ROTHENBERGER

ROFROST Turbo II R290

ROFROST Turbo II R290

1.1/4“ 2“

DE Bedienungsanleitung
EN Instructions for use
FR Instruction d’utilisation
ES Instrucciones de uso
IT Istruzioni d’uso
NL Gebruiksaanwijzing
SV Bruksanvisning
FI Käyttöohje
PL Instrukcja obsługi
CS Návod k používání
HU Kezelési útmutató
BG Инструкция за експлоатация
EL Οδηγίες χρήσεως
RU Инструкция по использованию

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➔ Before you use the pipe freezing equipment: Read the instruction manual carefully in order to avoid hazards and to familiarise yourself with the equipment.

➔ Please keep these instructions with the pipe freezing equipment so that you are able to read them again.

➔ Please pass these instructions on together with the unit to every user of the pipe freezing equipment.

Markings in this document:

Danger!
This sign warns against the danger of personal injuries.

Caution!
This sign warns against the danger of property damage and damage to the environment.

➔ **Call for action**

Warning against fire and explosions!
Risk of injury and property damage due to fire and explosions.

Keep ignition sources away!
Protect from heat, sparks and open flame.

Observe instructions!

1 Safety Notes

1.1 Intended use

The pipe freezing equipment must only be used to freeze:

ROFROST Turbo II R290 1.1/4“:	Copper pipes with a diameter of 10 – 42 mm or 3/8“ – 1.3/8“ respectively and steel pipes with a diameter of G 1/8 – G 1 1/4
ROFROST Turbo II R290 2“:	Copper pipes with a diameter of 10 – 54 mm or 3/8“ – 2.1/8“ respectively and steel pipes with a diameter of G 1/8 – G 2.

Other applications are not permissible!

1.2 General Power Tool Safety Warnings

WARNING! Read all safety warnings, instructions, illustrations and specifications provided with this power tool.

Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.

Save all warnings and instructions for future reference.

The term “power tool” in the warnings refers to your electrically-operated (corded) power tool or battery-operated (cordless) power tool.

1) Work area safety

a) **Keep work area clean and well lit.** Cluttered and dark areas invite accidents.

b) **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Power tools create sparks which may ignite the dust or fumes.

c) **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

2) Electrical safety

a) **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce risk of electric shock.

b) **Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.

c) **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.

d) **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges and moving parts.** Damaged or entangled cords increase the risk of electric shock.

e) **When operating a power tool outdoors only, use an extension cords suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.

f) **If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply.** Use of an RCD reduces the risk of electric shock.

3) Personal safety

a) **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** A momentary lack of attention while operating power tools may result in serious personal injury.

b) **Use personal protective equipment. Always wear eye protection.** Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.

c) **Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool.** Carrying power tools with your finger on the switch or energising power tools that have the switch on invites accidents.

d) **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.

e) **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.

f) **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewellery or long hair can be caught in moving parts.

g) **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of dust collection can reduce dust-related hazards.

h) **Do not let familiarity gained from frequent use of tools allow you to become complacent and ignore tool safety principles.** A careless action can cause severe injury within a fraction of a second.

4) Power tool use and care

a) **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.

b) **Do not use the power tool if the switch does not turn it on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.

c) **Disconnect the plug from the power source and/or remove the battery pack, if detachable, from the power tool before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.

d) **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.

e) **Maintain power tools and accessories. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.

f) **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.

g) **Use the power tool, accessories and tool bits etc., in accordance with these instructions, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended could result in a hazardous situation.

h) **Keep handles and grasping surfaces dry, clean and free from oil and grease.** Slippery handles and grasping surfaces do not allow for safe handling and control of the tool in unexpected situations.

5) Service

a) **Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.

1.3 Special safety instructions

This device is not intended for use by children and persons with physical, sensory or mental limitations or a lack of experience or knowledge. This device can be used by children aged 8 and above and by persons who have physical, sensory or mental limitations or a lack of experience or knowledge if a person responsible for their safety supervises them or has instructed them in the safe operation of the device and they understand

the associated dangers. Otherwise, there is a danger of operating errors and injuries.

Supervise children during use, cleaning and maintenance. This will ensure that children do not play with the device.

The equipment must only be operated by qualified specialized staff!

What to do in the event of accidents or disruptions in the refrigerating system

Danger: Please comply in full with the following safety information in order to exclude personal injuries!

Shutting down in emergencies

➔ Shutting down in emergencies

☒ Pulling out the plug

☒ Switching off the fuse

Refrigeration cycle intervention

➔ Only allowed by refrigeration technical experts. Contact customer service.

➔ Take care in the event of accumulation of cooling agent vapours at ground level – lack of oxygen – **risk of suffocation!**

➔ Smoking and unshielded flames prohibited!

➔ Always ensure the power is off in the system before intervention (see above)!

First aid

➔ Use protective goggles to shield your eyes against exposure to liquid cooling agents!

In the event of eye contact with liquid cooling agent do not rub the eyes and avoid all eye aggravation. Consult a physician immediately.

➔ First aid: Apply a few drops of sterile mineral oil to the eyes or a weak boric acid solution or 2% common salt solution. Subsequently rinse out eyes.

Attention: Please comply in full with the following safety information in order to exclude the danger of property damage and damage to the environment!

Disruptions

If the refrigerating system fails to operate

➔ check whether the current entry has been interrupted. This calls for troubleshooting by technical experts!

If both refrigerating clamps fail to ice over

➔ check whether the refrigerating machine is running and if the condenser is being aerated adequately (is not contaminated, ventilation slots not displaced). If this should be the case, troubleshooting needs to be carried out by a technical expert (cooling device constructor, refrigeration technician)!

If only one of the refrigerating clamps ices over

➔ hold both refrigerating clamps upright for about 10 minutes while the machine is running so that any process oil that may have become displaced in the refrigerating clamps drains back to the compressor. If this does not lead to a change, a technical expert should be asked to carry out troubleshooting.

If the refrigerating system shuts down for no recognisable reason this could be due to

➔ unduly high process temperatures or electric currents as a result of excessively high or low ambient temperatures

➔ inadequate air flow (air grille displaced, condenser contaminated)

➔ electric failure.

Troubleshooting must be carried out by a technical expert if the equipment temperature was maintained upon commissioning (min. 16° C), the ambient temperatures are within the permissible limits and the air flow is correct.

In the event of a fire

➔ Shut down the refrigerating system and use a carbon dioxide or powder fire extinguisher to fight the fire.

General information

➔ Only carry out freezing in compliance with the intended use described in the operating manual.

➔ Do not obstruct the air circulation, i.e. do not close the lid and block the ventilation slots during operation as otherwise the freezing process cannot be carried out properly.

➔ Protect cooling hoses and refrigerating clamps against damage.

➔ Only store, transport and operate the pipe freezing system in the installation position. Protect against impact, strong vibrations and falling. The system is suitable for portable use according to class 7M2.

➔ The installation location must be dry and free from dust.

1.4 Special safety instructions and warnings for devices that use R290 refrigerant (propane)

WARNING!

➔ According to DIN EN 378-1 the R290 refrigerant belongs to safety group A3.

➔ The device is permanently sealed from a technical point of view.

➔ The filling quantity of the refrigerant is less than 150g.

➔ Leave the device open for 5 minutes before commissioning.

➔ Leaks can cause the highly-flammable refrigerant to form an explosive gas/air mixture. This might result in a fire and explosions with a subsequent fire risk.

➔ Therefore ignition sources (heat, sparks, open flames) should be kept well away.

➔ Minimum clearances between the device and more easily inflammable objects should be 2 m on all sides.

➔ Do not use any items for defrosting other than those approved by the manufacturer.

➔ Never use devices without explosion protection signs for cleaning in the cooling and machine rooms.

➔ Maintenance is only to be carried out without power, i.e. after the power has been disconnected from the device.

➔ You must ensure that the device is disposed of correctly.

➔ Work that involves opening the refrigerant circuit must only be carried out by qualified persons (specialists) and only with good ventilation present.

➔ Do not damage the refrigeration circuit!

2 Technical Data

Item no. ROFROST Turbo II R290 1.1/4“ 1500004195, 1500004197
Item no. ROFROST Turbo II R290 2” 1500004196, 1500004198
Refrigerating capacity Q_0 at t_0 -25 °C .....328 W
Power input P .....220 W
Current consumption I_N .....1,8 A
Electrical connection .....230 V a.c. , 50 Hz
Cooling agent / amount .....R290/ 45g (ROFROST Turbo II R290 1.1/4“)
R290/ 50g (ROFROST Turbo II R290 2”)
Defrosting .....Manual defrosting
Dimensions (L x W x H).....505 x 255 x 277mm
Weight .....18 kg (ROFROST Turbo II R290 1.1/4“)
18,5 kg (ROFROST Turbo II R290 2”)
Nominal current of the fuse to be superposed ....10 A
Protection type .....IP 20
Maximum pressure.....PS 20/11bar
Noise pressure level (L_{pA} ¦ K_{pA}).....≤ 50 dB(A) ¦ 3 dB(A)
Construction class N .....Ambient temperature range +16… +32°C

3 Scope of delivery, transport and storage

Scope of delivery:

Essentially, the ROFROST Turbo II R290 pipe freezing system consists of the following components or following accessories respectively:

- Electric refrigerating system consisting of:
  Refrigerating aggregate including housing, carry handle, lid, plastic insert as receptacle for the reducing inserts, shutdown switch and power cord
  2 cooling hoses with refrigerating clamps (evaporator system) and clamping screws with integrated thermometer
- Set of reducing inserts (special sizes upon enquiry)
- 1 tin of heat-conductive paste

Transport and storage:

➔ Store the cooling hoses, refrigerating clamps and the reducing inserts in the portable housing.

➔ Only store in installation position (i.e. upright) in a dry and dust-free environment at temperatures between -10° C to 35° C.

➔ Protect against impact and vibration.

4 Function of the Unit

4.1 Commissioning

The equipment (ROFROST Turbo II R290 freezing system) must be tempered, i.e. have adopted room temperature (+ 16° C up to a max. of 32° C) before commissioning.

➔ Shut down the heating circuit on which the piping is to be interrupted by means of an ice plug. Shut down the heating and pump in good time in order to stop the water flow.

➔ Position the freezing system in such a way that the equipment ventilator motor does not blow onto the pipes to be frozen, as they must be protected against warm air.

The fitted ventilator sucks in the air that is required for the liquefaction of the cooling agent and cooling the compressor on the long side of the equipment and presses it out again on the top side.

➔ Hold the refrigerating clamps upright and switch the system on for about 5 minutes so that any oil that may still possibly be in the refrigerating clamps can back into the circuit. Switch on by operating the rocker switch.

Caution: During the freezing process make sure that all the air grilles are not blocked as proper air circulation must be guaranteed!

The ROFROST Turbo II R290 is a “contact freezing unit“. The function of the unit can only be guaranteed if there is proper heat-conducting contact between the refrigerating clamps and the pipes that are to be frozen. Paint and contamination in the application range of the tongs will extend freezing times; ideally, the pipe to be frozen should be metallic bright.

➔ Only apply the refrigerating clamps to the straight pipe sections. Badly distorted or out-of-centre pipes are not suitable for freezing.

4.2 Application and replacement of the tools

The refrigerating clamps are designed for pipes with an exterior diameter of:

ROFROST Turbo II R290 1.1/4": 42 mm / 1¼” respectively

ROFROST Turbo II R290 2”: 54 mm / 2“ respectively.

Special reducing inserts are required in order to also be able to freeze pipes of a smaller diameter (see **ill. A** or **B**).

➔ Spread heat-conducting paste generously on the contact surfaces between the refrigerating tongs, reducing inserts and pipes to avoid insulation bridges (see **ill. C-1**).

Caution: Heat-conducting paste must be used for optimum performance! Important information: The refrigerating clamps and pipes must be protected against draughts during the freezing process!

➔ Handle the reducing inserts and refrigerating tongs with care. Clean them with a dry cloth after use and store them in the lining provided to protect them against damage.

4.3 Operating

The ROFROST Turbo II R290 is a compact ready-to-plug unit. It works with a hermitical compression refrigerating system. Troublefree continuous operation for hours or days is possible under supervision and within the prescribed ambient temperature range and voltage / frequency in accordance with the technical data.

The simple clamping system of the refrigerating clamps ensures safe connection to the pipe.

➔ Press the clamp together with the appropriate insert onto the pipe to be frozen and tighten by means of the fastening screw (see ill. C-2).

Caution: Only tighten the fastening screw by hand!

➔ Remove superfluous heat-conducting paste!

We recommend greasing the screw as this makes it easier to release the refrigerating tongs after the freezing process!

Important information: During the freezing process a temperature difference between display (L) and display (R) is possible. As a rule, however, this is compensated for in the minus range.

Furthermore, exterior factors can also play a part, e.g:

– Different output temperatures of the respective pipes due for freezing,
– Different pipe diameters,

– Different contacting of the refrigerating clamps on the pipe,
– Adverse effect of draughts.

➔ Do not switch the unit on until both refrigerating clamps have been secured firmly to the pipes to be frozen (see ill. C-3). The heating or pump must be switched off in good time in order to stop the water flow in the pipe.

Danger: Danger of frostbite! The metal parts of the refrigerating clamps have a temperature of approx. –30°C during the freezing process. Only touch the refrigerating clamps wearing gloves suitable for the cold!

➔ Open the circuit when the temperature is at < -5° C and the time has been reached according to the table (see ill. A or B).

The stated values are guideline values determined at a room temperature of 22° C.

4.4 Shutdown

➔ Shut down the freezer system, allow the refrigerating clamps and hoses to defrost, remove them from the pipe and clean.

➔ Hold the refrigerating tongs upright for about 5 minutes and switch the system back on so that any oil that may still possibly be in the refrigerating tongs can find its way back into the circuit.

➔ Shut down the system, remove the power plug and carefully store the hose assembly group in the housing compartment.

Caution: Do not bend or stretch the hoses!

5 Care and Maintenance

➔ Handle the equipment with care and consideration

➔ Avoid hard impact, vibrations and mechanical damage

➔ Only operate, transport and store the equipment in an upright installation position.

If, contrary to expectations, and in spite of careful handling a technical fault should occur, please contact your dealer or the manufacturer dir.

The cooling circuit must only be opened by technical experts from ROTHENBERGER Werkzeuge GmbH.

Once the ROTHENBERGER heat-conductive paste has been used up it can be re-ordered by quoting order no. 62291.

6 Troubleshooting

Basic details can be found in the chapter on safety information.

In addition please also check:

– that adequate heat-conductive paste is applied for the contact between the refrigerating tongs and the pipe or the reducing insert and the pipe,
– that the refrigerating clamps are attached to the pipes properly,
– that the water circuit is idle.

Among other things, additional influences can have an effect on the length of freezing time:

– wall thickness of the pipes,
– pipe material,
– contaminated water, ie systems containing inhibitors or anti rust treatment,
– outgoing temperature of the water to be frozen,
– ambient temperature (e.g. solar irradiation),
– operating temperature of the equipment,
– bent or stretched refrigerating hoses.

The freezing parameters in the table are only reference values and ROTHENBERGER Werkzeuge GmbH does not accept responsibility for the correctness.

Avoid short-term interruptions in power when the equipment is in operation.

The equipment is fitted with an overload device. In the event that this device goes into action, it is necessary to allow a pause of 5 minutes before switching the equipment back on.

If, after troubleshooting, the equipment is still not completely functional, you should contact ROTHENBERGER Werkzeuge GmbH.

7 Accessories

You can find suitable accessories in the main catalog or at www.rothenberger.com

8 Disposal

The heat-conductive paste is non allergenic and ecologically friendly and can be recycled or disposed of with normal waste. Cloths contaminated by the heat-conductive paste can be disposed of with the normal waste without any concerns.

When disposing of the pipe freezing equipment it should be ensured that the R290 cooling agent is removed separately and accordingly by a specialized company.

Components of the unit are recyclable material and should be put to recycling. For this purpose registered and certified recycling companies are available. For an environmental friendly disposal of the non-recyclable parts (e.g. electronic waste) please contact your local waste disposal authority.

For EU countries only:

Do not dispose electric tools with domestic waste. In accordance with the European Directive 2012/19/EU the disposal of electrical and electronic equipment and its implementation as national law, electric tools that are no longer serviceable must be collected separately and utilised for environmentally compatible recycling.