BD542 – RC Reverse Circulation Hammer

Compatibility: RE542, MR109, SR742



Black Diamond Drilling offers a complete range of reverse circulation hammers along with fully integrated R.C. Bits and Shrouds that have been designed to provide a world-class sampling system. Precision engineering enables our R.C. Hammers to excel in maintaining an efficient and smooth flow of drill cuttings to the surface, ensuring cleaner, more accurate samples. This leads to more reliable data for exploration and better overall hole quality.

SPECIFICATIONS

Item	Diameter Ø	
	mm	inch
Hammer	109.5	4 5/16
Bit	121 – 133	4 ¾ - 5 1/4
Suits medium to hard ground conditions		

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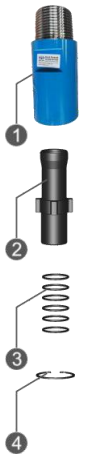
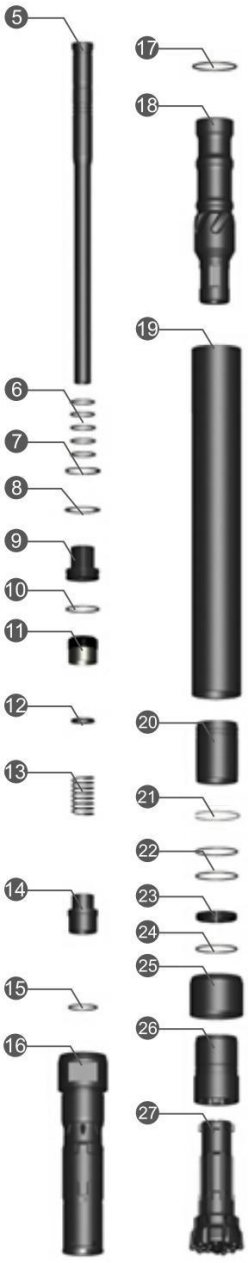
Top Sub Assembly

	Product Code	Description	Amt	Compatibility
A	Crossover Sub Assy PIN Metzke 4”(54mm) to Remet 4” PIN to BOX Crossover Sub Assy OD116mm RC-SUBA-PM4BR4-107			
1	BD542-TSUB-R4	Top Sub Remet 4”	1	33-542-R40
2	BD543/542-ASCREEN-R4	Adaptor Tube Remet 4"	4	20-540-R40
3	BD543/542-SK-ASCREENR4	O Ring (Adaptor Tube Remet 4")	1	38-542-000
4	BD543/542-CIRCLIP-ASCREENR4	Top Sub-Remet 3.5”	1	41-D1300-0800



Hammer Assembly

	Product Code	Description	Amt	Compatibility
5	BD543/542-STUBE-M4/54	Sample Tube	1	37-542-000
6	BD543/542-SK-STUBE	O Ring (Sample Tube)	5	38-542-000
7	BD543/542-CIRCLIP-4	Circlip B	1	41-D1300-0800
8	BD543/542/AIRSCREEN	Air Screen	1	21-542-000
9	BD543/542-DIST	Distributor	1	29-542-000
10	BD543/542-SK-DIST	O Ring (Distributor)	1	38-542-000
11	BD543/542-CVALVE	Check Valve/Plunger	1	25-542-000
12	BD543/542-SK-CVALVE	Y Ring (Check Valve)	1	38-542-000
13	BD543/542/SPRING	Spring	1	22-542-000
14	BD543/542-STUBE-M	Mount Sample Tube	1	-
15	BD543/542-SK-STUBEM	O Ring (Mount Sample Tube)	1	38-542-000
16	BD543-ICYL-M4/54	Inner Cylinder/Top Barrel	1	31-543-000
17	BD543/542-SK-ICYL	O Ring (Inner Cylinder)	1	38-542-000
18	BD543/542-PISTON	Piston	1	36-542-000
19	BD543-ECYL	External Cylinder	1	35-543-000
20	BD543/542-BUSH	Bearing Bush	1	26-542-000
21	BD543/542-PRING	Piston Retaining Ring	1	23-542-000
22	BD543/542-SK-BUSH	O Ring (Bearing Bush)	2	38-542-000
23	BD543/542-SRING	Bit Ring	1	27-542-000
24	BD543/542-SK-SRING	O Ring (Bit Ring)	1	38-542-000
25	BD543/542-SHROUD-127/125-DB	Shroud	1	40-542-415
26	BD543/542-DSUB	Drive Sub	1	16-542-000
27	BD543/542-127DC-TPD	Drill Bit	1	62-542-500DC
28	BD543/542-SK	Seal Kit (Item2+6+10+12+15+17+22+24)	1	38-542-000



BD Drill **Black Diamond** Drilling Services Australia

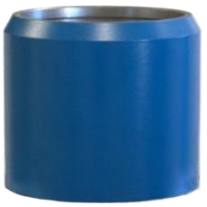
Bit Selection Table

Bit Product Code	Diameter		Compatibility
	Metric	Imperial	
BD542-121DC-TPD	121mm	4 ¾”	63-542-412DC
BD542-124DC-TPD	124mm	4 7/8”	63-542-414DC
BD542-127DC-TPD	127mm	5”	63-542-500DC
BD542-130DC-TPD	130mm	5 1/8”	63-542-502DC
BD542-133DC-TPD	133mm	5 1/4”	63-542-504DC



Shroud Selection Table

Shroud Product Code	Diameter		Compatibility
	Metric	Imperial	
BD543/542-SHROUD-121/119-DB	121mm	4 ¾”	40-542-412
BD543/542-SHROUD-124/122-DB	124mm	4 7/8”	40-542-414
BD543/542-SHROUD-127/125-DB	127mm	5”	40-542-500
BD543/542-SHROUD-130/128-DB	130mm	5 1/8”	40-542-501
BD543/542-SHROUD-133/131-DB	133mm	5 ¼”	40-542-503



Description	Metric	Imperial
Piston Case OD	109.5mm	4 5/16”
Hammer length	1191mm	3’ 10 7/8”
Hammer Weight	57.0kg	125lb 10oz
Bit Size Range	121-133mm	4 ¾-5 3/8”
Drill Rod Diameter	102mm	4”
Spanner Flat Width – Inner Cylinder	44.5mm	1 ¾”
Spanner Flat Width – Top Sub	45mm	1 ¾”

Air Consumption

Pressure		Consumption	
psi	bar	cfm	m^3/min
400	27.6	830	23.3
450	31.1	900	25.4
500	34.5	960	27.2
550	38.0	1032	29.5
600	41.4	1100	31.2

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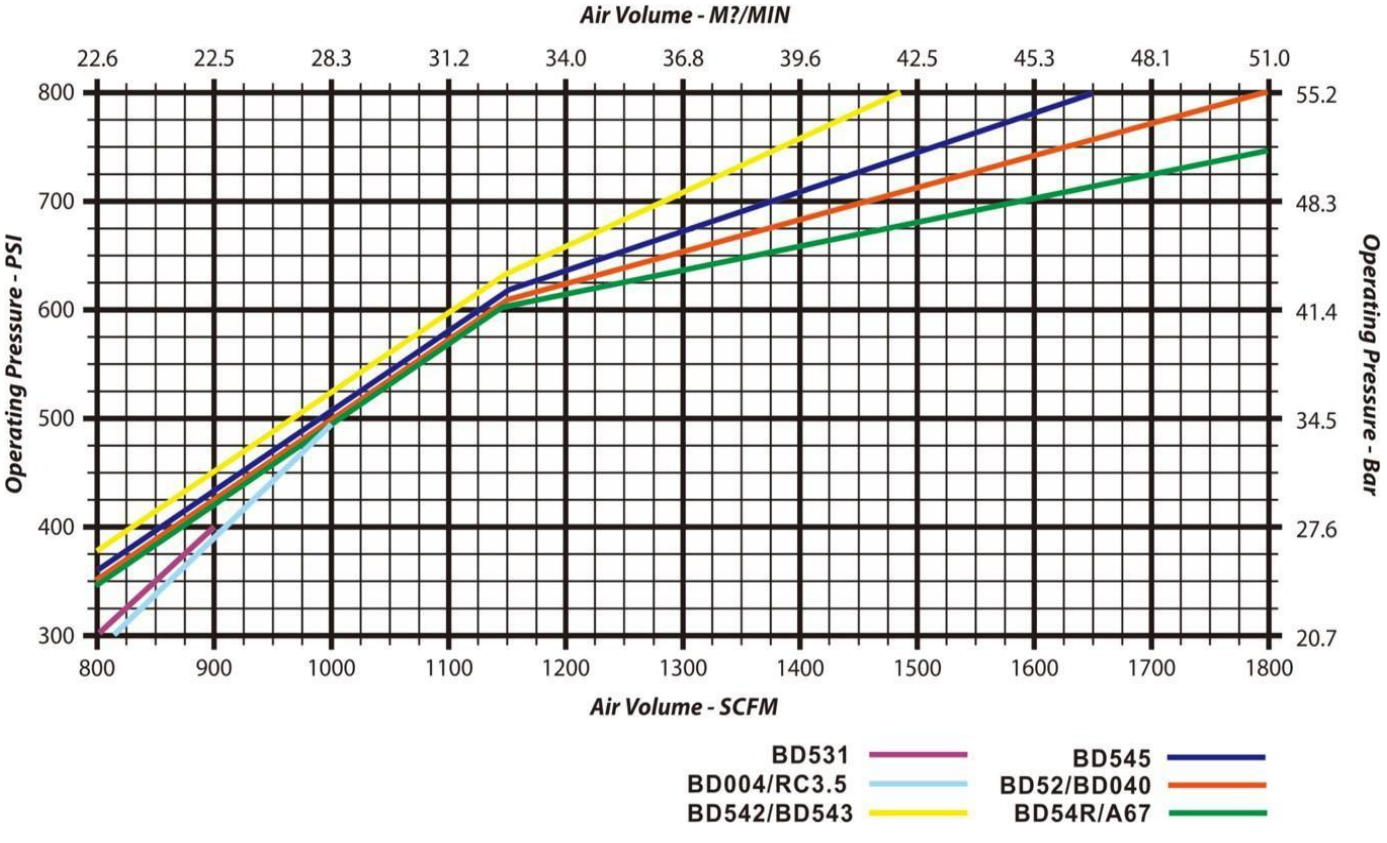
REVERSE CIRCULATION GENERAL SPECIFICATIONS

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.

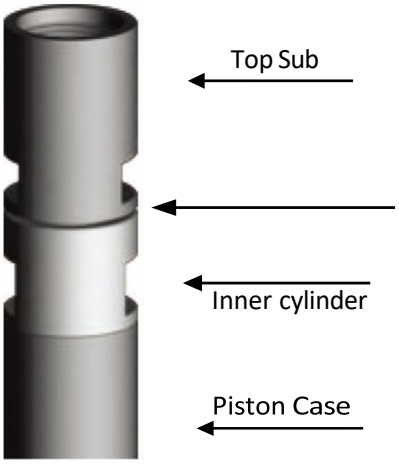


Figure 1: Gripping Locations for BD DRILL Reverse Circulation Hammer

Lubrication: Correct lubrication is critical to performance and longevity.

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 is the gap existing between the top sub and the inner cylinder when the hammer is assembled and hand tightened

Stand off
0.6mm to 1mm
0.024” to 0.04”