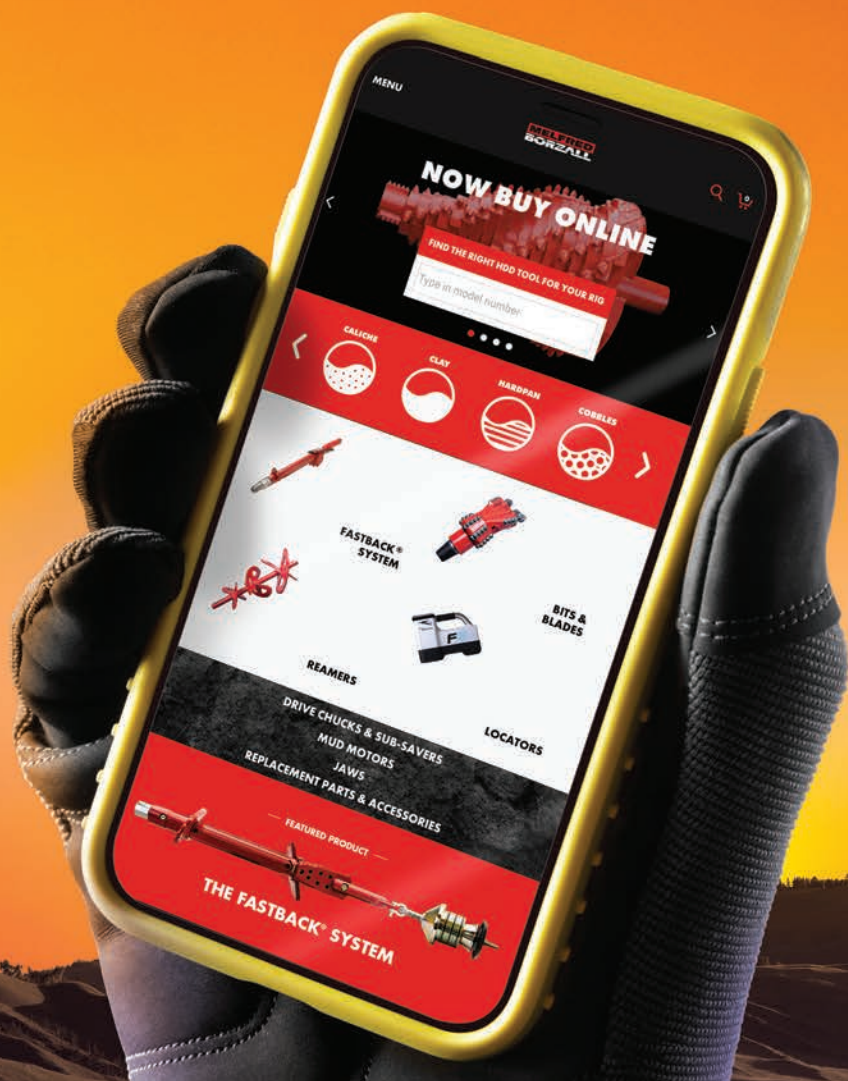


# HDD TOOLING CATALOG

& RESOURCE GUIDE

**MELFRED  
BORZALL**

THE HDD TOOLING EXPERTS



1



Open your camera app on any Android or iPhone

2



Scan any QR code in this catalog next to products

3

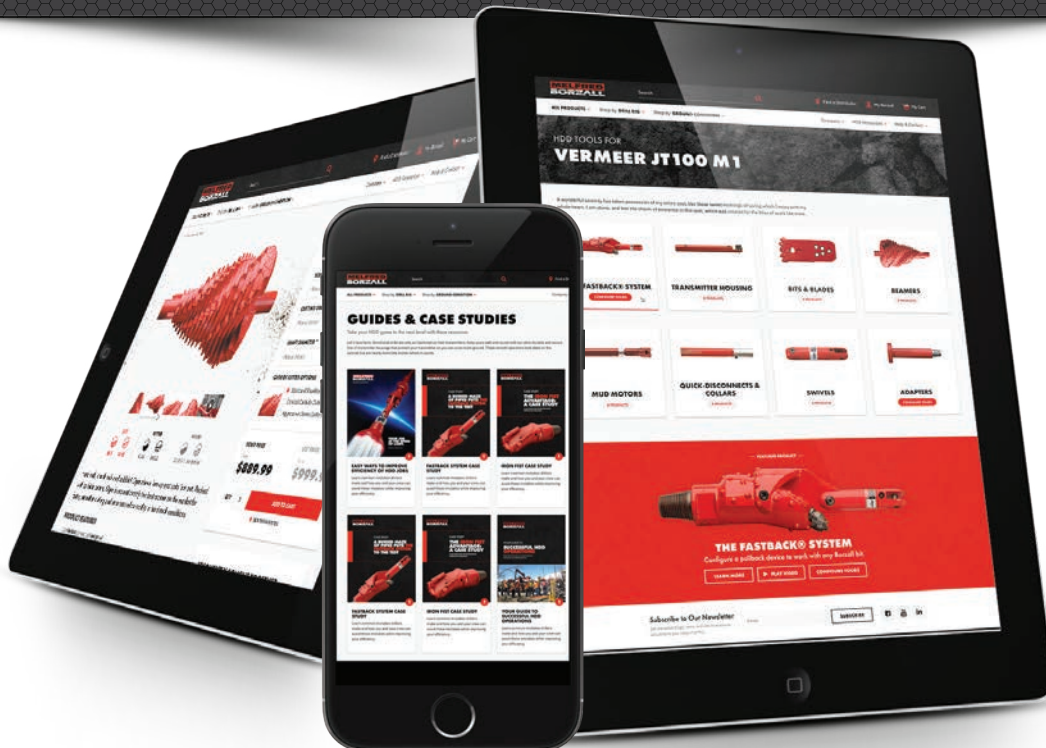


Go right to the product page

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**www.MELFREDBORZALL.com**

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# OUR STORY

Seven decades of ground breaking drilling solutions...and still going strong.

## 1946

Machinist, welder and innovator Fred Melsheimer launches Melfred Welding & Manufacturing, designing and creating tools for the first horizontal directional drilling system.

## 1950s

Fred's two sons, Ted and Dick Melsheimer, come to work at the company after school. They design the DynaMole, a self-propelled boring machine that could bore and pull in 1500+ feet of gas pipe/day.

## 1970s

Ted Melsheimer invents the successful line of Mustang pipe squeeze off tools. Fred's son-in-law, mechanic and sales expert Larry Coots, lays the groundwork for a changing industry by getting these innovative tools into drillers' hands.

## 1990s

After Melfred Welding joins forces with the Borzall Equipment to form Melfred Borzall, Inc., Dick and Ted Melsheimer start selling the world's first commercially available horizontal directional drilling system, the Sure Shot. As a result, the company expands across the U.S. and internationally into 5 continents.

## 2010s

With the retirement of Dick and Ted Melsheimer, the next generation takes over ownership as Eric Melsheimer becomes President of Melfred Borzall and his brother, Peter, oversees the entire sales and marketing operations of the company. Melfred Borzall makes an impact with the tech boom of underground fibre optic utility and innovates unique solutions.

## Today

In 2021, we will celebrate our 75th anniversary. Our mission remains unchanged: to enable a more efficient, cost-effective means of installing utilities underground so utility contractors can be as productive and profitable as possible.

## Manufacturing for a Better Tomorrow

We don't just protect drillers, we protect the Earth and strive to inspire future leaders of our industry. Our energy efficient facility and community outreach helps to accomplish that mission.

**\$100k+**

Donated to local schools and trade programs

**1000**

Solar panels powering the Santa Maria plant

**75**

University & High School Internships filled

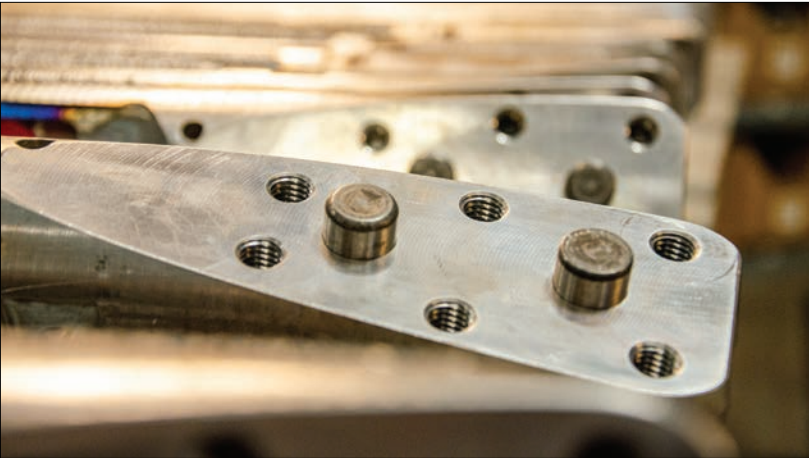
**6**

Educational scholarships awarded to leaders of tomorrow since 2018



# WHY MELFRED BORZALL?

HDD Tooling Solutions From The Company That Pioneered Horizontal Drilling.



## Non-stop Innovation

Our expert team is relentless about engineering ground-breaking tools, improving materials selection, creating a smoother sales processes, and delivering more personalized & attentive customer service.

## State-of-the-Art Facility

No dingy, job-shop here. Just like your HDD job, it's about production and quality of work. We engineer and manufacture all our products in a spotless, modern facility, using state-of-the-art computerized machining stations that we maintain using lean methodology.



## Custom Tooling Available

Whether your job requires a modification to a tool we have in our inventory, or you need us to develop an entirely new solution, we can design it, manufacture it and get it to you fast—every time.

## Same-day Shipping

When you need a new tool, we know the clock is ticking. We double-check every order before shipping and pack every product in sturdy foam & shrink wrap, designed specifically to handle the weight and non-standard shapes of our tools.



# CUSTOMER SERVICE

Drilling Is Tough Enough. Working With Your HDD Tooling Supplier Shouldn't Be.



## Worldwide Distributor Network

Every Melfred Borzall distributor knows HDD drilling inside and out. Better yet, your local distributor understands the ground conditions you're dealing with because they are close by. Your distributor can advise on the right tools for the project and have stock on hand for a quick solution to your HDD challenges.



## Order Online & Ship from Local Distributor

When you're at a remote job site, you can't halt production to go pick up tools. Order by phone, on your smart phone, or via chat and we'll make sure your local distributor is in the loop. We can get you the right tool for the job in every single US state and 10 key international locations.



## Same Day Shipping

Our strategic partnerships with air freight and ground transportation companies ensure the products you order arrive when you need them, at the lowest possible cost. All stock items ship the same day.



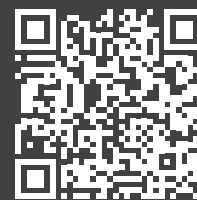
## #1 Product Guarantee Policy in HDD

We offer the best money-back guarantee in the industry. If you're not satisfied with your purchase, give us a call and we'll make things right. Otherwise, we'll issue a full refund for all merchandise returned within 30 days of delivery.

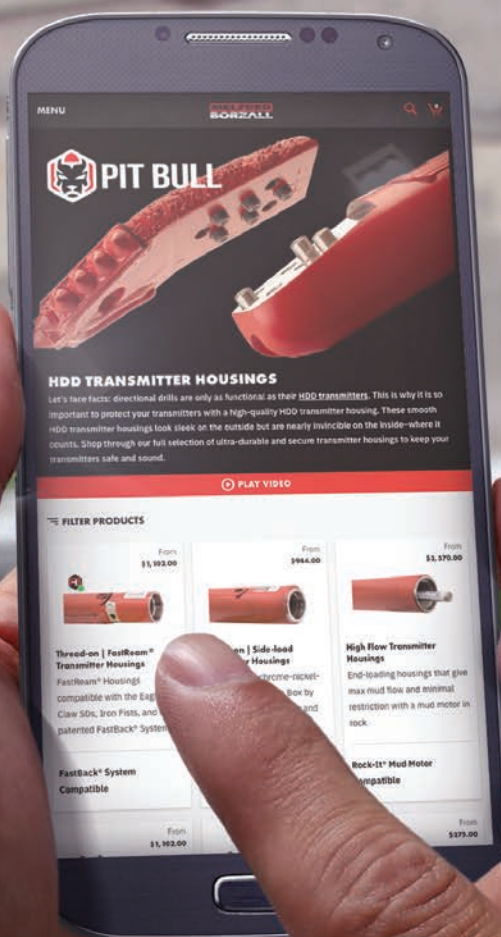


# TRANSMITTER HOUSINGS & WALK-OVER LOCATORS

Ground-breaking sonde housing features for harsh ground conditions



Scan to Shop  
All Transmitter  
Housings





# THE SD HOUSING DIFFERENCE

We Didn't Design It...You Did.

We scoured the HDD landscape to pick the brains of drillers about every frustration they have with their housings, no matter the manufacturer. Our new housing is the result of applying our 75 years of manufacturing to your recommendations.

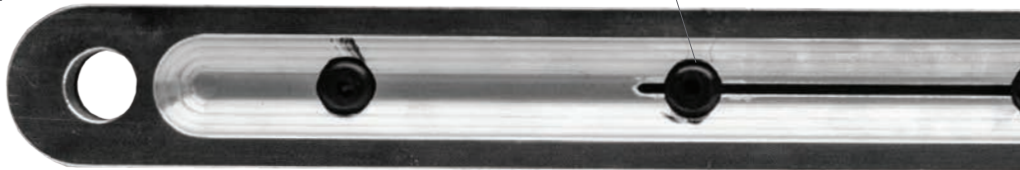
Standard Housing vs. SD Housing Features		
	Standard Housing	SD Housing
Precisely-placed lid slots for signal strength	•	•
Heat-treated, alloy steel for maximum strength	•	•
Large lid tabs to lock into place	•	•
Fastream® compatible for use with the Fastback® System		•
Newly-designed & more compact dual SuperNozzles		•
Shock-absorbing internal rubber bumpers in sonde cavity		•
Shock-absorbing rubber bumpers in lid		•
Chunky hardfacing on high-wear areas		•
Integrated supplemental MudBoost™ port for extra fluid flow		•
LidLock roll pin keeps lid securely in place		•
Pit Bull™ blade locking feature ( <i>bolt-on only</i> )		•
Enlarged water intake for enhanced SuperNozzle flow		•
Engraved lid part number in sonde cavity		•
Chamfered & Radiused edges for easy lid removal		•



**Enlarged Fluid Port**  
Increased diameter fluid port for more water jet power

**Sonde Bumpers**  
Cushion the transmitter with multiple shock-absorbing bumpers

**MudBoost™ Port**  
Now integrated directly in the tail of the housing for extra fluid flow during pullback



**DigiTrak End Bumper**  
Absorbs vibration and shock loads so the DigiTrak transmitter doesn't



**More Hardfacing**  
Robotically-applied carbide hardfacing on all high-wear areas increases housing life up to 50%



Covered by patents 9,713,344, 10,246,993, and patents pending.

Transmitter  
Housings &  
Locators

FastBack  
System

Bits &  
Blades

Rock Tools &  
Mud Motors

Reamers

Quick-  
Disconnects  
& Collars

Swivels

Pullers

Drive Chucks  
& Sub-Savers

Adapters

Parts &  
Accessories



### Lid Locking Pin

Lid-locking roll pin adds extra lid retention security



### New Dual Nozzle

Double the jet power & able to switch between 1/8" or 3/16" orifice nozzles



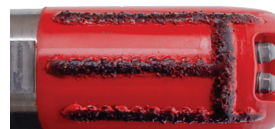
### FastBack® Ready

Attach FastReam® Cutter Blocks to enlarge a hole up to 12" during pullback. See pg. 14 for more details



### 3X Nose Hardfacing

We tripled the chunky hardfacing on high-wear areas such as the nose



### Engraved Lid Part #

Easy reference of your housing's lid part number if needed



### Pit Bull™ Ready

Minimize bolt breakage, bolt loss, and even blade loss. See page 18



## SD HOUSING | SIDE-LOAD, BOLT-ON

Newly-Designed With Fluid Flow, Shock Absorption, Wear Life Upgrades And Pit Bull Features For Drilling With Your Favorite Directional Blade.



Using DigiTrak® Transmitters				Replacement Parts					
Drill Rig Thrust	Diameter	Thread (rear)	Bolt Pattern	Housing	Blade Bolts	Housing Lid	LidLock Pin	Lid Bolts	Pit Bull Dowel Pin
< 8,000 lb.	2.5"	FS200	VER 5, 3/8" bolts	<b>5625-HT4-06</b>	SHCS3/8X3/4	5625-HT4-CP	RP-038-175*	SHCS3/8X3/4	DP-050X075
6,000 - 10,000	2.5"	2" IF	VER 6, 1/2" bolts	<b>5625-HT4-13</b>	SHCS1/2X1	5625-HT4-CP	RP-038-175*	SHCS1/2X3/4	DP-075X075
10,000 - 20,000	2.75"	2" IF	VER 6, 1/2" bolts	<b>5627-HT4-13</b>	SHCS1/2X1	5627-HT4-CP	RP-038-175	SHCS1/2X3/4	DP-075x100
20,000 - 40,000	3.25"	2.375" Reg	VER 6, 1/2" bolts	<b>5632-HT4-13</b>	SHCS1/2X1	5632-HT4-CP	RP-038-200	SHCS1/2X3/4	DP-075x100

Using Subsite® Transmitters				Replacement Parts					
Drill Rig Thrust	Diameter	Thread (rear)	Bolt Pattern	Housing	Blade Bolts	Housing Lid	LidLock Pin	Lid Bolts	Pit Bull Dowel Pin
<10,000 lb.	2.5"	2" IF	DW 5, 12mm bolts	<b>5925-HD4-14</b>	SHCS12MMX25MM	5925-HD4-CP	RP-038-175*	SHCS12MMX20MM	DP-050X075
6,000 - 20,000	2.75"	2" IF	DW 5, 12mm bolts	<b>5927-HD4-14</b>	SHCS12MMX25MM	5927-HD4-CP	RP-038-175*	SHCS12MMX20MM	DP-050X075
20,000 - 30,000	3.25"	2.375" Reg	DW 6, 16mm bolts	<b>5932-HD4-15</b>	SHCS16MMX35MM	5932-HD4-CP	RP-038-200	SHCS16MMX25MM	DP-075x100
20,000 - 40,000	3.50"	2.375" Reg	DW 6, 16mm bolts	<b>5935-HD4-15</b>	SHCS16MMX35MM	5935-HD4-CP	RP-038-200	SHCS16MMX25MM	DP-075x100

## SD HOUSING | SIDE-LOAD, THREAD-ON

Newly-Designed For Digitrak® Transmitters And Subsite® Beacons And Use With Eagle Claw, Iron Fist, Bolt-On Bit Bodies, Or Your Favorite Hard Ground Bit.



Using DigiTrak® Transmitters				Replacement Parts				
Drill Rig Thrust	Diameter	Thread (rear)	Thread (front)	Housing	Bolt-On Bit Body	Housing Lid	LidLock Pin	Lid Bolt
6,000 - 10,000	2.5"	2" IF	2" IF	<b>5625-HT4</b>	5625-13	5625-HT4-CP	RP-038-175	SHCS1/2X3/4
10,000 - 20,000	2.75"	2" IF	2" IF	<b>5627-HT4</b>	5627-13	5627-HT4-CP	RP-038-175	SHCS1/2X3/4
20,000 - 40,000	3.25"	2.375" Reg	2.375" Reg	<b>5632-HT4</b>	5632-13	5632-HT4-CP	RP-038-200	SHCS1/2X3/4

Using Subsite® Transmitters				Replacement Parts				
Drill Rig Thrust	Diameter	Thread (rear)	Thread (front)	Housing	Bolt-On Bit Body	Housing Lid	LidLock Pin	Lid Bolt
6,000 - 20,000	2.75"	2" IF	2" IF	<b>5927-HD4</b>	5927-14	5927-HD4-CP	RP-038-175	SHCS12MMX20MM
20,000 - 30,000	3.25"	2.375" Reg	2.375" Reg	<b>5932-HD4</b>	5932-15	5932-HD4-CP	RP-038-200	SHCS16MMX25MM
20,000 - 40,000	3.50"	2.375" Reg	2.375" Reg	<b>5935-HD4</b>	5935-15	5935-HD4-CP	RP-038-200	SHCS16MMX25MM
40,000 - 80,000	4.25"	2.875" IF	2.875" Reg	<b>3742-HU3</b>	1742-23	3742-HU3-CP	RP-038-200	SHCS1/2X3/4

# STANDARD HOUSING | SIDE-LOAD, BOLT-ON

Designed For DigiTrak® Transmitters And Subsite® Beacons.



Using DigiTrak® Transmitters				Replacement Parts			
Drill Rig Thrust	Diameter	Rear Thread	Bolt Pattern	Housing	Blade Bolts Part #	Housing Lid Part #	Lid Bolts Part #
< 6,000 lb.	2"	1.21-6	DW 3, 10mm bolts	<b>1720-HM-09</b>	SHCS12MMX20MM	1720-HM-09-CP	SHCS3/8X3/4
< 8,000 lb.	2.5"	FS200	VER 5, 3/8" bolts	<b>3625-HT3-06</b>	SHCS3/8X5/8	3625-HT3-CP	SHCS3/8X3/4
6,000 - 10,000	2.5"	2" IF	VER 6, 1/2" bolts	<b>3625-HT3-13</b>	SHCS1/2X1	3625-HT3-13-CP	SHCS1/2X3/4
10,000 - 20,000	2.75"	2" IF	VER 6, 1/2" bolts	<b>3627-HT3-13</b>	SHCS1/2X1	3627-HT3-CP	SHCS1/2X3/4
20,000 - 40,000	3.25"	2.375" Reg	VER 6, 1/2" bolts	<b>3632-HT3-13</b>	SHCS1/2X1	3632-HT3-13-CP	SHCS1/2X3/4

Using Subsite® Transmitters				Replacement Parts			
Drill Rig Thrust	Diameter	Rear Thread	Bolt Pattern	Housing	Blade Bolts Part #	Housing Lid Part #	Lid Bolts Part #
< 6,000 lb.	2"	1.21-6	DW 3, 10mm bolts	<b>1920-HD-09</b>	SHCS12MMX20MM	1920-HD-09-CP	SHCS3/8X3/4
<10,000 lb.	2.5"	2" IF	DW 5, 12mm bolts	<b>3925-HD3-14</b>	SHCS12MMX25MM	3925-HD3-CP	SHCS12MMX20MM
6,000 - 20,000	2.75"	2" IF	DW 5, 12mm bolts	<b>3927-HD3-14</b>	SHCS12MMX25MM	3927-HD3-CP	SHCS12MMX20MM
20,000 - 30,000	3.25"	2.375" Reg	DW 6, 16mm bolts	<b>3932-HD3-15</b>	SHCS16MMX35MM	3935-HD3-CP	SHCS16MMX25MM
20,000 - 40,000	3.50"	2.375" Reg	DW 6, 16mm bolts	<b>3935-HD3-15</b>	SHCS16MMX35MM	3935-HD3-CP	SHCS16MMX25MM



## THREAD-ON BIT BODIES

Make A Thread-On SD Housing More Versatile To Use With Bolt-On Blades.

Bolt-On Bit Bodies Compatible with Vermeer® Drill Rigs			
Diameter	Thread	Bolt Pattern	Bit Body Part #
2.5"	2" IF	VER 6, 1/2" bolts	5625-13
2.75"	2" IF	VER 6, 1/2" bolts	5627-13
3.25"	2.375" Reg	VER 6, 1/2" bolts	5632-13
4.25"	2.875" Reg	VER 6, 5/8" bolts	1742-23*

Bolt-On Bit Bodies for Ditch Witch® Drill Rigs			
Diameter	Thread	Bolt Pattern	Bit Body Part #
2.75"	2" IF	DW 5, 12mm bolts	5927-14
3.25"	2.375" Reg	DW 6, 16mm bolts	5932-15
3.50"	2.375" Reg	DW 6, 16mm bolts	5935-15
4.25"	2.875" Reg	DW 6, 20mm bolts	1942-25*

\*These 4.25" diameter bit bodies do not come equipped with Pit Bull™ removable dowel pins.



Incorporates the Dual SuperNozzle for extra fluid flow and cutting action



Check valve minimizes chance of clogging nozzle





# HIGH-FLOW HOUSINGS

Ideal For Use With Mud Motors, Hard Ground Bits And Bolt-On Bit Bodies.

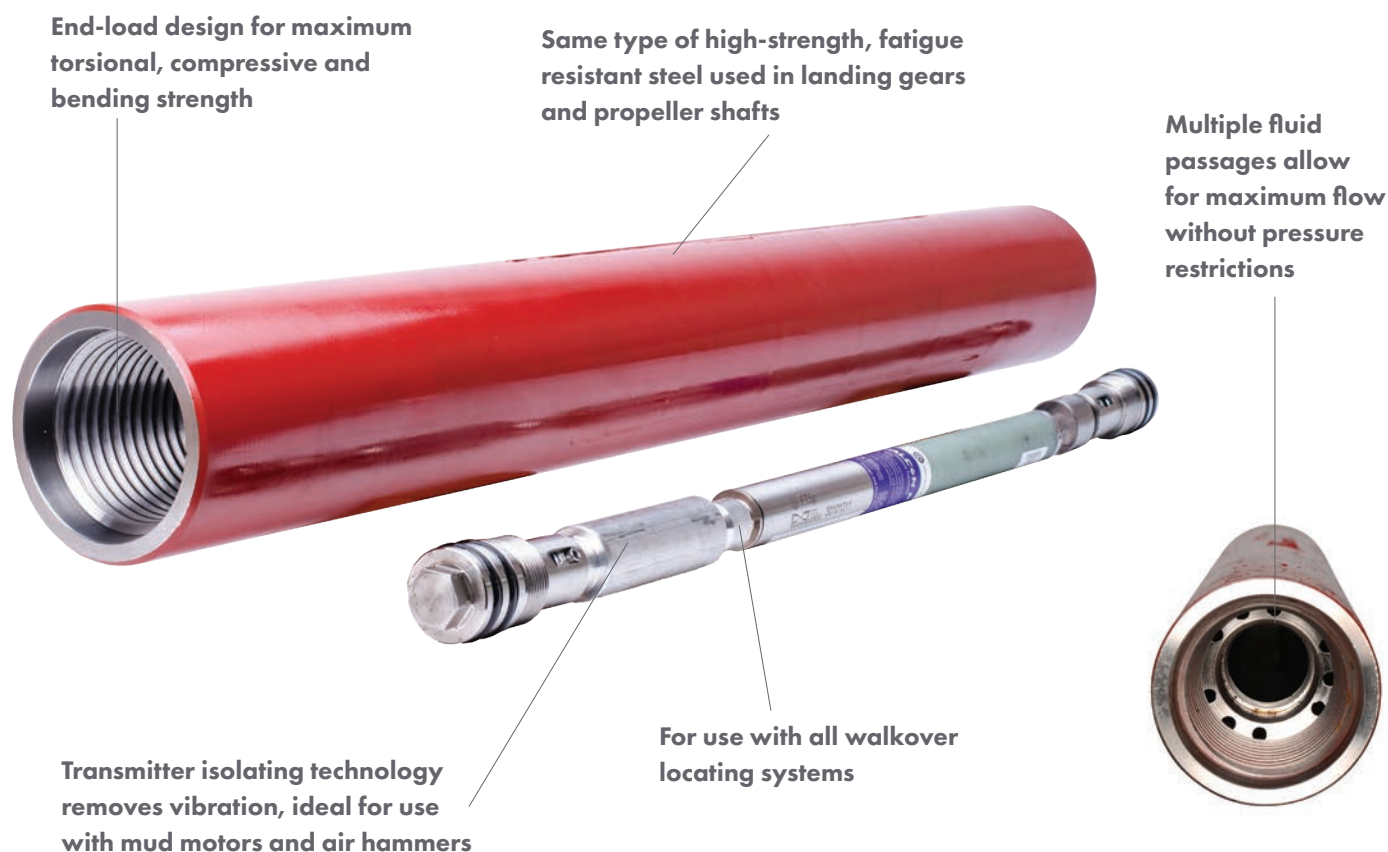
Maximum mud flow with minimum restriction. The Melfred Borzall End-Load, High Flow Housings are a perfect match for your next rock job when utilizing a mud motor or air hammer. They have the design, strength and flow capacity to handle the toughest rock bores. Ideal for use with mud motors, Eagle Claw & Iron Fist bits and bolt-on bit bodies. Run your mud motors at maximum power and efficiency, even on long bores.

End-Load, Thread-On, High Flow Housings				
Capacity	Diameter	Rear Thread	Front Thread	Part #
<40,000	3.5"	2.375" IF	2.375" Reg	ELH-350
40,000 - 80,000	4.25"	2.875" IF	2.875" Reg	ELH-425
80,000 - 140,000	4.875"	3.5" IF	3.5" Reg	ELH-487
140,000 - 300,000	6.375"	4.5" IF	4.5" Reg	ELH-638

Transmitter Kits for High Flow Housings		
Transmitter Type	When Using ELH-350, 425, 487	When Using ELH-638
DigiTrak®, 15"	ELH-DIGI-KIT	ELH638-DIGI-KIT
DigiTrak®, 19"	ELH-DIGIXL-KIT	ELH638-DIGIXL-KIT
DigiTrak®, Cable 15"	ELH-DIGIWIRE-KIT	ELH638-DIGIWIRE-KIT

*\* Proper transmitter kits come with purchase of a high flow housing*

**Refer to our Mud Motor Section on pg. 32 for more information.**







# DIGITRAK® LOCATING SYSTEMS

Falcon Technology Helps Overcome Passive And Active Interference.

## Falcon Receivers

As jobsites become increasingly complex, interference has become one of the biggest obstacles to completing HDD jobs. Falcon technology helps crews overcome both passive and active interference with frequencies that are tailored to each project.



### DigiTrak Falcon F5®

*The high-performance Falcon F5 tackles complex jobs with active and passive interference using the most advanced toolset available.*



### DigiTrak Falcon F2®

*Battle active interference with our simple yet sophisticated F2 system. Increase bore efficiency and reduce down time, saving thousands of dollars per year.*



### DigiTrak Falcon F1®

*Designed for projects such as house drops from street to home, the easy to use and friendly priced F1 uses a single band to combat active interference.*

## DigiTrak® Transmitters

Our single and multi-frequency transmitters send pitch, roll, depth, and temperature information to our receivers. Choose the one best suited to your system and job requirements.



### Falcon F5

*The DigiTrak Falcon F5® transmitter supports hundreds of frequencies between .33 kHz - .75 kHz and 4.5 - 45 kHz. Operators can avoid active and passive interference by choosing the two optimum bands for the current site.*



### Falcon F2

*The DigiTrak Falcon F2™ transmitters, offered in two lengths, support hundreds of frequencies between 4.5 and 45 kHz. Operators can avoid active interference by choosing the two optimum bands for each jobsite.*



### Falcon F1

*The DigiTrak Falcon F1™ transmitters support dozens of frequencies between 9.0 and 13.5 kHz. Operators can avoid active interference by optimizing for the current site.*

## Remote Displays

The rugged DigiTrak® Aurora® display, the HDD industry's first color touchscreen, is compatible with all current DCI locating systems and ships pre-loaded with custom applications. Get basic locating support with the Falcon Compact Display (FCD).



### AF10 & AF8

*The Aurora freestanding 10.4" and 8.4" displays are color touchscreen with on- and off-rig docking stations. This rugged display supports LWD Live, Target Steering, and other applications that increase jobsite productivity.*



### NEW! Sub-K Rebar

*The Sub-k Rebar transmitter works in lower frequencies between .33 kHz - .75 kHz and 4.5 - 45 kHz. to mitigate the issue of rebar or underground interference that has often plagued drillers' locating.*

**Call 800.558.7500 for more information or to arrange for a demo of the new Falcon Guidance Systems.**

# FASTBACK® SYSTEM

Ream And Pullback Without Ever Taking Off The Drill Head.  
Save Time, Increase Productivity, Save Money.

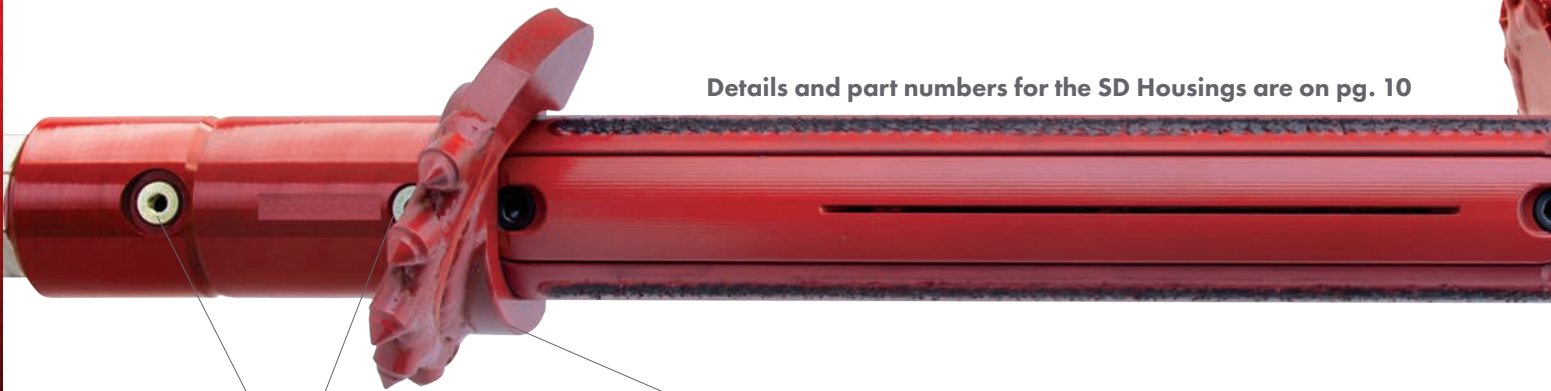
[www.melfredborzall.com/the-fastback-system](http://www.melfredborzall.com/the-fastback-system)



## **NEW! FastReam® SD Housing**

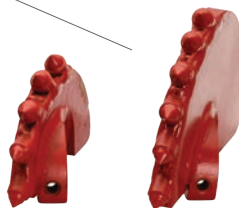
Featuring more Pit Bull™, chunky carbide hardfacing than ever, dual front SuperNozzles, and sonde cavity bumpers for shock absorption

Details and part numbers for the SD Housings are on pg. 10



## **FastBack® MudBoost Ports**

Replaceable adapters featuring MudBoost provide double the water flow when paired with the newly integrated housing port



## **FastReam® Cutter Blocks**

Enlarge the hole to 12" without removing the drill head

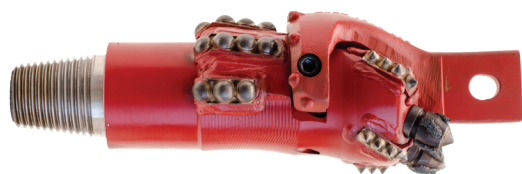




Scan to Shop  
FastBack Systems

# EVERY NEW **SD** HOUSING NOW SHIPS WITH **FASTREAM®** FEATURES INCLUDED

There is no longer a distinction between our premium housings and the FastReam® Housing. We upgraded every premium housing to include FastReam® capability.



## FastBack® Pullback Attachments



Use a directional blade or Eagle Claw with the system...we have pullback devices for each



### BACKREAM IN TIGHT SPACES

Attaching the FastReam® Cutter blocks to the housing takes only inches of room rather than standard reamers that require much more



### REDUCE PRODUCTION TIME & COST

Attach cutter blocks, swivel, and product within minutes compared to standard reaming and pullback that can double or triple production time spent in the pit



# FASTREAM® CUTTER BLOCKS

Ream Without Ever Taking Off The Drill Head.



TE series cutters are designed after our best selling reamer, the Tornado

EX series cutters are designed after our cobble bit, the Iron Fist

Fastream Cutter Blocks		
Housing Diameter	Cutting Diameter	Part Number
2.5"	4.5"	FR-250-EX-45
2.5"	6"	FR-250-TE-47-60
2.5"	8"	FR-250-TE-47-80
2.5"	10"	FR-250-TE-57-10
2.75"	6"	FR-275-TE-47-60
2.75"	8"	FR-275-TE-47-80
2.75"	10"	FR-275-TE-57-10
2.75"	12"	FR-275-TE-80-12
3.25"	6"	FR-325-EX-35-60
3.25"	8"	FR-325-TE-57-80
3.25"	10"	FR-325-TE-57-10
3.25"	12"	FR-325-TE-80-12



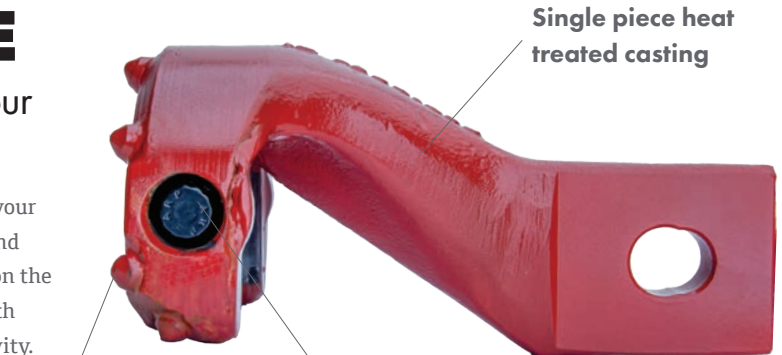
## EAGLE EYE

Fast Pull Back Using Your Eagle Claw Bit

Be ready for direct pullback in a matter of minutes. Bolt your Eagle Eye onto your Eagle Claw bit for direct pullbacks and provide a secure link that keeps the swivel straight and on the center line. Eagle Eye's heat-treated one-piece design with carbide buttons gives you maximum strength and longevity.

Eagle Eye	
Eagle Claw Size	Part#
3.5"	EC35-FB42A1-305
4.25"	EC42-FB50A1-305
5"	EC50-FB60A1-310

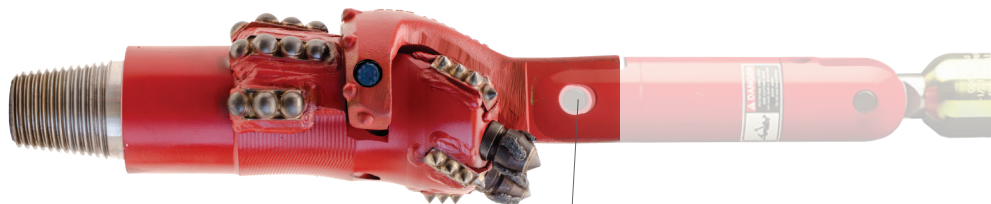
Check out more details on the Eagle Claw SD bits on pg. 24



Single piece heat treated casting

Carbide buttons extend the wear life

We use the same high-clamp load 12-point bolts used in auto racing applications



Attach, and hold in line, a swivel for direct pullback





# QUICK-SWIVEL & QUICK-LINK

Fast, & Secure Direct Pullback Without Removing the Blade.

Quick Swivel				
Pullback Capacity	Part #	Replacement Bolt	Nut Part #	Washer Part #
5 ton	00503-205-QS	HHCS-3/4-2.75-8	3/4-10-NUT	3/4 WASHER



Quick Link				
Swivel Being Used	Part #	Replacement Bolt	Nut Part #	Washer Part #
00503-205, 5-ton Valu-DUB Swivel	QL-305	HHCS-3/4-2.75-8	3/4-10-NUT	3/4 WASHER
00503-210, 10-ton Valu-DUB Swivel	QL-310	HHCS-3/4-2.75-8	3/4-10-NUT	3/4 WASHER



Both are engineered to hold the swivel rotation on center



# FASTBACK® MUDBOOST ADAPTERS

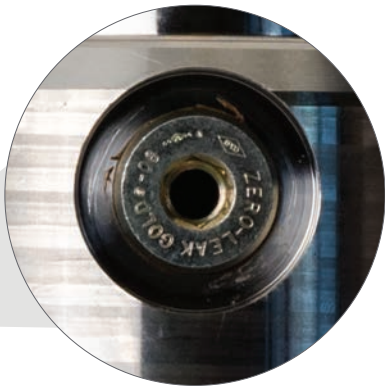
## Boost Your Flow For A Clean Hole

Special adapters for the FastBack system incorporate dual MudBoost fluid ports to ensure smooth, easy pullback with maximum flow.

MudBoost feature can be added to just about any Borzall adapter. Call us to get the adapter you need with the power of MudBoost.



MudBoost port increases flow rate during pullback



Sealed plug maintains high-pressure jet during pilot bore

# BITS & BLADES

Bolt-On Directional Blades With The  
Patent-Pending Pit Bull™ Design And HDD's Most  
Popular Bits For Harder Ground



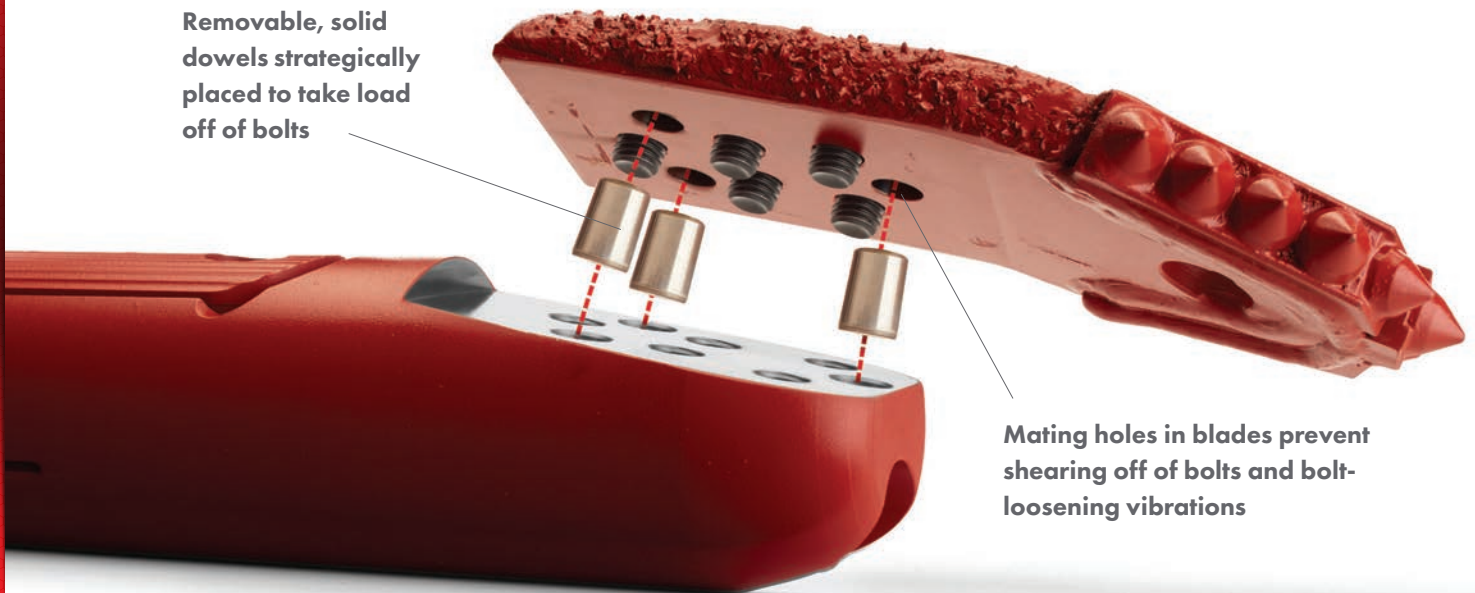
Scan to Shop  
Bits & Blades



## WHAT IS PIT BULL?

The patent-pending Pit Bull blade and housing design transfers the force taken by the blade bolts to solid dowel pins to double the force they can handle before sheering off and preventing blade bolts from rattling loose.

Removable, solid  
dowels strategically  
placed to take load  
off of bolts



Mating holes in blades prevent  
shearing off of bolts and bolt-  
loosening vibrations



# RED DIAMOND BLADE



100% Carbide Coverage.

Increase your production rate with this new Melfred Borzall innovation that works harder and smarter than the average blade. The Red Diamond Blade design features a single front-end domed carbide for blunt force that extends the blade's overall life. The new diamond-shaped carbides on the front sides aggressively tear through hard ground conditions and the low-profile diamond carbides near the rear help to minimize drag. The continuous perimeter of carbides give the blade a mean look with a lethal bite. Diamonds are a driller's best friend.

Ditch Witch® Compatible Blades		
Bolt Pattern	Cut Size	
	4.5"	5.5"
5-bolt	1800-14-45-BRD	
6-bolt		1800-15-55-BRD

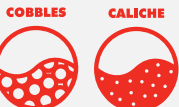
Vermeer® Compatible Blades		
Bolt Pattern	Cut Size	
	4.5"	5.5"
6-bolt	1800-13-45-BRD	1800-13-55-BRD



QuickSwivel  
Compatible

Chunky carbide  
hardfacing further  
protects all high  
wear areas.

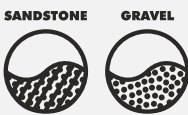
#### BEST FOR:



SHALE



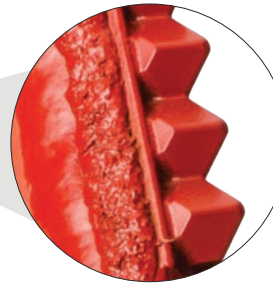
#### GOOD FOR:



HARDPAN



Durable Domed  
Front Carbide



Diamond-  
shaped carbides  
on sides for  
aggressive  
cutting and  
100% carbide  
coverage



Continuous low-profile back  
carbides are ideal for direct  
pullback

Tapered design towards  
the rear to reduce drag





# STEEP TAPER ULTRABIT 3

Slice Through Cemented Cobble, Soft Shale & Harder Ground.

**BEST FOR:**

COBBLES



CALICHE



**GOOD FOR:**

SHALE



GRAVEL



Vermeer® Compatible Blades							
Product description	Cut Size						
	3.5"	4"		5"		6"	7"
	Conical	Conical	Dome	Conical	Dome	Conical	Conical
5 bolt, 3/8"	1800-06-35-BSU3						
6 bolt, 1/2"		1800-13-40-BSU3	1600-13-40-BSUD	1800-13-50-BSU3	1800-13-50-BSUD		1610-13-70-BSU3
6 bolt, 5/8"				1610-23-50-BSU3	1610-23-50-BSUD	1610-23-60-BSU3	

Ditch Witch® Compatible Blades						
Product description	Cut Size					
	3.5"	4"		5"		6"
	Conical	Conical	Dome	Conical	Dome	Conical
5 bolt, 12mm	1805-14-35-BSU3	1800-14-40-BSU3	1800-14-40-BSUD	1800-14-50-BSU3	1800-14-50-BSUD	
6 bolt, 16mm		1810-15-40-BSU3	1800-15-40-BSUD	1800-15-50-BSU3	1800-15-50-BSUD	
6 bolt, 25mm						1610-25-60-BSU3

Center point tooth for easier penetration

Carbide cutter blocks set at an aggressive angle to get through cobble

Bit of choice for ground where it's hard to do directional "pushes"

Weld bead is reinforced with hardfacing to increase bit life



Available with dome carbides for cobble and gravel

Low-profile, tapered design to minimize torque-stealing drag

Chunky carbide hardfacing the entire length of blade for maximum longevity





# ULTRABIT 3

All-Around Solution With Great Steering.



BEST FOR:



GOOD FOR:



Vermeer® Compatible Blades							
Product description	Cut Size						
	3.5"	4"	5"	6"	7.5"	8"	9"
5 bolt, 3/8"	1800-06-35-BBU3						
6 bolt, 1/2"	1800-13-35-BBU3	1800-13-40-BBU3	1800-13-50-BBU3				
6 bolt, 5/8"				1610-23-60-BBU3*	1612-23-75-BBU3*	1610-23-80-BBU3*	
6 bolt, 3/4"					1612-33-75-BBU3*		1612-33-90-BBU3*

Ditch Witch® Compatible Blades				
Product description	Cut Size			
	3.5"	4"	5"	6"
5 bolt, 12mm	1800-14-35-BBU3	1800-14-40-BBU3	1800-14-50-BBU3	
6 bolt, 16mm		1800-15-40-BBU3	1800-15-50-BBU3	
6 bolt, 25mm				1610-25-60-BBU3*

\* Blade is not compatible with Pit Bull™ Features.

Conical carbide cutters make this an aggressive bit for hard soils

Chunky carbide hardfacing the entire length of blade for maximum longevity



Welds are reinforced with hardfacing to extend bit life

Low-profile, tapered design to minimize torque-stealing drag



# ROCK SAW



Bullnose-Design For Smoother Rotation & Easier Steering In Rocky Or Abrasive Soils.

**BEST FOR:**

**HARDPAN**



**GRAVEL**



**GOOD FOR:**

**COBBLES**



Vermeer®								
Product description	Cut Size							
	3.5"		4"		5"		6"	
	Conical	Dome	Conical	Dome	Conical	Dome	Conical	Dome
6 bolt, 1/2"	1800-13-35-BBX3	1800-13-35-BBXD	1800-13-40-BBX3	1800-13-40-BBXD	1800-13-50-BBX3	1800-13-50-BBXD	1800-13-60-BBX3	1800-13-60-BBXD

Ditch Witch®								
Product description	Cut Size							
	3.5"		4"		5"		6"	
	Conical	Dome	Conical	Dome	Conical	Dome	Conical	Dome
5 bolt, 12mm	1800-14-35-BBX3	1800-14-35-BBXD	1800-14-40-BBX3	1800-14-40-BBXD	1800-15-50-BBX3	1800-15-50-BBXD	1800-15-60-BBX3	1800-15-60-BBXD
6 bolt, 16mm			1800-15-40-BBX3	1800-15-40-BBXD	1800-15-50-BBX3	1800-15-50-BBXD	1800-15-60-BBX3	1800-15-60-BBXD

Conical carbide cutters  
for aggressive forward -  
and side - cutting

Bullnose profile design  
for better steering and  
easier steering pushes

Welds are reinforced  
with hardfacing for  
longer bit life

Chunky carbide  
hardfacing along  
the entire length  
of the blade  
reduces wear

Low profile  
and contoured  
back design  
minimizes drag



Available with dome  
carbides for cobble  
and gravel



# BEAR CLAW

Rugged Design Chews Through Caliche & Sandstone And Other Tough Ground Conditions.

Vermeer®			
Product description	Cut Size		
	3.5"	4"	5"
6 bolt, 1/2"	1600-13-35-BBBC	1600-13-40-BBBC	1600-13-50-BBBC

Ditch Witch®			
Product description	Cut Size		
	3.5"	4"	5"
5 bolt, 12mm	1600-14-35-BBBC	1600-14-40-BBBC	
6 bolt, 16mm		1600-15-40-BBBC	1600-15-50-BBBC



**BEST FOR:**

SAND



CALICHE



**GOOD FOR:**

DIRT/SANDY LOAM



Transmitter  
Housings &  
Locators

Fastback  
System

Bits &  
Blades

Rock Tools &  
Mud Motors

Reamers

Quick-  
Disconnects  
& Collars

Swivels

Pullers

Drive Chucks  
& Sub-Savers

Adapters

Parts &  
Accessories

Bullnose design minimizes drag while rotating

Large conical carbide cutters eat through caliche, sandstone and other tough conditions

Hardfacing along all wear edges create a long-lasting blade



Excilibur & Bear Claw blades do not come standard with the Pit Bull.



# EXCALIBUR

A legend in its own time.

This versatile bit features larger and deeper carbides than competing drill bits, which lead to a longer life. The round nose makes for smooth cutting and easier steering pushes in rocky and abrasive soil conditions.

Vermeer®				
Product description	Cut Size			
	2.5"	3.5"	4"	5"
6 bolt, 1/2"		1600-13-35-BBX	1600-13-40-BBX	1600-13-50-BBX
6 bolt, 5/8"				1612-23-50-BBX

Ditch Witch®			
Product description	Cut Size		
	2.5"	4"	5"
3 bolt, 10mm	1600-09-25-BX		
5 bolt, 12mm		1600-14-40-BBX	1600-14-50-BBX
6 bolt, 16mm		1600-15-40-BBX	1600-15-50-BBX

**BEST FOR:**

SAND



CLAY



**GOOD FOR:**

DIRT/SANDY LOAM



HARDPAN







# EAGLE CLAW SD



Fastest Drilling And Best Steering Hard  
Soil Bit On The Market.

BEST FOR:



SHALE



SANDSTONE

GOOD FOR:



HARDPAN

Eagle Claw SD			Replacement Cutters				EagleEye Attachment
Cut Size	Thread	Part #	Aggressive Conical	Dome	Large Conical	Conical w/ Carbide Hardfacing	Part #
3.5"	2" IF pin	EC-35D2-21M	EC35-C-01	EC35-C-02	EC35-C-03		EC35-FB42-305
4.25"	2" IF pin	EC-42D2-21M	EC42-C-01	EC42-C-02	EC42-C-03	EC42-C-03-X	EC42-FB50A1-304
4.25"	2-3/8" Reg pin	EC-42D2-23M	EC42-C-01	EC42-C-02	EC42-C-03	EC42-C-03-X	EC42-FB50A1-304
5"	2-3/8" Reg pin	EC-50D2-23M	EC50A1-C-01	EC50C1-C-02	EC50C1-C-03	EC50C1-C-03-X	EC50-FB60-310
5.5"	2-7/8" Reg pin	EC-55D2-26M	EC55A1-C-01	EC55A1-C-02	EC55A1-C-03	EC55A1-C-03-X	
6.5"	2-7/8" Reg pin	EC-65D2-26M	EC-65-C-01	EC65-C-02	EC65-C-03	EC65-C-03-X	
6.5"	3-1/2" Reg pin	EC-65D2-28M	EC-65-C-01	EC65-C-02	EC65-C-03	EC65-C-03-X	

Fluid Port Port Plug Part# PLUG-04MP



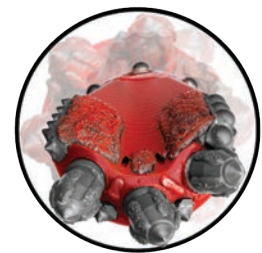
Aggressive tri-tooth carbide cutting action with quick-change straight-through knockout holes.

Steering face has conical shape for quicker reaction to directional "pushes"

100% coverage dome carbides provide great wear resistance without cutting top of hole for great steering.

Extra fluid port on reverse side for more flow during pullback

Minimize chance of clogging with built-in check valve



Perfectly balanced cutting design for smooth, vibration-free & efficient operation.

Conical Aggressive



Dome



Large Conical Aggressive



Large Conical Aggressive Hardfaced



Tooth removal punch tool also available  
[www.melfredborzall.com/bits-blades/bit-parts](http://www.melfredborzall.com/bits-blades/bit-parts)



# IRON FIST BIT

Packs a Punch In Cobble and Loose Rock Conditions. Also Designs to be Easily Rebuilt at a Fraction of the Cost.

BEST FOR:

COBBLES



GRAVEL



GOOD FOR:

CALICHE



Iron Fist Bits				Replacement Cutter Blocks					EagleEye Attachments
Cut Size	Thread	Aggressive Bit	Dome Bit	Aggressive-Left	Aggressive-Right	Dome-Left	Dome-Right	Side Cutters	Part #
4"	2" IF pin		IF-40DC3-21M	IF40-C-01-L	IF40-C-01-R	IF40-C-02-L	IF40-C-02-R		EC35-FB42-305
5"	2-3/8" Reg pin	IF-50AC3-23M	IF-50DC3-23M	IF50-C-01-L	IF50-C-01-R	IF50-C-02-L	IF50-C-02-R	IF50-C-01-S	EC42-FB50A1-305
6"	2-7/8" Reg pin		IF-60DC3-26M	IF60-C-01-L	IF60-C-01-R	IF60-C-02-L	IF60-C-02-R	CC-01X4	
6"	3-1/2" Reg pin		IF-60DC3-28M	IF60-C-01-L	IF60-C-01-R	IF60-C-02-L	IF60-C-02-R	CC-01X4	

Fluid Port Port Plug Part# PLUG-04MP

Main carbide cutters positioned to allow for "rocking" the bit through cobbles

Compact cutters are less likely to hang up on cobbles

Dome carbide option

Chunky carbide hard facing, on all wear areas

Balanced cutters for downhole stability and drilling on center

Step, concave steering for quick response

Minimize chance of clogging with built-in check valve

Extra fluid port for more flow during pullback



# MUD MOTORS & TOOLS FOR ROCK DRILLING

Harder Ground Calls For Harder Tooling.



Scan to Shop  
High-flow Housings







# END-LOAD, HIGH-FLOW TRANSMITTER HOUSINGS

Ideal For Use With Mud Motors Or Air Hammers.

Use these puppies with Mud Motors, Borzall Eagle Claw & Iron Fist bits & bolt-on bit bodies. They come in sizes to accommodate rigs from 20,000 to 300,000 lbs. pullback.

End-Load, Thread-On, High Flow Housings				
Drill Rig Thrust (lbs)	Diameter	Rear Thread	Front Thread	Part #
<40,000	3.5"	2.375" IF	2.375" Reg	ELH-350
40,000 - 80,000	4.25"	2.875" IF	2.875" Reg	ELH-425
80,000 - 140,000	4.875"	3.5" IF	3.5" Reg	ELH-487
140,000 - 300,000	6.375"	4.5" IF	4.5" Reg	ELH-638

Heat-treated, alloy steel for maximum strength and durability (the same high strength, fatigue resistant steel used in landing gears and propeller shafts)

Multiple fluid passages allow for maximum flow without pressure restrictions

Can be used with Mud Motors, Eagle Claw bits, Iron Fist bits and Bolt-On Bit Bodies

For rigs from 20,000 lbs. to 300,000+ lbs. thrust

End-load design for maximum torsional, compressive, and bending strength

Simple, interchangeable internal mechanism allows the same housing to be used with most locating systems

Stainless steel springs support and cushion the transmitter allowing it to be used with air hammers as well as mud motors

Accommodates DigiTrak® 2-cell, 4-cell, and cable transmitters (Mark V systems and newer); Subsite® 86B, 86BV2 Beacons and newer Beacons

# ROCK-IT MUD MOTORS

Take This Job And Rock-It!

Rent it. Rock-It. Return it." No surprise fees. Rent for as little as 2 weeks and know what your costs will be.

Rock-It Mud Motors						
Standard Size	Torque Rating (ft-lbs)	Rotational Speed (rpm)	Flow Requirements (gpm @ 1,000 psi)	Operating Range (psi)	Recommended Bit Size	Recommended Drill Rig
3" 5/8 Lobe	250	80-346	20-60	350	3 3/8" to 4 1/2"	D24x40, D33x44, D40x40, JT2720, JT2720 Mach 1, DD3238
3 1/2" 5/8 Lobe	325	70-240	40-100	500	4 1/2" to 5 1/2"	D36x50, D40x40, JT3020 Mach 1, JT4020 Mach 1, JT4020, DD4, DD4045
3 3/4" 5/8 Lobe	1,200	200-400	100-170	350	5 1/4" to 6 1/4"	D50x100, D55x100, D60x90
4 3/4" 5/8 Lobe	1,200	180-370	100-170	350	6" to 7 7/8"	D80x100, JT7020 Mach 1, D60x90, DD6
5" 7/8 Lobe	2,500	105-230	140-300	600	6" to 7 7/8"	D100x120, D100x140, JT8020 Mach 1, JT100 Mach 1, DD10, DD140B, DD9014
5 3/4" 5/8 Lobe	4,500	90-222	250-320	450	7 7/8" to 8 3/4"	Maxi-Rigs
6 3/4" 7/8 Lobe	5,000	70-150	200-500	500	8 3/4" to 9 7/8"	Maxi-Rigs
8" 7/8 Lobe	7,500	65-200	200-600	500	9 7/8" to 12 1/4"	Maxi-Rigs
8 1/2" 7/8 Lobe	5,000	70-150	200-500	500	10 5/8" to 12 1/4"	Maxi-Rigs

Mud Motors available in more sizes and configurations. Call for a complete selection.

Rotors and stators are designed for HDD. They are shorter in length to help with motor steering. All stators are manufactured with a new "hard" Nitrile rubber, resulting in more power from the motor.

Stator tube walls are twice as thick as other brands for maximum durability.

High performance mud motors designed specifically for HDD

High torque-to-flow ratio means more drilling power with less fluid

High quality internal parts results in much greater drilling time before regular maintenance is required

Can be operated at a slower speed for more compatibility with tri-cone bits



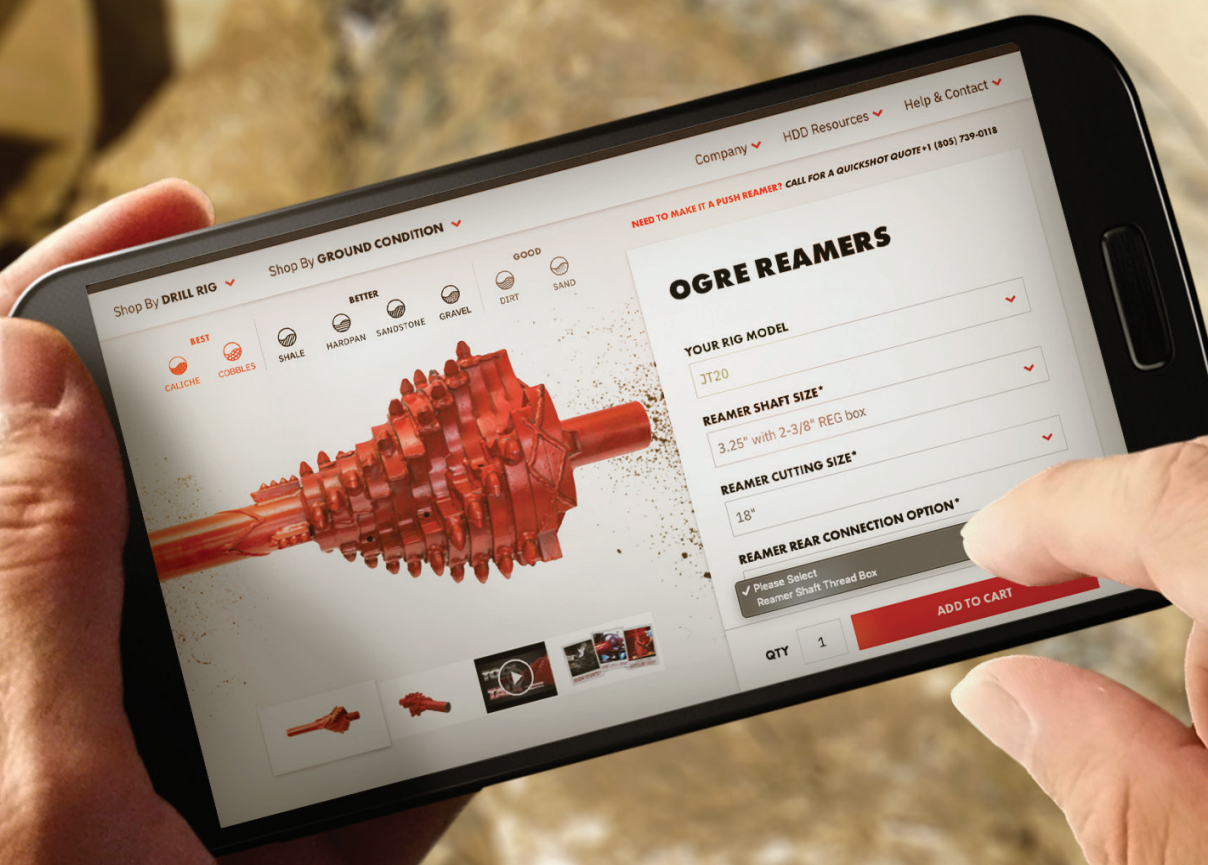
# REAMERS

It Doesn't Matter How Good Your Vermeer® Or Ditch Witch® Drills Are If You Don't Have The Right Reamer For Your Job.

[melfredborzall.com/reamers](http://melfredborzall.com/reamers)



Scan to Shop  
All Reamers







# JUGGERNAUT

Faster, Smoother Cutting Than Competitive Fluted Reamers. This One Is Unstoppable.

**BEST FOR:**

DIRT/SANDY  
LOAM



GRAVEL



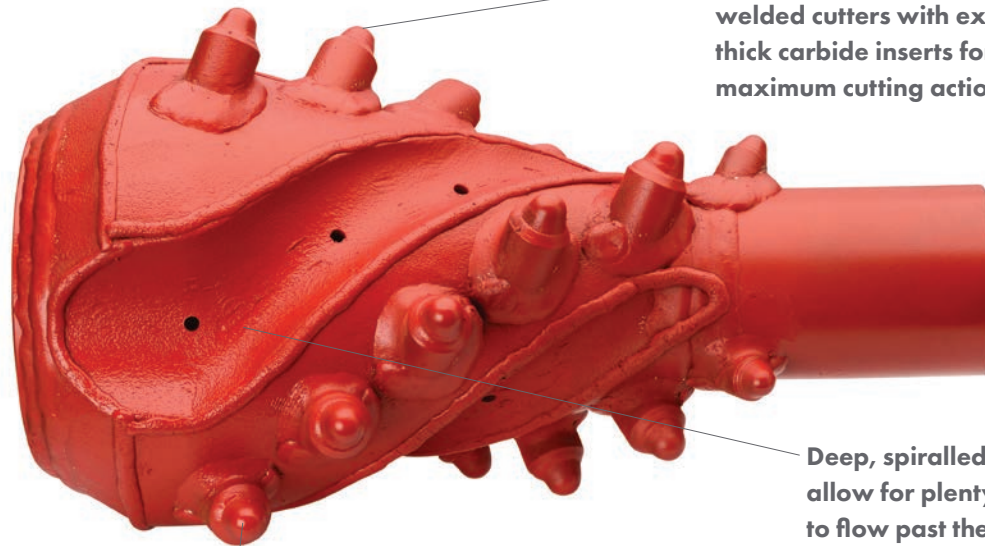
**GOOD FOR:**

SHALE



		JUGGERNAUT - MACHINED BODY: Shaft Thread and Rear Connection	
Cut Diameter	Pack Diameter	2" IF box X fine thread box	2-3/8" Reg box X fine thread box
		Use with a 4-ton or 5-ton Pocket Swivel Pg. 5	Use with a 4-ton or 5-ton Pocket Swivel Pg. 5
4.5"	4"	85-04-21F-44F (not available in Sharktooth)	
6"	4.5"	85-06-21F-44F	
8"	6"	85-08-21F-45F	85-08-23F-45F

		JUGGERNAUT - CASTED BODY: Shaft Thread and Rear Connection				
Cut Diameter	Pack Diameter	2" IF box X flange	2-3/8" Reg box X flange	2-3/8" Reg box X flange	2-7/8" IF box X flange	2-7/8" 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-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



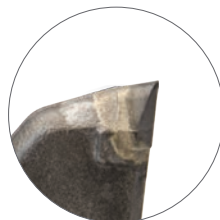
Strategically positioned and welded cutters with extra thick carbide inserts for maximum cutting action

Deep, spiralled flutes allow for plenty of slurry to flow past the reamer

Available with sharkteeth or conical cutters with aggressive or dome carbides to cover a variety of tough ground conditions



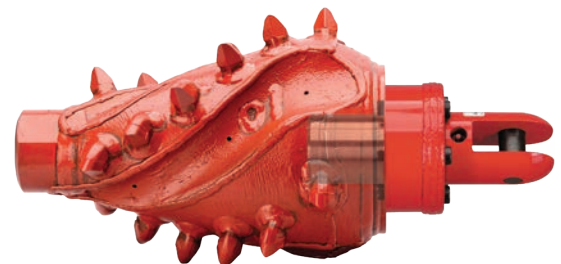
(D) Dome carbide



(S) Sharktooth carbide



(C) Conical carbide



Available with built-in swivel or pulling eye - see page 51 for swivel information



# SHREDDER

Economical Option For Shale, Sandstone Or Hardpan That Has A Mouthful Of Carbide-Tipped Sharkteeth Cutters.

## BEST FOR:



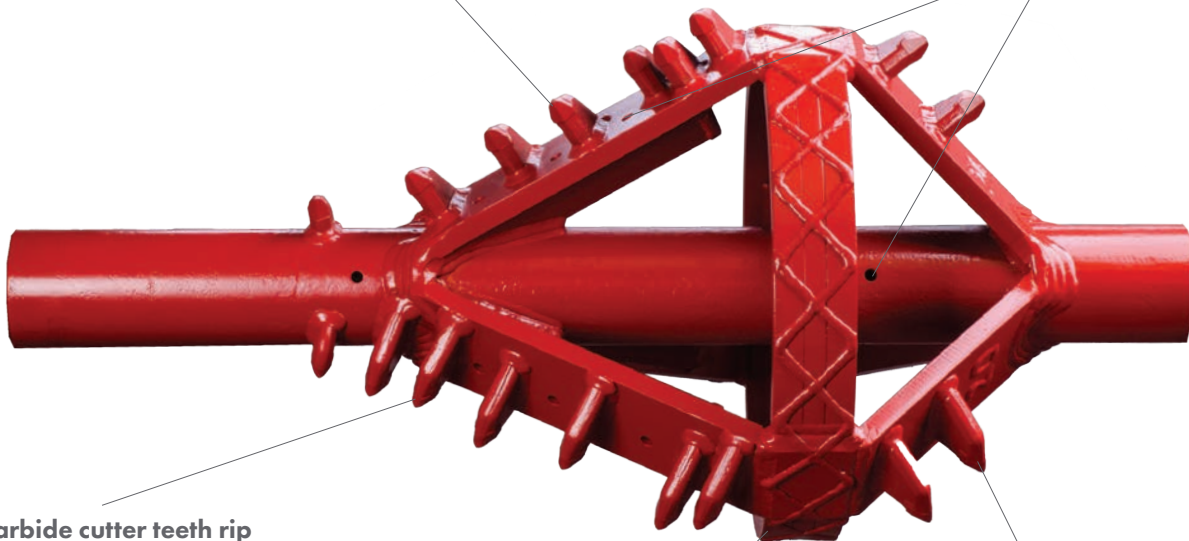
## GOOD FOR:



Cut Diameter	SHREDDER Shaft Thread and Diameter				
	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"	69-06-21F-21F				
8"	69-08-21F-21F	69-08-23F-23F	69-08-27F-27F		
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	69-12-29F-29F	
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	
18"	69-18-21F-21F	69-18-23F-23F	69-18-27F-27F	69-18-29F-29F	
20"		69-20-23F-23F	69-20-27F-27F	69-20-29F-29F	
24"		69-24-23F-23F	69-24-27F-27F	69-24-29F-29F	69-24-47F-47F
28"		69-28-23F-23F	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
42"				69-42-29F-29F	69-42-47F-47F
48"				69-48-29F-29F	69-48-47F-47F

Gradual taper of blades lessens torque requirement

Drilling fluid is channelled out through the blades and the shaft



Carbide cutter teeth rip through ground such as shale, sandstone or hardpan

Integrated stabilizer ring built into Shredders 18" and larger

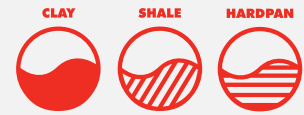
Back-up cutters make pushing the Shredder back through the hole a breeze



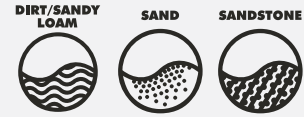
# TORNADO

One Of HDDs Favorite Reamers With Aggressive Pumping Action For Everthing From Sticky Clay To Hard Shale.

## BEST FOR:



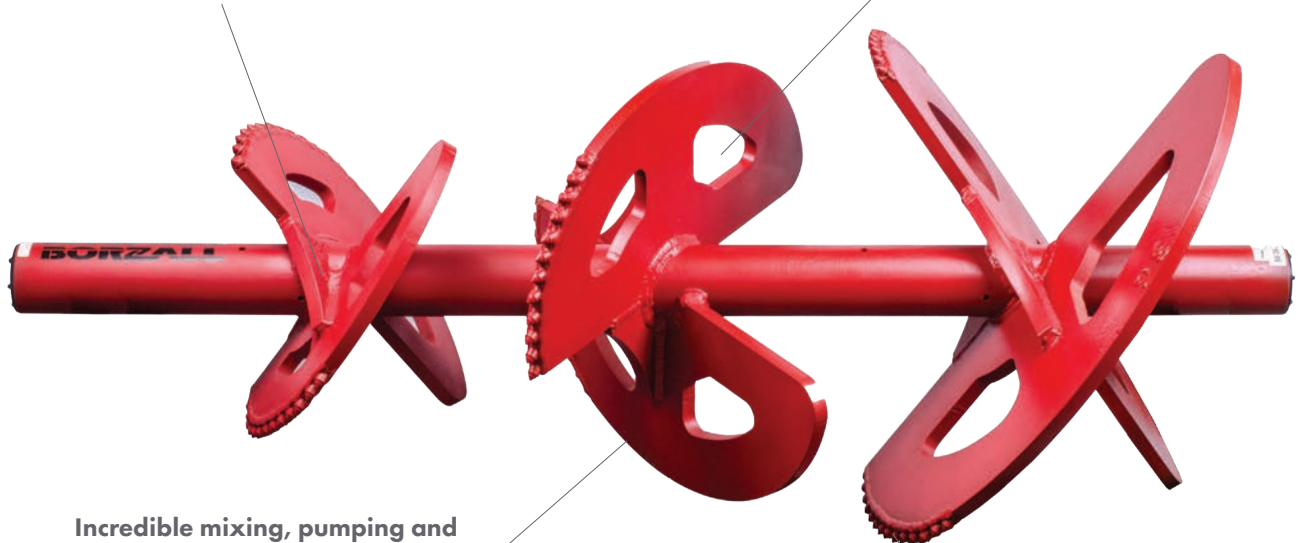
## GOOD FOR:



TORNADO (was Terminator) Shaft Thread and Diameter					
Cut Diameter	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				
8"	90-08-21F-21F	90-08-23F-23F	90-08-27F-27F		
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	90-12-29F-29F	
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"		90-28-23F-23F	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
48"				90-48-29F-29F	90-48-47F-47F

Gusseted blades for extra strength

Blade cut-outs allow flow-through of slurry



Incredible mixing, pumping and cutting action reduces rotary pressure and makes it an ideal reamer for sticky situations

Carbide-tipped cutting blades are precisely positioned and angled so all the abuse is placed on the carbide tooth





# TORNADO PUP

Add Tornado Features To Your Setup With Only As Many Stages As You Need.

**BEST FOR:**  
CLAY SHALE HARDPAN

**GOOD FOR:**  
DIRT/SANDY LOAM SAND SANDSTONE

TORNADO PUP (was Terminator) Shaft Thread and Diameter					
Cut Diameter	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" - 12"	90-06-12-21F-F	90-06-12-23F-F	90-06-12-27F-F		
12" - 18"	90-12-18-21F-F	90-12-18-23F-F	90-12-18-27F-F		
14" - 24"		90-14-24-23F-F	90-14-24-27F-F	90-14-24-29F-F	
18" - 24"		90-18-24-23F-F	90-18-24-27F-F	90-18-24-29F-F	90-18-24-47F-F
20" - 28"		90-20-28-23F-F	90-20-28-27F-F	90-20-28-29F-F	90-20-28-47F-F
24" - 36"			90-24-36-27F-F	90-24-36-29F-F	90-24-36-47F-F

Other sizes and configurations available

Special two-stage, heavy-duty Tornado for pre-reaming in stages

Can mix and match with barrel stabilizers to meet job requirements

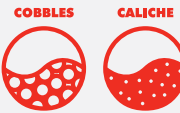




# THE OGRE

Hard Compact, Loose Cobbles,  
And Chunk Rock Reaming  
Made Easy.

**BEST FOR:**



**GOOD FOR:**



OGRE Shaft Thread and Diameter							
Cut Diameter	Pack Diameter	3.25"	4.25"	4.75"	6.5"		
		2-3/8" Reg box X box	2-3/8" Reg box X flange	2-7/8" IF box X box	2-7/8" IF box X flange	3-1/2" IF box X box	4-1/2" IF box X box
6"	4-1/2"	95-06-23F-23F					
8"	6-5/8"	95-08-23F-23F		95-08-27F-27F			
10"	8-5/8"	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"	10-3/4"	95-12-23F-23F	95-12-23F-F31X	95-12-27F-27F	95-12-27F-F31X	95-12-29F-29F	95-12-47F-47F
14"	12-3/4"	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"	20"			95-24-27F-27F	95-24-27F-F32X	95-24-29F-29F	95-24-47F-47F
28"	24"			95-28-27F-27F	95-28-27F-F32X	95-28-29F-29F	95-28-47F-47F
32"	28"			95-32-27F-27F	95-32-27F-F32X	95-32-29F-29F	95-32-47F-47F
36"	32"			95-36-27F-27F	95-36-27F-F32X	95-36-29F-29F	95-36-47F-47F
40"	36"			95-40-27F-27F	95-40-27F-F32X	95-40-29F-29F	95-40-47F-47F

Other sizes available

With more cutters than any reamer in its class, each cutter only takes 1/2" more soil than the previous stage resulting in a smooth, efficient cutting action

Hardfacing on all wear areas

Angled fluid jets shoot water opposite the reamer rotation to keep carbides and flutes clear of debris

Back-up blades make pushback easier

Staggered carbide blocks prevent shaft from wearing directly in front of reamer body

Slow taper and deep spiralled fluting combine for maximum mixing and pumping

Deep flutes carry away cuttings

Available with a built-in flange swivel or in a through-shaft design

Available with different carbide cutter options



(D) Dome carbide



(S) Sharktooth carbide



(C) Conical carbide



# BARREL STABILIZER

Key component to Keep Your Bore Centralized and Steady as a Rock on a Large Diameter Project.

BARREL STABILIZER Shaft Diameter and Thread					
Pack Diameter	Std Pack Length	3.25"	4.25"	4.75"	6.5"
		2-3/8" Reg box	2-7/8" IF box	3-1/2" IF box	4-1/2" IF
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
36"	32"			80-36-27F-27F	80-36-29F-29F
40"	36"			80-40-27F-27F	80-40-29F-29F
48"	44"				80-48-29F-29F

Other sizes and configurations available

## Plain

## Value

## Deluxe

Hardfacing on wear areas

Conical carbide cutters

Carbide cutter blocks

Internal baffles for extra reinforcement

Hardfacing on entire surface for extra protection

Front and rear water ports clear cutters and wash away cuttings

Back-facing and forward-facing blades ensure barrel proceeds smoothly even if some hole collapse occurs

Deluxe barrel stabilizer

Conical carbide cutters minimize wear on the blade edges and face

The key component of a successful large diameter project

"Floating" water-free body for weight reduction

Hardfacing on high wear areas extends the barrel life





# SABERTOOTH

Crunch Through Harder Ground  
And Lighten Your Load.

**BEST FOR:**



**GOOD FOR:**



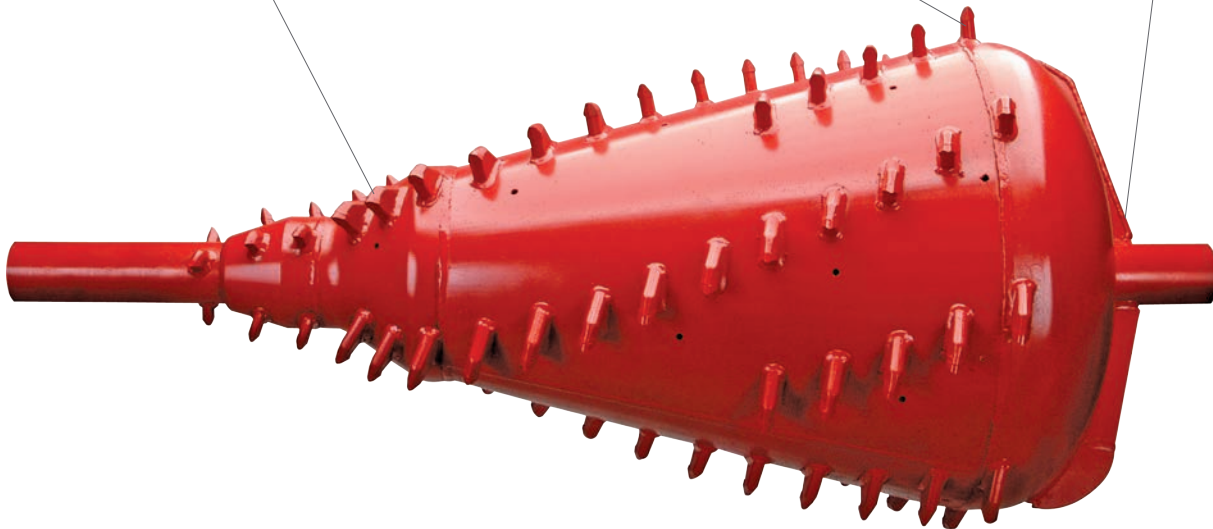
**SABERTOOTH Shaft Thread and Diameter**

Cut Diameter	Pack Diameter	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"	4-1/2"	96-06-21F-21F	96-06-23F-23F			
8"	6-5/8"	96-08-21F-21F	96-08-23F-23F	96-08-27F-27F		
10"	8-5/8"	96-10-21F-21F	96-10-23F-23F	96-10-27F-27F		
12"	10-3/4"	96-12-21F-21F	96-12-23F-23F	96-12-27F-27F		
14"	12-3/4"	96-14-21F-21F	96-14-23F-23F	96-14-27F-27F	96-14-29F-29F	
16"	14"	96-16-21F-21F	96-16-23F-23F	96-16-27F-27F	96-16-29F-29F	96-16-47F-47F
18"	16"	96-18-21F-21F	96-18-23F-23F	96-18-27F-27F	96-18-29F-29F	96-18-47F-47F
20"	18"		96-20-23F-23F	96-20-27F-27F	96-20-29F-29F	96-20-47F-47F
24"	20"		96-24-23F-23F	96-24-27F-27F	96-24-29F-29F	96-24-47F-47F
28"	24"			96-28-27F-27F	96-28-29F-29F	96-28-47F-47F
32"	28"			96-34-27F-27F	96-34-29F-29F	96-34-47F-47F
36"	32"			96-36-27F-27F	96-36-29F-29F	96-36-47F-47F
40"	36"			96-40-27F-27F	96-40-29F-29F	96-40-47F-47F
48"	44"				96-48-29F-29F	96-48-47F-47F

Angled placement of cutters in a spiral pattern results in excellent mixing and pumping action

Large shark teeth carbide cutters for aggressive yet smooth cutting

Back-up blades make for easier push backs





# HEDGEHOG

Chew Your Way Out Of Any Tight Squeeze.

## BEST FOR:

DIRT/SANDY LOAM



SHALE



## GOOD FOR:

CLAY



SANDSTONE



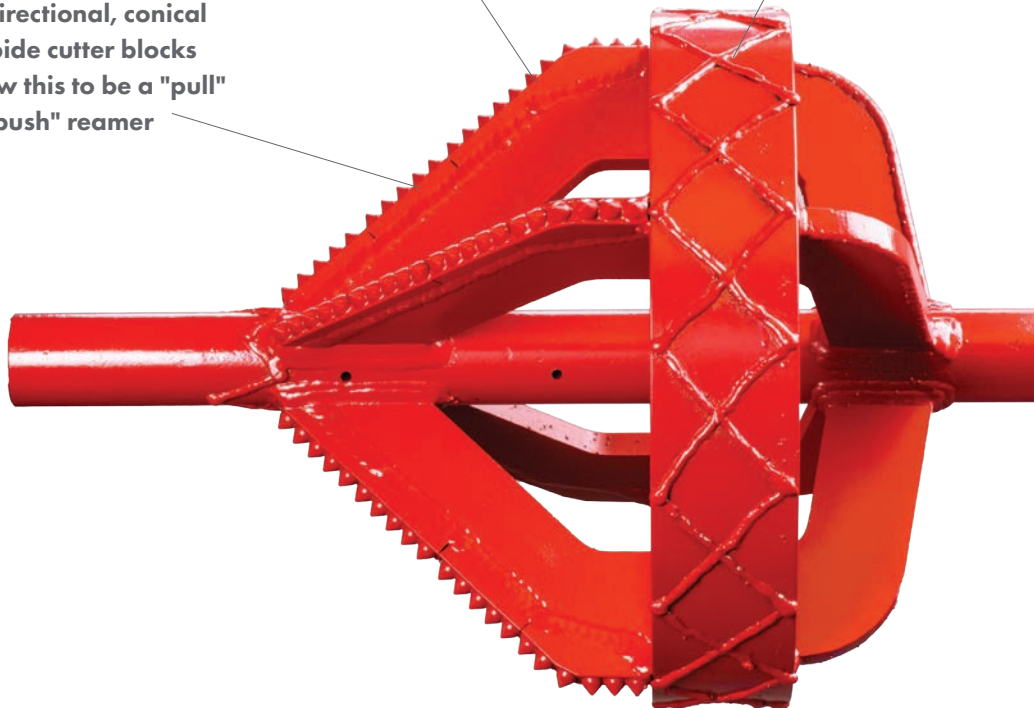
HEDGEHOG Shaft Thread and Diameter

Cut Diameter	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

Bi-directional, conical carbide cutter blocks allow this to be a "pull" or "push" reamer

Tapered blades with carbide cutting teeth create an aggressive cutting action

Reamers over 10" and larger are designed with a ring for strength and stability







# TURBO

Supercharge Your Reaming In Sand.

**BEST FOR:**

DIRT/SANDY  
LOAM



SAND

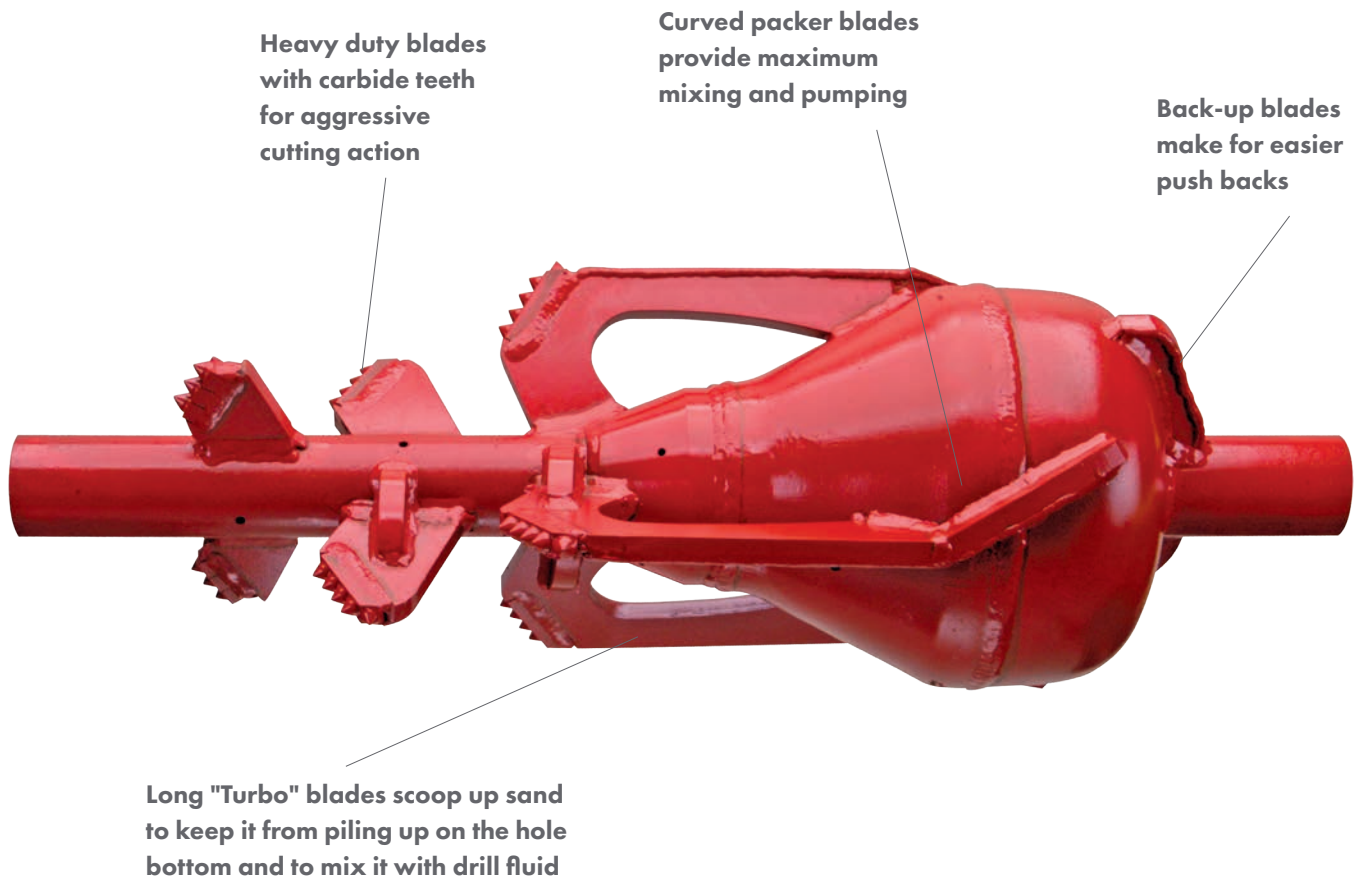


**GOOD FOR:**

CLAY



TURBO Shaft Thread and Diameter						
Cut Diameter	Pack Diameter	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"	4-1/2"	83-06-21F-21F	83-06-23F-23F			
8"	6-5/8"	83-08-21F-21F	83-08-23F-23F	83-08-27F-27F		
10"	8-5/8"	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	83-16-47F-47F
18"	16"	83-18-21F-21F	83-18-23F-23F	83-18-27F-27F	83-18-29F-29F	83-18-47F-47F
20"	18"		83-20-23F-23F	83-20-27F-27F	83-20-29F-29F	83-20-47F-47F
24"	20"		83-24-23F-23F	83-24-27F-27F	83-24-29F-29F	83-24-47F-47F
28"	24"			83-28-27F-27F	83-28-29F-29F	83-28-47F-47F
32"	28"			83-34-27F-27F	83-34-29F-29F	83-34-47F-47F
36"	32"			83-36-27F-27F	83-36-29F-29F	83-36-47F-47F
40"	36"			83-40-27F-27F	83-40-29F-29F	83-40-47F-47F
48"	44"				83-48-29F-29F	83-48-47F-47F



# THE BORZALL EDGE

Why Melfred Borzall Backreamers Are Better.

## Better Materials

For the past 71 years—the entire lifespan of our company—we have specifically required that all our steel bars, tubing and steel plates come from the United States. That means we purchase steel produced by U.S. mills.



## Better Manufacturing

Fresh ideas, creative thinking, and strong academic backgrounds fit right in with OUR REPUTATION for constant innovation, not just in our designs, but our manufacturing, logistics, and operations processes. We pair our decades of experienced welders and machinists with new robotic technology.



## Longer Wear Life

Not only do we fabricate effective and long-lasting tooling, we know that mother earth can wear down even the best tooling. So, when eventual wear sets in, many of our backreamers can be rebuilt with new hardfacing and carbide teeth to give it renewed bite! Give us a call and we'll help you determine if that option is best for your situation.



**Need a custom reamer?**  
**Call 800.558.7500, tell us what**  
**you need and let our experts do**  
**the rest. We'll get you a quote**  
**and drawing the same day.**



# QUICK-DISCONNECTS & COLLARS

The Safer, Easier Way To Swap & Secure Tooling  
On Your Vermeer® And Ditch Witch® Setups.

[www.melfredborzall.com/quick-disconnect-collars](http://www.melfredborzall.com/quick-disconnect-collars)



Scan to Shop  
Quick-Disconnects



## DITCH WITCH® COMPATIBLE EZ-CONNECTS

Completely heat-treated  
for maximum durability

Precision gun-drilled  
and CNC-machined



For Ditch Witch® Rigs with EZ-Connect Thread				
Drill Rig Model	Quick-Disconnect	Carbide Stud	Chunky Carbide	Carbide Cutters
JT5	DLR2-04M-L52M			
JT520 S2	DLR2-05M-L52M			
JT921	DLR2-01AM-L55M		DL55-18-OC-HFC	
JT922 (coarse thread)	DLR2-09M-L55M		DL55-18-OC-HFC	
JT1220 M1	DLR2-34M-L58M			
JT1720	DLR2-86M-L54M	DL54-25-OC-C	DL54-25-OC-HFC	DL54-25-OC-HFCS
JT20	DLR2-20M-L54M	DL54-25-OC-C	DL54-25-OC-HFC	DL54-25-OC-HFCS
JT2020	DLR2-20M-L54M	DL54-25-OC-C	DL54-25-OC-HFC	DL54-25-OC-HFCS
JT25	DLR3-36M-L59M		DL59-27-OC-HFC	DL59-27-OC-HFCS
JT2720	DLR2-35M-L54M	DL54-25-OC-C	DL54-25-OC-HFC	DL54-25-OC-HFCS
JT2720 M1	DLR2-36M-L56M		DL56-27-OC-HFC	
JT3020	DLR3-36M-L59M		DL59-27-OC-HFC	DL59-27-OC-HFCS
JT4020	DLR2-42M-L57M			
JT4020M1	DLR2-43M-L57M			



## SLIDE COLLARS

Compatible with Vermeer® and  
Ditch Witch® Quick-Disconnects

Choose from collar options with chunky carbide hardfacing, carbide button studs, or even carbide cutter teeth to actually enlarge the hole during pullback. Collars with cutter teeth are part of Melfred Borzall's FastBack® System to accelerate your direct pullback operations.



Carbide  
Stud



Chunk  
Carbide



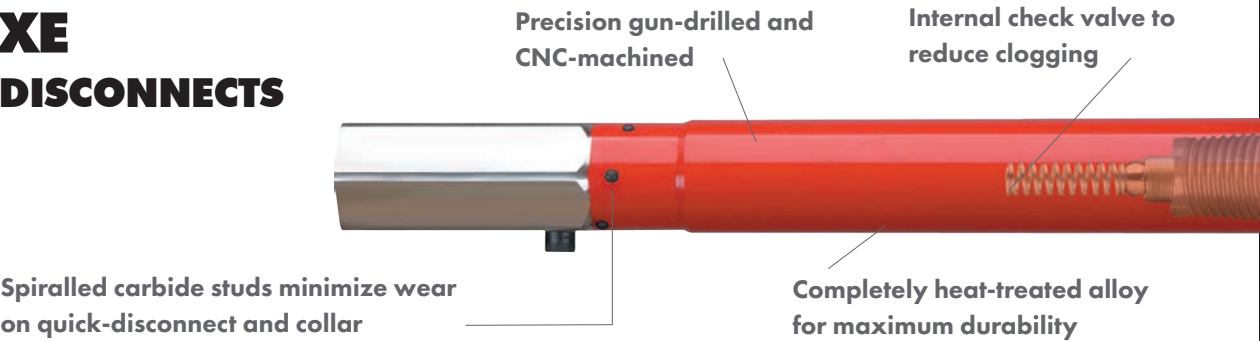
Carbide  
Cutters



# VERMEER® COMPATIBLE QUICK-DISCONNECTS

Deluxe & Value Quick-Disconnects That Fit Your Rig Perfectly And Keep You Running Smoothly .

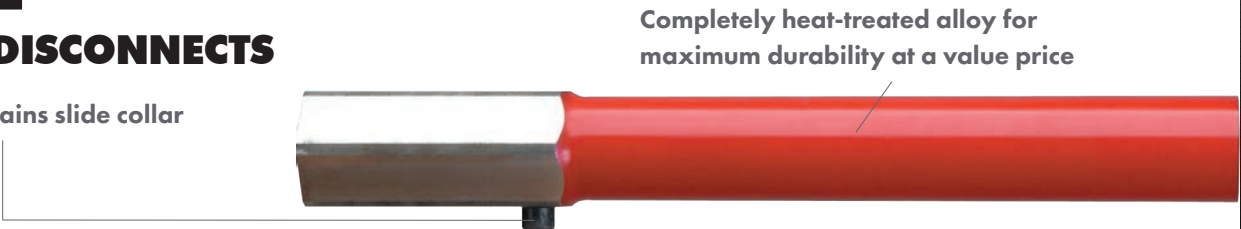
## DELUXE QUICK-DISCONNECTS



For Vermeer® Drill Rigs with Low Profile Quick-Disconnect Thread					
Compatible Drill Rig Models	Firestick Quick-Disconnect	Deluxe Quick-Disconnect	Value Quick-Disconnect	Chunky Carbide Collar	Carbide Cutter Collar
D6x6, D7x11, D7x11 S2, D8x12, D9x13, D9x13 S2, D9x13 S3, D10x15, D10x15 S3	FS200		VLRV-31F-L42F-XL	VLR-20-HC-HFC	VLR-20-HC-HFCS
D16x20, D16x20 S2, D18x22, D20x22 S2, D20x22 S3	FS250	VLR-32F-L43F	VLRV-32F-L43F	VLR-25-HC-HFC	VLR-25-HC-HFCS
D20x22 S2, D20x22 S3, D23x30 S3, D24x26, D24x33	FS400	VLR-30F-L43F-XXL	VLRV-30F-L43F-XXL	VLR-25-HC-HFC	VLR-25-HC-HFCS
D23x30, D23X30 S2, D23X30 S3, D24x40	FS600	VLR-40F-L43F	VLRV-40F-L43F	VLR-25-HC-HFC	VLR-25-HC-HFCS
D36x50	FS650	VLR-46F-L43F	VLRV-46F-L43F	VLR-25-HC-HFC	VLR-25-HC-HFCS
D36x50	FS700		VLRV-41F-L43F	VLR-25-HC-HFC	VLR-25-HC-HFCS

## VALUE QUICK-DISCONNECTS

1/2" bolt retains slide collar



For Vermeer® Drill Rigs with Firestick Quickfire™ Thread				
Compatible Drill Rig Models	Firestick Connection Type	Firestick Quick-Disconnect	Chunky Carbide Collar	Carbide Cutter Collar
D6x6, D7x11, D7x11 S2, D8x12, D9x13, D9x13 S2, D9x13 S3, D10x15, D10x15 S3	FS200	VLRV-31F-L300F	VLR-L300-0C-HFC	VLR-L300-0C-HFS
D16x20, D16x20 S2, D18x22, D20x22 S2, D20x22 S3	FS250	VLRV-32F-L400F	VLR-L400-0C-HFC	VLR-L400-0C-HFS
D20x22 S2, D20x22 S3, D23x30 S3, D24x26, D24x33	FS400	VLRV-30F-L400F	VLR-L400-0C-HFC	VLR-L400-0C-HFS
D23X30 S3, D24x40, D24x40 S2, D24x40 S3, D40x40	FS600	VLRV-40F-L400F	VLR-L400-0C-HFC	VLR-L400-0C-HFS
D33x44, D36x50, D36x50 S2	FS602	VLRV-33F-L460F	VLR-L460-0C-HFC	VLR-L460-0C-HFS
D36x50, D36x50 S2, D40x55 S3	FS650	VLRV-46F-L460F	VLR-L460-0C-HFC	VLR-L460-0C-HFS
D40x55 S3	FS700	VLRV-41F-L460F	VLR-L460-0C-HFC	VLR-L460-0C-HFS



# HDD SWIVELS

Ensure A Successful Installation Each  
And Every Time With Our High Quality  
HDD Pullback Swivels.



Scan to Shop  
HDD Swivels

[www.melfredborzall.com/swivels](http://www.melfredborzall.com/swivels)





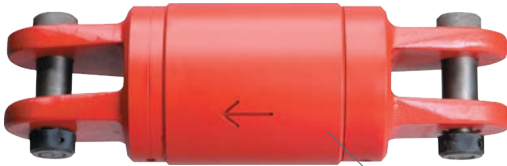
# DELUXE DUB PULLING SWIVELS

Quad-Stage Seal System And 5-To-1 Safety Factor Make The Deluxe Dub One Long-Lasting Swivel.

Deluxe DUB Swivels				
Pullback Capacity	Swivel Diameter	Clevis X Clevis	Clevis X 2-3/8" Reg Pin	Clevis X 2-7/8" IF Pin
		Part #	Part #	Part #
5,000 lb	2"	00508-202		
10,000 lb	3.125"	00508-205		
20,000 lb	3.75"	00508-210	00508-710-23M	
30,000 lb	4.75"	00508-215	00508-715-23M	00508-715-27M
40,000 lb	5.75"	00508-220		00508-720-27M
60,000 lb	6"	00508-230		00508-730-27M
80,000 lb	6.5"	00508-240		00508-740-27M
100,000 lb	7.5"	00508-250		
120,000 lb	7.5"	00508-260		
160,000 lb	9"	00508-280		

More details on swivel fitting and capacity can be found on page 11 of the included HDD Resource Guide.

**Clevis x Clevis**



Metal- to-metal face seal to ensure reliability and long life

**Clevis x Pin**



Four-stage sealing system

Greasable tapered roller



# VALU-DUB PULLING SWIVELS

Greasable Premium Angular Contact Bearings And Triple Sealing System Meet The Demands Of The Toughest HDD Jobs.

Valu DUB Swivels					
Pullback Capacity	Swivel Diameter	Clevis X Clevis	Clevis X 2" IF Pin	Clevis X 2-3/8" Reg Pin	Clevis X 2-7/8" IF Pin
		Part #	Part #	Part #	Part #
5,000 lb	1.25"	00503-202			
8,500 lb	2"	00503-204			
10,000 lb	2.25"	00503-205	00503-705-21M		
15,000 lb	2.5"	00503-208			
20,000 lb	2.5"	00503-210	00503-710-21M	00503-710-23M	
30,000 lb	3"	00503-215		00503-715-23M	
40,000 lb	4.75"	00503-220		00503-720-23M	
60,000 lb	5.75"	00503-230			00503-730-27M
90,000 lb	6"	00503-245			00503-745-27M

**Clevis x Clevis**



Fitted with a grease nipple that makes for easy lubrication and a long-lasting swivel

**Clevis x Pin**



Push and pull loads are absorbed by premium quality angular contact bearings





# QUICK-SWIVEL

Perform Direct Pullbacks Exclusively With Any Melfred Borzall Blade.\*

Quick-Swivel				
Pullback Capacity	Part #	Replacement Bolt	Replacement Nut	Replacement Washer
5 ton	00503-205-QS	HHCS-3/4-2.75-8	3/4-10-NUT	3/4 LOCKWASHER



\*Quick-Swivel is not compatible with the Valu-Blade

Key-way & bolt feature exclusive to Borzall blades, ensures the swivel stays in line with the rotation of the drill head



Made from the same quality components as the 5-ton ValuDUB swivel



# MAXI-RIG SWIVELS

Maximum Strength for the Heaviest Loads and Toughest Conditions.

Maxi Rig Swivels					
Pullback Capacity	Swivel Diameter	Clevis X 4-1/2" IF box	Clevis X 6-5/8"Reg box	Clevis X 6-5/8"FH box	Clevis X 7-5/8"Reg box
		Part #	Part #	Part #	Part #
220,000 lb	10.75"	00508-1110			
330,000 lb	19.5"	00508-1165			
440,000 lb	19.5"		00508-1220		
550,000 lb	19.5"			00508-1275	
700,000 lb	16"			00508-1351	00508-1350
1,000,000 lb	19.5"			00508-1501	00508-1500
1,400,000 lb	23"				00508-1700

Fitted with a grease nipple and relief valve for easy lubrication, making it a long-lasting swivel



Triple-stage seal system keeps bearings protected on your heaviest loads

Designed with service in mind. Seals are field replaceable

Push and pull loads are absorbed by premium quality angular contact bearings



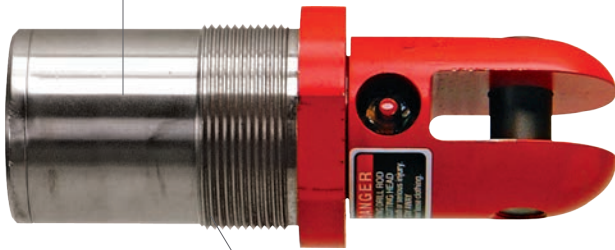


# FLUTED REAMER SWIVELS

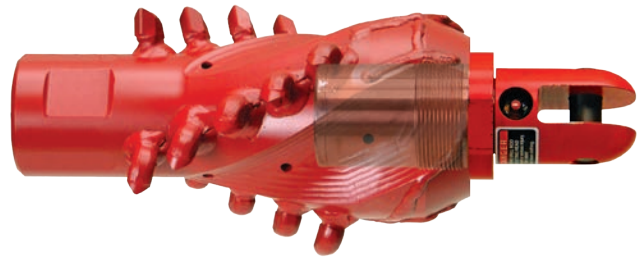
Designed Exclusively For Melfred Borzall Juggernaut Reamers.

Pocket Swivels for Fluted Juggernaut		
Pullback Capacity	Juggernaut Size	
	4" - 6"	8"
4.5 ton	00503-604-44M	00503-604-45M
10 ton		00503-610-45M

Totally self-contained  
and greaseable for a  
long lasting swivel

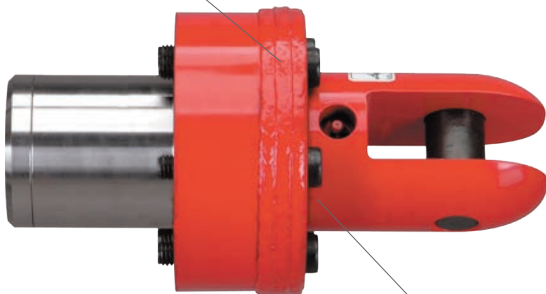


Push and pull loads are  
absorbed by premium quality  
angular contact bearings

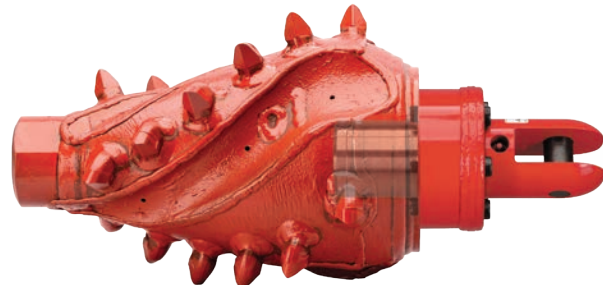


Flange Swivels for Fluted Juggernaut		
Pullback Capacity	10" - 12"	14" - 16"
10 ton	00503-610	00503-610
15 ton	00503-615	00503-615
20 ton		00503-620
30 ton		00503-630

Hard-facing around face  
of flange minimizes wear  
at the head of the bolts



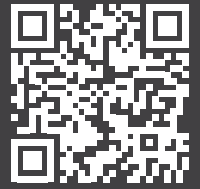
Features a triple-stage sealing  
system to keep debris from  
destroying bearings





# PULLERS

Keep a firm grip with rugged HDD  
pullers for every job



Scan to Shop  
All Pullers

[www.melfredborzall.com/pullers](http://www.melfredborzall.com/pullers)

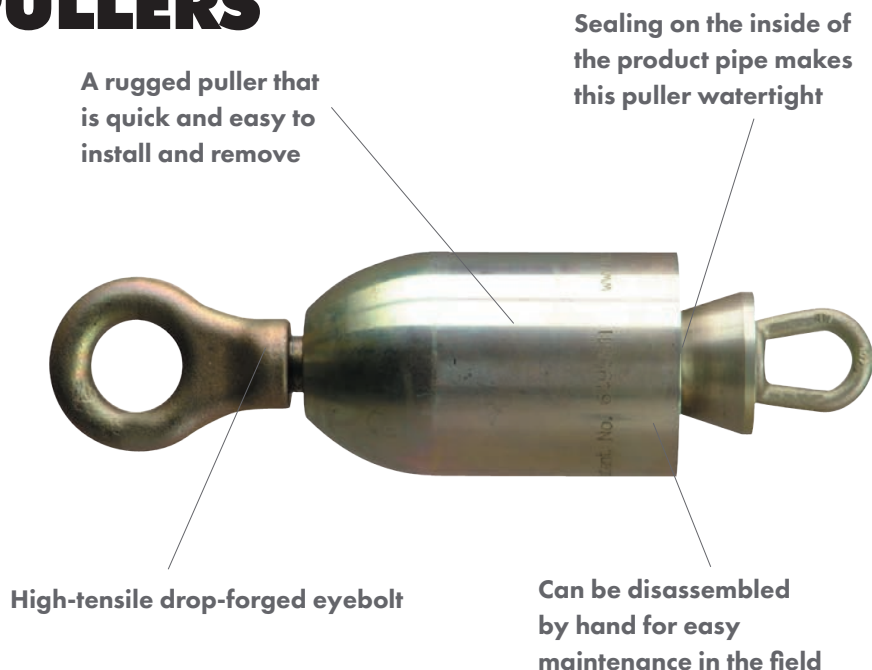






# SUPER DELUXE DUCT PULLERS

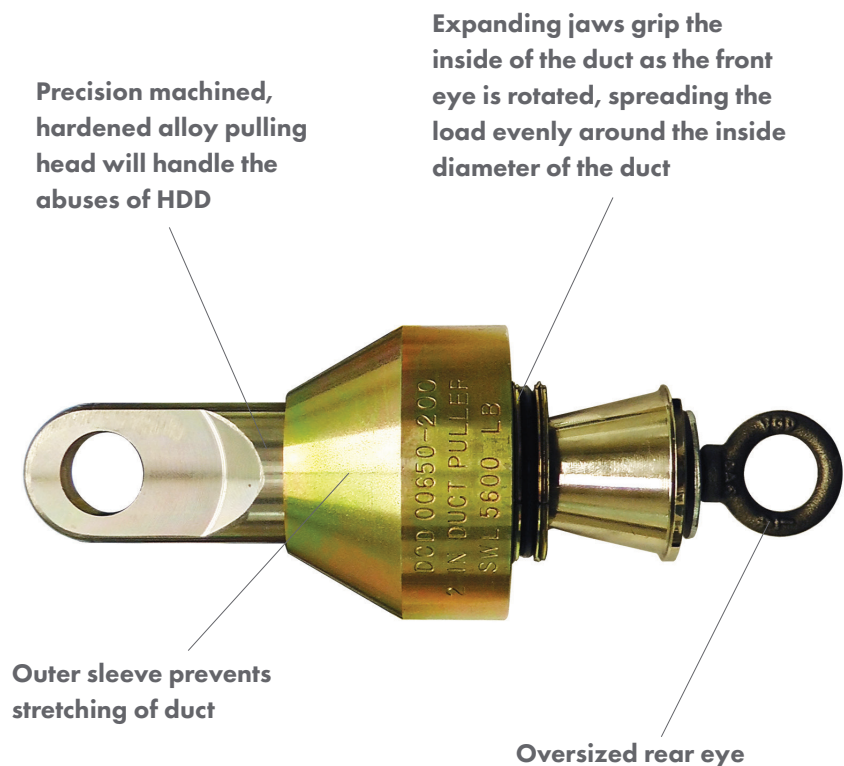
Super Deluxe Duct Pullers		
Duct Size	I.D.	Part #
1¼"	1.18" to 1.68"	00660-125
1½"	1.39" to 1.92"	00660-150
2"	1.68" to 2.40"	00660-200
2½"	2.24" to 2.90"	00660-250
3"	2.55" to 3.52"	00660-300
4"	3.31" to 4.52"	00660-400
5"	4.29" to 5.61"	00660-500
6"	5.20" to 6.69"	00660-600
8"	6.71" to 8.80"	00660-800



# DELUXE DUCT PULLERS

Deluxe Duct Pullers		
Duct Size	I.D.	Part #
1¼"	1.25" to 1.50"	00650-125
1½"	1.44" to 1.69"	00650-150
2"	1.81" to 2.19"	00650-200
2½"	2.19" to 2.56"	00650-250
3"	2.69" to 3.06"	00650-300
4"	3.44" to 4.25"	00650-400
5"	4.31" to 5.13"	00650-500
6"	5.06" to 6.06"	00650-600

\* Metric sizes available







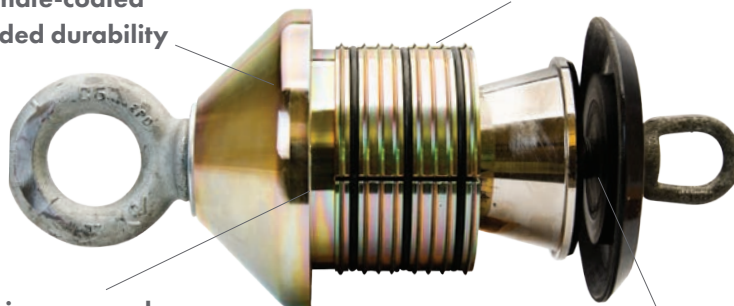
# PREMIUM DUCT PULLER

Premium Duct Pullers		
Duct Size	I.D.	Part #
1¼"	1.28" to 1.61"	00616-125
1½"	1.44" to 1.81"	00616-150
2"	1.81" to 2.19"	00616-200
2½"	2.19" to 2.62"	00616-250
3"	2.69" to 3.12"	00616-300
4"	3.31" to 4.06"	00616-400
5"	4.25" to 5.06"	00616-500
6"	4.87" to 6.19"	00616-600

\* Metric sizes available

Puller head made from zinc dichromate-coated steel for added durability

Fewer moving parts for easy repair and maintenance



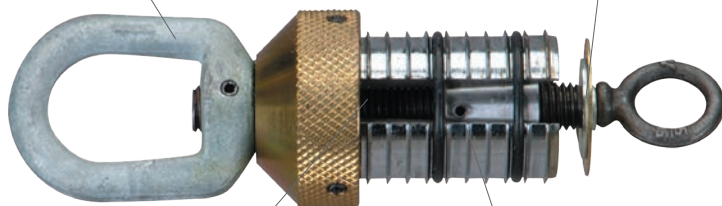
Expanding jaws securely grip inside wall of duct

Comes standard with a polyurethane plugger to minimize fluid from entering the duct

## STANDARD DUCT PULLERS

No special tools required

Pluggers available to keep mud out



Expanding jaws securely grip inside wall of duct

Large number of jaw teeth (compared to other brands) result in a stronger grip

Premium Duct Pullers		
Duct Size	I.D.	Part #
1¼"	1.28" to 1.50"	00620-125
1½"	1.47" to 1.69"	00620-150
2"	1.88" to 2.12"	00620-200
2½"	2.25" to 2.50"	00620-250
3"	2.75" to 3.06"	00620-300
4"	3.50" to 4.06"	00620-400
5"	4.50" to 5.00"	00620-500
6"	5.44" to 6.12"	00620-600
8"	6.44" to 7.87"	00620-800
10"	Please specify SDR	00620-1000
12"	Please specify SDR	00620-1200

\* Metric sizes available

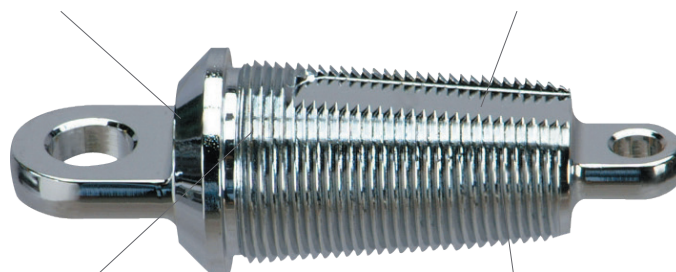


## INNERDUCT PULLERS

Innerduct Pullers		
Duct Size	I.D.	Part #
¾"	0.72" to 0.93"	00604-075
1"	0.94" to 1.15"	00604-100
1¼"	1.26" to 1.44"	00604-125
1½"	1.48" to 1.66"	00604-150
2"	1.91" to 2.08"	00604-200

Phenomenal gripping power

Economical means of pulling small diameter duct and innerduct



No moving parts and maintenance free

Double cutting edges that actually cut a thread into the duct



# BREAKAWAY CONNECTORS

Designed To Protect Polyethylene Ducting From Overload During Installation.

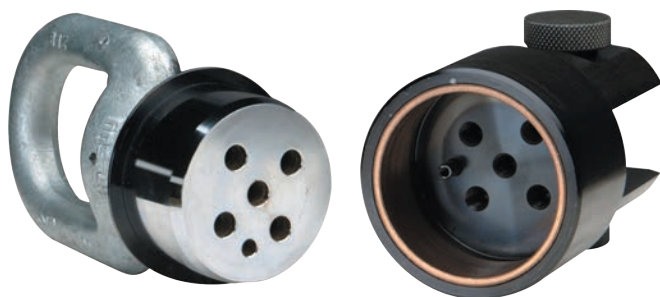
## Light-Duty Breakaway Connector

Break strengths from 750 lb to 12,500 lb



## Heavy-Duty Breakaway Connector

Break strengths from 3,000 lb to 45,000 lb



Light-Duty Breakaway Connectors and Pins

Description	Part #	
Breakaway Connector	00560-010	
Pin Kit (5 per kit)	Part #	Color Code
750 lb. pin kit	00565-075	Yellow
1,000 lb. pin kit	00565-100	Orange
1,500 lb. pin kit	00565-150	Red
2,000 lb. pin kit	00565-200	Blue
2,500 lb. pin kit	00565-250	Green

Heavy-Duty Breakaway Connectors and Pins

Description	Part #	
Breakaway Connector	00560-020	
Pin Kit (5 per kit)	Part #	Color Code
3,000 lb. pin kit	00565-300	Yellow
6,000 lb. pin kit	00565-600	Orange
7,000 lb. pin kit	00565-700	Red
8,000 lb. pin kit	00565-800	Blue
9,000 lb. pin kit	00565-900	Green

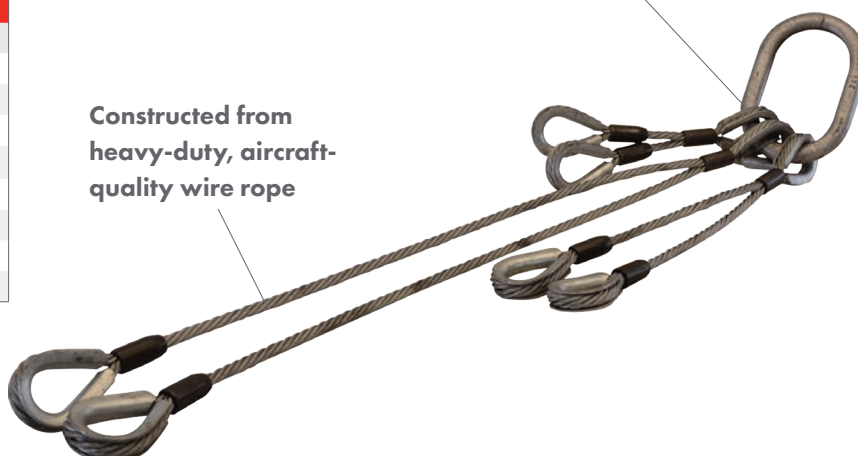
## Color-Coded Breakaway Pins



# PULLING SLINGS

An inexpensive and effective way to hook up and pull 2 to 6 ducts at a time

Constructed from heavy-duty, aircraft-quality wire rope

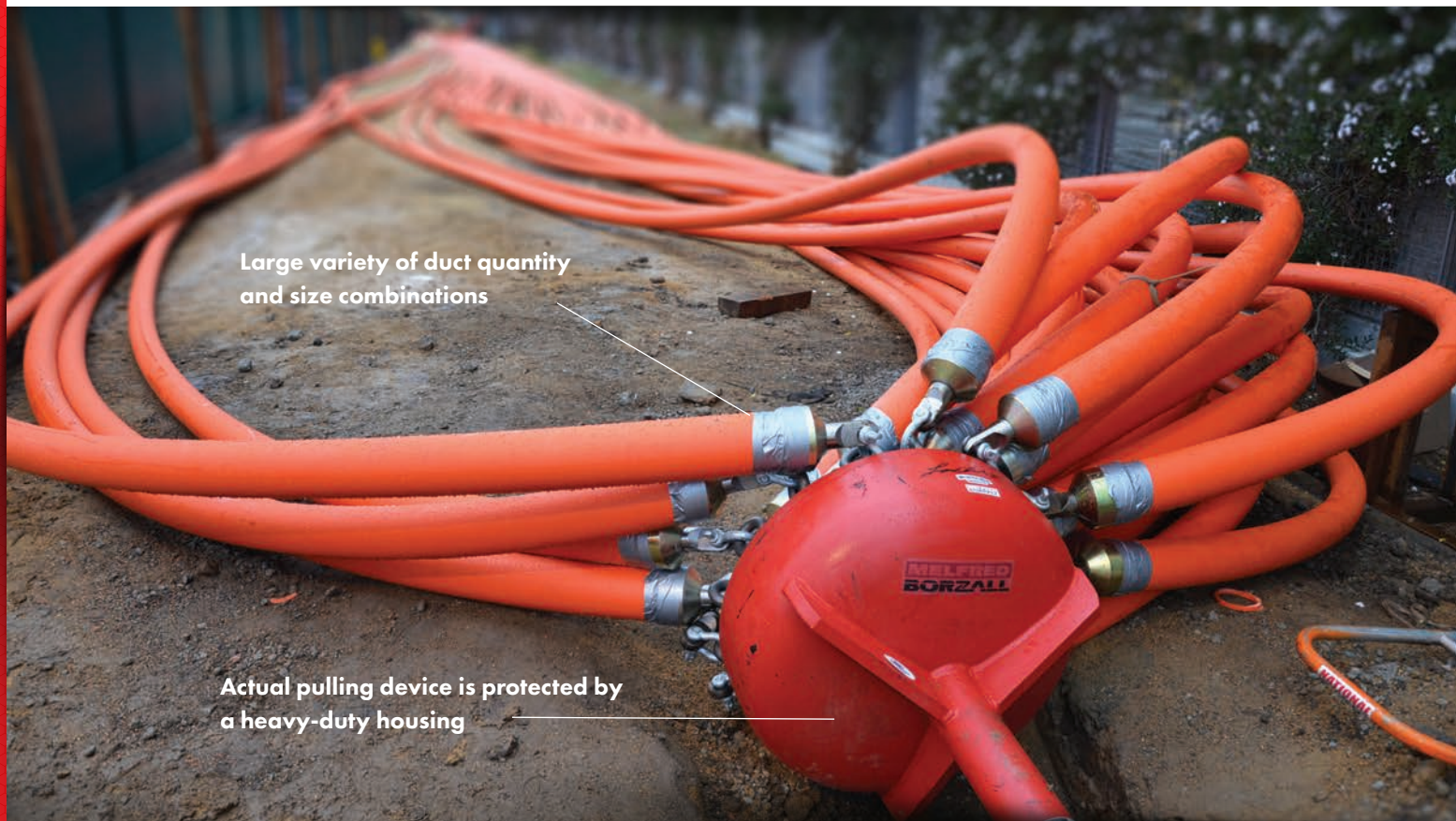


Multi-Duct Pulling Slings

Cable	Total Working Load	Part #
2-way, 3/8"	9,600 lbs	23375-020
3-way, 3/8"	14,400 lbs	23375-030
4-way, 3/8"	19,200 lbs	23375-040
6-way, 3/8"	28,800 lbs	23375-060
2-way, 1/2"	13,800 lbs	23500-020
3-way, 1/2"	20,700 lbs	23500-030
4-way, 1/2"	27,600 lbs	23500-040
6-way, 1/2"	41,400 lbs	23500-060



# MULTI-DUCT PULLERS



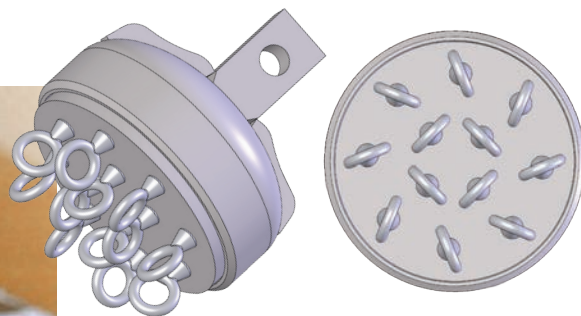
Large variety of duct quantity  
and size combinations

Actual pulling device is protected by  
a heavy-duty housing

## CUSTOM FIT TO YOUR JOB

Whether you are pulling four 2" pipes or twenty-seven 6" ducts, we design and deliver.

Our engineers and machinists have been making custom solutions for jobsites across the world for decades. Simply give us some basic job specs and we can work with you to deliver a multi-duct puller that protects and pulls your product for efficient pullback.



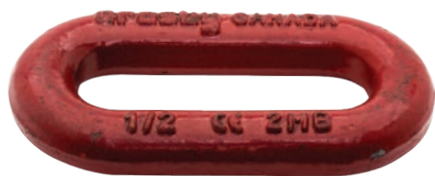
Call for a custom multi-duct  
configuration. 800.558.7500





# SHACKLES & LINKS

These sturdy shackles & links connect all sizes of pulling grips and pullers.



Shackles	
Size	Part #
7/16"	SHACKLE-7/16
5/8"	SHACKLE-5/8
3/4"	SHACKLE-3/4
7/8"	SHACKLE-7/8
1"	SHACKLE-100

Links	
Size	Part #
1/2"	LINK-1/2
3/4"	LINK-3/4
5/8"	LINK-5/8
7/8"	LINK-7/8



# PULLING GRIPS

Standard-Duty Wire Mesh Pulling Grips			
Duct Size	Outer Diameter Range	Breaking Strength	Part #
1/4"	.24" to .37"	4,250 lbs	00670-025
3/8"	.38" to .74"	5,000 lbs	00670-038
1/2" & 3/4"	.75" to 1.12"	6,600 lbs	00670-050
1"	1.13" to 1.49"	10,000 lbs	00670-100
1 1/4" & 1 1/2"	1.50" to 1.99"	13,800 lbs	00670-125
2"	2.00" to 2.49"	14,200 lbs	00670-200
2 1/2"	2.50" to 2.99"	17,500 lbs	00670-250

Heavy-Duty Wire Mesh Pulling Grips			
Duct Size	Outer Diameter Range	Breaking Strength	Part #
3/8"	.50" to .74"	5,800 lbs	00680-038
1/2" & 3/4"	.75" to 1.12"	6,700 lbs	00680-050
1"	1.13" to 1.49"	10,000 lbs	00680-100
1 1/4" & 1 1/2"	1.50" to 1.97"	16,400 lbs	00680-125
2"	2.00" to 2.50"	18,500 lbs	00680-200
2 1/2"	2.50" to 2.99"	24,500 lbs	00680-250
3"	3.00" to 3.74"	24,500 lbs	00680-300
4"	4.25" to 4.99"	31,000 lbs	00680-400

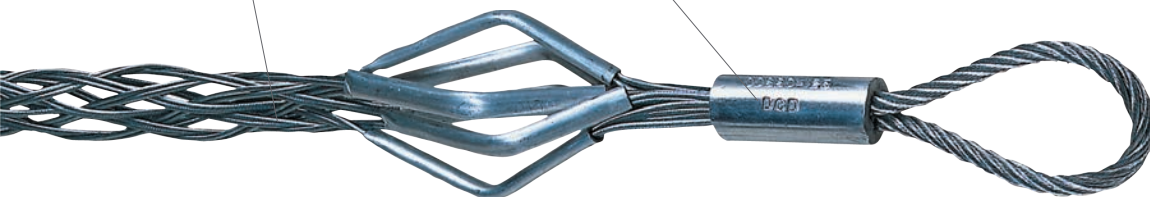


Standard-Duty

Made with a double weave of galvanized wire for maximum durability

At least a 2X safety factor

Return weave design so there are no crimped ends at the trailing end



Heavy-Duty

# DRIVE CHUCKS & SUB-SAVERS



Scan to Shop  
Drive Chucks &  
Sub-savers

Protect The Drill Rod Threads On Your Vermeer  
Navigator® And Ditch Witch Jet Trac®.

[www.melfredborzall.com/drive-chucks-sub-savers](http://www.melfredborzall.com/drive-chucks-sub-savers)





# DRIVE CHUCKS & SUB-SAVERS FOR VERMEER NAVIGATOR® & DITCH WITCH JET TRAC®

Changing out worn sub-savers and drive chucks is an inexpensive and easy way to get the maximum life out of your drill rod. If they are allowed to wear too much, a drill rod's threads will start to deform to the shape of the worn sub-saver threads. When attaching the drill rod to the sub-saver or chuck, be sure to torque it up to the correct pressure.



**Pro Driller Tip:**  
Don't forget the Auntie C's thread lube! See page 63

Drive Chucks For Vermeer® Drill Rigs			
Drill Rig Model	Drill Rod Thread	Drive Flange Part #	Sub-saver Part #
D7x11a, D10x14, D10x15	FS200	VF-31M-FO-V	VS-31M-31F-4.0
D7x11 S2, D9x13 S2	FS200		VS-31M-32F-8.0
D16x20, D18x22, D20x22	FS250	VF-32M-FO-V	VS-32M-32F-4.0
D16x20S2	FS250		VS-32M-40F-10.1
D18x22, D20x22, D18x20	FS400		VS-30M-30F-6.5
D20x22 S2	FS400		VS-30M-40F-10.1
D23X30	FS600		VS-40M-40F-10.1
D24X40 S2	FS600	VF-40M-FO	VS-40M-40F-9.5
D24X40 S3	FS600		VS-40M-40F-10.1
D24X40A S/N 1-382	FS600	VF-40M-FO	VS-40M-40F-5.5
D24X40A S/N 383+	FS600	VF-40M-FO	VS-40M-40F-7.0
D40X40	FS600	VF-40M-FO	VS-40M-40F-8.5
D36X50 S2	FS650	VF-46M-FO	VS-46M-46F-7.9
D40X55 S3	FS650		VS-46M-46F-8.9
D36X50, D36X50 S2	FS700		VS-41M-41F-8.5
D40X55 S3	FS700	VF-41M-FO	VS-41M-41F-9.5
D50X100A, D80X100 S2	FS800	VF-80F-FO	VS-80M-80F-7.0
D80X100A	FS800	VF-80F-FO	VS-80M-80F-10.5
D50X100A	FS900		VS-50M-50F-5.8
D60X90 S2, D60X90 S3	FS900		VS-50M-50F-8.7
D100X120, D100X120 S2, D100X140	FS1000		VS-82M-82F-7.0

CNC-machined for a perfect match with your drill rod



Completely heat-treated alloy for maximum durability



Most drive chucks are available with a replaceable, inexpensive sub-saver

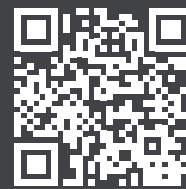
Drive Chucks For Ditch Witch® Rigs			
Drill Rig Model	Drill Rod Thread	Drive Flange Part #	Sub-saver Part #
JT5	1.10-5	DF-04F	
JT520 V2	1.21-6	DF-05F2	
JT920, JT921 - fine thread	1.41-6	DF-01AF	
JT922 - fine thread	1.41-6	DF-922-01AF	
JT922, JT9 - coarse thread	1.30-5	DF-09F	
JT1220	1.47-4	DF-34F	
JT1720	1.69-6	DF-86F	
JT20, JT2020	1.94-4	DF-20F	
JT2720	1.94-4	DF-35F	
JT30, JT3020	2.11-4	DF-25F	DS-25M-36F

Sub-saver glue kits available online at [www.melfredborzall.com/glue-kits](http://www.melfredborzall.com/glue-kits)



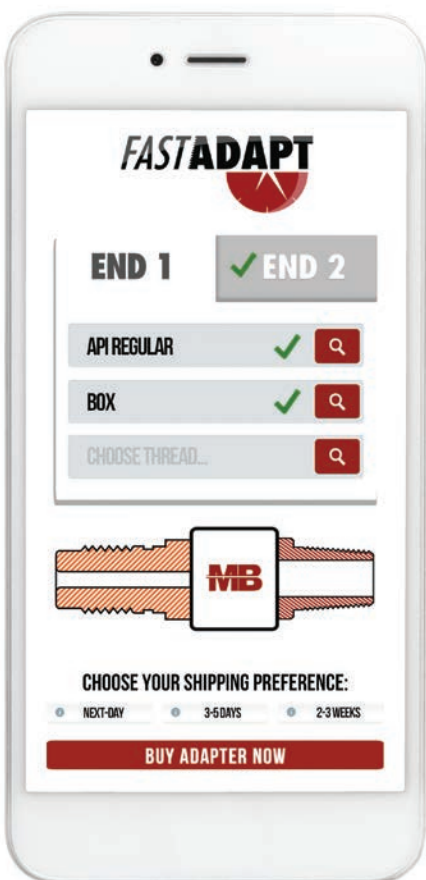
# ADAPTERS

Infinite, Custom Same-Day Adapters.  
Hundreds Of Stocked Adapters.



Scan to Shop  
FastAdapt

[www.melfredborzall.com/adapters](http://www.melfredborzall.com/adapters)



## FASTADAPT PROGRAM

No matter what tools you're trying to connect, we can machine high-quality, sturdy adapters that are guaranteed to work. Not only do we have a ton of adapter configurations on the shelf, we can build custom adapters on the same day you order them and get them to you fast.

Adapters can be used with  
Melfred Borzall reamers  
and transmitter housings

Precision, CNC-machined  
from US sourced, heat-  
treated alloy steel

Adapters also available  
with Mud Boost fluid  
ports (see page 13)



# COMMON STOCK ADAPTERS

Adapters for Vermeer® Threads					
Drill Rig	Front Thread ►	2" IF Pin	2-3/8" Reg Pin	2-7/8" IF Pin	3-1/2" IF Pin
	Connection Type ▼	Part #	Part #	Part #	Part #
D6x6, D7x11, D7x11 S2, D9x13 S2/S3, D10x15	QF300	21M-L300MV3	23M-L300MV3		
	1-5/8" Low Profile QD	21M-L42M	23M-L42M		
	FS200 Drill Rod	21M-31F	23M-31F		
D16X20, D16X20 S2, D18X22	QF400	21M-L400MV3	23M-L400MV3		
	2-1/8" Low Profile QD	21M-L43M	23M-L43M		
	FS250 Drill Rod	21M-32F	23M-32F		
D20X22 S2/S3, D24X26	QF400	21M-L400MV3	23M-L400MV3		
	2-1/8" Low Profile QD	21M-L43M	23M-L43M		
	FS400 Drill Rod	21M-30F	23M-30F		
D23X30, D24X40, D24X40 S2/S3	QF400	21M-L400MV3	23M-L400MV3		
	2-1/8" Low Profile QD	21M-L43M	23M-L43M	27M-L43M	
	FS600 Drill Rod	21M-40F	23M-40F	27M-40F	
D33x44, D36x50, D36x50 S2 D40X55	QF460	21M-L460MV3	23M-L460MV3	27M-L460MV3	
	2-1/8" Low Profile QD	21M-L43M	23M-L43M	27M-L43M	
	FS650 Drill Rod		23M-46F	27M-46F	
	FS700 Drill Rod		23M-41F	27M-41F	
D50x100, D60X90	FS900 Drill Rod		23M-50F	27M-50F	
D80x100, D80x100 S2	FS800 Drill Rod			27M-80F	29M-80F
D80x120, D100x120	FS802 Drill Rod			27M-81F	29M-81F
D100x120, D100x140	FS1000 Drill Rod			27M-82F	29M-82F

Adapters for Ditch Witch® Threads					
Drill Rig	Front Thread ►	2" IF Pin	2-3/8" Reg Pin	2-7/8" IF Pin	3-1/2" IF Pin
	Connection Type ▼	Part #	Part #	Part #	Part #
JT520 JT5	1.21-6 EZ-Connect	21M-L52F			
	1.10 Drill Rod	21M-05M			
JT9, JT920, JT921, JT922	1.63-6 EZ-Connect	21M-L55F			
	1.30-5 (coarse) Drill Rod	21M-09M			
	1.41-6 (fine) Drill Rod	21M-01M			
JT1220 Mach1	1.88-6 EZ-Connect	21M-L58F			
	1.47-4 Drill Rod	21M-34M	23M-34M		
JT1720	2.00-6 EZ-Connect	21M-L54F	23M-L54F		
	1.81-6 Drill Rod	21M-86M	23M-86M		
JT20, JT2020, JT2720	2.00-6 EZ-Connect	21M-L54F	23M-L54F		
	1.94-4 Drill Rod	21M-20M	23M-20M		
JT2720 Mach1	2.25-6 EZ-Connect		23M-L56F	27M-L56F	
	2.11-4 Drill Rod	21M-36M	23M-36M	27M-36M	
JT40	2.63-6 EZ-Connect		23M-L57F	27M-L57F	
	2.10 Drill Rod		23M-48M	27M-48M	
JT25, JT3020, JT30	2.25-6 EZ-Connect 3	21M-L59F	23M-L59F	27M-L59F	
	2.11-4 Drill Rod	21M-36M	23M-36	27M-36M	
JT4020	2.63-6 EZ-Connect		23M-L57F	27M-L57F	
	2.40-4 Drill Rod		23M-42M	27M-42M	
JT4020 Mach1	2.63-6 EZ-Connect		23M-L57F	27M-L57F	
	2.59-4 Drill Rod		23M-43M	27M-43M	
JT60	2.85-6 EZ-Connect				
	2.46-4 Drill Rod			27M-60M	
	FS900 Drill Rod			27M-50M	
JT7020, JT8020, JT100	3.27-4 Drill Rod			27M-72M	29M-72M



# PARTS & ACCESSORIES

Drilling Parts And Accessories To Reinforce HDD  
Tools And The Drillers Who Depend On Them.



Scan to Shop  
Parts & Accessories

[www.melfredborzall.com/replacement-parts-accessories](http://www.melfredborzall.com/replacement-parts-accessories)





# AUNTIE C'S THREAD LUBE

Provides maximum protection against galling and seizing

Lead-free, environmentally safe compound with no zinc or temperature-sensitive materials

New 5-gallon bucket in Arctic Grade for cold conditions and for rigs with auto-luber to get all the lube out

**Pro Driller Tip:** For rigs with auto-lubers, we recommend using the Arctic Grade Auntie C's

Auntie C's Thread Lube			
Description	Part #	Arctic Grade Part #	Bulk Details
20 oz. tube	AS-402-JT		10 per carton
10 lb. (1 gal.) pail	AS-410	AS-410-AG	100 per pallet
20 lb. (2 gal.) pail	AS-420	AS-420-AG	60 per pallet
45 lb. (5 gal.) pail	AS-445	AS-445-AG	24 per pallet

Premium copper thread lube designed specifically for the demands of HDD



# DRILL ROD WIPERS

Drill Rod Wipers				
Drill Pipe Diameter Range	Solid 9" Wiper Part #	Dual Split Wiper Part #	Wipe Diameter	Hole Size
1.125"	WIPE-0.88-09-NS		9" Dia.	0.875" Hole
1.6" - 1.75"	WIPE-1.13-09-NS		9" Dia.	1.13" Hole
1.75" - 2.25"	WIPE-1.50-09-NS	WIPE-1.50-09-DS	9" Dia.	1.5" Hole
2.25" - 2.6"	WIPE-2.00-09-NS	WIPE-2.00-09-DS	9" Dia.	2" Hole
2.6" - 3.1"	WIPE-2.50-09-NS	WIPE-2.50-09-DS	9" Dia.	2.5" Hole
3.1" - 3.5"	WIPE-3.00-09-NS	WIPE-3.00-09-DS	9" Dia.	3" Hole
14" Wipe with 3.00" Hole		WIPE-3.00-14-DS	14" Dia.	3" Hole
14" Wipe with 4.00" Hole		WIPE-4.00-14-DS	14" Dia.	4" Hole
14" Wipe with 4.50" Hole		WIPE-4.50-14-DS	14" Dia.	4.5" Hole
14" Wipe with 6.25" Hole		WIPE-6.25-14-DS	14" Dia.	6.25" Hole

See the Drill Rig Glossary in the Resource Guide to compare drill rig models & drill rod specs, pg. 6

Dual-split 9" Wiper

Solid 9" Wiper







# CARBIDE CUTTERS & BLOCKS

Carbide Cutter Teeth				
Description	Width	Height	Thickness	Part #
Conical cutter – Small	1/2"	2 1/8"		CC-01
Cutter block – Small	1 5/8"	3/4"		CC-01-BLOCK
Conical cutter – Large	3/4"	3 3/8"		CC-10
Cutter block – Large	2 1/4"	1 3/4"		CC-10-BLOCK
Angled conical cutter– Small	3/4"	7/8"		CC-11
Angled conical cutter – Large	1"	1 1/8"		CC-21
Shark Tooth® cutter – Small	1 1/4"	1 1/4"	7/8"	CD-31-SHORT
Shark Tooth® cutter – Medium	1 1/2"	1 1/2"	3/4"	CD-31-MED
Shark Tooth® cutter – Large	2 3/4"	2 1/8"	7/8"	CD-31
Angled dome cutter – Small	3/4"	1 3/8"		CC-50
Angled dome cutter– Large	1"	2"		CC-51



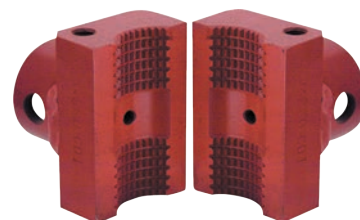
High-quality carbide cutter teeth to rebuild your HDD tools fast and accurately.



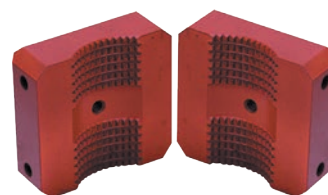
# BREAKOUT JAWS

Breakout Jaws - DitchWitch® Compatible		
Drill Rig	Jaw Type	Part #
JT2020	Insert	JAW-20-INS
JT2720M1, JT3020, JT4020M1	Insert	JAW-37-INS
JT8020, JT100	Insert	JAW-100-INS

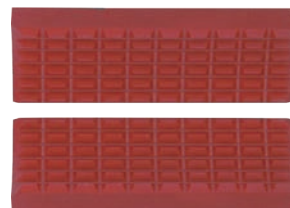
Breakout Jaws - Vermeer® Compatible		
Drill Rig	Jaw Type	Part #
D24a, D24x26	Stationary	JAW-30
D7x11, D10x15	Stationary	JAW-31
D7x11, D10x15	Cylinder	JAW-31-CT
D16x20	Stationary	JAW-32
D16x20	Cylinder	JAW-32-CT
D33x44	Stationary	JAW-33
D33x44	Insert	JAW-33-INS
D36x50	Stationary	JAW-36
D24x40a	Stationary	JAW-40
D24x40	Insert	JAW-40-INS
D40x40	Cylinder	JAW-40-CT
D50x100, 2 7/8" rod	Cylinder	JAW-50-CT
D50x100, 2 7/8" rod	Insert	JAW-50-INS
D50x100, D80x100, 3 1/2" rod	Cylinder	JAW-80-CT
D80x100, 3 1/2" rod	Insert	JAW-80-INS
D100x120, 3 1/2" rod	Insert	JAW-120-DIA-INS



**Cylinder Side Breakout Jaws:**  
Breakout wrench replacement jaws



**Stationary Side Breakout Jaws:**  
High quality replacement jaws



**Breakout Jaw Inserts:**  
High quality replacement jaw inserts



# ELECTRICAL SAFETY BOOTS, SHOES & GLOVES

Safety Shoes & Boots	
Description	Part #
Over-the-shoe Safety Shoe	1830-SH
Over-the-shoe Safety Boot	1830-BT

Conforms with ASTM F1117 and tested to 20,000 volts



Boots are a 12" over-the-shoe style

Safety Gloves	
Description	Part #
Rubber glove	1820-GLV
Leather protector	1820-PRO
Glove storage bag	1820-BAG

Leather protectors go over to protect rubber glove from damage

Dielectric rubber gloves rated for usage at up to 17,000 volts



Meets ASTM specification D-120

Half and whole sizes available







# **TURN UPSIDE DOWN TO SEE OUR BRAIN**

Go to the opposite cover to check out our HDD Resource Guide,  
full of expert tips to keep you on top of your HDD game.