

KORALINE



Free-Standing Convectors



THE KORADO GROUP

50 YEARS OF TRADITION

QUALITY – INTEGRITY – INNOVATION – DESIGN

The KORADO Group is a reliable partner for both small and large heating, cooling and heat recovery projects. Innovation guarantees high product quality and modern design, which is the basis for long-term cooperation.

SOLUTIONS FOR BUILDINGS OF ALL KINDS

Large-scale installations for shopping centres, or domestic heating at home? Standard or specially designed radiators, a bespoke convector, ventilation or heat recovery? The KORADO Group's comprehensive product portfolio offers a wide range of technical solutions for the ideal climate and interior design.

ECONOMIC, ECOLOGICAL AND EFFECTIVE THINKING

All our products are designed to reduce the energy consumption of buildings. Our heating units guarantee optimal performance, better air quality and lower energy consumption.

LICON HEAT s.r.o.

A 50-year tradition in the manufacture of convection heaters. A member of the KORADO group since 2013. LICON HEAT s.r.o. offers tailor-made projects for every type of building.



LICON HEAT s.r.o. convectors are sold all over the world. They are manufactured using the most up-to-date technology at our LICON HEAT plant in Liberec, Czech Republic.

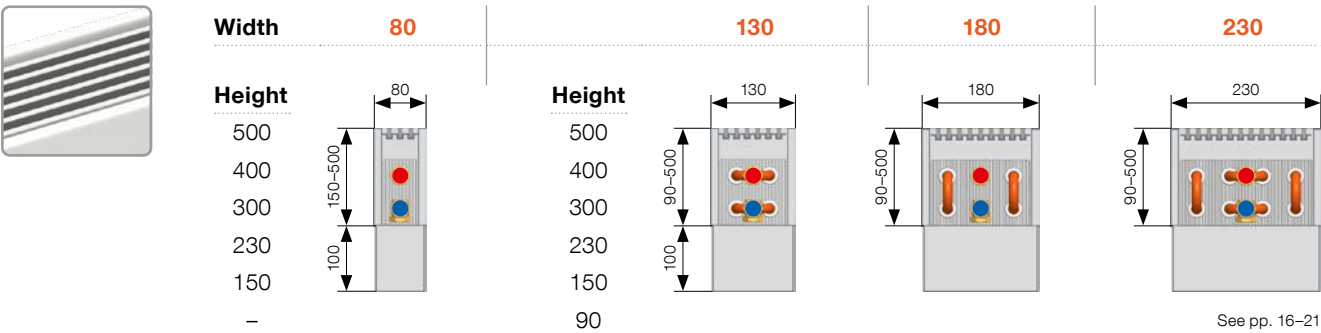


The KORADO, a.s. Head Office and production site is a modern European plant manufacturing radiators and heating units. Our technological equipment and the layout of the 30.000 m² site ensures KORADO, a.s. looks forward to further development and growth.

PRODUCT PORTFOLIO

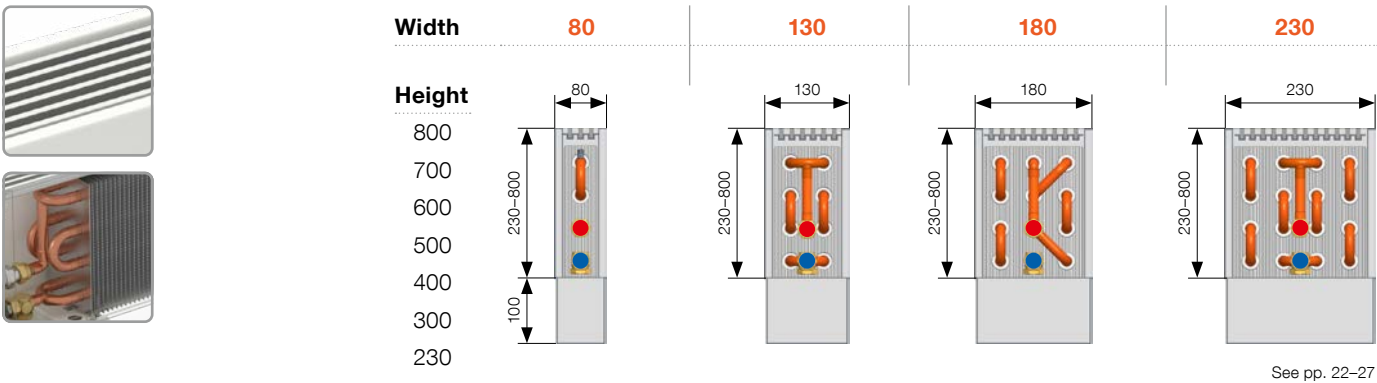
KORALINE Optimal LKO

Free-standing convectors with design grilles.



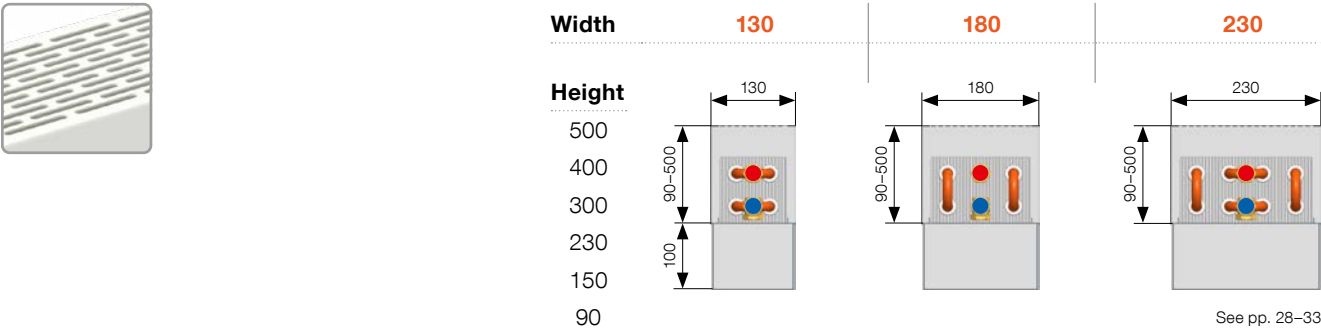
KORALINE Power LKW

Free-standing convectors with design grilles and high-performance heat exchanger.



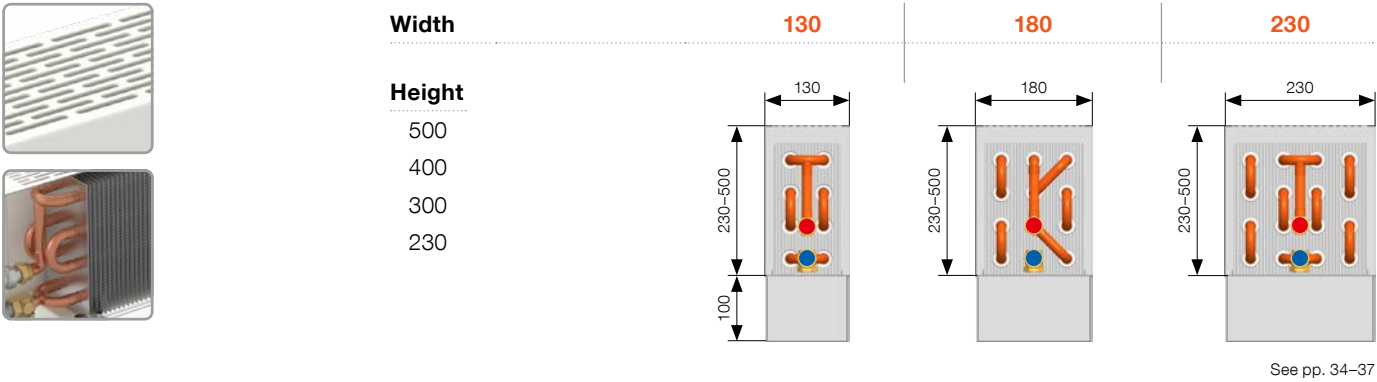
KORALINE Basic LKB

Free-standing convectors with perforated safety grille.



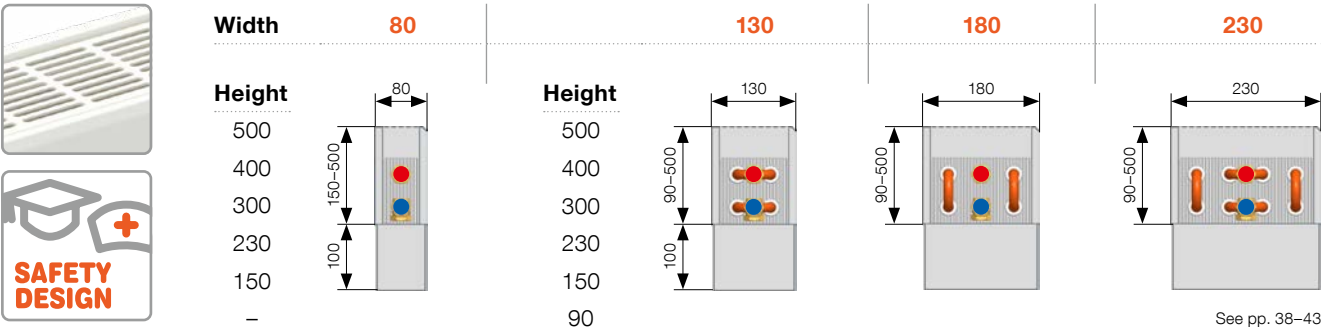
KORALINE Combi LKC

Free-standing convectors with perforated safety grille and high-performance heat exchanger.



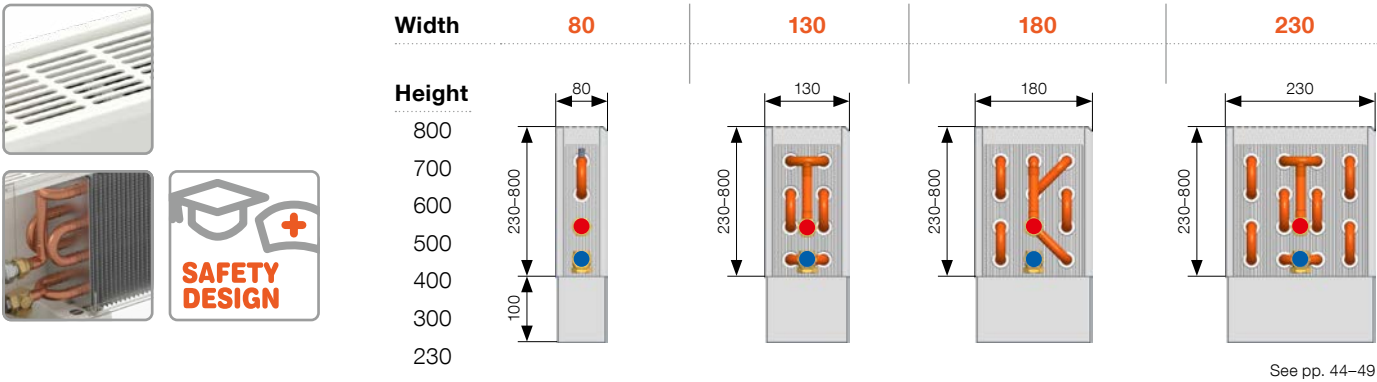
KORALINE Safe LKS

Free-standing convectors with symmetric safety pencilproof grille, robust construction with bevelled front edge and other safety features.



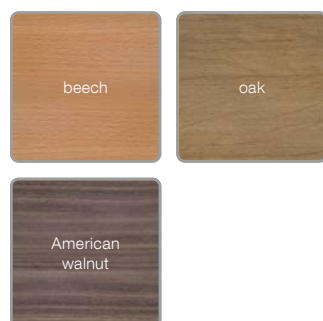
KORALINE Max LKM

Free-standing convectors with symmetric safety pencilproof grille, robust construction with bevelled front edge, high-performance heat exchanger, and other safety features.



KORALINE Optimal LDO with wooden bench top

Free-standing convectors with wooden bench top suitable for dry environments.

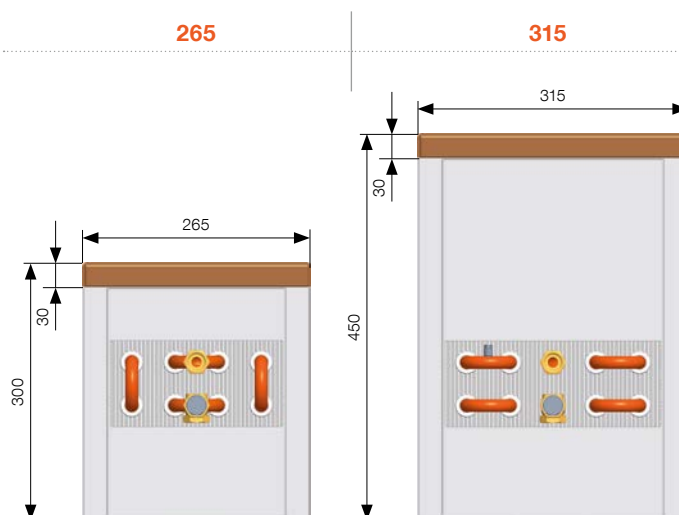


Width 265

Height

450

300



See pp. 58

KORALINE Pool LDP with wooden bench top

Free-standing convectors with wooden bench top and lacquered exchanger suitable for humid environments.

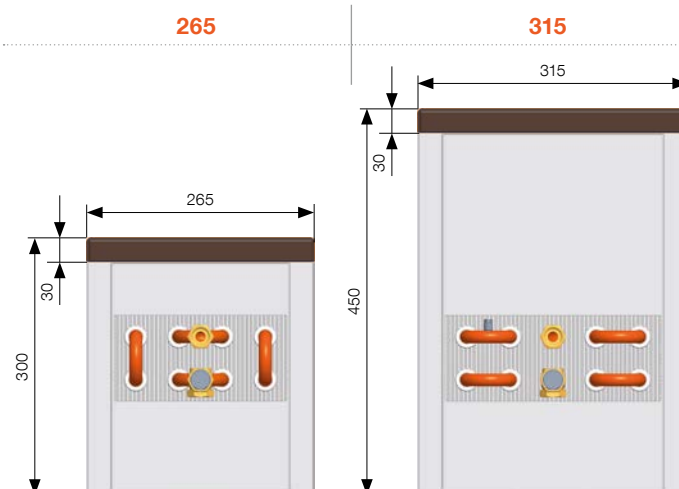


Width 265

Height

450

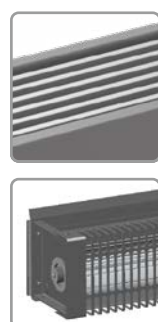
300



See pp. 59

KORALINE Optimal-V LVO with fan

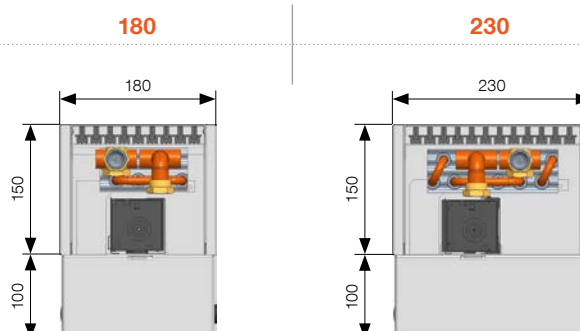
Bench convectors with design grille and high-performance electric fan.



Width 180

Height

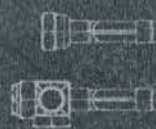
150



Floor-level bracket height above floor level for all KORALINE Optimal-V LVO models is 100 mm. Measurements in mm.

See pp. 86–91

$$\Delta t = \frac{(t_1 + t_2)}{2} - t$$





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Key to pictograms

	Natural convection		Heating		Higher output
	Forced convection		Sheet thickness		Bevelled front edge
	Quiet operation		Minimum energy consumption		Environmentally-friendly
	Wide range of designs		Suitable product		Special product
	Pool version		RAL colour chart		Varnished wood
	Pencil proof		High performance exchanger		Safety design
	Stainless steel AISI 316		Heat Pump Synergy		Information

Suitable applications of convectors

	Family homes		Apartment blocks		Administrative buildings
	Multipurpose buildings		Oil		Gas
	Solar heating		Wood, biomass		Heat pump

BIM BUILDING INFORMATION MODELING
 MagiCad supplementary documentation



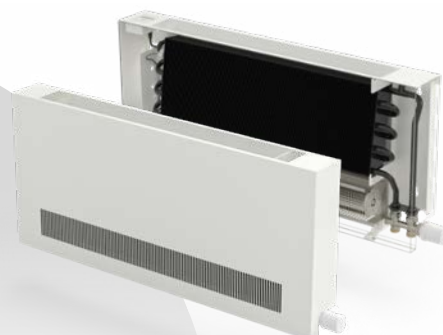
TRENCH HEATERS
KORAFLEX



FREE-STANDING
CONVECTORS
KORALINE



WALL-MOUNTED
CONVECTORS
KORAWALL



CONVECTORS
WITH FORCED
CONVECTION

FACADE
CONVECTORS
KORASPACE



CONVECTORS
WITH NATURAL
CONVECTION

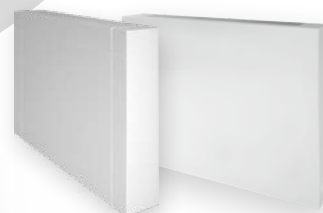


HEAT
EXCHANGERS
KORABASE

TRENCH
HEATERS
KORAFLEX



FREE-STANDING
CONVECTORS
KORALINE



WALL-MOUNTED
CONVECTORS
KORAWALL

PRODUCT PORTFOLIO

We offer a very wide range of products under one brand enabling comprehensive solutions for all types of building and space, all of which contribute to maximum compatibility, simplicity of design and service, individual solutions and financial savings.

Why choose LICON convectors?



Ideal for every interior...

Our range includes trench, wall-mounted, free-standing and custom-made convectors. Installation is non-intrusive, including in historical buildings.



Extensive range...

Our extensive range of designs caters for every interior, for both humid and dry environments. The range includes convectors that achieve high heat outputs with a design to enhance even the most demanding interior.



Effective heating...

Convectors offer rapid heat build-up, high efficiency, low energy consumption. Operation is both economical and environmentally friendly.

A safe solution...

The KORALINE Safe and Max ranges are characterised by a number of safety features that make them ideal for use in schools, healthcare and care facilities.

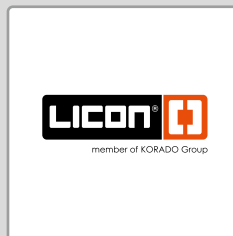
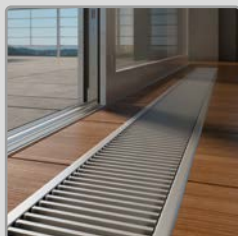


Top technology...

Convectors are compatible with heating systems operated with all types of heat sources (heat pumps, gas, electricity, solar heat, wood and biomass), including systems with a low temperature gradient. Convectors provide a safe solution, with a low surface temperature not exceeding 43 °C. KORALINE convectors include a high quality cover grille, including the option of a pencil proof version to ensure increased user safety. Forced convection convectors are 0–10 voltage controlled and powered by 24 V DC.

Easy installation and maintenance...

Quality for over 50 years



1968

The first LIKOV **steel convectors** were **manufactured** in Liberec in 1968.

1995

Product portfolio modernisation. **Production of the first trench heaters**, significantly improving the available range of design solutions.

2004

Comprehensive transformation of the company, **replacing the original LIKOV name to LICON HEAT s.r.o.**

2013

LICON HEAT s.r.o. acquired by KORADO.

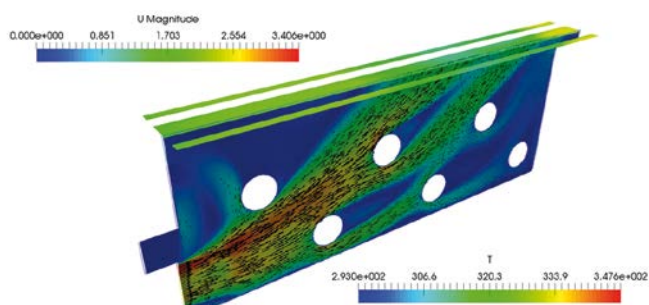
2018

New generation of heat exchangers and free-standing convectors.

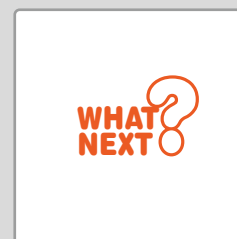
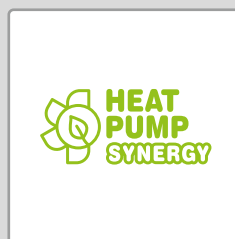
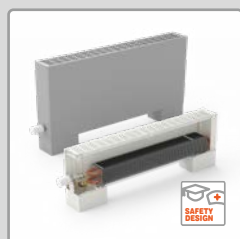
Did you know...



- The KORADO Group has its own research and development centre, equipped with EN 442 thermal output and EN 16430 heat and cooling output test chambers.
- LICON HEAT s.r.o. insists on using the most modern research and development methods, and work closely with leading experts in the field, including higher education institutions (the Technical University of Liberec, the Czech Technical University in Prague, etc.).



- We use the most up-to-date machines for the manufacture of our products, employing the principles of lean production. Products are manufactured in the shortest possible time while maintaining maximum materials and design quality.
- LICON HEAT s.r.o. is a certified ISO 9001 Quality Management supplier. Our products are manufactured and tested according to ČSN EN 442 and ČSN EN 16430 standards. CE marking indicates that LICON convectors conform to the conditions set out in the Declaration of Performance in accordance with Regulation No. 305/2011 of the European Parliament and of the European Council, and further confirmed by notified authority No. 1015, the Engineering Test Institute, Brno.



2020

New generation of KORAFLEX trench heaters

2022

In 2022, the KORALINE free-standing convectors portfolio was significantly expanded to include new types, focusing on safety, design and high performance.

2023

Convectors achieve high efficiency even at low temperature gradients and are ideal for heating buildings where the heat source is a heat pump, solar system or condensing boiler.

We will continue improving our products using the most up-to-date technologies and all our experience and knowledge gathered during 55 years of convector production.



KORALINE Combi LKC free-standing convector

KORALINE free-standing convectors with natural convection

KORALINE FREE-STANDING CONVECTORS WITH NATURAL CONVECTION



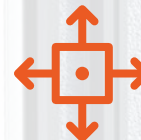
SPECIALLY DESIGNED HEAT EXCHANGER

Specially designed Al/Cu heat exchanger with twice the area of uniquely shaped fins, incorporated in the Power, Combi, Max models and guaranteeing higher heat output.



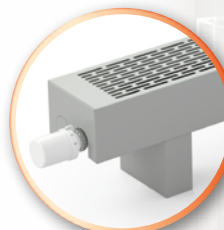
SAFETY DESIGN

New safety features built into the Safe and Max models allow them to be placed in educational or medical facilities, or other interiors where increased emphasis is placed on safety.



WIDE PORTFOLIO

The significant extension of the free-standing convector portfolio guarantees and facilitates the ideal choice for all kinds of spaces, even those with atypical dimensions.



INCREASED HEAT OUTPUT

More efficient heating translates into financial savings and increased thermal comfort in the room.



PRECISION WORKMANSHIP

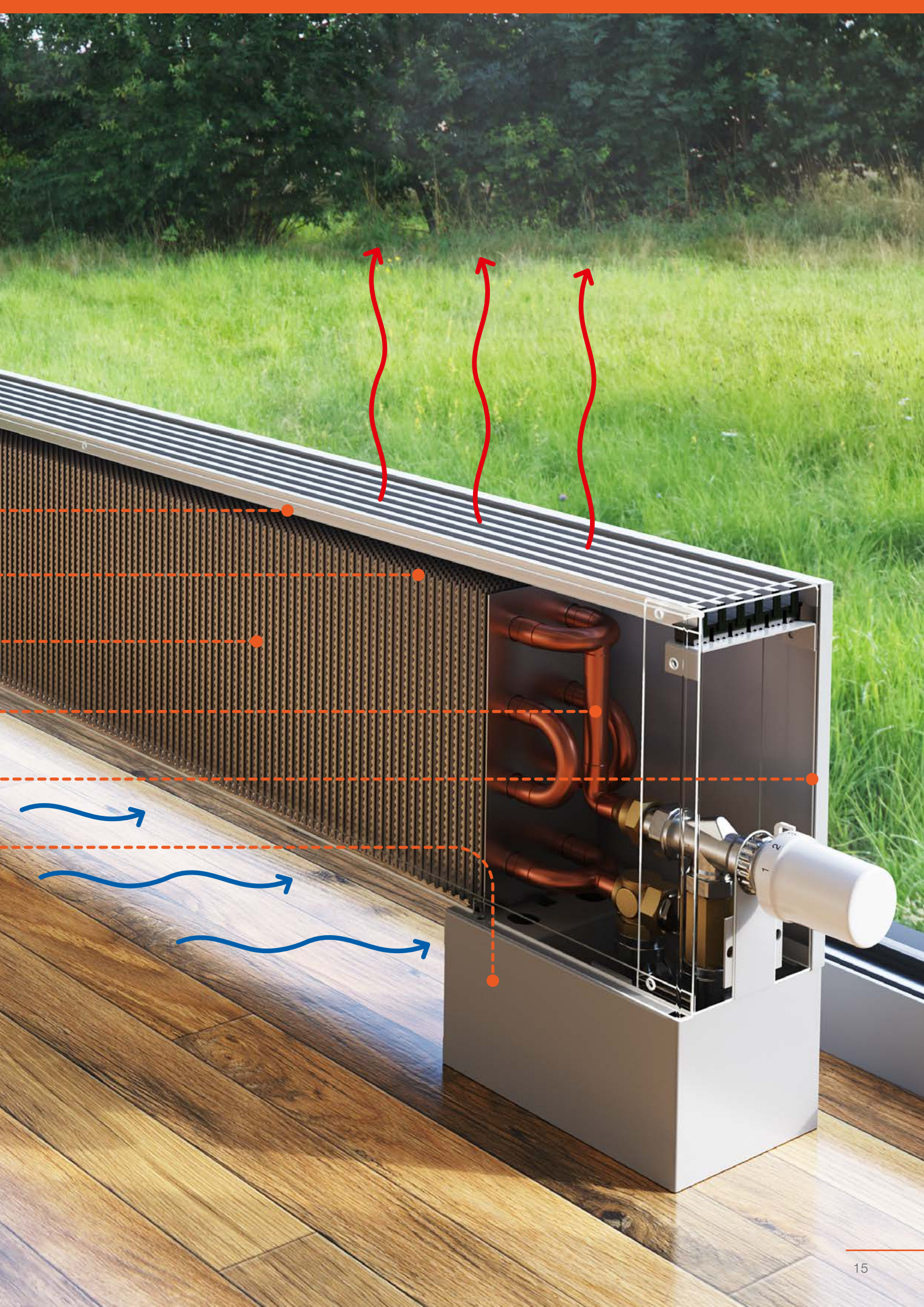
Quality technical processing of free-standing convectors is featured as standard.



CUSTOMIZED SOLUTIONS

In addition to the wide range of standard types, customized atypical KORALINE convectors are available.







KORALINE Optimal LKO

Free-standing convectors with natural convection and design grille

KORALINE Optimal LKO

Specifications

Height	90, 150, 230, 300, 400, 500 mm
Width	80, 130, 180, 230 mm
Length	600, 700, 800, 900, 1 000, 1 100, 1 200, 1 400, 1 600, 1 800, 2 000, 2 200, 2 400, 2 600, 2 800, 3 000 mm
Output	from 149 to 6 612 W
Max. operating pressure	1.2 MPa
Max. operating temperature	90 °C
Surface temperature	40 °C*
Max. surface temperature	inner G 1/2"
Connection method	lower (recommended), side

* according to inlet water temperature



The **KORALINE Optimal LKO** is our most popular model range of low surface temperature convectors, offering the optimal combination of design and heat output. The KORALINE Optimal LKO model range is made of galvanised sheet steel and fitted with a high quality aluminium silver elox grille. Due to the diverse portfolio and the optimal output, the convectors in this series are ideal for heating private houses, residential and office buildings.

Standard contents

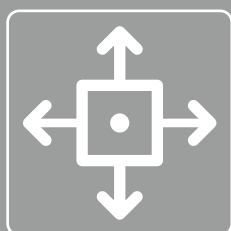
- silver elox aluminium grille
- galvanized steel casing (RAL 9016 white or RAL 9005 black lacquer)
- Al/Cu heat exchanger for universal connections, low water content, bleed valve, uniquely shaped fins
- magnetic side cover in casing colour
- axial thermostatic valve, thread M 30 × 1.5 (see p. 66)
- extension nipple for convectors from 150 mm in height (see p. 66)
- transport stopper and bracket mount (see p. 52)
- floor-level brackets
- wall fixing mounts for convectors from 400 mm in height (see p. 53)
- safely packaged with assembly instructions

Optional accessories

- further RAL lacquers for casings available
- floor-level bracket casings (see p. 52)
- wall brackets (see p. 53)
- sub-floor brackets (see p. 53)
- elbow or straight lockshield (see p. 68)
- elbow or straight thermostatic valve (see p. 68)
- TEP 230 or TEP 24 thermoelectric actuator (see p. 66)
- SIEMENS RAA21 or RDE 100.1 room thermostat (see p. 68)
- QAA32 room temperature sensor (see p. 94)
- thermostatic head (see p. 67)
- thermostatic head with incorporated control and immersion remote sensor (see p. 67)



Silver elox aluminium grille



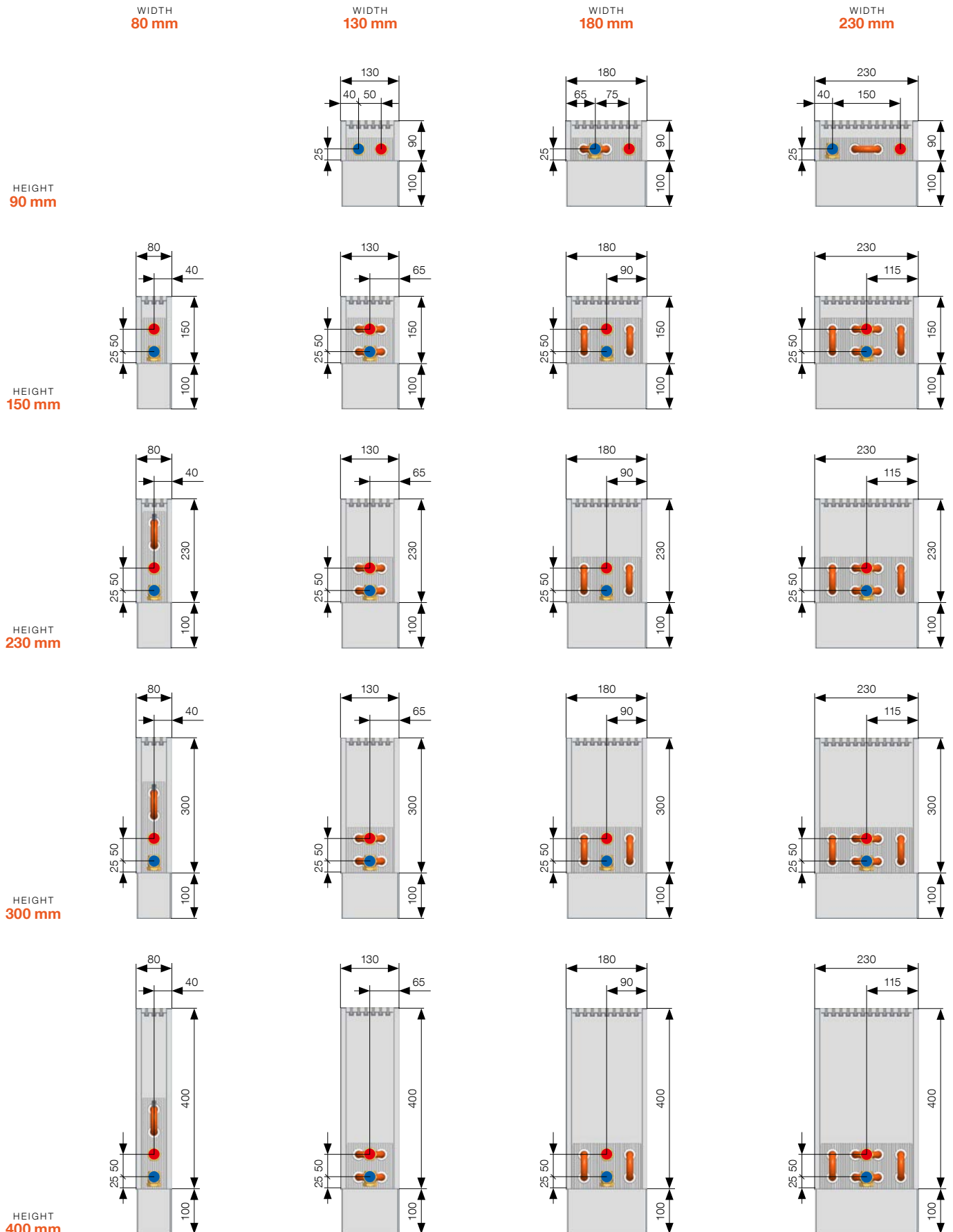
6 heights, 4 widths,
16 lengths, totalling
368 standard types



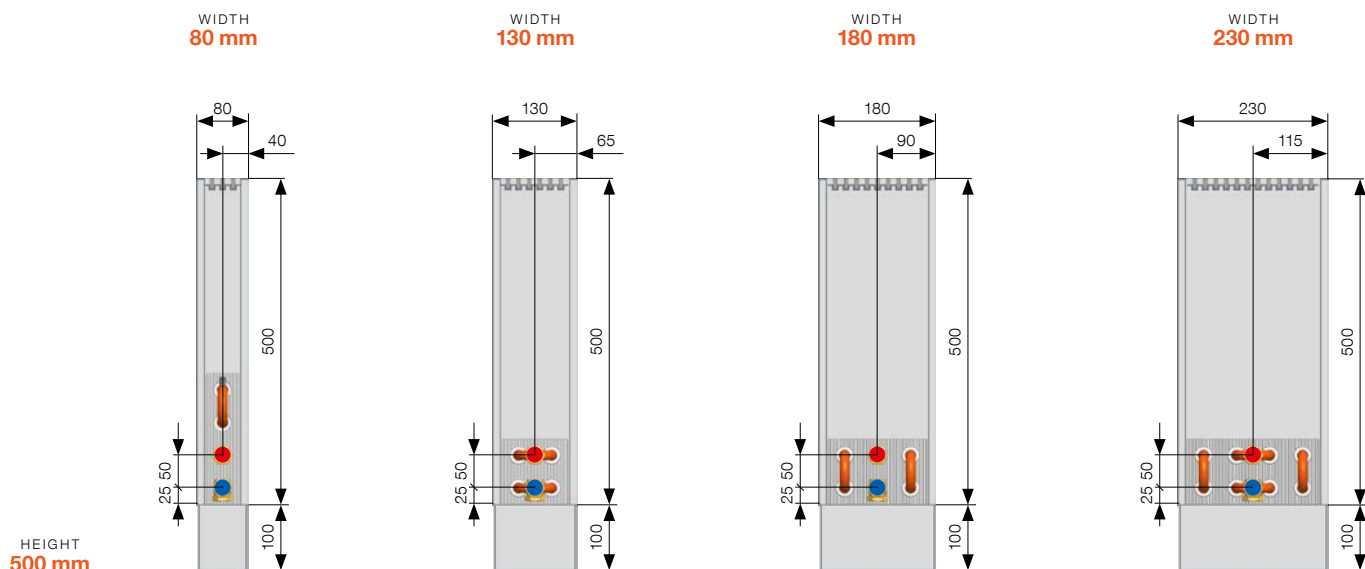
Other RAL colour chart
lacquers available

SUMMARY OF TYPES

KORALINE Optimal LKO



Floor-level bracket height above floor level for all KORALINE models is 100 mm. Measurements in mm. Alterations to technical specifications reserved.

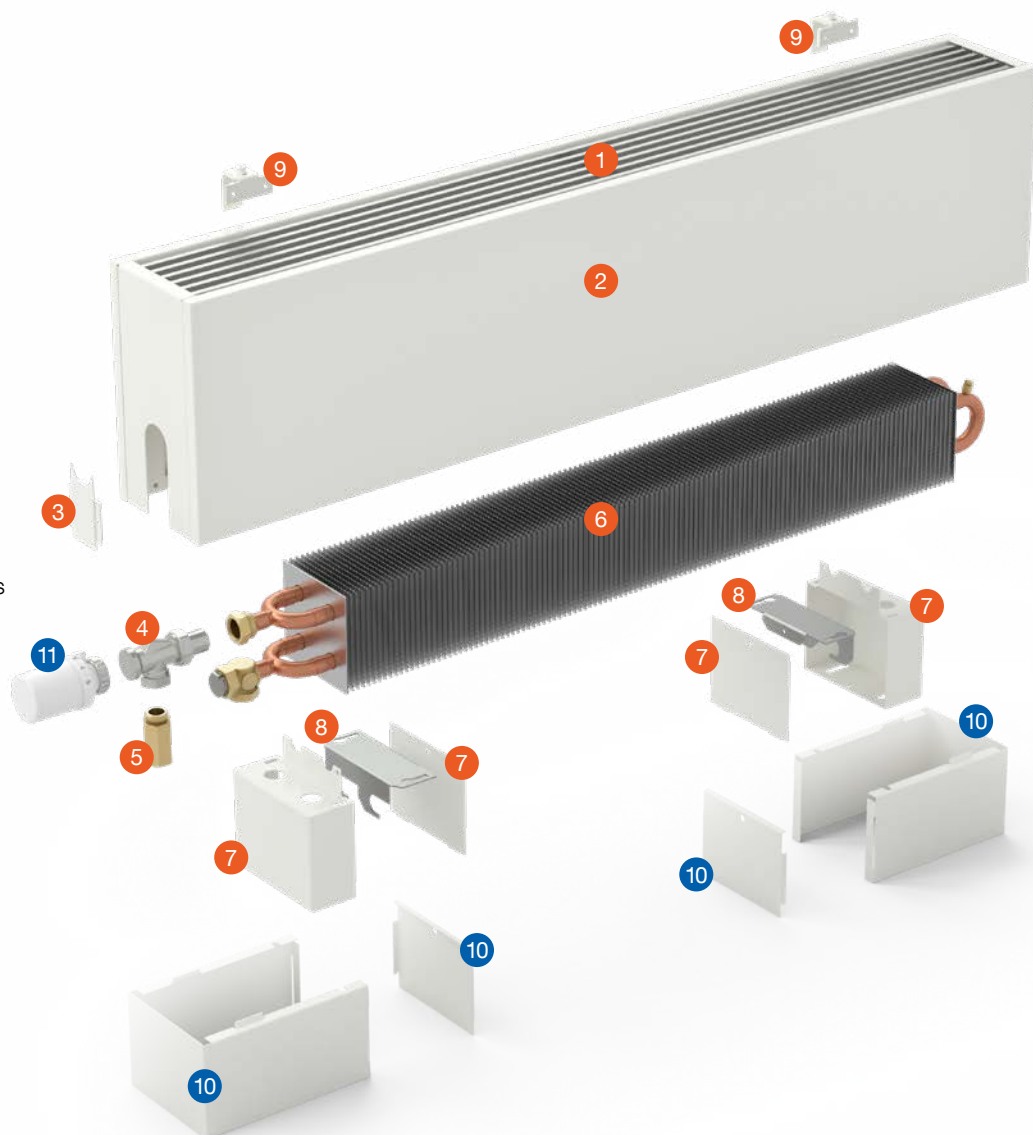


Floor-level bracket height above floor level for all KORALINE models is 100 mm. Measurements in mm. Alterations to technical specifications reserved.

Convactor composition

- 1 silver elox aluminium grille
- 2 galvanized steel casing
- 3 magnetic side cover in casing colour
- 4 axial thermostatic valve
- 5 extension nipple for convectors from 150 mm in height
- 6 Al/Cu heat exchanger
- 7 floor-level bracket
- 8 transport stopper and bracket mount
- 9 wall fixing mounts for convectors from 400 mm in height
- 10 floor-level bracket casing
- 11 thermostatic head

● Standard contents
 ● summary of optional accessories:
 for KORALINE Optimal LKO model, see p. 17,
 for KORALINE Power LKW model, see p. 23

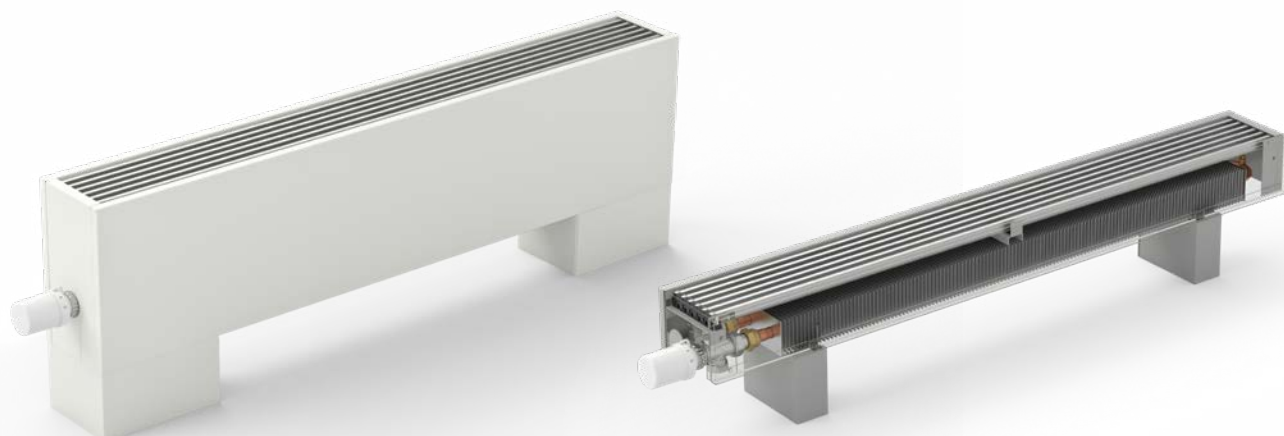


HEAT OUTPUTS

Heat output [W] where $t_1/t_2/t_3 = 75/65/20$ °C ($\Delta t=50$), and $55/45/20$ °C ($\Delta t=30$) / EN 442

KORALINE Optimal LKO												
Length	$t_1/t_2/t_3$ [°C]	Height 90			Height 150				Height 230			
		Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230
600	75/65/20	203	322	454	149	264	471	579	208	295	555	683
	55/45/20	99	158	225	71	130	228	279	100	145	270	330
700	75/65/20	252	397	563	185	336	584	737	258	375	689	869
	55/45/20	123	195	279	88	165	283	355	125	184	335	420
800	75/65/20	301	473	673	221	409	698	895	308	456	823	1 056
	55/45/20	147	233	333	105	201	338	431	149	223	400	511
900	75/65/20	350	548	783	257	481	812	1 053	358	536	957	1 242
	55/45/20	171	270	388	122	236	393	507	173	263	465	601
1 000	75/65/20	399	624	892	293	553	925	1 211	408	617	1 091	1 429
	55/45/20	195	307	442	140	272	448	583	197	302	531	691
1 100	75/65/20	448	699	1 002	329	625	1 039	1 369	459	698	1 225	1 615
	55/45/20	219	344	496	157	307	503	659	221	342	596	781
1 200	75/65/20	497	775	1 112	365	697	1 153	1 527	509	778	1 359	1 802
	55/45/20	243	381	551	174	343	558	735	246	381	661	872
1 400	75/65/20	595	926	1 331	437	842	1 380	1 843	609	939	1 627	2 175
	55/45/20	291	456	659	208	414	668	888	294	460	791	1 052
1 600	75/65/20	693	1 077	1 550	509	986	1 607	2 159	709	1 100	1 895	2 548
	55/45/20	338	530	768	243	485	778	1 040	343	539	922	1 233
1 800	75/65/20	791	1 228	1 769	581	1 130	1 834	2 475	810	1 261	2 164	2 921
	55/45/20	386	604	876	277	556	888	1 192	391	618	1 052	1 413
2 000	75/65/20	889	1 379	1 988	653	1 275	2 062	2 791	910	1 422	2 432	3 294
	55/45/20	434	678	985	311	627	998	1 344	439	697	1 182	1 594
2 200	75/65/20	987	1 530	2 208	725	1 419	2 289	3 108	1 010	1 584	2 700	3 667
	55/45/20	482	753	1 094	346	698	1 108	1 497	488	776	1 313	1 774
2 400	75/65/20	1 084	1 681	2 427	797	1 564	2 516	3 424	1 111	1 745	2 968	4 040
	55/45/20	530	827	1 202	380	769	1 218	1 649	536	855	1 443	1 954
2 600	75/65/20	1 182	1 832	2 646	869	1 708	2 744	3 740	1 211	1 906	3 236	4 413
	55/45/20	578	901	1 311	414	840	1 328	1 801	585	934	1 573	2 135
2 800	75/65/20	1 280	1 983	2 865	941	1 852	2 971	4 056	1 311	2 067	3 504	4 786
	55/45/20	626	976	1 419	448	911	1 438	1 953	633	1 013	1 704	2 315
3 000	75/65/20	1 378	2 134	3 085	1 013	1 997	3 198	4 372	1 412	2 228	3 772	5 159
	55/45/20	673	1 050	1 528	483	982	1 548	2 106	682	1 092	1 834	2 496
Temperature exponent [n]		1.4021	1.3880	1.3752	1.4503	1.3900	1.4204	1.4302	1.4250	1.3958	1.4115	1.4215

Measurements in mm.



KORALINE Optimal LKO													
Length	$t_1/t_2/t_i$ [°C]	Height 300				Height 400				Height 500			
		Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230
600	75/65/20	223	317	610	750	243	346	668	822	261	373	710	875
	55/45/20	108	155	298	364	117	169	328	402	125	181	350	430
700	75/65/20	277	404	757	955	302	441	829	1 047	324	474	881	1 114
	55/45/20	133	198	369	464	145	215	407	511	155	230	435	547
800	75/65/20	331	491	904	1 160	360	535	990	1 272	387	576	1 052	1 353
	55/45/20	159	240	441	563	173	261	486	621	185	280	520	664
900	75/65/20	385	578	1 051	1 365	419	630	1 151	1 497	450	678	1 224	1 592
	55/45/20	185	282	513	663	201	307	565	731	215	329	604	782
1 000	75/65/20	439	664	1 198	1 570	477	725	1 313	1 721	513	780	1 395	1 831
	55/45/20	211	325	585	763	229	353	644	841	245	378	689	899
1 100	75/65/20	493	751	1 346	1 775	536	819	1 474	1 946	576	882	1 567	2 070
	55/45/20	237	367	657	862	257	399	724	950	275	428	773	1 016
1 200	75/65/20	547	838	1 493	1 980	595	914	1 635	2 171	639	984	1 738	2 309
	55/45/20	263	410	729	962	286	445	803	1 060	306	477	858	1 134
1 400	75/65/20	654	1 011	1 787	2 390	712	1 103	1 958	2 620	765	1 187	2 081	2 787
	55/45/20	315	494	873	1 161	342	537	961	1 279	366	576	1 027	1 369
1 600	75/65/20	762	1 185	2 082	2 800	829	1 292	2 280	3 069	891	1 391	2 424	3 265
	55/45/20	367	579	1 016	1 360	398	629	1 120	1 499	426	675	1 197	1 603
1 800	75/65/20	870	1 358	2 376	3 210	947	1 481	2 603	3 519	1 017	1 594	2 766	3 743
	55/45/20	419	664	1 160	1 559	454	721	1 278	1 718	486	774	1 366	1 838
2 000	75/65/20	978	1 532	2 671	3 620	1 064	1 670	2 925	3 968	1 143	1 798	3 109	4 221
	55/45/20	471	749	1 304	1 758	511	814	1 436	1 938	547	873	1 535	2 073
2 200	75/65/20	1 086	1 705	2 965	4 030	1 181	1 860	3 248	4 418	1 269	2 002	3 452	4 699
	55/45/20	523	834	1 448	1 957	567	906	1 595	2 157	607	971	1 704	2 308
2 400	75/65/20	1 194	1 878	3 260	4 440	1 299	2 049	3 571	4 867	1 395	2 205	3 795	5 177
	55/45/20	575	918	1 591	2 156	623	998	1 753	2 377	667	1 070	1 874	2 542
2 600	75/65/20	1 301	2 052	3 554	4 850	1 416	2 238	3 893	5 317	1 521	2 409	4 138	5 655
	55/45/20	627	1 003	1 735	2 355	680	1 090	1 911	2 596	728	1 169	2 043	2 777
2 800	75/65/20	1 409	2 225	3 849	5 260	1 533	2 427	4 216	5 766	1 647	2 613	4 481	6 133
	55/45/20	679	1 088	1 879	2 554	736	1 182	2 070	2 816	788	1 268	2 212	3 012
3 000	75/65/20	1 517	2 399	4 143	5 670	1 651	2 616	4 538	6 215	1 773	2 816	4 823	6 612
	55/45/20	731	1 173	2 023	2 753	792	1 274	2 228	3 035	848	1 367	2 381	3 247
Temperature exponent [n]		1.4298	1.4009	1.4038	1.4139	1.4367	1.4081	1.3927	1.4031	1.4436	1.4153	1.3816	1.3923

Measurements in mm.

ORDER CODE

KORALINE	Natural convection	Type	Length [cm]	Height [cm]	Width [cm]	Convector connection	Heat exchanger colour	Materials used	Grille type	Grille colour	Casing colour
L	K	O Optimal	- ... / .. / ..	- V	counter-flow	1 elox silver	S steel	A aluminium	1 elox silver	- 10 white RAL 9016 39 black RAL 9005 ** see colour chart p. 109 99 other RAL colour	

Example order code: **LKO-140/23/18-V1SA1-10**

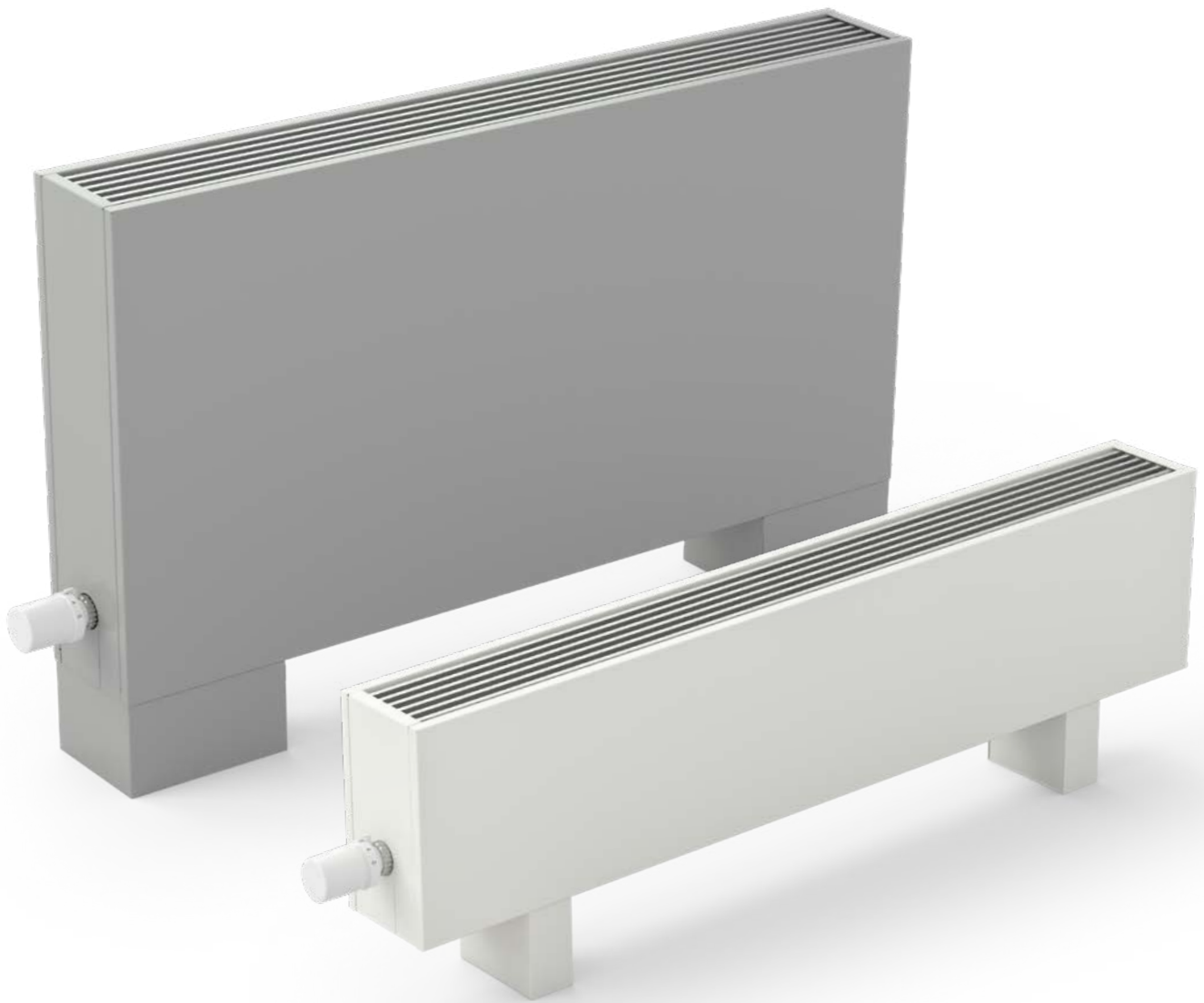
KORALINE Optimal free-standing convector, Length 140 cm, Height 23 cm, Width 18 cm, Steel casing white RAL 9016, silver elox aluminium grille.



For calculations for other temperature gradients, see p. 81 or visit www.licon.cz

Further information

Assembly and mounting p. 51, Accessories p. 65, Technical data p. 71, Colour chart p. 109



KORALINE Power LKW

Free-standing convectors with natural convection, design grille and high-performance heat exchanger

KORALINE Power LKW

Specifications

Height	230, 300, 400, 500, 600, 700, 800 mm
Width	80, 130, 180, 230 mm
Length	600, 700, 800, 900, 1 000, 1 100, 1 200, 1 400, 1 600, 1 800, 2 000, 2 200, 2 400, 2 600, 2 800, 3 000 mm
Output	from 220 to 7 400 W
Max. operating pressure	1.2 MPa
Max. operating temperature	90 °C
Surface temperature	40 °C*
Connecting thread	inner G 1/2"
Connection method	lower (recommended), side

* according to inlet water temperature



The **KORALINE Power LKW** model range is our most extensive product range. This model features a high-performance heat exchanger with double the area of uniquely shaped fins. The design and dimensions of the heat exchanger ensure efficient heat transfer. The entire model series achieves higher heat outputs while maintaining all the design features of KORALINE convectors. The KORALINE Power LKW range is manufactured using galvanized sheet steel and is fitted with a high quality silver elox grille. Due to the maximized output, more compact dimensions and perfect design, these convectors have been designed to heat both domestic homes and non-residential premises, including large office buildings.

Standard contents

- silver elox aluminium grille
- galvanized steel casing RAL 9016 white or RAL 9005 black lacquer
- high-performance Al/Cu heat exchanger for universal connections, low water content, bleed valve, double the area of uniquely shaped fins for maximum heat output
- magnetic side cover in casing colour
- axial thermostatic valve, M 30 × 1.5 thread (see p. 66)
- extension nipple for convectors from 150 mm in height (see p. 66)
- transport stopper and bracket mount (see p. 52)
- floor level brackets
- wall fixing mounts for convectors from 400 mm in height (see p. 53)
- instructions and durable packaging

Optional accessories

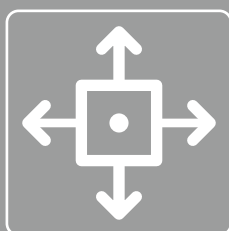
- further RAL lacquers for casings available
- floor-level bracket casings (see p. 52)
- wall brackets (see p. 53)
- sub-floor brackets (see p. 53)
- elbow or straight lockshield (see p. 68)
- elbow or straight thermostatic valve (see p. 68)
- TEP 230 or TEP 24 thermoelectric actuator (see p. 66)
- SIEMENS RAA21 or RDE 100.1 room thermostat (see p. 68)
- QAA32 room temperature sensor (see p. 94)
- thermostatic head (see p. 67)
- thermostatic head with incorporated control and immersion remote sensor (see p. 67)



Silver elox aluminium grille



High-performance heat exchanger with double area of fins



7 heights, 4 widths, 16 lengths, totalling 388 standard types



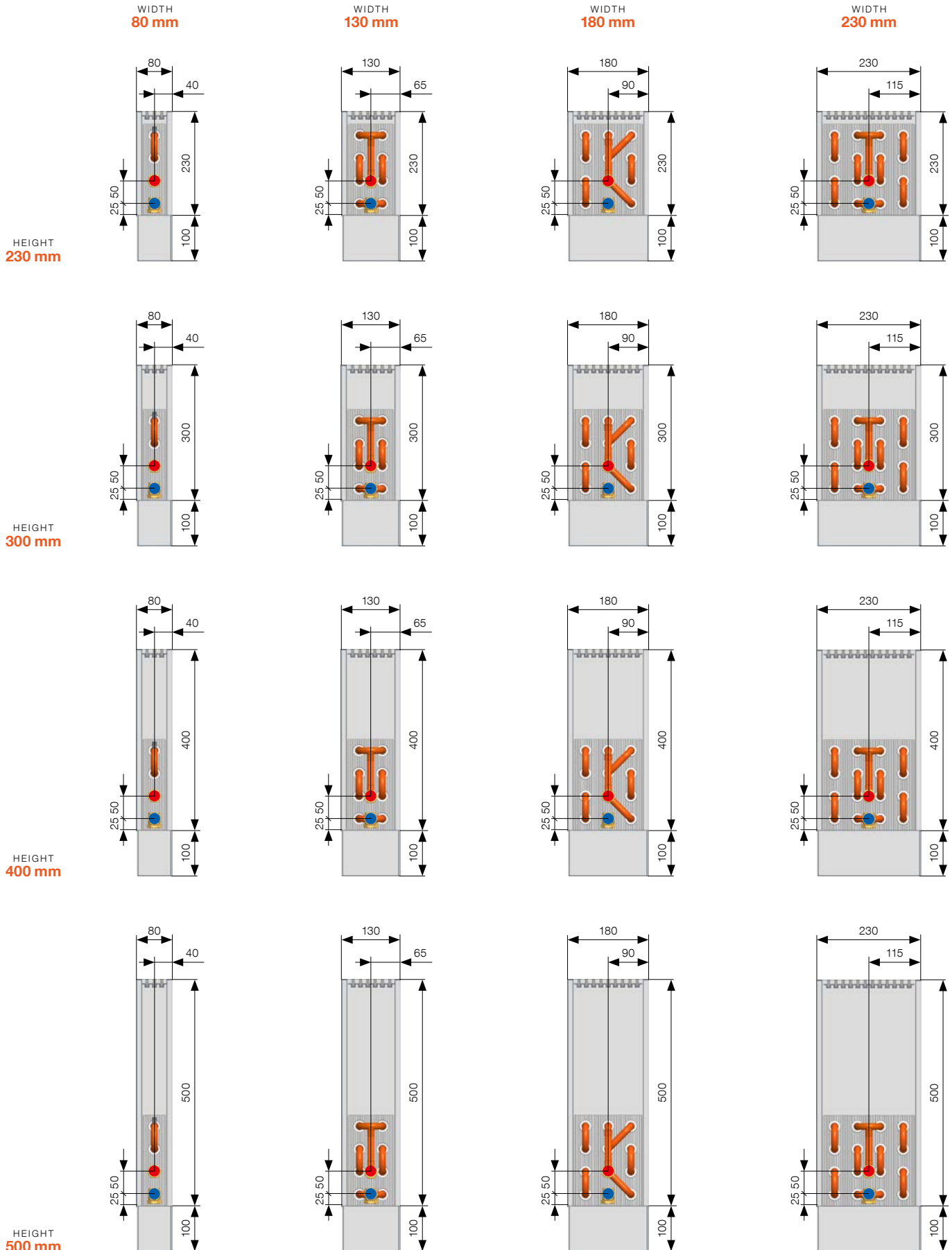
Other RAL colour chart lacquers available



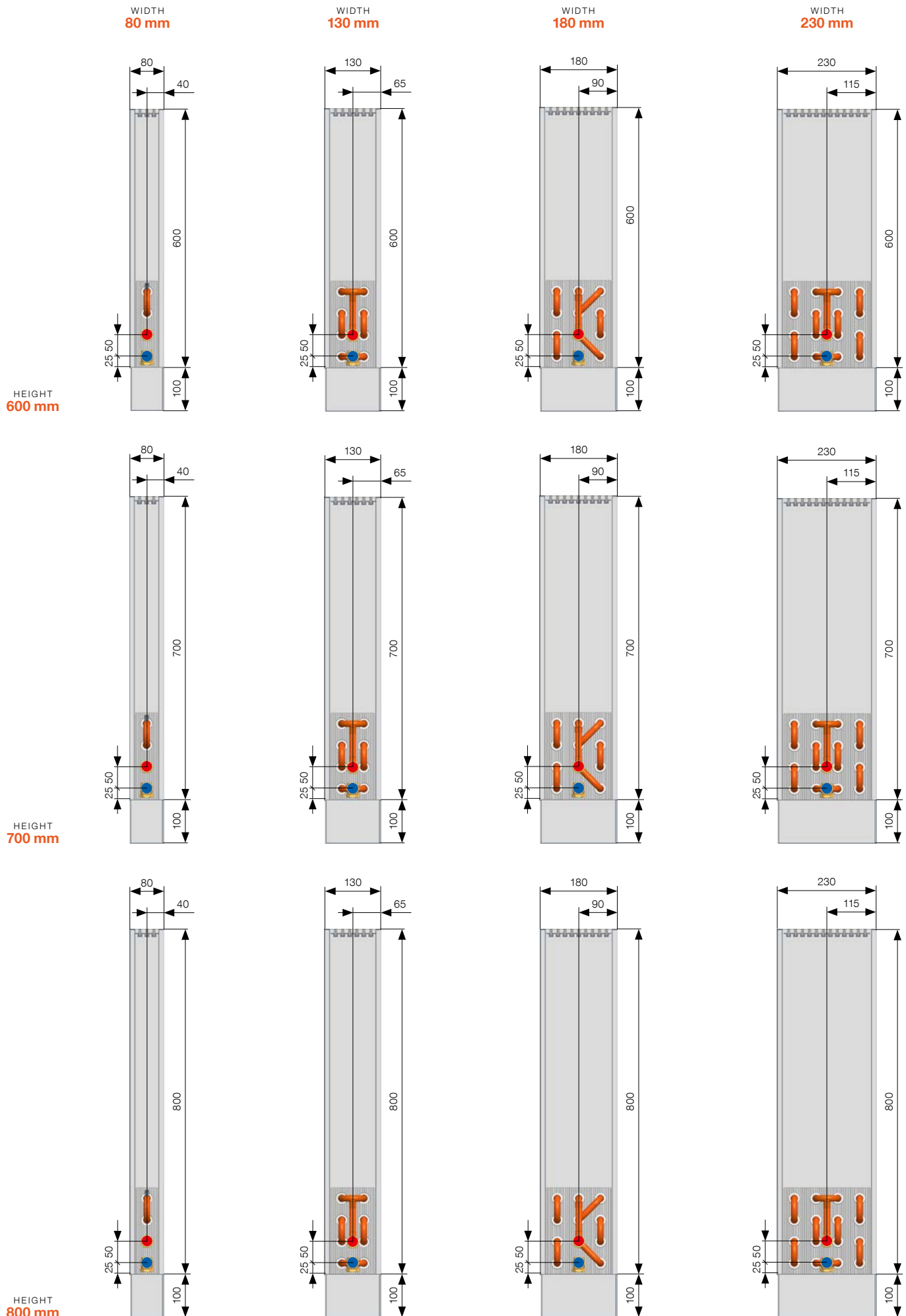
High heating performance

SUMMARY OF TYPES

KORALINE Power LKW



Floor-level bracket height above floor level for all KORALINE models is 100 mm. Measurements in mm. Alterations to technical specifications reserved.



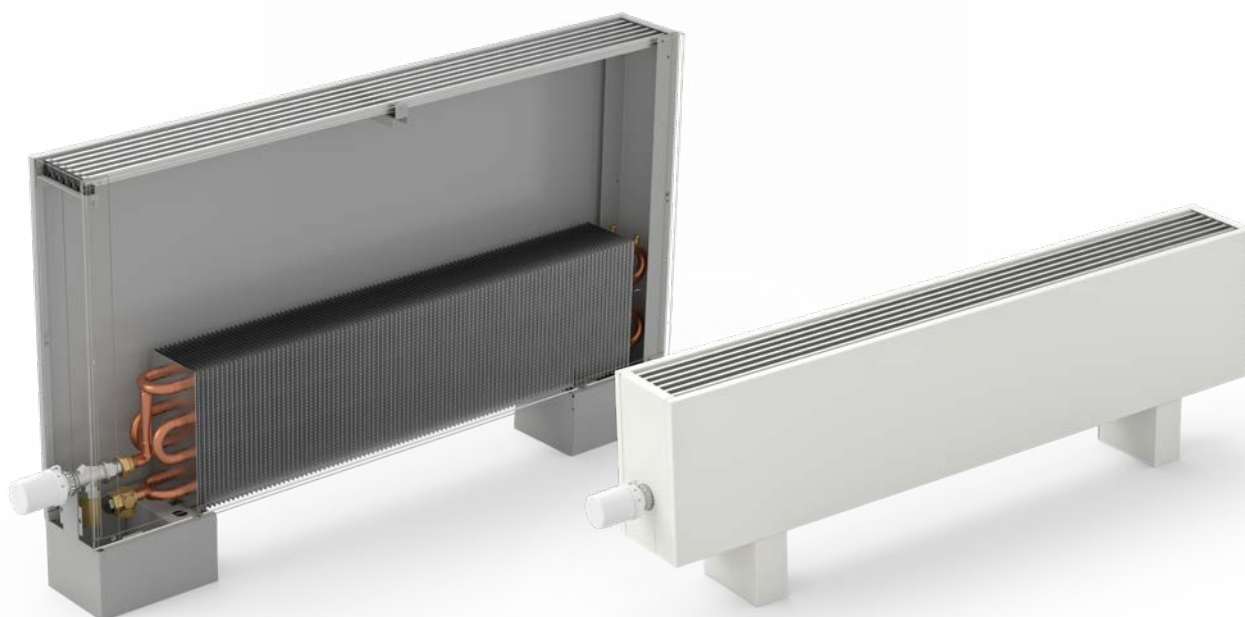
Floor-level bracket height above floor level for all KORALINE models is 100 mm. Measurements in mm. Alterations to technical specifications reserved.

HEAT OUTPUTS

Heat output [W] where $t_1/t_2/t_3 = 75/65/20\text{ }^{\circ}\text{C}$ ($\Delta t=50$), and $55/45/20\text{ }^{\circ}\text{C}$ ($\Delta t=30$) / EN 442

KORALINE Power LKW													
Length	$t_1/t_2/t_3$ [$^{\circ}\text{C}$]	Height 230				Height 300				Height 400			
		Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230
600	75/65/20	220	405	588	802	236	437	633	865	254	470	680	931
	55/45/20	112	199	286	386	119	216	308	418	129	233	333	452
700	75/65/20	274	516	757	1 021	292	557	815	1 101	316	599	876	1 186
	55/45/20	139	254	368	492	148	275	397	532	160	297	429	576
800	75/65/20	327	627	926	1 240	349	676	997	1 338	377	728	1 072	1 440
	55/45/20	166	308	450	597	177	334	486	646	191	361	525	699
900	75/65/20	380	738	1 096	1 459	406	795	1 179	1 574	438	856	1 268	1 695
	55/45/20	193	363	533	703	206	393	575	761	222	424	621	823
1 000	75/65/20	433	848	1 265	1 678	463	915	1 362	1 810	500	985	1 464	1 949
	55/45/20	220	417	615	808	235	451	664	875	253	488	717	946
1 100	75/65/20	487	959	1 434	1 897	520	1 034	1 544	2 046	561	1 113	1 660	2 204
	55/45/20	247	472	698	914	264	510	753	989	284	552	813	1 070
1 200	75/65/20	540	1 070	1 604	2 116	577	1 154	1 726	2 283	623	1 242	1 856	2 458
	55/45/20	274	526	780	1 019	292	569	842	1 103	315	615	909	1 193
1 400	75/65/20	647	1 292	1 942	2 554	691	1 393	2 091	2 755	745	1 499	2 247	2 967
	55/45/20	328	635	945	1 230	350	687	1 020	1 332	377	743	1 100	1 440
1 600	75/65/20	753	1 513	2 281	2 992	804	1 631	2 455	3 228	868	1 756	2 639	3 476
	55/45/20	382	744	1 109	1 442	408	805	1 197	1 560	439	870	1 292	1 687
1 800	75/65/20	860	1 735	2 620	3 430	918	1 870	2 820	3 701	991	2 013	3 031	3 985
	55/45/20	437	853	1 274	1 653	465	923	1 375	1 788	501	998	1 484	1 934
2 000	75/65/20	966	1 956	2 959	3 868	1 032	2 109	3 185	4 173	1 114	2 270	3 423	4 494
	55/45/20	491	962	1 439	1 864	523	1 041	1 553	2 017	563	1 125	1 676	2 181
2 200	75/65/20	1 073	2 178	3 297	4 306	1 146	2 348	3 549	4 646	1 237	2 527	3 815	5 003
	55/45/20	545	1 071	1 603	2 075	581	1 159	1 731	2 245	625	1 253	1 868	2 428
2 400	75/65/20	1 179	2 399	3 636	4 744	1 259	2 587	3 914	5 119	1 360	2 784	4 207	5 512
	55/45/20	599	1 180	1 768	2 286	638	1 277	1 909	2 474	687	1 380	2 060	2 676
2 600	75/65/20	1 286	2 621	3 975	5 182	1 373	2 826	4 278	5 591	1 482	3 041	4 599	6 021
	55/45/20	653	1 289	1 933	2 497	696	1 394	2 086	2 702	749	1 507	2 252	2 923
2 800	75/65/20	1 392	2 842	4 313	5 621	1 487	3 065	4 643	6 064	1 605	3 298	4 990	6 530
	55/45/20	707	1 398	2 098	2 708	754	1 512	2 264	2 930	811	1 635	2 444	3 170
3 000	75/65/20	1 499	3 064	4 652	6 059	1 601	3 303	5 007	6 536	1 728	3 556	5 382	7 039
	55/45/20	761	1 507	2 262	2 919	811	1 630	2 442	3 159	874	1 762	2 635	3 417
Temperature exponent [n]		1.3261	1.3885	1.4113	1.4295	1.3299	1.3826	1.4058	1.4236	1.3353	1.3741	1.3979	1.4151

Measurements in mm.



KORALINE Power LKW																	
Length	t ₁ /t ₂ /t _i [°C]	Height 500				Height 600				Height 700				Height 800			
		Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230
600	75/65/20	271	494	714	979	287	512	739	1 014	302	524	757	1 039	316	533	770	1 056
	55/45/20	137	246	351	477	144	256	365	496	151	263	375	511	158	269	383	522
700	75/65/20	337	630	920	1 247	356	652	952	1 291	375	667	976	1 323	393	679	992	1 345
	55/45/20	170	313	452	608	179	326	470	632	188	335	483	650	196	342	494	664
800	75/65/20	402	765	1 126	1 514	425	791	1 165	1 568	447	811	1 194	1 606	469	824	1 214	1 633
	55/45/20	203	381	553	738	214	396	575	768	224	407	592	790	234	416	604	807
900	75/65/20	467	900	1 331	1 782	495	931	1 378	1 845	520	954	1 412	1 890	545	970	1 436	1 922
	55/45/20	236	448	655	869	249	466	680	903	261	479	700	929	273	489	715	949
1 000	75/65/20	533	1 035	1 537	2 049	564	1 071	1 591	2 122	593	1 097	1 630	2 174	622	1 115	1 658	2 210
	55/45/20	269	515	756	999	283	535	785	1 039	297	551	808	1 069	311	562	825	1 092
1 100	75/65/20	598	1 170	1 743	2 317	633	1 211	1 804	2 399	666	1 240	1 848	2 458	698	1 261	1 880	2 499
	55/45/20	302	582	857	1 129	318	605	891	1 175	334	623	916	1 209	349	636	936	1 234
1 200	75/65/20	664	1 305	1 949	2 585	702	1 351	2 017	2 676	739	1 384	2 067	2 742	774	1 407	2 102	2 787
	55/45/20	335	650	958	1 260	353	675	996	1 310	370	695	1 024	1 348	387	709	1 046	1 377
1 400	75/65/20	795	1 575	2 360	3 120	841	1 630	2 443	3 230	885	1 670	2 503	3 309	927	1 698	2 546	3 364
	55/45/20	401	784	1 160	1 521	423	815	1 206	1 581	444	839	1 241	1 627	464	856	1 267	1 662
1 600	75/65/20	926	1 845	2 772	3 655	979	1 910	2 869	3 784	1 030	1 957	2 940	3 877	1 080	1 989	2 990	3 942
	55/45/20	467	919	1 363	1 782	492	955	1 416	1 853	517	982	1 457	1 906	540	1 003	1 488	1 947
1 800	75/65/20	1 057	2 115	3 184	4 190	1 118	2 190	3 295	4 338	1 176	2 243	3 376	4 444	1 233	2 280	3 434	4 519
	55/45/20	533	1 053	1 565	2 042	562	1 095	1 626	2 124	590	1 126	1 673	2 186	616	1 150	1 709	2 232
2 000	75/65/20	1 188	2 386	3 595	4 725	1 256	2 469	3 721	4 892	1 322	2 530	3 813	5 012	1 385	2 572	3 878	5 096
	55/45/20	599	1 187	1 767	2 303	632	1 234	1 837	2 395	663	1 270	1 890	2 465	693	1 297	1 930	2 517
2 200	75/65/20	1 319	2 656	4 007	5 260												
	55/45/20	665	1 322	1 970	2 564												
2 400	75/65/20	1 450	2 926	4 418	5 795												
	55/45/20	731	1 456	2 172	2 825												
2 600	75/65/20	1 581	3 196	4 830	6 330												
	55/45/20	797	1 591	2 374	3 086												
2 800	75/65/20	1 711	3 466	5 241	6 865												
	55/45/20	863	1 725	2 577	3 347												
3 000	75/65/20	1 842	3 736	5 653	7 400												
	55/45/20	929	1 860	2 779	3 608												
Temperature exponent [n]		1.3407	1.3657	1.3900	1.4065	1.3462	1.3573	1.3821	1.3980	1.3516	1.3488	1.3742	1.3895	1.3570	1.3404	1.3662	1.3810

Measurements in mm.



For convactor composition see page 19.

ORDER CODE

KORALINE	Natural convection	Type	Length [cm]	Height [cm]	Width [cm]	Convactor connection	Heat exchanger colour	Material used	Grille type	Grille colour	Casing colour
L	K	W Power	- ... / ..	/ ..	/ ..	- V counter-flow	1 without colour	S steel	A aluminium	1 elox silver	- 10 white RAL 9016 39 black RAL 9005 ** see colour chart p. 109 99 other RAL colour

Example order code: **LKW-140/23/18-V1SA1-10**

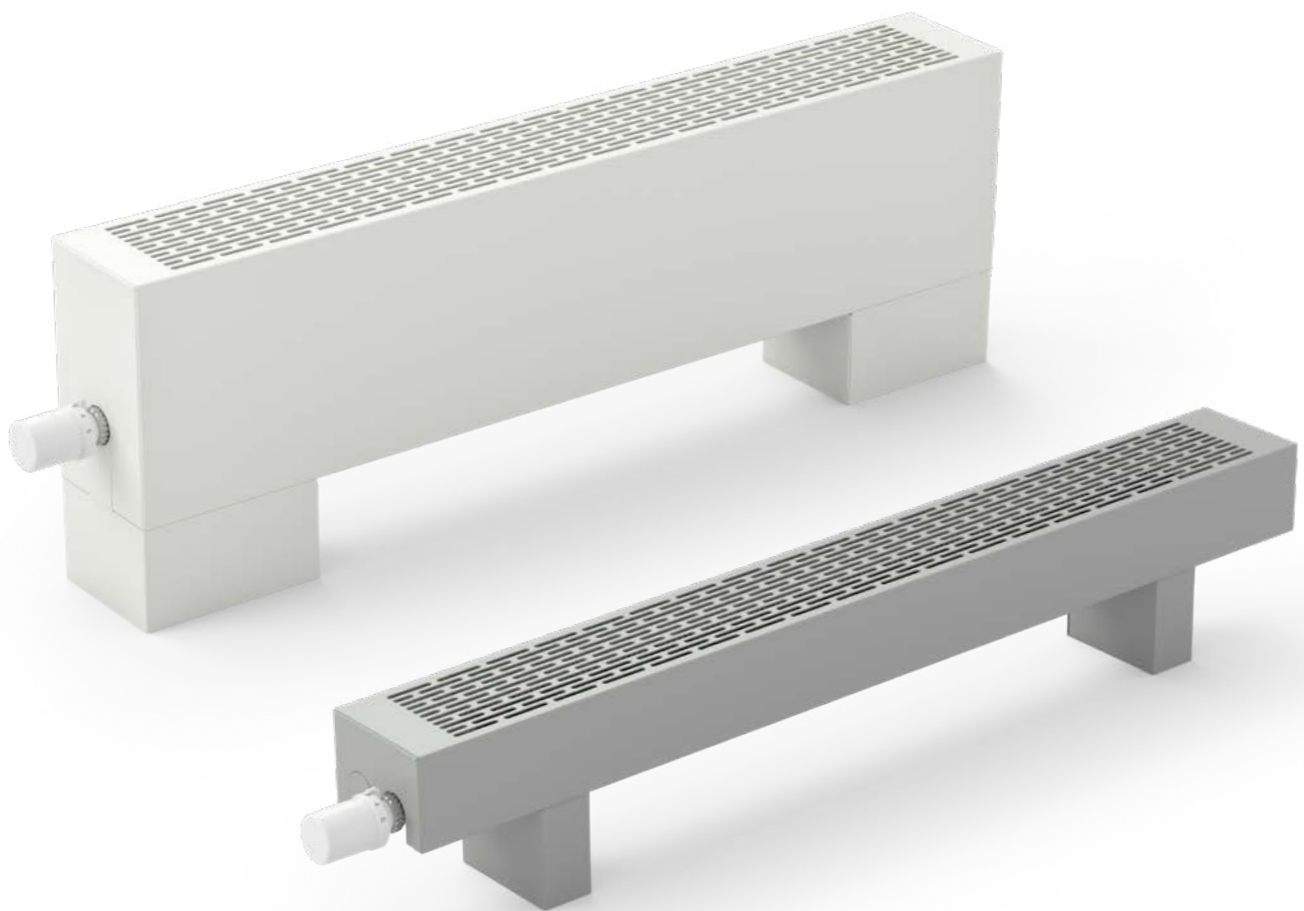
KORALINE Power LKW free-standing convactor, Length 140 cm, Height 23 cm, Width 18 cm, Steel casing white RAL 9016, silver elox aluminium grille.



For calculations for other temperature gradients, see p. 81 or visit www.licon.cz

Further information

Assembly and mounting p. 51, Accessories p. 65, Technical data p. 71, Colour chart p. 109



KORALINE Basic LKB

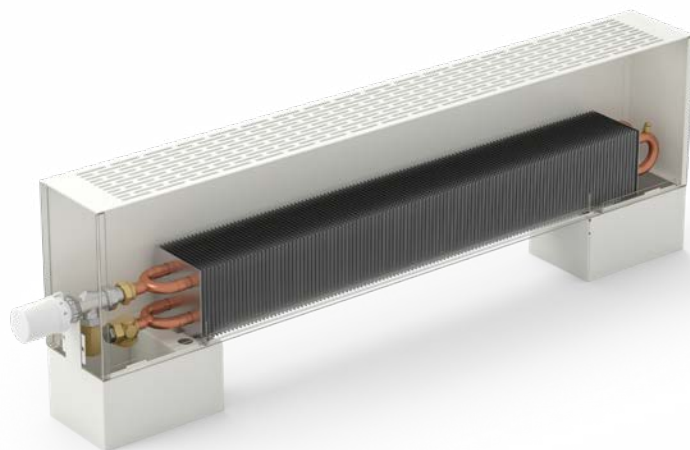
Free-standing convectors with natural convection and perforated safety grille

KORALINE Basic LKB

Specifications

Height	90, 150, 230, 300, 400, 500 mm
Width	130, 180, 230 mm
Length	600, 700, 800, 900, 1 000, 1 100, 1 200, 1 400, 1 600, 1 800, 2 000, 2 200, 2 400, 2 600, 2 800, 3 000 mm
Output	from 203 to 6 612 W
Max. operating pressure	1.2 MPa
Max. operating temperature	90 °C
Surface temperature	40 °C*
Connecting thread	inner G 1/2"
Connection method	lower (recommended), side

* according to inlet water temperature



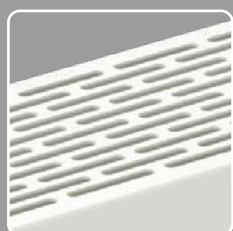
The **KORALINE Basic LKB** model series is the standard version of our low surface temperature floor convectors. In this model series, the safety exhaust grille is perforated directly into the galvanized steel casing of the convector, making it an integral part of the convector. Optimal outputs and a favourable price make KORALINE Basic the ideal model series for heating private homes, apartment blocks and office buildings.

Standard contents

- galvanized steel casing incorporating perforated safety grille, lacquered white RAL 9016 or black RAL 9005
- Al/Cu low water volume heat exchanger for universal connections, bleed valve, uniquely shaped fins
- magnetic side cover in casing colour
- axial thermostatic valve, M 30 × 1.5 thread (see p. 66)
- extension nipple for convectors from 150 mm in height (see p. 66)
- transport stopper and bracket mount (see p. 52)
- floor-level brackets
- wall fixing mounts for convectors from 400 mm in height (see p. 53)
- assembly instructions and durable packaging

Optional accessories

- further RAL lacquers for casings with perforated grilles available
- floor-level bracket casings (see p. 52)
- wall brackets (see p. 53)
- sub-floor brackets (see p. 53)
- elbow or straight lockshield (see p. 68)
- elbow or straight thermostatic valve (see p. 68)
- TEP 230 or TEP 24 thermoelectric actuator (see p. 66)
- SIEMENS RAA21 or RDE 100.1 room thermostat (see p. 68)
- QAA32 room temperature sensor (see p. 94)
- thermostatic head (see p. 67)
- thermostatic head with incorporated control and immersion remote sensor (see p. 67)



Casing incorporating perforated safety grille



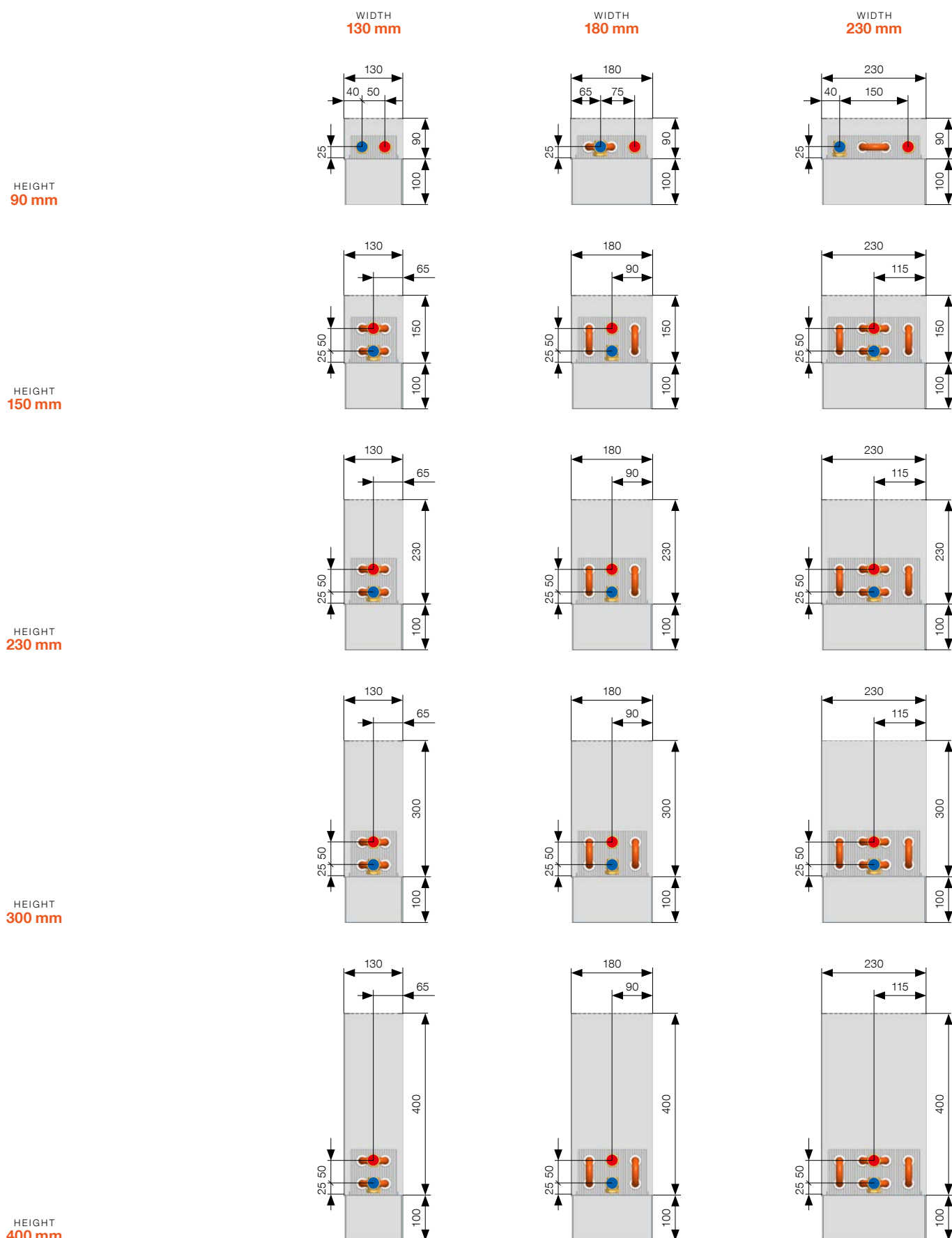
Optimal price / performance ratio



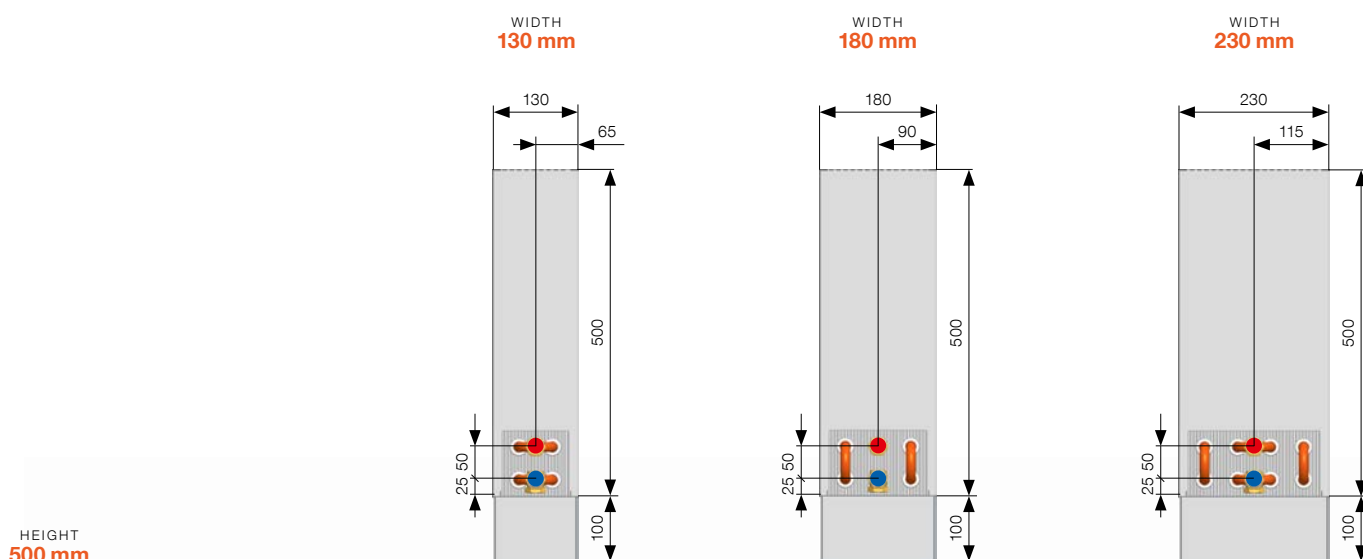
Other RAL colour chart lacquers available

SUMMARY OF TYPES

KORALINE Basic LKB



Floor-level bracket height above floor level for all KORALINE models is 100 mm. Measurements in mm. Alterations to technical specifications reserved.

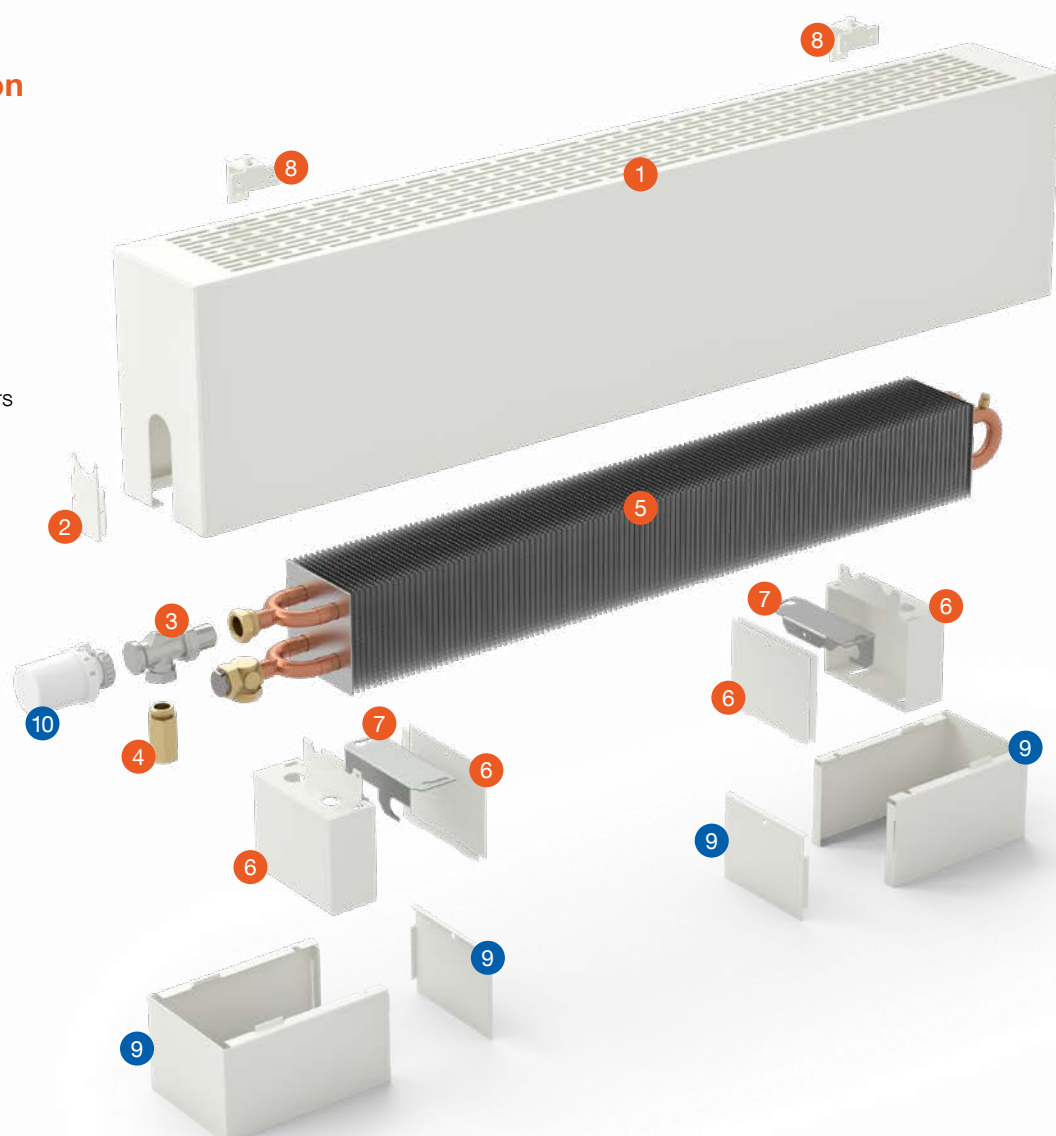


Floor-level bracket height above floor level for all KORALINE models is 100 mm. Measurements in mm. Alterations to technical specifications reserved.

Convactor composition

- 1 galvanized steel casing with perforated safety grille
- 2 magnetic side cover in casing colour
- 3 axial thermostatic valve
- 4 extension nipple for convectors from 150 mm in height
- 5 Al/Cu heat exchanger
- 6 floor-level brackets
- 7 transport stopper and bracket mount
- 8 safety wall mounts for convectors from 400 mm in height
- 9 floor-level bracket casing
- 10 thermostatic head

● Standard contents
 ● Optional accessories:
 for KORALINE Basic LKB model, see p. 29,
 for KORALINE Combi LKC model, see p. 35

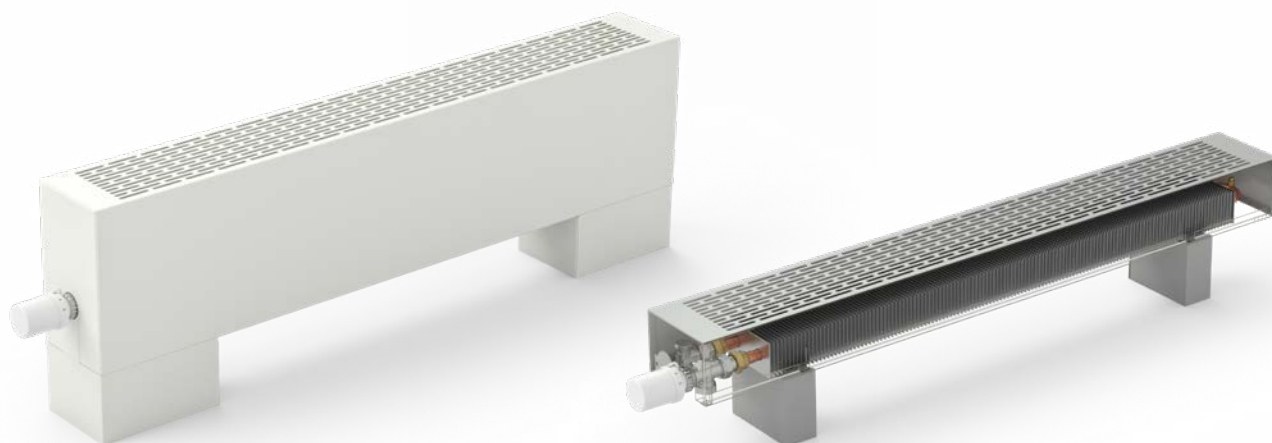


HEAT OUTPUTS

Heat output [W] where $t_1/t_2/t_3 = 75/65/20\text{ }^{\circ}\text{C}$ ($\Delta t=50$), and $55/45/20\text{ }^{\circ}\text{C}$ ($\Delta t=30$) / EN 442

KORALINE Basic LKB										
Length	$t_1/t_2/t_3$ [$^{\circ}\text{C}$]	Height 90			Height 150			Height 230		
		Width 130	Width 180	Width 230	Width 130	Width 180	Width 230	Width 130	Width 180	Width 230
600	75/65/20	203	322	454	264	471	579	295	555	683
	55/45/20	99	158	225	130	228	279	145	270	330
700	75/65/20	252	397	563	336	584	737	375	689	869
	55/45/20	123	195	279	165	283	355	184	335	420
800	75/65/20	301	473	673	409	698	895	456	823	1 056
	55/45/20	147	233	333	201	338	431	223	400	511
900	75/65/20	350	548	783	481	812	1 053	536	957	1 242
	55/45/20	171	270	388	236	393	507	263	465	601
1 000	75/65/20	399	624	892	553	925	1 211	617	1 091	1 429
	55/45/20	195	307	442	272	448	583	302	531	691
1 100	75/65/20	448	699	1 002	625	1 039	1 369	698	1 225	1 615
	55/45/20	219	344	496	307	503	659	342	596	781
1 200	75/65/20	497	775	1 112	697	1 153	1 527	778	1 359	1 802
	55/45/20	243	381	551	343	558	735	381	661	872
1 400	75/65/20	595	926	1 331	842	1 380	1 843	939	1 627	2 175
	55/45/20	291	456	659	414	668	888	460	791	1 052
1 600	75/65/20	693	1 077	1 550	986	1 607	2 159	1 100	1 895	2 548
	55/45/20	338	530	768	485	778	1 040	539	922	1 233
1 800	75/65/20	791	1 228	1 769	1 130	1 834	2 475	1 261	2 164	2 921
	55/45/20	386	604	876	556	888	1 192	618	1 052	1 413
2 000	75/65/20	889	1 379	1 988	1 275	2 062	2 791	1 422	2 432	3 294
	55/45/20	434	678	985	627	998	1 344	697	1 182	1 594
2 200	75/65/20	987	1 530	2 208	1 419	2 289	3 108	1 584	2 700	3 667
	55/45/20	482	753	1 094	698	1 108	1 497	776	1 313	1 774
2 400	75/65/20	1 084	1 681	2 427	1 564	2 516	3 424	1 745	2 968	4 040
	55/45/20	530	827	1 202	769	1 218	1 649	855	1 443	1 954
2 600	75/65/20	1 182	1 832	2 646	1 708	2 744	3 740	1 906	3 236	4 413
	55/45/20	578	901	1 311	840	1 328	1 801	934	1 573	2 135
2 800	75/65/20	1 280	1 983	2 865	1 852	2 971	4 056	2 067	3 504	4 786
	55/45/20	626	976	1 419	911	1 438	1 953	1 013	1 704	2 315
3 000	75/65/20	1 378	2 134	3 085	1 997	3 198	4 372	2 228	3 772	5 159
	55/45/20	673	1 050	1 528	982	1 548	2 106	1 092	1 834	2 496
Temperature exponent [n]		1.4021	1.3880	1.3752	1.3900	1.4204	1.4302	1.3958	1.4115	1.4215

Measurements in mm.



KORALINE Basic LKB										
Length	t ₁ /t ₂ /t ₃ [°C]	Height 300			Height 400			Height 500		
		Width 130	Width 180	Width 230	Width 130	Width 180	Width 230	Width 130	Width 180	Width 230
600	75/65/20	317	610	750	346	668	822	373	710	875
	55/45/20	155	298	364	169	328	402	181	350	430
700	75/65/20	404	757	955	441	829	1 047	474	881	1 114
	55/45/20	198	369	464	215	407	511	230	435	547
800	75/65/20	491	904	1 160	535	990	1 272	576	1 052	1 353
	55/45/20	240	441	563	261	486	621	280	520	664
900	75/65/20	578	1 051	1 365	630	1 151	1 497	678	1 224	1 592
	55/45/20	282	513	663	307	565	731	329	604	782
1 000	75/65/20	664	1 198	1 570	725	1 313	1 721	780	1 395	1 831
	55/45/20	325	585	763	353	644	841	378	689	899
1 100	75/65/20	751	1 346	1 775	819	1 474	1 946	882	1 567	2 070
	55/45/20	367	657	862	399	724	950	428	773	1 016
1 200	75/65/20	838	1 493	1 980	914	1 635	2 171	984	1 738	2 309
	55/45/20	410	729	962	445	803	1 060	477	858	1 134
1 400	75/65/20	1 011	1 787	2 390	1 103	1 958	2 620	1 187	2 081	2 787
	55/45/20	494	873	1 161	537	961	1 279	576	1 027	1 369
1 600	75/65/20	1 185	2 082	2 800	1 292	2 280	3 069	1 391	2 424	3 265
	55/45/20	579	1 016	1 360	629	1 120	1 499	675	1 197	1 603
1 800	75/65/20	1 358	2 376	3 210	1 481	2 603	3 519	1 594	2 766	3 743
	55/45/20	664	1 160	1 559	721	1 278	1 718	774	1 366	1 838
2 000	75/65/20	1 532	2 671	3 620	1 670	2 925	3 968	1 798	3 109	4 221
	55/45/20	749	1 304	1 758	814	1 436	1 938	873	1 535	2 073
2 200	75/65/20	1 705	2 965	4 030	1 860	3 248	4 418	2 002	3 452	4 699
	55/45/20	834	1 448	1 957	906	1 595	2 157	971	1 704	2 308
2 400	75/65/20	1 878	3 260	4 440	2 049	3 571	4 867	2 205	3 795	5 177
	55/45/20	918	1 591	2 156	998	1 753	2 377	1 070	1 874	2 542
2 600	75/65/20	2 052	3 554	4 850	2 238	3 893	5 317	2 409	4 138	5 655
	55/45/20	1 003	1 735	2 355	1 090	1 911	2 596	1 169	2 043	2 777
2 800	75/65/20	2 225	3 849	5 260	2 427	4 216	5 766	2 613	4 481	6 133
	55/45/20	1 088	1 879	2 554	1 182	2 070	2 816	1 268	2 212	3 012
3 000	75/65/20	2 399	4 143	5 670	2 616	4 538	6 215	2 816	4 823	6 612
	55/45/20	1 173	2 023	2 753	1 274	2 228	3 035	1 367	2 381	3 247
Temperature exponent [n]		1.4009	1.4038	1.4139	1.4081	1.3927	1.4031	1.4153	1.3816	1.3923

Measurements in mm.

ORDER CODE

KORALINE	Natural convection	Type	Length [cm]	Height [cm]	Width [cm]	Convector connection	Heat exchanger colour	Material used	Grille type	Grille colour	Casing colour
L	K	B Basic	- ... / ..	/ ..	/ ..	-V counter-flow	1 without colour	S steel	P perforated	0 casing colour	- 10 white RAL 9016 39 black RAL 9005 ** see colour chart p. 109 99 other RAL colour

Example order code: **LKB-140/23/18-V1SP0-10**

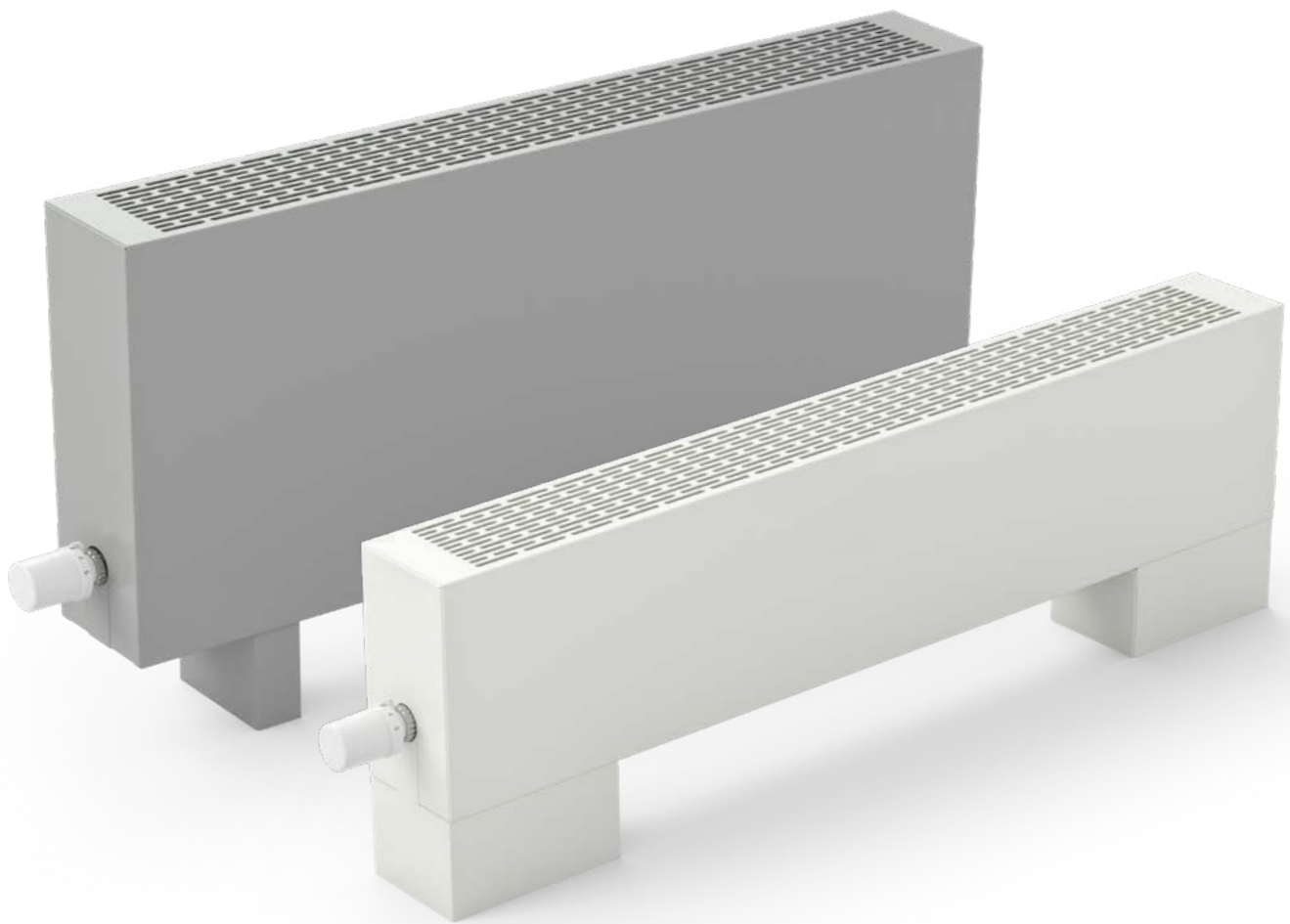
KORALINE Basic LKB free-standing convector, Length 140 cm, Height 23 cm, Width 18 cm, Steel casing and grille white RAL 9016.



For calculations for other temperature gradients, see p. 81 or visit www.licon.cz

Further information

Assembly and mounting p. 51, Accessories p. 65, Technical data p. 71, Colour chart p. 109



KORALINE Combi LKC

Free-standing convectors with natural convection, perforated safety grille and high-performance heat exchanger

KORALINE Combi LKC

Specifications

Height	230, 300, 400, 500 mm
Width	130, 180, 230 mm
Length	600, 700, 800, 900, 1 000, 1 100, 1 200, 1 400, 1 600, 1 800, 2 000, 2 200, 2 400, 2 600, 2 800, 3 000 mm
Output	from 405 to 7 400 W
Max. operating pressure	1.2 MPa
Max. operating temperature	90 °C
Surface temperature	40 °C*
Connecting thread	inner G 1/2"
Connecting method	lower (recommended), side

* according to inlet water temperature



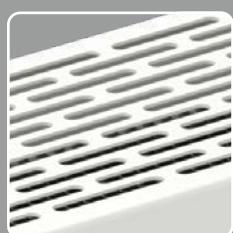
KORALINE Combi LKC free-standing convectors are equipped with a high-performance heat exchanger with double fin area. The safety grille is perforated directly into the galvanized steel casing of the convectors making it an integral part of the convectors. The design and dimensions of the heat exchanger ensure highly efficient heat transfer. The entire model series achieves higher heat outputs. With more compact dimensions, maximum output and low surface temperature of the casing, these convectors are designed to be used for heating domestic homes, modern office buildings, commercial spaces and other large-scale projects.

Standard contents

- galvanized steel casing incorporating perforated safety grille, lacquered white RAL 9016 or black RAL 9005
- high-performance Al/Cu heat exchanger for universal connections, low water content, bleed valve, and double the area of uniquely formed fins for maximum heat output
- magnetic side cover in casing colour
- axial thermostatic valve, M 30 × 1.5 thread (see p. 66)
- extension nipple, for convectors from 150 mm in height (see p. 66)
- transport stopper and bracket mount (see p. 52)
- floor-level brackets
- wall fixing mounts for convectors from 400 mm in height (see p. 53)
- assembly instructions and durable packaging

Optional accessories

- further RAL lacquers for casings available
- floor-level bracket casings (see p. 52)
- wall brackets (see p. 53)
- sub-floor brackets (see p. 53)
- elbow or straight lockshield (see p. 68)
- elbow or straight thermostatic valve (see p. 68)
- TEP 230 or TEP 24 thermoelectric actuator (see p. 66)
- SIEMENS RAA21 or RDE 100.1 room thermostat (see p. 68)
- QAA32 room temperature sensor (see p. 94)
- thermostatic head (see p. 67)
- thermostatic head with incorporated control and immersion remote sensor (see p. 67)



Casing incorporating perforated safety grille



High-performance heat exchanger with double area of fins



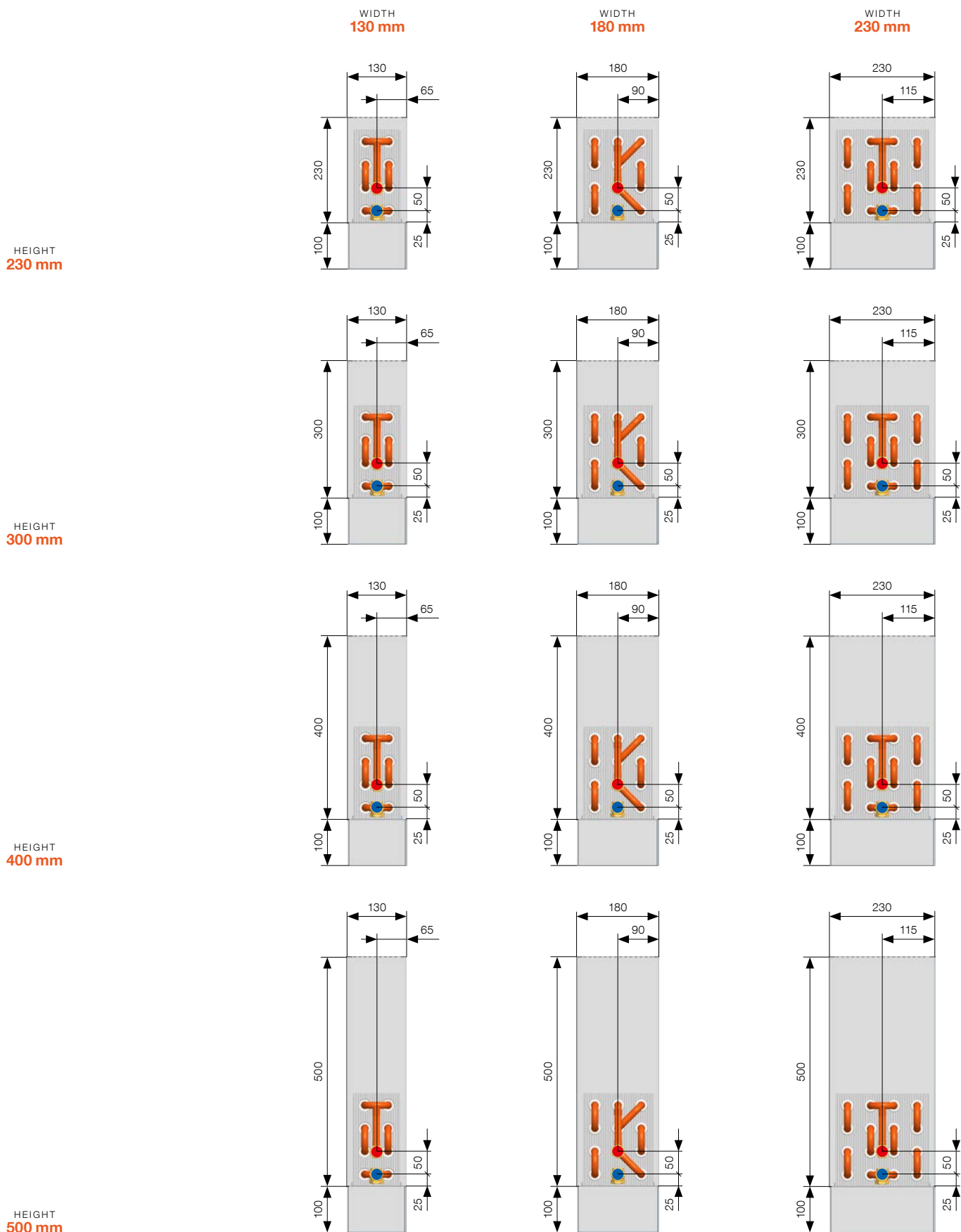
Optimal price / performance ratio



Other RAL colour chart lacquers available

SUMMARY OF TYPES

KORALINE Combi LKC



Floor-level bracket height above floor level for all KORALINE models is 100 mm. Measurements in mm. Alterations to technical specifications reserved..

HEAT OUTPUTS

Heat output [W] where $t_1/t_2/t_3 = 75/65/20$ °C ($\Delta t=50$), and $55/45/20$ °C ($\Delta t=30$) / EN 442

KORALINE Combi LKC													
Leght	$t_1/t_2/t_3$ [°C]	Height 230			Height 300			Height 400			Height 500		
		Width 130	Width 180	Width 230	Width 130	Width 180	Width 230	Width 130	Width 180	Width 230	Width 130	Width 180	Width 230
600	75/65/20	405	588	802	437	633	865	470	680	931	494	714	979
	55/45/20	199	286	386	216	308	418	233	333	452	246	351	477
700	75/65/20	516	757	1 021	557	815	1 101	599	876	1 186	630	920	1 247
	55/45/20	254	368	492	275	397	532	297	429	576	313	452	608
800	75/65/20	627	926	1 240	676	997	1 338	728	1 072	1 440	765	1 126	1 514
	55/45/20	308	450	597	334	486	646	361	525	699	381	553	738
900	75/65/20	738	1 096	1 459	795	1 179	1 574	856	1 268	1 695	900	1 331	1 782
	55/45/20	363	533	703	393	575	761	424	621	823	448	655	869
1 000	75/65/20	848	1 265	1 678	915	1 362	1 810	985	1 464	1 949	1 035	1 537	2 049
	55/45/20	417	615	808	451	664	875	488	717	946	515	756	999
1 100	75/65/20	959	1 434	1 897	1 034	1 544	2 046	1 113	1 660	2 204	1 170	1 743	2 317
	55/45/20	472	698	914	510	753	989	552	813	1 070	582	857	1 129
1 200	75/65/20	1 070	1 604	2 116	1 154	1 726	2 283	1 242	1 856	2 458	1 305	1 949	2 585
	55/45/20	526	780	1 019	569	842	1 103	615	909	1 193	650	958	1 260
1 400	75/65/20	1 292	1 942	2 554	1 393	2 091	2 755	1 499	2 247	2 967	1 575	2 360	3 120
	55/45/20	635	945	1 230	687	1 020	1 332	743	1 100	1 440	784	1 160	1 521
1 600	75/65/20	1 513	2 281	2 992	1 631	2 455	3 228	1 756	2 639	3 476	1 845	2 772	3 655
	55/45/20	744	1 109	1 442	805	1 197	1 560	870	1 292	1 687	919	1 363	1 782
1 800	75/65/20	1 735	2 620	3 430	1 870	2 820	3 701	2 013	3 031	3 985	2 115	3 184	4 190
	55/45/20	853	1 274	1 653	923	1 375	1 788	998	1 484	1 934	1 053	1 565	2 042
2 000	75/65/20	1 956	2 959	3 868	2 109	3 185	4 173	2 270	3 423	4 494	2 386	3 595	4 725
	55/45/20	962	1 439	1 864	1 041	1 553	2 017	1 125	1 676	2 181	1 187	1 767	2 303
2 200	75/65/20	2 178	3 297	4 306	2 348	3 549	4 646	2 527	3 815	5 003	2 656	4 007	5 260
	55/45/20	1 071	1 603	2 075	1 159	1 731	2 245	1 253	1 868	2 428	1 322	1 970	2 564
2 400	75/65/20	2 399	3 636	4 744	2 587	3 914	5 119	2 784	4 207	5 512	2 926	4 418	5 795
	55/45/20	1 180	1 768	2 286	1 277	1 909	2 474	1 380	2 060	2 676	1 456	2 172	2 825
2 600	75/65/20	2 621	3 975	5 182	2 826	4 278	5 591	3 041	4 599	6 021	3 196	4 830	6 330
	55/45/20	1 289	1 933	2 497	1 394	2 086	2 702	1 507	2 252	2 923	1 591	2 374	3 086
2 800	75/65/20	2 842	4 313	5 621	3 065	4 643	6 064	3 298	4 990	6 530	3 466	5 241	6 865
	55/45/20	1 398	2 098	2 708	1 512	2 264	2 930	1 635	2 444	3 170	1 725	2 577	3 347
3 000	75/65/20	3 064	4 652	6 059	3 303	5 007	6 536	3 556	5 382	7 039	3 736	5 653	7 400
	55/45/20	1 507	2 262	2 919	1 630	2 442	3 159	1 762	2 635	3 417	1 860	2 779	3 608
Temperature exponent [n]		1.3885	1.4113	1.4295	1.3826	1.4058	1.4236	1.3741	1.3979	1.4151	1.3657	1.3900	1.4065

Measurements in mm.



For convector composition see page 31.

ORDER CODE

KORALINE	Natural convection	Type	Length [cm]	Height [cm]	Width [cm]	Convector connection	Heat exchanger colour	Material used	Grille type	Grille colour	Casing colour
L	K	C Combi	- ... / .. / ..	- V	counter-flow	1 without colour	S steel	P perforated	0 casing colour	- 10 white RAL 9016	39 black RAL 9005
											** see colour chart p. 109
											99 other RAL colour

Example order code: **LKC-140/23/18-V1SP0-10**

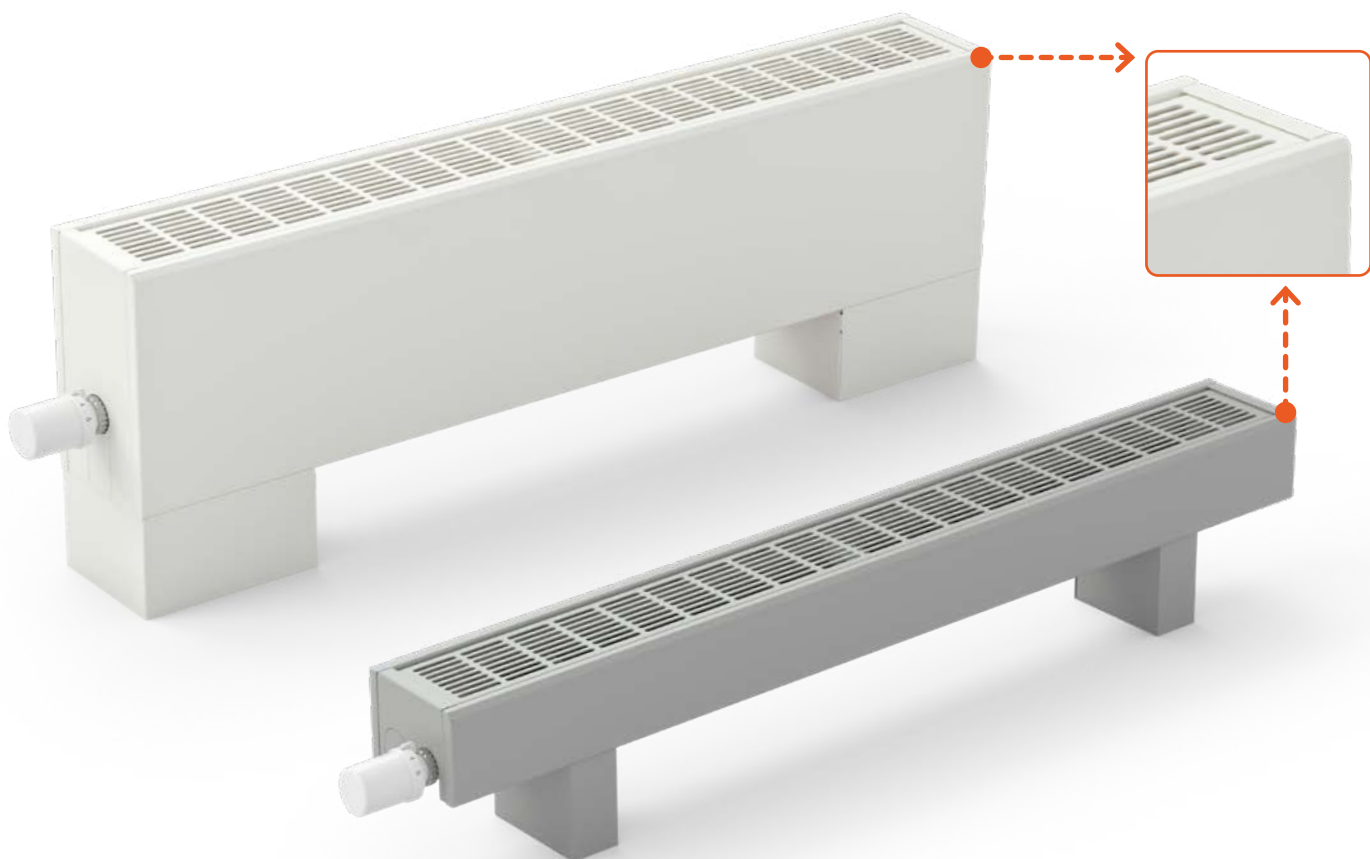
KORALINE Combi free-standing convector, Length 140 cm, Height 23 cm, Width 18 cm, Steel casing and grille white RAL 9016.



For calculations for other temperature gradients, see p. 81 or visit www.licon.cz

Further information

Assembly and mounting p. 51, Accessories p. 65, Technical data p. 71, Colour chart p. 109



KORALINE Safe LKS

Free-standing convectors with natural convection and safety features

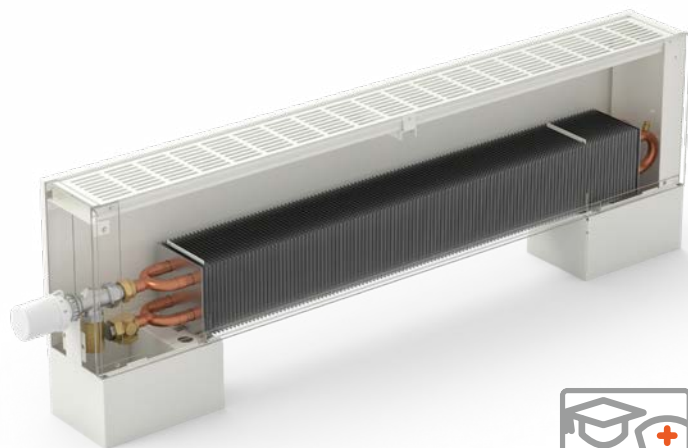
KORALINE Safe LKS

Specifications

Height	90, 150, 230, 300, 400, 500 mm
Width	80, 130, 180, 230 mm
Length	600, 700, 800, 900, 1 000, 1 100, 1 200, 1 400, 1 600, 1 800, 2 000 mm
Output	from 149 to 4 221 W
Max. operating pressure	1.2 MPa
Max. operating temperature	90 °C
Surface temperature	40 °C*
Connecting thread	inner G 1/2"
Connection method	lower (recommended), side

* according to inlet water temperature

exchanger and the casing are fitted with safety locks to prevent removal by unauthorised persons. These safety features, together with the low surface temperature, make the KORALINE Safe LKS series particularly suitable for installation in educational, health and care facilities, administrative and public areas.



The **KORALINE Safe LKS** special model range of convectors is designed to ensure high unit safety. For increased durability, the casing of the convectors is made of 1.5 mm thick galvanized sheet steel and fitted with a symmetric safety pencilproof grille. The grille comprises perforated holes of small dimensions. The grille is locked in the convector preventing it from being easily removed by unauthorised persons. The Safe convector series has a bevelled edge on the front of the casing to prevent potential injury. The heat

Standard contents

- symmetric safety pencilproof grille, RAL 9016 white or RAL 9005 black
- 1.5 mm thick galvanized steel casing, RAL 9016 white or RAL 9005 black with bevelled front edge for increased safety
- Al/Cu low water volume heat exchanger for universal connections, bleed valve, uniquely shaped fins for max. heat output, incl. safety fixture
- fixed side cover (fixed from the inside of the convector during installation to prevent removal by unauthorised persons)
- axial thermostatic valve, M 30 × 1.5 thread (see p. 66)
- extension nipple for convectors from 150 mm in height (see p. 66)
- transport stopper and bracket mount (see p. 52)
- floor-level brackets with heat exchanger safety lock
- wall fixing mounts for convectors from 230 mm in height (see p. 53)
- assembly instructions and durable packaging

Optional accessories

- further RAL lacquers for casings and for grilles available
- floor-level bracket casings with safety features (see p. 52)
- wall brackets with heat exchanger safety lock (see p. 53)
- sub-floor brackets with heat exchanger safety lock (see p. 53)
- elbow or straight lockshield (see p. 68)
- elbow or straight thermostatic valve (see p. 68)
- TEP 230 or TEP 24 thermoelectric actuator (see p. 66)
- SIEMENS RAA21 or RDE 100.1 room thermostat (see p. 68)
- QAA32 room temperature sensor (see p. 94)
- thermostatic head (see p. 67)
- thermostatic head with incorporated control and immersion remote sensor (see p. 67)



Locable symmetric safety grille



Pencilproof grille



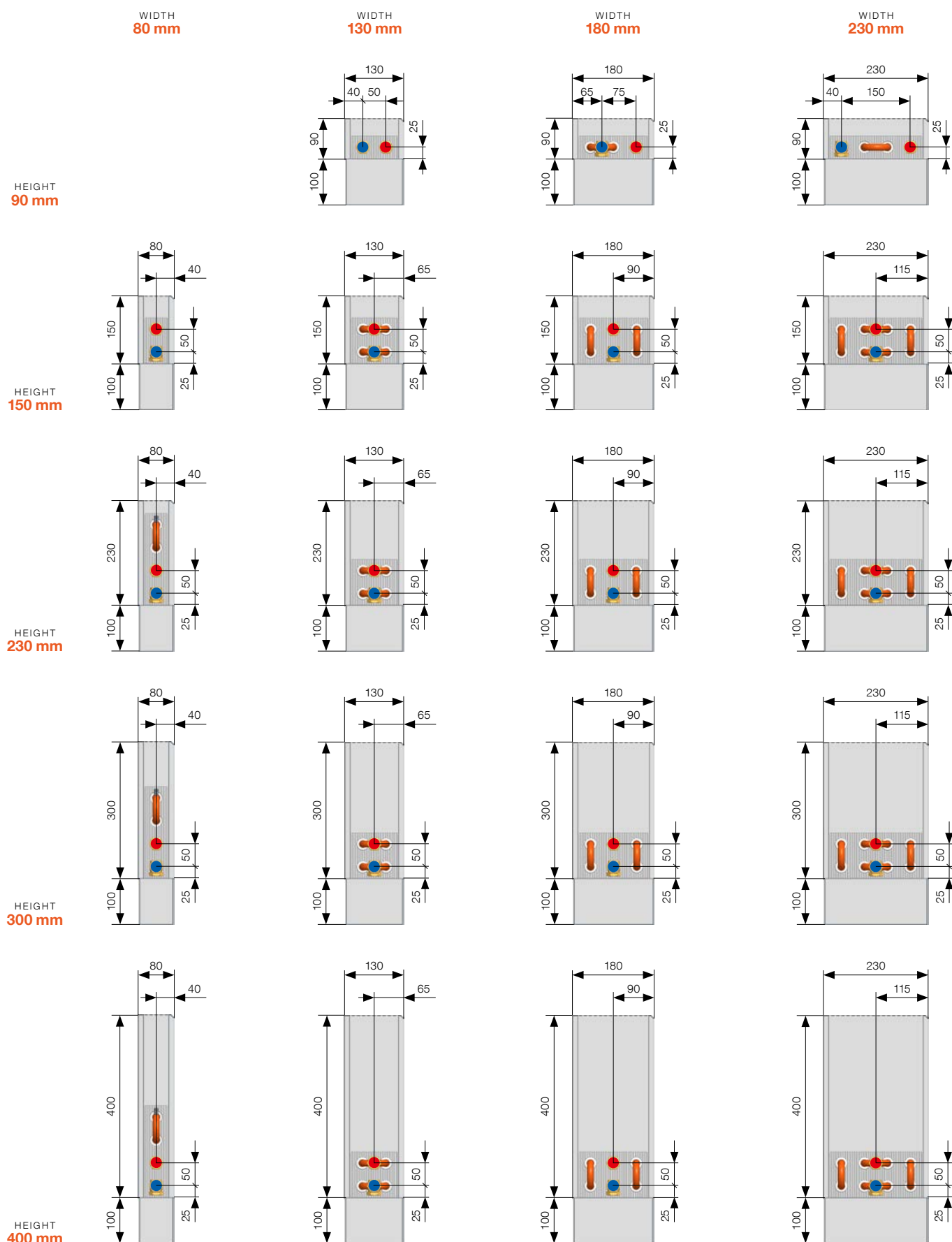
Bevelled front edge



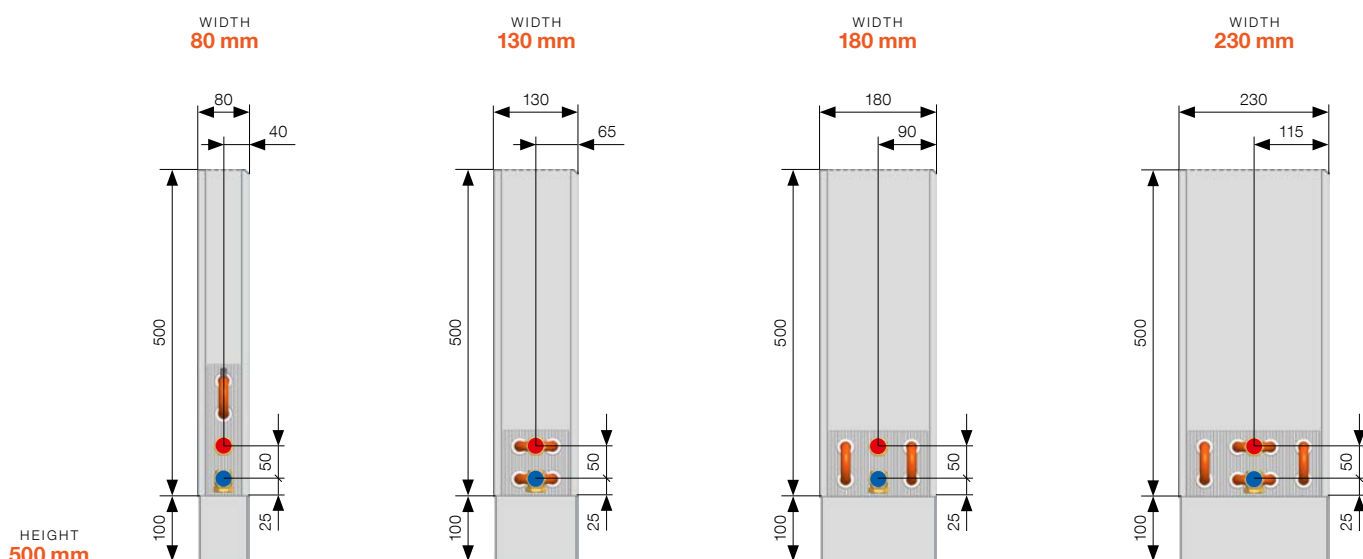
Increased durability
1.5 mm thick casing

SUMMARY OF TYPES

KORALINE Safe LKS



Floor-level bracket height above floor level for all KORALINE models is 100 mm. Measurements in mm. Alterations to technical specifications reserved.

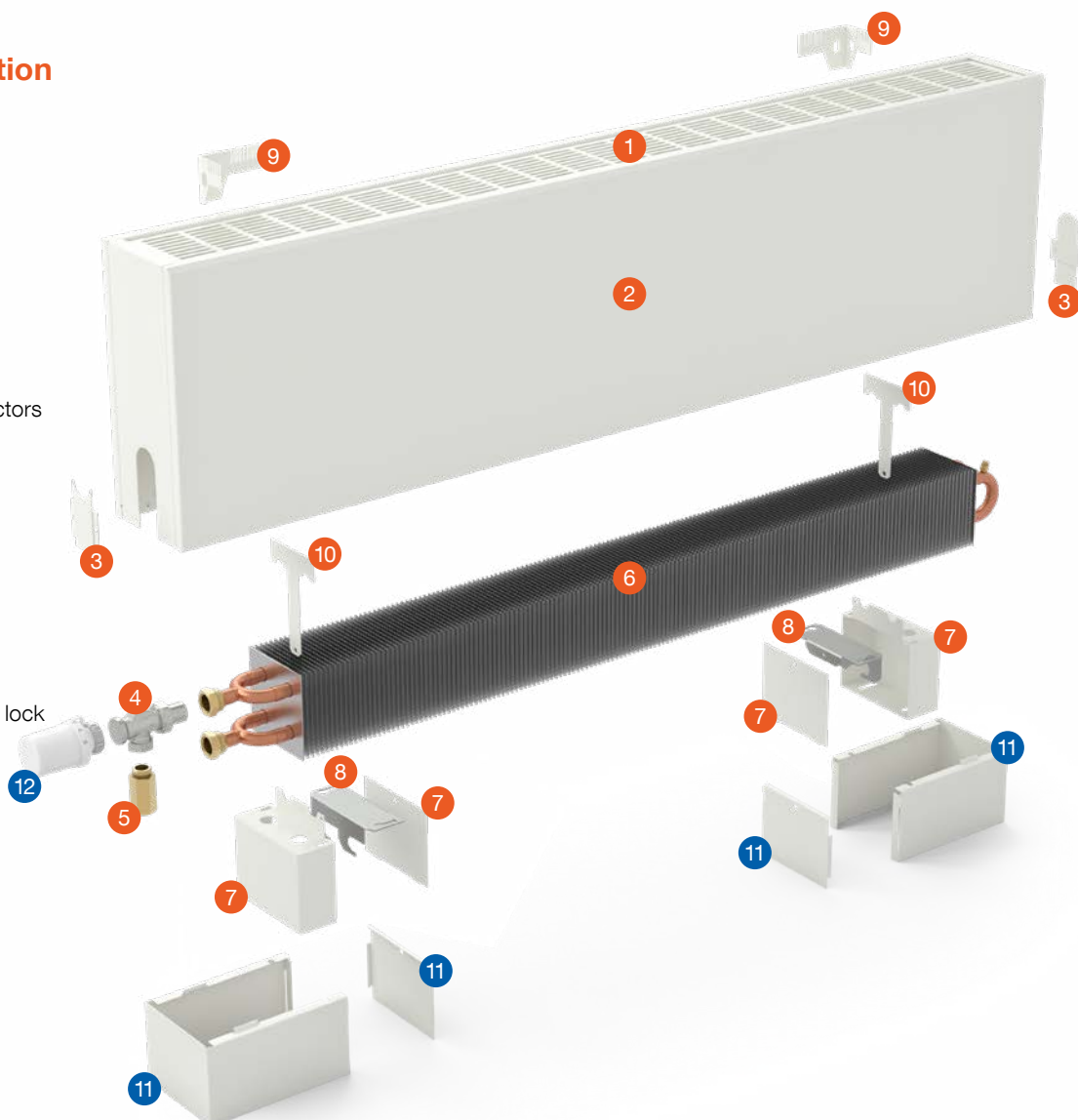


Floor-level bracket height above floor level for all KORALINE models is 100 mm. Measurements in mm. Alterations to technical specifications reserved.

Convactor composition

- 1 symmetric safety pencilproof grille
- 2 galvanized steel casing
- 3 fixed side cover in casing colour
- 4 axial thermostatic valve
- 5 extension nipple for convectors from 150 mm in height
- 6 Al/Cu heat exchanger
- 7 floor-level brackets
- 8 transport stopper and bracket mount
- 9 wall fixing mounts for convectors from 230 mm in height
- 10 heat exchanger with safety lock
- 11 floor-level bracket casing with safety lock
- 12 thermostatic head

● Standard contents
 ● Optional accessories:
 For KORALINE Safe LKS see p. 39,
 For KORALINE Max LKM see p. 45

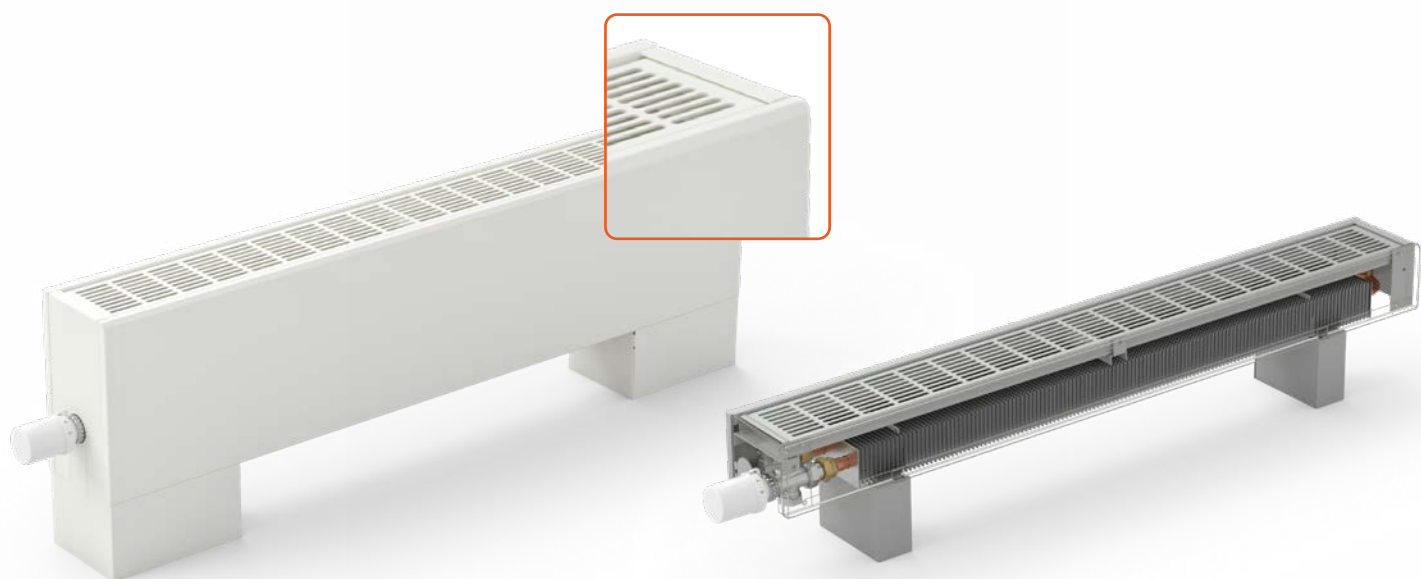


HEAT OUTPUTS

Heat output [W] where $t_1/t_2/t_3 = 75/65/20\text{ }^{\circ}\text{C}$ ($\Delta t=50$), and $55/45/20\text{ }^{\circ}\text{C}$ ($\Delta t=30$) / EN 442

KORALINE Safe LKS												
Length	$t_1/t_2/t_3$ [$^{\circ}\text{C}$]	Height 90			Height 150				Height 230			
		Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230
600	75/65/20	203	322	454	149	264	471	579	208	295	555	683
	55/45/20	99	158	225	71	130	228	279	100	145	270	330
700	75/65/20	252	397	563	185	336	584	737	258	375	689	869
	55/45/20	123	195	279	88	165	283	355	125	184	335	420
800	75/65/20	301	473	673	221	409	698	895	308	456	823	1 056
	55/45/20	147	233	333	105	201	338	431	149	223	400	511
900	75/65/20	350	548	783	257	481	812	1 053	358	536	957	1 242
	55/45/20	171	270	388	122	236	393	507	173	263	465	601
1 000	75/65/20	399	624	892	293	553	925	1 211	408	617	1 091	1 429
	55/45/20	195	307	442	140	272	448	583	197	302	531	691
1 100	75/65/20	448	699	1 002	329	625	1 039	1 369	459	698	1 225	1 615
	55/45/20	219	344	496	157	307	503	659	221	342	596	781
1 200	75/65/20	497	775	1 112	365	697	1 153	1 527	509	778	1 359	1 802
	55/45/20	243	381	551	174	343	558	735	246	381	661	872
1 400	75/65/20	595	926	1 331	437	842	1 380	1 843	609	939	1 627	2 175
	55/45/20	291	456	659	208	414	668	888	294	460	791	1 052
1 600	75/65/20	693	1 077	1 550	509	986	1 607	2 159	709	1 100	1 895	2 548
	55/45/20	338	530	768	243	485	778	1 040	343	539	922	1 233
1 800	75/65/20	791	1 228	1 769	581	1 130	1 834	2 475	810	1 261	2 164	2 921
	55/45/20	386	604	876	277	556	888	1 192	391	618	1 052	1 413
2 000	75/65/20	889	1 379	1 988	653	1 275	2 062	2 791	910	1 422	2 432	3 294
	55/45/20	434	678	985	311	627	998	1 344	439	697	1 182	1 594
Temperature exponent [n]		1.4021	1,3880	1.3752	1.4503	1.3900	1.4204	1.4302	1.4250	1.3958	1.4115	1.4215

Measurements in mm.



KORALINE Safe LKS													
Length	$t_1/t_2/t_3$ [°C]	Height 300				Height 400				Height 500			
		Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230
600	75/65/20	223	317	610	750	243	346	668	822	261	373	710	875
	55/45/20	108	155	298	364	117	169	328	402	125	181	350	430
700	75/65/20	277	404	757	955	302	441	829	1 047	324	474	881	1 114
	55/45/20	133	198	369	464	145	215	407	511	155	230	435	547
800	75/65/20	331	491	904	1 160	360	535	990	1 272	387	576	1 052	1 353
	55/45/20	159	240	441	563	173	261	486	621	185	280	520	664
900	75/65/20	385	578	1 051	1 365	419	630	1 151	1 497	450	678	1 224	1 592
	55/45/20	185	282	513	663	201	307	565	731	215	329	604	782
1 000	75/65/20	439	664	1 198	1 570	477	725	1 313	1 721	513	780	1 395	1 831
	55/45/20	211	325	585	763	229	353	644	841	245	378	689	899
1 100	75/65/20	493	751	1 346	1 775	536	819	1 474	1 946	576	882	1 567	2 070
	55/45/20	237	367	657	862	257	399	724	950	275	428	773	1 016
1 200	75/65/20	547	838	1 493	1 980	595	914	1 635	2 171	639	984	1 738	2 309
	55/45/20	263	410	729	962	286	445	803	1 060	306	477	858	1 134
1 400	75/65/20	654	1 011	1 787	2 390	712	1 103	1 958	2 620	765	1 187	2 081	2 787
	55/45/20	315	494	873	1 161	342	537	961	1 279	366	576	1 027	1 369
1 600	75/65/20	762	1 185	2 082	2 800	829	1 292	2 280	3 069	891	1 391	2 424	3 265
	55/45/20	367	579	1 016	1 360	398	629	1 120	1 499	426	675	1 197	1 603
1 800	75/65/20	870	1 358	2 376	3 210	947	1 481	2 603	3 519	1 017	1 594	2 766	3 743
	55/45/20	419	664	1 160	1 559	454	721	1 278	1 718	486	774	1 366	1 838
2 000	75/65/20	978	1 532	2 671	3 620	1 064	1 670	2 925	3 968	1 143	1 798	3 109	4 221
	55/45/20	471	749	1 304	1 758	511	814	1 436	1 938	547	873	1 535	2 073
Temperature exponent [n]		1.4298	1.4009	1.4038	1.4139	1.4367	1.4081	1.3927	1.4031	1.4436	1.4153	1.3816	1.3923

Measurements in mm.

ORDER CODE

KORALINE	Natural convection	Type	Length [cm]	Height [cm]	Width [cm]	Connector connection	Heat exchanger colour	Material used	Grille type	Grille colour	Casing colour
L	K	S Safe	- ... / .. / ..	-V counter-flow	1 without colour	S steel	P perforated	0 casing colour	- 10 white RAL 9016 39 black RAL 9005 ** see colour chart p. 109 99 other RAL colour		

Example order code: **LKS-140/23/18-V1SP0-10**

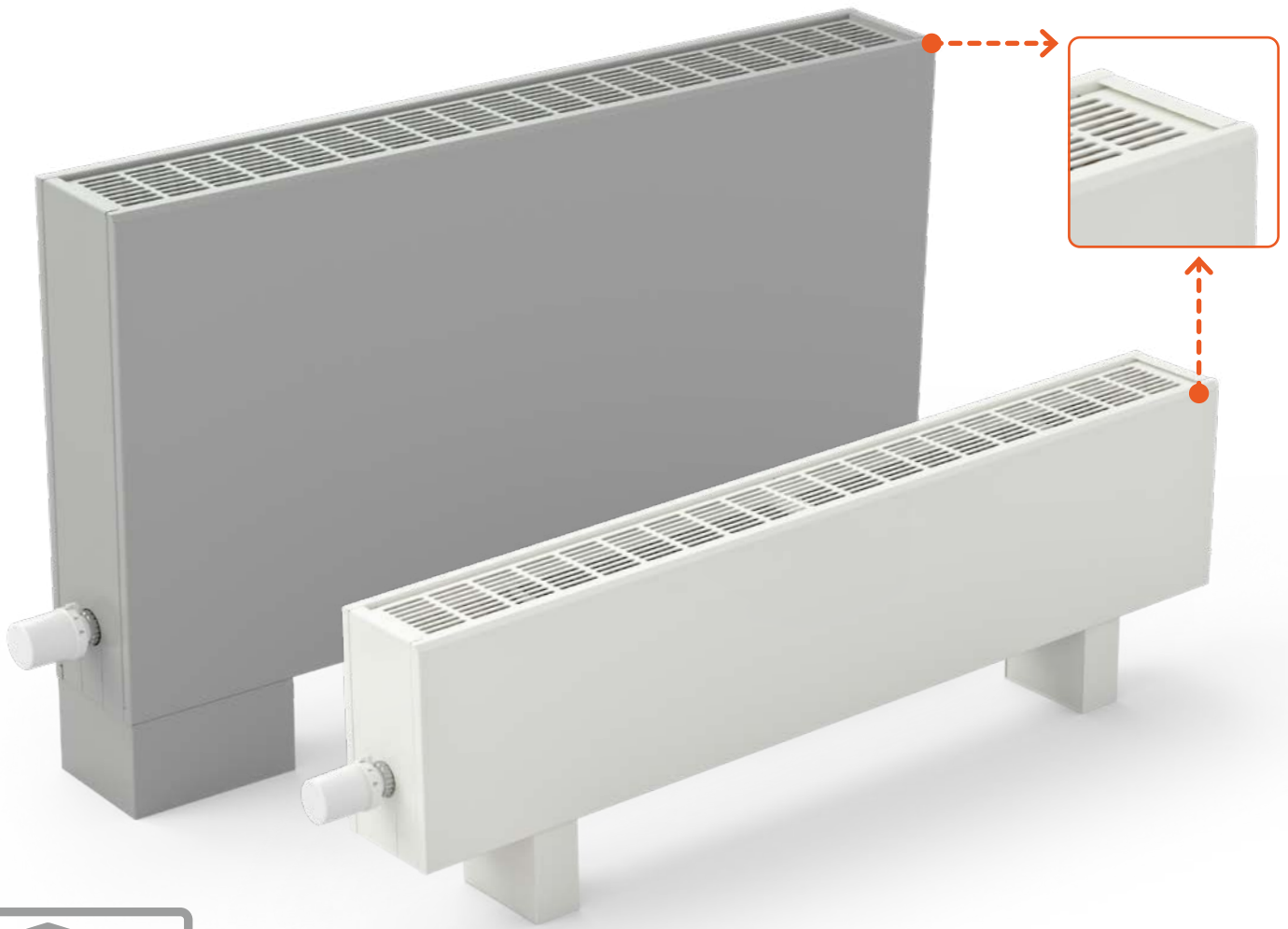
KORALINE Safe free-standing convector, length 140 cm, height 23 cm, width 18 cm, Steel casing white RAL 9016, symmetric safety pencilproof grille in casing colour.



For calculations for other temperature gradients, see p. 81 or visit www.licon.cz

Further information

Assembly and mounting p. 51, Accessories p. 65, Technical data p. 71, Colour chart p. 109



KORALINE Max LKM

Free-standing convectors with natural convection, high-performance heat exchanger and safety features

KORALINE Max LKM

Specifications

Height	230, 300, 400, 500, 600, 700, 800 mm
Width	80, 130, 180, 230 mm
Length	600, 700, 800, 900, 1 000, 1 100, 1 200, 1 400, 1 600, 1 800, 2 000 mm
Output	from 220 to 5 096 W
Max. operating pressure	1.2 MPa
Max. operating temperature	90 °C
Surface temperature	40 °C*
Connecting thread	inner G 1/2"
Connection method	lower (recommended), side

* according to inlet water temperature



The exclusive **KORALINE Max LKM** series of convectors combines high safety and maximum heating output. For increased safety, the casing of KORALINE Max LKM convectors is made of 1.5 mm thick galvanized sheet steel and is also fitted with a symmetric safety pencilproof grille. The grille comprises perforated holes of small dimensions. The grille is locked in the convector preventing easy removal by unauthorised persons. The Max series of convectors have a bevelled front edge to prevent potential injury. Heat exchanger bodies are fitted with safety locks to prevent removal by unauthorised

persons. This model series also includes high-performance heat exchangers with double the area of uniquely shaped fins. The KORALINE Max range of convectors is particularly suited to schools, nurseries, hospitals, office or commercial premises and wherever there is a need to combine safety with high heat output and design.

Standard contents

- symmetric safety pencilproof grille RAL 9016 white or RAL 9005 black
- 1.5 mm thick galvanized steel RAL 9016 white or RAL 9005 black casing, with bevelled front edge for increased safety
- high-performance Al/Cu heat exchanger for universal connections, bleeding valve and double the area of uniquely shaped fins for maximum heat output
- fixed side cover (fixed from the inside of the convector during installation to prevent removal by unauthorised persons)
- axial thermostatic valve, thread M 30 × 1.5 (see p. 66)
- extension nipple for convectors from 150mm in height (see p. 66)
- transport stopper and bracket mount (see p. 52)
- floor-level brackets with safety lock on heat exchanger
- wall fixing mounts for convectors from 230 mm in height (see p. 53)
- assembly instructions and durable packaging

Optional accessories

- further RAL lacquers for casings and for grilles available
- floor-level bracket casings with safety features (see p. 52)
- wall brackets with heat exchanger safety lock (see p. 53)
- sub-floor brackets with heat exchanger safety lock (see p. 53)
- elbow or straight lockshield (see p. 68)
- elbow or straight thermostatic valve (see p. 68)
- TEP 230 or TEP 24 thermoelectric actuator (see p. 66)
- SIEMENS RAA21 or RDE 100.1 room thermostat (see p. 68)
- QAA32 room temperature sensor (see p. 94)
- thermostatic head (see p. 67)
- thermostatic head with incorporated control and immersion remote sensor (see p. 67)



Locable symmetric safety grille



Pencilproof grille



High-performance heat exchanger with double fin area



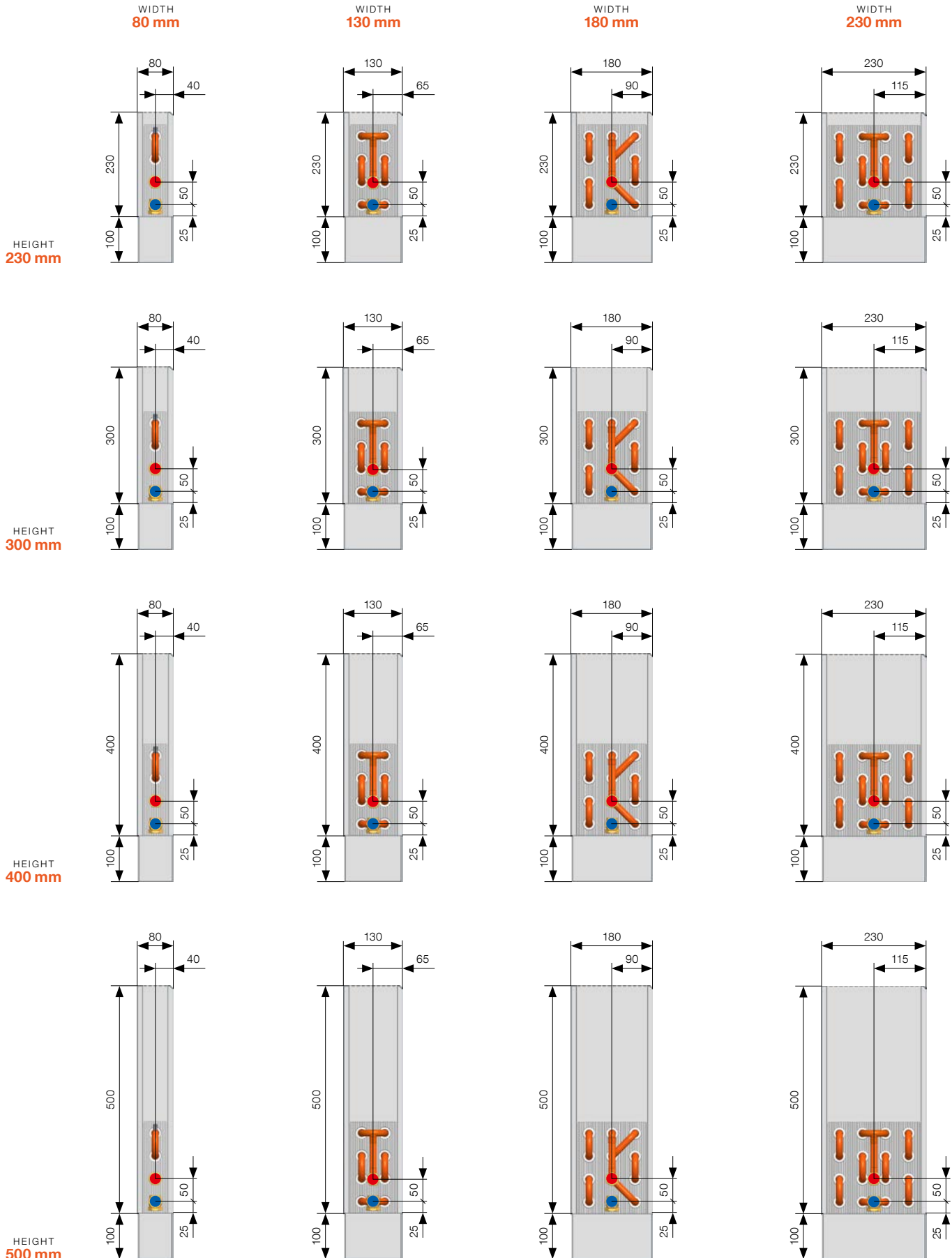
Bevelled front edge for increased safety



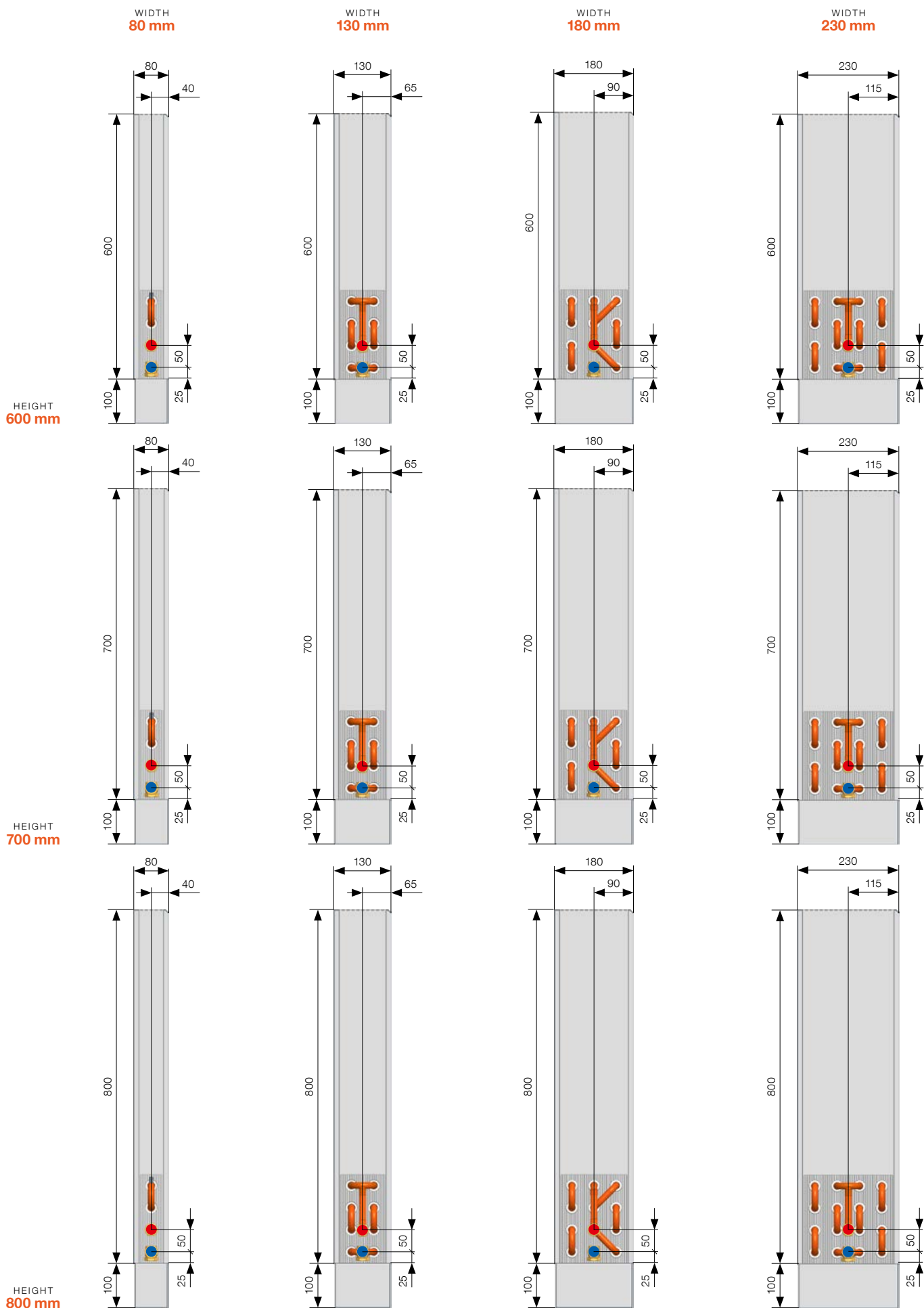
Increased durability 1.5 mm thick casing

SUMMARY OF TYPES

KORALINE Max LKM



Floor-level bracket height above floor level for all KORALINE models is 100 mm. Measurements in mm. Alterations to technical specifications reserved.

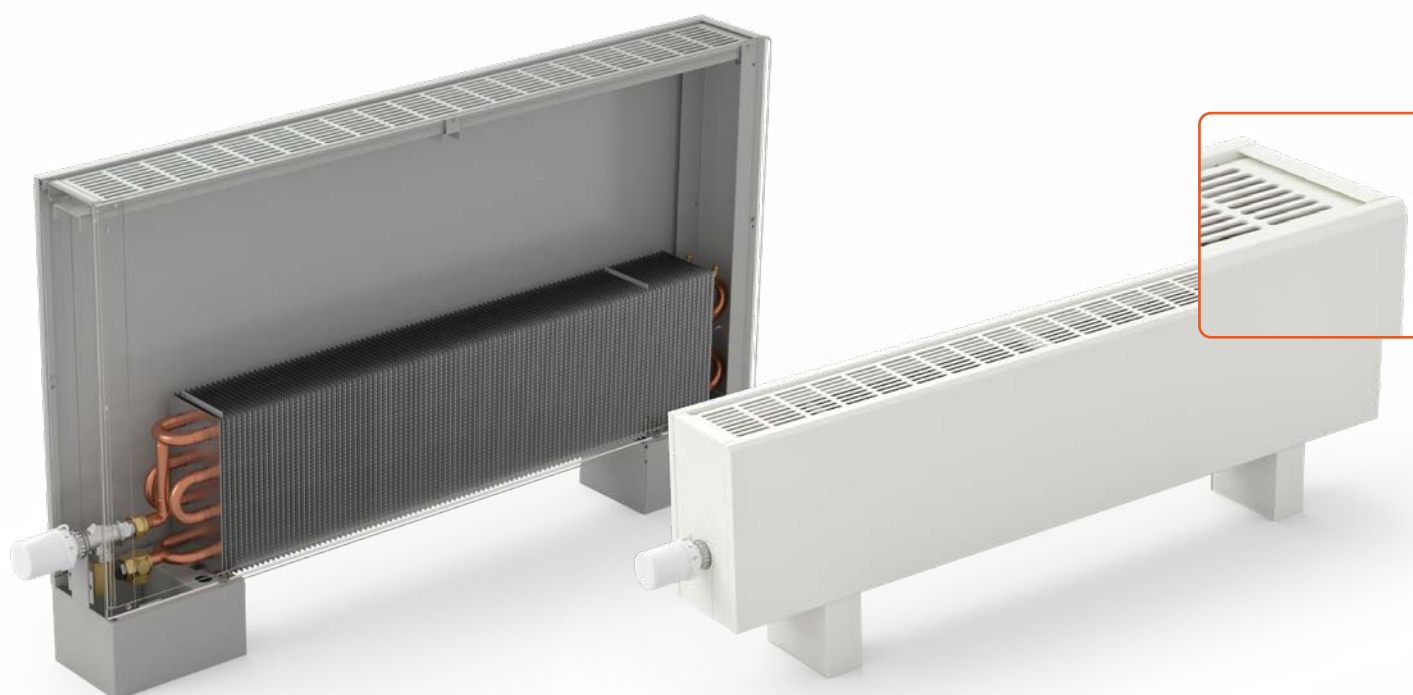


HEAT OUTPUTS

Heat output [W] where $t_1/t_2/t_3 = 75/65/20\text{ }^{\circ}\text{C}$ ($\Delta t=50$), and $55/45/20\text{ }^{\circ}\text{C}$ ($\Delta t=30$) / EN 442

KORALINE Max LKM													
Length	$t_1/t_2/t_3$ [$^{\circ}\text{C}$]	Height 230				Height 300				Height 400			
		Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230
600	75/65/20	220	405	588	802	236	437	633	865	254	470	680	931
	55/45/20	112	199	286	386	119	216	308	418	129	233	333	452
700	75/65/20	274	516	757	1 021	292	557	815	1 101	316	599	876	1 186
	55/45/20	139	254	368	492	148	275	397	532	160	297	429	576
800	75/65/20	327	627	926	1 240	349	676	997	1 338	377	728	1 072	1 440
	55/45/20	166	308	450	597	177	334	486	646	191	361	525	699
900	75/65/20	380	738	1 096	1 459	406	795	1 179	1 574	438	856	1 268	1 695
	55/45/20	193	363	533	703	206	393	575	761	222	424	621	823
1 000	75/65/20	433	848	1 265	1 678	463	915	1 362	1 810	500	985	1 464	1 949
	55/45/20	220	417	615	808	235	451	664	875	253	488	717	946
1 100	75/65/20	487	959	1 434	1 897	520	1 034	1 544	2 046	561	1 113	1 660	2 204
	55/45/20	247	472	698	914	264	510	753	989	284	552	813	1 070
1 200	75/65/20	540	1 070	1 604	2 116	577	1 154	1 726	2 283	623	1 242	1 856	2 458
	55/45/20	274	526	780	1 019	292	569	842	1 103	315	615	909	1 193
1 400	75/65/20	647	1 292	1 942	2 554	691	1 393	2 091	2 755	745	1 499	2 247	2 967
	55/45/20	328	635	945	1 230	350	687	1 020	1 332	377	743	1 100	1 440
1 600	75/65/20	753	1 513	2 281	2 992	804	1 631	2 455	3 228	868	1 756	2 639	3 476
	55/45/20	382	744	1 109	1 442	408	805	1 197	1 560	439	870	1 292	1 687
1 800	75/65/20	860	1 735	2 620	3 430	918	1 870	2 820	3 701	991	2 013	3 031	3 985
	55/45/20	437	853	1 274	1 653	465	923	1 375	1 788	501	998	1 484	1 934
2 000	75/65/20	966	1 956	2 959	3 868	1 032	2 109	3 185	4 173	1 114	2 270	3 423	4 494
	55/45/20	491	962	1 439	1 864	523	1 041	1 553	2 017	563	1 125	1 676	2 181
Temperature exponent [n]		1.3261	1.3885	1.4113	1.4295	1.3299	1.3826	1.4058	1.4236	1.3353	1.3741	1.3979	1.4151

Measurements in mm.



KORALINE Max LKM

Length	t ₁ /t ₂ /t ₃ [°C]	Height 500				Height 600				Height 700				Height 800			
		Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230
600	75/65/20	271	494	714	979	287	512	739	1 014	302	524	757	1 039	316	533	770	1 056
	55/45/20	137	246	351	477	144	256	365	496	151	263	375	511	158	269	383	522
700	75/65/20	337	630	920	1 247	356	652	952	1 291	375	667	976	1 323	393	679	992	1 345
	55/45/20	170	313	452	608	179	326	470	632	188	335	483	650	196	342	494	664
800	75/65/20	402	765	1 126	1 514	425	791	1 165	1 568	447	811	1 194	1 606	469	824	1 214	1 633
	55/45/20	203	381	553	738	214	396	575	768	224	407	592	790	234	416	604	807
900	75/65/20	467	900	1 331	1 782	495	931	1 378	1 845	520	954	1 412	1 890	545	970	1 436	1 922
	55/45/20	236	448	655	869	249	466	680	903	261	479	700	929	273	489	715	949
1 000	75/65/20	533	1 035	1 537	2 049	564	1 071	1 591	2 122	593	1 097	1 630	2 174	622	1 115	1 658	2 210
	55/45/20	269	515	756	999	283	535	785	1 039	297	551	808	1 069	311	562	825	1 092
1 100	75/65/20	598	1 170	1 743	2 317	633	1 211	1 804	2 399	666	1 240	1 848	2 458	698	1 261	1 880	2 499
	55/45/20	302	582	857	1 129	318	605	891	1 175	334	623	916	1 209	349	636	936	1 234
1 200	75/65/20	664	1 305	1 949	2 585	702	1 351	2 017	2 676	739	1 384	2 067	2 742	774	1 407	2 102	2 787
	55/45/20	335	650	958	1 260	353	675	996	1 310	370	695	1 024	1 348	387	709	1 046	1 377
1 400	75/65/20	795	1 575	2 360	3 120	841	1 630	2 443	3 230	885	1 670	2 503	3 309	927	1 698	2 546	3 364
	55/45/20	401	784	1 160	1 521	423	815	1 206	1 581	444	839	1 241	1 627	464	856	1 267	1 662
1 600	75/65/20	926	1 845	2 772	3 655	979	1 910	2 869	3 784	1 030	1 957	2 940	3 877	1 080	1 989	2 990	3 942
	55/45/20	467	919	1 363	1 782	492	955	1 416	1 853	517	982	1 457	1 906	540	1 003	1 488	1 947
1 800	75/65/20	1 057	2 115	3 184	4 190	1 118	2 190	3 295	4 338	1 176	2 243	3 376	4 444	1 233	2 280	3 434	4 519
	55/45/20	533	1 053	1 565	2 042	562	1 095	1 626	2 124	590	1 126	1 673	2 186	616	1 150	1 709	2 232
2 000	75/65/20	1 188	2 386	3 595	4 725	1 256	2 469	3 721	4 892	1 322	2 530	3 813	5 012	1 385	2 572	3 878	5 096
	55/45/20	599	1 187	1 767	2 303	632	1 234	1 837	2 395	663	1 270	1 890	2 465	693	1 297	1 930	2 517
Temperature exponent [n]		1.3407	1.3657	1.3900	1.4065	1.3462	1.3573	1.3821	1.3980	1.3516	1.3488	1.3742	1.3895	1.3570	1.3404	1.3662	1.3810

Measurements in mm.



For convector composition see page 41.

ORDER CODE

KORALINE	Natural convection	Type	Length [cm]	Height [cm]	Width [cm]	Convector connection	Heat exchanger colour	Material used	Grille type	Grille colour	Casing colour
L	K	M Max	- ... / .. / ..	- V	counter-flow	1 without colour	S steel	P perforated	0 casing colour	- 10 white RAL 9016 39 black RAL 9005 ** see colour chart p. 109 99 other RAL colour	

Example order code: **LKM-140/23/18-V1SP0-10**

KORALINE Max free-standing convector, Length 140 cm, Height 23 cm, Width 18 cm, Steel casing white RAL 9016, symmetric safety pencilproof grille in casing colour.



For calculations for other temperature gradients, see p. 81 or visit www.licon.cz

Further information

Assembly and mounting p. 51, Accessories p. 65, Technical data p. 71, Colour chart p. 109



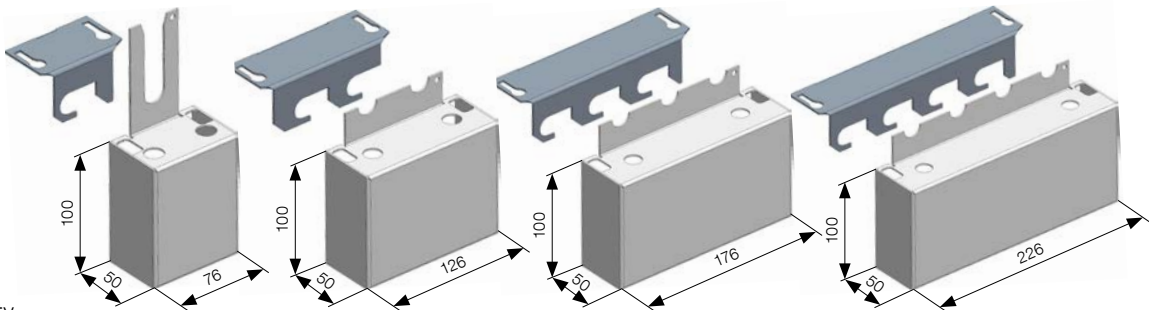
Assembly and mounting

BRACKETS AND MOUNTS

KORALINE free-standing convectors are fitted with floor-level brackets and some higher models also with wall fixing mounts as standard (see the Standard contents list at each model line). Sub-floor brackets and wall brackets are available upon request.

Floor-level brackets

- fitted as standard
- KORALINE free-standing convectors 2,000 mm in length and above are supplied with a central bracket for greater stability
- floor-level brackets contain transport stopper and bracket mount, that allows for easy and stable mounting of heat exchanger onto a bracket. Transport stopper prevents movement and damage of heat exchanger during transport.



floor-level bracket height 100 mm

convector width (S)	80	130	180	230
---------------------	----	-----	-----	-----

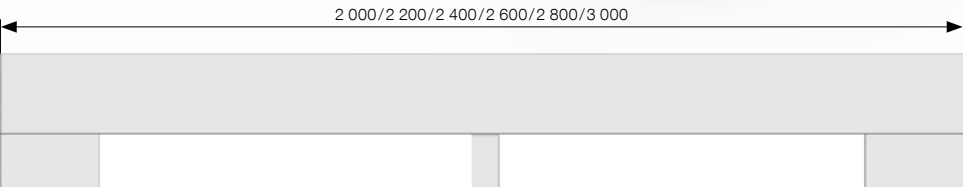
Floor-level bracket heights

Floor-level bracket height above floor level for all KORALINE models is 100 mm.

For all widths (S) 80, 130, 180, 230								
Height (V)	90	150	230	300	500	600	700	800
KORALINE Height inc floor-level bracket (H)	190	250	330	400	600	700	800	900

Floor-level bracket casing

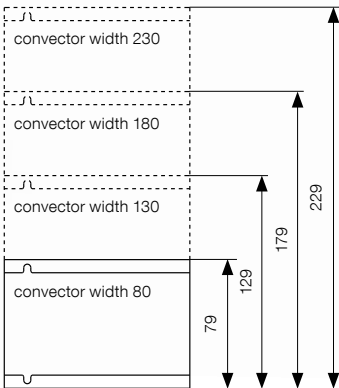
- optional accessory
- floor-level bracket casings are designed to cover connections and the edges of floor-level brackets, and must be ordered in pairs



Floor-level bracket casing dimensions



top view



Measurements in mm

Order codes:

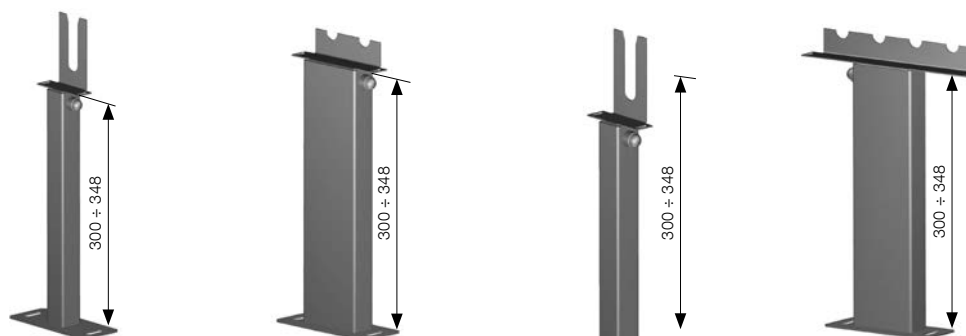
width	80	130	180	230
Optimal, Power, Basic, Combi*	LCR-08--	LCR-13--	LCR-18--	LCR-23--
Safe, Max	LCR-SM-08--	LCR-SM-13--	LCR-SM-18--	LCR-SM-23--



* Colour code: the standard colour version is white RAL 9016, -- colour chart p. 109, other RAL colour

Sub-floor brackets

- optional accessory
- convector lengths over 2 000 mm – three brackets for increased stability are needed



Order codes:

height 300 ÷ 348

width	80	130	180	230
Optimal, Power, Basic, Combi*	LSH-08---	LSH-13---	LSH-18---	LSH-23---
Safe, Max	LSH-SM-08---	LSH-SM-13---	LSH-SM-18---	LSH-SM-23---

Wall brackets

- optional accessory
- when mounting convectors on walls, the distance between the unit and the wall is 25–45 mm
- convector lengths over 2 000 mm – three brackets for increased stability are needed

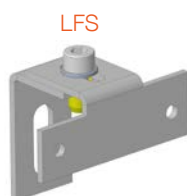


Order codes:

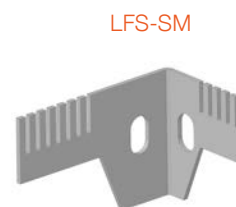
width	80	130	180	230
Optimal, Power, Basic, Combi*	LKZ-08---	LKZ-13---	LKZ-18---	LKZ-23---
Safe, Max	LKZ-SM-08---	LKZ-SM-13---	LKZ-SM-18---	LKZ-SM-23---

Wall fixing mounts

- included as standard for higher convectors according to height of the respective model
- When mounting convectors on walls, the distance between the unit and the wall is 25–45 mm



Optimal, Power, Basic and Combi models –
from 400 mm in height



Safe and Max models –
from 230 mm in height

Order codes:

Optimal, Power, Basic, Combi*	LFS---
Safe, Max	LFS-SM---



* Colour code: the standard colour version is white RAL 9016,
.. colour chart p. 109, 99 other RAL colour



Safe and Max brackets, wall mounts and floor-level bracket casings
have different construction and code designations.

ASSEMBLY

Installation instructions – installation procedure (applies to all models)

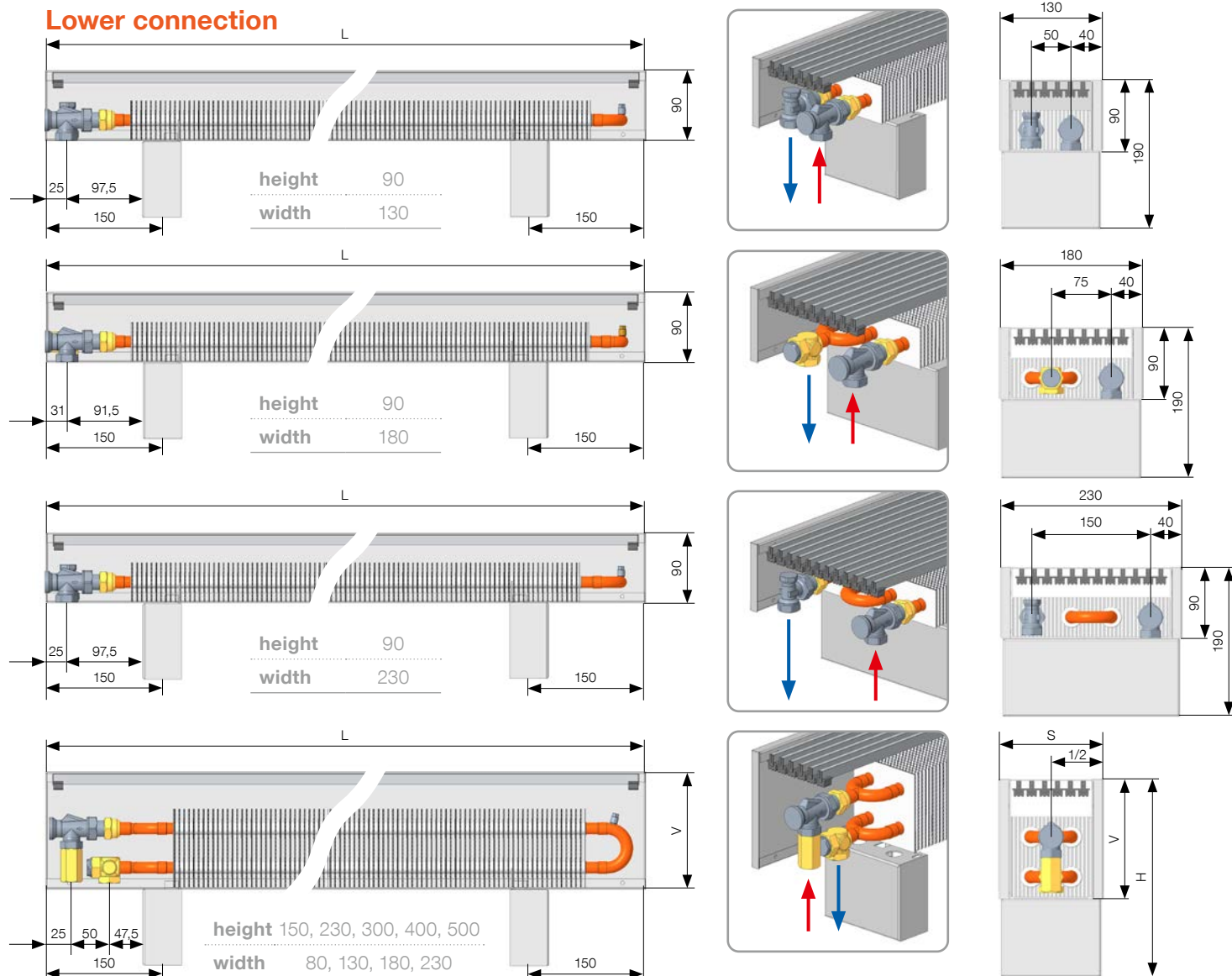
The first step is to measure and screw in the brackets. Floor brackets can be measured out according to the drilling templates included in the package. For a correct installation of floor-level brackets it is necessary to use transport stopper and bracket mount that also holds heat exchanger in place during transport. The heat exchanger is then mounted onto them and connected to the heating system. The heat exchangers must be bled. The last step is to fit the convector casing with the grille and attach it to the brackets. The grilles on Optimal, Power, Safe and Max free-standing convectors are removable for easier cleaning and maintenance. For more detailed information on each KORALINE type, please refer to the installation instructions. The units are supplied assembled, except for the brackets and mounts, valves and extension nipples, if applicable, which are included separately with the product.

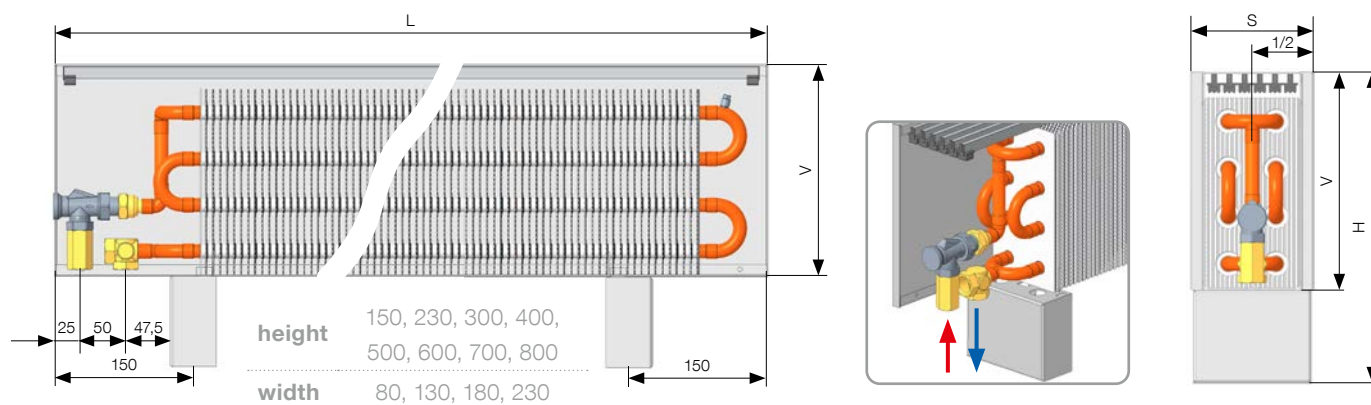
Brackets, mounts and fixing

Brackets serve to secure the unit to the floor. Floor-level and sub-floor brackets are available.

- **Floor-level brackets** are 100 mm above floor level for all KORALINE models and are included as standard.
- **Sub-floor brackets** are optional accessories allowing a height tolerance of approx. 50 mm. For greater stability of KORALINE free-standing convectors, we recommend using 3 brackets for convectors over 2 000 mm in length. The spacing for fastening the brackets to the floor can be found in the illustration on page 55.
- **Wall brackets** are optional accessories serving to secure KORALINE LK units to the wall. We recommend placing them 10 mm above floor-level. They allow a height tolerance of 20 mm and a length tolerance of 10 mm. Spacings are shown in the diagram (see p. 55).
- **Wall fixing mounts** serve to ensure more secure mounting, better stability and consequently higher safety of KORALINE free-standing convectors. They are supplied as standard from a convector height of 400 mm for the Optimal, Power, Basic and Combi models. For the Safe and Max series, due to their strong emphasis on safety, from a convector height of 230 mm. Wall mounts may be ordered for other models if required. For wall fixing mount pictures of wall mounts, see p. 55.

Lower connection



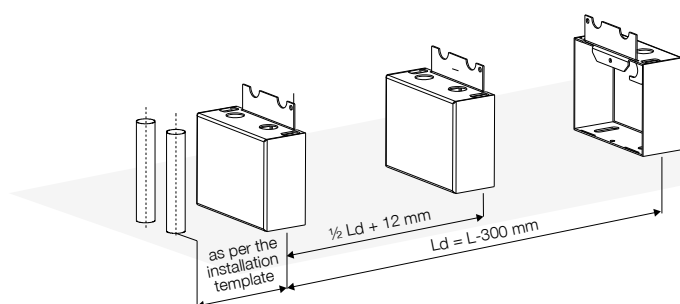


For all widths (S) 80, 130, 180, 230

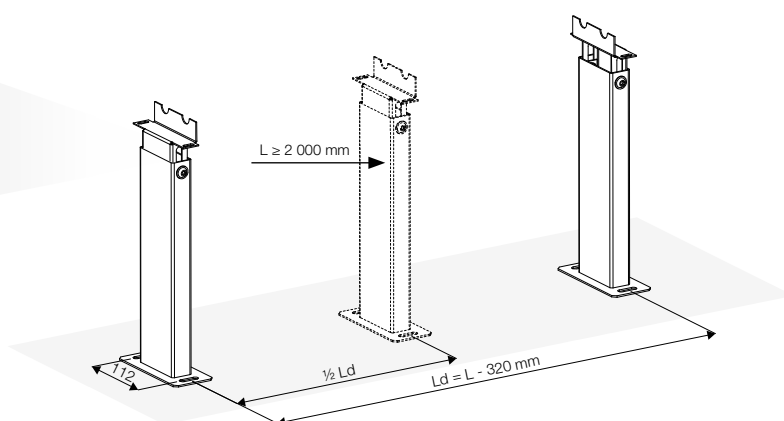
Height (V)	90	150	230	300	500	600	700	800
Total height of assembly incl. floor-level brackets (H)	190	250	330	400	600	700	800	900

MOUNTING

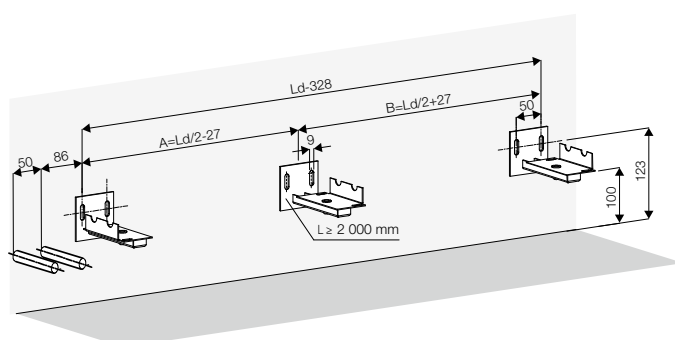
KORALINE LK free-standing convectors: floor-level mounting

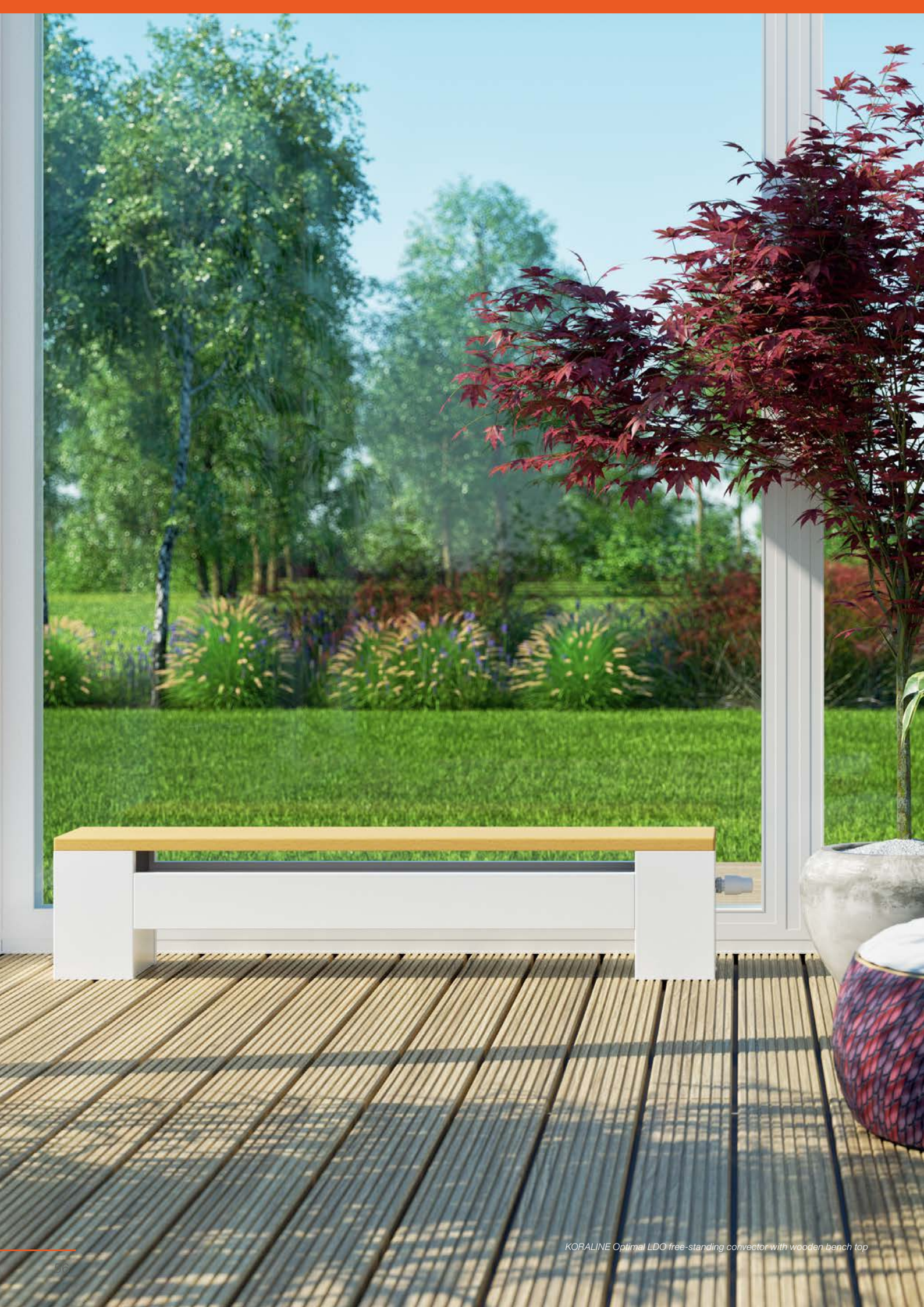


KORALINE LK free-standing convectors: sub-floor level mounting



KORALINE LK free-standing convectors: wall-mounting





KORALINE Optimal LDO free-standing convector with wooden bench top

KORALINE Optimal LDO with wooden bench top

Free-standing convectors with natural convection
and wooden bench top, for dry environments



KORALINE Pool LDP with wooden bench top

Free-standing convectors with natural convection
and wooden bench top, for humid environments



KORALINE Optimal LDO with wooden bench top

Specifications

Unit height inc. bench top	300, 450 mm
Unit width inc. bench top	265, 315 mm
Unit length inc. bench top	1 000, 1 200, 1 400, 1 600, 1 800, 2 000 mm
Output	from 721 to 3 525 W
Max. operating pressure	1.2 MPa
Max. operating temperature	90 °C
Surface temperature	40 °C*
Connecting thread	inner G 1/2"
Connection method	lower (recommended), side
Bench tops	beech, oak, American walnut

* according to inlet water temperature



KORALINE Optimal LDO free-standing convectors with wooden bench top are exceptional products owing to the timeless design of the casing and the option to choose from several different wooden bench tops. This range combines design with functionality. Convectors with a bench top are suitable for heating interiors, and also for sitting and relaxing. With a proven smart combination of design, output, low

surface temperature casing and other features, they are ideal for placement in halls, corridors and conservatories, as well as office buildings and public buildings. Convectors with wooden bench tops are also ideal wherever there are areas with large windows.

Standard contents

- wooden bench top according to preference – oak, beech, American walnut
- galvanized steel RAL 9016 white or RAL 9005 black casing
- Al/Cu low water volume heat exchanger, bleed valve, uniquely shaped fins
- magnetic side cover in casing colour
- axial thermostatic valve, M 30 × 15 thread (see p. 66)
- extension nipple (see p. 66)
- floor-level brackets assembly
- instructions and durable packaging

Optional accessories

- further RAL lacquers for casings available
- black RAL 9005 and further RAL lacquers for Al/Cu heat exchangers available
- elbow or straight lockshield (see p. 68)
- elbow or straight thermostatic valve (see p. 68)
- TEP 230 or TEP 24 thermoelectric actuator (see p. 66)
- SIEMENS RAA21 or RDE 100.1 room thermostat (see p. 68)
- QAA32 room temperature sensor (see p. 94)
- thermostatic head (see p. 67)
- thermostatic head with incorporated control and immersion remote sensor (see p. 67)

BENCH TOPS



Wooden bench tops are made of purely natural materials, treated with an internationally certified oil finish. To maintain their properties and stability, we recommend that bench tops are regularly treated with a similar product.



beech



oak



American walnut

KORALINE Pool LDP with wooden bench top

Specifications

Unit height inc. bench top	300, 450 mm
Unit width inc. bench top	265, 315 mm
Unit length inc. bench top	1 000, 1 200, 1 400, 1 600, 1 800, 2 000 mm
Output	from 721 to 3 525 W
Max. operating pressure	1.2 MPa
Max. operating temperature	90 °C
Surface temperature	40 °C*
Connecting thread	inner G 1/2"
Connection method	lower (recommended), side
Bench tops	American walnut

* according to inlet water temperature

we recommend a water pH value of 7.2–7.6 with a maximum chlorine concentration of 1 mg/l. Changes in these values – in particular lower pH values – will result in more aggressive water and corrosion of non-stainless steel components. Convectors with wooden bench top installed in humid environments must be cleaned regularly with clean water and dried thoroughly. Further information can be found in the Installation Manual and Operating and Warranty Conditions, available to download at www.icon.cz.



AISI
316

KORALINE Pool LDP free-standing convectors with wooden bench tops in American walnut are designed specifically for humid environments. The timeless casing design is manufactured from AISI 316 stainless steel and the bench top is treated with an internationally certified oil finish. This model range is especially suited for conservatories, pools and all other humid environments.

For ideal operating conditions and to lengthen the life of the product,

Standard contents

- wooden bench top – American walnut
- AISI 316 stainless steel RAL 9016 white or RAL 9005 black casing
- Al/Cu low water volume RAL 9005 lacquered heat exchanger, bleed valve, uniquely shaped fins
- magnetic side cover in casing colour
- axial thermostatic valve, thread M 30 × 1.5 (see p. 66)
- extension nipple (see p. 66)
- floor-level brackets assembly
- instructions and durable packaging

Optional accessories

- further RAL lacquers for casings available
- further RAL lacquers for Al/Cu heat exchangers available
- elbow or straight lockshield (see p. 68)
- elbow or straight thermostatic valve (see p. 68)
- TEP 230 or TEP 24 thermoelectric actuator (see p. 66)
- SIEMENS RAA21 or RDE 100.1 room thermostat (see p. 68)
- QAA32 room temperature sensor (see p. 94)
- thermostatic head (see p. 67)
- thermostatic head with incorporated control and immersion remote sensor (see p. 67)

BENCH TOPS

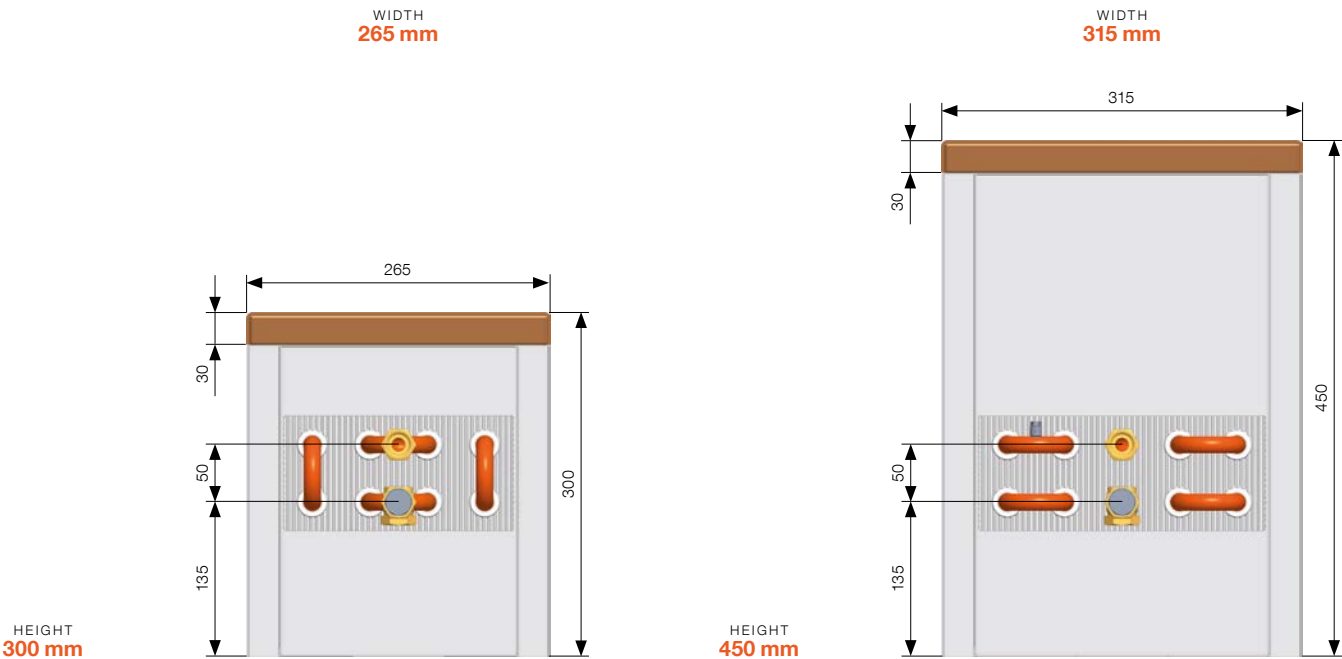


Wooden bench tops are made of purely natural materials, treated with an internationally certified oil finish. To maintain their properties and stability, we recommend that bench tops are regularly treated with a similar product. When using American walnut bench tops in humid environments, we recommend using a protective intermediate layer (e.g. a towel) when sitting.



American walnut

SUMMARY OF TYPES KORALINE Optimal LDO and KORALINE Pool LDP with wooden bench top



HEAT OUTPUTS

Heat output [W] where $t_1/t_2/t_i = 75/65/20\text{ }^{\circ}\text{C}$ ($\Delta t=50$), and $55/45/20\text{ }^{\circ}\text{C}$ ($\Delta t=30$) / EN 442

KORALINE with wooden bench top			
Length	$t_1/t_2/t_i$ [$^{\circ}\text{C}$]	Height 300	Height 450
		Width 265	Width 315
1 000	75/65/20	721	1483
	55/45/20	348	730
1 200	75/65/20	934	1891
	55/45/20	450	931
1 400	75/65/20	1147	2300
	55/45/20	553	1133
1 600	75/65/20	1360	2708
	55/45/20	656	1334
1 800	75/65/20	1573	3117
	55/45/20	758	1535
2 000	75/65/20	1786	3525
	55/45/20	861	1736
Temperature exponent [n]		1.4290	1.3864



ORDER CODE

KORALINE	With bench	Type	Lenght [cm]	Height [cm]	Width [cm]	Heat exchanger type	Convector connection	Material used	Bench type	Bench material	Casing colour
L	D	O Optimal	- ... / .. / ..	-	-	V counter-flow	1 without colour	S steel	B beech D oak O American walnut	1 solid wood	- 10 white RAL 9016 39 black RAL 9005 ** see colour chart p. 109 99 other RAL colour

Example order code: **LDO-140/30/26-V1SB1-10**

KORALINE LDO (Optimal) free-standing convector, Length 140 cm, Height 30 cm, Width 26.5 cm, Steel casing white RAL 9016, non-lacquered Al/Cu heat exchanger, Beech bench top.

KORALINE	With bench	Type	Lenght [cm]	Height [cm]	Width [cm]	Heat exchanger type	Convector connection	Material used	Bench type	Bench material	Casing colour
L	D	P Pool	- ... / .. / ..	-	-	V counter-flow	5 RAL 9005	R stainless steel AISI 316	O American walnut	1 solid wood	- 10 white RAL 9016 39 black RAL 9005 ** see colour chart p. 109 99 other RAL colour

Example order code: **LDP-140/30/26-V5RO1-10**

KORALINE LDP free-standing convector (Pool), Length 140 cm, Height 30 cm, Width 26.5 cm, Stainless steel casing white RAL 9016, Al/Cu RAL 9005 lacquered heat exchanger 9005, American walnut bench top.



For calculations for other temperature gradients, see p. 81 or visit www.licon.cz

Further information

Assembly and mounting p. 62, Accessories p. 65, Technical data p. 71, Colour chart p. 109

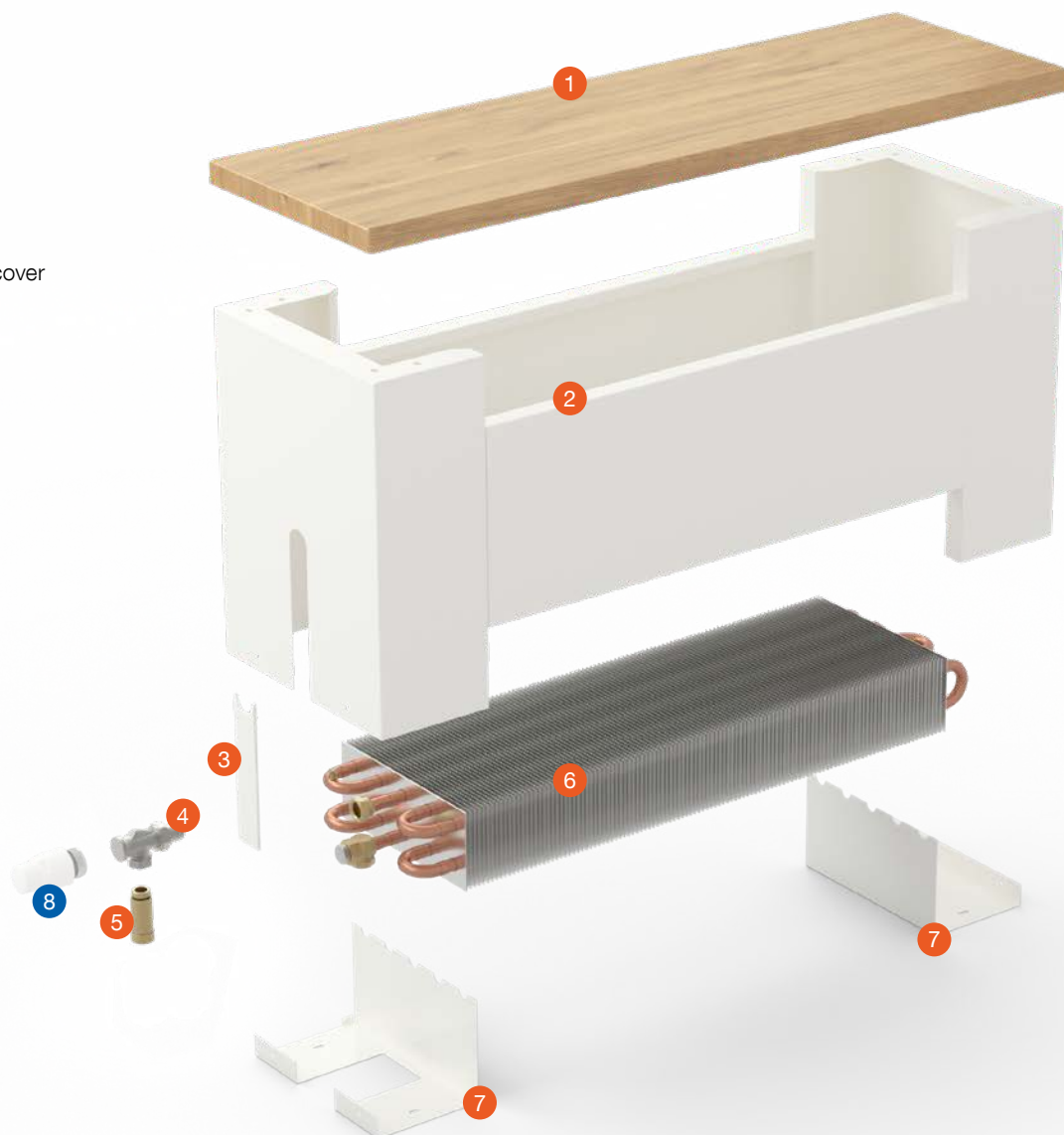


KORALINE Optimal LDO with American walnut bench top

Composition of LDO and LDP convectors

- 1 wooden bench top
- 2 casing
- 3 LDO model: magnetic side cover
LDP model: fixed side cover
- 4 axial thermostatic valve
- 5 extension nipple
- 6 Al/Cu heat exchanger
- 7 floor-level bracket
- 8 thermostatic head

● Standard contents
● For KORALINE LDO and LDP model optional accessories see p. 58, 59



ASSEMBLY OF FREE-STANDING CONVECTORS WITH WOODEN BENCH TOP

Installation instructions

We recommend attaching the brackets (see dimensions in the installation instructions) to the floor (see p. 53). Place the heat exchanger on them and connect it. Fit the casing with the bench top and fasten. Please refer to the installation instructions for more detailed information. For correct operation and maximum output, the heating elements must be filled with heating medium and properly bled after installation. After being mounted on the convector, the wooden bench top is secured against unwanted movement by lateral fixing.

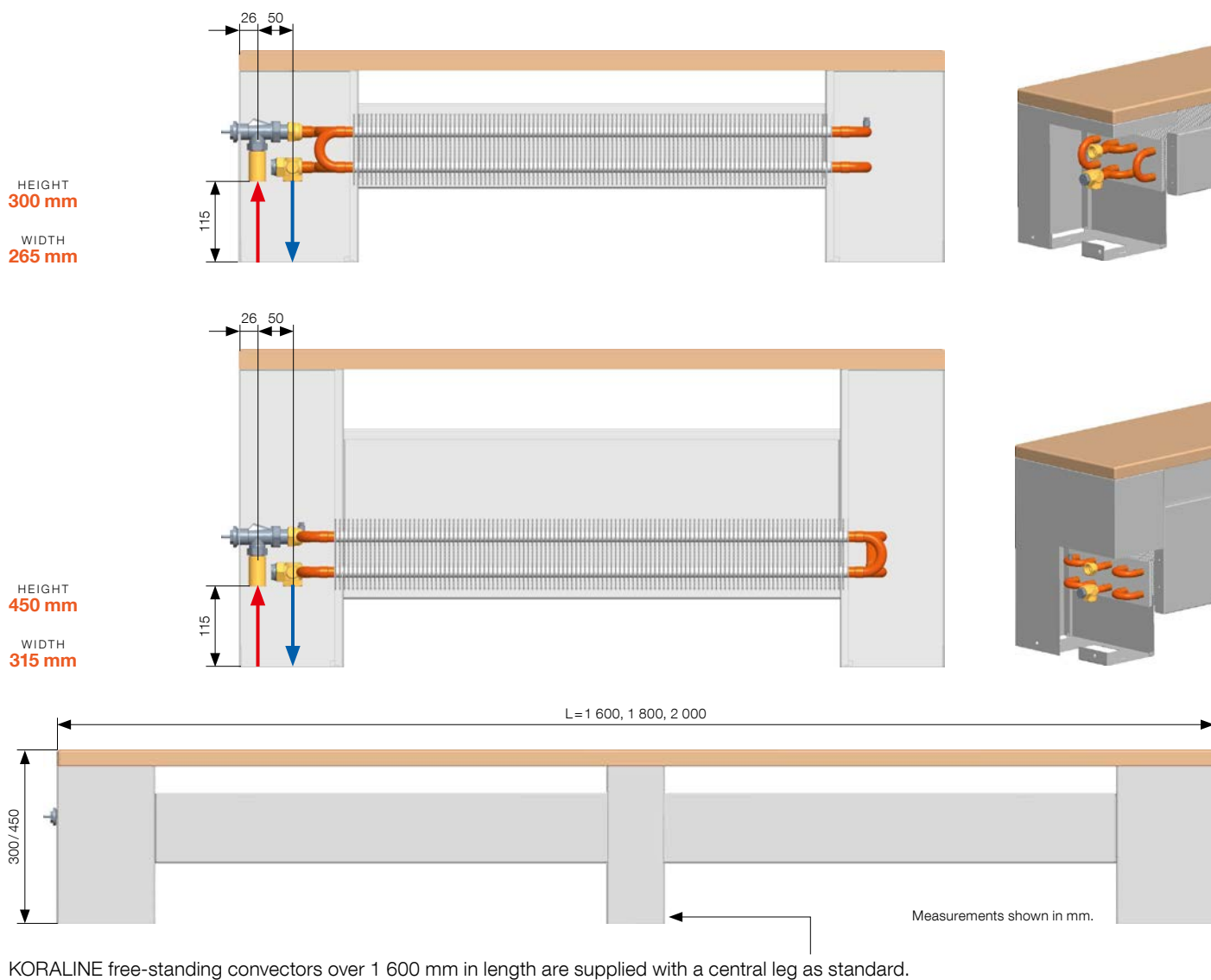
Free-standing convectors with wooden bench top for humid environments

Convectors with wooden bench top installed in humid environments must be cleaned regularly with clean water and dried thoroughly. We recommend the installation of Pool convectors with American walnut bench tops. Bench tops are made from purely natural materials and treated with an internationally certified oil finish. To maintain their properties and stability, we recommend that bench tops are regularly treated with a similar product. When using American walnut bench tops in humid environments, we recommend using a protective intermediate layer (e.g. a towel) when sitting.



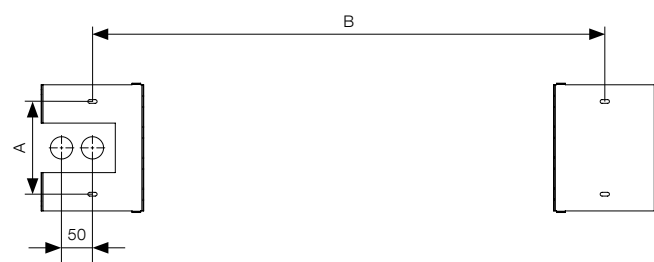
For more detailed guidance and installation instructions for these models, please refer to the installation instructions for KORALINE with wooden bench tops. Bench tops are made of natural materials and therefore slight variations in colour cannot be excluded. The supplier cannot fully guarantee the colours shown nor accept claims due to any variations in colour.

LOWER CONNECTIONS



MOUNTING

KORALINE LD free-standing convectors: floor-level mounting



Type	A	B
LDO,P-XXX-30-26	150	L - 170
LDO,P-XXX-45-31	206	L - 150

L = 1 000, 1 200, 1 400, 1 600, 1 800, 2 000 mm

Minimal distance for KORALINE LDO and LDP free-standing convectors from the wall is 100 mm.



KORALINE with natural convection – Accessories

ACCESSORIES

Axial thermostatic valve

- standard contents

- maximum operating pressure: PN 10
- maximum operating temperature: 120 °C
- connection type: M 30 × 1.5
- connection – pipes: 1/2"
- connection – body: 1/2" – O-ring seal
- K_{vs} value: 1.08



The axial thermostatic valve is adapted for the KORALINE product range. The valve is available as an accessory for all KORALINE convectors.

Axial thermostatic valve values

Pre-set	With thermostatic head 2K (m ³ /h)	Without thermostatic head K_{vs} (m ³ /h)
1	0.063	0.063
2	0.160	0.160
3	0.320	0.350
4	0.470	0.510
5	0.630	0.660
6	0.710	0.810
7	0.730	0.970
8	0.740	1.080

Extension nipple

- standard contents **for units over 150 mm in height**

- length of extension 42.5 mm
- used to align the height between the inlet and outlet of the fitting
- heat exchanger: brass
- connecting thread: inner G 1/2"
- O-ring seal



Thermoelectric actuator

- optional accessory

TEP 230

- power supply: 230 V AC
- power consumption < 2 W
- **order code:**
REG-TEP230-250 (TEP 230 cable 2.5 m)
REG-TEP230-500 (TEP 230 cable 5 m)

TEP 24

- power supply: 24 V DC
- power consumption < 2 W
- **order code:**
REG-TEP24-250 (TEP 24 cable 2.5 m)
REG-TEP24-500 (TEP 24 cable 5 m)



- IP 44
- reset time: 4 min
- total height 65 mm
- standard installation thread M 30 × 1.5
- cable length 2.5 and 5 m
- closed without voltage



For ambient temperature setting and regulation, convectors must be fitted with thermostatic heads or thermoelectric actuators.

Thermostatic head with incorporated control and immersion remote sensor

- optional accessory
- control range 6.5–28 °C
- wall-mounted
- cable length 5 m
- hysteresis: ≤0.6 °C
- **order code:** REG-TH5



CLASSIC thermostatic head

- optional accessory
- control range 1–28 °C
- hysteresis: 0.4 K
- RAL 9016 white
- connection type: M 30 × 1.5
- **order code:** REG-THC



DESIGN thermostatic head

- optional accessory
- attractive design
- matt finish
- control range 1–28 °C
- hysteresis: 0.25 K
- connection type: M 30 × 1.5
- **order code:** REG-THD



THERA 6 thermostatic head

- optional accessory
- control range 1–28 °C
- hysteresis: 0.4 K
- RAL 9016 white
- connection type: M 30 × 1.5
- **order code:** REG-THC6



ACCESSORIES

Lockshield

- optional accessory
- elbow or straight
- size 1/2" G
- nickel-plated brass
- maximum operating pressure PN 10
- maximum operating temperature 90 °C
- **order code:**
straight lockshield: REG-LS
elbow lockshield: REG-LA



Pre-sets	1	2	3	4	5	6	7	8	9
revs	1 1/4	1 1/2	1 3/4	2	2 1/2	3	3 1/2	4	Ú.O.
K_v	0.14	0.2	0.31	0.43	0.6	0.79	1	1.2	1.35

K_v flow coefficient (m³/h)
Ú.O. fully open

Thermostatic valve

- optional accessory
- elbow or straight
- pre-set K_v values
- size 1/2" G
- connection thread M 30 × 1.5
- nickel-plated brass
- maximum operating pressure PN 10
- maximum operating temperature 90 °C
- **order code:**
straight lockshield REG-TVS
elbow lockshield: REG-TVA



Pre-sets	1	2	3	4	5	6
$K_v (\Delta t = 2K)$	0.10	0.20	0.30	0.40	0.50	0.60
K_{vs}	0.10	0.20	0.30	0.40	0.57	0.80

K_v flow coefficient (m³/h)
 K_{vs} maximum flow (m³/h)
 $\Delta t = 2K$ valve proportional band (K)

SIEMENS RAA21 room thermostat

- optional accessory
- for heating
- 2 point ON/OFF control
- switching voltage 24 V DC up to 230 V AC
- gas-filled metal membrane
- the required temperature is set manually using the control dial on the front of the thermostat
- the range of adjustable temperatures may be limited mechanically using the pins accessible under the cover
- IP 30
- dimensions (h×w×d) 97×96×35.3 mm
- **order code:** REG-RAA21

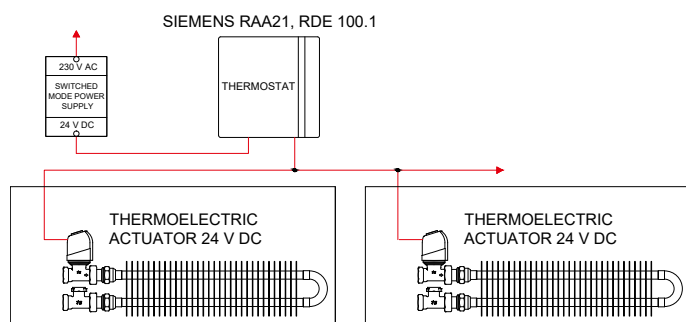


SIEMENS RDE 100.1 room thermostat

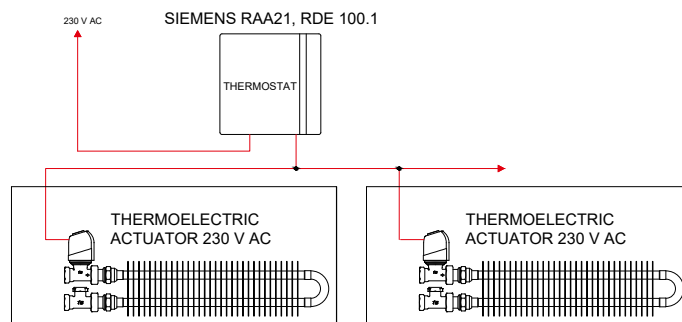
- optional accessory
- for heating
- 2 point ON/OFF
- switching voltage 24 V DC and 230 V AC
- operation modes: comfort, low, protective and automatic with timer program
- adjustable configuration and control parameters
- weekly timer program
- battery powered 3 V DC (2× 1.5 V DC)
- IP 30
- dimensions (h×w×d) 127×85×21.5 mm
- **order code:** REG-RDE100.1



24 V DC wiring diagram



230 V AC wiring diagram



For illustrative purposes only. For safety reasons, we recommend the use of 24 V DC thermoelectric actuators.





KORALINE Max LKM free-standing convactor

Technical data

BASIC TECHNICAL DATA

KORALINE Optimal LKO												
Height [mm]	Height 90				Height 150				Height 230			
Width [mm]	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230
Temperature exponent n [-]	-	1.4021	1.3880	1.3752	1.4503	1.3900	1.4204	1.4302	1.4250	1.3958	1.4115	1.4215
Unit weight [kg/m]	-	5.3	6.4	7.7	5.6	6.3	9.0	10.3	7.9	8.1	10.5	11.9
Water volume [l/m]	-	0.298	0.450	0.602	0.298	0.602	0.907	1.211	0.602	0.602	0.907	1.211
Effective part of heat exchanger [mm]	-	L-186	L-174	L-186	L-186	L-234	L-186	L-234	L-186	L-234	L-186	L-234
Height [mm]	Height 300				Height 400				Height 500			
Width [mm]	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230
Temperature exponent n [-]	1.4298	1.4009	1.4038	1.4139	1.4367	1.4081	1.3927	1.4031	1.4436	1.4153	1.3816	1.3923
Unit weight [kg/m]	9.2	9.4	11.8	13.2	11.1	11.3	14.1	15.4	12.9	13.1	16.1	17.4
Water volume [l/m]	0.602	0.602	0.907	1.211	0.602	0.602	0.907	1.211	0.602	0.602	0.907	1.211
Effective part of heat exchanger [mm]	L-186	L-234	L-186	L-234	L-186	L-234	L-186	L-234	L-186	L-234	L-186	L-234

KORALINE Power LKW												
Height [mm]	Height 230				Height 300				Height 400			
Width [mm]	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230
Temperature exponent n [-]	1.3261	1.3885	1.4113	1.4295	1.3299	1.3826	1.4058	1.4236	1.3353	1.3741	1.3979	1.4151
Unit weight [kg/m]	7.5	10.1	13.0	15.1	8.8	11.4	14.3	16.4	10.7	13.3	16.3	18.5
Water volume [l/m]	0.602	1.343	2.016	2.692	0.602	1.343	2.016	2.692	0.602	1.343	2.016	2.692
Effective part of heat exchanger [mm]	L-186	L-234	L-253	L-234	L-186	L-234	L-253	L-234	L-186	L-234	L-253	L-234
Height [mm]	Height 500				Height 600				Height 800			
Width [mm]	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230
Temperature exponent n [-]	1.3407	1.3657	1.3900	1.4065	1.3462	1.3573	1.3821	1.3980	1.3516	1.3488	1.3742	1.3895
Unit weight [kg/m]	12.1	15.2	18.3	20.5	13.8	17.1	20.2	22.5	17.3	20.8	24.1	26.6
Water volume [l/m]	0.602	1.343	2.016	2.692	0.602	1.343	2.016	2.692	0.602	1.343	2.016	2.692
Effective part of heat exchanger [mm]	L-186	L-234	L-253	L-234	L-186	L-234	L-253	L-234	L-186	L-234	L-253	L-234
Height [mm]	Height 700				Height 800				Height 900			
Width [mm]	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230
Temperature exponent n [-]	1.3516	1.3488	1.3742	1.3895	1.3570	1.3404	1.3662	1.3810	1.3516	1.3488	1.3742	1.3895
Unit weight [kg/m]	15.6	19.0	22.2	24.6	17.3	20.8	24.1	26.6	17.3	20.8	24.1	26.6
Water volume [l/m]	0.602	1.343	2.016	2.692	0.602	1.343	2.016	2.692	0.602	1.343	2.016	2.692
Effective part of heat exchanger [mm]	L-186	L-234	L-253	L-234	L-186	L-234	L-253	L-234	L-186	L-234	L-253	L-234

KORALINE Basic LKB

Height [mm]	Height 90				Height 150				Height 230			
Width [mm]	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230
Temperature exponent n [-]	-	1.4021	1.3880	1.3752	-	1.3900	1.4204	1.4302	-	1.3958	1.4115	1.4215
Unit weight [kg/m]	-	4.9	5.9	6.9	-	6.2	8.6	9.9	-	7.9	10.4	11.7
Water volume [l/m]	-	0.298	0.450	0.602	-	0.602	0.907	1.211	-	0.602	0.907	1.211
Effective part of heat exchanger [mm]	-	L-186	L-174	L-186	-	L-234	L-186	L-234	-	L-234	L-186	L-234
Height [mm]	Height 300				Height 400				Height 500			
Width [mm]	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230
Temperature exponent n [-]	-	1.4009	1.4038	1.4139	-	1.4081	1.3927	1.4031	-	1.4153	1.3816	1.3923
Unit weight [kg/m]	-	9.4	11.9	13.3	-	11.5	14.1	15.5	-	13.6	16.4	17.8
Water volume [l/m]	-	0.602	0.907	1.211	-	0.602	0.907	1.211	-	0.602	0.907	1.211
Effective part of heat exchanger [mm]	-	L-234	L-186	L-234	-	L-234	L-186	L-234	-	L-234	L-186	L-234

KORALINE Combi LKC

Height [mm]	Height 230			Height 300			Height 400			Height 500		
Width [mm]	Width 130	Width 180	Width 230	Width 130	Width 180	Width 230	Width 130	Width 180	Width 230	Width 130	Width 180	Width 230
Temperature exponent n [-]	1.3885	1.4113	1.4295	1.3826	1.4058	1.4236	1.3741	1.3979	1.4151	1.3657	1.3900	1.4065
Unit weight [kg/m]	10.1	12.9	14.6	11.7	14.4	16.2	13.8	16.6	18.4	15.9	18.8	20.7
Water volume [l/m]	1.343	2.016	2.692	1.343	2.016	2.692	1.343	2.016	2.692	1.343	2.016	2.692
Effective part of heat exchanger [mm]	L-234	L-253	L-234	L-234	L-253	L-234	L-234	L-253	L-234	L-234	L-253	L-234

KORALINE Safe LKS

Height [mm]	Height 90				Height 150				Height 230			
Width [mm]	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230
Temperature exponent n [-]	-	1.4021	1.3880	1.3752	1.4503	1.3900	1.4204	1.4302	1.4250	1.3958	1.4115	1.4215
Unit weight [kg/m]	-	6.6	7.6	8.8	7.5	8.1	10.6	11.9	10.4	10.9	12.8	14.1
Water volume [l/m]	-	0.298	0.450	0.602	0.298	0.602	0.907	1.211	0.602	0.602	0.907	1.211
Effective part of heat exchanger [mm]	-	L-234	L-186	L-234	L-186	L-234	L-186	L-234	L-186	L-234	L-186	L-234
Height [mm]	Height 300				Height 400				Height 500			
Width [mm]	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230
Temperature exponent n [-]	1.4298	1.4009	1.4038	1.4139	1.4367	1.4081	1.3927	1.4031	1.4436	1.4153	1.3816	1.3923
Unit weight [kg/m]	12.2	12.7	14.7	16.0	15.0	15.5	17.7	19.0	17.6	18.1	20.4	21.8
Water volume [l/m]	0.602	0.602	0.907	1.211	0.602	0.602	0.907	1.211	0.602	0.602	0.907	1.211
Effective part of heat exchanger [mm]	L-186	L-234	L-186	L-234	L-186	L-234	L-186	L-234	L-186	L-234	L-186	L-234

BASIC TECHNICAL DATA

KORALINE Max LKM												
Height [mm]	Height 230				Height 300				Height 400			
Width [mm]	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230
Temperature exponent n [-]	1.3261	1.3885	1.4113	1.4295	1.3299	1.3826	1.4058	1.4236	1.3353	1.3741	1.3979	1.4151
Unit weight [kg/m]	10.2	12.5	15.3	17.3	12.0	14.4	17.2	19.2	14.8	17.3	20.2	22.3
Water volume [l/m]	0.602	1.343	2.016	2.692	0.602	1.343	2.016	2.692	0.602	1.343	2.016	2.692
Effective part of heat exchanger [mm]	L-186	L-234	L-253	L-234	L-186	L-234	L-253	L-234	L-186	L-234	L-253	L-234
Height [mm]	Height 500				Height 600							
Width [mm]	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230				
Temperature exponent n [-]	1.3407	1.3657	1.3900	1.4065	1.3462	1.3573	1.3821	1.3980				
Unit weight [kg/m]	17.4	20.0	23.0	25.1	20.0	22.7	25.8	28.0				
Water volume [l/m]	0.602	1.343	2.016	2.692	0.602	1.343	2.016	2.692				
Effective part of heat exchanger [mm]	L-186	L-234	L-253	L-234	L-186	L-234	L-253	L-234				
Height [mm]	Height 700				Height 800							
Width [mm]	Width 80	Width 130	Width 180	Width 230	Width 80	Width 130	Width 180	Width 230				
Temperature exponent n [-]	1.3516	1.3488	1.3742	1.3895	1.3570	1.3404	1.3662	1.3810				
Unit weight [kg/m]	22.7	25.4	28.6	30.9	25.3	28.1	31.3	33.8				
Water volume [l/m]	0.602	1.343	2.016	2.692	0.602	1.343	2.016	2.692				
Effective part of heat exchanger [mm]	L-186	L-234	L-253	L-234	L-186	L-234	L-253	L-234				

KORALINE LD		
Height [mm]	Height 300	Height 450
Width [mm]	Width 265	Width 315
Temperature exponent n [-]	1.4290	1.3864
Unit weight [kg/m]	16.6	22.3
Water volume [l/m]	1.122	1.451
Effective part of heat exchanger [mm]	L-323	L-274

KORALINE CONVECTOR PRESSURE LOSSES

(Height/Width)

Optimal LKO 9/13, 15/08, Basic LKB 9/13, Safe LKS 9/13, 15/08

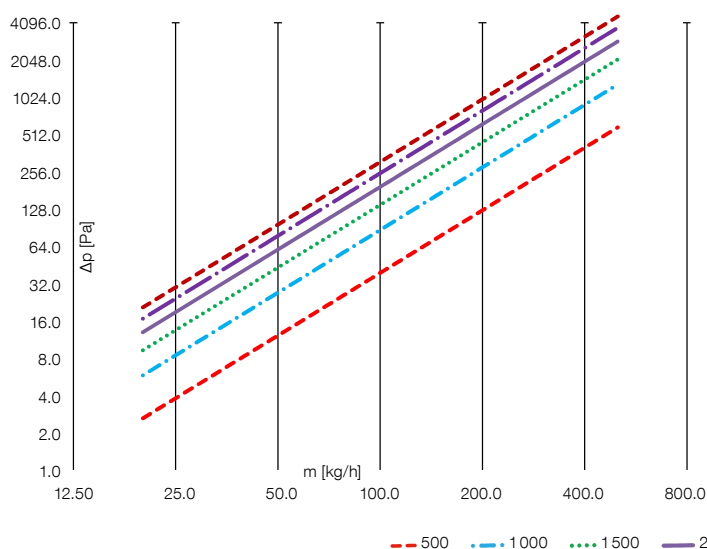
Length L [mm]	Mass flow rate m [kg/h]											
	20	40	80	100	150	200	250	300	350	400	450	500
	Heat exchanger pressure losses Δp [Pa]											
600	3	10	33	48	95	155	225	306	396	496	605	722
800	5	14	46	67	133	216	314	426	552	691	842	1005
1000	6	19	60	87	172	279	406	551	714	893	1089	1300
1200	7	23	74	107	212	344	500	680	881	1102	1343	1604
1400	9	27	88	128	253	411	598	812	1052	1316	1604	1915
1600	10	32	103	149	295	479	697	947	1226	1535	1871	2233
1800	11	37	118	171	338	549	798	1084	1405	1758	2143	2558
2000	13	41	133	193	382	619	901	1224	1586	1985	2419	2887
2200	14	46	148	216	426	691	1005	1366	1770	2215	2700	3222
2400	16	51	164	238	471	764	1111	1510	1956	2448	2984	3562
2600	17	56	180	261	517	838	1219	1656	2145	2685	3272	3906
2800	19	61	196	285	563	912	1327	1803	2336	2924	3564	4254
3000	21	66	212	308	609	988	1437	1952	2529	3165	3858	4605

(Height/Width)

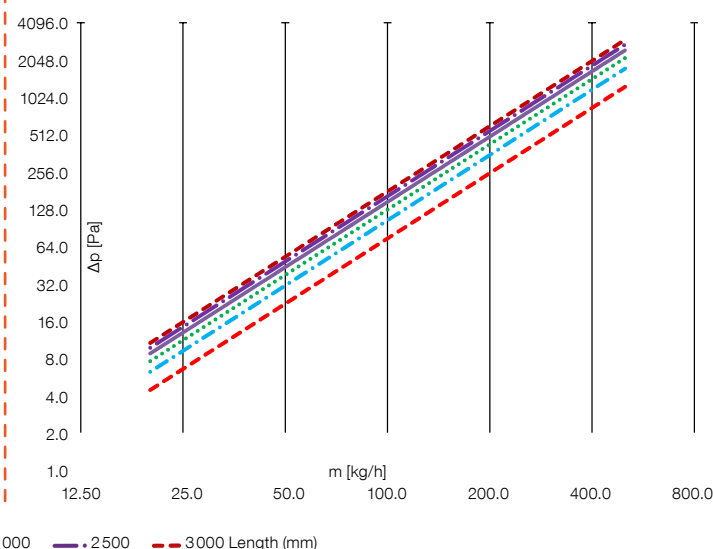
Optimal LKO 9/18, Basic LKB 9/18, Safe LKS 9/18

Length L [mm]	Mass flow rate m [kg/h]											
	20	40	80	100	150	200	250	300	350	400	450	500
	Heat exchanger pressure losses Δp [Pa]											
600	5	16	55	81	165	274	404	556	729	921	1132	1361
800	6	19	63	93	190	315	465	640	839	1060	1302	1566
1000	6	21	71	104	212	351	519	714	935	1181	1452	1746
1200	7	23	77	114	232	384	567	780	1022	1291	1587	1909
1400	7	25	83	123	250	413	611	841	1102	1392	1711	2058
1600	8	26	89	131	267	441	652	898	1176	1486	1826	2196
1800	8	28	94	139	282	467	691	951	1246	1574	1934	2326
2000	9	29	99	146	297	492	727	1001	1311	1657	2036	2449
2200	9	31	104	153	311	515	762	1049	1374	1736	2133	2566
2400	10	32	108	160	325	538	795	1094	1433	1811	2226	2677
2600	10	33	112	166	338	559	827	1138	1490	1883	2314	2783
2800	10	35	117	172	350	580	857	1180	1545	1952	2400	2886
3000	11	36	120	178	362	600	886	1220	1598	2019	2482	2985

**Optimal LKO 9/13, 15/08,
Basic LKB 9/13, Safe LKS 9/13, 15/08**



**Optimal LKO 9/18,
Basic LKB 9/18, Safe LKS 9/18**



KORALINE CONVECTOR PRESSURE LOSSES

(Height/Width) **Optimal LKO 23/08, 30/08, 40/08, 50/08, 9/23, Basic LKB 9/23, Power LKW 23/08, 30/08, 40/08, 50/08, 60/08, 70/08, 80/08, Max LKM 23/08, 30/08, 40/08, 50/08, 60/08, 70/08, 80/08, Safe LKS 23/08, 30/08, 40/08, 50/08, 9/23**

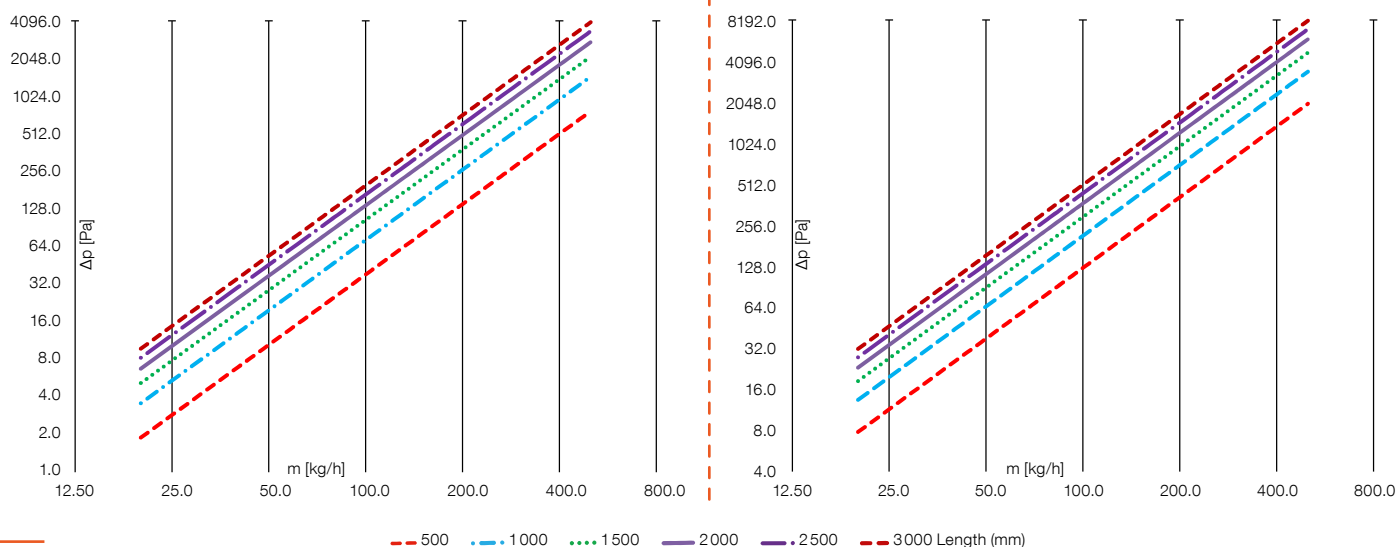
Length L [mm]	Mass flow rate m [kg/h]											
	20	40	80	100	150	200	250	300	350	400	450	500
	Heat exchanger pressure losses Δp [Pa]											
600	8	27	90	132	264	432	633	866	1127	1417	1733	2076
800	11	35	115	168	336	550	806	1102	1435	1803	2206	2643
1000	13	42	138	202	405	663	972	1329	1730	2175	2661	3187
1200	15	49	161	236	472	773	1133	1548	2016	2534	3100	3713
1400	17	56	183	268	538	880	1289	1762	2294	2884	3528	4226
1600	19	63	205	300	601	984	1442	1971	2566	3226	3947	4727
1800	21	69	226	331	664	1086	1592	2175	2833	3561	4356	5218
2000	23	75	247	362	725	1187	1739	2376	3094	3890	4759	5700
2200	25	82	268	392	785	1286	1884	2574	3352	4213	5155	6175
2400	27	88	288	422	845	1383	2027	2769	3606	4532	5546	6642
2600	29	94	308	451	904	1479	2167	2962	3856	4847	5931	7103
2800	31	100	328	480	962	1574	2306	3152	4104	5158	6311	7559
3000	32	106	347	509	1019	1668	2444	3339	4348	5466	6687	8010

(Height/Width) **Optimal LKO 15/13, 23/13, 30/13, 40/13, 50/13, Basic LKB 15/13, 23/13, 30/13, 40/13, 50/13, Safe LKS 15/13, 23/13, 30/13, 40/13, 50/13**

Length L [mm]	Mass flow rate m [kg/h]											
	20	40	80	100	150	200	250	300	350	400	450	500
	Heat exchanger pressure losses Δp [Pa]											
600	9	30	98	144	290	475	698	956	1246	1568	1921	2303
800	11	37	123	180	363	595	874	1197	1561	1964	2406	2885
1000	13	44	146	215	432	709	1041	1425	1859	2339	2865	3436
1200	16	51	169	248	498	818	1201	1644	2144	2698	3305	3963
1400	17	58	190	280	562	923	1355	1855	2419	3044	3729	4471
1600	19	64	211	311	624	1024	1505	2059	2686	3380	4140	4964
1800	21	70	232	341	685	1123	1650	2258	2945	3707	4540	5443
2000	23	76	252	370	743	1220	1792	2453	3198	4025	4930	5911
2200	25	82	271	398	801	1315	1931	2643	3446	4337	5312	6369
2400	27	88	290	427	857	1407	2067	2829	3689	4643	5687	6818
2600	28	94	309	454	913	1498	2200	3012	3928	4943	6055	7259
2800	30	99	328	481	967	1588	2332	3192	4162	5238	6416	7693
3000	32	105	346	508	1021	1676	2461	3369	4393	5529	6773	8120

**Optimal LKO 23/08, 30/08, 40/08, 50/08, 9/23,
Basic LKB 9/23, Safe LKS 23/08, 30/08, 40/08, 50/08, 9/23,
Power LKW 23/08, 30/08, 40/08, 50/08, 60/08, 70/08, 80/08,
Max LKM 23/08, 30/08, 40/08, 50/08, 60/08, 70/08, 80/08**

**Optimal LKO 15/13, 23/13, 30/13, 40/13, 50/13,
Basic LKB 15/13, 23/13, 30/13, 40/13, 50/13,
Safe LKS 15/13, 23/13, 30/13, 40/13, 50/13**



(Height/Width) **Optimal LKO 15/18, 23/18, 30/18, 40/18, 50/18, Basic LKB 15/18, 23/18, 30/18, 40/18, 50/18, Safe LKS 15/18, 23/18, 30/18, 40/18, 50/18**

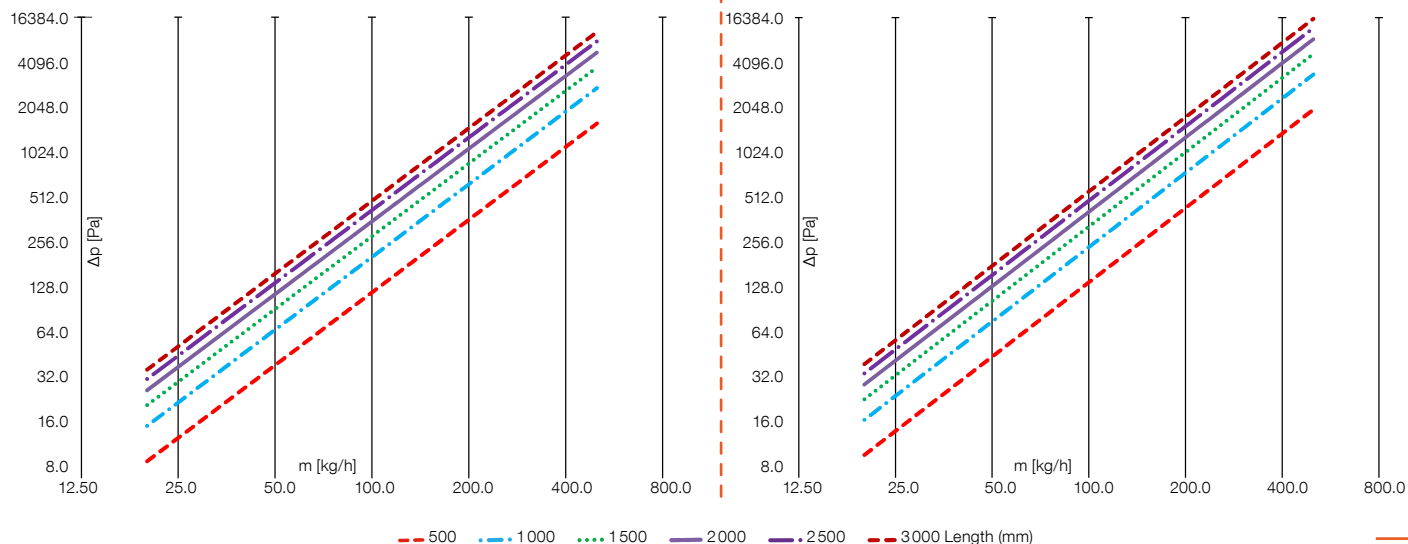
Length L [mm]	Mass flow rate m [kg/h]											
	20	40	80	100	150	200	250	300	350	400	450	500
	Heat exchanger pressure losses Δp [Pa]											
600	12	41	137	202	408	673	991	1360	1777	2240	2748	3299
800	16	53	175	258	521	858	1264	1734	2266	2856	3504	4207
1000	19	63	211	311	629	1036	1526	2094	2736	3449	4231	5080
1200	22	74	246	363	734	1208	1780	2442	3191	4023	4936	5926
1400	25	84	281	413	836	1377	2027	2782	3635	4583	5622	6750
1600	28	94	314	463	935	1541	2270	3114	4069	5130	6293	7556
1800	31	104	347	511	1033	1702	2507	3440	4495	5667	6952	8346
2000	34	114	379	559	1129	1861	2740	3760	4913	6194	7599	9123
2200	37	124	411	606	1224	2017	2970	4075	5325	6714	8236	9888
2400	40	133	443	652	1317	2170	3197	4386	5731	7226	8864	10642
2600	43	142	474	697	1410	2322	3420	4693	6132	7731	9484	11387
2800	45	151	504	743	1501	2472	3641	4996	6528	8231	10097	12122
3000	48	161	534	787	1591	2621	3860	5296	6920	8725	10703	12850

(Height/Width) **Optimal LKO 15/23, 23/23, 30/23, 40/23, 50/23, Basic LKB 15/23, 23/23, 30/23, 40/23, 50/23, Safe LKS 15/23, 23/23, 30/23, 40/23, 50/23**

Length L [mm]	Mass flow rate m [kg/h]											
	20	40	80	100	150	200	250	300	350	400	450	500
	Heat exchanger pressure losses Δp [Pa]											
600	18	58	191	279	559	915	1341	1832	2385	2997	3667	4391
800	22	73	241	352	706	1155	1692	2311	3009	3782	4627	5541
1000	27	88	288	422	845	1383	2026	2768	3604	4530	5542	6637
1200	31	102	334	489	979	1602	2348	3208	4177	5249	6422	7692
1400	35	115	378	554	1109	1815	2660	3634	4731	5946	7275	8713
1600	39	129	421	617	1236	2022	2963	4048	5271	6624	8104	9706
1800	43	141	463	679	1359	2224	3259	4453	5797	7286	8914	10676
2000	47	154	505	739	1480	2422	3549	4849	6313	7934	9707	11625
2200	51	166	545	799	1599	2616	3833	5237	6819	8570	10484	12556
2400	54	179	585	857	1715	2807	4112	5619	7316	9194	11248	13472
2600	58	190	624	914	1830	2994	4387	5995	7805	9809	12000	14372
2800	62	202	662	971	1943	3179	4658	6365	8287	10415	12742	15260
3000	65	214	700	1026	2054	3362	4926	6730	8762	11012	13473	16135

Optimal LKO 15/18, 23/18, 30/18, 40/18, 50/18, Basic LKB 15/18, 23/18, 30/18, 40/18, 50/18, Safe LKS 15/18, 23/18, 30/18, 40/18, 50/18

Optimal LKO 15/23, 23/23, 30/23, 40/23, 50/23, Basic LKB 15/23, 23/23, 30/23, 40/23, 50/23, Safe LKS 15/23, 23/23, 30/23, 40/23, 50/23



KORALINE CONVECTOR PRESSURE LOSSES

(Height/Width) **Power LKW 23/13, 30/13, 40/13, 50/13, 60/13, 70/13, 80/13,**

Combi LKC 23/13, 30/13, 40/13, 50/13, Max LKM 23/13, 30/13, 40/13, 50/13, 60/13, 70/13, 80/13

Length L [mm]	Mass flow rate m [kg/h]											
	20	40	80	100	150	200	250	300	350	400	450	500
	Heat exchanger pressure losses Δp [Pa]											
600	9	32	115	175	374	641	972	1368	1825	2342	2920	3556
800	9	32	118	179	381	653	991	1394	1860	2388	2977	3625
1000	9	33	119	181	387	663	1006	1415	1888	2424	3022	3680
1200	9	33	121	184	392	671	1019	1433	1912	2454	3059	3725
1400	9	33	122	185	396	678	1029	1448	1932	2480	3091	3764
1600	9	34	123	187	400	684	1039	1461	1949	2502	3119	3798
1800	9	34	124	189	403	690	1047	1472	1964	2522	3143	3828
2000	9	34	125	190	406	695	1054	1483	1978	2540	3166	3855
2200	9	34	126	191	408	699	1061	1492	1991	2556	3186	3880
2400	9	35	127	192	411	703	1067	1501	2003	2571	3205	3903
2600	10	35	127	193	413	707	1073	1509	2014	2585	3222	3924
2800	10	35	128	194	415	711	1079	1517	2024	2598	3238	3943
3000	10	35	129	195	417	714	1084	1524	2033	2610	3253	3962

(Height/Width) **Power LKW 23/18, 30/18, 40/18, 50/18, 60/18, 70/18, 80/18,**

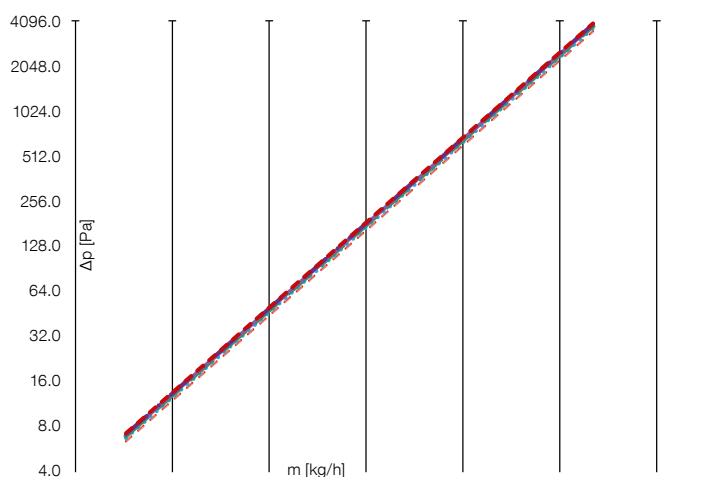
Combi LKC 23/18, 30/18, 40/18, 50/18, Max LKM 23/18, 30/18, 40/18, 50/18, 60/18, 70/18, 80/18

Length L [mm]	Mass flow rate m [kg/h]											
	20	40	80	100	150	200	250	300	350	400	450	500
	Heat exchanger pressure losses Δp [Pa]											
600	27	89	295	435	879	1449	2134	2929	3828	4826	5921	7110
800	33	111	371	547	1106	1822	2683	3682	4812	6067	7444	8938
1000	40	133	443	653	1320	2175	3204	4398	5747	7246	8890	10674
1200	46	154	513	755	1526	2515	3705	5084	6644	8377	10277	12339
1400	52	174	579	854	1725	2843	4188	5747	7510	9469	11618	13949
1600	58	193	644	949	1919	3162	4657	6391	8352	10531	12920	15512
1800	64	212	708	1042	2107	3472	5115	7019	9172	11565	14189	17036
2000	69	231	770	1134	2291	3776	5562	7632	9974	12576	15429	18525
2200	75	249	830	1223	2472	4073	6000	8234	10760	13567	16644	19984
2400	80	267	890	1310	2649	4365	6430	8824	11531	14539	17837	21417
2600	85	285	948	1397	2823	4652	6853	9404	12289	15495	19010	22825
2800	91	302	1006	1481	2995	4934	7269	9975	13035	16435	20164	24211
3000	96	319	1062	1565	3164	5213	7679	10537	13770	17363	21301	25576

Power LKW 23/13, 30/13, 40/13, 50/13, 60/13, 70/13, 80/13,

Combi LKC 23/13, 30/13, 40/13, 50/13,

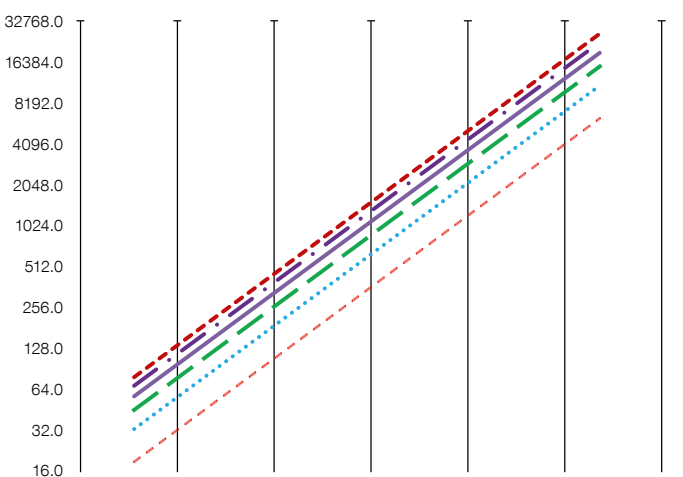
Max LKM 23/13, 30/13, 40/13, 50/13, 60/13, 70/13, 80/13



Power LKW 23/18, 30/18, 40/18, 50/18, 60/18, 70/18, 80/18,

Combi LKC 23/18, 30/18, 40/18, 50/18,

Max LKM 23/18, 30/18, 40/18, 50/18, 60/18, 70/18, 80/18

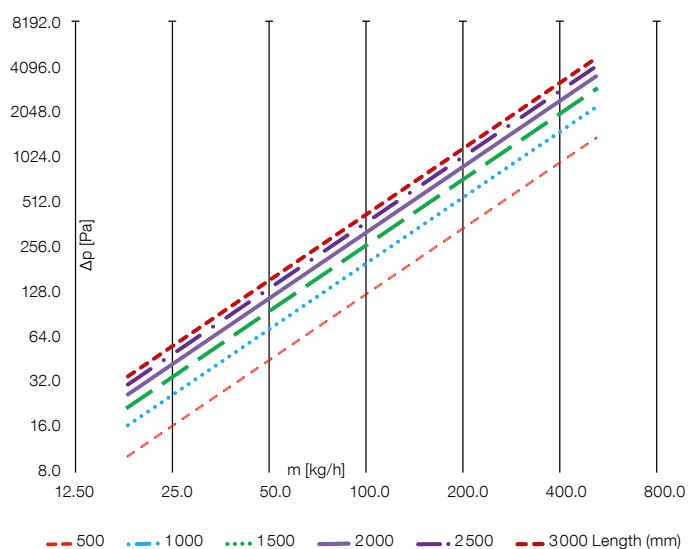


--- 500 -.- 1000 ... 1500 — 2000 — 2500 -.- 3000 Length (mm)

(Height/Width) **Power LKW 23/23, 30/23, 40/23, 50/13, 60/23, 70/23, 80/23,**
Combi LKC 23/23, 30/23, 40/23, 50/23, Max LKM 23/23, 30/23, 40/23, 50/23, 60/23, 70/23, 80/23

Length L [mm]	Mass flow rate m [kg/h]											
	20	40	80	100	150	200	250	300	350	400	450	500
	Heat exchanger pressure losses Δp [Pa]											
600	13	37	104	145	263	402	559	732	919	1119	1331	1556
800	16	46	127	176	321	490	681	892	1120	1364	1623	1896
1000	19	53	148	205	374	571	794	1040	1306	1590	1892	2210
1200	22	60	167	233	424	648	901	1179	1480	1802	2145	2506
1400	24	67	186	259	471	720	1001	1311	1645	2004	2385	2786
1600	26	73	204	284	516	790	1098	1437	1804	2197	2614	3054
1800	29	80	221	308	560	856	1190	1558	1956	2382	2835	3312
2000	31	86	238	331	602	920	1280	1675	2103	2561	3048	3561
2200	33	91	254	353	643	983	1366	1788	2245	2735	3254	3802
2400	35	97	270	375	682	1043	1451	1899	2384	2903	3455	4036
2600	37	102	285	396	721	1103	1533	2006	2519	3068	3650	4265
2800	39	108	300	417	759	1160	1613	2111	2651	3228	3841	4488
3000	41	113	315	437	796	1217	1691	2214	2779	3385	4028	4706

Power LKW 23/23, 30/23, 40/23, 50/13, 60/23, 70/23, 80/23,
Combi LKC 23/23, 30/23, 40/23, 50/23,
Max LKM 23/23, 30/23, 40/23, 50/23, 60/23, 70/23, 80/23



KORALINE WITH WOODEN BENCH TOP CONVECTOR – PRESSURE LOSSES

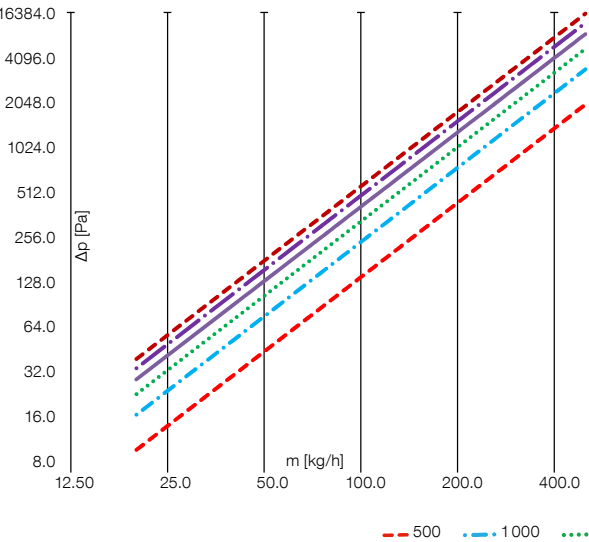
(Height/Width) **KORALINE LD 30/26**

Length L [mm]	Mass flow rate m [kg/h]											
	20	40	80	100	150	200	250	300	350	400	450	500
	Heat exchanger pressure losses Δp [Pa]											
1000	27	88	288	422	845	1383	2026	2768	3604	4530	5542	6637
1200	31	102	334	489	979	1602	2348	3208	4177	5249	6422	7692
1400	35	115	378	554	1109	1815	2660	3634	4731	5946	7275	8713
1600	39	129	421	617	1236	2022	2963	4048	5271	6624	8104	9706
1800	43	141	463	679	1359	2224	3259	4453	5797	7286	8914	10676
2000	47	154	505	739	1480	2422	3549	4849	6313	7934	9707	11625

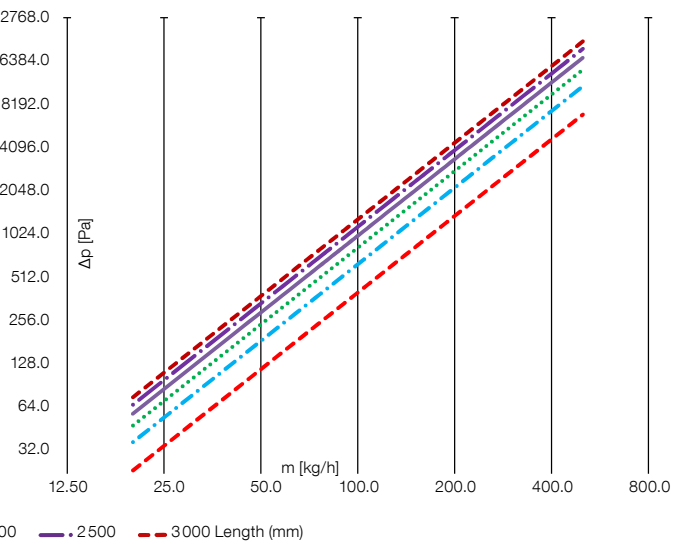
(Height/Width) **KORALINE LD 45/31**

Length L [mm]	Mass flow rate m [kg/h]											
	20	40	80	100	150	200	250	300	350	400	450	500
	Heat exchanger pressure losses Δp [Pa]											
1000	36	122	415	616	1264	2104	3125	4316	5672	7186	8853	10670
1200	40	137	468	694	1424	2371	3521	4863	6391	8097	9975	12023
1400	44	151	517	768	1575	2623	3895	5380	7069	8956	11035	13300
1600	48	165	564	838	1719	2862	4250	5871	7715	9775	12043	14515
1800	52	179	610	905	1857	3092	4591	6342	8334	10558	13008	15678
2000	56	191	653	970	1990	3313	4919	6795	8929	11312	13937	16798

KORALINE LD 30/26



KORALINE LD 45/31





CALCULATIONS FOR OTHER TEMPERATURE GRADIENTS

The HEAT OUTPUT of individual free-standing convectors is determined by measuring nominal operating (temperature) conditions of 75/65/20°C ($t_1/t_2/t_a$) in accordance with ČSN EN 442. In accordance with these principal values for the heat output, further temperature 55/45/20°C were achieved by converting corresponding HEAT OUTPUTS as listed in this catalogue. Where heating units are designed for other temperature conditions, the following conversions will be necessary:

- 1 $\Delta t = \frac{(t_1 + t_2)}{2} - t_a$
- 2 $f = \left(\frac{\Delta t}{50}\right)^n$
- 3 $Q = f \cdot Q_n$
- 4 $m = 0.86 \cdot \frac{Q}{t_1 - t_2}$

Where

t_1	[°C]	input water temp
t_2	[°C]	output water temp
t_a	[°C]	ambient air temp
Δt	[K]	temperature gradient
n	[-]	temperature exponent
f	[-]	conversion coefficient
Q_n	[W]	nominal heat output at 75/65/20 °C
Q	[W]	required output for temperature gradient
m	[kg/h]	mass flow rate

Output can also be calculated according to the characteristic equations (see Basic Technical Data), or at www.licon.cz

Conversion

Example

- LKO free-standing convector 160/15/23
- input water temperature $t_1 = 60$ °C
- nominal output $Q_n = 2159$ W
- output water temperature $t_2 = 50$ °C
- temperature exponent $n = 1.4302$
- ambient air temperature $t_a = 22$ °C

Solution

To achieve 60/50/22°C operating conditions, calculate temperature gradient Δt according to formula 1 and conversion coefficient value f according to formula 2

- 1 $\Delta t = \frac{(t_1 + t_2)}{2} - t_a = \frac{(60 + 50)}{2} - 22 = 33$ K

Temperature exponent n for the required convector dimensions can be found in the output table.

- 2 $f = \left(\frac{\Delta t}{50}\right)^n = \left(\frac{33}{50}\right)^{1.4302} = 0.5520$

Output for required temperature gradient is calculated as follows:

- 3 $Q = f \cdot Q_n = 0.5520 \cdot 2159 = 1192$ W





KORALINE Optimal-V LVO with forced convection and aluminium silver elox grille

KORALINE

free-standing convectors
with forced convection

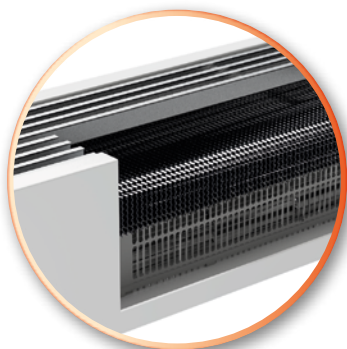


KORALINE FREE-STANDING CONVECTORS WITH FORCED CONVECTION



HIGH PERFORMANCE HEAT EXCHANGER

Specially designed Al/Cu heat exchanger ensures improved output and is the heart of every convector.



UNIQUE FANS

New fans with EC aluminium motors for quiet operation and low power consumption.



USER-FRIENDLY CONTROLS

User-friendly controls with room thermostats for smooth fan speed control, responding smoothly to changes in temperature to create a comfortable warm interior.



HC OPTIMIZED CONVECTION



INCREASED THERMAL OUTPUT

More efficient heating translates into financial savings and more comfortable, warm interior.



HEAT PUMP SYNERGY



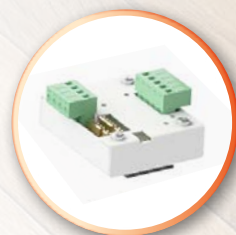
SUITABLE FOR LOW TEMPERATURE SYSTEMS

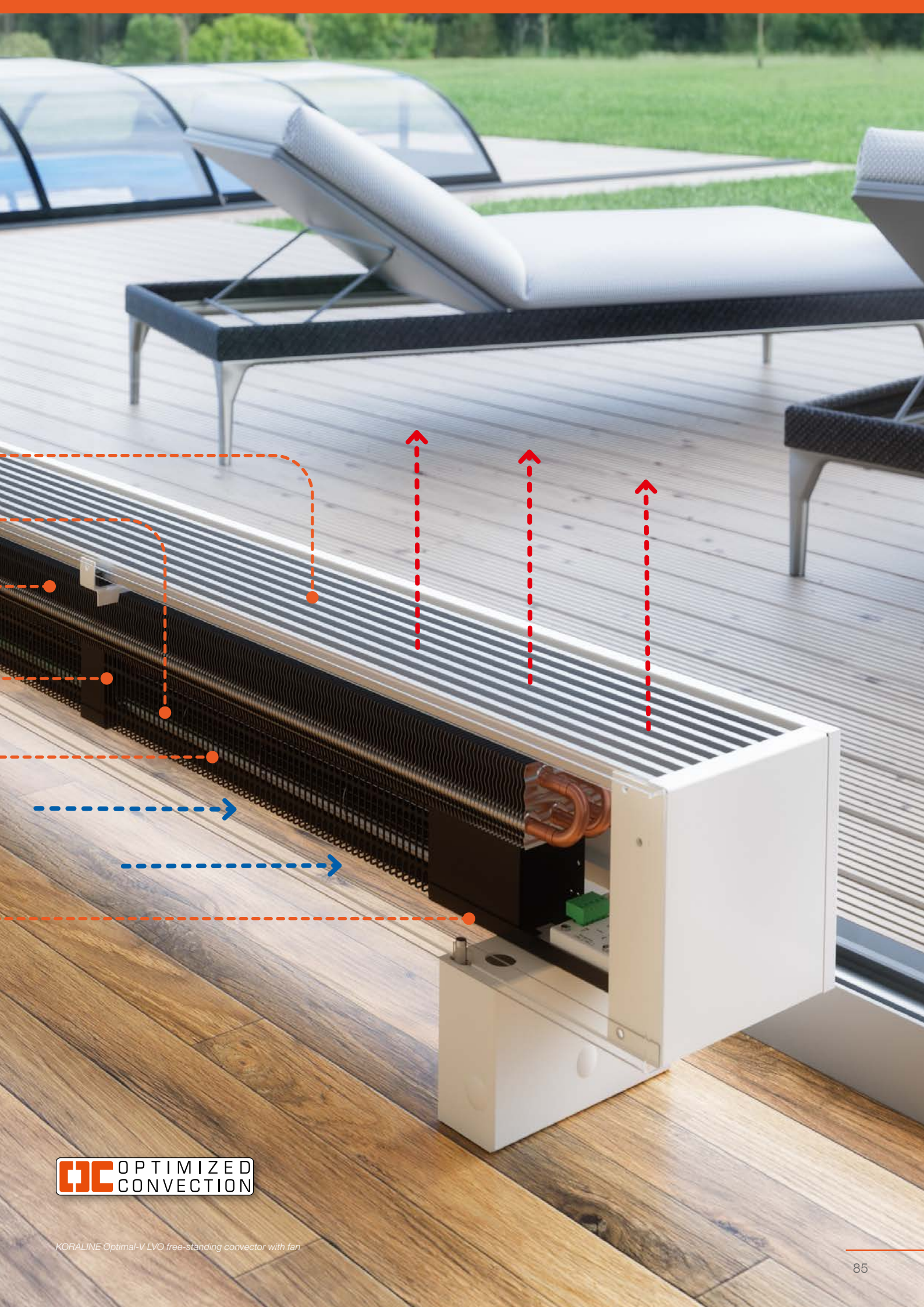
Sufficient efficiency for heating with condensing boilers and heat pumps. Also suitable for passive or low-energy houses.



GUARANTEED OUTPUT

Precise fan speed and declared output guaranteed thanks to sophisticated electronic control elements.







KORALINE Optimal-V LVO

Free-standing convectors with forced convection and high-performance 24 V DC fans

KORALINE Optimal-V LVO

Specifications

Height	150 mm
Width	111, 176, 236 mm
Length	900, 1 200, 1 600, 2 000, 2 400, 2 800 mm
Output	from 133 to 6 061 W
Max. operating pressure	1.2 MPa
Max. operating temperature	90 °C
Surface temperature	40 °C*
Connection thread	inner G 1/2"
Connection method	lower

* according to inlet water temperature



The **KORALINE Optimal-V LVO** range of free-standing convectors is equipped with a specially designed Al/Cu heat exchanger and a set of low-energy, high-performance fans with minimal power consumption to ensure that the convectors achieve high efficiency even at low temperature gradients. This type of convector is thus ideal for buildings with low temperature systems such as heat pumps, solar systems, condensing boilers etc. The convectors can be controlled via BMS and due to their immediate response to changes in room temperature, very quiet operation and low surface temperature, they are suitable for use in family homes, apartment buildings and public areas.

Standard contents

- silver elox aluminium grille
- galvanized steel RAL 9016 white or RAL 9005 black casing
- Al/Cu low-water volume heat exchangers, bleed valve, uniquely shaped fins
- set of low-energy EC 24 V DC quiet operation fans
- connection terminals and FCR-BOX electronic regulator
- transport stopper and bracket mount (see p. 52)
- floor-level brackets
- assembly instructions and durable packaging

Optional accessories

- further RAL lacquers for casings available
- elbow or straight lockshield (see p. 96)
- elbow or straight thermostatic valve (see p. 96)
- TEP 24 thermoelectric actuator (see p. 95)
- SIEMENS RDG 260T, RDG 260KN or RAB 21-DC room thermostat (see p. 94)
- QAA32 room temperature sensor (see p. 94)
- NTC temperature sensor (see p. 95)
- DC voltage supply (see p. 96)
- R-Box (viz str. 96)



KORALINE Optimal-V LVO may not be used with floor-level bracket casing, wall or sub-floor brackets.



Thermostatic valve is NOT supplied as KORALINE Optimal-V LVO and must be ordered as Optional accessory.



Silver elox aluminium grille



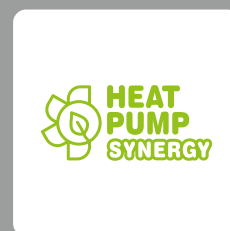
Forced convection



Quiet operation



Other RAL colour chart lacquers available

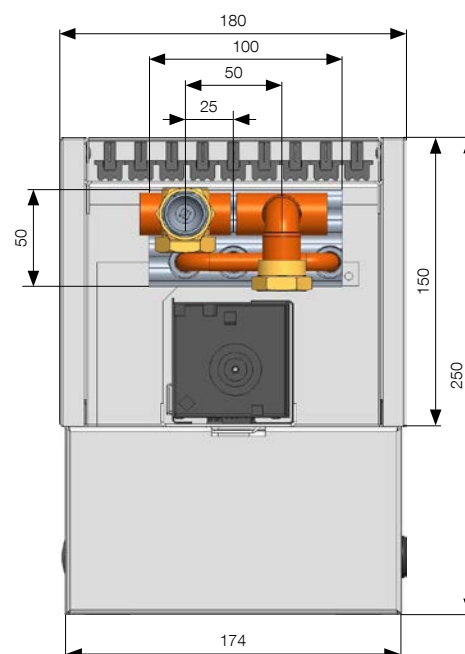


KORALINE Optimal-V LVO

height 150 mm/width 180 mm

Specifications

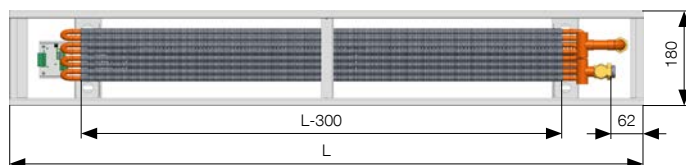
Height	150 mm
Width	180 mm
Length	900, 1 200, 1 600, 2 000, 2 400, 2 800 mm
Heat exchanger height	50 mm
Heat exchanger width	100 mm
Heat exchanger effective length	L - 300 mm
Fan impeller diameter	40 mm
Connecting thread	2× G 1/2" inner
Connection method	lower only



Heat outputs [W] at $t_1/t_2/t_i$ / EN 16430.

Length	Fan speed setting	Heat output [W]		Power consumption [W]	Acoustics	
		75/65/20 °C	55/45/20 °C		Sound pressure [dB(A)]	Sound power [dB(A)]
900	0	209	125	0	-	-
	1	854	512	1	19.8	27.8
	2	1 007	604	2	27.6	35.6
	3	1 160	696	3	30.0	38.0
1200	0	313	188	0	-	-
	1	1 281	769	2	20.1	28.1
	2	1 511	906	3	28.3	36.3
	3	1 740	1 044	4	31.0	39.0
1600	0	452	271	0	-	-
	1	1 850	1 110	2	21.2	29.2
	2	2 182	1 309	4	29.5	37.5
	3	2 513	1 508	5	32.4	40.4
2000	0	591	355	0	-	-
	1	2 420	1 452	3	21.9	29.9
	2	2 853	1 712	5	30.5	38.5
	3	3 287	1 972	6	33.5	41.5
2400	0	730	438	0	-	-
	1	2 989	1 793	3	22.4	30.4
	2	3 525	2 115	6	31.3	39.3
	3	4 060	2 436	8	34.5	42.5
2800	0	869	522	0	-	-
	1	3 558	2 135	4	22.7	30.7
	2	4 196	2 518	7	31.9	39.9
	3	4 833	2 900	9	35.3	43.3

Temperature exponent [n] 1.0000



KORALINE Optimal-V LVO may not be used with floor-level bracket casing, wall or sub-floor brackets.

Further information

Correction coefficient p. 90, Assembly p. 91, Regulation and accessories p. 92, Colour chart p. 109

KORALINE Optimal-V LVO

height 150 mm/width 230 mm

Specifications

Height	150 mm
Width	230 mm
Length	900, 1 200, 1 600, 2 000, 2 400, 2 800 mm
Heat exchanger height	50 mm
Heat exchanger width	150 mm
Heat exchanger effective length	L - 260 mm
Fan impeller diameter	40 mm
Connecting thread	2× G 1/2" inner
Connection method	lower only

Heat outputs [W] at $t_1/t_2/t_i$ / EN 16430.

Length	Fan speed setting	Heat output [W]		Power consumption [W]	Acoustics	
		75/65/20 °C	55/45/20 °C		Sound pressure [dB(A)]	Sound power [dB(A)]
900	0	261	156	0	-	-
	1	986	592	1	19.8	27.8
	2	1 257	754	2	27.6	35.6
	3	1 527	916	3	30.0	38.0
1200	0	383	230	0	-	-
	1	1 448	869	2	20.1	28.1
	2	1 846	1 107	3	28.3	36.3
	3	2 243	1 346	4	31.0	39.0
1600	0	546	328	0	-	-
	1	2 064	1 239	2	21.2	29.2
	2	2 631	1 578	4	29.5	37.5
	3	3 197	1 918	5	32.4	40.4
2000	0	709	425	0	-	-
	1	2 680	1 608	3	21.9	29.9
	2	3 416	2 050	5	30.5	38.5
	3	4 152	2 491	6	33.5	41.5
2400	0	872	523	0	-	-
	1	3 297	1 978	3	22.4	30.4
	2	4 201	2 521	6	31.3	39.3
	3	5 106	3 064	8	34.5	42.5
2800	0	1 035	621	0	-	-
	1	3 913	2 348	4	22.7	30.7
	2	4 987	2 992	7	31.9	39.9
	3	6 061	3 637	9	35.3	43.3

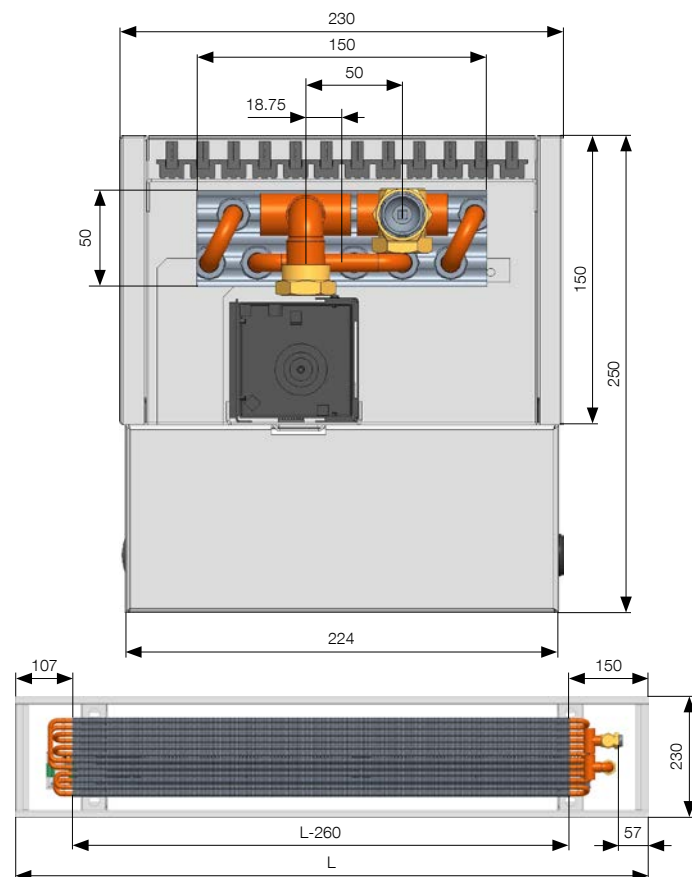
Temperature exponent [n] 1.0000



KORALINE Optimal-V LVO may not be used with floor-level bracket casing, wall or sub-floor brackets.

Further information

Correction coefficient p. 90, Assembly p. 91, Regulation and accessories p. 92, Colour chart p. 109



BASIC TECHNICAL DATA

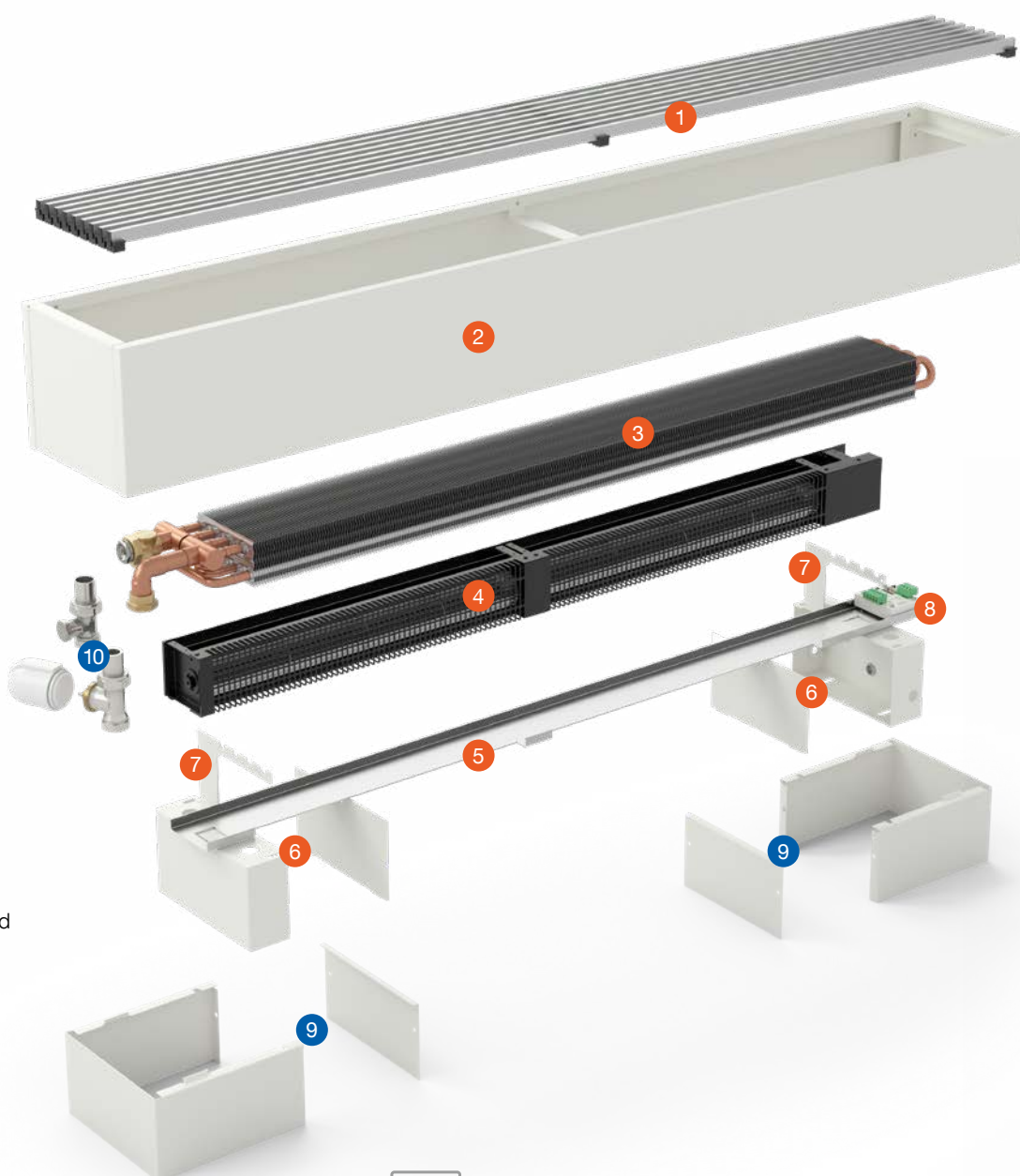
KORALINE Optimal-V LVO						
Height [mm]	150					
Width [mm]	180					
Length [mm]	900	1 200	1 600	2 000	2 400	2 800
Unit weight [kg]	9,7	11,8	15,0	19,2	22,6	25,9
Water volume [l]	0,34	0,55	0,73	0,91	1,10	1,28
Effective part of the exchanger [mm]	L-300					

KORALINE Optimal-V LVO						
Height [mm]	150					
Width [mm]	230					
Length [mm]	900	1 200	1 600	2 000	2 400	2 800
Unit weight [kg]	11,2	13,7	17,3	22,2	27,0	30,8
Water volume [l]	0,65	0,86	1,15	1,44	1,72	2,01
Effective part of the exchanger [mm]	L-260					

Convector composition

- 1 silver elox aluminium grille
- 2 galvanized steel casing
- 3 Al/Cu heat exchanger
- 4 24 V DC fans
- 5 fan supports
- 6 floor-level brackets
- 7 transport stopper and bracket mount
- 8 connection terminals and electronic regulator FCR BOX
- 9 floor-level brackets
- 10 elbow or straight lockshield

● Standard contents
● Summary of optional KORALINE Optimal-V LVO accessories, see p. 87



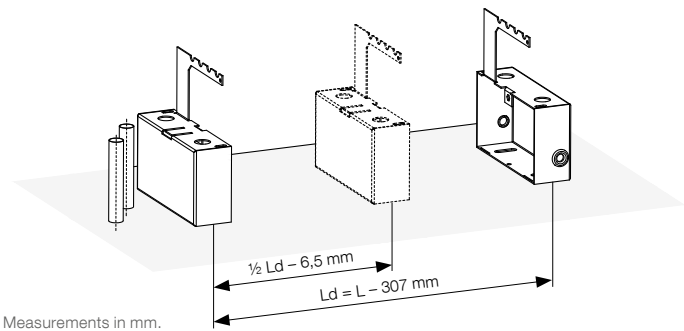
Regulation is not included as standard and must be ordered separately according to technical parameters. Regulation is identical for all OC system convectors with forced convection. For electrical regulation an control elements, see p. 93.

ASSEMBLY AND MOUNTING

KORALINE Optimal-V LVO assembly instructions (valid for all sizes)

Insert the fan bar into the bracket to establish the spacing for anchoring the bracket to the floor. The heat exchanger is then placed on the bracket and connected to the heating system. The heat exchangers must be bled. The fan sits on the fan support and is connected to

the FCR Box. The final step is to install the aluminium grille and attach it by screwing it to the brackets. The grille is removable for easy cleaning. Please refer to the installation instructions for more detailed information.



L = Convector length
Ld = L - 307 mm (for convectors up to 2 800 mm in length)



For KORALINE Optimal-V LVO over 2 000 mm in length, we recommend the use of a central bracket for increased stability.

ORDER CODE

KORALINE	Forced convection	Type	Length [cm]	Height [cm]	Width [cm]	Heat exchanger type	Heat exchanger colour	Material used	Grille type	Grille colour	Casing colour	Electrical regulation
L	V	O Optimal-V	...	/	..	/	..	- V counterflow	1 without colour 9 other RAL colour	S steel A aluminium	1 elox silver - 10 white RAL 9016 39 black RAL 9005 ** see colour chart p. 109 99 other RAL colour	- RT standard

Example order code: LVO-200/15/18-V1SA1-10-RT

KORALINE Optimal-V LVO free-standing convector with fan, Length 200 cm, Height 15 cm, Width 18 cm, Steel casing white RAL 9016, Aluminium silver elox grille, non-lacquered heat exchanger with standard regulation.



Regulation, Accessories, Technical Parameters and Acoustics

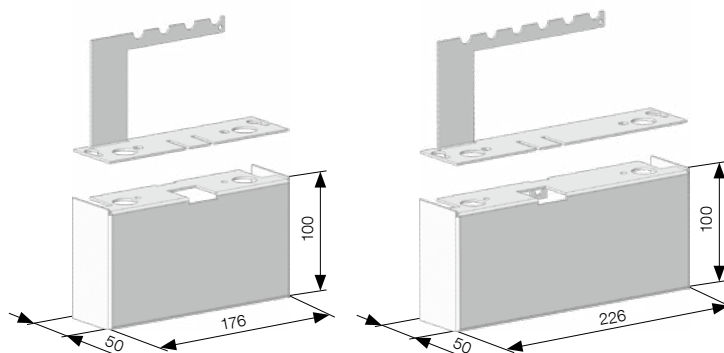


ACCESSORIES

KORALINE free-standing convectors with wooden top are supplied with floor-level brackets. Other mounting options (sub-floor brackets, wall-mounting) **are not available**.

Floor-level brackets

- fitted as standard
- KORALINE free-standing convectors 2,000 mm in length and above are supplied with a central bracket for greater stability
- floor-level brackets contain transport stopper and bracket mount, that allows for easy and stable mounting of heat exchanger onto a bracket. Transport stopper prevents movement and damage of heat exchanger during transport.



floor-level bracket height 100 mm

convector width (S)	180	230
---------------------	-----	-----

Floor-level bracket heights

Floor-level bracket height above floor level for all KORALINE models is 100 mm.

For all widths (S) 180, 230	
Height (V)	150
KORALINE Height inc floor-level bracket (H)	250

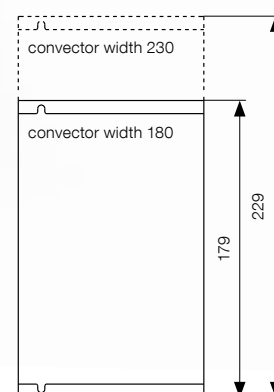
Floor-level bracket casing

- optional accessory
- floor-level bracket casings are designed to cover connections and the edges of floor-level brackets, and must be ordered in pairs



Floor-level bracket casing dimensions

 top view



Measurements in mm

Order codes:

width	180	230
Optimal-V*	LCR-LV-18-...	LCR-LV-23-...



* Colour code: the standard colour version is white RAL 9016, .. colour chart p. 109, 99 other RAL colour

REGULATION

Regulation forms a central role in the heating outputs of convectors with fans. Fans and thermoelectric actuators are supplied with 24 V DC, and fan rotations are as standard controlled by a voltage of 0–10 V DC.

Standard contents

- A set of EC fans with synchronous motor in an aluminium frame. Featuring very low electrical consumption and very quiet operation.
- FCR-BOX electronic regulator which functions as a screw terminal for connecting the power cable, thermostat or BMS and the fan. Ensures smooth operation of the fan at required speed and independent control of thermoelectric valves.

Optional accessories

- 230 V AC/24 V DC direct current voltage supply according to the maximum electrical energy consumption of the convector. Five types of units are available for 60 W, 100 W, 100 W, 240 W and 480 W. Power supply units are supplied separately for mounting on the distribution board DIN rail assembly.
- Junction box for mounting 60 W, 100 W and 150 W sources.
- SIEMENS 24 V DC RDG 260T or RDG 260KN thermostats.
- 24 V DC Thermoelectric actuator, thermostatic valves, lockshield.
- NTC temperature sensor.

RAB 21-DC and RDG 260T thermostat function description

Convector output is controlled by fan speed and the flow of heating/cooling medium through the exchanger. The control voltage is 24 V. The RAB 21-DC or RDG 260T SIEMENS thermostats control the heating medium valve with a thermoelectric actuator, and in addition control fan speed with a control voltage of 0–10 V DC. Fan speed may be controlled automatically by the thermostat, or manually in three speed settings. Speed rating is set at a control signal size of 7 V. Fans may be blocked by a temperature sensor (see accessories). With the temperature sensor installed the fan rotation is dependent on a heating medium minimum temperature of approx. 37 °C. Temperature sensors are available as optional accessories.

Function description with BMS (Building Management System)

The BMS central control system may be used to control convectors. One BMS control output directly controls the opening/closing of valves and the other 0–10 V DC output controls fan speed. Rated power is achieved at 7 V DC. Valves and fans are supplied with 24 V DC.

Using the KNX system, convectors may be controlled with the RDG 260KN thermostat. The thermostat communicates with the KNX system, which transmits and receives data for the convector.

Installation must be carried out in accordance with valid regulations and safety procedures! The manufacturer cannot be held liable for any defects, damages and injuries caused by improper installation.

ACCESSORIES

SIEMENS RAB 21-DC Manual room thermostat

- optional accessory
- for 2-pipe heating systems
- manual 3-speed fan switch
- heating or cooling model
- 24 V DC, electrical consumption: 1 W
- 0–10 V DC EC fan
- setpoint setting range 8–30 °C
- switching differential <1 K
- IP rating IP 30
- dimensions w×h×d: 96×110×36 mm
- **order code:** REG-RAB21DC



QAA32 external room temperature sensor

- optional accessory
- for measuring temperature in heating systems where a thermostat cannot be placed in the room
- suitable for installation at swimming pools
- can be combined with RDG 260T and RDG 260KN
- setpoint setting range: 0–40 °C, accuracy at 25°C: ± 0.3 K
- NTC sensor, 3 kΩ at 25 °C
- IP rating IP 30
- dimensions w×h×d: 96.4×99.6×36 mm
- **order code:** REG-S-QAA32



SIEMENS RDG 260T electronic room thermostat with LCD display

- optional accessory
- for 2 and 4 pipe heating systems
- 7-day time program with 8 programmable timers
- automatic or manual heating/cooling changeover
- manual or automatic 3-speed fan control
- operating modes Comfort, Economy and Protection
- three input slots for separate sensor, card reader, motion sensor, etc.
- timer back up (minimum 20 hrs)
- operating voltage 24 V DC, power consumption 4 W
- 0–10 V DC ECM fan
- setpoint setting range 5–40 °C
- switching hysteresis can be set differently for heating and cooling in the range of 0.5 to 6 K
- IP rating IP 30
- dimensions w×h×d: 92×134×25 mm
- can be commissioned using the SIEMENS PCT Go mobile application



Accessories

- can be combined with separate QAA32 room temperature sensor (NTC 4 kΩ), e.g. for thermostat placement outside public areas or in humid environments
- **order code:** REG-RDG260T



For correct operation, RDG 260T or RDG 260KN thermostats must be set according to the LICON instructions included in the thermostat package. The thermostat is supplied pre-set for heating in a 2-pipe system.

SIEMENS RDG 260KN electronic room thermostat with LCD display

- optional accessory
- regulation of ambient temperature and relative humidity
- for 2 and 4 pipe heating systems
- power indicator function for energy-optimised system operation
- built-in relative humidity and temperature sensor
- KNX (S-mode and LTE-mode) for integration into BMS
- 7-day programme with up to 3 temperature setting periods per day
- automatic (continuous) or manual (3-level) fan speed regulation
- Comfort, Economy and Protection operation modes
- 3 multifunctional inputs (window contact, motion detector, access card reader, heating/cooling switch...)
- operating voltage 24 V DC, power consumption 4 W
- EC fan control voltage 0–10 V DC
- setpoint setting range 5–40 °C
- adjustable hysteresis switching differential 0.5–6 K
- IP rating IP 30
- wall mounting with base mounting plate
- dimensions w×h×d: 92×134×25 mm



Accessories

- can be combined with separate QAA32 room temperature sensor, e.g. for thermostat installation out of publicly accessible space or for installation in humid environments
- **order code:** REG-RDG260KN
- can be commissioned using the SIEMENS PCT Go mobile application

TEP 24 thermoelectric actuator

- optional accessory
- IP rating IP 44
- reset time 4 min
- unit height 65 mm
- M 30×1.5 thread
- cable length 2.5 and 5 m
- closed without voltage
- operating voltage 24 V DC
- electrical consumption <2 W
- **order code** (2.5 m cable): REG-TEP24-250
- **order code** (5 m cable): REG-TEP24-500



NTC temperature sensor

- optional accessory
- temperature sensor situated on the exchanger blocks the fan until the temperature of the exchanger medium is approx. 37 °C in heating mode, and 15 °C in cooling mode
- NTC sensor, 10 kΩ at 25 °C
- cable length 0.3 m
- connect to FCR-BOX in the convector
- includes installation clips
- **order code:** REG-S-NTC
- delivered separately. For mounting on the heat exchanger during production, please specify in the order notes when ordering.



REGULATION AND ACCESSORIES

R-Box

- optional accessory
- combined with the power supply it creates the control voltage for the fan
- for use with thermostat at 230 V AC
- 3 programmable speed settings
- input voltage 230 V/50 Hz
- output signal 0 to 10 V/1 kΩ
- 4 K_v AC galvanic isolation opto-isolator
- IP rating IP 30
- mounted on DIN rail on distribution board
- ambient operating temperature 0–40 °C
- dimensions w×h×d: 70×58×90 mm
- electrical diagram at www.licon.cz
- **order code:** REG-RBOX17



When using a thermostat not recommended by LICON, an R-Box must be used to achieve a signal of 0–10 V.

Junction box

- optional accessory
- embedded in wall
- for installation of AC power source (60 W, 100 W and 150 W)
- IP rating IP 40
- dimensions w×h×d ÷ 318×258×72 mm
- **order code:** REG-IB



60 W, 100 W, 150 W, 240 W and 480 W DC voltage supply

- optional accessory
- switch-mode DC power supply
- silent operation, high efficiency
- DIN rail assembly
- IP rating IP 20



power supply	60 W	100 W	150 W	240 W	480 W
input voltage	85–264 V AC	85–264 V AC	85–264 V AC	88–264 V AC	90–264 V AC
output voltage	24 V DC/2.5 A	24 V DC/3.9 A	24 V DC/6.25 A	24 V DC/10 A	24 V DC/20 A
dimensions w×h×d	53×90×55 mm	70×90×55 mm	105×90×55 mm	60×126×114 mm	86×126×129 mm
order code	REG-PS60	REG-PS100	REG-PS150	REG-PS240	REG-PS480



We recommend a power supply at least 20% greater than the calculated power input. See p. 100.

Lockshield

- optional accessory
- straight or elbow
- size ½" G
- nickel brass
- max. operating pressure PN 10
- max. operating temperature 90 °C
- **order code:**
straight lockshield: REG-LS
elbow lockshield: REG-LA



Pre-set	1	2	3	4	5	6	7	8	9
revs	1 ¼	1 ½	1 ¾	2	2 ½	3	3 ½	4	Ú.O.
K _v	0.14	0.2	0.31	0.43	0.6	0.79	1	1.2	1.35

K_v flow coefficient (m³/h)
Ú.O. fully open

Thermostatic valve

- optional accessory
- elbow or straight
- pre-set value K_v
- size ½" G
- thread M 30×1,5
- nickel brass
- max. operating pressure PN 10
- max. operating temperature 90 °C
- **order code:**
straight thermostatic valve: REG-TVS
elbow thermostatic valve: REG-TVA



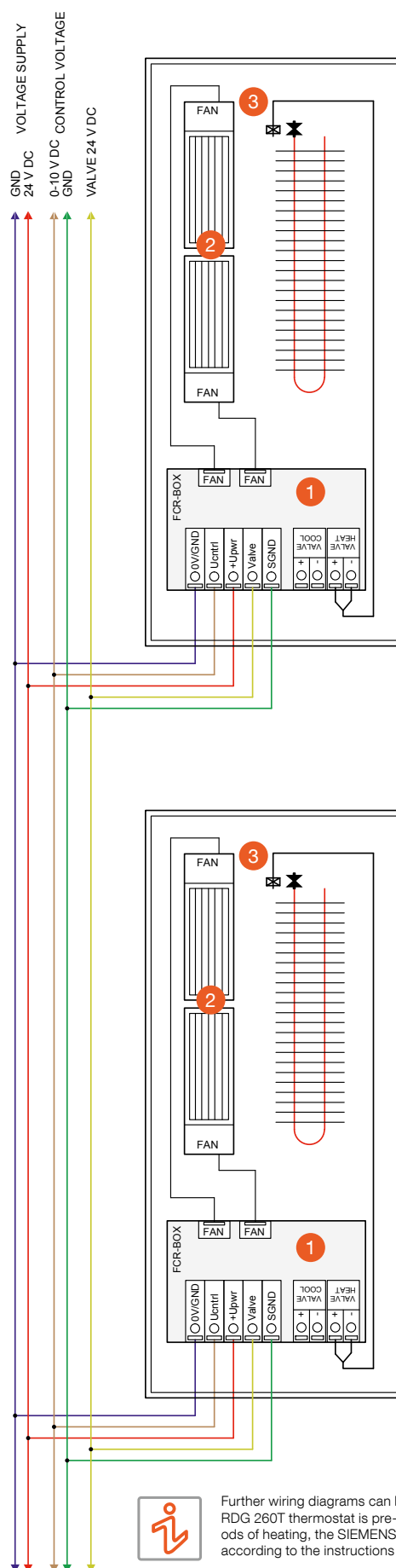
Pre-set	1	2	3	4	5	6
K _v (Δt = 2K)	0.10	0.20	0.30	0.40	0.50	0.60
K _{vs}	0.10	0.20	0.30	0.40	0.57	0.80

K_v flow coefficient (m³/h)
K_{vs} maximum flow (m³/h)
Δt = 2K valve proportional band (K)

CONVECTOR WIRING DIAGRAMS

Basic diagram connection for convectors KORALINE Optimal-V LVO controlled by thermostat SIEMENS RDG 260T or SIEMENS RAB 21-DC Heating or cooling

- ① FCR-BOX
- ② tangential low-energy EC fan assembly
- ③ thermostatic actuator 24 V DC



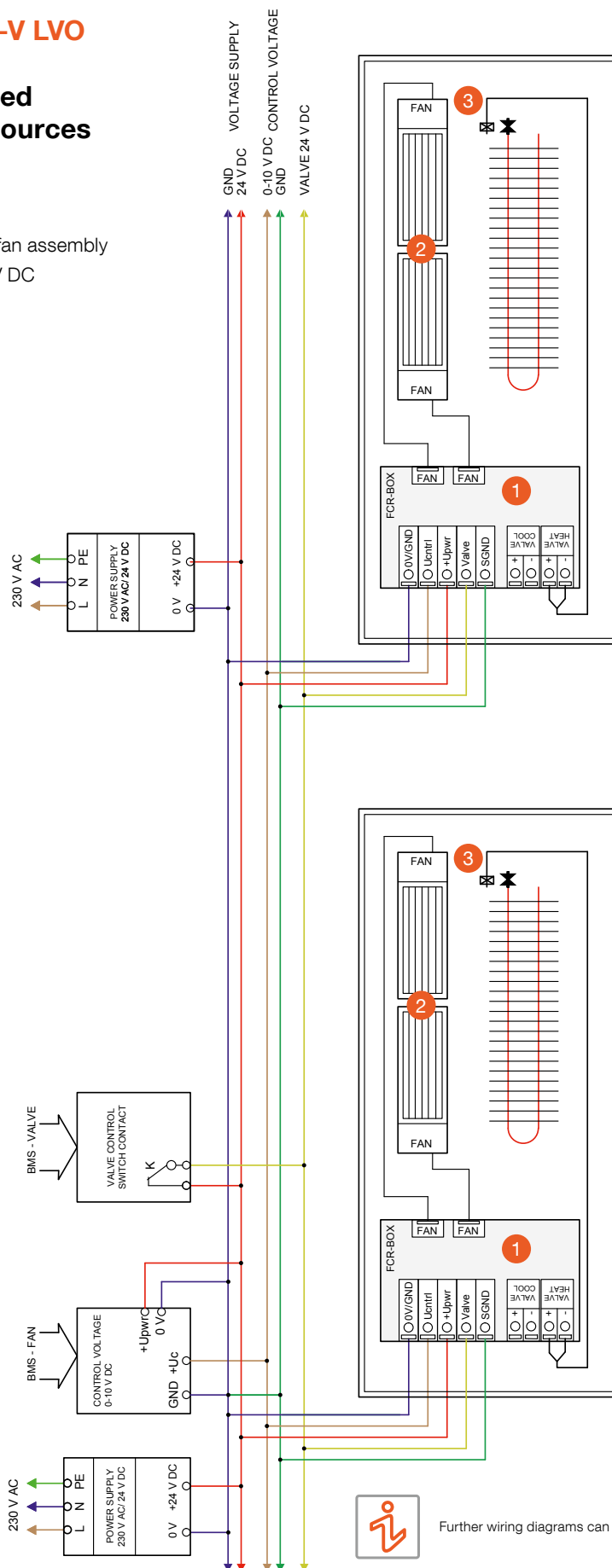
Further wiring diagrams can be found at www.licon.cz, or upon request. The RDG 260T thermostat is pre-set for 2-pipe heating systems. For alternative methods of heating, the SIEMENS RDG 260T or RAB 21-DC thermostats must be set according to the instructions enclosed, or see downloads at www.licon.cz.

CONVECTOR WIRING DIAGRAMS

**For BMS controlled
KORALINE Optimal-V LVO
convectors**

**Only heating powered
by multiple power sources**

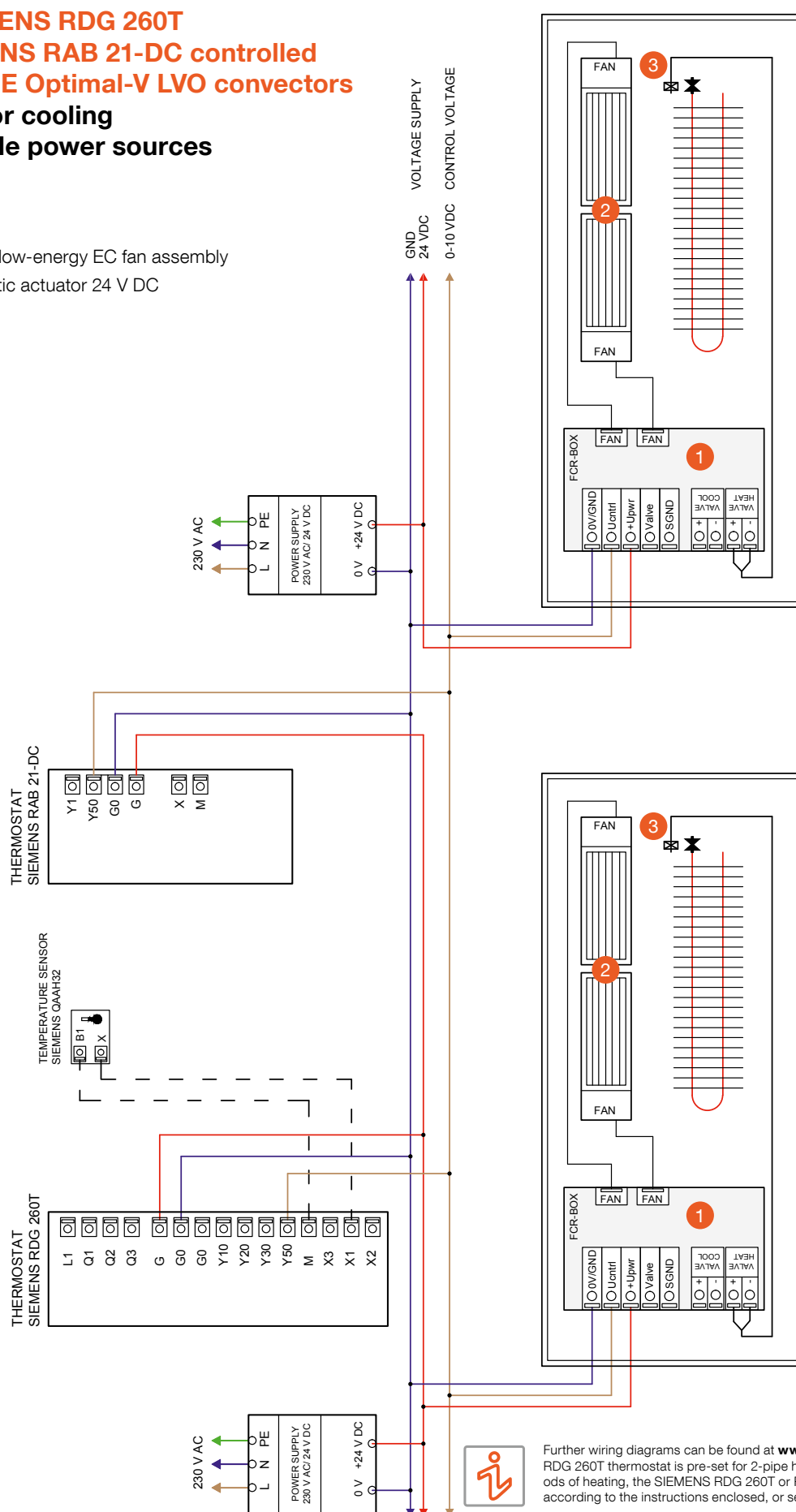
- 1 FCR-BOX
- 2 tangential low-energy EC fan assembly
- 3 thermostatic actuator 24 V DC



Further wiring diagrams can be found at www.licon.cz, or upon request.

**For SIEMENS RDG 260T
or SIEMENS RAB 21-DC controlled
KORALINE Optimal-V LVO convectors**
**Heating or cooling
by multiple power sources**

- 1 FCR-BOX
- 2 tangential low-energy EC fan assembly
- 3 thermostatic actuator 24 V DC



Further wiring diagrams can be found at www.licon.cz, or upon request. The RDG 260T thermostat is pre-set for 2-pipe heating systems. For alternative methods of heating, the SIEMENS RDG 260T or RAB 21-DC thermostats must be set according to the instructions enclosed, or see downloads at www.licon.cz.

NOISE AND ACOUSTICS

Licon make use of the most progressive technology in the manufacture of convectors and fans. Our fans use EC motors, which are silent, do not vibrate and display extraordinarily low power consumption (7 W). In terms of noise levels, the design of convectors must take into account the acoustic load appropriate for their intended use. Requirements for silent operation will be diverse, whether installed in living rooms and offices, or in corridors, halls, etc. For this reason, in addition to design in terms of performance and dimensions, an assessment of the correct acoustic load should not be neglected. This can be achieved using the formula below, where it is understood that sound pressure levels vary in different environments. We would recommend the maximum acoustic load in living rooms as 30 dB L_{pA} . Acoustic parameters were measured in an accredited testing room in accordance with ČSN EN 9614-2 Acoustics – Determination of sound power levels of noise sources using sound intensity – Part 2: Measurement by scanning.

Listed acoustic parameters

The ČSN EN 16430 standard defines the base unit of **sound power** [L_{WA}/dB], which is listed for all products equipped with fans.

To facilitate orientation, **sound pressure** levels [L_{pA}/dB] are listed in addition.

The sound pressure values listed were calculated using the following formula. They apply to a distance of 1m from the trench heater (noise source) situated in the centre of a wall beneath a window with one sound reflector surface and an otherwise sound absorbing environment (furnished room).

Definition and description of acoustic values

Sound power [L_{WA}/dB]

This is the base unit defining the noise level of a particular device. Sound power is the sound generated by the sound source (energy transmitted into a room). It is not dependent on space or distance. It is used for all further acoustic load calculations for rooms.

Sound pressure [L_{pA}/dB]

This is the measure of the level of sound registered at a certain distance from the sound source. Sound pressure is the change in air pressure generated by the sound source. It is the measure of volume heard by a person.

Example: Conversion of sound power to sound pressure

$$L_{pA} = L_{WA} + 10 \cdot \log\left(\frac{Q}{4 \cdot \pi \cdot r^2}\right)$$

L_{pA}	[dB(A)]	sound pressure level weighted by filter A
L_{WA}	[dB(A)]	sound power level weighted by filter A
Q	[-]	noise emission direction factor
r	[m]	distance from test sample

EXAMPLE DC POWER SUPPLY SIZE CALCULATIONS

For regulation, the electric power input must be correctly calculated in order to select the size of the DC power supply. The total wattage of units is calculated using the total electric power consumption of all thermostat-controlled convectors with fans and thermoelectric actuators.. Fan electrical power consumption is shown in the output tables for each type and length of convector. **Here we have selected the values for the third fan speed.**

Example

The design will use the following KORALINE Optimal-V LVO convectors:

2x KORALINE Optimal-V LVO – 160/15/18 – in the table we see a power consumption of 5 W

4x KORALINE Optimal-V LVO – 240/15/18 – in the table we see a power consumption of 8 W

5x KORALINE Optimal-V LVO – 280/15/18 – in the table we see a power consumption of 9 W

Optional 11x thermoelectric actuator – 11 x 2 W = 22 W

1600	0	452	271	0	-	-
	1	1 850	1 110	2	21.2	29.2
	2	2 182	1 309	4	29.5	37.5
	3	2 513	1 508	5	32.4	40.4
2000	0	591	355	0	-	-
	1	2 420	1 452	3	21.9	29.9
	2	2 853	1 712	5	30.5	38.5
	3	3 287	1 972	6	33.5	41.5
2400	0	730	438	0	-	-
	1	2 989	1 793	3	22.4	30.4
	2	3 525	2 115	6	31.3	39.3
	3	4 060	2 436	8	34.5	42.5
2800	0	869	522	0	-	-
	1	3 558	2 135	4	22.7	30.7
	2	4 196	2 518	7	31.9	39.9
	3	4 833	2 900	9	35.3	43.3

Total power input

5+5+8+8+8+8+9+9+9+9+22=109 W + increase by a reserve of 20%.
Required power supply size: 150 W.



General product information

GENERAL PRODUCT INFORMATION

Quality

LICON HEAT s.r.o. is a certified ISO 9001 Quality Management supplier. Heat outputs are measured according to ČSN EN 16430 standards at the HLK Stuttgart (DE) and SZU Brno (CZ) testing facilities. Products comply with current legislation. The certification process was completed at the Engineering Test Institute, Brno (CZ).

Maintenance

Convectors must be kept clean. Before the start of the heating season it is especially important to remove all dirt and dust from the convector. Convectors with fans must be checked for mechanical blockages (items which have fallen in, layers of dust, etc.). For further details relating to the maintenance of individual types of convectors, please refer to the installation instructions or the Operating and warranty Conditions.

All materials relating to convectors are available to download at **www.licon.cz**.

Guarantee

The warranty period is two years. 10 year guarantee against exchanger leaks. For full details of operating and warranty conditions, please visit our web pages. LICON HEAT s.r.o. reserves the right to alter specifications without notice. The full text of our General Terms and Conditions can be found on our web pages.

Transport and storage instructions

Units must be handled with care during transport and must be well secured and anchored to prevent movement and damage. Transport and storage areas must be dry and not exposed to the weather. Goods must not be stacked.



LICON HEAT s.r.o. reserves the right to alter specifications without notice.



SUMMARY OF ACCESSORIES FOR ALL TYPES OF LICON HEATING ELEMENTS



Accessories suitable for model ranges with natural convection

Accessories	Order code	Trench heaters KORAFLEX FK	Free-standing convectors KORALINE LK	Free-standing convectors KORALINE LD	Wall-mounted convectors KORAWALL OKN	Heat exchangers KORABASE	Facade convectors KORASPACE
Straight lockshield ½"	REG-LS						
Elbow lockshield ½"	REG-LA						
Straight LM valve	REG-TMS	—	—	—	—	—	—
Elbow LM valve	REG-TMA	—	—	—	—	—	—
Straight thermostatic valve ½"	REG-TVS						
Elbow thermostatic valve ½"	REG-TVA						
Thera 6 thermostatic head	REG-TH6	—					
Classic thermostatic head	REG-THC	—					
Design thermostatic head	REG-THD	—					
Thermostatic head (heating/cooling)	REG-TCW	—	—	—	—	—	—
Thermostatic head with incorporated control and immersion remote sensor	REG-TH5						
SIEMENS RAA 21 room thermostat	REG-RAA21						
SIEMENS RDE 100.1 room thermostat	REG-RDE100.1						
SIEMENS RDG 260T room thermostat	REG-RDG260T	—	—	—	—	—	—
SIEMENS RDG 260KN room thermostat	REG-RDG260KN	—	—	—	—	—	—
SIEMENS RAB 21 DC room thermostat	REG-RAB21DC	—	—	—	—	—	—
SIEMENS QAA32	REG-S-QAA32						
NTC temperature sensor	REG-S-NTC	—	—	—	—	—	—
TEP 24 thermoelectric actuator 2.5 m cable	REG-TEP24-250						
TEP 24 thermoelectric actuator, 5 m cable	REG-TEP24-500						
TEP 230 thermoelectric actuator, 2.5 m cable	REG-TEP230-250						
TEP 230 thermoelectric actuator, 5 m cable	REG-TEP230-500						
Pattress box	REG-IB						
R-BOX 2017	REG-RBOX17	—	—	—	—	—	—
60 W 53 × 90 × 55 mm DC power supply	REG-PS60						
100 W 70 × 90 × 55 mm DC power supply	REG-PS100						
150 W 105 × 90 × 55 mm DC power supply	REG-PS150						
240 W 60 × 126 × 114 mm DC power supply	REG-PS240						
480 W 86 × 126 × 129 mm DC power supply	REG-PS480						
10 cm Flexible hose	REG-F10		—	—	—		
12 cm Flexible hose	REG-F12		—	—	—		
30 cm Flexible hose	REG-F30		—	—	—		
Brass elbow	REG-E90		—	—	—		
OSB cover	OSB		—	—	—	—	—
Sound insulation sheeting	Sound insulation sheeting	—	—	—	—	—	—

recommended
 optional
 unsuitable —



REG-LS



REG-LA



REG-TMS



REG-TVA



REG-TVS



REG-TVA



REG-TH6



REG-THC



REG-THD



REG-TCW



REG-TH5



REG-S-QAA32



REG-TEP24-250
REG-TEP24-500
REG-TEP230-250
REG-TEP230-500



REG-F10



REG-F12



REG-F30



REG-S-NTC



Accessories suitable for models with forced convection

Accessories	Order code	Trench heaters KORAFLEX FV	Free-standing convectors KORALINE Optimal-V LVO	Wall-mounted convectors KORAWALL WVO/WVP	Wall-mounted convectors with forced convection and autonomous control KORAWALL Direct WVD/WVE
Straight lockshield ½"	REG-LS				
Elbow lockshield ½"	REG-LA				
Straight LM valve	REG-TMS	—	—		
Elbow LM valve	REG-TMA	—	—		
Straight thermostatic valve ½"	REG-TVS				
Elbow thermostatic valve ½"	REG-TVA				
Thera 6 thermostatic head	REG-TH6	—	—	—	
Classic thermostatic head	REG-THC	—	—	—	
Design thermostatic head	REG-THD	—	—	—	
Thermostatic head (heating/cooling)	REG-TCW	—	—	—	
Thermostatic head with incorporated control and immersion remote sensor	REG-TH5	—	—	—	
SIEMENS RAA 21 room thermostat	REG-RAA21	—	—	—	
SIEMENS RDE 100.1 room thermostat	REG-RDE100.1	—	—	—	
SIEMENS RDG 260T room thermostat	REG-RDG260T				—
SIEMENS RDG 260KN room thermostat	REG-RDG260KN				—
SIEMENS RAB 21 DC room thermostat	REG-RAB21DC				—
SIEMENS QAA32	REG-S-QAA32				—
NTC temperature sensor	REG-S-NTC			—	—
TEP 24 thermoelectric actuator 2.5 m cable	REG-TEP24-250				
TEP 24 thermoelectric actuator, 5 m cable	REG-TEP24-500				
TEP 230 thermoelectric actuator, 2.5 m cable	REG-TEP230-250	—	—	—	—
TEP 230 thermoelectric actuator, 5 m cable	REG-TEP230-500	—	—	—	—
Pattress box	REG-IB				—
R-BOX 2017	REG-RBOX17				—
60 W 53 × 90 × 55 mm DC power supply	REG-PS60				—
100 W 70 × 90 × 55 mm DC power supply	REG-PS100				—
150 W 105 × 90 × 55 mm DC power supply	REG-PS150				—
240 W 60 × 126 × 114 mm DC power supply	REG-PS240				—
480 W 86 × 126 × 129 mm DC power supply	REG-PS480				—
10 cm Flexible hose	REG-F10				—
12 cm Flexible hose	REG-F12				—
30 cm Flexible hose	REG-F30				—
Brass elbow	REG-E90				—
OSB cover	OSB		—	—	—
Sound insulation sheeting	Sound insulation sheeting		—	—	—

☒ recommended
 ☐ optional
 ☐ unsuitable —



REG-IB



REG-RBOX17



REG-RAA21



REG-RDE100.1



REG-RDG260T



REG-RDG260KN



REG-RAB21DC



REG-E90



REG-PS60



REG-PS100



REG-PS150



REG-PS240



REG-PS480

REFERENCES



UBS Pleyad Business Centre
Saint-Denis, France



Ferring,
Copenhagen, Denmark



Residence du Lac,
Morges, Switzerland



Museum Munch,
Oslo, Norway



Lachta Centre,
Saint Petersburg, Russia



Neva Towers,
Moscow, Russia



Zolotoy Ostrov,
Moscow, Russia



Fyrstikkalléen 1 AS Oslo,
Norway



The Circle – airport,
Zurich, Switzerland



Panorama City,
Bratislava, Slovakia



MCBA Museum,
Lausanne, Switzerland



Marina Lipno apartments,
Czech Republic



Einsteinova Business Centre,
Bratislava, Slovakia



Harpa Concert Hall,
Reykjavik, Iceland



Nordea Headquarters,
Copenhagen, Denmark



Marina Lipno apartments,
Czech Republic



The Ještěd Hotel
Liberec, Czech Republic



Landsbankinn,
Reykjavik, Iceland



World of Volvo,
Gothenburg, Sweden



H. C. Andersen Museum,
Odense, Denmark



Sky Tower,
Wrocław, Poland



Technical University,
Liberec, Czech Republic



Airport,
Brno, Czech Republic



Celsis Headquarters,
Lithuania



Opera House,
Copenhagen, Denmark



Philoro GOLDWERK,
Korneuburg, Austria



City Green Court,
Prague, Czech Republic



Hotel des Horlogers
Le Brassus, Switzerland



Main Point Karlín,
Praha, Czech Republic



House of Music,
Aalborg, Denmark



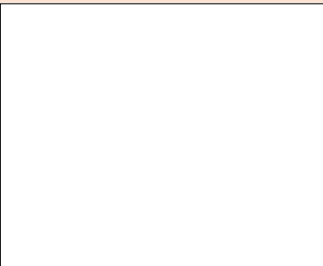
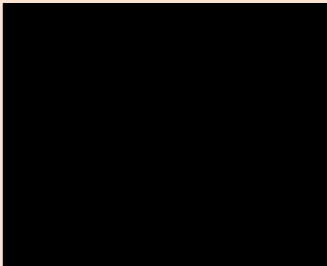
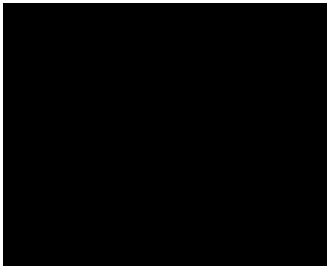
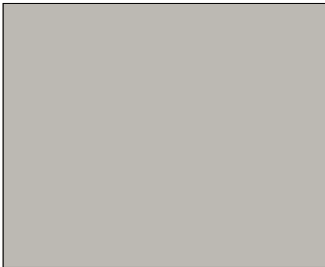
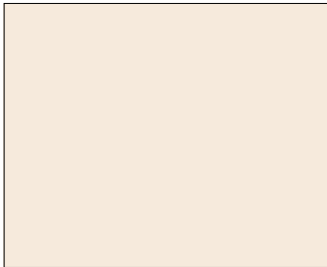
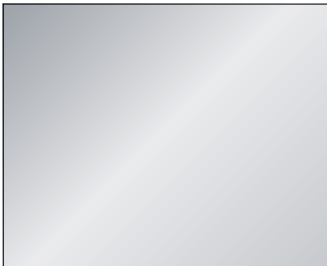
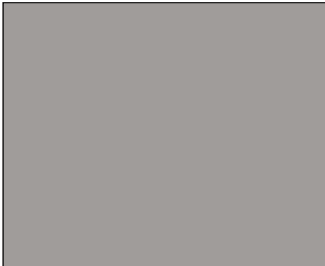
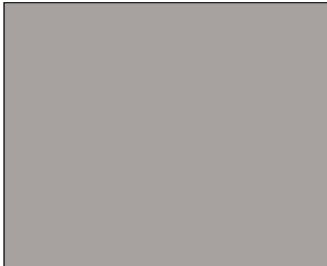
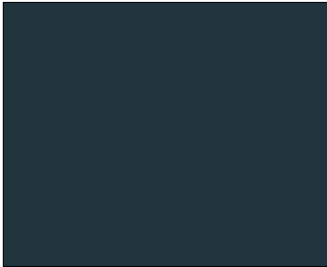
Triplex – Apartment block,
Karlovy Vary, Czech Republic



Trinity Office Centre,
Brno, Czech Republic



COLOUR CHART

			
code 10 White RAL 9016	code 39 Black RAL 9005	code 59 White texture RAL 9016	code 60 Black texture RAL 9005
			
code 14 Jasmine	code 16 Bahama	code 22 Manhattan	code 26 Pergamon
			
code 32 Anthrazit Metallic	code 35 Silber RAL 9006	code 37 Red RAL 3001	code 40 Alloy Black
			
code 42 Gold	code 45 Pearl Brown	code 47 RAL 9007	code 48 RAL 9006
			
code 49 RAL 7024	code 51 RAL 7016	code 54 RAL 7015	code 57 RAL 7040

Notice:

There is a potential for variations in colour between the colour chart and heating units. The standard colour version is white RAL 9016 or black RAL 9005. Other colours shown in the Colour Chart may be ordered at an extra charge according to the valid price list.



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