SURFACE DRILLING EQUIPMENT AND TOOLS

www.bddrill.com.au / www.bddrill.ca

BD Drill

Black Diamond Drilling Services Australia Pty Ltd

ABOUT US

Black Diamond Drilling Services Australia Pty Ltd

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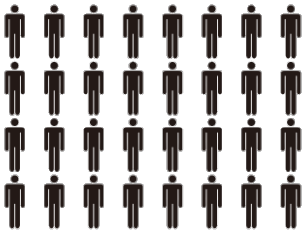
1000 EMPLOYEES



300,000 M^2 OF FACTORY

ANNUAL PRODUCTION

DTH hammer: over 20,000 units
Maximun size for hammer: 609mm(24")
Drill bit: 250,000 pcs
Maximum size for drill bit: 1000mm(39-1/3")
30 days for production on any quantity

Black Diamond Drilling Services Australia Pty Ltd known as "BD DRILL" is a privately owned Australian Company which services the Mineral exploration, Mining, Water well and Geotechnical sectors of the drilling industry.

BD DRILL is a subsidiary of Changsha Heijingang Industrial Ltd. Co., the head office is located in Perth, Western Australia and supports regions in Australia and the overseas market.

BD DRILL has established a reputation for outstanding commitment to product quality, innovation and most importantly customer service.

Our extensive product range covers DTH equipment (conventional, reverse circulation, bits, strings and rigs), Top hammer and a comprehensive selection of various drilling products (diamond bit, drag bit, tricone bits, drilling grease and other consumables.)

USE OF LOCAL (AUSTRALIAN) CONTENT

Black Diamond Drilling Australia is a Western Australian fully owned and operated company.
Our manufacturing facilities are based in Australia and China with a comprehensive Quality Control system in place. The R & D for Black Diamond Australia is completed right here by our highly experienced staff of which 80% are local Australians.
We utilise the service of a Local Queensland Indigenous company to be our distributor through the East Coast of Australia. Please see attached policies for local engagement, Quality, Indigenous Engagement, Australian Participation.

We use many local suppliers for training, logistics, I.T. etc.

Local Engagement

- Sponsorship and Advertising at Optus Stadium with the West Coast Eagles.
- Major Sponsor for the Annual Kalgoorlie Desert Race.
- Donations to several Cancer and Children's Charities.

Member of

- **ADIA** Australian Drilling Industrial Association

• The Australian Drilling Industry Association (ADIA) is the peak body representing the drilling industry nationally. It's membership is made up of individuals and companies committed to improving the skills, safety and overall professionalism of the drilling industry. It is the voice of its members, providing collective representation on matters that affect them and their businesses.

- **AMEC** Association of Mining and Exploration Companies

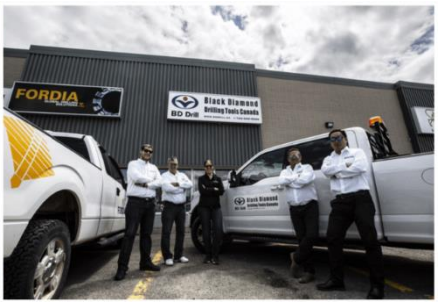
• AMEC is an industrial association representing over 375 member companies from all around Australia. Their members are explorers, emerging miners, producers and a wide range of businesses and service providers working in and for the mining industry. AMEC is a leading voice of Australia's mineral exploration and mining industry.

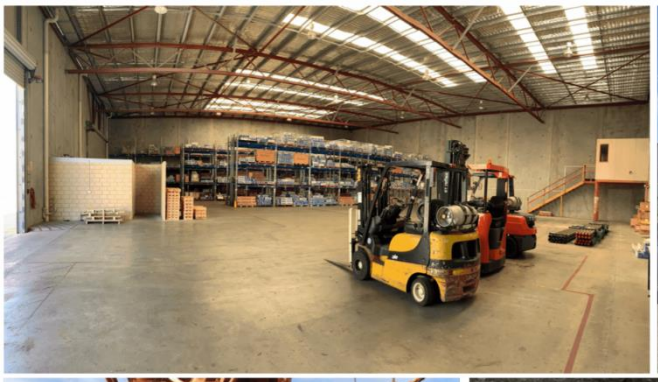
Engagement with Indigenous Australians

iCutter Industries are an Australian owned and operated indigenous business. iCutter services the drill and blast sector on the East Coast of Australia from their base in Mackay Queensland. They have over 20 years of experience within the exploration and mining drilling divisions. BD Drill has a well-established partnership with iCutter Industries for the supply of hammers, bit roller stabilisers, shock subs and deck bushes.

BD Drill chose to partner with iCutter Industries because of the shared values and dedication to the Australian environment. BD Drill continues to create a culture where ideas flourish and a difference is made. We work together to support the indigenous business sector.


Black Diamond
Drilling Services Australia


FORDIA
Black Diamond
Drilling Tools Canada




TOYOTA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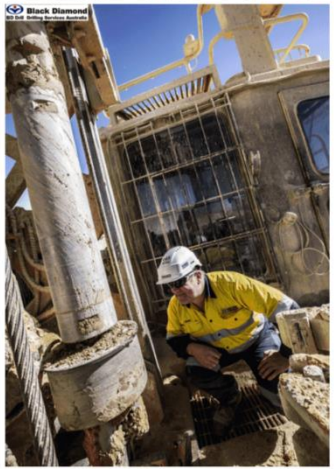
Drilling Tools Canada


Black Diamond


Black Diamond


IRON BRIDGE OPERATION
Black Diamond


Black Diamond

CHINESE FACTORY

Founded on April 30 1999, Changsha Heijingang Industrial Co. Ltd(HJG) is a famous privately operated enterprise specialised in researching and manufacturing rock drilling equipment and pneumatic tools. The company has rich scientific research and production experience. It produces high quality rock drilling products by using high quality raw material, utilising advanced manufacturing technology and imposing strict quality inspection. The products made by HJG are being sold well all over China and exported to more than 50 countries such as America, France, Australia, Canada, Brazil, South Africa, Malaysia, South Korea and so on. It has gained high praise and a good reputation all over the world.

Changsha Heijingang Industrial is located in Lei Feng, Wangcheng, Hunan, with a land area of 155,000 m² and workshop space of 95,000m².Currently we have more than 900 employees and we are equipped with a wide range of advanced equipment required for manufacturing rock drilling machines and pneumatic tools. We have designed and manufactured the following products: the most advanced high air pressure DTH hammer in China, various kinds of threaded drill bits, reverse circulation hammers and bits, shank adapters and coupling sleeves, new style wells geothermal drilling rig, open air blasthole drilling rig, all kinds of tool joints and drill pipes as well a spare parts for drill rigs.

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BD Drill

RECOMMENDED SAFETY PROCEDURES

The mining industry continues to demand even higher levels of safety and productivity. In order to meet these requirements, we work continuously to develop even safer products and to produce comprehensive manuals enabling safer and effective use of our products.

IT'S ALL ABOUT EVERYONE'S HEALTH

Helping you to ensure a safer workplace and healthier workforce is of the utmost importance to us. The well-being of any person coming into contact with our equipment is paramount. Therefore, we strive to identify and assess potential risk factors that could threaten the health of you and your employees.
All the products in our catalogue are designed to meet safety requirements.

DRESS RIGHT FROM HEAD TO TOE

You must always wear appropriate personal protective equipment (PPE). This is what we strongly recommend, to help avoid injury:

- Safety helmet
- Hearing protection
- Safety glasses
- Protective high visibility clothing
- Respiratory protection
- Safety boots
- Any site-specific PPE as required.

BE AWARE OF ALL SAFETY PROCEDURES

We ask that you start by obeying all instructions given. Never work under an unsupported rood or close to potential pinch point locations. Beware of the potential hazards of a loose roof and ribs and scale down roof ribs prior to bolting. It is important to bolt early in the mining process – as soon is safely and practically possible.
Safe work procedures should incorporate inspection before the machine operates and also through regular monitoring based upon mining conditions, safety and management systems. Workers should be provided with safety information, instruction and training on transportation, installation, operational care and disposal of drilling tools.

MAKE A RISK ANALYSIS BEFORE YOU START

Pay attention to safety when planning all of your work. Before you start, always take your time to go through all operations. Identify any potential risks and take appropriate measures to avoid them. If necessary, seek expert advice on how to help minimize risks. Finally, make sure that you have the right resources to perform all tasks in the safest manner possible.

Please check www.safeworkaustralia.gov.au or
www.canada.ca/en/services/jobs/workplace/health-safety.html for more information.

CATALOGUE GUIDE

DTH Hammers & Bits

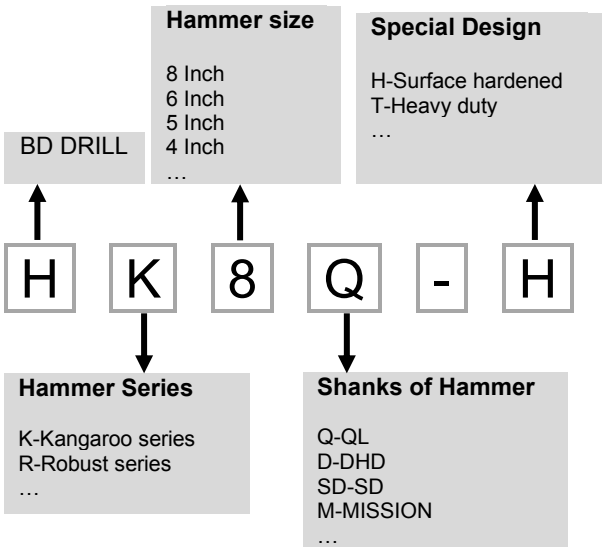
Selecting the Right Hammer

The optimum range of hole size for blast hole drilling with DTH is 90mm to 254mm (3 1/2”-10”). Smaller blast holes are generally drilled using tophammer, and larger holes generally use rotary machines. In other applications, like foundation drilling, DTH hammers can be used with single bit in hole sizes up to 914mm (36”). With multiple hammer units, CD (Cluster Drills) drill holes up to 1778mm (70”) as standard. Larger cluster drills can be delivered as per customer request. As a rule of thumb, the smallest hole diameter a DTH hammer can drill is its nominal size. A 4-inch hammer will drill a 4-inch hole. The limiting factor is the outside diameter of the hammer, because, as hole diameter reduces, airflow is restricted. Maximum hole size for production drilling is the nominal hammer size plus 1 inch, so for a 4 inch hammer the maximum hole size is 5 inch (127-130mm). Choosing the right hammer is largely determined by hole size and type of rock formation. Ideally, the size of the hammer should match the required hole dimension as closely as possible, leaving just enough space for cuttings to evacuate the hole.

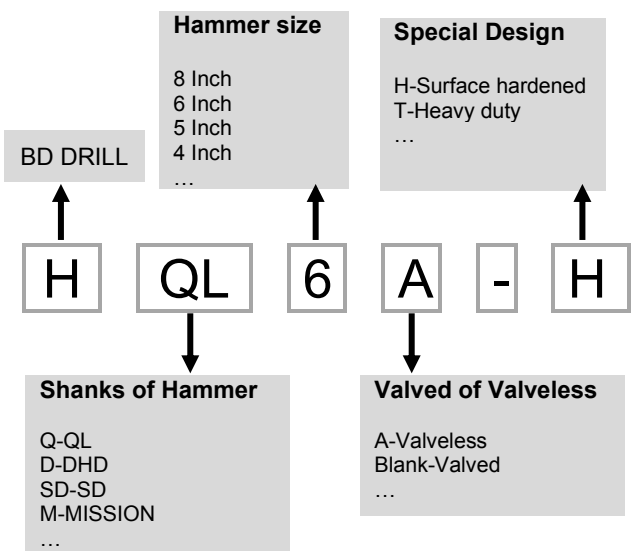
Product codes

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: HK8Q-H



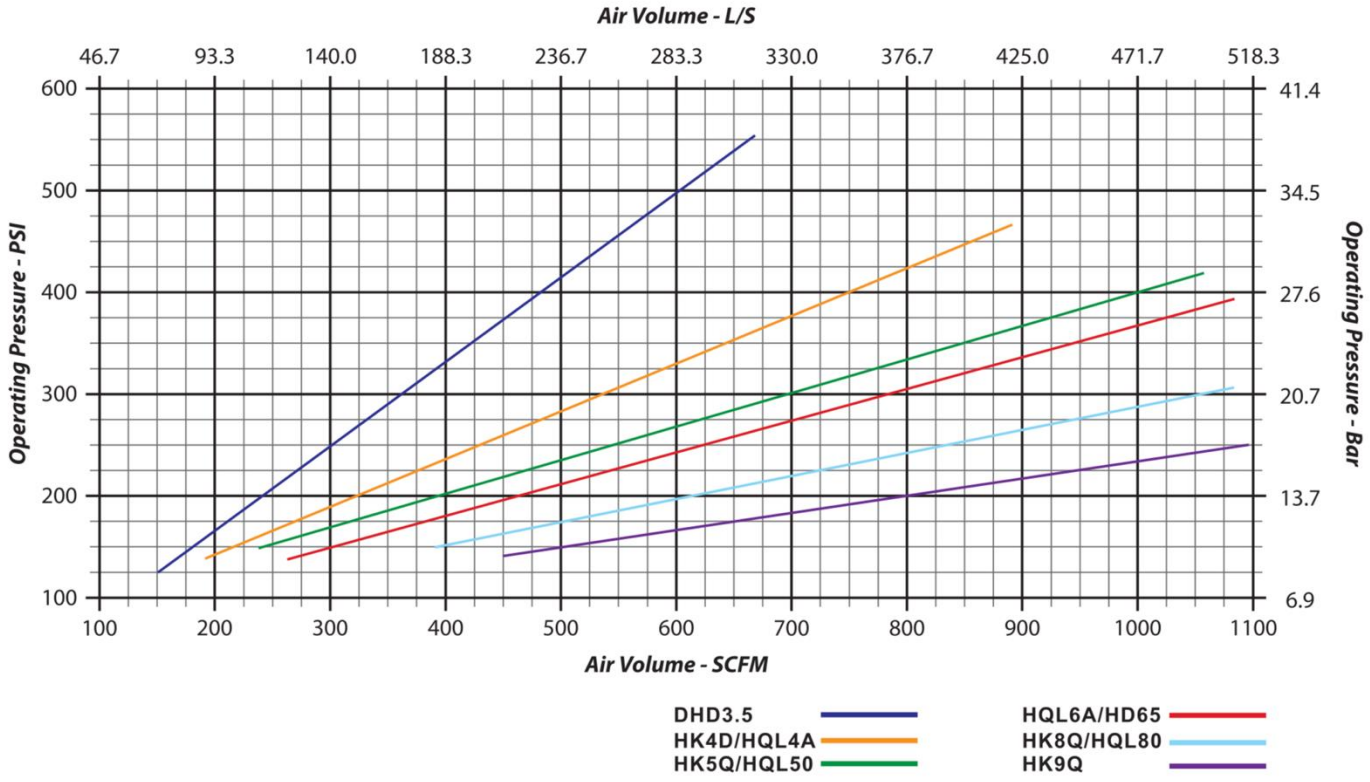
Example B: HQL6A-H



SPECIFICATIONS

Hammer	BR2A	DHD3.5	HK4D	HD45	HQL4A	HQL50	HK5Q	HD55	HQL60	HQL6A	HK8Q	HD85	HK9Q
Recommended bit size, mm	76	92-105	112-127			140-152			165-178		203-229		216-229
Bit Shank	BR2A	DHD3.5	DHD340A		QL40	QL50		DHD350	QL60		QL80	DHD380	QL80
External diameter, mm	63	82	100	100	101	126.5	127.5	126.5	148	146	185	185	203
Length excl. thread, mm (Less bit)	837	855	915	1032.5	1057	1147	935	1167	1121	1182	1340	1487	1345
Hammer weight, kg (Less bit)	14.1	25	37.5	40.6	41	71.6	67.6	77.2	105	105	180	206	228
Package case size	(L)910 (W)90 (H)120	(L)1020 (W)110 (H)140	(L)1010 (W)30 (H)160	(L)1080 (W)125 (H)134	(L)1150 (W)130 (H)160	(L)1230 (W)155 (H)180	(L)1100 (W)155 (H)180	(L)1290 (W)150 (H)175	(L)1270 (W)170 (H)200	(L)1260 (W)180 (H)200	(L)1440 (W)230 (H)270	(L)1560 (W)230 (H)270	(L)1500 (W)240 (H)280
Top Sub thread	RD50	2-3/8" API Reg							3-1/2" API REG		4-1/2" API REG		
Working Pressure, PSI	80-170	150-250	200-300			250-350			300-350		300-380		
Air consumption	250-350	300-400	500-700			500-800			600-900		950-1200		
Piston diameter, mm	42.7	65	82	80	80	104	102	100	122	121	150	150	165
Piston weight, kg	1.7	5.1	9.2	9	9	17	17	16	24	24	38	42	50
Wrench flat, mm	L47 W50	L57 W35	L74.5 W45	L64 W40	No wrench Flat	L89 W60	L88 W50	L89 W60	L101 W65	L101 W60	L128 W70	L140 W70	L128 W70
Feed force, kN	2~6	3~8	5~15			6~25			7~20		10~25		
Rotation speed, r/m	30-70	30-90	25-80			20-70			25-60		20-60		
Drilling conditions and project specifications may require larger air package to be used													

AIR CONSUMPTION/OPERATING PRESSURE



BR2A DTH HAMMER

BR2A Hammers	Item Description	Weight Kg	Part Number

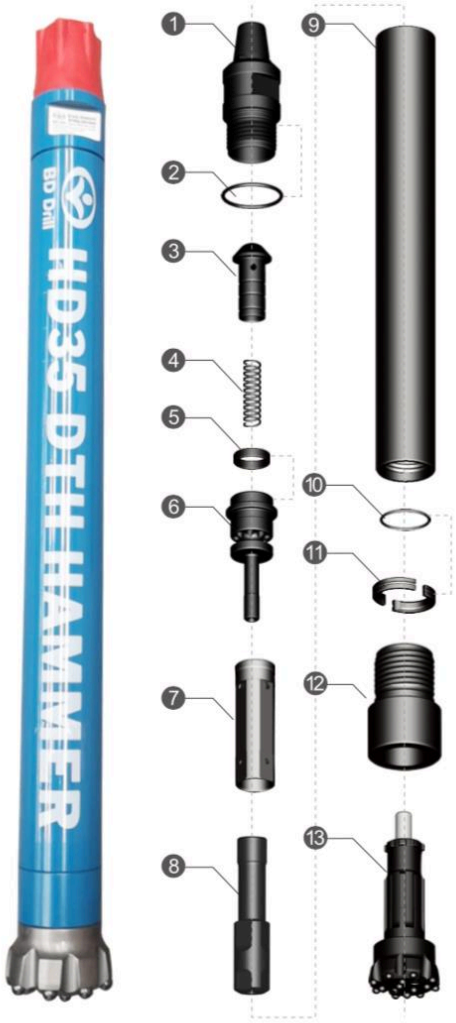
1	Top Sub	2.95	BR2A-TSUB
2	Check Valve	0.10	BR2A-CVALVE
3	Spring	0.05	BR2A-SPRING
4	Air Distributor	0.40	BR2A-DIST
5	Internal Cylinder	0.85	BR2A-ICYL
6	Piston	2.70	BR2A-PISTON
7	External Cylinder	5.35	BR2A-ECYL
8	Guided Sleeve	0.55	BR2A-BUSH
9	“O” Ring Stop Ring	0.005	BR2A-SR-SRING
10	Stop Ring	0.10	BR2A-SRING
11	Drive Chuck	1.05	BR2A-DCHUCK
12	Drill Bit		BR2A-76FF-TV

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
880mm	14.1kg	Φ62mm	BR2	Φ76- Φ90	RD 50 BOX
Box Size	Impact rate At 1.7Mpa	Recommended rotation speed		Air Consumption 80-170(PSI)	
910x90x120mm	25Hz	25-40r/min		250-350(CFM)	

HD35 (DHD3.5) DTH HAMMER

HD35 (DHD3.5) Hammers	Item Description	Weight Kg	Part Number



1	Top Sub	4.20	HD35-TSUB
2	“O” Ring of Top Sub	0.01	HD35-SR-TSUB
3	Check Valve	0.20	HD35-CVALVE
4	Spring	0.02	HD35-SPRING
5	Compression Buffer	0.02	HD35-CBUFFER
6	Air Distributor	1.40	HD35-DIST
7	Internal Cylinder	1.50	HD35-ICYL
8	Piston	5.60	HD35-PISTON
9	External Cylinder	9.90	HD35-ECYL
10	“O” Ring of Stop Ring	0.01	HD35-SR-RING
11	Stop Ring	0.15	HD35-SRING
12	Drive Chuck	1.90	HD35-DCHUCK
13	Drill Bit		HD35-90FF-TV

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
930mm	24.4Kg	Φ82mm	DHD3.5 HD35	Φ92- Φ105	API 2 3/8” REG CUBEX # 21
Box Size	Impact rate At 1.7Mpa	Recommended rotation speed		Air Consumption 150-250(PSI)	
1020x110x140mm	28Hz	25-40r/min		300-400(CFM)	

HK4-D DTH HAMMER

HK4-D Hammers	Item Description	Weight Kg	Part Number
1	Top Sub	6.50	HK4D-TSUB
2	“O” Ring of Top Sub	0.01	HK4D-SR-TSUB
3	Check Valve	0.35	HK4D-CVALVE
4	Spring	0.05	HK4D-SPRING
5	Compression Buffer	0.15	HK4D-CBUFFER
6	Air Distributor	2.10	HK4D-DIST
7	Internal Cylinder	2.25	HK4D-ICYL
8	Piston	8.50	HK4D-PISTON
9	External Cylinder	15.2	HK4D-ECYL
10	Retainer Ring	0.02	HD4D-RRING
11	Guided Sleeve	1.30	HK4D-BUSH
12	Bush Retaining Ring	0.02	HK4D-BUSH-RRING
13	“O” Ring of Stop Ring	0.01	HK4D-SK-SRING
14	Stop Ring	0.30	HK4D-SRING
15	Drive Chuck	3.40	HK4D-DCHUCK
16	Drill Bit		HK4D-110FF-TV

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
922mm	38.0Kg	Φ100mm	DHD340A Cop44	Φ112- Φ127	API 2 3/8” REG CUBEX # 24
Box Size	Impact rate At 1.7Mpa	Recommended rotation speed		Air Consumption 200-300(PSI)	
1010x130x160mm	25Hz	30-70r/min		500-700(CFM)	

HD45 DTH HAMMER

HD45 Hammers	Item Description	Weight Kg	Part Number

1	Top Sub	6.50	HD45-TSUB
2	“O” Ring of Top Sub	0.01	HD45-SR-TSUB
3	Check Valve	0.42	HD45-CVALVE
4	Spring	0.04	HD45-SPRING
5	Compression Buffer	0.04	HD45-CBUFFER
6	Air Distributor	2.20	HD45-DIST
7	Internal Cylinder	2.30	HD45-ICYL
8	Piston	9.00	HD45-PISTON
9	External Cylinder	15.8	HD45-ECYL
10	“O” Ring of Stop Ring	0.01	HD45-SK-SRING
11	Stop Ring	0.20	HD45-SRING
12	Drive Chuck	3.50	HD45-DCHUCK
13	Drill Bit		HD45-115FF-TV

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1030mm	40.0	Φ99mm	Cop44 DHD340 HD45	Φ112- Φ127	API 2 3/8” REG CUBEX # 24
Box Size	Impact rate At 1.7Mpa	Recommended rotation speed		Air Consumption 200-300(PSI)	
1150x130x160mm	27Hz	25-40r/min		500-700(CFM)	

HQL40A DTH HAMMER

HQL40A Hammers	Item Description	Weight Kg	Part Number
1	Top Sub	6.50	HQL40A-TSUB
2	“O” Ring of Top Sub	0.01	HQL40A-SR-TSUB
3	Check Valve	0.35	HQL40A-CVALVE
4	Spring	0.05	HQL40A-SPRING
5	Air Distributor	1.50	HQL40A-DIST
6	Internal Cylinder	2.10	HQL40A-ICYL
7	Piston	8.50	HQL40A-PISTON
8	External Cylinder	15.20	HQL40A-ECYL
9	Guided Sleeve	1.80	HQL40A-GSLEEVE
10	Bush Retaining Ring	0.02	HQL40A-RRING-BUSH
11	“O” Ring of Stop Ring	0.005	HQL40A-SK-SRING
12	Stop Ring	0.20	HQL40A-SRING
13	Drive Chuck	3.20	HQL40A-DCHUCK
14	Drill Bit		HQL40A-115FF-TV

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1070mm	40.0Kg	Φ99mm	QL40 HQL40	Φ112- Φ127	API 2 3/8” REG CUBEX # 24
Box Size	Impact rate At 1.7Mpa	Recommended rotation speed		Air Consumption 200-300(PSI)	
1230x155x180mm	30Hz	25-40r/min		500-700(CFM)	

HQL50 DTH HAMMER

HQL50 Hammers	Item Description	Weight Kg	Part Number

1	Top Sub	15.0	HQL50-TSUB
2	“O” Ring of Top Sub	0.015	HQL50-SR-TSUB
3	Breakout Ring of Top Sub	0.15	HQL50-BR-TSUB
4	Check Valve	1.00	HQL50-CVALVE
5	Spring	0.10	HQL50-SPRING
6	Compression Buffer	0.10	HQL50-CBUFFER
7	Air Distributor	3.50	HQL50-DIST
8	Internal Cylinder	4.20	HQL50-ICYL
9	Piston	16.8	HQL50-PISTON
10	External Cylinder	24.6	HQL50-ECYL
11	Guided Sleeve	0.90	HQL50-BUSH
12	Bush Retaining Ring	0.02	HQL50-RRING-BUSH
13	“O” Ring of Stop Ring	0.01	HQL50-SK-SRING
14	Stop Ring	0.40	HQL50-SRING
15	Drive Chuck	4.60	HQL50-DCHUCK
16	Drill Bit		HQL50-135FF-TV

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1156mm	73.0Kg	Φ125mm	Cop54-G QL50 HQL50	Φ140- Φ152	API 3 ½” REG CUBEX # 28
Box Size	Impact rate At 1.7Mpa	Recommended rotation speed		Air Consumption 250-350(PSI)	
1230x155x180mm	25Hz	20-35r/min		500-800(CFM)	

HK5-Q DTH HAMMER

HK5-Q Hammers	Item Description	Weight Kg	Part Number
1	Top Sub	13.7	HK5Q-TSUB
2	“O” Ring of Top Sub	0.01	HK5Q-SR-TSUB
3	Check Valve	0.60	HK5Q-CVALVE
4	Spring	0.10	HK5Q-SPRING
5	Compression Buffer	0.20	HK5Q-CBUFFER
6	Air Distributor	2.00	HK5Q-DIST
7	Internal Cylinder	2.70	HK5Q-ICYL
8	Piston	13.0	HK5Q-PISTON
9	External Cylinder	22.5	HK5Q-ECYL
10	Guided Sleeve	3.00	HK5Q-BUSH
11	Bush Retaining Ring	0.10	HK5Q-RRING-BUSH
12	“O” Ring of Stop Ring	0.01	HK5Q-SK-SRING
13	Stop Ring	0.65	HK5Q-SRING
14	Make Up Ring Steel	0.02	HK5Q-MURS-DCHUCK
15	Drive Chuck	4.50	HK5Q-DCHUCK
16	Drill Bit		HK5Q-135FF-TV

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
935mm	65.0Kg	Φ126mm	QL50	Φ140- Φ152	API 3 ½ “ REG CUBEX # 28
Box Size	Impact rate At 1.7Mpa	Recommended rotation speed		Air Consumption 250-350(PSI)	
1100x155x180mm	25Hz	30-70r/min		500-800(CFM)	

HD55 DTH HAMMER

HD55 Hammers	Item Description	Weight Kg	Part Number

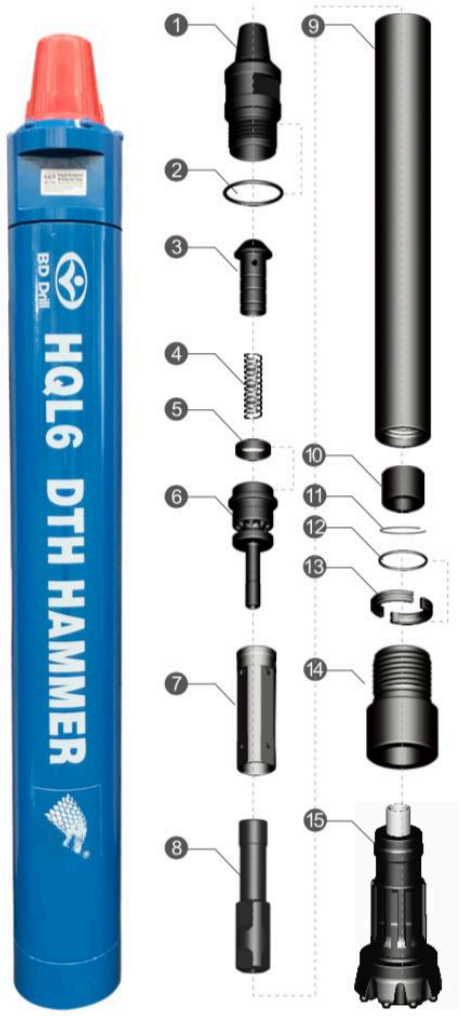
1	Top Sub	15.0	HD55-TSUB
2	“O” Ring of Top Sub	0.01	HD55-SR-TSUB
3	Check Valve	1.00	HD55-CVALVE
4	Spring	0.04	HD55-SPRING
5	Ring	0.10	HD55-RING
6	Compression Buffer	0.06	HD55-CBUFFER
7	Compression Buffer Seat	0.40	HD55-SBS
8	Air Distributor	4.00	HD55-DIST
9	Internal Cylinder	4.70	HD55-ICYL
10	Piston	15.50	HD55-PISTON
11	External Cylinder	30.00	HD55-ECYL
12	“O” Ring of Stop Ring	0.01	HD55-SR-SRING
13	Stop Ring	0.30	HD55-SRING
14	Drive Chuck	6.40	HD55-DCHUCK
15	Drill Bit		HD55-140FF-TV

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1214mm	77.5Kg	Φ125mm	Cop54 DHD350R HD55	Φ140- Φ152	API 3 ½” REG CUBEX # 28
Box Size	Impact rate At 1.7Mpa	Recommended rotation speed		Air Consumption 250-350(PSI)	
1290x150x175mm	25Hz	20-35r/min		500-800(CFM)	

HQL60 DTH HAMMER

HQL60 Hammers	Item Description	Weight Kg	Part Number



1	Top Sub	20.00	HQL60-TSUB
2	“O” Ring of Top Sub	0.02	HQL60-SR-TSUB
3	Check Valve	1.00	HQL60-CVALVE
4	Spring	0.10	HQL60-SPRING
5	Compression Buffer	0.10	HQL60-CBUFFER
6	Air Distributor	6.00	HQL60-DIST
7	Internal Cylinder	5.00	HQL60-ICYL
8	Piston	23.50	HQL60-PISTON
9	External Cylinder	31.00	HQL60-ECYL
10	Guided Sleeve	1.00	HQL60-BUSH
11	Bush Retaining Ring	0.02	HQL60-RRING-BUSH
12	“O” Ring of Stop Ring	0.02	HQL60-SR-RING
13	Stop Ring	0.60	HQL60-SRING
14	Drive Chuck	5.40	HQL60-DCHUCK
15	Drill Bit		HQL60-165CC-TV

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1212mm	95.0Kg	Φ148mm	Cop64-G QL 60 HQL 60	Φ165- Φ178	API 3 ½ “REG CUBEX # 28
Box Size	Impact rate At 1.7Mpa	Recommended rotation speed		Air Consumption 300-350(PSI)	
1270x170x200mm	23Hz	20-30r/min		600-900(CFM)	

HQL60A DTH HAMMER

HQL60A Hammers	Item Description	Weight Kg	Part Number

1	Top Sub	20.00	HQL60A-TSUB
2	“O” Ring of Top Sub	0.015	HQL60A-SR-TSUB
3	Check Valve	0.70	HQL60A-CVALVE
4	Spring	0.10	HQL60A-SPRING
5	Air Distributor	3.50	HQL60A-DIST
6	Internal Cylinder	4.20	HQL60A-ICYL
7	Piston	23.00	HQL60A-PISTON
8	External Cylinder	30.00	HQL60A-ECYL
9	Guided Sleeve	4.00	HQL60A-BUSH
10	Bush Retaining Ring	0.02	HQL60A-RRING-BUSH
11	“O” Ring of Stop Ring	0.01	HQL60A-SR-RING
12	Stop Ring	0.60	HQL60A-SRING
13	Drive Chuck	5.50	HQL60A-DCHUCK
14	Drill Bit		HQL60A-165CC-TV

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1183mm	92.0Kg	Φ148mm	QL60 HQL60A	Φ165- Φ178	API 3 ½” REG CUBEX # 28
Box Size	Impact rate At 1.7Mpa	Recommended rotation speed		Air Consumption 300-350(PSI)	
1260x180x200mm	25Hz	20-30r/min		600-900(CFM)	

HQL80 DTH HAMMER

HQL80 Hammers	Item Description	Weight Kg	Part Number
1	Top Sub	44.6	HQL80-TSUB
2	“O” Ring of Top Sub	0.01	HQL80-SK-TSUB
3	Shim of Top Sub	0.30	HQL80-BOR-TSUB
4	Check Valve	1.30	HQL80-CVALVE
5	Spring	0.20	HQL80-SPRING
6	Compression Buffer	0.46	HQL80-CBUFFER
7	Air Distributor	13.2	HQL80-DIST
8	Internal Cylinder	8.40	HQL80-ICYL
9	Piston	41.5	HQL80-PISTON
10	External Cylinder	74.1	HQL80-ECYL
11	Guided Sleeve	3.70	HQL80-BUSH
12	Bush Retaining Ring	0.03	HQL80-RRING-BUSH
13	“O” Ring of Stop Ring	0.01	HQL80-SK-SRING
14	Stop Ring	1.20	HQL80-SRING
15	Shim of Drive Chuck	0.35	HQL80-BOR-DCHUCK
16	Drive Chuck	13.6	HQL80-DCHUCK
17	Drill Bit		HQL80-203CC-TV

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1471mm	203Kg	Φ185mm	QL80 TD80 TD85	Φ195- Φ254	BECO 4 ½” REG API 4 ½” REG
Box Size	Impact rate At 1.7Mpa	Recommended rotation speed		Air Consumption 300-380(PSI)	
1440x230x270mm	25Hz	30-70r/min		950-1200(CFM)	

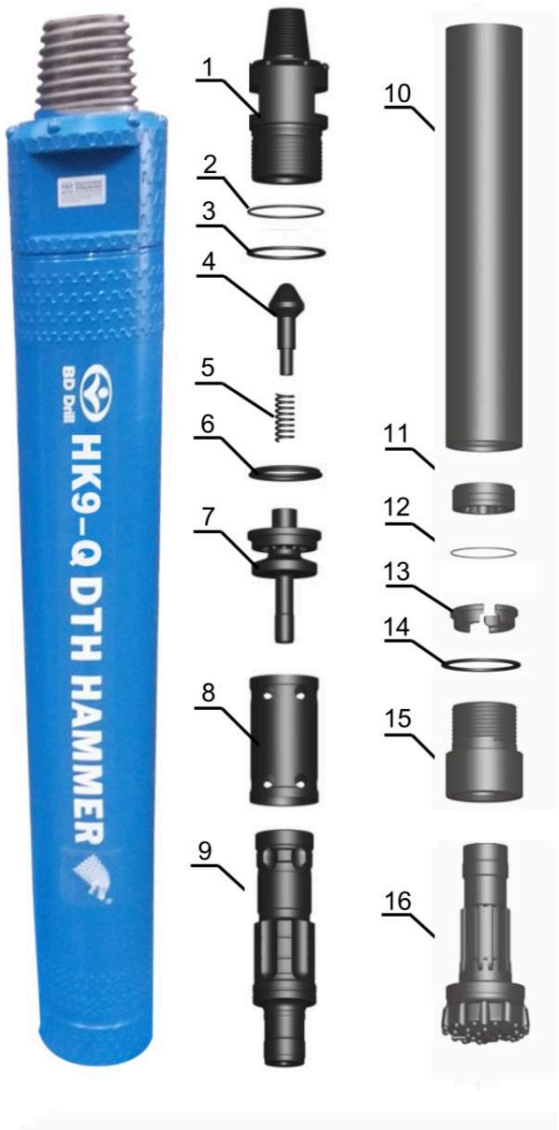
HD85 DTH HAMMER

HD85 Hammers	Item Description	Weight Kg	Part Number
			
1	Top Sub	41.0	HD85-TSUB
2	“O” Ring of Top Sub	0.02	HD85-SR-TSUB
3	Breakout Ring of Top Sub	0.20	HD85-BR-TSUB
4	Check Valve	1.50	HD85-CVALVE
5	Spring	0.10	HD85-SPRING
6	Compression Buffer	0.42	HD85-CBUFFER
7	Air Distributor	0.13	HD85-DIST
8	Internal Cylinder	8.60	HD85-ICYL
9	Piston	41.0	HD85-PISTON
10	External Cylinder	75.2	HD85-ECYL
11	“O” Ring of Stop Ring	0.02	HD85-SR-SRING
12	Stop Ring	1.20	HD85-SRING
13	Drive Chuck	17.5	HD85-DCHUCK
14	Drill Bit		HD85-195CC-YV

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1492mm	186.9Kg	Φ185mm	Cop84 DHD380 HD85	Φ203- Φ229	BECO 4 ½” REG API 4 ½” REG
Box Size	Impact rate At 1.7Mpa	Recommended rotation speed		Air Consumption 300-380(PSI)	
1560x230x270mm	20Hz	20-30r/min		950-1200(CFM)	

HK9-Q DTH HAMMER



HK9-Q Hammers	Item Description	Weight Kg	Part Number
1	Top Sub	45.5	HK9Q-TSUB
2	“O” Ring of Top Sub	0.02	HK9Q-SK-TSUB
3	Breakout Ring	0.55	HK9Q-BOR
4	Check Valve	1.20	HK9Q-CVALVE
5	Spring	0.15	HK9Q-SPRING
6	Compression Buffer	0.45	HK9Q-CBUFFER
7	Air Distributor	10.2	HK9Q-DIST
8	Internal Cylinder	7.50	HK9Q-ICYL
9	Piston	50.0	HK9Q-PISTON
10	External Cylinder	79.5	HK9Q-ECYL
11	Guided Sleeve	6.20	HK9Q-BUSH
12	Retaining Ring	0.30	HK9Q-RRING
13	Stop Ring	2.20	HK9Q-SRING
14	Breakout Ring	0.55	HK9Q-BOR
15	Drive Chuck	23.0	HK9Q-DCHUCK
16	Drill Bit		HK9Q-216CC-TV

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1345mm	205.0Kg	Φ203mm	QL80	Φ216- Φ229	BECO 4 ½” REG API 4 ½” REG
Box Size	Impact rate At 2.4Mpa	Recommended rotation speed		Air Consumption 300-380(PSI)	
1500x240x280mm	25Hz	30-70r/min		950-1200(CFM)	

HSD10 DTH HAMMER

HSD12 Hammers	Item Description	Weight Kg	Part Number
1	Top Sub	121.7	HSD12-01
2	“O” Ring of Top Sub	0.02	HSD12-02
3	Breakout Ring of Top Sub	2.10	HSD12-03
4	Check Valve	2.10	HSD12-04
5	Spring	0.20	HSD12-05
6	Air Distributor	20.2	HSD12-06
7	Internal Cylinder	31.3	HSD12-07
8	Piston	110	HSD12-08
9	External Cylinder	168.7	HSD12-09
10	Retaining Ring	1.20	HSD12-10
11	“O” Ring of Stop Ring	3.70	HSD12-11
12	Stop Ring	0.03	HSD12-12
13	Guided Sleeve	0.01	HSD12-13
14	Breakout Ring of Stop Ring	1.20	HSD12-14
15	Drive Chuck	0.35	HSD12-15
16	Drill Bit	13.6	HSD12-16

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1880mm	487Kg	Φ275mm	SD12	Φ305- Φ445	API 6 5/8 REG

Working Pressure	Impact rate At 0.5 Mpa	Recommended rotation speed	Air Consumption		
			1.0 MPa	1.8 MPa	2.4 MPa
1.0 - 2.5 MPa	16Hz	15-25 r/min	30 m³/min	56 m³/min	78 m³/min

HSD12 DTH HAMMER

HSD12 Hammers	Item Description	Weight Kg	Part Number
1	Top Sub	121.7	HSD12-01
2	“O” Ring of Top Sub	0.02	HSD12-02
3	Breakout Ring of Top Sub	2.10	HSD12-03
4	Check Valve	2.10	HSD12-04
5	Spring	0.20	HSD12-05
6	Air Distributor	20.2	HSD12-06
7	Internal Cylinder	31.3	HSD12-07
8	Piston	110	HSD12-08
9	External Cylinder	168.7	HSD12-09
10	Retaining Ring	1.20	HSD12-10
11	“O” Ring of Stop Ring	3.70	HSD12-11
12	Stop Ring	0.03	HSD12-12
13	Guided Sleeve	0.01	HSD12-13
14	Breakout Ring of Stop Ring	1.20	HSD12-14
15	Drive Chuck	0.35	HSD12-15
16	Drill Bit	13.6	HSD12-16

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1880mm	487Kg	Φ275mm	SD12	Φ305- Φ445	API 6 5/8 REG

Working Pressure	Impact rate At 0.5 Mpa	Recommended rotation speed	Air Consumption		
			1.0 MPa	1.8 MPa	2.4 MPa
1.0 - 2.5 MPa	16Hz	15-25 r/min	30 m³/min	56 m³/min	78 m³/min

HK12-Y DTH HAMMER

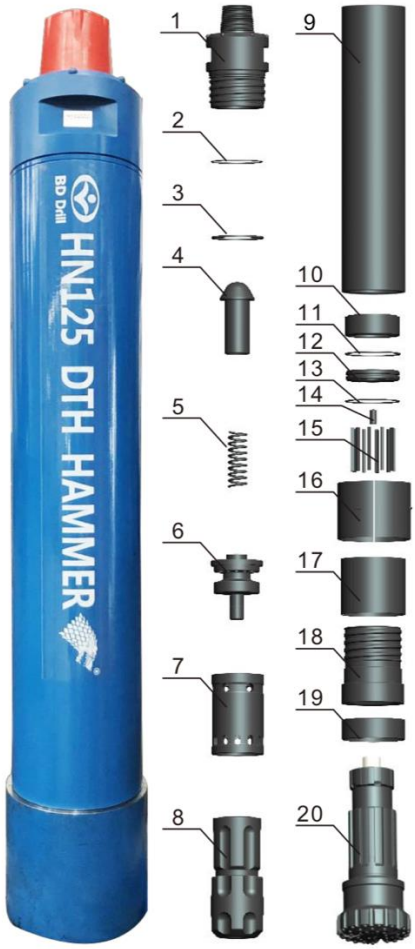
HK12-Y Hammers	Item Description	Weight Kg	Part Number
1	Top Sub	119.5	HK12Y-TSUB
2	“O” Ring of Top Sub	0.02	HK12Y-SK-TSUB
3	Spacer	1.20	HK12Y-SPACER-A
4	Check Valve	0.20	HK12Y-CVALVE
5	Spring	0.50	HK12Y-SPRING
6	Compression Buffer	2.20	HK12Y-CBUFFER
7	Air Distributor	19.6	HK12Y-DIST
8	Internal Cylinder	15.1	HK12Y-ICYL
9	Piston	111.1	HK12Y-PISTON
10	External Cylinder	177.1	HK12Y-ECYL
11	Bearing Bush	19.15	HK12Y-BUSH
12	Retaining Ring	1.50	HK12Y-RRING
13	“O” Ring (Bit Ring)	0.20	HK12Y-SK-SRING
14	Bit Retaining Ring	4.35	HK12Y-SRING
15	Spacer	1.20	HK12Y-SPACER-B
16	Drive Chuck	37.2	HK12Y-DSUB
17	Drill Bit	108.0	HK12Y-311CC

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1590mm	510.2Kg	Φ275mm	HY12	Φ305- Φ350	API 6 5/8” REG API 7 5/8” REG
Box Size	Impact rate At 2.4Mpa	Recommended rotation speed		Air Consumption 200-350(PSI)	
1665x320x360mm	19.2Hz	15-35r/min		1200-1500(CFM)	

N125-R DTH HAMMER

Black Diamond
Drilling Services Australia

N125-R Hammers	Item Description	Weight Kg	Part Number
	1 Top Sub	123.0	HN125-TSUB
	2 “O” Ring of Top Sub	0.02	HN125-SK-TSUB
	3 Breakout Ring of Top Sub	0.85	HN125-MURS-TSUB
	4 Check Valve	1.00	HN125-CVALVE
	5 Spring	1.00	HN125-SPRING
	6 Air Distributor	20.20	HN125-DIST
	7 Internal Cylinder	31.00	HN125-ICYL
	8 Piston	111.0	HN125-PISTON
	9 External Cylinder	147.0	HN125-ECYL
	10 Bush	18.4	HN125-BUSH
	11 Bush Retaining Ring	0.20	HN125-BUSH-RRING
	12 Stop Ring	5.30	HN125-SRING
	13 “O” Ring Stop Ring	0.02	HN125-SK-SRING
	14 Lock Pin	0.20	HN125-LOCK-PIN
	15 Nylon Strip	0.30	HN125-NYLON-STRIP
	16 Internal Bit Catcher	6.80	HN125-IBCATCHER
	17 External Bit Catcher	15.7	HN125-EBCATCHER
	18 Drive Chuck	31.9	HN125-DCHUCK
	19 Plastic Spacer of Drive Chuck	0.5	HN125-PSPACER
	20 Bit		HN-476CC

Technical Data

Length(Less bit)	Weight(Less bit)	External Diameter	Bit Shank	Hole Range	Connection Thread
1812mm	546kg	Φ275mm	NUMA125R	Φ305-Φ445	API 6 5/8” REG
Box Size	Impact rate At 1.7Mpa	Recommended rotation speed		Air Consumption 200-350(PSI)	
1880x310x310mm	18Hz	15-35r/min		800-1800(CFM)	

Selecting the right bit

Black diamond has a comprehensive range of DTH drill bits to match all conceivable applications. Each bit is made from quality alloy steel and has been precision machined to produce a perfect body, heat treated to the required hardness. Given surface compression for fatigue resistance and fitted with precision buttons manufactured in-house. These are designed for specific applications for all rock types, hardness and conditions. Bit life and rate of penetration are the most important criteria in selecting the right bit for a particular application.

Bit Face Shape Selection

Drop Center

For high penetration rates in soft to medium hard and fissured rock formations. Low to medium air pressures. Maximum hole deviation control.

Concave Face

The all-round application bit face specifically for medium hard and homogenous rock formations. Good hole deviation and good flushing capacity.

Convex Face

For high penetration rates in soft to medium-hard with low to medium air pressures. It is the most resistance to steel wash and may reduce the load and wear on the gauge buttons. However, it has poor hole deviation control.

Double Gauge Face

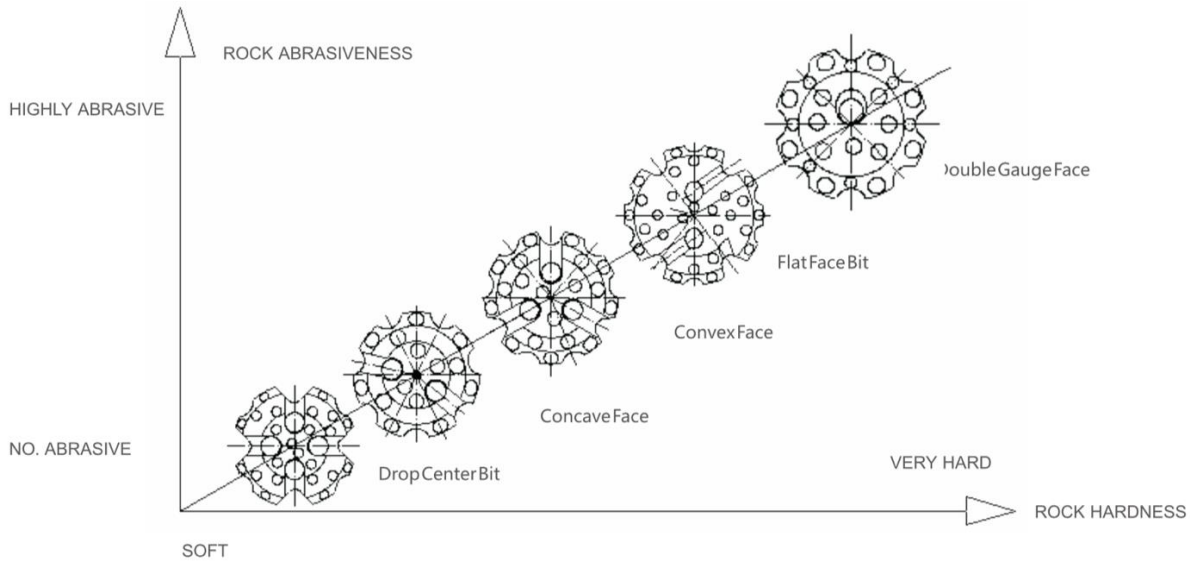
This kind of face shape is suitable for fast penetration rates in medium to hard rock formations. Designed for high air pressures and good resistance to steel wash step gauge bit.

Flat Face

This kind of face shape is suitable for hard to very hard and abrasive rock formations in applications with high air pressures. Good penetration rates and resistance to steel wash.

Pineapple Bit

The Pineapple Bit can be dressed with ballistic buttons for use in soft to medium hard Formations where fractured rock can be expected, or can be supplied with spherical buttons for hard and abrasive formations.



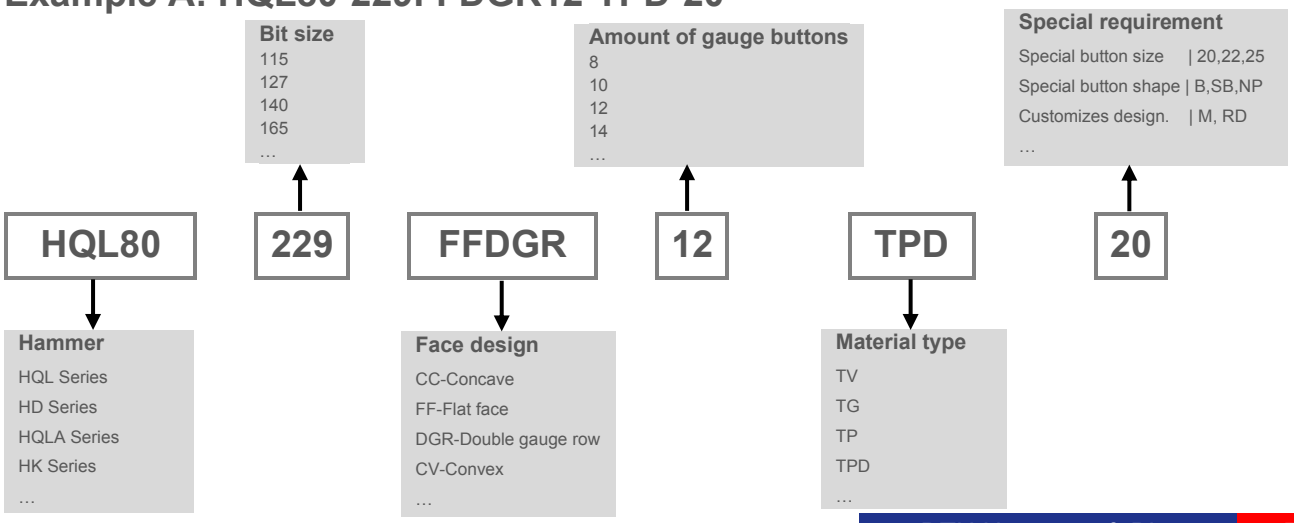
Carbide Button Shape Selection

Round Button | Semi-Ballistic Buttons | Ballistic Button | Flat Button | Sharp Button

Product codes

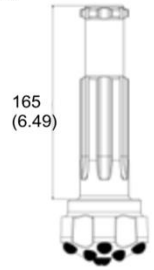
Product codes are a valuable tool to describe and identify the product. In the code structure we have tried to describe the product features with a coding system. While not always 100% logical, with the attached key you will be able to find the product you are looking for or a suitable alternative product.

Example A: HQL80-229FFDGR12-TPD-20



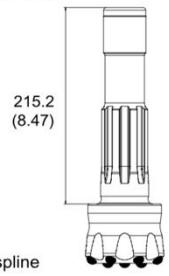
Bit shanks

BR 2
COP 20



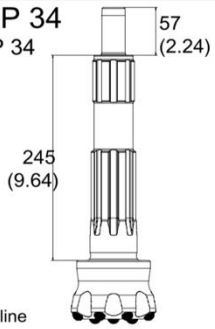
6 spline

COP 32
COP 32



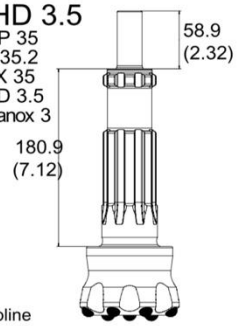
8 spline

COP 34
COP 34



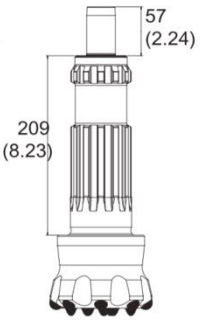
8 spline

DHD 3.5
COP 35
TD 35.2
QLX 35
DHD 3.5
Terranox 3



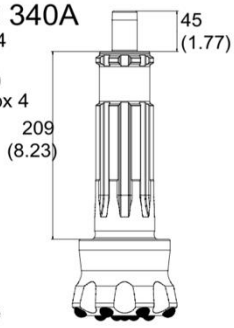
8 spline

TD 40
COP 44 G
QLX 40



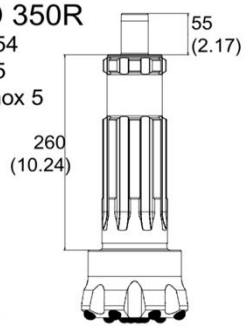
12 spline

DHD 340A
COP 44
DHD 4
QL 340
Terranox 4



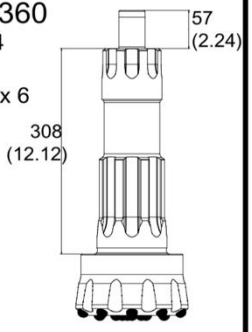
8 spline

DHD 350R
COP 54
DHD 5
Terranox 5



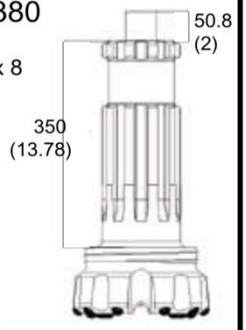
8 spline

DHD 360
COP 64
DHD 6
Terranox 6



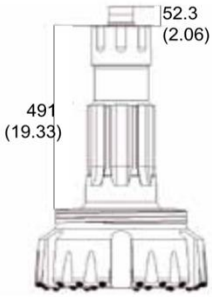
8 spline

DHD 380
DHD 8
Terranox 8



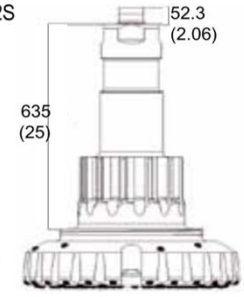
10 spline

DHD 112
DHD 112



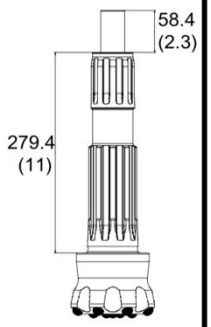
8 spline
Pin drive

DHD 112S
DHD 112S



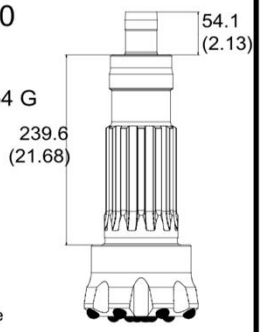
12 spline
Pin drive

QL 40
QL 40



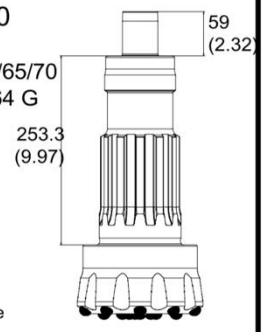
10 spline

QL 50
QL 50
TD 50
COP 54 G



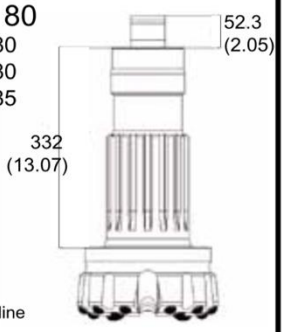
12 spline

QL 60
QL 60
TD 60/65/70
COP 64 G



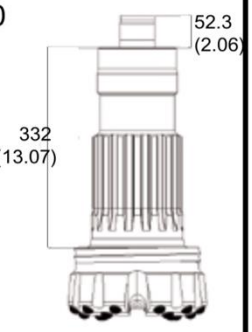
12 spline

QL 80
QL 80
TD 80
TD 85



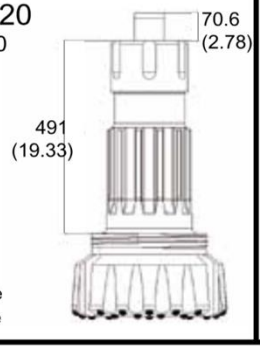
16 spline

TD 90
TD 90



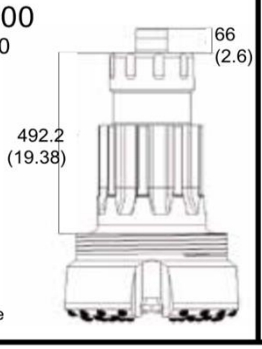
16 spline

QL 120
QL 120



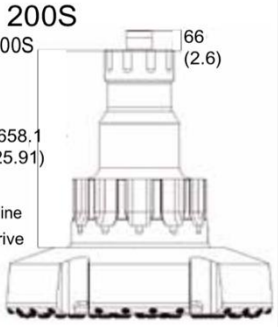
12 spline
Pin drive

QL 200
QL 200



9 spline
Pin drive

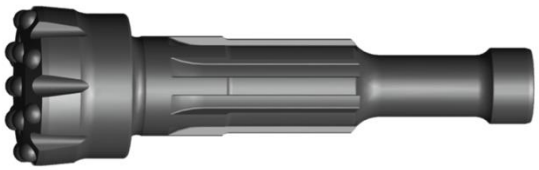
QL 200S
QL 200S



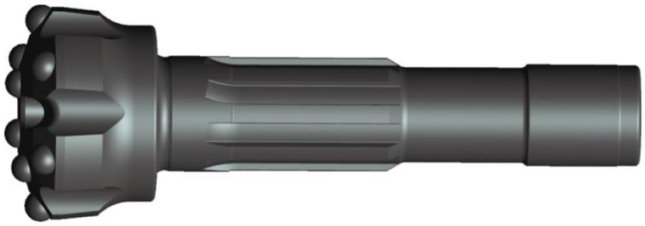
12 spline
Pin drive

3” BIT Data Referenced By IR3.5 Flat Face Bit

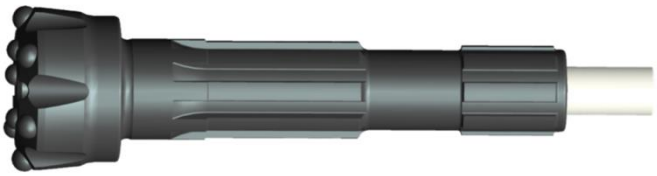
Specification Of Products : IR3.5



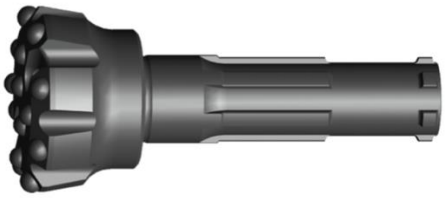
Specification Of Products : M30



Specification Of Products : COP32



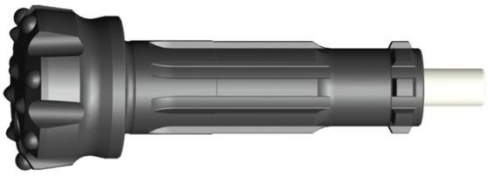
Specification Of Products : QL30, COP34



Specification Of Products : BR3

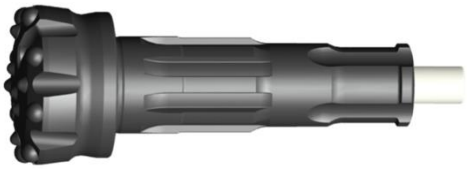
Diameter		No x Button diameter , mm		Button angle°	Flushing Holes	Weight (Kg)	Part No.
mm	Inch	Gauge Buttons	Front Buttons				
90	3 9/16	8x12	7x11	38	2	4.6	HD35-90
92	3 5/8	8x12	7x11	38	2	4.6	HD35-92
95	3 3/4	8x12	7x11	38	2	4.7	HD35-95
100	3 15/16	8x12	7x12	38	2	4.8	HD35-100
105	4 1/8	8x14	7x12	38	2	5.0	HD35-105
110	4 5/16	8x14	7x12	38	2	5.5	HD35-110

4” BIT Data Referenced By DHD340A Flat Face Bit



Specification Of Products : DHD340A COP44

Specification Of Products : M50



Specification Of Products : SD5

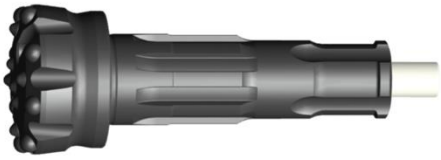
Specification Of Products : QL50

Diameter		No x Button diameter , mm		Button angle°	Flushing Holes	Weight (Kg)	Part No.
mm	Inch	Gauge Buttons	Front Buttons				
105	4 1/8	8x14	7x12	38	2	7.6	HD45-105
110	4 5/16	8x14	7x12	38	2	7.8	HD45-110
115	4 1/2	8x14	7x13	38	2	8.2	HD45-115
120	4 3/4	8x14	8x13	38	2	8.7	HD45-120
125	4 15/16	8x14	10x13	38	2	8.9	HD45-125
130	5 1/8	8x16	8x14	38	2	9.4	HD45-130

5” BIT Data Referenced By DHD350R Flat Face Bit

Specification Of Products : DHD350R COP54

Specification Of Products : M50



Specification Of Products : SD4

Specification Of Products : QL40

Diameter		No x Button diameter , mm		Button angle°	Flushing Holes	Weight (Kg)	Part No.
mm	Inch	Gauge Buttons	Front Buttons				
130	5 1/8	8x16	8x14	38	2	15	HD55-130
135	6 1/4	8x16	8x14	38	2	15.2	HD55-135
138	5 1/2	8x16	10x14	38	2	15.6	HD55-138
140	5 1/2	8x16	10x14	38	2	15.8	HD55-140
146	5 3/4	8x18	8x15	38	2	16.1	HD55-146
150	5 7/8	8x18	8x15	38	2	16.5	HD55-150
152	6	8x18	8x15	38	2	17	HD55-152
156	6 1/8	8x18	8x16	38	2	17.5	HD55-156

6” BIT Data Referenced By DHD360R Concave Face Bit

Specification Of Products : DHD360 COP64

Specification Of Products : M60

Specification Of Products : SD6

Specification Of Products : QL60

Diameter		No x Button diameter , mm		Button angle°	Flushing Holes	Weight (Kg)	Part No.
mm	Inch	Gauge Buttons	Front Buttons				
152	6	8x18	4x16+4x14	38	2	23	HD65-152
154	6	8x18	4x16+4x14	38	2	23	HD65-154
156	6 1/4	8x18	4x16+4x14	38	2	23	HD65-156
159	6 1/4	8x18	4x16+4x14	38	2	23.5	HD65-159
165	6 1/2	8x18	8x16	38	2	24	HD65-165
171	6 3/4	8x18	8x16	38	2	25	HD65-171
178	7	8x18	10x16	38	2	26	HD65-178
185	7 1/4	8x18	10x16	38	2	26.8	HD65-185
190	7 1/2	10x18	13x16	38	2	27.5	HD65-190
203	8	10x18	8x18+6x16	38	2	31	HD65-203

8” BIT Data Referenced By DHD380 Concave Face Bit

Specification Of Products : DHD380 COP84

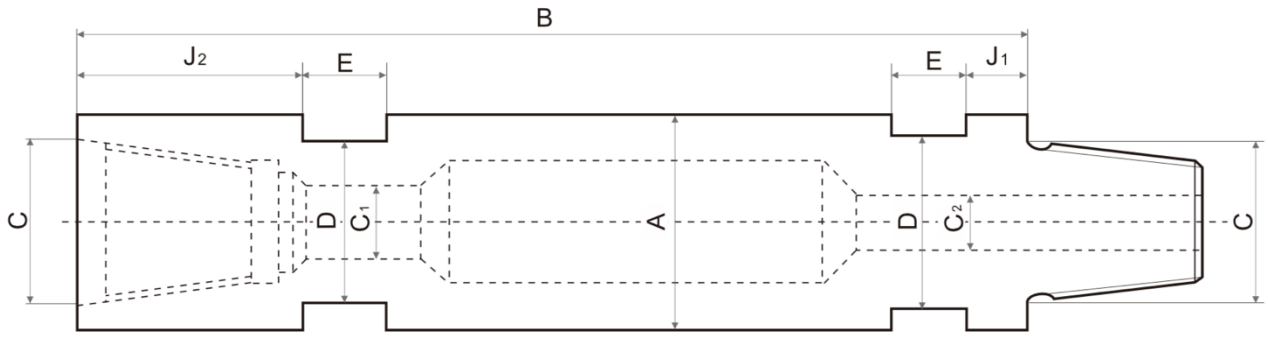
Specification Of Products : M80

Specification Of Products : SD8

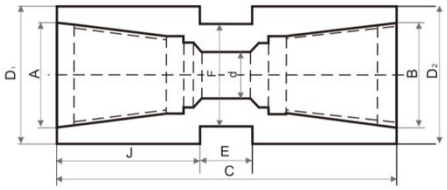
Specification Of Products QL80

Diameter		No x Button diameter , mm		Button angle°	Flushing Holes	Weight (Kg)	Part No.
mm	Inch	Gauge Buttons	Front Buttons				
200	7 7/8	10x18	8x18+6x16	38	2	46	HD85-200
203	8	10x18	8x18+6x16	38	2	47	HD85-203
216	8 1/2	10x18	8x18+6x16	38	2	53	HD85-216
219	8 5/8	10x18	8x18+6x16	38	2	54	HD85-219
222	8 3/4	10x18	8x18+6x16	38	2	55	HD85-222
225	8 7/8	10x18	8x18+7x16	38	2	56	HD85-225
229	9	10x18	8x18+7x16	38	2	57	HD85-229
235	9 1/4	12x18	30x16	38	2	57.5	HD85-235
240	9 1/2	12x18	30x16	38	2	58	HD85-240
254	10	12x18	12x18+8x16	38	2	61	HD85-254
270	10 5/8	12x19	20x18+8x16	38	2	66	HD85-270
279	11	12x19	20x18+9x16	38	2	71	HD85-279

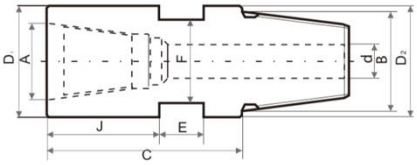
Drill Pipe



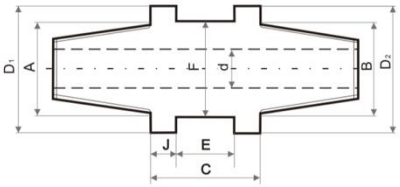
A OD(mm)	B Length SS	C1 Joints type	C2 Thread type	D Across flat	E Width spanner flat	F Thickness
76	1500	box-pin	RD 50	65	38.1	5
89	1800	box-box	API 2 3/8” Reg	69.8	60.3	6
102	3000	pin-pin	API 3 1/2” Reg	63.5	50.8	7.5
114	4000		API 4 1/2” Reg	92.2	69.8	8
127	5000		3 1/8” DIBH	120.6	…	10
140	6000		CUBEX#21	130.1		12
152	7500		CUBEX#24	…		14
…	9144		CUBEX#28			…
	…		…			



Box-Box Adapters



Pin-Box Adapters

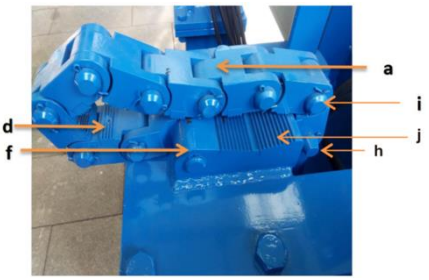


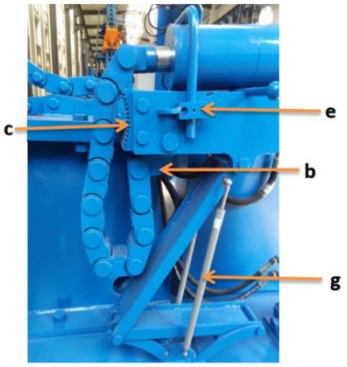
Pin-Pin Adapters

A-B Joints type	A1-B1 Threat type	C Length SS	D1 OD	D2 OD	E Width spanner flat	F Across flat
box-pin	RD 50	1500	76	76	38.1	65
box-box	API 2 3/8” Reg	1800	89	89	60.3	69.8
pin-pin	API 3 1/2” Reg	3000	102	102	50.8	63.5
	API 4 1/2” Reg	4000	114	114	69.8	92.2
	3 1/8” DIBH	5000	127	127	…	120.6
	CUBEX#21	6000	140	140		130.1
	CUBEX#24	7500	152	152		…
	CUBEX#28	9144	…	…		
	BECO					
	…	…				

Breakout Bench

The threaded connections of the driver chuck and top sub hammer may become very tightly tensioned during drilling. It is convenient to break the hammer threads on the rig, but if the threads cannot be loosened or tend to get stuck, a breakout bench is the solution. This handy but powerful breakout bench can easily be placed in a workshop or container and it breaks DTH hammers between 3” and 10”. Select the right breakout bench depending on voltage and power source.





No.	Part Name	Usage on a bench
a	link A	20
b	link B	1
c	Jaw A	1
d	Jaw B	20
e	U bar	2
f	Jaw base	1
g	Air cylinder	2
h	Pin A	2
i	Pin B	20
j	Jaw C	2
k	“link C BOB-DOUBLELINK”	1

Available for hammer size 3.5”~10”

Technical Data: rpm of chain less than 10tums/m velocity of piston rod 1.8meter/m

Hammer Range	Overall dimensions	Weight	Maximum assembly torque
3.5”-10”	1600*930*1050mm	800Kg	67 KN*m(50FTlb)
Maximum disassembly torque	**Operating Height**	**Hydraulic Range**	**Power**
81 KN*m(60ftlb)	800mm	0-20Mpa	3Kw,220V,50Hz

Reverse Circulation Hammers & Bits

Selecting the Right Hammer

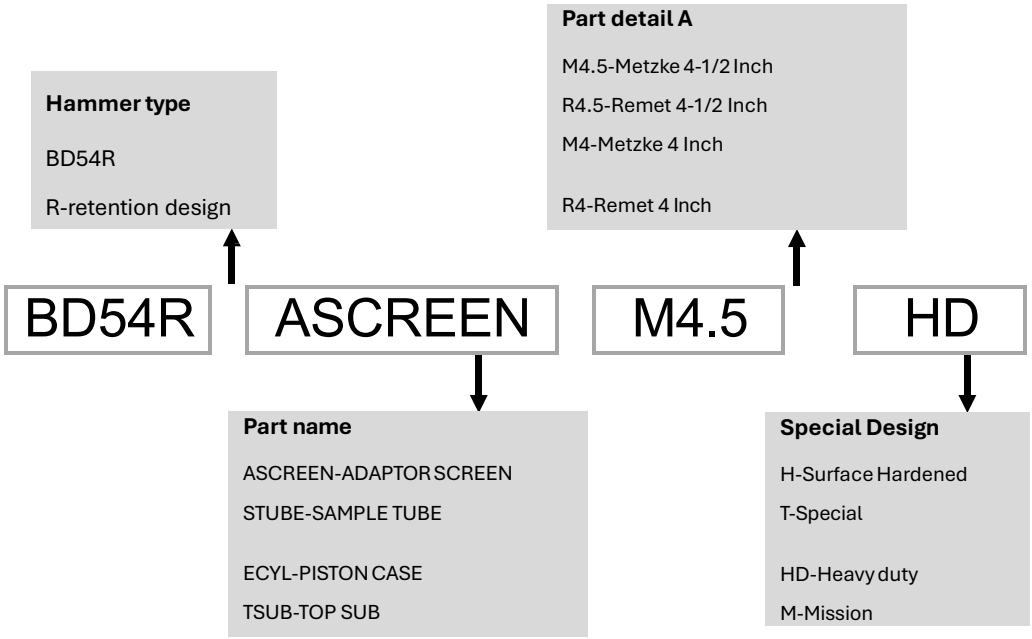
Black Diamond's reverse circulation hammers are specifically designed for all kind of exploration drilling (deep hole and pit grade control applications).

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

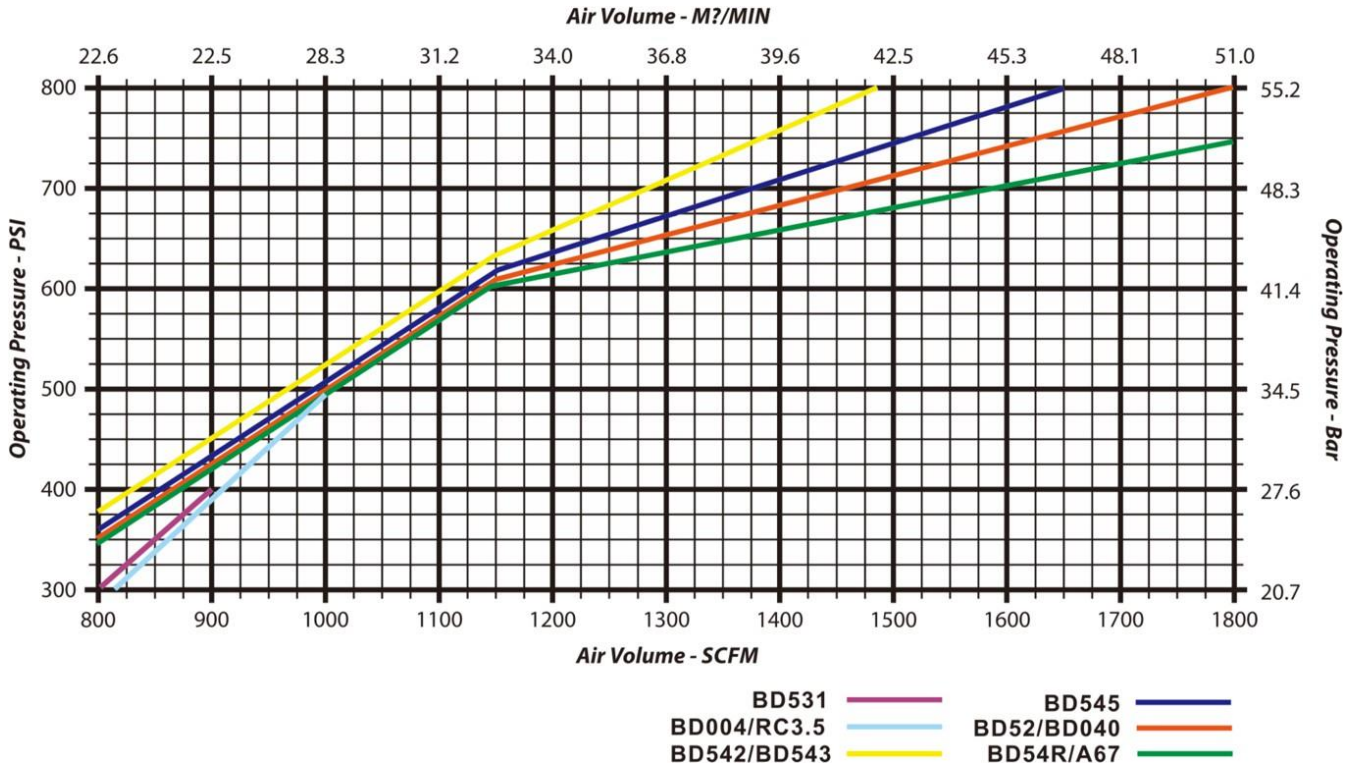


SPECIFICATIONS

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.

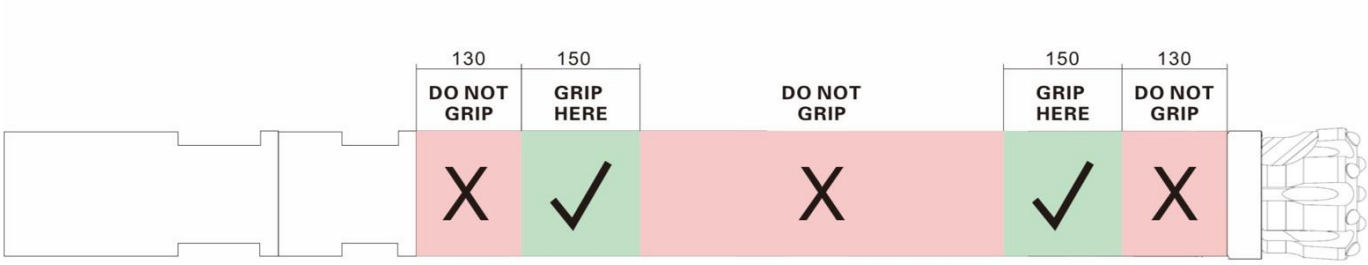


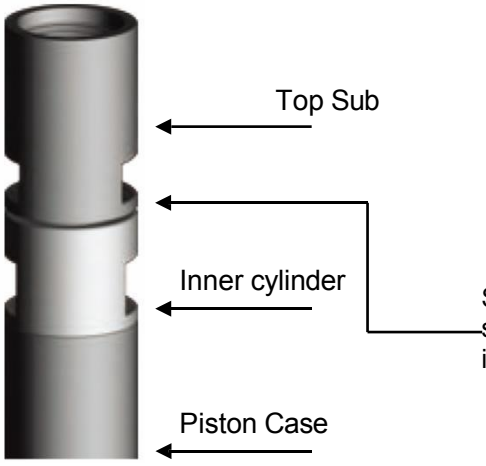
Figure 1: Gripping Locations for BD DRILL Reverse Circulation Hammer

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

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

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
3	Adaptor Tube Remet 3”	1.85	BD531-ASCREENR3
4	O Ring (Sample Tube) x 4	0.01	BD531-SK-STUBE
5	Sample Tube	1.97	BD531-STUBE
6	Circlip	0.04	BD531-CIRCLIP
7	O Ring (Distributor 1) x 2	0.01	BD531-SK-DIST-1
8	O Ring (Distributor 2) x 1	0.01	BD531-SK-DIST-2
9	Distributor	0.37	BD531-DIST
10	Check Valve/Plunger	0.08	BD531-CVALVE
11	O Ring (Check Valve) x 1	0.01	BD531-SK-CVALVE
12	Spring	0.1	BD531-SPRING
13	Mount Sample Tube	0.49	BD531-STUBE-MOUNT
14	Inner Cylinder/Top Barrel	3.4	BD531-ICYL
15	O Ring (Inner Cylinder) x 1	0.01	BD531-SK-ICYL
16	Piston	4.69	BD531-PISTON
17	External Cylinder/Barrel/Piston Case	9.2	BD531-ECYL
18	Seal Cover/ O Ring (Bearing Bush) x 2	0.02	BD531-SCOVER
19	Bearing Bush	1.03	BD531-BUSH
20	Bit Stop Ring	0.08	BD531-SRING
21	O Ring (Bit Stop Ring) x 1	0.01	BD531-SK-SRING
22	Shroud	0.45	BD531-SHROUD-85/83
23	Drive Sub	1.6	BD531-DSUB
24	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

1	Top Sub-Remet 3”	6.13	RC3.5-TSUB-R3
2	Adaptor Tube Remet 3”	1.49	RC3.5-ASCREEN-R3
3	O Ring (Adaptor Tube Remet 3”) x 2	0.01	RC3.5-SK-ASCREEN-R3
4	Sample Tube	3.31	RC3.5-STUBE
5	O Ring (Sample Tube) x 6	0.01	RC3.5-SK-STUBE
6	Circlip	0.01	RC3.5-CIRCLIP
7	Distributor	0.3	RC3.5-DIST
8	Top Barrel (Sub)	5.38	RC3.5-TBARREL
9	Check Valve/Plunger	0.28	RC3.5-CVALVE
10	Y Ring (Check Valve)	0.01	RC3.5-SK-CVALVE
11	Spring	0.05	RC3.5-SPRING
12	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)	

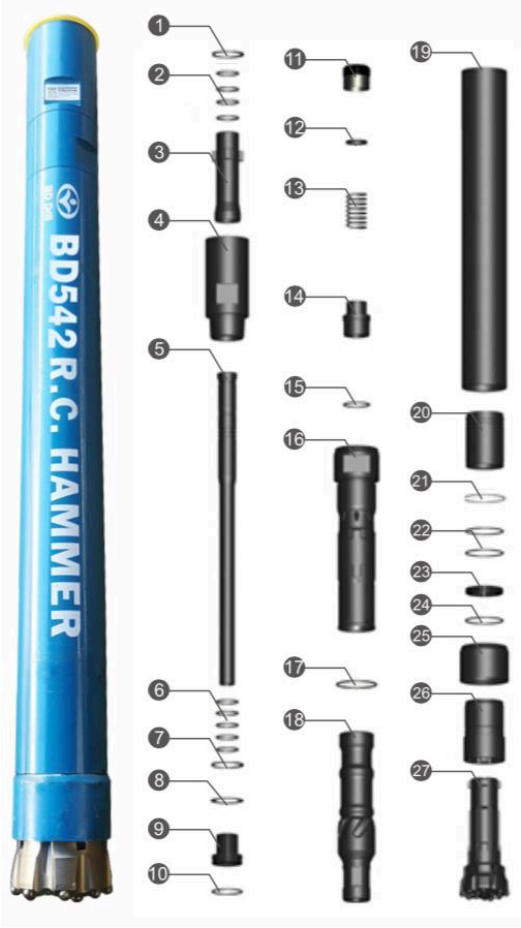
BD004 R.C. HAMMER

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-ASCREEN-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
2	O Ring (Adaptor Tube Remet 4") x 4	0.02	BD004-SK-ASCREENR4
3	Adaptor Tube Remet 4"	1.06	BD004-ASCREEN-R4
4	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-ASCREENM4
3	Adaptor Tube Metzke 4"	1.06	BD004-ASCREEN-M4/54 BD004-ASCREEN-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-ASCREEN-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-ASCREEN-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-ASCREEN-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 200-500(PSI)	
1230x140x170mm	35Hz	25-40r/min		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	BD543-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	BD543-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 200-500(PSI)	
1230x140x170mm	35Hz	25-40r/min		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 200-500(PSI)	
1260x150x180mm	35Hz	25-40r/min		300-1200(CFM)	

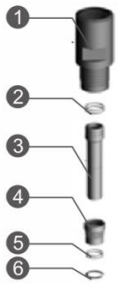
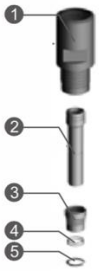
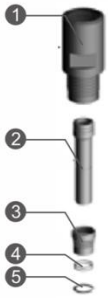
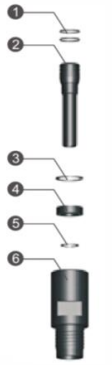
BD547 R.C. HAMMER

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 Matzke 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 200-500(PSI)	
1300x160x190mm	35Hz	25-40r/min		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

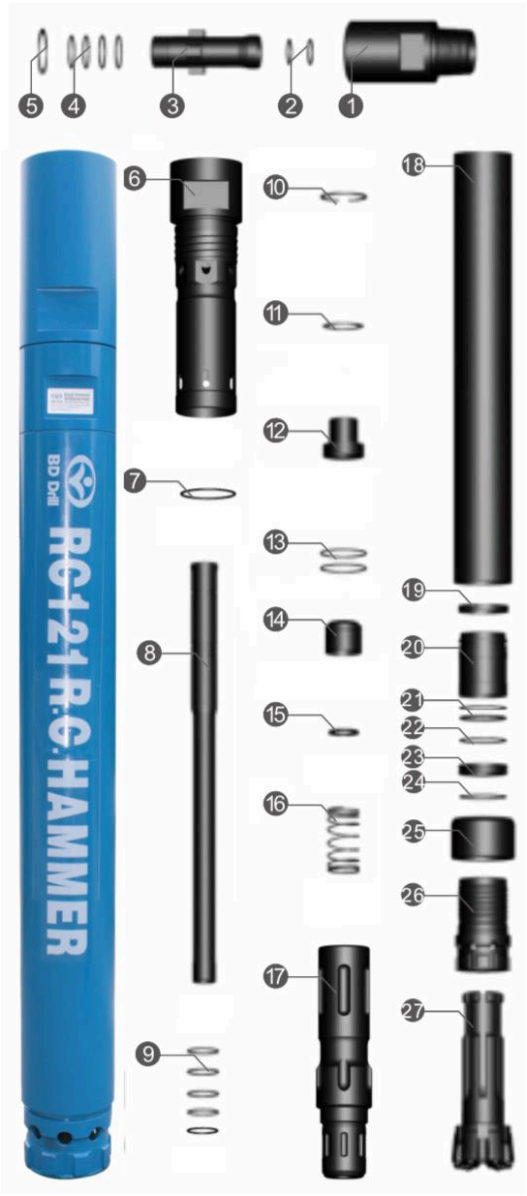
5” R.C. Hammers	Item Description	Weight Kg	Part Number
			
	⑦ Check Valve/Plunger	0.63	BD040/52-CVALVE
	⑧ Y Ring (Check Valve)	0.01	BD040/52-SK-CVALVE
	⑨ Spring	0.12	BD040/52-SPRING
	⑩ Spring Seat	0.12	BD040/52-SSEAT
	⑪ Make Up Ring, Steel	0.09	BD040/52-MUR-STEEL
	⑫ Make Up Ring, Viton	0.06	BD040/52-MUR-VITON
	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	
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 ½”(Thread available in Drill Star, Matrix and Blank



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 200-500(PSI)	
1340x350x350mm	35Hz	25-40r/min		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 Meztke 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 200-500(PSI)	
1.5-3.5Mpa	35Hz	25-40r/min		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-ASCREEN-R4.5
3	Adaptor Tube Remet 4.5”	2.35	BD54-ASCREEN-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-ASCREEN-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)	

REVERSE CIRCULATION DRILL BIT AND SHROUD

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	BD351-86
89	2 1/2	8x12	5x12	35	2	87	4.3	BD351-89
95	2 3/4	8x12	6x12	35	2	93	4.6	BD351-95
102	3	8x12	6x12	35	2	100	4.9	BD531-102

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-100
104	4 1/10	6x16	6x14+6x13	35	2	102	6.6	RC3.5Y-104
108	4 1/4	8x16	6x14+6x13	35	2	106	6.9	RC3.5Y-108
114	4 1/2	8x16	6x14+6x13	35	2	112	7.5	RC3.5Y-114

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	BD004-114
118	4 5/8	8x14	6x14	35	2	116	11.7	BD004-118
121	4 3/4	8x14	6x14	35	2	119	12.0	BD004-121
127	5	8x14	8x14	35	2	125	12.4	BD004-127

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	BD542-121
124	4 7/8	8x14	8x13	35	2	122	10.8	BD542-124
127	5	8x14	8x14	35	2	125	11.0	BD542-127
130	5 1/8	8x14	10x14	35	2	128	11.3	BD542-130

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	BD543-124
127	5	8x14	8x14	35	2	125	11.0	BD543-127
130	5 1/8	8x14	10x14	35	2	128	11.3	BD543-130
133	5 1/4	8x16	10x14	35	2	131	11.8	BD543-133

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	BD545-124
127	5	8x14	8x14	35	2	125	13.5	BD545-127
133	5 1/4	8x16	10x14	35	2	131	13.8	BD545-133
136	5 3/8	8x16	6x16+3x14	35	2	134	14.2	BD545-136

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	BD040-124
127	5	8x14	8x14	35	2	125	14.7	BD040-127
133	5 1/4	8x16	10x14	35	2	131	15.2	BD040-133
138	5 7/16	8x16	6x16+3x14	35	2	136	15.8	BD040-138

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	BD52-133
136	5 3/8	8x16	6x16+3x14	35	2	134	11.5	BD52-136
140	5 1/2	8x16	6x16+3x14	35	2	138	11.9	BD52-140
143	5 5/8	8x16	6x16+3x14	35	2	141	12.3	BD52-143

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	BD54-136
140	5 1/2	8x16	6x16+3x14	35	2	138	18.5	BD54-140
143	5 5/8	8x16	6x16+3x14	35	2	141	18.8	BD54-143
146	5 3/4	8x16	6x16+3x14	35	2	144	19.2	BD54-146

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.

Air Swivel
The side inlet swivel distributes the air in between the outer and inner tube.

Saver sub
The saver sub protects the threads on the rotator head. The saver sub thread comes into contact with all the other threads in the drill string and should be replaced frequently to reduce the risk of a damaged thread spreading through your drill string.

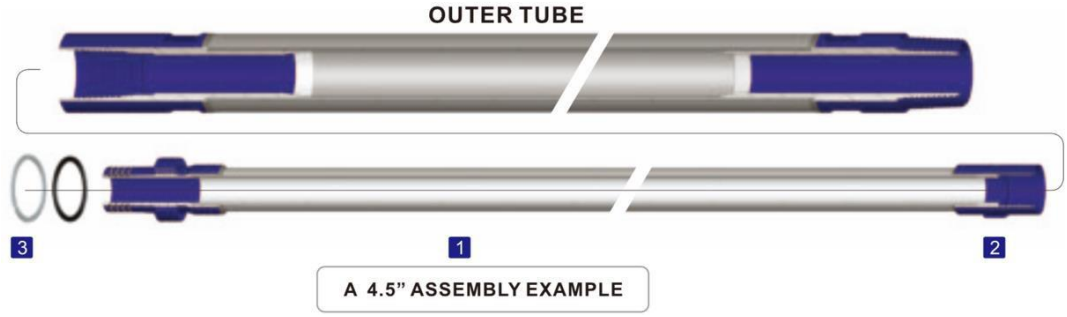
Drill pipes
The dual-wall pipe supplies air to the hammer through the annulus between the inner and outer pipe, and transports cuttings inside the inner tube for sampling.

Digout sub
A digout sub is a short crossover sub between the hammer and pipes. With 4 bars, it stabilises the hammer and prevents damage to the hammer when digging out holes.

Hammers
RC50 high-frequency reverse circulation hammers offer world class performance and reliability in all rock formations, with 15-20 percent higher penetration than conventional tools.

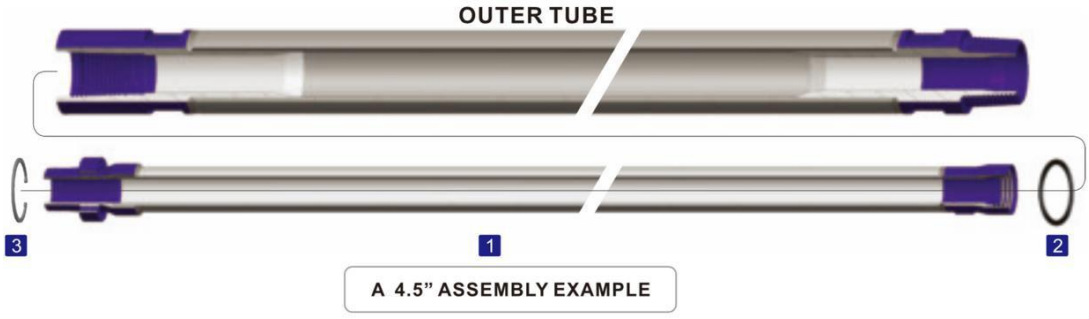
Remet

	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



Surface Drilling Top Hammer

Why do you use top hammer drilling

Availability, Variety of drill bit designs, and low operating costs make top hammer drilling an advantageous method in many different industries but with the widespread application inevitably follows an equally wide range of demands and challenges.

Versatile and flexible, top hammer drilling is used by various industries all over the world, Arguably, the biggest advantage of top hammer drilling is the size, availability and cost of drilling rigs.

The rigs can be taken to challenging job locations, drilling contractors usually have machines available with short notice, and they tend to be cheaper than DTH or rotary drilling rigs.

On the drilling consumable side, the top hammer drill string is also cost-efficient, fast to set up and, thanks to the wide range of available bit designs, top hammer bits can always be optimised for the ground conditions.

The advantages and possibilities of top hammer drilling do, however, not just mean a broad range of possible applications, but also an equally broad range of clients and demands. Increased automation, longer bit durability and improved efficiency are among the requirements that need to be met by developers.

Ideal for mining and underground operations

Ideal for drilling narrow and short boreholes (down to 1 inch wide and up to 40m in length) in hard rock, top hammer drills are primarily used in mining, construction, and for quarrying of rock material.

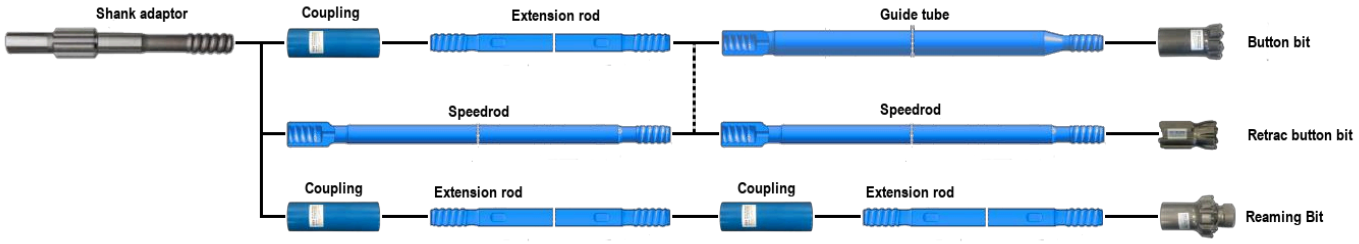
Top Hammer drilling should be the default choice for all holes with a width between 1 ½ - 4inch and a depth up to around 30m. Ground conditions do not impact so much on the choice of drilling methodology, but it obviously has a great impact on the tool selection. An exception to this is specialty applications like tunnel forepoling, where weak ground conditions mean that forepoling is necessary – which in turn automatically calls for top hammer methodology.

Specifically, the Top Hammer method is widely preferred and used in underground mining operations because of the possibility of using water to flush out cuttings. Unlike other technologies, which flush out with air, this improves the underground work environment by minimising the impact of drilling dust into the air.

On top of this, top hammer drilling allows for a larger number of smaller holes enabling more accurate and controlled blasting, something which is usually critical in underground operations.

Lastly, top hammer drilling is also required for bolting operations to secure tunnels, and although the drilling machines used for bolting and production drilling can be slightly different, they share the same drilling methodology and require the same skillset from operators.

TOP HAMMER DRILL STRING



T51 SURFACE DRILLING BITS

BITS	DIMENSIONS		Buttons, mm		Angle	Flushing Hole, mm		Part Number	Compatibility
	Imperial	Metric	Front No Size	Gauge No Size		Front No Size	Gauge No Size		
	3 1/2”	89mm	6x10	8x11	35°	4x12	-	TH-R89FF8-T51-TK	90513764
	3 1/2”	89mm	6x12	8x14	40°	4x12	-	TH-R89DC8-T51-TK	90513813
	4”	102mm	6x14	8x14	35°	4x13	-	TH-N102FF8-T51-TV	90510807
	4”	102mm	6X14	8x16	40°	4x14	-	TH-N102DC8-t51-TV	90510343
	4”	102mm	6x11	8x14	35°	4x14	-	TH-N102DC8-T51-TV-B	90510824
	4”	102mm	6x11	8x14	35°	2x12	-	TH-R102DC8-T51-TV/M	90510825
	4”	102mm	6x11	8x14	35°	2x12	-	TH-R102CVB-T51-TV	-
	4 1/2”	115mm	6x14	8x16	35°	2x13	-	TH-N115FF8-T51-TV	7516-1915-S48 90510340
	4 1/2”	115mm	6x14	9x14	35°	2x13	-	TH-N115DC8-T51-TV	90510874
	4 1/2”	115mm	7x14	9x14	35°	3x13	-	TH-R115FF9-T51-TV-M	90510344
	4 1/2”	115mm	7x14	9x14	35°	3x13	-	TH-R115DC-T51-TV-M	-
	4 1/2”	115mm	7x14	9x14	35°	3x13	-	TH-R115DC8-T51-TV-B	-
	4 1/2”	115mm	7x14	9x14	35°	3x13	-	TH-R115DC8-T51-TV-SB	-
	5”	127mm	6x14	8x16	35°	4x14	-	TH-N127FF8-T51-TV	90510360
	5”	127mm	6x14	8x16	35°	4x14	-	TH-N127DC8-T51-TV	90513815
	5”	127mm	6x14	8x16	35°	4x14	-	TH-N127CVB-T51-TV	7516-4927-S48 90513757
	5”	127mm	7x14	8x16	35°	2x14	-	TH-R127FF8-T51-TV	-
	5”	127mm	7x14	8x16	35°	2x14	-	TH-R127DC-T51-TV-M	7516-4927-S48 90513757
	5 1/2”	140mm	6x15	8x15	35°	2x15	-	TH-N140DC-T51-TV	90515254
	5 1/2”	140mm	7x15	9x15	35°	3x15	-	TH-R140DC8-T51-TV	90515254

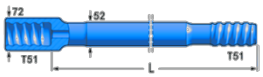
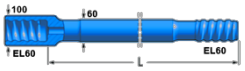
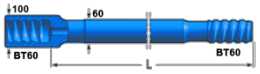
EL60 SURFACE DRILLING BITS

BITS	DIMENSIONS		Buttons, mm		Angle	Flushing Hole, mm		Part Number
	Imperial	Metric	Front No Size	Gauge No Size		Front No Size	Gauge No Size	
	4”	102mm	7x12	8x13	35°	2x12	-	TH-N102DC8-EL60-TV-SPH
	4”	102mm	6x12	8x13	35°	2x12	-	TH-R102DC8-EL60-TV-SPH
	4 1/2”	115mm	6X11	8X13	40°	4X12	-	TH-N115DC-EL60-TV
	4 1/2”	115mm	6x11	8x13	40°	4x12	-	TH-R115DC-EL60-TV
	5”	127mm	6X14	8X14	35°	2X13	-	TH-N127DC8-EL60-TV-SPH
	5”	127mm	6x14	8x14	35°	4x13	-	TH-R127DC8-EL60-TV-SPH
	5 1/2”	140mm	6X14	8X14	35°	4X14	-	TH-N140DC8-EL60-TV-SPH
	5 1/2”	140mm	7x14	9x14	35°	3x14	-	TH-R140DC8-EL60-TV-SPH

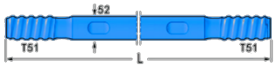
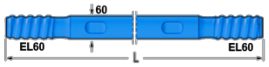
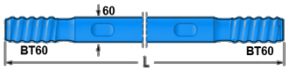
BT60 SURFACE DRILLING BITS

BITS	DIMENSIONS		Buttons, mm		Angle	Flushing Hole, mm		Part Number
	Imperial	Metric	Front No Size	Gauge No Size		Front No Size	Gauge No Size	
	4”	102mm	6x12	8X13	35°	4X12	-	TH-N102DC8-BT60-TV
	4”	102mm	6x12	8x13	35°	4x12	-	TH-R102DC8-BT60-TV
	4 1/2”	115mm	6X11	8X13	40°	2X12	-	TH-N115DC8-BT60-TV
	4 1/2”	115mm	7x11	9x13	40°	3x12	-	TH-R115DC8-BT60-TV-M

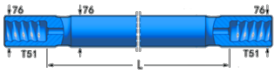
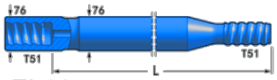
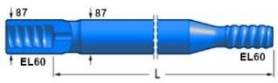
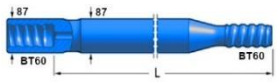
M/F SPEED RODS

RODS	Dimensions				Part Number	Compatibility
	Length, L		Diameter			
	Imperial	Metric	Imperial	Metric		
T51						
	12’	3660mm	2”	52mm	ROD-TH-T51-3660-MF-O	7326-5537-70 90515311
	14’	4300mm	2”	52mm	ROD-TH-T51-4300-MF	7326-5543-85 90515314
	20’	6100mm	2”	52mm	ROD-TH-T51-6100-MF-O	7326-5561-85 90515557
	24’	7300mm	2”	52mm	ROD-TH-T51-7300-MF	-
EL60						
	12’	3660mm	2 3/8”	60mm	ROD-TH-EL60-3660-MF	-
	14’	4300mm	2 3/8”	60mm	ROD-TH-EL60-3660-MF	210250
	20’	6100mm	2 3/8”	60mm	ROD-TH-EL60-3660-MF	210268
	24’	7300mm	2 3/8”	60mm	ROD-TH-EL60-3660-MF	-
BT60						
	12’	3660mm	2 3/8”	60mm	ROD-TH-BT60-3660-MF	-
	14’	4300mm	2 3/8”	60mm	ROD-TH-BT60-4300-MF	-
	20’	6100mm	2 3/8”	60mm	ROD-TH-BT60-6100-MF	-
	24’	7300mm	2 3/8”	60mm	ROD-TH-BT60-7300-MF	-

EXTENSION RODS

RODS	Dimensions				Part Number	Compatibility
	Length, L		Diameter			
	Imperial	Metric	Imperial	Metric		
T51	11”	280mm	2”	52mm	ROD-TH-T51-280-MM	-
	3’	915mm	2”	52mm	ROD-TH-T51-915-MM	-
	12’	3660mm	2”	52mm	ROD-TH-T51-3660-MM	7326-5337C-30 90515299
	14”	4300mm	2”	52mm	ROD-TH-T51-4300-MM	7326-5343C-30 90515300
	20’	6100mm	2”	52mm	ROD-TH-T51-6100-MM	7326-5361C-30 90515301
	24’	7300mm	2”	52mm	ROD-TH-T51-7300-MM	-
EL60	3’	915mm	2 3/8”	60mm	ROD-TH-EL60-915-MM	203011
	12’	3660mm	2 3/8”	60mm	ROD-TH-EL60-3660-MM	200529
	14”	4300mm	2 3/8”	60mm	ROD-TH-EL60-4300-MM	200530
	20’	6100mm	2 3/8”	60mm	ROD-TH-EL60-6100-MM	200543
	24’	7300mm	2 3/8”	60mm	ROD-TH-EL60-7300-MM	-
BT60	3’	915mm	2 3/8”	60mm	ROD-TH-BT60-915-MM	-
	12’	3660mm	2 3/8”	60mm	ROD-TH- BT60-3660-MM	-
	14”	4300mm	2 3/8”	60mm	ROD-TH- BT60-4300-MM	-
	20’	6100mm	2 3/8”	60mm	ROD-TH- BT60-6100-MM	-
	24’	7300mm	2 3/8”	60mm	ROD-TH- BT60-7300-MM	-

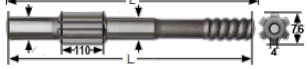
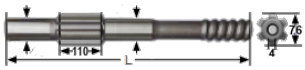
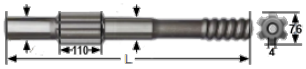
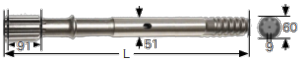
T51 GUIDE TUBES

GUIDE TUBE	Length		Diameter		Part Number	Compatibility
	Imperial	Metric	Imperial	Metric		
T51						
	12’	3660mm	3”	76mm	TH-GTUBE-T51-3600-FF-76	-
	12’	3660mm	3”	76mm	TH-GTUBE-T51-3600-MF-76	7957-7637-70 94502641
EL60						
	12’	3660mm	3 1/2”	87mm	TH-GTUBE-EL60-3660-MF-87	
	14’	4300mm	3 1/2”	87mm	TH-GTUBE-EL60-4300-MF-87	270097
BT60						
	12’	3660mm	3 1/2”	87mm	TH-GTUBE-BT60-3660-MF-87	
	14’	4300mm	3 1/2”	87mm	TH-GTUBE-BT80-4300-MF-87	

COUPLING SLEEVES

COUPLING SLEEVES	Thread	Dimensions				Part Number	Compatibility
		Length, L		Diameter, D			
		Imperial	Metric	Imperial	Metric		
	T51	7 7/8”	225mm	2 51/64”	71mm	TH-COUP-T51	7316-3671
	T51	9 1/4"	235mm	3 1/32”	77mm	TH-COUP-T51-77/SS235	90515743
	T51	9 1/4"	235mm	3 1/32”	77mm	TH-COUP-T51-77/SS235-SB	90515745
	T51	9 1/4"	235mm	3 1/4”	82mm	TH-COUP-T51-82/SS235-SB	-
	EL60	7 1/2”	190mm	2 13/32”	61mm	TH-COUP-EL60-300	-

SHANK ADAPTORS

SHANK ADAPTOR	Drifter Model	Thread	Length, L	Part Number	Compatibility
	COP 4050ME	EL60	700mm	TH-SHANK-COP4050/S-T51	7600-3712-01
	COP3060	T45	830mm	TH-SHANK-T51-COP3060/T45	-
	COP2160EX/ 2560EX	T51	770mm	TH-SHANK-2160/2560EX-T51	7306-3689-01
	HPR2	T51	915mm	TH-SHANK-T51-HPR2/GD5000	-
	HPR2-60	T51	1040mm	TH-SHANK-HPR2-60-T51	-
	HPR2-60	EL60	1040mm	TH-SHANK-HPR2-60-EL60	-
	HPR2-70	T51	1040mm	TH-SHANK-HPR2-70-T51	-
	HD612	T45	720mm	TH-SHANK-HD612-T45	7305-3663-01
	HD715	T51	885mm	TH-SHANK-HD715-T51	7306-7424-01
	HC120R	T45	670mm	TH-SHANK-HC120R-T45	90516212
	HC120R	T51	670mm	TH-SHANK-HC120R-T51	7306-7528-02
	HC160	T51	805mm	TH-SHANK-HC160R-T51	90516047
	HL700	T51	650mm	TH-SHANK-HL700/650	7305-6008-01
	HL1500	T51	760mm	TH-SHANK-T51-1500-D80/L760	7600-6022-03
	HL1500	BT60	760mm	TH-SHANK-BT60-1500-D65/L760	
	HL1500	BT60	760mm	TH-SHANK-BT60-1500-D80/L760	
	HL1500PE	T51	760mm	TH-SHANK-T51-1500PE-D65/L760	90003702

Rotary Drilling Tools

RECOMMENDED SAFETY PROCEDURES

The mining industry continues to demand even higher levels of safety and productivity. In order to meet these requirements, we work continuously to develop even safer products and to produce comprehensive manuals enabling safer and effective use of our products.

IT'S ALL ABOUT EVERYONE'S HEALTH

Helping you to ensure a safer workplace and healthier workforce is of the utmost importance to us. The well-being of any person coming into contact with our equipment is paramount. Therefore, we strive to identify and assess potential risk factors that could threaten the health of you and your employees.
All the products in our catalogue are designed to meet safety requirements.

DRESS RIGHT FROM HEAD TO TOE

You must wear appropriate personal protective equipment (PPE) at all times. This is what we strongly recommend, to help avoid injury:

- Safety helmet
- Hearing protection
- Safety glasses
- Protective high visibility clothing
- Respiratory protection
- Safety boots
- Any site-specific PPE as required

BE AWARE OF ALL SAFETY PROCEDURES

We ask that you start by obeying all instructions given. Never work under an unsupported rood or close to potential pinch point locations. Beware of the potential hazards of a loose roof and ribs and scale down roof ribs prior to bolting. It is important to bolt early in the mining process – as soon is safely and practically possible.
Safe work procedures should incorporate inspection before the machine operates and also through regular monitoring based upon mining conditions, safety and management systems. Workers should be provided with safety information, instruction and training on transportation, installation, operational care and disposal of drilling tools.

MAKE A RISK ANALYSIS BEFORE YOU START

Pay attention to safety when planning all of your work. Before you start, always take your time to go through all operations. Identify any potential risks and take appropriate measures to avoid them. If necessary, seek expert advice on how to help minimize risks. Finally, make sure that you have the right resources to perform all tasks in the safest manner possible.

Please check www.safeworkaustralia.gov.au or www.canada.ca/en/services/jobs/workplace/health-safety.html for more information.

IADC Codes – Rotary Rock Bits

International Association of Drilling Contractors

IADC Codes make it easier for drillers to describe what kind of rock bit they are looking for to the supplier. Black Diamond follows the IADC bit classification system in which the first three digits classify the bit according to the formation is is designed to drill and the bearing/seal design used.

Example 5-4-5-R:

First Digit

a. 1,2 and 3 designate STEEL TOOTH BITS with 1 for soft, 2 for medium and 3 for hard formations
b. 4, 5, 6, 7 and 8 designate TUNGSTEN CARBIDE INSERT BITS for varying formation hardness with 4 being the softest and 8 being the hardest.

Second Digit

1, 2, 3 and 4 are further breakdown of formation with 1 being the softest and 4 the hardest.

Third Digit

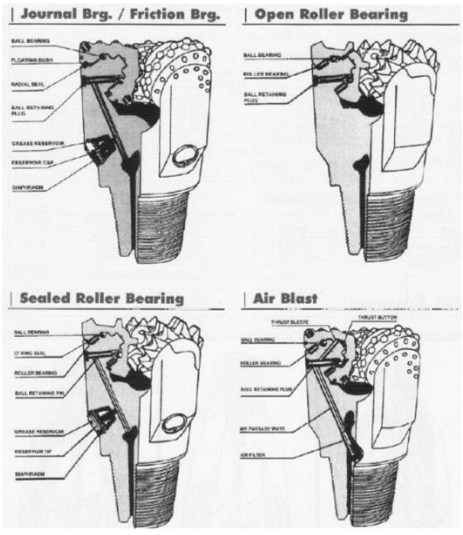
This digit will classify the bit according to bearing/seal type (see information on different bearing types) and special gauge wear protection as follows:
1. Standard open bearing roller bit/2. Standard open bearing roller bit, air-cooled
3. Standard open bearing roller bit with gauge protection which is defined as carbide inserts in the heel of the cone
4. Sealed roller bearing bit/5. Sealed roller bearing bit with gauge protection
6. Journal sealed bearing bit/7. Journal sealed bearing bit with gauge protection

Fourth Digit

The following letter codes are used in the fourth digit position to indicate additional features:
A-Air Application / R-Reinforced Welds / C-Center Jet / S-Standard Steel Tooth / D-Deviation Control / X-Chisel insert / E-Extended Jet / Y-Conical Insert / G-Extra Gauge Protection / Z-Other Insert Shape / J-Jet Deflection

Bearing Types

There are primarily four (4) types of bearing used in tricone drilling bits:
1.) STANDARD OPEN BEARING ROLLER BIT: On these bits the cones will spin freely. This type of bit has a front row of ball bearings and a back row of roller bearings.
2.) STANDARD OPEN BEARING ROLLER BIT FOR AIR DRILLING: Cones are similar to #1, but have air injection directly to the cones to cool the bearings. Air flows into the cone through the passage ways inside the pin. (Not for mud applications)
3.) SEALED BEARING ROLLER BITS: These bits have an O-Ring seal with a grease reservoir for bearing cooling. The seal acts as a barrier against mud and cuttings to protect the bearings.
4.) JOURNAL BEARING ROLLER BITS: These bits are strictly oil/grease cooled worth nose bearings, O-Ring seal and a race for maximum performance.



Please check https://www.iadc.org/drillbits/ for more information

Product Features

Fast Penetration

The cutting structures are designed to perform efficiently and increase the bit life of a variety of insert shapes.

Carbide

Multiple grade selection for different rows of inserts based on function.

INTERIOR ROW INSERTS

Interior row inserts are critical for high bit life and sustained penetration rates. We select the best inserts for your application specific products.

GAGE ROW INSERTS

We offer a range of gage row insert shapes suited to all drilling applications. Insert selection is optimised for all bits in our product range.

Optimised nozzle orientation

Nozzle size and orientation are optimised for efficient evacuation of cuttings.

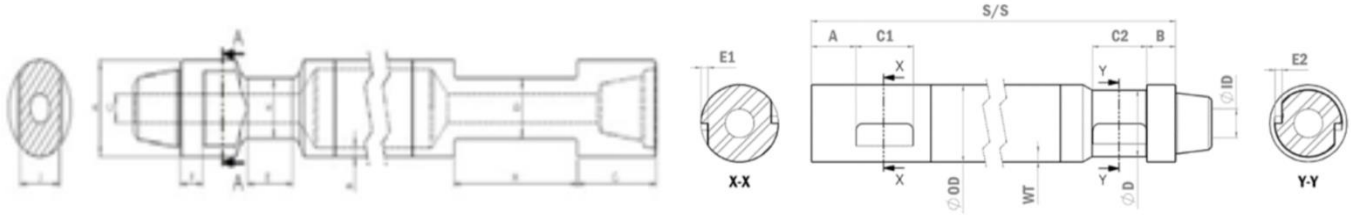
BACKFLOW VALVES

Backflow valves act as a check valve limiting ingress of water and cuttings to the bit body. This increases the bearing life and reduces the incidence of bearing failure.

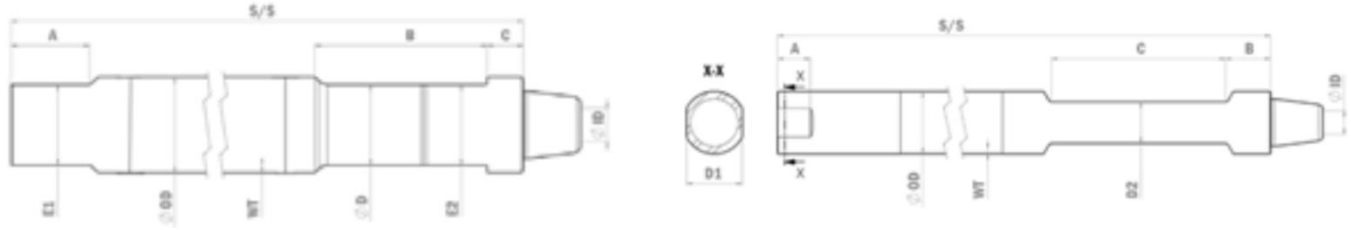
Rotary Drill String

Rotary Drill String	
1	Shock Sub
2	Saver Sub/Top Sub
3	Drill pipe
4	Starter pipe
5	Bit Sub
6	Roller Stabilizer
7	Rotary Deck Bush

CAT(REEDRILL, SKS, SKF, MD) CAT(BUCYRUS)



ATLAS COPCO(PIT-VIPER) Sandvik Driltech(T25KW/D25/40/50/75/90)



Rotary Drilling Pipe

Pipe type	Connection type	Thread type	OD	Should to Should(SS) Length	Flats	Wall Thickness
SKS/SKF	BOX-PIN		7”		127	
PIT VIPER	PIN-PIN	API or Beco	7-5/8”	6ft/25ft/30ft/35ft/40ft…	140	1” or 3/4”
DRILLTECH	BOX-BOX		8”		165	

Bit Sub/Saver Sub/Spindle Sub

Pipe type	Connection type	Thread type	OD	Should to Should(SS) Length	Flats
SKS/SKF	BOX-PIN		7”		127
PIT VIPER	PIN-PIN	API or Beco	7-5/8”	17”/19”/37”/42”	140
DRILLTECH	BOX-BOX		8”		165

BLACK DIAMOND DRILLING SERVICES AUSTRALIA
World-class drilling equipment and tools

CLOUDBREAK PIT VIPER 271

7” (178mm) Drill String / Min OD 165mm / 146mm Spanner Flats

Spindle Sub	
Part #	SUB-PREG568BBEC0412-178/SSL800
Pin Thread	6 5/8” API
Box Thread	4 1/2” BECO
Shoulder	800mm
Weight	146kg

Saver Sub	
Part #	SUB-PBBEC0412-178/SS400
Pin Thread	4 1/2” API
Box Thread	4 1/2” BECO
Shoulder	400mm
Weight	67kg

Drill Pipe x 2	
Part #	ROD-ROT-178/25FT/25.4 BECO412
Pin Thread	4 1/2” BECO
Box Thread	4 1/2” BECO
Shoulder	7620mm
Weight	785kg

Extension Sub	
Part #	SUB-PBEC0412BREG412-178/SS1800
Pin Thread	4 1/2” BECO
Box Thread	4 1/2” API
Shoulder	1800mm
Weight	315kg

Lifting Bail	
Part #	TOOL-LBAIL-BECO 412-AL
Box Thread	4 1/2 BECO
Part #	TOOL-LBAIL-REG658-AL
Box Thread	6 5/8 API
Part #	TOOL-LBAIL-REG412-AL
Box Thread	4 1/2” API

Bit Basket
RIG-BBASKET-PV271-ROT203
RIG-BBASKET-PV271-ROT229

Deck Bushes
3250D Triple Race
DBUSH -TR-PV271-178/325
3250D Light Weight
DBUSH -TR-PV271-178/325

Bit Sub (9 7/8” Rotary)	
Part #	SUB-P421B658REG-178/SS1800
Pin Thread	4 1/2” API
Box Thread	6 5/8” API
Shoulder	1200mm
Weight	230kg

Bit Sub (9” Rotary)	
Part #	SUB-PB412REG-178/SS1200
Pin Thread	4 1/2” API
Box Thread	4 1/2” API
Shoulder	1200mm
Weight	220kg

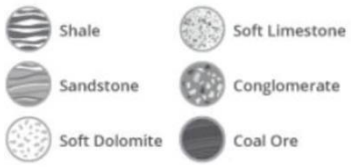
IADC435 Bit Description

Bit Size (mm)	IADC Code	Pin Connection	Weight (Kg)
200/216/229/251/270/311	435	4 1/2” & 6 5/8” API REG	34/38/50/65/74/104

IADC: 435 – TCI sealed roller bearing bit with gauge protection for soft formations with low compressive strength and high drillability.

Compressive Strength:

- 65-85 MPA
- 9,000-12,000 PSI



Ground Description:

Long intervals of very soft poorly compacted shales, dolomites, sandstones, clays, salts and limestones.

Product Specification	Technical
Bearing Type	**Operating Suggestions**
Roller-Ball-Roller-Thrust Button/Sealed Bearing	Weight on Bit: 9,880-39,500
Circulation Type	Rotary Speed: 80 – 110 RPM
Jet Air	Air Back Pressure: 0.2 – 0.4
Cutting Structure	
Inner and Nose Rows: Ogive	Gage Row: Chisel
Gage Level Protection: Round	Hardmetal and wear resistant carbide on shirttail lip and lug

Based on the IADC Bit Classification System located in the IADC Drilling Manual, 11th Ed. – Redesigned, 2007

IADC545 Bit Description

Bit Size (mm)	IADC Code	Pin Connection	Weight (Kg)
200/216/229/251/270/311	545	4 1/2” & 6 5/8” API REG	34/38/50/65/74/104

IADC: 545 – TCI sealed roller bearing bit with gauge protection for soft to medium formations with low compressive strength.

Compressive Strength:

- 155 - 193 MPA
- 22,500 – 28,000 PSI

Ground Description:

Medium hard and abrasive rocks such as sandstone with streaks of quartz, hard limestone or chert, hematite ores, hard well compacted abrasive rock such as: sandstones with quartz binder, dolomites, quartzite shales, magma and metamorphic coarse-grained rocks

Product Specification	Technical
Bearing Type	**Operating Suggestions**
Roller-Ball-Roller-Thrust Button/Sealed Bearing	Weight on Bit: 18,000 – 45,000
Circulation Type	Rotary Speed: 80 – 110 RPM
Jet Air	Air Back Pressure: 0.2 – 0.4
Cutting Structure	
Inner and Nose Rows: Conical	Gage Row: Off-set Chisel
Gage Level Protection: Round	Hardmetal and wear resistant carbide on shirttail lip and lug

Based on the IADC Bit Classification System located in the IADC Drilling Manual, 11th Ed. – Redesigned, 2007

IADC635

Bit Description

Bit Size (mm)	IADC Code	Pin Connection	Weight (Kg)
200/216/229/251/270/311	635	4 1/2” & 6 5/8” API REG	34/38/50/65/74/104

IADC: 635 – TCI sealed roller bearing bit with gauge protection for medium hard formations with high compressive strength.

Compressive Strength:

- 85 - 100 MPA
- 12,000 – 14,500 PSI

Ground Description:

Hard, well compacted rocks such as: hard silica limestones, quartzite streaks, pyrite ores, hematite ores, magnetite ores, chromium ores, phosphorite ores and granites

Product Specification	Technical
Bearing Type	**Operating Suggestions**
Roller-Ball-Roller-Thrust Button/Sealed Bearing	Weight on Bit: 19,750 – 49,380
Circulation Type	Rotary Speed: 80 – 110 RPM
Jet Air	Air Back Pressure: 0.2 – 0.4
Cutting Structure	
Inner and Nose Rows: Conical	Gage Row: Chisel
Gage Level Protection: Round	Hardmetal on lug; Wear resistant carbide on shirttail lip and lug

Based on the IADC Bit Classification System located in the IADC Drilling Manual, 11th Ed. – Redesigned, 2007

IADC645A

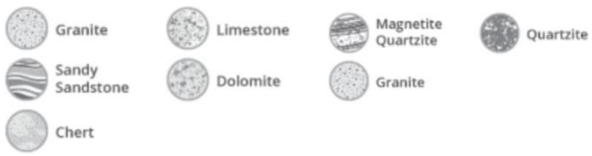
Bit Description

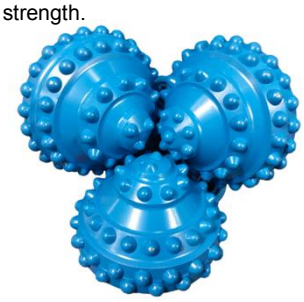
Bit Size (mm)	IADC Code	Pin Connection	Weight (Kg)
200/216/229/251/270/311	654A	4 1/2” & 6 5/8” API REG	34/38/50/65/74/104

IADC: 645 – TCI sealed roller bearing bit with gauge protection for medium hard formations with high compressive strength.

Compressive Strength:

- 85 - 100 MPA
- 12,000 – 14,500 PSI





Ground Description:

Hard, well compacted rocks such as: hard silica limestones, quartzite streaks, pyrite ores, hematite ores, magnetite ores, chromium ores, phosphorite ores, magnetite and granites

Product Specification	Technical
Bearing Type	**Operating Suggestions**
Roller-Ball-Roller-Thrust Button/Sealed Bearing	Weight on Bit: 19,750 – 49,380
Circulation Type	Rotary Speed: 80 – 110 RPM
Jet Air	Air Back Pressure: 0.2 – 0.4
Cutting Structure	
Inner and Nose Rows: Conical	Gage Row: Conical
Gage Level Protection: Conical	Hardmetal on lug; Wear resistant carbide on shirttail lip and lug

Based on the IADC Bit Classification System located in the IADC Drilling Manual, 11th Ed. – Redesigned, 2007

IADC735 Bit Description

Bit Size (mm)	IADC Code	Pin Connection	Weight (Kg)
200/216/229/251/270/311	735	4 1/2” & 6 5/8” API REG	34/38/50/65/74/104

IADC: 735 – TCI sealed roller bearing bit with gauge protection for hard semi-abrasive and abrasive formations.

Compressive Strength:

- 155 - 192 MPA
- 22,500 – 28,000 PSI

Ground Description:

Hard, well compacted rocks such as: hard silica limestones, quartzite streaks, pyrite ores, hematite ores, magnetite ores, chromium ores, phosphorite ores and granites

Product Specification	Technical
Bearing Type	**Operating Suggestions**
Roller-Ball-Roller-Thrust Button/Sealed Bearing	Weight on Bit: 15,750 – 39,380
Circulation Type	Rotary Speed: 80 – 110 RPM
Jet Air	Air Back Pressure: 0.2 – 0.4
Cutting Structure	
Inner and Nose Rows: Conical	Gage Row: Chisel
Gage Level Protection: Flat-top	Hardmetal and wear resistant carbide on shirttail lip and lug

Based on the IADC Bit Classification System located in the IADC Drilling Manual, 11th Ed. – Redesigned, 2007

IADC845 Bit Description

Bit Size (mm)	IADC Code	Pin Connection	Weight (Kg)
200/216/229/251/270/311	845	4 1/2” & 6 5/8” API REG	34/38/50/65/74/104

IADC: 845 – TCI sealed roller bearing bit with gauge protection for extremely hard and abrasive formations.

Compressive Strength:

- 155 - 193 MPA
- 22,500 – 28,000 PSI

Ground Description:

Hard, well compacted rocks such as: hard silica limestones, quartzite streaks, pyrite ores, hematite ores, magnetite ores, chromium ores, phosphorite ores and granites

Product Specification	Technical
Bearing Type	**Operating Suggestions**
Roller-Ball-Roller-Thrust Button/Sealed Bearing	Weight on Bit: 9,880 – 39,500
Circulation Type	Rotary Speed: 80 – 110 RPM
Jet Air	Air Back Pressure: 0.2 – 0.4
Cutting Structure	
Inner and Nose Rows: Ovoid	Gage Row: Conical
Gage Level Protection: Flat-top	Hardmetal and wear resistant carbide on shirttail lip and lug

Based on the IADC Bit Classification System located in the IADC Drilling Manual, 11th Ed. – Redesigned, 2007

Drill Rigs

FULL HYDRAULIC MULTIFUNCTION DRILLING RIG PARAMETERS

Parameter	Type	
	HJG – M165	HJG – M311
Apeture	140~180mm	203~311mm
Drilling Depth	24m	24m
Adaptive Rock	f⩾ 8	
Rotation torque	4000Nm	6000Nm
Rotary speed	0~60rpm	0~40rpm
Thrust capacity	40kN	75kN
Feed stroke	4380mm	4380mm
Lifting speed	0.5m/s	0.3m/s
Hammer model	HD65	HD85/HD110
Drill rod diameter	110mm	146mm
Drill rod length	4m x 6	4m x 6
Travel speed	2.5Km/h 3Km/h	2.5Km/h 3Km/h
Grade ability	25°	25°
Rising Height from the ground	450mm	450mm
Air pressure	1.38~3.2Mpa	1.38~3.2Mpa
Air consumption	⩾25m³/min	⩾28m³/min□
Engine power	75kW	93kW
Dimensions	Length x Width x Height	
On transportation	9000x2900x3400mm	9000x2900x3400mm
On working ground	7700x2900x7800mm	7700x2900x7800mm
Gross weight	17T	18T

CRAWLER HYDRAULIC WELLS-GEOTHERMAL DRILLING RIG PARAMETERS

Parameter	Type		
	HJG – W830C	Hjg – W830A	HJG – W850A
Apeture	105~311mm	105~311mm	130~350mm
Drilling Depth	300m	300m	500m
Cylinder legs	Common legs	High legs	High legs
Adaptive Rock		f⩾ 8	
Rotation torque	4000Nm	3400Nm 6900Nm	4250Nm 8500Nm
Rotary speed	0~100rpm	0~110rpm 0~55rpm	0~180rpm 0~90rpm
Thrust capacity	60kN	60kN	60kN
Feed stroke	3700mm	3700mm	5300mm
Lifting capacity	120kN	120kN	200kN
Hammer model	HD45/HD55/HD65	HD45/HD55/HD65	HD65/HD85/HN10
Drill rod diameter	76mm, 89mm	76mm, 89mm	89mm, 102mm
Drill rod length	3m	3m	4.5m
Travel speed	2.5Km/h	2.5Km/h	3.2Km/h
Grade ability	21°	21°	21°
300mm	300mm	300mm	
Air pressure	1.05~2.46Mpa	1.05~2.46Mpa	1.05~3.5Mpa
Air consumption	⩾18m³/min	⩾18m³/min	⩾25m³/min
Engine power	93kW	93kW	132kW
Dimensions		Length x Width x Height	
On transportation	5800x2210x2850mm	5800x2210x2850mm	8085x2250x3200mm
On working ground	4920x2210x6700mm	4700x2210x6700mm	5498x2250x8941mm
Gross weight	8.8T	9.5T	12.5T

HYDRAULIC OPEN-AIR BLAST HOLE DRILLING RIG PARAMETERS

Parameter	Type	
	HJG – B138	HJG – B168
Apeture	90~152mm	105~180mm
Drilling Depth	30m	30M
Adaptive Rock	f⩾ 8	
Rotation torque	3000Nm	4000Nm
Rotary speed	0~72rpm	
Thrust capacity	32kN	32kN
Feed stroke	4000mm	4000mm
Lifting capacity	32kN	32kN
Lifting speed	0.5m/s	0.5m/s
Hammer model	HD45/HD55	HD65/HD85
Drill rod diameter	76mm, 89mm	89mm, 114mm
Travel speed	2.5Km/h 3.8Km/h	2.5Km/h 3.8Km/h
Grade ability	30°	30°
Air pressure	1.05~2.46Mpa	1.38~2.46Mpa
Air consumption	⩾18m³/min	⩾21m³/min□
Engine power	75kW	75kW
Dimensions	Length x Width x Height	
On transportation	6170x2150x2480mm	6170x2150x2480mm
On working ground	4360x2150x5380mm	4360x2150x5380mm
Gross weight	6.5T	6.8T

INTEGRATED HYDRAULIC DTH DRILLING RIG PARAMETERS

Parameter	Type	
	HJG – D120	HJG – D165
Apeture	90~150mm	152~180mm
Drilling Depth	28M	28M
Adaptive Rock	f⩾ 8	
Rotation torque	3000Nm	4000Nm
Rotary speed	10~100rpm	
Thrust capacity	35kN	40kN
Feed stroke	4380mm	4380MM
Lifting speed	0.8m/s	0.8m/s
Hammer model	HD45/HD55	HD55/HD65
Drill rod diameter	89MM, 102MM	102MM, 114MM
Drill rod length	4m	4m
Travel speed	2.5Km/h 3Km/h	2.5Km/h 3Km/h
Grade ability	25°	25°
Rising height from the ground	430mm	430mm
Air pressure	1.7Mpa	2.4Mpa
Air consumption	⩾17m³/min	⩾25m³/min□
Engine power	287kW	332kW
Dimensions	Length x Width x Height	
On transportation	11000x2500x3280mm	11550x2716x3400mm□
On working ground	7800x2500x8410mm	7920x2716x8410mm
Gross weight	15.5T	23T

Black Diamond Drilling can custom manufacture equipment to suit your drilling needs.
Please contact one of our representatives to discuss your equipment needs.

BD Drill

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