



Original instructions

OPERATING INSTRUCTIONS

BMG-735RS & BMG-780RS MKII

Version 1.1





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1. Introduction

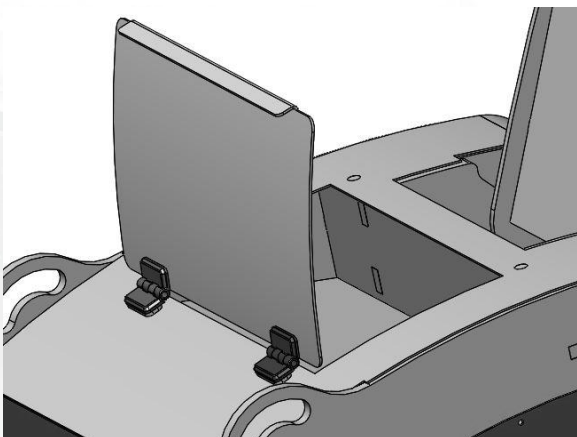
Before use, operators must be provided with information, instruction and training for the use of the machine and the substances for which it is to be used, including the safe method of removal and disposal of the material collected. All persons who are working with or maintaining this machine must read 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.

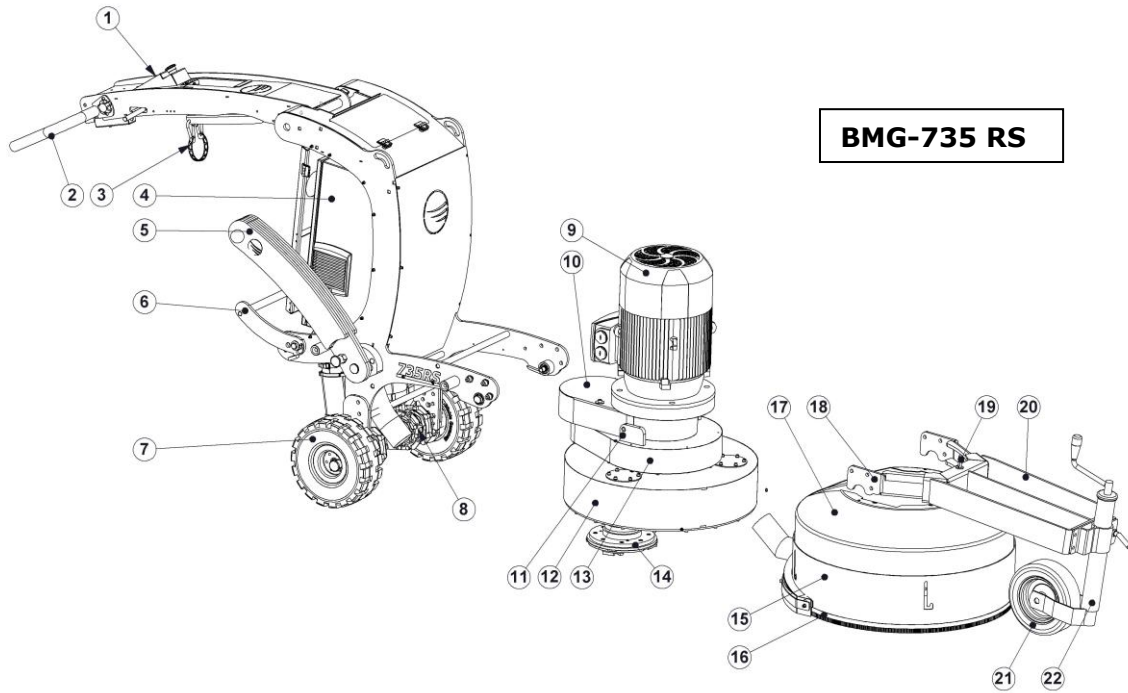
This machine is designed for industrial use by professionals. **Only authorized and trained personnel may operate this machine.** This machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge. **Blastrac** 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. Always use common sense when working with machines.

2. Machine description

The BMG-735 / 780 RS is an electrical driven planetary grinding machine. This is a three headed machine for leveling and polishing of indoor floors. The 3 planetary rotating discs are Ø 240 mm. It can be used for dry and wet applications. The BMG-735 / 780 RS can be used on almost any floor to plane, to make ready for coatings, or to remove coatings or glue residues. 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.

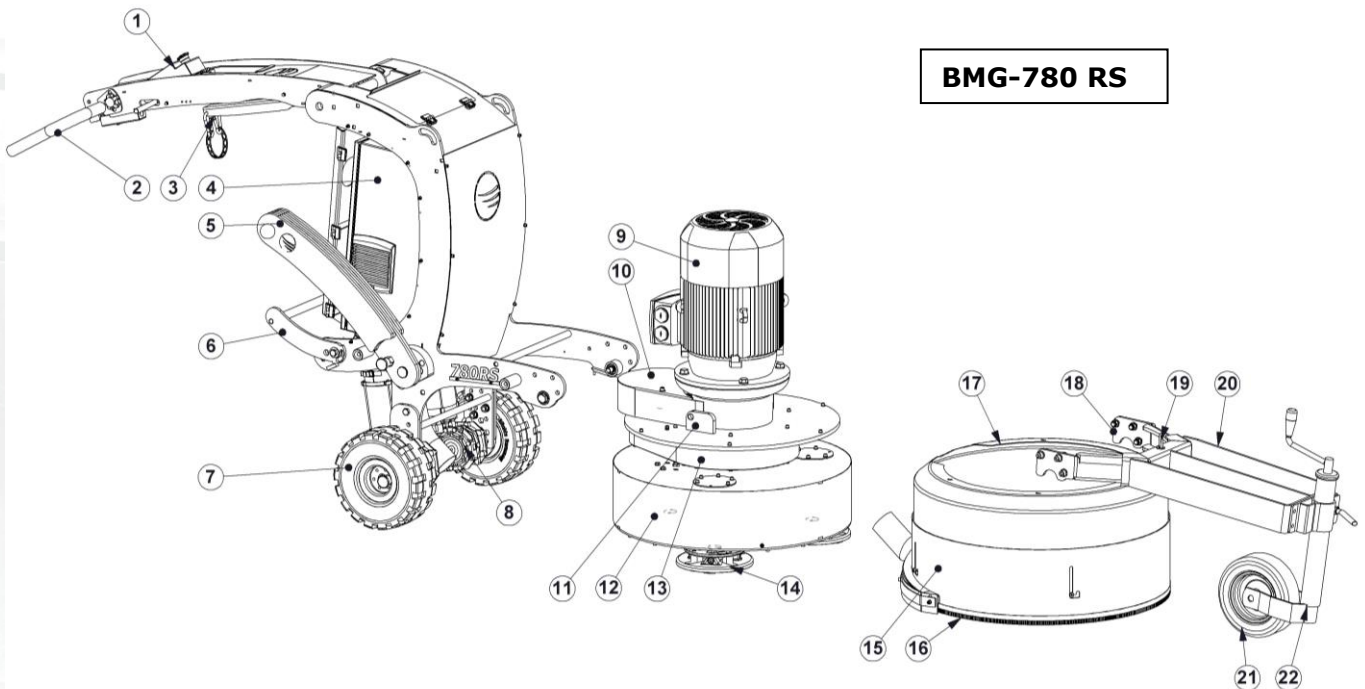
Due to the drive motors and the wireless Bluetooth control unit this machine is very effective and ergonomic to operate. The 24V battery drive system enables the operator to drive the machine to the work area without the use of the power supply cable. This feature will save precious time and contributes to the ease of use.



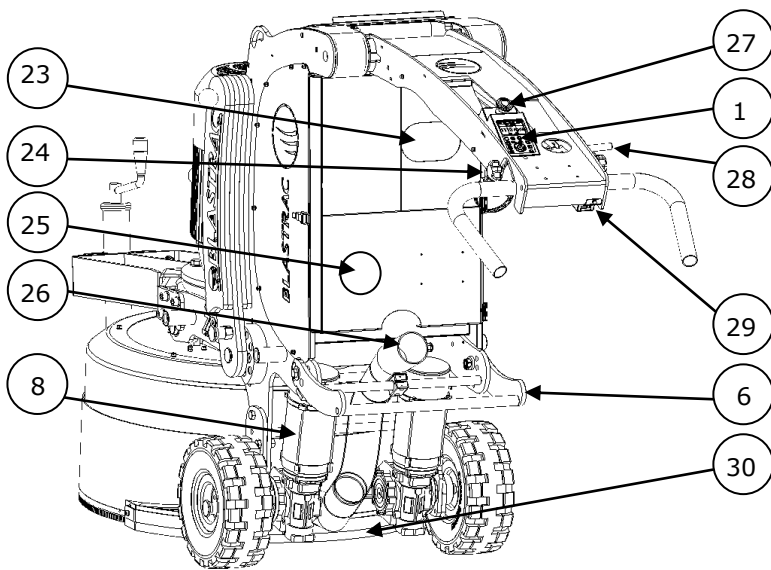


BMG-735 RS

1	Operating panel	12	Lower drive
2	Steer handle	13	Upper drive
3	Swing arm for dust hose	14	Grinding buffer
4	Electric control box	15	Floating shroud
5	Weight set	16	Brush for shroud
6	Tilting support	17	Dust cover
7	Drive wheel	18	Front support grinders
8	Drive wheel motor	19	Pin
9	Grinding head motor	20	Front support wheel
10	Protection cap	21	Wheel
11	Frame mounting eyes	22	Adjustable front wheel

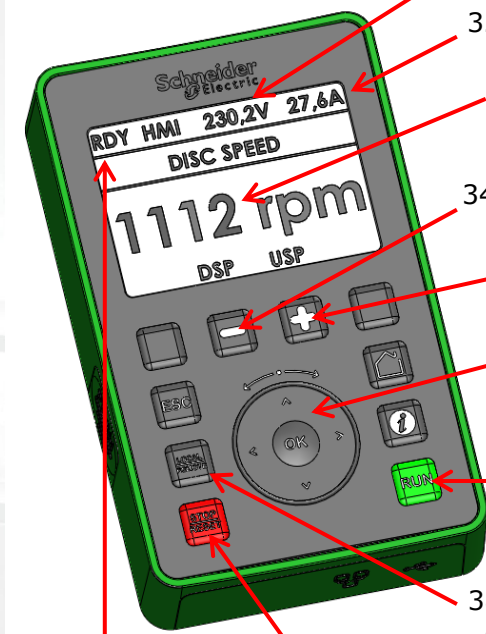


BMG-780 RS



23	Key + Battery power indicator / Hour counter
24	Fixing knob for ergonomic steer
25	Main power switch ON/OFF
26	Dustthose attachment
8	Drive wheel motor
27	Emergency stop button
1	Control keypad
28	Lever for adjusting steering handle
29	Key + cord for dead mans switch
6	Tilting support
30	Integrated floor nozzle on floating shroud
31	Main voltage indication
32	Ampere of grindmotor
33	Speed of the grinding discs
34	Grinding speed DOWN button
35	Grinding speed UP button
36	Down / Up grinding speed (by scrolling)
37	Start grinding button
38	Change the turning direction of grinding discs button
39	Stop grinding button
40	RDY = Ready STO = EM-Stop activated

Control keypad



- 31. Main voltage
- 32. Amp of motor
- 33. Disc speed
- 34. Down Speed
- 35. Up Speed
- 36. Down / Up Speed (by scrolling)
- 37. Start grinding
- 38. Change turning direction of discs
- 39. Stop grinding

40.
RDY = Ready
STO = EM-Stop activated



3. General 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 clean, 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 machine.
- p) 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.
- q) 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.

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) Make sure that the phases and the earth wire of the extension cable(s) are connected in the same order as the supply cable of the machine and the power supply.
- c) Electrical cables must be rolled entirely off of the reels.
- d) Any damage to the electric cables and/or electrical components is not permitted.
- e) The voltage on the identification plate must comply with the power supply.
- f) Use an electrical power supply connection with earth connection and earth leakage circuit breaker.
- g) 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.
- h) **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.
- i) Inspect and test the electrical components regularly. The electrical components have to satisfy with the requirements set out in the harmonised norm EN60204-1.



- j) Always call a skilled electrician or your distributor when you have questions about the safety of the electrical components.
- k) 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.
- l) Always use tools that are insulated against voltages.
- m) Do not abuse the cables. Never use the cables for carrying, pulling or unplugging the machine. Keep cables away from heat, oil, sharp edges or moving parts. Damaged or entangled cables increase the risk of electric shock.
- n) Be careful with water on the treated surface. Electrical cables must not come into contact with water.
- o) The main power switch on the machine must be in the "Off" position before connecting to the power supply. (Only if there is a main switch present on the electrobox.)
- p) During a long standstill of the machine, pull out the main plug and cover it with plastic foil.
- q) 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
 - Hearing 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) The cord of the deadmans switch key should always be fastened on your arm or on to your clothing.
- e) Pull out the key of the deadmans switch before any inspections, adjustments and/or maintenance work is started.
- f) All persons in the proximity of the machine, must wear hearing protection and safety shoes.
- g) Always seek professional medical attention immediately in case of injury.
- h) 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) Do not use the machine when it is damaged.
- f) Do not **open** or **remove protective guards** while driving gears are running.
- g) The temperature of certain machine parts can be above 37° C.
- h) The machine, specially the handle grips must be free of fats/oils and have to be dry.
- i) 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.
- j) All repair work has to be done by qualified Blastrac personnel, this guarantees a safe and reliable machine.
- k) **Always use original Blastrac spare parts, grinding disks, grinding wings and polishing pads.** This will ensure the best performance. Only original Blastrac 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.
- l) Check the rotating direction of the motor before starting up.
- m) 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.
- n) In the event of **operational malfunctions** the machine must be **shut down immediately** and secured!

3.5 Maintenance safety

- a) Pull out the main plug and place it in sight, before starting inspections and repairing on the machine. Pull out the key of the dead man's switch and keep it in your pocket. 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 a 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 and use lint-free cleaning cloths.
- i) To allow the user to carry out maintenance operations, the machine must be disassembled, cleaned and inspected as far as reasonably possible, without causing hazards for the maintenance staff or other people.
- 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 Safety regarding dust collectors

- a) Always use a suitable Blastrac dust collector when working dry 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 dust collector must be emptied or replaced 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 discs on the floor while the motor is turning.
- b) The flexible couplings / buffers can become worn out with use, because of this there can be higher vibrations than normal. Check for this reason the flexible couplings / buffers 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 flexible coupling.
- d) Make sure the brush seals are in good condition, this to avoid dust escaping.
- e) Make sure the diamond tools (wings / discs / pads) are not damaged or worn out.
- f) Always pull out the main plug before u start changing the wings, disks or pads.
- g) When mounting or removing a diamond disc; lay the machine down backwards so it is lying on the handle. 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 tilt 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) **Be careful**, the workfloor can get slippery when grinding wet.
- n) Keep all electrical cables and connections away from water.

3.8 Battery safety (12V)

- a) Only use Blastrac approved batteries. Blastrac cannot guarantee the safety of the machine when other batteries are used.
- b) Every service work on batteries should only be done by trained personnel.
- c) The battery contains lead-acid, do not disassemble, heat above 60°C, or incinerate.
- d) Immediately flush eyes with cold, fresh water for a minimum of 15 minutes if electrolytic acid comes in contact with eyes. Seek professional medical attention immediately.



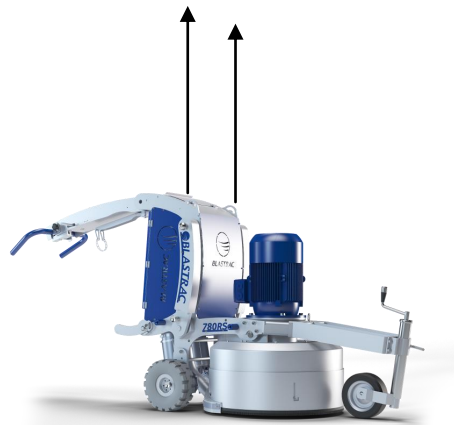
- e) For work with the battery you need to remove all metal jewelry like rings, watches, necklaces etc. They can be a cause of serious burns.
- f) The old battery should be recycled. Batteries contain harmful materials, like lead en sulphuric acid. These materials form an environmental and health hazard. Therefore it is imperative that they are recycled responsibly in accordance with local disposal and environmental regulations.

3.9 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 grinding machine is between 399 and 639 kg. Use a crane or lift when transporting the machine, use the lifting eyes of the machine.
- c) Before every use check the lifting eyes 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, lift the machine with a rope on the lifting eyes as showed in imagine mentioned below.
- Make sure the floating shroud is in transport mode when you transport the machine.








65. Transport mode





3.10 Signs on the machine

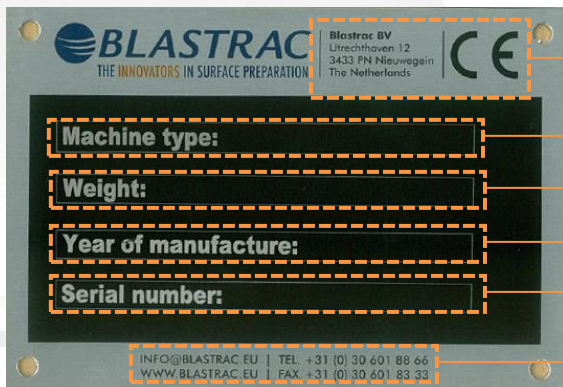
The following stickers are placed on the machine. Meanings of these symbols are:

	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.



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

Type plate:



The type plate contains the following information:

- 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



The EU Declaration of Conformity document includes the CE mark and a grid of language options for the declaration:

EN	NL	CS	DA	SK	SL
FR	DE	ET	GR	FI	NO
ES	IT	LV	LT	IS	TR
PL	PT	HU	MT	RU	



4. Initial operations

Before using the machine it is important to inspect the machine.

It is not permitted to use the machine if the machine safety is not according to the checkpoints 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

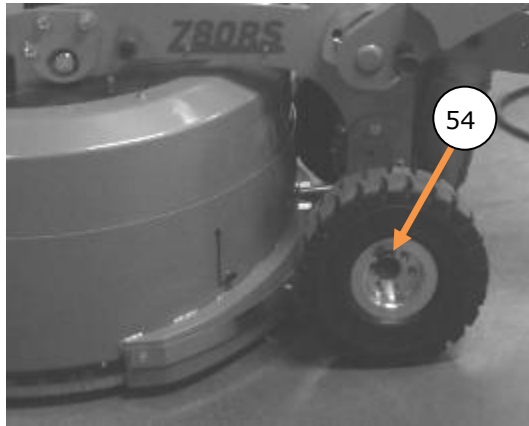
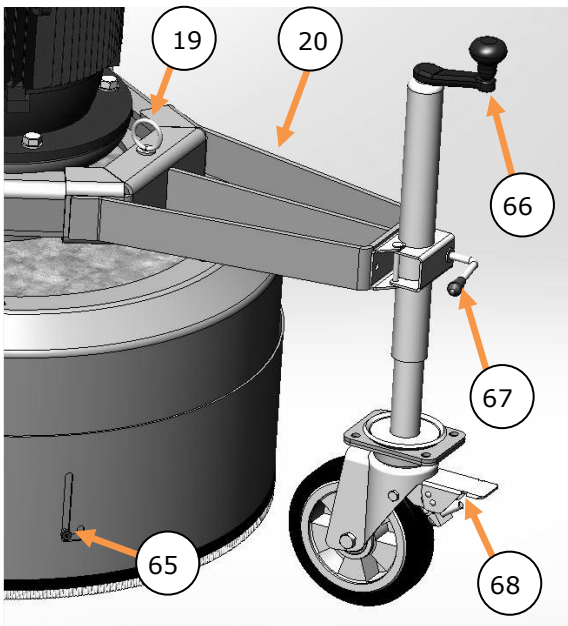
- Use only extension cables for extending the main cable that are sized and marked in accordance with the overall power consumption of the machine.
- Electrical cables must be fully unwound of their reels.
- No damage is permitted for electrical cables.
- Use an electrical power supply connection with 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.
- 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 / bigbag is empty and connected properly.

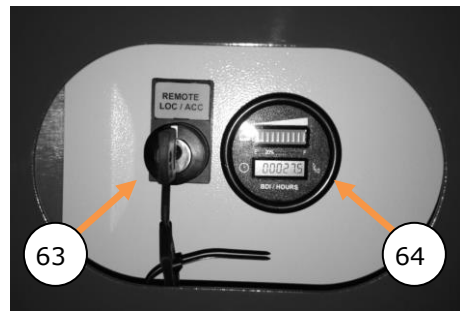


4.3 Battery drive system (option)



The machine can be moved around on 3 wheels using the front wheel support and battery drive system. The 24V battery drive system enables the operator to drive the machine to and from the work area without the use of the power supply cable. This feature will save precious time and contributes to the ease of use.

- Make sure the bracket (20) is fastened correctly and secured with the pin (19).
- Use the lever (67) to lower the wheel to the ground and fasten the lever (67) tight.
- Turn the handle (66) clockwise to lift the front off the ground.
- Release the brake (68) and make sure the floating shroud is in transport mode (65).
- The traction wheels must be connected to the drive motors, use the locking pin of each rear wheel (54) to connect the wheels to the drive motors.



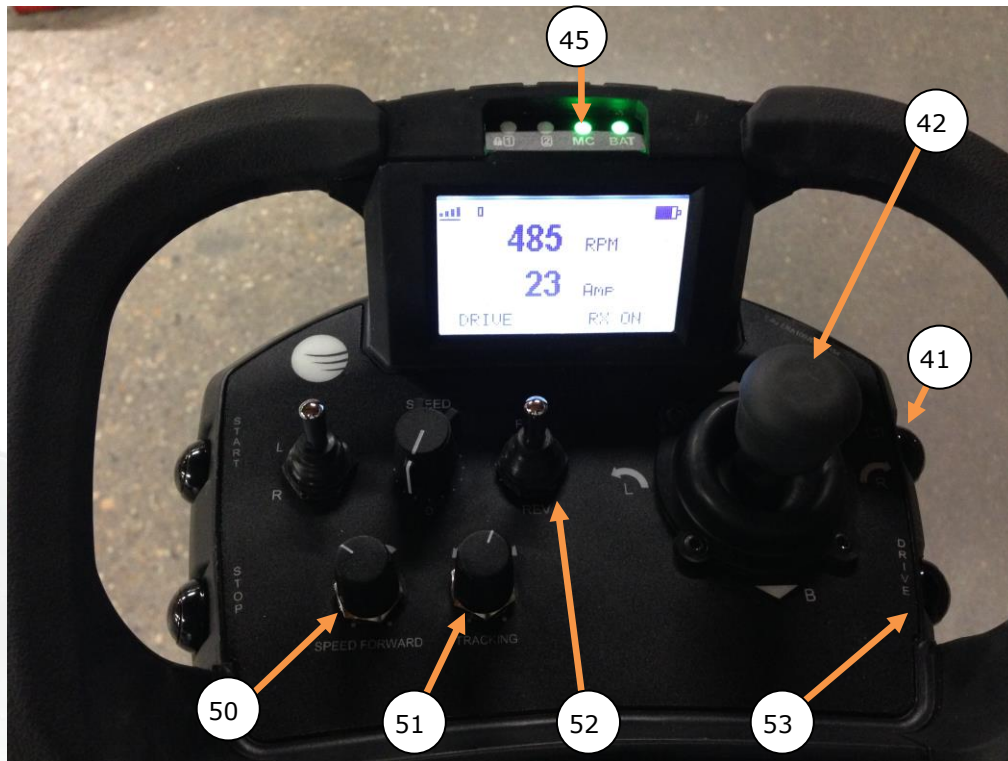
- Make sure the key of the dead man switch is in place and the emergency stop button is not activated (turn to unlock).
- Now turn the key on the electrobox to **ACC** (63), the battery power indicator and hour counter (64) will light up.
- Turn the remote control on (62) and push the connection button (41) for 2 seconds.
- The machine and remote control should now be linked, indicated by a little green light (45) on top of the remote control.

There are 2 ways of driving the machine using the remote control, the AUTO DRIVE-mode or manually controlled.



Remote controlled driving

- Push the joystick (42) in the desirable direction to drive the machine. The further the joystick is pushed into the desirable position, the faster the machine moves.
- The SPEED FORWARD button (50) & the TRACKING button (51) don't work in the manually controlled mode.
- You can turn the machine around its axle by pushing the joystick totally to the right or totally to the left.
- The machine can also turn around one wheel, this can be done by pushing the joystick to the left or right upper corner.



AUTO DRIVE-mode

- Use the FORWARD/REVERSE-switch (52) to select forward or reverse driving.
- Use the SPEED FORWARD (50) to select the driving speed, always start slowly at first.
- Set the TRACKING (51) in the middle position.
- Now push the DRIVE-button (53), to drive the machine automatically.
- Steer the machine left or right with TRACKING (51) and change the driving speed with (50).

NOTE: The joystick does not work in AUTO DRIVE-mode.

Push the DRIVE-button (53) to stop the AUTO DRIVE-mode. The machine can now be controlled with the joystick again.

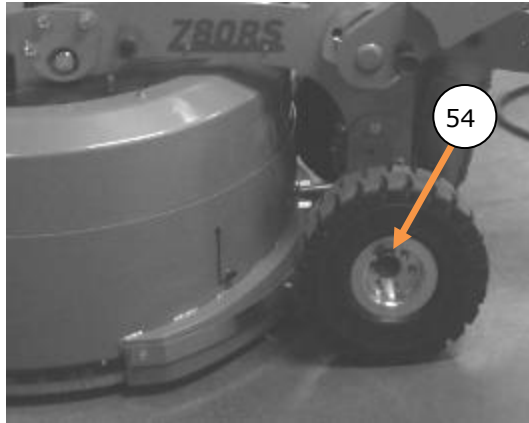
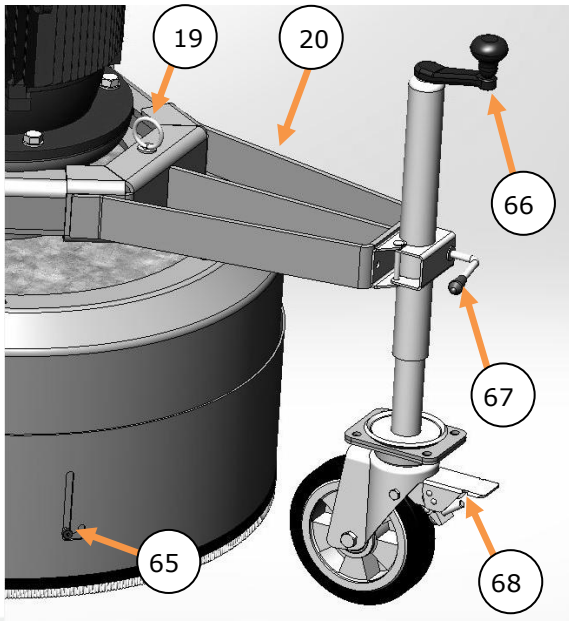
WARNING! Always make sure all rotating parts have come to a complete standstill before moving around the machine.

Be careful! Make sure nobody's feet get under the wheels. Wear appropriate safety shoes when you drive the machine to or from the work area.



4.4 Manual moving of the machine

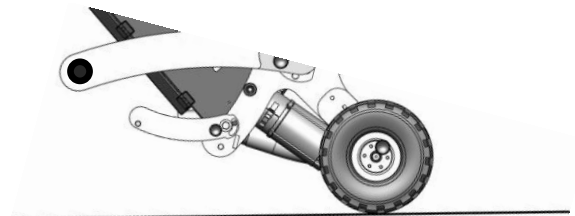
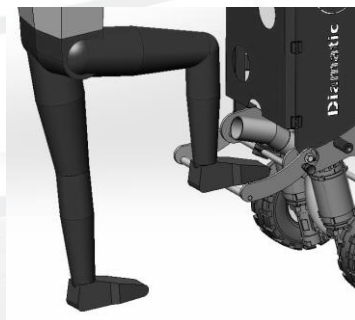
There are 2 ways of moving the machine around manually, tilting the machine backwards or by using the front wheel support system to push the machine around on 3 wheels.



- Make sure the bracket (20) is fastened correctly and secured with the pin (19).
- Use the lever (67) to lower the wheel to the ground and fasten the lever (67) tight.
- Turn the handle (66) clockwise to lift the front off the ground.
- Release the brake (68) and make sure the floating shroud is in transport mode (65).
- The traction wheels must be disconnected from the drive motors, pull out the locking pin of each rear wheel (54) to disconnect the wheels from the drive motors.

The machine can now be pushed around manually.

Another way to move the machine manually is by putting the steering handle in the upright (vertical) position and putting the side-weights slightly backwards. Disconnect the traction wheels by pulling out the fast locking pins (54). Stand with one foot on the bracket and pull on the handgrips to tilt the machine backwards. It can now be pushed around on its back wheels.



The machine should only be moved around when the dust hose, water supply and power supply cable are disconnected.

Be careful when you let the machine tilt back on the grinding heads, let the machine down slowly, big shocks can damage the electrical parts.



DIAMAG

When using DIAMAG adapter plates, you can replace the diamond wings without using any tools! Because of the specially designed heat resistant magnets and fixation pins, the diamond tools are fixed onto the plate, but can still very simply be replaced by hand.

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



4.5 Adjustable weights

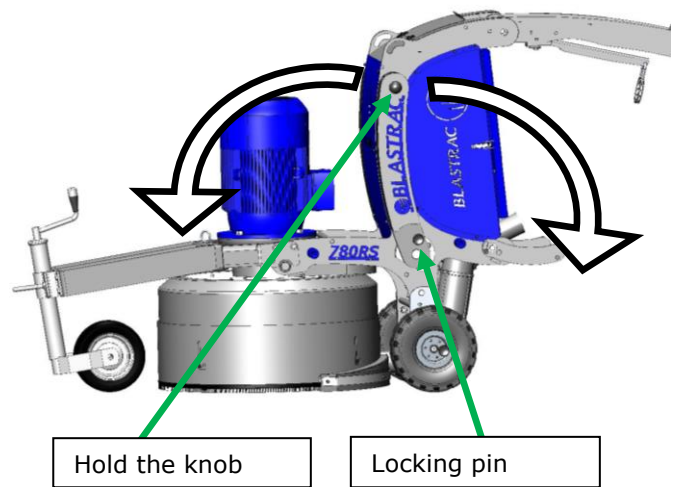
The machine has adjustable weights mounted at the sides, they can be set for high, medium or low grinding pressure.

Hold the knob of the weight firmly in your hand. Be careful! The adjustable weight is heavy!

With your other hand pull out the locking pin and adjust the weight forward or backward to the desired position. Lock the locking pin back in position.

Repeat on the other side of the machine.

The position of the adjustable weights and steering handle allows the operator to regulate the grinding pressure very precise.



Grinding pressure **BMG-780RS BD:**

- 260 Kg = Steering handle horizontal and the adjustable weights backwards.
- 318 Kg = Steering handle up and the adjustable weights in the middle.
- 373 Kg = Steering handle to the front and the adjustable weights to the front.

Grinding pressure **BMG-735RS BD:**

- 199 Kg = Steering handle horizontal and the adjustable weights backwards.
- 252 Kg = Steering handle up and the adjustable weights in the middle.
- 299 Kg = Steering handle to the front and the adjustable weights to the front.

The net-weight of the adjustable sideweights-set is 66Kg. (33Kg per sideweight)



4.6 Changing the wings / discs

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 a **dust mask** of at least **class FFP3** and **gloves**.
- 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.

Correct position of the machine for changing tools.





Remove the key of the dead man's switch, press the red stop button, and unplug the machine from the power supply.
This is to prevent unintentional start-up of the machine.



Before you tilt the machine back, make sure the electrical cable and dust hose cannot get damaged when you tilt the machine back.

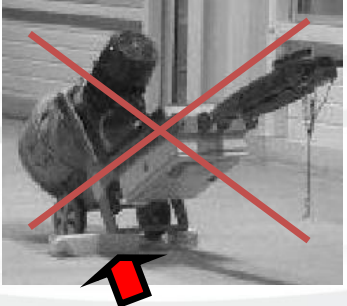
Put the steering handle in the upright (vertical) position, stand with one foot on the bracket and pull on the handgrips to tilt the machine backwards.



WARNING!
This is an unstable position of the machine.
Danger of tipping if the handle is not raised.



Tilt the machine back and lay down the machine so it is laying on the metal support underneath the electrical box. 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.



If there is a risk of damaging the floor-coating when tilting the machine back, you can place a piece of cloth, a sheet, a thin wooden board or something similar underneath the metal supports.

WARNING! Danger of injury.
Do not let the machine rest on thick wedges or thick wooden beams. This can cause the machine to fall back down!



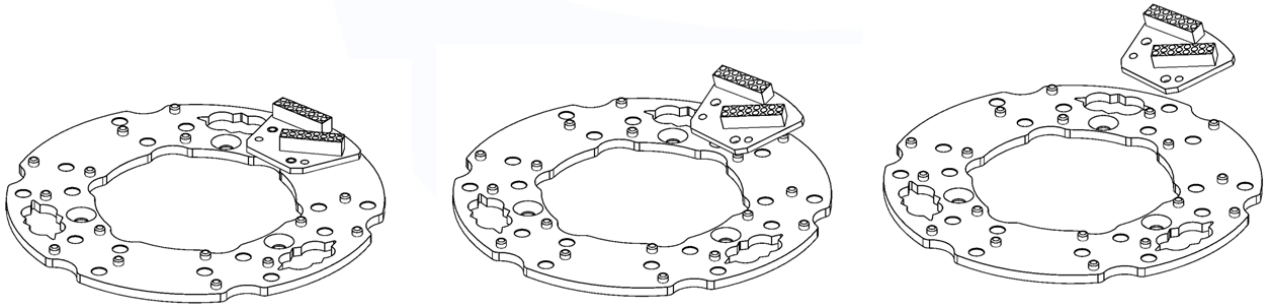
Use the vacuum cleaner to remove excessive dust.

A tool (spatula, screwdriver) makes it easier to release the plate off the velcro.



Removing the diamond wings

- Read chapter 3 Safety first, and wear personal protective equipment.
- Lay down the machine so it is laying on the metal support underneath the electrical box. 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.
- Remove all the dust using the vacuum cleaner.
- Grab the diamond wings at the place where the gap in the Diamag plate is and roll the wing over so the wing can be taken off of the plate. (See picture below)



Mounting the diamond wings

- Read chapter 3 Safety first, and wear personal protective equipment.
- Lay down the machine so it is laying on the metal support underneath the electrical box. 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.
- Clean the Diamag plates using the vacuum cleaner so the diamond wings will connect well to the plate.
Dirt between the plates and wings can be the cause of uneven grinding results.
- Place the diamond wings one by one on the Diamag plates.

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.

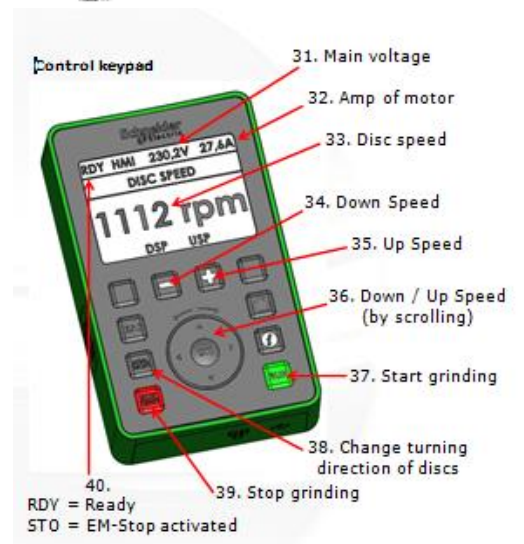
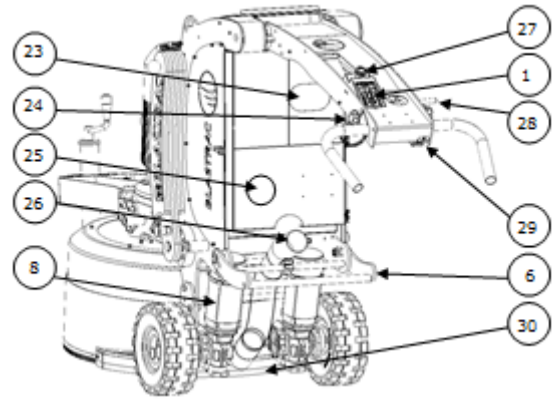


5. Operating

When operating the BMG-735 / 780 RS, the following additional safety instructions must be followed closely.

5.1 Switch on the machine when operating manually

- Turn on the dust collector before switching on the machine and connect the dust hose to the machine (26).
- Make sure the electric component box is closed.
- Turn the contact key (63) on the electrical box to the "LOCAL" position.
- Connect the power supply to the connector.
- Turn on the main power switch (25) and check the Power supply failure indicator (23) (For 230V version only).
- Stand behind the machine and hold the handle tight.
- Fasten the cord of the deadman switch (29) on to your arm or fasten it on to your clothing.
- Check the display (1) to make sure there are not any faults or warnings and no EM-stop is activated (40). RDY = Ready, STO = EM-Stop activated. STO could mean the Emergency stop (27) or the deadman switch (29) is activated.
- Be sure that the red stop-switch (27) is turned up.
- Scroll the speed regulation button (36) counter clockwise so the machine will turn as slow as possible.
- Push the CHANGE TURNING DIRECTION-button (38) to choose Left or Right turning.
- To start the machine, push the green Start button (37).
- Raise the speed of the machine by scrolling the speed regulation button (36) or Push the UP SPEED-button (35) if necessary.



5.2 Switch off the machine when operating manually

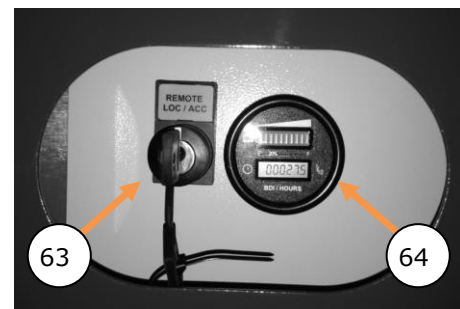
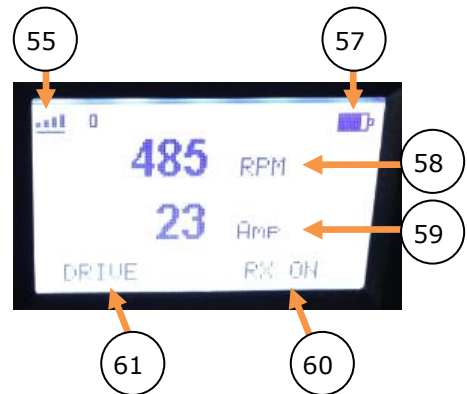
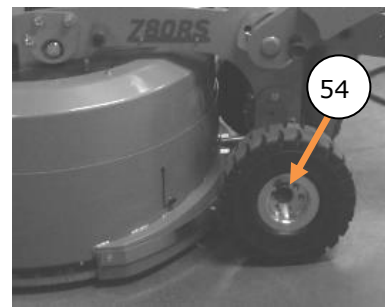
- Push the red stop-button (39) on the control panel.
- Wait until the machine stops rotating.
- Pull out the cord of the deadman switch (29)
- Pull the power supply out of the connector.
- Shut down the dust collector.

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



5.3 Working with the Remote control

41	RESET / connection button	49	STOP button grinding motor	57	Battery power of the remote control
42	Joystick drive motors	50	SPEED FORWARD button drive motors	58	RPM of the grinding discs
43	Control display	51	TRACKING button drive motors	59	The amperage of the grinding motor
44	Battery warning light	52	FORWARD/REVERSE drive	60	Remote control connection indicator
45	Connection indicator	53	AUTO DRIVE button drive motors	61	AUTO DRIVE ON indicator
46	SPEED grinding motor	54	Quick release pin	62	ON/OFF button for remote control
47	LEFT / RIGHT switch grinding motor	55	Signal strength indicator	63	Switch for LOC / REMOTE / ACC
48	START button grinding motor	56	-	64	Battery power





- Always test the machine manually before switching over to the Remote System.
- Make sure the key is in the deadman switch and the emergency stop button on top of the steer is turned up.
- Turn the contact key (63) on the electrical box left to "LOC".
- Secure the belt with the remote control around the waist.
- Make sure the wheel system is locked by turning both quick release pins into the wheels (54).
- Make sure the remote control is turned on (62).
- Push the RESET button (41) for 2 seconds and switch the LEFT/RIGHT switch (47) up and down.
- Turn the SPEED button (46) till 0, so the grinding motor will turn as slow as possible.
- To start grinding, push the START button (48).
- Raise the speed of the grinding tools if necessary, with the speed regulation button (46).
- Push the joystick (42) in the desirable direction to the drive the machine. The further the joystick (42) is pushed into the desirable position, the faster the machine moves.
- The SPEED FORWARD button (50) & the TRACKING button (51) don't work in the manually controlled mode, these functions only work in AUTO DRIVE-mode.
- You can turn the machine around its axle by pushing the joystick totally to the right or totally to the left. The machine can also turn around one wheel, this can be done by pushing the joystick to the left or right upper corner.

AUTO DRIVE-mode

- Use the FORWARD/REVERSE-switch (52) to select forward or reverse driving.
- Use the SPEED FORWARD (50) to select the driving speed, always start slowly at first.
- Set the TRACKING (51) in the middle position.
- Now push the DRIVE-button (53), to drive the machine automatically.
- Steer the machine left or right with TRACKING (51) and change the driving speed with (50).

NOTE: The joystick does not work in AUTO DRIVE-mode.

Push the DRIVE-button (53) to stop the AUTO DRIVE-mode. The machine can now be controlled with the joystick again.

Always stop driving first before stop grinding!

- To stop grinding, push the STOP button (49)
- After pushing the EMERGENCY button (27), reset the control unit by pushing the RESET button (41) for 2 seconds and switch the LEFT/RIGHT switch (47) up and down.



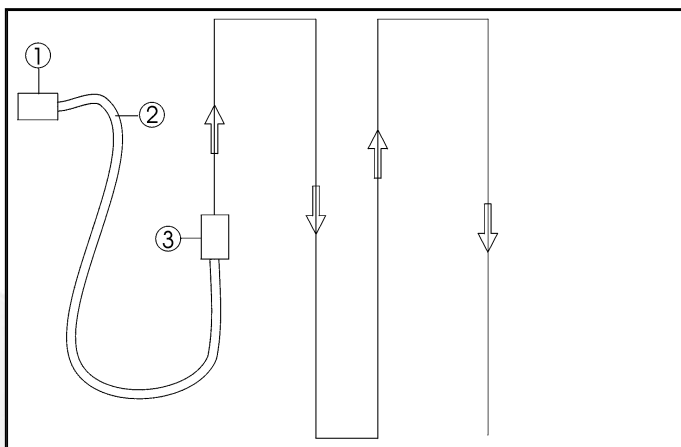
5.4 Operating during grinding

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, with the weights tilted backwards. 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.

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

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 dustbag /bigbag. 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.



5.5 Wet grinding

The BMG-735 / 780 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 workfloor can get slippery when grinding wet.
- Keep all electrical cables and connections away from water.

IMPORTANT NOTE:

Do not use the vacuum cleaner 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.





6. Maintenance

Pay attention to Chapter 3 "**Safety**" 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 blast 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. Perform daily maintenance on remote control transmitter.
Weekly	Check the buffers of the diamond plates. Check and clean the contact points of the remote control, the battery and the battery-charger. Clean the inside of the electrobox with a dustcollector.
Every 3 months	Clean the complete machine with a damp cloth.
Annually	Full overhaul and cleaning of the complete machine. Perform yearly maintenance on remote control transmitter.

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. Disconnect the power supply.

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

(For example the remote control system)

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 automatically void when:

- Non original Blastrac parts and or diamond discs have been used
- Repair work is not done by qualified Blastrac personnel



- Changes, add items, or conversions are undertaken without the written permission from Blastrac.

Further is advised:

Store the cleaned and dry machine in a dry and humid free room. Protect the electrical motor 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.



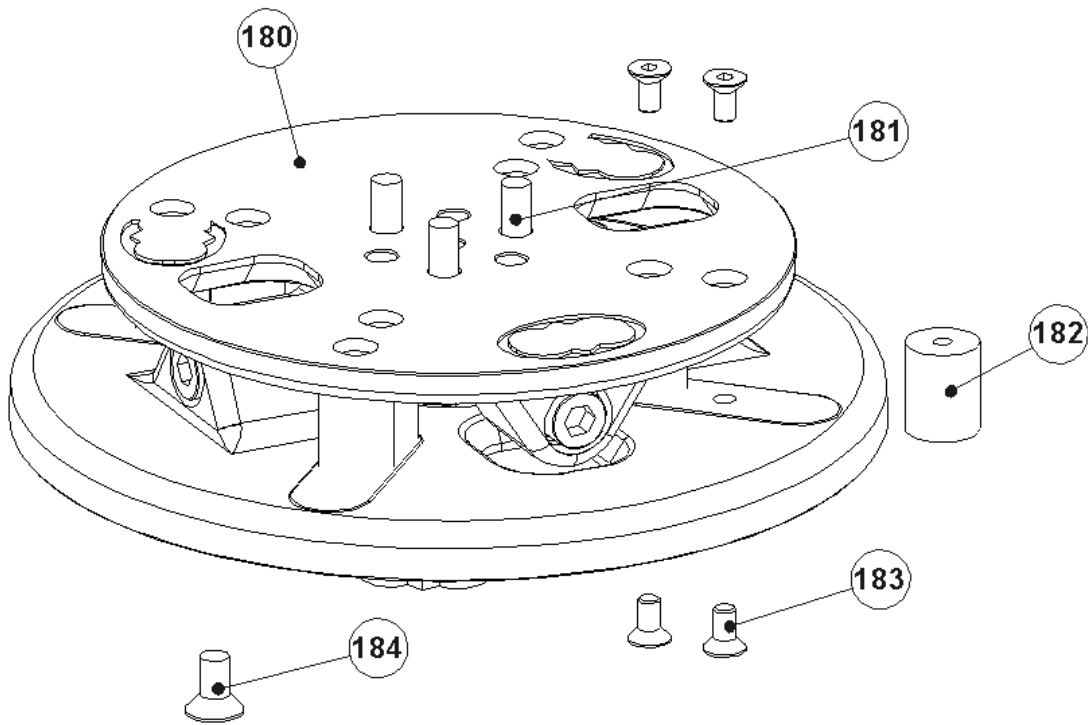


6.1 Buffers

Check weekly if the diamond plates have too much space in the buffers.

If the diamond plate has too much space, replace complete buffer plate.

Standard the buffer plates are delivered with 4 shock absorbers, this can be changed to 8 absorbers by adding 4 extra.

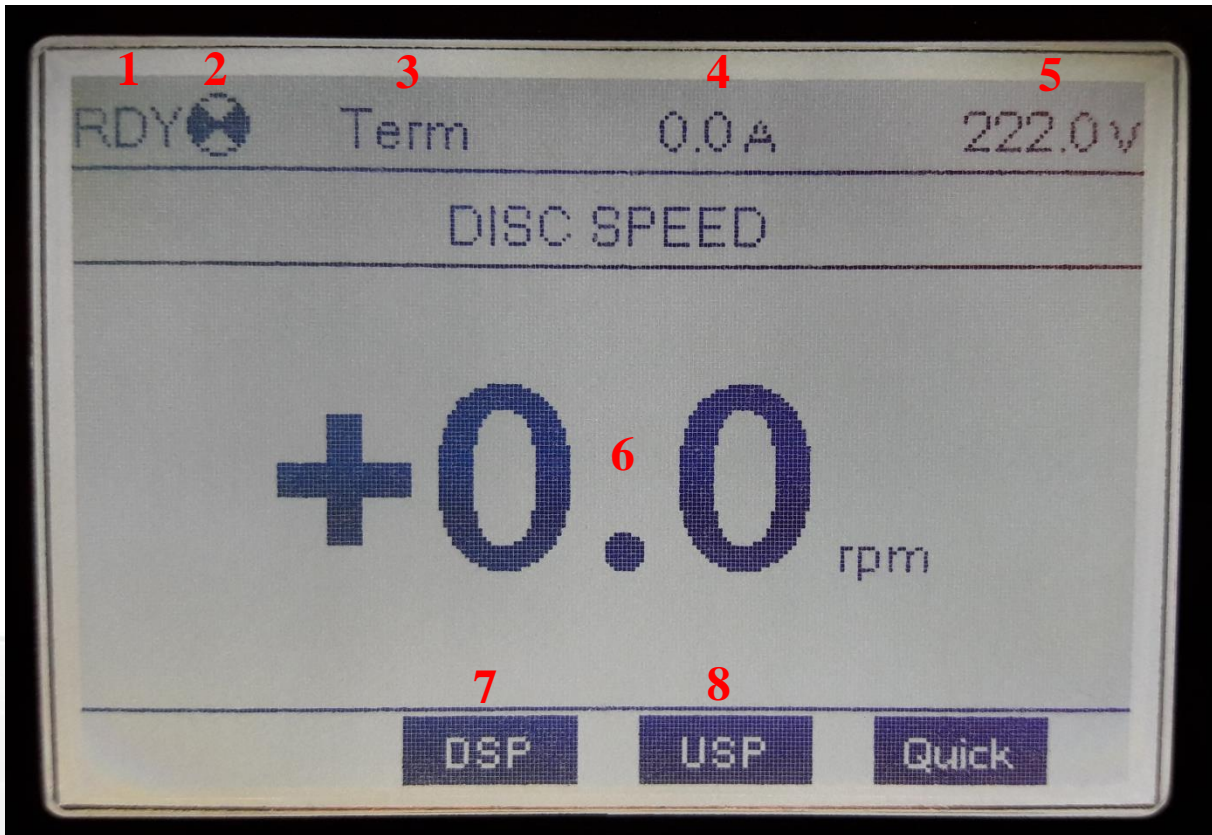


Item	Part number	Description	Qty. (x3 per machine)
180	E10172-240MM	Buffer complete	1
181	BE0011	M8x20 hexagon socket head cap screw	3
182	E12065	Shock absorber	4 / 8
183	BE0955	M6x12 hexagon socket countersunk 10.9	8 / 16
184	BE0456	M8x16 hexagon socket countersunk	3



6.2 Control Keypad

Picture 0-1 shows a number of important symbols and indicators displaying the status of the machine, the indicators are described in table 1.



Picture 0-1 The ready screen

Number	Description
1	This is the current state of the drive: RDY : means ready; the drive is ready to use. STO : Safety Stop; the drive has no input on the STO contact. ACC : Acceleration; the motor is accelerating to reach is set value DEC : Deceleration; the motor is decelerating to reach is set value or stopping. NST : Freewheel stop; Stopping the drive. There could also be some other errors shown.
2	The symbol that the background software is on. When it is not filled with two black quarters, the background software is not working and the machine will not run.
3	This is the type of command channel. In this case " Term ", this is when the motor is stop, when it is running it will change to HMI .
4	Motor current in Ampere.
5	Supply voltage in Volt.
6	Rotation speed of diamond discs
7	Down Speed button for lowering speed of diamond discs
8	UP Speed button for speeding up the diamond discs

Table 1



When the motor is running the screen will change a bit, in the top left corner RUN will appear and there should be a current greater than 0,0A. The most important change is the parameter value, in the case of picture 0-2 this is the set disk speed, the value marked in black is the value you can adjust with the control wheel.



Picture 0-2 Running screen

Menu's

When the main screen is on and "Esc" is pressed you will enter the main menu:

1. **DRI**: Drive menu; the drive parameters and settings
2. **Identification**: Drive information, type and software version.
3. **Interface**: settings for the display language and access level.
4. **TRA**: store and load the configuration on the remote.
5. **Password**: to unlock the remote.

Hour timer

The operating time of the machine can be found if you follow the steps below:

1. DRI
2. Display
3. Power-On time;
 - o **APH**: Energy consumption.
 - o **Motor Run Time**: Elapsed run time of the motor (time that the motor has been switched on).
 - o **Power-on time**: Elapsed power-on time (time that the drive has been switched on).
 - o **Time Counter Reset**: can reset, depending on the selection, one of the tree above values.

Fault history

The fault history of the machine can be found if you follow the steps below:

1. DRI
2. Display
3. DGT
4. Error history;
 - o Here are the last 10 errors shown, by selecting one there is more info found about the fault, such as:
 - Driver state
 - Motor current
 - DC bus voltage

Language

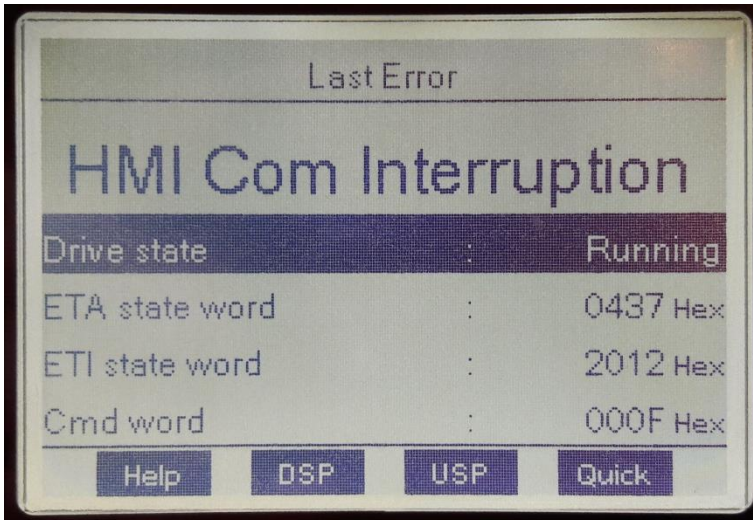
To change the language of the machine follow the steps below:

1. Interface
2. Language
 - Select the language you want to use.



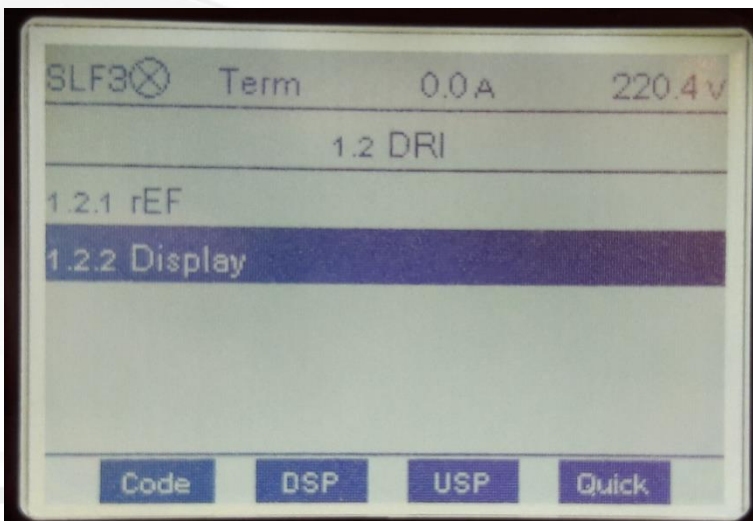
Fault handling

If there is an alarm the first thing to do is press help (F1) on the screen for a short explanation and a possible solution. If the solution is not working or not possible to execute you can always try to restart the machine. Restarting is done by turning the switch to off and wait for the screen to go dark then wait a minute and switch the power back on.



Picture 0-3 The help button with a fault

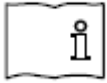
When there is a failure it will always show itself in the top left corner of the screen, as shown in picture 0-4.



Picture 0-4 An alarm in the top left corner



6.3 Remote control maintenance



Always refer to the Safety, Service & Maintenance instructions from the Manufacturer for all information.

Periodical Maintenance

To maintain availability and operational safety, a regular maintenance is necessary on the system.

Daily maintenance

Before each use of the transmitter, check the following items for faults or damages:

- Visual inspection of rubber sealing around levers
- Broken/faulty switches or controls
- Visual inspection of transmitter housing (cracks, dents)
- Visual inspection of carrying device
- Test of battery lock is working normally
- Test of manual stop button (it shall be intact and easy to move)

Check function of:

- Check function of transmitter LED signals, short flash at power up.
- Check function of transmitter "Tilt function", by tilting the transmitter 90 degrees out of normal carry position.

If there is any damage or fault contact an authorised service technician.

After every workday, use air to blow the dust off the transmitter.

Weekly maintenance

- Clean the battery contacts and the contacts on the transmitter and charger. Do not use any **aggressive** cleaning materials!
- Clean the transmitters control panel and check that the print is still readable. Do not use any **aggressive** cleaning materials!

Yearly maintenance

To maintain availability and operational safety, a yearly maintenance is necessary on the system. Only personnel trained and qualified by Akerströms may perform the scheduled maintenance.

The maintenance is divided into a yearly check and an every 4th year check.

- Visual inspection of assembly Yearly
- Replacement of seal boots for switches Yearly
- Replacement of detent springs in joystick Every 4th year
- Replacement of bellow for joystick Yearly
- Replacement of stop switch Yearly or after 7600 cycles,

Do not attempt to continue working with a defect remote control. Even initially minor defects might be the start of a more extensive and expensive defect.



7. Troubleshooting

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.	Check the mains power supply and try to switch on again. Find fault and replace defective component.
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 Undervoltage relais (when applicable).	Plug in cable. Turn on main Switch (when applicable). Check if undervoltage relais 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 deadmans 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.
Grinder motor will not start when start is pushed on HMI or when start switch is (when applicable depending type)	Drive not RDY or in Fault	error message in frequency drive (see also drive manual).	check the fault message and take corresponding action as described in drive manual. When in "STO" or "PWR" (depending of type) than this means there is no 24Vdc to these inputs so check EM-stop circuit (see above).
Remote control keeps losing connection with the machine	The remote control is tilted too much. Too much distance between remote control and receiver. Dirty contact points on the battery of the remote control, or dirty contact points inside the remote control.	Is the remote control used horizontal with the belt secured around the waist? Check the distance. Check the remote control, its battery and battery charger for dirt.	One of the safety features on the remote control will shut the machine down when it thinks the operator has fallen down. For this reason the remote control has to stay horizontal during use. Stay closer to the machine. Consult the instruction manual of the remote control system and clean all the contact points (do not use aggressive cleaning agents, this could cause damages.)



8. Technical data

BMG-780RS

	BMG-735RS 3x 400 volt	BMG-780RS 3x 230 volt	BMG-780RS 3x 400 volt	BMG-780RS 3x 480 volt
Power consumption	11kW	17,8 kW max.	17,8 kW max.	17,8 kW max.
Electrical connection	3x 400 Volt	3x 230 Volt	3x 400 Volt	3x 480 Volt
Frequency	50 Hz	60 Hz	50 Hz	60 Hz
Amperage connection	5 pole / 32 Ampere	5 pole / 63 Ampere		
Amperage consumption	22.7 amp. Max.	49 Amp Max.	32,9 Amp Max.	32,9 Amp Max.
Length	2276	2322 mm		
<i>Folded in</i>	<i>1450</i>	<i>1473 mm</i>		
Width	751	788 mm		
Height	1259	1310 mm		
<i>Folded in</i>	<i>1259</i>	<i>1345 mm</i>		
Weight machine	539 kg (incl. FW) 559 kg (excl. FW)	639 kg (incl. front wheel) 620 kg (excl. front wheel)		
Weight grinding head	199 – 299 kg	260 - 375 kg		
Diamond discs	3x Ø240 mm	3x Ø240 mm		
Work width	735 mm	780 mm		
Rotation speed discs	350 – 1100 min ⁻¹	400 - 1200 min ⁻¹		
Sound emission pressure level	78dB(A)	78dB(A)		
Hand-arm vibration emission level	Less than 2,5m/s ²	Less than 2,5m/s ²		
Dust hose connection	75 mm Ø			
Suitable filter unit	Contact Blastrac, we will assist you with a good advice			

The electrical diagrams of the electrical system are placed inside of the control panel.
Design and specifications are subject to change without notice by Blastrac BV.

If the grinding machine 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.



Vibration level:

Declaration in conformance with EN 12096: 1997
Hand- arm vibration a_{hv} 1,6 m/s²
Uncertainty K 0,5 m/s²
Grinding surface: Terrazzo
Tooling: Green wings 60/80

Measurement in conformance with EN-ISO 20643: 2008 + Amd 1: 2012
Expanded uncertainty K (EN 12096 annex B)

Because the value is below 2,5 m/s², there is no need to use measures to decrease hand-arm vibrations.

Tips for decreasing the exposure to hand- arm vibrations:

- Protect the hands with vibration dampening gloves
E12000 – Anti-vibration gloves
- Clean the plates before attaching the wings
- Clean the wings before attaching them to the plates
- Proper maintenance of the machine
- Scheduled replacement of the shock absorbing machine parts
- Keep the hands warm
- Prepare a work schedule and plan in rest periods

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. Hearing protection is recommended with the use of this equipment.

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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