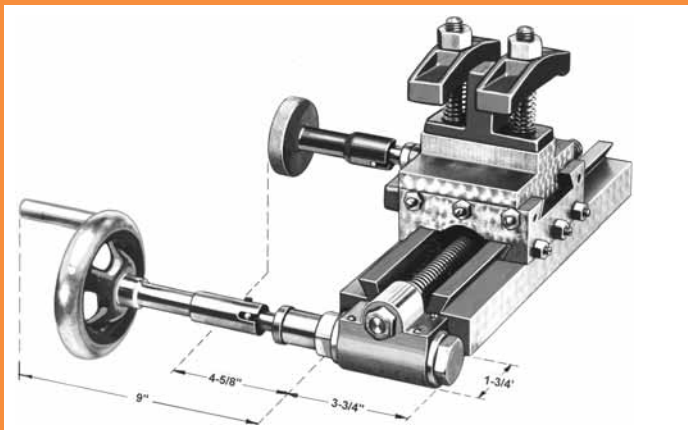


MARTINDALE

Commutator Grinders

- **Miniature & Compact Models**
- **Grinding & Turning Models**
 - **Chain-Drive Models**
 - **Power Drives**



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Over 95 Years of Service.

Martindale Electric Co. started in the electric motor maintenance tool manufacturing business in 1913. From the start, we put emphasis on quality materials and workmanship — and on dedicated customer service.

Martindale specializes in the manufacture of equipment and supplies for the electric motor repairman. The products on the following pages are the result of continuous field experience and research in an effort to help industry minimize the costs of maintaining electric motors and generators.

The following 9 pages describe our complete line of commutator grinding tools. The three salient factors in choosing a commutator resurfacing tool are:

1. Commutator bar length (or width of slip ring) matched to grinding capacity of tool.
2. Access area matched to dimensions of tool to ensure working clearance.
3. Diameter of brush stud matched to fit diameter of support used with tool.

You will need to order stones to work with appropriate surface condition. Standard stones are available for use on copper & brass, slip ring grade stones are also available for use on steel & cast iron. See our Diamond D Abrasives Catalog for a complete explanation of sizes, grades, etc.

Please advise quantity, catalog numbers of grinding tools, supports — with length of base required, and quantity & grades of stones needed for prices and availability. We appreciate the opportunity to be of service and look forward to meeting all of your electric motor repair tool needs.



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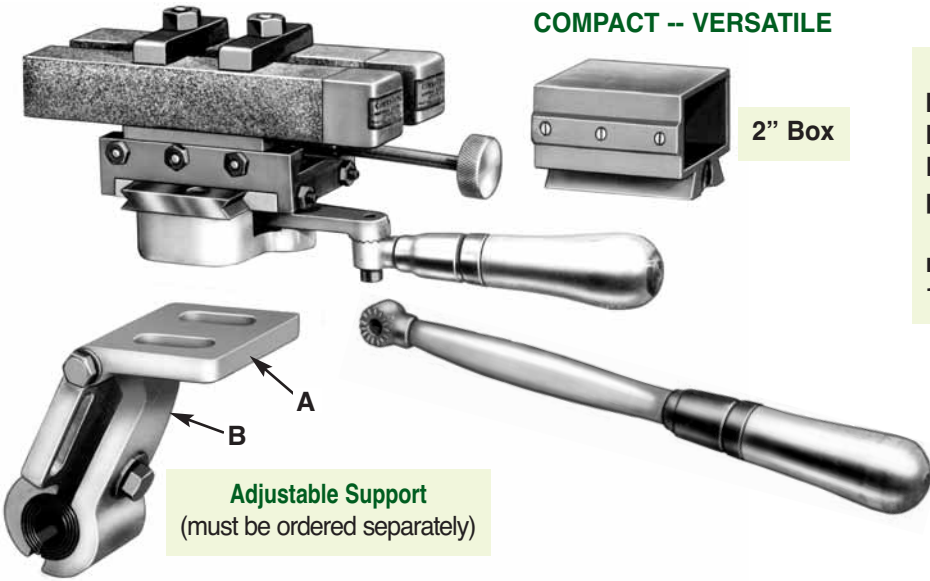
COMMUTATOR GRINDERS CONTENTS

	Page No.
• Chain-Drive	8
Grinding Capacity: 10 base lengths, grind from 6" to 25-1/2" long Dimensions: 5-1/2" to 24" L. x 5" W. without handle or knob x 4-3/4" H. + required support(s)	
• Comm-Pact	5
Grinding Capacity: 4 base lengths, grind from 6" to 14" long Dimensions: 6", 8", 10" or 12" L. x 7" W. x 3-3/4" H. + required support(s)	
• Commutator Grinding and Turning Tools	
• Straight	6
Grinding Capacity: base lengths from 6" to 48", grind from 6" to 50" long Dimensions: 6" to 48" L. + 8-1/2" handle x 3-3/4" W. + 4-5/8" handle x 7" H. + required support(s)	
• Right-Angle	6
Grinding Capacity: base lengths from 6" to 48", grind from 6" to 50" long Dimensions: 7-3/4" to 49-3/4" L. x 3-3/4" W. + 9" handle x 7" H. + required support(s)	
• Accessories	6
• Supports	7
• Power-Drive (Eliminates the need for hand cranking)	7
• Diamond Turning Tools	9
• Miniature	5
Grinding Capacity: up to 3-3/4" long Dimensions: 2-3/8" L. x 2-9/16" H. + required support(s)	
• Turning Tools, Diamond	9
• Type C	4
Grinding Capacity: up to 4-3/4" long Dimensions: 3-5/8" L. x 4-3/4" W. x 3-3/4" H. x 7-1/8" H. with support(s)	



Type C Commstone Holder

COMPACT -- VERSATILE



Part "A" of adjustable support can be separated from part "B" (at hinged center) and Commstone Holder base mounted directly on part "B".

Split fiber bushings in the clamp reduce the hole from 1" to 3/8" in 1/8" steps.

Handles can be mounted at any convenient angle.

Adjustable Support
(must be ordered separately)

Features:

- Only 3-5/8" long; fits in close quartered jobs.
- Flexible in-feed deflects to side in cramped quarters.
- Long or Short Handle may be used pivoted in any position.
- Choice of 2" Box or Stone Holder. These are interchangeable and both may be ordered.
- Carriage travel is 1-1/4", on "Teflon" ways.
- Commstones for use with the 2" Box (1" x 2" x 8"), or for use with the Stone Holder (1" x 1-1/2" x 6-1/2"), are available in all grades.
- Steel Carrying Case is available with space for commstones, small tools, etc.

The Type C Commstone Holder is a compact grinder for slip rings and commutators up to 4-3/4" long. This unit is especially valuable when the motor frame or brush rigging extends over the commutator or slip ring.

Best results are obtained when the armature is running at normal speed, in its own bearings, with centrifugal force holding the commutator in its true running position.

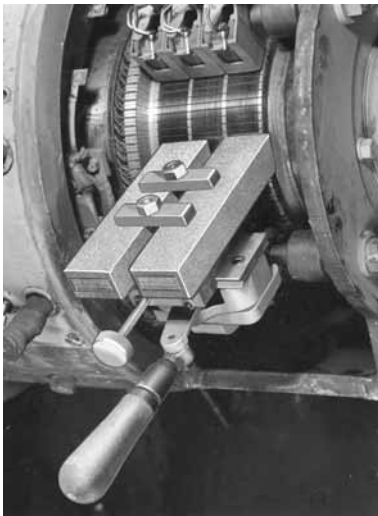
Use of a commstone frequently, for truing the face of a commutator, will help in avoiding the long and costly delay of disassembly that is required to turn an armature in a lathe.

Dimensions

Base Length: 3-5/8" Base Width: (without wood handle) 4-3/4"
 Height: (base to top of stone-holder nut) 3-3/4"
 Adjustable Support: (part "B" from center of brush-arm hole to center of joint with part "A") 3-3/8"

Grinding Capacity

With 2" box and 1 pc. 1" x 2" x 8" Commstone.....to 3-1/4"
 With Stone Holder and 2 pcs. 1" x 1" x 6-1/2" Commstones.....to 3-3/4"
 With Stone Holder and 2 pcs. 1" x 1-1/2" x 6-1/2" Commstones.....to 4-3/4"



Type C mounted on Auxilliary Generator using only lower part of adjustable support.

Type C Commstone Holder Less Adjustable Support:	Catalog Number
With Stone Holder and long and short handles	COMH100
With 2" Box and long and short handles	COMH101
Adjustable Support (not included with Commstone Holder). . .	COMH200
Stone Holder only.	COMH201
2" Box only	COMH202
Steel Carrying Case for Type C Holder	CASE101
Net Weight, with Adj. Support: 4-1/4 lbs.	

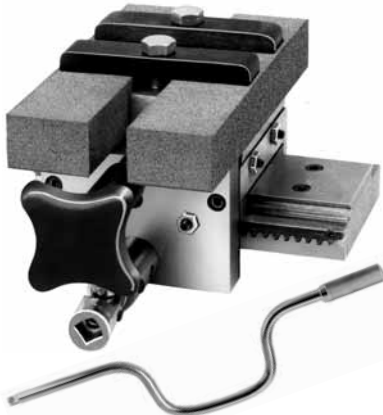
Commstones for above:	
1" x 1" x 6-1/2"	COMMxls846*
1" x 1-1/2" x 6-1/2"	COMMxls847*
1" x 2" x 8"	COMMxls850*

*When ordering, specify catalog number and grade (i.e. EC, C, M, F, P)
 (See Commstone descriptions in
 Diamond D Abrasives Catalog — pages 4, 5 & 7)

The “Comm-Pact” Grinding tool has a very low profile and is light-weight for use in confined spaces and on brush studs not heavy enough to support the weight of the large Commutator Grinder. Available in 6”, 8”, 10”, and 12” lengths, each of which can grind up to 2” longer than its base length.

The carriage travels on replaceable nylon V-blocks and is driven by a rack and pinion connected by a universal joint to a removable “speed-handle”. Standard 3/8” socket set extensions can be used to lengthen the drive handle.

Five different style mounting brackets are available including bushings for round brush arms from 1/2” to 1” diameter. For flat brush arms a wedge support is offered.



Dimensions

Length: 6”, 8”, 10”, or 12”
 Width: (with knob) 7”
 Height: (bottom of base to top of stone-holder bolt) 3-3/4”
 (add height of required support - see above right)
 Grinding Capacity: 2” longer than base length



Center Support for round brush arms, 1” diam. or less. Adds 1-1/2” to height.



Long “L” Support for round brush arms, 1” diam. or less. Adds 7/8” to height.



U-Support for round brush arms, 7/16” to 1-1/2” diam. Adds 1-1/4” to height.



Short “L” Support for round brush arms, 1” diam. or less. Adds 7/8” to height.



Wedge Support for flat brush arms. Adds 1-1/4” to height.

Grinder with Carrying Case

Catalog Number

6” longGRDR106
 8” longGRDR108
 10” longGRDR110
 12” longGRDR112

Supports and Accessories

Catalog Number

Center SupportGRDR200
 Long “L” Support (pair) . .GRDR201
 “U” SupportGRDR202
 Short “L” Support (pair) . .GRDR203
 Wedge SupportGRDR204
 6” Extension HandleGRDR205

Commstones: 1” x 1-1/2” x 6-1/2”
 (see description, etc., under “Type C Commstone Holder”)



Dimensions

Length: 2-3/8”
 Height: 2-9/16”
 Grinding Capacity: to 3-3/4”



Right: Flexible Handle.
Above Left: Support for Round Brush Arm. **Above Right: Support for Square Brush Arm.**

Miniature Grinding Tool

With this little grinder you can now precision-grind small motor and generator commutators or slip-rings which were formerly out of reach because of limited access space. This grinder’s small size permits entry into confined areas through either end-opening or side-opening machines. It mounts on a brush-arm with one of the two supports. It uses two 3/4” x 3/4” x 3” Commstones and will grind commutators up to 3-3/4” long. A flexible extension is available for use with the handle.

Miniature Grinder:

Catalog Number

Complete with Flexible Handle and Carrying CaseJGRD100
 Support for Round Brush Arm 5/8” to 3/4” diam.JGRD200
 Support for 5/8” Square Brush ArmJGRD201
 Flexible Extension (6”) for Flexible HandleJGRD202
 Replacement Flexible HandleJGRD203

Commstones for above:

3/4” x 3/4” x 3” Plain Lathe Type **(All Grades Available)** . .COMMXLS804*



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Martindale Commutator Grinding and Turning Tools



At left: Field Turning Tool Head Fig. 5

Diamond Turning Tools for your Lathe - See Pg. 9

Available in 2 styles in lengths from 6" to 48". Will grind, with commstones, 1" beyond base at each end or turn, with turning tool, 2" less than base length at each end.

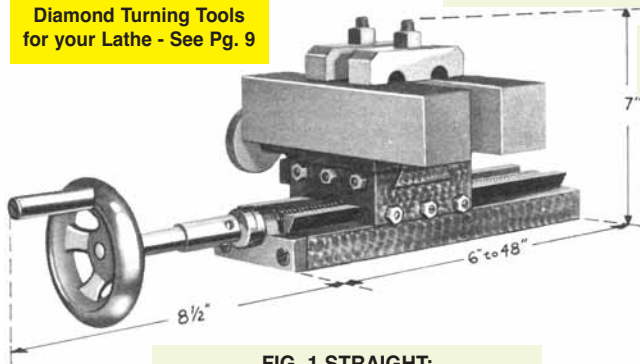


FIG. 1 STRAIGHT:
Used where there are no obstructions to interfere with crossfeed handle.

At left and at right: With Grinding Head

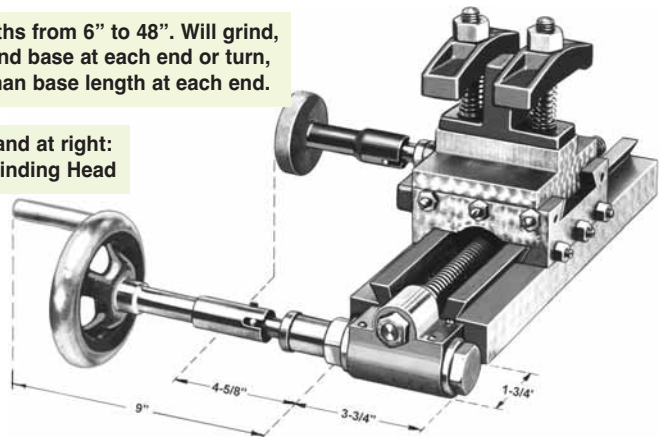


FIG. 8 RIGHT ANGLE:
Used where end frame, fan, etc., would interfere with crossfeed handle of Fig. 1.

The Martindale Commutator Grinder assures concentricity of the commutator or slip-ring by precision grinding while it is turning in its own bearings at operating speeds and temperatures, with centrifugal force holding each bar in place.

Either tool (Fig. 1 or 8) can be quickly changed from right to left hand operation. On Fig. 1, remove two screws and turn the cross-slide around.

On Fig. 8, the right-angle driving shaft is removed and inserted in the other side of the right-angle housing, and the grinding head cross-slide turned around as with Fig. 1.

When grinding use 2" x 2" x 8" Commstones in any of the 5 grades shown and described in Diamond D Catalog — pages 4, 5 & 7. The stones will grind 1" beyond the grinder base at each end, and they can be cocked to get into the corner at the riser.

If very deep grooves must be removed, the Fig. 5 Turning Tool Head may be used. It is interchangeable with the Grinding Head on either Fig. 1 or Fig. 8. The tool holder should be positioned as indicated in the upper left corner of this page. The top of the commutator should rotate away from the operator so that if the mounting should slip, the tool bit would be pushed away from the commutator instead of digging in. It is necessary to add 4" to the grinder base length when using the Turning Tool.

Grinders: (Carrying Case included with grinders below)	Catalog Number
Commutator Grinding Tool (Fig. 1), w/ 10" base or less	.GRDR300*
Commutator Turning Tool (Fig. 1), w/ 10" base or less, with Fig. 5 Head instead of Grinding Head	.GRDR301*
Right-Angle Grinding Tool (Fig. 8), w/ 10" base or less	.GRDR400*
Right-Angle Turning Tool (Fig. 8), w/ 10" base or less, with Fig. 5 Head instead of Grinding Head	.GRDR401*
For Grinders 10" to 26": add per inch over 10"	.GRDR666

(Grinder prices 28" and over on application.)

*Add base length to P/N when ordering (i.e.: "10", "12", etc.)

Power-Drive and Accessories, 115 V., 60 Hz. (See Page 7 for Description)	.GRDR501A
230 V., 50 Hz. (See Page 7 for Description)	.GRDR501B
Turning Tool Head (Fig. 5), including Tool Holder	.GRDR505

Supports:

Fig. 2 "L" Support (See Page 7 for Description)	.GRDR50202
Fig. 6 Wedge Block (See Page 7 for Description)	.GRDR50206
Fig. 9 "T" Support (See Page 7 for Description)	.GRDR50209

Extension Handles (Fig. 7):

6" (See Page 7 for Description)	.GRDR50306
10" (See Page 7 for Description)	.GRDR50310

Commstones for above:

2" x 2" x 8" Plain Lathe Type	.COMMxls855**
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**When ordering, specify cat. no. and grade (i.e. EC, C, M, F, P)

(See Commstone descriptions in Diamond D Abrasives Catalog — pages 4, 5 & 7)

See Power-Drive and Supports for Commutator Grinders - Page 7



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Weights: Figs. 1 or 8 with 12" base, Net 29 lbs., Shipping 38 lbs.; add about 2 lbs. for each additional inch. Power-Drive unit, Net 27 lbs., Shipping 32 lbs.

Martindale Commutator Grinding and Turning Tool Power-Drive

Power-Drive For Either Style Grinder Reduces tedious labor; speeds up the job.

See Page 6 for Part Numbers

A variable speed gear-motor controlled by a full-wave SCR control is attached to either Fig. 1 or Fig. 8 grinder by a positive drive coupling. A reversing switch, mounted on the carriage, is operated by adjustable stops mounted on the main bed. The motor unit mounts directly to the bed casting providing positive drive to the carriage.

Power-Drive eliminates the need for the operator to hand crank the head back and forth across the face of the commutator.

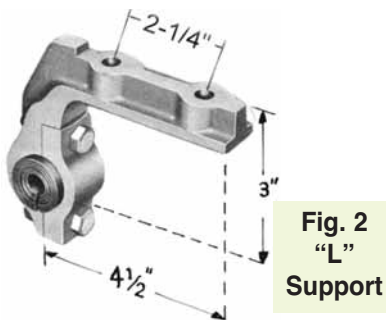


Martindale Commutator Grinding and Turning Tool Supports

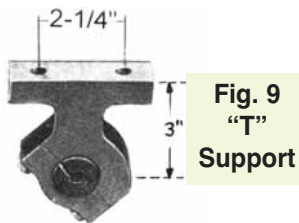
The Round Stud Supports are both drilled 1-1/4", and fibre bushings are provided for bushing the hole in the support to the diameter of the brush stud. The bushings also serve to insulate the Grinder when used on live brush studs.

Adjustable Wedge Blocks usually can be mounted on the brush arms in the same holes by the same stud bolts that fasten the brush holders, as shown in the illustration.

See Page 6 for Part Numbers



**Fig. 2
"L"
Support**



**Fig. 9
"T"
Support**

Fig. 7 Extension Handle



This extension can be supplied in a 6" or 10" length to extend handwheel past brush rigging or other obstruction, when necessary.



Fig. 6 Wedge Block

- Grinders 16" or less require 2 supports**
- Grinders 18" to 34" require 3 supports**
- Grinders 36" and over require 4 supports**

Grinder bases have mounting holes (3/8" - 16 thread) on 2-1/4" centers across the base and on 2" centers along the base for mounting supports.



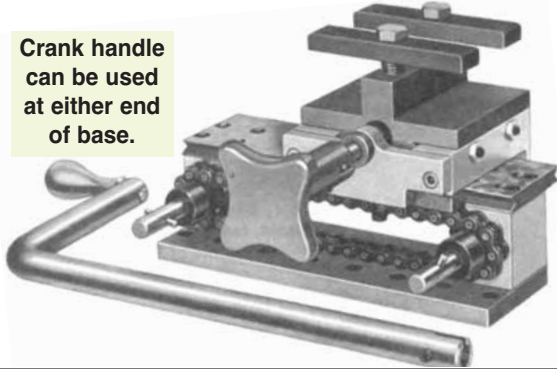
Martindale Chain-Drive Commutator Grinding Tools

Designed at the request of the Railroad Industry, but equally suited for grinding commutators of industrial equipment up to 26" long.

The Martindale Chain-Drive Commutator Grinder is a departure from previous designs, in that friction has been reduced to a minimum. Grinding dust has little effect on the operation.

Two or three turns of the crank will move the carriage from one end of the bed to the other. The operator can "feel" the stone cut, and how fast to feed it. This is probably the quickest and easiest Commutator Grinder to use.

Crank handle can be used at either end of base.



DIMENSIONS:

- Length: 5-1/2" to 24"
- Width: 5" (without handle or knob)
- Height: 4-3/4" (base to top of stone-holder nut)
- Adjustable Support: 3" (from center of brush-arm hole in lower part to center of joint with upper part)

Grinder Sizes

The table below shows stock size Grinders and the length commutator bars they will grind. Two commutator lengths are given in each case, as two different width Commstones can be used.

Grinder Base Length	* Grinding Lengths:		Catalog Number
	Using: 1"x1-1/2"x6-1/2" Commstones	Using: 1"x2"x8" Commstones	
5-1/2"	6"	7"	GRDR705
7-1/2"	8"	9"	GRDR707
10"	10-1/2"	11-1/2"	GRDR710
12"	12-1/2"	13-1/2"	GRDR712
14"	14-1/2"	15-1/2"	GRDR714
16"	16-1/2"	17-1/2"	GRDR716
18"	18-1/2"	19-1/2"	GRDR718
20"	20-1/2"	21-1/2"	GRDR720
22"	22-1/2"	23-1/2"	GRDR722
24"	24-1/2"	25-1/2"	GRDR724

* At least 1/2" can be added to grinding lengths by cocking Commstones in the stone-holder.



Grinder mounted on Traction Motor

A Universal Adjustable Support (shown below) is available for mounting on round brush arms. This support is in two parts, hinged together. It can be used as illustrated, with grinder mounted on top section and bottom section adjusted at desired angle; or top half can be removed and grinder mounted directly on lower part of support. Split fibre bushings reduce the clamp from 1-1/8" diam. to 3/8" diam. in 1/8" steps to make a tight fit on the brush stud.

Supports and Accessories:

Catalog Number

- Universal Adjustable Support.....GRDR740
- Adjustable Wedge Block (Fig. 6).....GRDR741
- Steel Carrying Case for Grinders under 18" .CASE102
- Steel Carrying Cases for Grinders over 18" .CASE103

Commstones for Above:

- 1" x 1-1/2" x 6-1/2"COMMXLS847*
- 1" x 2" x 8"COMMXLS850*

* When ordering, specify catalog number and grade (i.e. EC, C, M, F, P)

Weights, 5-1/2" base Grinder complete, Net 7 lbs., Shipping 10 lbs.; add 1/2 lb. for each additional inch.

Martindale Plain Lathe Type Commstones 1" x 1-1/2" x 6-1/2" and 1" x 2" x 8" are available in various grades.

See our Diamond D Abrasives Catalog, page 5 for a complete listing of grade recommendations for various surface conditions.



Universal Adjustable Support



Fig. 6 Adjustable Wedge Block

For mounting on flat brush arms use Adjustable Wedge Block Fig. 6 shown at left. (Use 1, 2, or 3, according to length of base).

Grinders up to 7-1/2" base need 1 support.
Grinders 10" to 16" base need 2 supports.
Grinders 18" to 24" base need 3 supports.

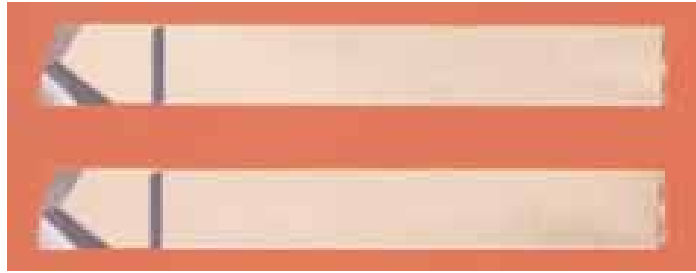
Grinder mounted on a Diesel-electric Generator.



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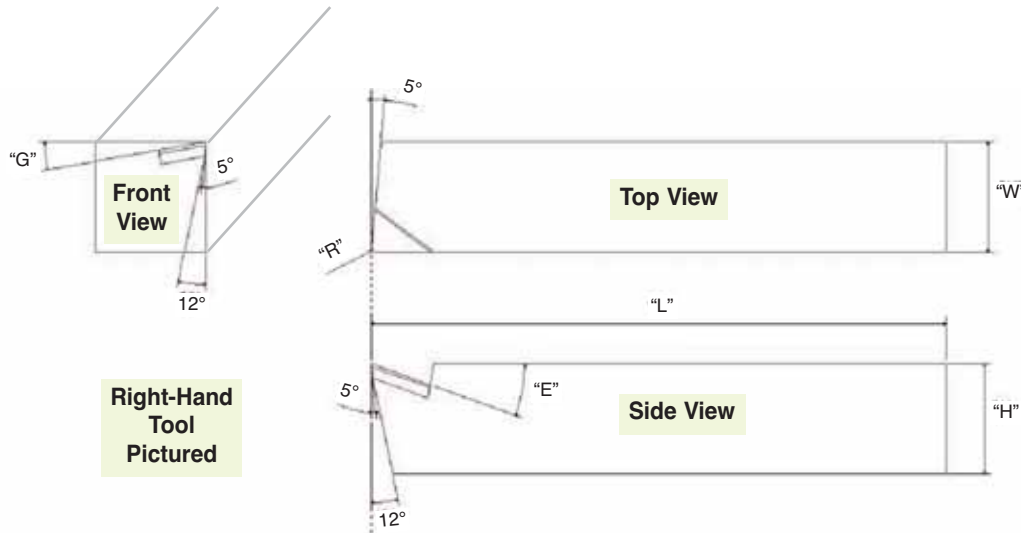
Diamond Turning Tools

Synthetic Diamond



Diamond tipped turning tools shown are used in the finishing of the commutator surface. Steep rake angles on the tool ensure clean cutting of the copper, leaving no smearing or drag over across the mica. The nose radius of .010" leaves a very smooth surface to the copper requiring minimal preparation for the seating of brushes.

Right-hand tools cut right to left, left-hand tools cut left to right, with tool positioned diamond side up, as used in most commutator turning applications.



W	H	L	G	E	R	Left Hand Catalog Number	Right Hand Catalog Number
3/8"	3/8"	3"	10°	20°	.010"	DAWTT38L	DAWTT38R
1/2"	1/2"	3-1/2"	10°	20°	.010"	DAWTT12L	DAWTT12R
5/8"	5/8"	4"	10°	20°	.010"	DAWTT58L	DAWTT58R
3/4"	3/4"	5"	10°	20°	.010"	DAWTT34L	DAWTT34R
1"	1"	6"	10°	20°	.010"	DAWTT1L	DAWTT1R
10mm	10mm	75mm	10°	20°	.25mm	DAWTT10MML	DAWTT10MMR
12mm	12mm	87.5mm	10°	20°	.25mm	DAWTT12MML	DAWTT12MMR
20mm	20mm	125mm	10°	20°	.25mm	DAWTT20MML	DAWTT20MMR
25mm	25mm	150mm	10°	20°	.25mm	DAWTT25MML	DAWTT25MMR

