



DTH TOOLS, PARTS AND KNOW-HOW FOR HASSLE-FREE DRILLING

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High power with low
fuel consumption.



Henrik Paues,
Application Specialist

DTH DRILLING – HERE'S THE LOW-DOWN

Drilling holes in the ground is never completely trouble free, as anyone who's worked with DTH knows. However well-prepared you are, there can always be surprises in store a few metres down.

Still, there's a lot you can do to make life easier. And we are committed to helping you. When it comes to drilling, we know what you're up against. That's why we put such a big focus on R&D, making hammers and bits better and better all the time. And that's also why service and support are top priorities for us.

What we do goes beyond advanced metals and high-tech products. It's about know-how. We've been working with DTH drilling for many years. We know the applications, we know the challenges, and we know how to get the best setup whatever the conditions.

So here's a bit of know-how for you right here and now. Instead of just printing a products and parts listing, we wanted to share some insight. The tips you'll find on these pages are things I've learned on job sites over the years. It's not rocket science, but then we're not building rockets. I hope they're a good starting point anyway.

Got questions or need ways to drill better? Call Sandvik and use our know-how.

Happy drilling!
Henrik Paues

THE ANSWER MAY BE CLOSER THAN YOU THINK

Avoid costly standstills and callouts! The operator instruction manual that comes with your equipment contains detailed information that will help you solve most issues quickly and easily.



HASSLE-FREE DRILLING STARTS WITH THE BASICS

Many potential problems in down-the-hole drilling can be avoided by taking care to get the basics right. It comes down to the right tools and settings for the conditions, and proper care of equipment. Here are my tips for drilling further without hassle.

RIGHT FACE

First off, choose the right face design for the type of rock and your drilling priorities (e.g. tool lifetime, penetration rate, etc). Flat face works well for most rock conditions and is especially good in fractured, fissured and mixed rock formations. Concave face is the most straightforward to operate and another good all-rounder, as well as being particularly suited to deep hole drilling with high accuracy. Convex face gives a high penetration rate in softer to medium-hard rock.

RIGHT BIT

One of the most important issues when it comes to bit selection is choosing a bit large enough to allow cuttings to get around the hammer and out of the hole. An undersized bit will slow you down, as well as creating backpressure that shortens the life of carbides.

It's also important to start with the right carbide, bearing in mind that the tougher compounds can extend the lifetime of the bit by 2-5 times depending on the conditions. XT48 works for most drilling conditions and should be the first choice if there's any uncertainty about the rock type. DP65 is the right choice for hard, abrasive conditions, and DP55 in ballistic configurations gives fastest overall drilling in softer to medium-rock.



Sandvik experts know the ground

RIGHT SETTINGS

Two of the biggest challenges in DTH drilling are feed pressure and rotation. To get feed pressure right, gradually increase until you reach maximum operating air pressure. You now have optimum feed pressure and do not need to increase further.

When it comes to rotation, it's all about finding the happy medium. Too slow and productivity suffers. Too fast and you get excessive carbide wear. But there's an easy way to find the right speed, using

just the air pressure gauge on the drill and a stopwatch! First, gradually accelerate until you get an increase in penetration rate. Continue until the penetration rate no longer increases. You have now reached optimal rotation speed.

Carbide wear gives a good clue to rotation. The wear should be centered. A worn leading edge indicates too high rotation speed. A worn trailing edge indicates the speed is too low.



QUARRYING: THE RIGHT SETUP IS EVERYTHING

Holes are relatively shallow in quarrying applications, and accuracy is essential. That demands a good setup. The drill needs to be centered, with the correct angle as required by the drill and blast program. Build the hole for the first few feet so it stays open and nothing falls in. Stock the hole with water injection to build a collar. Once you reach competent ground, you can go to full feed pressure, air pressure and rotation.

If you're using multiple drill rods, cover the lower rod when adding a new one to keep contamination out of the hammer.

CONSTRUCTION: SIZE REALLY DOES MATTER

In construction applications, the holes can be anything from 3 inches to 30 inches. The most common error is trying to drill too big a hole for the hammer. A 6 inch hammer is good from 6.25 inches to about 8 inches. Above that, you need a larger diameter hammer. Using a bit that's too big for the hammer results in bit failure, slow production, and a lot of frustration.

A great many of the drilling stoppages on construction sites are due to running out of fuel, oil or water. Always do a walk-around and check supplies before turning the drill on.

WELL DRILLING: NOT ALL ROCK DRILL OILS ARE THE SAME

One of the big problems here is the use of cheap lubricants that don't meet the specification for rock drill oil. Make sure whatever you're injecting into the airstream is what your manufacturer recommends. The requirements are determined by ambient temperature and operating air temperature.

Another key factor is the water injected. This needs to be neutral or somewhat alkaline in order to prevent corrosion. When the hole is finished, flush the hammer out with clean air and lubricate all parts to maximize lifetime. After-drilling maintenance is critical for deep-hole applications.



TAKE 5 MINUTES

Take five minutes before starting any task to consider any potential hazards. Check you have everything you need to do the job. Then do a quick risk assessment and decide what control measures are needed. Use this simple checklist:

- **WHAT** am I doing?
- **WHY** am I doing it?
- **WHAT** could go wrong? Am I familiar with this task? Is my equipment/tooling up to standard and safe?
- **HOW** could this affect me and others? Identify the hazards.
- **WHAT** can I do about it?

NIBU BORR

Swedish well driller Nibu Borr depends on the quality of its equipment – and the knowledge of its supplier. The RH460 hammer, and Nibu's partnership with Sandvik, has lifted performance.



OKIE DRILLING

Despite tough times, Okie Drilling in Oklahoma has had eight years of continuous growth. Okie believes it's down to the service focus of their people, combined with Sandvik Construction's products and services.



BUILDING ISTANBUL'S WALL STREET

A new financial district is being constructed in vibrant Istanbul: the Istanbul International Finance Center. The US\$2.6 billion development covers a 70 hectare site and is scheduled for completion in 2016. The Sandvik RH460 hammer is making its mark on the project.

Terra Zemin, a long-time Sandvik Construction customer, has been

contracted for part of the foundation drilling. The company opted to use the RH460, and the results have been little short of astonishing.

Fuel consumption was reduced by more than 50% compared to Terra Zemin's previous hammer – 0.88 litres per minute compared to 1.81 litres per minute.

The RH460 also gave a 10% higher penetration rate.

www.construction.sandvik.com

SIZE

4.2 million m²

COST

US\$2.6 billion

PLAN

Four districts focusing on culture, commerce, civic functions and governance.

LOCATION

Between Ataşehir and Ümraniye districts, close to Istanbul's historic centre.

INFRASTRUCTURE CHANGES

Transportation system incl. new subway line and station. Sustainable power, water, data and security.

SCHEDULED FOR COMPLETION

Late 2016



EXTENDING LIFETIME

Our DTH hammers and tools are designed to give an outstanding service life. Give them proper care and they will still be going when others have long given up.

HAMMER MAINTENANCE

Maintaining a hammer requires strict attention to safety due to the size and weight of the equipment and its parts. Remember also that even this tough piece of equipment can be irreversibly damaged by bad maintenance practices.

- It is important to read the safety procedures in the operator's manual before assembling/disassembling the hammer.
- Always keep the hammer in the proper position to avoid heavy parts falling out.
- Use a proper assembly stand to ensure the hammer and its parts do not fall or roll over.
- Always use tongs with jaws that place a uniform load on the outside diameter of the hammer.
- Never grip the hammer with pipe wrenches or other wrenches that could deform or damage the hammer.
- Always place tongs on the body of the bit, not on the carbides.
- Do not apply heat to the piston case to remove the driver sub or the top sub.

STORING

Never allow a hammer and bit to remain overnight in a hole that contains water or mud. The corrosive action caused by these conditions may seriously damage the hammer. Follow these points to protect components from rust and ensure the hammer is always ready for use.

- Disassemble the hammer completely.
- Thoroughly clean and repair all components.
- Reassemble the hammer immediately keeping joints loose.
- Coat the entire hammer inside diameter with a light film of rock drill oil. Coat all the threads with thread grease.
- Install thread protectors.
- Seal each end of the hammer to keep dirt and dust out.
- Always store the hammer in a suitable protective container in a dry location.
- Grease the bit shank.
- Place a protective cover on the bit to prevent foot valve breakage.
- Always store the bit in a dry location.
- Before storing the hammer overnight or over a weekend, clean the hammer by blowing lubricated air through the system and insert rock drill oil into top sub. Push the check valve dart open with rounded end drift pin to ensure the oil inlet to the hammer.

ACCESSORIES FOR SMOOTHER WORKING

Sandvik has developed a comprehensive range of accessories to make working with Sandvik hammers safer and smoother. These include hammer lifting bails, foot valve assembly and disassembly tools and a comprehensive hammer service kit.

See page 86 for details



CONTINUOUS IMPROVEMENT

We constantly work on refining the technology in our hammers and bits to help you do more and ensure you experience fewer problems. Every innovation is there for a reason – to remove the hassle in DTH drilling.

POWER YOU CAN DEPEND ON

Our RH460 hammer is designed to give performance you can trust without question. However tough the conditions, it simply won't let you down. That's what innovation means to us.

We have reduced air consumption for lower fuel costs, boosted power for higher productivity, and optimized lubrication for longer piston and hammer life.

FUEL-SAVING DESIGN

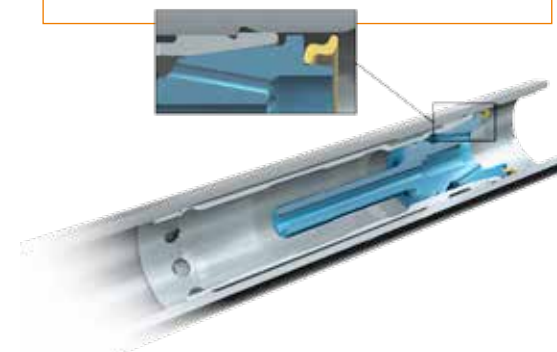
Lower air consumption means lower fuel costs. The air cycle of the RH460 hammer optimizes the expansion and compression rate, giving more power with less air.

SMOOTH RUNNING

The special oil grooves in the RH460 piston ensure constant and consistent lubrication between the piston and internal parts to reduce galling related failures. They are also designed to help to minimize air leakage.

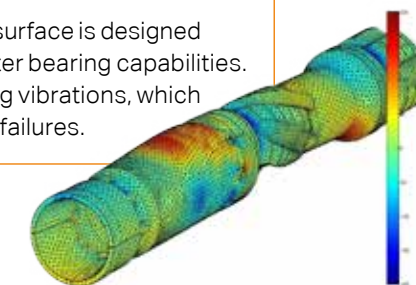
ROCK SOLID

The V-lock system is designed to prevent the movement of the inner cylinder and air distributor, reducing galling-related failures. This simple design means no tools are required for assembly or disassembly. The steel make-up ring creates a constant make-up force, independent of temperature and time.



NO VIBRATION

The piston bearing surface is designed and located for better bearing capabilities. It eliminates bending vibrations, which can result in galling failures.



ZERO TOLERANCE OF FAILURE

We combine our R&D focus with a commitment to solving our customers' challenges. Spending a lot of time out on site helps us gain a deep understanding of these challenges. The end result: solutions that really work.



FROM DESIGN TO TESTING

Seemingly random premature fatigue failures in the drill bit have long been an occupational hazard in rock drilling. But not any more. We set our development team the task of solving the mystery. Working closely with customers, they got to the bottom of this industry-wide issue and solved it with a new drill bit design.

The challenge was that these failures could occur at different stages in the drilling and under differing conditions, with no clear reason for it to happen. We were determined to find the answer.

To tackle the issue the team worked on the entire process, from design to testing with customers. The first step was to investigate where the cracks initiated in the bit.



EFFECTIVE SIMULATIONS GAVE THE ANSWER

Our R&D technicians and engineers visited several customers to get a deeper understanding. The Applied Research team then ran calculations and tested various configurations to reduce stress levels in the drill bit. Using FE analysis for reliable simulations gave a clear indication of what caused the damage.

Our team then worked on a new bit design and carried out extensive testing together with customers.

The results were excellent. The original bits had an average service life of 1,500 metres, but we aimed to achieve 3,000 metres with the new design. In fact, the new bit design reached an astonishing average of 6,900 metres on the same drill sites.

The new design proved so effective that it will be adopted across the product range.

Testing was carried out in cooperation with Okie Drilling Company, Inc. Established in 2003 and based in Stigler, Oklahoma, the company's core business is drilling for rock quarries and state road projects. It's demanding work that requires efficient and reliable equipment. Sandvik RH550 series hammers provide the performance Okie depends on to deliver.

MASTERING CEMENTED CARBIDES

Cemented carbides are a key to efficient and productive drilling. Whatever you're doing, we can ensure the right grade for the task. We are a world leader in research and development for cemented carbides. That know-how goes into every bit you order.

MATERIALS EXPERTISE

We continue to develop new hard material alloys to meet today's industry challenges. Tool performance is crucial when you're dealing with harder rock and mineral formations. The cemented carbide insert material's resistance to wear and fracturing is particularly important.

Dual Property (DP) cemented carbides are our patented grades. Their properties are tailored to suit drilling conditions causing exceptional load or cemented carbide wear.

GRINDING OF CEMENTED CARBIDE

Grinding or heating a cemented carbide product will produce dust or fumes of hazardous ingredients that can be inhaled, swallowed or come in contact with the skin or eyes.

Cemented carbide contains two hazardous components: cobalt and tungsten carbide.

Cobalt may cause sensitization through inhalation or skin contact. Inhalation or skin contact may also cause irritation. Sensitive persons may experience an allergic reaction. Long-term inhalation of high concentrations may cause permanent respiratory disease.



XT48

Sandvik's standard cemented carbide grade for most drilling conditions. XT48 should be your first choice, especially when drilling in rock that is not fully known. Spherical XT48 inserts are optimized to withstand high load and wear.



DP55

This grade has wear resistance similar to XT48, but offers greater toughness. It is especially suited to ballistic inserts, accommodating the higher loads the insert may be exposed to because of the longer protrusion.



DP65

DP65 has similar toughness to XT48, but considerably higher wear resistance. This grade should be your first choice when drilling in very abrasive rock with large spherical inserts.

PRECAUTIONS

- Avoid formation and inhalation of dust. Wet grinding is recommended.
- Always use adequate exhaust ventilation to limit personal exposure to well below the occupational exposure limits.
- Use respiratory protection if adequate ventilation is not available.
- Use safety goggles, gloves, and suitable protective clothing.
- IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

HEALTH AND SAFETY INFORMATION MATERIAL COMPOSITION

Most hard metal products contain tungsten carbide and cobalt.

Causes of exposure

Grinding or heating hard metal blanks or hard metal products will produce dust or fumes with dangerous ingredients that can be inhaled, swallowed or come in contact with the skin or eyes.

Acute toxicity

The dust is toxic when inhaled. Inhalation may cause irritation and inflammation in the airways. Skin contact can cause irritation and rash. Sensitized persons may experience an allergic reaction.

Chronic toxicity

Prolonged inhalation of high concentrations may cause lung fibrosis or lung cancer. Cobalt is a potent skin sensitizer. Repeated or prolonged contact can cause sensitization.

CLASSIFICATION

- The following hazard classification according to GHS/CLP applies to the hard metal powder ($3\% \leq \text{Co} < 10\%$):
- Acute Inhalation 3, H331: Toxic if inhaled.
- Carcinogenicity 1B, H350i: May cause cancer if inhaled.
- 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.

TROUBLESHOOTING GUIDE

Some of the most common problems encountered in DTH drilling relate to rotation, feed force and bailing. Use this checklist as a starting point for troubleshooting.

SYMPTOM: - Excessive vibration and high-pitched noise in the drill string - Low penetration rate - Joints become loose causing excessive heat generation and galling - Premature failure of the bit (button pop-outs, excessive gage wear & rapid wear to the bit shank) - Premature failure of the hammer (rapid wear to the driver sub splines)	POSSIBLE CAUSE: Feed force too low
SYMPTOM: - Drill string rotation becomes labored and uneven - Noise from the drill string - Low penetration rate - Bending stress failures - Wear to all drill string components increases - Jamming increases	POSSIBLE CAUSE: Feed force too high
SYMPTOM: - Jerky rotation - Excessive vibration - Low penetration rate - Finer drill cuttings - Increased bit wear (especially on leading edge of buttons) - Button pop-outs - Rapid wear to the bit shank and driver sub splines.	POSSIBLE CAUSE: Rotation speed too low
SYMPTOM: - Excessive vibration - Low penetration rate - Higher bit wear (especially to gage row buttons and adjacent bit body steel)	POSSIBLE CAUSE: Rotation speed too high
SYMPTOM: - Jamming increases - Low penetration rate - Accumulation, and re-drilling, of cuttings in the hole (finer drill cuttings) - Increased bit wear - Increased wear to the hammer, drill pipes and bit body	POSSIBLE CAUSE: Incorrect bailing velocity

"The key to hassle-free drilling is to make sure you have the right bit, the right carbide and the right settings for the conditions you're dealing with."

Henrik Paues, Application Specialist



HAMMERS THAT DRIVE PRODUCTIVITY

Sandvik hammers combine high power and speed with low fuel consumption. They are tried and tested in demanding applications the world over.

RH460

The new RH460 hammer has been developed with a focus on improving reliability and economy through cutting air consumption, increasing power and improving lubrication. It gives higher impact energy with lower levels of air consumption, giving high productivity in variable ground conditions.

RH550

The RH550 is the first choice for drilling hard and abrasive rocks and is designed for operating pressures from 10-24 bar. It features a patented shank design for optimized energy efficiency, and no foot valve. Models are available with heavy-duty or reversible casings to ensure maximal life in high-speed drilling applications in abrasive rock formations.

RH350

The RH350 is a lean and dependable hammer based on a well-proven design. This hammer works with various industry-standard shank designs. The RH350 is suitable when drilling holes with a diameter of 244 mm up to 900 mm.

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Replacement parts	Item description	Part No.
Complete hammer		
	2 3/8" API reg. pin top sub	32-5530-RMA/16S
	#21 Cubex. pin top sub	32-5530-RMA/63S
Bit shank		
	M30	



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
25	55	81.3	3.2	823	32.4	875	34.4	911	35.9
Air consumption, cfm					Air consumption, m³/min				
150 psi		250 psi		350 psi		10 bar		18 bar	
172		304		436		4.87		8.61	
								12.34	



Replacement parts	Item description	Part No.
Complete Hammer		
	2 3/8" API reg. pin top sub	32-5540-RMA/16S
	2 7/8" API reg. pin top sub	32-5540-RMA/11S
	#24 Cubex. pin top sub	32-5540-RMA/77S
Bit shank		
	M40	



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
38	83	98	3.56	914	36	989	38.9	1029	40.5
		Air consumption, cfm			Air consumption, m³/min				
		150 psi	250 psi	350 psi	10 bar	18 bar	24 bar		
		180	370	560	5.1	10.5	15.9		
Low Volume Option		151	315	466	4.3	8.9	13.2		



Replacement parts	Item description	Part No.
Complete Hammer		
	3 1/2" API reg. pin top sub	32-5550-SMA/04S
	2 7/8" API reg. pin top sub	32-5550-SMA/11S
Bit shank		
	M50	



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
68	145	120	4.72	987	38.86	1082	42.6	1122	44.2
		Air consumption, cfm			Air consumption, m³/min				
		150 psi	250 psi	350 psi	10 bar		18 bar		24 bar
		305	580	855	8.64	16.42		24.21	
Low Volume Option		285	540	790	8.07	15.25		22.37	



Replacement parts	Item description	Part No.
Complete Hammer		
	3 1/2" API reg. pin top sub	32-5555-GMA/04C
	#24 Cubex. pin top sub	32-5555-GMA/77C
Bit shank		
	M50	



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
73	160	126	4.96	987	38.86	1082	42.6	1122	44.2
		Air consumption, cfm			Air consumption, m³/min				
		150 psi	250 psi	350 psi	10 bar	18 bar	24 bar		
		305	580	855	8.64	16.42	24.21		
Low Volume Option		285	540	790	8.07	15.25	22.37		



Replacement parts	Item description	Part No.
Complete Hammer		
	3 1/2" API reg. pin top sub	32-5555-RMA/04C
	2 7/8" API reg. pin top sub	32-5555-RMA/11C
	#24 Cubex. pin top sub	32-5555-RMA/77C
Bit shank		
	M50	



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
73	160	126	4.96	987	38.86	1082	42.6	1122	44.2
		Air consumption, cfm			Air consumption, m³/min				
		150 psi	250 psi	350 psi	10 bar	18 bar	24 bar		
		305	580	855	8.64	16.42	24.21		
Low Volume Option		285	540	790	8.07	15.25	22.37		



Replacement parts	Item description	Part No.
Complete hammer		
	3 1/2" API reg. pin top sub	32-5560-SMA/04S
Bit shank		
	M60	



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
72	158	142	5.6	922	36.3	1008	39.7	1046	41.2
Air consumption, cfm					Air consumption, m³/min				
150 psi		250 psi		350 psi		10 bar		18 bar	
343		659		972		9.8		18.7	
								24 bar	
								27.5	



Replacement parts	Item description	Part No.
Complete hammer		
	3 1/2" API reg. pin top sub	32-5565-GMA/04C
	#28 Cubex. pin top sub	32-5565-GMA/56C
Bit shank		
M60		



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
82	180	150	5.9	922	36.3	1008	39.7	1046	41.2
Air consumption, cfm					Air consumption, m³/min				
150 psi		250 psi		350 psi		10 bar		18 bar	
343		659		972		9.8		18.7	



Replacement parts	Item description	Part No.
Complete hammer		
	3 1/2" API reg. pin top sub	32-5565-RMA/04C
	#28 Cubex. pin top sub	32-5565-RMA/56C
	3 1/2" BECO. pin top sub	32-5565-RMA/55C
Bit shank		
M60		



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
82	180	150	5.9	922	36.3	1008	39.7	1046	41.2
Air consumption, cfm					Air consumption, m³/min				
150 psi		250 psi		350 psi		10 bar		18 bar	
343		659		972		9.8		18.7	



Replacement parts	Item description	Part No.
Complete hammer		
	3 1/2" API reg. pin	32-5560-WMA/04S
Bit shank		
M60		



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
72	158	142	5.6	922	36.3	1008	39.7	1046	41.2
		Air consumption, cfm			Air consumption, m³/min				
		150 psi	250 psi	350 psi	10 bar	18 bar	24 bar		
		395	759	1120	11.2	21.5	31.7		
Low volume option		345	680	1000	9.8	19.3	28.3		



Replacement parts	Item description	Part No.
Complete Hammer		
	4 1/2" API reg. pin top sub	32-5585-RMA/19C
Bit shank		
M80		



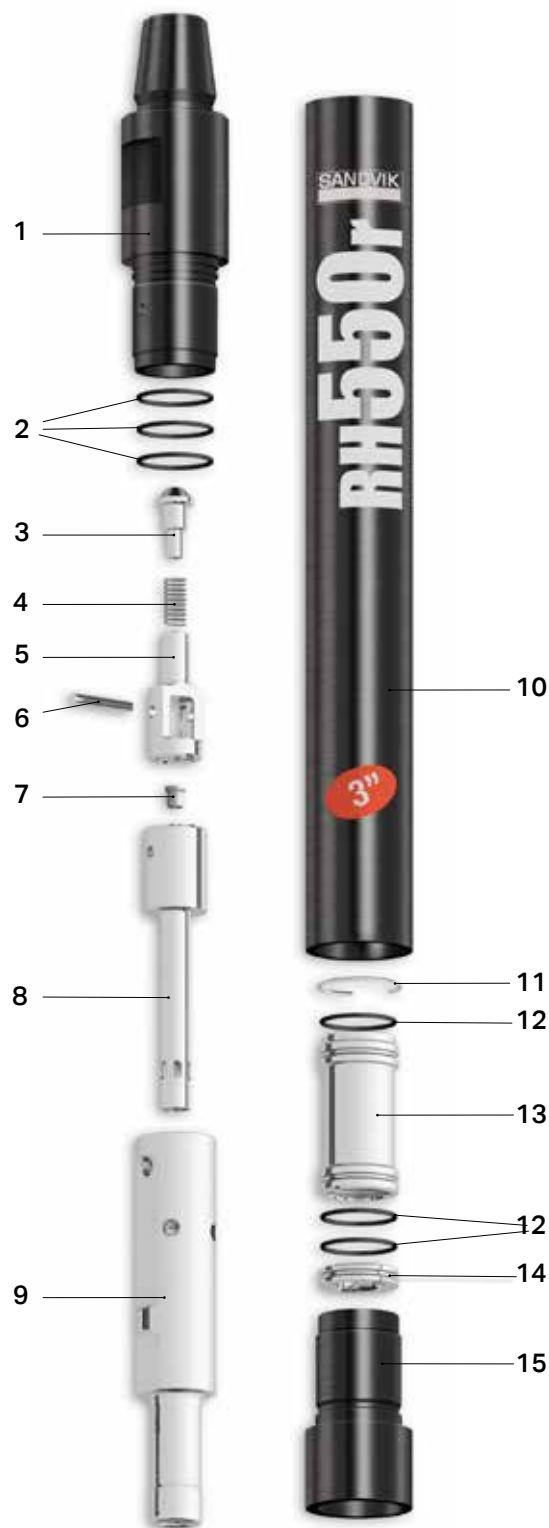
Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
173	380	181	7.12	1219	48	1310	51.6	1354	53.3
		Air consumption, cfm			Air consumption, m³/min				
		150 psi	250 psi	350 psi	10 bar	18 bar	24 bar		
		460	850	1240	13	23.8	35.1		
Low Volume Option		300	560	830	08.05	15.9	23.5		



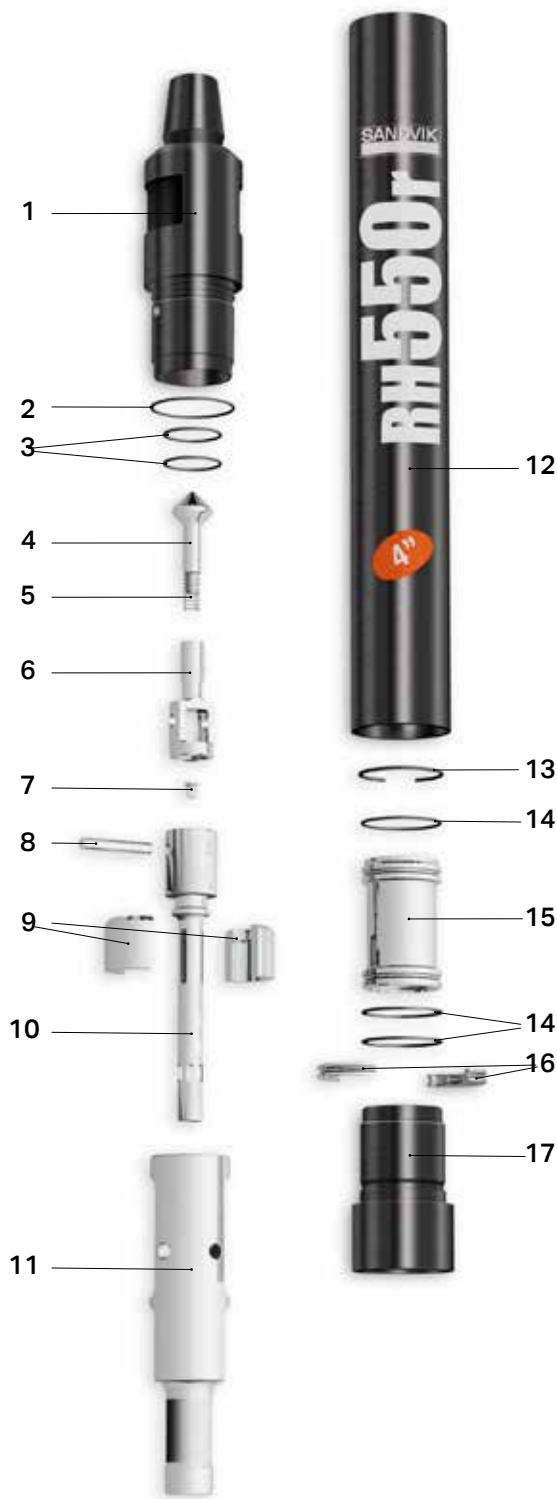
Replacement parts	Item description	Part No.
Complete Hammer		
	4 1/2" API reg. pin top sub	32-5585-WMA/19S
Bit shank		
M80		



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
173	380	181	7.12	1270	50	1361	53.6	1405	55.3
Air consumption, cfm					Air consumption, m³/min				
150 psi		250 psi		350 psi		10 bar		18 bar	
525		975		1540		14.9		27.6	
								43.6	



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top subs			
2 3/8" API reg. pin	5	11	33-3A001/16A
#21 Cubex. pin	5	11	33-3A001/63A
2. O-ring top sub (3) ID and OD			In seal kit
3. Check valve dart with spring	0.3	0.7	25-99006A
4. Check valve dart spring	0.02	0.01	22-99071
5. Check valve guide	0.23	0.5	39-3A001
6. Feed tube retainer pin	0.03	0.1	12-99021
7. Choke set, blank 1/8", 3/16", & 1/4"	0.1	0.2	29-48017A
8. Feed tube with retainer pin & blank choke	0.45	1	37-3A001A
9. Piston	3.86	8.5	36-3A081
10. Piston case with retainer ring	10.9	24	35-3A006A
11. Piston retainer ring	0.05	0.1	23-99027
12. O-rings – guide sleeve, bit retainer (3)			In seal kit
13. Guide sleeve with 2 O-rings (#12)	1	2.2	26-3A010A
14. Bit retainer ring with O-ring (#12)	0.09	0.2	27-3A006A
15. Driver sub (O-ring not req.)	2.18	4.8	34-3A006
Seal Kit			
3 piece of #2 & 3 of #12	0.25	0.5	38-3A056
Rebuild Kit			
1 piece of #1, 1 of #10, 1 of #15 & seal kit			
2 3/8" API reg. pin	18.1	40	38-3A001/16
#21 Cubex. pin	18.1	40	33-3A001/63



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top subs with 3 O-rings			
2 3/8" API reg. pin	10	22	33-48001-1/16A
2 7/8" API reg. pin	10	22	33-48001-1/11A
#24 Cubex. pin	10	22	33-48001-1/77A
2. O-ring top sub OD (1)			In seal kit
3. O-ring top sub ID (2)			In seal kit
4. Check valve dart (with spring)	0.3	0.66	25-99001A
5. Check valve spring	0.02	0.04	22-99071
6. Check valve guide	0.2	0.44	39-48001-1
7. Choke set, blank 1/8", 3/16", & 1/4"	0.1	0.22	29-48017A
8. Feed tube retainer pin	0.03	0.07	12-99014
9. Tuning ring for low volume (optional)	0.23	0.51	56-48552
10. Feed tube with retainer pin and blank choke	0.7	1.54	37-48001-1A
11. Piston	7	15.4	36-48J81
12. Piston case with retainer ring	15	33	35-48014A
13. Piston retainer ring	0.05	0.11	23-99029
14. O-rings guide sleeve & bit ret. (3)			In seal kit
15. Guide sleeve with 2 O-rings (#14)	1.8	3.96	26-48J10A
16. Bit retainer ring with O-ring (#14)	0.23	0.51	27-48006A
17. Driver sub	3.2	7.04	34-48006
Seal Kit			
1 piece of #2, 2 of #3 & 3 of #14	0.25	0.5	38-48056-1
Rebuild Kit			
1 piece of #1, 1 of #12, 1 of #17 & seal kit			
2 3/8" API reg. pin	28	62	38-48001/16
2 7/8" API reg. pin	28	62	38-48001/11
#24 Cubex. pin	28	62	38-48001/77

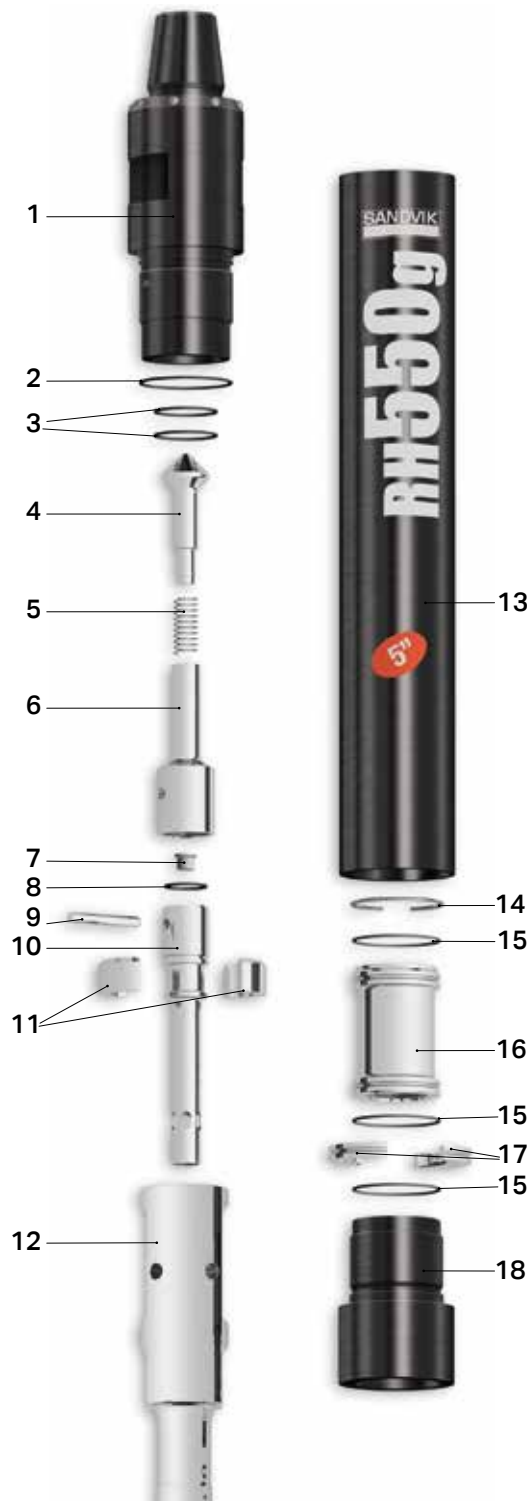
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Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top subs with 3 O-rings			
3 1/2" API reg. pin	10	22	33-58D01/04A
2 7/8" API reg. pin	10	22	33-58D01/11A
2. O-ring top sub OD (1)			In seal kit
3. O-ring top sub ID (2)			In seal kit
4. Check valve dart (with spring)	0.3	0.66	25-99002A
5. Check valve spring	0.02	0.04	22-99072
6. Check valve guide	0.3	0.66	39-58S01
7. O-Ring feed tube (1)			In seal kit
8. Choke set, blank 1/8", 3/16", & 1/4"	0.12	0.26	29-68017A
9. Feed tube retainer pin	0.09	0.2	12-99018
10. Feed tube with retainer pin and blank choke	1	2.2	37-58001A
11. Tuning ring for low volume (optional)	0.03	0.07	56-58552
12. Piston	12	26.4	36-58J81
13. Piston case with retainer ring	27	59.4	35-58D06A
14. Piston retainer ring	0.05	0.11	23-99032
15. O-rings guide sleeve & bit ret. (3)			In seal kit
16. Guide sleeve with 2 O-rings (#14)	3	6.6	26-58J10A
17. Bit retainer ring with O-ring (#14)	0.5	1.1	27-58006A
18. Driver sub	6	13.2	34-58D69
Seal Kit			
1 piece of #2, 2 of #3, 1 of #7 & 3 of #15	0.45	0.99	38-58D56
Rebuild Kit			
1 piece of #1, 1 of #13, 1 of #18 & seal kit			
3 1/2" API reg. pin	43	94.6	38-58D01/04
2 7/8" API reg. pin	43	94.6	38-58D01/11

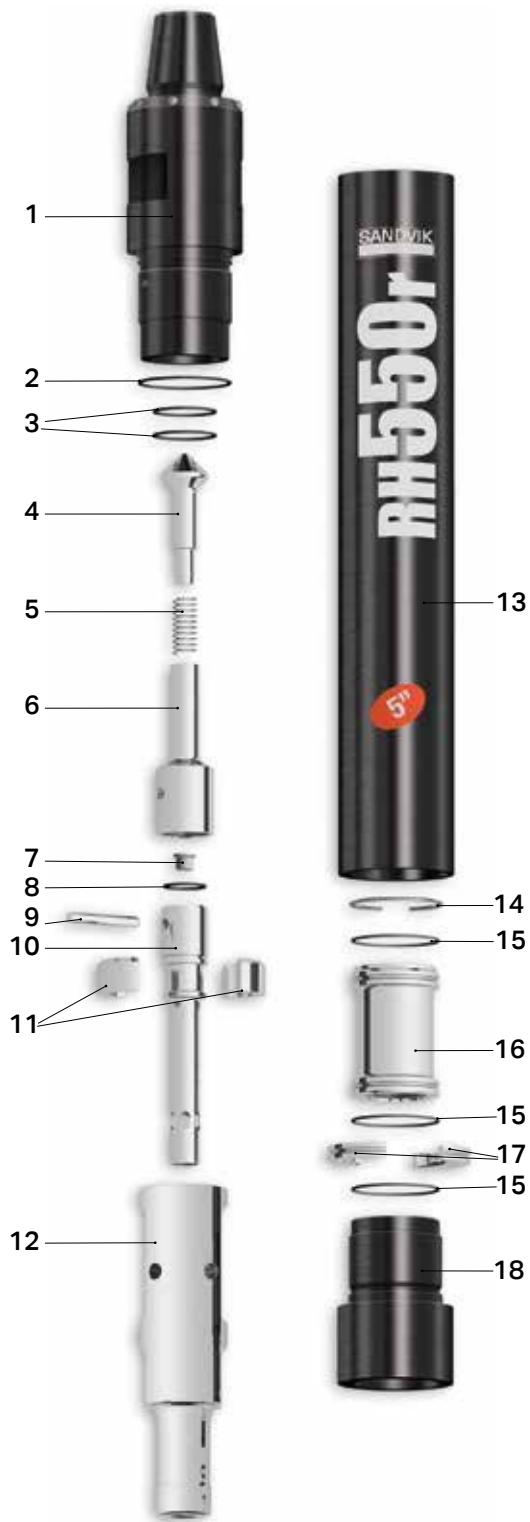
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RH550g

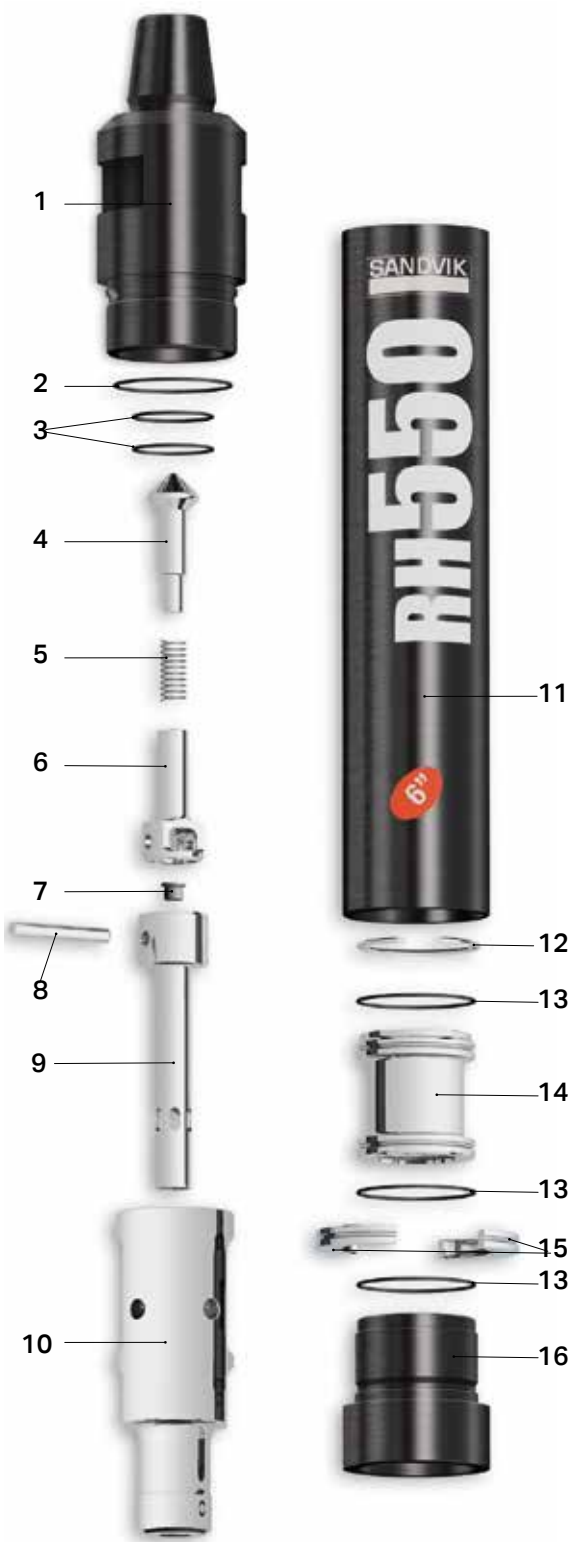


Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top subs with 3 O-rings			
3 1/2" API reg. pin	18	39.6	33-58D02/04CA
#24 Cubex. pin	18	39.6	33-58D02/77CA
2. O-ring top sub OD (1)			In seal kit
3. O-ring top sub ID (2)			In seal kit
4. Check valve dart (with spring)	0.3	0.66	25-99002A
5. Check valve spring	0.02	0.04	22-99072
6. Check valve guide	0.3	0.66	39-58S01
7. Choke set, blank 1/8", 3/16", & 1/4"	0.12	0.26	29-68017A
8. O-ring feed tube (1)			In seal kit
9. Feed tube retainer pin	0.09	0.2	12-99018
10. Feed tube with retainer pin and blank choke	1	2.2	37-58001A
11. Tuning ring for low volume (optional)	0.03	0.07	56-58552
12. Piston	12	26.4	36-58J81
13. Piston case with retainer ring	29	63.8	35-58D07A
14. Piston retainer ring	0.05	0.11	23-99032
15. O-rings guide sleeve & bit ret. (3)			In seal kit
16. Guide sleeve with 2 O-rings (#14)	3	6.6	26-58J10A
17. Bit retainer ring with O-ring (#14)	0.5	1.1	27-58006A
18. Driver sub	7	15.4	34-58D70
Seal Kit			
1 piece of #2, 2 of #3, 1 of #7 & 3 of #15	0.45	0.99	38-58D56
Rebuild Kit			
1 piece of #1, 1 of #13, 1 of #18 & seal kit			
3 1/2" API reg. pin	54	118.8	38-58D02/04C
#24 Cubex. pin	54	118.8	38-58D02/77C

5"



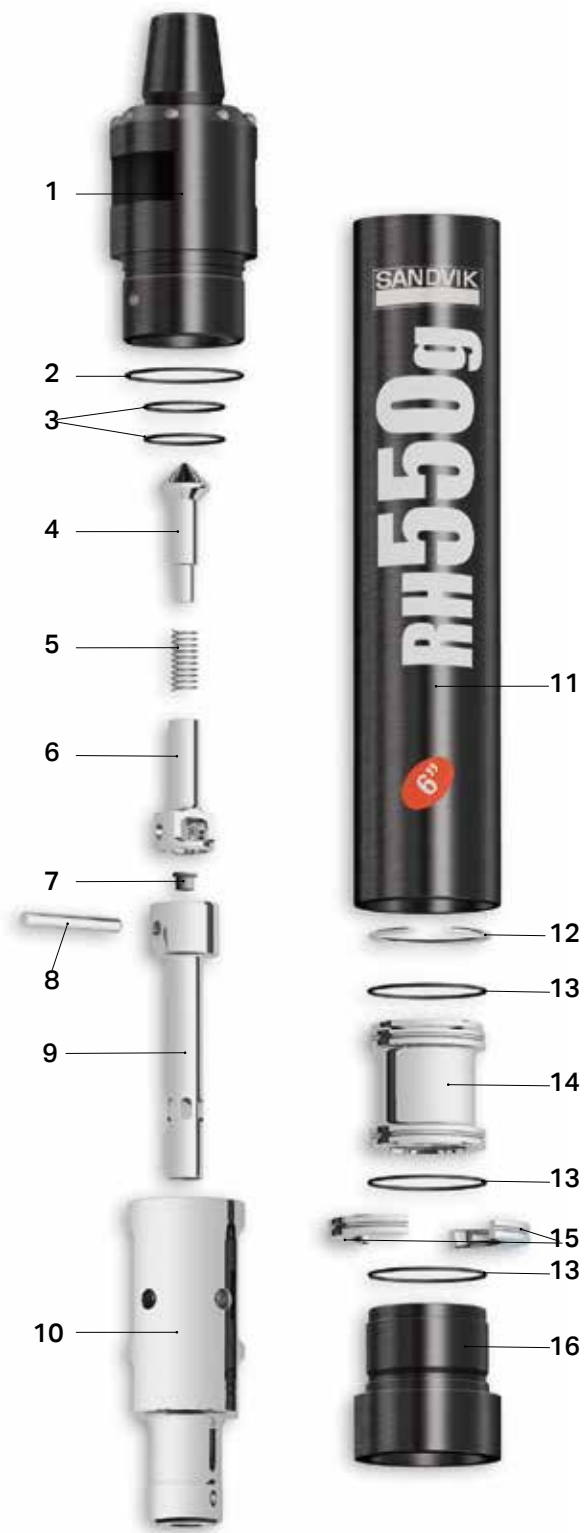
Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top subs with 3 O-rings			
3 1/2" API reg. pin	18	39.6	33-58S02/04CA
2 7/8" API reg. pin	18	39.6	33-58S02/11CA
#24 Cubex. pin	18	39.6	33-58S02/77CA
2. O-Ring top sub OD (1)			In seal kit
3. O-Ring top sub ID (2)			In seal kit
4. Check valve dart (with spring)	0.3	0.66	25-99002A
5. Check valve spring	0.02	0.04	22-99072
6. Check valve guide	0.3	0.66	39-58S01
7. Choke set, blank 1/8", 3/16", & 1/4"	0.12	0.26	29-68017A
8. O-ring feed tube (1)			In seal kit
9. Feed tube retainer pin	0.09	0.2	12-99018
10. Feed tube with retainer pin and blank choke	1	2.2	37-58001A
11. Tuning ring for low volume (optional)	0.03	0.07	56-58552
12. Piston	12	26.4	36-58J81
13. Piston case with retainer ring	29	63.8	35-58007A
14. Piston retainer ring	0.05	0.11	23-99032
15. O-rings guide sleeve & bit ret. (3)			In seal kit
16. Guide sleeve with 2 O-rings (#14)	3	6.6	26-58J10A
17. Bit retainer ring with O-ring (#14)	0.5	1.1	27-58006A
18. Driver sub	7	15.4	34-58070
Seal Kit			
1 piece of #2, 2 of #3, 1 of #7 & 3 of #15	0.45	0.99	38-58D56
Rebuild Kit			
1 piece of #1, 1 of #13, 1 of #18 & seal kit			
3 1/2" API reg. pin	54	118.8	38-58S02/04C
2 7/8" API reg. pin	54	118.8	38-58S02/11C
#24 Cubex. pin	54	118.8	38-58S02/77C



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top sub with 3 O-rings			
3 1/2" API reg. pin	20	44	33-68D08/04A
2. O-ring top sub OD (1)			In seal kit
3. O-ring top sub ID (2)			In seal kit
4. Check valve dart with spring	0.3	0.66	25-99002A
5. Check valve dart spring	0.02	0.044	22-99072
6. Check valve guide	0.3	0.66	39-68001
7. Choke set, blank 1/8", 3/16", & 1/4"	0.12	0.264	29-68017A
8. Feed tube retainer pin	0.2	0.44	12-99013
9. Feed tube with retainer pin and blank choke	1	2.2	37-68601A
10. Piston	18	39.6	36-68J81
11. Piston case with retainer ring	33	72.6	35-68D14A
12. Piston retainer ring	0.1	0.22	23-99028
13. O-rings – guide sleeve, bit retainer (3)			In seal kit
14. Guide sleeve with 2 O-rings (#13)	4	8.8	26-68J10A
15. Bit retainer ring with O-ring (#13)	1	2.2	27-68006A
16. Driver sub	6	13.2	34-68D69
Seal Kit			
1 piece of #2, 2 of #3 & 3 of #13	0.25	0.55	38-68656
Rebuild Kit			
1 piece of #1, 1 of #11, 1 of #16 & seal kit			
3 1/2" API reg. pin	20	44	38-68D08/04

RH550g

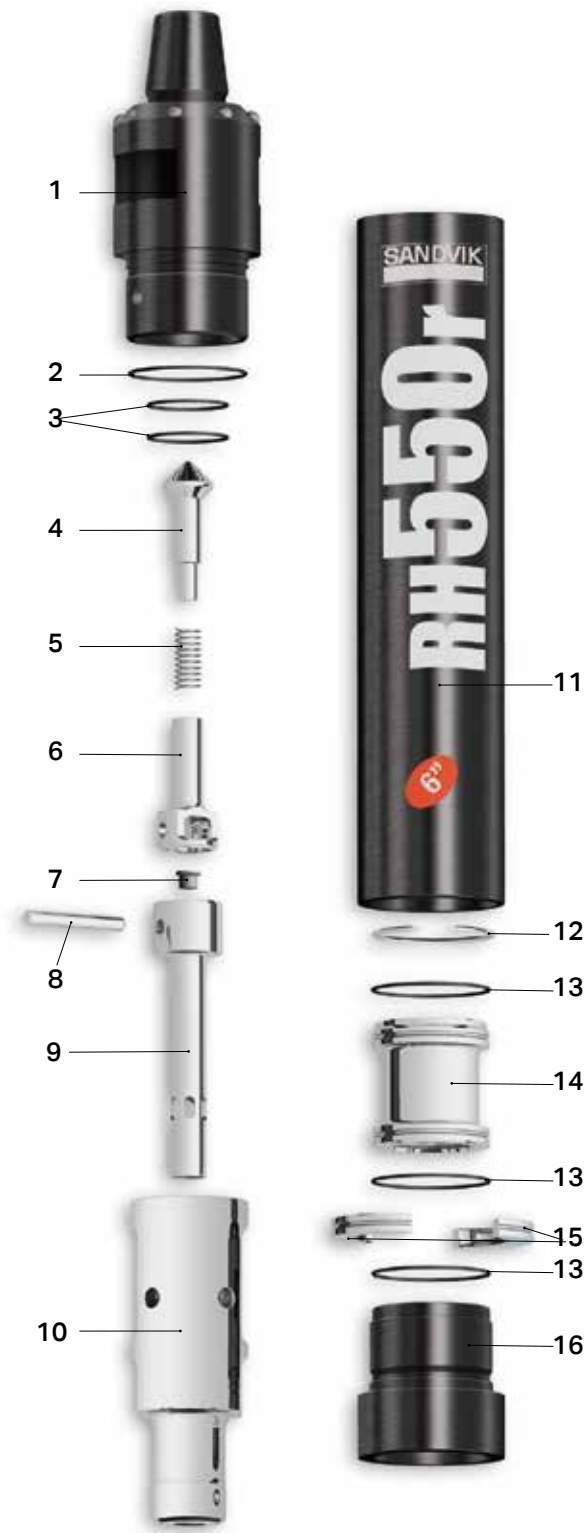
6"



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top sub with 3 O-rings			
3 1/2" API reg. pin	22	48.4	33-6L009/04CA
#28 Cubex. pin	22	48.4	33-6L009/56CA
2. O-ring top sub OD (1)			In seal kit
3. O-ring top sub ID (2)			In seal kit
4. Check valve dart with spring	0.3	0.66	25-99002A
5. Check valve dart spring	0.02	0.044	22-99072
6. Check valve guide	0.3	0.66	39-68001
7. Choke set, blank 1/8", 3/16", & 1/4"	0.12	0.264	29-68017A
8. Feed tube retainer pin	0.2	0.44	12-99013
9. Feed tube with retainer pin and blank choke	1	2.2	37-68601A
10. Piston	18	39.6	36-68J81
11. Piston case with retainer ring	33	72.6	35-6LD68A
12. Piston retainer ring	0.1	0.22	23-99028
13. O-rings – guide sleeve, bit retainer (3)			In seal kit
14. Guide sleeve with 2 O-rings (#13)	4	8.8	26-68J10A
15. Bit retainer ring with O-ring (#13)	1	2.2	27-68006A
16. Driver sub	6	13.2	34-6LD70
Seal Kit			
1 pieces of #2, 2 of #3 & 3 of #13	0.25	0.5	38-68656
Rebuild Kit			
1 piece of #1, 1 of #11, 1 of #16 & seal kit			
3 1/2" API reg. pin	62	136.4	38-6LD09/04C
#28 Cubex. pin	62	136.4	38-6LD09/56C

RH550r

6"



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top sub with 3 O-rings			
3 1/2" API reg. pin	22	48.4	33-68602/04CA
#28 Cubex. pin	22	48.4	33-68602/56CA
3 1/2" BECO. pin	22	48.4	33-68602/55CA
2. O-ring top sub OD (1)			In seal kit
3. O-ring top sub ID (2)			In seal kit
4. Check valve dart with spring	0.3	0.66	25-99002A
5. Check valve dart spring	0.02	0.044	22-99072
6. Check valve guide	0.3	0.66	39-68001
7. Choke set, blank 1/8", 3/16", & 1/4"	0.12	0.264	29-68017A
8. Feed tube retainer pin	0.2	0.44	12-99013
9. Feed tube with retainer pin and blank choke	1	2.2	37-68601A
10. Piston	18	39.6	36-68J81
11. Piston case with retainer ring	33	72.6	35-68668A
12. Piston retainer ring	0.1	0.22	23-99028
13. O-rings – guide sleeve, bit retainer (3)			In seal kit
14. Guide sleeve with 2 O-rings (#13)	4	8.8	26-68J10A
15. Bit retainer ring with O-ring (#13)	1	2.2	27-68006A
16. Driver sub	6	13.2	34-68670
Seal Kit			
1 pieces of #2, 2 of #3 & 3 of #13	0.25	0.5	38-68656
Rebuild Kit			
1 piece of #1, 1 of #11, 1 of #16 & seal kit			
3 1/2" API reg. pin	62	136.4	38-68602/04C
#28 Cubex. pin	62	136.4	38-68602/56C
3 1/2" BECO. pin	62	136.4	38-68602/55C

RH550w



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top sub with 3 O-rings			
3 1/2" API reg. pin	20	44	33-68N08/04A
2. O-ring top sub OD (1)			In seal kit
3. O-ring top sub ID (2)			In seal kit
4. Check valve dart with spring	0.3	0.66	25-99002A
5. Check valve dart spring	0.02	0.044	22-99072
6. Check valve guide	0.3	0.66	39-68001
7. Choke set, blank 1/8", 3/16", & 1/4"	0.12	0.264	29-68017A
8. Feed tube retainer pin	0.2	0.44	12-99013
9. Tuning ring (optional)	0.4	0.9	56-68552
10. Feed tube with retainer pin and blank choke	1	2.2	37-68301A
11. Piston	18	39.6	36-68J81
12. Piston case with retainer ring	33	72.6	35-68D14A
13. Piston retainer ring	0.1	0.22	23-99028
14. O-rings – guide sleeve, bit retainer (3 req.)			In seal kit
15. Guide sleeve with 2 O-rings (#13)	4	8.8	26-68J10A
16. Bit retainer ring with O-ring (#13)	1	2.2	27-68006A
17. Driver sub	6	13.2	34-68D69
Seal Kit			
1 pieces of #2, 2 of #3 & 3 of #14	0.25	0.5	38-68656
Rebuild Kit			
1 piece of #1, 1 of #12, 1 of #17 & seal kit			
3 1/2" API reg. pin	20	44	38-68N08/04

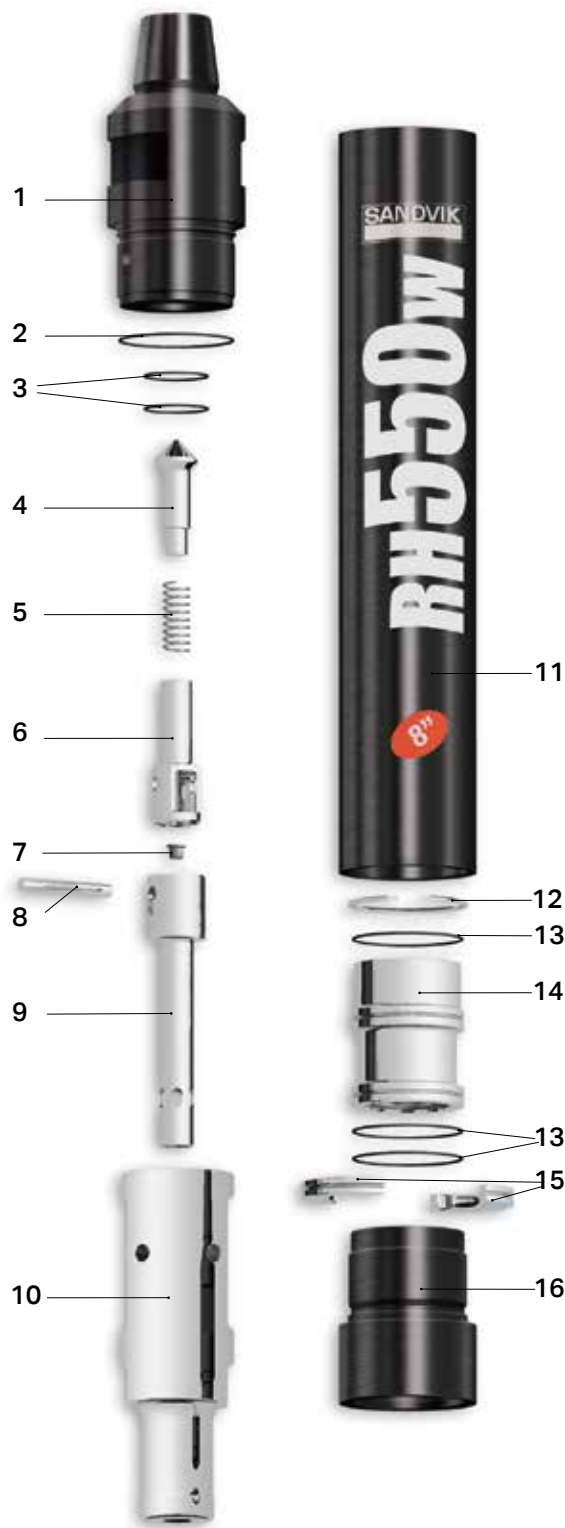
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RH550r



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top sub with 3 O-rings			
4 1/2" API reg. pin	42	92.4	33-88002/19CA
2. O-ring top sub OD (1)			In seal kit
3. O-ring top sub ID (2)			In seal kit
4. Check valve dart (with spring)	0.5	1.1	38-11663A
5. Check valve spring	0.1	0.22	38-1/1235-073
6. Check valve guide	0.7	1.54	39-88001
7. Choke set, blank 1/8", 3/16", & 1/4"	0.12	0.264	29-68017A
8. Feed tube retainer pin	0.2	0.44	12-99016
9. Tuning ring for low volume (optinal)	0.8	1.76	56-88552
10. Feed tube with retainer pin and blank choke	2.2	4.84	37-88001A
11. Piston	42	92.4	36-88J81
12. Piston case with retainer ring	56	123.2	35-88002A
13. Piston retainer ring	0.2	0.44	23-99030
14. O-rings guide sleeve & bit ret. (3)			In seal kit
15. Guide sleeve with 2 O-rings (#14)	11	24.2	26-88J10A
16. Bit retainer ring with O-ring (#14)	1.9	4.18	27-88006A
17. Driver sub	17	37.4	34-88007
Seal Kit			
1 piece of #2, 2 of #3 & 3 of #14	0.25	0.55	38-88056
Rebuild Kit			
1 piece of #1, 1 of #12, 1 of #17 & seal kit			
4 1/2" API reg. pin	115	253	38-88002/19C

8"



Replacement parts	Item description	Weight		Part No.
		kg	lb	
1.	Top sub with 3 O-rings			
4	1/2" API reg. pin	42	92.4	33-88302/19A
2.	O-ring top sub OD (1)			In seal kit
3.	O-ring top sub ID (2)			In seal kit
4.	Check valve dart (with spring)	0.5	1.1	38-11663A
5.	Check valve spring	0.1	0.22	38-1/1235-073
6.	Check valve guide	0.7	1.54	39-88001
7.	Choke set, blank 1/8", 3/16", & 1/4"	0.12	0.26	29-68017A
8.	Feed tube retainer pin	0.2	0.44	12-99016
9.	Feed tube with retainer pin and blank choke	2.2	4.84	37-88301A
10.	Piston	42	92.4	36-88J81
11.	Piston case with retainer ring	56	123.2	35-88302A
12.	Piston retainer ring	0.2	0.44	23-99030
13.	O-rings guide sleeve & bit ret. (3)			In seal kit
14.	Guide sleeve with 2 O-rings (#14)	11	24.2	26-88J10A
15.	Bit retainer ring with O-ring (#14)	1.9	4.18	27-88006A
16.	Driver sub	17	37.4	34-88007
Seal Kit				
1	piece of #2, 2 of #3 & 3 of #13	0.25	0.55	38-88056
Rebuild Kit				
1	piece of #1, 1 of #11, 1 of #16 & seal kit			
4	1/2" API reg. pin	115	253	38-88302/19





Replacement parts	Item description	Part No.
Complete Hammer		
	2 3/8" API reg pin	32-4640-SDA-16S
	#24 Cubex pin	32-4640-SDA-77S
Bit shank		
	DHD340	



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
40	88	97.5	3.84	985	38.78	1075	42.16	1109	43.66
Air consumption, cfm				Air consumption, m³/min, DIN 1343			Power output [kW]		
150 psi	250 psi	350 psi		10 bar	18 bar	24 bar	24 bar		
177	399	565		5	11.3	16	23.5		



Replacement parts	Item description	Part No.
Complete Hammer		
	2 3/8" API reg pin	32-4640-STA-16S
	#24 Cubex pin	32-4640-STA-77S
Bit shank		
	QLX40	



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
40	88	97.5	3.84	985	38.78	1075	42.16	1109	43.66
Air consumption, cfm				Air consumption, m³/min, DIN 1343			Power output [kW]		
150 psi	250 psi	350 psi		10 bar	18 bar	24 bar	24 bar		
177	399	565		5	11.3	16	23.5		



Replacement parts	Item description	Part No.
Complete Hammer		
	2 3/8" API reg pin	32-4640-ETB-16S
Bit shank		
	QLX40	



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
41	90	97.5	3.84	985	38.78	1075	42.16	1109	43.66
Air consumption, cfm				Air consumption, m³/min, DIN 1343			Power output [kW]		
250 psi	350 psi	500 psi		18 bar	24 bar	35 bar	35 bar		
364	519	805		10.3	14.7	22.8	32		



Replacement parts	Item description	Part No.
Complete Hammer		
	3 1/2" API reg pin	32-4650-SQA-04S
Bit shank		
	QL50	



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
66	145	120	4.72	1067	42.01	1156	45.51	1185	46.65
Air consumption, cfm				Air consumption, m³/min, DIN 1343			Power output [kW]		
150 psi	250 psi	350 psi		10 bar	18 bar	24 bar	24 bar		
286	540	770		8.1	15.3	21.8	32.1		



Replacement parts	Item description	Part No.
Complete Hammer		
	3 1/2" API reg pin	32-4655-GQA-04C
	#24 Cubex pin	32-4655-GQA-77C
Bit shank		
	QL50	



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
76	167	126	4.96	1067	42.01	1156	45.51	1185	46.65
Air consumption, cfm				Air consumption, m³/min, DIN 1343			Power output [kW]		
150 psi	250 psi	350 psi		10 bar	18 bar	24 bar	24 bar		
286	540	770		8.1	15.3	21.8	32.1		



Replacement parts	Item description	Part No.
Complete Hammer		
	3 1/2" API reg pin	32-4655-EQB-04C
Bit shank		
	QL50	



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
76	168	126	4.96	1067	42.01	1156	45.51	1185	46.65
Air consumption, cfm				Air consumption, m³/min, DIN 1343			Power output [kW]		
250 psi	350 psi	500 psi		18 bar	24 bar	35 bar	35 bar		
501	692	1102		14.2	19.6	31.2	41.6		



Replacement parts	Item description	Part No.
Complete Hammer		
	3 1/2" API reg pin	32-4660-SQA-04S
Bit shank		
	QL60	



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
100	220	142	5.59	1155	45.47	1263	49.72	1304	51.34
Air consumption, cfm				Air consumption, m³/min, DIN 1343			Power output [kW]		
150 psi	250 psi	350 psi		10 bar	18 bar	24 bar		24 bar	
300	632	879		8.5	17.9	25		41.7	



Replacement parts	Item description	Part No.
Complete Hammer		
	4 1/2" API reg pin	32-4685-GQA-19C
	4 1/2 BECO pin	32-4685-GQA-72C
Bit shank		
	QL80	



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
244	537	194	7.64	1426	56.14	1566	61.65	1608	63.31
Air consumption, cfm				Air consumption, m³/min, DIN 1343			Power output [kW]		
150 psi	250 psi	350 psi		10 bar	18 bar	24 bar		24 bar	
314	862	1274		8.9	24.4	36		49.7	



Replacement parts	Item description	Part No.
Complete Hammer		
	3 1/2" API reg pin	32-4665-GQA-04C
	#28 Cubex pin	32-4665-GQA-56C
Bit shank		
	QL60	



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
117	257	150	5.91	1155	45.47	1263	49.72	1304	51.34
Air consumption, cfm				Air consumption, m³/min, DIN 1343			Power output [kW]		
150 psi	250 psi	350 psi		10 bar	18 bar	24 bar		24 bar	
300	632	879		8.5	17.9	25		41.7	



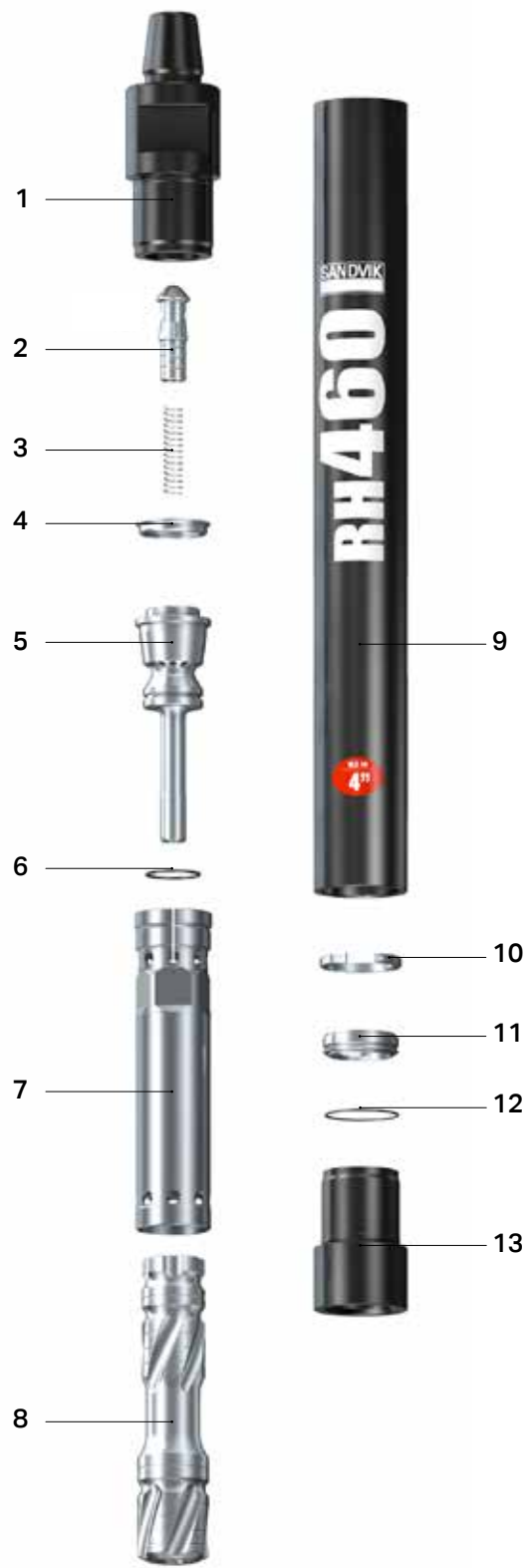
Replacement parts	Item description	Part No.
Complete Hammer		
	4 1/2" API reg pin	32-4680-SQA-19S
Bit shank		
	QL80	



Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
213	469	183	7.20	1426	56.14	1566	61.65	1608	63.31
Air consumption, cfm				Air consumption, m³/min, DIN 1343			Power output [kW]		
150 psi	250 psi	350 psi		10 bar	18 bar	24 bar		24 bar	
314	862	1274		8.9	24.4	36		49.7	

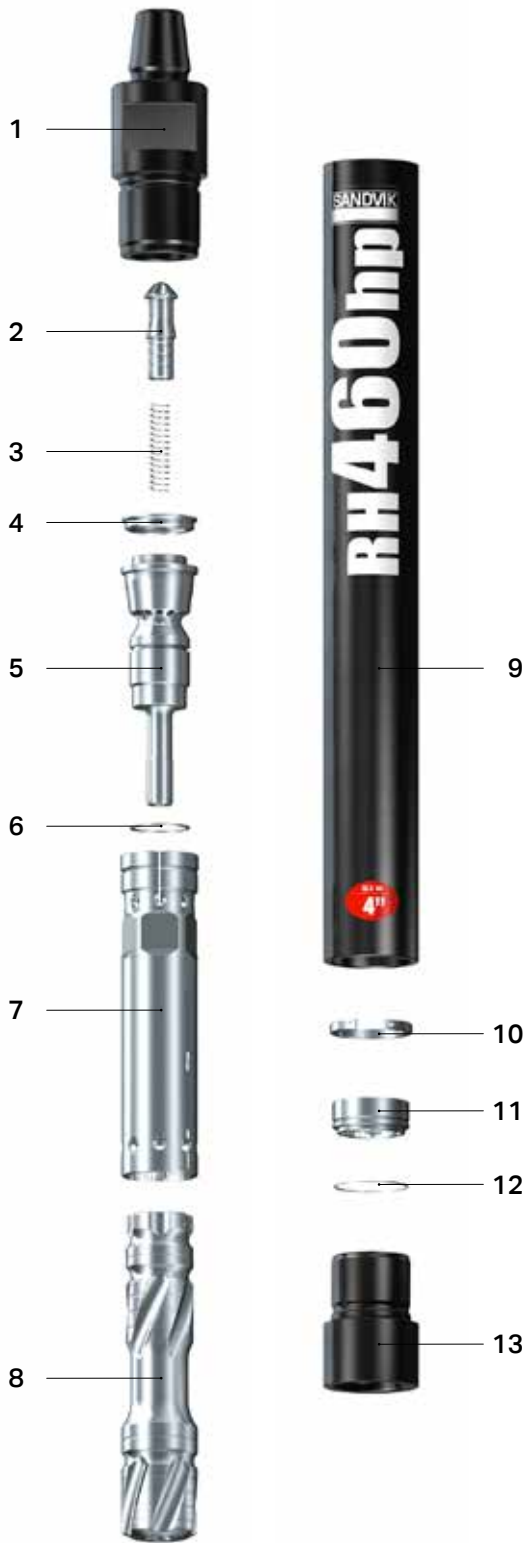


Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top sub			
2 3/8" API reg pin	8.2	18	BG00014822
#24 Cubex pin	7.9	17.4	BG00242018
2 7/8" API reg pin	8.8	19.4	BG00388091
2. Check valve dart no choke	0.24	0.53	BG00320005
3. Check valve spring	0.02	0.04	BG00118911
4. Make up ring	0.1	0.22	BG00014825
5. Air distributor with O-ring	2	4.4	BG00056811
6. O-ring air distributor			In seal kit
7. Inner cylinder	2.1	4.62	BG00110688
8. Piston DHD340	7.8	17.2	BG00243036
9. Piston case with retainer ring	15.4	33.9	BG00050403
10. Piston retainer ring	0.1	0.22	BG00014819
11. Bit retainer ring with O-ring DHD340	0.17	0.37	BG00014818
12. O-ring bit retainer ring			In seal kit
13. Driver sub	3.5	7.7	BG00059100
Optional			
Air screen	0.05	0.11	BG00014743
Air screen circlip	0.01	0.02	BG00014740
Choke set, blank, 3mm, 4.5mm and 6mm	0.02	0.04	BG00015430
Check valve dart with choke hole	0.24	0.53	BG00119068
Driver sub hard faced DHD340	3.5	7.7	BG00241988
Seal Kit			
1 piece of #6, #12	0.02	0.04	BG00014848
Rebuild Kit			
1 piece of #1, #9, #13 & seal kit			
2 3/8" API reg pin	27	59.4	BG00081841
#24 Cubex pin	26.8	59	BG00242283



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top sub			
2 3/8" API reg pin	8.2	18.	BG00014822
#24 Cubex pin	7.9	17.4	BG00242018
2 7/8" API reg pin	8.8	19.4	BG00388091
2. Check valve dart no choke	0.24	0.53	BG00320005
3. Check valve spring	0.02	0.04	BG00118911
4. Make up ring	0.1	0.22	BG00014825
5. Air distributor with O-ring	2	4.4	BG00056811
6. O-ring air distributor			In seal kit
7. Inner cylinder	2.1	4.62	BG00110688
8. Piston QLX40	7.7	16.9	BG00242889
9. Piston case with retainer ring	15.4	33.9	BG00050403
10. Piston retainer ring	0.1	0.22	BG00014819
11. Bit retainer ring with O-ring QLX40	0.2	0.44	BG00059039
12. O-ring bit retainer ring			In seal kit
13. Driver sub	2.8	6.16	BG00058997
Optional			
Air screen	0.05	0.11	BG00014743
Air screen circlip	0.01	0.02	BG00014740
Choke set, blank, 3mm, 4.5mm and 6mm	0.02	0.04	BG00015430
Check valve dart with choke hole	0.24	0.53	BG00119068
Driver sub hard faced QLX40	2.8	6.16	BG00242001
Seal Kit			
1 piece of #6, #12	0.02	0.04	BG00014848
Rebuild Kit			
1 piece of #1, #9, #13 & seal kit			
2 3/8" API reg pin	27	59.4	BG00242267
#24 Cubex pin	26.8	59	BG00242295

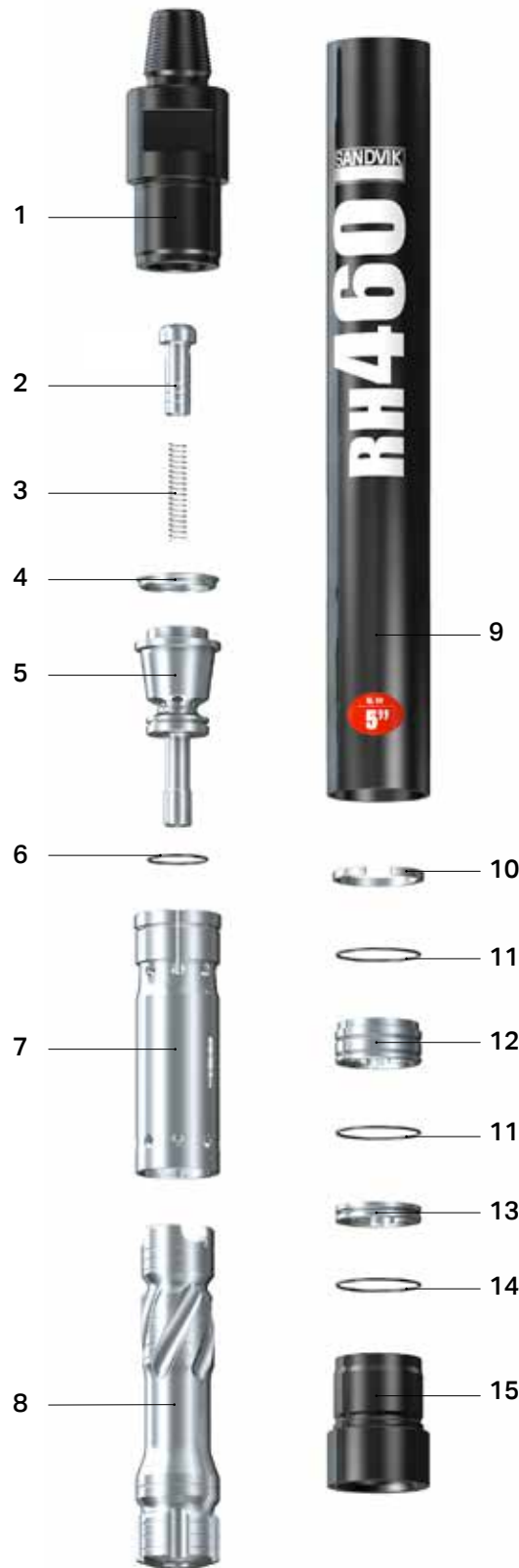
RH460hp



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top sub			
2 3/8" API reg pin	8.2	18	BG00014822
2 7/8" API reg pin	8.8	19.4	BG00388091
2. Check valve dart no choke	0.24	0.53	BG00320005
3. Check valve spring	0.02	0.04	BG00118911
4. Make up ring	0.1	0.22	BG00014825
5. Air distributor with O-ring	2	4.4	BG00175586
6. O-ring air distributor			In seal kit
7. Inner cylinder	2.1	4.62	BG00110688
8. Piston QLX40	7.7	16.9	BG00242889
9. Piston case with retainer ring	15.4	33.9	BG00050403
10. Piston retainer ring	0.1	0.22	BG00014819
11. Bit retainer ring with O-ring QLX40	0.2	0.44	BG00059039
12. O-ring bit retainer ring			In seal kit
13. Driver sub hard faced QLX40	2.8	6.16	BG00242001
Optional			
Air screen	0.05	0.11	BG00014743
Air screen circlip	0.01	0.02	BG00014740
Choke set, blank, 3mm, 4.5mm and 6mm	0.02	0.04	BG00015430
Check valve dart with choke hole	0.24	0.53	BG00119068
Seal Kit			
1 piece of #6, #12	0.02	0.04	BG00014848
Rebuild Kit			
1 piece of #1, #9, #13 & seal kit			
2 3/8" API reg pin	26.5	58.3	BG00242285

4"

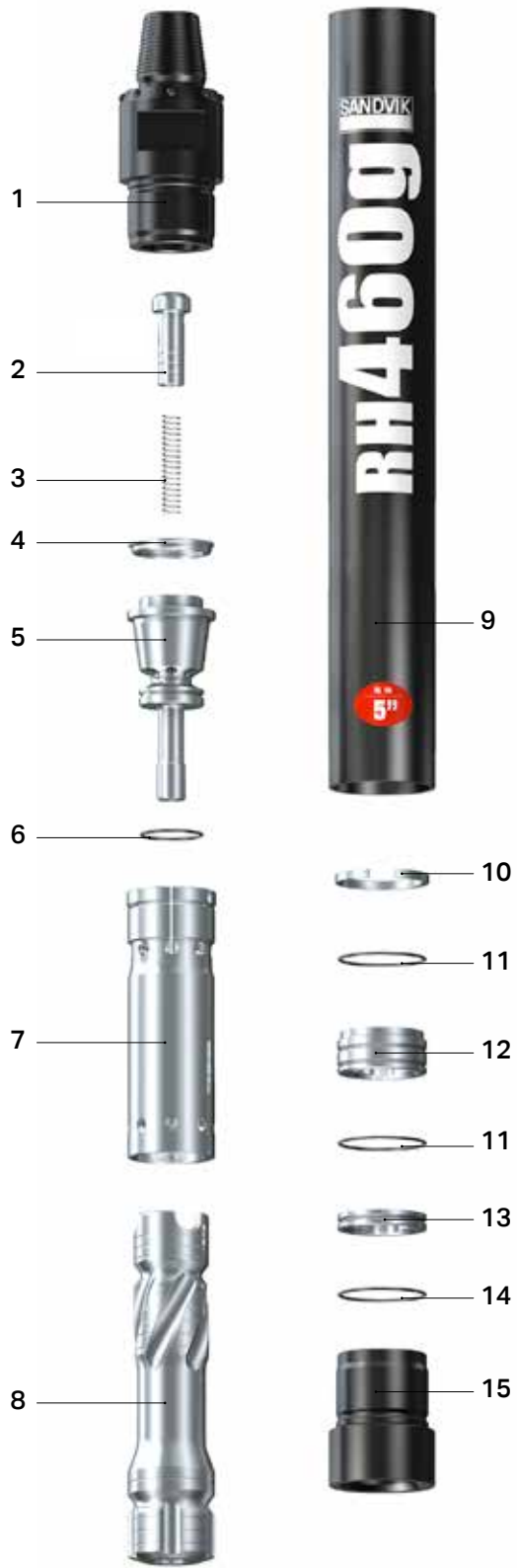
RH460



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top sub			
3 1/2" API reg pin	14.8	32.56	BG00014995
2. Check valve dart no choke	0.45	0.99	BG00319921
3. Check valve spring	0.03	0.07	BG00014972
4. Make up ring	0.20	0.44	BG00014994
5. Air distributor with O-ring	3.60	7.92	BG00014996
6. O-ring air distributor			In seal kit
7. Inner cylinder	4.2	9.24	BG00025161
8. Piston	14.3	31.46	BG00062889
9. Piston case with retainer ring	22	48.4	BG00014999
10. Piston retainer ring	0.10	0.22	BG00014998
11. O-ring guide sleeve			In seal kit
12. Guide sleeve with O-ring	1	2.2	BG00014988
13. Bit retainer ring with O-ring	0.4	0.88	BG00014989
14. O-ring bit retainer ring			In seal kit
15. Driver sub	5	11	BG00014993
Optional			
Air screen	0.14	0.31	BG00014867
Air screen circlip	0.01	0.02	BG00014862
Choke set, blank, 3mm, 4.5mm and 6mm	0.01	0.02	BG00015430
Check valve dart with choke hole	0.4	0.88	BG00014985
Driver sub hard faced	5	11	BG00162923
Seal Kit			
1 piece of #6, #14 & 2 of #11	0.01	0.02	BG00015014
Rebuild Kit			
1 piece of #1, #9, #15 & seal kit			
3 1/2" API reg pin	41.5	91.3	BG00081790

5"

RH460g



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top sub			
3 1/2" API reg pin	15.5	34.1	BG00068455
#24 Cubex pin	13.5	29.7	BG00166404
2. Check valve dart no choke	0.45	0.99	BG00319921
3. Check valve spring	0.03	0.07	BG00014972
4. Make up ring	0.20	0.44	BG00014994
5. Air distributor with O-ring	3.60	7.92	BG00014996
6. O-ring air distributor			In seal kit
7. Inner cylinder	4.20	9.24	BG00025161
8. Piston	14.3	31.5	BG00062889
9. Piston case with retainer ring	30.0	66.0	BG00068439
10. Piston retainer ring	0.10	0.22	BG00014998
11. O-ring guide sleeve			In seal kit
12. Guide sleeve with O-ring	1.00	2.20	BG00014988
13. Bit retainer ring with O-ring	0.40	0.88	BG00014989
14. O-ring bit retainer ring			In seal kit
15. Driver sub hard faced	5.50	12.1	BG00068435
Optional			
Air screen	0.14	0.31	BG00014867
Air screen circlip	0.01	0.02	BG00014862
Choke set, blank, 3mm, 4.5mm and 6mm	0.01	0.02	BG00015430
Check valve dart with choke hole	0.40	0.88	BG00014985
Seal Kit			
1 piece of #6, #14 & 2 of #11	0.01	0.02	BG00015014
Rebuild Kit			
1 piece of #1, #9, #15 & seal kit			
3 1/2" API reg pin	51.0	112	BG00081817
#24 Cubex pin	49.0	108	BG00166783

5"

RH460hp



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top sub			
3 1/2" API reg pin	15.5	34.1	BG00068455
2. Check valve dart no choke	0.45	0.99	BG00319921
3. Check valve spring	0.03	0.07	BG00014972
4. Make up ring	0.2	0.44	BG00014994
5. Air distributor with O-ring	3.6	7.92	BG00093776
6. O-ring air distributor			In seal kit
7. Inner cylinder	4.2	9.24	BG00025161
8. Piston	14.3	31.5	BG00062889
9. Piston case with retainer ring	30	66	BG00068439
10. Piston retainer ring	0.1	0.22	BG00014998
11. O-ring guide sleeve			In seal kit
12. Guide sleeve with O-ring	1	2.2	BG00014988
13. Bit retainer ring with O-ring	0.4	0.88	BG00014989
14. O-ring bit retainer ring			In seal kit
15. Driver sub hard faced	5.5	12.1	BG00068435
Optional			
Air screen	0.14	0.31	BG00014867
Air screen circlip	0.01	0.02	BG00014862
Choke set, blank, 3mm, 4.5mm and 6mm	0.01	0.02	BG00015430
Check valve dart with choke hole	0.4	0.88	BG00014985
Seal Kit			
1 piece of #6, #14 & 2 of #11	0.01	0.02	BG00015014
Rebuild Kit			
1 piece of #1, #9, #15 & seal kit			
3 1/2" API reg pin	51	112	BG00081817

5"

RH460



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top sub			
3 1/2" API reg pin	24	52.8	BG00014888
2. O-ring top sub			In seal kit
3. Check valve dart no choke	0.7	1.54	BG00321398
4. Check valve spring	0.1	0.22	BG00014864
5. Make up ring	0.4	0.88	BG00014865
6. Air distributor with O-ring	6.2	13.6	BG00054361
7. O-ring air distributor			In seal kit
8. Inner cylinder	6.4	14.1	BG00123002
9. Piston	21.4	47.1	BG00243084
10. Piston case with retainer ring	32.4	71.3	BG00054318
11. Piston retainer ring	0.1	0.22	BG00055711
12. O-ring guide sleeve			In seal kit
13. Guide sleeve with O-ring	2.3	5.06	BG00055719
14. Bit retainer ring with O-ring	0.6	1.32	BG00014871
15. O-ring bit retainer ring			In seal kit
16. Driver sub	6.5	14.3	BG00014887
Optional			
Air screen	0.1	0.22	BG00014867
Air screen circlip	0.01	0.02	BG00014862
Choke set, blank, 3mm, 4.5mm and 6mm	0.01	0.02	BG00081800
Check valve dart with choke hole	0.7	1.54	BG00014869
Driver sub hard faced	6.50	14.3	BG00242302
Seal Kit			
1 Piece of #2, #7, #15 & 2 of #12	0.01	0.02	BG00014894
Rebuild Kit			
1 piece of #1, #10, #16 & seal kit			
3 1/2" API reg pin	63.0	139	BG00240392

6"

RH460g



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top sub			
3 1/2" API reg pin	25.4	55.9	BG00224812
#28 Cubex pin	26	57.2	BG00237751
2. O-ring top sub			In seal kit
3. Check valve dart no choke	0.7	1.54	BG00321398
4. Check valve spring	0.03	0.07	BG00014864
5. Make up ring	0.4	0.88	BG00014865
6. Air distributor with O-ring	6.2	13.6	BG00054361
7. O-ring air distributor			In seal kit
8. Inner cylinder	6.4	14.1	BG00123002
9. Piston	21.4	47.1	BG00243084
10. Piston case with retainer ring	46.4	102	BG00224808
11. Piston retainer ring	0.1	0.22	BG00055711
12. O-ring guide sleeve			In seal kit
13. Guide sleeve with O-ring	2.3	5.06	BG00055719
14. Bit retainer ring with O-ring	0.6	1.32	BG00014871
15. O-ring bit retainer ring			In seal kit
16. Driver sub	7.2	15.8	BG00224798
Optional			
Air screen	0.1	0.22	BG00014867
Air screen circlip	0.01	0.02	BG00014862
Choke set, blank, 3mm, 4.5mm and 6mm	0.01	0.02	BG00081800
Check valve dart with choke hole	0.7	1.54	BG00014869
Seal Kit			
1 Piece of #2, #7, #15 & 2 of #12	0.01	0.02	BG00014894
Rebuild Kit			
1 piece of #1, #10, #16 & seal kit			
3 1/2" API reg pin	79	174	BG00240400
#28 Cubex pin	80	176	BG00240135

6"

RH460



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top sub			
4 1/2" API reg pin	55	121	BG00096730
2. Check valve dart no choke	0.80	1.76	BG00321984
3. Check valve spring	0.04	0.09	BG00015376
4. Make up ring	0.4	0.88	BG00015380
5. Air distributor with O-ring	9.4	20.7	BG00078615
6. O-ring air distributor			In seal kit
7. Inner cylinder	10.5	23.1	BG00057803
8. Piston	50	110	BG00277131
9. Piston case with retainer ring	64	141	BG00057909
10. Piston retainer ring	0.2	0.44	BG00096748
11. O-ring guide sleeve			In seal kit
12. Guide sleeve with O-ring	3	6.6	BG00096749
13. Bit retainer ring with O-ring	1.4	3.08	BG00096752
14. O-ring bit retainer ring			In seal kit
15. Driver sub	13.6	29.9	BG00096753
Optional			
Air screen	0.2	0.44	BG00303642
Air screen circlip	0.01	0.02	BG00303733
Choke set, blank, 3mm, 4.5mm and 6mm	0.01	0.02	BG00081800
Check valve dart with choke hole	0.8	1.76	BG00015375
Driver sub hard faced	13.6	29.9	BG00367978
Seal Kit			
1 piece of #6, #11 & #14	0.01	0.02	BG00303706
Rebuild Kit			
1 piece of #1, #9, #15 & seal kit			
4 1/2" API reg pin	134	295	BG00305733

8"

RH460g



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top sub			
4 1/2" API reg pin	57.0	125	BG00365764
4 1/2 BECO pin	57.0	125	BG00278298
2. Check valve dart no choke	0.80	1.76	BG00321984
3. Check valve spring	0.04	0.09	BG00015376
4. Make up ring	0.40	0.88	BG00015380
5. Air distributor with O-ring	9.40	20.7	BG00078615
6. O-ring air distributor			In seal kit
7. Inner cylinder	10.5	23.1	BG00057803
8. Piston	50.0	110	BG00277131
9. Piston case with retainer ring	94.2	207	BG00278268
10. Piston retainer ring	0.20	0.44	BG00096748
11. O-ring guide Sleeve			In seal kit
12. Guide sleeve with O-ring	3.00	6.60	BG00096749
13. Bit retainer ring with O-ring	1.40	3.08	BG00096752
14. O-ring bit retainer ring			In seal kit
15. Driver sub hard faced	15.9	35.0	BG00303677
Optional			
Air screen	0.20	0.44	BG00303642
Air screen circlip	0.01	0.02	BG00303733
Choke set, blank, 3mm, 4.5mm and 6mm	0.01	0.02	BG00081800
Check valve dart with choke hole	0.80	1.76	BG00015375
Seal Kit			
1 piece of #6, #11 & #14	0.01	0.02	BG00303706
Rebuild Kit			
1 piece of #1, #9, #15 & seal kit			
4 1/2" API reg pin	168	370	BG00367721
4 1/2 BECO pin	167	367	BG00305742

8"



Replacement parts	Item description	Part No.
Complete Hammer		
6 5/8 API Reg Pin		32-3510-SSA/39S
Bit shank		
	SD10	

Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
360	795	226	8,9	1480	58,3	1640	64,6	1690	66,5
Air consumption, cfm				Air consumption, m3/min					
150 psi		200 psi	250 psi	300 psi	10 bar	14 bar	17 bar	21 bar	
690		980	1290	1610	19,5	27,8	36,5	45,6	



Replacement parts	Item description	Part No.
Complete Hammer		
7 5/8 API Reg Pin		32-3515-SSA/15S
Bit shank		
	SD15	

Weight		Outside diameter		Hammer length		Hammer length with bit					
						Bit closed		Bit extended			
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch		
1100	2420	360	14,2	1904	75	2160	85	2210	87		
Air consumption, cfm					Air consumption, m3/min						
150 psi		200 psi		250 psi		10 bar		14 bar		17 bar	
1650		2090		2680		46,7		59,2		75,9	



Replacement parts	Item description	Part No.
Complete Hammer		
6 5/8 API Reg Pin		32-3512-SSA/39S
Bit shank		
	SD12	

Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
618	1360	275	10,8	1729	68,1	1984	78,1	2034	80,1
Air consumption, cfm					Air consumption, m3/min				
150 psi		200 psi		250 psi		10 bar		14 bar	
880		1250		1700		19,5		35,4	
								48,1	



Replacement parts	Item description	Part No.
Complete Hammer		
8 5/8 API Reg Pin		32-3518-SSA/69S
Bit shank		
	SD18	

Weight		Outside diameter		Hammer length		Hammer length with bit					
						Bit closed		Bit extended			
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch		
1560	3430	410	16,1	2040	80,3	2290	90,3	2340	92,3		
Air consumption, cfm					Air consumption, m3/min						
100 psi		150 psi		200 psi		7 bar		10 bar		14 bar	
1430		2120		3000		40,5		60,0		84,9	



Replacement parts	Item description	Part No.
Complete Hammer		
6 5/8 API Reg Pin		32-3512-SDA/39S
Bit shank		
	DHD 112	

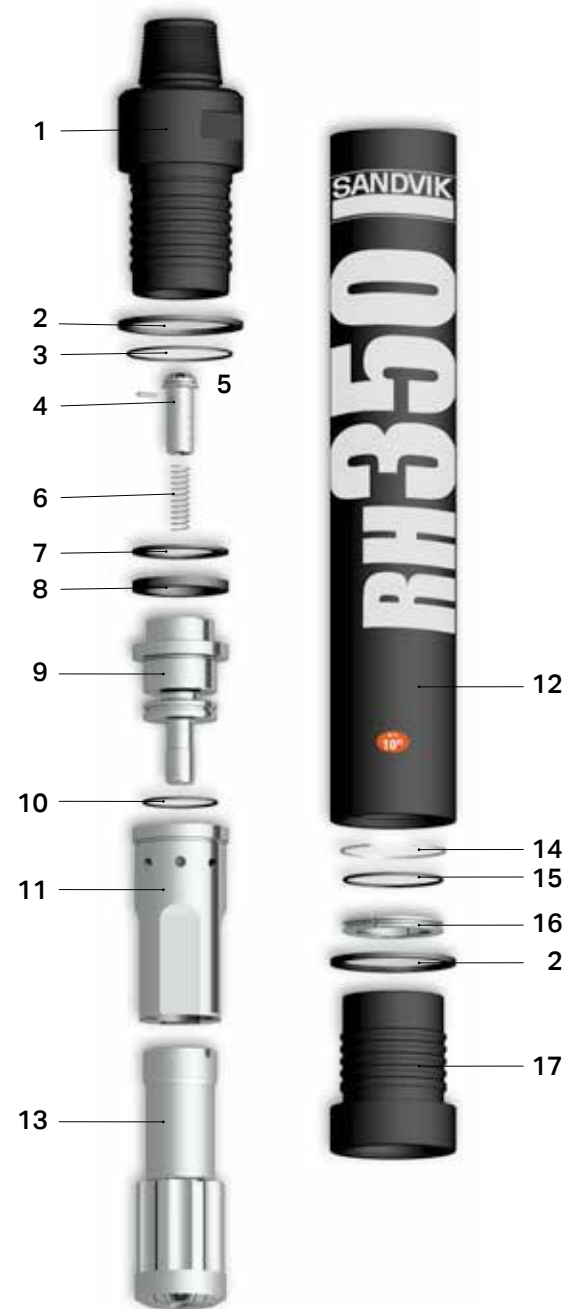
Weight		Outside diameter		Hammer length		Hammer length with bit			
						Bit closed		Bit extended	
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch
620	1365	275	10,8	1750	68,9	2004	78,9	2054	80,9
Air consumption, cfm					Air consumption, m3/min				
150 psi		200 psi		250 psi		10 bar		14 bar	
17 bar									
880		1250		1700		24,9		35,4	
								48,1	



Replacement parts	Item description	Part No.
Complete Hammer		
8 5/8 API Reg Pin		32-3518-SNA/69S
Bit shank		
	N180	

Weight		Outside diameter		Hammer length		Hammer length with bit					
						Bit closed		Bit extended			
kg	lb	mm	inch	mm	inch	mm	inch	mm	inch		
1574	3460	410	16,1	1993	78,5	2248	88,5	2298	90,5		
Air consumption, cfm					Air consumption, m3/min						
100 psi		150 psi		200 psi		7 bar		10 bar		14 bar	
1430		2120		3000		40,5		60,0		84,9	

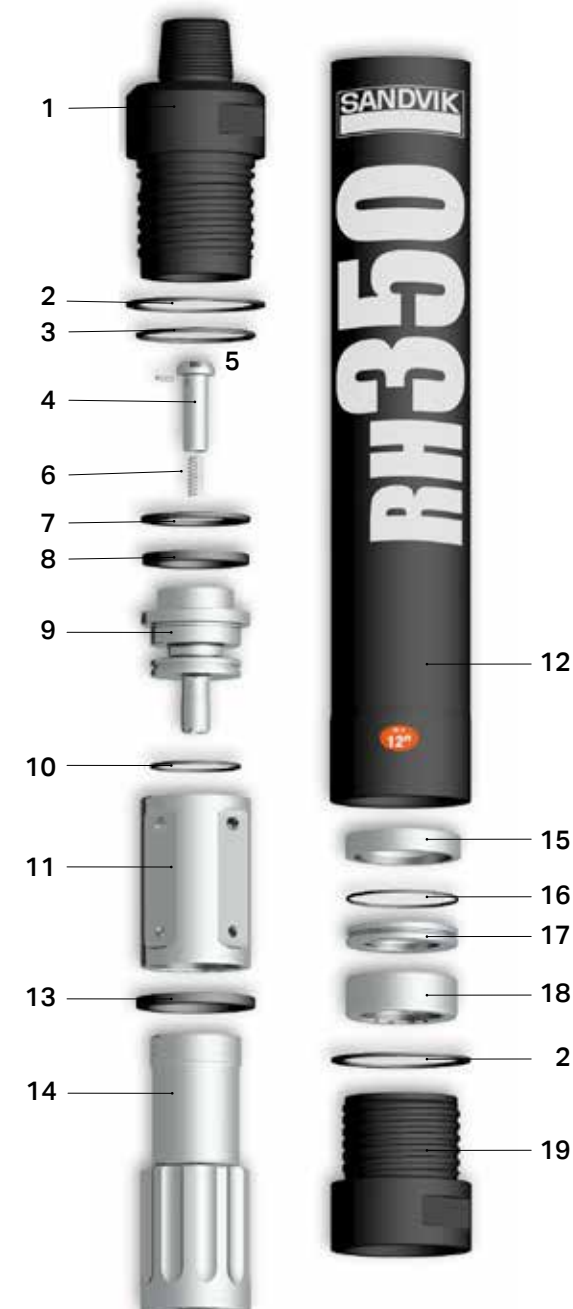
RH350



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top Sub 6 5/8 API Reg Pin			BG00029652
2. Break Out Ring			BG00029666
3. O-Ring, Top Sub			In Seal Kit
4. Check Valve			BG00029667
5. Choke, blank			BG00047875
5. Choke, 1/4"			BG00047876
5. Choke, 3/8"			BG00047877
5. Choke, 1/2"			BG00047878
6. Check Valve Spring			BG00029670
7. Spacer			BG00029668
8. Make Up Ring			BG00029669
9. Rigid Valve			BG00029671
10. O-Ring, Rigid Valve			In Seal Kit
11. Inner Sleeve			BG00029672
12. Piston Case			BG00029673
13. Piston			BG00029674
14. Piston Retainer Ring			BG00029675
15. O-Ring, Bit Retainer Ring			In Seal Kit
16. Bit Retainer Ring			BG00029676
17. Driver Sub			BG00029677
Seal Kit			
1 of 3, 1 of 10, 3 of 15			BG00032790

10" SD

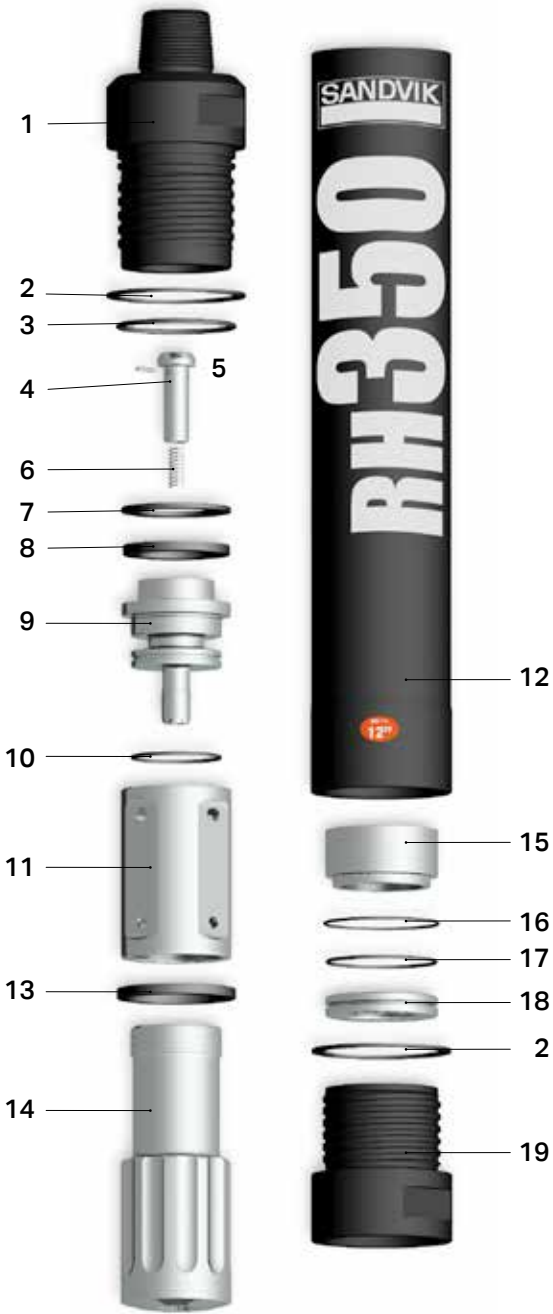
RH350



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top Sub 6 5/8 API Reg Pin			BG00031105
2. Break Out Ring			BG00031108
3. O-Ring, Top Sub			In Seal Kit
4. Check Valve			BG00031109
5. Choke, blank			BG00047947
5. Choke, 1/4"			BG00047949
5. Choke, 3/8"			BG00047950
5. Choke, 1/2"			BG00047951
6. Check Valve Spring			BG00054450
7. Spacer			BG00031110
8. Make Up Ring			BG00031111
9. Rigid Valve			BG00031112
10. O-Ring, Rigid Valve			In Seal Kit
11. Inner Sleeve			BG00031113
12. Piston Case			BG00054500
13. Stop Ring			BG00031114
14. Piston			BG00054499
15. Piston Retainer Ring			BG00031117
16. O-Ring, Bit Retainer Ring			In Seal Kit
17. Bit Retainer Ring			BG00031118
18. Guide Sleeve			BG00031121
19. Driver Sub			BG00031122
Seal Kit			
1 piece of 3, 1 of 10, 3 of 16			BG00032791

12" SD

RH350



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top Sub 6 5/8 API Reg Pin			BG00031105
2. Break Out Ring			BG00031108
3. O-Ring, Top Sub			In Seal Kit
4. Check Valve			BG00031109
5. Choke, blank			BG00047947
5. Choke, 1/4"			BG00047949
5. Choke, 3/8"			BG00047950
5. Choke, 1/2"			BG00047951
6. Check Valve Spring			BG00054450
7. Spacer			BG00031110
8. Make Up Ring			BG00031111
9. Rigid Valve			BG00031112
10. O-Ring, Rigid Valve			In Seal Kit
11. Inner Sleeve			BG00031113
12. Piston Case			BG00031116
13. Stop Ring			BG00031114
14. Piston			BG00031115
15. Bushing			BG00031403
16. Bushing Stop Ring			BG00031404
17. O-Ring, Bit Retainer Ring			In Seal Kit
18. Bit Retainer Ring			BG00031405
19. Driver Sub			BG00031406
Seal Kit			
1 piece of 3, 1 of 10, 3 of 17			BG00032791

12" DHD

RH350



Replacement parts Item description	Weight		Part No.
	kg	lb	
1. Top Sub 7 5/8 API Reg Pin			BG00032389
2. Break Out Ring			BG00032528
3. O-Ring, Top Sub			In Seal Kit
4. Check Valve			BG00032529
5. Choke, blank			BG00047952
5. Choke, 1/4"			BG00047953
5. Choke, 3/8"			BG00047954
5. Choke, 1/2"			BG00047957
6. Check Valve Spring			BG00032533
7. Spacer			BG00032530
8. Make Up Ring			BG00032531
9. Rigid Valve			BG00032536
10. O-Ring, Rigid Valve			In Seal Kit
11. Inner Sleeve			BG00032540
12. Piston Case			BG00032543
13. Piston			BG00032546
14. Bushing			BG00032547
15. Piston Retainer Ring			BG00032548
16. O-Ring, Bit Retainer Ring			In Seal Kit
17. Bit Retainer Ring			BG00032551
18. Guide Sleeve			BG00032552
19. Driver Sub			BG00032553
Seal Kit			
1 piece of 3, 1 of 10, 3 of 16			BG00032792

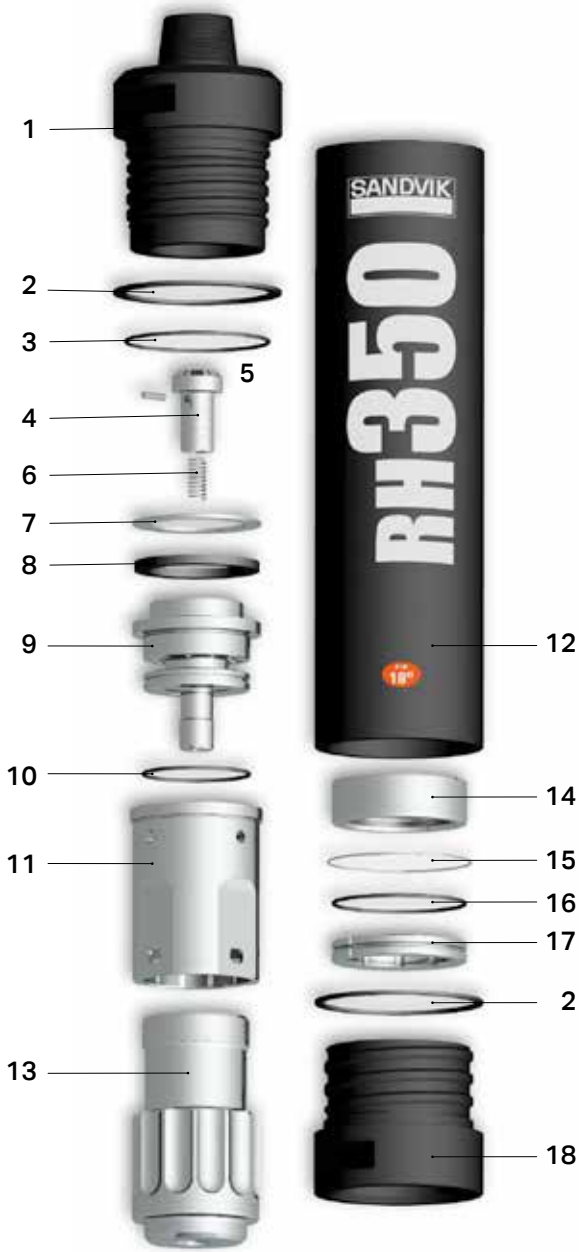
RH350



Replacement parts	Item description	Weight		Part No.
		kg	lb	
1.	Top Sub 8 5/8 API Reg Pin			BG00032612
2.	Break Out Ring, Upper			BG00032613
3.	O-Ring, Top Sub			In Seal Kit
4.	Check Valve			BG00032614
5.	Choke, blank			BG00047958
5.	Choke, 1/4"			BG00047959
5.	Choke, 3/8"			BG00047960
5.	Choke, 1/2"			BG00047961
6.	Check Valve Spring			BG00032615
7.	Spacer			BG00032616
8.	Make Up Ring			BG00032617
9.	Rigid Valve			BG00032618
10.	O-Ring, Rigid Valve			In Seal Kit
11.	Inner Sleeve			BG00032619
12.	Piston Case			BG00032620
13.	Piston			BG00032621
14.	Bushing			BG00032622
15.	Piston Reatiner Ring			BG00032623
16.	O-Ring, Bit Retainer Ring			In Seal Kit
17.	Bit Retainer Ring			BG00032624
18.	Guide Sleeve			BG00032625
19.	Break Out Ring, Lower			BG00032626
20.	Driver Sub			BG00032627
Seal Kit				
1 piece of 3, 1 of 10, 3 of 16				BG00032793

18" SD

RH350



Replacement parts	Item description	Weight		Part No.
		kg	lb	
1.	Top Sub 8 5/8 API Reg Pin			BG00032612
2.	Break Out Ring			BG00032613
3.	O-Ring, Top Sub			In Seal Kit
4.	Check Valve			BG00032614
5.	Choke, blank			BG00047958
5.	Choke, 1/4"			BG00047959
5.	Choke, 3/8"			BG00047960
5.	Choke, 1/2"			BG00047961
6.	Check Valve Spring			BG00032615
7.	Spacer			BG00032616
8.	Make Up Ring			BG00032617
9.	Rigid Valve			BG00032618
10.	O-Ring, Rigid Valve			In Seal Kit
11.	Inner Sleeve			BG00032619
12.	Piston Case			BG00032704
13.	Piston			BG00032705
14.	Bushing			BG00032706
15.	Piston Reatiner Ring			BG00032623
16.	O-Ring, Bit Retainer Ring			In Seal Kit
17.	Bit Retainer Ring			BG00032707
18.	Driver Sub			BG00032708
Seal Kit				
1 piece of 3, 1 of 10, 3 of 16				BG00032793

18" Numa



DRILL BITS THAT TAKE YOU FURTHER

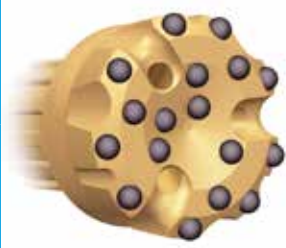
Whatever conditions you're dealing with, Sandvik DTH drill bits make the job easier. They are fitted with our proprietary cemented carbide tips, which are designed to drill further.

The drill bit bodies are made from precision hardened nickel molybdenum steel, with a compound curve shape for faster and smoother cutting and easier removal of cuttings.

Our well-proven button bit designs are trusted by customers around the world. The bits in the new range have an optimized head length with maximized steel support for the cemented carbide buttons, deep face grooves for excellent flushing and an aggressive cutting structure.

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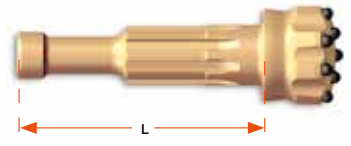
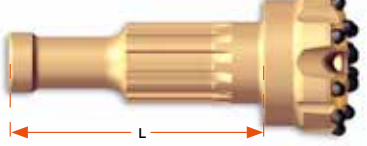
BIT SELECTION GUIDE

Faces	Carbides	Rock hardness		Rock structure		Rock abrasiveness	
Concave	Ballistic	Very hard	Softer	Fissured	Homogeneous	Very abrasive	Non abrasive
	XT48	↔		↔		↔	
	DP55	↔		↔		↔	
Concave	Spherical	Very hard	Softer	Fissured	Homogeneous	Very abrasive	Non abrasive
	XT48	↔		↔		↔	
	DP65	↔		↔		↔	
Convex	Ballistic	Very hard	Softer	Fissured	Homogeneous	Very abrasive	Non abrasive
	XT48	↔		↔		↔	
	DP55	↔		↔		↔	
Convex	Spherical/Ballistic	Very hard	Softer	Fissured	Homogeneous	Very abrasive	Non abrasive
	DP55 DP55	↔		↔		↔	
Flat	Spherical	Very hard	Softer	Fissured	Homogeneous	Very abrasive	Non abrasive
	XT48	↔		↔		↔	
	DP65	↔		↔		↔	
Cemented carbides types specifications							

This bit selection guide will help you select the right bit for the type of rock you are drilling.
Note: Cemented carbide grades DP55 and DP65 are available on several bits.

! Convex face with spherical gauge buttons and ballistic front buttons.

BIT SHANK IDENTIFICATION CHART

M 30 • 3" L = 224 mm, 8 Splines	DHD 340 • 4" L = 209 mm, 8 Splines
	
M 40 • 4" L = 228 mm, 12 Splines	QLX40 • 4" L = 209 mm, 12 Splines
	
M 50 • 5" L = 287 mm, 12 Splines	QL 50 • 5" L = 240 mm, 12 Splines
	
M 60 • 6" L = 230 mm, 12 Splines	QL 60 • 6" L = 253 mm, 12 Splines
	
M 80 • 8" L = 329 mm, 12 Splines	QL 80 • 8" L = 332 mm, 16 Splines
	
SD 10 • 10" L = 412 mm, 8 Splines	SD 12 • 12" L = 519 mm, 8 Splines
	
DHD 112 • 12" L = 542 mm, 8 Splines	SD 18 • 18" L = 674 mm, 12 Splines
	
SD 15 • 15" L = 606 mm, 12 Splines	N180 NUMA • 18" L = 603 mm, 12 Splines
	

DRILL BITS / M SHANKS

Sandvik RH550	Diameter		Air holes	Gauge buttons	Button dia. mm		Weight		Part No.	Shank
	mm	inch			gauge	front	Kg	lb		

M30

Convex face / Ballistic button



90	3 1/2	2	8	12	12	4,7	10	42-3A51090-R48
95	3 3/4	2	8	12	12	4,7	10	42-3A51095-R48
100	3 7/8	2	8	13	13	5,3	12	42-3A54100-R48
105	4 1/8	2	8	14	14	5,3	12	42-3A5B105-R48

Flat face / Spherical button



90	3 1/2	2	8	11	11	4,7	10	42-3AF0090-S48
95	3 3/4	2	8	12	12	4,7	10	42-3AF1095-S48
100	3 7/8	2	8	13	13	5,3	12	42-3AF4100-S48
105	4 1/8	2	8	14	14	5,3	12	42-3AFB105-S48

M30



M40

Concave face / Ballistic button



115	4 1/2	2	8	14	14	8,4	18	42-481B115-R48
115	4 1/2	2	8	14	14	8,4	18	42-481B115-R55
127	5	2	8	14	14	12	26	42-481B127-R48
127	5	2	8	14	14	12	26	42-481B127-R55*

Concave face / Spherical button



115	4 1/2	2	8	14	14	8,4	18	42-481B115-S48
115	4 1/2	2	8	14	14	8,4	18	42-481B115-S65
121	4 3/4	2	8	14	14	11	24	42-481B121-S48
121	4 3/4	2	8	14	14	11	24	42-481B121-S65 *
127	5	2	8	14	14	12	26	42-481B127-S48
127	5	2	8	14	14	12	26	42-481B127-S65*
130	5 1/8	2	8	16	13	14	31	42-4818130-S48
133	5 1/4	2	8	16	13	15	33	42-4818133-S48*

Convex face / Ballistic button



110	4 3/8	2	8	14	14	8	18	42-485B110-R48
115	4 1/2	2	8	14	14	8,4	18	42-485B115-R48
115	4 1/2	2	8	14	14	8,4	18	42-485B115-R55
121	4 3/4	2	8	14	14	11	24	42-485B121-R48*
127	5	2	8	14	14	12	26	42-485B127-R48
127	5	2	8	14	14	12	26	42-485B127-R55
130	5 1/8	3	9	16	14	14	31	42-48L9130-R48
133	5 1/4	3	9	16	14	15	33	42-48L9133-R48*

Flat face / Spherical button



110	4 3/8	2	8	14	14	8	18	42-48FB110-S48
115	4 1/2	2	8	14	14	8,4	18	42-48FB115-S48
115	4 1/2	2	8	14	14	8,4	18	42-48FB115-S65*
121	4 3/4	2	8	14	14	8,4	18	42-48FB121-S48*
127	5	2	8	14	14	12	26	42-48FB127-S48
127	5	2	8	14	14	12	26	42-48FB127-S65*
130	5 1/8	2	8	16	14	14	31	42-48F9130-S48
133	5 1/4	2	8	16	14	15	33	42-48F9133-S48*

*contact you Sandvik representative for availability

DRILL BITS / M SHANKS

Sandvik RH550	Diameter		Air holes	Gauge buttons	Button dia. mm		Weight		Part No.	Shank
	mm	inch			gauge	front	Kg	lb		

M40

Convex Face / Ballistic & Spherical Buttons

115	4 1/2	2	8	14	14	8,4	18	42-485B115-L55*
127	5	2	8	14	14	12	26	42-485B127-L55*

M50

Concave face / Ballistic button



140	5 1/2	2	8	16	14	15	33	42-5819140-R48
140	5 1/2	2	8	16	14	15	33	42-5819140-R55
146	5 3/4	2	8	16	14	16	35	42-5819146-R48*
146	5 3/4	2	8	16	14	16	35	42-5819146-R55

Concave face / Spherical button



130	5 1/8	2	8	16	13	13,9	31	42-5818130-S48*
133	5 1/4	2	8	16	13	14,3	31	42-5818133-S48*
140	5 1/2	2	8	16	14	15	33	42-5819140-S48
140	5 1/2	2	8	16	14	15	33	42-5819140-S65
146	5 3/4	2	8	16	14	16	35	42-5819146-S48
146	5 3/4	2	8	16	14	16	35	42-5819146-S65
152	6	2	8	18	16	17,1	38	42-581D152-S48
165	6 1/2	2	8	18	16	18	40	42-581D165-S48

Convex face / Ballistic button



130	5 1/8	3	9	16	14	13,9	31	42-58L9130-R48*
133	5 1/4	3	9	16	14	14,3	31	42-58L9133-R48*
140	5 1/2	3	9	16	16	15	33	42-58LC140-R48
140	5 1/2	3	9	16	16	15	33	42-58LC140-R55
146	5 3/4	3	9	16	16	16	35	42-58LC146-R48
146	5 3/4	3	9	16	16	16	35	42-58LC146-R55
152	6	3	9	18	16	17,1	38	42-58LD152-R48*

Flat face / Spherical button



130	5 1/8	2	8	16	14	13,9	31	42-58F9130-S48*
133	5 1/4	3	9	16	14	14,3	31	42-58F9133-S48*
140	5 1/2	3	9	16	14	15	33	42-5829140-S48
140	5 1/2	3	9	16	14	15	33	42-5829140-S65
146	5 3/4	3	9	16	14	16	35	42-5829146-S48
146	5 3/4	3	9	16	14	16	35	42-5829146-S65*
152	6	3	9	18	16	17,1	38	42-582D152-S48

Convex Face / Ballistic & Spherical Buttons

140	5 1/2	3	9	16	16	15	33	42-58LC140-L55*
146	5 3/4	3	9	16	16	16	35	42-58LC146-L55*

*contact you Sandvik representative for availability

DRILL BITS / M SHANKS

Sandvik RH550	Diameter		Air holes	Gauge buttons	Button dia. mm		Weight		Part No.	Shank
	mm	inch			gauge	front	Kg	lb		

M60

Concave Face / Ballistic Button

165	6 1/2	3	9	18	18	22,9	50	42-68DE165-R48
165	6 1/2	3	9	18	18	22,9	50	42-68DE165-R55*
172	6 3/4	3	9	18	18	25	55	42-68DE172-R48*
172	6 3/4	3	9	18	18	25	55	42-68DE172-R55*

Concave face / Spherical button

152	6	2	8	18	18	21,8	48	42-681E152-S48
152	6	2	8	18	18	21,8	48	42-681E152-S65*
155	6 1/8	2	8	18	18	22,2	49	42-681E155-S48
155	6 1/8	2	8	18	18	22,2	49	42-681E155-S65
159	6 1/4	2	8	18	18	22,9	50	42-681E159-S48*
159	6 1/4	2	8	18	18	22,9	50	42-681E159-S65*
165	6 1/2	3	9	18	18	23,5	52	42-68DE165-S48
165	6 1/2	3	9	18	18	23,5	52	42-68DE165-S65
172	6 3/4	3	9	18	18	25	55	42-68DE172-S48
172	6 3/4	3	9	18	18	25	55	42-68DE172-S65
178	7	3	9	18	18	26	57	42-68DE178-S48
190	7 1/2	3	9	18	18	27	59	42-68DE190-S48
203	8	3	9	18	18	29,1	64	42-68DE203-S48

Convex face / Ballistic button

152	6	3	9	18	18	21,8	48	42-68LE152-R48*
152	6	3	9	18	18	21,8	48	42-68LE152-R55*
155	6 1/8	3	9	18	18	22,2	49	42-68LE155-R48*
155	6 1/8	3	9	18	18	22,2	49	42-68LE155-R55
159	6 1/4	3	9	18	18	22,9	50	42-68LE159-R48*
159	6 1/4	3	9	18	18	22,9	50	42-68LE159-R55*
165	6 1/2	3	9	18	18	23,5	52	42-68GE165-R48
165	6 1/2	3	9	18	18	23,5	52	42-68GE165-R55
172	6 3/4	3	9	18	18	25	55	42-68GE172-R48
172	6 3/4	3	9	18	18	25	55	42-68GE172-R55
178	7	3	9	18	18	26	57	42-68GE178-R48*
178	7	3	9	18	18	26	57	42-68GE178-R55*

Flat face / Spherical button

152	6	3	9	18	18	21,8	48	42-682D152-S48*
155	6 1/8	3	9	18	18	22,2	49	42-682D155-S48*
165	6 1/2	3	9	18	18	23,5	52	42-682E165-S48
165	6 1/2	3	9	18	18	23,5	52	42-682E165-S65
172	6 3/4	3	9	18	18	25	55	42-682E172-S48
172	6 3/4	3	9	18	18	25	55	42-682E172-S65
178	7	3	9	18	18	26	57	42-682E178-S48
190	7 1/2	3	9	18	18	27	59	42-682E190-S48*
203	8	3	9	18	18	29,1	64	42-682E203-S48

Concave Face / Ballistic & Spherical Button

165	6 1/2	3	9	18	18	23,5	52	42-68GE165-L55*
172	6 3/4	3	9	18	18	25	55	42-68GE172-L55*

*contact you Sandvik representative for availability

DRILL BITS / M SHANKS

Sandvik RH550	Diameter		Air holes	Gauge buttons	Button dia. mm		Weight		Part No.	Shank
	mm	inch			gauge	front	Kg	lb		
M80										
Concave face / Spherical button										
	200	7 7/8	3	9	18	18	41	90	42-88PE200-S48*	
	203	8	3	9	18	18	41	90	42-88PE203-S48	
	216	8 1/2	3	9	18	18	42	92	42-88PE216-S48	
	219	8 5/8	3	9	18	18	42	92	42-88PE219-S48	
	222	8 3/4	3	12	18	18	49	108	42-888E222-S48	
	226	8 7/8	3	12	18	18	51	112	42-888E226-S48*	
	229	9	3	12	18	18	53	117	42-888E229-S48	
	241	9 1/2	3	12	18	18	57	125	42-888E241-S48 *	
	251	9 7/8	3	12	18	18	57	125	42-888E251-S48*	
	254	10	3	12	18	18	57	125	42-888E254-S48	
	270	10.625	3	12	18	18	61	134	42-888E270-S48	
	305	12	3	12	18	18	77	169	42-888E305-S48*	
Flat Face / Spherical Button										
	203	8	3	9	18	18	41	90	42-882E203-S48*	
	216	8 1/2	3	9	18	18	42	92	42-882E216-S48*	
	222	8 3/4	3	12	18	18	49	108	42-88KE222-S48*	

*contact you Sandvik representative for availability

DRILL BITS / DHD 340 SHANKS

Sandvik RH460	Diameter		Air holes	Gauge buttons	Button dia. mm		Weight		Part No.	Shank
	mm	inch			gauge	front	Kg	lb		

DHD 340											
Concave face / Ballistic button											
	115	4 1/2	2	8	14	13	8,4	18	42-361A115-R48		
	115	4 1/2	2	8	14	13	8,4	18	42-361A115-R55		
	127	5	2	8	14	13	12	26	42-361A127-R48		
	127	5	2	8	14	13	12	26	42-361A127-R55		
Concave face / Spherical button											
	115	4 1/2	2	8	14	13	8,4	18	42-361A115-S48		
	115	4 1/2	2	8	14	13	8,4	18	42-361A115-S65		
	121	4 3/4	2	8	14	13	11	24	42-361A121-S48		
	121	4 3/4	2	8	14	13	11	24	42-361A121-S65		
	127	5	2	8	14	13	12	26	42-361A127-S48		
	127	5	2	8	14	13	12	26	42-361A127-S65		
130	5 1/8	2	8	16	13	14	31	42-3618130-S48			
Convex face / Ballistic button											
	110	4 3/8	2	8	14	13	8	18	42-365A110-R48		
	115	4 1/2	2	8	14	13	8,4	18	42-365A115-R48		
	115	4 1/2	2	8	14	13	8,4	18	42-365A115-R55		
	121	4 3/4	2	8	14	13	11	24	42-365A121-R48*		
	127	5	2	8	14	13	12	26	42-365A127-R48		
	127	5	2	8	14	13	12	26	42-365A127-R55		
	130	5 1/8	3	9	16	13	14	31	42-36L8130-R48		
Flat face / Spherical button											
	110	4 3/8	2	8	14	13	8	18	42-36FA110-S48		
	115	4 1/2	2	8	14	13	8,4	18	42-36FA115-S48		
	115	4 1/2	2	8	14	13	8,4	18	42-36FA115-S65		
	115	4 1/2	2	8	16	13	8,4	18	42-36F8115-S65		
	121	4 3/4	2	8	14	13	11	24	42-36FA121-S48*		
	127	5	2	8	14	13	12	26	42-36FA127-S48		
	127	5	2	8	14	13	12	26	42-36FA127-S65		
	130	5 1/8	2	8	16	13	14	31	42-36F8130-S48		
Foot valve											
							0.5	1	47-36017		

*contact you Sandvik representative for availability

DRILL BITS / QLX 40 SHANKS

Sandvik RH460	Diameter		Air holes	Gauge buttons	Button dia. mm		Weight		Part No.	Shank
	mm	inch			gauge	front	Kg	lb		

QLX 40											
Concave Face / Ballistic Button											
	115	4 1/2	2	8	14	13	8,4	18	42-4G1A115-R48		
	115	4 1/2	2	8	14	13	8,4	18	42-4G1A115-R55		
	127	5	2	8	14	13	12	26	42-4G1A127-R48		
	127	5	2	8	14	13	12	26	42-4G1A127-R55		
Concave Face / Spherical Button											
	115	4 1/2	2	8	14	13	8,4	18	42-4G1A115-S48		
	115	4 1/2	2	8	14	13	8,4	18	42-4G1A115-S65		
	121	4 3/4	2	8	14	13	11	24	42-4G1A121-S48*		
	121	4 3/4	2	8	14	13	11	24	42-4G1A121-S65*		
	127	5	2	8	14	13	12	26	42-4G1A127-S48		
	130	5 1/8	2	8	16	13	14	31	42-4G18130-S48		
Convex Face / Ballistic Button											
	110	4 3/8	2	8	14	13	8	18	42-4G5A110-R48		
	115	4 1/2	2	8	14	13	8,4	18	42-4G5A115-R48		
	115	4 1/2	2	8	14	13	8,4	18	42-4G5A115-R55		
	127	5	2	8	14	13	12	26	42-4G5A127-R48		
	130	5 1/8	3	9	16	13	14	31	42-4GL8130-R48		
Flat Face / Spherical Button											
	110	4 3/8	2	8	14	13	8	18	42-4GFA110-S48		
	115	4 1/2	2	8	14	13	8,4	18	42-4GFA115-S48		
	115	4 1/2	2	8	14	13	8,4	18	42-4GFA115-S65		
	115	4 1/2	2	8	16	13	8,4	18	42-4GF8115-S65		
	127	5	2	8	14	13	12	26	42-4GFA127-S48		
	127	5	2	8	14	13	12	26	42-4GFA127-S65		
	130	5 1/8	2	8	16	13	14	31	42-4GF8130-S48		
Foot valve											
							0.5	1	47-4G017		

*contact you Sandvik representative for availability

DRILL BITS / QL 50 SHANKS

Sandvik RH460	Diameter		Air holes	Gauge buttons	Button dia. mm		Weight		Part No.	Shank
	mm	inch			gauge	front	Kg	lb		

QL 50

Concave face / Ballistic button



140	5 1/2	2	8	16	14	15	33	42-5019140-R48
140	5 1/2	2	8	16	14	15	33	42-5019140-R55
146	5 3/4	2	8	16	14	16	35	42-5019146-R48*
146	5 3/4	2	8	16	14	16	35	42-5019146-R55*

Concave face / Spherical button



130	5 1/8	2	8	16	13	13,9	31	42-5018130-S48*
133	5 1/4	2	8	16	13	14,3	31	42-5018133-S48
140	5 1/2	2	8	16	14	15	33	42-5019140-S48
140	5 1/2	2	8	16	14	15	33	42-5019140-S65
146	5 3/4	2	8	16	14	16	35	42-5019146-S48
146	5 3/4	2	8	16	14	16	35	42-5019146-S65
152	6	2	8	18	16	17,1	38	42-501D152-S48

Convex face / Ballistic button



130	5 1/8	3	9	16	14	13,9	31	42-50L9130-R48
133	5 1/4	3	9	16	14	14,3	31	42-50L9133-R48*
140	5 1/2	3	9	16	16	15	33	42-50LC140-R48
140	5 1/2	3	9	16	16	15	33	42-50LC140-R55
146	5 3/4	3	9	16	16	16	35	42-50LC146-R48
146	5 3/4	3	9	16	16	16	35	42-50LC146-R55
152	6	3	9	18	16	17,1	38	42-50LD152-R48

Flat face / Spherical button



130	5 1/8	2	8	16	14	13,9	31	42-50F9130-S48
133	5 1/4	2	8	16	14	14,3	31	42-50F9133-S48*
140	5 1/2	3	9	16	14	15	33	42-5029140-S48
140	5 1/2	3	9	16	14	15	33	42-5029140-S65
146	5 3/4	3	9	16	14	16	35	42-5029146-S48
146	5 3/4	3	9	16	14	16	35	42-5029146-S65
152	6	3	9	18	16	17,1	38	42-502D152-S48

Convex Face / Ballistic & Spherical Button

140	5 1/2	3	9	16	16	15	33	42-50LC140-L55
146	5 3/4	3	9	16	16	16	35	42-50LC146-L55

Foot valve



						0.5	1.2	47-50017
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*contact you Sandvik representative for availability

DRILL BITS / QL 60 SHANKS

Sandvik RH460	Diameter		Air holes	Gauge buttons	Button dia. mm		Weight		Part No.	Shank
	mm	inch			gauge	front	kg	lb		

QL 60

Concave Face / Ballistic Button

165	6 1/2	3	9	18	18	26,9	59	42-76DE165-R48*
165	6 1/2	3	9	18	18	26,9	59	42-76DE165-R55*
172	6 3/4	3	9	18	18	29	64	42-76DE172-R48*
172	6 3/4	3	9	18	18	29	64	42-76DE172-R55*

Concave face / Spherical button



152	6	2	8	18	18	25,8	57	42-761E152-S48
152	6	2	8	18	18	25,8	57	42-761E152-S65*
155	6 1/8	2	8	18	18	26,2	58	42-761E155-S48
155	6 1/8	2	8	18	18	26,2	58	42-761E155-S65
159	6 1/4	2	8	18	18	26,9	59	42-761E159-S48*
159	6 1/4	2	8	18	18	26,9	59	42-761E159-S65*
165	6 1/2	3	9	18	18	27,5	61	42-76DE165-S48
165	6 1/2	3	9	18	18	27,5	61	42-76DE165-S65
172	6 3/4	3	9	18	18	29	64	42-76DE172-S48
172	6 3/4	3	9	18	18	29	64	42-76DE172-S65
178	7	3	9	18	18	30	66	42-76DE178-S48*
190	7 1/2	3	9	18	18	31	68	42-76DE190-S48*
203	8	3	9	18	18	33,1	73	42-76DE203-S48

Convex face / Ballistic button



152	6	3	9	18	18	25,8	57	42-76LE152-R48*
152	6	3	9	18	18	25,8	57	42-76LE152-R55*
155	6 1/8	3	9	18	18	26,2	58	42-76LE155-R48*
155	6 1/8	3	9	18	18	26,2	58	42-76LE155-R55*
159	6 1/4	3	9	18	18	26,9	59	42-76LE159-R48*
159	6 1/4	3	9	18	18	26,9	59	42-76LE159-R55*
165	6 1/2	3	9	18	18	27,5	61	42-76GE165-R48
165	6 1/2	3	9	18	18	27,5	61	42-76GE165-R55
172	6 3/4	3	9	18	18	29	64	42-76GE172-R48
172	6 3/4	3	9	18	18	29	64	42-76GE172-R55
178	7	3	9	18	18	30	66	42-76GE178-R48*
178	7	3	9	18	18	30	66	42-76GE178-R55*
203	8	3	9	18	18	33,1	73	42-76GE203-R48*
203	8	3	9	18	18	33,1	73	42-76GE203-R55*

Flat face / Spherical button



152	6	3	9	18	16	25,8	57	42-762D152-S48*
155	6 1/8	3	9	18	16	26,2	58	42-762D155-S48*
159	6 1/4	3	9	18	16	26,9	59	42-762D159-S48*
165	6 1/2	3	9	18	18	27,5	61	42-762E165-S48
165	6 1/2	3	9	18	18	27,5	61	42-762E165-S65
172	6 3/4	3	9	18	18	29	64	42-762E172-S48
172	6 3/4	3	9	18	18	29	64	42-762E172-S65
178	7	3	9	18	18	30	66	42-762E178-S48*
190	7 1/2	3	9	18	18	31	68	42-762E190-S48*
203	8	3	9	18	18	33,1	73	42-762E203-S48

*contact you Sandvik representative for availability

DRILL BITS / QL 60 SHANKS

Sandvik RH460	Diameter		Air holes	Gauge buttons	Button dia. mm		Weight		Part No.	Shank
	mm	inch			gauge	front	kg	lb		

QL 60

Convex Face / Spherical & Ballistic Button

165	6 1/2	3	9	18	18	27,5	61	42-76GE165-L55*
172	6 3/4	3	9	18	18	29	64	42-76GE172-L55*

Foot valve



						0.5	1.2	47-76017
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QL 60



*contact you Sandvik representative for availability

DRILL BITS / QL 80 SHANKS

Sandvik RH460	Diameter		Air holes	Gauge buttons	Button dia. mm		Weight		Part No.	Shank
	mm	inch			gauge	front	kg	lb		

QL 80

Concave face / Spherical button



200	7 7/8	3	9	18	18	49,9	110	42-83PE200-S48*
203	8	3	9	18	18	50,4	111	42-83PE203-S48
216	8 1/2	3	9	18	18	52,7	116	42-83PE216-S48
219	8 5/8	3	9	18	18	53,4	117	42-83PE219-S48
222	8 3/4	3	12	18	18	54,4	120	42-838E222-S48
226	8 7/8	3	12	18	18	54,8	121	42-838E226-S48*
229	9	3	12	18	18	55,2	121	42-838E229-S48
241	9 1/2	3	12	18	18	60,8	134	42-838E241-S48*
251	9 7/8	3	12	18	18	63,5	140	42-838E251-S48*
254	10	3	12	18	18	64	141	42-838E254-S48
270	10 5/8	3	12	18	18	71,8	158	42-838E270-S48
305	12	3	12	18	18	85	187	42-838E305-S48*

Convex Face / Ballistic Button

203	8	3	9	18	18	50,4	111	42-83GE203-R55*
216	8 1/2	3	9	18	18	52,7	116	42-83GE216-R55*
222	8 3/4	3	9	18	18	54,4	120	42-83GE222-R55*

Flat Face / Spherical Button

203	8	3	9	18	18	50,4	111	42-832E203-S48*
216	8 1/2	3	9	18	18	52,7	116	42-832E216-S48*
222	8 3/4	3	12	18	18	54,4	120	42-83KE222-S48*
229	9	3	12	18	18	55,2	121	42-83KE229-S48*

Foot valve



						0.5	1.2	47-83017
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QL 80



*contact you Sandvik representative for availability

DRILL BITS / RH350 SHANKS

Sandvik RH350	Diameter		Air holes	Gauge buttons	Button dia. mm		Weight		Part No.	Shank
	mm	inch			gauge	front	kg	lb		

SD 10

Concave Face / Spherical Button



244	9 5/8	2	12	18	16			42-10JD244-SPP
248	9 3/4	2	12	18	16			42-10JD248-SPP
251	9 7/8	2	12	18	16			42-10JD251-SPP
254	10	2	12	18	16			42-10JD254-SPP
260	10 1/4	3	12	18	16			42-108D260-SPP
267	10 1/2	3	12	18	16			42-108D267-SPP
273	10 3/4	3	12	18	16			42-108D273-SPP
279	11	3	12	18	16			42-108D279-SPP
292	11 1/2	3	24	18	16			42-10JD292-SPP
302	11 8/9	3	15	18	16			42-10JD302-SPP
305	12	3	15	18	16			42-10JD305-SPP

Foot valve

							0.5	1.2	47-76017
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SD 10



SD 12

Concave Face / Spherical Button



298	11 5/6	3	24	18	16			42-12JD298-SPP
304	12	3	15	18	16			42-12VD304-SPP
317	12 1/2	3	15	18	16			42-12VD317-SPP
323	12 5/7	3	15	18	16			42-12VD323-SPP
330	13	3	15	18	16			42-12VD330-SPP
343	13 1/2	3	27	18	16			42-12JD343-SPP
355	14	3	27	18	16			42-12JD355-SPP
355	14	3	27	18	16			42-12JD355-WPP
381	15	3	27	20	18			42-12JV381-SPP
407	19 4/7	4	28	20	18			42-12JV407-SPP
444	17 1/2	4	28	20	18			42-12JV444-SPP

SD 12



DHD 112

Concave Face / Spherical Button



298	11 5/6	3	24	18	16			42-91JD298-SPP
304	12	3	15	18	16			42-91VD304-SPP
317	12 1/2	3	15	18	16			42-91VD317-SPP
323	12 5/7	3	15	18	16			42-91VD323-SPP
330	13	3	15	18	16			42-91VD330-SPP
355	14	3	27	18	16			42-91JD355-SPP
381	15	3	27	20	18			42-91JV381-SPP
407	14	4	28	20	18			42-91JV407-SPP
444	17 1/2	4	28	20	18			42-91JV444-SPP

DHD 12



DRILL BITS / RH350 SHANKS

Sandvik RH350	Diameter		Air holes	Gauge buttons	Button dia. mm		Weight		Part No.	Shank
	mm	inch			gauge	front	kg	lb		

SD 15

Concave Face / Spherical Button



444	17 1/2	4	28	20	18			42-15JV444-SPP
457	18	4	36	20	18			42-15JV457-SPP
483	19	4	36	20	18			42-15JV483-SPP
508	20	4	36	20	18			42-15JV508-SPP
533	21	4	36	20	18			42-15JV533-SPP
559	22	4	40	20	18			42-15JV559-SPP
584	23	4	40	20	18			42-15JV584-SPP
610	24	4	40	22	20			42-15JV610-SPP

SD 15



SD 18

Concave Face / Spherical Button



444	17 1/2	4	28	20	18			42-18JV444-SPP
508	20	4	36	20	18			42-18JV508-SPP
558	22	4	40	20	18			42-18JV558-SPP
584	23	4	40	20	18			42-18JV584-SPP
610	24	4	40	22	20			42-18JV609-SPP
635	25	4	40	22	20			42-18JV635-SPP
660	26	4	40	22	20			42-18JV660-SPP
711	28	6	42	22	20			42-18JV711-SPP
762	30	6	54	22	20			42-18JV762-SPP
838	33	6	54	22	20			42-18JV838-SPP

SD 18



N180 NUMA

Concave Face / Spherical Button



444	17 1/2	4	28	20	18			42-85JV444-SPP
508	20	4	36	20	18			42-85JV508-SPP
558	22	4	40	20	18			42-85JV558-SPP
584	23	4	40	20	18			42-85JV584-SPP
610	24	4	40	22	20			42-85JV609-SPP
635	25	4	40	22	20			42-85JV635-SPP
660	26	4	40	22	20			42-85JV660-SPP
711	28	6	42	22	20			42-85JV711-SPP
762	30	6	54	22	20			42-85JV762-SPP
838	33	6	54	22	20			42-85JV838-SPP

N 180



REAMING BITS

For further information, please contact your nearest Sandvik representative for a quote and delivery time.



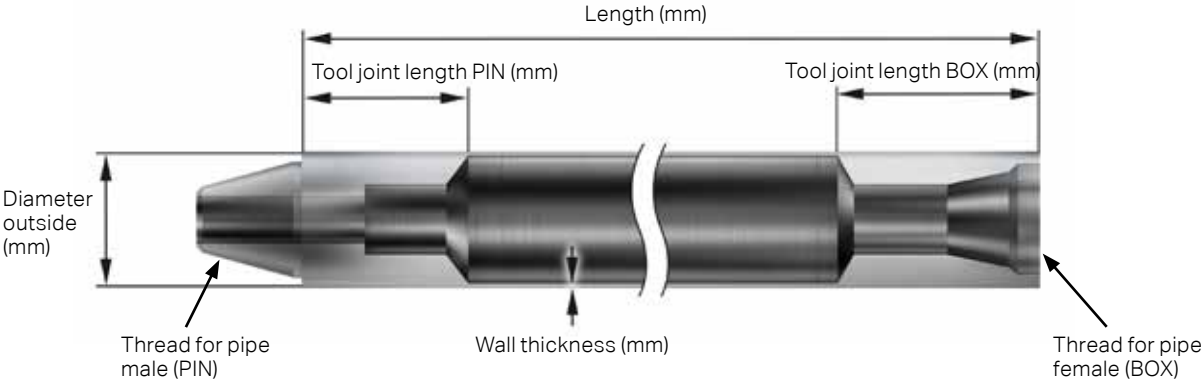


DRILL PIPES

Our drill pipes are built for a long life. We leave nothing to chance – welds are inspected using ultrasound to ensure a high-strength product. These pipes are specifically engineered to work with our hammers. In addition, we offer complete drill string components tailored to your requirements, from air swivels, hammers and bits, to complete drill rig solutions.

SANDVIK DRILL PIPES	77
SANDVIK ROTATION UNIT ADAPTERS	79
SANDVIK SUBS	80

SANDVIK DRILL PIPES



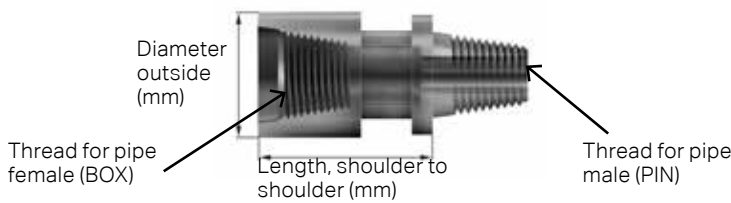
Diameter outside (mm)	Wall thickness (mm)	Length (mm)	Thread for pipe male (Pin)	Thread for pipe female (Box)	Spanner Flat	Internal Spline	Tool joint length Pin (mm)	Tool joint length Box (mm)	Weight		Part no.
									kg	lb	
76	4.0	3000	API 2 3/8" Reg	API 2 3/8" Reg	Y	N	107	165	24	53	52-076-101018
76	4.0	3000	API 2 3/8" Reg	API 2 3/8" Reg	N	N	190	190	31	68	52-076-10688900
76	6.3	3048	API 2 3/8" Reg	API 2 3/8" Reg	Y	N	190	260	39	86	52-076-102801
76	6.3	4000	API 2 3/8" Reg	API 2 3/8" Reg	N	N	190	190	46	101	52-076-10686408
76	6.3	5000	API 2 3/8" Reg	API 2 3/8" Reg	N	N	350	350	65	143	52-076-10508618
76	6.3	5000	API 2 3/8" Reg	API 2 3/8" Reg	N	N	190	190	58	128	52-076-10686990
79	6.3	1524	CUBEX #21	CUBEX #21	Y	Y	110	190	21	46	52-20340-111
79	6.3	1829	CUBEX #21	CUBEX #21	Y	Y	110	190	26	56	52-20340-109
89	4.0	1800	API 2 3/8" Reg	API 2 3/8" Reg	Y	N	107	158	20	44	52-089-101048
89	4.0	3000	API 2 3/8" Reg	API 2 3/8" Reg	Y	N	107	158	30	66	52-089-101051
89	4.0	4000	API 2 3/8" Reg	API 2 3/8" Reg	N	N	190	190	46	101	52-089-10686310
89	4.0	4500	API 2 3/8" Reg	API 2 3/8" Reg	Y	N	107	158	45	99	52-089-103231
89	6.3	1500	API 2 3/8" Reg	API 2 3/8" Reg	Y	N	107	158	24	53	52-089-101077
89	6.3	1800	API 2 3/8" Reg	API 2 3/8" Reg	N	N	300	300	31	68	52-089-102653
89	6.3	1829	CUBEX #21	CUBEX #21	Y	Y	110	200	28	62	52-20340-103
89	6.3	1829	CUBEX #24	CUBEX #24	Y	Y	110	200	29	64	52-20340-105
89	6.3	3000	API 2 3/8" Reg	API 2 3/8" Reg	Y	N	107	158	43	95	52-089-101079
89	6.3	5000	API 2 3/8" Reg	API 2 3/8" Reg	N	N	190	190	76	166	52-089-10686409
89	6.3	5000	API 2 3/8" Reg	API 2 3/8" Reg	N	N	350	350	82	181	52-089-10508619
89	6.3	6000	API 2 3/8" Reg	API 2 3/8" Reg	N	N	350	350	95	209	52-089-10505952
89	6.3	7500	API 2 3/8" Reg	API 2 3/8" Reg	N	N	350	350	114	251	52-089-103691
89	8.8	5000	API 2 3/8" Reg	API 2 3/8" Reg	N	N	350	350	90	198	52-089-102955
89	8.8	6000	API 2 3/8" Reg	API 2 3/8" Reg	N	N	350	350	112	247	52-089-10671706
89	8.8	6000	API 2 3/8" Reg	API 2 3/8" Reg	N	N	270	270	112	247	52-089-101833
89	12	6096	CUBEX #24	CUBEX #24	N	N	280	280	150	331	52-CP001500
102	6.3	1524	CUBEX #24	CUBEX #24	Y	Y	150	220	32	69	52-20830-132
102	6.3	1828	CUBEX #24	CUBEX #24	Y	Y	150	220	41	90	52-102-101393
102	6.3	4000	API 2 7/8" Reg	API 2 7/8" Reg	N	N	270	270	74	163	52-102-102778

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SANDVIK DRILL PIPES

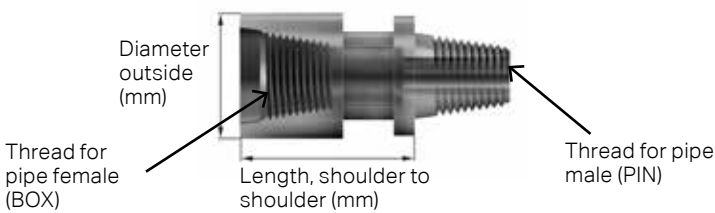
Diameter outside (mm)	Wall thickness (mm)	Length (mm)	Thread for pipe male (Pin)	Thread for pipe female (Box)	Spanner Flat	Internal Spline	Tool joint length Pin (mm)	Tool joint length Box (mm)	Weight		Part no.
									kg	lb	
-->											
102	6.3	5000	API 2 7/8" Reg	API 2 7/8" Reg	N	N	270	270	89	196	52-102-101266
102	6.3	5000	API 2 7/8" Reg	API 2 7/8" Reg	N	N	350	350	98	216	52-102-10508620
102	6.3	5000	API 2 7/8" Reg	API 2 7/8" Reg	N	N	270	270	85	187	52-102-10502702
102	6.3	6000	API 2 7/8" Reg	API 2 7/8" Reg	N	N	270	270	94	207	52-102-101618
102	6.3	6000	API 2 7/8" Reg	API 2 7/8" Reg	N	N	350	350	112	247	52-102-10506339
102	6.3	7500	API 2 7/8" Reg	API 2 7/8" Reg	N	N	350	350	136	300	52-102-103692
102	8.8	6100	3 1/8" DIBH	3 1/8" DIBH	Y	Y	150	220	132	291	52-102-102935
102	8.8	9144	API 2 7/8" Reg	API 2 7/8" Reg	Y	N	340	315	200	441	52-102-101914
102	12	6096	CUBEX #24	CUBEX #24	N	N	280	280	180	397	52-CP000458
114	6.3	1196	CUBEX #28	CUBEX #28	Y	Y	130	220	30	67	52-114-102298
114	6.3	3000	API 3 1/2" Reg	API 3 1/2" Reg	Y	N	140	185	60	132	52-114-101139
114	6.3	5000	API 3 1/2" Reg	API 3 1/2" Reg	N	N	350	350	115	254	52-114-10508621
114	6.3	5000	API 3 1/2" Reg	API 3 1/2" Reg	N	N	190	260	93	205	52-114-10504087
114	6.3	6000	API 3 1/2" Reg	API 3 1/2" Reg	N	N	350	350	132	291	52-114-10505147
114	6.3	6000	API 3 1/2" Reg	API 3 1/2" Reg	N	N	270	260	120	265	52-114-101238
114	6.3	7500	API 3 1/2" Reg	API 3 1/2" Reg	N	N	350	350	156	344	52-114-103693
114	8.8	6000	API 3 1/2" Reg	API 3 1/2" Reg	N	N	270	260	156	344	52-114-102072
114	8.8	7500	API 3 1/2" Reg	API 3 1/2" Reg	N	N	350	350	201	443	52-114-103719
114	8.8	7620	API 3 1/2" Reg	API 3 1/2" Reg	Y	N	310	300	187	412	52-114-101228
114	8.8	9144	API 3 1/2" Reg	API 3 1/2" Reg	Y	N	490	225	230	507	52-114-101597
114	8.8	9144	API 3 1/2" Reg	API 3 1/2" Reg	Y	N	310	300	222	489	52-114-101841
114	10.0	1524	CUBEX #28	CUBEX #28	Y	Y	170	260	62	137	52-20830-101H
114	12	1219	API 3 1/2" Reg	API 3 1/2" Reg	Y	N	490	350	58	128	52-114-102738
114	12	2400	API 3 1/2" Reg	API 3 1/2" Reg	Y	N	490	350	95	209	52-114-102740
114	12	3000	API 3 1/2" Reg	API 3 1/2" Reg	Y	N	490	362	116	256	52-114-102520
114	12	9144	API 3 1/2" Reg	API 3 1/2" Reg	Y	N	490	225	305	672	52-114-101808
114	12	9144	API 3 1/2" Reg	API 3 1/2" Reg	Y	N	490	362	310	683	52-114-102521
114	12	9144	BECO 3"	BECO 3"	Y	N	490	225	308	678	52-114-102919
114	12	9144	BECO 3"	BECO 3"	Y	N	310	300	303	668	52-114-103183
114	12.5	7620	API 3 1/2" Reg	API 3 1/2" Reg	Y	N	490	225	231	509	52-114-101494
127	6.3	1524	CUBEX #28	CUBEX #28	Y	Y	170	260	47	104	52-20830-101
127	6.3	6000	API 3 1/2" Reg	API 3 1/2" Reg	N	N	350	350	154	340	52-127-10505190
127	6.3	7500	API 3 1/2" Reg	API 3 1/2" Reg	N	N	350	350	181	399	52-127-103694
127	8.8	1829	CUBEX #28	CUBEX #28	Y	Y	130	220	65	143	52-20830-117
127	8.8	6096	CUBEX #28	CUBEX #28	N	N	280	280	183	403	52-127-103201
127	8.8	7500	API 3 1/2" Reg	API 3 1/2" Reg	N	N	350	350	228	503	52-127-103720
127	12	6096	API 3 1/2" Reg	API 3 1/2" Reg	N	N	280	280	239	527	52-127-102990
127	12	6096	BECO 3 1/2"	BECO 3 1/2"	N	N	280	280	239	527	52-CP002185
127	12	8077	API 3 1/2" Reg	API 3 1/2" Reg	Y	N	315	315	310	683	52-127-102394
127	12	9144	API 3 1/2" Reg	API 3 1/2" Reg	Y	N	315	315	353	778	52-127-102327
140	8.8	7500	API 4 1/2" Reg	API 4 1/2" Reg	N	N	350	350	257	567	52-140-103695

SANDVIK ROTATION UNIT ADAPTERS



Diameter outside (mm)	Length shoulder to shoulder (mm)	Thread for male connection (Pin)	Thread for female connection (Box)	Thread for male connection (Pin)	Spanner Flats	Internal Splines	Weight		Part no.
							kg	lb	
76	215	M62x2	2 3/8 Reg		Y	N	7	14	52-076-11687703
76	131	M62x2	2 3/8 Reg		Y	N	5	10	52-076-11516950
89	215	M62x2	2 3/8 Reg		Y	N	9	20	52-089-11512674
89	300	M80x3	2 3/8 Reg		Y	N	13	28	52-089-11516555
89	89	M62x2		2 3/8 Reg	Y	N	6	13	52-089-11687217
102	300	M80x3	2 7/8 Reg		Y	N	17	37	52-102-11517523
102	215	M62x2	2 7/8 Reg		Y	N	13	28	52-102-11502994
114	300	M80x3	3 1/2 Reg		Y	N	19	42	52-114-11505151
114	215	M62x2	3 1/2 Reg		Y	N	13	29	52-114-11503612
114	307	3 1/2 Reg	2 3/8 Reg		Y	N	14	30	52-114-11518907
114	307	3 1/2 Reg	3 1/2 Reg		Y	N	21	47	52-114-11518332
114	307	3 1/2 Reg		3 1/2 Reg	Y	N	26	56	52-114-11518871
127	307	3 1/2 Reg	3 1/2 Reg		Y	N	27	60	52-127-11518872
127	300	M80x3	3 1/2 Reg		Y	N	24	53	52-127-11516261

SANDVIK SUBS



Diameter outside (mm)	Thread for male connection (Pin)	Thread for female connection (Box)	Length shoulder to shoulder (mm)	Spanner Flats	Internal Splines	Weight		Part no.
						kg	lb	
89	API 2 3/8" Reg	API 2 3/8" Reg	305	N	N	13	29	52-089-111202
102	CUBEX #24	API 2 3/8" Reg	140	N	N	9	20	52-102-112648
102	API 2 7/8" Reg	API 2 3/8" Reg	130	Y	N	7	15	52-102-111029
114	CUBEX #24	API 3 1/2" Reg	160	Y	N	10	22	52-114-112649
114	CUBEX #24	API 3 1/2" Reg	160	Y	Y	9	20	52-114-112269
114	CUBEX #28	API 3 1/2" Reg	160	Y	Y	11	24	52-114-111059
114	API 2 3/8" Reg	API 3 1/2" Reg	160	Y	N	9	19	52-114-111053
114	API 2 7/8" Reg	API 3 1/2" Reg	160	Y	N	9	20	52-114-111056
114	API 3 1/2" Reg	API 2 3/8" Reg	120	Y	N	9	20	52-114-111031
114	API 3 1/2" Reg	API 2 3/8" Reg	223	Y	N	10	22	52-114-11518177
114	API 3 1/2" Reg	API 2 7/8" Reg	150	Y	N	11	24	52-114-111039
114	API 3 1/2" Reg	API 3 1/2" Reg	160	Y	N	11	23	52-114-111061
114	API 3 1/2" Reg	API 3 1/2" Reg	228	Y	N	15	33	52-114-111352
114	API 3 1/2" Reg	API 3 1/2" Reg	230	Y	N	14	32	52-114-112668
114	API 3 1/2" Reg	API 3 1/2" Reg	305	N	N	21	46	52-114-111578
114	API 3 1/2" Reg	API 3 1/2" Reg	500	Y	N	32	70	52-114-112537
114	DIBH 3 1/8"	API 3 1/2" Reg	260	Y	N	17	36	52-114-112700
114	BECO 3"	API 3 1/2" Reg	160	Y	N	10	22	52-114-112637
127	CUBEX #28	API 3 1/2" Reg	132	Y	Y	11	23	52-127-111060
127	BECO 3 1/2"	API 3 1/2" Reg	228	Y	N	20	44	52-127-111897
127	BECO 3 1/2"	API 3 1/2" Reg	228	Y	N	20	44	52-127-111943
127	BECO 3 1/2"	API 3 1/2" Reg	410	Y	N	36	79	52-127-112572
127	BECO 3 1/2"	API 3 1/2" Reg	609	Y	N	55	121	52-127-111524
127	API 3 1/2" Reg	BECO 3"	228	Y	N	19	41	52-127-112543
127	DIBH 3 1/8"	API 3 1/2" Reg	260	Y	N	21	46	52-127-11-2675
127	DIBH 3 1/8"	DIBH 3 1/8"	260	Y	N	15	32	52-127-112674
140	BECO 3 1/2"	API 4 1/2" Reg	228	Y	N	21	46	52-140-111948
146	API 4 1/2" Reg	API 3 1/2" Reg	132	Y	N	17	36	52-146-111067
150	API 4" IF	API 3 1/2" Reg	280	N	N	37	82	52-150-112621
164	API 3 1/2" Reg	BECO 3 1/2"	311	Y	N	33	73	52-164-112616
164	API 4 1/2" Reg	CUBEX #24	310	Y	N	24	53	52-164-112592
164	API 4 1/2" Reg	CUBEX #28	310	Y	N	26	57	52-164-112667
171	API 5 1/2" Reg	API 3 1/2" Reg	406	Y	N	42	93	52-171-112396
171	API 5 1/2" Reg	API 3 1/2" Reg	406	Y	N	43	95	52-171-112065
171	API 5 1/2" Reg	API 3 1/2" Reg	406	Y	N	45	99	52-171-112402



ACCESSORIES FOR INCREASED SAFETY AND PRODUCTIVITY

We've developed a wide range of accessories that make it easier and safer to work with hammers. They include hammer lifting bails, foot valve assembly and disassembly tools and a comprehensive hammer service kit.

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SANDVIK TUBEX SYSTEMS



Tubex product range

	Tubex type	Casing, recom. size (mm)		Min. wall thickness (mm)	Max. drill bit diameter (mm) A	Reaming diameter (mm)
		Max. OD	Min. ID			
	90	115	102	5	90	123
	115	142	128	5	115	152
	140	171	157	5	140	187
	165	196	183	5,5	165	212
	180	219	194	6,3	180	232
	190	222	205	6,3	190	237
	240	273	260	6,3	240	306
	280	327	305	7,1	280	370

Tubex XL-90				
Part	Description	Weight (kg)	Weight (lb)	Part no.
Guide device	M30	7	15,4	80-3A00-090D
Guide device	DHD3,5 (Foot valve, 47-24017)	7	15,4	80-2400-090D
Pilot bit	1/8, 12/12, CV, DP65	3,6	7,9	81-090B-090A65
Eccentric reamer		1,4	3	82-090B-123W65
Casing shoe		1,1	2,4	84-090D-00
Locking kit		0,5	1	85-090A-KT
Tubex XL-115				
Guide device	M40	12	26,4	80-4800-115D
Guide device	DHD340 (Foot valve, 47-36017)	12	26,4	80-3600-115D
Guide device	QLX40 (Foot valve, 47-4G017)	12	26,4	80-4G00-115D
Pilot bit	2/8, 14/14, CV, DP65	8	17,6	81-115A-115A65
Eccentric reamer		2,6	5,7	82-115A-152W65
Casing shoe		1,6	3,5	84-115D-00
Locking kit		0,5	1	85-115A-KT

SANDVIK TUBEX SYSTEMS

Tubex XL-140				
Part	Description	Weight (kg)	Weight (lb)	Part no.
Guide device	QL50 (Foot valve, 47-55017)	21	46,3	80-5500-140D
Guide device	DHD350 (Foot valve, 47-69037)	21	46,3	80-6900-140D
Pilot bit	2/8, 14/14, CV, DP65	11	24,2	81-140A-140A65
Eccentric reamer		4	8,8	82-140A-189W65
Casing shoe		2,4	5,3	84-140D-00
Locking kit		0,5	1	85-140A-KT
Tubex XL-165				
Guide device	M60	34	75	80-6800-165D
Guide device	DHD360 (Foot valve, 47-73017-1)	34	75	80-7300-165D
Guide device	QL60 (Foot valve,47-76017)	34	75	80-7600-165D
Pilot bit	2/8, 16/16, CV, DP65	17	37,5	81-165A-165A65
Eccentric reamer		7	15,4	82-165A-212W65
Casing shoe		3,2	7	84-165D-00
Locking kit		0,5	1	85-165A-KT
Tubex XL-180				
Guide device	DHD360 (Foot valve, 47-73017-1)	44	97	80-7300-180D
Pilot bit	2/8, 16/16, CV, DP65	24	53	81-180A-180A65
Eccentric reamer		10	22	82-180A-232W65
Casing shoe		4	8,8	84-180D-00
Locking kit		0,5	1	85-180A-KT
Tubex XL-190				
Guide device	M60	40	88	80-6800-190D
Guide device	QL60 (Foot valve, 47-76017)	44	97	80-7600-190D
Guide device	DHD360 (Foot valve, 47-73017-1)	44	97	80-7300-190D
Pilot bit	3/8, 16/16, CV, DP65	29	64	81-190A-190A65
Eccentric reamer		10	22	82-190A-237W65
Casing shoe		4	8,8	84-190D-00
Locking kit		0,5	1,0	85-190A-KT
Tubex XL-240				
Guide device	M80	67	148	80-8800-240D
Guide device	DHD 380 (Foot valve, 47-87017)	67	148	80-8700-240D
Pilot bit	2/12, 16/16, CV, DP65	46	101	81-240B-240A65
Eccentric reamer		18	40	82-240B-308W65
Casing shoe		7	15,4	84-240A-00
Locking kit		1	2,2	85-240A-KT
Tubex XL-280				
Guide device	SD10 (Foot valve, 47-10017)	160	353	80-1000-280A
Pilot bit	3/12, 18/18, CV, DP65	88	194	81-280A-280A65
Eccentric reamer		43	94	82-280A-378W65
Casing shoe		15	33	84-280A-00
Locking kit		1,5	3,3	85-280A-KT

ACCESSORIES



Hammer lifting bail



Hammer service kit



Foot valve assembly tool

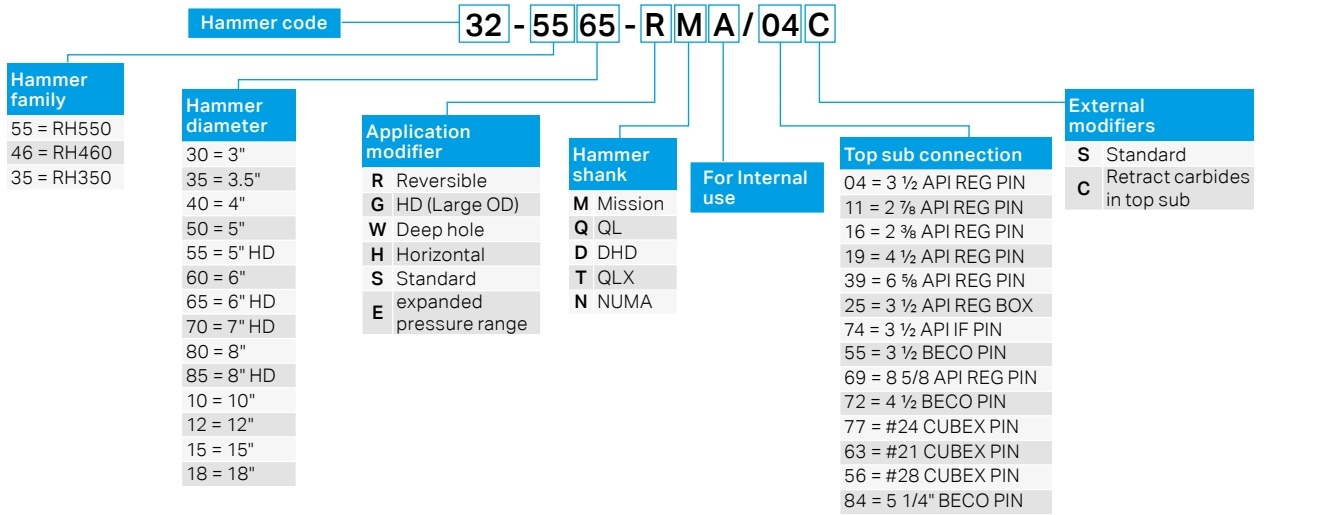


Foot valve disassembly tool

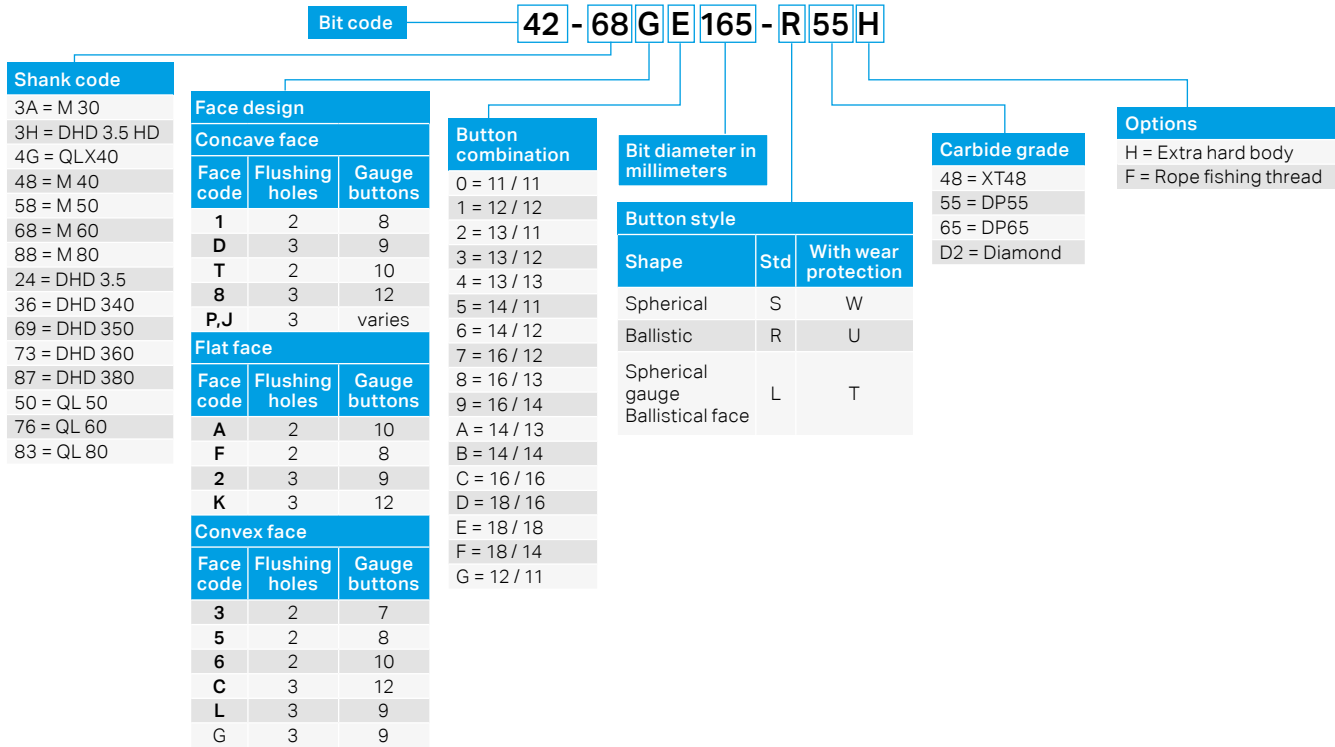
Description	Weight		Part No.
	kg	lb	
Hammer lifting bail			
2-3/8" Reg box 3600 kg	5.1	11.2	BG00016425
2-7/8" Reg box 3600 kg	8	17.6	BG00016426
3-1/2" Reg box 3600 kg	14	30.8	BG00016427
3-1/2" IF box 3600 kg	10	22	BG00016428
4-1/2" Reg box 3600 kg	19	41.8	BG00016429
CUBEX #24 box 3600 kg	13	28.6	BG00294441
CUBEX #21 box 3600 kg	13	28.6	BG00294442
CUBEX #28 box 3600 kg	13	28.6	BG00294450
4 1/2" BECO box 3600 kg	25	55	BG00294443
Hammer service kit			
4"	2	4.4	BG00303552
5"	4.5	9.9	BG00274811
6"	5.4	11.9	BG00275989
8"	11.5	25.3	BG00324800
Foot valve assembly tool			
QLX40	0.3	0.7	62-4G017A
DHD3.5	0.2	0.4	62-24017A
DHD340	0.3	0.7	62-36017A
QL50	0.4	0.8	62-55017A
QL60	0.4	0.8	62-76017A
QL80	0.6	1.3	62-83017A
Foot valve disassembly tool			
DHD3.5 / DHD340	1.8	3.9	63-010KTA
QLX4 / QL5 / DHD350	2.5	5.5	63-020KTA
QL6 / DHD 360	3.2	7	63-030KTA
QL8 / DHD380	4.9	10.9	63-040KTA

PART NO. KEYS

Hammers



Drill bits



[illegible]