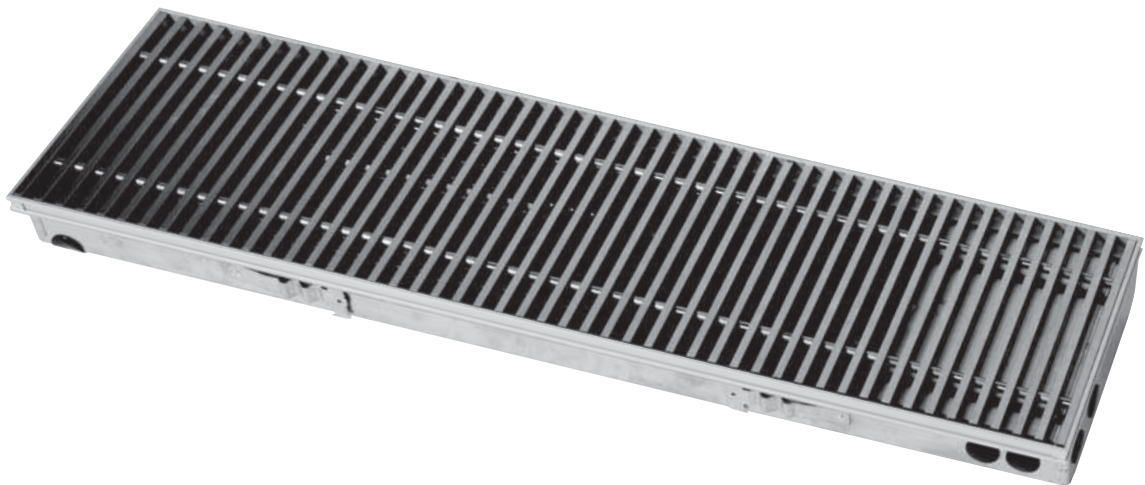




FLOOR CONVECTORS

# OPLFLEX



TECHNICAL CATALOGUE

01/2009



FLOOR CONVECTORS

# OPLFLEX

ISAN Radiátory is a producer of floor convectors ISAN OPLFLEX.

Convectors are recommended under glass areas into the different buildings.

In combination with other heaters are able to keep a high level of comfort in houses, offices, halls etc.

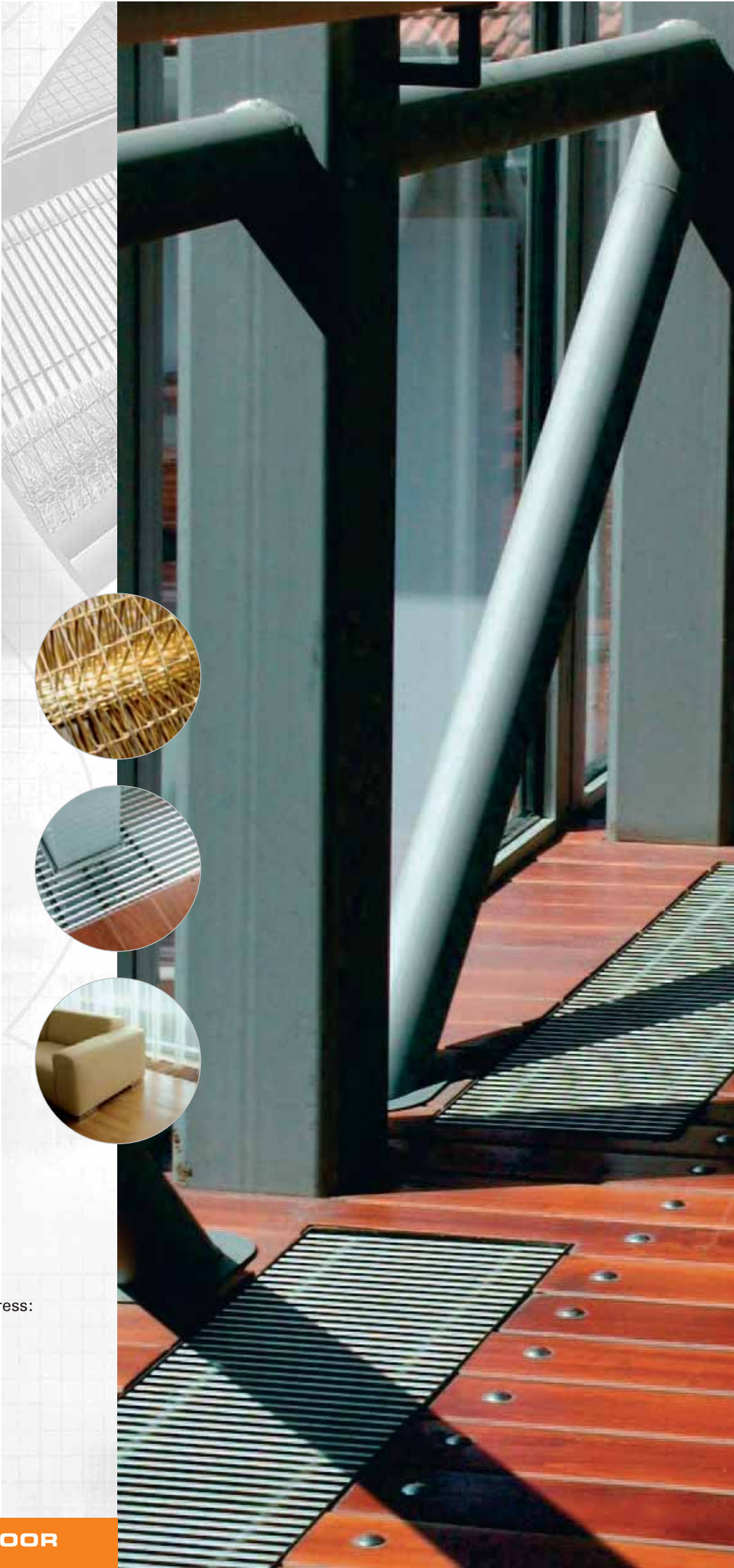
ISAN OPLFLEX products are certified by ISO 9001.



More information is available on the address:

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[www.isan.cz](http://www.isan.cz)

**WARMTH FROM THE FLOOR**



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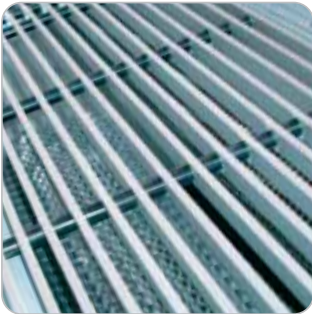
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## Wire heat exchangers characteristics

### New perspective of convectors with emphasis on their high utility value qualities

- **Mechanical resistance** – copper wire exchangers with high rigidity of construction and therefore mechanical resistance against damage. Damage is thus prevented during the construction and additional costs connected with possible repair work are eliminated. Damage is prevented also later during the operation and mechanical cleaning and unlimited service life is thus guaranteed.
- **Easy cleaning** – The exchanger does not collect dust and impurities as they easily fall through the wire structure to the bottom of the cabinet. Exchanger can be easily swept or vacuumed without risk of damage, and the remaining dust can be wiped off the bottom of the cabinet. The heating body meets thus the high demands on environment hygiene.



- **Stable characteristics** – wire exchanger is made only from copper. The joint between the pipe and the wire basket thus remains stable and constant convection of heat is ensured. It retains its steady heat output thanks to its mechanical resistance to damage and its construction, which does not collect dust and therefore prevents the formation of an insulating layer from dust particles.
- **Flexibility** – The wire exchanger construction enables easy flexibility while retaining aesthetic quality of the whole convector. The customer can choose the shape of the heading body as desired (arch, bent chape, irregular bending). Wire exchanger enables the installation of the convector into any conditions from the point of view of shape and surrounding conditions (humid or wet conditions, maintenance-consuming spaces).

## Terminology

<b>FL</b>	convector OPLFLEX
<b>FLK</b>	natural convection floor heater
<b>FLT</b>	convector with tangential fan
<b>FLC</b>	both heating and cooling
<b>FLB</b>	special "pool" convector to wet conditions

<b>K</b>
<b>T</b>
<b>C</b>
<b>B</b>

## Convector usability

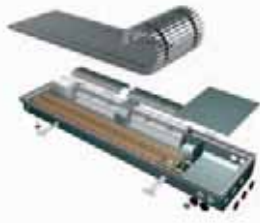
	FLT	FLT 21	FLC	FLB	FLK	FLK Canal
<b>Flats</b>						
living rooms	yes	yes	yes	ne	yes	yes
bedrooms	yes	yes	yes	ne	yes	yes
entrance halls	yes	yes	yes	ne	yes	yes
kitchens	yes	yes	yes	ne	yes	yes
bathrooms	no	no	no	yes	yes	yes
<b>Other</b>						
concert halls	yes	yes	yes	no	yes	yes
commercial areas	yes	yes	yes	no	yes	yes
pools	no	no	no	yes	yes	yes
winter gardens	no	no	no	yes	yes	yes

## Overview of OPLFLEX types

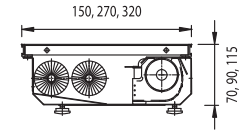
### OPLFLEX FLT

WITH TANGENTIAL FANS

page 4–7



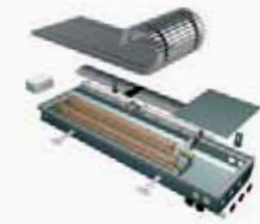
- powerful convector for dry environment
- the most widely used type
- residential and commercial premises



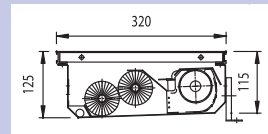
### OPLFLEX FLT 21

WITH TANGENTIAL FANS

page 8–9



- heating and cooling of interior spaces
- adapted for condensate runoff
- based on FLT 20



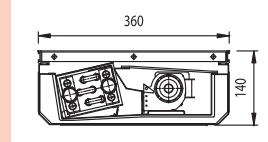
### OPLFLEX FLC

WITH TANGENTIAL FANS

page 10–11



- efficient heating and cooling of interior spaces
- two and four tubular connection
- low noise level



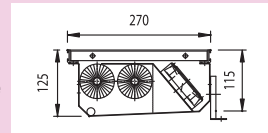
### OPLFLEX FLB

WITH AXIAL FANS

page 12–13



- convector heater for pools
- axial fans 12 V DC adjusted for submergence
- applicable also as a separate heating apparatus



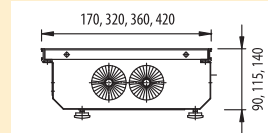
### OPLFLEX FLK

WITH NATURAL CONVECTION

page 14–17



- convector without a fan
- auxiliary heating apparatus for moderate heating
- possibility of adding axial fans (FLA)



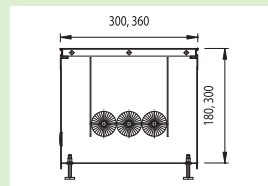
### OPLFLEX FLK CANAL

WITH NATURAL CONVECTION

page 18–19



- convector without a fan
- higher heat output
- separate construction



## CONVECTOR WITH TANGENTIAL FANS

### OPLFLEX FLT

#### APPLICATION

Convector for dry conditions with tangential fans. High output quietness quiet run is retained. Applicable in administration buildings, offices and private houses where low noise level is required. May be used as the main heating apparatus for non-residential premises.

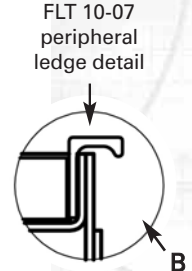
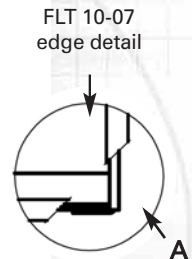
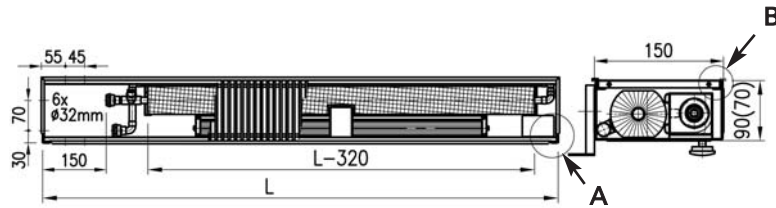


#### DIMENSIONS AND SECTIONS

CONVECTOR	width (mm)			length (mm) in 400 mm segments
	height (mm)	150	270	
70	FLT 10-07	-	-	800-3 200
85	FLT 10-08	-	-	
90	-	FLT 10-09	FLT 20-09	
115	-	FLT 10-11	FLT 20-11	

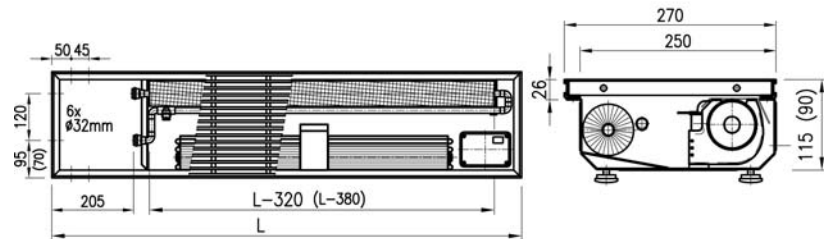
#### FLT 10-07

#### FLT 10-08



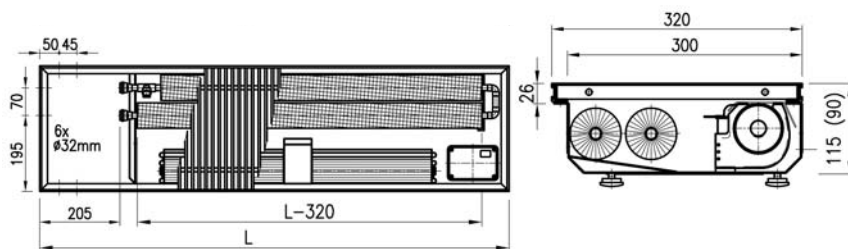
#### FLT 10-09

#### FLT 10-11



#### FLT 20-09

#### FLT 20-11



### OPERATING CONDITIONS

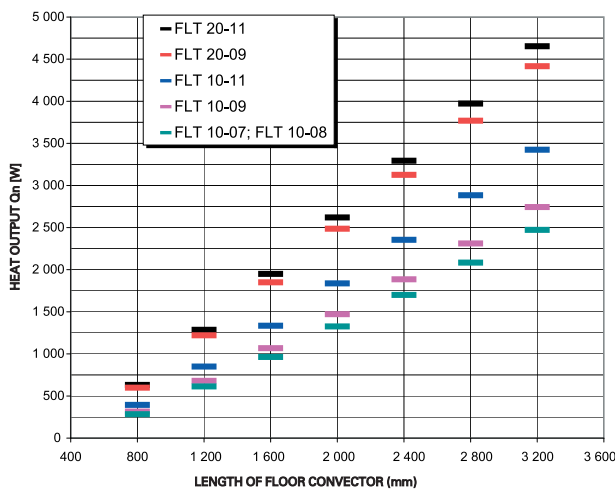
- Hot water heating system with forced circulation
- Internal connecting thread G1/2"
- Maximum operating temperature of the heating medium 110 °C
- Maximum operating pressure of the heating medium 1 MPa
- Electric components with IP 20 protection, operational voltage 230 V, application in dry conditions
- The convector as a whole is constructed for ambient temperatures of +2 up to 40 °C at relative water content 20–70 %

### HEAT OUTPUTS (standard length range up to 3 200 mm)

Heat output of the convector  $Q_n$  [W] for temperature gradient 75/65 and air temperature 20 °C and mean speed 80 % (OPLFLEX FLT – convector regulation)

length (mm)	800	1 200	1 600	2 000	2 400	2 800	3 200
FLT 10-07	284	613	963	1 326	1 700	2 084	2 473
FLT 10-08	284	613	963	1 326	1 700	2 084	2 473
FLT 10-09	315	680	1 068	1 471	1 886	2 311	2 743
FLT 10-11	394	849	1 334	1 837	2 355	2 884	3 424
FLT 20-09	599	1 220	1 850	2 486	3 126	3 769	4 416
FLT 20-11	631	1 286	1 950	2 620	3 294	3 972	4 653

### Performance curves of FLT convector at 75/65/20 °C



### Order example (CODE)

**F L T 1 0 - 1 1 2 4 0 - N R 2 1 1**

#### Specifications:

FLT convector, H=115 mm, W=270 mm, L= 2400 mm, bronze frame, bronze roll-up grill, Z-VD001 regulation installed

For detailed description HOW TO PLACE AN ORDER go to page 31

### TECHNICAL INFORMATION

#### Convector contains:

- convector cabinet made of DIN 1,4301 stainless steel of 0,8 mm gauge
- upper frame from satin anodized aluminium
- walkway grill according to customer's specifications (page 30)
- Cu-Cu wire exchanger with a ventilation valve
- tangential fan with rotor housing
- cover plate for water connection
- regulation screwing 2 pcs
- aligner screws
- installation instructions
- electric connection diagram
- installation chipboard sheet
- double shipping container

#### Delivered on special order:

- basic regulator Z-VD001
- thermostat and switch
- flexible hoses

### CAUTION

- the regulation head for FLT10-07, FLT10-08 types must be placed outside the convector owing to the dimensions
- the regulation for FLT10-07 type must be placed outside the convector owing to the dimensions
- FLT10-07 is supplied only with lateral non-rolling grating
- the positioning of convector in the floor and technical advice (page 26)
- hydraulics and technical calculations (page 24, 25)





FLOOR CONVECTORS

OPLFLEX

# FLT

DETAILED OUTPUT TABLES

	t <sub>w</sub> (t1 / t2)	speed (%)	800 mm			1 200 mm			1 600 mm			2 000 mm			2 400 mm			
			t <sub>c</sub> °C			t <sub>c</sub> °C			t <sub>c</sub> °C			t <sub>c</sub> °C			t <sub>c</sub> °C			
			15	20	22	15	20	22	15	20	22	15	20	22	15	20	22	
FLT 10-07, FLT 10-08		0	86	77	73	179	159	151	275	245	233	373	332	316	473	421	401	
	80	60	311	285	274	673	615	592	1 058	967	931	1 457	1 332	1 282	1 868	1 708	1 644	
		(90/70)	80	353	322	310	761	696	670	1 196	1 093	1 053	1 647	1 506	1 450	2 112	1 931	1 859
		100	366	335	322	791	723	696	1 242	1 135	1 093	1 711	1 564	1 506	2 194	2 006	1 931	
	70	0	70	61	58	146	127	120	225	196	184	304	265	250	386	336	317	
		60	279	251	239	603	542	518	948	852	814	1 305	1 173	1 121	1 673	1 504	1 437	
		(75/65)	80	316	284	271	682	613	586	1 071	963	920	1 476	1 326	1 267	1 892	1 700	1 624
	60	100	328	295	282	708	637	608	1 112	1 000	955	1 533	1 378	1 316	1 965	1 766	1 687	
		0	53	44	41	109	92	85	168	142	131	228	192	178	289	243	226	
		60	223	195	184	482	422	398	757	664	627	1 042	914	863	1 336	1 171	1 106	
	(65/55)	80	252	221	209	545	478	451	856	750	708	1 179	1 033	975	1 511	1 324	1 250	
		100	262	230	217	566	496	468	889	779	735	1 224	1 073	1 013	1 570	1 376	1 299	
0		37	29	26	76	61	55	117	93	84	158	126	114	200	160	145		
(55/45)	60	168	141	131	363	306	283	571	481	445	787	662	613	1 009	849	786		
	80	190	160	148	411	346	320	646	543	503	889	748	693	1 140	960	888		
	100	198	166	154	427	359	332	671	564	522	924	777	720	1 185	997	923		
FLT 10-09		0	96	85	81	198	176	168	305	272	259	413	368	350	524	467	444	
	80	60	345	316	304	746	682	657	1 174	1 073	1 033	1 616	1 477	1 422	2 072	1 894	1 823	
		(90/70)	80	391	358	344	845	772	743	1 326	1 213	1 168	1 827	1 670	1 608	2 342	2 142	2 062
		100	406	371	357	877	802	772	1 377	1 259	1 212	1 898	1 735	1 670	2 433	2 224	2 142	
	70	0	78	68	64	162	141	133	249	217	205	338	294	277	428	373	352	
		60	309	278	266	669	601	574	1 051	945	903	1 448	1 301	1 243	1 856	1 668	1 593	
		(75/65)	80	350	315	301	757	680	650	1 188	1 068	1 020	1 637	1 471	1 405	2 098	1 886	1 802
	60	100	364	327	312	786	706	674	1 234	1 109	1 059	1 700	1 528	1 460	2 180	1 959	1 871	
		0	58	49	46	121	102	95	186	157	146	252	213	197	320	270	251	
		60	247	217	204	534	468	442	840	736	695	1 156	1 013	957	1 482	1 299	1 227	
	(65/55)	80	280	245	232	604	530	500	949	832	785	1 307	1 146	1 082	1 676	1 469	1 387	
		100	291	255	240	627	550	519	986	864	816	1 358	1 190	1 124	1 741	1 526	1 441	
0		41	32	29	84	67	61	129	103	94	175	140	127	222	178	161		
(55/45)	60	186	157	145	403	339	314	634	533	494	873	734	680	1 119	941	871		
	80	211	178	165	456	384	355	716	603	558	987	830	768	1 265	1 064	985		
	100	219	185	171	473	398	369	744	626	579	1 025	862	798	1 314	1 106	1 023		
FLT 10-11		0	105	94	89	218	194	185	336	299	285	455	405	386	577	514	489	
	80	60	423	389	375	916	842	813	1 439	1 323	1 277	1 982	1 822	1 758	2 540	2 335	2 254	
		(90/70)	80	479	441	425	1 035	952	919	1 627	1 496	1 443	2 240	2 060	1 988	2 872	2 640	2 548
		100	555	510	492	1 200	1 103	1 065	1 884	1 732	1 672	2 595	2 386	2 302	3 327	3 059	2 952	
	70	0	86	75	71	178	155	146	274	239	225	372	324	305	472	411	387	
		60	384	347	332	830	751	719	1 304	1 180	1 130	1 796	1 625	1 557	2 302	2 083	1 996	
		(75/65)	80	434	393	377	938	849	813	1 474	1 334	1 278	2 030	1 837	1 760	2 603	2 355	2 256
	60	100	503	455	436	1 088	984	943	1 708	1 545	1 480	2 352	2 128	2 039	3 015	2 728	2 614	
		0	64	54	50	133	112	104	205	173	161	278	234	218	353	297	276	
		60	311	275	260	672	594	563	1 056	934	885	1 455	1 286	1 218	1 865	1 648	1 562	
	(65/55)	80	352	311	295	760	672	636	1 194	1 055	1 000	1 645	1 453	1 377	2 108	1 863	1 765	
		100	407	360	341	881	778	738	1 383	1 222	1 158	1 905	1 684	1 595	2 442	2 158	2 045	
0		45	36	32	92	74	67	142	114	103	193	154	140	245	196	177		
(55/45)	60	239	203	189	516	439	409	811	690	642	1 117	950	884	1 432	1 218	1 133		
	80	270	230	214	584	497	462	917	780	726	1 263	1 074	999	1 619	1 377	1 281		
	100	313	266	248	677	576	535	1 062	904	840	1 463	1 245	1 158	1 876	1 596	1 484		
FLT 20-09		0	126	112	107	266	237	226	411	366	349	561	500	476	713	636	606	
	80	60	666	611	589	1 358	1 245	1 200	2 058	1 888	1 820	2 765	2 536	2 445	3 477	3 189	3 074	
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	70	0	103	90	85	218	190	179	338	294	277	460	401	378	586	510	481	
		60	565	511	489	1 151	1 041	996	1 744	1 578	1 510	2 343	2 120	2 029	2 947	2 666	2 551	
		(75/65)	80	662	599	573	1 348	1 220	1 167	2 045	1 850	1 770	2 748	2 486	2 379	3 455	3 126	2 991
	60	100	708	641	613	1 442	1 305	1 249	2 188	1 980	1 895	2 940	2 660	2 545	3 697	3 345	3 201	
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		60	456	402	380	929	818	774	1 408	1 240	1 173	1 892	1 666	1 576	2 379	2 095	1 982	
	(65/55)	80	535	471	445	1 089	959	907	1 651	1 454	1 375	2 219	1 954	1 848	2 790	2 457	2 324	
		100	572	504	477	1 165	1 026	970	1 767	1 556	1 472	2 374	2 090	1 978	2 985	2 629	2 487	
0		54	43	39	114	92	83	177	142	128	241	193	175	306	246	223		
(55/45)	60	348	294	273	708	600	557	1 074	909	844	1 442	1 221	1 133	1 814	1 536	1 425		
	80	408	345	320	830	703	652	1 259	1 066	989	1 691	1 432	1 329	2 127	1 800	1 671		
	100	436	369	343	888	752	698	1 347	1 140	1 059	1 810	1 532	1 422	2 276	1 927	1 788		
FLT 20-11		0	178	158	151	375	334	318	579	516	492	788	703	670	1 002	894	852	
	80	60	682	626	603	1 389	1 274	1 228	2 106	1 932	1 862	2 830	2 596	2 502	3 559	3 264	3 147	
		(90/70)	80	823	755	728	1 677	1 538	1 483	2 543	2 333	2 249	3 417	3 134	3 021	4 296	3 940	3 799
		100	1 170	1 073	1 034	2 383	2 185	2 107	3 613	3 313	3 194	4 854	4 452	4 292	6 104	5 598	5 397	
	70	0	146	127	120	308	268	253	475	414	391	648	564	532	823	717	676	
		60	578	523	500	1 177	1 065	1 019	1 785	1 615	1 545	2 398	2 170	2 076	3 016	2 729	2 611	
		(75/65)	80	697	631	604	1 421	1 286	1 231	2 155	1 950	1 866	2 896	2 620	2 507	3 641	3 294	3 152
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		0	109	92	86	231	195	181	356	301	280	485	410	381	617	521	484	
		60	467	411	389	950	837	792	1 441	1 269	1 201	1 937	1 705	1 613	2 435	2 145	2 029	
	(65/55)	80	563	496	469	1 148	1 011	956	1 740	1 532	1 450	2 338	2 059	1 948	2 940	2 589	2 449	
		100	801	705	667	1 630	1 436	1 358	2 472	2 177	2 059	3 322	2 925	2 767	4 177	3 678	3 480	
0		76	61	55	161	129	117	249	199	181	339	272	246	431	345	313		
(55/45)	60	356	301	280	725	613	569	1 099	930	863	1 476	1 250	1 160	1 857	1 572	1 459		
	80	429	363	337	875	741	688	1 327	1 123	1 043	1 782	1 509	1 401	2 241	1 897			

2 800 mm t <sub>f</sub> °C			3 200 mm t <sub>f</sub> °C			3 600 mm *) t <sub>f</sub> °C			4 000 mm *) t <sub>f</sub> °C			4 400 mm *) t <sub>f</sub> °C		
15	20	22	15	20	22	15	20	22	15	20	22	15	20	22
573	510	486	674	600	571	777	692	658	881	784	747	985	877	835
2 288	2 092	2 014	2 715	2 483	2 390	3 151	2 881	2 773	3 592	3 284	3 162	4 039	3 693	3 555
2 588	2 366	2 278	3 072	2 808	2 704	3 564	3 259	3 137	4 063	3 714	3 576	4 569	4 177	4 021
2 686	2 456	2 364	3 189	2 916	2 807	3 701	3 383	3 257	4 219	3 857	3 714	4 743	4 337	4 175
468	408	384	551	480	452	635	553	521	719	627	591	804	701	660
2 049	1 842	1 760	2 433	2 186	2 089	2 823	2 537	2 424	3 218	2 892	2 763	3 618	3 252	3 107
2 318	2 084	1 990	2 752	2 473	2 363	3 193	2 870	2 741	3 639	3 271	3 125	4 093	3 678	3 514
2 407	2 163	2 066	2 857	2 568	2 453	3 315	2 980	2 847	3 780	3 397	3 245	4 249	3 819	3 648
350	295	274	412	347	322	474	400	371	538	453	421	601	507	471
1 637	1 435	1 355	1 943	1 703	1 608	2 255	1 976	1 866	2 570	2 253	2 127	2 890	2 533	2 391
1 852	1 623	1 532	2 198	1 926	1 819	2 550	2 235	2 110	2 907	2 548	2 405	3 269	2 865	2 705
1 922	1 685	1 591	2 282	2 000	1 888	2 648	2 321	2 191	3 019	2 646	2 498	3 394	2 975	2 809
243	194	176	286	229	207	330	264	238	374	299	270	418	334	302
1 235	1 039	962	1 466	1 234	1 142	1 702	1 432	1 325	1 940	1 632	1 511	2 181	1 835	1 699
1 397	1 176	1 088	1 659	1 396	1 292	1 925	1 619	1 499	2 194	1 846	1 709	2 467	2 076	1 921
1 451	1 221	1 130	1 722	1 449	1 341	1 998	1 682	1 557	2 278	1 917	1 775	2 561	2 155	1 995
635	566	539	748	666	634	862	767	730	977	870	828	1 092	972	926
2 537	2 320	2 233	3 012	2 754	2 651	3 495	3 195	3 076	3 984	3 643	3 507	4 480	4 096	3 943
2 870	2 624	2 526	3 407	3 115	2 999	3 953	3 614	3 480	4 506	4 120	3 966	5 067	4 633	4 460
2 980	2 724	2 623	3 537	3 234	3 113	4 105	3 753	3 613	4 680	4 279	4 119	5 261	4 810	4 631
519	452	426	611	532	501	704	613	578	798	695	655	892	777	732
2 273	2 043	1 952	2 698	2 425	2 317	3 131	2 814	2 688	3 569	3 208	3 065	4 013	3 607	3 446
2 571	2 311	2 208	3 052	2 743	2 620	3 542	3 183	3 041	4 037	3 628	3 466	4 540	4 080	3 898
2 669	2 399	2 292	3 169	2 848	2 721	3 677	3 305	3 157	4 192	3 768	3 600	4 713	4 236	4 047
388	327	304	457	385	357	526	444	412	597	503	467	667	562	522
1 816	1 591	1 502	2 155	1 889	1 783	2 501	2 192	2 069	2 851	2 499	2 359	3 206	2 809	2 653
2 054	1 800	1 699	2 438	2 136	2 017	2 829	2 479	2 341	3 224	2 826	2 668	3 626	3 178	3 000
2 132	1 868	1 764	2 531	2 218	2 094	2 937	2 574	2 430	3 349	2 935	2 771	3 765	3 299	3 115
269	216	195	317	254	230	365	292	264	414	331	300	463	370	335
1 370	1 153	1 067	1 626	1 368	1 267	1 887	1 588	1 470	2 152	1 810	1 676	2 419	2 036	1 884
1 550	1 304	1 207	1 840	1 548	1 433	2 135	1 796	1 663	2 433	2 047	1 895	2 736	2 302	2 131
1 609	1 354	1 253	1 910	1 607	1 488	2 217	1 865	1 726	2 527	2 126	1 968	2 841	2 390	2 213
700	623	593	825	734	699	950	846	805	1 076	958	912	1 203	1 071	1 019
3 112	2 861	2 761	3 695	3 397	3 278	4 287	3 941	3 803	4 887	4 493	4 336	5 495	5 052	4 875
3 517	3 234	3 120	4 176	3 839	3 705	4 845	4 455	4 299	5 524	5 079	4 901	6 211	5 710	5 511
4 074	3 746	3 615	4 838	4 448	4 292	5 612	5 160	4 979	6 399	5 883	5 677	7 195	6 615	6 384
572	498	469	674	587	553	776	676	637	880	766	722	983	856	807
2 821	2 552	2 445	3 349	3 030	2 903	3 885	3 515	3 368	4 429	4 007	3 839	4 980	4 506	4 317
3 188	2 884	2 763	3 784	3 424	3 280	4 391	3 973	3 806	5 007	4 530	4 340	5 629	5 093	4 879
3 693	3 341	3 201	4 385	3 967	3 801	5 086	4 602	4 409	5 799	5 247	5 027	6 521	5 900	5 652
427	360	335	504	425	394	580	489	454	657	554	515	735	619	575
2 285	2 019	1 913	2 713	2 397	2 271	3 147	2 781	2 635	3 587	3 170	3 004	4 034	3 565	3 378
2 582	2 282	2 162	3 065	2 709	2 567	3 557	3 143	2 978	4 056	3 584	3 396	4 560	4 029	3 818
2 991	2 643	2 505	3 552	3 138	2 974	4 120	3 641	3 450	4 697	4 151	3 933	5 282	4 668	4 423
297	237	215	350	280	253	403	322	292	457	365	330	510	408	369
1 755	1 493	1 388	2 084	1 772	1 648	2 417	2 056	1 912	2 755	2 344	2 180	3 098	2 635	2 451
1 983	1 687	1 569	2 354	2 003	1 863	2 732	2 324	2 161	3 115	2 649	2 464	3 502	2 979	2 771
2 297	1 954	1 817	2 728	2 320	2 158	3 164	2 692	2 503	3 608	3 069	2 854	4 057	3 451	3 210
867	773	736	1 023	913	869	1 181	1 053	1 004	1 342	1 197	1 140	1 503	1 340	1 277
4 193	3 846	3 708	4 912	4 505	4 343	5 634	5 168	4 982	6 358	5 831	5 622	7 084	6 498	6 264
4 916	4 508	4 346	5 759	5 282	5 093	6 606	6 059	5 841	7 455	6 837	6 592	8 307	7 619	7 345
5 260	4 824	4 651	6 162	5 652	5 449	7 068	6 482	6 249	7 975	7 315	7 052	8 887	8 151	7 858
712	620	585	840	732	690	970	845	797	1 102	960	906	1 234	1 075	1 014
3 553	3 215	3 076	4 162	3 766	3 604	4 775	4 320	4 134	5 388	4 875	4 665	6 004	5 432	5 198
4 166	3 769	3 606	4 881	4 416	4 226	5 598	5 065	4 847	6 318	5 716	5 469	7 039	6 369	6 094
4 457	4 033	3 859	5 222	4 725	4 521	5 989	5 419	5 185	6 759	6 115	5 851	7 531	6 814	6 520
533	451	419	630	532	494	727	614	571	826	698	648	925	781	726
2 869	2 526	2 390	3 361	2 959	2 800	3 855	3 395	3 212	4 351	3 831	3 625	4 848	4 269	4 039
3 364	2 962	2 802	3 941	3 470	3 283	4 520	3 980	3 766	5 101	4 492	4 250	5 684	5 005	4 735
3 599	3 169	2 999	4 217	3 713	3 513	4 836	4 258	4 029	5 457	4 805	4 546	6 081	5 355	5 066
372	299	271	440	353	319	507	407	369	576	462	419	646	518	469
2 187	1 852	1 719	2 562	2 169	2 013	2 939	2 488	2 310	3 317	2 808	2 606	3 695	3 129	2 904
2 564	2 171	2 015	3 004	2 544	2 361	3 446	2 917	2 708	3 889	3 292	3 056	4 333	3 668	3 405
2 744	2 323	2 156	3 214	2 721	2 526	3 687	3 121	2 897	4 160	3 522	3 269	4 636	3 925	3 643
1 220	1 088	1 037	1 440	1 284	1 223	1 662	1 482	1 412	1 887	1 683	1 603	2 113	1 885	1 796
4 292	3 937	3 795	5 028	4 611	4 446	5 767	5 290	5 099	6 508	5 969	5 754	7 253	6 652	6 413
5 180	4 751	4 580	6 068	5 566	5 366	6 961	6 384	6 155	7 855	7 205	6 946	8 753	8 028	7 739
7 360	6 750	6 507	8 622	7 908	7 624	9 890	9 071	8 745	11 160	10 236	9 868	12 436	11 406	10 996
1 002	873	823	1 183	1 030	972	1 365	1 189	1 122	1 550	1 350	1 273	1 736	1 512	1 426
3 637	3 291	3 149	4 261	3 855	3 689	4 887	4 422	4 231	5 515	4 990	4 775	6 146	5 561	5 321
4 390	3 972	3 801	5 143	4 653	4 452	5 899	5 337	5 107	6 657	6 023	5 763	7 417	6 711	6 422
6 237	5 643	5 400	7 307	6 611	6 326	8 381	7 583	7 256	9 458	8 557	8 188	10 539	9 535	9 124
751	635	590	886	749	696	1 023	864	803	1 161	981	912	1 301	1 099	1 021
2 937	2 586	2 447	3 440	3 029	2 866	3 946	3 475	3 288	4 453	3 921	3 710	4 963	4 370	4 135
3 545	3 121	2 953	4 153	3 657	3 459	4 763	4 194	3 968	5 375	4 733	4 478	5 989	5 274	4 990
5 036	4 435	4 196	5 900	5 195	4 915	6 767	5 959	5 638	7 637	6 724	6 362	8 509	7 493	7 089
524	421	381	618	496	450	714	573	519	811	650	589	908	728	660
2 239	1 896	1 759	2 623	2 220	2 061	3 008	2 547	2 364	3 395	2 874	2 668	3 783	3 203	2 973
2 702	2 288	2 124	3 165	2 680	2 488	3 631	3 074	2 853	4 097	3 469	3 220	4 566	3 865	3 588
3 839	3 250	3 017	4 498	3 808	3 534	5 159	4 368	4 054	5 821	4 929	4 575	6 487	5 492	

## CONVECTOR WITH TANGENTIAL FANS

### OPLFLEX FLT 21

#### APPLICATION

Universal convector for both heating and cooling of interior spaces. It is based on an adaptation of the FLT20 model. Waterproof, stainless cabinet with a condensate flow off.

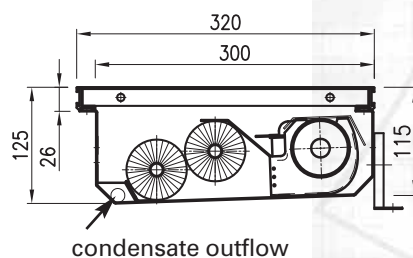
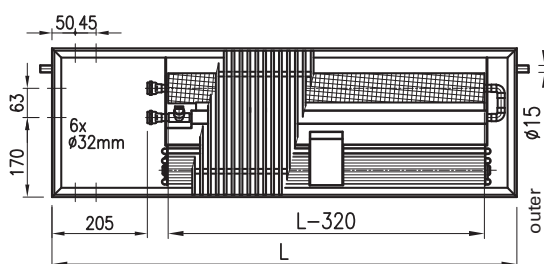
The heater combines the advantages of wire exchangers with sufficient heat requirements for heating and cooling output. The heater is not designed for gravity circulation heating. For dry conditions.



#### DIMENSIONS AND SECTIONS

CONVECTOR	width (mm)	length (mm)
height (mm)	320	in 400 mm segments
125	FLT21-12	1 000–2 200

#### FLT 21

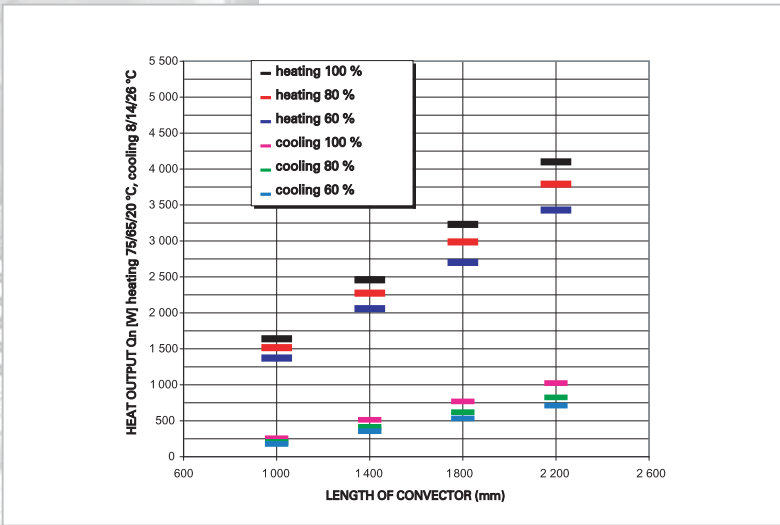


#### OPERATING CONDITIONS

- Hot (cold) water heating system with forced circulation
- Internal connecting thread G1/2"
- Maximum operating temperature of the heating medium 110 °C
- Maximum operating pressure of the heating medium 1 MPa
- Electric components with IP 20 protection, operational voltage 230 V, application in dry conditions
- The convector as a whole is constructed for ambient temperatures of + 2 up to 40 °C at relative water content 20–70 %

# FLT 21

## Performance curves of FLT convectors at 75/65/20 °C



## TECHNICAL INFORMATION

### Convector contains:

- convector cabinet made of DIN 1,4301 stainless steel of 0,8 mm gauge
- upper frame from satin anodized aluminium
- walkway grill according to customer's specifications (page 30)
- Cu-Cu wire exchanger with a ventilation valve
- tangential fan with rotor housing
- cover plate for water connection
- regulation screwing 2 pcs
- installation angle bars
- installation instructions
- electric connection diagram
- installation wood particle board
- double shipping container

## DETAILED OUTPUT TABLES \*)

Heating	t <sub>w</sub> (t1/t2)	speed (%)	dB(A)	V (m³/h)	1 000 mm						1 400 mm						1 800 mm						2 200 mm					
					t <sub>i</sub> °C			dB(A)	V (m³/h)	t <sub>i</sub> °C			dB(A)	V (m³/h)	t <sub>i</sub> °C			dB(A)	V (m³/h)	t <sub>i</sub> °C								
					15	20	22			15	20	22			15	20	22			15	20	22						
90/70 °C	60	22	140	1 830	1 676	1 615	23	210	2 746	2 514	2 422	23	280	3 606	3 302	3 182	23	350	4 577	4 191	4 038							
	80	29	190	2 023	1 852	1 784	30	285	3 034	2 778	2 677	30	380	3 985	3 649	3 516	30	470	5 057	4 631	4 461							
	100	37	235	2 188	2 004	1 930	39	350	3 282	3 006	2 896	39	480	4 311	3 948	3 803	39	590	5 471	5 010	4 826							
75/65 °C	60	22	140	1 523	1 372	1 311	23	210	2 285	2 058	1 967	23	280	3 001	2 702	2 584	23	350	3 809	3 430	3 279							
	80	29	190	1 683	1 516	1 449	30	285	2 525	2 274	2 174	30	380	3 316	2 986	2 855	30	470	4 208	3 790	3 623							
	100	35	235	1 821	1 640	1 568	39	350	2 731	2 460	2 352	39	480	3 587	3 230	3 088	39	590	4 553	4 100	3 920							
70/55 °C	60	22	140	1 221	1 073	1 014	23	210	1 832	1 610	1 521	23	280	2 407	2 114	1 998	23	350	3 054	2 683	2 536							
	80	29	190	1 350	1 186	1 121	30	285	2 025	1 779	1 681	30	380	2 659	2 336	2 208	30	470	3 375	2 965	2 802							
	100	35	235	1 460	1 283	1 212	39	350	2 190	1 924	1 819	39	480	2 877	2 527	2 389	39	590	3 651	3 207	3 031							
55/45 °C	60	22	140	926	782	725	23	210	1 390	1 173	1 087	23	280	1 825	1 541	1 428	23	350	2 317	1 955	1 812							
	80	29	190	1 024	864	801	30	285	1 536	1 296	1 201	30	380	2 017	1 702	1 578	30	470	2 560	2 160	2 003							
	100	35	235	1 107	935	866	39	350	1 661	1 402	1 300	39	480	2 182	1 842	1 707	39	590	2 769	2 337	2 167							

\*) The convectors are not considered for operation at current speed 0 (low power output)

Cooling	t <sub>w</sub> (t1/t2)	speed (%)	dB(A)	V (m³/h)	1 000 mm						1 400 mm						1 800 mm						2 200 mm					
					t <sub>i</sub> °C			dB(A)	V (m³/h)	t <sub>i</sub> °C			dB(A)	V (m³/h)	t <sub>i</sub> °C			dB(A)	V (m³/h)	t <sub>i</sub> °C								
					24	26	30			24	26	30			24	26	30			24	26	30						
6/12 °C	60	22	140	188	217	270	23	210	377	434	539	23	280	565	652	809	23	350	753	869	1 078							
	80	29	190	219	253	313	30	285	438	505	627	30	380	657	758	940	30	470	876	1 010	1 253							
	100	37	235	269	309	383	39	350	538	618	767	39	480	807	927	1 150	39	590	1 076	1 237	1 533							
8/14 °C	60	22	140	154	177	224	23	210	308	355	449	23	280	462	532	673	23	350	616	710	898							
	80	29	190	179	206	261	30	285	358	413	522	30	380	537	619	783	30	470	716	825	1 044							
	100	37	235	222	256	345	39	350	445	513	690	39	480	667	769	1 035	39	590	889	1 025	1 380							
14/18 °C	60	22	140	84	107	154	23	210	167	214	308	23	280	251	321	462	23	350	335	428	616							
	80	29	190	97	125	179	30	285	194	249	358	30	380	292	374	537	30	470	389	498	716							
	100	37	235	121	154	222	39	350	241	309	445	39	480	362	463	667	39	590	482	618	889							

### Order example (CODE)

**F L T 2 1 - 1 2 1 8 0 - N R 1 2 1**

Specifications: FLT21 convector, H=125 mm, W=320 mm, L= 1 800 mm  
Al nature frame, Al natur linear grill, separately attached regulator Z-VD001 (does not fit into the convector)

For detailed description HOW TO PLACE AN ORDER go to page 31.

### Delivered on special order:

- basic regulator Z-VD001
- flexible hoses
- thermostat and switch

### CAUTION

- the regulators ordered are shipped separately, they cannot be installed inside the convector body box
- the positioning of convector in the floor and technical advice (page 26)
- hydraulics and technical calculations (page 24, 25)

## CONVECTOR WITH TANGENTIAL FANS

### OPLFLEX FLC

#### APPLICATION

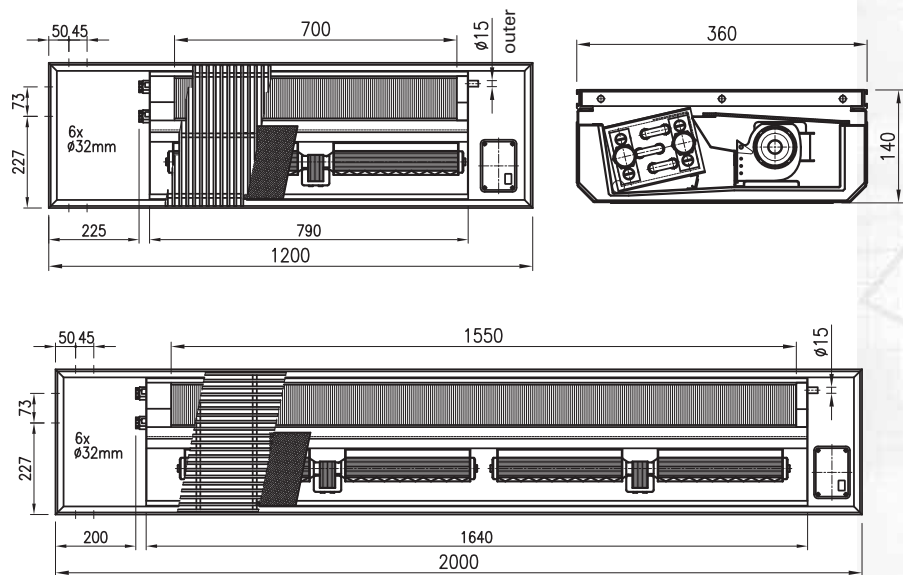
Strong convector for both heating and cooling of interior spaces with reduced noise level. A fin exchanger in four tube version for double-circuit systems can be used. Low noise level. For dry conditions.



#### DIMENSIONS AND SECTIONS

CONVECTOR	width (mm)	length (mm)
height (mm)	360	
140	FLC L0-14	1 200 and 2 000

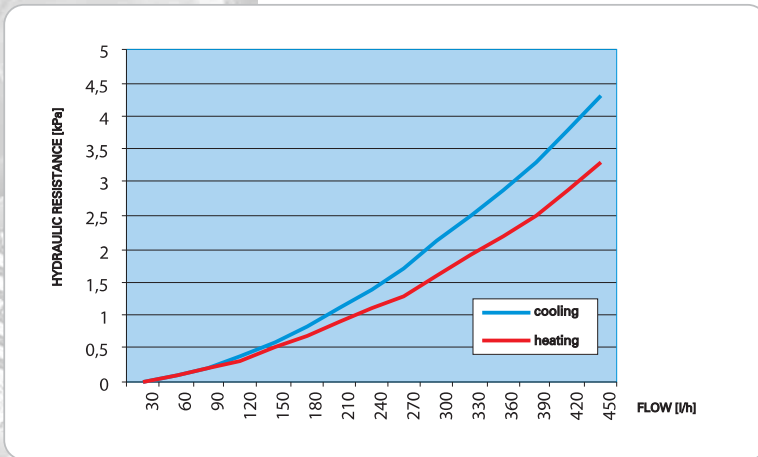
#### FLC L0-14



#### OPERATING CONDITIONS

- Hot (cold) water heating system with forced circulation
- Internal connecting thread G1/2"
- Maximum operating temperature of the heating medium 110 °C
- Maximum operating pressure of the heating medium 1 MPa
- Electric components with IP 20 protection, operational voltage 230 V, application in dry conditions
- The convector as a whole is constructed for ambient temperatures of + 2 up to 40 °C at relative water content 20–70 %

## Exchanger hydraulic resistance / medium flow Conversion graph



## DETAILED OUTPUT TABLES

Heating	t <sub>w</sub> (t1/t2)	speed (%)	dB(A)	V (m³/h)	1 200 mm				dB(A)	V (m³/h)	2 000 mm			
					t <sub>i</sub> °C						t <sub>i</sub> °C			
					15	18	20	22			15	18	20	22
90/70 °C	60	24	140	2 193	2 071	1 994	1 916	25	280	4 502	4 252	4 093	3 933	
	80	29	190	2 844	2 686	2 584	2 484	30	380	5 838	5 514	5 305	5 099	
	100	38	235	3 383	3 196	3 077	2 956	39	470	6 945	6 561	6 316	6 068	
75/65 °C	60	24	140	1 857	1 740	1 663	1 590	25	280	3 812	3 572	3 414	3 264	
	80	29	190	2 408	2 257	2 156	2 061	30	380	4 943	4 633	4 426	4 231	
	100	38	235	2 866	2 686	2 565	2 453	39	470	5 883	5 514	5 266	5 036	
70/55 °C	60	24	140	1 579	1 463	1 390	1 312	25	280	3 242	3 004	2 854	2 694	
	80	29	190	2 049	1 898	1 803	1 702	30	380	4 206	3 896	3 701	3 494	
	100	38	235	2 438	2 258	2 146	2 026	39	470	5 005	4 635	4 405	4 159	
55/45 °C	60	24	140	1 157	1 045	971	899	25	280	2 375	2 145	1 994	1 846	
	80	29	190	1 501	1 355	1 260	1 166	30	380	3 081	2 782	2 587	2 394	
	100	38	235	1 786	1 613	1 501	1 387	39	470	3 666	3 311	3 081	2 848	
50/40 °C	60	24	140	977	865	792	723	25	280	2 006	1 776	1 626	1 485	
	80	29	190	1 267	1 121	1 027	939	30	380	2 601	2 302	2 109	1 928	
	100	38	235	1 507	1 335	1 222	1 118	39	470	3 094	2 741	2 509	2 295	

Cooling	t <sub>w</sub> (t1/t2)	speed (%)	dB(A)	V (m³/h)	1 200 mm				dB(A)	V (m³/h)	2 000 mm			
					t <sub>i</sub> °C						t <sub>i</sub> °C			
					24	26	28	30			24	26	28	30
6/12 °C	60	24	140	442	600	782	969	25	280	908	1 232	1 606	1 990	
	80	29	190	574	779	1 014	1 257	30	380	1 179	1 599	2 082	2 581	
	100	38	235	684	927	1 208	1 497	39	470	1 404	1 903	2 480	3 073	
8/14 °C	60	24	140	374	442	615	807	25	280	768	908	1 263	1 657	
	80	29	190	484	574	798	1 046	30	380	994	1 179	1 638	2 148	
	100	38	235	577	684	950	1 246	39	470	1 185	1 404	1 950	2 558	
10/15 °C	60	24	140	339	403	531	723	25	280	696	828	1 090	1 485	
	80	29	190	439	523	689	938	30	380	902	1 074	1 415	1 926	
	100	38	235	524	623	820	1 117	39	470	1 076	1 279	1 684	2 293	
12/16 °C	60	24	140	300	363	428	634	25	280	616	746	879	1 302	
	80	29	190	389	472	554	823	30	380	799	969	1 138	1 690	
	100	38	235	463	562	661	980	39	470	951	1 154	1 357	2 012	
16/18 °C	60	24	140	216	285	349	413	25	280	444	585	717	848	
	80	29	190	280	369	453	535	30	380	575	758	930	1 099	
	100	38	235	334	440	539	638	39	470	686	904	1 107	1 310	

## TECHNICAL INFORMATION

### Convactor contains:

- convactor cabinet made of DIN 1,4301 stainless steel of 0,8 mm gauge
- internal unit from DIN 1,4301 stainless steel of 0,8 mm gauge with a filter
- upper frame from satin anodized aluminium
- walkway grill according to customer's specifications (page 30)
- two- four tubular fin exchanger with a ventilation valve
- tangential fan
- cover plate for water and el. cabling connection
- regulation screwing 2 pcs
- installation angle bars and aligner screws
- installation instructions
- electric connection diagram
- installation chipboard sheet
- double shipping container



### Delivered on special order:

- basic regulator Z-VD001
- thermostat and switch
- flexible hoses

### CAUTION

- the positioning of convactor in the floor (page 26) and technical advice (page 24)
- hydraulics and technical calculations (page 24, 25)

### Order example (CODE)

**F L C L O - 1 4 2 0 0 - N R 3 2 1**

Specification: FLC convactor, H=140 mm, W=360 mm, L=2000 mm, black frame, black linear grill, Z-VD001 regulation installed

Detailed description HOW TO PLACE AN ORDER go to page 31.

## CONVECTOR WITH AXIAL FANS

### OPLFLEX FLB

#### APPLICATION

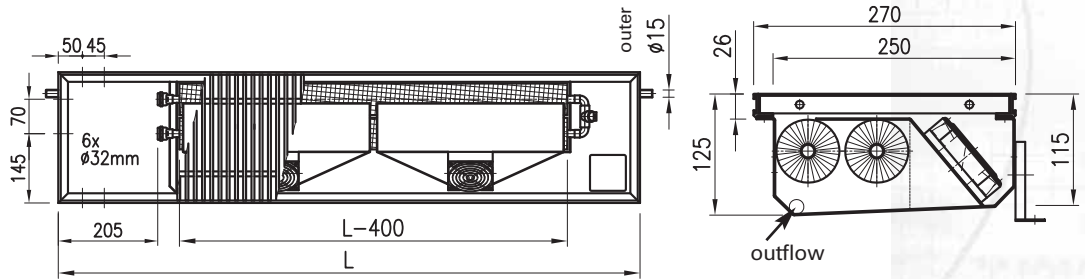
Convector for wet conditions – for pools, winter gardens. Possibility of short-term submergence, run-off draining. Material resistant to corrosive conditions.



#### DIMENSIONS AND SECTIONS

CONVECTOR	width (mm)		length (mm)	
height (mm)		270	in 40 mm segments	
125	–	FLB 20-12	–	800–4 800

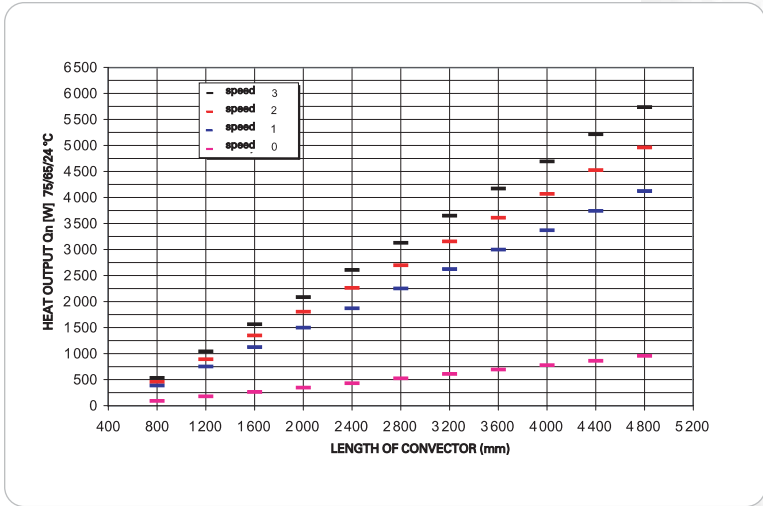
#### FLB 20-12



#### OPERATING CONDITIONS

- Hot water heating system with forced circulation
- Internal connection thread G1/2"
- Maximum operating temperature of the heating medium 110°C
- Maximum operating pressure of the heating medium 1 MPa
- Electric components with IP56 protection, operational voltage 12 V DC, application in wet conditions
- The convector as a whole is constructed for ambient temperatures of +2 up to 40 °C at relative water content 20–70 %

#### Performance curves of FLB convectors at 75/65/24 °C





## TECHNICAL INFORMATION

### Convactor contains:

- convactor cabinet made of DIN 1,4404 stainless steel of 0,8 mm gauge, resistant in corrosive conditions
- upper frame from satin anodized aluminium
- walkway grill according to customer's specifications (page 30) (with stainless steel spring)
- Cu-Cu wire exchanger with a ventilation valve
- axial fans modified for humid conditions
- output into 12 V DC terminal box
- cover plate for water and el. cabling connection
- regulation screwing 2 pcs
- installation angle bars
- electric connection diagram
- installation chipboard sheet
- double shipping container

## DETAILED OUTPUT TABLES

length (mm)	$t_w$ (t1 / t2)	speed	800 $t_f$ °C			1 200 $t_f$ °C			1 600 $t_f$ °C			2 000 $t_f$ °C			2 400 $t_f$ °C			2 800 $t_f$ °C		
			20	24	28	20	24	28	20	24	28	20	24	28	20	24	28	20	24	28
			FLB 20-12	80 (90/70)	0	129	120	111	252	234	217	370	344	319	488	454	421	606	564	523
1	519	484			448	1 013	944	875	1 514	1 411	1 308	2 015	1 878	1 741	2 516	2 345	2 174	3 028	2 822	2 617
2	615	573			531	1 200	1 118	1 037	1 814	1 690	1 567	2 428	2 263	2 098	3 042	2 835	2 629	3 628	3 381	3 135
70 (75/65)	3	718		670	621	1 402	1 306	1 211	2 103	1 960	1 817	2 804	2 613	2 423	3 505	3 267	3 029	4 206	3 920	3 635
	0	100		91	83	195	179	163	286	262	239	378	347	316	469	430	392	572	525	478
	1	420		386	352	820	753	686	1 226	1 126	1 026	1 632	1 499	1 366	2 038	1 871	1 706	2 452	2 252	2 052
60 (65/55)	2	498		457	417	972	892	813	1 469	1 349	1 229	1 966	1 805	1 645	2 464	2 263	2 062	2 938	2 698	2 459
	3	582		534	487	1 135	1 042	950	1 703	1 564	1 425	2 271	2 086	1 901	2 839	2 607	2 376	3 406	3 128	2 851
	0	79		71	63	155	139	123	227	204	181	301	270	239	373	335	297	455	409	362
50 (55/45)	1	334		300	266	653	586	520	976	877	778	1 300	1 167	1 035	1 623	1 458	1 293	1 953	1 754	1 556
	2	397		356	316	774	695	616	1 170	1 051	932	1 566	1 406	1 247	1 962	1 763	1 563	2 340	2 102	1 864
	3	463		416	369	904	812	720	1 356	1 218	1 080	1 809	1 624	1 441	2 261	2 031	1 801	2 713	2 437	2 161
50 (55/45)	0	48	42	35	95	82	69	139	120	101	183	158	133	227	196	165	278	240	202	
	1	232	200	169	453	391	330	677	585	493	901	778	656	1 125	972	820	1 354	1 170	987	
	2	274	237	200	536	463	390	811	701	591	1 085	938	791	1 360	1 175	991	1 621	1 401	1 182	
	3	321	277	234	627	541	457	940	812	685	1 253	1 082	913	1 567	1 354	1 142	1 880	1 624	1 370	

length (mm)	$t_w$ (t1 / t2)	speed	3 200 $t_f$ °C			3 600 $t_f$ °C			4 000 $t_f$ °C			4 400 $t_f$ °C			4 800 $t_f$ °C		
			20	24	28	20	24	28	20	24	28	20	24	28	20	24	28
FLB 20-12	80 (90/70)	0	858	799	741	976	909	843	1 094	1 019	945	1 212	1 129	1 047	1 346	1 254	1 163
		1	3 529	3 289	3 050	4 030	3 756	3 483	4 531	4 223	3 916	5 032	4 690	4 349	5 544	5 167	4 791
		2	4 242	3 954	3 666	4 856	4 526	4 197	5 470	5 098	4 727	6 084	5 670	5 258	6 670	6 217	5 764
	70 (75/65)	3	4 907	4 573	4 241	5 608	5 227	4 847	6 309	5 880	5 452	7 010	6 534	6 058	7 711	7 187	6 664
		0	664	609	555	756	694	632	847	778	709	938	861	785	1 041	956	871
		1	2 858	2 625	2 392	3 264	2 998	2 732	3 670	3 371	3 072	4 076	3 743	3 412	4 490	4 124	3 759
	60 (65/55)	2	3 436	3 156	2 876	3 932	3 611	3 291	4 430	4 069	3 708	4 928	4 526	4 125	5 402	4 961	4 522
		3	3 974	3 650	3 327	4 542	4 172	3 802	5 110	4 693	4 278	5 678	5 215	4 753	6 245	5 736	5 228
		0	528	475	421	602	540	479	674	606	537	747	671	595	829	744	660
	50 (55/45)	1	2 276	2 044	1 813	2 600	2 335	2 071	2 923	2 625	2 328	3 247	2 916	2 586	3 576	3 212	2 849
		2	2 737	2 458	2 180	3 132	2 813	2 495	3 529	3 169	2 811	3 925	3 526	3 127	4 303	3 865	3 428
		3	3 165	2 843	2 521	3 618	3 249	2 882	4 070	3 656	3 242	4 523	4 062	3 603	4 974	4 468	3 963
50 (55/45)	0	322	278	234	366	316	266	410	354	298	454	392	330	505	436	368	
	1	1 578	1 363	1 150	1 802	1 557	1 313	2 026	1 751	1 477	2 250	1 944	1 640	2 479	2 142	1 807	
	2	1 896	1 638	1 382	2 170	1 875	1 582	2 445	2 113	1 782	2 719	2 350	1 983	2 981	2 576	2 173	
	3	2 194	1 896	1 599	2 506	2 165	1 826	2 820	2 437	2 055	3 134	2 708	2 284	3 447	2 979	2 512	

### Order example (CODE)

**F L B 2 0 - 1 2 3 6 0 - N R 1 1 1**

Specifications: FLB convactor, H=125 mm, W=270 mm, L= 3600 mm, Al natur frame, Al natur roll-up grill, separately attached regulator RB25 (does not fit into the convactor)

For detailed description HOW TO PLACE AN ORDER go to page 31.

Delivered on special order: ■ three-step RB25 control to order ■ flexible hoses

### CAUTION

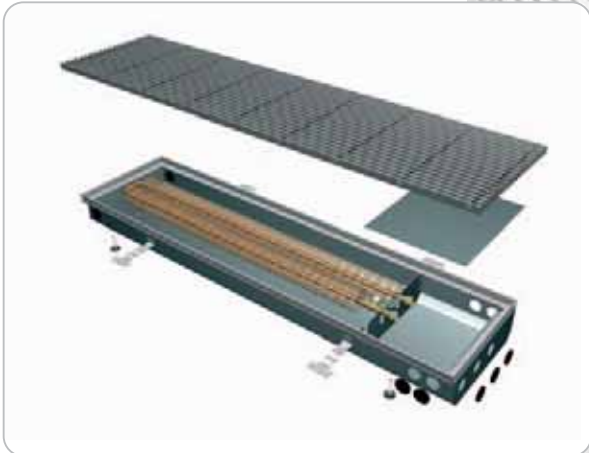
- the regulator RB25 must be placed outside the convactor heater
- is not recommended to use wood grill
- plastic grill only by special order, width of convactor with plastic grill 258 mm
- the positioning of convactor in the floor and technical advice (page 26)
- hydraulics nad technical calculations (page 24, 25)

## CONVECTOR WITH NATURAL CONVECTION

### OPLFLEX FLK

#### APPLICATION

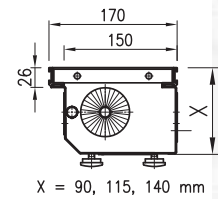
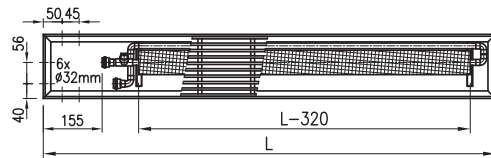
Background heater for moderate heating near window areas. Application in combination with other forms of heating. Lower outputs due to the convector depth. Possibility to adjust the convector for submergence with downflow bottom and draining.



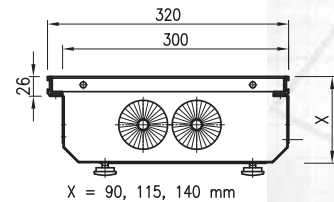
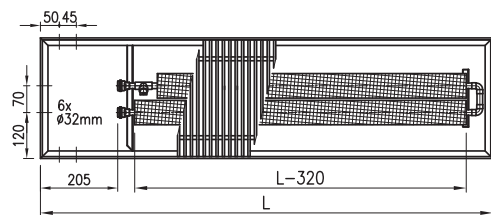
#### DIMENSIONS AND SECTIONS

CONVECTION	width (mm)				length (mm)
height (mm)	170	320	360	420	in 40 mm segments
90	FLK 10-09	FLK 20-09	FLK 30-09	FLK 40-09	800–4 800
115	FLK 10-11	FLK 20-11	FLK 30-11	FLK 40-11	
140	FLK 10-14	FLK 20-14	FLK 30-14	FLK 40-14	

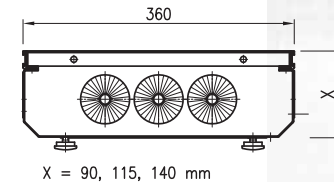
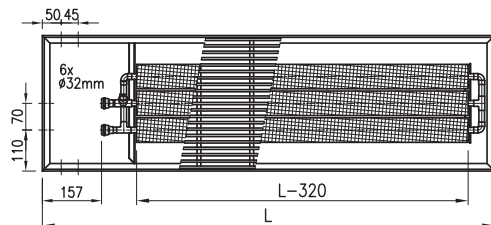
- FLK 10-09
- FLK 10-11
- FLK 10-14



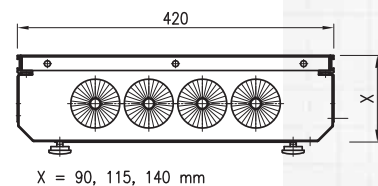
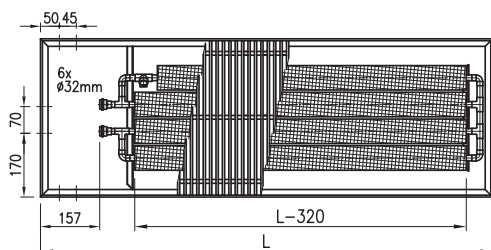
- FLK 20-09
- FLK 20-11
- FLK 20-14



- FLK 30-09
- FLK 30-11
- FLK 30-14



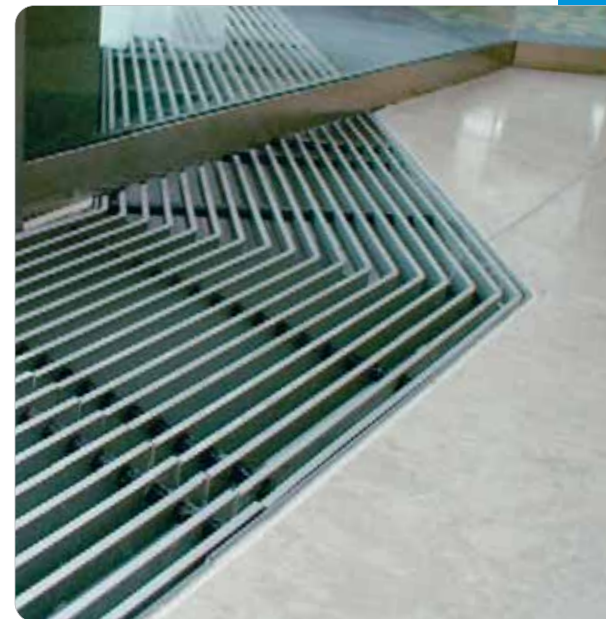
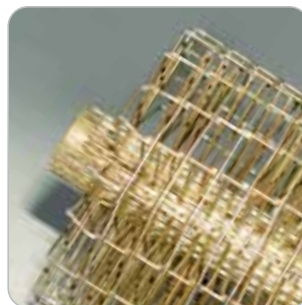
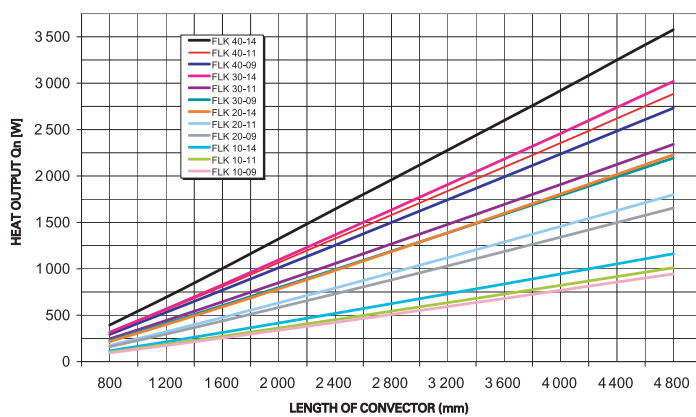
- FLK 40-09
- FLK 40-11
- FLK 40-14



### OPERATING CONDITIONS

- hot water heating system with forced circulation
- internal connecting thread G1/2"
- maximum operating temperature of the heating medium 110 °C
- maximum operating pressure of the heating medium 1 MPa
- the convector as a whole is constructed for ambient temperatures of +2 up to 40 °C at relative water content 20–70 %

### Performance curves of FLK convectors at 75/65/20 °C



### TECHNICAL INFORMATION

#### Convector contains:

- convector cabinet made of DIN 1,4301 stainless steel of 0,8 mm gauge
- upper frame from satin anodized aluminium
- walkway grill according to customer's specifications (page 30)
- Cu-Cu wire exchanger with a ventilation valve
- cover plate for water connection
- regulation screwing 2 pcs
- aligner screws
- installation instructions
- installation chipboard sheet
- double shipping container

### Order example (CODE)

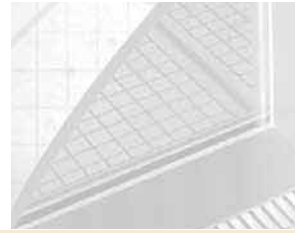
**F L K 2 0 - 1 1 1 6 0 - N R 6 1 0**

**Specifications:** FLK convector, H = 115 mm, W = 320 mm, L = 1 600 mm, Al natur frame, natural beech – wooden grill, without regulation (not possible)

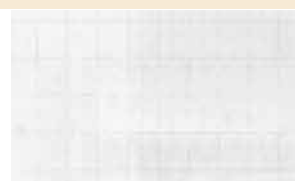
For detailed description HOW TO PLACE AN ORDER go to page 31.

### CAUTION

- the regulation head for FLK 10 types must be placed outside the convector owing to the dimension
- the positioning of convector in the floor (page 26)
- exchanger hydraulics (page 25)
- technical calculations (page 24)



	m 1,45 t <sub>w</sub> (t1 / t2)	800 mm t <sub>i</sub> °C			1 200 mm t <sub>i</sub> °C			1 600 mm t <sub>i</sub> °C			2 000 mm t <sub>i</sub> °C			2 400 mm t <sub>i</sub> °C		
		15	20	22	15	20	22	15	20	22	15	20	22	15	20	22
		FLK 10-09	80 (90/70)	129	118	113	237	214	205	351	316	302	467	419	400	584
70 (75/65)	105	95	90	195	173	164	289	255	241	384	338	319	481	422	399	
60 (65/55)	78	68	65	145	125	117	215	184	172	287	244	228	359	305	284	
50 (55/45)	53	45	41	98	81	74	147	120	109	196	159	144	246	199	181	
FLK 10-11	80 (90/70)	137	126	121	254	230	220	376	338	323	499	448	427	625	560	534
70 (75/65)	113	102	97	210	186	176	309	273	258	412	362	342	515	452	427	
60 (65/55)	83	73	69	156	134	125	230	197	184	307	261	244	384	326	304	
50 (55/45)	57	48	44	107	88	80	158	129	117	211	171	155	263	213	193	
FLK 10-14	80 (90/70)	158	144	139	292	264	253	432	388	371	574	515	492	719	644	614
70 (75/65)	130	117	112	241	213	203	356	313	297	473	416	393	592	519	491	
60 (65/55)	96	84	79	179	154	144	265	226	211	353	300	280	442	375	350	
50 (55/45)	65	55	51	123	101	92	182	148	135	242	196	179	303	244	222	
FLK 20-09	80 (90/70)	217	199	191	404	366	350	600	541	517	802	721	689	1 005	902	861
70 (75/65)	178	161	154	333	296	281	496	438	415	662	583	552	831	730	690	
60 (65/55)	132	115	109	247	213	200	369	316	295	493	421	393	619	527	492	
50 (55/45)	90	76	70	170	140	128	255	208	190	341	277	252	428	347	315	
FLK 20-11	80 (90/70)	234	215	207	440	398	381	652	587	561	871	783	748	1 092	980	936
70 (75/65)	193	174	166	363	322	306	538	475	450	719	633	599	902	793	750	
60 (65/55)	143	126	119	270	233	218	401	344	321	536	458	428	673	574	535	
50 (55/45)	99	84	77	187	154	141	278	227	207	372	303	276	467	379	345	
FLK 20-14	80 (90/70)	291	266	256	545	493	473	808	727	696	1 080	970	927	1 354	1 215	1 160
70 (75/65)	239	215	206	450	399	379	667	589	558	892	784	743	1 119	983	930	
60 (65/55)	178	156	148	335	289	271	498	426	399	665	568	530	835	711	664	
50 (55/45)	123	104	96	231	190	175	344	281	257	462	375	342	579	469	428	
FLK 30-09	80 (90/70)	308	282	271	565	511	489	829	747	714	1 097	986	942	1 368	1 227	1 171
70 (75/65)	252	227	217	465	413	392	684	604	572	905	797	754	1 129	992	938	
60 (65/55)	187	164	155	346	298	280	510	437	408	675	576	538	842	717	669	
50 (55/45)	140	118	109	256	211	193	376	307	280	499	406	370	624	506	460	
FLK 30-11	80 (90/70)	333	305	293	603	546	523	883	795	760	1 171	1 052	1 005	1 461	1 311	1 252
70 (75/65)	274	246	235	497	441	419	727	642	608	966	850	804	1 206	1 060	1 002	
60 (65/55)	204	178	170	371	320	302	543	465	438	721	615	579	901	767	722	
50 (55/45)	140	118	109	256	211	193	376	307	280	499	406	370	624	506	460	
FLK 30-14	80 (90/70)	430	393	378	779	704	675	1 139	1 025	981	1 511	1 357	1 297	1 885	1 691	1 615
70 (75/65)	353	317	303	641	568	540	938	828	785	1 246	1 096	1 038	1 556	1 367	1 293	
60 (65/55)	263	230	219	479	412	390	701	600	566	930	794	748	1 162	990	931	
50 (55/45)	181	152	141	331	272	249	485	396	361	644	523	477	805	652	594	
FLK 40-09	80 (90/70)	399	365	351	725	656	628	1 058	953	911	1 392	1 251	1 195	1 730	1 552	1 482
70 (75/65)	326	293	280	598	530	503	873	770	729	1 149	1 011	957	1 427	1 254	1 186	
60 (65/55)	243	212	200	446	384	360	651	557	521	857	732	683	1 066	908	847	
50 (55/45)	190	160	148	342	282	258	497	406	371	658	535	488	820	665	605	
FLK 40-11	80 (90/70)	432	395	380	767	694	665	1 114	1 003	959	1 470	1 321	1 262	1 830	1 642	1 568
70 (75/65)	354	318	303	631	560	532	917	809	766	1 213	1 067	1 010	1 510	1 327	1 255	
60 (65/55)	264	231	221	472	406	386	685	586	555	906	773	731	1 128	961	909	
50 (55/45)	181	152	140	326	268	245	474	387	353	626	509	464	781	633	576	
FLK 40-14	80 (90/70)	536	489	471	952	860	824	1 381	1 243	1 189	1 823	1 638	1 565	2 270	2 036	1 944
70 (75/65)	439	394	376	783	694	659	1 137	1 003	950	1 504	1 323	1 252	1 873	1 645	1 556	
60 (65/55)	328	287	274	585	504	478	849	727	689	1 123	959	907	1 399	1 192	1 127	
50 (55/45)	225	188	174	404	332	304	588	479	438	777	631	575	968	784	714	



2 800 mm t <sub>i</sub> °C			3 200 mm t <sub>i</sub> °C			3 600 mm t <sub>i</sub> °C			4 000 mm t <sub>i</sub> °C			4 400 mm t <sub>i</sub> °C			4 800 mm t <sub>i</sub> °C		
15	20	22	15	20	22	15	20	22	15	20	22	15	20	22	15	20	22
704	630	601	823	736	701	944	844	804	1 065	952	907	1 190	1 063	1 013	1 312	1 172	1 117
580	508	480	678	594	561	778	681	643	878	768	725	980	857	809	1 081	945	891
433	367	342	506	429	400	581	492	458	656	555	517	732	620	576	808	683	635
297	240	218	347	280	254	398	321	291	451	363	329	503	405	367	555	446	404
752	673	642	880	787	750	1 009	902	860	1 140	1 019	971	1 271	1 135	1 081	1 403	1 253	1 194
619	543	513	725	635	599	832	728	687	940	822	776	1 048	916	864	1 157	1 011	954
462	392	365	541	459	427	621	526	489	701	594	553	782	662	616	864	731	679
317	256	232	372	300	272	427	344	312	482	388	352	538	433	392	594	478	433
865	773	738	1 012	905	863	1 160	1 037	989	1 311	1 171	1 117	1 461	1 305	1 244	1 614	1 440	1 373
712	624	590	834	730	689	957	837	790	1 081	945	892	1 205	1 053	994	1 330	1 162	1 097
531	451	420	622	527	491	714	605	563	807	683	635	900	761	708	993	840	781
364	294	267	428	345	313	491	395	359	554	446	404	619	497	451	684	549	498
1 214	1 088	1 038	1 425	1 276	1 217	1 638	1 466	1 398	1 852	1 657	1 580	2 069	1 851	1 765	2 288	2 046	1 951
1 002	880	832	1 177	1 032	975	1 353	1 186	1 120	1 531	1 341	1 267	1 711	1 498	1 415	1 891	1 655	1 563
748	636	593	878	746	695	1 010	857	798	1 142	969	903	1 277	1 083	1 008	1 411	1 197	1 114
518	419	381	609	492	447	700	565	513	792	639	580	885	714	648	979	789	716
1 319	1 182	1 128	1 547	1 386	1 322	1 778	1 592	1 519	2 013	1 801	1 718	2 248	2 011	1 918	2 486	2 223	2 120
1 089	956	904	1 278	1 121	1 059	1 470	1 288	1 217	1 663	1 457	1 376	1 858	1 627	1 537	2 054	1 798	1 698
813	692	645	954	811	756	1 097	932	868	1 242	1 054	982	1 388	1 177	1 096	1 534	1 301	1 211
564	457	415	663	536	487	762	616	560	862	696	632	963	777	705	1 065	859	780
1 635	1 465	1 399	1 919	1 718	1 640	2 205	1 974	1 883	2 496	2 233	2 130	2 788	2 493	2 378	3 083	2 756	2 629
1 351	1 185	1 121	1 585	1 390	1 314	1 822	1 597	1 509	2 063	1 806	1 707	2 304	2 017	1 905	2 547	2 229	2 105
1 008	858	800	1 183	1 006	937	1 361	1 156	1 076	1 540	1 307	1 217	1 721	1 460	1 359	1 902	1 613	1 502
700	566	515	822	664	604	946	763	694	1 069	863	784	1 194	963	875	1 321	1 065	967
1 642	1 472	1 405	1 916	1 716	1 637	2 194	1 964	1 874	2 472	2 212	2 110	2 752	2 462	2 348	3 031	2 711	2 585
1 356	1 190	1 125	1 583	1 388	1 312	1 812	1 588	1 500	2 042	1 789	1 690	2 274	1 991	1 880	2 505	2 193	2 071
1 012	861	802	1 181	1 004	935	1 353	1 149	1 070	1 525	1 294	1 205	1 698	1 440	1 341	1 871	1 586	1 477
749	606	551	876	708	643	1 000	808	734	1 129	911	827	1 258	1 015	922	1 387	1 118	1 015
1 749	1 568	1 497	2 045	1 832	1 748	2 336	2 091	1 995	2 635	2 358	2 249	2 936	2 626	2 504	3 237	2 895	2 761
1 445	1 268	1 199	1 689	1 481	1 400	1 930	1 691	1 598	2 177	1 907	1 801	2 426	2 124	2 006	2 674	2 341	2 211
1 079	918	863	1 261	1 072	1 007	1 441	1 224	1 150	1 626	1 380	1 296	1 812	1 537	1 444	1 998	1 694	1 591
749	606	551	876	708	643	1 000	808	734	1 129	911	827	1 258	1 015	922	1 387	1 118	1 015
2 257	2 022	1 931	2 639	2 363	2 255	3 013	2 697	2 573	3 400	3 041	2 902	3 787	3 387	3 231	4 176	3 734	3 561
1 864	1 635	1 546	2 179	1 910	1 806	2 489	2 181	2 061	2 809	2 460	2 324	3 129	2 739	2 588	3 450	3 019	2 852
1 392	1 184	1 113	1 627	1 383	1 300	1 859	1 579	1 483	2 098	1 781	1 672	2 338	1 983	1 862	2 577	2 186	2 052
966	781	711	1 130	913	830	1 291	1 042	947	1 456	1 175	1 067	1 623	1 309	1 189	1 789	1 442	1 309
2 071	1 856	1 772	2 407	2 156	2 057	2 750	2 462	2 349	3 092	2 767	2 639	3 435	3 073	2 931	3 775	3 376	3 220
1 709	1 500	1 418	1 989	1 744	1 648	2 271	1 990	1 880	2 554	2 237	2 113	2 837	2 484	2 346	3 120	2 731	2 579
1 276	1 086	1 012	1 485	1 262	1 176	1 696	1 440	1 342	1 907	1 619	1 508	2 119	1 798	1 674	2 330	1 976	1 840
979	793	721	1 143	924	840	1 301	1 051	955	1 466	1 183	1 075	1 631	1 316	1 195	1 795	1 447	1 314
2 180	1 954	1 865	2 543	2 278	2 174	2 893	2 590	2 471	3 258	2 915	2 781	3 623	3 241	3 091	3 989	3 567	3 402
1 800	1 580	1 494	2 100	1 841	1 740	2 389	2 094	1 979	2 691	2 357	2 227	2 993	2 621	2 476	3 295	2 884	2 724
1 345	1 144	1 081	1 569	1 333	1 259	1 785	1 516	1 432	2 010	1 706	1 611	2 237	1 897	1 791	2 462	2 088	1 971
933	755	687	1 089	880	800	1 238	1 000	909	1 395	1 126	1 023	1 554	1 253	1 138	1 708	1 377	1 250
2 704	2 422	2 313	3 154	2 824	2 696	3 588	3 211	3 064	4 040	3 614	3 448	4 493	4 018	3 833	4 946	4 423	4 218
2 233	1 959	1 852	2 604	2 282	2 158	2 963	2 596	2 454	3 337	2 922	2 761	3 712	3 250	3 070	4 086	3 576	3 378
1 668	1 419	1 341	1 945	1 653	1 561	2 214	1 880	1 775	2 493	2 116	1 998	2 773	2 353	2 221	3 053	2 589	2 444
1 157	936	851	1 350	1 091	992	1 536	1 240	1 127	1 730	1 396	1 268	1 927	1 553	1 411	2 118	1 707	1 550

## CONVECTOR WITH NATURAL CONVECTION

### OPLFLEX FLK CANAL

#### APPLICATION

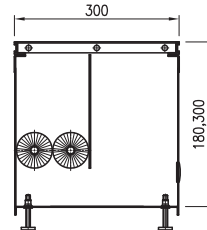
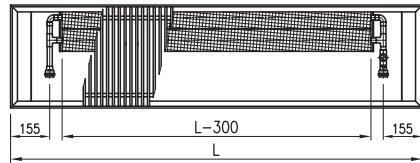
Convector without fan, higher heat outputs – owing to the stack effect. Application also as a main heater. For an under-the-windows version see the variant "A". For an in-a-centre-of-a-room version see the variant "B"



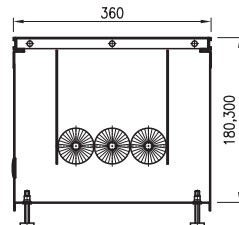
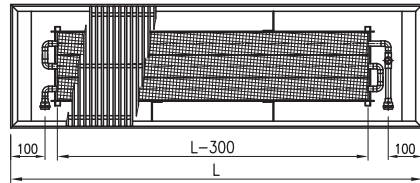
#### DIMENSIONS AND SECTIONS

CONVECTION	width (mm)		length (mm)
height (mm)	300	360	in 400 mm segments
180 mm	FLK 20-18	FLK 30-18	800–4 800
300 mm	FLK 20-30	FLK 30-30	

**FLK 20-18**  
**FLK 20-30**

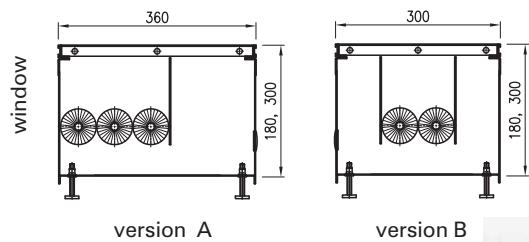


**FLK 30-18**  
**FLK 30-30**

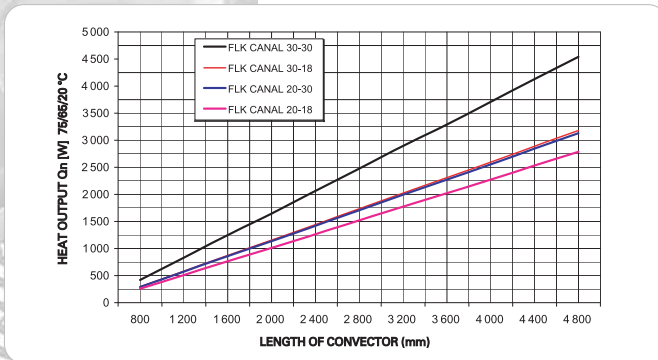


#### OPERATING CONDITIONS

- Hot water heating system with forced circulation
- Internal connecting thread G1/2"
- Maximum operating temperature of the heating medium 110 °C
- Maximum operating pressure of the heating medium 1 MPa
- The convection heater as a whole is constructed for ambient temperatures of + 2 up to 40 °C at relative water content 20–70 %



## Performance curves of FLK CANAL convection heaters at 75/65/20 °C



## TECHNICAL INFORMATION

### Convector contains:

- convection heater cabinet made of DIN 1,4301 stainless steel of 0,8 mm gauge
- upper frame from satin anodized aluminium
- walkway grill according to customer's specifications (page 30)
- Cu-Cu wire exchanger with a ventilation valve
- regulation screwing 2 pcs
- aligner screws
- installation instructions
- installation chipboard sheet
- double shipping container

## DETAILED OUTPUT TABLES

	$t_w (t1/t2)$	800 $t_f$ °C			1 200 $t_f$ °C			1 600 $t_f$ °C			2 000 $t_f$ °C			2 400 $t_f$ °C			2 800 $t_f$ °C		
		15	20	22	15	20	22	15	20	22	15	20	22	15	20	22	15	20	22
FLK 20-18	80 (90/70)	374	333	318	741	661	630	1 115	995	948	1 467	1 309	1 247	1 841	1 643	1 565	2 208	1 970	1 877
	70 (75/65)	295	257	243	584	510	481	879	767	724	1 156	1 009	952	1 451	1 267	1 195	1 740	1 519	1 433
	60 (65/55)	221	187	174	438	371	345	660	558	519	869	734	683	1 090	922	857	1 308	1 106	1 028
	50 (55/45)	154	124	112	306	246	223	461	370	336	607	487	442	762	612	554	914	734	665
FLK 20-30	80 (90/70)	428	379	361	847	752	715	1 275	1 132	1 076	1 678	1 489	1 415	2 106	1 869	1 777	2 525	2 241	2 130
	70 (75/65)	333	289	272	656	573	540	987	862	813	1 299	1 134	1 070	1 630	1 423	1 343	1 955	1 707	1 611
	60 (65/55)	247	207	192	489	410	380	736	618	572	969	813	753	1 216	1 020	945	1 459	1 223	1 133
	50 (55/45)	169	135	121	336	267	241	506	402	362	666	529	477	836	664	599	1 002	796	718
FLK 30-18	80 (90/70)	427	381	363	845	754	718	1 272	1 135	1 082	1 674	1 494	1 423	2 101	1 875	1 786	2 520	2 248	2 142
	70 (75/65)	336	293	277	666	582	549	1 003	875	826	1 319	1 152	1 087	1 656	1 446	1 364	1 986	1 734	1 636
	60 (65/55)	252	213	198	500	423	393	753	637	592	991	838	779	1 244	1 052	978	1 492	1 262	1 173
	50 (55/45)	176	142	128	350	281	254	527	423	383	693	556	504	870	698	633	1 043	837	759
FLK 30-30	80 (90/70)	620	550	523	1 229	1 090	1 037	1 850	1 641	1 560	2 434	2 159	2 053	3 054	2 710	2 577	3 663	3 250	3 090
	70 (75/65)	483	419	394	951	831	784	1 432	1 250	1 180	1 884	1 645	1 552	2 365	2 065	1 948	2 836	2 476	2 336
	60 (65/55)	358	300	278	710	595	551	1 068	896	830	1 405	1 179	1 092	1 764	1 480	1 371	2 116	1 774	1 644
	50 (55/45)	246	195	176	487	387	349	734	583	526	966	767	692	1 212	963	869	1 454	1 155	1 042
	$t_w (t1/t2)$	3 200 $t_f$ °C			3 600 $t_f$ °C			4 000 $t_f$ °C			4 400 $t_f$ °C			4 800 $t_f$ °C					
		15	20	22	15	20	22	15	20	22	15	20	22	15	20	22			
FLK 20-18	80 (90/70)	2 582	2 304	2 195	2 934	2 618	2 494	3 308	2 952	2 813	3 683	3 286	3 131	4 049	3 613	3 443			
	70 (75/65)	2 035	1 777	1 676	2 313	2 019	1 905	2 608	2 277	2 148	2 903	2 534	2 391	3 192	2 787	2 629			
	60 (65/55)	1 529	1 293	1 202	1 738	1 469	1 366	1 959	1 657	1 540	2 181	1 844	1 714	2 398	2 028	1 885			
	50 (55/45)	1 069	858	778	1 215	975	884	1 370	1 100	997	1 525	1 224	1 109	1 677	1 346	1 220			
FLK 20-30	80 (90/70)	2 954	2 621	2 492	3 356	2 978	2 831	3 784	3 358	3 192	4 212	3 738	3 554	4 632	4 110	3 907			
	70 (75/65)	2 287	1 996	1 884	2 598	2 269	2 140	2 930	2 558	2 413	3 261	2 847	2 687	3 586	3 131	2 954			
	60 (65/55)	1 706	1 431	1 325	1 938	1 626	1 506	2 186	1 833	1 698	2 433	2 041	1 890	2 675	2 244	2 079			
	50 (55/45)	1 172	931	840	1 332	1 058	955	1 502	1 193	1 076	1 672	1 328	1 198	1 838	1 460	1 318			
FLK 30-18	80 (90/70)	2 947	2 629	2 505	3 348	2 988	2 847	3 775	3 369	3 210	4 203	3 750	3 573	4 621	4 123	3 929			
	70 (75/65)	2 323	2 028	1 913	2 639	2 304	2 174	2 976	2 598	2 451	3 313	2 892	2 729	3 643	3 180	3 001			
	60 (65/55)	1 745	1 476	1 372	1 983	1 677	1 559	2 236	1 891	1 757	2 489	2 105	1 956	2 737	2 314	2 151			
	50 (55/45)	1 220	979	888	1 386	1 113	1 009	1 563	1 255	1 137	1 740	1 397	1 266	1 913	1 536	1 392			
FLK 30-30	80 (90/70)	4 284	3 801	3 614	4 868	4 319	4 106	5 488	4 870	4 630	6 109	5 421	5 154	6 718	5 961	5 667			
	70 (75/65)	3 317	2 896	2 732	3 769	3 290	3 104	4 249	3 710	3 500	4 730	4 130	3 896	5 201	4 541	4 284			
	60 (65/55)	2 474	2 075	1 922	2 811	2 358	2 184	3 170	2 659	2 463	3 529	2 960	2 742	3 880	3 255	3 015			
	50 (55/45)	1 700	1 351	1 218	1 932	1 535	1 385	2 178	1 731	1 561	2 425	1 926	1 738	2 666	2 118	1 911			

### Order example (CODE)

**F L K 2 0 - 3 0 1 2 0 - N R 6 2 0**

Specifications:  
FLK CANAL convector,

H = 300 mm, W = 300 mm, L = 1 200 mm, bronze frame, stained beech – wooden grill, without regulation (not possible). Detailed description HOW TO PLACE AN ORDER go to page 31.

### CAUTION

- the positioning of convector in the floor (page 26)
- exchanger hydraulics (page 25)
- technical calculations (page 24)

## Atypical convectors

We deliver **arched, broken-line and curved** convectors to fit the architectural design of buildings and customer requirements. A large variety of shapes and arrangements of floor convectors can be delivered. It is important to specify in the customer order the dimensions and a detailed and accurate measurement of the actual shape.

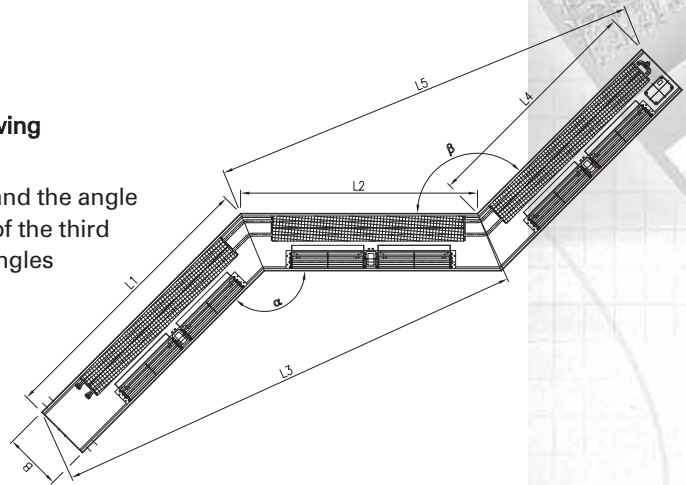
The measurement of the convector, performed by the customer or by an ISAN Radiatory specialist, must be carried out on site on the actual structure (not based on

the design). The level of completeness of the structure required for the measurement is as follows: final shape of the wall along which the convection heater is to be installed, windows mounted, access to the measuring area (scaffolding dismantled, etc.). The technical documentation developed for the convection heaters previously measured is discussed and approved by the customer and technical details are agreed (water connection side, power connection). Following that, the manufacturing of the floor convector starts.

### Broken-line shape convectors

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

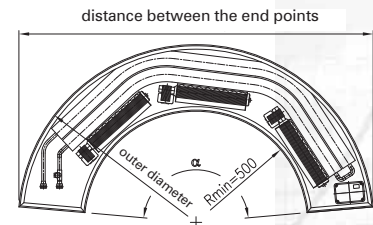
- lengths of the heater edges (window-side edges) and the angle formed by the edges (calculated using the length of the third leg of the triangle formed by the two edges), the angles  $\alpha$  and  $\beta$  are used for verification only
- width (type) of the convection heater
- a sketch of the convection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



### Arched convectors

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

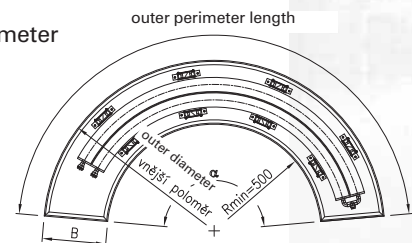
- outer (inner) diameter of the arc and a total angle formed by the arc sector calculated using the distance of the end points and the diameter (for gentle-curved arcs) or the angle  $\alpha$  (for arcs forming an angle larger than  $120^\circ$ )
- width (type) of the convection heater
- a sketch of the convection heater



or

- 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 convector 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 recommended that the measurements are performed by ISAN Radiatory specialists.

The convector heaters are delivered within individually agreed deadlines, usually in 15 to 20 working days.

## Construction possibilities of the OPLFLEX series

OPLFLEX FLT		Possibility to place regulation transformer into convector	Type of regulator (Data in bracket – see the note)	Possibility to place the electric drive (Z-TS230) into the convector	Possibility to make the convector arched	Possibility to make the convector broken-line shape
FLT	10-07	no	Z-VD001 (7)	no	no	no
FLT	10-08	yes	Z-VD001 (7)	no	no	yes
FLT	10-09	yes	Z-VD001 (7)	yes	yes	yes
FLT	10-11	yes	Z-VD001 (3)	yes	yes	yes
FLT	20-09	yes	Z-VD001 (7)	yes	yes	yes
FLT	20-11	yes	Z-VD001 (3)	yes	yes	yes
<b>OPLFLEX FLT21</b>						
FLT	21-12	no	Z-VD001 (3)	yes	no	no
<b>OPLFLEX FLC</b>						
FLC	L0-14	yes	Z-VD001 (3)	yes	no	no
<b>OPLFLEX FLB</b>						
FLB	20-12	no	RB25 (25)	not possible	no	no
<b>OPLFLEX FLK</b>						
FLK	10-09	not used	-	yes	yes	yes
FLK	10-11	not used	-	yes	yes	yes
FLK	10-14	not used	-	yes	yes	yes
FLK	20-09	not used	-	yes	yes	yes
FLK	20-11	not used	-	yes	yes	yes
FLK	20-14	not used	-	yes	yes	yes
FLK	30-09	not used	-	yes	yes	yes
FLK	30-11	not used	-	yes	yes	yes
FLK	30-14	not used	-	yes	yes	yes
FLK	40-09	not used	-	yes	yes	yes
FLK	40-11	not used	-	yes	yes	yes
FLK	40-14	not used	-	yes	yes	yes
<b>OPLFLEX FLK CANAL</b>						
FLK	20-18	not used	-	yes	no	no
FLK	20-30	not used	-	yes	no	no
FLK	30-18	not used	-	yes	no	no
FLK	30-30	not used	-	yes	no	no

**Note:**

- The number in brackets indicates the number of fans that can be controlled by the stated regulation. With more fans it is necessary to use additional controllers. The numbers of fans and input powers of convectors are shown at the bottom of the page.
- Non-typical convectors with the modification of spaces for pools (e.g. FLK) please consult with our technical department.

## Input powers of convectors and the numbers of the OPLFLEX fans

Type of convector		Input power of convector [W]/Number of fans inside the convector [pcs]																							
<b>OPLFLEX FLT</b>		L=800		1 200		1 600		2 000		2 400		2 800		3 200		3 600		4 000		4 400		4 800			
Series	Type	W	pcs	W	pcs	W	pcs	W	pcs	W	pcs	W	pcs	W	pcs	W	pcs	W	pcs	W	pcs	W	pcs	W	pcs
FLT	10-07	6	1	17	1	23	2	34	2	40	3	51	3	57	4	68	4	74	5	85	5	91	6		
FLT	10-08	6	1	17	1	23	2	34	2	40	3	51	3	57	4	68	4	74	5	85	5	91	6		
FLT	10-09	17	1	17	1	34	2	34	2	51	3	51	3	68	4	68	4	85	5	85	5	102	6		
FLT	10-11	25	1	45	1	70	2	90	2	90	2	135	3	135	3	180	4	180	4	180	4	205	5		
FLT	20-09	17	1	17	1	34	2	34	2	51	3	51	3	68	4	68	4	85	5	85	5	102	6		
FLT	20-11	25	1	45	1	70	2	90	2	90	2	135	3	135	3	180	4	180	4	180	4	205	5		
<b>OPLFLEX FLB</b>		L=800		1 200		1 600		2 000		2 400		2 800		3 200		3 600		4 000		4 400		4 800			
Series	Type	W	pcs	W	pcs	W	pcs	W	pcs	W	pcs	W	pcs	W	pcs	W	pcs	W	pcs	W	pcs	W	pcs		
FLB	20-12	1,6	1	3,2	2	4,8	3	6,4	4	8	5	9,6	6	11,2	7	12,8	8	14,4	9	16	10	17,6	11		
<b>OPLFLEX FLT21</b>		L=1 000		1 400		1 800		2 200		<b>OPLFLEX FLC</b>				3 600		4 000									
Series	Type	W	pcs	W	pcs	W	pcs	W	pcs	Series	Type	W	pcs	W	pcs										
FLT	21-12	45	1	70	2	90	2	115	3	FLC	L0-14	35	1	70	2										

**Note:** After the calculation of the total input power of convectors it maybe necessary to add an additional 20 W per controller.

## Regulation of the OPLFLEX convectors

### REGULATION OF THE CONVECTORS WITH THE FLT, FLT21, FLC TANGENTIAL FANS

- Z-VD001**
- Controller (autotransformer), one thermostat can be connected to an unlimited number of Z-VD001 controllers.
  - Possibility of the three-level manual regulation of fan speed by means of the switch (**Z-RT002, Z-DS001**).
  - Possibility of connection of electric drive for closing the hot water medium to the heat exchanger (**Z-TS 230**).
  - Possibility of connection of the blockage for fan speed in case that the exchanger does not heat (boiler is disconnected).
  - It works in collaboration with the thermostat (**Z-RT001, Z-RT003, ...**) and with the speed switch.
  - Except the FLT10-07 and FLT21 types the controller is installed in the convector (IP20).
  - Controller can control additional convectors.
  - Number of blowers driven by the controller in the table below.
  - If the capacity of controller is exhausted, it is necessary to use another Z-VD001 (numbers of fans are on the page 21).
  - In case Z-VD001 is chosen, it have to be mentioned in the order.

- Z-UN001**  
**Z-UN002**  
**Z-UN003**
- Continuous regulation of fans.
  - It contains thermostat, control module and transformers (deposition inside the switchboard), exchanger sensor.
  - Thermostat compares the adjusted and real temperatures inside the room and adjusts speed of the fan.
  - The possibility to adjust rise of alteration of speed and limitation of max. speed and the night attenuation mode.
  - Possibility of connection of electric drive for closure of the heat-water medium to the exchanger (**Z-TS 230**).
  - Blockage of the fan speed in case that the exchanger does not heat (boiler disconnected) – the exchanger sensor.
  - Number of blowers driven by the controller in the table below.
  - We order the type of controller according to the number of fans within the projected convectors (page. 21).
  - In case Z-VD is chosen, it have to be mentioned in the order.

Table for the number of fans which can be driven by the individual regulations

Type of Controller	FLT10-11, FLT20-11 FLT21, FLC-L0	FLT10-07, FLT10-08 FLT10-09, FLT20-09
Z-VD001	3	7
Z-UN001	5	12
Z-UN002	10	24
Z-UN003	15	36



### REGULATION OF CONVECTORS WITH THE AXIAL FANS FLB (FLA)

- RB25**
- Controller for the convectors with axial fans 12 V DC.
  - The three-level manual regulation of speed by means of the switch (**Z-RT002, Z-DS001**).
  - For the placement inside the box to be seized into the wall 13.5x13.5x7.5 cm.
  - It works in collaboration with the thermostat (**Z-RT001**) and with the speed switch (12 V AC).
  - Upon consultation it is possible to use the digital thermostat with the remote sensors and with the blockage of speed while the exchanger is cold.
  - If the capacity of the regulator is exhausted, it is necessary to use another RB25 controller.
  - In case RB25 is chosen, it have to be mentioned in the order.

Table for the number of fans which can be driven by the individual regulations

Type of Controller	FLB21-12 FLA10-11, FLA20-11	FLA10-09, FLA20-09
RB 25	25	35



Example of connection of the OPLFLEX convectors (heating)

REGULATION Z-VD001

Three-level manual regulation

FLT, FLT21, FLC

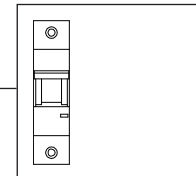
- Voltage: 230 V/50 Hz
- Controller located inside the convector\*
- It is possible to add the blockage of fan speed
- The possibility of connection of the electric drive

THERMOSTAT + SWITCH



7 x 1,5 mm<sup>2</sup>

3 x 1,5 mm<sup>2</sup>



SWITCHBOARD

8 x 1,5 mm<sup>2</sup> (4 x 1,5 mm<sup>2</sup>)



Z-VD 001



Z-VD 001

\* At the type FLT10-07 and FLT21 it is necessary to place it outside the convector

REGULATION Z-UN001

Z-UN 002, Z-UN 003,  
Continuous regulation

FLT, FLT21, FLC

- Voltage: 230 V/50 Hz
- Controller located inside the switchboard
- Blockage for fan speed
- Rise and the max. speed
- Possibility of connection of the electric drive

THERMOSTAT



5 x 0,5 mm<sup>2</sup>

5 x 1,5 mm<sup>2</sup> + 2 x 0,5 mm<sup>2</sup>



SWITCHBOARD

5 x 1,5 mm<sup>2</sup> (3 x 1,5 mm<sup>2</sup>)



REGULATION RB25

Three-level manual regulation

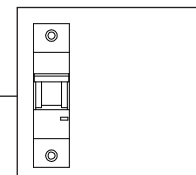
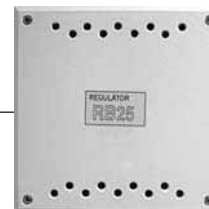
FLB, (FLA)

- Voltage in the convector: 12 V DC
- Controller placed in the wall or in the switchboard

THERMOSTAT WITH SWITCH



4 x 1,5 mm<sup>2</sup>



SWITCHBOARD

2 x 1,5 mm<sup>2</sup>

2 x 1,5 mm<sup>2</sup>

2 x 1,5 mm<sup>2</sup>



Other wiring you will find at [www.fancoil.cz](http://www.fancoil.cz), [www.isan.cz](http://www.isan.cz)

## Design of a convector used in a heating system

For an easy design of floor convectors as a part of the overall design of the building, it is recommended to follow the steps below:

**1** To provide for an effective regulation of the heating system, choose the convector length such as to extend along the entire width of the respective window. (Note: The regulation of the heater power output is on the air side – the intensity and time of air flow through the heater is regulated, while the heating water flow is kept constant). Unlike in the design of radiator heaters, it does not matter if a convector is chosen that has a higher power output than is required to cover the heat losses. In such case, the convector works at lower fan speed, featuring a lower noise level, or with more frequent idle times between the fan running times). For this reason, the design of convectors with fans is easier than the design of classical radiator heaters with natural convection.

**2** Based on the power output tables in the specification, find the **heating power output** of the chosen convector type for the required water **temperature drop**.

**3** To attain the required power output, calculate the necessary **heating water discharge** through the heat exchanger of the convector

$$M = 0,86 Q / (T1 - T2) \text{ [kg/h]}$$

**Q [W]** ..... power output of the convector  
**T1-T2 [K]** ..... difference between the input and output temperatures  
**0,86** ..... units conversion constant

### Example

FLT 10-11, length 2 000 mm, with temper. drop 75/65/20 °C, speed 80 %  
**Q = 1 837 W** (catalogue page 5)

**4** From the heating piping design, the **pressure drop available** at the convector connection point is known.

**5** Look up the heat exchanger pressure loss in the tables (table on page 25)

**6** In the regulation fitting tables (**Kv/turns**), look up the **number of turns** from the closed state of the chosen regulating fitting (fittings delivered with the convector, table on page 28) such as to use up the total pressure available when also the exchanger resistance is considered in the calculation.

$$Kv = 0,01 M / \sqrt{\Delta p} \text{ [m}^3 \cdot \text{h}^{-1}]$$

**Kv [m<sup>3</sup>.h<sup>-1</sup>]** ..... discharge coefficient  
**M [kg/h]** ..... discharge volume  
**Δ p [kPa]** ..... pressure loss of the fitting

The number of turns of the regulation fitting must be specified in the design drawings, being used by the contractor for settings performed prior to the heating test.

The regulation fitting is installed on the return pipe of the heat exchanger.

(Note: It is important to realise that not maintaining accurately the discharge calculated has in fact no significant impact on the heat delivered as the regulation is on the air side, being controlled by a thermostat located in the heated room.)

$$T1 - T2 = 75 - 65 = 10 \text{ }^\circ\text{C}$$

$$M = 0,86 \times 1\,837 / 10 = 158 \text{ kg/h}$$

### CONVERSION TO A DIFFERENT TEMPERATURE DROP

When a different temperature drop is considered than as specified in the catalogue, use the following conversion formula:

$$Q_{tr}[\text{W}] = Q_n * \psi * \left( \frac{\left( \frac{T1+T2}{2} \right) - T_i}{50} \right)^m$$

**Qn [W]** ..... heater power output at temperature drop of 75/65/20 °C

**ψ [-]** ..... heating medium mass flow coefficient  
(for usual discharges the value of ψ = 1 is considered)

**T1, T2 [°C]** ..... input, output temperature of the exchanger heating medium

**Ti [°C]** ..... indoor temperature

**m [-]** ..... temperature coefficient



**Example:**

FLT 20-11 , length 1 600 mm, required temperature drop 90/80/25 °C, speed 80 %  
 $Q_n = 1\,950\text{ W}$  (catalogue page 5)  
 $m = 1,1$  (table on this page)  
 $T_1 = 90\text{ °C}, T_2 = 80\text{ °C}, T_i = 25\text{ °C}, \psi = \sim 1$

$$Q_{tr} = 1\,950 \times 1 \times (60/50)^{1,1} = 2\,383\text{ W}$$

**Koeficient „ $\psi$ “** – dependence of the heating media discharge on the heating body power output. In general, with a faster water flow, the heat transfer from the heating medium to the exchanger wall increases (a). The power output tables give values of  $\psi$  for various temperature drops:

**In general, it holds: By doubling the discharge of the medium, the heating element power output is increased by only about 10 %. By halving the discharge, the power output will drop by approx. 5 %. Therefore, in the calculations,  $\psi = 1$  is commonly taken.**

1.  $T_1 - T_2 = 10\text{ °C}$  . . . . .  $\psi = 1$  (discharge 100 %)
2.  $T_1 - T_2 = 20\text{ °C}$  . . . . .  $\psi = \text{cca } 0,95$  (discharge 50 %)
3.  $T_1 - T_2 = 5\text{ °C}$  . . . . .  $\psi = \text{cca } 1,1$  (discharge 200 %)

The method of power output conversion for a change of the temperature drop is the same as in the design of radiator heaters. It is also possible to use the conversion tables available at

[www.fancoil.cz](http://www.fancoil.cz)

**The coefficient “ $m$ ”** is a characteristic of the heating body. It accounts for the influence of gravitational flow of air through the body. It is calculated based on measurements performed in the heating bodies testing laboratory. However, the following values are sufficient for simplification and for use in design practice:

1. FLT . . . . .  $m = 1,10$
2. FLT 21, FLC, FLB . . . . .  $m = 1,00$
3. FLK height 09 and 11 . . . . .  $m = 1,45$
4. FLK height 14 and 18 . . . . .  $m = 1,48$
5. FLK height 30 . . . . .  $m = 1,50$



TABLE OF HYDRAULIC RESISTANCES OF THE WIRE EXCHANGER

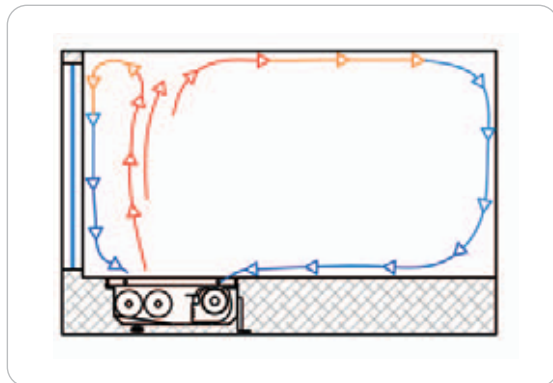
Type	length L [mm]	water volume [l]	R – Hydraulic resistance (kPa)																			
			m – Mass flow (kg/h)																			
			20	40	60	80	100	120	150	200	250	300	350	400	450	500	550	600	650	700	750	800
20 a 10	800	0,11	0,01	0,03	0,06	0,11	0,17	0,25	0,39	0,69	1,07	1,55	2,11	2,75	3,48	4,30	5,20	6,19	7,27	8,43	9,67	11,01
	1 200	0,21	0,01	0,03	0,08	0,14	0,21	0,30	0,48	0,85	1,32	1,91	2,59	3,39	4,29	5,29	6,41	7,62	8,95	10,38	11,91	13,55
	1 600	0,32	0,01	0,04	0,09	0,15	0,24	0,34	0,53	0,94	1,48	2,13	2,89	3,78	4,78	5,91	7,15	8,50	9,98	11,57	13,29	15,12
	2 000	0,43	0,01	0,04	0,09	0,16	0,26	0,37	0,58	1,02	1,60	2,30	3,13	4,09	5,18	6,39	7,73	9,20	10,80	12,53	14,38	16,36
	2 400	0,53	0,01	0,05	0,10	0,19	0,29	0,42	0,65	1,16	1,81	2,61	3,55	4,64	5,87	7,25	8,77	10,44	12,26	14,21	16,32	18,57
	2 800	0,64	0,01	0,05	0,11	0,19	0,30	0,43	0,68	1,20	1,88	2,71	3,69	4,82	6,09	7,52	9,10	10,83	12,72	14,75	16,93	19,26
	3 200	0,74	0,01	0,06	0,13	0,23	0,35	0,51	0,79	1,41	2,21	3,18	4,33	5,65	7,15	8,83	10,68	12,71	14,92	17,30	19,86	22,60
	3 600	0,85	0,01	0,06	0,13	0,23	0,36	0,53	0,82	1,46	2,28	3,28	4,47	5,84	7,39	9,12	11,04	13,14	15,42	17,88	20,53	23,36
	4 000	0,96	0,02	0,09	0,20	0,36	0,56	0,81	1,27	2,26	3,52	5,08	6,91	9,02	11,42	14,10	17,06	20,30	23,83	27,63	31,72	36,09
	4 400	1,06	0,02	0,09	0,21	0,37	0,57	0,82	1,29	2,29	3,58	5,15	7,01	9,16	11,59	14,31	17,31	20,60	24,18	28,05	32,20	36,63
4 800	1,17	0,02	0,09	0,21	0,37	0,58	0,84	1,31	2,33	3,64	5,24	7,14	9,32	11,80	14,57	17,63	20,98	24,62	28,55	32,78	37,29	
30	800	0,17	0,01	0,04	0,09	0,16	0,25	0,36	0,56	1,00	1,55	2,24	3,05	3,98	5,04	6,22	7,52	8,96	10,51	12,19	13,99	15,92
	1 200	0,32	0,01	0,04	0,10	0,18	0,27	0,39	0,62	1,10	1,71	2,47	3,36	4,39	5,55	6,86	8,30	9,87	11,59	13,44	15,43	17,55
	1 600	0,48	0,01	0,05	0,12	0,22	0,34	0,49	0,76	1,36	2,12	3,05	4,15	5,43	6,87	8,48	10,26	12,21	14,33	16,62	19,07	21,70
	2 000	0,65	0,02	0,07	0,16	0,28	0,44	0,63	0,98	1,74	2,72	3,92	5,33	6,96	8,81	10,88	13,16	15,66	18,38	21,32	24,47	27,84
	2 400	0,80	0,02	0,09	0,21	0,37	0,58	0,83	1,30	2,32	3,62	5,21	7,09	9,26	11,72	14,47	17,51	20,84	24,46	28,37	32,56	37,05
	2 800	0,96	0,03	0,10	0,23	0,40	0,63	0,91	1,42	2,52	3,93	5,67	7,71	10,07	12,75	15,74	19,04	22,66	26,60	30,84	35,41	40,29
	3 200	1,11	0,03	0,11	0,25	0,44	0,69	0,99	1,55	2,75	4,30	6,19	8,43	11,01	13,93	17,20	20,81	24,76	29,06	33,71	38,69	44,03
	3 600	1,28	0,03	0,13	0,28	0,50	0,78	1,13	1,76	3,13	4,89	7,05	9,59	12,53	15,86	19,58	23,69	28,19	33,09	38,37	44,05	50,12
	4 000	1,44	0,04	0,16	0,36	0,63	0,99	1,43	2,23	3,97	6,20	8,93	12,15	15,87	20,09	24,80	30,01	35,71	41,91	48,61	55,80	63,49
	4 400	1,59	0,05	0,18	0,41	0,74	1,15	1,66	2,59	4,60	7,20	10,36	14,10	18,42	23,31	28,78	34,83	41,44	48,64	56,41	64,76	73,68
4 800	1,76	0,05	0,21	0,47	0,83	1,30	1,88	2,93	5,21	8,15	11,73	15,97	20,86	26,40	32,59	39,44	46,93	55,08	63,88	73,34	83,44	
40	800	0,22	0,01	0,03	0,07	0,13	0,20	0,29	0,45	0,80	1,24	1,79	2,44	3,18	4,03	4,98	6,02	7,16	8,41	9,75	11,19	12,74
	1 200	0,42	0,01	0,04	0,08	0,14	0,22	0,32	0,49	0,88	1,37	1,97	2,69	3,51	4,44	5,48	6,64	7,90	9,27	10,75	12,34	14,04
	1 600	0,64	0,01	0,04	0,10	0,17	0,27	0,39	0,61	1,09	1,70	2,44	3,32	4,34	5,49	6,78	8,21	9,77	11,46	13,29	15,26	17,36
	2 000	0,86	0,01	0,06	0,13	0,22	0,35	0,50	0,78	1,39	2,18	3,13	4,26	5,57	7,05	8,70	10,53	12,53	14,70	17,05	19,58	22,27
	2 400	1,06	0,02	0,07	0,17	0,30	0,46	0,67	1,04	1,85	2,89	4,17	5,67	7,41	9,38	11,58	14,01	16,67	19,57	22,69	26,05	29,64
	2 800	1,28	0,02	0,08	0,18	0,32	0,50	0,73	1,13	2,01	3,15	4,53	6,17	8,06	10,20	12,59	15,23	18,13	21,28	24,68	28,33	32,23
	3 200	1,48	0,02	0,09	0,20	0,35	0,55	0,79	1,24	2,20	3,44	4,95	6,74	8,81	11,14	13,76	16,65	19,81	23,25	26,97	30,96	35,22
	3 600	1,70	0,03	0,10	0,23	0,40	0,63	0,90	1,41	2,51	3,92	5,64	7,67	10,02	12,69	15,66	18,95	22,55	26,47	30,70	35,24	40,10
	4 000	1,92	0,03	0,13	0,29	0,51	0,79	1,14	1,79	3,17	4,96	7,14	9,72	12,70	16,07	19,84	24,01	28,57	33,53	38,89	44,64	50,79
	4 400	2,12	0,04	0,15	0,33	0,59	0,92	1,33	2,07	3,68	5,76	8,29	11,28	14,74	18,65	23,02	27,86	33,16	38,91	45,13	51,81	58,94
4 800	2,34	0,04	0,17	0,38	0,67	1,04	1,50	2,35	4,17	6,52	9,39	12,78	16,69	21,12	26,07	31,55	37,55	44,07	51,11	58,67	66,75	

## Location of the convector in the floor

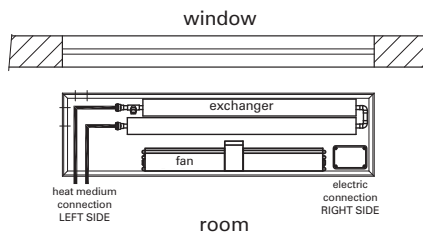
Convectors are to be located as close as possible to the window panes. Two practical configurations of the convectors may be used:

- A** The heat exchanger, being a part of the convector, is located next to the cooled surface, the fan sucks air from the room.

A "heat screen" is formed in front of the glazed area, separating the cold surface from the interior environment and preventing condensation of air moisture on the cold surface owing to the flow of air. Better conditions for creating a heat comfort are attained, air flows are minimised, the vertical and horizontal distribution of temperatures in the heated space in more even. The flow of air is comparable with the transfer of heat by classical heating bodies mounted on the parapet wall below the window. The above configuration is particularly suitable for apartments with a permanent or long-time presence of persons and for rooms with relatively smaller sizes of glazed surfaces.

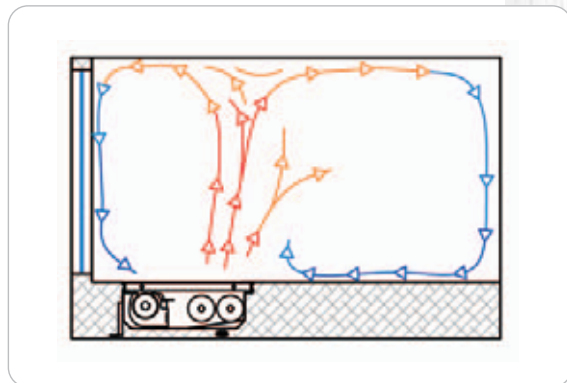


heat exchanger output towards the window

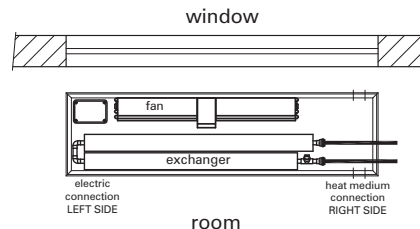


- B** The heat Exchange is located further away of the cooled surface, the fan sucks air directly from the cooled surface.

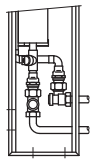
The cooler air is sucked into the heater and delivered through the heat exchanger to the rooms. The heating of the air in the room is faster on account of more intensive air flow but at the same time unevenly distributed temperature profiles tend to occur. Less favourable conditions arise for the creation of comfortable heating. This configuration is suitable for rooms with large glazed areas (French windows, glasshouses) and for rooms with more frequent exchange of air (corridors, entrance halls).



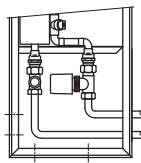
heat exchanger output to the room



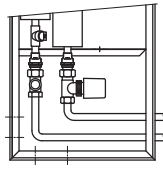
## Connection of the convectors to the heating system



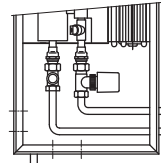
FLT 10-07 (08)



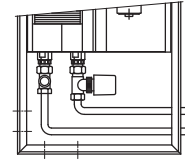
FLT 10



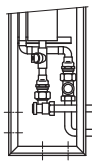
FLT 20



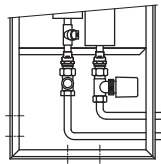
FLT 21



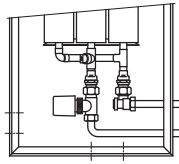
FLC



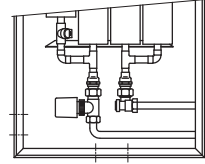
FLK 10



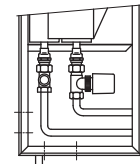
FLK 20



FLK 30



FLK 40



FLB

## Noise levels of the convectors

The convectors contain dynamic components (fans) and affect the surrounding environment by their vibrations and possible resonance of other installations. These disruptive effects are defined by the noise level, in particular by the parameters of acoustic power  $L_w$  [dB(A)] and acoustic pressure  $L_p$  [dB(A)]. Together with these parameters, the absorption capacity of the surrounding environment is considered, which influences the noise level (or its damping) depending on the distance from the convector (e.g. in a room with a carpet or in a corridor with tile pavement).

In general, the following acoustic pressure noise levels are to be considered for convectors with tangential flow fans:

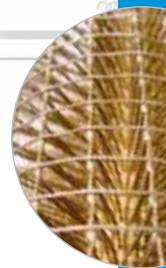
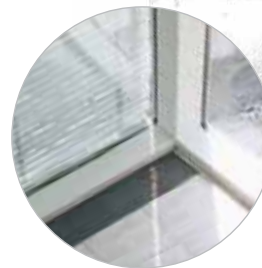
### Convectors FLT, FLT21, FLC

speed	60 %	80 %	100 %
$L_p$ (acoustic pressure)	25 dB(A)	30 dB(A)	39 dB(A)

shown data are valid for length 1.200 mm

The dependence of the fan speed, the heating power output and the noise level is non-linear. The noise level rises faster than the heating power output. Due to a built-in regulation, we have achieved a compromise between the disagreeable effect on persons present in the room and the convector power output. This level of fan speed is defined and the **medium fan speed (80 % of fan power), for which the convector is designed.**

The acoustic pressure  $L_p$  is the imminent noise that would be perceived by person at a specific distance



from the noise source in a given environment. The respective conditions are defined in the standards and the measurements of the noise levels are performed by an accredited testing laboratory.

For practical purposes, it can be said that **the lowest fan speed** should be used in the design for bedrooms and rooms with low noise level requirements (theatres, concert halls), **the medium fan speed** for rooms with day use – living rooms, kitchens, offices – and **the highest fan speed** only for a quick heating up where a fast increase of temperature in the room is required.

In case of fitting the FLK type convectors with axial fans (**type FLA**) and in case of the **FLB** type convectors for swimming pool applications, a noise level of about **30 dB(A) or higher** is to be considered. These heaters are intended for use in rooms where the noise level is not a primary requirement on the convector features (in corridors, swimming pools, connection galleries, winter gardens).

## Accessories

### HEATING MEDIUM REGULATION

**Connecting and shut off screws**  
Z-RD 001 a Z-RE 001 – a part of fan coils

Z-RD 002 direct



Z-RE 002 corner



<b>Turns</b>	0,25	0,5	1,0	1,5	2,0	3,0	4,0
<b>Kv [m³/h]</b>	0,13	0,22	0,43	0,65	0,85	1,25	1,70

**Thermostatic valve DN 15 Z-TD 001 and Z-TE 001**  
thermostatic threaded head M 30 x 1.5,  
max. operation pressure 1.0 MPa

Z-TD 001 direct



Z-TE 001 corner



**Thermoelectric actuator Z-TS 230** – thread  
M 30 x1.5 two positions, closed at zero current,  
cable length 2.5 m, 230 V

Z-TS 230



Z-TF 001



**Thermostatic head Z-TF 001** – thread  
M 30 x1.5, range 8–26 °C, capillary tube length 5 m

**Flexible hose Z-SL 001** – with nipple,  
outer/inner G1/2", l = 100 mm

Z-SL 001



Z-SL 002



**Corrugated-lining hose Z-SL 002** with nipple  
outer/inner G1/2", l = 100 mm (MEIBES)

### REGULATION OF FANS

**Z-VD001**

three-level manual regulation of convectors with  
tangential fans  
– more info on the page 21

**Z-UN001,  
002, 003**

continuous regulation of convectors with tangential  
fans  
– more info on the page 21

**RB 25**

**RB 25 regulator** – three-level regulation of convectors  
with axial-flow fans, a thermostat head cannot be used

FLT/FLT21/FLC



FLB / FLA



## Accessories

### THERMOSTATS

#### Thermostats mechanical

##### Z-RT001 – room thermostat

– heating, 10–30 °C, white (suitable for pools)



Z-RT001

##### Z-RT004 – two-pipe fan coil room thermostat

– manual, three-speed fan switch  
– manual changeover switch

NEW



Z-RT004

##### Z-RT005 – two-pipe fan coil room thermostat

– manual, three-speed fan switch  
– automatic changeover

NEW



Z-RT005

#### Programmable thermostat (week program)

##### Z-RT006 – two-pipe fan coil room thermostat

– manual or automatic three-speed fan switch  
– automatic changeover  
– 1 input for external sensor  
– **week programm**

NEW



Z-RT006

##### Z-RT003 (CM707, CM907) – room thermostat, week programm

– CM907 – external sensor possible  
– can be used with three-speed Z-DS001

Z-RT003 / CM707 / CM907



#### Cold Exchange speed brake

##### Z-RT009 – thermostat for surface mounting – speed brake

– associated with the heating system to provide Low temperature protection – brake fan speed if water temp. is less than adjusted 10–40 °C (can't be used with types FLT10-07 and FLT10-08)

NEW



Z-RT009

#### Fan speed switchers

##### Z-DS001 – manual, three-speed fan switch

– suitable for pools  
– simple

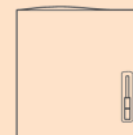


Z-DS001

##### Z-DS002 – manual, three-speed fan switch

– simple

NEW



Z-DS002

##### Z-RT002 – main board with fan speed switch

– used with combination with Z-RT001 (suitable for pools)

Z-RT002

Z-RT001



## Frames and grill



**R 1-1**  
natural frame,  
roll-up grill



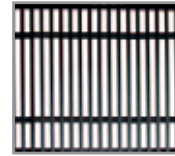
**R 1-2**  
natural frame,  
linear natural  
grill



**R 2-1**  
bronze frame,  
roll-up bronze  
grill



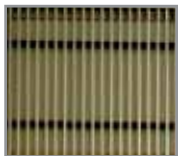
**R 2-2**  
bronze frame,  
linear bronze  
grill



**R 3-1**  
black frame,  
roll-up black  
grill



**R 3-2**  
black frame,  
linear black  
grill



**R 4-1**  
golden frame,  
roll-up golden  
grill



**R 4-2**  
golden frame,  
linear golden  
grill



**R 5-1**  
natural frame,  
car showroom  
stainless steel



**R 6-1**  
natural frame,  
wooden grill –  
natural beech

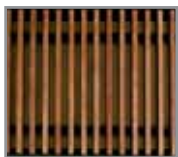


**R 6-2**  
bronze frame,  
wooden grill –  
stained beech



**R 6-3**  
natural frame  
wooden grill  
natural oak

### GRILLS FOR TYPE FLT10-07 ONLY



**R 6-4**  
bronze frame,  
wooden grill  
stained oak



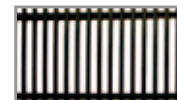
**R 7-1**  
white frame,  
swimming pool plastic  
grill \*)



**9-1 natur**  
this type only  
with a ledge



**9-2 bronz**  
this type only  
with a ledge



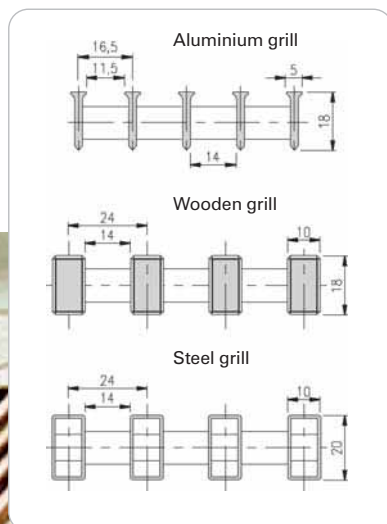
**9-3 black**  
this type only  
with a ledge



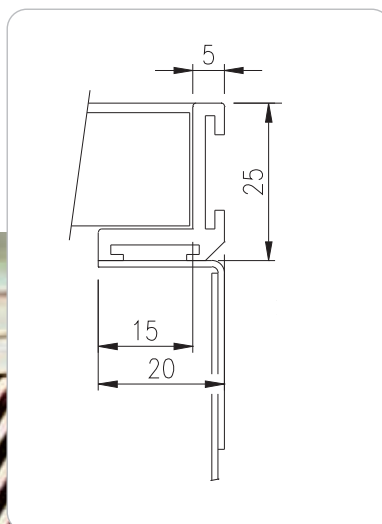
**9-4 gold**  
this type only  
with a ledge

\*) non typical grill, special order, (only with convector together)

### Grill cross sections



### Frame detail



### Non-standard frame



## Ordering form

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
F	L	T	2	0	-	1	1	1	6	0	-	N	R	1	2	1	A
Model			Type			Height [cm]		Length [cm]			Standard / special length	Surface finish of heater box	Type and colour combination of the frame and the grid			Regulation type	Shape of convector

### Positions 1, 2, 3, 4, 5, 6, 7, 8

An overview of standard products – model, type, height

<b>FLT 10, FLT 20</b>	FLT 10-07, FLT 10-08, FLT 10-09, FLT 20-09, FLT 10-11, FLT 20-11
<b>FLT 21</b>	FLT 21-12
<b>FLC L0</b>	FLC L0-14
<b>FLB</b>	FLB 20-12
<b>FLK</b>	FLK 10-09, FLK 20-09, FLK 30-09, FLK 40-09, FLK 10-11, FLK 20-11, FLK 30-11, FLK 40-11, FLK 10-14, FLK 20-14, FLK 30-14, FLK 40-14
<b>FLK CANAL</b>	FLK 20-18, FLK 30-18, FLK 20-30, FLK 30-30

### Position 9, 10, 11

**standard shape of the convector** – standards lengths are given in the power output tables for the individual types OPLFLEX

**Příklad: 1 6 0** – convector of the length of **1 600 mm**

### Position 12

– **standard shape of the convector**

**0–9** **non-standard length – additional millimetres**

(eg. position 9, 10, 11, 12 – **165 5 mm** –165 centimetres and 5 millimetres), when an specific exact length is required to match site conditions

### Position 13

**Overview of available finishes of the convectors**

- N** **basic alternative** – stainless steel convector without a surface finish
- 1** **colour RAL 7015** (dark grey, almost black) – matte
- 2** **colour RAL 9006** (aluminium colour) – matte
- 3** **colour RAL 9005** – matte black
- 4** **other colour** (to be specified in the ordering form)

The convector surface finishes 1–4 are delivered for extra charge, the price is based on the current quotation.

### Position 14, 15, 16

#### Frame and grill specification – page 30

Note. **FLT 10-07** – the heater is in all cases without a frame, with an aluminium strap glued on, the grid is transversal and cannot be rolled up (L-9-1, L9-2, L9-3, L9-4). The convector is to be ordered together with the grating, composed of multiple parts if longer than 1.200 mm. **Other convectors** always have a frame (R 1-1, R 1-2, R 2-1, ...), the grids are transversal with a roll-up design or linear (not wooden linear), plastic grating R 7-1 available on special order.

### Position 17

#### Regulation of OPLFLEX convectors

- 0** the convector includes no regulation, i.e. all convectors without fan (FLK, FLK CANAL) and convectors to be fitted with another customer or contractor supplied regulation
- 1** **Z-VD001** three-level manual regulation of convectors with tangential fans (see page 21)
- 2** **Z-UN002, 003** continuous regulation of convectors with tangential fans (see page 21)
- 3** **RB 25** three-level manual regulator for FLB, FLA, a single RB 25 can be used for multiple convectors, please order only the necessary quantity or order convectors without regulation and the RB 25 as accessories, see chapter „Regulation of OPLFLEX Convectors“.
- 4** **other regulator** – individual order, based on agreement with ISAN Radiatory

### Position 18

- (void)** **standard shape of the convection heater**
- A** **atypical shape of the convector** – when ordering pointed-line, arched or curved convectors, when shape modification is required, when additional openings are necessary, etc., when a long assembled convector is required to appear as a single piece ...

When ordering convectors of special shapes, approved technical documentation or a shape measurement of the convector, please enclose an exact description of the requirement.

## EXAMPLES OF ORDER SPECIFICATIONS

### Standard convectors

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Width	Height	Length	Finish	Frame	Grating	Regulation
F	L	T	1	0	-	1	1	1	6	0	-	1	R	1	1	1		270	115	1 600	grey matte	Al natur	Al natur roll-up	Z-VD001
F	L	K	3	0	-	1	4	2	0	0	-	N	R	2	2	0		360	140	2 000	without surfacing	Bronz	Bronz linear	no
F	L	T	2	1	-	1	2	1	0	0	-	3	R	1	2	1		320	125	1 000	black matte	Al natur	Al natur linear	Z-VD001
F	L	B	2	0	-	1	2	4	0	0	-	N	R	2	1	3		270	125	4 000	without surfacing	Bronz	Bronz roll-up	RB25
F	L	C	2	0	-	1	4	1	2	0	-	N	R	6	1	0		360	140	1 200	without surfacing	Al natur	Buk natur roll-up	no
F	L	T	1	0	-	0	7	2	0	0	-	N	L	9	2	1		150	70	2 000	without surfacing	Bronz	Bronz non rolling	Z-VD001

### Atypical convectors

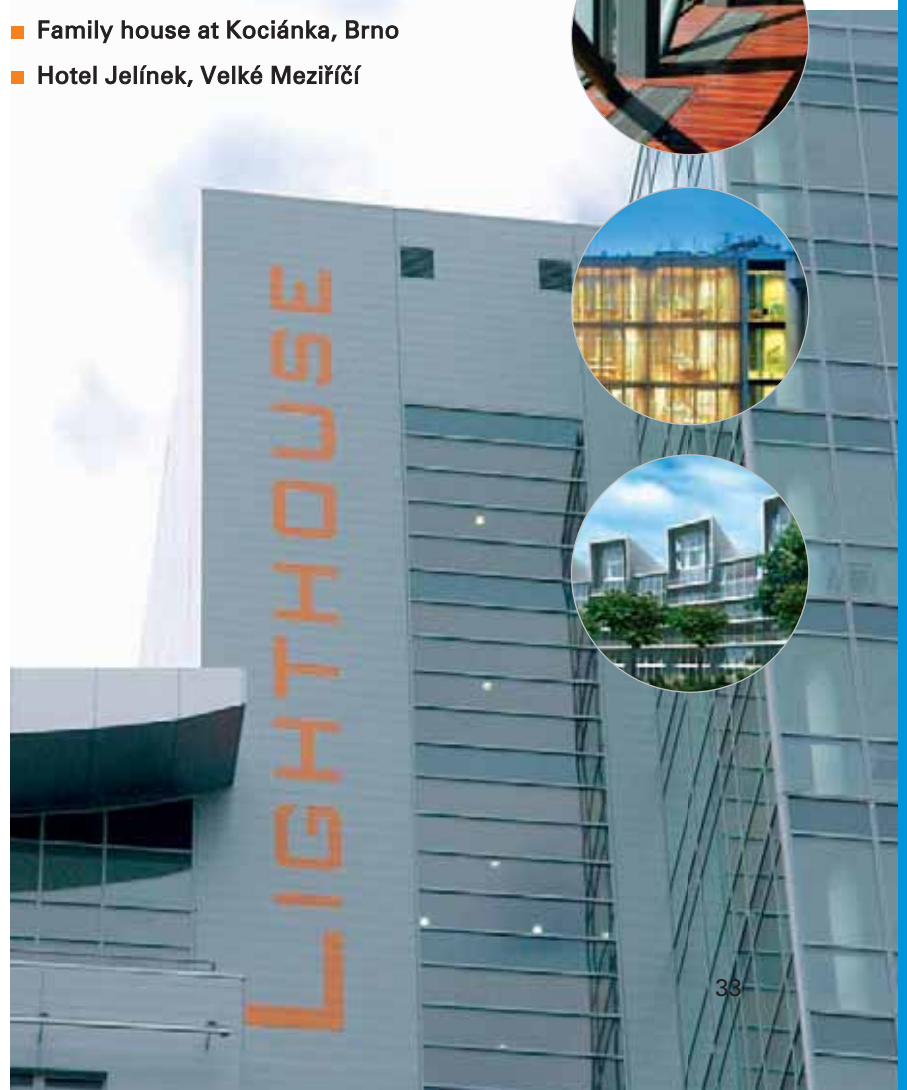
*) F	L	T	2	0	-	1	1	2	0	0	-	N	R	1	2	1	<b>A</b>	320	115	2 000	without surfacing	Al natur	Al natur linear	Z-VD001
F	L	K	3	0	-	0	9	1	5	2	<b>5</b>	N	R	3	1	0		360	90	<b>1 525</b>	without surfacing	Black	Black roll-up	no

\*) a schematic drawing, a shape measurement or an exact specification is required for arched, pointed-line or other special shapes of the convection heater

## References



- Nostic palace, Prague 1
- Prague Archbishop's Palace, Prague 1
- Villa of the Chairmen of the Parliament of the Czech Republic, Prague 6
- Buchengasse Palace, Vienna
- Residential houses "Americká Park", Prague 2
- Multi-purpose House Běžecká, Prague 6
- Residential development Na Hřebenkách, Prague 6
- Lighthouse, Prague 7
- Holiday Inn, Brno
- Department Store Baža, Brno
- City Theatre Brno
- Library of the Philosophical Faculty of the Masaryk University, Brno
- Pedestrian bridge in the Civil Eng. Faculty of the TU in Brno
- Insurance company Kooperativa, Brno
- Family house at Kociánka, Brno
- Hotel Jelínek, Velké Meziříčí





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