

REAMERS

OGRE

For cobbles, shale, river rock, glacial till and hardpan



- One tough, solid reamer with smooth, efficient cutting action and more cutters than any other reamer in its class
- Carbide blocks prevent shaft from wearing directly in front of reamer body
- Slow taper and deep spiraled fluting combine to give the Ogre maximum mixing and pumping
- Angled water holes keep the carbides clear of debris
- Hardfacing on all wear areas
- Curved, hard-faced back-up blades for added wear resistance during pushbacks
- Deep flutes carry away cuttings
- Available with flange for use with built-in swivels — see page 13

Ogre		Shaft Diameter & Thread					
Cut Diameter	Pack Diameter	3.25"		4.25"		4.75"	6.5"
		2 1/4" Reg box x box	2 1/4" Reg box x flange	2 1/8" IF box x box	2 1/8" IF box x flange	3 1/2" IF box x box	4 1/2" IF box x box
10"	8"	95-10-23F-23F	95-10-23F-F31X	95-10-27F-27F	95-10-27F-F32X	95-10-29F-29F	95-10-47F-47F
12"	10"	95-12-23F-23F	95-12-23F-F31X	95-12-27F-27F	95-12-27F-F32X	95-12-29F-29F	95-12-47F-47F
14"	12"	95-14-23F-23F	95-14-23F-F31X	95-14-27F-27F	95-14-27F-F32X	95-14-29F-29F	95-14-47F-47F
16"	14"	95-16-23F-23F	95-16-23F-F31X	95-16-27F-27F	95-16-27F-F32X	95-16-29F-29F	95-16-47F-47F
18"	16"	95-18-23F-23F	95-18-23F-F31X	95-18-27F-27F	95-18-27F-F32X	95-18-29F-29F	95-18-47F-47F
20"	18"	95-20-23F-23F	95-20-23F-F31X	95-20-27F-27F	95-20-27F-F32X	95-20-29F-29F	95-20-47F-47F
24"	22"			95-24-27F-27F	95-24-27F-F32X	95-24-29F-29F	95-24-47F-47F
28"	26"			95-28-27F-27F	95-28-27F-F32X	95-28-29F-29F	95-28-47F-47F
30"	28"			95-30-27F-27F	95-30-27F-F32X	95-30-29F-29F	95-30-47F-47F
34"	32"			95-34-27F-27F	95-34-27F-F32X	95-34-29F-29F	95-34-47F-47F
36"	34"			95-36-27F-27F	95-36-27F-F32X	95-36-29F-29F	95-36-47F-47F
40"	38"						95-40-47F-47F

SHREDDER

For sand with cobbles, sandstone and hardpan

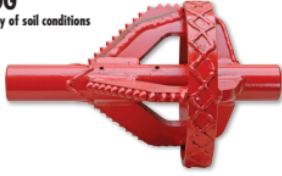


- Carbide tipped shark teeth efficiently rip through tough ground conditions
- Gradual taper of blades lessens torque requirements
- Drilling fluid is channeled out through the blades, as well as the shaft
- Back-up cutters make push-backs a breeze
- More cutter teeth than any other similar reamer
- Integrated "spider" support and stabilizer ring built into Shredders 18" and larger

Shredder		Shaft Diameter & Thread				
Cut Diameter	2 1/8" IF box x box	2.75"	3.25"	4.25"	4.75"	6.5"
		2" IF box x box	2 1/8" Reg box x box	2 1/8" IF box x box	3 1/2" IF box x box	4 1/2" IF box x box
8"		69-08-21F-21F	69-08-23F-23F			
10"		69-10-21F-21F	69-10-23F-23F	69-10-27F-27F		
12"		69-12-21F-21F	69-12-23F-23F	69-12-27F-27F		
14"		69-14-21F-21F	69-14-23F-23F	69-14-27F-27F	69-14-29F-29F	
16"		69-16-21F-21F	69-16-23F-23F	69-16-27F-27F	69-16-29F-29F	69-16-47F-47F
18"		69-18-21F-21F	69-18-23F-23F	69-18-27F-27F	69-18-29F-29F	69-18-47F-47F
20"			69-20-23F-23F	69-20-27F-27F	69-20-29F-29F	69-20-47F-47F
24"			69-24-23F-23F	69-24-27F-27F	69-24-29F-29F	69-24-47F-47F
28"				69-28-27F-27F	69-28-29F-29F	69-28-47F-47F
30"				69-30-27F-27F	69-30-29F-29F	69-30-47F-47F
34"				69-34-27F-27F	69-34-29F-29F	69-34-47F-47F
36"				69-36-27F-27F	69-36-29F-29F	69-36-47F-47F
38"				69-38-27F-27F	69-38-29F-29F	69-38-47F-47F
40"				69-40-27F-27F	69-40-29F-29F	69-40-47F-47F
48"				69-48-27F-27F	69-48-29F-29F	69-48-47F-47F

HEDGEHOG

Works in a variety of soil conditions



- Economical – carbide cutters are built on blocks so they can be factory rebuilt at a lower cost than replacing the entire reamer
- Compact, aggressive reamer works in a variety of soil conditions
- Tapered blade for a smoother cutting action
- Reamers over 8" are built with a ring for strength and stability; reamers over 20" feature four blades
- Can be used as a "pull" or "push" reamer

Hedgehog					
Cut Diameter	Shaft Diameter & Thread				
	2.75"	3.25"	4.25"	4.75"	6.5"
	2" IF box x box	2 3/8" Reg box x box	2 7/8" IF box x box	3 1/2" IF box x box	4 1/2" IF box x box
8"	68-08-21F-21F	68-08-23F-23F			
10"	68-10-21F-21F	68-10-23F-23F	68-10-27F-27F		
12"	68-12-21F-21F	68-12-23F-23F	68-12-27F-27F	68-12-29F-29F	
14"	68-14-21F-21F	68-14-23F-23F	68-14-27F-27F	68-14-29F-29F	68-14-47F-47F
16"	68-16-21F-21F	68-16-23F-23F	68-16-27F-27F	68-16-29F-29F	68-16-47F-47F
18"	68-18-21F-21F	68-18-23F-23F	68-18-27F-27F	68-18-29F-29F	68-18-47F-47F
20"		68-20-23F-23F	68-20-27F-27F	68-20-29F-29F	68-20-47F-47F
24"		68-24-23F-23F	68-24-27F-27F	68-24-29F-29F	68-24-47F-47F
28"			68-28-27F-27F	68-28-29F-29F	68-28-47F-47F
30"			68-30-27F-27F	68-30-29F-29F	68-30-47F-47F
36"				68-36-29F-29F	68-36-47F-47F
42"				68-42-29F-29F	68-42-47F-47F

TERMINATOR

For sticky clay, shale and sandstone



- Aggressive cutting with superior mixing action
- Efficient cutting action helps reduce pullback and rotary pressures
- An excellent choice for shale and sandstone
- Incredible mixing and pumping action makes this the ideal reamer for sticky situations
- Carbide tipped cutting blades are precisely positioned and angled so all the abuse is placed on the carbide tooth

Terminator					
Cut Diameter	Shaft Diameter & Thread				
	2.75"	3.25"	4.25"	4.75"	6.5"
	2" IF box x box	2 3/8" Reg box x box	2 7/8" IF box x box	3 1/2" IF box x box	4 1/2" IF box x box
6"	90-06-21F-21F	90-06-23F-23F			
8"	90-08-21F-21F	90-08-23F-23F			
10"	90-10-21F-21F	90-10-23F-23F	90-10-27F-27F		
12"	90-12-21F-21F	90-12-23F-23F	90-12-27F-27F		
14"	90-14-21F-21F	90-14-23F-23F	90-14-27F-27F	90-14-29F-29F	90-14-47F-47F
16"	90-16-21F-21F	90-16-23F-23F	90-16-27F-27F	90-16-29F-29F	90-16-47F-47F
18"	90-18-21F-21F	90-18-23F-23F	90-18-27F-27F	90-18-29F-29F	90-18-47F-47F
20"	90-20-21F-21F	90-20-23F-23F	90-20-27F-27F	90-20-29F-29F	90-20-47F-47F
24"		90-24-23F-23F	90-24-27F-27F	90-24-29F-29F	90-24-47F-47F
28"			90-28-27F-27F	90-28-29F-29F	90-28-47F-47F
30"			90-30-27F-27F	90-30-29F-29F	90-30-47F-47F
34"			90-34-27F-27F	90-34-29F-29F	90-34-47F-47F
36"			90-36-27F-27F	90-36-29F-29F	90-36-47F-47F
38"			90-38-27F-27F	90-38-29F-29F	90-38-47F-47F
40"			90-40-27F-27F	90-40-29F-29F	90-40-47F-47F
42"			90-42-27F-27F	90-42-29F-29F	90-42-47F-47F

TERMINATOR PUP

For sticky clay, shale and sandstone



- Special two-stage, heavy-duty Terminator, for pre-reaming in stages
- Mix & Match with Barrel Stabilizers to meet your job requirements

Terminator Pup		
Cut Diameter Range	Shaft Diameter & Thread	
	3.25"	4.25"
	2 3/8" Reg box x box	2 7/8" IF box x box
6" - 12"	90-06-12-23F-23F	90-06-12-27F-27F
12" - 18"	90-12-18-23F-23F	90-12-18-27F-27F
18" - 24"	90-18-24-23F-23F	90-18-24-27F-27F
20" - 28"	90-20-28-23F-23F	90-20-28-27F-27F
24" - 36"	90-24-36-27F-27F	

NOTE: Standard cutting range sizes listed above. Call for a complete selection.

TERMINATOR JR.

Bolt-on blade reamer



Terminator Jr.			
Cut Diameter	Borzall Blade Size		
	4"	5"	6"
8"	92-8-40-BR		
9"		92-9-50-BR	
10"			92-10-60-BR

For use with 5-ton and 7 1/2-ton Valu-DUB Pulling Swivels. Swivels on pages 12 - 13.

- Ream a hole without ever taking off your drill head
- Conical carbide cutters on an angled blade gives both a cutting and mixing action
- Swivel is locked in line with the axis of rotation
- Bolts on to most Borzall blades to create an 8" to 10" hole

JUGGERNAUT

jugg-er-nawt: A massive inexorable force, movement or object that crushes whatever is in its path.

- More cutters than any other reamer in its class resulting in a smoother cutting action
- Welded shark teeth with extra thick carbide inserts for maximum cutting action
- Deep, spiraled flutes allow for plenty of slurry to flow past the reamer
- Compact, fluted reamer swivels & pulling eye adapters available in a range of capacities for all size Juggernauts



4.5" Cut Juggernaut 6" Cut Juggernaut 8" Cut Juggernaut

POCKET SWIVEL

PULLING EYE

With 4.5", 6" and 8" Juggernauts you have a choice of using a Pocket Swivel or Pulling Eye. Juggernauts ending with "44F" use the 44M pulling eyes (pg 10) or the 00503-604-44M 9000 lb swivel (pg 13). Juggernauts ending with "45F" can use 45M pulling eyes (pg 10) or 00503-604-45M (9000 lb), 00503-610-45M (20,000 lb) swivels (pg 13).

Juggernaut - Machined		Thread	
Cut Diameter	Pack Diameter	2" IF box x fine thread box	2 3/8" Reg box x fine thread box
4.5"	4"	85-04-21F-44F	
6"	4"	85-06-21F-44F	
8"	6"	85-08-21F-45F	85-08-23F-45F



10" Cut Juggernaut

12" Cut Juggernaut

FLANGE SWIVEL

FLANGE PULLING EYE

With 10", 12", 14" and 16" Juggernauts you have a choice of using a Flange Swivel or Flange Pulling Eye. Juggernauts ending with "F31X" use Flange pulling eyes (pg 10) or 00503-610 (20,000 lb), 00503-615 (30,000 lb) swivels (pg 13). Juggernauts ending with "F32X" use Flange pulling eyes (pg 10) or 00503-620 (40,000 lb), 00503-630 (60,000 lb) swivels (pg 13).

Juggernaut - Casted		Thread & Swivel Size				
Cut Diameter	Pack Diameter	2" IF box x flange	2 3/8" Reg box x flange	2 3/8" Reg box x flange	2 3/8" IF box x flange	2 3/8" IF box x flange
		Use with 10 or 15-ton swivel	Use with 10 or 15-ton swivel	Use with 20 or 30-ton swivel	Use with 10 or 15-ton swivel	Use with 20 or 30-ton swivel
10"	8"	85-10-21F-F31X	85-10-23F-F31X			
12"	10"	85-12-21F-F31X	85-12-23F-F31X	85-12-23F-F32X	85-12-27F-F31X	
14"	12"	85-14-21F-F31X	85-14-23F-F31X	85-14-23F-F32X	85-14-27F-F31X	85-14-27F-F32X
16"	14"	85-16-21F-F31X	85-16-23F-F31X	85-16-23F-F32X	85-16-27F-F31X	85-16-27F-F32X

SABERTOOTH

For cobbles, shale, river rock, glacial till and hardpan

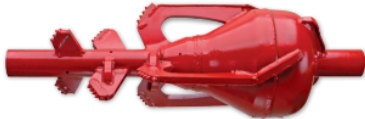


- The must-have reamer for tough, combination soils
- Large shark teeth carbide cutters give an aggressive yet smooth cutting action
- Angled placement of cutters and spiral pattern results in an excellent mixing and pumping action
- Back-up blades make for easier push backs

Sabertooth						
Cut Diameter	Pack Diameter	Shaft Diameter & Thread				
		2.75"	3.25"	4.25"	4.75"	6.5"
		2" IF box x box	2 3/4" Reg box x box	2 1/2" IF box x box	3 1/2" IF box x box	4 1/2" IF box x box
6"	4 1/2"	96-06-21F-21F				
8"	6 1/2"	96-08-21F-21F	96-08-23F-23F			
10"	6 3/4"	96-10-21F-21F	96-10-23F-23F	96-10-27F-27F		
12"	8 3/4"	96-12-21F-21F	96-12-23F-23F	96-12-27F-27F		
14"	10 3/4"	96-14-21F-21F	96-14-23F-23F	96-14-27F-27F	96-14-29F-29F	
16"	12 3/4"	96-16-21F-21F	96-16-23F-23F	96-16-27F-27F	96-16-29F-29F	
18"	14"		96-18-23F-23F	96-18-27F-27F	96-18-29F-29F	
20"	16"		96-20-23F-23F	96-20-27F-27F	96-20-29F-29F	
24"	20"			96-24-27F-27F	96-24-29F-29F	
28"	24"			96-28-27F-27F	96-28-29F-29F	
30"	26"			96-30-27F-27F	96-30-29F-29F	
32"	28"			96-32-27F-27F	96-32-29F-29F	
36"	32"			96-36-27F-27F	96-36-29F-29F	
40"	36"			96-40-27F-27F	96-40-29F-29F	
48"	44"			96-48-27F-27F	96-48-29F-29F	

TURBO

For sand, sandstone and clay



- Reamer of choice for sand and unstable soils
- Curved packer blades provide maximum mixing and pumping
- Heavy-duty blades with massive carbides provide an aggressive cutting action
- Back-up blades make for easier push backs

Turbo						
Cut Diameter	Pack Diameter	Shaft Diameter & Thread				
		2.75"	3.25"	4.25"	4.75"	6.5"
		2" IF box x box	2 3/4" Reg box x box	2 1/2" IF box x box	3 1/2" IF box x box	4 1/2" IF box x box
6"	4 1/2"	83-06-21F-21F	83-06-23F-23F			
8"	6 1/2"	83-08-21F-21F	83-08-23F-23F			
10"	8 3/4"	83-10-21F-21F	83-10-23F-23F	83-10-27F-27F		
12"	10 3/4"	83-12-21F-21F	83-12-23F-23F	83-12-27F-27F		
14"	12 3/4"	83-14-21F-21F	83-14-23F-23F	83-14-27F-27F	83-14-29F-29F	
16"	14"	83-16-21F-21F	83-16-23F-23F	83-16-27F-27F	83-16-29F-29F	
18"	16"		83-18-23F-23F	83-18-27F-27F	83-18-29F-29F	
20"	18"		83-20-23F-23F	83-20-27F-27F	83-20-29F-29F	
24"	20"			83-24-27F-27F	83-24-29F-29F	
28"	24"			83-28-27F-27F	83-28-29F-29F	
32"	28"			83-32-27F-27F	83-32-29F-29F	
36"	32"			83-36-27F-27F	83-36-29F-29F	
40"	36"				83-40-27F-27F	
48"	44"				83-48-27F-27F	

BARREL STABILIZER

Centers reamer to create a round hole in all soil conditions



- Holds drill rod, reamer, and product pipe on center to create a round hole and a successful bore
- The key component of a successful large diameter project

Barrel Stabilizer					
Pack Diameter	Std Pack Length	Shaft Diameter & Thread			
		3.25"	4.25"	4.75"	6.5"
		2 3/4" Reg box	2 1/2" IF box	3 1/2" IF box	4 1/2" IF box
10"	20"	80-10-23F-23F	80-10-27F-27F		
12"	24"	80-12-23F-23F	80-12-27F-27F		
14"	28"	80-14-23F-23F	80-14-27F-27F		
16"	32"	80-16-23F-23F	80-16-27F-27F	80-16-29F-29F	
18"	36"	80-18-23F-23F	80-18-27F-27F	80-18-29F-29F	
20"	40"	80-20-23F-23F	80-20-27F-27F	80-20-29F-29F	80-20-47F-47F

NOTE: Standard cutting range sizes listed above. Many more sizes available.

TORNADO

For clay and other soft ground conditions



- Blades precisely angled and placed for efficient cutting and mixing action
- Carbide cutter blocks aggressively chew through the ground
- The most economical backreamer on the market with the quality design and workmanship you expect from a Borzall tool

Tornado		
Cut Diameter	Shaft Diameter & Thread	
	2.75"	3.25"
	2" IF box x box	2 3/4" Reg box x box
6"	65-06-21F-21F	
8"	65-08-21F-21F	65-08-23F-23F
10"	65-10-21F-21F	65-10-23F-23F
12"	65-12-21F-21F	65-12-23F-23F