GB

# MANUAL
# HTC 420 VS

Translation of manual in original language

HTC


HTC 420
HTC 420

# Contact Information

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You can find addresses for our retailers and service partners on our website:

www.htc-floorsystems.com

Always specify the model and serial number when asking questions about your product.

# Trademarks

HTC is a trademark owned by HTC Sweden AB. Other names and products mentioned in this manual may be registered trademarks owned by the relevant companies.

# EC Declaration of conformity

| | |
|---|---|
| Manufacturer: | HTC Sweden AB<br>Box 69<br>SE-614 22 Söderköping<br>Sweden<br>+46 (0)121-29400 |
| Type of equipment: | Grinding machine |
| Make: | HTC |
| Model: | HTC 420 VS |
| Year of manufacture: | See machine name plate |
| Serial number: | See machine name plate |

As the manufacturer, we hereby declare under our sole responsibility that the above product with serial numbers from 2004 onward conforms to the applicable regulations in directives MD 2006/42/EC, EMC 2004/108/EC and LVD 2006/95/EC. The following standards have been used as a basis: ISO 5349-1:2001, ISO 5349-2:2001, ISO 20643:2005, ISO 3741.

This product was CE-marked in 2004. The technical documentation is available from the manufacturer.

Original of the EC declaration of conformity (Swedish). Other languages are translations of the original of the EC declaration of conformity.

Söderköping, 01-01-2010

Peter Lundgren
Development Manager,
HTC Sweden AB

Kåre Kilgren
Product Manager,
HTC Sweden AB

# Table of contents

# 1. Introduction

## 1.1. General information

HTC 420 VS is a grinder that can be used to grind, strip, clean and polish concrete, natural stone and terrazzo floors. The machine's area of application depends on the choice of tool.

Read the manual carefully so that you are totally familiar with the machine before you start using it. Contact your local retailer for further information. For contact information, see Contact Information at the start of the manual.

## 1.2. Responsibility

Even though every effort has been made to make this manual as complete and accurate as possible, we bear no responsibility for incorrect or missing information. HTC reserves the right to change descriptions in this manual without giving prior notice.



## 1.3. Manual

In addition to the general functions, this manual deals with the areas of application and the maintenance of the grinder.

### 1.3.1. Safety instructions – Explanation of symbols

A number of symbols are used in the manual to highlight the most important sections, see below. In order to avoid both personal injury and material damage as far as possible, it is extremely important to read and understand the text next to these symbols particularly carefully. There are other symbols indicating practical tips. These are to help you use the machine in the easiest and most effective way.

The following symbols are used in the document to indicate where special attention is needed.

The symbol indicates a **Warning!** and means that incorrect use can result in personal injury or material damage to the machine or accessories. If you see this symbol next to a section of text, you must be particularly careful when reading through the text and not carry out any stages of which you are unsure. This is to protect you and other users and to avoid damaging the machine or other equipment.



The symbol means **Note!** and indicates that material damage can occur if the machine or its accessories are used incorrectly. If you see this symbol next to a section of text, you must be particularly careful when reading through the text and not carry out any stages of which you are unsure. This is to avoid damage to the machine or other equipment.

The symbol indicates a **Tip!** and indicates that you can get tips and advice on ways to make operating your machine or associated equipment easier, and to avoid wear. When you see this symbol you should read the accompanying text to facilitate your work and increase the service life of the machine.

## 1.4. Transportation

The appropriate way to transport the machine is to firmly anchor it to a pallet.

## 1.5. On delivery

The following items are included in the delivery. Contact you retailer if anything is missing.

- Grinding machine
- Manual
- Locking key for control cabinet

- Hammer EZ system
- Splash guard
- Electrical cable with contact
- EZ tool holder
- Upper belt (spare part)

## 1.6. Unpacking the machine

Warning!

*Read through the safety instructions and the manual carefully before use.*

- Check carefully to see if the packaging or machine has been damaged during delivery. If there is any sign of damage, contact your retailer and report it. Report packaging damage to the transport company as well.
- Check that the delivery matches the order. If there are any discrepancies, contact your retailer.

## 1.7. Machine name plate

The machine name plate provides the following information. The model and serial number must be specified when ordering spare parts for the machine.

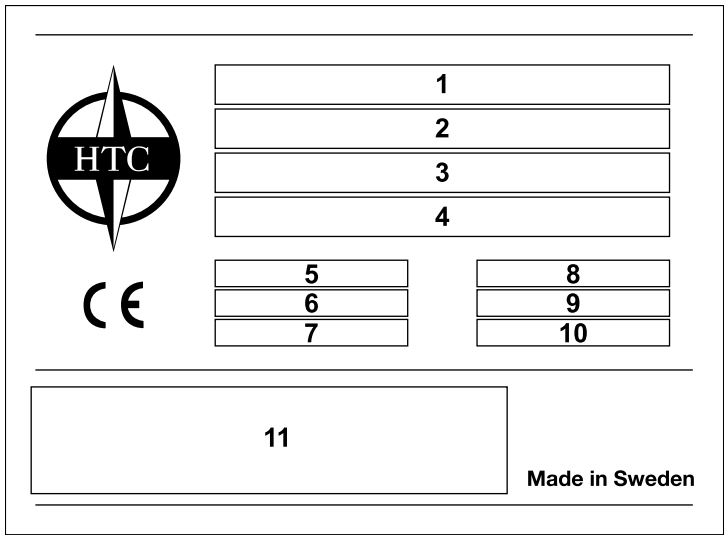


*Figure 1-1 Machine name plate*

1. Model
2. Model number
3. Serial number
4. Year of manufacture
5. Kilowatt (kW)
6. Voltage (V)
7. Ampere (A)
8. Hertz (Hz)
9. Revolutions per minute (r.p.m.)
10. Weight (kg)
11. Address field

## 1.8. Handling and storage

The machine should be stored in a dry, warm location when not in use. Otherwise it may become damaged by condensation and coldness.

# 1.9. Vibration and noise

Warning!

*Always use hearing protection when using the machine.*

## 1.9.1. Hand and arm vibrations

Hand and arm-weighted vibration level [m/s²] for HTC 420 VS have been measured using equipment approved in accordance with ISO 5349-1:2001. Measurement uncertainty for the measurement equipment has been assessed as +/- 2%.

The machine has been tested in accordance with ISO 5349-2:2001 and ISO 20643:2005 in order to identify the operations that contribute to the most frequent vibration exposures. At vibration levels > 2.5 m/s², the exposure time should be limited in accordance with the table below. For vibration levels > 5 m/s², immediate measures should be taken by the employer to ensure that the exposure time does not exceed the time specified in the table below.

| **Identified work conditions** | **Measured values [m/s²]** | **Daily permitted exposure (number of hours)** |
|---|---|---|
| Grinding/polishing | 3.08 | 21.1 |
| Floor preparation (T-rex) | 4.76 | 8.84 |

## 1.9.2. Sound pressure level

This machine has been tested for noise in accordance with ISO 3741. For information on sound pressure levels, see the table in chapter Technical data on page 33.

# 2. Safety

## 2.1. General Information

This chapter contains all the warnings and notes that have to be considered for HTC 420 VS.

## 2.2. Warnings

Warning!

*The machine may only be used or repaired by personnel who have received the requisite theoretical and practical training and who have read the user manual.*

Warning!

*Never use the machine in an environment with a risk of explosion or fire. Familiarise yourself with the fire-protection instructions for the working area and follow them.*

Warning!

*Secure the area around the working area. No unauthorised persons should be allowed within a 15-metre radius of the machine. If a loose object were to catch under the grinding head, this could be flung out and cause personal injury.*

Warning!

*Use protective equipment such as safety shoes, safety goggles, protective gloves, breathing mask and ear muffs.*

Warning!

*The machine must only be started with the grinding head down. The rotating disc must be touching the floor and the correct tool must be fitted.*

Warning!

*The tool becomes very hot during use. Tip the machine back and allow it to stand for a short while. Use protective gloves when removing the tools.*

Warning!

*Disconnect the electrical supply when changing tools or repairing the machine.*

Warning!

*The machine must only be used and moved on level surfaces. There is a risk of crushing if the machine starts to roll.*

Warning!

*Connect the machine to an earth fault breaker.*

Warning!

*The machine may only be used when the splash guard is fitted.*

## 2.3. Notes



Note!

*The machine may only be used to grind and polish natural stone, terrazzo, concrete, or other materials stated in this manual or that are approved by HTC.*



Note!

*Only original tools and spare parts from HTC may be used for the machine. Otherwise neither the CE marking nor the warranty will be valid.*

Note!

*For the CE marking to be valid, the instructions in this manual must be followed.*

Note!

*The machine must only be lifted using the lifting eye intended for the purpose in accordance with the relevant instructions.*

Note!

*The machine should be stored in a dry, warm (plus degrees) location when not in use.*

Note!

*If the machine is stored in a cold (minus degrees) location, it must be placed in a warm (plus degrees) location for at least two hours before use.*

Note!

*The appropriated dust extractor must be used when dry grinding. Contact HTC for model recommendation.*

Note!

*After removing glue and wet grinding, always lift up the grinding heads so that they do not stick to the floor and damage machine components and the floor when restarting.*

Note!

*When wet grinding, the water tank must be filled with water. Only cold water with no chemical additives may be used.*

# 3. Machine description

## 3.1. General machine description

The machine is built around a number of main components - see Figure 3-1 on page 9 and Figure 3-2 on page 10. It has three motor options: 230 V 1-phase (EU), 400 V 3-phase (EU) and 115 V 1-phase (US).

The machine is built around a chassis with wheels. The motor with a rotating grinding unit is attached to the bottom of the chassis, so that there is some movement between the chassis and motor package.

The handle can be set in a number of different tilt positions. Choose a position that best suits you.

The grinding cover has a connection for an external suction hose used for dry grinding.

The machine can easily be equipped with a large number of tools, depending on the material to be ground. For the different tools, see HTC's Product Catalogue under the Grinding Guide tab.

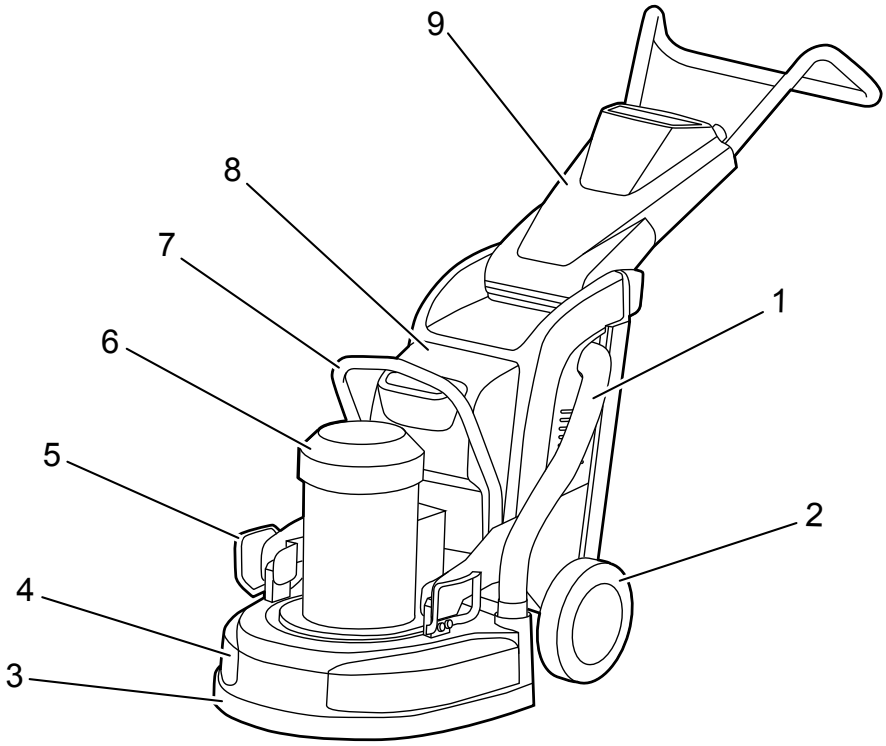


*Figure 3-1 Machine front*

1. Suction hose

2. Wheels
3. Splash guard
4. Grinding cover
5. Lifting handle for grinding head
6. Motor
7. Lifting eye for machine
8. Water tank
9. Adjustable handle

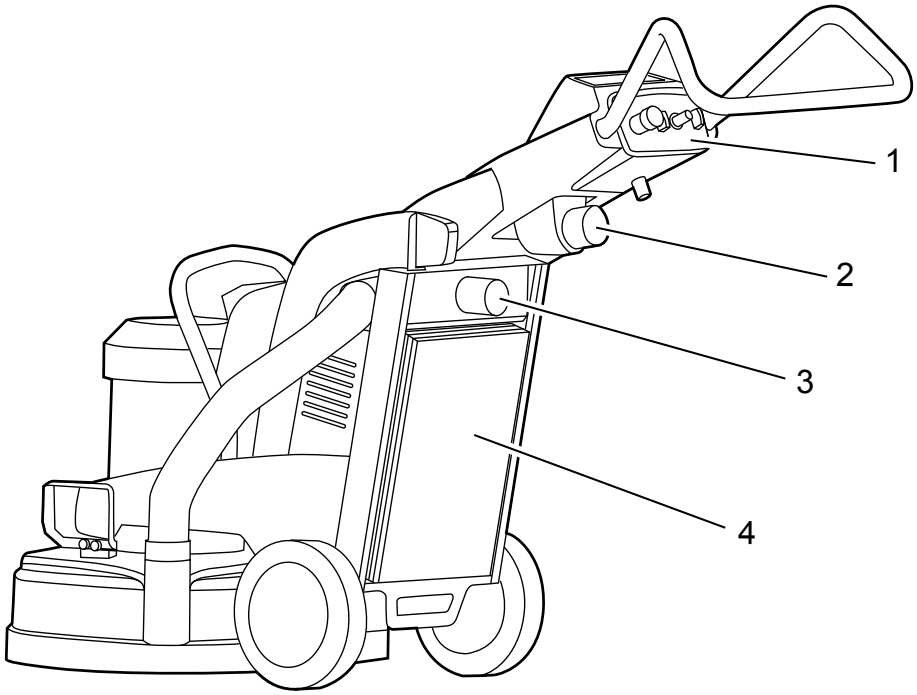


*Figure 3-2 Machine rear*

1. Control panel
2. Electrical connection
3. Extraction connection
4. Control cabinet

## 3.2. Description of controls – Control panel

The picture below shows the machines control panel:

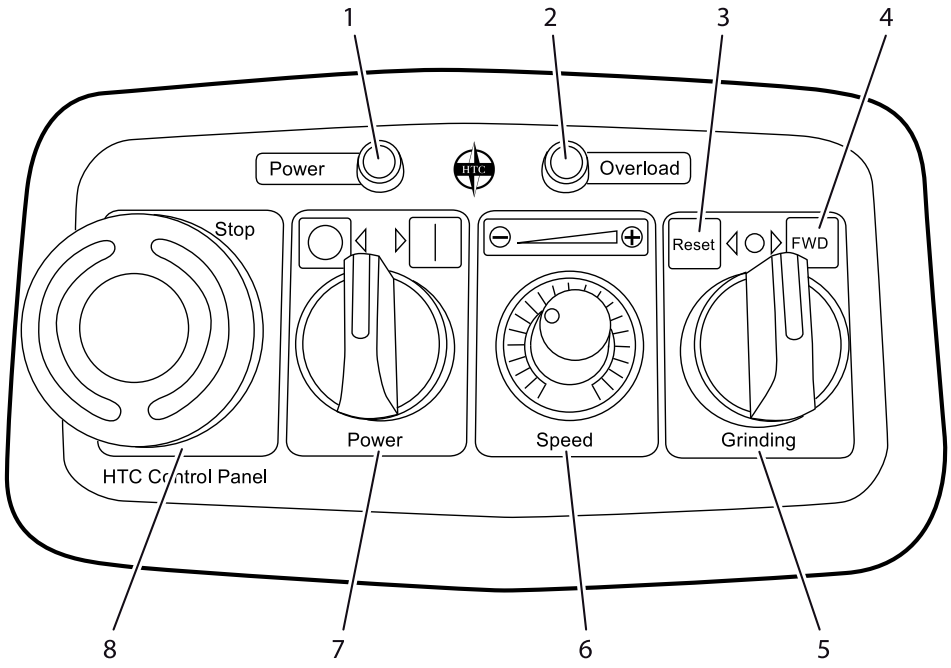


*Figure 3-3 Control panel*

1. **Power** - Standby indicator: Indicates that the machines functions have been activated. Lit when the Power knob (7) is turned to “I”.
2. **Overload** - Overload indicator: Lights up to indicate that the machine is using too much power. If this is ignored, the power supply to the motor will be interrupted and an error code generated.
3. **Reset** - Resetting the electronics: If the machine experiences an error, it may be necessary to reset it. Turn the Grinding knob (5) to “Reset” to reset all electronics. The knob automatically returns to the central position once it is released. Any error code is shown on the display in the control cabinet.
4. **FWD** - Forward: Turn the Grinding knob (5) to “FWD” to start the machines grinding discs.
5. **Grinding** - “Reset” (3) and “FWD” (4) knob.
6. **Speed** - Rotation speed: Regulates the rotation speed of the machine’s grinding discs.

7. **Power** - Start/stop the machines functions: Turn the knob to “I” to activate the machines functions and prepare for start. Turn the knob to “O” to switch off the machines functions.
8. **EM-Stop** - Emergency stop switch: Press the switch in an emergency to turn off the power to the machine.

# 4. Operation

## 4.1. General

The following section describes how to change tools and how to operate the grinder. This section does not deal with the technical aspects of grinding, such as selection of grinding tools, etc. For choice of tools, see HTC's Product Catalogue under the Grinding Guide tab.

Warning!

*The machine may only be operated or repaired by personnel who have completed the required practical and theoretical training and who have read this manual thoroughly.*

Warning!

*Always use the machine in an environment where there is no risk of explosion and fire. Find out and follow the relevant fire safety regulations when grinding.*

Warning!

*Secure the area around the machine. No unauthorised persons should be within a 15-metre radius of the machine. If loose objects get under the grinding head, these may be flung out and cause personal injury.*

Warning!

*Use safety equipment such as shoes with steel toecaps, goggles, protective gloves, a mask and hearing protection.*

Warning!

*The machine may only be started with the grinding head lowered. The rotating disc must be touching the floor and the right tool must be fitted.*

Warning!

*The machine may only be used and moved over flat surfaces. There may be a risk of crushing if the machine begins to roll.*

Tip!

*Check the minimum recommended cable area before using an extension cord. You will find the recommended cable area under Technical data on page 33.*

## 4.2. Handle settings

The picture below shows the handle positions on the machine.

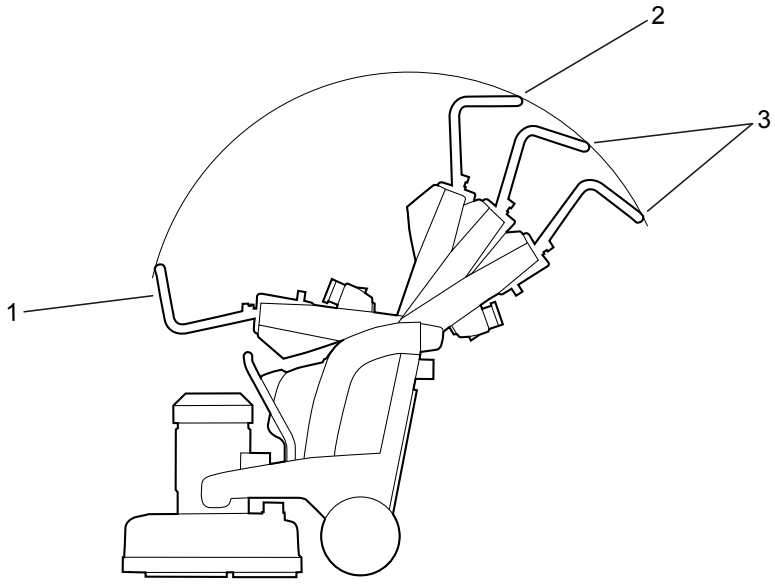


*Figure 4-1 Handle settings*

1. The forward position - used, for instance, for transportation, as the machine takes up significantly less space.

2. Rear position - used for tipping the machine to make tool replacement easier.

3. Working position - the working height can be adjusted to two positions using the machine's adjustable handle.

- Lock the handle in the required position using the locking mechanism located on the underneath of the handle cover.

## 4.3. Access to grinding tools

Warning!

*After grinding, the tools will be very hot. Tip the machine back and allow it to stand for a short while. Use protective gloves when removing the tools.*

Warning!

*When changing tools or making repairs, the power to the machine must be disconnected.*

1. Set the handle to the rear position - see Figure 4-1 on page 15.

2. Tip the machine backwards so that it rests against the ground.

## 4.4. Fitting and replacing grinding tools

Warning!

*When changing tools or making repairs, the power to the machine must be disconnected.*

Warning!

*After grinding, the tools will be very hot. Tip the machine back and allow it to stand for a short while. Use protective gloves when removing the tools.*

### 4.4.1. Fitting grinding tools

1. Slide the grinding tool diagonally from above down into the appropriate guide slot on the tool holder. Then push the tool fully into the guide slot, see Figure 4-2 on page 16.

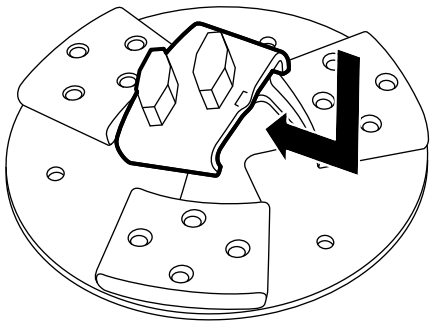

*Figure 4-2 Fitting grinding tools*

2. Lock the grinding tool into the tool holder by giving it a few light taps with a rubber hammer, see Figure 4-3 on page 17.

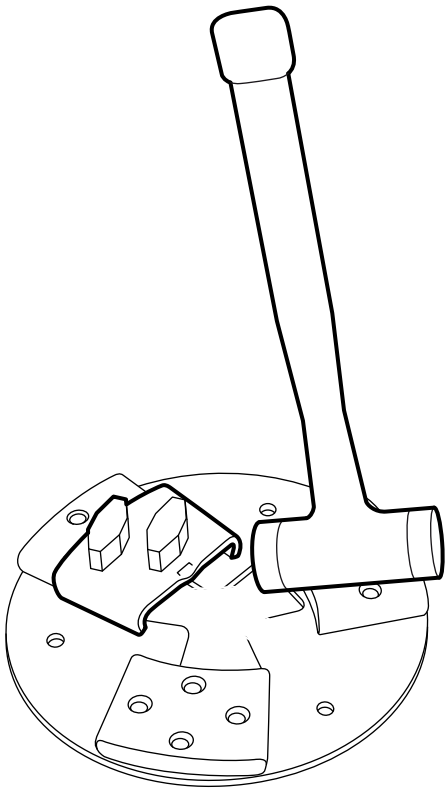

*Figure 4-3 Locking grinding tools*

### 4.4.2. Changing grinding tools

1. Remove the grinding tool by giving it a few light taps with a rubber hammer so the locking mechanism releases, see Figure 4-4 on page 18. Then draw the tool up out of the guide slot.

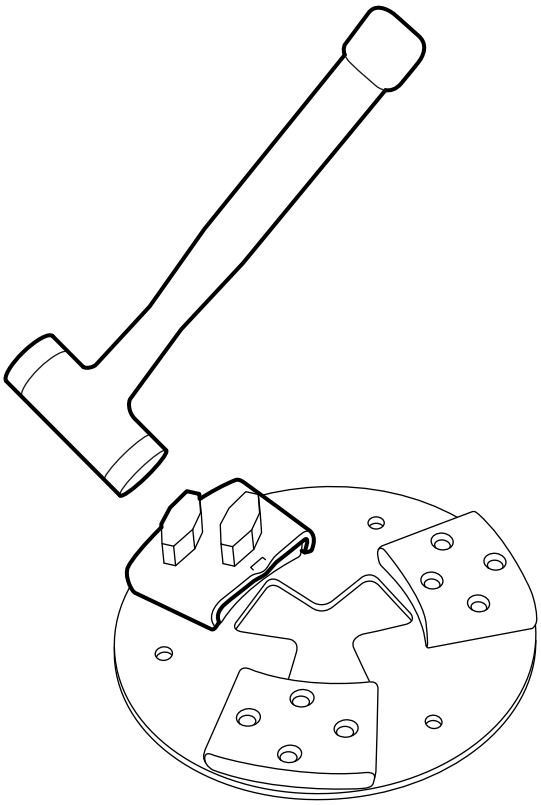

*Figure 4-4 Removing grinding tools*

2. Slide the grinding tool diagonally from above down into the appropriate guide slot on the tool holder - see Figure 4-2 on page 16. Then push the tool fully into the guide slot.

3. Lock the grinding tool into the tool holder by giving it a few light taps with a rubber hammer - see Figure 4-3 on page 17.

## 4.5. Preparations for dry grinding

Warning!

*Check that the splash guard is fitted.*

1. Connect a dust extractor to the machine. For dust extractor models, see under the Suction System tab in the HTC Product Catalogue.

Note!

*The dust extractors suction hose must be connected to the appropriate socket on the machine. Adjust thedust extractor to match the grinder's capacity.*

Note!

*The dust extractor can be connected to both sockets found on theprotective cover for the machine. If you only use one of the sockets, thesocket not in use should be covered. Adjust the capacity of the dustextractor to match the grinder.*

2. Inspect the floor carefully and remove any protruding objects, such as reinforcement rods or bolts, and any loose debris that could get stuck in the machine.
3. Attach the appropriate tool to the machine.
4. Set the handle to the required working position.

## 4.6. Preparations for wet grinding

Warning!

*Check that the splash guard is fitted.*

1. Always use liquid suction when wet grinding.

Tip!

*Never use a dust extractor, as it may cause blockages in the dust extractorssuctionhose.*

2. Inspect the floor carefully and remove any objects sticking up, such as reinforcement rods or bolts, and any debris that could get caught in the machine.
3. Attach the appropriate tool to the machine.
4. Set the handle to the required working position.

Warning!

*Only cold water with no chemical additives may be used.*

5. Fill the tank with cold water.

## 4.7. Control

The machines functions can be controlled using the control panel - see Figure 3-3 on page 11.

During operation, the operator pushes the grinder forward over the floor surface.

### 4.7.1. Standby

In order to activate the machines functions, turn thePowerknob to“I”.Once the knob set to this position, the Power indicator on the control panel lights up, indicating that the machine is in stand by mode.

### 4.7.2. Emergency stop switch

The emergency stop switch, (EM-Stop) must only be used in an emergency.

When the switch is pressed, all electrically-operated equipment in the machine is turned off.

Note!

*Do not use the emergency stop switch to stop the machine other than in emergencies, as it causes wear to the contactor.*

Note!

*As long as the emergency stop switch (EM-Stop) is pressed, the machine cannot be started. Reset by turning the switch 45° so that it pops out again. The machine can then be restarted.*

### 4.7.3. Starting the machine

For a description of the control panel, see Figure 3-3 on page 11.

1. Insert the cord.

2. Make sure the emergency stop switch has not been activated.

3. Turn the Power knob to “I” so that the electronics are activated.

4. Set the speed for the grinding discs using the Speed knob.

5. Turn the Grinding knob to “FWD”.

6. The machine has now started.

### 4.7.4. Overload

If the machine is using too much power, the Overload indicator on the control panel goes off. The machine switches off automatically after a while if this is ignored. Reduce the speed of the grinding discs to see if the Overload indicator goes out. If this does not help, follow the procedure for troubleshooting.

## 4.8. Making operation easier

In order to keep the suction hose for the dust extractor and the power cable out of the working area and/or path of the machine, the hose and cable can be arranged as shown in the picture below.

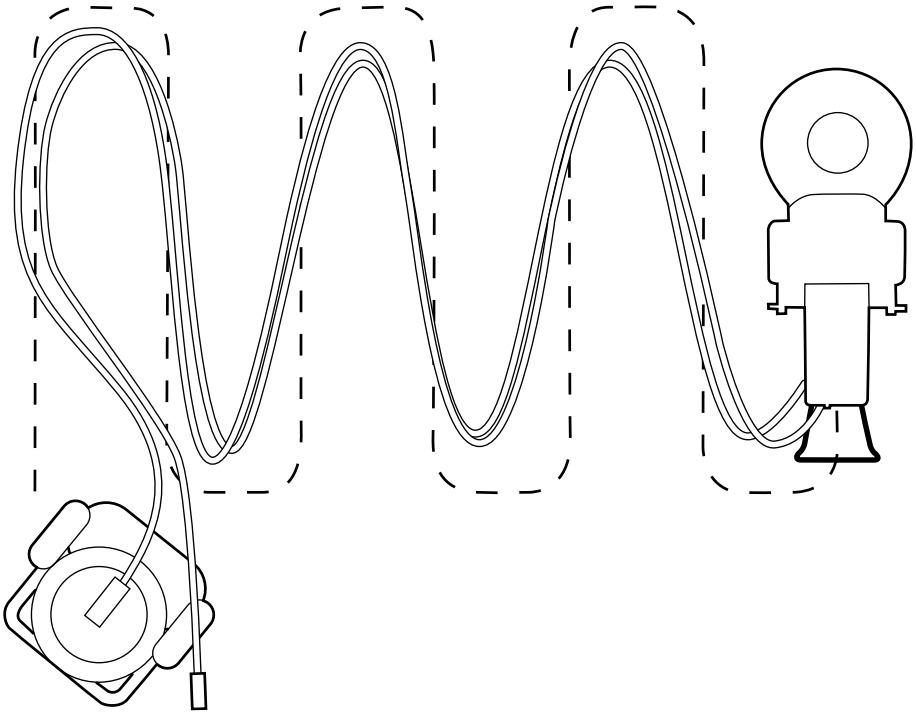

*Figure 4-5 Making operation easier*

Tip!

*By arranging the hose and cable as shown in the picture, you avoid disruptive stoppages caused by having to re-position the cable and hose.*

# 5. Maintenance and repairs

## 5.1. General

We recommend regular inspection of all seals.

Warning!

*When changing tools or making repairs, the power to the machine must be disconnected.*

Warning!

*Use safety equipment such as shoes with steel toecaps, goggles, protective gloves, a mask and hearing protection.*

## 5.2. Cleaning

Warning!

*Do not clean the machine with a high-pressure washer, otherwise moisture may penetrate electrical elements and damage the machine's drive system.*

- Vacuum the control cabinet, if required.
- Always clean the machine after use with a damp sponge or cloth.

## 5.3. Daily

- Wash the machine if it is used for wet grinding.
- Check for grinding tool wear – abnormal or uneven wear may indicate a damaged grinding holder.
- Check the tool holder and grinding holder to ensure that no damage or cracks have arisen. Replace the parts if there is any damage.

## 5.4. Every week

- Wash the machine.

- Check the grinding holders. Remove the tools and run the machine in the air at the lowest speed. If the grinding holders oscillate or wobble significantly, they are damaged.
- Check that the upper belt is undamaged. Try to turn the large disc in one direction. It should be quite stiff. If it turns freely, the belt has come off.

Tip!

*Recondition all the grinding holders at the same time.*

## 5.5. Every month (or 100 hours)

- Tighten anything that may have vibrated loose.
- Remove the grinding cover and check that it is undamaged.
- Check the upper belt. Replace, if necessary.
- Check the seals on the shafts that the upper belt runs on. Replace, if necessary.
- Scrape and vacuum-clean the parts shielded by the grinding cover.
- Test run and listen for any dissonance from the bearings.

## 5.6. Repairs

Any repairs that may be required must be carried out by a HTC Service Centre, which has trained service personnel and uses HTC original parts and accessories. Contact your retailer if your machine requires servicing. For contact information, see Contact Information at the start of the manual.

## 5.7. Spare parts

To ensure rapid delivery of spare parts, always specify the model, the machine's serial number and the spare part number when ordering. Information on the model and serial number can be found on the machine's name plate.

Information on spare part numbers can be found in the machine's spare parts list which is available to read or print out from the accompanying digital media or HTC's website:

www.htc-floorsystems.com

Only original tools and spare parts from HTC may be used.
Otherwise neither the CE marking nor the warranty will be valid.

# 6. Troubleshooting

## 6.1. General

This chapter describes all the errors that may occur and how to deal with them. If the error cannot be dealt with, or if there are other errors, contact your nearest retailer. See Contact Information at the start of the manual.

### 6.1.1. The machine will not start

- Check if the emergency stop switch on the control panel is pressed. Reset the switch by turning it 45°.
- Check if the power connection is correct. Check that there is full voltage on the motor's phase/phases. If the phase/phases do not have full voltage, the converter is faulty:
    - Reset the electronics by turning the Grinding knob to "Reset". If this does not help, carry out a reset procedure as follows Resetting the frequency converter on page 30 or Resetting the frequency converter on page 31.
    - Check the error code in the converter, see the error code table in chapter Electronic Error Codes on page 28.
- Check the fuses and contactors in the control cabinet.

### 6.1.2. The machine vibrates or wears the tool unevenly

- Recondition the grinding holder by changing the sleeve.
- Check that there is movement between the chassis and grinding head. If necessary, loosen one of the two pins in order to increase the movement between the chassis and grinding head.

### 6.1.3. The machine is grinding unevenly

- Recondition the grinding holder, see under The machine vibrates or wears the tool unevenly on page 26 above.
- Check that there is movement between the chassis and grinding head. If necessary, loosen one of the two pins in order to increase the movement between the chassis and grinding head.

### 6.1.4. The machine stops immediately after starting

- The overload indicator lights up because the speed of the grinding discs is too high. Reduce the speed and try again.
- Check the error code in the display on the frequency converter, see Electronic Error Codes on page 28.

### 6.1.5. The fuses trip frequently

- The load is too high on the distribution box to which the machine is connected. Replace the socket or reduce the speed of the machine.
- Check the tools. Ensure that the correct tools are used, that they are in working order and that they are correctly fitted.

### 6.1.6. The machine cannot cope

- Heavy load. Press the handle down slightly so that the grinding head eases slightly away from the surface being ground.
- Sticky coating on the surface being ground. Run half of the machine on the surface to be cleaned and half on the clean surface. This removes any residue from the tools.
- Check the tools. Ensure that the correct tools are used, that they are in working order and that they are correctly fitted.
- Voltage drop. Check that the cable area meets HTC's recommendations.

Tip!

*Check the minimum recommended cable area before using an extension cord. You will find the recommended cable area under Technical data on page 33.*

# 7. Electronic Error Codes

## 7.1. General

A common fault on grinders is that the motor is overloaded. There are three levels of overloading.

OCF = Rapidly rising current

OHF = Rapidly rising current

OLF = Overload motor

In the event of an error, the error code is shown in the display. The most common error codes that may occur on the frequency converter, in the control cabinet, are listed below. In the event of other errors, contact the HTC Service Centre.

## 7.2. Schneider Electric ATV31

| Error code | Cause | Action |
|---|---|---|
| OCF | OCF = Rapidly rising current<br>Due to a high short-term load that is 2.5 times the nominal current over a certain period. This usually occurs if you run into something or if either the grinding discs or something else inside the machine locks up. May also occur if the motor short circuits. | Check mechanical inertia, spin the grinding discs. Reset the converter if the machine is sluggish. Remove the plug for the motor and start the converter to see if the fault remains. See also the point below. Contact HTC Service Centre if the fault remains. |
| OHF | OHF = Rapidly rising current<br>A less severe version of the same fault above. Due to a high short-term load that is 2 times the nominal current over a certain period. Usually occurs as a result of high power consumption over a prolonged period. May also occur at high temperatures (+ 50° C). | As the fault is related to the above fault, the action indicated there should be carried out. If the surface being worked on is very tough, this may cause this fault. If the fault is temperature-related, the machine must be left to cool down before it can be started again. Another solution is to reduce the speed of the grinding discs to half speed, as the machine will then use less power. |
| InF / EEF | InF / EEF = Internal fault<br>Fault in the frequency converter. | Contact HTC Service Centre. |

| Error code | Cause | Action |
|---|---|---|
| SCF | SCF = Short circuit in the motor<br>Due to a short circuit in the motor or the motor cable. May also be due to an earth fault. | Check the wiring and, if necessary, the motor isolation. Test by loosening the motor cable and starting the frequency converter to see if the error code appears. If this occurs, the fault is in the frequency converter, otherwise the cable or motor is broken. |
| tnF | tnF = Autotuning fault<br>May arise if the motor has been replaced by the wrong motor, which is outside the norm values for the converter. May also arise if the motor is broken. | Check the motor. Replace the motor with an original motor. |
| OLF | OLF = Overload motor<br>Occurs when the motor is overloaded for a prolonged period. The motor protection in the converter trips in order to protect the motor. | Switch off the machine. The motor protection must cool.<br>Wait 8 minutes before the machine is restarted. |
| OSF | OSF = Over-voltage<br>Mains voltage too high or disturbance in the mains supply. May occur if large motors/machines are switched on or off in the vicinity. May be due to non-CE marked equipment. | Measure the supply voltage. Change the socket. The max. permitted supply voltage is 240V + 10%. |
| USF | USF = Under-voltage<br>Voltage too low due to large number of consumers using the network. Temporary drop in voltage. Long and/or weak cables may also cause this fault. | Replace the socket or remove some of the consumers from the network (welding, etc. causes such faults). |
| ObF | ObF = Operating load when stopped<br>Arises if the grinding discs are running when the machine is to be switched off. | Check the power supply to the machine, i.e. the fuses and cable. If the machine still does not function after the power supply has been checked, the fault may be due to a fault on the contactor in the machine or in the control panel. In this case, contact HTC Service Centre. |

| Error code | Cause | Action |
|---|---|---|
| PHF | PHF = Mains supply phase break<br>PHF flashes in the display for a few seconds before it goes out. Occurs if someone has pulled out the cord. | Check the power supply to the machine, i.e. the fuses and cable. If the machine still does not function after the power supply has been checked, the fault may be due to a fault on the contactor in the machine or in the control panel. In this case, contact HTC Service Centre. |
| OPF | OPF = Motor phase break<br>Occurs when the motor plug has not been plugged in correctly or is loose. The fault may also be due to the plugs or the terminal boxes in the motor being loose. May also occur if the machine goes into overspeed during, for instance, test operation with the grinding disc in the air. | Inspect the cable to the motor or the terminal boxes in the motor. Reduce the speed if you are test-operating the machine in the air. The fault occurs if the motor current is around approx. 8% of the converter's nominal current, which is 11 Amp on 2.2 kW single phase. |
| SLF | SLF = Faulty connection of remote terminal.<br>Occurs if connection to a remote terminal is faulty. May also be due to an internal fault. | Restart the computer. If the fault remains, contact HTC Service Centre. |

### 7.2.1. Resetting the frequency converter

1. Switch off the machine by turning the Power knob to "O".
2. Wait until the display switches off.
3. Reset the emergency stop switch.
4. Start the machine by turning the Power knob to "I".

Tip!

*The machine will not start if the Grinding knob is in the "FWD" mode when switching on the power.*

### 7.2.2. Checking the last error code

1. Press and hold ESC until four dashes (----) are shown in the display.
2. Press ENTER when rdy (ready) is shown. SET is then shown in the display.
3. Press "arrow down" until SUP is shown in the display.

4. Press ENTER. FrH is shown in the display.
5. Press “arrow down” until LFt is shown in the display.
6. Press ENTER. The last error code is shown.

## 7.3. Schneider Electric ATV12

| Error code | Cause | Action |
|---|---|---|
| OCF | Excess current | The machine is running too fast or with too great a load. Lower the speed, lower the load by changing the position of the weights and check your tools. Check mechanical inertia, spin the grinding discs. |
| OHF | Overheating | Open the electrical cabinet and allow to cool. Check the filter and the cooling fans in the cabinet. Let the frequency converter cool down before restarting. |
| InF | Internal error | Contact HTC Service Centre |
| SCF | Short circuit or earth fault involving the motor | Check the motor's cables and connections. |
| tnF | Auto-tuning fault | Check the motor's cables and connections. |
| OLF | Overload | See OCF. Let the frequency converter cool down before restarting. |
| OSF | Excess voltage | Mains voltage too high or disturbance in the mains supply. Check the supply voltage, change socket. |
| USF | Under-voltage | The connection cable is too long, poor connection or too many consumers connected to the mains. Change socket, use shorter cables and lower the speed. |
| PHF | Mains supply phase break | Incorrect power supply to the frequency converter. Check the fuses in the mains supply and the connection cable. |
| OPF | Motor phase break | Check the motor's cables and connections. |

### 7.3.1. Resetting the frequency converter

1. Switch off the machine by turning the Power knob to “O”.

2. Wait until the display switches off.
3. Reset the emergency stop switch.
4. Start the machine by turning the Power knob to “I”.

Tip!

*The machine will not start if the Grinding knob is in the “FWD” mode when switching on the power.*

### 7.3.2. Checking the last error code

For the buttons and knobs described here, see Figure 7-1 on page 32.

1. Press Enter. rEF is shown in the display.
2. Turn the knob counter-clockwise, until non is shown in the display.
3. Press Enter. rFr is shown in the display.
4. Turn the knob counter-clockwise, until nA1 is shown in the display.
5. Press Enter. LIS1 is shown in the display.
6. Turn the knob counter-clockwise, until dP1 is shown in the display.
7. Press Enter. The last error code is shown in the display.

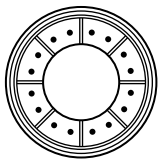

*Figure 7-1 Enter button and knob - Schneider*

# 8. Technical data

The table below shows the machine's technical data.

| | **HTC 420 VS EU** | **HTC 420 VS EU** | **HTC 420 VS US** |
|---|---|---|---|
| Motor | 2,2 kW | 2,2 kW | 2,2 kW |
| Current | 13 A | 6 A | 25 A |
| Voltage | 1x200-240 V | 3x380-415 V | 1x115 V |
| Weight | 104 kg | 104 kg | 104 kg |
| Grinding diameter | 450 mm | 450 mm | 450 mm |
| Grinding pressure | 57 kg | 57 kg | 57 kg |
| RPM | 393-1047 rpm | 393-1047 rpm | 393-1047 rpm |
| Water tank | 6 L | 6 L | 6 L |
| Grinding discs | 3x180 mm | 3x180 mm | 3x180 mm |
| Recommended minimum cable area | 2,5 mm² | 2,5 mm² | 6 mm² |
| Sound pressure level, average value over time according to ISO 3741, measurement uncertainty according to class 1 measuring instruments for sound level meters. | 93 dBA | 93 dBA | 93 dBA |

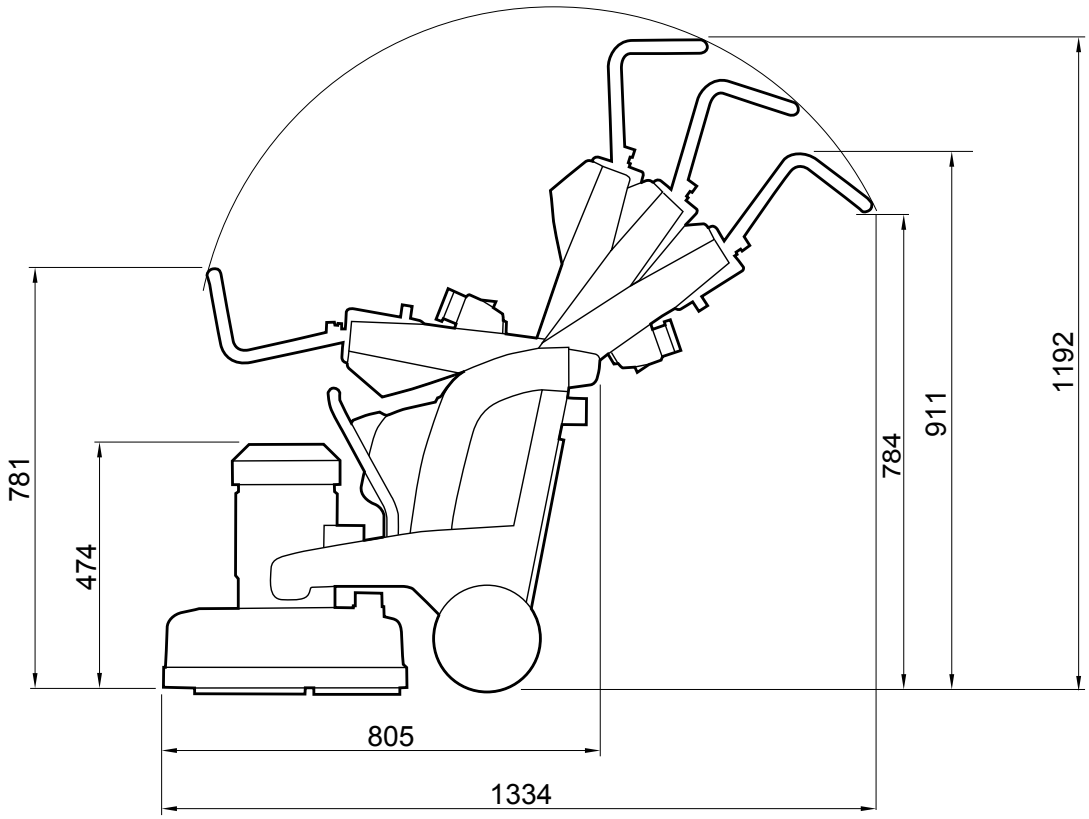


*Figure 8-1 Height and length of the machine in millimetres*

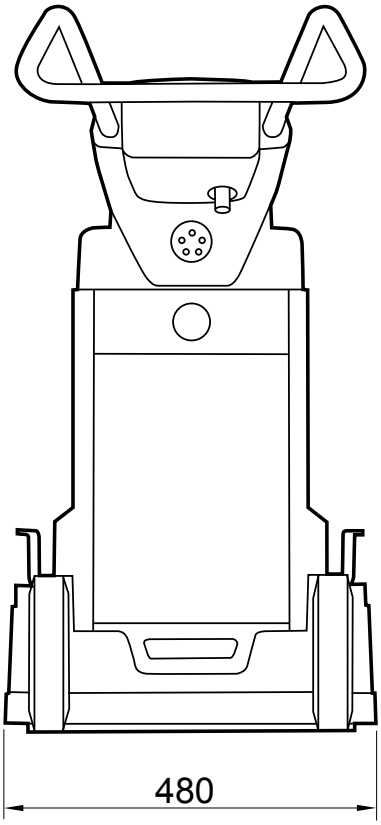


*Figure 8-2 Width of the machine in millimetres*

# 9. Environment

HTC's products consist largely of recyclable metals and plastic. The main materials used are listed below.

| **Chassis** | |
|---|---|
| Frame | Steel, electro-galvanised metal |
| Wheels | Solid rubber wheels |
| Cover | ABS plastic |

| **Grinding head** | |
|---|---|
| Lower cover | Aluminium |
| Cover | ABS plastic |
| External plate and steel components | Electro-galvanised metal |
| Belts | Rubber and polyamide |
| Other components | Untreated steel |

| **Electrical system** | |
|---|---|
| Cables | Copper conductors with PVC casing |

Plastic components can be recycled by sorting under hard plastics. Electronics can be submitted as electronic waste. The dust extractor or its components can, of course, also be returned to HTC Sweden AB.

# 10. Warranty and CE Marking

## 10.1. Warranty

This warranty only covers manufacturing defects. HTC bears no responsibility for damage that arises or occurs during transportation, unpacking or use. In no case and under no circumstances shall the manufacturer be held responsible for damage and defects caused by incorrect use, corrosion or use over and above the prescribed specifications. The manufacturer is not responsible for indirect damage or costs under any circumstances. The manufacturer's warranty period is 24 months from commissioning, although no longer than 30 months from delivery from the factory. (General delivery terms NL92.)

Local distributors may have special warranty conditions specified in their terms of sale, delivery and warranty. If you are unsure regarding warranty terms, please contact your retailer.

## 10.2. CE marking

CE marking of a product guarantees its free movement within the EU area in accordance with EU regulations. CE marking also guarantees that the product fulfils various directives (the EMC Directive and other possible requirements in so-called directives for new procedures) in accordance with these regulations. This machine carries the CE mark in accordance with the Low Voltage Directive (LVD), the Machinery Directive and the EMC Directive. The EMC Directive states that electronic equipment must not disturb its surroundings with electromagnetic radiation and that it must also be immune to electromagnetic interference in the surroundings.

This machine is classified for use in environments such as heavy industry, light industry and homes. See the Manufacturer's Declaration of Conformity, which shows that the machine is harmonised with the EMC Directive.