



Translation of the original operating instructions



C-BMH 160 Core drilling machine

Serial number range: 1600100 - 1600XXX

Product Core drilling machine C-BMH 160

Machine number range 1600100 - 1600XXX

Issuer CEDIMA® Diamantwerkzeug- und Maschinenbaugesellschaft mbH
Lärchenweg 3
D-29227 Celle, Germany

Tel.: +49 (0) 5141 88 / 54 - 0

Fax: +49 (0) 5141 86 427

Email: info@cedima.com

www: www.cedima.com

The document is protected by copyright. All rights reserved. Copying, reproduction, translation or conversion to electronic medium or machine-readable format as an entire document or in sections is not permitted without consent of CEDIMA® Diamantwerkzeug- und Maschinenbaugesellschaft mbH.

Subject to change without prior notice.

Suggestions and pointers ... for this documentation or machine, send to the address above.

Most recent amendment 11/04/2014

Content

1 Product information	5
1.1 Characteristics	5
1.2 Type label	5
1.3 Technical Data	6
1.4 Scope of delivery	7
1.4.1 Accessories provided	7
1.4.2 Spare parts, optional accessories	7
1.5 EC Declaration of Conformity	8
2 Information for the reader	9
2.1 Validity	9
2.2 Illustrations	9
2.3 Emphases in the text	9
2.3.1 Safety note	9
2.3.2 Warnings	10
3 Safety	11
3.1 Safety instructions	11
3.1.1 Operational safety	11
3.1.2 Inadmissible operating conditions	11
3.1.3 Instructions for operation	12
3.1.4 Instructions on using accessories and tools	12
3.1.5 Instructions on environmental protection	13
3.1.6 Supplementary regulations	13
3.2 The operator's obligations	13
3.2.1 Planning and checking safety measures	13
3.2.2 Minimising risks of injury	14
3.2.3 Operating the machine smoothly	15
3.3 Qualification of personnel	15
3.3.1 Minimum requirements	15
3.3.2 User groups	16
3.3.3 Specific expertise	16
3.4 Safety devices	16
3.4.1 Ground-fault circuit interrupter	17
3.4.2 Trip ground-fault circuit interrupter	17
3.4.3 Reset ground-fault circuit interrupter	18
3.5 Warning signs on the machine	18
3.6 Residual hazard	19
4 Machine overview	21
4.1 Intended use	21
4.2 Parts of the machine	22
4.3 Work and hazardous areas	25
4.4 Functional description	25
4.5 Operating modes	26
5 Transporting and unpacking	27
5.1 Transporting	27
5.2 Unpacking	27

6 Set up	28
6.1 Operation with handle	28
6.2 Operation with drill stand	28
6.3 Mounting adapter	29
6.4 Mounting core drill	29
7 Operation	30
7.1 Operation with the machine	30
7.2 Commissioning	30
7.2.1 Requirements	30
7.2.2 Establishing operational readiness	31
7.3 Perform drilling process	32
7.4 Rectify operational malfunctions	33
7.5 Decommissioning	33
8 Maintenance, repair and decommissioning	34
8.1 Instructions for maintenance and repair	34
8.2 Rectifying faults and malfunctions	34
8.3 Maintenance schedule	37
8.4 Storing when not in use	38
8.5 Disposal	38
8.6 Spare parts list	39

1 Product information

In this chapter you will find information about the machine:

- Characteristics (page 5)
- Type label (page 5)
- Technical data (page 6)
- Scope of delivery (page 7)
- EC declaration of conformity (page 8)

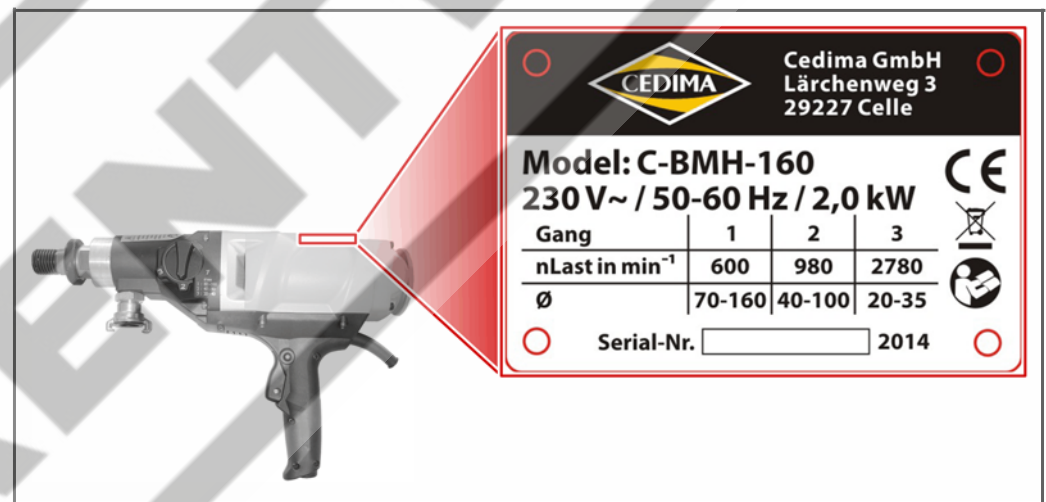
1.1 Characteristics

Characteristics of the machine

Machine type	Core drilling machine C-BMH 160
Serial number	1600100 - 1600XXX
Construction year	2014 - 2016

1.2 Type label

You will find the type label of the machine at the following location:



Location of type label (side view)

 Cedima GmbH Lärchenweg 3 29227 Celle			
Model: C-BMH-160 230 V~ / 50-60 Hz / 2,0 kW			
Gang	1	2	3
nLast in min⁻¹	600	980	2780
Ø	70-160	40-100	20-35
Serial-Nr. 2014			

1.3 Technical data

Machine data

Machine length	437 mm
Machine width	115 mm
Machine height	289 mm
Machine weight	6.4 kg
Power connection	L/N/PE 230 V AC 50 Hz - 60 Hz
Power consumption	2,000 W
Rotation speed (unloaded)	600 min ⁻¹ to 2,780 min ⁻¹
Maximum core bit diameter (in manual operation)	80 mm
Maximum core bit diameter (in drill rig use)	160 mm
Core bit collet thread	1 - 1/4" UNC & 1/2" BSP
Diameter of mounting neck	60 mm
Maximum permissible water pressure	4 bar

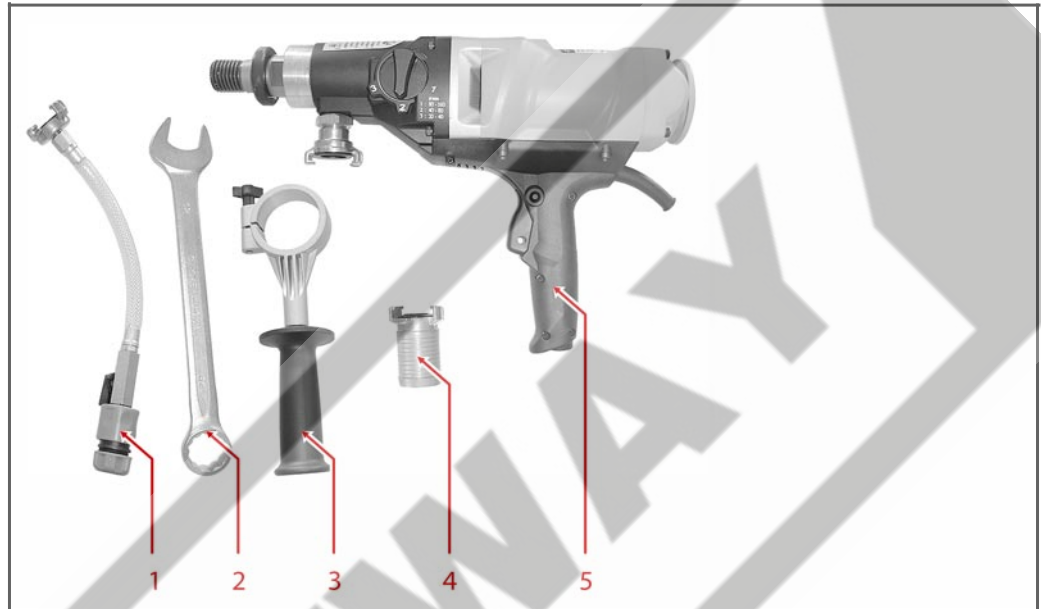
Environment

Acoustic pressure level at workstation (L_{pA})*	88 dB [A]
---	-----------

1.4 Scope of delivery

The machine is delivered fully mounted and ready for use in a transport case.

1.4.1 Accessories provided



Accessories provided

Legend

No.	Designation
1	Adapter - water connection
2	Open-end spanner (SW 32 mm)
3	Handle for freehand operation
4	Adapter - suction
5	Drilling machine C-BMH 160

1.4.2 Spare parts, optional accessories

No spare parts are provided with the machine. You will receive spare parts on request. You will find the spare parts list in the chapter "Maintenance, Repairs and Decommissioning" > "Spare parts list" (page 39). You can request optional accessory parts directly at CEDIMA® Diamantwerkzeug- und Maschinenbaugesellschaft mbH.

1.5 EU Declaration of Conformity

EU Declaration of Conformity

according to machine directive 2006/42/EC appendix II 1.A
and outdoor directive 2000/14/EG appendix II

Manufacturer:

CEDIMA® Diamantwerkzeug- und Maschinenbaugesellschaft mbH, Lärchenweg 3, D-29227 Celle

Compilation & storing of the technical documents:

The Managing Director of CEDIMA® Diamantwerkzeug- und Maschinenbaugesellschaft mbH, Siedemeierkamp 5, D- 29227 Celle is responsible for storing of the technical documents.

Machine type:

Core drilling machine C-BMH 160

Machine number range:

1600100 - 1600XXX

Construction year:

2014 - 2016

Measured sound pressure level (LPA)

88 dB [A]

Machine description:

The CEDIMA® core drilling machine is an electric power tool for commercial use that can yield precision bore holes in different rock materials (e.g. bricks, masonry, natural stone) and concrete by using diamond core bits.

The core drilling machine can be used as a hand-held drill or on its own drill stands. The core drilling machine can be used both for wet drilling (with water supply) and dry drilling (with vacuum).

The machine shall not be used for any other purpose or be operated with other tools!

This machine complies with all relevant provisions of the following EU directives:

EMC directive 2004/108/EC 2004 EU directive 2006/95/EC 2006

The following harmonized standards have been applied:

DIN EN 60745-1	Hand-held motor operated electric power tools - Safety - Part 1: General requirements
DIN EN 60745-2	Hand-held motor operated electric power tools - Safety - Part 2 - 3: Special requirements for grinders, polishers and grinders with sanding sheet
DIN EN 55014-1	Electromagnetic compatibility - Requirements for household appliances, electric power tools and similar electric appliances - Part 1: Emitted interference
DIN EN 55014-2	Electromagnetic compatibility - Requirements for household appliances, electric power tools and similar electric appliances - Part 2: Interference immunity - Product family standard
DIN EN 61000-6-3	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emitted interference for residential, commercial, industrial and small business environments

This Declaration of Conformity becomes void immediately if changes have been made to the machine without the approval of CEDIMA® Diamantwerkzeug- und Maschinenbaugesellschaft mbH!

D-29227 Celle, on the 11/04/2014



Michael Saft (Managing Director)

EU Declaration of Conformity

As soon as the machine is substantially modified, this declaration expires. A new conformity procedure in accordance with the EU machine directive is required.

2 Information for the reader

In this chapter you will find information on the use of the operating instructions:

- Validity (page 9)
- Illustrations (page 9)
- Emphases in the text (page 9)

2.1 Validity

This translation of the original operating instructions contains information and rules of conduct for operating the machine safely. Read the translation of the original operating instructions carefully before commissioning. Keep the translation of the original operating instructions available for everybody.

In order to operate the machine effectively, the translation of the original operating instructions provides you with information, among other things, on the following topics:

- Transporting machine and putting it into operation
- Working with the machine,
- maintaining and servicing machine,
- detecting and rectifying faults

These operating instructions applies to:

- the operator
- all persons working at or with the machine

2.2 Illustrations

The illustrations in the translation of the original operating instructions show the machine in a partially simplified depiction.

2.3 Emphases in the text

In these operating instructions, important information is emphasised with symbols or special notation. The following examples show the most important emphases:

- Safety note (page 9)
- Warning (page 10)

2.3.1 Safety note

Safety note: Special note for an informative section.

Explanation of the note.

- The point marks the measures to take the note into consideration.

2.3.2 Warning



WARNING

Warning of severe injuries.

Failure to heed the warning can result in severe harm to health or even death.

→ The arrow marks a precautionary measure which you should take to avert the risk.



CAUTION

Warning of injuries.

Failure to heed the warning can result in harm to health.

→ The arrow marks a precautionary measure which you should take to avert the risk.

ATTENTION

Warning of material damage.

Failure to heed the warning can result in serious damage to the machine or its environment.

→ The arrow marks a precautionary measure which you should take to avert the risk.

3 Safety

In this chapter you will find information for operating the machine safely:

- Safety notes (page 11)
- Obligation of the operator (page 13)
- Qualification of the personnel (page 15)
- Safety devices (page 16)
- Residual hazard (page 19)

3.1 Safety notes

In the following sections you will find basic safety notes:

- Operational safety (page 11)
- Inadmissible operating conditions (page 11)
- Instructions for operation (page 12)
- Instructions on using accessories and tools (page 12)
- Instructions on environmental protection (page 13)
- Supplementary regulations (page 13)

3.1.1 Operational safety

The machine is reliable. It was constructed in accordance with the current state of science and technology.

Nevertheless, hazards can arise from the machine if

- the machine is not used as intended,
- the machine is used incorrectly,
- the machine is operated under unacceptable conditions.

The following instructions apply to everybody who works at or with the machine:

- During all work, it must be ensured that nobody can get injured on moving machine parts.
- The drive motor and the mounted core bit heat up during operation.
- Changes to the sequence of movements or faults are to be reported immediately.

3.1.2 Inadmissible operating conditions

Under inadmissible operating conditions, operating safety cannot be guaranteed. Inadmissible operating conditions are therefore to be avoided in any case.

The machine must not be operated under the following conditions:

- Safety devices do not work or have been removed.
- Malfunctions have been detected.
- Damage has been detected.
- Maintenance intervals have been exceeded.

3.1.3 Instructions for operation

Safety and precautionary behaviour of personnel prevents hazardous situations during operation.

Pay attention to the following points when handling the machine:

- Always familiarise yourself with the work environment before you start work. Make sure you do not damage any gas pipes, water pipes and electrical lines when you are drilling!
- When operating core bits, use an approved drill stand with a diameter of over 80 mm. Pay attention to the stability of the drill stand!
- Remove anything that might obstruct the work process at the site.
- The machine may only be put into operation by personnel with appropriate qualification.
- The machine may only be operated by personnel with appropriate qualification.
- Faults may only be rectified in the "safe off" state when the machine is switched off.
- Safety devices may not be changed, dismantled, bypassed or taken out of operation.
- Structural changes to the machine are not permitted without the consent of the manufacturer.
- Any change to the machine is to be reported immediately to the relevant responsible person.
- Immediately replace defect or damaged machine components. Use only original parts! If necessary, contact the manufacturer.
- Replacement parts and tools must meet the technical requirements specified by the manufacturer! This is always guaranteed when original replacement parts are used.
- Keep the legally prescribed deadlines specified in these operating instructions for recurring testing and inspection of the machine!
- The hazardous areas must always be unobstructed. You may only reach inside the hazardous area if the machine is free of energy and switched off.
- Never operate the machine in areas subjected to the risk of explosion.
- Never operate the machine in the rain.
- Never use the water cooling system during overhead work. Water can damage the machine.
- Pull out the connection cable from the socket only via the mains plug.
- Roll up the connection cable properly after use. Prevent twists in the cable.
- Carry the machine only in its casing. Never lift the machine by the connection cable.
- Prevent the connection cable from touching hot surfaces, oil and sharp edges.
- Use always approved core bits. Comply with the manufacturer's instructions.

3.1.4 Instructions on using accessories and tools

If accessories or tools are inserted, the machine safety devices must not be put out of operation.

3.1.5 Instructions on environmental protection

Safety and precautionary behaviour of personnel prevents adverse effects on the environment.

The following basic principles apply to environmentally aware actions:

- Environmentally hazardous substances must not get into the soil or the canalisation.
- Regulations concerning avoidance, removal and recycling of waste must be followed.
- Environmentally hazardous substances are to be stored in suitable containers.
- Containers with environmentally hazardous substances are to be clearly labelled.

3.1.6 Supplementary regulations

In addition to these instructions, the proper operation of the machine is regulated by laws and regulations.

Furthermore, the following regulations apply to the operation of the machine:

- Regulations for operating machines (not expressly named here laws and regulations),
- Accident prevention regulations,
- internal company regulations,
- instructions on the machine.

3.2 The operator's obligations

In this section you will find information on the operator's obligations:

- Planning and checking safety measures (page 13)
- Minimise risk of injury (page 14)
- Smooth operation of machine (page 15)

3.2.1 Planning and checking safety measures

The duty of the operator is subject to planning measures and checking their implementation.

3.2.2 Minimise risk of injury

The following principles apply for minimising the risk of injury:

- Work on the machine may only be performed by qualified personnel.
- The personnel must be authorised by the operator for the respective task.
- The personnel must be familiar with all safety devices before the starting work.
- Ensure that all safety devices are installed and functional. Regularly check that your personnel follow the regulations!
- The personnel must be familiar with the operating elements before starting work.
- Order and cleanliness must prevail at the machine site and its surroundings.
- Ensure that only authorised personnel are present at the machine site.
- Perform work with the machine only in sufficiently illuminated areas.
- The personnel must wear the prescribed protective equipment. (Safety boots, goggles, hearing protection, protective gloves, dust mask)
- Procedures, competences and responsibilities in the machine area are to be made ambiguously clear. In the event of accidents, behaviour must be clear to everybody. The personnel must be trained regularly.
- Ensure that the machine cannot be switched on during all repair and maintenance work in the hazardous area of the machine.
- Before switching on the machine, remove all tools that you have used for mounting the core bit.
- The operating and maintenance personnel are forbidden to wear their hair loose, wear loose clothing or jewellery, including rings!
- Ensure that your personnel always keep the accident prevention regulations.
- Carry out maintenance measures in an appropriate room with workshop equipment and corresponding qualified personnel!
- Ensure that the machine is switched off properly and that it is not permanently connected!

3.2.3 Operating machine smoothly

The following basic principles apply to a smooth operation:

- Keep operating instructions complete, perfectly legible and available for everybody at the location of the machine.
- The machine is to be only used as intended.
- The machine is to be operated only in a fully functional state.
- Before starting work, you must check the operationally reliable state of the machine.
- The functionality of machine and safety devices is to be checked regularly.
- The functionality of the ground-fault circuit interrupter is to be checked daily.

TIP

Perform regular checks. You can therefore ensure that these measures are actually followed as well.

3.3 Qualification of the personnel

In this section you will find information on the qualification of the personnel:

- Minimum requirements (page 15)
- User groups (page 16)
- Specific expertise (page 16)

3.3.1 Minimum requirements

In this section, you will find information on how your personnel, which work on the machine, must be trained.

All work on the machine require the personnel to have special knowledge and skills.

Every person, who works at the machine, must meet the following requirements:

- Personally suitable for the respective job. Pay attention to the legally permissible minimum age.
- Sufficiently qualified for the respective work.
- Trained in handling the machine.
- Familiar with the safety devices and their functionality.
- Familiar with these operating instructions, especially with safety notes and the sections which are relevant for the work.
- Familiar with basic regulations on work safety and accident prevention.

In principle, all persons must show one of the following minimum qualifications:

- Trained as a qualified employee in order to perform work independently at the machine.
- Sufficient training in order to perform work at the machine under the supervision and guidance of a trained specialist.

3.3.2 User groups

In these operating instructions, a distinction is made between the following user groups:

User groups

Personnel	Qualifications
Operating personnel	Adequate training in the areas: • Functional sequences of the machine • Operating procedures • Quality assessment
	Knowledge in the areas: • Competences and responsibilities in the activity • Behaviour in the event of faults
Maintenance personnel	In-depth knowledge in the areas: • Electrotechnology
	In-depth knowledge of the structure and functioning of the machine

3.3.3 Specific expertise

The following activities may only be performed by personnel with special knowledge:

Activities and knowledge

Activity	Qualifications
Work on electric devices	Skilled electrician comparable qualification or training, the work may only be performed under the guidance and supervision of a skilled electrician in accordance with the electro-technical rules.
Work on mechanical devices	Industrial mechanic/agricultural machinery mechanic comparable qualification or training, the work may only be performed under the guidance and supervision of an industrial mechanic/agricultural machinery mechanic in accordance with the recognised rules of technology.

3.4 Safety devices

In this section you will find information about safety devices:

- Ground-fault circuit interrupter (page 17)
- Trip ground-fault circuit interrupter (page 17)
- Reset ground-fault circuit interrupter (page 18)

3.4.1 Ground-fault circuit interrupter

The **GROUND-FAULT CIRCUIT INTERRUPTER** trips if the differential current is exceeded. The power supply to the machine is interrupted in **GROUND-FAULT CIRCUIT INTERRUPTER**. You can trip the **GROUND-FAULT CIRCUIT INTERRUPTER** any time via the push button **TEST**, see section "Ground-fault circuit interrupter" (page 17).

The machine has a ground-fault circuit interrupter at the connection cable.

3.4.2 Trip ground-fault circuit interrupter

Press the button **TEST** on the **GROUND-FAULT CIRCUIT INTERRUPTER** before each use of the machine. This way, you make sure that the **GROUND-FAULT CIRCUIT INTERRUPTER** functions properly.

Perform the following work steps:

➔ Press the push button **TEST** at the **GROUND-FAULT CIRCUIT INTERRUPTER**.



- ➔ The power supply of the **MACHINE** is interrupted.
- ➔ The **INDICATOR-LAMP** goes out.
- ✓ The ground-fault circuit interrupter is tripped.

3.4.3 Reset ground-fault circuit interrupter

Perform the following work steps:

- ➔ Press the push button **«RESET»** at the **«GROUND-FAULT-CIRCUIT INTERRUPTER»**.



- ➔ The power supply of the **«MACHINE»** is enabled.
- ➔ The **«INDICATOR-LAMP»** lights up.
- ✓ The ground-fault circuit interrupter is reset.

TIP
If the ground-fault circuit interrupter cannot be reset, stop work on the machine. Inform your supervisor.

3.5 Warning signs on the machine

Warning signs and other instructions on the machine must always be clearly legible. Illegible safety labels and other instructions on the machine must be replaced immediately.

Warning signs on the machine

Warning sign	Meaning	Side length
• Bei Wasserverwendung immer einen Fehlerstrom-Schutzschalter verwenden • Es darf kein Wasser in das Motorgehäuse eindringen • Defekte Dichtungen müssen sofort repariert werden • Handgeführt max. Bohr-Ø 80 mm • Niemals bei laufender Maschine das Getriebe schalten	Instructions and prohibitions concerning safe handling of the machine.	Width: 65 mm Height: 75 mm

3.6 Residual hazard

The machine safety devices protect the personnel effectively from injuries.

However, staying in hazardous areas is unavoidable for some tasks. Residual hazards cannot be ruled out completely. Wearing personal protective equipment and safety and precautionary behaviour of personnel prevent hazardous situations.

Residual hazard at the machine and measures

Hazard	Cause	Measure
Risk of injury: Risk of being crushed during transport of the machine	The machine is large and heavy. There is a risk of being crushed during transport and assembly.	Always wear your personal protective equipment: • Safety boots • Protective gloves
Risk of injury: Risk of being crushed due to uncontrolled movements Retaining screw	If the retaining screw for the core drilling machine collet is not firmly tightened, vibrations can cause uncontrolled movement of the drill stand with the core drilling machine.	Ensure that the retaining screw for the core drilling machine collet is firmly tightened. Regularly check that the retaining screw is firmly placed.
Risk of impact during hand drilling	The core drilling machine is heavy. There is a risk of impact when you drill without a handle.	If you hand drill, operate the core drilling machine only with the handle. Regularly check that the handle is fitted firmly.
Electric shock Water	During operation, water can penetrate into the machine housing. There is the risk of an electric shock.	Operate the machine only in a dry environment. Never operate the machine with water flush for upward directional drilling.
Risk of electric shock when you open the machine	The machine must be opened for maintenance and repair work. There is the risk of an electric shock.	Never open the machine. Maintenance and repair work is performed only by a skilled electrician or under the supervision of a skilled electrician.
Risk of electric shock if the cable is defect	During operation, the electric cable can get damaged. There is the risk of an electric shock.	Always pay attention to the cable during operation. Work in a safety oriented manner.

Residual danger at the machine and measures (continued)

Danger	Cause	Measure
Entanglement Clothing and hair	During the operation of the machine, the core barrel rotates at high speed. Clothing and hair can get entangled. The risk exists particularly in upward directional drilling.	Wear a hairnet as appropriate. Wear tight fitting clothing.
Hazards generated by noise	There exists the risk of damage to hearing, decrease of attention and balance disturbances due to noise emission.	Always wear hearing protection when the machine is in operation.

4 Machine overview

In this chapter you will find information on the use of machine:

- Intended use (page 21)
- Parts of the machine (page 22)
- Work and hazardous area (page 25)
- Functional description (page 25)
- Operating modes (page 26)

4.1 Intended use

The machine is solely intended for core drilling in concrete, asphalt and limestone in wet operation or with connected suction with core bits approved by the manufacturer.

In free-hand operation, core drilling must be performed up to a diameter of 80 mm. If the machine is mounted on an approved drilling stand, core drilling up to a diameter of 160 mm may be performed.

The machine shall not be used for any other purpose or be operated with other tools!

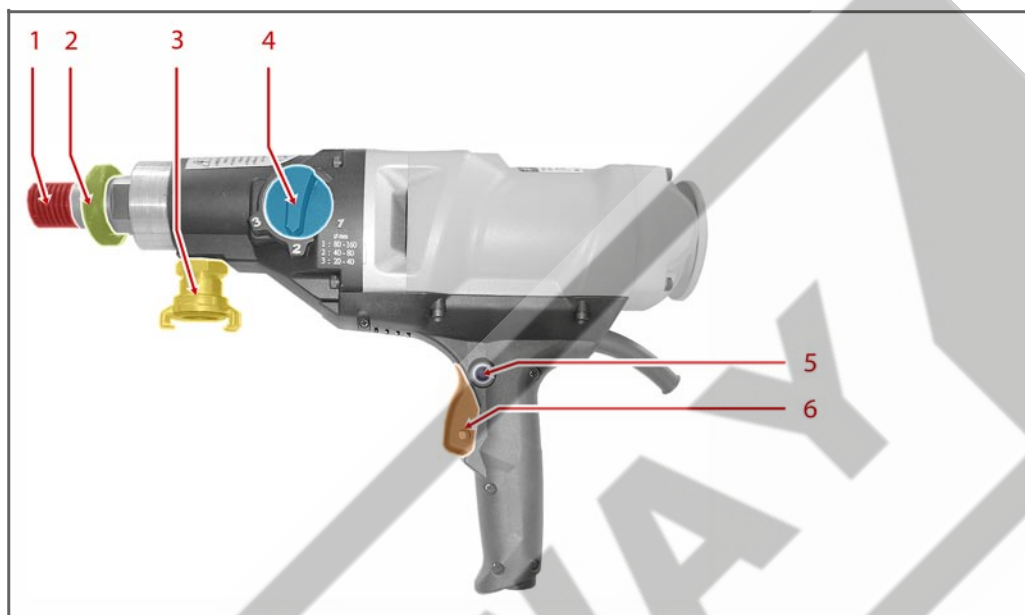
Any other use or use beyond what is specified is deemed to be not for the intended purpose.

TIP

The manufacturer shall not be liable for damage arising from unintended use of the machine.

4.2 Parts of the machine

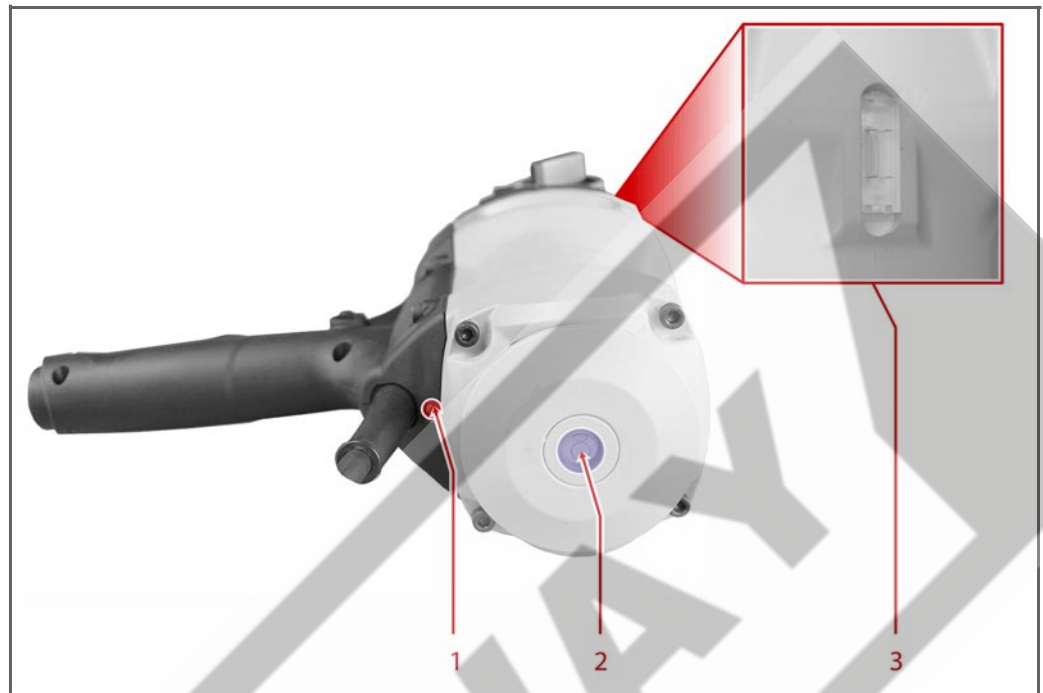
In this chapter you will find information on the parts of the machine:



Parts of the machine (side view)

Legend

No.	Designation	Function
1	Drill spindle	The core bit is mounted on the drill spindle. The drill spindle has an internal and an external thread. Dimensions: • Internal thread: 1/2" • External thread: 1/4"
2	Easy release ring	is used for releasing the core bit more easily.
3	Water and suction connection	The provided adapter for suction or water connection is connected to the connector.
4	Selector switch - rotating speed	Used to set the desired rotating speed. • Level 1 600 min ⁻¹ , for core bits with Ø 70 mm to Ø 160 mm • Level 2 980 min ⁻¹ , for core bits with Ø 40 mm to Ø 100 mm • Level 3 2780 min ⁻¹ , for core bits with Ø 20 mm to Ø 35 mm
5	Permanent connection	Used for detecting the operating switch.
6	Operating switch	Starts the drilling procedure of the machine.



Parts of the machine (rear view)

Legend

No.	Designation	Function
1	Service and fault lamp	Display: • does not light up - There is no fault in the machine. • lights up - Servicing must be carried out on the machine. • flashes - The machine is overloaded or is overheating.
2	Level - rear side	Used to align the machine vertically.
3	Level - top side	Used to align the machine horizontally.

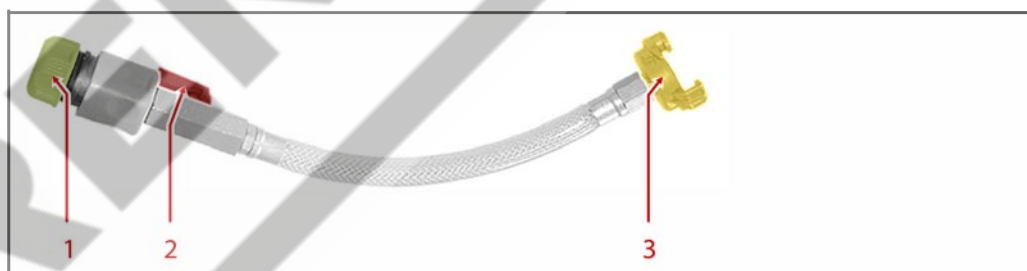
A ground-fault circuit interrupter is located at the electric cable of the machine. This protects the user from external voltage at the machine casing.



Ground-fault circuit interrupter

Legend

No.	Designation	Function
1	Indicator lamp	Display: • does not light up - No voltage is present in the machine. • does not light up - Voltage is present in the machine.
2	RESET	Used to activate the machine's power supply.
3	TEST	Used as a functional test of the ground-fault circuit interrupter. When it is activated, the machine's power supply is interrupted.



Adapter - water connection

Legend

No.	Designation	used
1	Hose connection	The water hose is connected to the hose connection.
2	Ball-valve	Used to open and close the water supply.
3	Adapter	The adapter is used to connect to the machine.

4.3 Work and hazardous areas

In this chapter you will find information on the work and hazardous areas of the machine. These areas apply during the operation of the machine. If the machine is switched off and secured against being switched on again unintentionally, you may reach inside the hazardous zone during maintenance and set-up work.



Work and hazardous areas (side view)

No.	Designation	Function
1	Hazardous area	The hazardous area must be free of obstructions. During operation you must not reach inside this area. If the machine is switched off and secured against being switched on again unintentionally, you may reach inside the hazardous zone during maintenance and set-up work.
2	Work area	During operation the operator may not reach inside the work area. In this area, the operator operates the machine. The operating elements, such as the operating switch, must always be freely accessible.

4.4 Functional description

The core drilling machine C-BMH 160 is used for core drilling in asphalt and concrete and similar building materials using core drill bits.

The core drilling machine C-BMH 160 can perform core drilling up to a diameter of 160 mm. The rotating speed of the drill spindle can be adjusted in three selectable levels with a rotary switch. The machine can be equipped with a suction or a water feed.

The drive motor is equipped with a soft start, an overload device and thermal protection. The service and fault lamp display the respective state.

4.5 Operating modes

The machine is exclusively in manual operation. In free-hand operation, core drilling up to a diameter of 80 mm may be performed with the machine.

The machine must be mounted in a drill stand for the operation of core bits with a diameter between 80 mm to 160 mm. For operation, an operator is prescribed for monitoring and intervening in the work process.

RENTWAY

5 Transporting and unpacking

In this chapter you will find information on transporting and unpacking the machine:

- Transporting (page 27)
- Unpacking (page 27)

5.1 Transporting

Transport the machine always in the provided transport box. During transport of the machine, ensure that all accessories are completely available, see chapter "Product information" > "Accessories provided" (page 7).

During transport act in accordance with the following instructions:

- Clean the machine if it was in operation beforehand.
- Transport machine carefully. Do not lift at sensitive parts (e.g. connection cable).

5.2 Unpacking

Check the machine as follows:

- Are there any signs of damage due to transport?
- If the machine is damaged during transport or if the delivery is incomplete when the machine is unpacked for the first time, please inform the manufacturer immediately.

Dispose of the packing material according to the applicable regulations.

6 Set up

In this chapter you will find information on setting up the machine:

- Operation with handle (page 28)
- Operation with drill rigs (page 28)
- Mount adapter (page 29)
- Mount core bit (page 29)

6.1 Operation with handle

If you want to work freehand with the machine, you must mount the handle.

Requirement:

- No core bit is mounted in the drill spindle.
- The mains plug is not plugged in.

Perform the following work steps:

1. Push the **⟨HANDLE⟩** carefully on the **⟨MOUNTING NECKAGE⟩** of the machine.
2. Tighten firmly **⟨TIGHTENING SCREW⟩** of the **⟨HANDLE⟩**.
3. Check the **⟨MACHINE⟩** is fitted firmly in the **⟨HANDLE⟩**.

✓ Finish

6.2 Operation with drilling stand

This section describes for example the mounting of the machine on a drilling stand. Before mounting, find out whether the drilling stand is approved for operation with this machine. Depending on the height of the core bit, it can be necessary that this must be mounted on the machine beforehand. You can find more detailed information on safe and correct mounting in the separate operating instructions of the drilling stand.

Requirement:

- The mains plug of the machine is not plugged in.

Perform the following work steps:

1. Open the **⟨COLLET⟩** of the **⟨DRILLING STAND⟩**.
2. Lift the **⟨MACHINE⟩** carefully into the **⟨COLLET⟩**.
3. Close the **⟨COLLET⟩**.
4. Check that the **⟨MACHINE⟩** is firmly fitted in the **⟨COLLET⟩** in the **⟨DRILLING STAND⟩**.

✓ Finish

6.3 Mount adapter

The machine can be operated either with a vacuum cleaner to discharge abrasive material or with a water cooling system. The respective adapter must be mounted on the water and suction connection.

Requirement:

- The mains plug of the machine is not plugged in.

Perform the following work steps:

1. Push the respective **«ADAPTER»** carefully on the **«WATER- AND SUCTION CONNECTION»**.
2. Turn the respective **«ADAPTER»** slightly to the right until it locks into place.

✓ Finish

6.4 Mount core bit

Ensure mounting on the size of the core bit. In free-hand mode, you may mount core bits with a diameter of up to 80 mm. The machine may only be operated in conjunction with an approved drilling stand for larger core bits with a diameter of up to 160 mm.

Requirement:

- The mains plug is not plugged in.
- The threads of the drill spindle are clean.

Required:

- Open-end spanner (SW 41 mm)
- Open-end spanner (SW 32 mm)

Perform the following work steps:

1. Turn the **«CORE BIT»** carefully by hand on the **«THREAD»** of the **«DRILL-SPINDLE»**.
2. Tighten the **«CORE BIT»** with both **«OPEN-END SPANNERS»**.
! Use the open-end spanner (SW 32 mm) to secure it to the machine.



✓ Finish

7 Operation

In this chapter you will find information on operating the machine:

- Operating the machine (page 30)
- Commissioning (page 30)
- Perform drilling process (page 32)
- Rectify operational malfunctions (page 33)
- Decommissioning (page 33)

7.1 Operation with the machine

The machine is operated by one person. The operator can use the machine in free-hand mode for core drilling with a diameter of up to 80 mm. The machine must be mounted in a drill stand for the operation of core bits with a diameter between 80 mm to 160 mm.

The operator aligns the machine to the drill hole. Then the operator begins the drilling process.

Pay particular attention to the following potential malfunctions:

- Do any unusual noises occur?
- Do any unusual vibrations occur?

If you detect a malfunction, stop the machine immediately. Rectify the cause of the malfunction if you are authorised to do so. Continue to operate the machine when you are certain that the machine works perfectly.

7.2 Commissioning

In this chapter you will find information on commissioning the machine.

7.2.1 Requirements

Before putting the machine into operation, you must ensure that the following questions are answered with "yes":

- Are all safety devices, as intended by the manufacturer, mounted and do they perfectly work?
- Are authorised persons present at the machine site?
- Can anybody get injured from starting the machine?
- Do I know how I should behave in the event of accidents?
- Is the connection cable of the machine in perfect condition?
- Is it known whether the machine must be operated free-hand or in a drilling stand? See chapter "Machine overview" > "Intended use" (page 21).

7.2.2 Establishing operational

Requirement:

- The machine is set up in accordance with your work assignment, see chapter "Set up" (page 28).
- The requirements for commissioning are all fulfilled, see section "Requirements " (page 30).

**WARNING****Risk of injury on rotating parts of the machine!**

On the machine there are parts that rotate. You can be drawn into them and incur severe injuries!

- Never place your hand in the rotating parts or under the protective cover during operation!
- Make sure that no persons can reach into the hazardous area of the machine during operation!

**CAUTION****Risk of injury during operation due to machine properties!**

During operation the machine is very loud. The machine ejects abrasive material.

- Always wear hearing protection, protective gloves, safety boots, goggles and a dust mask during operation.

ATTENTION**Machine damage due to an operating error!**

A machine operating failure can damage the machine.

- Ensure that the machine ventilation slits are always unobstructed.
- Never use the water cooling system during overhead work.

Perform the following work steps:

1. Plug the **⟨MAINS PLUG⟩** of the **⟨CONNECTION CABLE⟩** in a functional **⟨230 V- SOCKET⟩**.
2. Carry out **⟨FUNCTIONAL TESTING⟩** of the **⟨GROUND-FAULT-CIRCUIT INTERRUPTER⟩**, see chapter "Safety" > "Ground-fault circuit interrupter" (page 17).

✓ Finish

7.3 Perform drilling process

Requirement:

- The operational readiness of the machine is established, see section "Commissioning" (page 30).

Start drilling process



CAUTION

Risk of injury if the required personal protective equipment is not used!

You can incur injuries and hearing damage if you do not use the required personal protective equipment during operation.

- ➔ Always wear your personal protective equipment: (Safety boots, goggles, hearing protection, protective gloves and dust mask)

ATTENTION

Machine damage due to an operating error!

A machine operating failure can damage the gears!

- ➔ Select the required gear only during stillstand of the machine!
- ➔ Never select the gears when you press the operating switch or when the drill spindle is still rotating!

Perform the following work steps:

1. With the **«SELECTION SWITCH – ROTATING SWITCH»**, select the proper gear for the mounted **«CORE BIT»**:
 - ➔ Gear 1: Core bits with Ø 70 mm bis Ø 160 mm
 - ➔ Gear 2: Core bits with Ø 40 mm bis Ø 100 mm
 - ➔ Gear 3: Core bits with Ø 20 mm bis Ø 35 mm
2. Press and hold the **«OPERATING SWITCH»** of the machine.
 - ! Enable permanent connection so that the operating switch is permanently switched on.
 - ➔ When the operating switch is enabled, the core bit begins to rotate.

The drilling process has started.

Perform drilling process



Perform the following work steps:

- ➔ Always work carefully and prudently.
- ! During work, ensure that the connection cable is protected from heat, oil and sharp edges.

The drilling process is carried out.

**End drilling
process**

Perform the following work steps:

1. Release the machine **«OPERATING SWITCH»**.
 2. If necessary, press the machine **«OPERATING SWITCH»** again if permanent connection was enabled.
 - The drilling process of the core bit is finished.
- ✓ Finish

7.4 Rectify operational malfunctions

Faults are displayed on the machine by the service and fault lamp. You will find the table for rectifying faults and malfunctions in the chapter "Maintenance, repair and decommissioning" > "Rectifying faults and malfunctions" (page 34).

7.5 Decommissioning

At the end of the drilling process, take the machine out of operation.

Required:

- a damp cloth

Perform the following work steps:

1. Let the **«CORE BIT»** cool down.
 2. Blow the machine **«VENTILATION SLITS»** when the **«MOTOR»** is running.
 3. Pull the plug the **«MAINS PLUG»** out of the **«CONNECTION CABLE»** in a functional **«230 V- SOCKET»**.
 - ! Never disconnect at the connection cable but at the main plug.
 - ! Ensure that the permanent connection is switched off.
 4. Carefully roll up the **«CONNECTION CABLES»**.
 5. Using the **«DAMP CLOTH»**, clean the complete **«MACHINE»**.
 6. Using the **«DAMP CLOTH»**, clean the **«CONNECTION CABLE OF THE MACHINE»**.
- ✓ Finish

8 Maintenance, repair and decommissioning

In this chapter you will find information on maintenance, repair and decommissioning of the machine:

- Instructions on maintenance and repair (page 34)
- Rectifying faults and malfunctions (page 34)
- Maintenance plan (page 37)
- Storing when not in use (page 38)
- Disposal (page 38)
- Spare parts list (page 39)

8.1 Instructions for maintenance and repair

In this chapter you will find information on machine maintenance and repair.

Safety and precautionary behaviour of personnel prevents hazardous situations during maintenance work.

The following basic principles apply to maintenance and repair:

- Maintenance and repair work may only be performed by personnel with the appropriate qualification.
- Adhere to the intervals prescribed in the maintenance plan.
- During operation the machine parts can get very hot. Let the machine cool down before you perform maintenance and repair work.
- Always use original spare parts and accessories!

Service the machine regularly in accordance with the manufacturer's recommendations and inspect it for damage. Furthermore, the complete machine is to be regularly cleaned and checked according to the degree of soiling.

Damaged components are to be replaced immediately in order to guarantee the safety of operating personnel and the flawless function of the machine.

The ground-fault circuit interrupter must be checked at regular intervals that it functions flawlessly.

8.2 Rectifying faults and malfunctions

In this chapter you will find information on rectifying faults and malfunctions.

Instructions for rectifying faults and malfunctions during the drilling process:

- The problems and their possible causes are mainly in natural wear and in the unintended use of the machine and the diamond cutting disks.
- Read the operating instructions before cutting.

Fault rectification chart

Problem	Possible cause	Removal
The machine motor stops.	The motor is overheated.	Let the motor run idle for a few minutes with pressure in order to cool down the motor.
The coupling slips.	You work with too much pressure.	Do not press too strongly during the drilling process. The coupling will get damaged by frequent overpressure and must be replaced by authorised service personnel.
The service and fault lamp is flashing.	You work with a high load	Reduce the load by pressing less.
The core bit has a strong run out.	The core bit (pipe) is damaged and bent.	Solder the diamond segment onto the new core bit pipe or use a new core bit.
	The connection thread is soiled and/or damaged.	Clean the connection thread and replace them if necessary.
	The drill motor shaft and drill spindle (bearing) is damaged or bent.	The drill motor can be repaired by a specialist workshop, specialist and CEDIMA®.
The diamond segments come off.	The core bit is overheated and has too little water.	Solder the diamond segments, resoldering, optimise the cool and rinse water supply.
The diamond segment wear is too high.	Incorrect core bit type.	Use a harder core bit type.
	The drill motor shaft and drill spindle (bearing) is damaged or bent.	The drill motor can be repaired by a specialist workshop, specialist and CEDIMA®.
	The core bit is overheated.	Optimise the cool and rinse water supply.
No drilling progress (feed)	The core bit is not adjusted to the material to be cut or possibly too hard.	Use the correct core bit type.
	The core bit (diameter) is not adjusted to the drill motor power.	Match the core bit diameter and drill motor appropriately.
	The feed pressure is not adjusted to the drill motor power and/or the core bit diameter.	Adjust the feed pressure and increase it if necessary.
	The diamond segments are blunt.	Sharpen the diamond segments.

Rectifying faults and malfunctions

Maintenance, repair and decommissioning

Fault rectification chart (continued)

Problem	Possible cause	Removal
The drilling process is not optimal.	Incorrect core bit type.	Use the appropriate core bit type for the drilling (material).
	The core bit is defect.	Send the core bit to the manufacturer.
	The core bit is overburdened.	Reduce the feed pressure.
	The diamond segments are blunt.	Sharpen the diamond segments.
The core bit frequently gets jammed.	The feed pressure is too high.	Drill according to material.
	The core bit is defect.	Change the core bit.
	The feed direction is not parallel to the core bit.	Check mounting/alignment of the core drilling machine (glide carriages, drill column, drill motor mounting bracket, drill motor, ...).
	Interfering elements are in the bore (reinforcement,...).	If necessary, wash over the bore.
	The core bit has too much side friction on the pipe.	See "The drilling process is not optimal".
	The core drilling stand is not sufficiently fastened.	Fasten the core drilling stand accordingly.
	The core drilling stand is not sufficiently serviced.	Service, maintain or repair the core drilling stand if necessary.
The core bit is started in colour.	The core bit is overheated.	Optimise the cool water supply.
	The core bit has too much side friction on the pipe.	See "The drilling process is not optimal".
There are cracks in the core bit pipe.	The core bit is too "hard".	Use a "softer" core bit.
Diamond segments show signs of eccentric wear.	See "The core bit has a strong run out".	See "The core bit has a strong run out".
	The diamond segments are not precisely soldered.	Send the core bit to the manufacturer. Resolder the diamond segments. Use a new core bit.

8.3 Maintenance schedule

Perform the following work steps regularly in order to maintain the smooth operation of the machine.

Maintenance schedule legend

Sign	Meaning
1	Clean, empty
2	Lubricate, grease, oils, corrosion protection
3	Checking (optical and function)
4	Change, replace
5	Retighten, adjust, change wear parts
6	Change as required
7	Statutory safety check in accordance with BGV A3 Paragraph 5
8	Observe the respective safety instructions
h	Operating hours
*)	Depending on load and condition
**)	Depending on how severe (the extent of) the damage is
***)	Servicing by Cedima or authorised specialised workshop

Maintenance schedule

	Service	Entire machine	Drill motor collet	Tool holder (drill motor spindle)	Tool (Diamond core bit)	Water system (if necessary, drill motor hose, shut-off valve,...)
Before every start-up		3, 8	3	3	3, 6	3, 8
After finishing the work		1	1	1, 2	1	1
Per working day		7				
Monthly		7				
After 200 h	5***)					
Annually		7				
In case of faults		8	4*), 5	8	1, 4*), 6*)	4*), 5, 8

Disposal

Maintenance, repair and decommissioning

Maintenance schedule (continued)

In case of damage		4**), 8	4**)	4, 8	4	4**), 8
-------------------	--	---------	------	------	---	---------

The table can be updated at any time by CEDIMA® (for example appropriate requirements and developments)! Find out from CEDIMA®.

8.4 Storing when not in use

Store the machine under the following conditions if the machine is to be taken out of operation for a longer period:

- The machine is described as in the section "Operation" > "Decommissioning" (page 33) take out of operation
- closed, well ventilated room
- Ambient air is free from aggressive media and dust
- Ambient temperature from - 25 °C to + 55 °C
- Low level of humidity which does not cause any corrosion

8.5 Disposal

In this chapter you will find information on the disposal of machine.

The following basic principles apply to disposal:

- Equipment must not be disposed via the household waste.
- Gather individual parts of the machine separately as scrap metal and electrical scrap and, if necessary, clean them.
- Dispose of metal parts as scrap metal.
- Dispose of cleaned cable as electrical metal.
- Comply with the locally applicable regulations on disposal.
- Dispose of all parts in accordance with the locally applicable regulations.



RENTWAY

RENTWAY



CEDIMA® Diamantwerkzeug- und Maschinenbaugesellschaft mbH,
Lärchenweg 3, D-29227 Celle
Tel. +49 (0)5141 88 54 - 0 · Fax +49 (0)5141 86 427
info@cedima.com · www.cedima.com