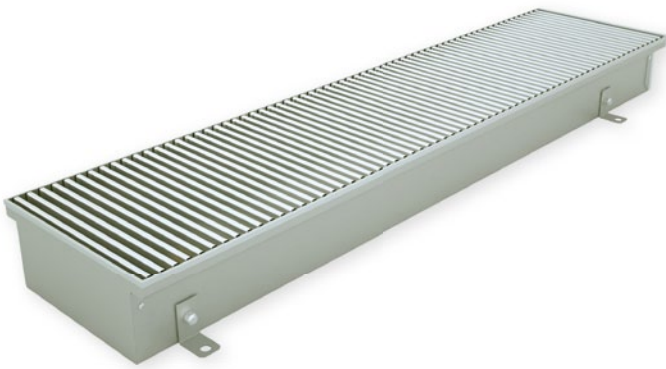




Licon PK Licon PKB

FLOOR CONVECTOR natural convection

French windows will stand out, winter garden entries or balconies will completely open up. Heating radiators are not occupying interior doorways space. Unobtrusive, effective and aesthetically designed heating system for residential houses, shops and administrative buildings. Excellent use of floors for heating, visually inconspicuous.



Floor convector with natural convection Licon PK • PKB

Licon PK convector is intended for embedding in floors, especially in places prohibiting installation of higher radiators, e.g. in front of french windows, winter garden entries, hall entrances, exits etc., in public buildings (shops, administrative buildings etc.), as well as in residential houses. Various colored designs of the floor grids are making convectors suitable for each interior.

- Natural convection convectors
- Wide type & design range
- Easy to clean and maintain
- Use only for dry environment

Standard delivery contains

- **version Economic** – black coated zinc galvanised steel case
- unpainted heat exchanger with low water content, air vent and uniquely shaped lamellas for higher heat output
- anodized Al frame, U profile, in colour of natural aluminium
- attachment anchors to fix the channel to the floor
- a pair of flexible stainless steel hoses for easy connection
- sololit cover, protecting the exchanger against dust and dirt on the building site
- 25 mm adjustment set-screws to compensate for the floor asperity
- convector mounting instructions
- the set is packed in a strong and durable packaging

Specifications

depth (mm)	90, 110, 150, 190, 300, 450
widths (mm)	160, 200, 280, 340, 420
lengths (mm)	800 up to 3 000 (at 200 mm)
outputs (W)	from 87 to 4 100
max. working pressure (MPa)	1.2
max. working temperature	110 °C
connecting thread	inner G 1/2"

Version Economic • basic execution in black coated galvanized steel case, exchanger without surface finishes

Version Exclusive • black coated galvanized steel case, black coated exchanger
Version Inox • case made of stainless steel AISI 304, unpainted exchanger (only for dry environment)

Version InPool • case made of stainless steel AISI 316, unpainted exchanger (for humid environment)



Optional specification

- **Exclusive** – black coated zinc galvanised steel (identical with the design type Economic), black coated heat exchanger
- **InPool** – the case design in stainless steel AISI 304, unpainted exchanger (only for dry environment)
- **Inox** – the case design in stainless steel AISI 316, unpainted exchanger (only for dry environment)
- pool design PKB are standard designed with a drain hole
- colour of the anodized Al frame – natural aluminium, light and dark bronze in the F profile or light or dark bronze for U profile, see sketch page 23
- lockable screwing thermostatic valve and thermostatic shut off valve head
- cover plate with increased rigidity
- Insufficient performance? Look for execution with OC with forced convection, see page 48

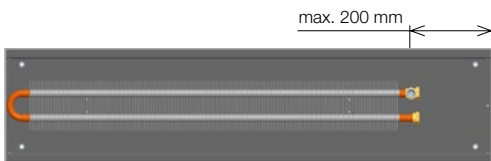
Pool design available only for depths 9 and 11 and widths 20, 28, 34 and 42 cm • Floor grids page 18

Cross section



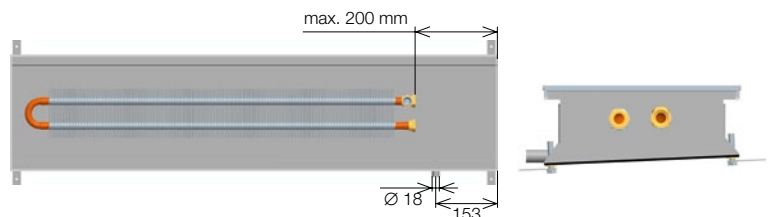
Heat exchanger placement

Standard design



The specified dimensions do not include the decorative frame.

PKB pool version (InPool)

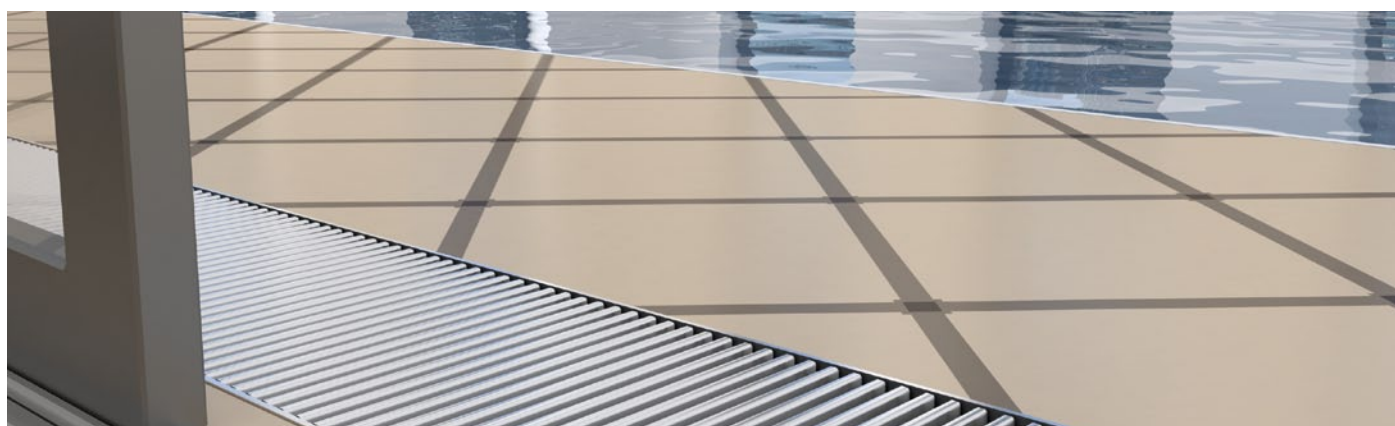


Suitable for interior with increased humidity, must be fitted with Al or Stainless steel Cross grid, see page 19 and 22 • Pool design available only in depths 9 and 11 and widths 20, 28, 34 and 42 cm • Not possible to connect cases from more PKB convectors.

Heat outputs (W) at $t_w1/t_w2/t_i = \text{at } 75/65/20 \text{ } ^\circ\text{C} (\Delta t=50)$ and $65/55/20 \text{ } ^\circ\text{C} (\Delta t=40)$ / EN 442

Depth (cm)	Δt	Length L (cm)													
		80	100	120	140	160	180	200	220	240	260	280	300		
Width 16	9	Δt 50	87	121	156	191	226	260	295	330	364	399	434	469	
		Δt 40	65	91	117	143	169	195	221	247	273	299	325	351	
	11	Δt 50	100	140	180	220	260	300	340	380	420	460	500	540	
		Δt 40	75	105	135	165	195	224	254	284	314	344	374	404	
Width 20	9	Δt 50	110	154	197	241	285	329	373	417	461	505	549	592	
		Δt 40	82	115	148	181	213	246	279	312	345	378	410	443	
	11	Δt 50	127	178	229	280	330	381	432	483	534	584	635	686	
		Δt 40	95	133	171	209	247	285	323	361	399	437	475	513	
Width 28	9	Δt 50	161	226	290	355	419	484	548	612	677	741	806	870	
		Δt 40	121	169	217	265	314	362	410	458	506	555	603	651	
	11	Δt 50	174	244	313	383	453	522	592	662	731	801	871	940	
		Δt 40	130	182	234	287	339	391	443	495	547	599	651	703	
	15	Δt 50	245	344	442	540	638	736	834	932	1031	1129	1227	1325	
		Δt 40	184	257	330	404	477	551	624	698	771	845	918	991	
	19	Δt 50	267	374	480	587	694	801	908	1014	1121	1228	1335	1441	
		Δt 40	200	280	359	439	519	599	679	759	839	919	999	1078	
	30	Δt 50	313	439	564	690	815	940	1066	1191	1317	1442	1567	1693	
		Δt 40	235	328	422	516	610	704	797	891	985	1079	1173	1266	
	45	Δt 50	483	676	870	1063	1256	1449	1642	1836	2029	2222	2415	2609	
		Δt 40	361	506	651	795	940	1084	1229	1373	1518	1663	1807	1952	
Width 34	9	Δt 50	226	316	406	497	587	677	768	858	948	1039	1129	1219	
		Δt 40	169	236	304	372	439	507	574	642	709	777	845	912	
	11	Δt 50	242	339	436	533	630	727	824	921	1018	1115	1212	1308	
		Δt 40	181	254	326	399	471	544	616	689	761	834	906	979	
	15	Δt 50	315	440	566	692	818	944	1070	1196	1321	1447	1573	1699	
		Δt 40	235	330	424	518	612	706	800	895	989	1083	1177	1271	
	19	Δt 50	360	503	647	791	935	1079	1223	1367	1510	1654	1798	1942	
		Δt 40	269	377	484	592	700	807	915	1022	1130	1238	1345	1453	
	Width 42	9	Δt 50	318	445	573	700	827	954	1081	1209	1336	1463	1590	1718
			Δt 40	238	333	428	524	619	714	809	904	1000	1095	1190	1285
		11	Δt 50	337	472	606	741	876	1011	1146	1280	1415	1550	1685	1819
			Δt 40	252	353	454	555	655	756	857	958	1059	1160	1260	1361
15		Δt 50	433	606	779	952	1125	1298	1471	1644	1817	1990	2163	2337	
		Δt 40	324	453	583	712	842	971	1101	1230	1360	1489	1619	1748	
19		Δt 50	471	660	848	1037	1225	1413	1602	1790	1979	2167	2356	2544	
		Δt 40	353	494	635	776	917	1058	1199	1340	1481	1622	1763	1904	
30		Δt 50	546	765	983	1202	1420	1638	1857	2075	2294	2512	2731	2949	
		Δt 40	409	572	736	899	1062	1226	1389	1553	1716	1880	2043	2207	
45		Δt 50	759	1063	1367	1670	1974	2278	2581	2885	3189	3492	3796	4100	
		Δt 40	568	795	1022	1250	1477	1704	1931	2159	2386	2613	2840	3067	

• temperature exponent $m = 1.3$



Correction factor k_t for a variant temperature difference Δt (K)

PK

Δt (K)	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
k_t	0.265	0.284	0.304	0.324	0.344	0.364	0.385	0.406	0.427	0.449	0.471	0.493	0.515	0.537	0.560	0.583
Δt (K)	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
k_t	0.606	0.629	0.652	0.676	0.700	0.724	0.748	0.773	0.797	0.822	0.847	0.872	0.897	0.923	0.948	0.974
Δt (K)	50	51	52	53	54	55	56	57	58	59	60					
k_t	1.000	1.026	1.052	1.079	1.105	1.132	1.159	1.186	1.213	1.240	1.267					

• temperature exponent $m = 1.3$

For the formula and example of conversion for a variant temperature difference see page 89.

Weights and water volumes of floor convectors

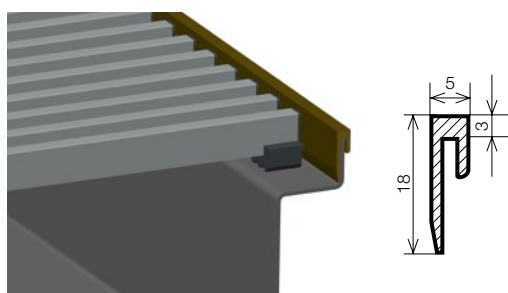
steel type	9/16	9/20	9/28	9/34	9/42	11/16	11/20	11/28	11/34	11/42	15/28	15/34	15/42	19/28	19/34	19/42	30/28	30/42	45/28	45/42
kg/linear meter	5	6	7.2	8.5	10.3	5.5	6.7	7.7	9	10.7	10.2	12.1	14.2	11.4	13.3	15.4	16.5	22	20.5	26.5
stainless steel kg/linear meter	4.1	5.5	6.3	6.8	9.5	4.5	5.9	6.8	7.3	10	9.6	10	14	10.5	10.9	15.6	15	16.7	19	21.3
l/linear meter	0.22	0.5	0.5	0.75	1	0.22	0.5	0.5	0.75	1	1	1.6	2	1	1.6	2	1	1.6	1	1.6

The listed weights are without a packaging.

Aluminium frame profiles

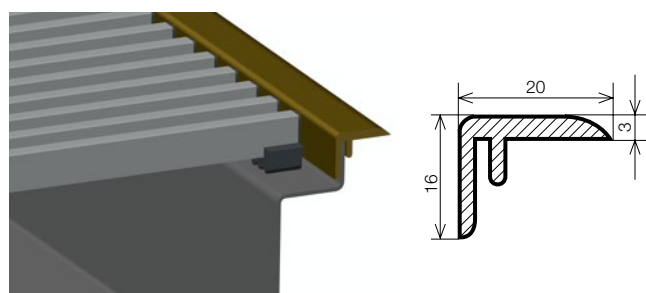
Standard design – U frame

Standard PK design contains silver U profile. Profile colour is equal with grid colour, for other colours see page 19.



Selectable version – F frame

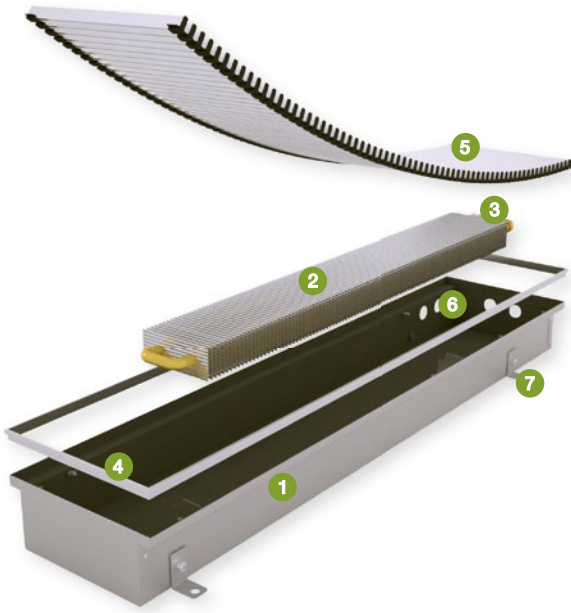
When the selectable frame F is ordered, it is attached separately to convector (not installed on convector). Frame colours are identical with aluminium grid colours.



Frame colour is equal with grid colour presented on page 19.

The sketches dimensions are given in mm.

Convector breakdown



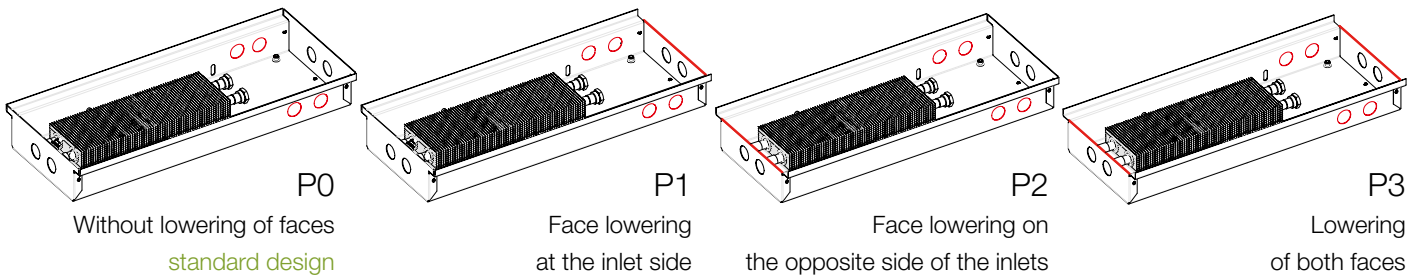
- 1 convector case according to the selected material
- 2 heat exchanger
- 3 air vent
- 4 cover frame (U or F)
- 5 floor grid
- 6 connecting holes
- 7 fixation anchors

Connecting the floor convectors Licon PK

Cases' types according to water inlets' location and lowering of faces for batch assembly

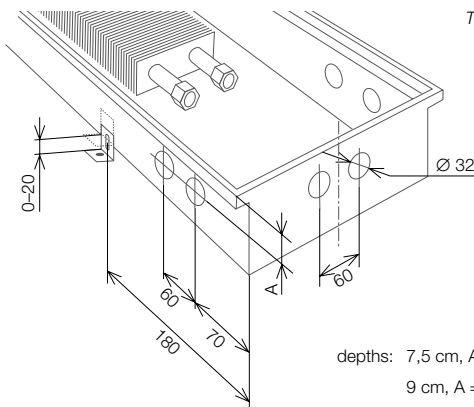
Lowering of the cases' faces is used there, where it is not desirable to see the connections between the convectors (long rows

of convectors, i.e. administrative buildings, hotels etc.). When ordering the walkable grid it is necessary to mention that it is the PM, which will be used for the convector with the lowered face. Note: The PKB convectors' individual cases cannot be mutually interconnected. These are made only in P0 design.

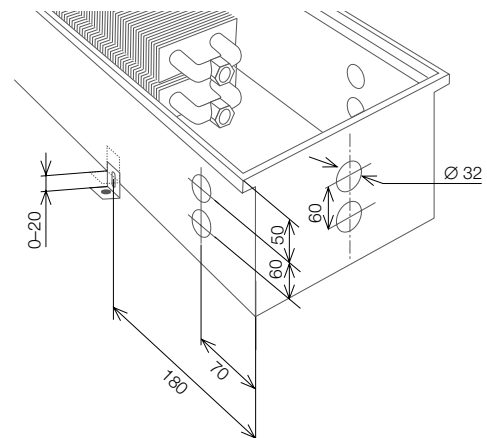


Connection dimensions

The sketches dimensions are given in mm.



depths: 7,5 cm, A = 4 cm
9 cm, A = 5 cm
11 cm, A = 6 cm



Convector installation

Licon PK

Building recommendation

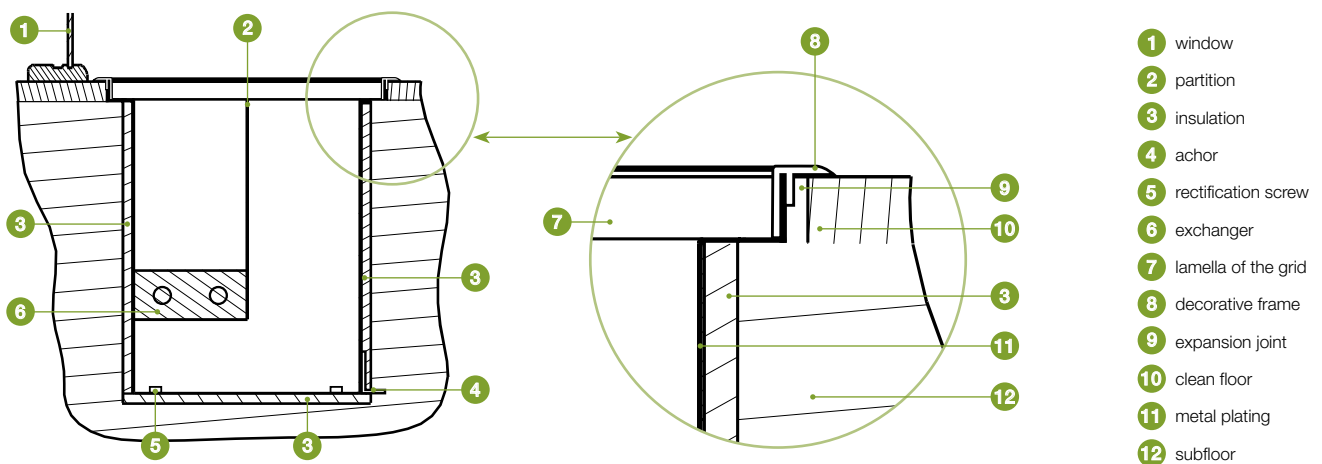
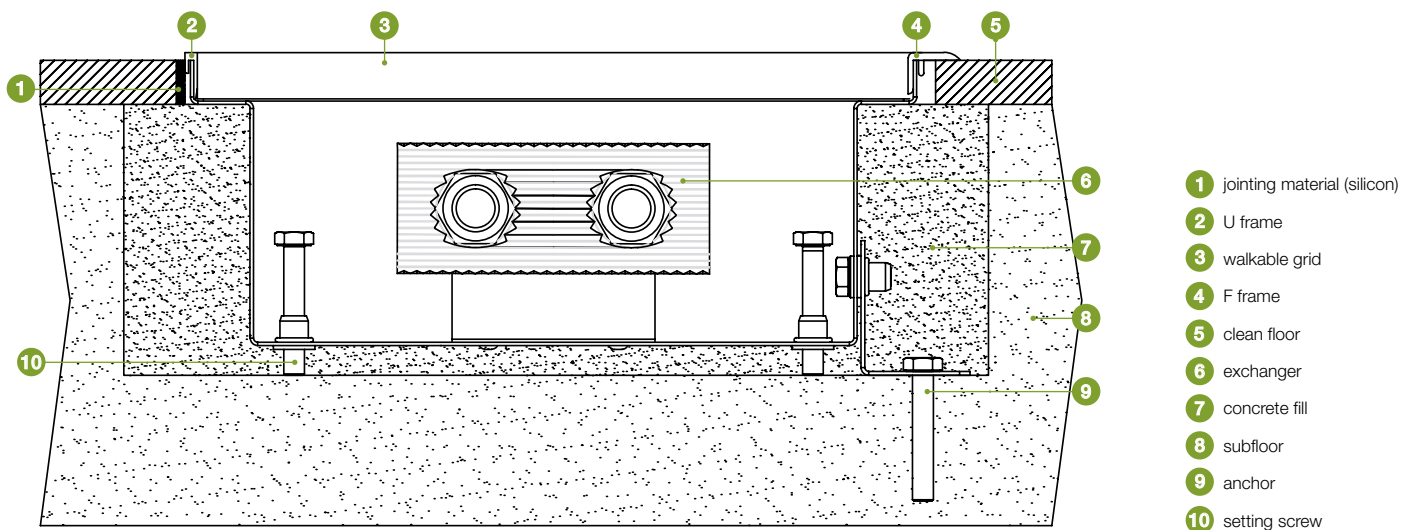
Several general principles must be fulfilled for proper function of the convector.

- To interconnect the exchanger and the distributing pipeline, the standard stainless-steel hoses with stainless-steel jacketing must be used (unless recommended otherwise) which always form a part of the delivery. In practice they provide a better access under the heat exchanger without having to dismantle the heating system, e.g. during cleaning.
- A correctly installed convector is mounted horizontally and the top edges of the convector case are not warped or deflected to ensure proper functioning of the walk-on grid and allows venting of the heat exchanger.
- Correctly installed convector's decorative frame at the floor covering is within the margin of + 2 mm.
- We recommend to keep the cover board in its place for the full duration of the building work to prevent dirt getting inside the

convector. The standard board supplied is not walkable. A higher load bearing capacity board can be ordered.

- The setting screws are only used for horizontal levelling of the convector case.
- During concreting the convector must be fixed to the floor with the use of anchoring screws that will prevent vertical shifting of the convector during subsequent pouring of concrete. The convector can be vertically loaded during concrete pouring. During concreting the convector must be strutted to prevent deformation of the case. When using other casting material (e.g. anhydride) seal thoroughly all passages into the convector to prevent it from flooding.
- Convectors with stainless steel case, designed for humid environments and identified as PKB have a standard built-in water drainage. It must be interconnected during the installation with a pipe with secured slope to drain the waste water. We recommend to fit the drain with the odour trap.
- For further versions for PK built-in see page 69 (Possibility to imbed in floors according to floor types).

Cross section of the correct embedding and location of the convector



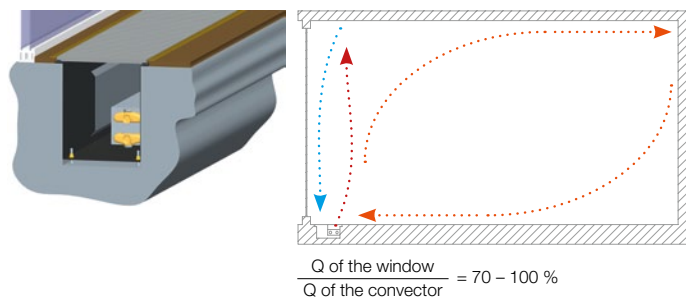
Recommended location of the heat exchanger

Depths 30 and 45 cm



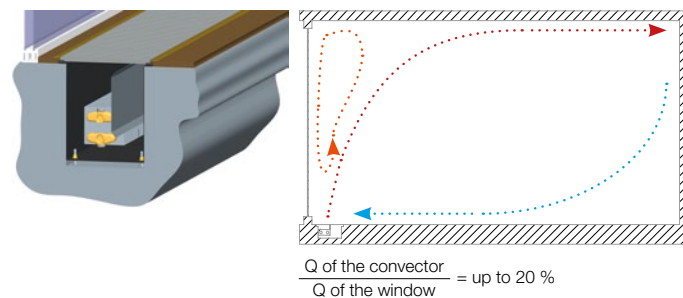
Location of the exchanger at the room side

Descending stream of cool air enters the convector case. The rising flow of heated air then supports natural air circulation in the room and creates a screen in front of the window area. This arrangement is suitable in rooms where the convector is the only heating source and where the share of window heat losses in the total heat loss of the room is about 70 - 100 %.



Location of the exchanger at the window side

This location is suitable in rooms where heat losses on the part of the room prevail and there is only a small share of window losses (20 % at the most). The distance between the convector and the window must be as small as possible.



Ordering codes

Convectors PK

		length	depth	width				Frame finish	Location of supply water (case type)		
Economic	black steel case/unpainted exchanger	PK	- ... / ... / ..	-	1	1	U	10	P	0	
Exclusive	black steel case/black exchanger *	PK	- ... / ... / ..	-	1	5	U	10	P	0	
Inox	stainless steel case AISI 304/unpainted exchanger	PK	- ... / ... / ..	-	5	1	U	10	P	0	
InPool	stainless steel case AISI 316/unpainted exchanger *	PKB	- ... / ... / ..	-	3	1	U	10	P	0	

* custom-made design
PKB cannot be mutually interconnected

Floor convectors
Licon PK
and Licon PKB

Frame type
N not fitted with a frame *
U U profile
F F profile *

Convector's case's face finish
0 without lowering of faces
1 lowering face on the supply side *
2 face lowering on opposite side of the supply *
3 lowering of both faces *

Ordering example

PK, 120 length, 11 depth, 34 width with the black exchanger and F shape frame, bronze eloxal coat = Exclusive Finish

Ordering code – PK-120/11/34-15F12P0

If the order does not specify the decorative frame, design of the case and the heat exchanger, the body will be made of black coated steel sheet with silver exchanger, and fitted with a silver frame in the shape of U.

Floor convectors' design finishes

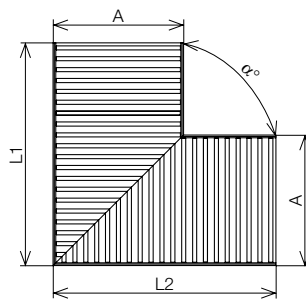
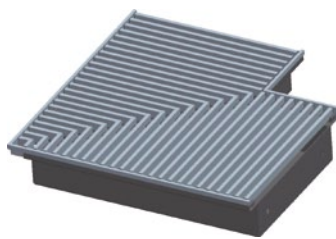
Specifications

corner (angle) parts maximum design depth (cm)	7
Arch design depth (cm)	7, 9, 11, 15 and 19
production possibilities must be evaluated individually	
case design	black zinc galvanised steel
grid design	aluminium, wood, stainless steel
the floor grid must be always ordered together with the design convector	

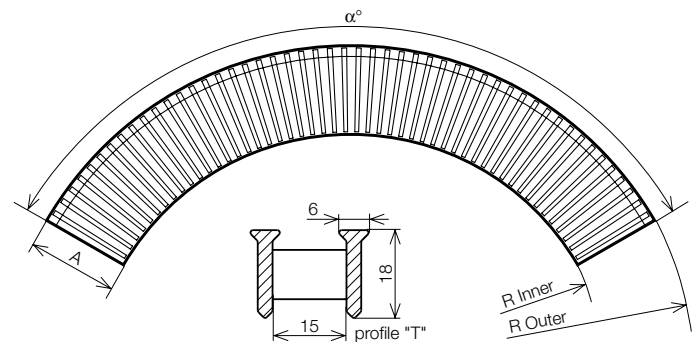
To ensure a perfect interconnection of floor convectors Licon in the rooms' corners it is best to use corner parts RD. The corner piece comes complete with a corner cover grid piece for all offered versions, see page 18.

The corner piece has no effect on the heat performance of the heating body and only serves as a visual complement. The corner pieces must be ordered together with the adjacent floor convectors including PM. No heat exchanger can be placed in the corner part, therefore it does not heat.

Corner



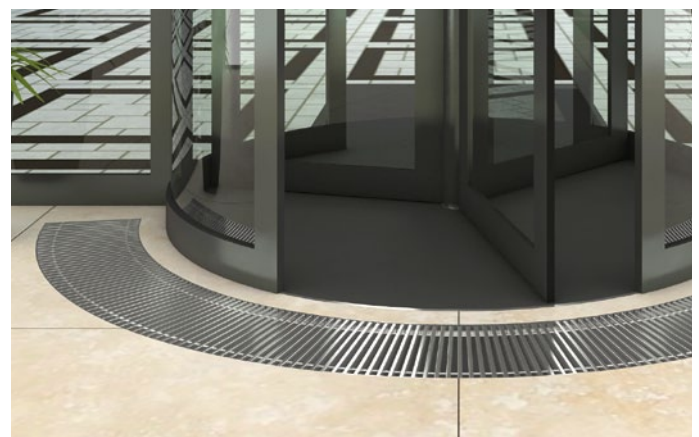
Arch



Dimensional series

width of channel A (cm)	16	20	28	34	42
Length L1, L2 (cm)	20	30	40	50	50

The minimum internal radius of the arc version must be more than 300 cm. Use type "T" profile aluminium grids on a spring when fitting the arch version with the aluminium grids, see image.



Before taking orders for a custom (atypical) design of the floor convector it is necessary to fill in the atypical product form found on www.licon.cz, otherwise ask the Licon Sales department for the form. On the basis of this filled in form we reserve the right to assess the production possibilities before accepting the order. Thermal performance can not be in any way guaranteed, the manufacturer may on request carry out an expert estimate of the possible thermal performance.

Note:

To order a corner design you must specify the angle α and the total width (A), which must correspond with the widths of the produced floor mounted cases. It is necessary to specify the angle α for all shapes, including the arched design, and the inner or outer radius (R-inner, R-outer) and the overall width (A) that must correspond with the widths of the produced floor mounted cases.

Corner Z



Corner U

