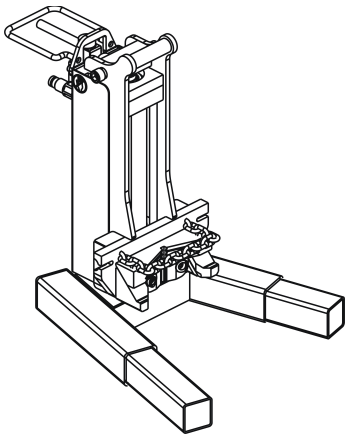
LPP

10 HD

Safety and operating instructions

Post puller



Original instructions

Atlas Copco

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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 Construction Tools AB

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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 post puller in an efficient, safe way. The instructions also give you advice and tell you how to perform regular maintenance on the post puller.

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

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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 Hydraulic oil at high pressure

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

- ► 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 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.

⚠ CAUTION Skin eczema

Hydraulic oil can cause eczema if it comes in contact with the skin.

- ► Avoid getting hydraulic oil on your hands.
- ► Always use protective gloves when working with hydraulic oil.
- ► Wash hands after contact with hydraulic oil.

Operation, precautions

⚠ DANGER Explosion hazard

If an insertion tool comes into contact with explosives or explosive gases, an explosion could occur. When working on certain materials and when using 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.

⚠ 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".

⚠ WARNING Unexpected movements

The machine is exposed to heavy strains when the machine is used. The machine may break due to fatigue after a certain amount of use. If the machine 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.
- ► Never check bores or passages with hands or fingers.
- ► Keep hands away from the compression mechanism and any moving parts, hold only the control lever.
- ► Stand firmly and always hold on to the machine with both hands.
- ► Never strike or abuse the equipment.
- ► Pay attention and look at what you are doing.

⚠ 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

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- Select, maintain and replace consumables/ inserted 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.

⚠ 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 Operating hazard

Long poles might fall a side and cause injuries.

- Support the pole when extracted.
- Make sure the ground is firm, if not place a suitable plate under the post puller.

⚠ 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.
- Stop the machine immediately in all cases of power supply interruption.

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 and accessories approved by Atlas Copco.
- ► Change damaged parts immediately.
- ► Replace worn components in good time.

⚠ WARNING Accessory hazards

Accidental engagement of accessories during maintenance or installation can cause serious injuries, when the power source is connected.

- ► Never inspect, clean, install, or remove accessories 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.

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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.

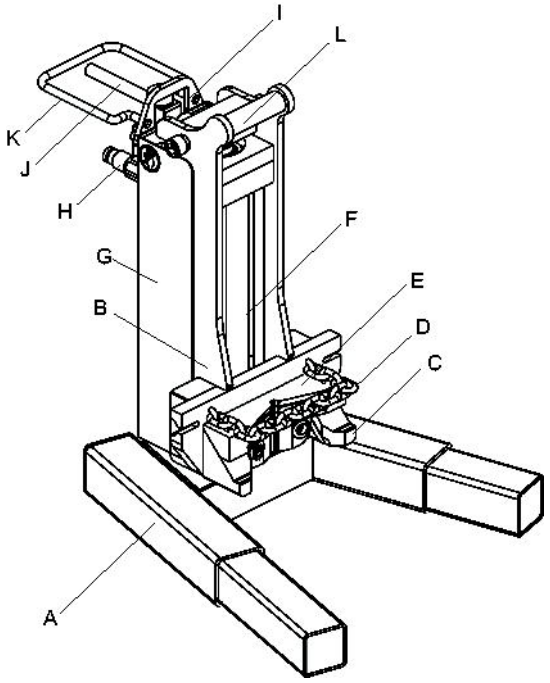
Design and function

LPP 10 HD post puller is a powerful hydraulic tool designed for pulling up posts with any profile and tubes with diameters from 12 to 200 mm (0.5 to 8 inch) with a hydraulic extraction force of 6 ton. For additional force, use the lever and its extension up to 10 ton.

The post puller has reciprocating motion up to 200 mm and stops automatically either at both dead points or when the control valve lever is released. The post puller has an integrated automatic system to tighten and release the chain (up to 15 mm (up to 0.6 inch)) upon extracting the post. In addition to that, the post puller has 2 extension supporting legs, which make the post puller able to work steadily in soft soil or sand.

For extracting smooth and hardened metal tubes or profiles, use the additional prism. Set the additional prism between the chain and the post, so that the chain will be locked in the slot of the prism. This will increase the coefficient of the friction between the post and the puller. No other use is permitted.

To achieve standard performance, the LPP 10 HD post puller requires a nominal oil supply from the power source of 18-38 l.p.m. at a maximum pressure of 160 bar (2300 psi). The hydraulic oil filter of the power source must have a filter rating of 25 Micron or better.

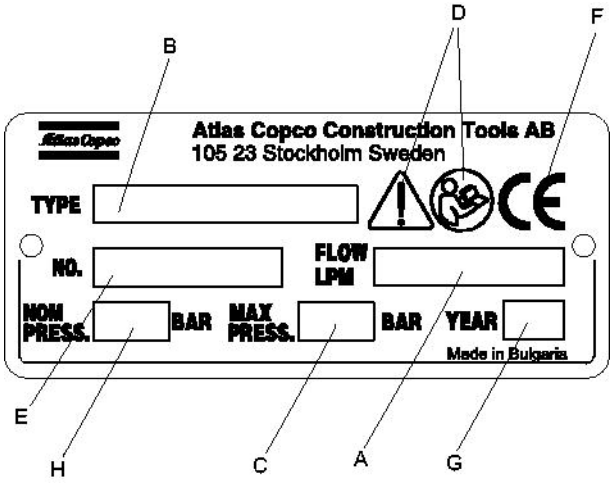


A. Main support
B. Frame
C. Guiding elements
D. Chain
E. Locking prism
F. Hydraulic cylinder
G. Guard
H. Quick release coupling (male-outlet)
I. Quick release couplings (female-inlet)
J. Direct control valve
K. Guard
L. Lifting point

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

Safety label

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.

Installation

⚠ 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.

Hoses

For connection on the machine, the hydraulic hose must be approved for a working pressure of at least 160 bar (2300 psi) and have a ½" 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 Atlas Copco 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

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

Hydraulic oil

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

- Viscosity (preferred) 20-40 cSt.
- Viscosity (permitted) 15-100 cSt.
- Viscosity index Min. 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 lie 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).

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.

⚠ WARNING Injured hands

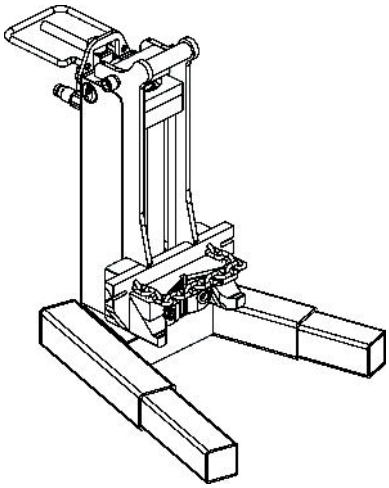
There is a risk of injure your hands when using the machine.

- ► Never put your fingers in the slots of the frame.
- ► Never put your fingers between the post and the prism or the chain.
- ► Never touch the chain while pulling the post.

NOTICE Never use the machine for unsuitable work or as a lifting device.

Operating

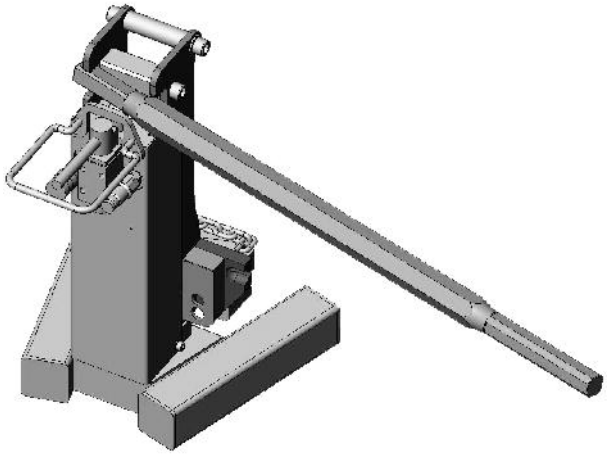
In some cases you will need to operate the post puller in soft soils or sand. To prevent the post puller will sink into the soil and to use its full power you can use 2 extension pipes of the accessories (see figure below).



If you need to pull up too hard and smooth pipes we recommend to use the additional prism, hanging it up to the chain so the pulling pipe to stay between both prisms.

If you need more force up to 10 000 kg (22 046 lb) to pull the post we recommend to use the additional lever and tube.

1. Set the control valve in the up position.
2. If the post dose not move up set the lever between the teeth of the puller.
3. Set the control valve in the up position and simultaneously push the lever down (see figure below).



For additional force and soft soils you can use the kit accessories of the post puller. See the spare parts list for order accessories.

Start and stop

Connecting hoses

Inspect the couplings

- Make sure the couplings are clean and serviceable.

Connect the hoses

- Attach the return line hose.
- Attach the feed line hose.
- Rotate the collar on the female coupling to secure the coupling.

Check the hydraulic oil level

- Start the engine and run the power source to fill up the hydraulic circuit.
- Check the hydraulic oil level.

Disconnecting hoses

Prepare the power source

- Turn the by-pass valve to the OFF position.
- Stop the engine.

Remove the hoses

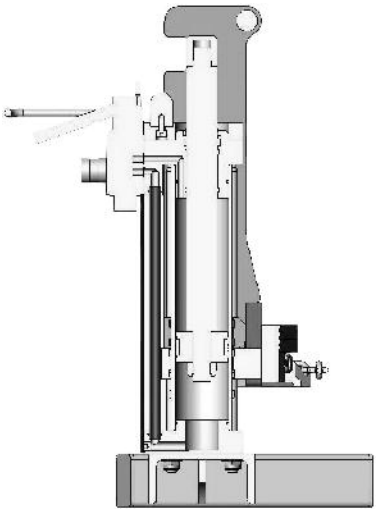
- Rotate the collar on the female coupling.
- Release the feed line hose.
- Release the return line hose.

Protective caps

- Fit protective caps over the ports to prevent contamination.

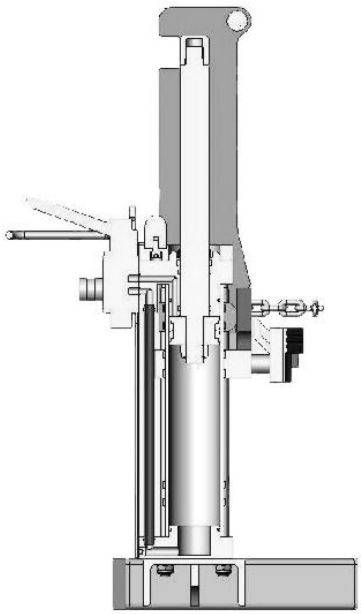
Start

- Connect the hoses to the power source with the quick-release couplings.
- Ensure that any power source you plan to use is compatible with the post puller. See the section "Technical data".
- Start the power source and allow it to run for a few minutes to warm the hydraulic oil.
- Place the post puller next to the post, so that the hardened prism touches the post.
- Wrap the chain around the post, tighten it and insert the nearest link of the chain in the slots of the front plate.
- Activate the control valve of the power source to start the hydraulic oil flow.
- Start the post puller by moving up the control valve lever. Keep away your hands and clothes from the post puller and the chain. Keep people around you at a distance exceeding the length of the post puller.



Stop

- The post puller will stop automatically, when the piston reaches the highest end of its movement (see picture below).



- Release the control valve of the post puller to stop the hydraulic oil flow.
- If the post is not fully extracted, press the control valve lever down to set the post puller at the lower dead point. This will release the chain from the post. Then move the control valve up again.

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- Release the control valve lever of the post puller to stop the hydraulic oil flow.
- Turn the by-pass valve of the power source to the OFF position.

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 hazard 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 to the machine, contact your nearest authorised workshop.
- After each service, check that the machine's vibration level is normal. If not, contact your nearest authorised workshop.

Every day

- Clean and inspect the machine and its functions each day before start working.
- Conduct a general inspection for leaks, damage, and wear.
- Change damaged parts immediately.
- Replace worn components in good time.
- Make sure that all the attached and related equipment, such as hoses and flow dividers are properly maintained.
- Clean the quick-release couplings before use.

Every week

- Check clampings for cracks and wear.
- Check cylinder for cracks and leakages.
- Check bolts and connections are free from damage and tightened.
- Lubricate the cylinder regularly and turn off the power source before.

Periodic maintenance

After each operating period of approximately 150 impact hours or twice a year the machine must be dismantled and all parts be cleaned and checked. This work must be performed by authorised staff, trained for this task.

Storage

- Disconnect the machine’s hoses from the power source, see "Start and stop".
- Make sure that the machine is properly cleaned before storage.
- Always store the machine in a dry place.

Disposal

A used machine must be treated and scrapped 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.

Before a used machine is scrapped it must be emptied and cleaned from all hydraulic oil. The remaining hydraulic oil must be deposited and any negative influence on the environment is to be kept as low as possible.

Technical data

Troubleshooting

Problem	Cause	Solution
Post puller will not operate	Oil flow and/or pressure too low	Check the performance and connection of the power source
	Oil level too low	Check oil level Check system for leaks
	Couplings or hoses blocked	Remove restriction
	Defective seals in cylinder	Replace seals
Post puller has insufficient pulling force or operates slowly	Cold hydraulic oil	Allow oil to reach operating temperature
	Power source not adjusted correctly	See the operating manual for the power source
	Oil level too low	Check oil level Check system for leaks
	Air in the hydraulic system	See the operating manual for the power source in order to remove air from the system
	Incorrect hydraulic oil viscosity	Use oil with correct viscosity according to the section "Hydraulic oil"
Post puller overheats	Low hydraulic oil level	Check oil level Check system for leaks

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Machine data

Height	588 mm (23.2 in.)
Width	418 mm (16.5 in.)
Length	484 mm (19.0 in.)
Weight without hoses	47 kg (103.6 lb)
Oil flow	18-38 l.p.m (5-10 US gal/min)
Pressure relief valve setting max	160 bar (2300 psi)
Hydraulic oil working temperature	30-70 °C (86-158 °F)
Connections P and T	Standard ½ in. BSP (alternatively ¾ in. JIC)
Capacity (lift per stroke)	200 mm (7.9 in.)
Maximum back pressure in return line (measured at Post puller)	30 bar (435 psi)
Normal pulling force	6000 kg (13 227 lb)
Max pulling force (by means of hydraulic + lever + extension tube)	10 000 kg (22 046 lb)
Required cooling capacity	Approx. 1 kW
Vibration level	< 2.5 m/s^2

Noise declaration statement

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

Sound pressure level **Lp** according to ISO 11203.

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.

Noise data

	Noise	
	Sound pressure	Sound power
	Declared values	
	ISO 11203	2000/14/EC
Type	Lp r=1m dB(A) rel 20µPa	Lw guaranteed dB(A) rel 1pW
LPP 10 HD	<70	<70

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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).

Post puller	Pmax (bar)
LPP 10 HD	160

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Atlas Copco

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