

HDD TOOLING CATALOG 2023



**MELFRED
BORZALL**



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PRINT COMPANION TO MELFREDBORZALL.COM | EDITION 18

**MELFRED
BORZALL**

SHOP HDD TOOLING ONLINE

Our smart technology automates only the parts of the ordering process that expedite your tooling order, while preserving the personalized HDD "eyes-on" review of every order to sanity-check connections and compatibility.

.....

1

**ORDER
FROM
ANYWHERE**

.....

2

**HDD
TOOLING
SPECIALIST
REVIEW**

.....



www.melfredborzall.com
is accessible from
a desktop, tablet or
smartphone so you can
order from the office, truck,
or right on the jobsite.

Experienced HDD
tooling specialists
ensure every order
is checked over for
tooling connections, rig
compatibility, and other
factors only humans
experienced in HDD
tooling can provide.



THIS CATALOG WORKS WITH THE WEBSITE

Scan any one of the QR codes in this catalog to pull up the product page and checkout. Once your tooling order is placed, our smart-order routing system mentioned above kicks into high gear!

SPEED-OF-LIGHT SMART ORDERING

EXPEDITING DELIVERY WITHOUT RUSHING SERVICE

3

AUTOMATIC
ROUTING
TO NEAREST
DISTRIBUTOR



4

LOCAL
SHIPPING
DETAILS
CONFIRMED

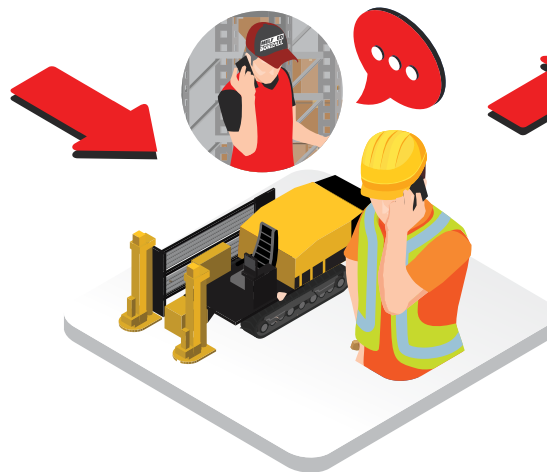
Your local distributor
will confirm that order
with you along with
delivery updates or
options.

5

ORDER
DELIVERED
WHERE YOU
NEED IT



Our smart technology
then determines
the nearest stocked
distributor to your
order's location to limit
the distance (and cost)
of shipping.



Your Melfred Borzell
salesperson or local
distributor will not
only get your tooling
to you fast, they also
offer support for your
tooling to ensure you
are getting the most
out of it.



HDD LIFELINE

HDD case studies, videos, safety manuals and more. Every topic from pilot bore to troubleshooting pullback.



HDD EXPERT LIVE CHAT

Our friendly HDD experts have decades of drilling experience and are ready to live chat with you about your HDD questions.

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

Fred's two sons, Ted and Dick Melsheimer, design the DynaMole, a self-propelled boring machine and develop innovative tools for HDD drillers.



1960s



1990s

Melfred Welding joins forces with the Borzall Equipment to form Melfred Borzall and Dick Melsheimer sells the world's first commercial horizontal directional drilling system, the Sure Shot. They expand across the U.S. and internationally into 5 continents.

Eric Melsheimer becomes President of Melfred Borzall and his brother, Peter, Vice President of Sales and Marketing as they make an impact with the tech boom of underground fibre optic utility with the FastBack System®.



2010s



TODAY

In 2021, we celebrated our 75th anniversary. Moving into 2023 and the future, 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.

77 YEARS OF HDD

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.



FastBack System® Ready

Attach FastReam® Cutter Blocks to enlarge a hole up to 12" during pullback.

"Dimple/Dot" Alignment

Fail-proof alignment system to ensure your cutters are on right.. just line up the dimple with the dot and you're good to go!

Integrated End Bumper

Pre-installed in Ditrak Housings (Part # 5000-BUMPER5).



Sonde Bumpers

Lid & sonde pocket cavity bumpers to cushion the sonde and extend its life in hard conditions.



MudBoost™ Port

Now integrated directly in the tail of the housing for extra fluid flow during pullback.

More details on the FastBack System on page 14, or visit online

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



**Dual Nozzle**

Double the jet power with two SuperNozzles

**Pit Bull™ Ready**

Minimize the chance of shearing a bolt, rattling it out, or possibly losing a directional blade with machined dowel pins & inserts on the steer face.

**Lid-locking Pins**

Dual lid retention system uses a roll pin for extra lid security

**More Hardfacing Than Ever**

Robotically-applied carbide hardfacing on all high-wear areas, including 3X our standard hardfacing on the nose, which can increase the housing life up to 50%



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



BOLT-ON SD HOUSINGS

Pit Bull Features For Drilling With Your Favorite Directional Blade.



Using DigiTrak & UMag 2-cell 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	5625-HT4-06	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	5625-HT4-13	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	5627-HT4-13	SHCS1/2X1	5625-HT4-CP	RP-038-175	SHCS1/2X3/4	DP-075x100
20,000 - 40,000	3.25"	2.375" Reg	VER 6, 1/2" bolts	5632-HT4-13	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	5925-HD4-14	SHCS12MMX25MM	5925-HD4-CP	RP-038-175*	SHCS12MMX20MM	DP-050X075
6,000 - 20,000	2.75"	2" IF	DW 5, 12mm bolts	5927-HD4-14	SHCS12MMX25MM	5927-HD4-CP	RP-038-175*	SHCS12MMX20MM	DP-050X075
20,000 - 30,000	3.25"	2.375" Reg	DW 6, 16mm bolts	5932-HD4-15	SHCS16MMX35MM	5932-HD4-CP	RP-038-200	SHCS16MMX25MM	DP-075x100
20,000 - 40,000	3.5"	2.375" Reg	DW 6, 16mm bolts	5935-HD4-15	SHCS16MMX35MM	5935-HD4-CP	RP-038-200	SHCS16MMX25MM	DP-075x100



THREAD-ON SD HOUSINGS

For Use With Eagle Claw, Iron Fist, Bolt-On Bit Bodies.



Using DigiTrak & UMag 2-cell 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	5625-HT4	5625-13	5625-HT4-CP	RP-038-175	SHCS1/2X3/4
10,000 - 20,000	2.75"	2" IF	2" IF	5627-HT4	5627-13	5625-HT4-CP	RP-038-175	SHCS1/2X3/4
20,000 - 40,000	3.25"	2.375" Reg	2.375" Reg	5632-HT4	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	5927-HD4	5927-14	5927-HD4-CP	RP-038-175	SHCS12MMX20MM
20,000 - 40,000	3.25"	2.375" Reg	2.375" Reg	5932-HD4	5932-15	5932-HD4-CP	RP-038-200	SHCS16MMX25MM



THREAD-ON UNIVERSAL SD HOUSINGS

Compatible With Subsite®, DigiTrak™ & Underground Magnetics™.



Universal Housings - Fits Most 2-cell & 4-cell Subsite, U-Mag or DigiTrak Transmitters

Drill Rig Thrust	Diameter	Thread (rear)	Thread (front)	Housing	Bolt-On Bit Body	Housing Lid	LidLock Pin	Lid Bolt	Torque Limit (ft.-lbs.)*
40,000 - 50,000	3.5"	2.375" IF	2.375" Reg	5735-HU4	5635-13, 5935-15	5735-HU4-CP	RP-038-200	SHCS1/2X3/4	Up to 4,568
50,000 - 80,000	4.25"	2.875" IF	2.875" Reg	5742-HU4	1742-23, 1942-25	5742-HU4-CP	RP-038-200	SHCS1/2X3/4	Up to 10,148
80,000 - 150,000	4.75"	3.5" IF	3.5" Reg	5747-HU4	3748-33	5742-HU4-CP	RP-038-200	SHCS1/2X3/4	Up to 13,879

*For each housing there are many drill rigs to choose from. The torque limitations are posed by the internal female threads found at the ends of each Large Universal Housing. Since each housing has two different sized female threads, the lowest torque limit from the two is shown for a conservative rating.



Patent-pending universal spacer allows you to secure models from separate manufacturers into a single housing pocket. Comes standard with all models of our Universal SD Housings.



THREE TRANSMITTER HOUSINGS IN ONE

- Compatible with 17" Subsite®, 15" & 19" DigiTrak™, and Underground Magnetics™ Transmitters
- Heat-treated, chrome-nickel-moly alloy material
- Large lid tabs for greater contact surface, reducing wear
- Compatible with Melfred Borzall's Eagle Claw SD, Iron Fist and Bolt-On Bit Bodies



Compatible with our thread-on SD Bit Bodies on page 8. See chart above for compatibility.



HIGH-FLOW HOUSINGS

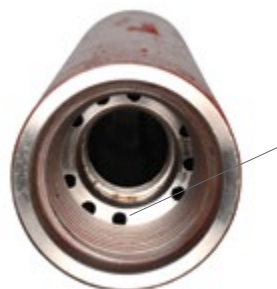
Ideal For Use With Mud Motors, Hard Ground Bits And Bolt-On Bit Bodies.

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. 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



Multiple fluid passages allow for maximum flow without pressure restrictions

Same type of high-strength, fatigue resistant steel used in landing gears and propeller shafts



Transmitter isolating technology removes vibration, ideal for use with mud motors and air hammers



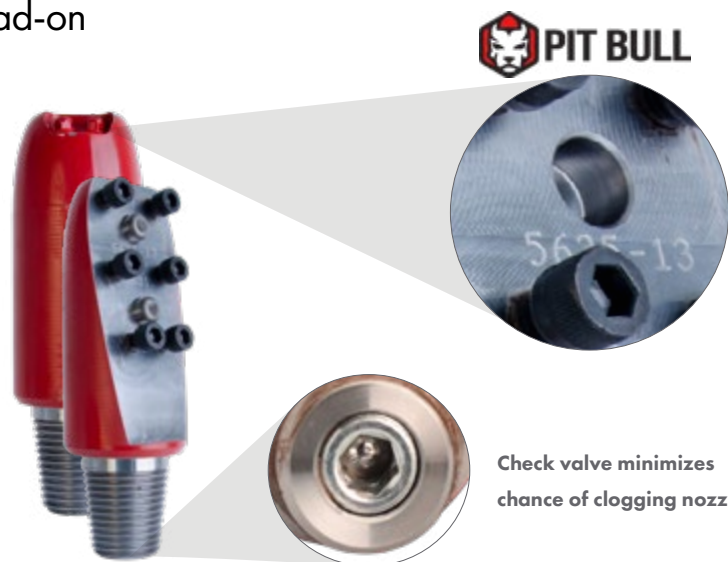
THREAD-ON BIT BODIES

Use Bolt-on Blades With Your Thread-on Style Housing. 

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
3.5"	2.375" Reg	VER 6, 1/2" bolts	5635-15
4.25"	2.875" Reg	VER 6, 5/8" bolts	1742-23*
4.75"	3.5" Reg	VER 6, 3/4" bolts	3748-33"

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*

*The 4.25 or 4.75" diameter bit bodies do not come equipped with Pit Bull™ removable dowel pins.



Check valve minimizes chance of clogging nozzle



THE FASTBACK SYSTEM DIRECT PULLBACK



Pilot Bore, Ream, And Pullback
Without Removing The Drill Head.

WHAT IS THE FASTBACK SYSTEM?

Direct pullback for shots up to 12" without ever removing the drill head.

Reduce production time and cost when reaming up to a 12" hole in tight conditions by using direct pullback's best solution...the FastBack System. It is a complete solution comprising the SD Housing, detachable cutter blocks, pulling device, and optional swivel.

Drill Head



Cutter Blocks



Pullback Device



Swivel



Details and part numbers for the SD Housings are on pg. 6



INCREASE PRODUCTION RATES.
DRILL IN TIGHTER SPACES.
BE MORE PROFITABLE.



Scan the QR code to watch the tutorial on how to assemble the FastBack System.

HANDLE JOBS WITH LIMITED ACCESS BETTER

Using the FastBack System in tight spaces such as suburban street-to-house shots, will enable you to backream and pullback without having to remove the drill head.



SPEED UP YOUR PRODUCTION

Bolt-on FastReam® cutter blocks allow you to backream the hole without ever removing the drill head. That's right...you can make your installs faster than ever before when reaming a 12" diameter hole or less.





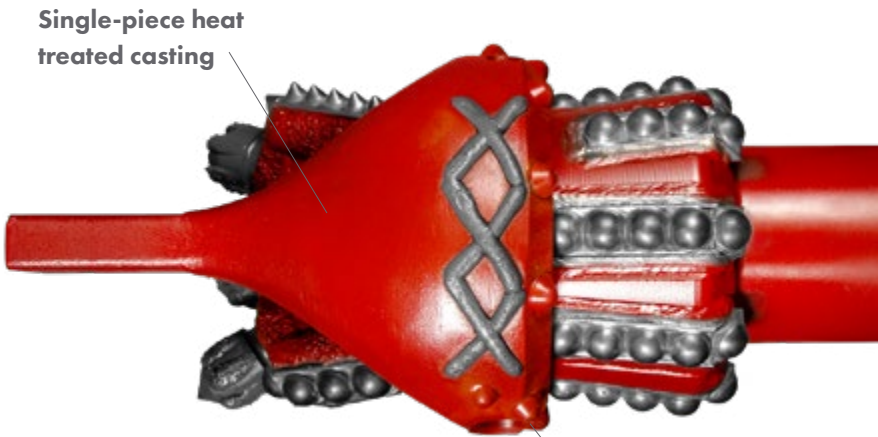
EAGLE EYE

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	Eagle Eye Part#	Replacement Bolt
3.5"	EC35-FB42A1-305	FHHCS5/16X3.75
4.25"	EC42-FB50A1-305	FHHCS-.4375-4.25
5"	EC50-FB60-310	FHHCS1/2X5

Check out more details on the Eagle Claw SD bits on pg. 21



Single-piece heat treated casting

We use the same high-clamp load 6-point high-strength bolts used in auto racing applications

Carbide buttons extend the wear life



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



QUICK-SWIVEL & QUICK-LINK

Fast, & Secure Direct Pullback Without Removing The Blade. Engineered To Hold The Swivel Rotation On Center.

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



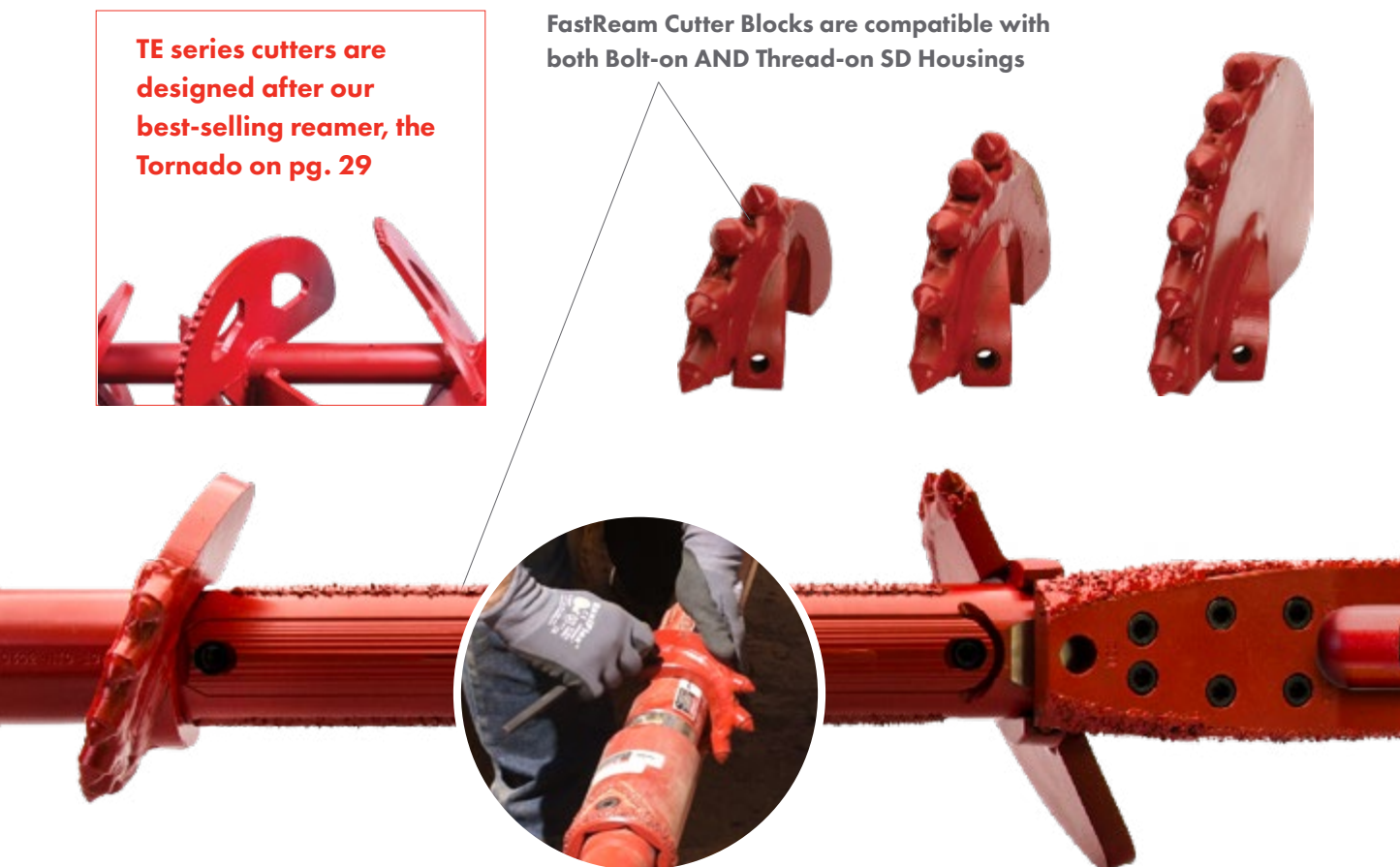


FASTREAM® CUTTER BLOCKS

Ream Up To A 12" Hole Without Ever Taking Off The Drill Head.

TE series cutters are designed after our best-selling reamer, the Tornado on pg. 29

FastReam Cutter Blocks are compatible with both Bolt-on AND Thread-on SD Housings



Don't forget your **FastReam Tool Bag** to hold parts, bolts, and cutter blocks. Get it free with a complete **FastBack System** or visit www.melfredborzall.com/fastback-parts



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



EX series cutters are designed after our cobble bit, the Iron Fist on pg. 22



HOUSINGS

DIRECT
PULLBACK

BITS &
BLADES

DIRECT & QUICK-
DISCONNECTS

REAMERS

SWIVELS

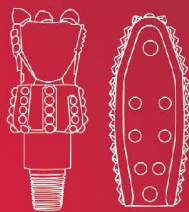
PULLERS

ADAPTERS &
SUB-SAVERS

PARTS &
ACCESSORIES



DIRECTIONAL BLADES & BITS



THE PATENTED PIT BULL® DESIGN

This exclusive, patented design uses solid dowel pins to alleviate the force traditionally taken by blade bolts. The Pit Bull design can limit bolts from shearing or rattling loose, and keep you drilling confidently.

SOLVE BOLTS SHEARING OFF
BOLTS RATTLING LOOSE

Removable, solid dowel pins
are strategically placed to
take load off bolts



Mating holes in blades
prevent bolts from breaking
or rattling loose



**NEVER LOSE
ANOTHER BLADE
DOWNHOLE.**





RED DIAMOND BLADE

100% Carbide Coverage For Drilling In
Harder Ground Conditions.

BEST FOR:



GOOD FOR:



Ditch Witch® Compatible Blades		
Bolt Pattern	Cut Size	
	4.5"	5.5"
5-bolt, 12mm	1800-14-45-BRD	
6-bolt, 16mm		1800-15-55-BRD

Vermeer® Compatible Blades		
Bolt Pattern	Cut Size	
	4.5"	5.5"
6-bolt, 1/2"	1800-13-45-BRD	1800-13-55-BRD



QuickSwivel
Compatible
(See pg. 12)

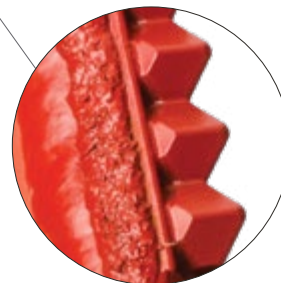


Durable Domed
Front Carbide



Continuous low-
profile back
carbides are ideal
for direct pullback

Chunky carbide
hardfacing further
protects all high
wear areas.



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

Tapered design towards
the rear to reduce drag



STEEP TAPER ULTRABIT 3

BEST FOR:



GOOD FOR:



Drill Through Cobbles & Other Harder Ground Conditions.

Product description	Vermeer® Compatible Blades						
	Cut Size						
	3.5"	4"		5"		6"	7"
5 bolt, 3/8"	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	

Product description	Ditch Witch® Compatible Blades						
	Cut Size						
	3.5"	4"		5"		6"	7"
5 bolt, 12mm	Conical	Conical	Dome	Conical	Dome	Conical	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		1800-15-70-BSU3
6 bolt, 20mm						1610-25-60-BSU3	

Center point tooth for easier penetration

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

 **PIT BULL**
Compatible

Weld bead is reinforced with hardfacing to increase bit life

 **QuickSwivel**
Compatible
(See pg. 12)

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

Chunky carbide hardfacing the entire length of blade

Available with dome carbides for cobble and gravel

Bit of choice where directional "pushes" are difficult

**MELFRED
BORZALL**

www.melfredborzall.com/steep-taper-ultrabit **17**

HOUSINGS

DIRECT
PULLBACK

BITS &
BLADES

DIRECT & QUICK-
DISCONNECTS

REAMERS

SWIVELS

PULLERS

ADAPTERS &
SUB-SAVERS

PARTS &
ACCESSORIES



ULTRABIT

All-Around Solution With Great Steering.

BEST FOR:



GOOD FOR:



Vermeer® Compatible Blades								
Bolt Pattern	Cut Size							
	3.5"	4"	5"	6"	7.0	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		1800-13-70-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*

* Blade is not compatible with Pit Bull™ Features.

Ditch Witch® Compatible Blades				
Bolt Pattern	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, 20mm				1610-25-60-BBU3*

Conical carbide cutters make this an aggressive bit for hard soils

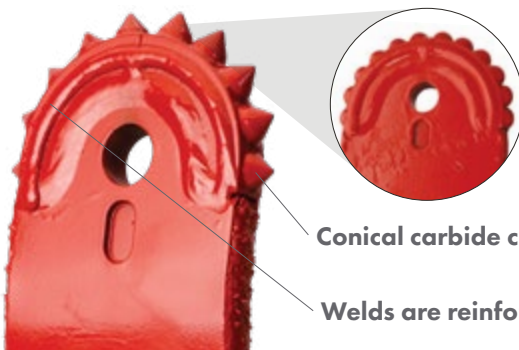
Chunky carbide hardfacing the entire length of blade for maximum longevity

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



ROCK SAW

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



Available with dome carbides for cobble

Conical carbide cutters for aggressive forward & side cutting

Welds are reinforced with hardfacing for longer bit life

Also available in larger sizes, 7-12"

Vermeer® Compatible Blades							
Bolt Pattern	Cut Size						
	3.5"		4"		5"		6"
	Conical	Dome	Conical	Dome	Conical	Dome	Conical
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

Ditch Witch® Compatible Blades								
Bolt Pattern	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				

BEST FOR:



GOOD FOR:





BEAR CLAW

Rugged Design Chews Through Caliche & Sandstone.

Vermeer® Compatible Blades	
Bolt Pattern	Cut Size
6 bolt, 1/2"	1600-13-40-BBBC

Ditch Witch® Compatible Blades		
Bolt Pattern	Cut Size	
	3.5"	4"
5 bolt, 12mm	1600-14-35-BBBC	1600-14-40-BBBC
6 bolt, 16mm		1600-15-40-BBBC

Large conical carbide cutters eat through caliche & sandstone

BEST FOR:



GOOD FOR:



HOUSINGS

DIRECT
PULLBACK

BITS &
BLADES

DIRECT & QUICK-
DISCONNECTS

REAMERS

SWIVELS

PULLERS

ADAPTERS &
SUB-SAVERS

PARTS &
ACCESSORIES



Hardfacing along all wear edges create a long-lasting blade

All Melfred Borzall directional blades are QuickSwivel Compatible. See page 12

Bullnose design minimizes drag while rotating



EXCALIBUR

A Legend In Its Own Time.

Vermeer® Compatible Blades			
Bolt Pattern	Cut Size		
	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® Compatible Blades			
Bolt Pattern	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:



GOOD FOR:

DIRT/SANDY LOAM



HARDPAN



**MELFRED
BORZALL**

www.melfredborzall.com/rock-saw



EAGLE CLAW SD

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



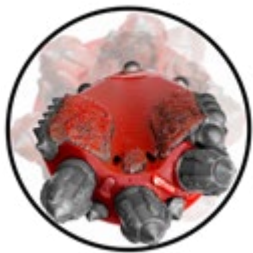
Eagle Claw SD			Replacement Cutters				EagleEye Attachment
Cut Size	Thread	Part #	Aggressive Conical	Dome	Large Conical	Concial w/ Carbide Hardfacing	Part #
3.5"	2" IF pin	EC-35D2-21M	EC35-C-01	EC35-C-02	EC35-C-03	EC35-C-03-X	EC35-FB42A1-305
4.25"	2" IF pin	EC-42D2-21M	EC42-C-01	EC42-C-02	EC42-C-03	EC42-C-03-X	EC42-FB50A1-305
4.25"	2-3/8" Reg pin	EC-42D2-23M	EC42-C-01	EC42-C-02	EC42-C-03	EC42-C-03-X	EC42-FB50A1-305
5"	2-3/8" Reg pin	EC-50D2-23M	EC50-C-01	EC50-C-02	EC50-C-03	EC50-C-03-X	EC50-FB60-310
5.5"	2-7/8" Reg pin	EC-55D2-26M	EC55-C-01	EC55-C-02	EC55-C-03	EC55-C-03-X	
6.5"	2-7/8" Reg pin	EC-65D1-26M	EC65-C-01	EC65-C-02	EC65-C-03	EC65-C-03-X	
6.5"	3-1/2" Reg pin	EC-65D1-28M	EC65-C-01	EC65-C-02	EC65-C-03	EC65-C-03-X	

Fluid Port Port Plug Part# PLUG-04MP





Directly pullback product with the Eagle Eye device, part of the FastBack Pullback System. See Page 12



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



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

Large Conical Aggressive Hardfaced



Dome



Conical Aggressive



Large Conical Aggressive



Tooth removal punch tool also available
www.melfredborzall.com/bits-blades/bit-parts

BEST FOR:

SHALE



SANDSTONE



GOOD FOR:

HARDPAN



HOUSINGS

DIRECT
PULLBACK

BITS &
BLADES

DIRECT & QUICK-
DISCONNECTS

REAMERS

SWIVELS

PULLERS

ADAPTERS &
SUB-SAVERS

PARTS &
ACCESSORIES

**MELFRED
BORZALL**

www.melfredborzall.com/eagle-claw

21



IRON FIST BIT



Packs A Punch In Cobble And Loose Rock Conditions. Also Designed To Be Easily Rebuilt At A Fraction Of The Cost.

BEST FOR:

COBBLES



GRAVEL



GOOD FOR:

CALICHE



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

Fluid Port Port Plug Part# PLUG-04MP



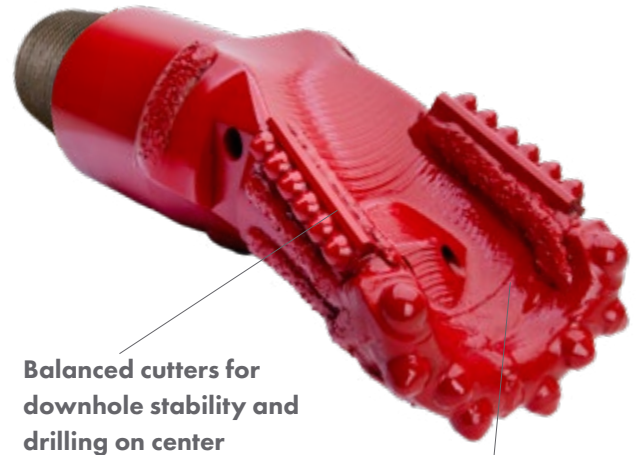
Main carbide cutters positioned to allow for "rocking" the bit through cobbles



Compact cutters are less likely to hang up on cobbles

Chunky carbide hardfacing, on all wear areas

Minimize chance of clogging with built-in check valve



Balanced cutters for downhole stability and drilling on center

Steep, concave steering for quick response



Extra fluid port for more flow during pullback



DIRECT-CONNECTS & QUICK-DISCONNECTS





VERMEER® COMPATIBLE QUICK-DISCONNECTS

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

DELUXE QUICK-DISCONNECTS

Spiralled carbide studs minimize wear on quick-disconnect and collar

Internal check valve to reduce drill head clogging



VALUE QUICK-DISCONNECTS

Precision gun-drilled and CNC-machined

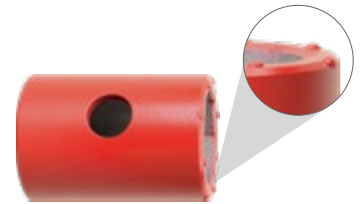
Completely heat-treated alloy for maximum durability



Chunky Carbide



Carbide Cutters



Carbide Stud

Quick-Disconnect Compatibility For Vermeer® Drill Rigs

Compatible Drill Rig Models	Drill Rod Thread	Quick-Disconnect Thread	Deluxe Quick-Disconnect	Value Quick-Disconnect	Chunky Carbide Collar	Carbide Cutter Collar	Carbide Stud Collar
D7x11, D7x11A S2, D8x12, D9x13, D9x13 S2, D9x13 S3, D10x15, D10x15 S3	1.66 FS200	1-5/8" Low Profile		VLRV-31F-L42F-XL	VLR-20-HC-HFC	VLR-20-HC-HFCS	VLR-20-HC-C
		QuickFire® 300	VLR-31F-L300F	VLRV-31F-L300F	VLR-L300-OC-HFC		
D16x20, D16x20 S2	1.90 FS250	2-1/8" Low Profile	VLR-32F-L43F	VLRV-32F-L43F	VLR-25-HC-HFC	VLR-25-HC-HFCS	VLR-25-HC-C
		QuickFire® 400	VLR-32F-L400F	VLRV-32F-L400F	VLR-L400-OC-HFC	VLR-L400-OC-HFCS	
D20x22 S2, D20x22 S3, D23x30 S3, D24x26, D24x33	2.06" FS400	2-1/8" Low Profile	VLR-30F-L43F-XXL	VLRV-30F-L43F-XXL	VLR-25-HC-HFC	VLR-25-HC-HFCS	VLR-25-HC-C
		QuickFire® 400	VLR-30F-L400F	VLRV-30F-L400F	VLR-L400-OC-HFC	VLR-L400-OC-HFCS	
D23X30 S2, D23X30 S3, D24x40, D24X40A, D24X40 S2, D24X40 S3, D40X40	2-3/8" FS600	2-1/8" Low Profile	VLR-40F-L43F	VLRV-40F-L43F	VLR-25-HC-HFC	VLR-25-HC-HFCS	VLR-25-HC-C
		QuickFire® 400	VLR-40F-L400F	VLRV-40F-L400F	VLR-L400-OC-HFC	VLR-L400-OC-HFCS	
D33X44, D36X50, D36X50 S3, D36X50 DR S2, D40X55 S3	2-3/8" FS650	2-1/8" Low Profile	VLR-46F-L43F	VLRV-46F-L43F	VLR-25-HC-HFC	VLR-25-HC-HFCS	VLR-25-HC-C
		QuickFire® 400		VLRV-46F-L400F	VLR-L400-OC-HFC	VLR-L400-OC-HFCS	
		QuickFire® 460		VLRV-46F-L460F	VLR-L460-OC-HFC	VLR-L460-OC-HFCS	
D33X44, D36X50, D36X50 S3	2-5/8" FS700	2-1/8" Low Profile		VLRV-41F-L43F	VLR-25-HC-HFC	VLR-25-HC-HFCS	VLR-25-HC-C
		QuickFire® 400		VLRV-41F-L400F	VLR-L400-OC-HFC	VLR-L400-OC-HFCS	
		QuickFire® 460		VLRV-41F-L460F	VLR-L460-OC-HFC	VLR-L460-OC-HFCS	



DITCH WITCH® COMPATIBLE QUICK-DISCONNECTS

Completely heat-treated
for maximum durability



Precision gun-drilled and CNC-machined

EZ-Connect Compatibility For Ditch Witch® Drill Rigs

Compatible Drill Rig Models	Drill Rod Thread	EZ-Connect Thread	EZ-Connect	Chunky Carbide Collar	Carbide Cutter Collar
JT5	1.10-5	1.31-6	DLR2-04M-L52M	DL52-15-OC-HFC	
JT520	1.21-6	1.31-6	DLR2-05M-L52M	DL52-15-OC-HFC	
JT920, JT9215, JT920L	1.41-6	1.63-6	DLR2-01AM-L55M	DL55-18-OC-HFC	
JT9, JT922, JT10	1.30-5	1.63-6	DLR2-09M-L55M DLR2-31M-L55M	DL55-18-OC-HFC DL55-18-OC-HFC	
JT1220 M1	1.47-4	1.88-6	DLR2-34M-L58M	DL58-22-OC-HFC	
JT1720, JT1720 M1	1.69-6	2.00-6	DLR2-86M-L54M	DL54-25-OC-HFC	
JT20, JT2020, JT2720	1.94-4	2.00-6	DLR2-20M-L54M	DL54-25-OC-HFC	DL54-25-OC-HFCS
JT20, JT2020	2-3/8" FS600	2.00-6	DLR2-40M-L54M	DL54-25-OC-HFC	DL54-25-OC-HFCS
JT25, JT2720 M1, JT3020, JT32	2.11-4	2.25-6E Z2 2.25-6E Z3	DLR2-36M-L56M DLR3-36M-L59M	DL56-27-OC-HFC DL59-27-OC-HFC	DL59-27-OC-HFCS
JT25, JT28, JT30, JT3020, JT32	2-3/8" FS600	2.25-6E Z3	DLR3-40M-L59M	DL59-27-OC-HFC	DL59-27-OC-HFCS
JT4020 M1	2.59-4	2.63-6	DLR2-43M-L57M		



VERMEER & DITCH WITCH COMPATIBLE DIRECT-CONNECTS

Connect Directly To Drill Rod. Long Enough To Fit In the Breakout Jaws.



Direct Connect Compatibility For Vermeer® Drill Rigs

Compatible Rig Models	Drill Rod Thread	Direct Connect Thread	Direct Connect
D20x22 S2, D20x22 S3, D23x30 S3, D24x26, D24x33	2.06" FS400 Box	2-3/8" Reg Pin	VLT-30F-23M
D23X30 S2, D23X30 S3, D24x40, D24X40A, D24X40 S2, D24X40 S3, D40X40	2-3/8" FS600 Box	2-3/8" Reg Pin	VLT-40F-23M

Direct Connect Compatibility For Ditch Witch Drill Rigs

Compatible Drill Rig Models	Drill Rod Thread	Direct Connect Thread	Direct Connect
JT920, JT921, JT920L, JT922, JT9, JT10	1.30-5 Pin	2" IF Pin	DLT-09M-21M
JT20, JT2020, JT2720	1.94-4 Pin	2-3/8" Reg Pin	DLT-20M-23M
JT2720 M1, JT3020, JT30, JT25	2.11-4 Pin	2-3/8" Reg Pin	DLT-36M-23M
JT20, JT2020	2-3/8" FS600 Pin	2-3/8" Reg Pin	DLT-40M-23M



STABILIZERS & BACKREAMERS





JUGGERNAUT

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

BEST FOR:

DIRT/SANDY LOAM



GRAVEL



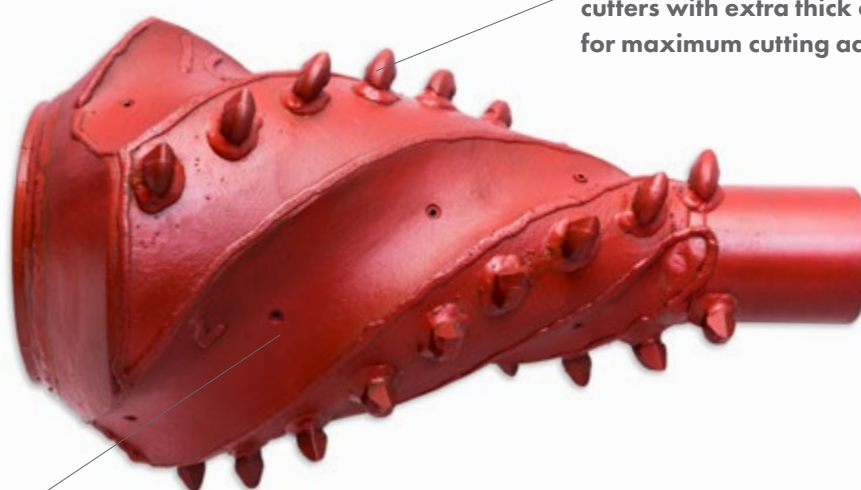
GOOD FOR:

SHALE



Cut Diameter	Pack Diameter	JUGGERNAUT - MACHINED BODY: Shaft Diameter & Thread / Rear Connection	
		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	Use with a 4-ton or 5-ton Pocket Swivel
4.5"	4"	85-04-21F-44F (not available with Sharktooth®)	
6"	4.5"	85-06-21F-44F	
8"	6"	85-08-21F-45F	85-08-23F-45F

Cut Diameter	Pack Diameter	JUGGERNAUT - CASTED BODY: Shaft Diameter & Thread / Rear Connection				
		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	



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 in these cutter tooth options:



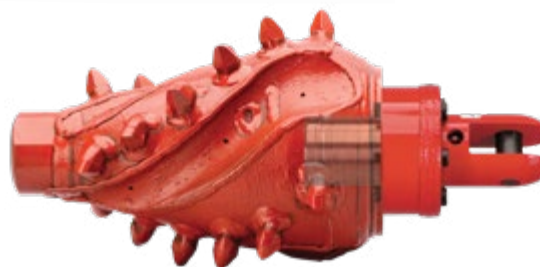
(D) Dome carbide



(S) Sharktooth® carbide



(C) Conical carbide



Available with built-in swivel or pulling eye. See page 37



SHREDDER

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

Cut Diameter	SHREDDER 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"	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

BEST FOR:



GOOD FOR:



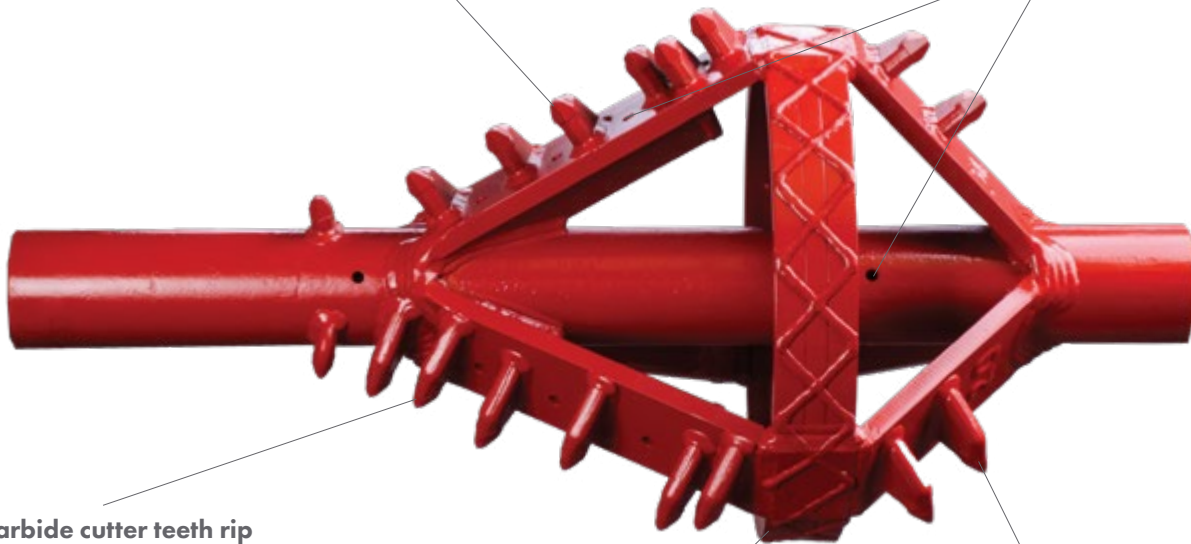
Gradual taper of blades lessens torque requirement

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



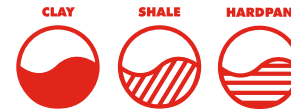


TORNADO

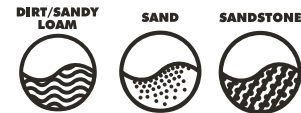
One Of HDD's Favorite Reamers With Aggressive Pumping Action For Everthing From Sticky Clay To Hard Shale.

TORNADO Shaft Diameter & Thread					
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

BEST FOR:

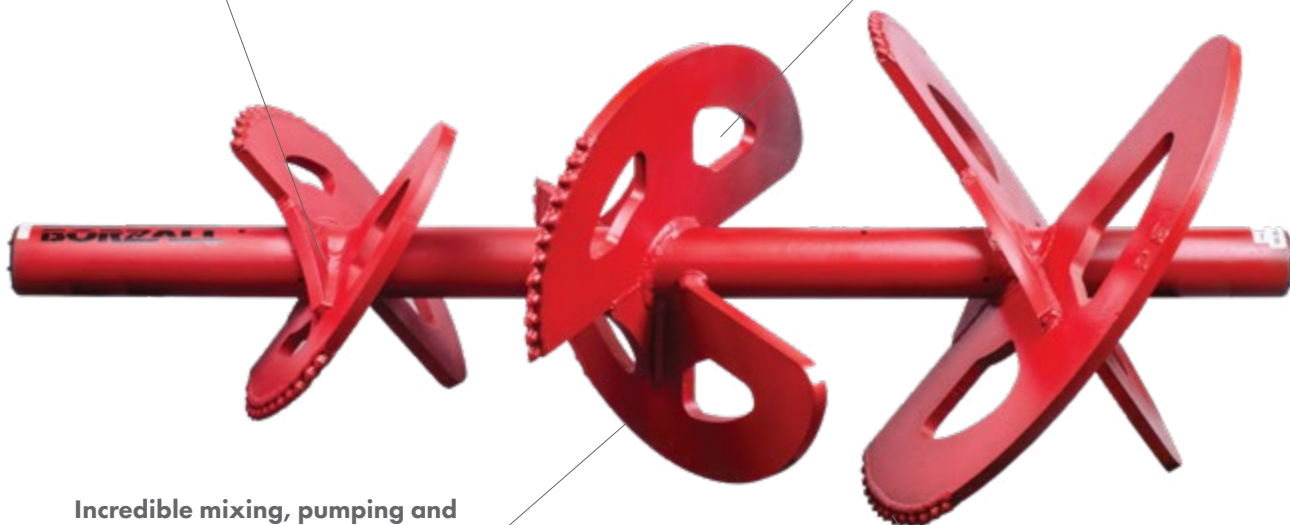


GOOD FOR:



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



THE OGRE

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

BEST FOR:



GOOD FOR:



Hardfacing on all
wear areas

Slow taper & deep flutes combine to
carry away cuttings while creating
maximum pumping and mixing action

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

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

Back-up blades make
pushback easier

Each cutter only takes
 $\frac{1}{2}$ " more soil than the
previous stage resulting
in a smooth, efficient
cutting action

Customization available upon request



Available with a through-shaft design for pulling eye attachments or optional built-in flange swivel. See page 37 for swivel options.

OGRE Shaft Diameter & Thread							
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"	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
32"	30"			95-32-27F-27F	95-32-27F-F32X	95-32-29F-29F	95-32-47F-47F
36"	34"			95-36-27F-27F	95-36-27F-F32X	95-36-29F-29F	95-36-47F-47F
40"	38"			95-40-27F-27F	95-40-27F-F32X	95-40-29F-29F	95-40-47F-47F

Other sizes available

Available with different carbide cutter options.
Comes standard with Sharktooth® carbide option.



(D) Dome
carbide



(S) Sharktooth®
carbide



(C) Conical
carbide

TORNADO PUP

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

BEST FOR:



GOOD FOR:



TORNADO PUP Shaft Diameter & Thread					
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 upon request. All custom configurations are built to order.



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

When you need to add even more mixing and pumping action while using your barrel stabilizer or other reamer, you can opt for this mix-and-match style reamer and integrates Tornado-like pumping to your existing pullback setup.





BARREL STABILIZER

Key Component To Keep Your Bore Centralized And Steady
As A Rock On A Large Diameter Project.

BARREL STABILIZER Shaft Diameter & Thread					
Pack Diameter	Std Pack Length	3.25"	4.25"	4.75"	6.5"
		2-3/8" Reg Box-by-box	2-7/8" IF Box-by-box	3-1/2" IF Box-by-box	4-1/2" IF Box-by-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
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 upon request. All custom configurations are built to order.

Front and rear water ports clear cutters and wash away cuttings

Back-facing and forward-facing blades ensure barrel proceeds smoothly even if with partial hole collapse



Deluxe Version Shown

Hardfacing on high wear areas extends the barrel life

Conical carbide cutters minimize wear on the blade edges and face



BARREL STABILIZER Styles			
Barrel Stabilizer Feature	Plain	Value	Deluxe
Hardfacing on main wear areas	Yes	Yes	Yes
Conical Carbide Cutters	No	Yes	No (Upgraded Cutters)
Internal Support Baffles	Yes	Yes	Yes
Internal Chambers to prevent filling with water	Yes	Yes	Yes
Cross-hatch Added Hardfacing	No	No	Yes
Back & Front Cutter Blades	No	No	Yes
Front & Rear Fluid Ports	No	Yes	Yes



TURBO

Supercharge Your Reaming In Sand.

BEST FOR:



GOOD FOR:

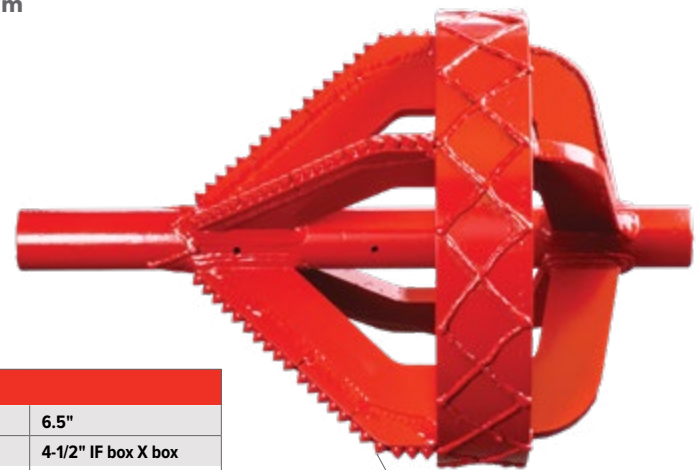


TURBO Shaft Diameter & Thread						
Cut Diameter	Pack Diameter	2.75"	3.25"	4.25"	4.75"	6.5"
		2" IF box X box	2-3/8" Reg box X box	2-7/8" IF box X box	3-1/2" IF box X box	4-1/2" IF box X box
6"	4-1/2"	83-06-21F-21F	83-06-23F-23F			
8"	6-5/8"	83-08-21F-21F	83-08-23F-23F	83-08-27F-27F		
10"	8-5/8"	83-10-21F-21F	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

Long "Turbo" blades scoop up sand to keep it from piling up on the hole bottom and to mix it with drill fluid

Back-up blades make for easier push backs

Curved packer blades provide maximum mixing and pumping



Tapered, bi-directional blades with carbide cutting teeth create an aggressive cutting action with a "push" or "pull" option



HEDGEHOG

Push Or Pull...This Reamer Will Get The Job Done.

HEDGEHOG Shaft Diameter & Thread					
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

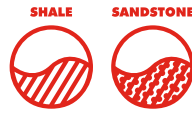
10" and larger are designed with a ring for strength and stability



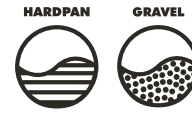
SABERTOOTH

Crunch Through Harder Ground
And Lighten Your Load.

BEST FOR:



GOOD FOR:



SABERTOOTH Shaft Diameter & Thread

Cut Diameter	Pack Diameter	2.75" 2" IF box X box	3.25" 2-3/8" Reg box X box	4.25" 2-7/8" IF box X box	4.75" 3-1/2" IF box X box	6.5" 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



HOUSINGS

DIRECT
PULLBACK

BITS &
BLADES

DIRECT & QUICK-
DISCONNECTS

REAMERS

SWIVELS

PULLERS

ADAPTERS &
SUB-SAVERS

PARTS &
ACCESSORIES

PULLBACK SWIVELS





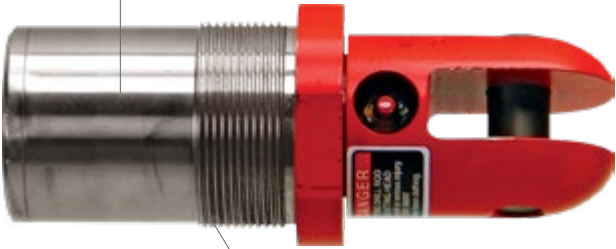
FLUTED REAMER SWIVELS

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



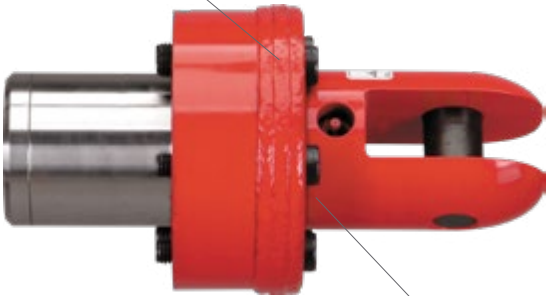
Push and pull loads are absorbed by premium quality angular contact bearings



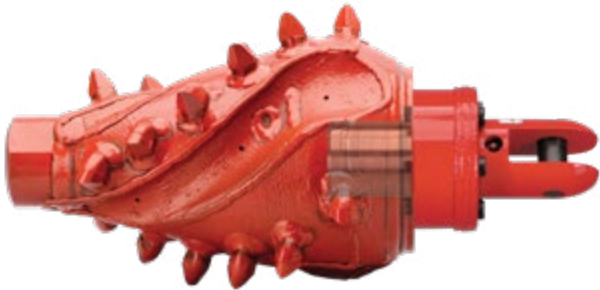
Flange Swivels for Fluted Juggernaut

Pullback Capacity	Juggernaut Size	
	10" - 12"	14" - 16"
10 ton	00503-610	00503-610
15 ton	00503-615	00503-615
20 ton		00503-620
30 ton		00503-630

Hardfacing around face of flange minimizes wear at the head of the bolts



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



HOUSINGS

DIRECT
PULLBACK

BITS &
BLADES

DIRECT & QUICK-
DISCONNECTS

REAMERS

SWIVELS

PULLERS

ADAPTERS &
SUB-SAVERS

PARTS &
ACCESSORIES



DELUXE DUB PULLING SWIVELS

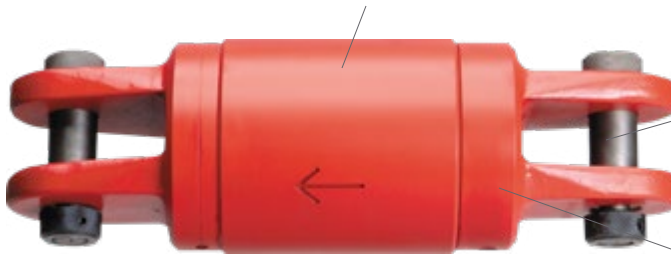
Quad-Stage Seal System And 5-To-1 Safety Factor Make The Deluxe Dub One Long-Lasting Swivel.

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 online at www.melfredborzall.com/swivels



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



Clevis x Pin option available



Greasable tapered roller & 4-stage sealing system



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

Push and pull loads absorbed by premium angular contact bearings



Clevis x Clevis



Clevis x Pin

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



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



Key-way & bolt feature exclusive to Borzall Blades, ensures the swivel stays with the centerline rotation of the drill head



Made from the same quality components as the 5-ton Valu-DUB 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



Designed with service in mind. Seals are field replaceable

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

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

A black and white photograph of a construction site. In the foreground, a large, corrugated metal pipe lies on the ground. To the right, a large, circular, ribbed metal component, possibly a part of a pump or a large valve, is visible. In the background, two workers wearing hard hats and safety vests are working with another large pipe. The scene is set in a trench or excavation area with a chain-link fence in the distance.

CONNECTORS & PULLERS



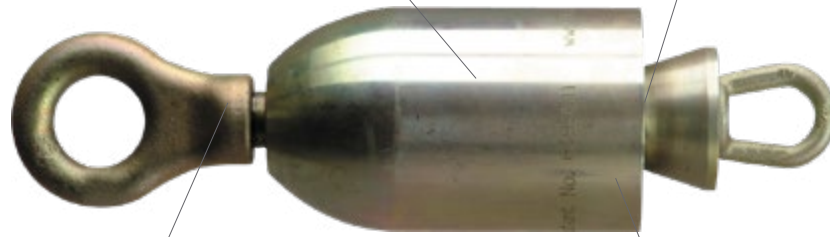


SUPER DELUXE DUCT PULLERS

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

A rugged puller that is quick and easy to install and remove

Sealing on the inside of the product pipe makes this puller watertight



High-tensile drop-forged eyebolt

Can be disassembled by hand for easy maintenance in the field



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

Precision machined, hardened alloy pulling head will handle the abuses of HDD

Expanding jaws grip the inside of the duct as the front eye is rotated, spreading the load evenly around the inside diameter of the duct



Outer sleeve prevents stretching of duct

Oversized rear eye



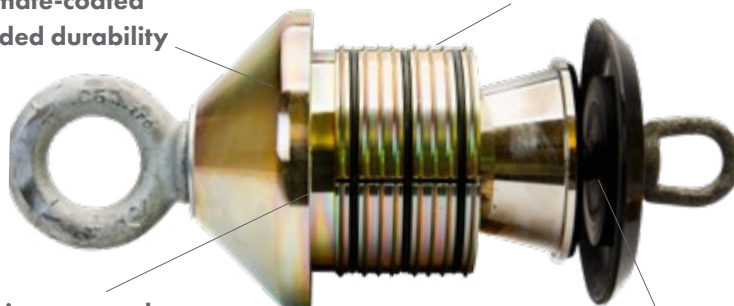
PREMIUM DUCT PULLER

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



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



Made with a double weave of galvanized wire for maximum durability

Heavy-Duty

At least a 2X safety factor

Return weave design to avoid crimped ends



Standard-Duty

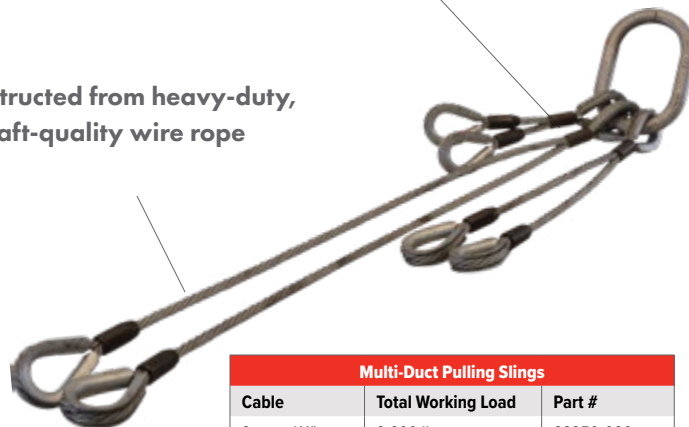


SHACKLES, LINKS & SLINGS

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



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

Multi-Duct Pulling Slings		
Cable	Total Working Load	Part #
2-way, 1/4"	9,600 lbs	23250-020
3-way, 1/4"	9,600 lbs	23250-030
4-way, 1/4"	9,600 lbs	23250-040
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



BREAKAWAY CONNECTORS

Designed To Protect Polyethylene Ducting From Overload.

Pocket Breakaway Swivel

Break strengths from 250 lb to 2,500 lb (1 pin)



Breakaway Swivel

Break strengths from 250 lb to 12,500 lb (5 pin)



Standard-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 Swivels and Pins		
Description	Part #	
Pocket Breakaway Swivel	00570-202	
Breakaway Swivel	00570-208	
Breakaway Connector	00560-010	
Pin Kit (5 per kit)	Part #	Color Code
250 lb. pin kit	00565-025	Dark Brown
700 lb. pin kit	00565-070	Green
750 lb. pin kit	00565-075	Yellow
1,000 lb. pin kit	00565-100	Orange
1,200 lb. pin kit	00565-120	Purple
1,300 lb. pin kit	00565-130	Black
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



Need a custom puller designed for a specific job requirement?

See page 52



ADAPTERS & SUB-SAVERS



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	QuickFire® 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	QuickFire® QF400	21M-L400MV4	23M-L400MV4		
	2-1/8" Low Profile QD	21M-L43M	23M-L43M		
	FS250 Drill Rod	21M-32F	23M-32F		
D20X22 S2/S3, D24X26	QuickFire® QF400	21M-L400MV4	23M-L400MV4		
	2-1/8" Low Profile QD	21M-L43M	23M-L43M		
	FS400 Drill Rod	21M-30F	23M-30F		
D23X30, D24X40, D24X40 S2/S3	QuickFire® QF400	21M-L400MV4	23M-L400MV4		
	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	QuickFire® QF460	21M-L460MV4	23M-L460MV4	27M-L460MV4	
	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	2.46-4 Drill Rod			27M-60M	
	FS900 Drill Rod			27M-50M	
JT7020, JT8020, JT100	3.27-4 Drill Rod			27M-72M	29M-72M

DRIVE CHUCKS & SUB-SAVERS COMPATIBLE WITH VERMEER & DITCH WITCH

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.

**Fred Tip: Don't forget
the Auntie C's
thread lube!
See pg. 49**



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, D91x13 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
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	
JT920, JT921 - fine thread	1.41-6	DF-01AF	
JT922 - fine thread	1.41-6	DF-922-01AF	
JT922, JT9, JT10	1.30-5	DF-09F	
JT9, JT922, JT10	1.66 FS200	DF-09-31F	
JT1220	1.47-4	DF-34F	
JT20, JT2020	1.94-4	DF-20F	
	2-3/8" FS600	DF-20-40F	
JT30, JT3020	2.11-4	DF-25F	DS-25M-36F

HOUSINGS

DIRECT
PULLBACK

BITS &
BLADES

DIRECT & QUICK-
DISCONNECTS

REAMERS

SWIVELS

PULLERS

ADAPTERS &
SUB-SAVERS

PARTS &
ACCESSORIES



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

For rigs with auto-lubers, we recommend using the Arctic Grade Auntie C's Thread Lube

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 #	Wiper 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

Check out our wiper compatibility chart online for more detailed product specifications!
www.melfredborzall.com/drill-rod-wipers



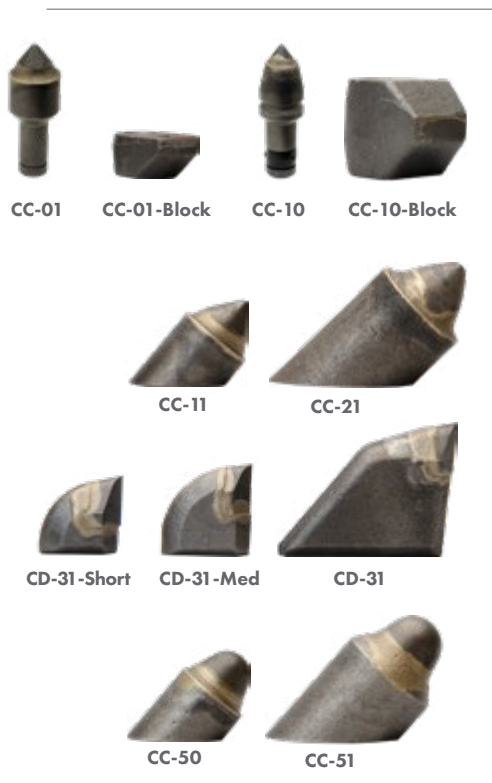
Dual-split 9" Wiper

Solid 9" Wiper





CARBIDE CUTTERS & BLOCKS



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

Carbide Cutter Teeth				
Description	Width	Height	Thickness	Part #
Conical cutter – Small	0.44"	2.15"		CC-01
Cutter block – Small	1.63"	0.75"		CC-01-BLOCK
Conical cutter – Large	0.75"	3.37"		CC-10
Cutter block – Large	2.25"	1.75"		CC-10-BLOCK
Angled conical cutter– Small	0.76"	0.84"		CC-11
Angled conical cutter – Large	1.06"	1.26"		CC-21
Shark Tooth® cutter – Small	1.25"	1.25"	0.89"	CD-31-SHORT
Shark Tooth® cutter – Medium	1.43"	1.50"	0.75"	CD-31-MED
Shark Tooth® cutter – Large	2.66"	2.16"	0.89"	CD-31
Angled dome cutter – Small	1.06"	1.18"		CC-50
Angled dome cutter– Large	0.77"	0.83"		CC-51



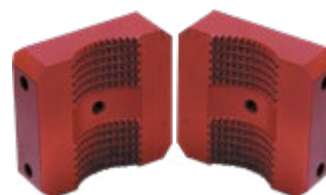
BREAKOUT JAWS

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 GEAR

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

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

Conforms with ASTM F1117 and tested to 20,000 volts



Boots are a 12" over-the-shoe style

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

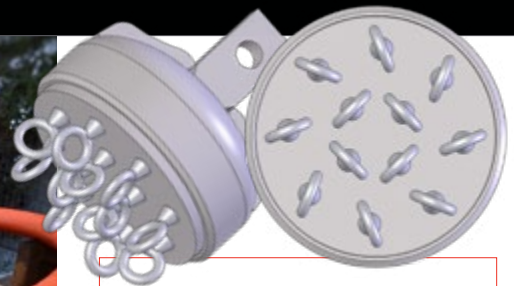




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Our state-of-the-art facility & engineers are always pushing for more productive ways to build better HDD tooling, and are available to design and manufacture your custom solution that can improve efficiency.

Unparalleled Experience

Being a founding member of the HDD industry has given us the opportunity to grow up with it. Laser focus on HDD tooling from the beginning has provided us with unique manufacturing experience over 75 years and continues to fuel innovation.

77 YEARS

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Continuing Innovation For A Better Tomorrow

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1000

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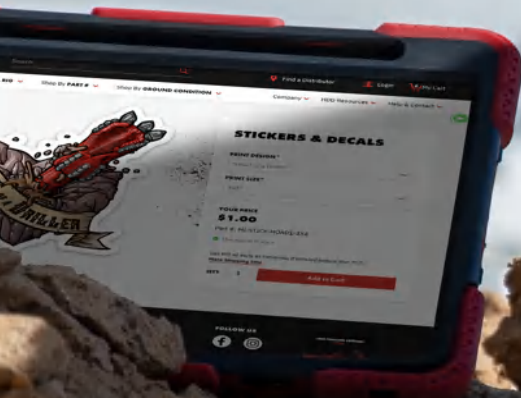
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