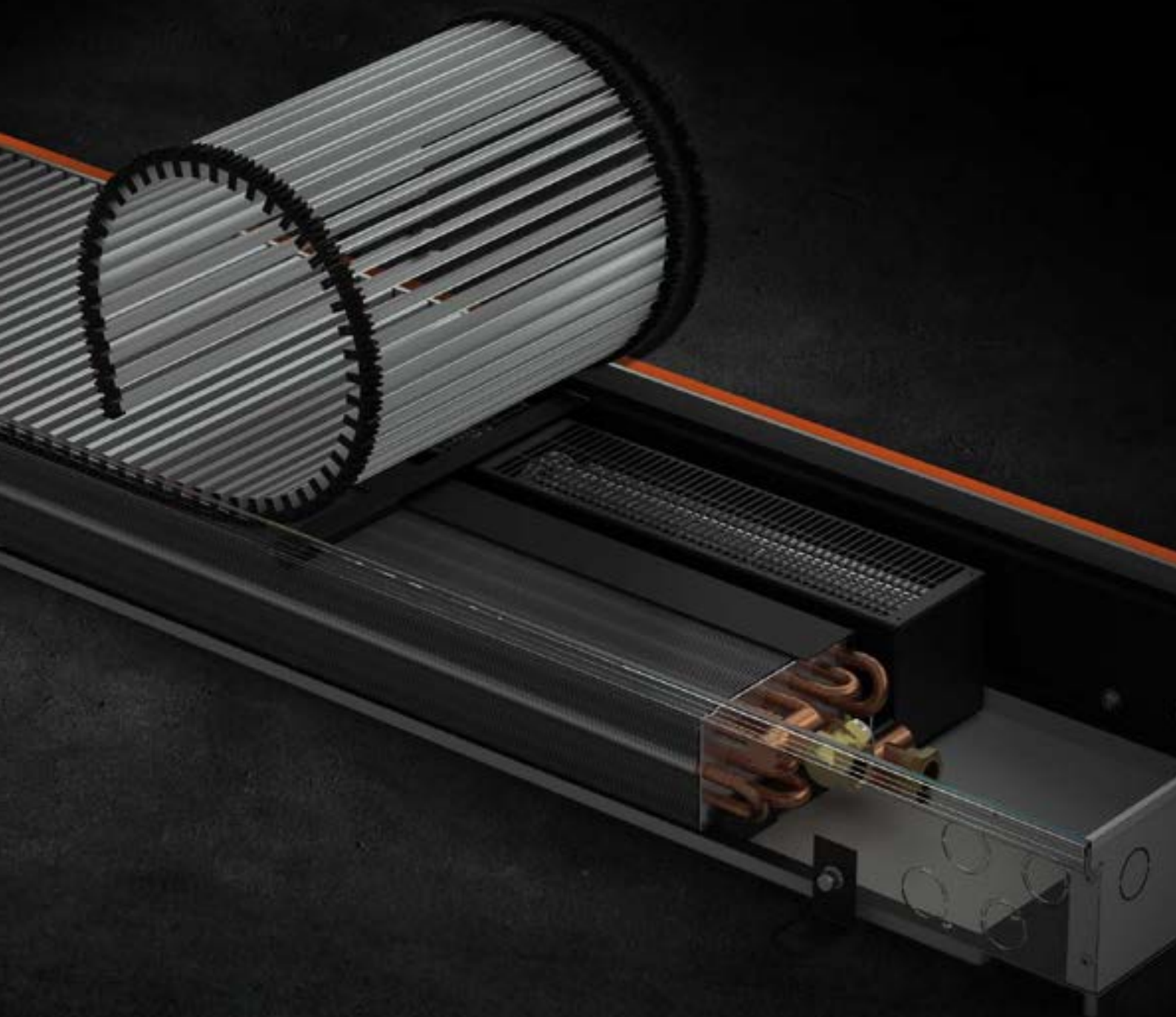


KORAFLEX

Trench heaters



member of KORADO Group



10/2026



TRENCH HEATERS
KORAFLEX



FREE-STANDING
CONVECTORS
KORALINE



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 wide range of products under a single brand, enabling comprehensive solutions for all types of buildings and spaces. These contribute to maximum compatibility, simplicity of design and service, individual solutions and financial savings.

IF YOU WANT MORE...

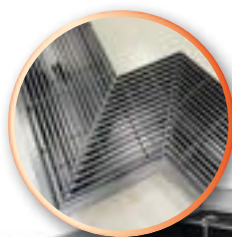
Safe connection

Floor convectors with a fan feature an integrated and safe connection solution to the 230 V AC mains. This allows actuators or a condensate pump to be connected directly from the convector, simplifying installation and ensuring reliable system operation.



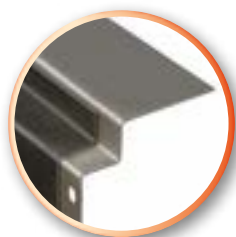
Design shapes

Floor convectors can also be manufactured in non-standard shapes – corner, curved or other variants – according to the architectural design of the interior and the specific requirements of your project (see p. 86).



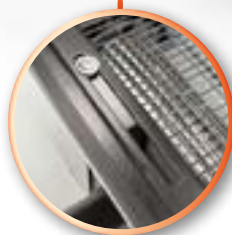
Double bottom

The double-bottom solution maintains the compact dimensions of the trench heater and supports more even airflow. It helps stabilise temperature differences, reduce condensate formation, and ensure a comfortable indoor climate. The result is a more efficient and reliable operation.



Custom-made solution

For each project, we prepare detailed production documentation according to which the trench heater is designed and manufactured exactly to the individual requirements. This ensures that the resulting solution fully meets the customer's expectations as well as the room's architectural concept.



Airflow control

An integrated sliding flap enables simple and precise adjustment of the supplied airflow volume. Easy operation ensures stepless control of the airflow and efficient operation of the ventilation system – for maximum comfort.



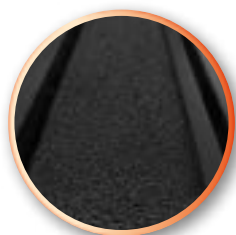
Condensate tray

The condensate tray made of stainless steel is used to collect and drain the condensate produced during cooling. It is fully removable, which makes cleaning and maintenance easier. Its corrosion resistance ensures a long service life. Optionally, it can be supplemented with active condensate drainage.

Do you have another request?
Let's make it happen together!

Dust filter

The dust filter ensures cleaner and healthier indoor air. It captures fine dust particles and allergens, thereby increasing overall comfort. On request, it can be installed above the fan, where it contributes to improved air quality in residential, office, and healthcare spaces.



Dimensional flexibility

Floor convectors and heat exchangers are manufactured in a wide range of dimensions – the length, width, and shape can be adapted to the specific requirements of your project. Thanks to flexible production, we provide precise and aesthetically refined solutions for both standard and individually designed spaces.



Supports for raised floors

Supports made of galvanised steel ensure stable and efficient installation of floor convectors in raised floors with a depth of up to 500 mm. They provide a reliable and aesthetic solution for modern interiors. (see p. 94).



Pre-assembly of valves and flexible hoses

The convectors can be supplied with pre-assembled valves and flexible hoses, which significantly simplifies and speeds up installation on site. Before commissioning, a leak test must be carried out on site.



Ventilation connection

Trench heaters can be equipped with preparation for connection to a ventilation system, ensuring efficient air distribution and circulation indoors. Depending on project requirements, the connection can be implemented via a round or rectangular flange or via an opening in the construction.



Active condensate drainage

In locations where no natural drainage (slope) or direct connection to a drain is possible, active condensate drainage is a reliable solution. It enables condensate to be discharged over a distance of up to 5 m and ensures trouble-free operation even in more demanding installations.



Damping caps

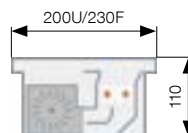
The damping caps used on the supports for raised floors reduce the transmission of vibrations and suppress unwanted noise caused by minor unevenness in the floor. This ensures quiet and stable operation of the entire system.

PRODUCT PORTFOLIO KORAFLEX

Fully electric

KORAFLEX Amper FVA new

Fully electric trench heaters with an aluminium elox grille.



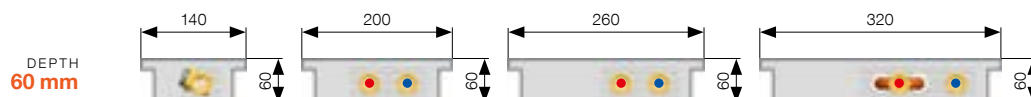
see p. 72–74

With natural convection

KORAFLEX Thin FKT

Trench heaters with the lowest installation depth, available in the following versions:

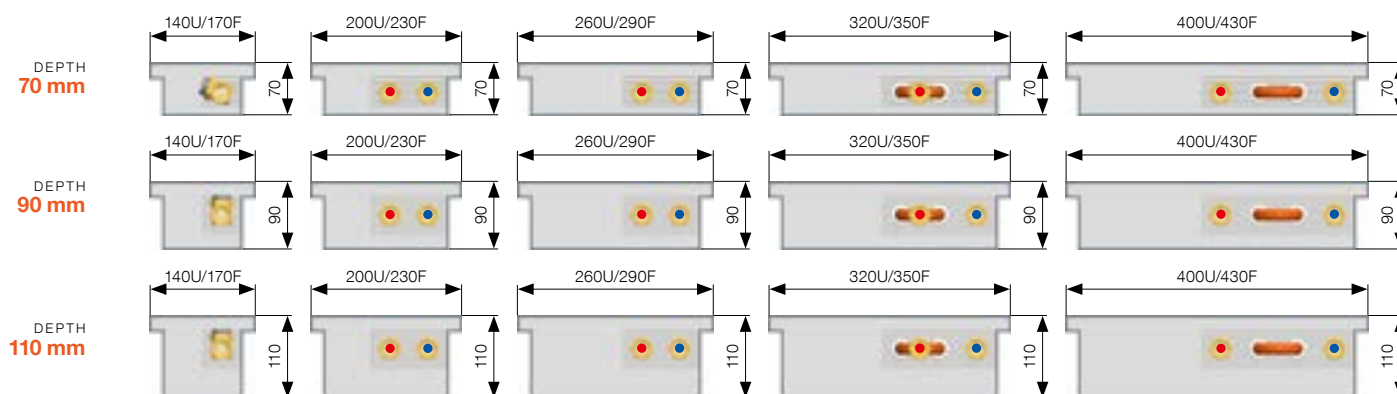
Economic – heat exchanger without surface treatment, **Exclusive** – heat exchanger lacquered in black (RAL 9005).



see p. 24–26

KORAFLEX Basic FKB

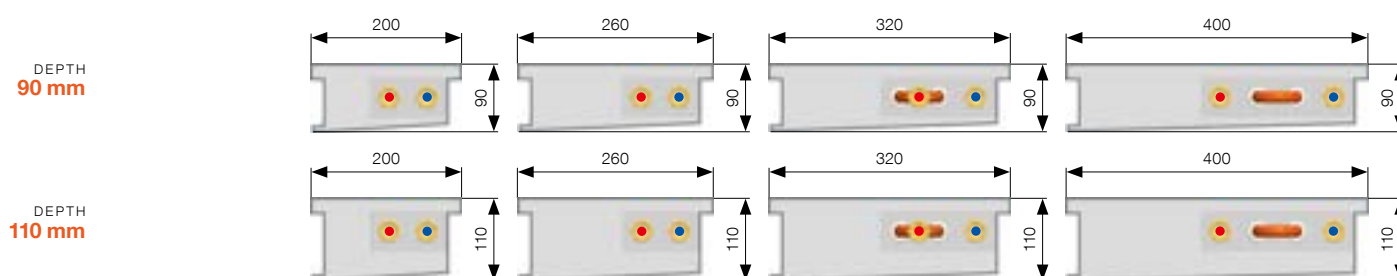
Economic version of the best-selling sizes. The trench heater is manufactured from non-lacquered galvanised steel, fitted with a heat exchanger without surface treatment.



see p. 27–31

KORAFLEX Pool FKP

Trench heaters suitable for humid environments, AISI 316 stainless steel casing finished with hem, RAL 9006 grey lacquered heat exchanger.



U = U-frame
F = F-frame

see p. 32–35

KORAFLEX Optimal FKO

A wide range of trench heaters, complete with a broad range of aluminium frames and grilles:

Economic – basic model – black lacquered galvanised steel casing, non-lacquered heat exchanger

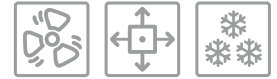
Exclusive – black lacquer galvanised steel casing, RAL 9005 black lacquered heat exchanger.



With forced convection

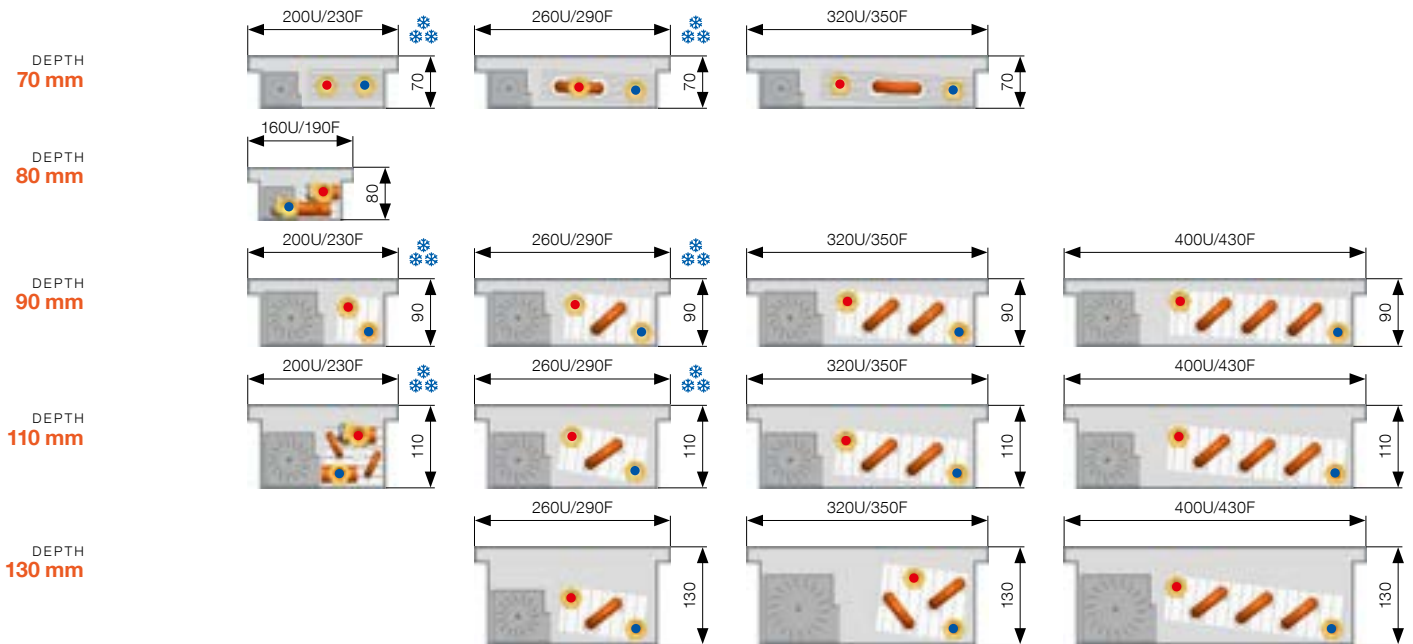
KORAFLEX Optimal-V FVO

Trench heaters with forced convection and 24 V DC connection in versions: **Economic** – heat exchanger without surface treatment, **Exclusive** – heat exchanger lacquered in black (RAL 9005).



KORAFLEX Energy FVE

Trench heaters with forced convection and 230 V AC connection inside the trench heater casing in versions: **Economic** – heat exchanger without surface treatment, **Exclusive** – heat exchanger lacquered in black (RAL 9005).

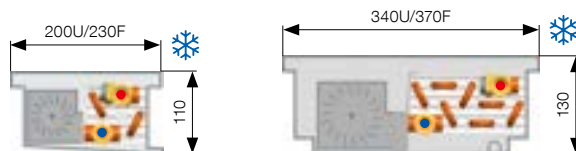


see p. 40–59

KORAFLEX Variant F2V

2-pipe system (heating or cooling)

Trench heaters with forced convection are available in versions: **Economic**, **Exclusive**



see p. 63–66

KORAFLEX Variant F4V

4-pipe system (heating and cooling)

Trench heaters with forced convection are available in versions: **Economic**, **Exclusive**



see p. 67–69

KORAFLEX Pool-V FVP

Trench heaters with forced convection are suitable for humid environments, AISI 316 stainless steel casing finished with hem, RAL 9006 grey lacquered heat exchanger.



see p. 60–62

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with natural convection

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Complete technical documentation including wiring diagrams and installation instructions can be found at www.licon-heat.com/convectors/downloads

Key to graphic symbols



Natural convection



Forced convection



Fully electric



Pool



Higher output



Heating



Cooling



Light cooling in the non-condensation zone



Minimum energy consumption



230 V AC



Wide range of styles



RAL colour standard



Lacquered wood



Pencil-proof



Lowest style Thin



Heat Pump Synergy



MagiCad supplementary documentation



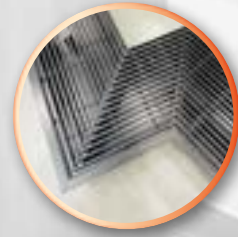
Information



Visualisation created using AI

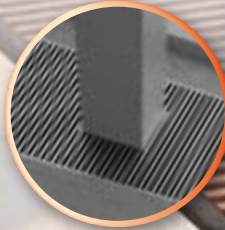
Ideal for every project

Trench heaters with natural convection can be custom-made to meet the specific requirements of the interior and the architectural concept. Thanks to the wide range of design options, they fit easily into any space.



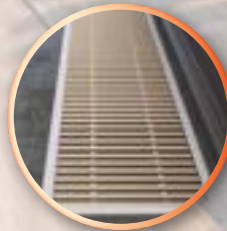
Design modules

From the wide range of design modules, an individual custom version of trench heaters can be put together quickly and easily to measure.



Energy-efficient solution

Convectors with natural convection have a low water content, which significantly reduces the energy required to heat them and increases the overall system efficiency.

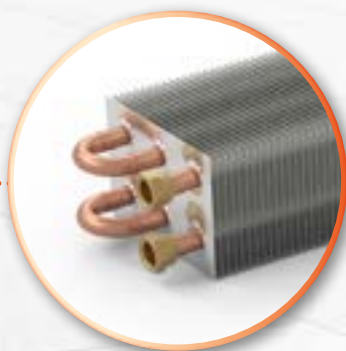


TRENCH HEATERS WITH NATURAL CONVECTION

Broad portfolio

A wide selection of model lines and sizes enables precise adaptation to various types of interiors – from residential spaces and administrative buildings to public halls and swimming pools.





Higher-performance heat exchanger

The specially developed heat exchanger is the heart of every convector and ensures high heating output. It is available in two versions – Economic without surface treatment and Exclusive with black lacquer finish RAL 9005 for increased durability and a premium appearance.



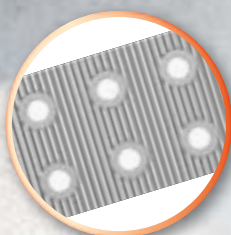
Quality craftsmanship

High-quality technical craftsmanship of trench heaters is a matter of course.



Design grilles and frames

A wide range of colours, materials and design options makes it possible to perfectly match the convector's appearance to the interior. Thanks to the wide range of variants, an aesthetic and functional solution can be achieved for every interior.



Variable heat exchanger matrix

The heat exchanger design can be optimised for the required heating output and specific operating conditions thanks to the serial matrix, which allows up to eight rows of tubes and can be further modified according to the individual project requirements.

KORAFLEX Optimal FKO

Specifications

Depth	70, 90, 110, 130, 150, 190, 300, 450 mm
Width	140, 200, 260, 320, 400 mm
Length	800 to 3 000 mm (by 100 mm)
Heat output	from 41 to 3 480 W
Max. operating pressure	1.2 MPa
Max. operating temperature	90 °C
Connecting thread	inner G ½"

Economic version – non-lacquered heat exchanger

Exclusive version – black lacquered heat exchanger (RAL 9005)

Standard contents

- RAL 9005 black lacquered galvanised steel casing
- Economic – non-lacquered Al/Cu heat exchanger with a bleed valve
- Exclusive – RAL 9005 black lacquered Al/Cu heat exchanger with a bleed valve
- aluminium U-frame silver elox
- metal cover plate
- levelling set screws and 4 anchors
- spacers for correct installation and concreting
- dividing partition from a depth of 300 mm
- hardboard cover to protect trench heater from contamination
- durable packaging, installation instructions

KORAFLEX Optimal FKO represents the widest range of trench heater models. The convector casing is made of black-lacquered galvanised steel with optional decorative U-, F- or Cross frames, and a cover grille of your choice.



Optional accessories

- cover grille of your choice
- Cross or Robust cover grille (p. 82) – design solutions – must be ordered together with the trench heater (includes a casing construction modification)
- U-frame in aluminium, available in black elox, light/dark bronze elox or lacquered according to the RAL colour chart
- F-frame in aluminium, available in silver elox, black elox, light/dark bronze elox or lacquered according to the RAL colour chart
- supports for raised floors (p. 94)
- regulating valve set, angle or straight (p. 99)
- thermostatic valve, angle, straight or axial (p. 99)
- thermostatic pressure-independent valve, angle, straight or axial (p. 99)
- brass elbow ½" x ½" 90° (p. 98)
- stainless steel flexible hoses (p. 98)
- thermoelectric actuator TEP 230 or TEP 24 (p. 97)
- SIEMENS thermostat RAA21 or RDE 100.1 (p. 97)
- thermostatic head with capillary tube (p. 96)
- 24 V DC power supply unit (p. 98)
- OSB cover board with increased stiffness for installation purposes

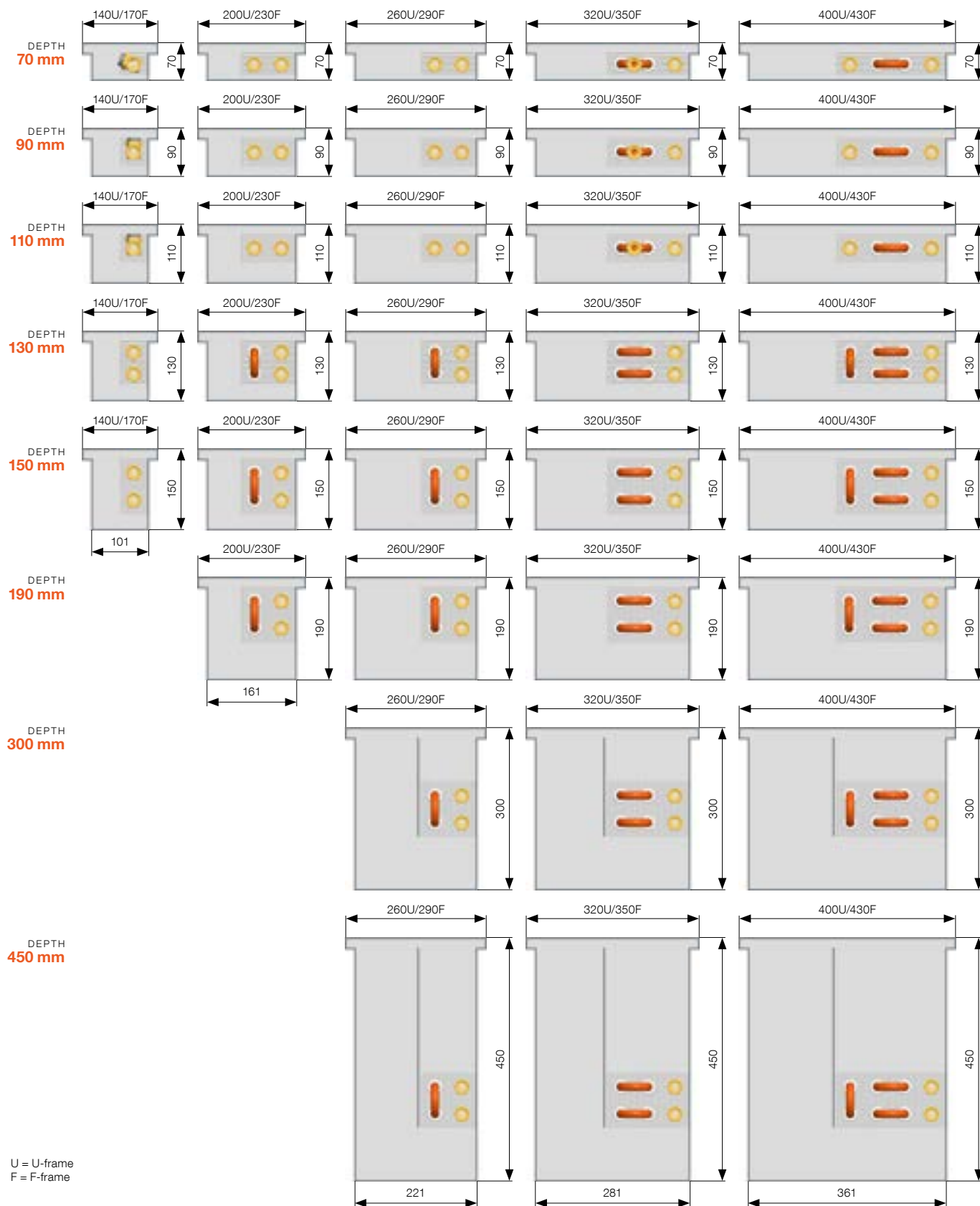
For more information about optional accessories and order codes p. 96–100

Suitable grilles (roll-up, linear, fixed)

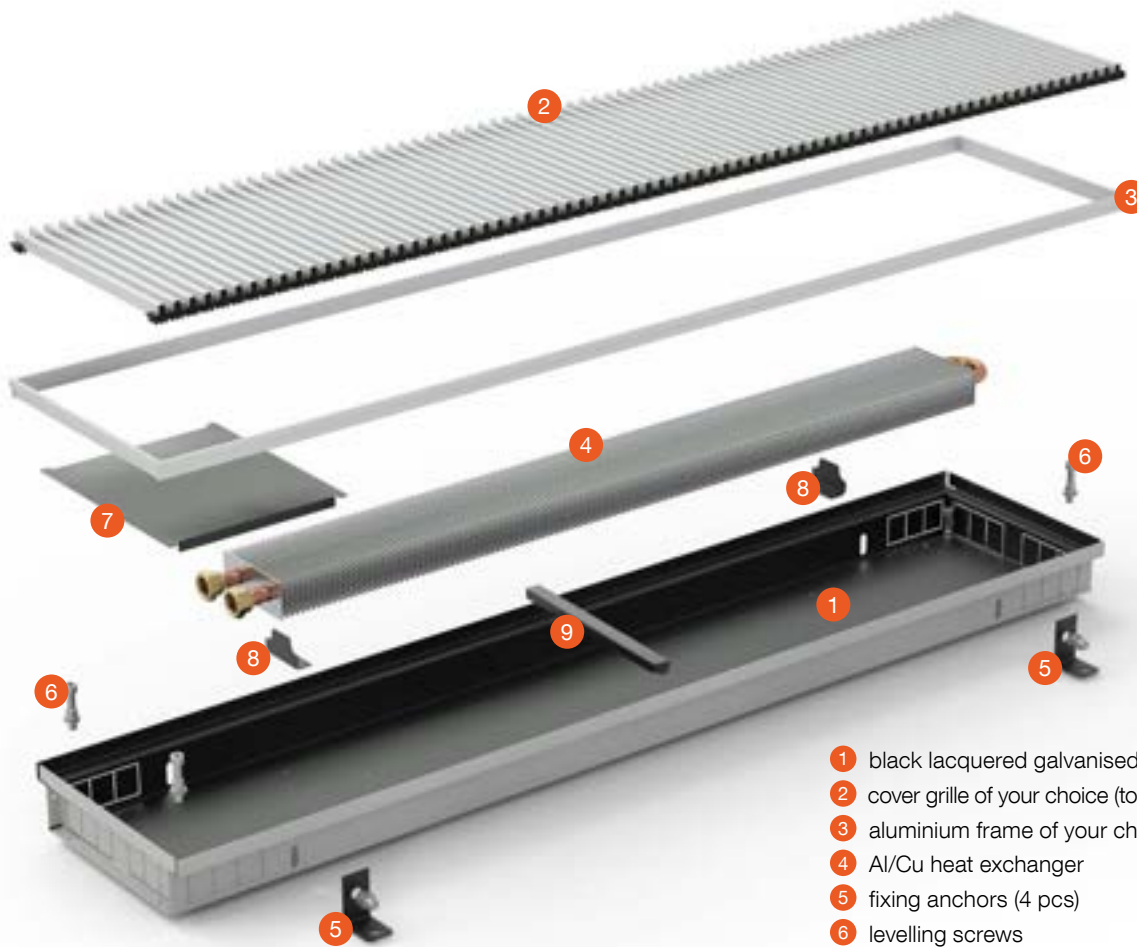


For a summary and description of grilles available, including order codes, p. 76–83.

PRODUCT RANGE



TRENCH HEATER COMPONENTS



- 1 black lacquered galvanised steel casing, RAL 9005
- 2 cover grille of your choice (to be ordered separately)
- 3 aluminium frame of your choice
- 4 Al/Cu heat exchanger
- 5 fixing anchors (4 pcs)
- 6 levelling screws
- 7 connection metal cover plate
- 8 support brackets
- 9 spacers for correct installation and concreting



KORAFLEX fitted with roll-up beech wood grille,
U-frame, silver elox



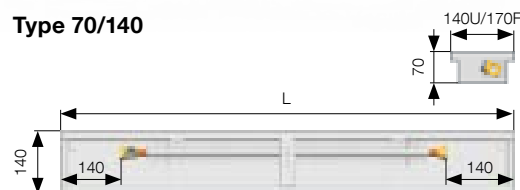
Heat output [W] where $t_1/t_2/t_3$ / EN 442.

Measurements are shown in mm, including U-frame.

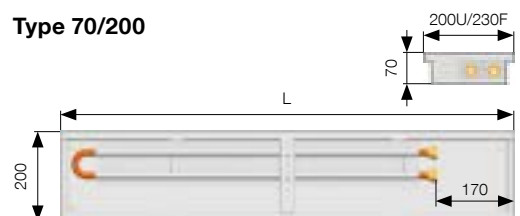
Length L	$t_1/t_2/t_3$ [°C]	Width 140	Width 200	Width 260	Width 320	Width 400
800	75/65/20	41	76	90	103	131
	55/45/20	20	36	40	46	60
900	75/65/20	51	91	108	124	157
	55/45/20	24	43	47	56	72
1 000	75/65/20	61	105	126	146	183
	55/45/20	29	50	55	66	84
1 100	75/65/20	71	120	144	168	208
	55/45/20	34	57	63	76	96
1 200	75/65/20	81	135	161	190	234
	55/45/20	38	64	71	86	108
1 300	75/65/20	91	150	179	212	260
	55/45/20	43	71	78	95	119
1 400	75/65/20	101	165	197	233	286
	55/45/20	48	78	86	105	131
1 500	75/65/20	111	180	214	255	311
	55/45/20	52	85	94	115	143
1 600	75/65/20	120	195	232	277	337
	55/45/20	57	92	102	125	155
1 700	75/65/20	130	209	250	299	363
	55/45/20	62	99	109	135	167
1 800	75/65/20	140	224	268	320	389
	55/45/20	66	106	117	145	178
1 900	75/65/20	150	239	285	342	414
	55/45/20	71	113	125	154	190
2 000	75/65/20	160	254	303	364	440
	55/45/20	76	120	133	164	202
2 100	75/65/20	170	269	321	386	466
	55/45/20	81	127	140	174	214
2 200	75/65/20	180	284	338	408	491
	55/45/20	85	134	148	184	226
2 300	75/65/20	190	299	356	429	517
	55/45/20	90	141	156	194	238
2 400	75/65/20	200	313	374	451	543
	55/45/20	95	148	164	204	249
2 500	75/65/20	209	328	392	473	569
	55/45/20	99	156	171	213	261
2 600	75/65/20	219	343	409	495	594
	55/45/20	104	163	179	223	273
2 700	75/65/20	229	358	427	516	620
	55/45/20	109	170	187	233	285
2 800	75/65/20	239	373	445	538	646
	55/45/20	113	177	195	243	297
2 900	75/65/20	249	388	462	560	672
	55/45/20	118	184	202	253	309
3 000	75/65/20	259	403	480	582	697
	55/45/20	123	191	210	263	320
Temperature exponent [n]		1.4629	1.4587	1.6148	1.5550	1.5235
Unit weight [kg/m]		3.37	4.16	4.80	5.84	7.03
Water volume [l/m]		0.146	0.298	0.298	0.450	0.602
Effective exchange area [mm]		=L-380	=L-325	=L-290	=L-330	=L-290



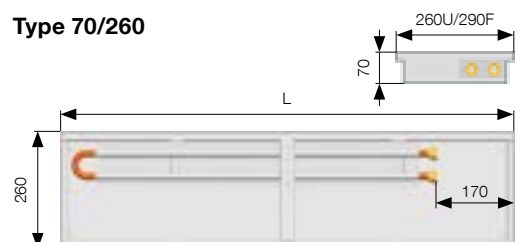
Type 70/140



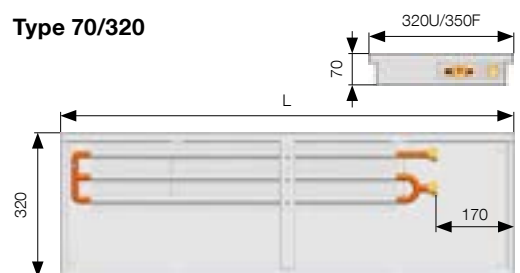
Type 70/200



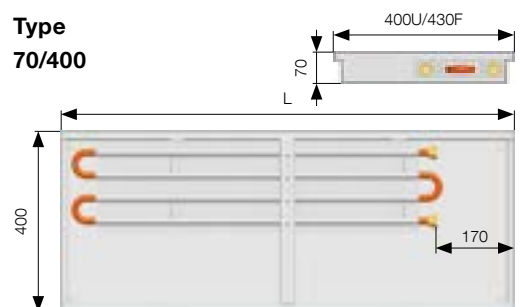
Type 70/260



Type 70/320



Type
70/400



U = U-type frame, F = F-type frame. The dimensions of the U and Cross frames are identical.

Further information

Connections and connection measurements p. 36, Grilles and frames p. 76,
Installation p. 92, Raised floor installations p. 94, Accessories p. 96,
Overview of recommended valves for connection, p. 100

Measurements shown in mm.



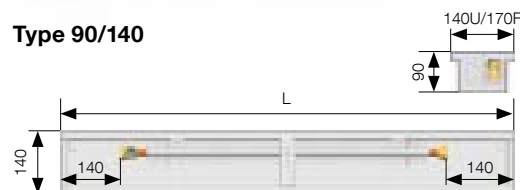
Heat output [W] where $t_1/t_2/t_3$ / EN 442.

Measurements are shown in mm, including U-frame.

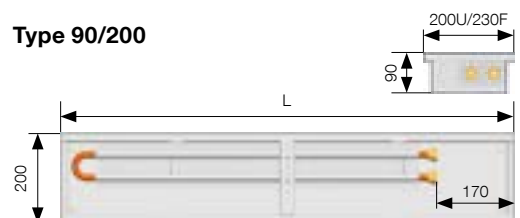
Length L	$t_1/t_2/t_3$ [°C]	Width 140	Width 200	Width 260	Width 320	Width 400
800	75/65/20	50	120	153	195	275
	55/45/20	23	55	69	93	130
900	75/65/20	62	143	183	236	329
	55/45/20	29	65	82	112	156
1 000	75/65/20	74	167	213	278	383
	55/45/20	34	76	96	132	181
1 100	75/65/20	86	190	243	319	437
	55/45/20	40	87	109	151	207
1 200	75/65/20	98	214	273	361	490
	55/45/20	45	98	123	171	233
1 300	75/65/20	110	237	303	402	544
	55/45/20	51	108	136	191	258
1 400	75/65/20	122	261	333	444	598
	55/45/20	56	119	150	210	284
1 500	75/65/20	134	284	363	485	652
	55/45/20	62	130	163	230	309
1 600	75/65/20	146	308	393	526	706
	55/45/20	67	141	177	250	335
1 700	75/65/20	158	331	423	568	760
	55/45/20	73	151	190	269	360
1 800	75/65/20	170	355	453	609	814
	55/45/20	78	162	204	289	386
1 900	75/65/20	182	378	483	651	868
	55/45/20	84	173	217	309	411
2 000	75/65/20	194	402	513	692	922
	55/45/20	89	183	231	328	437
2 100	75/65/20	206	426	543	733	976
	55/45/20	95	194	244	348	463
2 200	75/65/20	218	449	573	775	1029
	55/45/20	100	205	258	368	488
2 300	75/65/20	230	473	603	816	1083
	55/45/20	106	216	271	387	514
2 400	75/65/20	242	496	633	858	1137
	55/45/20	111	226	285	407	539
2 500	75/65/20	254	520	663	899	1191
	55/45/20	117	237	298	426	565
2 600	75/65/20	266	543	693	940	1245
	55/45/20	122	248	311	446	590
2 700	75/65/20	278	567	723	982	1299
	55/45/20	128	258	325	466	616
2 800	75/65/20	290	590	753	1023	1353
	55/45/20	133	269	338	485	641
2 900	75/65/20	302	614	783	1065	1407
	55/45/20	139	280	352	505	667
3 000	75/65/20	314	637	813	1106	1461
	55/45/20	144	291	365	525	693
Temperature exponent [n]		1.5247	1.5373	1.5643	1.4599	1.4607
Unit weight [kg/m]		3.68	4.51	5.14	6.22	7.45
Water volume [l/m]		0.146	0.298	0.298	0.450	0.602
Effective exchange area [mm]		=L-380	=L-325	=L-290	=L-329	=L-290



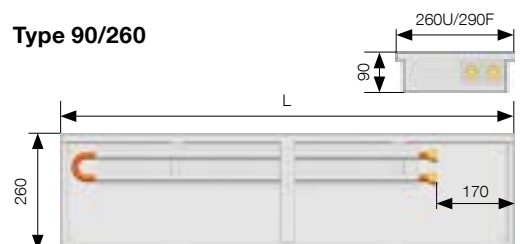
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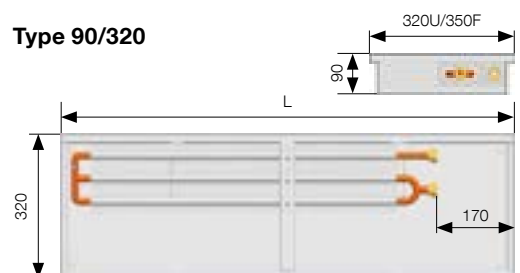
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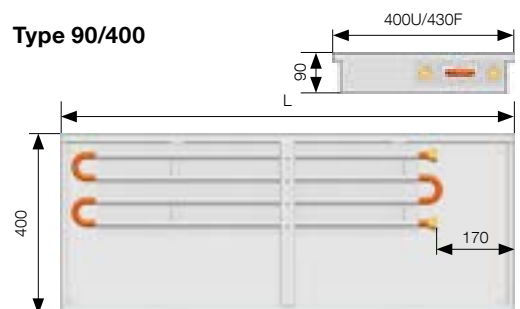
Type 90/260



Type 90/320



Type 90/400

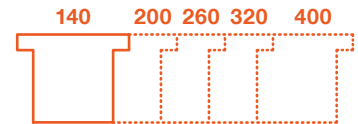


U = U-type frame, F = F-type frame. The dimensions of the U and Cross frames are identical.

Further information

Connections and connection measurements p. 36, Grilles and frames p. 76,
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Overview of recommended valves for connection, p. 100

Measurements shown in mm.



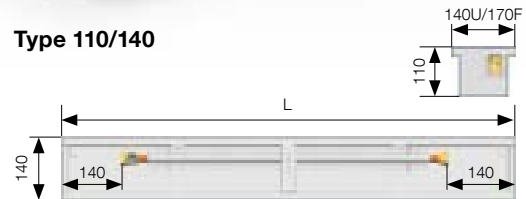
Heat output [W] where $t_1/t_2/t_i$ / EN 442.

Measurements are shown in mm, including U-frame.

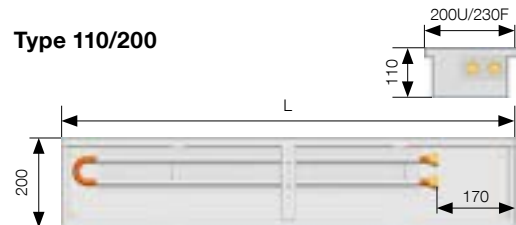
Length L	$t_1/t_2/t_i$ [°C]	Width 140	Width 200	Width 260	Width 320	Width 400
800	75/65/20	56	142	184	237	327
	55/45/20	26	67	88	112	155
900	75/65/20	69	170	221	287	391
	55/45/20	32	80	106	136	186
1 000	75/65/20	82	198	257	338	456
	55/45/20	38	93	123	160	216
1 100	75/65/20	95	226	293	388	520
	55/45/20	44	106	140	184	247
1 200	75/65/20	108	254	329	438	584
	55/45/20	51	119	158	208	277
1 300	75/65/20	122	282	365	489	648
	55/45/20	57	133	175	232	308
1 400	75/65/20	135	309	401	539	712
	55/45/20	63	146	192	255	338
1 500	75/65/20	148	337	438	589	776
	55/45/20	69	159	210	279	369
1 600	75/65/20	161	365	474	640	841
	55/45/20	75	172	227	303	399
1 700	75/65/20	175	393	510	690	905
	55/45/20	82	185	244	327	430
1 800	75/65/20	188	421	546	740	969
	55/45/20	88	198	262	351	460
1 900	75/65/20	201	449	582	791	1033
	55/45/20	94	211	279	375	491
2 000	75/65/20	214	477	618	841	1097
	55/45/20	100	225	296	398	521
2 100	75/65/20	227	505	655	891	1161
	55/45/20	106	238	314	422	552
2 200	75/65/20	241	532	691	942	1226
	55/45/20	112	251	331	446	582
2 300	75/65/20	254	560	727	992	1290
	55/45/20	119	264	348	470	613
2 400	75/65/20	267	588	763	1042	1354
	55/45/20	125	277	366	494	643
2 500	75/65/20	280	616	799	1093	1418
	55/45/20	131	290	383	518	674
2 600	75/65/20	294	644	835	1143	1482
	55/45/20	137	303	400	542	704
2 700	75/65/20	307	672	872	1193	1546
	55/45/20	143	316	418	565	735
2 800	75/65/20	320	700	908	1244	1611
	55/45/20	149	330	435	589	765
2 900	75/65/20	333	728	944	1294	1675
	55/45/20	156	343	452	613	795
3 000	75/65/20	346	755	980	1344	1739
	55/45/20	162	356	470	637	826
Temperature exponent [n]		1.4888	1.4739	1.4385	1.4622	1.4569
Unit weight [kg/m]		4.04	4.90	5.56	6.66	7.93
Water volume [l/m]		0.146	0.298	0.298	0.450	0.602
Effective exchange area [mm]		=L-380	=L-325	=L-290	=L-329	=L-290



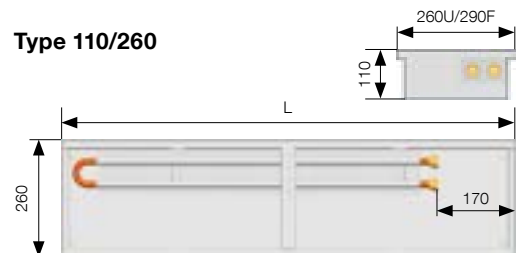
Type 110/140



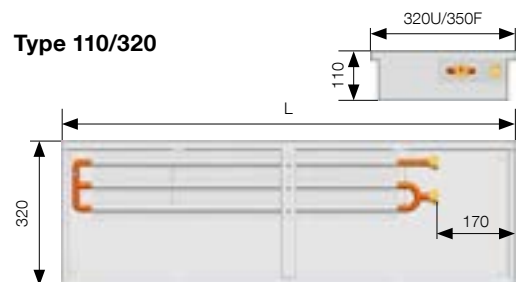
Type 110/200



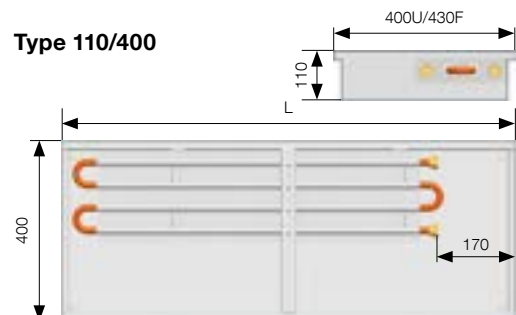
Type 110/260



Type 110/320



Type 110/400

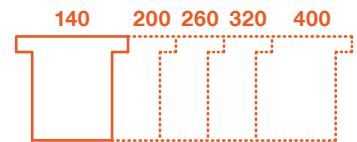


U = U-type frame, F = F-type frame. The dimensions of the U and Cross frames are identical.

Further information

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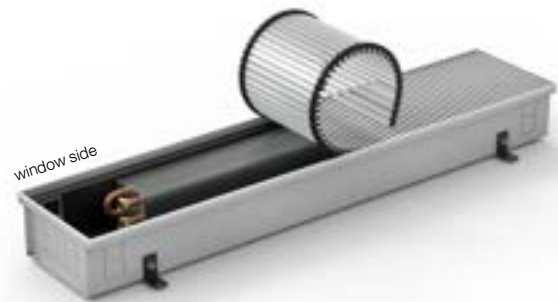
Measurements shown in mm.



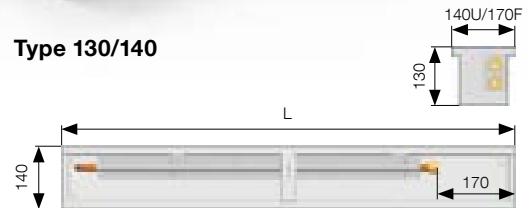
Heat output [W] where $t_1/t_2/t_3$ / EN 442.

Measurements are shown in mm, including U-frame.

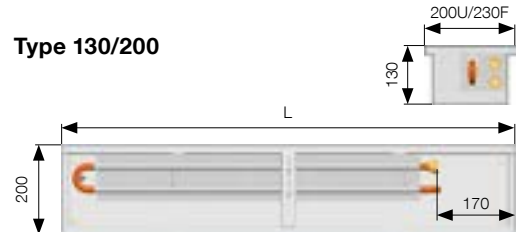
Length L	$t_1/t_2/t_3$ [°C]	Width 140	Width 200	Width 260	Width 320	Width 400
800	75/65/20	79	143	203	284	364
	55/45/20	35	66	89	132	168
900	75/65/20	95	172	243	340	435
	55/45/20	42	79	107	158	201
1 000	75/65/20	110	200	283	395	506
	55/45/20	49	92	125	184	234
1 100	75/65/20	126	228	323	451	577
	55/45/20	56	105	142	209	267
1 200	75/65/20	141	256	363	507	649
	55/45/20	63	118	160	235	300
1 300	75/65/20	157	284	403	562	720
	55/45/20	70	131	177	261	333
1 400	75/65/20	172	312	443	618	791
	55/45/20	77	144	195	287	366
1 500	75/65/20	188	340	483	674	863
	55/45/20	83	157	212	313	399
1 600	75/65/20	203	368	522	729	934
	55/45/20	90	170	230	339	431
1 700	75/65/20	219	397	562	785	1005
	55/45/20	97	183	247	365	464
1 800	75/65/20	234	425	602	841	1076
	55/45/20	104	196	265	390	497
1 900	75/65/20	250	453	642	896	1148
	55/45/20	111	209	282	416	530
2 000	75/65/20	265	481	682	952	1219
	55/45/20	118	222	300	442	563
2 100	75/65/20	280	509	722	1008	1290
	55/45/20	125	235	317	468	596
2 200	75/65/20	296	537	762	1063	1362
	55/45/20	132	248	335	494	629
2 300	75/65/20	311	565	802	1119	1433
	55/45/20	139	261	353	520	662
2 400	75/65/20	327	594	842	1175	1504
	55/45/20	146	274	370	545	695
2 500	75/65/20	342	622	881	1230	1575
	55/45/20	152	287	388	571	728
2 600	75/65/20	358	650	921	1286	1647
	55/45/20	159	300	405	597	761
2 700	75/65/20	373	678	961	1342	1718
	55/45/20	166	313	423	623	794
2 800	75/65/20	389	706	1001	1397	1789
	55/45/20	173	326	440	649	827
2 900	75/65/20	404	734	1041	1453	1861
	55/45/20	180	339	458	675	860
3 000	75/65/20	420	762	1081	1509	1932
	55/45/20	187	352	475	701	893
Temperature exponent [n]		1.5855	1.5143	1.6077	1.5011	1.5119
Unit weight [kg/m]		4.54	5.83	6.53	7.91	9.53
Water volume [l/m]		0.298	0.602	0.602	0.907	1.211
Effective exchange area [mm]		=L-290	=L-290	=L-290	=L-290	=L-290



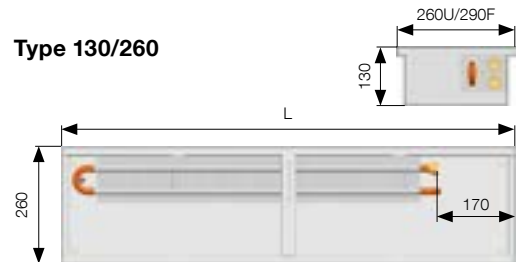
Type 130/140



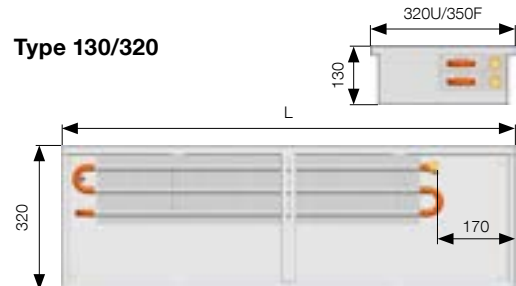
Type 130/200



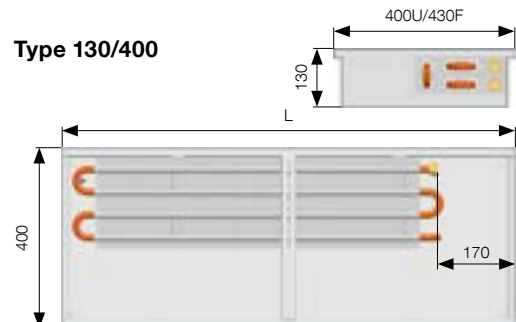
Type 130/260



Type 130/320



Type 130/400

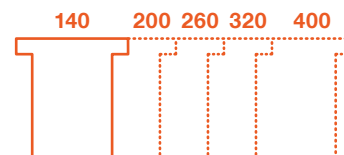


U = U-type frame, F = F-type frame. The dimensions of the U and Cross frames are identical.

Further information

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Measurements shown in mm.



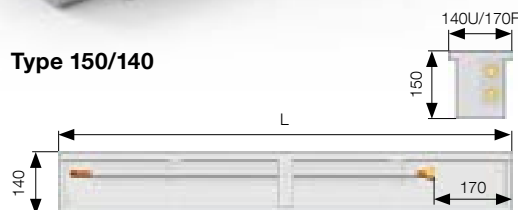
Heat output [W] where $t_1/t_2/t_i$ / EN 442.

Measurements are shown in mm, including U-frame.

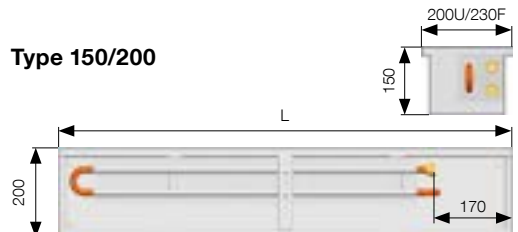
Length L	$t_1/t_2/t_i$ [°C]	Width 140	Width 200	Width 260	Width 320	Width 400
800	75/65/20	92	154	238	314	389
	55/45/20	42	70	109	145	178
900	75/65/20	110	185	284	376	465
	55/45/20	50	84	131	173	213
1 000	75/65/20	127	215	331	438	541
	55/45/20	58	97	152	202	248
1 100	75/65/20	145	245	378	499	617
	55/45/20	66	111	173	230	283
1 200	75/65/20	163	276	424	561	693
	55/45/20	74	125	195	259	317
1 300	75/65/20	181	306	471	623	770
	55/45/20	82	138	216	287	352
1 400	75/65/20	199	336	517	684	846
	55/45/20	90	152	238	315	387
1 500	75/65/20	217	367	564	746	922
	55/45/20	99	166	259	344	422
1 600	75/65/20	235	397	611	807	998
	55/45/20	107	179	280	372	457
1 700	75/65/20	253	427	657	869	1074
	55/45/20	115	193	302	401	492
1 800	75/65/20	271	457	704	931	1151
	55/45/20	123	207	323	429	527
1 900	75/65/20	289	488	750	992	1227
	55/45/20	131	221	345	457	562
2 000	75/65/20	307	518	797	1054	1303
	55/45/20	139	234	366	486	596
2 100	75/65/20	325	548	844	1116	1379
	55/45/20	147	248	387	514	631
2 200	75/65/20	343	579	890	1177	1455
	55/45/20	156	262	409	543	666
2 300	75/65/20	361	609	937	1239	1532
	55/45/20	164	275	430	571	701
2 400	75/65/20	379	639	983	1301	1608
	55/45/20	172	289	452	599	736
2 500	75/65/20	397	669	1030	1362	1684
	55/45/20	180	303	473	628	771
2 600	75/65/20	415	700	1077	1424	1760
	55/45/20	188	316	494	656	806
2 700	75/65/20	433	730	1123	1485	1836
	55/45/20	196	330	516	685	841
2 800	75/65/20	451	760	1170	1547	1913
	55/45/20	204	344	537	713	875
2 900	75/65/20	469	791	1216	1609	1989
	55/45/20	212	358	559	741	910
3 000	75/65/20	487	821	1263	1670	2065
	55/45/20	221	371	580	770	945
Temperature exponent [n]		1.5470	1.5528	1.5240	1.5165	1.5296
Unit weight [kg/m]		4.93	6.37	7.07	8.55	10.27
Water volume [l/m]		0.298	0.602	0.602	0.907	1.211
Effective exchange area [mm]		=L-290	=L-290	=L-290	=L-290	=L-290



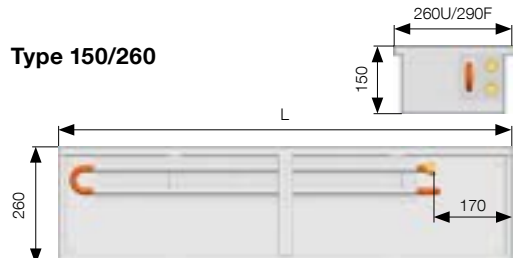
Type 150/140



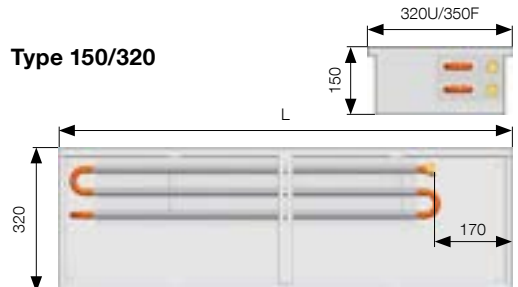
Type 150/200



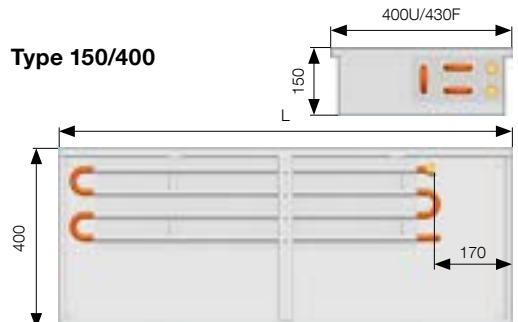
Type 150/260



Type 150/320



Type 150/400

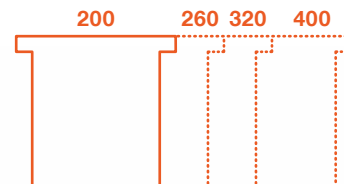


U = U-type frame, F = F-type frame. The dimensions of the U and Cross frames are identical.

Further information

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Measurements shown in mm.



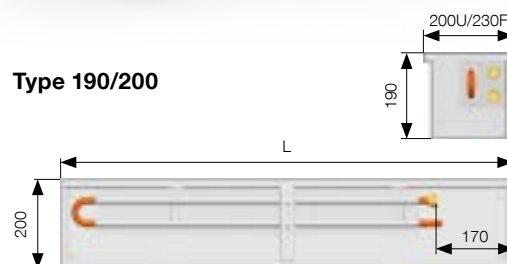
Heat output [W] where $t_1/t_2/t_3$ / EN 442.

Measurements are shown in mm, including U-frame.

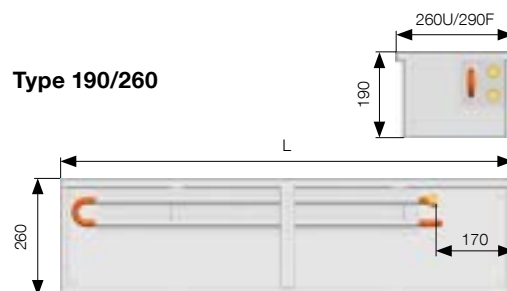
Length L	$t_1/t_2/t_3$ [°C]	Width 200	Width 260	Width 320	Width 400
800	75/65/20	172	260	384	526
	55/45/20	79	121	176	240
900	75/65/20	205	311	459	629
	55/45/20	94	145	210	287
1 000	75/65/20	239	362	534	732
	55/45/20	110	168	245	335
1 100	75/65/20	273	413	610	835
	55/45/20	125	192	279	382
1 200	75/65/20	307	464	685	938
	55/45/20	141	216	314	429
1 300	75/65/20	340	515	760	1041
	55/45/20	156	240	348	476
1 400	75/65/20	374	566	835	1144
	55/45/20	171	263	383	523
1 500	75/65/20	408	617	911	1248
	55/45/20	187	287	417	570
1 600	75/65/20	441	668	986	1351
	55/45/20	202	311	451	617
1 700	75/65/20	475	719	1061	1454
	55/45/20	218	334	486	664
1 800	75/65/20	509	770	1136	1557
	55/45/20	233	358	520	711
1 900	75/65/20	542	821	1212	1660
	55/45/20	249	382	555	759
2 000	75/65/20	576	872	1287	1763
	55/45/20	264	406	589	806
2 100	75/65/20	610	923	1362	1866
	55/45/20	279	429	624	853
2 200	75/65/20	643	974	1438	1969
	55/45/20	295	453	658	900
2 300	75/65/20	677	1025	1513	2072
	55/45/20	310	477	693	947
2 400	75/65/20	711	1076	1588	2175
	55/45/20	326	500	727	994
2 500	75/65/20	744	1127	1663	2278
	55/45/20	341	524	762	1041
2 600	75/65/20	778	1178	1739	2382
	55/45/20	357	548	796	1088
2 700	75/65/20	812	1229	1814	2485
	55/45/20	372	572	831	1136
2 800	75/65/20	845	1280	1889	2588
	55/45/20	388	595	865	1183
2 900	75/65/20	879	1331	1964	2691
	55/45/20	403	619	900	1230
3 000	75/65/20	913	1382	2040	2794
	55/45/20	418	643	934	1277
Temperature exponent [n]		1.5264	1.4983	1.5283	1.5329
Unit weight [kg/m]		7.23	7.89	9.43	11.22
Water volume [l/m]		0.602	0.602	0.907	1.211
Effective exchange area [mm]		=L-290	=L-290	=L-290	=L-290



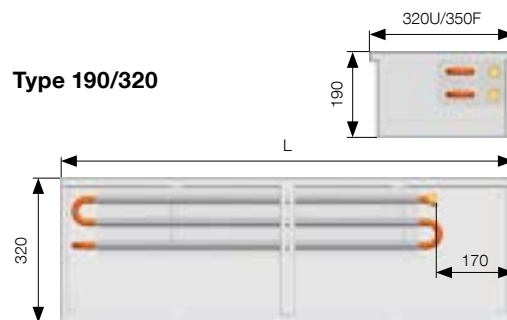
Type 190/200



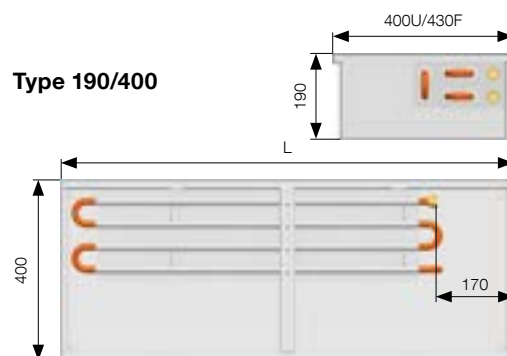
Type 190/260



Type 190/320



Type 190/400

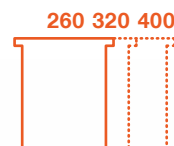


U = U-type frame, F = F-type frame. The dimensions of the U and Cross frames are identical.

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Measurements shown in mm.



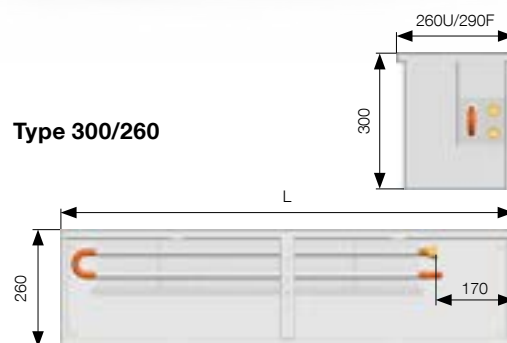
Heat output [W] where $t_1/t_2/t_3$ / EN 442.

Measurements are shown in mm, including U-frame.

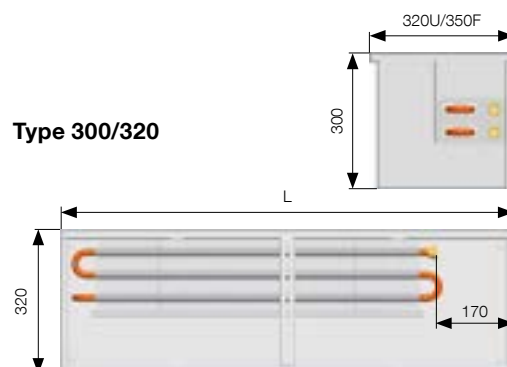
Length L	$t_1/t_2/t_3$ [°C]	Width 260	Width 320	Width 400
800	75/65/20	308	457	559
	55/45/20	144	215	263
900	75/65/20	368	546	669
	55/45/20	173	257	315
1 000	75/65/20	428	636	779
	55/45/20	201	299	367
1 100	75/65/20	489	725	888
	55/45/20	229	341	418
1 200	75/65/20	549	815	998
	55/45/20	258	383	470
1 300	75/65/20	610	904	1107
	55/45/20	286	425	522
1 400	75/65/20	670	994	1217
	55/45/20	314	467	573
1 500	75/65/20	730	1083	1327
	55/45/20	343	509	625
1 600	75/65/20	791	1173	1436
	55/45/20	371	551	677
1 700	75/65/20	851	1262	1546
	55/45/20	399	594	728
1 800	75/65/20	911	1352	1656
	55/45/20	427	636	780
1 900	75/65/20	972	1441	1765
	55/45/20	456	678	832
2 000	75/65/20	1032	1531	1875
	55/45/20	484	720	883
2 100	75/65/20	1092	1621	1985
	55/45/20	512	762	935
2 200	75/65/20	1153	1710	2094
	55/45/20	541	804	987
2 300	75/65/20	1213	1800	2204
	55/45/20	569	846	1038
2 400	75/65/20	1273	1889	2314
	55/45/20	597	888	1090
2 500	75/65/20	1334	1979	2423
	55/45/20	626	930	1142
2 600	75/65/20	1394	2068	2533
	55/45/20	654	972	1193
2 700	75/65/20	1454	2158	2643
	55/45/20	682	1015	1245
2 800	75/65/20	1515	2247	2752
	55/45/20	710	1057	1297
2 900	75/65/20	1575	2337	2862
	55/45/20	739	1099	1348
3 000	75/65/20	1636	2426	2971
	55/45/20	767	1141	1400
Temperature exponent [n]		1.482	1.4769	1.4734
Unit weight [kg/m]		11.37	13.09	15.07
Water volume [l/m]		0.602	0.907	1.211
Effective exchange area [mm]		=L-290	=L-290	=L-290



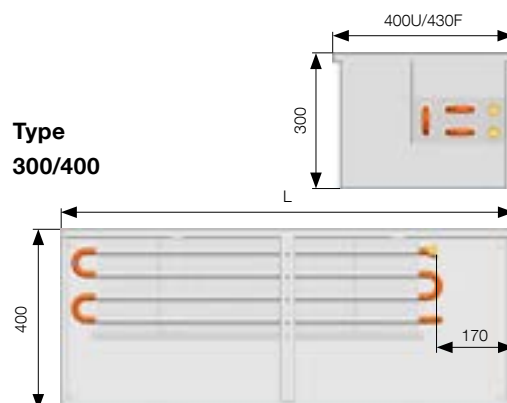
Type 300/260



Type 300/320



Type
300/400

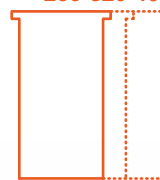


U = U-type frame, F = F-type frame. The dimensions of the U and Cross frames are identical.

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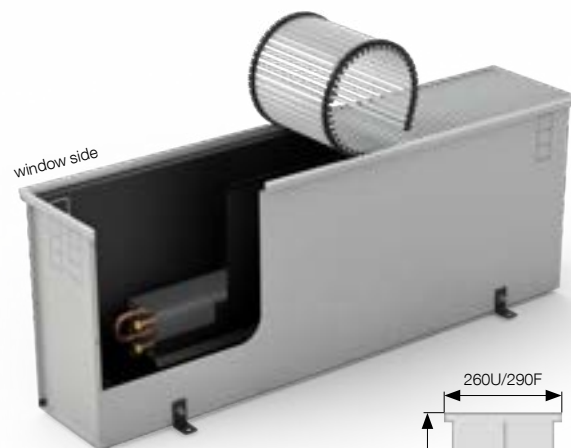
Measurements shown in mm.



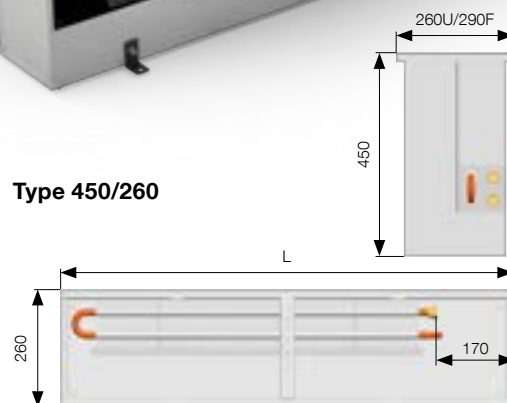
Heat output [W] where $t_1/t_2/t_3$ / EN 442.

Measurements are shown in mm, including U-frame.

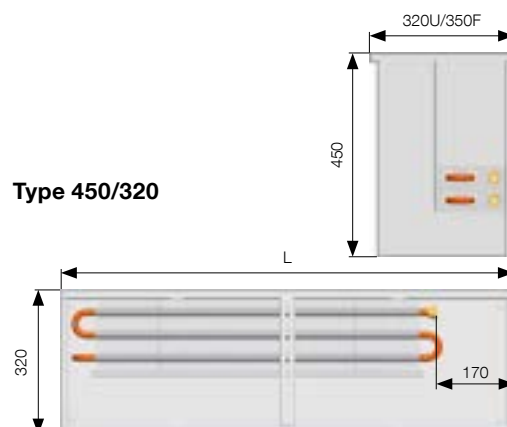
Length L	$t_1/t_2/t_3$ [°C]	Width 260	Width 320	Width 400
800	75/65/20	426	506	655
	55/45/20	202	237	309
900	75/65/20	510	605	783
	55/45/20	242	283	369
1 000	75/65/20	594	704	912
	55/45/20	282	330	430
1 100	75/65/20	677	803	1040
	55/45/20	322	376	490
1 200	75/65/20	761	902	1169
	55/45/20	361	423	551
1 300	75/65/20	845	1001	1297
	55/45/20	401	469	612
1 400	75/65/20	928	1100	1425
	55/45/20	441	515	672
1 500	75/65/20	1012	1199	1554
	55/45/20	480	562	733
1 600	75/65/20	1095	1299	1682
	55/45/20	520	608	793
1 700	75/65/20	1179	1398	1811
	55/45/20	560	655	854
1 800	75/65/20	1263	1497	1939
	55/45/20	599	701	914
1 900	75/65/20	1346	1596	2068
	55/45/20	639	748	975
2 000	75/65/20	1430	1695	2196
	55/45/20	679	794	1035
2 100	75/65/20	1514	1794	2324
	55/45/20	719	840	1096
2 200	75/65/20	1597	1893	2453
	55/45/20	758	887	1157
2 300	75/65/20	1681	1992	2581
	55/45/20	798	933	1217
2 400	75/65/20	1765	2091	2710
	55/45/20	838	980	1278
2 500	75/65/20	1848	2191	2838
	55/45/20	877	1026	1338
2 600	75/65/20	1932	2290	2967
	55/45/20	917	1073	1399
2 700	75/65/20	2015	2389	3095
	55/45/20	957	1119	1459
2 800	75/65/20	2099	2488	3223
	55/45/20	996	1165	1520
2 900	75/65/20	2183	2587	3352
	55/45/20	1036	1212	1580
3 000	75/65/20	2266	2686	3480
	55/45/20	1076	1258	1641
Temperature exponent [n]		1.4575	1.4849	1.4713
Unit weight [kg/m]		15.38	17.25	19.31
Water volume [l/m]		0.602	0.907	1.211
Effective exchange area [mm]		=L-290	=L-290	=L-290



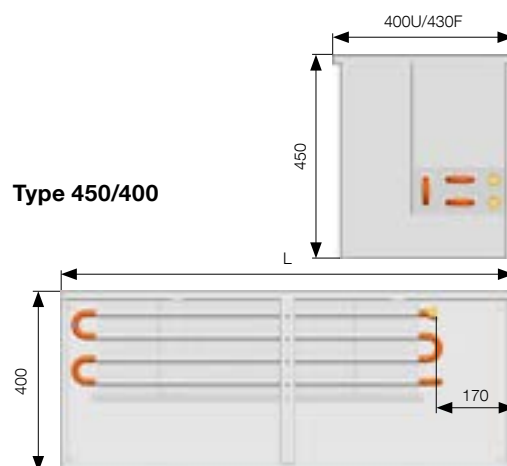
Type 450/260



Type 450/320



Type 450/400



U = U-type frame, F = F-type frame.
The dimensions of the U and Cross frames are identical.

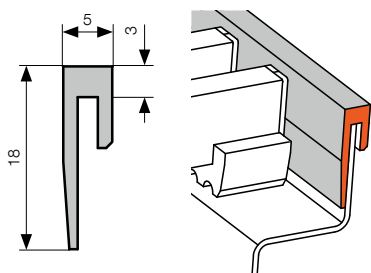
Measurements shown in mm.

Further information

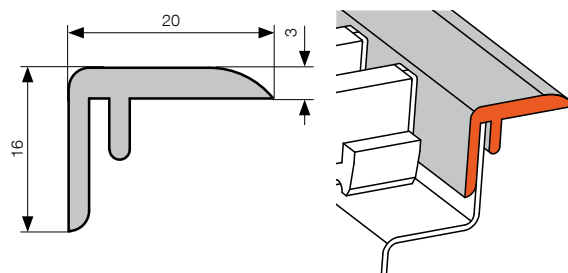
Connections and connection measurements p. 36, Grilles and frames p. 76,
Installation p. 92, Raised floor installations p. 94, Accessories p. 96,
Overview of recommended valves for connection, p. 100

FRAMES

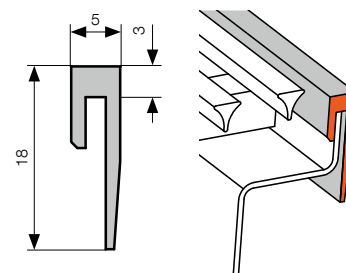
Standard U-frame



Optional F-frame



Optional Cross grille frame (on request)



Measurements shown in mm.

ORDER CODE



In the ordering code, always specify the dimensions in cm, including the U-frame.

KORAFLEX	Convection	Optimal	Length (cm)	Depth (cm)	Width (cm)	Heat exchanger type	Heat exchanger colour	Frame	Frame colour	Connection side	Lowered face
F	K	O	-.../../..-			V counter-flow P* single-stream 0 without heat exchanger	1 non-lacquered 5 RAL 9005 9 other RAL colour 0 without heat exchanger	U U-frame F F-frame C for Cross grille 0 without frame	1 silver elox 2 dark bronze elox 3 light bronze elox 5 black elox 9 other RAL colour 0 without frame	P right	0 without lowered face 1 lower face – input side 2 lower face – opposite input side 3 both sides lower

P* – single-stream heat exchangers are fitted as standard in trench heaters 140 mm wide, depth of 70, 90 and 110 mm only.

Example order code: FKO-100/11/26-V1U1P0

KORAFLEX trench heater with natural convection, Optimal model, length 100 cm, depth 11 cm, width 26 cm, counter-flow heat exchanger in Economic version (without surface treatment), U-frame silver elox, right-hand connection to heating system, without lowered face.



Where a left-hand connection to the heating system is required, rotate the heat exchanger in the trench heater by 180°.

Cross grille – design solutions – Note, please, that Cross grilles must be ordered together with trench heaters, as the casing must undergo alteration. These trench heaters will be fitted with Cross frame suitable for Cross grille. For more information – p. 82).

For a summary and description of grilles available, including order codes, p. 76–83.

KORAFLEX Thin FKT

Specifications

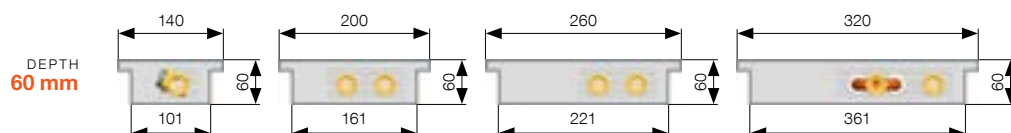
Depth	60 mm
Width	140, 200, 260, 320 mm
Length	800 to 3 000 mm (by 100 mm)
Heat output	from 43 to 644 W
Max. operating pressure	1.2 MPa
Max. operating temperature	90 °C
Connecting thread	inner G ½"

KORAFLEX Thin FKT is a trench heater **with the lowest unit height**. It is particularly suited to interiors with low floor depth, and as a secondary heating unit for shielding cold from French windows.



Economic version – non-lacquered heat exchanger

Exclusive version – black lacquered heat exchanger



The given widths of trench heaters are identical for both models fitted with frames for Thin or Cross grilles.

Standard contents

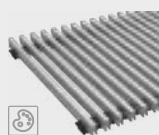
- RAL 9005 black lacquered galvanised steel casing
- Economic – non-lacquered Al/Cu heat exchanger with bleed valve
- Exclusive – RAL 9005 black lacquered Al/Cu heat exchanger with bleed valve
- aluminium frame for Thin grille, silver elox
- metal cover plate
- levelling set screws and 4 anchors
- spacers for correct installation and concreting
- hardboard cover to protect trench heater from contamination
- durable packaging, installation instructions

Optional accessories

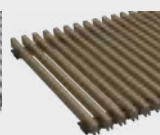
- Thin roll-up cover grille of your choice
- Cross cover grille – design solution, must be ordered together with the trench heater (p. 82)
- aluminium frame for Thin grille, available in light/dark bronze elox, black elox or lacquered according to the RAL colour chart
- regulating valve set, angle or straight (p. 99)
- thermostatic valve, angle, straight or axial (p. 99)
- thermostatic pressure-independent valve, angle, straight or axial (p. 99)
- brass elbow ½" × ½" 90° (p. 98)
- stainless steel flexible hoses (p. 98)
- thermoelectric actuator TEP 230 or TEP 24 (p. 97)
- SIEMENS thermostat RAA21 or RDE 100.1 (p. 97)
- thermostatic head with capillary tube (p. 96)
- 24 V DC power supply unit (p. 98)
- OSB cover board with increased stiffness for installation purposes

For more information about optional accessories and order codes p. 96–100

Suitable grilles (roll-up, fixed)



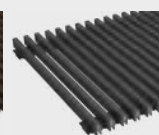
Thin, aluminium elox, silver



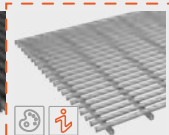
Thin, aluminium elox, light bronze



Thin, aluminium elox, dark bronze



Thin, aluminium elox, black



Cross, steel



Thin trench heaters may only be fitted with Thin grilles, and after casing modifications Cross grilles. No other grilles are available for this range.

Descriptions of individual Thin and Cross grille types and order codes can be found on p. 81–82.

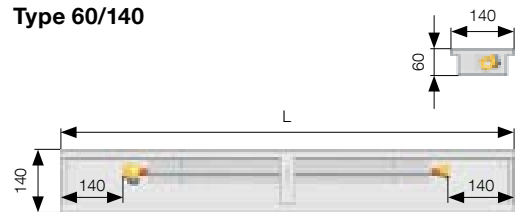


Heat output [W] where $t_1/t_2/t_3$ / EN 442.

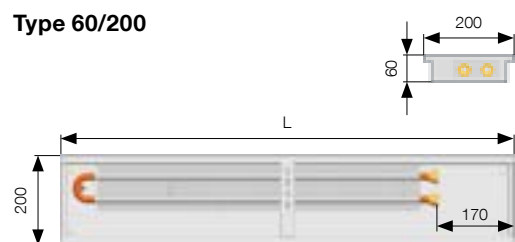
Measurements are shown in mm, including Thin-frame.

Length L	$t_1/t_2/t_3$ [°C]	Width 140	Width 200	Width 260	Width 320
800	75/65/20	43	87	100	114
	55/45/20	22	39	40	48
900	75/65/20	53	104	120	138
	55/45/20	27	47	48	58
1 000	75/65/20	63	121	140	162
	55/45/20	32	55	56	69
1 100	75/65/20	73	138	159	186
	55/45/20	38	62	64	79
1 200	75/65/20	83	155	179	210
	55/45/20	43	70	71	89
1 300	75/65/20	93	172	198	234
	55/45/20	48	78	79	99
1 400	75/65/20	103	189	218	258
	55/45/20	53	85	87	110
1 500	75/65/20	113	206	238	282
	55/45/20	58	93	95	120
1 600	75/65/20	124	223	257	307
	55/45/20	64	101	103	130
1 700	75/65/20	134	240	277	331
	55/45/20	69	108	111	140
1 800	75/65/20	144	257	297	355
	55/45/20	74	116	118	150
1 900	75/65/20	154	274	316	379
	55/45/20	79	124	126	161
2 000	75/65/20	164	291	336	403
	55/45/20	84	131	134	171
2 100	75/65/20	174	308	356	427
	55/45/20	90	139	142	181
2 200	75/65/20	184	325	375	451
	55/45/20	95	147	150	191
2 300	75/65/20	194	342	395	475
	55/45/20	100	155	158	202
2 400	75/65/20	204	359	415	499
	55/45/20	105	162	166	212
2 500	75/65/20	215	376	434	524
	55/45/20	111	170	173	222
2 600	75/65/20	225	393	454	548
	55/45/20	116	178	181	232
2 700	75/65/20	235	410	474	572
	55/45/20	121	185	189	243
2 800	75/65/20	245	427	493	596
	55/45/20	126	193	197	253
2 900	75/65/20	255	444	513	620
	55/45/20	131	201	205	263
3 000	75/65/20	265	461	532	644
	55/45/20	137	208	213	273
Temperature exponent [n]		1.3030	1.5552	1.7953	1.6785
Unit weight [kg/m]		4.83	6.43	7.78	9.93
Water volume [l/m]		0.146	0.298	0.298	0.450
Effective exchange area [mm]		=L-380	=L-290	=L-290	=L-329

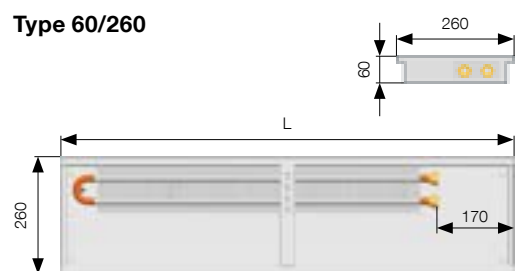
Type 60/140



Type 60/200



Type 60/260



Type 60/320



The stated trench heater dimensions are identical for both Thin and Cross frame variants.

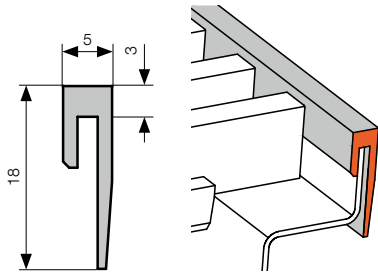
Further information

Connections and connection measurements p. 36, Grilles and frames p. 76,
Installation p. 92, Raised floor installations p. 94, Accessories p. 96,
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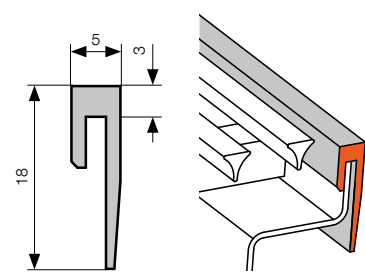
Measurements shown in mm.

FRAMES

Standard Thin grille frame



Optional Cross grille frame (upon request)



Measurements shown in mm.

ORDER CODE



In the ordering code, always specify the dimensions in cm, including the Thin-frame.

KORAFLEX	Convection	Thin	Length (cm)	Depth (cm)	Width (cm)	Heat exchanger type	Heat exchanger colour	Frame	Frame colour	Connection side	Lowered face
F	K	T	-.../../..-			V counter-flow P* single-stream 0 without heat exchanger	1 non-lacquered 5 RAL 9005 9 other RAL colour 0 without heat exchanger	T for Thin grille C for Cross grille 0 without frame	1 silver elox 2 dark bronze elox 3 light bronze elox 5 black elox 9 other RAL colour 0 without frame	P right	0 without lowered face 1 lower face – input side 2 lower face – opposite input side 3 both sides lower

P* – single-stream heat exchangers are fitted as standard in trench heaters 140 mm wide.

Example order code: FKT-100/06/20-V1T1P0

KORAFLEX trench heater with natural convection, Thin model, length 100 cm, depth 6 cm, width 20 cm, counter-flow heat exchanger in Economic version (without surface treatment), T-frame for Thin grille, silver elox, right-hand connection to heating system, without lowered face.



Where a left-hand connection to the heating system is required, rotate the heat exchanger in the trench heater by 180°.

The design of trench heater casing does not allow substituting Thin and Cross grilles after ordering.
Note, please, that grilles must be ordered together with the trench heaters, as the casing must undergo alteration.

Thin grilles are not available in linear design.

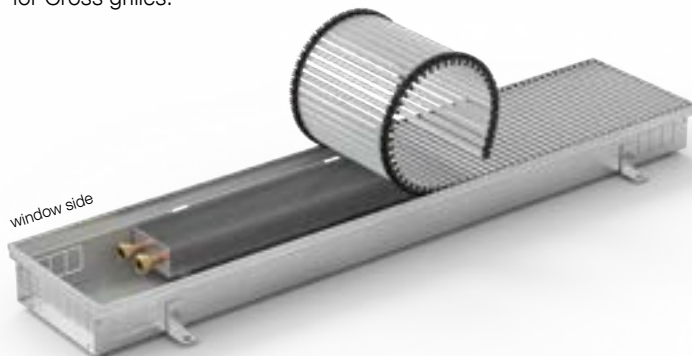
Descriptions of individual Thin and Cross grille types and order codes can be found on p. 81–82.

KORAFLEX Basic FKB

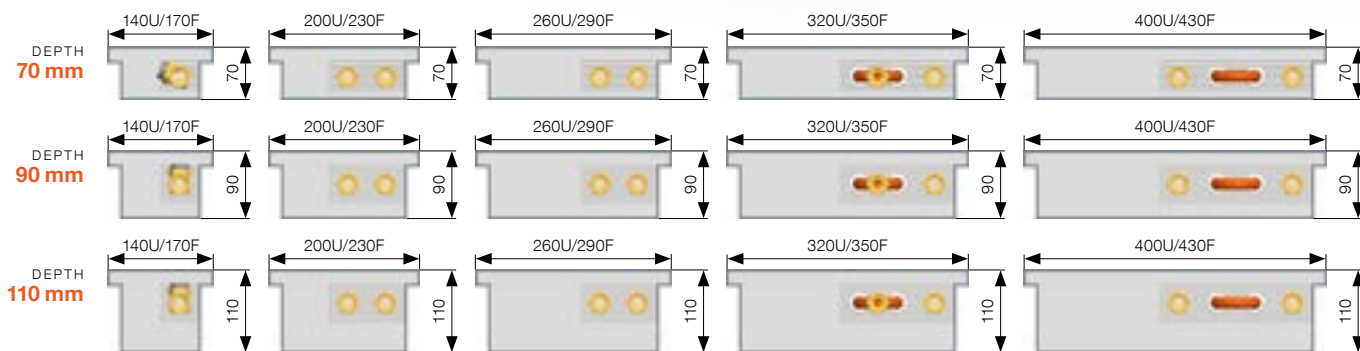
Specifications

Depth	70, 90, 110 mm
Width	140, 200, 260, 320, 400 mm
Length	800 to 3 000 mm (by 100 mm)
Heat output	from 41 to 1 739 W
Max. operating pressure	1.2 MPa
Max. operating temperature	90 °C
Connecting thread	inner G ½"

KORAFLEX Basic FKB is an economic variant of trench heater ideal for project solutions. Manufactured from non-lacquered hot-dip galvanised steel and fitted with silver elox U-frames or frames suitable for Cross grilles.



Basic
FKB



U = U-frame, F = F-frame

Standard contents

- hot-dip galvanised steel casing, non-lacquered
- non-lacquered Al/Cu heat exchanger with bleed valve
- aluminium U-frame, silver elox
- metal cover plate
- levelling set screws and 4 anchors
- spacers for correct installation and concreting
- hardboard cover to protect trench heater from contamination
- durable packaging, installation instructions

Optional accessories

- cover grille of your choice
- Cross or Robust cover grille (p. 82) – project solution – necessary to order together with trench heater (includes a casing construction modification)

- U-frame in aluminium, available in black elox, light/dark bronze elox or lacquered according to the RAL colour chart
- F-frame in aluminium, available in silver elox, black elox, light/dark bronze elox or lacquered according to the RAL colour chart
- supports for raised floors (p. 94)
- regulating valve set, angle or straight (p. 99)
- thermostatic valve, angle, straight or axial (p. 99)
- thermostatic pressure-independent valve, angle, straight or axial (p. 99)
- brass elbow ½" × ½" 90° (p. 98)
- stainless steel flexible hoses (p. 98)
- thermoelectric actuator TEP 230 or TEP 24 (p. 97)
- SIEMENS thermostat RAA21 or RDE 100.1 (p. 97)
- thermostatic head with capillary tube (p. 96)
- 24 V DC power supply unit (p. 98)
- OSB cover board with increased stiffness for installation purposes

For more information about optional accessories and order codes p. 96–100

Suitable grilles (roll-up, linear, fixed)



For a summary and description of grilles available, including order codes, p. 76–83.



Heat output [W] where $t_1/t_2/t_3$ / EN 442.

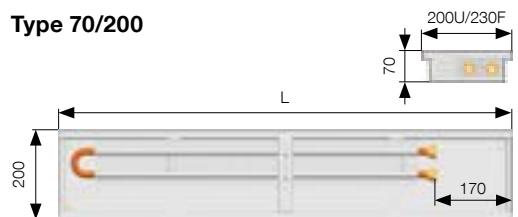
Measurements are shown in mm, including U-frame.

Length L	$t_1/t_2/t_3$ [°C]	Width 140	Width 200	Width 260	Width 320	Width 400
800	75/65/20	41	76	90	103	131
	55/45/20	20	36	40	46	60
900	75/65/20	51	91	108	124	157
	55/45/20	24	43	47	56	72
1 000	75/65/20	61	105	126	146	183
	55/45/20	29	50	55	66	84
1 100	75/65/20	71	120	144	168	208
	55/45/20	34	57	63	76	96
1 200	75/65/20	81	135	161	190	234
	55/45/20	38	64	71	86	108
1 300	75/65/20	91	150	179	212	260
	55/45/20	43	71	78	95	119
1 400	75/65/20	101	165	197	233	286
	55/45/20	48	78	86	105	131
1 500	75/65/20	111	180	214	255	311
	55/45/20	52	85	94	115	143
1 600	75/65/20	120	195	232	277	337
	55/45/20	57	92	102	125	155
1 700	75/65/20	130	209	250	299	363
	55/45/20	62	99	109	135	167
1 800	75/65/20	140	224	268	320	389
	55/45/20	66	106	117	145	178
1 900	75/65/20	150	239	285	342	414
	55/45/20	71	113	125	154	190
2 000	75/65/20	160	254	303	364	440
	55/45/20	76	120	133	164	202
2 100	75/65/20	170	269	321	386	466
	55/45/20	81	127	140	174	214
2 200	75/65/20	180	284	338	408	491
	55/45/20	85	134	148	184	226
2 300	75/65/20	190	299	356	429	517
	55/45/20	90	141	156	194	238
2 400	75/65/20	200	313	374	451	543
	55/45/20	95	148	164	204	249
2 500	75/65/20	209	328	392	473	569
	55/45/20	99	156	171	213	261
2 600	75/65/20	219	343	409	495	594
	55/45/20	104	163	179	223	273
2 700	75/65/20	229	358	427	516	620
	55/45/20	109	170	187	233	285
2 800	75/65/20	239	373	445	538	646
	55/45/20	113	177	195	243	297
2 900	75/65/20	249	388	462	560	672
	55/45/20	118	184	202	253	309
3 000	75/65/20	259	403	480	582	697
	55/45/20	123	191	210	263	320
Temperature exponent [n]		1.4629	1.4587	1.6148	1.5550	1.5235
Unit weight [kg/m]		2.88	3.51	4.01	4.98	6.48
Water volume [l/m]		0.146	0.298	0.298	0.450	0.602
Effective exchange area [mm]		=L-380	=L-325	=L-290	=L-330	=L-290

Type 70/140



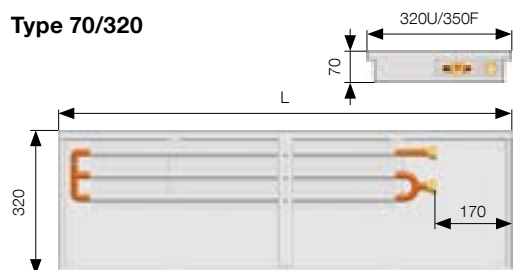
Type 70/200



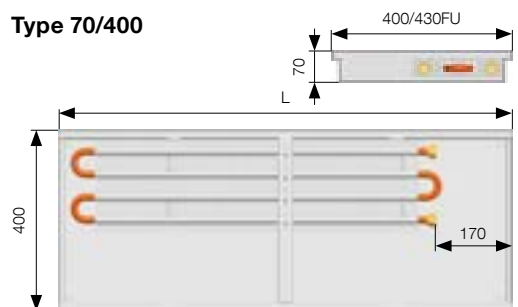
Type 70/260



Type 70/320



Type 70/400



U = U-type frame, F = F-type frame. The dimensions of the U and Cross frames are identical.

Further information

Connections and connection measurements p. 36, Grilles and frames p. 76,
Installation p. 92, Raised floor installations p. 94, Accessories p. 96,
Overview of recommended valves for connection, p. 100

Measurements shown in mm.

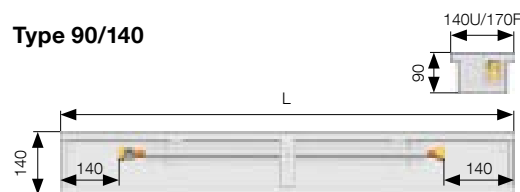


Heat output [W] where $t_1/t_2/t_3$ / EN 442.

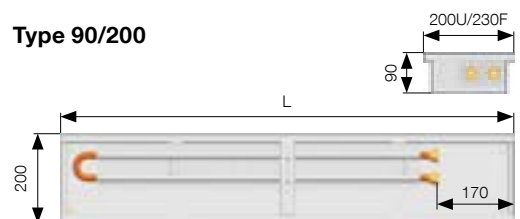
Measurements are shown in mm, including U-frame.

Length L	$t_1/t_2/t_3$ [°C]	Width 140	Width 200	Width 260	Width 320	Width 400
800	75/65/20	50	120	153	195	275
	55/45/20	23	55	69	93	130
900	75/65/20	62	143	183	236	329
	55/45/20	29	65	82	112	156
1 000	75/65/20	74	167	213	278	383
	55/45/20	34	76	96	132	181
1 100	75/65/20	86	190	243	319	437
	55/45/20	40	87	109	151	207
1 200	75/65/20	98	214	273	361	490
	55/45/20	45	98	123	171	233
1 300	75/65/20	110	237	303	402	544
	55/45/20	51	108	136	191	258
1 400	75/65/20	122	261	333	444	598
	55/45/20	56	119	150	210	284
1 500	75/65/20	134	284	363	485	652
	55/45/20	62	130	163	230	309
1 600	75/65/20	146	308	393	526	706
	55/45/20	67	141	177	250	335
1 700	75/65/20	158	331	423	568	760
	55/45/20	73	151	190	269	360
1 800	75/65/20	170	355	453	609	814
	55/45/20	78	162	204	289	386
1 900	75/65/20	182	378	483	651	868
	55/45/20	84	173	217	309	411
2 000	75/65/20	194	402	513	692	922
	55/45/20	89	183	231	328	437
2 100	75/65/20	206	426	543	733	976
	55/45/20	95	194	244	348	463
2 200	75/65/20	218	449	573	775	1029
	55/45/20	100	205	258	368	488
2 300	75/65/20	230	473	603	816	1083
	55/45/20	106	216	271	387	514
2 400	75/65/20	242	496	633	858	1137
	55/45/20	111	226	285	407	539
2 500	75/65/20	254	520	663	899	1191
	55/45/20	117	237	298	426	565
2 600	75/65/20	266	543	693	940	1245
	55/45/20	122	248	311	446	590
2 700	75/65/20	278	567	723	982	1299
	55/45/20	128	258	325	466	616
2 800	75/65/20	290	590	753	1023	1353
	55/45/20	133	269	338	485	641
2 900	75/65/20	302	614	783	1065	1407
	55/45/20	139	280	352	505	667
3 000	75/65/20	314	637	813	1106	1461
	55/45/20	144	291	365	525	693
Temperature exponent [n]		1.5247	1.5373	1.5643	1.4599	1.4607
Unit weight [kg/m]		3.20	3.89	4.43	5.43	6.48
Water volume [l/m]		0.146	0.298	0.298	0.450	0.602
Effective exchange area [mm]		=L-380	=L-325	=L-290	=L-329	=L-290

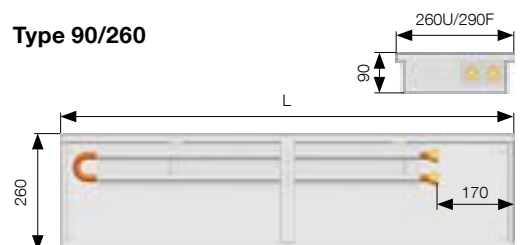
Type 90/140



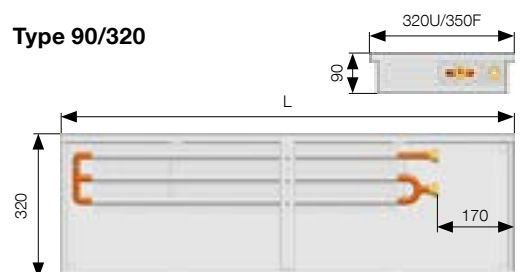
Type 90/200



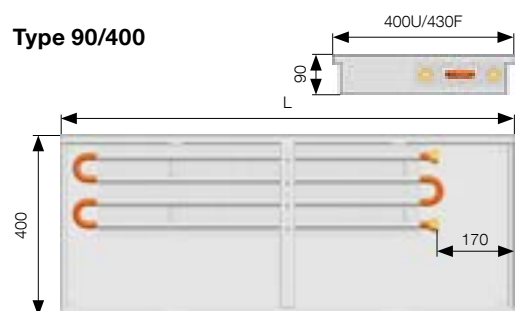
Type 90/260



Type 90/320



Type 90/400

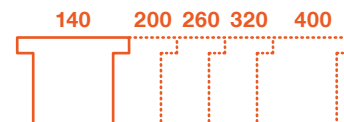


U = U-type frame, F = F-type frame. The dimensions of the U and Cross frames are identical.

Further information

Connections and connection measurements p. 36, Grilles and frames p. 76,
Installation p. 92, Raised floor installations p. 94, Accessories p. 96,
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Measurements shown in mm.

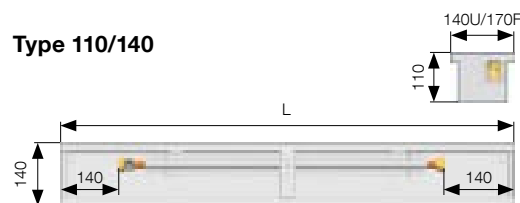


Heat output [W] where $t_1/t_2/t_3$ / EN 442.

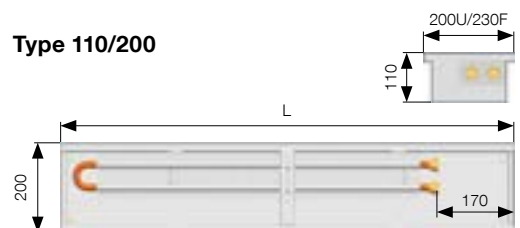
Measurements are shown in mm, including U-frame.

Length L	$t_1/t_2/t_3$ [°C]	Width 140	Width 200	Width 260	Width 320	Width 400
800	75/65/20	56	142	184	237	327
	55/45/20	26	67	88	112	155
900	75/65/20	69	170	221	287	391
	55/45/20	32	80	106	136	186
1 000	75/65/20	82	198	257	338	456
	55/45/20	38	93	123	160	216
1 100	75/65/20	95	226	293	388	520
	55/45/20	44	106	140	184	247
1 200	75/65/20	108	254	329	438	584
	55/45/20	51	119	158	208	277
1 300	75/65/20	122	282	365	489	648
	55/45/20	57	133	175	232	308
1 400	75/65/20	135	309	401	539	712
	55/45/20	63	146	192	255	338
1 500	75/65/20	148	337	438	589	776
	55/45/20	69	159	210	279	369
1 600	75/65/20	161	365	474	640	841
	55/45/20	75	172	227	303	399
1 700	75/65/20	175	393	510	690	905
	55/45/20	82	185	244	327	430
1 800	75/65/20	188	421	546	740	969
	55/45/20	88	198	262	351	460
1 900	75/65/20	201	449	582	791	1033
	55/45/20	94	211	279	375	491
2 000	75/65/20	214	477	618	841	1097
	55/45/20	100	225	296	398	521
2 100	75/65/20	227	505	655	891	1161
	55/45/20	106	238	314	422	552
2 200	75/65/20	241	532	691	942	1226
	55/45/20	112	251	331	446	582
2 300	75/65/20	254	560	727	992	1290
	55/45/20	119	264	348	470	613
2 400	75/65/20	267	588	763	1042	1354
	55/45/20	125	277	366	494	643
2 500	75/65/20	280	616	799	1093	1418
	55/45/20	131	290	383	518	674
2 600	75/65/20	294	644	835	1143	1482
	55/45/20	137	303	400	542	704
2 700	75/65/20	307	672	872	1193	1546
	55/45/20	143	316	418	565	735
2 800	75/65/20	320	700	908	1244	1611
	55/45/20	149	330	435	589	765
2 900	75/65/20	333	728	944	1294	1675
	55/45/20	156	343	452	613	795
3 000	75/65/20	346	755	980	1344	1739
	55/45/20	162	356	470	637	826
Temperature exponent [n]		1.4888	1.4739	1.4385	1.4622	1.4569
Unit weight [kg/m]		3.50	4.20	4.75	5.80	6.86
Water volume [l/m]		0.146	0.298	0.298	0.450	0.602
Effective exchange area [mm]		= L-380	= L-325	= L-290	= L-329	= L-290

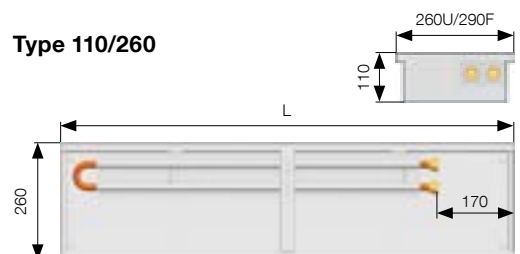
Type 110/140



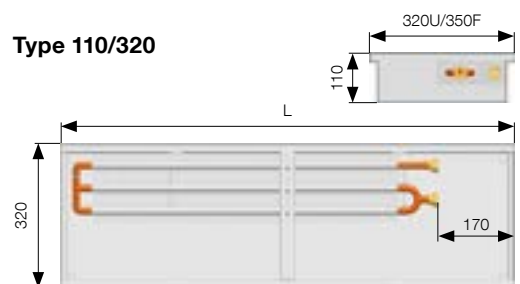
Type 110/200



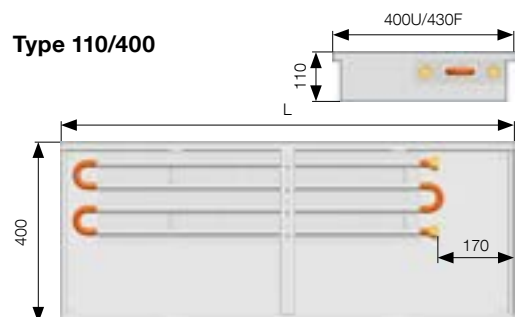
Type 110/260



Type 110/320



Type 110/400



U = U-type frame, F = F-type frame. The dimensions of the U and Cross frames are identical.

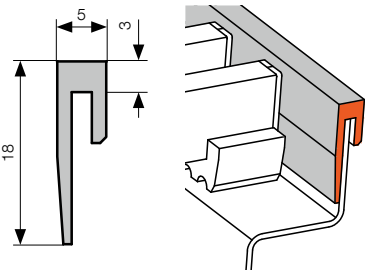
Further information

Connections and connection measurements p. 36, Grilles and frames p. 76,
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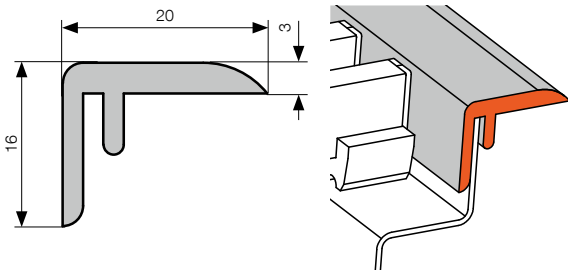
Measurements shown in mm.

FRAMES

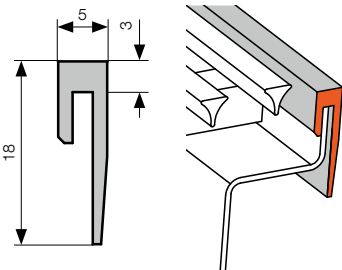
Standard U-frame



Optional F-frame



Optional Cross grille frame (on request)



Measurements shown in mm.

ORDER CODE



Always include the dimensions with the U-frame in cm in the order code.

KORAFLEX	Convection	Basic	Length (cm)	Depth (cm)	Width (cm)	Heat exchanger type	Heat exchanger colour	Frame	Frame colour	Connection side	Lowered face
F	K	B	-.../.../...-			V counter-flow P* single-stream 0 without heat exchanger	1 non-lacquered 0 without heat exchanger	U U-frame F F-frame C for Cross grille 0 without frame	1 silver elox 2 dark bronze elox 3 light bronze elox 5 black elox 9 other RAL colour 0 without frame	P right	0 without lowered face 1 lower face – input side 2 lower face – opposite input side 3 both sides lower

P* – single-stream heat exchangers are fitted as standard in trench heaters 140 mm wide, depth of 70, 90 and 110 mm only.

Example order code: FKB-100/11/26-V1U1P0

KORAFLEX trench heater with natural convection, Basic model, length 100 cm, depth 11 cm, width 26 cm, untreated counter-flow heat exchanger, finished with a silver U-frame, with right-hand connection to the heating system, without lowered face.



Where a left-hand connection to the heating system is required, rotate the heat exchanger in the trench heater by 180°.

Cross grille – design solutions – Note, please, that Cross grilles must be ordered together with trench heaters, as the casing must undergo alteration. These trench heaters will be fitted with Cross frame suitable for Cross grille. For more information – see p. 82).

For a summary and description of grilles available, including order codes, p. 76–83.

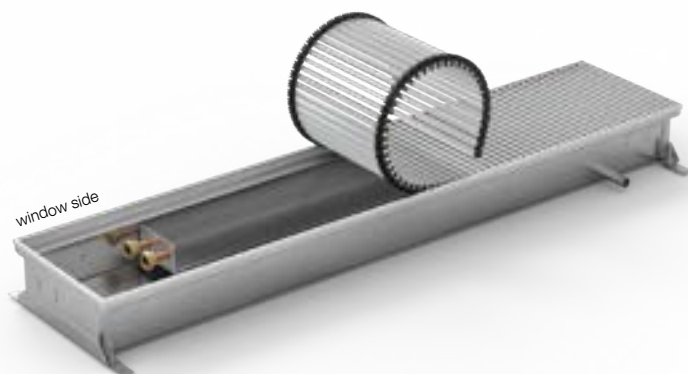
KORAFLEX Pool FKP

Specifications

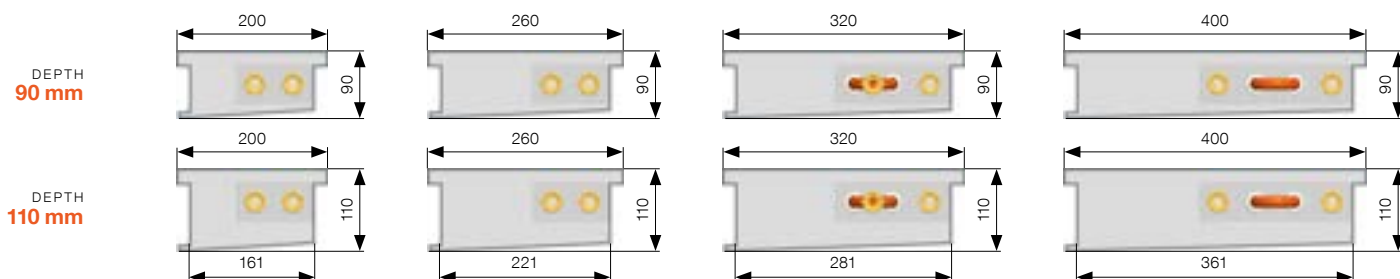
Depth	90, 110 mm
Width	200, 260, 320, 400 mm
Length	800 to 3 000 mm (by 100 mm)
Heat output	from 120 to 1 739 W
Max. operating pressure	1.2 MPa
Max. operating temperature	90 °C
Connecting thread	inner G ½

KORAFLEX Pool FKP trench heaters are suitable for installation in humid environments. Fitted with built-in drainage and a sloping base. However, these trench heaters are not watertight and must not be flooded for long periods. For ideal operating conditions, we recommend using water with a pH of 7.2 – 7.6, with a maximum chlorine content 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. Pool trench heaters installed in hu-

KORAFLEX Pool FKP is manufactured from AISI 316 stainless and is ideal for humid environments. **The Pool convector is finished with a hem, therefore no frames can be fitted.**



mid environments must be cleaned regularly with clean water and dried thoroughly. In case of visible calcareous deposits or oxidation, use a stainless steel cleaner followed by a suitable metal treatment product. **For long-term satisfaction, it is essential that basic maintenance of the stainless steel components is carried out.** Further information can be found in the installation manual and Operating and warranty conditions, available to download at www.licon-heat.com.



Standard contents

- AISI 316 stainless steel casing, non-lacquered
- Al/Cu RAL 9006 grey lacquered heat exchanger with bleed valve
- frame substituted by casing edges finished with hem
- AISI 316 stainless steel cover plate
- levelling set screws and 4 anchors
- hardboard cover to protect trench heater from contamination
- durable packaging, installation instructions

Optional accessories

- aluminium cover grille of your choice suitable for FKP
- regulating valve set, angle or straight (p. 99)
- thermostatic valve, angle, straight or axial (p. 99)
- thermostatic pressure-independent valve, angle, straight or axial (p. 99)
- brass elbow ½" × ½" 90° (p. 98)
- stainless steel flexible hoses (p. 98)
- thermoelectric actuator TEP 230 or TEP 24 (p. 97)
- SIEMENS thermostat RAA21 or RDE 100.1 (p. 97)
- thermostatic head with capillary tube (p. 96)
- 24 V DC power supply unit (p. 98)
- OSB cover board with increased stiffness for installation purposes

For more information about optional accessories and order codes p. 96–100



Unsuitable for salt water pools.

Suitable grilles (roll-up, linear)



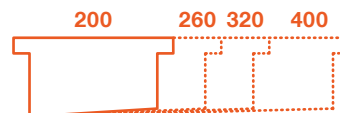
Aluminium elox, silver

Aluminium elox, dark bronze

Aluminium elox, light bronze

Aluminium elox, black

A summary of individual aluminium grille types and order codes can be found on p. 77.

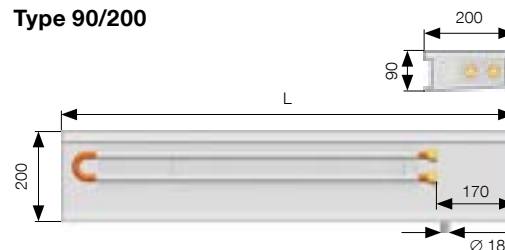


Heat output [W] where $t_1/t_2/t_3$ / EN 442.

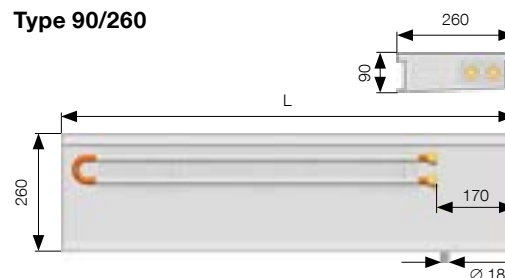
Measurements are shown in mm, including hem.

Length L	$t_1/t_2/t_3$ [°C]	Width 200	Width 260	Width 320	Width 400
800	75/65/20	120	153	195	275
	55/45/20	55	69	93	130
900	75/65/20	143	183	236	329
	55/45/20	65	82	112	156
1 000	75/65/20	167	213	278	383
	55/45/20	76	96	132	181
1 100	75/65/20	190	243	319	437
	55/45/20	87	109	151	207
1 200	75/65/20	214	273	361	490
	55/45/20	98	123	171	233
1 300	75/65/20	237	303	402	544
	55/45/20	108	136	191	258
1 400	75/65/20	261	333	444	598
	55/45/20	119	150	210	284
1 500	75/65/20	284	363	485	652
	55/45/20	130	163	230	309
1 600	75/65/20	308	393	526	706
	55/45/20	141	177	250	335
1 700	75/65/20	331	423	568	760
	55/45/20	151	190	269	360
1 800	75/65/20	355	453	609	814
	55/45/20	162	204	289	386
1 900	75/65/20	378	483	651	868
	55/45/20	173	217	309	411
2 000	75/65/20	402	513	692	922
	55/45/20	183	231	328	437
2 100	75/65/20	426	543	733	976
	55/45/20	194	244	348	463
2 200	75/65/20	449	573	775	1029
	55/45/20	205	258	368	488
2 300	75/65/20	473	603	816	1083
	55/45/20	216	271	387	514
2 400	75/65/20	496	633	858	1137
	55/45/20	226	285	407	539
2 500	75/65/20	520	663	899	1191
	55/45/20	237	298	426	565
2 600	75/65/20	543	693	940	1245
	55/45/20	248	311	446	590
2 700	75/65/20	567	723	982	1299
	55/45/20	258	325	466	616
2 800	75/65/20	590	753	1023	1353
	55/45/20	269	338	485	641
2 900	75/65/20	614	783	1065	1407
	55/45/20	280	352	505	667
3 000	75/65/20	637	813	1106	1461
	55/45/20	291	365	525	693
Temperature exponent [n]		1.5373	1.5643	1.4599	1.4607
Unit weight [kg/m]		4.60	5.28	6.42	7.74
Water volume [l/m]		0.298	0.298	0.450	0.602
Effective exchange area [mm]		=L-325	=L-290	=L-329	=L-290

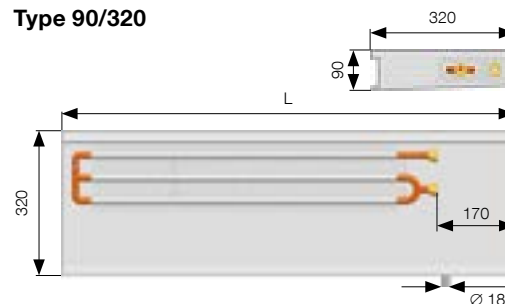
Type 90/200



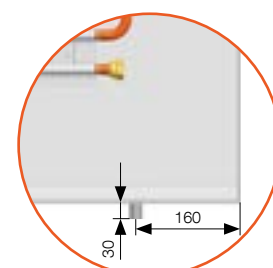
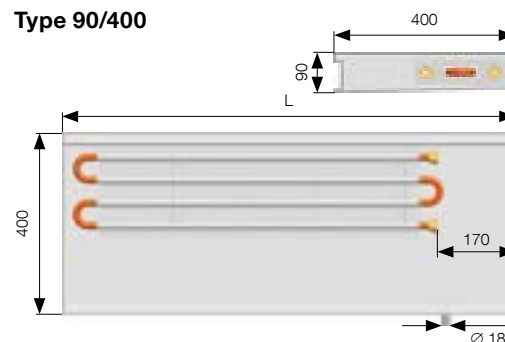
Type 90/260



Type 90/320



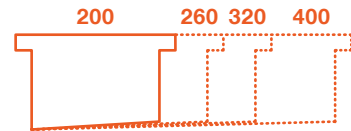
Type 90/400



Further information

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Measurements shown in mm.

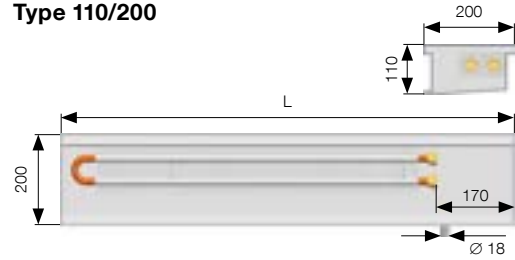


Heat output [W] where $t_1/t_2/t_3$ / EN 442.

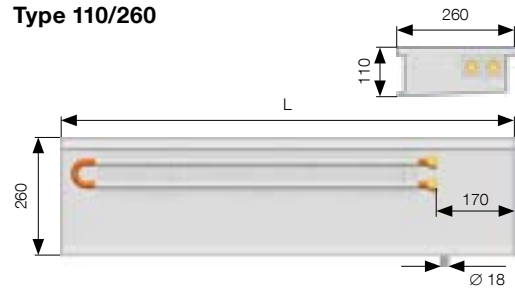
Measurements are shown in mm, including hem.

Length L	$t_1/t_2/t_3$ [°C]	Width 200	Width 260	Width 320	Width 400
800	75/65/20	142	184	237	327
	55/45/20	67	88	112	155
900	75/65/20	170	221	287	391
	55/45/20	80	106	136	186
1 000	75/65/20	198	257	338	456
	55/45/20	93	123	160	216
1 100	75/65/20	226	293	388	520
	55/45/20	106	140	184	247
1 200	75/65/20	254	329	438	584
	55/45/20	119	158	208	277
1 300	75/65/20	282	365	489	648
	55/45/20	133	175	232	308
1 400	75/65/20	309	401	539	712
	55/45/20	146	192	255	338
1 500	75/65/20	337	438	589	776
	55/45/20	159	210	279	369
1 600	75/65/20	365	474	640	841
	55/45/20	172	227	303	399
1 700	75/65/20	393	510	690	905
	55/45/20	185	244	327	430
1 800	75/65/20	421	546	740	969
	55/45/20	198	262	351	460
1 900	75/65/20	449	582	791	1033
	55/45/20	211	279	375	491
2 000	75/65/20	477	618	841	1097
	55/45/20	225	296	398	521
2 100	75/65/20	505	655	891	1161
	55/45/20	238	314	422	552
2 200	75/65/20	532	691	942	1226
	55/45/20	251	331	446	582
2 300	75/65/20	560	727	992	1290
	55/45/20	264	348	470	613
2 400	75/65/20	588	763	1042	1354
	55/45/20	277	366	494	643
2 500	75/65/20	616	799	1093	1418
	55/45/20	290	383	518	674
2 600	75/65/20	644	835	1143	1482
	55/45/20	303	400	542	704
2 700	75/65/20	672	872	1193	1546
	55/45/20	316	418	565	735
2 800	75/65/20	700	908	1244	1611
	55/45/20	330	435	589	765
2 900	75/65/20	728	944	1294	1675
	55/45/20	343	452	613	795
3 000	75/65/20	755	980	1344	1739
	55/45/20	356	470	637	826
Temperature exponent [n]		1.4739	1.4385	1.4622	1.4569
Unit weight [kg/m]		5.00	5.69	6.87	8.23
Water volume [l/m]		0.298	0.298	0.450	0.602
Effective exchange area [mm]		=L-325	=L-290	=L-329	=L-290

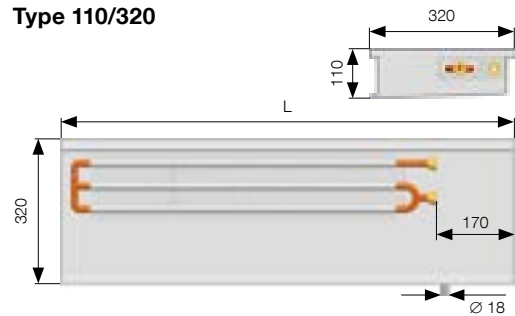
Type 110/200



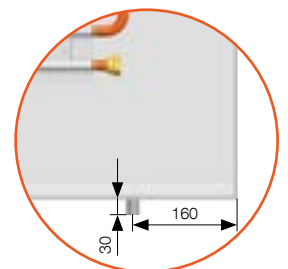
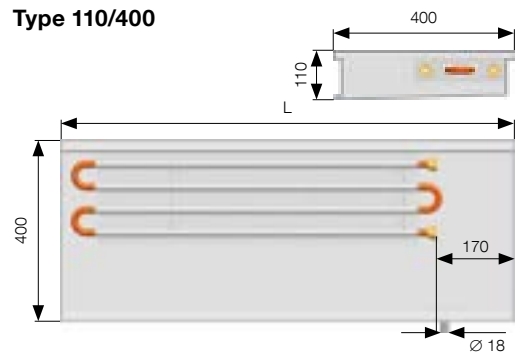
Type 110/260



Type 110/320



Type 110/400

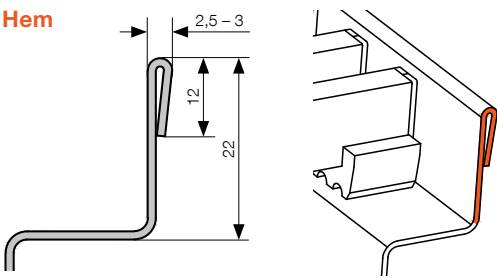


Measurements shown in mm.

Further information

Connections and connection measurements p. 36, Grilles and frames p. 76,
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Overview of recommended valves for connection, p. 100

HEM FINISHING



Measurements shown in mm.

ORDER CODE



In the order code, always use the measurements in cm, including hem.

KORAFLEX	Convection	Pool	Length (cm)	Depth (cm)	Width (cm)	Heat exchanger type	Heat exchanger colour	Frame	Frame colour	Connection side	Lowered face
F	K	P		/ ..	/ ..	V counter-flow 0 without heat exchanger	6 RAL 9006 lacquer 0 without heat exchanger	P hem	0 without frame	P right	0 without lowered face

Example order code: FKP-100/11/26-V6P0P0

KORAFLEX trench heater with natural convection, Pool model, length 100 cm, depth 11 cm, width 26 cm, counter-flow RAL 9006 grey lacquered heat exchanger, finished with hem, right-hand connection to heating system, without lowered face.



Where a left-hand connection to the heating system is required, rotate the heat exchanger in the trench heater by 180°.

Individual KORAFLEX Pool trench heater casings can not be combined into multiple series, and are manufactured solely as P0 models, frame substituted with hem, with counter-flow heat exchangers – see p. 93.

Where a linear grille is selected, technical consultation is necessary, as the casing may need to undergo alteration. Note, please, that linear grilles must be ordered together with trench heaters.

For a summary and description of grilles available, including order codes, p. 76–83.

CONNECTIONS AND CONNECTION MEASUREMENTS

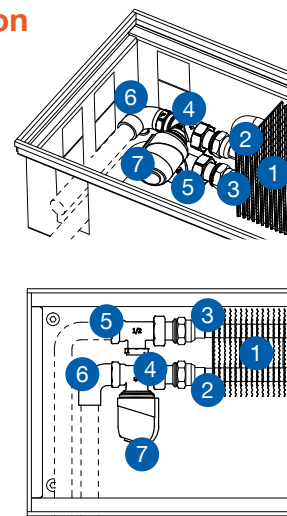
Connection options

The illustrations show the recommended connection of the KORAFLEX convector to the heating system using valves and other optional accessories. The valves and lockshields shown correspond to the recommended connection method, with the connecting pipes routed either into the room or to the side of the convector. The connection direction is indicated by arrows in each illustration. The convector can be connected to the heating system using rigid pipes or stainless steel flexible hoses, which are listed in the Accessories section on p. 98. **For some models, a thermoelectric actuator cannot be used due to limited space.** An overview of suitable valves and the options for using thermoelectric actuators for individual convector types and sizes is provided in the table on p. 100. Valves, lockshields, thermoelectric actuators and other accessories shown are not included in the standard convector delivery and can be ordered as optional accessories.

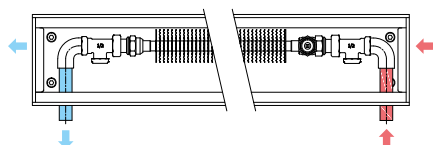
Recommended connection

Connection of a natural convection convector towards the room using the recommended optional accessories.

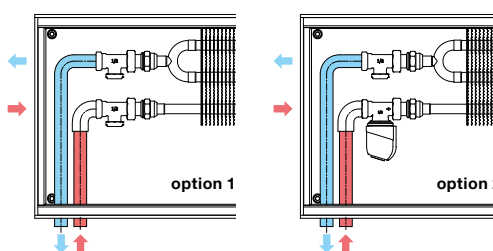
- 1 heating Al/Cu heat exchanger
- 2 water inlet
- 3 water outlet
- 4 straight thermostatic valve
- 5 straight lockshield
- 6 brass elbow
- 7 thermoelectric actuator



Type 60/140, 70/140, 90/140, 110/140

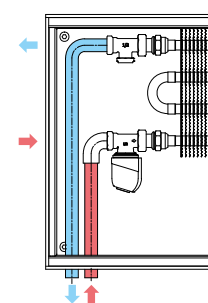


Type 60/320*, 70/320, 90/320, 110/320

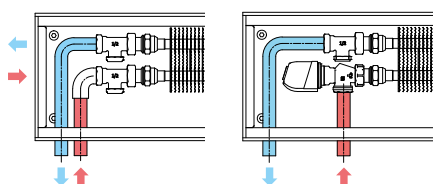


* only suitable with option 1

Type 70/400, 90/400, 110/400

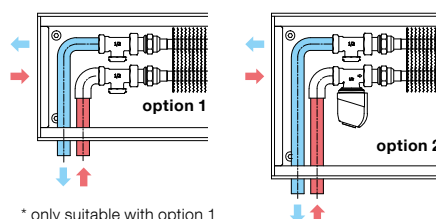


Type 70/200, 90/200, 110/200



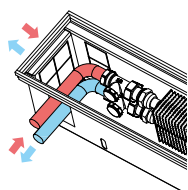
For connection towards the room, a straight lockshield and an axial valve must be used.

Type 60/200*, 60/260*, 70/260, 90/260, 110/260

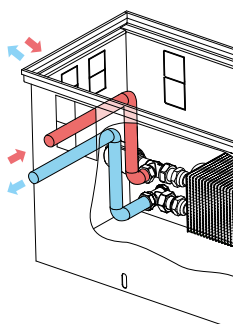


* only suitable with option 1

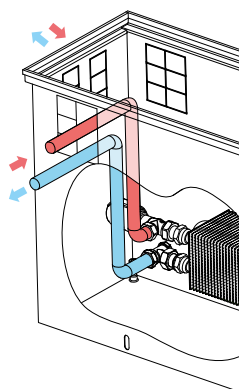
Type 130/140, 150/140



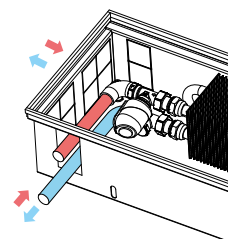
Type 300/260, 300/320, 300/400



Type 450/260, 450/320, 450/400



Type 130/200, 130/260, 130/320, 130/400, 150/200, 150/260, 150/320, 150/400, 190/200, 190/260, 190/320, 190/400



Connection dimensions

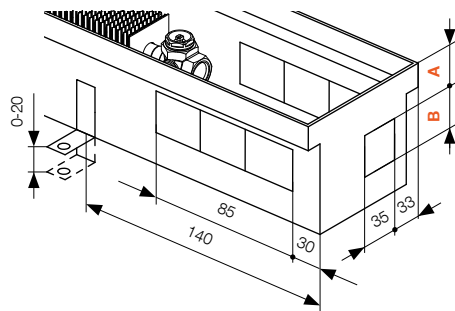
The heating heat exchanger can be connected to the heating system in several ways, depending on the type of trench convector and the pipework arrangement. The casing is provided with cut-outs on both sides for easy installation. As standard, the heat exchanger is prepared for right-hand connection. For left-hand connection, simply rotate it by 180° in the casing and use the cut-outs on the opposite side. The illustrations show the dimensions and positions of the cut-outs for the individual connection types.

Type 60/140, 70/140, 90/140, 110/140

Type 60/140
A = 18 mm
B = 35 mm

Type 70/140
A = 30 mm
B = 35 mm

Type 90/140, 110/140
A = 32 mm
B = 40 mm

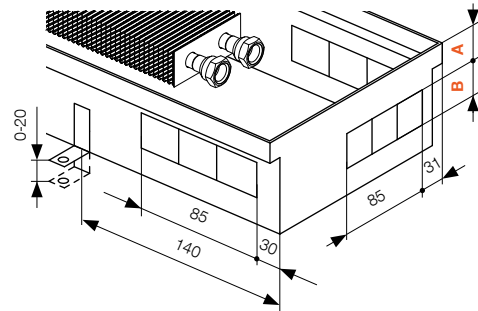


Type 60/200*, 60/260*, 70/260, 90/260, 110/260

Type 60/200*, 60/260*
A = 18 mm
B = 35 mm

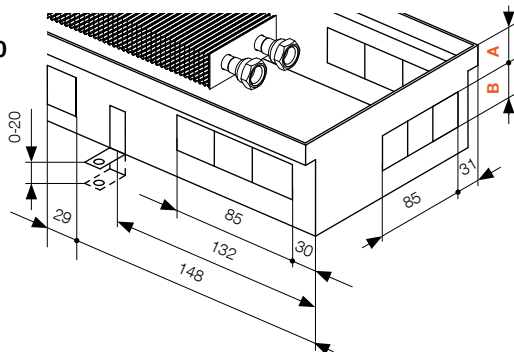
Type 70/260
A = 30 mm
B = 35 mm

Type 90/260, 110/260
A = 32 mm
B = 40 mm



Type 70/200, 90/200, 110/200

Type 70/200, 90/200, 110/200
A = 30 mm
B = 35 mm

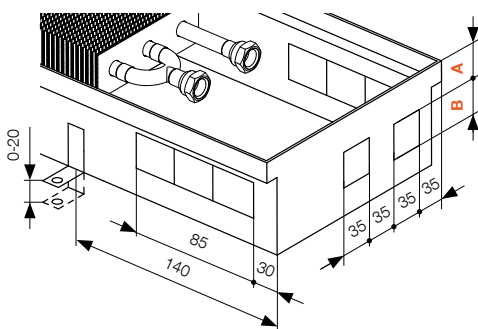


Type 60/320*, 70/320, 90/320, 110/320

Type 60/320*
A = 18 mm
B = 35 mm

Type 70/320
A = 30 mm
B = 35 mm

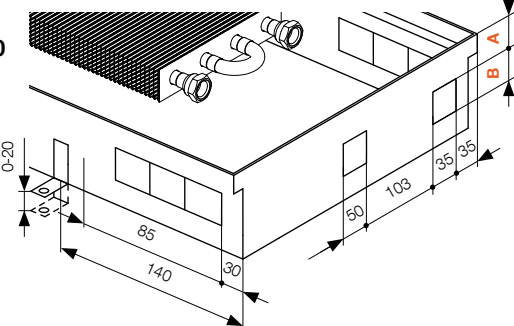
Type 90/320, 110/320
A = 32 mm
B = 40 mm



Type 70/400, 90/400, 110/400

Type 70/400
A = 30 mm
B = 35 mm

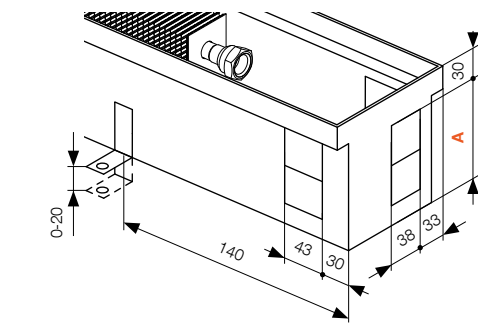
Type 90/400, 110/400
A = 32 mm
B = 40 mm



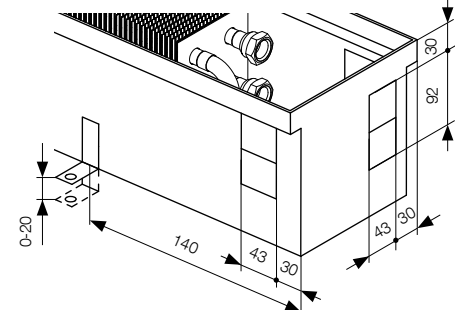
Type 130/140, 150/140

Type 130/140
A = 80 mm

Type 150/140
A = 92 mm



Type 300/260, 300/320, 300/400



Type 130/200, 130/260, 130/320, 130/400, 150/260, 150/320, 150/400, 190/200, 190/260, 190/320, 190/400

Type 130/200
A = 80 mm

Type 130/260
A = 80 mm

Type 130/200
A = 80 mm

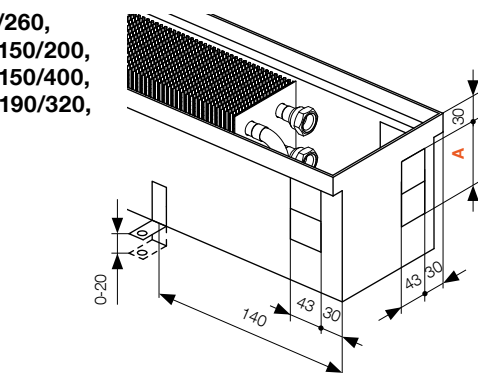
Type 130/260
A = 80 mm

Type 150/200, 190/200
A = 92 mm

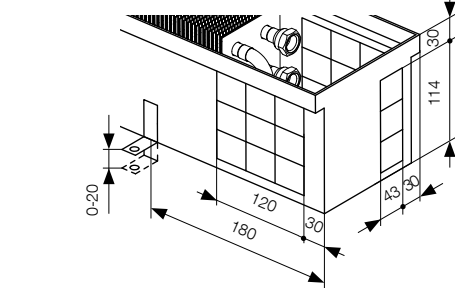
Type 150/260, 190/260
A = 92 mm

Type 150/320, 190/320
A = 92 mm

Type 150/400, 190/400
A = 92 mm



Type 450/260, 450/320, 450/400



Cover grilles

Design grilles and frames offer a solution for modern and technically demanding interiors. A wide range of designs makes it possible to adapt the appearance to architectural requirements and maintain high durability even under intensive operation.



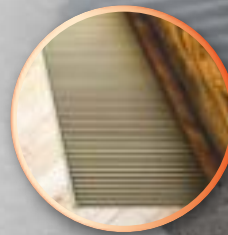
Broad portfolio

A wide range of design and size variants ensures an optimal solution for modern interiors, large glazed areas and demanding commercial buildings where higher heating output is required.



Higher heating, cooling output

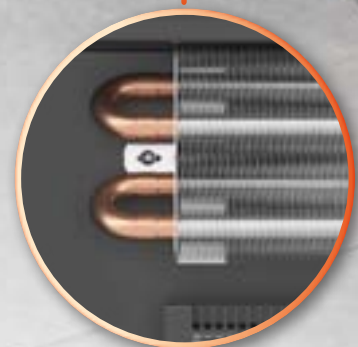
Convectors achieve high heating and cooling outputs, which makes it possible to maintain a stable and comfortable indoor environment. This increases user comfort and contributes to energy savings even under more demanding conditions.



TRENCH HEATERS WITH FORCED CONVECTION

Light cooling

Energy-efficient light cooling using trench heaters without the formation of condensate helps to increase the seasonal efficiency of the heat pump and contributes to higher indoor comfort.





Heat pump synergy

Convectors with this designation are ideal for heating buildings using heat pumps, condensing boilers or solar systems.



Higher-performance heat exchanger

The specially developed heat exchanger is the heart of every convector and ensures high heating output. It is available in two versions – Economic without surface treatment and Exclusive with black lacquer finish RAL 9005 for increased durability and a premium appearance.



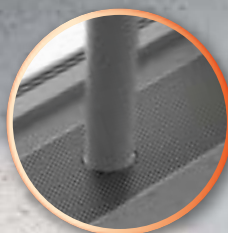
Universal application

Suitable for high-temperature and low-temperature heating sources.



Precise control

A wide range of room thermostats is available in various styles and colour options, making it easy to match them to the interior and adapt them to individual user requirements.



Custom design solution

From the wide range of design modules, an individual custom version of trench heaters can be put together quickly and easily to measure.

Optimal-V FVO
Energy FVE

Pool-V
FVP

Variant F2V
Variant F4V

Grilles
and frames

KORAFLEX Optimal-V FVO

Specifications

Depth	70, 80, 90, 110, 130 mm
Width	160, 200, 260, 320, 400 mm
Length	800 to 3 000 mm (by 200 mm)
Heat output	from 54 to 16 763 W
Max. operating pressure	1.2 MPa
Max. operating temperature	90 °C
Connecting thread	inner G 1/2"
IP rating	IP 20

Economic version – non-lacquered heat exchanger

Exclusive version – RAL 9005 black lacquered heat exchanger

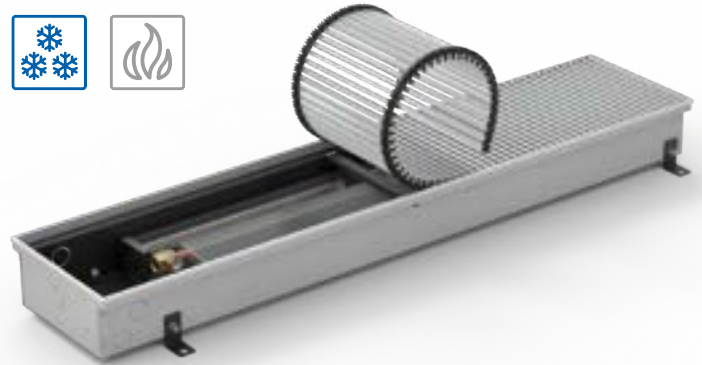
Standard contents

- RAL 9005 black lacquered galvanised steel casing
- Economic – non-lacquered Al/Cu heat exchanger with bleed valve
- Exclusive – RAL 9005 black lacquered Al/Cu heat exchanger with bleed valve
- aluminium U-frame silver elox
- metal cover plates
- set of low-energy EC fans 24 V DC
- 24 V DC terminal block and regulator (FCR BOX)
- levelling set screws and 4 anchors
- spacers for correct installation and concreting
- hardboard cover to protect trench heaters from contamination
- durable packaging, installation instructions



The unit is designed for cooling in the non-condensation zone only, i.e. above the dew-point temperature. The unit is not equipped with condensate drainage.

KORAFLEX Optimal-V FVO is the most extensive model range of trench heaters with forced convection designed for heating. Optimal-V trench heaters can be fitted with a wide range of cover grilles and frames. They are characterised by silent operation and can be connected to a BMS (Building Management System).



Optional accessories

- cover grille of your choice
- Cross or Robust cover grille (p. 82) – design solution – must be ordered together with the trench heater (includes a casing construction modification)
- U-frame in aluminium, available in black elox, light/dark bronze elox or lacquered according to the RAL colour chart
- F-frame in aluminium, available in silver elox, light/dark bronze elox, black elox or lacquered according to the RAL colour chart
- supports for raised floors (p. 94)
- regulating valve set, angle or straight (p. 99)
- thermostatic valve, angle, straight or axial (p. 99)
- thermostatic pressure-independent valve, angle, straight or axial (p. 99)
- brass elbow 1/2" x 1/2" 90° (p. 98)
- stainless steel flexible hoses (p. 98)
- thermoelectric actuator TEP 24 (p. 97)
- SIEMENS thermostat RDG 260T, RDG 260KN, HY607LIC (p. 96)
- SIEMENS manual thermostat RAB 21-DC (p. 96)
- room temperature sensor QAA32 (p. 98)
- 24 V DC power supply unit (p. 98)
- R-Box (p. 98)
- acoustic absorption foil
- OSB cover board with increased stiffness for installation purposes

For more information about optional accessories and order codes p. 96–100

Suitable grilles (roll-up, linear, fixed)



Linear cover grille available after casing modification, see p. 84. For a summary and description of grilles available, including order codes, p. 76–83.

KORAFLEX Energy FVE

Specifications

Depth	70, 80, 90, 110, 130 mm
Width	160, 200, 260, 320, 400 mm
Length	1 000 to 3 000 mm (by 200 mm)
Heat output	from 54 to 15 517 W
Max. operating pressure	1.2 MPa
Max. operating temperature	90 °C
Connecting thread	inner G 1/2"
IP rating	IP 20

Economic version – non-lacquered heat exchanger

Exclusive version – RAL 9005 black lacquered heat exchanger

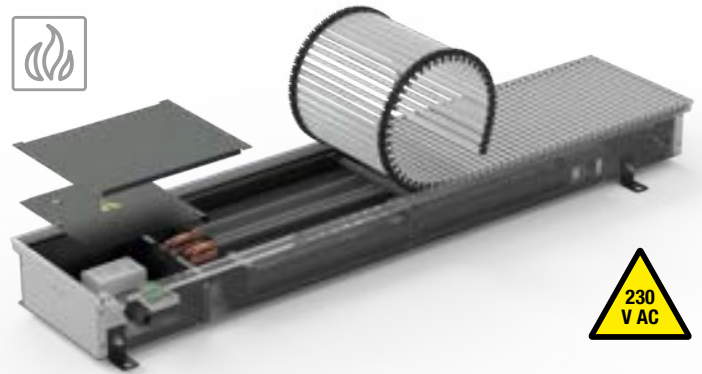
Standard contents

- RAL 9005 black lacquered galvanised steel casing
- Economic – non-lacquered Al/Cu heat exchanger with bleed valve
- Exclusive – RAL 9005 black lacquered Al/Cu heat exchanger with bleed valve
- aluminium U-frame silver elox
- metal cover plates
- set of low-energy EC fans 24 V DC
- 230 V AC terminal block and regulator (FCR BOX)
- power supply 230 V AC/24 V DC
- levelling set screws and 4 anchors
- spacers for correct installation and concreting
- hardboard cover to protect trench heaters from contamination
- durable packaging, installation instructions



Installation and connection must be carried out by a suitably qualified person, followed by an initial inspection in accordance with the applicable national regulations and standards.

KORAFLEX Energy FVE is based on the Optimal-V range. The convector casing is extended by 200 mm and contains electrical controls for connection to a 230 V AC power supply. Energy 230 V AC trench heaters are suitable for dry environments and are solely for heating. They are characterised by silent operation and can be connected to BMS (Building Management System).

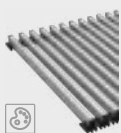


Optional accessories

- cover grille of your choice
- Cross or Robust cover grille (p. 82) – design solution – must be ordered together with the trench heater (includes a casing construction modification)
- U-frame in aluminium, available in black elox, light/dark bronze elox or lacquered according to the RAL colour chart
- F-frame in aluminium, available in silver elox, light/dark bronze elox, black elox or lacquered according to the RAL colour chart
- supports for raised floors (p. 94)
- regulating valve set, angle or straight (p. 99)
- thermostatic valve, angle, straight or axial (p. 99)
- thermostatic pressure-independent valve, angle, straight or axial (p. 99)
- brass elbow 1/2" x 1/2" 90° (p. 98)
- stainless steel flexible hoses (p. 98)
- thermoelectric actuator TEP 24 (p. 97)
- SIEMENS thermostat RDG 260T, RDG 260KN, HY607LIC (p. 96)
- SIEMENS manual thermostat RAB 21-DC (p. 96)
- room temperature sensor QAA32 (p. 98)
- 24 V DC power supply unit (p. 98)
- R-Box (p. 98)
- acoustic absorption foil
- OSB cover board with increased stiffness for installation purposes

For more information about optional accessories and order codes p. 96–100

Suitable grilles (roll-up, linear, fixed)



Aluminium elox, silver



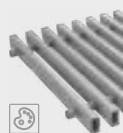
Aluminium elox, dark bronze



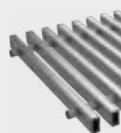
Aluminium elox, light bronze



Aluminium elox, black



Steel



Stainless steel



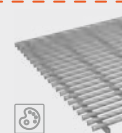
Beech



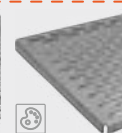
Oak



Mahogany



Cross



Robust, stainless steel/steel

Upon request

Linear cover grille available after casing modification, see p. 84. For a summary and description of grilles available, including order codes, p. 76–83.

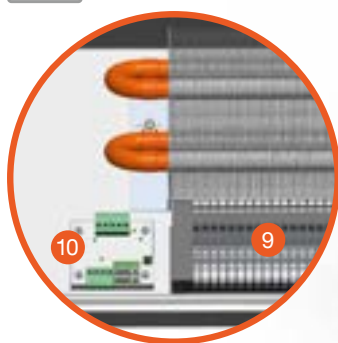
TRENCH HEATER COMPONENTS

- 1 RAL 9005 black lacquered galvanised steel casing
- 2 choice of grille
- 3 choice of frame
- 4 Al/Cu heat exchanger
- 5 anchors
- 6 levelling set screws
- 7 metal cover plates
- 8 spacer for correct installation and concreting

Regulation RT

- 9 EC 24 V DC fan
- 10 regulator (FCR BOX)
- 11 cable bushing

24
V DC



230
V AC

KORAFLEX Energy FVE

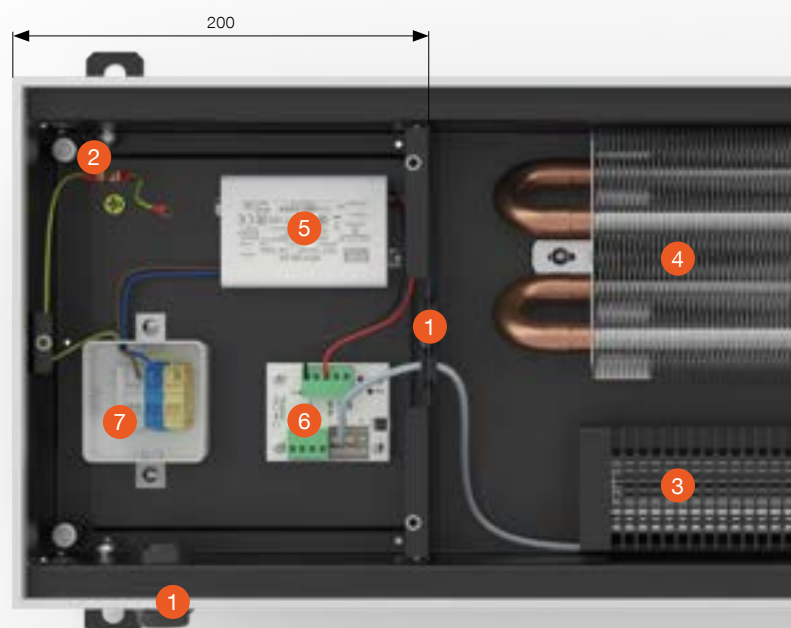
A specially adapted space in the trench heater casing. 200 mm longer than the Optimal-V model, fitted with 230 V AC regulation.

- | | |
|------------------------|---------------------------------|
| 1 cable bushing | RE Regulation |
| 2 earth | 5 230 V AC/24 V DC power supply |
| 3 EC fan | 6 FCR BOX regulator |
| 4 Al/Cu heat exchanger | 7 terminal block |

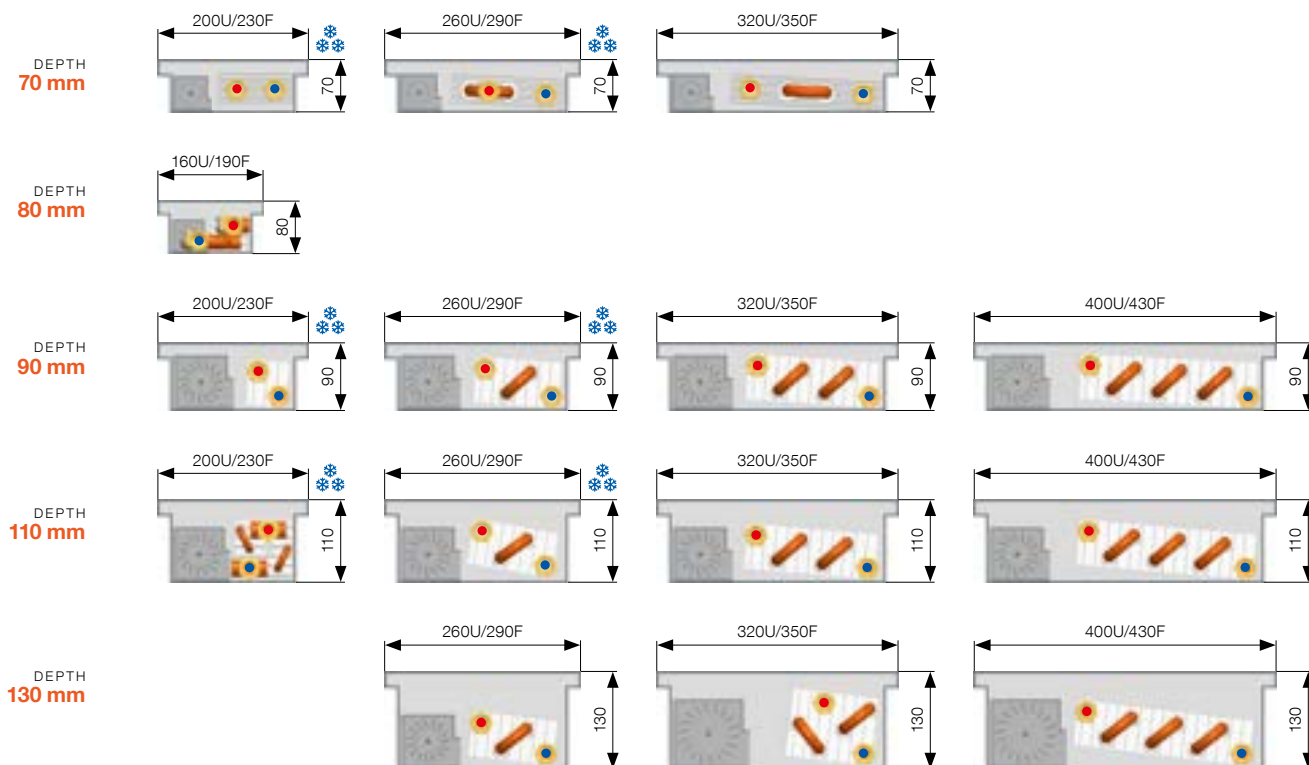
Further information about assembly and electrical installations, see p. 95.



Assembly and connection must be carried out by suitably qualified persons. An inspection and testing of electrical installations in accordance with appropriate local norm must be carried out.



PRODUCT RANGE



Width of trench heaters fitted with a Cross frame are identical to trench heaters fitted with a U-frame.

U = U-frame
 F = F-frame

Optimal-V FVO
 Energy FVE



KORAFLEX fitted with silver aluminium grille and U-frame, silver elox

KORAFLEX

Optimal-V FVO, Energy FVE



Depth 70 mm/width 200 mm

Heat output [W] where $t_1/t_2/t_3$ / EN 16430.

Measurements are shown in mm, including U-frame.

Length L	Optimal-V Energy	Fan speed setting	Heat output [W]		Light cooling output [W]	El. con- sumption [W]		Acoustics [dB(A)]	
			75/65/20 °C	55/45/20 °C		Optimal-V 17/19/28 °C	Optimal-V 24 V DC Energy 230 V AC	Sound pressure	Sound power
800	1000	0	54	27	-	0	0	-	-
		1	438	253	20	1	10	17.4	25.4
		2	627	365	44	1	11	23.7	31.7
		3	777	458	73	2	12	32.5	40.5
1000	1200	0	78	39	-	0	0	-	-
		1	629	362	28	1	10	17.7	25.7
		2	899	524	62	2	11	24.7	32.7
		3	1 115	657	104	3	12	33.4	41.4
1200	1400	0	101	51	-	0	0	-	-
		1	819	472	37	1	10	18.5	26.5
		2	1 171	683	81	2	11	25.9	33.9
		3	1 453	856	136	3	12	34.3	42.3
1400	1600	0	125	63	-	0	0	-	-
		1	1 010	582	46	1	10	18.2	26.2
		2	1 444	841	100	2	11	26.1	34.1
		3	1 791	1 055	167	3	13	34.8	42.8
1600	1800	0	148	75	-	0	0	-	-
		1	1 200	692	54	1	10	18.4	26.4
		2	1 716	1 000	119	2	11	26.7	34.7
		3	2 129	1 254	199	4	14	35.4	43.4
1800	2000	0	172	87	-	0	0	-	-
		1	1 391	802	63	1	10	18.6	26.6
		2	1 989	1 159	138	2	12	26.4	34.4
		3	2 467	1 453	230	5	14	35.6	43.6
2000	2200	0	195	99	-	0	0	-	-
		1	1 582	912	72	1	11	18.8	26.8
		2	2 261	1 318	157	2	12	27.7	35.7
		3	2 805	1 652	262	5	15	36.3	44.3
2200	2400	0	219	111	-	0	0	-	-
		1	1 772	1 021	80	2	11	18.9	26.9
		2	2 534	1 476	176	3	13	28.1	36.1
		3	3 143	1 851	293	5	16	36.7	44.7
2400	2600	0	242	123	-	0	0	-	-
		1	1 963	1 131	89	2	11	19.0	27.0
		2	2 806	1 635	195	4	13	28.5	36.5
		3	3 481	2 050	325	6	16	37.0	45.0
2600	2800	0	266	134	-	0	0	-	-
		1	2 153	1 241	97	2	11	19.1	27.1
		2	3 078	1 794	214	4	13	28.9	36.9
		3	3 818	2 249	356	7	17	37.4	45.4
2800	3000	0	290	146	-	0	0	-	-
		1	2 344	1 351	106	3	11	18.5	26.5
		2	3 351	1 952	233	4	13	29.6	37.6
		3	4 156	2 448	388	8	17	37.8	45.8
3000		0	313	158	-	0	0	-	-
		1	2 534	1 461	115	3		19.4	27.4
		2	3 623	2 111	252	4		29.5	37.5
		3	4 494	2 647	419	8		38.0	46.0

Temperature exponent [n] 1.0564

Unit weight [kg/m] 8.058

Water volume [l/m] 0.652

Effective exchange area Optimal-V [mm] =L-375

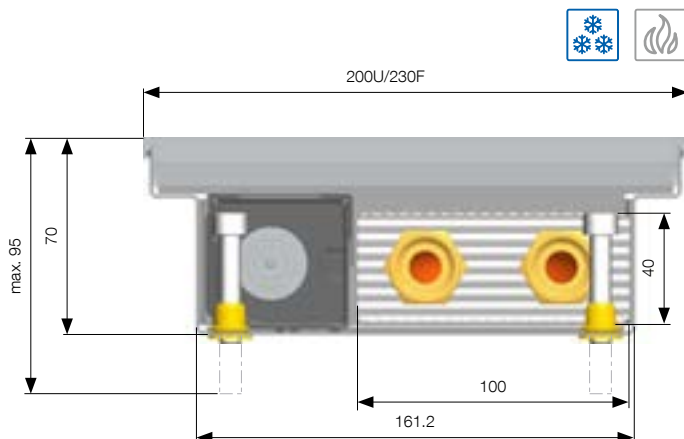
Effective exchange area Energy [mm] =L-575

Further information

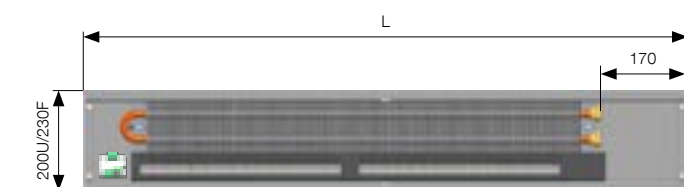
Grilles and frames p. 76, Installation p. 92,

Raised floor installations p. 94, Accessories p. 96,

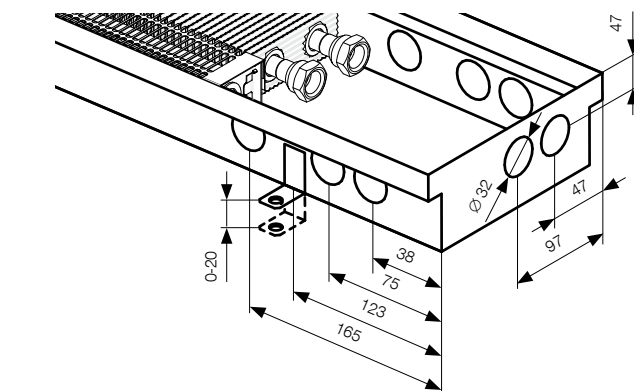
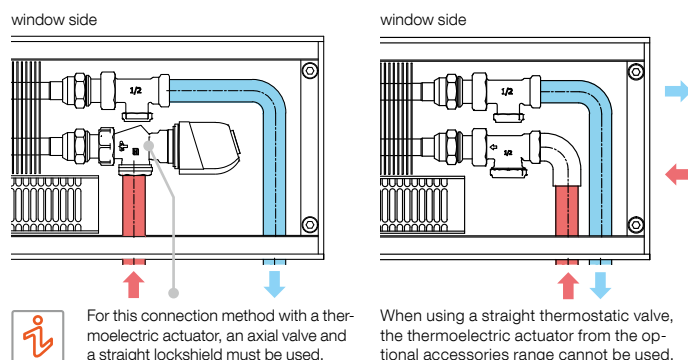
Overview of recommended valves for connection, p. 100



U = U-frame, F = F-frame. Measurements for U-frame and Cross frame are identical.



Connections and connection measurements



The unit is designed for cooling in the non-condensation zone only, i.e. above the dew-point temperature. The unit is not equipped with condensate drainage.

Measurements shown in mm.

KORAFLEX

Optimal-V FVO, Energy FVE



Depth 70 mm/width 260 mm

Heat output [W] where $t_1/t_2/t_3$ / EN 16430.

Measurements are shown in mm, including U-frame.

Length L		Fan speed setting	Heat output [W]		Light cooling output [W]	El. con- sumption [W]		Acoustics [dB(A)]	
Opti- ma=L-V	Energy		75/65/20 °C	55/45/20 °C		Optimal-V 24 V DC	Energy 230 V AC	Sound pressure	Sound power
800	1000	0	66	32	-	0	0	-	-
		1	480	277	31	1	9	17.4	25.4
		2	692	399	64	1	10	23.7	31.7
		3	881	510	100	2	12	32.5	40.5
1000	1200	0	97	47	-	0	0	-	-
		1	706	407	45	1	9	17.7	25.7
		2	1 017	587	94	2	10	24.7	32.7
		3	1 296	749	147	3	12	33.4	41.4
1200	1400	0	129	62	-	0	0	-	-
		1	932	537	60	1	9	18.5	26.5
		2	1 343	775	124	2	11	25.9	33.9
		3	1 710	989	194	3	12	34.3	42.3
1400	1600	0	160	77	-	0	0	-	-
		1	1 159	668	75	1	10	18.2	26.2
		2	1 668	963	155	2	11	26.1	34.1
		3	2 125	1 229	241	3	13	34.8	42.8
1600	1800	0	191	92	-	0	0	-	-
		1	1 385	798	89	1	10	18.4	26.4
		2	1 993	1 151	185	2	11	26.7	34.7
		3	2 539	1 469	289	4	13	35.4	43.4
1800	2000	0	222	107	-	0	0	-	-
		1	1 611	928	104	1	10	18.6	26.6
		2	2 319	1 339	215	2	11	26.4	34.4
		3	2 954	1 709	336	5	14	35.6	43.6
2000	2200	0	253	122	-	0	0	-	-
		1	1 837	1 058	118	1	10	18.8	26.8
		2	2 644	1 527	245	3	12	27.7	35.7
		3	3 368	1 949	383	5	15	36.3	44.3
2200	2400	0	284	137	-	0	0	-	-
		1	2 063	1 188	133	2	10	18.9	26.9
		2	2 970	1 715	275	3	13	28.1	36.1
		3	3 783	2 188	430	6	15	36.7	44.7
2400	2600	0	316	152	-	0	0	-	-
		1	2 289	1 319	147	2	11	19.0	27.0
		2	3 295	1 903	306	4	13	28.5	36.5
		3	4 198	2 428	477	6	16	37.0	45.0
2600	2800	0	347	167	-	0	0	-	-
		1	2 515	1 449	162	2	11	19.1	27.1
		2	3 621	2 090	336	4	13	28.9	36.9
		3	4 612	2 668	524	7	17	37.4	45.4
2800	3000	0	378	182	-	0	0	-	-
		1	2 741	1 579	177	2	11	18.5	26.5
		2	3 946	2 278	366	4	13	29.6	37.6
		3	5 027	2 908	571	7	17	37.8	45.8
3000		0	409	197	-	0	0	-	-
		1	2 967	1 709	191	2		19.4	27.4
		2	4 272	2 466	396	4		29.5	37.5
		3	5 441	3 148	618	8		38.0	46.0

Temperature exponent [n] 1.0674

Unit weight [kg/m] 6.922

Water volume [l/m] 0.486

Effective exchange area Optima=L-V [mm] =L-375

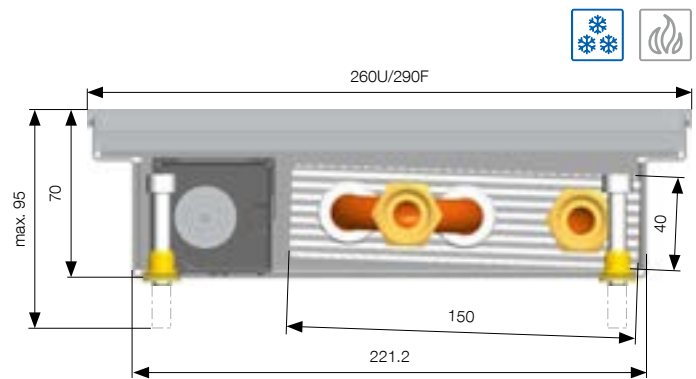
Effective exchange area Energy [mm] =L-575

Further information

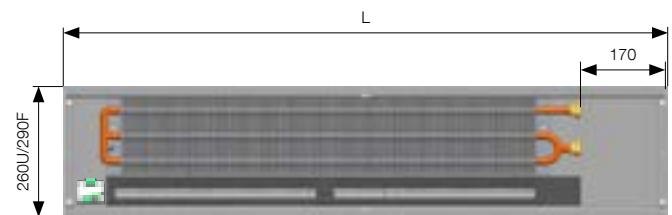
Grilles and frames p. 76, Installation p. 92,

Raised floor installations p. 94, Accessories p. 96,

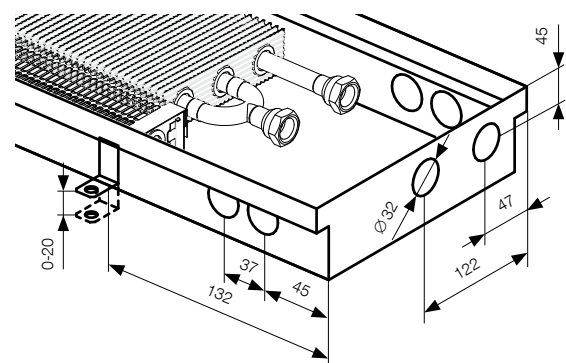
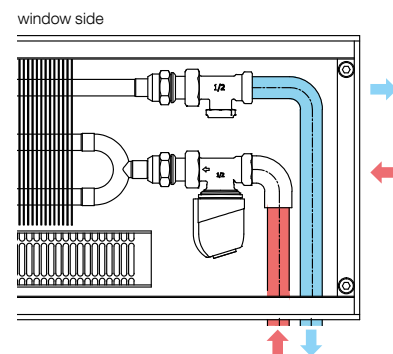
Overview of recommended valves for connection, p. 100



U = U-frame, F = F-frame. Measurements for U-frame and Cross frame are identical.



Connections and connection measurements



The unit is designed for cooling in the non-condensation zone only, i.e. above the dew-point temperature. The unit is not equipped with condensate drainage.

Measurements shown in mm.

Optimal-V FVO
Energy FVE

KORAFLEX

Optimal-V FVO, Energy FVE



Depth 70 mm/width 320 mm

Heat output [W] where $t_1/t_2/t_3$ / EN 16430.

Measurements are shown in mm, including U-frame.

Length L		Fan speed setting	Heat output [W]		El. consumption [W]		Acoustics [dB(A)]	
			75/65/20 °C	55/45/20 °C	Optimal-V 24 V DC	Energy 230 V AC	Sound pressure	Sound power
800	1000	0	88	42	0	0	-	-
		1	636	370	1	9	19.1	27.1
		2	977	574	1	11	26.6	34.6
		3	1 269	755	2	12	28.9	36.9
1000	1200	0	126	60	0	0	-	-
		1	912	530	1	10	19.8	27.8
		2	1 401	824	2	11	27.6	35.6
		3	1 821	1 083	3	12	30.0	38.0
1200	1400	0	164	79	0	0	-	-
		1	1 189	691	1	10	20.1	28.1
		2	1 826	1 073	2	11	28.3	36.3
		3	2 373	1 411	3	13	31.0	39.0
1400	1600	0	203	97	0	0	-	-
		1	1 465	851	1	10	20.8	28.8
		2	2 250	1 323	2	12	29.0	37.0
		3	2 925	1 739	4	13	31.7	39.7
1600	1800	0	241	115	0	0	-	-
		1	1 742	1 012	1	10	21.2	29.2
		2	2 675	1 572	2	12	29.5	37.5
		3	3 476	2 067	4	14	32.4	40.4
1800	2000	0	279	134	0	0	-	-
		1	2 018	1 173	1	10	22.0	30.0
		2	3 100	1 822	2	12	30.1	38.1
		3	4 028	2 396	4	14	32.9	40.9
2000	2200	0	317	152	0	0	-	-
		1	2 295	1 333	1	11	21.9	29.9
		2	3 524	2 072	3	13	30.5	38.5
		3	4 580	2 724	6	15	33.5	41.5
2200	2400	0	355	170	0	0	-	-
		1	2 571	1 494	2	11	22.2	30.2
		2	3 949	2 321	4	13	30.9	38.9
		3	5 132	3 052	6	16	34.0	42.0
2400	2600	0	394	189	0	0	-	-
		1	2 848	1 655	2	11	22.4	30.4
		2	4 373	2 571	4	14	31.3	39.3
		3	5 684	3 380	7	16	34.5	42.5
2600	2800	0	432	207	0	0	-	-
		1	3 124	1 815	2	11	22.7	30.7
		2	4 798	2 820	4	14	31.6	39.6
		3	6 235	3 708	8	17	34.9	42.9
2800	3000	0	470	225	0	0	-	-
		1	3 401	1 976	2	11	22.7	30.7
		2	5 223	3 070	5	14	31.9	39.9
		3	6 787	4 036	9	17	35.3	43.3
3000		0	508	243	0		-	-
		1	3 677	2 137	2		23.1	31.1
		2	5 647	3 320	5		32.2	40.2
		3	7 339	4 365	9		35.6	43.6

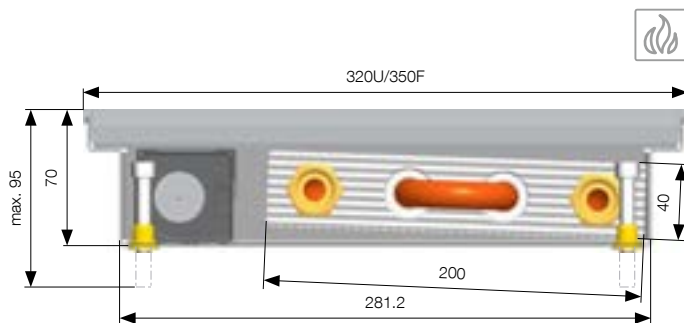
Temperature exponent [n] 1.0417

Unit weight [kg/m] 6.047

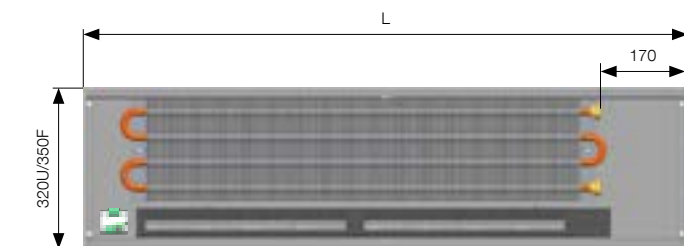
Water volume [l/m] 0.289

Effective exchange area Optimal-V [mm] =L-340

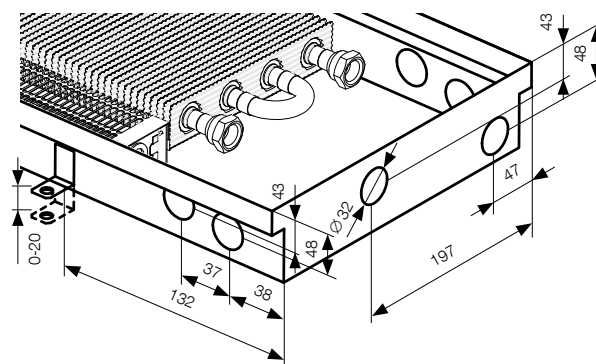
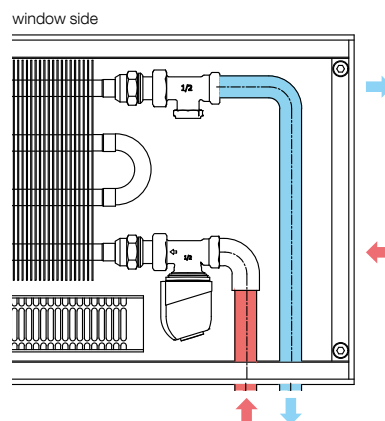
Effective exchange area Energy [mm] =L-540



U = U-frame, F = F-frame. Measurements for U-frame and Cross frame are identical.



Connections and connection measurements



Further information

Grilles and frames p. 76, Installation p. 92,

Raised floor installations p. 94, Accessories p. 96,

Overview of recommended valves for connection, p. 100

Measurements shown in mm.

KORAFLEX

Optimal-V FVO, Energy FVE



Depth 80 mm/width 160 mm

Heat output [W] where $t_r/t_a/t_i$ / EN 16430.

Measurements are shown in mm, including U-frame.

Length L		Fan speed setting	Heat output [W]		El. consumption [W]		Acoustics [dB(A)]	
			75/65/20 °C	55/45/20 °C	Optimal-V 24 V DC	Energy 230 V AC	Sound pressure	Sound power
800	1000	0	40	19	0	0	-	-
		1	219	116	1	9	17.4	25.4
		2	332	183	1	10	23.7	31.7
		3	403	231	2	11	32.5	40.5
1000	1200	0	61	29	0	0	-	-
		1	334	178	1	10	17.7	25.7
		2	507	280	2	10	24.7	32.7
		3	614	352	2	11	33.4	41.4
1200	1400	0	82	40	0	0	-	-
		1	449	239	1	10	18.5	26.5
		2	682	377	2	10	25.9	33.9
		3	826	474	2	12	34.3	42.3
1400	1600	0	103	50	0	0	-	-
		1	564	300	1	10	18.2	26.2
		2	856	473	2	10	26.1	34.1
		3	1 038	595	2	12	34.8	42.8
1600	1800	0	124	60	0	0	-	-
		1	679	362	1	10	18.4	26.4
		2	1 031	570	2	11	26.7	34.7
		3	1 250	717	3	12	35.4	43.4
1800	2000	0	145	70	0	0	-	-
		1	794	423	1	10	18.6	26.6
		2	1 206	666	2	11	26.4	34.4
		3	1 462	838	3	13	35.6	43.6
2000	2200	0	166	80	0	0	-	-
		1	909	484	1	10	18.8	26.8
		2	1 381	763	2	12	27.7	35.7
		3	1 674	959	3	14	36.3	44.3
2200	2400	0	187	91	0	0	-	-
		1	1 024	546	2	10	18.9	26.9
		2	1 555	860	3	12	28.1	36.1
		3	1 885	1 081	4	14	36.7	44.7
2400	2600	0	208	101	0	0	-	-
		1	1 139	607	2	10	19.0	27.0
		2	1 730	956	3	12	28.5	36.5
		3	2 097	1 202	5	14	37.0	45.0
2600	2800	0	229	111	0	0	-	-
		1	1 254	668	2	10	19.1	27.1
		2	1 905	1 053	3	12	28.9	36.9
		3	2 309	1 324	5	14	37.4	45.4
2800	3000	0	250	121	0	0	-	-
		1	1 369	729	2	10	18.5	26.5
		2	2 080	1 149	4	12	29.6	37.6
		3	2 521	1 445	6	14	37.8	45.8
3000		0	271	131	0		-	-
		1	1 485	791	2		19.4	27.4
		2	2 255	1 246	4		29.5	37.5
		3	2 733	1 567	6		38.0	46.0

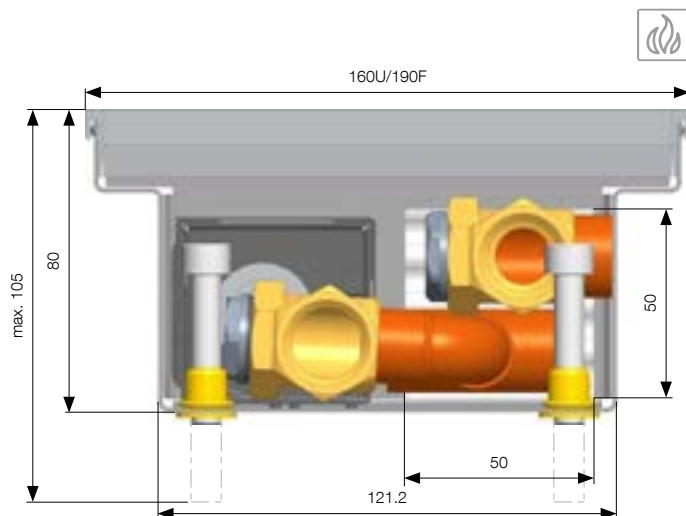
Temperature exponent [n] 1.1904

Unit weight [kg/m] 5.750

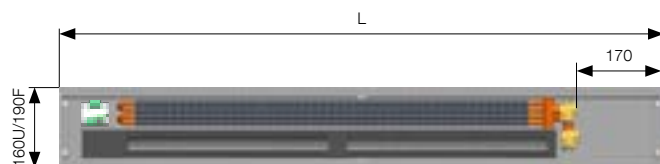
Water volume [l/m] 0.254

Effective exchange area Optimal-V [mm] =L-420

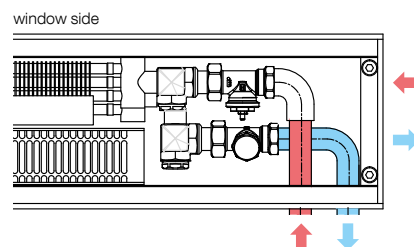
Effective exchange area Energy [mm] =L-620



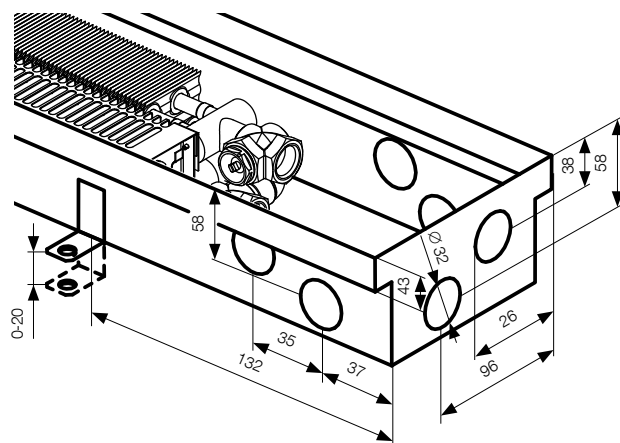
U = U-frame, F = F-frame. Measurements for U-frame and Cross frame are identical.



Connections and connection measurements



Due to dimensional constraints, the thermal actuator cannot be connected as standard. If connection is required, a structural modification of the convector casing length is necessary; therefore, this requirement must be consulted with the sales department before ordering.



Further information

Grilles and frames p. 76, Installation p. 92,

Raised floor installations p. 94, Accessories p. 96,

Overview of recommended valves for connection, p. 100

Measurements shown in mm.

Optimal-V FVO
Energy FVE

Length L		Fan speed setting	Heat output [W]		Light cooling output [W]	El. consumption [W]		Acoustics [dB(A)]	
Optimal-V	Energy		75/65/20 °C	55/45/20 °C	Optimal-V 17/19/28 °C	Optimal-V 24 V DC	Energy 230 V AC	Sound pressure	Sound power
800	1000	0	54	26	-	0	0	-	-
		1	455	272	54	1	10	19.1	27.1
		2	673	404	77	2	12	26.6	34.6
		3	769	463	88	2	12	28.9	36.9
1000	1200	0	76	36	-	0	0	-	-
		1	641	383	76	2	11	19.8	27.8
		2	947	569	109	2	13	27.6	35.6
		3	1 083	652	124	3	13	30.0	38.0
1200	1400	0	99	47	-	0	0	-	-
		1	827	494	97	2	11	20.1	28.1
		2	1 222	734	141	3	13	28.3	36.3
		3	1 397	842	160	4	14	31.0	39.0
1400	1600	0	121	58	-	0	0	-	-
		1	1 012	605	119	2	11	20.8	28.8
		2	1 497	899	172	3	13	29.0	37.0
		3	1 711	1 031	196	4	14	31.7	39.7
1600	1800	0	143	68	-	0	0	-	-
		1	1 198	716	141	2	12	21.2	29.2
		2	1 771	1 064	204	4	13	29.5	37.5
		3	2 025	1 220	232	5	15	32.4	40.4
1800	2000	0	125	79	-	0	0	-	-
		1	1 384	827	163	2	12	22.0	30.0
		2	2 046	1 229	235	5	15	30.1	38.1
		3	2 339	1 409	268	7	16	32.9	40.9
2000	2200	0	187	89	-	0	0	-	-
		1	1 570	938	185	3	13	21.9	29.9
		2	2 320	1 394	267	5	16	30.5	38.5
		3	2 653	1 598	304	7	17	33.5	41.5
2200	2400	0	209	100	-	0	0	-	-
		1	1 755	1 049	207	3	13	22.2	30.2
		2	2 595	1 559	299	5	16	30.9	38.9
		3	2 967	1 787	340	7	17	34.0	42.0
2400	2600	0	231	111	-	0	0	-	-
		1	1 941	1 160	229	3	13	22.4	30.4
		2	2 870	1 724	330	7	16	31.3	39.3
		3	3 281	1 976	376	9	18	34.5	42.5
2600	2800	0	254	121	-	0	0	-	-
		1	2 127	1 271	251	4	13	22.7	30.7
		2	3 144	1 889	362	8	17	31.6	39.6
		3	3 595	2 165	411	11	19	34.9	42.9
2800	3000	0	276	132	-	0	0	-	-
		1	2 313	1 382	273	4	14	22.7	30.7
		2	3 419	2 055	393	8	18	31.9	39.9
		3	3 909	2 355	447	11	21	35.3	43.3
3000		0	298	142	-	0		-	-
		1	2 498	1 493	295	4		23.1	31.1
		2	3 694	2 220	425	10		32.2	40.2
		3	4 223	2 544	483	14		35.6	43.6

Technical drawing of the 1000mm x 1000mm x 10mm plate. The drawing shows the plate with dimensions and mounting details. Key dimensions include: overall length 1320mm, overall width 1000mm, and plate thickness 10mm. Mounting details include a 10mm x 10mm hole for a 10mm x 10mm plate, a 10mm x 10mm hole for a 10mm x 10mm plate, and a 10mm x 10mm hole for a 10mm x 10mm plate. The drawing also shows a 10mm x 10mm hole for a 10mm x 10mm plate.



Measurements shown in mm.

KORAFLEX

Optimal-V FVO, Energy FVE



Depth 90 mm/width 260 mm

Heat output [W] where $t_1/t_2/t_3$ / EN 16430.

Measurements are shown in mm, including U-frame.

Length L		Fan speed setting	Heat output [W]		Light cooling output [W]	El. con- sumption [W]		Acoustics [dB(A)]	
Optimal-V	Energy		75/65/20 °C	55/45/20 °C		Optimal-V 24 V DC	Energy 230 V AC	Sound pressure	Sound power
800	1000	0	74	37	-	0	0	-	-
		1	620	381	83	1	10	19.1	27.1
		2	904	555	136	2	12	26.6	34.6
		3	1 032	634	161	2	12	28.9	36.9
1000	1200	0	104	52	-	0	0	-	-
		1	873	536	116	2	11	19.8	27.8
		2	1 273	781	192	2	13	27.6	35.6
		3	1 453	892	226	3	13	30.0	38.0
1200	1400	0	135	67	-	0	0	-	-
		1	1 125	691	150	2	11	20.1	28.1
		2	1 642	1 008	247	3	13	28.3	36.3
		3	1 874	1 151	292	4	14	31.0	39.0
1400	1600	0	165	82	-	0	0	-	-
		1	1 378	847	184	2	11	20.8	28.8
		2	2 010	1 234	303	3	13	29.0	37.0
		3	2 296	1 409	358	4	14	31.7	39.7
1600	1800	0	195	97	-	0	0	-	-
		1	1 631	1 002	217	2	12	21.2	29.2
		2	2 379	1 461	358	4	13	29.5	37.5
		3	2 717	1 668	423	5	15	32.4	40.4
1800	2000	0	225	113	-	0	0	-	-
		1	1 884	1 157	251	2	12	22.0	30.0
		2	2 748	1 687	414	5	15	30.1	38.1
		3	3 138	1 927	489	7	16	32.9	40.9
2000	2200	0	256	128	-	0	0	-	-
		1	2 137	1 312	285	3	13	21.9	29.9
		2	3 117	1 914	469	5	16	30.5	38.5
		3	3 559	2 185	554	7	17	33.5	41.5
2200	2400	0	286	143	-	0	0	-	-
		1	2 390	1 468	319	3	13	22.2	30.2
		2	3 486	2 140	525	5	16	30.9	38.9
		3	3 980	2 444	620	7	17	34.0	42.0
2400	2600	0	316	158	-	0	0	-	-
		1	2 643	1 623	352	3	13	22.4	30.4
		2	3 855	2 367	580	7	16	31.3	39.3
		3	4 402	2 702	686	9	18	34.5	42.5
2600	2800	0	347	173	-	0	0	-	-
		1	2 896	1 778	386	4	13	22.7	30.7
		2	4 224	2 593	636	8	17	31.6	39.6
		3	4 823	2 961	751	11	19	34.9	42.9
2800	3000	0	377	188	-	0	0	-	-
		1	3 149	1 934	420	4	14	22.7	30.7
		2	4 593	2 820	691	8	18	31.9	39.9
		3	5 244	3 220	817	11	21	35.3	43.3
3000		0	407	203	-	0	0	-	-
		1	3 402	2 089	454	5		23.1	31.1
		2	4 961	3 046	747	10		32.2	40.2
		3	5 665	3 478	882	14		35.6	43.6

Temperature exponent [n] 0.9547

Unit weight [kg/m] 8.153

Water volume [l/m] 0.585

Effective exchange area Optimal-V [mm] = L-310

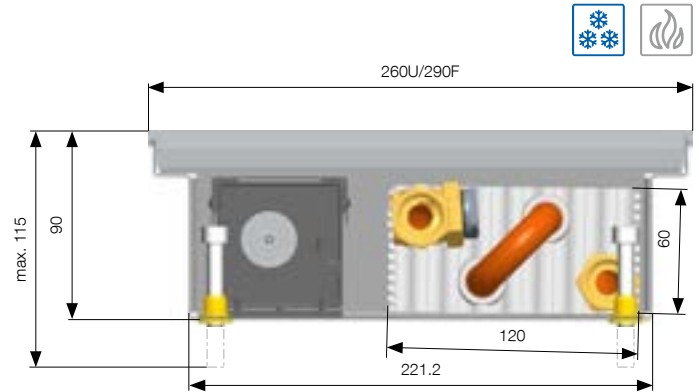
Effective exchange area Energy [mm] = L-510

Further information

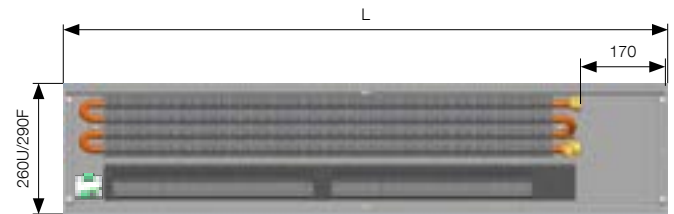
Grilles and frames p. 76, Installation p. 92,

Raised floor installations p. 94, Accessories p. 96,

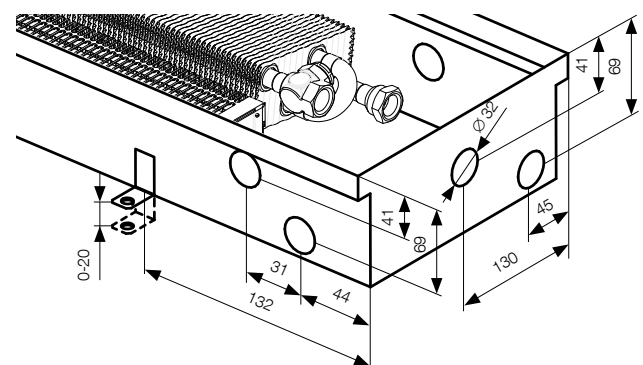
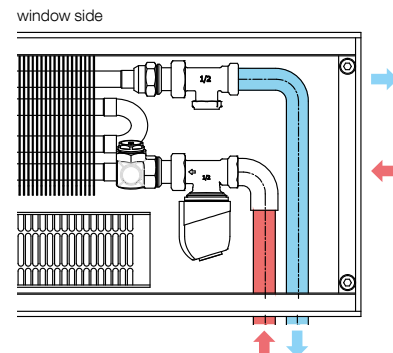
Overview of recommended valves for connection, p. 100



U = U-frame, F = F-frame. Measurements for U-frame and Cross frame are identical.



Connections and connection measurements



The unit is designed for cooling in the non-condensation zone only, i.e. above the dew-point temperature. The unit is not equipped with condensate drainage.

Optimal-V FVO
Energy FVE

Measurements shown in mm.

KORAFLEX

Optimal-V FVO, Energy FVE



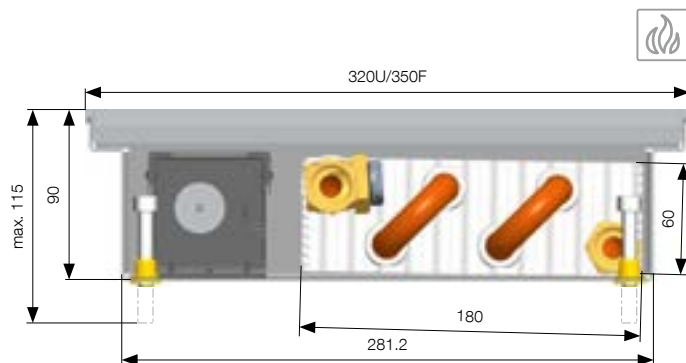
Depth 90 mm/width 320 mm

Heat output [W] where $t_1/t_2/t_3$ / EN 16430.

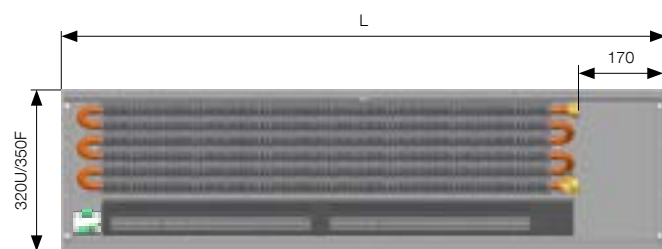
Measurements are shown in mm, including U-frame.

Length L		Fan speed setting	Heat output [W]		El. consumption [W]		Acoustics [dB(A)]	
			75/65/20 °C	55/45/20 °C	Optimal-V 24 V DC	Energy 230 V AC	Sound pressure	Sound power
800	1000	0	104	54	0	0	-	-
		1	681	411	1	10	23.2	31.2
		2	1 038	630	2	12	29.3	37.3
		3	1 201	730	2	13	32.0	40.0
1000	1200	0	146	76	0	0	-	-
		1	959	579	2	11	23.6	31.6
		2	1 462	887	3	13	30.0	38.0
		3	1 691	1 027	3	13	32.6	40.6
1200	1400	0	189	98	0	0	-	-
		1	1 237	747	2	11	24.8	32.8
		2	1 886	1 144	3	13	30.8	38.8
		3	2 181	1 325	4	13	33.1	41.1
1400	1600	0	231	120	0	0	-	-
		1	1 515	914	2	11	24.3	32.3
		2	2 310	1 400	3	13	31.1	39.1
		3	2 671	1 623	4	14	33.6	41.6
1600	1800	0	273	142	0	0	-	-
		1	1 793	1 082	2	12	24.5	32.5
		2	2 734	1 657	4	14	31.5	39.5
		3	3 161	1 921	5	15	34.0	42.0
1800	2000	0	316	164	0	0	-	-
		1	2 071	1 250	2	12	24.6	32.6
		2	3 158	1 914	5	15	31.4	39.4
		3	3 652	2 218	7	16	34.5	42.5
2000	2200	0	358	186	0	0	-	-
		1	2 349	1 418	3	12	24.9	32.9
		2	3 581	2 171	5	15	32.2	40.2
		3	4 142	2 516	7	16	34.7	42.7
2200	2400	0	401	208	0	0	-	-
		1	2 627	1 586	3	13	25.1	33.1
		2	4 005	2 428	5	16	32.4	40.4
		3	4 632	2 814	8	17	35.0	43.0
2400	2600	0	443	230	0	0	-	-
		1	2 905	1 753	3	13	25.3	33.3
		2	4 429	2 685	7	17	32.7	40.7
		3	5 122	3 112	9	19	35.2	43.2
2600	2800	0	485	252	0	0	-	-
		1	3 183	1 921	3	13	25.4	33.4
		2	4 853	2 942	8	17	33.0	41.0
		3	5 612	3 409	11	19	35.4	43.4
2800	3000	0	528	274	0	0	-	-
		1	3 461	2 089	4	14	24.6	32.6
		2	5 277	3 199	8	19	33.4	41.4
		3	6 102	3 707	11	23	35.6	43.6
3000		0	570	296	0	0	-	-
		1	3 739	2 257	5	15	25.7	33.7
		2	5 701	3 456	11		33.4	41.4
		3	6 593	4 005	15		35.9	43.9

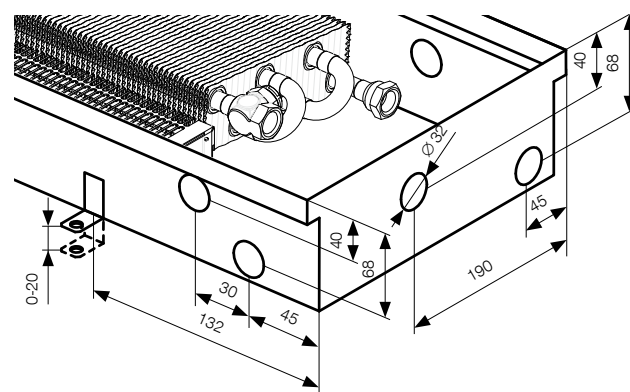
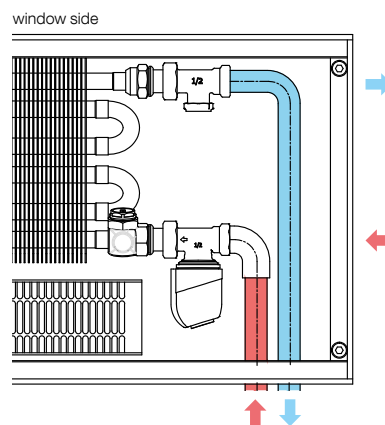
Temperature exponent [n]	0.9874
Unit weight [kg/m]	10.033
Water volume [l/m]	0.974
Effective exchange area Optimal-V [mm]	= L-310
Effective exchange area Energy [mm]	= L-510



U = U-frame, F = F-frame. Measurements for U-frame and Cross frame are identical.



Connections and connection measurements



Further information

Grilles and frames p. 76, Installation p. 92,

Raised floor installations p. 94, Accessories p. 96,

Overview of recommended valves for connection, p. 100

Measurements shown in mm.

KORAFLEX

Optimal-V FVO, Energy FVE



Depth 90 mm/width 400 mm

Heat output [W] where $t_1/t_2/t_3$ / EN 16430.

Measurements are shown in mm, including U-frame.

Length L		Fan speed setting	Heat output [W]		El. consumption [W]		Acoustics [dB(A)]	
			75/65/20 °C	55/45/20 °C	Optimal-V 24 V DC	Energy 230 V AC	Sound pressure	Sound power
800	1000	0	130	63	0	0	-	-
		1	1 174	691	1	11	21.7	29.7
		2	1 581	952	2	12	27.5	35.5
		3	1 732	1 053	2	13	30.2	38.2
1000	1200	0	184	88	0	0	-	-
		1	1 654	974	2	11	22.0	30.0
		2	2 226	1 341	3	13	28.2	36.2
		3	2 438	1 483	3	14	30.8	38.8
1200	1400	0	237	114	0	0	-	-
		1	2 133	1 256	2	11	22.3	30.3
		2	2 872	1 730	3	14	28.8	36.8
		3	3 145	1 913	4	14	31.2	39.2
1400	1600	0	290	139	0	0	-	-
		1	2 612	1 538	2	12	22.5	30.5
		2	3 517	2 118	3	14	29.3	37.3
		3	3 852	2 343	4	15	31.8	39.8
1600	1800	0	343	165	0	0	-	-
		1	3 092	1 820	2	12	22.7	30.7
		2	4 163	2 507	3	14	29.7	37.7
		3	4 558	2 773	4	16	32.2	40.2
1800	2000	0	397	191	0	0	-	-
		1	3 571	2 102	2	13	22.9	30.9
		2	4 808	2 896	5	16	30.0	38.0
		3	5 265	3 202	7	18	32.9	40.9
2000	2200	0	450	216	0	0	-	-
		1	4 050	2 384	3	13	23.0	31.0
		2	5 453	3 284	5	16	30.4	38.4
		3	5 972	3 632	7	18	32.9	40.9
2200	2400	0	503	242	0	0	-	-
		1	4 530	2 667	3	13	23.1	31.1
		2	6 099	3 673	5	16	30.7	38.7
		3	6 679	4 062	7	18	33.2	41.2
2400	2600	0	556	267	0	0	-	-
		1	5 009	2 949	4	14	23.3	31.3
		2	6 744	4 062	6	17	30.9	38.9
		3	7 385	4 492	8	20	33.4	41.4
2600	2800	0	610	293	0	0	-	-
		1	5 488	3 231	4	14	23.4	31.4
		2	7 389	4 450	8	18	31.2	39.2
		3	8 092	4 922	11	21	33.6	41.6
2800	3000	0	663	319	0	0	-	-
		1	5 968	3 513	4	14	23.5	31.5
		2	8 035	4 839	9	19	31.4	39.4
		3	8 799	5 352	12	23	33.7	41.7
3000		0	716	344	0		-	-
		1	6 447	3 795	4		23.6	31.6
		2	8 680	5 228	10		31.6	39.6
		3	9 506	5 781	14		34.1	42.1

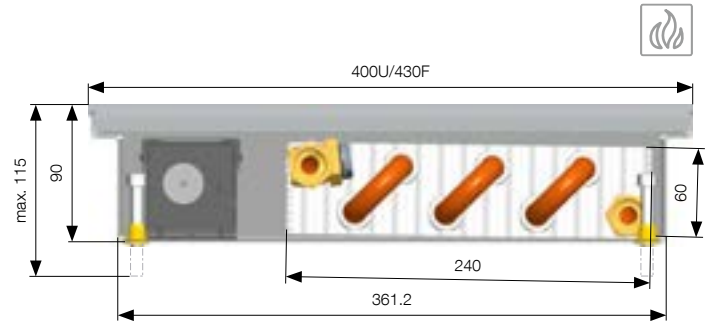
Temperature exponent [n] **0.9982**

Unit weight [kg/m] 14.353

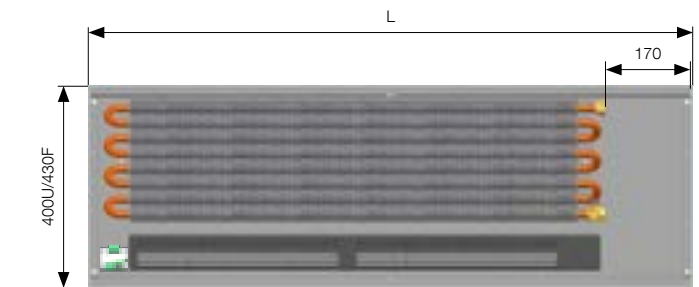
Water volume [l/m] 1.303

Effective exchange area Optimal-V [mm] = L-310

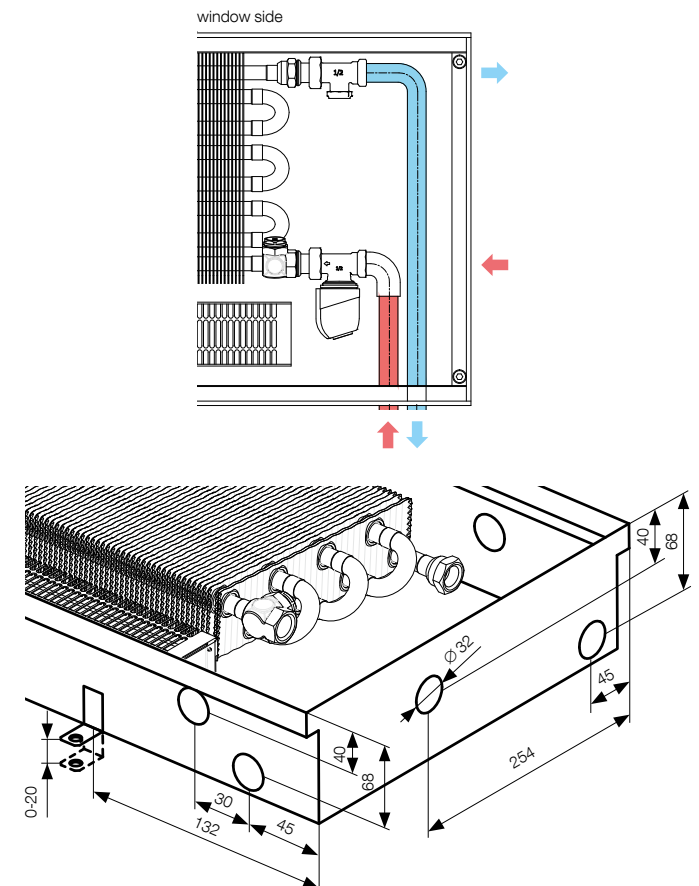
Effective exchange area Energy [mm] = L-510



U = U-frame, F = F-frame. Measurements for U-frame and Cross frame are identical.



Connections and connection measurements



Optimal-V FVO
Energy FVE

Further information

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Overview of recommended valves for connection, p. 100

Measurements shown in mm.

KORAFLEX

Optimal-V FVO, Energy FVE



Depth 110 mm/width 200 mm

Heat output [W] where $t_1/t_2/t_3$ / EN 16430.

Measurements are shown in mm, including U-frame.

Length L		Fan speed setting	Heat output [W]		Light cooling output [W]	El. con- sumption [W]		Acoustics [dB(A)]	
Optimal-V	Energy		75/65/20 °C	55/45/20 °C		Optimal-V 17/19/28 °C	Optimal-V 24 V DC	Energy 230 V AC	Sound pressure
800	1000	0	67	33	-	0	0	-	-
		1	803	477	99	1	10	19.1	27.1
		2	1 043	618	148	2	11	26.6	34.6
		3	1 145	677	168	2	12	28.9	36.9
1000	1200	0	98	48	-	0	0	-	-
		1	1 181	701	145	1	11	19.8	27.8
		2	1 534	908	218	2	12	27.6	35.6
		3	1 684	996	246	3	13	30.0	38.0
1200	1400	0	129	64	-	0	0	-	-
		1	1 558	926	191	2	11	20.1	28.1
		2	2 025	1 199	288	3	13	28.3	36.3
		3	2 223	1 315	325	4	14	31.0	39.0
1400	1600	0	161	79	-	0	0	-	-
		1	1 936	1 150	238	2	11	20.8	28.8
		2	2 515	1 489	358	3	13	29.0	37.0
		3	2 762	1 634	404	4	14	31.7	39.7
1600	1800	0	192	94	-	0	0	-	-
		1	2 314	1 374	284	2	11	21.2	29.2
		2	3 006	1 780	428	4	13	29.5	37.5
		3	3 301	1 952	483	5	14	32.4	40.4
1800	2000	0	223	110	-	0	0	-	-
		1	2 692	1 599	330	2	13	22.0	30.0
		2	3 497	2 071	498	4	15	30.1	38.1
		3	3 840	2 271	562	5	18	32.9	40.9
2000	2200	0	255	125	-	0	0	-	-
		1	3 069	1 823	377	3	13	21.9	29.9
		2	3 988	2 361	568	5	15	30.5	38.5
		3	4 379	2 590	641	6	18	33.5	41.5
2200	2400	0	286	141	-	0	0	-	-
		1	3 447	2 047	423	3	13	22.2	30.2
		2	4 478	2 652	638	5	15	30.9	38.9
		3	4 918	2 909	720	6	18	34.0	42.0
2400	2600	0	318	156	-	0	0	-	-
		1	3 825	2 272	469	3	13	22.4	30.4
		2	4 969	2 943	708	6	16	31.3	39.3
		3	5 457	3 227	798	8	18	34.5	42.5
2600	2800	0	349	172	-	0	0	-	-
		1	4 203	2 496	516	4	13	22.7	30.7
		2	5 460	3 233	777	7	17	31.6	39.6
		3	5 996	3 546	877	9	18	34.9	42.9
2800	3000	0	380	187	-	0	0	-	-
		1	4 581	2 721	562	4	13	22.7	30.7
		2	5 951	3 524	847	7	17	31.9	39.9
		3	6 535	3 865	956	9	19	35.3	43.3
3000		0	412	202	-	0		-	-
		1	4 958	2 945	608	4		23.1	31.1
		2	6 442	3 815	917	8		32.2	40.2
		3	7 074	4 184	1 035	11		35.6	43.6

Temperature exponent [n] 1.0173

Unit weight [kg/m] 7.868

Water volume [l/m] 0.514

Effective exchange area Optimal-V [mm] = L-375

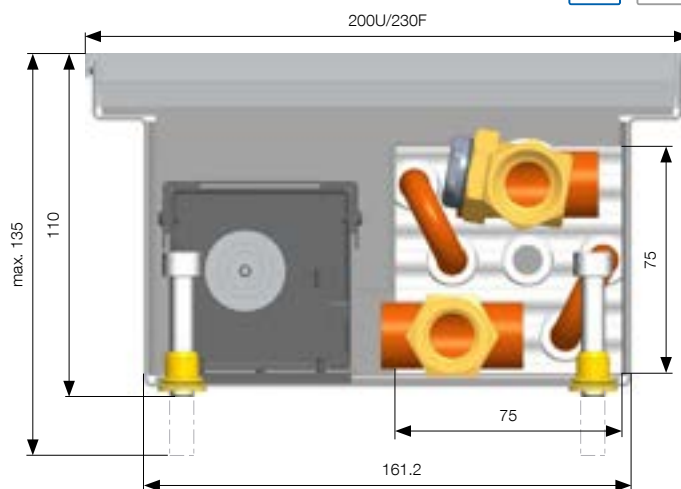
Effective exchange area Energy [mm] = L-575

Further information

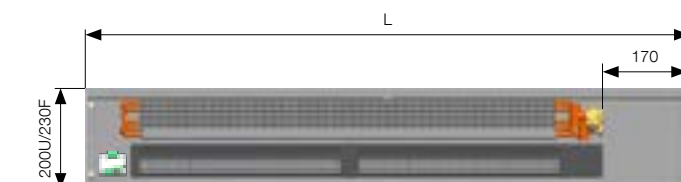
Grilles and frames p. 76, Installation p. 92,

Raised floor installations p. 94, Accessories p. 96,

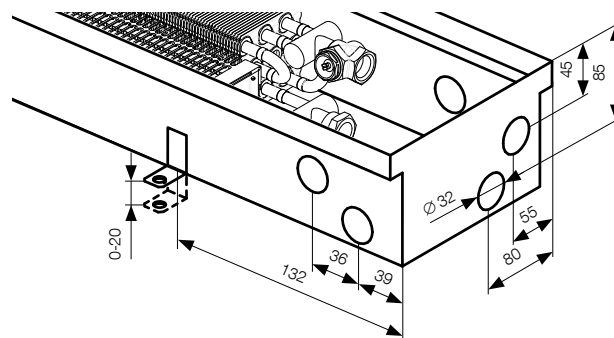
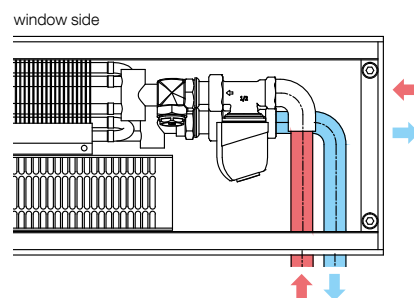
Overview of recommended valves for connection, p. 100



U = U-frame, F = F-frame. Measurements for U-frame and Cross frame are identical.



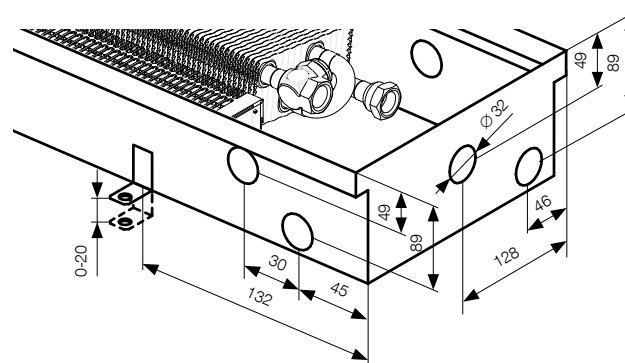
Connections and connection measurements



The unit is designed for cooling in the non-condensation zone only, i.e. above the dew-point temperature. The unit is not equipped with condensate drainage.

Measurements shown in mm.

Length L		Fan speed setting	Heat output [W]		Light cooling output [W]	El. consumption [W]		Acoustics [dB(A)]	
Optimal-V	Energy		75/65/20 °C	55/45/20 °C	Optimal-V 17/19/28 °C	Optimal-V 24 V DC	Energy 230 V AC	Sound pressure	Sound power
800	1000	0	90	41	-	0	0	-	-
		1	684	415	74	1	11	19.1	27.1
		2	1 090	666	122	2	12	26.6	34.6
		3	1 277	784	146	2	13	28.9	36.9
1000	1200	0	127	58	-	0	0	-	-
		1	963	584	113	2	11	19.8	27.8
		2	1 535	938	185	3	13	27.6	35.6
		3	1 799	1 104	221	3	13	30.0	38.0
1200	1400	0	164	75	-	0	0	-	-
		1	1 243	753	151	2	12	20.1	28.1
		2	1 980	1 210	248	3	13	28.3	36.3
		3	2 320	1 424	296	4	14	31.0	39.0
1400	1600	0	201	92	-	0	0	-	-
		1	1 522	922	189	2	12	20.8	28.8
		2	2 425	1 482	311	3	13	29.0	37.0
		3	2 842	1 743	371	4	14	31.7	39.7
1600	1800	0	237	109	-	0	0	-	-
		1	1 801	1 091	228	2	12	21.2	29.2
		2	2 870	1 754	374	4	15	29.5	37.5
		3	3 363	2 063	446	6	16	32.4	40.4
1800	2000	0	274	125	-	0	0	-	-
		1	2 080	1 261	266	3	12	22.0	30.0
		2	3 315	2 026	437	6	15	30.1	38.1
		3	3 884	2 383	521	8	16	32.9	40.9
2000	2200	0	311	142	-	0	0	-	-
		1	2 360	1 430	304	3	13	21.9	29.9
		2	3 760	2 298	500	6	16	30.5	38.5
		3	4 406	2 703	596	8	18	33.5	41.5
2200	2400	0	348	159	-	0	0	-	-
		1	2 639	1 599	343	4	13	22.2	30.2
		2	4 205	2 570	563	6	16	30.9	38.9
		3	4 927	3 023	671	8	18	34.0	42.0
2400	2600	0	385	176	-	0	0	-	-
		1	2 918	1 768	381	4	14	22.4	30.4
		2	4 650	2 842	626	7	18	31.3	39.3
		3	5 449	3 343	746	9	21	34.5	42.5
2600	2800	0	421	193	-	0	0	-	-
		1	3 197	1 937	419	4	14	22.7	30.7
		2	5 095	3 114	689	9	19	31.6	39.6
		3	5 970	3 663	821	13	22	34.9	42.9
2800	3000	0	458	210	-	0	0	-	-
		1	3 476	2 107	458	4	15	22.7	30.7
		2	5 540	3 386	752	10	20	31.9	39.9
		3	6 491	3 983	896	14	25	35.3	43.3
3000		0	495	227	-	0		-	-
		1	3 756	2 276	496	5		23.1	31.1
		2	5 985	3 658	815	12		32.2	40.2
		3	7 013	4 303	971	17		35.6	43.6



The unit is designed for cooling in the non-condensation zone only, i.e. above the dew-point temperature. The unit is not equipped with condensate drainage.

Measurements shown in mm.

KORAFLEX

Optimal-V FVO, Energy FVE



Depth 110 mm/width 320 mm

Heat output [W] where $t_1/t_2/t_3$ / EN 16430.

Measurements are shown in mm, including U-frame.

Length L		Fan speed setting	Heat output [W]		El. consumption [W]		Acoustics [dB(A)]	
			75/65/20 °C	55/45/20 °C	Optimal-V 24 V DC	Energy 230 V AC	Sound pressure	Sound power
800	1000	0	130	61	0	0	-	-
		1	1 264	746	1	11	23.2	31.2
		2	1 700	1 005	2	12	29.3	37.3
		3	1 885	1 115	2	13	32.0	40.0
1000	1200	0	183	85	0	0	-	-
		1	1 780	1 050	2	11	23.6	31.6
		2	2 394	1 415	3	13	30.0	38.0
		3	2 654	1 570	3	14	32.6	40.6
1200	1400	0	237	110	0	0	-	-
		1	2 296	1 355	2	12	24.8	32.8
		2	3 088	1 825	3	13	30.8	38.8
		3	3 423	2 025	4	14	33.1	41.1
1400	1600	0	290	135	0	0	-	-
		1	2 812	1 659	2	12	24.3	32.3
		2	3 782	2 236	3	13	31.1	39.1
		3	4 192	2 480	4	15	33.6	41.6
1600	1800	0	343	159	0	0	-	-
		1	3 328	1 963	2	12	24.5	32.5
		2	4 476	2 646	5	15	31.5	39.5
		3	4 961	2 935	7	17	34.0	42.0
1800	2000	0	396	184	0	0	-	-
		1	3 844	2 268	3	12	24.6	32.6
		2	5 170	3 056	6	15	31.4	39.4
		3	5 730	3 390	7	17	34.5	42.5
2000	2200	0	449	209	0	0	-	-
		1	4 360	2 572	3	13	24.9	32.9
		2	5 864	3 466	6	16	32.2	40.2
		3	6 500	3 845	7	17	34.7	42.7
2200	2400	0	502	233	0	0	-	-
		1	4 876	2 876	3	13	25.1	33.1
		2	6 558	3 876	6	16	32.4	40.4
		3	7 269	4 300	7	18	35.0	43.0
2400	2600	0	555	258	0	0	-	-
		1	5 392	3 181	4	14	25.3	33.3
		2	7 252	4 287	8	18	32.7	40.7
		3	8 038	4 755	10	21	35.2	43.2
2600	2800	0	609	283	0	0	-	-
		1	5 908	3 485	5	14	25.4	33.4
		2	7 946	4 697	10	19	33.0	41.0
		3	8 807	5 210	14	24	35.4	43.4
2800	3000	0	662	308	0	0	-	-
		1	6 424	3 790	5	15	24.6	32.6
		2	8 640	5 107	12	22	33.4	41.4
		3	9 576	5 665	16	27	35.6	43.6
3000		0	715	332	0	0	-	-
		1	6 940	4 094	6		25.7	33.7
		2	9 334	5 517	14		33.4	41.4
		3	10 346	6 120	19		35.9	43.9

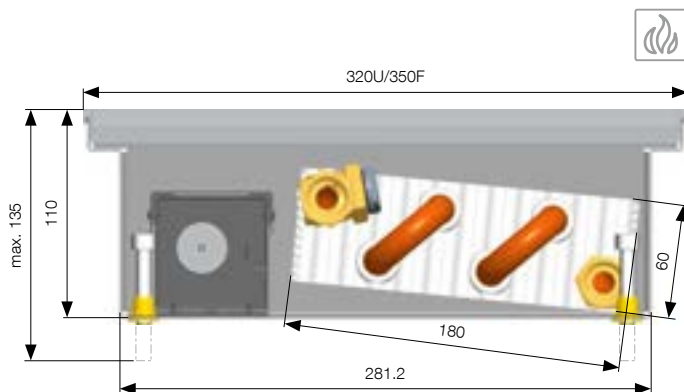
Temperature exponent [n]	1.0285
Unit weight [kg/m]	10.313
Water volume [l/m]	0.974
Effective exchange area Optimal-V [mm]	= L-310
Effective exchange area Energy [mm]	= L-510

Further information

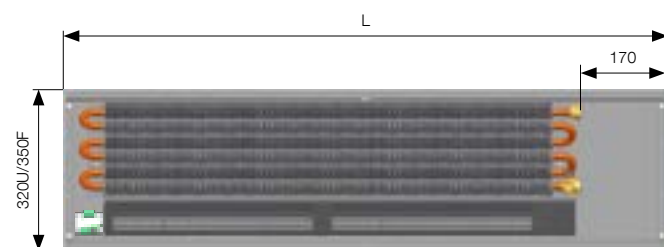
Grilles and frames p. 76, Installation p. 92,

Raised floor installations p. 94, Accessories p. 96,

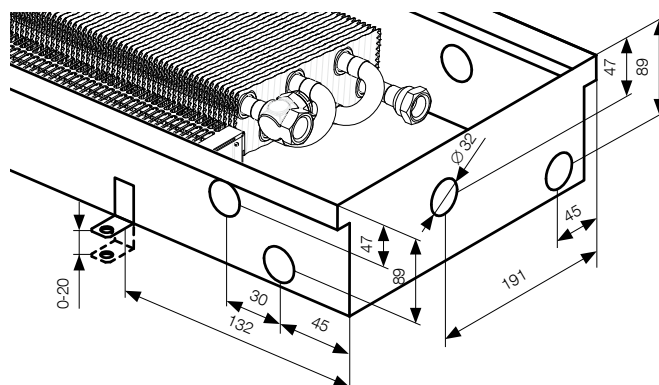
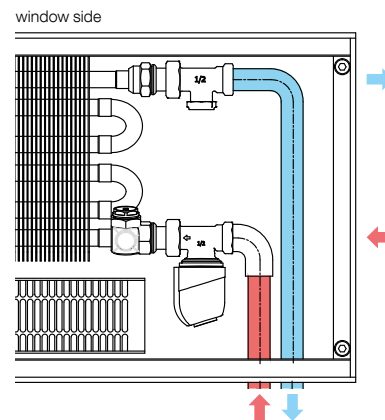
Overview of recommended valves for connection, p. 100



U = U-frame, F = F-frame. Measurements for U-frame and Cross frame are identical.



Connections and connection measurements



Measurements shown in mm.

KORAFLEX

Optimal-V FVO, Energy FVE

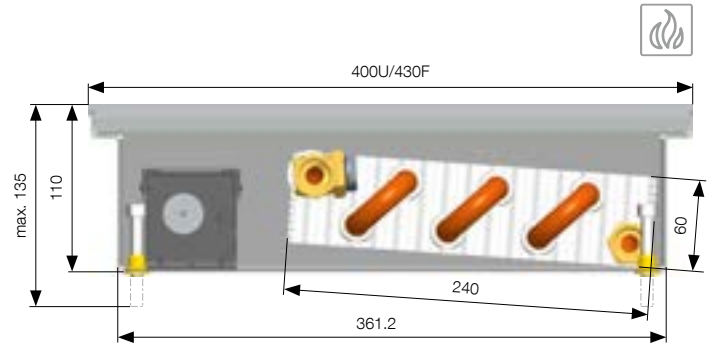


Depth 110 mm/width 400 mm

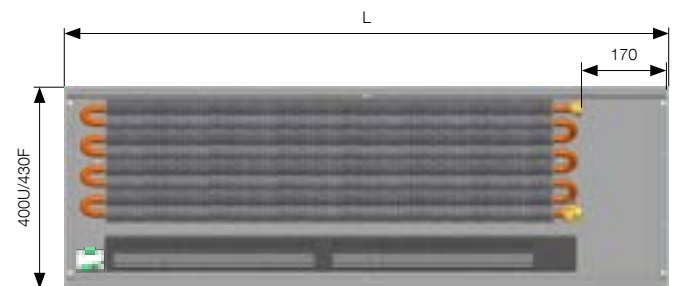
Heat output [W] where $t_1/t_2/t_3$ / EN 16430.

Measurements are shown in mm, including U-frame.

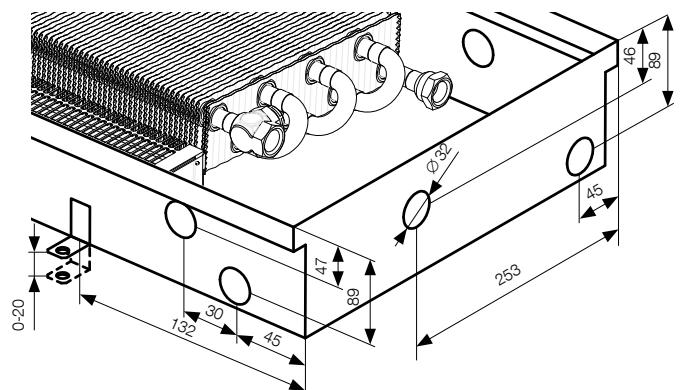
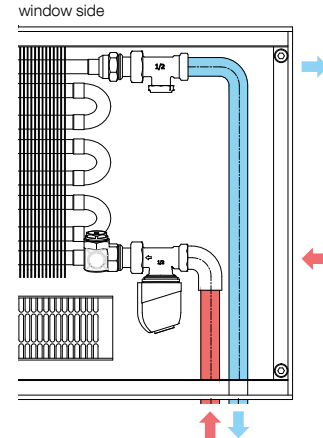
Length L		Fan speed setting	Heat output [W]		El. consumption [W]		Acoustics [dB(A)]	
Optimal-V	Energy		75/65/20 °C	55/45/20 °C	Optimal-V 24 V DC	Energy 230 V AC	Sound pressure	Sound power
800	1000	0	205	97	0	0	-	-
		1	1 504	883	1	10	21.7	29.7
		2	1 956	1 160	2	12	27.5	35.5
		3	2 132	1 270	3	13	30.2	38.2
1000	1200	0	288	137	0	0	-	-
		1	2 117	1 244	2	11	22.0	30.0
		2	2 754	1 634	3	13	28.2	36.2
		3	3 003	1 789	4	13	30.8	38.8
1200	1400	0	372	177	0	0	-	-
		1	2 731	1 604	2	11	22.3	30.3
		2	3 552	2 108	4	13	28.8	36.8
		3	3 873	2 308	5	14	31.2	39.2
1400	1600	0	456	217	0	0	-	-
		1	3 345	1 965	2	12	22.5	30.5
		2	4 351	2 581	4	14	29.3	37.3
		3	4 743	2 826	5	15	31.8	39.8
1600	1800	0	539	256	0	0	-	-
		1	3 959	2 325	2	12	22.7	30.7
		2	5 149	3 055	5	15	29.7	37.7
		3	5 613	3 345	7	17	32.2	40.2
1800	2000	0	623	296	0	0	-	-
		1	4 572	2 685	3	12	22.9	30.9
		2	5 947	3 528	7	15	30.0	38.0
		3	6 484	3 863	10	17	32.9	40.9
2000	2200	0	706	336	0	0	-	-
		1	5 186	3 046	3	13	23.0	31.0
		2	6 746	4 002	7	16	30.4	38.4
		3	7 354	4 382	10	17	32.9	40.9
2200	2400	0	790	376	0	0	-	-
		1	5 800	3 406	3	13	23.1	31.1
		2	7 544	4 476	7	16	30.7	38.7
		3	8 224	4 900	10	18	33.2	41.2
2400	2600	0	874	415	0	0	-	-
		1	6 413	3 767	4	14	23.3	31.3
		2	8 342	4 949	7	18	30.9	38.9
		3	9 095	5 419	10	21	33.4	41.4
2600	2800	0	957	455	0	0	-	-
		1	7 027	4 127	5	14	23.4	31.4
		2	9 140	5 423	10	19	31.2	39.2
		3	9 965	5 937	14	23	33.6	41.6
2800	3000	0	1 041	495	0	0	-	-
		1	7 641	4 488	5	15	23.5	31.5
		2	9 939	5 896	11	21	31.4	39.4
		3	10 835	6 456	16	26	33.7	41.7
3000		0	1 124	535	0		-	-
		1	8 255	4 848	6		23.6	31.6
		2	10 737	6 370	13		31.6	39.6
		3	11 705	6 974	19		34.1	42.1
Temperature exponent [n]						1.0195		
Unit weight [kg/m]						12.152		
Water volume [l/m]						1.303		
Effective exchange area Optimal-V [mm]						=L-310		
Effective exchange area Energy [mm]						=L-510		



U = U-frame, F = F-frame. Measurements for U-frame and Cross frame are identical.



Connections and connection measurements



Further information

Grilles and frames p. 76, Installation p. 92,

Raised floor installations p. 94, Accessories p. 96,

Overview of recommended valves for connection, p. 100

Measurements shown in mm.

Optimal-V FVO
Energy FVE

KORAFLEX

Optimal-V FVO, Energy FVE



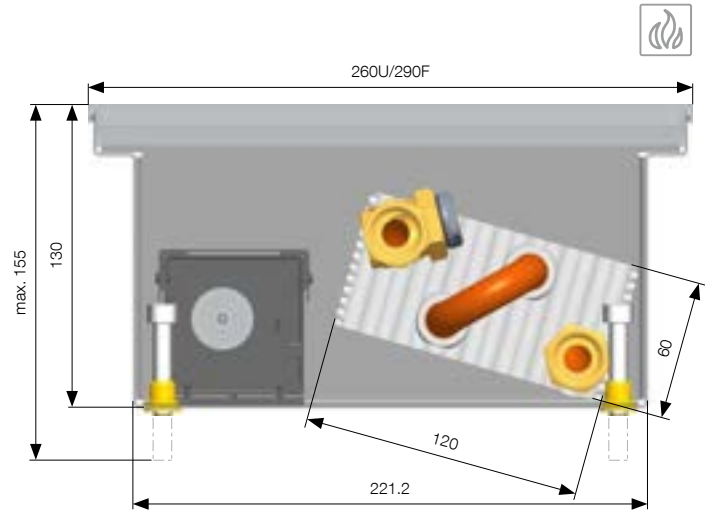
Depth 130 mm/width 260 mm

Heat output [W] where $t_1/t_2/t_3$ / EN 16430.

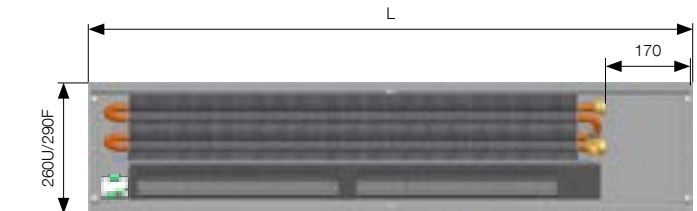
Measurements are shown in mm, including U-frame.

Length L	Optimal-V Energy	Fan speed setting	Heat output [W]		El. consumption [W]		Acoustics [dB(A)]	
			75/65/20 °C	55/45/20 °C	Optimal-V 24 V DC	Energy 230 V AC	Sound pressure	Sound power
800	1000	0	103	48	0	0	-	-
		1	897	508	1	10	19.1	27.1
		2	1 169	675	2	12	26.6	34.6
		3	1 269	739	2	13	28.9	36.9
1000	1200	0	145	68	0	0	-	-
		1	1 263	716	2	11	19.8	27.8
		2	1 646	951	3	13	27.6	35.6
		3	1 786	1 041	3	13	30.0	38.0
1200	1400	0	187	88	0	0	-	-
		1	1 629	924	2	12	20.1	28.1
		2	2 123	1 227	3	14	28.3	36.3
		3	2 304	1 342	4	14	31.0	39.0
1400	1600	0	229	108	0	0	-	-
		1	1 995	1 131	2	12	20.8	28.8
		2	2 600	1 503	3	14	29.0	37.0
		3	2 822	1 644	4	14	31.7	39.7
1600	1800	0	271	128	0	0	-	-
		1	2 361	1 339	2	12	21.2	29.2
		2	3 077	1 778	4	15	29.5	37.5
		3	3 340	1 946	6	17	32.4	40.4
1800	2000	0	313	147	0	0	-	-
		1	2 727	1 546	3	12	22.0	30.0
		2	3 554	2 054	6	15	30.1	38.1
		3	3 857	2 247	9	17	32.9	40.9
2000	2200	0	355	167	0	0	-	-
		1	3 093	1 754	3	14	21.9	29.9
		2	4 031	2 330	6	17	30.5	38.5
		3	4 375	2 549	9	18	33.5	41.5
2200	2400	0	397	187	0	0	-	-
		1	3 459	1 961	3	14	22.2	30.2
		2	4 508	2 605	6	17	30.9	38.9
		3	4 893	2 850	9	18	34.0	42.0
2400	2600	0	439	207	0	0	-	-
		1	3 825	2 169	3	14	22.4	30.4
		2	4 986	2 881	7	18	31.3	39.3
		3	5 411	3 152	9	21	34.5	42.5
2600	2800	0	481	226	0	0	-	-
		1	4 191	2 376	5	14	22.7	30.7
		2	5 463	3 157	11	18	31.6	39.6
		3	5 929	3 454	13	22	34.9	42.9
2800	3000	0	523	246	0	0	-	-
		1	4 557	2 584	5	15	22.7	30.7
		2	5 940	3 432	11	21	31.9	39.9
		3	6 446	3 755	14	25	35.3	43.3
3000		0	565	266	0	0	-	-
		1	4 923	2 791	6		23.1	31.1
		2	6 417	3 708	13		32.2	40.2
		3	6 964	4 057	17		35.6	43.6

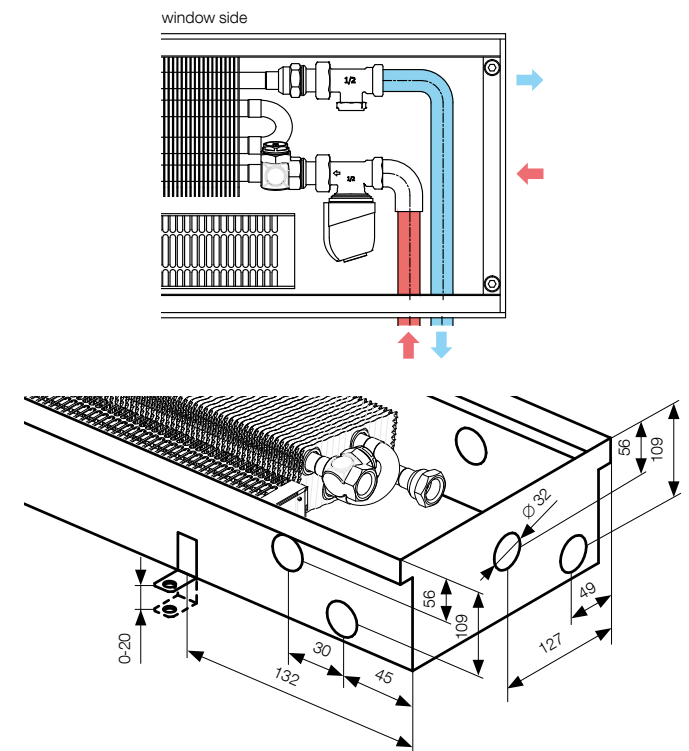
Temperature exponent [n]	1.0976
Unit weight [kg/m]	8.999
Water volume [l/m]	0.646
Effective exchange area Optimal-V [mm]	= L-310
Effective exchange area Energy [mm]	= L-510



U = U-frame, F = F-frame. Measurements for U-frame and Cross frame are identical.



Connections and connection measurements



Further information

Grilles and frames p. 76, Installation p. 92,
 Raised floor installations p. 94, Accessories p. 96,
 Overview of recommended valves for connection, p. 100

Measurements shown in mm.

KORAFLEX

Optimal-V FVO, Energy FVE



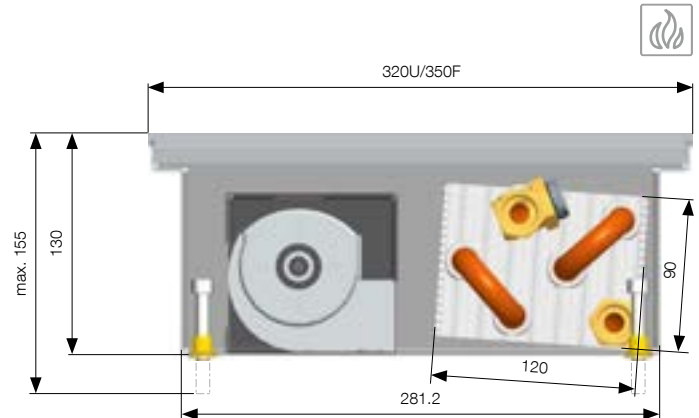
Depth 130 mm/width 320 mm

Heat output [W] where $t_1/t_2/t_3$ / EN 16430.

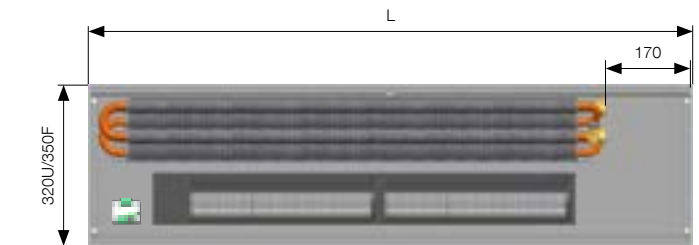
Measurements are shown in mm, including U-frame.

Length L		Fan speed setting	Heat output [W]		El. consumption [W]		Acoustics [dB(A)]	
			75/65/20 °C	55/45/20 °C	Optimal-V 24 V DC	Energy 230 V AC	Sound pressure	Sound power
800	1000	0	124	54	0	0	-	-
		1	1 161	698	2	11	23.6	31.6
		2	1 511	908	3	12	31.1	39.1
		3	1 989	1 196	5	15	41.3	49.3
1000	1200	0	175	76	0	0	-	-
		1	1 635	983	2	12	24.3	32.3
		2	2 128	1 279	4	14	32.3	40.3
		3	2 801	1 684	7	18	42.5	50.5
1200	1400	0	225	98	0	0	-	-
		1	2 109	1 268	2	12	25.0	33.0
		2	2 744	1 650	4	14	33.4	41.4
		3	3 613	2 172	8	19	43.4	51.4
1400	1600	0	276	120	0	0	-	-
		1	2 583	1 553	3	12	25.5	33.5
		2	3 361	2 021	5	14	34.1	42.1
		3	4 425	2 660	12	23	44.2	52.2
1600	1800	0	326	141	0	0	-	-
		1	3 057	1 838	3	14	26.0	34.0
		2	3 978	2 391	5	17	34.8	42.8
		3	5 237	3 148	14	26	44.9	52.9
1800	2000	0	377	163	0	0	-	-
		1	3 530	2 123	4	14	26.4	34.4
		2	4 594	2 762	8	17	35.1	43.1
		3	6 049	3 636	17	26	45.5	53.5
2000	2200	0	428	185	0	0	-	-
		1	4 004	2 408	4	14	26.8	34.8
		2	5 211	3 133	8	17	36.0	44.0
		3	6 861	4 124	17	28	46.1	54.1
2200	2400	0	478	207	0	0	-	-
		1	4 478	2 693	4	14	27.1	35.1
		2	5 828	3 503	9	18	36.5	44.5
		3	7 673	4 612	20	31	46.5	54.5
2400	2600	0	529	229	0	0	-	-
		1	4 952	2 978	5	14	27.4	35.4
		2	6 444	3 874	9	18	36.9	44.9
		3	8 485	5 100	22	31	47.0	55.0
2600	2800	0	579	251	0	0	-	-
		1	5 426	3 263	5	15	27.7	35.7
		2	7 061	4 245	10	19	37.4	45.4
		3	9 297	5 588	23	37	47.4	55.4
2800	3000	0	630	273	0	0	-	-
		1	5 900	3 548	5	15	28.0	36.0
		2	7 678	4 616	10	19	37.9	45.9
		3	10 109	6 076	28	37	47.8	55.8
3000		0	681	295	0	0	-	-
		1	6 374	3 832	5	15	28.2	36.2
		2	8 294	4 986	10	19	38.1	46.1
		3	10 921	6 564	28	37	48.2	56.2

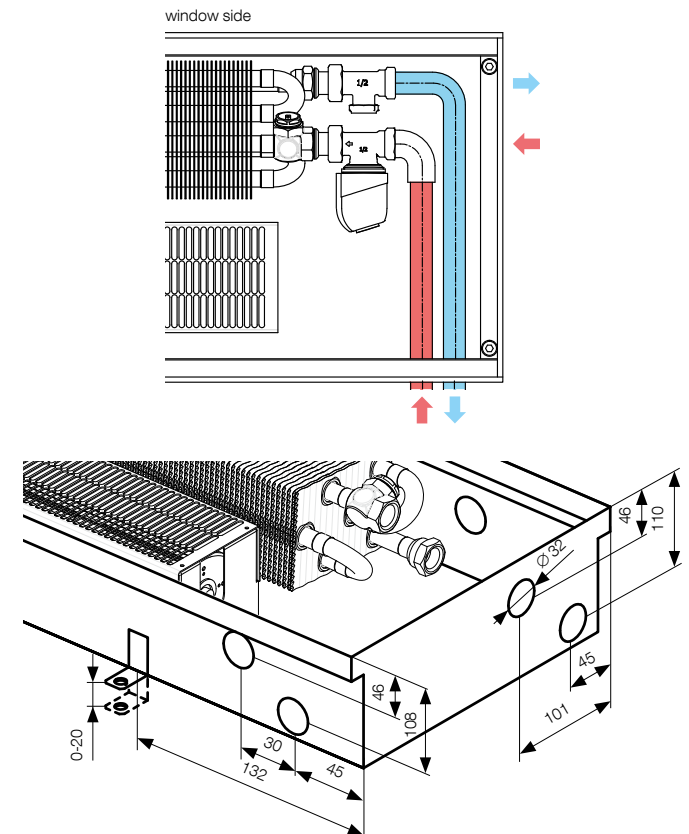
Temperature exponent [n]	0.9838
Unit weight [kg/m]	12.304
Water volume [l/m]	0.987
Effective exchange area Optimal-V [mm]	=L-310
Effective exchange area Energy [mm]	=L-510



U = U-frame, F = F-frame. Measurements for U-frame and Cross frame are identical.



Connections and connection measurements



Optimal-V FVO
Energy FVE

Further information

Grilles and frames p. 76, Installation p. 92,
Raised floor installations p. 94, Accessories p. 96,
Overview of recommended valves for connection, p. 100

Measurements shown in mm.

KORAFLEX

Optimal-V FVO, Energy FVE



Depth 130 mm/width 400 mm

Heat output [W] where $t_1/t_2/t_3$ / EN 16430.

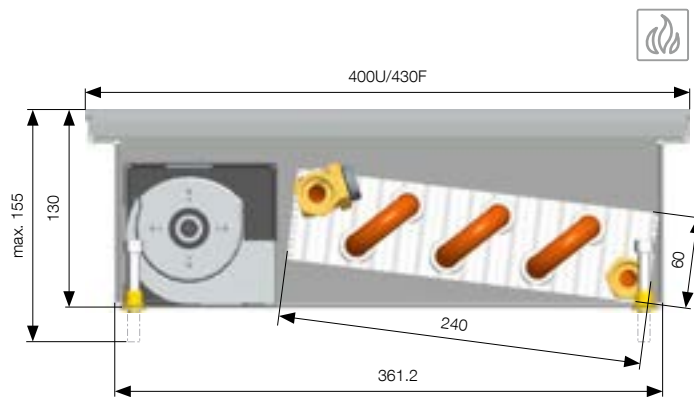
Measurements are shown in mm, including U-frame.

Length L		Fan speed setting	Heat output [W]		El. consumption [W]		Acoustics [dB(A)]	
			75/65/20 °C	55/45/20 °C	Optimal-V 24 V DC	Energy 230 V AC	Sound pressure	Sound power
800	1000	0	211	99	0	0	-	-
		1	1 924	1 120	2	12	23.6	31.6
		2	2 447	1 440	3	13	31.1	39.1
		3	3 054	1 824	7	18	41.3	49.3
1000	1200	0	298	139	0	0	-	-
		1	2 710	1 577	3	12	24.3	32.3
		2	3 446	2 027	4	14	32.3	40.3
		3	4 300	2 568	10	19	42.5	50.5
1200	1400	0	384	179	0	0	-	-
		1	3 495	2 034	3	13	25.0	33.0
		2	4 445	2 615	5	15	33.4	41.4
		3	5 546	3 313	11	25	43.4	51.4
1400	1600	0	470	219	0	0	-	-
		1	4 280	2 491	4	13	25.5	33.5
		2	5 444	3 203	7	15	34.1	42.1
		3	6 792	4 057	18	26	44.2	52.2
1600	1800	0	557	259	0	0	-	-
		1	5 066	2 948	4	13	26.0	34.0
		2	6 443	3 790	8	15	34.8	42.8
		3	8 039	4 801	19	27	44.9	52.9
1800	2000	0	643	300	0	0	-	-
		1	5 851	3 405	5	15	26.4	34.4
		2	7 442	4 378	9	19	35.1	43.1
		3	9 285	5 546	22	30	45.5	53.5
2000	2200	0	729	340	0	0	-	-
		1	6 637	3 862	5	15	26.8	34.8
		2	8 441	4 966	10	20	36.0	44.0
		3	10 531	6 290	23	35	46.1	54.1
2200	2400	0	816	380	0	0	-	-
		1	7 422	4 319	6	16	27.1	35.1
		2	9 440	5 553	12	21	36.5	44.5
		3	11 778	7 035	28	38	46.5	54.5
2400	2600	0	902	420	0	0	-	-
		1	8 207	4 776	6	16	27.4	35.4
		2	10 439	6 141	12	22	36.9	44.9
		3	13 024	7 779	30	42	47.0	55.0
2600	2800	0	988	461	0	0	-	-
		1	8 993	5 233	7	17	27.7	35.7
		2	11 438	6 729	14	23	37.4	45.4
		3	14 270	8 523	35	45	47.4	55.4
2800	3000	0	1 074	501	0	0	-	-
		1	9 778	5 690	7	17	28.0	36.0
		2	12 437	7 316	15	23	37.9	45.9
		3	15 517	9 268	37	45	47.8	55.8
3000		0	1 161	541	0	0	-	-
		1	10 563	6 147	7	17	28.2	36.2
		2	13 435	7 904	15		38.1	46.1
		3	16 763	10 012	37		48.2	56.2

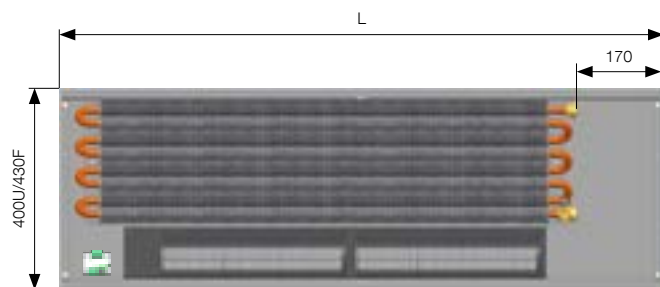
Temperature exponent [n]	1.0332
Unit weight [kg/m]	14.153
Water volume [l/m]	1.300
Effective exchange area Optimal-V [mm]	= L-310
Effective exchange area Energy [mm]	= L-510

Further information

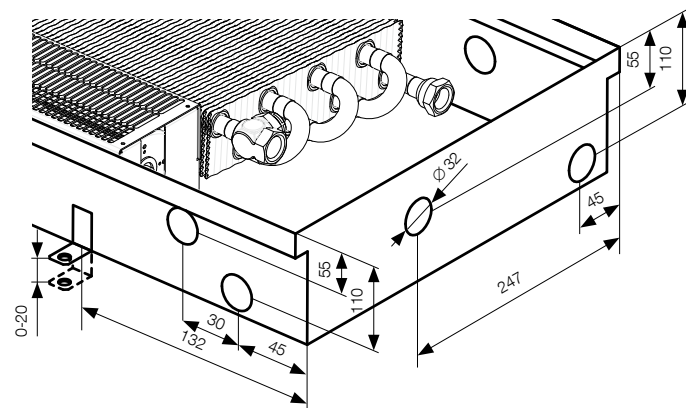
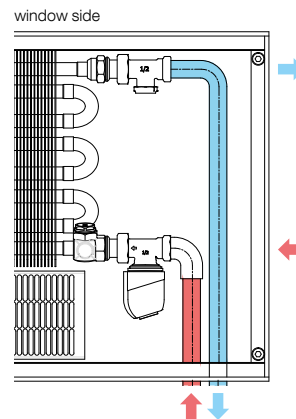
Grilles and frames p. 76, Installation p. 92,
Raised floor installations p. 94, Accessories p. 96,
Overview of recommended valves for connection, p. 100



U = U-frame, F = F-frame. Measurements for U-frame and Cross frame are identical.



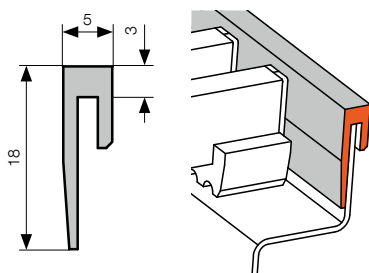
Connections and connection measurements



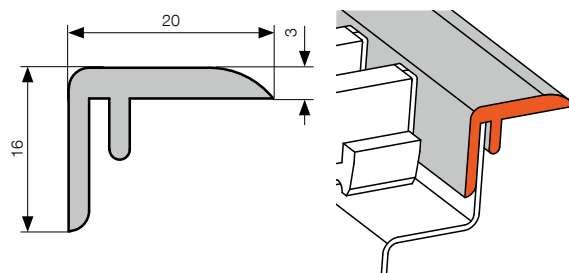
Measurements shown in mm.

FRAMES

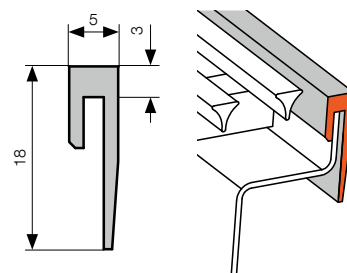
Standard U-frame



Optional F-frame



Optional Cross grille frame (on request)



Measurements shown in mm.

ORDER CODE



In the order code, always use the measurements in cm, including U-frame.

Optimal-V

KORAFLEX	Fan-assisted	Optimal-V	Length (cm)	Depth (cm)	Width (cm)	Heat exchanger type	Heat exchanger colour	Frame	Frame colour	Connection side	Lowered face	For grille	Regulation
F	V	O	---/.. / ..	V	counter-flow	1 non-lacquered 5 RAL 9005 9 other RAL colour	U U-frame F F-frame C for Cross grille 0 without frame	1 silver elox 2 dark bronze elox 3 light bronz elox 5 black elox 9 other RAL colour 0 without frame	P right L left	0 without lowered face 1 lower face – input side 2 lower face – opposite input side 3 both sides lower	R roll-up L* linear	-	RT 24 V DC regulation

L* – technical alterations to convector casing see p. 84

Example order code: FVO-120/11/26-V5U1P0R-RT

KORAFLEX trench heater with fan (forced convection), Optimal-V 24 V DC model, length 120 cm, depth 11 cm, width 26 cm, counter-flow RAL 9005 black lacquered heat exchanger, U-frame in silver elox finish, right-hand connection without lowered casing edge, preparation for roll-up cover grille, 24 V DC regulation.

Energy

KORAFLEX	Fan-assisted	Energy	Length (cm)	Depth (cm)	Width (cm)	Heat exchanger type	Heat exchanger colour	Frame	Frame colour	Connection side	Lowered face	For grille	Regulation
F	V	E	---/.. / ..	V	counter-flow	1 non-lacquered 5 RAL 9005 9 other RAL colour	U U-frame F F-frame C for Cross grille 0 without frame	1 silver elox 2 dark bronze elox 3 light bronz elox 5 black elox 9 other RAL colour 0 without frame	P right L left	0 without lowered face 1 lower face – input side 2 lower face – opposite input side 3 both sides lower	R roll-up L* linear	-	RE 230 V AC regulation

L* – technical alterations to convector casing see p. 84

Example order code: FVE-120/11/26-V1U1P0R-RE

KORAFLEX trench heater with fan (forced convection), Energy 230 V AC model, length 120 cm, depth 11 cm, width 26 cm, counter-flow heat exchanger in the Economic version (without surface treatment), U-frame in silver elox finish, right-hand connection without lowered casing edge, preparation for roll-up cover grille, 230 V AC regulation.



Cross grille – design solutions – Note, please, that Cross grilles must be ordered together with trench heaters, as the casing must undergo alteration. These trench heaters will be fitted with Cross frame suitable for Cross grille. For more information – see p. 82).

Where a linear grille is required, technical consultation is necessary, as the casing may need to undergo alteration. Note, please, that the linear grilles must be ordered together with trench heaters.

For a summary and description of grilles available, including order codes, see p. 76–83.

Light-cooling is feasible in the non-condensation zone only, i.e. above the dew-point temperature. The unit is not equipped with condensate drainage.

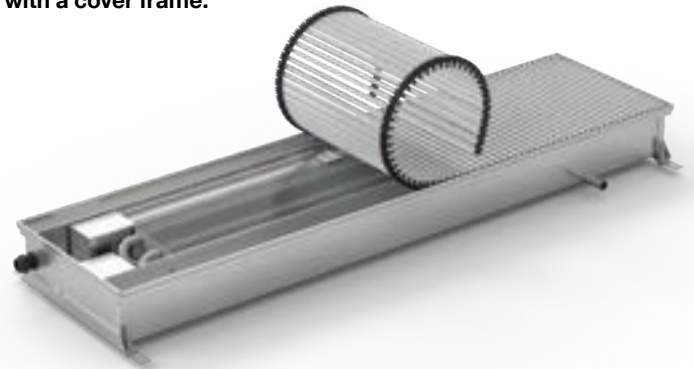
KORAFLEX Pool-V FVP

Specifications

Depth	110 mm
Width	320 mm
Length	800 to 3 000 mm (by 200 mm)
Heat output	from 90 to 7 013 W
Max. operating pressure	1.2 MPa
Max. operating temperature	90 °C
Connecting thread	inner G 1/2"
Casing material	AISI 316 stainless steel
IP rating	IP 20

KORAFLEX Pool-V FVP trench heaters are designed for humid environments. They are fitted as standard with a water drain and a sloping bottom. However, they are not watertight and must not remain flooded for extended periods. For correct operation of the trench heater, we recommend a water pH of 7.2–7.6 and a maximum free chlorine concentration of 1 mg/l. Any change, particularly a decrease in pH, increases the aggressiveness of the water and may cause corrosion of stainless steel materials. Pool-V trench heaters installed in

KORAFLEX Pool-V FVP is designed for heating in humid environments (e.g. swimming pools and conservatories). It is made of AISI 316 stainless steel, fitted with water drainage and a dividing partition for protection against flooding. It is characterised by silent operation and can be connected to a BMS (Building Management System). We recommend fitting an aluminium grille and following the installation and operating guidelines. **KORAFLEX Pool-V has hemmed edges and cannot be fitted with a cover frame.**



humid environments must be regularly rinsed with clean water and then thoroughly dried. If there are visible signs of limescale deposits or oxidation, a stainless steel cleaner must be used, followed by treatment with a metal care product. **To ensure a long service life and efficient operation of the convector, the stainless steel maintenance guidelines must be followed.** More detailed information can be found in the installation manual and the Operating and Warranty Conditions, available for download at www.licon-heat.com.

Standard contents

- AISI 316 stainless steel convector casing, non-lacquered
- RAL 9006 grey lacquered Al/Cu heat exchanger w/o Al frame
- frame substituted by casing edges finished with hem
- AISI 316 stainless steel cover plates
- set of low-energy 24 V DC EC fans with stainless steel cover grid
- 24 V DC terminal block and regulator (FCR BOX)
- drainage apertures, incl. separation partitions to catch spillages
- levelling set screws and 4 anchors
- hardboard cover to protect trench heater from contamination
- durable packaging, installation instructions



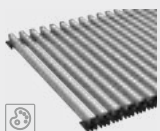
Not suitable for installation in salt-water pools.

Optional accessories

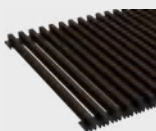
- aluminium cover grille of your choice suitable for FVP
- regulating valve set, angle or straight (p. 99)
- thermostatic valve, angle, straight or axial (p. 99)
- thermostatic pressure-independent valve, angle, straight or axial (p. 99)
- brass elbow 1/2" x 1/2" 90° (p. 98)
- stainless steel flexible hoses (p. 98)
- thermoelectric actuator TEP 24 (p. 97)
- SIEMENS thermostat RDG 260T, RDG 260KN, HY607LIC (p. 96)
- SIEMENS manual thermostat RAB 21-DC (p. 96)
- room temperature sensor QAA32 (p. 98)
- 24 V DC power supply unit (p. 98)
- R-Box (p. 98)
- acoustic absorption foil
- OSB cover board with increased stiffness for installation purposes

For more information about optional accessories and order codes p. 96–100

Suitable grilles (roll-up, linear)



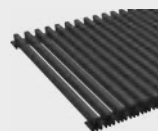
Aluminium elox, silver



Aluminium elox, dark bronze



Aluminium elox, light bronze



Aluminium elox, black

A summary of individual aluminium grille types and order codes can be found on p. 77.

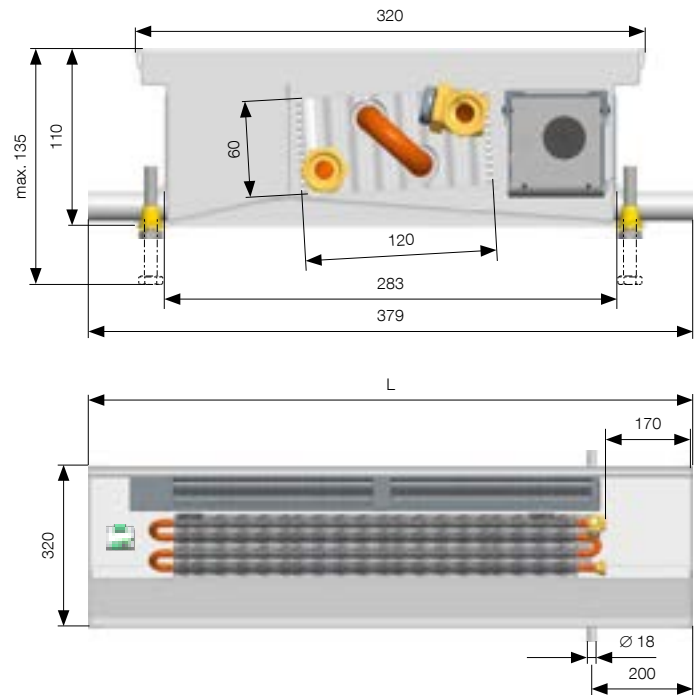
KORAFLEX Pool-V FVP

Depth 110 mm/width 320 mm

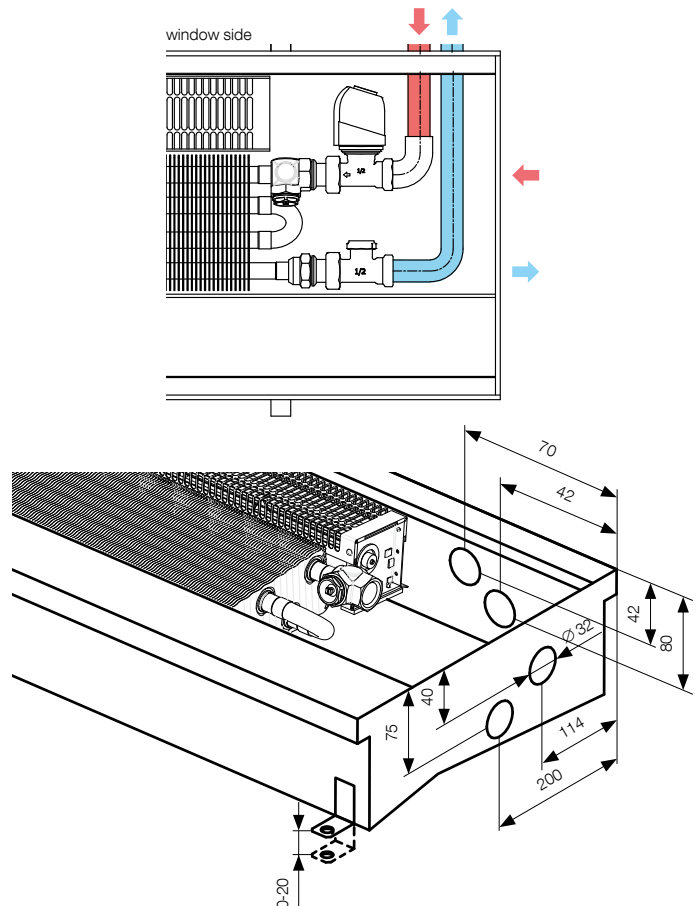
Heat output [W] where $t_1/t_2/t_3$ / EN 16430.

Measurements are shown in mm, including hem.

Length L	Fan speed setting	Heat output [W]		El. consumption [W]	Acoustics [dB(A)]	
		75/65/20 °C	55/45/20 °C		Sound pressure	Sound power
800	0	90	41	0	-	-
	1	684	415	1	20.4	28.4
	2	1 090	666	2	27.1	35.1
	3	1 277	784	2	29.5	37.5
1000	0	127	58	0	-	-
	1	963	584	2	20.9	28.9
	2	1 535	938	3	27.9	35.9
	3	1 799	1 104	3	30.4	38.4
1200	0	164	75	0	-	-
	1	1 243	753	2	21.2	29.2
	2	1 980	1 210	3	28.5	36.5
	3	2 320	1 424	4	31.1	39.1
1400	0	201	92	0	-	-
	1	1 522	922	2	21.6	29.6
	2	2 425	1 482	3	29.1	37.1
	3	2 842	1 743	4	31.8	39.8
1600	0	237	109	0	-	-
	1	1 801	1 091	2	21.9	29.9
	2	2 870	1 754	5	29.6	37.6
	3	3 363	2 063	6	32.3	40.3
1800	0	274	125	0	-	-
	1	2 080	1 261	3	22.4	30.4
	2	3 315	2 026	7	30.1	38.1
	3	3 884	2 383	10	32.9	40.9
2000	0	311	142	0	-	-
	1	2 360	1 430	3	22.4	30.4
	2	3 760	2 298	7	30.4	38.4
	3	4 406	2 703	10	33.2	41.2
2200	0	348	159	0	-	-
	1	2 639	1 599	3	22.7	30.7
	2	4 205	2 570	7	30.8	38.8
	3	4 927	3 023	10	33.6	41.6
2400	0	385	176	0	-	-
	1	2 918	1 768	4	22.9	30.9
	2	4 650	2 842	7	31.1	39.1
	3	5 449	3 343	10	33.9	41.9
2600	0	421	193	0	-	-
	1	3 197	1 937	5	23.0	31
	2	5 095	3 114	10	31.4	39.4
	3	5 970	3 663	14	34.3	42.3
2800	0	458	210	0	-	-
	1	3 476	2 107	5	23.1	31.1
	2	5 540	3 386	10	31.6	39.6
	3	6 491	3 983	14	34.5	42.5
3000	0	495	227	0	-	-
	1	3 756	2 276	6	23.4	31.4
	2	5 985	3 658	14	31.9	39.9
	3	7 013	4 303	19	34.8	42.8
Temperature exponent [n]				0.9745		
Unit weight [kg/m]				10.088		
Water volume [l/m]				0.640		
Effective exchange area [mm]				=L-398		



Connections and connection measurements



Pool-V
FVP

Further information

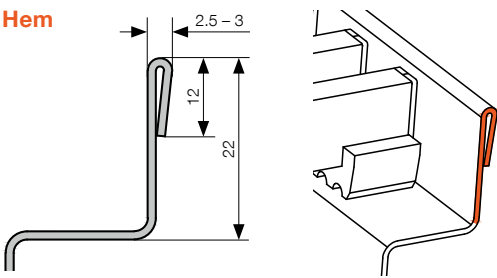
Grilles and frames p. 76, Installation p. 92,

Raised floor installations p. 94, Accessories p. 96,

Overview of recommended valves for connection, p. 100

Measurements shown in mm.

HEM FINISHING



Measurements shown in mm.

ORDER CODE



In the order code, always use the measurements in cm, including hem.

KORAFLEX	Fan-assisted	Pool	Length (cm)	Depth (cm)	Width (cm)	Heat exchanger type	Heat exchanger colour	Frame	Frame colour	Connection side	Lowered face	Lowered face	Regulation
F	V	P	-.../../..	-	V	counterflow	6 RAL 9006 grey 9 other RAL colour	P hem	0 without frame	P right L left	0 without lowered face	R roll-up L* linear	- RT 24 V DC regulation

Example order code: **FVP-100/11/32-V6P0P0R-RT**

L* – technical alterations to convector casing see p. 84

KORAFLEX trench heater with fan (forced convection), Pool version, length 100 cm, depth 11 cm, width 32 cm, counter-flow heat exchanger lacquered in grey RAL 9006, trench heater casing finished with hem, right-hand connection without lowered casing edge, preparation for roll-up grille, 24 V DC regulation.



Individual KORAFLEX Pool heater casings cannot be combined, into multiple trench heaters and are manufactured solely as P0 and L0 models.

Where a linear grille is required, technical consultation is necessary, as the casing may need to undergo alteration. Note, please, that the linear grilles must be ordered together with trench heaters.

For a summary and description of grilles available, including order codes, see p. 76–83.

KORAFLEX Variant F2V

Specifications

KORAFLEX Variant F2V – 11/20

Depth	110 mm
Width	200 mm
Length	800 to 3 000 mm (by 200 mm)

KORAFLEX Variant F2V – 13/34

Depth	130 mm
Width	340 mm
Length	800 to 3 000 mm (by 200 mm)

Heat output	from 67 to 14 896 W
Cooling output	from 203 to 4 594 W
Max. operating pressure	1.2 MPa
Max. operating temperature	90 °C
Connecting thread	inner G 1/2"
IP rating	IP 20

Standard contents

- **F2V 11/20** – AISI 304 stainless steel casing, non-lacquered, non-lacquered Al/Cu heat exchanger
- **F2V 13/34** – galvanised steel outer casing, RAL 9005 black lacquered, Lower AISI 304 stainless steel condensation drainage canal, non-lacquered
 - Economic version – non-lacquered Al/Cu heat exchanger
 - Exclusive version – RAL 9005 lacquered Al/Cu heat exchanger
- aluminium U-frame, silver elox
- metal cover plates
- set of low-energy EC fans 24 V DC
- 24 V DC terminal block and regulator (FCR BOX)
- levelling set screws and 4 anchors
- spacers for correct installation and concreting
- hardboard cover to protect trench heater from contamination
- durable packaging, installation instructions

KORAFLEX Variant F2V is designed for heating or cooling rooms. It is capable of high heating and cooling performance. It is designed for 2-pipe systems and is equipped with a stainless steel condensation drainage canal. The F2V trench heater can be controlled by thermostats or a BMS (Building Management System), and is to be installed solely in dry environments.

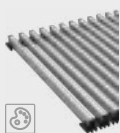


Optional accessories

- cover grille of your choice
- Cross or Robust cover grille (p. 82) – design solution – must be ordered together with the trench heater (includes a casing construction modification)
- U-frame in aluminium, available in black elox, light/dark bronze elox or lacquered according to the RAL colour chart
- F-frame in aluminium, available in silver elox, light/dark bronze elox, black elox or lacquered according to the RAL colour chart
- supports for raised floors (p. 94)
- regulating valve set, angle or straight (p. 99)
- thermostatic valve, angle, straight or axial (p. 99)
- thermostatic pressure-independent valve, angle, straight or axial (p. 99)
- pressure independent valve with reducer (p. 99)
- brass elbow 1/2" x 1/2" 90° (p. 98)
- stainless steel flexible hoses (p. 98)
- thermoelectric actuator TEP 24 (p. 97)
- SIEMENS thermostat RDG 260T, RDG 260KN, HY607LIC (p. 96)
- SIEMENS manual thermostat RAB 21-DC (p. 96)
- room temperature sensor QAA32 (p. 98)
- 24 V DC power supply unit (p. 98)
- R-Box (p. 98)
- acoustic absorption foil
- OSB cover board with increased stiffness for installation purposes

For more information about optional accessories and order codes p. 96–100

Suitable grilles (roll-up, linear, fixed)



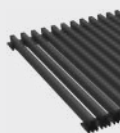
Aluminium elox, silver



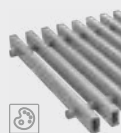
Aluminium elox, dark bronze



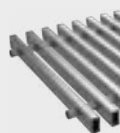
Aluminium elox, light bronze



Aluminium elox, black



Steel



Stainless steel



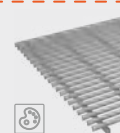
Beech



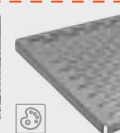
Oak



Mahogany



Cross



Robust, stainless steel/steel

For a summary and description of grilles available, including order codes, p. 76–83.

Upon request

KORAFLEX Variant F2V

Depth 130 mm/width 340 mm

Heat output [W] where $t_1/t_2/t_3$ / EN 16430.

Measurements are shown in mm, including U-frame.

Length L	Fan speed setting	Heat output [W]		Cooling output 50% humidity. [W]			El. consumption [W]	Acoustics [dB(A)]	
		75/65/20 °C	55/45/20 °C	16/18/27 °C	7/12/27 °C TOTAL	7/12/27 °C SENSIBLE		Sound pressure	Sound power
800	0	99	49	-	-	-	0	-	-
	1	1 132	665	141	287	226	3	23.6	31.6
	2	1 668	1 014	235	469	376	3	31.1	39.1
	3	2 267	1 449	338	661	542	6	41.3	49.3
1000	0	150	73	-	-	-	0	-	-
	1	1 706	1 001	212	432	340	3	24.3	32.3
	2	2 512	1 527	354	706	567	4	32.3	40.3
	3	3 415	2 182	510	996	817	8	42.5	50.5
1200	0	200	98	-	-	-	0	-	-
	1	2 279	1 338	283	578	454	3	25.0	33.0
	2	3 356	2 041	473	944	757	5	33.4	41.4
	3	4 563	2 915	681	1 331	1 091	10	43.4	51.4
1400	0	250	123	-	-	-	0	-	-
	1	2 853	1 674	355	723	568	3	25.5	33.5
	2	4 201	2 554	592	1 181	948	5	34.1	42.1
	3	5 712	3 649	852	1 666	1 366	12	44.2	52.2
1500	0	275	135	-	-	-	0	-	-
	1	3 139	1 843	390	796	625	3	26.0	34.0
	2	4 623	2 811	651	1 300	1 043	6	34.8	42.8
	3	6 286	4 016	938	1 833	1 503	15	44.9	52.9
1600	0	300	147	-	-	-	0	-	-
	1	3 426	2 011	426	868	682	5	26.2	34.0
	2	5 045	3 068	710	1 418	1 138	7	35.0	42.8
	3	6 860	4 382	1 024	2 001	1 640	17	45.2	52.9
1800	0	351	172	-	-	-	0	-	-
	1	4 000	2 348	497	1 014	797	5	26.4	34.4
	2	5 890	3 581	829	1 656	1 329	8	35.1	43.1
	3	8 008	5 116	1 195	2 336	1 915	18	45.5	53.5
2000	0	401	197	-	-	-	0	-	-
	1	4 573	2 684	569	1 159	911	5	26.8	34.8
	2	6 734	4 095	948	1 893	1 519	9	36.0	44.0
	3	9 156	5 849	1 367	2 671	2 189	18	46.1	54.1
2200	0	451	221	-	-	-	0	-	-
	1	5 146	3 021	640	1 304	1 025	5	27.1	35.1
	2	7 578	4 608	1 067	2 130	1 709	9	36.5	44.5
	3	10 304	6 583	1 538	3 005	2 463	21	46.5	54.5
2400	0	502	246	-	-	-	0	-	-
	1	5 720	3 357	711	1 450	1 139	6	27.4	35.4
	2	8 423	5 121	1 186	2 368	1 900	10	36.9	44.9
	3	11 452	7 316	1 709	3 340	2 738	23	47.0	55.0
2500	0	527	258	-	-	-	0	-	-
	1	6 007	3 525	747	1 522	1 196	6	27.7	35.7
	2	8 845	5 378	1 246	2 486	1 995	11	37.4	45.4
	3	12 026	7 683	1 795	3 508	2 875	23	47.4	55.4
2600	0	552	271	-	-	-	0	-	-
	1	6 293	3 694	783	1 595	1 254	7	27.9	35.7
	2	9 267	5 635	1 305	2 605	2 090	12	37.7	45.4
	3	12 600	8 050	1 881	3 675	3 012	26	47.6	55.4
2800	0	602	295	-	-	-	0	-	-
	1	6 867	4 030	854	1 740	1 368	7	28.0	36.0
	2	10 112	6 148	1 424	2 843	2 281	13	37.9	45.9
	3	13 748	8 783	2 052	4 010	3 287	30	47.8	55.8
3000	0	652	320	-	-	-	0	-	-
	1	7 440	4 367	925	1 886	1 482	7	28.2	36.2
	2	10 956	6 662	1 543	3 080	2 471	13	38.1	46.1
	3	14 896	9 517	2 223	4 345	3 561	30	48.2	56.2

Temperature exponent [n] Heating - 0.9743 / Cooling - 0.8419

Unit weight [kg/m] 13.500

Water volume [l/m] 0.880

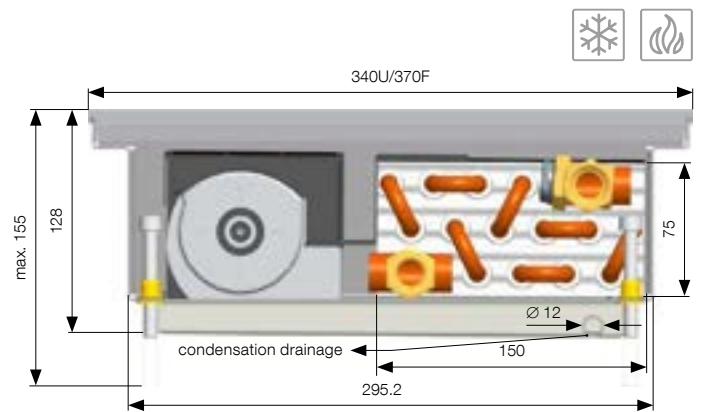
Effective exchange area [mm] = L-455

Further information

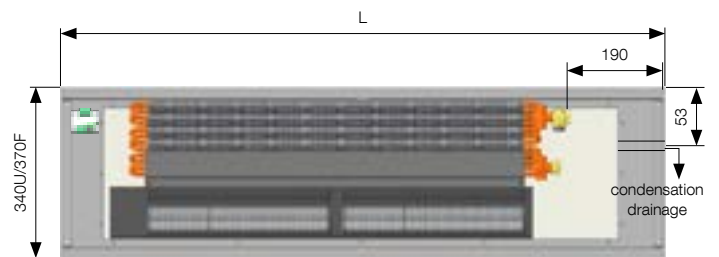
Grilles and frames p. 76, Installation p. 92,

Raised floor installations p. 94, Accessories p. 96,

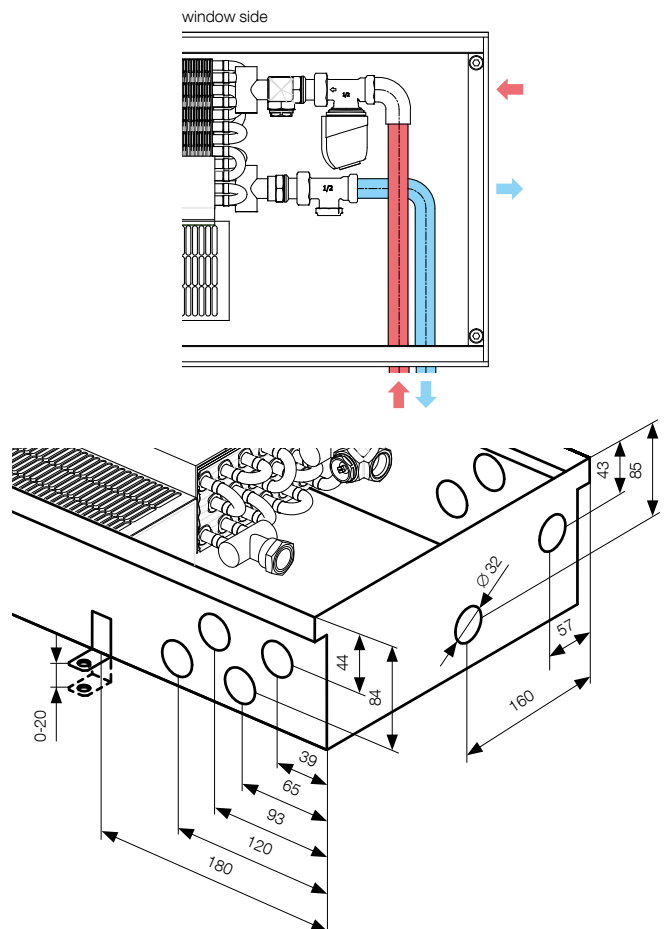
Overview of recommended valves for connection, p. 100



U = U-frame, F = F-frame. Measurements for U-frame and Cross frame are identical.



Connections and connection measurements

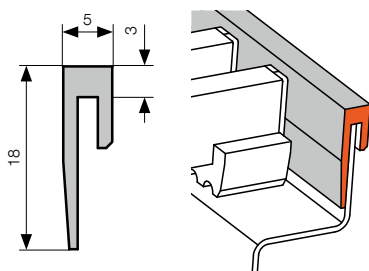


Variant F2V
Variant F4V

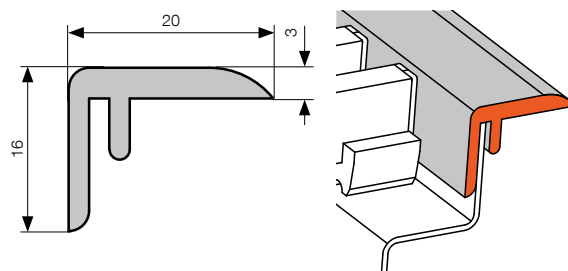
Measurements shown in mm.

FRAMES

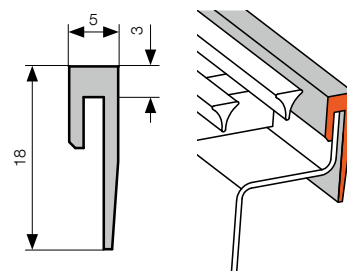
Standard U-frame



Optional F-frame



Optional Cross grille frame (on request)



Measurements shown in mm.

ORDER CODE



In the order code, always use the measurements in cm, including U-frame.

KORAFLEX	2 pipe	Fan-assisted	Length (cm)	Depth (cm)	Width (cm)	Heat exchanger type	Heat exchanger colour	Frame	Frame colour	Connection side	Lowered face	Lowered face	Regulation
F	2	V	-.../../..	-	V	counter-flow	1 non-lacquered 5 RAL 9005 9 other RAL colour	U U-frame F F-frame C for Cross grille 0 without frame	1 silver elox 2 dark bronze elox 3 light bronze elox 5 black elox 9 other RAL colour 0 without frame	P right L left	0 without lowered face 1 lower face – input side 2 lower face – opposite input side 3 both sides lower	R roll-up L* linear	- RT 24 V DC regulation

L* – technical alterations to convector casing see p. 84

Example order code: F2V-120/13/34-V1U1P0R-RT

KORAFLEX trench heater with fan (forced convection), 2-pipe system for heating or cooling, length 120 cm, depth 13 cm, width 34 cm, counter-flow heat exchanger in the Economic version (without surface treatment), U-frame in silver elox finish, right-hand connection without lowered casing edge, preparation for roll-up grille, 24 V DC regulation.



Cross grille – design solutions – Note, please, that Cross grilles must be ordered together with trench heaters, as the casing must undergo alteration. These trench heaters will be fitted with Cross frame suitable for Cross grille. For more information – see p. 82).

Where a linear grille is required, technical consultation is necessary, as the casing may need to undergo alteration. Note, please, that the linear grilles must be ordered together with trench heaters.

For a summary and description of grilles available, including order codes, see p. 76–83.

KORAFLEX Variant F4V

Specifications

Depth	130 mm
Width	340 mm
Length	800 to 3 000 mm (by 200 mm)
Heat output	from 72 to 7 883 W
Cooling output	from 203 to 3 994 W
Max. operating pressure	1.2 MPa
Max. operating temperature	90 °C
Connecting thread	inner G 1/2"
IP rating	IP 20

Economic version – non-lacquered heat exchanger

Exclusive version – black lacquered heat exchanger

Standard contents

- galvanised steel casing lacquered RAL 9005 – black, AISI 304 stainless steel condensate tray
- Economic – non-lacquered Al/Cu heat exchanger with bleed valve
- Exclusive – RAL 9005 black lacquered Al/Cu heat exchanger with bleed valve
- aluminium U-frame, silver elox
- metal cover plates
- set of low-energy EC fans 24 V DC
- 24 V DC terminal block and regulator (FCR BOX)
- levelling set screws and 4 anchors
- spacers for correct installation and concreting
- hardboard cover to protect trench heater from contamination
- durable packaging, installation instructions

KORAFLEX Variant F4V is designed for heating and cooling rooms. It is capable of high heating and cooling performance. It is designed for 4-pipe systems and is equipped with a stainless steel condensation drainage canal. The KORAFLEX Model F4V can be controlled by thermostats or a BMS (Building Management System).



Optional accessories

- cover grille of your choice
- Cross or Robust cover grille (p. 82) – design solution – must be ordered together with the trench heater (includes a casing construction modification)
- U-frame in aluminium, available in black elox, light/dark bronze elox or lacquered according to the RAL colour chart
- F-frame in aluminium, available in silver elox, light/dark bronze elox, black elox or lacquered according to the RAL colour chart
- supports for raised floors (p. 94)
- regulating valve set, angle or straight (p. 99)
- thermostatic valve, angle, straight or axial (p. 99)
- thermostatic pressure-independent valve, angle, straight or axial (p. 99)
- pressure independent valve with reducer (p. 99)
- brass elbow 1/2" x 1/2" 90° (p. 98)
- stainless steel flexible hoses (p. 98)
- thermoelectric actuator TEP 24 (p. 97)
- SIEMENS thermostat RDG 260T, RDG 260KN, HY607LIC (p. 96)
- SIEMENS manual thermostat RAB 21-DC (p. 96)
- room temperature sensor QAA32 (p. 98)
- 24 V DC power supply unit (p. 98)
- R-Box (p. 98)
- acoustic absorption foil
- OSB cover board with increased stiffness for installation purposes

For more information about optional accessories and order codes p. 96–100

Suitable grilles (roll-up, linear, fixed)



For a summary and description of grilles available, including order codes, p. 76–83.

KORAFLEX Variant F4V

Depth 130 mm/width 340 mm

Heat output [W] where $t_1/t_2/t_3$ / EN 16430.

Measurements are shown in mm, including U-frame.

Length L	Fan speed setting	Heat output [W]		Cooling output 50% humidity. [W]			El. consumption [W]	Acoustics [dB(A)]	
		75/65/20 °C	55/45/20 °C	16/18/27 °C	7/12/27 °C TOTAL	7/12/27 °C SENSIBLE		Sound pressure	Sound power
800	0	72	35	-	-	-	0	-	-
	1	588	336	101	200	157	3	23.6	31.6
	2	753	443	161	313	251	3	31.1	39.1
	3	904	553	227	433	355	6	41.3	49.3
1000	0	123	60	-	-	-	0	-	-
	1	1 000	573	171	340	267	3	24.3	32.3
	2	1 281	754	274	532	427	4	32.3	40.3
	3	1 539	942	387	737	604	8	42.5	50.5
1200	0	173	85	-	-	-	0	-	-
	1	1 412	809	242	481	378	3	25.0	33.0
	2	1 810	1 065	386	752	603	5	33.4	41.4
	3	2 173	1 330	547	1 041	853	10	43.4	51.4
1400	0	224	110	-	-	-	0	-	-
	1	1 825	1 045	312	621	488	3	25.5	33.5
	2	2 338	1 376	499	972	780	5	34.1	42.1
	3	2 807	1 718	706	1 345	1 103	12	44.2	52.2
1500	0	249	122	-	-	-	0	-	-
	1	2 031	1 163	348	691	543	3	26.0	34.0
	2	2 602	1 532	556	1 081	868	6	34.8	42.8
	3	3 125	1 912	786	1 497	1 227	15	44.9	52.9
1600	0	274	134	-	-	-	0	-	-
	1	2 237	1 281	383	761	598	5	26.2	34.0
	2	2 866	1 688	612	1 191	956	7	35.0	42.8
	3	3 442	2 106	866	1 649	1 352	17	45.2	52.9
1800	0	325	159	-	-	-	0	-	-
	1	2 649	1 517	454	901	708	5	26.4	34.4
	2	3 394	1 999	725	1 411	1 132	8	35.1	43.1
	3	4 076	2 495	1 025	1 953	1 601	18	45.5	53.5
2000	0	375	184	-	-	-	0	-	-
	1	3 061	1 753	524	1 042	819	5	26.8	34.8
	2	3 923	2 310	838	1 630	1 308	9	36.0	44.0
	3	4 711	2 883	1 185	2 257	1 850	18	46.1	54.1
2200	0	426	209	-	-	-	0	-	-
	1	3 474	1 989	595	1 182	929	5	27.1	35.1
	2	4 451	2 621	951	1 850	1 484	9	36.5	44.5
	3	5 345	3 271	1 344	2 561	2 099	21	46.5	54.5
2400	0	476	234	-	-	-	0	-	-
	1	3 886	2 226	665	1 322	1 039	6	27.4	35.4
	2	4 979	2 932	1 063	2 070	1 661	10	36.9	44.9
	3	5 980	3 660	1 504	2 865	2 349	23	47.0	55.0
2500	0	502	246	-	-	-	0	-	-
	1	4 092	2 344	701	1 392	1 094	6	27.7	35.7
	2	5 244	3 087	1 120	2 179	1 749	11	37.4	45.4
	3	6 297	3 854	1 584	3 017	2 473	23	47.4	55.4
2600	0	527	258	-	-	-	0	-	-
	1	4 298	2 462	736	1 463	1 149	7	27.9	35.7
	2	5 508	3 243	1 176	2 289	1 837	12	37.7	45.4
	3	6 614	4 048	1 664	3 169	2 598	26	47.6	55.4
2800	0	578	283	-	-	-	0	-	-
	1	4 711	2 698	807	1 603	1 260	7	28.0	36.0
	2	6 036	3 554	1 289	2 509	2 013	13	37.9	45.9
	3	7 248	4 436	1 823	3 473	2 847	30	47.8	55.8
3000	0	628	308	-	-	-	0	-	-
	1	5 123	2 934	877	1 743	1 370	7	28.2	36.2
	2	6 564	3 865	1 402	2 728	2 189	13	38.1	46.1
	3	7 883	4 824	1 983	3 777	3 096	30	48.2	56.2

Temperature exponent [n] Heating – 1.0376 / Cooling – 0.7964

Unit weight [kg/m] 13.507

Water volume [l/m] Heating – 0.254 / Cooling – 0.794

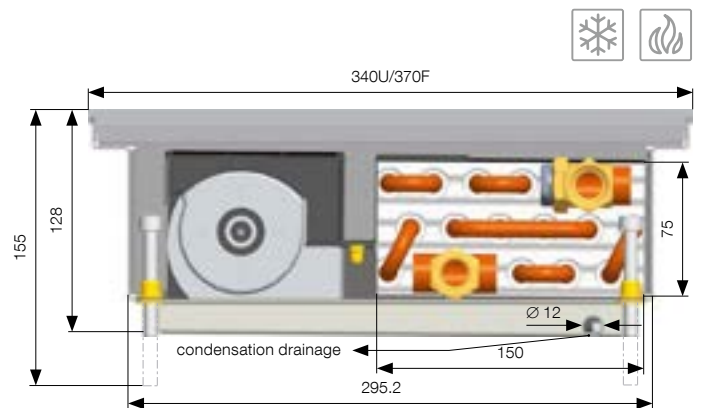
Effective exchange area [mm] =L-515

Further information

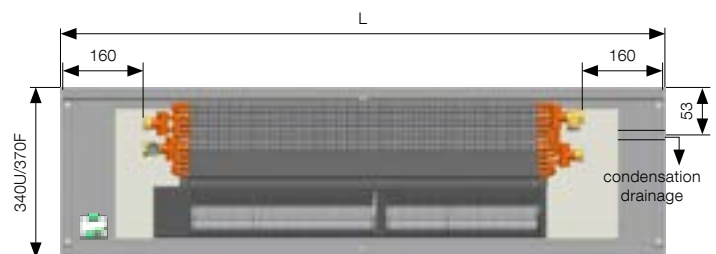
Grilles and frames p. 76, Installation p. 92,

Raised floor installations p. 94, Accessories p. 96,

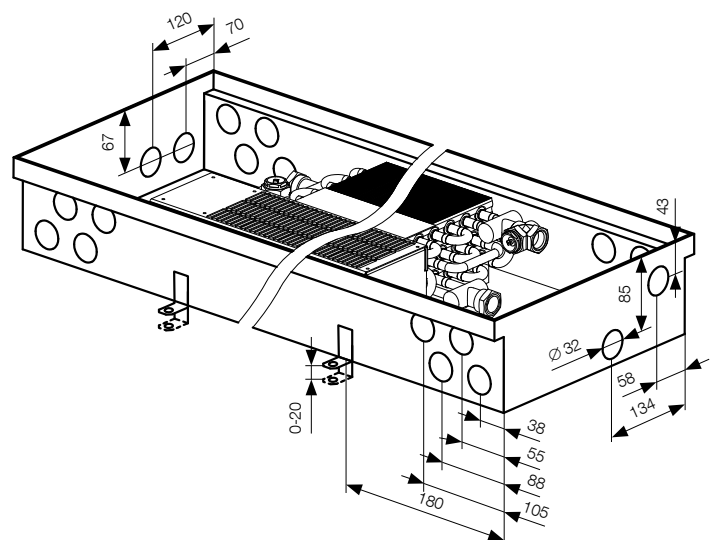
Overview of recommended valves for connection, p. 100



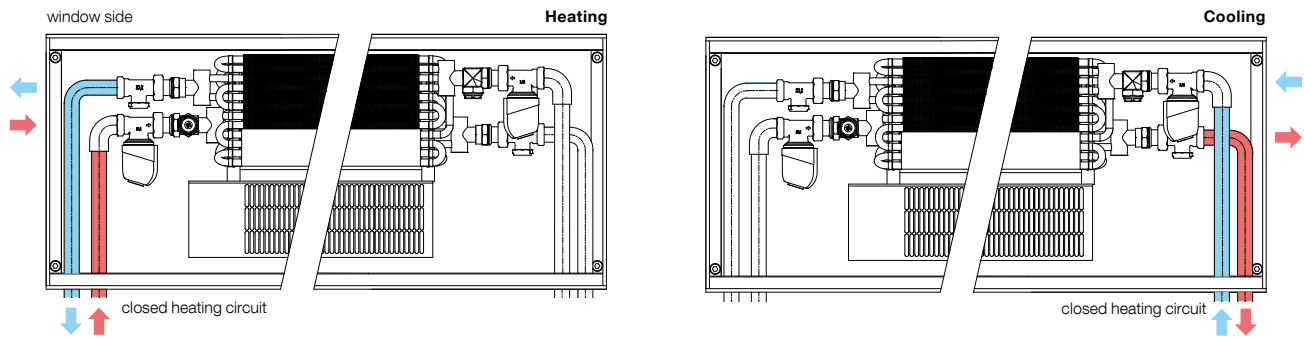
U = U-frame, F = F-frame. Measurements for U-frame and Cross frame are identical.



Connections and connection measurements

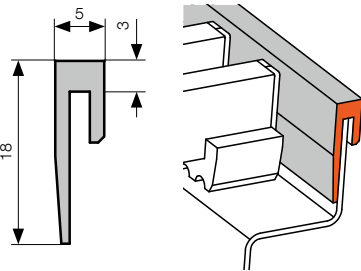


Measurements shown in mm.

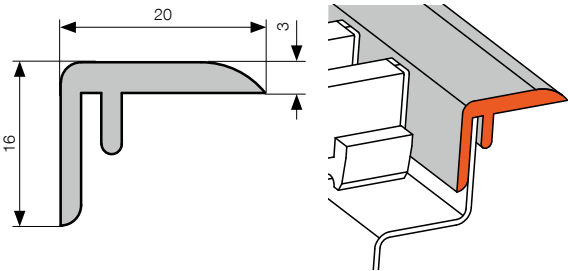


FRAMES

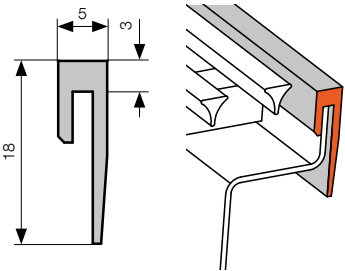
Standard U-frame



Optional F-frame



Optional Cross grille frame (on request)



Measurements shown in mm.

ORDER CODE



In the order code, always use the measurements in cm, including U-frame.

KORAFLEX	4-pipe	Fan-assisted	Length (cm)	Depth (cm)	Width (cm)	Heat exchanger type	Heat exchanger colour	Frame	Frame colour	Connection side	Lowered face	Lowered face	Regulation
F	4	V	-... / .. / ..	V	counterflow	1 non-lacquered 5 RAL 9005 9 other RAL colour RAL	U U-frame F F-frame C for Cross grille 0 without frame	1 silver elox 2 dark bronze elox 3 light bronz elox 5 black elox 9 other RAL colour 0 without frame	P right L left	0 without lowered face 1 lower face – input side 2 lower face – opposite input side 3 both sides lower	R roll-up L* linear	- RT 24 V DC regulation	

Example order code: F4V-120/13/34-V1U1P0R-RT

L* – technical alterations to convector casing see p. 84

KORAFLEX trench heater with fan (forced convection), 4-pipe system for heating and cooling, length 120 cm, depth 13 cm, width 34 cm, counter-flow heat exchanger in the Economic version (without surface treatment), U-frame in silver elox finish, right-hand connection without lowered casing edge, preparation for roll-up grille, 24 V DC regulation.



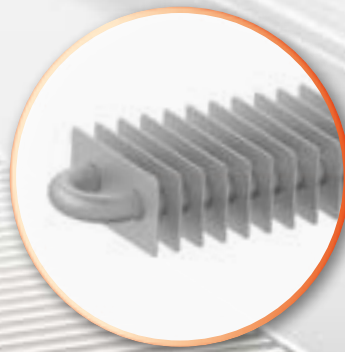
Cross grille – design solutions – Note, please, that Cross grilles must be ordered together with trench heaters, as the casing must undergo alteration. These trench heaters will be fitted with Cross frame suitable for Cross grille. For more information – see p. 82).

Where a linear grille is required, technical consultation is necessary, as the casing may need to undergo alteration. Note, please, that the linear grilles must be ordered together with trench heaters.

For a summary and description of grilles available, including order codes, see p. 76–83.

Fully electric

Fully electric trench heater equipped with a high-performance electric heat exchanger. This system ensures high heating output and fast heat transfer into the room.



Safe operation

Electric operation eliminates risks associated with the connection to the heating system and ensures maximum safety.



High heating output

Thanks to more efficient heating, costs can be reduced while increasing thermal comfort in the room.



TRENCH HEATERS ELECTRIC

NEW

Modern control

The multifunctional large-area LED display of the room thermostat with the option to control the convector via a mobile device on the local network.





Maximum safety

The convector is fitted with a securely fixed aluminium grille for maximum protection and reliable operation.



Primary and secondary heat source

The trench heater operates independently of the central heating system and is therefore also suitable as a secondary heat source.



Quiet, powerful, energy-efficient

New fans with EC aluminium motors provide quiet operation and energy-efficient performance.



Precise control

Reliable control ensures precise fan speed adjustment and guaranteed output.



Optional retrofit installation

It is an ideal solution for locations where connection to the heating system is not possible and therefore also allows retrofit installation, e.g. for renovations.

KORAFLEX Amper FVA

Specifications

Depth	110 mm
Width	200 mm
Length	800, 1 200, 1 650 mm
Heat output	to 2 400 W
IP rating	IP 20
Convactor power supply	230 V AC



KORAFLEX Amper FVA (230 V AC) is a fully electric trench heater with an aluminium grille, which, to achieve high heating output and fast heat transfer into the room, is equipped with a high-performance electric heat exchanger and an EC tangential fan. Reliable control then guarantees simple and safe operation. The trench heater operates independently of the central heating system and does not contain a heat exchanger for hot-water heating. The trench heater has compact dimensions and is suitable wherever connection to the heating system is not possible.

We recommend installing the **KORAFLEX Amper FVA** near large glazed areas and it is also suitable for fully electric or modern low-energy houses. Thanks to the option of retrofit installation, it is also suitable for renovations. It provides fast, quiet and energy-efficient heating which, thanks to its high heating output, can be installed as a primary or secondary (backup) heat source, or as an alternative to standard heating.

Standard contents

- galvanised steel casing lacquered in black RAL 9005
- aluminium U-frame – silver elox
- fixed cover grille (T-profile), silver elox
- electric heat exchanger 230 V AC/50 Hz
- connection cover plates
- low-energy EC fan 24 V DC
- electrical connection box IP 65
- protective sensor and control sensor
- levelling screws and 4 fixing anchors
- spacers for correct installation
- protective hardboard cover board against dirt
- durable packaging, installation instructions

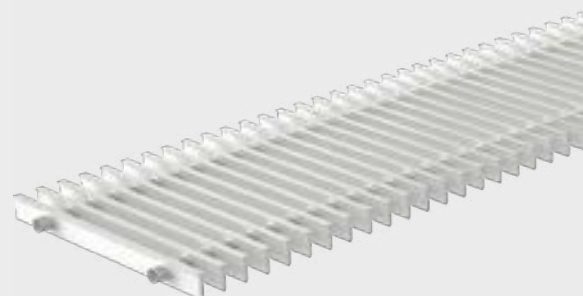
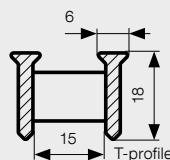
Optional accessories

- aluminium F-frame in silver elox
- SIEMENS electronic room thermostat RDG 260T or RDG 260KN (p. 96)
- room temperature sensor QAA32 (p. 98)
- HY607LIC electronic room thermostat (p. 96)
- SIEMENS manual room thermostat RAB 21-DC (p. 96)
- OSB cover board with increased stiffness for installation purposes (p. 97)
- acoustic absorption foil (p. 97)
- supports for raised floors (p. 94)

Cover grille



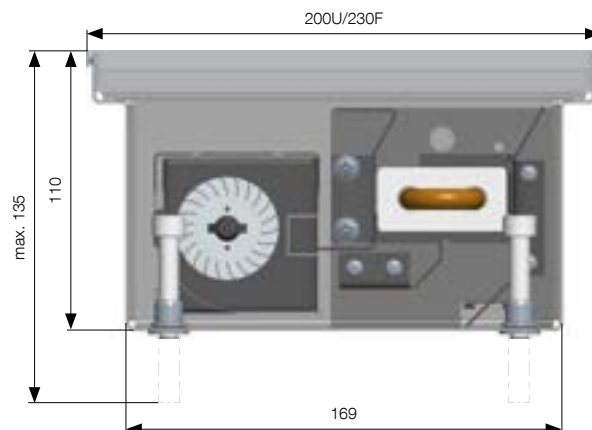
ATTENTION! The fixed T-profile cover grille is an integral part of the trench heater and is securely fixed against unauthorised access or tampering, which protects against the risk of injury or damage to the unit.



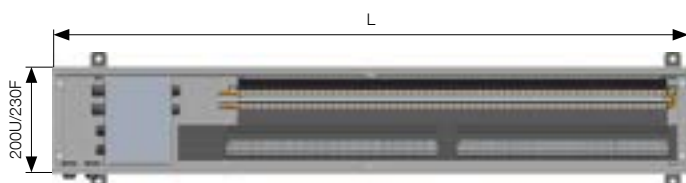
Aluminium silver elox, T-profile

The dimensions are in mm and include the U-frame.

Length L	Fan speed setting	Control voltage [V DC]	Heat output [W]	Acoustics [dB(A)]		Unit weight [kg]
				Sound pressure	Sound power	
800	1	4	370	19.1	27.1	8.0
	2	7	590	26.6	34.6	
	3	10	800	28.9	36.9	
1 200	1	4	740	20.1	28.1	12.5
	2	7	1 180	28.3	36.3	
	3	10	1 600	31.0	39.0	
1 650	1	4	1 100	21.2	29.2	17.0
	2	7	1 750	29.5	37.5	
	3	10	2 400	32.4	40.4	
Effective exchanger length [mm]				= L-395		



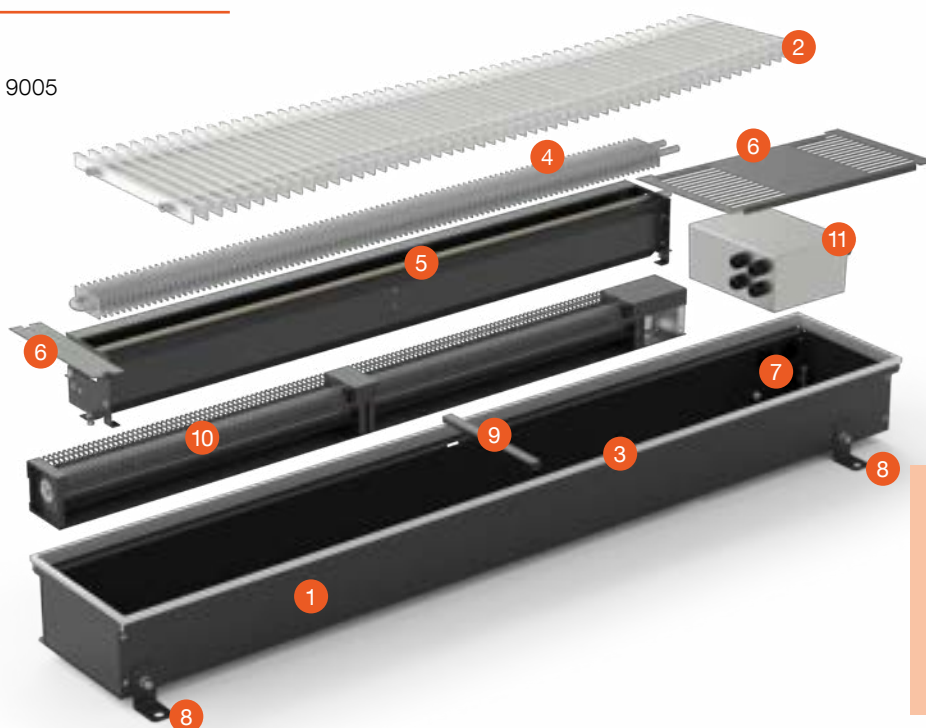
U = U-frame, F = F-frame. Measurements are shown in mm.



When the trench heater is fitted with an F-frame, 30 mm is added to the specified dimension.

CONVECTOR COMPONENTS

- 1 galvanised steel casing lacquered in black RAL 9005
- 2 fixed cover grille (T-profile), silver elox
- 3 aluminium cover frame – silver elox (U or F)
- 4 electric heat exchanger 230 V AC/50 Hz
- 5 supporting structure for directing the air flow
- 6 cover plates for electrical connection
- 7 levelling screws
- 8 fixing anchors
- 9 spacer for correct installation and concreting
- 10 EC fan 24 V DC
- 11 electrical connection box IP 65

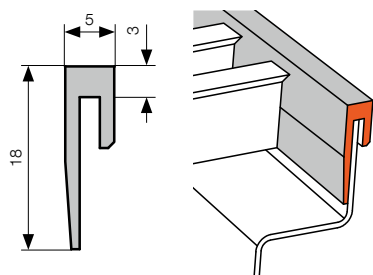


Further information

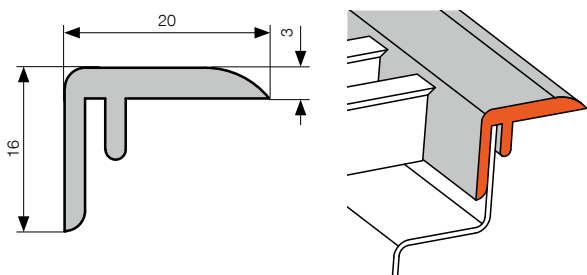
Installation p. 75, Regulation and accessories p. 95, Noise levels and acoustics p. 101

FRAMES

Standard U-frame



Optional F-frame



Measurements are shown in mm.

ORDER CODE

 In the order code, always use the measurements in cm, including U-frame.

KORAFLEX	Fan-assisted	Amper	Length (cm)	Depth (cm)	Width (cm)	Grille type	Grille colour	Grille version	Frame	Frame colour	Lowered face	Regulation
F	V	A	-.../11/20-	Y	aluminium T-profile	1	silver elox	F	fixed	U U-frame F F-frame	1 silver elox - 0 without lowered face 1 lower face – electrical connection side 2 lower face – opposite side of the electrical connection 3 both sides lower	- RT standard regulation

Example order code: FVA-120/11/20-Y1FU1-0-RT

Fully electric KORAFLEX trench heater with fan, Amper model, length 120 cm, depth 11 cm, width 20 cm, trench heater casing lacquered black RAL 9005 and finished with U-frame in silver elox finish, without lowered casing edge, fixed aluminium grille (T-profile) in silver elox finish, 230 V AC regulation.

 A more detailed description of the cover grille can be found on p. 77.

INSTALLATION OF THE ELECTRIC CONVECTOR

Installation instructions

A properly installed trench heater must be positioned horizontally, with the heating element oriented towards the window. The trench heater casing must have straight, non-deformed upper edges to ensure correct operation of the cover grille.

Installation of the trench heater is possible

- **in a concrete floor** (standard construction solution)
- **in a plinth** – for renovations or additional modifications
- **in raised floors** – using special supports designed for this purpose

In all cases, it is necessary to anchor the trench heater firmly to prevent it from being stepped on and to ensure that all technical installation requirements are met. We recommend leaving the cover plate in place throughout the construction work to prevent contamination of the trench heater's internal space. A non-walkable hardboard cover is supplied as standard for basic protection. For installation purposes, an OSB cover with increased rigidity can be ordered as an optional accessory.

Concreting and installation

- The recommended distance of the trench heater from the wall or window is max. 100 mm.
- The dimensions of the installation opening in the floor must be at least 100 mm longer and wider than the dimensions of the trench heater itself.
- When using fixing anchors, the bottom width of the trench heater is increased by 42 mm on each side.
- During concreting, the trench heater must be levelled horizontally using the levelling set screws and firmly fixed with fixing anchors to prevent shifting.

 The exact installation procedure for KORAFLEX Amper FVA is described in detail in the installation instructions, which are available at www.licon-heat.com in the Downloads section.

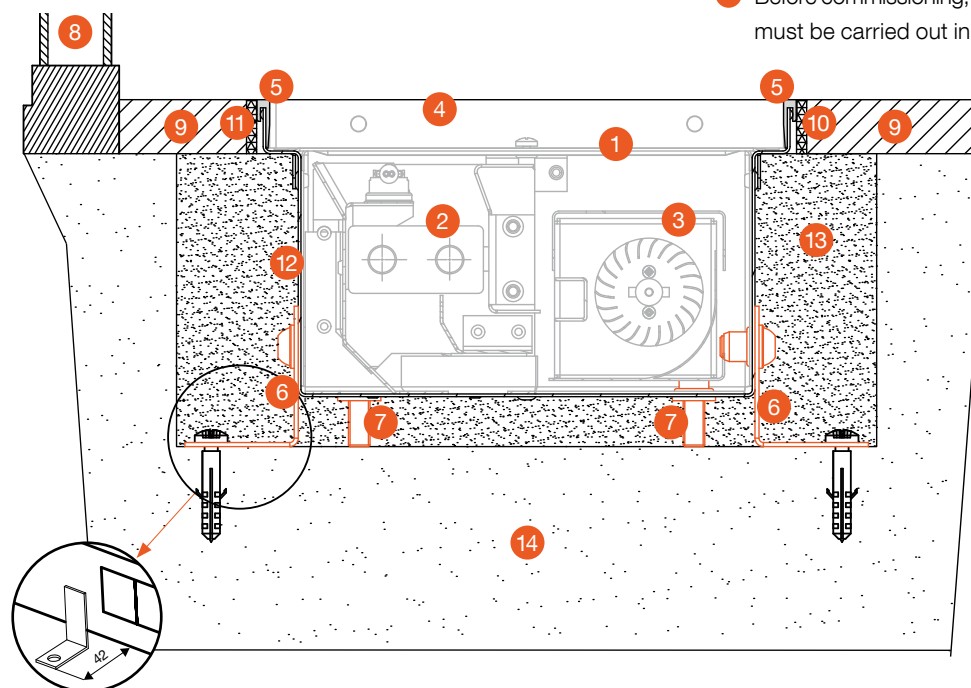
- We recommend inserting an expansion material between the trench heater frame and the concrete.
- During concrete pouring, the trench heater can be loaded vertically. At the same time, it is important to brace it to prevent longitudinal bending. The installed spacers are used for this purpose and can be easily removed after concreting.
- Before concreting, it is necessary to connect the trench heater to the electrical mains.
- During the concreting phase (or when using anhydrite), it is necessary to thoroughly seal all openings into the trench heater to prevent contamination or ingress of the building mixture.
- It is recommended to insulate the trench heater casing against moisture.
- The trench heater must always be firmly concreted in – the levelling set screws are used only for horizontal levelling.
- For models with fans, we recommend using an acoustically absorbent foil and fixing with lean concrete along the sides and under the bottom of the casing.

Installation in raised floor (p. 94)

- For installation in raised floors, supports are available .
- The requirement for firm anchoring also applies here to prevent mechanical damage (e.g. stepping through) under load on the cover grille.

Electrical safety

- The electrical installation design must be prepared by a person with the appropriate professional qualifications in accordance with applicable standards.
- Installation and servicing of the electrical system may only be carried out by a qualified person in accordance with the relevant electrical regulations.
- Before commissioning, an initial inspection of the electrical installation must be carried out in accordance with the applicable legislation.



- 1 fully electric trench heater with fan
- 2 electric heat exchanger
- 3 24 V DC fan
- 4 cover grille
- 5 U-frame
- 6 fixing anchors
- 7 levelling set screws
- 8 window
- 9 finished floor
- 10 jointing compound
- 11 expansion joint
- 12 insulation
- 13 concrete fill
- 14 subfloor



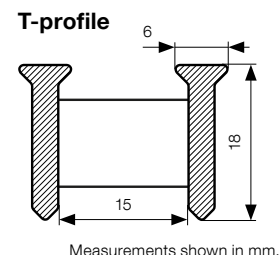
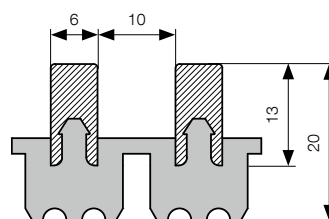
The standard version of the trench heater is not self-supporting.

Grilles and frames

ALUMINIUM ELOX

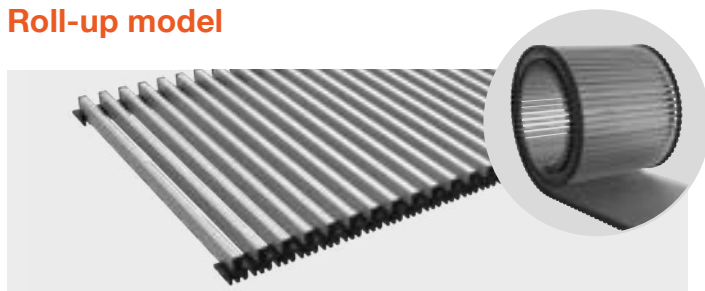


Aluminium elox grilles are suitable for dry and humid environments (where installed in humid environments, the aluminium grille must be cleaned regularly with clean water and thoroughly dried). They are available in roll-up or linear (fixed) models. The standard finish for aluminium cover grilles is silver elox. Other available finishes are dark bronze elox, light bronze elox or black elox. If another colour finish is required, powder coating according to the RAL colour chart is available. The cover grille is always supplied as a whole in both roll-up and linear versions. The decorative frame may be selected in the same colour finish as the cover grille and is a component of the selected trench heater.

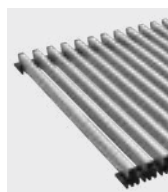
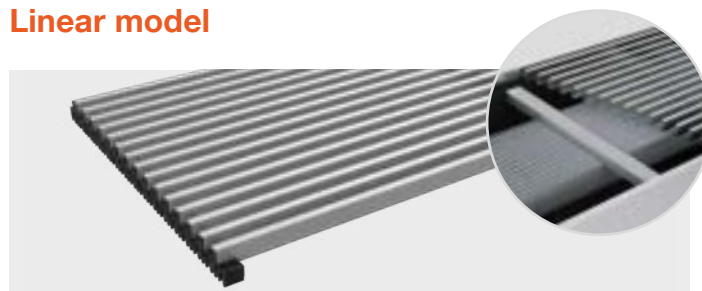


T-profile with aluminium slats on a spring in silver elox finish is intended exclusively for curved designs, see p. 90. In the fixed version, it is an integral part of the KORAFLEX Amper FVA trench heater (p. 72).

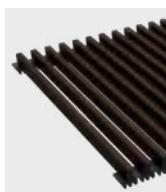
Roll-up model



Linear model



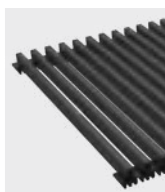
alu/silver



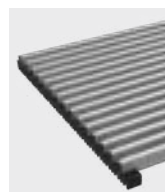
alu/dark bronze



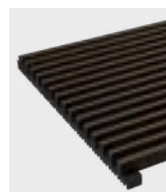
alu/light bronze



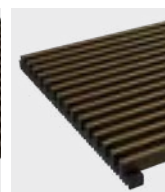
alu/black



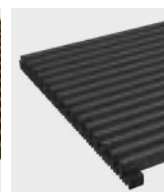
alu/silver



alu/dark bronze



alu/light bronze



alu/black

ORDER CODE



The grille can be rolled up for easier handling.

Linear grilles are supplied with supports as standard.

Where a linear grille is required, technical consultation is necessary, as the casing may need to undergo alteration. Note, please, that the linear grilles must be ordered together with trench heaters. For more info, see p. 84.

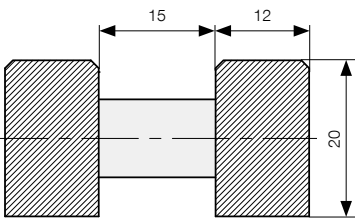
Floor	Grille	Length (cm)	Width (cm)	Grille material	Grille colour	Grille type	Grille ending type
P	M	-	... / ..	- A aluminium Y aluminium T-profile – curved designs see p. 90 and KORAFLEX Amper FVA (silver elox finish) p. 72	1 silver elox 2 dark bronze elox 3 light bronze elox 5 black elox (A-profile only) 9 other RAL colour	R roll-up L linear F fixed (FVA)	0 grille for single trench heater 1 trench heater – right face lowered 2 trench heater – left face lowered 3 trench heater – both faces lowered

Example order code: **PM-100/26-A1R0**

Cover grille, length 100 cm, width 26 cm, aluminium elox finish, silver colour, roll-up type, for trench heater without special modifications. Grille measurement given in the order code corresponds with the measurement of the respective trench heater. Net dimension of the grille is available upon request.

WOOD

Wooden grilles are manufactured using natural wood – beech, oak and mahogany. For wooden roll-up models, each slat is connected by springs and spacers. Wooden grilles are suitable for rooms with laminate or solid wood flooring. Roll-up wooden grilles are supplied without surface treatment. Where lacquered wooden grilles are required, each slat is impregnated with semi-glass colourless alkyd urethane varnish, designed to give a durable gloss coating of wood and exterior wooden fittings.



Measurements shown in mm.

Roll-up model



Mahogany grilles are available on special request. Prices and delivery times specified on request. 



beech



oak



mahogany

ORDER CODE



The grille can be rolled up for easier handling.

Grilles are manufactured from natural materials and as such minor variations in colour are inevitable, inevitable as well as dimensional changes caused by ambient temperature and humidity fluctuation.

Floor	Grille	Length (cm)	Width (cm)	Grille material	Grille colour	Spacer type	Grille ending type
P	M	-	...	/	..	-	B beech D oak M mahogany
					0 natural 1 lacquered	4 light 2 dark (only mahogany)	0 grille for single trench heater 1 trench heater – right face lowered 2 trench heater – left face lowered 3 trench heater – both faces lowered

Example order code: PM-100/26-B040

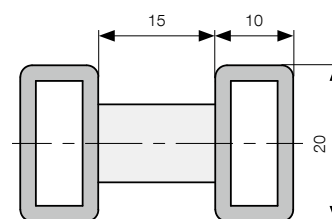
Roll-up cover grille, length 100 cm, width 26 cm, natural beech finish, for trench heater without special modifications. Grille measurement given in the order code corresponds with the measurement of the respective trench heater. Net dimension of the grille is available upon request.



U-frame cover, silver elox

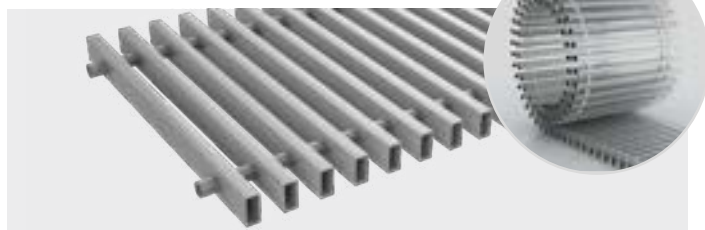


Steel profile grilles are available in roll-up and linear models, and feature high load-bearing capacity. They are particularly suitable for public buildings, halls, car showrooms, corridors, etc. Each slat is separated by steel spacers and the entire product is lacquered in the same colour, as standard RAL 9006 (grey) powder coating. Other RAL colour chart colours are, however, available on request.



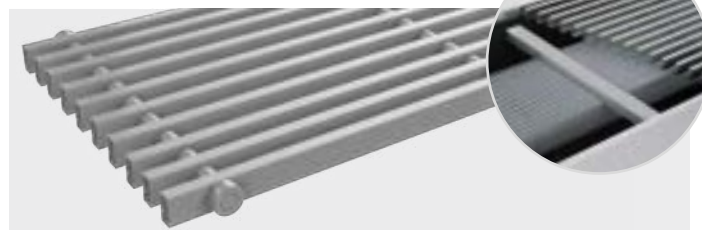
Measurements shown in mm.

Roll-up model



For steel **roll-up** grilles, each slat is connected by springs and spacers in the same colour as the grille.

Linear model



For **linear** grilles, each slat is connected by bolts and spacers in the same colour as the grille.

ORDER CODE



The grille can be rolled up for easier handling.

Linear steel grilles 400 mm in width are supplied with supports as standard. Other widths are self-supporting.

Floor	Grille	Length (cm)	Width (cm)	Grille material	Grille colour	Grille type	Grille ending type
P	M	-	...	/	..	-	S steel
					6 RAL 9006 9 other RAL colour	R roll-up L linear	0 grille for single trench heater 1 trench heater – right face lowered 2 trench heater – left face lowered 3 trench heater – both faces lowered

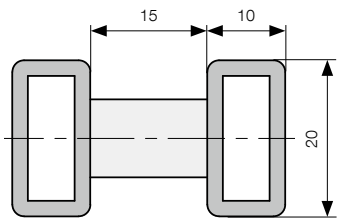
Example order code: **PM-100/26-S6R0**

Cover grille, length 100 cm, width 26 cm, steel, colour RAL 9006 (grey), roll-up type, for trench heater without special modifications. Grille measurement given in the order code corresponds with the measurement of the respective trench heater. Net dimension of the grille is available upon request.

Linear RAL 9006 steel grille,
RAL 9006 lacquered U-frame

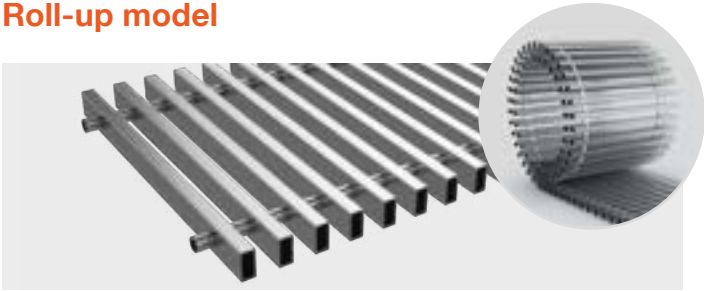
STAINLESS STEEL

Stainless steel floor grilles are manufactured from brushed AISI 304 stainless steel. Each slit is separated by brushed stainless steel spacers. Stainless steel grilles feature high load-bearing capacity. They are particularly suited to luxury interiors, public buildings, art galleries, car showrooms, etc. Stainless steel grilles may only be used in dry environments, and are available in roll-up and linear models.



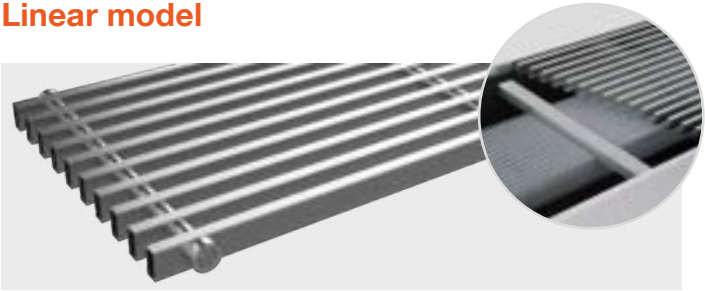
Measurements shown in mm.

Roll-up model



For stainless steel **roll-up** models, each slit is connected by stainless steel springs and spacers.

Linear model



For **linear** models, each slit is connected by bolts and stainless steel spacers.



Linear steel grilles 400 mm in width are supplied with supports as standard. Other widths are self-supporting.

ORDER CODE

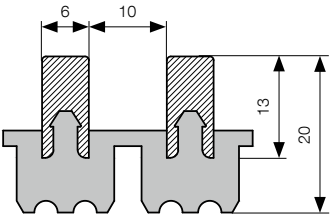
Floor	Grille	Length (cm)	Width (cm)	Grille material	Grille colour	Grille type	Grille ending type			
P	M	-	...	/	..	-	R stainless steel	0 non-lacquered, brushed	R roll-up L linear	0 grille for single trench heater 1 trench heater – right face lowered 2 trench heater – left face lowered 3 trench heater – both faces lowered

Example order code: PM-100/26-R0R0

Cover grille, length 100 cm, width 26 cm, stainless steel AISI 304, non-lacquered, brushed, roll-up type, for trench heater without special modifications. Grille measurement given in the order code corresponds with the measurement of the respective trench heater. Net dimension of the grille is available upon request.

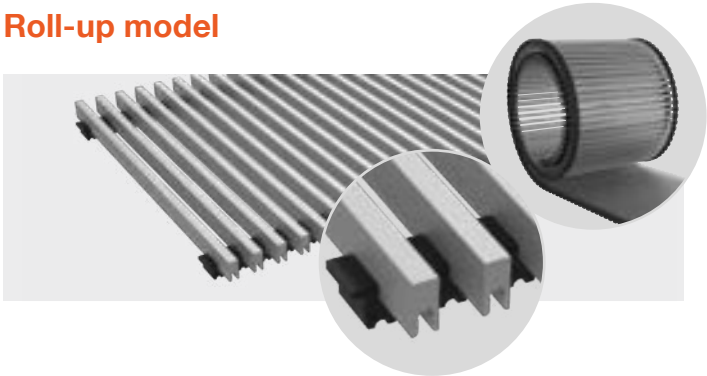
Stainless steel roll-up grille, silver elox F-frame

Thin grilles are manufactured from eloxed aluminium and are designed solely for Thin trench heaters. They are only available as a roll-up model. The standard finish for aluminium grilles is silver elox; in addition, dark and light bronze elox are available. Other RAL colour chart colours are available as powder coating. Decorative Thin frame covers may be chosen using the same colour scheme as grilles, and are supplied as a component of trench heaters. Due to space limitations, F-frames are not available for Thin grilles.



Measurements shown in mm.

Roll-up model



ORDER CODE

Floor	Grille	Length (cm)	Width (cm)	Grille material	Grille colour	Grille type	Grille ending type
P	M	-	...	/	..	-	T aluminium Thin
					1 silver elox 2 dark bronze elox 3 light bronze elox 5 black elox 9 other RAL colour	R roll-up	0 grille for single trench heater 1 trench heater – right face lowered 2 trench heater – left face lowered 3 trench heater – both faces lowered

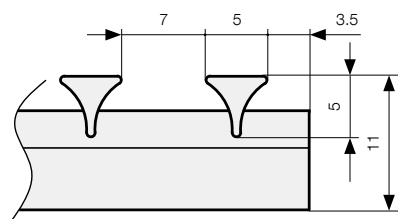
Example order code: **PM-100/26-T1R0**

Cover grille, length 100 cm, width 26 cm, Thin aluminium elox finish, silver elox colour, roll-up type, for trench heater without special modifications. Grille measurement given in the order code corresponds with the measurement of the respective trench heater. Net dimension of the grille is available upon request.



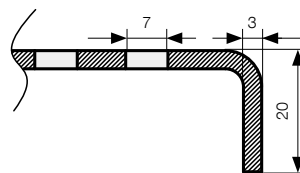
Thin light bronze grille,
Thin frame cover

CROSS



Cross cover grille is manufactured from steel and is intended exclusively for dry environments. Due to its high strength and small slat spacing (pencil-proof design), it is suitable for public and commercial spaces such as restaurants, bars or lobbies, where a higher level of safety is required. The standard surface finish is RAL 9006 (grey) powder coating; other RAL colour chart finishes are available. The grille is rigid and supplied installed in the trench heater. Due to its precise fit, it must be ordered together with the trench heater, the casing of which must be adapted for this type. The Cross cover grille is suitable for design solutions and cannot be combined with U, F or Thin decorative frames. A special Cross-frame is designed for this grille and is supplied together with the trench heater.

ROBUST



Measurements shown in mm.

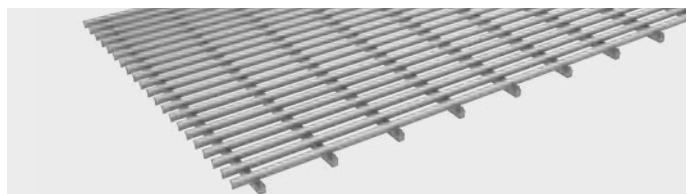
The **Robust** rigid cover grille is designed for all types of trench heaters up to a width of 320 mm. For lengths over 1900 mm, the grille is supplied in segments. Thanks to its rigid construction and punched openings, it features high load capacity and safe operation.

The Robust grille is available in two material variants:

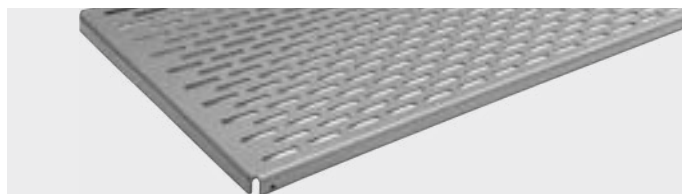
- AISI 304 stainless steel suitable for more demanding operating conditions
- steel with the option of powder coating according to the RAL colour chart; this variant has slightly lower load capacity and is intended exclusively for dry environments

Both variants represent a practical solution for environments with increased requirements for mechanical strength and safe operation, e.g. in public buildings and commercial spaces.

Linear model



Fixed model



ORDER CODE



Cross and Robust cover grilles are custom-ordered together with the trench heater. The price and delivery time will be specified upon request.

Floor	Grille	Length (cm)	Width (cm)	Grille material	Grille colour	Grille type	Grille ending type			
P	M	-	...	/	..	-	C Cross	6 RAL 9006 9 other RAL colour	L linear	0 grille for single trench heater 1 trench heater – right face lowered 2 trench heater – left face lowered 3 trench heater – both faces lowered

Example order code: PM-100/26-C6L0

Cover grille, length 100 cm, width 26 cm, Cross version, colour RAL 9006 (grey), linear type, for trench heater without special modifications. Grille measurement given in the order code corresponds with the measurement of the respective trench heater. Net dimension of the grille is available upon request.

Floor	Grille	Length (cm)	Width (cm)	Grille material	Grille colour	Grille type	Grille ending type			
P	M	-	...	/	..	-	R stainless steel Robust	0 non-lacquered, brushed	P perforated (punched)	0 grille for single trench heater
				S steel Robust	6 RAL 9006					1 trench heater – right face lowered
					9 other RAL colour					2 trench heater – left face lowered
										3 trench heater – both faces lowered

Example order code: PM-100/26-R0P0

Cover grille, length 100 cm, width 26 cm, stainless steel AISI 304 Robust version, non-lacquered / brushed, perforated (punched), for trench heater without special modifications. Grille measurement given in the order code corresponds with the measurement of the respective trench heater. Net dimension of the grille is available upon request.

GRILLES

Measurements

Code	PM-xx/ 14	PM-xx/ 16	PM-xx/ 20	PM-xx/ 26	PM-xx/ 32	PM-xx/ 34	PM-xx/ 40
Width – netto (mm)	128	148	188	248	308	328	388

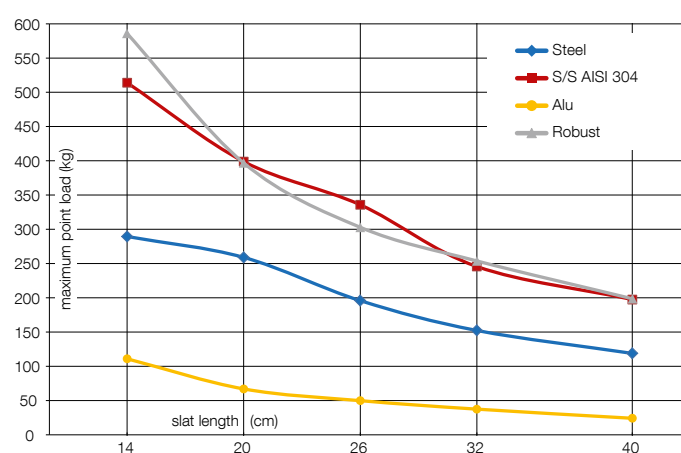
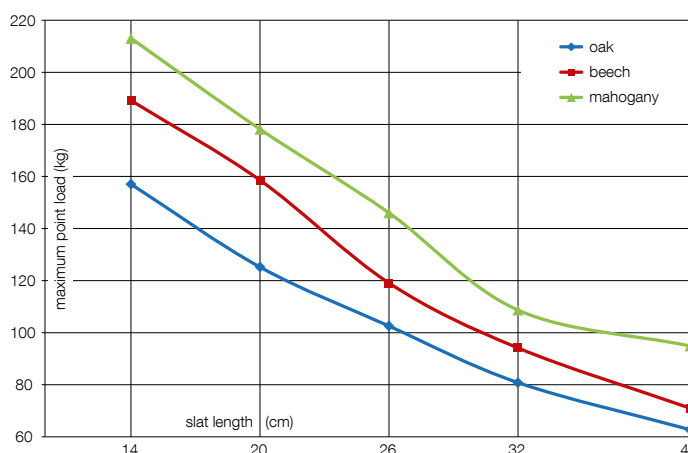
Tolerance +0–1.5 mm. Code width is derived from trench heater width.

Note: Please, that wooden grilles are made of natural material therefore possible dimensional changes caused by ambient temperature and humidity fluctuation cannot be excluded.

Grille airflow

alu	wood	steel	stainless	Thin	Cross	Robust
63 %	55 %	60 %	60 %	63 %	58 %	35 %

Load-bearing capacity



In load-bearing capacity testing, grille slats are placed on two supports and weighed down in centre.

For wooden slats, values are given up to the fracture point of the first fibre. Metal slats are measured up to the point of irreversible deflection.

FRAMES

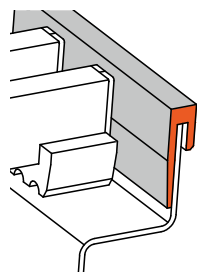
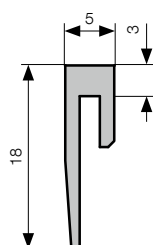


Measurements shown in mm.

Decorative U-shaped and F-shaped frames are available as standard in aluminium with silver, black, dark bronze or light bronze elox finishes. U-frame, Thin and Cross frames are also available in black elox. Frames may also be lacquered (powder-coated) using colours from the RAL colour chart. Frames are in every case supplied as a component of trench heaters, and the type required must be specified when ordering in the Order Code. Where trench heaters are finished with a hem, the hem is of the same material as the casing.

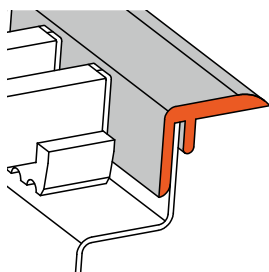
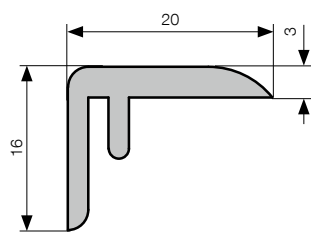
U-frame

Standard

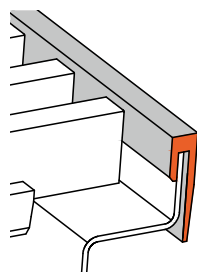
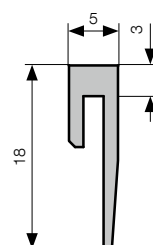


F-frame

Optional

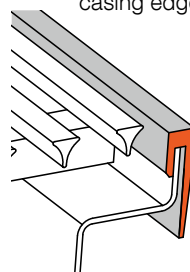


Thin frame

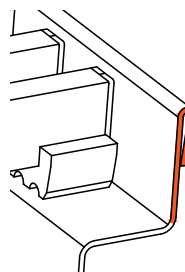
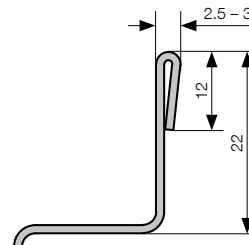


Cross frame

Lowered casing edge



Hem

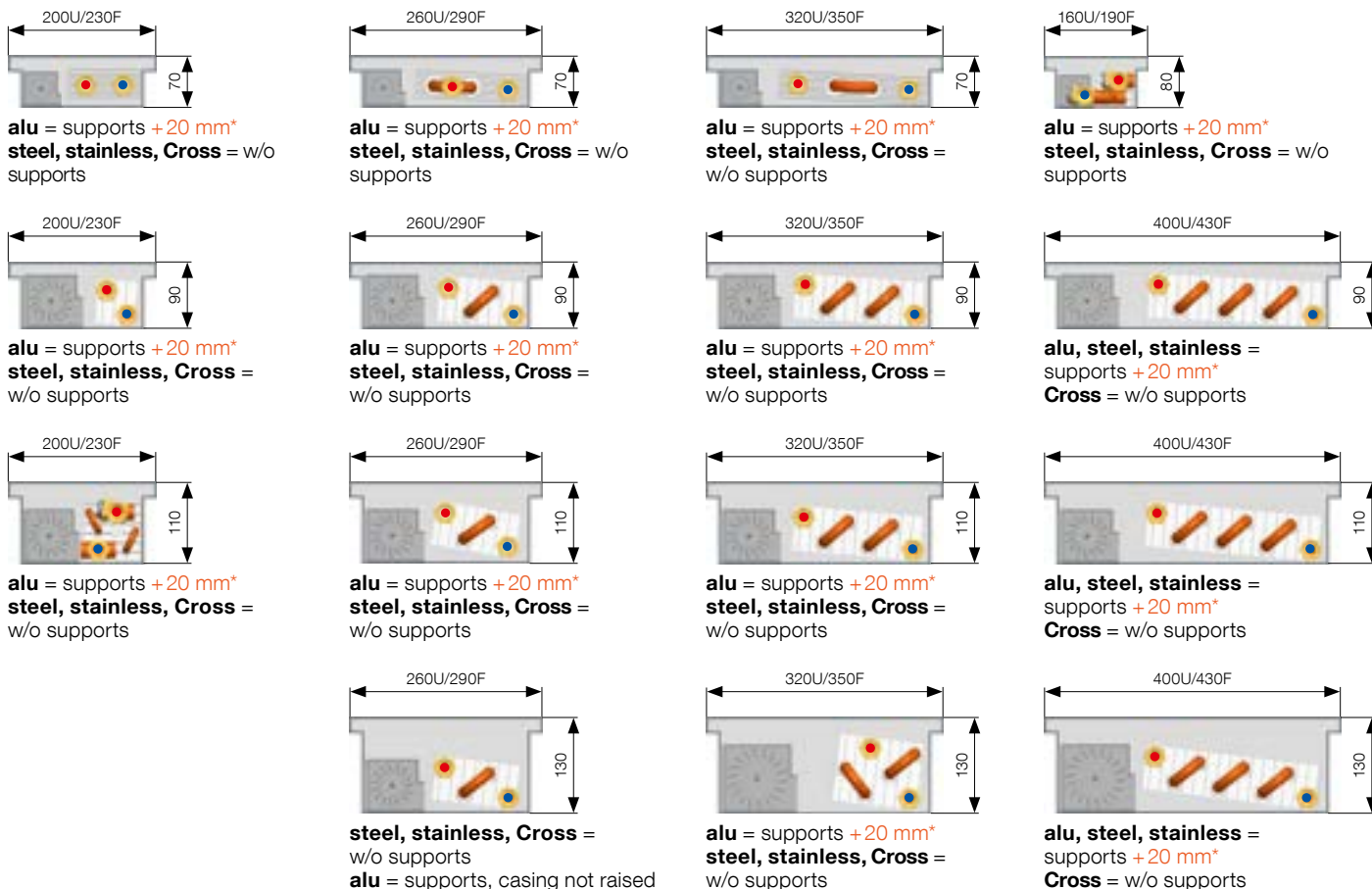


LINEAR GRILLE SUPPORTS

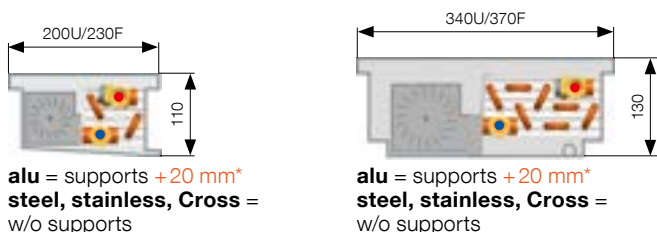
For convectors with forced convection only! When using linear grilles, FV trench heater model casings must be raised by 20 mm to enable correct installation of supports for this type of grille. When ordering linear grilles for all types of trench heaters, the actual depth, including the 20 mm increase must be entered as the 'depth' value in the order code. Supports are not necessary for steel and stainless steel grilles up to a width of 320 mm – these grilles are self-supporting. All other linear grilles require supports.

Example trench heater measurements with linear grilles: FVO 200/70 with roll-up grille = FVO 200/90 with linear grille.

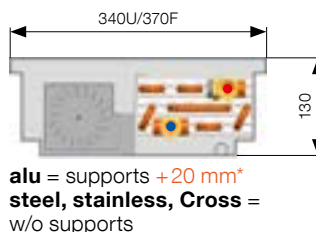
KORAFLEX Optimal-V FVO, Energy FVE



KORAFLEX Variant F2V



KORAFLEX Variant F4V



KORAFLEX Pool-V FVP



* given trench heater casing heights must be raised by 20 mm.

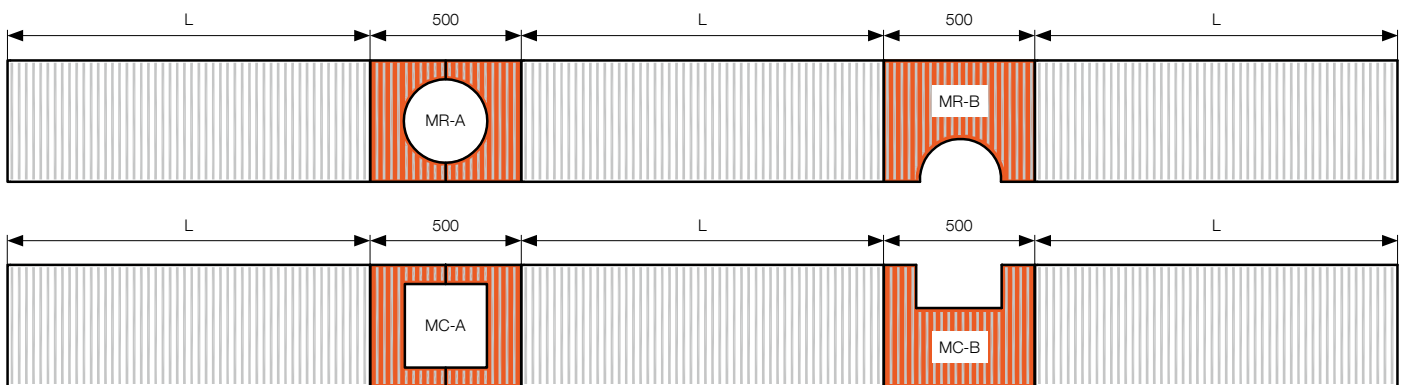
Design solutions

DESIGN MODULES

Main advantages of design modules

- **significant reduction in time** – from design to delivery
- **wide range** – specially designed shapes are available for the entire range of trench heaters
- **individual solutions** – design modules can be fitted with aluminium frames in the same colours as the grille
- **versatility** – for a diverse range of interior styles, easily adaptable to any kind of architectural space
- **design** – uniform styles and technical solutions for all kinds of interior, one elegant and continuous trench heater for the entire room
- **cost savings** – the price for the design and/or quotations can be calculated using the valid price list – no exact building surveys required

Our modular system was developed to simplify the installation of trench heaters in unusual interiors and to enable rapid processing of orders and quotations for projects. **The wide range of design modules means quick and easy selection of trench heater systems made to suit your particular interior.** The extensive selection of models in each module simplifies the combination of technical requirements and interior design, even in challenging environments. The module range features high-quality craftsmanship and an emphasis on detail.



L – the entire range of KORAFLEX trench heaters is available in unlimited lengths

Measurements shown in mm.



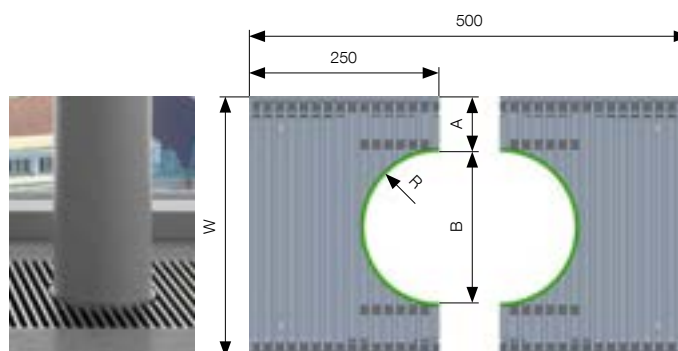
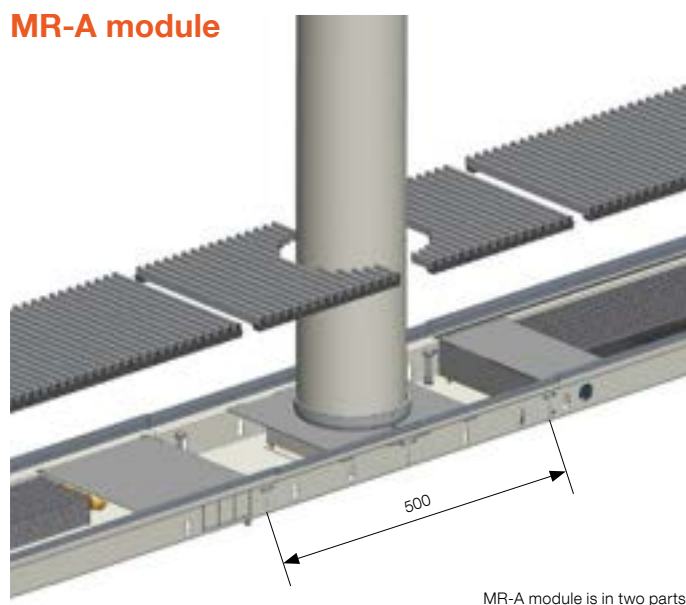
Specifications

Module length	500 mm
Module depth	70 mm
Casing material	galvanised steel casing, RAL 9005 black lacquered

Frame	aluminium U-frame (silver, black, light and dark bronze elox or RAL colour chart lacquer)
Grille	roll-up, linear (silver, black, light and dark bronze elox or RAL colour chart lacquer)

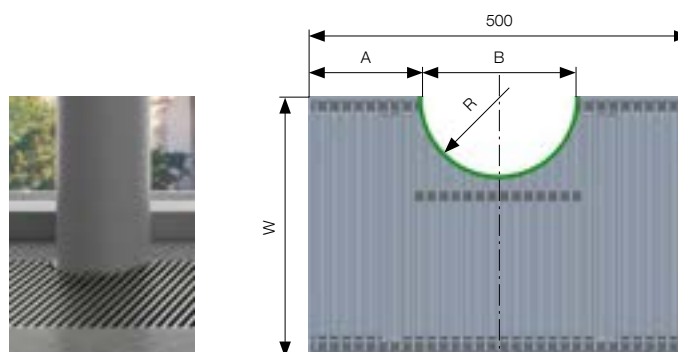
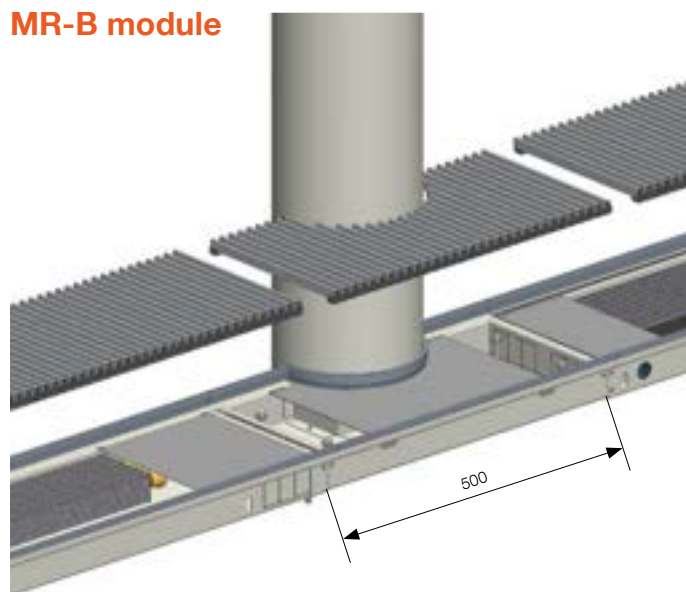
Trench heaters installed between modules are manufactured according to the required lengths in the design. Modules may be used for trench heaters with natural and forced convection. Modules are fitted as standard with aluminium grilles. Where other grille models are required – steel, stainless steel, or wood – installation can be assessed on request. Heat exchangers cannot be fitted into module components.

MR-A module



Size range	Width W [mm]				
	140 160	200	260	320 340	400
A min.–max.	–	60–65	60–95	60–125	60–165
B min.–max.	–	70–80	70–140	70–200	70–280
R min.	–	100	100	100	100

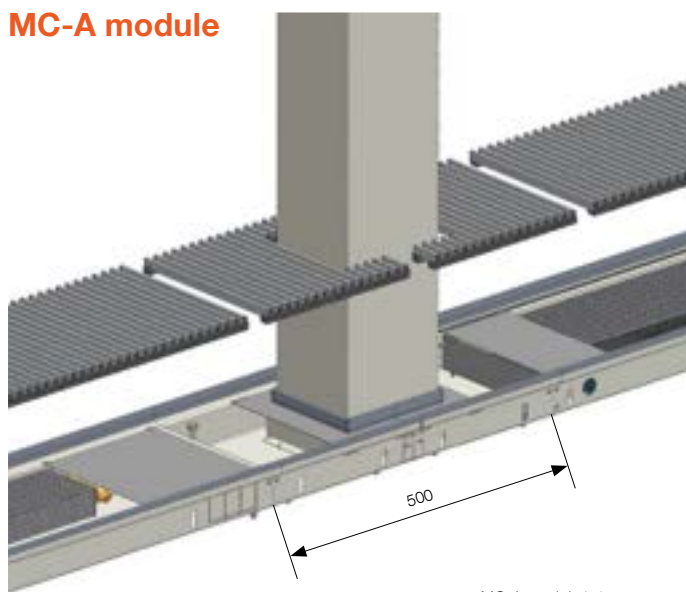
MR-B module



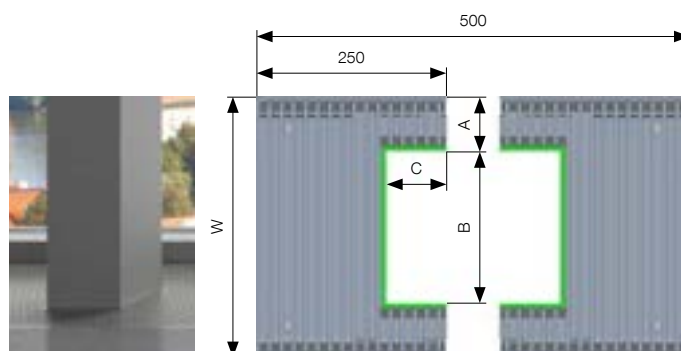
Size range	Width W [mm]				
	140 160	200	260	320 340	400
A min.–max.	80–370	80–370	80–370	80–370	80–370
B min.–max.	70–340	70–340	70–340	70–340	70–340
R min.	100	100	100	100	100

DESIGN MODULES

MC-A module

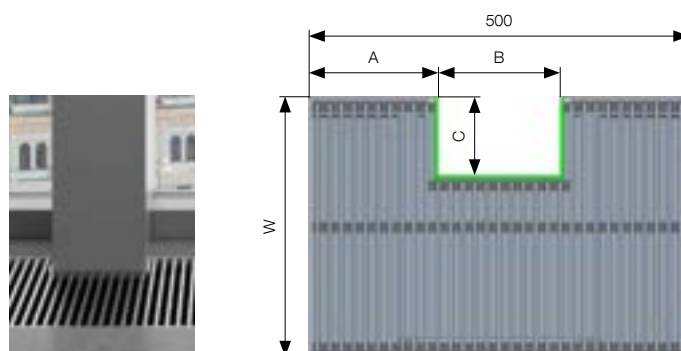
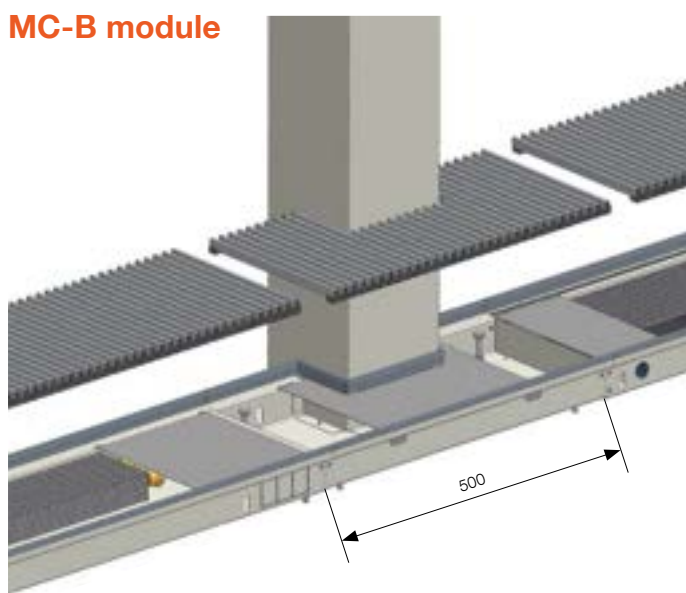


MC-A module is in two parts.



Size range	Width W [mm]				
	140 160	200	260	320 340	400
A min.–max.	–	60–90	60–150	60–210	60–290
B min.–max.	–	50–80	50–140	50–200	50–280
C min.–max.	–	20–250	20–250	20–250	20–250

MC-B module



Size range	Width W [mm]				
	140 160	200	260	320 340	400
A min.–max.	80–370	80–370	80–370	80–370	80–370
B min.–max.	50–340	50–340	50–340	50–340	50–340
C min.–max.	30–80	30–140	30–200	30–260	30–340

ORDER CODES

Module type	Length (cm)	Depth (cm)	Width (cm)	Frame type	Frame colour	Grille material	Grille colour	Grille type	Connection side	Lowered face
MRA MRB MCA MCB	-050/07/ ••	-		U U-frame 0 without frame	1 silver elox 2 dark bronze elox 3 light bronze elox 5 black elox 9 other RAL colour 0 without frame	A aluminium	1 silver elox 2 dark bronze elox 3 light bronze elox 5 black elox 9 other RAL colour	R roll-up L linear	P right	3 both faces lowered 1 lowered face – input side 2 lowered face – opposite input side 0 without lowered face

Example order code: MRA-050/07/26-U1A1RP3

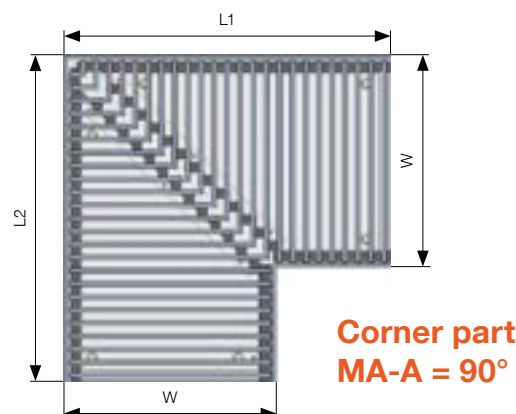
MRA design module, length 50 cm, depth 7 cm, width 26 cm. The module is fitted with a U-frame in silver elox finish and an aluminium roll-up grille in silver elox finish. The module has a right-hand connection and lowered casing edges on both sides with the option of connection into an array.

For correct ordering of module arrays, use the custom production form, which is available at www.licon-heat.com in the Downloads section.

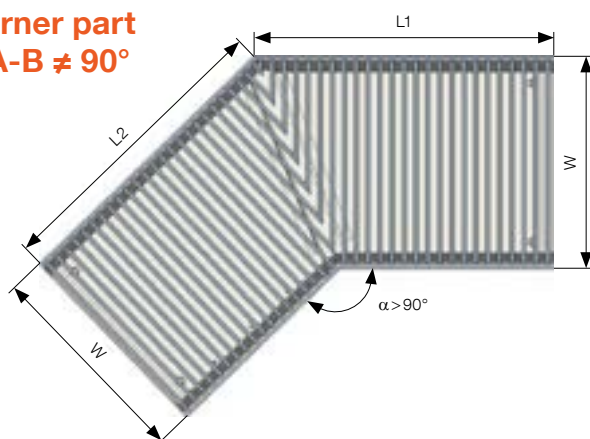
CORNER PARTS

Specifications

Length by design width	200–500 mm
Module depth	70 mm
Design width	140, 160, 200, 260, 320, 340, 400 mm
Casing material	galvanised steel casing, RAL 9005 black lacquered
Frame	alu U-frame or F-frame (silver, black, light and dark bronze elox or RAL colour chart lacquer)
Grille	roll-up, linear (silver, black, light and dark bronze elox or RAL colour chart lacquer) + wood or steel stainless steel and mahogany on request



Corner part MA-B $\neq 90^\circ$



Size range

Length L1, L2 [mm]	200	300	400	500	500
Trench heater width W (mm)	140 160	200	260	320 340	400

Corner parts are the ideal solution to ensure seamless connections of KORAFLEX trench heaters in the corners of rooms. Corner parts are supplied complete and can be fitted with all types of grilles. Heat exchangers cannot be placed in corner parts – corner parts are optional decorative accessories and as such have no effect on heat output. Corner parts must be ordered together with the relevant trench heaters and grilles.



When ordering, please fill in the special product form.
Download at: www.licon-heat.com.

ORDER CODES

Module type	Length (cm)	Depth (cm)	Width (cm)	Frame type	Frame colour	Grille material	Grille colour	Grille type	Connection side	Lowered face
MAA MAB	-.../07/..	..		U U-frame F F-frame 0 without frame	1 silver elox 2 dark bronze elox 3 light bronze elox 5 black elox 9 other RAL colour 0 without frame	A aluminium B beech D oak M mahogany S steel R stainless steel	1 silver elox 2 dark bronze elox 3 light bronze elox 5 black elox 9 other RAL colour 0 natural (wood, stainless steel) 1 lacquered wood 6 RAL 9006 (steel)	R roll-up L linear	P right	3 both faces lowered 1 lowered face – input side 2 lowered face – opposite input side 0 without lowered face

Example order code: MAA-030/07/20-U1A1REP3

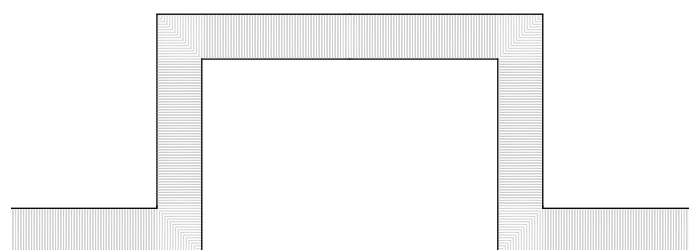
MAA corner part, length 30 cm, depth 7 cm, width 20 cm. The corner part is fitted with a U-frame in silver elox finish and an aluminium roll-up grille in silver elox finish. The corner part has a right-hand connection and lowered casing edges on both sides with the option of connection into an array.

For correct ordering of module arrays, use the custom production form, which is available at www.licon-heat.com in the Downloads section.

ANGLED AND CURVED DESIGNS

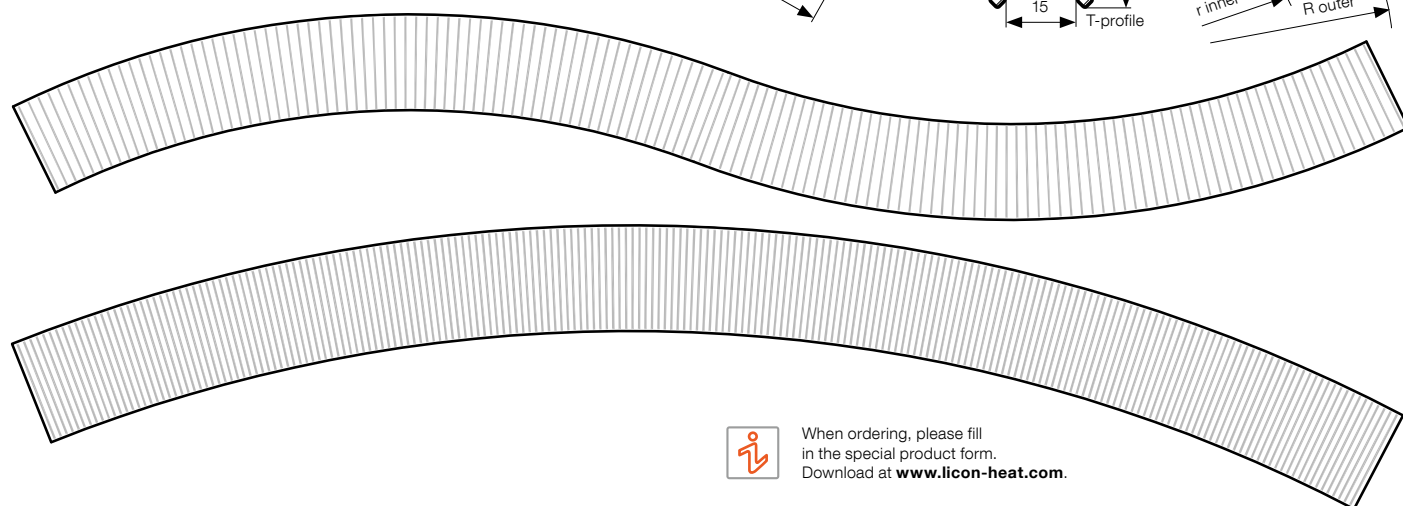
Specifications

Length	max. 3 000 mm
Module depth	70, 90, 110, 130, 150, 190 mm
Design width	140, 160, 200, 260, 320, 340, 400 mm
Casing material	galvanised steel casing, RAL 9005 black lacquered
Frame	alu U-frame (silver, black, light and dark bronze elox or RAL colour chart lacquer)
Grille	roll-up, aluminium (silver, black, light and dark bronze elox), wood, steel and stainless steel or RAL colour chart lacquer



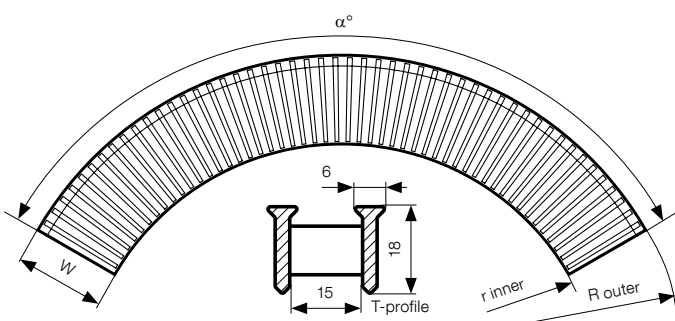
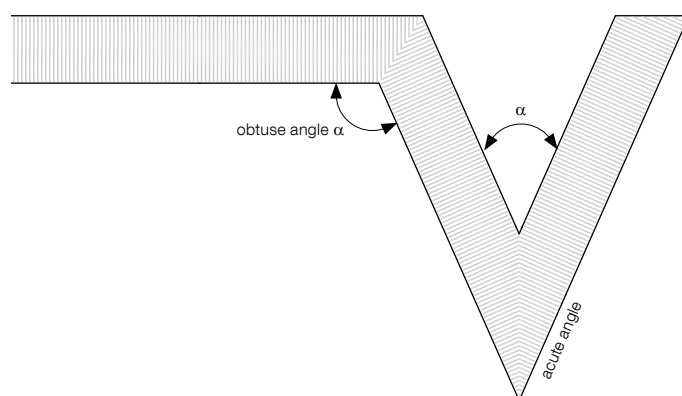
Curved parts

The minimum inner radius of curved parts must be greater than 2 000 mm. When fitting aluminium grilles to curved parts, the slats will be T-profiles set on springs (see picture) and using a U-frame (due to construction reasons, F-frames cannot be fitted to a curved trench heaters).



Angled design

Prior to accepting orders for design (atypical) trench heaters, the manufacturer must assess the feasibility of the project. Heat outputs cannot be guaranteed, but the manufacturer will carry out a professional heat output estimate on request. For all shapes, including curved designs, the following must be specified: angle (α), inner radius (r) or outer radius (R) and the total width (W) corresponding to trench heater widths manufactured. Grilles must be ordered together with design trench heaters.



When ordering, please fill
in the special product form.
Download at www.licon-heat.com.



Angled design



Curved design

Installation and regulation

INSTALLATION

A properly installed trench heater must be positioned horizontally, with the heat exchanger oriented towards the window. The trench heater casing must have straight, non-deformed upper edges to ensure correct operation of the cover grille.

Installation of the trench heater is possible

- **in a concrete floor** (standard construction solution)
- **in a plinth** – for renovations or additional modifications
- **in raised floors** – using special supports designed for this purpose p. 94

In all cases, it is necessary to anchor the trench heater firmly to prevent it from being stepped on and to ensure that all technical installation requirements are met. We recommend leaving the cover plate in place throughout the construction work to prevent contamination of the trench heater's internal space. A non-walkable hardboard cover is supplied as standard for basic protection. For installation purposes, an OSB cover with increased rigidity can be ordered as an optional accessory.

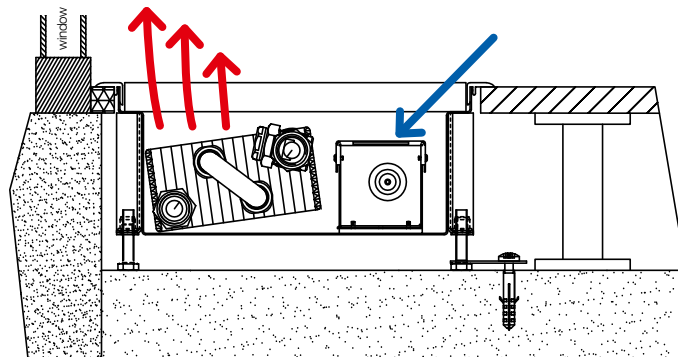
- The recommended installation distance of the trench heater from the window/wall is max. 100 mm.
- The installation opening should be at least 100 mm larger than the convector dimensions in both length and width.
- For trench heaters with natural convection (without fan), for left-hand connection to the heating system it is sufficient to rotate the heat exchanger by 180°.
- When using fixing anchors, the bottom width of the trench heater is increased by 42 mm on each side.
- During concreting, the trench heater must be levelled horizontally using the levelling set screws and fixed using fixing anchors, which prevents the trench heater from shifting during subsequent concrete pouring.
- We recommend connecting to the heating system using a lock-shield and a thermostatic valve. The connection to the heat exchanger is an inner thread G 1/2". After connection to the heating system, bleed the trench heater and carry out a pressure test.
- We recommend thermally insulating the trench heater before installation on the outer longer sides of the casing (e.g. polystyrene) to prevent heat losses into the floor.
- For trench heaters with a fan, we recommend fixing and sound insulation by pouring lean concrete along the sides and under the bottom of the casing.
- During concrete pouring, the trench heater must be loaded vertically.
- During concreting, it is very important to brace the trench heater to prevent longitudinal bending. For this purpose, spacers are installed in the trench heater. After concreting, these spacers can be easily removed.
- During concrete or anhydrite pouring, thoroughly seal all openings into the trench heater to prevent it from being filled with building material. We also recommend insulating the trench heater casing against moisture.
- If the trench heater will not be concreted in, we recommend using one of the raised floor installation variants. **The standard version of the trench heater is not self-supporting.**
- **KORAFLEX Variant F2V and F4V** trench heaters with cooling and **Pool versions (FKP, FVP)** for humid environments are equipped

as standard with a built-in condensate or overflow water drain. The F2V 11/20 variant and the Pool version have a drain tube positioned towards the wall. During installation of all the above-mentioned types, it is necessary to connect the tube at the bottom of the trench heater to piping with a secured slope for the drainage of overflow water or condensate. We recommend fitting the drain with an odour trap.

- The fans are attached to the trench heater casing using magnets. In the stainless steel version, the fans are attached with hook-and-loop fasteners. This system allows the fans to be removed from the trench heater during installation to prevent damage or contamination. During normal operation, they can also be removed in the switched-off state and cleaned. In all model lines except the Pool line, the fans are installed so that the airflow is directed straight towards the window.
- **KORAFLEX Pool (FKP, FVP)** trench heaters are designed for use near swimming pools. The separation partition serves to collect water from the pool, but cannot function as a standard pool overflow. This part is always positioned closer to the pool. The heating section with the heat exchanger and fans must always be positioned further from the pool. KORAFLEX Pool is equipped with two drain tubes. Installation, operation and maintenance of these units require special conditions, which can be found on our website or in the installation instructions. Not suitable for saltwater pools.
- The electrical installation design must be carried out by a person with the appropriate professional qualifications and must comply with the relevant standards.
- Installation and servicing of the electrical system must be performed by a qualified person with the appropriate electrotechnical qualifications.
- Before commissioning, an initial inspection of the electrical installation must be carried out in accordance with the applicable standards.



KORAFLEX Energy FVE and KORAFLEX Amper FVA trench heaters are powered by 230 V AC mains voltage, therefore the electrical circuit must be protected by a residual current device with a tripping current of 30 mA. These trench heaters are intended for operation in dry environments and for heating only.

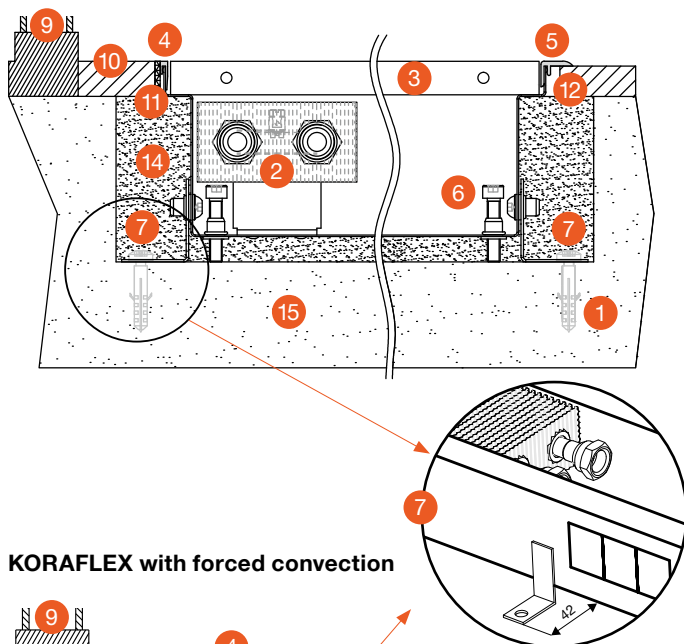


Correct installation of the trench heater

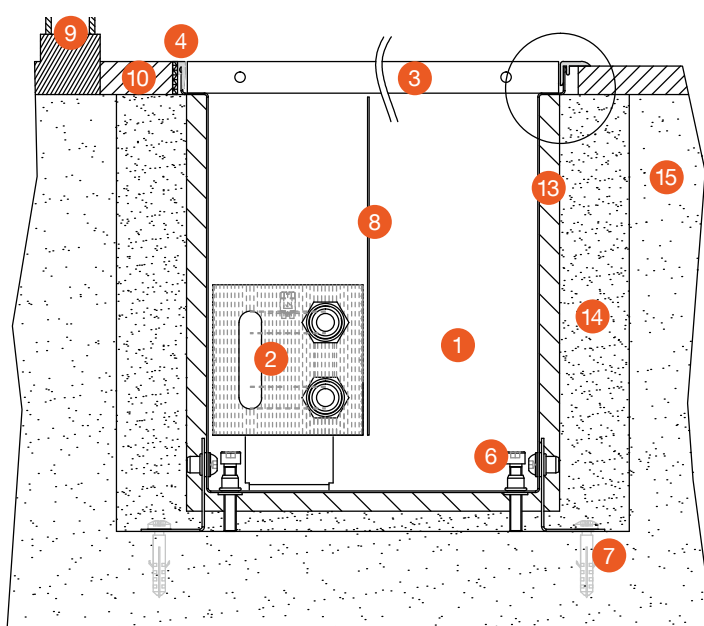


Complete technical documentation including wiring diagrams and installation instructions can be found at **www.licon-heat.com**

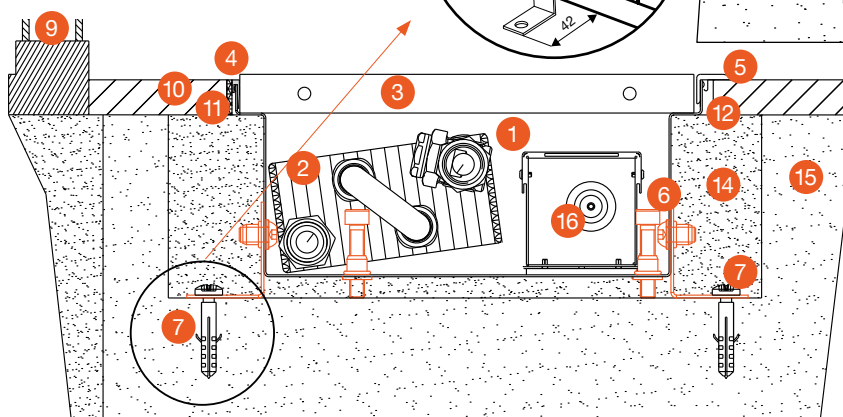
KORAFLEX with natural convection **up to** a depth of 300 mm



KORAFLEX with natural convection **from** a depth of 300 mm



KORAFLEX with forced convection



- | | |
|---|--------------------|
| 1 trench heater | 9 window |
| 2 heat exchanger | 10 floor level |
| 3 grille | 11 grout |
| 4 U-frame | 12 expansion joint |
| 5 F-frame | 13 insulation |
| 6 anchors | 14 concrete |
| 7 set screws | 15 sub-floor |
| 8 dividing partition from a depth of 300 mm | 16 fan |

Trench heater connections

Casing types according to water connections and lowered faces for multiple installations

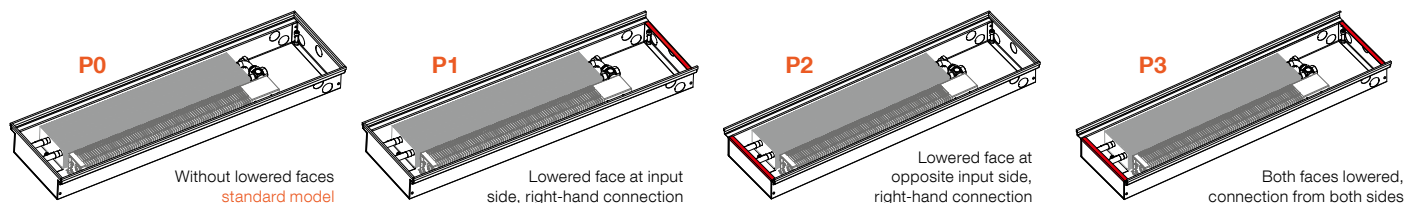
Lowered trench heater casing faces are used where invisible connections are desired between convectors (multiple convectors around a room, eg. in administrative buildings, restaurants, hotels, etc.). When ordering grilles, care must be taken to include information in the order code that the grilles required are to be used with trench heaters with lowered faces. **Individual KORAFLEX Pool (FKP, FVP) trench heater casings cannot be combined in this way, and are available in P0 models only.**



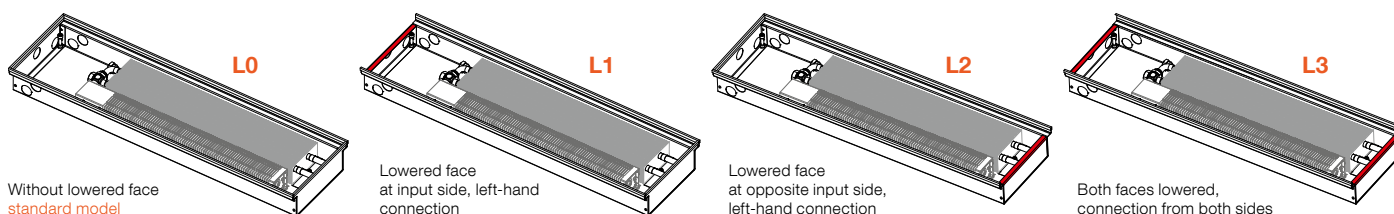
Red highlighted the lowered face.

For a convector with natural convection (without a fan), for a left-hand connection to the heating system, it is sufficient to rotate the heat exchanger by 180°.

Right-hand water connection



Left-hand water connection



RAISED FLOOR INSTALLATIONS

Support for the installation of trench heaters in raised floors offers an efficient and stable solution. The supports are made of non-lacquered steel material and are suitable for raised floors with a depth of up to 500 mm. Raised floor supports are suitable for **KORAFLEX FKO, FKB, FVO, FVE, F2V, F4V and FVA variants**. For **KORAFLEX Pool (FKP, FVP)**, installation of raised floor supports is not recommended for design reasons.

SZP-03 low raised floor support

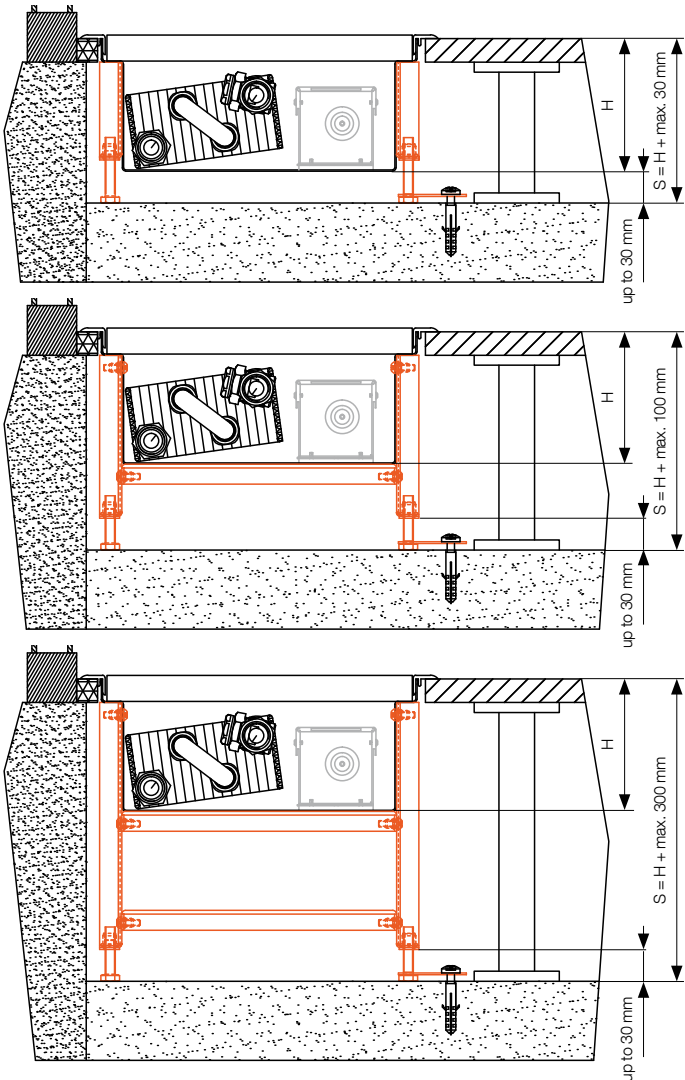
Trench heaters are fitted with reinforcing bars and set screws, which enable the trench heater to be installed at the required height. Set screws must be anchored to the floor to prevent movement. Reinforcing bars are not included as standard and cannot be fitted subsequently. The screws allow height adjustment of up to 30 mm above the convector installation height. Recommended for raised floors with a **maximum depth 30 mm** greater than the unit height of the trench heater.

SZP-10 higher raised floor support

Customised solutions for all projects dealing with raised flooring. This is a more robust model of the low raised floor support, equipped with one support at the base of the trench heater. The precise technical design depends on customer's requirements. Recommended for raised floors with a **maximum depth 100 mm** greater than the unit height of the trench heater.

SZP-30 high-raised floor support

Customised solutions for projects dealing with high-raised flooring. This is a more robust model of the higher raised floor support, equipped with two supports at the base of the trench heater. The precise technical design depends on customer's requirements. Recommended for raised floors with a **maximum depth 300 mm** greater than the unit height of the trench heater.



ORDER CODE

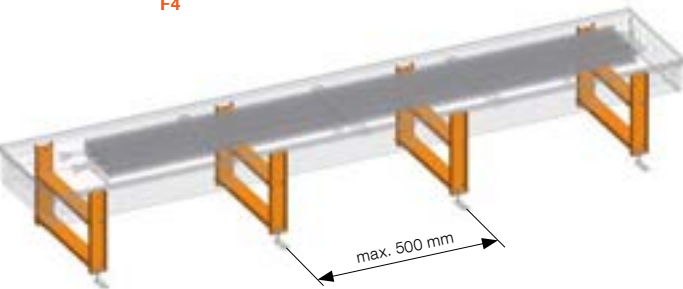
Support	Raised	Floor	Support version	Trench heater model (FK, FV, F2V, F4V)	Depth [cm]	Width [cm]	Raised floor height S [cm]	Recommended number of supports [pcs]	Heater length [mm]	Recommended number of supports [pcs]
S	Z	P	---	FK- FV F2 F4	---	---	---	---	800–1 000	3
									1 100–1 500	4
									1 600–2 000	5
									2 100–2 500	6
									2 600–3 000	7

Example order code: SZP-03-FV-11/20-13-5

Raised floor supports for a FV trench heater with forced convection 11 cm deep and 20 cm wide and for raised floor 13 cm deep. The trench heater is 1 800 mm long, therefore the raised floor support set for this trench heater consist of 5 supports.

For trench heaters that are not built in, or where there is a cavity beneath the convector, we recommend using acoustic absorption foil (p. 101).

Supports must be ordered together with trench heaters due to structural alterations to convector casings!
Components of several types of raised floor support are integral parts of the trench heater body.



REGULATION – GENERAL INFORMATION

Regulation forms a central role in the heating and cooling outputs of trench heaters with forced convection. 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

- **EC fan system** with disc-type synchronous motors in an aluminium chassis. It is characterised by very low power consumption and very quiet operation. The fan electronics ensure smooth operation at the required speed.
- **The FCR BOX electronic controller** serves as a terminal block for connecting cables from the power supply, thermostat or BMS and the fans. It allows independent control of thermoelectric actuators for heating and cooling. KORAFLEX Amper FVA does not include the FCR BOX.
- KORAFLEX Energy FVE and KORAFLEX Amper FVA trench heaters include a switched-mode **power supply 230 V AC/24 V DC** and a terminal block for connection to the 230 V AC mains.

Optional accessories

- 230 V AC/24 V DC power supply according to the total power input of the trench heaters (not intended for KORAFLEX Amper FVA and KORAFLEX Energy FVE). Five types of power supplies are available for 60 W, 100 W, 150 W, 240 W and 480 W. The power supplies are supplied separately for installation in an electrical switchboard on a DIN rail.
- Installation box for housing the DC power supply. Designed for 60 W, 100 W and 150 W power supplies.
- Thermostats for 24 V DC: RDG 260T, RDG 260KN, HY607LIC.
- 24 V DC thermoelectric actuator, thermostatic valves, lockshield (not intended for KORAFLEX Amper FVA).

KORAFLEX Pool-V FVP

For KORAFLEX Pool-V intended for humid environments, the stated description of the standard control system applies. The difference lies in placing the FCR BOX controller in a box with a higher degree of protection. The fan is fitted with stainless steel casing and its electronics are protected against splashing water. Electro-regulation elements see p. 96. The convector is not designed for permanent flooding with pool water. Please familiarise yourself thoroughly with the warranty and operating conditions available at www.licon-heat.com.

KORAFLEX Amper FVA

The KORAFLEX Amper FVA electric trench heater is controlled by a 0–10 V DC control voltage from a thermostat or a superior BMS system. For more information, see p. 72.



KORAFLEX Energy FVE

It is powered by 230 V AC mains voltage. The switched-mode power supply is situated inside the convector and converts mains voltage to 24 V DC. Fan speed is controlled by 0–10 V DC controlled voltage, either from the BMS or the thermostat. Electrical installation design must be carried out by a suitably qualified person and must comply with relevant regulations. Installation and maintenance of the electrical installation must be carried out by a qualified electrical technician. Before commissioning, an initial inspection of the electrical installation must be carried out in accordance with the applicable national regulations and standards. **KORAFLEX Energy FVE convectors are powered with 230V alternating current mains electricity. Therefore, the electric branch must be equipped with a residual current device with a tripping current of 30 mA.** These trench heaters are to be used solely in dry environments, and only for heating.



RAB 21-DC, RDG 260T or HY607LIC thermostat function description

Trench heater output is controlled by fan speed and the flow of the heating/cooling medium through the exchanger. Control voltage is 24 V. SIEMENS RAB 21-DC, RDG 260T and HY607LIC thermostats operate the valve via a thermoelectric actuator and control fan speed with a 0–10 V DC signal. Speed can be set automatically or manually in three steps (rated at 7 V).

Function description with BMS (Building Management System)

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

KNX function (for BMS systems)

Using the KNX system, trench heaters may be controlled with the 260KN thermostat. The thermostat communicates with the KNX system, which transmits and receives data for the trench heater.

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.

Number of fans per trench heater

FVO 7/20, 7/32, 8/16; FVA 11/20

From 800 to 2 000 mm one fan, from 2 200 mm two fans.

FVO 9/20, 9/26, 9/32, 9/40, 11/20, 11/26, 11/32, 11/40, 13/26

FVP 11/32; F2V 11/20

From 800 to 1 800 mm one fan, from 2 000 mm two fans.

FVO 13/32, 13/40

From 800 to 1 600 mm one fan, from 1 800 mm two fans.

F2V 13/34; F4V 13/34

From 800 to 1 600 mm one fan, from 1 800 mm two fans.



Also valid for KORAFLEX Energy FVE models.

ACCESSORIES

SIEMENS RDG 260T electronic room thermostat with LCD display

 optional accessory

- for 2- and 4-pipe heating systems
- weekly programme with up to three comfort blocks per day
- automatic or manual heating/cooling changeover
- automatic continuous or manual 3-speed fan control
- operation in comfort, setback (dark) or protection mode
- three inputs for a separate sensor, key card reader, presence detector, window contact, etc.
- clock backup in the event of power failure for min. 20 h
- supply voltage 24 V DC, power input 4 W
- control signal for EC fan 0–10 V DC
- setpoint temperature setting range 5–40 °C
- switching hysteresis is adjustable separately for heating/cooling in the range of 0.5 to 6 K
- degree of protection IP 30
- dimensions w × h × d: 92 × 134 × 25 mm
- commissioning possible using the SIEMENS PCT Go mobile app

Accessories

- possibility to connect a QAA32 room temperature sensor (NTC 4 kΩ), e.g. when the thermostat is installed outside publicly accessible areas
- **order code (white):** REG-RDG260T
- **order code (black):** REG-RDG260TB



For correct operation, the RDG 260T or RDG 260KN thermostats must be set according to the LICON instructions included in the thermostat packaging. 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
- commissioning possible using the SIEMENS PCT Go mobile app

Accessories

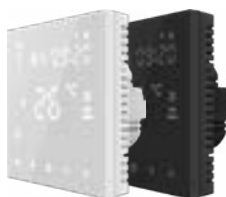
- possibility to connect a QAA32 room temperature sensor (NTC 4 kΩ), e.g. when the thermostat is installed outside publicly accessible areas
- **order code:** REG-RDG260KN



Electronic room thermostat with touch LCD display HY607LIC

 optional accessory

- supply voltage 24 V DC
- weekly programme with three time blocks
- operating modes: manual, automatic (weekly programme)
- possibility of automatic changeover – heating, cooling, ventilation
- control signal for EC fan 0–10 V DC
- automatic or manual 3-speed fan control
- control via Wi-Fi application using a smartphone (Android, iOS)
- possibility of control lock using a PIN
- setpoint temperature setting range 5–50 °C
- operating environment -10–60 °C
- accuracy 0.5 °C
- degree of protection IP 20
- dimensions w × h × d: 86 × 86 × 16 mm
- **order code (white):** REG-HY60724W
- **order code (black):** REG-HY60724B



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



Liquid-filled thermostatic head with capillary tube

 optional accessory

- control range +6.5 to +28 °C
- installation of the thermostatic head into the wall
- capillary tube length 5 m
- hysteresis: ≤ 0.6 °C
- **order code:** REG-TH5



Thermoelectric actuator

 optional accessory

- IP rating IP 44
- reset time 4 min
- unit height 65 mm
- M30 × 1.5 thread
- cable lengths 1, 3 or 5 m
- closed without voltage



To set and control the required air temperature in the heated room, the convectors must be equipped with a thermostatic head with a liquid-filled capillary tube or a thermoelectric actuator.

TEP 230

- supply voltage 230 V AC
- electricity consumption < 2 W
- **order code** (1 m cable): REG-TEP230-100
- **order code** (3 m cable): REG-TEP230-300
- **order code** (5 m cable): REG-TEP230-500

TEP 24

- supply voltage 24 V DC
- electricity 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

SIEMENS RAA21 room thermostat

 optional accessory

- for heating
- 2-position control with ON/OFF output
- switching voltage 24 V DC and 230 V AC
- gas-filled metal diaphragm
- required temperature setpoint is selected manually with the setting knob on the front of the thermostat
- the setpoint setting range can be mechanically limited by means of setpoint limiters under the unit cover
- IP rating IP 30
- dimensions (w × h × d) 97 × 96 × 35.3 mm
- **order code:** REG-RAA21



SIEMENS RDE 100.1 room thermostat

 optional accessory

- for heating
- 2-position control with ON/OFF output
- switching voltage 24 V DC and 230 V AC
- Comfort, Economy, Auto timer and Protection mode
- adjustable commissioning and control parameters
- 7-day time program
- battery powered 3 V DC (2 × 1.5 V DC)
- IP rating IP 30
- dimensions (w × h × d) 127 × 85 × 21.5 mm
- **order code:** REG-RDE100.1



High-rigidity OSB board

 optional accessory

- **order code:** OSB

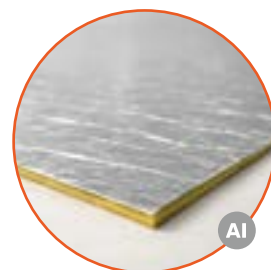


AI

Acoustic foil

 optional accessory

- **order code:** ANF●●
- (●● depending on the convector width)



AI



Complete technical documentation including wiring diagrams and installation instructions can be found at **www.licon-heat.com**

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
- measurement range 0–40 °C, accuracy at 25 °C ± 0.3 K
- IP rating IP 30
- dimensions w × h × d: 96,4 × 99,6 × 36 mm
- **order code:** REG-S-QAA32



Junction box

 optional accessory

- embedded in wall
- for installation of DC 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



Flexible connecting hose

 optional accessory

- welded stainless steel hose
- length 10, 12, 20, 30 cm
- female thread G 1/2" or G 3/4" (flat seal)
- male thread R 1/2" (thread seal)
- max. temperature 180 °C
- PN 10

R-Box

 optional accessory

- combined with the power supply it creates the control voltage for the fan
- for use with thermostat with supply voltage of 230 V AC
- 3 programmable speed settings
- input voltage 230 V/50 Hz
- fan output voltage 0–10 V DC
- 4 K_V AC galvanic isolation optocouplers
- 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-heat.com
- **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.

Brass elbow

 optional accessory

- 1/2" × 1/2" 90° without rim
- **order code:** REG-E90



G 1/2"

- **order code** (10 cm): REG-N10
- **order code** (12 cm): REG-N12
- **order code** (20 cm): REG-N20
- **order code** (30 cm): REG-N30

G 3/4"

- **order code** (20 cm): REG-N20-34
- **order code** (30 cm): REG-N30-34



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

 optional accessory

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



power supply size	60 W	100 W	150 W	240 W	480 W
input supply 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



The power supply size is selected based on the total power input of the thermoelectric actuators connected to one power supply. Allow 2 W per thermoelectric actuator.



We recommend sizing the power supply at least 20 % above the calculated required power.

Thermostatic valve

 optional accessory

- double regulating valve with preset K_v value
- straight, angle or axial
- thermostat head connection thread M30 × 1.5
- DN 15; size G ½"
- PN 10; max. operating temperature 120 °C
- nickel-plated brass body

• order code:

straight thermostatic valve: REG-TVS

angle thermostatic valve: REG-TVA

axial thermostatic valve: REG-AVP



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

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

Lockshield

 optional accessory

- straight or angle
- size G ½"
- PN 10; max. operating temperature 120 °C
- nickel-plated brass body

• order code:

straight lockshield: REG-LS

angle lockshield: REG-LA



Preset values	1	2	3	4	5	6	7	8	9
Turns	1 ¼	1 ½	1 ¾	2	2 ½	3	3 ½	4	F.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)
F.O. fully open

Thermostatic pressure-independent valve

Gampper Vario-DP

 optional accessory

- with integrated automatic flow limiter
- straight, angle or axial
- adjustable flow rate 20–340 l/h
- control range 15–70 kPa
- thermostat head connection thread M30 × 1.5
- DN 15; female thread Rp ½" – male thread G ½"
- nickel-plated brass body

• order code:

straight pressure-independent valve: REG-1-DVS

angle pressure-independent valve: REG-1-DVA

axial pressure-independent valve: REG-1-AVD



Pressure-independent valve with higher flow

 optional accessory

- higher cooling output thanks to higher water flow
- straight
- **flow rate 0.1–0.575 m^3/h**
- thermostat head connection thread M30 × 1.5
- size G ¾"
- valve stroke 2.5 mm
- PN 25; temperature range 10–120 °C
- brass body
- **order code: REG-DRV**



Reduction for pressure-independent valve

 optional accessory

- DN 15; female thread G ¾" × Rp ½"
- suitable for Ø 15 mm pipes
- brass body
- **order code: REG-VT**



Overview of recommended valves for connection to the heating system

For standard connection of a KORAFLEX convector to the heating system from the room side or from the end of the convector, the lockshields and valves listed below can be used. The individual options are recommended with regard to the available space for the specific convector type and size, so that the lockshield or valve with thermoelectric actuator can be installed inside the convector casing. Other types of valves or thermoelectric actuators may also be used, provided their dimensions allow correct installation inside the convector and sufficient space remains for connection, operation and servicing. **Valves, lockshields and thermoelectric actuators are not included in the standard delivery and are available as optional accessories.** Depending on the connection method, type of valve and available space within the specific convector, a brass elbow may also be required for correct installation. It allows suitable routing of the connecting pipework and helps prevent kinking or deformation, which could restrict the flow of heating or cooling water through the heat exchanger. The convector can then be connected to the heating system using stainless steel flexible hoses or rigid pipes. Optional accessories p. 96.

✓✗ The valve can only be used when installed together with a thermoelectric actuator.

KORAFLEX	Type	Thermoelectric actuator Order code according to type, see p. 97 									Side connection diagram
		Straight lockshield REG-LS 	Angle lockshield REG-LA 	Straight thermostatic valve REG-TV-S 	Angle thermostatic valve REG-TVA 	Axial thermostatic valve REG-AVP 	Straight pressure-independent valve REG-1-DVS 	Angle pressure-independent valve REG-1-DVA 	Axial pressure-independent valve REG-1-AVD 	Pressure-independent valve with higher flow REG-DRV 	
FK	60/140, 70/140, 90/140, 110/140, 130/140, 150/140	✓	✓	✗	✗	✗	✗	✗	✗	✗	36
	60/200, 60/260, 60/320	✓	✗	✗	✗	✗	✗	✗	✗	✗	36
	70/200, 90/200, 110/200	✓	✗	✗	✗	✓	✗	✗	✓	✗	36
	* 130/200, 150/200, 190/200, 70/260, 90/260, 110/260, 130/260, 150/260, 190/260, 70/320, 90/320, 110/320, 130/320, 150/320, 190/320, 70/400, 90/400, 110/400, 130/400, 190/400	✓	✗	✓	✗	✗	✓	✗	✗	✗	36
	300/260, 450/260, 300/320, 450/320, 300/400, 450/400	✓	✓	✓	✓	✓	✓	✗	✓	✗	36
FVO FVE	70/200	✓	✗	✗	✗	✓	✗	✗	✓	✗	44
	80/160	✓	✗	✗	✗	✗	✗	✗	✗	✗	47
	90/200, 70/260, 70/320, 90/260, 90/320, 90/400, 110/200, 110/260, 110/320, 110/400, 130/260, 130/320, 130/400,	✓	✗	✓	✗	✗	✓	✗	✗	✗	45 – 58
F2V	110/200	✓	✗	✓	✗	✗	✓	✗	✗	✗	64
	130/340	✓	✗	✓	✗	✗	✓	✗	✗	✓	65
F4V	130/340	✓	✗	✓	✗	✗	✓	✗	✗	✓	68
FVP	110/320	✓	✗	✓	✗	✗	✓	✗	✗	✗	61



* The data given for FK apply to all type and material variants of natural convection trench convectors. Only the convector dimensions are decisive when selecting a suitable valve.



Applies to standard connection to the heating system (from the room side or from the end of the convector). For other connection methods, please contact the sales or technical department of LICON s.r.o.

NOISE LEVELS – ACOUSTICS

LICON convectors use modern EC fans characterised by quiet operation, minimal vibration and low power consumption. The acoustic values for individual products are given in the relevant performance tables.

When selecting a convector, in addition to the required heat output and dimensions, the acoustic requirements of the space must also be taken into account. These vary depending on the type of use – the requirements for living spaces and offices differ from those for corridors or halls, for example. For living spaces, we recommend a maximum sound pressure level of 30 dB(A).

The acoustic parameters were measured in an accredited testing laboratory in accordance with EN ISO 9614-2 – Acoustics – Determination of sound power levels of noise sources using sound intensity – Part 2: Measurement by scanning.

Listed sound parameters

The basic parameter is the **sound power level L_{WA} [dB(A)]**, which is specified for all products with fans. For easier assessment of noise levels, **sound pressure level L_{pA} [dB(A)]** values are also provided.

The stated sound pressure values were calculated using the formula below. They apply at a distance of 1 m from the convector (noise source), positioned in the centre of a wall beneath a window, with one reflective surface and acoustically absorptive surroundings (furnished space).

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.

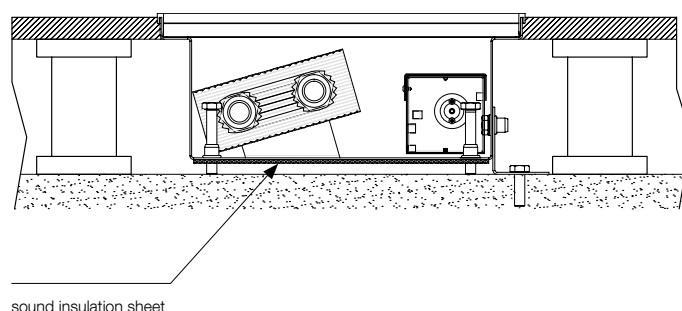
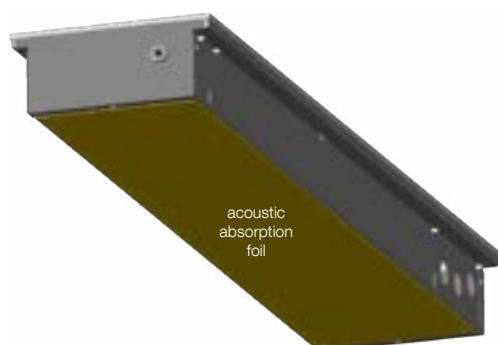
Example: Conversion of sound power to sound pressure

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

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

Casing with sound insulation sheet

In order to further reduce noise, trench heater casings equipped with sound insulation sheeting may be ordered. This sheeting reduces noise levels by approx. 1 to 1.5 dB [L_{WA}] depending on the type, length and fan speed of the trench heater, and is in addition suitable where the trench heater is not built in and has a cavity beneath the casing (eg. for raised floor applications). Sound insulation sheeting is fitted to the underside of the trench heater casing.



GENERAL PRODUCT INFORMATION

Quality

LICON s.r.o. is a certified ISO 9001 Quality Management supplier. Heat outputs are measured according to EN 16430 and EN 442 standards at the HLK Stuttgart (DE) and SZU Brno (CZ) testing facilities. Products comply with current legislation. The certification process was completed at the Engineering Test Institute, Brno (CZ).

Maintenance

Trench heaters must be kept clean. Before the start of the heating season it is especially important to remove all dirt and dust from the trench heater. Trench heaters with forced convection 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 trench heater, please refer to the installation instructions or the Operating and warranty Conditions.

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.

All materials relating to trench heaters are available to download at **www.licon-heat.com**.



KORAFLEX fitted with aluminium grille and U-frame, light bronze

REFERENCES



UBS Pleyad Business Centre
Saint-Denis, France



MCBA-Museum
Lausanne, Switzerland



Residence du Lac
Morges, Switzerland



Museum Munch
Oslo, Norway



World of Volvo
Gothenburg, Sweden



Ferring
Copenhagen, Denmark



SFU McTaggart Cowan Hall
Burnaby, Canada



Central Plaza
Dublin, Ireland



Quartier Arter
Tallinn, Estonia



Landsbankinn
Reykjavik, Iceland



Opera House
Copenhagen, Denmark



Museum HC Andersens
Odense, Denmark



Sky Tower
Wrocław, Poland



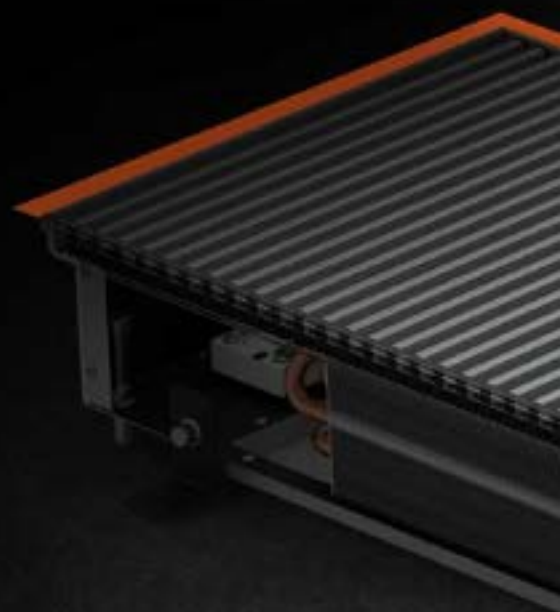
Harpa Concert Hall,
Reykjavik, Iceland



Nordea Headquarters,
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