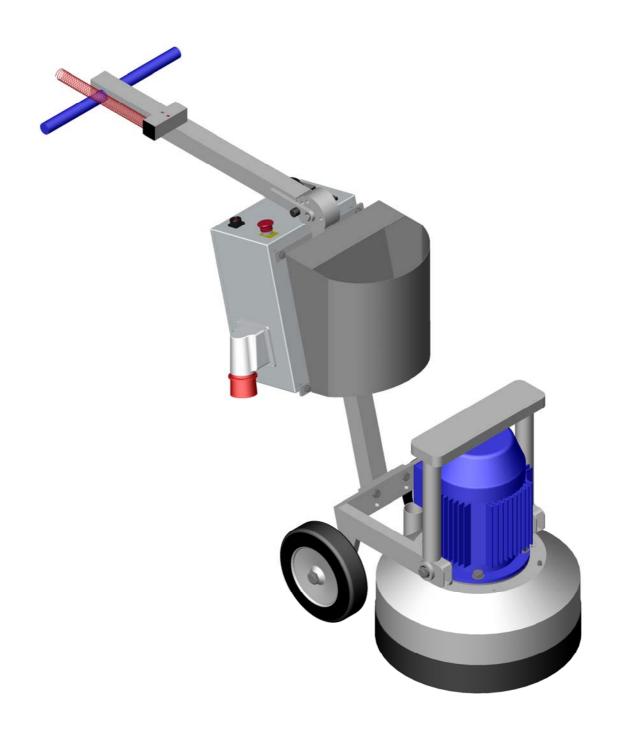
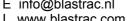
# Operating Manual BMG500





### **Blastrac BV**

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Safety instructions	2
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# **Operating Manual**



# **Technical Data**

### **Contents Chapter 1**

- 1.1 Rating
- 1.2 Unit specifications
- 1.3 Operative range and correct usage
- 1.4 Stand-by power supply
- 1.5 Machine type designation



### **Technical Data**

### 1.1 Rating

Unit / Designation: Blastrac Grinding machine

Machine type: **BMG 500** 

Manufacturer: **BLASTRAC** 

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### 1.2 Unit specifications

### Technical data:

Grinding machine	BMG-500
Power consumption	2,2 KW or 4 KW
Connected loads 2,2 KW	220V single phase, 10A
Connected loads 4 KW	220V or 380V three phase, 10A

### **Operating Manual**



### **Technical Data**

### Dimensions:

	BMG-500
Length	950 mm
Width	500 mm
Height	1250 mm
Weight	180 kg

### 1.3 Operative range and correct usage

The grinding machine BMG-500 is exclusively designed to process horizontal surfaces. The machine must not be used for other purposes. The manufacturer will not be liable for damage resulting from incorrect usage. In these cases the user takes responsibility for all risks.



### 1.4 Stand-by power supply (Generator)

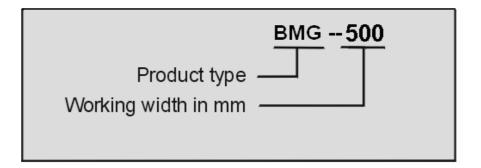
If the grinding machine BMG-500 is to be operated using power from a generator, the generator must be operated in accordance with the current EN-VDE directives (this applies to the protective earth conductor in particular) in order to ensure that all safety devices are functioning and to eliminate possible damage to electrical components.





# **Technical Data**

# 1.5 Machine type designation



### **Operating Manual**



### **Safety Advice**

### **Contents Chapter 2**

- 2.1 Warnings and symbols
- 2.2 Organisational measures
- 2.3 Personnel selection and qualification
- 2.4 Safety precautions applicable to some operating sequences
- 2.5 Special work within the scope of use of the equipment and maintenance activities as well as repairs during operation
- 2.6 Definition of the Safety off position
- 2.7 Particular dangerous aspects of the equipment
- 2.8 Electrical engineering regulations



### **Safety Advice**

### Warnings and symbols

The following denominations and symbols are used in the Operating Instructions to highlight areas of particular importance:





Symbol of operational safety.

In these Operating Instructions this symbol will be shown next to all safety precautions that are to be taken in order to ensure prevention to life and injury. Follow these instructions and take special care in addition circumstances. these In to instructions, the general safety precautions and accident prevention guidelines are also to be followed.



Particular details regarding the economical use of the equipment.











Information, instructions and restrictions with regard to possible risks to persons or to extensive material damages.

### **Operating Manual**



**Safety Advice** 

Warning against dangerous voltages.



Indications relating to protective devices in electrical appliances.



Indications where consultation with the manufacturer is required.



Instructions relating to periodical checks.



Reference to important instructions contained in the Operating Instructions.





### Safety Advice

### 2.2 Organisational measures



The Operating Instructions are to be kept near the location where the machine is being operated, and must be within reach at all times!

In addition to these Operating Instructions general and legal regulations regarding accident prevention and environmental protection must be complied with as per local regulations.

Such duties may, for example relate to the handling of hazardous substances, or to the provision and wearing of personal protection equipment, as well as compliance with traffic regulations.

The Operating Instructions must be supplemented by other instructions, including the duty to supervise and report incidents relating to particular working practices, for example work organisation, work procedures and personnel safety.

Personnel entrusted with working with the machine must read the Operating Instructions before starting work, in particular the Safety Instructions chapter. To read these instructions after work as commenced is too late. This particularly applies to incidental activities such as setting up the equipment, carrying out maintenance work or training staff to work with the machine.

From time to time the working practices of the operators are to be checked by a supervisor especially to the items regarding awareness of safety, and hazards.

Operators must tie back long hair, and not wear loose clothing or jewellery including rings. There is a risk of injury through items getting caught, or being drawn into moving machinery.



Use **personnel protection equipment** if necessary or required by local regulations! Take notice of all safety and hazard notices on the machine!

All safety and hazard notices at or on the machine must be kept complete and legible!

### **Operating Manual**



### **Safety Advice**

If **safety-critical changes** occur to the machine or its working method, the machine must be **shut down immediately**! The cause of the fault must be established, and rectified.

**Changes,** add-ons or conversions to the machine, which might impair safety, must not be made, without **the manufacturer's permission!** 



This applies in particular to the fitting and adjustment of safety devices.

Spare parts must comply with the technical requirements specified by the manufacturer. This is always guaranteed if original spare parts are used.

**Intervals** for recurring **checks and inspections** specified in these Operating Instructions must be complied with!



To perform maintenance work correctly it is imperative to be equipped with the proper tools for the task in question.

The **location** and the operation of **fire extinguishers** must be made known on each work site!



Take note of the facilities for reporting of, and fighting fires!

### 2.3 Personnel selection and qualification

Fundamental duties:

Work on the machine may only be undertaken by **trained personnel**.

Only trained personnel may be employed. **Note the statutory minimum age!** Specify clearly the responsibilities of personnel for operation, setting up, servicing and maintenance work!

**Make sure** that only **authorised** personnel operate or work on the machine!



### Safety Advice

Define responsibilities of the machine operator, with regard to traffic safety regulations, and inform him not to take instructions from third parties who may not be complying with the local safety requirements!

Personnel who are being trained to operate equipment, may only use the machine under constant supervision of an experienced person!



Work on electrical equipment, may only be undertaken by a skilled electrician or by trained persons under the supervision of a skilled electrician, as well as in accordance with the local electrical engineering regulations.

### 2.4 Safety applicable precautions to operating some sequences

Do not allow any method of working that **impairs safety!** 

Recognised official procedures have to be used, to ensure the machine is operated in a safe, and best conditions.



Only operate the machine when all safety devices, and related safety equipment, are present and operational!

Check the machine visually for any damage and defects at least once a day!

In the event of operational malfunctions the machine must be shut down immediately and secured!



Secure the work area around the machine in public areas providing a **safety distance** of at least 2 m from the machine.

### **Operating Manual**



### **Safety Advice**

Faults must be immediately rectified!

Carry out the switch on, and switch off, operations in accordance with the operation manual!

Before switching on the machine make sure that no-one can be endangered when the machine starts up!

Do not switch off, or remove the exhaust, and or the ventilation devices whilst the machine is running!

All persons in the proximity of the machine, must wear ear protectors and safety shoes. In addition the machine operator, must wear close-fitting protective clothing.



Use only extension cables, that are used for extending the main cable, that are sized and marked in accordance with the overall power consumption of the machine and the valid VDE guidelines.



2.5 Special work within the scope of use of the equipment and maintenance activities as well as repairs during operation

### **Mechanical servicing work:**

Put the machine in the **Safety off position** as described in chapter 2.6 before carrying out any servicing work on the machine.



Follow any special **safety instructions** in the chapters on servicing the machine. **See chapter 7.1 - 7.9.** 

Adjustment, servicing and inspection work on the period of time limits, specified in these Operating Instructions as well as any information on the replacement of parts and equipment must be undertaken and/or complied with!

These activities may only be undertaken by **qualified personnel**.

### Safety Advice

The operator must to be given information about maintenance and work procedures, before starting the cleaning process!

**Procedures** that are related to normal operation. Methods of tools adjustment on the machine, and its safety devices, all "ON and **OFF**" functions that have to be carried out according to the operation manual, and methods for maintenance and repair.

If the equipment is switched off in order to carry out maintenance, repair, or adjustment it must be secured against unintended restart.

**Switch OFF and disconnect** it from the power supply.

See Chapter 2.6 Safety off position for specific details.

Always dispose the contends of the dust bin or of a connected dust collector before **loading** the machine onto a vehicle.

Observe the local waste disposal regulations, in uncertain situations ask the next higher authority.

Do not use any **aggressive** cleaning materials!

Use lint-free cleaning cloths!

Always make sure to tighten any screw connections that are loosened during servicing and maintenance work!

If safety devices need to be taken off or dismantled during service and repair, these safety devices must be reinstalled, and inspected immediately after completion of the servicing and repair work.

Make sure that process materials and replaced parts are disposed of safely and in an environmentally-friendly manner!



Work on electrical equipment, may only be undertaken by a skilled electrician or by trained persons under the supervision of a skilled electrician, as well as in accordance with the local electrical engineering regulations.

Make sure that electrical components used for replacement purposes comply with the original parts and are correctly adjusted if necessary.

### **Operating Manual**

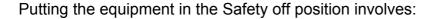


### **Safety Advice**

### 2.6 Definition of the Safety off position

### **Definition:**

The machine is in a safe condition where it cannot be of any hazard.



- ☑ Switch off the machine.
- **☑** Switch off the dust collector (if being used).
- ☑ Wait for all drives to stop.
- ✓ Pull out mains plug.
- ☑ Secure against unintended restart.

### 2.7 Particular dangerous aspects of the equipment

Any machine, if it is **not used according the regulations**, may be **hazardous** for operating, setting-up, and service personnel. The **operating authority** is responsible for **compliance with the safety regulations** during operation and maintenance, and for the use of safety **devices** supplied with the machine, as well as the provision of appropriate additional safety devices!





### **BLASTRAC** Operating Manual

**BMG500** 

### Safety Advice

### 2.8 Electrical engineering regulations



Work on electrical equipment, may only be undertaken by a skilled electrician or by trained persons under the supervision of a skilled electrician, as well as in accordance with the local electrical engineering regulations.



Use only extension cables, that are used for extending the main cable, that are sized and marked in accordance with the overall power consumption of the machine and the valid VDE guidelines.

The electrical equipment for the plant must be **inspected regularly**. Defects such as loose connections or scorched cables must be rectified immediately. Call a skilled electrician or our Customer Services.

A **second** person must be in attendance whilst the electrical engineer is working on the equipment.

The work area must be secured against any third party entering the work area, by means of a red and white safety chain and a danger sign. Use only tools that are insulated against electricity.

Only start work after you are familiar with the electrical engineering regulations that apply to the local area.

Only use voltage seekers that **comply with the regulations** when troubleshooting. From time to time check voltage seekers to ensure that they are operationally efficient.

# **Operating Manual**



### General

### **Contents Chapter 3**

- 3.1 Range of application
- 3.2 Scope of supply
- 3.3 Description of the machine
- 3.4 Operating elements
- 3.5 Electric components
- 3.6 Driving part
- 3.7 Tensioner
- 3.8 Small pulley
- 3.9 Pulley
- 3.10 Centre pulley
- 3.11 Diamond tipped cutting tool holder
- 3.12 Diamond discs
- 3.13 Care and maintenance



### General

### Range of application 3.1

Typical range of application of the BMG-500 are for example:

- To remove undulated concrete surfaces
- To prepare the surface for coatings
- To polish the surface
- To remove coating defects
- To remove residual mineral adhesives

### 3.2 Scope of supply

Scope of supply of the machine:

- $\sqrt{\phantom{a}}$ Grinding machine (BMG 500)
- $\sqrt{}$ Dust hose (Option)
- $\sqrt{}$ Operating manual 1 x



### 3.3 Description of the machine

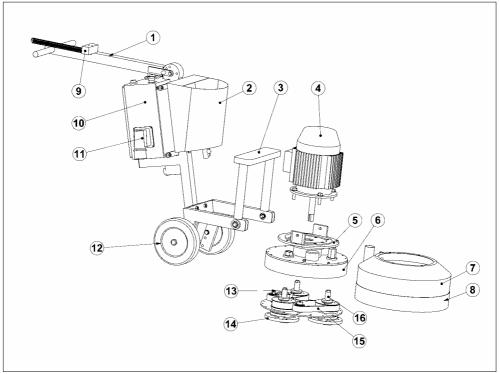


Fig. 3.1

1	Steering handle	7	Cover housing	13	Tensioner
2	Water tank	8	Dust control seal	14	Diamond tool holders
3	Weight	9	Safety switch	15	Belt
4	Motor 2,2 kW / 4 kW	10	Electrical power box	16	Pulley
5	Motor plate	11	Electrical inlet socket		
6	Housing	12	Wheels		

The Blastrac-Grinding machine BMG 500 can process an output width of 500 mm, and gives excellent performance due to its high economic efficiency and easy handling.

The machine is capable to levelling uneven and undulating floors, this process is suitable for an optimisation of surfaces prior to blast cleaning.

Alternatively the machine can be used to smooth floor surfaces as a preparation operation for coatings to be applied.

Depending on the application the diamond disc holder can be fitted with several different types of diamond-grinding discs.

The number of revolutions the tools run at are 1500 revs/min.

### 3.4 **Operating elements**

### Handgrip and Operating lever

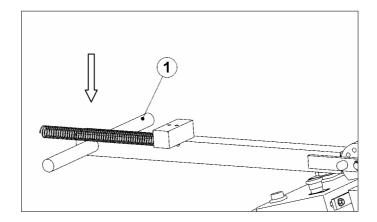


Fig. 3.2

Before Switching on the BMG-500, the front part of the grindingmachine must be lifted by pushing the handgrip (1) down to floor level till the machine is approximately 10cm from the ground.

### 3.5 Electric components

The control box is equipped with all control elements and instruments to monitor the grindingmachine.

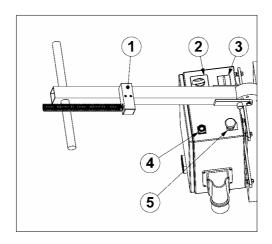


Fig. 3.3

- Safety switch
- Hour counter
- Emergency shutdown switch

- ON switch
- Stop button

### **Operating Manual**



General

### **ON Switch**

Switching the "ON" button to the left or right the driving motor will turn. Ensure that the machine work head is lifted before switching on.

### **Emergency shutdown switch**

Red mushroom-shaped press switch onto a yellow background. Pressing this switch immediately stops the power supply to all units of the machine, shut down switch requires re-setting after it has been used.

### Stop button

The stop button will shutdown the power supply, but it can be switched back on by means of the "on-switch" at any time.

### Safety switch

This switch is spring loaded; it will turn off the power supply if the operator looses his grip on the switch, by falling or loosing control of the machine.

### **Hour counter**

The hour counter on the power box shows the sum of the actual working hours performed by the machine.

The BMG 500E with the 2,2 kW motor has in stead of a stop button a on/off button and a speed control.

### On/Off button

The green button will turn the motor on. The red button will turn the motor off.

### Speed control

With the speed control you can control the speed, this is necessary for the different kind of work like heavy, medium or light duty work.

3



### 3.6 **Driving part**

The centre pulley will be driven by the motor axle. Between the driving pulley, and the driven pulley there is the main drive belt, this belt is maintained at optimum drive tension by means of a tensioner which maintains a pressure on the drive belt keeping it in tension. The housing turns automatically and will slow down by the magnets and because one of the three pulleys turns the opposite direction. By taken of the diamond tool holders and the under plate, the centre pulley can take off the motor axle and by screwing off the 4 bolts from the motor, the motor can be removed.

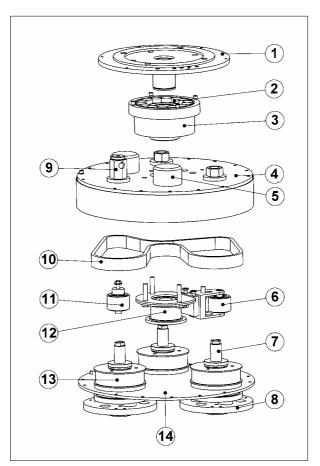


Fig. 3.4

1 Motor plate 6 Tensioner Small pulley 11 2 7 Magnets Pulley axle 12 Centre pulley 3 Central bearing house 8 Diamond tool holder 13 Pulley 4 Upper plate 9 Special nut 14 Under plate 5 Weight 10 Belt



### 3.7 Tensioner

The lower belt tensioner keeps the lower belt tight. By taking off the under plate the tensioner can be accessed.

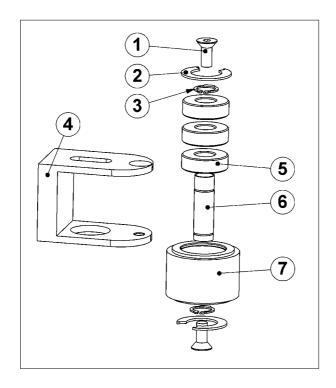


Fig. 3.5

- 1 Countersunk head screw
- 2 Retaining ring
- 3 Retaining ring
- 4 Tensioner

- 5 Bearing
- 6 Axle
- 7 Pulley

### 3.8 Small pulley

The small pulley is designed so one of the three pulleys can turn in the opposite direction.

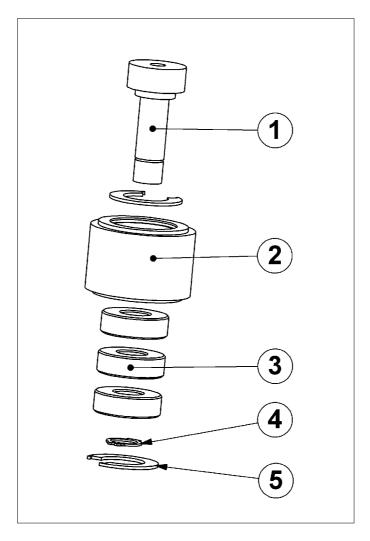


Fig. 3.6

- Axle 1
- 2 Pulley
- 3 Bearing

- Retaining ring 4
- 5 Retaining ring



### 3.9 Pulley

There are three pulleys in the machine. Under these pulleys the diamond discs are fixed. The pulley is driven by the driving pulley through a belt. The pulley is fixed on the lower housing with screws.

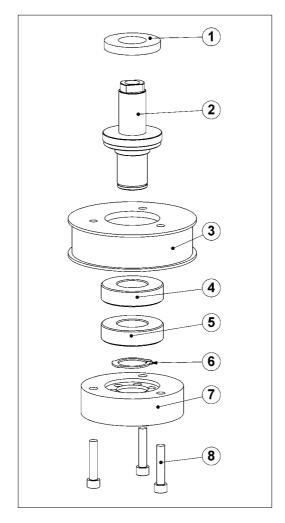


Fig. 3.7

- 1 Ring
- 2 Axle
- 3 Pulley
- 4 Bearing
- 5 Bearing
- 6 Retaining ring
- 7 Base plate
- 8 Head cap screw

### 3.10 Centre pulley

The axle of the motor goes through the motor plate and the central bearing house. On the underside of the axle sits the driving pulley which drives the three pulleys.

Between the motor plate and the central bearing house there are two bearings so the housing, where the pulleys montage in, can turn free. The magnets will slow down the speed of the housing.

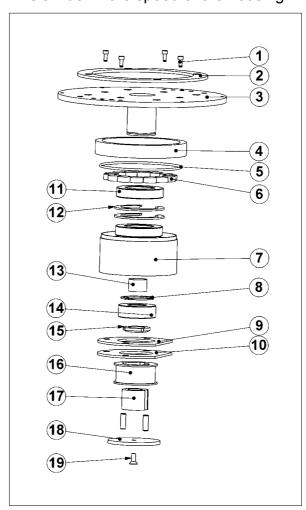


Fig. 3.8

1	Head cap screw	8	Retaining ring	15	Locking nut
2	Filling plate	9	Filling plate	16	Pulley
3	Motor plate	10	Cover plate	17	Taper bush
4	Seal	11	Bearing	18	Plate
5	O-ring	12	Retaining ring	19	Countersunk head screw
6	Magnets	13	Conical bush		
7	Central bearing house	14	Bearing		



### 3.11 Diamond tipped cutting tool holder

The diamond tool holder is connected under the pulley by three bolts. There are 3 soft buffers so the energy from the diamond disc will be softened. There are three magnets to attract any iron particles. The centering stars are in place to ensure that the diamond disc cutting tools will pass each other with working clearance. The cutting tools must be locked with the three screws on each plate.

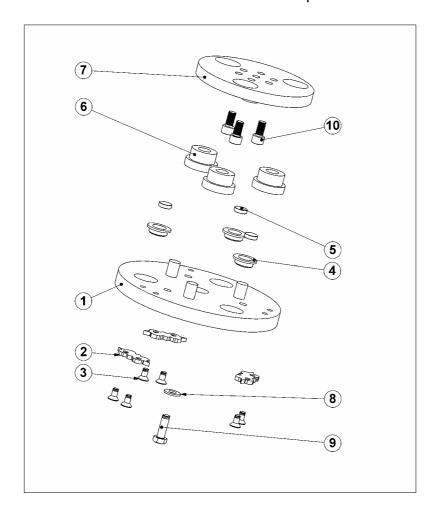


Fig. 3.12

- 1 Holder for tools
- 2 Centering star
- 3 Countersunk head screw
- 4 Magnet holder
- 5 Magnet
- 6 Soft buffer
- 7 Buffer plate
- 8 Washer
- 9 Hexagon nut
- 10 Cap head screw

### 3.12 Diamond discs

There are three types of discs that can be put under the diamond holders.

The three types are: Diamond tools

> Scrapers Holders

### **Diamond tools**

The diamond tools are designed for use on concrete floors. With these tools in use, the floor can be processed to achieve a smooth, and or polished surface finish.

### **Scrapers**

Scrapers can be used for removing epoxy, coating, and other floor coatings.

### **Holders**

Holders will also be used for removing epoxy, coating, and other floor coatings. Holders can be supplied with cutters.



For questions about the right set for the right treatment / floor, use the tool scheme or contact your distributor.

### Wheel position

For every tool, the wheels have a different position.



Diamond tools (upper hole)



Scrapers (middle hole)



Holders (lower hole)

# **Operating Manual**



# General

### **Tool scheme**

COLOR	BOND	GRIT SIZE	APPLICATIONS
Orange	Very hard	16/20 , 30/40	Concrete, quartz floors
Green	Very hard	16/20 , 20/25 , 30/40 , 80/100 , 180/200	Concrete, bitumen-terrazzo pump screed
Black	Hard	16/20 , 20/25 , 30/40 , 80/100 , 180/200	Concrete, bitumen-terrazzo pump screed, poured terrazzo
Red	Medium	6/8 , 16/20 , 20/25 , 30/40 , 80/100 , 180/200	Concrete, terrazzo, epoxy terrazzo, coating/paint/glue removal
Yellow	Medium	30/40 , 60	Terrazzo tiles, epoxy terrazzo, granite
Blue	Soft	20/25	Preparing concrete for coating, magnetite terrazzo
Silver	Soft	16/20	Preparing concrete for coating,
Epox +	Soft	Special	Coating/paint/glue removal
Brown	Very soft	16/20 , 20/25 , 30/40 , 80/100 , 180/200	Preparing concrete for coating,
White	Soft	80/100	Smoothening/scratch removal for concrete, terrazzo, granite
Gold	Soft	180/200	Smoothening/polishing for concrete, terrazzo, granite
Light-blue	Soft	325/400	Smoothening/polishing for concrete, terrazzo, granite

For part no. of the different kind of discs see chapter 10 "Spare parts".

3



### General

### 3.13 Care and maintenance



Special attendance and regular maintenance of the machine are imperative for functioning and safety.

Pay attention to unusual noises or strong vibrations. Check for the cause of every big change. Call a technician if you have doubts about the cause or when a repair without a technician seems not possible without damages.

Generally the grindingmachine BMG-500 requires very little special attention regarding its maintenance.

See to it that any wastes or fibre residues do not remain in the area of the grinding disc.

Dependent on the use of the machine the pulley should be checked about every 200 hours.

Before using the machine you should always check for the correct seat of all screws and connection points.

# **Operating Manual**



# **Transport**

### **Contents Chapter 4**

- 4.1 Unit specifications
- 4.2 Manual mode of moving the machine
- 4.3 Transport with cranes or lifts
- 4.4 Transport of the machine with vehicle
- 4.5 Operation of the machine while grinding



### **Transport**

### 4.1 Unit specifications

Model variant	BMG 500
Dimensions in mm	950 x 500 x 1250
Weight	180 kg

### 4.2 Manual mode of moving the machine

To move the machine press down the handgrips (1) see fig.4.1 of the machine until the front part rises approximately 10 cm from the ground.

It can now be pushed around on its wheels.

The machine can only be moved around after attachments are disconnected, such as.

- Generator, (if being employed)
- Dust collection unit, (optional extra)



### **Transport**

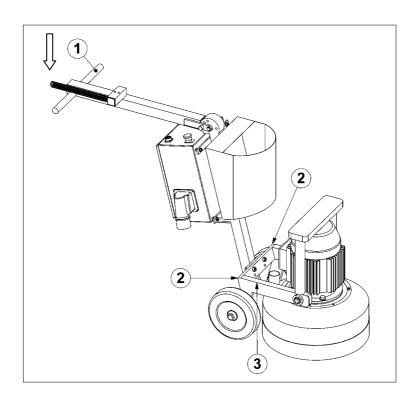


Fig. 4.1

# 4.3 Transport with cranes or lifts

If the machine is to be transported by the means of a crane or a fork lift truck, make sure that the lifting means is of sufficient capacity to lift the weight of the machine, this gross weight is shown in **chapter 4.1** "**Unit specifications**", and also shown on the shield-type bolted to the machine.

Fasten any lifting slings to the points (2) on the machine frame, these points are also suitable as a fixing point for fastenings, during transportation of the machine on a vehicle.



### **Transport**

### 4.4 Transport of the machine with vehicle



When transporting the machine in a vehicle drive in such a manner that damage due to the effects of the use of force or incorrect loading and unloading is avoided. Secure the machine with a tightening load strap over the lower frame (3). Use at least two straps, and tighten down with the load straps to the bodywork of the vehicle.

### 4.5 Operation of the machine while grinding

The machine will be operated while grinding in accordance with the instructions given in Chapter 5.2"Initial operation".



# **Operating Manual**



# Initial operation

## **Contents Chapter 5**

- 5.1 Preparation for initial operation
- 5.2 Initial operation

5



### **BLASTRAC** Operating Manual

**BMG500** 

### **Initial operation**

#### Preparation for initial operation



Before start-up the operating personnel must be familiar with the safety regulations given in this manual.



 $\overline{\mathbf{A}}$ Put the grinding machine and the filter unit on to the surface to be processed.

Fit the appropriate diamond grinding disc that is required  $\overline{\mathbf{A}}$ for this particular process. Please read chapter 7 "Maintenance" of this manual.

 $\square$ By using the correct cables, connect the machine and the dust collector to the electricity supply point, these electric supply points should be protected and equipped with a FIswitch. (Residual current operated device). In case of doubt ask the local safety officer.

Check the extension cable for external damages.  $\overline{\mathbf{Q}}$ 

 $\square$ Check the dust hose for damages

 $\mathbf{\Lambda}$ Connect the grindingmachine and the dust collector unit with the flexible dust hose. Use hose clamps at the connections.

 $\overline{\mathbf{A}}$ Make sure the dust bin of the dust collector unit is empty.



If problems with the current supply arise during the assembly or the start up, call a qualified person for help. Work on electrical equipment may only be undertaken by qualified personnel.



Any machine, if it is **not used according the regulations**, may be hazardous to the operating, setting-up and service personnel. The operating authority is responsible for compliance with the safety regulations during operation and maintenance of safety devices supplied with the machine as well as the provision of appropriate additional safety devices!



### **Initial operation**

#### 5.2 Initial operation

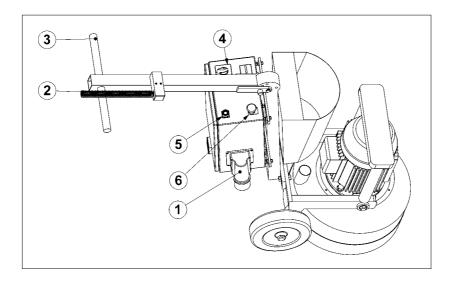


Fig. 5.1

The start up the machine by taking actions in the following sequence:

### 1 Switching on the grinding machine

- ☑ Connect the machine to the electrical inlet with an extension cable (CEE 16 Amp) (1).
- ☑ Put the safety cord on to your wrist (2).
- Press down both handgrips (3) until the front part rises approximately 10 cm from the ground :
- ☑ Turn the on-switch to the left or right (4).
- Now let down the grinding disc on the surface and begin the grinding work. Move the machine slowly forwards or reverse dependent on the grinding work. (See chapter 6).

#### 2 Switching off the grinding machine

- ☑ Press down the handgrips (3).
- $\square$  Push the off button on the power box (5).
- ☐ In case of emergency, push the emergency switch (6).



# Initial operation

Notes

# **Operating Manual**



# Operation

## **Contents Chapter 6**

- 6.1 Operation
- 6.2 Switching-off the machine
- 6.3 Trouble Shooting
- 6.4 Safety shutdown
- 6.5 Restarting after a fault
- 6.6 Proceedings- prior and after stationary period

### Operation

#### 6.1 Operation



The Operating Instructions are to be kept near the location where the machine is located and must be within reach at all times!

Only trained personnel may be employed. Note the statutory minimum age! Specify clearly the responsibilities of personnel for operation, setting up, servicing and maintenance work!

Make sure that only authorised personnel operate or work on the machine!



A regular inspection is necessary to prevent downtimes of your grindingmachine. See chapter 7 "Maintenance".

Pay attention to following aspects during operation of the Blastrac **Grinding machine BMG 500** 

Before beginning the grinding work, check daily for regular tightness of all fasteners, especially those of the driving and handling devices.

Before switching on, make sure that all protective housings are fitted and the dust collector unit is correctly connected.

Handle all plugs, cables, hoses and operating elements careful. Avoid the contact with live wire.

Before grinding, clean the surface to be treated with a broom. There should not be any trash like stones, cloths, or standing liquid on the surface.

Proud up stands, like concrete reinforcing steel or other objects, should be removed from the work surface to prevent damage to the machine seals, or to the diamond discs.



By using the dust collector unit observe the specially worker's protection rules, and also the local regulations regarding waste disposal.

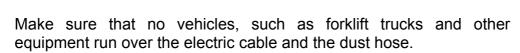


### **Operation**

The normal start up of the Blastrac grindingmachine BMG 500 in the daily operation does not differ from the described process in chapter 5.2 "Initial operation".

5.1

If there are doubts how to start up the machine, read chapter 5.1 and 5.2 of this operating manual.



### 6.2 Switching-off the machine

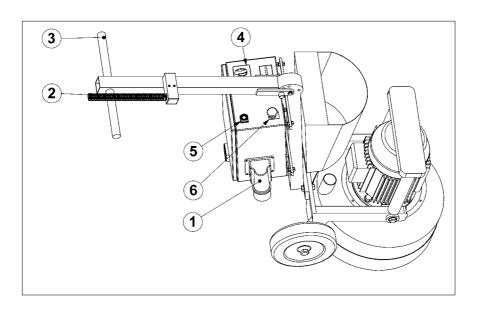


Fig. 6.1

 $\square$  Push the off button on the power box (5).





### **Operation**

#### 6.3 Trouble shutdown



In case of emergency or operating trouble, like vibrations or strong noises, switch the machine off immediately by hitting on the OFF-Emergency switch (6).

#### 6.4 Safety shutdown



The machine has to be into its "Safety off position" before starting repair works. See Chapter 2.6.



Before carrying out some inspection or maintenance works make sure that all turning machine parts are stopped. Observe the "Safety off position, chapter 2.6.

Irrespective of the information of chapter 7 about repair or maintenance works, the local safety regulations are valid in all cases regarding the operation of the machine.

#### 6.5 Restarting after a fault



Especially observe the regulations of the VBG 4 and also VDE 0701 regarding the necessary measures and measurement to be taken after repair works to the electrical devices. See also chapter 5.2 "Initial operation".

## **Operating Manual**



**Operation** 

### 6.6 Proceedings- prior and after stationary period

### 1 Before a long stand still period

If the **Blastrac** grindingmachine will be out of action during a long period observe following aspects:

- ☐ Clean the machine and cover it with a plastic foil.
- Protect the electric motors from moisture, heat, dust and shocks.

### 2 After a long stand still period

See Chapter 5 "Initial operation".



# Operation

Notes

# **Operating Manual**



### **Maintenance**

## **Contents Chapter 7**

- 7.1 Recommendations
- 7.2 Maintenance and inspection list
- 7.3 Repairing
- 7.4 Grinding disc replacement / assembly
- 7.5 Driving part
- 7.6 Pulley maintenance
- 7.7 Centre pulley maintenance
- 7.8 Other maintenance
- 7.9 Spare parts on stock
- 7.10 Influences on the grinding pattern

#### Recommendations



Prior to any repair works on the machine and its drives, secure the machine against unintentional switching-on. Put the machine to its safety off position. Chapter 2.6

Failures, due to inadequate or incorrect maintenance may generate very high repair costs and long stand still periods of the machine. **Regular** maintenance therefore is imperative.

Operational safety and service life of the machine depend, among other things, on proper maintenance.

The following table shows recommendations about time, inspection and maintenance for the normal use of the machine.

The time indications are based on uninterrupted operation. When the indicated number of working hours is not achieved during the corresponding period, the period can be extended. However a full overhaul must be carried out at least once a year.

Due to different working conditions it cannot be foreseen how frequently inspections for wear check's, inspection, maintenance and repair work should be carried out. Prepare a suitable inspection schedule considering known working conditions and experience.

Our specialists will be happy to assist with more advice.



Follow additional operating and maintenance of OEM if included during your service and maintenance work.

Pay attention to special notice, given by instructions for electric-motors or combustion engines.



# 7.2 Maintenance and inspection list

Operating hours/ time period	Inspection points, and maintenance instructions
12 h after repairing	Check all accessible screw connections for tightness.
Daily and prior to starting work	Check all safety devices are working correctly Check the power supply cable for damages. Check the hose to the dust collector, and or water tank for damage. Check whether or not, there are any foreign matter in the coupling of the grinding disc. Check the grinding disc and the coupling for wear. Check the countersunk head screw of the grinding disc for tightness. Check the tension of the V-belt, adjust as is required. Check the brush dust seal
Quarterly	Clean the machine with a damp cloth.
Annually	Full overhaul and cleaning of the complete machine. Replacement of the pulley parts. (about 200hours)

#### 7.3 Repairing



As previously mentioned in Chapter 5 "Initial operation" we recommend to execute the first repair works on the machine by having support of Blastrac personnel, by taking this advice, maintenance personnel gets the opportunity to be trained by an expert on the machine.

Only repair work that could occur within the bounds of regular operation of the machine, or work that is required to replace wear parts, will be described.

If parts are replaced by yourself for a specific reason, the following instructions and work sequence should be observed.



It would be advisable to stock all spare or wear parts that cannot be obtained quickly. As a rule, production standstill periods are more expensive than the cost for the corresponding spare part.

Screws that have been removed must be replaced with those of the same quality (strength, material) and design.



Prior to any repair works on the machine and its drives, secure the machine against unintentional switching-on. See chapter 2.6.

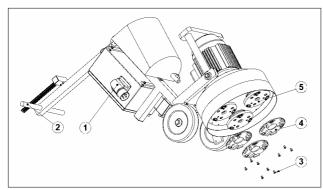


#### 7.4 Grinding disc replacement / assembly

Prior to any repair works on the machine and its drives, secure the machine against unintentional switching-on. Put the machine to its safety off position. Chapter 2.6

### Disassembly:

- 1 Make sure that the power supply is disconnect from the electrical inlet (1).
- 2 Tilt the machine to the back with the help of the handgrips (2) and lay it down on the chassis.
- 3 Unscrew the three countersunk head screws (3).
- 4 Remove the grinding disc downwards (4).



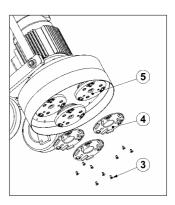


Fig. 7.1

### Assembly:

- 5 Clean the diamond holder thorough (5).
- 6 Adjust the grinding disc in the centring (4).
- 7 Set in and tighten the countersunk head screw (3).
- 8 Tilt the machine forwards.

When replacing the grinding disc, also check the condition of the drive pulley and the diamond tool holders.

Always replace any worn screws.





#### 7.5 **Driving part**

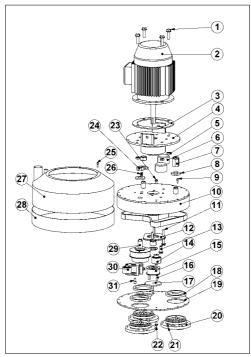


Fig. 7.2

#### Disassembly:

- Unscrew the bolts (25) so the cover (27) and the dust seal (28) can be taken off.
- Take of the diamond tool holders (20) and unscrew the bolt (21) so the under plate (19) can be removed.
- Take of the taper bush (16) and pulley (15).
- Unscrew the motor bolts (1) and remove the motor (2)
- Remove the fill ring (3) and the centre pulley (4)
- Unscrew the bolts and nuts (7) (9) (23) (24) (26) so the small pulley (14) and the pulleys (29)
- Unscrew the bolts (13) and (31) and remove the weight (6) and the tensioner (30)

**Assembly:** Assemble the parts in the reverse order that they have been disassembled.



### 7.6 Pulley maintenance

Prior to any repair works being carried out on the machine or its drives, secure the machine against unintentional switching-on. See chapter 2.6.



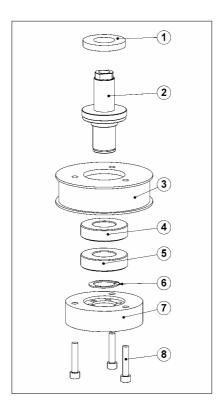


Fig. 7.3

### Disassembly:

- Unscrew the three bolts (8)
- Take of the base plate (7)
- Remove the retaining ring (6)
- Take of the pulley (3) and remove the bearings (4) & (5).

**Assembly:** Assemble the parts in the reverse order that they have been disassembled.



#### Centre pulley maintenance



Prior to any repair works being carried out on the machine or its drives, secure the machine against unintentional switching-on. See chapter 2.6.

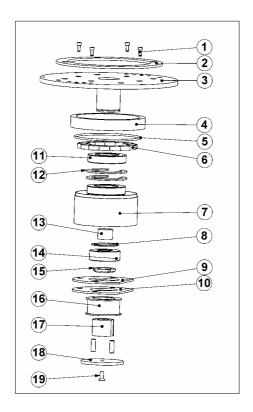


Fig. 7.4

#### Disassembly:

- Unscrew the countersunk head screw (19)
- Take off the plate (18) and remove the taper bush (17) and the pulley (16)
- Unscrew the lock nut (15) so the bearing (14) and the conical bush (13) can be removed.
- If the bush is removed, unscrew the bolts by the motor (not showed) and remove the motor.
- Unscrew the bolts (1) and remove the retaining ring (8)
- Take off the fill ring (2), the motor seat (3) and the seal (4)
- The magnets (6) are glued on the central bearing house (7).
- Remove the bearings (11) and retaining rings (12) out of the bearing house (7)

Assembly: Assemble the parts in the reverse order that they have been disassembled.

### **Operating Manual**



#### Maintenance

#### 7.8 Other maintenance's

Check the brush seals for wear, and replace them at the time when they no longer provide a good seal against dust emissions from the machine, by this action damage to the surrounding workspace is avoided, and consequently saves additional charges from the job client.

Clean the machine with a damp cloth.

Do not use high pressure water or compressed air for cleaning the machine!



Apply Oil to the adjusting pin of the operating lever, and other moving parts with clean oil can at regular intervals.

#### 7.9 Spare parts on stock

Blastrac recommend that having the following spare parts on stock will avoid long down times, awaiting spare parts.

Part No.	Description	Qty.
BG11806	Buffer soft	9
BG11811	Centring star	9
BG11803	Driving belt	1
See chapter 10	Diamond disc	>1

#### 7.10 Influences on the grinding pattern

The grinding pattern depends upon the surface being treated.

Depending on the required surface finish specified, the tools (Grinding discs), will have to be changed in order to produce the best result, compare the individual results of the tools.



Use the left-right switch of the machine every 100m<sup>2</sup>, (by this means changing the rotation of the work head), to get a longer lifetime of the diamond tools. They will wear down more equally.

In the last 2mm of the diamond tools there is a loose buffer material (no diamond inside), changing rotation avoids the problem where on one side of the disc there is 1-2 mm of the diamond left and on the other side the material is completely gone.

A check on the grinding pattern should always be made after new or other types of diamond tools have been fitted.

These simple actions will produce efficient work, and save unnecessary wear and repair costs.



# **Operating Manual**



## **Electrics**

## **Contents Chapter 8**

- 8.1 Directions for electrical engineering
- 8.2 Electric circuits diagrams / wiring 440V
- 8.3 Electric circuits diagrams / wiring 220V



#### **Electrics**

### 8.1 Directions for electrical engineering



Work on electrical equipment or operating materials may only be undertaken by a skilled electrician or by trained persons under the guidance and supervision of a skilled electrician as well as in accordance with the electrical engineering regulations.



Order the electric items with reference to the circuit diagrams in chapter 8.1 or call a Blastrac service centre.



Observe the regulations of the VBG 4 and also of the VDE0701. (Measurement after maintenance and repair works).





Operating Manual	BMG500
Electrics	
8.2 Electric circuits diagram / wiring 2	20V

# **Operating Manual**



# Fault diagnosis

## **Contents Chapter 9**

- 9.1 Fault diagnosis- grinding machine
- 9.2 Fault diagnosis electrical system



## **Fault diagnosis**

### 9.1 Fault diagnosis - grinding machine



Prior to any repair works on the machine or its drives the machine must be secured against unintentional switching-on. Put the machine to its Safety off position.

Fault	Possible cause	Remedy
Excessive vibration	Imbalance due to worn or broken grinding tools.	Replace all worn or broken parts
	Screws worked loose on the grinding disc	Tighten the counter- sunk head screws on the grinding disc.
Unusual noises	Defective bearing	Check the bearing on the axle drive shaft and replace if necessary.
	Wrong tension of the V-belt	Check the tension of the V-belt, replace the V-belt if necessary
	Defective motor bearing	Change the motor
	Debris deposit on the coupling	Clean the coupling
Reduced or no grinding performance	Grinding tools have reached the maximum permissible wear	Replace the worn parts
	Inappropriate grinding tool for the application	Replace the grinding tools with appropriate grinding tools for the surface to be treated
	Too low tension of the V-belt	Re-tension the V-belt

## **Operating Manual**



## **Fault diagnosis**

### 9.2 Fault diagnosis electrical-system

Work on electrical equipment or operating materials may only be undertaken by a **skilled electrician** or by trained persons under the guidance and supervision of a skilled electrician as well as in accordance with the electrical engineering regulations.



Prior to any repair works on the machine or its drives the machine must be secured against unintentional switching-on. Put the machine to its Safety off position.



Fault	Possible cause	Remedy
Motor does not switch on	Missed phase	Check the mains power supply and next switch on again
	Defective Component	Fault finding and replace defective component
Motor triggers while running	Motor protections switch triggered because of overload	Reduce additional load
	Motor have a defect	Check the motor



# Fault diagnosis

N.	-4
N	OTD C

# **Operating Manual**



# **Spare Parts**

## **Contents Chapter 10**

- 10.1 Spares Parts List BMG500
- 10.2 Diamond discs
- 10.3 Marbles
- 10.4 Dots
- 10.5 Wings



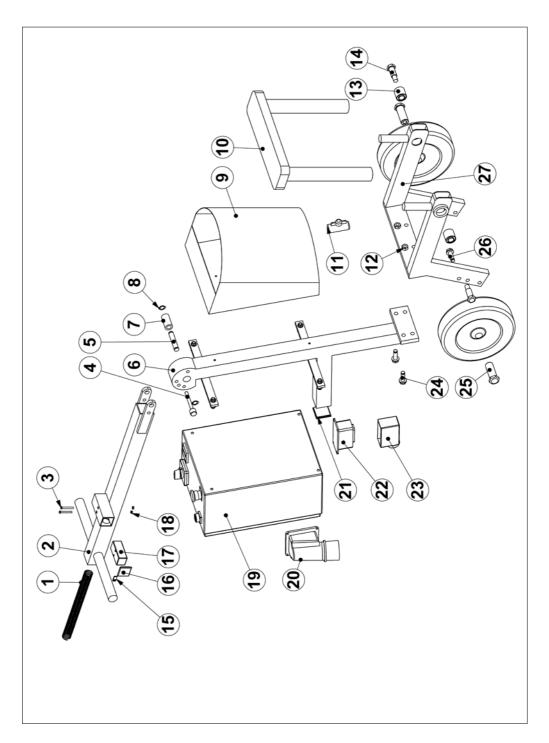


Fig. 10.1

# **Operating Manual**



002 - FRAME			
ITEM	PART-NO.	DESCRIPTION	QTY.
1	BG11758	CORD FOR SAFETY SWITCH	1
2	BG003004	STEER	1
3		SLOTTED CHEESE HEAD SCREW M5X35	2
4	BG11750	PIN	1
5	BG11854	PIN	1
6	BG003005	FRAME FOR ELECTRO BOX	1
7	BG11855	BUSH	1
8		RETAINING RING 15, DIN 471	2
9	BG11772	WATER TANK	1
10	BG003001	WEIGHT	1
11	BG11770	WATER TAP	1
12	_	M12 HEXAGON NUT	4
13	BG11846	HINGE BUSH	2
14	BG11752	HINGE BOLT	2
15	BG11759	KEY FOR SAFETY SWITCH	1
16	BG11844	CAP 40X40	1
17	BG11760	SWITCH	1
18		M5 HEXAGON NUT	2
19	BG003010	ELECTRO BOX 220V	1
	BG003009	ELECTRO BOX 3X380V	1
20	BG800730	ELECTRICAL INLET 220V	1
	BG800707	ELECTRICAL INLET 3X380V	1
21	BG11845	CAP 50X50	1
22	BG001507	CONNECTOR	1
23	BG001512	PLUG	1
24		HEXAGON HEAD BOLT M12X40 + M12 WASHER	4
25	BG11765	BOLT FOR WHEEL	2
26		HEXAGON HEAD BOLT M12X40 + M12 WASHER	2
27	BG003000	FRAME FOR WHEELS	1
28	BG11755	WHEEL	2



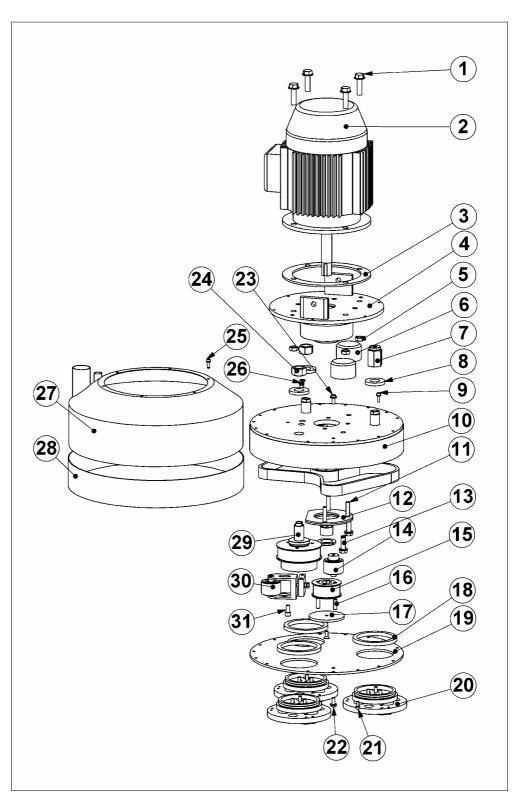


Fig. 10.2

# **Operating Manual**



# **Spare Parts**

003 – MACHINE			
ITEM	PART-NO.	DESCRIPTION	QTY.
1		HEXAGON HEAD BOLT M14X + WASHER M14	4
2	BG003010	MOTOR 2,2 KW	1
	BG003009	MOTOR 4 KW	1
3	BG003011	FILLING PLATE	1
4	BG003012	MOTOR PLATE	1
5		M14 HEXAGON NUT	4
6	BG003027	WEIGHT	2
7	BG003032	M24 SPECIAL NUT	1
8	BG003030	RING	3
9		HEXAGON SOCKET CAP HEAD SCREW M6X15 + M6 WASHER	18
10	BG003024 + BG003028	HOUSING DRIVE UNIT + TOPPLATE	1
11		HEXAGON HEAD BOLT M12X50 + M12 WASHER	3
12	BG003013	FILLING PLATE	1
13	BG003014	COVER PLATE	1
14		SMALL PULLEY	1
15		PULLEY	1
16	BG11789	TAPER BUSH	1
17	BG003021	PLATE	1
18	BG003022	FELT RING	3
19	BG003003	BOTTOM PLATE	1
20		DIAMOND DISC TOOL HOLDER	3
21		HEXAGON SOCKET CAP HEAD SCREW M6X15 + M6 WASHER	18
22		HEXAGON HEAD BOLT M8X25 + M8 WASHER	1
23		HEXAGON HEAD BOLT M8X25 + M8 WASHER	1
24	BG11796	M24 HEXAGON NUT	2
25		HEXAGON SOCKET HEAD CAP SCREW M6X25 + M6 WASHER	6
26		HEXAGON SOCKET COUNTER- SUNK HEAD SCREW M8X40	2
27	BG003023	PROTECTION CAP	1
28	BG11764	DUSTRING	1
	BG11803	BELT	1

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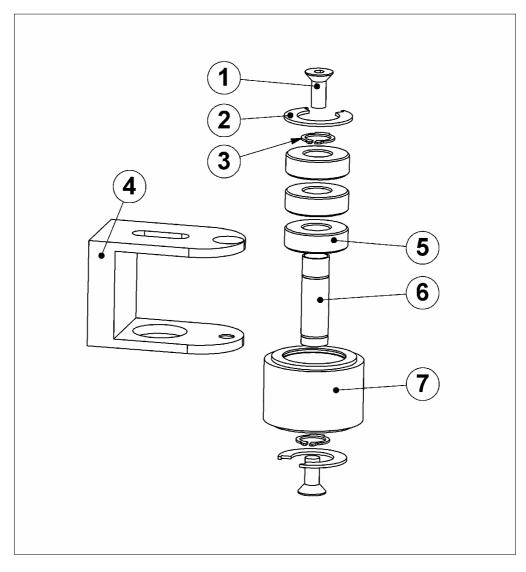


Fig. 10.3



# **Operating Manual**



004 - TENSIONER				
ITEM	PART-NO.	DESCRIPTION	QTY.	
1		HEXAGON SOCKET COUNTER- SUNK HEAD SCREW M8X25	2	
2		RETAINING RING 35, DIN 472	2	
3		RETAINING RING 15, DIN 471	2	
4	BG003016	HOLDER FOR TENSIONER	1	
5	BG11792	BEARING 6202-2RS	3	
6	BG003017	AXLE	1	
7	BG11791	PULLEY	1	



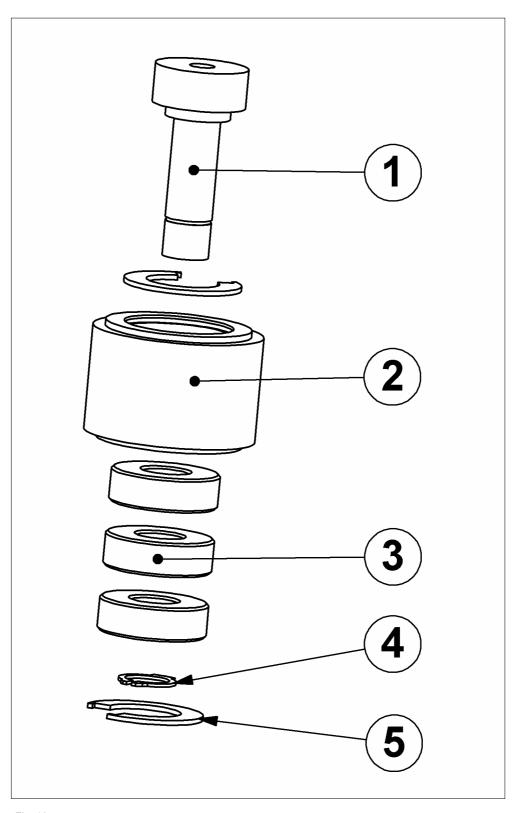




Fig. 10.4

### **BMG500**

## **Operating Manual**



004-2 - SMALL PULLEY			
ITEM	PART-NO.	DESCRIPTION	QTY.
1	BG003033	AXLE	1
2	BG11791	PULLEY	1
3	BG11792	BEARING 6202-2RS	3
4		RETAINING RING 15, DIN 471	1
5		RETAINING RING 35, DIN 472	2



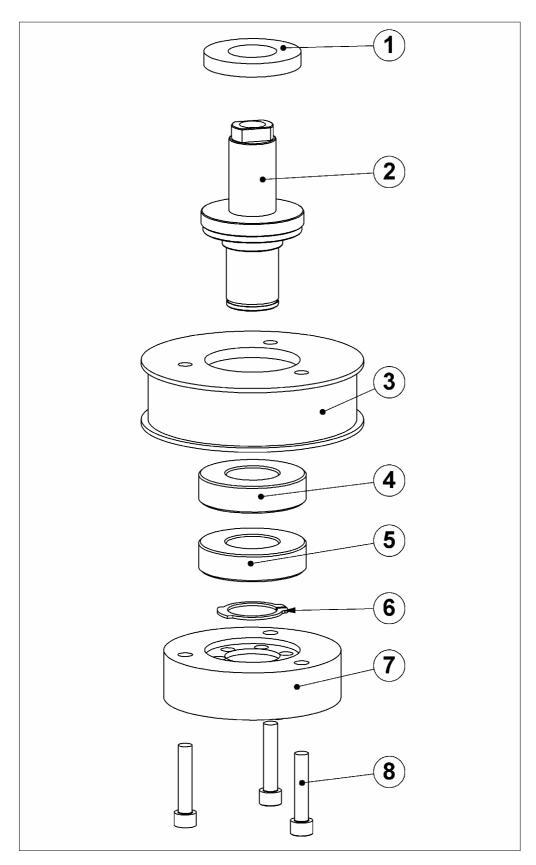




Fig. 10.5

### **BMG500**

## **Operating Manual**



005- PULLEY			
ITEM	PART-NO.	DESCRIPTION	QTY.
1	BG003030	RING	1
2	BG003031	AXLE	1
3	BG11798	PULLEY	1
4	BG11800	BEARING 6206 2RS	1
5	BG11800	BEARING 6206 2RS	1
6		RETAINING RING 30, DIN 471	1
7	BG003019	BASE PLATE	1
8		HEXAGON SOCKET CAP HEAD SCREW M8X40	3





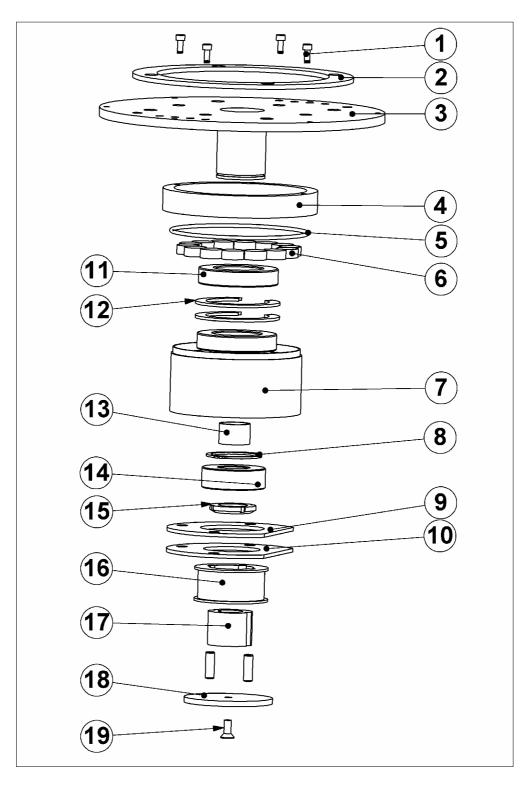


Fig. 10.6



006 – CENTRE PULLEY			
ITEM	PART-NO.	DESCRIPTION	QTY.
1		HEXAGON SOCKET CAP HEAD SCREW M8X40	1
2	BG003011	FILLING PLATE	1
3	BG003012	MOTOR PLATE	1
4	BG003034	SEAL	1
5	BG11983	O-RING	1
6	BG11785	MAGNETS	14
7	BG003015	CENTRAL BEARING HOUSE	1
8		RETAINING RING 55, DIN 471	1
9	BG003013	FILLING RING	1
10	BG003014	COVER PLATE	1
11	BG11786	BEARING 6011 2RS	2
12		RETAINING RING 90, DIN 472	2
13	BG11783	CONICAL BUSH (SAME AS NO. 15)	1
14	BG11788	BEARING 2207K	1
15	BG11783	LOCKING NUT	1
16	BG11790	PULLEY	1
17	BG11789	TAPER BUSH	1
18	BG003021	PLATE	1
19		HEXAGON SOCKET COUNTER- SUNK HEAD SCREW M8X20	1



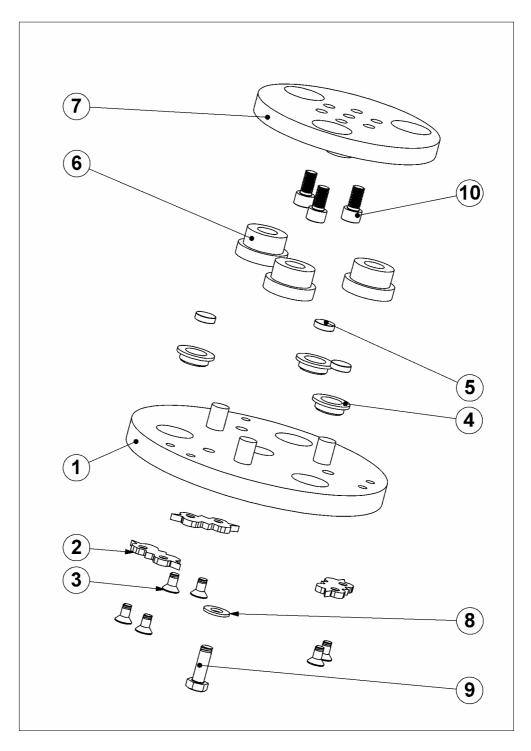


Fig. 10.7

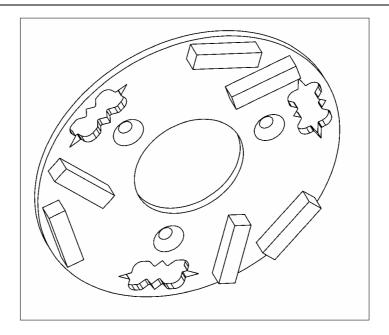


007 - DIAMOND HOLDER			
ITEM	PART-NO.	DESCRIPTION	QTY.
1	BG11809	TOOL HOLDER (COMPLETE)	1
2	BG11811	CENTRING STAR	3
3		HEXAGON SOCKET COUNTER- SUNK SCREW M6X10	6
4	BG11808	MAGNET HOLDER	3
5	BG11807	MAGNET	3
6	BG11806	BUFFER SOFT	3
7	BG11805	BUFFER PLATE	1
8		M8 WASHER	1
9		HEXAGON HEAD BOLT M8X25	1
10		HEXAGON SOCKET HEAD CAP SCREW M8X16	3





#### 10.2 Diamond discs



PART-NO.	DESCRIPTION
BG200111	Diamond disc orange C7
BG200112	Diamond disc black C4 Ø185
BG200113	Diamond disc red C1 Ø185
BG200114	Diamond disc silver Ø185
BG200115	Diamond disc yellow Ø185
BG200116	Diamond disc blue
BG200117	Diamond disc green
BG200135	Disc resin plastic black
BG200136	Ø185mm Resin concrete black 120
BG200141	Ø185mm Concrete white 80/100
BG200160	Ø185mm diam.disc gold 180/200
BG200161	Ø185mm Concrete brown F50
BG200211	Disc green MB1 Ø185mm
BG200212	Disc black MB2 Ø185mm
BG200213	Disc red MB3 Ø185mm
BG200214	Disc yellow MB4 Ø185mm
BG200312	Ø185mm GB1 purple
BG200313	Ø185mm GB2 orange
BG200314	Grinding disc for regrind fine
BG200501	Ø185mm Res.marble green hard 60
BG200502	Ø185mm Res.marble black hard 120
BG200503	Ø185mm Res.marble black soft 120
BG200504	Ø185mm Res.marble brown soft 220
BG200505	Ø185mm Res.marble red hard 400
BG200506	Ø185mm Res.marble red soft 400
BG200507	Ø185mm Res.marble yell.soft 800



### **Spare Parts**

D000500	C405 D 11 14 64500
BG200508	Ø185mm Res.marble wht.soft1500
BG200509	Ø185mm Res.marble blue soft3000
BG200700	Ø185mm Resin granite green 60
BG200701	Ø185mm Resin granite black 120
BG200702	Ø185mm Resin granite red 220
BG200703	Ø185mm Resin granite yell.400
BG200704	Ø185mm Resin granite orange 600
BG200705	Ø185mm Resin granite white 800
BG200706	Ø185mm Resin granite blue 1500
BG200707	Ø185mm Resin granite grey 3500
BG200950	185mm Plast.disc Resin granite
BG200961	Ø185mm Plast.disc resin marble
BG200963	Ø185mm Alum. disc Resin marble
BG200964	Ø185mm Alum. Disc Resin granite
BG200966	Alu. Backplate Ø185mm Resin granite
BG201100	Dry polish wheel green 185
BG201102	Dry polish wheel yellow 185
BG201104	Dry polish wheel orange 185
BG201105	Dry polish wheel blue 185
BG300118	Holder Ø185mm, 50mm.TCstarwhl.
BG300137	Ø185mm Glueremovalheels TC+holders+axle TC
BG300138	Ø185mm Widiapointedflails TC+holders+axle TC
BG300505	Ø185mm Holders single axle
BG400201	Ø185mm.Holder plate
BG400211	Slicer for BMG-580 Ø185mm
BG400301	Flexible head disc Ø185
BG600121	Ø185mm Concrete E lightblue C71 6W
BG600122	Ø185mm Concrete E lightblue C71 6S
BG600123	Ø185mm Concrete E lightblue
BG600128	Diamond disc orange #16/18
BG600129	Ø185mm C7 Concrete orange #20/25
BG600130	Ø185mm C1 Concrete red #16/18
BG600131	Ø185mm C1 Concrete red #20/25
BG600132	Ø185mm C4 Concrete black # 16/18
BG600133	Ø185mm C4 Concrete black # 20/25
BG600134	Ø185mm C5 Concrete green # 16/20
BG600135	Ø185mm C5 Concrete green # 20/25
BG600136	Ø185mm C4 Concrete black # 80/100
BG600137	Ø185mm C4 Concrete black # 180/200
BG600138	Ø185mm C5 Concr.green#80/100
BG600139	Ø185mm C5 Concrete green # 180/200
BG600140	Set concrete red #80/100
BG600141	000 00000000000000000000000000000000000
DG000141	Set concrete red # 180/200

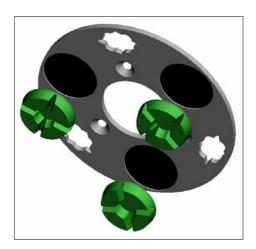
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**BMG500** 

### **Spare Parts**

#### 10.3 Marbles

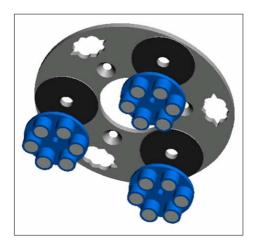


PART-NO.	DESCRIPTION
BG200900	RESINDOT GRANITE GREEN 60
BG200901	RESINDOT GRANITE BLACK #120
BG200902	RESINDOT GRANITE RED #200
BG200903	RESINDOT GRANITE YELLOW 400
BG200904	RESINDOT GRANITE ORANGE 600
BG200905	RESINDOT GRANITE WHITE 800
BG200906	RESINDOT GRANITE BLUE 1500
BG200907	RESINDOT GRANITE GREY 3500
BG200908	RESINDOT 60H
BG200909	RESINDOT GRANITE GREEN #60
BG200964	ALU BACKPLATE Ø185 MM GRANITE



### **Spare Parts**

### 10.4 Dots

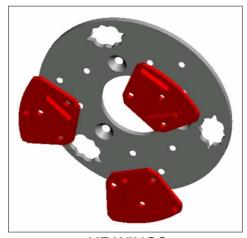


PART-NO.	DESCRIPTION
BG200982	DRY POLISH DOT BLACK # 120
BG200983	DRY POLISH DOT BLUE #220
BG200984	DRY POLISH DOT RED # 400
BG200985	DRY POLISH DOT WHITE # 800
BG200986	DRY POLISH DOT YELLOW # 1500
BG200987	DRY POLISH DOT GREEN # 3000
BG200989	DRY POLISH DOT HOLDER 185MM

### 10.5 Wings







HF WINGS (CA WINGS)

PART-NO.	DESCRIPTION
BG500500	WING CA1
BG500502	HTC WINGS C1 GREY
BG500503	HTC WINGS C2 ORANGE
BG500507	WING CP2
BG500508	WING CP3
BG500509	WING CP4
BG500512	WING CP0
BG500513	WING CP1
BG500550	HF WING #1
BG500551	HF WING #2
BG500552	HF WING #3
BG500554	WING EHF2
BG200994	PLATE FOR WINGS 185MM





**PCD WINGS** 

BG200998	PCD WING ½
BG200999	PCD WING 2x 1/4

# BMG500 Operating Manual

