

Technical parameters for heat pump space heaters and heat pump combination heaters

Model(s):	HU161HA U33 / HN1610H NK3	
Air-to-water heat pump:	YES	~~NO~~
Water-to-water heat pump:	~~YES~~	NO
Brine-to-water heat pump:	YES	NO
Low-temperature heat pump:	~~YES~~	NO
Equipped with a supplementary heater:	YES	~~NO~~
Heat pump combination heater:	YES	NO

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps.

For low- temperature heat pumps, parameters shall be declared for low-temperature application.

Parameters shall be declared for average climate conditions.

Low temperature application

Item	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	13	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j			
$T_j = -7\text{ °C}$	P_{dh}	11.9	kW
$T_j = +2\text{ °C}$	P_{dh}	7.0	kW
$T_j = +7\text{ °C}$	P_{dh}	4.7	kW
$T_j = +12\text{ °C}$	P_{dh}	4.8	kW
$T_j = \text{bivalent temperature}$	P_{dh}	13.5	kW
$T_j = \text{operation limit temperature}$	P_{dh}	13.5	kW
For air-to-water heat pumps: $T_j = -15\text{ °C}$ (if TOL < -20°C)	P_{dh}	x,x	kW
Bivalent temperature	T_{biv}	-10	°C
Cycling interval capacity for heating	P_{cyc}	x,x	kW
Degradation co-efficient(**)	C_{dh}	0.9	

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	126%	
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T_j			
$T_j = -7\text{ °C}$	COPd or PERd	2.40	– or %
$T_j = +2\text{ °C}$	COPd or PERd	3.30	– or %
$T_j = +7\text{ °C}$	COPd or PERd	4.20	– or %
$T_j = +12\text{ °C}$	COPd or PERd	3.80	– or %
$T_j = \text{bivalent temperature}$	COPd or PERd	2.10	– or %
$T_j = \text{operation limit temperature}$	COPd or PERd	2.10	– or %
For air-to-water heat pumps: $T_j = -15\text{ °C}$ (if TOL < -20°C)	COPd or PERd	x,xx	– or %
Cycling interval efficiency	COPcyc or PERcyc	x,xx	– or %
Heating water operating limit temperature	WTOL	65	°C

Medium temperature application

Item	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	11	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j			
$T_j = -7\text{ °C}$	P_{dh}	9.6	kW
$T_j = +2\text{ °C}$	P_{dh}	5.9	kW
$T_j = +7\text{ °C}$	P_{dh}	3.7	kW
$T_j = +12\text{ °C}$	P_{dh}	4.5	kW
$T_j = \text{bivalent temperature}$	P_{dh}	10.8	kW
$T_j = \text{operation limit temperature}$	P_{dh}	10.8	kW
For air-to-water heat pumps: $T_j = -15\text{ °C}$ (if TOL < -20°C)	P_{dh}	x,x	kW
Bivalent temperature	T_{biv}	-10	°C
Cycling interval capacity for heating	P_{cyc}	x,x	kW
Degradation co-efficient(**)	C_{dh}	0.9	

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	117%	
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T_j			
$T_j = -7\text{ °C}$	COPd or PERd	2.46	– or %
$T_j = +2\text{ °C}$	COPd or PERd	3.47	– or %
$T_j = +7\text{ °C}$	COPd or PERd	3.00	– or %
$T_j = +12\text{ °C}$	COPd or PERd	3.60	– or %
$T_j = \text{bivalent temperature}$	COPd or PERd	2.00	– or %
$T_j = \text{operation limit temperature}$	COPd or PERd	2.00	– or %
For air-to-water heat pumps: $T_j = -15\text{ °C}$ (if TOL < -20°C)	COPd or PERd	x,xx	– or %
For air -to-water heat pumps: Operation limit temperature	TOL	-15	°C
Cycling interval efficiency	COPcyc or PERcyc	x,xx	– or %
Heating water operating limit temperature	WTOL	65	°C

Power consumption in modes other than active mode

Off mode	P_{OFF}	0.060	kW
Thermostat-off mode	P_{TO}	0.060	kW
Standby mode	P_{SB}	0.060	kW
Crankcase heater mode	P_{CK}	0.000	kW

Supplementary heater

Rated heat output (*)	P_{sup}	3.5	kW
Type of energy input	Electric		

Other items

Capacity control	Variable		
Sound power level, indoors/outdoors	$L_{WA,indoor}$	63	dB
	$L_{WA,outdoor}$	63	dB
Annual electricity consumption (Low Temp)	Q HE, (Low Temp)	8618	kWh
Annual electricity consumption (Mid Temp)	Q HE (Mid Temp)	7424	kWh

For air-to-water heat pumps: Rated air flow rate, outdoors (Low Temp)	7044	m³/h
For air-to-water heat pumps: Rated air flow rate, outdoors (Mid. Temp)	6560	m³/h
For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	x	
Water Pump EEI	≤	0.20
"The benchmark for the most efficient circulators is EEI ≤ 0,20.";		

For heat pump combination heater

Declared load profile	x		
Daily electricity consumption	Q_{elec}	x,xxx	kWh
Annual electricity consumption	AEC	x	kWh

Water heating energy efficiency	η_{wh}	x	%
Daily fuel consumption	Q_{fuel}	x,xxx	kWh
Annual fuel consumption	AFC	x	GJ

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(*) For heat pump space heaters and heat pump combination heaters, the rated heat output P_{rated} is equal to the design load for heating $P_{designh}$, and the rated heat output of a supplementary heater P_{sup} is equal to the supplementary capacity for heating $sup(T_j)$.
(**) If C_{dh} is not determined by measurement then the default degradation coefficient is $C_{dh} = 0.9$.

Warmer climate

Low temperature application

Item	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	11	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = + 2 °C	P_{dh}	10.5	kW
T j = + 7 °C	P_{dh}	6.8	kW
T j = + 12 °C	P_{dh}	6.6	kW
T j = bivalent temperature	P_{dh}	10.5	kW
T j = operation limit temperature	P_{dh}	10.5	kW
For air-to-water heat pumps: Tj=-15°C (if TOL < -20°C)	P_{dh}	x,x	kW
Bivalent temperature	T_{biv}	2	°C
Cycling interval capacity for heating	P_{cyc}	x,x	kW
Degradation co-efficient(**)	C_{dh}	0.9	

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	118%	
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = + 2 °C	COPd or PERd	2.80	– or %
T j = + 7 °C	COPd or PERd	3.96	– or %
T j = + 12 °C	COPd or PERd	3.22	– or %
T j = bivalent temperature	COPd or PERd	2.80	– or %
T j = operation limit temperature	COPd or PERd	2.80	– or %
For air-to-water heat pumps: Tj=-15°C (if TOL < -20°C)	COPd or PERd	x,xx	– or %
Cycling interval efficiency	COPcyc or PERcyc	x,xx	– or %

Medium temperature application

Item	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	12	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = + 2 °C	P_{dh}	11.5	kW
T j = + 7 °C	P_{dh}	4.2	kW
T j = + 12 °C	P_{dh}	4.3	kW
T j = bivalent temperature	P_{dh}	11.5	kW
T j = operation limit temperature	P_{dh}	11.5	kW
For air-to-water heat pumps: Tj=-15°C (if TOL < -20°C)	P_{dh}	x,x	kW
Bivalent temperature	T_{biv}	2	°C
Cycling interval capacity for heating	P_{cyc}	x,x	kW
Degradation co-efficient(**)	C_{dh}	0.9	

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	125%	
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = + 2 °C	COPd or PERd	1.91	– or %
T j = + 7 °C	COPd or PERd	3.56	– or %
T j = + 12 °C	COPd or PERd	3.69	– or %
T j = bivalent temperature	COPd or PERd	1.91	– or %
T j = operation limit temperature	COPd or PERd	1.91	– or %
For air-to-water heat pumps: Tj=-15°C (if TOL < -20°C)	COPd or PERd	x,xx	– or %
Cycling interval efficiency	COPcyc or PERcyc	x,xx	– or %

Annual electricity consumption (Low Temp)	Q HE, (Low Temp)	4637	kWh
Annual electricity consumption (Mid Temp)	Q HE (Mid Temp)	4812	kWh

Colder climate

Low temperature application

Item	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	18	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = - 7 °C	P_{dh}	11.5	kW
T j = + 2 °C	P_{dh}	6.4	kW
T j = + 7 °C	P_{dh}	5.5	kW
T j = + 12 °C	P_{dh}	6.1	kW
T j = bivalent temperature	P_{dh}	14.5	kW
T j = operation limit temperature	P_{dh}	14.5	kW
For air-to-water heat pumps: Tj=-15°C (if TOL < -20°C)	P_{dh}	x,x	kW
Bivalent temperature	T_{biv}	-15	°C
Cycling interval capacity for heating	P_{cyc}	x,x	kW
Degradation co-efficient(**)	C_{dh}	0.9	

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	111%	
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = - 7 °C	COPd or PERd	3.10	– or %
T j = + 2 °C	COPd or PERd	3.35	– or %
T j = + 7 °C	COPd or PERd	3.50	– or %
T j = + 12 °C	COPd or PERd	3.25	– or %
T j = bivalent temperature	COPd or PERd	2.25	– or %
T j = operation limit temperature	COPd or PERd	2.25	– or %
For air-to-water heat pumps: Tj=-15°C (if TOL < -20°C)	COPd or PERd	x,xx	– or %
Cycling interval efficiency	COPcyc or PERcyc	x,xx	– or %

Medium temperature application

Item	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	14	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = - 7 °C	P_{dh}	7.4	kW
T j = + 2 °C	P_{dh}	5.3	kW
T j = + 7 °C	P_{dh}	3.7	kW
T j = + 12 °C	P_{dh}	4.1	kW
T j = bivalent temperature	P_{dh}	11.3	kW
T j = operation limit temperature	P_{dh}	11.3	kW
For air-to-water heat pumps: Tj=-15°C (if TOL < -20°C)	P_{dh}	x,x	kW
Bivalent temperature	T_{biv}	-15	°C
Cycling interval capacity for heating	P_{cyc}	x,x	kW
Degradation co-efficient(**)	C_{dh}	0.9	

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	100%	
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T j			
T j = - 7 °C	COPd or PERd	2.55	– or %
T j = + 2 °C	COPd or PERd	3.12	– or %
T j = + 7 °C	COPd or PERd	3.03	– or %
T j = + 12 °C	COPd or PERd	3.52	– or %
T j = bivalent temperature	COPd or PERd	2.10	– or %
T j = operation limit temperature	COPd or PERd	2.10	– or %
For air-to-water heat pumps: Tj=-15°C (if TOL < -20°C)	COPd or PERd	x,xx	– or %
Cycling interval efficiency	COPcyc or PERcyc	x,xx	– or %

Annual electricity consumption (Low Temp)	Q HE, (Low Temp)	15376	kWh
Annual electricity consumption (Mid Temp)	Q HE (Mid Temp)	13171	kWh

IMPORTANT SAFETY INSTRUCTIONS

	Read the precautions in this manual carefully before operating the unit.
	This symbol indicates that the Operation Manual should be read carefully.
	This symbol indicates that a service personnel should be handling this equipment with reference to the Installation Manual.

READ ALL INSTRUCTIONS BEFORE USING THE APPLIANCE.

Always comply with the following precautions to avoid dangerous situations and ensure peak performance of your product.

WARNING

It can result in serious injury or death when the directions are ignored.

CAUTION

It can result in minor injury or product damage when the directions are ignored.

WARNING

- Always ground the product.
 - There is a risk of electric shock.
- Do not use a defective or underrated circuit breaker. Use the correctly rated breaker and fuse.
 - There is risk of fire or electric shock.
- Do not use a multi outlet. Always use this appliance on a dedicated circuit and breaker.
 - There is risk of fire or electric shock.
- For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized Service Center. Do not disassemble or repair the product by yourself.
 - There is risk of fire or electric shock.
- Always ground the product as per the wiring diagram. Do not connect the ground wire to gas or water pipes lightning rod or telephone ground wire.
 - There is risk of fire or electric shock.
- Install the panel and the cover of control box securely.
 - There is risk of fire or electric shock due to dust, water etc.
- Use the correctly rated breaker or fuse.
 - There is risk of fire or electric shock.

- Do not modify or extend the power cable. If the power cable or cord has scratches or skin peeled off or deteriorated then it must be replaced.
 - There is risk of fire or electric shock.
- For installation, removal or reinstall , always contact the dealer or an Authorized Service Center.
 - There is risk of fire, electric shock, explosion, or injury.
- Do not install the product on a defective installation stand. Be sure that the installation area does not deteriorate with age.
 - It may cause product to fall.
- Never install the unit on a moving base or a place from where it can fall down.
 - The falling unit can cause damage or injury or even death of a person.
- When the product is soaked (flooded or submerged) in water, contact an Authorized Service Center for repair before using it again.
 - There is risk of fire or electric shock.
- Be sure to check the refrigerant to be used. Please read the label on the product.
 - Incorrect refrigerant can prevent the normal operation of the unit.
- Don't use a power cord, a plug or a loose socket which is damaged.
 - Otherwise it may cause a fire or electrical shock.
- Do not touch , operate, or repair the product with wet hands.
 - There is risk of electric shock or fire.
- Do not place a heater or other heating appliances near the power cable.
 - There is risk of fire and electric shock.
- Do not allow water to run into electric parts. Install the unit away from water sources.
 - There is risk of fire, failure of the product, or electric shock.
- Do not store or use or even allow flammable gas or combustibles near the product.
 - There is risk of fire.
- Wiring connections must be secured tightly and the cable should be routed properly so that there is no force pulling the cable from the connection terminals.
 - Improper or loose connections can cause heat generation or fire.
- Safely dispose off the packing materials. Like screws, nails, batteries, broken things etc after installation or service and then tear away and throw away the plastic packaging bags.
 - Children may play with them and cause injury.

- Make sure to check that the power device is not dirty, loose or broken and then turn on the power.
 - Dirty, loose or broken power device can cause electric shock or fire.
- In unit the step-up capacitor supplies high voltage electricity to the electrical components. Be sure to discharge the capacitor completely before conducting the repair work.
 - An charged capacitor can cause electrical shock.
- When installing the unit, use the installation kit provided with the product.
 - Otherwise the unit may fall and cause severe injury.
- Be sure to use only those parts which are listed in the service parts list. Never attempt to modify the equipment.
 - The use of inappropriate parts can cause an electrical shock, excessive heat generation or fire.
- Do not use the product in a tightly closed space for a long time. Perform ventilation regularly.
 - Oxygen deficiency could occur and hence harm your health.
- Do not open the front cover or grille of the product during operation. (Do not touch the electrostatic filter, if the unit is so equipped.)
 - There is risk of physical injury, electric shock, or product failure.
- If strange sounds, smell or smoke comes from product, immediately turn the breaker off or disconnect the power supply cable.
 - There is risk of electric shock or fire.
- Ventilate the product room from time to time when operating it together with a stove, or heating element etc.
 - Oxygen deficiency can occur and hence harm your health.
- Turn the main power off when cleaning or repairing the product.
 - There is risk of electric shock.
- Take care to ensure that nobody especially kids could step on or fall onto the unit.
 - This could result in personal injury and product damage.
- Take care to ensure that power cable could not be pulled out or damaged during operation.
 - There is risk of fire or electric shock.
- Do not touch any electric part with wet hands. you should be cut power before touching electric part.
 - There is risk of electric shock or fire.
- Do not touch refrigerant pipe and water pipe or any internal parts while the unit is operating or immediately after operation.
 - There is risk of burns or frostbite, personal injury.

- If you touch the pipe or internal parts, you should be wear protection or wait time to return to normal temperature.
 - Otherwise , it may cause burns or frostbite, personal injury.
- Do not touch leaked refrigerant directly.
 - There is risk of frostbite.
- Make sure to install mixing valve (field supply). The mixing valve is setting the water temperature. The hot water temperature maximum values shall be selected according to the applicable legislation.
- Do not heated to a temperature of more than provided by the product.
 - Otherwise, it may cause fire or damage of product.
- This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons.
- Do not step on the unit and do not put anything on it.
It may cause an injury through dropping of the unit or falling down.
- Use a vacuum pump or Inert (nitrogen) gas when doing leakage test or air purge. Do not compress air or Oxygen and Do not use Flammable gases. Otherwise, it may cause fire or explosion.
 - There is the risk of death, injury, fire or explosion.
- The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
- The appliance shall be stored in a room without continuously operating open flames (for example an operating gas appliance) and ignition sources (for example an operating electric heater).

CAUTION

- Two or more people must lift and transport the product.
 - Avoid personal injury.
- Do not install the product where it will be exposed to sea wind (salt spray) directly.
 - It may cause corrosion on the product.
- Keep level even when installing the product.
 - To avoid vibration or noise.
- Do not install the product where the noise or hot air from the unit could damage or disturb the neighborhoods.
 - It may cause a problem for your neighbors and hence dispute.
- Always check for gas (refrigerant) leakage after installation or repair of product.

- Low refrigerant levels may cause failure of product.
- Do not use the product for special purposes, such as preserving foods, works of art, etc. It is a consumer AWHP, not a precision refrigeration system.
 - There is risk of damage or loss of property.
- Do not block the inlet or outlet of air flow.
 - It may cause product failure.
- Use a soft cloth to clean. Do not use harsh detergents, solvents or splashing water etc.
 - There is risk of fire, electric shock, or damage to the plastic parts of the product.
- Do not step on or put anything on the product.
 - There is risk of personal injury and failure of product.
- Do not insert hands or other objects through the air inlet or outlet while the product is operating.
 - There are sharp and moving parts that could cause personal injury.
- Be cautious when unpacking and installing the product.
 - Sharp edges could cause injury.
- If the refrigerant gas leaks during the repair, do not touch the leaking refrigerant gas.
 - The refrigerant gas can cause frostbite (cold burn).
- Do not tilt the unit when removing or uninstalling it.
 - The condensed water inside can spill.
- Do not mix air or gas other than the specified refrigerant used in the system.
 - If air enters the refrigerant system, an excessively high pressure results, causing equipment damage or injury.
- If the refrigerant gas leaks during the installation, ventilate the area immediately.
 - Otherwise it can be harmful for your health.
- Dismantling the unit, treatment of the refrigerant oil and eventual parts should be done in accordance with local and national standards.
- Do not expose your skin or kids or plants to the cool or hot air draft.
 - This could harm to your health.
- Use a firm stool or ladder when cleaning, maintaining or repairing the product at an height.
 - Be careful and avoid personal injury.
- The hot water may not be available immediately, during disinfection

operation or depending on the amount of hot water.

- During floor heating operation it is important to limit the minimum/maximum water temperature.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

MAINTENANCE AND SERVICE

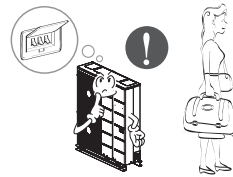
Maintenance activities

In order to ensure optimal availability of the unit, a number of checks and inspections on the unit and the field wiring have to be carried out at regular intervals, preferably yearly. This maintenance should be carried out by your local agreed technician.

When the unit is not going....

⚠ CAUTION

- If the product is not used for long time, we strongly recommend NOT TO SWITCH OFF THE POWER SUPPLY to the product.
- When the power is applied for the first time, operate the product after preheating for 2 hours. To protect the unit by increasing the oil temperature of the compressor.
- If power is not supplied, some special product-protecting actions (such as water pump anti-locking) will not performed.



Call the service immediately in the following situations

- Anything abnormal such as burning smell, loud noise etc. happen. Stop the unit and turn the breaker off. Never try to repair by yourself or restart the system in such cases.
- Main power cord is too hot or damaged.
- Error code is generated by self diagnosis.
- Water leaks from unit.
- Any switch, breaker (safety, earth) or fuse fails to work properly.

User must carry routine checkup & cleaning to avoid unit's poor performance.

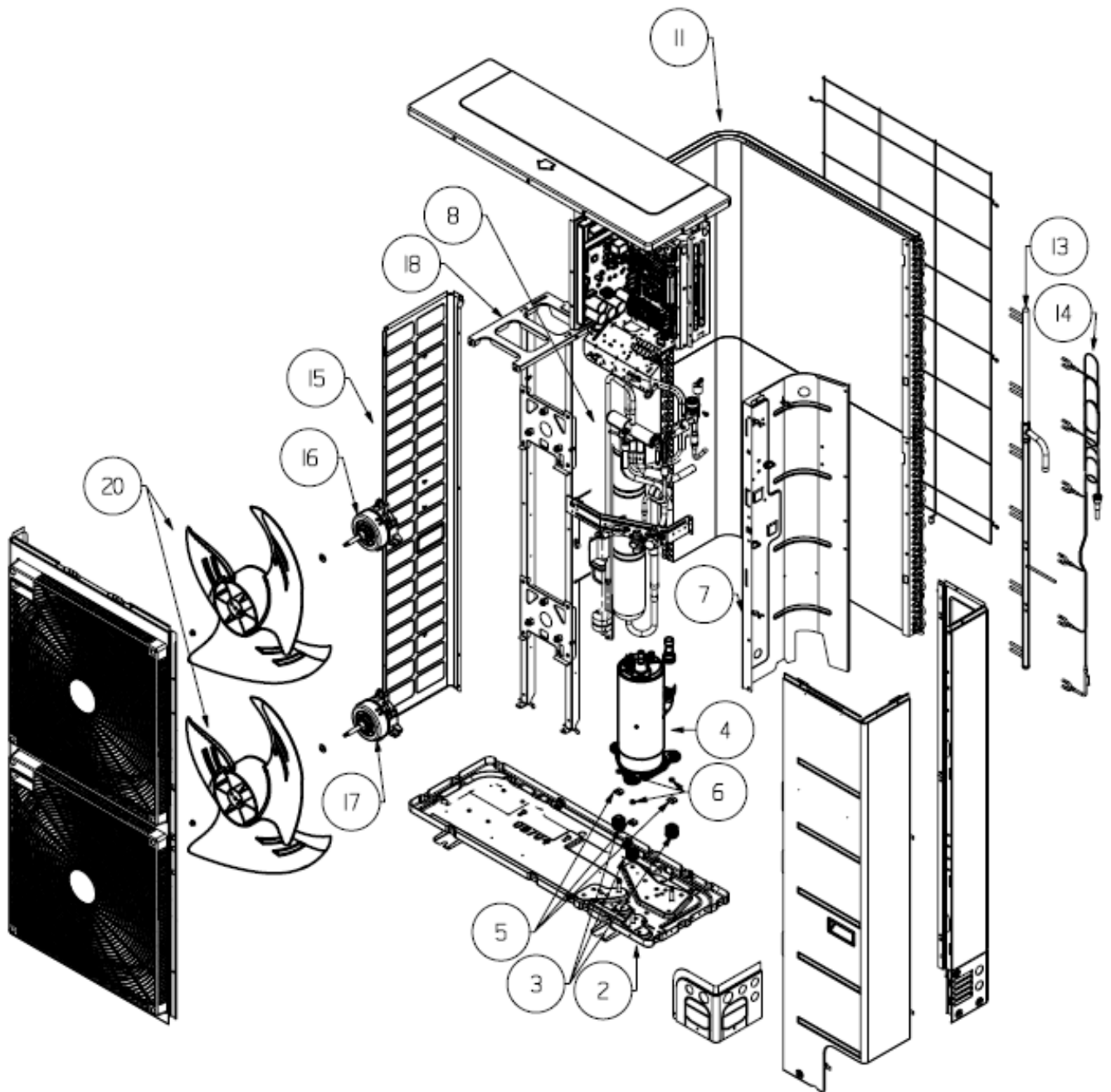
In case of special situation, the job must be carried out by the only service person.

⚠ CAUTION

- In the case of water with added brine, the drain valve of shut-off valve must be connected to a recovery container.
- Do not touch the water stirred with the brine.
- When the brine in the pipe is leaked, do not operate the unit and contact dealer, seller or an authorized service center.

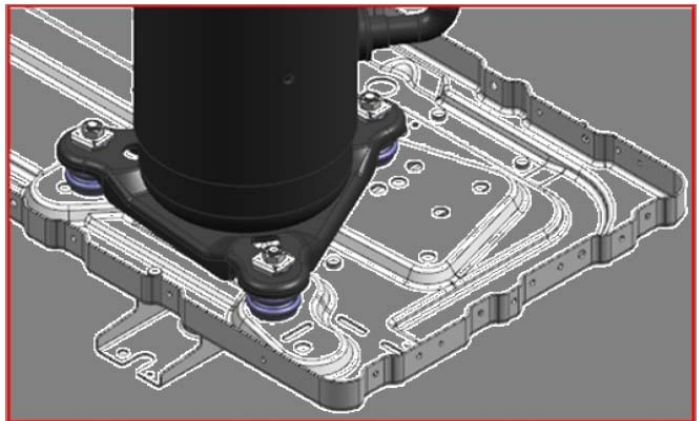
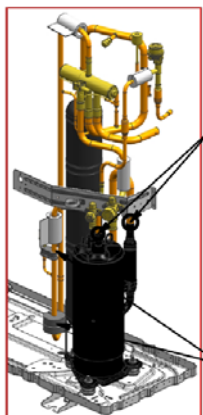
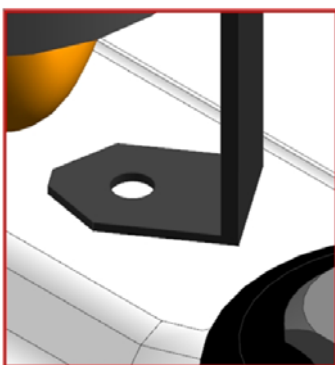
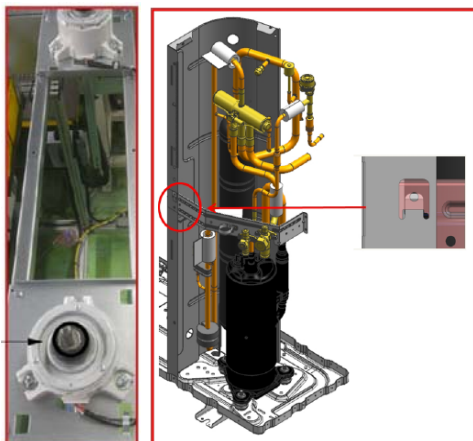
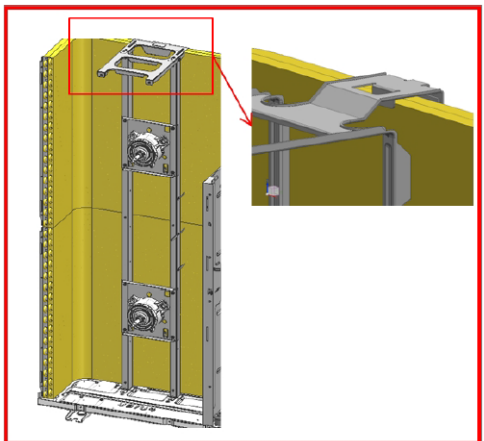
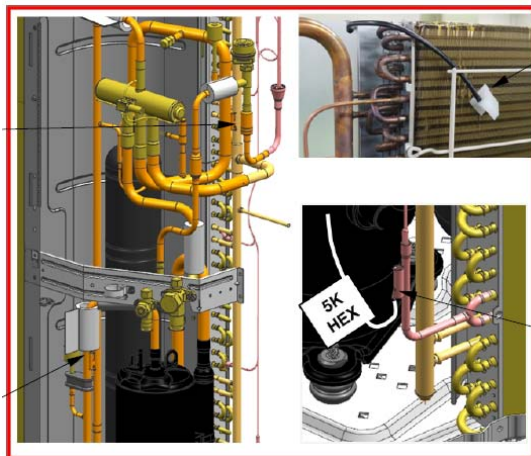
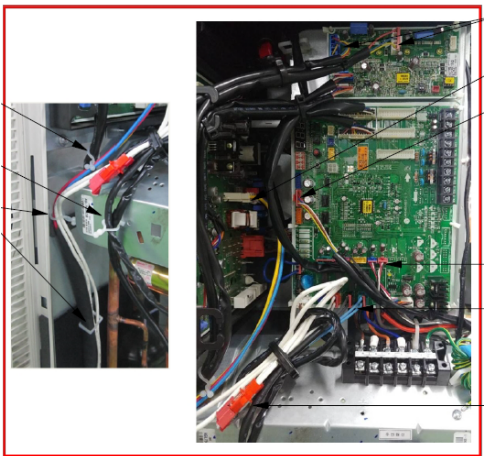
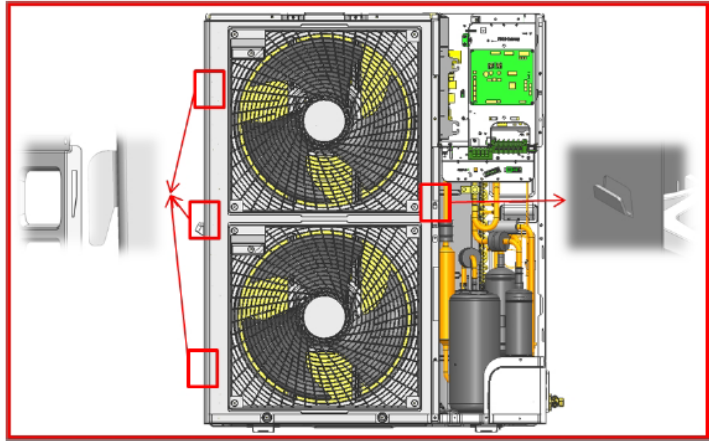
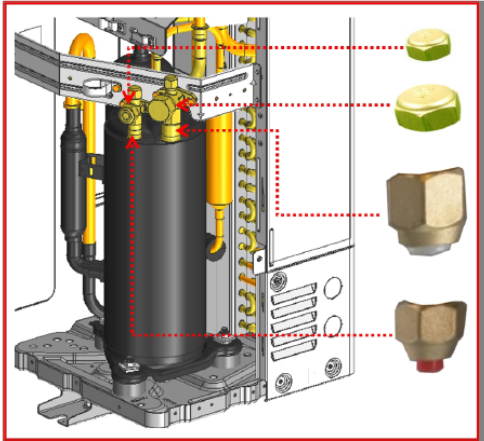
DISASSEMBLY GUIDE (1/2)

“Attention! Users should never attempt disassembly on their own! Please contact a professional!”



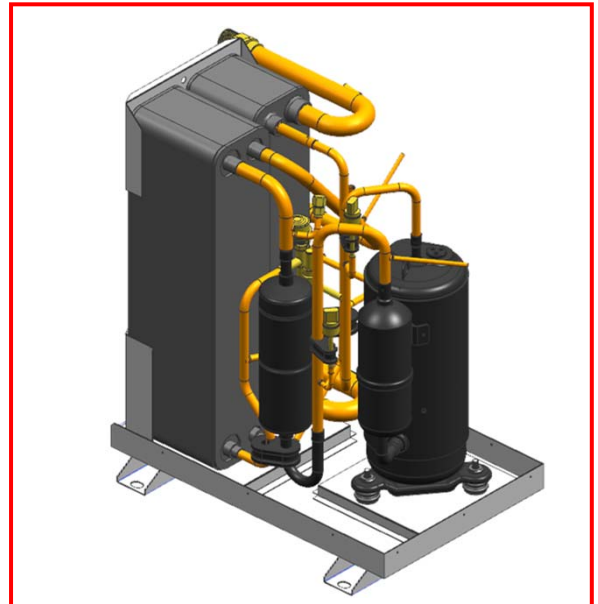
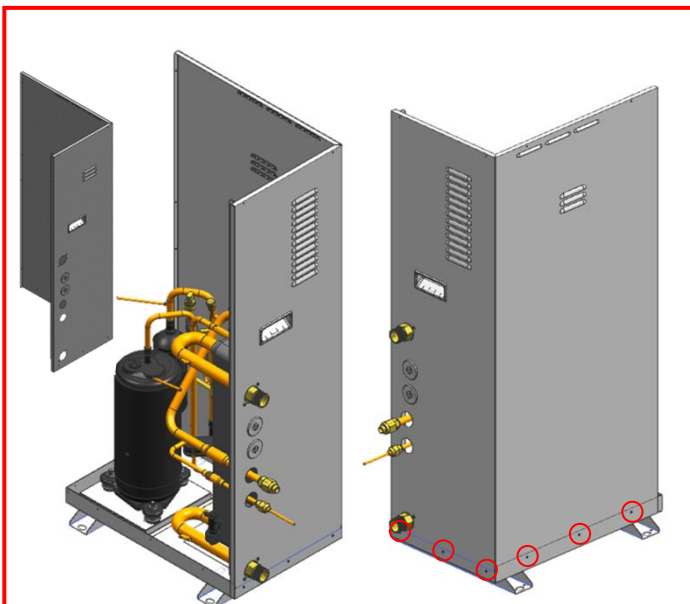
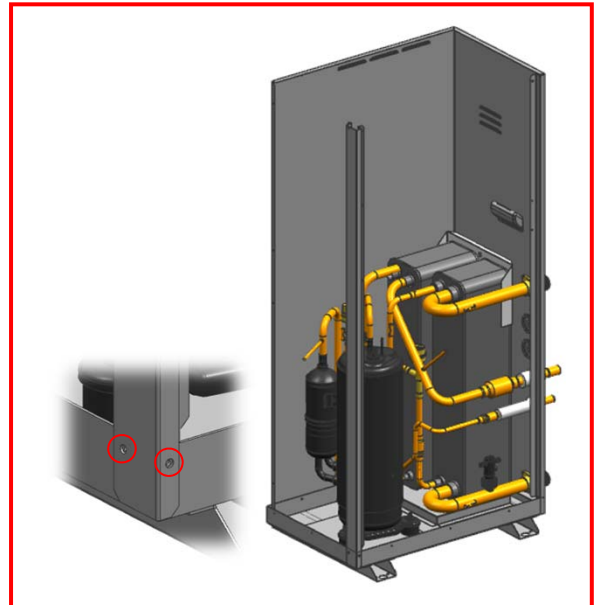
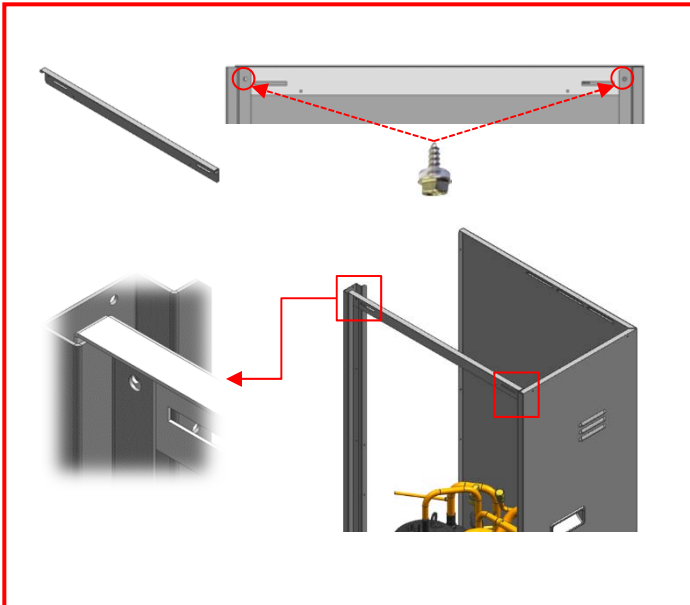
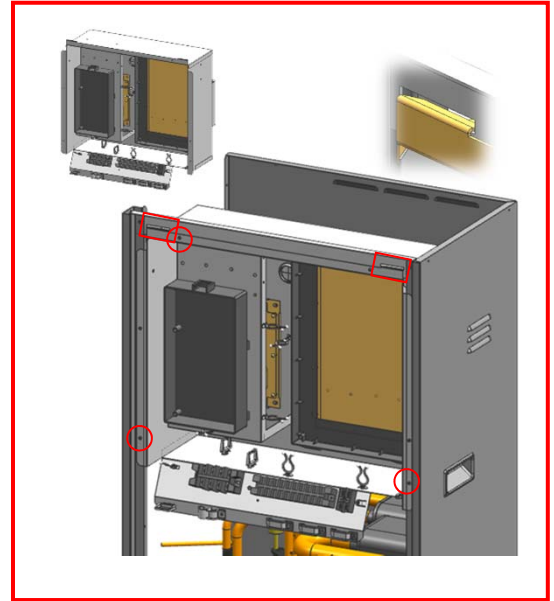
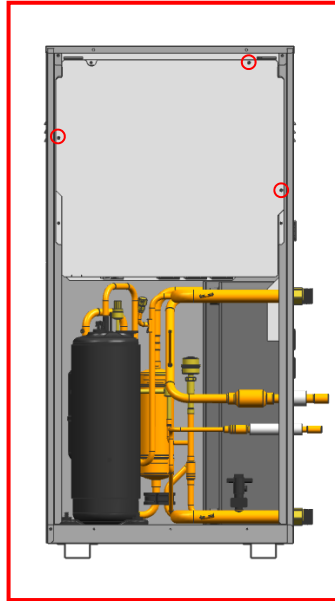
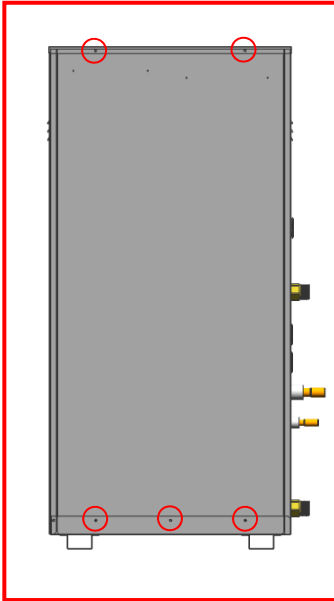
DISASSEMBLY GUIDE (2/2)

“Attention! Users should never attempt disassembly on their own! Please contact a professional!”



DISASSEMBLY GUIDE (1/2)

"Attention! Users should never attempt disassembly on their own! Please contact a professional!"



DISASSEMBLY GUIDE (2/2)

"Attention! Users should never attempt disassembly on their own! Please contact a professional!"

