

## Bit Selector



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## How to use this document

This manual provides a guideline for the usage of our different types of bits.

All of the bits mentioned in this document are field-tested by our drillers and are used all over the world in different formations.

Our rigs operate with up to 150 Hertz of sonic power, so all of our bits need to be exceptionally durable. They are manufactured from premium steel and designed to perform in even the toughest conditions.

At Royal Eijkelkamp, we are always looking to improve our bits and listen to the needs of our customers. If you have any questions or are in need of a tailor-made bit, please feel free to contact us.

This document provides details about our bits, such as:

Application	For example: soft clay or hard rock.
Type of button	For example: dome or 3-Face buttons.
Usage of overcut	If the outer diameter of the bit is bigger than the drill rod, you have less friction on the drill string. This is especially helpful in rock formations.
Water slots	Using water slots, the bit can remove excess water and cuttings easier. This is especially helpful in rock formations.
Wear protection buttons	The usage of wear protection helps protect the bit body and core barrel, reducing wear and extending their lifespan. This is especially helpful in rock formations.
Inner cutting buttons	The usage of inner cutting buttons will cut the sample just a little smaller than the ID (inner diameter) of the bit, so that water can flow in between the sampler and the sample. This feature is especially useful in rock formations, but is exclusively available in the single wall core barrels.
Water discharge	Our dual wall core barrels have either front or side discharge of the flushing medium. When sampling in hard formations, front discharge ensures maximum water flow between the bit and the soil, serving as a coolant and aiding in cuttings removal. In softer geology you do not want to flush away your sample but you do want to get rid of your cuttings, so you can use side discharge and thus loosen fines of your sample.
Surface treatment	For example: electrogalvanised.
General options	For example: a core catcher is possible for this bit.

## Bit Selector Overview

		Single Wall Core Barrel					Dual Wall Core Barrel			
		Cutting shoe	Standard	Advanced	Extreme	Heavy Duty	Standard	Advanced	Heavy Duty	Hard Rock
soft	silt	■	■	■						
	sand	■	■	■						
	wet clay	■	■	■						
	dry clay		■	■	■	■				
	gravel	■	■	■	■	■	■	■	■	
	soapstone			■	■	■	■	■	■	
medium	schist				■ *	■ *	■	■	■	■
	moraine				■ *	■ *	■	■	■	■
	glacial till				■ *	■ *	■	■	■	■
	limestone				■ *	■ *	■	■	■	■
	sandstone				■ *	■ *	■	■	■	■
	concrete				■ *	■ *	■	■	■	■
hard	basalt				■ *	■ *			■	■
	granite									■
	flint									■
obstructions	roots			■	■			■		
	wood			■	■			■		
	reinforced concrete				■ *	■ *			■	

\* Only when drilling with a flushing medium



## Single Wall



**Cutting Shoe**



**Standard Bit**



**Advanced Bit**



**Extreme Bit**



**Heavy Duty Bit**

## Dual Wall



**Standard Bit**



**Advanced Bit**



**Heavy Duty Bit**



**Hard Rock Bit**

### Single Wall Core Barrel Cutting Shoe

This bit is designed specifically for softer soil types.

Note: It is only suitable for drilling in soft geological formations. If harder geology is encountered, refer to the bit selector to find a more suitable option.

Application	Sand, gravel, and soft clay
Type of button	No buttons
Usage of overcut	No
Water slots	No
Wear protection buttons	No
Inner cutting buttons	No
Water discharge	No
Surface treatment	Electrogalvanised
General options	Can be used in combination with a core catcher or slurry sample catcher. Note that the slurry sample catcher can only be used without rotation.



Single Wall Cutting Shoe Order numbers				
Size	Outer/inner diameter		Part number	Fits through
	mm	in		
CB3	OD 102 / ID 77	OD 4" / ID 3"	D0037182	EM5 1/2
CB4	OD 125 / ID 101.5	OD 5" / ID 4"	D0037184	EM6 5/8
CB4 1/2			Request only	EM7
CB6			Request only	EM8 5/8



## Single Wall Core Barrel Standard Bit

This bit can be used for a broad range of purposes, from soft to harder material.

Note: While this bit can handle occasional boulders, switching to a dual wall core barrel is recommended for extended drilling through hard rock to improve efficiency and prolong lifespan.

Application	Sand, gravel, medium to compact formations, stiff clay, and the occasional boulder.
Type of button	Dome buttons
Usage of overcut	No
Water slots	No
Wear protection buttons	No
Inner cutting buttons	No
Water discharge	No
Surface treatment	Electrogalvanised
General options	Can be used in combination with a core catcher.



### Single Wall Standard Bit Order numbers

Size	Outer/inner diameter		Part number	Fits through
	mm	in		
CB3	OD 104 / ID 78	OD 4" / ID 3"	D018870	EM5 1/2
CB4	OD 125 / ID 101.5	OD 5" / ID 4"	D0026080	EM6 5/8
CB4 1/2	OD 142 / ID 115	OD 5.5" / ID 4.5"	D0033086	EM7
CB6	OD 177 / ID 144	OD 7" / ID 5.66"	D0033680	EM8 5/8



### Single Wall Core Barrel Advanced Bit

This multi-purpose bit is designed for cutting up soft rock. Its aggressive buttons ensure fast drilling performance and long-lasting durability.

This bit offers smooth and consistent drilling performance.

Note: While this bit can handle occasional boulders, for extended drilling in hard rock, switching to a dual wall core barrel is recommended for greater efficiency and a longer bit lifespan.

Application	Sand, gravel, medium to compact formations, stiff clay, and the occasional boulder.
Type of button	3-Face buttons
Usage of overcut	No
Water slots	No
Wear protection buttons	No
Inner cutting buttons	No
Water discharge	No
Surface treatment	Electrogalvanised
General options	Can be used in combination with a core catcher.



Single Wall Advanced Bit Order numbers				
Size	Outer/inner diameter		Part number	Fits through
	mm	in		
CB3	OD 104 / ID 75	OD 4" / ID 3"	D0036550	EM5 1/2
CB4	OD 125 / ID 100	OD 5" / ID 4"	D0027446	EM6 5/8
CB4 1/2	OD 142 / ID 113	OD 5.5" / ID 4.45"	D0034024	EM7
CB6	OD 177 / ID 144	OD 7" / ID 5.66"	D0033997	EM8 5/8





## Single Wall Core Barrel Extreme Bit

This bit excels in abrasive and compact materials. The inclusion of inner cutting buttons allows for the use of a drilling fluid, making it possible to drill through certain soft rock formations.

This tool is suitable for softer geologies. If harder geology is encountered, please switch to the dual wall core barrel.

Application	Sand, gravel, medium or compact formations, stiff clay, and soft rock
Type of button	Dome buttons and scraper plates
Usage of overcut	No
Water slots	No
Wear protection buttons	Yes
Inner cutting buttons	Yes
Water discharge	Yes, between the sample and the bit due to the inner cutting buttons.
Surface treatment	Electrogalvanised
General options	Can be used in combination with a core catcher.



### Single Wall Extreme Bit Order numbers

Size	Outer/inner diameter		Part number	Fits through
	mm	in		
CB3	OD 104 / ID 73.5	OD 4" / ID 2 7/8"	D0036596	EM5 1/2
CB4	OD 125 / ID 97	OD 5" / ID 3.82"	D022670	EM6 5/8
CB4 1/2	OD 143 / ID 111	OD 5.62" / ID 4.37"	D0034971	EM7
CB6	OD 177 / ID 140	OD 7" / ID 5.9"	D0034988	EM8 5/8

## Single Wall Core Barrel Heavy Duty Bit

The combination of dome buttons, wear protection, water slots, inner cutting buttons, and overcut makes this bit highly effective in tougher drilling conditions.

Note: While this bit is capable of drilling through medium rock, switching to a dual wall core barrel bit is recommended for extended drilling in rock formations to improve efficiency and prolong bit lifespan.

**Important: the Single Wall CB4 Heavy Duty bit can only be used in combination with the EM7 casing.**

Application	Medium or compact formations, stiff clay, and medium rock.
Type of button	Dome buttons
Usage of overcut	Yes
Water slots	Yes
Wear protection buttons	Yes
Inner cutting buttons	Yes
Water discharge	Yes, between the sample and the bit due to the inner cutting buttons.
Surface treatment	Electrogalvanised
General options	Can be used in combination with a core catcher.



### Single Wall Heavy Duty Bit Order numbers

Size	Outer/inner diameter		Part number	Fits through
	mm	in		
CB4	OD 132 / ID 95	OD 5.2" / ID 3.7"	D017316	EM7
CB4 1/2	OD 147 / ID 111	OD 5.8" / ID 4.4"	D0035285	EM7



## Dual Wall Core Barrel Standard Bit

The standard type dual wall core barrel bits offer the flexibility of a front or side discharge. The discharge holes can be sealed using a hex socket screw which is included with the bit.

These bits are suitable for a wide range of drilling applications.

Note: while this bit is capable of drilling through extremely hard rock, switching to the Hard Rock bit is recommended for extended drilling in such conditions to improve efficiency and prolong bit lifespan.

Application	Side discharge: Suitable for all soils up to soft rock, including consolidated or compact materials. Front discharge: Suitable for compact and consolidated materials up to medium rock.
Type of button	Dome buttons
Usage of overcut	Yes
Water slots	No
Wear protection buttons	No
Inner cutting buttons	No
Water discharge	Yes, both front and side discharge are available in the same bit.
Surface treatment	Electrogalvanised



### Dual Wall Standard Bit Order numbers

Size	Outer/inner diameter		Part number	Fits through
	mm	in		
CB68	OD 101 / ID 62	OD 4" / ID 2.44"	D0032884	EM5 1/2
CB3 1/2	OD 125 / ID 88	OD 5" / ID 3.46"	D0032911	EM6 5/8
CB5	OD 176 / ID 119	OD 7" / ID 4.68"	D0032936	EM8 5/8

Dual Wall Core Barrel Advanced Bit

This is a versatile bit capable of cutting up to medium rock. Its aggressive buttons provide fast drilling performance while ensuring long-lasting durability.

One of its key advantages is its smooth and consistent drilling action.

Additionally, it offers the flexibility of front or side discharge, with holes that can be sealed using a hex socket screw, which is included with the bit.

Application	Side discharge: Suitable for all soils up to soft rock, as well as consolidated or compact material. Front discharge: Suitable for all soils up to medium rock
Type of button	3-Face buttons
Usage of overcut	Yes
Water slots	No
Wear protection buttons	Yes
Inner cutting buttons	No
Water discharge	Yes, both front and side discharge are available in the same bit.
Surface treatment	Electrogalvanised



Dual Wall Advanced Bit Order numbers				
Size	Outer/inner diameter		Part number	Fits through
	mm	in		
CB68	OD 104 / ID 65	OD 4" / ID 2.55"	D0033943	EM5 1/2
CB3 1/2	OD 125 / ID 88	OD 5" / ID 3.46"	D0036650	EM6 5/8
CB5	OD 176 / ID 119	OD 7" / ID 4.68"	D0036794	EM8 5/8



### Dual Wall Core Barrel Heavy Duty Bit

The combination of dome buttons, wear protection, and overcut makes this bit highly effective for drilling in harder formations. It also offers the flexibility of front or side discharge, with discharge holes that can be sealed with a hex socket screw, which comes delivered with the bit.

Note: while this bit is capable of drilling through extremely hard rock, switching to the Hard Rock bit is recommended for extended drilling in such conditions to improve efficiency and prolong bit lifespan.

Application	Side discharge: Suitable for all soils up to soft rock, including consolidated or compact materials. Front discharge: Suitable for all soils up to harder rock.
Type of button	Dome buttons
Usage of overcut	Yes
Water slots	No
Wear protection buttons	Yes
Inner cutting buttons	No
Water discharge	Yes, both front and side discharge are available in the same bit.
Surface treatment	Electrogalvanised



Dual Wall Heavy Duty Bit Order numbers				
Size	Outer/inner diameter		Part number	Fits through
	mm	in		
CB68	OD 104 / ID 65	OD 4" / ID 2.55"	D015928	EM5 1/2
CB3 1/2	OD 125 / ID 88	OD 5" / ID 3.46"	D0036588	EM6 5/8
CB5	OD 176 / ID 119	OD 7" / ID 4.68"	D0036722	EM8 5/8

Dual Wall Core Barrel Hard Rock Bit

This bit features specially coated buttons, enhancing its performance in rock formations.

It enables fast drilling progression while ensuring long-lasting durability even in the hardest types of rock.

Note: While this bit is designed for drilling through extremely hard rock, it is not suitable for other geological conditions.

Application	All types of rock
Type of button	Dome buttons
Usage of overcut	Yes
Water slots	No
Wear protection buttons	Yes
Inner cutting buttons	No
Water discharge	Front discharge only
Surface treatment	No surface treatment



Dual Wall Hard Rock Bit Order numbers				
Size	Outer/inner diameter		Part number	Fits through
	mm	in		
CB68	OD 104 / ID 65	OD 4" / ID 2.55"	D0035099	EM5 1/2
CB3 1/2	OD 125 / ID 88	OD 5" / ID 3.46"	D0036658	EM6 5/8
CB5	OD 176 / ID 119	OD 7" / ID 4.68"	D0036816	EM8 5/8



## Core Catchers

Core catchers are specialised tools designed to retain the core inside the core barrel. We offer three different types, suitable for various geological formations and drilling conditions.

### Slurry sample catcher

The slurry sample catcher is standard delivered with 3 thicknesses of rubber, so you can choose the correct rubber for the situation.

Suitable for:	Slurry material with high water content
Can be used in combination with:	All single wall core barrel bits

Size	Part number
CB3	D0027059
CB4	D0027166
CB6	D0034133



### Plastic core catcher

Versatile core catcher that can be used in a broad range of softer geologies.

Suitable for:	Silt, sand, wet clay, dry clay, gravel, and soapstone
Can be used in combination with:	All single wall core barrel bits

Size	Part number
CB3	0400323
CB4	D025409
CB4 1/2	0404556



### Stainless steel core catcher

A good option for tougher conditions and harder geologies.

Suitable for:	Soapstone, limestone, and schist
Can be used in combination with:	All single wall core barrel bits

Size	Part number
CB3	0500203
CB4	D0034576
CB6	0400602







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