

**Keep Your Steering.
Keep on Drilling.**

KONDEX®

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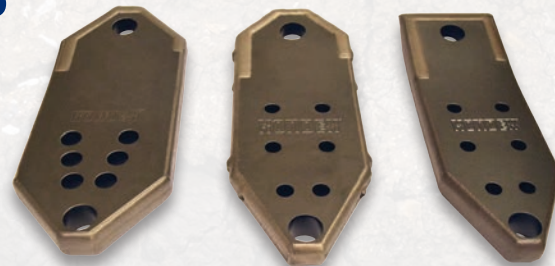
2021
HDD CATALOG

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Drill Defender™ Dirt Bits

Gain better and prolonged steering with Kondex Drill Defender dirt bits. These patent-pending bits are tougher than they look. They outperform alternatives, thanks to the greater concentration of tungsten carbides in our exclusive laser cladding wear protection.



SAND, CLAY, & SOFT SOIL VERMEER COMPATIBLE

Part No.	Models	Bolt Pattern	Bolt Size	Width	Thickness
C00-038	D16x20 - D40x55 S3	6-Hole	1/2"	4"	1"
C00-039	D16x20 - D40x55 S3	6-Hole	1/2"	4.5"	1"



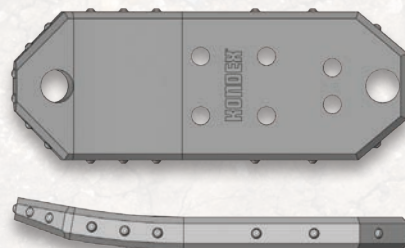
MEDIUM, HARD, & COBBLE SOIL VERMEER COMPATIBLE

Part No.	Models	Bolt Pattern	Bolt Size	Width	Thickness
C00-022	D16x20 - D40x55 S3	6-Hole	1/2"	4"	1"
C00-026	D16x20 - D40x55 S3	6-Hole	1/2"	4.5"	1"



HARD & COBBLE SOIL VERMEER COMPATIBLE

Part No.	Models	Bolt Pattern	Bolt Size	Width	Thickness
C00-255	D16x20 - D40x55 S3	6-Hole	1/2"	4"	1"
C00-254	D16x20 - D40x55 S3	6-Hole	1/2"	4.5"	1"
C00-256	D16x20 - D40x55 S3	6-Hole	1/2"	5"	1"
C00-257	D16x20 - D40x55 S3	6-Hole	1/2"	6"	1"



Tougher than Hard Facing!

Kondex Drill Defender bits do not include welded hard facing. This old technology may appear more aggressive than our premium laser cladding additive, but looks are deceiving. Hard face welded carbides are few in quantity, not evenly distributed, and easily fall off. Our Drill Defender bits feature a more densely packed and evenly distributed tungsten carbide coating that's metallurgically bonded to the base material. This better maintains the bit shape to deliver improved steering and 2-4 times longer life! Only cutting edge technology drives cutting edge performance.

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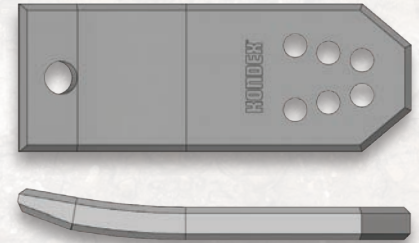
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Meet Digger, our Drill Defender mascot and jobsite hero. He's protecting your bits to keep costs down and drills running.

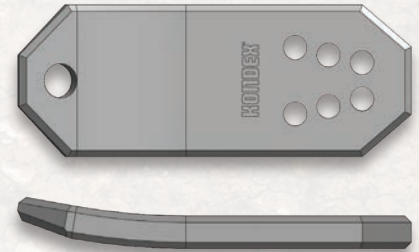
SAND, CLAY, & SOFT SOIL DITCH WITCH COMPATIBLE

Part No.	Models	Bolt Pattern	Bolt Size	Width	Thickness
C00-185	JT20 - JT40	6-Hole	16mm	4.5"	1"
C00-085	JT20 - JT40	6-Hole	16mm	5"	1"
C00-086	JT20 - JT40	6-Hole	16mm	6"	1"



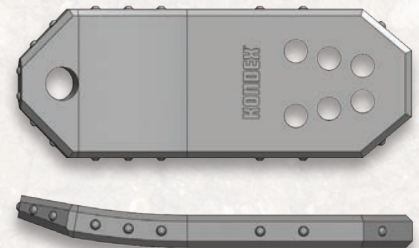
MEDIUM, HARD, & COBBLE SOIL DITCH WITCH COMPATIBLE

Part No.	Models	Bolt Pattern	Bolt Size	Width	Thickness
C00-029	JT20 - JT40	6-Hole	16mm	4"	1"
C00-187	JT20 - JT40	6-Hole	16mm	4.5"	1"
C00-087	JT20 - JT40	6-Hole	16mm	5"	1"
C00-088	JT20 - JT40	6-Hole	16mm	6"	1"



HARD & COBBLE SOIL DITCH WITCH COMPATIBLE

Part No.	Models	Bolt Pattern	Bolt Size	Width	Thickness
C00-252	JT20 - JT40	6-Hole	16mm	4.5"	1"
C00-258	JT20 - JT40	6-Hole	16mm	5"	1"
C00-259	JT20 - JT40	6-Hole	16mm	6"	1"



Patent Pending



Left: Hard face welding under a microscope reveals minimal carbides that easily fall out, several voids, and a detrimental heat affected zone that weakens the bit

Right: Laser cladding under a microscope shows consistent carbide density and distribution along with no heat affected zone

Drill Defender™ Cobble Bits

Say goodbye to expensive cobble bits that need to be rebuilt after a few runs. Drill Defender cobble bits feature an improved design and our exclusive laser cladding wear protection to outperform and outlast alternative bits. What's better, they're priced to help lower your job costs.

LASER CLAD + CARBIDE DEFENSE

Part No.	Models	Rig Size	Bore Size	Spline	Fluid Ports
C00-268	Vermeer*: D16x20 - D23x30 Ditch Witch: JT20 - JT24	16K - 20K	4"	2.125"	2
C00-267	Vermeer*: D24x40 - D35x50	24K - 40K	5"	2.5"	2
C00-263	Ditch Witch: JT25 - JT4020	24K - 40K	5"	2.5"	3

*May require an adapter to run with some Vermeer equipment



Patent Pending

Spline connection

MORE TORQUE, EASY CONNECTION

Splined connection offers more secure connection, as well as greater torque and drive

LONGER LIFE & MORE FEET

Our laser clad tungsten carbide protection and wider top edge extends product life and usage

FASTER BORING

Gain 56% more scooped surface area to boost capacity for clearing dirt and cobble. Plus, our curved ejection edge improves flow rate



Even without carbides, Kondex Drill Defender cobble bits offer better protection against early wear and greater performance over the life of the part. No other cobble bit features our exclusive laser cladding protection – your ultimate wear prevention defense!

LASER CLAD DEFENSE

Part No.	Models	Rig Size	Bore Size	Spline	Fluid Ports
C00-191	Vermeer*: D16x20 - D23x30 Ditch Witch: JT20 - JT24	16K - 20K	4"	2.125"	2
C00-208	Vermeer*: D24x40 - D35x50	24K - 40K	5"	2.5"	2
C00-229	Ditch Witch: JT25 - JT4020	24K - 40K	5"	2.5"	3

*May require an adapter to run with some Vermeer equipment

GREATER FLUID DISTRIBUTION

Get a cutting boost with ports that better direct fluid through the bore and improve drilling efficiency

EASY PULLBACK

Our 1" bolt hole and even bit thickness support a standard clevis for easy pullback without extra tools

ADDED STRENGTH

Our exclusive heat treatment increases the strength of the entire bit for greater durability and impact resistance



Spline connection

Patent Pending

Drill Defender™ Collars



For the first time in HDD, protection is now available to all high-wear areas of drill collars - specifically the top perimeter of the pullback face. Our patent-pending laser cladding is applied robotically, offering consistently accurate placement. This precision approach ensures cladding is only added to the top edge, avoiding the bevel and interior to maintain coupling functionality. This added protection prevents premature erosion during pull back.

Additional cladding surrounds the outer perimeters of the bolt hole and collar itself. With a greater carbide density and distribution than hard face welding, Kondex laser cladding is the toughest wear protection available for collars.



Patent Pending

Part No.	Description	Models	Length	ID	OD
C00-134	Octagon Quickfire 400 Collar	D16x20 - D40x40	6.13"	2.625"	3.5"
C00-251	Hex Low Profile Quick Connect Collar	D16x20 - D40x40	6.13"	2.5"	3.5"

PROTECTS ALL HIGH-WEAR AREAS: Only Drill Defender offers protection to the pullback face of the collar

WON'T INTERFERE WITH STARTER ROD USE: Our wear preventive is robotically applied, for pinpoint accuracy and precision

INCREASED HARDNESS & STRENGTH IN PROTECTED AREA: Get the added strength and impact resistance critical to drilling

OUTLASTS HARD FACING: With a higher density of carbides, laser cladding is less likely to chip and won't wear as easily as alternatives

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Drill Defender™ Starter Rods

Get protection for your starter rods where they're most susceptible to breakage, without affecting collar functionality. Kondex patent-pending starter rods feature a precision applied laser cladding additive that vastly reduces wear to the weakest part of your drill string. As part of the Kondex HDD lineup, you'll gain better control over your boring parts. Only Drill Defender starter rods offer:

- Reinforcement at the weakest point of starter rods
- Consistent coating thickness that won't affect collar usage
- Cladding contains high density of carbides
- Superior hardness values in the protected area
- Reinforcement that won't dimensionally distort the base material

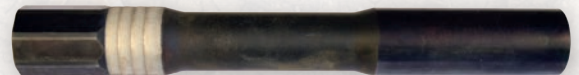
Patent Pending

VERMEER COMPATIBLE LOW-PROFILE STARTER RODS



Part No.	Description	Models	Thread Type	Drill Rod Thread
F00-023	Drill Defender Low Profile Hex Starter Rod 2.125" (5.4cm) Hex Box x 1.90"	D16x20, D16x20A, D16x20 Series II, D18x22, D20x22, D20x22 S3	Firestick	#250
F00-022	Drill Defender Low Profile Hex Starter Rod 2.125" (5.4cm) Hex Box x 2.06"	D18x22, D20x22, D20x22 Series II, D20x22 S3, D23x30 S3	Firestick	#400
F00-021	Drill Defender Low Profile Hex Starter Rod 2.125" (5.4cm) Hex Box x 2.375"	D23x30, D24x40, D24x40A, D24x40 Series II, D24x40 S3, D40x40	Firestick	#600

VERMEER & DITCH WITCH COMPATIBLE STARTER RODS



Part No.	Description	Models	Drill Rod Thread
C00-121	Drill Defender FS400 F x HE350 F Starter Rod	D18x20, D22x20, D24x26	#400
C00-122	Drill Defender FS600 F x HE350 F Starter Rod	JT24, JT25, D24x40	#600



Left: High-wear laser cladding is metallurgically bonded where the starter rod reduces, as shown on this cut sample. Reinforcing this area greatly reduces the risk of breaking

Right: Laser cladding is a consistent thickness to ensure collar usage is not impacted

About Kondex

Kondex Corporation specializes in manufacturing wear-resistant components. Founded in 1974, the Company first manufactured crop cutting components for the agricultural industry. Additional high-wear agricultural products were added through the years to place them as a leading manufacturer and supplier to larger OEMs. Kondex expanded into the commercial lawn and turf market in 2002, and is now a well-respected supplier for aerator tines, bedknives, and other commercial grounds care components.



Kondex is located in Lomira, Wisconsin

In 2010, the Company began working with laser enhancing technologies. While the early years were heavy in R&D and a fair share of lessons learned, it was these experiences that developed our principles and expertise in utilizing laser technology to surpass alternative wear prevention additives. After numerous successes in existing markets and significant investments, Kondex introduced its laser cladding to the underground boring industry. Bringing together its laser expertise with high-production manufacturing capabilities has resulted in a line of boring bits and components that outperform alternative offerings.

About Laser Cladding

Laser cladding is an additive manufacturing process that uses a laser to metallurgically bond tungsten carbide to a product's base material. A laser creates a shallow melt pool of the base metal, while carbide powder is simultaneously introduced into the melt pool to infuse the carbide powder as part of the base metal. This has several advantages:

- Improved impact and wear resistant properties
- Greater carbide distribution
- Longer-retained leading edge
- 2-4 times longer life

