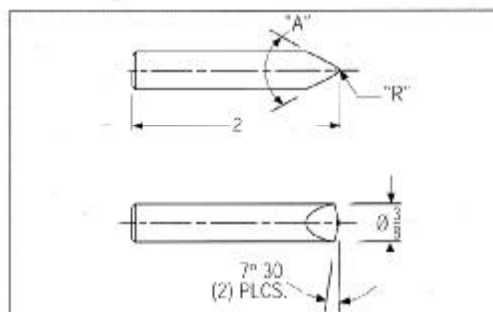
This line offers precision tools designed to form intricate radii, steps or contours on toolroom-type applications. Can be relapped or reset/re-lapped.

SPECcheck

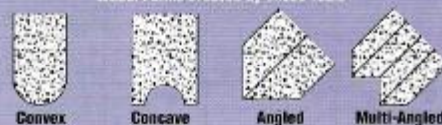
Non-Stock Chisel Point Tool Marking System

TOOL TYPE	INCLUDED ANGLE ON DIAMOND	RADIUS ON DIAMOND	CARAT WEIGHT	SHANK DIAMETER
CH =	6 = 60°	5 = .005"	L = .10 - .15	6 = 3/8"
Natural	7 = 75°	10 = .010"	M = .20 - .25	7 = 7/16"
Diamond	9 = 90°	15 = .015"	H = .33	
		20 = .020"	X = .50	
		25 = .025"		
		30 = .030"		

Example: CH 9 5 M-6



Wheel Forms Dresssed by These Tools



TECHtips

How to Order Non-Stock Chisel Point Tools

- Order by tool type, included angle, radius and carat weight required.
- Tools will be furnished in 3/8" x 2" shank as illustrated. Prices for radii not listed and/or other included angles will be quoted upon request.
- 7/16" diameter shank is available at no additional cost.

Please contact Customer Service at 1-828-684-2500 for all your non-stock, custom configuration questions, requests for quotes, etc.

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FORM TOOLS

Non-Stock Standard Chisel Point Tools (CONTINUED)



BEST

WHEEL DIAMETER	INCLUDED ANGLE ON DIAMOND	RADIUS ON DIAMOND	TOOL CARAT WEIGHT	SHANK DIAMETER	TOOL LENGTH	PRODUCT NO.	RELAPPABLE UPC NO.
Non-Stock Standard Chisel Point Tools							
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	60°	.005"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CH65L-6 CH65M-6 CH65H-6 CH65X-6	66260196150 66260196154 66260196160 66260196166
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	60°	.010"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CH610L-6 CH610M-6 CH610H-6 CH610X-6	66260196151 66260196155 66260195245 66260196167
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	60°	.015"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CH615L-6 CH615M-6 CH615H-6 CH615X-6	66260196152 66260196156 66260196161 66260196168
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	60°	.020"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CH620L-6 CH620M-6 CH620H-6 CH620X-6	66260196157 66260196162 66260196169
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	60°	.025"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CH625L-6 CH625M-6 CH625H-6 CH625X-6	66260196158 66260196163 66260196170
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	60°	.030"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CH630L-6 CH630M-6 CH630H-6 CH630X-6	66260158176 66260196164 66260196492
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	75°	.005"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CH75L-6 CH75M-6 CH75H-6 CH75X-6	66260196172 66260196176 66260196182 66260196189
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	75°	.010"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CH710L-6 CH710M-6 CH710H-6 CH710X-6	66260196173 66260196177 66260196183 66260196190
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	75°	.015"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CH715L-6 CH715M-6 CH715H-6 CH715X-6	66260196174 66260196178 66260196184 66260196191
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	75°	.020"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CH720L-6 CH720M-6 CH720H-6 CH720X-6	66260196179 66260196185 66260196192
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	75°	.025"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CH725L-6 CH725M-6 CH725H-6 CH725X-6	66260196180 66260196186 66260196193
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	75°	.030"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CH730L-6 CH730M-6 CH730H-6 CH730X-6	66260196187 66260196194
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	90°	.005"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CH95L-6 CH95M-6 CH95H-6 CH95X-6	66260196196 66260196202 66260196208 66260196215
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	90°	.010"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CH910L-6 CH910M-6 CH910H-6 CH910X-6	66260196197 66260196203 66260196209 66260196493
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	90°	.015"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CH915L-6 CH915M-6 CH915H-6 CH915X-6	66260196198 66260196204 66260196210 66260196216
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	90°	.020"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CH920L-6 CH920M-6 CH920H-6 CH920X-6	66260196205 66260196211 66260196217
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	90°	.025"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CH925L-6 CH925M-6 CH925H-6 CH925X-6	66260196206 66260196212 66260196218
UP TO 10" 11" - 14" 15" - 20" 21" - 24"	90°	.030"	.10 - .15 .20 - .25 0.33 0.50	3/8"	2"	CH930L-6 CH930M-6 CH930H-6 CH930X-6	66260163376 66260196213 66260196219

NORTON

FORM TOOLS

Standard Form Tools

Standard Form Tools for Jones & Lamson Machines

BEST Form Tools – Jones & Lamson Machines

- Used primarily on Jones & Lamson machines; 9/32" x 1-1/4" shank
- The applications dictates the tool to choose
- Can be relapped or reset/relapped



Jones & Lamson Tool Marking System

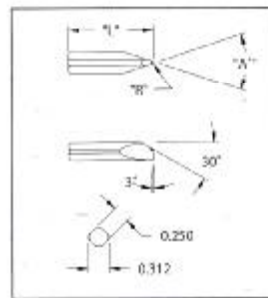
TOOL TYPE	INCLUDED ANGLE ON DIAMOND	RADIUS ON DIAMOND
JL = Natural Diamond	1 = 50°	05 = .005"
	2 = 40°	10 = .010"
	3 = 30°	15 = .015" 20 = .020"

Example: JL 1 10

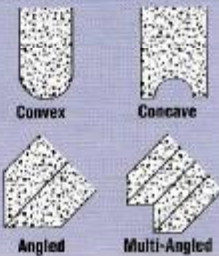
BEST

INCLUDED ANGLE ON DIAMOND	RADIUS ON DIAMOND	PRODUCT NO.	RELAPPABLE UPC NO.
Non-Stock Jones & Lamson Form Tools			
50°	0.005"	JL105	66260158847
	0.010"	JL110	66260159824
	0.015"	JL115	66260141899
	0.020"	JL120	66260141700
40°	0.005"	JL205	66260142524
	0.010"	JL210	66260155893
	0.015"	JL215	
	0.020"	JL220	
30°	0.005"	JL305	66260141701
	0.010"	JL310	66260142528
	0.015"	JL315	66260142529
	0.020"	JL320	66260158989

STANDARD PACKAGE = 1 TOOL



Wheel Forms Dressed by These Tools



Standard Form Tools for Moore Pantograph Machines

BEST Form Tools – Moore Pantograph Machines

- Used primarily on Moore Pantograph machines; 1/4" x 1-9/16" shank
- The applications dictates the tool to choose
- Can be relapped or reset/relapped



Moore Pantograph Tool Marking System

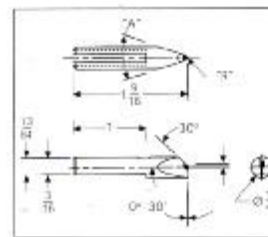
TOOL TYPE	RADIUS ON DIAMOND	INCLUDED ANGLE ON DIAMOND	SHANK DIAMETER
MO =	05 = .005"	30 = 30°	56 = 1-9/16"
Natural	10 = .010"	40 = 40°	
Diamond	15 = .015"	60 = 60°	
	20 = .020"	90 = 90°	
	25 = .025"		

Example: MO 5 30 56

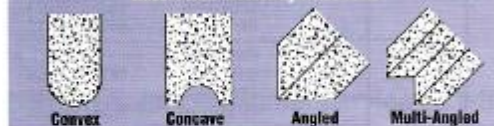
BEST

INCLUDED ANGLE ON DIAMOND	RADIUS ON DIAMOND	PRODUCT NO.	RELAPPABLE UPC NO.
Non-Stock Moore Pantograph Form Tools			
30°	0.005"	MO53056	66260195280
	0.010"	MO103056	66260195281
	0.015"	MO153056	66260195282
	0.020"	MO203056	66260196282
	0.025"	MO253056	66260196283
60°	0.005"	MO56056	66260196276
	0.010"	MO106056	66260196277
	0.015"	MO156056	66260196278
	0.020"	MO206056	66260196286
	0.025"	MO256056	66260196287

40° AND 90° INCLUDED ANGLES ARE ALSO AVAILABLE.
STANDARD PACKAGE = 1 TOOL



Wheel Forms Dressed by These Tools



Please contact Customer Service at 1-828-684-2500 for all your non-stock, custom configuration questions, requests for quotes, etc.

FORM TOOLS

Standard Form Tools for Hoglund Machines

BEST Form Tools – Hoglund Machines

- Used primarily on Hoglund machines
- The applications dictates the tool to choose

BEST			
INCLUDED ANGLE ON DIAMOND	RADIUS ON DIAMOND	PRODUCT NO.	UPC NO.

Non-Stock Hoglund Form Tools

42°	0.005"	HG54262	66260142466
	0.010"	HG104262	66260142489
	0.015"	HG154262	66260142346
	0.020"	HG204262	66260142403
	0.025"	HG254262	66260142459
60°	0.005"	HG56062	66260142470
	0.010"	HG106062	66260142294
	0.015"	HG156062	66260142351
	0.020"	HG206062	66260142407
	0.025"	HG256062	66260142463

48° AND 72° INCLUDED ANGLES ARE ALSO AVAILABLE, AS ARE 1-1/2 AND 1-3/4" TOOL LENGTHS. STANDARD PACKAGE = 1 TOOL

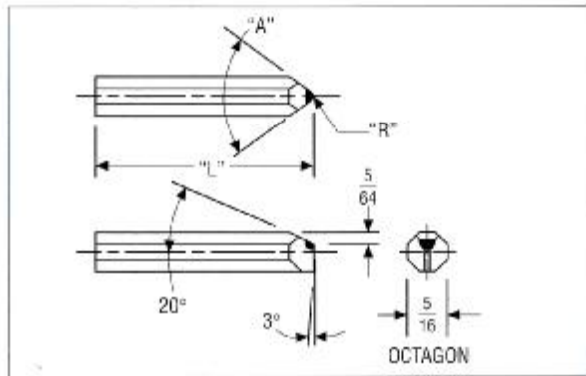


SPECcheck

Hoglund Tool Marking System

TOOL TYPE	RADIUS ON DIAMOND	INCLUDED ANGLE ON DIAMOND	TOOL LENGTH
HG =	5 = .005"	42 = 42°	50 = 1-1/2"
Natural	10 = .010"	48 = 48°	62 = 1-5/8"
Diamond	15 = .015"	60 = 60°	75 = 1-3/4"
	20 = .020"	72 = 72°	
	25 = .025"		

Example: HG 10 42 62



Standard Form Tools for Dia-Form Machines

BEST Form Tools – Dia-Form Machines

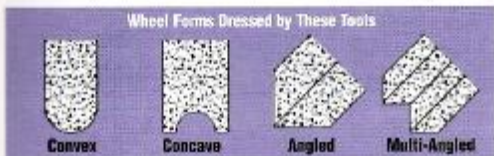
- Used primarily on Dia-Form machines
- The applications dictates the tool to choose
- Can be relapped or reset/relapped

BEST			
INCLUDED ANGLE ON DIAMOND	RADIUS ON DIAMOND	PRODUCT NO.	RELAPPABLE UPC NO.

Non-Stock Dia-Form Tools

40°	0.005"	DI052138	66260196310
	0.010"	DI102138	66260196311
	0.015"	DI152138	66260196312
	0.020"	DI202138	66260196314
	0.025"	DI252138	66260196316
60°	0.005"	DI051138	66260195289
	0.010"	DI101138	66260195290
	0.015"	DI151138	66260195292
	0.020"	DI201138	66260196313
	0.025"	DI251138	66260196315

1-3/4" AND 2-1/4" TOOL LENGTHS ARE ALSO AVAILABLE. STANDARD PACKAGE = 1 TOOL

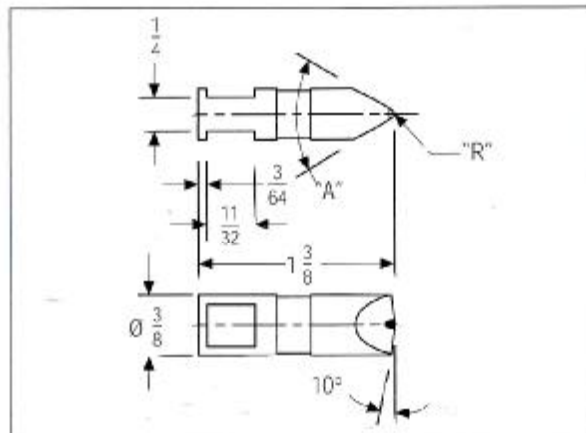


SPECcheck

Dia-Form Tool Marking System

TOOL TYPE	RADIUS ON DIAMOND	INCLUDED ANGLE ON DIAMOND	TOOL LENGTH
DI =	05 = .005"	1 = 60°	138 = 1-3/8"
Natural	10 = .010"	2 = 40°	175 = 1-3/4"
Diamond	15 = .015"		225 = 2-1/4"
	20 = .020"		
	25 = .025"		

Example: DI 05 1 138



TOOLROOM TOOLS

TOOLROOM TOOLS

Toolroom Tools

Norton Toolroom Dressing Tools are primarily used on surface grinders to form the grinding wheel to an exact concave or convex radius. Although some tools are designed for use on a specific machine, many radius tools can be used on any grinder having the correct set-up. Used generally on 8" diameter and smaller vitrified toolroom wheels, Norton offers a selection of three types of radius tools, phono-point tools and full ball radius tools.

Wheel Forms Dressing by These Tools



TECHtips

How to Use Toolroom Tools

- We recommend dressing with coolant. However, if dressing totally dry, allow three to five seconds between passes for diamond to cool.
- Use extremely light cuts from .0002" to .001" maximum.
- Rotate tool if the application and set-up allow.
- Full Ball Radius Tools should be returned for relap after minimum wear.

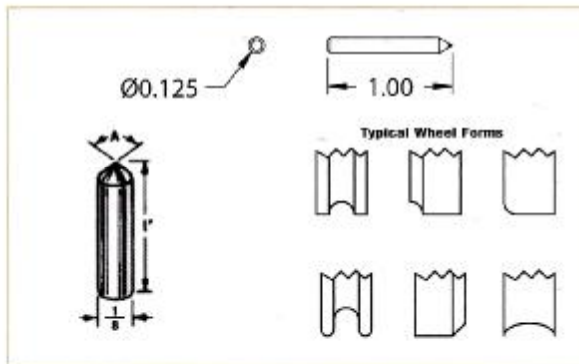
Phono-Point Tools

For general toolroom concave and convex dressing on small diameter grinding wheels. Not resettable.

INCLUDED ANGLE	SHANK DIAMETER	TOOL LENGTH	BETTER		GOOD	
			PRODUCT NO.	NON-RESETTABLE UPC NO.	PRODUCT NO.	NON-RESETTABLE UPC NO.
Stock Phono-Point Tools						
60°	1/8"	1"	NP1M2	66260195225	BCPP-60	66260195017
	3/16"		NP1M3	66260195226		
	1/4"		NP1M4	66260195227		
75°	1/8"	1"	NP2M2	66260195228	BCPP-75	66260195018
	3/16"		NP2M3	66260195229		
	1/4"		NP2M4	66260195230		
90°	1/8"	1"	NP3M2	66260195231	BCPP-90	66260195019
	3/16"		NP3M3	66260195232		
	1/4"		NP3M4	66260195233		

STANDARD PACKAGE = ONE TOOL

Wheel Forms Dressing by These Tools



SPECcheck

Phono-Point Tool Marking System

TOOL TYPE	INCLUDED ANGLE ON DIAMOND	SHANK STYLE	SHANK DIAMETER
NP	1 = 60°	M	2 = 1/8"
BCPP	2 = 75°		3 = 3/16"
	3 = 90°		4 = 1/4"

Example: NP 1 M 3

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TOOLROOM TOOLS

Radius Tools

Concave Radius Tools

This line offers a specially-shaped single point diamond, designed for forming concave radii on small diameter grinding wheels. Not resettable.

Convex Radius Tools

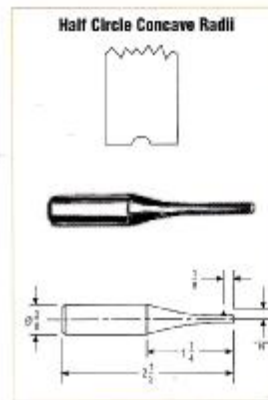
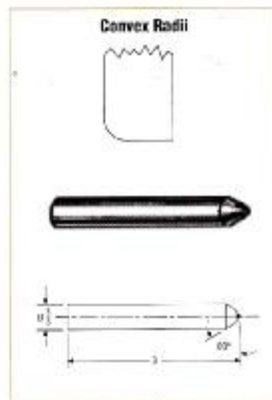
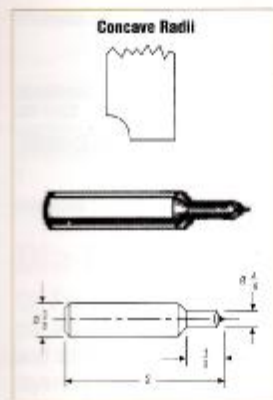
This line offers a specially-shaped single point diamond, designed for forming convex radii on small diameter grinding wheels. Not resettable.

Half-Circle Concave Radius Tools

This line offers a specially-shaped diamond set in the side of the shank for forming half-circle radii on small diameter grinding wheels. The tool is rotated to form the radius. Commonly called a "rat tail dresser." Not resettable.

RADIUS SIZE TO BE DRESSED	SHANK DIAMETER	TOOL LENGTH	BEST		GOOD	
			PRODUCT NO.	NON-RESETTABLE UPC NO.	PRODUCT NO.	NON-RESETTABLE UPC NO.
Stock Concave Radius Tools						
.010" TO .015"	3/8"	2"	NR1P6	66260195210		
.016" TO .020"	3/8"	2"	NR2P6	66260195211		
.021" TO .032"	3/8"	2"	NR3P6	66260195212		
.033" TO .062"	3/8"	2"	NR4P6	66260195213	BCRD	66260195016
.063" TO .125"	3/8"	2"	NR5P6	66260195214	BCRD	66260195016
.126" TO .250"	3/8"	2"	NR6P6	66260195215	BCRD	66260195016
Stock Convex Radius Tools						
.020" TO .125"	3/8"	3"	NR2M6	66260195216	BCRD	66260195016
.126" TO .250"	3/8"	3"	NR12M6	66260195217	BCRD	66260195016
.251" TO .500"	3/8"	3"	NR25M6	66260195218		
Stock Half Circle Concave Radius Tools						
.032"	3/8"	2-1/2"	NR3N6	66260195219		
.062"	3/8"	2-1/2"	NR6N6	66260195220		
.125"	3/8"	2-1/2"	NR12N6	66260195221		

STANDARD PACKAGE = ONE TOOL



TOOLROOM TOOLS

TOOLROOM TOOLS

Full Ball Radius Tools

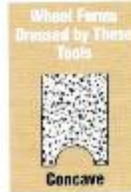
For precision plunge form dressing, Full Ball Radius tools are designed to plunge dress a concave radius in the center of a grinding wheel. Frequent turning of the tool will maintain accuracy over a long period of use. Can be relapped.

BETTER

RADIUS SIZE TO BE DRESSED	SHANK DIAMETER	TOOL LENGTH	PRODUCT NO.	RELAPPABLE UPC NO.
Non-Stock Full Ball Radius Tools				
.010"	3/8"	2"	FB10	66260195255
.015"	3/8"	2"	FB15	66260195256
.020"	3/8"	2"	FB20	66260195257
.025"	3/8"	2"	FB25	66260195258
.030"	3/8"	2"	FB30	66260195259
.035"	3/8"	2"	FB35	66260195260
.040"	3/8"	2"	FB40	66260195261
.045"	3/8"	2"	FB45	66260195262
.050"	3/8"	2"	FB50	66260195263

LARGER RADIUS SIZES ARE AVAILABLE UPON REQUEST.
STANDARD PACKAGE = ONE TOOL

Please contact Customer Service at 1-828-684-2500 for all your non-stock, custom configuration questions, requests for quotes, etc.

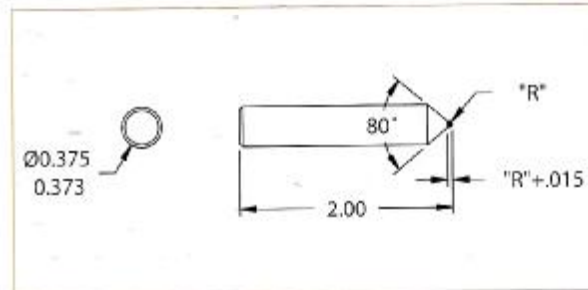


SPECcheck

Full Ball Radius Tool Marking System

TOOL TYPE	RADIUS REQUIRED ON DIAMOND IN THOUSANDS OF AN INCH
FB	10 = .010"
	15 = .015"
	20 = .020"
	25 = .025"
	30 = .030"
	35 = .035"
	40 = .040"
	45 = .045"
	50 = .050"

Example: FB 25



CLUSTER TOOLS

Cluster Tools

Norton Cluster Tools are designed specifically for straight face dressing of large diameter, coarse grit grinding wheels on single or double disc, centerless or surface grinders.

Wheel Forms Dressed by These Tools



TECHtips

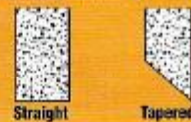
- Cluster and Dia-Pak Tools – Straight face dressing of hard/ coarse wheels:
 - Tool should approach the wheel at a 15° angle and be rotated periodically to keep 3 diamonds in contact with the wheel at all times.
 - Tools can also be used at a 90° to the wheel face.
 - Multi-Point Cluster Tools should be rotated at frequent intervals.
 - Infeed per pass should not exceed .0015" (.001" with Norton SG and Targa wheels).
 - Use coolant whenever possible.
 - These tools permit a faster traverse rate providing a freer cutting wheel than when dressed by a conventional single-point tool.

It is the user's responsibility to refer to and comply with ANSI B7.1

Multi-Point Cluster Tools

Multi-Point Cluster tools are typically used for straight face dressing on disc and centerless operations. For greatest efficiency, these tools should be mounted at a 15° angle so that three diamonds are in contact with the wheel face at all times. The tool should be rotated at frequent intervals. Not reseta-ble.

Wheel Forms Dressed by These Tools

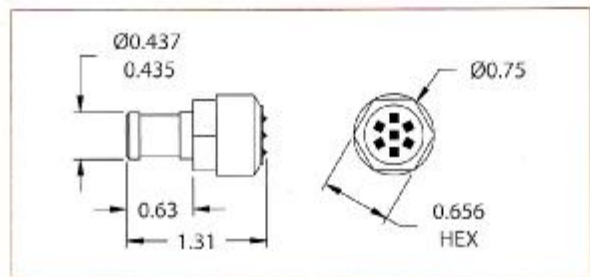


BETTER				
DIAMONDS ON FACE	SHANK DIAMETER	TOOL LENGTH	PRODUCT NO.	NON-RESETTABLE UPC NO.
Stock Multi-Point Cluster Tools				
7	7/16"	1-5/16"	NC7K7	66260195206

STANDARD PACKAGE = 1 TOOL

BEST				
DIAMONDS ON FACE	SHANK DIAMETER	TOOL LENGTH	PRODUCT NO.	NON-RESETTABLE UPC NO.
Non-Stock Multi-Point Cluster Tools				
7	7/16"	1-5/16"	MP77	66260195205

STANDARD PACKAGE = 1 TOOL

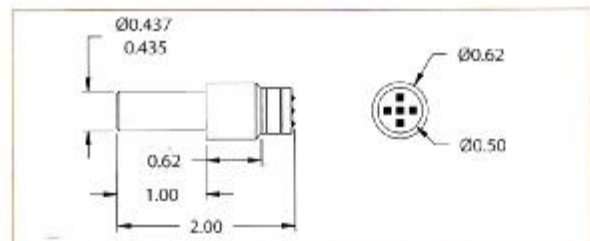


Dia-Pak Tools

Dia-Pak tools are primarily used in straight face disc grinding, but are extremely versatile and may also be used in centerless and surface operations. Designed for maximum economy, three layers of diamond are carefully arranged so that a new layer is exposed before the previous layer is completely worn away. Not reseta-ble.

BETTER					
FOR WHEEL DIAMETERS	DIAMONDS PER LAYER	SHANK DIAM.	TOOL LENGTH	PRODUCT NO.	NON-RESETTABLE UPC NO.
Stock Dia-Pak Tools					
UP TO 14"	5-4-5	7/16"	2"	DP20	66260195200
UP TO 20"	7-6-7	7/16"	2"	DP30	66260195201
ANY	7-6-7	7/16"	2"	DP35	66260195202

STANDARD PACKAGE = 1 TOOL



Wheel Forms Dressed by These Tools



BRAKE CONTROLLED TRUING DEVICES

BRAKE CONTROLLED TRUING DEVICES

Brake Controlled Truing Devices

Designed for truing diamond and CBN wheels rapidly, effectively and with a minimum of superabrasive loss. Recommended for wheels up to 12" in diameter.

Typical Truing Applications

Truing 1A1, 11V9, 11A2, 6A2 and 12A2 wheels:

- Straight wheels, used on chip breaker, tool and cutter, surface and cylindrical grinding machines
- Cup wheels, used on vertical spindle surface grinders
- Cut-off wheels



SPECcheck



Truing Diamond and CBN Wheels

SUPERABRASIVE WHEEL	TRUING WHEEL SPECIFICATION
RESIN AND VITRIFIED BOND	
- 80, 100 and 120 grit	38A60-MVBE, 37C60-MVK
- 150, 180 and 220 grit	38A80-MVBE, 37C80-MVK
- 320 and finer grits	37C100-HVK
METAL BOND	
- 80, 100 and 120 grit	38A60-MVBE
- 150, 180 and 220 grit	38A80-MVBE
- 240 and finer grits	37C80-HVK

4597 Brake Controlled Truing Device

The 4597 is engineered for heavier and more frequent truing applications. The adjustable speeds allow for varying conditions (between 1050 and 1500 SFPM). It comes complete with a reusable case, 'True to Form, Dress to Cut' training video, two 3" 38A60-M8VBE vitrified wheels, Truing Device Tips book and a dressing stick. It can be rebuilt using the 4597RK Rebuild Kit.

Worn #4597 Brake Controlled Truing Devices (UPC 66260195350) in need of reconditioning (beyond new shoes and springs) may be returned to be rebuilt. Contact Diamond Tool Customer Service for return instructions and quote.

3597 Pacesetter Brake Controlled Truing Device

The Pacesetter model is ideal for light duty use. The pre-set brake speed requires no adjusting. This model includes one 3" 38A60-M8VBE vitrified wheel and can be rebuilt using the 3597RK Rebuild Kit.

4597RK and 3597RK Rebuild Kits

You can rebuild your truing device with these kits, consisting of three brake shoes, three springs and three screws.

ITEM	BETTER		GOOD	
	PRODUCT NO.	UPC NO.	PRODUCT NO.	UPC NO.
4597 BRAKE CONTROLLED TRUING DEVICE	4597	66260195350		
4597 REBUILD KIT	4597RK	66260195351		
3597 PACESETTER BRAKE CONTROLLED TRUING DEVICE			3597	66260135578
3597 PACESETTER REBUILD KIT			3597RK	66260135595
REPLACEMENT WHEELS 3 X 1 X 1/2			38A60-MVBE	66243529145
			38A80-MVBE	66243529146
			37C60-MVK	66243529166
			37C80-HVK	66243529170
			37C80-MVK	66243529171
			37C100-HVK	66243529172
			37C100-MVK	66243529070

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TECHtips

- Prior to truing the wheel, run a wax crayon over the wheel face. Important: do NOT use any liquid-based ink on superabrasive wheels.
- Any crayon left on the wheel face after truing will reveal untrued areas.
- Indicate the superabrasive wheel runout before starting... usually within .001" to .002", to minimize wheel loss.
- Mount the device spindle parallel to the wheel spindle to ensure proper straight face truing.
- For cup shaped wheels, the device spindle will be mounted perpendicular to the wheel spindle.
- Always use the Brake Controlled Truing Device dry.
- Bring the diamond/CBN wheel and the truing wheel together until they almost touch.
- Start the diamond/CBN wheel to normal speed; spin the truing wheel in the same direction at point of contact.
- Bring the two wheels together until they touch.
- Make sure the truing wheel is spinning at time of contact.
- Traverse the wheel back and forth at 30 to 60 inches/minute.
- Downfeed .0005" to .001" at the end of each traverse.
- At the end of truing, the diamond/CBN wheel should be smooth and in truth.
- Apply a dressing stick to sharpen the wheel.



It is the user's responsibility to refer to and comply with ANSI B7.1

ACCESSORIES

Accessories

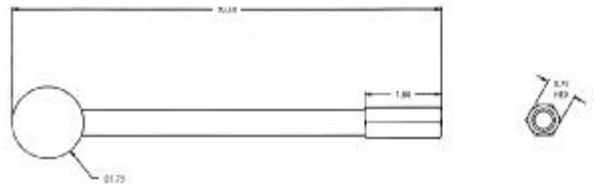
Tool holders typically used in toolroom applications.



ACCESSORIES

Tool Holder/Hand Dresser

Designed for use when offhand truing and dressing on tool and cutter, or benchstand grinders. This hand dresser is rust-free, 10-1/2' long, with a hollow shaft that accepts any tool shank length from 3/4' to 9". The 1-3/4" diameter plastic knob ensures a firm grip. The collet accepts a 7/16" diameter tool shank.



DESCRIPTION	UPC NUMBER
HAND DRESSER	66260195020

Machine Tool Holder

Designed to be mounted directly on the table of surface and tool grinders with a bolt or magnetic chuck, the machine dresser is positioned vertically with the tool positioned at a 15° drag angle.



DESCRIPTION	UPC NUMBER
MACHINE HOLDER	66260195355



DIAMOND TOOL RECOMMENDATIONS BY MACHINE TYPE

MANUFACTURER AND MACHINE TYPE	TOOL DRAWING	ORDERING SPECIFICATION	
		SINGLE-POINT TOOL	MULTI-POINT TOOL
AGATHON		CD8515	
ALBERTSON & CO: SIOUX GRINDERS			
Valve Refacer 112 and 30013		CD402-1-5/8"	1R6 Special ME103738A
Valve Seat Grinder 1715-B and 30190		CD-1019	1R6 Special ME103743
Valve Seat Grinders	<p>Please specify any all lengths "L" and "L2" by</p>	S-2621-C	
BROWN & SHARPE			
Plain Grinder #5		CD-1537R	2A6E7*
Surface Grinder		S-2639	1R6 Special ME103737
BRYANT CHUCKING GRINDER COMPANY			
Internal Grinders #4, 4B, 5, 5A, & 5B		N121R4*	N.A.
Internal Grinder #112		CD-225	N.A.
		CDP-10179	
CEDAR RAPIDS "KWIKWAY"			
Valve Refacer		CD401-2-3/8"	N.A.
Valve Seat Grinder		CD-1799	1R6 Special ME103740
Valve Seat Grinder		S-2622-A	1R6 Special ME103745A

MANUFACTURER AND MACHINE TYPE	TOOL DRAWING	ORDERING SPECIFICATION	
		SINGLE-POINT TOOL	MULTI-POINT TOOL
CHEVALIER		CD-2221-RR	
		CD-8346	
DANBART			ME162543
ESTARTA		CD-2695-C	
EXCELLO CORP.			
Thread Grinder #31		MT-106 (48-4105)	3R805*
FORTUNA		CD-7512	
G&L WINSLOWMATIC			
		CD-1733-JJ	
		CD-441K-9	
GLEASON WORKS		S416	
HEALD			
Internal Grinders		CD-250-8	N.A.
Internal Thread			
Internal Grinders #70, 72A, 73, 74, 78, 81 & 172		N121Q7*	N.A.
Rotary Surface Grinders #22, 25A & 261		CD-193	1R6J7

*INDICATES STOCK TOOL

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DIAMOND TOOL RECOMMENDATIONS BY MACHINE TYPE

MANUFACTURER AND MACHINE TYPE	TOOL DRAWING	ORDERING SPECIFICATION	
		SINGLE-POINT TOOL	MULTI-POINT TOOL
JONES & LAMSON Thread Grinder		NT1L4 (NX-57475)	3R8L4 & 3R12L4*
	Model E Form Grinder	JONES & LAMSON FORM THREAD GRINDER Specify included angle and radius on diamond.	
JONES & SHIPMAN		CD-7802-B	
KELLENBERGER		DI251138	
		CD-6200-V	
		CD-441F-12	
		CD-6783	
K.O. LEE COMPANY		BCSG5M6	
		CD-6996-A	
		S-2104-4	
		S-2823	
KOYO		CD-5827	
	CD-8334		
	S-2104-4		
	CD-6768		
LANDIS TOOL CO.		BCSG10M7	
MICRON		CD-5804	
MITSUBISHI		CD-6472	
		CD-8514	
MOORE PANTOGRAPH		MOORE CONTOUR DRESSER *Specify included angle and radius on diamond.	
Contour Dresser			
NORMAC & HERTLIEN		CD-4895-12	



DIAMOND TOOL RECOMMENDATIONS BY MACHINE TYPE

MANUFACTURER AND MACHINE TYPE	TOOL DRAWING	ORDERING SPECIFICATION	
		SINGLE-POINT TOOL	MULTI-POINT TOOL
OKAMOTO		CD-6907	
		CD-7994	
		CD-5711-A	
		CD-591-48	
		CD-2221-U	
		CD-3230	
		ME124578-B	
OKUMA		CD-361-AA	
		CD-5147	
OLIVER INSTRUMENT		CD-441G-25	
OVERBECK		CD-7541-A	
ROYALMASTER		CD-441G-34	
		CD-6653	
		ME85710-F	
		CD-8685	
		CD-8685	
SCHAUDT		CD-7513	
		CD-5357	
		CD-8222	
		CD-6167	
SHIGIYA		CD-6501	
		CD-6501-A	
		CD-7819	
		CD-6426	
		CD-5315	
		CD-7503	
		CD-6405	
		CD-6797	
		CD-6797	
		CD-6797	
STUDER		CD-6501	
		CD-6501-A	
		CD-7819	
		CD-6426	
		CD-5315	
		CD-7503	
		CD-6405	
		CD-6797	
		CD-6797	
		CD-6797	

