

# VITA ECO

03/06

Save money & energy.  
Highly efficient  
radiator saving up to  
10.5% on fuel bills, at a  
cost effective price.

Accessories included are:

- ◆ TRV head
- ◆ Integral Thermostatic Valve
- ◆ Piping connections with either 10mm or 15mm couplings
- ◆ Hydro connection block with straight or angle piping options
- ◆ Hydro block also includes drain off function

<b>RANGE</b>	132 SKUs
<b>HEIGHTS (MM)</b>	300, 500, 600
<b>LENGTHS (MM)</b>	400 - 2000
<b>TYPES</b>	K1, K2
<b>OUTPUTS (WATTS)</b>	333 - 3,234
<b>OUTPUTS (BTU/H)</b>	1,136 - 11,034

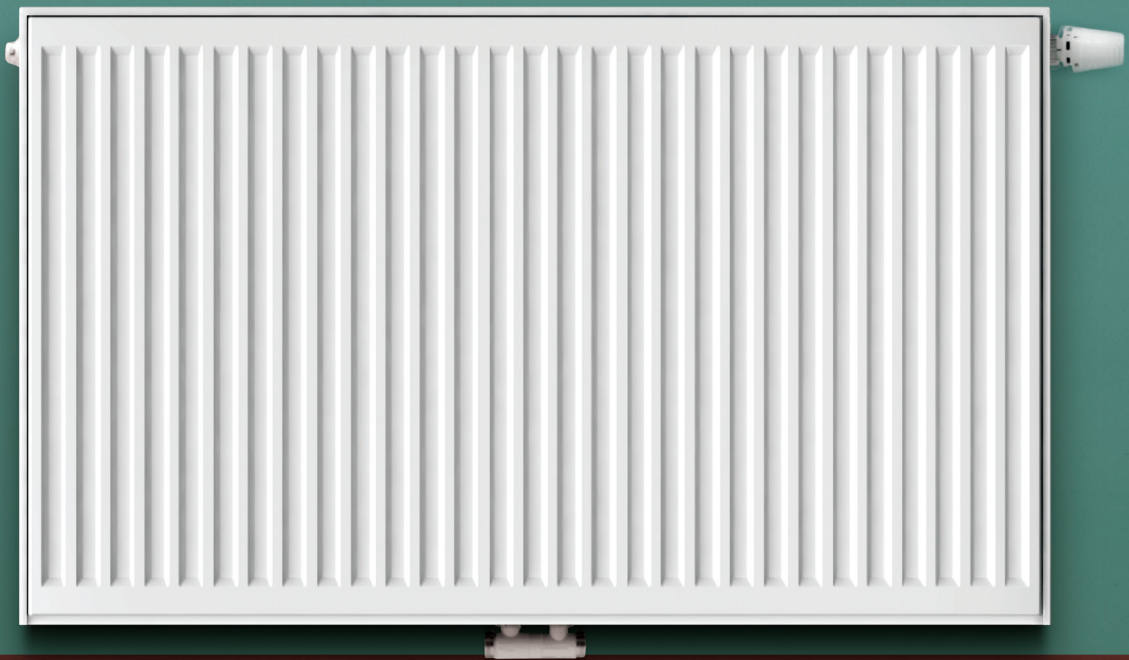
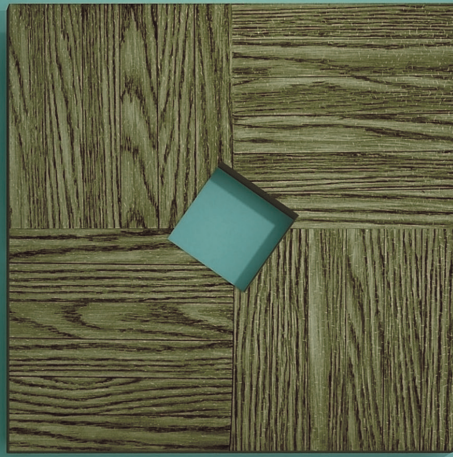


Vita Series 1

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# VITA — ECO

*Technical information*

## K1



Height mm	Length mm	Stelrad UIN 10mm	Angle 10mm	Straight 15mm	Angle 15mm	Heat output Watts Btu/h		Price exc VAT	Price inc VAT
<b>300</b>	1000	843111010S	843111010A	843111015S	843111015A	509	1737	£68.59	£82.31
<b>500</b>	400	845110410S	845110410A	845110415S	845110415A	333	1136	£51.95	£62.34
	500	845110510S	845110510A	845110515S	845110515A	417	1423	£54.39	£65.26
	600	845110610S	845110610A	845110615S	845110615A	500	1706	£55.61	£66.74
<b>600</b>	400	846110410S	845110410A	846110415S	846110415A	392	1338	£56.33	£67.60
	500	846110510S	846110510A	846110515S	846110515A	490	1672	£59.27	£71.12
	600	846110610S	846110610A	846110615S	846110615A	588	2006	£60.73	£72.88

## K2



Height mm	Length mm	Stelrad UIN 10mm	Angle 10mm	Straight 15mm	Angle 15mm	Heat output Watts Btu/h		Price exc VAT	Price inc VAT
<b>300</b>	1000	843221010S	843221010A	843221015S	843221015A	933	3183	£91.35	£109.62
<b>500</b>	400	845220410S	845220410A	845220415S	845220415A	560	1911	£64.88	£77.86
	500	845220510S	845220510A	845220515S	845220515A	701	2392	£70.48	£84.57
	600	845220610S	845220610A	845220615S	845220615A	841	2869	£74.84	£89.80
	700	845220710S	845220710A	845220715S	845220715A	981	3347	£78.83	£94.60
	800	845220810S	845220810A	845220815S	845220815A	1121	3825	£81.81	£98.17
	900	845220910S	845220910A	845220915S	845220915A	1261	4303	£86.05	£103.26
	1000	845221010S	845221010A	845221015S	845221015A	1401	4780	£89.79	£107.75
	1200	845221210S	845221210A	845221215S	845221215A	1681	5736	£101.75	£122.10
	1400	845221410S	845221410A	845221415S	845221415A	1961	6691	£122.42	£146.91
	1600	845221610S	845221610A	845221615S	845221615A	2242	7650	£135.63	£162.75
	1800	845221810S	845221810A	845221815S	845221815A	2522	8605	£148.83	£178.60
	2000	845222010S	845222010A	845222015S	845222015A	2802	9560	£211.86	£254.23
<b>600</b>	400	846220410S	846220410A	846220415S	846220415A	647	2208	£71.86	£86.23
	500	846220510S	846220510A	846220515S	846220515A	809	2760	£78.58	£94.29
	600	846220610S	846220610A	846220615S	846220615A	970	3310	£83.80	£100.56
	700	846220710S	846220710A	846220715S	846220715A	1132	3862	£88.59	£106.31
	800	846220810S	846220810A	846220815S	846220815A	1294	4415	£92.19	£110.62
	900	846220910S	846220910A	846220915S	846220915A	1455	4964	£97.26	£116.71
	1000	846221010S	846221010A	846221015S	846221015A	1617	5517	£101.75	£122.10
	1100	846221110S	846221110A	846221115S	846221115A	1779	6070	£108.92	£130.71
	1200	846221210S	846221210A	846221215S	846221215A	1940	6619	£116.09	£139.31
	1400	846221410S	846221410A	846221415S	846221410A	2264	7725	£140.91	£169.10
	1600	846221610S	846221610A	846221615S	846221610A	2587	8827	£156.75	£188.10
	1800	846221810S	846221810A	846221815S	846221810A	2911	9932	£172.59	£207.11
	2000	846222010S	846222010A	846222015S	846222010A	3234	11034	£248.23	£297.88

Δt50 is the UK's industry standard for heating outputs, which has an operating temperature of 75/65/20°C.

## **Energy saving**

Improves energy efficiency and comfort whilst reducing bills.

### A radiator that produces more comfort at less cost

The power we use in buildings accounts for 40% of global consumption, and that has a massive impact on the environment. But with smarter energy management, our buildings can emit up to 60% less CO<sub>2</sub>. That's something the European Union are moving towards, by making energy consumption standards stricter.

At Stelrad, we believe the heating industry has a major role to play, by developing systems that work efficiently so that they produce more heat at lower temperatures.

That's why we've developed Stelrad Eco, the energy saving radiator. It produces more radiant heat than traditional radiators - saving energy while raising comfort levels, all at a reduced cost to the user and to the environment.

### A radiator that reduces energy bills by up to 10.5%

Your choice of radiator determines how comfortable the heating in your home feels, and how much that comfort costs. You know how a draught-free room at 20°C can still feel uncomfortable?

The energy saving radiant heat of the Stelrad Eco will soon fix that. And with the outstanding energy efficiency delivered by its preset valve, it reduces your bills by up to 10.5%, too.

- ◆ Thanks to the controlled flow of our unique direct intake technology, the water in the front panel reaches a temperature up to 50% higher than in a traditional radiator.
- ◆ The Stelrad Radical energy saving radiator reaches its maximum temperature 23% faster than a traditional radiator.
- ◆ It reaches its optimum performance level while a traditional heater is still heating up.
- ◆ After only 2 minutes it offers up to 50% more radiant heat.
- ◆ With higher radiant heat, the feeling of 20°C can be achieved at a lower temperature setting. The Stelrad Eco energy saving radiator's unique and innovative technology raises comfort levels, and by working more efficiently, it reduces energy bills - with a saving of up to 10.5%.



# Raising comfort levels with more radiant heat

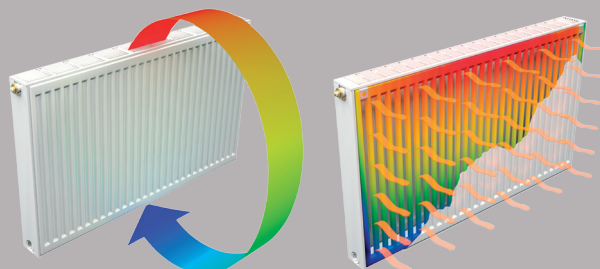
A radiator that delivers more heat, more efficiently.

Domestic heating is usually based on convection and radiation. With convection heating, hot air rises from the heating elements, cools down, descends via the wall and is heated again. With radiant heating, infrared radiation is sent directly around the room regardless of airflows like wind or draughts.

Radiant heat heats up the room, furniture and people and is reflected back to create a more comfortable feeling, similar to the rays of the sun. Standing in the sun always feels much warmer, even if the surrounding temperature is no higher than in the shadow - because it is radiant heat.

In a traditional radiator the heat generated consists, on average, of 80% convection heat and 20% radiant heat - limiting the feeling of warmth.

The Stelrad Eco energy saving radiator increases radiant heat by up to 50%.

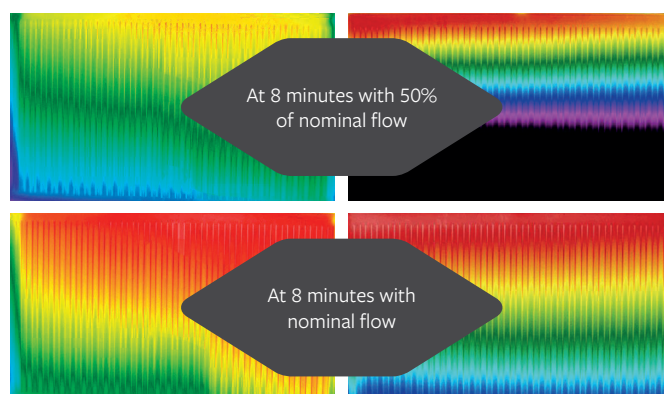


So the comfortable feeling of a room at 20°C is achieved at a setting of 1 degree less (or even lower).

## Up to 50% more radiant heat means more comfort - at a lower cost

These thermal images demonstrate the improved radiant heat of the Stelrad Eco radiator. The measurements show that the Stelrad Eco energy saving radiator offers 1.5 times more radiant capacity at 50% of the nominal flow (which offers 90% of the nominal heat output) compared to a traditional radiator.

So depending on the radiator size and type it is compared to, the Stelrad Eco energy saving radiator offers up to 50% more radiant heat.



Test conditions: radiator K2, height 600mm, length 1000mm, temperatures 70/55/20°C.

## Supported by a RIBA & CIBSE CPD programme

Stelrad is certified as a member of the RIBA and CIBSE CPD Providers Network. This means we can provide RIBA and CIBSE-approved CPD material to architects and other specifiers. An hour-long programme delivered by a member of the Stelrad team delivers information on every aspect of the Stelrad Eco energy saving radiator and its application.

## Energy savings tested, assessed and declared by KIWA

KIWA is a highly respected Pan-European institute providing internationally recognised declaration services for systems and products. As an independent expert KIWA also carries out specialist testing, and the KIWA Gas Technology division has rigorously trialled the Stelrad Eco radiator to assess and declare its energy saving performance.

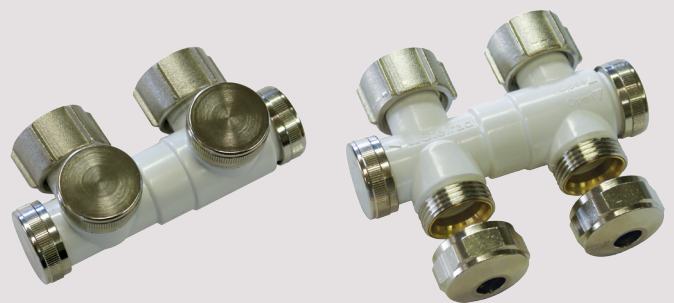
## Compatibility

The Stelrad Eco radiator is compatible with the following:

- ◆ Gas boilers
- ◆ Electric boilers
- ◆ Solar PV
- ◆ Ground source heat pumps (GSHP)
- ◆ Air source heat pumps (ASHP)
- ◆ Biomass installations

## Fast, convenient and flexible fitting

Piping connections are available with either 10mm or 15mm couplings in angle or straight format, with radiator drain-off function.



Angle H Block

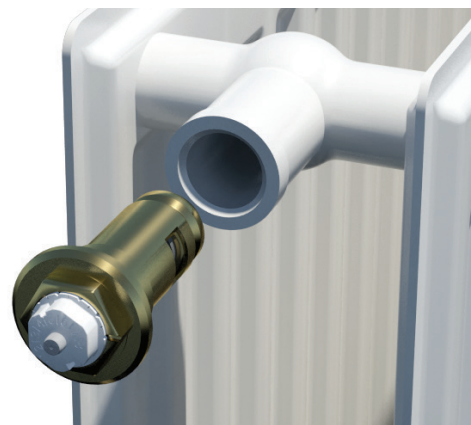
Straight H Block with couplings



Simple and quick to connect with Hydro Bock (H Block)

# Preset thermostatic valve

The thermostatic valve regulates the water supply in the radiator. This valve is preset in the factory according to the radiator's size, which guarantees optimum efficiency.



Eco

## Preset valves - environmentally friendly and energy efficient

Every Stelrad Eco radiator is equipped with a preset valve, which enhances the efficiency of the system and reduces energy consumption.

This valve is preset to control the water flow, producing maximum efficiency at optimum temperature, and is an essential element in the Stelrad Eco energy saving design.

You can recognise the setting by the coloured valve closure (yellow, white, red, black or blue). The default setting is matched to the heat output of the radiator at system temperatures of both 70/55/20°C and 55/45/20°C.

Height	300		500		600	
Type	K1	K2	K1	K2	K1	K2
400			5.5	5.5	5.5	5.5
500	5.5	5.5	5.5	5.5	5.5	2.5
600			5.5	2.5	5.5	2.5
700			5.5	2.5	5.5	2.5
800			5.5	2.5	2.5	2.5
900			2.5	2.5	2.5	2.5
1000	5.5	2.5	2.5	2.5	2.5	4.5
1100			2.5		2.5	4.5
1200			2.5	4.5	2.5	4.5
1400			2.5	4.5	2.5	6
1600	2.5	2.5	2.5	6	4.5	8
1800			2.5	6	4.5	8
2000	2.5	4.5	4.5	8	4.5	8



5.5

4361



2.5

4360



4.5

4360



6

4360



8

4360

Vita Series 8



# Valve re-adjustment

Fine tuning valve 4361

Max. 2K presetting

Q (W)		200	250	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000	4800	5300	6500	6800	7200
$\Delta t$ (K)	$\Delta p$ (mbar)																														
	50	3	5	6	7	8	8																								
10	100	1	3	4	5	6	7	8	8	8																					
15	150	1	1	3	4	6	6	7	7	8	8																				
	50	1	3	3	5	6	7	7	8	8	8																				
	100	1	1	1	3	5	5	6	6	7	8	8	8																		
	150	1	1	1	1	3	4	5	6	6	6	7	7	8																	
20	50	1	1	1	3	5	6	6	7	7	8	8																			
	100	1	1	1	1	3	4	5	5	6	6	7	7	8	8																
	150		1	1	1	1	3	3	4	5	6	6	6	7	8	8	8														
	50		1	1	1	1	1	3	3	4	5	6	6	7	7	8	8	8	8												
40	100				1	1	1	1	1	3	3	4	4	5	6	6	6	7	7	8	8	8	8	8	8	8					
	150					1	1	1	1	1	1	3	3	4	5	6	6	6	7	7	7	7	8	8	8	8	8				

Example		
- Target:	Presetting	
- Given:	- Eco radiator:	K1, Height 600, Length 700
	- Factory fitted valve:	4361 - preset: 5.5
	- At 75/65/20°C	- 776 Watt
		- $\Delta t = 10^\circ\text{C}$ (= 75-65)
	- Pressure drop:	- $\Delta p = 100\text{mbar}$
	- Selected tuning range:	- 2K (see table)
- Solution:	Presetting according to table 4361:8. Valve needs to be re-adjusted to setting 8	



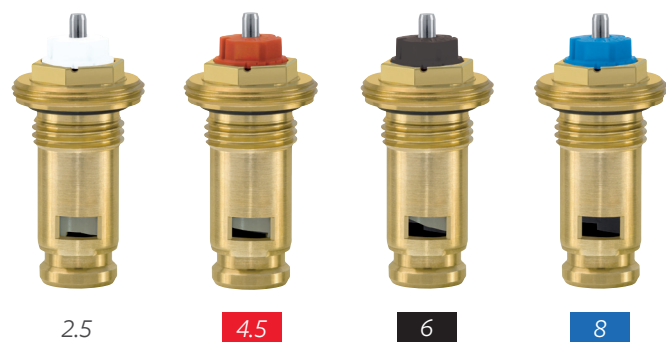
# Valve re-adjustment

Standard valve 4360

Max. 2K presetting

Q (W)		200	250	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000	4800	5300	6500	6800	7200						
Δt (K)	Δp (mbar)																																				
	50	1	1	1	2	2	3	3	3	4	3	5	6	7	8																						
10	100	1	1	1	1	2	2	2	2	3	3	4	5	5	6	6	7	7	8																		
15	150	1	1	1	1	2	2	2	2	3	3	3	4	4	5	5	6	6	7	7	8	8															
	50	1	1	1	1	2	2	2	3	3	3	4	5	5	6	6	7	8	8																		
	100	1	1	1	2	2	2	2	2	2	2	3	3	4	4	5	5	6	6	6	7	7	7	8	8												
	150	1	1	2	2	2	2	2	2	2	2	2	3	3	3	4	4	5	5	5	6	6	6	6	7	8											
	50	1	1	1	2	2	2	2	2	2	3	3	3	4	5	5	5	6	6	7	7	7	8	8													
20	100	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	4	4	5	5	5	5	6	6	6	6	7	8									
40	150	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	7	8								
	50	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	4	4	4	5	5	6	7	7	8					
	100	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	4	4	5	5	6						
	150	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	4	4	5							

Example		
- Target:	Presetting	
- Given:	- Eco radiator:	K2, Height 600, Length 700
	- Factory fitted valve:	4360 - preset: 4.5
	- At 60/40/20°C	- 997 Watt
	- Pressure drop:	- $\Delta p$ = 100mbar
	- Selected tuning range:	- 2K (see table)
- Solution:	Presetting according to table 4360: "2"	

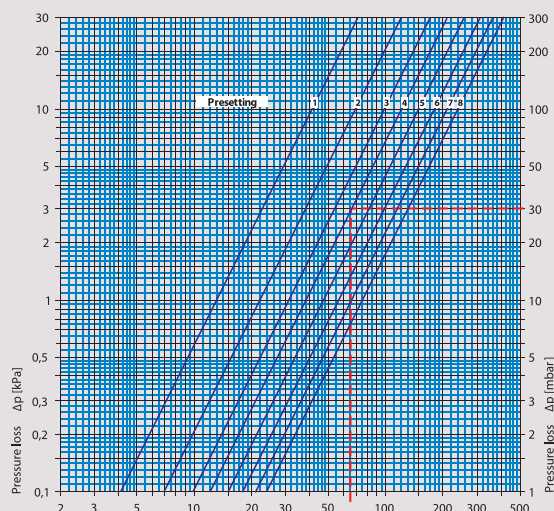




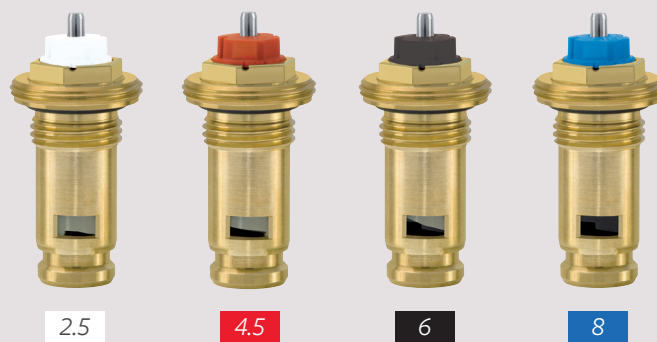
# Pressure drop diagram

Standard valve 4360

Radiators without connection accessories



Information supplied by Heimeier



Radiator with integrated valves without connection fitting			<b>Presetting</b> Thermostatic insert								Permissible operating temperature	Permissible operating pressure	Permissible differential pressure at which the valve still closes Δp (bar)		
			1	2	3	4	5	6	7	8	TB *) (°C)	PB (bar)	Therm head	EMO T/NC EMOtec/NC EMO 1/3 EMO EIB/LON	EMO T/NO EMOtec/NO
<b>Thermostatic insert and thermostatic head</b>	<i>p-band</i>	<i>K<sub>v</sub> valve (m³/h)</i>	0,12	0,19	0,24	0,28	0,33	0,37	0,39	0,40	120	10	4,0	2,7	3,5
	<i>p-band xp 2,0 K</i>	<i>K<sub>v</sub> valve (m³/h)</i>	0,13	0,22	0,31	0,38	0,47	0,57	0,66	0,75					
		<i>K<sub>vs</sub> valve (m³/h)</i>	0,16	0,27	0,38	0,43	0,65	0,98	1,23	1,43					
		<i>Flow tolerance ± (%)</i>	40	30	25	23	17	15	12	10					

\*) With protective cap or actuator 100°C

## Calculation Example

– Target: Setting range

– Given: – Heat flow

– Temp spread

– Pressure loss,  
radiator with  
integrated valves

– Solution: – Mass flow rate

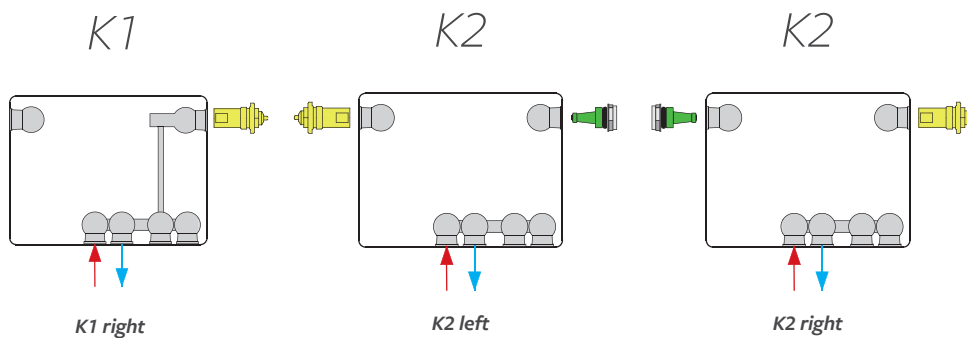
$$\dot{Q} = 1135 \text{ W}$$

$$\Delta t = 15 \text{ K (65/50°C)}$$

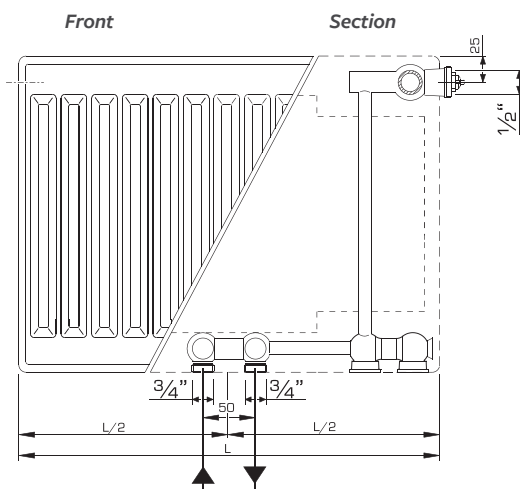
$$\Delta p_v = 30 \text{ mbar}$$

$$\dot{m} = \frac{\dot{Q}}{c \cdot \Delta t} = \frac{1135}{1,163 \cdot 15} = 65 \text{ kg/h}$$

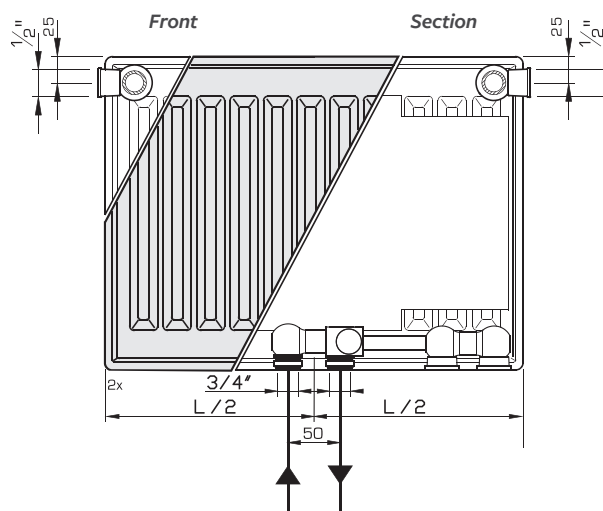
## Simple and efficient installation across the whole system



K1 front elevation



K2 front elevation



Radiator on short bracket side		Radiator on long bracket side	
K1	K2	K1	K2
83	124	94	135
61	100	61	100
51	73	62	84

## Thermostatic head with built-in sensor

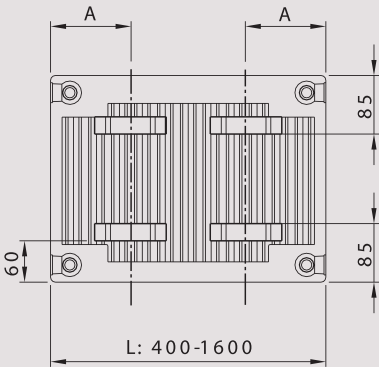




# K1 and K2 lug position

## K1

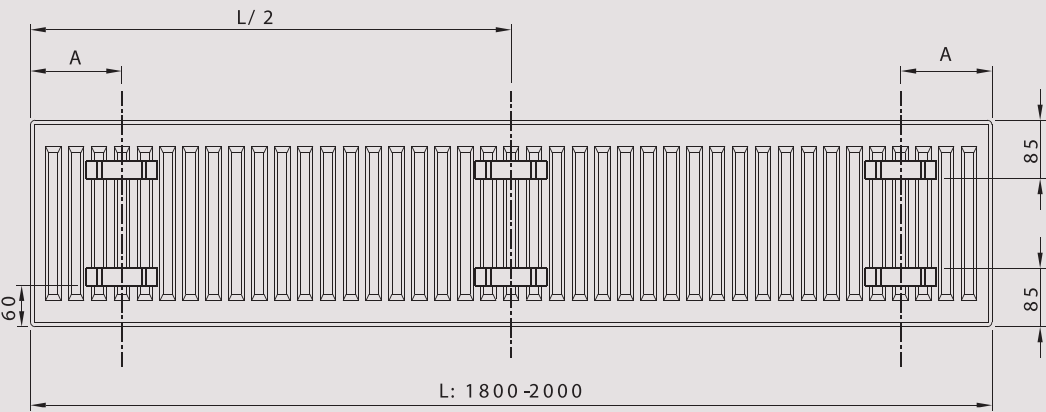
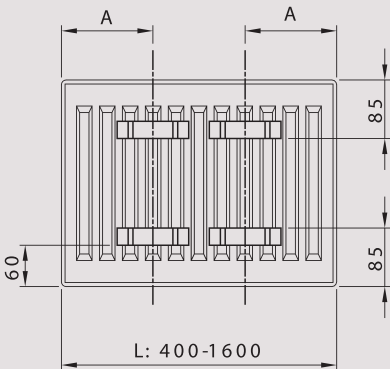
L	A
400	117
500 - 1100	150



## K2

L	A
400	133
500 - 1100	133
1200 - 1600	267
1800 - 2000**	267**

\*\* 3rd. lug in radiator centre (half length)



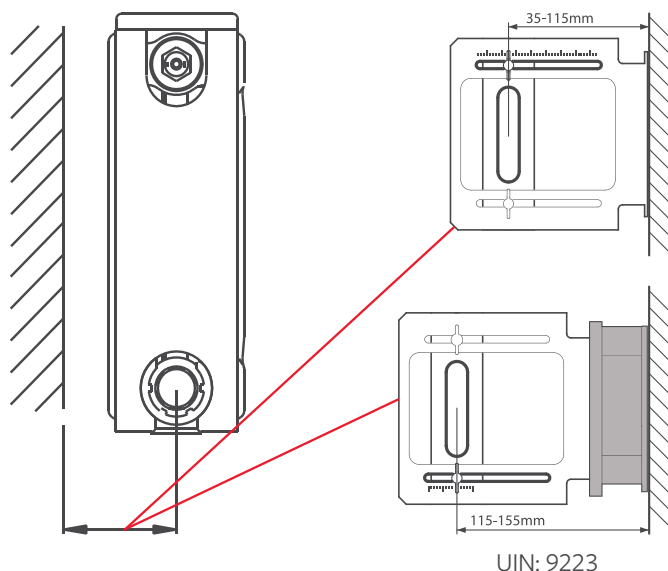
EN 442 Certification Data - CETIAT tested in accordance with BS EN 442

	K1			K2		
Height (mm)	300	500	600	300	500	600
W/m at 75/65/20	509	833	980	933	1401	1617
n-coefficients	1.32	1.30	1.29	1.30	1.30	1.30
Heated surface area (m2/m)	2.09	3.80	4.66	3.51	6.33	7.74
Weight (kg/m)	9.31	16.24	19.70	16.50	27.17	32.50
Water contents (l/m)	1.89	2.80	3.25	3.70	5.83	6.90

## Eco mounting template

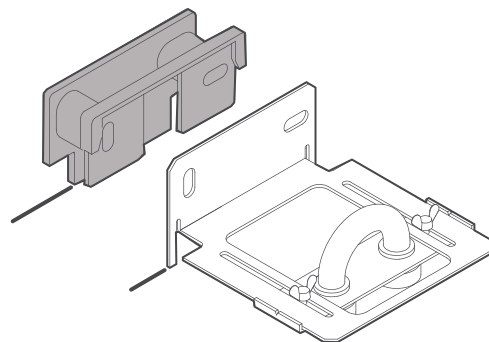
Using the mounting template for the bottom connection of Eco radiators offers important advantages during the installation, e.g. leak testing the system without a mounted radiator.

The mounting template replaces the radiator during the installation, which reduces the total installation cost. Finishing tasks such as painting, tiling and applying wallpaper no longer require the removal and remounting of the radiator.



The radiator is mounted after all the finishing work, which guarantees a pristine condition on commissioning.

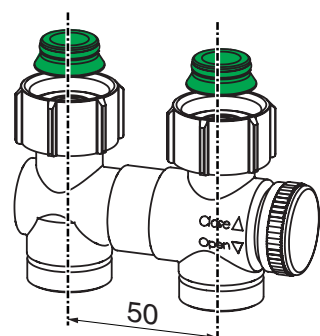
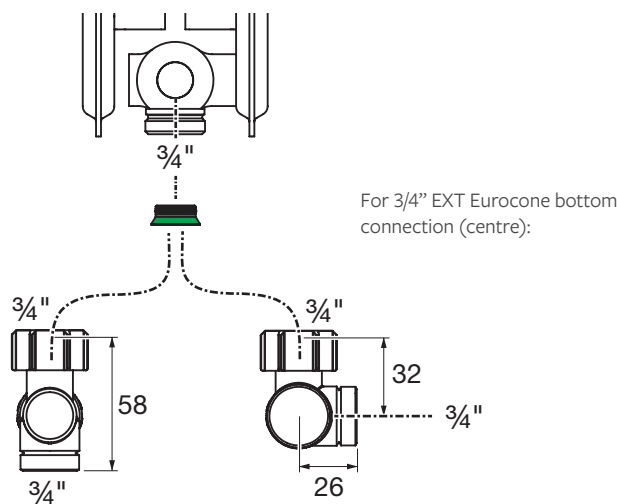
The mounting template consists of a bridging piece with 2 connections of 3/4" external thread on a centre distance of 50mm. As the wall distance depends on the radiator type, the mounting template offers multiple positions according to the available brackets.



## Eco hydro block connections

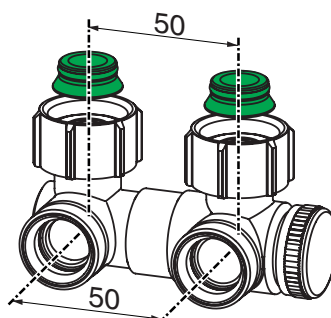
2-pipe connections for bottom connection (3/4" EXT Eurocone or 1/2" INT):

- ◆ Lock function
- ◆ Straight or angular version
- ◆ Maximum operating temperature: 90°C
- ◆ Casing in white high performance plastic (similar to RAL 9016)
- ◆ Maximum operating pressure: 6 bar



UIN: 10mm 363000210A  
UIN: 15mm 363000215A  
– angular version  
– with drain

– not included  
– part unlock drain function



UIN: 10mm 363000210S  
UIN: 15mm 363000215S  
– straight version  
– with drain

– not included  
– part unlock drain function