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0723 Safety Guidance
110/230V v:112016

Frank Key PLANT & TOOL HIRE

Pipe Freezer

The rules and procedures in force where people are at work may require the person responsible for this equipment to carry out a specific risk assessment.

It is important to read and understand all of this leaflet, and any instructions printed on or inside this unit, before you use the Pipe Freezer

1. Electricity can be hazardous, use with care. Do not allow the electrical parts of this equipment to get wet.
2. Sealed with this equipment are chemicals used in the freezing process, they are hazardous to health and environment, take care to prevent them leaking.
3. When in use, the freezer heads that are attached to your pipe installation, and parts of the flexible cryogenic hoses, can reach temperatures well below freezing point. Do not touch these parts with your bare skin.
4. This pipe freezer is designed to freeze the liquids inside the steel, copper, plastic or lead pipe installations forming ice plugs in sections of the pipe, to enable maintenance to be carried out without draining the complete system.
5. This pipe freezer can cause injury or damage if not used in a correct and controlled way. Touching the freezer with bare hands or fingers could cause cold burns or frostbite. Damage caused by dropping the equipment, or handling it roughly, could permit the hazardous chemicals to leak out.
6. If you are inexperienced in using this pipe freezer you should seek instruction or at least familiarise yourself thoroughly with the equipment before you start work.
7. Plan your work and think ahead to make sure you will always be working safely.
8. You will need as a minimum the following items of personal protective equipment:
   - Overalls with long sleeves
   - Thermal gloves (BS-EN 407)
   - Rcd if using the 230v (mains) supply
9. This pipe freezer must not be used by minors, or by anyone under the influence of drugs or alcohol.
10. This pipe freezer is designed for operation by an able bodied adult. Anyone with either temporary or permanent disability must seek expert advice before using it.

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HAE HIRE ASSOCIATION EUROPE

Hire Association Europe
2450 Regents Court
The Crescent
Birmingham Business Park
Solihull B37 7YE

Telephone: 44 (0) 121 380 4600
Fax: 44 (0) 121 333 4109
Email: mail@hae.org.uk
website: www.hae.org.uk

Using the Pipe Freezer

1. Electricity and water can make a very hazardous combination. Keep water away from electrical parts of this equipment. Do not use in the rain.
2. Wear your thermal gloves and long sleeved overalls.
3. Keep other people clear.
4. Wrap dry cloth round the freezer heads to help insulate them from warm air and to prevent anyone touching frozen parts.
5. The ice plug, once formed, will hold back liquid even under high pressure.
6. It is unlikely that using the pipe freezer will cause burst pipes; because the ice plugs are formed only in small sections of the pipe, there is room for the liquid to ice expansion process in the rest of the pipe.
7. When you are satisfied that the pipe is sealed by a frozen plug, you can start work.
8. Leave the equipment switched on while working, you need only occasionally check that he frozen plugs are not thawing.
9. If freezing two sections of the same pipe system at the same time, to facilitate removal or repair, ensure the length of pipe between each freezer head is at least 600 mm (2 feet).
10. If using a blowlamp to repair pipework, the flame should be kept at least 230 mm (9 inches) away from the frozen plug, or the ice plug will start to thaw even though the freezer head is still working.
11. Do not switch off or remove the equipment until you have completely finished. Removing the freezer heads while there is still work remaining may mean that the pipes thaw before you have finished.
12. When you have finished, take care removing the freezer heads, they will be very cold, keep your hands warm. Wait for them to thaw; do not apply heat to speed up the thawing process.
13. When the freezer heads have thawed, wipe them dry before carefully coiling the cryogenic hoses and storing them within the unit.
14. If you think the electric cable may be cut or damaged in any way, switch off and unplug at the mains before inspecting it.
15. If the cable attached to the pipe freezer is damaged, stop using it. Contact the hire company. If an extension cable has been damaged, do not use it again.
16. Take care not to accidentally pull the plug from the socket.
17. If keeping this equipment overnight store it securely to prevent theft or vandalism.
18. If your equipment does not work properly do not attempt to repair it. Contact the hire company.
19. You may want to read this leaflet again. Please keep it until you finish work.

Please keep this leaflet safely as it may be required for future reference

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Before Starting Work...

WORK AREA

1. Do not use this pipe freezer when there is a danger of explosion. In use, the motor creates tiny sparks which will ignite a flammable atmosphere such as near a poorly ventilated petrol store or gas cylinder compound.
2. Make your work area as clear and safe as you can; check that no-one will come near to you or distract you.
3. Protect other people from danger. Warn others to keep away, you may need to put up temporary barriers or warning signs.
4. Set up the pipe freezer kit safely on a bench or stand if necessary, near enough to the sections of pipe to be frozen. Ensure that the cryogenic hoses will not be stretched out or kinked.
5. Locate the nearest power point – avoid the use of extension cable if possible.
6. If using a generator as a power source ensure that you locate where the exhaust fumes will be vented safely.

OPERATORS

1. The following items of personal protective equipment (ppe) are the minimum that should be worn whenever you use the pipe freezer. Particular jobs or environments may require a higher level of protection.
2. Wear thermal gloves (BS-EN 407) and long sleeved overalls to protect bar eskin that may come into contact with the pipework.
3. Anybody who is working near to you will also need to wear appropriate personal protective equipment.

PIPE FREEZER

1. Check your equipment including the cryogenic hoses, electrical plugs and cable and the unit itself. If anything if found damaged, do not use the pipe freezer – contact the hire company.
2. Check that the plug on your equipment matches your supply. Do not try to force connections or improvise them.
3. Equipment with a cylindrical yellow industrial plug fitted is designed to run off a special 110v supply. The hire company will have provided a portable transformer if you need to power the equipment off a normal mains 230v supply. If a portable transformer has been supplied, take care not to injure yourself when moving it about – it may be heavier than you think. Equipment designed to run directly from a 230v mains will have either a normal square pin plug fitted, or a blue industrial plug.
4. Your equipment may be equipped with thermistors, a temperature sensor built into each freezer head, with an external wire leading from each freezer head back to the unit, usually loosely attached to each cryogenic hose. Take care not to damage the thermistors / wires; they are part of the freezing / monitoring system.
5. Check on how all the controls work – before you switch the pipe freezer on, you must know how to use it.
6. Do not pug in and switch on until everything is set up. See setting up.
7. The pipe freezer, once set up and switched on, requires only occasional monitoring while you carry out the repair work to the pipes.

SETTING UP

1. Check that the pipe freezer is sited firmly and safely near enough to the pipe to be frozen so that the cryogenic hoses are not stressed.
2. Make sure you have the right size freezer heads and reduction inserts to ensure a snug fit around the pipes to be frozen; if in doubt check with the hire company.
3. The pipes to be frozen should be clean, smooth and free of paint or rust, not damaged, and straight, freezer heads should not be fitted on bends.
4. Heat transfer compound should be used to improvise the thermal conductivity between freezer heads and pipe. This compound is not hazardous; it can be disposed of as normal waste.
5. Note that if the pipe you are freezing contains hot or flowing or dirty liquid it will slow down or prevent the freezing process. A combination of them almost certainly will prevent freezing.
6. If you only need to freeze one section of pipe you can fit both freezer heads close together to form one ice plug. This will freeze the liquid faster forming a stronger ice plug.

ELECTRICAL SAFETY

Your pipe freezer will only operate on one voltage: it will be 110v or 230v. 110v equipment will have a yellow industrial plug fitted. 230v equipment will have either a normal square pin plug fitted, or a blue industrial plug. Read the instructions below for your pipe freezer.

110 VOLT MACHINES *(YELLOW PLUG)*

1. If you are using a portable transformer directly into the 230 volt socket. Do not use any 230v extension cables.
2. If you need to use an extension cable, follow any special instructions given by the hire company. If the hire company have not given any special instructions, you should only use a suitably rated heavy duty one, not longer than 50 meters (160 feet). Plug it directly into the rcd.
2. Lay it out carefully avoiding liquids, sharp edges, doorways or windows where it might get trapped, and places where vehicles might run over it. Unroll it fully or it will overheat and could catch fire.
3. Make sure that any extension cable connections are dry and safe.

230 VOLT MACHINES *(SQUARE PIN OR BLUE PLUG)*

1. Use a residual current device (rcd) plugged directly in to the socket. Plug your equipment into the rcd. This will help to protect you against electric shock if the cable or pipe freezer gets damaged.
2. Use the "TEST" button to check that the rcd is working each time you use it. Reset the rcd according to the instructions supplied with it.

EXTENSION CABLE

1. If you need an extension cable, follow any special instructions given by the hire company. If the hire company have not given any special instructions, you should only use a suitably rated heavy duty one, not longer than 50 meters (160 feet). Plug it directly into the rcd.
2. Lay it out carefully avoiding liquids, sharp edges, doorways or windows where it might get trapped, and places where vehicles might run over it. Unroll it fully or it will over heat and could catch fire.
3. Make sure that any extension cable connections are dry and safe.

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