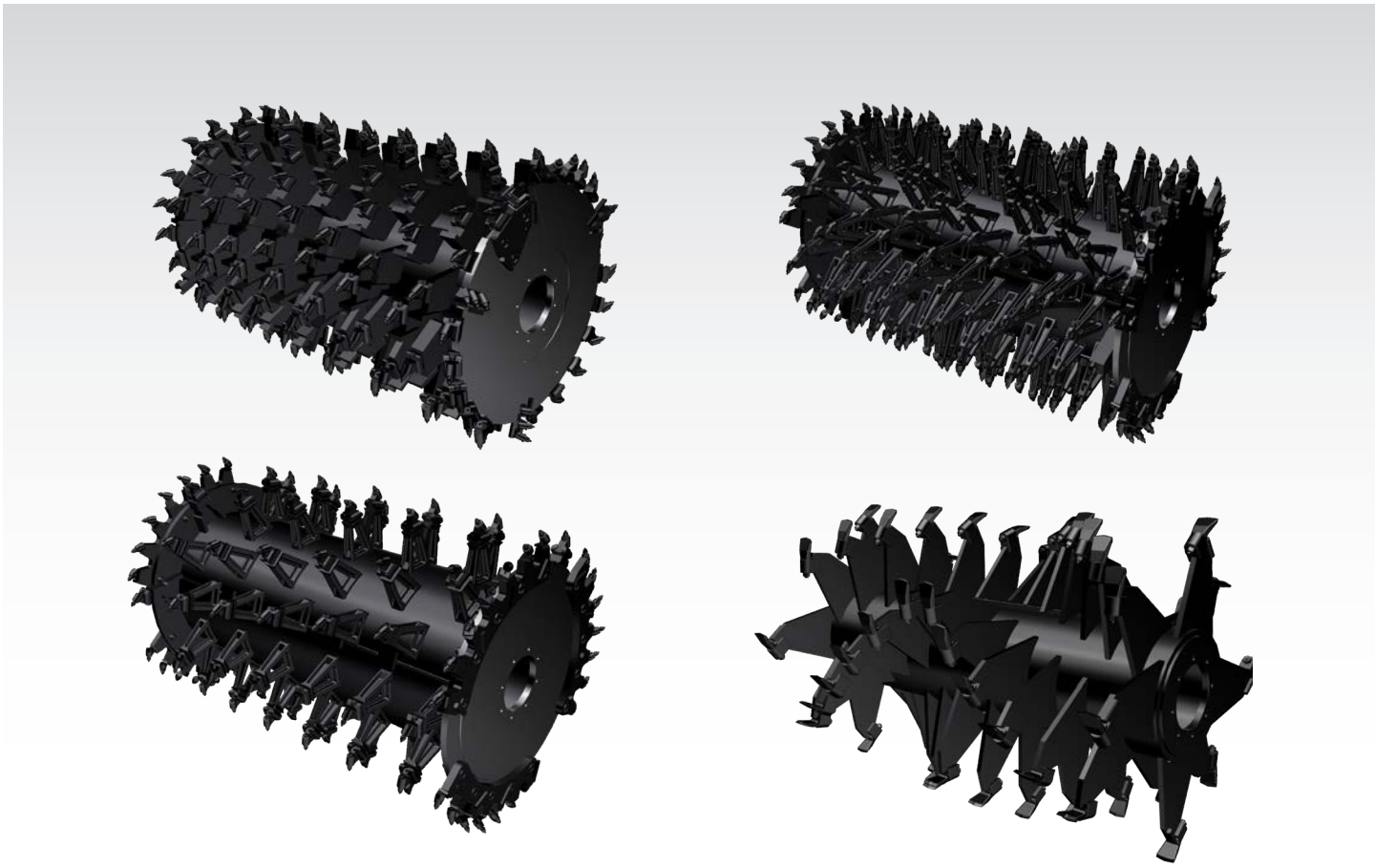
ROTOR SELECTION GUIDE

FOR RECLAMATION AND STABILIZATION

SELECTING THE ROTOR THAT'S RIGHT FOR YOU

Not all rotors are created equal, so choosing the correct rotor for the job can help you achieve maximum productivity and increase uptime.

+ KNOW YOUR APPLICATION
+ DETERMINE THE RESULTS YOU NEED FOR GRADATION PERFORMANCE AND BREAKOUT FORCE
+ CHOOSE A CUTTING BIT SPECIFIC TO THE APPLICATION TO OPTIMIZE MACHINE EFFICIENCY



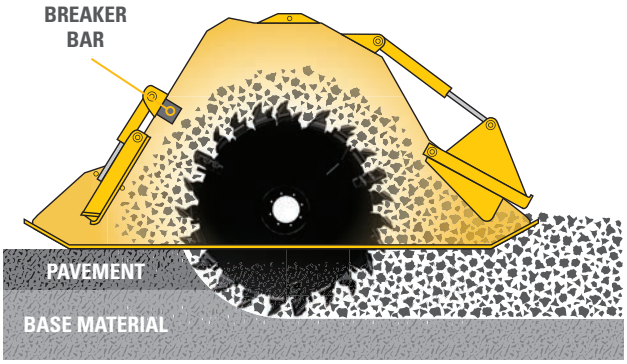
ROTORS

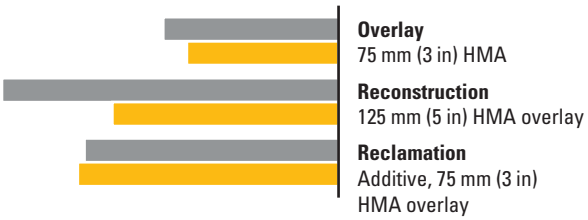
FOR RECLAMATION AND STABILIZATION

Cat® rotors work efficiently on a variety of reclamation and stabilization projects to help you meet production goals.

APPLICATIONS

FOR ASPHALT AND SOIL





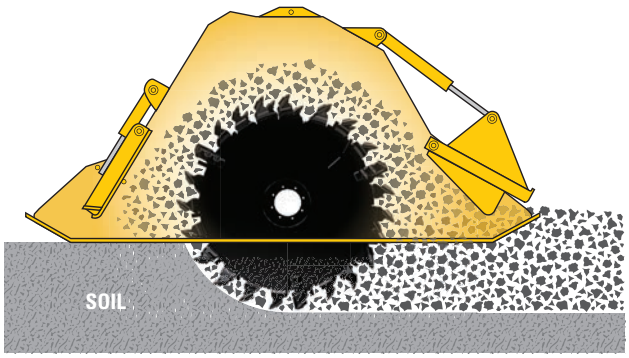
Relative Unit Cost
Per square meter (yard)

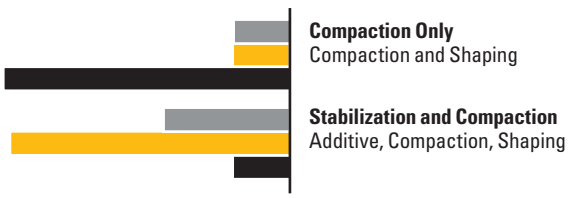
Estimated Service Life
Years

FULL-DEPTH RECLAMATION FOR ASPHALT

Full-Depth Reclamation is a road maintenance technique where an existing road structure is pulverized in place to provide raw materials for rebuilding the road. It is distinguished from other techniques, such as cold milling or cold-in-place recycling, by the fact that the machine rotor always penetrates completely through the asphalt layer into the base to provide bit cooling.

The full-depth reclamation process has many advantages over other pavement maintenance techniques. Work occurs in-place and is very fast; a production rate of 1 mile (1.6 km) per day of two-lane road is very common. The road or street can remain open, and existing aggregates can be re-used. Reclamation generally offers significant savings in both time and money when compared to the long-term costs of many other pavement maintenance techniques.





Relative Unit Cost
Per square meter (yard)

Estimated Service Life
Years

Relative Maintenance Cost
Over life of road

SOIL STABILIZATION AND MIXING

Soil stabilization is the process of mechanically or chemically improving the load-bearing characteristics of the soil. Additives such as fly ash, Portland cement and lime are incorporated into cohesive and semi-cohesive native soil to increase compressive strength or reduce plasticity of the subgrade. When performed with the correct additives, stabilization can greatly increase the integrity of the subgrade and provide a material that will have greater support capabilities and moisture resistance.

CHOOSING A ROTOR

FOR MAXIMUM PRODUCTION

When choosing a rotor for your Cat reclaimer / stabilizer, there are many factors that affect the measure of performance:

+ Your machine selection will dictate how much power you will be able to apply
+ Each application has many variables that can affect performance: soil type, asphalt layer thickness, type of asphalt used, etc.
+ Rotor selection will dictate the parameters for gradation performance and breakout force
+ Machine settings – propel speed, rotor speed, position of front or rear mixing chamber door – will also dramatically affect the performance of the rotor

Your Cat dealer can help you choose the best machine and rotor for the application.

ROTOR SELECTION BY APPLICATION

Cat rotors are capable of producing good results in many applications, but each is designed to provide maximum efficiency and productivity in specific applications. This chart provides general guidance for choosing a rotor.

KEY

- ✓ Ideal choice for specific application
- ○ Acceptable, but not ideal
- × Not recommended for this application

JOB TYPE	APPLICATION	UNIVERSAL 16	UNIVERSAL 18*	COMBINATION	SOIL	SPADE*
FULL-DEPTH ASPHALT						
RECLAMATION	**Thin Asphalt Layer** 25-75 mm (1-3 in)	✓	✓	○	○	×
	Medium Asphalt Layer 75-175 mm (3-7 in)	✓	✓	○	×	×
	Thick Asphalt Layer 175-250 mm (7-10 in)	✓	○	×	×	×
	Soil and Cement (fully cured)	✓	✓	○	○	×
MIXING / STABILIZATION						
SOIL	**Granular Soils**	✓	✓	○	✓	✓
	Granular with Rocks < 130 mm (5 in), Debris	✓	✓	○	×	✓
	Light Clay	○	○	✓	○	✓
	Heavy Clay / Gumbo	✓	○	✓	○	✓

ROTOR OFFERING BY MODEL

MODEL	UNIVERSAL 16	UNIVERSAL 18*	COMBINATION	SOIL	SPADE*
RM300	✓	✓	✓		✓
RM400	✓	✓	✓		✓
RM500	✓	✓	✓	✓	
RM500B	✓	✓	✓	✓	

* Not available in all regions. Please consult your local Cat dealer for availibility.

UNIVERSAL ROTOR

ASPHALT AND SOIL CEMENT RECLAMATION, SOIL STABILIZATION

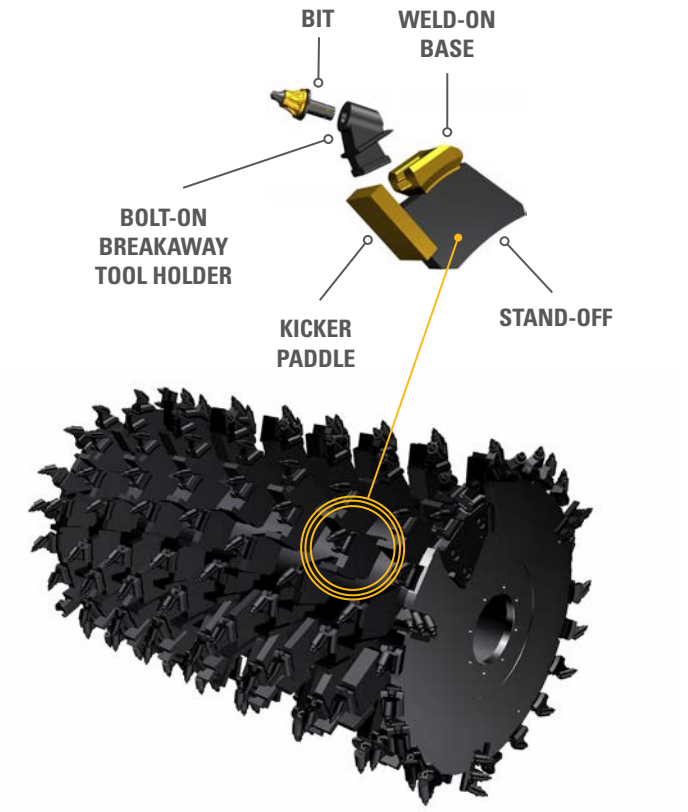
UNIVERSAL 16

The Universal rotor is designed to produce maximum breakout force in deep asphalt cuts and on existing soil cement. It also performs well in soil stabilization applications. The kicker paddle design provides material movement and suspension in the mixing chamber and includes a breaker bar for excellent gradation in full-depth reclamation and soil stabilization applications. Triple-tree tool placement on the rotor edges improves side cutting when maneuvering.

The Universal 16 rotor may also be used in soil stabilization applications; however, the 200 bit design may result in gradation that is finer than desirable. The large number of bits, along with the kicker paddles, will also cause this rotor to consume the most power for soil applications.

UNIVERSAL 18

The Universal 18 rotor is designed to provide maximum mixing depth and has lower breakout force compared to the Universal 16 rotor. This rotor meets European 45 cm mixing depth requirements while providing the highest level of material pulverization and gradation. Secondary application of light asphalt reclamation, where the asphalt layer is thin and deteriorated. The Universal 18 rotor is not available in all regions, so please consult your local Cat dealer for availibility.



- Maximum cutting depths:
  Universal 16: 41 cm (16 in)
  Universal 18: 46 cm (18 in)
- Chevron-pattern bit arrangement
- Bolt-on Breakaway bit holders
- 200 carbide-tipped bits
- Abrasion-resistant steel kicker paddles on every stand-off
- 20 mm or 22 mm shank bit holders, triple-tree bits use 20 mm shanks

BREAKER BAR

A hardened steel breaker bar is provided with Universal 16 rotor option and mounts inside mixing chamber to enhance the rotor's ability to pulverize large chunks of asphalt. Not for use in soil stabilization applications.

BREAKAWAY TOOL HOLDERS

Breakaway design bit holders allow for fast replacement without welding to reduce machine down time.

TRIPLE-TREE

Triple-tree bit placement on rotor ends cleans up loose material and reduces wear on drum when maneuvering in the cut.

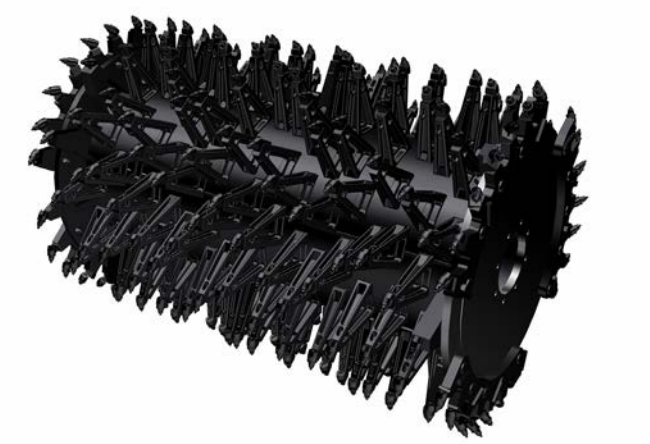
SOIL ROTOR

SOIL STABILIZATION APPLICATIONS IN SEMI COHESIVE OR GRANULAR SOILS

The Soil rotor is an ideal choice for mixing additives with semi cohesive or granular materials where soil gradation is critical. It can also handle light reclamation applications where the asphalt layer is thin and deteriorated.

The Soil rotor is standard equipped with cast stand-offs that include bit holders in a single casting. When the cast bit holders become worn or damaged, they can be removed and replaced with weld-on bit holders. Bit life varies depending on soil type.

- Maximum cutting depth: 51 cm (20 in)
- Replaceable end rings (weld-on bit holders only)
- Chevron-pattern bit arrangement
- Cast, one-piece stand-offs with bit holders, replaced with weld-on bit holders
- 238 carbide-tipped bits
- 20 mm shank bit holders



COMBINATION ROTOR

SOIL STABILIZATION APPLICATIONS IN COHESIVE SOILS

The Combination rotor is designed for deep-cut soil mixing where pulverization and gradation is of lesser importance and higher working speeds are more important. It performs well in cohesive soils.

The Combination rotor design utilizes a smaller number of bits, which contributes to lower costs associated with bit replacement. Fewer bits mean lower costs for replacement bit purchases, as well as less downtime and labor to replace them. This rotor design results in high production—especially in deep cuts—because less power is required to drive a rotor with fewer bits compared to a rotor with significantly more.

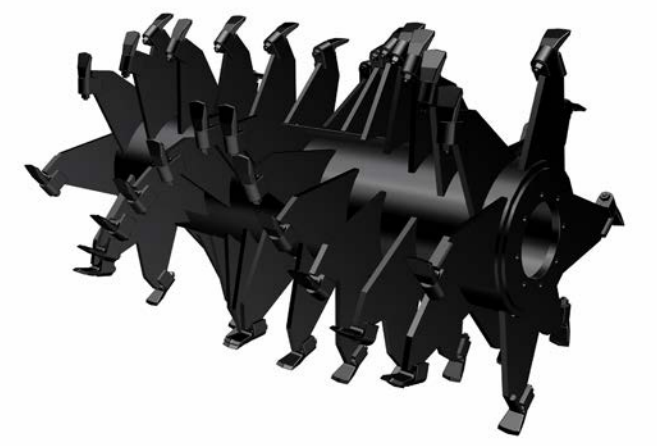
The soil gradation performance of the Combination rotor will result in larger material sizing compared to the Soil rotor due to the smaller number of bits.

- Maximum cutting depth: 51 cm (20 in)
- Replaceable end rings (weld-on bit holders only)
- Chevron-pattern bit arrangement
- Bolt-on Breakaway bit holders
- 114 carbide-tipped bits
- 22 mm or 20 mm shank bit holders

SPADE ROTOR

SOIL STABILIZATION AND MIXING APPLICATIONS

The spade rotor is designed specifically for soil stabilization and mixing applications. Fewer tools will increase production speeds but will produce less gradation compared to the universal or combination rotors. Rotor maintenance time and costs are reduced because of the amount of tools. The Spade rotor is not available in all regions, so please consult your local Cat dealer for availibility.



- Maximum cutting depth: 457 cm (18 in)
- Chevron-pattern bit arrangement
- Weld-on stand off bit holders
- 58 bolt-on spade tools
- D-shaped shank bit holders

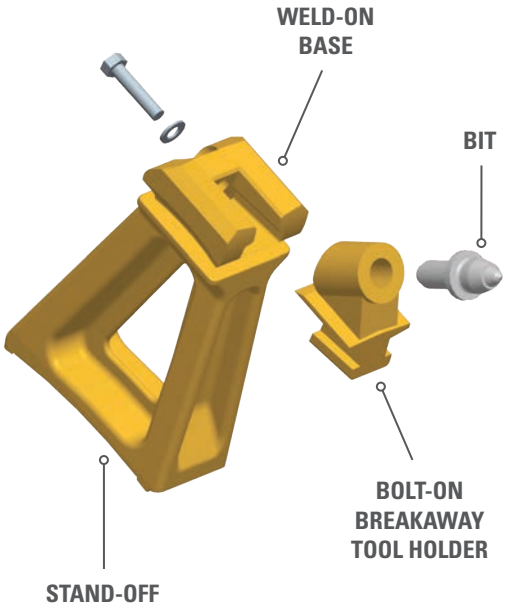
ROTOR SPECIFICATIONS

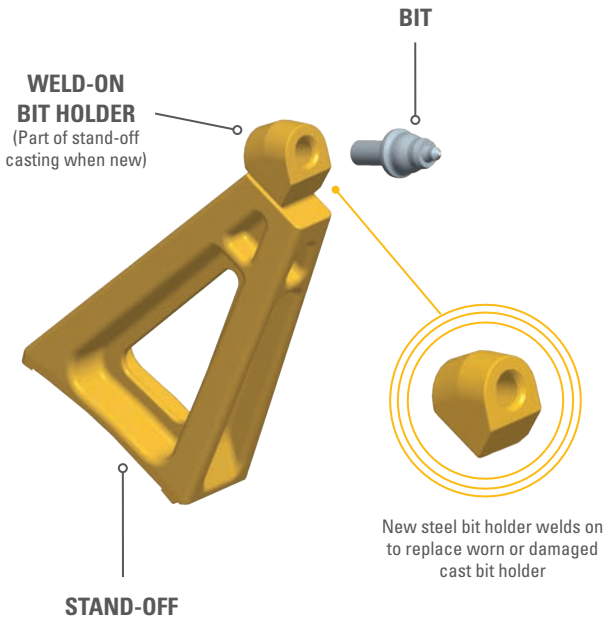
	UNIVERSAL 16	UNIVERSAL 18*	SOIL	COMBINATION	SPADE*
Cut width	2438 mm (96 in)	2438 mm (96 in)	2438 mm (96 in)	2438 mm (96 in)	2300 mm (90.6 in)
Rotor Diameter (over bits)	1375 mm (54 in)	1525 mm (60 in)	1625 mm (64 in)	1625 mm (64 in)	1575 mm (62 in)
Maximum Depth	406 mm (16 in)	457 mm (18 in)	508 mm (20 in)	508 mm (20 in)	457 mm (18 in)
Weight	4118 kg (9,079 lbs)	4499 kg (9,919 lbs)	3953 kg (8,715 lbs)	3128 kg (6,894 lbs)	2080 kg (4,586 lbs)
Number of Bits	200	200	238	114	58
Bit Impact Spacing	15 mm (0.6 in)	15 mm (0.6 in)	11.5 mm (0.45 in)	31 mm (1.22 in)	85 mm (3.35 in) x 2
Bit Holders	Bolt-on Breakaway	Bolt-on Breakaway	Weld-on	Bolt-on Breakaway	Weld-on
Bit Shank Diameter	20 mm	20 mm	20 mm	22 mm	D-Shaped, Bolt-on
Direction of Cut	Up	Up	Up	Up	Up

* Not available in all regions. Please consult your local Cat dealer for availibility.

PERFORMANCE-DRIVEN DESIGN

BIT HOLDERS





BOLT-ON BREAKAWAY

Used standard on Universal and Combination rotors.
(Combination rotor configuration shown above)

Bolt-on breakaway bit holders are designed to minimize bit replacement time and maximize machine use by reducing the time it takes to replace damaged bit holders. The bit holder bolts on to a weld-on base for easy replacement in the field. Bit holders are designed to break away rather than absorb and transfer force, preventing greater damage to rotor or machine. Used bits are quickly and easily knocked out and replacement bits are driven in to the bolt-on bit holders.

During extended use in soil applications, visually inspect the bit holders frequently for corrosion and seizing to prevent difficult bit removal during rotor maintenance.

WELD-ON

Used standard on the Soil rotor

Weld-on bit holders are designed to provide the most economical rotor choice when the machine will be used in applications that rarely break bit holders.

The cast stand-off includes a bit holder as part of the original casting. Used bits are quickly and easily knocked out and replacement bits are driven in to the bit holders.

When a bit holder is damaged, it is cut off and replaced by a new bit holder welded into place.

WEAR AND REPLACEMENT PARTS TO

INCREASE UPTIME

Cat road reclaimers and soil stabilizers feature components that protect your valuable machine from costly repairs by wearing or breaking under extreme conditions, such as striking a manhole cover or a buried solid object. These components are cost-effective and require minimal replacement downtime when compared with repairing machine damage.

BITS

Choosing the right cutting bit for your application can optimize the efficiency of the machine, resulting in more production with ideal material sizing and mixing quality. These charts identify which cutting bits are recommended for common applications. Bit holders can be retrofitted to allow for the use of the larger or smaller shank size.

ROTOR TYPE			PART NUMBER
UNIVERSAL 20 mm Shank	STABILIZATION 20 mm Shank	COMBINATION 22 mm Shank	
		●	533-5760
●			561-8135
●	●		564-1260
●	●		578-4416

533-5760

561-8135

564-1260

578-4416

APPLICATION		DEPTH			PART NUMBER
SOIL	ASPHALT RECLAMATION	SHALLOW 25-50 mm (1-2 in)	MODERATE 75-125 mm (3-5 in)	DEEP +150 mm (+6 in)	
●			●	●	533-5760
	●	●	●		561-8135
	●		●	●	564-1260
●		●	●		578-4416

CUTTER BITS FOR LESS COMMON APPLICATIONS

561-8134

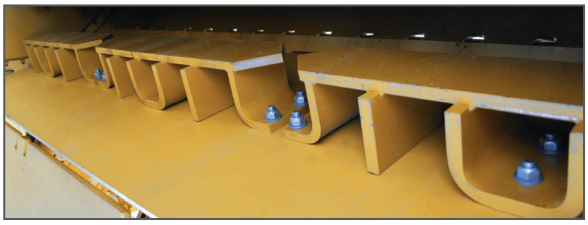
Application: Light Duty
Material: Soft - Medium Asphalt
Shank Size: 20 mm

560-2306

Application: Light / Medium Duty
Material: Soft - Medium Asphalt
Shank Size: 20 mm

561-8132

Application: Concrete
Material: Concrete
Shank Size: 20 mm



BREAKER BAR

Hardened steel bar is provided with Universal 16 rotor option. Breaker Bar mounts inside mixing chamber and enhances rotor's ability to pulverize large chunks of asphalt. Not for use in soil stabilization applications.

REAR DOOR STRIKE OFF

Reversible, bolt-on design protects the rear door from friction caused by dragging material. Made of high strength steel for added wear resistance.

WEAR DISC

Installed inside of the rotor chamber on each side of the rotor to provide protection and guide the depth adjustment of the rotor while keeping material inside the chamber.

SKIS

Replaceable wear skis prevent permanent abrasion to bottom of mixing chamber.

ROTOR REPLACEMENT PARTS

- **STAND-OFF:** Specify Universal, Soil or Combination
- **PADDLES** for the Universal rotor, made of abrasion-resistant steel
- **WELD-ON BIT HOLDER** for the Soil rotor
- **WELD-ON BASE** is part of the Bolt-on Breakaway bit holder system used on Universal and Combination rotors
- **BIT HOLDER:** Specify Weld-on or Breakaway, available to fit 20 mm or 22 mm bit shank sizes

REPLACEABLE END RINGS WITH WEAR BARS

End rings with wear bars protect the rotor from excessive wear and extend service life. Only available on the Soil and Combination rotors.

For more complete information on Cat products, dealer services and industry solutions, visit us on the web at www.cat.com

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