THE INNOVATORS IN SURFACE PREPARATION

BLASTRAC

Original Instructions

OPERATING INSTRUCTIONS BMG-444

VERSION 1.0

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Inspection comments

Inspection before initial operation on: _____

By: _____

Date of initial operation: _____

Serial number & Year of manufacture: _____ _____

Recurring inspections / maintenance log

Date / Hour counter	Findings	Repairs / Cleaning	Test on	By*

*Competent person

Table of contents

1. Introduction

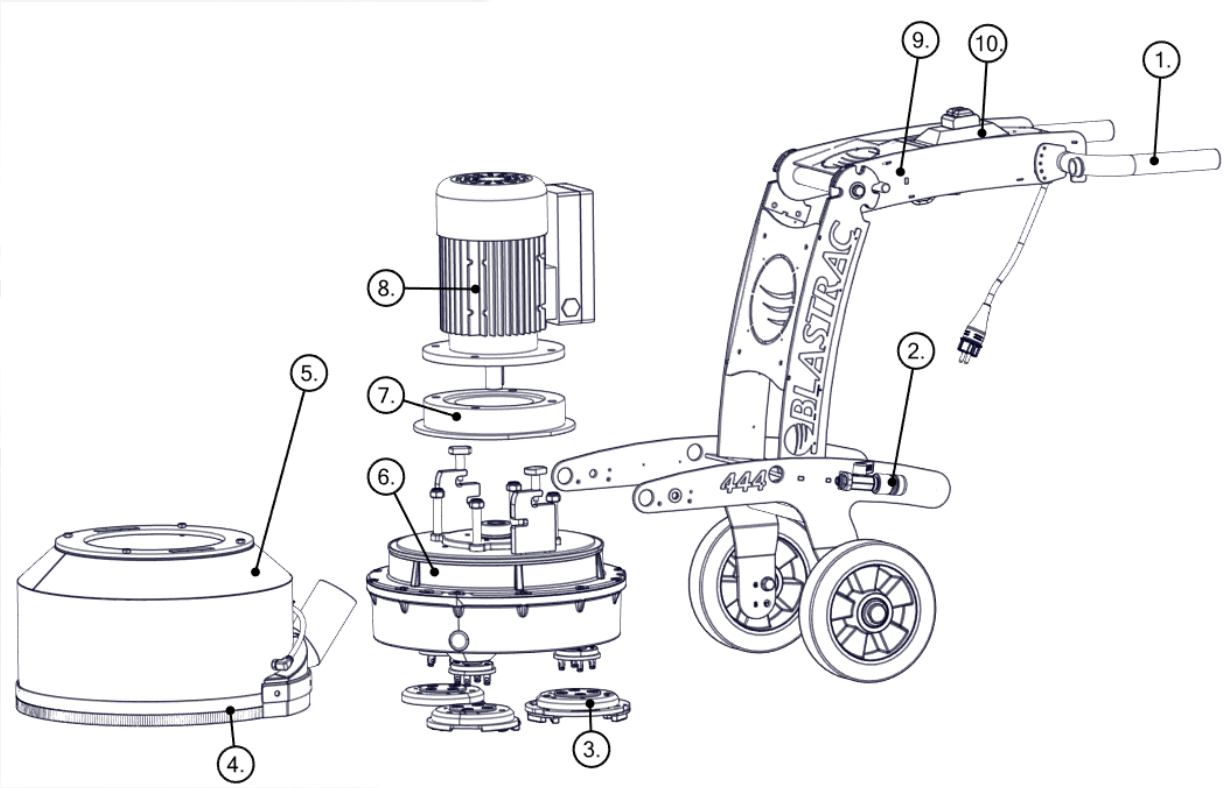
Before use, operators must be provided with information, instruction and training for the use of the machine and the substances for which it is to be used, including the safe method of removal and disposal of the material collected. All persons who are working with or maintaining this machine must read the manual carefully and understand it fully. In case you sell the unit, hand it on to the next owner.
Keep this manual always with the machine, to enable it to be referred to at any time.
Any other work not covered by this operating manual must not be carried out. Always use common sense when working with machines.

This machine is designed for industrial use by professionals. Only authorized and trained personnel may operate this machine. This machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge. Blastrac BV offers a course on the use of the machine in order to make the operating and maintenance personnel familiar with all elements of the machine.

2. Machine description

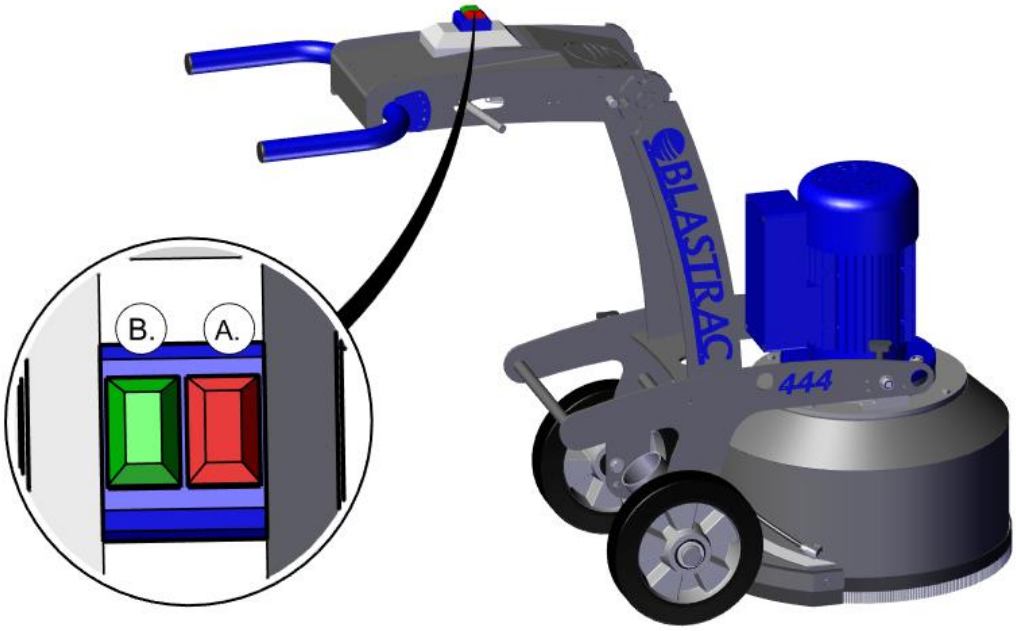
The BMG-444 is an electrical driven planetary grinding machine. This is a three headed machine for levelling, grinding and polishing of floors. The 3 planetary rotating discs are ⌀ 155 mm. It can be used for dry and wet applications.
The BMG-444 can be used on almost any floor to plane, to make ready for coatings, or to remove coatings or glue residues or to expose aggregate. The machine may not be used without an adequate dust extraction system. A specially designed Blastrac dust collection system ensures dust-free operation of the machine and clean air at the workspace. This machine may not be used on wood.

1	Steering handle	6	Drive mechanism
2	Water hose connection	7	Fill up block
3	Diamond plate holders	8	Motor
4	Brush for floating shroud	9	Main Handle
5	Floating shroud	10	Switch box

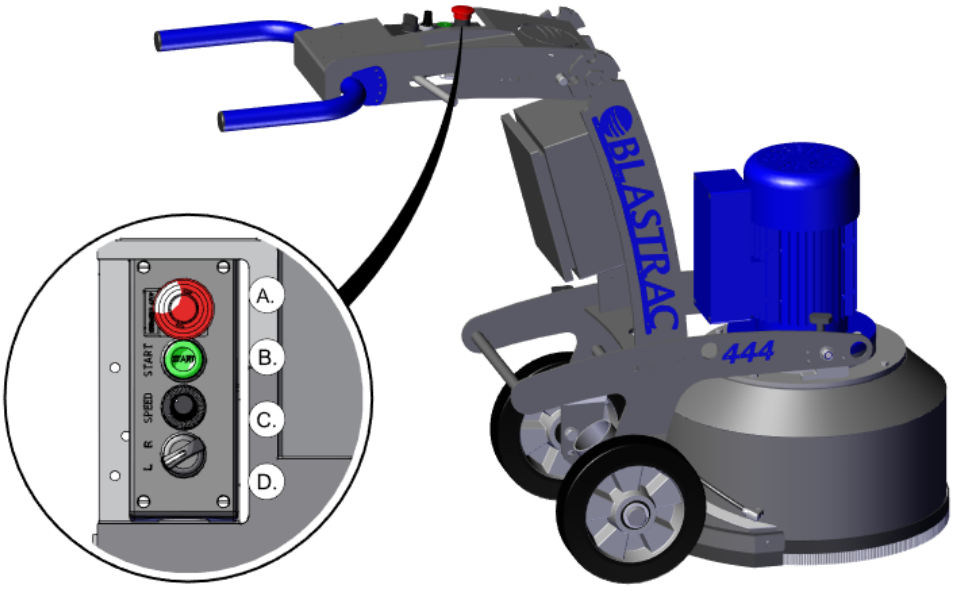


Control box

BMG-444
Standard version



BMG-444
Speed Control version (SC)



A	Stop button (RED)
B	Start button (GREEN)
C	Speed regulator
D	Switch for clockwise and counter clock wise grinding

3. Safety Rules

Warning!
Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire, explosions and / or serious injuries.

Only authorized and trained personnel may operate this machine. This machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge.

It is the responsibility of the user to analyse the surface to be treated. The surface may not contain any substances which could pose a fire-, explosion- or health risk when treated. The user should make a risk assessment on the basis of the information obtained about the surface to be treated and take proper precautions for the work to be performed.
In case of any inappropriate usage, improper operation or repair, the producer shall be exempt from liability.

3.1 Work area safety

a) Do not use the machine in rain, damp or wet locations.
b) Avoid dangerous environments: do not work in the presence of explosive atmospheres, in the presence of flammable liquids, gases or dust. Remove materials or debris that may be ignited by sparks.
c) In some cases sparks could be created by grinding.
d) **The surface to be treated must be swept, make sure to remove all stones, screws etc..**
Any stones, screws, bolts, pieces of wire etc. could cause serious damage if it gets inside the machine!
e) Make sure there is enough ambient light on the work area. Cluttered or dark areas invite accidents.
f) **Do not use on wood.**
g) Keep children and bystanders away while operating the machine. They are likely not to foresee the potential dangers of the machine. Distractions could cause you to lose control of the machine.
h) Persons who are not operating the machine must not be permitted to stay in the surrounding area of at least 5 meter from the machine.
i) Never use the machine when the surface is not clear and if there is a risk of stumbling or tripping.
j) Make sure that there are no cables or hoses in the driving direction of the machine.
k) Make sure that there is nothing standing or situated on the surface to be treated.
l) Make sure the machine can travel over all inequalities on the surface, small inequalities like weld seams or floor joints are no barriers for the machine.
m) **Never stay in the rain with the machine**
n) Check if there are any obstacles that can snag the cables when the machine is moving.
o) Remove reinforcing steel or other objects protruding from the surface in order to prevent damage to the compounds or diamond discs.
p) Secure the work area around the machine in public areas providing an adequate safety distance from the machine. Use a red and white safety chain and danger sign to enclose the work area.
q) **Warning!**
Make sure that the surface to be treated does not contain dangerous materials such as:
- combustible or explosive dusts or substances.
- carcinogenic or pathogenic substances.
In these cases, additional safety measures should be used. Always mind the local safety requirements. Contact your dealer for additional options.

3.2 Electrical safety

a) Use only extension cables for extending the main cable that are sized and marked in accordance with the overall power consumption of the machine. Do not use damaged extension cables.
b) Electrical cables must be rolled entirely off of the reels.
c) Any damage to the electric cables and/or electrical components is not permitted.
d) The voltage on the identification plate must comply with the power supply.
e) Use an electrical power supply connection with earth connection and earth leakage circuit breaker.
f) The circuit breaker of the power supply must have a ‘’D’’ characteristic. Circuit breakers with a “C” or “B” characteristic can give problems when switching the motor on.
g) **Keep the machine original; The machine is always equipped with an earthed connection, do not change this** and always use earthed cables with an earthed plug.
h) Inspect and test the electrical components regularly. The electrical components have to satisfy with the requirements set out in the harmonised norm EN60204-1.

i) Always call a skilled electrician or your distributor when you have questions about the safety of the electrical components.
j) 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.
k) Always use tools that are insulated against voltages.
l) Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the machine. Keep cord away from heat, oil, sharp edges or moving parts. Damaged or entangled cords increase the risk of electric shock.
m) Be careful with water on the treated surface. Electrical cables must not come into contact with water.
n) During a long standstill of the machine, pull out the main plug and cover it with plastic foil.
o) If the machine is to be operated using power from a generator, the generator must be operated in accordance with the current legal regulations and directives in force. (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.

3.3 Personal safety

a) Always wear Personal Protective Equipment while working with the machine.
-Dust mask class FFP3 or higher
-Ear protection
-Safety glasses with lateral protection
-Protecting gloves
-Safety shoes
b) Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.
c) Stay alert, watch what you are doing and use common sense when operating the machine.
d) Always seek professional medical attention immediately in case of injury.
e) All persons surrounding the machine should wear Personal Protective Equipment.

3.4 Machine safety general

a) Safety functions and operating functions must work correct.
b) No loose bolts and nuts permitted.
c) Never operate machine without the guards and/or safety devices in place.
d) Never change anything on the safety devices on the machine!
e) The machine, specially the handle grips must be free of fats/oils and has to be dry.
f) If the length of the brushes is, due to wear, less than 5mm or they are extremely deformed, the brushes have to be replaced. Check the Service Manual for the order numbers.
g) All repair work has to be done by qualified Blastrac personnel, this guarantees a safe and reliable machine.
h) **Always use original Blastrac spare parts, grinding discs, grinding wings and polishing pads.** This will ensure the best performance. Only original parts meet the factory specifications and quality. Otherwise Blastrac BV cannot guarantee the safety of the machine.
The part numbers can be found in the Service Manual.
i) 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.
j) In the event of **operational malfunctions** the machine must be **shut down immediately** and secured!
k) Do not use the unit when it is damaged.
l) Do not **open** or **remove protective guards** while driving gears are running.
m) Do not stand on the machine. Do not add extra weight on the machine.
n) Do not place anything on the grinding motor. Make sure that the motor has enough airflow to cool.

3.5 Maintenance safety

a) Pull out the main plug before starting inspections and repairing on the machine. Press the Emergency shutdown button.
b) Wait for standstill of all drives before any inspections, adjustments and/or maintenance work is started.
c) Block the machine in stable position before doing any maintenance work.
d) Failures due to inadequate or incorrect maintenance may generate very **high repair costs** and long standstill periods of the machine. **Regular** maintenance therefore is imperative.
e) Operational safety and service life of the machine depends, among other things, on proper maintenance.
f) Prevent premature wear by keeping the machine as dust free as possible. Clean the machine for this reason regularly with a dust collector and non-aggressive materials, especially the upper drive. Never use a high pressure water cleaner to clean the machine.

g) It is advisable to stock all spare parts or wear parts that cannot be supplied quickly. As a rule, production standstill periods are more expensive than the cost for the corresponding spare part.
h) Do not use any **aggressive** cleaning materials! Use lint-free **cleaning cloths**!
i) For the electrical parts, use a tool that is insulated against voltages.
j) The suitable precautions include decontamination before disassembling the machine, adequate filtered ventilation of the exhaust air from the room in which it is disassembled, cleaning of the maintenance area and suitable personal protection equipment.

3.6 Dust collector safety

a) Always use a Blastrac dust cleaner to ensure a dust-free operation of the machine and clean air at the workspace. Also the airflow helps to cool the machine and prevents overheating.
b) Read the operating instructions of the dust collector before using it.
c) The dust container/bag of the dustcollector must be emptied regularly. Comply with the local waste treatment regulations considering the removed material.
d) The dust hose must be connected properly with a hose clamp and industrial tape.
e) The dust hose must be undamaged and free of obstructions.
f) Always switch on the dust collector first!

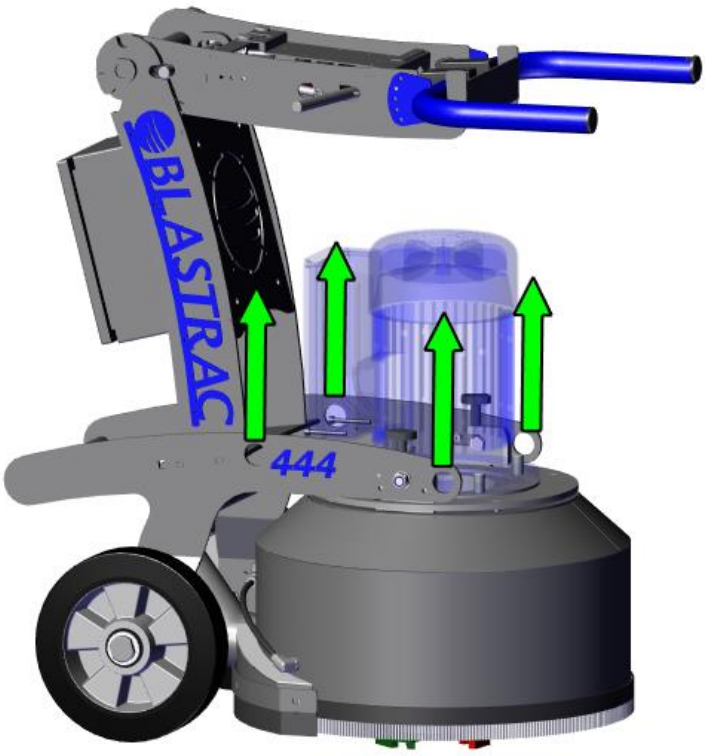
3.7 Grinding safety

a) The machine contains rotating parts, which are protected with a sliding cover. Always leave the diamond disc on the floor while the motor is turning.
b) The rubbers inside the flex disc can become worn out with use, because of this there can be higher vibrations than normal. Check for this reason the rubbers inside the flex disc for deformation and damage before every use.
c) Do not let the machine rest on the diamond disc or coupling when it is not in use, this will cause deformation to the rubbers inside the flex disc.
d) Make sure the brush seals are in good condition, this to avoid dust.
e) Make sure the diamond disc is not damaged or worn out.
f) Always pull out the main plug before u start changing the wings or disks.
g) When mounting or removing a diamond disc or wing; lay down the machine so it is lying on the metal support. Make sure the machine will not fall back down. A second person can hold the handle down to make sure it will not fall back down.
h) For changing the disks/wings u should wear Personal Protective Equipment like a dust mask, safety goggles, gloves, protective shoes, and close fitting protective clothing.
Use the vacuum cleaner to prevent excessive dust.
i) **Caution!** The grinding disks/ wings will heat up during grinding, don't risk getting burned, always wear protective gloves when handling them.
j) The machine contains rotating parts; because of this never pull the machine backwards with a turning motor.
k) Be careful with the machine and pull or let down the machine slowly, big shocks can damage the electrical parts.
l) Make sure the floating shroud is in transport mode when you transport the machine.
m) Clean the brush-sealing directly after wet grinding. It will be very hard to clean the brush-sealing when the dust-water mixture has dried up and hardened.
n) **Be careful**, the workfloor can get slippery when grinding wet.
o) Keep all electrical cables and connections away from water.

3.8 Transport safety

a) Be aware of your surroundings and machine operating level. Do not side hill, do not run on steep incline, this could cause machine to tip over.
b) The weight of the BMG-444 is between 120 and 128 kg, depending on the version. Use a crane or lift when transporting the machine, use the lifting eyes of the machine.
c) Before every use check the lifting eyes/lugs and welds for: deformation, damages, cracks, corrosion and wear.
d) Only lift the machine as shown in the picture below.
e) When lifting the machine from the ground, always use the lowest lifting speed. The cables must first be tensioned at this speed; they must not be slack when the machine is lifted from the ground.

f) During hoisting make sure to be at a safe distance from the machine with the most optimal view on the machine and working environment.
g) Never stand directly below the machine.
h) When transporting the machine do so in such a manner that damage due to the effects of the use of force or incorrect loading and unloading is avoided.
i) The lifting eyes can also be used to fasten the machine on a pallet or during transport.
j) Always drive backwards when driving up to a ramp or grade, and forwards when driving of the ramp.
k) Chock wheels for transport and keep control handle in neutral position.
l) Don't leave the machine unsecured on jobsites.
m) Park the machine always on a flat horizontal and levelled surface.
n) Make sure the floating shroud is in transport mode when you transport the machine.
o) Make sure the electrical cable and dust hose are disconnected.
p) Store the cleaned and dry machine in a humid free room. Protect the electrical motor from moisture, heat dust and shocks.
q) Never use the machine for lifting or transporting persons or items.
- It is not allowed to lift the machine without appropriate appliances as a lift or crane.
- Make sure the floating shroud is in transport mode when you transport the machine.

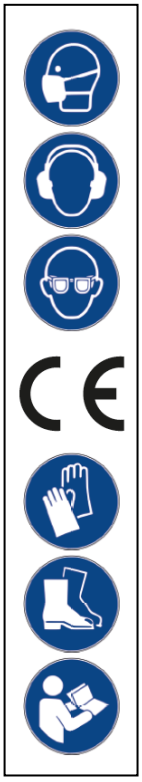


3.9 Signs on the machine

The following stickers are placed on the machine. Meanings of these symbols are:

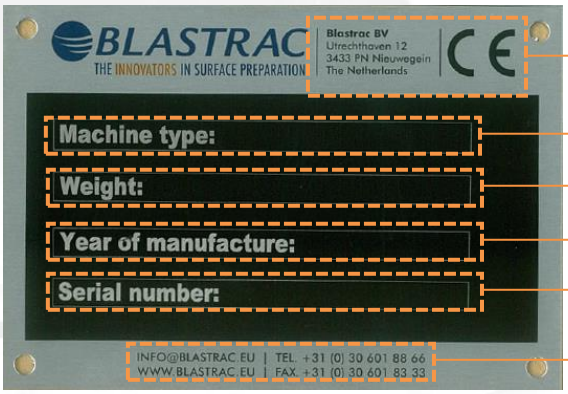
! Danger Hazardous voltage in motor even when solid state controller is OFF. Disconnect main power before servicing motor, controller or associated wiring.

Warning! Hot surface.



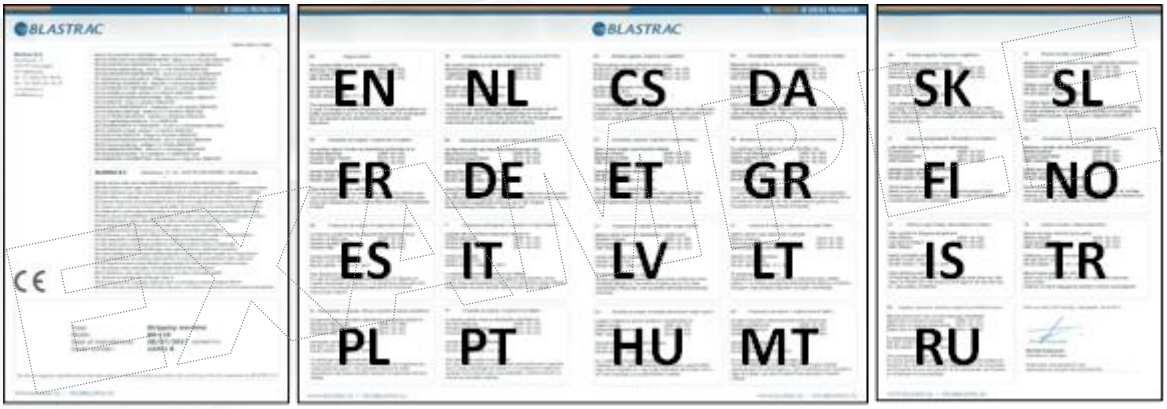
Wear a dust mask class FFP3 or higher.
Hearing protection is obliged.
Safety glasses with lateral protection are obliged.
CE-mark on this machine.
Wear protecting gloves.
Safety shoes obliged.
Consult the manual before operating the machine.

Type plate:



Name, address and CE mark.
The machine type.
The net weight of the machine in kilogram.
The year of manufacture.
The serial number of the machine.
Email address, Website, Telephone & fax number.

EU Declaration of Conformity:



4. Initial operation

Before using the machine it is important to inspect the machine.
It is not permitted to use the machine if the safety is not checked according to the checkpoints described below.
Before switching on the machine make sure that no-one can be endangered when the machine starts up!

4.1 Checkpoints of electrical safety

- Use only extension cables for extending the main cable that are sized and marked in accordance with the overall power consumption of the machine.
- Electrical cables must be fully unwound of them reels.
- No damage is permitted for electrical cables.
- Use an electrical power supply connection with earth connecting.
- The main switch of the machine should be put to 'Off' before connecting to the power supply. (Only if there is a main switch present on the electrobox.)
- Make sure the power supply is in accordance with the machine specifications.
- If the machine is to be operated using power from a generator, the generator must be operated in accordance with the current legal regulations and directives in force. (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.

4.2 Checkpoints of machine safety

- Safety functions and operating functions must work correct.
- Check the diamond wings for damages and/or wear.
- The rubbers inside the flex disc should not be deformed or damaged.
- The tools you are about to use under the machine (discs/wings/pads/etc.)may not be damaged.
- Check all screws and other fasteners for tightness. No loose bolts and/or nuts are permitted.
- Check the electrical components, cables and connections for wear and/or damages.
- Dust hose connection must be reliable: use hose clamps and industrial tape.
- Dust hoses must be undamaged and free of obstructions
- Make sure that the dust bin/ big bag and Longopac is empty and connected properly.

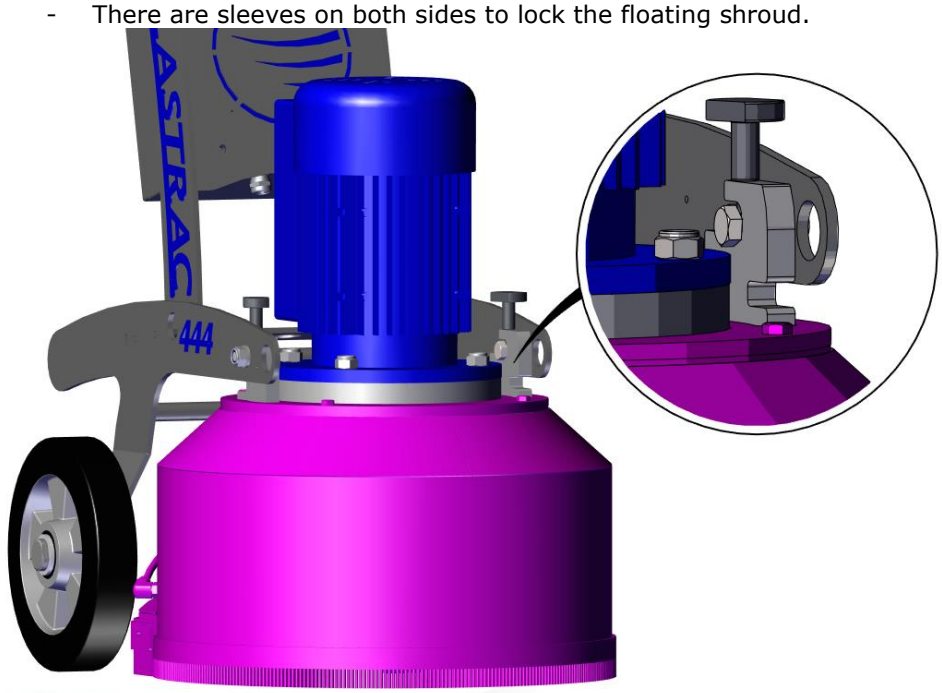
4.3 Manual moving of the machine

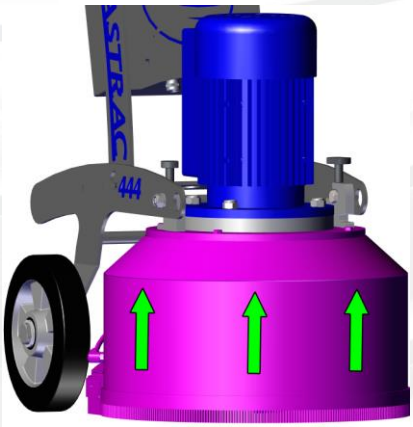
To move the machine, first lock the floating shroud. After locking the floating shroud, press down the handgrips of the machine until the front part rises from the ground. It can now be pushed around on its wheels.
The machine should only be moved around when the dust hose and power supply cable are disconnected.

WARNING! Always make sure all rotating parts have come to a complete standstill before moving around the machine.
Be careful! Make sure nobodies feet get under the wheels. Wear appropriate safety shoes when you drive the machine to or from the work area.

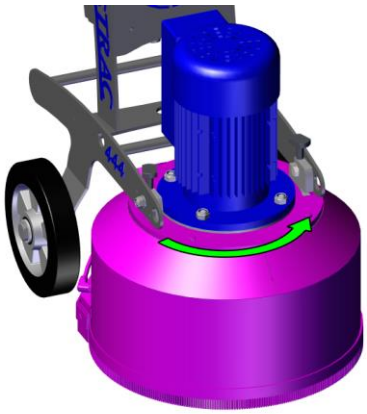
Locking the floating shroud for transporting the BMG 444.

- There are sleeves on both sides to lock the floating shroud.



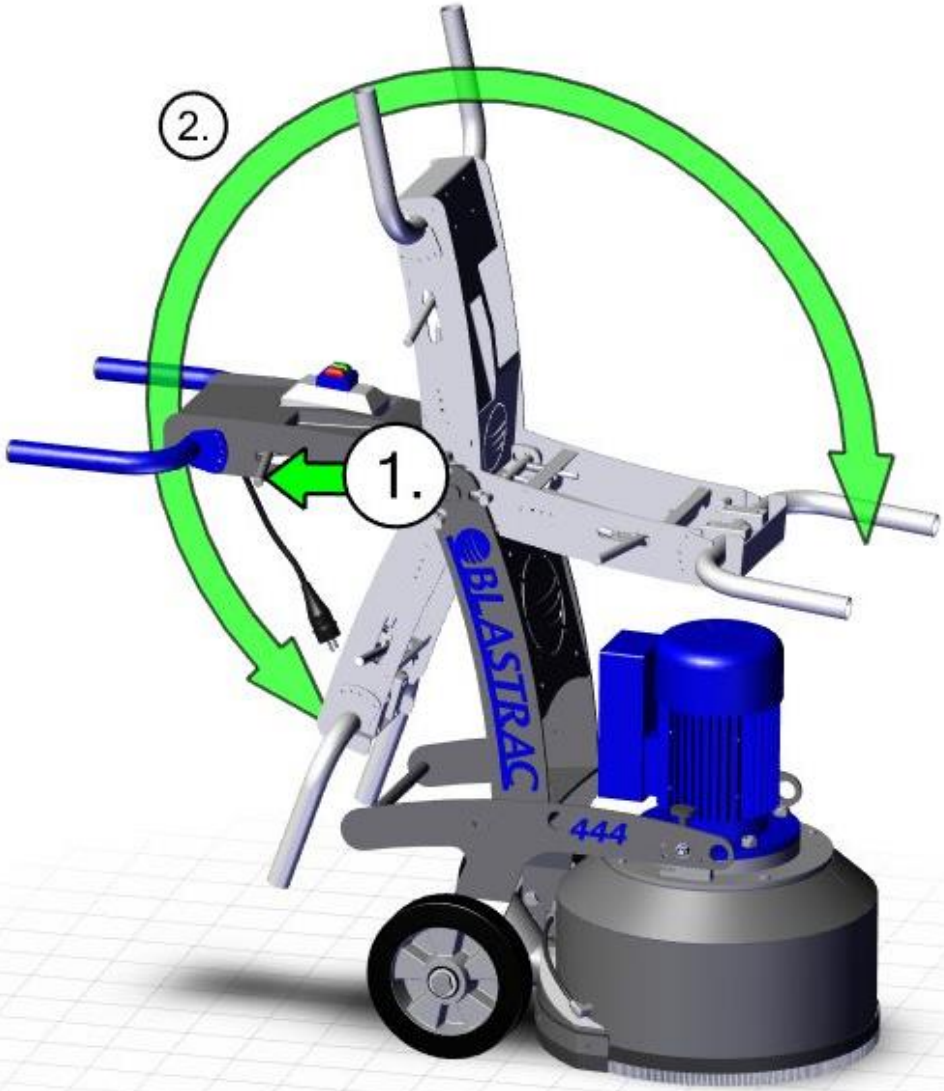


Step 1. Lift up the floating shroud.

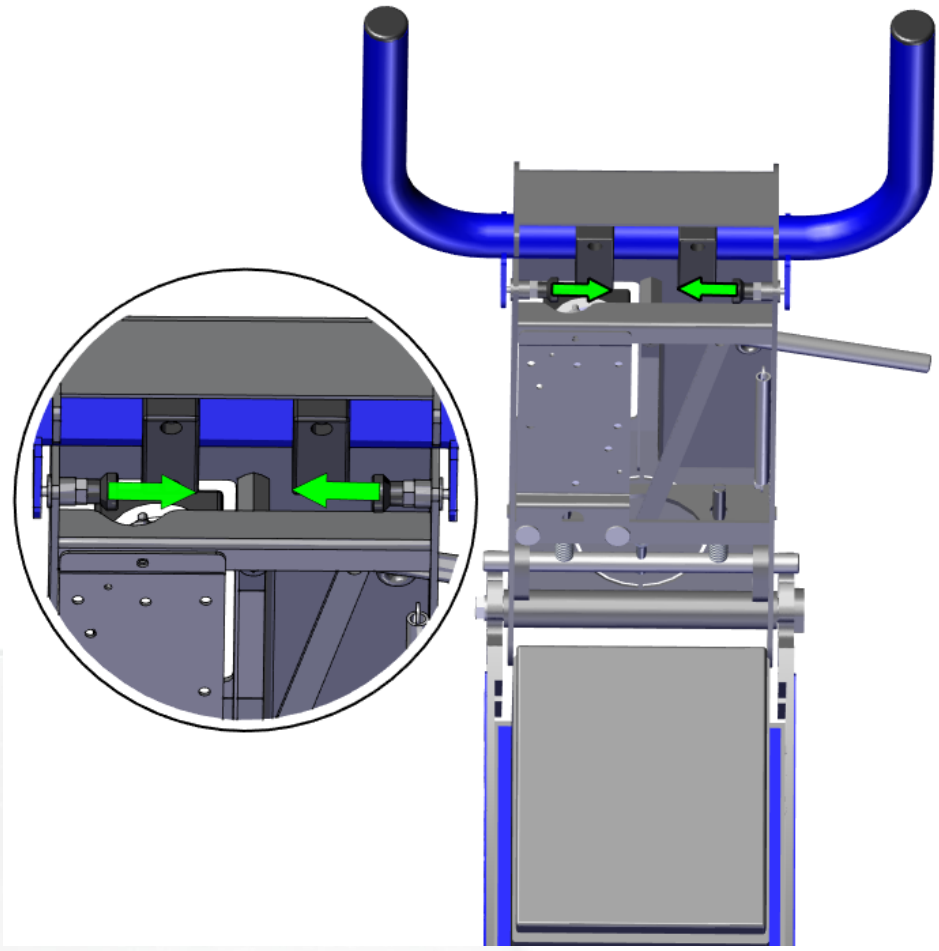


Step 2. Turn the floating shroud counterclock wise. And it will slide in the sleeves. Now the floating shroud is locked. To unlock the floating shroud, Procede the process backwards.

4.4 Adjust the steering height



Adjust the steering handle



4.5 DIAMAG Grinding tools

The Diamag Slidemag system does not require any tools to insert or remove the grinding wings from the adapter plates. Diamag grinding tools are designed to be mounted on all our triple disc grinders. Fast inserting and removing of the diamond tools has never been so easy. There is a safety lock with an interlocking system and a magnet, it is easy to insert the tool into its seat so that you are ready to grind!

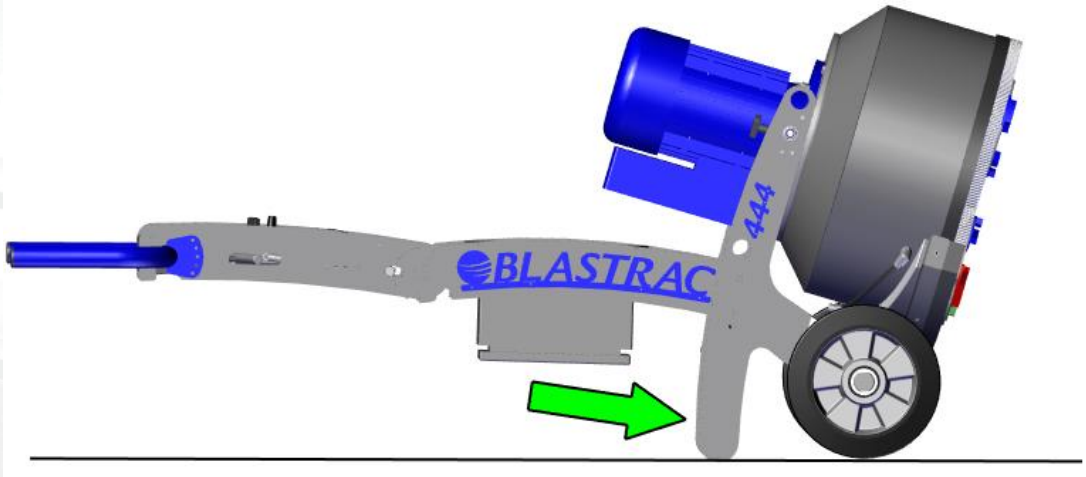
Contact your Blastrac distributor for more information or check **WWW.DIAMAG.EU**

Changing the wings

Warning! **Always wear Personal Protective Equipment!**
The dust can be hazardous to the health! Wear a dustmask!
The wings can get hot! Don't risk burning your hands! Wear protective gloves!

- Pull out the mains plug before you start
- Always wear gloves and a **dust mask** of at least **class FFP3**
- Use the vacuum cleaner in order to work as dust free as possible

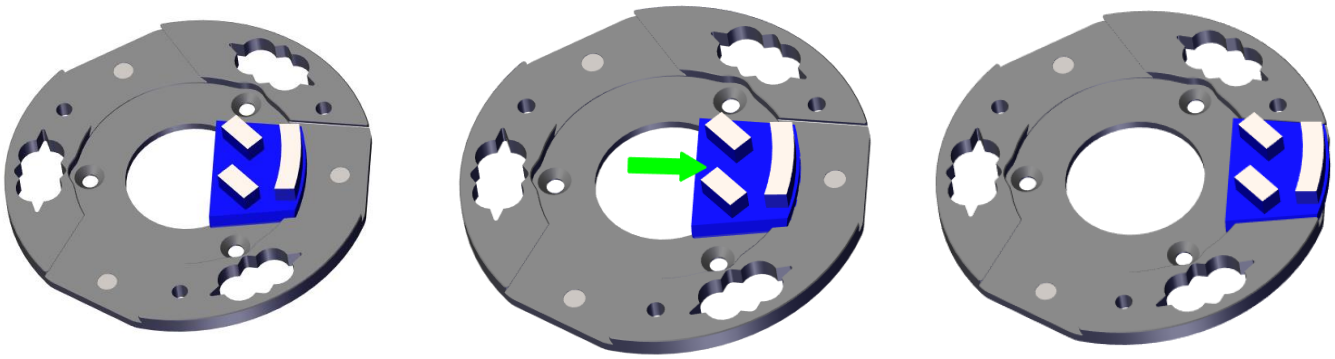
Make sure all moving parts of the machine have come to a complete standstill before changing the wings.



Tilt the machine back and lay down the machine so it is laying on the metal support(Green arrow). Make sure the machine will not fall back down. A second person can hold the handle down to make sure the machine will not fall back down.

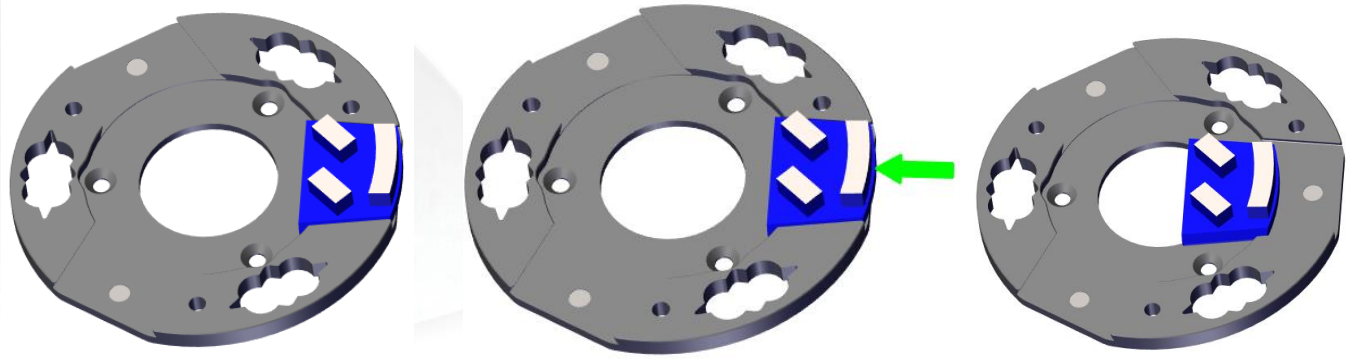
Mounting the slide wings

- Read chapter 3 **Safety Rules** and wear personal protective equipment.
- Make sure the machine is disconnected from the power supply.
- Lay down the machine so it is lying on the metal support. Make sure the machine will not fall back down. A second person can hold the handle down, to make sure the machine will not fall back down.
- Slide the slide wings in to the adapter slide plate.



Removing the slide wings

- Read chapter 3 **Safety Rules** and wear personal protective equipment.
- Make sure the machine is disconnected from the power supply.
- Lay down the machine so it is lying on the metal support. Make sure the machine will not fall back down. A second person can hold the handle down, to make sure the machine will not fall back down.



4.6 Hardness graph and colour code

Blastrac has designed a full range of diamond products, which provides the opportunity to treat any floor and specific application. The identification of the correct diamond tool is fundamental in the grinding process, in order to **optimize efficiency, speed and intervention costs.**

A simple rule is that a hard surface needs a soft bond segment and a soft surface requires a hard bond segment, to optimize an efficient wear of the diamond tool.

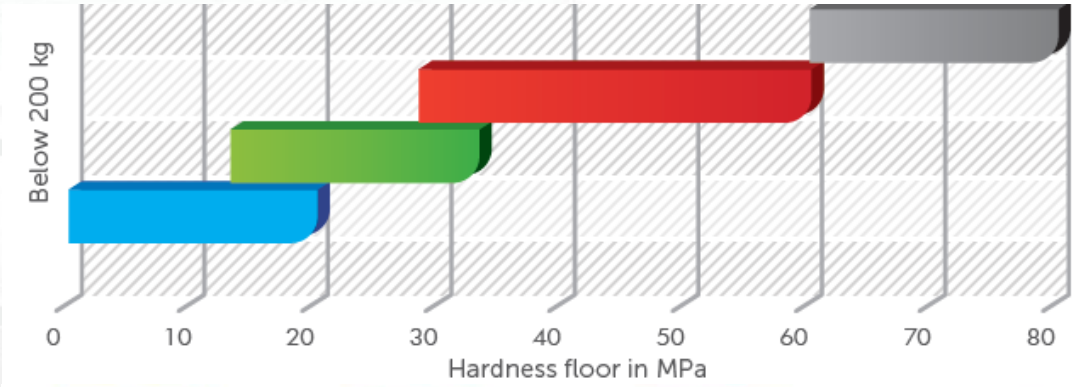
STEP 1	STEP 2	STEP 3	STEP 4
WHAT TYPE OF FLOOR The concrete test hammer or sclerometer is used to measure the hardness of the floor.	REFER TO HARDNESS CHART The value is given in MegaPascal (MPa). With this measurement, you can then select the ideal tool for your job.	CHOOSE THE RIGHT TOOL Depending on the hardness of your floor, select the best tool for the job from a wide range of diamond tools.	START GRINDING Blastrac machines are easy to operate. Just plug and grind!

Hardness graph

Concrete hardness varies according to several factors: the mixture, the aggregates and the time spent since the pouring. To determine concrete hardness, you can use a sclerometer (to measure floor hardness) or carry out a scratch resistance test (MoHs scale). Once you know the hardness of your floor, you can select the correct tools.

Colour code

Blastrac has created a unique colour code system specially designed so you know which tool to use , depending on the hardness of the surface.



BLUE
Hard bond segments **for soft floors**

GREEN
Medium bond segments **for universal floors**

RED
Soft bond segments **for hard floors**

BLACK
Universal bond segments **for very hard floors**

GOLD
Polycrystalline diamond (PCD) **for the removal of flexible materials**

Contact our experts at Blastrac for the correct application of the different tools and their corresponding working speeds.

4.7 Before start-up

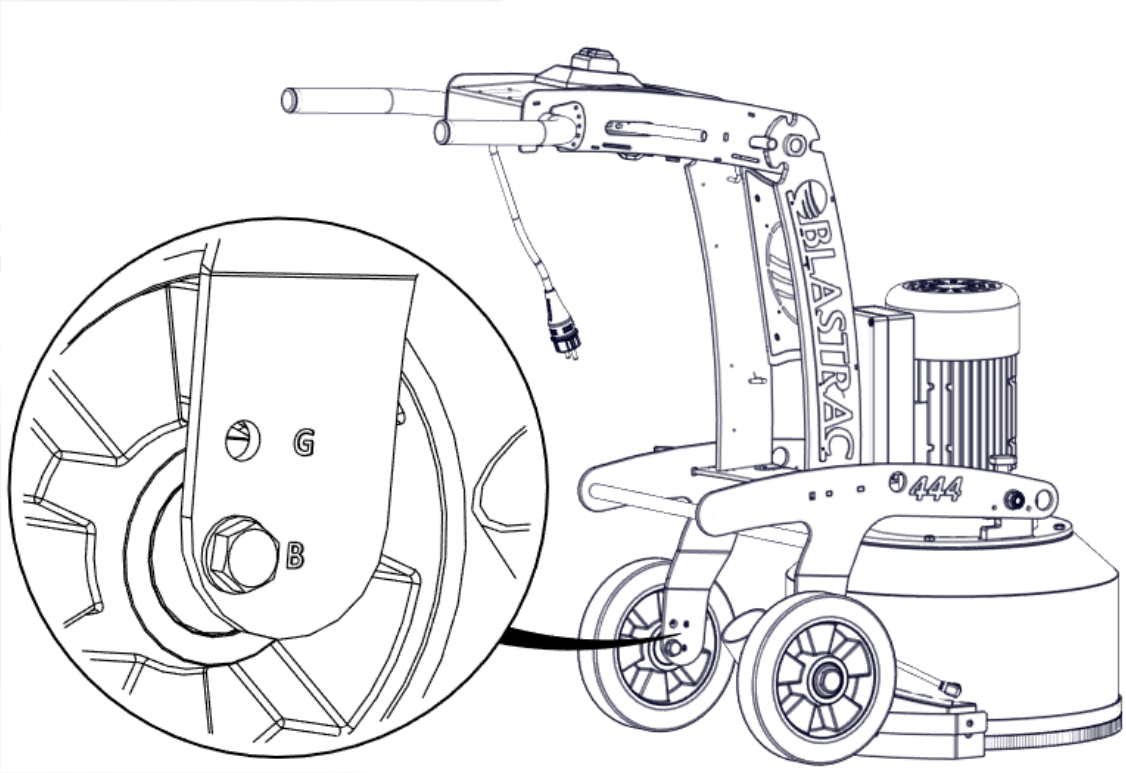
Before start-up, the operating personnel must be familiar with the safety regulations given in this manual.

- Put the grinding machine and the dust collector on to the surface to be processed.
- Fit the appropriate diamond grinding wings that are required for this particular process. Please read **Chapter 4.6** of this manual.
- Connect the machine and the dust collector to the electricity supply point, these electric supply points should be protected and equipped with an earth connection and earth leakage circuit breaker. In case of doubt ask the local safety officer.
- Check the dust hose for damages and obstructions. Make sure the dust bin of the dust collector unit is empty. Observe the local regulations regarding waste disposal.
- Connect the grinding machine and the dust collector unit with the flexible dust hose. Use hose clamps at the connections.
- Before grinding, clean the surface to be treated. There should not be any trash, stones, cloths, or oil on the surface.
- Remove all objects from the surface that can damage the machine. Remove reinforcing steel or other objects protruding from the surface in order to prevent damage to the machine, the seals or diamond wings.

4.8 Wheel height

The wheels of the BMG-444 can be set at different heights for different applications.
On the frame there are marks to indicate for what application the hole is used.

- "G" for Grinding & Polishing pads (upper holes).
- "B" for Bush hammering. (lower holes).



5. Operating

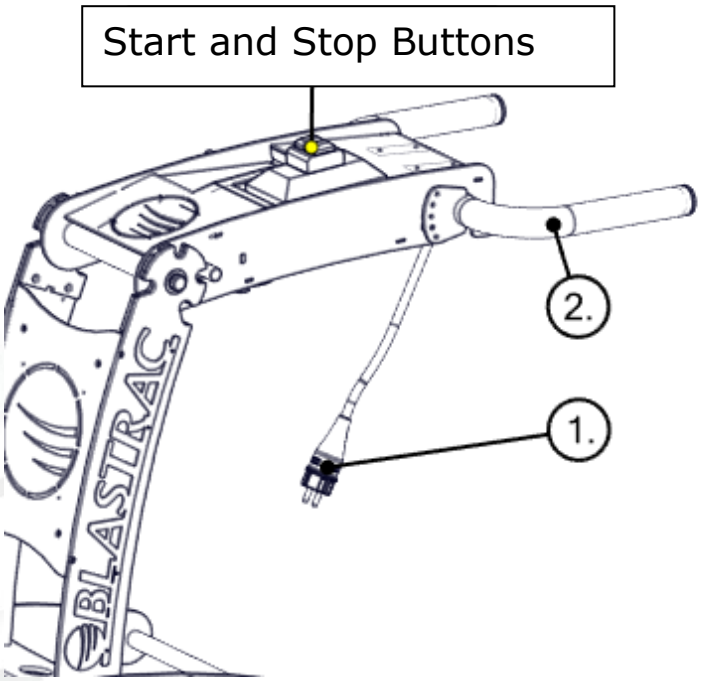
During operating the BMG-444, the following additional safety instructions must be followed closely.

5.1 Switch on the machine

- Connect the dust hose to the machine and turn on the dust collector before switching on the machine.
- Connect the power supply to the machine (1).
- Stand behind the machine and hold the handle(2) tight.
  Push down the handle of the machine (2) so that the Grinding heads are off the ground.
- To start the machine, push the green button on the electrical box.
- Check the direction of rotation of the 400 volt version. The machine must turn counter clockwise. (the fan of the motor is turning clockwise if the motor turns counter clockwise).
- Let down the machine till the diamond wings hit the floor.
- Start grinding.

5.2 Switch off the machine

- Push the red button on the electrical box.
- Wait until the machine stops rotating before laying down the machine on the metal support.
- Pull out the power supply.
- Shut down the dust collector.



5.3 Speed control version

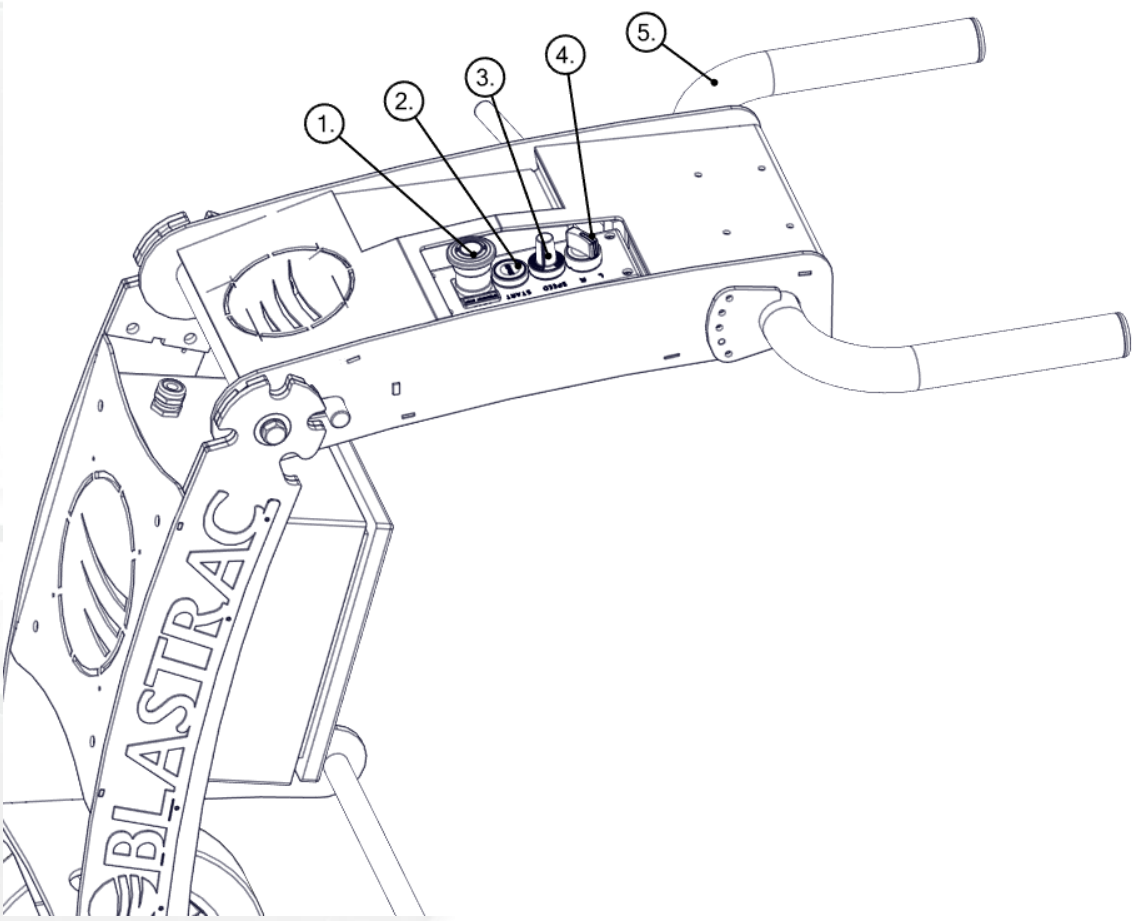
The machine is also available in a speed control version. All the points during operating machine are similar to the standard version. The difference is in control panel which give option to change the speed of grinding heads.

Switch on the machine

- Connect the dust hose to the machine and turn on the dust collector before switching on the machine.
- Stand behind the machine and hold the handle (5) tight.
- Be sure that the emergency switch (1) is turned up.
- Turn the speed regulation button (3) counter clockwise so the machine will turn as slow as possible.
- Turn the Left/Right button (4) to one of the positions.
- To start the machine, push the green Start button (2).
- Raise if necessary the speed of the machine with the speed regulation button (3)

Switch off the machine

- Push the red (emergency) button (1) on the electrical box.
- Wait until the machine stops rotating before laying down the machine on the metal support.
- Pull out the power supply.
- Shut down the dust collector.



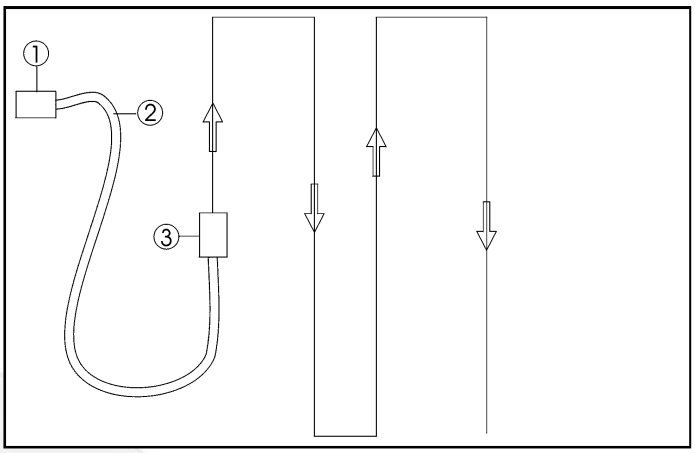
5.4 Operating during grinding

This machine will always have an even grinding result because of the planetary system.
However it is advised to keep the machine constantly in movement for an optimum grinding result.

For soft floors it is recommended to work on high disc speed, for hard floors and the first steps of polishing it is recommended to grind with low speed of the tools.
On hard floors and during polishing it is recommended to have a low grinding pressure.

In case of emergency or operating trouble, like vibrations or strong noises, switch the machine off immediately!

Carry out grinding in parallel tracks in such way that the dust hose and electric cable do not become twisted.
The next figure shows the recommended grind paths leading away from the dust collector.



1	Dust collector
2	Dust hose and electric cable
3	Grinding machine

The advancing speed depends on the material of the surface to be treated and the desired profiling.

Regularly check the contents of the dust collector. Always wear a dust mask of at least class FFP3 when emptying the dust bin or changing the dust bag /big bag. Observe and obey the local waste disposal regulations!

Make sure that no vehicles, such as forklift trucks and other equipment run over the electric cable and the dust hose.

For soft floors it is recommended to work with hard bonded diamond tools, for hard floors it is recommended to grind with soft bonded diamond tools. See Chapter 4.6.

5.5 Wet grinding

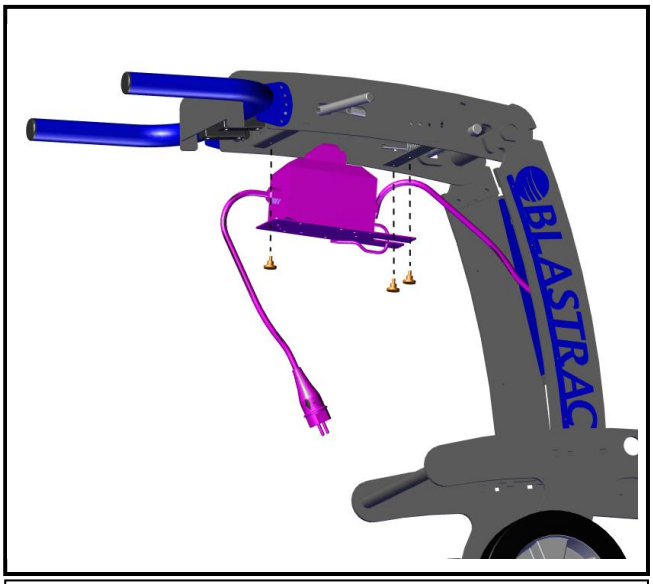
The BMG-444 can also be used for wet grinding.
-Connect the machine to the water supply.
-Always use a clean water supply, dirty water could clog the system.
-Make sure the water supply is turned off before connecting or disconnecting to the machine.
-**Be careful**, the work floor can get slippery when grinding wet.
-Keep all electrical cables and connections away from water

IMPORTANT NOTE:
Do not use the dust collector, when grinding wet!

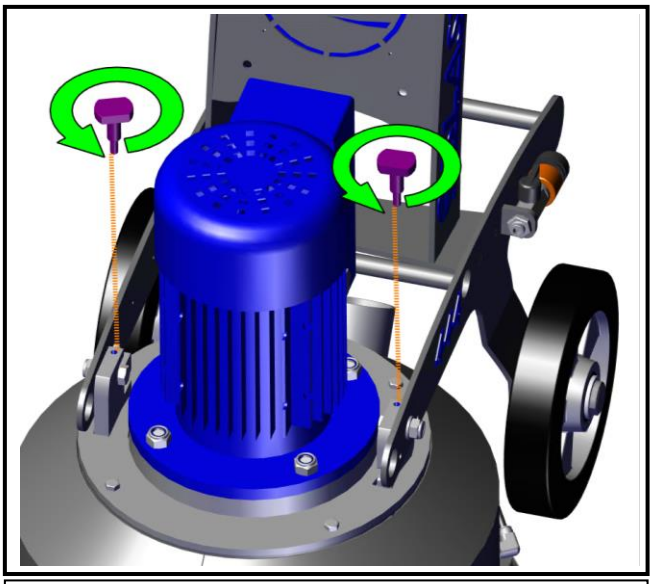
Clean the brush-sealing directly after wet grinding. It will be very hard to clean the brush-sealing when the dust-water mixture has dried up and hardened.

5.6 Dismount the BMG-444

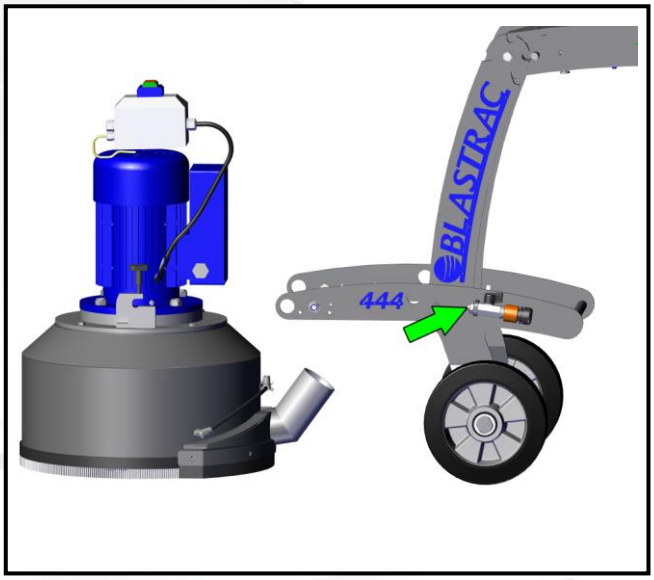
The BMG 444 can be dismounted in 3 main parts: Frame, Motor with electro box and Grinding head.



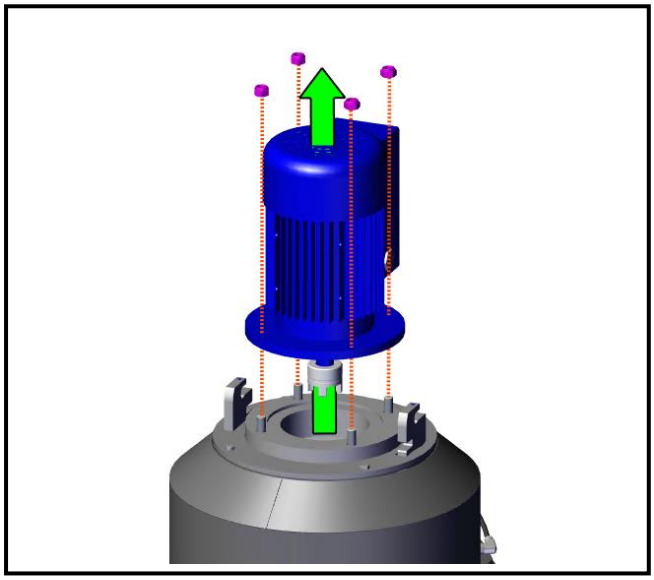
Step 1. Dismount the electro box from the frame. Unscrew the 3 highlighted bolts and remove the electro box from the frame.



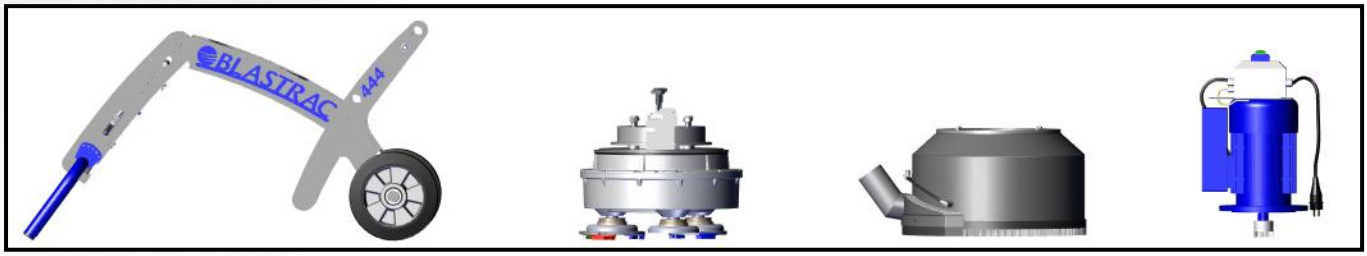
Step 2. Unscrew the 2 highlighted Bolts. Remove them from the frame.



Step 3. Unplug the water connection from the Grinding head. Separate the frame from the Grinding head and motor.



Step 4. Remove the 4 highlighted nuts. Remove the motor from the grinding head.



35 Kg	49 Kg	10 Kg	25 Kg

6. Maintenance

Pay attention to Chapter 3 **"Safety Rules"** during maintenance and repair works.

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

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

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

Operating hours/ time period	Inspection points, maintenance instructions
12 h after repairing	Check all accessible screw connections for tight seat.
Daily and prior to starting work	Check if all safety devices are working adequate. Check the brush sealing for damages and/or wear. Check the hose to the dust collector for damage and obstructions. Clean the electrical box inside and outside. Check the electric connections for sediments of dirt or foreign bodies. Check the electric motors for dirt and other contaminants. Check the conditions of the wings /discs.
Weekly	Check the buffers of the diamond plates. Clean the inside of the electrobox with a dust collector.
Every 3 months	Clean the complete machine with a damp cloth.
Annually	Full overhaul and cleaning of the complete 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.

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. Only use genuine Blastrac spare parts.

Due to different working conditions it can't be foreseen how frequently inspections for wear check's, inspection, maintenance and repair works ought to be carried out. Prepare a suitable inspection schedule considering your own working conditions and experience. However a full overhaul must be carried out at least once a year.

Our specialists will be happy to assist you with more advice.

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.

Follow additional operating and maintenance instructions of Original Equipment Manufacturer if included during your service and maintenance work.

All repair work must to be done by qualified Blastrac personnel, this to guarantee a safe and reliable machine.

Any guarantee on the machine is expired when:
- Non original Blastrac parts have been used
- Repair work is not done by qualified Blastrac personnel
- Changes, add on's or conversions are undertaken without written permission of Blastrac BV

Further is advised:
Store the cleaned and dry machine in a dry and humid free room. Protect the electrical motors from moisture, heat, dust and shocks.

- Prevent premature wear by keeping the machine as dust free as possible, for these reasons clean the machine regularly with a vacuum cleaner.
- Clean the machine every day with air and non-aggressive materials.
- Never use a high pressure water cleaner to clean the machine.
- Store the cleaned and dry machine in a dry and humid free room. Protect the electrical motor from moisture, heat, dust and shocks.

Work only with original Blastrac parts.

Dust in the electrical box can damage the frequency inverter; due to this the electrical box has to be cleaned every day from inside and outside.

Clean the fans and filters from the inside of the electrobox with compressed air and a vacuum cleaner towards the outside air.

Check regularly to see if the diamond wings are in good condition. Replace immediately when these are damaged or worn out.

6.1 Frequency inverter (Speed Control version)

Caution! Work on the frequency inverter by unqualified personnel or failure to comply with warnings can result in severe personal injury or serious damage to material.

Only qualified Blastrac personnel trained in the setup, installation, commissioning, operation and repair of the product should carry out work on the frequency inverter.

! Risk of electric shock. The DC capacitors remain charged for 15 minutes after power has been removed. It is not permissible to open the equipment until 15 minutes after the power has been removed.
! Caution. Do not perform a voltage test on parts inside the inverter. High voltage can destroy the semiconductor components.

If there is a problem with the frequency inverter, observe the error display, write down the error code and contact Blastrac.
Always mention the serial number and year of manufacture of the grinding machine, they can be found on the typeplate of the machine.

Do not attempt to open the frequency inverter.

6.2 Most Common Fault codes frequency drive

For a complete overview of faults and how to resolve them, scan the QR code which is on the front of the frequency drive.

Does the inverter shows an "INF" fault, reset the machine.
If the machine does not work after that, call you distributor.

To reset the machine, put out the power supply and wait 5 minutes.
Then start up the machine again. Call a technician if the machine still not works.

Detected Fault	Name	Probable cause	Remedy
ASF	**[Angle Error]**	• The difference between the output frequency and the speed feedback is not correct.	• Check the motor, gain and stabillity parameters. • Add a braking resistor. • Check the size of the motor/drive/load. • Check the encoder's mechanical coupling and its wiring. • Check the setting of parameters
SOF	**[Speed fdback loss]**	• Signal on "Pulse input" missing, if the input is used for speed measurement. • Encoder feedback signal missing	• Check the wiring of the input cable and the detector used. • Check the configuration parameters of the encoder. • Check the wiring between the encoder and the drive. • Check the encoder.
EEF1	**[Control Eeprom]**	• Internal memory detected fault, control block.	• Check the environment (electromagnetic compatibility). • Turn off, reset, return to factory settings. • Contact Schneider Electric Product Support.
EEF2	**[Power Eeprom]**	• Internal memory detected fault, power.	• Check the environment (electromagnetic compatibility). • Turn off, reset, return to factory settings. • Contact Schneider Electric Product Support.
OCF	**[Overcurrent]**	• Parameters in the **[SETTINGS]** (SEt-) and **[MOTOR CONTROL]** (drC-) menus are not correct. • Inertia or load too high. • Mechanical locking.	• Check the parameters. • Check the size of the motor/drive/load. • Check the state of the mechanism. • Increase the switching frequency.
OHF	**[Drive overheat]**	• Drive temperature too high.	• Check the motor load, the drive ventilation and the ambient temperature. Wait for the drive to cool down before restarting.

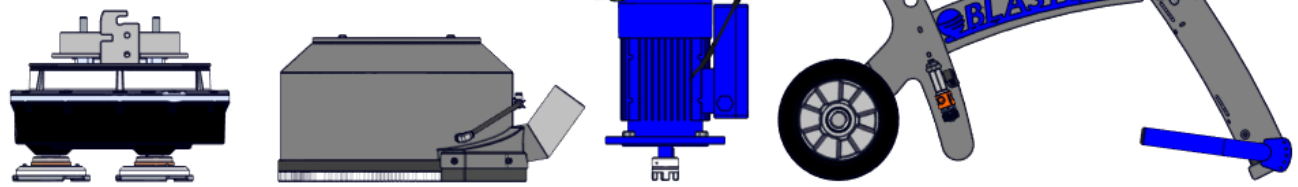
Note: If the problem cannot be solved or another fault code appears, write down the fault code and contact your local Blastrac dealer

OLF	**[Motor overload]**	• Triggered by excessive motor current.	• Check the setting of the motor thermal protection, check the motor load. Wait for the motor to cool down before restarting.
OPF1	**[1 output phase loss]**	• Loss of one phase at drive output.	• Check the connections from the drive to the motor.
OPF2	**[3 motor phase loss]**	• Motor not connected or motor power too low. • Output contactor open. • Instantaneous instability in the motor current.	• Check the connections from the drive to the motor.
OSF	**[Mains overvoltage]**	• Supply voltage too high. • Disturbed mains supply.	• Check the supply voltage.
SCF1	**[Motor short circuit]**	• Short-circuit or grounding at the drive output.	• Check the cables connecting the drive to the motor, and the motor insulation. • Reduce the switching frequency. • Connect chokes in series with the motor. • Check the adjustment of speed loop and brake.
SCF3	**[Ground short circuit]**	• Significant earth leakage current at the drive output if several motors are connected in parallel.	• Check the cables connecting the drive to the motor, and the motor insulation. • Reduce the switching frequency. • Connect chokes in series with the motor. • Check the adjustment of speed loop and brake. • Reduce the switching frequency.
SCF5	**[Motor short circuit]**	• Short-circuit at drive output.	• Check the cables connecting the drive to the motor, and the motor's insulation. • Contact Schneider Electric Product Support.
SSF	**[Torque/current lim]**	• Switch to torque or current limitation.	• Check if there are any mechanical problems.
PHF	**[Input phase loss]**	• Drive incorrectly supplied or a fuse blown. • One phase missing. • 3-phase ATV320 used on a single-phase supply mains. • Unbalanced load. This protection only operates with the drive on load.	• Check the power connection and the fuses. • Use a 3-phase supply mains.
USF	**[Undervoltage]**	• Supply mains too low. • Transient voltage dip.	• Check the voltage and the parameters.

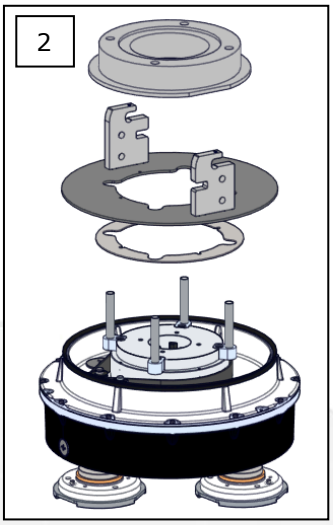
Note: If the problem cannot be solved or another fault code appears, write down the fault code and contact your local Blastrac dealer.

6.3 Replacing the upper belt

1. Dismount the machine in 4 pieces:

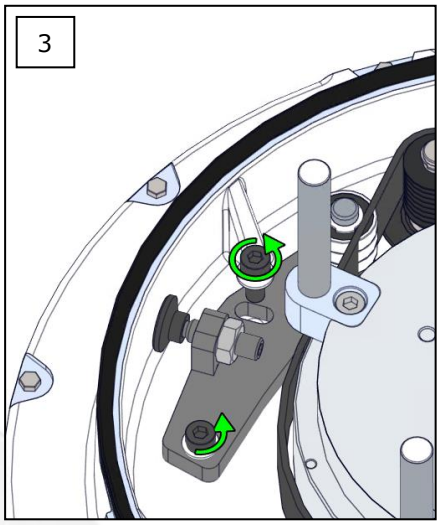


2



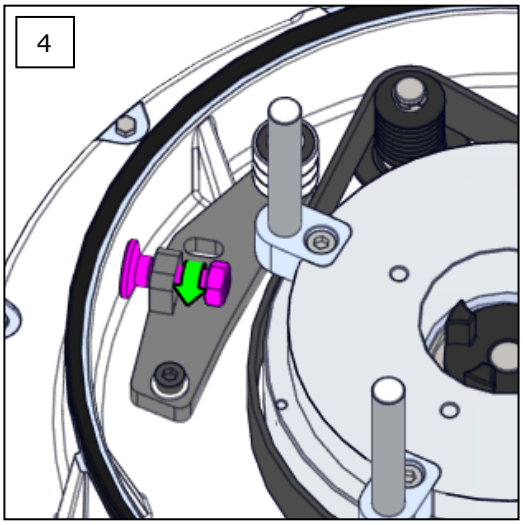
Remove the Block, Plate and Spacer.

3



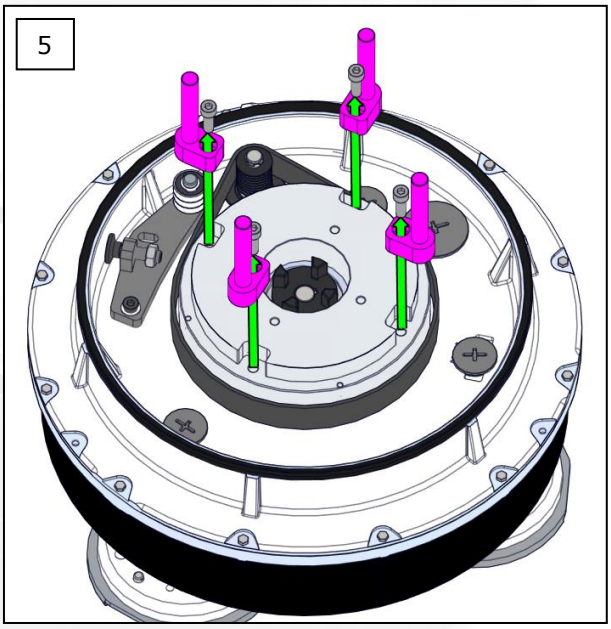
Loosen the bolts of the tensioning slideplate.

4



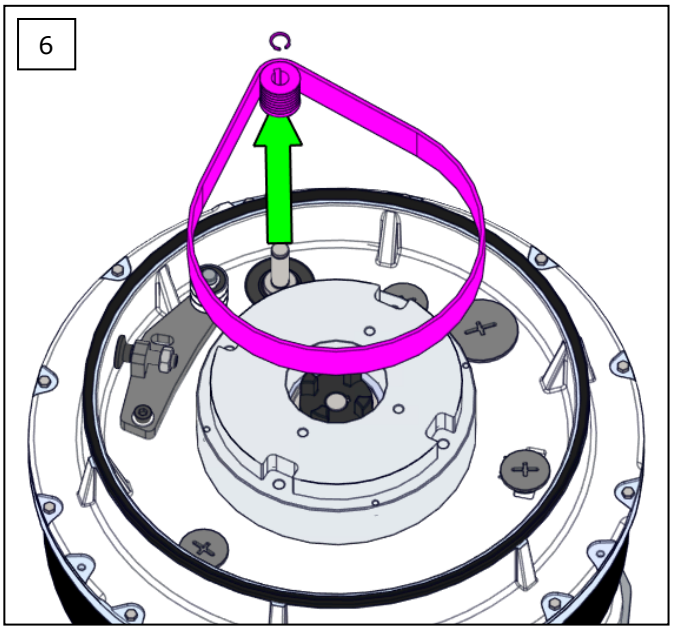
Loosen the pressure piece.

5



Remove the mounting cams.

6



Remove the circlip above the contra pulley.
Slide the belt + contra pulley off.

NOTE: When mounting the upper belt, tension the upper belt at 220-240 Hz.

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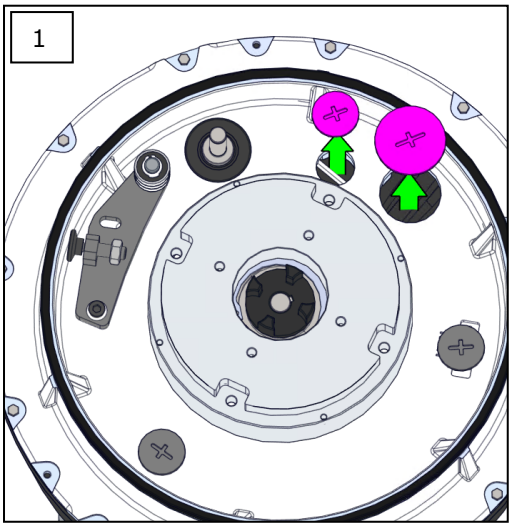
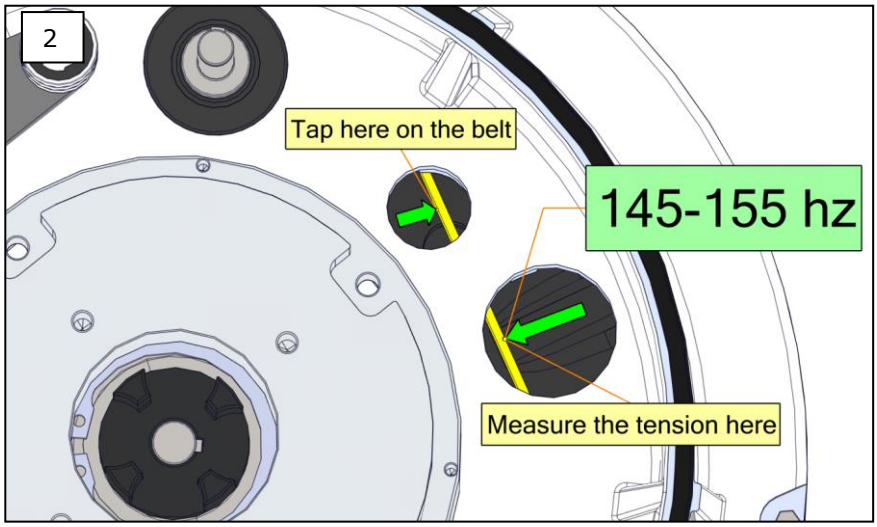
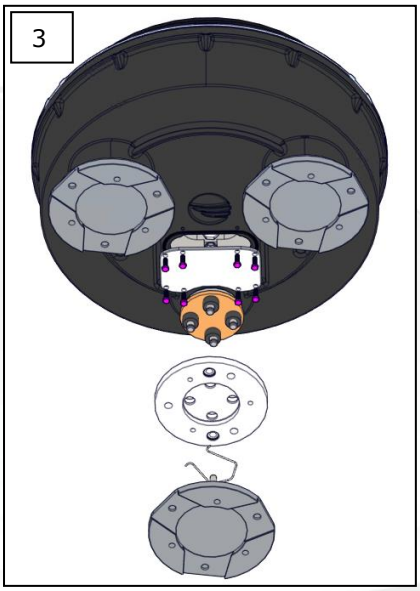
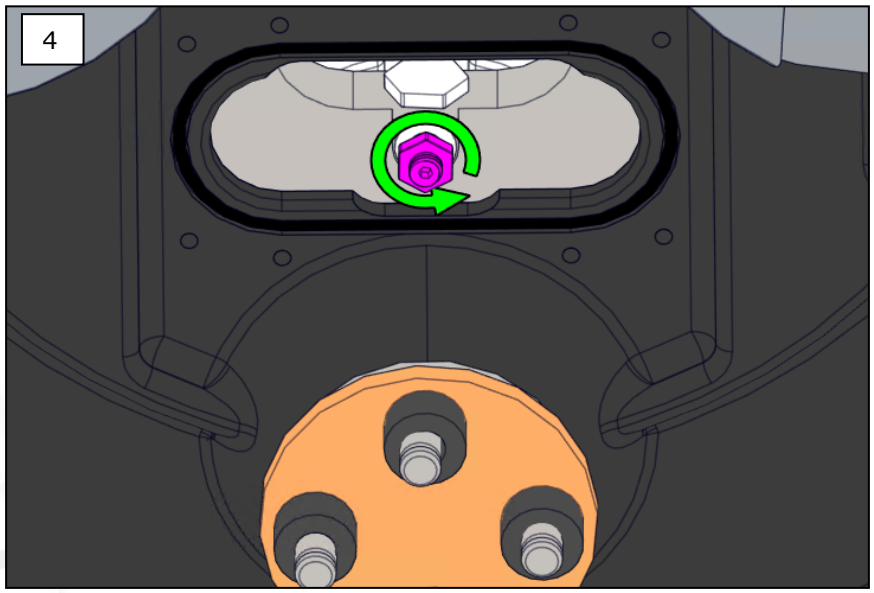
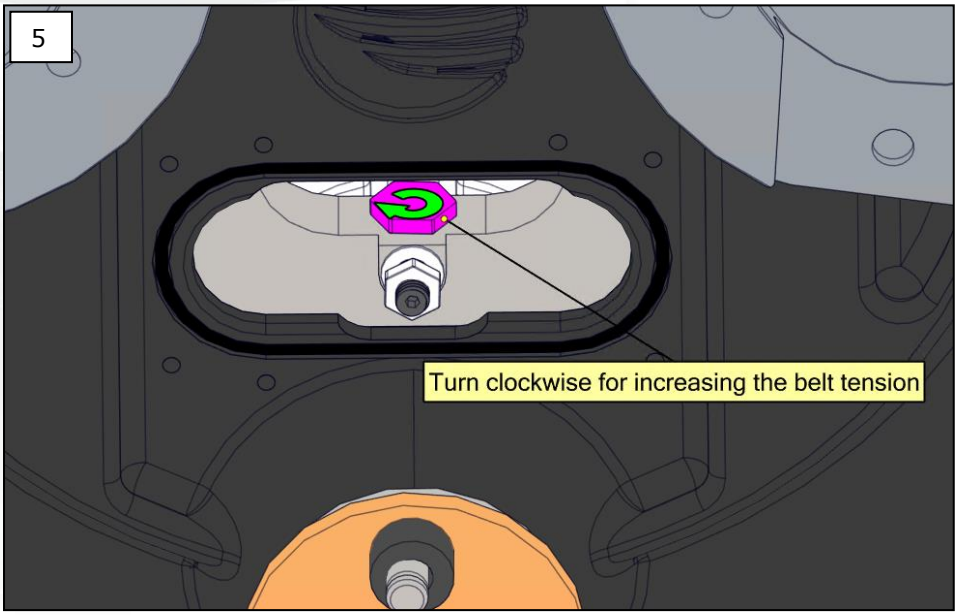
6.4 Tensioning the lower belt



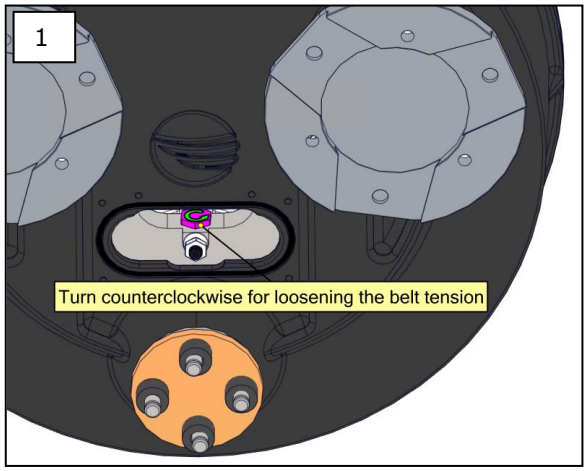


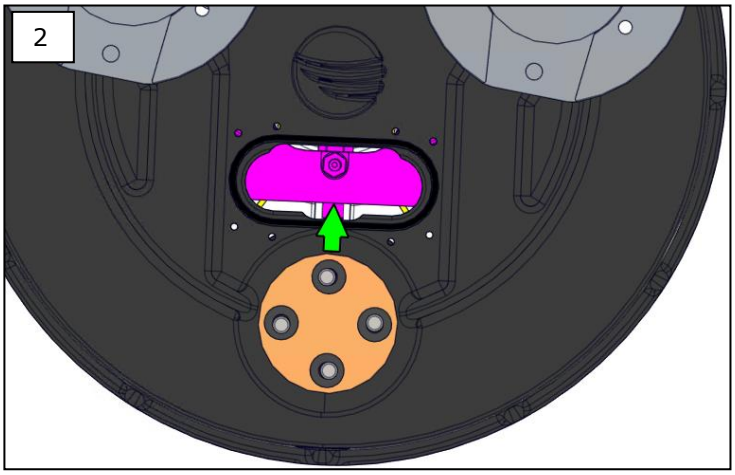


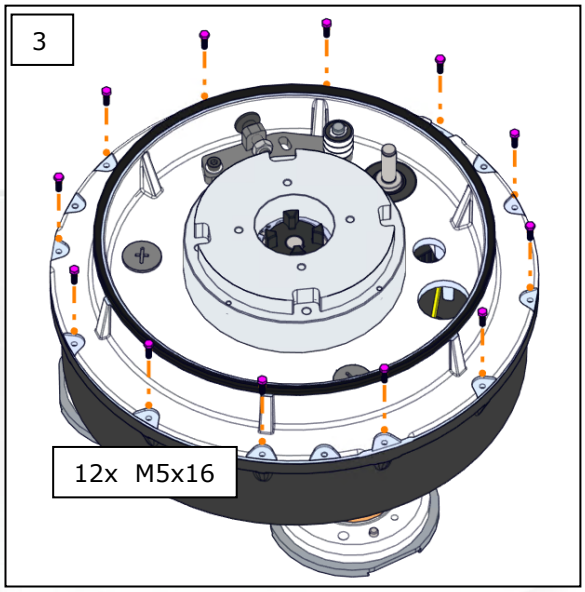


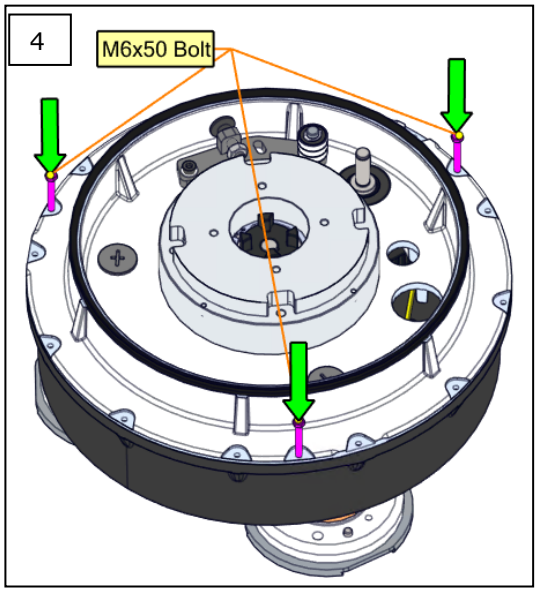


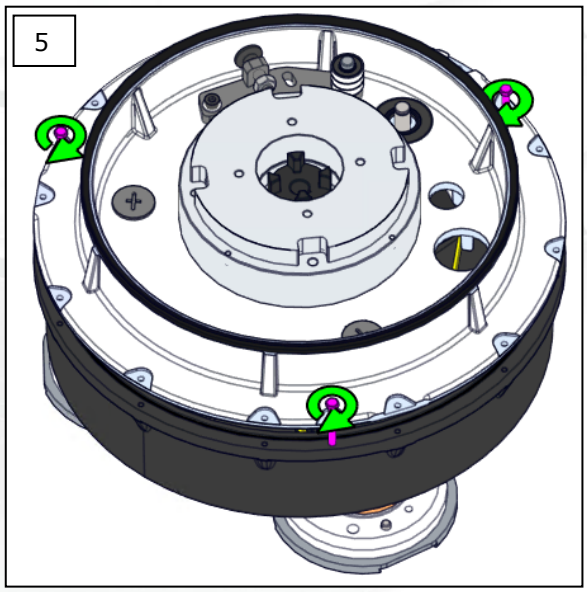
6.5 Replacing the lower belt

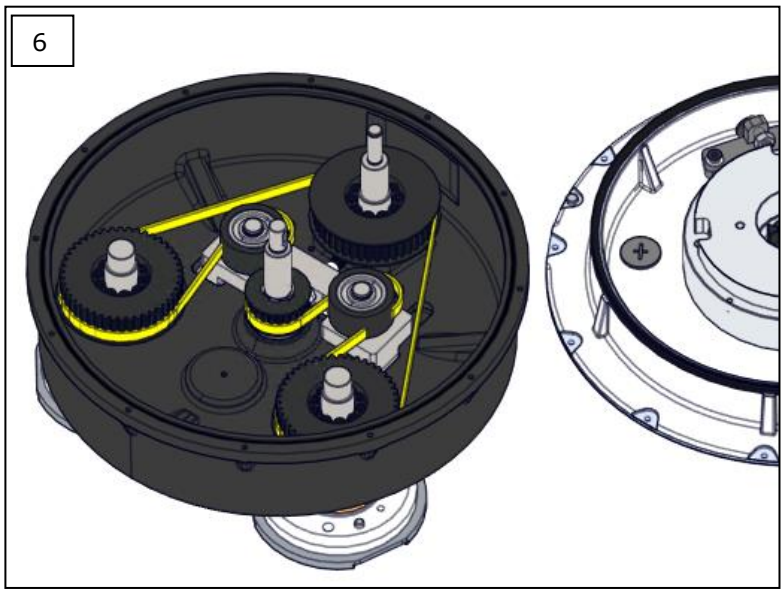












NOTE: Do not overtighten the M5x16 bolts when re-assembling the planetary system. Tighten at 6Nm.

7. Trouble shooting

Fault	Possible cause	Remedy
Excessive vibration or/and Unusual noises	Imbalance due to worn or broken grinding tools. Worn out buffer rubbers Defective bearing.	Replace all worn or broken parts. Replace all worn or broken parts. Check the bearing on the axle drive shaft and replace if necessary.
Reduced or no grinding performance	Grinding tools have reached the maximum permissible wear. Inappropriate grinding tool for the application.	Replace the worn parts. Replace the grinding tools with appropriate grinding tools for the surface to be treated.
Motor does not switch on	Missed phase Defective Component. Pushed stop button during first start up. (auto-tuning)	Check the mains power supply and try to switch on again. Find fault and replace defective component. Remove power supply and wait for 1 minute until all power is out of the machine. Connect again to power supply and start machine.
Motor triggers while running	Motor protections switch triggered because of overload . Motor has a defect.	Reduce additional load . Check the motor.

Failure	Cause	Check	Action
Nothing starts	No power supply. Not the correct voltage (only for 230v systems)	Is the supply cable plugged in the wall socket/generator? Check Main switch (when applicable). Check supply voltage. Check Under voltage relays (when applicable).	Plug in cable. Turn on main Switch (when applicable). Check if under voltage relays has switched (when applicable). Let an electrician check if there is Sufficient voltage on terminals.
Supply is OK But no Control Voltage	EM-stop activated. No control Voltage.	Is EM-stop pushed in. Is deadman switch present? Check circuit breakers.	Deactivate by turning the knob. Place deadman switch key. If EM-relay has 3 green Led than EM-circuit is closed. Reset circuit breakers when they are off.

8. Technical data

	BMG-444 1x230V	BMG-444 1x230V SC	BMG-444 1x110V-50Hz	BMG-444 1x110V-60Hz	BMG-444 3x400V
Power consumption	2,2 kW	2,2 kW	2,2 kW	1,1 kW	3,0 kW
Electrical connection	230 / 50Hz	230 / 50Hz	110V / 50 Hz	110V / 50-60 Hz	400V / 50Hz
Amperage	15,2A	15,2A	29,5A	<15A	6,0A
Diameter diamond disc	Ø 155 mm	Ø 155 mm	Ø 155 mm	Ø 155 mm	Ø 155 mm
Working width	444 mm	444 mm	444 mm	444 mm	444 mm
Rotation speed	720 min^{-1}	300 - 720 min^{-1}	720 min^{-1}	720 min^{-1}	720/860 min^{-1}
Length	1310 mm	1310 mm	1310 mm	1310 mm	1310 mm
Width	507 mm	507 mm	507 mm	507 mm	507 mm
Height	982 mm	982 mm	982 mm	982 mm	982 mm
Weight	120 kg	127 kg	121 kg	121 kg	128 kg
Noise level Uncertainty	76dB(A) 2,5dB	76dB(A) 2,5dB	76dB(A) 2,5dB	76dB(A) 2,5dB	76dB(A) 2,5dB
Hand-arm vibration emission level	Less than 2,5m/s^2	Less than 2,5m/s^2	Less than 2,5m/s^2	Less than 2,5m/s^2	Less than 2,5m/s^2
Dust hose connection	76 mm Ø	76 mm Ø	76 mm Ø	76 mm Ø	76 mm Ø
Suitable filter unit	Contact Blastrac BV We will assist you with a good advice				

The electrical diagrams of the electrical system are placed inside the electrobox.

Design and specifications are subject to change without notice by Blastrac BV

IMPORTANT NOTE:
The indicated values are measured on new machines. Sound and vibration levels will vary in different circumstances. Area influences like open outside or closed inside space, ambient temperature, the surface to be treated, etc. will give different values at all time.

The declared vibration and sound emission levels represent the main applications of the machine. However if the machine is used with different accessories or poor maintenance, the vibration and sound emissions may differ. The values may be used for a preliminary assessment of exposure.

For a precise estimate of the vibration and sound load, the times should also be considered during which the machine is switched off or even running, but not actually in use. This may significantly decrease the exposure level over the total working period. Ear protection is recommended with the use of this equipment.

8.1 Extension cables

Cable length	Cross section			
	≤ 16 A	≤ 32 A	≤ 63 A	≤ 125 A
Calculated at a pre-fuse GG:	16amp*	32amp*	63amp*	125amp*
> 20m	1.5 mm²	2.5 mm²	10 mm²	25 mm²
20m > 50m	2.5 mm²	4 mm²	10 mm²	25 mm²
50m > 75m	4 mm²	6 mm²	16 mm²	35 mm²

*The cross-sections need to be re-calculated when using any other type or size pre-fuse than mentioned.

"Old equipment contains valuable materials which are valuable for re-processing.
The machine parts must not be thrown away in the normal household waste, but should be disposed of at a suitable proper collection system, e. g. via your communal disposal location. This way the materials can be re-used in an environmentally responsible manner.

The original version of the operating instructions is in the English language, any other language is a translation of the original version.

Despite the fact that this guide is made with care, Blastrac takes no liability for errors in the manual and the possible consequences. We are naturally very interested in your findings and additions.

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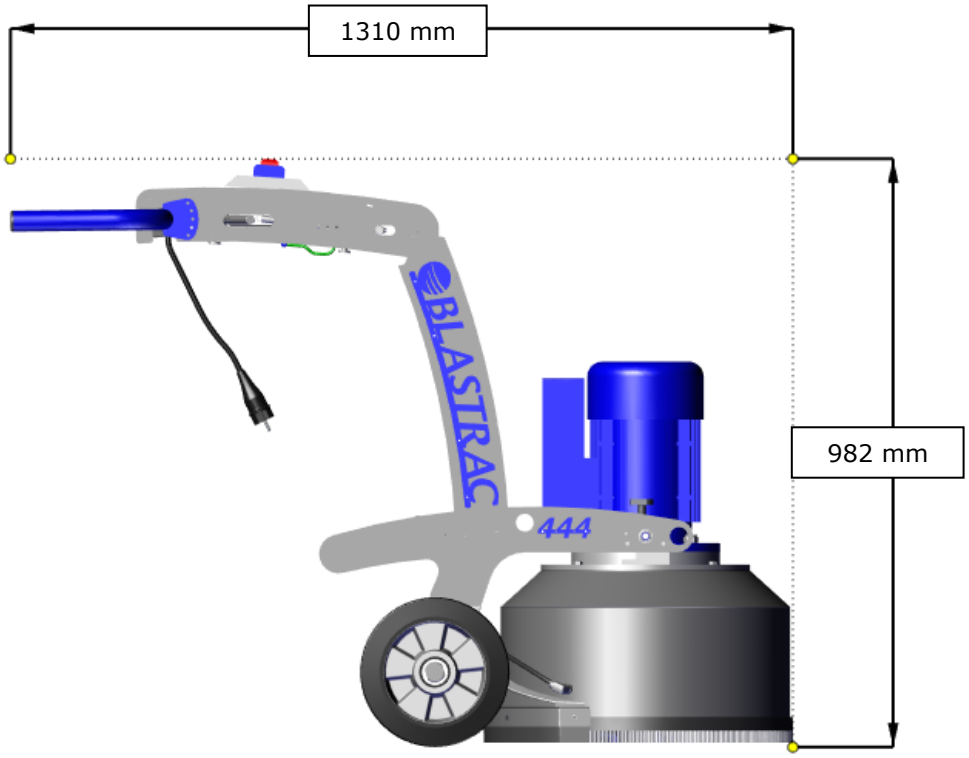
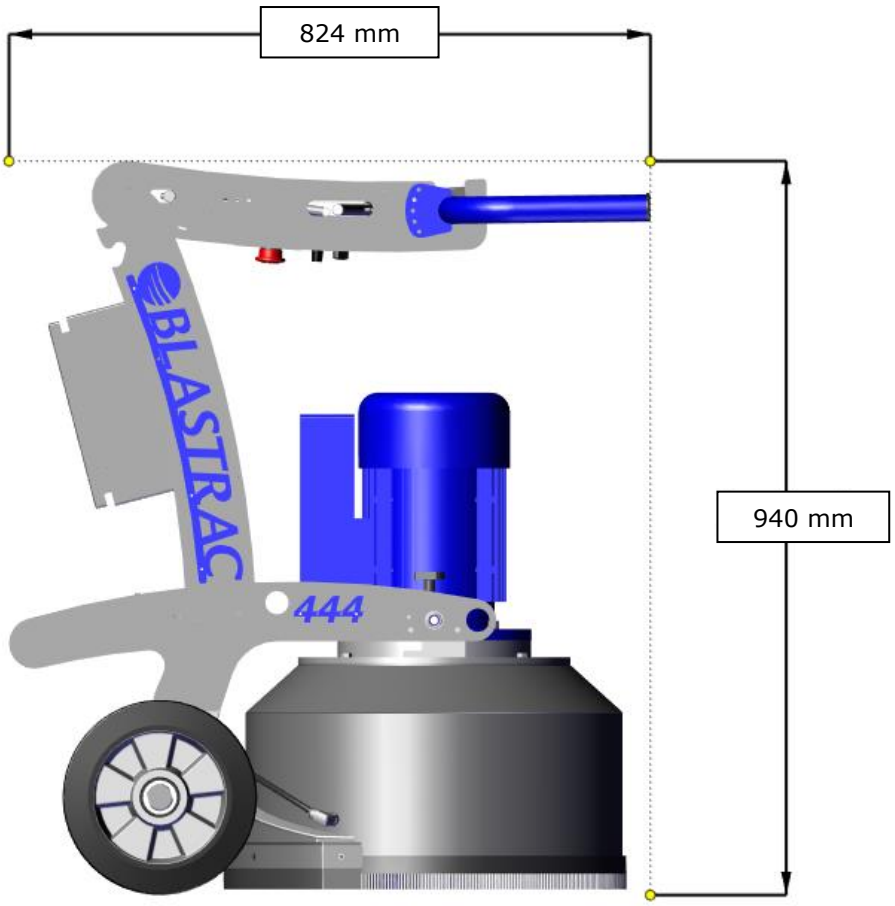
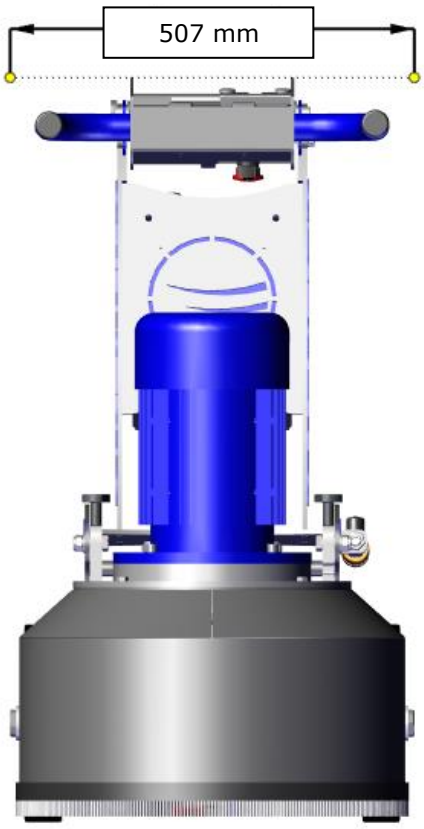
8.2 Dimensions of the BMG 444







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