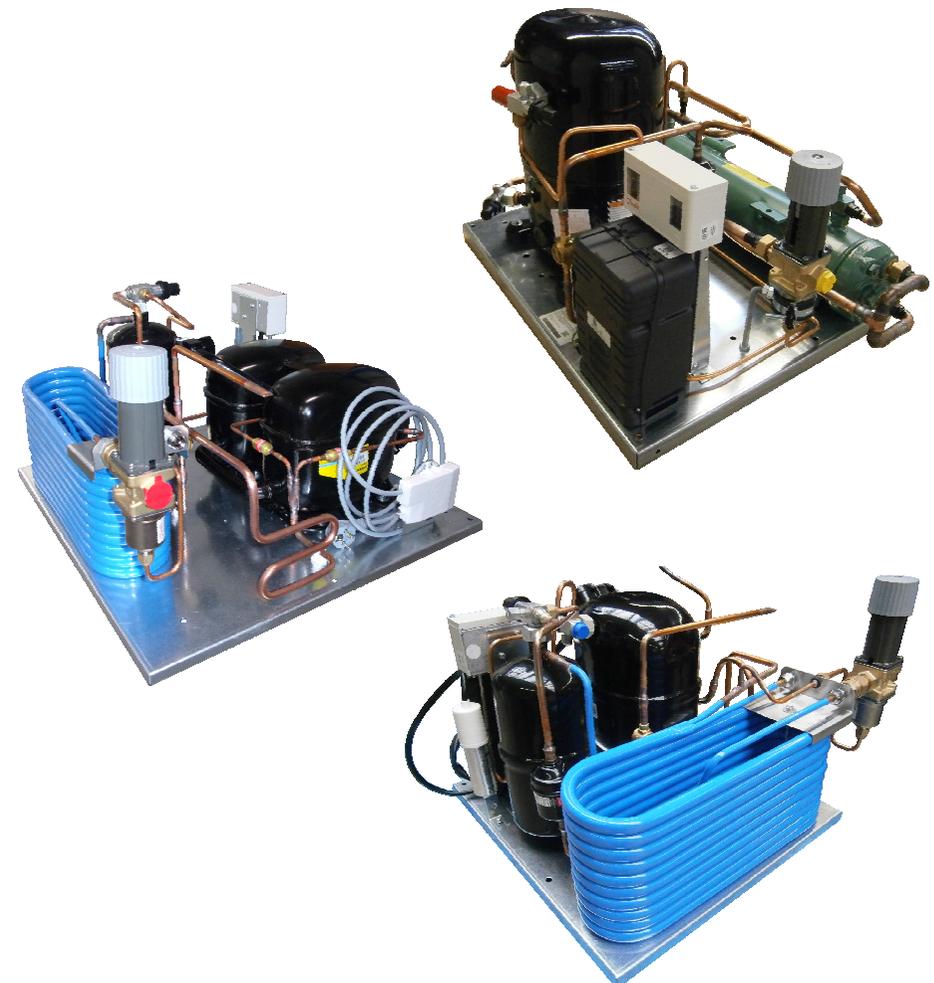


Instruction of use

Type WVS

Water cooled condenser unit



Supplier:

date stamp signature

Operation:

date stamp signature

Manufacturer's address:

ROCHHAUSEN Kältesysteme GmbH
Scharfenstein
Hopfgartener Str. 38c
D-09430 Drebach

Made in Germany

Email: kontakt@rochhausen.eu
Internet: www.rochhausen.eu



Product Check-up:

**EC-Declaration of Incorporation
 for incomplete machines according to EC Machinery Directive 2006/42/EC**

Hereby the manufacturer explains

ROCHHAUSEN Kältesysteme GmbH
 Scharfenstein, Hopfgartener Straße 38c
 D-09430 Drebach

explains for the incomplete machine: water cooled condenser unit

machine type: WVS

identification number/machine number: see product catalog 5

construction year : 2019

The basic health and safety requirements, laid down in the annex to the above-mentioned, directive are applied and complied with.

Created, attached or processed are:

- Partial operating instructions of the incomplete machine
- Product information with technical specifications- (assembly)
- Installation description

Applicable directives harmonised and other relevant standards or technical specifications are:

EC-Directives: EG 2014/35/EU Low voltage directive
 EG 2014/68/EU Pressure equipment directive
 EG 1907/2006 REACH (chemicals) regulation
 EG 2011/65/EU RoHS Directive (Restriction of dangerous substances)

Applied harmonised standards: DIN EN 378 - 1: 2018/04 refrigeration systems and heat pumps – safety-related and environmentally relevant requirements
 - 2: 2018/04
 - 3: 2017/03
 - 4: 2017/03
 EN ISO 12100: 2010 Safety of machines (risk assessment)
 EN 60204 - 1: 2014 Electrical equipment of machines
 EN 60335 - 1: 2012 Safety electrical appliances for household and similar purposes – general requirements
 + A11: 2014 + A13: 2017
 EN 60335-2-89: 2010 Safety electrical appliances for household and similar purposes – special requirements for commercial refrigerators / freezers with condensing units

Other applied standards: EN 62233: 2008 Electromagnetic compatibility EMF, EMV

The operation of the submachine is prohibited until it has been established that the machine to be installed in the sub-machine complies with the provisions of the Machinery Directive.

Date/manufacturer signature: 17.12.18

Signatory information:



Manager

Archiving: EE-200 - 1

Date	Maintenance work performed	Company / Signature

MAINTENANCE AND SERVICE SCHEDULE

Maintenance schedule for refrigerating systems according to VDMA 24186-3:2002-09

Component	Maintenance operation	Interval/ months	
		6	12
Ambient conditions	Check the ventilation and exhaust air conditions	X	
	Check accessibility of equipment	X	
	Assess thermal load	X	
Utilisation	Check utilisation characteristic	X	
	Assess working behaviour, cleaning and maintenance	X	
Equipment	Check entire equipment for cleanliness and mechanical damage	X	
	Check cold room and machine room temperature	X	
	Check doors, flaps and air guiding elements for tightness (gap test)	X	
	Check emergency interlock ¹⁾ (if any)		X
Evaporator	Check evaporator fan	X	
	Perform functional check of defrosting system		X
	Check defrosting drain	X	
	Check and, if necessary, clean air filter (if any)		X
Refrigeration circuit	Check evaporator utilisation (frost deposit)	X	
	Check and clean air-cooled condenser	X	
	Check water-cooled condenser and water control valve, clean water filter ¹⁾	X	
	Check refrigeration circuit for leakage by means of leak detector		X
	Check operating pressures ²⁾		X
	Perform functional check of switching and control devices of refrigeration system		X
	Perform functional check of safety pressure controller		X
Electrical installation	Check and, if necessary, retighten points of connection		X
	Perform functional check of electrical switching and control devices		X
	Perform functional check of emergency call system and external control and signalling devices (if applicable)		X
General	The service personnel will brief the operator on the specific maintenance and operating instructions applicable to his plant.		
	As evidence of the maintenance work performed, an entry shall be made on the reverse side.		

Index explanation: ¹⁾ water-cooled condenser kit
²⁾ applies to systems with 3 kg of refrigerant and more

Instruction of use



Content

- Declaration of incorporation
- Instruction for accidents and disturbances
- Description for water cooled condenser units
- Installation instructions
- RI – flow diagram
- Circuit diagram
- Maintenance and service
- Supplier and manufacturer

Specification

Instruction in case of emergencies or disturbances on the refrigerating equipment

TURN-OFF POWER SUPPLY IMMEDIATELY IN CASE OF EMERGENCIES

- Use the emergency switch outside the machine room
- Turn-off control- and main switch
- Unplug power supply
- Turn-off fuse

INTERVENTION IN REFRIGERATING CYCLE

- Not allowed for unauthorized persons
- Contact you service partner
- Attention! Beware of vapour of refrigerating mixture – oxygen deficiency-danger – risk of suffocation!
- Smoking and fire is strictly forbidden!
- Always switch off the system before intervening (see above)!

DISTURBANCES

- If the plant is not operating exactly – outside defrosting performance – please check power supply. For the detection of the breakdown you might need a refrigerating specialist or an electro-mechanic!
- If the temperature of the cool room is higher than suggested by the producer, check whether the motor and the evaporator is ice free. If it is covered with ice, try manual defrosting (unplug power supply, open door of cool room). Take only into operation, when plant is completely free of ice. At repeated occurrence of this case, a call for an expert will be unavoidable!
- If the refrigeration equipment operates by pressure control, please check whether the condenser is dirty or the air supply is disturbed for any reason. Then check whether temperature of machine room is below 5°C or above 32°C. In this case a call of an expert is unavoidable.
- In case of fire, switch off power supply as well as air condition of the machine room. Use fire extinguisher or carbon dioxide.

GENERAL INSTRUCTIONS

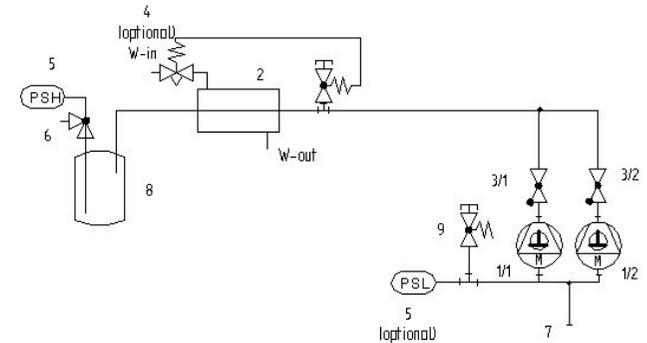
- For storage of freezing-/refrigeration goods please follow exactly the corresponding instructions of use. Do not store unwrapped goods.
- Do not hinder air circulation otherwise the temperature of the cool room can not be kept.
- Protect isolation on valves and cool rooms, otherwise their will be condenser water and the isolation will be ineffective. Close doors and coverings to cool rooms tightly otherwise there will be frozen fog formation and the temperature of the chilled goods will exceed the limit.

FIRST AID

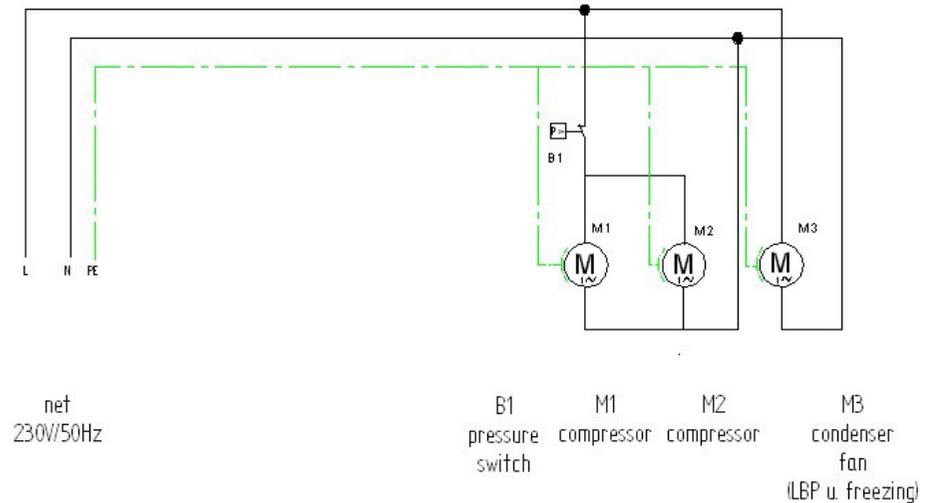
- Protect eyes of liquid refrigerant with protective glasses!
- In case your eyes got in touch with the mixture avoid rubbing and stimulation! Immediately see the doctor. First aid: insert some drops of sterile mineral oil, light boric acid solution or 2% saline solution and wash your eyes afterwards carefully.

Mark appropriate

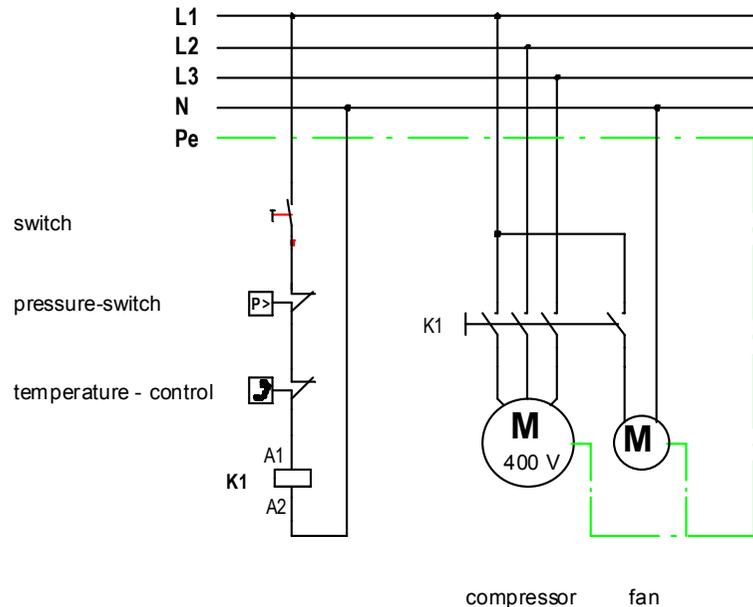
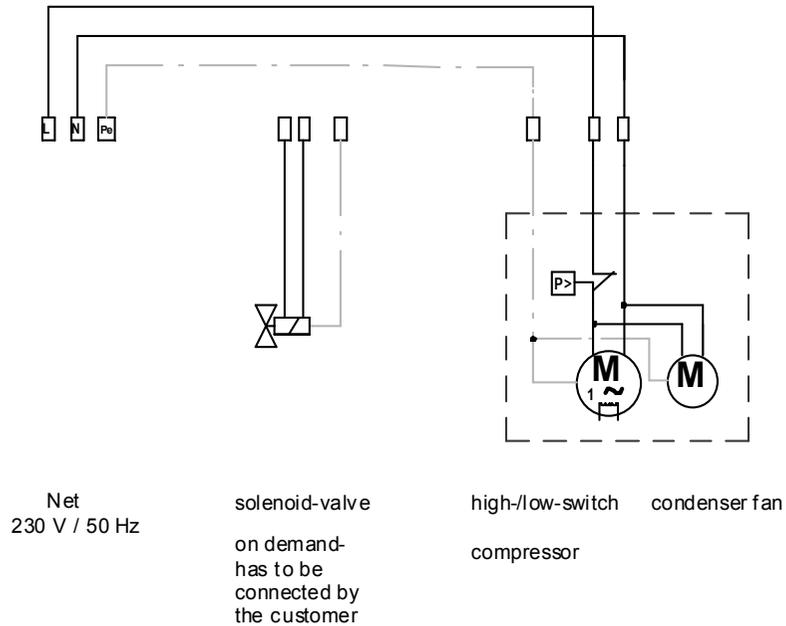
RI-flow-diagram and Curcuit diagram - WVS Twin



1 compressor	4 cooling water control valve	7 connection suction side 1"-14UNF
2 condenser	5 pressure switch	8 receiver
3 check valve	6 connection valve pressure side	9 service connection



Curcuit diagram



Description of condenser unit type WVS

Technical Data

Construction: water cooled condenser unit for the operation of authorized experts with hermetic refrigerator and counter flow condenser or tube condenser

Main production data: see production lable at condenser unit

Model: SN (atmosperic temperature +10°C ... +32°C)

Safety regulations: DIN EN 60335-1:2012-10, DIN EN 60335-2-89:2018, DIN EN 378

Admissible working pressure:
10 bar low pressure, 28 bar high pressure,

with safety detector on delivery factory setting:
18 bar switch-off value and 14 bar switch-on value for R134a, R513A, R448A, R449A, R452A, R290;
28 bar switch off value and 21 bar switch-on value for R404A, R448A, R449A, R452A, R290.

Starting features

Start of the compressor is granted if you follow the following instructions:

- Difference of pressure for HST Model, condenser pressure up to 11,5 MPa (11,5bar/50°C) and vacuum pressure within the area of evaporator pressure.

Condenser temperature

- For continuous operation the condenser temperature should be approx. 30 ... 40°C.
The weight rate of water should be adjusted so the temperature difference between the entrance and the exit of water amounts to 15 K.
- When starting (respectively shut down the refrigerating system up to the ideal evaporating temperature) a maximal condensing temperature of 55°C is admissible for a short time.

Processing instructions

The condenser unit is ready to built-in and produced according to the regulations of DIN EN 13215:2017, DIN EN 13771-1:2017, DIN EN 60335-1:2012-10, DIN EN 60335-2-89:2018 as well as DIN EN 378 and has to be installed according to the national installation regulations.



- The installation of the condensing unit must be carried out in such a way that accessibility is guaranteed in case of service.
- The condensing unit is suitable for the refrigerant specified on our product label. Please note the separate informations for handling with the Drop-In or Low-GWP refrigerants from the component suppliers.

- For an automatic temperature control of the condenser unit, an electromechanic temperature control or an electronic control has to be connected by the user. For that purpose a separate connection box had to be clamped to the device.
- The machine compartment must be designed so as to reliably prevent contact with live leads and rotating parts.

The company installing our refrigeration unit in the respective application shall be responsible for the appropriate installation / final assembly of the device or machine, for briefing the operator and repairs.

 The manufacturer of the refrigeration system accepts no liability for damage caused by inappropriate installation, wrong use or handling.

Commissioning instructions

Installation

The refrigerating system / refrigerating kit must be placed or installed so that the equipment is accessible for maintenance and repair works with a minimum of dismantling and fitting efforts. Before commissioning the system, check that no pipes have become deformed as a result of the installation works, thus causing vibration noise. Also check that the fans can run without any obstructions.

Power supply connection

voltage / frequency 230 V / 50 Hz~ or 400 V / 50 Hz 3~

The compressors have to be equipped with a appropriate motor protector as well as with starting relay. Electric installation is connected to the hermetic compressors ready to built-in, see circuit diagram.

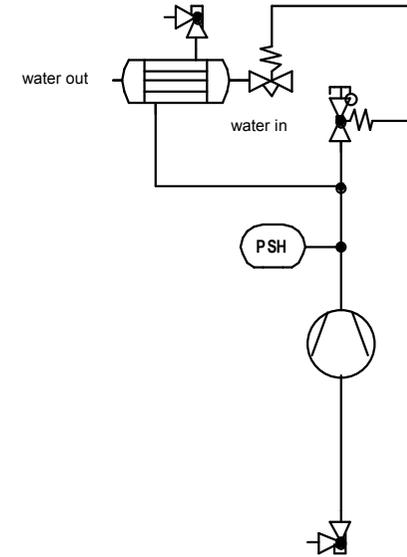
Preparation of the components

- Before delivery of the condenser unit a thorough operation test and a impermeability to gas test will be performed. Do not open the shut-off valves before the system has been connected and carefully evacuated. The condenser unit is provided with an N₂ protective gas filling.
- Temper of the condenser unit to atmospheric temperature of approx. 20°C.
- Installation of the equipment.

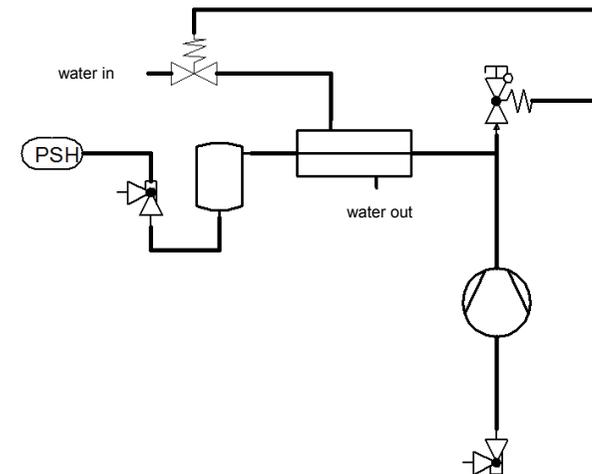
 It must be ensured that the refrigerant specified on the product label is used and that the work is carried out only by experts.

RI-flow-diagram

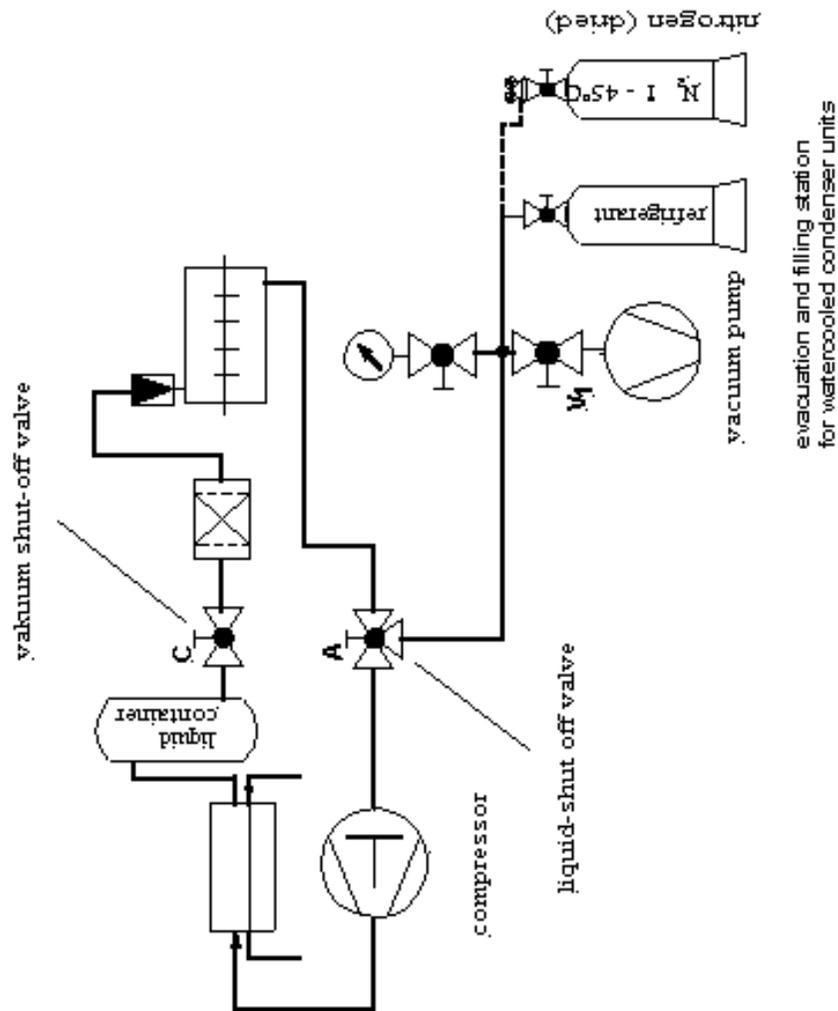
Condensing unit with tube condenser (type B)



Condensing unit with counterflow condenser (type G)



picture 1



Completion of refrigeration equipment

- Pressure pipe has to be connected to the liquid shut-off valve above the filter dryer.
- Connect the suction line to the suction shut-off valve 2 or the suction nozzle. Those connections have correctly to be made by hard soldering procedure, gastight clamping screw or flared joint beginning at the pipe socket or shut-off valve (see drawing 1) in a systematical sequence. The parts for the circulation have to be clean and dry (residual moisture 50 mg/m²) and have to correspond to the DIN EN 378.

Water connection counterflow condenser / tube condenser

Suitable liquids:

The water quality is to be checked before commissioning - only suitable for service, ground and circulation water!

- A dirt filter should be installed in front of the condenser (for example BWT dirt filter mini)
- In mixed installations with other metals, the waters must be conditioned with suitable inhibitors. When using brine, the respective manufacturer's instructions must be observed.
- Use softened water or recommend a water softening system (> 10 ° dH) (Culligan Schwaben)
- Connection of water supply and return: G ½"

Counterflow heat exchanger:

operating pressure / operating temperatur:

refrigerant side: max. 28 bar / -10°C* to 120°C

water side: max. 10 bar / -10°C* to 90°C *(with antifreeze)

Further information for water-cooled heat exchangers see WVS catalog.

Instructions of use

The processor or seller has to hand over these instructions of use for the complete equipment. He is also responsible for expertise instruction of the user.

Cleaning and care



Before carrying out any cleaning and care, always turn off the main plug first.

When carrying out cleaning, make sure no splashing water may get in contact with live parts. Particular care should be taken when cleaning in the proximity of electronic components.



It is not allowed to use high-pressure cleaning devices for cleaning.

Maintenance

An adequate plan for periodic preventive maintenance should be in place for the entire refrigeration plant to ensure its serviceability and reliability of operation, an optimum function, long service life and cost-efficient operation thanks to a low energy consumption and consistently good condition of the equipment corresponding to DIN 31051:2019 / DIN EN 378.



Therefore, it is strongly recommended to conclude a maintenance contract with an authorised refrigeration and air-conditioning firm.

Repair instructions

If the refrigerating system fails, check first whether there is a power failure or whether the unit is switched off (temperature controller, switch). If the trouble is due to another cause, the system may be repaired exclusively by qualified refrigeration and air-conditioning firms.



Important!

Heed the processing instructions for the handling of refrigerants. The requirements specified in DIN EN 60335-1:2012-10, DIN EN 60335 -2-89:2018 as well as DIN EN 378 shall be observed, and only parts specified by the manufacturer in the spare parts list shall be used.

Installation of a refrigeration plant with injection valve

See picture 1

Evacuation of the equipment

To get the best results of the evacuation it is necessary to open the control valve completely.

Attention! Do not apply the refrigerant reserve of the compressor unit for ventilation and intermediate rinsing.

The evacuation of the installed equipment parts by vacuum pipe connection:

- a) Turn on vacuum pump 15 minutes for warming-up and check vacuum limit
- b) evacuate (open V1) until sensitive pressure gauge shows ≤ 100 kPa (≤ 1 bar). After that you have to after-evacuate 5 to 10 minutes, depending on the size of the vacuum pipe
- c) close V1, as soon as sensitive pressure gauge shows 40 kPa, open and close again bottle valve of the refrigerant
- d) open V1 and evacuate part of the equipment as shown in b)
- e) it is recommended to repeat the process as described in c) to e) one or two times to make sure that the admissible foreign gas will not exceed
- f) close V1, switch off vacuum pump and open bottle valve of the refrigerant so long until the equipment shows vapour of refrigerant of 0,2 bar
- g) Detach vacuum pump from the evacuator equipment and screw it to the vacuum corner shut-off valve of the compressor unit. Execute process very quickly so no atmospheric air can penetrate.

Put into operation

- Detach sealing device and the corner shut-off valve of the compressor unit, open shut-off valve and switch on compressor unit.
- For the connection of manometers used for the check-up of control valve adjustment and the working pressure you can also replace the dummy lock at the corner shut-off valve by a screwed steel ferrule.

Examination of density and function

The check-up of density has to be performed by a density detector up to a sensitivity of loss of cooling mixture of 5g/g p.a. by an interior pressure of refrigerant of at least 4 bar.

Possible examinations of the cooling functions have to be adjusted to the refrigeration equipment or device.

Connection to the power supply of the condenser unit

(see circuit diagram)