

Subholer

Instructions Manual

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This manual is intended to provide the reader with the necessary instructions for the operation of the Subholer

DISCLAIMER: Personnel should not attempt to operate or maintain the Subholer without having first read this Instructions Manual. Should it be required, Inco Technic AS can offer training to its customers in the use and maintenance of the Subholer.

Inco Technic AS accepts no liability for any malfunction of the Subholer or any accidents caused by personnel who have not read this manual as required, or attended any necessary training courses to ensure they are competent in the use of this equipment.

Failure to operate the Subholer in accordance with the instructions contained herein may result in accidental damage or personal injury. Further, in doing so:

- Personnel may operate the equipment in such a way that risks the health and safety of personnel dependent upon the correct operation of this equipment
- Personnel may render the equipment inoperable.

Accordingly;

- The equipment should only be operated and maintained by suitably experienced personnel.
- Personnel should strictly follow the instructions for use as detailed within this Instructions Manual.
- The Subholer is only intended for the use specified herein.
- A copy of the Instructions Manual must be kept with the Subholer to ensure quick availability for reference at all times.

The manual is in the English language.

Description

- The subholer is a product developed to punch holes under roads and other similar constructions.
- The method of operation is to hammer a series of pipes through the ground substrate.
- The subholer comes with a choice of pipe diameters from 114,3 mm to 406,4 mm.
- The driving force for the subholer is achieved via an excavator equipped with a hydraulic hammer.

Requirements

The depth of the pipes to be laid shall be a minimum of $7 \times \text{Ø}$ of pipe to be used.

The subholer is proven in substrate of 0 to 400 random Ø mass. It is not designed to penetrate solid rock or stone, and impact with such obstacles may lead to deviations in direction.

The rear driving component of the subholer shall match up with the hammer attachment.

The excavator shall have a suitable and large enough area from its location, to be able to manoeuvre the hammer into the correct position and angle.

Operation

- Prior to operations, responsible parties shall ensure any and all permissions necessary to carry out the work are granted by respective authorities.
- The excavator shall be placed either on {road} surface above and in line with the intended pipeline, or adjacent to the {roadside} and intended pipeline. Where placed above, it shall only be necessary to close off one lane of the highway.
- To assist and simplify initial setup, the Subholer may be laid upon a simple base / guide of e.g. thin sheet metal in form of a groove or track.
- The chain shall be securely attached to the Subholer front and rear sections to ensure retrieval of the Subholer in the event of any mishap.
- In order to control the direction of penetration a light is shone inside the pipe. The internal chain will be clearly visible up to the attachment on the front section. This check shall be carried out for each new section of pipe added.
- In the event of any significant surface movements the Subholer shall be withdrawn and a new attempt made in a new area.
- In the event of such a withdrawal operation, it is important to avoid snatching of the chain, such that the design forces of the chain and fastenings are not exceeded.
- The Subholer shall be driven into the mass with a combination of hammer and pressing forces in order to achieve maximum efficiency.
- The operation can be carried out by minimal personnel, to include the excavator operator, an assistant and {in the event of road operations} any personnel needed to control traffic.
- The assistant shall coordinate with the excavator operator to ensure correct positioning of the hammer and direction of penetrations.
- The axis of the Subholer and the hammer attachment shall be in line. Misalignment during this part of the operation can lead to damage to the rear driving pipe, and result in misdirection of the Subholer.

Safety

The following important safety instructions shall be strictly followed whilst undergoing operational and/or maintenance programs.

- These Instructions for Use must be kept with the Subholder to ensure their availability quickly and easily at any time.
- The Instructions for Use must be kept for the whole service life of the product. In case of resale the Instruction for Use must be passed to the following owner of the plant.
- Any use of the plant requires full understanding and strict observation of these Instructions for Use. Before use and maintenance of the plant the complete instructions for use must be read and understood. The plant is only intended for the use specified herein. The equipment must not be modified without the approval of Inco Technic a.s.
- The equipment is not approved for use in explosive, flammable or high oxygen areas.
- The Instructions for Use shall be followed in order to avoid accidents to personnel, public and damage to infrastructure and environment.
- The hydraulic hammer creates high noise levels. All personnel involved shall use ear protectors.
- Safety equipment and clothing as specified in Companies safety regulations and handbook shall be used at all times. When operating in traffic areas, additional safety regulations as specified by any local authorities shall be strictly observed.
- The workplace shall be marked out and cordoned off in accordance with company and any local authority's regulations. Where there is a requirement for traffic to be re-directed, this shall be carried out in accordance with local authorities and any highway agencies regulations and instructions.

Operating Personnel

Safety Education

All personnel involved in the operation of the Subholder shall have received the necessary safety instructions in accordance with company HSEQ policy. Personnel shall receive regular safety updates relevant to the operation of the Subholder, and attend periodic safety meetings as required.

Responsibility

The site manager shall have overall responsibility for the operations to be carried out. The operator(s) of the Subholder shall be responsible for ensuring the given parameters of the product are adhered to, and to follow all safety aspects as specified.