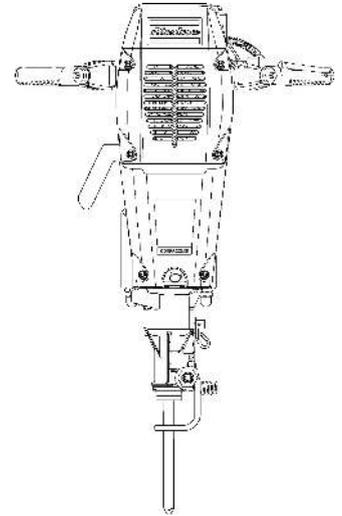


Safety and operating instructions

Petrol drills and breakers



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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

Atlas Copco Airpower
Boomseseenweg 957
2610 Wilrijk
Belgium

About the Safety and operating instructions

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

Before using the petrol drill or breaker 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. For professional use only.

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.

Save all warnings and instructions for future reference.

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 Ejected working tool**

If the tool retainer on the machine is not in a locked position, the working tool can be ejected with force, which can cause personal injury.

- ▶ Always stop the machine before changing the working tool or accessories.
- ▶ Never point the working tool at yourself or anyone else.
- ▶ Make sure that the working tool is fully inserted and the tool retainer is in a locked position before the machine is started.
- ▶ Check the lock function by pulling the working tool outwards powerfully.

⚠ **WARNING Moving or slipping working tool**

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

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

Operation, precautions

⚠ **WARNING Overheating hazard**

The machine may overheat if the cooling air inlet is covered. This can cause serious damage to the machine and/or the operator.

- ▶ Never block or cover the cooling air inlet.

⚠ **DANGER Explosion hazard**

If a warm working tool or exhaust pipe comes into contact with explosives, an explosion could occur. During operating with certain materials, 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.

- ▶ Avoid contact with the warm exhaust pipe or the bottom of the machine.
- ▶ Never drill in an old hole.

⚠ **DANGER Fuel hazard**

The fuel is extremely flammable and petrol fumes can explode when ignited, causing serious injury or death.

- ▶ Protect your skin from contact with the fuel. If fuel has penetrated the skin, consult a qualified health professional.
- ▶ Never remove the filler cap, and never fill the fuel tank when the machine is hot.
- ▶ Mix the fuel and fill the fuel tank outdoors or in a clean and well ventilated place, free from sparks and open flames. Fill the fuel tank at least ten meters (30 feet) from the place where the machine is to be used.
- ▶ Release the filler cap slowly to let pressure escape.
- ▶ Never overfill the fuel tank.
- ▶ Make sure the filler cap is screwed on when the machine is used.
- ▶ Avoid spilling fuel on the machine, wipe off any spilled fuel.
- ▶ Check regularly for fuel leaks. Never use the machine if it is leaking fuel.
- ▶ Never use the machine in the proximity of material that can generate sparks. Remove all hot or spark-generating devices before starting the machine.
- ▶ Never smoke when filling the fuel tank or when working with the machine or servicing it.
- ▶ Only store fuel in a container that is specially constructed and approved for the purpose.
- ▶ Consumed petrol and oil containers must be taken care of and returned to the retailer.
- ▶ Never use your fingers to check for fluid leaks.

⚠ **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 accessories 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.

⚠ **DANGER Exhaust gas hazard**

The exhaust gas from the machine's combustion engine contains carbon monoxide which is poisonous, and chemicals known to the State of California and other authorities to cause cancer, birth defects, or other reproductive harm. Inhalation of exhaust fumes can cause serious injury, illness, or death.

- ▶ Never inhale exhaust fumes.
- ▶ Never operate the machine indoors or in a poorly ventilated area.
- ▶ Never stand in a deep hole, ditch, or similar surrounding during operating.

⚠ **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 working tool as a hand struck tool can result in splinters hitting the operator and can cause personal injury.

- ▶ Never use a working 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, tripping or falling, for example tripping on hoses or on other objects. Slipping, 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 shoulder 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 while 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 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 machine do the job. Use a minimum hand grip consistent with proper control and safe operation. Use the correct feed force on the machine. Avoid pressing too hard.
- ▶ 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 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. Working 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 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.

⚠ 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'.

⚠ WARNING Unstable position hazard

During operation of the machine, there is a risk for falling, tripping and/or coming in contact with the working tool, which can cause injury. This risk increases if you work in an unstable position or on any unstable ground, object or surface. To reduce this risk:

- ▶ Never work in an unstable position.
- ▶ Always make sure you are in a stable position with your feet as far apart as your shoulder width and keeping a balanced body weight.
- ▶ Never stand on any unstable ground, objects or surfaces.

⚠ WARNING Slippery machine surface hazard

There is a risk that the machine (for example, the handle and other surfaces) is slippery due to grease, oil, or other substances. If the machine is slippery, there is a risk that you might lose your grip, drop the machine, and/or come in contact with the working tool during operation of the machine. Any such event can cause injury. To reduce this risk:

- ▶ Always make sure that the handles and other gripping surfaces of the machine are not slippery.
- ▶ Always make sure that the handles and other gripping surfaces are free from grease and oil.

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 approved original parts, tools, and accessories.
- ▶ Change damaged parts immediately.
- ▶ Replace worn components in good time.

⚠ CAUTION High temperature

The machine's front cover, exhaust pipe, and bottom become hot during operation. Touching them can lead to burns.

- ▶ Never touch a hot front cover.
- ▶ Never touch the hot exhaust pipe.
- ▶ Never touch the bottom of the machine when it is hot.
- ▶ Wait until the front cover, exhaust pipe, and bottom of the machine has cooled down before carrying out maintenance work.

⚠ CAUTION Hot working tool

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

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

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

Cobra Combi is a combined drilling and hammering machine. It is equipped to be used for breaking asphalt and concrete and for drilling in concrete and granite. Equipped with the right accessories, the machine can also be used for driving posts, fences, and ground sampling. No other use is permitted. For professional use only. To choose the correct working tool, check the tool shank dimension on the machine, and see the spare parts list.

Choosing the correct breaker for a task

It is important to choose the correct size of breaker for the work to be performed.

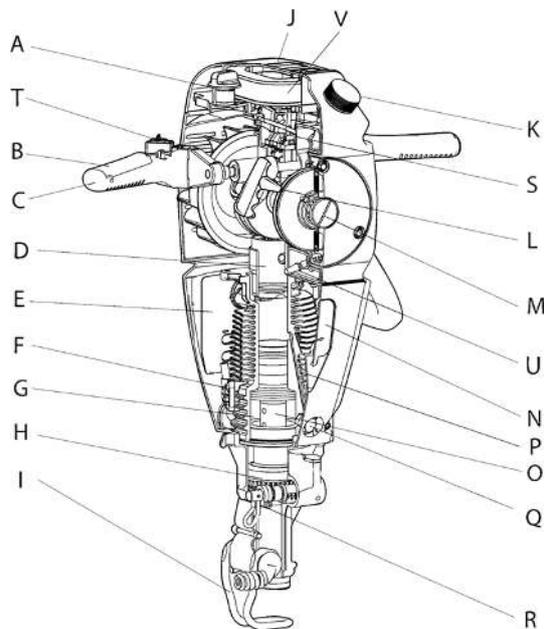
A breaker that is too small means that the work will take longer.

A breaker that is too large means that there must be frequent repositioning, which is unnecessarily tiring for the operator.

A simple rule for choosing the correct size of breaker is that a normal sized piece of broken material should be removed from the workpiece within 10–20 seconds of operation.

- If it takes less than 10 seconds, a smaller breaker should be chosen.
- If it takes longer than 20 seconds, a larger breaker should be chosen.

Main parts

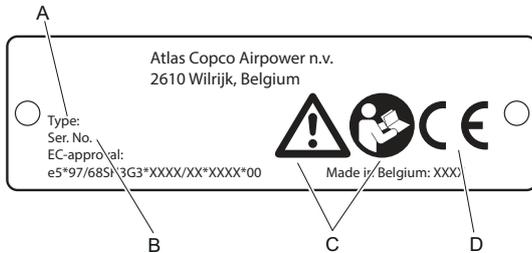


- A. Choke
- B. Throttle lever
- C. Vibration-dampened handle
- D. Engine piston
- E. Silencer
- F. Intake valve for flushing air
- G. Compression chamber for flushing air
- H. Rotation mechanism
- I. Tool retainer
- J. Air filter cover
- K. Tank cap
- L. Starting handle
- M. Power take-off
- N. Spark plug cover
- O. Hammer piston
- P. Gas duct
- Q. Gas duct valve
- R. Function selector
- S. Reed valve
- T. Stop button
- U. Fuel filter
- V. Air filter

Labels

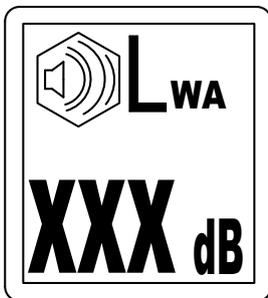
The machine is fitted with labels containing important information about personal safety and machine maintenance. The labels must be in such condition that they are easy to read. New labels can be ordered from the spare parts list.

Data plate



- A. Machine type
- B. Serial number
- C. 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.
- D. The CE symbol means that the machine is EC-approved. See the EC Declaration of Conformity which is delivered with the machine for more information.

Noise level label



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

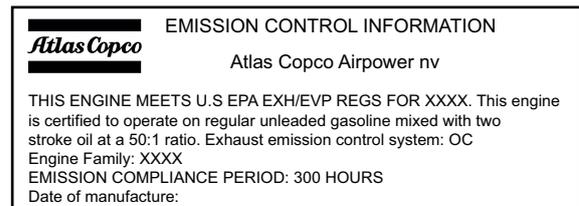
Warning label



To reduce the risk of injury, everyone using, installing, repairing, maintaining, changing accessories on, or working near this tool must read and understand the safety instructions before performing any such task.

Operate with chisel retainer in place.

Emission compliance label



Emissions compliance period referred to on the label indicates the number of operating hours for which the engine has been shown to meet Federal emissions requirements.

Category C = 50 hours, B = 125 hours, and A = 300 hours.

Transport

▲ WARNING Fuel hazard

The fuel (petrol and oil) is extremely flammable and petrol fumes can explode when ignited, causing serious injury or death.

- ▶ Empty the tank before transport.

Installation

Fuel

Two-stroke oil

The fuel is petrol with a 2% oil mixture (1 part oil to 50 parts petrol). Always use high quality lead-free petrol (non-alkylat).

For the best lubricating results use Atlas Copco's environmentally friendly two-stroke oil, which has been specially developed for Atlas Copco's petrol engined hammering and rock-drilling machines.

If Atlas Copco's two-stroke oil is not available, use a high quality two-stroke oil for air-cooled engines (not two-stroke oil for outboard engines). Contact your local Atlas Copco representative for advice on the correct two-stroke oil.

Mixing the petrol and oil

Always mix the petrol and oil in a clean petrol can. First add the oil and then the correct amount of petrol. Then shake the can thoroughly. Shake the can before every refilling.

NOTICE During long term storage of two-stroke mixture, the oil and petrol can separate. Never mix more fuel than you intend to use within two weeks.

Filling

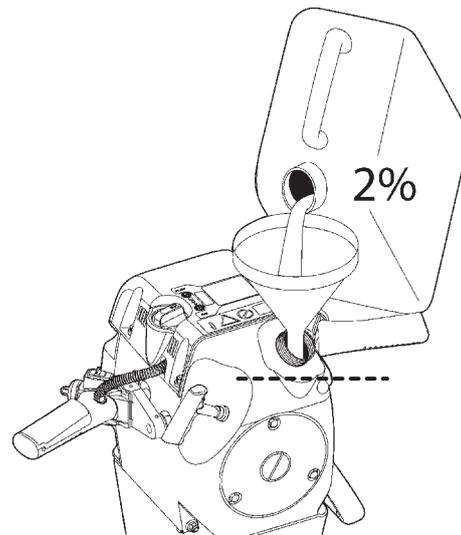
⚠ **WARNING Fuel hazard**

The fuel (petrol and oil) is extremely flammable and petrol fumes can explode when ignited, causing serious injury or death.

- ▶ Protect your skin from contact with the fuel.
- ▶ Never remove the filler cap and never fill the fuel tank when the machine is hot.
- ▶ Never smoke when filling the fuel tank or when working with the machine or servicing it.
- ▶ Avoid spilling fuel and wipe off any fuel spilled on the machine.
- ▶ Fill the fuel tank outdoors or in a clean and well ventilated place, free from sparks and open flames.

Filling procedure

1. Stop the engine and let it cool down before filling the tank.
2. The machine must be in the upright position when filling with fuel.
3. Release the filler cap slowly to let any pressure escape.



4. Never overfill the tank.
5. Make sure that the filler cap is screwed on when the machine is used.

Working tool

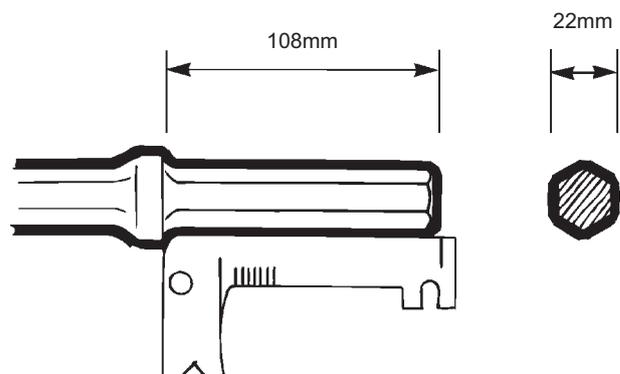
⚠ **CAUTION Hot working tool**

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

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

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

Checking for wear on the tool shank

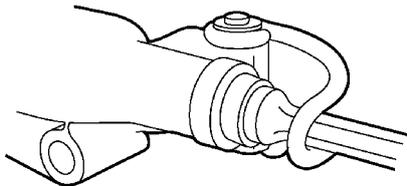
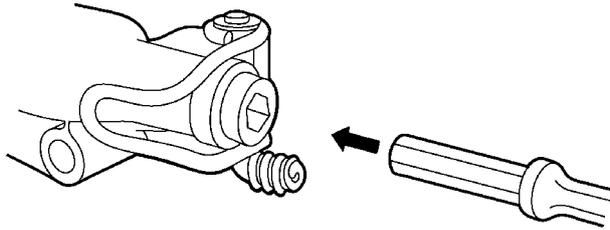


Use the gauge that corresponds to the working tool's shank dimension. See section "Technical data" for correct tool shank dimensions.

Fitting and removing the working tool

Whenever fitting or removing the working tool the following instructions must be observed:

1. Stop the machine and wait until the working tool has cooled down.
2. Fit or remove the working tool.

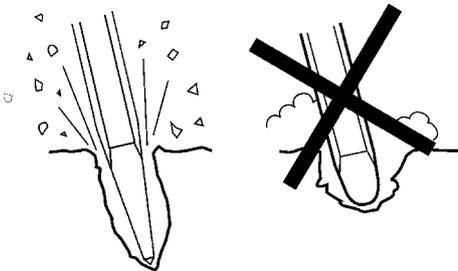


3. Close the tool retainer by using your foot.

▲ WARNING Vibration hazard

Using inserted tools that do not fulfil the criteria mentioned below, will result in a longer time to complete a task, and may result in higher levels of vibration exposure. A worn tool will also cause increased working time.

- ▶ Make sure that the inserted tool is well-maintained, not worn out and of the proper size.
- ▶ Always use a sharp tool in order to work efficiently.



Operation

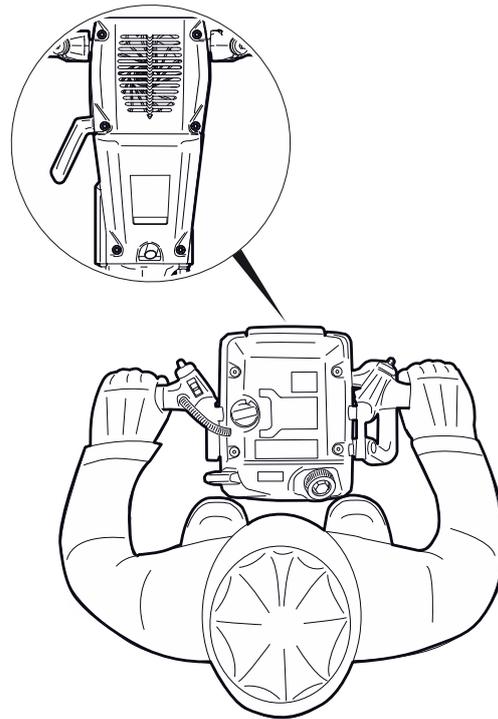
▲ WARNING Involuntary start

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.

▲ WARNING Obstructed air intake

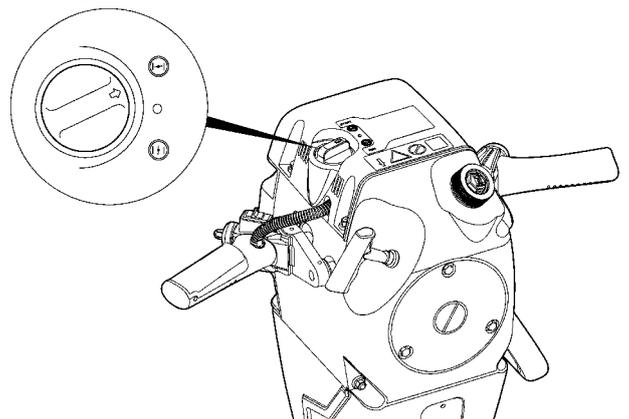
Ensure that the air intake is not obstructed. An obstructed air intake can lead to an overheated machine.



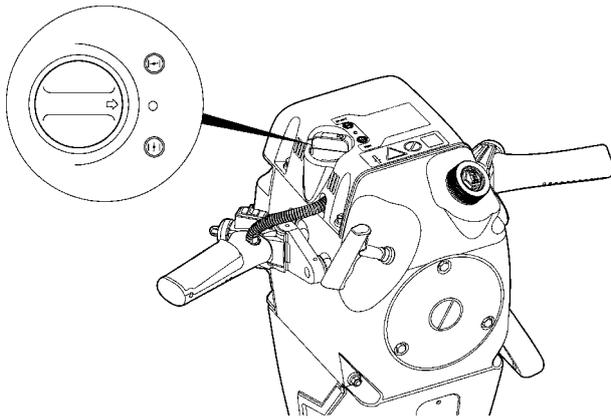
Start and stop

Cold start

1. Remove the fuel cap and check the fuel level. Secure the cap before start.
2. Slide the start button towards the fuel tank.
3. Pump at least 5-10 times on the primer pump.
4. Close the choke by turning the choke control anticlockwise to position (START).
5. Push the throttle lever down and pull the starter handle.



6. When the machine ignites, open the choke one step clockwise towards position (WORK). Let the machine run for a 30-60 seconds warm up period then open the choke fully clockwise towards position (WORK). The machine will achieve full performance after approximately 5 minutes.



Restarting a warm machine

If a hot engine stops after a short while or does not start at all, use the following restart procedure:

1. Check that the choke is open (in position WORK).
2. Pull the starter handle.
3. If the machine still does not start follow the procedure for "Cold start" or see the section "Troubleshooting".

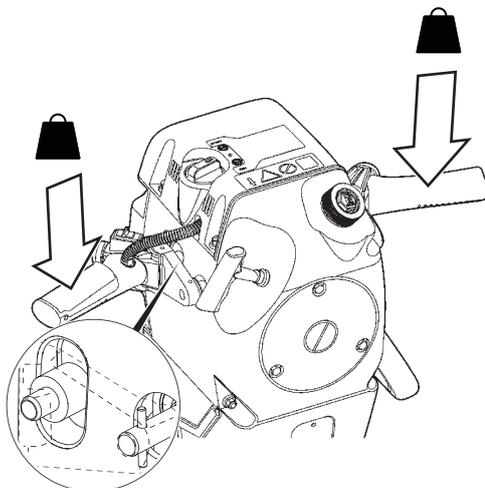
Stopping

1. Stop the machine by sliding the stop button on the left handle forward.

Operating

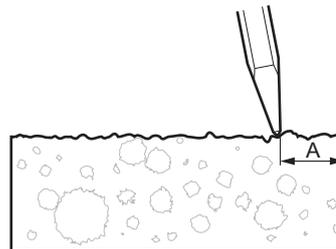
Starting a cut

- ◆ Stand in a stable position with your feet well away from the working tool.
- ◆ Press the machine against the working surface before starting. The feed force should be adjusted so that the handle is pressed at least 'half way down'. This position provides the best vibration damping and the best breaking force.



- ◆ The working speed of the machine is controlled via the throttle lever.

- ◆ Start collaring at such a distance from the edge that the machine is capable of breaking the material without leverage.
- ◆ Never break off too large pieces. Adjust the breaking distance (A) so that the working tool does not fasten.

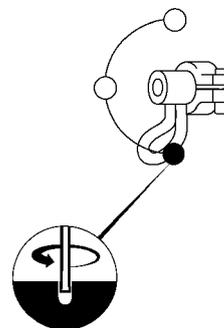


Breaking

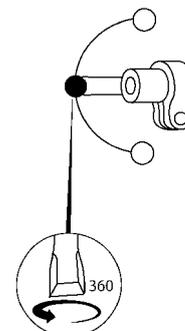
- ◆ Never use the machine as a lever, the material should be broken by impact energy.
- ◆ Let the machine do the work. Never press too hard. The vibration absorbing handle should never be forced all the way to the bottom.
- ◆ Release the throttle lever when the machine is lifted.

Function selector: Drilling and breaking

- **Drilling**
Turn the function selector downwards. This will engage rotation and flushing air.

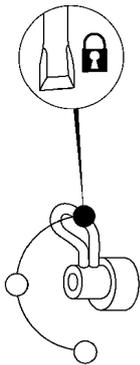


- **Adjusting before breaking**
To adjust the direction of the tool blade, put the function selector in the neutral position.



- **Locked position when breaking**

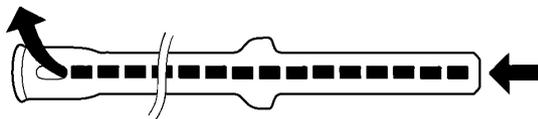
Lock the tool blade in the desired position by turning the selector upwards. The rotation mechanism is now locked.



Drilling

To achieve full performance, it's preferable to warm up the machine on a tamping pad for approximately 5 minutes before drilling.

1. Before drilling, check that the flushing hole in the drill steel is not blocked.



2. Stand in a stable position with your feet well away from the inserted tool.
3. Press the inserted tool against the place where you wish to drill.
4. Increase the engine speed once the drill bit has collared a footing in the material.
5. Grip the side handle for better control of the machine.

NOTICE When drilling in softer material, as concrete, a drill-bit may be needed instead of the integral drill.

Engine speed.

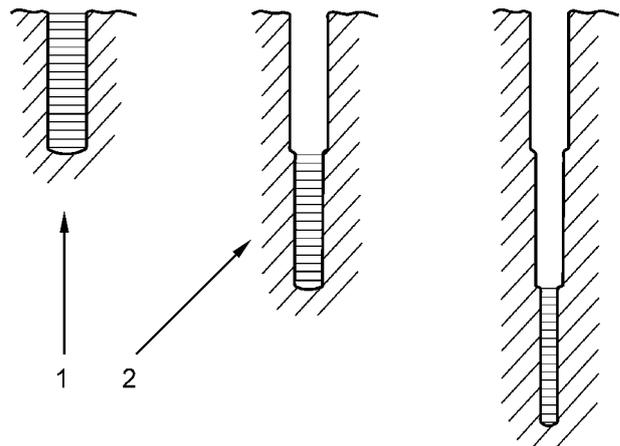
The engine speed is regulated by means of the throttle lever:

Throttle lever	Speed
Lever released	Idling speed
Lever depressed	Full engine speed

Ground probing

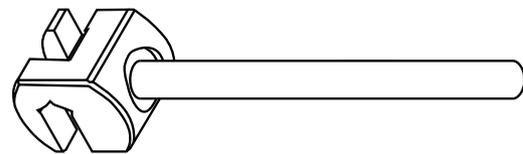
If the machine is started on the top of long tools such as probing rods, a starter-cord bracket must be used to prevent the cord from damaging the fuel tank. For ordering of the starter-cord bracket, see the spare parts list.

Drilling deep holes



1. Use a short drill and then fully drill into the hole.
2. Change to a longer drill with a slightly smaller bit diameter (approx. 1mm smaller).

If the working tool gets stuck



If the working tool gets stuck, use the extraction tool to loosen/lift it. For ordering of the extraction tool, see the spare parts list.

When taking a break

- ◆ Stop the machine during breaks.
- ◆ During all breaks, put the machine away so that there is no risk for unintentional start.

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 hazard".
- ◆ 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.

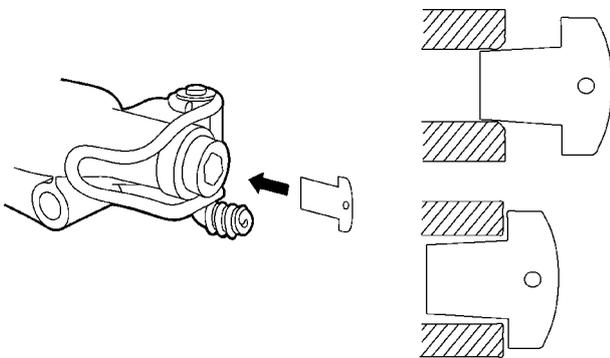
Every day

Before undertaking any maintenance or changing the inserted tool, turn the machine off.

- ◆ Clean and inspect the machine and its functions each day before the work commences.
- ◆ Perform a general inspection and check that there are no leaks and no damage.
- ◆ Check that the fuel cap gasket is undamaged and seals properly.
- ◆ Check the electrical cables and electrical insulations for wear, change if necessary.
- ◆ Check the insertion tool, make sure that it is sharp and not worn out.
- ◆ Change damaged parts immediately.
- ◆ Replace worn components in good time.

In order to ensure that the machine remains within the stated vibration level values, the following checks must be performed:

Tool chuck check



If the chuck gauge provided can be inserted fully across the flats of the chuck, this indicates that the chuck is worn out and must be replaced.

Air filter check

In the event of continuous use, check and replace the air filter at least every shift.

1. Unscrew the air filter cover.
2. If the air filter is very dirty, it must be replaced. Never wash the air filter.
3. Clean filter container.

Every third month

Check tightness of nuts, bolts, screws and hose fittings. When retightening see the correct torque settings in the spare part list.

Every year

Overhauling must be done after 1 year of continuous operation. Overhauling must for safety reasons be performed by authorised personnel at an authorised workshop.

Repair

Replacing the starter cord

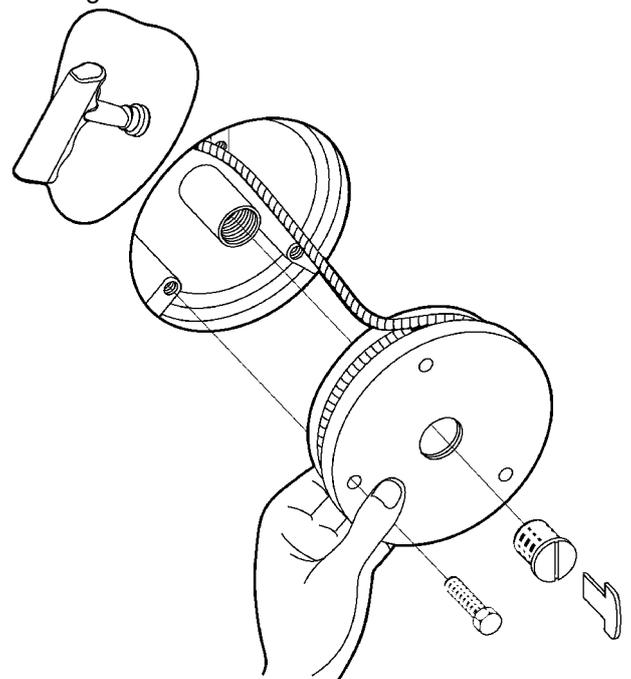
▲ **WARNING Spring tension**

The starter spring may cause personal injury by striking the operator or other persons.

- ▶ Wear impact resistant eye protection with side protection and gloves.

Removing the old starter cord

1. Remove the screw-cap of the PTO and the three bolts from the protective cover of the starting mechanism.

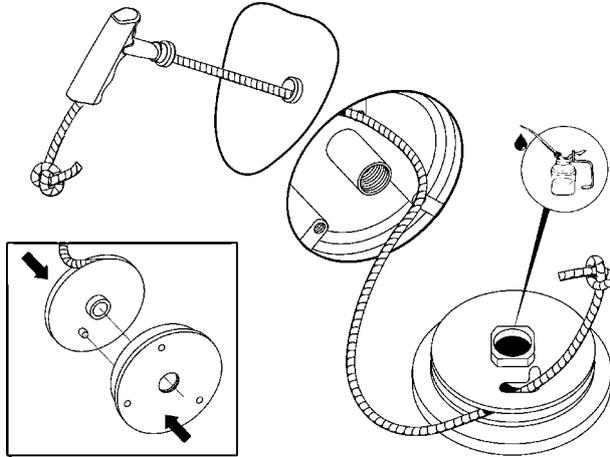


2. Lift off the cover, grasping the starter pulley as well. Let the cover rotate carefully against the starter pulley, to release the spring tension.

- Remove the old starter cord.

Fitting a new starter cord

- Oil the needle bearing in the starter pulley.



- Fit the starter pulley and protective cover together, so that the starting spring locates in the starter pulley.
- Wind the full length of the cord onto the pulley.
- Pre-tension the starting spring by two thirds of a turn (clockwise) before fitting the assembly into place.
- Pull the starting handle carefully, in order to locate the cover correctly.
- Fit and tighten the hexagonal bolts and the PTO screw-cap.

- ◆ Store the machine in a dry place.
- ◆ We recommend to store the machine in a standing position. If stored in a lying position, the machine must be placed on the back cover.
- ◆ 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 accordance with local restrictions. Before a fuel driven machine is deposited it must be emptied and cleaned of all oil and fuel. Remaining oil and fuel must be dealt with in a way that does not adversely affect the environment. Always send used filters, drained oil and fuel remnants to environmentally correct disposal.

Troubleshooting

If the engine does not start, is difficult to start, runs unevenly or has poor output, check the points mentioned below.

- ◆ Check that the Stop button is in the ON position.
- ◆ Check the fuel level.
- ◆ Check the spark plug's electrode distance.
- ◆ Check that the air filter is not blocked.
- ◆ Check that the fuel filter is not blocked.
- ◆ When drilling, check that the flushing hole in the drill steel is not blocked.
- ◆ If the machine still does not work satisfactorily following this procedure, please contact your nearest authorised Atlas Copco workshop.

Storage

- ◆ Empty the tank before storing the machine.
- ◆ Check that the machine is properly cleaned before putting it away for storage.

Technical data

Products

Description	Tool shank size, mm (in.)	Part number
Cobra Combi	22 X 108 (7/8 x 4 1/4)	8318 0800 08

Machine data

	Cobra Combi
Weight, kg (lb)	25 (55.1)
Length, mm (in.)	732 (28.8)
Depth, mm (in.)	281 (11)
Width max, mm (in.)	585 (23)
Engine Type	1 cylinder, two-stroke
Cylinder displacement (cc)	185
Power, kW (hp)	2.0 (2.7)
Engine management system	Diaphragm carburettor
Cooling system	Fan cooled
Fuel type	Petrol (gasoline), Unleaded (non-alcylat), 90–100 octane
Fuel consumption, litres/hour (gallon/hour)	1.3–1.5 (0.34–0.40)
Fuel tank capacity, litres (oz)	1.2 (40.6)
Fuel mixture	2% (1:50)
Oil type	Atlas Copco two-stroke oil or Castrol TTS
Impact energy, J	22–25 (at 2,700 bpm)
Full speed, loaded machine with tamping tool on bed of sand, crankshaft (strokes/min)	2,600–2,900
Speed, unloaded machine, idling (strokes/min)	1,600–1,800
Starter	Magnapull
Ignition system	Thyristor type, breakerless
Spark plug (recommended)	Bosch WR7ACY
Spark plug gap, mm (in.)	1.5 (0.060)
Ambient temperature, C° (F)	-15 to +37 (5 to 98.6)

Capacities

	Cobra Combi
Max drilling depth, m (ft.)	6 (19.7)
Penetration rate with 29 mm drill bit, mm/min (in./min)	250–350 (9.8-13.8)
Penetration rate with 34 mm drill bit, mm/min (in./min)	200–300 (7.9-11.8)
Penetration rate with 40 mm drill bit, mm/min (in./min)	150–200 (5.9-7.9)

Noise and vibration declaration statement

Guaranteed sound power level **L_w** according to EN ISO 3744 in accordance with directive 2000/14/EC.

Sound pressure level **L_p** according to EN ISO 11203.

Vibration value **A** and uncertainty **B** determined according to EN ISO 28927-10. 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 Airpower, 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/humanvibration/EU/VIBGUIDE.html>

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.

Noise and vibration data

	Noise		Vibration	
	Declared values		Declared values	
	Sound pressure	Sound power	Three axes values	
	EN ISO 11203	2000/14/EC	EN ISO 28927-10	
Type	L _p r=1m dB(A) rel 20µPa	L _w guaranteed dB(A) rel 1pW	A m/s ² value	B m/s ² spreads
Cobra Combi (breaking)	95	108	5.8	1.3
Cobra Combi (drilling)	95	108	9.3	1.4

EC Declaration of Conformity

EU Declaration of Conformity

We, Atlas Copco Airpower n.v., declare under our sole responsibility, that the product

Machine name	Motor Breaker
Machine type	
Serial number	

Which falls under the provisions of article 12.2 of the EC Directive 2006/42/EC on the approximation of the laws of the Member States relating to machinery, is in conformity with the relevant Essential Health and Safety Requirements of this directive.

The machinery complies also with the requirements of the following directives and their amendments as indicated.

Directive on the approximation of laws of the Member States relating to	Harmonized and/or Technical Standards used	Attachment
Machinery safety	2006/42/EC EN ISO 11148-4 : 2010	
Outdoor noise emission	2000/14/EC	X

The harmonized and the technical standards used are identified in the attachments hereafter
Atlas Copco Airpower n.v. is authorized to compile the technical file.

	Conformity of the specification to the directives	Conformity of the product to the specification and by implication to the directives
Issued by	Engineering	Manufacturing
Name	Vice president Research & Development	Vice president Manufacturing
Signature		
Date		
Place	Aartselaar, Belgium	



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