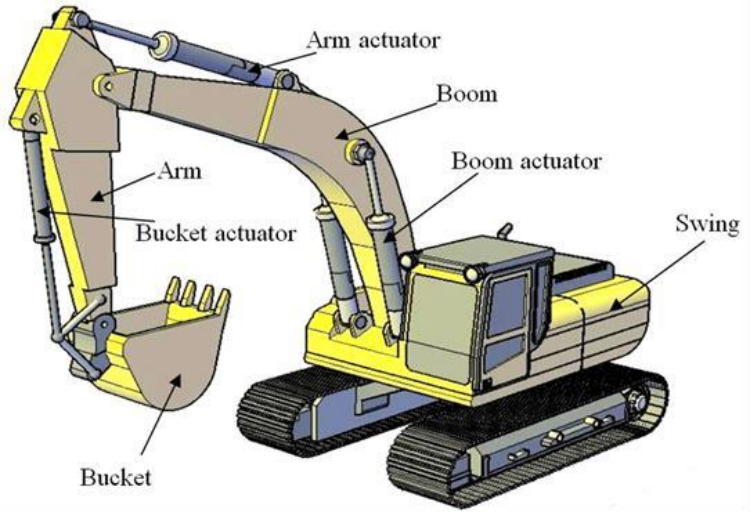
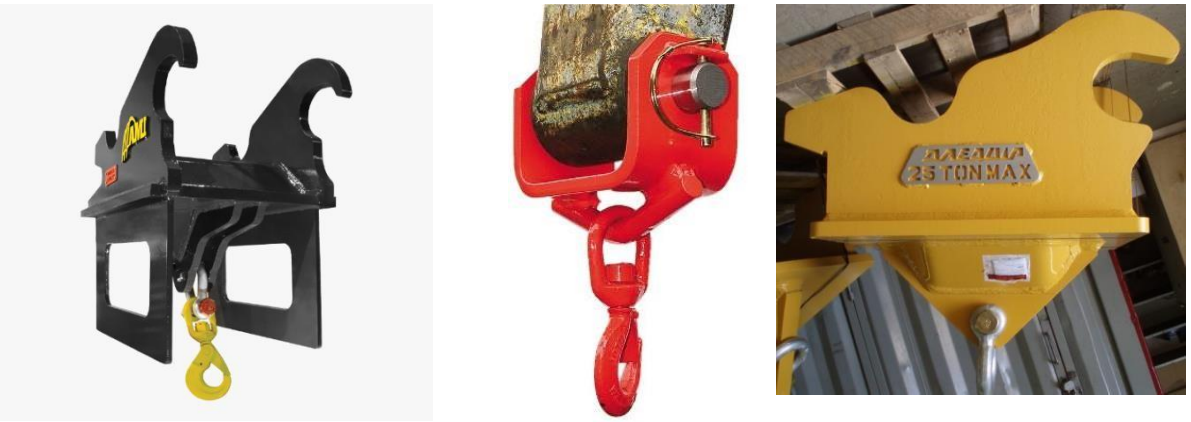
Use of Excavators for lifting operations



Typical Excavator Features

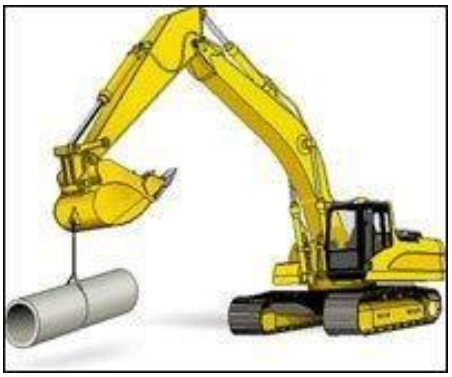
Excavators are primarily designed to be used in the construction industry as earth moving equipment. However, special attachments that can be fitted to these machines are available to enable them to perform lifting operations. Lifting operations using an excavator can lead to hazardous situations and must only be carried out by competent persons under controlled conditions using the appropriate equipment.

If an excavator is to be used for a lifting operation it should be designed to do so. A specially designed attachment, attached to the arm, should be used. Before the lifting operation, a risk assessment should be carried out by a competent person. Consequently, the lifting operation can be carefully planned and carried out under supervision. Examples of lifting attachments are shown in the photos below. It is extremely important to note that a chain or sling wrapped round the bucket or bucket teeth is not a suitable attachment for lifting loads.



Examples of excavator lifting attachments

Some excavator buckets may have lifting eyes attached to the back of the bucket. In this case, although a separate attachment may not be required, the excavator must still have a load chart for the specific use of the lifting eye. Furthermore, it must only be used by a trained operator[1].



Excavators designed for lifting operations must have a load capacity table and used in compliance with the manufacturer's instructions. Excavators must not be used to lift persons. The excavator and its attachment must be thoroughly examined by a competent person once in every period of twelve months as required by Schedule III of the Work Equipment (Minimum Safety and Health Requirements) Regulations, S.L.424.35 (L.N. 293/2016). The same regulations specify that chains, ropes and slings must be thoroughly examined by a competent person every six months, stating the safe working load. All hooks must be fitted with a safety latch. Examination reports must be made available for inspection.

The lifting capacity of an excavator changes drastically during a lifting operation as the radius (the distance between the centre of the machine's swing bearing and the centre of the load hook) changes and position of the boom relative to the tracks changes. It is very important that before executing a lifting operation, a trained operator must plan the whole operation from start to finish to ascertain that the machine is capable of lifting the load in all configurations of the lift. The operator must know the weight of the load and have the load chart of the machine readily available. Another very important issue is rigging of the load. It must be ensured that the person performing this operation possess the required competence.

Examples of lifting loads with an excavator

[1] operator is the person operating the excavator

Good Practice:

- Ensure there are no persons in the work area of the whole lift.
- Ensure that the excavator is resting on solid level ground which can support the combined weight of the machine and load.
- Allow adequate clearance from structures, buildings and power lines.
- Ensure that the load is secured and balanced.
- If necessary, attach tag lines to the load so that it could be guided and restrict swaying.
- Maintain the load as close to the ground as possible.
- Carry out the operation slowly.
- Ensure good communication between the excavator operator and the banksman.

Documentation required to be in possession of the employer[2]:

- A copy of the last examination report of the excavator is available on site for inspection.
- Proof of training of the operator.
- Risk assessment including the lifting plan (risks from excavator operations, travel path of load, ground stability, protection of workers and third parties, falling loads, banksman, etc.).
- A copy of the last examination report of all chains, ropes and lifting tackle in use.
- Records of maintenance and repairs.

Records of inspection reports must be kept for a period of two years;

Obligations of duty holders:

The **employer** must ensure that the operator has received adequate training, is fully competent to carry out his duties and is supervised to ensure the safe use of excavator. The use of such work equipment must be restricted to those persons given the task of using it, since it is likely to involve a specific risk. Hence the employer must ensure that workers are given written instructions on how to operate the excavator, together with the conditions of use.

The employer must ensure that regular maintenance, repairs, renewals or alterations on the excavator are carried out by competent persons. In particular, protection of the operator from risks arising from equipment rollover must be ensured. It is recommended that printed or electronic records of such works are kept and made available when requested by a competent authority.

[2] employer is the contractor whose employee operates the excavator or the self-employed person operating the excavator

Besides the employer's responsibilities, the **operator** has the duty to safeguard one's own health and safety and that of other persons. The operator must wear the required personal protective equipment, ensure that loads are adequately secured during lifts and that lifting operations do not pose unwarranted risks to workers or other persons who may be affected by the work activity. It is imperative that the safe working load must not be exceeded.

For construction sites that fall within the remit of the Work Place (Minimum Health and Safety Requirements for Work at Construction Sites) Regulations, S.L.424.36 (L.N. 88/2018) the **project supervisor**[3] must ensure that the health and safety plan contains the lifting plan with all the necessary safety measures and that this is communicated and understood by all contractors concerned. The contractor/s must take into account directions from the project supervisor.

The **Client**[4] must take account of any report given in writing by the project supervisor and must also take all reasonable measures to ensure that duty holders abide by their obligations within the limits of their respective responsibilities for the adequate safeguard of occupational health and safety.

Performing a lifting operation with an excavator is a delicate operation that requires planning and trained personnel. Make sure all precautions are taken to conclude the operation safely.

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[3] The natural or legal person appointed by the Client in terms of regulation 3 of the Work Place (Minimum Health and Safety Requirements for Work at Construction Sites), S.L.424.36. The project supervisor is responsible for the health and safety supervision of the project.
[4] The natural or legal person for whom a project is carried out, I.e. the owner of the site.

References

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Figures

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