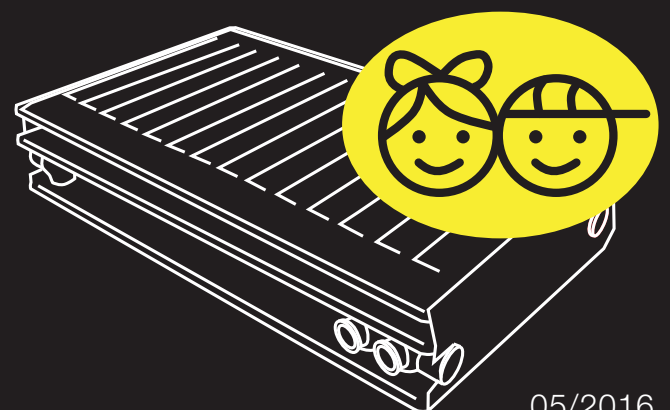


RADIK MATERNELLE

panel radiators for nursery schools and kindergartens





The concept of steel panel radiators RADIK MATERNELLE is based on VENTIL KOMPAKT radiator version. They are equipped with an internal distribution piping and with an integrated valve. These elements allow a bottom side connection to the heating system with forced circulation of hot water.

The special design of the version MATERNELLE radiators prevents entry of hot water in the front panel. This ensures a safe surface temperature. Thus, they comply with the provisions of NF C 15-100 standards.



Steel panel radiators **RADIK MATERNELLE**

RADIK panel radiators are specially designed
**FOR KINDERGARTENS, NURSERIES,
CHILDREN'S ROOMS AND NURSING HOMES.**

Use

With a maximum operating pressure of 10 bar, the steel panel radiators RADIK MATERNELLE are designed for installation in central heating systems for buildings using water or water solutions as heating medium up to maximum allowable operating temperature 110°C. They are designed for forced circulation heating systems single and dual pipe. The radiators must be professionally built into the hot water heating systems that are carried out professionally according to VDI 2035 with regard to protection against damage caused by corrosion and limescale.

It is necessary to observe the main following characteristics of the quality of water:

- PH range of 8.5 to 9.5 (applies to systems containing no aluminium)
- Total water hardness (Ca + Mg ion content) up to 1 mmol/l,
- Salinity in the range of 300 to 500 µS/cm,
- Maximum oxygen content 0,1 mg/l.

Advantages



Absolutely safe - no risk of burning

The front panel of panel radiators RADIK MATERNELLE is not filled with water and thus ensures safe surface temperature. Even at a temperature gradient of 90/70/20°C surface temperature does not exceed 60°C.



Heavy-duty

Panel radiators RADIK MATERNELLE are designed with rounded corners and edges. During final assembly the upper grille and side covers are mounted and well attached to the body of the radiator.



Hygienic

The finish of panel radiators RADIK MATERNELLE ensures their hygienic safety. They are resistant to mechanical damage and corrosion.



Variable

The panel radiators RADIK MATERNELLE are delivered in RAL 9016 white, other colours are available according to the colour card.

GENERAL INFORMATION

When installing VENTIL KOMPAKT steel panel radiators, it is necessary to preset the valve to such a position that the radiator will perform as calculated. This also must be stated in the project documentation. It is the responsibility of the installer to make sure this has been done.

At the factory the valve is preset at level 8 and after rinsing and before the start of the heating test it must be set by a special key to the desired position.

Thermostatic heads

For setting and adjustment of the room temperature, it is necessary to equip the radiators VENTIL KOMPAKT with thermostatic head. For direct installation, use thermostatic heads with connection thread M 30 x 1,5.



Example of calculation

Target value: level of valve setting

Values known: heat output
cooling of water
pressure loss of radiator with valve
heat capacity of water

$$\begin{aligned} Q &= 1135 \text{ W} \\ t_1 - t_2 &= 15 \text{ K (65/50 } ^\circ\text{C)} \\ \Delta p &= 30 \text{ mbar} \\ c &= 1,163 \text{ Wh/kg.K} \end{aligned}$$

Solution: mass flow

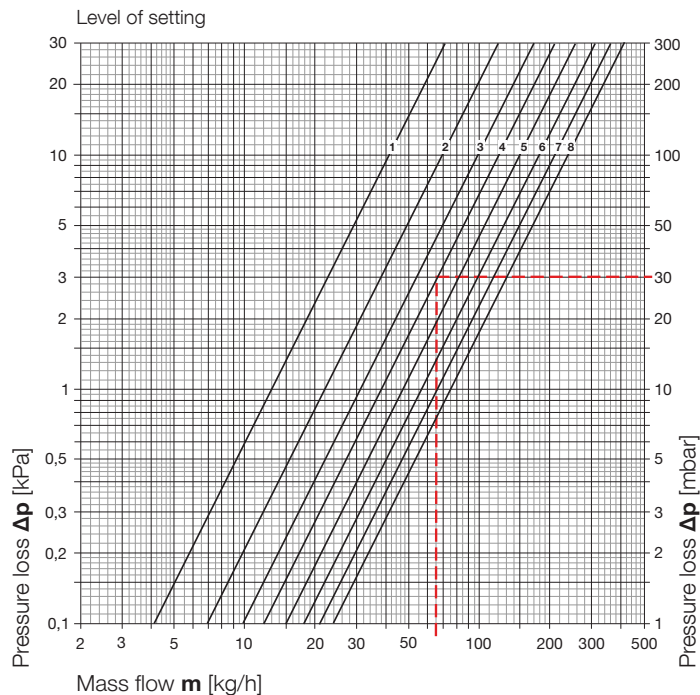
$$m = \frac{Q}{c \cdot (t_1 - t_2)} = \frac{1135}{1,163 \cdot 15} = 65 \text{ kg/h}$$

level of valve setting (see diagram): 4

Table

Radiators in version VENTIL KOMPAKT without connection fittings		Level of valve setting								Highest allowed work- ing temperature [°C]	Highest allowed working pres- sure [bar]
		1	2	3	4	5	6	7	8		
Valve with eight levels of setting and with a thermostatic head	k_v [m³/h]	0.13	0.22	0.31	0.38	0.47	0.57	0.66	0.75	110	1.0
	k_{vs} [m³/h]	0.16	0.27	0.38	0.43	0.65	0.98	1.23	1.43		

The indicated values of k_v comply with proportionality interval of 2 K.



SURFACE TEMPERATURE



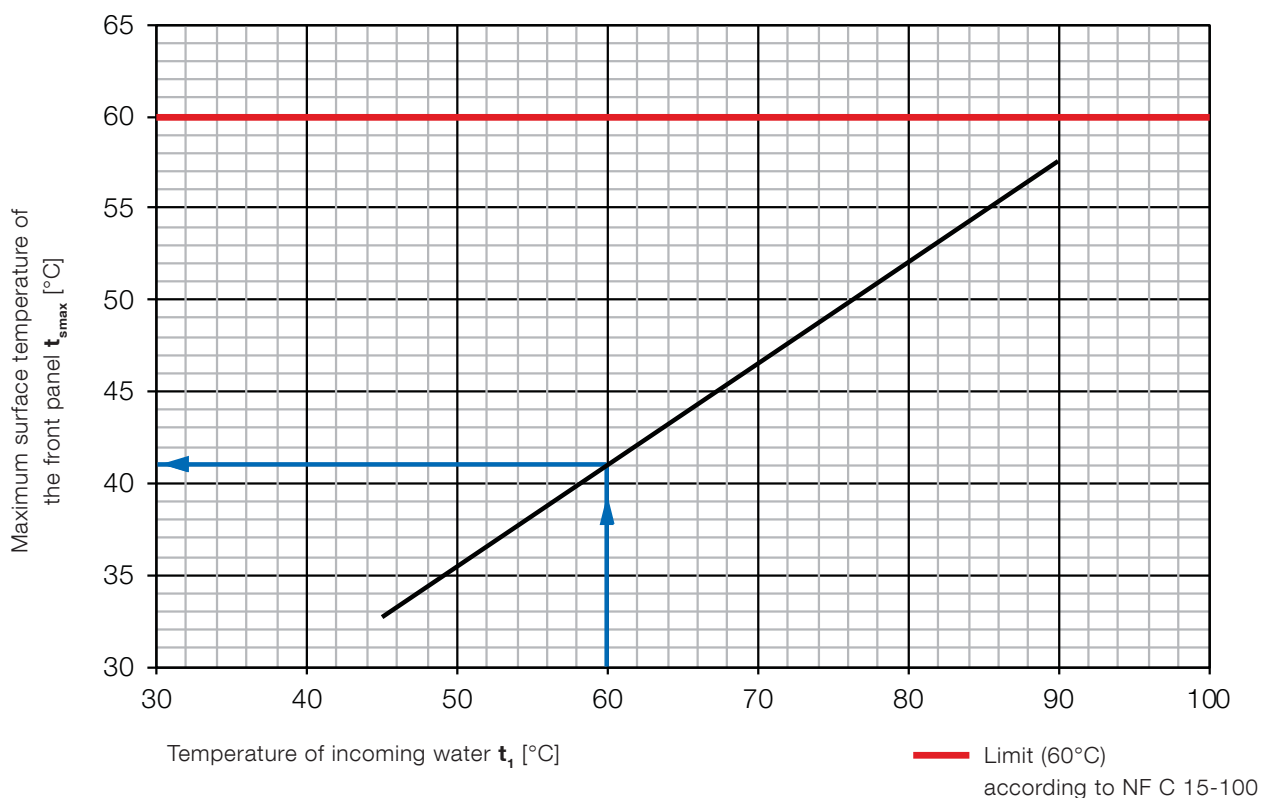
Example of determining the surface temperature of the front panel

Target value: Surface temperature of the front panel t_{smax}

Values known: temperature gradient of the heating system 60/50/20°C
water inlet temperature $t_1 = 60^\circ\text{C}$

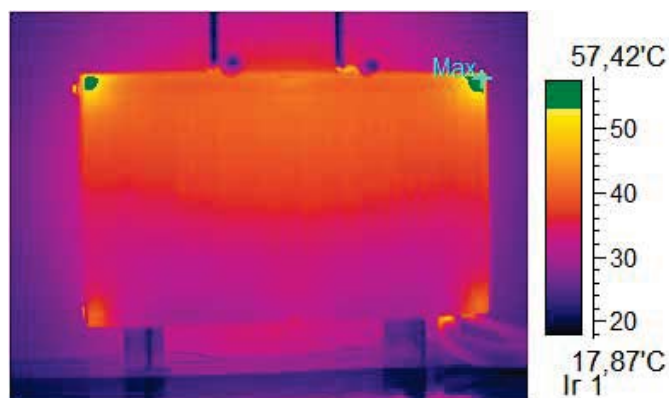
Solution: surface temperature of the front panel $t_{smax} = 41^\circ\text{C}$

Graph for determining the maximum surface temperature of the front panel

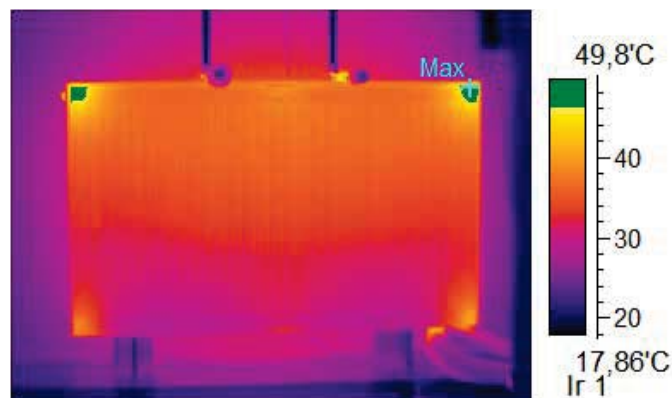


Surface temperature measurement

RADIK MATERNELLE surface temperatures for different thermal conditions were measured in an accredited laboratory. The following images were taken with a thermal camera during the measurement.



Thermal image in the conditions of 90/70/20 ° C



Thermal image in the conditions 75/65/20 ° C

RADIK MATERNELLE VK



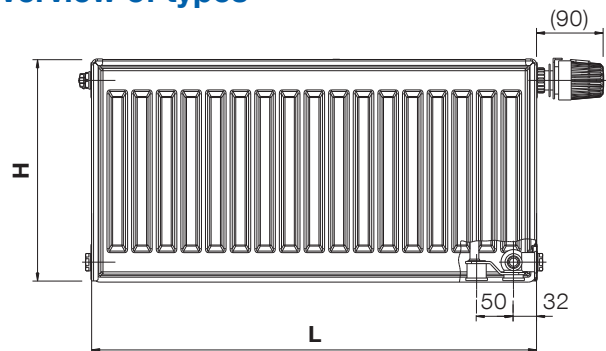
Description

The model **RADIK MATERNELLE VK** is a steel panel radiator in the VENTIL KOMPAKT version allowing a **right bottom connection** to the heating system with forced circulation of hot water. The special design of the concept MATERNELLE radiators prevents entry of hot water in the front panel. This ensures a safe surface temperature. Two upper and two lower hangers are welded on the rear side of the radiator. Radiators 1800 mm and longer have six welded hangers.

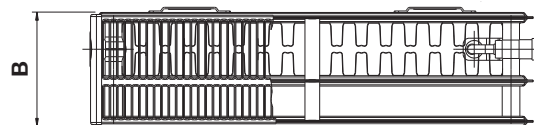
Technical data

Height H	300, 400, 500, 600, 700, 900 mm
Length L	400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1400, 1600, 1800, 2000, 2300, 2600, 3000 mm
Depth B Type 32 VK	155 mm
Connecting pitch	50 mm
Connecting thread	6 x G1/2 inside
Highest allowed working pressure	1,0 MPa
Highest allowed working temperature	110 °C
Radiator connection	right bottom

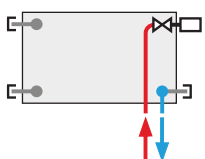
Overview of types



Typ 32 VK



Examples of connection to the heating system



right bottom
 $\varphi = 1$



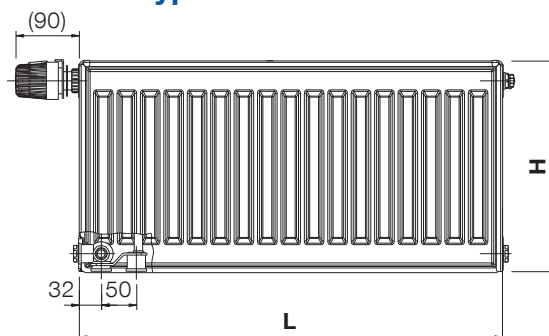
Description

The model **RADIK MATERNELLE VKL** is a steel panel radiator in the VENTIL KOMPAKT version allowing a **left bottom connection** to the heating system with forced circulation of hot water. The special design of the concept MATERNELLE radiators prevents entry of hot water in the front panel. This ensures a safe surface temperature. Two upper and two lower hangers are welded on the rear side of the radiator. Radiators 1800 mm and longer have six welded hangers.

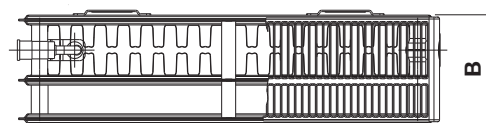
Technical data

Height H	300, 400, 500, 600, 700, 900 mm
Length L	400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1400, 1600, 1800, 2000, 2300, 2600, 3000 mm
Depth B Type 32 VKL	155 mm
Connecting pitch	50 mm
Connecting thread	6 x G1/2 inside
Highest allowed working pressure	1,0 Mpa
Highest allowed working temperature	110 °C
Radiator connection	left bottom

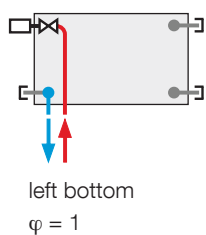
Overview of types



Typ 32 VKL



Examples of connection to the heating system



RADIK MATERNELLE VK, MATERNELLE VKL

HEAT OUTPUT Q [W] IN WATTS CERTIFIED TO EN 442

20 °C		32 VK 32 VKL					
		Height H [mm]					
Length L [mm]	t ₁ /t ₂ [°C]	300	400	500	600	700	900
400	90/70	503	624	739	851	963	1186
	75/65	397	492	582	670	756	926
	70/55	321	398	471	541	610	743
	55/45	204	252	298	343	384	463
500	90/70	629	780	923	1064	1204	1483
	75/65	496	615	728	838	946	1158
	70/55	401	497	588	677	762	928
	55/45	255	315	373	429	480	579
600	90/70	755	935	1108	1276	1445	1779
	75/65	595	737	873	1005	1135	1389
	70/55	482	596	706	812	915	1114
	55/45	306	379	448	515	576	694
700	90/70	880	1091	1293	1489	1686	2076
	75/65	694	860	1019	1173	1324	1621
	70/55	562	696	823	948	1067	1300
	55/45	357	442	522	600	672	810
800	90/70	1006	1247	1477	1702	1927	2372
	75/65	794	983	1164	1340	1513	1852
	70/55	642	795	941	1083	1219	1485
	55/45	408	505	597	686	768	926
900	90/70	1132	1403	1662	1914	2167	2669
	75/65	893	1106	1310	1508	1702	2084
	70/55	722	895	1059	1218	1372	1671
	55/45	459	568	671	772	864	1041
1000	90/70	1258	1559	1847	2127	2408	2965
	75/65	992	1229	1455	1675	1891	2315
	70/55	803	994	1176	1354	1524	1857
	55/45	510	631	746	858	960	1157
1100	90/70	1384	1715	2032	2340	2649	3262
	75/65	1091	1352	1601	1843	2080	2547
	70/55	883	1094	1294	1489	1677	2042
	55/45	561	694	821	943	1056	1273
1200	90/70	1509	1871	2216	2553	2890	3558
	75/65	1190	1475	1746	2010	2269	2778
	70/55	963	1193	1412	1624	1829	2228
	55/45	612	757	895	1029	1152	1389
1400	90/70	1761	2183	2586	2978	3372	4151
	75/65	1389	1721	2037	2345	2647	3241
	70/55	1124	1392	1647	1895	2134	2599
	55/45	714	883	1044	1201	1345	1620
1600	90/70	2013	2495	2955	3403	3853	4744
	75/65	1587	1966	2328	2680	3026	3704
	70/55	1284	1591	1882	2166	2439	2971
	55/45	816	1010	1194	1372	1537	1852
1800	90/70	2264	2806	3324	3829	4335	5337
	75/65	1786	2212	2619	3015	3404	4167
	70/55	1445	1789	2117	2437	2744	3342
	55/45	918	1136	1343	1544	1729	2083
2000	90/70	2516	3118	3694	4254	4817	5930
	75/65	1984	2458	2910	3350	3782	4630
	70/55	1606	1988	2353	2707	3049	3713
	55/45	1020	1262	1492	1715	1921	2314
2300	90/70	2893	3586	4248	4892	5539	6744
	75/65	2282	2827	3347	3853	4349	5249
	70/55	1846	2286	2706	3113	3506	4242
	55/45	1173	1451	1716	1972	2209	2709
2600	90/70	3270	4054	4802	5531	6262	7530
	75/65	2579	3195	3783	4355	4917	5830
	70/55	2087	2585	3059	3519	3963	4713
	55/45	1326	1641	1939	2230	2497	3009
3000	90/70	3774	4677	5540	6381	7225	8630
	75/65	2976	3687	4365	5025	5673	6730
	70/55	2408	2982	3529	4061	4573	5430
	55/45	1530	1893	2238	2573	2881	3430

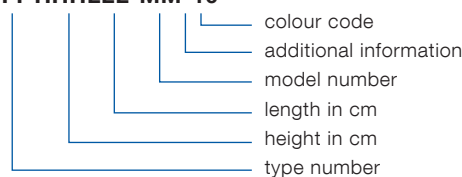


Description of how to order

Model	Series	Code for ordering
RADIK MATERNELLE VK	32	32-HHHLLL-60M10
RADIK MATERNELLE VKL	32	32-HHHLLL-E0M10

Table for creation of a code

TT-HHHLLL-MM-10



Example for creation of a code

RADIK MATERNELLE VK steel panel radiator
type 32, height H = 500 mm, length L = 1800 mm,
colour white RAL 9016

Correct code: 32-050180-60M10

QUALITY AND SAFETY

Quality of steel panel radiators RADIK

The high quality of RADIK radiators has been confirmed by acquiring the right to use the national quality marks for the European markets. These marks declare that the stipulated requirements on quality of material, technology, production process and tests of radiators RADIK are strictly followed.

The well-established quality management system according to ISO 9001:2008 standard in combination with the national quality marks guarantees the highest degree in achieving a permanent quality of products and all activities of KORADO, a.s. company on European as well as world-wide markets.

- **Quality management system according to ISO 9001:2008**



- **RAL quality mark for the German market**

is granted for the following range of panel radiators RADIK:



Registration number GZ	Model
1182	RADIK MATERNELLE VK Type 32 RADIK MATERNELLE VKL Type 32

Safety and demonstration of compliance with European directives and standards for steel panel radiators RADIK

- **European standard for radiators EN 442**



• with the CE mark, the manufacturer confirms that the RADIK radiators are consistent with those set out in the Declaration of performance prepared in accordance with Regulation No. 305/2011 (EU). This compliance has been approved by the notified body no. 1015 Strojirensky zkusebni ustav s.p. Brno.

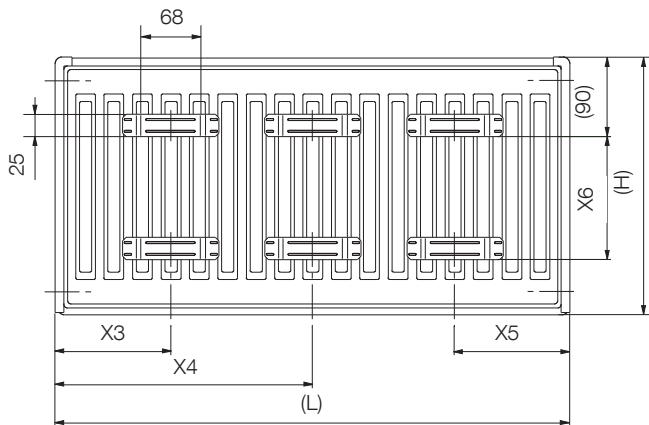


BASIC TECHNICAL PARAMETERS

	Type 32 VK Type 32 VKL					
Height H [mm]	300	400	500	600	700	900
Nominal heat output [W/m]	992	1229	1455	1675	1891	2315
Temperature exponent n [-]	1.3023	1.3051	1.3079	1.3107	1.3263	1.3574
K_r c_0	0.111002			1.30209		
b c_1	0.694734			0.00003569		
Radiator weight [kg/m]	23.4	31.0	34.4	41.4	48.4	62.3
Water volume [l/m]	3.7	4.4	5.1	5.8	6.6	8.3

DATA FOR MOUNTING

Location of hangers



Position of radiator

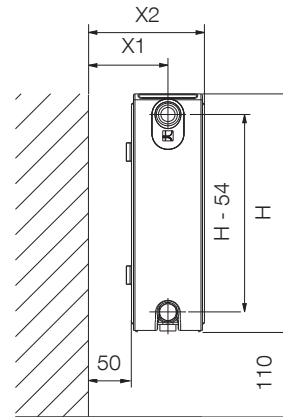


Table of sizes

Length L [mm]	400	500 - 1600	1800	2000	2300	2600	3000
X3	133	133	133	133	133	133	133
X4	-	-	900	1000	1133	1300	1500
X5	133	133	133	133	133	133	133

Height H [mm]	300	400	500	600	700	900
X6	145	245	345	445	545	745

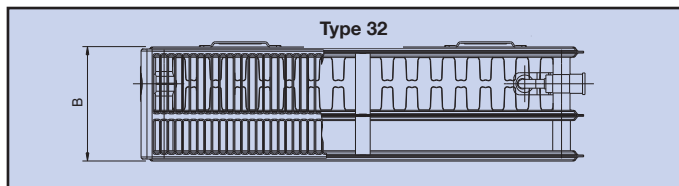


Table of sizes

Type	32 VK 32 VKL
	D = 50 mm
X1	100
X2	205

The values **X1** and **X2** depend on the type of brackets used, specifically the distance D.

Overview of types

Type	Number of panels	Number of convector plates
Type 32	3	2

COLOUR CARD



code 10
White RAL 9016



code 40
Alloy Black



code 45
Pearl Brown



code 35
Silber RAL 9006



code 42
Gold



code 32
Anthrazit Metallic



code 14
Jasmine



code 26
Pergamon



code 16
Bahama



code 22
Manhattan



code 37
Red RAL 3001



code 39
Black RAL 9005

Notice:

The colour of the radiator may vary in comparison with the colour shown in the colour card.
The standard paint finish is White RAL 9016, other colours from KORADO colour range with an extra charge 30%.
Radiators can be ordered also in other colours from RAL colour range with an extra charge 40%.





KORADO, a.s.
Bří Hubálků 869
560 02 Česká Třebová
Czech Republic

e-mail: info@korado.cz
www.korado.com

Ev. č.: 05/16.526.5 EN