## **Grind Matic BQ3-DTH**

Operator's instructions Spare parts list





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Original instructions.





Before using the machine, read the operator's instructions carefully and then put them in a safe place for future reference.



It can be dangerous to use the machine if the care and maintenance instructions are not followed carefully.



Electricity.



Emergency STOP.



Risk of crushing.

Always replace damaged or illegible signs.

# **Safety instructions**

 Before using the machine, read through these instructions carefully.

• Important safety information is given at various points in these instructions.

• Special attention must be paid to the safety information contained in frames and accompanied by a warning symbol (triangle) and a "signal word", as shown below:

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Indicates an immediate risk that WILL result in serious injury or death if the warning is not observed.

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Indicates hazards or hazardous procedures which COULD result in serious injury or death if the warning is not observed.

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• Indicates hazards or hazardous procedures which COULD result in injury or damage to equipment if the caution is not observed.

• Use approved spare parts only. Any damage or malfunction that can be attributed to the use of unauthorized spare parts is not covered by the machine warranty and invalidates product liability.

### Also observe the following general safety instructions:

• Make sure that there are no other personnel close to the grinding machine while grinding is in progress.

• Always wear goggles, protective clothing, gloves and ear protectors during grinding. Any local regulations must also be observed.

• Wear an approved dust mask or arrange an effective dust-extraction system. This is especially important when grinding indoors.

•The machine must not be used for any purpose other than that for which it is intended. See "Applications" on page 4.

•The machine must not be modified without the permission of the manufacturer. Modifications not approved by Epiroc Drilling Tools can incur the risk of serious injury to yourself and others.

• Before intervening in the air or electrical systems, make sure there is no pressure in the air system and that the electrical system is dead.

• Beware of the risk of fire and explosion that could be initiated by sparks from the grinding work.

• Before using the machine, visually check the hoses and electric wiring for any damage. If any visible damage is detected, replace before using machine.

• If lifting equipment is used, make sure it's approved for its purpose.

•The splash guards supplied together with the machine must be used during grinding.

### **Technical data**

Maximum height of drill bit	650 mm
Maximum diameter of drill bit	178 mm
Minimum distance between buttons	3.5 mm
Output, spindle motor	3.00 kW
Output, table drive motor	0.25 kW
Output, cooling-fluid pump motor	0.44 kW
Voltage, working lights (40 W E27)	24 V
Air pressure, minimum	80 psi / 5,5 bar
Air pressure, maximum	101 psi / 7 bar
Air consumption	40 l/min
Speed, spindle (50 Hz)	14,900 r/min
Speed, spindle (60 Hz)	14,900 r/min
Speed, table (50 Hz)	22 r/min
Speed, table (60 Hz)	26 r/min
Capacity of cooling-fluid tank	22
Weight, exclusive of packaging	345 kg
Noise level during grinding*	96.5 dB(A)
Sound power level during grinding**	101 dB(A)
Vibration level during grinding***	< 2.5 m/s2

Manufactured: Epiroc Drilling Tools AB, Fagersta, Sweden

\* Equivalent continuous A-weighted sound pressure level measured at operator's ear level during grinding. Possible spread due to measuring method and production factors: 3 dB(A).

\*\* Sound power level established in accordance with SS/ISO 3741. Possible spread due to measuring method and production factors: 3 dB(A). Average value for frequency range 100-6300 Hz.

\*\*\* Vibration measurement according to EN/ISO 8662.

ACCESSORIES INCLUDED		
Description	Product No.	
Centering wheel	87003417	
Centring cup, 11 mm	87000840	
U-key, 15 mm	87001439	
Allen key, 4 mm	87002413	
Goggles	87001967	
Cooling liquid, 0,5 l	87001038	
Extractor	87005058	
Filter key	87004659	
Spare part manual, printed matter no. 9852 2501 01		

### General

The Secoroc BQ3-DTH grinding machine is designed to grind 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.

For grinding to be carried out, the machine must be fitted with a grinding wheel, a centring cup, a bit holder and an indexing ring to suit the bit that is to be ground.

## Applications

The Secoroc BQ3-DTH is intended for grinding DTH, COPROD and threaded button bits up to 178 mm in diameter.

# Technical description

The Secoroc BQ3-DTH consists principally of the following component assemblies:

• A driving plate that is rotated by an electric motor via a worm gear.

• A grinding disc that is placed on the driving plate. When the centring button on the feed lever is pressed, an air cushion is created under the grinding disc to facilitate centring of the button that is to be ground. When the centring button is released, the grinding disc is locked in position by a vacuum.

• A main holder, with a bit holder in accordance with the used shank size.

• A centring device that adopts the centre position automatically when the centring button is pressed. The centring device is in its lower position when centering the button.

- A spindle that is rotated by an electric motor via a drive belt.
- An automatic feeding system for advancing the grinding wheel on to the button. Feeding is effected by a pneumatic cylinder, but manual feed is also possible.

• A coolant tank with pump to circulate the flushing fluid used to cool the cemented-carbide buttons and the grinding wheel. Flushing starts automatically when table rotation starts.

The button to be ground must first be centred directly under the grinding wheel. Table rotation is then started and the profiled grinding wheel fed down to the rotating drill bit. The centred cemented-carbide button rotates inside the profiled groove in the grinding wheel and is quickly restored to its shape.

### **Controls and other parts**



12 Coolant pump

31

### Installation

On delivery, the machine is manufactured with the specified voltage and frequency found on the machine sign. A power cable with four wires is supplied with the machine.

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• Always follow the safety instructions with regard to installation, operation and maintenance.

There is a lifting eye on the upper part of the frame. Always make use of the lifting eye when hoisting the machine into place. The weight of the machine is normally 345 kg. Make sure valid lifting equipment is used.

To be able to use the machine, electricity, compressed air, and water are needed.

1. Start with finding out what kind of electric set up there is in the local area where the machine will be used.

2. Make sure to use a compressor of correct size and with enough work pressure. Dry air is recommended.

3. Always use clean water. Make sure the machine pump and water filter are filled up before start.

See information under section Technical data.

The feet underneath the machine must be adjusted so that runoff water flows towards the drainage hole.

### 

A main circuit-breaker must be fitted between the power cable and the electricity mains when the machine is installed. Always observe local regulations in respect of electrical connection.

# General care instructions

To ensure that your Secoroc BQ3 DTH grinding machine functions satisfactorily for a long time:

• Use original spare parts only.

• Read the maintenance instructions carefully before putting the machine to work.

- Keep the machine clean.
- Make sure that the compressed air is always clean and dry.
- Check the water cooling regularly.

•The incoming air and electricity supplies must always be disconnected during installation, servicing and moving of the machine.

• If the machine is not going to be used for a long time, make sure that it is lubricated generously before being left idle.

#### Electricity



• Electrical connection of the machine is restricted to qualified electricians only.

• Check that the electrical data for the machine is compatible with the mains voltage.

After connection: Check that the motors rotate in the right direction. The grinding wheel should rotate in the direction of the arrow on top of the grinding spindle cover. If the grinding wheel rotates in the wrong direction, switch the phases.

The machine is protected against overload. In the event of overload, the motor overload protector will trip. Re-setting occurs automatically after a period of standstill.

The machine is also equipped with an undervoltage circuit breaker and an emergency STOP device. In the event of undervoltage or activation of the emergency STOP device, the system must be re-set prior to re-starting.

#### **Compressed air**

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- •The exhaust air from pneumatic components contains oil mist, which can be bad for your health if inhaled. Always adjust the lubricator so that the correct amount of lubrication is obtained.
- Before filling up with lubricating oil, ALWAYS switch off the compressed air supply and vent the machine.
- •The maximum permissible working air pressure for grinding machines with pneumatic components is 7 bar.

The compressed air must be clean and free of water. The machine is equipped with an air filter.

On the Secoroc BQ3-DTH, compressed air performs the following functions:

• It creates the vacuum that locks the grinding disc to the driver plate.

• It creates an air cushion under the grinding disc to make it easily moveable during centring.

- It provides a suitable grinding pressure.
- Operate the centring arm.

#### Ventilation

It's recommended to install a separate fan to ensure the exhaust from the grinding operation is faced away from the operator. Ventilator frame is mounted on the machine.



Always observe local regulations in respect of installation.

#### Cooling

The drill bit and grinding wheel are cooled with water mist. At the bottom of the machine is a sedimentation tank for grinding residue. If the machine is used every day, the sedimentation tank must be cleaned at least once a week. Cooling water is switched on automatically when the grinding spindle starts to rotate. Then, when the grinding disc starts to rotate, the coolant valve opens and cooling water starts to flow. With the coolant nozzle, water is sprayed over the whole of the grinding wheel.

Cooling is very important to the service life of the grinding wheel and to the grinding result. If cooling is poor, thermal stresses can be ground into the cemented carbide button, with subsequent button breakage as a result. The service life of the grinding wheel falls dramatically if cooling is poor.

A coolant mixture consisting of cooling concentrate and water (mix ratio 4-8%) should be used. Use the recommended cooling concentrate. The concentrate contains a rust inhibitor.

Check the coolant level regulary. Level might evaporate in warm enviroment.

#### **Grinding disc**

Before the grinding disc is put on, the contact surface must be clean and preferably oiled as well. Check that the O-ring on the driver plate is fitted.

Place the grinding disc carefully on to the driver plate. Turn on the compressed air and check that the grinding disc "floats" smoothly when the centring button on the feed lever is pressed. In the beginning, the disc can bind a little. If so, move it around for a few moments to alleviate the problem.



The air cushion can be regulated by means of a valve, located next to the return pressure regulator. If there are great pressure variations in the compressed-air supply, it may be necessary to stabilize the pressure by means of an external pressure regulator.

Valve

#### **Grinding wheel**



• Before fitting or removing a grinding wheel, switch off the electricity supply.

•The grinding wheel is hot immediately after grinding. Take care not to burn your fingers when changing the grinding wheel.



Fit the grinding wheel to the grinding spindle.

The smaller side on the grinding wheel must face away from the grinding machine. Make sure that the journal of the spindle is clean and lightly oiled. This will make it easier to remove the grinding wheel.

If the grinding wheel cannot be removed using hand force only, make use of the extractor supplied with the machine.

#### 

Do NOT use impact or excessive force on the spindle or grinding wheel!

# Grinding

### 🔨 DANGER

• Always check that there are no traces of explosive in the flushing holes of the drill bit. To clean out the flushing holes, ONLY a wooden stick, a length of copper wire or flushing water may be used.

• Beware of the risks of fire or explosion that might be initiated by sparks from the grinding work.

- Never remove the grinding guard from the machine.
- Make sure that the grinding station or place of work is well ventilated.
- Always wear goggles, protective clothing, gloves, dust mask and hearing protection during grinding.
- Before removing or fitting a grinding wheel and before changing the drill bit, always switch OFF the electricity supply.
- •The grinding wheel is hot immediately after grinding. Take care not to burn your fingers when changing the grinding wheel.
- •To prevent injuries caused by crushing, avoid moving parts when the machine is running.

#### General rules

Adequate cooling is crucial to the service life of the grinding wheel, and also to the grinding result. Poor cooling can result in heat stresses being "ground into" the cemented-carbide buttons, with button fracture as a result. The service life of the grinding wheel falls dramatically if cooling is poor.

#### **Grinding wheel**

Diamond grinding wheels are sensitive to impact, vibration and heat.

The grinding wheel must therefore work without vibration and with generous cooling!

The grinding wheel must be mounted with the smaller side on the grinding wheel facing away from the grinding machine. Use original grinding wheels only.

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The manufacturer disclaims all responsibility for any problems (or consequences thereof) attributable to the use of non-original grinding wheels.

#### **Steel removal**

In the case of heavy bit wear, one should remove the steel around the button to obtain maximum service life of the diamond grinding wheel. This is done in the simplest way by means of using the grinding wheel for removing body steel, alternatively by using a straight silicon-carbide grinding wheel or by sand-blasting.

#### Set up and preparations

• Fit the bit holder\* that correspond with bit shank.

• Fit the grinding wheel\* that corresponded with button size and profile.

- Fit the centering cup\* that corresponded with button size.
- \* Parts found in section Accessories.

#### **Grinding instructions**

With the Secoroc BQ3-DTH grinding machine, there are two different operating modes to choose between:

A. Automatic feeding with pre-set bit-grinding time

B. Automatic feeding only

### Automatic feeding with pre-set bit-grinding time

🔨 IMPORTANT

When grinding in the most automated mode (A), the switch should be turned so that the green lamp at the rectangular symbol with arrows lights.

#### Before grinding, make the following adjustments:

1. Adjust the grinding pressure by means of the regulator and table.

2. Adjust feed speed on the regulator, so that the grinding spindle does not go down so fast that the grinding wheel strikes the button in the bit.

3. Tilt the main holder to make it easier to fit the drill bit into the bit holder. Now tilt back the main holder and make sure that it is locked on to the grinding disc.

4. Note that the gauge buttons should be ground first. Adjust therefore the angle of the main holder to match the angle of the gauge buttons in the drill bit, so that the centre-line of a gauge button is always vertical during grinding. Button angles for your bit can be found in Secoroc product catalogues.

5. Press and hold the centring button on the feed lever. The centring arm moves to the centring position and an air cushion is formed under the grinding disc, causing it to float.

6. Align the grinding disc and press down the feed lever so that the button to be ground locates exactly in the middle of the centring cup. (Make sure that the size of the centring cup agrees with the size of the button).

7. Release the centring button, whereupon the grinding disc is locked into position on the driver plate by a vacuum, and the centring arm retreats. Note that there is a built-in delay in the system to ensure that the centring arm stays in the centring position while the vacuum is being formed, in order to prevent the bit from moving. The delay time can be adjusted by means of the time relay.

8. Set the desired grinding time by turning the graduated wheel on the potentiometer. Make sure that the light for AUTO is on.

9. Start the grinding spindle by pressing the left green button on the control panel.

10. By means of the feed lever, lower the grinding wheel carefully toward the button.

11. When the grinding wheel is about 15 mm above the button, switch on the automatic feed. Bit rotation starts, coolant begins to

flow through the nozzle and the feed cylinder is activated.

12. Put the stroke limiter switch into ON position to lock the stroke position. Leave the switch in this position until the last gauge button has been ground.

13. When the pre-set grinding time expires, the feed cylinder releases, the flow of coolant stops and table rotation stops. The grinding spindle rises to about 10 mm above the button. If the button has not been ground enough, set the potentiometer to a longer interval. If the button has been ground too much, a shorter grinding interval should be set. As a rule, buttons are ground more quickly when the grinding wheel is new.

14. Check the grinding result and adjust the potentiometer as necessary. Make sure that full dome height is obtained, but always leave a 1-2 mm wear flat on top of the button to avoid grinding away too much of the cemented carbide.

15. Index the next button by turning the drill bit.

16. Switch on the automatic feed.

17. Repeat steps 15-16 until all gauge buttons have been ground.

#### Automatic feeding only

### 🔨 IMPORTANT

When grinding in semi-automatic mode (B), button should be set so that the green lamp by the hand symbol lights.

1. See points 1–4 under "Automatic feeding with pre-set grinding time"  $% \left( {{{\rm{T}}_{{\rm{T}}}}_{{\rm{T}}}} \right)$ 

2. Start the grinding spindle and table rotation by pressing the respective green buttons on the control panel.

3. By means of the feed lever, lower the grinding wheel carefully toward the button.

4. When the grinding wheel touches the button, activate and hold the switch until the desired grinding result has been obtained.

5. Check the grinding result. Make sure that full dome height is obtained, but always leave a 1-2 mm wear flat on top of the button to avoid grinding away too much of the cemented carbide.

6. Stop the table rotation.

7. Index the next button by turning the drill bit.

8. Repeat steps 3–7 until all gauge buttons have been ground.

#### Setting the grinding pressure

To get the most out of your grinding machine, make sure that the operating pressure is set to a level that provides an optimal grinding force of 150 N. This can be done by easy means.

• Measure the distance between the grinding disc and the top button that is about to be ground.

• Search for the closest distance in the table.

• Adjust the pressure settings accordingly.

Distance u	550 mm	I	600 mm	1	650 mm	1
Return P	Feed P	Force	Feed P	Force	Feed P	Force
6,0	2,5	150	2,2	150	2,2	148
6,5	3,0	154	2,8	153	2,7	148
7,0	3,5	143	3,5	153	3,2	150

P = pressure Force column figures in Newton (N )

#### For best grinding results and wheel life:

- Centralize the buttons precisely.
- Make sure there is a generous flow of coolant at the point of contact.
- Grind carefully and do not rush.
- Let the machine do the work.
- Do not try to speed up grinding by adding hand pressure to the feed lever.
- Use original grinding wheels only.
- Use recommended pressures.

#### **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 rates and risk damaging the drill bit through overdrilling. A few hints about the care of 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 1/2 of the diameter of the button.

#### Look out for "snake skin"



If microscopic fatigue cracks – socalled "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.

#### 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.

#### 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 steel below the gauge buttons, so that a clearance (taper) of 0,5 mm is maintained.

Make sure that the flushing holes are open.

### Maintenance



• Before attempting service or repair work on the machine, ALWAYS switch off and disconnect the electricity supply and the compressed air supply.

#### Cleaning

Keep the machine clean at all times. This is the cheapest and easiest way to maintain the machine.

#### Lubrication

Most bearings and bushings in the machine are permanently lubricated and do not normally need any maintenance. Use the grease nipples to lubricate moving parts.

Follow our recommendations found in this instructions, section "Recommended lubrication and cooling liquids".



A used machine must be treated and disposed in such a way that the greatest possible portion of the material can be recycled and any negative influence on the environment is kept as low as possible, and with respect to local restrictions.

#### **Cooling liquid**

Particles of cemented carbide and steel gradually accumulate in the sedimentation tank. Empty and clean out the tank regularly. If the machine is used every day, the sedimentation tank should be cleaned out at least once a week. Since the water in the tank contains particles of cemented carbide, local regulations (in respect of water contamination) must be observed when it is emptied.

Fill the sediment tank with new fluid consisting of a mixture of cooling concentrate and water (mixing ratio 4-8%). Apart from cooling the grinding wheel and cemented-carbide buttons, the cooling fluid serves to prevent rust in the machine.

If the machine is not going to be used for some time, the cooling system should be drained. If the machine is not going to be used for a long time, it should be oiled generously.

#### Water filter



Use the key to open and/or close the cup.

#### Air filter

The air filter prevents particles of dirt and also water from entering the pneumatic system. It should be drained and cleaned regularly. The water level in the bowl must not be allowed to rise as high as the separator disc.

#### Draining the air filter

Drain the air filter regularly by pressing the drainage valve upwards. The filter is also drained automatically when the compressed air is switched off. A hose can be connected to the drainage valve if required (to discharge the water in a convenient place).

#### **Cleaning the air filter**

- Unscrew the filter bowl
- Unscrew the separator disc
- Clean the filter
- Blow clean the filter from the inside out
- Fit back the filter
- Fit back the filter bowl

#### Ejector

The pneumatic system includes an ejector that serves to create the vacuum which locks the grinding disc and driver plate to each other. The ejector does not normally need any maintenance. If it needs to be cleaned, simply remove the connection nipples and blow clean the ejector housing.

#### Grinding spindle

The spindle is manufactured with great precision. Rough handling can reduce the service life of grinding wheels. Care must therefore be taken when changing the grinding wheel. If necessary, use the extractor to remove the grinding wheel, product code 87005058.

Before fitting a new grinding wheel, lightly grease the spindle. The bearings of the grinding spindle are permanently lubricated and does not normally need further lubrication.



Dismantle, overhaul and assemble.

The outer nut threads are different. The one at the front end (8700-0780) has a right hand thread, turn counter-clockwise to open. The one at the back (8700-0781) is a left hand thread.

The inner nuts are all right hand thread.

To remove the ball bearings, pull them off. Use a puller. Check that the spindle shaft is in good condition. If the shaft has run out larger than 0,02 mm, replace it.





Fill each of the new ball bearings to 25% with the recommended grease. – Do not overfill the bearings!

Note the direction of the disc springs.

#### Grinding disc and driver plate

Make sure that the surfaces between the grinding disc and the driver plate are always clean. The O-ring between the two plates must be checked regularly. Damage to the O-ring will reduce the strength of the vacuum. Small amounts of oil can be used to prevent corrosion.

#### **Protective bellows**

The bellows serve to protect the tubular ball guides from dirt. Make sure that they remain in good condition in order to prevent grinding dust from entering and damaging the tubular ball guides.

#### **Drive belt**



The drive belt between the motor and grinding spindle can be tensioned by adjusting a springloaded screw on the motor shelf.



It is important for the motor shelf to be correctly adjusted, otherwise the drive belt can wander on the jockey wheels, which can result in damage.

#### **Circuit breakers**

The standard settings of the circuit breakers are as the following:

Part	Description	Voltage	Frequency	Current
	LRD 16	230 V	50, 60 Hz	10.7 A
Spindle	LRD 12	≥380 V	50, 60 Hz	6.2 A
	LRD 12	440 V	60 Hz	5.6 A
	LRD 06	230 V	50, 60 Hz	1.5 A
Table	LRD 05	≥380 V	50, 60 Hz	0.84 A
	LRD 05	440 V	60 Hz	0.77 A
	LRD 07	230 V	50, 60 Hz	2.4 A
Pump	LRD 07	≥380 V	50, 60 Hz	2.4 A
	LRD 07	≥380 V	60 Hz	2.4 A

### Recommended lubricants and cooling liquids

Worm gear		
Permanently lubricated w	vith	
BP	Energol SGR 150	
Shell	TIVELA OIL WB	
Tubular ball guides		
Permanently lubricated w	vith:	
	Bearing grease	
Grinding spindle		
Permanently lubricated w	vith:	
Klüber Lubrication	Isoflex NBU 15	
Centring-cup shaft		
	Bearing grease	
Cooling liquid		Product No.
Concentrate - Mixing ration	o 4-8%	
Binol Cool 10	0,5 litres	87001038
	10 litres	87002844
Link to Product Data Sheet for chemical items:		
http://194.132.104.143/C125712A0045C780.nsf/CustViewProd20?OpenView		

### Accessories

#### Bit holders for DTH and COPROD bits

	Product No.	
COP 32	87002420	
COP 34	87003691	
DHD3.5	87004514	1
DHD340, COP 42	87002391	1
DHD350	87002390	
DHD360	87002389	
DHD380	87004523	
TD 40	87004604	
TD 90	87004517	1
RC 50	87004605	1
QL4	87004515	
QL5	87004033	
QL6	87004002	
QL8	87004516	1
COPROD 76	87004414	
COPROD 89	87003155	
COPROD 102	87004415	
COPROD 127	87002396	

#### Bit holders for Tophammer button bits

Description	Product No.
Threaded bits	
Holder R25	87003475
Holder R28	87003476
Holder SR28	87003960
Holder R32	87003477
Holder SR32	87003962
Holder SR35	87003956
Holder R38, T38	87003478
Holder SR38	87003978
Holder SR38 retrac, guide	87004081
HolderTC42	87004641
HolderT45	87003479
HolderT51 and retrac	87003521
HolderT-WiZ60*	87005052
Holder GT60*	87005085
Tube bits	~
Holder ST58	87003522
Holder ST68	87003523
Tapered bits	
Holder 7° taper	87003524
Holder 12° taper	87003525
Reaming bits	
Holder 64, 76 and 89 mm reamer	87003526
Holder 89,102 and 127 mm reamer	87003527
Guide bits	
Holder R32 guide bit	87003992
Holder SR35 guide bit	87004056

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

#### **Centering cups**

For button size	Product No.
7,0 mm	87001040
8,0 mm	87000842
9,0 mm	87001047
10,0 mm	87001041
11,0 mm	87000840
12,0 mm	87001042
12,7 mm	87000839
13,0 mm	87001385
14,0 mm	87001043
14,5 mm	87001443
15,0 mm	87001386
16,0 mm	87001387
18,0 mm	87003943
19,0 mm	87003944

#### **Diamond-grain wheels**

Dimension, mm	Product No.	Product No.
	Spherical	Ballistic
7	87004554	87004556
8	87004555	87004557
9	87003969	87003974
10	87003970	87003975
11	87003971	87003976
12	87003972	87003977
13	87003973	87003413
14	87001025	87003414
15	87001384	87003415
16	87001027	87003416
18	87003964	87003965
19	87003966	87003967





#### Grinding wheels for removing body steel

Description	Product No.
Grinding wheel	87001530
Spacer 2,0 mm for 10 mm button	87001631
Spacer 2,5 mm for 11 mm button	87001632
Spacer 3,0 mm for 12 mm button	87001633
Spacer 3,5 mm for 13 mm button	87001634
Spacer 4,0 mm for 14 mm button	87001635

For 15 mm button combine 2,0 mm spacer and 2,5 mm spacer. For 16 mm button combine two 2,5 mm spacers.

#### Grinding templates for button bits

Description	Product No.
Button bits, spherical	90002944
Button bits, ballistic	90503414
Button bits DTH, spherical	90510753
Button bits DTH, ballistic	90510758



Spacer

Grinding wheel

### **Spare parts list – Secoroc BQ3-DTH**



Ref. No.	Qty	Description	See page
1	1	Frame, body	Page 14
2	1	Grinding unit	Page 15
3	1	Rotating table	Page 17
4	1	Flushing components	Page 20
5	1	Electrical components	Page 22
6	1	Centering device	Page 16
7	1	Lifting arm	Page 18

Ref. No.	Qty	Description	See page
8	1	Pneumatic components	Page 24
9	1	Bit holder for DTH and COPROD bits	Page 19
10	1	Option Bit holder for threaded bits	Page 30
11	1	Grinding spindle	Page 21

# Frame, body components



Ref. No.	Product No.	Qty	Description	Specification
1	87003833	1	Stand upper	
2	87003834	1	Stand lower	
3	87003857	1	Collect tray	
4	87003869	1	Bracket control panel	
5	87003896	1	Splash guard	Right
6	87003897	1	Splash guard	Left
7	87004632	1	Cover pneumat- ics	
8	87004735	1	Front door	
9	87003433	1	Control box	
10	87003443	1	Electric cabinet	
11	87003859	1	Bracket	Right
12	87003866	1	Cover	Left
13	87003867	1	Cover	Right
14	87003868	1	Protection hood	
15	87003856	1	Rear cover	
16	87003860	1	Bracket	Left
17	87003870	1	Rear cover	
18	87004759	1	Rubber grommet	Ø 30
19	87004633	1	Ventilator frame	Bdec 1010

Ref. No.	Product No.	Qty	Description	Specification
20	87000946	4	Washer	BRB 4.3
21	87000503	36	Washer	BRB 5.3
22	87000788	24	Washer	BRB 6.4
23	87000131	4	Washer	BRB 8.4
24	87000430	4	Washer	BRB 13
25	87003420	1	Rubber sealing strip	L = 2300
26	87003420	1	Rubber sealing strip	L = 2600
27	87003438	1	Rubber stop	M6
28	87000504	8	Nut	M5
29	87000838	8	Nut	M6
30	87000377	4	Screw	12x25
31	87001885	8	Screw	6x12
32	87000145	8	Screw	6x20
33	87000926	4	Screw	8x16
34	87004634	28	Screw	5 X 12
35	87002417	4	Damper	Feets
36	87001901	4	Pop rivet	4 X 10
37	87004732	2	Washer	

# **Grinding unit**



Ref. No.	Product No.	Qty	Description	Specification
1	87003838	1	Guide	
2	87004045	1	Spindle	Details p. 21
3	87003865	1	Splash guard	
4	87004736	1	Holder complete	
5	87004744	1	Strip	
6	87003862	1	Rubber mat	
7	87003907	1	Motor shelf	
8	87003932	1	Pulley	
9	87003705	2	Shaft	
10	87001667	4	Bracket	
11	87000783	1	Pulley	50 Hz
12	87003431	4	Socket	
13	87003512	1	Pulley	60 Hz
14	87003566	1	Splash guard	Inner
15	87000503	8	Washer	BRB 5.3
16	87000131	10	Washer	BRB 8.4
17	87000167	10	Washer	BRB 10.5
18	87000430	4	Washer	BRB 13

Ref. No.	Product No.	Qty	Description	Specification
19	87000185	10	Nut	M10
20	87000504	2	Nut	M5
21	87000449	4	Screw	10 X 35
22	87001678	4	Screw	12 X 40
23	87000186	2	Screw	8 X 40
24	87000810	8	Screw	8 X 65
25	-	8	Screw	5 X 12
26	87003938	1	Flat belt	
27	87000203	8	Clip	
28	87003435	4	Clamp ring	Sgh 40
29	87003469	4	Screw	5 X 6
30	87003430	2	Screw	6 X 8
31	87000462	4	Bellows	
32	87001671	4	Ball bushing	Lbbr 30
33	87001621	3	Screw	10 X 70
34	87001489	1	Spring	2.5x12.5x17.9
35	87003890	1	Electric motor	

### **Centring device**



Ref. No.	Product No.	Qty	Description	Specification
1	87004746	1	Bracket	
2	87003850	1	Centering arm	
3	87001387	1	Centering cup	16 mm
4	87003586	1	Turning sleeve	
5	87003582	1	Lock washer	
6	87003585	1	Centering head	
7	87003583	1	Shaft	
8	87003573	1	Stop lug	
9	87000527	4	Bushing	
10	87004014	1	Grease nipple	M6
11	87000131	4	Washer	BRB 8.4

Ref. No.	Product No.	Qty	Description	Specification
12	87003581	1	Cylindrical pin	8 X 40
13	87003579	1	Tension pin	4 X 40
14	87001333	2	Tension pin	6 X 20
15	87004015	1	Grease nipple	M6
16	87001703	1	Nut	M8
17	87003707	1	Screw	8 X 1 x 35
18	87001071	4	Screw	8 X 20
19	87003576	2	Screw	5 X 14
20	87000453	1	Screw	6 X 16
21	87003578	1	Spring	3 X 25 x 40
22	87003577	2	Circlip	SgA 20
	87004745	1	Centering device complete	Ref 1-22 (ref 3 incl.)

## **Rotating table**



Ref. No.	Product No.	Qty	Description	Specification
1	87004626	1	Dog	
2	87003858	1	Grinding disc	
3	87003852	1	Bearing housing	
4	87003853	1	Washer	
5	87003854	1	Screw	
6	87003855	1	Spacer ring	
7	87004058	1	Claw sleeve	
8	87004625	1	Radial sealing	
9	87000131	4	Washer	BRB 8.4
10	87001998	2	Tension pin	5 X 32

Ref. No.	Product No.	Qty	Description	Specification
11	87000496	4	Nut	M8
12	87000174	4	Screw	10 X 40
13	87001482	1	O-ring	340 X 11
14	87003894	1	V-ring	VI-180
15	87003880	1	Circlip	SgH 75
16	87003430	1	Screw	6 X 8
17	87001424	2	Ball bearing	
18	87000846	1	Wedge	6 X 6 x 20
19	87003891	1	Motor and gearbox	

# Lifting arm



Ref. No.	Product No.	Qty	Description	Specification
1	87004747	1	Arm	
2	87004649	1	Handle	
3	87003773	1	Bar	
4	87001888	1	Rubber grip	
5	87000788	2	Washer	BRB 6.4
6	87000131	4	Washer	BRB 8.4
7	87000838	4	Nut	M6

Ref. No.	Product No.	Qty	Description	Specification
8	87004748	1	Screw	6 X 55
9	87004749	2	Screw	6 X 65
10	87001071	4	Screw	8 X 20
11	87003764	1	Spring	1 X 8 x 25
12	87004750	1	Plug	Ø 25
13	87004289	1	Screw	4 X 5
14	87003430	1	Screw	6 X 8

### **Bit holder for DTH and COPROD bits**



Ref. No.	Product No.	Qty	Description	Specification
1	87002324	1	Inner holder	
2	87002319	1	Outer holder	
3	87003839	1	Handle bar	
4	87003841	1	Angle scale	
5	87003918	1	Link snap lock	
6	87003845	1	Hinge plate	
7	87003917	1	Link snap lock	
9	87000775	2	Screw	
10	87003840	1	Support	
11	87002027	2	Screw	
12	87003844	1	Lock shackle	
13	87003919	3	Nut	
14	87000127	2	Bushing	
15	87001426	2	Bushing	
16	87000788	5	Washer	BRB 6.4
17	87000430	1	Washer	BRB 13
18	87003920	2	Nut	M6
19	87003893	1	Locking bar	

Ref. No.	Product No.	Qty	Description	Specification
20	87002361	1	Locking bar	
21	87002360	1	Locking bar	
22	87000185	2	Nut	M10
23	87000838	1	Nut	M6
24	87004210	1	Screw	10 X 20
25	87000449	2	Screw	10 X 35
26	87001899	5	Screw	6 X 16
27	87000145	2	Screw	6 X 20
28	87001338	1	Screw	6 X 25
29	87000829	2	Screw	6 X 30
30	87000421	1	Screw	6 X 20
31	87003912	4	Screw	8 X 15
32	87003764	1	Spring	1 X 8 x 25
33	87003892	1	Snap lock	
	87003836	1	Clamping device	Complete Ref. 1-33

### **Flushing components**



Ref. No.	Product No.	Qty	Description	Specification
1	87003421	1	Coolant tank	22
2	87003780	1	Bracket	
3	87001270	1	Valve	
4	87004651	1	Bracket	
5	87004652	1	Pipe	1/2"
6	87004653	1	Spacer	
7	87001819	7	Hose clamp	13/20
8	87004662	1	T-pipe	1/4"
9	87004565	1	Water filter	25 micron
10	87004588	1	Filter cup	Complete
11	87001886	1	Bushing	1/2"-1/4"
12	87000022	1	Bushing	3/4"-1/2"
13	87001850	2	Bushing	3/8"-1/4"
14	87000066	5	Nipple	1/2"
15	87000263	1	Nipple	3/8"
16	87004665	1	Strainer	
17	87001855	1	Coupling	8-1/4"
18	87000849	5	Elbow	8-1/4"
19	87001271	1	Nut	G3/8
20	87004657	2	Angle	1"
21	87004583	4	Bushing	
22	87004658	1	Angle	1/2"
23	87000016	2	Angle	1/2"
24	87003514	1	Angle	1/2"
25	87000017	1	Angle	

Ref. No.	Product No.	Qty	Description	Specification
26	87000019	1	Т-ріре	1/2"-1/4"
27	87004585	3	Hose	L = 2000
28	87000021	2	Nipple	1/2"
29	87004655	1	Nipple	1/2"
30	87003700	1	Nipple	1/2"-3/8"
31	87004566	1	O-ring	Filter
32	87000788	2	Washer	BRB 6.4
33	87000430	1	Washer	BRB 13
34	87003604	1	Electric valve	
35	87004664	1	Nut	1/4"
36	87004663	1	Nozzle holder	1/4"
37	87001724	1	Washer	Copper
38	87004661	2	Washer	Copper
39	87004659	1	Filter key	
40	87004654	1	Valve	3/4"
41a	87004559	1	Pump unit, 1-p	Serial≤2003
41b	87004764	1	Pump unit, 3-p	Serial>2003
42	87001885	2	Screw	6 X 12
43	87004634	2	Screw	5 X 12
44	87004063	3	Hose	L=2100
45	87004656	1	Hose	Ø12 I=1000
46	87003677	1	Hose	Ø25 l=1500
47	87003516	2	Nut	1/2"
48	87004666	1	Nozzle	
49	87004667	1	Gauge pressure	Ø63

# **Grinding spindle**

9 6	2				SEE DETAIL A		
		8	Ref. No.	Product No.	Qty	Description	Specification
		Auro	2	87004042	1	Solid spindle	
			3	87000780	1	Nut	CW
		1 tomation	4	87000781	1	Nut	CCW
			5	87000782	2	Nut	Inner
			6	87000787	1	Washer	
		Controlly	7	87000858	2	Ball bearing	
			8	87001081	2	Spring	
		SCALE 4:1	9	87000453	1	Screw	6 X 16

10

87004729

87004045

1

1

Spare kit

Grinding

spindle

(10)

Ref. No.	Product No.	Qty	Description	Specification
1	87003848	1	Housing	

2	1
2	

Ref. 6-9

1-9

Complete Ref.

### **Electrical components**



Ref. No.	Product No.	Qty	Description	Specification
1	87003793	1	Mounting rail	
2	87003679	1	Bracket	
3	87003678	1	Fork bridge	
4	87001087	1	Electric button	For lifting arm
5	87001509	2	Light diode	24V
6	87004689	1	Electric trans- former	
7	87001706	1	Plinth	
8	87003603	2	Electric lamp unit	
9	87004699	1	Din rail support	15x5
10	87004698	1	Din rail	15x5 L=130
11	87004091	1	Time relay	
12	87004266	1	Potentiometer	ABB
13	87004697	20	Din rail connec- tion block	2.5/15
14	87004696	2	Bulb	24V / 40W E27
15	87004670	1	Din rail	35x7.5 L=260
16	87004670	1	Din rail	35x7.5 L=325
17	87004670	1	Din rail	35x7.5 L=330
18	87004670	1	Din rail	35x7.5 L=80
19	87000946	4	Washer	BRB 4.3
20	87000503	1	Washer	BRB 5.3
21	87004695	2	Flex channel	
22	87003647	1	Flex pvc pipe	
23	87003645	1	Flex pvc pipe	
24	87003652	1	Cable connec- tor	For inductor
25	87003670	2	Clamp	
26	87003671	2	Clamp	
27	87003278	5	Screw cap	
28	87003648	2	Screw cap	
29	87003828	7	Screw cap	
30	87003653	2	Screw cap	
31	87003654	1	Screw cap	
32	87003672	7	Nut	15.2
33	87003655	4	Nut	22
34	87004288	2	Screw cap	
35	87003567	1	Fuse	4A
36	87003569	1	Circuit breaker	2A 1P
37	87000892	1	Circuit breaker	10A 3P
38	87003616	23	Plinth	DK 4/35
39	87003618	1	Fuse holder	ASK-1/35
40	87003624	10	Din rail connec- tion block	Brown
41	87004694	2	Din rail connec- tion block	Blue
42	87003626	5	Din rail connec- tion block	Green

Ref. No.	Product No.	Qty	Description	Specification
43	87003623	3	Din rail support	WEW 35/2
44	87000895	3	Contactor	
	87004693	1	Electric soft starter, 1-p	Serial≤2003
45	87004761	1	Electric soft starter, 3-p, 230 V	Serial>2003
	87004762	1	Electric soft starter, 3-p, 400V	Serial>2003
	87004762	1	Electric soft starter, 3-p, 440V	Serial>2003
46	87004684	1	Button	Man/aut
47	87004679	1	Button	Light
48	87004683	1	Button	Rotation
49	87004682	1	Button	Spindle
50	87004678	1	Button	Emergency
51	87004680	1	Button	Reset
52	87004677	1	Joystick	
53	87003791	1	Inductor	
54	87003613	1	Relay	24V NSR
55	87004692	1	Socket	
56	87004691	1	Relay	24V
57	87003622	1	Socket	
58	87003607	4	Relay	
59	87004899	2	Time relay	Serial>2262
60	87004690	2	Electric wire	L = 2.5 m
61	87004733	5	Rectifier	
62	87003783	1	Switch	
63	87000504	1	Nut	M5
64	87000838	1	Nut	M6
65	87001958	2	Screw	5 X 35
66	87000945	1	Screw	6 X 12
67	87000693	1	Screw	4 X 6
68	87001209	2	Screw	5 X 6
69	87003912	26	Screw	8 X 16
70	87004634	1	Screw	5 X 12
		1		LRD 07 230V, 1-p
71	87000896	1	Circuit breaker	LRD 07 230V, 3-p
		1		LRD 07 ≥380V
70	87003933	1	Circuit breaker	LRD 16 230V
/2	87003934	1	Circuit breaker	LRD 12 ≥380V
	87000977	1	Circuit breaker	LRD 06 230V
/3	87000897	1	Circuit breaker	LRD 05 ≥380V
74	87001901	1	Rivet	4 X 10
75	87004739	1	Screw cap	
76	87004674	1	Swivel	8-3/8"
77	87000852	1	Screw bushing	3/8"
78	87004688	1	Coupling	3/8"
				1

### **Pneumatic components**



Ref. No.	Product No.	Qty	Description	Specification
1	87003753	1	Bracket	
2	87003771	1	Pressure plate	
3	87003762	4	Spacer	
4	87127883	1	Nipple	1/4"
5	87003661	3	T-coupling	8-1/4"
6	87003817	2	Coupling	6-1/8"
7	87003814		Coupling	6-1/4"
8	87003816	6	Coupling	6-1/8"
9	87000849	1	Coupling	6-1/4"
10	87003820	4	Coupling	6-1/8" Banjo
11	87004668	1	Adapter	6-8
12	87004672	1	Adapter	8-1/8"
13	87003531	1	Regulator	1/4"
14	87001624	1	Regulator	1/8"
15	87003453	1	Bracket	
16	87003454	1	Trunnion	C40/41m-32
17	87004670	1	Din rail	35x7.5 L=150
18	87003886	1	Cylinder	
19	87001063	1	Muffler	G 1/8"
20	87000503	10	Washer	BRB 5.3
21	87000788	2	Washer	BRB 6.4
22	87003681	1	Nut	M10 x 1.25
23	87003665	1	Fork link	G25-32
24	87003885	1	Bracket	H-41-32
25	87004671	1	Valve block, complete	
26	87000863	1	Shut off valve	1/4"

Ref. No.	Product No.	Qty	Description	Specification
27	87000504	4	Nut	M6M M5
28	87000145	2	Screw	6 X 20
29	87003794	4	Screw	5 X 55
30	87004634	8	Screw	5 X 12
31	87003821	1	Control valve	1/8"
32	87003452	1	Cylinder	Serial>2214
33	87004480	1	Filter regulator	G 1/4"
34	87001623	2	Pressure gauge	1/8"
35	87004669	1	Hose	Ø 6 I=10000
36	87004660	1	Hose	Ø 8 I=2000
37	87003754	1	Cylinder	
38	87004674	1	Swivel	8-3/8"
39	87003888	1	Trunnion rear	
40	87000852	1	Screw bushing	3/8"
41	87004688	1	Coupling	3/8"
42	87003887	1	Shaft kit	
43	87001222	3	Throttle check valve	1/8"
44	87004673	1	Ejector	
45	87003529	1	Non return valve	
46	87000869	1	Check valve	
47	87004675	1	Blocking valve	
48	87004740	1	Coupling	1/4-1/8"
49	87001507	1	Pipe	1/8"
50	87003958		Nipple	1/4-1/8"
51	87003931		Distance	
52	87004873		Cylinder Kit	Ref 15, 16, 32

## **Pneumatic diagram**



Ref. No.	Product No.	Qty	Description	Specification
1	87000863	1	Shut-off valve	
2	87004480	1	Filter regulator	
3	87003529	1	Non return valve	
4	87004671	1	Valve block	
5	87003531	1	Regulator	
6	87001623	2	Gauge	
7	87004675	1	Blocking valve	
8	87003886	1	Cylinder	

Ref. No.	Product No.	Qty	Description	Specification
9	87003821	1	Control valve	
10	87001624	1	Regulator	
11	87001222	3	Throttle check valve	
12	87003754	1	Cylinder	
13	87004673	1	Ejector	
14	87001063	1	Muffler	
15	87000869	1	Check valve	
16	87003452	1	Cylinder	

### **Electrical diagrams**

#### Drawing: 3-6312772.A01



#### Drawing: 3-6312773.A01



#### Drawing: 3-6312774.A01



#### Drawing: 3-6312775.A01



#### Drawing: 3-6312776.A01



#### Drawing: 3-6312777.A01



Ref. No.	Product No.	Qty	Description	Specification	
1	87000892	1	Circuit breaker	10A 3P	
2	87003569	1	Circuit breaker	2A 1P	
3	87004689	1	Electric trans- former		
4	87000895	1	Contactor		
5	87000895	1	Contactor		
6	87000895	1	Contactor		
7*	87003933	1	Circuit breaker	LRD 16 230V	
/	87003934	1	Circuit breaker	LRD 12 ≥380V	
0*	87000977	1	Circuit breaker	LRD 06 230V	
0"	87000897	1	Circuit breaker	LRD 05 ≥380V	
	87000896	1	Circuit breaker	LRD 07 230V, 1-p	
9*	87000896	1	Circuit breaker	LRD 07 230V, 3-p	
	87000977	1	Circuit breaker	LRD 06 ≥380V	
10	87004682	1	Button	Spindle	
11	87003618	1	Fuse holder		
	87003567	1	Fuse	4A	
12	87004679	1	Button Light		
13	87003603	2	Lamp	IP44	
	87004696	1	Bulb		
14	87004671		Valve block, complete	Incl. ref. 18	
		1	Vacuum valve	14:1	
		1	Centering level valve	14:2	
		1	Height limiter valve	14:3	
		1	Release valve	14:4	
15	87001087	1	Button Centering		
16	87003783	1	Toggle switch		
17	87004677	1	Joystick	Feed	
18	_	1	Valve feed cylinderIncl. in valv block ref. 14		

Ref. No.	Product No.	Qty	Description	Specification
19	87003607	1	Relay	
20	87003607	1	Relay	
21	87003607	1	Relay	
22	87004684	1	Button	MAN/AUT
23	87004683	1	Button	Table rotation
24	87004677	1	Joystick	START/RE- START
25	87004678	1	Button	Emergency
26	87004680	1	Button	Reset
27	87001509	2	Led	Green 24V
28	87003613	1	Safety relay	
29	87004899	1	Time relay	Serial>2262
30	87003607	1	Relay	
31	87004899	1	Time relay	Serial>2262
32	87004691	1	Relay	
33	87004091	1	Time relay	
34	87004266	1	Potentiometer	ABB
	87004693	1	Electric soft starter, 1-p	Serial≤2003
	87004761	1	Electric soft starter, 3-phase, 230 V	Serial>2003
35	87004762	1	Electric soft starter, 3-phase, 400V	Serial>2003
	87004762	1	Electric soft starter, 3-phase, 440V	Serial>2003
36	87003791	1	Inductor	
37	87003890	1	Motor Spindle	
38	87003891	1	Worm gear	Incl. motor
20	87004559	1	Pump, 1-phase	Serial≤2003
39	87004764		Pump, 3-phase	Serial>2003
40	87004733	5	Rectifier bridge	
41	87003604	1	Electric valve	

\* Settings for circuit breakers can be found in section Maintenance-Circuit breakers.

### option Bit holder for threaded bits



Ref. No.	Product No.	Qty	Description	Specification
1	87003542	1	Clamping device	Bit holder (A) not incl.
1b	87004777	1	Clamping device for T-WiZ60	Bit holder (A) not incl.
2	87003928	1	Extension	
3	87000131	2	Washer	BRB 8.4
4	87000926	2	Screw	8 X 16
	87003939	1	Clamping device	Complete Ref. 1-4

# Fault finding

Problem	Cause	Solution		
	Incorrect connected	Check and verify voltage		
No electric voltage (no load)	Loose, broken or corroded connections	Check terminals and wiring. Repair or renew.		
	Tripped circuit breakers	Reset circuit breakers		
	Wrong rotation direction	Adjust supply electric wire phase positions		
Spindle	Position	Lineup centering arm and spindle		
	Tripped circuit breakers   Reset circuit breakers     Wrong rotation direction   Adjust supply electric wire phase positions     Position   Lineup centering arm and spindle     Vibrating   Replace bearings     Jagged or no movement   Check timer settings     Check pneumatic valve diode for signal   Grease     Slow movement or stuck   Check air cylinder     Incorrect position   Lineup centering arm and spindle     No vacuum   Check for leakages in swivel and pneumatic     Poor rotation   Check settings at slow start relay     Loose disc   Lift disc and replace bolt at shaft     Poor cooling at spindle   Clean magnetic valve at back of machine     No cooling at spindle   Clean tagle or disc	Replace bearings		
		Check timer settings		
		Check function at centering button		
	Jagged or no movement	Check pneumatic valve diode for signal		
Centering function		Check timer settings   Check function at centering button   Check pneumatic valve diode for signal   Grease   nent or stuck Check air cylinder   Lineup centering arm and spindle   Check for leakages in swivel and pneumatic hoses   Check for scratches under disc and at O-ring   n Check settings at slow start relay   Lift disc and replace bolt at shaft		
	Slow movement or stuck	Check air cylinder		
	Incorrect position	Lineup centering arm and spindle		
		Check and clean ejector		
	No vacuum	Check for leakages in swivel and pneumatic hoses		
Table rotation		Check for scratches under disc and at O-ring		
SpindleWrong rotation directionAdjust at Lineup of VibratingPositionLineup of VibratingReplace Check ti Check ti <td>Check settings at slow start relay</td>	Check settings at slow start relay			
	Loose disc	Lift disc and replace bolt at shaft		
Low pre	Low pressure at pump	Pump (and filter cup) must be filled before start		
Dumm and a allow	No cooling at spindle	Clean magnetic valve at back of machine		
Pump and cooling	Poor cooling	Clean tank and replace filter		
	Collection tray overfilled	Check timer settings   Check function at centering button   Check pneumatic valve diode for signal   Grease   Check air cylinder   Lineup centering arm and spindle   Check and clean ejector   Check for leakages in swivel and pneumatic hoses   Check for scratches under disc and at O-ring   Check settings at slow start relay   Lift disc and replace bolt at shaft   Pump (and filter cup) must be filled before start   Clean magnetic valve at back of machine   Clean tank and replace filter   Adjust machine feet level   Adjust main regulator (turn counter clockwise)   Check air hose size and length from compressor   Clean ejector		
		Adjust main regulator (turn counter clockwise)		
	Poor lifting force at spindle guide	Check incoming air pressure and volume		
P		Check air hose size and length from compressor		
Pheumatic	Manager	Clean ejector		
	vacuum	Check for leakage at swivel		
	General	Clean and dry incoming air is important		

# Spare part proposal

Product code	Description	Qty	Section	Ref no.
87003862	Rubber mat	2	Grinding unit	6
87003583	Shaft	1		7
87000527	Bushing	4		9
87003577	Circlip SgA 20	2		22
87003938	Flat belt	6		26
87000462	Bellows	2		31
987001482	O-ring	4	RotatingTable	13
87003894	V-ring	2		14
87004565	Filter	6	Flushing Comp.	9
87003604	Valve	1		34
87004063	Hose	1		44
87004729	Spare Kit	2	Grinding Spindle	7
87004045	Spindle compl.	1		
87001087	Button	2	Electrical Comp.	4
87004674	Swivel	1		76
87000852	Bushing	1		77
87004688	Coupling	1		78
87001063	Muffler	3	Pneumatic Comp.	19

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