



Atlas Copco



Motor Drills
and Breakers

Operators Handbook

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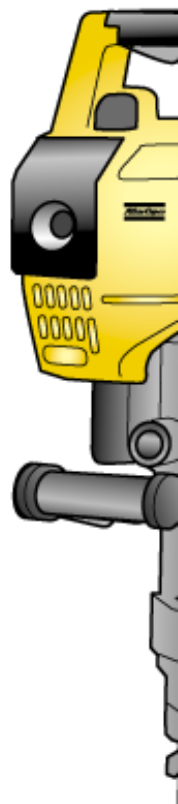
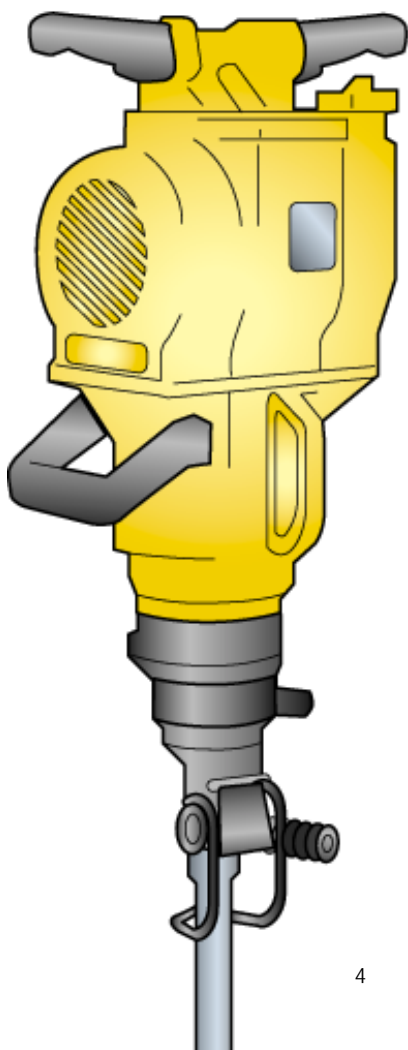
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Atlas Copco motorized drills and breakers are designed for splitting rocks, breaking concrete, cutting asphalt, tamping ballast, digging and other tasks.

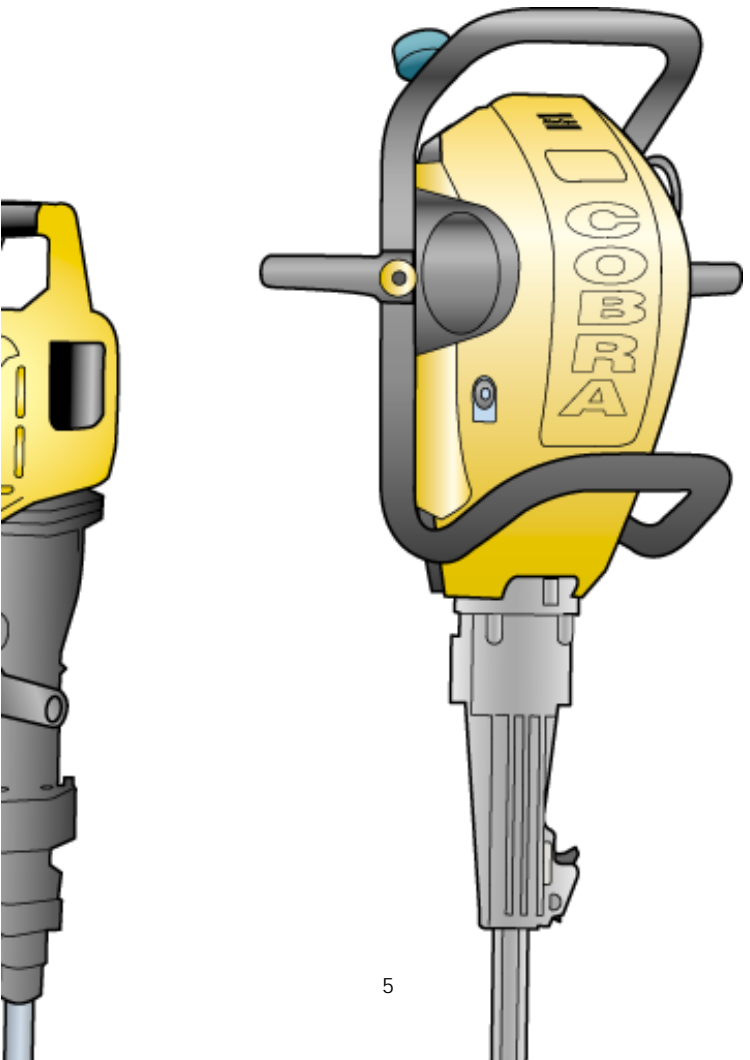
This booklet will help you become familiar with the machines. You'll find basic technical information, simple instructions for their use and an idea of the range of jobs they are suitable for.

Two types of machine cover most applications

- **Combined drill/breaker, Pionjär and PICO 14.** Powered by a two-stroke engine with an integrated impact mechanism, the combined drill/breaker is equipped with rotation and air flushing mechanism for drilling applications. The function selector allows you to switch between drilling and breaking/driving applications.

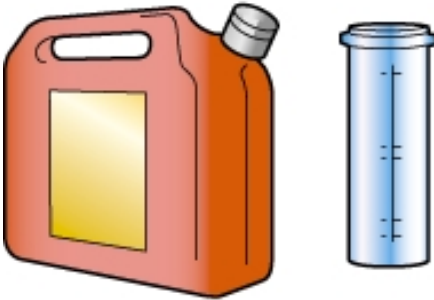


- **Heavy duty breaker, Cobra mk1.** Also powered by a two-stroke engine, the Cobra mk1 has a separate impact mechanism activated by pressing the machine down. Thus, the engine can be run without engaging the impact mechanism. As powerful as a 27 kg (60 lbs) pneumatic breaker, the Cobra mk1 is suitable for very demanding breaking and driving jobs.



Correct fuel mixture

Use the correct fuel mixture, based on fresh fuel and oil.



Pionjär 120/130	_____	8%	_____	(1:12)
Pionjär 140/150	_____	5%	_____	(1:20)
PICO 14	_____	4%	_____	(1:25)
Cobra mk1	_____	2%	_____	(1:50)
Cobra 149/248	_____	5%	_____	(1:20)

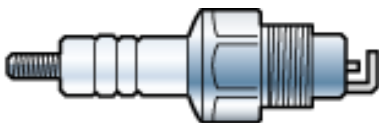
Too little oil in the mixture will result in insufficient lubrication and increased wear. Too much oil clogs up exhaust ports and channels. Exceptionally dirty fuel filters should be replaced.

See instruction book for detailed information on maintenance and servicing.

Daily checks

Simple daily maintenance will ensure trouble-free operation.

Check the spark plug regularly. Dirty or burnt-out electrodes impair performance. Check the electrode gap.



Electrode gaps:

Pionjär	_____	1.5/0.060"
PICO 14	_____	0.5/0.020"
Cobra mk1	_____	0.5/0.020"
Cobra 149/248	_____	1.5/0.060"



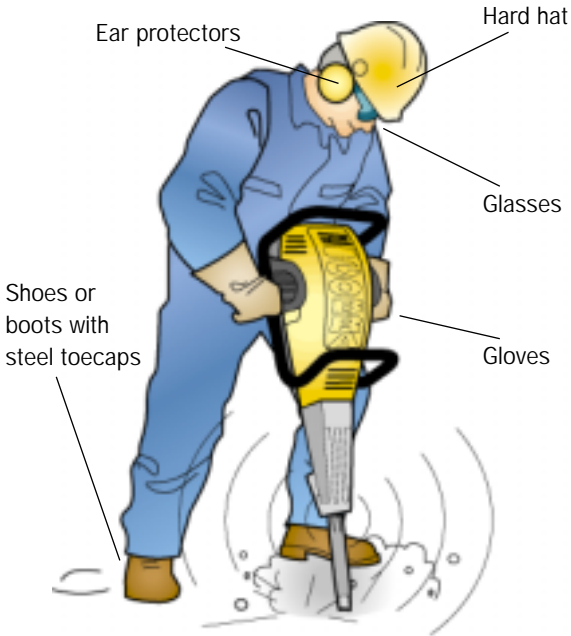
Clean the air filter and housing daily. A clogged filter will cause excessive engine wear and carbonization which clogs up exhaust ports and channels. Never use the machine without the air filter. Dust and stone particles can enter the cylinder.



Check the impact mechanism oil level daily (on the Cobra mk1). Place the machine in an **upright** position and top up as necessary.

Safety first

For your own safety, always wear protective clothing – glasses, gloves, shoes or boots with steel toecaps, ear protectors and a hard hat.

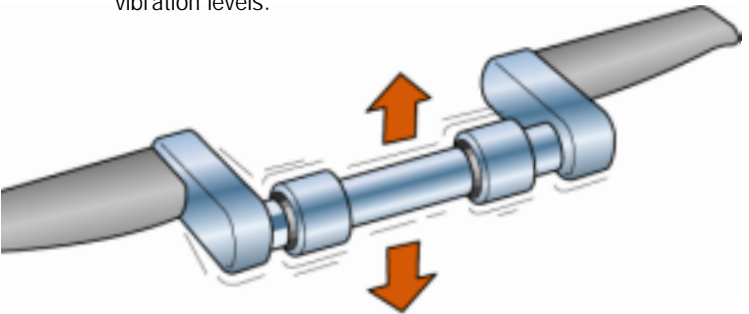


For ease of operation use your thigh as support when running the machine.

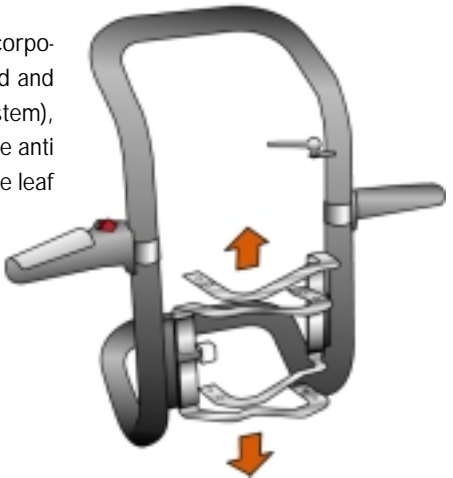


Both the Pionjär and the Cobra mk1 have handle designs that shield the operator from a large proportion of harmful vibrations and shock recoil.

On the Pionjär shock-absorbent rubber bushings reduce vibration levels.



The Cobra mk1 incorporates H.A.P.S, (Hand and Arm Protection System), Atlas Copco's unique anti vibration design. The leaf spring construction virtually eliminates vibrations.



Avoid running the engine close to flammable material or in poorly ventilated areas.

Always empty the fuel tank before transportation and storage.

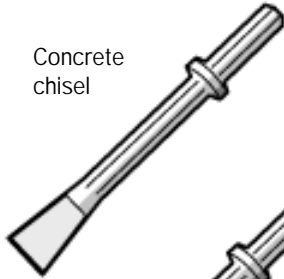
A tool for every job

Always use the correct tool for the job - it saves time and effort. Our motorized breakers and drills have tools for a variety of applications.

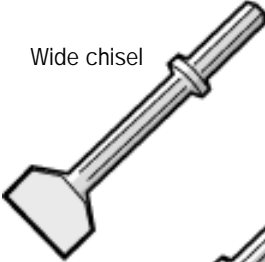
Moilpoint



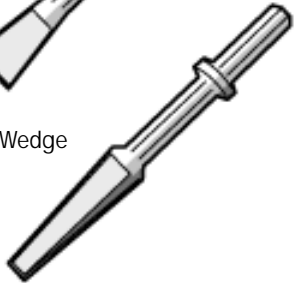
Concrete chisel



Wide chisel



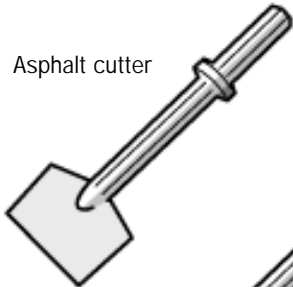
Wedge



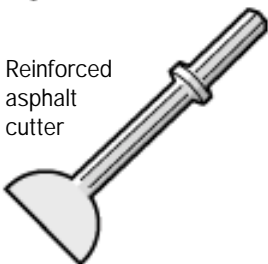
Digging blade



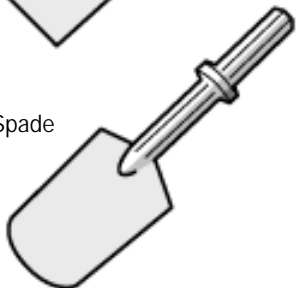
Asphalt cutter

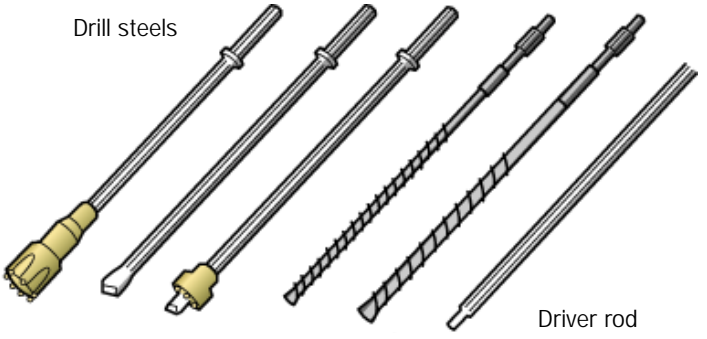


Reinforced asphalt cutter



Spade





Wedge hammer

Wedge and feathers

Spike driver

Tie-tamper

Tamper

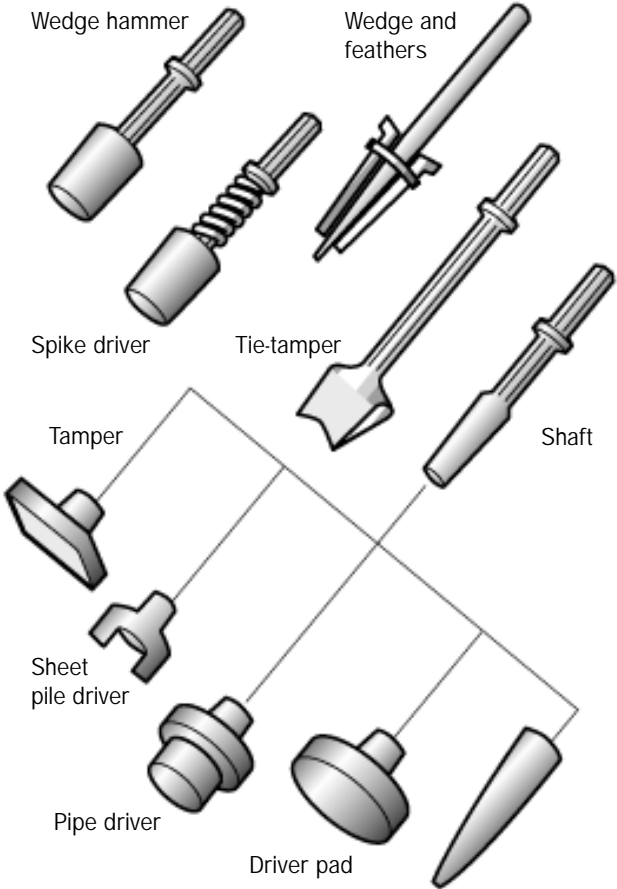
Shaft

Sheet pile driver

Pipe driver

Driver pad

Posthole tool

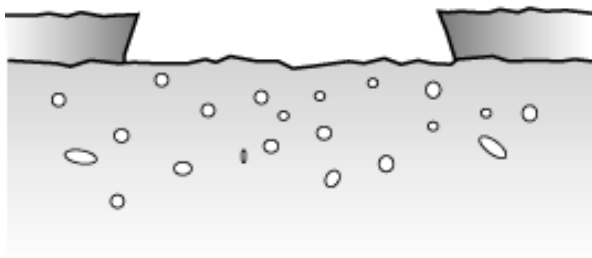


Cutting and compacting asphalt

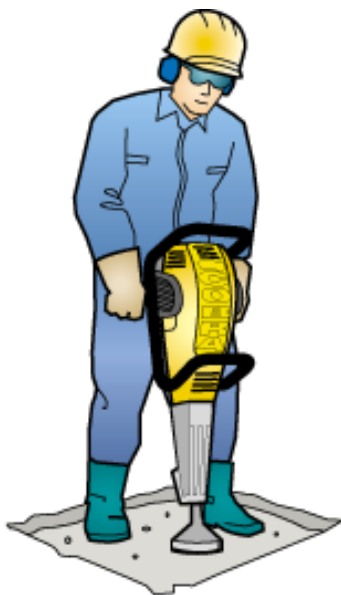
For this job you need the asphalt chisel and tamper.



Run the breaker at idling speed and make a score by holding the machine at an angle.



Break the asphalt, keeping the edge straight and angled slightly inwards.



Compact the base thoroughly using the tamper.



When packing new asphalt start at the edges. This will give a lasting seal. Compact the rest of the material and level off.

Concrete breaking



Always start from the edge if possible when breaking concrete. Use the widest tool the material will allow. It makes the job go faster.



To make an opening in a concrete wall, drill some holes around the outline of the hole and some additional holes in the middle. Break out the material.

Tie tamping

The percussive effect provided by Atlas Copco breakers ensures perfect compaction of the bearing ballast, without risk of pulverization.



Start upright and work your way under the tie.

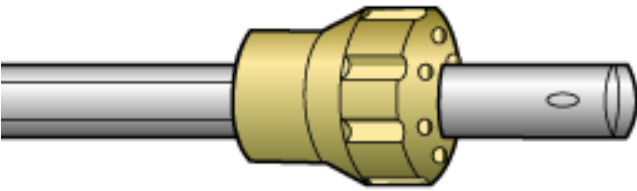


Drilling

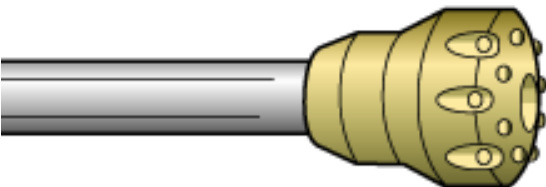
Atlas Copco offers an extensive range of drills for different materials and jobs. Avoid making a wider hole than necessary. Choosing the correct drill saves both time and energy.



Integral drill steels are the best choice for hard materials.



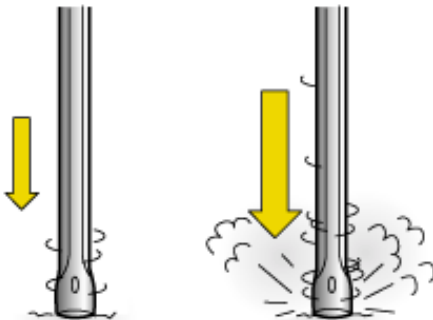
The pilot drill is useful for an accurate start and for drilling large diameter shallow holes.



Button bits are most suitable for drilling large holes in concrete or soft rock.



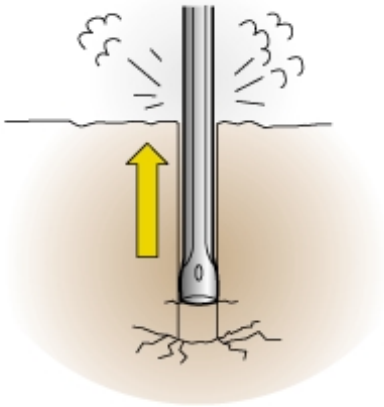
When collaring a hole, grip the side handle for better control of the machine.



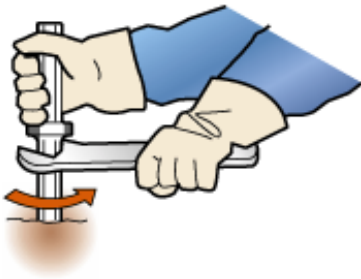
Allow the engine to idle and press the machine and tool against the spot where you wish to drill. Increase the engine speed once the drill bit has collared a footing in the rock (or other material).

Regulate the feed pressure and rotation according to the material you are working with. Never let the drill jump freely on the shank.

Keep the drill centered so that it rotates freely in the hole.



If rotation becomes sluggish due to a crack, or the drill keeps sticking, lift the machine a few times to improve flushing.

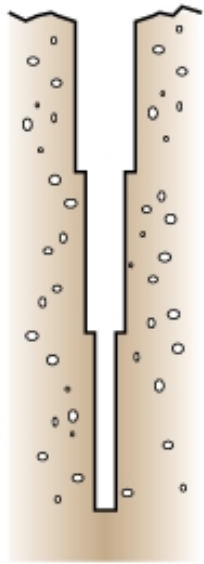
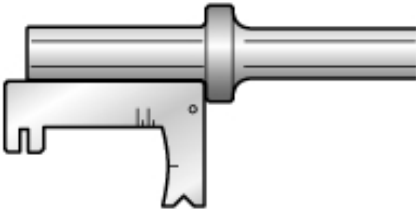


If the tool gets stuck, stop the machine and free it with a drill wrench or a spanner.

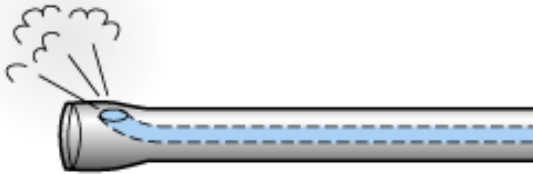


Drill dust in damp rock can cause the drill to stick. Pouring more water into the hole dissolves the sludge and frees the drill.

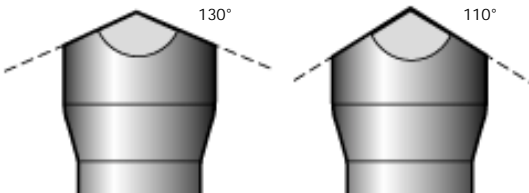
Integral drill steel are grouped in series. When drilling a deep hole start with a short, wide drill and continue successively using the next size down. This avoids jamming and allows easy extraction.



To get maximum effect, tools should be kept sharp and their shanks must have the correct lengths. This length should be checked with the shank template.



On drilling tools, blow through the air-flushing channel to check that it is not blocked.

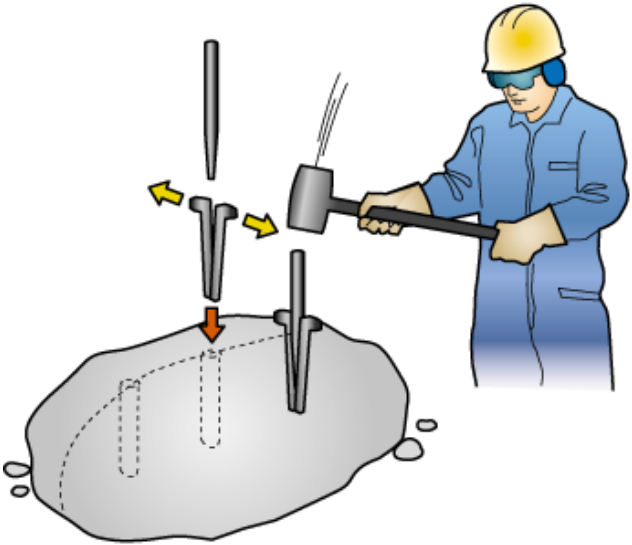


The standard cutting edge angle is 110°. For better results in loose rock it can be reground to 130°.

Rock splitting

Using a motorized drill/breaker, you can split large rocks safely and accurately.

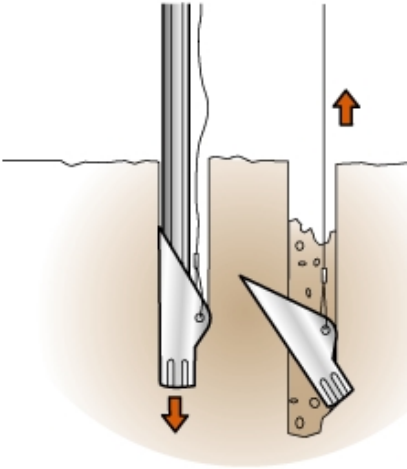
Start by drilling holes in a straight line across the rock you want to split. The holes should be about 30-40 cm (12"-16") apart and at least 40 cm (16") deep.



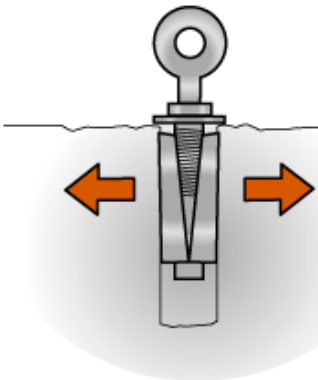
Insert feathers and wedges along the line. Drive in each wedge a little at a time until the rock splits. Some grease applied to the wedges makes the job easier.

Anchoring

For soil, special earth anchors are available for different loads. These are driven down with special driving rods.



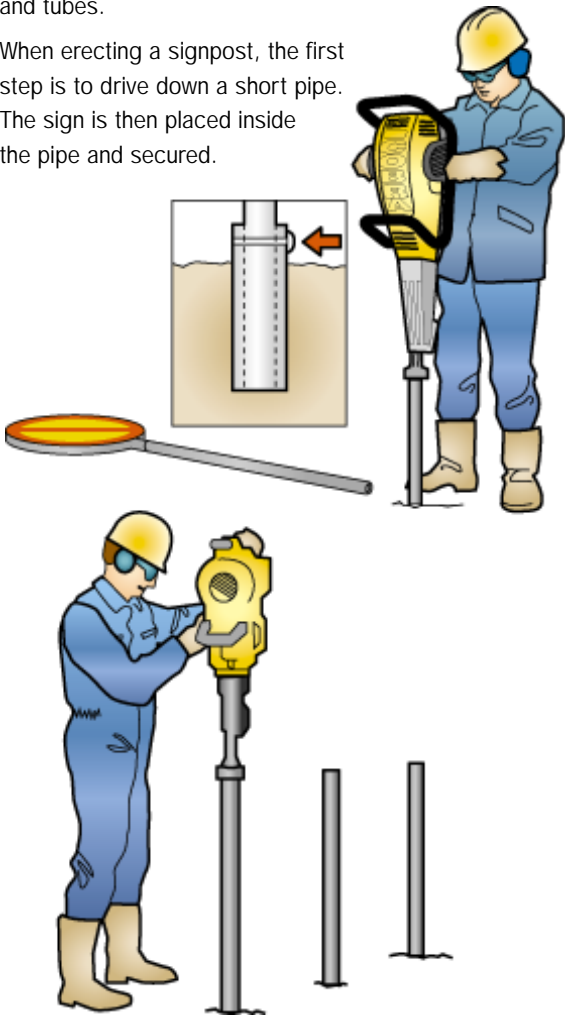
For anchoring jobs, in hard materials like rock or concrete, an expander bolt can be used. It can also be used to lift a rock or concrete slab.



Post driving

A number of hammers are available for different profiles and tubes.

When erecting a signpost, the first step is to drive down a short pipe. The sign is then placed inside the pipe and secured.



Fencing

Start the hole using the post hole tool. Use the driver pad to drive the fence post into the ground.

Digging

Motorized breakers can be used to dig holes under extreme conditions. The round spade is ideal for digging in hard or frozen ground.



Accessories

An assortment of accessories to make your machine even more versatile.



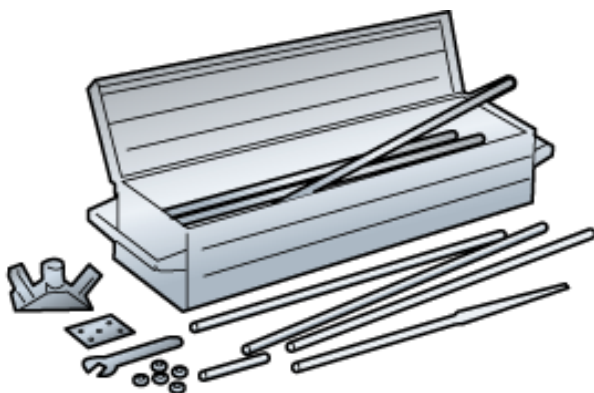
Fuel can. A practical 5 liter fuel can fits neatly in the transport case.



Starter cord guides for Pionjär. Protects the starter cord and machine casings when starting the machine on driving rods, etc.



Back-pack for Pionjär. Practical back-pack carries one machine and two tools.



Ground investigation. There are special sets of equipment designed for surveying and soil sampling.

Extra lower handle for Pionjär.
For better balance and control when using the machine on long driving rods, drill steels, stake drivers, etc.



For more information on accessories available for the different machines please refer to your Atlas Copco distributor.

More information

For detailed information on maintenance, servicing and repair of Atlas Copco motor drills and breakers, please refer to the following publications: Instruction Manual, Service Manual, Spare Parts List. They are available from your nearest Atlas Copco distributor or via our web page www.atlascopco.com/cto

Atlas Copco

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