



Secoroc Rock Drilling Tools

***NOW ARRIVING.
A NEW POWER.***

Powerbit T45





POWERBIT. BUILT TO TAKE ON ANY ROCK.

We've listened to you, the drillers. You want the drill bits to last longer. You want longer intervals between regrinds. And you want to know which bit is perfect for your rock formation. With Powerbit, our all-new tophammer bit range for surface drilling, you'll get that, and more. Much more.

Greatly increased service life

With Powerbit, our development engineers have looked at all aspects of drill bit technology to ensure the longest possible service life. The bit shape is all new. We've used harder and stronger bit body steel. And our new button technology is so effective that it's been patented many times over.

Easy bit selection

The Powerbit product range covers all types of rock - from hard to soft, and from abrasive to non-abrasive. Thorough research, simulation and testing have allowed us to make the Powerbit range much more compact and versatile than before. Approximately 30% fewer bits now handle all tophammer surface drilling applications – making bit choice so much easier for you.



A top-of-the-line drill string

For years, Atlas Copco Secoroc has been known to have the best shank adapters and drill rods on the market. With Powerbit, we can proudly state that we now also have the best tophammer drill bits around.

Welcome to an unbeatable drill string.





***LONG-LASTING POWER.
FOR YOU.***

Powerbit gives you outstanding power. Power that translates into much better service life. Regardless of rock formation, we expect Powerbit to give you up to 20% longer service life. On top of that, Powerbit will give you the same, or better, penetration rate compared to the leading bits on the market.



Powerbit – it's long-lasting

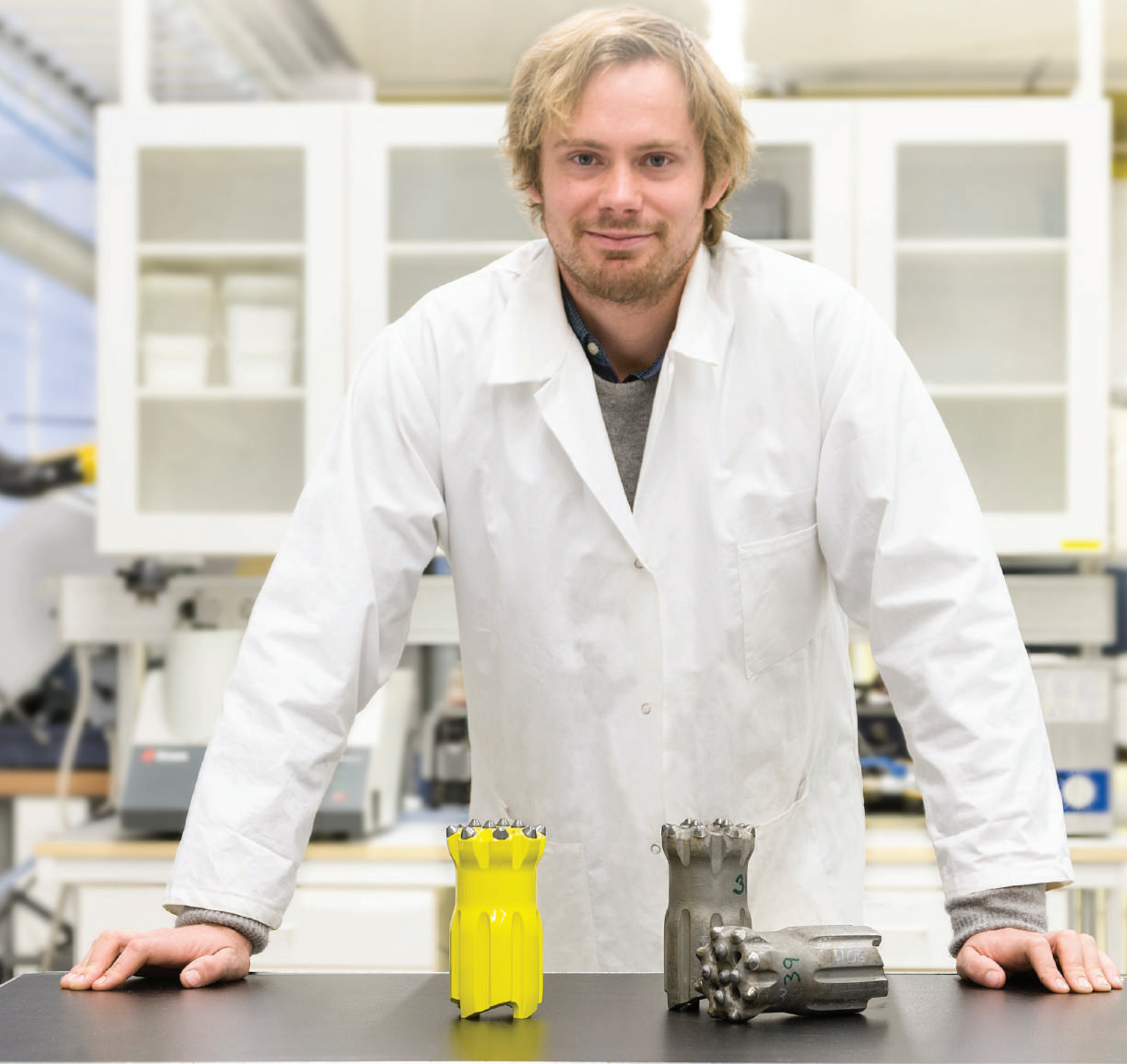
Our advanced computer simulations, and comprehensive field tests show the same results. Powerbit's performance greatly exceeds expectations. With Powerbit you will get more meters drilled before first regrind, more meters drilled between regrinds, and many more meters drilled at bit discard. This is long-lasting performance you can rely on.

Longer grinding intervals

One of the most important development criteria for Powerbit was to improve service life and reduce the need for constant regrinds. The solution? New carbide button cutting geometries that offer maximum material on each button. What's more, each button has gone through a special surface treatment to make it tougher and more durable. For most rock formations we offer you up to 15% more meters between regrinds.

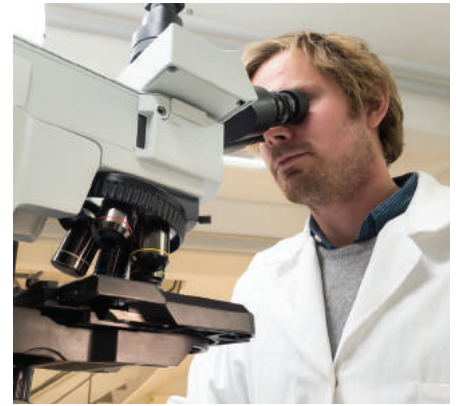
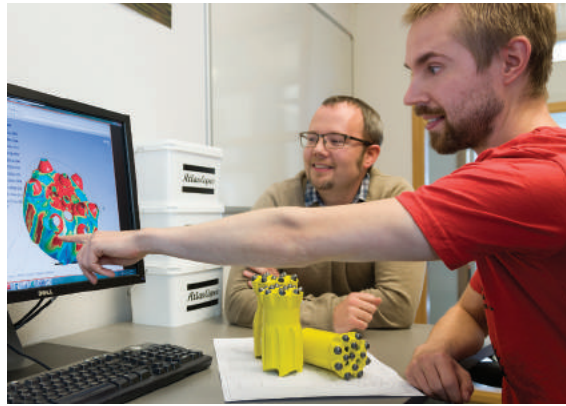


***POWER OF MIND.
INVENTING NEW
SOLUTIONS.***



Innovation is one of our key capabilities. We invest a lot of resources every year in new technology. The result? Ever more effective drilling equipment that ultimately will help you be more efficient and productive.

The structure of the steel used in the Powerbit body has just the right characteristics to give the bits excellent fatigue strength and durability.



Optimised face and body design

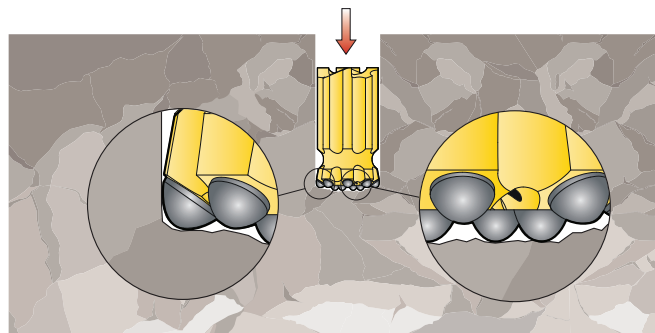
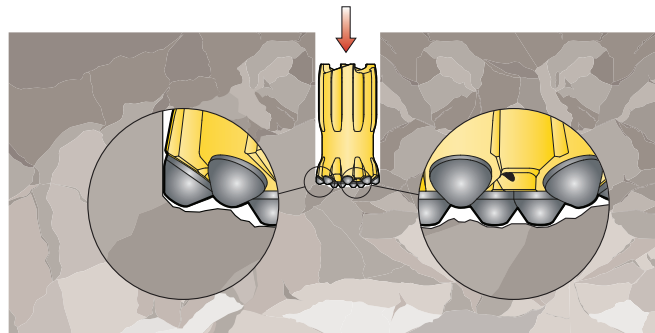
Everything in the design of the Powerbit tophammer bit range is new. The face is optimised for each type of rock. The flushing holes and flushing grooves are larger than before to ensure efficient flush-out of ground rock. Our new retrac bits feature a shorter, lighter retrac skirt allowing the impact energy to more effectively reach the rock, while still offering excellent bit steering.

Harder, stronger steel body grade

The steel body grade for the Powerbit range is chosen with utmost care to ensure the right hardness, strength and abrasion resistance. Improved heat treatment gives at least 10% better fatigue strength. And, the stronger steel holds the buttons better, reducing the risk for pop-outs.

Patented button technology

Our semi-ballistic cemented carbide buttons are exchanged for buttons with a patented Trubbnos shape. These buttons are flatter and offer more cemented carbide where it is needed most. This results in greatly improved wear resistance and much longer intervals between regrinds.



Trubbnos buttons have a larger peripheral rock contact surface than semi-ballistic buttons. For a given wear diameter, this means 100% more cemented carbide volume available for productive drilling. The result? You can drill up to 50% more meters before the first regrind. And, if you use our Trubbnos shaped grinding wheels at each regrind - recreating the Trubbnos shape - you will keep most of this advantage over the bit's lifetime.

Traditional semi-ballistic buttons with a much smaller rock contact surface than Trubbnos buttons.

Trubbnos and spherical buttons feature our patented Enduro Extra treatment. This results in buttons that get a harder and tougher surface, improving drilling performance, and greatly reducing the risk for insert breakage.

TESTS TO PROVE OUR POWER.



The Powerbit computer simulations looked good. Now, comprehensive field tests are proving us right. The Powerbit range is even better than expected. Make sure to test Powerbit on your rock. We can almost guarantee that you'll be pleasantly surprised.

50 km test drilling

So far, Powerbit T45 has been put through a series of 21 tests at 13 sites. A total of 50 km has been drilled in a great variety of rock conditions. Powerbit greatly outperforms all competing bits. Depending on rock type, service life is up to 75% better than the competition. And penetration rate is up to 10% better. Here we show test data from five test sites. Please check these numbers to get an idea of what Powerbit can do for you.



Virginia, USA

The population of USA's capital, Washington DC, is increasing rapidly and new infrastructure is needed. While working on one of these projects, William A Hazel Inc. encountered hard rock (275 MPa) that needed heavy duty drilling equipment. Powerbits with HD Trubbnos and HD spherical buttons were tested against the reference bits, non Atlas Copco Secoroc bits. The drillers were very impressed with the new Powerbits that showed excellent wear characteristics and a much longer service life.

Powerbit with spherical buttons vs. reference bit

Rock type:	Hard, medium abrasive
Reference bit:	T45, 89 mm retrac, 13 mm spherical buttons
Powerbit:	Powerbit T45, 89 mm retrac
Powerbit buttons:	Spherical, HD 12,7 mm

Service life improvement:	92%
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Garpenberg, Sweden

At the Boliden mine in Garpenberg, Sweden, Powerbit T45, 76 mm with Trubbnos buttons were tested in medium hard, very abrasive rock. Three different tests were performed: 12 mm buttons reground with competitor grinding cups, 12 mm buttons reground with Trubbnos grinding wheels, and 12,7 mm HD (heavy duty) buttons reground with Trubbnos grinding wheels. All tests showed above expectation results, and service life can be greatly increased by re-creating the Trubbnos button shape at regrinds.

Different Powerbits with Trubbnos buttons vs. reference bit

Rock type:	Medium hard, very abrasive		
Reference bit:	T45, 76 mm retrac, 12 mm semi-ballistic buttons		
Powerbit:	Powerbit T45, 76 mm retrac		
Powerbit buttons:	Trubbnos	Trubbnos	Trubbnos, HD
	12 mm (gauge)	12 mm (gauge)	12,7 mm (gauge)
Grinding technique:	Grinding cups	Grinding wheels for Trubbnos	Grinding wheels for Trubbnos
	11 mm (centre)	11 mm (centre)	11 mm (centre)
Service life improvement (average):	6%	21%	75%



Tangen, Norway

In Tangen, Kjell Foss Pukkverksprengning operates a quarry where road construction material is produced for major new infrastructure projects in the Oslo area. In the hard, medium abrasive gneiss, 89 mm Powerbits with Trubbnos buttons have been tested and compared to Atlas Copco Secoroc's bits with spherical buttons. Even though the special Trubbnos grinding wheels were not available, Powerbit gave outstanding test results. Many more meters were drilled before the first regrind and total service life was greatly improved.

Powerbits with Trubbnos buttons vs. Atlas Copco Secoroc's standard bits

Rock type:	Very hard, medium abrasive		
Reference bit:	Atlas Copco Secoroc T45, 89 mm retrac, 12,7 mm HD semi-ballistic buttons (bit will be phased out during 2016)		
Powerbit:	Powerbit T45, 89 mm retrac		
Powerbit buttons:	Trubbnos, HD 12,7 mm		
Grinding technique:	Grinding cups		
	Reference bit	Powerbit	Improvement
Service life (average)	1090 m	1340 m	23%



Gothenburg, Sweden

At the Gothenburg quarry, Sweden, Powerbit was tested in medium hard, medium abrasive rock, against our standard bit with semi-ballistic buttons. Regrinding was done with Trubbnos grinding wheels to re-create the Trubbnos shape. Test results were excellent, including greatly improved service life, longer service intervals and a significantly better penetration rate.

Powerbit with Trubbnos buttons vs. standard Atlas Copco Secoroc bit with semi-ballistic buttons

Rock type:	Medium hard, medium abrasive		
Reference bit:	Atlas Copco Secoroc T45, 76 mm retrac, HD semi-ballistic buttons		
Powerbit:	Powerbit T45, 76 mm retrac		
Powerbit buttons:	Trubbnos, HD 12,7 mm gauge buttons, 11 mm center buttons		
Grinding technique:	Trubbnos and semi-ballistic grinding wheels		
	Reference bit	Powerbit	Improvement
Service life*	490 m	628 m	28%
Penetration rate*	1,03 m/min	1,10 m/min	7%
Meters drilled before first regrind*	125 m	165 m	32%
Meters drilled between regrinds*	117 m	130 m	11%

* Average values



Sedenak, Malaysia

Material from Saroma Engineering's Sedenak quarry is used to produce high grade cement used for ground pillars for high buildings. Drilling, blasting and crushing is done in hard, medium abrasive granite and diorite. Here, 89 mm Powerbits with spherical 12,7 mm HD buttons have been tested. On average Powerbit service life was 10% better than the reference bits normally used.

Powerbit with sperical buttons vs. reference bit

Rock type:	Hard, medium abrasive (granite and diorite)		
Reference bit:	T45, 89 mm, 13 mm spherical buttons		
Powerbit:	Powerbit T45, 89 mm		
Powerbit buttons:	Spherical, HD 12,7 mm		
Grinding technique:	Grinding cups		
	Reference bit	Powerbit	Improvement
Service life (average):	769 m	845 m	10%
Penetration rate (average):	0,56 m/min	0,60 m/min	7%



A STRING OF POWERFUL ARGUMENTS.

We're known for the quality of our shank adapters. And the quality of our drill rods. With Powerbit we've got the bits to match. For you, it means that you can get a complete, unbeatable drill string from one single supplier. Us.



The best shank adapters and drill rods

For years the shank adapters and drill rods from Atlas Copco Secoroc have been the equipment of choice for drillers looking for high quality and long service life. We put all our 100 years of rock drilling experience and know-how into making the best adapters and rods. A tried and tested combination of material choice, heat treatment and the unique T-WiZ threads gives you high up-time and effective drilling.

The best bits

With Powerbit we have the drill bits to match. As the tests show, these new bits work outstandingly well in any rock formation and they outperform the competition on all test sites. For greatly increased service life - use Powerbit.

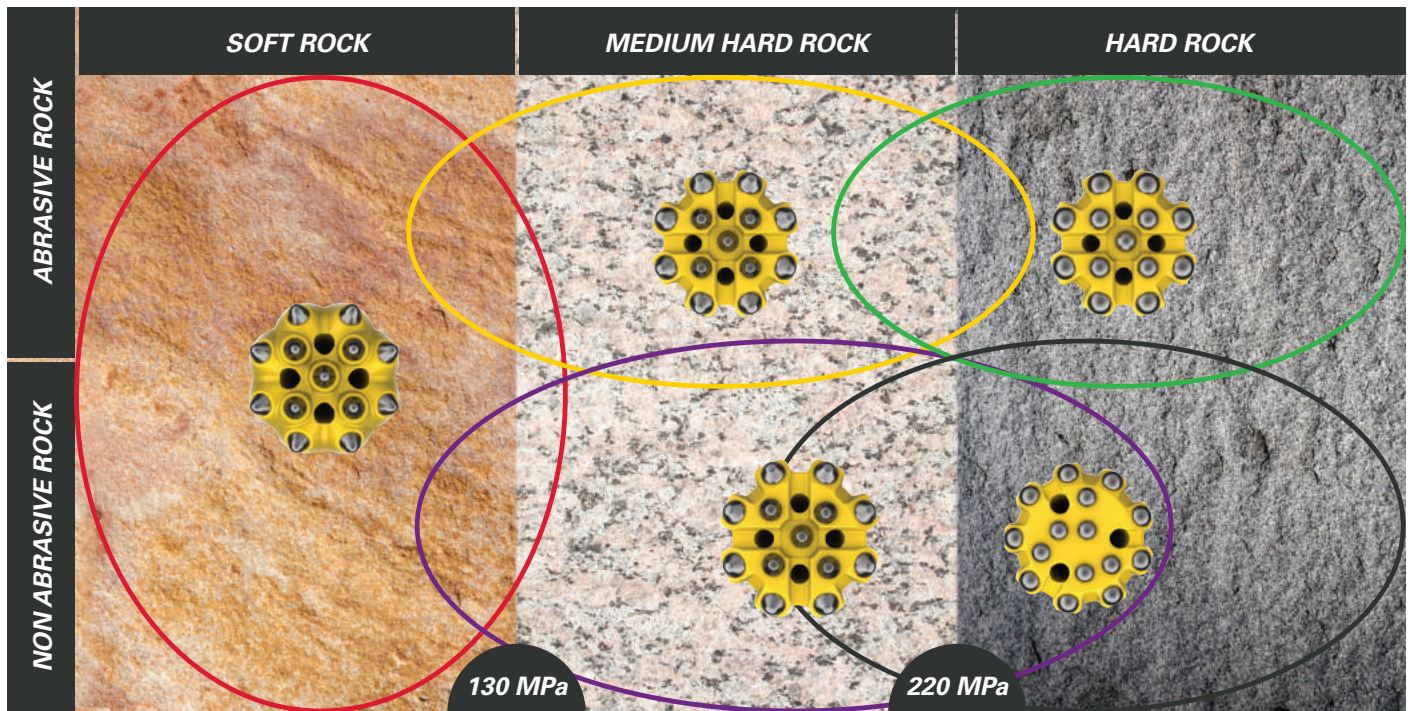


An unbeatable drill string

No detail has been overlooked when creating the best drill string to date. Our shank adapters, drill rods and powerful bits are tough and rock hard, but not brittle. And the pieces work perfectly together. For an unbeatable drill string, you need to look no further than Atlas Copco Secoroc.



POWERBIT SELECTION GUIDE

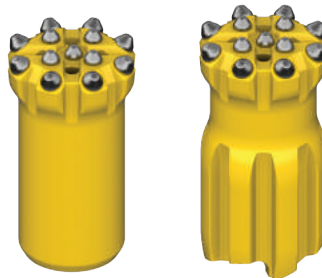


Rocket bit
Full-ballistic buttons



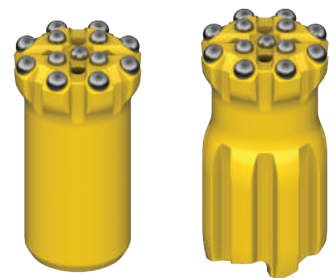
The best choice for soft rock conditions. Full-ballistic buttons and large vertical flushing grooves effectively remove larger chips, greatly increasing penetration rate.

Powerface bit
Trubbnos buttons, heavy duty (HD)



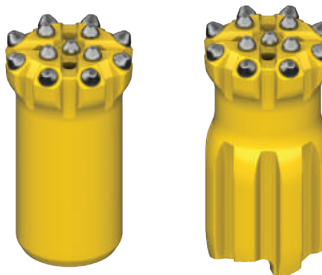
Ideal for abrasive, medium hard to hard rock. Larger Trubbnos buttons and flushing grooves give the ideal balance between service life and penetration rate. Available with a short retrac for straight holes in broken rock.

Powerface bit
Spherical buttons, heavy duty (HD)



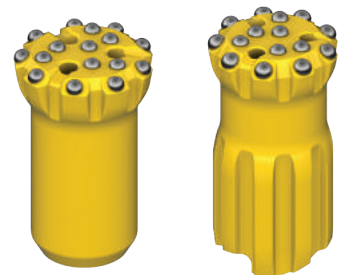
For tough conditions in hard and abrasive rock. Optimised face and body design and large spherical buttons for long service life. Available with a short retrac for straight holes in broken rock.

Powerface bit
Trubbnos buttons



Designed for medium hard to hard rock. Trubbnos buttons provide better penetration rate than spherical buttons, and a longer service life than semi-ballistic ones. Available with a short retrac for straight holes in broken rock.

Flat face bit
Spherical buttons



Ideal for hard, medium abrasive rock. The flat face, with many spherical buttons, offer an optimised energy transfer. Available with a short retrac for straight holes in broken rock.

POWERBITS

Diameter		Retrac	Product No.	Product code	No. of buttons	Buttons × button diameter (mm)		Gauge buttons angle°	Flushing hole		Weight approx. kg
mm	inch					Gauge	Centre		Side	Centre	

ROCKET BITS – Full-ballistic buttons

76	3	No	90029265	136-5076-46-66,57-20	13	8x11	5x11	40°	–	4	2,4
89	3 1/2	No	90029272	136-5089-46-66,57-20	13	8x12,7	5x12,7	40°	–	4	3,4
102	4	No	90029283	136-5102-46-66,57-20	13	8x14,5	5x14,5	40°	–	4	4,5

POWERFACE BITS – Trubbnos buttons, heavy duty (HD)

70	2 3/4	No	90029409	136-6070-21-70,57-20	13	8x11	5x10	35°	–	4	2,2
70	2 3/4	Yes	90029394	136-6070-21-44-70,57-20	13	8x11	5x10	35°	–	4	2,6
76	3	No	90029351	136-6076-21-70,57-20	13	8x12,7	5x11	35°	–	4	2,7
76	3	Yes	90029354	136-6076-21-44-70,57-20	13	8x12,7	5x11	35°	–	4	2,9
89	3 1/2	No	90029363	136-6089-21-70,57-20	13	8x12,7	5x12,7	35°	–	4	3,5
89	3 1/2	Yes	90029362	136-6089-21-44-70,57-20	13	8x12,7	5x12,7	35°	–	4	4,4
102	4	No	90029405	136-6102-21-70,57-20	13	8x15,8	5x12,7	35°	–	4	5,0
102	4	Yes	90029412	136-6102-21-44-70,57-20	13	8x15,8	5x12,7	35°	–	4	6,1

POWERFACE BITS – Trubbnos buttons

76	3	No	90029352	136-6076-70,57-20	13	8x12	5x11	35°	–	4	2,6
76	3	Yes	90029376	136-6076-44-70,57-20	13	8x12	5x11	35°	–	4	2,9
89	3 1/2	No	90029361	136-6089-70,57-20	13	8x12	5x12	35°	–	4	3,5
89	3 1/2	Yes	90029365	136-6089-44-70,57-20	13	8x12	5x12	35°	–	4	4,4
102	4	No	90029407	136-6102-70,57-20	13	8x14,5	5x12,7	35°	–	4	4,9
102	4	Yes	90029411	136-6102-44-70,57-20	13	8x14,5	5x12,7	35°	–	4	6,0

POWERFACE BITS – Spherical buttons, heavy duty (HD)

70	2 3/4	No	90029382	136-6070-21,57-20	13	8x11	5x10	35°	–	4	2,2
70	2 3/4	Yes	90029395	136-6070-21-44,57-20	13	8x11	5x10	35°	–	4	2,6
76	3	No	90029377	136-6076-21,57-20	13	8x12,7	5x11	35°	–	4	2,6
76	3	Yes	90029357	136-6076-21-44,57-20	13	8x12,7	5x11	35°	–	4	2,9
89	3 1/2	No	90029360	136-6089-21,57-20	13	8x12,7	5x12,7	35°	–	4	3,5
89	3 1/2	Yes	90029364	136-6089-21-44,57-20	13	8x12,7	5x12,7	35°	–	4	4,4
102	4	No	90029408	136-6102-21,57-20	13	8x15,8	5x12,7	35°	–	4	5,0
102	4	Yes	90029413	136-6102-21-44,57-20	13	8x15,8	5x12,7	35°	–	4	6,0

FLAT FACE BITS – Spherical buttons

76	3	No	90029371	136-5076,57-20	15	9x11	6x10	35°	–	3	2,6
76	3	Yes	90029370	136-5076-44,57-20	15	9x11	6x10	35°	–	3	2,9
89	3 1/2	No	90029367	136-5089,57-20	16	9x11	7x11	35°	–	3	3,6
89	3 1/2	Yes	90029366	136-5089-44,57-20	16	9x11	7x11	35°	–	3	4,7
102	4	No	90029404	136-5102,57-20	16	9x14,5	7x12,7	35°	–	3	5,1
102	4	Yes	90029403	136-5102-44,57-20	16	9x14,5	7x12,7	35°	–	3	6,5

Product code explanations:

- 21 = Larger buttons than standard (Heavy Duty – HD)
- 44 = Short retrac skirt
- 46 = Rocket bit
- 66 = Full-ballistic buttons
- 70 = Trubbnos buttons

Trubbnos and spherical buttons have Enduro Extra treatment.
This results in a harder and tougher surface which makes the buttons last longer.

A construction worker is shown in profile, looking towards the right. He is wearing a bright blue hard hat with the 'Atlas Copco' logo on the side. A headlamp is attached to the front of the hard hat. He is also wearing a high-visibility yellow safety jacket with reflective silver stripes on the sleeves. The jacket has the 'Atlas Copco' logo on the left chest. The background is a blurred quarry or construction site under a blue sky with some clouds.

***GRIND!
THAT'S OUR
SHARPEST
ADVICE FOR
EFFECTIVE
DRILLING.***

Well-timed grinding is key to rock drilling productivity. The key is tracking your penetration rate. When it goes down, it's time to regrind. Typically, you can drill until the wear flat ratio (width of wear flat area / the button diameter) is 40-50%. And when you regrind, make sure that you keep a wear flat area of 10-20% – there's no point in grinding away bit service life. Our tests show that proper button grinding, regardless of button shape, has the potential to double the bit service life.



Norrtälje, Sweden. Powerbit T45, 76 mm retractor, with HD Trubbnos buttons. The Trubbnos profile is re-created after grinding, keeping a wear flat area of 10-20%.

Trubbnos grinding is even more important

Atlas Copco Secoroc is exchanging all semi-ballistic buttons for our patented Trubbnos shaped buttons. The Trubbnos shape gives a larger rock contact surface and more cemented carbide volume available for effective drilling. So far, tests have shown that Trubbnos shaped buttons will give you up to 50% more meters before the first regrind, and up to 15% more meters between

regrinds. And tests show that optimal penetration rate and bit service life are obtained when Trubbnos regrinding takes place at a wear flat ratio of 45-55%.

Please note that there is one condition for reaching these excellent drilling results. At each regrind, the Trubbnos button bit shape must be re-created using our special Trubbnos diamond grinding wheels. If you, e.g. use semi-ballistic grinding cups, the Trubbnos advantage will eventually be lost.

The same grinding routine

Grinding Trubbnos buttons is no different than grinding other button shapes. All you need is the Trubbnos grinding wheels. These fit on our grinding shop machine Secoroc BQ3 and our portable grinding machine Secoroc Manual B. For you, the grinding operation is performed just as before, and the grinding time for each bit is similar to grinding other button shapes. It's just that simple.



Cemented carbide buttons – spherical, Trubbnos and full-ballistic.

GRINDING MACHINES AND ACCESSORIES

Secoroc BQ3



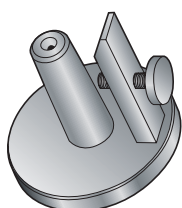
Semi-automatic grinding machine for threaded and tapered button bits.

Secoroc Manual B



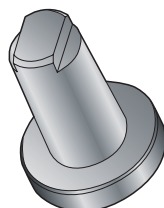
Handheld portable grinding machine for threaded and tapered button bits.

BIT HOLDERS FOR BUTTON BITS



Type A
for Secoroc BQ3 grinding machine

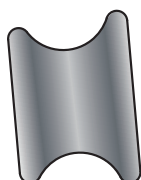
Type	Threaded bits	Product No.
A	T45	87003479
	T51	87003521



Type C
for Secoroc Manual B grinding machine

Type	Threaded bits	Product No.
C	T45	87000796
	T51	87000802

DIAMOND GRINDING WHEELS



For Secoroc BQ3 and Secoroc Manual B grinding machines

Diameter, mm	Product No.
GRINDING WHEELS - Spherical buttons	
10	87003970
11	87003971
12	87003972
13	87003973
14	87001025
15	87001384
16	87001027

Diameter, mm	Product No.
GRINDING WHEELS - Trubbnos buttons	
10	87004590
11	87004591
12	87004592
12,7	87004593
14,5	87004594
15,8	87004595

Indexing templates for Secoroc BQ3 grinding machine

T45 POWERBITS		INDEXING TEMPLATES
Product No.	Product code	Product No.
ROCKET BITS – Full-ballistic buttons		
90029265	136-5076-46-66,57-20	87003560
90029272	136-5089-46-66,57-20	
90029283	136-5102-46-66,57-20	
POWERFACE BITS – Trubbnos buttons, heavy duty (HD)		
90029409	136-6070-21-70,57-20	87003953
90029394	136-6070-21-44-70,57-20	
90029351	136-6076-21-70,57-20	
90029354	136-6076-21-44-70,57-20	
90029363	136-6089-21-70,57-20	87004432
90029362	136-6089-21-44-70,57-20	
90029405	136-6102-21-70,57-20	87004435
90029412	136-6102-21-44-70,57-20	
POWERFACE BITS – Trubbnos buttons		
90029352	136-6076-70,57-20	87003953
90029376	136-6076-44-70,57-20	
90029361	136-6089-70,57-20	87004432
90029365	136-6089-44-70,57-20	
90029407	136-6102-70,57-20	87004435
90029411	136-6102-44-70,57-20	
POWERFACE BITS – Spherical buttons, heavy duty (HD)		
90029382	136-6070-21,57-20	87003953
90029395	136-6070-21-44,57-20	
90029377	136-6076-21,57-20	
90029357	136-6076-21-44,57-20	87004432
90029360	136-6089-21,57-20	
90029364	136-6089-21-44,57-20	
90029408	136-6102-21,57-20	87004435
90029413	136-6102-21-44,57-20	
FLAT FACE BITS – Spherical buttons		
90029371	136-5076,57-20	87004433
90029370	136-5076-44,57-20	
90029367	136-5089,57-02	87004434
90029366	136-5089-44,57-20	
90029404	136-5102,57-20	87004775
90029403	136-5102-44,57-20	







Sustainable Productivity

We stand by our responsibilities towards our customers,
towards the environment and the people around us.
We make performance stand a test of time.
This is what we call - Sustainable Productivity.

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