



**Installation and user manual
of demineralizer
Basic 5**



IMPORTANT INFORMATION!

Strict quality tests are performed with our every demineralizer. After this process, the device is carefully cleaned. It may happen that some water remain within the system, or packing marks are visible.

We apologize for this inconvenience and thank you for your understanding.

We also advise to perform rinsing cycle before first use. We also recommend it if the device has not been used for several days.

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1. User safety

Before using, please carefully read this manual containing information about safe installation, usage and maintenance. This manual should be kept in case of necessity to use it during the system performance.



Symbol meaning



1.1 Installation and service

- All procedures related to installation and service should be performed by an authorized technician. Installation and repairs performed by individuals without proper qualifications may result in system malfunction and may be dangerous to the user.
- Before start, the demineralized should be unpacked and checked if there is no damage. In case of damage, it should be described in the shipment documentation.
- The device must be repaired only by an authorized technician. You must not attempt to repair the device by yourself.
- Close the main water supply valve before plugging in the device.
- Feed water should match the requirements defined in 1.3. You should not use water that is not bacteriologically fit or water of unknown quality.
- Before plugging in the device, make sure that the device voltage fits the voltage in your power network. You must not use the device, if the plug, the power supply cable or the device are damaged.
- Make sure, that the power supply cable is not damaged during the device relocation.
- Warning, the demineralizer is heavy. You should be careful when relocating the device.
- The device should be situated in a suitable place.
- For long-lasting, effective performance, the device should be regularly serviced.
- The producer is not responsible for any damage occurred during the improper system performance.



1.2 Feed water parameters

Hydrolab's devices are intended for purifying tap water or initially purified water.

Pressure – Basic demineralizer may be supplied with water of pressure from 4 bar (minimum) to 6 bar (maximum). If it is necessary, you should use a reduction.

Temperature – Basic demineralizer should not be installed in rooms of low or high temperatures. Feed water temperature should be between 4°C and 38°C. Supplying the demineralizer with water of temperature higher than 38°C will cause damage.

Salinity (TDS) – amount of salts dissolved in feed water should not exceed 900 mg/dm³.

Humidity – maximum relative humidity in the room, where the demineralizer will be installed, should not exceed 80%.

Feed water hardness should not exceed 250 mg CaCO₃/dm³.

Fe (iron) – should not exceed 0,2 mg/ dm³.

In case of any occurrence of a parameter that exceeds the recommended values, initial filtration is advised. Please contact our service.

1.3 Power supply parameters

Voltage: 220-240V

Frequency: 50Hz

Maximum power consumption: 2A

1.4 Dimensions

Demineralizer Basic 5 (width x depth x height): 130x350x510 mm

2. General information

Basic demineralizers are laboratory devices, producing ultrapure water for analytical and instrumental purposes. They are fully automated and maintenance free, and fit the requirements of a modern laboratory in area of pure water supply.

The device can supply washers, autoclaves etc. It provides water of third and second purity class, according to ISO 3696, ASTM, CLSI.

Purified water conductivity: 0,2 – 0,8 µS/cm.



2.1 Delivery contents

- Basic 5 demineralizer, with cartridges

- Power supply cable 230V

- Demi water faucet

- sediment prefilter 5um 10" + housing key

- connectors: tap

- user manual

- connection to a disinfecter / an autoclave (option)

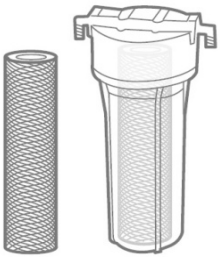
2.2 Performance

Basic demineralizer runs under tap water pressure. Purification process is fully automated and maintenance free. Water purification stages:

- Mechanical filtration
- Carbon filtration
- Ion exchange demineralization



2.2.1 Mechanical and carbon filtration



rys. b1

Prefilter 5 μm (rys. b1) – sediment filter initially filters the tap water, preparing it for reverse osmosis. It contains a polypropylene cartridge rolled up on a filtration core situated in a transparent filter housing. It holds all kinds of mechanical contamination larger than 5 μm .

Module A2 (sediment-carbon-softening):

- sediment filter 1 μm is used in the initial filtration, preparing tap water for reverse osmosis. It contains a polypropylene cartridge rolled up on a filtration core situated in a transparent filter housing. It holds all kinds of mechanical contamination larger than 1 μm ,
- carbon filter – is used in used in the initial filtration, preparing tap water for reverse osmosis. The filter is filled with a granulated activated carbon situated in the filter housing. Water contamination is sorpted on the activated carbon,

2.2.2 Demineralization on a mixed ion exchange bed

Filter H5 – filter contains beds of mixed ion exchange resins in ionic form H^+/OH^- situated in the housing. Water is purified on the deionization columns, where remaining mineral salts are captured. In the ion exchange process ions existing water and particles with a specified current are bound by ionites. After this process, the conductivity decreases $< 1 \mu S/cm$.

3. Technical specification

The device is equipped with:

- sediment prefilter $5 \mu m$
- module A (sediment-carbon)
- ion exchange module H6
- conductometer measuring demineralized water conductivity, equipped with an alarm informing about necessity to replace ion exchange resins
- manometer measuring feed water parameters
- control system
-
-
-



3.1. Materials

All used materials are inert with water:

- all wires are made of polyurethane
- connectors and fittings – polyethylene or polyvinylchloride,
- ion exchange column – polypropylene,
- distributors and column filtration nozzles – polyethylene,
- conductometric probe – polyethylene and stainless steel



4. Installation

GENERAL INFORMATION BEFORE INSTALLATION

- Best results are achieved when the demineralizer is fed by softened water.
- Feed water should match the requirements defined in 1.3 (temperature, pressure, etc.)
- Performing quality analysis of feed water allows for matching a right initial purification.
- Cartridges should be replaced with a frequency that is recommended further in this manual.

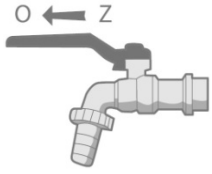


4.1 Demineralizer installation

Remember to place the fillers in the wires (connected by the caps). In case of quick couplings, just plug in the wire to the connector (make sure it is evenly cut).

Step 1

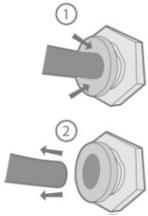
Put the device in a suitable place.



Step 2

Supply valve installation.

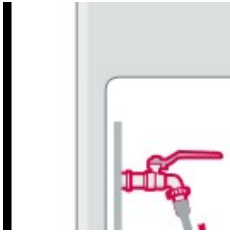
Due to the different local conditions, supply valve given by the producer has two reductions: $\frac{1}{2}$ " and $\frac{3}{4}$ ". You should make sure, that the main water supply valve is closed and the water in the supply pipe is not under pressure. You should make sure, that the demineralizer is supplied with cold water.



Step 3

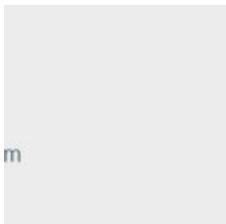
Connections for the tank, demi water faucet, feed water and outflow are located on the side of the device: „**FEED WATER**“, „**TAP WATER**“, „**DRAIN**“, „**TANK**“.

They are closed by wires. To remove them, hold the black quick coupling ring and pull out the wire.



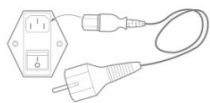
Step 4

Sediment prefilter 5 μ m should be installed between the supply connector and the demineralizer („**FEED WATER**“).



Step 5

Connect the demi water faucet with a proper connector on the demineralizer („**TAP WATER**“).



Step 6

Connect the power supply cable to the power socket and plug it into the device's power supply socket.

5. Turning on the demineralizer

Step 1

- Check every connection.

Step 2

- Demineralizer's sealing pressure test.
- Open the feed water valve.
- Open „**TAP WATER**“, when water appears – close it.
- Check the demineralizer's sealing.

5.1 Turn off the demineralizer

Procedures that should be performed when turning off the device:

- Disconnect the device from the power supply.
- Close the feed water valve.

5.2 Demineralizer operation

Basic demineralizer works under the tap water pressure. Basic demineralizer is fully automated. Using the faucet the user can obtain demineralized water of conductivity $\chi < 1 \mu\text{S/cm}$, matching the standards of ISO 3696, ASTM, CLSI for second and third purity class. Demi water faucet contains a spiral wire (2m reach).

6. Monitoring functions

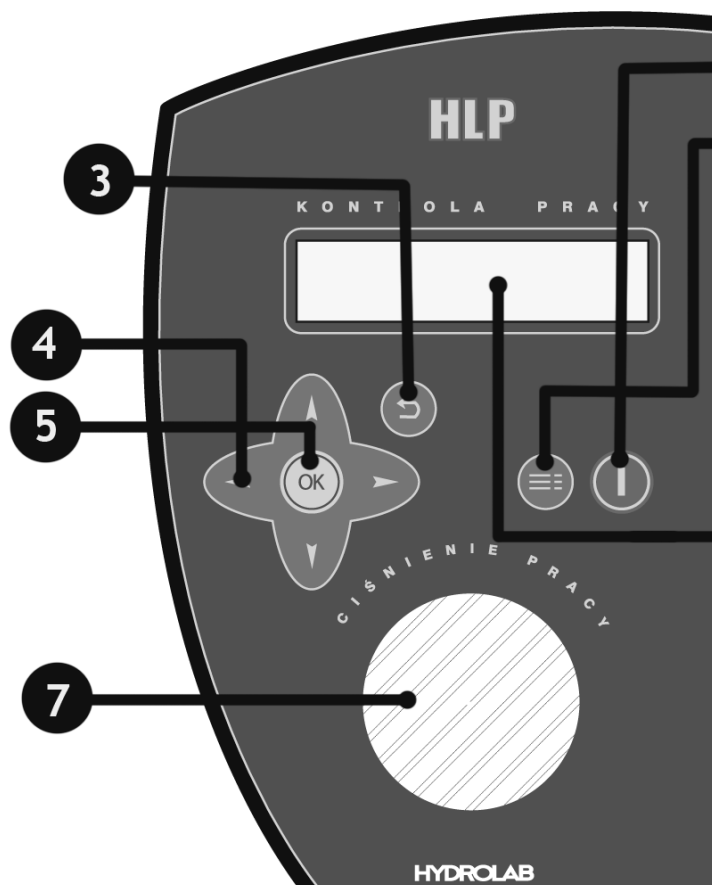
Basic demineralizer has a built-in control system informing about the necessity to replace the filtration cartridges. It is possible to connect it with a computer, allowing for an individual set of alarm levels and service frequency. The device is also equipped with a conductometer measuring conduction and temperature of the purified water.

6.1 Control and measurement panel

The device is equipped with a microprocessor control and measurement system, that contains:

- display screen LCD 2x16 characters,
- conductometer measuring conductivity and temperature of purified water,
- clock displaying date and time,
- alarm informing about necessity to replace the initial filters:
„Replace A module”
- alarm informing about necessity to replace the ion exchange module:
„Replace H6module”
- built-in RS 232 connector intended for communication with PC, allowing individual adjustment of service frequency and alarm levels

6.2 Protection functions



LEGEND:

1. TURN ON/TURN OFF
2. ENTER MENU
3. RETURN TO MENU
4. CURSORS
5. CONFIRM/SAVE
6. DISPLAY SCREEN
7. MANOMETER

1. Turn on/Turn off (1)

- Device name/Date/Time
- Conductivity/Temperature

2. Enter menu (2)

- Select parameter

- Module A replacement deadline*

Select parameter
->Module A date

- OK (5)

Module A date
2014.03.15

- Module A replacement deadline preview

- Down: Module working time

Module A date
->Period:06 mths

If alarm is present you can see „Replace A module” communicate.

- Return to menu (3)

- Down: Purified water conductivity alarm

Select parameter
->Conduct. alert

- OK (5)

- Individual adjustment of conductivity parameters

Conduct alert.
G=020 uS

If alarm is present you can see „Replace H6module” communicate depending on your device type.

- Return to menu (3)

- Down: Sound on/off

- OK (5)

Select parameter
->Alert sound

- Select: >YES <NO

Alert sound
-> YES

- Return to menu (3)

- Down: Set date and time

Select parameter
->Set clock

- OK (5)
- Edit and set date and time using cursors (4)

Set clock
2015.03.22 09:30

- Return to menu (3)
 - Down: service contact

Select parameter
->Service inform.

- OK (5)
- Phone number, authorized service e-mail

Call
www.....



7. Maintenance

Demineralizer maintenance procedure is to replace the supplies with a proper frequency.

These are:

- initial filters: prefilter 5 µm, module A (sediment-carbon)
- ion exchange module – module H6.



7.1 Initial filters replacement

Initial filters: prefilter 5 µm, module A. The replacement frequency depends on the amount and quality of filtered water. Because of hygienic reasons, the control should not be performed not rarer than every six months. This procedure may be performed by the user. System informs the user about necessity to replace the initial filters on the display screen. A „Replace A module” message appears, and the system triggers a sound alarm as well.

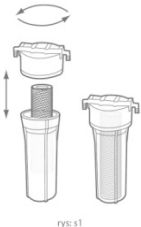
Step 1

Turn off the device and close the feed water valve.

Step 2

5 µm prefilter cartridge replacement

- Twist off the filter body by hand or using a key
- In the body there is a gasket – don't lose it.
- Pull out the filtration cartridge and replace it by a new one
- Close the filter body with the filter head, until a slight resistance, and then close it to the end



Step 3

Module A replacement

- Open the back cover
- Plug out the exhausted module A.
- Connect a new module, check the flow directions
- Close the back cover



Step 4

- Open the feed water valve
- Check if there are no leakages
- Reset the alarm:

- Select parameter (2)

- Initial filters replacement deadline

Select parameter
->Module A date

- OK (5)

Module A date
->Reset

- OK (5)

Are You sure??
-> YES

- Choose YES using left/right arrows (4) and then press OK (5)

- Return to menu (3)

To change the alarm period – press OK (5) and change it using cursors Up/Down (4) and then again „ok” (5).

- Return to menu (3)

7.2 Ion exchange filter replacement

The replacement procedure should be performed, when the purified water conductivity rises above 20 $\mu\text{S}/\text{cm}$. The system informs the user about the necessity to replace these filters. On the display screen a „Replace H7module” monit appears, and the system triggers a sound alarm as well.

Step 1

- Turn off the device and close the feed water valve.

Step 2

H6 module replacement:

- Open the back cover.
- Disconnect the exhausted H6 module.
- Connect a new filter, check the flow directions.
- Close the back cover.

Step 3

- Check if there are no leakages.

Step 4

The message „Replace H6module” disappears automatically, when the purified water conductivity goes below 20µS/cm.

WARNING:

After the resin replacement, the first 10 dm³ of purified water should be poured out to rinse the systems' connections, because it does not match the required parameters.

8. OSH

You particullary should not:

touch the switches with wet hands,
touch the pressure wires with sharp tools

9. Demineralizer malfunctions

Some malfunctions occur due to not performing simple maintenance procedures or oversights and can easily be removed without calling for an authorized service. Unjustified calls will be charged, it applies also to the warranty period.

WARNING:

Don't attempt to repair the device by yourself. The repairs performed by unauthorized persons may cause serious damage and be dangerous to the user.

