

Rotary bits and drill string tools

2025





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Health and safety information

Safety is fundamental to us. Please make sure that you read and follow this information in order to stay within safety guidelines.

Safe work procedures

Appropriate personal protective equipment (PPE) should be worn when working with or around rotary tools or rock drilling.

These include:

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

Consider safety when planning your schedule. Take five minutes before the start of a task to consider the possible hazards. Perform a quick risk assessment. Plan and apply the appropriate control measures. Ensure that you have the correct resources to perform the task.



Routes of exposure

Grinding or heating hardmetal blanks or hardmetal products will produce dust or fumes with dangerous particles that can be inhaled or swallowed, or which might come in contact with the skin or eyes.

Acute toxicity

The dust is toxic by inhalation. Inhalation may cause irritation and inflammation in the airways. Skin contact can cause irritation and rash. Sensitized people may experience an allergic reaction.

Chronic toxicity

Repeated inhalation of aerosols containing cobalt may cause obstruction in the airways. Prolonged inhalation of increased concentrations may cause lung fibrosis or lung cancer. Cobalt is a potent skin sensitizer. Repeated or prolonged contact can cause sensitization.

Classification

Following hazard classification according to GHS/CLP applies to the hardmetal powder (3 % ≤ Co < 10 %):

- Acute Inhalation 3, H331: Toxic if inhaled
- Carcinogenicity 1B, H350i, May cause cancer by inhalation
- Repr. 2, H361f; Suspected of damaging fertility
- STOT RE 1, H372: Causes damage to lungs through prolonged or repeated exposure through inhalation
- Resp. Sens. 1B, H334 : May cause allergy or asthma symptoms or breathing difficulties if inhaled
- Skin Sens.1, H317: May cause an allergic skin reaction.
- Aquatic Acute 1, H400: Very toxic to aquatic life
- Aquatic Chronic 2, H411: Toxic to aquatic life, with long lasting effects.

Precautionary statements

- Do not breathe the dust
- Wear protective gloves/protective clothing/eye protection
- In case of inadequate ventilation, wear respiratory protection
- Avoid release into the environment

If inhaled and breathing is difficult, please move exposed person to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms, call emergency center immediately.

Disassembly of tools

- Ensure that products are cooled down before disassembling
- Never work on hot parts
- Always wear the appropriate hand protection (gloves) when handling warm parts

Cleaning of rods

A particular hazard exists with cleaning rods if the rods contain explosives. Sandvik rock tools should never be used in a hole that has been filled with explosives.

Dealing with worn parts

Worn parts should be removed and disposed of appropriately. Always recycle used rock tools. Please contact your local Sandvik representative for support and further information regarding the recycling process.

Storing

All products should be stored in a dry place and in their original packaging until they are required for use.

General

The products in this catalog are designed for drilling holes in rock, and should only be used for this purpose.



Rock Tools: a sustainable choice

Within Rock Tools, we are committed to driving real, meaningful change when it comes to sustainability. With the Our Way Report, we capture our journey, progress, and priorities as we work to support a more sustainable mining industry. The report highlights how we are contributing to Sandvik's overall sustainability goals within three key areas: sustainable solutions, net zero and circularity.



An honest sustainability story

We believe that accountability begins with transparency. That is why we publish the Our Way Report, a clear account of our progress toward a more sustainable business.

It not only outlines the actual results we have achieved - such as reduced emissions, increased recycling rates, and product innovations, but also highlights key initiatives we are driving across the organization to take further steps toward net zero.

The report is both a reflection of where we stand today and a roadmap for what lies ahead. It is our way of turning ambition into measurable action.

Learn more about our sustainability work
and read our full sustainability report online.



Experience the calmness of recycling

Few dispute the fact that we need to change the way we operate to further reduce our impact on the planet. We know that small streams make great rivers – and when working together, we make a difference. With our Rock Tools Recycling Program, we support a secure source of scarce minerals, lower the environmental impact and reduce waste.

Recycling included

Doing the right thing should be easy. That is why our carbide recycling program is now included with all our carbide rock tools. It is completely free – you even get paid for the collected minerals.

Experience the calming effects of recycling, while you know that your worn-out rock tools will be taken care of.

For the future

Carbide rock tools contain tungsten – a scarce and finite mineral expected to run out in 40 to 100 years. With our Recycling Program, we build circularity. It guarantees the production of premium tools that you can use again, and again, and again – today and in the future.



Rock Tools carbide recycling

How does it work?

We provide containers for your site in which you place your worn-out carbide tools. The worn-out tools are regularly collected, and when the inserts have been removed, they are transported to our ISO certified factory, where the cemented carbide is recycled and brought back into production of new carbide rock tools.*

This is one important action of making sure that raw materials are used in an efficient and sustainable way, and that our products are recycled when they reach end-of-life.

*Please contact your local Sandvik representative for specific terms and conditions for your local market.





Rock Tools services

Rock Tools Contract Services

Sandvik is a world-leader in the supply of mining and rock excavation tools and equipment. In addition to supplying your operation with the premium brand of rock tools, our range of added services and digital solutions support your drilling operations, everyday – all year round. And we can also take full responsibility for the supply and life cycle management of your tools with our Rock Tools Contract Services. Overall, we do everything we can to ensure you get maximum life, productivity and performance from your rock tools, so that you can achieve the lowest total drilling costs. With Sandvik Rock Tools services, you will never work alone.

Environment, health and safety

Inventory Management

Product support

Training/product knowledge

Product optimization

Reporting and data analysis

Contract services



Sandvik a total solution provider

More than just tools

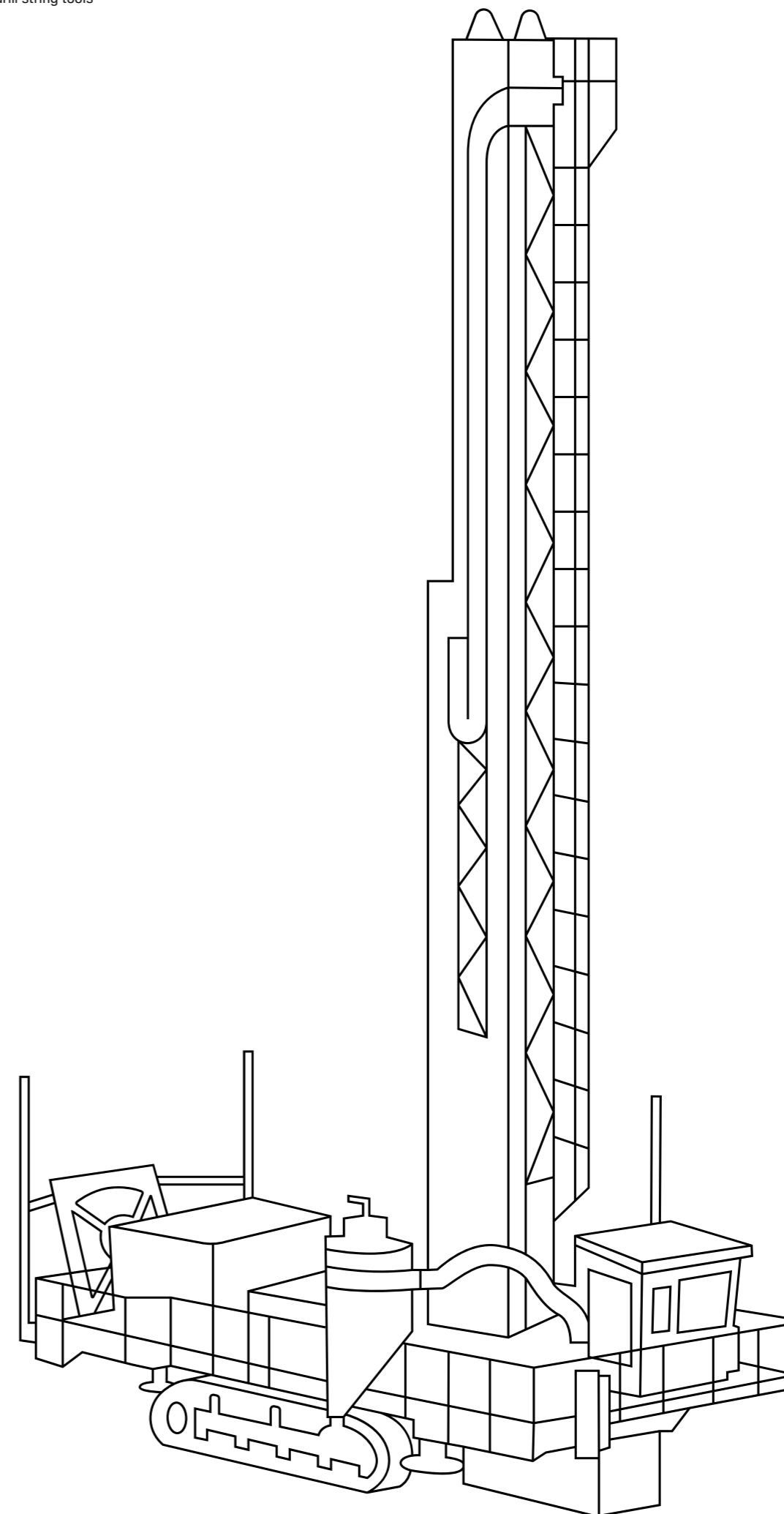
We pride ourselves on being your total solutions provider and preferred partner of choice. In line with this value, our high performance drilling tools provide longer life and the lowest overall operating costs. Great performing products backed by our global reach of experienced and dedicated personnel make us the natural choice as your drilling solutions provider.

We offer a variety of services designed to improve your drilling process. These include:

- Drilling performance audits and recommendations
- On-site support and services
- Drill rig audits including air, weight and rotation speed measurement
- Product selection and a staged plan of product development and improvement
- Dull bit evaluation
- Classroom training
- Performance feedback
- Digital services

We are pleased to offer customers on site support including training for the appropriate use of all our products for your application.

When you purchase our products you receive much more than a drill bit or a drill string tool. The Sandvik experience includes service and support during and after the sale. Although we have a global footprint, our service is local by design. Our sales and product specialists are stationed in your communities to understand your needs and deliver solutions efficiently and responsively. Your local Sandvik team is supported by applications engineers / drillmasters who work together with a focus to improve your drilling operation.

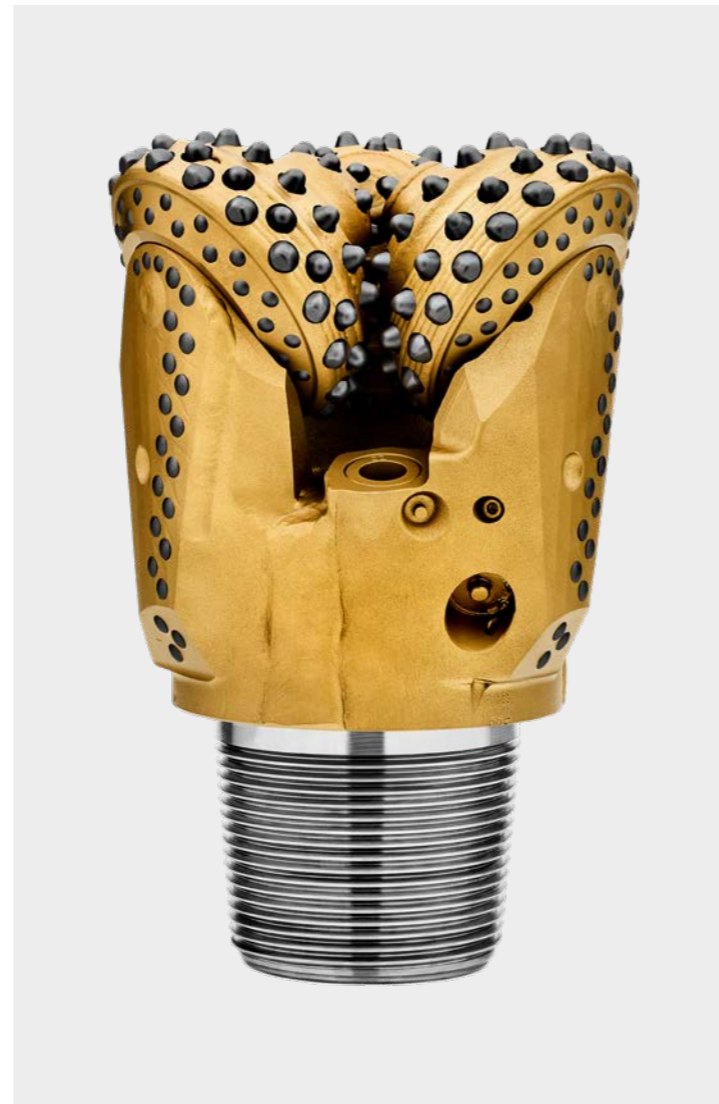


Rotary drill bits offering

Our bits are built for rock breaking. Choosing the correct drill bit is fundamental to successful and economical drilling. Important factors to consider include the rock compressive strength, abrasiveness, homogeneity, the desired penetration rate, the capabilities and characteristics of the drill rig, and previous drilling experience at the mine.

Sandvik roller cone bits are optimized for service life at the maximum possible penetration rate for the drilling conditions.

Carbide insert grade, shape and size, and cutting structure designs are selected to achieve the optimal balance between productivity and bit life. There is never a compromise on quality. To achieve long life, the bearings must withstand the high axial and radial forces that are generated during drilling. The bearing design, geometry and material selection are critical factors that go into the development of new bits.



RR240 air-bearing bit



Air-bearing technology

Innovative air bearing technology is optimized for high hours and maximum durability by using advanced materials and metallurgy. This yields higher load capacity, longer bit life, and lower cost per meter drilled.

RR240 air-bearing



RR240 air-bearing bit

Our RR240 product line has evolved into one of the best performing air bearing bits in the surface mining industry. Specific designs have been improved with updated features to maximize bit life and operational penetration rates in challenging environments. A longer bit life means fewer bits to recycle, fewer bit changes and manual handling, and less risk of injuries. It is safer, more cost-effective for you, and better for our environment.

RR240 availability selection chart

Bit size mm	inch	Approx. wt. kg / lb	Cutting structure type									
			X05	X10	X20	X30	X40	X47	X50	X55	X60	X70
159	6 1/4	4 / 9	●				●					
171	6 3/4	4 / 9	●	●		●			●			●
200	7 7/8	35 / 77	●	●		●	●				●	
216	8 1/2	36 / 79				●			●			
229	9	43 / 95	●	●		●		●			●	
251	9 7/8	63 / 139		●		●	●	●	●		●	
270	10 5/8	70 / 154	●		●	●	●	●			●	
279	11	75 / 165							●			
311	12 1/4	102 / 225				●	●			●	●	
349	13 3/4	133 / 294					●		●			

Note: PowerCarbide® available on selected models and we are continually adding new bit sizes and types to our product line, please consult with your Sandvik representative for the most current offerings.

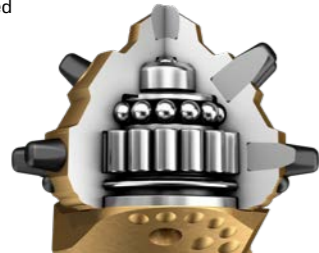
RR340 single-sealed bearing bit



RR340 single-sealed bearing bit

The RR340 premium single-sealed roller bearing bit is designed for challenging ground conditions. You get great drilling performance also in wet and abrasive formations of medium or hard rock. The innovative technology behind the product, combined with optional PowerCarbide® inserts ensure reliable and efficient drilling with 45% longer service life compared to standard air bearing bits, as well as lower total drilling costs. When drilling for the perfect blast, the RR340 rotary bit simply works.

RR340 single-sealed roller bearing



Single-sealed technology

With industry-leading technology taken from our advanced Charger® bit range, combined with an updated roller bearing design - including for example high load bearing grease, abrasive resistant radial seal, low friction bearing as well as precision manufacturing - the RR340 single-sealed bearing bit offers higher hours and superior bit life in a range of drilling applications.

Charger® RR440 drill bit



Charger® RR440 drill bit

For over 20 years, Charger® RR440 rotary bit has been the benchmark of the mining industry. It is powered by the proven Charger® bearing technology, with cutting structure improvements and feature optimization to maximize performance in the most challenging drilling applications.

Dual-seal bearing technology

The innovative QX2 bearing uses “dual seal” technology combined with pinodal bearing sleeves to dramatically increase weight and rotation speed capacities. Kevlar™ coated excluder seal protects the primary seal from cuttings and debris, making this system virtually bulletproof. The QX2 bearing delivers class leading bearing performance, allowing drillers to apply more weight and drill faster, lowering your total drilling costs.

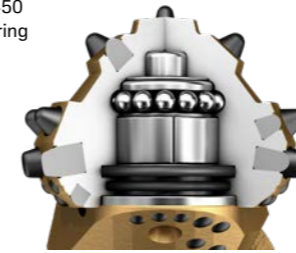
Charger® RR450 drill bit



Charger® RR450 drill bit

Introducing the next generation in rotary drilling - the Charger® RR450 rotary drill bit with PowerCarbide® SH75. Designed to maximize your uptime and put all other bits on the market to the test.

Charger® RR440/450 sealed journal bearing

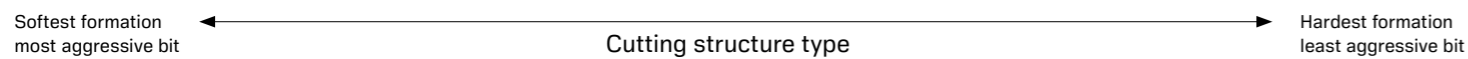


Advanced journal bearing technology

Charger® RR450 features an industry-leading bearing system for maximum drill hours and superior durability. We have built in the Charger® RR440 platform by incorporating CSD* optimized design features, and introducing unique extreme cone hard metal protection which protects the cone steel between the inserts - preventing cone erosion and reducing insert loss. These features, when combine with our unique PowerCarbide® SH75 allow us to make the best drill bit in the industry even better. With Charger® RR450 bits you can drill further, faster, smoother and more cost effectively than ever before.

*(Cutting Structure Development)

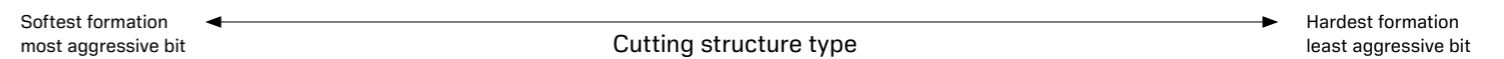
RR340 availability selection chart



Bit size mm	inch	Approx. wt. kg / lb	Cutting structure type						
			S04	S20	S30	S40	S47	S50	S60
171	6 3/4	4 / 9			●				
200	7 7/8	35 / 77	●		●				
229	9	43 / 95	●	●	●		●		●
251	9 7/8	63 / 139			●	●			●
270	10 5/8	70 / 154			●		●		●
311	12 1/4	102 / 225				●	●		●

Note: PowerCarbide® available on selected models and we are continually adding new bit sizes and types to our product line, please consult with your Sandvik representative for the most current offerings.

Charger® RR440/450 availability selection chart



Bit size mm	inch	Approx. wt. kg / lb	Cutting structure type												
			04QX2	07QX2	17QX2	20QX2	30QX2	35QX2	39QX2	40QX2	45QX2	50QX2	55QX2	60QX2	
200	7 7/8	35 / 77			●										
229	9	43 / 95	●	●		●				●●				●	
251	9 7/8	60 / 132		●			●	●	●		●		●●	●	
270	10 5/8	70 / 154			●		●		●	●●	●			●	
311	12 1/4	97 / 214							●	●●	●	●	●	●	

Note: PowerCarbide® available on selected models and we are continually adding new bit sizes and types to our product line, please consult with your Sandvik representative for the most current offerings.

Charger® RR440 ●
Charger® RR450 ●



Performance at the highest level

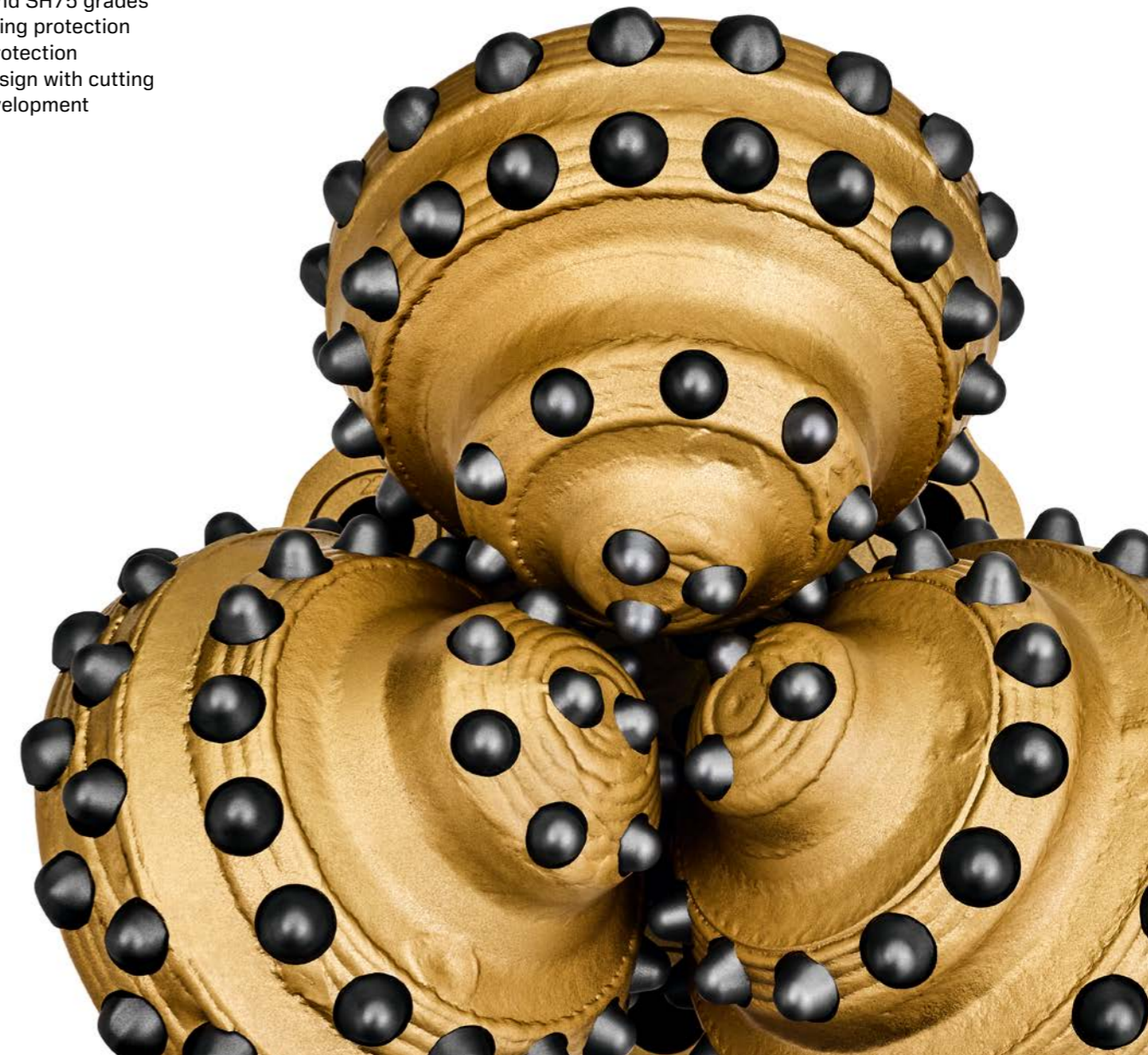
Charger[®] RR450 bit

Introducing the next generation in rotary drilling: Charger[®] RR450 rotary drill bit with PowerCarbide[®] SH75. Designed to maximize your uptime and put all other bits on the market to the test.

Charger[®] RR450 drill bit has a wear life to match its advanced bearing system. Adding cone steel protection, combined with optimized design, make this the most durable bit on the market today. With PowerCarbide[®] SH75 grades, you get superior wear resistance in hard or abrasive rock compared with conventional carbide grades - extending bit life and reducing the need for bit changes.

Key features

- Industry-leading journal bearing
- Innovative PowerCarbide[®] technology and SH75 grades
- Improved coring protection
- Cone steel protection
- Optimized design with cutting structure development



Benefits by application

Interior row inserts

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



	RR240	RR340	Charger® RR440	Charger® RR450
Chisel TCI (tungsten carbide insert) provides durability and faster cutting action for soft and medium-soft formations.	●	●	●	●
Sculptured inserts increase the strength by increasing cross-sectional area and by eliminating sharp edges that cause stress risers which can lead to insert breakage. Ideal for soft and medium-soft formations.			●	●
Tough conical top inserts in hard rock formations and abrasive rock conditions have a geometrical shape that optimizes both strength and wear resistance.	●	●	●	●

Gage row inserts

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



	RR240	RR340	Charger® RR440	Charger® RR450
The chisel gage insert performs well in soft homogenous drilling conditions.	●	●	●	●
Radial bow chisel is a good choice in soft to medium-soft formations.	●	●	●	●
The crest geometry of QX gage inserts present a large cross-sectional area to the rock, creating large bottom-hole craters at the bit gage maximizing life and penetration rates.			●	●
The SWIC shape coupled with proprietary TCI grades increases gage contact in medium hard abrasive drilling conditions.	●	●	●	●
Conical inserts offer both strength and wear resistance in hard, abrasive rock.	●	●	●	●

Trucut gage cutting technology

An advanced system approach to cutting the gage and hole wall corner, designed to minimize fatigue, heat-checking-induced breakage, and insert wear. Utilizes semi-round top inserts on gage, alternating with Sculptured QX off-gage inserts.



	RR240	RR340	Charger® RR440	Charger® RR450
Trucut gage cutting technology			●	●

Heel row cutting and reaming technology

A range of heel row configurations are available depending on the bit design and application. These reduce gage wear and extend bit life.

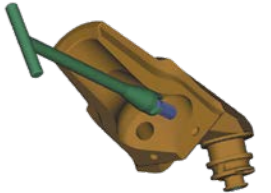


Standard Shotgunned Dual heel row

	RR240	RR340	Charger® RR440	Charger® RR450
Standard	●	●	●	●
Shotgunned	●	●	●	●
Dual heel	●	●	●	●

Removable air tubes

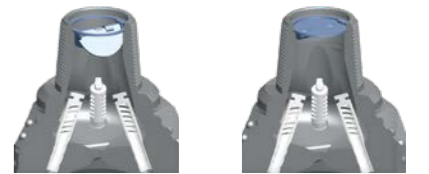
Non-metallic removable air tubes allow cleaning of formation from the air passages, if needed. This extends bit life and reduces costs.



	RR240	RR340	Charger® RR440	Charger® RR450
Non-metallic removable air tubes	●	●	●	●

Backflow valves

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

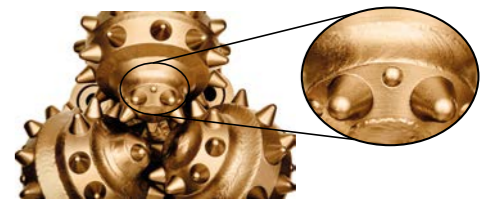


Open backflow valve Closed backflow valve

	RR240	RR340	Charger® RR440	Charger® RR450
Backflow valve	●	●	●	●

Coring protection

Coring protection solutions are tailored to bit and application needs to reduce steel wash and extend bit life.



	RR240	RR340	Charger® RR440	Charger® RR450
Standard and product specific coring protection design to minimize cone steel wear and extend bit life	●	●	●	●
Heavy duty high count core protection inserts are used to limit steel wash and extend cone steel life in extreme wear applications.	●	●	●	●

Leg and shirtail protection

Leg protection can be customized to drilling conditions, extending bit life and increase your productivity. 3/3 leg protection is designed for drilling wet and or dirty hole conditions where unstable hole conditions require backreaming.



	RR240	RR340	Charger® RR440	Charger® RR450
Full 3/3 leg protection for maximum wear life and product performance in all applications	●	●	●	●

Asymmetric leg design

Asymmetrical design of leg forgings protects the key bit components and allows for improved bailing of drill cuttings. Combined with the preferential orientation of the nozzles, results in highly efficient bottom hole cleaning, increasing your bit life and penetration rates.



	RR240	RR340	Charger® RR440	Charger® RR450
Optimized leg design	●	●	●	●

Pin vent pressure compensation system

The pin vent pressure compensation system equalizes the internal bit pressure and external ambient pressure to prevent the ingress of cuttings and loss of lubricant. This optimizes seal life, extends bit life, and reduces your downtime.



	RR240	RR340	Charger® RR440	Charger® RR450
Pin vent pressure compensation system			●	●

Hard faced heel row

On selected products, mainly for softer applications, a new hard faced heel row configuration is used. This feature provides superior wear resistance in softer but abrasive applications. It is especially effective in rock types where heel row insert loss is primary failure mode.



	RR240	RR340	Charger® RR440	Charger® RR450
Hard faced heel row	●	●	●	●

Jet nozzles

Nozzles are used to regulate air flow, directing sufficient air to the bearings, while ensuring good bottom hole cleaning and an acceptable bailing velocity for the drilling environment. With correct nozzle selection, about 30 % of the air will be directed to the bearings (air bearing bits only) with the remainder used for hole cleaning. To achieve this, Sandvik recommends that the internal air pressure should be between 35–40 PSI in all our rotary bits.



	RR240	RR440	Charger® RR440	Charger® RR450
Optimized nozzle design & location	●	●	●	●

Advanced cone steel protections

Industry leading, patent-pending, precision applied cone steel protection covering the surface of the cone between each insert. This protection reduces cone steel erosion and increases insert retention, and thereby maximizing bit life and penetration rates, especially in abrasive applications.



	RR240	RR440	Charger® RR440	Charger® RR450
Advanced cone steel protection				●

Bit thread connection options

Rotary bit sizes are supplied with a default thread type which is size dependent and consistent globally. Sandvik also supplies key bits with an alternative BECO thread option when required.

Bit size mm	inch	Standard pin connection	Alternative pin connection*
159	6 ¼	3 ½" API	n/a
171	6 ¾	3 ½" API	n/a
187	7 ⅜	3 ½" API	n/a
200	7 ⅞	4 ½" API	4 ½" BECO
216	8 ½	4 ½" API	n/a
229	9	4 ½" API	4 ½" BECO
251	9 ⅞	6 ⅝" API	6" BECO
270	10 ⅝	6 ⅝" API	6" BECO
311	12 ¼	6 ⅝" API	6" BECO
349	13 ¾	6 ⅝" API	6" BECO

* Alternative pin connection options are only available on selected bits. Consult with your Sandvik representative for further details.

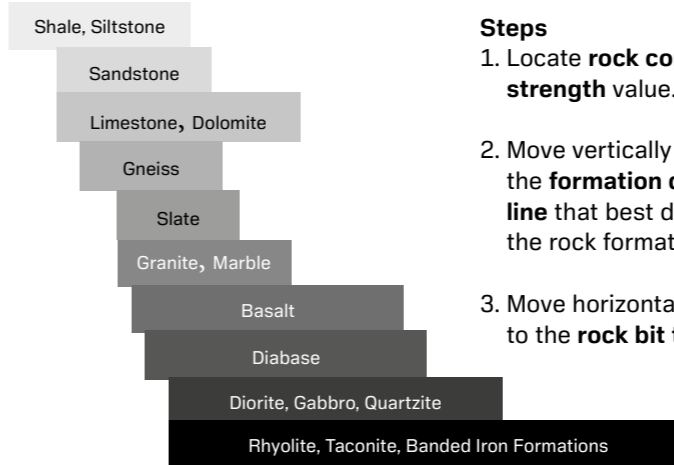


Single seal. Simply works.

RR340 rotary bit



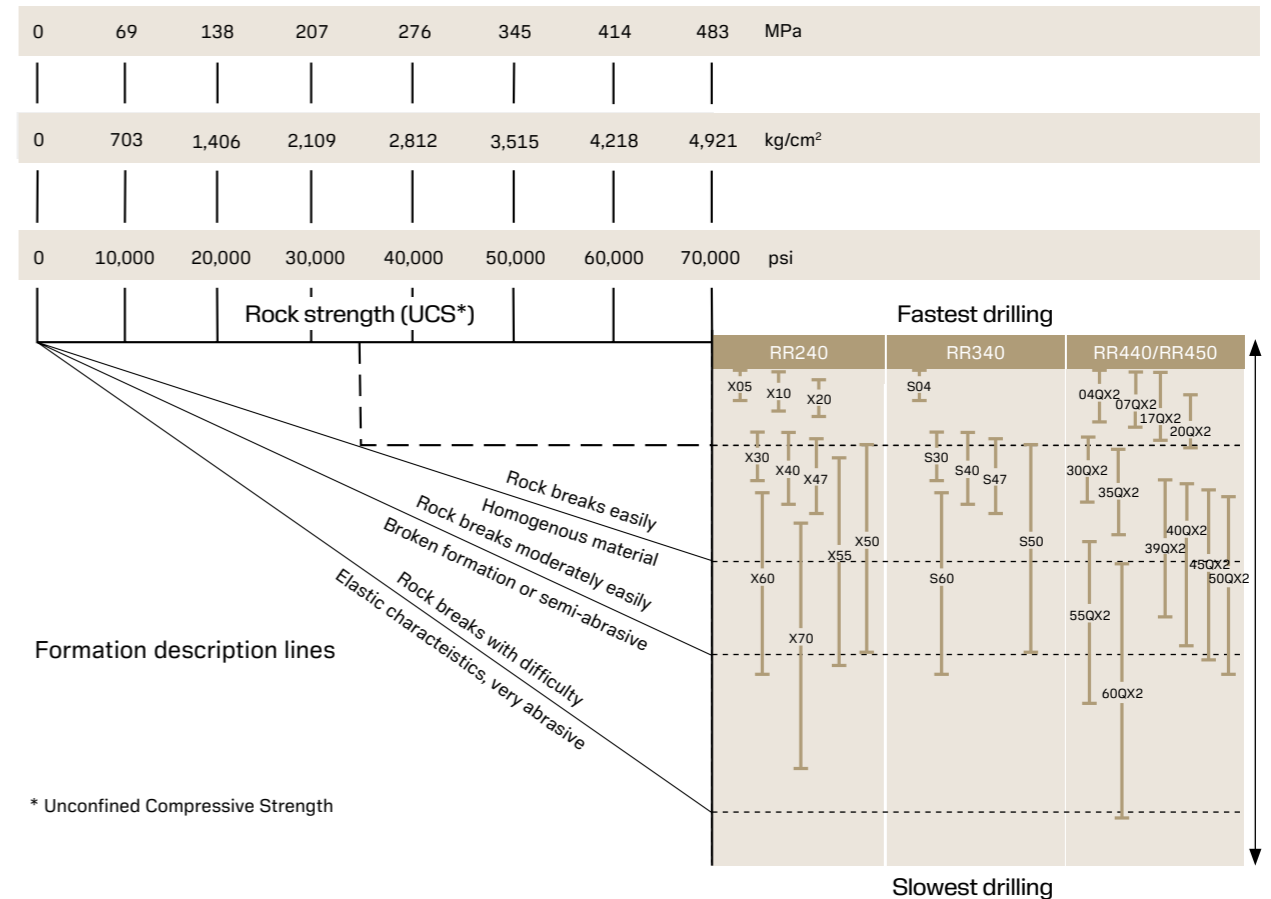
Cutting structure selection guide



- Steps**
1. Locate **rock compressive strength** value.
 2. Move vertically down to the **formation description line** that best describes the rock formation.
 3. Move horizontally across to the **rock bit type**.

Note
For faster drilling, use the next smaller bit number. If insert breakage is encountered, use the next larger bit number.

Example
Rock compressive strength 35,000 pounds per square inch and rock breaks easily – an S40s rock bit type is the best first selection.



Bit guidelines

RR240 and RR340

Weight-on-bit and rotation speed*

Bit size mm (inches)	WOB/RPM	X05/S05	X07/S07	X10/S10	S15/S17	X20/S20
171 - 187 (6 3/4" - 7 3/8")	lb (1 000's)	4 - 16		8 - 16		
	tons	2 - 7		4 - 7		
	rpm	80 - 180		80 - 160		
200 - 229 (7 7/8" - 9")	lb (1 000's)	8 - 16	8 - 16	10 - 24	12 - 33	12 - 33
	tons	4 - 7	4 - 7	5 - 11	5 - 15	6 - 15
	rpm	90 - 180	90 - 160	80 - 150	80 - 150	80 - 150
251 (9 7/8")	lb (1 000's)	8 - 20	10 - 24	13 - 27	13 - 33	18 - 45
	tons	4 - 10	5 - 11	6 - 12	6 - 15	8 - 21
	rpm	90 - 180	80 - 160	80 - 150	80 - 140	80 - 130
270 (10 5/8")	lb (1 000's)	8 - 20		13 - 27	13 - 33	18 - 45
	tons	4 - 10		6 - 12	6 - 15	8 - 21
	rpm	90 - 180		80 - 150	80 - 140	80 - 130
311 (12 1/4")	lb (1 000's)			15 - 38		20 - 70
	tons			7 - 17		9 - 31
	rpm			80 - 150		70 - 120
349 (13 3/4")	lb (1 000's)					
	tons					
	rpm					

X30/S30	X40/S40	X47/S47	X50/S50	X60/S60	X70
10 - 33		12 - 42	12 - 42		20 - 45
5 - 15		5 - 19	5 - 19		9 - 21
75 - 120		60 - 110	60 - 110		60 - 100
16 - 35	20 - 40	20 - 40	20 - 50	25 - 55	25 - 55
7 - 16	9 - 18	9 - 18	9 - 23	11 - 25	11 - 25
75 - 120	70 - 110	60 - 110	60 - 110	60 - 100	60 - 100
18 - 50	20 - 55		25 - 75	25 - 75	25 - 80
8 - 23	9 - 25		11 - 34	11 - 34	11 - 36
75 - 120	60 - 110		60 - 90	60 - 90	60 - 90
18 - 50	25 - 60	30 - 80		25 - 85	
8 - 23	11 - 27	14 - 36		11 - 39	
75 - 120	60 - 110	60 - 100		60 - 90	
25 - 75	27 - 85		40 - 95	40 - 110	
11 - 34	12 - 38		18 - 50	18 - 50	
70 - 120	60 - 110		60 - 90	60 - 90	
23 - 80	30 - 90		40 - 110	50 - 120	
10 - 36	14 - 40		18 - 50	23 - 54	
70 - 120	60 - 110		60 - 90	50 - 85	

* Consult with your Sandvik representative for the best operating parameters for your site conditions. Legacy products have been included for customer reference.

Bit guidelines Charger[®] RR440 and RR450

Weight-on-bit and rotation speed*

Bit size mm (inches)	WOB/RPM	07QX2	17QX2	20QX2	25QX2
171 to 187 (6 3/4" - 7 3/8")	lb (1 000's)				
	tons				
	rpm				
200 to 229 (7 7/8" - 9")	lb (1 000's)	9 - 30		14 - 37	14 - 39
	tons	4 - 14		6 - 17	6 - 18
	rpm	90 - 160		80 - 150	80 - 130
251 to 270 (9 7/8" - 10 5/8")	lb (1 000's)	14 - 37	20 - 50		20 - 55
	tons	6 - 17	9 - 22		9 - 25
	rpm	80 - 160	80 - 150		80 - 130
311 (12 1/4")	lb (1 000's)				
	tons				
	rpm				
349 (13 3/4")	lb (1 000's)				
	tons				
	rpm				

30QX2	35QX2	37QX2	39QX2	40QX2	45QX2	50QX2	60QX2
10 - 40						18 - 47	
4 - 18						8 - 21	
75 - 120						60 - 110	
			20 - 50	20 - 50			20 - 65
			9 - 23	9 - 23			9 - 30
			60 - 120	60 - 120			60 - 100
20 - 60	25 - 70		25 - 75	30 - 85		35 - 85	40 - 95
9 - 27	11 - 31		11 - 34	14 - 38		16 - 38	18 - 43
70 - 120	70 - 120		65 - 110	65 - 100		60 - 100	60 - 90
25 - 75		27 - 85	30 - 95	30 - 100	30 - 100	40 - 110	50 - 120
11 - 34		12 - 38	14 - 43	14 - 44	14 - 44	18 - 50	23 - 54
75 - 125		70 - 120	65 - 110	60 - 110	60 - 110	60 - 90	60 - 90
	25 - 85				30 - 100	40 - 110	
	11 - 38				14 - 44	18 - 50	
	70 - 120				60 - 110	60 - 90	

* Consult with your Sandvik representative for the best operating parameters for your site conditions. Legacy products have been included for customer reference.

The right drill string for all your needs

Engineered for efficiency

Our rotary drill string products and services maximize productivity and minimize operating costs. Longer tool service life means less downtime for you.

High performance for application excellence

Our high-performance drill string components withstand extreme torsional and axial loads, efficiently handling the hard rock and abrasive formations in surface mines.

We offer:

- Extensive in-house engineering expertise
- Leading technology and intellectual property developments
- State-of-the-art manufacturing with premium quality materials
- Certified quality process with rigorous product testing
- Efficient and reliable delivery times
- A thorough understanding of drilling and applications

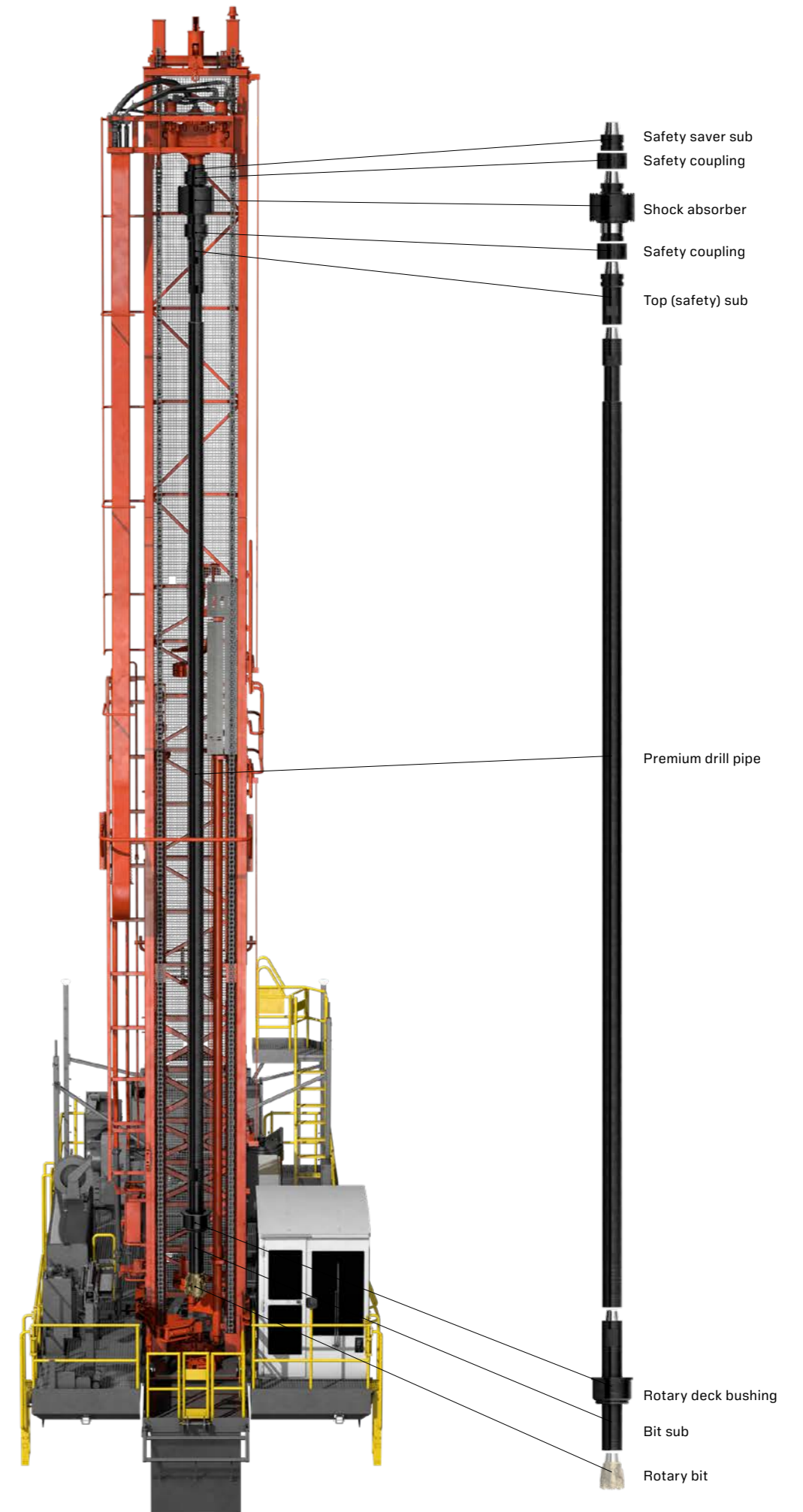
High quality assurance standards

Our Quality Assurance program is committed to maintaining the highest standards in our manufacturing process, delivering only superior products.

- Stringent material specifications and verification
- Welding process control and ultrasonic weld inspection
- Precise pipe straightness specifications and verification
- Thorough inspections and product testing by highly skilled product specialists
- Raw material traceability

Materials and reliability testing

Our engineers are industry-leading materials experts who excel in the science of maximizing product reliability at materials and reliability labs in key locations around the world.





RP550 shock absorber



Reduce the impact of your drilling

With RP550 shock absorber, your Rotary or Down-The-Hole drilling tools will have longer service life, lower cost per meter and - thanks to the industry-leading design features - greatly improved safety.

The shock absorber plays a crucial role in your drilling operations. By reducing shock and vibration, it saves the drill rigs rotary head, enhances performance and provides a much smoother drilling operation. The revolutionary and maintenance free design of RP550 shock absorber also features a safety coupling that securely locks the thread connection, significantly enhancing more safe handling compared to other shock absorbers on the market.

Maximum value and improved safety

- Absorbs shock up to 85%
- Floating cushion for vibration reduction - both axial and radial
- Safety coupling for locking connections and eliminating welding
- Reduce damage to rotary head, rig and drilling tools
- Evens out pressure on the drill bit
- Full seal and maintenance free - no greasing during operation
- Longer service life and fewer tool changes for safer handling
- Better CPM and overall drilling economy compared to drilling without shock absorber



Cut open image of RP550 shock absorber F100

High performance drill string tools

Sandvik drill pipe

Description

The drill pipe transmits extreme torsional and axial loads to the drilling tools. As it encounters various abrasive and hardness conditions, the drill pipe's durability and reliability are crucial to the drilling operation.

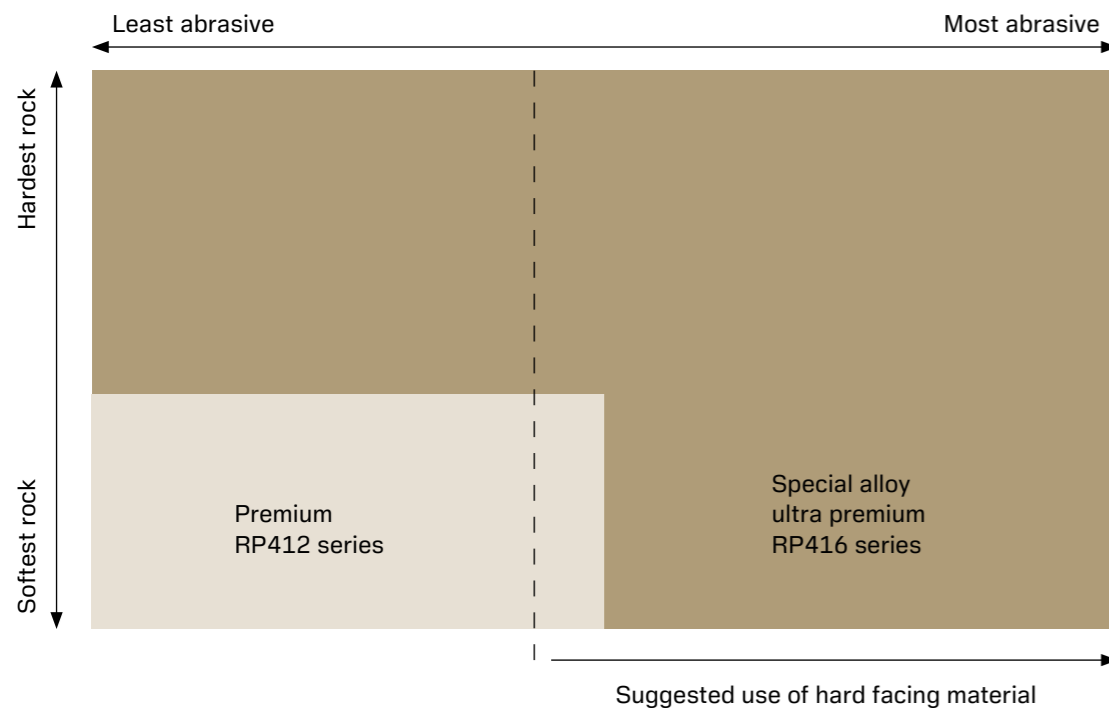
Benefits

- Complete product traceability
- Versatility in various pipe sizes
- Manufactured to the highest quality assurance standards
- Optimized combination of design, tube quality and hard facing materials
- Available in a variety of lengths



Drill pipe availability selection chart

This selection guide recommends pipe grades appropriate for various rock hardness and abrasiveness, and suggests conditions for applying optional hard facing material. Consult your Sandvik product specialist for specific recommendations for your drilling application.



Seamless tubing

Description

Sandvik drill pipe bodies are manufactured from an optimum combination of premium quality, heat-treated seamless tubing and hard facing material.

Benefits

- The best value grades for specific applications
- Available in a range of high quality material grades to optimize your applications

RP416 and RP412

Description

The RP416 series is designed for hard abrasive formations that cause the body of the pipe to wear out before the tool joints.

Sandvik RP412 series of premium grade pipes are typically required in non-abrasive formations, when the tool joint wears out before the pipe body.

Benefits

- RP416**
 - More durable than a standard, hot rolled, seamless carbon tube
 - Wear-resistant mid-body tube
 - Special heat-treated and quenched alloy
- RP412**
 - Premium wear quality
 - ST52 hotrolled, seamless carbon tube



Tool joints

Description

Sandvik tool joints are fitted to the tube body using a proprietary process that ensures concentricity and axial alignment.

Benefits

- Fast make-up of drill bit to pipe
- Better seating of threads due to accuracy of axial alignment
- Premium grade or modified heat-treated material for maximum wear resistance



Rotary subs and adapter

Description

Sandvik subs are used to connect the various components throughout the entire drill string, from the drill bit to the rotary head.

Benefits

- Optimum hard material wear protection on bit subs
- Hard face material in the 58 to 60 Rockwell C range
- Special alloy material
- Bit (bottom) subs, top (spindle) subs, cross-over subs, thread-saver subs available
- Changes from one thread form to another and reduce wear to component threads
- Hard facing available on all subs (option)



Stabilizers

Description

Sandvik RP424 welded blade stabilizers are used to stabilize and control hole deviation. It provides more reaming and cutting action than a bit sub. For maximum rate of penetration, partner the RP424 with Sandvik's roller cone bits.

Benefits

RP424

- Minimizes rough bores, spiral bores, ledges and crooked holes
- Faster bit performance reduces re-drill time
- Best for soft to medium formations in wet or dry conditions
- Integral welded blade design with no moving parts
- Specialized tungsten carbide pad design
- Specific gage tolerances optimize performance and extend bit life
- Wide selection for various hole and drill string sizes



Hard material wear protection (option)

Description

Hard material wear protection can be a cost-effective option when applied either radially or axially on the tool joints as well as the lower portion of the tube.

Benefits

- Better wear on tool joint
- Longer component life



Deck bushings

Description

Sandvik deck bushings run smoothly and provide extended, trouble-free operations. They centralize the drill pipe over the hole, prevent misalignment of the bit and drill string and extend the life of the bit and drill string. The RP432 static deck bushing is not suggested for use when rotary drilling.

Benefits

RP432

- Static and non-rotating with a solid body and no moving parts
- Replaceable wear sleeves tack-welded into place
- High alloy, heat treated materials provide longer service life
- Used when the drilling application is down-the-hole (DTH)
- Available for all makes and models of drill rigs

RP434

- Triple race ball bearing design ensures longer bearing life
- Transmits less vibration through the drill string to the rotary head
- Less torque and drill pipe diameter gouging and scraping
- Smooth and quiet drill cab atmosphere
- More cost effective than static bushings



Shock absorbers

Description

The shock absorber reduces drilling cost, increases efficiency and enhances performance by lowering your maintenance costs and giving smoother operating conditions. Its inner cushion pads eliminate blows, protect the bit and also prolong the service life of the rotary head.

Benefits

RP550 shock absorber

- Improves safety by fully sealed and maintenance free features
- Minimizes shock and vibration from the bottom of the hole and throughout the drill string.
- Provides rotary head and mast protection by reducing transfer of shock and vibration
- Reduces wear and damage to threaded connections
- Provides improved bottom hole contact between bit and rock drilled
- Increases drill string components and drill bit performance and life

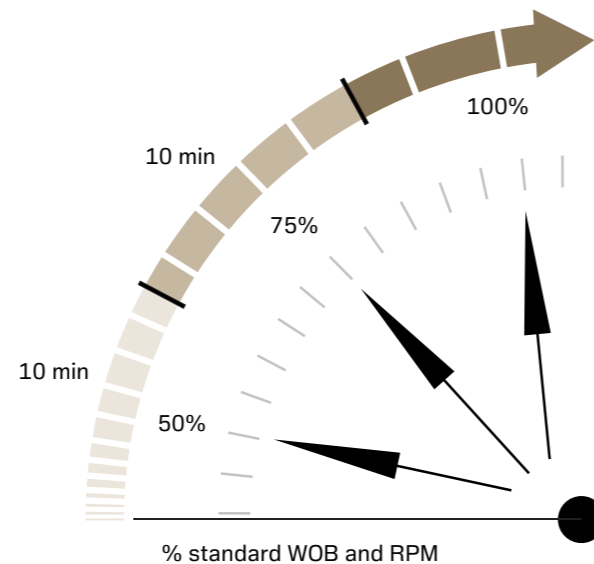


Performance tips

Start drilling with a new bit

All new drill bits should be broken-in at reduced weight and rotation speed, to ensure that all working surfaces are run-in and slightly work hardened prior to applying full operating load. In general, following these recommended guidelines should maximize bit life. Water use can reduce bit life by 66% compared with dry drilling.

1. Drill at 50% of normal weight and rotation for the first 10 minutes (or for the first rod in a multi-pass operation)
2. Continue by drilling at 75% of normal weight and rotation for the next 10 minutes (or second rod)
3. Finally, drill as normal (100%)



Best practice checklist for drill bits

1. Always make up and break out bits carefully.
2. Only grease the bottom third of bit or pipe threads.
3. Internal bit air pressure should be 35 - 40 PSI.
4. To collar or start a new hole, reduce down pressure and rotation speed.
5. Always switch on the bailing air before the bit starts drilling the hole and keep the air on until the bottom of the collar is reached.
6. Re-establish the bottom hole pattern with reduced down pressure and rotation when drilling is interrupted.
7. Never drill an old hole with a new bit. This can pinch the cones, damaging the bearings and prematurely destroying the bit.
8. As rock hardness increases, decrease rotary speed and increase down pressure.
9. In softer rock, use lower down pressure and higher rotary speeds.
10. Do not use more water than is necessary to control dust and maintain the hole wall condition.
11. Maintain rotation and bailing air while tripping into or out of a hole.
12. Near bit stabilization, deck centralizers, and shock subs can help bit life and drill longevity. Keep these tools in good condition to maximize performance and replace promptly when worn out.
13. Always clean, dry and lubricate a bit before an idle period and ensure the cones turn freely.
14. Before reusing a bit that has been idle, make sure all cones turn freely.
15. Bent drill steel will reduce drill bit life.
16. Record accurate drill data and note drilling issues. This information can be used to develop improved drilling tools.

Best practice checklist for drill string tools

1. Prior to installing new drill string parts, use compressed air to blow through the inner diameter (ID) to ensure it is free from debris and contamination.
2. Inspect the condition of threads and ensure they are lubricated with grease containing copper or molybdenum, which has anti-galling properties, to extend thread life.
3. Follow the thread break-in procedure: when coupling new threads, rotate them at a slow speed and check for any gaps between the threads. If a gap is observed, request inspection.
4. Check for any thread damage during the above process, as it may indicate a manufacturing issue. Replace any damaged thread parts immediately.
5. During servicing, conduct daily inspections for thread condition, cracks, bends, and leakages to ensure safe operations and prompt replacement when necessary.
6. Inspect the condition of deck bushings and discard them if too worn out. Worn deck bushings increase the risk of pipe bending and hole deviations.
7. For single pass drilling, it is advisable to uncouple threads at least twice a week to prevent over-torquing and avoid the need for heat (torch) usage later on.
8. When tramping over long distances, always stack pipes in the rig carousel to prevent thread cracks caused by possible bending due to their self-weight.
9. Use rod support while drilling on single pass rigs to prevent pipe bending and thread failures.
10. For multi-pass drilling, frequently inspect the thread condition on both the drill pipe and top sub. Damaged top subs often cause early thread wear on drill pipes. Replace worn-out or dull parts as needed.
11. Ensure correct rotary head alignment as part of the biweekly/monthly maintenance checklist.
12. Utilize the Sandvik provided thread gauge to inspect thread wear and determine if parts need replacing.
13. Keep grease away from the work platform to prevent contamination. Debris in the grease could damage the entire drill string.
14. Always grip pipes at solid joints or as per OEM recommendations to prevent weld or tube cracks.
15. Ensure the drill bit is fully pulled back above the deck before moving between holes.
16. Using shock absorbers reduces the load on gears and bearings, helping to protect the rotation unit over time.
17. A drill string operates on three-point support: good collaring, good deck bushing, and rod support help prevent most operational failures on drill string parts.



