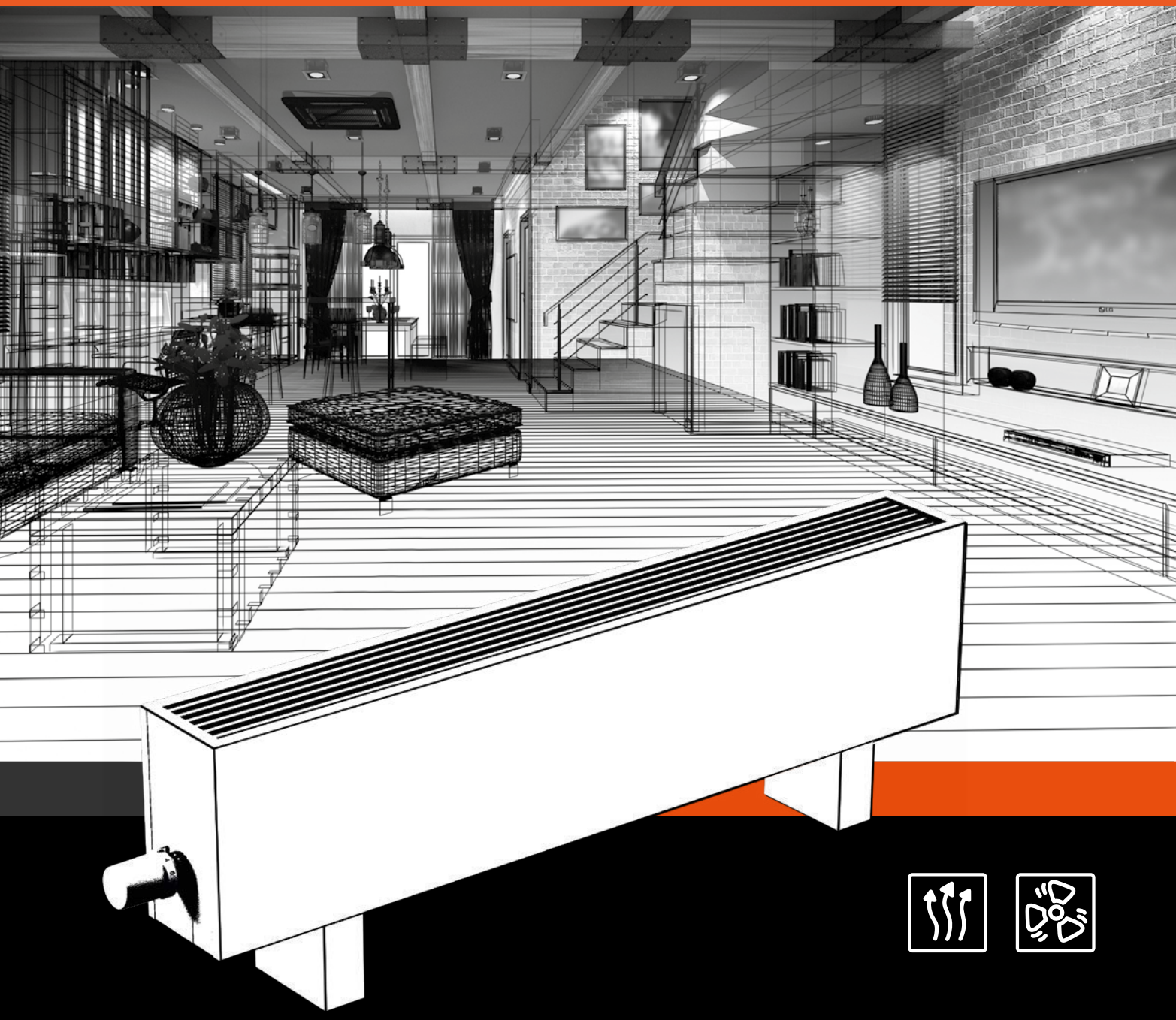
LICON®
member of KORADO Group

# KORALINE

HEAT PUMP SYNERGY

## Free-Standing Convectors



KORADO®

08/2024

# THE KORADO GROUP

## 55 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 s.r.o.

A 55-year tradition in the manufacture of convection heaters. A member of the KORADO group since 2013. LICON s.r.o. offers tailor-made projects for every type of building.




Management kvality ISO 9001 DEKRA

EN EURONORM 16430

EN EURONORM 442




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



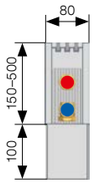
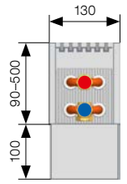
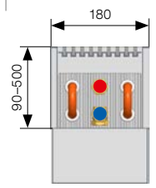
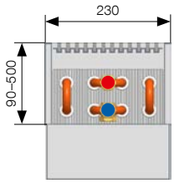

The KORADO, a.s. Head Office and production site is a modern European plant manufacturing radiators and heating units. Our technological equipment and the layout of the 30.000 m² site ensures KORADO, a.s. looks forward to further development and growth.

# PRODUCT PORTFOLIO

## KORALINE Optimal LKO

Free-standing convectors with design grilles.



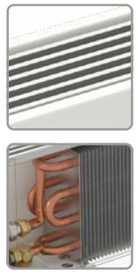
| Width | 80 | 130 | 180 | 230 |
|---|---|---|---|---|
| Height | | | | |
| 500 |  |  |  |  |
| 400 | | | | |
| 300 | | | | |
| 230 | | | | |
| 150 | | | | |
| – | | 90 | | |

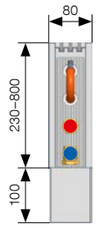
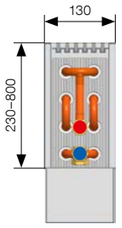
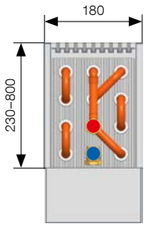
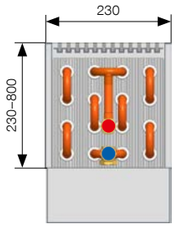


See pp. 16–21

## KORALINE Power LKW

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



| Width | 80 | 130 | 180 | 230 |
|---|---|---|---|---|
| Height | | | | |
| 800 |  |  |  |  |
| 700 | | | | |
| 600 | | | | |
| 500 | | | | |
| 400 | | | | |
| 300 | | | | |
| 230 | | | | |

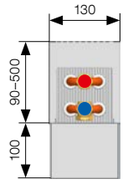
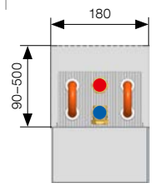
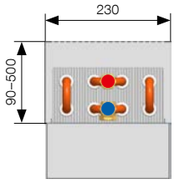


See pp. 22–27

## KORALINE Basic LKB

Free-standing convectors with perforated safety grille.



| Width | 130 | 180 | 230 |
|---|---|---|---|
| Height | | | |
| 500 |  |  |  |
| 400 | | | |
| 300 | | | |
| 230 | | | |
| 150 | | | |
| 90 | | | |

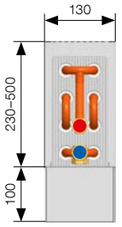
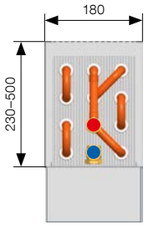
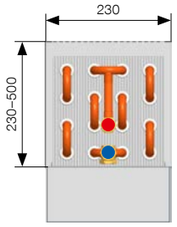


See pp. 28–33

## KORALINE Combi LKC

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



| Width | 130 | 180 | 230 |
|---|---|---|---|
| Height | | | |
| 500 |  |  |  |
| 400 | | | |
| 300 | | | |
| 230 | | | |

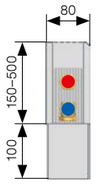
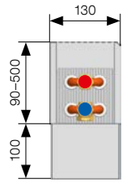
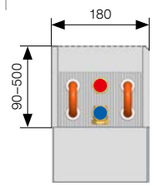
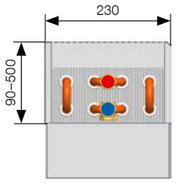


See pp. 34–37

## KORALINE Safe LKS

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




| Width | 80 | 130 | 180 | 230 |
|---|---|---|---|---|
| Height | | | | |
| 500 |  |  |  |  |
| 400 | | | | |
| 300 | | | | |
| 230 | | | | |
| 150 | | | | |
| – | | – | | |

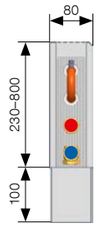
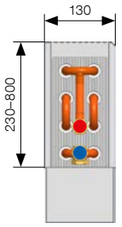
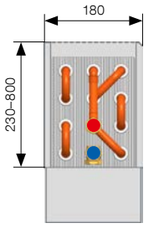
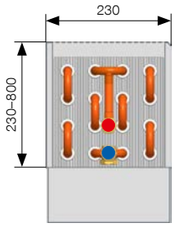


See pp. 38–43

## 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.




| Width | 80 | 130 | 180 | 230 |
|---|---|---|---|---|
| Height | | | | |
| 800 |  |  |  |  |
| 700 | | | | |
| 600 | | | | |
| 500 | | | | |
| 400 | | | | |
| 300 | | | | |
| 230 | | | | |



See pp. 44–49

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

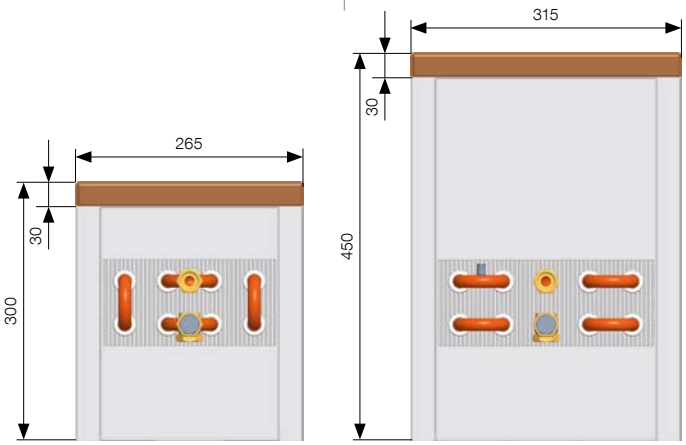
Floor-level bracket height above floor level for all KORALINE models is 100 mm. Measurements in mm.

## KORALINE Optimal LDO with wooden bench top

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




| Width | 265 | 315 |
|---|---|---|
| **Height** | | |
| 450 | | |
| 300 | | |



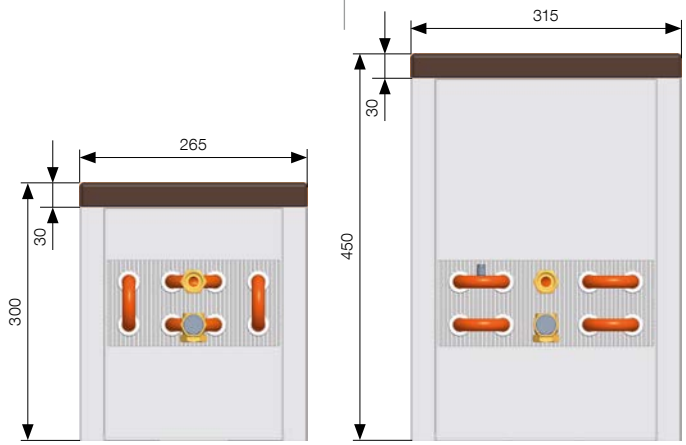

See pp. 58

## KORALINE Pool LDP with wooden bench top

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



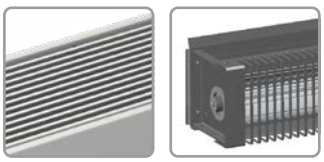

| Width | 265 | 315 |
|---|---|---|
| **Height** | | |
| 450 | | |
| 300 | | |



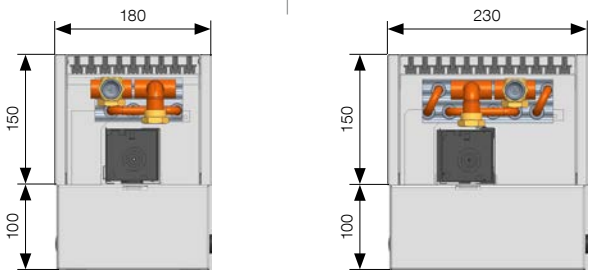

See pp. 59

## KORALINE Optimal-V LVO with fan

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



| Width | 180 | 230 |
|---|---|---|
| **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

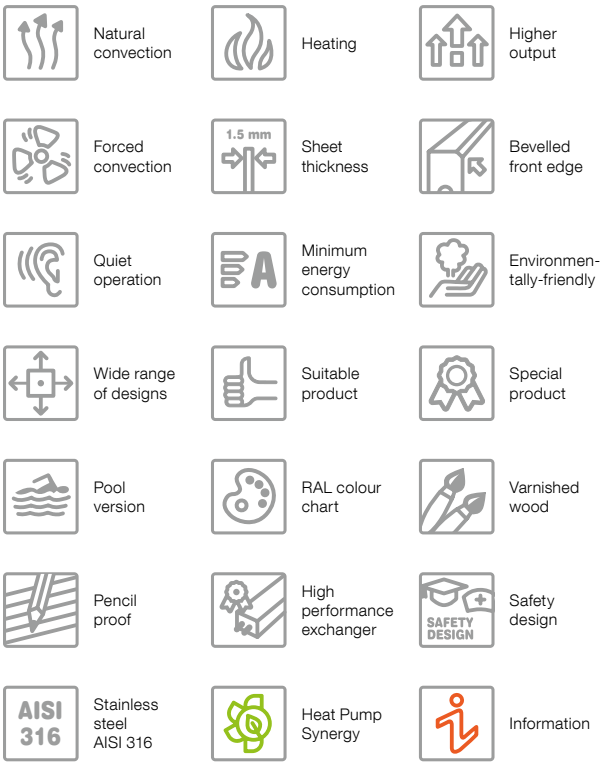

$\Delta t = \frac{(t_1 + t_2)}{2} - t_1$



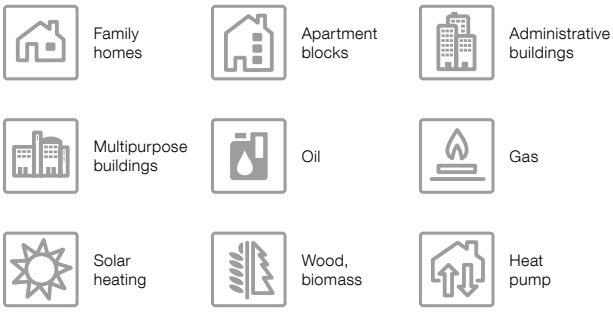
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## Key to pictograms




### Suitable applications of convectors




BIM BUILDING INFORMATION MODELING MagiCad supplementary documentation

HEAT PUMP SYNERGY

FREE-STANDING CONVECTORS
**KORALINE**



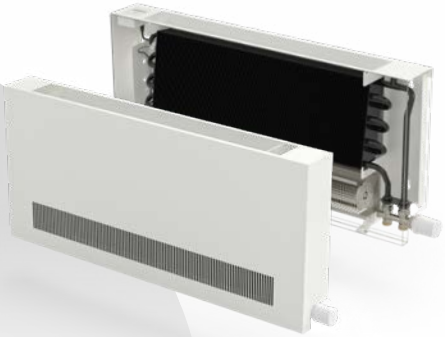
HEAT PUMP SYNERGY

TRENCH HEATERS
**KORAFLEX**



HEAT PUMP SYNERGY

WALL-MOUNTED CONVECTORS
**KORAWALL**

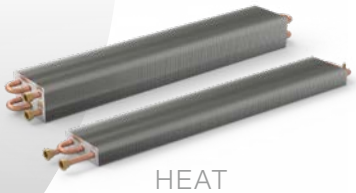


CONVECTORS
**WITH FORCED CONVECTION**

CONVECTORS
**WITH NATURAL CONVECTION**

FACADE CONVECTORS
**KORASPACE**





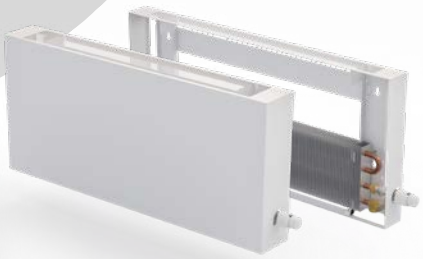
HEAT EXCHANGERS
**KORABASE**



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 55 years




**1968**

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



**1995**

Product portfolio modernisation. **Production of the first trench heaters**.

LICON
member of KORADO Group

**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.**

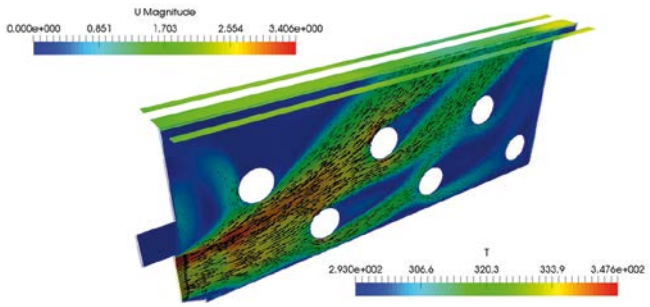
# Did you know…





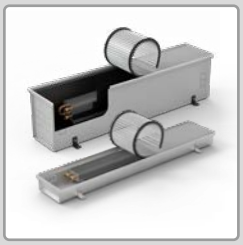
Thermal imaging measuring

- 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 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 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.

CE EN EURONORM 16430 EN EURONORM 442



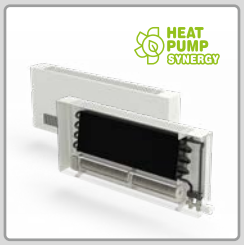
**2020**

**New generation of KORAFLEX trench heaters**




**2022**

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




**2023**

**The development of wall-mounted KORAWALL** convectors with forced convection has expanded the portfolio to include units achieving high efficiency even at low temperature gradients.




**2024**

**Change of name to LICON s.r.o.**, merger with the company ThermWet and production start of VENTBOX heat recovery units.




**Under the LICON s.r.o. brand, we will continue to improve, develop and offer quality products in the areas of heating, cooling and ventilation.**



*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.



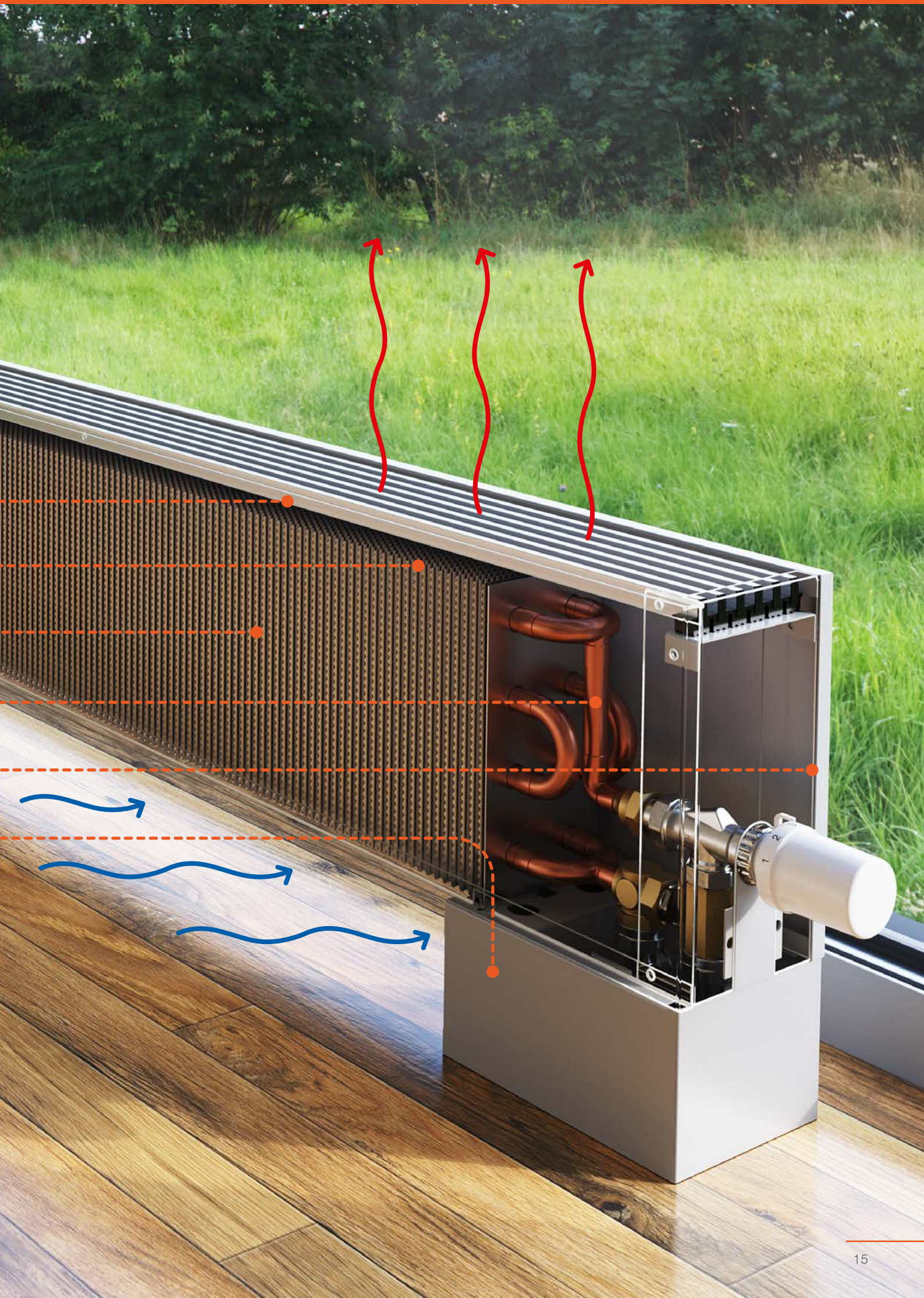
## PRECISION WORKMANSHIP

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

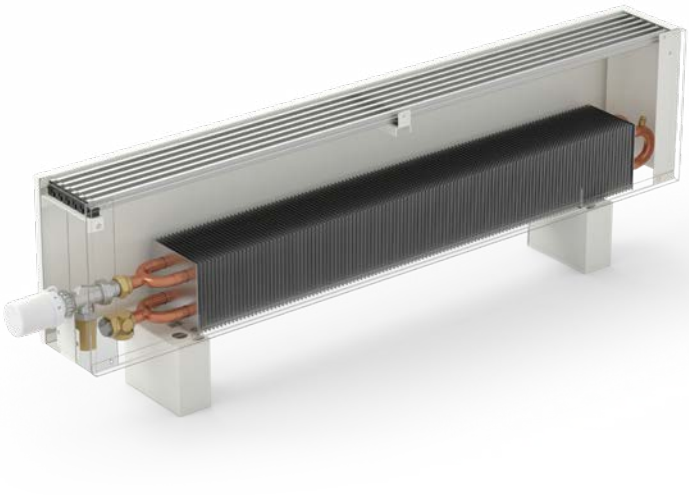
Free-standing convectors with natural convection and design grille

# 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

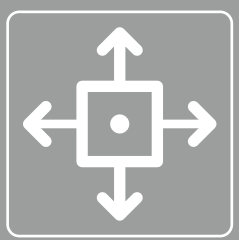
- silver elox aluminium grille
- galvanized steel casing (RAL 9016 white or RAL 9005 black lacquer)
- Al/Cu heat exchanger for universal connections, low water content, bleed valve, uniquely shaped fins
- magnetic side cover in casing colour
- axial thermostatic valve, thread M 30 × 1.5 (see p. 66)
- 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)
- lockshield (see p. 68)
- 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

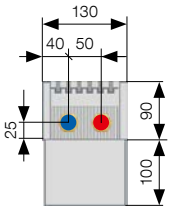
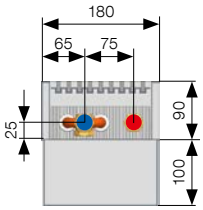
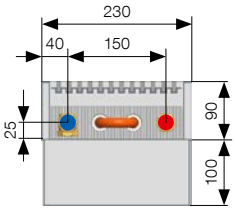
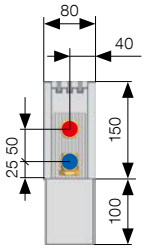
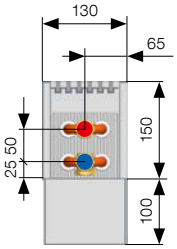
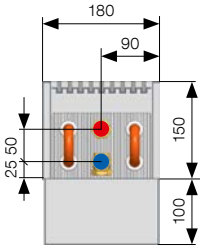
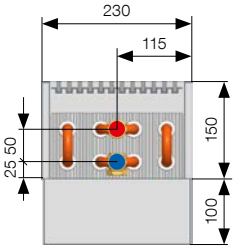
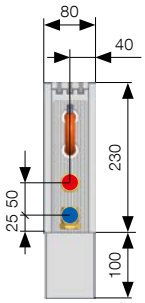
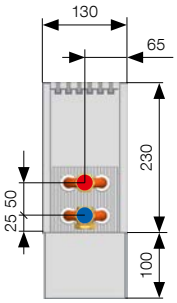
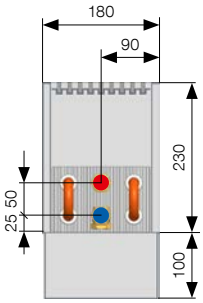
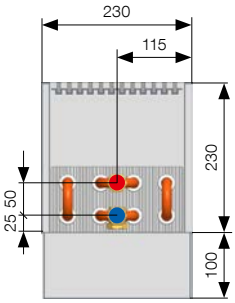
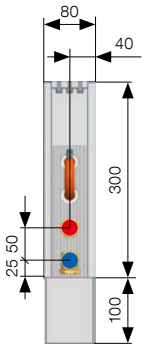
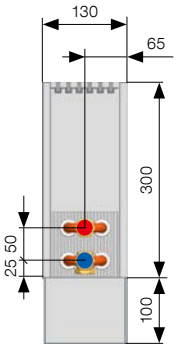
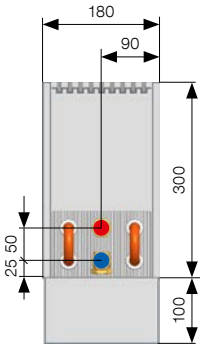
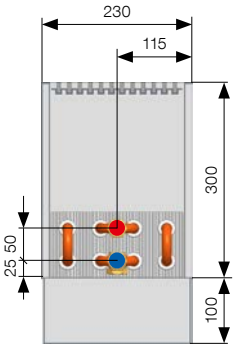
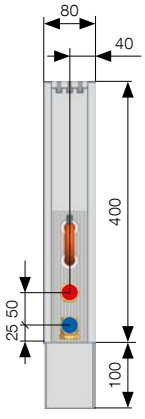
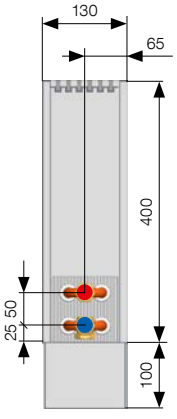
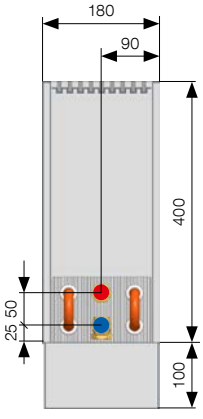
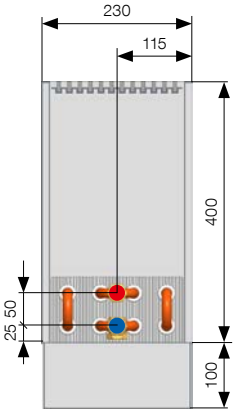


6 heights, 4 widths, 16 lengths, totalling 368 standard types



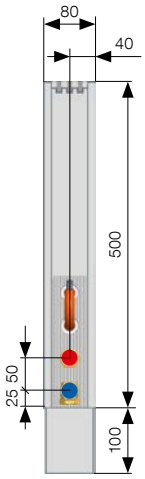
Other RAL colour chart lacquers available

# SUMMARY OF TYPES
# KORALINE Optimal LKO

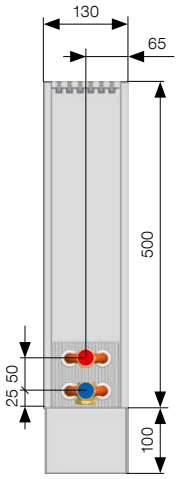
| HEIGHT | WIDTH 80 mm | WIDTH 130 mm | WIDTH 180 mm | WIDTH 230 mm |
|---|---|---|---|---|
| 90 mm | |  |  |  |
| 150 mm |  |  |  |  |
| 230 mm |  |  |  |  |
| 300 mm |  |  |  |  |
| 400 mm |  |  |  |  |

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

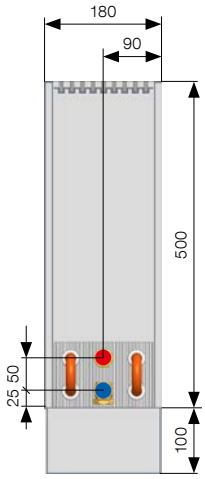
WIDTH
**80 mm**



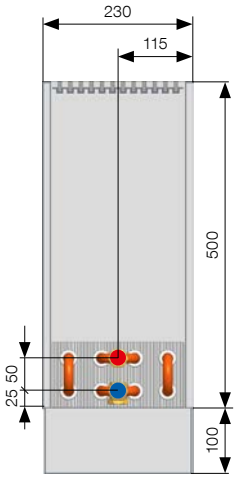

WIDTH
**130 mm**




WIDTH
**180 mm**




WIDTH
**230 mm**

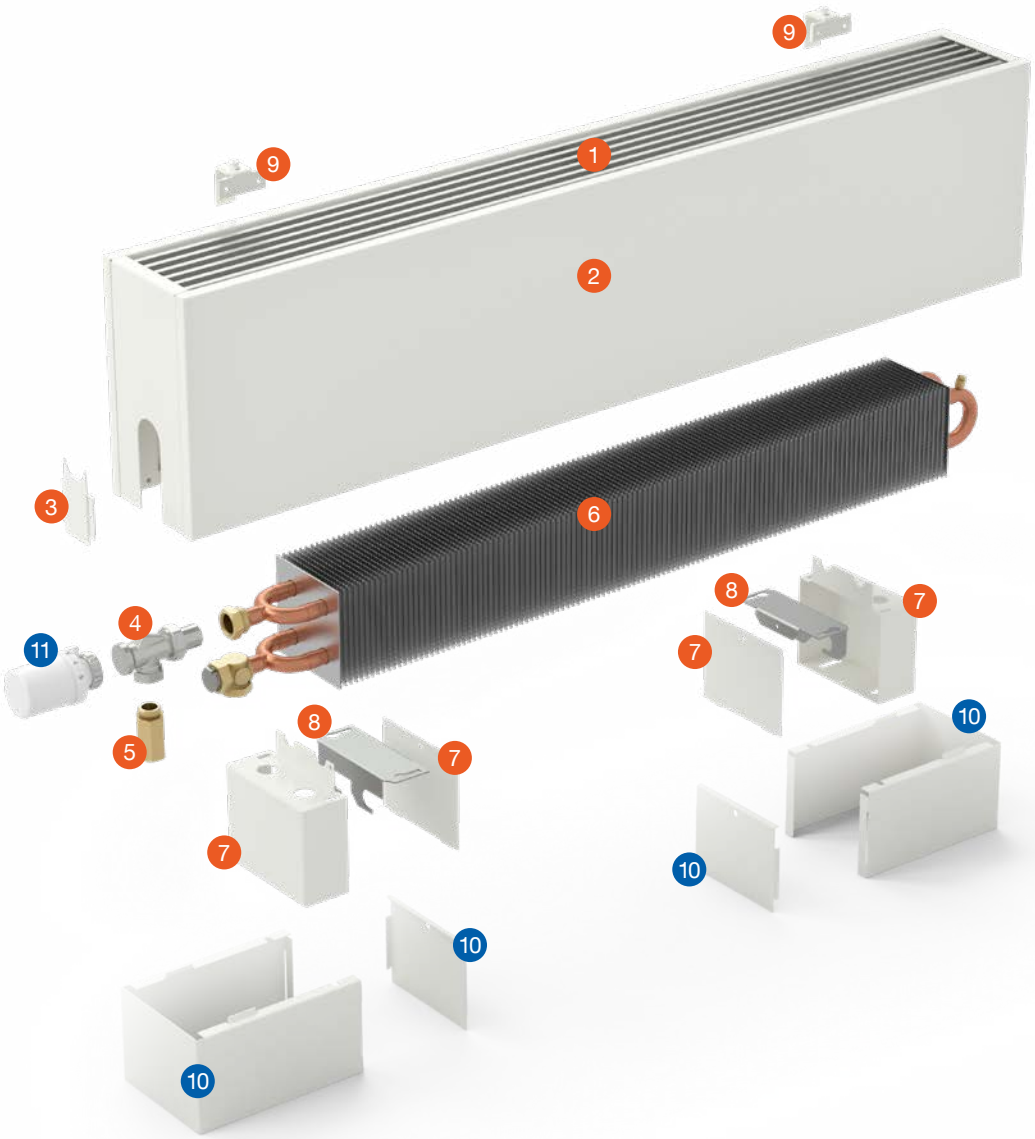



HEIGHT
**500 mm**

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

## Convector 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



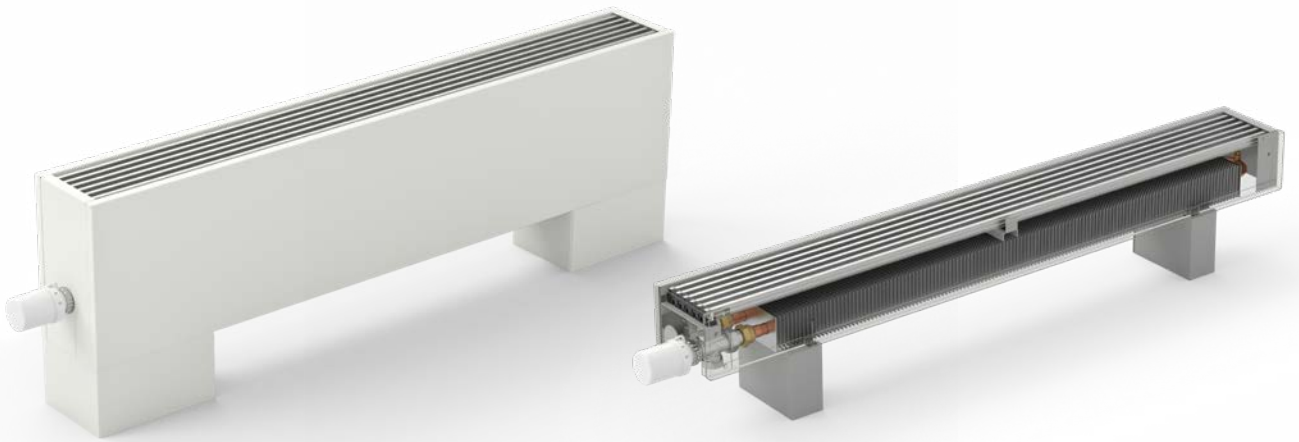

● Standard contents
● summary of optional accessories:
for KORALINE Optimal LKO model, see p. 17,
for KORALINE Power LKW model, see p. 23

# HEAT OUTPUTS

**Heat output [W] where $t_1/t_2/t_i$ = 75/65/20 °C (Δt=50), and 55/45/20 °C (Δt=30) / EN 442**

| KORALINE Optimal LKO | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Length | $t_1/t_2/t_i$ [°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<br>39 black RAL 9005<br>** see colour chart p. 109<br>99 other RAL colour |

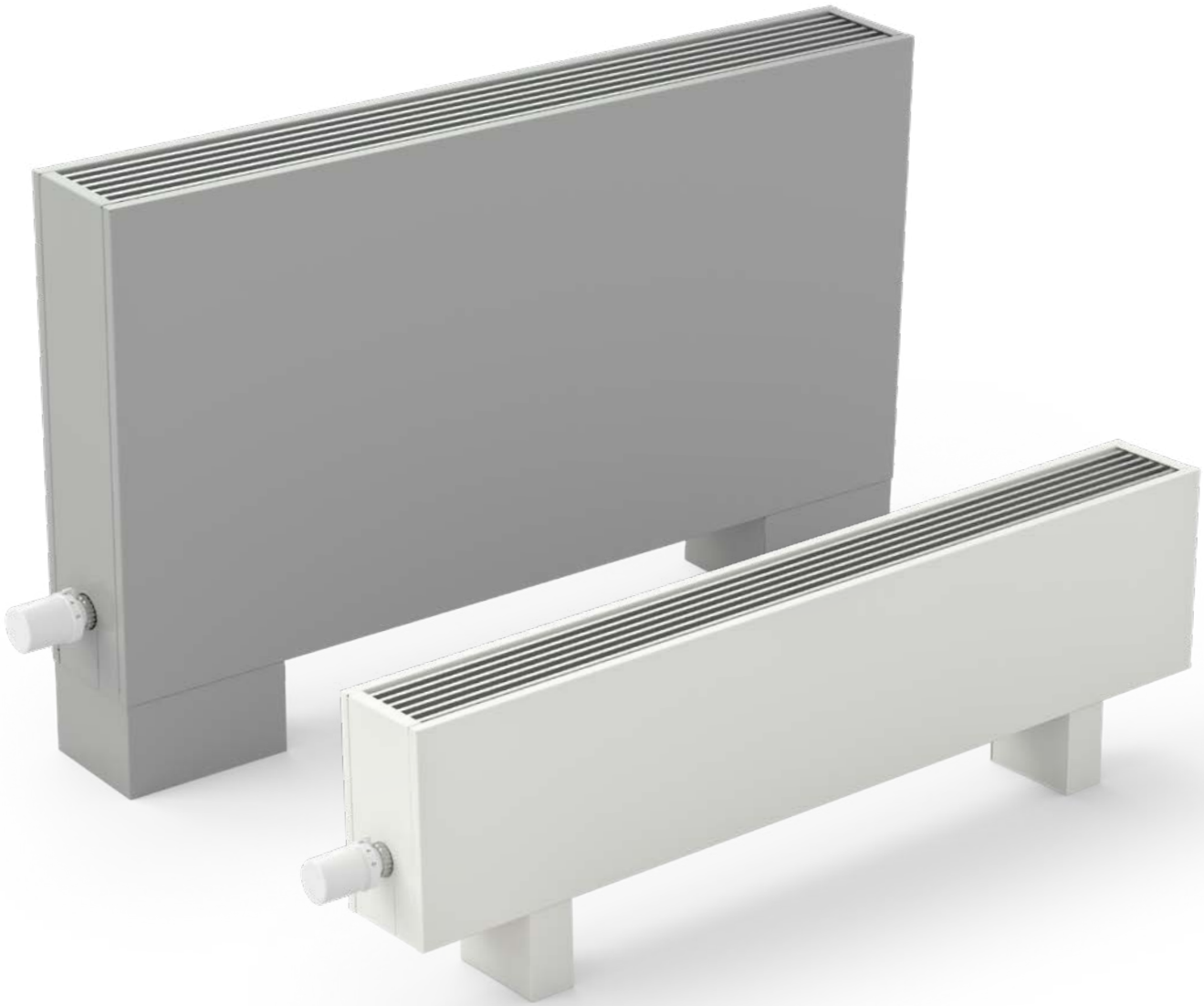
**Example order code: LKO-140/23/18-V1SA1-10**

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

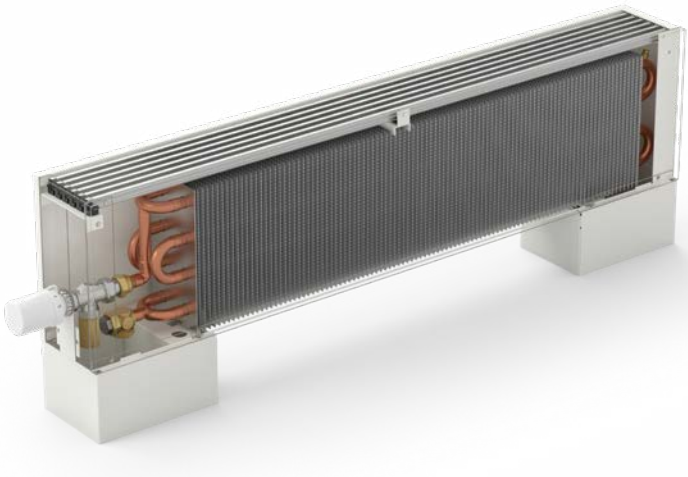
Free-standing convectors with natural convection, design grille and high-performance heat exchanger

# 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 convetors 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

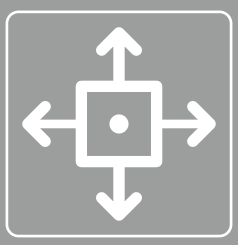
- further RAL lacquers for casings available
- floor-level bracket casings (see p. 52)
- wall brackets (see p. 53)
- sub-floor brackets (see p. 53)
- lockshield (see p. 68)
- thermostatic valve (see p. 68)
- TEP 230 or TEP 24 thermoelectric actuator (see p. 66)
- SIEMENS RAA21 or RDE 100.1 room thermostat (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

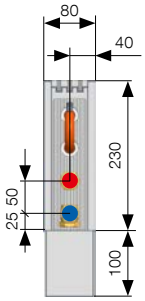


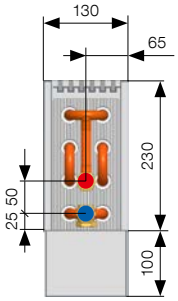
High heating performance

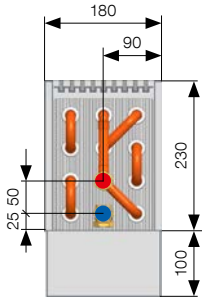
# SUMMARY OF TYPES
# KORALINE Power LKW

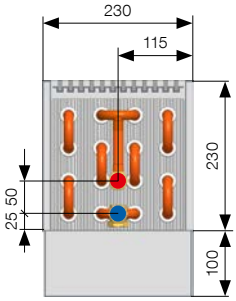
WIDTH **80 mm** | WIDTH **130 mm** | WIDTH **180 mm** | WIDTH **230 mm**

HEIGHT **230 mm**

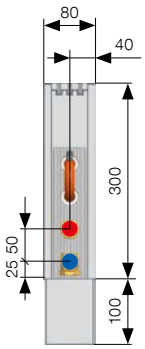


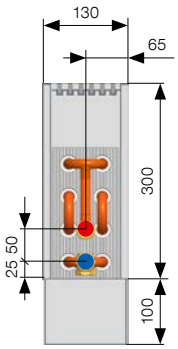



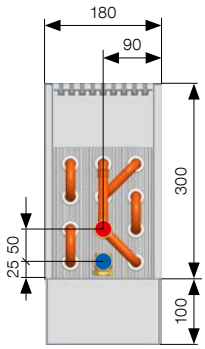



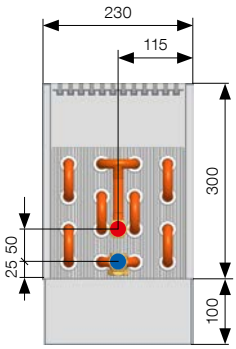




HEIGHT **300 mm**

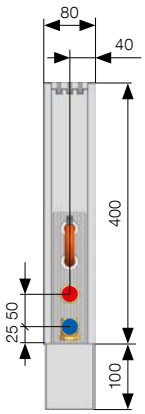


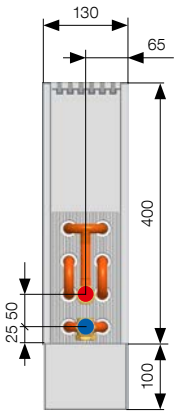



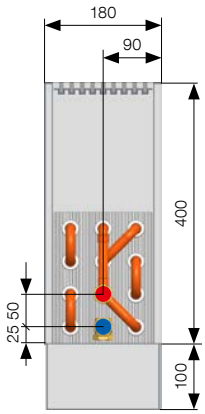



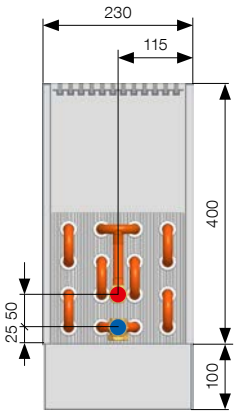




HEIGHT **400 mm**

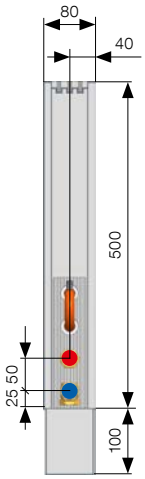


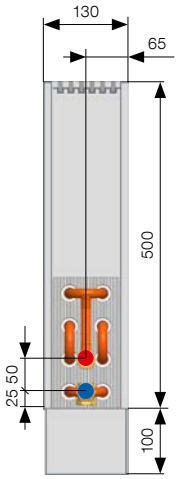



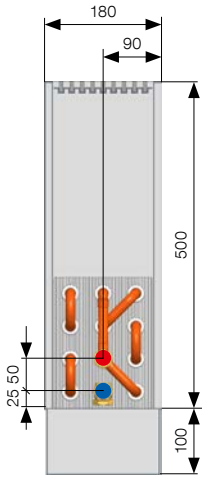



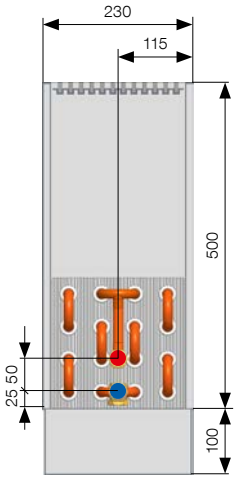




HEIGHT **500 mm**




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

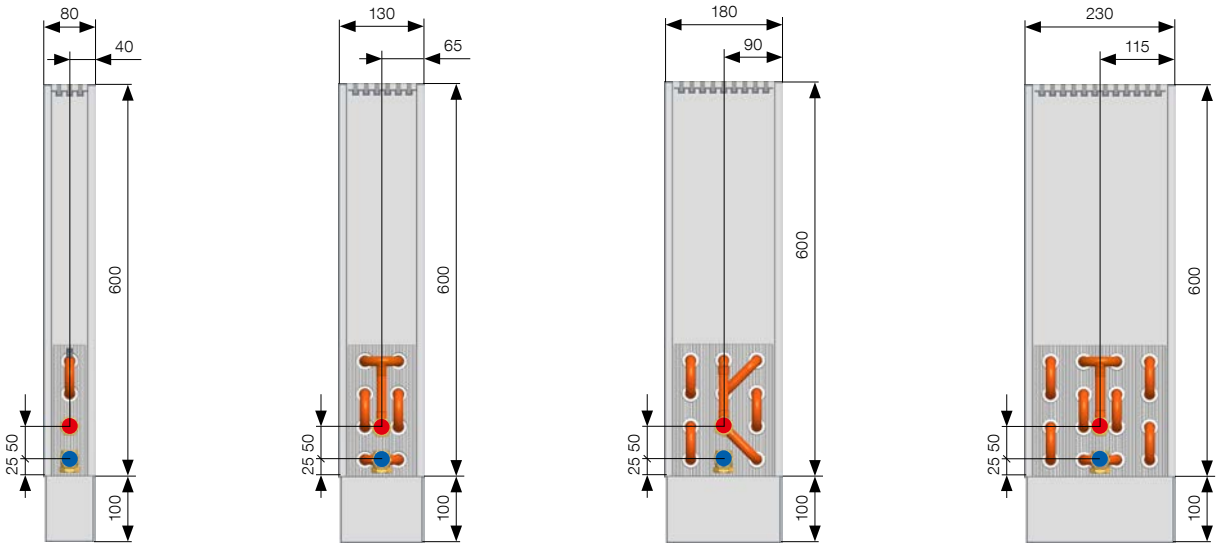
WIDTH
**80 mm**

WIDTH
**130 mm**

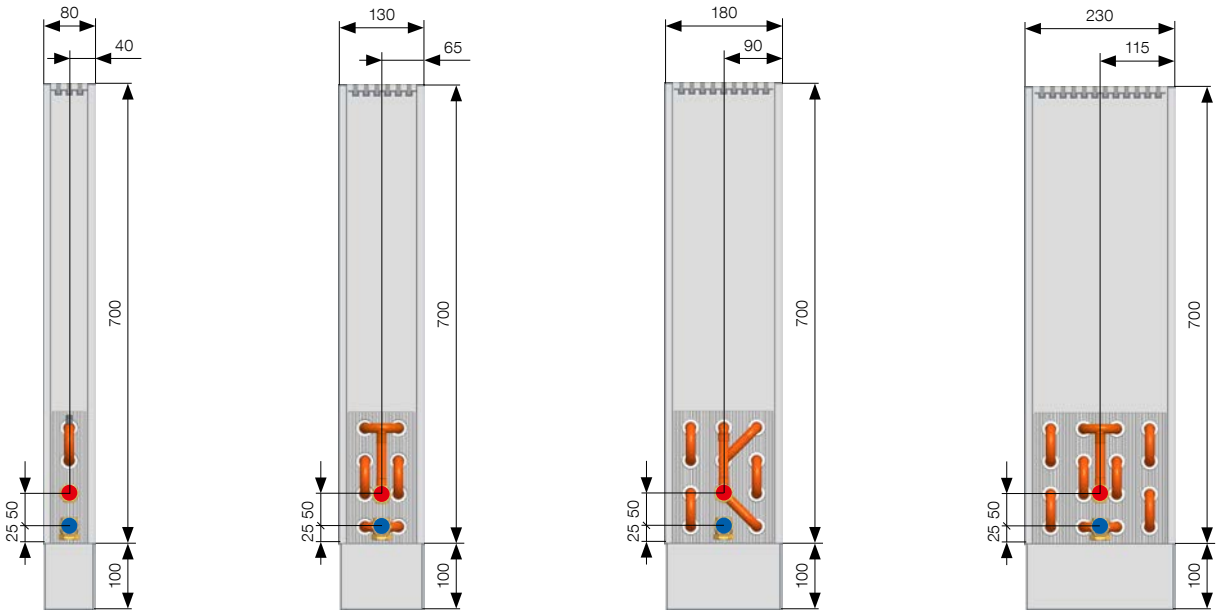
WIDTH
**180 mm**

WIDTH
**230 mm**

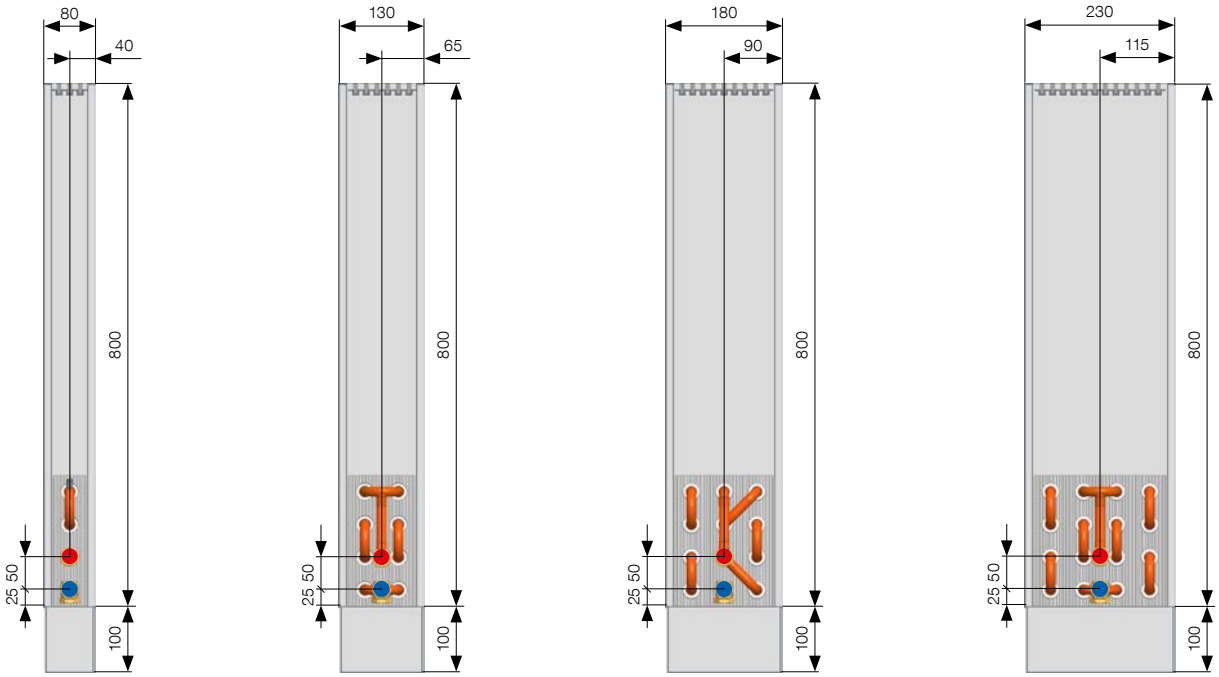
HEIGHT
**600 mm**




HEIGHT
**700 mm**




HEIGHT
**800 mm**



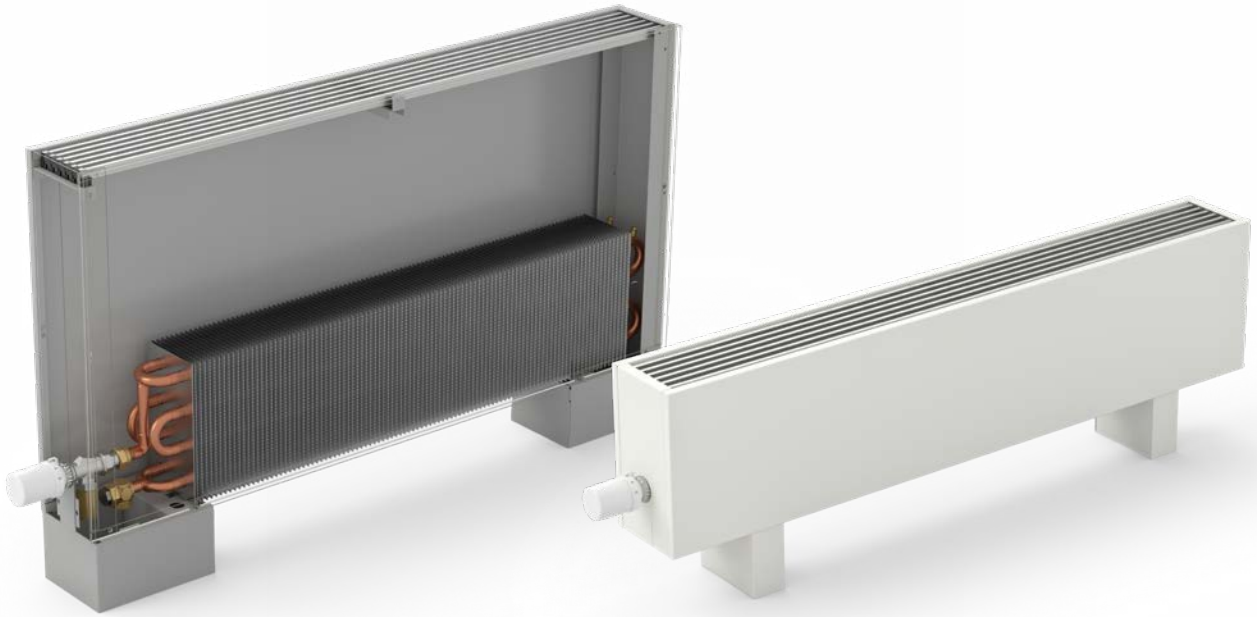

Floor-level bracket height above floor level for all KORALINE models is 100 mm. Measurements in mm. Alterations to technical specifications reserved.

# HEAT OUTPUTS

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

| KORALINE Power LKW | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Length | $t_1/t_2/t_i$ [°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 convector composition see page 19.

# 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 | W Power | - ··· | / ·· | / ·· | - V counter-flow | 1 without colour | S steel | A aluminium | 1 elox silver | - 10 white RAL 9016<br>39 black RAL 9005<br>** see colour chart p. 109<br>99 other RAL colour |

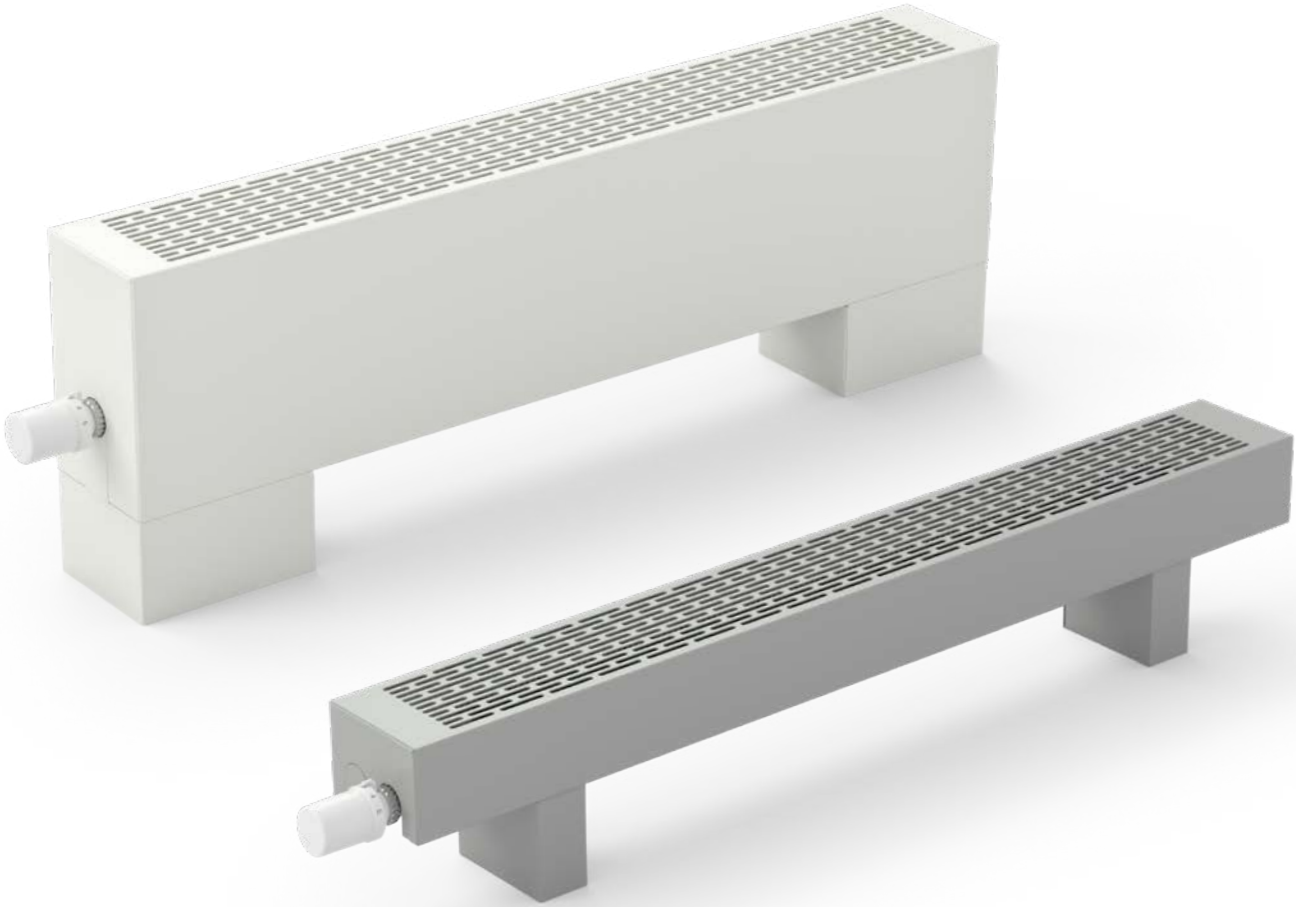
**Example order code: LKW-140/23/18-V1SA1-10**

KORALINE Power LKW 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 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



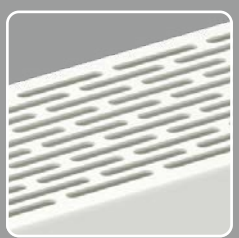
The **KORALINE Basic LKB** model series is the standard version of our low surface temperature floor convectors. In this model series, the safety exhaust grille is perforated directly into the galvanized steel casing of the convector, making it an integral part of the convector. Optimal outputs and a 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)
- lockshield (see p. 68)
- 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

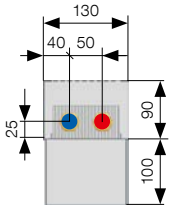
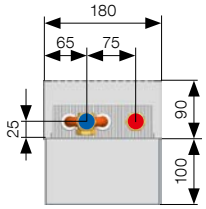
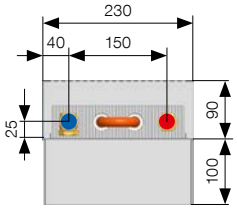
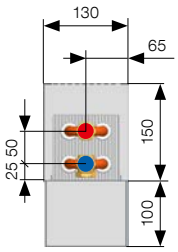
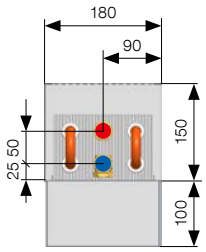
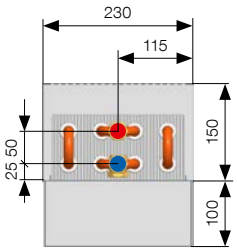
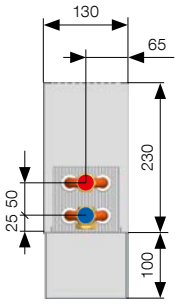
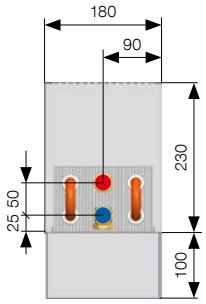
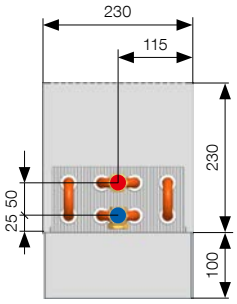
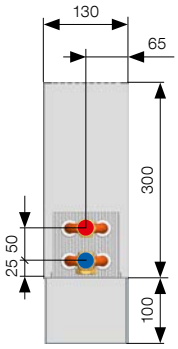
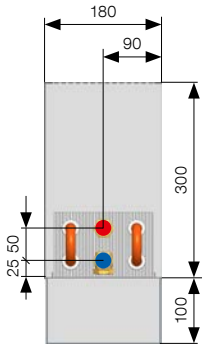
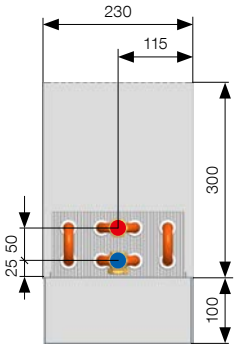
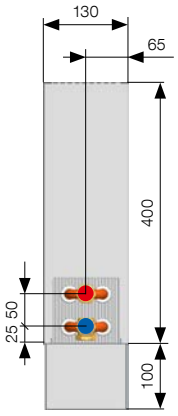
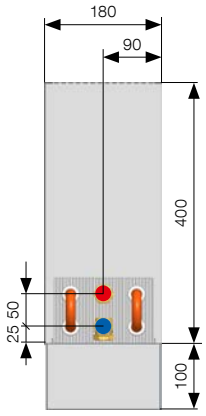
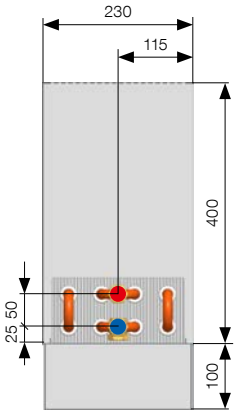


Optimal price / performance ratio



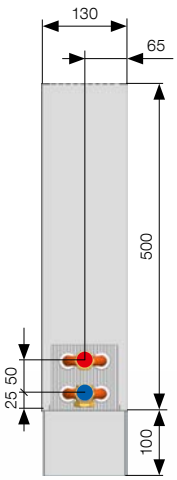
Other RAL colour chart lacquers available

# SUMMARY OF TYPES
# KORALINE Basic LKB

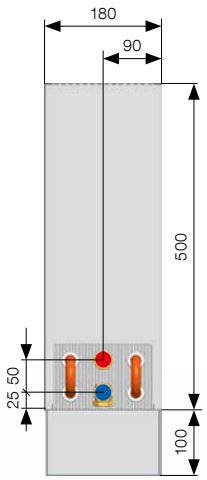
| | WIDTH 130 mm | WIDTH 180 mm | WIDTH 230 mm |
|---|---|---|---|
| HEIGHT 90 mm |   |   |   |
| HEIGHT 150 mm |   |   |   |
| HEIGHT 230 mm |   |   |   |
| HEIGHT 300 mm |   |   |   |
| HEIGHT 400 mm |   |   |   |

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

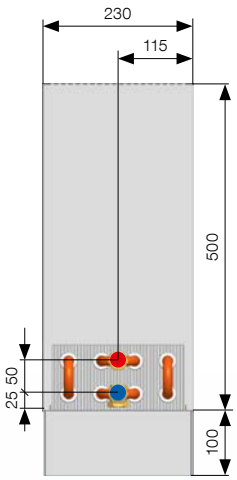
WIDTH
**130 mm**




WIDTH
**180 mm**




WIDTH
**230 mm**

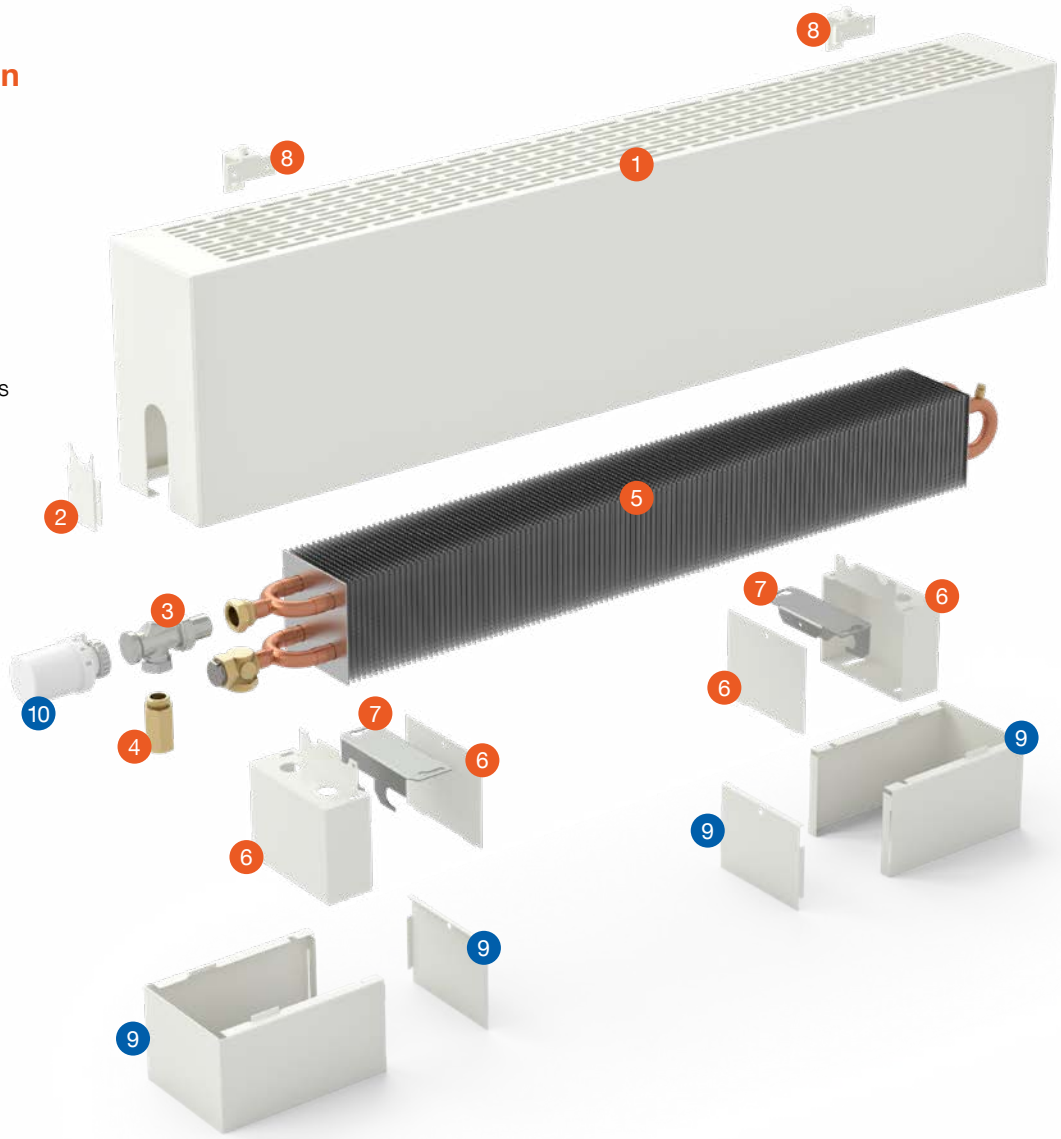



HEIGHT
**500 mm**

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

## Convector 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



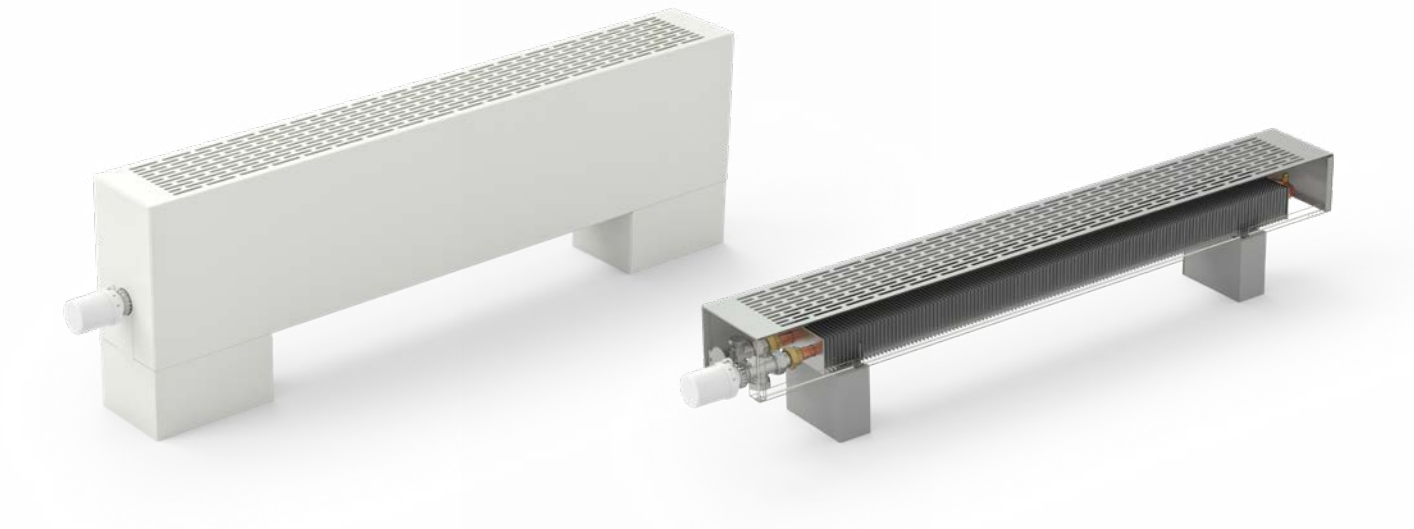

- Standard contents
- Optional accessories:
  for KORALINE Basic LKB model, see p. 29,
  for KORALINE Combi LKC model, see p. 35

# HEAT OUTPUTS

**Heat output [W] where $t_1/t_2/t_i$ = 75/65/20 °C (Δt=50), and 55/45/20 °C (Δt=30) / EN 442**

| KORALINE Basic LKB | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Length | $t_1/t_2/t_i$ [°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 | $t_1/t_2/t_i$ [°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<br>**39** black RAL 9005<br>** see colour chart p. 109<br>**99** other RAL colour |

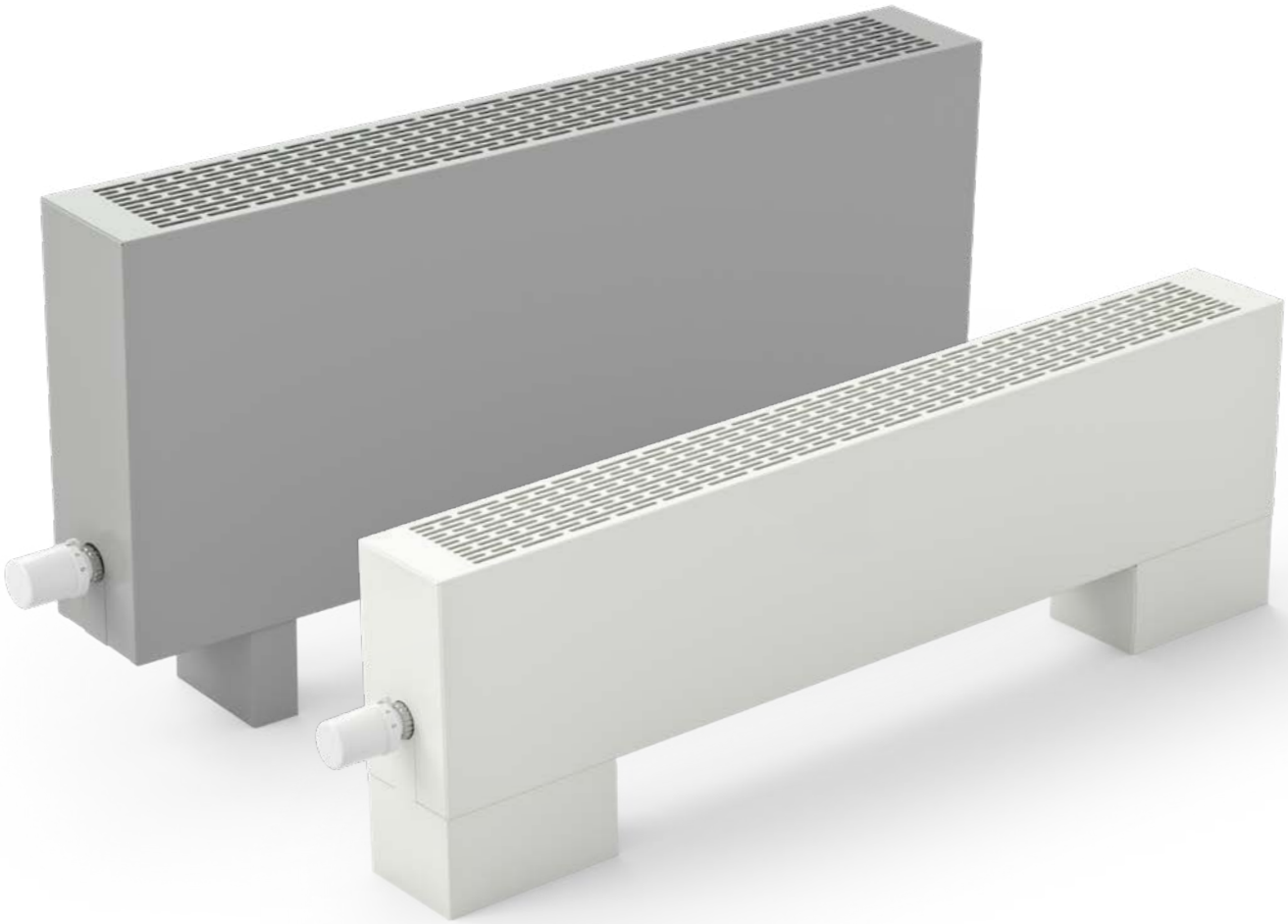
**Example order code: LKB-140/23/18-V1SP0-10**

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

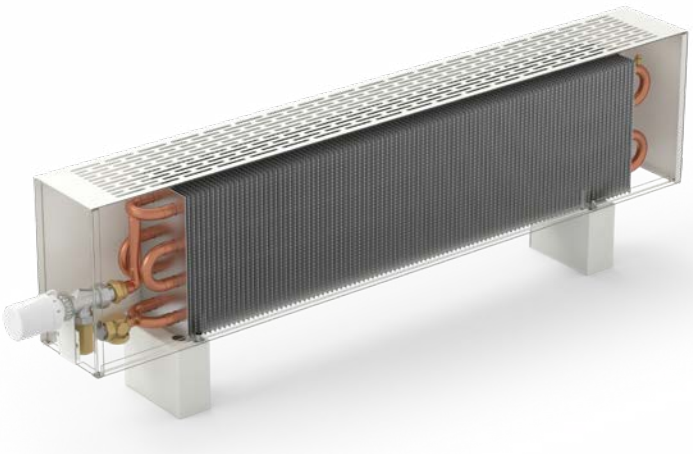
Free-standing convectors with natural convection, perforated safety grille and high-performance heat exchanger

# 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)
- lockshield (see p. 68)
- 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

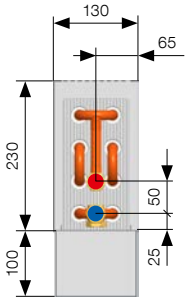
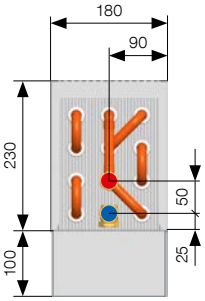
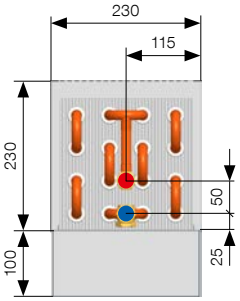
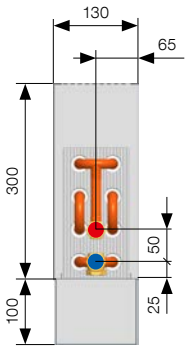
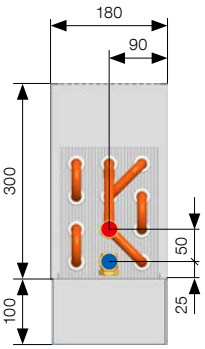
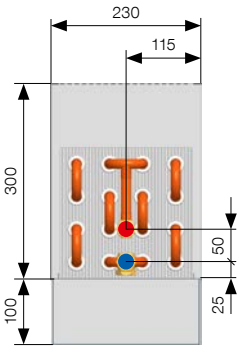
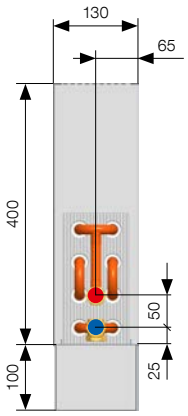
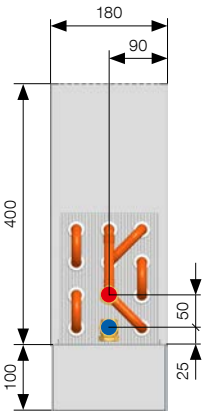
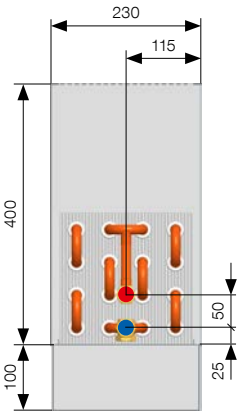
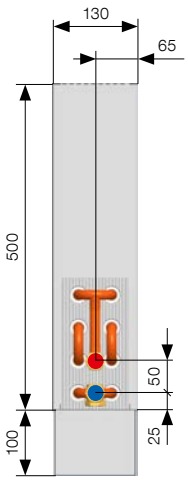
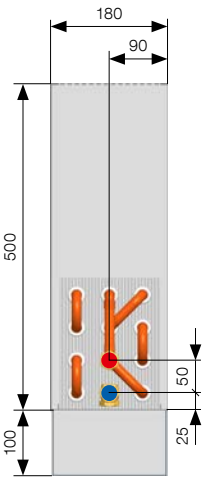
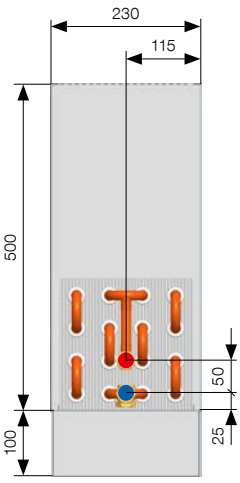


Optimal price / performance ration



Other RAL colour chart lacquers available

# SUMMARY OF TYPES
# KORALINE Combi LKC

| HEIGHT | WIDTH 130 mm | WIDTH 180 mm | WIDTH 230 mm |
|---|---|---|---|
| HEIGHT 230 mm |  |  |  |
| HEIGHT 300 mm |  |  |  |
| HEIGHT 400 mm |  |  |  |
| HEIGHT 500 mm |  |  |  |



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 $t_1/t_2/t_i$ = 75/65/20 °C (Δt=50), and 55/45/20 °C (Δt=30) / EN 442**

| KORALINE Combi LKC | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Leght | $t_1/t_2/t_i$ [°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<br>39 black RAL 9005<br>** see colour chart p. 109<br>99 other RAL colour |

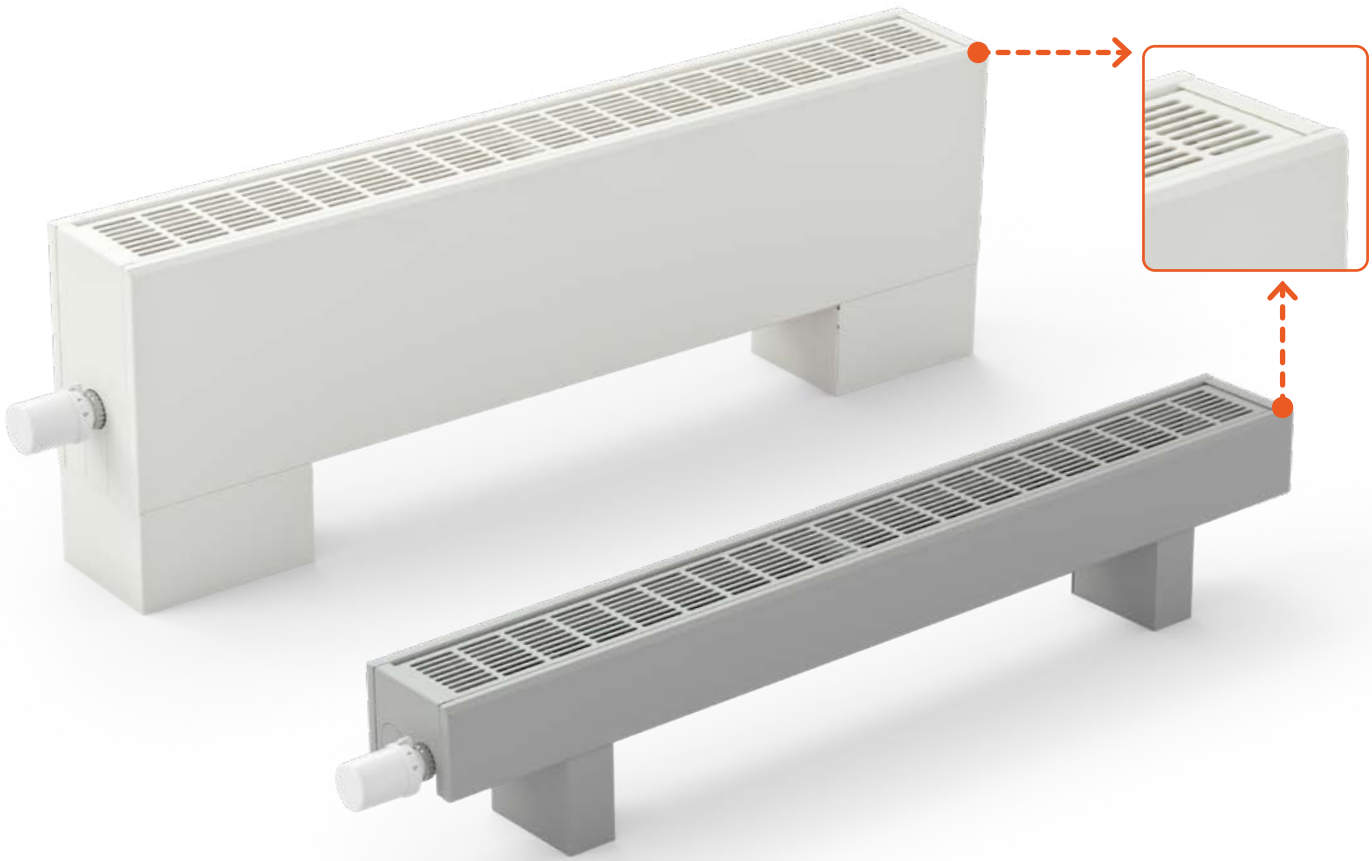
**Example order code: LKC-140/23/18-V1SP0-10**

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



SAFETY DESIGN

# KORALINE Safe LKS

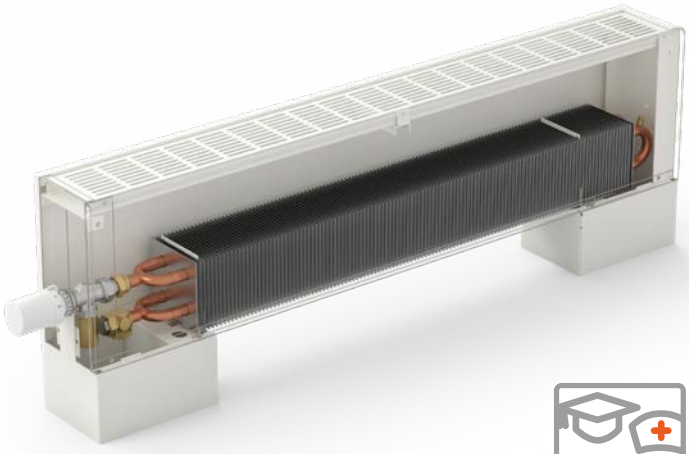
Free-standing convectors with natural convection and safety features

# 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



SAFETY DESIGN

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 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.

## 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 heigh (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)
- lockshield (see p. 68)
- 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

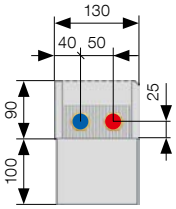
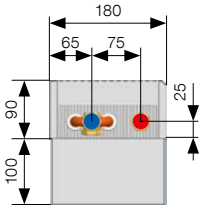
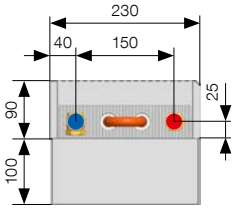
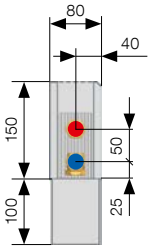
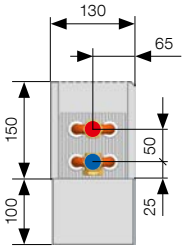
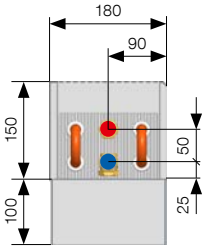
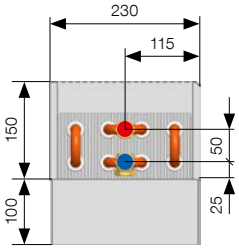
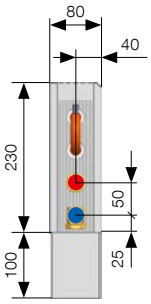
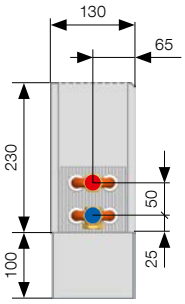
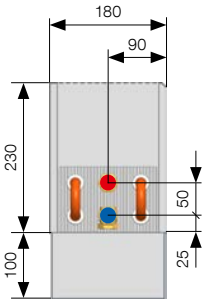
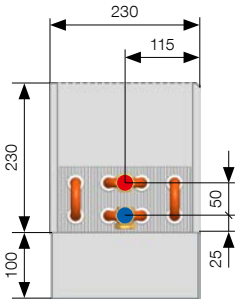
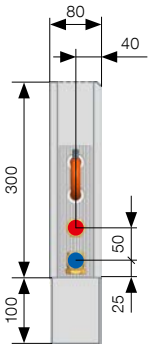
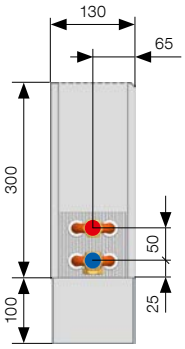
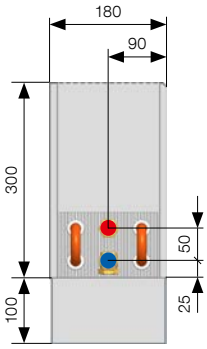
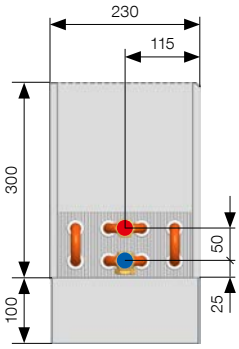
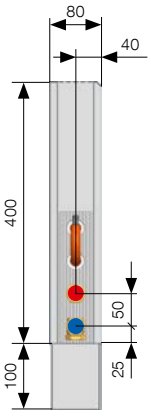
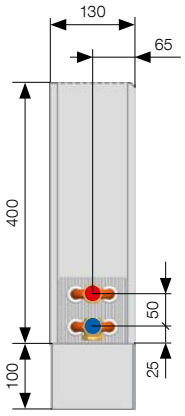
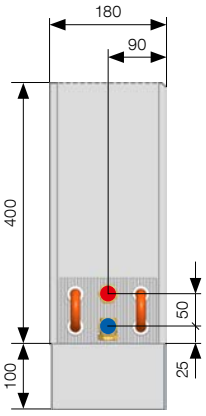
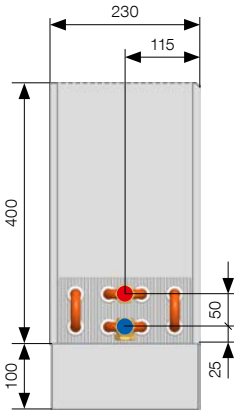


Bevelled front edge

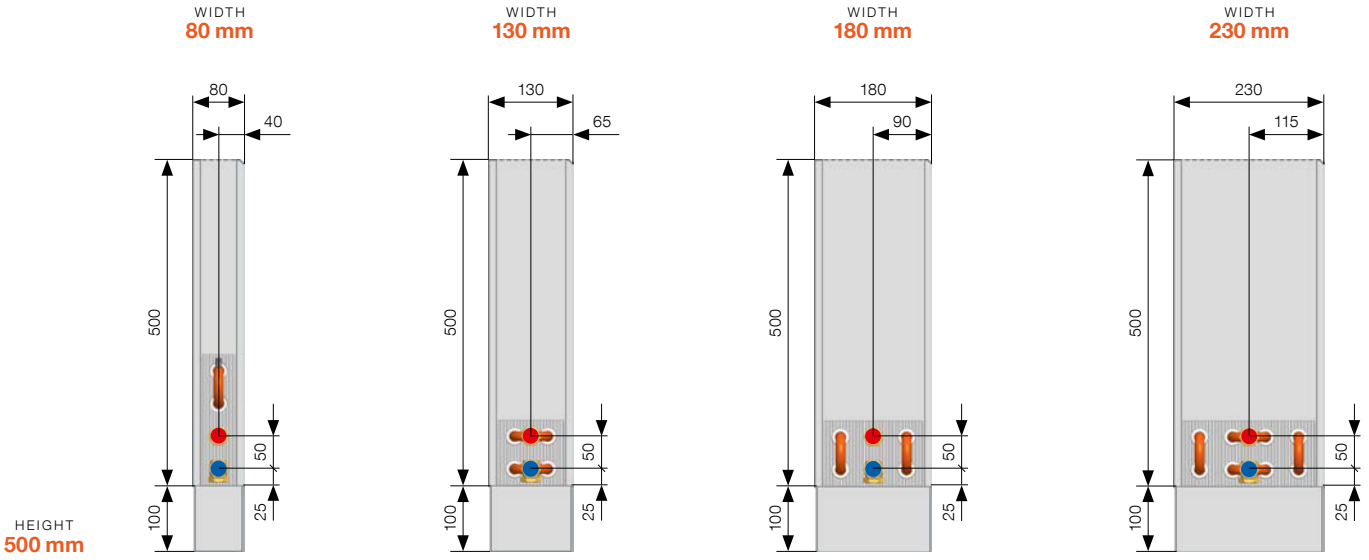



Increased durability 1.5 mm thick casing

# SUMMARY OF TYPES
# KORALINE Safe LKS

| HEIGHT | WIDTH 80 mm | WIDTH 130 mm | WIDTH 180 mm | WIDTH 230 mm |
|---|---|---|---|---|
| HEIGHT 90 mm | |  |  |  |
| HEIGHT 150 mm |  |  |  |  |
| HEIGHT 230 mm |  |  |  |  |
| HEIGHT 300 mm |  |  |  |  |
| HEIGHT 400 mm |  |  |  |  |

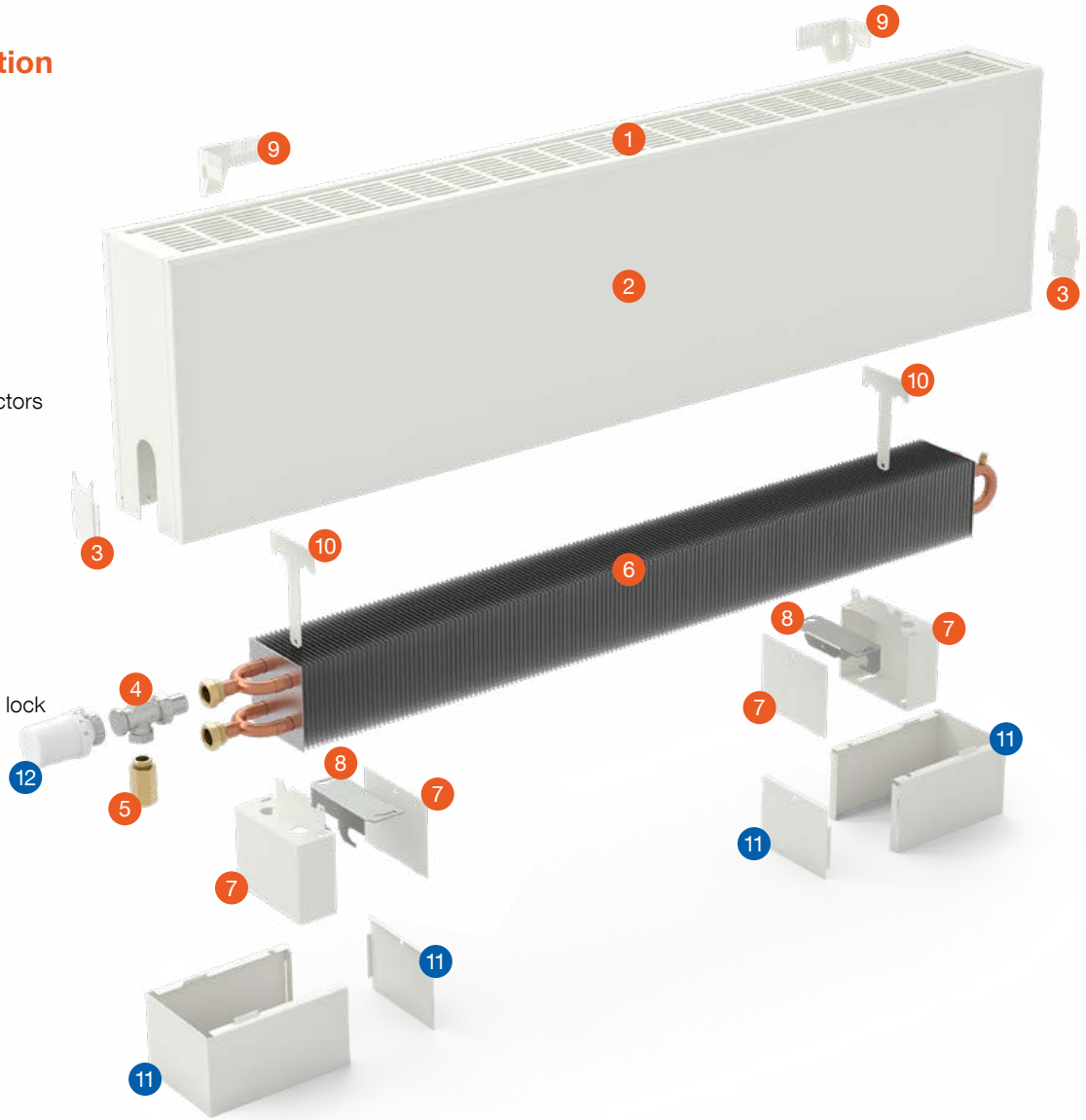
Floor-level bracket height above floor level for all KORALINE models is 100 mm. Measurements in mm. Alterations to technical specifications reserved.




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

## Convector 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



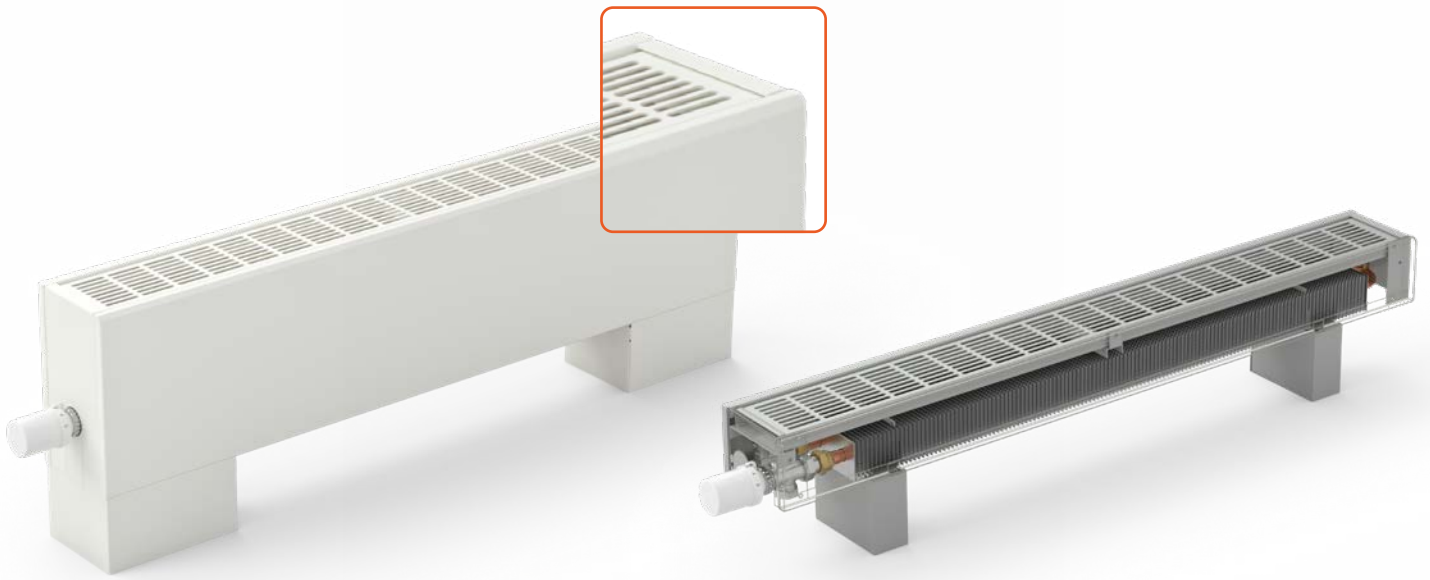
- Standard contents
- Optional accessories:
  For KORALINE Safe LKS see p. 39,
  For KORALINE Max LKM see p. 45

# HEAT OUTPUTS

**Heat output [W] where $t_1/t_2/t_i$ = 75/65/20 °C (Δt=50), and 55/45/20 °C (Δt=30) / EN 442**

| KORALINE Safe LKS | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Length | $t_1/t_2/t_i$ [°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 | $t_1/t_2/t_i$ [°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 | | |
| **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 | 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<br>**39** black RAL 9005<br>** see colour chart p. 109<br>**99** other RAL colour |

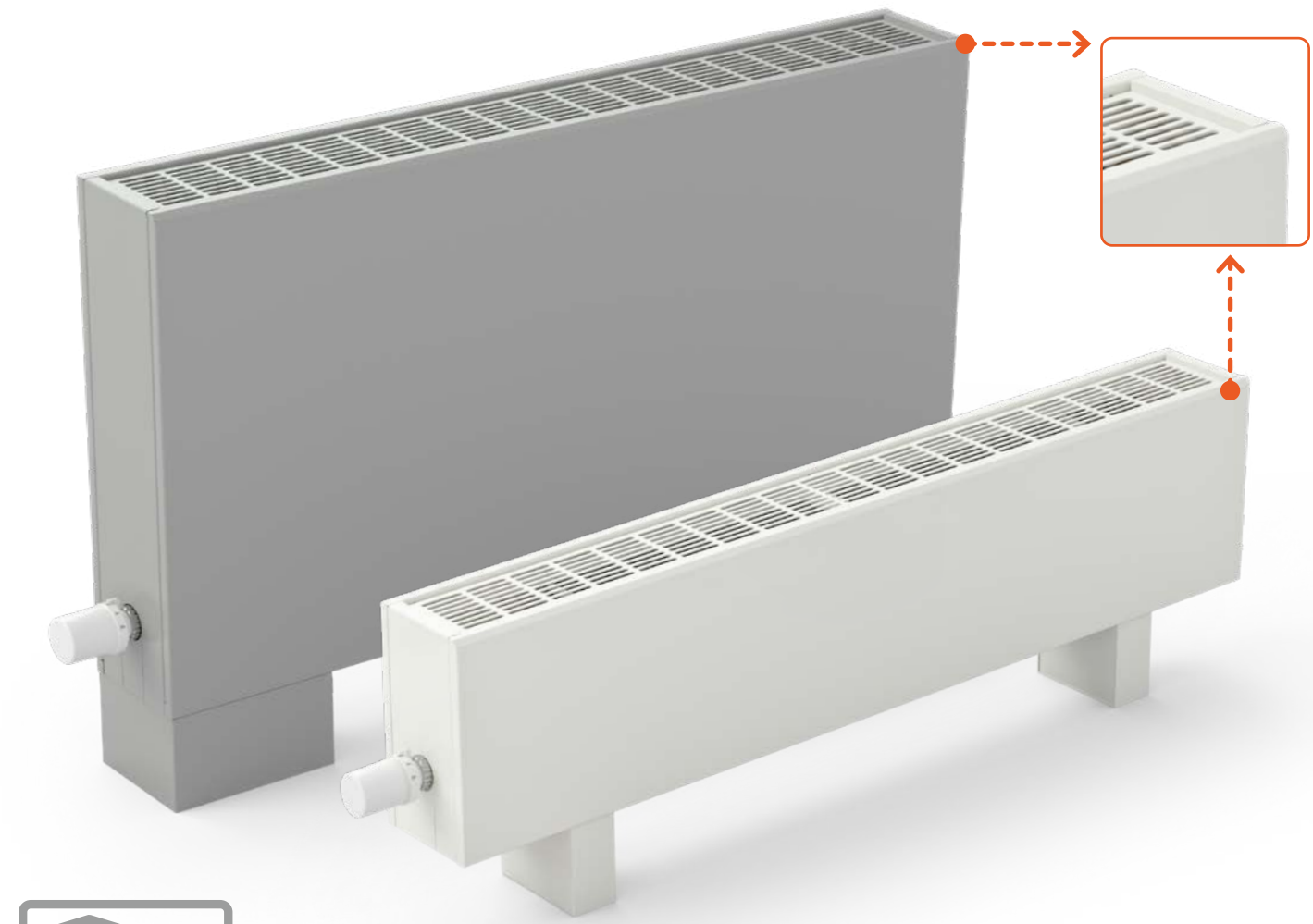
**Example order code: LKS-140/23/18-V1SP0-10**

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



SAFETY DESIGN

# KORALINE Max LKM

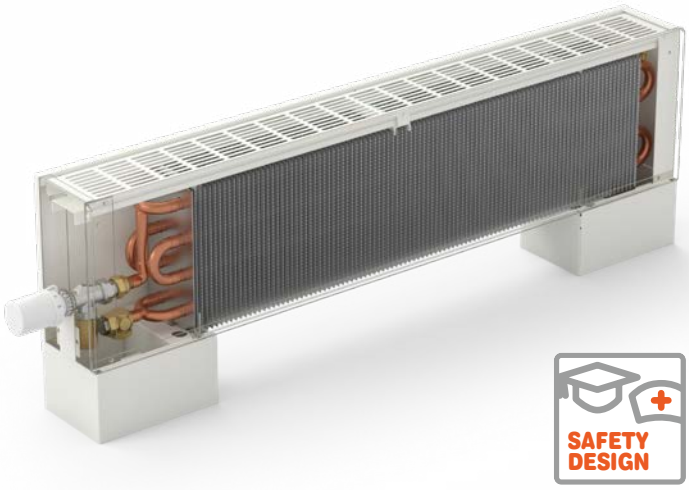
Free-standing convectors with natural convection, high-performance heat exchanger and safety features

# 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)
- lockshield (see p. 68)
- 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

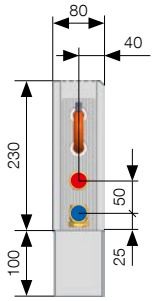
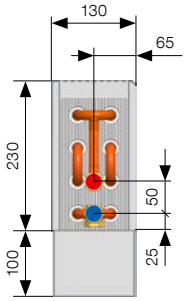
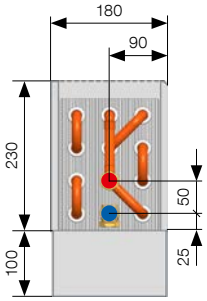
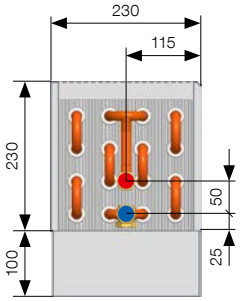
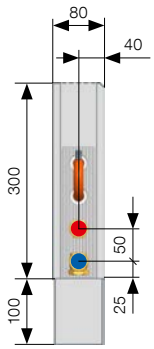
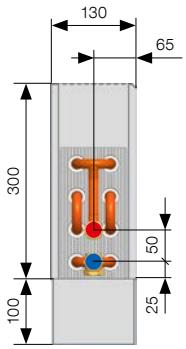
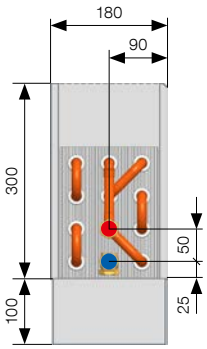
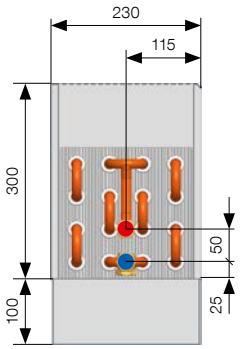
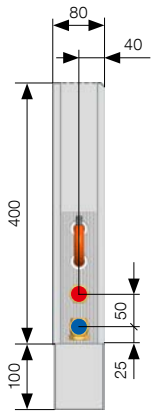
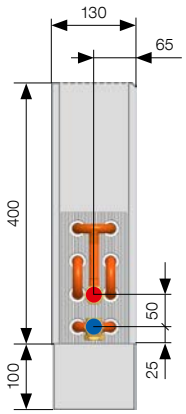
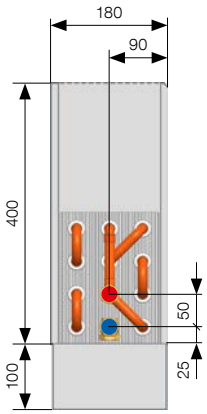
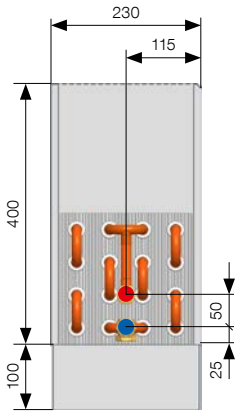
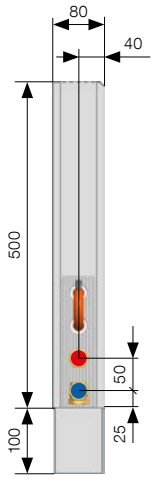
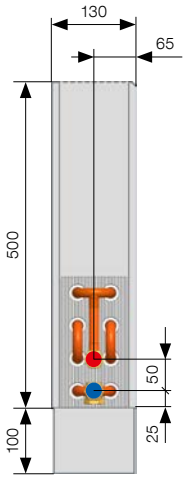
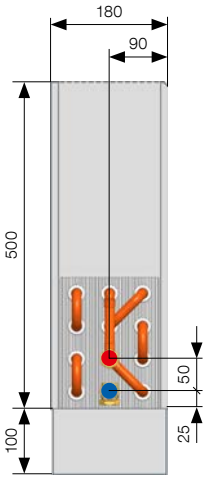
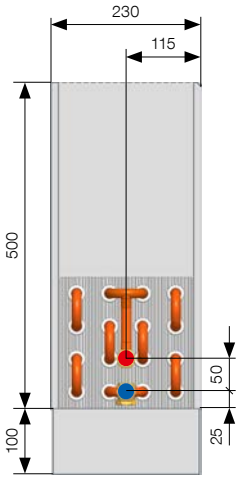


Bevelled front edge for increased safety




Increased durability 1.5 mm thick casing

# SUMMARY OF TYPES
# KORALINE Max LKM

| HEIGHT | WIDTH 80 mm | WIDTH 130 mm | WIDTH 180 mm | WIDTH 230 mm |
|---|---|---|---|---|
| HEIGHT 230 mm |  |  |  |  |
| HEIGHT 300 mm |  |  |  |  |
| HEIGHT 400 mm |  |  |  |  |
| HEIGHT 500 mm |  |  |  |  |

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

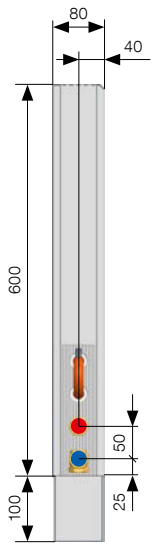
WIDTH
**80 mm**

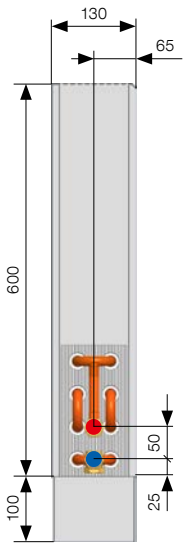
WIDTH
**130 mm**

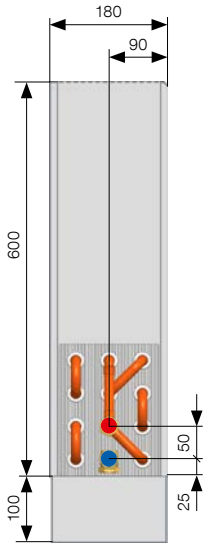
WIDTH
**180 mm**

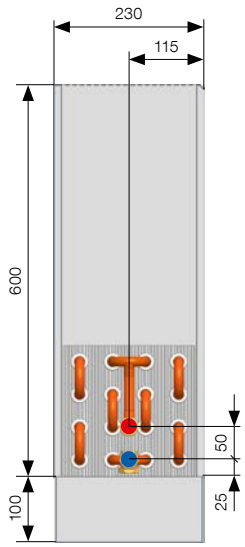
WIDTH
**230 mm**

HEIGHT
**600 mm**

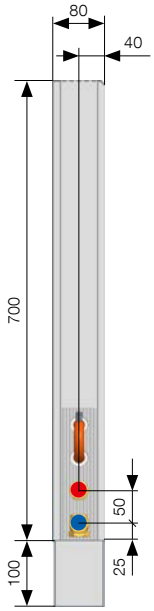


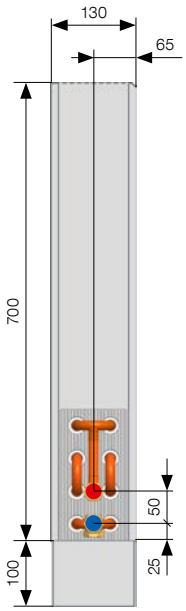



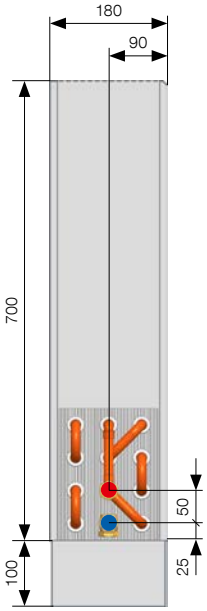



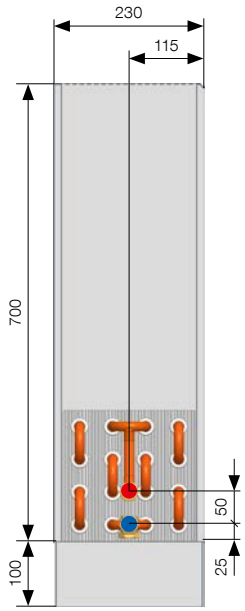




HEIGHT
**700 mm**

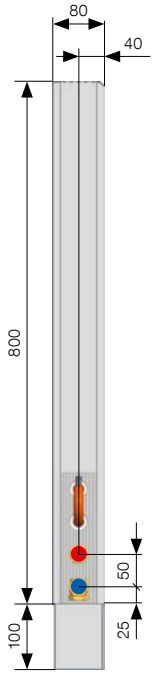


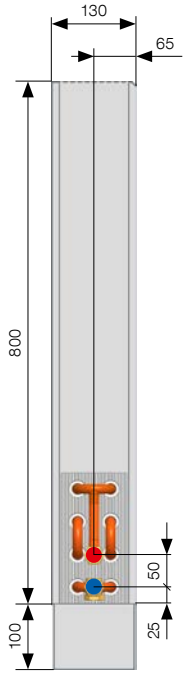



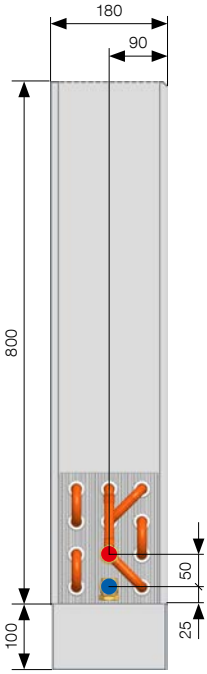



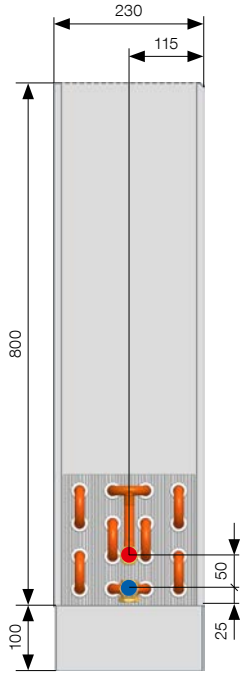




HEIGHT
**800 mm**



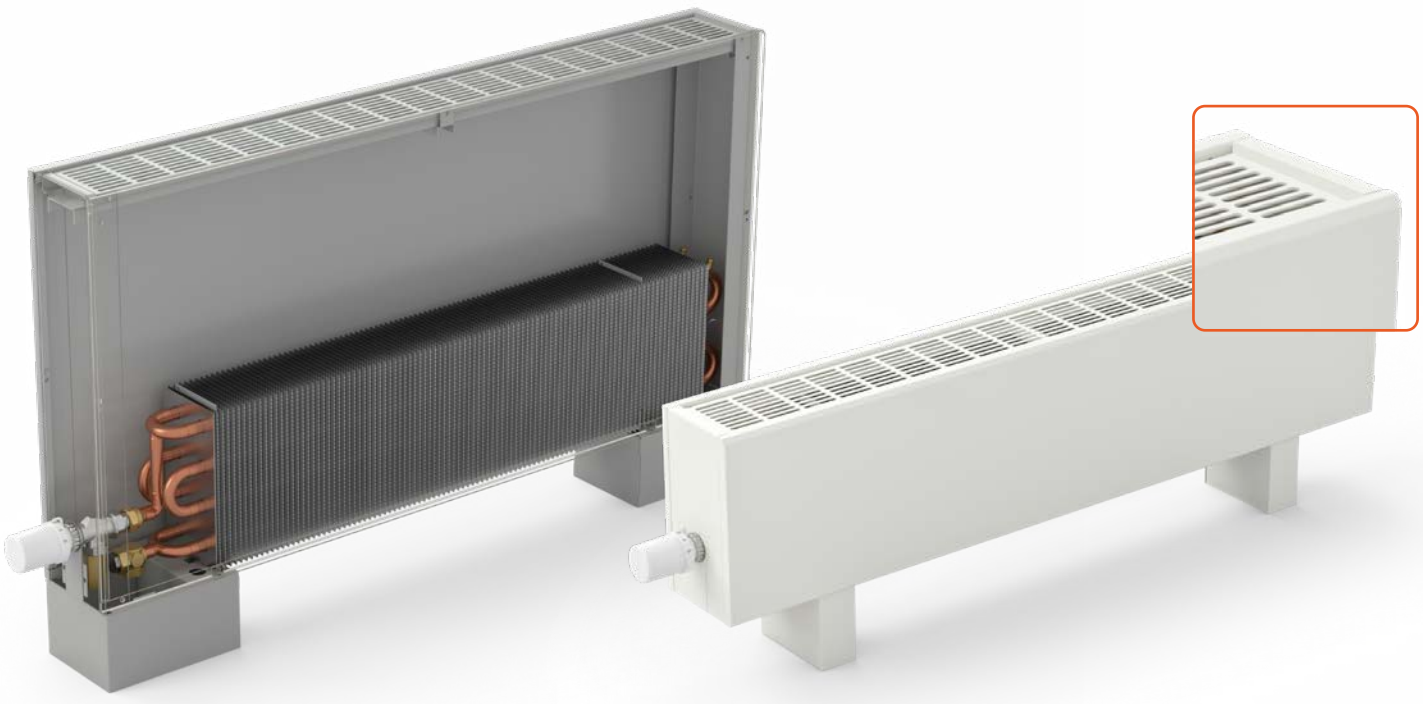

Floor-level bracket height above floor level for all KORALINE models is 100 mm. Measurements in mm. Alterations to technical specifications reserved.

# HEAT OUTPUTS

**Heat output [W] where $t_1/t_2/t_i$ = 75/65/20 °C (Δt=50), and 55/45/20 °C (Δt=30) / EN 442**

| KORALINE Max LKM | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Length | $t_1/t_2/t_i$ [°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 | $t_1/t_2/t_i$ [°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 |
| **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<br>39 black RAL 9005<br>** see colour chart p. 109<br>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



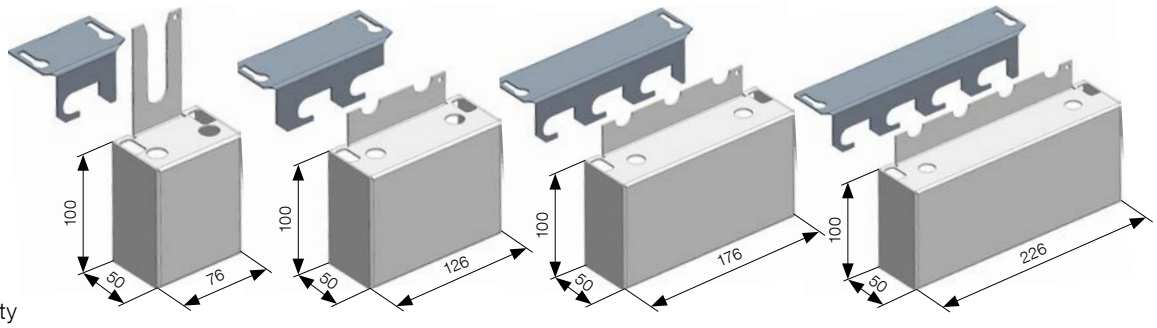
*KORALINE Optimal LKO free-standing convector*

# 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 |

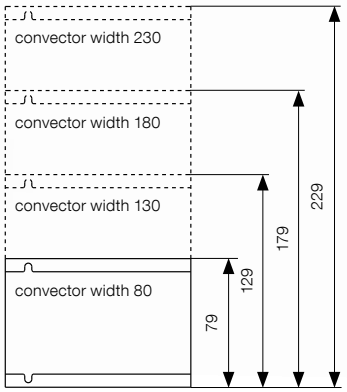
## Floor-level bracket casing

- 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



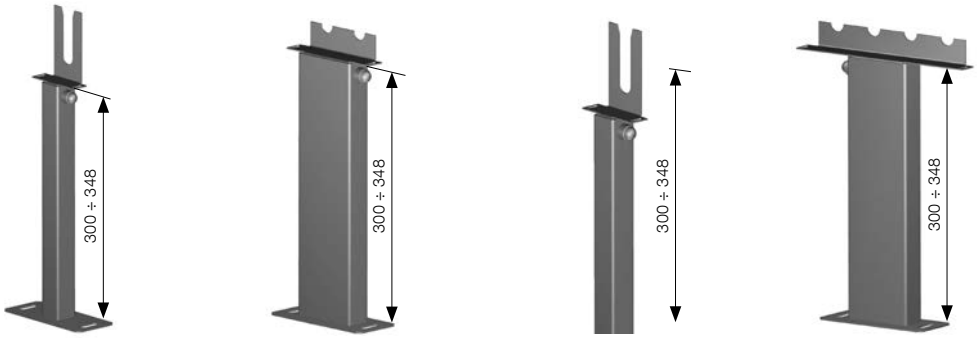

Measurements in mm

| 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

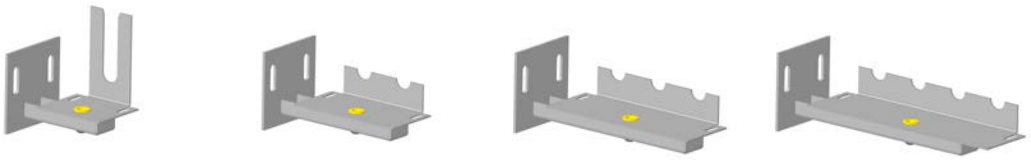
- optional accessory
- convector lengths over 2 000 mm – three brackets for increased stability are needed




| 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

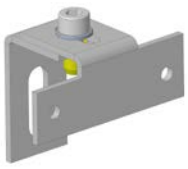


| Order codes: | | | | |
|---|---|---|---|---|
| width | 80 | 130 | 180 | 230 |
| Optimal, Power, Basic, Combi* | LKZ-08-•• | LKZ-13-•• | LKZ-18-•• | LKZ-23-•• |
| Safe, Max | LKZ-SM-08-•• | LKZ-SM-13-•• | LKZ-SM-18-•• | LKZ-SM-23-•• |

## 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

LFS



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

LFS-SM



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.

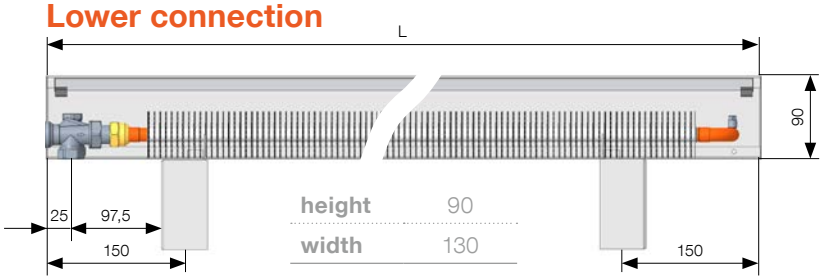
The KORALINE wall-mounted convectors are not designed for sitting or loading. These activities can lead to damage to the device, reduce its efficiency, and increase the risk of accidents. For safe and efficient heating, it is always necessary to ensure that the convector remains free and the exhaust cover grille is not covered.

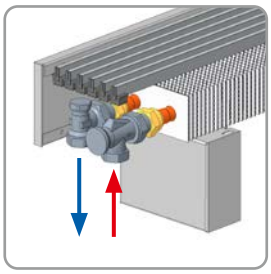
## Brackets, mounts and fixing

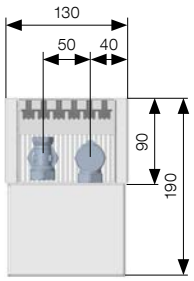
**Brackets** serve to secure the unit to the floor. Floor-level and sub-floor brackets are available.

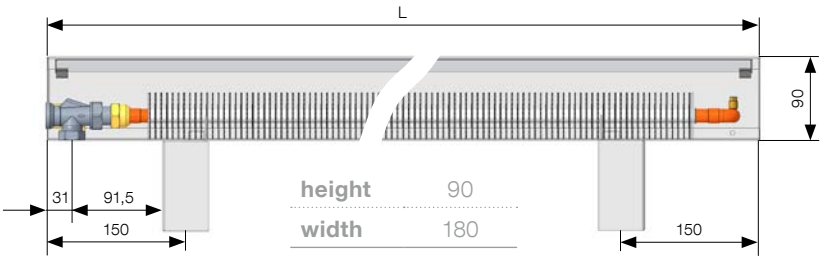
- **Floor-level brackets** are 100 mm above floor level for all KORALINE models and are included as standard.
- **Sub-floor brackets** are optional accessories allowing a height tolerance of approx. 50 mm. For greater stability of KORALINE free-standing convectors, we recommend using 3 brackets for convectors 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.

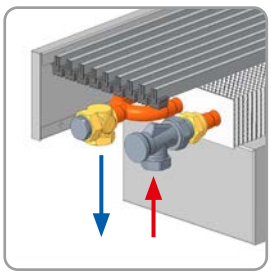
## Lower connection

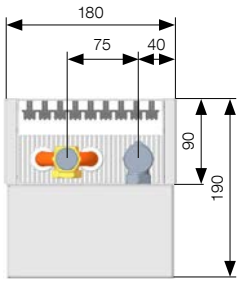


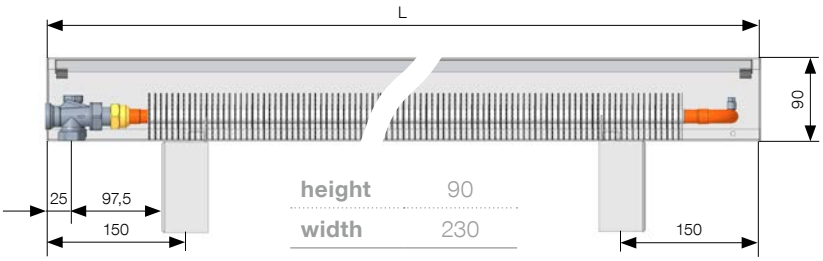



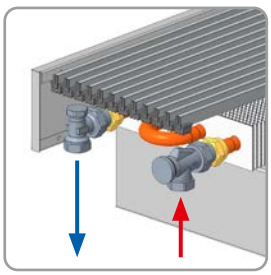


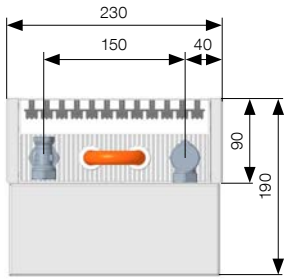



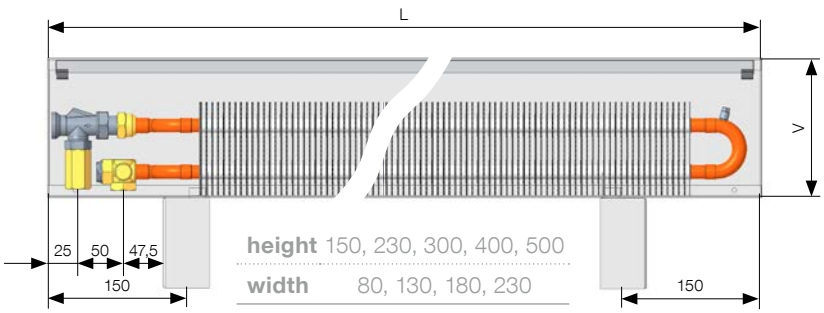



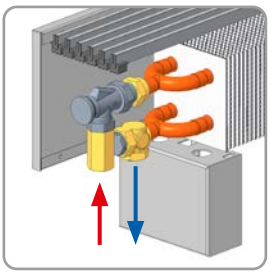


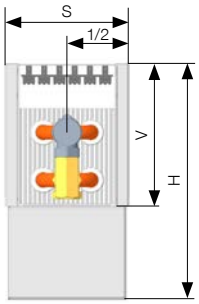



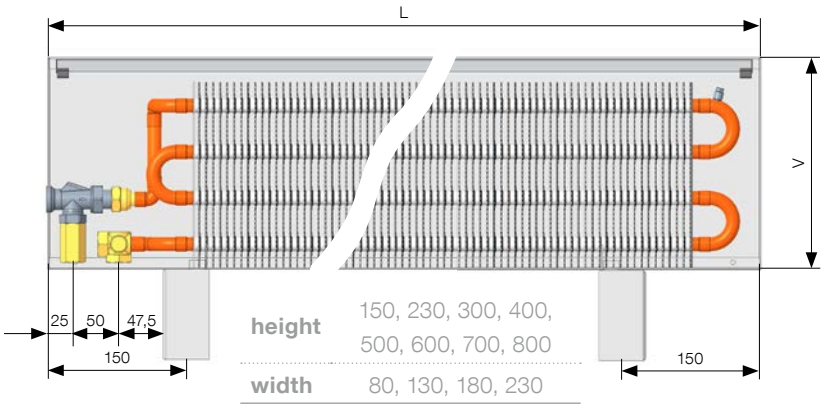



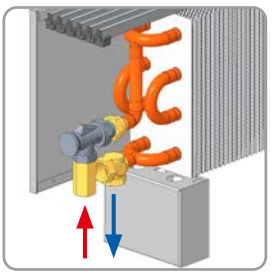


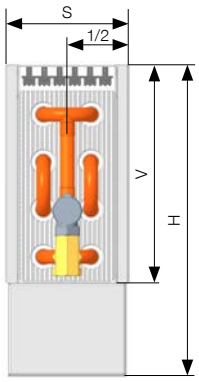




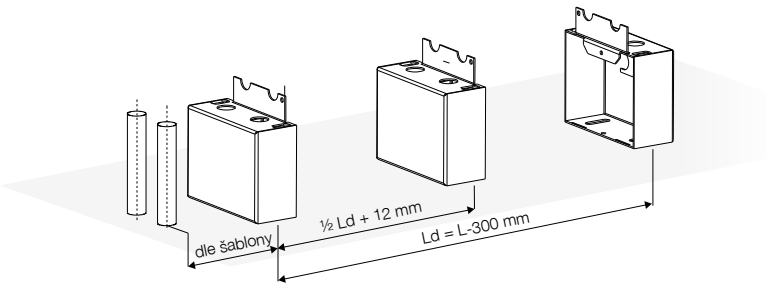





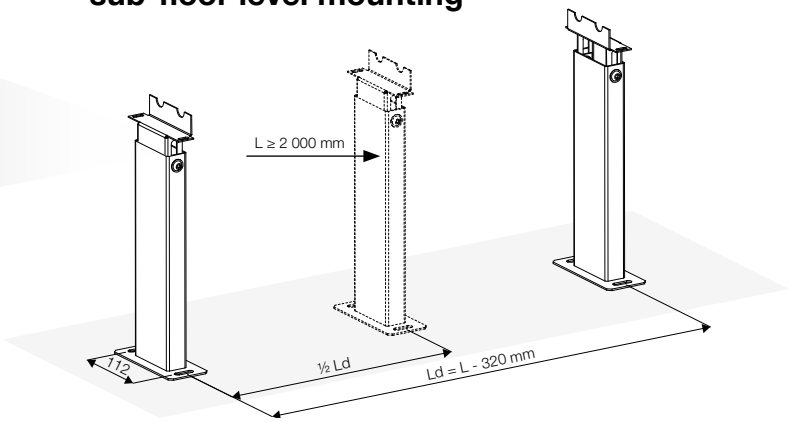

| For all widths (S) 80, 130, 180, 230 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Height (V) | 90 | 150 | 230 | 300 | 500 | 600 | 700 | 800 |
| Total height of assembly incl. floor-level brackets (H) | 190 | 250 | 330 | 400 | 600 | 700 | 800 | 900 |

# MOUNTING

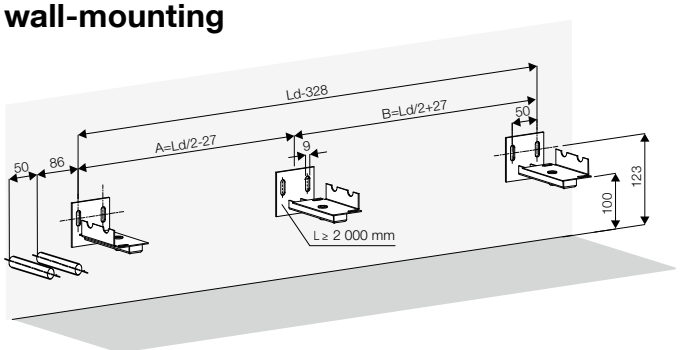
## KORALINE LK free-standing convectors: floor-level mounting

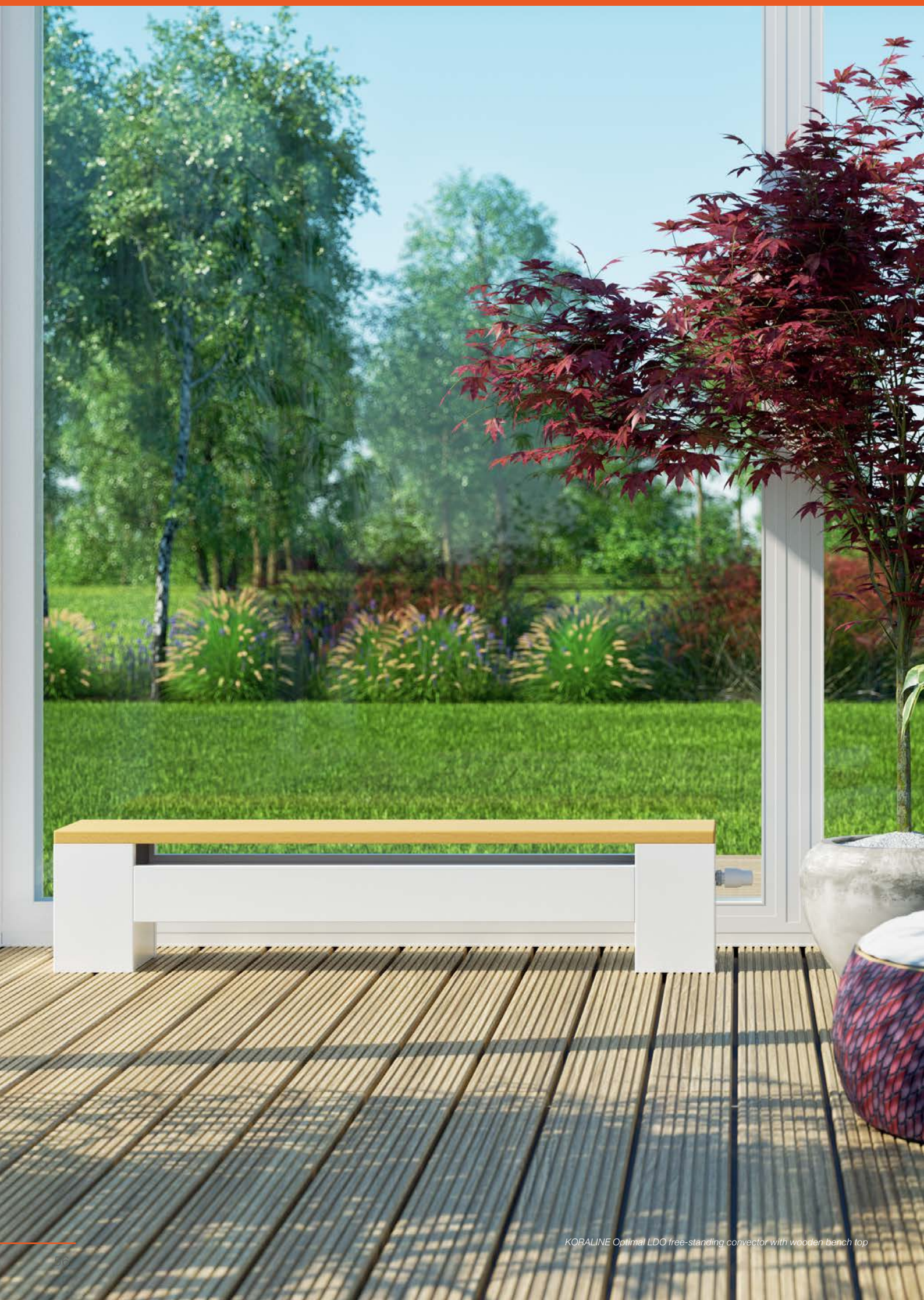



## KORALINE LK free-standing convectors: sub-floor level mounting




## 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
- lockshield (see p. 68)
- 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



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, 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.licon.cz.

## 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
- lockshield (see p. 68)
- 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

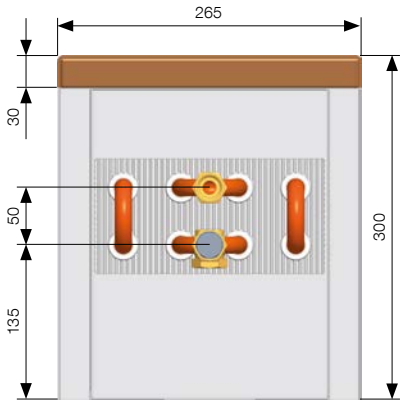
Wooden bench tops are made of purely natural materials, treated with an internationally certified oil finish. To maintain their properties and stability, we recommend that bench tops are regularly treated with a similar product. When using American walnut bench tops in humid environments, we recommend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



American walnut

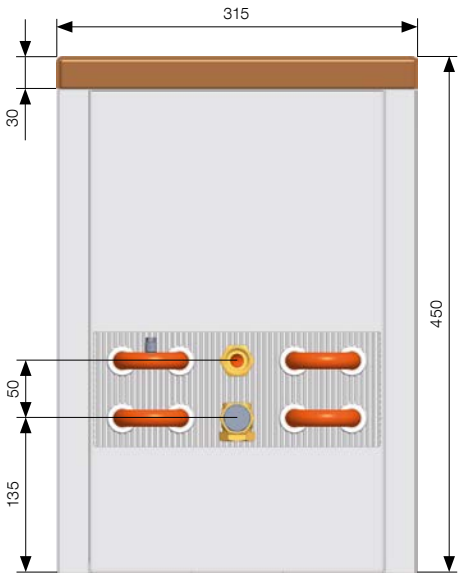
# SUMMARY OF TYPES KORALINE Optimal LDO and KORALINE Pool LDP with wooden bench top

WIDTH
**265 mm**




HEIGHT
**300 mm**

WIDTH
**315 mm**




HEIGHT
**450 mm**

# HEAT OUTPUTS

**Heat output [W] where $t_1/t_2/t_i$ = 75/65/20 °C (Δt=50), and 55/45/20 °C (Δt=30) / EN 442**

| KORALINE with wooden bench top | | | |
|---|---|---|---|
| **Length** | **$t_1/t_2/t_i$ [°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<br>D oak<br>O American walnut | 1 solid wood | - 10 white RAL 9016<br>39 black RAL 9005<br>** see colour chart p. 109<br>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<br>39 black RAL 9005<br>** see colour chart p. 109<br>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

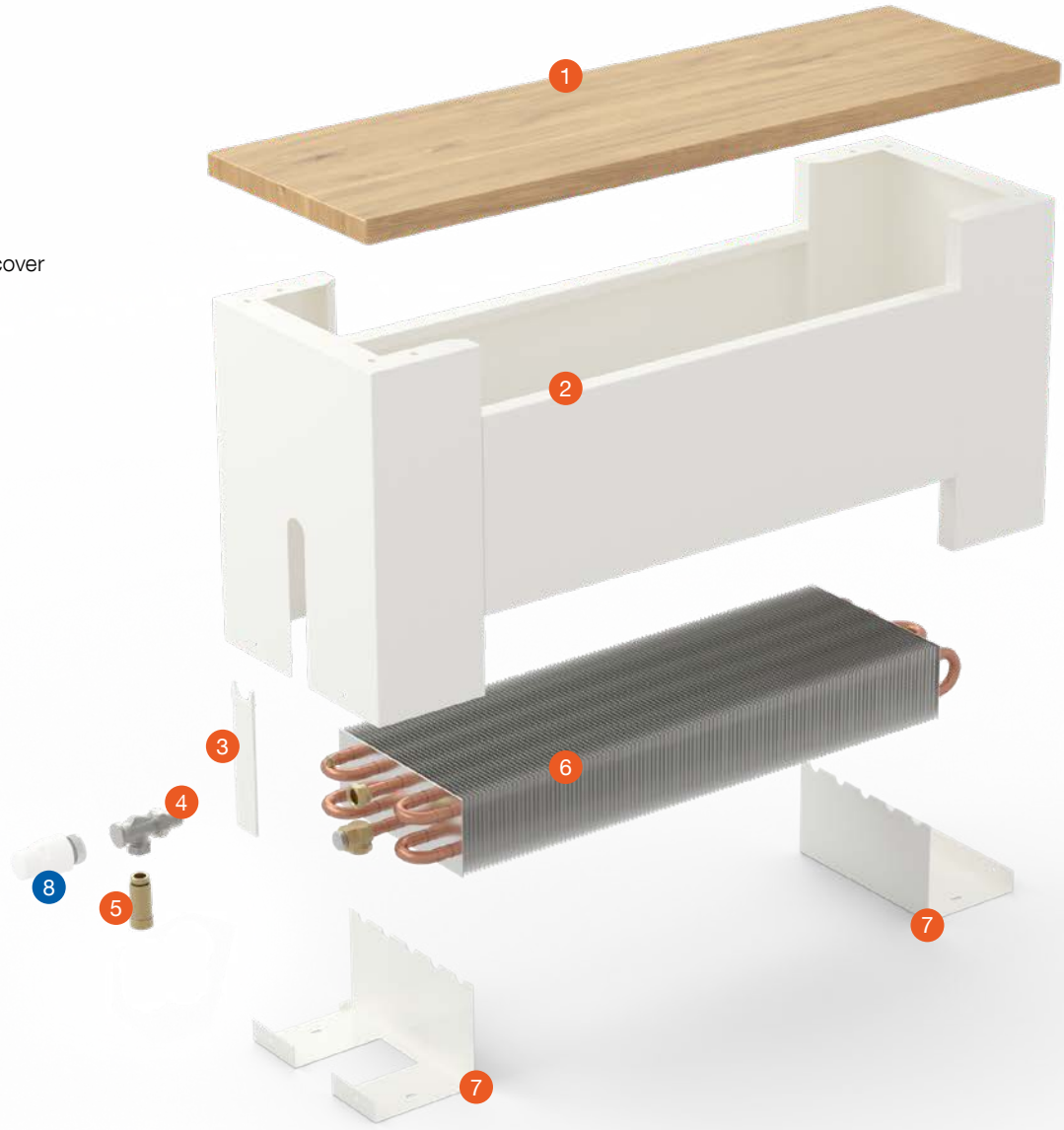


*KORALINE Optimal LDO with American walnut bench top*

## 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

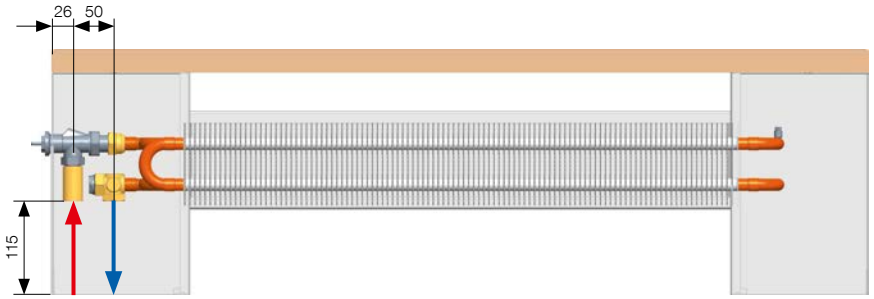
Convectors with wooden bench top installed in humid environments must be cleaned regularly with clean water and dried thoroughly. We recommend the installation of Pool convectors with American walnut bench tops. Bench tops are made from purely natural materials and treated with an internationally certified 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.

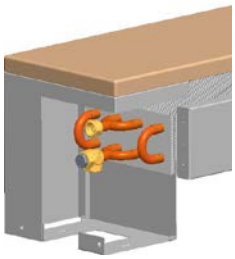
For more detailed guidance and installation instructions for these models, please refer to the installation instructions for KORALINE with wooden bench tops. Bench tops are made of natural materials and therefore slight variations in colour cannot be excluded. The supplier cannot fully guarantee the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

# LOWER CONNECTIONS

HEIGHT
**300 mm**

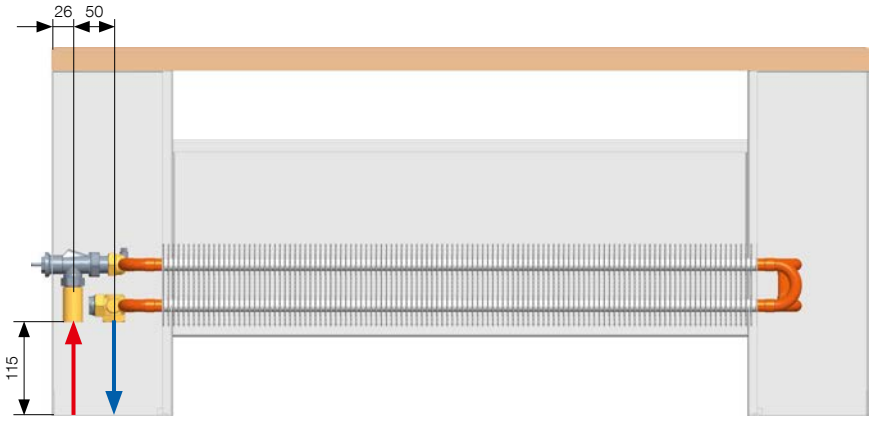
WIDTH
**265 mm**



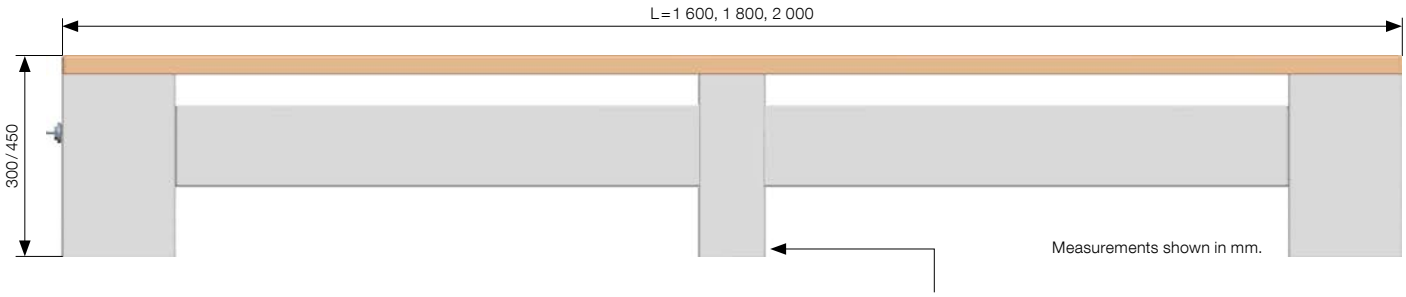



HEIGHT
**450 mm**

WIDTH
**315 mm**



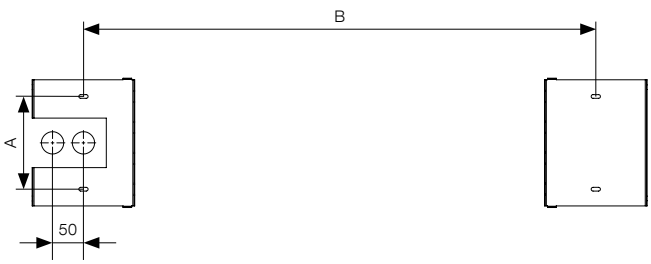



KORALINE free-standing convectors over 1 600 mm in length are supplied with a central leg as standard.

# 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 Basic LKB free-standing convector*

# 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-TEP230-100 (TEP 230 cable 1 m)
  REG-TEP230-300 (TEP 230 cable 3 m)
  REG-TEP230-500 (TEP 230 cable 5 m)

**TEP 24**

- power supply: 24 V DC
- power consumption < 2 W
- **order code:**
  REG-TEP24-100 (TEP 24 cable 1 m)
  REG-TEP24-300 (TEP 24 cable 3 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 1, 3 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



*KORALINE Optimal LKO free-standing convector*

# ACCESSORIES

## Lockshield



- optional accessory
- elbow or straight
- size ½" 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 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 ($m^3/h$)
Ú.O. fully open

## Thermostatic valve



- optional accessory
- elbow or straight
- pre-set $K_v$ values
- size ½" 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 |
|---|---|---|---|---|---|---|
| $K_v$ (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 ($m^3/h$)
$K_{vs}$ maximum flow ($m^3/h$)
Δt = 2K valve proportional band (K)

## SIEMENS RAA21 room thermostat



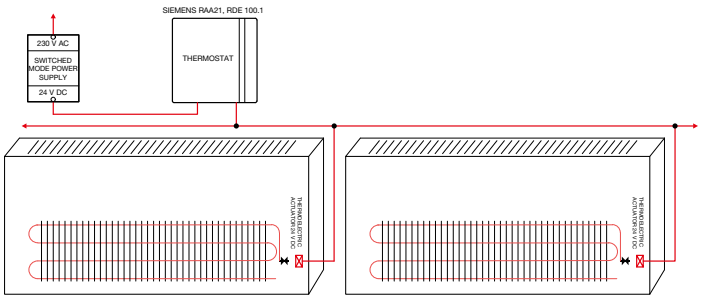

- optional accessory
- for heating
- 2 point ON/OFF control
- switching voltage 24 V DC up to 230 V AC
- gas-filled metal membrane
- the required temperature is set manually using the control dial on the front of the thermostat
- the range of adjustable temperatures may be limited mechanically using 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

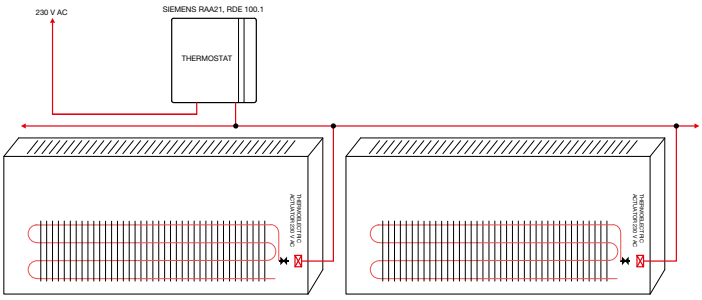



- optional accessory
- for heating
- 2 point ON/OFF
- switching voltage 24 V DC and 230 V AC
- operation modes: comfort, low, protective and automatic with timer program
- adjustable configuration and control parameters
- weekly timer program
- battery powered 3 V DC (2× 1.5 V DC)
- IP 30
- dimensions (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 Power LKW free-standing convector*




*KORALINE Max LKM free-standing convector*

# 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 | | | | | | | |
| 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] | 12.1 | 15.2 | 18.3 | 20.5 | 13.8 | 17.1 | 20.2 | 22.5 | | | | |
| 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] | 15.6 | 19.0 | 22.2 | 24.6 | 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 | | | | |
| Effective part of heat exchanger [mm] | 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**

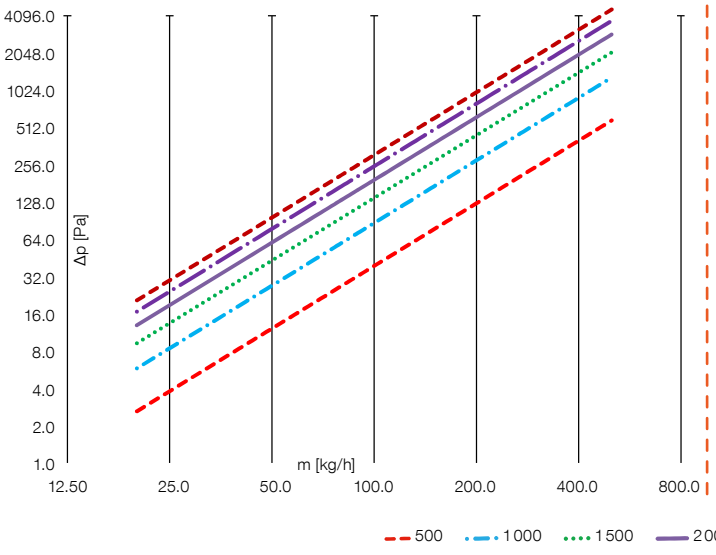
| Length L [mm] | Mass flow rate m [kg/h] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 20 | 40 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 |
| | Heat exchanger pressure losses Δp [Pa] | | | | | | | | | | | |
| 600 | 3 | 10 | 33 | 48 | 95 | 155 | 225 | 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)

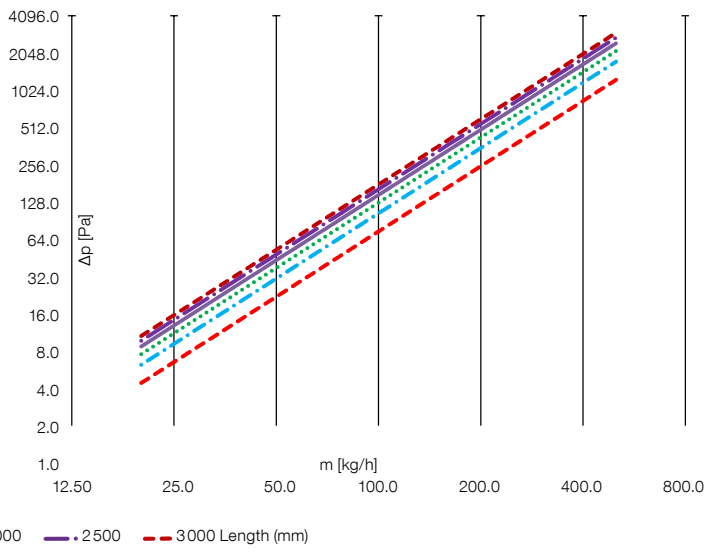
**Optimal LKO 9/18, Basic LKB 9/18, Safe LKS 9/18**

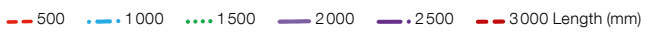
| Length L [mm] | Mass flow rate m [kg/h] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 20 | 40 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 |
| | Heat exchanger pressure losses Δp [Pa] | | | | | | | | | | | |
| 600 | 5 | 16 | 55 | 81 | 165 | 274 | 404 | 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

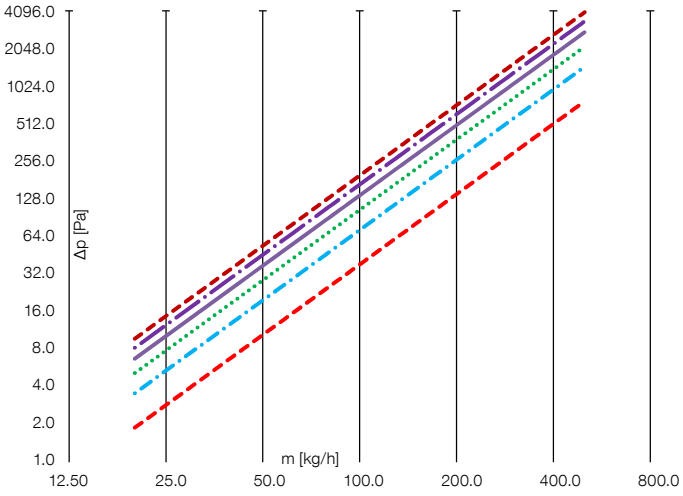
(Height/Width) **Optimal LKO 23/08, 30/08, 40/08, 50/08, 9/23, Basic LKB 9/23, Power LKW 23/08, 30/08, 40/08, 50/08, 60/08, 70/08, 80/08, Max LKM 23/08, 30/08, 40/08, 50/08, 60/08, 70/08, 80/08, Safe LKS 23/08, 30/08, 40/08, 50/08, 9/23**

| 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 |

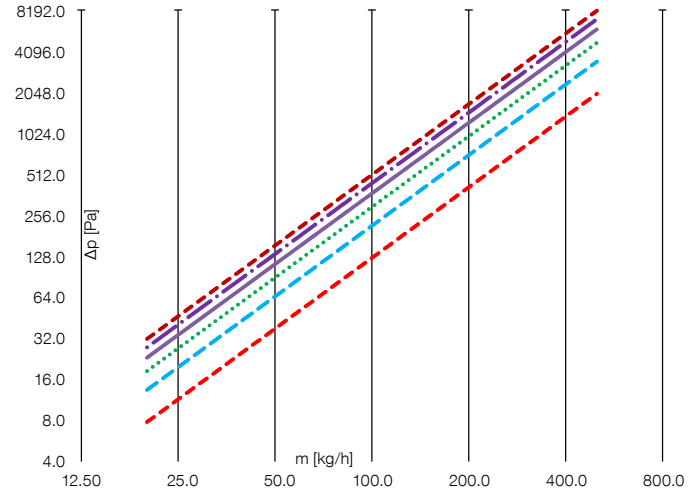
(Height/Width) **Optimal LKO 15/13, 23/13, 30/13, 40/13, 50/13, Basic LKB 15/13, 23/13, 30/13, 40/13, 50/13, Safe LKS 15/13, 23/13, 30/13, 40/13, 50/13**

| 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**




500 1000 1500 2000 2500 3000 Length (mm)

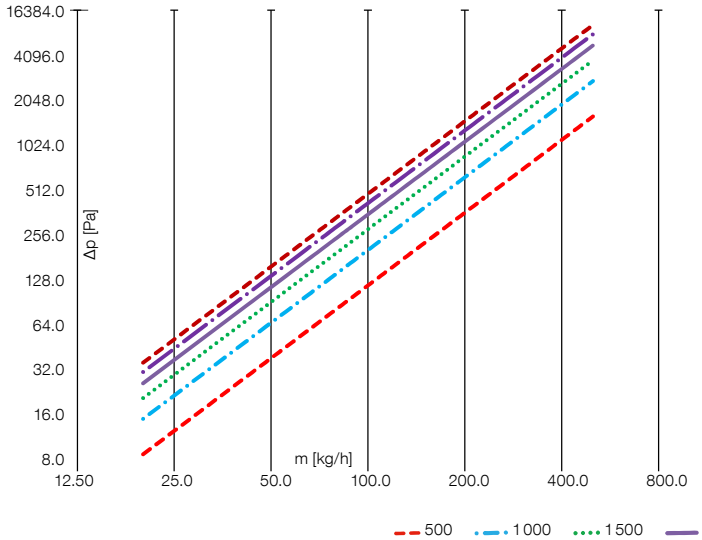
(Height/Width) **Optimal LKO 15/18, 23/18, 30/18, 40/18, 50/18, Basic LKB 15/18, 23/18, 30/18, 40/18, 50/18, Safe LKS 15/18, 23/18, 30/18, 40/18, 50/18**

| 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 |

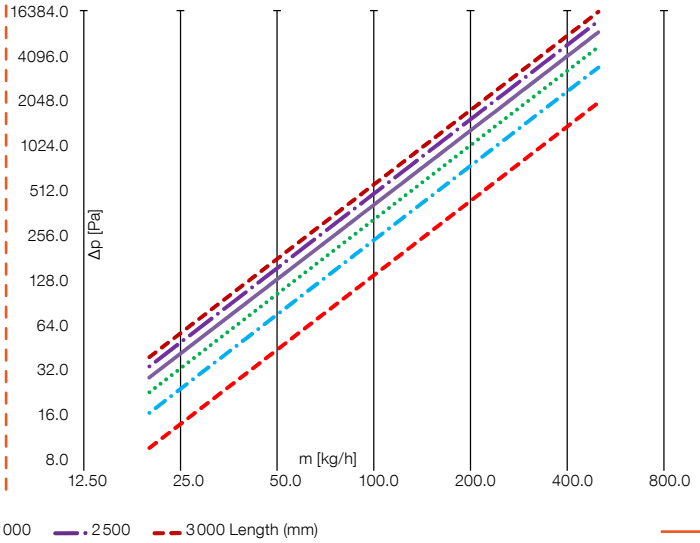
(Height/Width) **Optimal LKO 15/23, 23/23, 30/23, 40/23, 50/23, Basic LKB 15/23, 23/23, 30/23, 40/23, 50/23, Safe LKS 15/23, 23/23, 30/23, 40/23, 50/23**

| 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**




500 1000 1500 2000 2500 3000 Length (mm)

# KORALINE CONVECTOR PRESSURE LOSSES

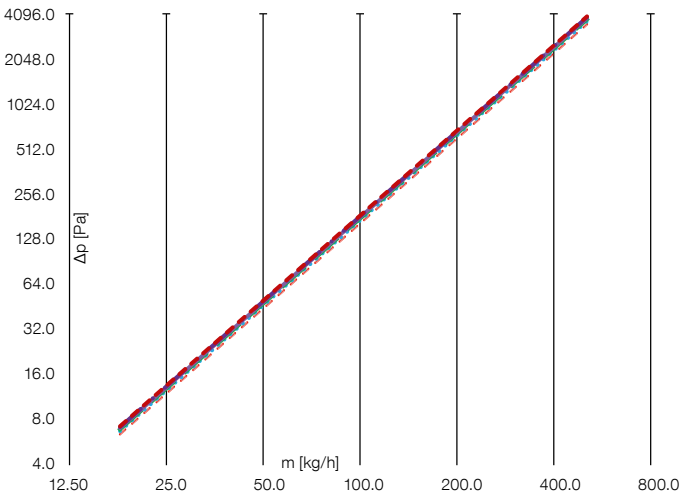
(Height/Width) **Power LKW 23/13, 30/13, 40/13, 50/13, 60/13, 70/13, 80/13,**
**Combi LKC 23/13, 30/13, 40/13, 50/13, Max LKM 23/13, 30/13, 40/13, 50/13, 60/13, 70/13, 80/13**

| 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 |

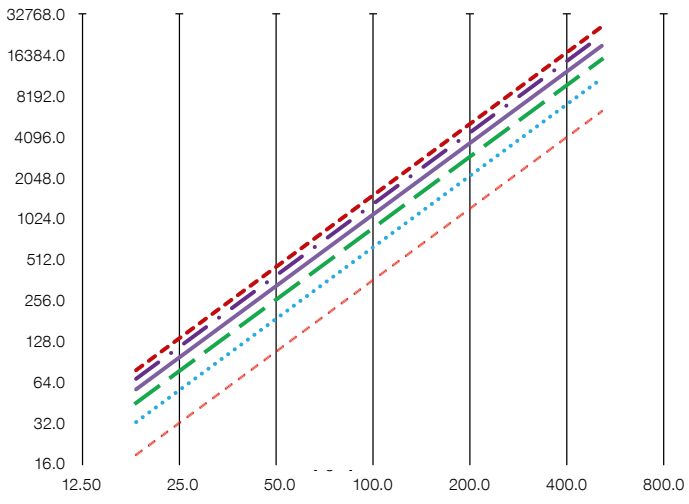
(Height/Width) **Power LKW 23/18, 30/18, 40/18, 50/18, 60/18, 70/18, 80/18,**
**Combi LKC 23/18, 30/18, 40/18, 50/18, Max LKM 23/18, 30/18, 40/18, 50/18, 60/18, 70/18, 80/18**

| 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**

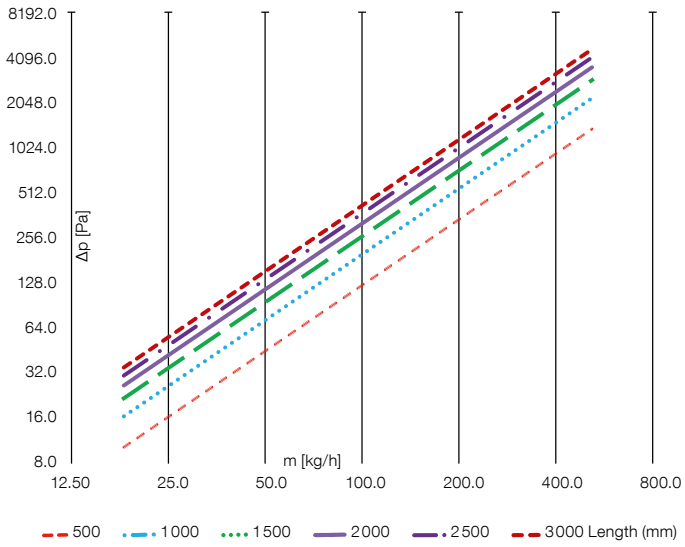



500 1000 1500 2000 2500 3000 Length (mm)

(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

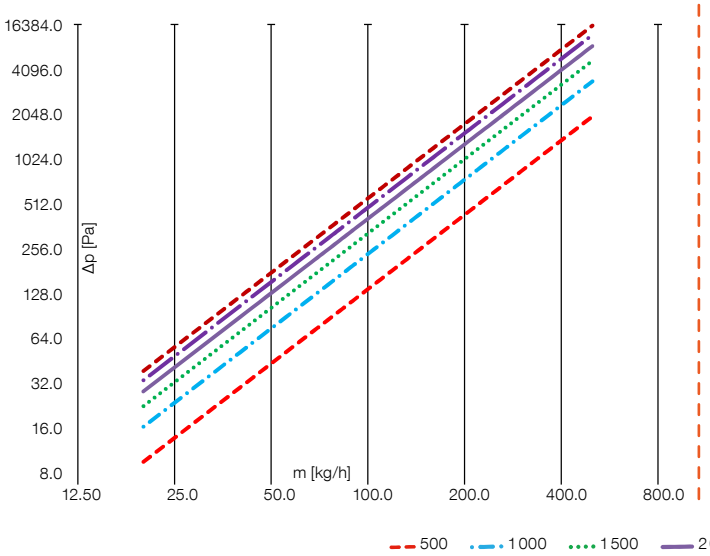
(Height/Width) **KORALINE LD 30/26**

| 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 |

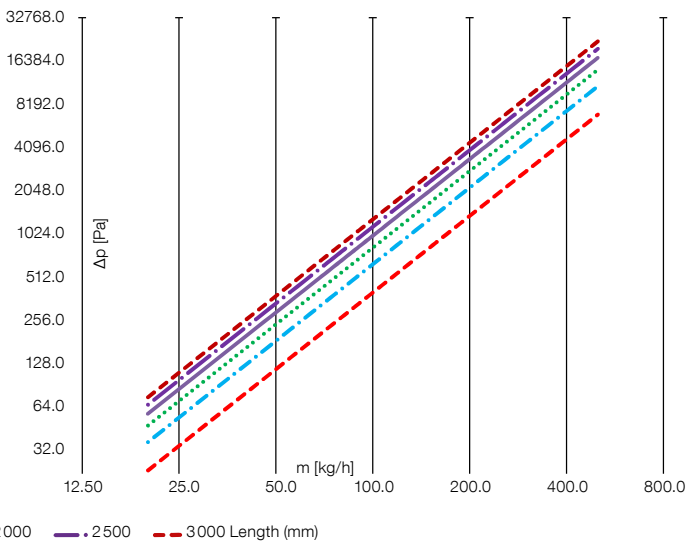
(Height/Width) **KORALINE LD 45/31**

| 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**




500 1000 1500 2000 2500 3000 Length (mm)

# 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 ($t_1/t_2/t_3$) 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 $\Delta t = \frac{(t_1 + t_2)}{2} - t_i$

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 |
| **$t_i$** | [°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 $t_i$ = 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 $\Delta t = \frac{(t_1 + t_2)}{2} - t_i = \frac{(60 + 50)}{2} - 22 = 33$ 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 LKO free-standing convector*



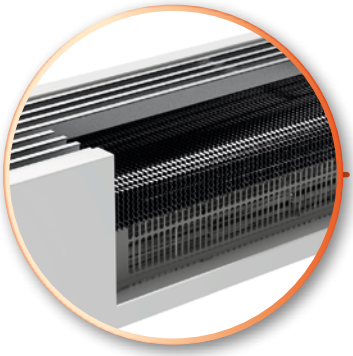
*KORALINE Optimal-V LVO with forced convection and aluminium silver elox grille*

# 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.

OPTIMIZED CONVECTION



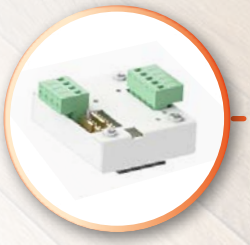
## INCREASED THERMAL OUTPUT

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

HEAT PUMP SYNERGY

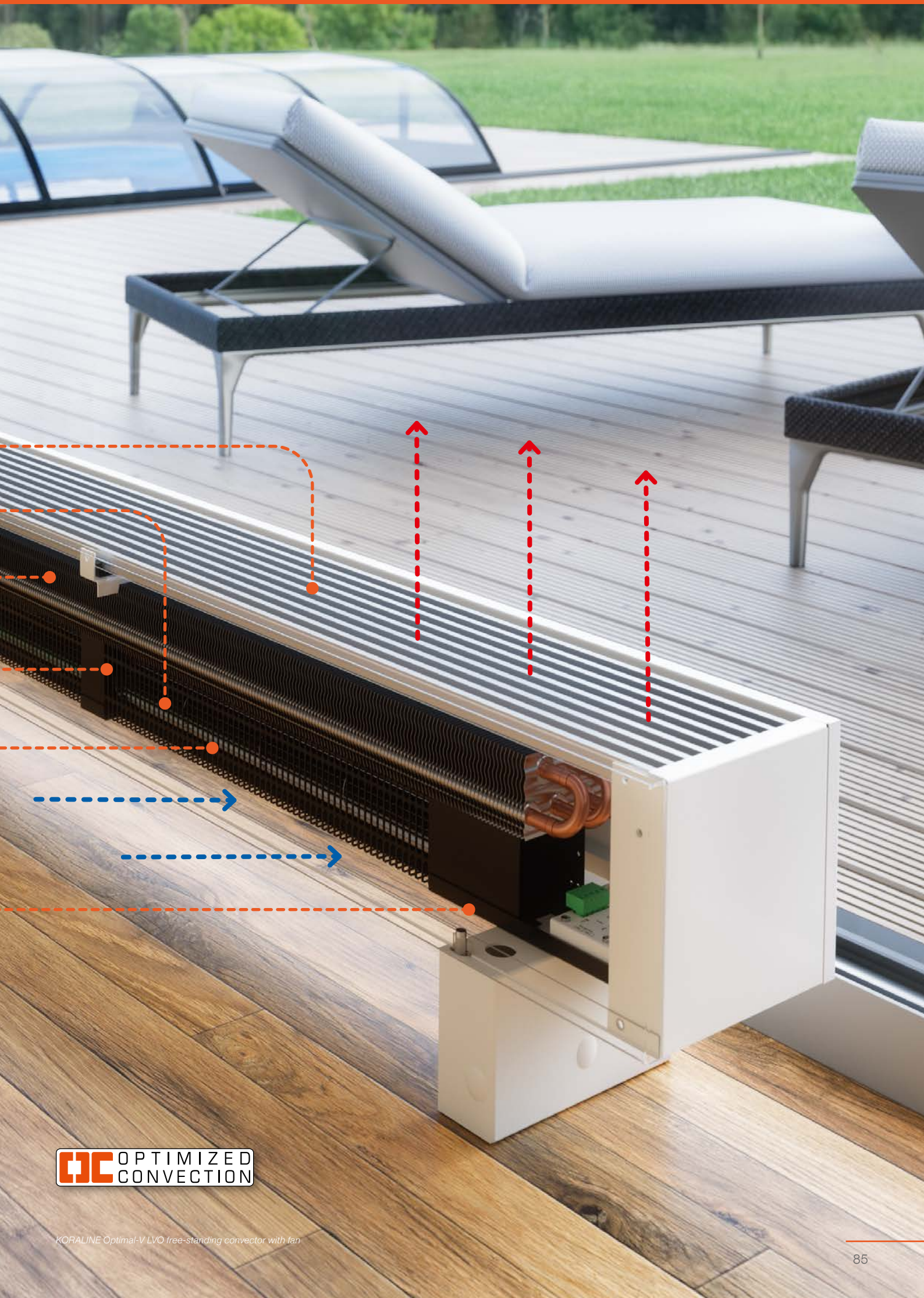
## SUITABLE FOR LOW TEMPERATURE SYSTEMS

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

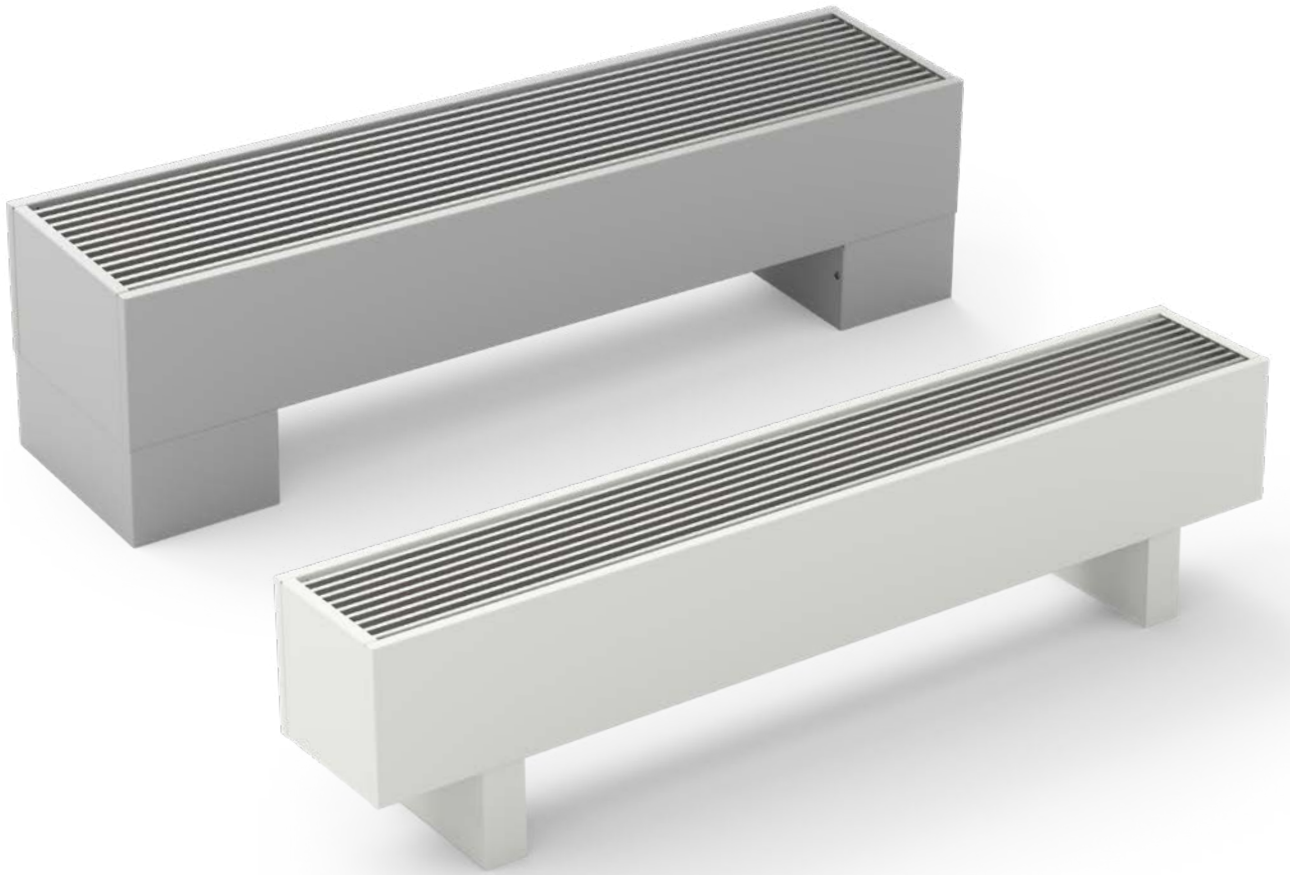


## GUARANTEED OUTPUT

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




*KORALINE Optimal-V LVO free-standing convector with fan*



# 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** | 180, 230 mm |
| **Length** | 900, 1 200, 1 600, 2 000, 2 400, 2 800 mm |
| **Output** | from 209 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** | recommended bottom right connection |

* according to inlet water temperature



OPTIMIZED CONVECTION

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

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

## Optional accessories

- further RAL lacquers for casings available
- floor-level bracket casings (see p. 93)
- lockshield (see p. 96)
- 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)
- DC voltage supply (see p. 96)
- R-Box (viz str. 96)

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

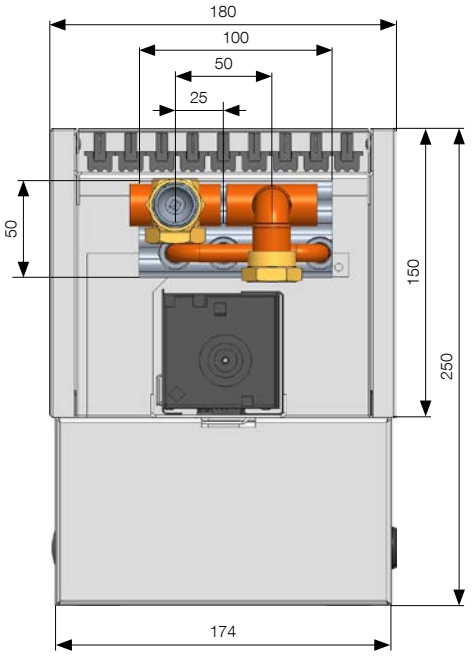
HEAT PUMP SYNERGY

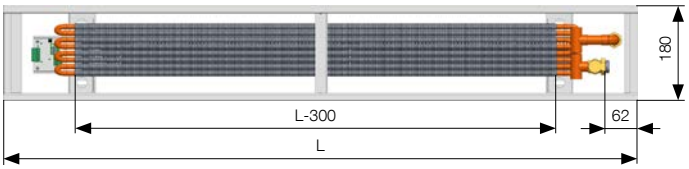
# KORALINE Optimal-V LVO

## 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] 75/65/20 °C | Heat output [W] 55/45/20 °C | Power consumption [W] | Acoustics Sound pressure [dB(A)] | Acoustics 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**

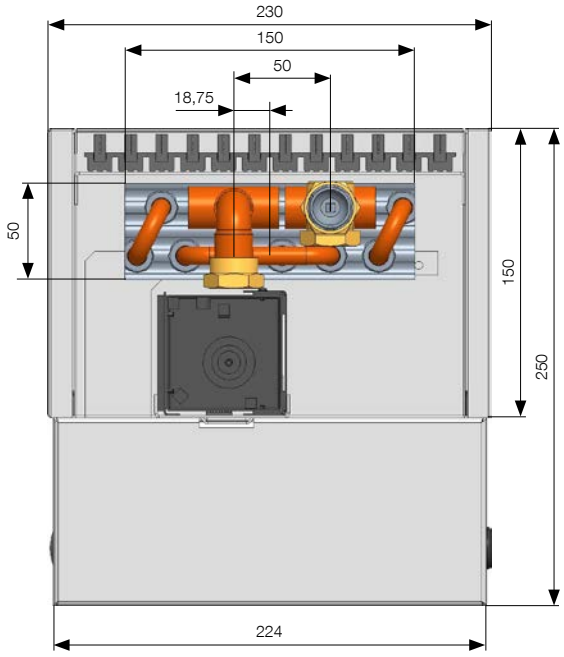
Correction coefficient p. 90, Assembly p. 91, Regulation and accessories p. 92, Colour chart p. 109

# KORALINE Optimal-V LVO

## height 150 mm/width 230 mm

### Specifications

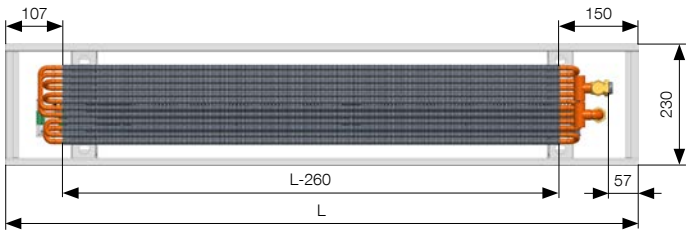
| | |
|---|---|
| **Height** | 150 mm |
| **Width** | 230 mm |
| **Length** | 900, 1 200, 1 600, 2 000, 2 400, 2 800 mm |
| **Heat exchanger height** | 50 mm |
| **Heat exchanger width** | 150 mm |
| **Heat exchanger effective length** | L - 260 mm |
| **Fan impeller diameter** | 40 mm |
| **Connecting 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] 75/65/20 °C | Heat output [W] 55/45/20 °C | Power consumption [W] | Acoustics Sound pressure [dB(A)] | Acoustics 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**

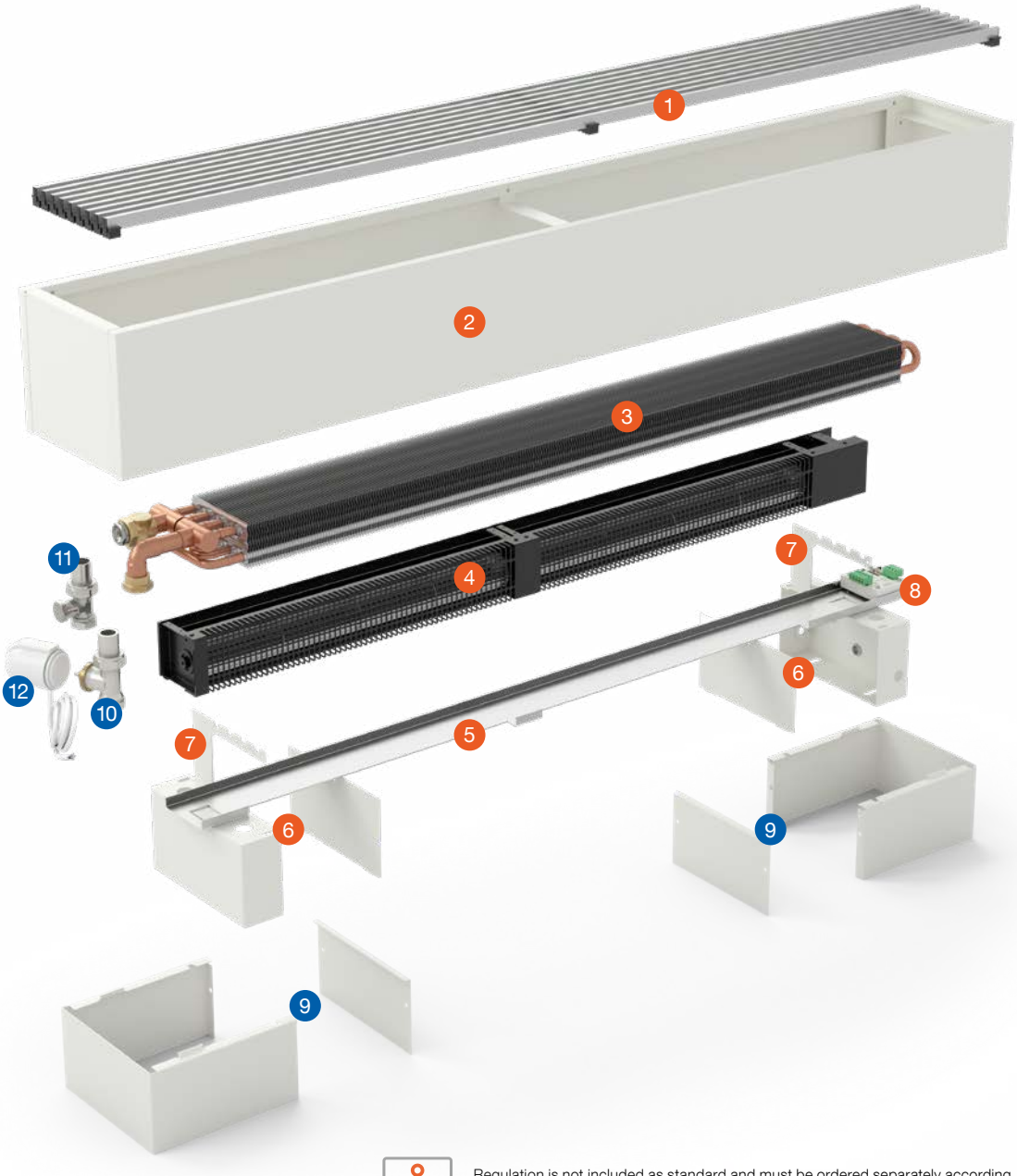
Correction coefficient p. 90, Assembly p. 91, Regulation and accessories p. 92, Colour chart p. 109

# 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. lockshield
11. thermostatic valve
12. thermoelectric actuator

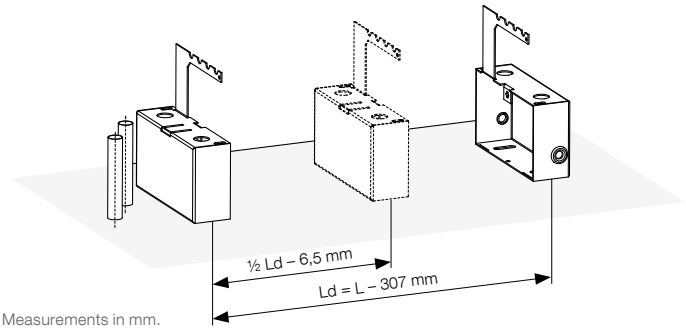
● Standard contents
● Summary of optional KORALINE Optimal-V LVO accessories, see p. 87

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.




Measurements in mm.

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.

The KORALINE wall-mounted convectors are not designed for sitting or loading. These activities can lead to damage to the device, reduce its efficiency, and increase the risk of accidents. For safe and efficient heating, it is always necessary to ensure that the convector remains free and the exhaust cover grille is not covered.

# 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<br>9 other RAL colour | S steel | A aluminium | 1 elox silver | - 10 white RAL 9016<br>39 black RAL 9005<br>** see colour chart p. 109<br>99 other RAL olour | - 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.



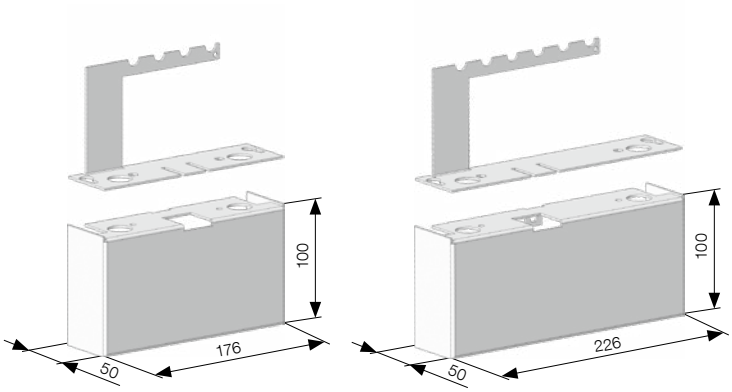
# Regulation, Accessories, Technical Parameters and Acoustics

# 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

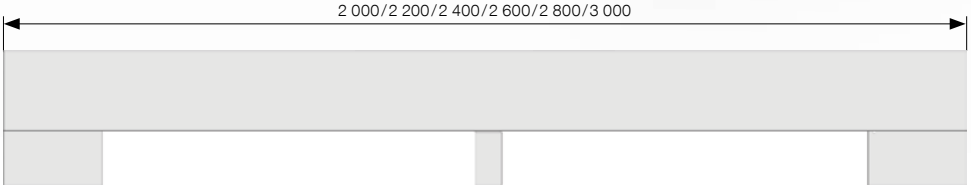
Floor-level bracket height above floor level for all KORALINE models is 100 mm.

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

## Floor-level bracket casing

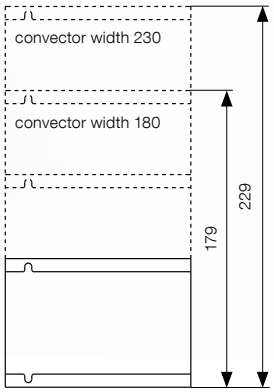
- optional accessory
- floor-level bracket casings are designed to cover connections and the edges of floor-level brackets, and must be ordered in pairs






## 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 unitx 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.

## 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.

## 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 commisioned 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, eg. for termostat installation out of publicly accessible space or for installation in humid environments
- **order code:** REG-RDG260KN
- can be commisioned 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 1, 3 and 5 m
- closed without voltage
- operating voltage 24 V DC
- electrical consumption <2 W
- **order code** (1 m cable): REG-TEP24-100
- **order code** (3 m cable): REG-TEP24-300
- **order code** (5 m cable): REG-TEP24-500

# 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 ($m^3/h$)
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

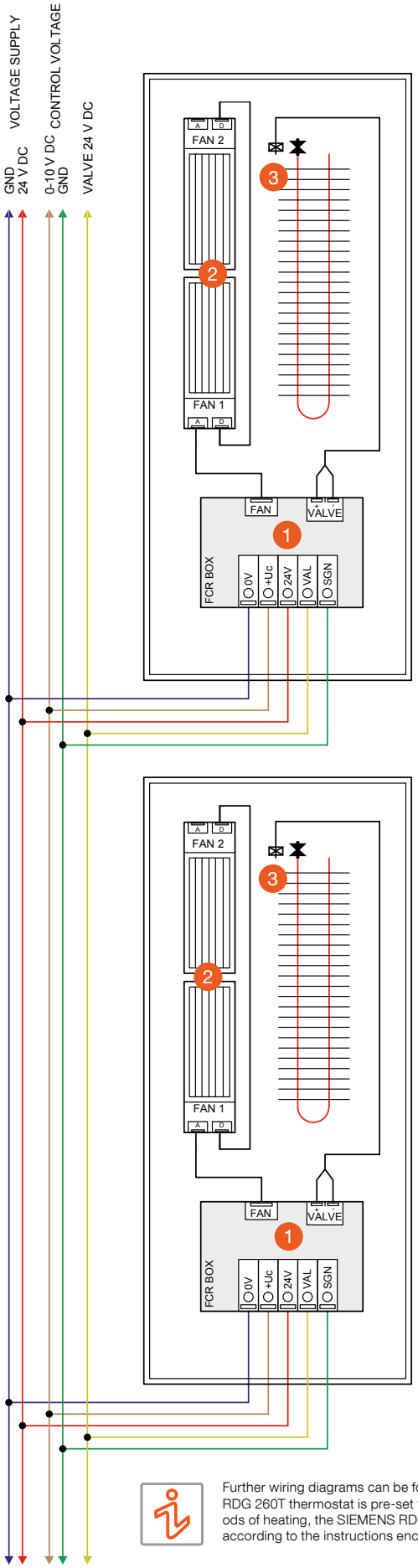
| Pre-set | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| $K_v$ (Δt = 2K) | 0.10 | 0.20 | 0.30 | 0.40 | 0.50 | 0.60 |
| $K_{vs}$ | 0.10 | 0.20 | 0.30 | 0.40 | 0.57 | 0.80 |

$K_v$ flow coefficient ($m^3/h$)
$K_{vs}$ maximum flow ($m^3/h$)
Δt = 2K valve proportional band (K)

# CONVECTOR WIRING DIAGRAMS

## Basic diagram connection for convectors KORALINE Optimal-V LVO
**Heating**

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



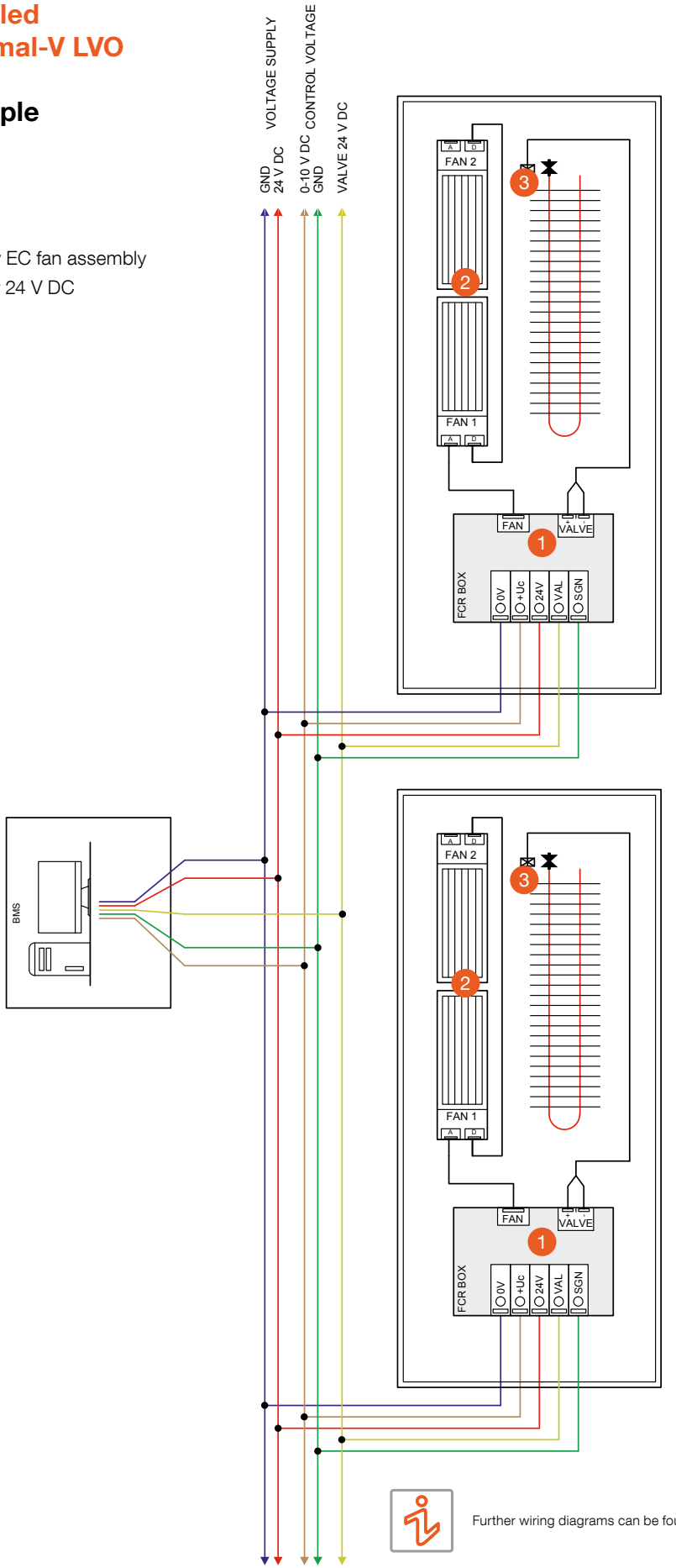

Further wiring diagrams can be found at **www.licon.cz**, or upon request. The RDG 260T thermostat is pre-set for 2-pipe heating systems. For alternative methods of heating, the SIEMENS RDG 260T or RAB 21-DC thermostats must be set according to the instructions enclosed, or see downloads at **www.licon.cz**.

# CONVECTOR WIRING DIAGRAMS

## For BMS controlled KORALINE Optimal-V LVO convectors

### Heating by multiple power sources

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

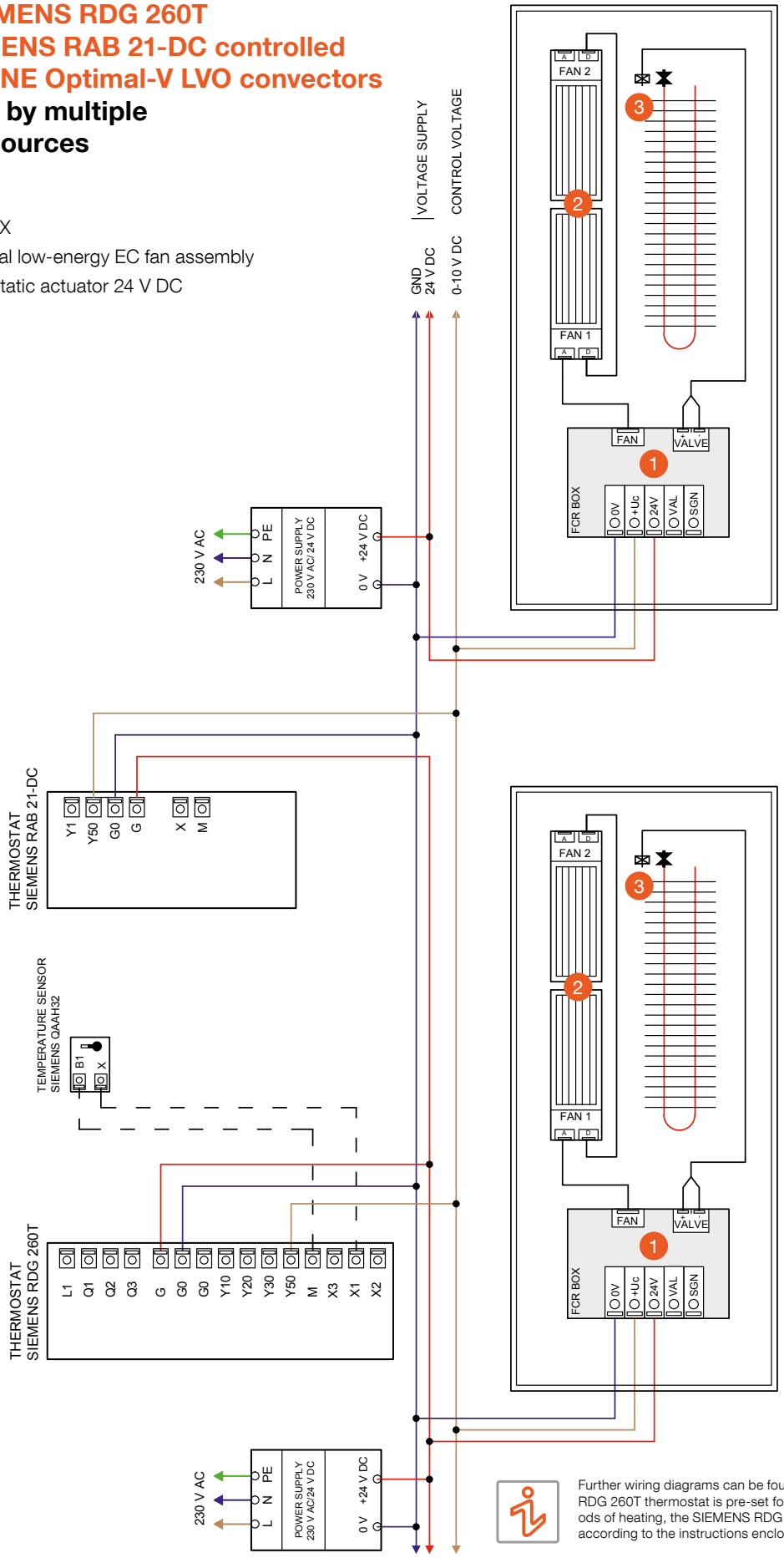



Further wiring diagrams can be found at **www.licon.cz**, or upon request.

# For SIEMENS RDG 260T or SIEMENS RAB 21-DC controlled KORALINE Optimal-V LVO convectors

## Heating 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:

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

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

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

Optional 11× thermoelectric actuator – 11 × 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+9+22=109 W + increase by a reserve of 20%.

Required power supply size: 150 W.



*KORALINE Optimal VLVO free-standing convectors*

# General product information

# GENERAL PRODUCT INFORMATION

## Quality

LICON 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).

## 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 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.

## Maintenance

The KORALINE wall-mounted convectors are not designed for sitting or loading. These activities can lead to damage to the device, reduce its efficiency, and increase the risk of accidents. For safe and efficient heating, it is always necessary to ensure that the convector remains free and the exhaust cover grille is not covered. 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**.

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



*KORALINE Combi LKC free-standing convectors*

# SUMMARY OF ACCESSORIES

## 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 WKO, WKW | 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 | – | – | – | – | – | – |
| Temperature sensor QAA32 | REG-S-QAA32 | | | | | | |
| TEP 24 thermoelectric actuator 1 m cable | REG-TEP24-100 | | | | | | |
| TEP 24 thermoelectric actuator 3 m cable | REG-TEP24-300 | | | | | | |
| TEP 24 thermoelectric actuator, 5 m cable | REG-TEP24-500 | | | | | | |
| TEP 230 thermoelectric actuator, 1 m cable | REG-TEP230-100 | | | | | | |
| TEP 230 thermoelectric actuator, 3 m cable | REG-TEP230-300 | | | | | | |
| TEP 230 thermoelectric actuator, 5 m cable | REG-TEP230-500 | | | | | | |
| Pattress box | REG-IB | | | | | | |
| R-BOX | 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

## 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 | | | | – |
| Temperature sensor QAA32 | REG-S-QAA32 | | | | – |
| TEP 24 thermoelectric actuator 1 m cable | REG-TEP24-100 | | | | – |
| TEP 24 thermoelectric actuator 3 m cable | REG-TEP24-300 | | | | – |
| TEP 24 thermoelectric actuator, 5 m cable | REG-TEP24-500 | | | | – |
| TEP 230 thermoelectric actuator, 1 m cable | REG-TEP230-100 | – | – | – | – |
| TEP 230 thermoelectric actuator, 3 m cable | REG-TEP230-300 | – | – | – | – |
| TEP 230 thermoelectric actuator, 5 m cable | REG-TEP230-500 | – | – | – | – |
| Pattress box | REG-IB | | | | – |
| R-BOX | 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

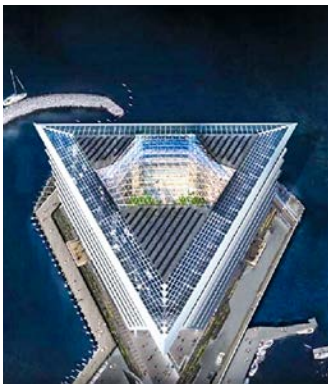

REG-PS240


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,
Reykjavík, 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



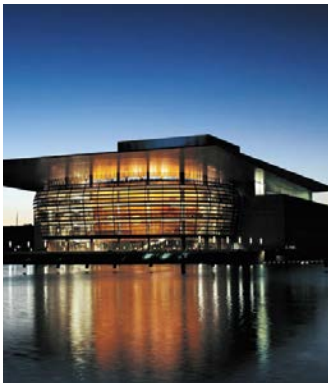
Technical University,
Liberec, Czech Republic



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

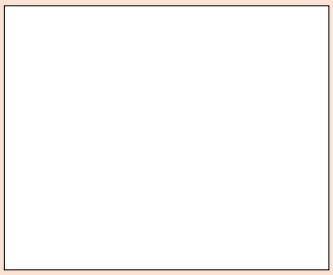


Trinity Office Centre,
Brno, Czech Republic



*KORALINE Max LKM free-standing convector*

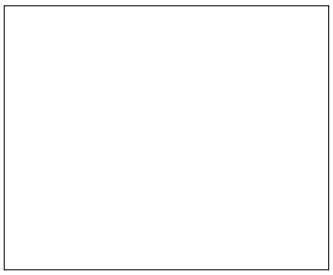
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White RAL 9016



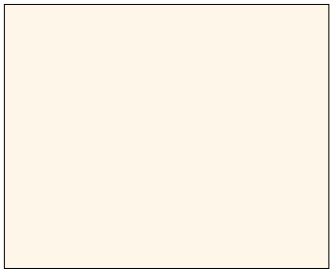
code 39
Black RAL 9005



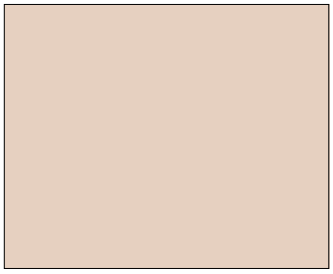
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White texture RAL 9016



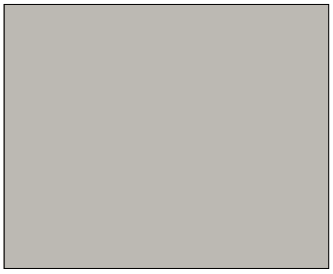
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Black texture RAL 9005



code 14
Jasmine



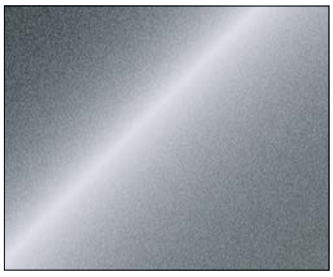
code 16
Bahama



code 22
Manhattan



code 26
Pergamon



code 32
Anthrazit Metallic



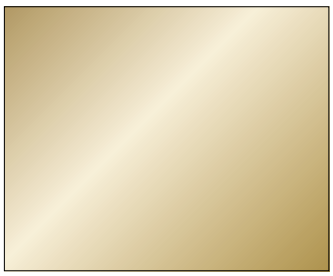
code 35
Silber RAL 9006



code 37
Red RAL 3001



code 40
Alloy Black



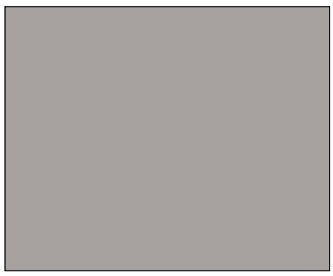
code 42
Gold



code 45
Pearl Brown



code 47
RAL 9007



code 48
RAL 9006



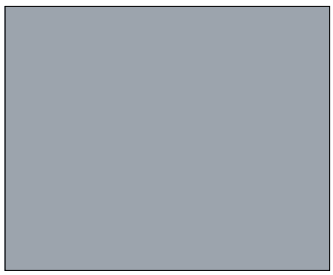
code 49
RAL 7024



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.

KORALINE




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