

HDD TOOLING | ARMOR® DRILLING SYSTEM APPLICATIONS GUIDE



Gauntlet™ Bit

The Gauntlet bit was designed for use in **soft to medium rock, shale and caliche** ground conditions up to 10,000 psi (68.9 MPa) with exceptional steering capabilities. Carbide buttons are strategically placed on the bit for optimum cutting, and carbide hardfacing helps to enhance wear and performance characteristics. A replaceable three-tooth design delivers a consistent cutting structure for steering corrections to help maximize drilling performance.



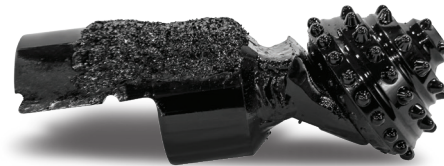
Lance™ Pro Bit

Featuring domed, plug-style teeth, the Lance Pro bit offers continuous carbide coverage across the front of the bit to help extend wear life. Carbide buttons protect the bit mount section from wear so it can be rebuilt. With a tendency to cut on center, the Lance Pro bit helps you execute your bore as planned. Intended use in **hard packed soils, highly abrasive cobble and cemented cobble**.



Lance Original Bit

The Lance original bit is intended for use in **hard-packed soils, cobble, cemented cobble and gravel**. The bit features a scoop design for steering capabilities and operator control to help limit wandering in challenging ground conditions. Carbide buttons and robotically applied hardfacing help improve overall bit wear in most abrasive drilling conditions.



Single Roller Cone Bit

Designed to deliver versatility in cobble and broken formations, the cone rotation helps smooth out the entire drill string, reducing torque spikes. The bit is used for **extreme cobbles and soft to medium rock**.



API Bent Sub Adapter

For use in tandem with any API pin bit, including tricone and PDC configurations.



Gauntlet Bit – Bolt-On

The bolt-on Armor drilling system Gauntlet bit is intended for use with premium housing and was designed for use in **soft to medium rock, shale and caliche ground conditions**. For convenience, assembly includes pullback tool and conical teeth kit with three styles. Shown with included pullback tool.



Lance Bit – Bolt-On

The bolt-on hook Armor drilling system Lance bit is intended for use with premium housing. It is designed for use in **hard-packed soil, gravel and cobble**, and for convenience, the assembly includes pullback tool. Shown with included pullback tool.

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		ARMOR DRILLING SYSTEM					
		Gauntlet Bit	Lance Pro Bit / Lance Original Bit	Single Roller Cone Bit	API Bent Sub Adapter	Lance Bit – Bolt-On	Gauntlet Bit – Bolt-On
SOIL CONDITION	Sandy	▽	▽	▽	▽	▽	▽
	Clay/Loam	▽	▽	▽	▽	▽	▽
	Dry/Compacted	▽	▽	▽	▽	▽	▽
	Cobble/Broken Formation	▽	▽	▽	▽	▽	▽
	Soft Rock	▽	▽	▽	▽	▽	▽

The Vermeer Armor system rebuild program is available for the **Gauntlet bits**, **Lance Original bits** and **Lance Pro bits**. Contact your local Vermeer dealer to learn more.

SOIL CONDITION:						
Sandy – Sand, sandy loam, any soil where sand is a major component	Clay/Loam – Clay, loam, silt, soft to medium soils that have some moisture	Dry/Compacted – Hard pan, any dry clay, any compacted soil	Cobble/Broken Formation – Cobble, gravel, glacial till, chunk rock, any non-consistent type of rock	Soft to Medium Rock up to 10,000 psi (68.9 MPa) – Sand stone, shale, soft limestone, caliche, coral up to 9500 psi (65.5 MPa)	Hard Rock – Hard limestone, granite, skirt, anything above 10,000 psi (68.9 MPa)	



DESIGNED WITH YOU IN MIND.
Prepare to win the tough jobs with the Armor drilling system from Vermeer. It's a single HDD tooling system with multiple drilling options designed to provide versatility and performance — one housing, multiple bits.

For more information on the product and how to purchase, contact your local Vermeer dealer.

NOT RECOMMENDED Not recommended for the listed soil condition.	GOOD Helps to achieve conducive results within listed soil condition.	BETTER Helps to achieve efficient productivity within listed soil condition.	BEST Helps to achieve maximum viability within listed soil condition.