

Horizontal Directional Drilling



Pilot Bits and Hole Openers

Sustainable Productivity

Atlas Copco

Horizontal

Something oriented horizontally; parallel to or in the plane of the horizon or a base line.

Directional

Relating to or indicating a direction; a goal; showing the way by conducting or leading.

Drilling

Drilling is the cutting of a hole into a solid.

Directional boring, commonly called horizontal directional drilling or HDD, is a steerable trenchless method of installing underground pipes, conduits and cables in a shallow arc along a prescribed bore path, by using a surface launched drilling rig, with minimal impact on the surrounding area.

**Atlas Copco Secoroc can take your
HDD business in a new direction!**



Secoroc Horizontal Directional Drilling Products

Atlas Copco has been in the mining and construction market for many years and is committed to innovative, productive, market leading solutions.

Atlas Copco Secoroc has over the years set the standard on many Horizontal Directional Drilling projects involving Hard Rock and difficult conditions. You can rely on our technical expertise – any time – anywhere.

Our products are the result of decades of drilling research and development and are manufactured in our world class manufacturing facility in Grand Prairie,

Texas, USA. The production plant is ISO 9001 and API certified ensuring world class quality is delivered to the HDD market.

Our HDD equipment range includes:

- Pilot Bits in all sizes and types
- "Split Bit" Hole Openers incorporating a common, random bit third

HDD product range



Atlas Copco Secoroc Direct Shot™ pilot bits, Sealed Bearing random bit third cutters and Random bit third hole openers are specifically designed for the rigors of HDD applications.

Direct Shot™ features:

- Industry proven Sealed Friction Bearing
- Proprietary carbide shapes and grades
- Pressure compensated lubrication system
- Proprietary High Load carrying grease
- Full armor wear protection package
- Fluid nozzles

Advantages:

- Prolonged cutting structure integrity
- Prolonged bearing life

At Atlas Copco Secoroc, our engineers have combined our Hard Rock cutting structures, our strongest shirt tail wear protection and our leading edge bearing and seal package technology to create a pilot bit specifically designed for the Horizontal Directional Drilling market. The result is an HDD Pilot Bit which will drill fast and true and stay in the hole longer thereby lowering your total drilling cost, providing you a Direct Shot™ to your goals.

Direct Shot™ Pilot Bits

4 3/4" to 12 1/4"

Bit Diameter	Product Number	Catalog Code	IADC	Product	Special Features	Nozzle Type	Weight estimate		Pin Connection	Operating Suggestions WOB / RPM
							lbs	kgs		
4 3/4" 121 mm	91002556	112-3121-53-DD-FA-07	5-3-7	DS53F	Chisel Inserts, HDD Armor	SB**	17	7.7	2 7/8" API	10,000-22,500 lbs 70-120 RPM
4 3/4" 121 mm	91002557	112-3121-61-DD-FA-07	6-1-7	DS61F	Chisel Inserts, HDD Armor	SB**	17	7.7	2 7/8" API	12,500-27,500 lbs 50-100 RPM
5 1/4" 133 mm	91002558	112-3133-53-DD-FA-07	5-3-7	DS53F	Chisel Inserts, HDD Armor	SF**	25	11.4	2 7/8" API	12,500-32,500 lbs 50-120 RPM
5 1/4" 133 mm	91002559	112-3133-63-DD-CA-07	6-3-7	DS63C	Conical Inserts, HDD Armor	SF**	25	11.4	2 7/8" API	12,500-32,500 lbs 50-120 RPM
5 1/2" 140 mm	91002103	112-3140-53-DD-FA-07	5-3-7	DS53F	Chisel Inserts, HDD Armor	SF**	29	13.2	2 7/8" API	12,500-27,500 lbs 50-120 RPM
5 1/2" 140 mm	91002093	112-3140-61-DD-FA-07	6-1-7	DS61F	Chisel Inserts, HDD Armor	SF**	29	13.2	2 7/8" API	15,000-32,500 lbs 50-120 RPM
5 1/2" 140 mm	91002069	112-3140-63-DD-CA-07	6-3-7	DS63C	Conical Inserts, HDD Armor	SF**	29	13.2	2 7/8" API	15,000-32,500 lbs 50-120 RPM
6" 152 mm	91002560	114-3152-51-DD-FA-07	5-1-7	DS51F	Chisel Inserts, HDD Armor	SF**	39	17.7	3 1/2" API	15,500-35,000 lbs 50-120 RPM
6" 152 mm	91002561	114-3152-53-DD-FA-07	5-3-7	DS53F	Chisel Inserts, HDD Armor	SF**	39	17.7	3 1/2" API	12,500-30,000 lbs 50-120 RPM
6" 152 mm	91002562	114-3152-61-DD-FA-07	6-1-7	DS61F	Chisel Inserts, HDD Armor	SF**	39	17.7	3 1/2" API	17,500-40,000 lbs 50-120 RPM
6 1/4" 159 mm	91002563	114-3159-61-DD-FA-07	6-1-7	DS61F	Chisel Inserts, HDD Armor	SF**	41	18.6	3 1/2" API	17,500-40,000 lbs 50-120 RPM
6 1/4" 159 mm	91002564	114-3159-63-DD-CA-07	6-3-7	DS63C	Conical Inserts, HDD Armor	SF**	41	18.6	3 1/2" API	17,500-40,000 lbs 50-120 RPM
6 1/2" 165 mm	91002173	114-3165-53-DD-FA-07	5-3-7	DS53F	Chisel Inserts, HDD Armor	SF**	47	21.4	3 1/2" API	17,500-37,500 lbs 50-120 RPM
6 1/2" 165 mm	91002509	114-3165-61-DD-FA-07	6-1-7	DS61F	Chisel Inserts, HDD Armor	SF**	47	21.4	3 1/2" API	20,000-45,000 lbs 50-120 RPM
6 3/4" 171 mm	91002565	114-3171-53-DD-FA-07	5-3-7	DS53F	Chisel Inserts, HDD Armor	SF**	49	22.3	3 1/2" API	17,500-42,500 lbs 50-150 RPM
6 3/4" 171 mm	91002554	114-3171-61-DD-FA-07	6-1-7	DS61F	Chisel Inserts, HDD Armor	SF**	49	22.3	3 1/2" API	20,000-45,000 lbs 50-120 RPM
6 3/4" 171 mm	91002566	114-3171-63-DD-CA-07	6-3-7	DS63C	Conical Inserts, HDD Armor	SF**	49	22.3	3 1/2" API	20,000-45,000 lbs 50-120 RPM
8 3/4" 222 mm	91002567	117-3222-53-DD-FA-07	5-3-7	DS53F	Chisel Inserts, HDD Armor	SK**	90	40.9	4 1/2" API	25,000-60,000 lbs 50-150 RPM
8 3/4" 222 mm	91002568	117-3222-61-DD-FA-07	6-1-7	DS61F	Chisel Inserts, HDD Armor	SK**	90	40.9	4 1/2" API	25,000-60,000 lbs 50-150 RPM
9 7/8" 251 mm	91001758	118-3251-53-DD-FA-07	5-3-7	DS53F	Chisel Inserts, HDD Armor	SK**	140	63.6	6 5/8" API	25,000-65,000 lbs 50-150 RPM
9 7/8" 251 mm	91002089	118-3251-61-DD-FA-07	6-1-7	DS61F	Chisel Inserts, HDD Armor	SK**	140	63.6	6 5/8" API	25,000-65,000 lbs 50-150 RPM
9 7/8" 251 mm	91000351	118-3251-63-DD-FC-07	6-3-7	DS63C	Chisel Inserts, HDD Armor	SK**	140	63.6	6 5/8" API	25,000-65,000 lbs 50-150 RPM
10 5/8" 270 mm	91002569	118-3270-51-DD-FA-07	5-1-7	DS51F	Chisel Inserts, HDD Armor	SK**	193	87.7	6 5/8" API	25,000-65,000 lbs 50-150 RPM
10 5/8" 270 mm	91002519	118-3270-53-DD-FA-07	5-3-7	DS53F	Chisel Inserts, HDD Armor	SK**	193	87.7	6 5/8" API	25,000-60,000 lbs 50-150 RPM
10 5/8" 270 mm	91002571	118-3270-61-DD-FA-07	6-1-7	DS61F	Chisel Inserts, HDD Armor	SK**	193	87.7	6 5/8" API	30,000-72,000 lbs 50-150 RPM
12 1/4" 311 mm	91002140	118-3311-51-DD-FA-07	5-1-7	DS51F	Chisel Inserts, HDD Armor	SK**	224	101.8	6 5/8" API	25,000-62,500 lbs 50-150 RPM
12 1/4" 311 mm	91002127	118-3311-53-DD-FA-07	5-3-7	DS53F	Chisel Inserts, HDD Armor	SK**	224	101.8	6 5/8" API	27,500-67,500 lbs 50-150 RPM
12 1/4" 311 mm	91002141	118-3311-61-DD-FA-07	6-1-7	DS61F	Chisel Inserts, HDD Armor	SK**	224	101.8	6 5/8" API	30,000-75,000 lbs 50-150 RPM
12 1/4" 311 mm	91002142	118-3311-63-DD-CA-07	6-3-7	DS63C	Conical Inserts, HDD Armor	SK**	224	102	6 5/8" API	30,000-75,000 lbs 50-150 RPM

*Check availability prior to placing order. **Nozzles sold separately - Requires 3 nozzles per bit - see Size chart for available Jet sizes.

Bullseye Random Bit Thirds

6 3/4" to 17 1/2"

Cutter Size	Product No.	Catalog Code	IADC	Product	Special Features	Max Cutting Radius	Nozzle Type	Weight estimate		Weight on Bit		Maximum Operating Parameters	
								lbs	kgs	WOB		RPM	
										lbs	t		
6 3/4" 171 mm	91001897	CHN-00SB-FJS54	5-4-7	BIR54C	Conical Inserts, Random Pattern, HDD Armor	2.78" 71 mm	SF**	13	5.9	8,000	3.6	180	
9" 229 mm	91002063	CHH-00SC-FJS41	4-1-7	BIR41F	Chisel Inserts, Random Pattern, HDD Armor	3.31" 84 mm	SF**	42	20	8,000	3.6	180	
9" 229 mm	91001898	CHN-00SC-FJS54	5-4-7	BIR54C	Conical Inserts, Random Pattern, HDD Armor	3.16" 80 mm	SF**	42	20	10,000	4.5	180	
12 1/4" 311 mm	91002072	CHH-00SD-FJS41	4-1-7	BIR41F	Chisel Inserts, Random Pattern, HDD Armor	5.25" 133 mm	SK**	66	30	12,000	5.4	160	
12 1/4" 311 mm	91001899	CHN-00SD-FJS62	6-2-7	BIR62C	Conical Inserts, Random Pattern, HDD Armor	4.86" 123 mm	SK**	68	31	15,000	6.8	160	
17 1/2" 445 mm	91002042	CHH-00SH-RJS41	4-1-5	BIR41F	Chisel Inserts, Random Pattern, HDD Armor	7.90" 201 mm	SK**	177	80	20,000	9	250	
17 1/2" 445 mm	91001807	CHN-00SH-RJS62	6-2-5	BIR62C	Conical Inserts, Random Pattern, HDD Armor	8.25" 210 mm	SK**	192	87	25,000	11.3	250	

****Nozzles sold separately - Requires one (1) nozzle per bit third- see Size chart for available Jet sizes.**

Atlas Copco engineers have combined Hard Rock cutting structures with leading edge bearing and seal package technology. The result is an HDD Bit Third which will drill faster and stay in the hole longer thereby lowering your total drilling costs.

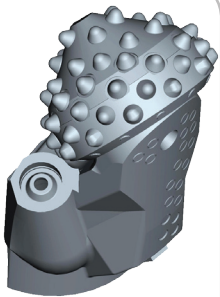
Features:

- Random Cutting Structure
- Proprietary carbide shapes and grades.
- Industry proven bearing and seal packages.
- Pressure compensated lubrication system.
- Proprietary High Load carrying grease.
- Full armor wear protection package.
- Jet nozzles.

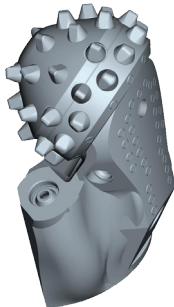
Advantages:

- Prolonged cutting structure integrity.
- Prolonged bearing life.

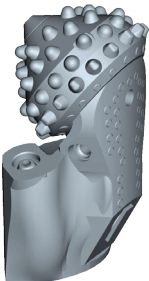




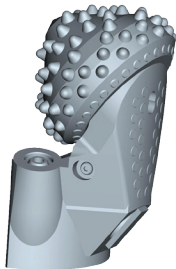
6 3/4" BIR54C



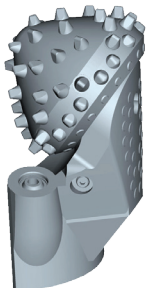
9" BIR41F



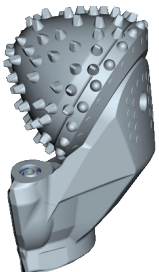
9" BIR54C



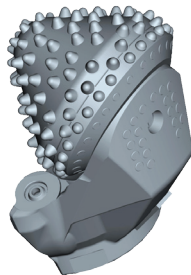
12 1/4" BIR62C



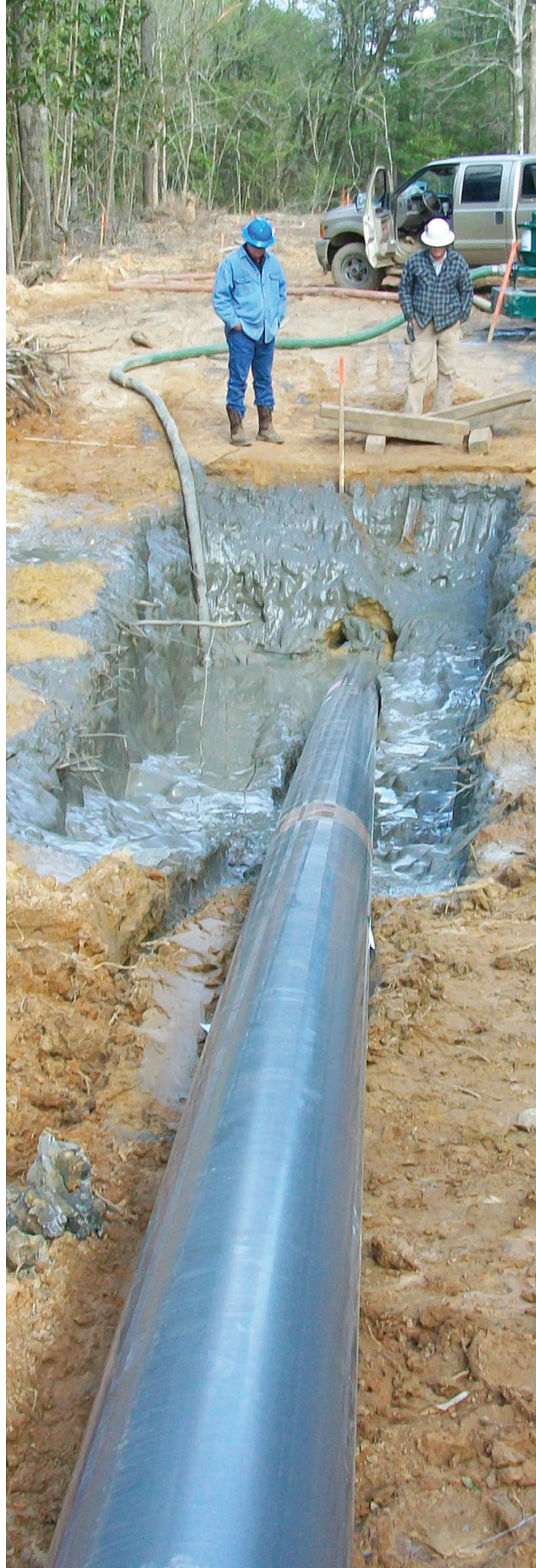
12 1/4" BIR41F



17 1/2" BIR41F



17 1/2" BIR54C



Bullseye Hole Openers

Pilot Bit to Hole Opener Step

12 1/4" to 22" Soft to Medium

Reamer Diameter	Pilot Bore Diameter Range		Product No.	Catalog Code	Product	BitThirds			Stabilization			Connection			Weight esti- mate	
	Min.	Max.				Qty	Size	IADC	Type	Carbide Nozzles		Thread	Pull	Trail	lbs	kgs
										Size	Qty					
12 1/4" 311 mm	5 1/2" 140 mm	6 3/4" 171 mm	91002619	HO-0311-0140-03C41-A-13B	DR41F	3	9"	4-1-7	none	n/a	n/a	2 7/8" IF	Box	Pin	287	130
14" 356 mm	7 7/8" 200 mm	8 3/4" 222 mm	91002620	HO-0356-0200-04C41-B-13B	DR41F	4	9"	4-1-7	Hardfaced Blades	SF10	2	2 7/8" IF	Box	Pin	568	258
16" 406 mm	9 7/8" 251 mm	10 5/8" 270 mm	91002621	HO-0406-0251-04C41-B-13B	DR41F	4	9"	4-1-7	Hardfaced Blades	SF10	2	2 7/8" IF	Box	Pin	834	378
20" 508 mm	9 7/8" 251 mm	10 5/8" 270 mm	91002622	HO-0508-0251-04D41-B-41B	DR41F	4	12 1/4"	4-1-7	Hardfaced Blades	SK12	2	4 1/2" IF	Box	Pin	961	436
22" 559 mm	12 1/4" 311 mm		91002623	HO-0559-0311-04D41-B-41B	DR41F	4	12 1/4"	4-1-7	Hardfaced Blades	SK12	2	4 1/2" IF	Box	Pin	1031	468

Check availability prior to placing order. Indicate nozzle size when placing order.

Atlas Copco Secoroc Hole Openers are the first “Bit Third” type reamers designed specifically for the HDD industry by a Rotary rock bit manufacturer. These Hole Openers utilize random cutting structure bit thirds, precisely positioned to assure equal load distribution, maximizing cutter count for hard rock applications.

Features:

- Random cutting structure
- Rigid stabilizer design
- Pilot bore jet nozzles
- Compensated lubrication system
- Hard and aggressive cutting structures
- Proprietary high load carrying grease
- Full armor package
-

Advantages:

- Higher penetration rates
- Efficient cleaning of bore
- Smoother drilling
- Longer lasting

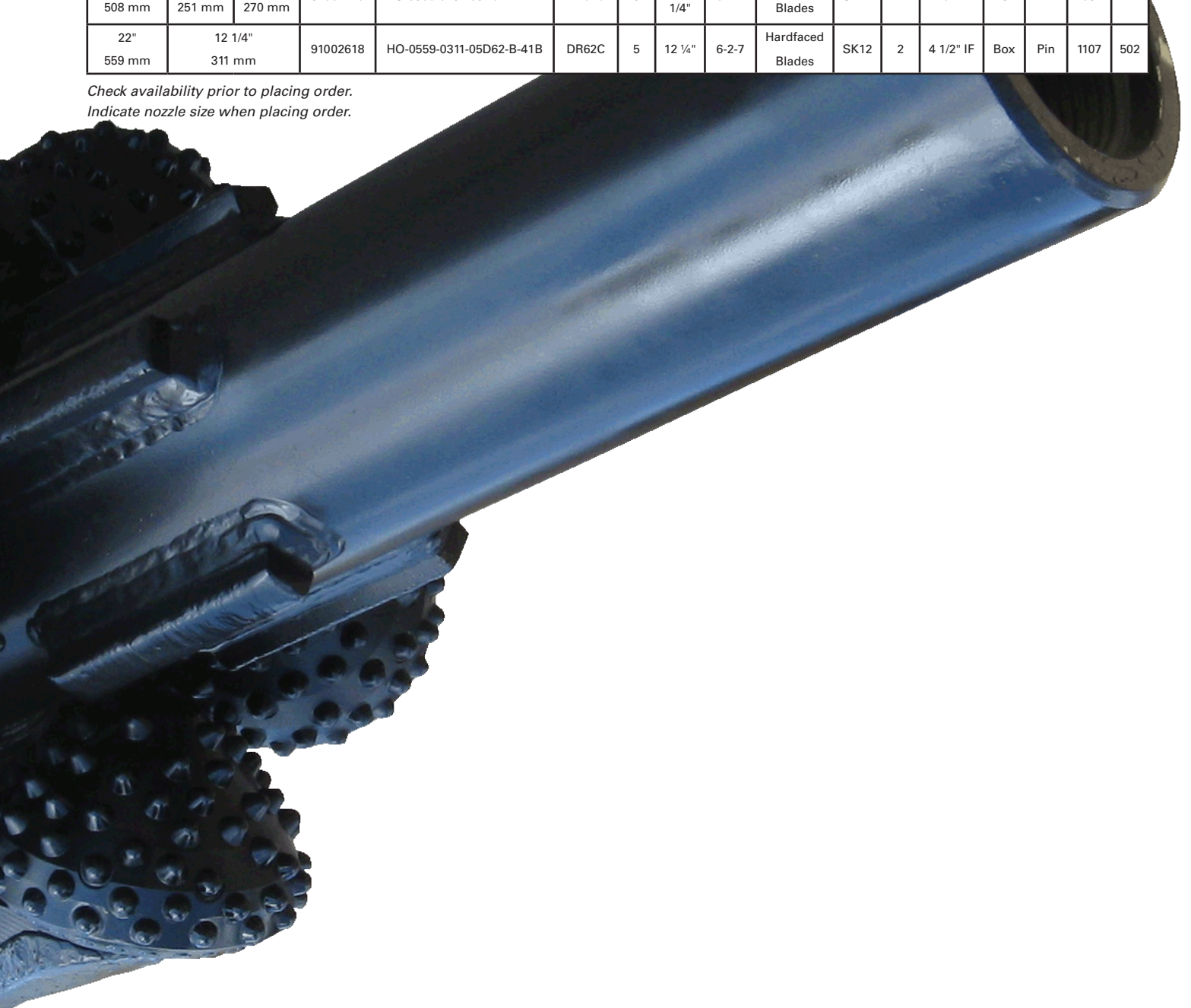


Pilot Bit to Hole Opener Step

10" to 22" Medium to Hard

Reamer Diameter.	Pilot Bore Diameter		Product No.	Product Code	Product	BitThird Stabilization			Stabilization			Connection			Weight Estimate	
	Min	Max				Qty	Size	IADC	Type	Carbide Nozzles		Thread	Pull	Trail	lbs	kgs
										Size	Qty					
10" 254 mm	4 3/4" 121 mm	6 3/4" 171 mm	91002111	HO-0254-0121-04B54-A-13B	DR54C	4	6 3/4"	5-4-7	None	n/a	n/a	2 7/8" IF	Box	Pin	297	135
12 1/4" 311 mm	5 1/2" 140 mm	6 3/4" 171 mm	91002506	HO-0311-0140-04C54-A-13B	DR54C	4	9"	5-4-7	None	n/a	n/a	2 7/8" IF	Box	Pin	329	150
14" 356 mm	7 7/8" 200 mm	8 3/4" 222 mm	91002520	HO-0356-0200-05C54-B-13B	DR54C	5	9"	5-4-7	Hardfaced Blades	SF10	2	2 7/8" IF	Box	Pin	610	277
16" 406 mm	9 7/8" 251 mm	10 5/8" 270 mm	91002112	HO-0406-0251-06C54-B-13B	DR54C	6	9"	5-4-7	Hardfaced Blades	SF10	2	2 7/8" IF	Box	Pin	876	398
20" 508 mm	9 7/8" 251 mm	10 5/8" 270 mm	91001220	HO-0508-0251-05D62-B-41B	DR62C	5	12 1/4"	6-2-7	Hardfaced Blades	SK12	2	4 1/2" IF	Box	Pin	1037	471
22" 559 mm	12 1/4" 311 mm		91002618	HO-0559-0311-05D62-B-41B	DR62C	5	12 1/4"	6-2-7	Hardfaced Blades	SK12	2	4 1/2" IF	Box	Pin	1107	502

Check availability prior to placing order.
Indicate nozzle size when placing order.



Bullseye Hole Openers

Hole Opener to Hole Opener Step

20" to 60" Soft to Medium

Reamer Diameter	Pilot Bore Diameter	Product No.	Product Code	Product	BitThirds			Stabilization			Connection			Weight Estimate	
					Qty	Size	IADC	Type	Carbide Nozzles		Thread	Pull	Trail	lbs	kgs
									Size	Qty					
20" 508 mm	16" 406 mm	91002642	HO-0508-0406-04D41-K-41B	DR41F	4	12 1/4"	4-1-7	Ring, Replaceable TCI Wear Pads	SK12	2	4 1/2" IF	Box	Pin	1,162	527
24" 610 mm	20" 508 mm	91002643	HO-0610-0508-05D41-K-41B	DR41F	5	12 1/4"	4-1-7	Ring, Replaceable TCI Wear Pads	SK16	2	4 1/2" IF	Box	Pin	2,343	1,063
28" 711 mm	12 1/4" 311 mm	91002633	HO-0711-0311-03E41-K-88B	DR41C	3	17 1/2"	4-1-5	Ring, Replaceable TCI Wear Pads	SK12	2	6 5/8" FH	Box	Pin	1,620	735
28" 711 mm	20" 508 mm	91002644	HO-0711-0508-03E41-K-88B	DR41F	3	17 1/2"	4-1-5	Ring, Replaceable TCI Wear Pads	SK16	2	6 5/8" FH	Box	Pin	2,275	1,032
32" 813 mm	20" 508 mm	91002645	HO-0813-0508-04E41-K-88B	DR41F	4	17 1/2"	4-1-5	Ring, Replaceable TCI Wear Pads	SK16	2	6 5/8" FH	Box	Pin	3,256	1,477
32" 813 mm	22" 559 mm	91002634	HO-0813-0559-04E41-K-88B	DR41C	4	17 1/2"	4-1-5	Ring, Replaceable TCI Wear Pads	SK12	2	6 5/8" FH	Box	Pin	2,579	1,170
34" 864 mm	28" 711 mm	91002646	HO-0864-0711-04E41-K-88B	DR41F	4	17 1/2"	4-1-5	Ring, Replaceable TCI Wear Pads	SK16	2	6 5/8" FH	Box	Pin	3,415	1,549
36" 914 mm	28" 711 mm	91002635	HO-0914-0711-04E41-K-88B	DR41F	4	17 1/2"	4-1-5	Ring, Replaceable TCI Wear Pads	SK12	2	6 5/8" FH	Box	Pin	3,142	1,425
40" 1016 mm	32" 813 mm	91002636	HO-1016-0813-06E41-K-88B	DR41F	6	17 1/2"	4-1-5	Ring, Replaceable TCI Wear Pads	SK12	2	6 5/8" FH	Box	Pin	4,493	1,951
44" 1118 mm	32" 813 mm	91002647	HO-1118-0813-07E41-K-88B	DR41F	7	17 1/2"	4-1-5	Ring, Replaceable TCI Wear Pads	SK16	2	6 5/8" FH	Box	Pin	4,695	2,130
44" 1118 mm	36" 914 mm	91002637	HO-1118-0914-07E41-K-88B	DR41F	7	17 1/2"	4-1-5	Ring, Replaceable TCI Wear Pads	SK12	2	6 5/8" FH	Box	Pin	4,900	2,223
48" 1219 mm	40" 1016 mm	91002638	HO-1219-1016-07E41-K-88B	DR41F	7	17 1/2"	4-1-5	Ring, Replaceable TCI Wear Pads	SK12	2	6 5/8" FH	Box	Pin	5,363	2,433
50" 1270 mm	44" 1118 mm	91002639	HO-1270-1118-07E41-K-88B	DR41F	7	17 1/2"	4-1-5	Ring, Replaceable TCI Wear Pads	SK12	2	6 5/8" FH	Box	Pin	5,594	2,537
54" 1372 mm	44" 1118 mm	91002648	HO-1372-1118-07E41-K-88B	DR41F	7	17 1/2"	4-1-5	Ring, Replaceable TCI Wear Pads	SK16	2	6 5/8" FH	Box	Pin	7,374	3,345
56" 1422 mm	48" 1219 mm	91002640	HO-1422-1219-07E41-K-88B	DR41F	7	17 1/2"	4-1-5	Ring, Replaceable TCI Wear Pads	SK12	2	6 5/8" FH	Box	Pin	5,708	2,589
60" 1524 mm	56" 1422 mm	91002641	HO-1524-1422-08E41-K-88B	DR41F	8	17 1/2"	4-1-5	Ring, Replaceable TCI Wear Pads	SK12	2	6 5/8" FH	Box	Pin	6,231	2,826

Check availability prior to placing order. Indicate nozzle size when placing order.



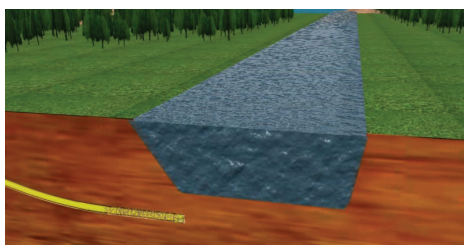
Bullseye Hole Openers

Hole Opener to Hole Opener Step

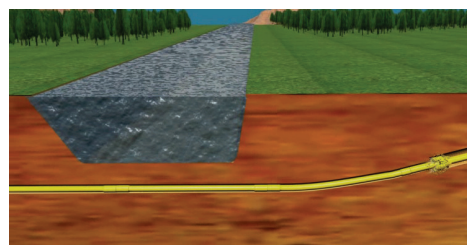
20" to 60" Medium to Hard

Reamer Diameter	Pilot Bore Diameter	Product No.	Product Code	Product	Bit Thirds			Stabilization			Connection			Weight Estimate	
					Qty	Size	IADC	Type	Carbide Nozzles		Thread	Pull	Trail	lbs	kgs
									Size	Qty					
20" 508 mm	16" 406 mm	91002113	HO-0508-0406-05D62-K-41B	DR62C	5	12 1/4"	6-2-7	Ring, Replaceable TCI Wear Pads	SK12	2	4 1/2" IF	Box	Pin	1,240	540
24" 610 mm	20" 508 mm	91002114	HO-0610-0508-06D62-K-41B	DR62C	6	12 1/4"	6-2-7	Ring, Replaceable TCI Wear Pads	SK16	2	4 1/2" IF	Box	Pin	2,423	1,101
28" 711 mm	12 1/4" 311 mm	91002624	HO-0711-0311-04E62-K-88B	DR62C	4	17 1/2"	6-2-5	Ring, Replaceable TCI Wear Pads	SK12	2	6 5/8" FH	Box	Pin	1,812	822
28" 711 mm	20" 508 mm	91002507	HO-0711-0508-04E62-K-88B	DR62C	4	17 1/2"	6-2-5	Ring, Replaceable TCI Wear Pads	SK16	2	6 5/8" FH	Box	Pin	2,527	1,149
32" 813 mm	20" 508 mm	91002005	HO-0813-0508-06E62-K-88B	DR62C	6	17 1/2"	6-2-5	Ring, Replaceable TCI Wear Pads	SK16	2	6 5/8" FH	Box	Pin	3,700	1,682
32" 813 mm	22" 559 mm	91002625	HO-0813-0559-06E62-K-88B	DR62C	6	17 1/2"	6-2-5	Ring, Replaceable TCI Wear Pads	SK12	2	6 5/8" FH	Box	Pin	2,963	1,343
34" 864 mm	28" 711 mm	91002508	HO-0864-0711-06E62-K-88B	DR62C	6	17 1/2"	6-2-5	Ring, Replaceable TCI Wear Pads	SK16	2	6 5/8" FH	Box	Pin	3,859	1,750
36" 914 mm	28" 711 mm	91002626	HO-0914-0711-06E62-K-88B	DR62C	6	17 1/2"	6-2-5	Ring, Replaceable TCI Wear Pads	SK12	2	6 5/8" FH	Box	Pin	3,526	1,603
40" 1016 mm	32" 813 mm	91002627	HO-1016-0813-07E62-K-88B	DR62C	7	17 1/2"	6-2-5	Ring, Replaceable TCI Wear Pads	SK12	2	6 5/8" FH	Box	Pin	4,493	2,038
44" 1118 mm	32" 813 mm	91002006	HO-1118-0813-08E62-K-88B	DR62C	8	17 1/2"	6-2-5	Ring, Replaceable TCI Wear Pads	SK16	2	6 5/8" FH	Box	Pin	4,992	2,264
44" 1118 mm	36" 914 mm	91002628	HO-1118-0914-08E62-K-88B	DR62C	8	17 1/2"	6-2-5	Ring, Replaceable TCI Wear Pads	SK12	2	6 5/8" FH	Box	Pin	5,092	2,310
48" 1219 mm	40" 1016 mm	91002629	HO-1219-1016-08E62-K-88B	DR62C	8	17 1/2"	6-2-5	Ring, Replaceable TCI Wear Pads	SK12	2	6 5/8" FH	Box	Pin	5,555	2,520
50" 1270 mm	44" 1118 mm	91002630	HO-1270-1118-08E62-K-88B	DR62C	8	17 1/2"	6-2-5	Ring, Replaceable TCI Wear Pads	SK12	2	6 5/8" FH	Box	Pin	5,786	2,624
54" 1372 mm	44" 1118 mm	91002007	HO-1372-1118-09E62-K-88B	DR62C	9	17 1/2"	6-2-5	Ring, Replaceable TCI Wear Pads	SK16	2	6 5/8" FH	Box	Pin	7,683	3,485
56" 1422 mm	48" 1219 mm	91002631	HO-1422-1219-08E62-K-88B	DR62C	8	17 1/2"	6-2-5	Ring, Replaceable TCI Wear Pads	SK12	2	6 5/8" FH	Box	Pin	5,908	2,680
60" 1524 mm	56" 1422 mm	91002632	HO-1524-1422-09E62-K-88B	DR62C	9	17 1/2"	6-2-5	Ring, Replaceable TCI Wear Pads	SK12	2	6 5/8" FH	Box	Pin	6,423	2,913

Check availability prior to placing order. Indicate nozzle size when placing order.

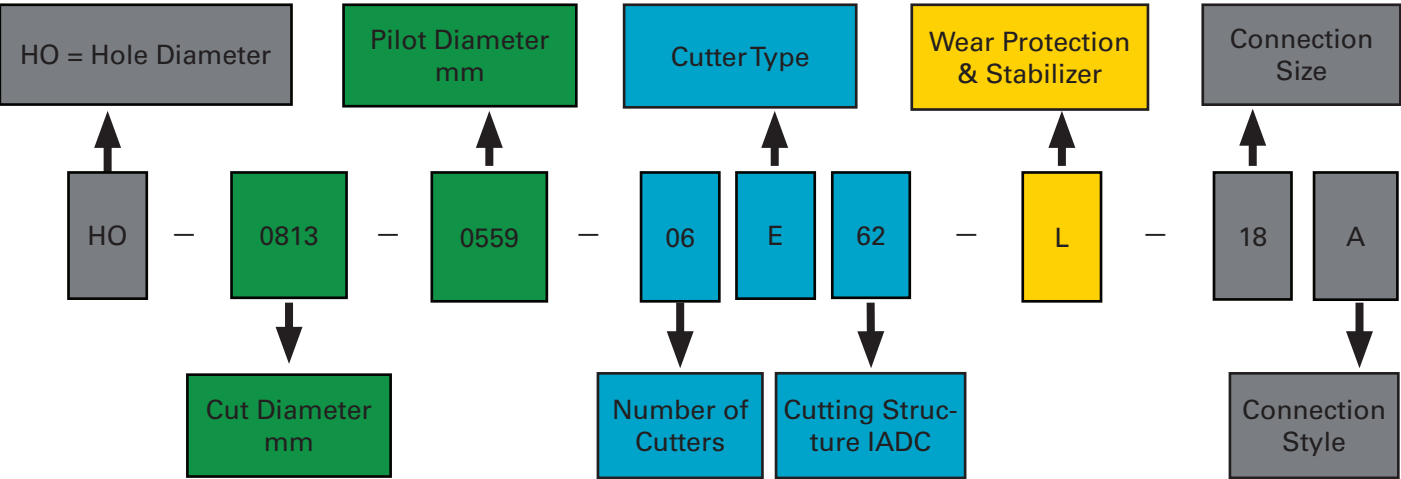
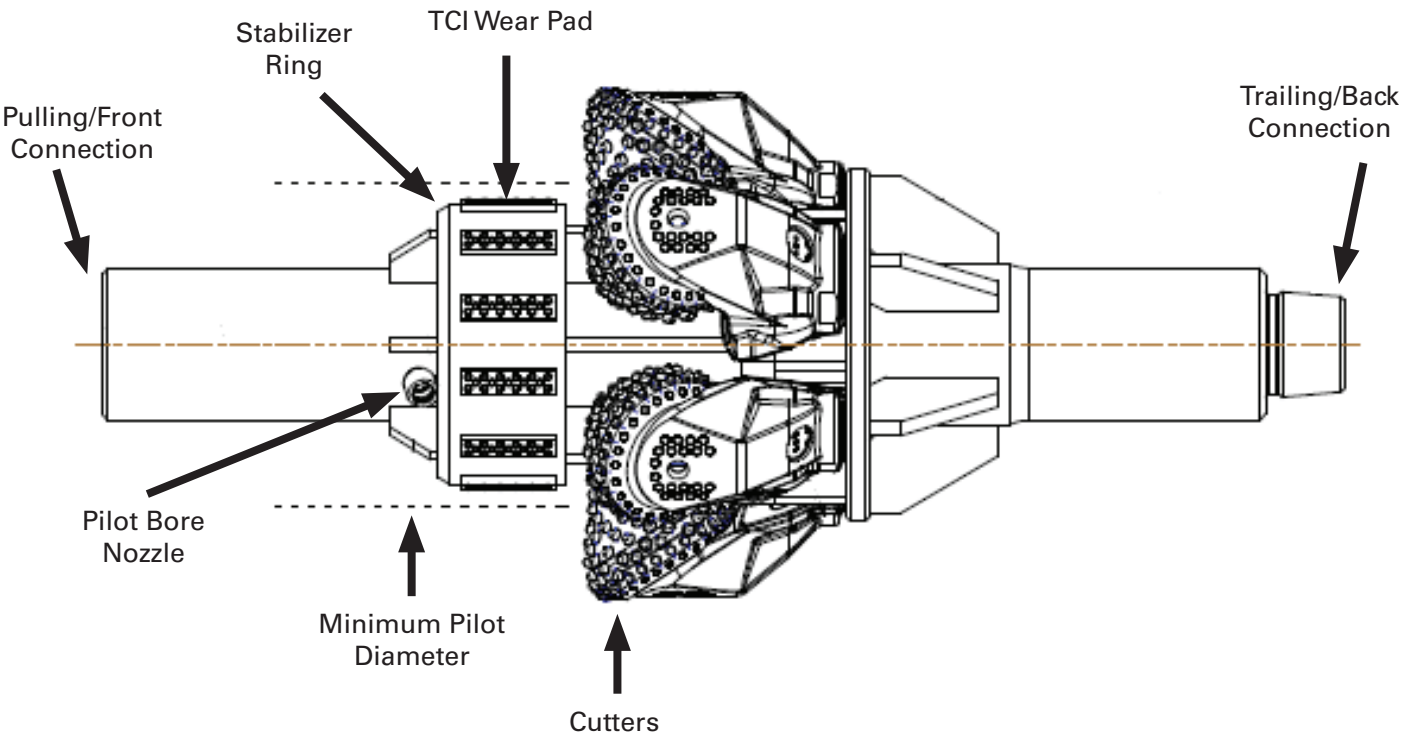


Rendering depicting the Pilot hole being drilled.



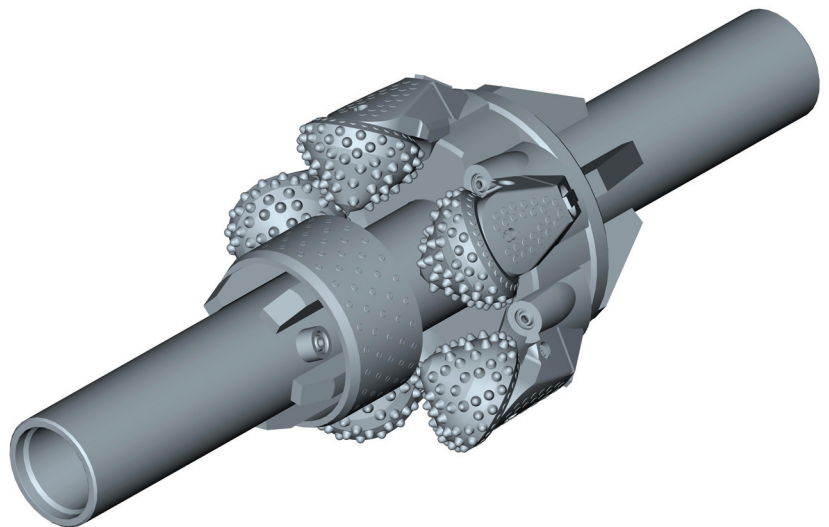
Rendering showing first reaming step.

Catalog codes for HDD Hole Openers



Catalog code matrix for HDD Hole Openers

Cutters		Wear Protection and Stabilization							Connection Size		Connection Style		
Code	Type	Code	Pilot Blades		Stabilizer Ring				Code	Size	Code	Pulling/ Front	Trailing/ Back
			Hard- facing	Rock Breaker	Hard- facing	Hard- facing Pad	TCI Integral	TCI Wear Pad					
B	6 3/4" BitThird	A							13	2 7/8" IF	A	Box	Box
C	9" Bit Third	B	X						41	4 1/2" IF	B	Box	Pin
D	12 1/4" BitThird	C	X	X					88	6 5/8" FH	C	Pin	Pin
E	17 1/2" BitThird	D			X						D	Pin	Box
		E		X	X								
		F				X							
		G		X		X							
		H					X						
		J		X			X						
		K						X					
		L		X				X					





Bullseye Hole Openers

Direct Shot™ Pilot Bits

				2 7/8 IF			4 1/2 IF		
API Pin	Diameter		Product	6 3/4"	9"	12 1/4"			
	in's	mm's							
2 7/8"	4 3/4	121	DS53F						
	4 3/4	121	DS61F						
	5 1/4	133	DS53F	10" x 4 3/4" 61/55 1.7	16" x 9 7/8" 124 1.6	20" x 16" 113 1.6			24" x 20" 138 1.5
	5 1/4	133	DS63C						
	5 1/2	140	DS53F						
	5 1/2	140	DS61F						
	5 1/2	140	DS63C						
3 1/2"	6	152	DS51F						
	6	152	DS61F						
	6	152	DS61F						
	6 1/4	159	DS53F						
	6 1/4	159	DS63C	12 1/4" x 5 1/2" 94/82 1.5					
	6 1/2	165	DS53F						
	6 1/2	165	DS61F						
	6 3/4	171	DS53F						
	6 3/4	171	DS61F						
	6 3/4	171	DS63C						
4 1/2"	8 3/4	222	DS53F		14" x 7 7/8" 105 1.4				
	8 3/4	222	DS61F						
6 5/8"	9 7/8	251	DS53F						
	9 7/8	251	DS61F			20" x 9 7/8" 237/225 1.6			
	9 7/8	251	DS63C						
	10 5/8	270	DS51F						
	10 5/8	270	DS53F						
	10 5/8	270	DS61F						
	12 1/4	311	DS51F				22" x 12 1/4" 113 1.6		
	12 1/4	311	DS53F						
	12 1/4	311	DS61F						
	12 1/4	311	DS63C						
Product diameter				6"	8"	10"	12 1/4"	14"	16"

Pilot bit & Hole Opener step matrix

Connection							
6 5/8 FH							
Bit third size							
17 1/2"							
<div> <div>Legend</div> <div> <div>Hole Opener size</div> <div>Area in sq. removal</div> <div>Over product pipe size (Bored diameter ÷ Product diameter)</div> <div> <div>12 1/4" x 5 1/2"</div> <div>90 / 82 1.5</div> <div>Step path →</div> </div> </div> </div>							
<div> <div>28" x 20"</div> <div>301 1.5/1.4</div> </div> <div> <div>34" x 28"</div> <div>292 1.4</div> </div> <div> <div>32" x 20"</div> <div>490 1.6/1.3</div> </div> <div> <div>32" x 22"</div> <div>424 1.6/1.3</div> </div> <div> <div>28" x 12 1/4"</div> <div>498 1.6/1.4</div> </div> <div> <div>36" x 28"</div> <div>402 1.5</div> </div> <div> <div>40" x 32"</div> <div>452 1.3</div> </div> <div> <div>44" x 32"</div> <div>716 1.4</div> </div> <div> <div>44" x 36"</div> <div>502 1.4</div> </div> <div> <div>48" x 40"</div> <div>553 1.3</div> </div> <div> <div>50" x 44"</div> <div>443 1.4</div> </div> <div> <div>56" x 48"</div> <div>653 1.3</div> </div> <div> <div>54" x 44"</div> <div>769 1.3</div> </div> <div> <div>56" x 50"</div> <div>499 1.3</div> </div> <div> <div>60" x 56"</div> <div>364 1.4</div> </div>							
18"	20"	24"	30"	32"	36"	42"	

Nozzle selection guide

- Select Nozzle bore size based on your available fluid volume and pressure limitations.
- Fluid rates less than 50 GPM (189 LPM) select Steel nozzles.
- Fluid rates more than 50 GPM (189 LPM) select Carbide nozzles.



Size	Material	Product Number	Bore Size	
			In	mm
SB-06S	Steel	91000106	6/32	0.188" 4.763 mm
SB-08S	Steel	45100748	8/32	0.250" 6.35 mm
SB-10S	Steel	45100749	10/32	0.313" 7.938 mm
SF-06S	Steel	91000102	6/32	0.188" 4.763 mm
SF-08S	Steel	45100750	8/32	0.250" 6.35 mm
SF-10S	Steel	91001238	10/32	0.313" 7.938 mm
SF-10C	Carbide	91000779	10/32	0.313" 7.938 mm
SF-12S	Steel	91001239	12/32	0.375" 9.525 mm
SF-12C	Carbide	91000883	12/32	0.375" 9.525 mm
SK-10C	Carbide	91000889	10/32	0.313" 7.938 mm
SK-12C	Carbide	91000890	12/32	0.375" 9.525 mm
SK-14C	Carbide	91000891	14/32	0.438" 11.125 mm
SK-16C	Carbide	91000892	16/32	0.5" 12.7 mm
SK-18	Carbide	91000893	18/32	0.563" 14.288 mm
SK-20	Carbide	91000894	20/32	0.625" 15.875 mm

Nozzle selection guide

Product	Size in Inches	Nozzle		
		SB	SF	SK
Direct Shot™ Bits	4 3/4	X		
	5 1/4		X	
	5 1/2		X	
	6		X	
	6 1/2		X	
	6 3/4		X	
	8 3/4			X
	9 7/8			X
	10 5/8			X
	12 1/4			X
Bullseye Bit Thirds	6 3/4		X	
	9		X	
	12 1/4			X
	17 1/2			X
Bullseye Hole Openers	10			
	12 1/4			
	14			
	16		X	
	20			X
	22			X
	24			X
	28			X
	32			X
	34			X
	44			X
	54			X
	60			X

Size	Snap Ring Product Number	O-ring Product Number
SB	91000122	91000121
SF	91001395	91001688
SK	91001077	91001078



Bit / Formation Selection Chart

Tricone Carbide Insert Rock Bit Series vs. Rock Hardness			
Rock UCS (PSI)	Tungsten Carbide Insert Tricone Bit Series		Rock Type
0	40 Series 4-1 to 4-4		Claystone, Mudstone
			Chalky Limestone
4,000			Soft Shale
			Loose Sandstones
8,000	50 Series 5-1 to 5-4		Limestone, Siltstone
			Solid Sandstones
12,000			Medium Shales
			Tuff, Soft Schist
16,000	60 Series 6-1 to 6-4		Andesite, Rhyolite
			Quartzite (Sand, Silt)
20,000			Limestone, Marble
			Monzonite, Granite
24,000	70 Series 7-1 to 7-4		Gneiss
			Diorite, Diabase
28,000			Hard Shale, Slate
			Limestone, Dolomite
32,000	80 Series 8-1 to 8-4		Basalt
			Tactite, Skarn
36,000			Granodiorite
			Tacorite
40,000			Quartzite
			Syenite
44,000			Gabbro
48,000			Banded Iron Formation
			Taconite
52,000			Chert
56,000			Quartzite
60,000			Amphibolite
64,000			Hornfels
68,000			Hematite Ore
Higher			'Lava', Basalt, Biwabic, Quartzite

Rock UCS hardness (Unconfined Compressive Strength) is only one factor that contributes to the "drillability" of any rock. Other factors strongly influencing drillability are: fracture toughness, shear strength, Young's Modulus of Elasticity, Poisson's Ratio of Stress vs. Strain, internal angle of friction. Any particular bit may be used in harder or softer rock than this chart indicates.

Specifying tooling

HDD Hole Openers are specified by the diameter of the Hole Opener and the minimum pilot bore diameter they can follow.

- Hole Opener Size x Pilot Hole Size (minimum).
- Generally the final bore size is 50% larger than the product pipe or 33% larger for product pipe over 24" in diameter. It may take several passes using increasing sizes of Hole Openers, known as reaming steps, to ream a hole to the final diameter. The number of Hole Openers or reaming steps, can readily be determined once the following information is known.

Min. parameters required for Hole Opener specification:

Pilot drill size					
Finished hole size					
Formation UCS					
Type of formation					
Bore length					
Pipe bevel diameter					
Connection pulling					
Connection trailing					
Pulling length of shank (if specific requirement)					
Trailing length of shank (if specific requirement)					
Machine pulling capacity (pounds of thrust/pullback)					
Mud flow and pressure available					
	Step 1	Step 2	Step 3	Step 4	Step 5
Steps planned					
HO product number					
Weight on bit					
RPM not to exceed					
Stabilizer					
Special features needed as per application					

Design to order

Atlas Copco Sec-oroc engineers can design Hole Openers to your specific needs. Simply supply the above information to your local sales representative.



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