

RUSHMachinery

THE TOOL GRINDING SPECIALISTS

Drill and Tool Grinders
Models 132C, 250A, 252, 380 and 382S

ACAT

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Accuracy and Productivity

Holemaking is by far the largest and most expensive machining operation. The process involves drilling, tapping, reaming, counter-sinking and counterboring. These operations are slowed down by worn tools, inaccurate tools and tools with improper geometry. This further increases expenses by creating more frequent machine down time and tool changes, greater scrap losses, and higher costs for tool purchase, inventory and regrind.

RUSH drill and tool grinders are designed to reduce holemaking expenses by allowing companies to quickly and accurately regrind their tools to the proper geometry whenever it is needed. Every machine comes with a detailed operation manual and a comprehensive training video.



Drill Points

Point Thinning

Permits easier penetration and corrects web center.

Split Point

Self-centering, reduces thrust. For deep holes and harder materials.

Web Thinning

For thick web and parabolic drills. Aids centering and allows increased feed rates.

Spiral Point

Self-centering. Increased feed rates.

Lip Correction

Corrects the flute spacing and thins the web. Also modifies the rake angle and can create chip breakers.

Structural Steel Point

For drilling I-beams and other heavy structural steel. Self-centering; produces minimal burr.

Sheet Metal Point

Self-centering. Reduces burrs and deformations in thin materials.

Double Angle

Cast iron point. Combination of 118 and 90 degrees extends drill life and improves the hole finish.

Four-facet

Self-centering. Improves hole accuracy.

Flat-bottom

Produces flat bottoms in holes for special applications.

Plastic Point

Allows very high feed rates and eliminates burrs when drilling plastics.

1. Parabolic flute drills: Regrind and split the point or thin the web.

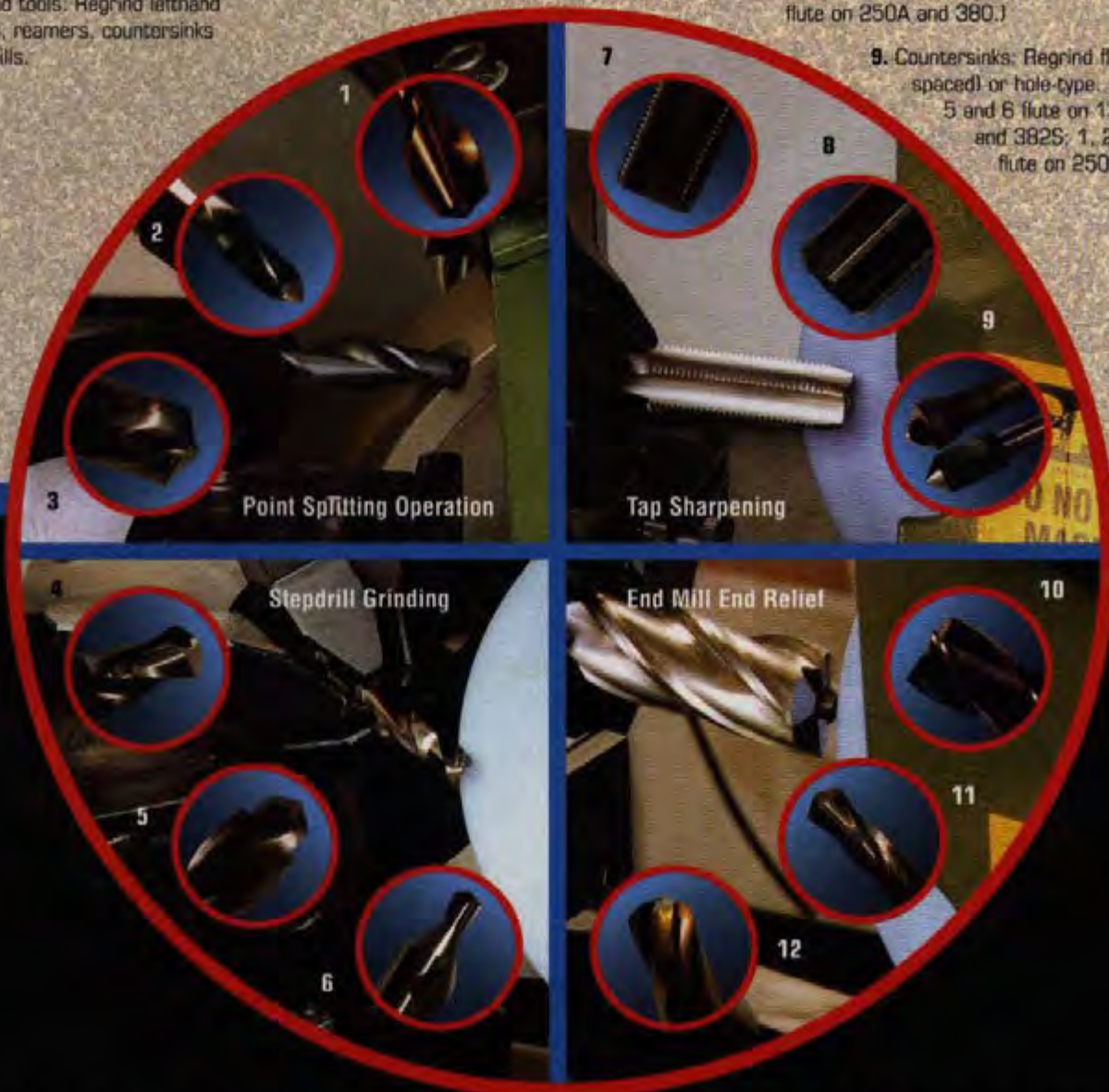
2. Slow and fast spiral drills: Regrind point.

3. Left-hand tools: Regrind lefthand drills, taps, reamers, countersinks and end mills.

7. Taps: Regrind chamfer to almost any angle, length and relief. (2, 4, 5, 6, 7 and 8 flute on 132C, 252 and 382S; 2, 4, 6, and 8 flute on 250A and 380.)

8. Reamers: Regrind and resize. (4, 5, 6, 7, 8, 10 and 12 flute on 132C, 252 and 382S; 4, 6, 8, 10 and 12 flute on 250A and 380.)

9. Countersinks: Regrind fluted (evenly-spaced) or hole-type. (1, 2, 3, 4, 5 and 6 flute on 132C, 252 and 382S; 1, 2, 4 and 6 flute on 250A and 380.)



4. Steptools: Regrind step drill and step reamer or create from standard tools; regrind combination drill and tap.

5. Subland drills: Regrind both point and step(s).

6. Center drills (combination drill and countersink). Regrind point and step.

10. End mills and counterbores: Regrind primary, secondary and gash in one setup on 2, 3 and 4 flutes. O.D. grinding (any number of flutes) requires an optional attachment (see p.10).

11. Carbide and carbide-tipped tools: Regrind drills, reamers, countersinks and end mills.

12. Core drills: Regrind 3 and 4 flute.

Construction

All of the models feature ruggedly constructed dovetail ways. They are covered by accordion or metal covers and have adjustable tapered gibs. The traverse way has an adjustable stop. The infeed and traverse feed handwheels are graduated in thousandths of an inch or metric increments.

The grinding spindle assembly incorporates permanently lubricated and sealed ball bearings. The spindle shaft has a standard tapered end to minimize runout, which is a particular advantage when using diamond or CBN grinding wheels.

The workhead uses needle bearings throughout, with the exception of the main spindle, which uses a high precision rotary-linear ball bearing to ensure a maximum deflection of less than .00015" (.004mm). Tools are held precisely in a self-centering, six-jaw chuck (other types of chucks are available). The chuck covers the entire range and ensures that the cutting lips are ground equally in both angle and height to produce an accurate point. The workhead uses hardened shafts and cams – the cam change takes only five seconds. When no cam is in place, it can be used to spin grind or to index grind (12 positions).



Way construction



Traverse stop



Taper Spindle



Precision six-jaw chuck

Model 132C

.080" to 1-1/4"
(2mm - 32mm) Capacity



Benchtop version shown with workhead positioned for point splitting.



Optional air-bearing end mill grinding attachment.



Model 132CS (semi-automatic) shown with optional flood coolant, halogen lamp and overhead wheel dresser.

The Model 132C incorporates versatility, rapid setup and accuracy into a rugged and affordable machine. The Model 132C can grind most tools with 1,2,3,4,5,6,7,8 or 10 flutes.

The unique design features built-in point splitting and web thinning capabilities and it allows for quick grinding of almost any HSS or carbide drill point. Drilling performance can be maximized to provide a lower cost per hole by having the proper geometry for the application.

Stepdrills, taps, reamers, countersinks and end mill ends are easily ground with minimal setup. In addition, the standard workhead can be exchanged in one minute with the optional air-bearing attachment (P/N AB32) for grinding the O.D. of end mills (see p.10).

The basic Model 132C is the benchtop version. It is also available with a cabinet base, an optional flood coolant system, and as the semi-automatic Model 132CS.

Model 252

3/32" to 2"
(2.5mm – 51mm) Capacity

The Model 252 is the most versatile drill and tool grinder available today. It is designed for heavy-duty use and it can grind most tools with 1,2,3,4,5,6,7,8 or 10 flutes.

Point splitting and web-thinning capability is built-in and it can quickly grind almost any drill point geometry. Stepdrills, taps, reamers, countersinks, and end mill ends are easily ground with minimal setup. In addition, the standard workhead can be exchanged with an optional air-bearing attachment (P/N AB50) for grinding the O.D. of end mills (see p.10).

The Model 252 workhead has two cam ratios. One is a 2:1 ratio for grinding even-fluted tools and one is a 1:1 ratio for grinding odd-fluted tools. The Models 250A and 380 (shown on p.7) have the 2:1 ratio only. The cam change takes only five seconds, and when no cam is in place, the workhead can be used to spin grind or to index grind (12 positions).

The basic Model 252 is a manual version, equipped with a cabinet stand and flood coolant system. It is also available as the Model 252S semi-automatic, and as the Model 252S with the automatic infeed system (see p.9).



*Model 252S (Semi-automatic version)
shown with optional halogen lamp.*



2:1 Ratio (2-flute cam shown)



1:1 Ratio (3-flute cam shown)



Model 250A

Model 250A

3/32" to 2"
(2.5mm – 51mm) Capacity

The Model 250A incorporates wide capacity and versatility into an affordable, heavy-duty machine. The innovative design of the 250A allows the grinding of almost any drill geometry, with most completed in a single chucking. This versatility also extends to stepdrills, taps, reamers and end mills. Many of these tools can be ground with very little change in setup. Single-flute and hole-type countersinks can also be ground by using the optional single-flute attachment (P/N SF80), which is held in the chuck (see p.11).

The basic Model 250A is the manual version as shown here. It is also available as the Model 250AS semi-automatic, and as the Model 250AS with the automatic infeed system (see p.9).



Model 380S
(semi-automatic
version) shown with
optional halogen lamp.

Model 380

3/16" to 3-1/8"
(5mm – 80mm) Capacity

The Model 380 is a heavy-duty machine designed for grinding drills, taps, reamers, countersinks and end mills up into the larger sizes.

The basic Model 380 is a manual version. It is also available as the Model 380S semi-automatic, and as the Model 380S with the automatic infeed system (see p.9).

Model 382S

3/16" to 3-1/8" (5mm – 80mm) Capacity

The Model 382S combines the versatility of the Model 252 with the large capacity of the Model 380. It can grind most tools with 1,2,3,4,5,6,7,8 or 10 flutes. Drill points, step-drills, taps, reamers, countersinks and end mill ends are easily ground with minimal setup changes. In addition, the standard workhead can be exchanged with the optional air-bearing attachment (P/N AB80) for grinding the O.D. of end mills (see p.10).

The basic Model 382S is a semi-automatic version. It is also available as the Model 382S with the automatic infeed system (see p.9)



*Model 382S (Semi-automatic version)
shown with optional halogen lamp.*



*Model 382S (automatic infeed version)
shown with optional halogen lamp.*



Direction and speed control valves



Drive motor and hand index knob



Automatic infeed control



Electroplated CBN grinding wheel

Semi-Automatic Versions

The power-driven workhead of the semi-automatic versions offers quiet, smooth operation. It is advantageous for heavier grinding needs and for spin-grinding. Manual effort is reduced and it allows automatic sparkout for greater operator productivity. The speed is controlled by turning the knob on the conveniently located valve. The adjacent four-way valve allows workhead rotation in either direction. A hand knob on the workhead provides manual rotation for indexing and setup.

Automatic Infeed System

The semi-automatic versions (except the Model 132CS) can be equipped with the automatic infeed system. This can increase productivity by allowing the operator to do other nearby tasks while the drill is being ground. The system allows manual infeed on all tools and automatic infeed on standard drill points, countersinks and reamers. The grinding rate is adjustable and the counter can be preset for 1-99 cycles. An electroplated CBN wheel (standard) is used with the automatic infeed and requires no dressing. Larger, three-phase motors are standard, as is an ammeter to monitor the grinding load.

Selected Optional Accessories

(Standard equipment and all available options are listed on the Master Price List.)

Overhead Wheel Dresser

Timesaving option allows truing of the grinding wheel O.D. without changing the setup.

Features:

- Sealed linear bearing with hardened guides.
- Detented downfeed in .001" increments.
- Hardened downfeed screw with wiper seal.
- High-quality diamond included for truing standard and ceramic wheels.



Overhead Wheel Dresser
(P/N WDD1)



Airbearing fixture shown on
universal base (P/N ABUN)

Airbearing Fixture

Allows precision sharpening of end mills, reamers, shell mills and other cutters. The spindle floats almost frictionless on a thin film of air, resulting in a smooth, even grind. The fixture quickly mounts on Rush drill and tool grinders (P/N AB32 for Model 132C; P/N AB50 for Models 250A/252; P/N AB80 for Models 380/382S), and it is also available with a universal base to mount on most tool and cutter or surface grinders (P/N ABUN).

Features:

- Hard chrome plated and ground spindle with a 10" stroke. Tools are held by 5-C or 5-CG collets or extension bushings for up to 2" (50mm) shanks.
- Flute finger has dovetail crossfeed and micrometer vertical adjustment.
- Direct angle settings for up to 20 degrees for the O.D., 360 degrees for rotation, and 30 degrees for tilt (fore and aft).
- Rocker arms tilt fixture away for easy movement from one flute to the next.
- Grinds the O.D. of any number of flutes and includes a 12-position index plate for end grinding (other index plates available).
- Micrometer infeed graduated in .001" (or .04mm) of diameter.



Airbearing fixture shown
on RUSH grinder

Selected Optional Accessories

(Standard equipment and all available options are listed on the Master Price List.)

Precision Wheel Balancer

Balancing the grinding wheel and hub assembly reduces vibration for a superior finish. Includes balancing arbor. Can accommodate wheel / hub assemblies to 3-1/2" wide and 10" diameter.

Diamond and CBN Grinding Wheels

Several types of diamond wheels for grinding carbide tools are available. Electroplated CBN wheels for grinding HSS tools (standard with automatic infeed) eliminate dressing and are stocked in several types. Special wheels can also be made in different sizes and forms (angles, radii). Request quotation.



Diamond wheel (P/N DW12)



Wheel balancer (P/N WB01)



Combination point grinding / splitting wheel (P/N BP01)

Halogen Lamp and Magnifier

Low voltage halogen lamp (P/N HLO1) improves operator vision. Optional 2.5X magnifier (P/N MGO1) aids in inspection.



Radial Relief Attachment

Relieves the pilot O.D. of step drills to produce margins. For Models 250A/252 (P/N RR50) or Models 380/382S (P/N RR80). Uses R-8 collets (not included).



Single flute Attachment

For grinding single-flute and hole-type countersinks on the Models 250A and 380 (P/N SF80). Uses R-8 collets (not included). The attachment is held in the chuck, as shown at right.



Specifications

Complete specifications for each model are available from your dealer, Rush Machinery or our website: www.rushmachinery.com

	Model 132C	Models 250A & 252	Models 380 & 382S
Capacities	.080 to 1-1/4" (2 to 32mm) dia. Straight or taper shank	3/32" to 2" (2.5 to 51mm) dia. Straight or taper shank	3/16" to 3-1/8" (5 to 80mm) dia. Straight or taper shank
Drill Point Angles	40 to 180+ degrees	40 to 180+ degrees	40 to 180+ degrees
Grinding Motors (TEFC)	1/2hp, 115/230v, 60hz 1-phase (standard) 1hp, 230/460v, 60hz 3-phase (optional) 50hz & other voltages available	1/2hp, 115/230v, 60hz 1-phase (standard) 1hp, 230/460v, 60hz 3-phase (standard - auto infeed; optional - manual & semi-auto) 50hz & other voltages available	1hp, 230/460v, 60hz 3-phase (standard) 1-1/2hp, 230/460v, 60hz 3-phase (standard - auto infeed) 50hz & other voltages available
Dimensions (crated)	37" (94cm) wide 37" (94cm) deep 28" (71cm) high (benchtap) 64" (163cm) high (with cabinet)	37" (94cm) wide 37" (94cm) deep 64" (163cm) high	37" (94cm) wide 49" (124cm) deep 64" (163cm) high
Weights	Manual Benchtap 240lbs (109kg) net 330lbs (150kg) crated Manual with Cabinet 345lbs (157kg) net 465lbs (211kg) crated Semi-Automatic 370lbs (168kg) net 490lbs (223kg) crated	Manual 590lbs (268kg) net 710lbs (323kg) crated Semi-Automatic 615lbs (280kg) net 735lbs (334kg) crated Automatic Infeed 700lbs (318kg) net 820lbs (373kg) crated	Manual (Model 380) 720lbs (327kg) net 890lbs (408kg) crated Semi-Automatic 745lbs (394kg) net 915lbs (416kg) crated Automatic Infeed 835lbs (380kg) net 1010lbs (459kg) crated

RUSH Machinery is a manufacturer dedicated to one field – drill and tool grinding. Our commitment to quality, service and innovation since 1983 has made us an industry leader. We also build grinding fixtures for spiral (flute) grinding and for radius grinding – please request separate catalogs. For the most current information on all of our tool grinding equipment and services, please visit our website: www.rushmachinery.com



RUSH Video tape/CD

See all the models on our 12-minute demonstration video tape (1/2" VHS-C or PAL) or compact disk. Contact your dealer or Rush Machinery for a free copy.




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