

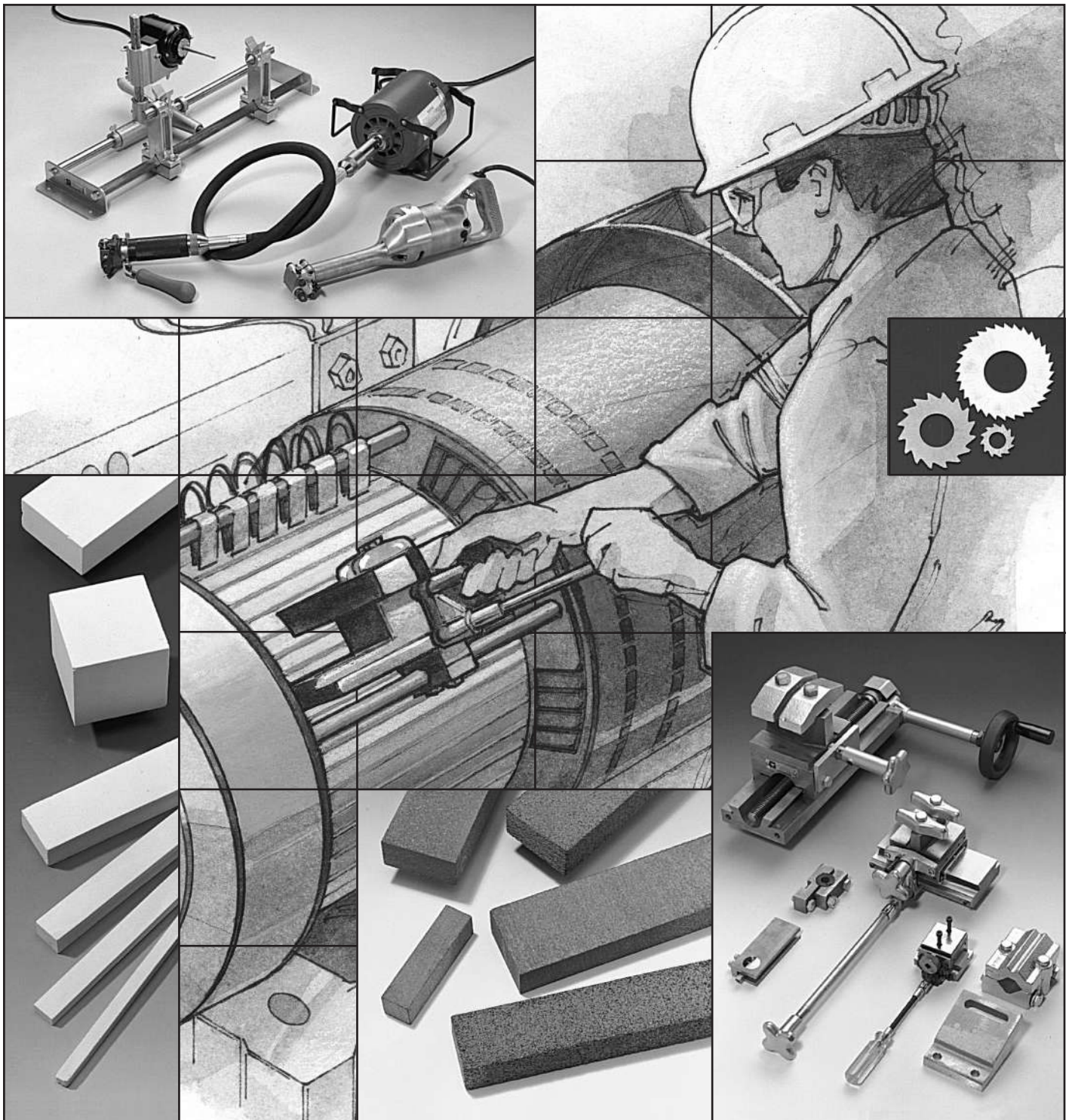


IDEAL INDUSTRIES (U.K.) LIMITED

International Division

# Commutator Maintenance Products

- Commutator Resurfacers
- Slotting and Scraping Tools
- Precision Grinders
- Mica Undercutters
- Saws and Milling Cutters
- Brush Seaters and Cleaners





# COMMUTATOR MAINTENANCE PRODUCTS

## Resurfacers

The following information will help you obtain just the right resurfacers for your jobs. Or, your distributor, in connection with IDEAL Engineers, will be glad to recommend Resurfacers for your particular needs. Simply give the diameter of the commutators or rings, the face width, clearance between sets of brushes, normal operating RPM and the general condition of the commutators or rings.

### How to select grade.

Resurfacers for commutators and copper-alloy slip rings are made in five grades:

- X** Extra coarse—very fast cutting, for “hogging” off excessive copper.
- C** Coarse—fast cutting.
- M** Medium—for general use, high mica, small ridges, and burns.
- F** Finish—for use after the above three grades, for periodic application and for removing small burns and ridges immediately after their appearance.
- P** Polish—very fine grade (220 aggregate grain) for burnish finish.

**For Small Motor and Pocket Types**, grade code letters designate the following grade combinations:

- |                        |                        |
|------------------------|------------------------|
| <b>A</b> Medium/Finish | <b>G</b> Coarse/Medium |
| <b>B</b> Coarse/Finish | <b>H</b> Medium/Polish |
| <b>D</b> Finish/Polish |                        |

For all resurfacers, specify grade by adding the appropriate letter as a suffix to the catalogue number.

### How to select size.

Size is always written length x width x thickness (working face area x depth of stone). For handle types, handle is mounted parallel to the first dimension. Always use a resurfacer with the largest face possible (length x width). Thickness should be governed by clearance around commutator or ring. Please specify grade by using the appropriate letter as a suffix to the catalogue number.

**Commutator Resurfacers.** The resurfacer should have a width of approximately 3/4 the length of the commutator bar and as long as will conveniently go between the brush riggings. For periodic application three or four sizes are sufficient for most plants. After determining approximate dimensions, select nearest standard size and type.

**Slip Ring Resurfacers.** When space permits, use a resurfacer about 1" wider than the face width of the ring. Length should be at least three times greater than the longest flat spot to bridge over and assure a true ring.

**Special Resurfacers.** Resurfacers can be made to order. Please contact us with your requirements.

### How to use a resurfacer.

The resurfacer is simply pressed against the commutator and moved slowly from side to side in the direction of the commutator bars, with the machine running no load at full speed. Centrifugal stresses are thus the same as in normal operation, and the commutator is finished with every segment in true operating condition.

On low voltage machines, such as traction motors, the resurfacing may be done with the machine running full load.

## Small Motor-Type Resurfacer

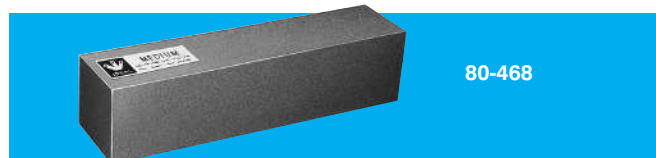


Comes with one grade of stone on one end and a second grade on the other. Length of handle 254 mm. An extremely useful tool for use on small fractional horsepower motors.

Size	Grades	Catalogue Number
19x13x10 mm	A, B, D, G, H	80-012*

\*Add grade letter suffix to Cat. No.

## Tool-Type Resurfacer



For use in IDEAL INDUSTRIES' precision grinders, or any type of lathe truing device. Two resurfacers are required for each grinder. Resurfacers for IDEAL INDUSTRIES' grinders are as follows:

Description	Qty.	Catalogue Number
for "Pee-Wee" Grinder	2	80-504*
for "Midget" Grinder	2	80-454*
for "IDEAL" Grinder	2	80-475*

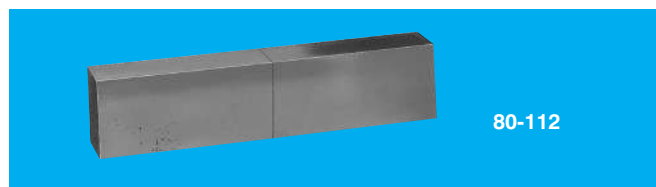
\*Add grade letter suffix to Cat. No.

Other sizes may be more appropriate in your application. Please specify grade required by adding the appropriate designation as a suffix to the catalogue number. (Example: 80-475M for medium grade). Approximate shipping weight 1 pound per 305 mm of stone.

Size	Grades	Catalogue Number
19x19x75 mm 25x37x165 mm	X, C, M, F, P	80-504* 80-454*
25x50x203 mm 37x64x203 mm		80-461* 80-468*
50x50x203 mm 25x37x280 mm		80-475* 80-482*
37x64x280 mm 50x50x280 mm		80-489* 80-496*

\*Add grade letter suffix to Cat. No.

## Pocket-Type Resurfacer



A handy “two-in-one” utility tool for all-around shop maintenance. Available in any two-grade combination. Especially designed for use on small motors and generators.

Sizes	Grades	Catalogue Number
50x25x153 mm 50x25x203 mm	A, B, D, G, H	80-112* 80-137*

\*Add grade letter suffix to Cat. No.

## Pencil-Type Resurfacer



Used for fans or signal motors, auto generators, locomotive headlight motors and other fractional H.P. motors.

Size	Grades	Catalogue Number
16x10x153 mm	X, C, M, F, P	80-075*

\*Add grade letter suffix to Cat. No.



# COMMUTATOR MAINTENANCE PRODUCTS

## Resurfacers Cont.

### Straight-Handle Resurfacer

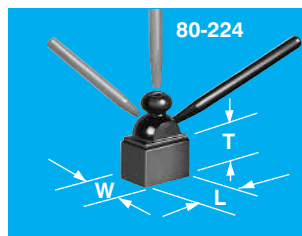


Used primarily for hard-to-reach commutators on small or enclosed motors. Length of handle 260 mm.

Size	Grades	Catalogue Number
25x25x25 mm 25x25x50 mm	X, C, M, F, P	80-155*
		80-165*
50x25x25 mm 50x25x50 mm		80-174*
		80-184*
75x25x50 mm		80-193*

\*Add grade letter suffix to Cat. No.

### Adjustable-Handle Resurfacer



For use on medium-size motors and small generators. Includes a small knob permanently fastened to the resurfacer with an extra rod handle that can be adjusted to any one of three vertical positions as illustrated. Length of handle 260 mm.

Size (W x L x T)	Grades	Catalogue Number
50x37x50 mm 50x50x50 mm	X, C, M, F, P	80-205*
		80-215*
75x50x50 mm 75x75x50 mm		80-224*
		80-234*
100x75x50 mm		80-243*

\*Add grade letter suffix to Cat. No.

### Railway-Handle Resurfacer



Stout handle with good grip, permanently mounted in a vertical position. Length of handle 190 mm.

Size (W x L x T)	Grades	Catalogue Number
50x37x50 mm 50x50x50 mm	X, C, M, F, P	80-305*
		80-315*
75x50x50 mm 75x75x50 mm		80-324*
		80-334*
100x75x50 mm		80-343*

\*Add grade letter suffix to Cat. No.

### Tramway-Handle Resurfacer

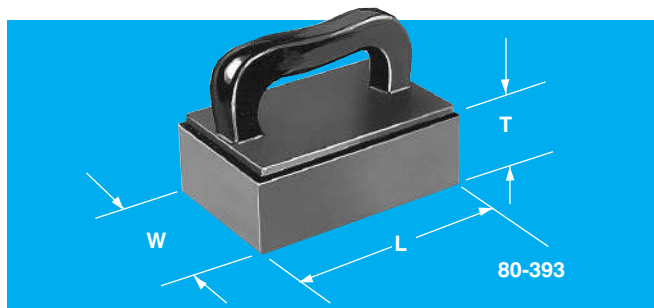


Well shaped to assure good grip. Handle 190 mm permanently mounted at 45° angle.

Size (W x L x T)	Grades	Catalogue Number
50x37x50 mm 50x50x50 mm	X, C, M, F, P	80-255*
		80-265*
75x50x50 mm 75x75x50 mm		80-274*
		80-284*
100x75x50 mm		80-293*

\*Add grade letter suffix to Cat. No.

### Saw-Handle Resurfacer



For use on large motors, small rotary converters, motor-generator sets, telephone generators, etc. Handle is mounted parallel to length (first dimension given) unless otherwise requested.

Size (W x L x T)	Grades	Catalogue Number
100x25x75 mm 100x37x75 mm 100x75x50 mm	X, C, M, F, P	80-353*
		80-357*
		80-362*
100x100x75 mm 125x50x50 mm 125x50x75 mm		80-366*
		80-371*
		80-376*
125x75x50 mm 125x75x75 mm 150x50x75 mm		80-380*
		80-385*
		80-389*
150x100x75 mm 200x100x75 mm		80-393*
		80-397*

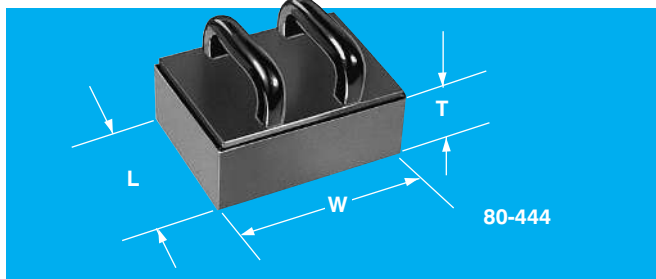
\*Add grade letter suffix to Cat. No.



# COMMUTATOR MAINTENANCE PRODUCTS

## Resurfacers cont.

### Double Saw-Handle Resurfacer



For use on large rotary converters, large engine-driven generators and very large motors such as those used in steel mills. Double handles give two-hand control.

Size (W x L x T)	Grades	Catalogue Number
100x200x75 mm	X, C, M, F, P	80-407*
125x175x75 mm		80-419*
125x225x75 mm		80-432*
150x250x75 mm		80-444*

\*Add grade letter suffix to Cat. No.

### Brush Seater and Commutator Cleaner



This gentle acting abrasive is very effective for seating carbon brushes and cleaning commutators and slip rings. It is made of a soft, loosely bound grain that produces a scouring effect as it is held against the commutator. The abrasive wears away sufficiently for self-cleaning, but does not remove or scratch the copper. It is often called a "chalk" stone because of its colour and chalk-like texture.

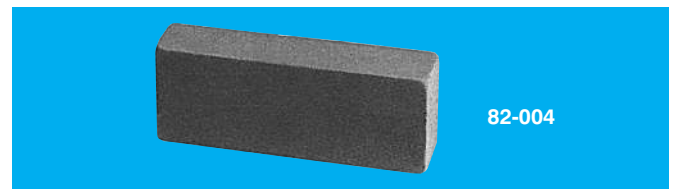
Furnished in "S" (soft), "M" (medium), or "H" (hard) grades as noted in the following table.

When ordering specify grade by code letter, and add to catalogue number as a suffix (example: 23-001M.) Approximate weight - 250 mm weighs 1/2 pound.

Dimensions	Grade	Catalogue Number
6x6x119 mm	M, H	23-001*
13x6x119 mm	M, H	23-002*
9x9x119 mm	M, H	23-003*
13x9x119 mm	S, M, H	23-004*
13x13x119 mm	S, M, H	23-005*
16x13x119 mm	S, M, H	23-006*
19x13x119 mm	S, M, H	23-007*
29x16x119 mm	S, M, H	23-008*
13x25x119 mm	S, M, H	23-027*
25x25x119 mm	S	23-035
50x25x119 mm	S	23-036
50x50x50 mm	S	23-037
75x50x100 mm	S	23-039
75x50x150 mm	S	23-041
75x50x200 mm	S	23-042

\*Add grade letter suffix to Cat. No.

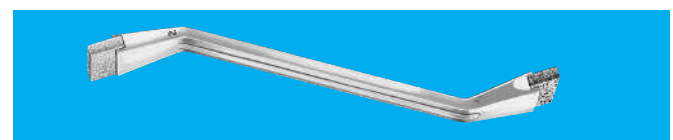
## Powr-Polish™ Flexible Abrasive



This flexible abrasive cleaner is designed for hundreds of cleaning and polishing jobs. It is a fine-grain, non-dusting abrasive, held together by a flexible bond. Serves as both commutator cleaner and burnisher. Removes dirt and grease—imparts a super-finished surface. It is non-conductive and non-loading.

Size	Catalogue Number
10x13x125 mm	82-001
10x10x125 mm	82-002
16x25x125 mm	82-003
25x50x125 mm	82-004
25x100x125 mm	82-005
3x25x125 mm	82-006

## Commutator Smoothie®



A resurfacing tool designed to smooth commutators of auto generators, starting motors and other similar equipment. Consists of an 216 mm plastic handle with a 8x22x17 mm resurfacer on each end. One resurfacer is polish grade and the other is finish grade. Handle is properly bent to reach into any motor frame. Both the resurfacing material and handle are non-conducting.

Description	Catalogue Number
Commutator Smoothie®	80-033

## Slotter & Scraper



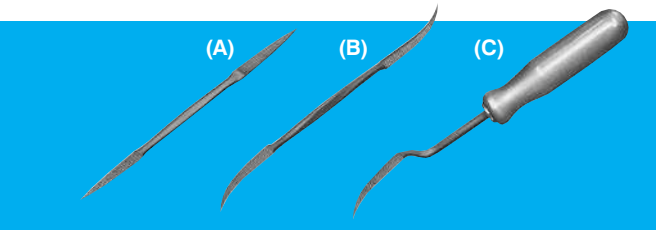
Cleans slots, smooths burrs, removes mica fins, and bevels sharp copper edges after undercutting. Rigid tool-steel bit has "V" cutting edge at one end and "U" cutter at other end. Length 165 mm.

Description	Catalogue Number
Hand Slotter and Scraper	20-006
Replacement Blade	L-7704



# COMMUTATOR MAINTENANCE PRODUCTS

## Slotting Files

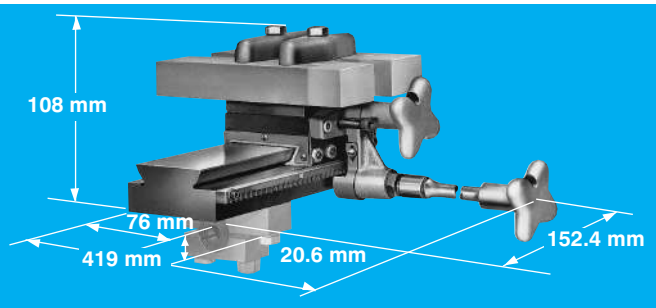


Hard-steel slotting files are designed for long life and fast cutting. Proper taper and curve allow for rocking motion.

Description	Catalogue Number
(B) 200 mm, Curved, Double-End Draw Cut	20-007
(B) 175 mm, Curved, Double-End Push Cut	20-008
(C) 240 mm, Curved, Single-End Draw Cut with Handle	20-009
(A) 184 mm, Straight, Double-End & Push Cut	20-012
175 mm, Knife Edge, Double-End Push Cut	20-013

## Grinders and Accessories

### “Midget” Precision Grinder



Designed for use on commutators having a face width of 203 mm or less, as well as for use on medium-sized slip rings. Its small size allows operation in very small places.

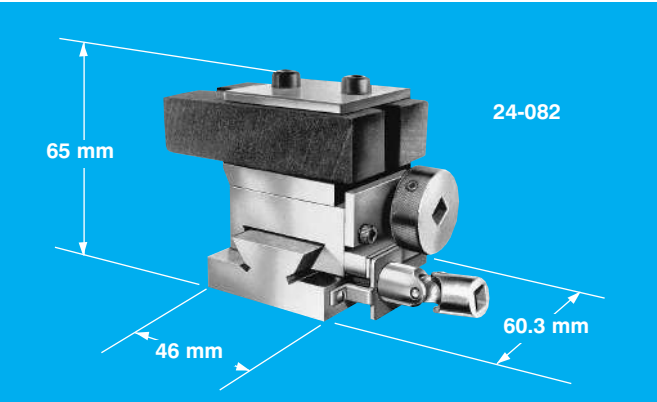
In-feed and cross-feed carriage ways are carefully machined and ground to close-fitting tolerances. Clog-free cross-feed rack and pinion permits crossfeed handwheel to be brought up at right angle. This permits working in narrow spaces where motor end bells or brush yokes prevent the use of a cross-feed screw parallel to the axis of the machine.

The standard base length is 152 mm and is recommended for commutator widths up to 235 mm. This includes an extra 25 mm of travel obtained by setting the resurfacers at a slight angle.

**NOTE:** The “Midget” grinder comes complete with carrying case. Order tool-type resurfacers (80-454 recommended—2 required) and brush arm supports separately.

Description	Catalogue Number
“Midget” Precision Grinder	24-033

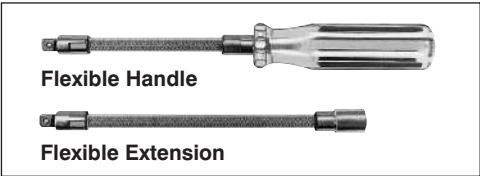
### “Pee-Wee” Precision Grinder



This model enables precision grinding of commutators and slip rings on motors and generators which previously were inaccessible because of space limitations. Mounts directly onto brush arm or improvised support, and grinds with armature or rotor turning in its own bearings and at the equipment’s normal operating speed (no load). It accurately trues-up commutators and slip rings with surfaces that are badly grooved, scored or out of round. No major motor or generator dismantling necessary.

Length of base is 60.3 mm. Designed for use on commutators up to 95.2 mm wide. This includes an extra 25 mm of travel obtained by setting the resurfacer at a slight angle. Precision cross-feed and in-feed adjustments enable accurate grinding across the full width until both a straight face and concentricity are achieved.

**NOTE:** The “Pee-Wee” grinder comes complete with 171.4 mm flexible handle and carrying case. Order tool-type resurfacers (80-504 recommended—2 required) and brush arm supports separately.



A 175 mm flexible extension is available for use with the flexible handle for right-angle operation on end-opening machines. Order flexible extension separately.

Description	Catalogue Number
“Pee-Wee” Precision Grinder	24-082
Replacement Flexible Handle	L-7360
Flexible Extension	L-7361

## Commutator Cement



Non-conductor for filling holes in commutator bars and pitted mica. Highly adhesive; non-shrinking; and resists fire, oils, acids.

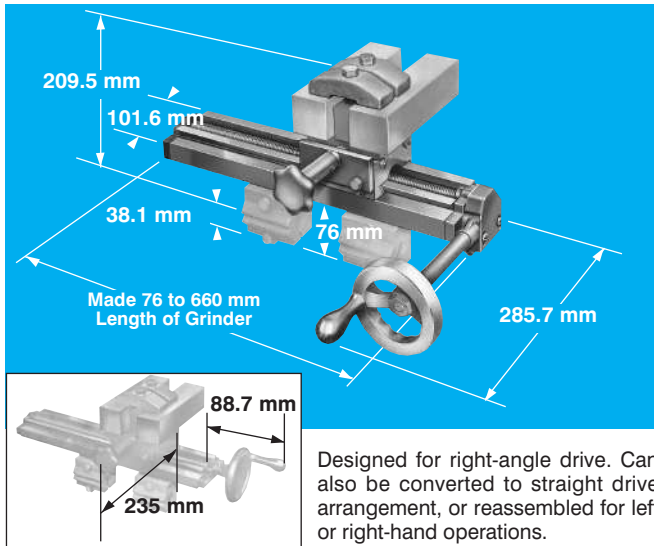
Description	Catalogue Number
1/2 lb. jar	54-007



# COMMUTATOR MAINTENANCE PRODUCTS

## Grinders and Accessories cont.

### “IDEAL” Precision Grinder



**NOTE:** The “IDEAL” grinder comes complete with carrying case. Grinders with overall lengths up to and including 343 mm require two (2) brush arm supports. All others require three (3) brush arm supports. All grinders require two (2) tool type resurfacers (80-475 recommended). Order supports and resurfacers separately.

Over-All Length*	Base Length	For Max. Commutator Width†	Catalogue Number
191 mm	152 mm	260 mm	24-018
241 mm	200 mm	318 mm	24-019
292 mm	254 mm	368 mm	24-020
343 mm	305 mm	419 mm	24-021
406 mm	356 mm	470 mm	24-022
457 mm	406 mm	520 mm	24-023
508 mm	457 mm	572 mm	24-024
152 mm Extension Handle			24-034

**NOTE:** Longer lengths available as specials in 51 mm increments up to 660 mm base length.

†These dimensions include an extra 38 mm of travel obtained by setting the resurfacers at a slight angle.

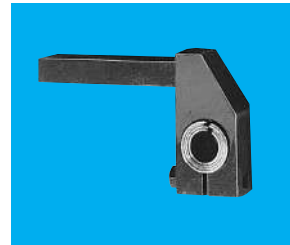
\*Over-all-length does not include hand wheel assembly.

## Brush Arm Supports



For “Midget” grinder only.

Description	Catalogue Number
Long “L” for round brush arms of 25 mm diameter or less	24-037
Short “L” for round brush arms of 25 mm diameter or less	24-038
Centre support for round brush arms of 25 mm diameter or less	24-039



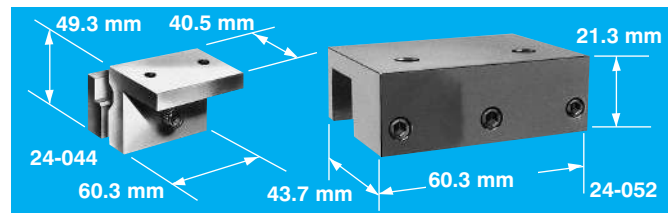
For “IDEAL” grinders only

Description	Catalogue Number
Large “L” support for round brush arms of 32 mm diameter or less. Slips over end of arm.	24-035



For either “Midget” or “IDEAL” grinders.

Description	Catalogue Number
Wedge support for flat brush arms	24-042
Small “U” for round brush arms of 11 to 38 mm diameter. Two halves are separable.	24-043



For “Pee-Wee” grinder and others.

Description	Catalogue Number
Support for round brush arm of 15 to 20 mm diameter	24-044
Support for 16 mm square brush arm	24-052



# COMMUTATOR MAINTENANCE PRODUCTS

## Grinders and Accessories Cont.

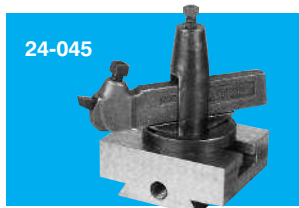
### Light-Duty Turning Tool for "Midget" Grinder



A handy, economical turning tool for removing ridges or beads of copper left at inner edge of commutator next to riser. Clamps into grinder in place of "Tool-Type" resurfacer.

Description	Catalogue Number
For "Midget" Model Grinder	24-041

### Lathe-Type Turning Tool for "IDEAL" and "Midget" Grinders

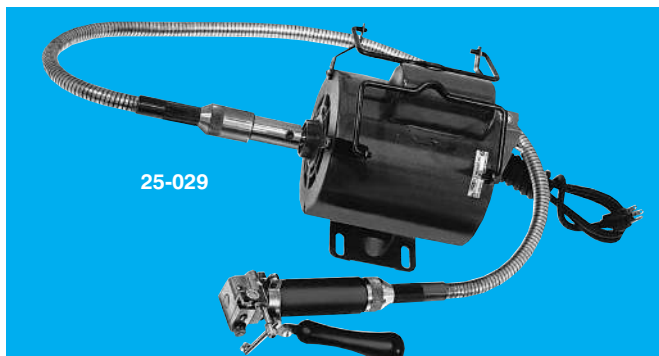


For removing large amounts of copper. (Follow-up with "Tool Type" resurfacers to give a smooth finish.) Complete unit includes a 6 mm square, high-speed steel tool bit, tool holder, tool post fittings, and tool post wrench.

Description	Catalogue Number
For "IDEAL" Model Grinders	24-045
For "Midget" Model Grinder	24-046

## Mica Undercutters

### Universal Mica Undercutter



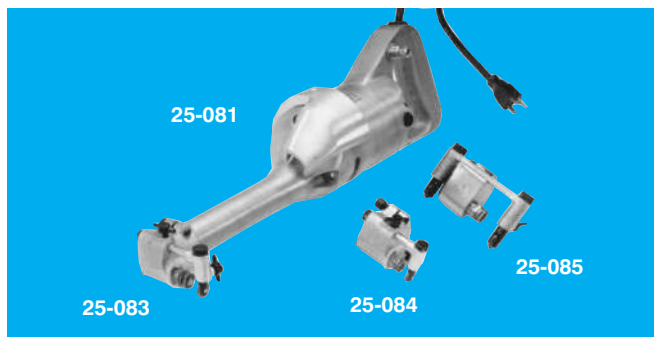
Designed for heavy-duty field and shop use. For large or small commutators. Undercuts in narrow confined spaces and to within 6 mm of risers. Works in spaces only 70 mm wide. Undercuts without removing brush riggings. Carrying case included (except for Model 25-051).

Motor is 1/4 H.P., 1750 rpm (13 mm shaft) equipped with hanger, overload circuit breaker, 229 mm 3-conductor grounding cord and plug. Has swivel head motor connection and 102 mm flexible shaft. Cutting head is of ball bearing construction with spiral gear drive to cutting spindle. Spindle speed is 1750 rpm. Requires 22 mm diam. x 8 mm bore saws and cutters. Weight of head is only 4-1/2 lbs. Shipping weight complete with motor and carrying case, 50 lbs.

Description	Catalogue Number
115V., 50-60 Cy. AC	25-029
230V., 50-60 Cy. AC	25-063
Without Motor	25-051

NOTE: Order saws and milling cutters separately.

### Direct-Drive Mica Undercutter



Provides compact power in a self contained unit for any job of an intermittent nature. Designed for motors or generators with limited access ports.

An excellent all-around undercutter for industrial plants or repair shops, can be used in the shop or taken to the job.

- The motor is a 1/5 h.p. Universal motor which operates on 50 to 60 Hertz, AC or DC.
- An air duct, fitted over the ventilating slots directs air toward the cutter to help blow away the mica dust.
- Overall length is 419 mm. Has 3-conductor cord and plug. Weighs just 8-1/4 lbs.

Three heads (ordered separately from main unit) easily interchange for different cutting needs.

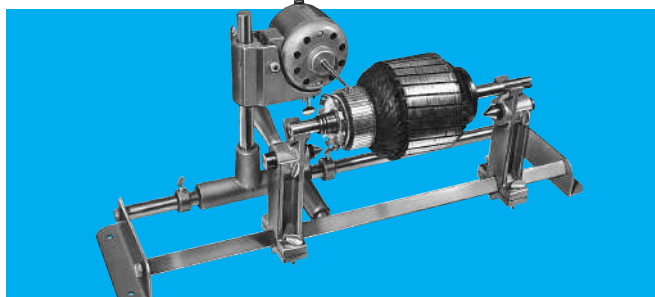
- Small head allows undercutting closer to risers. Standard head is for all-around use. Heavy-duty head with more rugged parts to withstand usage on larger commutators.
- Slot guides furnished on all heads help guide cutter for better control and accuracy.

Description	Catalogue Number
115V., AC/DC main body unit	25-081
230V., AC/DC main body unit	25-082
Small cutter head for 18 mm or 19 mm saws (3500 r.p.m.)	25-083
Standard cutter head for 22 mm or 25 mm saws (2800 r.p.m.)	25-084
Heavy-Duty head for 29 mm or 32 mm saws (1850 r.p.m.)	25-085

NOTE: Order saws and milling cutters separately.

### Small-Motor Mica Undercutter

#### For Fractional H.P. Motors



"V" blocks permit quick adjustment of the armature to correct position. Cutting head is adjustable so that bearings, gears, or flanges need not be removed. Cutting head can also be removed for use in lathe or other holding devices. Cutter travel (both directions) is controlled by adjustable stops.

For armatures 25 mm to 178 mm dia. Holds centred, centreless or hollow shafts. Takes centred shafts up to 457 mm, uncentred to 495 mm. Requires 3 mm bore saws. The 6 mm O.D. saw cuts 0.8 mm deep, the 7 mm O.D. saw cuts 1.1 mm deep, and the 25 mm O.D. saw cuts 1.5 mm deep. Has Universal AC-DC motor (25 to 70 cycle) with 254 mm 3-conductor grounding cord and plug. Loaded cutting speed is 8000 rpm. Overall dimensions are 660 mm x 212 mm x 273 mm. Shipping weight 22 lbs.

Description	Catalogue Number
115V., AC/DC	25-048

NOTE: Please order saws separately.



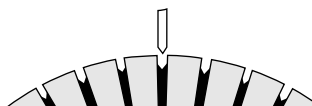
# COMMUTATOR MAINTENANCE PRODUCTS

## Commutator Saws and Milling Cutters

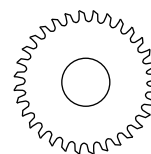
### “V” Slot Commutator Milling Cutters

To order, specify the catalogue number listed in the proper table. Note that milling cutters (both tungsten-carbide and high-speed steel) are available in 1 mm thickness only. Because of the “V” shape teeth, this one thickness can cut mica ranging from 0,3 mm to 1 mm in thickness.

It should be noted that these saws and cutters are designed for commutator mica only. They are not recommended for slitting copper and other metals.



V-slot



### Tungsten-Carbide Milling Cutters

The tungsten-carbide cutting tools will provide extremely long service if used carefully. Because of the brittleness of tungsten carbide, users should be cautioned against rough treatment. With proper care, they will outperform high-speed steel by many times.

All saws are hollow ground and the milling cutters offer abundant radial relief to provide good clearance. Both the saws and cutters can be used for spindle speeds up to 12000 RPM.

Size O.D. x I.D.	Cutter Angles		
	40°	50°	60°
	Catalogue Number	Catalogue Number	Catalogue Number
13 mm x 5 mm	27-326	27-327	27-328
19 mm x 8 mm	27-329	27-330	27-331
22 mm x 8 mm	27-332	27-333	27-334
25 mm x 7 mm	27-335	27-336	27-337
25 mm x 8 mm	27-338	27-339	27-340
25 mm x 9 mm	27-341	27-342	27-343

**NOTE:** All cutters are 1 mm thick.

Consult your IDEAL representative on availability of special sizes.

### High-Speed Steel Milling Cutters

For greater economy, IDEAL high-speed cutting tools may meet your needs. Although they are not designed to provide the exceptional longevity of the tungsten-carbide tools, they provide excellent service at a substantial price advantage.

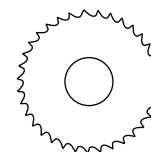
Size O.D. x I.D.	Cutter Angles		
	40°	50°	60°
	Catalogue Number	Catalogue Number	Catalogue Number
13 mm x 5 mm	27-201	27-200	27-202
18 mm x 8 mm	27-451	27-450	27-452
19 mm x 8 mm	27-461	27-460	27-462
22 mm x 8 mm	27-501	27-500	27-502
25 mm x 7 mm	27-301	27-300	27-302

**NOTE:** All cutters are 1 mm thick.

Consult your IDEAL representative on availability of special sizes.



U-slot



### “U” Slot Commutator Saws

To order, specify the catalogue number listed in the proper table.

### Tungsten Carbide Saws

Size O.D. x I.D.	Thickness in Metrics												
	0.38	0.45	0.50	0.58	0.63	0.71	0.76	0.81	0.88	0.96	1.01	1.09	1.14
	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
6 mm x 3 mm	26-614	26-615	26-616	26-617	26-618	26-619	26-620	26-621	26-622	26-623	26-624	26-625	26-626
8 mm x 3 mm	26-627	26-628	26-629	26-630	26-631	26-632	26-633	26-634	26-635	26-636	26-637	26-638	26-639
9 mm x 3 mm	26-640	26-641	26-642	26-643	26-644	26-645	26-646	26-647	26-648	26-649	26-650	26-651	26-652
9 mm x 5 mm	26-653	26-654	26-655	26-656	26-657	26-658	26-659	26-660	26-661	26-662	26-663	26-664	26-665
13 mm x 5 mm	26-666	26-667	26-668	26-669	26-670	26-671	26-672	26-673	26-674	26-675	26-676	26-677	26-678
14 mm x 6 mm	26-679	26-680	26-681	26-682	26-683	26-684	26-685	26-686	26-687	26-688	26-689	26-690	26-691
16 mm x 6 mm	26-692	26-693	26-694	26-695	26-696	26-697	26-698	26-699	26-700	26-701	26-702	26-703	26-704
19 mm x 6 mm	26-705	26-706	26-707	26-708	26-709	26-710	26-711	26-712	26-713	26-714	26-715	26-716	26-717
19 mm x 8 mm	26-718	26-719	26-720	26-721	26-722	26-723	26-724	26-725	26-726	26-727	26-728	26-729	26-730
22 mm x 8 mm	26-731	26-732	26-733	26-734	26-735	26-736	26-737	26-738	26-739	26-740	26-741	26-742	26-743
22 mm x 9 mm	26-744	26-745	26-746	26-747	26-748	26-749	26-750	26-751	26-752	26-753	26-754	26-755	26-756
25 mm x 7 mm	26-757	26-758	26-759	26-760	26-761	26-762	26-763	26-764	26-765	26-766	26-767	26-768	26-769
25 mm x 8 mm	26-770	26-771	26-772	26-773	26-774	26-775	26-776	26-777	26-778	26-779	26-780	26-781	26-782
25 mm x 9 mm	26-783	26-784	26-785	26-786	26-787	26-788	26-789	26-790	26-791	26-792	26-793	26-794	26-795
32 mm x 8 mm	26-796	26-797	26-798	26-799	26-800	26-801	26-802	26-803	26-804	26-805	26-806	26-807	26-808
32 mm x 9 mm	26-809	26-810	26-811	26-812	26-813	26-814	26-815	26-816	26-817	26-818	26-819	26-820	26-821
32 mm x 13 mm	26-822	26-823	26-824	26-825	26-826	26-827	26-828	26-829	26-830	26-831	26-832	26-833	26-834

### High Speed Steel Saws

6 mm x 3 mm	26-051	26-052	26-053	26-054	26-055	26-056	26-057	26-058	26-059	26-060	26-061	26-062	26-063
7 mm x 3 mm	26-101	26-102	26-103	26-104	26-105	26-106	26-107	26-108	26-109	26-110	26-111	26-112	26-113
8 mm x 3 mm	26-151	26-152	26-153	26-154	26-155	26-156	26-157	26-158	26-159	26-160	26-161	26-162	26-163
9 mm x 3 mm	26-171	26-172	26-173	26-174	26-175	26-176	26-177	26-178	26-179	26-180	26-181	26-182	26-183
13 mm x 5 mm	26-201	26-202	26-203	26-204	26-205	26-206	26-207	26-208	26-209	26-210	26-211	26-212	26-213
17 mm x 5 mm	26-251	26-252	26-253	26-254	26-255	26-256	26-257	26-258	26-259	26-260	26-261	26-262	26-263
18 mm x 8 mm	26-451	26-452	26-453	26-454	26-455	26-456	26-457	26-458	26-459	26-460	26-461	26-462	26-463
19 mm x 8 mm	26-431	26-432	26-433	26-434	26-435	26-436	26-437	26-438	26-439	26-440	26-441	26-442	26-443
22 mm x 8 mm	26-501	26-502	26-503	26-504	26-505	26-506	26-507	26-508	26-509	26-510	26-511	26-512	26-513
25 mm x 8 mm	26-581	26-582	26-583	26-584	26-585	26-586	26-587	26-588	26-589	26-590	26-591	26-592	26-593
25 mm x 9 mm	26-601	26-602	26-603	26-604	26-605	26-606	26-607	26-608	26-609	26-610	26-611	26-612	26-613
32 mm x 8 mm	26-551	26-552	26-553	26-554	26-555	26-556	26-557	26-558	26-559	26-560	26-561	26-562	26-563

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**For more detailed information see full catalogues or feel free to contact:**

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