

**TRENCH HEATING, COOLING
AND VENTILATION SYSTEM
AND
CUSTOMIZED SOLUTIONS**

Freedom (Zhengzhou) Industry Co., Ltd

Freedom Comes From Innovation

56 LEED PROJECTS IN ONLY 3 YEARS

For the Hundreds projects we have involved in, 56 of them are LEED certified, 10 are LEED Gold Buildings and 1 is LEED Platinum Building.



56

LEED BUILDINGS



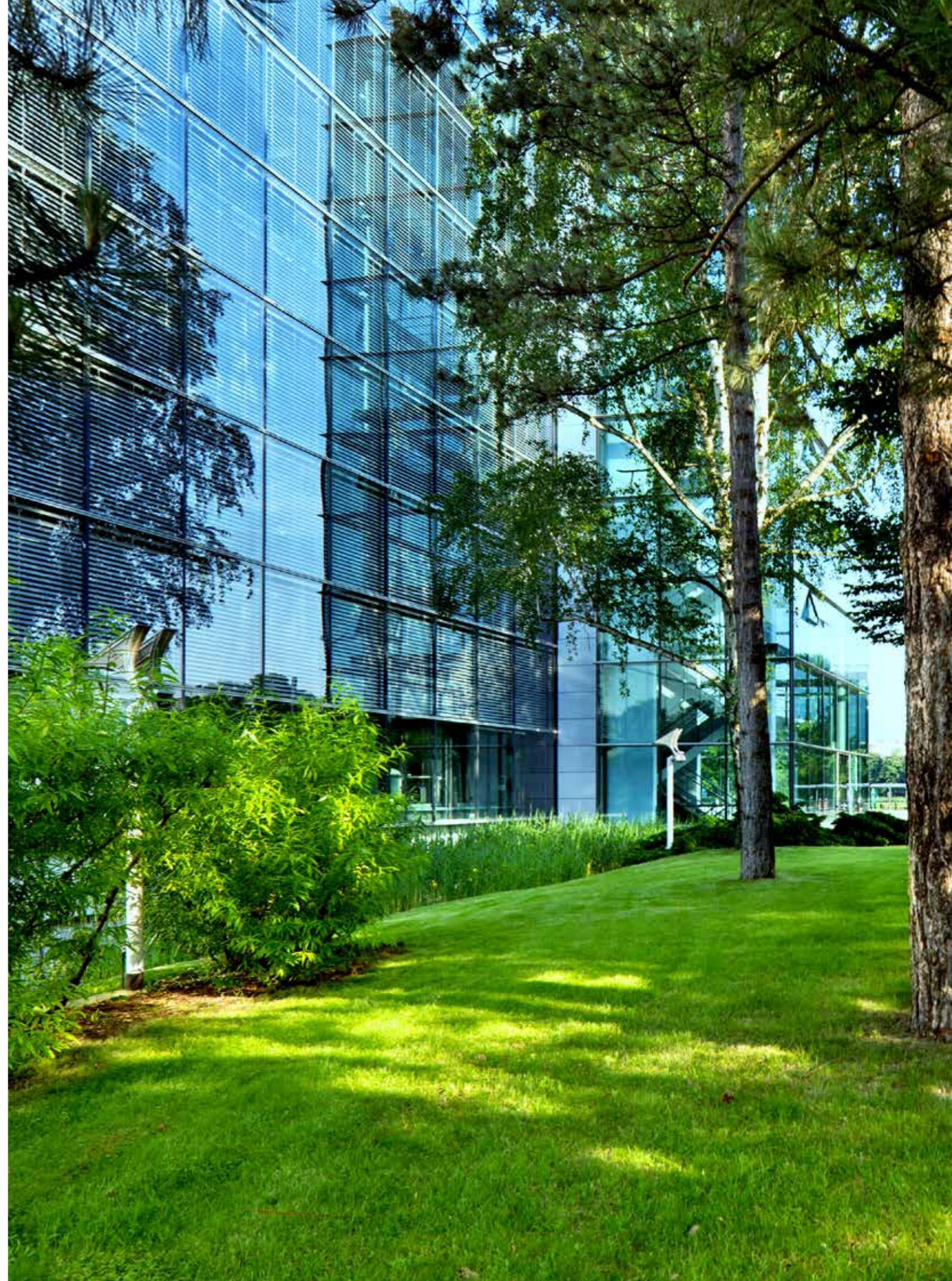
10

LEED GOLD BUILDING



1

LEED PLATINUM BUILDING

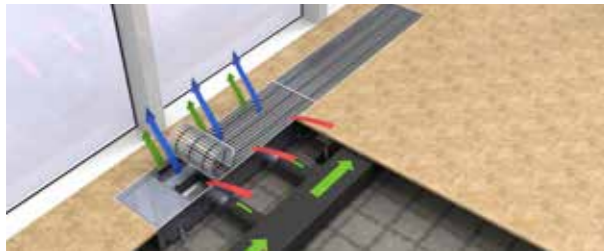


PRODUCT SPECIFICATION

01

Trench heating convector is designed to fit into a trench along the perimeter of a building close to the glass or French windows.

Supplied with or without the cross-flow fans, for nature and forced convection, floor convector is available for room heating, cooling and ventilation (with fresh air spigots). The trench heating unit is pre-fitted and supplied as complete for ease of installation. It can be used to minimise the risk of condensation and save valuable room space, eventually for a comfortable room environment. Both standard units and customized design are available.



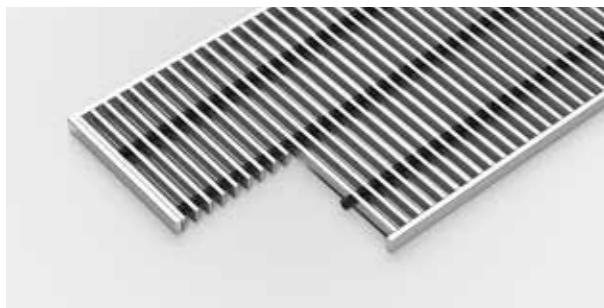
FTLD X X -X/X -(N)
 ① ② ③ ④ ⑤ ⑥

- ① Freedom Trench Heating Unit
- ② K: Heating & Cooling; QQ: Forced Convection with fan
Q: Natural Convection without fan
- ③ Height of the convector case (mm)
- ④ Length of the convector case (mm)
- ⑤ Width of the convector case (mm)
- ⑥ N: 2/4 pipes. All are 2 pipe system unless marked in the model

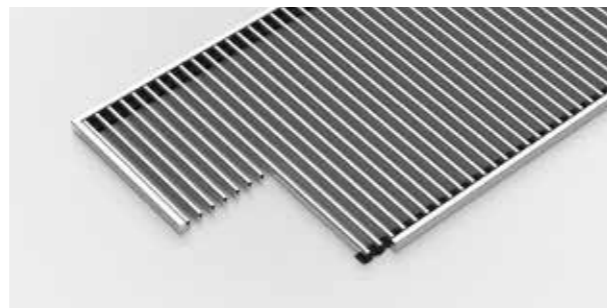
02

We have several types of walkable grilles available, the Aluminum roll-up grille, Aluminum linear grille, SS linear grille and wooden grilles. The grilles can be designed for continuous layout that can be several meters long.

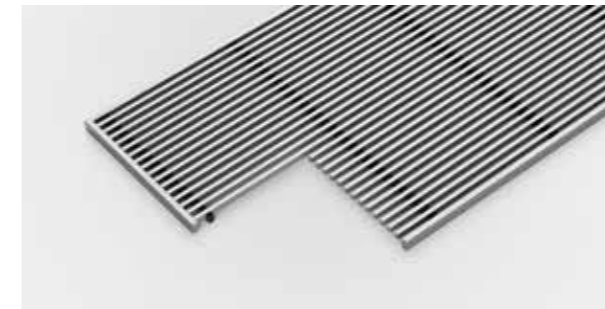
Aluminum Roll-up Grille (Standard Type)



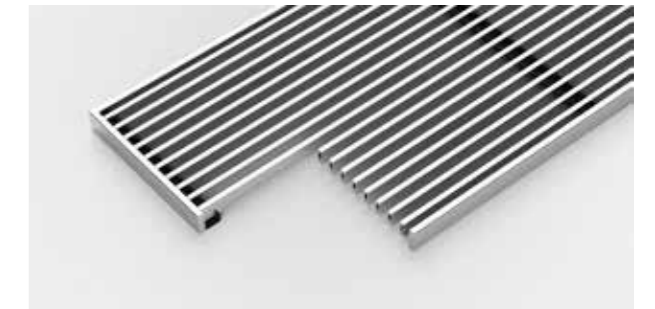
Aluminum Roll-up Grille (Pedrail Type)



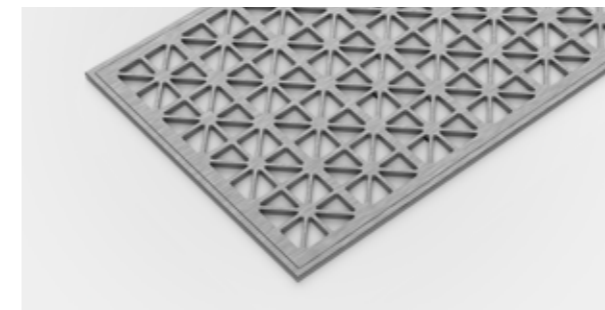
Stainless Steel Linear Grille



Aluminum Linear Grille



Customized Grille ("米" Type)



Wooden Grille



03

Perfect Integration with indoor decoration

Room Environment



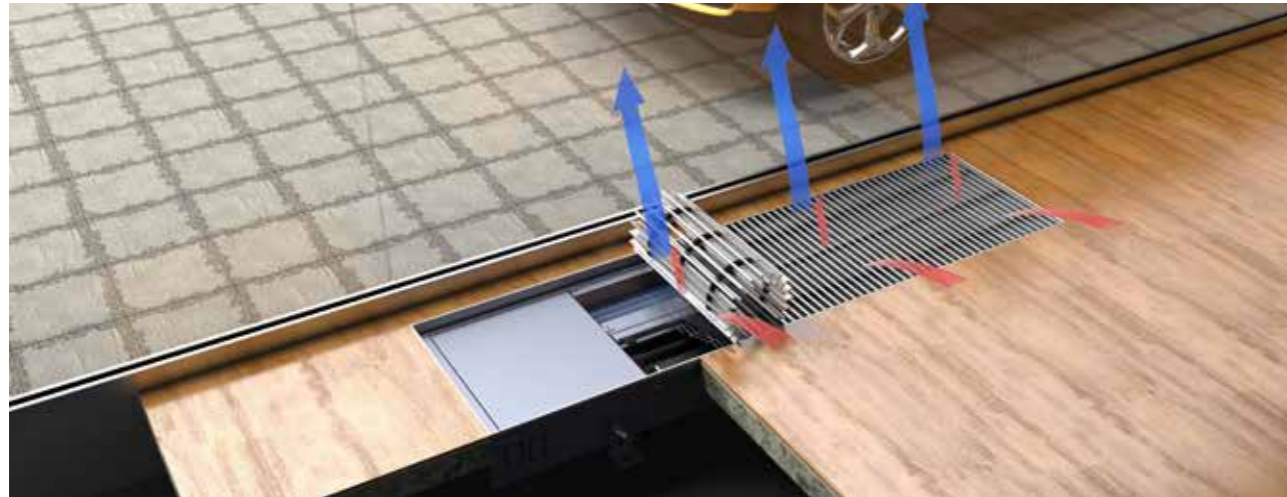
Public space



Commercial Environment



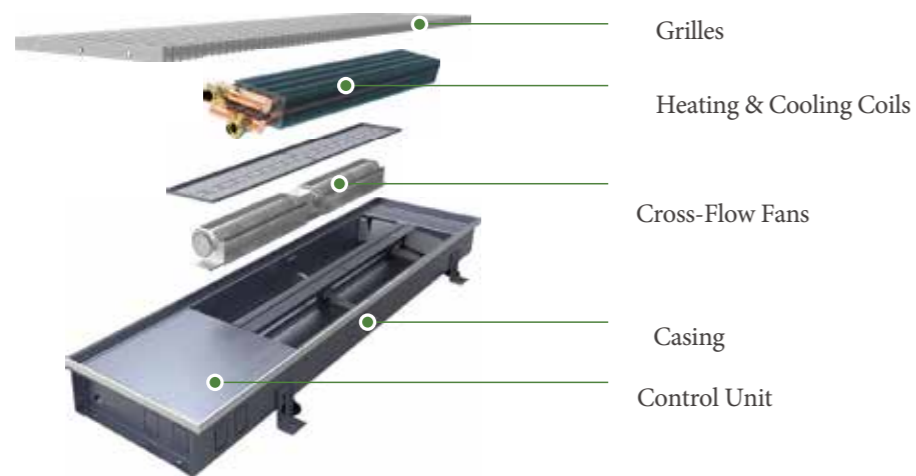
CLASSIFICATION OF PRODUCTS



01 Floor Fan Coil Unit ❄️☀️

Trench FCUs (Floor fan coil units) are designed to fit into a trench along the perimeter of a building close to the glass or French windows. Supplied with high quality cross-flow fans, the trench FCU with a compact design that can emission sufficient heating & cooling output, together with silent operation to meet the heating, cooling or heating & cooling requirement and save valuable space.

Product structure profile



2-PIPE Performance Table

Model	Fan Speed		SPL dB(A)	Air Volume m³/h	Cooling Capacity (W)		Heating Capacity (W)		L mm	Power W	Water Resistance kPa
	Stepless	3 Speed			16/19/27-19.5°C	7/12/27-19.5°C	50/40/20°C	60/50/21°C			
FTLDK130-1250/340	100%	High	39	252	516	1012	1294	1973	1250	16	0.6
	80%		36	212	471	923	1181	1801			
	60%	Medium	34	164	402	789	1009	1539			
	40%		32	118	327	641	820	1250			
	20%	Low	31	66	217	426	545	831			
FTLDK130-2000/340	100%	High	41	504	1027	2013	2576	3926	2000	32	3.2
	80%		38	423	937	1838	2351	3583			
	60%	Medium	36	328	801	1570	2009	3062			
	40%		34	237	650	1275	1632	2487			
	20%	Low	33	131	433	848	1085	1654			
FTLDK130-2750/340	100%	High	43	756	1522	2985	3818	5820	2750	48	9.5
	80%		40	635	1389	2724	3485	5312			
	60%	Medium	38	491	1187	2328	2978	4539			
	40%		36	355	964	1891	2419	3687			
	20%	Low	35	197	641	1258	1609	2452			
FTLDK150-1250/340	100%	High	40	354	666	1305	1669	2545	1250	32	1.5
	80%		37	297	558	1095	1401	2135			
	60%	Medium	35	230	482	945	1209	1843			
	40%		33	166	396	777	994	1515			
	20%	Low	32	92	267	523	670	1021			
FTLDK150-2000/340	100%	High	42	708	1324	2597	3322	5064	2000	64	6.8
	80%		39	595	1111	2179	2787	4249			
	60%	Medium	37	460	959	1881	2406	3668			
	40%		35	333	788	1546	1977	3014			
	20%	Low	34	184	531	1042	1332	2031			
FTLDK150-2750/340	100%	High	44	1062	1963	3850	4924	7507	2750	96	17.1
	80%		41	892	1647	3230	4132	6299			
	60%	Medium	39	690	1422	2789	3567	5438			
	40%		37	499	1169	2291	2931	4468			
	20%	Low	36	276	787	1544	1975	3011			

2-PIPE Performance Table

Model	Fan Speed		SPL dB(A)	Air Volume m ³ /h	Cooling Capacity (W)		Heating Capacity (W)		L mm	Power W	Water Resistance kPa	
	Stepless	3 Speed			16/19/27-19.5°C	7/12/27-19.5°C	50/40/20°C	60/50/21°C				
FTLDK170-1250/380	100%	High	39	417	744	1459	1867	2845	1250	32	0	0.6
	80%		36	350	695	1362	1742	2656				
	60%	Medium	34	271	605	1187	1519	2315				
	40%		32	196	497	974	1245	1898				
	20%	Low	31	108	330	648	828	1263				
FTLDK170-2000/380	100%	High	41	833	1481	2904	3715	5662	2000	64	0	3.2
	80%		38	700	1382	2710	3467	5285				
	60%	Medium	36	542	1205	2362	3022	4607				
	40%		34	392	988	1937	2478	3778				
	20%	Low	33	217	657	1289	1648	2513				
FTLDK170-2750/380	100%	High	43	1250	2195	4305	5506	8394	2750	96	0	9.5
	80%		40	1050	2049	4018	5139	7834				
	60%	Medium	38	812	1786	3502	4480	6829				
	40%		36	587	1465	2872	3674	5600				
	20%	Low	35	325	974	1910	2444	3725				
FTLDK190-1250/400	100%	High	41	490	926	1816	2324	3542	1250	48	0	2.6
	80%		38	411	836	1640	2098	3198				
	60%	Medium	36	318	729	1430	1829	2788				
	40%		34	230	595	1167	1493	2276				
	20%	Low	33	127	387	759	971	1480				
FTLDK190-2000/400	100%	High	43	979	1843	3615	4624	7049	2000	96	0	12.6
	80%		40	823	1665	3264	4175	6364				
	60%	Medium	38	636	1451	2845	3640	5549				
	40%		36	460	1185	2323	2972	4530				
	20%	Low	35	255	771	1511	1933	2946				
FTLDK190-2750/400	100%	High	45	1469	2733	5358	6855	10449	2750	144	0	29.2
	80%		42	1234	2468	4838	6189	9435				
	60%	Medium	40	955	2151	4218	5396	8225				
	40%		38	690	1756	3444	4405	6715				
	20%	Low	37	382	1142	2240	2865	4367				

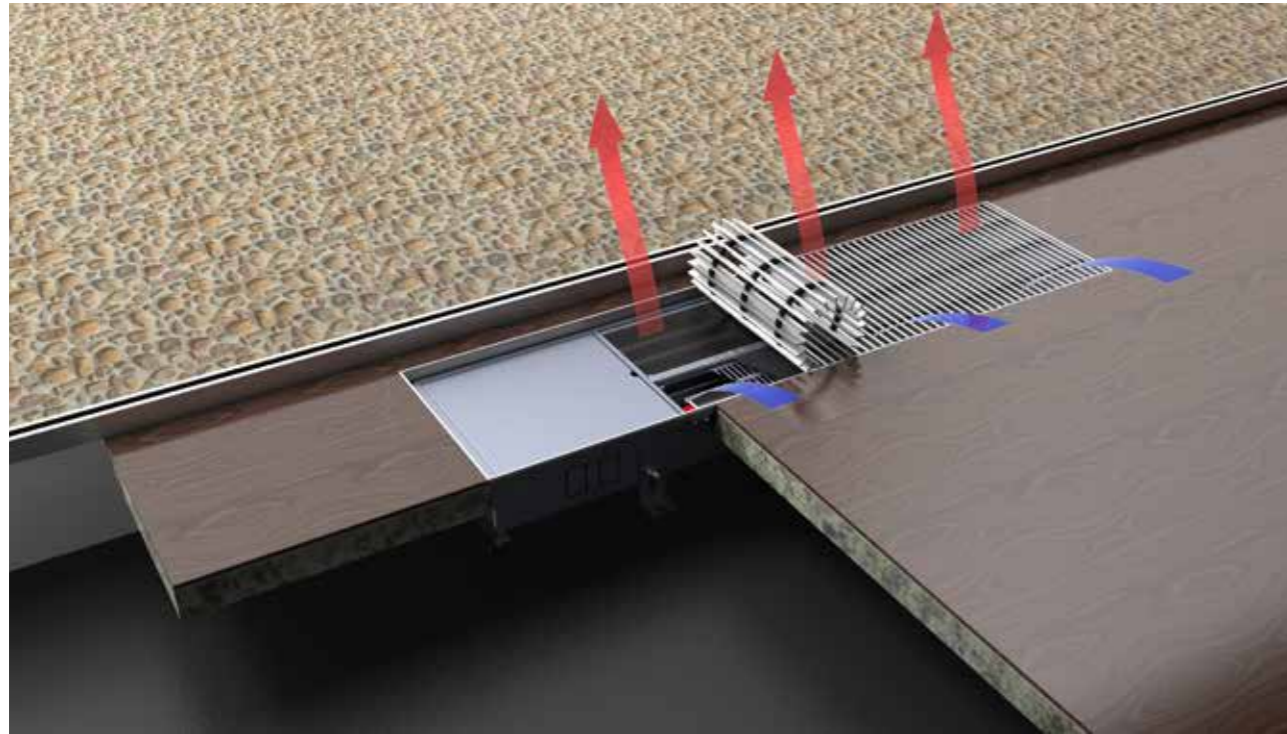
4-PIPE Performance Table

Model	Fan Speed		SPL dB(A)	Air Volume m ³ /h	Cooling Capacity (W)		Heating Capacity (W)		L mm	Power W	Water Resistance kPa
	Stepless	3 Speed			16/19/27-19.5°C	7/12/27-19.5°C	50/40/20°C	60/50/21°C			
FTLDK130-1400/340-4	100%	High	39	252	387	759	647	986	1400	16	0.6/3.5
	80%		36	212	353	693	591	900			
	60%	Medium	34	164	302	592	505	769			
	40%		32	118	245	481	410	625			
	20%	Low	31	66	163	320	273	416			
FTLDK130-2150/340-4	100%	High	41	504	770	1510	1288	1963	2150	32	3.5/6.2
	80%		38	423	703	1378	1175	1792			
	60%	Medium	36	328	601	1178	1004	1531			
	40%		34	237	488	957	816	1244			
	20%	Low	33	131	325	636	543	827			
FTLDK130-2750/340-4	100%	High	43	756	1142	2239	1909	2910	2750	48	9.2/15.5
	80%		40	635	1042	2043	1742	2656			
	60%	中	38	491	890	1746	1489	2270			
	40%		36	355	723	1418	1209	1844			
	20%	Low	35	197	481	943	804	1226			
FTLDK150-1400/340-4	100%	High	40	354	526	1031	825	1258	1400	32	1.5/2.3
	80%		37	297	441	865	692	1055			
	60%	Medium	35	230	381	747	598	911			
	40%		33	166	313	614	491	749			
	20%	Low	32	92	211	413	331	504			
FTLDK150-2150/340-4	100%	High	42	708	1046	2052	1642	2503	2150	64	5.8/10.2
	80%		39	595	878	1721	1378	2100			
	60%	Medium	37	460	758	1486	1189	1813			
	40%		35	333	623	1221	977	1490			
	20%	Low	34	184	420	823	659	1004			
FTLDK150-2750/340-4	100%	High	44	1062	1551	3041	2434	3710	2750	96	16.6/27.7
	80%		41	892	1301	2552	2042	3113			
	60%	Medium	39	690	1124	2203	1763	2688			
	40%		37	499	923	1810	1449	2208			
	20%	Low	36	276	622	1220	976	1488			

4-PIPE Performance Table

Model	Fan Speed		SPL dB(A)	Air Volume m ³ /h	Cooling Capacity (W)		Heating Capacity (W)		L mm	Power W	Water Resistance kPa	
	Stepless	3 Speed			16/19/27-19.5°C	7/12/27-19.5°C	50/40/20°C	60/50/21°C				
FTLKD170-1400/380-4	100%	High	39	417	558	1094	933	1423	1400	32	0	3.9/1.9
	80%		36	350	521	1021	871	1328				
	60%	Medium	34	271	454	890	759	1157				
	40%		32	196	372	730	623	949				
	20%	Low	31	108	248	486	414	631				
FTLKD170-2150/380-4	100%	High	41	833	1111	2178	1857	2831	2150	64	0	9/4.2
	80%		38	700	1037	2033	1733	2642				
	60%	Medium	36	542	904	1772	1511	2303				
	40%		34	392	741	1453	1239	1889				
	20%	Low	33	217	493	966	824	1256				
FTLKD170-2750/380-4	100%	High	43	1250	1647	3228	2753	4197	2750	96	0	24.1/11.2
	80%		40	1050	1537	3013	2570	3917				
	60%	中	38	812	1340	2627	2240	3414				
	40%		36	587	1099	2154	1837	2800				
	20%	低	35	325	731	1433	1222	1862				
FTLKD190-1400/400-4	100%	High	41	490	732	1435	1148	1751	1400	48	0	1.9/1.5
	80%		38	411	661	1296	1037	1581				
	60%	Medium	36	318	576	1130	904	1378				
	40%		34	230	470	922	738	1125				
	20%	Low	33	127	306	600	480	732				
FTLKD190-2150/400-4	100%	High	43	979	1456	2856	2285	3484	2150	96	0	8.4/6.6
	80%		40	823	1315	2578	2064	3146				
	60%	Medium	38	636	1146	2248	1799	2742				
	40%		36	460	936	1835	1469	2239				
	20%	Low	35	255	609	1194	955	1456				
FTLKD190-2750/400-4	100%	High	45	1469	2159	4233	3388	5164	2750	144	0	23.1/17.9
	80%		42	1234	1949	3822	3059	4663				
	60%	Medium	40	955	1700	3332	2667	4065				
	40%		38	690	1387	2720	2177	3319				
	20%	Low	37	382	902	1769	1416	2159				



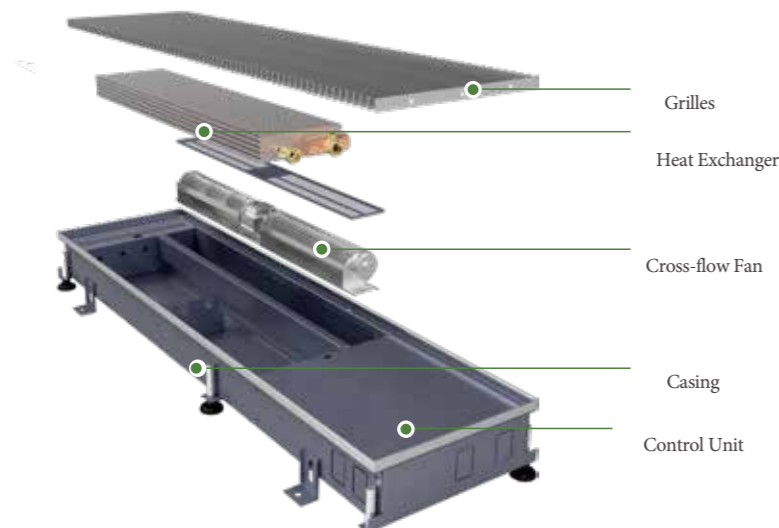


FTLDQQ115-L/200

Model	Fan Speed		SPL dB(A)	Air Volume m ³ /h	Power W	Heating Capacity (W)			Length mm
	Stepless	3 Speed				64.5°C (95/70/18°C)	50°C (80/60/20°C)	34.5°C (60/45/18°C)	
FTLDQQ115-1250/200	100%	High	39	245		1268	967	651	1250
	80%		36	185		1141	857	565	
	60%	Medium	34	145	12	1082	806	524	
	40%		32	115		995	734	471	
	20%	Low	31	95		901	669	434	
	Nature Convection		0	0	0	304	218	135	
FTLDQQ115-1750/200	100%	High	40	342		2041	1556	1048	1750
	80%		37	258		1822	1386	901	
	60%	Medium	35	202	15	1726	1286	837	
	40%		33	151		1588	1171	752	
	20%	Low	32	133		1439	1068	692	
	Nature Convection		0	0	0	425	305	189	
FTLDQQ115-2250/200	100%	High	41	490		2829	2157	1453	2250
	80%		38	370		2507	1882	1240	
	60%	Medium	36	290	24	2414	1798	1174	
	40%		34	230		2221	1638	1051	
	20%	Low	33	190		2012	1494	968	
	Nature Convection		0	0	0	546	393	242	
FTLDQQ115-2750/200	100%	High	42	684		3598	2743	1848	2750
	80%		39	516		3189	2395	1577	
	60%	Medium	37	404	30	3070	2287	1488	
	40%		35	302		2824	2083	1337	
	20%	Low	34	266		2558	1900	1231	
	Nature Convection		0	0	0	701	504	311	
FTLDQQ115-3250/200	100%	High	43	735		4417	3368	2268	3250
	80%		40	555		3888	2919	1923	
	60%	Medium	38	435	36	3713	2765	1800	
	40%		36	345		3415	2519	1617	
	20%	Low	35	285		3094	2297	1489	
	Nature Convection		0	0	0	852	612	378	

02 Fan-assisted Floor Convector - Forced Convection

Fan-assisted floor convector, forced convection, is designed to fit into a trench along the perimeter of a building close to the glass or French windows. Supplied with high quality cross-flow fans, the floor convector with a compact design that can emission sufficient heating output, minimising the risk of condensation, together with silent operation to meet the heating demands. It can be used for primary or secondary heating.



FTLDQQ115-L/280

Model	Fan Speed		SPL dB(A)	Air Volume m ³ /h	Power W	Heating Capacity (W)			Length mm
	Stepless	3 Speed				64.5°C (95/70/18°C)	50°C (80/60/20°C)	34.5°C (60/45/18°C)	
FTLDQQ115-1250/280	100%	High	39	251		1891	1427	947	1250
	80%		36	201		1603	1203	791	
	60%	Medium	34	163	14	1436	1067	693	
	40%		32	131		1268	947	606	
	20%	Low	31	105		1132	840	543	
	Nature Convection		0	0	0	449	323	200	
FTLDQQ115-1750/280	100%	High	40	355		2806	2118	1405	1750
	80%		37	284		2379	1785	1174	
	60%	Medium	35	231	17	2171	1614	1047	
	40%		33	185		1945	1431	916	
	20%	Low	32	149		1712	1270	821	
	Nature Convection		0	0	0	628	452	280	
FTLDQQ115-2250/280	100%	High	41	502		3744	2825	1875	2250
	80%		38	402		3145	2360	1553	
	60%	Medium	36	326	28	2895	2152	1396	
	40%		34	261		2593	1908	1221	
	20%	Low	33	211		2283	1693	1095	
	Nature Convection		0	0	0	808	581	360	
FTLDQQ115-2750/280	100%	High	42	710		4700	3547	2354	2750
	80%		39	568		3914	2937	1933	
	60%	Medium	37	462	34	3633	2700	1753	
	40%		35	369		3254	2395	1532	
	20%	Low	34	298		2865	2125	1374	
	Nature Convection		0	0	0	1036	746	462	
FTLDQQ115-3250/280	100%	High	43	753		5653	4267	2832	3250
	80%		40	602		4709	3534	2325	
	60%	Medium	38	489	42	4368	3247	2107	
	40%		36	392		3913	2879	1842	
	20%	Low	35	316		3445	2555	1652	
	Nature Convection		0	0	0	1225	881	545	

FTLDQQ115-L/340

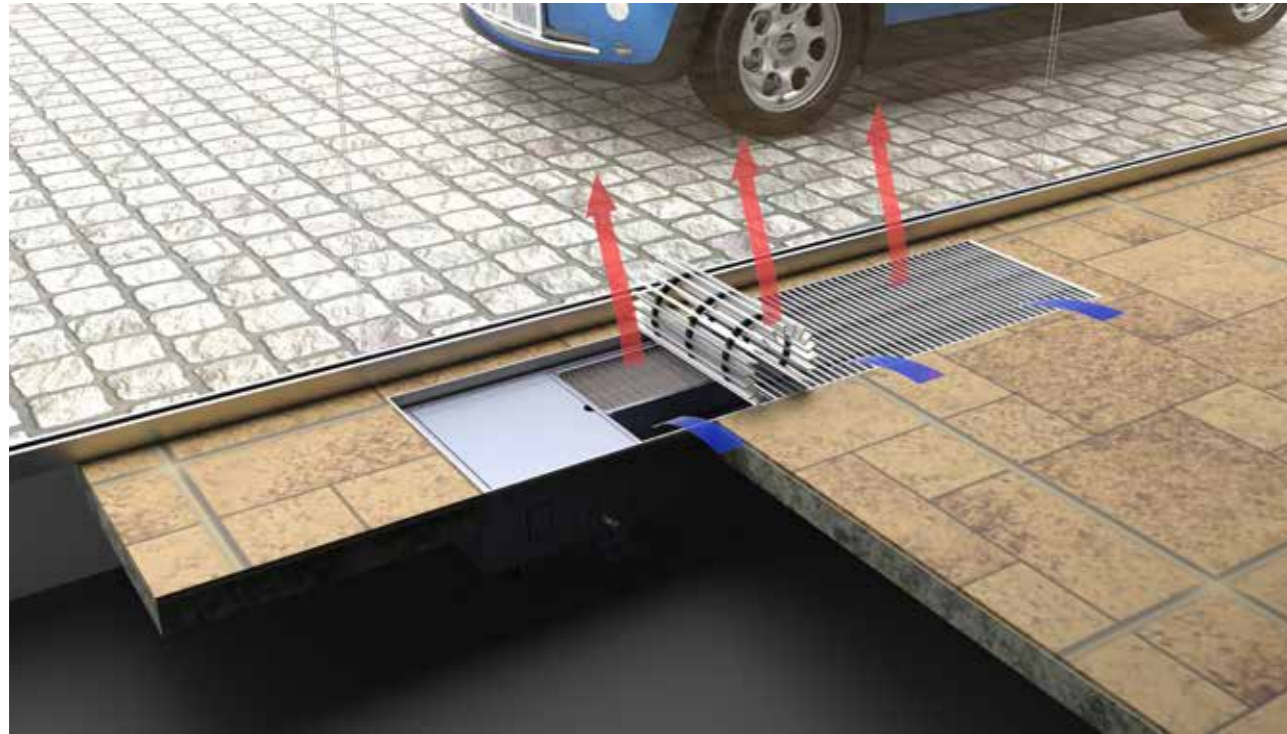
Model	Fan Speed		SPL dB(A)	Air Volume m ³ /h	Power W	Heating Capacity (W)			Length mm
	Stepless	3 Speed				64.5°C (95/70/18°C)	50°C (80/60/20°C)	34.5°C (60/45/18°C)	
FTLDQQ115-1250/340	100%	High	39	265		2349	1770	1172	1250
	80%		36	212		1912	1434	943	
	60%	Medium	34	172	14	1767	1314	854	
	40%		32	138		1609	1188	764	
	20%	Low	31	111		1489	1103	713	
	Nature Convection		0	0	0	551	394	242	
FTLDQQ115-1750/340	100%	High	40	365		3486	2627	1739	1750
	80%		37	292		2878	2195	1420	
	60%	Medium	35	237	17	2672	1987	1291	
	40%		33	190		2433	1769	1155	
	20%	Low	32	153		2210	1637	1058	
	Nature Convection		0	0	0	810	579	335	
FTLDQQ115-2250/340	100%	High	41	530		4652	3535	2320	2250
	80%		38	424		3880	2911	1915	
	60%	Medium	36	345	28	3562	2650	1722	
	40%		34	276		3273	2416	1553	
	20%	Low	33	223		2948	2185	1412	
	Nature Convection		0	0	0	1091	780	479	
FTLDQQ115-2750/340	100%	High	42	730		5840	4400	2913	2750
	80%		39	584		4830	3623	2383	
	60%	Medium	37	475	34	4471	3326	2161	
	40%		35	380		4071	3006	1932	
	20%	Low	34	307		3701	2743	1772	
	Nature Convection		0	0	0	1369	979	601	
FTLDQQ115-3250/340	100%	High	43	795		7025	5292	3503	3250
	80%		40	636		5812	4360	2868	
	60%	Medium	38	517	42	5375	3999	2598	
	40%		36	413		4894	3614	2323	
	20%	Low	35	334		4452	3299	2132	
	Nature Convection		0	0	0	1661	1188	729	

FTLDQQ115-L/400

Model	Fan Speed		SPL dB(A)	Air Volume m ³ /h	Power W	Heating Capacity (W)			Length mm
	Stepless	3 Speed				64.5°C (95/70/18°C)	50°C (80/60/20°C)	34.5°C (60/45/18°C)	
FTLDQQ115-1250/400	100%	High	39	276		3117	2347	1552	1250
	80%		36	221		2564	1923	1264	
	60%	Medium	34	179	14	2345	1743	1132	
	40%		32	144		2142	1575	1006	
	20%	Low	31	116		1893	1398	898	
	Nature Convection		0	0	0	698	494	298	
FTLDQQ115-1750/400	100%	High	40	379		4713	3549	2347	1750
	80%		37	303		3877	2907	1911	
	60%	Medium	35	246	17	3545	2636	1711	
	40%		33	197		3239	2381	1521	
	20%	Low	32	159		2862	2113	1358	
	Nature Convection		0	0	0	1036	733	442	
FTLDQQ115-2250/400	100%	High	41	552		6283	4732	3130	2250
	80%		38	442		5170	3876	2548	
	60%	Medium	36	359	28	4727	3515	2282	
	40%		34	287		4280	3147	2010	
	20%	Low	33	232		3780	3292	1795	
	Nature Convection		0	0	0	1382	977	590	
FTLDQQ115-2750/400	100%	High	42	758		7817	5886	3893	2750
	80%		39	606		6432	4822	3196	
	60%	Medium	37	493	34	5932	4411	2864	
	40%		35	394		5326	3915	2501	
	20%	Low	34	318		4747	3505	2253	
	Nature Convection		0	0	0	1720	1216	734	
FTLDQQ115-3250/400	100%	High	43	828		9400	7079	4682	3250
	80%		40	662		7734	5799	3811	
	60%	Medium	38	538	42	7133	5303	3443	
	40%		36	431		6405	4709	3008	
	20%	Low	35	348		5659	4179	2686	
	Nature Convection		0	0	0	2051	1450	875	

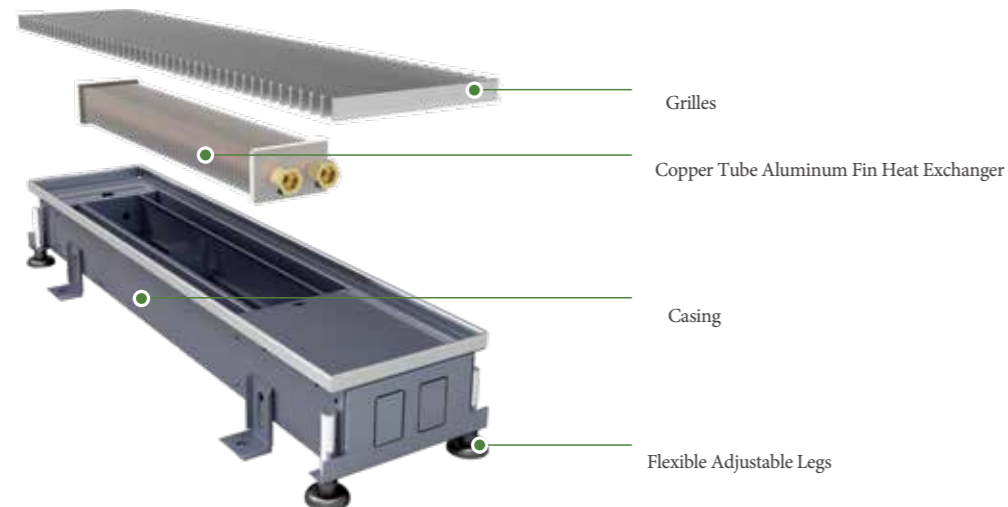


Beijing Conference Center



03 Nature Convection

Floor convector with nature convection is designed to fit into a trench along the perimeter of a building close to the glass or French windows. Supplied with high performance Copper tube Aluminum fins, it's designed for LPHW heating. It's available for independent or continuous layout.



FTLDQ110-L/200

Model	Heating Capacity (W)			Length (mm)
	64.5°C (95/70/18°C)	52°C (80/60/18°C)	34.5°C (60/45/18°C)	
FTLDQ110-850/200	130	100	60	850
FTLDQ110-1250/200	246	188	113	1250
FTLDQ110-1750/200	390	299	180	1750
FTLDQ110-2250/200	535	410	247	2250
FTLDQ110-2750/200	679	521	314	2750
FTLDQ110-3250/200	824	931	380	3250

FTLDQ150-L/200

Model	Heating Capacity (W)			Length (mm)
	64.5°C (95/70/18°C)	52°C (80/60/18°C)	34.5°C (60/45/18°C)	
FTLDQ150-850/200	136	103	61	850
FTLDQ150-1250/200	257	195	116	1250
FTLDQ150-1750/200	409	310	184	1750
FTLDQ150-2250/200	560	425	252	2250
FTLDQ150-2750/200	712	540	320	2750
FTLDQ150-3250/200	863	655	388	3250

FTLDQ190-L/200

Model	Heating Capacity (W)			Length (mm)
	64.5°C (95/70/18°C)	52°C (80/60/18°C)	34.5°C (60/45/18°C)	
FTLDQ190-850/200	183	137	80	850
FTLDQ190-1250/200	345	259	150	1250
FTLDQ190-1750/200	548	411	239	1750
FTLDQ190-2250/200	751	564	327	2250
FTLDQ190-2750/200	954	717	415	2750
FTLDQ190-3250/200	1157	869	504	3250

FTLDQ110-L/280

Model	Heating Capacity (W)			Length (mm)
	64.5°C (95/70/18°C)	52°C (80/60/18°C)	34.5°C (60/45/18°C)	
FTLDQ110-850/280	181	139	85	850
FTLDQ110-1250/280	342	263	160	1250
FTLDQ110-1750/280	543	418	254	1750
FTLDQ110-2250/280	745	573	348	2250
FTLDQ110-2750/280	946	728	443	2750
FTLDQ110-3250/280	1147	883	537	3250

FTLDQ150-L/280

Model	Heating Capacity (W)			Length (mm)
	64.5°C (95/70/18°C)	52°C (80/60/18°C)	34.5°C (60/45/18°C)	
FTLDQ150-850/280	234	176	102	850
FTLDQ150-1250/280	442	332	193	1250
FTLDQ150-1750/280	701	527	306	1750
FTLDQ150-2250/280	961	722	419	2250
FTLDQ150-2750/280	1221	918	533	2750
FTLDQ150-3250/280	1481	1113	646	3250

FTLDQ190-L/280

Model	Heating Capacity (W)			Length (mm)
	64.5°C (95/70/18°C)	52°C (80/60/18°C)	34.5°C (60/45/18°C)	
FTLDQ190-850/280	286	215	124	850
FTLDQ190-1250/280	540	406	235	1250
FTLDQ190-1750/280	857	644	373	1750
FTLDQ190-2250/280	1175	883	511	2250
FTLDQ190-2750/280	1493	1120	649	2750
FTLDQ190-3250/280	1810	1359	788	3250

FTLDQ300-L/280

Model	Heating Capacity (W)			Length (mm)
	64.5°C (95/70/18°C)	52°C (80/60/18°C)	34.5°C (60/45/18°C)	
FTLDQ300-850/280	310	233	135	850
FTLDQ300-1250/280	586	441	255	1250
FTLDQ300-1750/280	930	699	405	1750
FTLDQ300-2250/280	1275	958	554	2250
FTLDQ300-2750/280	1620	1215	704	2750
FTLDQ300-3250/280	1964	1475	855	3250

FTLDQ110-L/340

Model	Heating Capacity (W)			Length (mm)
	64.5°C (95/70/18°C)	52°C (80/60/18°C)	34.5°C (60/45/18°C)	
FTLDQ110-850/340	245	188	113	850
FTLDQ110-1250/340	463	354	213	1250
FTLDQ110-1750/340	736	563	338	1750
FTLDQ110-2250/340	1008	771	463	2250
FTLDQ110-2750/340	1281	980	588	2750
FTLDQ110-3250/340	1553	1188	714	3250

FTLDQ150-L/340

Model	Heating Capacity (W)			Length (mm)
	64.5°C (95/70/18°C)	52°C (80/60/18°C)	34.5°C (60/45/18°C)	
FTLDQ150-850/340	314	236	137	850
FTLDQ150-1250/340	593	446	259	1250
FTLDQ150-1750/340	942	708	411	1750
FTLDQ150-2250/340	1291	970	563	2250
FTLDQ150-2750/340	1640	1232	715	2750
FTLDQ150-3250/340	1989	1495	868	3250

FTLDQ190-L/340

Model	Heating Capacity (W)			Length (mm)
	64.5°C (95/70/18°C)	52°C (80/60/18°C)	34.5°C (60/45/18°C)	
FTLDQ190-850/340	381	288	168	850
FTLDQ190-1250/340	719	542	317	1250
FTLDQ190-1750/340	1143	862	504	1750
FTLDQ190-2250/340	1566	1181	690	2250
FTLDQ190-2750/340	1988	1500	876	2750
FTLDQ190-3250/340	2411	1819	1063	3250

FTLDQ300-L/340

Model	Heating Capacity (W)			Length (mm)
	64.5°C (95/70/18°C)	52°C (80/60/18°C)	34.5°C (60/45/18°C)	
FTLDQ300-850/340	413	312	182	850
FTLDQ300-1250/340	780	588	344	1250
FTLDQ300-1750/340	1240	935	547	1750
FTLDQ300-2250/340	1699	1281	749	2250
FTLDQ300-2750/340	2157	1628	950	2750
FTLDQ300-3250/340	2616	1974	1153	3250

FTLDQ110-L/420

Model	Heating Capacity (W)			Length (mm)
	64.5°C (95/70/18°C)	52°C (80/60/18°C)	34.5°C (60/45/18°C)	
FTLDQ110-850/420	306	232	138	850
FTLDQ110-1250/420	577	439	260	1250
FTLDQ110-1750/420	917	697	413	1750
FTLDQ110-2250/420	1256	955	567	2250
FTLDQ110-2750/420	1596	1213	720	2750
FTLDQ110-3250/420	1935	1471	873	3250

FTLDQ150-L/420

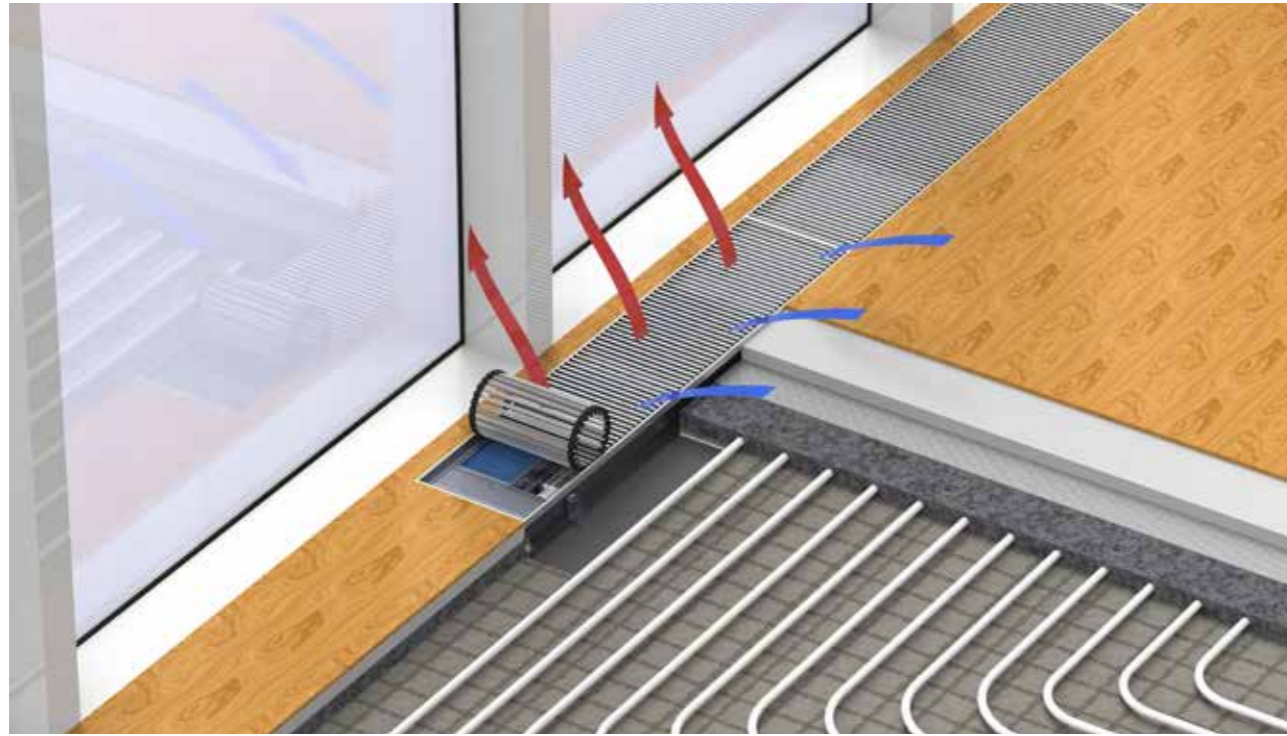
Model	Heating Capacity (W)			Length (mm)
	64.5°C (95/70/18°C)	52°C (80/60/18°C)	34.5°C (60/45/18°C)	
FTLDQ150-850/420	384	291	172	850
FTLDQ150-1250/420	725	550	325	1250
FTLDQ150-1750/420	1152	874	517	1750
FTLDQ150-2250/420	1578	1198	708	2250
FTLDQ150-2750/420	2005	1521	900	2750
FTLDQ150-3250/420	2431	1845	1091	3250

FTLDQ190-L/420

Model	Heating Capacity (W)			Length (mm)
	64.5°C (95/70/18°C)	52°C (80/60/18°C)	34.5°C (60/45/18°C)	
FTLDQ190-850/420	469	355	209	850
FTLDQ190-1250/420	885	670	395	1250
FTLDQ190-1750/420	1405	1065	627	1750
FTLDQ190-2250/420	1926	1459	859	2250
FTLDQ190-2750/420	2446	1853	1093	2750
FTLDQ190-3250/420	2966	2247	1325	3250

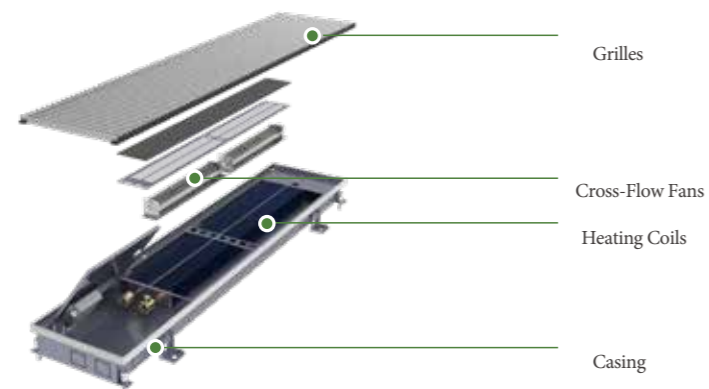
FTLDQ300-L/420

Model	Heating Capacity (W)			Length (mm)
	64.5°C (95/70/18°C)	52°C (80/60/18°C)	34.5°C (60/45/18°C)	
FTLDQ300-850/420	511	387	228	850
FTLDQ300-1250/420	965	730	431	1250
FTLDQ300-1750/420	1531	1161	683	1750
FTLDQ300-2250/420	2099	1590	936	2250
FTLDQ300-2750/420	2666	2020	1191	2750
FTLDQ300-3250/420	3233	2449	1444	3250



04 Fan-assisted Floor Convectors - Low Profile

The Ultra-thin floor convectors with forced convection is concealed under the floor and can be placed in low profile trenches. It's supplied with low noise 24V DC fans for quiet operation.



Model	Fan Speed	Air Volume m ³ /h	Sound Pressure Level dB(A)	Heating Capacity (W)			Power W	Length mm	Height mm	Width mm
				80/60/20°C	60/50/20°C	50/30/20°C				
FTLDQQ80-1150/240	3	130	36	811	568	572	6	1150	80	240
	2	110	31	704	493	508				
	1	90	< 28	598	419	324				
	Nature Convection	0	0	167	117	67				
FTLDQQ80-1500/240	3	195	37.5	1430	1001	572	8	1500	80	240
	2	165	32.5	1270	889	508				
	1	135	< 28	1110	777	444				
	Nature Convection	0	0	395	276	158				
FTLDQQ80-1850/240	3	260	39	1906	1334	763	12	1850	80	240
	2	220	34	1693	1185	677				
	1	180	29	1480	1036	592				
	Nature Convection	0	0	526	368	210				
FTLDQQ80-2200/240	3	325	40	2383	1668	953	16	2200	80	240
	2	275	35	2116	1481	847				
	1	225	30	1850	1295	740				
	Nature Convection	0	0	658	460	263				
FTLDQQ80-1150/200	3	120	35	759	531	304	6	1150	80	200
	2	100	31	693	478	274				
	1	80	< 28	606	424	242				
	Nature Convection	0	0	263	184	105				
FTLDQQ80-1500/200	3	180	37	1216	852	487	8	1500	80	200
	2	150	32	1056	739	423				
	1	120	< 28	897	628	359				
	Nature Convection	0	0	251	175	100				

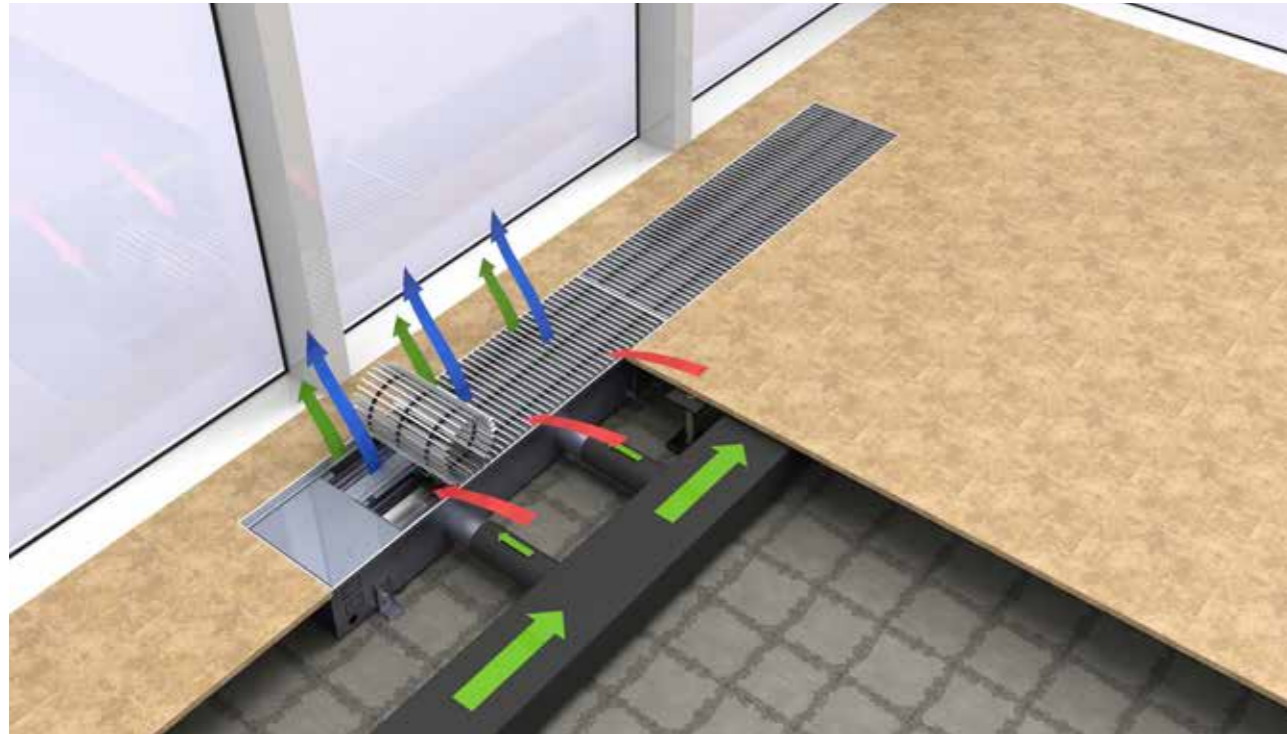
Model	Fan Speed	Air Volume		Sound Pressure Level			Heating Capacity (W)			Power W	Length mm	Height mm	Width mm
		m ³ /h	dB(A)	80/60/20°C	60/50/20°C	50/30/20°C							
FTLDQQ80-1850/200	3	240	38	1622	1135	649	12	1850	80	200			
	2	200	33	1408	986	563							
	1	160	29	1196	837	478							
	Nature Convection	0	0	334	234	134							
FTLDQQ80-2200/200	3	300	39	2027	1419	811	16	2200	80	200			
	2	250	34	1761	1233	705							
	1	200	30	1495	1046	598							
	Nature Convection	0	0	418	292	167							
FTLDQQ80-1150/160	3	80	35	598	419	293	6	1150	80	160			
	2	70	31	544	381	218							
	1	60	< 28	491	344	197							
	Nature Convection	0	0	123	86	28							
FTLDQQ80-1500/160	3	120	37	897	628	359	8	1500	80	160			
	2	105	32	817	572	327							
	1	90	< 28	737	516	295							
	Nature Convection	0	0	185	128	74							
FTLDQQ80-1850/160	3	160	38	1196	837	478	12	1850	80	160			
	2	140	34	1089	762	436							
	1	120	29	983	688	393							
	Nature Convection	0	0	246	173	99							
FTLDQQ80-2200/160	3	200	39	1495	1046	598	16	2200	80	160			
	2	175	34	1361	953	545							
	1	150	29	1229	860	491							
	Nature Convection	0	0	308	215	123							



05 Electric Heating

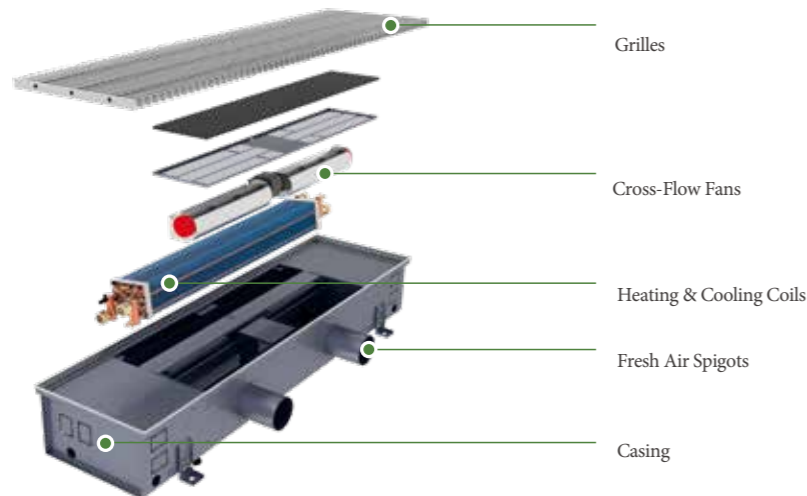
Freedom electric trench heating unit is a combination of high quality PTC heater and 24V Cross-flow fans to emission higher heating output. It's available for dry environment installation and save water usage.

Model	Fan Speed	Air Volume m ³ /h	Heating Output W	SPL dB(A)	Power W	Length mm	Width mm	Height mm
FTLDQQ-D-112-1250/207	5	163	989	37	10	1250	207	112
	4	131	791	32				
	3	98	593	29				
	2	65	395	25				
FTLDQQ-D-112-2000/207	5	326	2033	40	20	2000	207	112
	4	261	1626	39				
	3	196	1220	37				
	2	131	813	32				
FTLDQQ-D-112-2750/207	5	490	2967	42	30	2750	207	112
	4	392	2374	41				
	3	294	1780	39				
	2	196	1187	37				
	1	98	593	29				

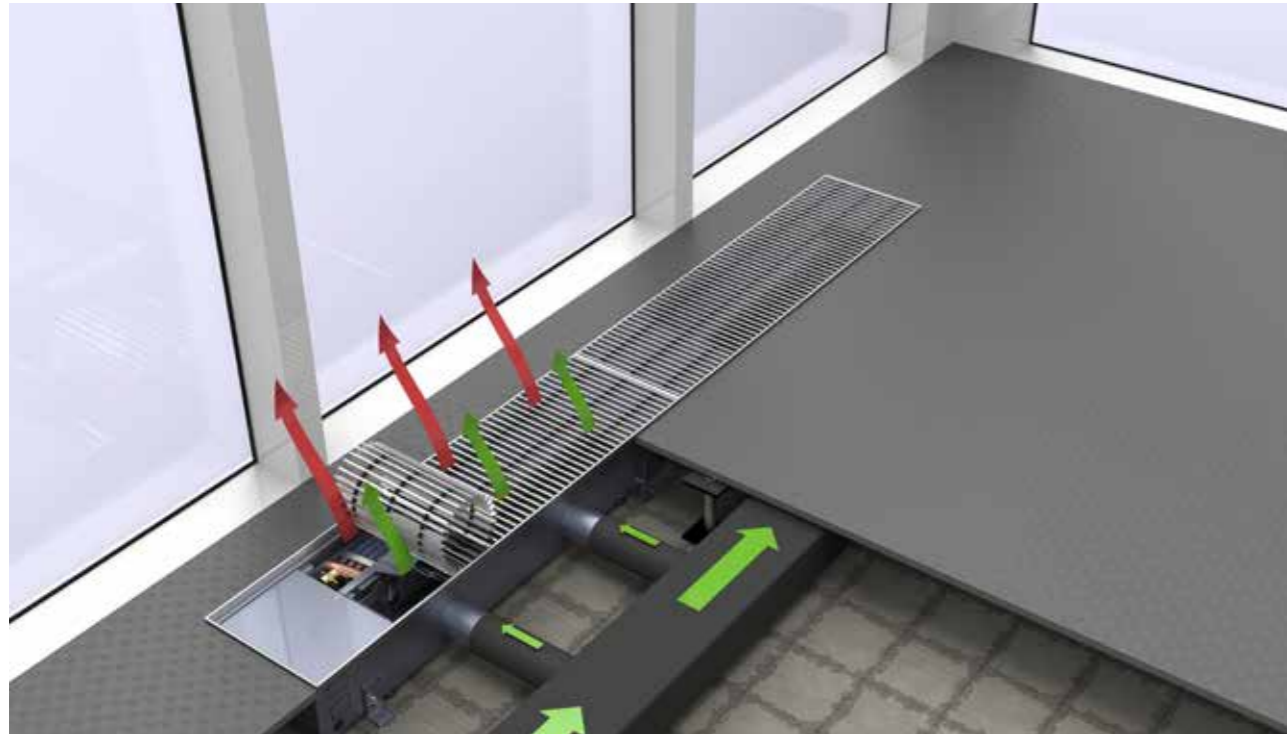


06 Floor Fan Coil with Fresh Air System ❄️🔥🌬️

Freedom floor fan coil with fresh air system is designed to fit into a trench along the perimeter of a building close to the glass or French windows. Supplied with fresh air spigots (the number of the spigots are based on the project requirements and fan coil length), treated air can be supplied to the room through the fresh air spigots. Fresh air function is also available even the heating and cooling function is stopped to save power consumption. It's for heating, cooling and ventilation purpose.

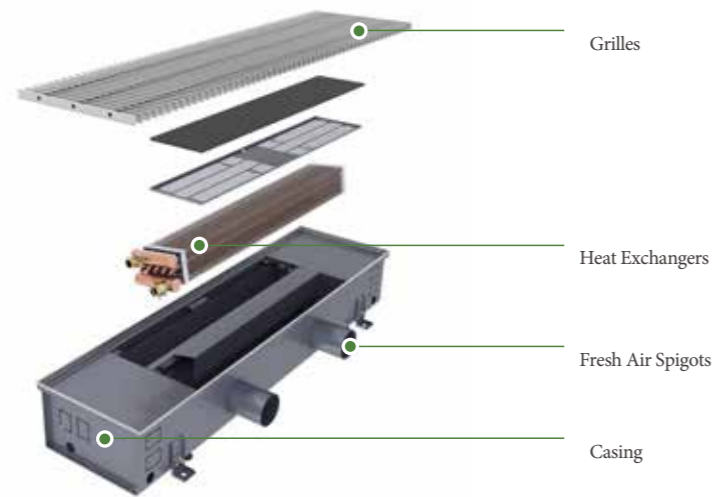


Model	Fan Speed	Air Volume m ³ /h	Heating Capacity W	Cooling Capacity W	Power W	Max. Fresh Air Volume m ³ /h	Length mm	Height mm	Width mm
FTLDKX190-1250/340	5	275	1931	1386	45	120	1250	190	340
	4	248	1748	1281	40				
	3	220	1571	1181	36				
	2	190	1399	1113	32				
	1	166	1299	1035	28				
FTLDKX190-2000/340	5	550	3914	2808	90	180	2000	190	340
	4	496	3543	2596	80				
	3	440	3183	2394	72				
	2	380	2834	2257	64				
	1	332	2632	2099	56				
FTLDKX190-2750/340	5	825	5845	4194	135	240	2750	190	340
	4	744	5291	3877	120				
	3	660	4753	3575	108				
	2	570	4233	3371	96				
	1	498	3930	3135	84				
FTLDKX190-1400/340-4	5	275	1854	914	45	120	1400	190	340
	4	248	1632	799	40				
	3	220	1422	687	36				
	2	190	1218	578	32				
	1	166	1098	509	28				
FTLDKX190-2150/340-4	5	550	3757	1853	90	180	2150	190	340
	4	496	3307	1619	80				
	3	440	2881	1392	72				
	2	380	2468	1172	64				
	1	332	2225	1030	56				
FTLDKX190-2750/340-4	5	825	5611	2767	135	240	2750	190	340
	4	744	4939	2417	120				
	3	660	4303	2079	108				
	2	570	3686	1750	96				
	1	498	3323	1539	84				



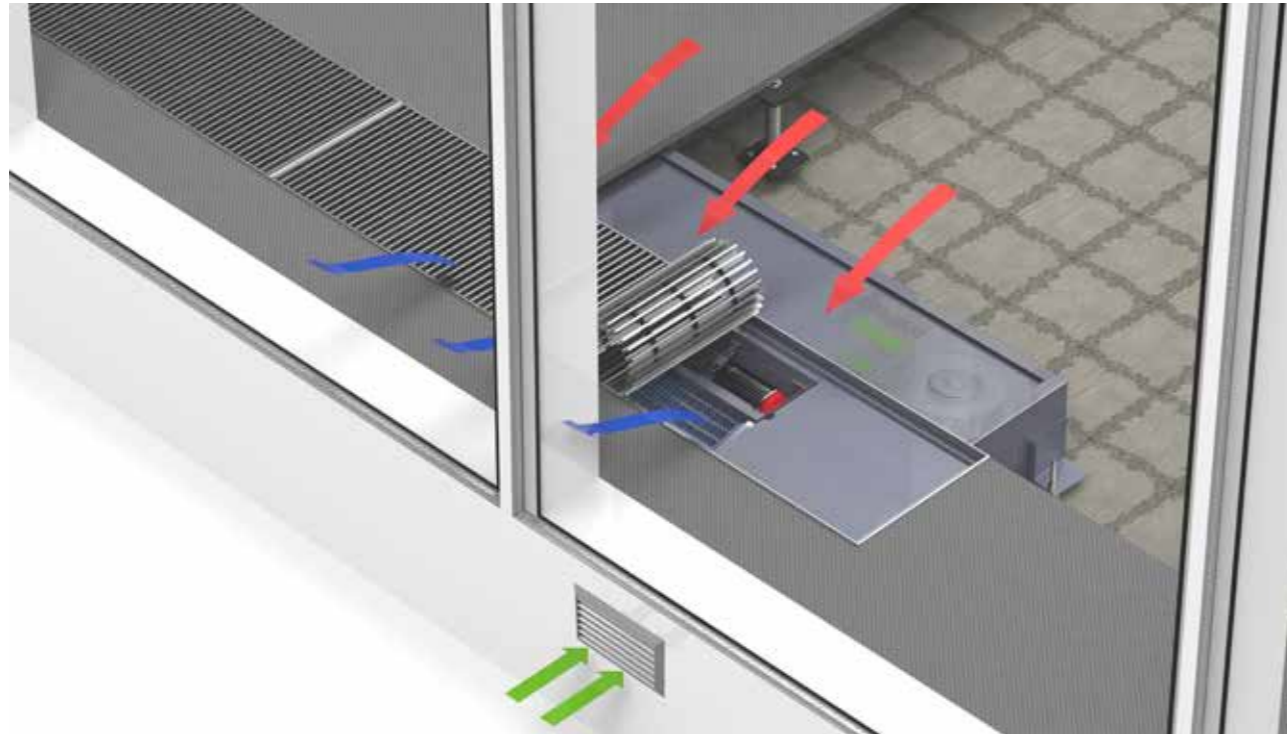
07 Nature Convection with Fresh Air System

Freedom Nature convection fresh air system is designed to fit into a trench along the perimeter of a building close to the glass or French windows. Supplied with fresh air spigots (the number of the spigots are based on the project requirements and fan coil length), treated air can be supplied to the room through the fresh air spigots. Fresh air function is available all year long to save energy.



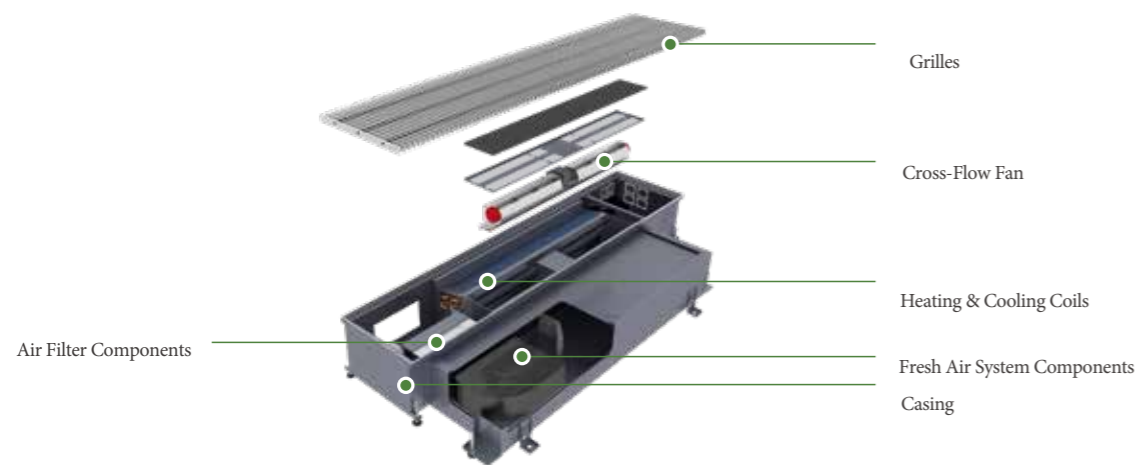
Model	Primary Air m ³ /h	Heating Capacity (W)						Length mm	Height mm	Width mm
		80/60/20°C		60/50/20°C		95/70/20°C				
		NM	FM	NM	FM	NM	FM			
FTLDQX160-1250/300	60	199	401	139	281	249	501	1250	160	300
FTLDQX160-1250/320	60	334	434	234	304	417	543	1250	160	320
FTLDQX160-1250/360	60	401	502	281	351	501	627	1250	160	360
FTLDQX160-1250/420	60	466	669	326	468	583	836	1250	160	420
FTLDQX160-1250/440	60	534	736	374	515	667	920	1250	160	440
FTLDQX210-1250/300	60	249	450	174	315	311	562	1250	210	300
FTLDQX210-1250/320	60	383	586	268	410	479	732	1250	210	320
FTLDQX210-1250/360	60	450	653	315	457	563	816	1250	210	360
FTLDQX210-1250/420	60	517	719	362	503	646	899	1250	210	420
FTLDQX210-1250/440	60	585	786	409	550	731	983	1250	210	440
FTLDQX260-1250/300	60	299	501	209	351	374	626	1250	260	300
FTLDQX260-1250/320	60	434	636	304	445	542	795	1250	260	320
FTLDQX260-1250/360	60	501	703	351	492	626	879	1250	260	360
FTLDQX260-1250/420	60	567	770	397	539	709	962	1250	260	420
FTLDQX260-1250/440	60	635	837	445	586	794	1046	1250	260	440

NM: Nature Convection Mode
FM: Fresh Air Model



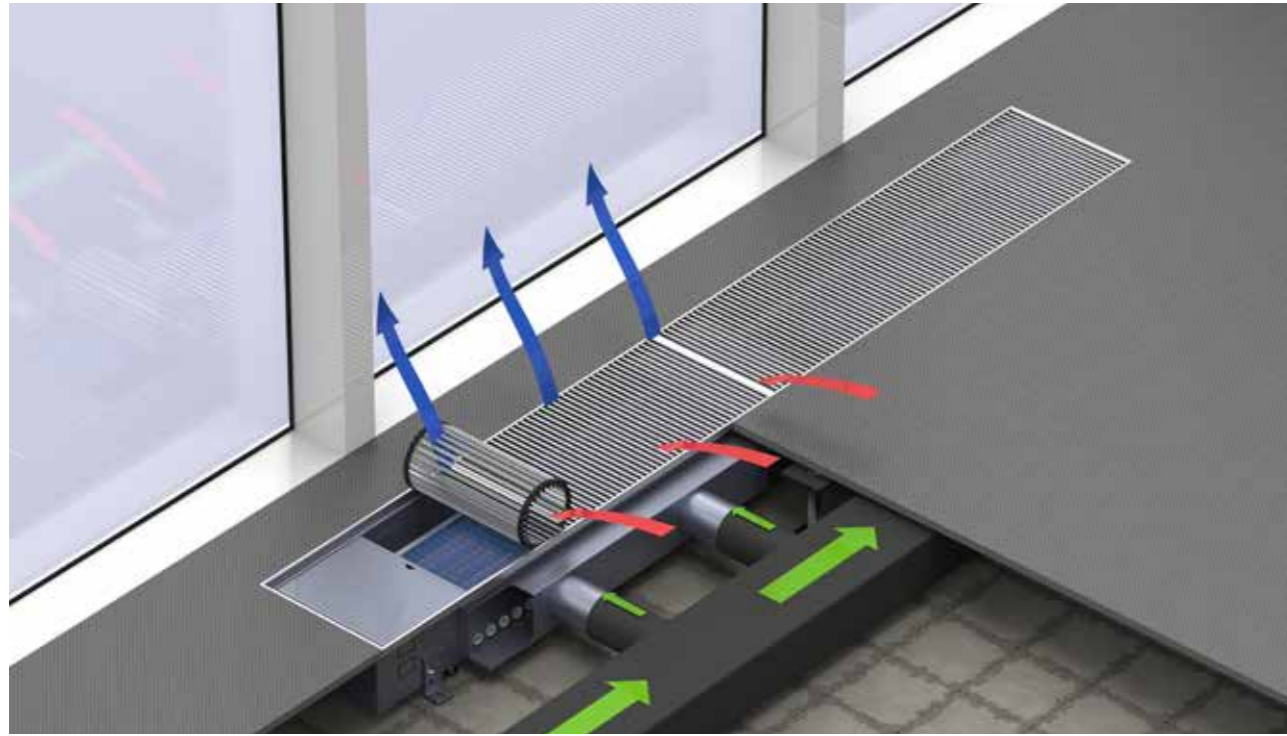
08 Floor Convector with Outdoor Ventilation System ❄️🌀🌿

Floor fan coil with displacement outdoor ventilation system is designed to fit into a trench along the perimeter of a building close to the glass or French windows. Supplied with an independent fresh air filter system, the outdoor treated air can be filtered and supplied to the room. It will save fresh air hoses cost and improve indoor air quality, and will save valuable room space.



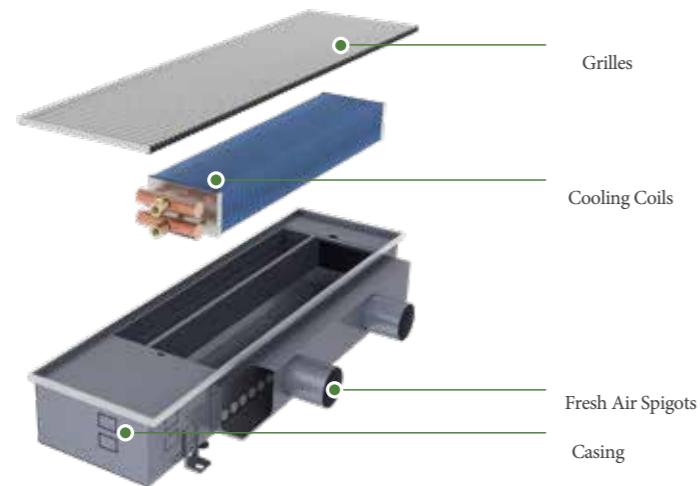
FrVent FA-4									
Fresh Air m ³ /h	Secondary Air m ³ /h	Total Air m ³ /h	Sound Pressure Level dB(A)	Cooling Capacity (W)			Heating Capacity (W)		
				Fresh Air	Secondary Air	Mix. Air	Fresh Air	Secondary Air	Mix. Air
150	275	425	47		853	2028		663	1011
	248	398	39		729	1811		608	948
	220	370	36	972	602	1596	486	552	885
	190	340	36		473	1380		494	820
	166	316	36		380	1185		448	769
125	275	400	47		853	1888		663	957
	248	373	39		729	1679		608	895
	220	345	35	795	602	1475	428	552	832
	190	315	35		473	1270		494	769
	166	291	35		380	1088		448	721
100	275	375	57		853	1750		663	901
	248	348	39		729	1549		608	840
	220	320	33	633	602	1354	372	552	780
	190	290	33		473	1160		494	716
	166	266	33		380	988		448	666

FrVent FA-2									
Fresh Air m ³ /h	Secondary Air m ³ /h	Total Air m ³ /h	Sound Pressure Level dB(A)	Cooling Capacity (W)			Heating Capacity (W)		
				Fresh Air	Secondary Air	Mix. Air	Fresh Air	Secondary Air	Mix. Air
150	275	425	47		1217	2391		752	1095
	248	398	39		1108	2174		694	1033
	220	370	36	1336	959	1959	571	636	970
	190	340	36		828	1744		577	905
	166	316	36		755	1549		530	853
125	275	400	47		1217	2290		752	1042
	248	373	39		1108	2080		694	977
	220	345	35	1158	959	1876	513	636	912
	190	315	35		828	1672		577	854
	166	291	35		755	1491		530	800
100	275	375	57		1217	2148		752	985
	248	348	39		1108	1947		694	925
	220	320	33	996	959	1645	457	636	865
	190	290	33		828	1558		577	801
	166	266	33		755	1388		530	750



09 Floor Induction Unit ❄️🔥🌬️

Floor induction unit is designed to fit into a trench along the perimeter of a building close to the glass or French windows. With air nozzles for evenly air discharge and high performance heating and cooling coils, floor induction unit can save project budget as with no built-in fans. The floor induction unit is available for low noise heating and cooling.



L _N	Nozzle Type	Primary Air m ³ /h	SPL dB(A)	Air Pressure Drop Pa	Cooling (Primary Air) W	Cooling (Water Side) W	Total Cooling W	Heating Cap. W
800	A	13	< 28	75	35	89	124	747
		20	< 28	170	54	145	198	975
		25	31	260	67	186	253	1119
	B	15	< 28	48	40	88	128	741
		25	< 28	125	67	160	227	1030
		35	32	234	94	234	328	1272
	C	25	< 28	65	67	125	192	900
		35	28	122	94	182	276	1107
		45	36	195	121	240	361	1290
1000	A	20	< 28	88	54	138	192	1114
		25	< 28	134	67	178	245	1279
		30	29	194	81	218	299	1431
	B	25	< 28	65	67	151	218	1167
		35	< 28	122	94	223	317	1448
		40	31	195	121	297	418	1697
	C	30	< 28	48	81	147	227	1151
		45	29	102	121	231	352	1477
		60	38	174	161	318	480	1761
1200	A	20	< 28	54	54	133	187	1226
		30	< 28	116	81	211	292	1580
		40	33	201	107	292	399	1887
	B	35	< 28	75	94	214	308	1589
		45	< 28	151	121	286	407	1866
		55	34	176	148	361	508	2118
	C	50	29	76	134	252	387	1741
		65	38	125	175	338	513	2045
		80	44	184	215	426	641	2321
1400	A	30	< 28	79	81	206	286	1707
		40	< 28	136	107	285	392	2041
		50	31	208	134	336	500	2342
	B	40	< 28	66	107	241	349	1862
		55	< 28	120	148	350	497	2284
		70	33	188	188	461	649	2660
	C	55	32	62	148	274	422	1998
		75	41	111	201	388	589	2417
		95	48	173	255	504	759	2792
1600	A	35	< 28	77	94	240	334	2003
		45	32	123	121	318	439	2342
		55	39	181	148	399	547	2651
	B	50	30	73	134	304	438	2284
		65	38	119	175	413	588	2702
		80	44	176	215	525	739	3081
	C	50	39	71	188	352	540	2474
		65	48	126	255	495	641	2983
		80	54	195	322	641	963	3440

References



Beijing Development Building

Design company: Beijing Municipal Architecture Design & Research Institute.

Product used: Ground Recessed Surround-Line Convector. Architecture award: 1989 Beijing "Great Wall Cup Gold Award" for Quality Engineering; and "1990 Luban Prize for Construction Project" issued by the Ministry of Construction.

Project overview: Beijing Fortune Building was built from April 1987 and put into official operation on April 11, 1990; it is one of the first batch of international intelligent official buildings in Beijing. Unique design pattern and everlasting building quality make it manifests incomparable solemn and dignity in Yansha business area consisting of different buildings placed closely side by side. Meanwhile, this "elite and time-honored" office building was built by joint effort of China and Japan and has experienced lots of weather test for long; its existence exactly adds brilliance to the magnificent Yansha business area. The project has won 1989 Beijing "Great Wall Cup Gold Award" for Quality Engineering; and "1990 Luban Prize for Construction Project" issued by national Ministry of Construction. Beijing Fortune Building is located at "the third Legation Quarter", one of the most mature comprehensive foreign business areas.



Shanghai Far East Horizon Tower

Design company: Shanghai Architecture Design and Research Institute Co., Ltd, Shanghai Research Institute of Building Sciences.

Product used: Ground Recessed Surround-Line Convector. Architecture award: The first batch of green buildings evaluation standard project in 2018.

Project overview: Shanghai Far East Horizon Tower is one new high-rise office building in Shanghai Pudong New District, it has floor area of about 100,000m2, total investment of about RMB 0.8 billion Yuan, consists of 11 aboveground floors, and is mainly used for culture, commerce and office purposes. Horizon Equipment provides Far East Horizon square with smart power solution by integrating IT (information technology) and OT (operation technology) and enabling interconnection through software technology, it also provides whole-project-period digital experience and full life circle specialized service, redefining the green power standards from equipment, software and service three levels.





Qingdao- Jiaodong International Airport

Design company: China Southwest Architectural Design and Research Institute Corp., Ltd.

Products used: Floor convector for heating & cooling convection

Project Profile: It is located 11 kilometers northeast of Jiaozhou city center under the jurisdiction of Qingdao city, west of Dagu River, east of East outer ring, between Jiaozhou-Jinan Railway and Qingdao-Jinan passenger railway, and about 39 kilometers away from Qingdao city center. The total investment of the project is about 44.333 billion yuan, the terminal area is 478,000 square meters, and the construction period is about four years. Upon completion, the project can meet security requirements of 35 million passengers per year, 500,000 tons of cargo and mail, and 300,000 flights of aircrafts. The operation level is 4F, which is the highest level. It can take off and land airbus A380, Boeing 747 - 800 and other current largest models.

China Building Materials Mansion

Design company: Shanghai Xian Dai Architectural Design (Group) Co.,Ltd.

Product used: Ground Recessed Surround-Line Convector.

Architecture award: Three-star green building.

Project overview: China Building Materials Mansion has building area of 12,000m2, is one 13-floor commercial building; in addition to the main purpose of business office, it also has reception and meeting space, underground garage and fitness room. The project is located at World Expo B plot- a central enterprises concentration district; in north it separates World Expo riverside ecological vegetation and faces Huangpu River, having excellent ecological environment; in east it borders Expo Culture Center and other World Expo permanent buildings, having strong international and high quality and rich cultural connotation.





Shanghai Hongkou SOHO

Design company: Kengo Kuma & Associates, Tongji Architectural Design (Group) Co., Ltd.

Product used: Ground Recessed Surround-Line Convectors.

Architecture award: LEED Gold Certified, 2017 national excellent engineering survey and design industry award - third prize in public construction; 2017 Ministry of Education excellent water system engineering third prize, Optimum high-rise building Excellence Award of the first session of China's top architecture award.

Project overview: Shanghai Hongkou SOHO has mature surrounding commercial atmosphere and complete five-star hotels and shopping malls, etc., and is next to North Sichuan Road Park. It has building area of 95,000m², uses folded aluminum mesh pattern; every grid is 18mm wide and all grids by interconnection form one integral structure which generates braided lace effect; with change of sun position, fold skin will produce one interesting texture form change of light and shade. Inside the building, the fold theme is continued on office ceiling and wall; this is especially obvious at atrium space. These organic and sculpture-like wall spaces fluctuate and change among different spaces, providing surrounding environment with one dynamic and active atmosphere.

Shanghai Oriental Financial Center

Product used: Ground Recessed Surround-Line Convectors.

Project overview: Oriental Financial Center has floor area of 110,000m², is one 35-floor building, about 200 m high in total, and is located in the heart of Lujiazui Financial Zone in Shanghai Pudong New District, which establishes its architectural blue feature joining finance and economy and trade. Oriental Financial Center is one high intelligence super Grade A pure office building, the atrium of unique design running through the whole mansion provides adequate natural light and wind. Super grade-A 3.2-3.5m clear storey height combined with environmental protection, energy saving and high efficient air supply system provides flexible office space pattern. At large bay floor the utility ratio reaches 76%, having a great view of superior landscape of small Lujiazui and Huangpu river; people may go to top floor hanging garden at any time, breathing city fresh air which is rare inside the district.





Vanke Emerald College

Design company: Beijing Lacime Architectural Design Co., Ltd.; Beijing Auna International Architecture Design Incorporation.

Product used: Ground Recessed Surround-Line Convactor.

Architecture award: Three-star green building.

Project overview: Vanke Emerald College has floor area of 169,000m2, and is located at Beijing Haidian District, is one high end community tailored for Haidian elites of science and technology. It uses low-density community construction method; building quality, house type design, and decoration design are all made as per "Emerald series" refined decoration standard. In order to boost green and livable Beijing construction, broadcast and popularize "green, ecology, low carbon, and intension" ideas, in Emerald College Beijing Planning Exhibition Hall - eco-city hall will be built to exhibits ideas and achievements of its green building construction and it will be made the technology display, academic exchange, and science popularization education base and platform for green, low carbon and ecological building.



Shanghai Oriental Financial Center

Product used: Ground Recessed Surround-Line Convactor.

Project overview: Apple suzhou is located in suzhou industrial park, adjacent to the scenic jinji lake. The storefront is divided into two floors, connected by a 10-meter-high curved glass curtain wall, and decorated with beautiful stone walls. The slightly tilted lighting ceiling on the first floor makes people feel that the indoor and outdoor space is integrated into one, full of futuristic feeling.

The entrance directly in front of the retail store is surrounded by six trees. Meanwhile, the retail store is located directly above the subway station with convenient transportation

01 Advanced Facilities



Amada Laser Cutting Machine



Amada CNC Machine



Eurotec - Auto Powder Coating Line



Other



Trumpf - Germany



Trumpf CNC Machine



Other

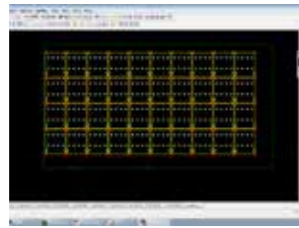


Accur Bending Machine

02 Motivated by Intelligent System



Amada Intelligent Design and Manufacturing System



Semi-anechoic Chamber

03 Expertise Laboratories are Available



Enthalpy Difference Lab

Certificates and Compliance



EMC certificate



LVD certificate



CE Marking



ETL listing Marks



We Work With Them



艾麦欧建筑设计公司



B+H建筑设计事务所
(贝加艾奇)



MAD建筑事务所



哈尔滨工业大学
建筑设计研究院



WSP科进



巴马丹拿建筑设计咨询(上海)
有限公司



北京市建筑设计研究院
有限公司



同济大学建筑设计研究院



华东建筑设计研究总院



中国建筑建筑设计研究院



中元国际工程设计研究院



上海现代建筑设计(集团)
有限公司



北京世纪千府国际工程
设计有限公司



清华大学建筑设计
研究院



中国建筑东北设计研究院
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