

Safety and operating instructions

Hydraulic core drill



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Introduction

Thank you for choosing a product from Atlas Copco. Since 1873, we have been committed to finding new and better ways of fulfilling our customers' needs. Through the years, we have developed innovative and ergonomic product designs that have helped customers improve and rationalize their daily work.

Atlas Copco has a strong global sales and service network, consisting of customer centers and distributors worldwide. Our experts are highly trained professionals with extensive product knowledge and application experience. In all corners of the world, we can offer product support and expertise to ensure that our customers can work at maximum efficiency at all times.

For more information please visit: www.atlascopco.com

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About the Safety and operating instructions

The aim of the instructions is to provide you with knowledge of how to use the core drill in an efficient, safe way. The instructions also give you advice and tell you how to perform regular maintenance on the core drill.

Before using the core drill for the first time you must read these instructions carefully and understand all of them.

Safety instructions

To reduce the risk of serious injury or death to yourself or others, read and understand the Safety and operating instruction before installing, operating, repairing, maintaining, or changing accessories on the machine.

Post this Safety and operating instruction at work locations, provide copies to employees, and make sure that everyone reads the Safety and operating instruction before operating or servicing the machine.

In addition, the operator or the operator's employer must assess the specific risks that may be present as a result of each use of the machine.

Safety signal words

The safety signal words Danger, Warning and Caution have the following meanings:

DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

Personal precautions and qualifications

Only qualified and trained persons may operate or maintain the machine. They must be physically able to handle the bulk, weight, and power of the tool. Always use your common sense and good judgement.

Personal protective equipment

Always use approved protective equipment. Operators and all other persons in the working area must wear protective equipment, including at a minimum:

- Protective helmet
- Hearing protection
- Impact resistant eye protection with side protection
- Respiratory protection when appropriate
- Protective gloves
- Proper protective boots
- Appropriate work overall or similar clothing (not loose-fitting) that covers your arms and legs.

Drugs, alcohol or medication

▲ **WARNING** Drugs, alcohol or medication

Drugs, alcohol or medication may impair your judgment and powers of concentration. Poor reactions and incorrect assessments can lead to severe accidents or death.

- ▶ Never use the machine when you are tired or under the influence of drugs, alcohol or medication.
- ▶ No person who is under the influence of drugs, alcohol or medication may operate the machine.

Installation, precautions

▲ **WARNING** Moving or slipping insertion tool

An incorrect dimension of the inserted tool's shank can result in that the inserted tool is lost or is slipping out during operation. Risk of severe injury or crushed hands and fingers.

- ▶ Check that the insertion tool has the shank length and dimensions that the machine is intended for.
- ▶ Never use an insertion tool without a collar.

▲ **CAUTION** Moving parts

Risk for crushed hands and fingers.

- ▶ Never check bores or passages with hands or fingers.

Operation, precautions

▲ **DANGER** Explosion hazard

If a warm insertion tool comes into contact with explosives, an explosion could occur. During operation with certain materials as well as use of certain materials in machine parts, sparks and ignition can occur. Explosions will lead to severe injuries or death.

- ▶ Never operate the machine in any explosive environment.
- ▶ Never use the machine near flammable materials, fumes or dust.
- ▶ Make sure that there are no undetected sources of gas or explosives.
- ▶ Never drill in an old hole.

▲ WARNING Unexpected movements

The inserted tool is exposed to heavy strains when the machine is used. The inserted tool may break due to fatigue after a certain amount of use. If the inserted tool breaks or gets stuck, there may be sudden and unexpected movement that can cause injuries. Furthermore, losing your balance or slipping may cause injury.

- ▶ Make sure that you always keep a stable position with your feet as far apart as your shoulder width, and keeping a balanced body weight.
- ▶ Always inspect the equipment prior to use. Never use the equipment if you suspect that it is damaged.
- ▶ Make sure that the handles are clean and free of grease and oil.
- ▶ Keep your feet away from the inserted tool.
- ▶ Stand firmly and always hold on to the machine with both hands.
- ▶ Never drill in an old hole.
- ▶ Never start the machine when it is lying on the ground.
- ▶ Never 'ride' on the machine with one leg over the handle.
- ▶ Never strike or abuse the equipment.
- ▶ Check regularly for wear on the insertion tool, and check whether there are any signs of damage or visible cracks.
- ▶ Pay attention and look at what you are doing.

▲ WARNING Stalling hazard

If the insertion tool gets caught during operation, the whole machine will start to rotate if you lose your grip on it. This unexpected rotation of the entire machine may cause serious injury or death.

- ▶ Stand firmly and always hold onto the machine with both hands.
- ▶ Make sure that the handle or handles are clean and free from grease and oil.
- ▶ Never drill in an old hole.

▲ WARNING Trapping hazard

There is risk of neck ware, hair, gloves and clothes getting dragged into or caught by a rotating insertion tool or accessories. This may cause choking, scalping, lacerations or death. To reduce the risk:

- ▶ Never grab or touch a rotating drill steel.
- ▶ Avoid wearing clothing, neck ware or gloves that may get caught.
- ▶ Cover long hair with a hair net.

▲ WARNING Dust and fume hazard

Dusts and/or fumes generated or dispersed when using the machine may cause serious and permanent respiratory disease, illness, or other bodily injury (for example, silicosis or other irreversible lung disease that can be fatal, cancer, birth defects, and/or skin inflammation).

Some dusts and fumes created by drilling, breaking, hammering, sawing, grinding and other construction activities contain substances known to the State of California and other authorities to cause respiratory disease, cancer, birth defects, or other reproductive harm. Some examples of such substances are:

- Crystalline silica, cement, and other masonry products.
- Arsenic and chromium from chemically-treated rubber.
- Lead from lead-based paints.

Dust and fumes in the air can be invisible to the naked eye, so do not rely on eye sight to determine if there is dust or fumes in the air.

To reduce the risk of exposure to dust and fumes, do all of the following:

- ▶ Perform site-specific risk assessment. The risk assessment should include dust and fumes created by the use of the machine and the potential for disturbing existing dust.
- ▶ Use proper engineering controls to minimize the amount of dust and fumes in the air and to minimize build-up on equipment, surfaces, clothing, and body parts. Examples of controls include: exhaust ventilation and dust collection systems, water sprays, and wet drilling. Control dusts and fumes at the source where possible. Make sure that controls are properly installed, maintained and correctly used.
- ▶ Wear, maintain and correctly use respiratory protection as instructed by your employer and as required by occupational health and safety regulations. The respiratory protection must be effective for the type of substance at issue (and if applicable, approved by relevant governmental authority).
- ▶ Work in a well ventilated area.
- ▶ If the machine has an exhaust, direct the exhaust so as to reduce disturbance of dust in a dust filled environment.
- ▶ Operate and maintain the machine as recommended in the operating and safety instructions

- ▶ Select, maintain and replace consumables/ working tools/ other accessory as recommended in the operating and safety instructions. Incorrect selection or lack of maintenance of consumables/ inserted tools/ other accessories may cause an unnecessary increase in dust or fumes.
- ▶ Wear washable or disposable protective clothes at the worksite, and shower and change into clean clothes before leaving the worksite to reduce exposure of dust and fumes to yourself, other persons, cars, homes, and other areas.
- ▶ Avoid eating, drinking, and using tobacco products in areas where there is dust or fumes.
- ▶ Wash your hands and face thoroughly as soon as possible upon leaving the exposure area, and always before eating, drinking, using tobacco products, or making contact with other persons.
- ▶ Comply with all applicable laws and regulations, including occupational health and safety regulations.
- ▶ Participate in air monitoring, medical examination programs, and health and safety training programs provided by your employer or trade organizations and in accordance with occupational health and safety regulations and recommendations. Consult with physicians experienced with relevant occupational medicine.
- ▶ Work with your employer and trade organization to reduce dust and fume exposure at the worksite and to reduce the risks. Effective health and safety programs, policies and procedures for protecting workers and others against harmful exposure to dust and fumes should be established and implemented based on advice from health and safety experts. Consult with experts.
- ▶ Residues of hazardous substances on the machine can be a risk. Before undertaking any maintenance on the machine clean it thoroughly.

▲ WARNING Projectiles

Failure of the work piece, of accessories, or even of the machine itself may generate high velocity projectiles. During operating, splinters or other particles from the working material may become projectiles and cause personal injury by striking the operator or other persons. To reduce these risk:

- ▶ Use approved personal protective equipment and safety helmet, including impact resistant eye protection with side protection.
- ▶ Make sure that no unauthorised persons trespass into the working zone.
- ▶ Keep the workplace free from foreign objects.
- ▶ Ensure that the work piece is securely fixed.

▲ WARNING Splinters hazard

Using the insertion tool as a hand struck tool can result in splinters hitting the operator and can cause personal injury.

- ▶ Never use an insertion tool as a hand struck tool. They are specifically designed and heat-treated to be used only in a machine.

▲ WARNING Slipping, tripping and falling hazards

There is a risk of slipping or tripping or falling, for example tripping on the hoses or on other objects. Slipping or tripping or falling can cause injury. To reduce this risk:

- ▶ Always make sure that no hose or other object is in your way or in any other person's way.
- ▶ Always make sure you are in a stable position with your feet as far apart as your shoulders width and keeping a balanced body weight.

▲ WARNING Motion hazards

When using the machine to perform work-related activities, you may experience discomfort in the hands, arms, shoulders, neck, or other parts of the body.

- ▶ Adopt a comfortable posture whilst maintaining secure footing and avoiding awkward off-balanced postures.
- ▶ Changing posture during extended tasks may help avoid discomfort and fatigue.
- ▶ In case of persistent or recurring symptoms, consult a qualified health professional.

▲ WARNING Hydraulic oil

Spilled hydraulic oil can cause burns, accidents due to slippery conditions and will also harm the environment.

- ▶ Take care of all spilled oil and handle it according to your safety and environmental regulations.
- ▶ Never dismount the hydraulic machine when the hydraulic oil is hot.
- ▶ Never run any hydraulic lines for attachment of the hydraulic machine through the drivers cab.

▲ WARNING Hydraulic oil at high pressure

Thin jets of hydraulic oil under high pressure can penetrate the skin and cause permanent injury.

- ▶ Immediately consult a doctor if hydraulic oil has penetrated the skin.
- ▶ Never use your fingers to check for hydraulic fluid leaks.
- ▶ Keep your face away from any possible leaks.

▲ WARNING Vibration hazards

Normal and proper use of the machine exposes the operator to vibration. Regular and frequent exposure to vibration may cause, contribute to, or aggravate injury or disorders to the operator's fingers, hands, wrists, arms, shoulders and/or nerves and blood supply or other body parts, including debilitating and/or permanent injuries or disorders that may develop gradually over periods of weeks, months, or years. Such injuries or disorders may include damage to the blood circulatory system, damage to the nervous system, damage to joints, and possibly damage to other body structures.

If numbness, persistent recurring discomfort, burning sensation, stiffness, throbbing, tingling, pain, clumsiness, weakened grip, whitening of the skin, or other symptoms occur at any time, when operating the machine or when not operating the machine, stop operating the machine, tell your employer and seek medical attention. Continued use of the machine after the occurrence of any such symptom may increase the risk of symptoms becoming more severe and/or permanent.

Operate and maintain the machine as recommended in these instructions, to prevent an unnecessary increase in vibration.

The following may help to reduce exposure to vibration for the operator:

- ▶ Let the tool do the job. Use a minimum hand grip consistent with proper control and safe operation.
 - ▶ If the machine has vibration absorbing handles, keep them in a central position, avoid pressing the handles into the end stops.
 - ▶ When the percussion mechanism is activated, the only body contact with the machine you should have are your hands on the handle or handles. Avoid any other contact, for example supporting any part of the body against the machine or leaning onto the machine trying to increase the feed force. It is also important not to keep the start and stop device engaged while extracting the tool from the broken work surface.
 - ▶ Make sure that the inserted tool is well-maintained (including sharpness, if a cutting tool), not worn out, and of the proper size. Insertion tools that are not well-maintained, or that are worn out, or that are not of the proper size result in longer time to complete a task (and a longer period of exposure to vibration) and may result in or contribute to higher levels of vibration exposure.
 - ▶ Immediately stop working if the machine suddenly starts to vibrate strongly. Before resuming the work, find and remove the cause of the increased vibrations.
 - ▶ Never grab, hold or touch the inserted tool when using the machine.
- ▶ Participate in health surveillance or monitoring, medical exams and training programs offered by your employer and when required by law.
 - ▶ When working in cold conditions wear warm clothing and keep hands warm and dry.
 - ▶ The exhaust air is strongly chilled and shall not make contact with the operator. Always direct the exhaust air away from hands and body.

See the "Noise and vibration declaration statement" for the machine, including the declared vibration values. This information can be found at the end of these Safety and operating instructions.

▲ DANGER Electrical hazard

The machine is not electrically insulated. If the machine comes into contact with electricity, serious injuries or death may result.

- ▶ Never operate the machine near any electric wire or other source of electricity.
- ▶ Make sure that there are no concealed wires or other sources of electricity in the working area.

▲ WARNING Concealed object hazard

During operating, concealed wires and pipes constitute a danger that can result in serious injury.

- ▶ Check the composition of the material before operating.
- ▶ Watch out for concealed cables and pipes for example electricity, telephone, water, gas and sewage lines etc.
- ▶ If the inserted tool seems to have hit a concealed object, switch off the machine immediately.
- ▶ Make sure that there is no danger before continuing.

▲ WARNING Operating pressure

If the maximum operating pressure for the hydraulic machine is exceeded, it can result in material damage and personal injury.

- ▶ Always run the hydraulic machine with the correct operating pressure, see "Technical data".
- ▶ Only readjust the pressure relief valve (torque control) on the machine according to procedure and values described under maintenance. Note that higher settings might lead to a higher torque, which could harm the machine and result in serious injury or death.

▲ WARNING Involuntary start

Involuntary start of the machine may cause injury.

- ▶ Keep your hands away from the start and stop device until you are ready to start the machine.
- ▶ Learn how the machine is switched off in the event of an emergency.
- ▶ Release the start and stop device immediately in all cases of power supply interruption.
- ▶ Whenever fitting or removing the insertion tool, switch off the air supply, bleed the machine by pressing the start and stop device and disconnect the machine from the power source.

▲ WARNING Whipping hydraulic hose

Hydraulic hoses under pressure can whip uncontrollably if screws loosen or are loosened. A whipping hydraulic hose can cause severe injuries.

- ▶ Depressurise the hydraulic system before loosening the connection of a hydraulic hose.
- ▶ Tighten the nuts on the connections of the hydraulic hoses to the required torque.
- ▶ Check that the hydraulic hose and the connections are not damaged.

▲ WARNING Noise hazard

High noise levels can cause permanent and disabling hearing loss and other problems such as tinnitus (ringing, buzzing, whistling, or humming in the ears). To reduce risks and prevent an unnecessary increase in noise levels:

- ▶ Risk assessment of these hazards and implementation of appropriate controls is essential.
- ▶ Operate and maintain the machine as recommended in these instructions.
- ▶ Select, maintain and replace the working tool as recommended in these instructions.
- ▶ If the machine has a silencer, check that it is in place and in good working condition.
- ▶ Always use hearing protection.
- ▶ Use damping material to prevent work pieces from 'ringing'.

Maintenance, precautions

▲ WARNING Machine modification

Any machine modification may result in bodily injuries to yourself or others.

- ▶ Never modify the machine. Modified machines are not covered by warranty or product liability.
- ▶ Always use original parts, insertion tools, and accessories.
- ▶ Change damaged parts immediately.
- ▶ Replace worn components in good time.

▲ CAUTION Hot insertion tool

The tip of the insertion tool can become hot and sharp when used. Touching it can lead to burns and cuts.

- ▶ Never touch a hot or sharp insertion tool.
- ▶ Wait until the insertion tool has cooled down before carrying out maintenance work.

▲ WARNING Working tool hazards

Accidental engagement of the start and stop device during maintenance or installation can cause serious injuries, when the power source is connected.

- ▶ Never inspect, clean, install, or remove the working tool while the power source is connected.

Storage, precautions

- ◆ Keep the machine and tools in a safe place, out of the reach of children and locked up.

Overview

To reduce the risk of serious injury or death to yourself or others, read the Safety instructions section found on the previous pages of this manual before operating the machine.

Design and function

LCD 500 and LCD 1500 are sturdy and reliable core drills designed for working together with Atlas Copco power packs. The core drills are small and flexible machines with a high performance compared to the weight.

The core drills are designed for water flushed diamond drilling but can also be used for dry drilling applications, which will not harm the seals. With prolonged use in dry drilling applications, the housing and shaft may become extremely warm. If this occurs, remove the drill bit and run water through the housing and shaft for one minute to dissipate the built up heat.

The core drills can be used in drilling rigs. The bearing housing is designed with a 60 mm cylindrical surface that fits into industry standard drilling rig mounting collars.

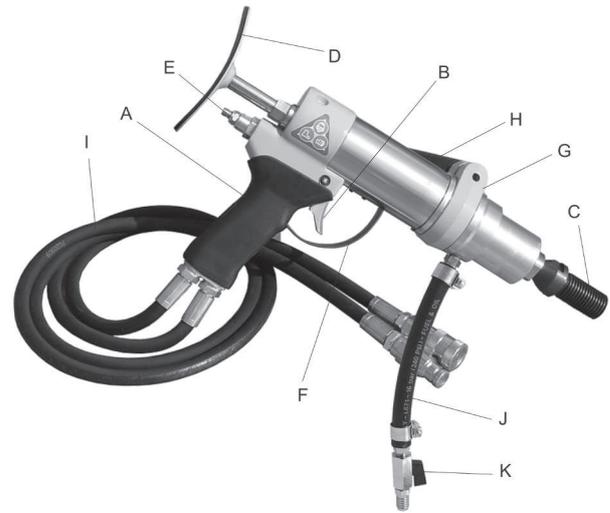
The directly driven hydraulic power design provides consistent rotation and torque when drilling in concrete, brickwork, or blocks for example. It also makes underwater drilling possible. They are designed for all kind of construction jobs. No other use is permitted.

Never use the core drill as a rotation movement supplier for other equipment.

To choose the correct insertion tool, see the spare part list or the accessories catalogue.

The core drills are delivered with 2 m $\frac{3}{8}$ " tail-hoses with $\frac{1}{2}$ " 'Flat-Face' quick-release couplings.

Main parts

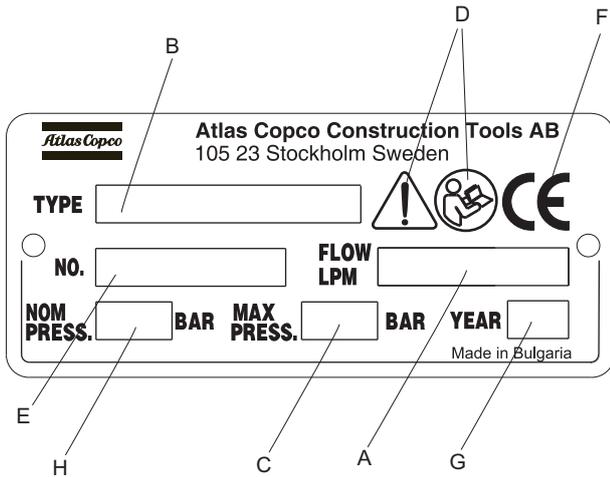


- A. Handle
- B. Trigger
- C. Adaptor
- D. Breast plate
- E. Pressure relief valve
- F. Protection bracket
- G. Handle ring
- H. Front handle
- I. Hydraulic hose
- J. Water hose
- K. Water valve

Labels

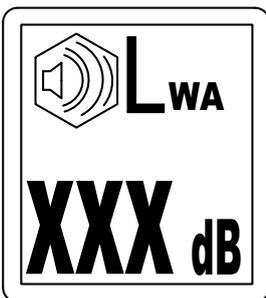
The machine is fitted with labels containing important information about personal safety and machine maintenance. The labels must be in such condition that they are easy to read. New labels can be ordered from the spare parts list.

Data plate



- A. Maximum permitted hydraulic oil flow
- B. Machine type
- C. Maximum relief valve setting
- D. The warning symbol together with the book symbol means that the user must read the safety and operating instructions before the machine is used for the first time.
- E. Serial number (is also stamped in the valve housing).
- F. The CE symbol means that the machine is EC-approved. See the EC declaration which is delivered with the machine for more information.
- G. Year of manufacture.
- H. Maximum nominal operating pressure

Noise level label



The label indicates the guaranteed noise level corresponding to EC-directive 2000/14/EC. See "Technical data" for accurate noise level.

EHTMA category

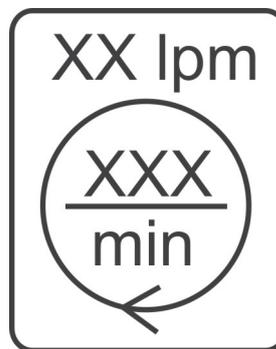
The machine is clearly marked with EHTMA categories. It is important that any power source used is in a compatible category. If any doubt, consult an authorised supervisor.



Safety label



RPM label



Installation

Hoses

For connection on the machine, the hydraulic hose must be approved for a working pressure of at least 172 bar (2,500 psi) and have a 12.7 mm (½ in.) inner diameter. To resist exterior wear and tear, we recommend using a 2-layer hydraulic hose. The machine connection marked P (pump) is the oil inlet, and the connection marked T (tank) is the oil outlet. Always connect both hoses and make sure that all hose connections are tight. Never carry the machine by the hose.

Quick-release couplings

The original hydraulic hoses are fitted with Flat-Face quick-release couplings that are strong and easy to clean. The quick-release couplings are fitted so that the male connection supplies oil and the female connection receives oil.

NOTICE Wipe all couplings clean before connecting. Ensure that couplings are clean and correctly engaged before operation. Failure to do so may result in damage to the quick couplings and

cause overheating and cause foreign matter to enter the hydraulic system.

Hydraulic oil

In order to protect the environment, use of biologically degradable hydraulic oil is recommended. No other fluids must be used.

- ◆ Viscosity (preferred) 20-40 cSt.
- ◆ Viscosity (permitted) 15-100 cSt.
- ◆ Viscosity index minimum 100.

Standard mineral or synthetic oil can be used. Make sure to only use clean oil and filling equipment.

When the machine is used continuously, the oil temperature will stabilise at a level which is called the working temperature. This will, depending on the type of work and the cooling capacity of the hydraulic system, be between 20-40°C (68-104°F) above the ambient temperature. At working temperature, the oil viscosity must be within the preferred limits. The viscosity index indicates the connection between viscosity and temperature. A high viscosity is therefore preferred, because the oil can then be used within a wider temperature range. The machine must not be used, if oil viscosity fails to remain within the permitted area, or if the working temperature of the oil does not fall between 20°C (68°F) and 70°C (158°F).

Pressure adjustment

The maximum pressure of the power source is important. The pressure created in case of an incorrectly or unfitted return line coupling would cause overloading. Which could harm the machine and result in bodily injuries. The maximum pressure of the power source is 160 bar (limited by safety valve adjustment).

▲ WARNING Operating pressure

If the maximum operating pressure for the hydraulic machine is exceeded, it can result in material damage and personal injury.

- ▶ Always run the hydraulic machine with the correct operating pressure, see "Technical data".
- ▶ Only readjust the pressure relief valve (torque control) on the machine according to procedure and values described under maintenance. Note that higher settings might lead to a higher torque, which could harm the machine and result in serious injury or death.

Water flushing

For diamond bit core drilling, water flushing is required. Mount the water swivel and water hose on the core drill as follows.



The water can be supplied directly from a source, or a separate water kit can be used. A separate water kit with pressure tank is available, see the spare parts list.

Drill bit

Choosing drill bit

A correct drill bit is a condition for good operation. To avoid unnecessary machine damage, it is important to choose drill bits with a high quality.

Fitting and removing the drill bit

Smaller diameter drill bits are fitted directly into the machine drive shaft (½" BSP). For larger diameter drill bits, use an ½" BSP male x 1¼ UNC male drive adaptor, which is included with the machine.

To prevent an accidental start:

- 1) Switch off the power supply and disconnect the machine from the power source.
- 2) Screw the drill bit into the machine.
- 3) Lock the spindle using a spanner and tighten the drill bit.
- 4) Bleed the machine by pressing the start and stop device.

NOTICE Never cool a hot insertion tool in water, it can result in brittleness and early failure.

Operation

▲ **WARNING Involuntary start**

Involuntary start of the machine may cause injury.

- ▶ Keep your hands away from the start and stop device until you are ready to start the machine.
- ▶ Learn how the machine is switched off in the event of an emergency.
- ▶ Stop the machine immediately in all cases of power supply interruption.

NOTICE Never exceed the maximum flow for the machine, as this might lead to failure of the drill bit and damage to the machine.

Preparations before starting

Check the drilling equipment

- ◆ Check that all of the drilling equipment is in a good condition.
- ◆ Inspect the hoses generally for signs of damage.
- ◆ Check that the drill bit is in a good condition and has the correct diameter for the size of the core drill.
- ◆ Clean all safety labels. Replace any that are missing or cannot be read.
- ◆ Ensure that the hydraulic couplings are clean and fully serviceable.
- ◆ Ensure that the fittings are tight and leak-proof.
- ◆ Always use the core drill with a front handle mounted, to absorb the reaction torque.
- ◆ Screw the drill bit into the nose end drive of the shaft and tighten by means of the spanner flats provided.
- ◆ Check that the core drill is not blocked and that water flows through without obstruction.
- ◆ Ensure that the power source to be used is compatible with the machine model, see the "Technical data".
- ◆ Atlas Copco recommends using an LFD oil flow divider, if the flow from the power source can exceed the maximum allowed oil flow.

Start and stop

- ◆ Start the machine by pressing the trigger while firmly holding the handle. By gradually applying pressure on the trigger, the speed may be reduced to obtain a soft start.
- ◆ Stop the machine by releasing the trigger. The trigger returns automatically to the stop position. When the work is done, stop the power source. Disconnect the hoses and fit the protective caps to the quick-release couplings.

Operating

Before drilling

1. Connect the hydraulic hoses.
2. Connect the water hose to the water tap.
3. Screw the handle lightly into the handle ring and place the handle in a position that is comfortable for the operator.
4. Lock the handle ring in this position by tightening the handle to grip the bearing housing. Ensure that the handle remains locked throughout the drilling operation.
5. Start the power source.
6. Activate the water supply.

Starting a cut

- ◆ Stand steady and make sure that your feet and hands are at a safe distance from the drill bit.
- ◆ To start the drilling it is advisable to either turn the core drill to one side in order to obtain an initial groove and then slowly return to horizontal or vertical position as soon as the drill bit has engaged in the material to be drilled, or provide a guide to stop the drill bit skidding across the surface of the material to be drilled.

When taking a break

- ◆ During all breaks you must place the machine in such a way that there is no risk for it to be unintentionally started. Make sure to place the machine on the ground, so that it can not fall.
- ◆ In the event of a longer break or when leaving the workplace: Switch off the power supply and then bleed the machine by activating the start and stop device.

Maintenance

Regular maintenance is a basic requirement for the continued safe and efficient use of the machine. Follow the maintenance instructions carefully.

- ◆ Before starting maintenance on the machine, clean it in order to avoid exposure to hazardous substances. See “Dust and fume hazards”
- ◆ Use only authorised parts. Any damage or malfunction caused by the use of unauthorised parts is not covered by warranty or product liability.
- ◆ When cleaning mechanical parts with solvent, comply with appropriate health and safety regulations and ensure there is satisfactory ventilation.
- ◆ For major service of the machine, contact the nearest authorised workshop.
- ◆ After each service, check that the machine's vibration level is normal. If not, contact the nearest authorised workshop.

Every day

- ◆ Clean and inspect the machine and its functions each day before the work commences.
- ◆ Conduct a general inspection for leaks and damage.
- ◆ Check the function of the trigger. Make sure that it returns to its stop position when it is released.

Periodic maintenance

After each operating period of approximately 100 working hours or three times a year the machine must be dismantled and all parts be cleaned and checked. This work must be performed by authorized staff, trained for this task.

Storage

- ◆ Check that the machine is properly cleaned before storage.
- ◆ Store the machine in a dry place.
- ◆ Keep the machine and tools in a safe place, out of the reach of children and locked up.

Disposal

A used machine must be treated and disposed of in such a way that the greatest possible portion of the material can be recycled and any negative influence on the environment is kept as low as possible, and in respect to local restrictions.

Technical data

Troubleshooting

Problem	Cause	Solution
Core drill will not operate	Core drill not connected properly	Check the performance and connection of the power source. Make sure that the return line coupling is completely fitted with no clearance
	Oil flow and/or pressure too low	Check the power source and ensure that the flow and pressure are according to the technical specifications
Core drill runs at low speed	Oil flow and/or pressure too low	Check the power source and ensure that the flow and pressure are according to the technical specifications
	Contaminated hydraulic system	Clean system
	Internal leakage	Carefully check the O-ring seals in the trigger valve bushing and replace damaged ones
Core drill runs without pushing the trigger	Untightened trigger valve bushing	Tighten trigger valve bushing properly
	O-ring failure	Replace the O-ring at the bottom of the trigger valve bushing hole
	Check valve spring broken	Replace spring
Trigger lever stuck	Flow too high	Check the power source and ensure that the flow and pressure are according to the technical specifications - and that the connections are correct
	Improper pressure/return line connection	
	Back pressure too high	
	Impurities	Check trigger valve/reversing valve for seizing
Trigger lever cannot be released	Trigger lever blocked in locked position	Readjust the flat spring through the two screws on the motor housing
System overheats	Flow too high	Reduce the flow from the power source. If necessary, use a flow divider to control the flow
	Insufficient cooling	Use a power source with higher cooling capacity or add an additional oil cooler in the return line

Machine data

	LCD 500, LCD 1500
Weight without hoses and drill bit, kg (lb)	7.25 (15.9)
Oil flow range, l.p.m. (US gal/min)	20-30 (5-8)
Maximum pressure relief valve setting, bar (psi)	172 (2495)
EHTMA category	C and D
Maximum back pressure in return line, bar (psi)	14 (200)
Oil working temperature, °C (°F)	30-70 (86-158)
Required cooling capacity, kW	Approx. 2

Type	20 l.p.m. (5 US gal/min)		30 l.p.m. (8 US gal/min)	
	rpm	Drill bit diameter mm (in.)	rpm	Drill bit diameter mm (in.)
LCD 500	600	75-202 (3-8)	900	50-100 (2-4)
LCD 1500	1500	25-75 (1-3)	2250	12-30 (0.5-1.2)

Noise and vibration data

	Noise		Vibration	
	Sound pressure	Sound power	Three axes values	
	Declared values		Declared values	
	EN ISO 11203	2000/14/EC	EN ISO 20643	
Type	Lp r=1m dB(A) rel 20µPa	Lw guaranteed dB(A) rel 1pW	A m/s ² value	B m/s ² spreads
LCD 500 (Ø 102 mm, 20 lpm)	<70	-	3.10	0.81
LCD 500 (Ø 102 mm, 30 lpm)	<70	-	3.00	0.82
LCD 1500 (Ø 62 mm, 20 lpm)	<70	-	2.70	0.76
LCD 1500 (Ø 62 mm, 30 lpm)	<70	-	3.40	0.83

Vibration declaration statement

Vibration value **A** and uncertainty **B** determined according to EN ISO 20643. See table "Noise and vibration data" for the values of A, B, etc.

These declared values were obtained by laboratory type testing in accordance with the stated directive or standards and are suitable for comparison with the declared values of other tools tested in accordance with the same directive or standards. These declared values are not suitable for use in risk assessments and values measured in individual work places may be higher. The actual exposure values and risk of harm experienced by an individual user are unique and depend upon the way the user works, in what material the machine is used, as well as upon the exposure time and the physical condition of the user, and the condition of the machine.

We, Atlas Copco Construction Tools AB, cannot be held liable for the consequences of using the declared values, instead of values reflecting the actual exposure, in an individual risk assessment in a work place situation over which we have no control.

This tool may cause hand-arm vibration syndrome if its use is not adequately managed. An EU guide to managing hand-arm vibration can be found at <http://www.humanvibration.com/EU/MIBGUIDE.htm>

We recommend a programme of health surveillance to detect early symptoms which may relate to vibration exposure, so that management procedures can be modified to help prevent future impairment.

EC Declaration of Conformity

EC Declaration of Conformity (EC Directive 2006/42/EC)

We, Atlas Copco Construction Tools AB, hereby declare that the machines listed below conform to the provisions of EC Directive 2006/42/EC (Machinery Directive), and the harmonised standards mentioned below.

Hydraulic core drill	Pmax (bar)
LCD 500	150
LCD 1500	150

Following harmonised standards were applied:

- ◆ EN ISO 11148-3:2010

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