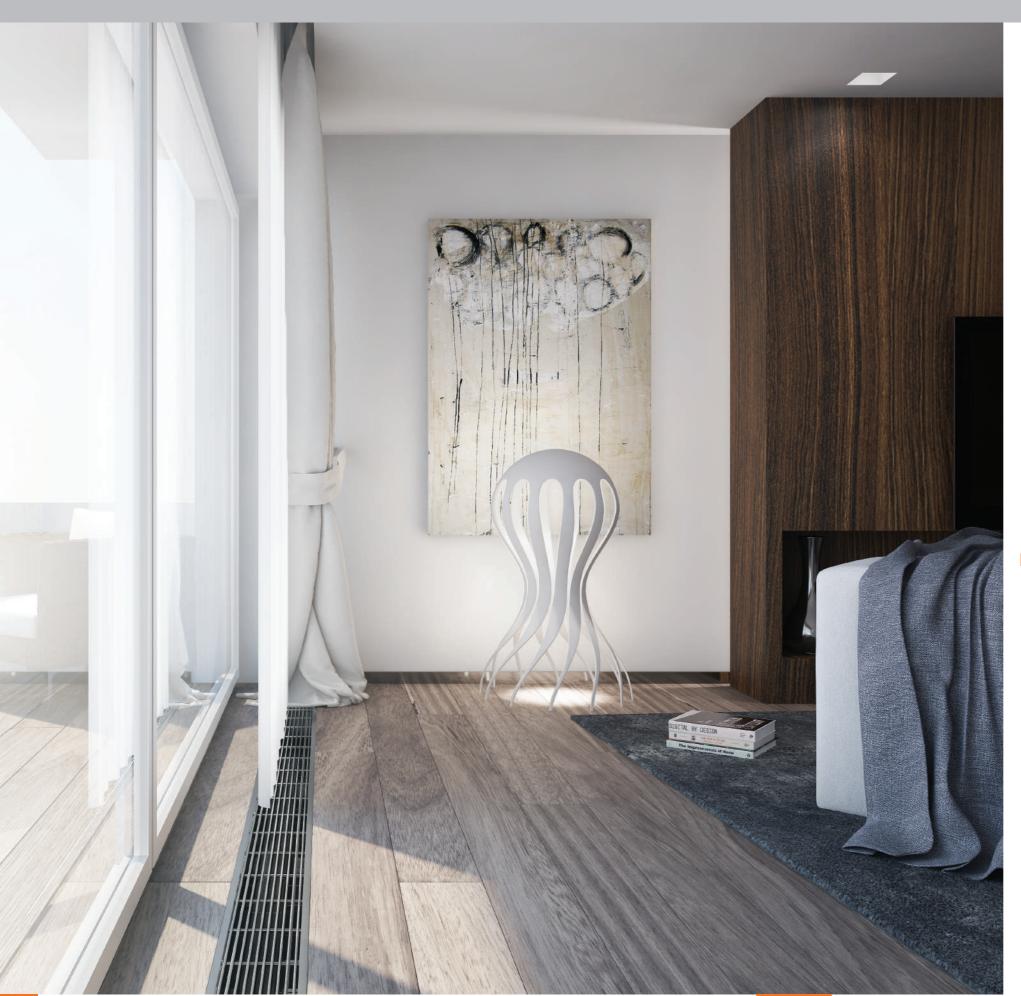
Floor convectors









ON THE BASIS OF EUROPEAN STANDARDS AND THEIR ACCURATE EXECUTION AS WELL AS TAKING INTO ACCOUNT CONSTANTLY GROWING ENERGY PRICES, COMPANY "HEATMANN" HAS DEVEL-OPED A MODERN DEVICE THAT WILL AID YOU IN HEATING ANY OF YOUR ROOMS, IT PAYS SPECIAL ATTENTION TO AESTHETICS: AN UNUSUAL DESIGN AND SPACE ECONOMY IN AN INSTALLATION ROOM. ALTOGETHER OUR PRODUCT IS A SIMPLE CONSTRUCTION IN ITS OWN WAY REPRESENTING A SYNERGY OF DESIGN, ECONOMY, FUNCTIONALITY AND MANUFACTURABILITY.

"LINE" SERIES -FLOOR CONVECTORS WITH NATURAL CONVECTION

Floor convectors without a ventilator of a series "LINE" are devices functioning on the basis of a physical phenomenon called "natural convection". Convection is understood as a vertical movement of a significant tions our convectors provide not only air flow generated by temperature difference of its macro-particles that move in upward direction during the temperature increase. Series "LINE" convectors are designed for

heating residential and office space, salesroom, hotels, showrooms, etc., mostly places with different kinds of glass or stain-glass windows, walls installed. Due to the unique funceconomical room heating, but also a comfortable stay in it due to the fact that the glazed area is divided by a warm air flow curtain that additionally heats the air in the room.

SAVING

ENERGY | Company "HEATMANN" using only the best materials in our heat-exchange units offers a very effective device in respect of the heating space capacity. Very high room heating velocity is acquired by the means of heating super small amount of heat-carrying agent and optimally

used materials in the whole heating system, and in such a manner high efficiency of this device is acquired. In comparison of classical steel radiators with the same heating capacity require ten times more water and consequently use more energy for heating this water.

HIGH OUALITY MATERIALS

Our heat-exchange units are produced from the best heat conductive materials on the basis of copper, aluminium and brass, where all the components that have optimal form and size with unique dust proof and dirt

guard lacquer graphitic-grey coating, form one compact device guaranteeing maximum efficiency, functionality and the long-term usage possibility in household or industrial cleaning conditions, etc.

Specifications Parameters



CONVECTOR Width

Height

Length

Height adjustment Stainless trough

Grill type Grill material

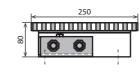
Heat medium connection

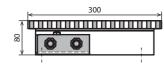
Ambient temperature

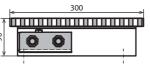
1,6 MPa (16 Bar)

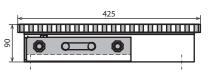
Height 80

90

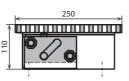


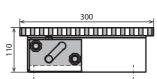


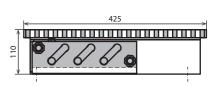




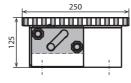
110

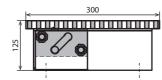


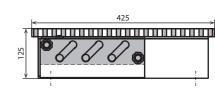




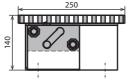
125

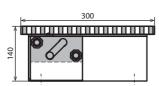


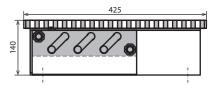




140

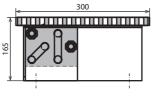


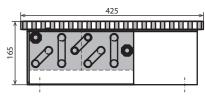


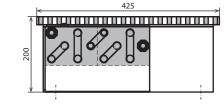


165

200







OPERATING CONDITIONS

Max. working temperature Working overpressure Max. working overpressure

Relative humidity

110°C

1 MPa (10 Bar)

2 × G1/2" inner

250, 300, 425 mm

DIN 1,4301 (17 240)

80, 90, 110, 125, 140, 165, 200 mm

anodized aluminium, wood, stainless steel

galvanized steel covered with durable black matt spray painting or stainless steel

800-4800 mm in step 100 mm

+2°C - +40 °C

20-70 %



HEATING
OUTPUT

Height	Width	Q [W]	800	900	1000	1100	1200				1600	1700					
80	250	90/70/20°C	165	198	231	264	297	330	363	396	429	462	495	528	561	594	627
		75/65/20°C	126	152	177	202	228	253	278	303	329	354	379	405	430	455	480
	300	90/70/20°C	174	209	244	279	314	349	383	418	453	488	523	558	593	627	662
		75/65/20°C	134	160	187	214	240	267	294	321	347	374	401	427	454	481	508
90	250	90/70/20°C	189	227	265	303	341	379	416	454	492	530	568	606	644	681	719
		75/65/20°C	146	176	205	234	264	293	322	351	381	410	439	469	498	527	556
	300	90/70/20°C	206	248	289	330	372	413	454	495	537	578	619	661	702	743	784
		75/65/20°C	160	192	224	256	288	320	352	384	416	448	480	512	544	576	608
	425	90/70/20°C	274	328	383	438	492	547	602	657	711	766	821	875	930	985	104
		75/65/20°C	211	253	295	337	374	421	464	506	548	590	632	674	716	759	801
110	250	90/70/20°C	217	261	304	347	391	434	478	521	565	608	651	695	738	782	825
		75/65/20°C	168	201	235	269	302	336	369	403	436	470	504	537	571	604	638
	300	90/70/20°C	237	285	332	379	427	474	522	569	617	664	711	759	806	854	901
		75/65/20°C	184	220	257	294	330	367	404	441	477	514	551	587	624	661	698
	425	90/70/20°C	314	377	440	503	566	629	691	754	817	880	943	1006	1069	1131	119
		75/65/20°C	242	291	339	387	436	484	533	581	630	678	726	775	823	872	920
125	250	90/70/20°C	240	288	336	384	432	480	528	576	624	672	720	768	816	864	912
		75/65/20°C	185	222	259	296	333	370	407	444	481	518	555	592	629	666	703
	300	90/70/20°C	294	352	411	470	528	587	646	705	763	822	881	939	998	1057	111
		75/65/20°C	227	273	318	363	409	454	500	545	591	636	681	727	772	818	863
	425	90/70/20°C	406	488	569	650	732	813	894	975	1057	1138	1219	1301	1382	1463	154
		75/65/20°C	314	376	439	502	564	627	690	753	815	878	941	1003	1066	1129	119
140	250	90/70/20°C	251	302	352	402	453	503	553	603	654	704	754	805	855	905	955
		75/65/20°C	194	232	271	310	348	387	426	465	503	542	581	619	658	697	736
	300	90/70/20°C	350	420	490	560	630	700	770	840	910	980	1050	1120	1190	1260	1330
		75/65/20°C	281	337	393	449	505	561	618	674	730	786	842	898	954	1011	106
	425	90/70/20°C	429	515	601	687	773	859	944	1030	1116	1202	1288	1374	1460	1545	163
		75/65/20°C	331	398	464	530	597	663	729	795	862	928	994	1061	1127	1193	1259
165	300	90/70/20°C	404	484	565	646	726	807	888	969	1049	1130	1211	1291	1372	1453	1534
		75/65/20°C	307	369	430	491	553	614	676	737	799	860	921	983	1044	1106	116
	425	90/70/20°C	597	717	836	955	1075	1194	1314	1433	1553	1672	1791	1911	2030	2150	2269
		75/65/20°C	461	554	646	738	831	923	1015	1107	1200	1292	1384	1477	1569	1661	1753
200	300	90/70/20°C	443	531	620	709	797	886	974	1063	1151	1240	1329	1417	1506	1594	168
		75/65/20°C	349	418	488	558	627	697	767	837	906	976	1046	1115	1185	1255	1325
	425	90/70/20°C	644	772	901	1030	1158	1287	1416	1545	1673	1802	1931	2059	2188	2317	244
		75/65/20°C	492	591	689	787	886	984	1083	1181	1280	1378	1476	1575	1673	1772	1870

HEATING	
OUTPUT	

Height	Width	Q[W]	2300	2400	2500	2600	2700	2800	2900	3000	3300	3500	3700	4000	4400	4500	4800
80	250	90/70/20°C	660	693	726	759	792	825	858	891	990	1056	1122	1221	1353	1386	1485
		75/65/20°C	506	531	556	582	607	632	657	683	759	809	860	936	1037	1062	1138
	300	90/70/20°C	697	732	767	802	837	871	906	941	1046	1115	1185	1290	1429	1464	1569
		75/65/20°C	534	561	588	614	641	668	695	721	801	855	908	988	1095	1122	1202
90	250	90/70/20°C	757	795	833	871	909	946	984	1022	1136	1211	1287	1401	1552	1590	1704
		75/65/20°C	586	615	644	674	703	732	761	791	879	937	996	1084	1201	1230	1318
	300	90/70/20°C	826	867	908	950	991	1032	1073	1115	1239	1321	1404	1528	1693	1734	1858
		75/65/20°C	640	672	704	736	768	800	832	864	960	1024	1088	1184	1312	1344	1440
	425	90/70/20°C	1094	1149	1204	1258	1313	1368	1423	1477	1641	1751	1860	2024	2243	2298	2462
		75/65/20°C	843	885	927	969	1011	1054	1096	1138	1264	1349	1433	1559	1728	1770	1896
110	250	90/70/20°C	869	912	955	999	1042	1086	1129	1173	1303	1390	1477	1607	1781	1824	1954
		75/65/20°C	671	705	739	772	806	839	873	906	1007	1074	1141	1242	1376	1410	1511
	300	90/70/20°C	949	996	1043	1091	1138	1186	1233	1281	1423	1518	1613	1755	1945	1992	2134
		75/65/20°C	734	771	808	844	881	918	955	991	1101	1175	1248	1358	1505	1542	1652
	425	90/70/20°C	1257	1320	1383	1446	1509	1571	1634	1697	1886	2011	2137	2326	2577	2640	2829
		75/65/20°C	969	1017	1065	1114	1162	1211	1259	1308	1453	1550	1647	1792	1986	2034	2179
125	250	90/70/20°C	960	1008	1056	1104	1152	1200	1248	1296	1440	1536	1632	1776	1968	2016	2160
		75/65/20°C	740	777	814	851	888	925	962	999	1110	1184	1258	1369	1517	1554	1665
	300	90/70/20°C	1174	1233	1292	1350	1409	1468	1527	1585	1761	1879	1996	2172	2407	2466	2642
		75/65/20°C	909	954	999	1045	1090	1136	1181	1227	1363	1454	1545	1681	1863	1908	2044
	425	90/70/20°C	1626	1707	1788	1870	1951	2032	2113	2195	2439	2601	2764	3008	3333	3414	3658
		75/65/20°C	1254	1317	1380	1442	1505	1568	1631	1693	1881	2007	2132	2320	2571	2634	2822
140	250	90/70/20°C	1006	1056	1106	1157	1207	1257	1307	1358	1509	1609	1710	1861	2062	2112	2263
		75/65/20°C	774	813	852	890	929	968	1007	1045	1161	1239	1316	1432	1587	1626	1742
	300	90/70/20°C	1400	1470	1540	1610	1680	1750	1820	1890	2100	2240	2380	2590	2870	2940	3150
		75/65/20°C	1123	1179	1235	1291	1347	1404	1460	1516	1684	1797	1909	2077	2302	2358	2526
	425	90/70/20°C	1717	1803	1889	1975	2061	2146	2232	2318	2576	2747	2919	3177	3520	3606	3864
		75/65/20°C	1326	1392	1458	1525	1591	1657	1723	1790	1989	2121	2254	2453	2718	2784	2983
165	300	90/70/20°C	1614	1695	1776	1856	1937	2018	2099	2179	2421	2583	2744	2986	3309	3390	3632
		75/65/20°C	1229	1290	1351	1413	1474	1536	1597	1659	1843	1966	2089	2273	2519	2580	2764
	425	90/70/20°C	2389	2508	2627	2747	2866	2986	3105	3225	3583	3822	4061	4419	4897	5016	5374
		75/65/20°C	1846	1938	2030	2123	2215	2307	2399	2492	2769	2953	3138	3415	3784	3876	4153
200	300	90/70/20°C	1771	1860	1949	2037	2126	2214	2303	2391	2657	2834	3011	3277	3631	3720	3986
		75/65/20°C	1394	1464	1534	1603	1673	1743	1813	1882	2091	2231	2370	2579	2858	2928	3137
	425	90/70/20°C	2574	2703	2832	2960	3089	3218	3347	3475	3861	4119	4376	4762	5277	5406	5792
		75/65/20°C	1969	2067	2165	2264	2362	2461	2559	2658	2953	3150	3347	3642	4036	4134	4429

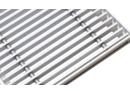




ROLL-UP

lamellas positioned perpendicular to the length of the convector,
grille can be rolled-up

Grill: aluminium, anodized
Frame: aluminium, anodized





Grill: aluminium bronze, anodized Frame: aluminium bronze, anodized



Grill: aluminium, black Frame: aluminium, black

LINEAR GRILLS

lamellas are arranged parallel to the length of the convector



Grill: aluminium, anodized Frame: aluminium, anodized



Grill: aluminium bronze, anodized Frame: aluminium bronze, anodized



Grill: aluminium, black Frame: aluminium, black

WOODEN ROLL-UP GRILLS

lamellas positioned perpendicular to the length of the convector, grille can be rolled-up



Grill: natural beech, wooden Frame: aluminium, anodized

Grill: stained oak, wooden Frame: aluminium bronze, anodized



Grill: stained beech, wooden Frame: aluminium bronze, anodized



Grill: natural oak, wooden Frame: aluminium, anodized

STAINLESS STEEL GRILLS

lamellas positioned perpendicular to the length of the convector, a fix non-rolling grill



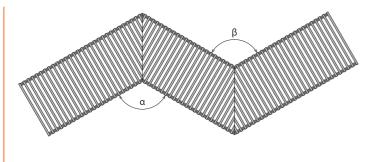
Grill: stainless steel, stainless steel Frame: aluminium, anodized

measurement of the actual shape.

tion heater is to be installed, windows facturing of the floor convector starts.

We deliver arched, broken-line and The measurement of the convector, per- mounted, access to the measuring curved convectors to fit the architec- formed by the customer or by an Heat- area (scaffolding dismantled, etc.). The tural design of buildings and customer mann specialist, must be carried out on technical documentation developed requirements. A large variety of shapes site on the actual structure (not based for the convection heaters previously and arrangements of floor convectors on the design). The level of complete-measured is discussed and approved by can be delivered. It is important to ness of the structure required for the the customer and technical details are specify in the customer order the di- measurement is as follows: final shape agreed (water connection side, power mensions and a detailed and accurate of the wall along which the convec- connection). Following that, the manu-

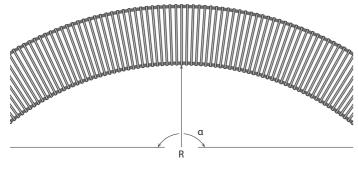
BROKEN-LINE SHAPE **CONVECTORS**



To allow for the design of the convector, the following measured values are

- lengths of the heater edges (window-side edges) and the angle formed by the edges (calculated using the length of the third leg of the triangle formed by the two edges), the angles α and β are used for verification only
- width (type) of the convection heater
- a sketch of the convection heater

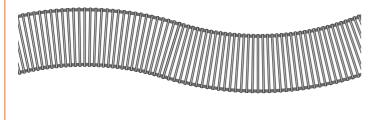
ARCHED **CONVECTORS**



To allow for the design of an arched convector, the following measured values are necessary:

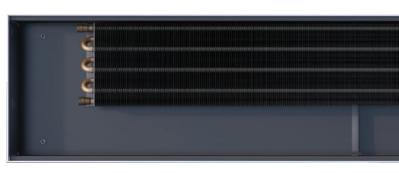
- outer (inner) diameter of the arc and a total angle formed by the arc sector calculated using the distance of the end points and the diameter (for gentle curved arcs) or the angle α (for arcs forming an angle larger than 120°)
 • width (type) of the convection heater
- a sketch of the convection heater
- outer (inner) diameter of the arc and the perimeter length of the outer (inner) edge of the arc
- width (type) of the convection heater • a sketch of the convection heater
- Remember that regular shapes occur rarely in real structures.

CURVED CONVECTORS

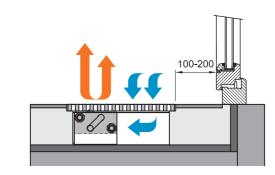


In case of more complicated shapes, it is necessary to use the reference points to determine the shape. It is recommenced that the measurements are performed by Heatmann specialists.





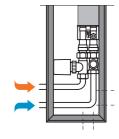
RECOMMENDED STANDARD INSTALLING IN FLOOR

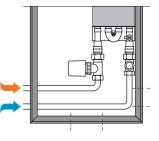


- Ideal position 100–200 mm distance from window
- •The air is warmed up by flowing through exchanger
- · Hot air is mixed with cold air flowing off the window surface
- · Air circulation:
- warms up the room air
- screens the window surface
- secondary demisters the window surface

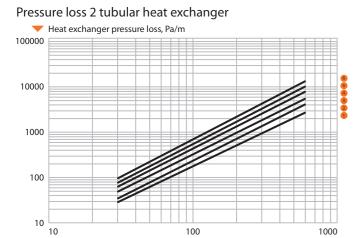
TO THE HEATING ties, from the room, side or window wall. SYSTEM

Floor convector is fitted with openings for connection to the heating system. CONNECTION There are three connection possibili-



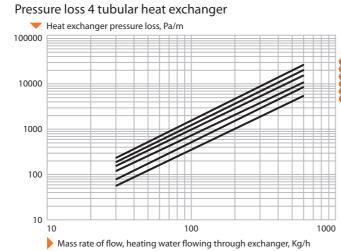


Heating output recalculation, warranty, delivery



Mass rate of flow, heating water flowing through exchanger, Kg/h

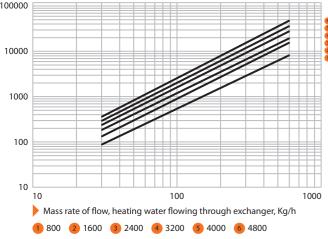
1 800 2 1600 3 2400 4 3200 5 4000 6 4800

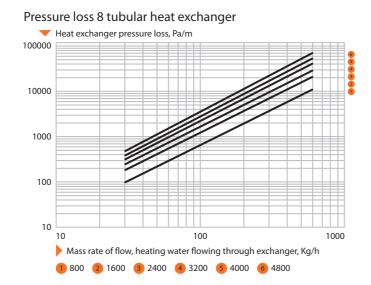


1 800 2 1600 3 2400 4 3200 5 4000 6 4800

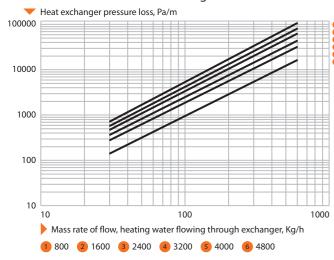
Heat exchanger pressure loss, Pa/m 100000

Pressure loss 6 tubular heat exchanger





Pressure loss 10 tubular heat exchanger



HEATING OUTPUT RECALCULATION FOR ANOTHER **TEMPERATURE** GRADIENT

		neating output reckoning follows by n of the standardized output Qn 75/65/20°C	Height 80	Width 250 300	Temperature exponent (m) 1,401 1,344
Q = 0	Qn×ψ	\times ($\Delta T/50$) ^m [W], where $\Delta T = (T1+T2)/2-Ti$ [°C]	90	250 300 425	1,445 1,415 1,396
Qn [\	W]	heating output for temperature gradient T1/T2/Ti = 75/65/20 °C	110	250 300 425	1,443 1,451 1,425
ψ	[-]	mass rate of flow coefficient (for current flow rate ψ =1)	125	250 300	1,491 1,493
T1 T2	[°C]	input water temperature output water temperature	140	425 250 300 425	1,477 1,445 1,44 1.487
Ti m	[°C]	temperature in the room temperature exponent	165	300 425	1,467 1,462 1,487
			200	300 425	1,405 1,495

CONVERSION TO Ti=22°C AND

- If you want to learn convector output for the room temperature of 22 °C or for a corridor temperature of 15°C - multiply heating output of the chosen convector by the "k" coefficient for Ti=22 °C, k=0,95 $Q[90/70/22 \text{ °C}] = 0.95 \times Q[90/70/20 \text{ °C}]$

for Ti=15 °C, k=1,14 $Q[75/65/15 \,^{\circ}C] = 1,14 \times Qn[75/65/20 \,^{\circ}C]$

THROUGH output **EXCHANGER**

 $M = 0.86Q/(T1-T2) [\kappa g/h]$ ing water flowing through exchanger convector T1-T2 [°C] difference between input and output temperature 0,86 [-] invariable for recalcu-

lation of units

TERMS

conditions.

Seller warranty includes all the manufacturing defects (design defects and material defects) in cases when:

- the device is assembled, connected the seller to the customer and installed according to the apthe basis of operating conditions and by the customer manufacturer technical data sheet

the assembly and the whole operating period of the product

- pacity were examined by the customer during the product transfer from
- plicable standards and operates on from the moment of defect detection
- the customer follows all the rules vector the applicable standards of the product date of sale

Company "Heatmann" GmbH gives contained in assembly instruction corrosive impact of the surrounding warranty only under the following and general rules and norms during surface in respect of the device surface should not be exceeded Main warranty periods: - device condition and its working ca- a) for the heat-exchange unit - 10 years from the date of sale b) for the stainless steel convector duct - 10 years from the date of sale - the warranty is valid during days c) for the galvanized steel convector duct - 5 years from the date of sale d) other convector parts - 2 years - in the installation area of the con- e) the warranty period starts from the

tracting parties in accordance with the delivery contract:

- 1. The Customer estimates the terms of the delivery and means of transportation and if necessary promptly in-
- transport delivering the goods.

AMOUNT OF stalled on the heat-exchange unit, thermostatic head. adjusting screws, decorative lid instal-

lation manual.

- TERMS OF Rights and responsibilities of the con3. In the place of delivery there must by the terms of the contract between be a person responsible for the acceptance of the supplied goods.
 - control the identity of the driver or confirmed packing list to the Seller. forwarder delivering the goods.
 - 2. The customer makes available free companied by a packing list or other the accompanying documents. of charge and secure room for the documentation necessary for transportation of goods and и obligatory

the Seller and the Customer. 6. The Customer undertakes to pro-4. The Seller has the right to know or vide and send signed and stamped 7. In case of any differences the writforms of any transportation changes. 5. Each delivery of the goods is action notification must be attached to

Stainless steel or galvanized steel duct, The following items are not included in copper-aluminium heat-exchange- the delivery package:

unit, aluminium frame, air valve in- Decorative grate, connection faucets,

How to order convector



osition		Symbol	Transcript
1, 2, 3	Model	LN-	Floor convector without fan
		LNP	Floor convector without fan for wet areas
		LNA	Floor convector without fan with a supply of ventilation
		LNW	Floor convector without fan for wet areas with a supply of ventilation
		LF-	Floor convector with fan
		LFP	Floor convector with fan for wet areas
		LFA	Floor convector with fan with a supply of ventilation
		LFW	Floor convector with fan for wet areas with a supply of ventilation
		LFC	Floor convector with heating/cooling fan
4, 5, 6	Height (мм)	080	convector height 80 mm
		090	convector height 90 mm
		110	convector height 110 mm
		125	convector height 125 mm
		140	convector height 140 mm
		165	convector height 165 mm
		200	convector height 200 mm
7, 8, 9	Width (mm)	250	convector width 250 mm
		300	convector width 300 mm
		425	convector width 425 mm
, 11, 12, 13	Length (мм)	0900	convector length 900 mm
		2500	convector length 2500 mm
		convector length is possible from 800 to 4	800 mm. More details on pages 6-7
14	Free position		
15	Surface finish	N	standard (galvanized steel trough painted in black)
	of trough	Z	galvanized steel
		X	stainless steel
		W	stainless steel (trough painted in black)
16	Frame and	P - frame profile P, color: aluminium	S - frame profile T, color: aluminium
	grill	T - frame profile P, color: light bronze	E - frame profile T, color: light bronze
		K - frame profile P, color: dark bronze	F - frame profile T, color: dark bronze
		M - frame profile P, color: order by RAL	D - frame profile T, color: order by RAL
17	Connection	R	right
		L	left
		В	non standard
18	Note	-	standard model
		0	non standard model (should be a description of deviations from the standard model)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	G	R	L	-	2	5	0	1	2	0	0	-	Α	L	R	G	D	0
Model Width (mm)							Lengt	h (mm)			G	rill erial		, appear				

Position		Symbol	Transcript							
1, 2, 3, 4	Model	GRL-	floor convector grill							
5, 6, 7	Width (mm)	250	convector width 250 mm							
		300	convector width 300 mm							
		425	convector width 425 mm							
8, 9, 10,11	Length (мм)	0900	convector length 900 mm							
		2500	convector length 2500 mm							
		convector length is possible from 800 to 4800 mm. More details on pages 6-7								
12	Free position									
13, 14	Grill material	AL	aluminium							
		OK	oak, wooden							
		BE	bleech, wood							
		IN	stainless steel							
15	Color	Р	aluminium							
		Т	light bronze							
		К	dark bronze							
		R	order by RAL							
		Н	stain varnish							
16	Appearance	G	horizontal							
		V	transverse							
17	Туре	D	roll-up							
		С	sectional							
		S	non standard							
18	Note	-	standard model							
		0	non standard model (should be a description of deviations from the standard mode							



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