

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

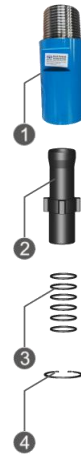
| Item | Diameter Ø | |
|--|------------|-------------|
| | mm | inch |
| Hammer | 109.5 | 4 5/16 |
| Bit | 121 – 133 | 4 ¾ - 5 1/4 |
| Suits medium to hard ground conditions | | |





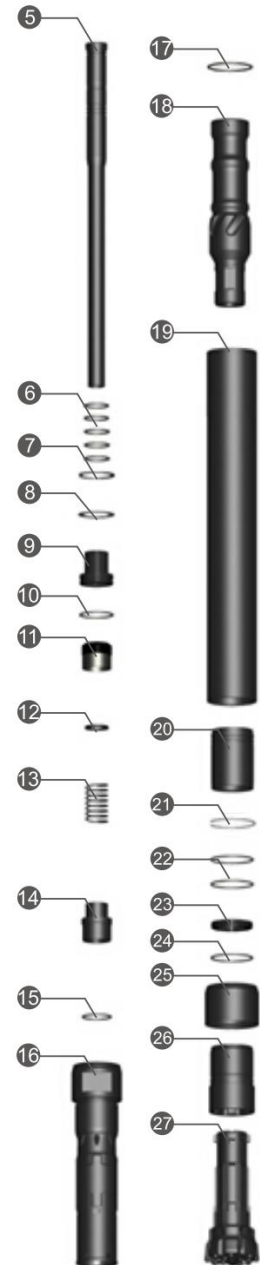
Top Sub Assembly

| | 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-CVVALVE | Check Valve/Plunger | 1 | 25-542-000 |
| 12 | BD543/542-SK-CVVALVE | 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 | Shroud | 1 | 40-542-415 |
| 26 | BD543/542-DSUB | Drive Sub | 1 | 16-542-000 |
| 27 | BD543/542-127DC | Drill Bit | 1 | 62-542-500DC |
| 28 | BD543/542-SK | Seal Kit (Item2+6+10+12+15+17+22+24) | 1 | 38-542-000 |





Bit Selection Table

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



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 |



General Specifications

| 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 | 121-136mm | 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

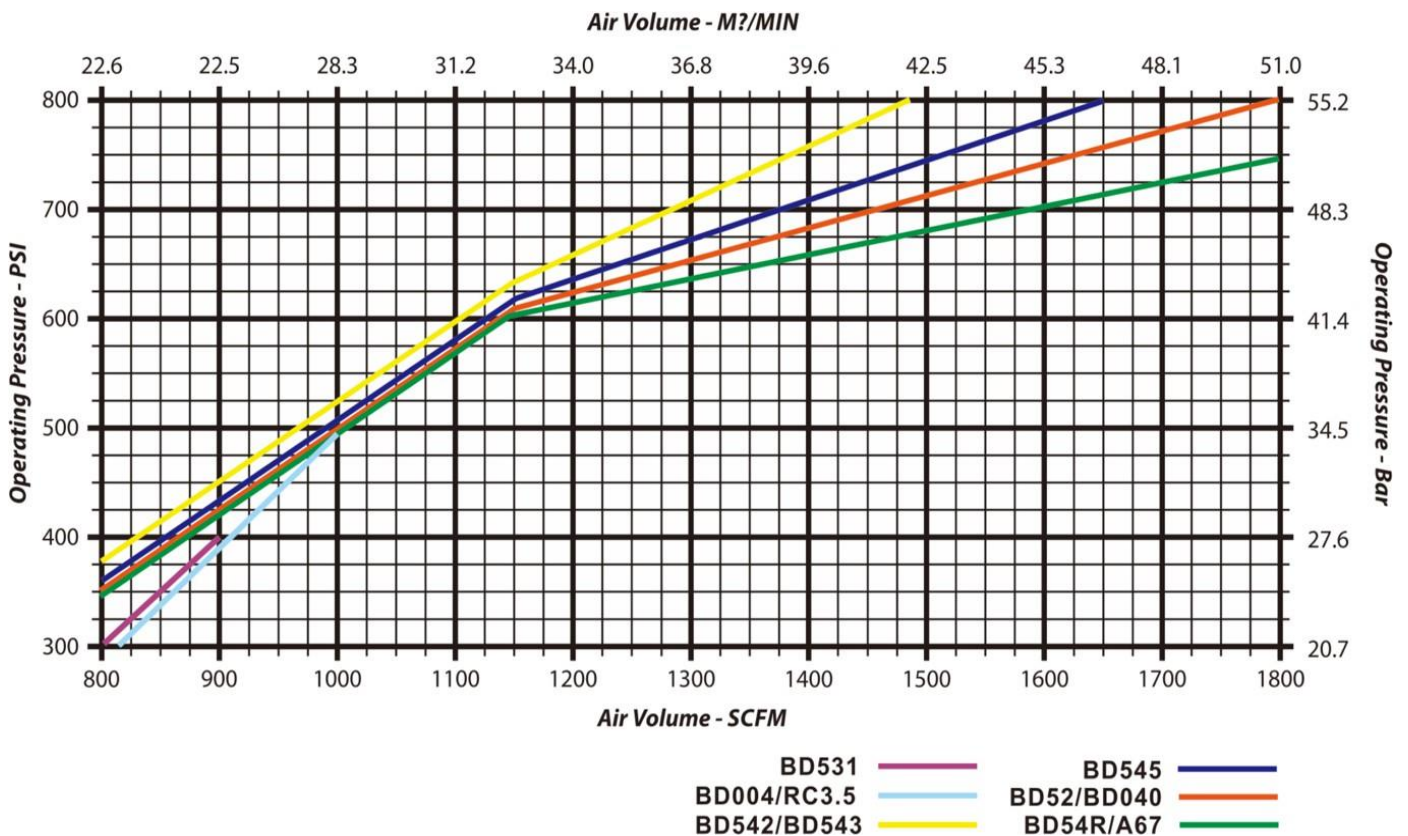
| Pressure | | Consumption | |
|----------|------|-------------|---------------------|
| psi | bar | cfm | m ³ /min |
| 400 | 27.6 | 830 | 23.3 |
| 450 | 31.1 | 900 | 25.4 |
| 500 | 34.5 | 960 | 27.2 |
| 550 | 38.0 | 1032 | 29.5 |
| 600 | 41.4 | 1100 | 31.2 |

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.



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

