



Original instructions

OPERATING INSTRUCTIONS

ULTRA PRO 735 & ULTRA PRO 780

Version 1.0

Diamatic USA

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EC DECLARATION OF CONFORMITY

in accordance with Appendix II sub A of Directive 2006/42/EC

We,

DIAMATIC

Utrechthaven 12
NL - 3433 PN NIEUWEGEIN
The Netherlands

Declare under our sole responsibility that the grinding machine as described below,

Model:

BMG-780PRO / BMG-735PRO

Serial number: xxxxxxxx

satisfies the conditions set out in the:

Machinery Directive
Low Voltage Directive
EMC Directive

(2006/42/EC);
(2014/35/EU);
(2014/30/EU);

Where appropriate, are in conformity with the following harmonized standards:

NEN-EN-ISO 12100:2010
NEN-EN-IEC 60204-1:2006/C11:2010

In case of changes to the machine without our written authorization this declaration loses its validity.

Nieuwegein, 20-01-2017

Michiel Kalisvaart
Operational Manager

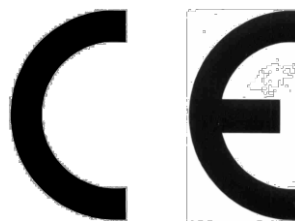




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1. Introduction

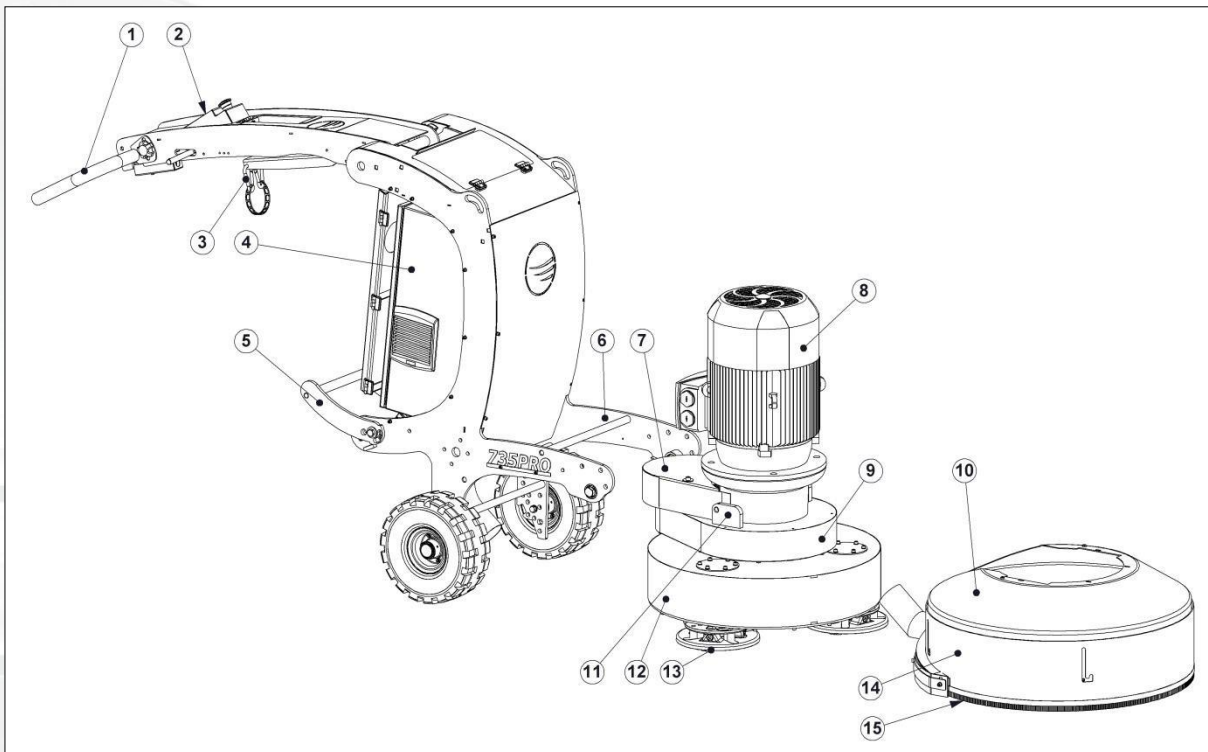
Before use, operators must be provided with information, instruction and training for the use of the machine and the substances for which it is to be used, including the safe method of removal and disposal of the material collected. All persons who are working with or maintaining this machine must read the manual carefully and understand it fully. In case you sell the unit, hand this manual over 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. **Diamatic** 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

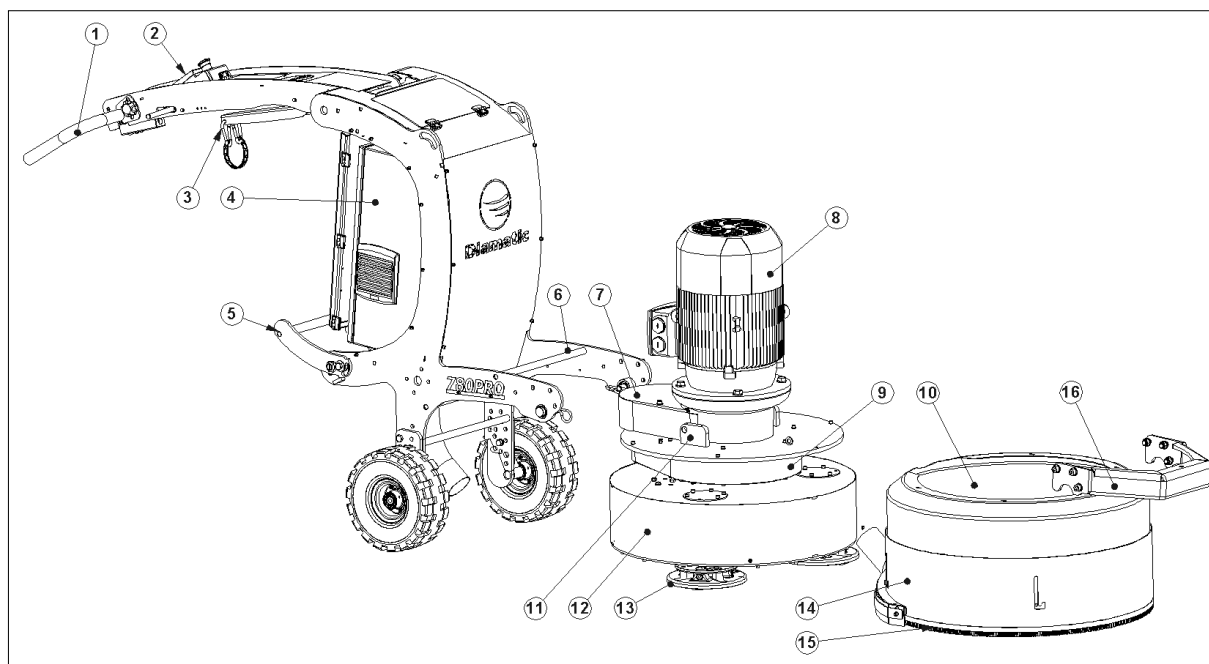
The ULTRA PRO 735 & ULTRA PRO 780 are electrical driven planetary grinding machines. These are three headed machines for levelling and polishing of indoor floors. The 3 planetary rotating discs are Ø 240 mm. It can be used for dry and wet applications. The ULTRA PRO 735 / 780 can be used on almost any floor to plane, to make ready for coatings, or to remove coatings or glue residues. The machines may not be used without an adequate dust extraction system. A specially designed Diamatic dust collection system ensures dust-free operation of the machine and clean air at the workspace. These machines may not be used on wood.

ULTRA PRO 735

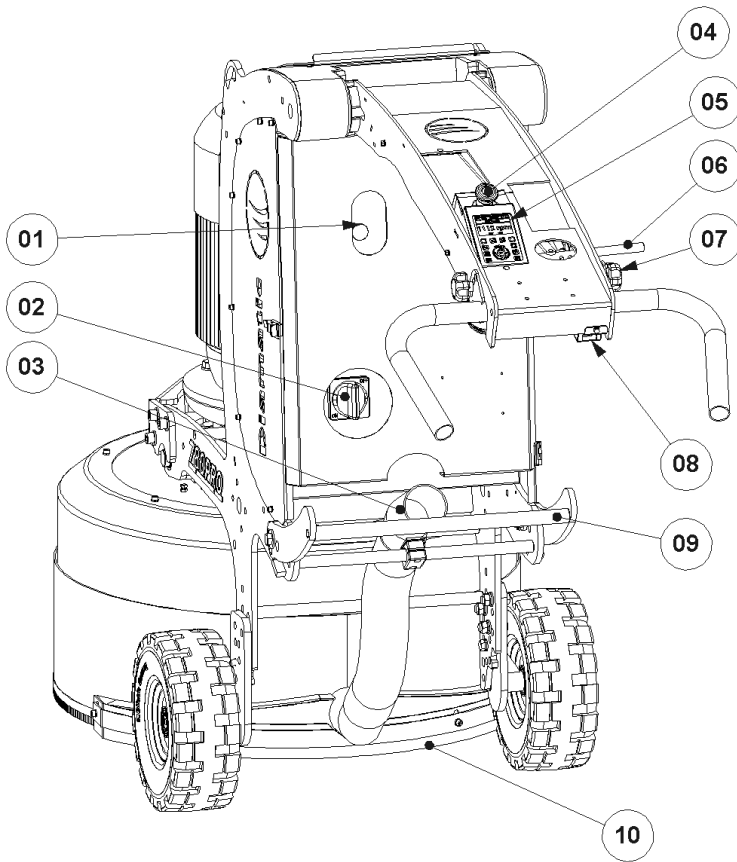




ULTRA PRO 780

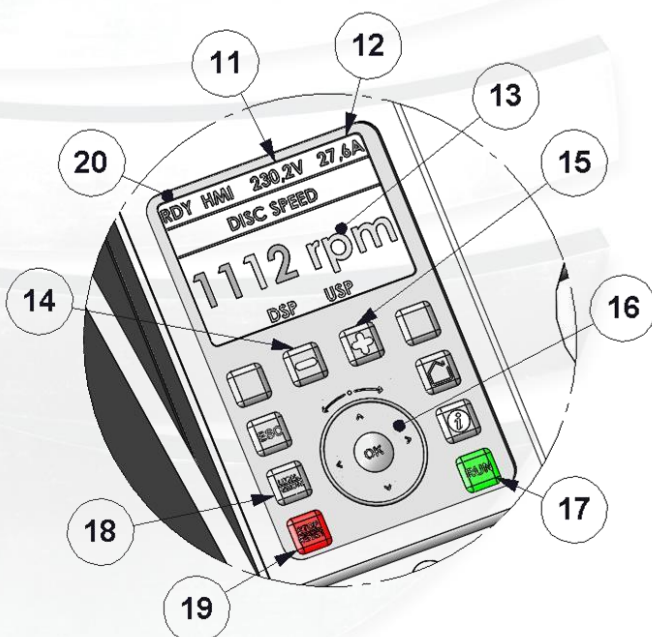


1	Steer handle	9	Upper drive
2	Operating panel	10	Dust cover
3	Swing arm for dust hose	11	Frame mounting eyes
4	Electric control box	12	Lower drive
5	Tilting support	13	Grinding buffer
6	Machine frame	14	Dust floating shroud
7	Protection cover	15	Brush for shroud
8	Drive motor	16	Front support



1	Power supply failure indicator (For 230V version only)
2	Main power switch ON/OFF
3	Dust hose attachment
4	Emergency stop button
5	Control keypad
6	Lever for adjusting steering handle
7	Fixing knob for ergonomic steer
8	Key + cord for dead mans switch
9	Tilting support
10	Integrated floor nozzle on floating shroud
11	Main voltage indication
12	Ampere of grinding motor
13	Speed of the grinding discs
14	Grinding speed DOWN button
15	Grinding speed UP button
16	Down / Up grinding speed (by scrolling)
17	START grinding button
18	Change the turning direction of grinding discs button
19	STOP grinding button
20	RDY = Ready STO = EM-Stop activated

Control keypad





3. Accessories

<i>Part</i>	<i>Description</i>
Adaptor Plates	
<i>DIA-SUPERMAG-2</i>	Heavy Duty Quick Change Plate
<i>E10366</i>	Resin Adaptor Full Round
<i>E07240-2</i>	(DIAMAG 780/735 Plates 2 nd generation)
Buffalo Wings	
<i>BFL708320S-2</i>	(18/20 Grit Extra Large Double Seg Soft (Red)) For Hard Concrete
<i>BFL708340S-2</i>	(30/40 Grit Extra Large Double Seg Soft (Red)) For Hard Concrete
<i>BFL708380S-2</i>	(60/80 Grit Extra Large Double Seg Soft (Red)) For Hard Concrete
<i>BFL7083140S-2</i>	(120/140 Grit Extra Large Double Seg Soft (Red)) For Hard Concrete
<i>BFL708320-2</i>	(18/20 Grit Extra Large Double Seg Medium (Green)) For Medium Concrete
<i>BFL708340-2</i>	(30/40 Grit Extra Large Double Seg Medium (Green)) For Medium Concrete
<i>BFL708380-2</i>	(60/80 Grit Extra Large Double Seg Medium (Green)) For Medium Concrete
<i>BFL7083140-2</i>	(120/140 Grit Extra Large Double Seg Medium (Green)) For Medium Concrete
<i>BFL708320H-2</i>	(18/20 Grit Extra Large Double Seg Hard (Blue)) For Soft Concrete
<i>BFL708340H-2</i>	(30/40 Grit Extra Large Double Seg Hard (Blue)) For Soft Concrete
<i>BFL708380H-2</i>	(60/80 Grit Extra Large Double Seg Hard (Blue)) For Soft Concrete
<i>BFL7083140H-2</i>	(120/140 Grit Extra Large Double Seg Hard (Blue)) For Soft Concrete
Poly Crystalline Diamonds	
<i>BG200995-2</i>	(Wing PCD 1x1)
<i>BG200997-2</i>	(Wing PCD Split 18/20 Grit)
<i>BG200999-2</i>	(Wing PCD ¼ round)
Bush Hammering Tools	
<i>E09119/Set</i>	(Replacement Bush Hammer/Specify set of 9 or 15)
<i>E10240</i>	(Cutter Plate with 5 Bush Hammers-Complete)
<i>E09580</i>	(Cutterplate Only 240mm for 5 tools)
<i>E07240-2</i>	(DIAMAG 780/735 Plates 2 nd generation)
10 SEG Round	
<i>DIA18/20PLUG-S</i>	(18/20 Grit 10 Seg Soft (Red)) For Hard Concrete
<i>DIA30/40PLUG-S</i>	(30/40 Grit 10 Seg Soft (Red)) For Hard Concrete
<i>DIA60/80PLUG-S</i>	(60/80 Grit 10 Seg Soft (Red)) For Hard Concrete
<i>DIA120/150PLUG-S</i>	(120/150 Grit 10 Seg Soft (Red)) For Hard Concrete
<i>DIA18/20PLUG</i>	(18/20 Grit 10 Seg Soft (Green)) For Medium Concrete
<i>DIA30/40PLUG</i>	(30/40 Grit 10 Seg Soft (Green)) For Medium Concrete
<i>DIA60/80PLUG</i>	(60/80 Grit 10 Seg Soft (Green)) For Medium Concrete
<i>DIA120/150PLUG</i>	(120/150 Grit 10 Seg Soft (Green)) For Medium Concrete
<i>DIA18/20PLUG-H</i>	(18/20 Grit 10 Seg Soft (Blue)) For Soft Concrete
<i>DIA30/40PLUG-H</i>	(30/40 Grit 10 Seg Soft (Blue)) For Soft Concrete
<i>DIA60/80PLUG-H</i>	(60/80 Grit 10 Seg Soft (Blue)) For Soft Concrete
<i>DIA120/150PLUG-H</i>	(120/150 Grit 10 Seg Soft (Blue)) For Soft Concrete
Resin Types	
<i>PA-103050</i>	(#0 50 Grit 3" Transitional Diamond)
<i>PA-103100</i>	(#1 100 Grit 3" Transitional Diamond)
<i>DIA3SUPERFLEX50</i>	(50 Grit 3" Superflex Resin)
<i>DIA3SUPERFLEX100</i>	(100 Grit 3" Superflex Resin)
<i>DIA3SUPERFLEX200</i>	(200 Grit 3" Superflex Resin)
<i>DIA3SUPERFLEX400</i>	(400 Grit 3" Superflex Resin)
<i>DIA3SUPERFLEX800</i>	(800 Grit 3" Superflex Resin)
<i>DIA3SUPERFLEX1500</i>	(1500 Grit 3" Superflex Resin)
<i>DIA3SUPERFLEX3000</i>	(3000 Grit 3" Superflex Resin)
<i>DIA3SEMI50</i>	(50 Grit 3" Semi Metal Resin)
<i>DIA3SEMI100</i>	(100 Grit 3" Semi Metal Resin)
<i>DIA3SEMI200</i>	(200 Grit 3" Semi Metal Resin)
<i>DIAITS800100-2</i>	(100 Grit 3" 6mm resin Black)
<i>DIAITS800200-2</i>	(200 Grit 3" 6mm resin Black)
<i>DIAITS800400-2</i>	(400 Grit 3" 6mm resin Black)
<i>DIAITS800800-2</i>	(800 Grit 3" 6mm resin Black)
<i>DIAITS801500-2</i>	(1500 Grit 3" 6mm resin Black)
<i>DIAITS803000-2</i>	(3000 Grit 3" 6mm resin Black)



4. 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.

4.1 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.

4.2 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 electro box.)
- 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.

4.3 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 deadman switch key should always be fastened on your arm or on to your clothing.
- e) Pull out the key of the deadman 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.

4.4 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, especially 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 Diamatic personnel, this guarantees a safe and reliable machine.
- k) **Always use original Diamatic spare parts, grinding disks, grinding wings and polishing pads.** This will ensure the best performance. Only original Diamatic parts meet the factory specifications and quality. Otherwise Diamatic 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!



4.5 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.

4.6 Safety regarding dust collectors

- a) Always use a suitable Diamatic 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!

4.7 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.



4.8 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 grinding machine is between 299 and 487 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 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.

Transport mode



ULTRA PRO 735



ULTRA PRO 780

4.9 Signs on the machine

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

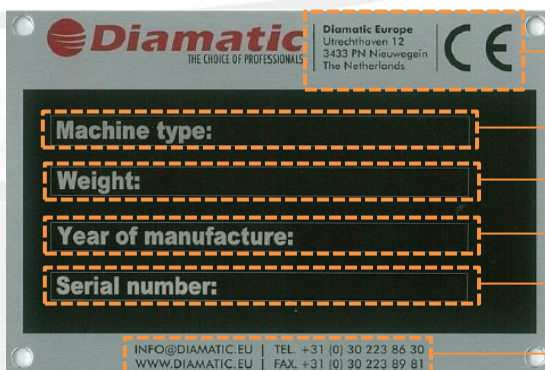


- Wear a dust mask class FFP3 or higher
- Hearing protection is obliged
- Safety glasses with lateral protection are obliged
- CE-mark on this machine
- Wear protecting gloves
- Safety shoes obliged
- Consult the manual before operating the machine



- Danger, disconnect electrical supply before working on this equipment

Personnel must tie back long hair and not wear loose clothing or jewellery including rings.



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.

The machine type.



5. 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 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

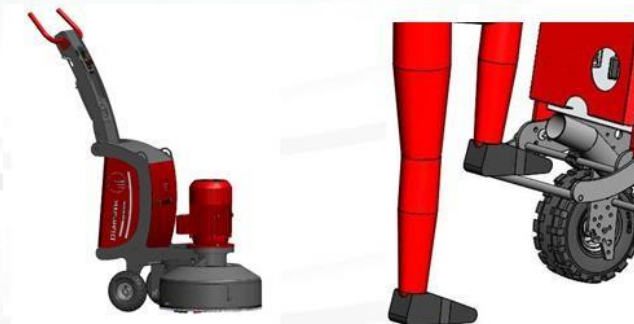
- Use only extension cables for extending the main cable that are sized and marked in accordance with the overall power consumption of the machine.
- Electrical cables must be fully unwound of them reels.
- No damage is permitted for electrical cables.
- Use an electrical power supply connection with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

4.3 Manual moving of the machine

Put the steering handle in the upright (vertical) position, stand with one foot on the tilting support and pull on the handgrips to tilt the machine backwards. It can now be pushed around on its wheels.



The machine should only be moved around when the dust hose, water supply 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.



4.4 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 tilting support 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 tilting 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!



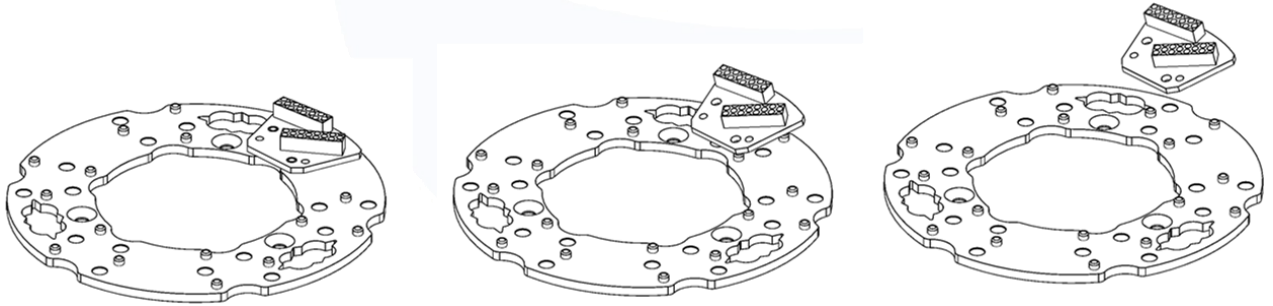
Use the vacuum cleaner to remove excessive dust.

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.

4.5 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 4.4** 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.

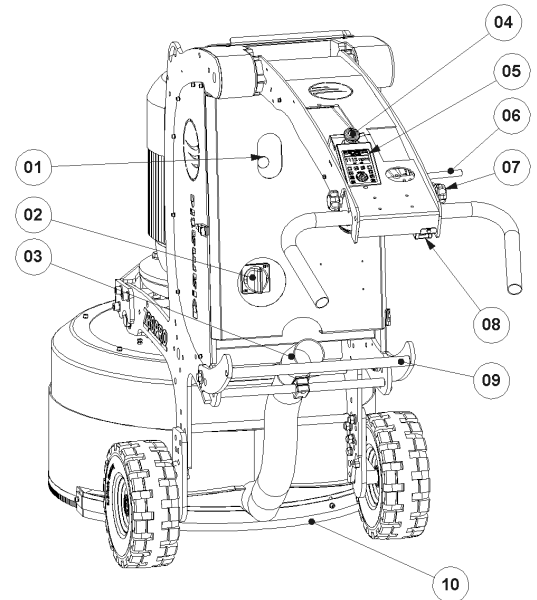


6. Operating

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

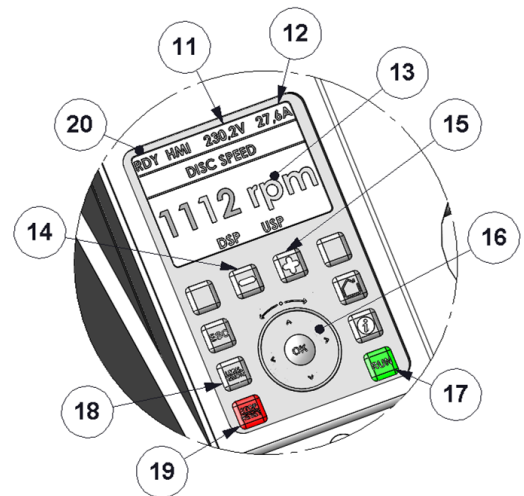
5.1 Switch on the machine

- Turn on the dust collector before switching on the machine and connect the dust hose to the machine (3).
- Make sure the electric component box is closed.
- Connect the power supply to the connector.
- Turn on the main power switch (2) and check the Power supply failure indicator (1) (For 3x230V version only).
- Stand behind the machine and hold the handle tight.
- Fasten the cord of the deadman switch (8) on to your arm or fasten it on to your clothing.
- Check the display (5) to make sure there are not any faults or warnings and no EM-stop is activated (20).
RDY = Ready, STO = EM-Stop activated. STO could mean the Emergency stop (4) or the deadman switch (8) is activated.
- Be sure that the red stop-switch (4) is turned up.
- To start the machine, push the green Start button (17).
- The machine will start at lowest speed of tools.
- Raise the speed of the machine by scrolling the speed regulation button (16) or Push the UP SPEED-button (15) if necessary.
- Scroll the speed regulation button (16) counter clockwise or use the DOWN SPEED-button (14) so the machine will turn as slow as possible.
- Push the CHANGE TURNING DIRECTION-button (18) to change from Left or Right turning.



5.2 Switch off the machine

- Push the red stop-button (19) on the control panel.
- Wait until the machine stops rotating.
- Pull out the cord of the deadman switch (8)
- 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!

This can be done by the red stop-button (19) or the red emergency switch (4).



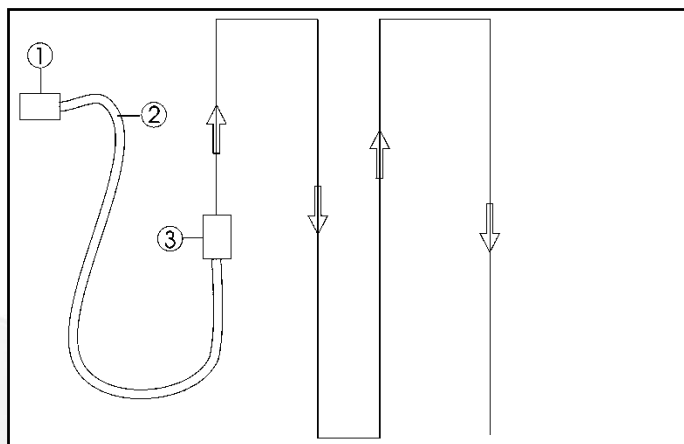
5.3 Operating during grinding

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.

Contact our experts at Diamatic 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.

5.4 Wet grinding

The BMG-735 / 780 can also be used for wet grinding.

- Connect the machine to the water supply. (use the water kit E09148 for grinding wet)
- 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.



7. 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.
Weekly	Check the buffers of the diamond plates.
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 Diamatic 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.

Generally the grinding machines require very little special attention regarding its maintenance. After using the machine, clean the machine with the dust collector, so there is no dust on or in the machine. See to it that any wastes or fibre residues do not remain in the area of the grinding discs. 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.

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



Any guarantee on the machine is automatically void when:

- Non original Diamatic parts and or diamond discs have been used
- Repair work is not done by qualified Diamatic personnel
- Changes, add items, or conversions are undertaken without the written permission from Diamatic.

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 Diamatic 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.



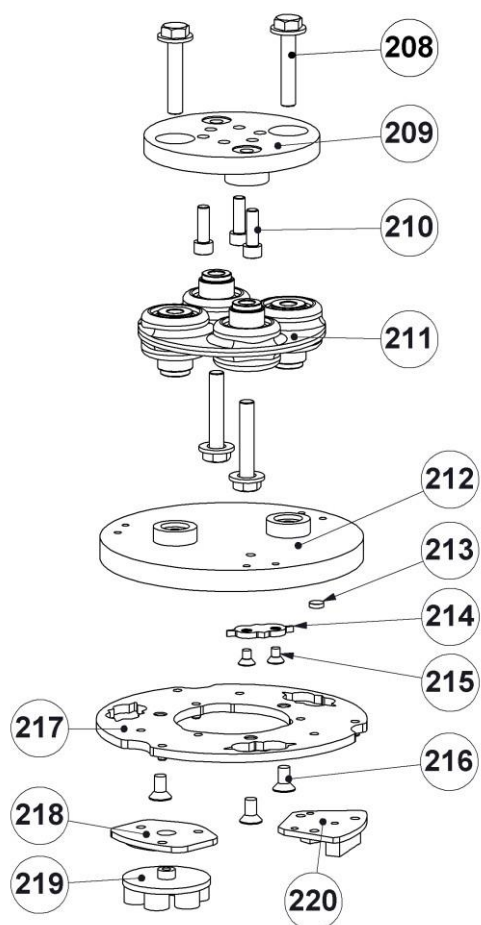
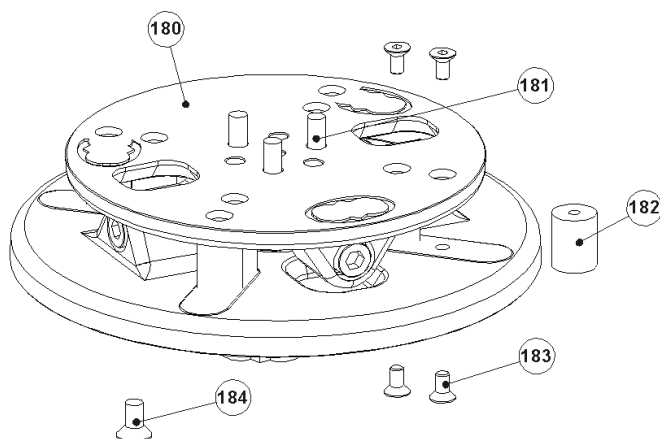


6.1 Buffers

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 or Morflex coupling.

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

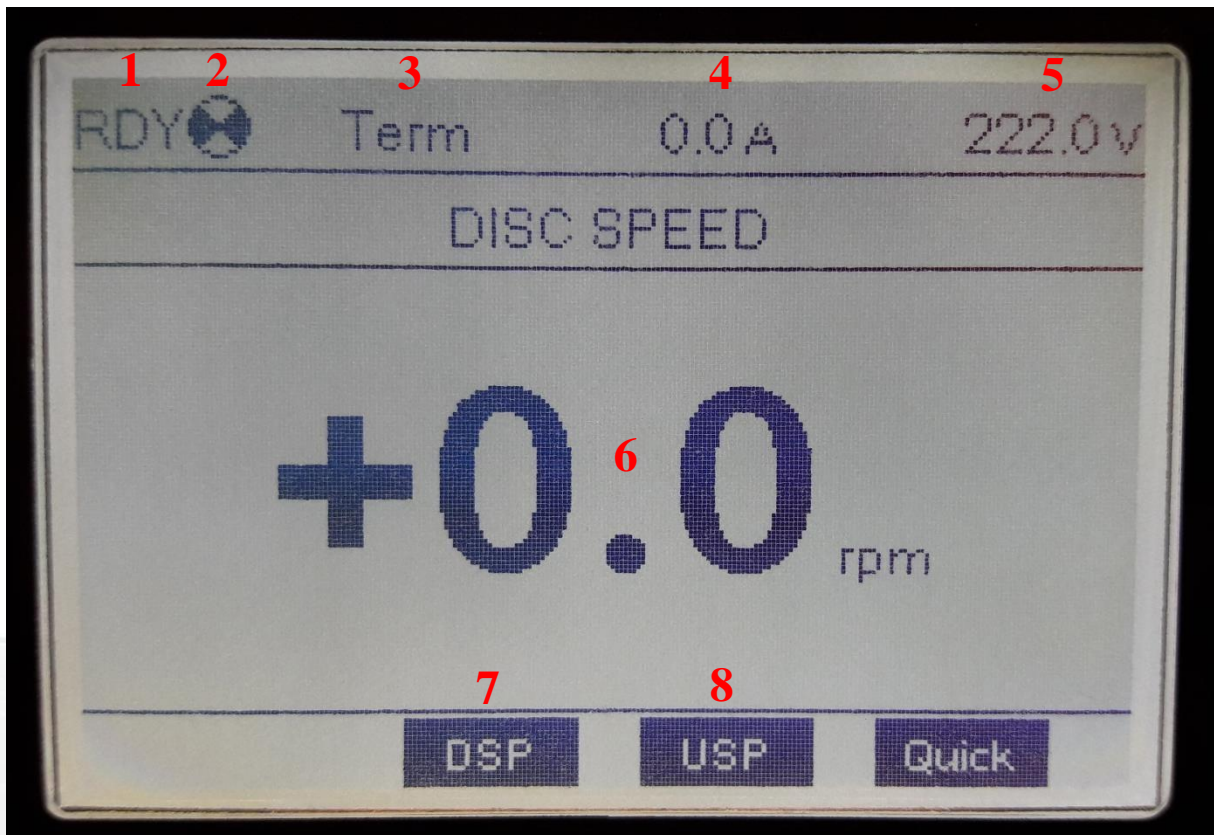


Item	Part number	Description	Qty. (x3 per machine)
180	E10172-240	Buffer complete	1
181	BE0011	M8x20 hexagon socket head cap screw	3
182	E12065	Shock absorber	4 / 8
183	BE0955	M6x12 hexagon socket countersunk	8 / 16
184	BE0456	M6x12 hexagon socket countersunk	3
211	BG400310	Morflex coupling	1



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 fount about the fault, such as:
 - Driver state
 - Motor current
 - DC bus voltage

Language

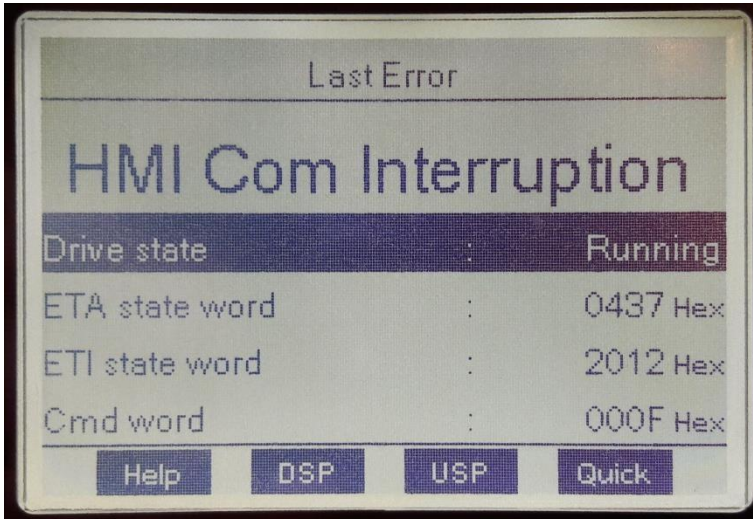
To change the language of the machine follow the steps below:

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



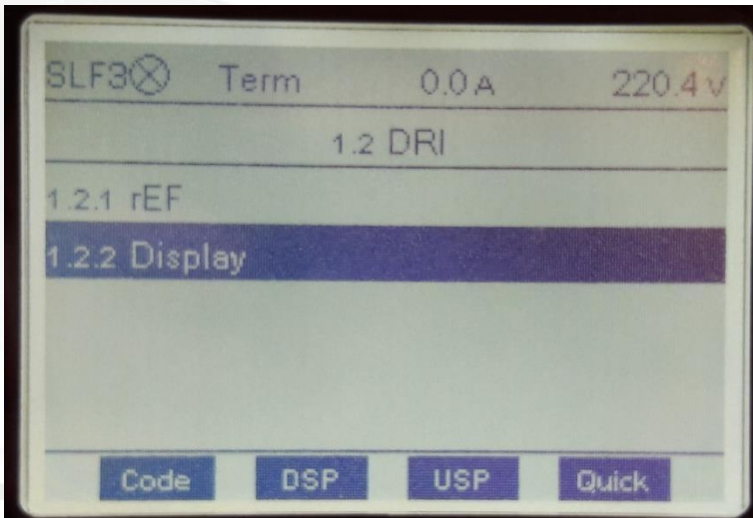
Fault handling

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



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.	Take out the mains power supply, wait 5 minutes and try to switch on again. 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 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.
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).



8. Technical data

BMG-735PRO

	BMG-735PRO 3x 230 volt	BMG-735PRO 3x 400 volt	BMG-735PRO 3x 480 volt
Power consumption	12,6 kW max.	12,6 kW max.	12,6 kW max.
Electrical consumption	3x 230 Volt	3x 400 Volt	3x 480 Volt
Frequency	60 Hz	50 Hz	60 Hz
Amperage connection	4 pole / 63 Ampere	5 pole / 32 Ampere	4 pole / 60 Ampere
Amperage consumption	38,5 Ampere	22 Ampere	20,5 Ampere
Length	2109 mm		
<i>Folded in</i>	1450 mm		
Width	750 mm		
Height	1253 mm		
<i>Folded in</i>	1253 mm		
Weight machine	399 kg		
Weight grinding head	199 kg		
Diamond discs	3x Ø240 mm		
Work width	735 mm		
Rotation speed discs	350 - 1100 min ⁻¹		
Noise level	78dB(A)		
Dust hose connection	75 mm Ø		
Suitable filter unit	Contact Diamatic, we will assist you with a good advice		



BMG-780PRO

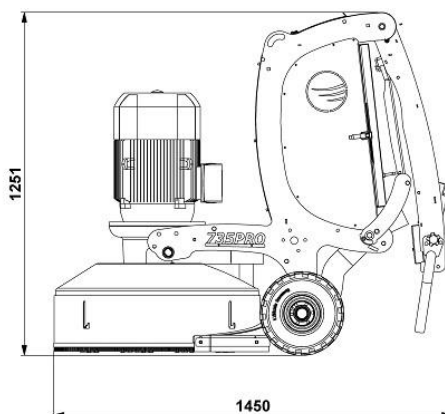
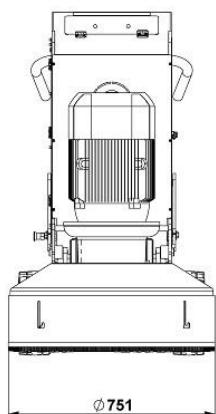
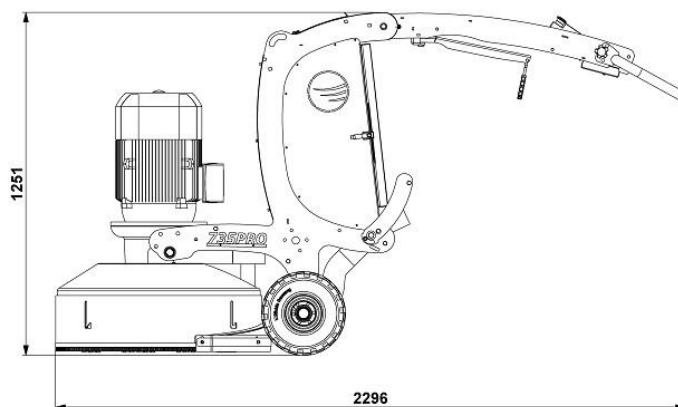
	BMG-780PRO 3x 230 volt	BMG-780PRO 3x 400 volt	BMG-780PRO 3x 480 volt
Power consumption	17,3 kW max.	17,3 kW max.	17,3 kW max.
Electrical consumption	3x 230 Volt	3x 400 Volt	3x 480 Volt
Frequency	60 Hz	50 Hz	60 Hz
Amperage connection	4 pole / 63 Ampere	5 pole / 32 Ampere	4 pole / 60 Ampere
Amperage consumption	51 Ampere	29,5 Ampere	28,5 Ampere
Length	2139 mm		
<i>Folded in</i>	1473 mm		
Width	790 mm		
Height	1345 mm		
<i>Folded in</i>	1345 mm		
Weight machine	487 kg		
Weight grinding head	278 kg		
Diamond discs	3x Ø240 mm		
Work width	780 mm		
Rotation speed discs	400 - 1200 min ⁻¹		
Noise level	82 dB(A)		
Dust hose connection	75 mm Ø		
Suitable filter unit	Contact Diamatic, 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 Diamatic BV.

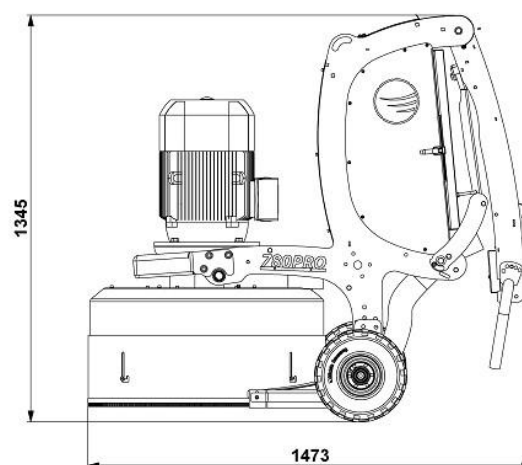
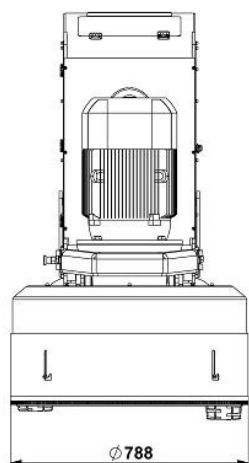
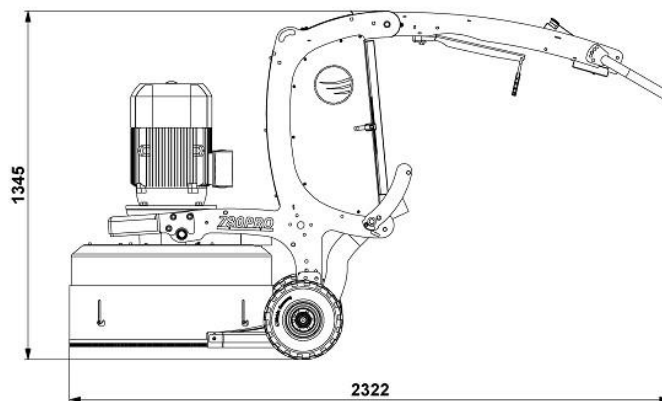
If the grinding machine is to be operated using power from a generator, the generator must be operated in accordance with the current EN-VDE directives (this applies to the protective earth conductor in particular) in order to ensure that all safety devices are functioning and to eliminate possible damage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



Dimensions
BMG-735PRO



Dimensions
BMG-780PRO





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.

Despite the fact that this guide is made with care, Diamatic 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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DIAMATIC®

PRODUCT WARRANTY

STANDARD EQUIPMENT PRODUCTS

Diamatic warrants its **DIAMATIC** standard equipment products against defects in material and workmanship under normal and proper use for a period of **2 years** from the date of delivery or, in the case of Rental Fleet Machines, 180 days from the date of assignment to a Rental Fleet. Diamatic makes this warranty only to the buyer who purchases the products directly from Diamatic or its authorized distributor. This warranty does not include expendable parts such as, but not limited to, diamonds, wear parts, couplers, and diamond plates.

The buyer must register the product with the warranty card. This warranty card must be mailed to Diamatic within 45 days after taking delivery of the Diamatic machine to receive full warranty. Any machine not registered under warranty through Diamatic will only receive a 6 month warranty period from the date of delivery.

Warranty Terms and Conditions:

1. Diamatic's obligation under this warranty is limited to the replacement or repair, at Diamatic's option, of products and does not include, labor, the cost of transportation, loss of operating time, or normal maintenance services.
2. This warranty does not apply to failure occurring as a result of abuse, misuse, negligence, corrosion, erosion, normal wear and tear, alterations or modifications made to products without express written consent of Diamatic.
3. The buyer must submit all warranty claims no later than thirty (30) days after buyer becomes aware of the basis for any such claim, or should have become aware of the basis for any such claim in the exercise of reasonable diligence.

To return parts for warranty consideration, please call Diamatic Customer Service at **866-295-5512**.

Our customer service representative will obtain the necessary information to complete the Diamatic Returned Merchandise Authorization (RMA) Form. Diamatic will then send the RMA form to the customer authorizing the return of the parts for warranty evaluation.

The parts must be received within sixty (60) days following the RMA origination date or the warranty claim will be denied. Once the parts are received they will be evaluated for warranty.

If the customer cannot wait for the evaluation/replacement of the parts during this process, the customer must issue a new purchase order to Diamatic for the replacement parts before they can be shipped. Once the evaluation process is complete and parts are deemed a valid warranty claim, a credit will be issued against this invoice.

4. The buyer may not return Diamatic products without Diamatic's written authorization to do so.
5. Diamatic reserves the right to inspect and determine the scope of its warranty responsibilities for any returned Diamatic products.

6. Diamatic makes no warranty with respect to accessories it does not manufacture, including but not limited to, engines, motors, batteries, tires and all other parts. See component manufacture warranty.
7. Diamatic reserves the right to make product changes or improvements without prior notice and without undertaking any obligation such changes or improvements on previously sold products.
8. The above warranty conditions can only be altered by Diamatic. Diamatic must confirm alterations in writing for each specific transaction.
9. Diamatic reserves the right to modify this warranty for used or demo products on an individual transaction basis. Diamatic will include warranty modifications on its invoices for used or demo products
10. DIAMATIC DOES NOT AUTHORIZE ANY PERSON, REPRESENTATIVE OR SERVICE OR SALES OUTLET TO MAKE ANY WARRANTY DIFFERENT FROM THIS PRODUCT WARRANTY.
11. EXCEPT FOR ITS PRODUCT REPAIR OR REPLACEMENT OBLGATIONS DESCRIBED IN THIS PRODUCT WARRANTY, UNDER NO CIRCUMSTANCES SHALL DIAMATIC BE LIABLE TO THE BUYER OR ANY OTHER PERSON FOR ANY DIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE DIAMATIC PRODUCT OR FOR ANY SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER, INCLUDING WITHOUT LIMITATIONS, DAMAGES FOR ANY LOSS OF GOODWILL, WORK STOPPAGE, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES.
12. DIAMATIC MAKES NO OTHER PRODUCT WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Diamatic® Warranty Registration Card

NOTICE!

TO THE DELIVERING DISTRIBUTOR OR END USER

To ensure the proper warranty coverage is extended to the owner of this machine, fill out the attached card **COMPLETELY** and **ACCURATELY** and return to Diamatic.

The warranty period will start on the delivery date entered below.

The distributor or the end user must prepare the machine warranty information card when the machine is delivered. Return of the warranty card will extend the warranty period to **2 years** from the date entered below. **Failure to comply will make any and all warranties on the equipment void after 6 months.**

USER'S REFERENCE INFORMATION

Delivery Date _____

Machine Model No. _____

Delivering Distributor's Name and Address _____

Machine Serial No. _____

Modifications _____

Signature of Delivering Distributor's Representative _____

Blastrac is a registered trademark of Blastrac, NA

Fold and Detach Here

Warranty Registration Card

IMPORTANT! To ensure that your Diamatic® machine is covered under warranty, please fill in the following information completely and mail or fax it to:

Diamatic, 5220 Gaines Street, San Diego, CA 92110

Fax 619-295-0754

(Please print legibly)

Company _____

Address _____

City, State, & Zip _____

Telephone No. _____ Contact Person _____

Date of Purchase _____ Date Received _____

Machine Model No. _____ Serial No. _____

Distributor Name _____

End User Name _____

End User E-mail _____