



反井钻滚刀

RAISE BORING CUTTER

产品手册

Product Manual



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Litian focuses on the development of rock breaking tools for rock excavation, and has high-quality services and rich product lines.

PRECISION TOOLS >>>
CRAFTSMANSHIP QUALITY

INTRODUCTION

Litian focuses on the development and production of rock breaking tools and drilling tools for rock excavation. Through continuous improvement in key areas such as design, materials, machining and heat treatment process, we have formed our own characteristics and gained high recognition from users.

We focus on the following areas:

Raise Boring Cutters:

Suitable for various reaming heads of raise boring rigs. It has the advantages of good rock breaking effect, high wear resistance and long service life.

Top Hammer Drilling Tools:

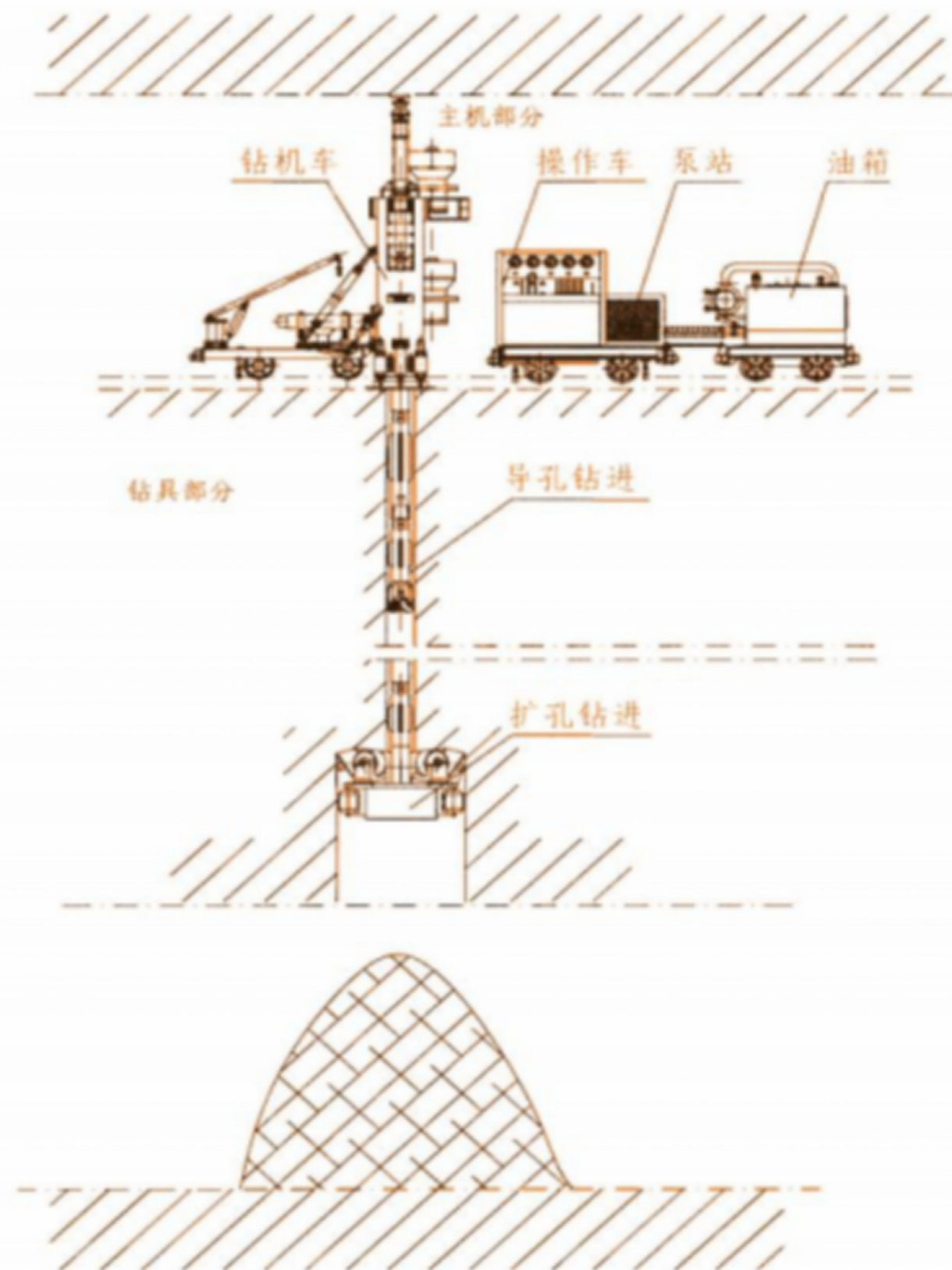
Shank adapter, Coupling sleeve, drill rod, drillbits.

TBM Cutters:

Provide various specifications of disc cutter. We are the largest domestic hard rock disc cutter manufacturers.



APPLICATION



Litian focuses on the development of rock breaking tools for rock excavation, and has high-quality services and rich product lines.

Raise Boring Cutter

Raise boring cutter is a tungsten carbide insert roller cutter mounted on the reaming head of raise boring machine, which is an excavation tool for breaking rocks. The cutters are mainly used in the construction of vertical shafts, inclined shafts, surge shafts, ventilation shafts and escape shafts, and can be widely applied in underground engineering construction fields such as mine, hydropower, transportation and so on.

Litian focuses on developing and manufacturing of raise boring cutters suitable for all kinds of raise boring rigs and rock formations, and can provide users with comprehensive technical support and consultation, as well as various forms of services and solutions.



Kerf Roller Cutter



Random Roller Cutter

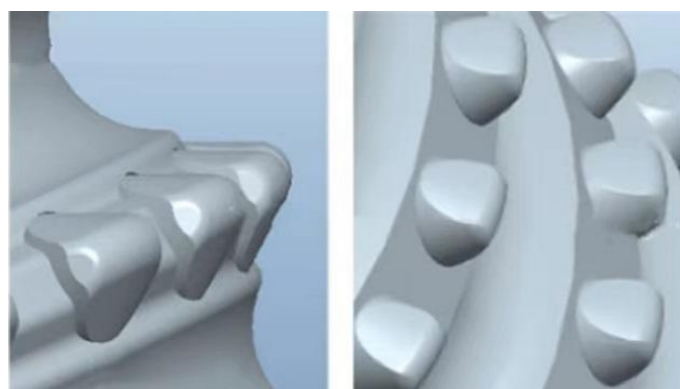
Product Overview

| | |
|----------------------|---|
| Material | Mold Steel, Tungsten carbide |
| Cutter Type | Kerf cutters, Rowed cutters, Random cutters |
| Size | 7" ~ 17" (178mm ~ 432mm) |
| Button Shape | Chisel inserts, Conical inserts, Spherical inserts |
| Rows | 3-ROW, 4-ROW, 5-ROW, 6-ROW, 8-ROW |
| Optional Bearing | Tapered roller bearing, Thrust roller bearing, Ball roller bearing |
| UCS | 30Mpa ~ 200Mpa |
| Rock hardness | F6 ~ F18 |
| Application | Raise boring, Blind boring, Horizontal boring, Down boring; Shaft boring; Reverse circulating drilling. |
| | Ore passes, ventilation raises, connection shafts for mining, penstocks for pump storage power plants, headrace shafts, drill tunnels for cables, sewage, etc . |
| Applicable Equipment | Raise Boring Rig, Boxhole Boring Machine, Boxhole Backreaming Machine, Reef Boring Machine, Shaft Boring Machine, Reverse Circulation Rig, etc. |
| OEM & ODM | Acceptable |

Cutter Components

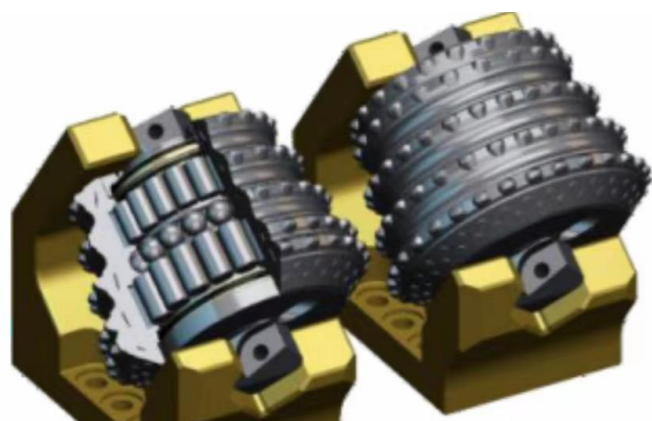
Tungsten Carbide Inserts

The inserts adopt high-quality tungsten carbide with good wear resistance and long service life, and the tungsten carbide insert design has chisel inserts, conical inserts, spherical inserts, which can be used with raise boring cutters to improve drilling efficiency under different geological conditions.



Bearing

The bearing has good wear resistance and deformation resistance, and good overall performance.



Hub

The hub uses high-quality raw materials and reasonable design, and it can meet long-distance use under different geological conditions.

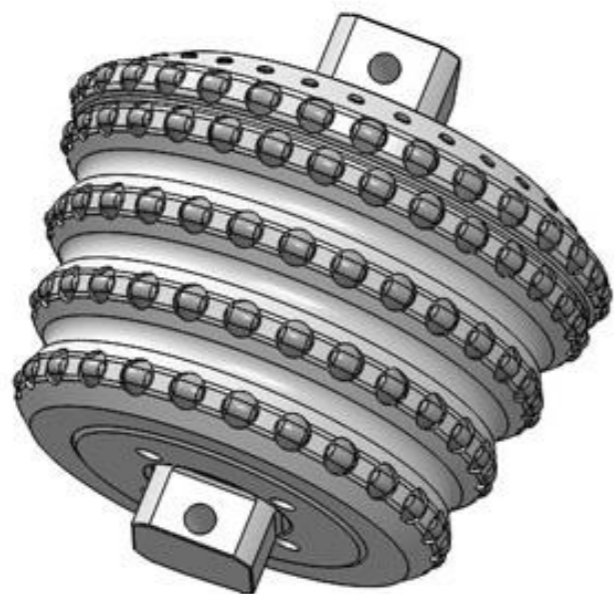
Sealing

The metal seal has excellent high-temperature resistance, reliable sealing performance, and can meet long-distance use in harsh working environments.

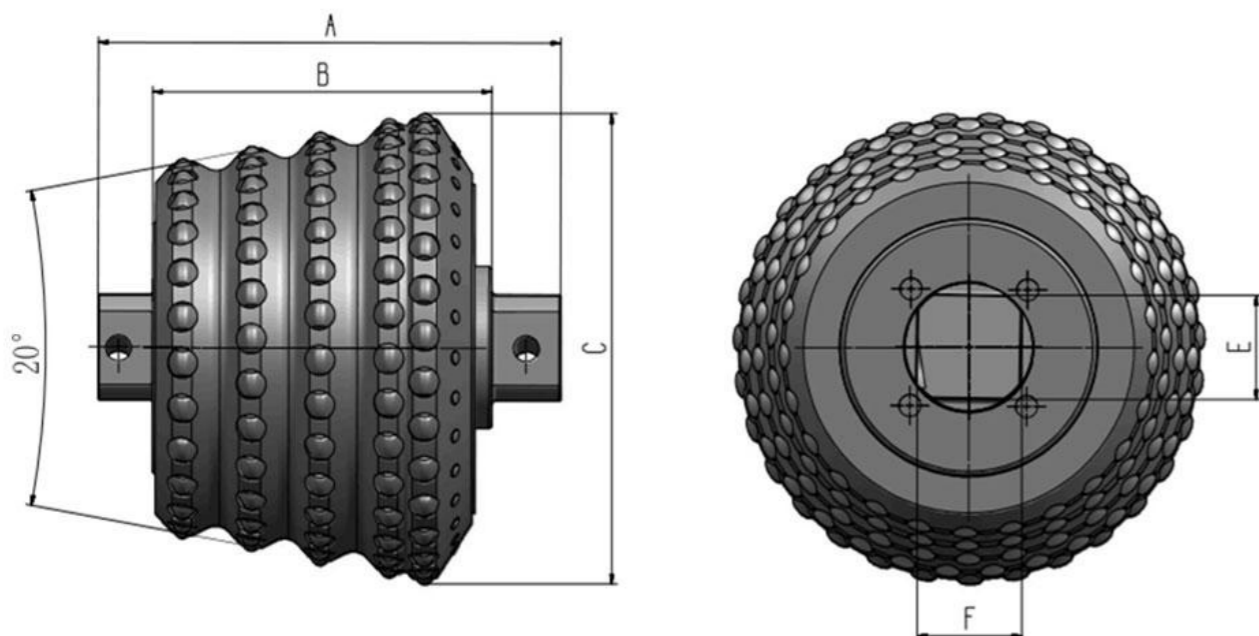
Specification

| Size | | Rows | Button Shape | Bearing Structure |
|-------|-------|---------------|--------------------|--|
| inch | mm | | | |
| 8" | 223 | 5 | Conical | Thrust roller bearing |
| 12" | 310 | 5, 6, 8 | Chisel | Tapered roller bearing, Thrust roller bearing, Ball roller bearing |
| 12" | 317 | 5, 6 | Chisel | Tapered roller bearing, Thrust roller bearing |
| 12" | 320 | 5, 6 | Chisel | Tapered roller bearing, Thrust roller bearing |
| 12" | 322 | 5, 6, 8 | Conical, Chisel | Tapered roller bearing, Thrust roller bearing, Ball roller bearing |
| 12" | 324 | 5 | Conical | Thrust roller bearing |
| 12" | 325 | 5 | Conical | Thrust roller bearing |
| 13" | 330 | 4 | Conical | Thrust roller bearing |
| 13.3" | 339 | 5 | Conical | Thrust roller bearing |
| 14" | 340 | 4, 5 | Chisel | Tapered roller bearing, Ball roller bearing |
| 14" | 346.7 | 4, 5 | Chisel | Tapered roller bearing, Ball roller bearing |
| 15" | 381 | 5 | Chisel | Tapered roller bearing, Ball roller bearing |
| 8" | 218 | Random Cutter | Conical, Spherical | Thrust roller bearing |
| 12" | 280 | Random Cutter | Conical, Spherical | Thrust roller bearing |

RBM Cutter - Kerf Roller Cutter LT347520-00A



| NO. | Model | A | B | C | E | F | Rows | Taper |
|-----|--------------|-----|-----|-----|----|----|------|-------|
| 1 | LT347520-00A | 336 | 246 | 347 | 76 | 76 | 5 | 20° |



Application Parameters

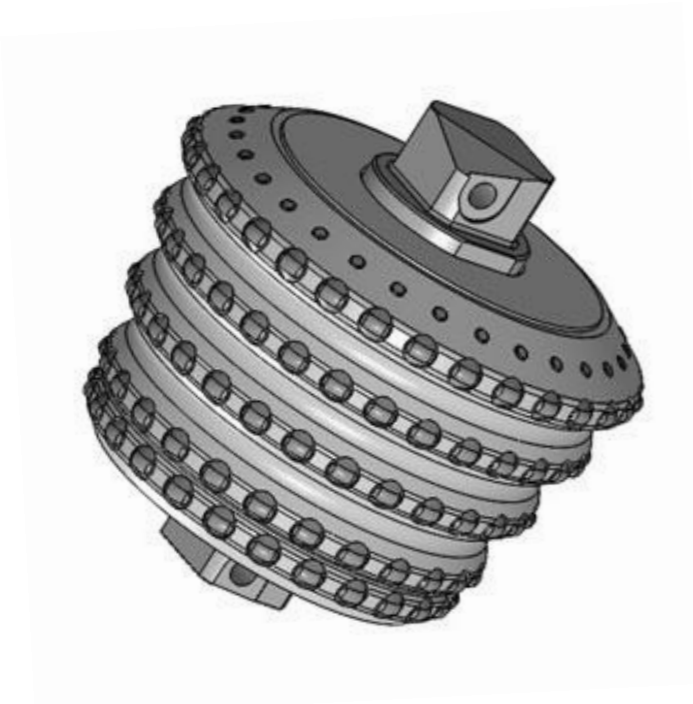
1. Applicable rock hardness: Platts hardness $11 \leq f \leq 15$.
2. Recommended WOB of roller cutter: 100KN~200KN.
3. Maximum WOB (weight on bit): 245KN.
4. Recommended cutterhead rotation speed: 3-15 RPM.
5. Maximum linear velocity: 90m/min.

Product Features

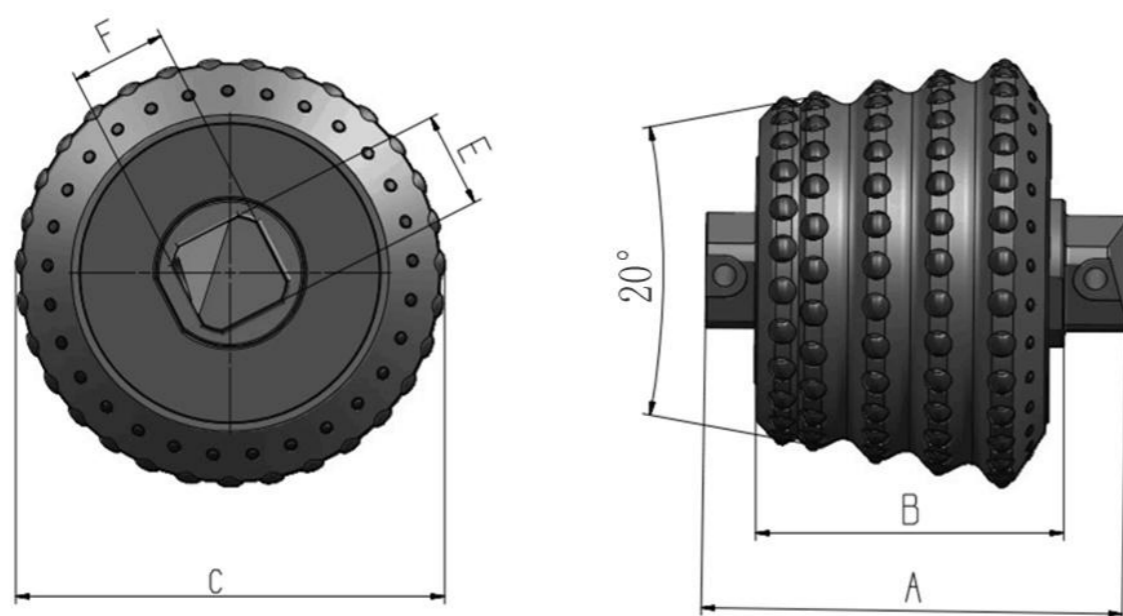
1. Adopt tungsten carbide with a unique button shape.
2. Wear-resistant alloy nails minimize wear on the cutter.
3. The bearing structure is a pair of tapered roller bearings.
4. High quality metal sealed.
5. Repairable and customizable .

RBM Cutter - Kerf Roller Cutter

LT347520-00B



| NO. | Model | A | B | C | E | F | Rows | Taper |
|-----|--------------|-------|-----|-------|----|----|------|-------|
| 1 | LT347520-00B | 336.2 | 246 | 346.7 | 76 | 76 | 5 | 20° |



Application Parameters

1. Applicable rock hardness: Platts hardness $11 \leq f \leq 15$.
2. Recommended WOB of roller cutter: 100KN~200KN.
3. Maximum WOB (weight on bit): 245KN.
4. Recommended cutterhead rotation speed: 3-15 RPM .
5. Maximum linear velocity: 90m/min.

Product Features

1. Adopt tungsten carbide with a unique button shape.
2. Wear-resistant alloy nails minimize wear on the cutter.
3. The bearing structure is a pair of tapered roller bearings.
4. High quality metal sealed.
5. Repairable and customizable .

RBM Cutter - Kerf Roller Cutter LT340420



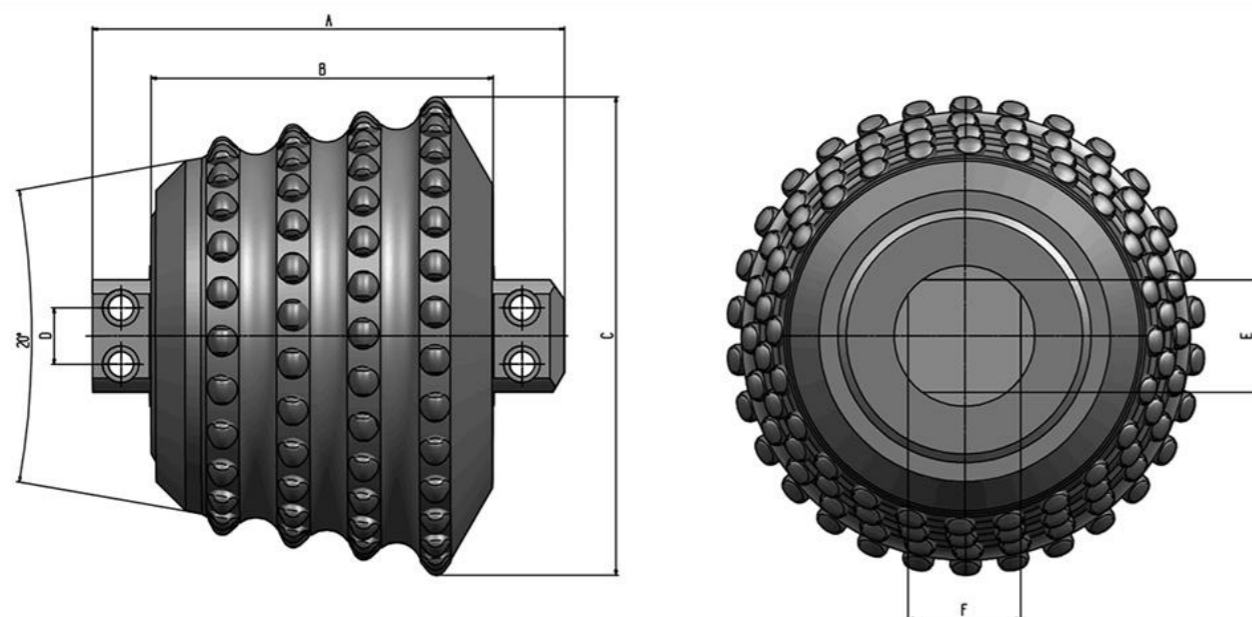
Application Parameters

1. Applicable rock hardness: Platts hardness $11 \leq f \leq 15$.
2. Recommended WOB of roller cutter: 100KN~200KN.
3. Maximum WOB (weight on bit): 245KN.
4. Recommended cutterhead rotation speed: 3-15 RPM.
5. Maximum linear velocity: 90m/min.

| NO. | Model | A | B | C | D | E | F | Rows | Taper |
|-----|--------------|-----|-------|-----|----|----|----|------|-------|
| 1 | LT340420-00 | 335 | 239.5 | 340 | 40 | 80 | 80 | 4 | 20° |
| 2 | LT340520-00B | 335 | 239.5 | 340 | 40 | 82 | 82 | 5 | 20° |

Product Features

1. Adopt tungsten carbide with a unique button shape.
2. The bearing structure is a pair of tapered roller bearings.
3. High quality metal sealed.
4. Repairable and customizable.

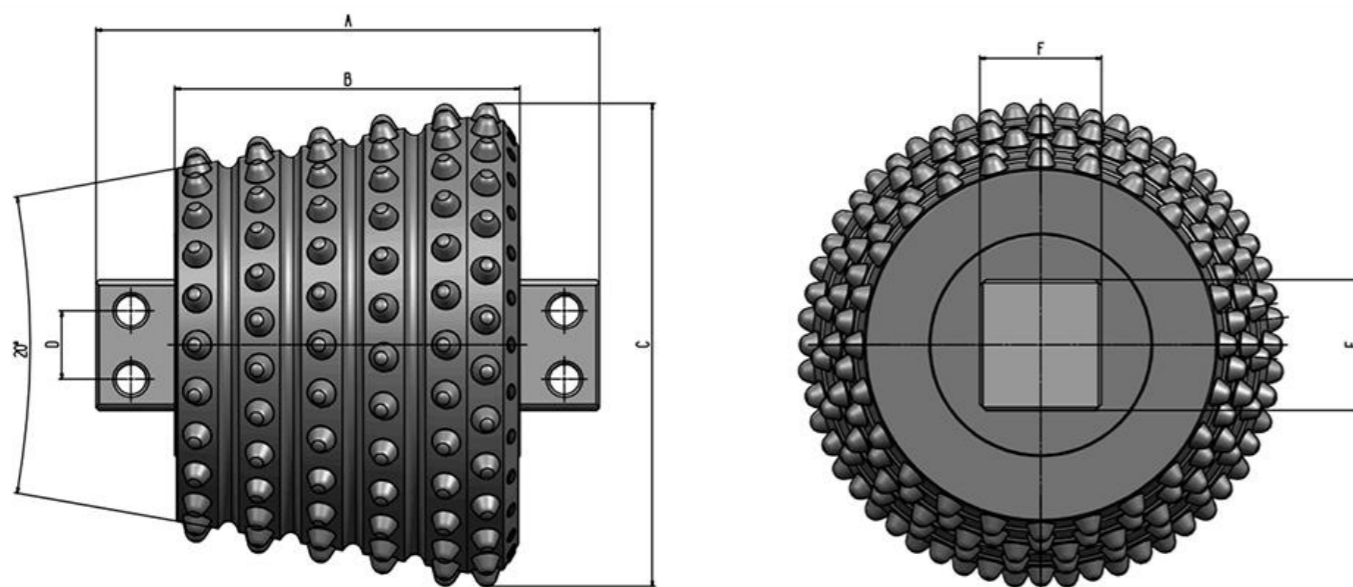


RBM Cutter - Kerf Roller Cutter

LT320520 / LT320620



| NO. | Model | A | B | C | D | E | F | Rows | Taper |
|-----|-------------|-----|-----|-----|----|----|----|------|-------|
| 1 | LT320520-00 | 331 | 227 | 320 | 45 | 86 | 80 | 5 | 20° |
| 2 | LT320620-00 | 331 | 227 | 320 | 45 | 86 | 80 | 6 | 20° |



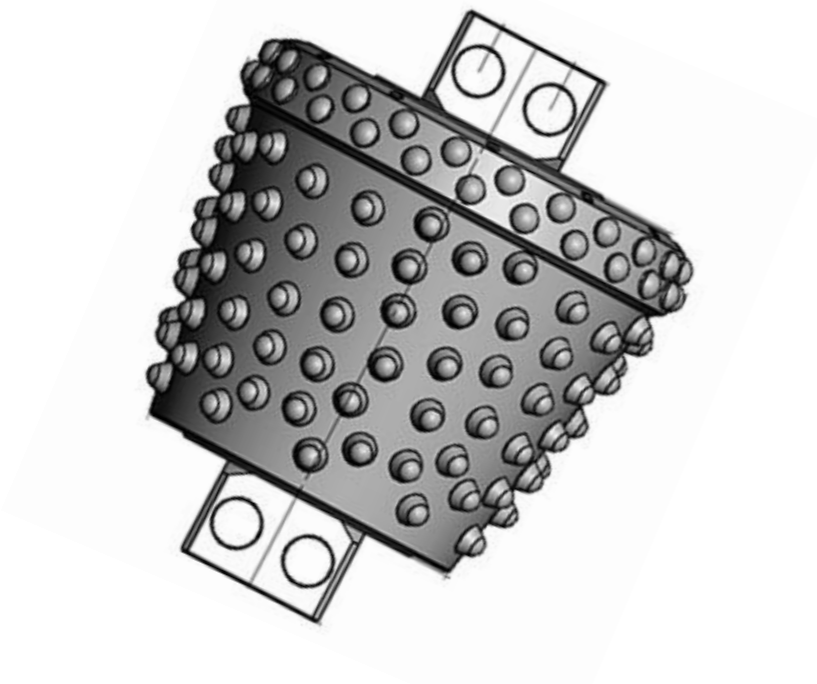
Application Parameters

1. Applicable rock hardness: Platts hardness $f \leq 12$.
2. Recommended WOB of roller cutter: 100KN~170KN.
3. Maximum WOB (weight on bit): 196KN.
4. Recommended cutterhead rotation speed: 3-15 RPM.
5. Maximum linear velocity: 90m/min.

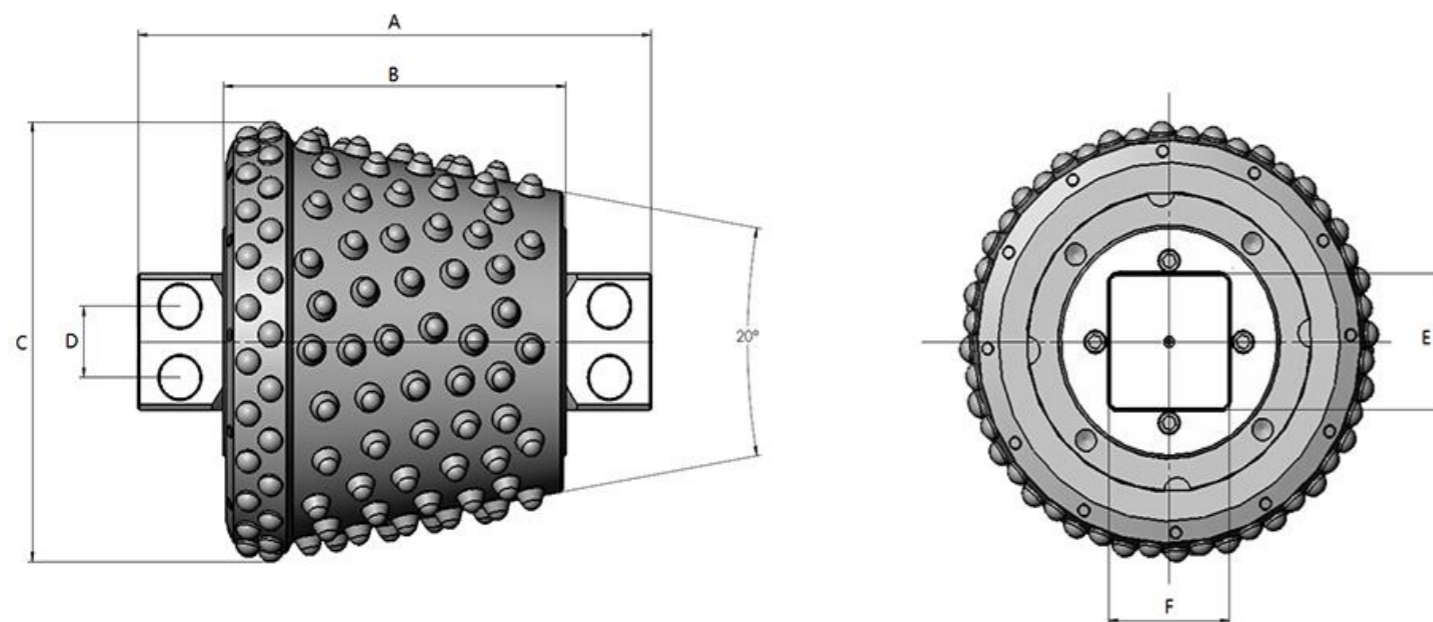
Product Features

1. Adopt tungsten carbide with a unique button shape.
2. The bearing structure is a pair of tapered roller bearings.
3. High quality metal sealed.
4. Repairable and customizable.

RBM Cutter - Random Roller Cutter



| NO. | Model | Size | A | B | C | D | E | F | Taper |
|-----|-------------|------|-----|-----|-----|------|------|------|-------|
| 1 | LT28020-00A | 12" | 340 | 227 | 280 | 45 | 86 | 80 | 20° |
| 2 | LT21820-00A | 8" | 192 | 156 | 218 | 30.5 | 59.5 | 49.5 | 20° |



Application Parameters

1. Applicable rock hardness: Platts hardness $f \leq 12$.
2. Recommended WOB of roller cutter: 100KN~170KN (12"), 60KN~100KN (8").
3. Maximum WOB (weight on bit): 196KN (12"), 120KN (8").
4. Recommended cutterhead rotation speed: 3-15 RPM.
5. Maximum linear velocity: 90m/min.

Product Features

1. The back cone adopts spherical buttons, and the main cone adopts conical buttons.
2. Randomly distributed buttons are used to achieve full coverage of the bottom crushing zone.
3. The bearing structure is a core covering bearing for roller cutter.
4. Use high-quality metal seals.
5. The roller cutters can be repaired and customized.


Cutters for RaiseBorer




Maintenance & Service



维修
REPAIR



We can optimize the cutter design according to the surrounding rock conditions and used equipment, let the user can achieve the fastest driving speed at a reduced overall cost.



We can provide users with a whole process of cutter inspection, configuration, testing, repair and a series of work and training.