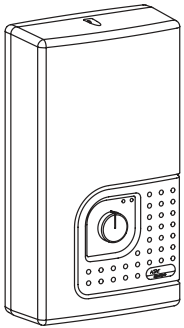
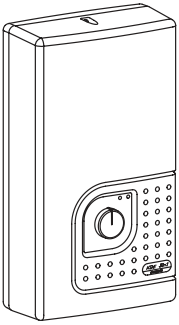
KOSPEL®

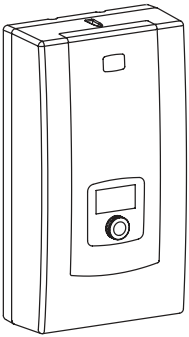
ELECTRIC INSTANTANEOUS WATER HEATER



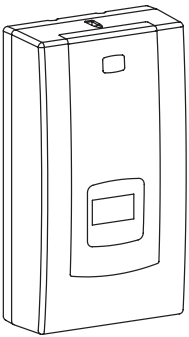
KDE



KDE2



PPE2



PPVE

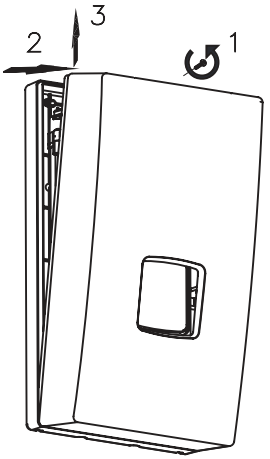
Assembly and operating manual

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.

Used product can't be treated as general communal waste. Disassembled appliance has to be delivered to the collection point of electrical and electronic equipment for recycling. Appropriate utilisation of used product prevents potential negative environmental influences that may occur as a result of inappropriate handling of waste. In order to get more detailed information about recycling this product you should contact the local government unit, waste management service or the shop where this product has been purchased.

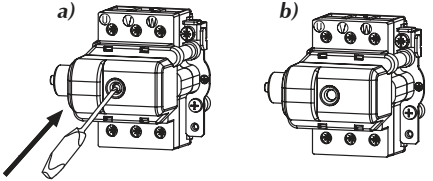
Safety instructions

1. Read and strictly follow the installation and operating instructions to ensure a long life and reliable unit operation.
2. The unit is designed to be wall mounted.
3. The unit can only be used when in perfect technical condition and correctly assembled.
4. If there is a non-return valve installed on the water supply pipe the safety valve must be fitted between unit and non-return valve. This relates to KDE only.
5. Inlet and outlet pipes should not be made of plastic. This relates to KDE only.
6. The maximum inlet water temperature should not exceed 60°C.
7. The unit should always be vented before initial start-up. Vent the unit each time after the water has been emptied from the heater or pipes (e.g. when water supply system has been repaired or maintained).
8. Connection to the mains and measurement of fire protection effectiveness should be made by a qualified person.
9. Water heater must be unconditionally connected to protective grounding-the quality of which (continuity of the protective conductor) should be checked periodically by qualified electrician. It is recommended to install heater on grounded, steel or copper hydraulic fittings.
10. The unit must be permanently connected to the mains which is equipped with earth clamp.
11. According to the general norms, electrical installation must be equipped with current-diferential switch of high sensitivity (of max rated current 30 mA), whereby we recommend installing a separate four-pole residual current circuit breaker (regardless of the remaining part of the installation) of current 10 or 30 mA
12. The unit must not be installed in the place which is exposed to the danger of explosion and place in which the temperature may go down below 0°C.
13. Storage of water heater in the rooms where temperature drops below 0 degrees may result in its damage (there is water inside the device) and may eventually lead to the loss of warranty rights
14. Do not use when the water has been emptied from the unit or pipes (e.g. when water supply system has been repaired or maintained).
15. Unit's cover must not be taken off while power is on.
16. Failure to install the filter on water supply pipe can cause unit damage.
17 Lime scale built up on heater's elements may limit water flow and lead to heater's damage. Such damages are not subjected to warranty rights. Water heater and sanitary fittings should be periodically descaled, whereas, frequency this process should be adjusted to water hardness in given installation. Lime scale built-up may be partially limited by usage of magnetic descalers installed on the cold water inlet pipe.
18. Appropriate precaution must be taken when using hot water. Temperature of water over 40°C may cause hot feeling and can be dangerous for children, whereas, temperature above 50°C may lead to first degree burn (espcially amongst small children).
19. In accrodance with general norms new (or modernised) electrical installations must be equipped with over-voltage protection devices, which is particularly important in case of buildings equipped with lightining installations. Electronic water heater is a device sensitive to overvoltage, therefore, it is recommended to install it only in new (or modernised) electrical installations.
20. Water heater should be mounted in such a way in order to enbale easy access for service and service repair. It is connected with keeping minimal distance from the walls and the ceiling of min 100mm.



1. Apply templete on place the unit will be fitted. Mark points for drilling the holes for fixing screws.
2. Bring the water system pipes and electric supply cables to the marked places.
3. Take off the unit's cover.
4. Run the supply wire through the hole and fix the unit on the wall.
5. Connect the unit to the electric mains.
6. Remove rubber plugs from cold and hot water fittings.
7. Connect the unit to the water supply system.
8. Open the cold water valve and check for leaks.
9. Vent the water system. See section „Venting"
10. During heater's installation, check the activation of safety switch (**only applies to the first connection of the device**).
11. Put the unit's cover back.
12. Make sure that there is no access to live parts through the holes at the back plate.

Safety switch
a) to switch on
b) safety switch on



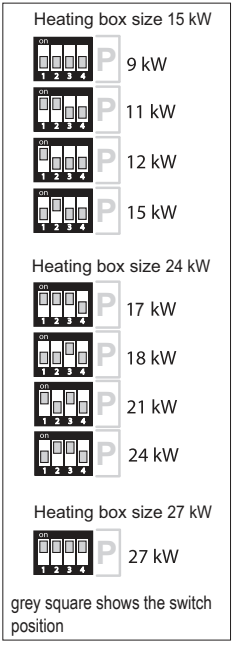
Attention! In the event of a safety switch being triggered during operation, please contact the service.

Switching on the safety switch again and continuing to use the device may cause danger and serious damage to the heater.

Venting

1. Shut off electric supplies to the heater
2. Turn the flow on (turn the hot water tap on) in order to vent the water installation (for about 15-30 seconds), until the flow of water becomes constant and even.
3. Switch on the electric supplies.

Configuration



Before you supply voltage for the first time, make sure that you set the heater's power at appropriate value (always consider the capacity of your home's electrical system). Notice: Configuration must be performed before initial start-up when power supply is switched off. Set 2 (two) switches at proper position to configure a heater. The switches are located on electronic board. Each switch has 4 (four) positions, they are described as P (power settings) and F (other settings). Switch on a power supply to upgrade configuration. After you supply power to PPE2 or PPVE a display will show: (PW...) - software version of control panel, (MSP...) - software version of controller and the value of rated power that has been set for the heater (PPE2; PPVE).

P switches settings (for PPE2, KDE2, PPVE):

- 1, 2 - rated power of heater,
- 3, 4 - type of heating box,

Do not reset P switches for KDE - keep factory settings intact.

F switches settings:

- 1, 2, 3 - do not change! keep factory settings intact,
- 4 - ON - blocks access to the heater's settings.

  In this case for PPE2 or PPVE, the display shows the desired temperature value (which has been adjusted before the heater is off), the heating icon and other possible working characteristics.

The heater is factory set at NORMAL mode (30-60ºC). To use the heater for shower purposes it has to be changed to SHOWER mode (30-55ºC). Change of the modes can only be done by authorised service.

The heater switches on automatically straight after reaching the flow rate over 2,5 l/min. The temperature control system adjusts the power rate according to the water flow rate, required temperature and the temperature of water in the mains. The LCD backlight and ⚡ icon signalises the heating operation. If the unit reach the maximum power value which is too low for a given operating conditions the LCD display will show flickering ⚡ icon. The LED display backlight also turns on while pushing or turning the setting knob. The backlight will automatically turn off when the heating operation is turned off, or if more than 50 seconds have passed since the last adjustment.
If you block the unit by master appliance (NA entry) the display will show „NA BLOCK”.
If the fault occurs the display will show **E** icon and error message.
Error messages:

- ER>T INLET - inlet sensor failure,
- ER> T MAX - temperature has exceeded the maximum value,
- ER> AIR 1 - air bubbles in the heating box - equipment detection,
- ER> AIR 2 - air bubbles in the heating box - program detection.

If the display shows ER> T MAX, ER> AIR 1 or ER> AIR 2 the unit will stop heating. The unit will not heat again until the failure is resolved and the appropriate value of water flow is reached.

Temperature adjustment

Turn the knob to the right to increase the temperature value, or to the left to decrease it. Push the knob to read the temperature value that is stored in memory. Push it again to read the next stored value. You can switch between the following settings „ECO”, „SINK” and „BATH”.
To change the temperature setting in memory:

- select the temperature setting by pushing the control knob,
- push the knob and keep for about 3 seconds until the value starts to flashing,
- turn the knob to adjust the value,
- push the knob to save the value.

Notice: save the new value within 10 seconds, otherwise you will lose it.

Configuration and parameters view

Set the minimum temperature value then push and keep knob for about 5 seconds until the display shows „>SET TEMP”. Turn a knob to select the required value.

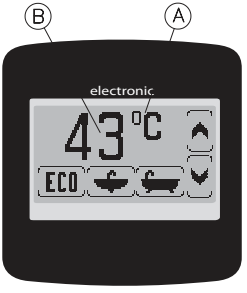
There are some parameters that are not changeable by the user (e.g. >T INLET, >FULL POW), or can be used to change the work configuration only (e.g. display brightness, language version). To change the parameters value push (position flickering) and turn the knob. Push the knob to confirm a changes.
Notice: confirm a new parameter value within 10 seconds, otherwise you will lose it. The new parameter value will be saved when you exit menu using [>EXIT].
You can switch between the following parameters:

- [>SET TEMP] temperature (min-max) - °C,
- [>T INLET] inlet temperature value - °C,
- [>T OUTLET] outlet temperature value - °C,
- [>FLOW] flow rate - l/min,
- [>FULL POW] percentage of maximum power with which the unit currently heats, -%,
- [>T - h] work time,
- [>BRIGH MIN] minimum brightness / stand-by-mode (0 - BRIGH MAX),
- [>BRIGH MAX] maximum brightness / active (BRIGH MIN -25),
- [>ENGLISH] select language version (POLSKI, FRANCAIS, ENGLISH, DEUTCH, РУССКИЙ, CESKY, ESPANOL),),
- [>TEMP LIMIT] maximum temperature limit (min setting - max setting)

  Notice: a new maximum temperature value will be saved in memory for other temperature settings as well,

  If you try to set the temperature above the adjusted maximum value the display will show 🔒 for about 1 second.
- [>HE TEST] for authorized service only,
- [>POWER SET] configured power value,
  - push knob to check a software version (PW...,MSP...),
  - restore to factory settings [FACTORY SET] or to restart controllers [RESET],
  - push and keep knob (for about 5sec., until the display show [--]) to up grate [FACTORY SET] and [RESET] function,
- [>EXIT] save a new parameters and menu exit.

Notice: parameters view mode will automatically exit (without saving changes) after 5 minutes since the last adjustment.



The heater switches on automatically straight after reaching the flow rate over 2,5 l/min. The temperature control system adjusts the power rate according to the water flow rate, required temperature and the water temperature in the mains.
The LCD red colour backlight and icon signalises the heating operation. If the unit reach the maximum power value which is too low for a given operating conditions the LCD display will show . The LED display backlight also turns. The heater switches on automatically straight after reaching the flow rate over 2,5 l/min. The temperature control system adjusts the power rate according to the water flow rate, required temperature and the water temperature in the mains.
The LED display backlight also turns on while pushing or turning the setting knob. The backlight will automatically turn off when the heating operation is turned off, or if more than 30 seconds have passed since the last adjustment. If you block the unit (NA entry) by master appliance the display will show .
If the fault occurs the display will show error message:

- ERR Tin - inlet sensor failure,
- ERR Tout - outlet sensor failure,
- ERR Tmax - temperature has exceeded the maximum value,
- ERR AIR1 - air bubbles in the heating box - equipment detection,
- ERR AIR2 - air bubbles in the heating box - program detection.,

If the display shows ERR Tmax , ERR AIR1 , ERR AIR2 the unit will stop heating.
The unit will not heat again until the failure is resolved and the appropriate rate of water flow is reached.
If you try to set the temperature above the adjusted maximum value the display will show .

Temperature setting

Display shows three icons: ECO . You can set the desired temperature value (which has been stored in memory for each icon) by pressing one of them ECO - the icons will be displayed in inverse ECO .
To change the desired temperature value:

- push the icon,
- push the icon again and keep (for about 3 seconds) until the value starts to flicker,
- to set the new value press ,
- to save the value press icon.

Notice: save the new value within 10 seconds, otherwise you will lose it.

Configuration

To enter the configuration mode press Ⓑ. To adjust the value press ⌃⌄ The parameters will switch as you press [◄][►]. You can switch between the following parameters:

- maximum temperature value,
- display contrast (0-20),
- display brightness in stand-by-mode (0-20) /brightness min. / (0 – brightness max.),
- display brightness in active mode (0-20) /brightness max. / (brightness min. –20).

To exit parameters setting mode press [⎆] Notice: parameters setting mode will automatically exit after 20 seconds since the last adjustment.

Parameters view

To enter the parameters view mode press Ⓐ.The parameters will switch as you press [◄][►]. You can switch between the following parameters:

- flow rate **Q**,
- percentage of maximum power with which the unit currently heats **P**,
- rated power P_n,
- correction of power ΔP,
- software details and work time,
- inlet temp T_{in},
- outlet temp T_{out}.

KDE, KDE2 Operation

The heater switches on automatically straight after reaching the flow rate over 2,5l/min. The temperature control system adjusts the power rate according to the water flow rate, required temperature and the water temperature in the mains.

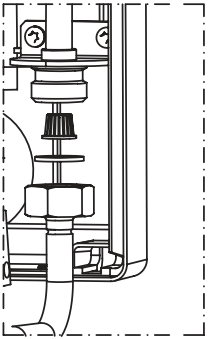
There are two indicators on the case:

- green - power supply „on”,
- red - heating „on”.

Other modes are shown by flickering green light.

Number of impulses (green indicator)	description
1	The unit was switched off because the temperature has exceeded the maximum value (fault signal will not disappear until the appropriate rate of water flow is reached).
2	The unit was switched off by a master appliance.
3	The inlet temperature sensor failure.
4	The unit was switched off because the air bubbles in the heating box (the unit will not heat again until the fault is resolved and the appropriate rate of water flow is reached).

Maintenance



Filter cleaning:

1. Cut off power and cold water supplies.
2. Take off the unit's cover.
3. Undo the inlet fitting - on the cold water side.
4. Take the filter out from the inlet fitting.
5. Clean up the filter.
6. Fix the filter back, put the gasket and do up the inlet fitting.
7. Open the cut-off valve on cold water supply pipe - check connections for leaks.
8. Fix the unit's cover back.
9. Vent the water system - see Venting section.

Co-operation with other appliances

Unit is equipped with the BLOK and NA clamps.
BLOK - relay input that switches off the slave appliance, the circuit that is connected to the BLOK clamps (max. 0,1A 250V-) will be opened at the time of heating operation starts up.
NA - input that locks the unit operation, opened NA contacts locks the heating operation - co-operation with the master appliance.
Wire (2 x 0,5mm^2) for BLOCK and NA clamps should be run inside the unit on the right side.
The wire connections must be performed by a qualified person.

Technical data

KDE		9	12	15	18	21	24	27
Rated power	kW	9	12	15	18	21	24	27
Rated voltage		400V 3~						
Rated current	A	3x13,0	3x17,3	3x21,7	3x26,0	3x30,3	3x34,6	3x39,0
Rated voltage		380V 3~						
Rated current	A	3x13,7	3x18,2	3x22,8	3x27,3	3x31,9	3x 36,5	3x41,0
Efficiency (at Δt = 40°C and water pressure at 0,4 MPa)	l/min	4,3	5,8	7,2	8,7	10,1	11,6	13,0
Min. connecting wires section	mm^2	4x1,5	4x2,5		4x4		4x6	
Max. connecting wires section	mm^2	4x16						
The maximum allowed network impedance	Ω					0,43	0,37	0,30
Overall dimension (height without tap set x width x depth	mm	440 x 245 x 120						
Weight	kg	~5,2						

KDE.4		9	12	9	12
Rated power	kW	9	12	9	12
Rated voltage		240V~		230V~	
Rated current	A	37,5	50	39,1	52,2
Efficiency (at Δt = 40°C and water pressure at 0,4 MPa)	l/min	3,3	4,3	3,3	4,3
Min. connecting wires section	mm^2	3 x 10		3 x 6	3 x 10
Max. connecting wires section	mm^2	3 x 25		3 x 16	

PPE2, PPVE, KDE2		9/11/12/15				17/18/21/24				27
Rated power	kW	9	11	12	15	17	18	21	24	27
Rated voltage		400V 3~								
Rated current	A	3x13,0	3x15,9	3x17,3	3x21,7	3x24,7	3x26,0	3x30,3	3x34,6	3x39,0
Rated voltage		380V 3~								
Rated current	A	3x13,7	3x16,7	3x18,2	3x22,8	3x25,8	3x27,3	3x31,9	3x36,5	3x41,0
Efficiency (at Δt = 40°C and water pressure at 0,4 MPa)	l/min	4,3	5,2	5,8	7,2	8,1	8,7	10,1	11,6	13
Min. connecting wires section	mm^2	4 x 2,5				4 x 6				
Max. connecting wires section	mm^2	4 x 16								
The maximum allowed network impedance	Ω							0,43	0,37	0,30
Overall dimension (height without tap set x width x depth	mm	440 x 245 x 126								
Weight	kg	~4,0								

Pressure in the water mains		MPa	0,1 ÷ 1,0
Activation point (min. rate of flow)		l/min	2,5
Temperature adjustment range	NORMAL mode	°C	30 ÷ 60
	SHOWER mode		30 ÷ 55
Water fittings			G 1/2" (distance between inlet and outlet 100 mm)

The minimal resistivity of water at 15°C for PPE2, KDE2 , PPVE is 1100 Ω cm.

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