

Core drilling Diamond products



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Sandvik diamond product continually evolve with additional or improved designs superseding the published part numbers. Please consult with a Sandvik professional for the most up-to-date offering and refer to the latest electronic revision to this catalog whenever available. Sandvik reserves the right to update specifications and part numbers without prior notice.

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Equipment and tools

Overview

Exploration drilling is responsible for locating and quantifying the mineralization of a given area. If the initial assessment of the property indicates sufficient evidence, the project is brought to the next step in the cycle for commercialization. This assessment is made possible by gathering detailed information about the geology below the surface through the collection of samples.

As the world's most complete supplier to the mining and construction industries, Sandvik enjoys a unique position with regards to the early stages of the mining process. Thanks to our worldwide presence, we are always close at hand to provide a full range of products and services for exploration drilling which includes drill rigs, tools, accessories and related sampling equipment for all major exploration applications.

EQUIPMENT

DE100 compact core drills

This series of core drill has been designed so that their components can be interchanged depending on the application they are being used in. This modularity makes these drills very flexible to the customer's needs.

DE700 heavy duty core drills

These are space efficient, yet powerful core drills for surface exploration applications. They are available in a range of configurations which make them uniquely suited for operational and environmental demands globally.

DE800 multi-purpose exploration drills

This series of drill offers multiple drilling methods on a single unit. Their pioneering design gives them the ability to perform diamond coring, reverse circulation, and rotary air or mud drilling. These powerful drills operate efficiently in all forms of exploration drilling.



Sampling systems

Sandvik's RC sampling systems are designed for the geologist and operator who require a highly representative sample for grade control and mineral exploration. With the Sandvik VR and VM series, geologists and drillers can feel comfortable both with a high accuracy rate, and exceptional operational reliability in dry, wet and slurry applications.

CORE DRILLING TOOLS

Diamond drill bits and tools

Sandvik offers an excellent assortment of diamond tools for the exploration and construction industries, including surface set and impregnated bits, reaming shells and casing shoes suitable for most drilling conditions.

Drill rods and casing

Sandvik has significant investment in the state-of-the-art production of wireline drill rod and casing. Through stringent developmental practices, and testing in partnership with key customers, Sandvik is able to offer a superior product to the market.

Core barrels

Sandvik offers core barrel systems for vertical down to -45° angle holes, as well as pump-in systems for uphole drilling. Both supported by retrieval overshot devices.



REVERSE CIRCULATION TOOLS

Reverse circulation hammers

With over 20 years of experience in the reverse circulation industry, Sandvik is able to offer leading-edge technology and hammer design for quality sampling in grade control, pre-collar, and deep exploration applications.

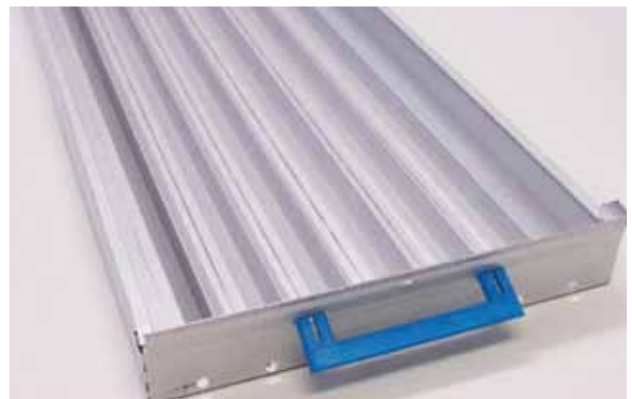
Reverse circulation pipes

Sandvik's dual-wall pipe features a wide range of threaded connections and sizes to service the entire market. They have been specifically engineered to work with our industry leading patented hammers.



GEOLOGICAL PRODUCTS

Sandvik's comprehensive range of geological and survey exploration products include field consumables from the first survey stake on a "green fields" site all the way through the mining process. We can provide solutions to all the geologist's field requirements, as well as a comprehensive range of drilling equipment for the exploration drilling contractor on site.



Product Selection

Core drilling tools are manufactured to standards set for a global exploration industry. The original organization to establish these standards was the DCDMA, but now standards are largely controlled through the ISO 9001 quality process.

Listed below are the more popular sizes/systems which have been around for over half a century.

System	Hole		Core	
	mm	in	mm	in
A	48,0	1.89	27,0	1.06
B	59,9	2.36	36,4	1.43
N	75,7	2.98	47,6	1.88
H	96,1	3.78	63,5	2.50
P	122,6	4.83	85,0	3.35

As the industry has evolved, variations to the standard systems have been introduced including:

- Wireline system which affected the rod and core barrel design and incorporated the use of a wireline overshot.
- Triple-tube system which effected the core barrel and the bit design and allowed for a second split inner tube to be used so that an undisturbed sample of very broken core could be viewed in its original state.
- Thin kerf or light weight systems which effected the design and dimensions of the entire drill string to allow for a larger core sample to be retrieved at increased depths or in similar sized hole.





DIAMOND PRODUCTS

This group of tools makes up some of the main consumables on any drilling operation and can include bits, reaming shells (reamers), and casing or rod shoes. Understanding the composition and application is essential to the success of any drilling program.

Sandvik offering	Series
TC (tungsten carbide)	RV100
PCD bits (poly-crystalline diamond)	RV200
Directional wedging (bits and tools)	RV300
Impregnated bits	RV400
Surface set bits	RV500
Reamers	RV600
Casing shoes	RV700
Specials	RV800

Core drilling bits

The bit is the most complicated of the diamond tools because so many factors influence its performance and life. It is important to gather as much data as possible in regards to the formation to be drilled.

Types of bits		
TC (Tungsten carbide)	very soft ground conditions	
PCD/TSD (Poly-crystalline diamond/thermally stable polycrystalline diamond)	soft to medium hard; course grained; abrasive; or fractured ground conditions	
Surface set	soft to medium hard; course to fine grained; abrasive to non abrasive; or fractured to competent ground conditions	
Impregnated	soft to very hard; course to fine grained; abrasive to non abrasive; or fractured to competent ground conditions	

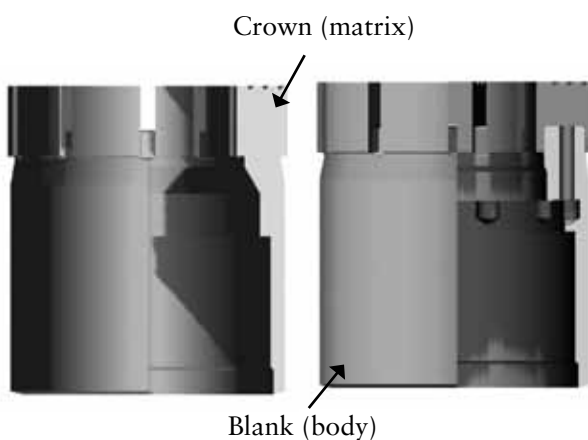
Diamond impregnated bits

This is the most widely used bit in the industry today. There are a number of variations being offered, but generally speaking the composition is as follows.



Bit Blank:

The blank is the steel body of the bit. One end is threaded so that the bit can be connected to the drill string while the other end is bonded to the crown. The inner diameter of the blank has been designed to house the core lifter case which acts together with the core lifter as a stop valve to allow the core sample to go in, but not fall back out down the hole. The combination of the bit, core lifter and core lifter case also assists in breaking the core at the bottom of the hole.



Standard configuration

Triple-tube configuration

Crown (matrix):

The crown (or matrix) of an impregnated bit is made up of a number of metal powders which are blended with selected synthetic diamonds. These materials are then packed into a mold and fused into one mass by the infiltration of molten alloys during a furnacing process. This process also adheres the crown to the bit blank.



Variations of the combination of powders and diamonds are usually identified by its series rating which in turn gives a different wear rate and resistance to abrasion.

Hardness scale:



The rate of wear between the matrix material and the diamonds should be balanced to ensure the best rate of penetration and optimum bit life.

Formation	Matrix design
Hard, consolidated, or slightly fractured	Designed to wear evenly, releasing worn diamonds and exposing new ones as required to provide continuous cutting — often referred to as a “free cutting” bit
Soft, broken, and abrasive	A harder composition so that it is able to retain its diamond content even in the most difficult, unconsolidated conditions

The crown can vary in height from 6 to 16 mm (0.25 to 0.63 in). A typical crown is 12 mm (0.5 in) but it is common for large diameter bits to have shorter crowns.

Rock drilling

Parameters

Selection and application:

Many things have to be taken into account when reviewing the ground conditions to be drilled:

- On a scale from very soft to very hard, what are the current conditions?
- Does the formation appear to be unconsolidated, fractured, or competent?
- Would it be considered abrasive, coarse, or fine grained?

The type or power of the drill to be used will also effect bit performance.

Drill	Bit
High powered — lots of torque and thrust	There is risk of overfeeding the bit so it is best to go with a more durable matrix that can withstand the forces created by the drill
Low powered drill	Need a bit that will be able to cut the rock with less effort (torque and/or rotation) — a thin kerf bit which has cut less rock or a bit that will keep exposing new sharp diamonds (free cutting) is best

Most manufacturers offer a bit selection guide to assist in the selection process once all of the influencing factors have been identified.

Settings and operating parameters:

Once the bit has been selected, it is time to set the operating parameters. Some manufacturers provide recommendations which act as a starting point, however rock formations are rarely homogenous, so adjustments are likely required to gain optimal performance.

Bit performance

The major factor influencing bit performance is rock hardness. That is why the initial bit selection process is crucial to keeping the bit cutting. Ensuring the right bit is selected will ensure the matrix wears consistently while drilling, which will maximize the performance of the bit.

RPM (revolutions per minute)

The rotating action of the bit causes the exposed diamonds to cut into the rock mass. It is measured as the rotational velocity of the outside diameter of the

bit which has the highest cutting speed. In general, the more rotations per minute the faster the rate of penetration. The rotation speed is also an important part of keeping the bit matrix wearing to expose new sharp diamonds and expel the worn ones.

WOB (weight on bit)

The weight placed on the bit (or bit load) is very much determined by the other conditions found in the hole and also parameters already applied. i.e. rock type, hardness, and competency, RPM, ROP (rate of penetration) and fluid flow.

When WOB is excessive:

- Abnormal bit wear
- Core barrel and rod wear damage
- Hole deviation

When WOB is not sufficient:

- Productivity (penetration) will be slow
- The bit will not wear enough to stay sharp
- A possibility the bit will polish

It is very important to maintain the correct bit weight (feed force + rod weight) for continuous penetration. As depths increase, the amount of rods and therefore rod weight will increase, so the force applied by the drill will have to be adjusted.

ROP (rate of penetration)

The rate of penetration is one of the more important parameters when using impregnated bits. It is essential to find the optimum ROP for the type of rock, drilling conditions, and equipment being used. Once the ideal ROP is obtained it can be maintained by adjusting the WOB and the RPM.

Optimum ROP ensures the bit will:

- Stay sharp and will not polish
- Have extended life
- Produce the best results

Penetration index - RPC (RPI)

This can help the operator in assessing if the bit is being over or under fed in relationship to the RPM and ROP.

For example:

A rotation of 1200 RPM at a penetration rate (ROP) of 15 cm (6 in) per minute is equal to:

RPC = 1200/15 = 80 rotations per centimeter
(RPI = 1200/6 = 200 rotations per inch)

Typically, a common rule is that 80 – 100 RPC (200 - 250 RPI) is good, although advancements in technology have improved on these values.

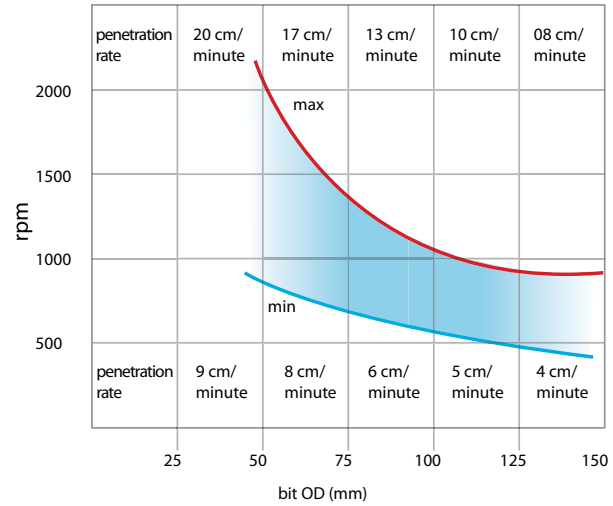
Flush (flow rate of drilling fluid)

Another critical parameter effecting drilling performance is the flushing or flow of the drilling fluid while drilling.

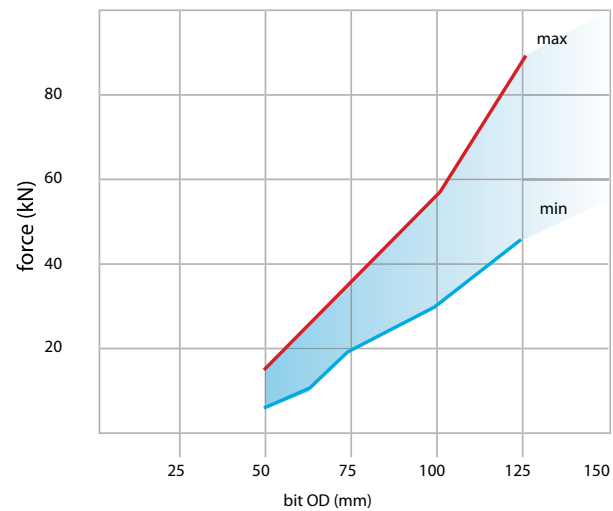
Functions:

- Removes the cuttings (rock particles) from the face of the bit and carries them out of the hole
- Keeps the bit cool
- Lubricates the entire drill string and keeps it clear of cuttings

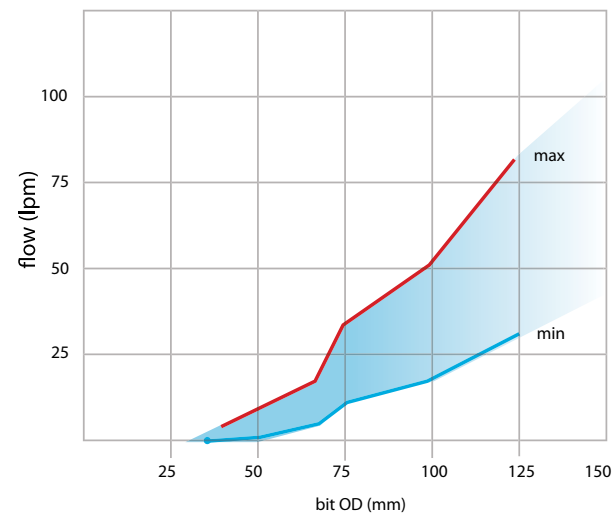
Sandvik's recommended flow values for impregnated coring bits	
T46	9-13 liter/min
WL46, T56	11-17 liter/min
WL56-42, A	12-18 liter/min
WL56, T66	13-20 liter/min
WL66, T76	15-24 liter/min
T86, B	18-27 liter/min
WL76, WL86-3	20-30 liter/min
WL76-3, T101	25-40 liter/min
N	27-42 liter/min
H	41-62 liter/min
P	61-94 liter/min



RPM - 80 to 100 RPC recommended



WOB



FLUID FLOW

Rotational speeds

Generally speaking, impregnated bits require high rotational speeds to achieve an acceptable penetration rate. The recommended speed range will produce a peripheral speed on the outside diameter of the bit between 3-5 m/sec (5-7 ft/sec). Of course this is dependent upon whether the drill is capable of producing the necessary rotational speeds and if the hole conditions will allow this speed to be used.

Given that friction causes heat it is also safe to deduce that the faster you rotate the bit the hotter it will become. Studies have shown that running the bits faster than recommended speeds can result in changes to the metallurgical make up of the matrix causing it to change its properties and drill in a different manner for which it was designed. If excessive speed and weight on the bit are used, temperatures can reach up to 900°C which will cause the matrix to melt resulting in what is commonly referred to as burning in the bit. This process can take place in seconds if the correct parameters relating to fluid flow, WOB, RPM and ROP are not applied.

Rock properties

Two parameters which define how easily a rock may be drilled are its strength and its fracture toughness — they reflect how easily a crack can be formed in the rock and how easily the rock can be expanded.

Rock strength depends on its mineral composition. For example, sandstone cemented with calcite has low strength because the calcite that binds the grains together is weak, whereas granite will have a higher strength because there is no continuous weak phase. In the same way quartzite may have a higher strength than either of these because it is all quartz. However, quartzite has a lower fracture toughness than granite because there is a continuous medium, the silica cement, that allows a fracture to expand. Granite is made up of inter-grown crystals with no continuous medium and the fracture has to continually keep crossing crystal boundaries. Basalt has an even higher fracture toughness because of its crystalline nature and small crystal size. This means that an expanding fracture meets crystal boundaries more often.

The following table, Rock types: strength and friability, outlines the strength and friability (inverse to fracture toughness) of some common rock types in terms of mineralogy and mode of origin.

Rock types: strength and friability				
Rock type	Compressive strength (mpa)	Mineralogy	Friability	Mode of origin
Quartzite	High 350	60 - 100% quartz	High	Sedimentary composed of grains cemented together
Basalt	High 200 - 300	0% quartz	Low	Fine grained crystalline rock
Granite	Medium 150 - 200	20% quartz 80% silicates	Low	Course grained crystalline rock
Limestone	Low 100 - 150	100% calcite	High	Sedimentary composed of grains cemented together
Dolomite	Low 120 - 175	Calcium Magnesium Carbonate	High	Sedimentary composed of grains cemented together

There is one other rock property which is of importance in drilling with diamond bits. This is the abrasiveness of the rock, which affects both penetration and the life of the bit. The abrasiveness of the rock is controlled by its mineralogical make up, thus a rock which contains many soft minerals is less abrasive than one which contains many hard minerals.

A scale often used within the exploration industry to identify rock hardness is the MOH's scale of hardness. The table below shows the scale with 1 being the softest and 10 the hardest.

MOH's scale of hardness		
Rating	Mineral	Description
1	Talc	Fingernail scratches it easily
2	Gypsum	Fingernail scratches it
3	Calcite	Copper penny scratches it
4	Flourite	Steel knife scratches it easily
5	Apatite	Steel knife scratches it
6	Feldspars	Steel knife does not scratch it easily, but it scratches glass
7	Quartz	Hardest common mineral, scratches steel and glass easily
8	Topaz	Harder than common mineral
9	Corundum	Scratches Topaz
10	Diamond	The hardest of all minerals

The scale is non-linear, being that there is a greater difference in the hardness between diamond and corundum, than for example, between fluorite and calcite.

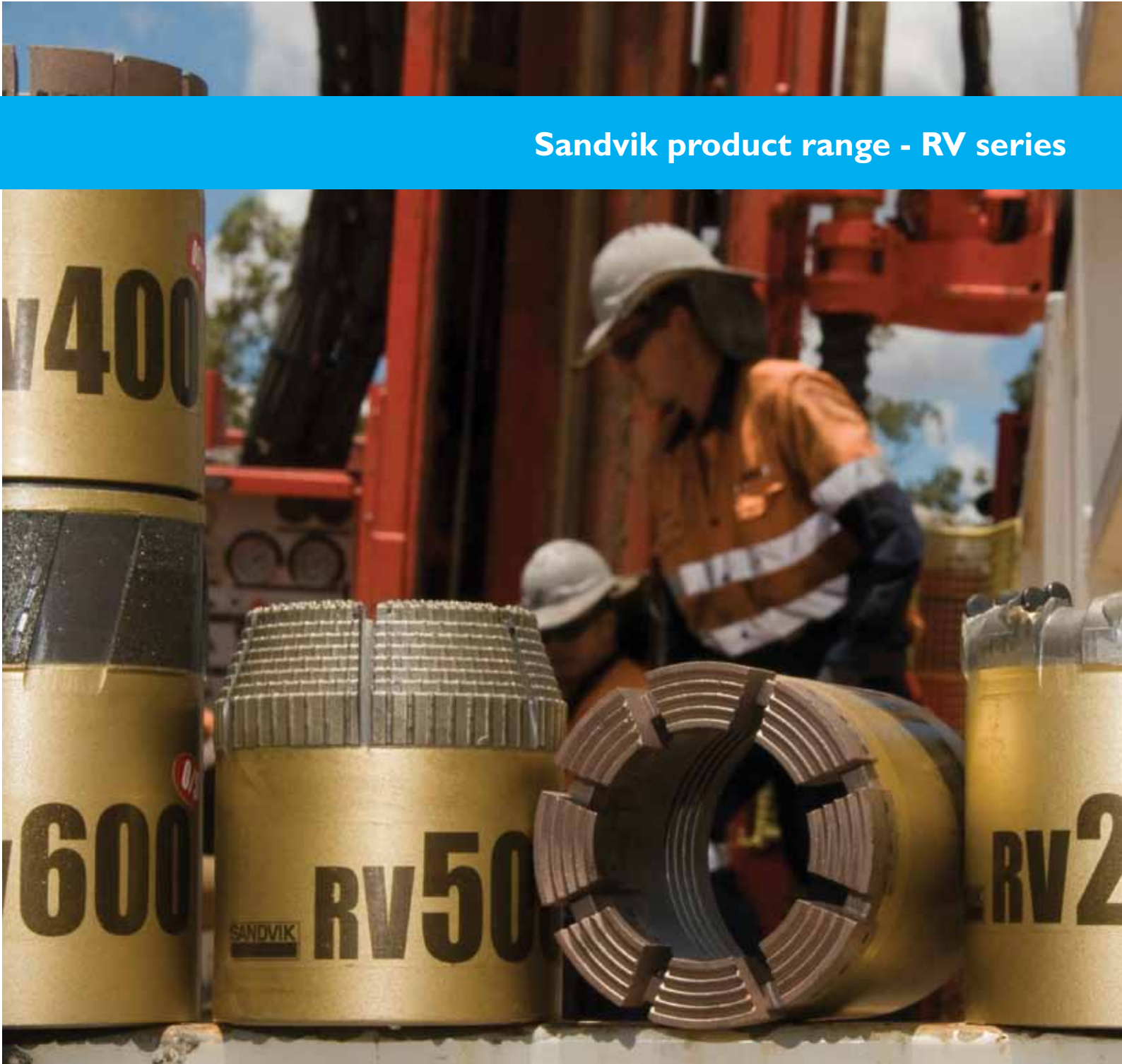
For interests sake the following common objects have the hardness shown:

- Finger nail 2.5
- Copper coin 3
- Glass 5-5.5
- Knife blade 5.5-6
- Steel file 6.5-7

Generally speaking, the harder the minerals are that are found within the rock, the more abrasive it is likely to be. Of the common rock forming minerals quartz has a high hardness so rocks which contain large quantities of quartz are abrasive. Sandstone therefore is much more abrasive than basalt, despite being softer, because it contains in the order of 6% quartz while basalt contains none, being composed principally of feldspars.

From this knowledge of mineralogy and mode of origin of rock it is possible to determine, in qualitative terms, how it will react to being drilled with a diamond bit. Despite strenuous efforts by many people around the world it still cannot be done in a quantitative way.

Sandvik product range - RV series



RV100 series

Tungsten carbide bits

A range of bits designed especially for soil investigations and geotechnical drilling, but also suitable in some applications for mineral exploration.

Tungsten carbide inserts

Tungsten carbide (TC) has been used in the make-up of these bits instead of diamonds. The combination of hard tungsten carbide inserts within a ductile cobalt matrix provides an ideal shearing cutter. Tungsten carbide grades have been developed for rotary drilling applications.

TC bits can be used in clean-out operations, for example the removal of steel fragments from a drill hole. They are also used in overburden drilling where the ground is soft and broken.

RV200 series

Poly-crystalline diamond bits

Poly-crystalline diamond (PCD) bits are an alternative to tungsten carbide (TC) and surface set bits, when drilling in soft to medium rock formations. PCD bits feature tungsten carbide cutters that have been coated with diamond to provide exceptional wear resistance.

Sandvik offers two types of PCD bits:

Core bit

High cutter exposure provides good depth of cuts and high penetration rates for speedy core retrieval.

Full face bit

The full face bit is used for geological chip retrieval. They can also be used in drilling formations that contain methane.



PCD core bit



Full face PCD bit



RV300 series

Directional and wedging bits

The RV300 series of tools are typically used in combination with wedging devices to provide maximum deflection. Tooling consists of items such as surface set wedge reamers, surface set bull nose bits, navi bits and impregnated wedge bits. Wedge bits can also be used to “lift the hole” i.e. inclination

Navi bits are used for directional drilling with downhole mud motors to steer the drill string in different directions.



Navi bit



Tapered wedging bit

RV400 series

Impregnated diamond coring bits

Impregnated diamond coring bits

In an impregnated drill bit, synthetic diamonds are embedded in a composite metal crown called a matrix. The matrix is key to the cutting properties of the bit as it must be able to retain diamonds as long as they are able to cut but release them as they become worn to allow new sharp diamonds to be exposed.

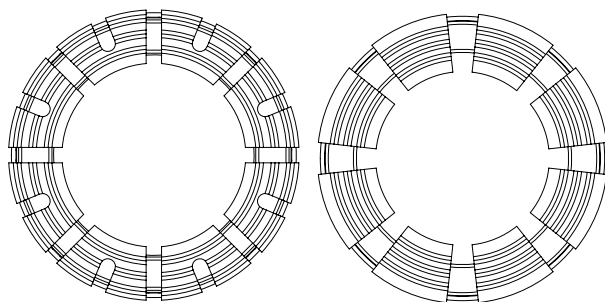
Generally, coarsely grained fractured rock calls for a harder matrix that does not wear fast. While finer grained, homogeneous hard rocks requires a soft matrix that allows for new, sharp diamonds to be exposed quicker.



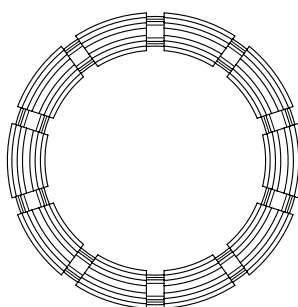
Bit selection chart - RV400 series

Sandvik has developed a series of impregnated diamond coring bits, numbered from 2 to 14, to simplify selection for each geological condition. The lowest number is developed for badly fractured, coarsely grained and abrasive rocks while the highest number is for homogeneous, fine grained non-abrasive rocks.

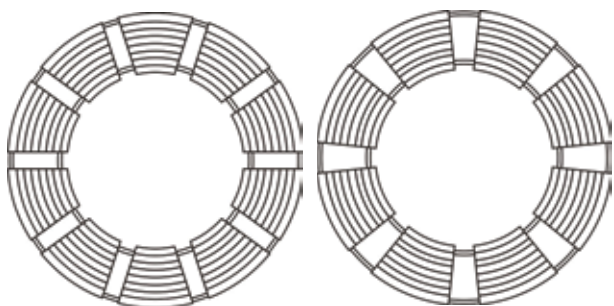
Fluid flow is a critical part of the drilling operation. It flushes the cuttings from the bottom of the hole to the surface and keeps the diamond core bit cool. Sandvik offers a range of waterway configurations for core bits that will suit most application requirements.



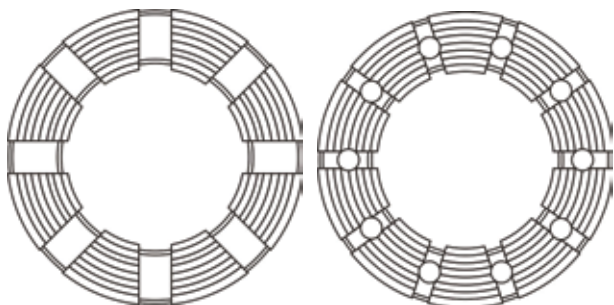
Turbo (TU) Internal non face discharged (NFD)



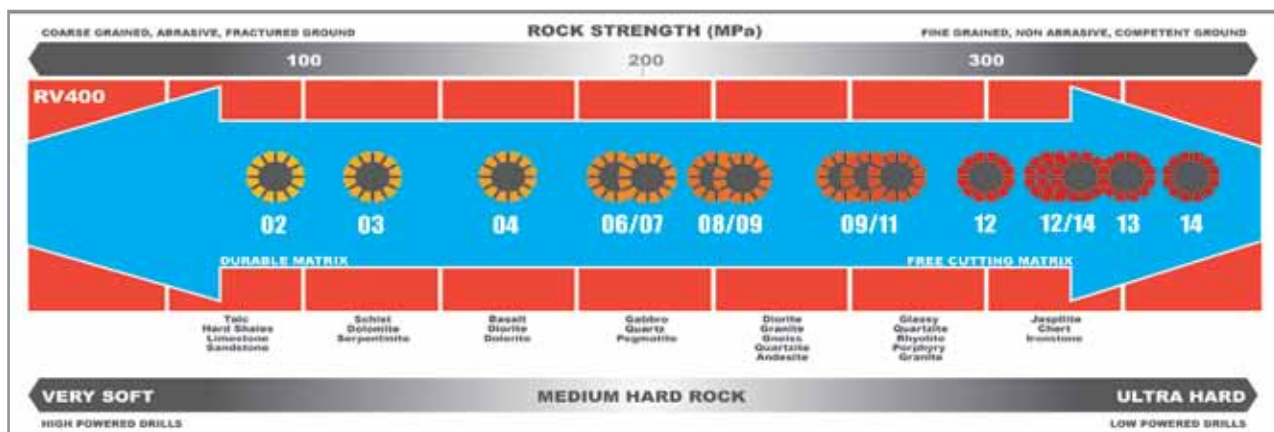
Thin kerf Standard (STD)



Standard (STD) Tapered (TW)



Wide (WW) Face discharged (FD)



RV400 series - bit application /face design

Impregnated bit application											
Rock hardness	Rock type	Rock characteristics	Bit behavior	New Sandvik offering	Face design						
					STD	TW	TU* (16 mm)	NFD N3, H3	FD N3, H3, P3	WW H3, P3	
Soft	Talc Hard shales Limestone Sandstone	Very abrasive coarse grained highly fractured	DURABLE ↓ FREECUTTING	RV400-02	Yes	Yes	No	Yes	Yes	Yes	
Soft – medium	Schist Dolomite Serpentine	Abrasive medium to coarse grained competent to fractured		RV400-03	WL-STD	No	No	No	No	No	No
				RV400-04	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Medium	Basalt Diorite Dolerite	Highly abrasive fractured		RV400-06/07	Yes	Yes	Yes	Yes	Yes	Yes	
Medium – hard	Gabbro Quartz Pegmatite	Moderately to highly abrasive fractured and competent		RV400-08/09	Yes	Yes	Yes	Yes	Yes	Yes	
Hard	Diorite Granite Gneiss Quartzite Andesite	Medium to fine grained slightly abrasive characteristics		RV400-09/11	Yes	Yes	Yes	Yes	Yes	Yes	
Hard – very hard	Glassy Quartzite Rhyolite Porphyry Granite	Fine grained non abrasive		RV400-12	Yes	Yes	No	Yes	Yes	Yes	
				RV400-12/14	Yes	Yes	Yes	Yes	Yes	Yes	
Ultra hard	Jaspilite Chert Ironstone	Very fine grained non abrasive competent		RV400-13	Yes	No	No	No	Yes	No	
				RV400-14	Yes	No	No	No	Yes	No	

For specific segment height please refer to the Sandvik product section in catalogue.

STD - 4 mm parallel waterway

TW - 4 mm to 8 mm tapered waterway

NFD - internal non face discharge waterway

FD - face discharge waterway

WW - 8 mm parallel wide waterway

TU* - Turbo, 16 mm segment height

RV400 series - bit data

Standard sizes										
Size	Hole diameter		Core diameter		Hole volumes		Bit kerf width		Rod/hole annulus	
	mm	in	mm	in	L/m	USgal/ft	mm	in	L/m	USgal/ft
A	48,01	1.890	26,97	1.062	1,81	0.146	10,33	0.41	0,26	0.021
B	59,94	2.360	36,40	1.433	2,82	0.228	11,58	0.46	0,40	0.032
N	75,69	2.980	47,63	1.875	4,50	0.364	13,84	0.55	0,67	0.054
N2	75,69	2.980	50,67	1.995	4,50	0.364	12,32	0.49	0,67	0.054
N3	75,69	2.980	45,09	1.775	4,50	0.364	15,11	0.60	0,67	0.054
H	96,06	3.782	63,50	2.500	7,25	0.586	16,04	0.63	1,04	0.084
H3	96,06	3.782	61,11	2.406	7,25	0.586	17,23	0.68	1,04	0.084
P	122,61	4.827	84,96	3.345	11,81	0.955	18,54	0.73	1,55	0.125
P3	122,61	4.827	83,06	3.270	11,81	0.955	19,49	0.77	1,55	0.125

Thin kerf sizes										
Size	Hole diameter		Core diameter		Hole volumes		Bit kerf width		Rod/hole annulus	
	mm	in	mm	in	L/m	USgal/ft	mm	in	L/m	USgal/ft
WL46	47,00	1.850	28,80	1.134	1,73	0.140	9,00	0.354	0,27	0.022
WL56	56,80	2.236	39,00	1.535	2,53	0.204	8,75	0.344	0,31	0.025
WL66	67,10	2.642	50,00	1.969	3,54	0.285	8,40	0.331	0,33	0.027
WL66-3	67,10	2.642	46,00	1.811	3,54	0.285	10,40	0.409	0,33	0.027
WL76	76,30	3.004	57,00	2.244	4,57	0.368	9,50	0.374	0,36	0.029
WL76-3	76,30	3.004	51,00	2.008	4,57	0.368	12,50	0.492	0,36	0.029
WL103	102,80	4.047	80,00	3.150	8,30	0.668	11,25	0.443	0,76	0.061

RV500 series

Surface set coring bits

Surface set coring bits are characterized by a layer of diamonds set on the surface of the crown in a specific pattern. Surface set coring bits can be used for drilling in a wide range of rock types, in general, the superior impregnated core bit technology in recent times provides the driller with greater performance in hard rock drilling applications.

Drilling with surface set coring bits can go on continuously until a dramatic increase of the feed pressure is needed to continue the drilling. In most cases this indicates that the diamonds are worn down or crushed, unlike an impregnated core bit, once the diamonds on a surface set bit are found to be worn flat the bit must be discarded.



RV600 series

Reaming shells

The reaming shell is the component of a drill string used to maintain the correct gauge of the hole. It features a ring around the outer diameter which contains diamonds and/or tungsten carbide inserts which keeps the hole diameter consistent, otherwise there is a risk of the tools getting stuck down the hole.

A reaming shell is always placed just behind the bit, but can be used in other positions along the drill string. If a second reaming shell is placed at the other end of the outer tube, it can help to stabilize the core barrel (back end reamer).



RV700 series

Casing shoes

Casing shoes are used at the end of a casing string in place of an actual bit. They are typically only required to drill through overburden so the composition is much simpler and therefore less expensive.

The casing string and shoe are left in the hole to support the walls of a hole in broken ground with the inner diameter large enough to allow free passage of the drill bit and core barrel.





Sandvik diamond products

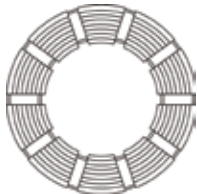


RV300 series wedging bits - B size

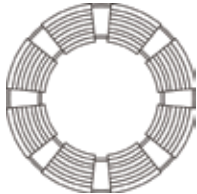
Size	Series	Step	Crown height	Description	Item
B	04	External	6 mm	Wedge Core Bit B RV300-04	BF00004670
B	08	External	6 mm	Wedge Core Bit B RV300-08	BF00004671
B	10	External	6 mm	Wedge Core Bit B RV300-10	BF00004672

RV400 series impregnated bits - B size

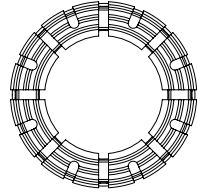
Size	Series	Face design	Crown height	Description	Item
B	02	STD	12 mm	Core Bit B RV400-02 12 STD	BF00001252
B	04	STD	12 mm	Core Bit B RV400-04 12 STD	BF00001254
B	04	STD	16 mm	Core Bit B RV400-04 16 STD	BF00005588
B	06/07	STD	12 mm	Core Bit B RV400-06/07 12 STD	BF00001256
B	06/07	STD	16 mm	Core Bit B RV400-06/07 16 STD	BF00005589
B	08/09	STD	12 mm	Core Bit B RV400-08/09 12 STD	BF00001257
B	08/09	STD	16 mm	Core Bit B RV400-08/09 16 STD	BF00005590
B	09/11	STD	12 mm	Core Bit B RV400-09/11 12 STD	BF00001258
B	09/11	STD	16 mm	Core Bit B RV400-09/11 16 STD	BF00005591
B	12	STD	12 mm	Core Bit B RV400-12 12 STD	BF00001260
B	12/14	STD	12 mm	Core Bit B RV400-12/14 12 STD	BF00005371
B	12/14	STD	16 mm	Core Bit B RV400-12/14 16 STD	BF00005592
B	13	STD	12 mm	Core Bit B RV400-13 12 STD	BF00004698
B	14	STD	12 mm	Core Bit B RV400-14 12 STD	BF00004674
B	02	TW	12 mm	Core Bit B RV400-02 12 TW	BF00003605
B	04	TW	12 mm	Core Bit B RV400-04 12 TW	BF00003607
B	04	TW	16 mm	Core Bit B RV400-04 16 TW	BF00005593
B	06/07	TW	12 mm	Core Bit B RV400-06/07 12 TW	BF00003608
B	06/07	TW	16 mm	Core Bit B RV400-06/07 16 TW	BF00005594
B	08/09	TW	12 mm	Core Bit B RV400-08/09 12 TW	BF00003609
B	08/09	TW	16 mm	Core Bit B RV400-08/09 16 TW	BF00005595
B	09/11	TW	12 mm	Core Bit B RV400-09/11 12 TW	BF00003610
B	09/11	TW	16 mm	Core Bit B RV400-09/11 16 TW	BF00005596
B	12	TW	12 mm	Core Bit B RV400-12 12 TW	BF00003612
B	12/14	TW	12 mm	Core Bit B RV400-12/14 12 TW	BF00005372
B	12/14	TW	16 mm	Core Bit B RV400-12/14 16 TW	TBA
B	04	TU	16 mm	Core Bit B RV400-04 16 TU	BF00005598
B	06/07	TU	16 mm	Core Bit B RV400-06/07 16 TU	BF00005599
B	08/09	TU	16 mm	Core Bit B RV400-08/09 16 TU	BF00005600
B	09/11	TU	16 mm	Core Bit B RV400-09/11 16 TU	BF00005601
B	12/14	TU	16 mm	Core Bit B RV400-12/14 16 TU	BF00005602



Standard (STD)



Tapered (TW)



Turbo (TU)

RV600 series reaming shells - B size

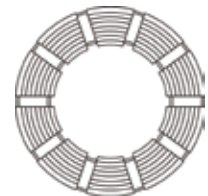
Size	Position	Type	Description	Item
B	Front	Standard	Reamer B RV600 STD Front	BF00004425
B	Front	Oversized	Reamer B RV600 O/S Front	BF00004426
B	Back	Standard	Reamer B RV600 STD Back	BF00004427
B	Back	Oversized	Reamer B RV600 O/S Back	BF00004428
B	Blank	—	Reamer B RV600 Blank	BF00004617

RV400 series impregnated bits - BWT size

Size	Series	Face design	Crown height	Description	Item
BWT	13	STD	06	Core Bit BWT RV400-13 06 STD	BF00004735

RV700 series casing and spud shoes - BW size

Size	Type	Description	Item
BW	Casing shoe	Casing Shoe BW RV700	BF00001446
BW	Casing shoe	Casing Shoe BW RV700-09	BF00005964



Standard (STD)

RV200 series PCD bits - N size

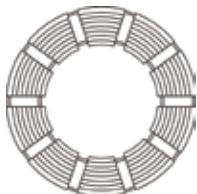
Size	Series	Face design	Description	Item
N	08/08	Standard	PCD Core Bit N RV200 08/08	BF00004667

RV300 series wedging bits - N size

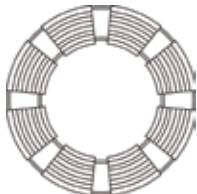
Size	Series	Step	Crown height	Description	Item
N	04	External	6 mm	Wedge Core Bit N RV300-04 06	BF00004686
N	06	External	6 mm	Wedge Core Bit N RV300-06 06	BF00004687
N	08	External	6 mm	Wedge Core Bit N RV300-08 06	BF00004688

RV400 series impregnated bits - N size

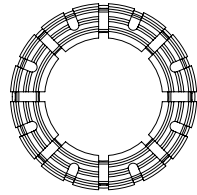
Size	Series	Face design	Crown height	Description	Item
N	02	STD	12 mm	Core Bit N RV400-02 12 STD	BF00001270
N	04	STD	12 mm	Core Bit N RV400-04 12 STD	BF00001273
N	04	STD	16 mm	Core Bit N RV400-04 16 STD	BF00005618
N	06/07	STD	12 mm	Core Bit N RV400-06/07 12 STD	BF00001275
N	06/07	STD	16 mm	Core Bit N RV400-06/07 16 STD	BF00005619
N	08/09	STD	12 mm	Core Bit N RV400-08/09 12 STD	BF00001279
N	08/09	STD	16 mm	Core Bit N RV400-08/09 16 STD	BF00005620
N	09/11	STD	12 mm	Core Bit N RV400-09/11 12 STD	BF00001278
N	09/11	STD	16 mm	Core Bit N RV400-09/11 16 STD	BF00005621
N	12	STD	12 mm	Core Bit N RV400-12 12 STD	BF00001277
N	12/14	STD	12 mm	Core Bit N RV400-12/14 12 STD	BF00005373
N	12/14	STD	16 mm	Core Bit N RV400-12/14 16 STD	BF00005622
N	13	STD	10 mm	Core Bit N RV400-13 10 STD	BF00004708
N	14	STD	10 mm	Core Bit N RV400-14 10 STD	BF00004709
N	02	TW	12 mm	Core Bit N RV400-02 12 TW	BF00003627
N	04	TW	12 mm	Core Bit N RV400-04 12 TW	BF00003629
N	04	TW	16 mm	Core Bit N RV400-04 16 TW	BF00005623
N	06/07	TW	12 mm	Core Bit N RV400-06/07 12 TW	BF00003630
N	06/07	TW	16 mm	Core Bit N RV400-06/07 16 TW	BF00005624
N	08/09	TW	12 mm	Core Bit N RV400-08/09 12 TW	BF00004058
N	08/09	TW	16 mm	Core Bit N RV400-08/09 16 TW	BF00005625
N	09/11	TW	12 mm	Core Bit N RV400-09/11 12 TW	BF00003631
N	09/11	TW	16 mm	Core Bit N RV400-09/11 16 TW	BF00005626
N	12	TW	12 mm	Core Bit N RV400-12 12 TW	BF00003633
N	12/14	TW	12 mm	Core Bit N RV400-12/14 12 TW	BF00005374
N	12/14	TW	16 mm	Core Bit N RV400-12/14 16 TW	BF00005627
N	04	TW O/S	12 mm	Core Bit N RV400-04 12 TW O/S 1mm	BF00005355
N	06/07	TW O/S	12 mm	Core Bit N RV400-06/07 12 TW O/S 1mm	BF00005356
N	08/09	TW O/S	12 mm	Core Bit N RV400-08/09 12 TW O/S 1mm	BF00005357
N	09/11	TW O/S	12 mm	Core Bit N RV400-09/11 12 TW O/S 1mm	BF00005358
N	04	TU	16 mm	Core Bit N RV400-04 16 TU	BF00005628
N	06/07	TU	16 mm	Core Bit N RV400-06/07 16 TU	BF00005629
N	08/09	TU	16 mm	Core Bit N RV400-08/09 16 TU	BF00005630
N	09/11	TU	16 mm	Core Bit N RV400-09/11 16 TU	BF00005631
N	12/14	TU	16 mm	Core Bit N RV400-12/14 16 TU	BF00005632



Standard (STD)



Tapered (TW)



Turbo (TU)

RV500 series surface set bits - N size

Size	Series	Step	Description	Item
N	40/60 EE	6	Core bit N RV500 40/60 EE 6 Step	BF00004635

RV600 series reaming shells - N size

Size	Position	Type	Description	Item
N	Front	Standard	Reamer N RV600 Front	BF00004626
N	Front	Oversized	Reamer N RV600 O/S Front	BF00004434
N	Front	Bit size	Reamer N RV600 Bit Size Front	BF00004624
N	Back	Standard	Reamer N RV600 STD Back	BF00004435
N	Back	Oversized	Reamer N RV600 O/S Back	BF00004436
N	Back	Bit size	Reamer N RV600 Bit Size Back	BF00004623
N	Inline	—	Reamer N RV600 Inline	BF00004627
N	Blank	—	Reamer N RV600 Blank	BF00004625

RV700 series casing and spud shoes - N size

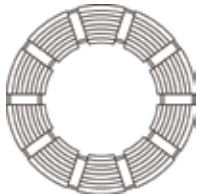
Size	Type	Description	Item
N	Rod shoe	Rod Shoe N RV700	BF00004469
N	Rod shoe	Rod shoe N-HD RV700	BF00005507
N	Spud shoe	Spud shoe N RV700	BF00004731
N	Casing shoe	Casing Shoe NR RV700 75.6 od x 57 id	BF00005195

RV200 series PCD bits - N2 size

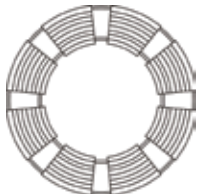
Size	Series	Face design	Description	Item
N2	08/08	Standard	PCD Core Bit N2 RV200 08/08	BF00004669

RV300 series wedging bits - N2 size

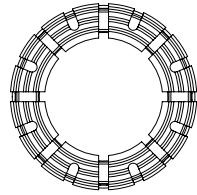
Size	Series	Step	Crown height	Description	Item
N2	04	External	6 mm	Wedge Core Bit N2 RV300-04	BF00004689
N2	06	External	6 mm	Wedge Core Bit N2 RV300-06	BF00004690
N2	14	Internal	6 mm	Wedge Core Bit N2 RV300-14 Internal 3 step 06	BF00004691



Standard (STD)



Tapered (TW)



Turbo (TU)

RV400 series impregnated bits - N2 size

Size	Series	Face design	Crown height	Description	Item
N2	02	STD	12 mm	Core Bit N2 RV400-02 12 STD	BF00003648
N2	04	STD	12 mm	Core Bit N2 RV400-04 12 STD	BF00001280
N2	04	STD	16 mm	Core Bit N2 RV400-04 16 STD	BF00005603
N2	06/07	STD	12 mm	Core Bit N2 RV400-06/07 12 STD	BF00001282
N2	06/07	STD	16 mm	Core Bit N2 RV400-06/07 16 STD	BF00005604
N2	08/09	STD	12 mm	Core Bit N2 RV400-08/09 12 STD	BF00001284
N2	08/09	STD	16 mm	Core Bit N2 RV400-08/09 16 STD	BF00005605
N2	09/11	STD	12 mm	Core Bit N2 RV400-09/11 12 STD	BF00001287
N2	09/11	STD	16 mm	Core Bit N2 RV400-09/11 16 STD	BF00005606
N2	12	STD	12 mm	Core Bit N2 RV400-12 12 STD	BF00001286
N2	12/14	STD	12 mm	Core Bit N2 RV400-12/14 12 STD	BF00005375
N2	12/14	STD	16 mm	Core Bit N2 RV400-12/14 16 STD	BF00005607
N2	13	STD	10 mm	Core Bit N2 RV400-13 10 STD	BF00004710
N2	14	STD	10 mm	Core Bit N2 RV400-14 10 STD	BF00004711
N2	02	TW	12 mm	Core Bit N2 RV400-02 12 TW	BF00003657
N2	04	TW	12 mm	Core Bit N2 RV400-04 12 TW	BF00003659
N2	04	TW	16 mm	Core Bit N2 RV400-04 16 TW	BF00005608
N2	06/07	TW	12 mm	Core Bit N2 RV400-06/07 12 TW	BF00003661
N2	06/07	TW	16 mm	Core Bit N2 RV400-06/07 16 TW	BF00005609
N2	08/09	TW	12 mm	Core Bit N2 RV400-08/09 12 TW	BF00003662
N2	08/09	TW	16 mm	Core Bit N2 RV400-08/09 16 TW	BF00005610
N2	09/11	TW	12 mm	Core Bit N2 RV400-09/11 12 TW	BF00003663
N2	09/11	TW	16 mm	Core Bit N2 RV400-09/11 16 TW	BF00005611
N2	12	TW	12 mm	Core Bit N2 RV400-12 12 TW	BF00003665
N2	12/14	TW	12 mm	Core Bit N2 RV400-12/14 12 TW	BF00005376
N2	12/14	TW	16 mm	Core Bit N2 RV400-12/14 16 TW	BF00005612
N2	04	TU	16 mm	Core Bit N2 RV400-04 16 TU	BF00005613
N2	06/07	TU	16 mm	Core Bit N2 RV400-06/07 16 TU	BF00005614
N2	08/09	TU	16 mm	Core Bit N2 RV400-08/09 16 TU	BF00005615
N2	09/11	TU	16 mm	Core Bit N2 RV400-09/11 16 TU	BF00005616
N2	12/14	TU	16 mm	Core Bit N2 RV400-12/14 16 TU	BF00005617

RV500 series surface set bits - N2 size

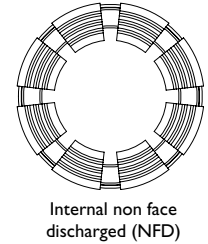
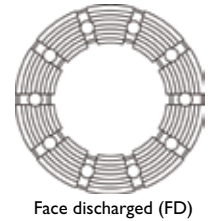
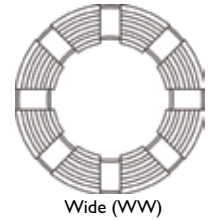
Size	Series	Step	Description	Item
N2	60/80 EE	8	Core Bit N2 RV500 60/80 EE 8 Step	BF00004636

RV200 series PCD bits - N3 size

Size	Series	Face design	Description	Item
N3	08/08	Standard	PCD Core Bit N3 RV200 08/08	BF00005960

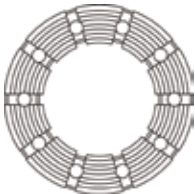
RV400 series impregnated bits - N3 size

Size	Series	Face design	Crown height	Description	Item
N3	02	WW	12 mm	Core Bit N3 RV400-02 12 WW	BF00004133
N3	04	WW	12 mm	Core Bit N3 RV400-04 12 WW	BF00004135
N3	06/07	WW	12 mm	Core Bit N3 RV400-06/07 12 WW	BF00004136
N3	08/09	WW	12 mm	Core Bit N3 RV400-08/09 12 WW	BF00004137
N3	09/11	WW	12 mm	Core Bit N3 RV400-09/11 12 WW	BF00004138
N3	12	WW	12 mm	Core Bit N3 RV400-12 12 WW	BF00004140
N3	12/14	WW	12 mm	Core Bit N3 RV400-12/14 12 WW	BF00005378
N3	02	FD	12 mm	Core Bit N3 RV400-02 12 FD	BF00003666
N3	04	FD	12 mm	Core Bit N3 RV400-04 12 FD	BF00003668
N3	06/07	FD	12 mm	Core Bit N3 RV400-06/07 12 FD	BF00003669
N3	08/09	FD	12 mm	Core Bit N3 RV400-08/09 12 FD	BF00003670
N3	09/11	FD	12 mm	Core Bit N3 RV400-09/11 12 FD	BF00003671
N3	12	FD	12 mm	Core Bit N3 RV400-12 12 FD	BF00003673
N3	12/14	FD	12 mm	Core Bit N3 RV400-12/14 12 FD	BF00005379
N3	02	NFD	12 mm	Core Bit N3 RV400-02 12 NFD	BF00003174
N3	04	NFD	12 mm	Core Bit N3 RV400-04 12 NFD	BF00003176
N3	06/07	NFD	12 mm	Core Bit N3 RV400-06/07 12 NFD	BF00003178
N3	08/09	NFD	12 mm	Core Bit N3 RV400-08/09 12 NFD	BF00003179
N3	09/11	NFD	12 mm	Core Bit N3 RV400-09/11 12 NFD	BF00003180
N3	12	NFD	12 mm	Core Bit N3 RV400-12 12 NFD	BF00002718
N3	12/14	NFD	12 mm	Core Bit N3 RV400-12/14 12 NFD	BF00005377



RV300 series wedging bits - NX size

Size	Series	Step	Crown height	Description	Item
NX	12	Navi	10 mm	Navi bit NX RV300-12 (BW rod Thread)	BF00004692
NX	13	Navi	10 mm	Navi bit NX RV300-13 (BW rod Thread)	BF00005866
NX				Navi bit NX RV300	BF00004732
NX				Bullnose Bit NX RV300 EEE S/S (N rod Thread)	BF00005865



Face discharged (FD)

RV400 series impregnated bits - NTT size

Size	Series	Face design	Crown height	Description	Item
NTT	02	FD	12 mm	Core Bit NTT RV400-02 12 FD	BF00004357
NTT	04	FD	12 mm	Core Bit NTT RV400-04 12 FD	BF00004359
NTT	06/07	FD	12 mm	Core Bit NTT RV400-06/07 12 FD	BF00004360
NTT	08/09	FD	12 mm	Core Bit NTT RV400-08/09 12 FD	BF00004361
NTT	09/11	FD	12 mm	Core Bit NTT RV400-09/11 12 FD	BF00004362
NTT	12	FD	12 mm	Core Bit NTT RV400-12 12 FD	BF00004364
NTT	12/14	FD	12 mm	Core Bit NTT RV400-12/14 12 FD	BF00005390
NTT	13	FD	10 mm	Core Bit NTT RV400-13 10 FD	BF00004717
NTT	14	FD	10 mm	Core Bit NTT RV400-14 10 FD	BF00004716

RV700 series casing and spud shoes - NW size

Size	Type	Description	Item
NW	Casing shoe	Casing Shoe NW RV700-09	BF00004472
NW	Casing shoe	Casing Shoe NW RV705	BF00005869

RV200 series PCD bits - H size

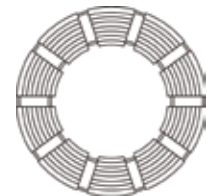
Size	Series	Face design	Description	Item
H	08/08	Standard	PCD Core Bit H RV200 08/08	BF00004665

RV300 series wedging bits - H size

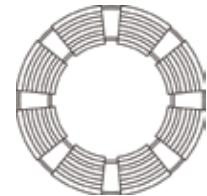
Size	Series	Step	Crown height	Description	Item
H	04	External	06 mm	Wedge Core Bit H RV300-04	BF00004675
H	06	External	06 mm	Wedge Core Bit H RV300-06	BF00004676
H	08	External	06 mm	Wedge Core Bit H RV300-08	BF00004677
H	14	Inverted	06 mm	Wedge Core Bit H RV300-14 Invrtd Tap	BF00004678

RV400 series impregnated bits - H size

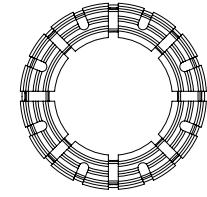
Size	Series	Face design	Crown height	Description	Item
H	02	STD	12 mm	Core Bit H RV400-02 12 STD	BF00003181
H	04	STD	12 mm	Core Bit H RV400-04 12 STD	BF00003183
H	04	STD	16 mm	Core Bit H RV400-04 16 STD	BF00005633
H	06/07	STD	12 mm	Core Bit H RV400-06/07 12 STD	BF00003184
H	06/07	STD	16 mm	Core Bit H RV400-06/07 16 STD	BF00005634
H	08/09	STD	12 mm	Core Bit H RV400-08/09 12 STD	BF00003185
H	08/09	STD	16 mm	Core Bit H RV400-08/09 16 STD	BF00005635
H	09/11	STD	12 mm	Core Bit H RV400-09/11 12 STD	BF00003186
H	09/11	STD	16 mm	Core Bit H RV400-09/11 16 STD	BF00005636
H	12	STD	12 mm	Core Bit H RV400-12 12 STD	BF00003188
H	12/14	STD	12 mm	Core Bit H RV400-12/14 12 STD	BF00005380
H	12/14	STD	16 mm	Core Bit H RV400-12/14 16 STD	BF00005637
H	13	STD	10 mm	Core Bit H RV400-13 10 STD	BF00004700
H	14	STD	10 mm	Core Bit H RV400-14 10 STD	BF00004699
H	02	TW	12 mm	Core Bit H RV400-02 12 TW	BF00003675
H	04	TW	12 mm	Core Bit H RV400-04 12 TW	BF00003677
H	04	TW	16 mm	Core Bit H RV400-04 16 TW	BF00005638
H	06/07	TW	12 mm	Core Bit H RV400-06/07 12 TW	BF00003678
H	06/07	TW	16 mm	Core Bit H RV400-06/07 16 TW	BF00005639
H	08/09	TW	12 mm	Core Bit H RV400-08/09 12 TW	BF00003679
H	08/09	TW	16 mm	Core Bit H RV400-08/09 16 TW	BF00005640
H	09/11	TW	12 mm	Core Bit H RV400-09/11 12 TW	BF00004057
H	09/11	TW	16 mm	Core Bit H RV400-09/11 16 TW	BF00005641
H	12	TW	12 mm	Core Bit H RV400-12 12 TW	BF00003681
H	12/14	TW	12 mm	Core Bit H RV400-12/14 12 TW	BF00005381
H	12/14	TW	16 mm	Core Bit H RV400-12/14 16 TW	BF00005642
H	04	TU	16 mm	Core Bit H RV400-04 16 TU	BF00005643
H	06/07	TU	16 mm	Core Bit H RV400-06/07 16 TU	BF00005644
H	08/09	TU	16 mm	Core Bit H RV400-08/09 16 TU	BF00005645
H	09/11	TU	16 mm	Core Bit H RV400-09/11 16 TU	BF00005646
H	12/14	TU	16 mm	Core Bit H RV400-12/14 16 TU	BF00005647



Standard (STD)



Tapered (TW)



Turbo (TU)

RV500 series surface set bits - H size

Size	Series	Step	Description	Item
H	30/40 EE	5	Core Bit H RV500 30/40 EE 5 Step	BF00004631

RV600 series reaming shells - H size

Size	Position	Type	Description	Item
H	Front	Standard	Reamer H RV600 STD Front	BF00004445
H	Front	Oversized	Reamer H RV600 O/S Front	BF00004446
H	Front	Bit size	Reamer H RV600 Bit Size Front	BF00004619
H	Back	Standard	Reamer H RV600 STD Back	BF00004447
H	Back	Oversized	Reamer H RV600 O/S Back	BF00004448
H	Back	Bit size	Reamer H RV600 Bit Size Back	BF00004618
H		Blank	Reamer H RV600 Blank	BF00004620
H		Inline	Reamer H RV600 Inline	BF00004621

RV700 series casing and spud shoes - H size

Size	Type	Description	Item
H	Rod shoe	Rod Shoe H RV700	BF00004470
H	Spud shoe	Spud Shoe RV700	BF00004728
H	Casing shoe	Casing Shoe H RV700 95.5 od x 76.2 id	BF00005191
H	Rod shoe	Rod Shoe H-HD RV700	BF00005508

RV200 series PCD bits - H3 size

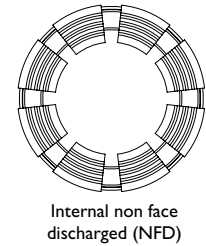
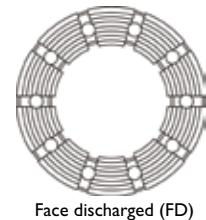
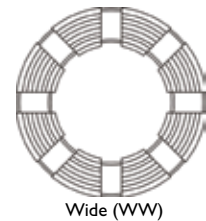
Size	Series	Face design	Description	Item
H3	Soft	Face discharged	PCD Cutter H3 RV200 FD	BF00004666
H3	08/08	Face discharged	PCD Core Bit H3 Stepped FD 08/08 Cutters	BF00005492
H3	13/08	Face discharged	PCD Core Bit H3 Stepped FD 13/08 Cutters	BF00005493
H3	16/13	Face discharged	PCD Core Bit H3 Stepped FD 16/13 Cutters	BF00005494

RV300 series wedging bits - H3 size

Size	Series	Step	Crown height	Description	Item
H3	04	External	06 mm	Wedge Core Bit H3 RV300-04	BF00004679
H3	06	External	06 mm	Wedge Core Bit H3 RV300-06	BF00004680
H3	08	External	06 mm	Wedge Core Bit H3 RV300-08	BF00004681

RV400 series impregnated bits - H3 size

Size	Series	Face design	Crown height	Description	Item
H3	02	WW	12 mm	Core Bit H3 RV400-02 12 WW	BF00004141
H3	04	WW	12 mm	Core Bit H3 RV400-04 12 WW	BF00004143
H3	04	WW	16 mm	Core Bit H3 RV400-04 16 WW	BF00005701
H3	06/07	WW	12 mm	Core Bit H3 RV400-06/07 12 WW	BF00004144
H3	06/07	WW	16 mm	Core Bit H3 RV400-06/07 16 WW	BF00005702
H3	08/09	WW	12 mm	Core Bit H3 RV400-08/09 12 WW	BF00004145
H3	08/09	WW	16 mm	Core Bit H3 RV400-08/09 16 WW	BF00005703
H3	09/11	WW	12 mm	Core Bit H3 RV400-09/11 12 WW	BF00004146
H3	09/11	WW	16 mm	Core Bit H3 RV400-09/11 16 WW	BF00005704
H3	12	WW	12 mm	Core Bit H3 RV400-12 12 WW	BF00004148
H3	12/14	WW	12 mm	Core Bit H3 RV400-12/14 12 WW	BF00005383
H3	12/14	WW	16 mm	Core Bit H3 RV400-12/14 16 WW	BF00005705
H3	02	FD	12 mm	Core Bit H3 RV400-02 12 FD	BF00003693
H3	04	FD	12 mm	Core Bit H3 RV400-04 12 FD	BF00003695
H3	06/07	FD	12 mm	Core Bit H3 RV400-06/07 12 FD	BF00003696
H3	08/09	FD	12 mm	Core Bit H3 RV400-08/09 12 FD	BF00003697
H3	09/11	FD	12 mm	Core Bit H3 RV400-09/11 12 FD	BF00003698
H3	12	FD	12 mm	Core Bit H3 RV400-12 12 FD	BF00003700
H3	12/14	FD	12 mm	Core Bit H3 RV400-12/14 12 FD	BF00005384
H3	13	FD	10 mm	Core Bit H3 RV400-13 10 FD	BF00004702
H3	14	FD	10 mm	Core Bit H3 RV400-14 10 FD	BF00004703
H3	02	NFD	12 mm	Core Bit H3 RV400-02 12 NFD	BF00003167
H3	04	NFD	12 mm	Core Bit H3 RV400-04 12 NFD	BF00003169
H3	06/07	NFD	12 mm	Core Bit H3 RV400-06/07 12 NFD	BF00003170
H3	08/09	NFD	12 mm	Core Bit H3 RV400-08/09 12 NFD	BF00003171
H3	09/11	NFD	12 mm	Core Bit H3 RV400-09/11 12 NFD	BF00003172
H3	12	NFD	12 mm	Core Bit H3 RV400-12 12 NFD	BF00002714
H3	12/14	NFD	12 mm	Core Bit H3 RV400-12/14 12 NFD	BF00005382



RV500 series surface set bits - H3 size

Size	Series	Step	Description	Item
H3	20/30 EE	7	Core Bit H3 RV500 20/30 EE 7 Step 6 WW 5 mm x 4 mm	BF00004632
H3	30/40 EE	6	Core Bit H3 RV500 30/40 EE 6 Step WW	BF00004633
H3	60/80 EE	SP	Core Bit H3 RV500 60/80 EE SRC 6 Elongated FD	BF00004634
H3	10/15 E	4	Core Bit H3 RV500 10/15 E FD 6 Elongated 4 Step	BF00005350
H3	10/15 E	4	Core Bit H3 RV500 10/15 E WW 6 x 6 mm 4Step	BF00005351
H3	20/25 EE	7	Core Bit H3 RV500 20/25 EE WW 6 x 4 mm 7 Step	BF00005352
H3	20/25 EE	7	Core Bit H3 RV500 20/25 EE WW 6 x 9 mm 7 Step	BF00005353

RV200 series PCD bits - HWT size

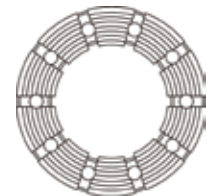
Size	Series	Face design	Description	Item
HWT	Soft	Non coring	PCD Bit 123 mm RV200 (2 3/8 API REG)	BF00004660

RV700 series casing and spud shoes - HWT size

Size	Type	Description	Item
HWT	Casing shoe	Casing Shoe HWT RV700	BF00004478
HWT	Spud shoe	Spud Shoe HWT RV700	BF00004730
HWT	Reaming shoe	Reaming Shoe HWT RV700 117.4 od x 91 id	BF00005193
HWT	Reaming shoe	Reaming Shoe HWT RV700 117.4 od x 96.6 id	BF00005194

RV300 series wedging bits - HX size

Size	Series	Step	Crown height	Description	Item
HX				Bullnose Bit HX RV300 EEE S/S (N Rod)	BF00004682
HX				Wedge Reamer HX RV300	BF00004683
HX	12	Navi	10 mm	Navi Bit HX RV300-12 10 (NW Rod)	BF00004684
HX	13	Navi	10 mm	Navi Bit HX RV300-13 (NW Rod Thread)	BF00004685



Face discharged (FD)

RV400 impregnated bits - HTT size

Size	Series	Face design	Crown height	Description	Item
HTT	04	FD	12 mm	Core Bit HTT RV400-04 12 FD	BF00004351
HTT	06/07	FD	12 mm	Core Bit HTT RV400-06/07 12 FD	BF00004352
HTT	08/09	FD	12 mm	Core Bit HTT RV400-08/09 12 FD	BF00004353
HTT	09/11	FD	12 mm	Core Bit HTT RV400-09/11 12 FD	BF00004354
HTT	12/14	FD	12 mm	Core Bit HTT RV400-12/14 12 FD	BF00005391
HTT	14	FD	10 mm	Core Bit HTT RV400-14 10 FD	BF00004707

RV700 series casing and spud shoes - HT size

Size	Type	Description	Item
HT	Casing shoe	Casing Shoe HT RV700	BF00004475

RV700 series casing and spud shoes - HW size

Size	Type	Description	Item
HW	Casing shoe	Casing Shoe HW RV700	BF00004473
HW	Spud shoe	Spud Shoe HW RV700	BF00004729

RV700 series casing and spud shoes - HM size

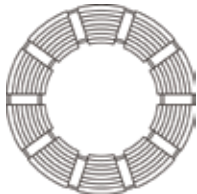
Size	Type	Description	Item
HM	Casing shoe	Casing Shoe HM RV700-09	BF00005868

RV200 series PCD bits - P size

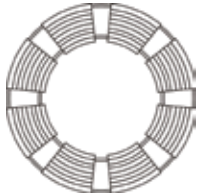
Size	Series	Face design	Description	Item
P	08/08	Standard	PCD Core Bit P RV200 08/08	BF00005958

RV400 series impregnated bits - P size

Size	Series	Face design	Crown height	Description	Item
P	02	STD	10 mm	Core Bit P RV400-02 10 STD	BF00004283
P	04	STD	10 mm	Core Bit P RV400-04 10 STD	BF00004285
P	06/07	STD	10 mm	Core Bit P RV400-06/07 10 STD	BF00004286
P	08/09	STD	10 mm	Core Bit P RV400-08/09 10 STD	BF00004287
P	09/11	STD	10 mm	Core Bit P RV400-09/11 10 STD	BF00004288
P	12	STD	10 mm	Core Bit P RV400-12 10 STD	BF00004290
P	12/14	STD	10 mm	Core Bit P RV400-12/14 10 STD	BF00005385
P	13	STD	10 mm	Core Bit P RV400-13 10 STD	BF00004718
P	02	TW	10 mm	Core Bit P RV400-02 10 TW	BF00004291
P	04	TW	10 mm	Core Bit P RV400-04 10 TW	BF00004293
P	06/07	TW	10 mm	Core Bit P RV400-06/07 10 TW	BF00004294
P	08/09	TW	10 mm	Core Bit P RV400-08/09 10 TW	BF00004295
P	09/11	TW	10 mm	Core Bit P RV400-09/11 10 TW	BF00004296
P	12	TW	10 mm	Core Bit P RV400-12 10 TW	BF00004298
P	12/14	TW	10 mm	Core Bit P RV400-12/14 10 TW	BF00005386



Standard (STD)



Tapered (TW)

RV600 series reaming shells - P size

Size	Position	Type	Description	Item
P	Front	Standard	Reamer P RV600 STD Front	BF00004453
P	Front	Oversized	Reamer P RV600 O/S Front	BF00004454
P	Back	Standard	Reamer P RV600 STD Back	BF00004455
P	Back	Oversized	Reamer P RV600 O/S Back	BF00004456

RV200 series PCD bits - P3 size

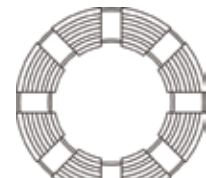
Size	Series	Face design	Description	Item
P3	13/08	Face discharged	PCD Core Bit P3 RV200 Stepped FD 13/08 Cutters	BF00004733

RV300 series wedging bits - P3 size

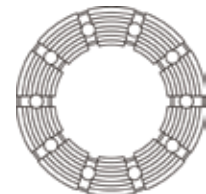
Size	Series	Step	Crown height	Description	Item
P3	04	External	06 mm	Wedge Core Bit P3 RV300-04 06 FD	BF00004693
P3	06	External	06 mm	Wedge Core Bit P3 RV300-06 06 FD	BF00004694
P3	08	External	06 mm	Wedge Core Bit P3 RV300-08 06 FD	BF00004695

RV400 series impregnated bits - P3 size

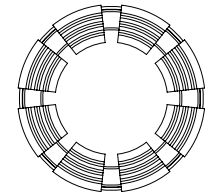
Size	Series	Face design	Crown height	Description	Item
P3	02	WW	10 mm	Core Bit P3 RV400-02 10 WW	BF00004314
P3	04	WW	10 mm	Core Bit P3 RV400-04 10 WW	BF00004316
P3	06/07	WW	10 mm	Core Bit P3 RV400-06/07 10 WW	BF00004317
P3	08/09	WW	10 mm	Core Bit P3 RV400-08/09 10 WW	BF00004318
P3	09/11	WW	10 mm	Core Bit P3 RV400-09/11 10 WW	BF00004319
P3	12	WW	10 mm	Core Bit P3 RV400-12 10 WW	BF00004321
P3	12/14	WW	10 mm	Core Bit P3 RV400-12/14 10 WW	BF00005388
P3	02	FD	10 mm	Core Bit P3 RV400-02 10 FD	BF00004306
P3	04	FD	10 mm	Core Bit P3 RV400-04 10 FD	BF00004308
P3	06/07	FD	10 mm	Core Bit P3 RV400-06/07 10 FD	BF00004309
P3	08/09	FD	10 mm	Core Bit P3 RV400-08/09 10 FD	BF00004310
P3	09/11	FD	10 mm	Core Bit P3 RV400-09/11 10 FD	BF00004311
P3	12	FD	10 mm	Core Bit P3 RV400-12 10 FD	BF00004313
P3	12/14	FD	10 mm	Core Bit P3 RV400-12/14 10 FD	BF00005389
P3	13	FD	10 mm	Core Bit P3 RV400-13 10 FD	BF00004719
P3	14	FD	10 mm	Core Bit P3 RV400-14 10 STD	BF00004720
P3	02	NFD	10 mm	Core Bit P3 RV400-02 10 NFD	BF00004299
P3	04	NFD	10 mm	Core Bit P3 RV400-04 10 NFD	BF00004301
P3	06/07	NFD	10 mm	Core Bit P3 RV400-06/07 10 NFD	BF00004302
P3	08/09	NFD	10 mm	Core Bit P3 RV400-08/09 10 NFD	BF00004303
P3	09/11	NFD	10 mm	Core Bit P3 RV400-09/11 10 NFD	BF00004322
P3	12	NFD	10 mm	Core Bit P3 RV400-12 10 NFD	BF00004305
P3	12/14	NFD	10 mm	Core Bit P3 RV400-12/14 10 NFD	BF00005387



Wide (WW)



Face discharged (FD)



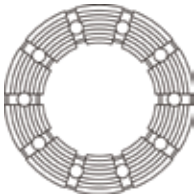
Internal non face discharged (NFD)

RV500 series surface set bits - P3 size

Size	Series	Step	Description	Item
P3	15/20 EE	5	Core Bit P3 RV500 15/20 EE 5 Step WW	BF00004639
P3	15/20 E	5	Core Bit P3 RV500 15/20 E FD 6 Elongated 5 Step	BF00005407

RV400 series impregnated bits - PTT size

Size	Series	Face design	Crown height	Description	Item
PTT	02	FD	10 mm	Core Bit PTT RV400-02 10 FD	BF00004365
PTT	04	FD	10 mm	Core Bit PTT RV400-04 10 FD	BF00004367
PTT	06/07	FD	10 mm	Core Bit PTT RV400-06/07 10 FD	BF00004368
PTT	08/09	FD	10 mm	Core Bit PTT RV400-08/09 10 FD	BF00004369
PTT	09/11	FD	10 mm	Core Bit PTT RV400-09/11 10 FD	BF00004370
PTT	12	FD	10 mm	Core Bit PTT RV400-12 10 FD	BF00004372
PTT	12/14	FD	10 mm	Core Bit PTT RV400-12/14 10 FD	BF00005392
PTT	14	FD	10 mm	Core Bit PTT RV400-14 10 FD	BF00004724



Face discharged (FD)

RV700 series casing and spud shoes - PT size

Size	Type	Description	Item
PT	Casing shoe	Casing Shoe PT RV700	BF00004476

RV700 series casing and spud shoes - PW size

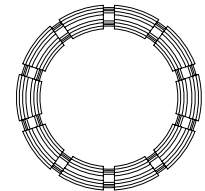
Size	Type	Description	Item
PW	Casing shoe	Casing Shoe PW RV700	BF00004474

RV700 series casing and spud shoes - PWT size

Size	Type	Description	Item
PWT	Casing shoe	Casing Shoe PWT RV700	BF00004479
PWT	Casing shoe	Casing Shoe PWT RV700 Flush	BF00006025

RV400 series impregnated bits - 46

Size	Series	Face design	Crown height	Description	Item
46	02	STD	12 mm	Core Bit WL46 RV400-02 12 STD	BF00001288
46	03	STD	12 mm	Core Bit WL46 RV400-03 12 STD	BF00001289
46	04	STD	12 mm	Core Bit WL46 RV400-04 12 STD	BF00001290
46	06/7	STD	12 mm	Core Bit WL46 RV400-06/7 12 STD	BF00001291
46	08/09	STD	12 mm	Core Bit WL46 RV400-08/9 12 STD	BF00001292
46	09/11	STD	12 mm	Core Bit WL46 RV400-09/11 12 STD	BF00001293
46	13	STD	12 mm	Core Bit WL46 RV400-13 12 STD	BF00001294
46	14	STD	12 mm	Core Bit WL46 RV400-14 12 STD	BF00001295
46	12	STD	12 mm	Core Bit WL46 RV400-12 12 STD	BF00004011
46	12	STD	12 mm	Core Bit WL46 RV400-12/14 STD	BF00005393



Thin kerf Standard (STD)

RV600 series reaming shells - 46 size

Size	Position	Type	Description	Item
46	Front	Standard	Reamer WL46 RV600 STD Front Econ	BF00001470
46	Front	Standard	Reamer WL46 RV605 STD Front Premium	BF00006010

RV700 series casing and spud shoes - 46 size

Size	Type	Description	Item
46	Casing shoe	Casing Shoe 46 RV700	BF00001447

RV400 series impregnated bits - 56

Size	Series	Face design	Crown height	Description	Item
56	02	STD	12 mm	Core Bit WL56 RV400-02 12 STD	BF00001297
56	03	STD	12 mm	Core Bit WL56 RV400-03 12 STD	BF00001298
56	04	STD	12 mm	Core Bit WL56 RV400-04 12 STD	BF00001299
56	06/7	STD	12 mm	Core Bit WL56 RV400-06/7 12 STD	BF00001300
56	08/09	STD	12 mm	Core Bit WL56 RV400-08/9 12 STD	BF00001301
56	09	STD	12 mm	Core Bit WL56 RV405-09 12 STD	BF00005318
56	09/11	STD	12 mm	Core Bit WL56 RV400-09/11 12 STD	BF00001302
56	12	STD	12 mm	Core Bit WL56 RV400-12 12 STD	BF00003987
56	12	STD	12 mm	Core Bit WL56 RV400-12/14 STD	BF00005394
56	13	STD	12 mm	Core Bit WL56 RV400-13 12 STD	BF00001303
56	14	STD	12 mm	Core Bit WL56 RV400-14 12 STD	BF00001304

RV600 series reaming shells - 56 size

Size	Position	Type	Description	Item
56	Front	Standard	Reamer WL56 RV600 STD Front Econ	BF00001471
56	Front	Oversized	Reamer WL56 RV600 O/S Front Econ	BF00001472
56	Front	Standard	Reamer WL56/42 RV600 STD Front Econ	BF00001473
56	Front	Standard	Reamer WL56 RV605 STD Front Premium	BF00006011
56	Front	Oversized	Reamer WL56 RV605 O/S Front Premium	BF00006015

RV700 series casing and spud shoes - 56 size

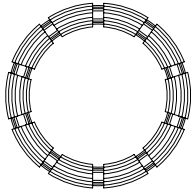
Size	Type	Description	Item
56	Casing shoe	Casing Shoe 56 RV700	BF00001448

RV400 series impregnated bits - 56/42

Size	Series	Face design	Crown height	Description	Item
56/42	09/11	STD	12 mm	Core Bit WL56/42 RV400-09/11 12 STD	BF00001311
56/42	13	STD	12 mm	Core Bit WL56/42 RV400-13 12 STD	BF00001312
56/42	14	STD	12 mm	Core Bit WL56/42 RV400-14 12 STD	BF00001313
56/42	12	STD	12 mm	Core Bit WL56/42 RV400-12 12 STD	BF00005241

RV600 series reaming shells - 56/42 size

Size	Position	Type	Description	Item
56/42	Front	Standard	Reamer WL56/42 Rv605 STD Front	BF00006018
56/42	Front	Oversized	Reamer WL56/42 RV605 O/S Front	TBA



Thin kerf Standard (STD)

RV400 series impregnated bits - 66 size

Size	Series	Face design	Crown height	Description	Item
66	02	STD	12 mm	Core Bit WL66 RV400-02 12 STD	BF00001315
66	03	STD	12 mm	Core Bit WL66 RV400-03 12 STD	BF00001316
66	04	STD	12 mm	Core Bit WL66 RV400-04 12 STD	BF00001317
66	06/7	STD	12 mm	Core Bit WL66 RV400-06/7 12 STD	BF00001318
66	08/09	STD	12 mm	Core Bit WL66 RV400-08/9 12 STD	BF00001319
66	09	STD	12 mm	Core Bit WL66 RV405-09 12 STD	BF00005319
66	12	STD	12 mm	Core Bit WL66 RV400-12 12 STD	BF00003986
66	12	STD	14 mm	Core Bit WL66 RV400-12/14 STD	BF00005395
66	13	STD	12 mm	Core Bit WL66 RV400-13 12 STD	BF00001321
66	14	STD	12 mm	Core Bit WL66 RV400-14 12 STD	BF00001322
66	09/11	STD	12 mm	Core Bit WL66 RV400-09/11 12 STD	BF00001323

RV600 series reaming shells - 66 size

Size	Position	Type	Description	Item
66	Front	Standard	Reamer WL66 RV600 STD Front Econ	BF00001475
66	Front	Standard	Reamer WL66 RV605 STD Front Premium	BF00006012
66	Front	Oversized	Reamer WL66 RV605 O/S Front Premium	TBA

RV700 series casing and spud shoes - 66 size

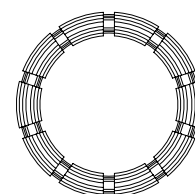
Size	Type	Description	Item
66	Casing shoe	Casing Shoe 66 RV700	BF00001449

RV400 series impregnated bits - WL66-3

Size	Series	Face design	Crown height	Description	Item
66-3	02	STD	12 mm	Core Bit WL66-3 RV400-02 12 STD	BF00001324
66-3	03	STD	12 mm	Core Bit WL66-3 RV400-03 12 STD	BF00001325
66-3	04	STD	12 mm	Core Bit WL66-3 RV400-04 12 STD	BF00001326
66-3	06/07	STD	12 mm	Core Bit WL66-3 RV400-06/7 12 STD	BF00001327
66-3	08/09	STD	12 mm	Core Bit WL66-3 RV400-08/9 12 STD	BF00001328
66-3	09/11	STD	12 mm	Core Bit WL66-3 RV400-09/11 12 STD	BF00001329
66-3	13	STD	12 mm	Core Bit WL66-3 RV400-13 12 STD	BF00001330
66-3	14	STD	12 mm	Core Bit WL66-3 RV400-14 12 STD	BF00001331
66-3	12	STD	12 mm	Core Bit WL66-3 RV400-12 12 STD	BF00005244

RV400 series impregnated bits - 76 size

Size	Series	Face design	Crown height	Description	Item
76	02	STD	12 mm	Core Bit WL76 RV400-02 12 STD	BF00001333
76	03	STD	12 mm	Core Bit WL76 RV400-03 12 STD	BF00001334
76	04	STD	12 mm	Core Bit WL76 RV400-04 12 STD	BF00001335
76	06/7	STD	12 mm	Core Bit WL76 RV400-06/7 12 STD	BF00001336
76	08/9	STD	12 mm	Core Bit WL76 RV400-08/9 12 STD	BF00001337
76	09/11	STD	12 mm	Core Bit WL76 RV400-09/11 12 STD	BF00001338
76	13	STD	12 mm	Core Bit WL76 RV400-13 12 STD	BF00001339
76	14	STD	12 mm	Core Bit WL76 RV400-14 12 STD	BF00001340
76	12	STD	12 mm	Core Bit WL76 RV400-12 12 STD	BF00005243
76	09	STD	12 mm	Core Bit WL76 RV405-09 12 STD	BF00005320
76	12	STD	12 mm	Core Bit WL76 RV400-12/14 STD	BF00005396



Thin kerf Standard (STD)

RV600 series reaming shells - 76 size

Size	Position	Type	Description	Item
76	Front	Standard	Reamer WL76 RV600 STD Front Econ	BF00001476
76	Front	Standard	Reamer WL76 RV605 STD Front Premium	BF00006013
76	Front	Oversized	Reamer WL76 RV605 O/S Front Premium	TBA

RV700 series casing and spud shoes - 76 size

Size	Type	Description	Item
76	Casing shoe	Casing Shoe 76 RV700	BF00001450

RV400 series impregnated bits - 76-3

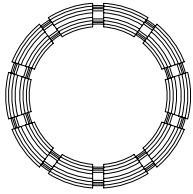
Size	Series	Face design	Crown height	Description	Item
76-3	02	STD	12 mm	Core Bit WL76-3 RV400-02 12 STD	BF00001342
76-3	03	STD	12 mm	Core Bit WL76-3 RV400-03 12 STD	BF00001343
76-3	04	STD	12 mm	Core Bit WL76-3 RV400-04 12 STD	BF00001344
76-3	06/07	STD	12 mm	Core Bit WL76-3 RV400-06/7 12 STD	BF00001345
76-3	08/09	STD	12 mm	Core Bit WL76-3 RV400-08/9 12 STD	BF00001346
76-3	09/11	STD	12 mm	Core Bit WL76-3 RV400-09/11 12 STD	BF00001347
76-3	13	STD	12 mm	Core Bit WL76-3 RV400-13 12 STD	BF00001348
76-3	14	STD	12 mm	Core Bit WL76-3 RV400-14 12 STD	BF00001349
76-3	12	STD	12 mm	Core Bit WL76-3 RV400-12 12 STD	BF00005245

RV400 series impregnated bits - 103 size

Size	Series	Face design	Crown height	Description	Item
103	03	STD	12 mm	Core Bit WL103 RV400-03 12 STD	BF00001352
103	09/11	STD	12 mm	Core Bit WL103 RV400-09/11 12 STD	BF00001356
103	14	STD	12 mm	Core Bit WL103 RV400-14 12 STD	BF00001358
103	12	STD	12 mm	Core Bit WL103 RV400-12 12 STD	BF00005249

RV600 series reaming shells - 103 size

Size	Position	Type	Description	Item
103	Front	Standard	Reamer WL103 RV600 STD Front	BF00001478



Thin kerf Standard (STD)

RV400 series impregnated bits - B60

Size	Series	Face design	Crown height	Description	Item
B60	12	STD	12 mm	Core Bit B60 RV400-12 12 STD	BF00005246
B60	02	STD	12 mm	Core Bit B60 RV400-02 12 STD	BF00001261
B60	03	STD	12 mm	Core Bit B60 RV400-03 12 STD	BF00001263
B60	04	STD	12 mm	Core Bit B60 RV400-04 12 STD	BF00001264
B60	06/7	STD	12 mm	Core Bit B60 RV400-06/7 12 STD	BF00001266
B60	13	STD	12 mm	Core Bit B60 RV400-13 12 STD	BF00001267
B60	14	STD	12 mm	Core Bit B60 RV400-14 12 STD	BF00001268
B60	09/11	STD	12 mm	Core Bit B60 RV400-09/11 12 STD	BF00001269
B60	08/9	STD	12 mm	Core Bit B60 RV400-08/9 12 STD	BF00003729

RV600 series reaming shells - B60 size

Size	Position	Type	Description	Item
B60	Front	Standard	Reamer B60 RV605 STD Front	BF00006014
B60	Front	Standard	Reamer B60 RV600 STD Front Econ	BF00001461

RV700 series casing and spud shoes - 86 size

Size	Type	Description	Item
86	Casing shoe	Casing Shoe 86 RV700	BF00001451

RV700 series casing and spud shoes - 116 size

Size	Type	Description	Item
116	Casing shoe	Casing Shoe 116 RV700	BF00001452

RV700 series casing and spud shoes - 131 size

Size	Type	Description	Item
131	Casing shoe	Casing Shoe 131 RV700	BF00001453

RV700 series casing and spud shoes - HD74 size

Size	Type	Description	Item
HD74	Casing shoe	Casing Shoe HD74 RV700 HD	BF00001454

RV700 series casing and spud shoes - HD86 size

Size	Type	Description	Item
HD86	Casing shoe	Casing Shoe HD86 RV700 HD	BF00001455

RV700 series casing and spud shoes - HD94 size

Size	Type	Description	Item
HD94	Casing shoe	Casing Shoe HD94 RV700 HD	BF00001456

RV800 series specials

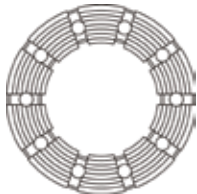
Size	Type	Description	Item
Z46	Cleaning bit	Cleaning bit Z46 RV805 04 C	BF00001457
Z54	Cleaning bit	Cleaning bit Z54 RV805 04	BF00005895
Z56	Cleaning bit	Cleaning bit Z56 RV805 04 C	BF00001458
Z66	Cleaning bit	Cleaning bit Z66 RV805 04 C	BF00001459
Z76	Cleaning bit	Cleaning bit Z76 RV805 04 C	BF00001460

RV100 series TC bits - 4C size

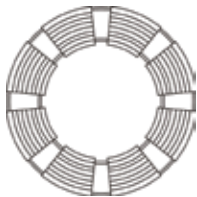
Size	Formation	Description	Item
4C	Soft	TC Bit 4C RV100	TBA

RV200 series PCD bits - 4C size

Size	Series	Description	Item
4C	08/08	PCD Core Bit 4C RV200 FD 08/08	BF00004661
4C	13/08	PCD Core Bit 4C RV200 13/08	BF00005959



Face discharged (FD)



Tapered (TW)

RV400 series impregnated bits - 4C

Size	Series	Face design	Crown height	Description	Item
4C	02	FD	08 mm	Core Bit 4C RV400-02 08 FD	BF00004389
4C	04	FD	08 mm	Core Bit 4C RV400-04 08 FD	BF00004391
4C	06/07	FD	08 mm	Core Bit 4C RV400-06/07 08 FD	BF00004392
4C	08/09	FD	08 mm	Core Bit 4C RV400-08/09 08 FD	BF00004393

RV500 series surface set bits - 4C size

Size	Series	Step	Description	Item
4C	30/40 A	5	Core Bit 4C S/S RV500 30/40 A 5 Step	BF00005961

RV600 series reaming shells - 4C size

Size	Position	Type	Description	Item
4C	Front	Standard	Reamer 4C RV600 STD Front	BF00004465
4C	Mesh	TC	Reamer 4C RV600 TC Mesh	BF00005853

RV100 series TC bits - 8C size

Size	Formation	Description	Item
8C	Soft	TC Bit 8C RV100	BF00004659

RV200 series PCD bits - 8C size

Size	Series	Description	Item
8C	08/08	Core bit 8C RV200 FD 08/08	BF00005359
8C	10	PCD Core Bit 8C RV200 10 1/4 13 mm	BF00004662
8C	10	PCD Core Bit 8C RV200 10 1/4 8 mm	BF00004663

RV400 series impregnated bits - 8C

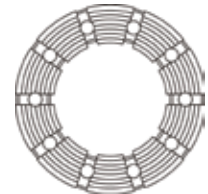
Size	Series	Face design	Crown height	Description	Item
8C	02	FD	08 mm	Core Bit 8C RV400-02 08 FD	BF00004397
8C	04	FD	08 mm	Core Bit 8C RV400-04 08 FD	BF00004399
8C	06/07	FD	08 mm	Core Bit 8C RV400-06/07 08 FD	BF00004400
8C	08/09	FD	08 mm	Core Bit 8C RV400-08/09 08 FD	BF00004401
8C	13	FD	08 mm	Core Bit 8C RV400-13 08 FD	BF00004696
8C	14	FD	08 mm	Core Bit 8C RV400-14 08 FD	BF00004697
8C	04	TW	08 mm	Core Bit 8C RV400-04 08 TW	BF00005093
8C	08/09	TW	08 mm	Core Bit 8C RV400-08/09 08 TW	BF00005094

RV600 series reaming shells - 8C size

Size	Position	Type	Description	Item
8C	Front	Standard	Reamer 8C RV600 STD Front	BF00004467
8C	Mesh	TC	Reamer 8C RV600 TC Mesh	BF00005854

RV400 series impregnated bits - NMLC

Size	Series	Face design	Crown height	Description	Item
NMLC	02	FD	06 mm	Core Bit NMLC RV400-02 06 FD	BF00004405
NMLC	04	FD	06 mm	Core Bit NMLC RV400-04 06 FD	BF00004407
NMLC	06/07	FD	06 mm	Core Bit NMLC RV400-06/07 06 FD	BF00004408
NMLC	08/09	FD	06 mm	Core Bit NMLC RV400-08/09 06 FD	BF00004409
NMLC	13	FD	06 mm	Core Bit NMLC RV400-13 06 FD	BF00004713
NMLC	14	FD	06 mm	Core Bit NMLC RV400-14 06 FD	BF00004714



Face discharged (FD)

RV600 series reaming shells - NMLC size

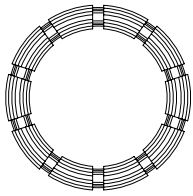
Size	Position	Type	Description	Item
NMLC	Front	Standard	Reamer NMLC RV600 STD Front	BF00004461

RV400 impregnated bits - HMLC

Size	Series	Face design	Crown height	Description	Item
HMLC	02	FD	06 mm	Core Bit HMLC RV400-02 06 FD	BF00004413
HMLC	04	FD	06 mm	Core Bit HMLC RV400-04 06 FD	BF00004415
HMLC	06/07	FD	06 mm	Core Bit HMLC RV400-06/07 06 FD	BF00004416
HMLC	08/09	FD	06 mm	Core Bit HMLC RV400-08/09 06 FD	BF00004417
HMLC	13	FD	06 mm	Core Bit HMLC RV400-13 06 FD	BF00004704
HMLC	14	FD	06 mm	Core Bit HMLC RV400-14 06 FD	BF00004705

RV600 series reaming shells - HMLC size

Size	Position	Type	Description	Item
HMLC	Front	Standard	Reamer HMLC RV600 STD Front	BF00004463



Thin kerf Standard (STD)

RV400 series impregnated bits - B86

Size	Series	Face design	Crown height	Description	Item
B86	03	STD	09 mm	Core Bit B86 RV400-03 09 STD	BF00004075
B86	12	STD	09 mm	Core Bit B86 RV400-12 09 STD	BF00005258

RV400 series impregnated bits - B101

Size	Series	Face design	Crown height	Description	Item
B101	03	STD	09 mm	Core Bit B101 RV400-03 09 STD	BF00001433
B101	12	STD	09 mm	Core Bit B101 RV400-12 09 STD	BF00005259

RV400 series impregnated bits - B116

Size	Series	Face design	Crown height	Description	Item
B116	03	STD	09 mm	Core Bit B116 RV400-03 09 STD	BF00001434
B116	12	STD	09 mm	Core Bit B116 RV400-12 09 STD	BF00005260

RV400 series impregnated bits - B131

Size	Series	Face design	Crown height	Description	Item
B131	03	STD	09 mm	Core Bit B131 RV400-03 09 STD	BF00001437
B131	12	STD	09 mm	Core Bit B131 RV400-12 09 STD	BF00005261

RV400 series impregnated bits - B146

Size	Series	Face design	Crown height	Description	Item
B146	03	STD	09 mm	Core Bit B146 RV400-03 09 STD	BF00001440
B146	12	STD	09 mm	Core Bit B146 RV400-12 09 STD	BF00005262

RV400 series impregnated bits - B196

Size	Series	Face design	Crown height	Description	Item
B196	03	STD	06 mm	Core Bit B196 RV400-03 06 STD	BF00004111
B196	12	STD	06 mm	Core Bit B196 RV400-12 06 STD	BF00005263

RV400 series impregnated bits - BHD168

Size	Series	Face design	Crown height	Description	Item
BHD168	03	STD	06 mm	Core Bit BHD168 RV400-03 06 STD	BF00001443
BHD168	12	STD	06 mm	Core Bit BHD168 RV400-12 06 STD	BF00005264

RV400 series impregnated bits - BHD193/169

Size	Series	Face design	Crown height	Description	Item
BHD 193/169	03	STD	06 mm	Core Bit BHD193/169 RV405-03 06 STD	BF00003382

RV400 series impregnated bits - BHD218

Size	Series	Face design	Crown height	Description	Item
BHD218	03	STD	06 mm	Core Bit BHD218 RV400-03 06 STD	BF00004126
BHD218	12	STD	06 mm	Core Bit BHD218 RV400-12 06 STD	BF00005265

RV400 series impregnated bits - T46

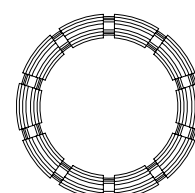
Size	Series	Face design	Crown height	Description	Item
T46	03	STD	09 mm	Core Bit T46 RV400-03 09 STD	BF00001361
T46	09/11	STD	09 mm	Core Bit T46 RV400-09/11 09 STD	BF00001365
T46	13	STD	09 mm	Core Bit T46 RV400-13 09 STD	BF00001366
T46	14	STD	09 mm	Core Bit T46 RV400-14 09 STD	BF00001367
T46	12	STD	09 mm	Core Bit T46 RV400-12 09 STD	BF00005250

RV600 series reaming shells - T46 size

Size	Position	Type	Description	Item
T46	Front	Standard	Reamer T46 RV600 STD Front	BF00001462

RV700 series casing and spud shoes - 46 size

Size	Type	Description	Item
46	Casing shoe	Casing Shoe 46 RV700	BF00001447



Thin kerf Standard (STD)

RV400 series impregnated bits - TT46

Size	Series	Face design	Crown height	Description	Item
TT46	03	STD	09 mm	Core Bit TT46 RV400-03 09 STD	BF00001415
TT46	06/7	STD	09 mm	Core Bit TT46 RV400-06/7 09 STD	BF00001417
TT46	09/11	STD	09 mm	Core Bit TT46 RV400-09/11 09 STD	BF00001419
TT46	13	STD	09 mm	Core Bit TT46 RV400-13 09 STD	BF00001420
TT46	14	STD	09 mm	Core Bit TT46 RV400-14 09 STD	BF00001421
TT46	12	STD	09 mm	Core Bit TT46 RV400-12 09 STD	BF00005256

RV600 series reaming shells - TT46 size

Size	Position	Type	Description	Item
TT46	Front	Standard	Reamer TT46 RV600 STD Front	BF00001468

RV400 series impregnated bits - T56

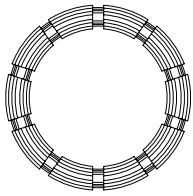
Size	Series	Face design	Crown height	Description	Item
T56	03	STD	09 mm	Core Bit T56 RV400-03 09 STD	BF00001370
T56	09/11	STD	09 mm	Core Bit T56 RV400-09/11 09 STD	BF00001374
T56	13	STD	09 mm	Core Bit T56 RV400-13 09 STD	BF00001375
T56	12	STD	09 mm	Core Bit T56 RV400-12 09 STD	BF00005251

RV600 series reaming shells - T56 size

Size	Position	Type	Description	Item
T56	Front	Standard	Reamer T56 RV600 STD Front	BF00001463

RV700 series casing and spud shoes - 56 size

Size	Type	Description	Item
56	Casing shoe	Casing Shoe 56 RV700	BF00001448



Thin kerf Standard (STD)

RV400 series impregnated bits - TT56

Size	Series	Face design	Crown height	Description	Item
TT56	03	STD	09 mm	Core Bit TT56 RV400-03 09 STD	BF00001424
TT56	09/11	STD	09 mm	Core Bit TT56 RV400-09/11 09 STD	BF00001428
TT56	13	STD	09 mm	Core Bit TT56 RV400-13 09 STD	BF00001429
TT56	114	STD	09 mm	Core Bit TT56 RV400-114 09 STD	BF00001430
TT56	12	STD	09 mm	Core Bit TT56 RV400-12 09 STD	BF00005257

RV600 series reaming shells - TT56 size

Size	Position	Type	Description	Item
TT56	Front	Standard	Reamer TT56 RV600 STD Front	BF00001469

RV400 series impregnated bits - T66

Size	Series	Face design	Crown height	Description	Item
T66	03	STD	09 mm	Core Bit T66 RV400-03 09 STD	BF00001379
T66	09/11	STD	09 mm	Core Bit T66 RV400-09/11 09 STD	BF00001383
T66	14	STD	09 mm	Core Bit T66 RV400-14 09 STD	BF00001385
T66	12	STD	09 mm	Core Bit T66 RV400-12 09 STD	BF00005252

RV600 series reaming shells - T66 size

Size	Position	Type	Description	Item
T66	Front	Standard	Reamer T66 RV600 STD Front	BF00001464

RV700 series casing and spud shoes - 66 size

Size	Type	Description	Item
66	Casing shoe	Casing Shoe 66 RV700	BF00001449

RV400 series impregnated bits - T76

Size	Series	Face design	Crown height	Description	Item
T76	03	STD	09 mm	Core Bit T76 RV400-03 09 STD	BF00001388
T76	09/11	STD	09 mm	Core Bit T76 RV400-09/11 09 STD	BF00001392
T76	13	STD	09 mm	Core Bit T76 RV400-13 09 STD	BF00001393
T76	14	STD	09 mm	Core Bit T76 RV400-14 09 STD	BF00001394
T76	12	STD	09 mm	Core Bit T76 RV400-12 09 STD	BF00005253

RV600 series reaming shells - T76 size

Size	Position	Type	Description	Item
T76	Front	Standard	Reamer T76 RV600 STD Front	BF00001465

RV700 series casing and spud shoes - 76 size

Size	Type	Description	Item
76	Casing shoe	Casing Shoe 76 RV700	BF00001450

RV400 series impregnated bits - T86

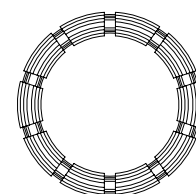
Size	Series	Face design	Crown height	Description	Item
T86	03	STD	09 mm	Core Bit T86 RV400-03 09 STD	BF00001397
T86	12	STD	09 mm	Core Bit T86 RV400-12 09 STD	BF00005254

RV600 series reaming shells - T86 size

Size	Position	Type	Description	Item
T86	Front	Standard	Reamer T86 RV600 STD Front	BF00001466

RV700 series casing and spud shoes - 86 size

Size	Type	Description	Item
86	Casing shoe	Casing Shoe 86 RV700	BF00001451



Thin kerf Standard (STD)

RV400 series impregnated bits - T101

Size	Series	Face design	Crown height	Description	Item
T101	03	STD	09 mm	Core Bit T101 RV400-03 09 STD	BF00001406
T101	09/11	STD	09 mm	Core Bit T101 RV400-09/11 09 STD	BF00001411
T101	14	STD	09 mm	Core Bit T101 RV400-14 09 STD	BF00001413
T101	12	STD	09 mm	Core Bit T101 RV400-12 09 STD	BF00005255

RV600 series reaming shells - T101 size

Size	Position	Type	Description	Item
T101	Front	Standard	Reamer T101 RV600 STD Front	BF00001467

RV400 series impregnated bits - TK48

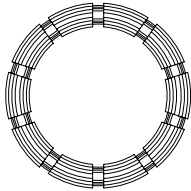
Size	Series	Face design	Crown height	Description	Item
TK48	02	STD	10 mm	Core Bit TK48 RV400-02 10 STD	BF00004373
TK48	04	STD	10 mm	Core Bit TK48 RV400-04 10 STD	BF00004375
TK48	06/07	STD	10 mm	Core Bit TK48 RV400-06/07 10 STD	BF00004376
TK48	08/09	STD	10 mm	Core Bit TK48 RV400-08/09 10 STD	BF00004377
TK48	09/11	STD	10 mm	Core Bit TK48 RV400-09/11 10 STD	BF00004378
TK48	12	STD	10 mm	Core Bit TK48 RV400-12 10 STD	BF00004380
TK48	13	STD	10 mm	Core Bit TK48 RV400-13 10 STD	BF00004726
TK48	14	STD	10 mm	Core Bit TK48 RV400-14 10 STD	BF00004727

RV600 series reaming shells - TK48 size

Size	Position	Type	Description	Item
TK48	Front	Standard	Reamer TK48 RV600 STD Front	BF00004421

RV400 series impregnated bits - TK60

Size	Series	Face design	Crown height	Description	Item
TK60	02	STD	12 mm	Core Bit TK60 RV400-02 12 STD	BF00004381
TK60	04	STD	12 mm	Core Bit TK60 RV400-04 12 STD	BF00004383
TK60	06/07	STD	12 mm	Core Bit TK60 RV400-06/07 12 STD	BF00004384
TK60	08/09	STD	12 mm	Core Bit TK60 RV400-08/09 12 STD	BF00004385
TK60	09/11	STD	12 mm	Core Bit TK60 RV400-09/11 12 STD	BF00004386
TK60	12	STD	12 mm	Core Bit TK60 RV400-12 12 STD	BF00004388



Thin kerf Standard (STD)

RV600 series reaming shells - TK60 size

Size	Position	Type	Description	Item
TK60	Front	Standard	Reamer TK60 RV600 STD Front	BF00004429
TK60	Front	Oversized	Reamer TK60 RV600 STD O/S	BF00004424

RV400 series impregnated bits - BTW

Size	Series	Face design	Crown height	Description	Item
BTW	09	STD	16 mm	Core Bit BTW RV405-09 16 STD	BF00005870

RV700 series casing and spud shoes - 116 size

Size	Type	Description	Item
116	Casing shoe	Casing Shoe 116 RV700	BF00001452

RV700 series casing and spud shoes - 131 size

Size	Type	Description	Item
131	Casing shoe	Casing Shoe 131 RV700	BF00001453

RV700 series casing and spud shoes - HD74 size

Size	Type	Description	Item
HD74	Casing shoe	Casing Shoe HD74 RV700 HD	BF00001454

RV700 series casing and spud shoes - HD86 size

Size	Type	Description	Item
HD86	Casing shoe	Casing Shoe HD86 RV700	BF00001455

RV700 series casing and spud shoes - HD94 size

Size	Type	Description	Item
HD94	Casing shoe	Casing Shoe HD94 RV700	BF00001456

PCD bits RV200 series — non coring

Size	Blades	Cutters	Thread	Description	Item
76 mm			NW Pin Thread	PCD Bit 76 mm RV200 (NW Pin Thread)	BF00005354
96 mm			NW Pin Thread	PCD Bit 96 mm RV200 (NW Pin Thread)	BF00005284
99 mm			NW Pin Thread	PCD Bit 99 mm RV200 (NW Pin Thread)	BF00004664
4 1/2"				4 1/2 inch Blade Bit	BF00005180
5 1/2"				5 1/2 inch Blade Bit	BF00005181
7 1/2"				7 1/2 inch Blade Bit	BF00005182
17"				17 inch Blade Bit	BF00005183
5 1/8"	3	13 mm	2-7/8	5 1/8 3 Blade 13 mm Cutters 2-7/8	BF00005185
5 1/8"	5	16 mm	2-7/8	5 1/8 5 Blade 16 mm Cutters 2-7/8	BF00005186
5 1/2"	5	16 mm	2-7/8	5 1/2 5 Blade 16 mm Cutters 2-7/8	BF00005190
5 5/8"	5	16 mm	3-1/2	5 5/8 5 Blade 16 mm Cutters 3-1/2	BF00005187
5 5/8"	5	13 mm	2 7/8	5 5/8 PCD 5 Blade Bit 13 mm Cutters 2 7/8 Pin	BF00005491
5 7/8"	5	13 mm		5 7/8 PCD 5 Wing 13 mm Cutters	BF00005966
5 7/8"	5	16 mm		5 7/8 PCD 5 Wing 16 mm Cutters	BF00005967
4 3/4"	5	13 mm		4 3/4 PCD 5 Wing 13 mm Cutters	BF00005968
4 3/4"	3	13 mm		4 3/4 PCD 3 Wing 13 mm Cutters	BF00005969
7 7/8"	5	16 mm		7 7/8 PCD 5 Wing Single Row 16 mm Cutters	BF00005970
7 7/8"	5	16 mm		7 7/8 PCD 5 Wing Single Row 16 mm Cutters	BF00005971

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