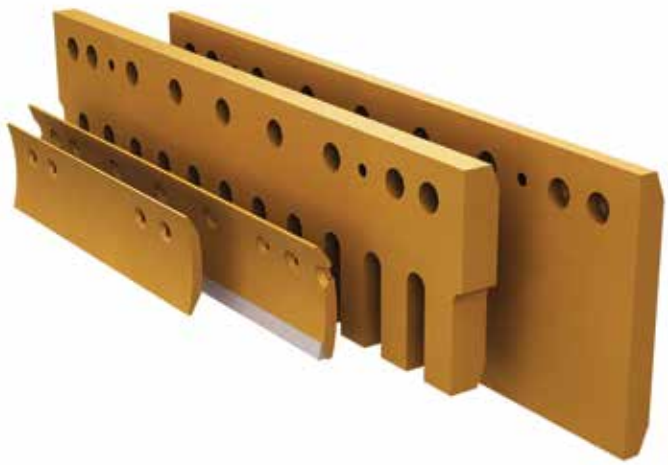
MOTOR GRADERS

We offer hundreds of cutting edge options available on the shelf, plus the ability to customize through our Made as Order (MAO) program. Unique offerings like the Cat GraderBits™ system meet the toughest application needs and are complemented by multiple End Bit options. Trust your Cat dealer to offer you solutions that focus on total machine productivity.

CHOOSING AN EDGE

Edge selection is critical for enhancing production and keeping cost to a minimum. Application affects the cutting edge shape, metallurgy and style. Impact, penetration and abrasion define your application environment. An edge has to penetrate the material and not break during operation. Edge life then becomes a matter of metallurgy and thickness.



WHAT IS YOUR APPLICATION?

DEVELOPING A ROAD OR PERFORMING HEAVY MAINTENANCE

» A flat edge is best suited for this application. A better penetrating option is a flat serrated edge. A flat edge has limited ability to carry material forward.

GRADING HARD-PACKED GRAVEL, FROZEN EARTH AND ICE

» A serrated edge penetrates better than a continuous edge because it exerts more down pressure. A curved serrated edge penetrates better than a flat serrated edge with a forward mold board.

RECONDITIONING OR FINISH GRADING AN EXISTING ROAD SURFACE

» Curved edges penetrate the roadway while carrying existing material forward to leave a smooth flat surface. A better penetrating option is a curved serrated edge. A serrated edge will not leave as clean a roadway surface as a continuous edge.

MOTOR GRADER CUTTING EDGE OPTIONS

PARTNER WITH CATERPILLAR, EDGE OUT THE COMPETITION.

Caterpillar offers a wide range of cutting edges for motor graders. Each provides certain benefits when used in the appropriate application. Using the right edge is critical for enhancing production and keeping total costs to a minimum. The three factors to consider in choosing a cutting edge are shape, width and thickness.

There are two basic edge shapes—flat and curved—with serrated edges available in both configurations. In addition, the Cat GraderBits system dramatically expands the range of edge shape options. Cat offers two types of grader edges and three edge thicknesses for the 16M and 24M motor graders.

SUPERIOR DURABILITY, MORE OPTIONS	Cat DH-2 through-hardened steel edges are available in a variety of shapes and thicknesses to fit every application.
EXTENDED EDGE LIFE	Maximize your edge life with tungsten carbide edges.
MAXIMUM PENETRATION, MINIMUM WASTE	Cutting bit systems.

THROUGH-HARDENED CUTTING EDGES

Most Cat edges are through-hardened steel, which offers high-impact resistance. High-carbon edges have good surface hardness and perform well in high-abrasion, low-impact applications such as finish work. High-carbon edges will not withstand the impact level of a through-hardened edge.

FLAT

- Heavy road maintenance and pioneering
- Maximum strength and available wear material
- Best option for abrasion and impact resistance

FLAT SERRATED

- Better penetration than a continuous edge (greater down pressure per inch of edge contact)
- Designed to penetrate packed gravel, frozen earth and ice
- For severe impact conditions, install over a 6" (152 mm) edge to reduce tooth breakage

CURVED

- Provides superior penetration and rolling action necessary for fine grading and finish work
- Finishing tolerances less than 1/4" (6 mm)—the best value may be in selecting a narrow and thin cutting edge

CURVED SERRATED

- A curved serrated edge penetrates better than a straight serrated edge with a forward mold board

EDGE WIDTH EQUALS WEAR MATERIAL

- An 8" (203 mm) edge provides twice the wear material as a 6" (152 mm) edge at about 35% more cost
- Hardware cost and R&I downtime are reduced by 50%

TUNGSTEN CARBIDE TILE CUTTING EDGES

Cat Tungsten Carbide Cutting Edges combine through-hardened steel with the wear resistance of tungsten carbide. When used in high-abrasion, low-impact applications, they can provide up to 20 times the life of a standard through-hardened edge. Fewer edge changes means less downtime and lower hardware costs.

TUNGSTEN CARBIDE EDGES

- Tungsten carbide edges have a continuous row of trapezoid-shaped carbide "tiles." This patented shape forms a leading / cutting edge
- Carbide tile bottom must be flat to the ground. 20° maximum tilt
- Max 5 mph/8kph
- Do not use on roads with large embedded rocks

FLAT EDGES

- Maximum strength and available wear material
- Longest wearing edge available in high abrasion and low impact

CURVED EDGES

- Curved-edge design improves penetration and rolling action
- Trapezoid-shaped tungsten carbide tile on leading edge stays sharp as it wears
- Shorter edge sections speed rotation and reduce "throw-away" due to edge crowning

SERRATED EDGES

- Better penetration than a continuous edge (greater down pressure per in^2 of edge contact)
- No cast angle restrictions

TUNGSTEN CARBIDE INSERT CUTTING EDGES

Cat carbide insert edges offer long wear life in higher speed applications like state/county road snow removal. The tungsten carbide is brazed into a milled groove in the center of the edge. The design offers impact resistance and minimizes edge "crowning" in applications that require a level grading operation.

GRADERBIT SYSTEM

SMOOTH OUT THE TOUGHEST ROADWAYS IN A SINGLE PASS.

The Cat GraderBit edge system outperforms steel blades in high-production road reconditioning applications. Individual cutting bits are faced with tungsten carbide to form a serrated edge to penetrate and lift material to the surface immediately. As a result, most road maintenance jobs can be accomplished in a single pass.

MORE PRODUCTION, LESS WASTE	Cuts through tough and compact materials, causing lower ripping resistance and less horsepower loss.
CUSTOMIZABLE	Create edge patterns that deliver optimum performance.
LONGER LIFE	Up to 10 times more wear life than a 10" edge.

INSTALLATION & REMOVAL

Operators can install the entire system in about an hour and field-replace individual bits in minutes without removing the moldboard. Varying bit widths allow you to create both serrated and continuous edge configurations. GraderBits do not require daily inspection like rotating bit systems.

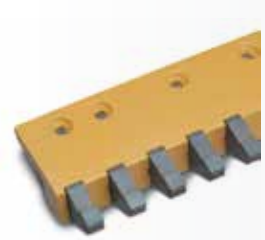
1 Bit insertion into

3 Adapter boards bolt up to the moldboard like standard edges.

4 Keep bits perpendicular to the road surface. The cast angle is not to exceed 10°, penetration depth 1½" max, max 6 mph/10kph.

GRADERBIT SYSTEM

GraderBit adapter board options are 3' (914mm) and 4' (1219mm) sections. Two hole-spacing patterns are available to control aggregate flow. Standard boards are used for most roadways, and the mining board hold pattern is 50% wider to accommodate large aggregate in mine environments.



STANDARD BITS

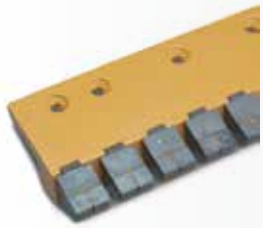
- Baseline bit - 30mm wide
- Moderate penetration
- Standard Board Bit Gap: 32mm
- Mining Board Bit Gap: 48mm

PENETRATION BITS

- Narrower than standard bit - 23 mm wide
- Wider gap allows larger aggregate to flow through
- Standard Board Bit Gap: 40mm
- Mining Board Bit Gap: 55mm

SHARP BITS

- 50% narrower than the standard bit - 15.5 mm wide
- Allows larger aggregate to flow through
- Standard Board Bit Gap: 45mm
- Mining Board Bit Gap: 62mm



WIDE BITS

- Can configure as a continuous edge
- Twice as wide as the standard bit (60 mm)
- Standard Board Bit Gap: 3mm
- Mining Board Bit Gap: 18mm

MIX AND MATCH

- Mix and match bits to control the size of the aggregate left behind
- Use wide bits on the end of the moldboard to prevent excessive wear

MINING BIT SYSTEM

The Mining Bit System works like the GraderBit system, but is upgraded to withstand the extreme applications faced by large motor graders (16M and 24M).

DOUBLE CARBIDE, NO RESTRICTIONS

Protects the face and bottom of the bit, eliminating vast angle restrictions.

INTEGRATED DESIGN

Bit profile helps maintain proper grading angle.

ROTATING BIT SYSTEM

The rotating bit system outperforms steel blades in high-production road reconditioning applications. Individual cutting bits have tungsten carbide tips and form a serrated edge to penetrate and lift material to the surface immediately. As a result, most road maintenance jobs can be accomplished in a single pass.

MORE PRODUCTION, LESS WASTE	Material is brought to the surface for reuse, reducing the expense of spreading new gravel.
NO RESTRICTIONS	No cast angle restriction.
EASY INSTALLATION & MAINTENANCE	Bits changed individually with no special tools.

ROTATING BIT SYSTEM

Rotating Scarifier Bits are self-sharpening for more uniform wear and long life. Cutting height is maintained as cutting tools may be rotated from position to position. Carbide bits can last as long as 5 -10 sets of conventional grader blades.

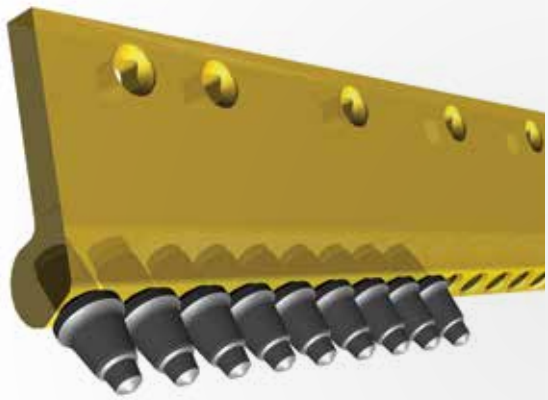
Rotating Scarifier Bits are made for applications such as dirt and gravel reclamation, oil road reclamation, and snow and ice removal.

1" SHANK

» Smooth design

7/8" SHANK

» Engineered with flat sides that aid in bit rotation



ADAPTER BOARDS

» Either 5/8" or 3/4" bolt hole punch

» 3' (914mm)-21 bits

» 4' (1219mm)-28 bits

» Standard Board uses 7/8" bit

» Heavy Duty board uses 1" bit

OPERATING TIPS

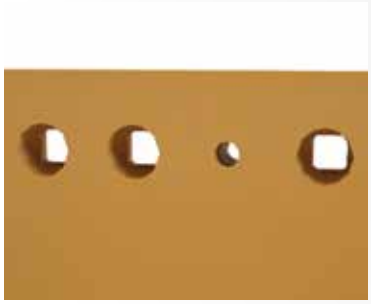
» 20° Board Angle

» Moldboard may vibrate and bits may not turn if angle is not correct

INSTALLATION & REMOVAL

Improve safety and simplify edge change-out. Cat cutting edges allow you to use a threaded bolt and link to remove and install sections. Even worn edges can be removed, because the threads are located in the back half of the hole.

1 Drilled and tapped holes.



2 Attach approved lifting device.

3 Lift.

OPERATING TECHNIQUES FOR REDUCED COST.

Through better management of the interface between machine and materials, operators can maximize productivity, lower machine operating costs and reduce cab vibration, improving operator comfort.

MOLDBOARD POSITION

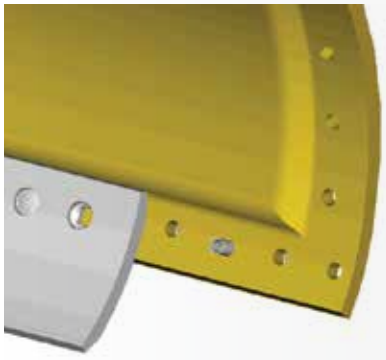
- Start with moldboard 2" (4" for 24M) ahead of the edge
- Grade with cutting edge 90° to the road
- Maintain fixed angle to ensure constant edge thickness
- Laid back reduces penetration and can wear moldboard
- Frequent angle changes will shorten the edge life

SPEED AND EXCESSIVE DOWN PRESSURE

- Use accumulator to absorb shocks
- < 6mph/8kph speed
- Excess speed can cause edge slivering
- Need penetration? Choose a thinner edge, a serrated edge or the Cat GraderBits system for the most compacted materials

CROWNING

- Occurs when the cutting edge conforms to the material being graded
- A narrow and thin edge reduces the "throw away" material
- Extreme crowning may require a bit system



STANDARDIZE YOUR HARDWARE

- Moldboard bushings reduce 3/4" holes to 5/8"
- Simplify inventory and lower cost

END BIT SYSTEM

PUT AN END TO MOLDBOARD WEAR.

Made of through-hardened DH-2 steel for added strength and service life, Cat end bits protect moldboard edges from wear.

END BIT SYSTEM

Maximize moldboard life and lower repair costs. Use Cat end bits, overlays, repair plates and hardware to protect and repair your moldboards and working edges.

MOLDBOARD END BITS

- Recommended for all applications
- Made of through-hardened DH-2 steel for added strength and service life

OVERLAY END BITS

- Fit over existing end bit
- Recommended for applications such as ditching
- Add strength and limit corner wear
- When worn on one side, overlay end bits can be rotated for a second wear life

MOLDBOARD REPAIR PLATES

- Extend moldboard life with Cat Moldboard Repair Plates
- Routine monitoring and timely edge replacement can prevent damage
- When repair is needed, repair plates provide a way to extend moldboard life

HARDWARE

- When replacing ground engaging tools, always use Cat hardware regardless of the application
- Cat Grade 8 hardware is performance-matched to Cat G.E.T. in both strength and durability

RIPPER-SCARIFIER SYSTEM

GET MORE OUT OF YOUR GRADER.

Scarifier and ripper systems on motor graders can be used to improve road surfaces by lifting material from compacted and worn areas or by removing the "crowning" that causes excessive wear on cutting edges.

ENHANCE PRODUCTION	Loosen material to reduce grading time and fill voids while saving on edge wear.
EXTEND VERSATILITY	Reduce need for dozer ripping or cutting bit systems.