



BD Drill

REVERSE CIRCULATION HAMMERS AND BITS

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Black Diamond Drilling Services Australia Pty Ltd



Reverse Circulation Hammers & Bits

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Selecting the Right Hammer

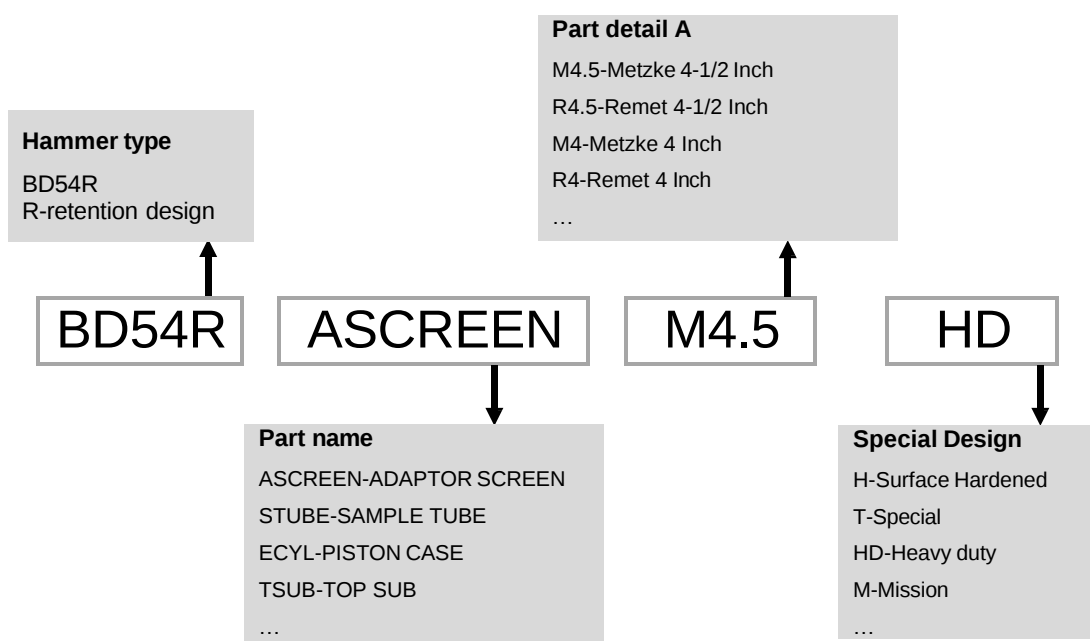
Black Diamond's reverse circulation hammers are specifically designed for all kind of exploration drilling (deep hole and pit grade control applications).

Whether you are exploring potential sites or working an existing mine, the BDDRILL RC hammer will assure high performance, exceptional reliability and dependable support.

Product codes

Product codes are a valuable tool to describe and identify the product. In the code structure we have tried to describe the product features with Alpha-numerical system that is not always 100% logical, but with the attached key you will be able to find the product you are looking for or a suitable alternative product.

Example A: BDR54R-ASCREEN-M4.5-HD

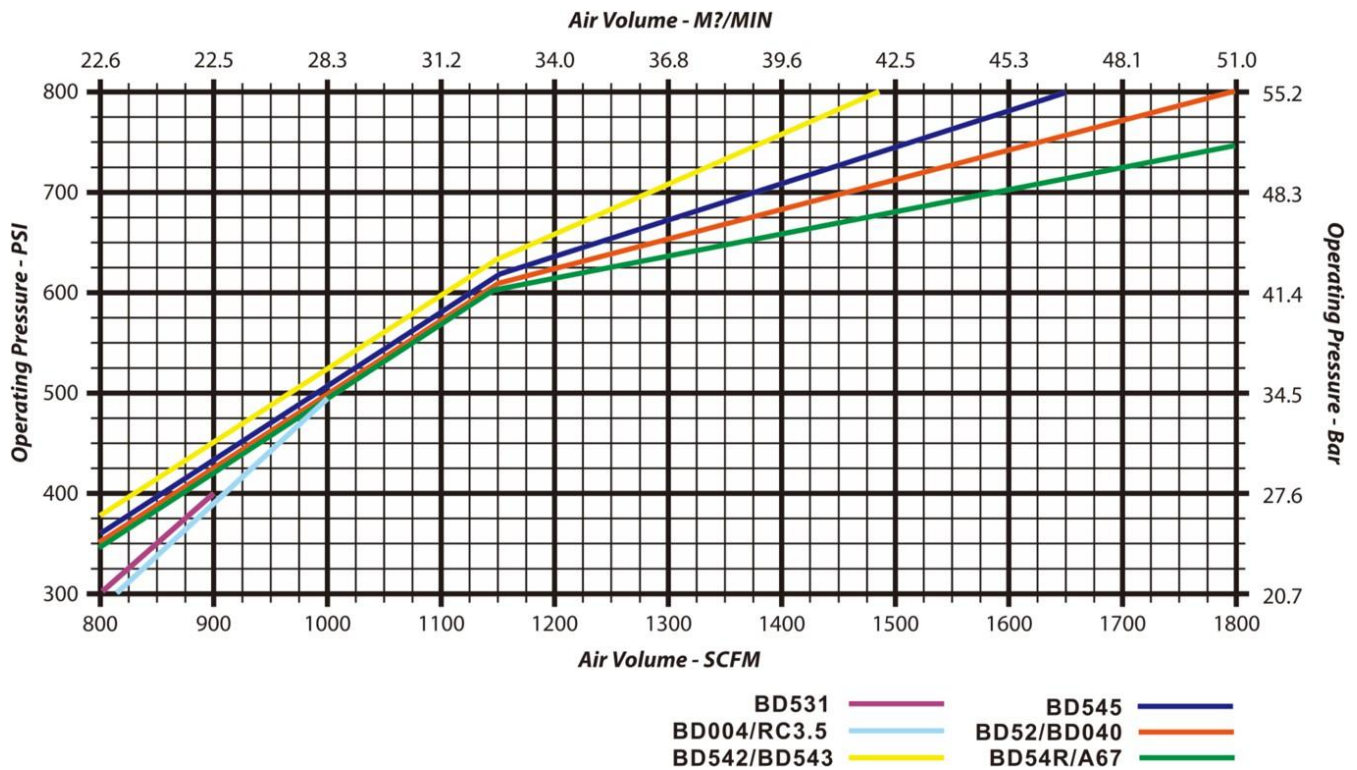


SPECIFICATIONS

Hammer	BD351	RC3.5	BD004			BD542			BD543		BD545		BD040				BD52		BD54		A67
Top sub thread	R3"	R3"	R3.5"	R4"	M4"	R3.5"	R4"	M4"	R4"	M4"	M4.5	R4.5	M4"	R4"	M4.5"	R4.5"	m4.5"	R4.5"	M4.5"	R4.5	M4.5"
Package case size	(L)1100 (W)110 (H)120	(L)1230 (W)120 (H)150	(L)1300 (W)150 (H)180			(L)1230 (W)140 (H)170					(L)1260 (W)150 (H)180		(L)1300 (W)150 (H)180				(L)1300 (W)160 (H)190		(L)1300 (W)160 (H)190		(L)1330 (W)160 (H)190
Recommended bit size, mm	86-100	100-110	111-125			113-133					123-140		127-140				133-143		136-146		136-146
Bit shank	RE531	RC3.5	RE004			RE542			RE543		RE545		RE040				PR52		PR54		BD67
External diameter, mm	81	94	107			109.5			116		117.5		121				120.5		130		132
Length excl. thread, mm (Less bit)	1069	1184	1252			1191					1261		1210				1227		1294		1200
Hammer weight, Kg (Less bit)	29	44	52			57			63		65		53.8	47.5	69.8	69.4	68.5		84.5		81.8
Piston weight, Kg	4.8	8.3	10.5			11.6			11.6		13.5		13.6				14.3		16.8		17
Wrench flat, mm	No wrench flat	(L)82 (W)40	(L)90 (W)40	(L)90 (W)50	(L)90 (W)50	(L)95 (W)45	(L)95 (W)45	(L)95 (W)50	(L)95 (W)45	(L)95 (W)50	(L)102 (W)50	(L)102 (W)50	(L)94 (W)50	(L)94 (W)50	(L)94 (W)50	(L)94 (W)50	(L)94 (W)50	(L)94 (W)50	(L)100 (W)50	(L)100 (W)50	(L)95 (W)51

Drilling conditions and project specifications may require a larger air package to be used

AIR CONSUMPTION/OPERATING PRESSURE



Reverse Circulation Service Guide

When breaking a hammer down, avoid placing breakout tools in the mid-section of the cylinder (barrel). Recommended breakout points are 130mm from each end of cylinder. Wrap around chain breakouts are recommended (see diagram). When holding bits for breakout, use a secure plate or opt to grab the bit head, but never on the gauge row buttons.

This information is included with every Hammer purchase.



DO NOT APPLY HEAT OR DIRECT IMPACT TO HAMMER WHEN CRACKING JOINTS AS THIS TYPICALLY DAMAGES THE HAMMER.

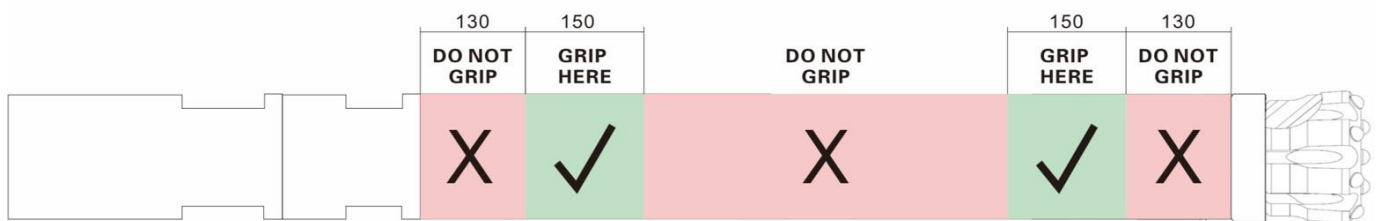


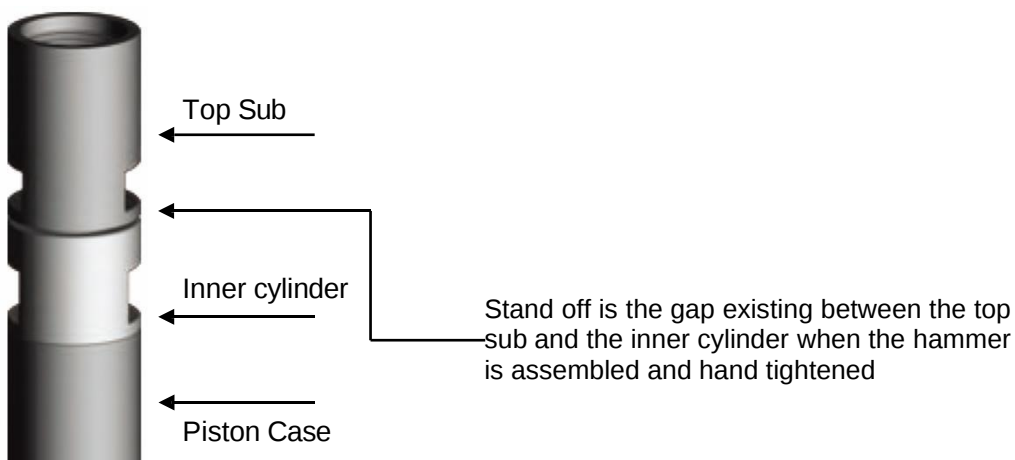
Figure 1: Gripping Locations for BD DRILL Reverse Circulation Hammer

Lubrication

Correct lubrication is critical to the performance and longevity of the hammer.

Recommended:

- Oil Grade: SAE 320 Hammer Oil for most operating conditions
- Rate: 2 litre/hour minimum via automatic feeder
- Double the rate when injecting fluids such as water, foam & polymers
- Clean and relubricate the hammer each day after use to prevent corrosion and premature failure



Stand off

0.6mm to 1mm

0.024" to 0.04"

BD531 R.C. HAMMER

3" R.C. Hammers	Item Description	Weight Kg	Part Number
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1	Top Sub-Remet 3"	3.76	BD531-TSUB-R3
2	O Ring (Adaptor Tube Remet 3") x 2	0.01	BD531-SK-TSUB-R3
	Adaptor Tube Remet 3"	1.85	BD531-ASCREENR3
3	O Ring (Sample Tube) x 4	0.01	BD531-SK-STUBE
4	Sample Tube	1.97	BD531-STUBE
5	Circlip	0.04	BD531-CIRCLIP
6	O Ring (Distributor 1) x 2	0.01	BD531-SK-DIST-1
7	O Ring (Distributor 2) x 1	0.01	BD531-SK-DIST-2
	Distributor	0.37	BD531-DIST
9	Check Valve/Plunger	0.08	BD531-CVALVE
10	O Ring (Check Valve) x 1	0.01	BD531-SK-CVALVE
11	Spring	0.1	BD531-SPRING
12	Mount Sample Tube	0.49	BD531-STUBE-MOUNT
13	Inner Cylinder/Top Barrel	3.4	BD531-ICYL
14	O Ring (Inner Cylinder) x 1	0.01	BD531-SK-ICYL
15	Piston	4.69	BD531-PISTON
16	External Cylinder/Barrel/Piston Case	9.2	BD531-ECYL
17	Seal Cover/ O Ring (Bearing Bush) x 2	0.02	BD531-SCOVER
18	Bearing Bush	1.03	BD531-BUSH
19	Bit Stop Ring	0.08	BD531-SRING
20	O Ring (Bit Stop Ring) x 1	0.01	BD531-SK-SRING
21	Shroud	0.45	BD531-SHROUD-85/83
22	Drive Sub	1.6	BD531-DSUB
23	Drill Bit	4.2	BD531-85DC-TV
25	Seal Kit (Item 2+4+7+8+11+18+21)	0.2	BD531-SK

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1069mm	29.0kg	Φ81mm	BD531	Φ84- Φ100	3 " Remet
Box Size	Impact rate At 2.4Mpa	Recommended rotation speed	Air Consumption		
			200-500(PSI)		
1100x110x120mm	30Hz	25-40r/min	300-1200(CFM)		

RC3.5 R.C. HAMMER

3.5" R.C. Hammers	Item Description	Weight Kg	Part Number
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1	Top Sub-Remet 3"	6.13	RC3.5-TSUB-R3
2	Adaptor Tube Remet 3"	1.49	RC3.5-ASCREEN-R3
O Ring (Adaptor Tube Remet 3") x 2		0.01	RC3.5-SK-ASCREEN-R3
3	Sample Tube	3.31	RC3.5-STUBE
O Ring (Sample Tube) x 6		0.01	RC3.5-SK-STUBE
Circlip		0.01	RC3.5-CIRCLIP
6	Distributor	0.3	RC3.5-DIST
7	Top Barrel (Sub)	5.38	RC3.5-TBARREL
9	Check Valve/Plunger	0.28	RC3.5-CVALVE
Y Ring (Check Valve)		0.01	RC3.5-SK-CVALVE
10	Spring	0.05	RC3.5-SPRING
11	Compression Buffer/Make up Ring Steel	0.28	RC3.5-MUR-STEEL
13	Mount Sample Tube	0.87	RC3.5-STUBE-MOUNT
14	Inner Cylinder	1.26	RC3.5-ICYL
15	Piston	8.33	RC3.5-PISTON
16	External Cylinder/Barrel/Piston Case	10.8	RC3.5-ECYL
17	Bearing Bush (Cold Pressed)	1.47	RC3.5-BUSH
18	O Ring (Bit Stop Ring) x 1	0.01	RC3.5-SK-SRING
19	Bit Stop Ring	0.17	RC3.5-SRING
20	Shroud	1.1	RC3.5-SHROUD-104/102
21	Drive Sub	2.9	RC3.5-DSUB
22	Drill Bit	8.0	RC3.5-104DC-TV
23	Seal Kit (3+5+10+18)	0.2	RC3.5-SK

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1184mm	44.0kg	Φ94mm	RC3.5Y	Φ100- Φ110	3 " Remet
Box Size	Impact rate At 2.4Mpa	Recommended rotation speed	Air Consumption		
			200-500(PSI)		
1230x120x150mm	30Hz	25-40r/min	300-1200(CFM)		

BD004 R.C. HAMMER

4" R.C. Hammers		Item Description	Weight Kg	Part Number
		A Top sub Assy Remet 3.5"		
		1 Circlip	0.02	BD004-CIRCLIP
		2 O Ring (Adaptor Tube Remet 3.5) x 4	0.02	BD004-SK-ASCREEN3.5
		3 Adaptor Tube Remet 3.5"	1.06	BD004-ASCSCREEN-R3.5
		4 Top Sub-Remet 3.5"	7.79	BD004-TSUB-R3.5
		B Top sub Assy Remet 4"		
		1 Circlip	0.02	BD004-CIRCLIP
		O Ring (Adaptor Tube Remet 4") x 4	0.02	BD004-SK-ASCREENR4
		2 Adaptor Tube Remet 4"	1.06	BD004-ASCSCREEN-R4
		3 Top Sub-Remet 4"	7.79	BD004-TSUB-R4
		C Top sub Assy Metzke 4"		
		1 Circlip	0.02	BD004-CIRCLIP
		2 O Ring (Adaptor Metzke 4") x 2	0.02	BD004-SK-ASCSCREENM4
		3 Adaptor Tube Metzke 4"	1.06	BD004-ASCSCREEN-M4/54 BD004-ASCSCREEN-M4/57
		4 Top Sub-Metzke 4"	7.79	BD004-TSUB-M4
		Parts List		
		5 Check Valve/Plunger	0.51	BD004-CVALVE
		6 Y Ring (Check Valve)	0.01	BD004-SK-CVALVE
		7 Spring	0.06	BD004-SPRING
		8 Sample Tube Upper	0.74	BD004-STUBE-U
		9 Make Up Ring, Steel	0.17	BD004-MUR-STEEL
		10 O Ring (Sample Tube) x 2	0.02	BD004-SK-STUBE1
		11 O Ring (Sample Tube) x 1	0.02	BD004-SK-STUBE2
		12 Sample Tube Lower	2.38	BD004-STUBE
		13 Distributor	1.75	BD004-DIST
		14 O Ring (Distributor)	0.02	BD004-SK-DIST
		15 Inner Cylinder	2.45	BD004-ICYL
		16 Piston	10.45	BD004-PISTON
		17 Piston Case with Bush (cold press)	17.95	BD004-ECYL
		18 Bit Stop Ring	0.29	BD004-SRING
		19 O Ring (Bit Stop Ring)	0.02	BD004-SK-SRING
		20 Shroud	1.05	BD004-SHROUD-115/113
		21 Drive Sub	3.13	BD004-DSUB
		22 Drill Bit	11.7	BD004-115DC-TV

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1252mm	52.0kg	Φ107mm	BD004	Φ111- Φ127	3.5" – 4" Remet 4" Metzke
Box Size	Impact rate At 2.4Mpa	Recommended rotation speed	Air Consumption		
			200-500(PSI)		
1300x150x180mm	30Hz	25-40r/min	300-1200(CFM)		

BD542 R.C. HAMMER

4.5" R.C. Hammers	Item Description	Weight Kg	Part Number
	A Top sub Assy Remet 3.5"		
	1 Circlip A	0.04	BD543/542-CIRCLIP-R3.5
	2 O Ring (Adaptor Tube Remet 3.5") x 4	0.02	BD543/542-SK-ASCREEN3.5
	3 Adaptor Tube Remet 3.5"	2.55	BD543/542-ASCSCREEN-R3.5
	4 Top Sub-Remet 3.5"	8.52	BD543/542-TSUB-R3.5
	B Top sub Assy Remet 4"		
	1 Circlip A	0.02	BD543/542-CIRCLIP-4
	2 O Ring (Adaptor Tube Remet 4") x 4	0.02	BD543/542-SK-ASCREENR4
	3 Adaptor Tube Remet 4"	2.55	BD543/542-ASCSCREEN-R4
	4 Top Sub-Remet 4"	8.52	BD543/542-TSUB-R4
	C Top sub Assy Metzke 4"		
	1 Circlip A	0.02	BD543/542-CIRCLIP-4
	2 O Ring (Adaptor Metzke 4") x 2	0.02	BD543/542-SK-ASCREENM4
	3 Adaptor Tube Metzke 4"	2.55	BD543/542-ASCSCREEN-M4
	4 Top Sub-Metzke 4"	8.52	BD543/542-TSUB-M4
	Parts List		
	5 Sample Tube	3.5	BD543/542-STUBE
	6 O Ring (Sample Tube) x 5	0.02	BD543/542-SK-STUBE
	7 Circlip B	0.02	BD543/542-CIRCLIP-4
	8 Air Screen	0.04	BD543/542-AIRSCREEN
	9 Distributor	0.56	BD543/542-DIST
	10 O Ring (Distributor)	0.02	BD543/542-SK-DIST
	11 Check Valve/Plunger	0.5	BD543/542-CVALVE
	12 Y Ring (Check Valve)	0.02	BD543/542-SK-CVALVE
	13 Spring	0.08	BD543/542-SPRING
	14 Mount Sample Tube	0.86	BD543/542-STUBE-M
	15 Y Ring (Mount Sample Tube)	0.02	BD543/542-SK-STUBEM
	16 Inner Cylinder/Top Barrel	7.26	BD542-ICYL
	17 O Ring (Inner Cylinder)	0.02	BD543/542-SK-ICYL
	18 Piston	11.64	BD543/542-PISTON
	19 External Cylinder/Barrel/Piston Case	19.17	BD542-ECYL
	20 Bearing Bush	0.05	BD543/542-PRING
	21 Bush Retaining Ring	2.35	BD543/542-BUSH
	22 O Ring (Bearing Bush) x 2	0.02	BD543/542-SK-BUSH
	23 Bit Ring	0.26	BD543/542-SRING
	24 O Ring (Bit Ring)	0.02	BD543/542-SK-SRING
	25 Shroud	2.21	BD543/542-SHROUD-127/125
	26 Drive Sub	2.94	BD543/542-DSUB
	27 Drill Bit	10.96	BD543/542-127DC
	28 Seal Kit (Item2+6+10+12+15+17+22+24)	0.3	BD543/542-SK

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1191mm	57.0kg	Φ109.5mm	BD542	Φ113- Φ130	3.5" – 4" Remet 4" Metzke
Box Size	Impact rate At 2.4Mpa	Recommended rotation speed		Air Consumption	
1230x140x170mm	35Hz	25-40r/min		200-500(PSI) 300-1200(CFM)	

BD543 R.C. HAMMER

4.5" R.C. Hammers

	Item Description	Weight Kg	Part Number
A	Crossover sub Assy PIN Metzke 4"(54mm) to Remet 4"(blank, Matrix, Drill Star...) PIN to BOX CROSSOVER SUB ASSEMBLY OD116MM ADAPT-PM4BR4-116/54		
1	Top Sub-Remet 4" Adaptor Tube	7.79	ADPAT-SUB-PM4BR4-116/54
2	Remet 4"	1.06	ADAPT-ATUBE-PM4BR4
3	O Ring (Adaptor Tube Remet 4") x4	0.02	SK-BR4
4	Circlip A	0.02	BD543/542-CIRCLIP-4
Parts List			
5	Sample Tube-Metzke 4"	3.5	BD543/542-STUBE-M4/54
6	O Ring (Sample Tube) x 5	0.02	BD543/542-SK-STUBE
7	Circlip B	0.02	BD543/542-CIRCLIP-4
8	Air Screen	0.04	BD543/542-AIRSCREEN
9	Distributor	0.56	BD543/542-DIST
10	O Ring (Distributor)	0.02	BD543/542-SK-DIST
11	Check Valve/Plunger	0.5	BD543/542-CVALVE
12	Y Ring (Check Valve)	0.02	BD543/542-SK-CVALVE
13	Spring	0.08	BD543/542-SPRING
14	Mount Sample Tube	0.86	BD543/542-STUBE-M
15	O Ring (Mount Sample Tube)	0.02	BD543/542-SK-STUBEM
16	Inner Cylinder/Top Barrel-Metzke 4" (to build 543 Hammer with thread of metzke 4")	7.26	BD542-ICYL-M4/54
17	O Ring (Inner Cylinder)	0.02	BD543/542-SK-ICYL
18	Piston	11.64	BD543/542-PISTON
19	External Cylinder/Barrel/Piston Case	19.17	BD542-ECYL
20	Bearing Bush	0.05	BD543/542-PRING
21	Bush Retaining Ring	2.35	BD543/542-BUSH
22	O Ring (Bearing Bush) x 2	0.02	BD543/542-SK-BUSH
23	Bit Ring	0.26	BD543/542-SRING
24	O Ring (Bit Ring)	0.02	BD543/542-SK-SRING
25	Shroud	2.21	BD543/542-SHROUD-127/125
26	Drive Sub	2.94	BD543/542-DSUB
27	Drill Bit	10.96	BD543/542-127DC
28	Seal Kit (Item2+6+10+12+15+17+22+24)	0.3	BD543/542-SK

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1191mm	62.0kg	Φ116mm	BD543	Φ113- Φ133	3" – 4" Remet 4" Metzke
Box Size	Impact rate At 2.4Mpa	Recommended rotation speed		Air Consumption	
1230x140x170mm	35Hz	25-40r/min		200-500(PSI)	
				300-1200(CFM)	

BD545 R.C. HAMMER

5" R.C. Hammers



Item Description	Weight Kg	Part Number
A Crossover sub Assy PIN Metzke 4.5"(57mm) to Remet 4.5"(blank, Matrix, Drill Star...) PIN to BOX CROSSOVER SUB ASSEMBLY OD117MM ADAPT-PM4BR4-117/57		
1 Top Sub-Remet 4.5"	7.79	SUB-RC-PM45BR45-117
2 Adaptor Tube Remet 4.5"	1.06	ADAPT-ATUBE-PM45BR45
3 O Ring (Adaptor Tube Remet 4.5") x6	0.02	SK-BR45
4 Circlip A	0.02	BD545-CIRCLIP-A
Parts List		
5 Sample Tube	4.61	BD545-STUBE-M4.5
6 O Ring (Sample Tube) x 4	0.02	BD545-SK-STUBE
7 Circlip B	0.02	BD545-CIRCLIP-4
8 Air Screen	0.04	BD545-AIRSCREEN
9 Distributor	0.48	BD545-DIST
10 O Ring (Distributor) x2	0.02	BD545-SK-DIST
11 Check Valve/Plunger	0.53	BD545-CVALVE
12 Y Ring (Check Valve)	0.02	BD545-SK-CVALVE
13 Spring	0.12	BD545-SPRING
14 O Ring (Inner Cylinder	0.02	BD545-SK-ICYL
15 Inner Cylinder/Top Barrel	10.2	BD545-ICYL-M4.5
16 Piston	15.1	BD545-PISTON
17 External Cylinder/Barrel/Piston Case	17.2	BD545-ECYL
18 Bearing Bush	2.95	BD545-BUSH
19 O Ring (Bearing Bush) x 4	0.05	BD545-SK-BUSH
20 Bush Retaining Ring	0.02	BD545-PRING
21 Bit Ring	0.26	BD545-SRING
22 O Ring (Bit Ring)	0.02	BD545-SK-SRING
23 Shroud	1.6	BD545-SHROUD127/125
24 Drive Sub	3.41	BD545-DSUB
25 Drill Bit	12.6	BD545-133DC
26 Seal Kit (Item 2+4(3)+7+11+13+15+20+23)	0.3	BD545-SK

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1261mm	65.0kg	Φ117.5mm	BD545	Φ123- Φ140	4" – 4.5" Remet 4" – 4.5" Metzke
Box Size	Impact rate At 2.4Mpa	Recommended rotation speed		Air Consumption	
1260x150x180mm	35Hz	25-40r/min		300-1200(CFM)	

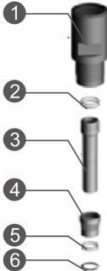
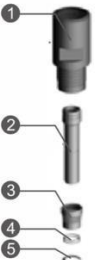
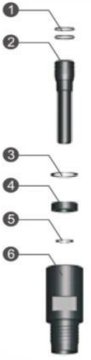
BD547 R.C. HAMMER

5" R.C. Hammers	Item Description	Weight Kg	Part Number
	A Top sub Assy Remet 3.5"		
	1 Circlip A	0.04	BD547-CIRCLIP-R4.5
	2 O Ring (Adaptor Tube Remet 4.5") x 4	0.02	BD547-SK-ASCREEN4.5
	3 Adaptor Tube Remet 4.5"	2.95	BD547-ASCREEN-R4.5
	4 O Ring (Adaptor Tube) x 2	0.02	BD547-SK-ASCREENMR
	5 Top Sub-Remet 3.5"	6.98	BD547-TSUB-R4.5
	B Top sub Assy Metzke 4.5"		
	1 Circlip A	0.04	BD547-CIRCLIP-M4.5
	2 Adaptor Tube Metzke 4.5	2.95	BD547-ASCREEN-M4.5
	3 O Ring Adaptor Tube x 2	0.02	BD547-SK-ASCREENMR
	4 Top Sub-Metzke 4.5"	6.98	BD547-TSUB-M4.5
	Parts List		
	6 Sample Tube	4.61	BD547-STUBE
	7 O Ring (Sample Tube) x 4	0.02	BD547-SK-STUBE
	8 Circlip B	0.02	BD547-CIRCLIP-4
	9 Air Screen	0.04	BD547-AIRSCREEN
	10 Distributor	0.48	BD547-DIST
	11 O Ring (Distributor) x 2	0.02	BD547-SK-DIST
	12 Check Valve/Plunger	0.53	BD547-CVALVE
	13 Y Ring (Check Valve)	0.02	BD547-SK-CVALVE
	14 Spring	0.12	BD547-SPRING
	15 O Ring (Inner Cylinder)	0.02	BD547-SK-ICYL
	16 Inner Cylinder/Top Barrel	10.2	BD547-ICYL
	17 Piston	15.1	BD547-PISTON
	18 External Cylinder/Barrel/Piston Case	17.2	BD547-ECYL
	19 Bearing Bush	0.05	BD547-PRING
	20 O Ring (Bearing Bush) x 2	2.95	BD547-BUSH
	21 Bush Retaining Ring	0.02	BD547-SK-BUSH
	22 Bit Ring	0.26	BD547-SRING
	23 O Ring (Bit Ring)	0.02	BD547-SK-SRING
	24 Shroud	1.6	BD547-SHROUD-127/125
	25 Drive Sub	3.41	BD547-DSUB
	26 Drill Bit	12.6	BD547-133DC
	27 Seal Kit (Item 2+4(3)+7+11+13+15+21+233)	0.3	BD547-SK

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1292mm	80.0kg	Φ124.4mm	BD547	Φ133- Φ146	4" – 4.5" Remet 4"-4.5" Metzke
Box Size	Impact rate At 2.4Mpa	Recommended rotation speed		Air Consumption	
1300x160x190mm	35Hz	25-40r/min		200-500(PSI) 300-1200(CFM)	

BD040 R.C. HAMMER

5" R.C. Hammers	Item Description	Weight Kg	Part Number
 Top Sub Assembly-A	A Top sub Assy Remet 4"		
	① Top Sub-Remet 4"	7.79	BD040-TSUB-R4
	② O Ring (Adaptor Tube Remet 4") x2	0.02	BD040-SK-ASCREEN-R4
	③ Adaptor Tube Remet 4"	1.51	BD040-ASCREEN-R4
	④ Air Screen	0.5	BD040-AIRSCREEN
	⑤ O Ring (Air Screen) x 2	0.02	BD040-SK-AIRSCREEN
	⑥ Circlip	0.02	BD040-CIRCLIP
 Top Sub Assembly-B	B Top sub Assy Metzke 4"		
	① Top Sub-Metzke 4"	7.79	BD040-TSUB-M4
	② Adaptor Tube Metzke 4"	1.51	BD040-ASCREEN-M4
	③ Air Screen	0.5	BD040-AIRSCREEN
	④ O Ring (Air Screen) x 2	0.02	BD040-SK-AIRSCREEN
	⑤ Circlip	0.02	BD040-CIRCLIP
 Top Sub Assembly-C	C Top sub Assy Metzke 4.5"		
	① Top Sub-Metzke 4.5"	7.79	BD040-TSUB-M4.5
	② Adaptor Tube Metzke 4.5"	1.51	BD040-ASCREEN-M4.5
	③ Air Screen	0.5	BD040-AIRSCREEN
	④ O Ring (Air Screen) x 2	0.02	BD040-SK-AIRSCREEN
	⑤ Circlip	0.02	BD040-CIRCLIP
 Top Sub Assembly-D	D Top sub Assy Remet 4.5"		
	① O Ring (Adaptor Tube Remet 4.5") x2	0.02	BD040/52-SK-ASCREEN-R4.5
	② Adaptor Tube Remet 4.5"	1.51	BD040/52-ASCREEN-R4.5
	③ Circlip A	0.02	BD040/52-CIRCLIP-1
	④ Air Screen	0.5	BD040/52-AIRSCREEN-R4.5
	⑤ Circlip B	0.02	BD040/52-CIRCLIP-2
	⑥ Top Sub-Remet 4.5"	7.79	BD040-TSUB-R4.5

BD040 R.C. HAMMER

5" R.C. Hammers	Item Description	Weight Kg	Part Number
	7 Check Valve/Plunger	0.63	BD040/52-CVALVE
	8 Y Ring (Check Valve)	0.01	BD040/52-SK-CVALVE
	9 Spring	0.12	BD040/52-SPRING
	10 Spring Seat	0.12	BD040/52-SSEAT
	11 Make Up Ring, Steel	0.09	BD040/52-MUR-STEEL
	12 Make Up Ring, Viton	0.06	BD040/52-MUR-VITON
	13 Distributor	1.75	BD040/52-DIST
	14 O Ring (Distributor) x 1	0.02	BD040/52-SK-DIST
	15 O Ring (Sample Tube) x 2	0.02	BD040-SK-STUBE1
	16 O Ring (Sample Tube) x 1	0.02	BD040-SK-STUBE2
	17 Sample Tube Lower	4.32	BD040-STUBE
	18 Mount Sample Tube	1	BD040-STUBE-MOUNT
	19 O Ring (Mount Sample Tube) x 1	0.02	BD040-SK-STUBE-M
	20 Inner Cylinder	7.69	BD040-ICYL
	21 Piston	13.63	BD040-PISTON
	22 External Cylinder/Barrel/Piston Case	24.14	BD040-ECYL
	23 Piston Retaining Ring	0.1	BD040-PRING
	24 Bearing Bush	1.89	BD040-BUSH
	25 O Ring (Bearing Bush) x 1	0.02	BD040-SK-BUSH1
	26 O Ring (Bearing Bush) x 1	0.02	BD040-SK-BUSH2
	27 Bit Stop Ring	0.31	BD040-SRING
	28 O Ring (Bit Stop Ring) x 1	0.02	BD040-SK-SRING
	29 Shroud	2.2	BD040-SHROUD-136/134
	30 Drive Sub	3.67	BD040-DSUB
	31 Drill Bit	15.09	BD040-136DC-TV
	32 Seal Kit (Item2(1)+5(4)+8+14+15+16+19+25+26+28)	0.2	BD040-SK

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1362mm	80.5kg	Φ120.5mm	BD040	Φ124- Φ142	3.5" – 4.5" Remet 3.5"- 4.5" Metzke
Working Pressure	Impact rate At 2.4Mpa	Recommended rotation speed		Air Consumption	
				200-500(PSI)	
1.5-3.5Mpa	35Hz	25-40r/min		300-1200(CFM)	

RC121-BD040 R.C. HAMMER

4.5" R.C. Hammers	Item No.	Crossover Sub Remet 4 1/2"(Thread available in Drill Star, Matrix and Blank
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1	DAPT-PM45BR45-121	Pin to Box Crossover Sub Assembly Od121mm
2	ADAPT-SUB-PM45BR45-121	Pin to Box Crossover Sub Od121mm
3	SK-BR45	O Ring (Box Remet 4.5")
4	ATUBE-PM45BR45	Adaptor Tube Pin to Box
5	SKOPM45	O Ring (Pin Metzke 4.5)

Item Description	Weight Kg	Part Number
6 Inner Cylinder	8.95	RC121-ICYL-M4.5
7 O Ring x 1	0.02	RC121-SK-ICYL
8 Sample Tube	5.2	RC121-STUBE-H
9 O Ring x 5	0.02	BD67/RC121-SK-STUBE
10 Circlip B	0.02	BD67/RC121-CIRCLIP-1
11 Air Screen	0.02	BD67/RC121-AIRSCREEN-1
12 Distribution Nozzle	0.48	BD67/RC121-DIST-1
13 "O" Ring x2	0.02	BD67/RC121-SK-DIST
14 Plunger/Check Valve	0.53	BD67/RC121-CVALVE-MHK
15 "Y" Ring x 1	0.02	BD67/545/547/RC121-SK-YRING
16 Spring	0.12	BD67/545/547/RC121-SPRING
17 Piston	14.1	BD52/RC121-PISTON
18 External Cylinder/Barrel/Wear Sleeve/Piston Case	19.4	RC121-ECYL-DK
19 Bush Retaining Ring	0.02	RC121-SRING-BUSH
20 Bearing Bush/Bush Drive Sub	1.85	RC121-BUSH
21 "O" Ring x 2	0.02	BD040/RC121-SK-BUSH
22 Bit Retaining Ring	0.31	BD040/RC121-SRING-HD
23 "O" Ring x 1	0.02	RC121/BD040-SK-SRING
24 Piston Retaining Ring	0.15	RC121-RRING
25 Shroud	2.2	BD040-136/133.5-DB
26 Drive Sub/Chuck	3.67	RC121/BD040-DSUB
27 Drill Bit	15.09	BD040-136DC-TV

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1039mm	71.0kg	Φ121mm	RE040	Φ126- Φ146	Metzke 4.5" Remet 4.5"
Box Size	Impact rate At 2.4Mpa	Recommended rotation speed		Air Consumption	
1340x350x350mm	35Hz	25-40r/min		200-500(PSI) 300-1200(CFM)	

BD52 R.C. HAMMER

5.5" R.C. Hammers		Item Description	Weight Kg	Part Number
		A Top sub Assy Metzke 4.5"		
		2 Adaptor Tube Metzke 4.5"	2.19	BD52-ASCREEN-M4.5
		3 Circlip B	0.03	BD52-CIRCLIP
		4 Air Screen	0.42	BD52-AIRSCREEN-M4.5
		5 Circlip A	0.03	BD52-CIRCLIP
		6 Top Sub-Metzke 4.5"	8.92	BD-TSUB-M4.5
		B Top sub Assy Remet 4.5"		
		1 O Ring Adaptor Tube Remet 4.5" x 2	0.02	BD040/52-SK-ASCREEN-R4.5
		2 Adaptor Tube Remet 4.5"	2.19	BD040/52-ASCREEN-R4.5
		3 Circlip B	0.03	BD040/52-CIRCLIP
		4 Air Screen	0.42	BD040/52-AIRSCREEN-R4.5
		5 Circlip A	0.03	BD040/52-CIRCLIP
		6 Top Sub-Remet 4.5"	8.92	BD52-TSUB-R4.5
		Parts List		
		7 Check Valve/Plunger	0.63	BD040/52-CVALVE
		8 Y Ring (Check Valve)	0.03	BD040/52-SK-CVALVE
		9 Spring	0.12	BD040/52-SPRING
		10 Spring Seat	0.12	BD040/52-SSEAT
		11 Make Up Ring, Steel	0.1	BD040/52-MUR-STEEL
		12 Make Up Ring, Viton	0.05	BD040/52-MUR-VITON
		13 Distributor	1.31	BD040/52-DIST
		14 O Ring (Distributor)	0.02	BD040/52-SK-DIST
		15 O Ring (Sample Tube) x 2	0.02	BD52-SK-STUBE1
		16 O Ring (Sample Tube) x 1	0.02	BD52-SK-STUBE2
		17 Sample Tube Lower	4.52	BD52-STUBE
		18 Mount Sample Tube	0.8	BD52-STUBE-MOUNT
		19 O Ring (Mount Sample Tube)	0.02	BD52-SK-STUBE-M
		20 Inner Cylinder	7.39	BD52-ICYL
		21 Piston	14.63	BD52-PISTON
		22 External Cylinder/Barrel/Piston Case	18.86	BD52-ECYL
		23 Piston Retaining Ring	0.13	BD52-PRING
		24 Bearing Bush	1.89	BD52-BUSH
		25 O Ring (Bearing Bush) x 1	0.02	BD52-SK-BUSH1
		26 O Ring (Bearing Bush) x 1	0.02	BD52-SK-BUSH2
		27 Bit Stop Ring	0.31	BD52-SRING
		28 O Ring (Bit Stop Ring)	0.02	BD52-SK-SRING
		29 Shroud (Retaining Option)	1.86	BD52 SHROUD-136/134 or BD52R-SHROUD-136/134
		30 Drive Sub (Retaining Option)	4.17	BD52-DSUB or BD52R-DSUB
		31 Drill Bit (Retaining Option)	11.01	BD52-136DC or BD52R-136DC
		32 Seal Kit (Item 1+8+14+15+16+19+25+26+28)	0.30	BD52-SK

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1227mm	68.5kg	Φ121mm	BD52	Φ126- Φ142	4" – 4.5" Remet 4"-4.5" Metzke
Working Pressure	Impact rate At 2.4Mpa	Recommended rotation speed		Air Consumption	
1.5-3.5Mpa	35Hz	25-40r/min		200-500(PSI) 300-1200(CFM)	

BD54 R.C. HAMMER

5.5" R.C. Hammers		Item Description	Weight Kg	Part Number
		A Top sub Assy Remet 4.5"		
		1 Top Sub-Remet 4.5"	11.61	BD54-TSUB-R4.5
		2 O Ring (Adaptor Tube Remet 4.5") x 2	0.02	BD54-SK-ASCREEEN-R4.5
		3 Adaptor Tube Remet 4.5"	2.35	BD54-ASCREEEN-R4.5
		4 Air Screen	0.50	BD54-AIRSCREEN
		5 O Ring (Air Screen) x 2	0.02	BD54-SK-AIRSCREEN
		6 Circlip	0.04	BD54-CIRCLIP
		B Top sub Assy Metzke 4.5"		
		1 Top Sub-Metzke 4.5"	11.61	BD54-TSUB-M4.5
		2 Adaptor Tube Metzke 4.5"	2.35	BD54-ASCREEEN-M4.5
		3 Air Screen	0.5	BD54-AIRSCREEN
		4 O Ring (Air Screen) x 2	0.02	BD54-SK-AIRSCREEN
		5 Circlip	0.04	BD54-CIRCLIP
		Parts List		
		7 Check Valve/Plunger	0.58	BD54-CVALVE
		8 Y Ring (Check Valve)	0.02	BD54-SK-CVALVE
		9 Spring	0.12	BD54-SPRING
		10 Spring Seat	0.12	BD54-SSEAT
		11 Make Up Ring, Steel	0.14	BD54-MUR-STEEL
		12 Make Up Ring, Viton	0.06	BD54-MUR-VITON
		13 Distributor	1.54	BD54-DIST
		14 O Ring (Distributor)	0.02	BD54-SK-DIST
		15 O Ring (Sample Tube) x 2	0.02	BD54-SK-STUBE1
		16 O Ring (Sample Tube) x 1	0.02	BD54-SK-STUBE2
		17 Sample Tube Lower	6.47	BD54-STUBE
		18 Mount Sample Tube	1.00	BD54-STUBE-MOUNT
		19 O Ring (Mount Sample Tube)	0.02	BD54-SK-STUBE-M
		20 Inner Cylinder	8.54	BD54-ICYL
		21 Piston	16.8	BD54-PISTON
		22 External Cylinder/Barrel/Piston Case	23.44	BD54-ECYL
		23 Piston Retaining Ring	0.2	BD54-PRING
		24 Bearing Bush	1.89	BD54-BUSH
		25 O Ring (Bearing Bush) x 1	0.02	BD54-SK-BUSH1
		26 O Ring (Bearing Bush) x 1	0.02	BD54-SK-BUSH2
		27 Bit Stop Ring	0.43	BD54-SRING
		28 O Ring (Bit Stop Ring)	0.02	BD54-SK-SRING
		29 Shroud (Retaining Option)	2.35	BD54 SHROUD-143/141 or BD54R-SHROUD-136/134
		30 Drive Sub (Retaining Option)	4.9	BD54-DSUB or BD54R-DSUB
		31 Drill Bit (Retaining Option)	18.33	BD54-143DC or BD54R-143DC
		32 Seal Kit (Item 2+4+8+14+15+16+19+25+26+28)	0.3	BD52-SK

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1294mm	84.5kg	Φ130mm	BD54	Φ136- Φ150	4.5" Remet 4.5" Metzke
Working Pressure	Impact rate At 2.4Mpa	Recommended rotation speed		Air Consumption	
				200-500(PSI)	
1.5-3.5Mpa	35Hz	25-40r/min		300-1200(CFM)	

BD 531 Reverse circulation drill bit and shroud

	Diameter		No x Button diameter mm		Button Angle°	Flushing Holes	Shroud Diameter	Weight (Kg)	Part No.
	mm	Inch	Gauge Buttons	Front Buttons					
	86	2 1/4	6x12	4x12	35	2	84	4.2	BD351-85-TPD
	89	2 1/2	8x12	5x12	35	2	87	4.3	BD351-89DC-TPD
	95	2 3/4	8x12	6x12	35	2	93	4.6	BD351-95DC-TP
	102	3	8x12	6x12	35	2	100	4.9	BD531-102DC-TPD

RC3.5Y Reverse circulation drill bit and shroud

	Diameter		No x Button diameter mm		Button Angle°	Flushing Holes	Shroud Diameter	Weight (Kg)	Part No.
	mm	Inch	Gauge Buttons	Front Buttons					
	100	3 15/16	6x16	6x14+6x13	35	2	98	6.3	RC3.5Y-100DC-TPD
	104	4 1/10	6x16	6x14+6x13	35	2	102	6.6	RC3.5Y-104DC-TPD
	108	4 1/4	8x16	6x14+6x13	35	2	106	6.9	RC3.5Y-108DC-TPD
	114	4 1/2	8x16	6x14+6x13	35	2	112	7.5	RC3.5Y-114DC-TPD

BD 004 Reverse circulation drill bit and shroud

	Diameter		No x Button diameter mm		Button Angle°	Flushing Holes	Shroud Diameter	Weight (Kg)	Part No.
	mm	Inch	Gauge Buttons	Front Buttons					
	114	4 1/2	8x14	6x14	35	2	112	11.5	BD004-114DC-TP
	118	4 5/8	8x14	6x14	35	2	116	11.7	BD004-118DC-TP
	121	4 3/4	8x14	6x14	35	2	119	12.0	BD004-121DC-TP
	127	5	8x14	8x14	35	2	125	12.4	BD004-127DC-TP

BD 542 Reverse circulation drill bit and shroud

	Diameter		No x Button diameter mm		Button Angle°	Flushing Holes	Shroud Diameter	Weight (Kg)	Part No.
	mm	Inch	Gauge Buttons	Front Buttons					
	121	4 3/4	8x14	6x14	35	2	119	10.6	BD543/542-121DC-TPD
	124	4 7/8	8x14	8x13	35	2	122	10.8	BD543/542-124DC-TPD
	127	5	8x14	8x14	35	2	125	11.0	BD543/542-127DC-TPD
	130	5 1/8	8x14	10x14	35	2	128	11.3	BD543542-130DC-TPD

BD 543 Reverse circulation drill bit and shroud

	Diameter		No x Button diameter mm		Button Angle°	Flushing Holes	Shroud Diameter	Weight (Kg)	Part No.
	mm	Inch	Gauge Buttons	Front Buttons					
	124	4 7/8	8x14	8x13	35	2	122	10.8	BD543-124DC-TP
	127	5	8x14	8x14	35	2	125	11.0	BD543-127DC-TPD
	133	5 1/4	8x14	10x14	35	2	131	11.3	BD543-133DC-TPD
	136	5 1/2	8x16	10x14	35	2	135	11.8	BD543-136DC-TPD

BD 545 Reverse circulation drill bit and shroud

	Diameter		No x Button diameter mm		Button Angle°	Flushing Holes	Shroud Diameter	Weight (Kg)	Part No.
	mm	Inch	Gauge Buttons	Front Buttons					
	124	4 7/8	8x14	8x13	35	2	122	13.3	BD545-124DC-TP
	127	5	8x14	8x14	35	2	125	13.5	BD545-127DC-TPD
	133	5 1/4	8x16	10x14	35	2	131	13.8	BD545-133DC-TPD
	136	5 3/8	8x16	6x16+3x14	35	2	134	14.2	BD545-136DC-TPD

BD 040 Reverse circulation drill bit and shroud

	Diameter		No x Button diameter mm		Button Angle°	Flushing Holes	Shroud Diameter	Weight (Kg)	Part No.
	mm	Inch	Gauge Buttons	Front Buttons					
	124	4 7/8	8x14	8x13	35	2	122	14.3	BD040-124DC-TPD
	127	5	8x14	8x14	35	2	125	14.7	BD040-127DC-TPD
	133	5 1/4	8x16	10x14	35	2	131	15.2	BD040-133DC-TPD
	138	5 7/16	8x16	6x16+3x14	35	2	136	15.8	BD040-138DC-TPD

BD 52 Reverse circulation drill bit and shroud

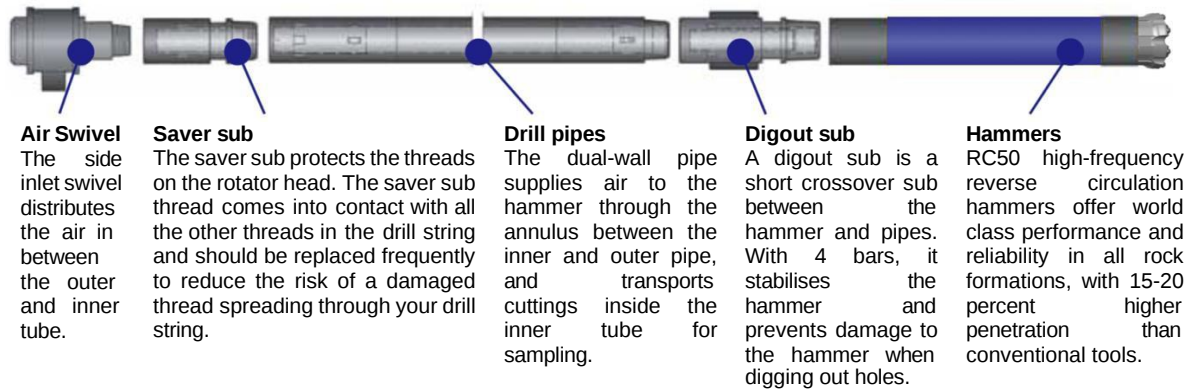
	Diameter		No x Button diameter mm		Button Angle°	Flushing Holes	Shroud Diameter	Weight (Kg)	Part No.
	mm	Inch	Gauge Buttons	Front Buttons					
	133	5 1/4	8x16	10x14	35	2	131	11.2	BD52-133DC-TPD
	136	5 3/8	8x16	6x16+3x14	35	2	134	11.5	BD52-136DC-TPD
	140	5 1/2	8x16	6x16+3x14	35	2	138	11.9	BD52-140DC-TPD
	143	5 5/8	8x16	6x16+3x14	35	2	141	12.3	BD52-143DC-TPD

BD 54 Reverse circulation drill bit and shroud

	Diameter		No x Button diameter mm		Button Angle°	Flushing Holes	Shroud Diameter	Weight (Kg)	Part No.
	mm	Inch	Gauge Buttons	Front Buttons					
	136	5 3/8	8x16	6x16+3x14	35	2	134	18.2	BD54-136DC-TPD
	140	5 1/2	8x16	6x16+3x14	35	2	138	18.5	BD54-140DC-TPD
	143	5 5/8	8x16	6x16+3x14	35	2	141	18.8	BD54-143DC-TPD
	146	5 3/4	8x16	6x16+3x14	35	2	144	19.2	BD54-146DC-TPD

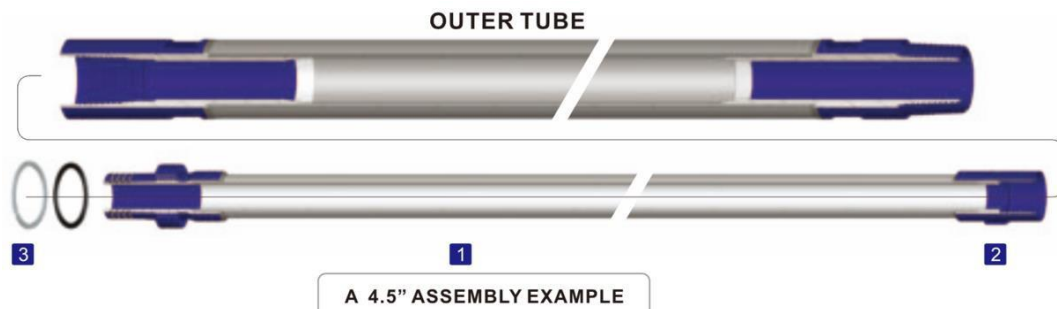
Reverse circulation drill string

Black Diamond offers a complete range of reverse circulation rock drilling tools. The drill string equipment is designed specifically for greenfield exploration and in-pit grade control.



Remet

	A	1	2	3
1	Rod RC 4-1/2" x 6m Long Remet	Inner Tube RC 4-1/2" x 6m Remet	O-Ring, 4-1/2" Remet/Metzke	Circlip, 4-1/2" Remet
2	Rod RC 4-1/2" x 3m Long Remet	Inner Tube RC 4-1/2" x 3m Remet	O-Ring, 4-1/2" Remet/Metzke	Circlip, 4-1/2" Remet
3	Rod RC 4" x 6m Long Remet	Inner Tube RC 4" x 6m Remet	O-Ring, 4" Remet	Circlip, 4" Remet/Metzke
4	Rod RC 4" x 6m Long Remet	Inner Tube RC 4" x 3m Remet	O-Ring, 4" Remet	Circlip, 4" Remet/Metzke
5	Rod RC 3-1/2" x 6m Long Remet	Inner Tube RC 3-1/2" x 6m Remet	O-Ring, 3-1/2" Remet/Metzke	Circlip, 3-1/2" Remet/Metzke
6	Rod RC 3-1/2" x 3m Long Remet	Inner Tube RC 3-1/2" x 3m Remet	O-Ring, 3-1/2" Remet/Metzke	Circlip, 3-1/2" Remet/Metzke



Metzke

	A	1	2	3
1	Rod RC 4-1/2" x 6m Long Metzke	Inner Tube RC 4-1/2" x 6m Metzke	O-Ring, 4-1/2" Metzke/Remet	Circlip, 4-1/2" Metzke/Remet
2	Rod RC 4-1/2" x 3m Long Metzke	Inner Tube RC 4-1/2" x 3m Metzke	O-Ring, 4-1/2" Metzke/Remet	Circlip, 4-1/2" Metzke/Remet
3	Rod RC 4" x 6m Long Metzke	Inner Tube RC 4" x 6m Metzke	O-Ring, 4" Metzke	Circlip, 4" Metzke
4	Rod RC 4" x 6m Long Metzke	Inner Tube RC 4" x 3m Metzke	O-Ring, 4" Metzke	Circlip, 4" Metzke
5	Rod RC 3-1/2" x 6m Long Metzke	Inner Tube RC 3-1/2" x 6m Metzke	O-Ring, 3-1/2" Metzke/Remet	Circlip, 3-1/2" Metzke/Remet
6	Rod RC 3-1/2" x 3m Long Metzke	Inner Tube RC 3-1/2" x 3m Metzke	O-Ring, 3-1/2" Metzke/Remet	Circlip, 3-1/2" Metzke/Remet

