



Manufacturer of pneumatic impact tools and hydraulic tools for mines, quarries, construction industry, steelworks and foundries.



BUTTON BIT

KR , RKV , KRP

OPERATION MANUAL

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Description

PERMON bits are suited for any type of drilling application including, water wells, quarries, open pit and underground mining, construction, blasting, environmental, oil and gas.

The bits transfer the energy of the piston on the drilled material.

APPLICATION

PERMON bits are designed, engineered, and manufactured, for superior penetration while maintaining maximum cleaning action at the face of the bit, thus extending the working life of the product.

DTH Hammer Bits can be used for drilling in any kind of rock. Bits with ballistic buttons perform better in compact and drillable rocks. Bits with spherical buttons or combi button bits are preferred in disrupted rocks.

Choose the optimal bit and bit rotation speed based on the type of rock drilled. Recommended bit rotation speed for most applications varies between 18 – 60 RPM. To figure out the optimal rotation speed, try to ensure that when peripheral buttons are worn out (with flat widths of 1/3 of the button diameter), face buttons be noticeably worn out as well. Bit rotation speed must also be adjusted to specific drill conditions and drill rig capabilities.

PERMON DTH DRILL BITS KRP are designed for pre-drilling the upper part of the borehole in soft rocks, not regular drilling.

Threaded Button Bit RKV.: Used in bench drilling, underground long hole drilling to match extension drill rod, drifting drill steel heavy duty top hammer.

Technical description

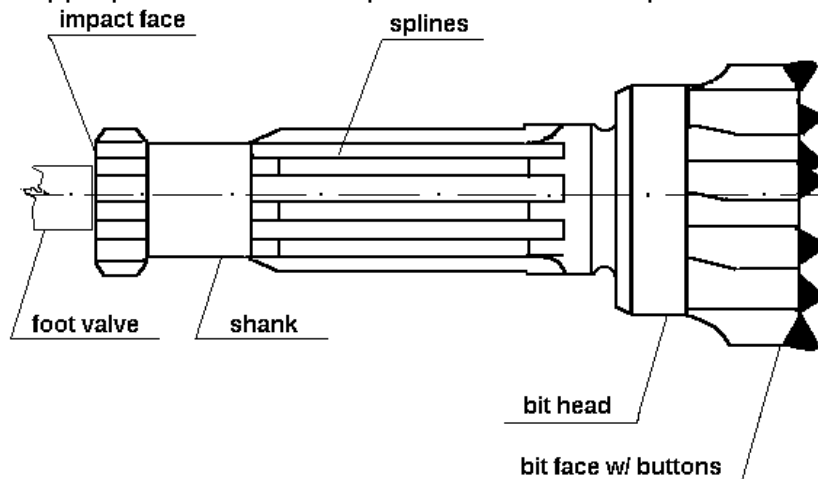
PERMON bits are manufactured utilizing premium alloy steels, which provide for the longest possible product life. In addition, premium quality carbide buttons are used in all of our drill bits.

PERMON bits are processed through multiple precision heat treatments that extend the product life for maximum wear and performance in the toughest drilling conditions.

The combination of premium steel, quality carbide, exact heat treatments, and state of the art design and manufacturing, yields a superior product capable of performing in the toughest drilling conditions.



DTH DRILL BITS The main body of a drill bit is constructed from quality steel. The face of the bit is fitted with buttons. Buttons are positioned to provide the optimal drilling performance and durability. Exhaust air flows through the center of drill bit to the bottom of the borehole, taking away bore dust as it gets pushed through the annular space of the drill up to the surface. Bit shank matches the appropriate hammer. A plastic foot valve is pressed into the back side



Threaded Button Bits : Suitable for powerful percussive drills and top hammers with high speed drifter. The products are widely used in bench and production drilling, extensional drilling.



PERMON DTH DRILL BITS DIVIDED KRP are designed for pre-drilling the upper part of the borehole in soft rocks, not regular drilling.



Bit Face Styles

Shown here are PERMON standard face designs. The number of blow holes, flushing grooves and buttons will vary depending on the size and face style of the bit.

FLAT The flat face bit, as the name implies, is flat across the bit front. This bit is very aggressive in drilling applications and is suited best for very hard rock and in hard rock with broken formation. Used primarily in blast hole work, the bit tends to lead off in deep holes. PERMON flat face bits come with standard face slots to aid in keeping the cutting face clean.



Double Gauge Face This kind of face shape is suitable for fast penetration rates in medium to hard rock formations. Designed for high air pressures and good resistance to steel wash step gauge bit.



CONVEX This face has been utilized in very hard drilling formations where the face of the bit tends to be prematurely worn away. The convex style tends to keep the drilling face in tact longer by drilling with the two rows of buttons on the convex face. This face style gives good hole penetration. Suitable for most drilling applications, particularly hard, abrasive rock to give a combination of speed and good service life.



CONCAVE The concave bit design is an excellent all around bit, suitable for soft and hard formations. The cone shaped face design provides good stability during drilling, allowing for straighter holes while reducing equipment vibration. The carbide configuration gives added penetration in many formations.



Button Shapes & Grades

DOME

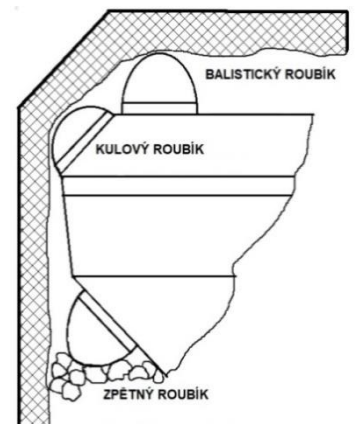
Tough shape for hard abrasive rock and deep hole drilling. Can be used in all applications. Also known as Spherical.

BALLISTIC Normally this button is used in less hard consolidated drilling formations. This type of button is very aggressive and drills faster than dome. However, because the ballistic tip protrudes out farther than domed, the ballistic is prone to breakage if used in the wrong formations. Care should be used when drilling with this type of button. Ballistic buttons yield high penetration rates and efficient rock breakage. Less suited to badly broken ground and hard rock.

PARABOLIC

A combination design to provide increased speed over the Dome design with greater wear characteristics than Ballistic. Less suited to broken ground. Also known as Semi-Ballistic.

REVERSING BUTTONS Reversing buttons are often utilized on bits with oversized heads and on standard heads where clearance allows. The reversing buttons are used most often in broken rock formations to allow the bit to drill slowly up and out of the hole, when broken rock has fallen in behind the bit and hammer. Either ballistic or domed buttons can be used and the number of buttons is variable. This concept is also used on the backhead or topsub of the DTH hammer for the same purpose.



CARBIDE SIZE IN PERMON DTH BITS PERMON's engineers have chosen the best all around button size and number of buttons for each size bit. Large carbides tend to last longer, are less likely to have shear failure, and require less frequent sharpening. Smaller carbides tend to drill faster, however the sharpening interval is more frequent and they wear out faster.

GRADES PERMON uses only carbide grades with excellent resistance to wear and with high toughness properties.

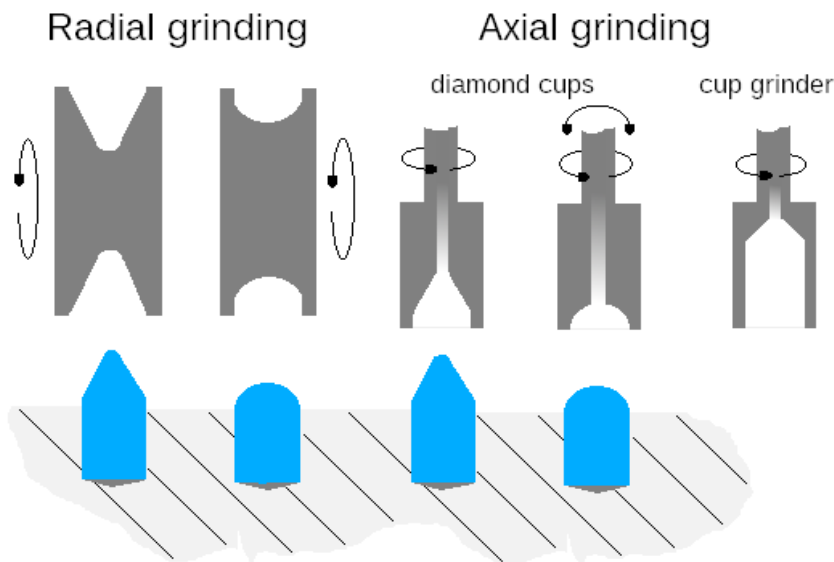
Maintenance

To maintain optimal working conditions for the drill bit and keep performance as high as possible, make sure all buttons are correctly shaped.

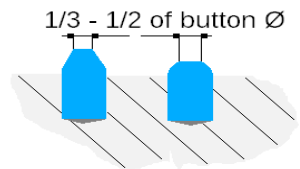
Following issues arise when drilling with a blunt drill bit:

- Lesser drill bit durability
- Decreased drilling speed
- Button abruption or break off
- Higher stress on the impact face

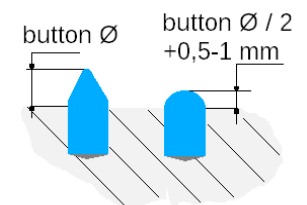
Regrind bit buttons back to their original shape when the flat width exceeds $1/3$ or $1/2$ of the diameter of the button as a result of wear. Regrind buttons at least once every 400 metres of drilling in weaker rocks – even if they look seemingly untouched. This is to prevent thermal cracking of the buttons also known as 'snake skin' that later results in fragmentation of buttons. Regrinding is done using a special grinder with diamond grinding wheels. The grinder is a hand-held pneumatic tool.



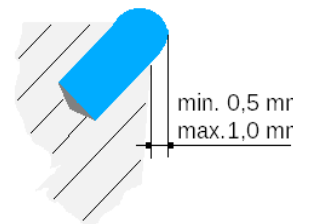
Max. button wear



Face buttons overshoot



Peripheral buttons overshoot



Grinding can be done either axially or radially. Grinding wheels and diamond cups can be used to restore the shape of buttons. Diamond cup grinders can be used to grind the steel base and expose buttons in the face of the bit. The peripheral buttons of a properly grinded drill bit must overshoot the bit body by cca. 0.5 – 1 mm with face buttons exposed in the face of the bit as shown in the figure to the right. To achieve this, regrind the bit body as necessary.

STORING

Store the bit in dry conditions – protected from weather factors and relative humidity below 75%.

In proper conditions, the bit can be stored for a year without reconservation.

DTH Hammer Bits

Check foot valve protrusion length of drill bits with the DHD 3,5, MD3,5 a DHD 340A,350R a QL 60 shank. If it exceeds 47 mm, shorten it to match the dimension.

Ponorné kladivo	Drill Bit Shank Type	Length Foot valve	Ordering code Foot valve
VKP70	PERMON 70		722 027
VKP80	PERMON 80		722 076
VKP3,5 DHD3,5	DHD 3,5	47 mm	
VKP3,5NW DHD3,5 - 25 Bar	DHD 3,5	WITHOUT FOOT VALVE	
VKP100 DHD3,5	DHD 3,5	43 mm	
VKP100 MD3,5	MD 3,5	43 mm	
VKP105K DHD340A	DHD340A	35 mm	
VKP110-1 DHD340A	DHD340A	46 mm	
VKP 5W DHD350R - 25 Bar	DHD350R	Without modifications	
VKP130-1 DHD350R	DHD350R	46 mm	
VKP150 QL60	QL60	46 mm	



An unsuitable foot valve reduces performance of the hammer, possibly completely preventing it !

DTH HAMMER BITS VKP70, VKP8070

Roubíkové korunky KR pro ponorná kladiva VKP70, VKP80 PERMON DTH DRILL BITS KR PERMON70, PERMON80

Obj. č. Item No.	Název Title	Průměr Diameter	Typ čela Face Styl	PERMON 70	PERMON 80	Roubíky - Buttons			Druh roubíku Button Shapes
						Obvodové Outer	Vnitřní Inner	Středové Front	
9300-290	KR 70- 75JBBS	75	Ploché Flat	X		5 x Ø12B	-	3 x Ø12B	Balistické Ballistic
9300-300	KR 70- 80JBBS	80	Ploché Flat	X		6 x Ø12B	-	4 x Ø12B	Balistické Ballistic
9300-000	KR 80- 85DBBS	85	Konvexní Convex		X	6 x Ø12B	3 x Ø12B	2 x Ø12B	Balistické Ballistic
9300-010	KR 80- 90DBBS	90	Konvexní Convex		X	6 x Ø12B	4 x Ø12B	3 x Ø12B	Balistické Ballistic

Obj. č. - Item No.	Název - Title	Trubka korunky- Foot valve
9300-290	KR 70- 75JBBS	722 027
9300-300	KR 70- 80JBBS	722 027
9300-000	KR 80- 85DBBS	722 076
9300-010	KR 80- 90DBBS	722 076

DTH HAMMER BITS DHD 3,5

Roubíkové korunky KR pro VKP3,5 DHD3,5; VKP3,5NW DHD3,5 - 25 Bar; VKP100 DHD3,5 PERMON DTH DRILL BITS KR DHD3,5								
Obj. č. Item No.	Název Title	Průměr Diameter	Typ čela Face Styl	Roubíky - Buttons				Druh roubíku Button Shapes
				Zpětné Reversing	Obvodové Outer	Vnitřní Inner	Středové Front	
411 164	KR 95 B DHD 3,5	95	Konvexní Convex	-	6 x Ø14B	2 x Ø13B	2 x Ø13B	Balistické Ballistic
411 200	KR 100 B DHD 3,5	100	Dvojitá – Plochá Double Gauge	-	12 x Ø11B	-	4 x Ø11B	Balistické Ballistic
411 199	KR 105 B DHD 3,5	105	Dvojitá – Plochá Double Gauge	-	12 x Ø11B	-	5 x Ø11B	Balistické Ballistic

Obj. č. Item No.	Název Title	Trubka korunky- Foot valve		
		VKP3,5 DHD3,5	VKP3,5W DHD3,5 - 25 Bar	VKP100 DHD3,5
411 200	KR 100 B DHD 3,5	4325-420	4323-410	-
411 199	KR 105 B DHD 3,5	4325-420	4323-410	4325-430

DTH HAMMER BITS DHD340A

Roubíkové korunky KR pro ponorná kladiva VKP105K DHD340A; VKP110-1 DHD340A PERMON DTH DRILL BITS KR DHD340A								
Obj. č. Item No.	Název Title	Průměr Diameter	Typ čela Face Styl	Roubíky - Buttons				Druh roubíku Button Shapes
				Zpětné Reversing	Obvodové Outer	Vnitřní Inner	Středové Front	
411 189	KR 115 B DHD 340	115 mm	Konvexní Convex	-	8 x Ø 15B	4 x Ø 14B	2 x Ø 14B	Balistické Ballistic
411 184	KR 127 JKES DHD340	127 mm	Ploché Flat	-	8 x Ø 14K	-	7 x Ø 14K	Kulové Dome
411 204	KR 135 B DHD 340	135 mm	Konvexní Convex	-	9 x Ø 14B	6 x Ø 14B	4 x Ø 14B	Balistické Ballistic
411 205	KR 150 B DHD 340	152 mm	Ploché Flat	-	8 x Ø 16B	-	9 x Ø 16B	Balistické Ballistic
411 206	KR 150 K DHD 340	150 mm	Ploché Flat	-	8 x Ø 16K	-	9 x Ø 16K	Kulové Dome
411 207	KR 150 C DHD 340	150 mm	Ploché Flat	-	8 x Ø 16K	-	9 x Ø 16B	Combi
411 196	KR 152 C DHD 340	152 mm	Konkávni Concave	-	7 x Ø 17K	4 x Ø 14B	4 x Ø 14B	Combi

Obj. č. Item No.	Název Title	Trubka korunky- Foot valve		
		VKP110-1 DHD340A	VKP105K DHD340A	DHD340A
411 204	KR 135 B DHD 340	4325-450	4325-460	4325-440
411 205	KR 150 B DHD 340	4325-450	4325-460	4325-440
411 206	KR 150 K DHD 340	4325-450	4325-460	4325-440
411 207	KR 150 C DHD 340	4325-450	4325-460	4325-440

DTH HAMMER BITS DHD350R

Roubíkové korunky KR pro VKP 5W DHD350R - 25 Bar; VKP130-1 DHD350R PERMON DTH DRILL BITS KR DHD350R								
Obj. č. Item No.	Název Title	Průměr Diameter	Typ čela Face Styl	Roubíky Buttons				Druh roubíku Button Shapes
				Zpětné Reversing	Obvodové Outer	Vnitřní Inner	Středové Front	
411 171	KR 152 B DHD 350 - Z	152 mm	Konvexní Convex	2x	8 x Ø18B	4 x Ø15B	4 x Ø14B	Balistické Ballistic
411 177	KR 165 B DHD 350 - Z	165 mm	Konvexní Convex	2x	8 x Ø18B	4 x Ø16B	4 x Ø16B	Balistické Ballistic
411 169	KR 152 K DHD 350 - Z	152 mm	Konvexní Convex	2x	8 x Ø18K	4 x Ø15K	4 x Ø14K	Kulové Dome
411 170	KR 165 K DHD 350 - Z	165 mm	Konvexní Convex	2x	8 x Ø18K	4 x Ø16K	4 x Ø16K	Kulové Dome
411 183	KR 178 K DHD 350 - Z	178 mm	Konvexní Convex	2x	8 x Ø18K	4 x Ø16K	4 x Ø16K	Kulové Dome
411 208	KR 185 K DHD 350 - Z	185 mm	Konvexní Convex	2x	8 x Ø18K	4 x Ø16K	4 x Ø16K	Kulové Dome

DTH HAMMER BITS QL60

Roubíkové korunky KR pro VKP150 QL60 - PERMON DTH DRILL BITS KR QL60								
Obj. č. Item No	Název Title	Průměr Diameter	Typ čela Face Styl	QL60	Roubíky Buttons			Druh roubíku Button Shapes
					Obvodové Outer	Vnitřní Inner	Středové Front	
411 161	KR 203 JKES QL60	203 mm	Ploché Flat	X	9 x Ø 18K	-	9 x Ø 18K	Kulové Dome
411 172	KR 165 B QL60	165 mm	Konvexní Convex	X	8 x Ø 20B	4 x Ø 16B	4 x Ø 16B	Balistické Ballistic
411 178	KR 178 B QL60	178 mm	Konvexní Convex	X	9 x Ø 18B	6 x Ø 18B	5 x Ø 18B	Balistické Ballistic
411 173	KR 165 K QL60	165 mm	Konvexní Convex	X	8 x Ø 20K	4 x Ø 16K	4 x Ø 16K	Kulové Dome
411 174	KR 178 K QL60	178 mm	Konvexní Convex	X	9 x Ø 18K	6 x Ø 18K	5 x Ø 18K	Kulové Dome
411 496	KR 185 B QL60	185 mm	Konvexní Convex	X	9 x Ø 18B	6 x Ø 18B	5 x Ø 18B	Balistické Ballistic

Roubíkové korunky RKP pro ponorná kladiva VKP - PERMON DTH DRILL BITS RKP

Obj. č. Item No.	Název Title	Průměr Diameter	Stopka Shank	Trubka korunky Foot valve	Poznámka Note
9302-100	KR 110-180SKAP-Z	182 mm	VKP110 PERMON	722 080	Pouze pro předvrtávání vrchní části vrtu - předpažení v měkkých horninách. Bits RKP are designed for pre-drilling soft rocks only, not regular drilling.
9302-110	KR 110-180 SCAP-Z DHD340A	182 mm	DHD 340A	4325-370	
9302-120	Korunka KR 130-225 SCAP-Z DHD	227 mm	DHD 350R	4325-350	
9302-130	Korunka KR 150-225 SCAP-Z QL60	227 mm	QL60	4325-360	

Roubíkové korunky závitové KRV - KRV Threaded Button Bit

Obj. č. Item No.	Název Title	Závit Thread	Průměr Diameter	Typ čela Face Styl	Tělo Body	Roubíky Buttons		Druh roubíku Button Shapes
						Obvodové Outer	Středové Front	
9303-030	KRV 102BA/T51	T51	102	Ploché Flat	Retrac	8 x Ø14B	6 x Ø14B	Balistické Ballistic
9303-031	KRV 102JKAR/T51	T51	102	Ploché Flat	Retrac	8 x Ø14K	6 x Ø14K	Kulové Dome
9303-032	KRV 102JCAR/T51	T51	102	Ploché Flat	Retrac	8 x Ø14K	6 x Ø14B	Combi
9303-040	KRV 102CKAH/T51	T51	102	Konkávní Concave	Standard	8 x Ø14K	5 x Ø14K	Kulové Dome
9303-041	KRV 102CBAH/T51	T51	102	Konkávní Concave	Standard	8 x Ø14B	5 x Ø14B	Balistické Ballistic
9303-050	KRV 90JKCR/T51	T51	89	Ploché Flat	Retrac	8 x Ø14K	6 x Ø12K	Kulové Dome
9303-050	KRV 90JCCR/T51	T51	89	Ploché Flat	Retrac	8 x Ø14K	6 x Ø12B	Combi
9303-070	KRV 95CBCR/T51	T51	95	Konkávní Concave	Retrac	8 x Ø14B	6 x Ø12B	Balistické Ballistic