ASSEMBLY AND OPERATION MANUAL

Pressurized flow through water heater
PERFECT 3500, 4000, 4500, 5000, 5500

Advantages of pressurized flow through water heaters “PERFECT”

- Serious electric power saving comparing to boiler
- Instant and permanent warm water consumption
- Installed electronic power switch prolongs significantly heater’s life
- Possibility to use the heater with very low water pressure (ca 0,06 MPa)
- Thanks to installed electronic control system the most unreliable mechanical parts such as membrane, traditional electrical contacts are eliminated. Significant prolongation of the appliance life and improved reliability is reached in result.

1. Application

Pressurized flow through water heater PERFECT is designed for instant delivery of warm water to sanitary equipment as wash basins, sinks. In order to economical use the heater should be installed as close as possible to the served equipment.
This appliance is fully designed to be used in moisture environment. However splashing with water is prohibited. Maximum delivered water temperature should not exceed 30ºC.

One should remember that heater output depends on:
- its electric power;
- water stream flowing through the appliance. The bigger flow, the lower water temperature on exit (table 1);
- voltage drop in electrical system. For instance: voltage drop by 10% results in lowering heating output by 19% (table 2). Voltage drop below 185V causes blockage by electronic system possibility of appliance switching on;
- supplied water temperature.

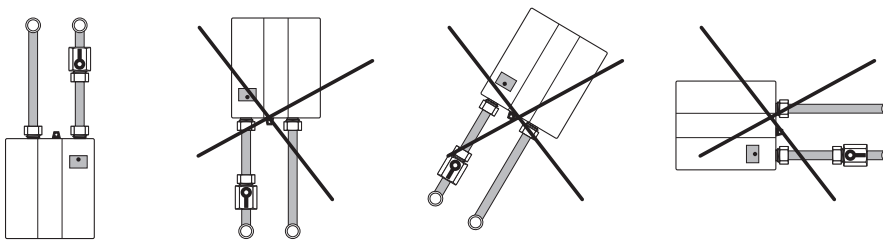
Table 1. Supplied water temperature 15ºC

Water flow	[l/min]	**1,5**	**2**	**2,5**	**3**	**3,5**
Perfect 3500	[^{O}C]	48	40	35	32	–
Perfect 4000	[^{O}C]	53	43,5	38	34	–
Perfect 4500	[^{O}C]	59,5	48,5	41	37	–
Perfect 5000	[^{O}C]	62,5	50,5	43,5	39	35
Perfect 5500	[^{O}C]	–	54	46	41	37,5

Table 2. Heater power depending on voltage in electric system

Voltage	[V]	**230**	**220**	**210**	**200**	**190**
Perfect 3500	[W]	3500	3200	2917	2646	2390
Perfect 4000	[W]	4000	3640	3320	3024	2720
Perfect 4500	[W]	4500	4095	3735	3400	3060
Perfect 5000	[W]	5000	4550	4150	3780	3400
Perfect 5500	[W]	5500	5030	4585	4158	3753

CAUTION!
It is strictly forbidden to assembly, disconnect and incline the heater on sides while power is switched on.
The device can only work in position showed on drawing below.
Trying to start the device in position other than proper one will result in damaging a heating element and deprivation of guarantee.



GOOD **WRONG** **WRONG** **WRONG**

Fig.1

2. Safety regulations

- Heater can be installed by authorized person only.
- Heater must permanently be connected to electrical system equipped with earthing connector and differential switch.
- Heater can work in position showed on drawing 1 only.
- Never exchange earthing wire with live wire.
- Heater can only work using perfectly working safety devices.
- Heater must not be installed in rooms where temperature drops below 0ºC.
- Heater should not be installed in aggressive or subject of explosion environment.
- Heater can only be used when is in perfect technical condition.

- In case of heater's defect immediately cut off water and power supply.
- All service and maintenance works can be completed only with power switched off
- Only original spare parts can be used for repair
- Casing should never be disassembled while power is on
- Avoid electronic system to be splashed with water
- In case of heater's defect or improper work switch off power and shut off water supply using stopping – suppressing valve.
- Water tap drain tube sprinkler (strainer) should be cleaned regularly.
- Power supply system should be periodically checked up (voltage drops), particularly electrical connections.
- Water flow should be suppressed in such way to avoid excessive temperature (take care of children).

3. Wiring system

- The heater can only be used previously connected to earthing system.
- Wiring system should be equipped with differential switch.
- Minimum wire cross section and fuse value should be selected according to table 3.
- Before heater's installation check state of wiring system and particularly terminal.
- After heater's connection to wiring system measure voltage drop under load.

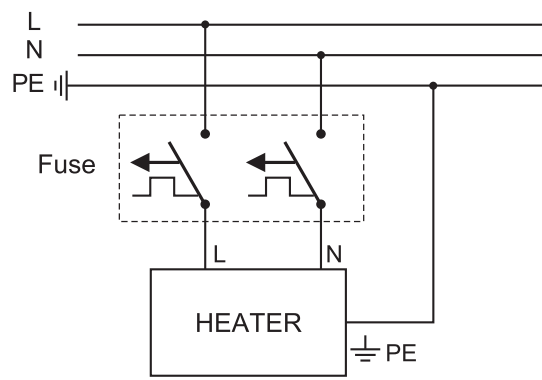
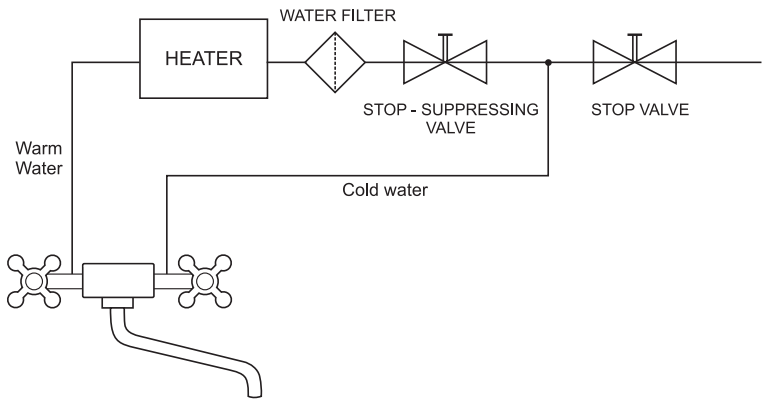


Fig.2

Type	Perfect 3500	Perfect 4000	Perfect 4500	Perfect 5000	Perfect 5500
Minimum wire cross section [mm²]	1,5	2,5	2,5	2,5	2,5
Current intensity [A]	15,2	17,4	19,6	21,7	23,9

Table 3

4. Water system



5. Assembly

CAUTION!
The device can only work in position showed on drawing No 1.
Heater's installation in position other than proper one or without water filter can damage heating element and cause deprivation of guarantee.
Do not screw connecting hoses with high power in order to avoid threads damage.
Do not seal stub pipe thread with tow or Teflon™ sealing tape.
Save electronic system against water splashing.

1. Apply pattern on place the heater will be installed. Mark places for drilling holes for anchoring pegs and cable.
   Cable can be connected to the heater in two ways as presented on drawings 3 and 4.

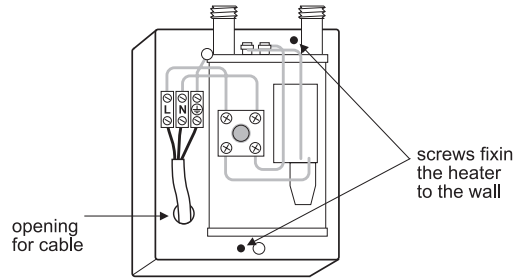


Fig. 3

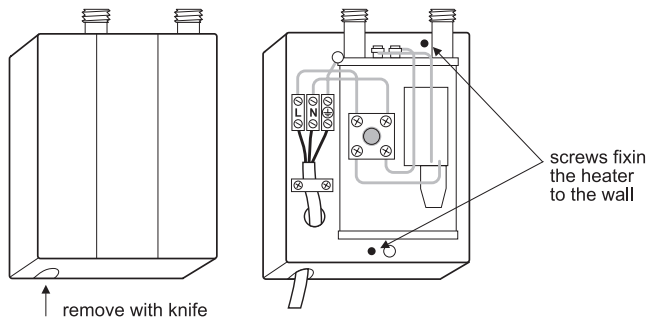


Fig. 4

2. Screw heater on.
3. Connect heater in a way showed on fig. 6. Remember to fit water filter as showed on fig. 5. Use flexible hoses designed for pressurized system with rubber gaskets. Do not exchange heater outlet (red colour) with intake (blue colour).

Caution! Do not screw up hoses nuts too tightly in order to avoid heater's pipes thread damage. Water filter removal voids guarantee. Filter must be installed as showed on drawing No 5.

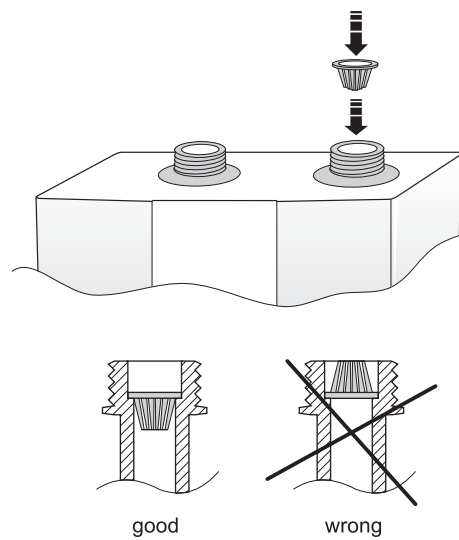
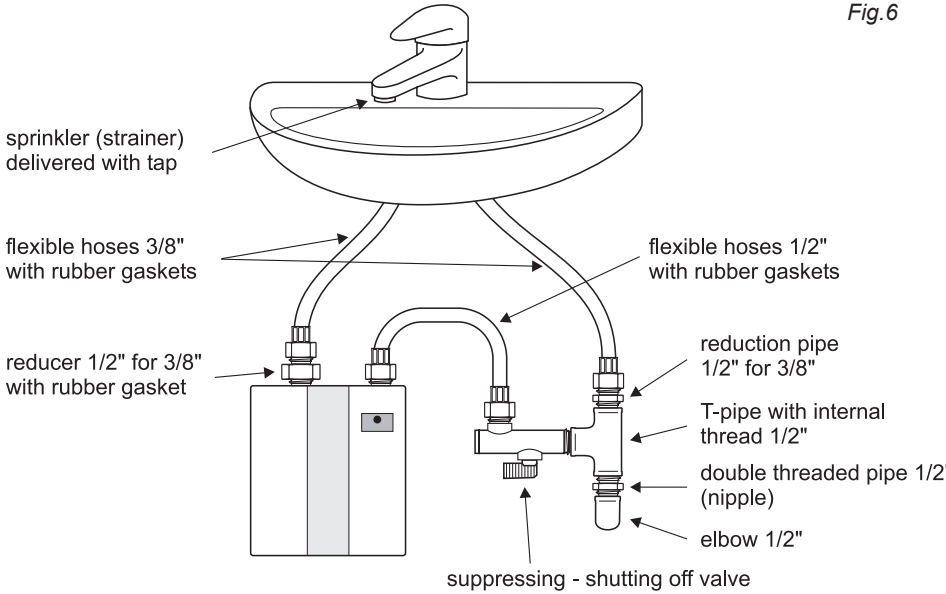
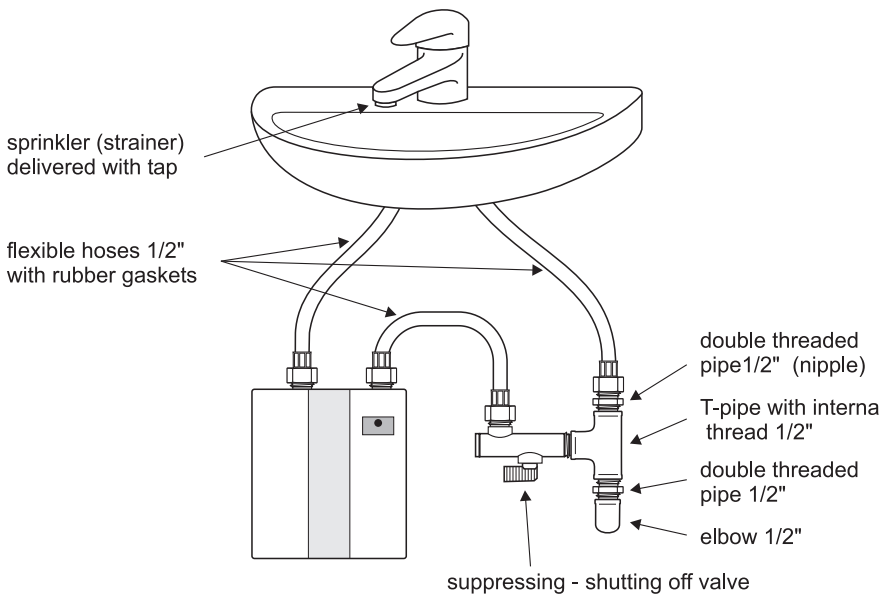


Fig. 5

Fig.6



Heater connection to tap assembly with hoses 3/8”



Heater connection to tap assembly with hoses 1/2”

4. Open water valve and check all connections tightness. In case electronic system is splashed with water, remove it by blowing with compressed air.
5. Open full water flow through the heater in order to deaerate heating element.
6. Connect heater to the power installation.

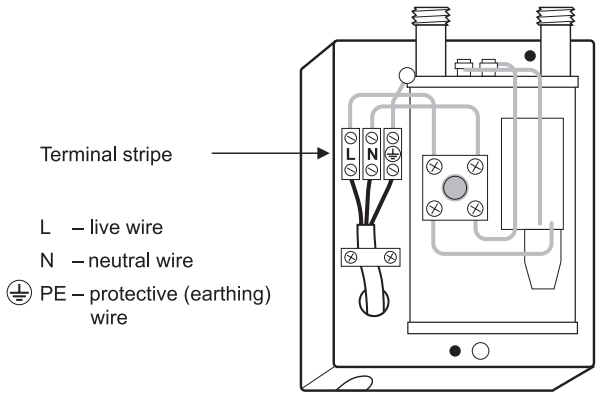


Fig. 7

Caution!
Every single time after re-instalation of the housing it is necessary to check carefully whether blue and red gaskets on pipe ends fit close to the heater's housing nests.

7. Change sprinkler (strainer) mounted on drain pipe for the one delivered by heater manufacturer.
8. Adjust heater according to chapter 6.
9. Remember to clean strainer periodically from dirt.

6. Adjustment

Caution!
Water temperature in flow through heater depends on water flow. The higher flow, the lower temperature.
Too high water temperature can cause thermal protection device to stop heater work. Unlock by pressing thermal protection button

1. Open warm water tap.
2. Using suppressing – shutting off valve reduce water flow carefully in order to reach water temperature ca 42ºC.

7. Water filter cleaning

1. Turn off water inflow to suppressing – shutting off valve and disconnect from power line.
2. Disconnect hose from heater intake.
3. Take out filter (using small screw driver – see fig. 8).

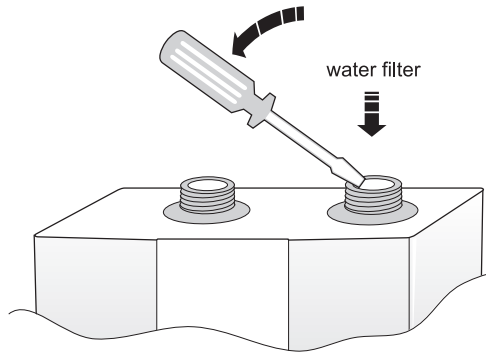


Fig. 8

4. Remove dirt from filter.
5. Install filter into heater intake with basket bottom down (Fig. 9)

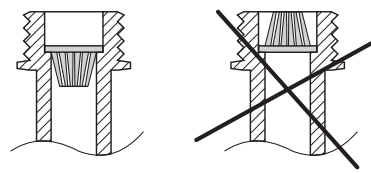


Fig. 9

6. Connect hose to the heater.
7. Open water valve and check tightness.
8. Before power switching on check electronic system is not splashed with water – if so, blow up with air to remove water from electronic circuit board.
9. Adjust according to chapter 6.

8. Cleaning drain tube sprinkler (strainer)

1. Unscrew sprinkler from drain tube.
2. Unscrew bolt from sprinkler.
3. Push out rings from sprinkler.
4. Clean up rings' ducts.
5. Reinstall sprinkler

9. Defects and repair

Water flow too low
– blocked water filter (clean it out according to chapter 7)

Heater does not start
– heater's inlet exchanged with outlet
– water flow suppressed too much
– blocked water filter (clean it out according to chapter 7).
– water pressure in system too low
– lack of power because of blown fuse.

Heater does not warm up water but control lamp lights
– voltage too low (power installation overloaded)
– temperature of entering water too low
– water flow too high (adjust water flow according to chapter 6)

Water temperature on heater exit too low
– water flow too high (adjust water flow according to chapter 6)
– temperature of entering water too low
– high voltage drop (see item 1, table 2)

Water temperature on heater exit too high
– water flow suppressed too much by control valve (adjust water flow according to chapter 6)
– blocked water filter (clean it out according to chapter 7)
– water pressure in water system too low

Heater is switching on and out automatically
– water pressure oscillation in water system
– water flow suppressed too much by shut off – suppressing valve

Stepwise changes of water temperature on exit
– voltage rush in power supply system
– changes of water flow in result of pressure changes in water system

10. Technical data

Type	**Perfect 3500**	**Perfect 4000**	**Perfect 4500**	**Perfect 5000**	**Perfect 5500**
Power [kW]	3,5	4,0	4,5	5,0	5,5
Current intensity[A]	15,2	17,4	19,6	21,7	23,9
Voltage [V]	230	230	230	230	230
Minimum switching water flow [l/min]	1,1	1,25	1,4	1,5	1,6
Maximum water pressure [MPa]	0,65	0,65	0,65	0,65	0,65
Splash-proof class	IP24	IP24	IP24	IP24	IP24
Minimum water resistivity at 15ºC	1300	1300	1300	1300	1300

11. Specification

1. Heater 1 pc
2. Shutting off – suppressing ball valve 1 pc
3. Water filter 1 pc
4. Self – blocking peg Ø6 2 pcs
5. Pattern to drill holes 1 pc
6. Sprinkler (strainer) 1 pc
7. Reduction pipe1/2” for 3/8” 1 pc
8. Rubber gaske 1 pc