magnetic® Heating Water Regulator HWR plus

Instructions for Use

magnetic® ...einfach besser

magnetic GmbH & Co. KG
Am Richtbach 5
D-74547 Untermünkheim

Tel. +49 79 44 9 41 99-0
Fax +49 79 44 9 41 99-19

info@magnetic-online.de
www.magnetic-online.de

Managing Shareholder:
Michael Bader

VAT ID No.: DE 255 018 730
Commercial Register No.: HRA 571362

Version:2018 / 4 BA HWR EN

magnetic® HWR plus

Heating Water Regulator

Contents

magnetic® ...einfach besser

How to select the correct Heating Water Regulator?

*The selection of the magnetic HWR plus depends on the system water content.
The size selection is also dependent on the amount of oxygen ingress into the entire system, which especially occurs at screwed connections, plastic pipes, control elements, etc. The content volume of the tank or buffer tank made of steel is not taken into account because practically no oxygen diffusion takes place there.

You calculate that with the following formula: **Heating capacity of the system (kW) x 20 = System water content (l).**

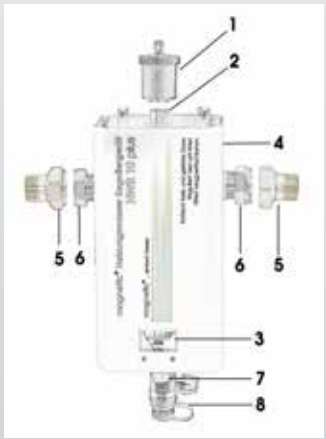
Data and dimensions

Boiler material: chrome steel V4A

HWR 10, 15, 25 plus

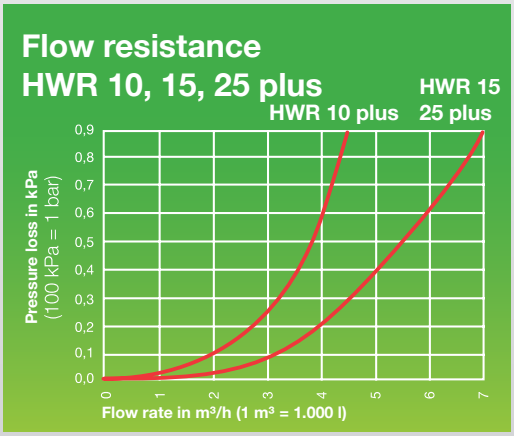
Dimensions in mm	HWR 10 plus	HWR 15 plus	HWR 25 plus
A Total height	450 mm	604 mm	750 mm
B1 Top edge – coupling centre	187 mm	205 mm	205 mm
C Wall – coupling centre	75 mm	136 mm	136 mm
D Installation length incl. screw coupling	310 mm	440 mm	440 mm
E Width	150 mm	275 mm	275 mm
F Inlet / Outlet	1 "	1 ½ "	1 ½ "
G Drain	¾ "	¾ "	¾ "
H Minimum distance to top	80 mm	400 mm	400 mm

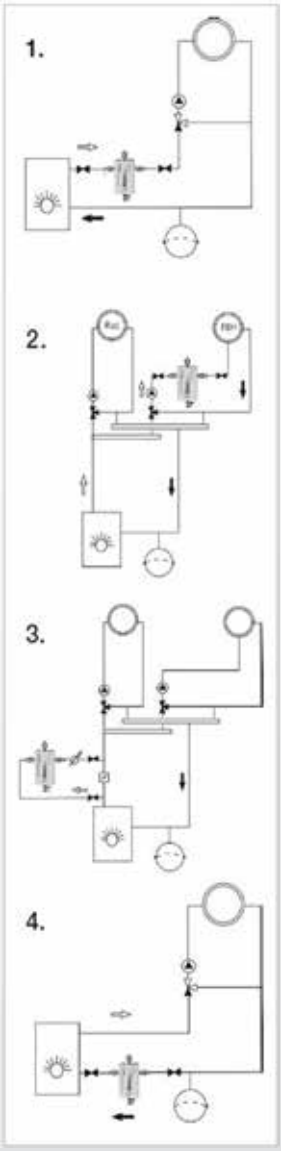
Performance Data	HWR 10 plus	HWR 15 plus	HWR 25 plus
System water content*:	< 500 l	< 1.500 l	< 5.000 l
Flow rate (direction not fixed):	< 3 m³/h	< 5 m³/h	< 7 m³/h
Coupling size:	1 "	1 ½ "	1 ½ "
Max. operating pressure:	< 10 bar	< 10 bar	< 10 bar
Max. temperature:	< 90° C	< 90° C	< 90° C



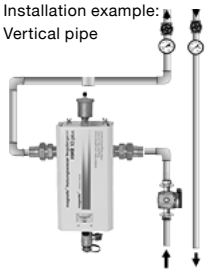
Scope of Supply (HWR 10, 15 ,25 plus):

1. Vent
2. Vent coupling
3. 10 mA meter
4. Reaction vessel, insulated
5. Screw coupling 1 ½ " (1")
6. Screw coupling 1 ½ " (1")
7. High-power magnet
8. Drain tap





Installation example:
Vertical pipe



The correct installation

- optimum function
- reduced function
- no function

1. Installation in main supply line

The magnetic® HWR plus should be installed in the main supply line (full flow) of the heating system for a maximum removal of micro gas bubbles. Circulating impurities will then also be filtered out well via the supply line.

Degassing	Anode protection	Sludge removal
●	●	●

2. Installation in a system segment (Group)

The magnetic® HWR plus can be installed in the group circulation if the source of the oxygen diffusion is known (e.g. the floor heating group).

Degassing	Anode protection	Sludge removal
○	●	○

3. Installation in the bypass

The magnetic® HWR plus can be installed in the bypass. A flow rate meter must then also be used. The degassing and filtration performance reduces as the part-flow reduces.
However, the water conditioning by the sacrificial anode is still effective down to a minimum flow rate of 2 l/min.

Degassing	Anode protection	Sludge removal
○	●	○

4. Installation in the main return line

The magnetic® HWR plus can be installed in the main return line if the function of the sludge collector is more important. The water conditioning by the sacrificial anode is also effective in the return line but micro gas bubbles can hardly be removed (suitable for thermal pump heating systems).

Degassing	Anode protection	Sludge removal
●	●	●

System water requirements

No chemical water additives

The magnetic® Heating Water Regulator may not be used in combination with chemical water additives. Corrosion inhibitors can impair the disintegration of the sacrificial anode and produce undesired chemical compounds. Inhibitor residues must be removed by a thorough cleaning of the heating system water before an HWR device is used. Suitable for that is a dispersing cleaner, like the **magnetic® Cleaner for Heating Systems**.

Rinsing of sludgy systems

Systems that have so much sludge that hydraulic problems occur should be flushed before the installation of the HWR plus.
The boiler and any hot water tank must also be flushed. Damage can occur under large deposits of limescale and corrosion residues in the boiler despite protective measures because the heat exchange and the water circulation are impaired there.

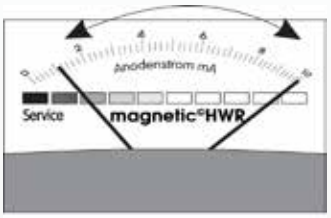
Function indicator

The HWR indicator (amp meter) measures the current level which the anode produces in relation to the cathode. It is a direct indication for the corrosion aggressiveness of the system water. The HWR system is self-regulating. The anode automatically works stronger with aggressive water than with fully regulated water and then also shows a stronger current level on the amp meter. The function indicator is permanently connected.

The change in the meter needle deflection over a period of time also gives an indication of the anode condition.

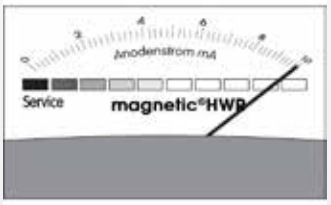
The anode current normally reduces in the summer period because there is no circulation via the HWR plus.

An oxidation of the anode is likely if the indication is already in the red area only a few weeks after the commissioning. That must be checked.



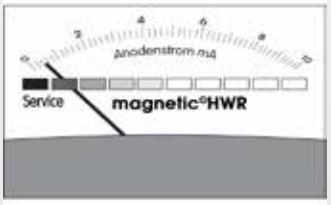
The meter needle deflection is between 10% and 100%.

That is the normal working range. The less the deflection is, the less the anode is having to work.



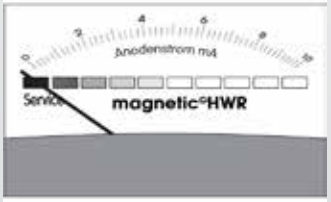
The meter needle deflection is always at 100%.

The anode is working strongly. The selected HWR model could be too small or the water could contain too many aggressive substances if the needle remains in this position for longer than one heating period.
Action: Heating system water analysis, talk to your consultant.



The meter needle is permanently near the red area and falls to “0” when the HWR plus is drained.

The anode no longer has to work because the water is fully demineralised.
Action: Observation, heating system water analysis if necessary.



The meter needle falls completely into the red area some years after the commissioning.

The anode is worn out.
Action: The device must be opened and the anode replaced.

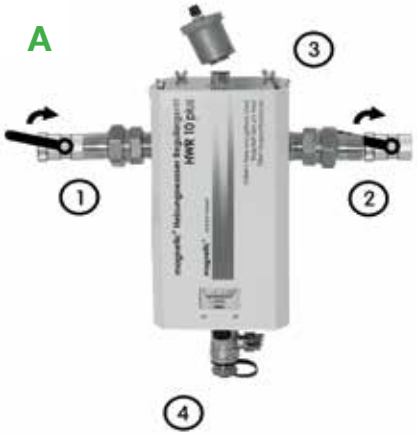
The meter shows an absolutely constant value even with a drained HWR plus.

Function meter is broken.
Action: Meter must be replaced.

Sludge removal HWR 10, 15, 25 plus

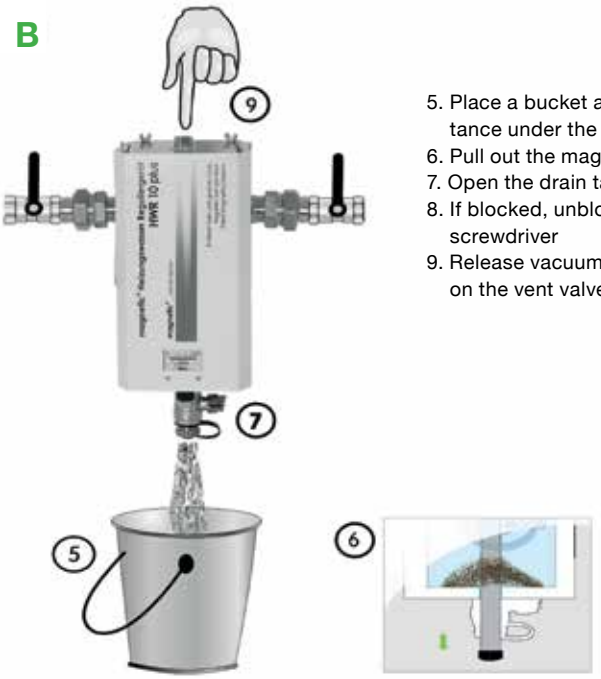
If the HWR plus is installed in ‘full flow’, switch off the circulation pump for sludge removal.

A



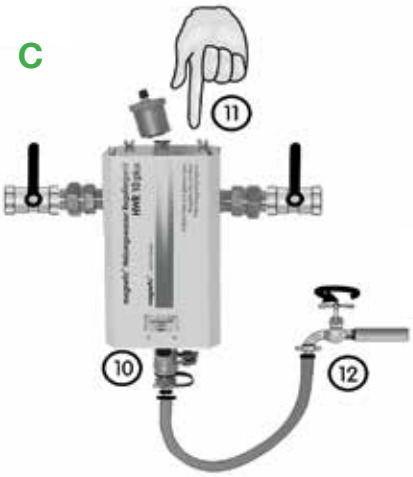
1. Close the inlet valve
2. Close the outlet valve
3. Unscrew the vent
4. Remove the cap from the drain tap

B



5. Place a bucket a short distance under the HWR plus
6. Pull out the magnetic rod
7. Open the drain tap
8. If blocked, unblock with a screwdriver
9. Release vacuum by pressure on the vent valve

C



10. Connect filling hose to the drain tap
11. Hold vent valve pressed or screw vent on again
12. Fill the HWR plus with fresh water and repeat stage B until the HWR plus is clean. Proceed with stage D with a filled HWR plus.

D

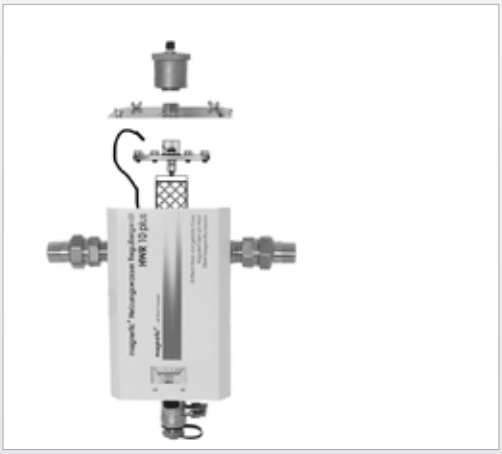
13. Close drain tap and replace cap
14. Install the vent
15. Open the inlet valve
16. Open the outlet valve

How often should the sludge removal be done?

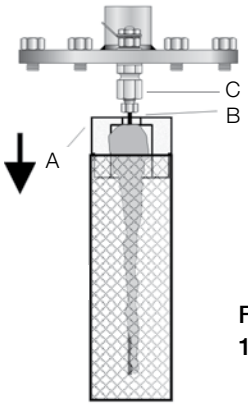
Corrosion residues that are carried along with the water flow settle in the HWR plus and must be removed in the maintenance phase.
A too frequent sludge removal is undesired because it promotes the oxygen corrosion.
Fresh water contains about 100 times more oxygen than that permissible in the heating system for proper operation.

You should therefore note the amount of collected sludge and adjust the sludge removal intervals accordingly.
A sludge removal from the HWR plus should not be done more than twice per heating period and should not be done less often than once every 2 years

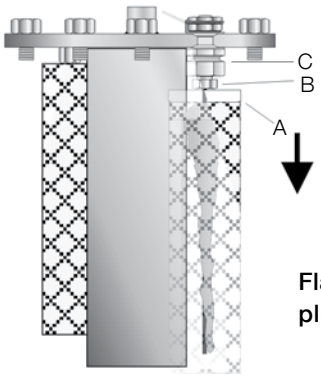
Anode replacement HWR 10, 15, 25 plus



1. Close the shut-off valves and drain the HWR plus.
2. Screw out the four wing screws on the lid.
3. Screw off the vent.
4. Raise the lid.
5. Remove the insulation.
6. Pull the female disconnect off from the male disconnect of the anode.
7. Open the flange.
8. Pull the filter housing (A) downwards so that the conical screw (B) is exposed.
9. Hold the insulation screw (C) with the 13mm spanner and loosen the conical screw (B).
10. Install a new seal.
11. Reassemble in reverse order with a new anode.



Flange HWR 10 plus



Flange HWR 15, 25 plus

Troubleshooting

Before installation	**Remedy**
Chemical contamination	We recommend a complete system rinsing before the installation of the HWR plus if the system water is contaminated with chemicals.
Prior damage due to corrosion	Before the installation, old heating systems must be checked for hidden corrosion damage, which can be hidden by deposits (boiler return flow in the horizontal area, rust bubbles on pipes and distributors). The loosening of deposits by the HWR plus can result in water escaping from the system in the case of hidden corrosion damage.
After installation	
High oxygen ingress is occurring	Check that the expansion vessel is OK.
System water is not clear after one year	Check if a circulation through all system parts is taking place. All system parts must be flushed if that is not possible.
Corrosion and sludge formation are occurring	Check if the HWR plus model was selected in accordance with our recommendations and is correctly installed. Has the maintenance taken place? Contact us to arrange a water analysis for fault correction.
Water is escaping from the HWR plus	The quick-action vent is usually defective if water drips out of the insulation. It must then be replaced.
The function meter shows no deflection despite working anode	Briefly test the meter with a 1.5 V battery. The meter must be replaced if it does not show a deflection. If there is a deflection, it could be that there is no water in the HWR plus or that the anode is not correctly installed. The anode could be covered with an oxide coating. It must then be cleaned with a brass wire brush.

Service record

Installer:

Property:

installed on:

Serial number:

Interval for sludge removal:

Interval for maintenance:

Date	Work	Meter	mA	Company

magnetic GmbH & Co. KG
Am Richtbach 5
74547 Untermünkheim

Tel. +49 79 44 9 41 99-0
Fax +49 79 44 9 41 99-19

info@magnetic-online.de
www.magnetic-online.de

Managing Shareholder:
Michael Bader

VAT ID No.: DE 255 018 730
Commercial Register No.: HRA 571362

www.magnetic-online.de