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Drills Farther.**

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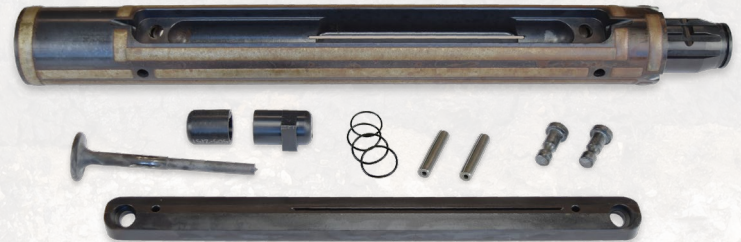
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# Drill Defender™ Splined Sonde Housings

Stop spending countless hours hard face welding your sonde housings! Our splined housings feature the most effective wear prevention on the market: Kondex's patented laser cladding application. This protection is metallurgically bonded to the base material and features a high density of tungsten carbides to act as a shield against the most aggressive conditions! Our laser cladding is applied to the most susceptible wear areas of your sonde housing to better protect your investment! As part of the Kondex HDD lineup, you'll gain better control over your drill string.



## DITCH WITCH & VERMEER COMPATIBLE

Patent No. 11,525,313

Part No.	Replacement For	Description	Models	Thread	Electronics
F00-089	DW 906-0854	Drill Defender Splined Sonde Housing, 2.75" OD x 2.125" Spline	JT9, JT922, JT1220, D6x6, D7x12, D9x13	2.0 API IF	15T or 17T
F00-059	DW 906-1854	Drill Defender Splined Sonde Housing, 3" OD x 2.125" Spline	JT1220, JT1720M1, JT20, JT2020, D7x11, D9x13, D16x20, D18x20, D20x22	2.38 API R	15T or 17T
F00-042	DW 906-2654	Drill Defender Splined Sonde Housing, 3.5" OD x 2.5" Spline	JT25, JT30, JT3020, JT4020, D24x26, D24x33, D24x40, D33x44, D36x50	2.38 API R	15T or 17T

Part No.	Description	Part No.	Description
C00-311	Drill Defender Replacement Sonde Cover	725-013	Drill Defender Replacement O-Ring, 10 Pack, 3" OD
C00-364	Drill Defender Replacement Punch Pin	725-014	Drill Defender Replacement O-Ring, 10 Pack, 3.5" OD
725-010	Drill Defender Replacement Hardware Kit, 3" OD	725-015	Drill Defender Replacement Coil Spring Pin, 6 Pack, .5"x2"
725-011	Drill Defender Replacement Hardware Kit, 3.5" OD	725-016	Drill Defender Replacement Coil Spring Pin, 6 Pack, .5"x2.5"
725-012	Drill Defender Replacement Bumper Kit, 3" or 3.5" OD	725-017	Drill Defender Replacement Sonde Cover Pin, 4 Pack

# Drill Defender™ Flat Bit Adapters

Improve jobsite efficiency and reduce costs with our Drill Defender flat bit adapters that offer easy changeout between flat and cobble bits. When ground conditions are uncertain, these adapters offer flexibility in only needing one sonde housing.

Part No.	Replacement For	Description	Models	Bolt Size
F00-080	906-1665	Drill Defender Splined Flat Bit Adapter, 3" OD x 2.125" Spline, Vermeer 6-Hole	D7x11, D9x13, D16x20, D18x20, D20x22	1/2-13
F00-081	906-1796	Drill Defender Flat Bit Adapter, 3" OD x 2.125" Spline, Ditch Witch 5-Hole	JT1220, JT1720M1, JT20, JT2020	M12-1.75
F00-082	906-2465	Drill Defender Flat Bit Adapter, 3.5" OD x 2.5" Spline, Vermeer 6-Hole	D24x26, D24x33, D24x40, D33x44, D36x50	1/2-13
F00-084	906-2698	Drill Defender Flat Bit Adapter, 3.5" OD x 2.5" Spline, Ditch Witch 6-Hole	JT25, JT30, JT3020, JT4020	M16-2.0

Patent No. 11,525,313



Spline connection



# Drill Defender™ Starter Rods

Get protection for your starter rods where they're most vulnerable to breakage, without affecting collar functionality. Kondex patented 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 drill string. Only Drill Defender starter rods offer:

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

**Patent No. 11,525,313**

## VERMEER QUICKFIRE COMPATIBLE



Part No.	Replacement For	Description	Models	Thread Type	Drill Rod Thread
C00-295	296331952	Drill Defender Quickfire Starter Rod 1.90" FS #250 x QF400	D16x20, D16x20A, D16x20 Series II, D18x22, D20x22, D20x22 S3	Firestick	#250
C00-296	296331926	Drill Defender Quickfire Starter Rod 2.06" FS #400 x QF400	D18x22, D20x22, D20x22 Series II, D20x22 S3, D23x30 S3	Firestick	#400
C00-297	296331924	Drill Defender Quickfire Starter Rod 2.375" FS #600 x QF400	D23x30, D24x40, D24x40A, D24x40 Series II, D24x40 S3	Firestick	#600

## VERMEER LOW PROFILE COMPATIBLE



Part No.	Replacement For	Description	Models	Thread Type	Drill Rod Thread
C00-178	234840001	Drill Defender Low Profile Starter Rod 1.90" Hex Box 2.125" x #250	D16x20, D16x20A, D16x20 Series II, D18x22, D20x22, D20x22 S3	Firestick	#250
C00-177	250658001	Drill Defender Low Profile Starter Rod 2.06" Hex Box 2.125" x #400	D18x22, D20x22, D20x22 Series II, D20x22 S3, D23x30 S3	Firestick	#400
C00-169	234826001	Drill Defender Low Profile Starter Rod 2.375" Hex Box 2.125" x #600	D23x30, D24x40, D24x40A, D24x40 Series II, D24x40 S3, D40x40	Firestick	#600

## VERMEER & DITCH WITCH COMPATIBLE



Part No.	Replacement For	Description	Models	Drill Rod Thread
C00-121	DW 918-3436	Drill Defender FS400 F x HE350 F Starter Rod	D18x20, D22x20, D24x26	#400
C00-122	DW 918-2434	Drill Defender FS600 F x HE350 F Starter Rod	JT24, JT25, JT28, 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*



# 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 patented 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 No. 11,525,313

Part No.	Description	Models	Length	ID	OD
C00-134	Octagon Quickfire 400/Hawkeye 350 Collar	D16x20 - D40x40	6.13"	2.625"	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



# 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 Ditch Witch: JT25 - JT4020	24K - 40K	5"	2.5"	2
C00-263		24K - 40K	5"	2.5"	3

\*May require an adapter to run with some Vermeer equipment

"From clay to solid rock, we have noticed longer life, better steering, and all around better performance in all categories with minimal wear. Ten times more footage per bit compared to the competition."

Jake R.  
Wisconsin driller



Patent No. 11,525,313 & 11,808,088

*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

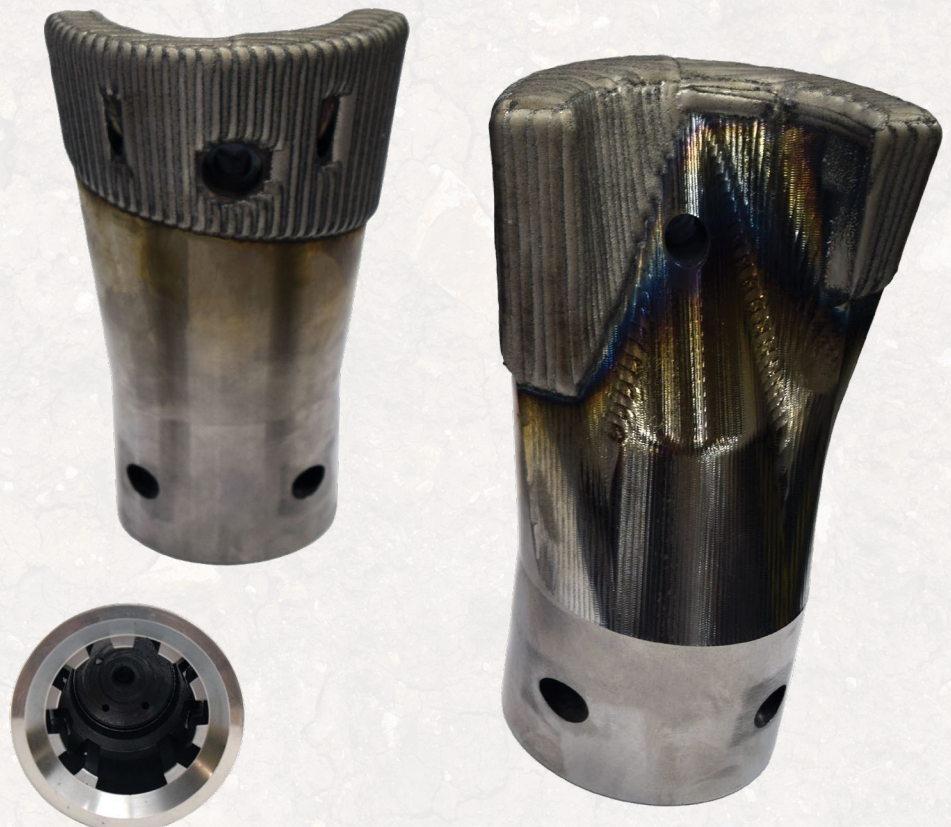
Get a cutting boost with ports that better direct fluid through the bore and improve drilling efficiency

### 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 No. 11,525,313 & 11,808,088**



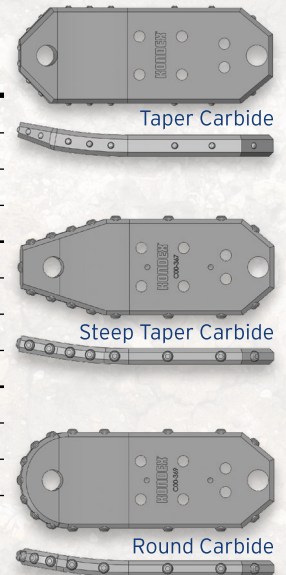
# Drill Defender™ Dirt Bits

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



## VERMEER COMPATIBLE: 6-HOLE

Part No.	Bit Type	Models	Soil Type	Bolt Size	Width	Thickness
C00-255	Taper Carbide	D16x20 - D40x55 S3	Hard	1/2"	4"	1"
C00-254	Taper Carbide	D16x20 - D40x55 S3	Hard	1/2"	4.5"	1"
C00-256	Taper Carbide	D16x20 - D40x55 S3	Hard	1/2"	5"	1"
C00-257	Taper Carbide	D16x20 - D40x55 S3	Hard	1/2"	6"	1"
C00-510	Steep Taper Carbide	D16x20 - D40x55 S3	Medium/Hard	1/2"	4"	3/4"
C00-367	Steep Taper Carbide	D16x20 - D40x55 S3	Medium/Hard	1/2"	4.5"	3/4"
C00-511	Steep Taper Carbide	D16x20 - D40x55 S3	Medium/Hard	1/2"	5"	3/4"
C00-512	Steep Taper Carbide	D16x20 - D40x55 S3	Medium/Hard	1/2"	6"	3/4"
C00-513	Round Carbide	D16x20 - D40x55 S3	Medium/Hard	1/2"	4"	3/4"
C00-369	Round Carbide	D16x20 - D40x55 S3	Medium/Hard	1/2"	4.5"	3/4"
C00-514	Round Carbide	D16x20 - D40x55 S3	Medium/Hard	1/2"	5"	3/4"
C00-515	Round Carbide	D16x20 - D40x55 S3	Medium/Hard	1/2"	6"	3/4"



Patent No. 11,525,313 & 11,808,088

## Tougher than Hard Facing!

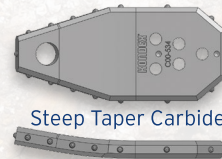
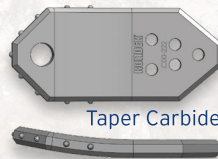
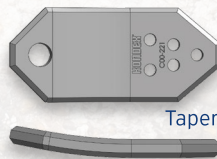
Kondex Drill Defender bits do not include welded hard facing. This old technology may appear more aggressive than our premium laser cladding additive, but looks are deceiving. Hard face welded carbides are few in quantity, not evenly distributed, and easily fall off. Our Drill Defender bits feature a 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.





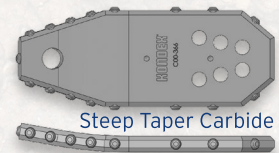
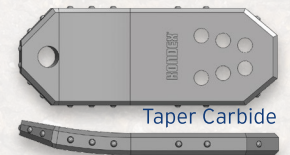
## DITCH WITCH COMPATIBLE: 5-HOLE

Part No.	Bit Type	Models	Soil Type	Bolt Size	Width	Thickness
C00-124	Flat	JT5 - JT20	Sand, Clay, Soft	12mm	4"	3/4"
C00-221	Taper	JT5 - JT20	Medium	12mm	4"	3/4"
C00-222	Taper Carbide	JT5 - JT20	Hard	12mm	4"	3/4"
C00-534	Steep Taper Carbide	JT20 - JT40	Medium/Hard		4"	3/4"



## DITCH WITCH COMPATIBLE: 6-HOLE

Part No.	Bit Type	Models	Soil Type	Bolt Size	Width	Thickness
C00-252	Taper Carbide	JT20 - JT40	Hard	16mm	4.5"	1"
C00-258	Taper Carbide	JT20 - JT40	Hard	16mm	5"	1"
C00-259	Taper Carbide	JT20 - JT40	Hard	16mm	6"	1"
C00-516	Steep Taper Carbide	JT20 - JT40	Medium/Hard	16mm	4"	3/4"
C00-366	Steep Taper Carbide	JT20 - JT40	Medium/Hard	16mm	4.5"	3/4"
C00-517	Steep Taper Carbide	JT20 - JT40	Medium/Hard	16mm	5"	3/4"
C00-518	Steep Taper Carbide	JT20 - JT40	Medium/Hard	16mm	6"	3/4"
C00-519	Round Carbide	JT20 - JT40	Medium/Hard	16mm	4"	3/4"
C00-520	Round Carbide	JT20 - JT40	Medium/Hard	16mm	4.5"	3/4"
C00-521	Round Carbide	JT20 - JT40	Medium/Hard	16mm	5"	3/4"
C00-522	Round Carbide	JT20 - JT40	Medium/Hard	16mm	6"	3/4"



Patent No. 11,525,313 & 11,808,088



*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*



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## Testimonials

"Kondex saved my business.  
I wasn't profitable until  
I started using that bit.

**We've been getting 20 times  
more footage with Kondex."**

-Ryan C., Wyoming

"[The bit's] performance  
outmatches competitive  
bits. [It delivers] **more  
aggressive steering [and] better  
longevity in tough conditions."**

-Nick, Wisconsin

"The Kondex bit performed exceptionally  
well in rock/cobble, and we were able to get  
more production and three times the life  
versus other comparable brands. **In my opinion,  
the Kondex cobble bit is the best on the market."**

-Brent P., Canada



"We run these bits exclusively because  
they work in all ground conditions. **These  
bits have honestly outlasted anything we've ever  
put in the ground five times.** When we need our  
tooling to work for us, this never fails us."

-Josh S., Wisconsin



# 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.



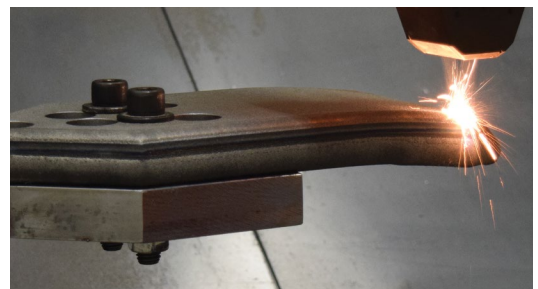
*Kondex is located in Lomira, Wisconsin*

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 in 2019. 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
- Offers protection that won't weaken or distort base parts
- Greater carbide distribution and product strength
- Longer-retained leading edge
- 2-4 times longer life



*Laser cladding is robotically applied resulting in pinpoint accuracy*

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KONDEX CORPORATION  
1500 Technology Drive | Lomira, WI 53048-9440  
920.269.4100  
[kondex.com](http://kondex.com) | [kondexparts.com](http://kondexparts.com)



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