

GENERAL USER GUIDE



Thank you for choosing Hydroch products.

Please share with us your complaints, satisfaction or thoughts about the Hydroch products you are using or will use.



Before using our products, be sure to read the installation information, maintenance information and recommendations. It should be ensured that the product is used with the accurate materials.

The product must be transported horizontally during transportation and assembly.

Get The Best Performance From Our Products:

- Accurate operating temperatures should be selected for the products.
- Appropriate sizes for products should be selected.
- Dimension, capacity and technical drawings of the product should be checked before implementation.
- The product must comply with the refrigerant and working fluid.
- The product should be stored under appropriate conditions before being used.
- It must be assembled with accurate and suitable material.
- Installation and maintenance should be done by fully equipped, authorized persons.

Transportation and Storage Conditions

- Hydroch is not responsible for any damages or malfunctions that may occur during transportation or storage of the product.
- Pay attention and importance during transportation. The copper bundles of the products are sensitive and can be damaged.
- The product is not under warranty if the label of the product has been removed or damaged.



- To the lifting eyebolts on the product; chain, rope etc. fasten it and use a crane or forklift to transport the product. Make sure to connect the product balanced according to the center of gravity. The center of gravity is located on the head side of the products.

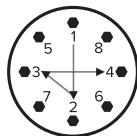
- Do not remove the protection covers and plugs of the product during storage.
- Store our products in dry, room temperatures and non-humid environments. (We recommend using a dehumidifier.)
- Our products are sent as painted as standard. Paint increases the life of the product. Paint is not fully resistant to bumps or scratches. Periodic painting of products extends their lifespan against external factors.
- Products are not under warranty against natural disasters. Consider this when deciding on storage.
- Hydroch cannot be held responsible for all problems that may arise from storage conditions.

Installation Terms:

- It is recommended that the products be installed by authorized technical service personnel.
- Discharge the safety gas inside the product before it is installed. Products are delivered with 6 bar nitrogen gas as standard.
- There may be loosening in the gasketed connections of the products over time. Against this, check all the screws of the product. Tighten the loose screws to the appropriate torque setting.
- Perform the tightening according to the circular tightening procedure. (Torque setting and tightening process are shown in the table.)

Bolt Size	M6	M8	M10	M12	M14	M16	M18	M20
Tightening Torque (Nm)	10,5	25	50,5	86,5	137	212	291	416

* Torque values are calculated for using 8.8 rated steel bolt.



- Install the product horizontally. Slope can cause performance changes.
- The product must be installed and operated within the temperature and pressure limits.
- Make connections according to the water inlet and outlet labels on the product.
- Use the refrigerant and connection parts in the dimensions described in the product's technical drawings and catalogues.
- The product must have an air vent valve in its fittings. The pressure vessel products should definitely have a **safety valve**.
- Immobilize the product to the place of use with the necessary fittings. Avoid vibration.
- No foreign matter should be allowed to enter, fall or be forgotten inside the product during installation. Before the product is put into use, make sure to check the inside of it. Hydroch cannot be held responsible for any damages or malfunctions and causes that may arise in these and similar situations.

Application and Operation:

- Make sure that the installation and - or the water tank are clean. Check that the necessary filters are installed.
- Turn all valves to open position.
- Start to operate the product gradually.
- After the product is completely filled with refrigerant, you can close the supply valves.
- Take the necessary actions to prevent the damages that may occur due to the water hammer.
- If you are not going to use the product for a long time, store and discharge the fluids in the product or take precautions against freezing and corrosion with chemicals.

- For products that are operated below freezing temperature, definitely use chemicals that prevent freezing. (The use of antifreeze for water is shown in the table.)

Freezing Degree °C	Ethylene Glycol %	Propylene Glycol %
-10	24	27
-24	36	39
-27	46	49
-40	53	55

* Sample antifreeze usage for some values. For others check the sources.

- It is important that there is no external and flow-induced vibration in the product. All vibrations cause problems inside the product and shorten its useful life.
- Flow rates and amounts should be within the recommended limits for the product. No more or less. Higher flow amount causes vibration in copper bundles. This vibration will damage the copper bundles in a short time.

Domestic Water Quality:

It is necessary to comply with the specified conditions in order to minimize the physical and corrosion effects caused by the water used in the products. The quality of the water can affect both the performance and life of the product. Hydroch cannot be held responsible for malfunctions that may occur as a result of non-compliance with the terms.

- Sulfate ions (SO₄²⁻) in the circulating water cause corrosion and holes on the copper surface. Sulfate ions should be <30mg/l.
- Fluorine (F⁻) ions cause acid formation and corrosion. Its amount should be <0.1mg/l.
- Ammonium ions (NH₄⁺) are very harmful to copper. Ammonium ions adversely affect the working life of copper pipes. The water in use should not contain ammonium ions.
- Chlorine ions (Cl⁻) cause hole formation in copper pipes. It should be <10 mg/l in the water used.
- Iron ions (Fe²⁺) interact with the oxygen in the water and cause rust and pollution in the installation. Iron ions should not be in the water used.
- It is recommended that the water hardness used be between 1mmol/l and 2.5mmol/l. Too much water hardness creates scale in copper pipes, prevents heat transfer and causes a decrease in the capacity of the product.
- The ideal pH value of the water should be between 7.4<pH<8.4
- The increase in the salt content of the water causes the electrical conductivity to increase, therefore, higher corrosion formation occurs. If you use sea water, the salinity rate varies according to the sea to be used.
(Mediterranean 25g/l, Marmara Sea 16g/l, Aegean Sea 22g/l, Black Sea 12g/l, Persian Gulf 44g/l, Baltic Sea 7.8g/l)
- If the amount of dissolved oxygen in the water increases, it causes abrasions.

Maintenance:

- Do not clean the product with unsuitable systems. (Drills, high pressure waters etc.)
- Do not clean with abrasive chemicals. Before using chemicals, check the compatibility of the product with the material of manufacture.
- To clean the pipes inside the product, open the covers and clean the inside of the pipes with a stick brush of appropriate size.
- If there is anode on the product, check it during maintenance. If necessary, change it by asking the manufacturer.
- To clean the tube bundle, remove the tube bundle from the body sleeve. Be very careful when removing the tube bundle. When removing the pipe bundle, do not reflect the weight on the pipes and prevent the pipe bundle from being damaged during removal.
- You can clean the pipe bundles with hot water and a brush or with suitable chemicals.
- New gaskets must be used when collecting the product back. Old gaskets may lose their properties due to tears and crushing.

Attention!

Never open the covers and connection points of the products when they are under pressure. Do not operate on the product with welding, etc. and piercing machines or objects. These operations can cause injury or even death by explosion.

Fluids in the product may be harmful, avoid direct contact. Do not blow compressed air into the product while working with flammable or similar fluids.

Recycle

Products contain recyclable materials. Find out about end-of-life recycling rules in force in your country.

Guarantee

Hydroch products are guaranteed for 12 months from the date of delivery.

Defects in the products during the warranty period are accepted as in writing if they are not caused by the user.

At Hydroch's discretion, defective products will be repaired at no charge to the user or replaced at Hydroch's manufacturing plant.

The warranty will not be valid in case of unauthorized repair, modification, misuse and application, incorrect values of domestic water, incorrect installation, inappropriate transportation and maintenance.

Warranty also will not be valid in case of use that does not comply with laws and regulations.



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