



**PNEUMATIC  
ROCK DRILLS**

*Atlas Copco*



# ***BREAKING ROCK IS IN OUR BLOOD AS WELL***

As a professional you know that practice makes perfect.  
That applies to us as well.

Your job is an inspiration to us. By understanding your everyday work experience and the demands that you live up to, we can create tools that help you work faster and safer. We have been collecting knowledge to create safer and more efficient tools for more than a 100 years.

Our first pneumatics inventions saw the light of day already in 1901. In 1948 we revolutionised rock drilling

with the Swedish Method. And while the industry worked hard to match our lightweight rock drills equipped with pusher legs and hardened metal bits, we continued to develop our products. We gave them a twofold mission:

The first is to help you exceed your production targets in a safe way. The second mission is to provide good value for money, over a long period

of time. We reach both missions by using the right materials, proven heat treatment methods and machining to high tolerances.

Quality is the result of good honest engineering. That means that even when you replace a part, your drill will deliver the same performance as when it was new.

That's the way we do things because just like you, we are in this for the long run.

# HISTORY IS ON YOUR SIDE

Our journey is a story of challenging status quo. Together with our customers we have revolutionized productivity in drilling for more than a 100 years. That's the way of the Swedish Method.

## MEET THE SWEDISH METHOD 2.0

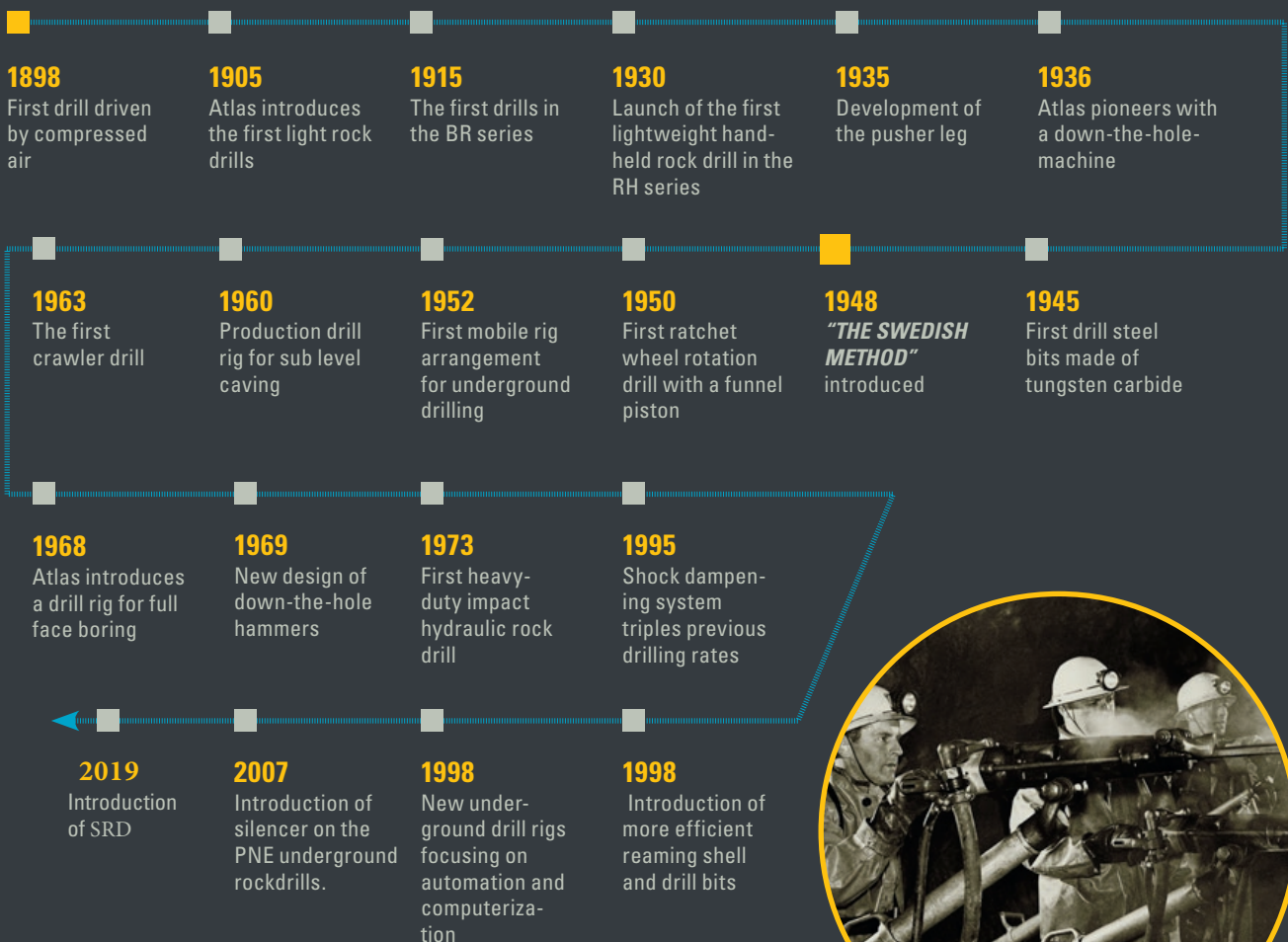
**"THE SWEDISH METHOD"** was first coined in the 1940s. It was all about making rock drilling more efficient. The quest is ongoing.

When tramway line 17 in Stockholm, Sweden was expanded in the mid 40s, it was the first full-scale application of a new way of working that came to be

known as the Swedish Method. Thanks to the lighter and mobile equipment one man could now do the work of two. It took years of development before the Swedish Method was launched. During the later part of the 1930's we developed a pneumatic pusher leg. Then came the cemented carbide tipped integral drill steels and the RH-656 – a lightweight,

fast and self-rotating rock drill. In 1948 we were ready to conquer the world mining and construction market. The project was a success back then, and it still is. Why?

The Swedish Method 2.0 is all about understanding your reality and inventing tools that make work easier for you. That's a quest without deadline.





# YOUR SURFACE ROCK DRILL INSIDE OUT

This is how your breaker takes care of dangerous vibrations. It is also the story of our hand and arm protection system – HAPS.

We took on the challenge to create ergonomically designed breakers already in the 1960s. The first we did was to allow the piston to turn on cushions, a technique which has been fine-tuned over the years. During the 70s we introduced the first vibration damping handles. In the 80s and 90s we added vibration-damping springs and optimized the weight relationship between handle and body. Today we have added a flexible pivot point, where the energy is reduced in all three directions. The relationship between fixed and movable parts has also been adjusted in recent years.

## THIS IS VIBRATION

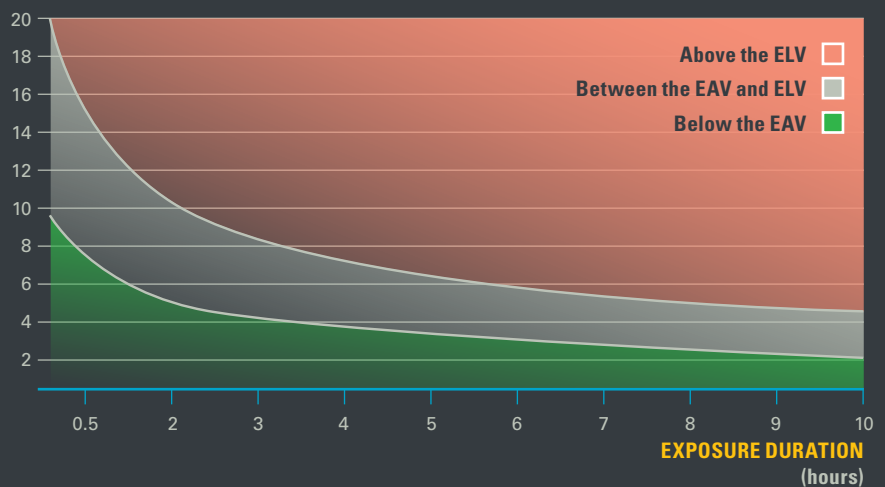
There are two types of forces that result in vibration. The first type comes from the machine itself. It occurs when the piston accelerates, when internal parts are in imbalance or when the tools are in imbalance. We battle this type of vibration with HAPS technology. The second vibration-source we have to battle is caused by the impact energy from the breaking itself. By using the right breaking techniques you can reduce the effect of impact-induced vibration.

## 10 SIMPLE WAYS TO REDUCE VIBRATION

- Use HAPS-enabled machines
- Use the right machine for the right job
- Use the proper machine maintenance
- Keep tools sharp
- Let go of the trigger while extracting the tool from the broken surface
- Switch work tasks
- Take regular breaks
- Don't grip the machine too hard
- Keep hands warm and dry
- Massage your fingers during breaks

## RELATION BETWEEN VIBRATION AND EXPOSURE LEVEL

VIBRATION MAGNITUDE  
(m/s<sup>2</sup>)



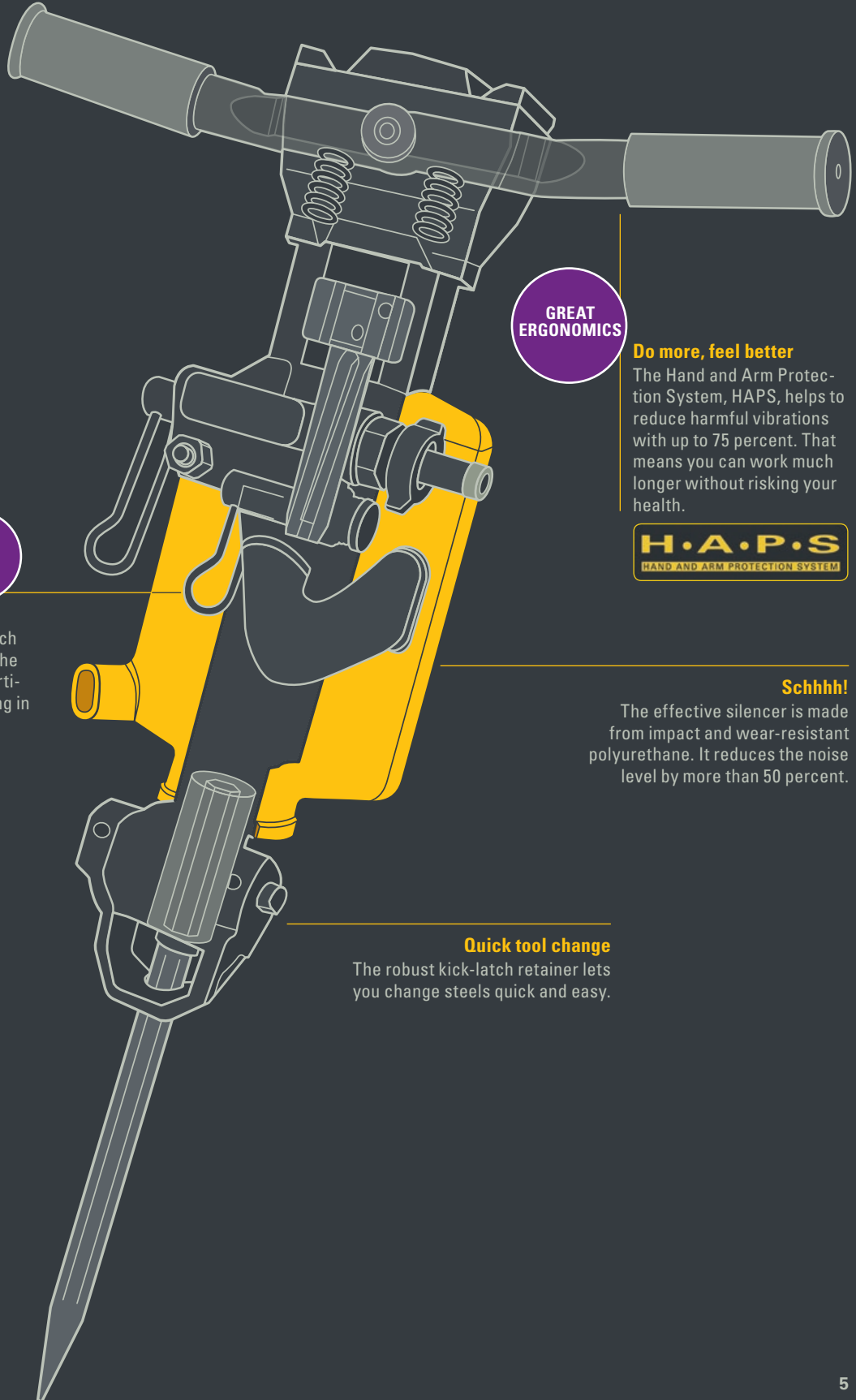
The Exposure Limit Value (ELV) is 5 m/s<sup>2</sup>  
The red area = **immediate action to stop**

The Exposure Action Value (EAV) is 2.5 m/s<sup>2</sup>  
The grey area = **establish an action plan**

## LET THE MACHINE WORK

### THIS IS HOW TO BEST USE YOUR HAPS-ENABLED MACHINE

Vibration-dampened HAPS-machines have prestressed spring handles. If you push down too hard on them, you hit a stop and lose the effect of the springs. Press the handle half-way down, and the right amount of feed force is applied automatically. Allow the machine to “float” between the handles.



**GET MORE DONE**

#### Keep it clean

Air flushing lever let you switch the full air flow to the end of the drill steel to blow out dust particles quickly and avoid jamming in the rock or concrete.

**GREAT ERGONOMICS**

#### Do more, feel better

The Hand and Arm Protection System, HAPS, helps to reduce harmful vibrations with up to 75 percent. That means you can work much longer without risking your health.



#### Schhhh!

The effective silencer is made from impact and wear-resistant polyurethane. It reduces the noise level by more than 50 percent.

#### Quick tool change

The robust kick-latch retainer lets you change steels quick and easy.

# CONQUER THE HARDEST ROCK

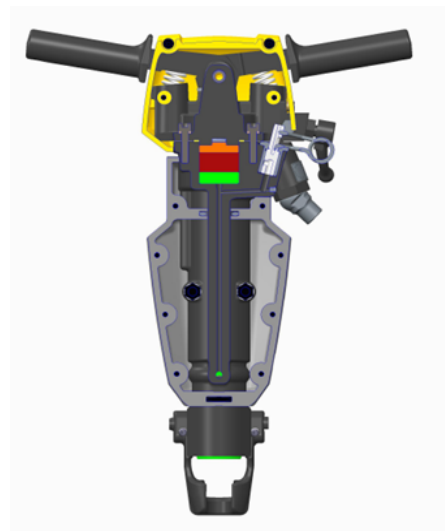
The RH drills were the backbone of the Swedish Method for decades and decades and now an improved design, SRD surface rock drill, by Atlas Copco will carry on the tradition.

## Applications:

- Drills up to 6 m depth
- Production drilling in quarry/dimensional stone industry
- Blast hole and secondary drilling

## Features:

- Single body design
- Sofstart step trigger
- Assisted flushing technology
- Improved silencers
- Vibration reduced handles
- Kick latch retainer
- Swivel air inlet connection



### For every purpose

Atlas Copco carries several different rock drills for every need from heavier jobs and deeper drilling to light weight and for smaller jobs.

Pneumatic rock drill		SRD 20	SRD 25	SRD 25
Weight	kg	24	27	27
Length	mm	590	600	600
Air consumption at 6 bar	l/s	39	50	50
Impact rate	blows/min	1,950	2,040	2,040
Rotation speed	rpm	200	250	250
Hose connection	mm	19	19	19
Drill steel chuck:Hex	mm	22x108	22x108	25x108
Part number		8311032010	8311032510	8311032509

Optional equipment	Part number
Hand hose, 19 mm x 3 m complete with claw coupling and hose clamps	9030 2047 00



## GRAB A BBD AND GO!

The BBD drills are light and easy to handle, which makes them ideal for those quick jobs and for working in difficult-to-get-to areas.

Rock drilling is tough work, but we always try to make it as easy as possible for you. The light-weight BBD 12 rock drill is great when you need to get smaller jobs done and haven't got the time to start up the heavy machinery.

The BBD is available in two versions. Equipped with a D-type handle, it is used for horizontal drilling, plug hole drilling, and drilling in concrete to a maximum depth of one meter. Equipped with T-handles, the BBD 12T is designed for vertical drilling of up to two meters.

The medium-weight BBD15E has a combined "T/D handle" that make it easy for you to carry. It offers a high power-to weight ratio and a high operational safety. The E means it's equipped with spring dampened handles and a highly effective silencer. The largest BBD drill is available in a version with a trigger valve, BBD 15ET. If you have an older machine it's possible to retrofit it with a trigger conversion kit.

Pneumatic rock drill		BBD 15E	BBD 15E	BBD 15 ET	BBD 15 ET	BBD 12T	BBD 12TS	BBD 12D Horizontal	BBD 12DS Horizontal
Weight	kg	15.5	15.5	15.6	15.6	11.1	12.1	9.8	10.7
Length <sup>1</sup>	mm	575	575	575	575	505	505	565	565
Air consumption at 6 bar	l/s	22	22	22	22	24	22	24	22
Impact rate	blows/min	2,520	2,520	2,520	2,520	2,580	2,520	2,580	2,520
Rotation speed	rpm	220	220	220	220	220	220	220	220
Hose connection	mm	19	19	16	16	19	19	13	13
Drill steel chuck: Hex	mm	19x108	22x108	19x108	22x108	22x108	22x108	19x108	19x108
Part number		8311 0104 02	8311 0104 10	8311 0104 12	8311 0104 13	8311 0102 95	8311 0102 98	8311 0102 47	8311 0102 80

1) Including drill steel retainer

Optional equipment	Partnumber
Hand hose, 13 mm x 3 m complete with claw coupling and hose clamps	9030 2066 00
Hand hose, 16 mm x 3 m complete with claw coupling and hose clamps	9030 2046 00
Hand hose, 19 mm x 3 m complete with claw coupling and hose clamps	9030 2047 00
Retro-fit kit BBD 15E to BBD 15ET	8311 0104 95

## BBD Drills For lighter jobs

### D handle special

With the D-handle the BBD 12D is ideal for horizontal rock drilling, plug hole drilling and concrete drilling.

### Shallow drilling

The BBD 12D drills holes down to two metres depth.

### Use it for ...

It's perfect for plug hole drilling, anchor and wedge hole drilling.



BBD  
12  
D



BBD  
12  
DS

### Ideal for

Just like it's sister the BBD 12 DS with a D-handle works best in horizontal rock drilling, plug hole- and concrete drilling.

### Silent

The DS model is equipped with a polyurethane cover that can reduce noise by up to 50 percent.

### Vibration reduction

HAPS, Hand and Arm Protection System for all E-versions

### Built in air flushing



BBD  
15  
E



BBD  
15  
ET

### Watch the E

The BBD's designated E are equipped with HAPS, Hand Arm Protection System. The vibration reduction let's you work longer hours without risking health.

### Watch the T

T stands for Trigger, which gives you better start and control during the operation. It's excellent for gas companies' pipe service maintenance.





## Drill/chippers

# GRAB IT AND GO

The DKR 36 is small enough to fit in a (very deep) pocket and strong enough to do both chipping and drilling.

The quick-release chuck is a money saver. It helps you change between drilling and chipping operations and you can do more work in shorter time. Lubrication is especially important to think about when you are drilling. With the DKR 36 you can concentrate on the task at hand.

A built-in lubricator lasts a whole normal shift and helps keep the drill chipper and tools in shape.

The nimble size together with a mass of applications make this a “grab and go”-tool. There is almost always a use for it, and the weight helps you

work in almost impossible positions. You can go overhead or under water. Divers especially like this model because they can do so much with it – anything from underwater drilling to chipping – thanks to low feed force.

Drill/chipper		DKR 36	DKR 36 R
Weight	kg	4.5	4.5
Length	mm	375	375
Air consumption at 6 bar	l/s	10	10
Impact rate	blows/min	2,820	2,820
Revolutions	rpm	250	250
Hose connection	mm	19	19
Vibration level 3 axes (ISO 28927-10) - breaking	m/s <sup>2</sup>	20.2	20.2
Vibration level 3 axes (ISO 28927-10) - drilling	m/s <sup>2</sup>	21.2	21.2
Sound power level guaranteed (2000/14/EC)	Lw, dB(A)	103	103
Sound pressure level (ISO 11203)	Lp, r=1m	88	88
Shank size: Round	mm	R19xH14.7x89	R19x95
Part number		8463 0103 60	8463 0103 50

1) 19 mm drill in granite

Accessories	Part number
Hand hose 10 mm x 3 m complete with claw coupling and quick coupling (incl. nipple)	9030 2042 00
Adapter for fitting 8, 10, 12 mm drills (only for DKR 36)	0701 1001 32
Knock-out block for removal of 8, 10, 12 mm drills	3085 0210 00

Please note: the above hand hose is equipped with Atlas Copco standard claw couplings. For N. American and Australian markets, hand hoses with couplings according to the local claw coupling standard should be used.

### GRAB AND GO-KIT

At just 10 kg, it's easy to carry around. And the steel case is complete with both hose and accessories.

Kits	DKR 36
Part number	8463 0103 61



VERSATILE

#### Be prepared for anything

The DKR 36 is tiny, but it handles anything from cracking rocks to chipping brickwork.

#### Never mind the lubrication

We take care of it for you. The DKR 36 has a built-in lubricator that lasts for a whole shift.

SAVE TIME & MONEY

#### Quick tool change

The quick release helps you change between drilling and chipping in seconds.

# DKR 36



# ALL-ROUNDERS SAVE MONEY

As soon as you pick up the drill, you'll feel the quality. That pays off from day one.

It's solid, well made. Start it up and you'll notice the raw power. Your drill is a good long-term investment and it makes money from day one. For every litre of air you put in, you'll get high impact energy out.

Our water flushed, pusher leg mounted rock drills are designed for driving drifts and tunnels with

a small cross section. They are intended for use for hole diameter range of 27 to 41 mm (1-1 5/8 in) with Hex 22 (7/8") rotation shank as a standard. When used with Atlas Copco tapered button bits, penetration rate will improve some 25-50 percent compared to conventional integral steels. And they have three to five times longer service

life. These all-rounders can be used in a wide range of applications. They have a robust riflebar rotation, long stroke length and high penetration rates.

Rock drills		BBC 16W	BBC 34 W	BBD 94 DSI
Hole range	mm	27-41	27-41	27-41
Weight	kg	28.5	33.5	28
Length	mm	705	775	670
Air consumption	l/s	69	88	97
Impact rate	blows/min	2,340	2,280	3,300
Piston diameter	mm	70	80	90
Stroke length	mm	55	70	45
Vibration level 3 axes (ISO 5349-2)	m/s <sup>2</sup>	16.6	20.4	15
Sound power level guaranteed (2000/14/EC)	Lw, dB(A)	122	127	125
Sound pressure level (ISO 11203)	Lp, r=1m	111	116	114
Part number		8311040110	8311040805	8311020610

Data at 6 bar (90 psi) air pressure. 2) Silenced version

Pusher legs		BMT 51	ALF 71	ALF 71-1	ALF 72D	ALF 72D-1	BMK 62S
Product type		Single telescope					
Suitable for rock drill:		BBC 16W, 34W	BBC 16W, 34W	BBC 16W, 34W	BBD 94W	BBD 94W	RH 656W
Feeding length	mm	1,300	1,300	950	1,300	1,200	1,300
Length retracted	mm	1,658	1,805	1,455	1,970	1,830	1,815
Length extracted	mm	2,958	3,105	2,405	3,270	3,030	3,115
Weight	kg	15	14	13	19	16	17
Piston bore	mm	60	70	70	70	70	53
Part number		8321 0301 01	8321 0201 94	8321 0201 95	8321 0201 80	8321 0201 81	8321 0102 02

## Rock drills **Medium range**

### Anytime, anywhere

The Puma is an all-round rock drill, suitable for most drilling applications in medium to hard rock.

VERSATILE



**PUMA**  
**BBC**  
**16**  
**W**

### Drill deep

With its long stroke the Puma has good penetration rate. And the quality rifle bar rotation mechanism can handle the load.

GET MORE DONE

### Easy reach

With the pusher leg control placed in back head of the rock drill, they are easy to reach.



**BBC 34 W**

- Highly efficient in medium to hard rock
- Long stroke, high impact energy
- Large piston diameter makes it very efficient even at low air pressure
- Powerful rifle bar rotation mechanism
- Pusher leg control placed in back head of the rock drill



**BBD 94**

- High performance rock drill for soft to hard rock
- Short stroke and high impact rate makes it ideal for soft rock
- Large piston diameter for high efficiency even at low air pressure
- Ratchet wheel rotation mechanism
- Pusher leg control is placed on the pusher leg

## Pusher legs **Your best legs**

These pusher legs were made with an aluminium alloy that was first developed for use in spacecrafts. They're strong and feature a large piston diameter for high feed force. The simple and robust design makes operations reliable and promise minimum maintenance time.

### Double telescopic

The legs provide a long feeding length from a relatively short length feed. Intended for drilling holes high up or when extra feed length is required.



### Double action

The Alf 72-pusher legs are double-acting, they push out and pull back in.

### Quick connect

When time is short, simple connection means money saved.

### Easy reach

The feed control is placed on the pusher leg, which makes it easy to reach.

**ALF**  
**72**  
**D**



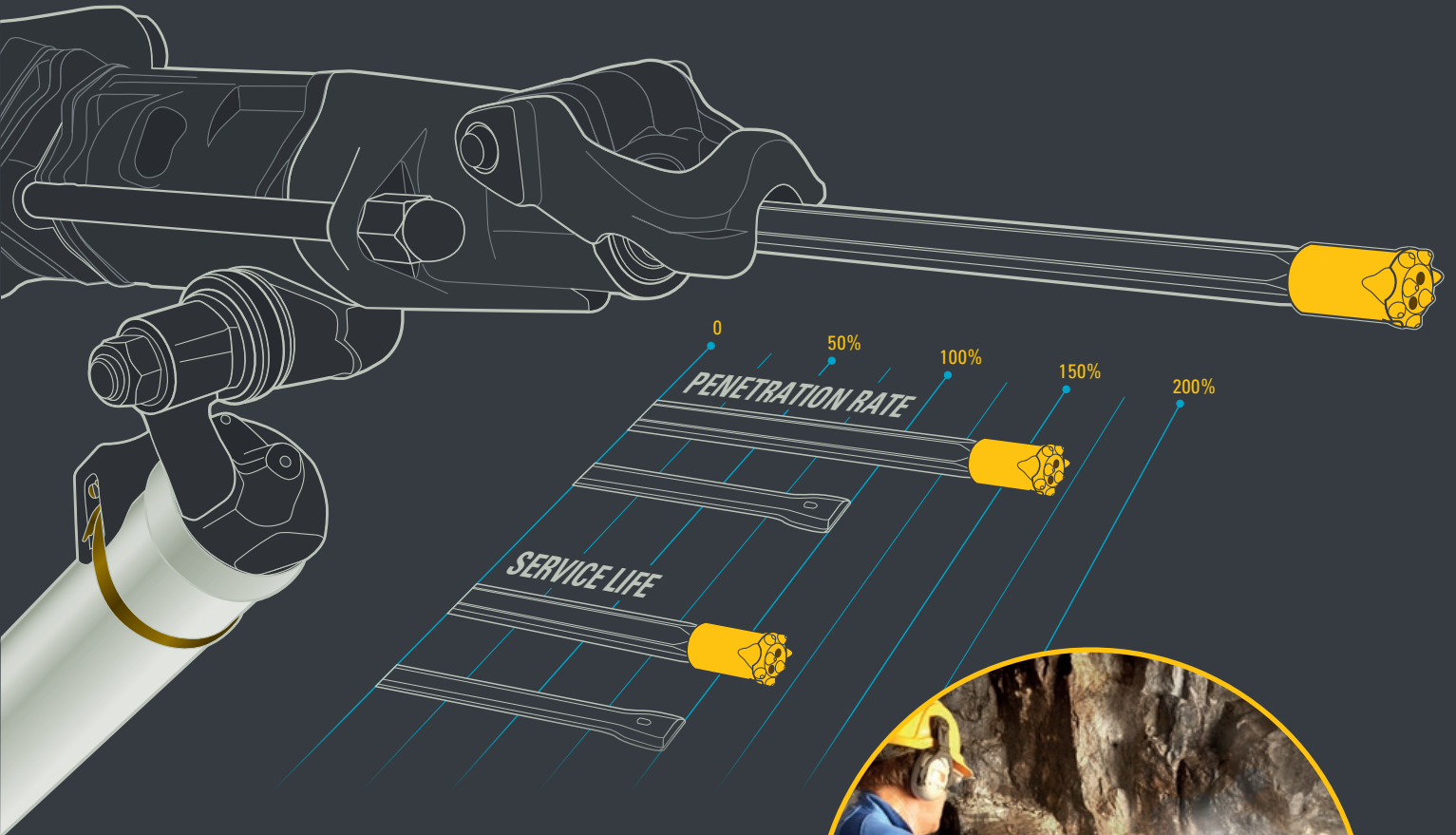
### Go further

The double-telescopic leg makes for long reach.

GREAT ERGONOMICS

### Light and durable

Spacecraft aluminium alloys makes the legs strong and light.



## GO FOR TAPERED

Tapered drilling equipment beats integral in speed and cost of operations.

First and foremost, penetration is faster with tapered steel. In some rock you can shave time by over 50 percent. Tapered bits are also easier to use; collaring is faster, drilling straight holes is simpler and vibrations are considerably lower. And in addition to all of this, tapered equipment actually gives you lower total drilling costs. Still not convinced? Do a test run and judge for yourself.



## FOUR ACTIONS FOR SUCCESSFUL DRILLING



**ACTION 1:**  
PERCUSSIVE IMPACT

Percussive drilling breaks the rock by hammering impacts transferred from the rock drill to the drill bit at the bottom of the hole.



**ACTION 2:**  
FEED FORCE

The purpose of the feed force is to keep the drill bit in close contact against the rock. The engineering challenge is to combine high feed force with good rotation.



**ACTION 3:**  
ROTATION

Rotation moves the drill bit to a new position to make the next blow as effective as possible. When the drilling starts you need even and smooth rotation.



**ACTION 4:**  
FLUSHING

Drill systems with a high output need good flushing technology to be able to remove drill cuttings. Particle size, shape and material affect the flushing methods.

# GO INDUSTRIAL

With our heavy range you can break rock with industrial efficiency and still keep noise down.

When you see the DSI designation on a drill, you'll know it's made for bigger operations. DSI stands for Dimension Stone Industry and these well-proven pneumatic rock drills can be mounted on a drill column to make you really productive. The BBD and BBC-models can drill holes of up to 27- 41 mm in diameter and they come equipped with an H22 chuck and air flushing as standard. You can get water flushing as an option and the machines can be equipped with both cable or chain feeds. These heavy drills come from a proud lineage of products.

We have been crafting quality tools for more than 100 years and every bit is machined to the highest standards. But quality is more than just the nuts and bolts. It's also how you experience the machine. The silenced BBC 34DSI is pure quality in all aspects. If you are operating in sensitive areas the silencer can prove invaluable for your business.



### This is dimension stone

The most common commercial stones are marble, granite and slate. Dimension stone is the name given to natural rock that has been quarried and shaped to certain dimensions or specifications for use in building, construction, monument and tombstone industries.



Rock drill		BBD 94-DSI
Weight	kg	26
Length	mm	670
Impact rate at 6 bar	Hz	55
Stroke length	mm	45
Piston bore	mm	90
Air consumption at 6 bar	l/s	97
Part number		8311 0206 10

## Heavy range For industrial use



**BBD  
94  
DSI**

### Recipe for productivity

The BBD 94DSI weighs 26 kg, has great impact energy and can handle low air pressures.

### When to use ...

Short stroke and high impact rate makes it ideal for soft rock.

**GREAT FOR BUSINESS**

### High efficiency

A large piston diameter makes the drill efficient even at low air pressure.

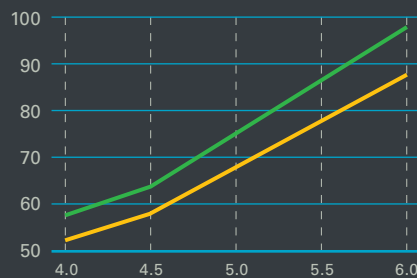
### Rotation that lasts

The powerful rifle bar rotation mechanism is dimensioned to handle industrial demands.

### AIR SUPPLY

The rock drill needs a certain flow of air at a given pressure to produce sufficient impact energy. The DSI-rock drill is designed for optimum performance at an air pressure of 6 bar, unless stated otherwise. Air pressure and flow should be measured dynamically at the intake nipple of the rock drill.

### AIR CONSUMPTION (liters/sec)



### LUBRICATION

The drill rig must be fitted with an in-line lubricator that's compatible with the air pressure and flow rate of your rock drills. Fill the lubricator with air tool oil that has a viscosity suited for the ambient working temperature. When the lubrication is effective, a continuous film of oil wets

the neck of the shank adapter during operation. Remember that oil in the exhaust air is not a guarantee for effective lubrication.

See recommended air tool lubricant table on page 18.

## EASY RIG MOUNTING

### CORRECT MOUNTING

The rock drills can be rig-mounted for use in a number of applications within the dimension stone industry. For good results, however, the following conditions must be met:

Use the attachment point (1) on the underside of the rock drill as the main means of fixing it to the cradle. To further secure the rock drill, a support (2) must be mounted at the rear end and attached with the side bolts. To minimize stress and hole deviation, the rock drill chuck

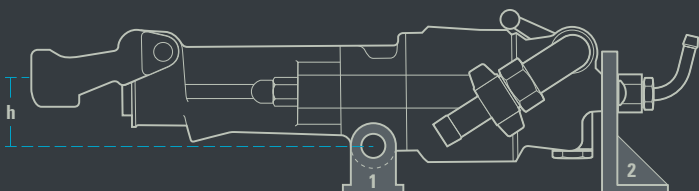
and drill steel support must be aligned perfectly. If drill steels longer than 1.8 m are used, an intermediate drill steel support is recommended to improve hole straightness.

### ADEQUATE FEED FORCE

To get the most from your drill's impact energy, the drill bit has to be pressed against the rock with a certain force. How much force depends on the impact energy and the rock's hardness. Higher air pressure gives higher impact energy.

On rigs for light rock drills, a minimum feed force of 1.4 kN (140 kp) is recommended for each rock drill. The feed system must include a pressure regulator for seamless control of the feed force.

If two or more rock drills are mounted on the same feed unit, the cradle must be designed to permit variations in the rate of penetration between the individual drills while maintaining the correct feed force on each rock drill.



Rock drill type	BBD 94-DSI	
Height to drill center (h)	mm	53
Attachment bolt diameter (1)	mm	23-24
Attachment hole diameter (2)	mm	23-24

# TOOLS FOR EVERY JOB

Drill		BBD 12D/DS	BBD 12T/TS-01	BBD 15E/ET	RH 571-5L/LS	RH 572E	RH 658L/LS	RH 658 L-01
Hole dimension	mm	17-29	24-34	17-29	28-34	28-34	29-40 (-64)	35-40
Hole depth	m	1	1-2	1-2	1-3	1-3	1-6 (short hole reaming)	1-6
Shank size	mm	19x108	22x108	22x108	22x108	22x108	22x108	25x108
		-	19x108	-	-	-	-	-
		-	22x82.5	-	-	-	-	-



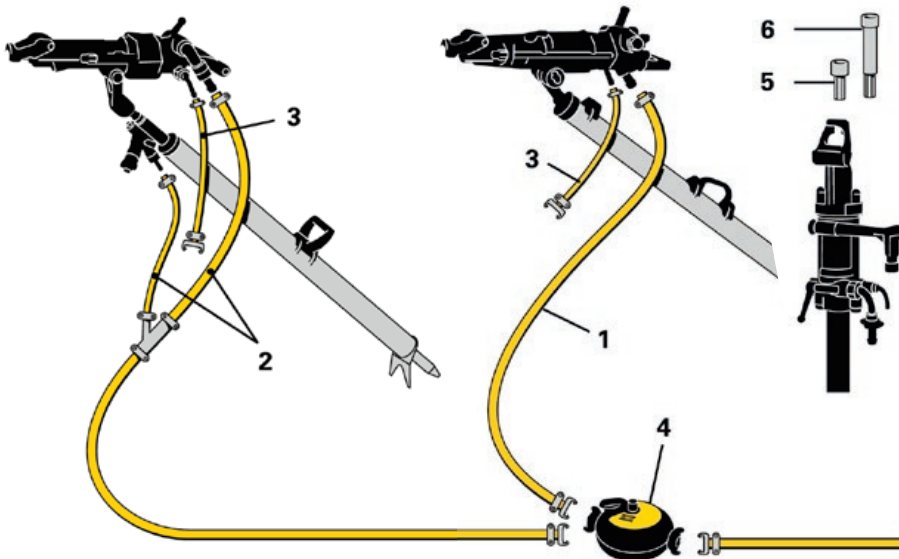
## BBC/BBD/RH – Optional equipment

Pos	Description	Part number
<b>Compressed air hose for rock drill and feed, fitted with couplings for:</b>		
1	BBC 16, BBC 34, BBD 46	9030 2051 00
2	RH 656	9030 2067 00
2	BBD 94	9030 2068 00
3	Water flushing hose with fitted couplings for BBC, BBD, RH	9030 2069 00
<b>Lubricator for BBC, BBD, RH</b>		
4	BLG 30	8202 5102 05
4	CLG 30	8202 5102 39
<b>Tools for roof bolting with BBD 46 WR</b>		
5	Mandrel for 25 mm bolt	3081 0001 00
6	Socket for 37 mm hexagon nut	3081 0006 00

Rock drill oil, synthetic lubricant				
Oil volume	l	1	5	20
Weight	kg	1.1	5.8	23
Part number		8099 0202 36	8099 0202 02	8099 0202 15

**BBD 94 DSI, BBC 34 DSI – Recommended air tool lubricants.**  
Use a mineral-based air tool oil.

Ambient temperature	Viscosity grade
°C	(ISO 3448)
-30 to 0	ISO VG 32-68
-10 to +20	ISO VG 68-100
+10 to +50	ISO VG 100-150







## ***COMMITTED TO SUSTAINABLE PRODUCTIVITY***

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

[www.atlascopco.com](http://www.atlascopco.com)

The Atlas Copco logo consists of the company name in a white, italicized serif font, centered between two horizontal white bars. The top bar is positioned above the text, and the bottom bar is positioned below it, creating a frame for the brand name.

*Atlas Copco*