

Grinding equipment

Product catalogue







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The importance of grinding

You've probably known for a long time that regular grinding is essential for productivity. But what you may not know is just how important it is. By wearing down your button bits by a third you'll slow down your penetration rate and at the same time increase your running costs! And why? Because the hole will take longer to drill and your labour and rig running costs will escalate. And at the end of the day you'll have drilled fewer holes.

History of grinding

The first man cracked a sample of seed of wild grass with his teeth or his nails, but found out that if he placed a bulk of the grains in a hollow of a natural stone and pounded it with another stone, it became easier for him to eat. The history of grinding wheels began therefore with natural composite stones, and were used for example as millstones.

Mankind continued to use grinding implements for domestic use, not only for preparation of food, but also to various tools in their everyday life. Later on in the human civilization, copper, iron sand and alluvial gold was used as materials for primitive metallurgical grinding processing methods. Today, we at Epiroc, can meet the needs of all our customers with large scale production.



The right tools to get you back on the cutting edge

Every regrinding operation requires its own special tool. The wrong one can easily damage your bits. With Epiroc grinding equipment – complemented by a global service organization – you needn't worry. Your bits will soon be as good as new.

Staying sharp makes a lot of business sense

If you spend your hard-earned money on drill bits that have to be constantly replaced, then you'll start wondering if you can't get better value elsewhere. The answer to this problem is a comprehensive range of grinding equipment. Maintaining penetration can therefore save you money.

Firstly, you need good grinding equipment for a start – and you won't find any better than Epiroc's. And secondly, you need to spend time and energy grinding your bits. But the rewards are significant. For a really small investment of your overall drilling costs, you can restore your worn bits to their former glory. And with these bits you cut the time and manpower needed to drill the hole. In fact, you will reduce overall drilling costs. How? By using the market's widest selection of efficient, ergonomically designed grinding machines for fixed installations and field operations – Epiroc grinding machines.

Get the sharpest advice

In a grinding machine, the grinding wheels are composed of abrasive compounds. Grinding wheels life span can vary from less than a day to many years, depending of the release of individual grains, dull growing and that they increase drag pulls out of the bond. The process of manufacturing the grinding wheels is therefore a controlled and precise process and is necessary for good performance.

There are many different types of bits, some with inserts and others with buttons – and they come in many different sizes. To further complicate matters, no two rocks are the same. Consequently, bit wear differs. There's only one good piece of advice we can give you – don't make a decision before talking to us. And remember, thanks to Epiroc's extensive service network, a good regrind is only a phone call away.

Epiroc can offer grinding machines for fixed installations and field operations; for tapered, top hammer and DTH button bits; as well as integrals with chisel inserts.



Diamond grinding tools deliver perfect results

With Epiroc's diamond grinding wheels that retain their profiles throughout their entire working life, you can be sure that they deliver perfect results. Every time.

Diamonds are a driller's best friend

If you need to grind steel and cemented carbide in one single operation, you won't find better tools than our diamond grinding wheels for spherical, ballistic and the patented Trubbnos cemented carbide buttons. Thanks to the diamond coated steel body, these grinding wheels retain their profile throughout their working life. So when used in our grinding machines these wheels always deliver perfect results.

There's no other way to grind buttons properly.



Grind Matic grinding wheels for button bits.

Grinding cups for button bits, COPROD and down-the-hole bits

Grinding cups are used, for smaller grinding volumes, to grind both top-hammer button bits and down-the-hole bits, with our superior air powered handheld grinding machine. Featuring a special abrasive mixture, Grind Matic grinding cups are able to grind cemented carbide and steel in one single operation. You can use either air or water as a coolant.

It's safe to say that handheld grinding has never been cheaper, easier or quicker.



Grind Matic grinding cups.

Silicon carbide grinding wheels for integrals

When grinding integrals, it is important to use enough cooling. Water cooling is preferred. Be sure to select the grinding wheels that are specialized to Epiroc Grind Matic equipment. It is also important not to feed too much nor too little during grinding, to maintain highest quality.



Grind Matic grinding wheels for integrals.

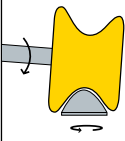
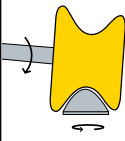
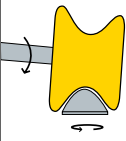
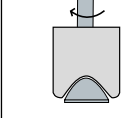
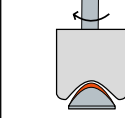
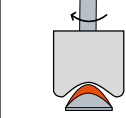
A machine for every occasion

Grinding machine	Threaded and tapered bits	DTH and COPROD bits	Reaming bits	Integral rods
Grind Matic BQ3	●		●	
Grind Matic BQ3-DTH	○	●	○	
Grind Matic Manual B	●		●	
Grind Matic Manual B-DTH*	○	●	○	
Grind Matic HG*	●	●	●	
Grind Matic RH3	●	●	○	
Grind Matic Swing				●

● Recommended ○ Can be used

* Can be used for ODEX pilot bits and reaming bits.

Use the best grinding tool

	New grinding tool	Half worn grinding tool	Worn grinding tool
Patented diamond grinding wheel			
Traditional grinding cup			
		Protrusion loss	



A useful tip: Use a Grind Matic grinding template, and you'll see when it's time for a regrind.

Grinding solutions for every job site


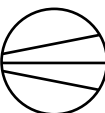


Epiroc provides mobile and stationary grinding equipment for threaded, tapered, DTH- and COPROD button bits and integral rods with chisel inserts. Whatever the button profile or insert shape, we have the solution to match. Naturally, we also offer a full range of accessories and consumables, including grinding wheels, grinding cups and bit holders.

Check out our selection. We probably have the ideal machine for you.



Cemented carbide buttons.

Machine symbols

High voltage (AC).		Compressed air.		Working pressure. Unless otherwise stated, 7 bar is standard.		Low voltage (DC).	24V	Hydraulic oil	
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Intensive

High frequency of grinding (full shift)



Boost your productivity

Grind Matic BQ3

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

Grind Matic BQ3 is a fast, semi-automatic grinder specially designed for our profiled diamond grinding wheels, allowing you to precision-grind cemented carbide buttons and steel in the same operation. Grind Matic BQ3 is so easy to use that one operator can readily handle more than one machine at a time. To use Grind Matic BQ3, simply connect the machine to electricity and air.

The new high pressure flushing pump facilitates accurate flushing. This ensures that the Epiroc diamond grinding wheel is clean, which means a service life improvement of up to 50%! The ergonomics have also been improved thanks to the new adjustable handle, improved lighting and better service access. This makes the BQ3 easier to use and more efficient to operate.



Grinding machine	Product No.
Grind Matic BQ3	
400 V 3-phase 50 Hz	87004800
230 V 3-phase 50 Hz	87004801
400 V 3-phase 60 Hz	87004803
230 V 3-phase 60 Hz	87004805
440 V 3-phase 50 Hz	87004806

Technical data	
Air pressure, max.	7 bar (101,5 psi)
Air pressure, min.	5,5 bar (80 psi)
Air consumption	40 l/min
Voltage working lighting	24 V
Weight, excluding packaging	222 kg (490 lb)
Transport dimensions	L 1160 x W 1030 x H 1730 mm (3'9 ⁵ / ₈ " x 3'4 ¹ / ₂ " x 5'8 ¹ / ₈ "

Grinding capacity	
Maximum height of drill bit	200 mm (7 ⁷ / ₈ "
Maximum diameter of drill bit	127 mm (5")
Minimum distance between buttons	3,5 mm (9/ ₆₄ ")

A perfect machine for high productivity

- Grinds hundreds of bits per shift
- CE, WEEE, and RoHS approved
- Easy to use
- Helps you to spend more time on drilling
- Improves your bottom line
- Built by hand in Sweden

Accessories included in delivery

Allen key, 8 mm (1 piece)
Centering cup, 11 mm (1 piece)
Centering device (1 piece)
Coolant concentrate, 0,5 l
Grinding wheel, uncoated for centering
Protective goggles
Operator's instructions and spare parts list
Box wrench, 15 mm

Note: Grind Matic BQ3 must be completed with grinding wheels, centering cups (others than 11 mm), bit holders and indexing templates.

Intensive

High frequency of grinding (full shift)



A fast machine

Grind Matic BQ3-DTH

Semi-automatic grinding machine for DTH- and COPROD button bits. Can also be used for threaded and tapered button bits with optional accessories.

Grind Matic BQ3-DTH is a fast machine. And with speed comes greater efficiency. We've included a bit holder and an automatic centering arm. Combine these novel features with a more powerful grinding motor, as well as a fourfold increase in bit rotation speed, and you're looking at vastly superior grinding capacity. Grind Matic BQ3-DTH is designed with the driller in mind. Add to that a handy time relay for setting grinding time, a tiltable bit holder to help you handle heavier bits more easily, plus an electric locking device, and you'll find this is a highly rational grinding machine.

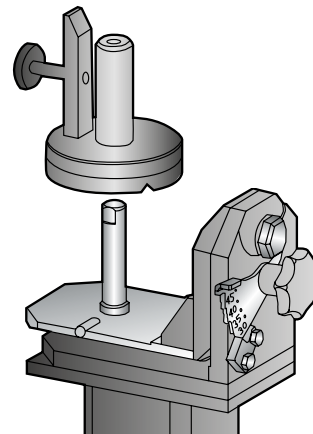
Moreover, Grind Matic BQ3-DTH is built to last. The spindle bearing is protected by a splashguard. And all electrical and pneumatic components are housed in separate cabinets on both sides of the machine, protecting them from dust, dirt and water.



Grinding machine	Product No.
Grind Matic BQ3-DTH	
400 V 3-phase 50 Hz	87004900
230 V 3-phase 50 Hz	87004901
400 V 3-phase 60 Hz	87004903
230 V 3-phase 60 Hz	87004905
440 V 3-phase 50 Hz	87004906

Technical data	
Air pressure, max.	7 bar (101,5 psi)
Air pressure, min.	5,5 bar (80 psi)
Air consumption	40 l/min
Voltage working lighting	24 V
Weight, excluding packaging	345 kg (760 lb)
Transport dimensions	L 1200 x W 1200 x H 1700 mm (3'11¼" x 3'11¼" x 5'6⅞")

Grinding capacity	
Maximum height of drill bit	650 mm (2'15/8")
Maximum diameter of drill bit	178 mm (7")
Minimum distance between buttons	3,5 mm (9/64")



Auxiliary set (87003939) for use of top hammer bits in BQ3-DTH grinding machine.

Optional accessories	Product No.
Auxiliary set for grinding threaded bits (exclusive bit holder and templates)	87003939

Accessories included in delivery

Coolant concentrate, 0,5 l
Protective goggles
Operator's instructions and spare parts list
Box wrench, 15 mm
Allen key, 8 mm

Note: Grind Matic BQ3-DTH must be completed with grinding wheels, centring cups and bit holders.

Intermediate

Medium frequency of grinding (10 – 25 bits/day)



Grinding made easy

Grind Matic Manual B

Handheld portable grinding machine for threaded and tapered button bits.

Grind Matic Manual B is an air-powered grinding machine, equipped with diamond grinding wheels for spherical, ballistic and Trubbnos buttons. Mounted in a box fitted with wheels and handles, Manual B is mobile and easy to set up. A separate water tank provides efficient recirculated cooling.

Grinding couldn't be easier

By simply folding the box support legs and connecting the air hose and the hose to the water cooler container, you'll have the machine up and running in no time.

The handheld part of Manual B is a straight air-powered grinder specially designed for Epiroc diamond grinding wheels. The bit holder, driven by an air-powered motor, is fitted in the bottom of the box.

A steel spring is mounted in the profile of the grinding wheel where it functions as a centering finger, greatly simplifying the grinding operation.



Grinding machine	Product No.
Grind Matic Manual B	87001890

Technical data	
Air pressure, max.	7 bar (101,5 psi)
Air consumption	15 l/s
Coolant container	10 l
Weight, ex. packaging	55 kg (121,3 lb)
Weight, incl. packaging	90 kg (198,4 lb)
Transport dimensions	L 1200 x W 800 x H 850 mm (3'11¼" x 2'7½" x 2'9½")

Grinding capacity	
Max. bit skirt diameter	90 mm (3⅞")
Max. diameter, threaded bits	127 mm (5")
Max. diameter, retrac bits*	127 mm (5")
Max. diameter, tube drilling*	152 mm (6")

* Large clamping device necessary. Prod No. 87001930



Optional accessories	Product No.
Set of 5 centring fingers	87004443

Accessories included in delivery

Allen key, 4 mm
Centering fingers (4 pcs)
Hand-held grinder, 30 000 r/min
Open end spanner, 14 mm (2 pcs)
Protective goggles
Operator's instructions and spare parts list

Note: Grind Matic Manual B must be completed with grinding wheels and bit holders.

Intermediate

Medium frequency of grinding (10 – 25 bits/day)



Smooth and swift

Grind Matic Manual B-DTH

Handheld portable grinding machine for DTH- and COPROD bits. Can also be used for threaded and tapered button bits with optional accessories.

Grind Matic Manual B-DTH is a hand-held grinder for grinding down-the-hole bits. Equipped with a few simple accessories, it also grinds threaded button bits. The machine is air-powered and uses Grind Matic diamond grinding wheels for grinding spherical, ballistic and Trubbnos button profiles.

The Manual B-DTH is mounted in a box fitted with wheels and handles. A separate water tank provides efficient recirculated cooling.

Smooth and swift operation

Simply connect your Manual B-DTH to air. Fill up water, and it's ready to use. The bit holder, driven by an air-powered motor, is mounted in the bottom of the box.

The hand-held part of Manual B-DTH is a straight, air-powered grinder specially adapted to our diamond grinding wheels. A steel spring is mounted in the profile of the grinding wheel where it functions as a centering finger, greatly simplifying the grinding operation.



Clamping device for threaded bits (87002401) in Manual B-DTH grinding machine.

Grinding machine	Product No.
Grind Matic Manual B-DTH	87002300

Technical data	
Air pressure, max.	7 bar (101,5 psi)
Air consumption	15 l/s
Coolant container	10 l
Weight, ex. packaging	110 kg (253 lb)
Weight, incl. packaging	148 kg (326 lb)
Transport dimensions	L 1200 x W 800 x H 940 mm (3'11¼" x 2'7½" x 3'1")

Grinding capacity	
Max. height of drill bit	506 mm (1'7⅞")
Max. diameter of drill bit	203 mm (8")
Max. diameter of bit shank	170 mm (6¾")

Optional accessories	Product No.
Set of 5 centering fingers	87004443
Clamping device for threaded bits	87002401

Accessories included in delivery

Allen key, 5 mm
Allen key, 6 mm
Centering fingers (4 pcs)
Grinding belt (4 pcs)
Hand-held grinder, 30 000 r/min
Open end spanner, 14 mm (2 pcs)
Protective goggles
Operator's instructions and spare parts list

Note: Grind Matic Manual B must be completed with grinding wheels and bit holders.

Intermediate

Medium frequency of grinding (10 – 25 bits/day)

24V



Grinding has never been easier

Grind Matic RH3

Our Multi grip holder opens up your options to different types of bit designs for a complete range From small tophammer bits to larger DTH and COPROD bits.

Grind Matic RH3 is a fully hydraulic powered grinding machine, designed to be attached to, and fit a wide range of drill rigs. With its low oil consumption, the machine can be used while drilling is in progress. It grinds cemented carbide buttons and the surrounding body steel in the same operation using a diamond coated grinding wheel. The machine has an automatic feeding device, which makes it simple to use and the centring function makes sure that the button is exactly positioned before grinding starts.



Grinding machine	Product No.
Grind Matic RH3	87005200

Rig brackets	Product No.
Kit for Atlas Copco cabin rigs	87005205
Kit for FlexiROC T35R rigs	87005206

Main bit holders	Product No.
Multi grip	87004360
Tophammer*	87004964

*Must be completed with thread specific bit holder. If you have chosen a bracket for Tophammer in the table on page 18, make sure you complete it with a bit holder in the table below.

Oil filter	Product No.
Filter + bracket	87004952

Technical data	
Rec. oil pressure, min-max	150-260 bar
Oil consumption	13 l/min
Cooling liquid consumption	Max 20 l/h
Voltage	24 VDC
Current	6 A
IP class	65
Working temperature	-25°C – +50°C
Speed, spindle	10 500 rpm
Weight	85 kg

Grinding capacity

Max. distance between bit holder and grinding wheel	230 mm
Drill bit diameters	35-165 mm
Max. grip size	110 mm
Min. distance between buttons	3,5 mm

Optional accessories

Optional accessories	Product No.
Centering fingers, S (3 pcs) <11 mm	87004868
Centering fingers, M (3 pcs) 10-14 mm	87004871
Centering fingers, L (3 pcs) >13 mm	87004872
Splash guard	87004423
Belt	87004944
Gear kit (gears + belt)	87004791
Oil filter insert (10 micron)	87004953

Recommended grease: Mobil SHC100 or SKF LGGB2.

Accessories included in delivery

Allen key, 4 mm
Centering fingers (3 pcs)
Locking pin (1 pcs)
Extractor
Spare screws (4 pcs)
Protective goggles
Operator's instructions and spare parts list

Economic

Low frequency of grinding (Less than 10 bits /day)



Sharp – straight out of the box

Grind Matic HG

Handheld grinding machine for button bits.

Grind Matic HG is a complete manual grinding machine which includes air motor, throttle handle, silencer and a specially designed chuck. QuickSnap, our cleverly designed chuck, allows you to change grinding cups quickly and easily. Add to that silent and almost vibrationless operation, and the Grind Matic HG is one of the most operator-friendly handheld grinders on the market. The grinding unit allows you to dress the carbides on site without stripping the bit out of the hammer or the drill rod.

The grinding cups are equipped with a rubber bushing, preventing the transmission of vibrations to the machine. The cups can be cooled with either air or water.



Grinding machine	Product No.
Grind Matic HG	87002435

Technical data

Air pressure, max.	7 bar (101,5 psi)
Air consumption, unloaded	50 l/s
Air consumption, loaded (at 6 bar, 86 psi)	42 l/s
Weight, ex. hoses	2,8 kg (6,2 lb)

Grinding capacity

Button size	7 – 25 mm ($\frac{9}{32}$ " – 1")
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Accessories included in delivery

Allen key, 2 mm Allen key, 3 mm Allen key, 5 mm Claw coupling (12,5 mm) Grease gun Hose clamp (15 – 24 mm) Hose (12,5 mm; L = 3 m) Nipple Operator's instructions and spare parts list	Cooling kit - Angle connector - Claw coupling (6,3 mm) - Hose clamp (9 OET) - Hose clamp (14 OET) - Hose clamp (32 – 44 mm) - Hose (PVC 03; L = 2,5 m) - Hose (PVC 6; L = 0,1 m) - Pipe (L = 0,3 m) - Seal kit - Support ring
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Note: Grind Matic HG must be completed with grinding cups.



QuickSnap, our ingenious chuck, allows you to change grinding cups quickly and easily.

Economic

Low frequency of grinding (Less than 10 integrals/day)



Grinding right by your side

Grind Matic Swing

Grinding machine for integral rods.

Grind Matic Swing for integral drill rods is quickly mounted by bolting it onto the rig or onto a work bench. It can also be placed on the side of the rig using integral drill rods. Dry grinding is carried out with a soft grinding wheel, while wet grinding uses a hard grinding wheel. But remember, under no circumstances should you use a grinding wheel intended for wet grinding when the operation you're performing is dry grinding. Grind Matic Swing has a fixed setting for grinding, giving a cutting-edge angle of 110° and a cutting edge radius of 80 mm.

Frontal grinding

In frontal grinding, the integral drill must be locked in the pneumatic clamping device and the grinding machine swung to-and-fro while feeding is carried out using the feed screw.

Gauge grinding

In gauge grinding, the grinding device is locked and the integral drill rod rotated by hand against the grinding wheel.



Grinding machine	Product No.
Grind Matic Swing	87002482

Technical data	
Air pressure, max.	7 bar (101,5 psi)
Air consumption (at 6 bar, 86 psi)	1500 L/min
Cutting-edge angle	110°
Cutting-edge radius	80 mm (3 5/32")
Hose connections, - Air - Water	12,5 mm (1/2") 6,3 mm (1/4")
Idling speed	4080 r/min
Power output	1,10 kW
Size of grinding wheel D x T x H	125 x 63 x 32 mm (4 7/8" x 2 15/32" x 1 1/4")
Size of grinding wheel DI x TI	80 x 50 mm (3 5/32" x 1 31/32")
Spindle diameter	16 mm (5/8")
Weight incl. grinding wheel and 1,5 m water hose	27,5 kg (61 lb)

Grinding capacity

Rod hex. max.	25 mm (1")
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Optional accessories	Product No.
Grinding wheel Grind Master Hard	87002589
Grinding wheel Grind Master Soft	87002811
Chuck bushing wear gauge - H19 (3/4") - H22 (1 1/5") - H25 (1")	90002667 90002668 90002669

Accessories included in delivery

Grinding wheel, Grind Master Soft
Pin wrench
Protective goggles
Operator's instructions and spare parts list



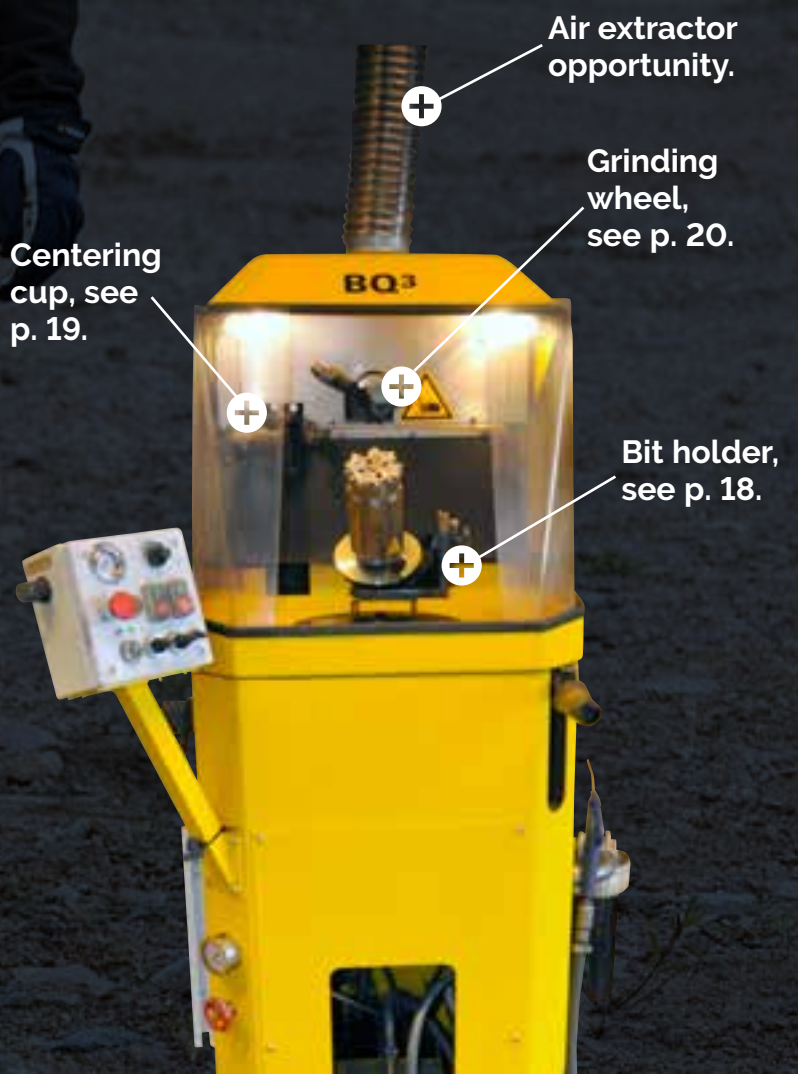


Take care of your working environment!

It is important that you keep your working environment in good shape and keep regular controls of the working process to obtain the best performance possible. This also prevents damage on your machines and cuts your operating costs. Whatever you need for a profitable production, Epiroc can offer the perfect grinding solution for you.

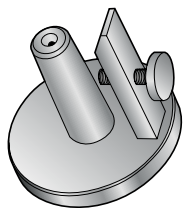
Benefits with care for optimal regrinding:

- Improved safety!
- Higher performance and better production
- Lower repair costs
- Reduced air consumption
- Less wear and tear on your equipment



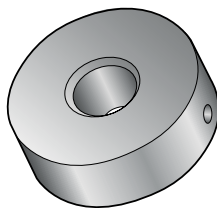
Accessories and consumables

Bit holders for button bits



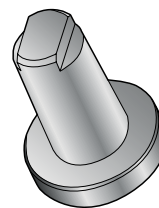
Bit holder type A

For Grind Matic BQ, BQ2 and BQ3.
Can also be used for BQ2-DTH and BQ3-DTH with optional accessories.



Bit holder type B

For Grind Matic BQ2-DTH, BQ3-DTH and Manual B-DTH.



Bit holder type C and D

For Grind Matic Manual B (Type C = M16).
For Grind Matic Manual B-DTH (Type D = M24).

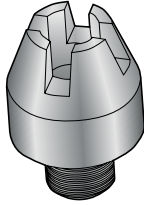
Type of bit holder	Type of bit	Product No.
A	Threaded bits	
	R25	87003475
	R28	87003476
	R32	87003477
	R38	87004686
	T38	87004687
	T45	87003479
	T51 and retrac	87003521
	T60*	87004562
	T-WiZ60*	87005052
	GT-60*	87005085
	Magnum SR28	87003960
	Magnum SR32	87003962
	Magnum SR35	87003956
	Magnum SR38	87003978
	Magnum SR38 retrac, guide	87004081
	TC35	87004685
	TC42	87004641
	TC45	87004569
	Tube bits	
	ST58	87003522
	ST68	87003523
	Tapered bits	
	7" taper	87003524
	12" taper	87003525
	Reaming bits	
	64, 76 and 89 mm	87003526
	89,102 and 127 mm	87003527
	Guide bits	
	R32	87003992
	SR35	87004056

* Must be used together with clamping device 87004777 (observe max bit height).

Type of bit holder	Type of bit	Product No.
B	DTH- and COROD bits	
	COP 32	87002420
	COP 34	87003691
	DHD 3.5	87004514
	DHD 340	87002391
	DHD 350	87002390
	DHD 360	87002389
	DHD 380	87004523
	TD 40	87004604
	RC 50	87004605
	QL 40	87004515
	QL 50	87004033
	QL 60	87004002
	QL 80	87004516
	COPROD 76	87004414
	COPROD 89	87003155
	COPROD 102	87004415
	COPROD 127	87002396
	COPROD 140	87004518

Type of bit holder	Type of bit	Product No.
C	Threaded bits	
	R25	87000792
	R28	87000793
	R32	87000794
	R38	87000795
	T38	87000795
	T45	87000796
	T51	87000802
	Magnum SR28	87003961
	Magnum SR32	87003963
	Magnum SR35	87003957
	Magnum SR38	87003979
	Tapered bits	
	7" taper	87001044
	12" taper	87001045
	Tube bits	
	ST58	87001726
	ST68	87001573
	Reaming bits	
	64, 76, 89 mm	87000798
	89, 102, 127 mm	87000799
D	Threaded bits	
	T38	87002148
	T45	87002149
	T51	87002147
	Tube bits	
	ST58	87002158
	ST68	87002154

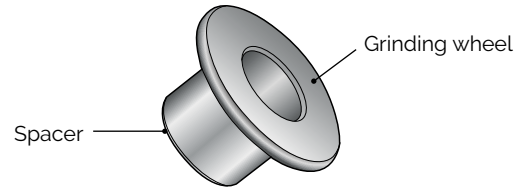
Centering cups



For Grind Matic BQ3 and BQ3-DTH.

Button size, mm	Product No.
7	87001040
8	87000842
9	87001047
10	87001041
11	87000840
12	87001042
12,7	87000839
13	87001385
14	87001043
14,5	87001443
15	87001386
16	87001387
18	87003943
19	87003944

Grinding wheels for steel removal

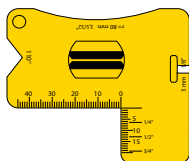


For Grind Matic BQ3 and BQ3-DTH.

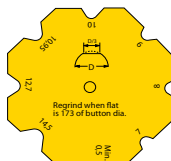
Type	Product No.
Grinding wheel	87001530
Spacer for 10 mm button	87001631
Spacer for 11 mm button	87001632
Spacer for 12 mm button	87001633
Spacer for 13 mm button	87001634
Spacer for 14 mm button	87001635

Note: All grinding wheels have an inner diameter of 12 mm.

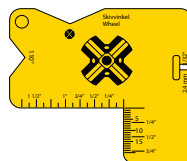
Grinding templates – Integral rods and bits



For integral rods.

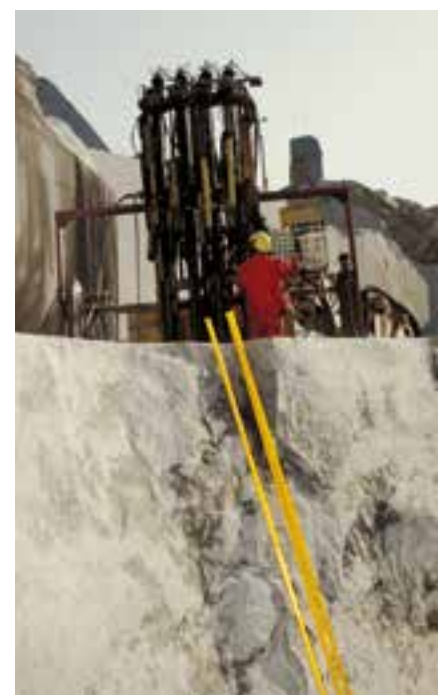


For button bits.



For cross-type bits.

Grinding template	Dimension, mm	Product No.
Integral rods	–	90002610
Button bits, spherical	7 – 14,5	90002944
Button bits, ballistic	7 – 14,5	90503414
Button bits, spherical	10,95 – 19,1	90510753
Button bits, ballistic	10,95 – 19,1	90510758
Cross-type bits	–	90002611



Grind Matic integral equipment.

Diamond grinding wheels for button bits – for all Grind Matic BQ and Manual B machines



Grinding wheel for spherical buttons.

Diameter, mm	Product No.
Grinding wheels – Spherical buttons	
7	87004554
8	87004555
9	87003969
10	87003970
11	87003971
12	87003972
13	87003973
14	87001025
15	87001384
16	87001027
18	87003964
19	87003966

Note: These grinding wheels have an inner diameter of 12 mm.



Grinding wheel for Trubbnos buttons.

Diameter, mm	Product No.
Grinding wheels – Trubbnos buttons	
9	87004589
10	87004590
11	87004591
12	87004592
12,7	87004593
14,5	87004594
15,8	87004595
19,1	87004596

Note: These grinding wheels have an inner diameter of 12 mm.



Grinding wheel for ballistic buttons.

Diameter, mm	Product No.
Grinding wheels – Ballistic buttons	
7	87004556
8	87004557
9	87003974
10	87003975
11	87003976
12	87003977
13	87003413
14	87003414
15	87003415
16	87003416
18	87003965
19	87003967

Note: These grinding wheels have an inner diameter of 12 mm.

Diamond grinding wheels for button bits – for Grind Matic RH3



Grinding wheel for spherical buttons.

Diameter, mm	Product No.
Grinding wheels – Spherical buttons	
8	87005032
9	87005033
10	87005049
11	87004851
12	87005050
12,7	87004852
13	87004848
14,5	87004853
15,8	87004854
19,1	na

Note: These grinding wheels have an inner diameter of 10 mm.



Grinding wheel for Trubbnos buttons.

Diameter, mm	Product No.
Grinding wheels – Trubbnos buttons	
9	87004809
10	87004810
11	87004811
12	87004812
12,7	87004813
14,5	87004814
15,8	87004815
19,1	87004816

Note: These grinding wheels have an inner diameter of 10 mm.

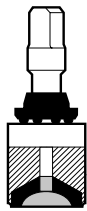


Grinding wheel for ballistic buttons.

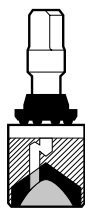
Diameter, mm	Product No.
Grinding wheels – Ballistic buttons	
8	87005034
9	87005035
10	87005036
11	87004855
12	87005051
12,7	87004856
13	87004849
14,5	87004857
15,8	87004858
19,1	na

Note: These grinding wheels have an inner diameter of 10 mm.

Diamond grinding cups for Grind Matic HG



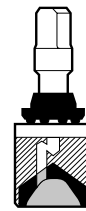
Grinding cup for spherical buttons.



Grinding cup for ballistic buttons.



Grinding cup for steel removal.



Grinding cup for Trubbnos buttons

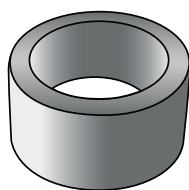
Diameter, mm	Product No.
Grinding cups Spherical buttons	
7	87005110
8	87005111
9	87005112
10	87005113
11	87005114
12	87005115
13	87005116
14	87005117
15	87005118
16	87005119
18	87005120
19	87005121
20	87005122
22	87005123
25	87005124

Diameter, mm	Product No.
GRINDING CUPS Ballistic buttons	
7 B	87005130
8 B	87005131
9 B	87005132
10 B	87005133
11 B	87005134
12 B	87005135
13 B	87005136
14 B	87005137
15 B	87005138
16 B	87005139

Diameter, mm	Product No.
GRINDING CUPS For steel removal	
SG 7 – 8	87005150
SG 9 – 10	87005151
SG 11 – 12	87005152
SG 13 – 14	87005153
SG 15 – 16	87005154
SG 17 – 18	87005155
SG 19 – 20	87005156
SG 21 – 22	87005157

Diameter, mm	Product No.
GRINDING CUPS For Trubbnos buttons	
9 T	87005160
10 T	87005161
11 T	87005162
12 T	87005163
12.7 T	87005164
14.5 T	87005165
15.8 T	87005166
19.1 T	87005167

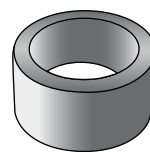
Ceramic grinding wheels for integrals



For Grind Matic Senior (Junior, Teroc 1500/1501).

Dimension (DxTxH) mm	Dimension (DIxTI) mm	Product No.
200 x 102 x 32	150 x 80	87002591

Note: We recommend to always use water when grinding.

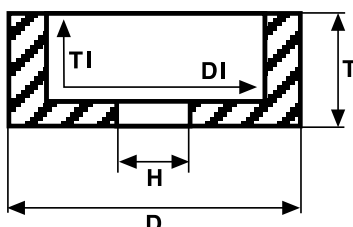


For Grind Matic Swing (Sandvik RG100).

Dimension (DxTxH) mm	Dimension (DIxTI) mm	Product No.
125 x 63 x 32	80 x 50	87002811 (Soft*) 87002589 (Hard)

Note: We recommend to always use water when grinding. Grinding wheel 87002811 can be used without water.

*Delivered with Grind Matic Swing.



Air line accessories

Any pneumatic machine without built-in lubrication needs a separate lubricator to ensure that all moving parts are continuously covered with a film of oil.

Epiroc Grind Matic lubricators are designed to work in any position, horizontal, vertical or upside-down.

This secures a continuous oil supply to protect your machine. FY1100 is designed to work with mineral oil and an air flow between 8 – 15 liter/second. Hose diameter on the lubricator is 25 mm.

Accessories like air hoses, claw couplings, valves and hose clamps are also available in our assortment.



FY1100 mineral oil.



Lubricator mini.

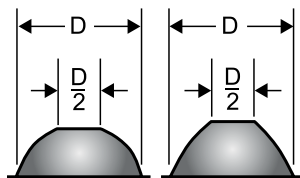
Lubricators

Description	Product No.	Oil volume	Connection
FY1100, only mineral oil (max. 20 bar)	96000964	1,3 l	Claw – claw coupling
Lubricator mini (max. 8 bar)	87002750	0,05 l	1/4" – 1/4" coupling

Grinding hints

The rate of bit wear depends on the rock formation, and is highest in rocks with a high quartz content. A suitable grinding interval should be determined according to the rate of bit wear. It is more economical to regrind too early rather than to suffer poor penetration rate and risk damaging the drill bit through overdrilling. Following are a few tips on caring for your drill bits.

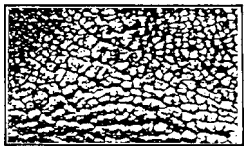
When to regrind



Button bits should be reground when the penetration rate drops, or if any of the cemented carbide buttons are damaged (fractured buttons should be ground flat). It is both

practical and economical to redress the buttons when the wear flat reaches about 40 – 50% of the diameter of the button.

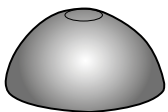
Look out for “snake skin”



If microscopic fatigue cracks – so-called “snake skin” – begin to appear on the cemented carbide buttons, the cracks must be ground away. In any event, bits should be reground after 300

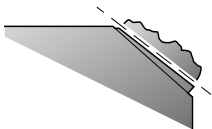
metres of drilling at the most. This should be done even if there are no visible signs of wear and the penetration rate continues to be good. If snake skin is not removed, the cracks will deepen and ultimately result in button fracture.

Do not grind away too much cemented carbide

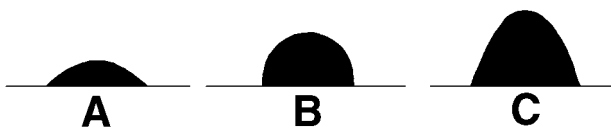


Do not grind too much on the top of the buttons. Let a few millimetres of the wear flat remain on top of the button.

Always grind broken buttons flat

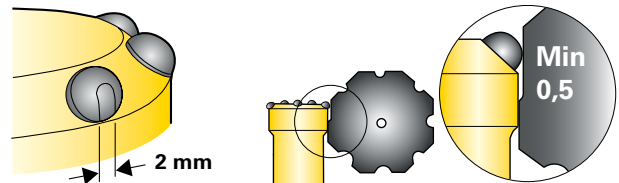


A drill bit can remain in service as long as the gauge buttons maintain the diameter of the bit. Fractured buttons must always be ground flat to prevent chips of cemented carbide from damaging the other buttons.



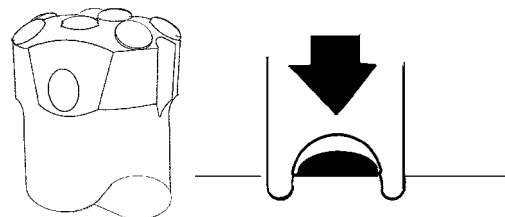
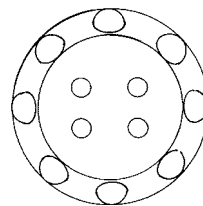
A = Incorrect grinding result – too little protrusion
B = Correct grinding result – spherical button
C = Correct grinding result – ballistic button

Avoid grinding the perimeter



Gauge button anti-taper has to be removed by grinding, although excessive reduction of the bit diameter should be avoided. Leave about 2 mm of the wear flat.

If necessary, remove some of the bit-body



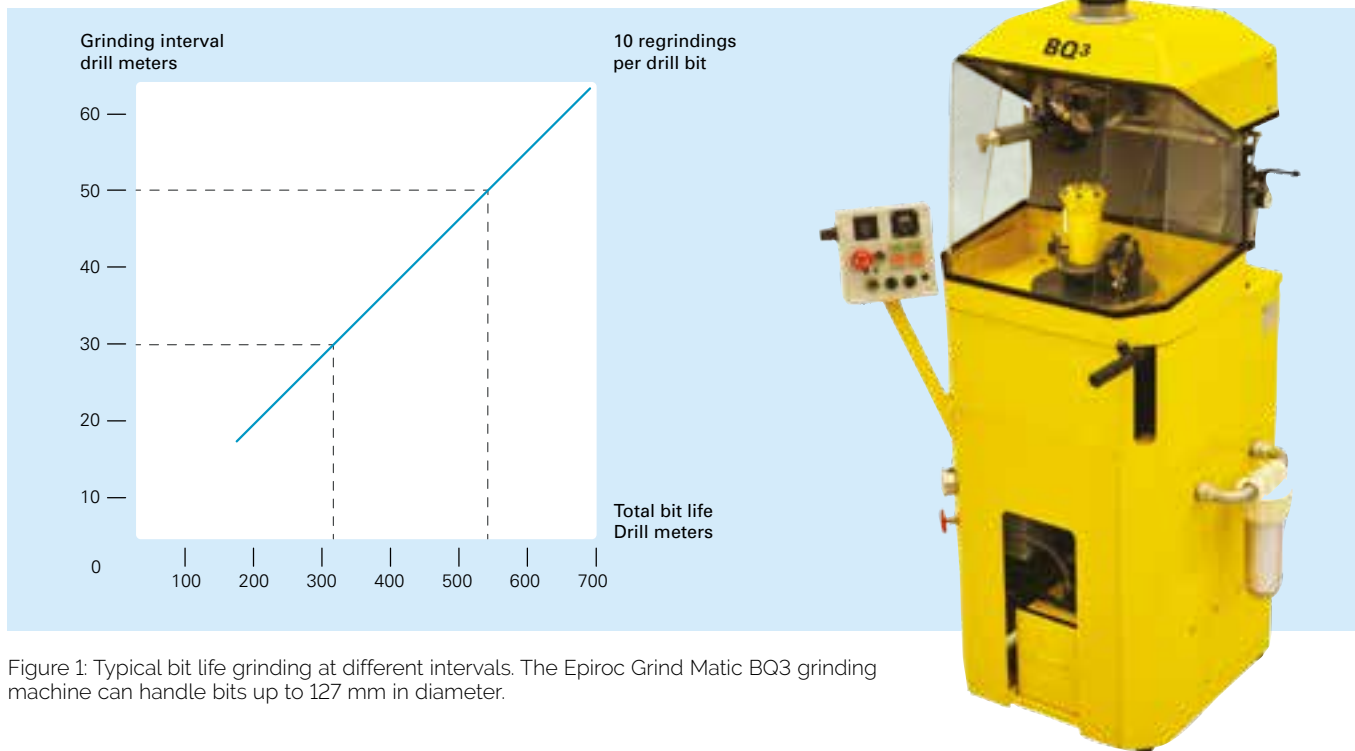


Figure 1: Typical bit life grinding at different intervals. The Epiroc Grind Matic BQ3 grinding machine can handle bits up to 127 mm in diameter.

Know your drilling

Bit service life

It is a well-established fact that the service life of a button bit increases considerably if the cemented carbide buttons are ground. Nowadays, it has become extremely important to grind button bits at proper intervals to extend the service life of the rock drilling tool, maintain penetration rate and costs, and drill straight holes.

With so many parameters involved, it is difficult to estimate bit service life. First, a proper grinding interval must be established, preferably at the stage when the button has a wear flat of 40 – 50% of the button diameter. When the number of drilled meters to reach this stage has been established, then the calculation of bit life can be made by multiplying the number of times it can be reground.

As a general rule, a bit can be reground 10 times; smaller bits may achieve slightly less than this figure, while larger bits may achieve more. So, if the grinding interval has been established as 60 drilled meters, then the average bit life will be 660 drilled meters (see Figure 1).

If a bit is overdrilled and the wear flat is more than half of the button diameter, there is a tendency towards cracked buttons. There is always a sharp edge created

on the button, and this becomes sharper the more the bit is overdrilled. This sharp edge, especially on ballistic buttons, is very brittle. Once the edge cracks, pieces of cemented carbide break away and circulate in the hole, causing secondary damage to the buttons.

When a bit doesn't show any visible wear flat, it may be suffering from micro cracks on the cemented carbide surface. This is known by the term "snake skin" and can be clearly seen when using a magnifier. In this case, the surface has to be ground away; otherwise the micro cracks lead to more severe damage on the buttons. Likewise, buttons that protrude too much must be ground down to avoid damage (see Figure 2).

In all rock excavation operations, the cost is usually expressed in cost per drilled meter (cost/dm), in cost per cubic meter (cost/m³), or in cost per tonne (cost/t). The cost to produce a hole depends on how fast it can be drilled and how many tools will be consumed. The cost to produce a cubic meter of rock is dependent upon the cost of the hole and the cost of blasting.

If the blasthole is of poor quality, then more explosives will be consumed in blasting the rock. Worn bits very often give a poor quality hole with a greater risk of deviation.

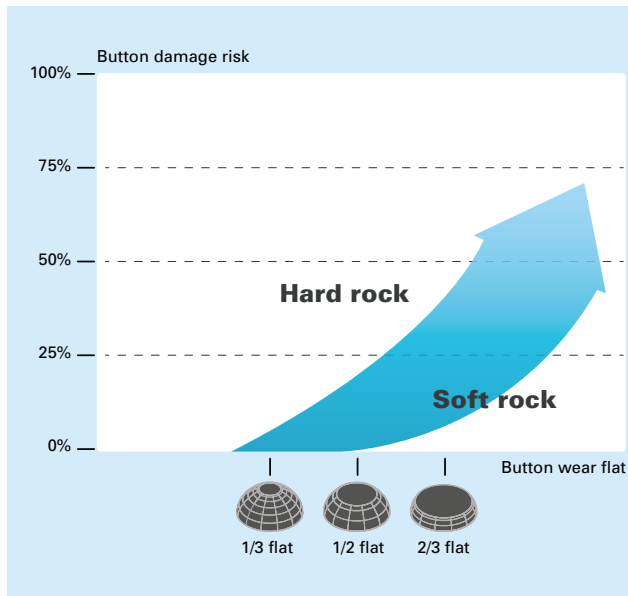


Figure 2: Risk of total loss when a bit is overdrilled.

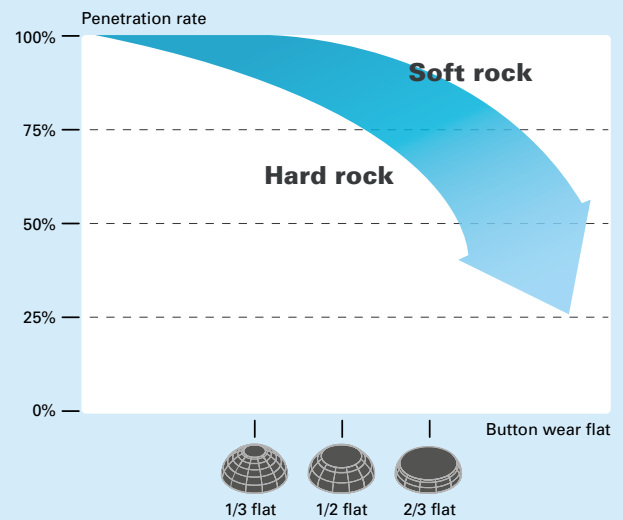


Figure 3: Penetration rate drops as the button profiles flatten.

Penetration rate

When the right bit has been chosen for the rock condition, it will provide maximum penetration rate along with acceptable hole straightness. In rock conditions like Swedish granite with a compressive strength of around 200 MPa, the bit gets a wear flat after just 10 – 20 drill meters accompanied by a small drop in penetration rate. When it has a wear flat equivalent to 40 – 50% of the button diameter, the penetration will have dropped by 5%. If the bit is used further until it has a two thirds wear flat, the penetration will have dropped more than 30% (see Figure 3).

When a bit has a heavy wear flat, it tends to deviate, and by the time it reaches the bottom of the hole, it will have deviated far more than planned. As a result, the blast will produce short pull. In contour hole drilling, it is of utmost importance that the holes are straight. If the holes deviate, the tunnel walls will be uneven, which increases the risk for overbreak or underbreak.

Rock formations with different layers and joints are often characterized by heavy hole deviation, putting extra stress on the remaining rock tools in the drill string. A sharp bit always cuts better and will prevent both deviation and its disadvantages.



Indexing templates

for Grind Matic BQ, BQ2 and BQ3

Thread	Drill bit		Indexing template
	Product No.	Product code	
R25			
	90510448	102-5033-17,39-20	87003484
	90510274	102-5033-17-67,39-20	87003484
	90514118	102-5033-41-67,39-20	87004037
	90505181	102-5035-27,39-20	87003483
	90509723	102-5035-27-67,39-20	87003483
	90505295	102-5037-27,39-20	87003483
	90513899	102-5037-99,39-20	87004741
	90513900	102-5037-99-67,39-20	87004741
	90505179	102-5038-27,39-20	87003483
	90505180	102-5038-27-67,39-20	87003483
	90510206	102-5038-56,39-20	87003494
	90505175	102-5041-27,39-20	87003499
	90505176	102-5041-27-67,39-20	87003499
	90510662	102-5041-27-30-67,39-20	87003499
	90510207	102-5041-56,39-20	87003482
	90505145	102-5045-27,39-20	87003480
	90510208	102-5045-56,39-20	87003482
	90513912	102-5048-27,39-20	87003499
	90505353	102-5051-27,39-20	87003485
R28			
	90505296	107-5037-27,39-20	87003483
	90505177	107-5038-27,39-20	87003483
	90505178	107-5038-27-67,39-20	87003483
	90505173	107-5041-27,39-20	87003499
	90505174	107-5041-27-67,39-20	87003499
	90505169	107-5043-27,39-20	87003499
	90509467	107-5045-37,39-20	87003481
R32			
	90505171	103-5041-27,39-20	87003499
	90505172	103-5041-27-67,39-20	87003499
	90510744	103-5041-34-67,39-20	87003492
	90005164	103-5043-27,39-20	87003499
	90514717	103-5043-37,39-20	87003486
	90510769	103-5043-37-67,39-20	87003486
	90504373	103-5045-27,39-20	87003480
	90514771	103-5045-34-66,39-20	87003492
	90509457	103-5045-37,39-20	87003481
	90514111	103-5045-37-66,39-20	87003481
	90509460	103-5045-37-67,39-20	87003481
	90504401	103-5045-39,39-20	87003488
	90514540	103-5045-39-67,39-20	87003488
	90504374	103-5048-27,39-20	87003485
	90509461	103-5048-37,39-20	87003486
	90509463	103-5048-37-30-67,39-20	87003486
	90514135	103-5048-37-66,39-20	87003481
	90509464	103-5048-37-67,39-20	87003486
	90510450	103-5051,39-20	87003496
	90510451	103-5051-34,39-20	87003492

Thread	Drill bit		Indexing template
	Product No.	Product code	
R32			
	90509465	103-5051-37,39-20	87003481
	90510836	103-5051-37-45-67,39-20	87003481
	90514136	103-5051-37-66,39-20	87003481
	90509466	103-5051-37-67,39-20	87003481
	90514764	103-5051-39-67,39-20	87004314
	90510795	103-5054-24-45-67,39-20	87003493
	90509481	103-5054-37-67,39-20	87003486
	90510453	103-5057-20,39-20	87003495
	90510454	103-5057-20-67,39-20	87003495
	90514267	103-5057-37-45,49-20	87003495
	90514440	103-5057-37-66,39-20	87003481
	90510303	103-5064,49-20	87003489
	90510381	103-5064-45,49-20	87003489
	90510327	103-5064-67,49-20	87003489
	90510353	103-5076,49-20	87003493
	90514373	103-5076-42-24,49-20	87003951
	90510821	103-5076-42-24-67,49-20	87003951
	90510843	103-5089-42-24,49-20	87003955
	90510820	103-5089-42-24-67,49-20	87003955
	90510781	103-5102-42-24-67,49-20	87003955
	90513779	103-5127-42-24,49-20	87003954
	90510302	103-6051,49-20	87003487
	90510308	103-6051-45,49-20	87003487
	90514633	103-6051-45-67,49-20	87003487
	90510328	103-6064,49-20	87003487
	90510364	103-6064-45,49-20	87003487
	90510414	103-6064-45-67,49-20	87003487
	90510504	103-6076-45,49-20	87003498
R38			
	90510304	104-5064,49-20	95003489
	90510318	104-5076,49-20	95003493
T38			
	90510305	135-5064,49-20	87003489
	90510316	135-5064-20,49-20	87003490
	90513748	135-5064-21,49-20	87003559
	90510309	135-5064-45,49-20	87003489
	90510365	135-5064-45-67,49-20	87003489
	90510413	135-5064-67,49-20	87003489
	90510350	135-5070-20,49-20	87003495
	90510319	135-5076,49-20	87003493
	90510321	135-5076-20,49-20	87003559
	90513749	135-5076-21,49-20	87003559
	90513760	135-5076-21-67,49-20	87003559
	90510366	135-5076-45,49-20	87003493
	90510312	135-5076-45-67,49-20	87003493
	90515235	135-5076-47,49-20	87004618
	90510324	135-5089,49-20	87003493
	90513763	135-5089-21-67,49-20	87003883

Thread	Drill bit		Indexing template
	Product No.	Product code	
T38			
	90510367	135-5089-45,49-20	87003493
	90510329	135-5102,49-20	87003493
	90513776	135-5127-42-24,49-20	87003954
	90513775	135-5127-42-24-67,49-20	87003954
	90510307	135-6064,49-20	87003487
	90510347	135-6064-21,49-20	87003487
	90513805	135-6064-21-45-67,49-20	87003487
	90510524	135-6064-21-67,49-20	87003487
	90510311	135-6064-45,49-20	87003487
	90510368	135-6064-45-67,49-20	87003487
	90514631	135-6064-48-45-67,49-20	87003985
	90510306	135-6064-67,49-20	87003487
	90514157	135-6070-21-45,49-20	87003559
	90510384	135-6070-45-67,49-20	87003559
	90510330	135-6076,49-20	87003559
	90513806	135-6076-21,49-20	87003953
	90510810	135-6076-21-45,49-20	87003953
	90513807	135-6076-21-67,49-20	87003953
	90510369	135-6076-45,49-20	87003498
	90510370	135-6076-45-67,49-20	87003498
	90510331	135-6076-67,49-20	87003559
	90510332	135-6089,49-20	87003559
	90513808	135-6089-21,49-20	87003500
	90515287	135-6089-21-45,49-20	87003500
	90510654	135-6089-45-67,49-20	87003500
	90513810	135-6102-21,49-20	87003500
	90513762	135-6102-21-67,49-20	87003500
T45			
	90510320	136-5076,49-20	87003493
	90029371	136-5076,57-20	87004433
	90510322	136-5076-20,49-20	87003559
	90514051	136-5076-21,49-20	87003883
	90513761	136-5076-21-45,49-20	87003559
	90514027	136-5076-21-67,49-20	87003883
	90029370	136-5076-44,57-20	87004433
	90510371	136-5076-45,49-20	87003493
	90510386	136-5076-45-67,49-20	87003493
	90029265	136-5076-46-66,57-20	87003560
	90510325	136-5089,49-20	87003493
	90029367	136-5089,57-02	87004434
	90510418	136-5089-20,49-20	87003714
	90513751	136-5089-21-45,49-20	87003883
	90510780	136-5089-21-67,49-20	87003883
	90029366	136-5089-44,57-20	87004434
	90510372	136-5089-45,49-20	87003493
	90510390	136-5089-45-67,49-20	87003493
	90029272	136-5089-46-66,57-20	87003560
	90514993	136-5089-47-45-66,49-20	87004581

Thread	Drill bit		Indexing template
	Product No.	Product code	
T45			
	90510356	136-5089-67,49-20	87003493
	90510326	136-5102,49-20	87003493
	90029404	136-5102,57-20	87004775
	90002902	136-5102-20,25-20	87003714
	90510408	136-5102-20,49-20	87003714
	90510888	136-5102-21,49-20	87003713
	90510889	136-5102-21-67,49-20	87003713
	90510373	136-5102-45,49-20	87003493
	90029283	136-5102-46-66,57-20	87003560
	90513812	136-5127-21,49-20	87003713
	90513778	136-5127-42-24,49-20	87003954
	90515253	136-5127-47,49-20	87003952
	90513818	136-5152-42-24,49-20	87003954
	90510782	136-5152-42-24-67,49-20	87003954
	90515837	136-6066-45-67,49-20	87003487
	90510478	136-6070,49-20	87003559
	90029382	136-6070-21,57-20	87003953
	90029395	136-6070-21-44,57-20	87003953
	90029394	136-6070-21-44-70,57-20	87003953
	90029409	136-6070-21-70,57-20	87003953
	90029120	136-6070-44-67,49-20	87003832
	90510479	136-6070-45,49-20	87003559
	90510385	136-6070-45-67,49-20	87003559
	90510480	136-6070-67,49-20	87003559
	90510333	136-6076,49-20	87003559
	90029354	136-6076-21-44-70,57-20	87003953
	90513750	136-6076-21,49-20	87003953
	90029377	136-6076-21,57-20	87003953
	90029357	136-6076-21-44,57-20	87003953
	90029354	136-6076-21-44-70,57-20	87003953
	90510808	136-6076-21-45,49-20	87003953
	90510809	136-6076-21-45-67,49-20	87003953
	90029351	136-6076-21-70,57-20	87003953
	90029376	136-6076-44-70,57-20	87003953
	90510313	136-6076-45,49-20	87003498
	90510314	136-6076-45-67,49-20	87003498
	90510334	136-6076-67,49-20	87003559
	90029352	136-6076-70,57-20	87003953
	90510650	136-6076-84,49-20	87003559
	90510800	136-6076-99-45,49-20	87003498
	90510801	136-6076-99-45-67,49-20	87003498
	90510335	136-6089,49-20	87003559
	90513752	136-6089-21,49-20	87003500
	90029360	136-6089-21,57-20	87004432
	90029364	136-6089-21-44,57-20	87004432
	90029362	136-6089-21-44-70,57-20	87004432
	90510692	136-6089-21-45,49-20	87003500
	90510772	136-6089-21-45-67,49-20	87003500

Thread	Drill bit		Indexing template
	Product No.	Product code	
T45			
	90029363	136-6089-21-70,57-20	87004432
	90029365	136-6089-44-70,57-20	87004432
	90510374	136-6089-45,49-20	87003500
	90510375	136-6089-45-67,49-20	87003500
	90510336	136-6089-67,49-20	87003559
	90029361	136-6089-70,57-20	87004432
	90510337	136-6102,49-20	87003559
	90513811	136-6102-21,49-20	87003500
	90029408	136-6102-21,57-20	87004435
	90029413	136-6102-21-44,57-20	87004435
	90029412	136-6102-21-44-70,57-20	87004435
	90515366	136-6102-21-45,49-20	87003500
	90029405	136-6102-21-70,57-20	87004435
	90029411	136-6102-44-70,57-20	87004435
	90510392	136-6102-45,49-20	87003500
	90510376	136-6102-45-67,49-20	87003500
	90510358	136-6102-67,49-20	87003559
	90029407	136-6102-70,57-20	87004435
	90510399	136-6115,49-20	87003500
	90514660	136-6115-45,49-20	87003500
	90515263	136-6115-67,49-20	87003500
T51			
	90510338	137-5089,49-20	87003493
	90029417	137-5089,57-20	87004434
	90510357	137-5089-20,49-20	87003884
	90510527	137-5089-21,49-20	87003883
	90513764	137-5089-21-45,49-20	87003883
	90514002	137-5089-21-45-67,49-20	87003883
	90514003	137-5089-21-67,49-20	87003883
	90029402	137-5089-44,57-20	87004434
	90510377	137-5089-45,49-20	87003493
	90514329	137-5089-45-67,49-20	87003493
	90510339	137-5102,49-20	87003493
	90510807	137-5102-21,49-20	87003713
	90510855	137-5102-21-45,49-20	87003713
	90510841	137-5102-21-45-67,49-20	87003713
	90514003	137-5089-21-67,49-20	87003883
	90510377	137-5089-45,49-20	87003493
	90514329	137-5089-45-67,49-20	87003493
	90029284	137-5089-46-66,57-20	87003560
	90510339	137-5102,49-20	87003493
	90510807	137-5102-21,49-20	87003713
	90510855	137-5102-21-45,49-20	87003713
	90510841	137-5102-21-45-67,49-20	87003713
	90029424	137-5102-44,57-20	87004775
	90510378	137-5102-45,49-20	87003493
	90514476	137-5102-45-67,49-20	87003493
	90514538	137-5102-47-66,49-20	87003952
	90029432	137-5115,57-20	87004775
	90510340	137-5115-20,49-20	87004036
	90510791	137-5115-20-45,49-20	87004036
	90510818	137-5115-21,49-20	87003713
	90510819	137-5115-21-67,49-20	87003713
	90029429	137-5115-44,57-20	87004775

Thread	Drill bit		Indexing template
	Product No.	Product code	
T51			
	90510360	137-5127,49-20	87004575
	90029444	137-5127,57-20	87004775
	90510361	137-5127-20,49-20	87003561
	90513747	137-5127-21,49-20	87003713
	90029439	137-5127-44,57-20	87004775
	90515249	137-5127-47,49-20	87003952
	90510341	137-6089,49-20	87003559
	90513813	137-6089-21,49-20	87003500
	90029419	137-6089-21,57-20	87004432
	90029415	137-6089-21-44,57-20	87004432
	90029414	137-6089-21-44-70,57-20	87004432
	90510773	137-6089-21-45,49-20	87003500
	90510696	137-6089-21-45-67,49-20	87003500
	90513814	137-6089-21-67,49-20	87003500
	90029418	137-6089-21-70,57-20	87004432
	90029416	137-6089-44-70,57-20	87004432
	90510391	137-6089-45,49-20	87003500
	90510380	137-6089-45-67,49-20	87003500
	90029420	137-6089-70,57-20	87004432
	90510343	137-6102,49-20	87003559
	90510824	137-6102-21,49-20	87003500
	90029423	137-6102-21-44,57-20	87004435
	90029422	137-6102-21-44-70,57-20	87004435
	90510825	137-6102-21-45,49-20	87003500
	90515368	137-6102-21-45-67,49-20	87003500
	90513756	137-6102-21-67,49-20	87003500
	90029399	137-6102-21-70,57-20	87004435
	90029421	137-6102-44-70,57-20	87004435
	90510415	137-6102-45,49-20	87003500
	90510379	137-6102-45-67,49-20	87003500
	90510346	137-6102-67,49-20	87003559
	90029398	137-6102-70,57-20	87004435
	90510344	137-6115,49-20	87003500
	90510874	137-6115-21,49-20	87003952
	90029438	137-6115-21,57-20	87003952
	90029428	137-6115-21-44,57-20	87003952
	90029401	137-6115-21-44-70,57-20	87003952
	90510826	137-6115-21-45,49-20	87003750
	90029434	137-6115-21-70,57-20	87003952
	90029426	137-6115-44-70,57-20	87003952
	90510655	137-6115-45,49-20	87003500
	90029400	137-6102-21,57-20	87004435
	90510406	137-6127,49-20	87003500
	90510656	137-6127-45,49-20	87003500
	90510655	137-6115-45,49-20	87003500
	90510406	137-6127,49-20	87003500
	90510656	137-6127-45,49-20	87003500
	90510655	137-6115-45,49-20	87003500
	90029436	137-6115-70,57-20	87003952
	90510406	137-6127,49-20	87003500
	90029427	137-6127-21,57-20	87003953
	90029437	137-6127-21-44,57-20	87003953
	90029433	137-6127-21-44-70,57-20	87003953
	90029431	137-6127-21-70,57-20	87003953

Thread	Drill bit		Indexing template
	Product No.	Product code	
T51			
	90029435	137-6127-44-70,57-20	87003953
	90510656	137-6127-45,49-20	87003500
	90029430	137-6127-70,57-20	87003953
TWiZ60			
	90029111	158-6092-21-44-67,49-20	87003832
	90029142	158-6092-21-67,49-20	87003832
	90029119	158-6095-21-44,49-20	87003500
	90029066	158-6095-21-44-67,49-20	87003500
	90029143	158-6102-21,49-20	87003500
	90029110	158-6102-21-44,49-20	87003500
	90029067	158-6102-44-67,49-20	87003500
	90029121	158-6115-21,49-20	87003500
	90029070	158-6115-21-44,49-20	87003500
	90029109	158-6115-21-44-67,49-20	87003500
	90029146	158-6127-21,49-20	87003500
	90029069	158-6127-44,49-20	87003500
	90029068	158-6127-44-67,49-20	87003500
	90029154	158-6140-21-44,49-12	87003500
	90029081	158-6140-21-44,49-20	87003500
	90029148	158-6140-21-44-67,49-20	87003500
	90029147	158-6152-21,49-20	87003500
	90029073	158-6152-21-44,49-20	87003500
Magnum SR28			
	90514200	125-5033-17,39-20	87003484
	90514117	125-5033-41,39-20	87004037
	90514137	125-5033-41-67,39-20	87004037
	90514322	125-5035-27,39-20	87003483
	90514102	125-5035-27-67,39-20	87003483
	90514167	125-5037-99,39-20	87003483
	90514282	125-5038-27,39-20	87003483
	90514705	125-5038-27-99,39-20	87004741
	90516334	125-5038-41-67,39-20	87004741
	90516383	125-5041-37-69,39-20	87003489
	90514507	125-5045-27,39-20	87003480
	90516422	125-5045-37-67,39-20	87003481
	90514793	125-5051-27,39-20	87003485
	90515258	125-5076-42-24,49-20	87003951
Magnum SR32			
	90514501	126-5038-27-67,39-20	87004741
	90516483	126-5041-37-67,39-20	87003486
	90516484	126-5043-37-67,39-20	87003486
	90514953	126-5045-37-67,39-20	87003481
	90515721	126-5048-37-67,39-20	87003486
	90514954	126-5064-67,49-20	87003489
	90514502	126-5076-42-24-67,49-20	87003951
	90515257	126-5102-42-24,49-20	87003952
	90514503	126-6051,49-20	87003487
Magnum SR35			
	90513844	128-5043-27,39-20	87003499
	90515576	128-5043-27-67,39-20	87003499
	90516547	128-5043-39-67,39-20	87003495
	90514640	128-5045-34-66,39-20	87003942
	90513846	128-5045-37-30-67,39-20	87003481
	90513839	128-5045-37-67,39-20	87003481

Thread	Drill bit		Indexing template
	Product No.	Product code	
Magnum SR35			
	90513841	128-5045-39,39-20	87003488
	90514720	128-5045-39-67,39-20	87004477
	90513843	128-5048-37-67,39-20	87003486
	90514150	128-5048-39,39-20	87004048
	90003607	128-5048-39-67,39-20	87003486
	90514595	128-5051-24-45-67,39-20	87003493
	90513842	128-5051-37-67,39-20	87003481
	90514649	128-5051-39,39-20	87003486
	90514220	128-5054-24-45-67,39-20	87004464
	90513871	128-5054-37-67,39-20	87003486
	90513870	128-5064-67,49-20	87003489
	90513848	128-5089-42-24,49-20	87003955
	90513849	128-5089-42-24-67,49-20	87003955
	90513850	128-5102-42-24,49-20	87003955
	90513851	128-5102-42-24-67,49-20	87003955
	90514219	128-5127-42-24,49-20	87004775
	90516638	128-6054-45,39-20	87004754
	90516569	128-6054-45-67,39-20	87004754
Magnum SR38			
	90515831	127-5102-42-24,49-20	87003952
TC35			
	90516337	169-6051-45-67,49-20	87003487
	90516424	169-6064-48-45-67,49-20	87003831
TC42			
	90516556	171-6057-67,39-20	87004754
	90516557	171-6064-48-45-67,39-20	87003985
ST58 (TDS)			
	90510522	151-5089-21,49-20	87003883
	90510789	151-5102-21,49-20	87003713
	90513754	151-5152-42-24,49-20	87003954
	90513887	151-6089-35-67,49-20	87003950
ST68 (TDS)			
	90510494	152-5102-21,49-20	87003713
	90510777	152-5102-21-67,49-20	87003947
	90510528	152-5152-21,49-20	87004574
	90513755	152-5152-42-24,49-20	87003954
Dome bit R32			
	90514373	103-5076-42-24,49-20	87003951
	90510821	103-5076-42-24-67,49-20	87003951
	90510843	103-5089-42-24,49-20	87003955
	90510820	103-5089-42-24-67,49-20	87003955
	90510781	103-5102-42-24-67,49-20	87003955
	90513779	103-5127-42-24,49-20	87003954
Dome bit Magnum SR28			
	90515258	125-5076-42-24,49-20	87003951
Dome bit Magnum SR32			
	90514502	126-5076-42-24-67,49-20	87003951
	90515257	126-5102-42-24,49-20	87003952
Dome bit Magnum SR38			
	90515831	127-5102-42-24,49-20	87003952
Dome bit Magnum SR35			
	90513848	128-5089-42-24,49-20	87003955
	90513849	128-5089-42-24-67,49-20	87003955
	90513850	128-5102-42-24,49-20	87003955

Thread	Drill bit		Indexing template
	Product No.	Product code	
Dome bit Magnum SR35			
	90513851	128-5102-42-24-67,49-20	87003955
	90514219	128-5127-42-24,49-20	87004775
Dome bit TC35			
	90003723	169-5102-42-24,39-20	87004573
	90514389	152-6115-21-35-67,49-20	87004875
Reaming bit 6°			
	90510459	175-5064,39-20	87003501
	90510460	175-5076,39-20	87003563
	90510461	175-5089,39-20	87003560
Reaming bit 6,5°			
	90510466	183-5064,39-20	87003501
Reaming bit 12°			
	90510174	187-5089-20,39-20	87003560
	90510468	187-5102,39-20	87003500
	90510469	187-5102-20,39-20	87003564
	90510470	187-5127,39-20	87003562
Taper bit 11° H22			
	90509966	179-9038-27-67,39-20	87003908
Taper bit 12° H22			
	90512825	177-5033-34-67,39-20	87004513
	90509841	177-9032-17-67,39-20	87003711
	90509842	177-9033-17-67,39-20	87003711
	90509535	177-9035-27-67,39-20	87003710
Taper bit 12° H25			
	90514202	180-5036-99-67,39-20	87004741

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