

Technology Changes Life

Perimeter Heating

Made-to-measure Integral Technical Solutions



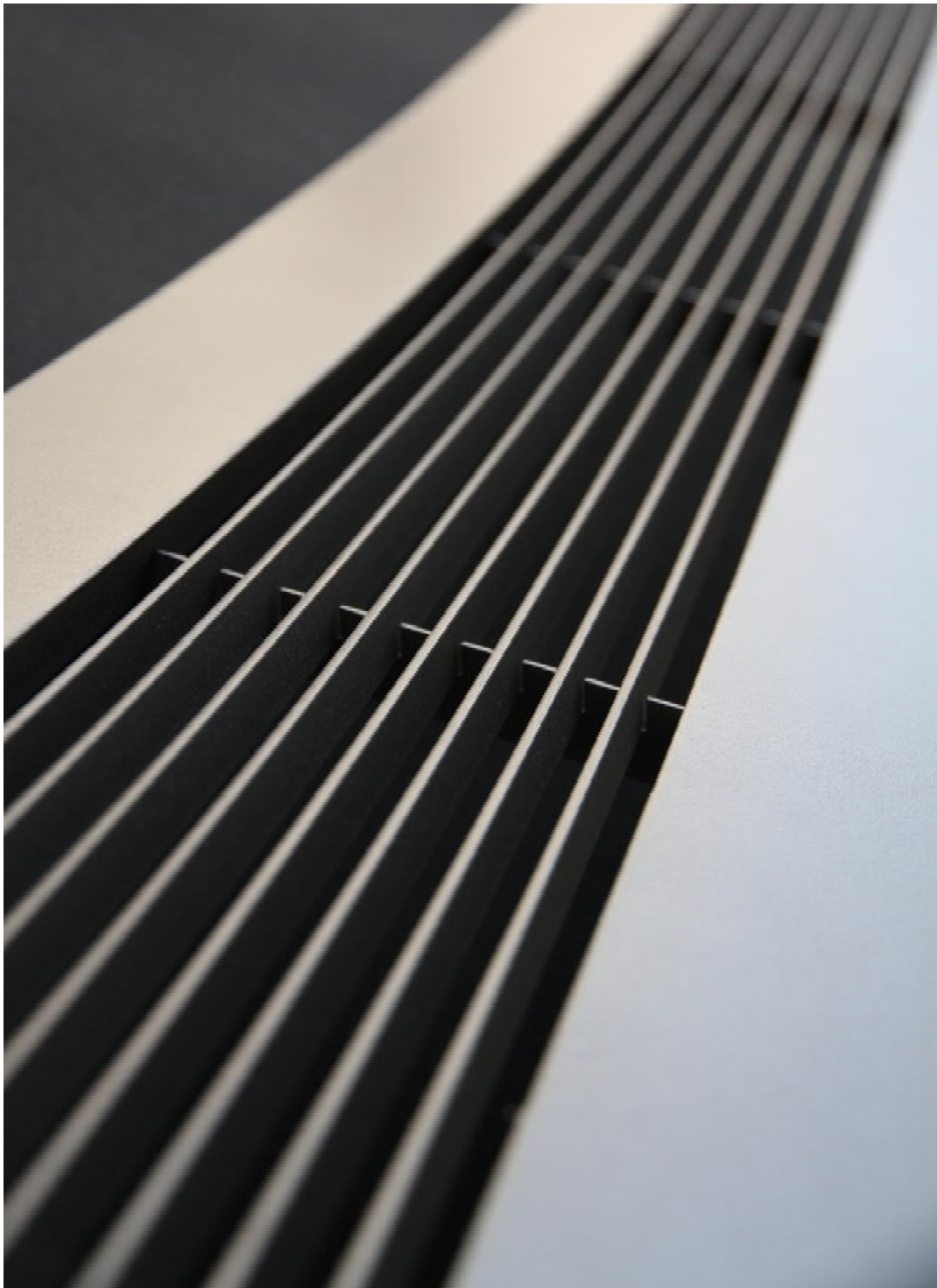
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- Advocate for comfortable living environment
- Executor for energy conservation and environmental protection
- Pioneer of technology and innovation of Chinese HVAC industry



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Brief Introduction



Freedom (Zhengzhou) Industry Co., Ltd has been engaged in designing, manufacturing and installing terminal units of air conditioner for 20 years. The company is the first and most professional made-to-measure terminal products and radiating equipment manufacturer in China with largest domestic market share. All our products are in accordance with international standards with CE and ISO 9001:2008 Quality certificate. And the company is Compilation Unit of National Standard JG221 – 2007 and JG220 – 2007.

Technology changes life

As a leading HVAC equipment manufacturer in China, the company is specializing in providing HVAC solutions and terminal units of air conditioner and radiating equipment. For public building, industrial building and residential building. While satisfying demand of various building in terms air conditioning system and decorative effect, we're also engaged in low carbon environment protection with energy conservation and high efficiency HVAC equipment.



With international design ideas of industry, advance thermal testing system and high efficiency and precise manufacturing equipment especially for custom development products, Freedom Industry can extend it's business across the country and several overseas market. Most of our projects are high end and landmarking buildings, other projects also include several international air-port.

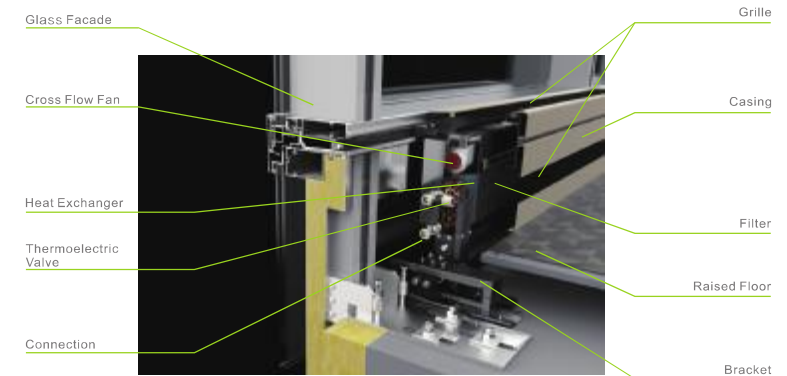
- Energy saving & high efficiency**
Highly efficient and energy saving design saves more energy for users.
- Green & recyclable**
No pollution, recyclable and harmless to environment
- Humanized & customized**
The product conforms to ergonomics and can be customized according to customer's demand.
- Safe & durable**
Safe design and excellent raw materials make the product more safe and durable.

We concentrate on creating warm and comfortable living environment for human beings.

Perimeter Heating - Wall-mounted Convector



Most current architectures are high layer frame structures. With consideration of natural light, energy saving and other factors, large area glass curtain wall is adopted. Cold (thermal) load of enclosure structure is high, so the hot (cold) area is easily formed near the enclosure structure. People will feel extremely uncomfortable in this area. Our integrated assembly type convector can perfectly solve this problem. It can form the area with even temperature field, reasonable air distribution and high comfort near the enclosure structure.



The integrated assembly type convector is composed of built-in heat exchange unit, shell, structure matching parts, support and spare parts and can be installed on the curtain wall as integrity. It can bear the cold (thermal) load of enclosure structure, eliminate the hot (cold) area near the enclosure structure and decorate the curtain wall as the windowsill to realize the unification of structure and function.

Product characteristics



Product characteristics

● Even and continuous linear air distribution

Wall-mounted convector is mounted along the glass-curtain wall to form a whole. Convector can be linear air distribution to form an effective heating/cooling air-flow and a comfortable and even temperature zone, finally eliminate zoned heating/cooling near the glass-curtain wall.



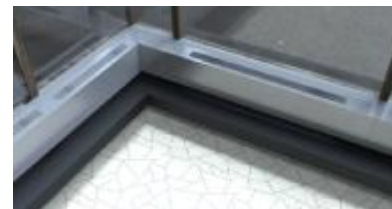
● Practical and artistic

Wall-mounted convector will be an important part of the whole glass-curtain wall by integrated with structure components. It can be used as windowsill with excellent decorative effect. The perimeter casing can also protect curtain wall, align error between glass-curtain wall and building structure. Convector that can eliminate condensation with better practical.



● Mass production and short delivery

All the structure components of wall-mounted convector are made-to-measure and will be produced after site-sizing by our trained technicians to enable better combination with glass-curtain wall and align any structure error. As all the units will be produced by CNC equipment with high precision, which will enable the mass production and short delivery, finally shorten project period.



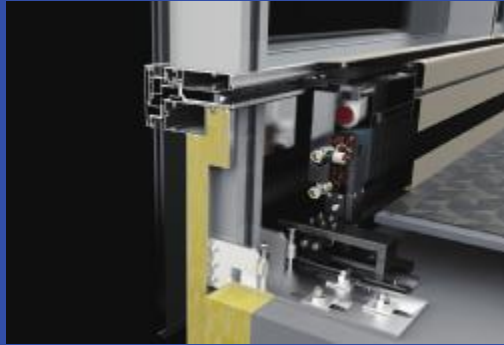
● Easy to assemble and disassemble

The wall-mounted perimeter casing can be integrated with the glass-curtain wall as a whole without any connect components on the surface. With its better load-bearing by firmly installed perimeter casing, the convector is easy to maintain and disassemble.

● Bearing heating load with high efficiency and energy-saving

Wall-mounted convector are suitable for primary and secondary heating, bearing heating load in night when central air conditioner is not running. It can effectively prevent the entering of cold air and maintain heating load in the room and is energy-saving.

Fan-assisted wall-mounted convector (Heating & Cooling)



Standard wall-mounted convector (Heating & Cooling) with 5 speed control

Type	Fan speed	Air flow (m³/h)	Power (W)	Sound pressure level (dB(A))	Cooling capacity (W)	Heating capacity (W)	Length (mm)	Height (mm)	Width (mm)
FSLCH600I-1250/180-4	5	275	48	47	761	1750	1250	600	180
	4	248	42	39	702	1643			
	3	220	36	33	645	1538			
	2	190	30	28	588	1429			
	1	166	22	27	543	1343			
FSLCH600I-2000/180-4	5	550	96	49	1516	3377	2000	600	180
	4	496	84	41	1398	3171			
	3	440	72	35	1285	2968			
	2	380	60	30	1171	2758			
	1	332	44	28	1082	2592			
FSLCH600I-2750/180-4	5	825	144	51	2294	5014	2750	600	180
	4	744	126	43	2117	4708			
	3	660	108	37	1945	4407			
	2	570	90	32	1773	4095			
	1	498	66	30	1637	3848			
FSLCH600II-1250/210-4	5	261	48	48	1309	2033	1250	600	210
	4	236	42	40	1208	1875			
	3	209	36	34	1110	1723			
	2	181	30	29	1012	1571			
	1	158	22	28	934	1451			
FSLCH600II-2000/210-4	5	522	96	50	2642	4095	2000	600	210
	4	472	84	42	2437	3777			
	3	418	72	36	2240	3471			
	2	362	60	31	2042	3164			
	1	316	44	29	1885	2922			
FSLCH600II-2750/210-4	5	783	144	52	3951	6128	2750	600	210
	4	708	126	44	3645	5653			
	3	627	108	38	3349	5194			
	2	543	90	33	3053	4735			
	1	474	66	31	2819	4373			

Heating & Cooling Types

Wall-mounted convector with built-in cross-flow fan to strength the convection effect, and increase the height of heating/cooling air along the glass-curtain wall and wall area. The convector is specially suitable for layer height is relatively high buildings or lobby area with higher heating capacity requirements. The convector can be running both in Summer or Winter.



Comparison of summer temperature field



Comparison of winter temperature field

Note: above product is our standard one with heating & cooling convection. Consult our technician for parameters of other special models. Besides, our company can provide professional design and customization services according to special requirements of customer to meet all of your requirements.

1.Cooling condition: inlet air dry and wet bulb temperature: 27/19.5°C; refrigerated water outlet temperature: 7/12°C.

2.Heating condition: inlet air dry bulb temperature: 21°C; hot water inlet temperature: 60°C. Water quantity is same with that in cooling condition.

Standard wall-mounted convector (Heating & Cooling) with 5 speed control

Standard wall-mounted convector (Heating & Cooling) with 5 speed control

Type	Fan speed	Air flow (m³/h)	Power (W)	Sound pressure level (dB(A))	Cooling capacity (W)	Heating capacity (W)	Length (mm)	Height (mm)	Width (mm)	Type	Fan speed	Air flow (m³/h)	Power (W)	Sound pressure level (dB(A))	Cooling capacity (W)	Heating capacity (W)	Length (mm)	Height (mm)	Width (mm)
FSLCH600III-1250/240-4	5	248	48	49	2076	2322	1250	600	240	FSLCH600II-1250/210	5	261	48	48	1744	4308	1250	600	210
	4	223	42	41	1915	2144					4	236	42	40	1609	3974			
	3	198	36	35	1760	1967					3	209	36	34	1478	3651			
	2	171	30	30	1604	1793					2	181	30	29	1348	3329			
	1	149	22	28	1481	1656					1	158	22	28	1245	3074			
FSLCH600III-2000/240-4	5	496	96	51	4196	4678	2000	600	240	FSLCH600II-2000/210	5	522	96	50	3522	8706	2000	600	210
	4	446	84	43	3870	4315					4	472	84	42	3249	8031			
	3	396	72	37	3557	3965					3	418	72	36	2985	7379			
	2	342	60	32	3242	3614					2	362	60	31	2721	6627			
	1	298	44	29	2994	3338					1	316	44	29	2513	6212			
FSLCH600III-2750/240-4	5	744	144	53	5836	6999	2750	600	240	FSLCH600II-2750/210	5	783	144	52	5265	13014	2750	600	210
	4	669	126	45	5384	6456					4	708	126	44	4854	12004			
	3	594	108	39	4947	5932					3	627	108	38	4463	11030			
	2	513	90	34	4509	5407					2	543	90	33	4068	10055			
	1	447	66	31	4164	4994					1	474	66	31	3757	9285			
FSLCH600I-1250/180	5	275	48	47	1090	2605	1250	600	180	FSLCH600III-1250/240	5	248	48	49	2624	6599	1250	600	240
	4	248	42	39	1005	2403					4	223	42	41	2420	6087			
	3	220	36	33	924	2208					3	198	36	35	2224	5593			
	2	190	30	28	842	2013					2	171	30	30	2027	5099			
	1	166	22	27	778	1859					1	149	22	28	1872	4708			
FSLCH600I-2000/180	5	550	96	49	2196	5255	2000	600	180	FSLCH600III-2000/240	5	496	96	51	5306	13352	2000	600	240
	4	496	84	41	2026	4847					4	446	84	43	4894	12317			
	3	440	72	35	1861	4454					3	396	72	37	4497	11317			
	2	380	60	30	1697	4060					2	342	60	32	4099	10316			
	1	332	44	28	1567	3749					1	298	44	29	3786	9527			
FSLCH600I-2750/180	5	825	144	51	3286	7859	2750	600	180	FSLCH600III-2750/240	5	744	144	53	7929	19951	2750	600	240
	4	744	126	43	3031	7250					4	669	126	45	7314	18408			
	3	660	108	37	2785	6661					3	594	108	39	6721	16910			
	2	570	90	32	2539	6072					2	513	90	34	6127	15416			
	1	498	66	30	2345	5608					1	447	66	31	5658	14236			

Note: above product is our standard one with heating & cooling convection. Consult our technician for parameters of other special models. Besides, our company can provide professional design and customization services according to special requirements of customer to meet all of your requirements.

1.Cooling condition: inlet air dry and wet bulb temperature: 27/19.5°C; refrigerated water outlet temperature: 7/12°C.

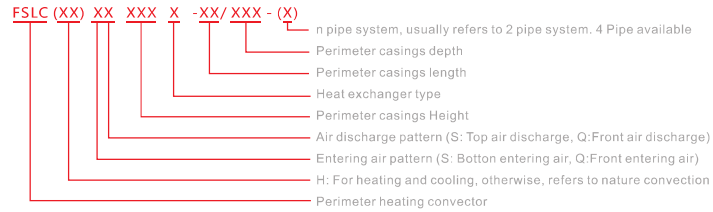
2.Heating condition: inlet air dry bulb temperature: 21°C; hot water inlet temperature: 60°C. Water quantity is same with that in cooling condition.

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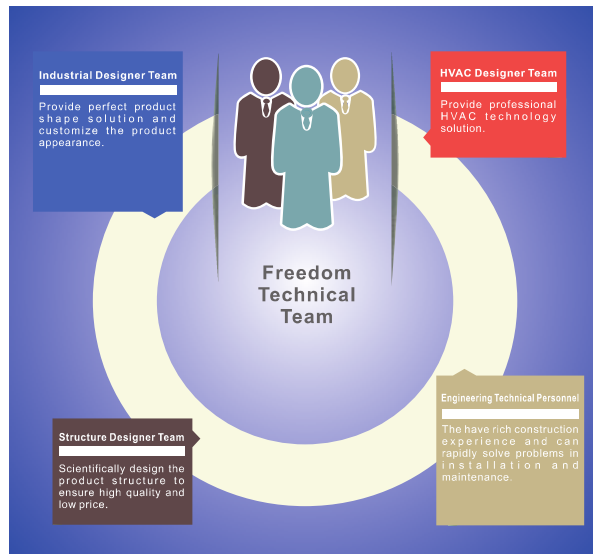
1.Cooling condition: inlet air dry and wet bulb temperature: 27/19.5°C; refrigerated water outlet temperature: 7/12°C.

2.Heating condition: inlet air dry bulb temperature: 21°C; hot water inlet temperature: 60°C. Water quantity is same with that in cooling condition.

Made-to-measure perimeter heating convector and definition



Our company can provide exclusive customization design services according to requirements of customer. The customer shall mark the required heat dissipating capacity or length of heat radiating element or contacts our company. Our company has the strong design team composed of senior technical designers, such as professional HVAC designers, industrial designers, mechanical designers, water and electrical designers to meet your requirements and to fully show your design concept. Perfect customization is realized based on specific architecture features.



Wall-mounted convector with nature convection



Wall-mounted convector with nature convection

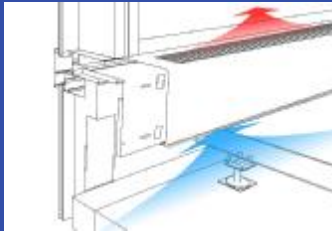
Nature convector installed below the glass curtain wall, because of chimney effect and hot air rise, it can reduce the cold draught, minimizing the risk of condensation, with reasonable airflow pattern and high comfortable room environment.



Comparison of temperature field for heating

Wall-mounted convector with nature convection performance data

Airflow:
Bottom-upper path



Type	Heating capacity (W)			Length (mm)	Height (mm)	Width (mm)
	(95/70/18°C)	(75/65/20°C)	(60/50/20°C)			
FSLCXS300 I –1200/200	1419	990	598	1200	300	200
FSLCXS300 I –1300/200	1537	1072	648	1300	300	200
FSLCXS300 I –1400/200	1655	1155	697	1400	300	200
FSLCXS300 I –1500/200	1773	1237	747	1500	300	200
FSLCXS300 I –1600/200	1891	1320	797	1600	300	200
FSLCXS300 II –1200/200	1511	1056	639	1200	300	200
FSLCXS300 II –1300/200	1637	1144	692	1300	300	200
FSLCXS300 II –1400/200	1763	1232	746	1400	300	200
FSLCXS300 II –1500/200	1889	1320	799	1500	300	200
FSLCXS300 II –1600/200	2015	1408	852	1600	300	200
FSLCXS300 III –1200/200	1101	767	462	1200	300	200
FSLCXS300 III –1300/200	1192	831	501	1300	300	200
FSLCXS300 III –1400/200	1284	895	539	1400	300	200
FSLCXS300 III –1500/200	1376	959	578	1500	300	200
FSLCXS300 III –1600/200	1467	1022	617	1600	300	200
FSLCXS300 IV –1200/200	1365	950	572	1200	300	200
FSLCXS300 IV –1300/200	1479	1030	620	1300	300	200
FSLCXS300 IV –1400/200	1593	1109	668	1400	300	200
FSLCXS300 IV –1500/200	1706	1188	715	1500	300	200
FSLCXS300 IV –1600/200	1820	1267	763	1600	300	200

Note: above product is our standard one with nature convection. Consult our technician for parameters of other special models. Besides, our company can provide professional design and customization services according to special requirements of customer to meet all of your requirements.

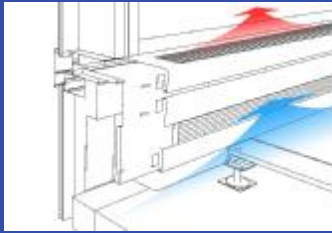
Wall-mounted convector with nature convection (Bottom-upper path)

Type	Heating capacity (W)			Length (mm)	Height (mm)	Width (mm)
	(95/70/18°C)	(75/65/20°C)	(60/50/20°C)			
FSLCXS600 I –1200/200	1570	1103	672	1200	600	200
FSLCXS600 I –1300/200	1701	1195	728	1300	600	200
FSLCXS600 I –1400/200	1831	1286	784	1400	600	200
FSLCXS600 I –1500/200	1962	1378	840	1500	600	200
FSLCXS600 I –1600/200	2093	1470	896	1600	600	200
FSLCXS600 II –1200/200	2028	1419	861	1200	600	200
FSLCXS600 II –1300/200	2197	1538	933	1300	600	200
FSLCXS600 II –1400/200	2365	1656	1005	1400	600	200
FSLCXS600 II –1500/200	2534	1774	1077	1500	600	200
FSLCXS600 II –1600/200	2703	1892	1148	1600	600	200
FSLCXS600 III –1200/200	2767	1931	1167	1200	600	200
FSLCXS600 III –1300/200	2998	2092	1265	1300	600	200
FSLCXS600 III –1400/200	3228	2253	1362	1400	600	200
FSLCXS600 III –1500/200	3459	2414	1459	1500	600	200
FSLCXS600 III –1600/200	3689	2575	1556	1600	600	200
FSLCXS600 IV –1200/200	2202	1559	961	1200	600	200
FSLCXS600 IV –1300/200	2386	1689	1041	1300	600	200
FSLCXS600 IV –1400/200	2569	1819	1121	1400	600	200
FSLCXS600 IV –1500/200	2753	1949	1201	1500	600	200
FSLCXS600 IV –1600/200	2936	2079	1281	1600	600	200
FSLCXS600 V –1200/200	3766	2703	1699	1200	600	200
FSLCXS600 V –1300/200	4080	2929	1841	1300	600	200
FSLCXS600 V –1400/200	4394	3154	1982	1400	600	200
FSLCXS600 V –1500/200	4708	3379	2124	1500	600	200
FSLCXS600 V –1600/200	5021	3604	2265	1600	600	200
FSLCXS600 VI –1200/200	1751	1228	747	1200	600	200
FSLCXS600 VI –1300/200	1896	1330	809	1300	600	200
FSLCXS600 VI –1400/200	2042	1432	871	1400	600	200
FSLCXS600 VI –1500/200	2188	1535	934	1500	600	200
FSLCXS600 VI –1600/200	2334	1637	996	1600	600	200

Note: above product is our standard one with nature convection. Consult our technician for parameters of other special models. Besides, our company can provide professional design and customization services according to special requirements of customer to meet all of your requirements.

Wall-mounted convector with nature convection performance data

Airflow:
Front-upper path



Type	Heating capacity (W)			Length (mm)	Height (mm)	Width (mm)
	(95/70/18°C)	(75/65/20°C)	(60/50/20°C)			
FSLCQS300 I – 1200/200	1320	921	556	1200	300	200
FSLCQS300 I – 1300/200	1430	998	603	1300	300	200
FSLCQS300 I – 1400/200	1540	1075	649	1400	300	200
FSLCQS300 I – 1500/200	1650	1151	696	1500	300	200
FSLCQS300 I – 1600/200	1760	1228	742	1600	300	200
FSLCQS300 II – 1200/200	1406	983	595	1200	300	200
FSLCQS300 II – 1300/200	1523	1065	644	1300	300	200
FSLCQS300 II – 1400/200	1641	1146	694	1400	300	200
FSLCQS300 II – 1500/200	1758	1228	744	1500	300	200
FSLCQS300 II – 1600/200	1875	1310	793	1600	300	200
FSLCQS300 III – 1200/200	1024	714	430	1200	300	200
FSLCQS300 III – 1300/200	1110	773	466	1300	300	200
FSLCQS300 III – 1400/200	1195	833	502	1400	300	200
FSLCQS300 III – 1500/200	1280	892	538	1500	300	200
FSLCQS300 III – 1600/200	1366	952	574	1600	300	200
FSLCQS300 IV – 1200/200	1271	884	533	1200	300	200
FSLCQS300 IV – 1300/200	1376	958	577	1300	300	200
FSLCQS300 IV – 1400/200	1482	1032	621	1400	300	200
FSLCQS300 IV – 1500/200	1588	1106	666	1500	300	200
FSLCQS300 IV – 1600/200	1694	1179	710	1600	300	200

Note: above product is our standard one with nature convection. Consult our technician for parameters of other special models. Besides, our company can provide professional design and customization services according to special requirements of customer to meet all of your requirements.

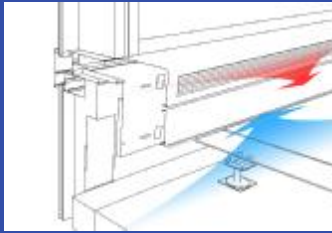
Wall-mounted convector with nature convection (Front-upper path)

Type	Heating capacity (W)			Length (mm)	Height (mm)	Width (mm)
	(95/70/18°C)	(75/65/20°C)	(60/50/20°C)			
FSLCQS600 I – 1200/200	1461	1026	626	1200	600	200
FSLCQS600 I – 1300/200	1583	1112	678	1300	600	200
FSLCQS600 I – 1400/200	1704	1197	730	1400	600	200
FSLCQS600 I – 1500/200	1826	1283	782	1500	600	200
FSLCQS600 I – 1600/200	1948	1368	834	1600	600	200
FSLCQS600 II – 1200/200	1887	1321	802	1200	600	200
FSLCQS600 II – 1300/200	2044	1431	868	1300	600	200
FSLCQS600 II – 1400/200	2202	1541	935	1400	600	200
FSLCQS600 II – 1500/200	2359	1651	1002	1500	600	200
FSLCQS600 II – 1600/200	2516	1761	1069	1600	600	200
FSLCQS600 III – 1200/200	2575	1798	1086	1200	600	200
FSLCQS600 III – 1300/200	2790	1947	1177	1300	600	200
FSLCQS600 III – 1400/200	3004	2097	1268	1400	600	200
FSLCQS600 III – 1500/200	3219	2247	1358	1500	600	200
FSLCQS600 III – 1600/200	3434	2397	1449	1600	600	200
FSLCQS600 IV – 1200/200	2050	1451	894	1200	600	200
FSLCQS600 IV – 1300/200	2221	1572	969	1300	600	200
FSLCQS600 IV – 1400/200	2391	1693	1043	1400	600	200
FSLCQS600 IV – 1500/200	2562	1814	1118	1500	600	200
FSLCQS600 IV – 1600/200	2733	1935	1192	1600	600	200
FSLCQS600 V – 1200/200	3505	2516	1581	1200	600	200
FSLCQS600 V – 1300/200	3797	2726	1713	1300	600	200
FSLCQS600 V – 1400/200	4089	2935	1845	1400	600	200
FSLCQS600 V – 1500/200	4381	3145	1977	1500	600	200
FSLCQS600 V – 1600/200	4673	3355	2108	1600	600	200
FSLCQS600 VI – 1200/200	1629	1143	695	1200	600	200
FSLCQS600 VI – 1300/200	1765	1238	753	1300	600	200
FSLCQS600 VI – 1400/200	1901	1333	811	1400	600	200
FSLCQS600 VI – 1500/200	2037	1428	869	1500	600	200
FSLCQS600 VI – 1600/200	2172	1523	927	1600	600	200

Note: above product is our standard one with nature convection. Consult our technician for parameters of other special models. Besides, our company can provide professional design and customization services according to special requirements of customer to meet all of your requirements.

Wall-mounted convector with nature convection performance data

Airflow:
Bottom-front path



Wall-mounted convector with nature convection (Bottom-front path)

Type	Heating capacity (W)			Length (mm)	Height (mm)	Width (mm)
	(95/70/18°C)	(75/65/20°C)	(60/50/20°C)			
FSLCXQ600 I -1200/200	1475	1036	632	1200	600	200
FSLCXQ600 I -1300/200	1598	1123	684	1300	600	200
FSLCXQ600 I -1400/200	1721	1209	737	1400	600	200
FSLCXQ600 I -1500/200	1844	1295	790	1500	600	200
FSLCXQ600 I -1600/200	1967	1382	842	1600	600	200
FSLCXQ600 II -1200/200	1905	1334	809	1200	600	200
FSLCXQ600 II -1300/200	2064	1445	877	1300	600	200
FSLCXQ600 II -1400/200	2223	1556	944	1400	600	200
FSLCXQ600 II -1500/200	2382	1667	1012	1500	600	200
FSLCXQ600 II -1600/200	2540	1778	1079	1600	600	200
FSLCXQ600 III -1200/200	2600	1815	1097	1200	600	200
FSLCXQ600 III -1300/200	2817	1966	1188	1300	600	200
FSLCXQ600 III -1400/200	3034	2117	1280	1400	600	200
FSLCXQ600 III -1500/200	3250	2269	1371	1500	600	200
FSLCXQ600 III -1600/200	3467	2420	1463	1600	600	200
FSLCXQ600 IV -1200/200	2070	1465	903	1200	600	200
FSLCXQ600 IV -1300/200	2242	1587	978	1300	600	200
FSLCXQ600 IV -1400/200	2414	1709	1053	1400	600	200
FSLCXQ600 IV -1500/200	2587	1831	1129	1500	600	200
FSLCXQ600 IV -1600/200	2759	1953	1204	1600	600	200
FSLCXQ600 V -1200/200	3539	2540	1597	1200	600	200
FSLCXQ600 V -1300/200	3834	2752	1730	1300	600	200
FSLCXQ600 V -1400/200	4129	2964	1863	1400	600	200
FSLCXQ600 V -1500/200	4424	3175	1996	1500	600	200
FSLCXQ600 V -1600/200	4719	3387	2129	1600	600	200
FSLCXQ600 VI -1200/200	1645	1154	702	1200	600	200
FSLCXQ600 VI -1300/200	1782	1250	760	1300	600	200
FSLCXQ600 VI -1400/200	1919	1346	819	1400	600	200
FSLCXQ600 VI -1500/200	2056	1442	877	1500	600	200
FSLCXQ600 VI -1600/200	2193	1538	936	1600	600	200

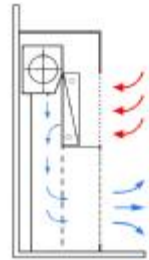
Type	Heating capacity (W)			Length (mm)	Height (mm)	Width (mm)
	(95/70/18°C)	(75/65/20°C)	(60/50/20°C)			
FSLCXQ300 I -1200/200	1333	930	562	1200	300	200
FSLCXQ300 I -1300/200	1444	1008	609	1300	300	200
FSLCXQ300 I -1400/200	1555	1085	655	1400	300	200
FSLCXQ300 I -1500/200	1666	1163	702	1500	300	200
FSLCXQ300 I -1600/200	1777	1240	749	1600	300	200
FSLCXQ300 II -1200/200	1420	992	601	1200	300	200
FSLCXQ300 II -1300/200	1538	1075	651	1300	300	200
FSLCXQ300 II -1400/200	1657	1158	701	1400	300	200
FSLCXQ300 II -1500/200	1775	1240	751	1500	300	200
FSLCXQ300 II -1600/200	1893	1323	801	1600	300	200
FSLCXQ300 III -1200/200	1034	721	434	1200	300	200
FSLCXQ300 III -1300/200	1120	781	471	1300	300	200
FSLCXQ300 III -1400/200	1207	841	507	1400	300	200
FSLCXQ300 III -1500/200	1293	901	543	1500	300	200
FSLCXQ300 III -1600/200	1379	961	579	1600	300	200
FSLCXQ300 IV -1200/200	1283	893	538	1200	300	200
FSLCXQ300 IV -1300/200	1390	967	582	1300	300	200
FSLCXQ300 IV -1400/200	1497	1042	627	1400	300	200
FSLCXQ300 IV -1500/200	1604	1116	672	1500	300	200
FSLCXQ300 IV -1600/200	1711	1191	717	1600	300	200

Note: above product is our standard one with nature convection. Consult our technician for parameters of other special models. Besides, our company can provide professional design and customization services according to special requirements of customer to meet all of your requirements.

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Perimeter heating & cooling – wall-mounted Induction units

Sill induction unit is particularly for mounting on perimeter walls under windows with a suitable covering case. The primary fresh air volume flow rate required is supplied through a circular duct containing nozzles. The secondary air induced into the unit from the room passes through a water coil where it is either cooled or heated and it can achieve beautiful, comfortable and energy saving effect.

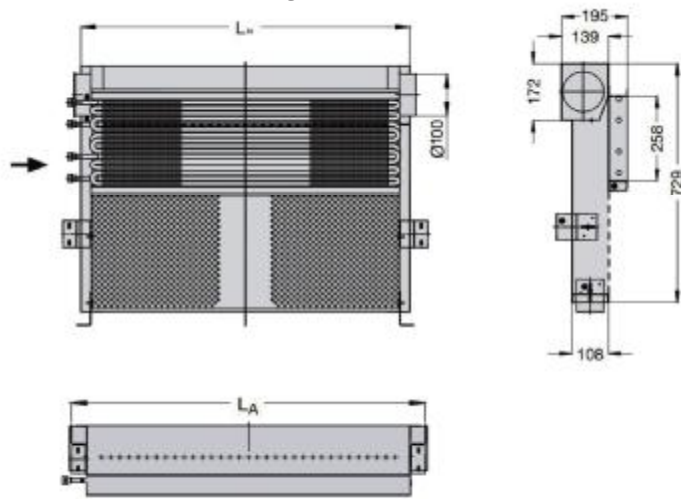


Wall-mounted induction units type and definition

FTLZLMH/X-L/W(-n)

Note
 FTLZL—Wall-mounted induction units
 M—Wall-mounted models
 H—Perimeter casing height (mm)
 X—Nozzle type
 L—Perimeter casing length (mm)
 W—Perimeter casing width (mm)
 (-n)—n pipe system, usually refers to 2 pipe system. 4 Pipe available

FTLZLM720/X-L/270 Dimension drawings



FTLZLM720/X-L/270 Performance data

L _N	Nozzle type	Primary air volume		Sound power level	Pressure drop	Cooling capacity (2 pipe & 4 pipe system)						Heating capacity 2 pipe system			Heating capacity 4 pipe system			
		V _{pr} L/S	V _{pr} m ³ /h			L _{wa}	ΔP _i	V _i	Δt _i	primary air W	Water-side W	Total output W	Δt _w Water-side °C	ΔP _w Water-side kPa	Q _s =Q _{opt} W	Δt _w Water-side °C	ΔP _w Water-side kPa	Q _s =Q _{opt} W
900	A	3	11	<20	51	0.07	2.9	45	176	222	1.4		365	6.3		211	3.7	
		7	25	25	156	0.12	2.7	84	273	357	2.1	3.1	554	9.5	0.3	330	5.7	0.3
		11	40	35	319	0.17	2.4	125	345	469	2.7		670	11.8		415	7.2	
	B	10	36	<20	83	0.14	3.2	121	272	393	2.1		554	9.5		330	5.7	
		14	51	30	187	0.20	2.9	176	352	528	2.8	3.1	696	12.1	0.3	423	7.3	0.3
		20	72	38	331	0.27	2.6	241	404	645	3.2		794	13.7		491	8.4	
	C	12	43	<20	41	0.14	3.3	145	209	354	1.6		432	7.4		253	4.3	
		23	83	30	159	0.28	2.8	284	308	593	2.4	3.1	616	10.7	0.3	371	6.4	0.3
		32	115	37	281	0.37	2.5	386	326	712	2.6		654	11.2		395	6.8	
1200	A	5	18	<20	43	0.07	3.1	60	218	278	1.7		449	7.7		264	4.5	
		8	29	23	140	0.13	2.8	104	342	446	2.7	3.8	680	11.8	0.3	413	7.1	0.3
		12	43	31	248	0.17	2.6	145	413	558	3.2		810	13.9		502	8.6	
	B	12	43	<20	65	0.14	3.4	145	326	471	2.5		653	11.2		395	6.8	
		17	62	26	146	0.20	3.1	214	424	638	3.3	3.8	825	14.2	0.3	512	8.9	0.4
		25	90	35	280	0.28	2.8	301	499	801	3.9		958	16.5		607	10.4	
	C	14	51	<20	35	0.15	3.6	173	260	432	2.0		521	9.1		311	5.4	
		30	108	28	137	0.29	3.0	362	386	748	3.0	3.8	762	13.1	0.3	468	8.1	0.4
		40	144	35	240	0.39	2.7	482	416	898	3.3		815	14.0		505	8.7	
1500	A	5	18	<20	39	0.08	3.3	7	258	328	2.0		525	9.1		310	5.4	
		11	40	22	131	0.14	2.9	133	408	540	3.2	4.5	800	13.8	0.3	495	8.5	0.4
		15	54	30	243	0.19	2.7	181	497	678	3.9		954	16.4		604	10.4	
	B	14	51	<20	65	0.15	3.5	176	395	571	3.1		773	13.4		475	8.2	
		22	79	25	137	0.21	3.2	265	502	768	3.9	4.5	963	16.6	0.3	611	10.5	0.4
		30	108	33	253	0.29	2.9	362	585	947	4.6		1100	18.9		713	12.3	
	C	20	72	<20	40	0.17	3.7	241	331	572	2.6		662	11.4		410	6.9	
		39	130	29	153	0.33	3.1	477	476	953	3.7	4.5	913	15.8	0.3	573	9.9	0.4
		50	180	35	237	0.42	2.8	603	500	1103	3.9		959	16.5		608	10.5	

Symbols

t _r Room air temperature	V _{wc} Water flow rate	L _{ti} Convactor Nominal length	t _w =26 °C	t _w =22 °C
t _{pr} Primary entering air temperature	t _{wik} Entering water temperature	V _{pr} Air flow per unit area	t _{w,ik} =t _w =16 °C	t _w =22 °C
Q _s Water-side heating capacity	t _{wok} Leaving water temperature	Δt _{rwv} Average difference between room air temperature and supply water temperature	V _{opt} =110 L/h	t _{w,ok} =50 °C
Q _{opt} Total heating capacity difference	ΔP _i Air-side pressure drop	Δt _{ic} Difference between room air temperature and comfortable room air temperature	Δt _{ic} =t _{pr} -t _{ic} =-10 °C	V _{opt} =50 L/h
Δt _{pr} Difference between flow and return water temperature	ΔP _w Water-side pressure drop	V _i Average primary air flow rate	Δt _{rwv} =t _{w,ik} -t _w =-10 °C	Δt _{rwv} =t _{w,ok} -t _w =28 °C

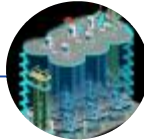
Design



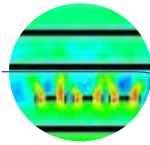
User analysis and technology R&D
 According to the market orientation rule, we will analyze the using requirements and using habits of customers and provide effective technical implementation scheme based on theoretical analysis and scientific demonstration made by the professional technical team composed of professional man-machine engineers, mechanical designers and HVAC engineers.



BIM analysis
 As to the concept product which passes theory and experiment, we will carry out the BIM analysis based on architecture environment to scientifically analyze the change and feedback of product in sound, light, heat, human, radiation and other factors of the whole architecture environment and to research the adaptability and practicability of product to architecture.



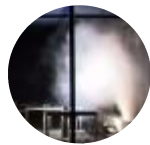
Thermal performance test
 We will carry out thermal performance test to researched data to ensure authenticity and correctness of theory and data. Besides, the process observation and data result of the test can help us to make more effective and more excellent correction and innovation for theoretical scheme.



Model machine installation
 Produce the model machine and install and test on site. Improve the product performance and correct the design scheme according to the actual effect and working condition of the model machine.



Air distribution simulation test
 Air distribution test can visually show the operating state of concept product and its adaptability to and influence on environment. Air distribution test is benefit for reform and upgrade of product to solve all problems of concept product so as to realize optimization of the product.



Precise manufacturing
 Apply internationally leading manufacturing and processing technology and select top grade raw materials and equipment. TRUMPF, AMADA, AKZONOBEL, USAIKE and other famous enterprises are our partners.



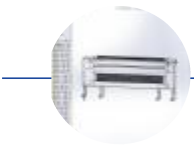
Product shape design
 Based on customer's demand and combined with architectural aesthetics, we will customize the integrated assembly type convector for every curtain wall of customer. Under the mandatory condition of ensuring cold and thermal demand in the architecture, we will provide new experience in more comfortable and more aesthetic indoor design for you according to your requirements.



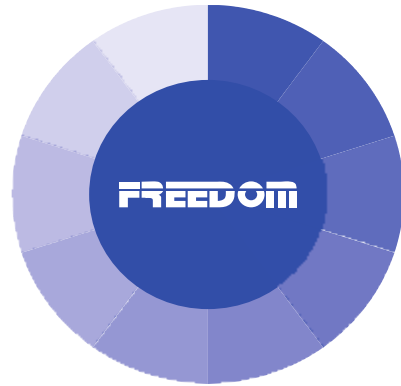
Installation and acceptance
 Professional construction personnel will install the product after delivery on site. Due to continuity and tightness of the product, requirement for installation technology is high. We will provide professional guidance to installation personnel and answer the installation and construction problems to ensure safety and reliability of engineering.



Mechanical structure design
 After confirming the appearance design scheme, professional structure engineers and mechanical designers will profoundly research the product structure scheme to ensure preciseness of the design and ensure that the product quality and machining process can meet high standard as far as possible.



Optimization and innovation of user experience
 Freedom never stop the innovation step. Every opinion and suggestion of customer are our driving forces. We are aimed at providing better and more comfortable living experience for customers and perfectly showing the new life combined science with esthetics. We are looking forward to close cooperation with you!





Widely application

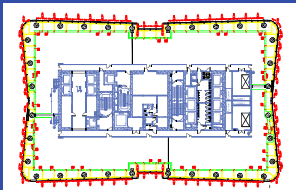


Comfortable and environmental art experience

Beijing Fortune Financial Center

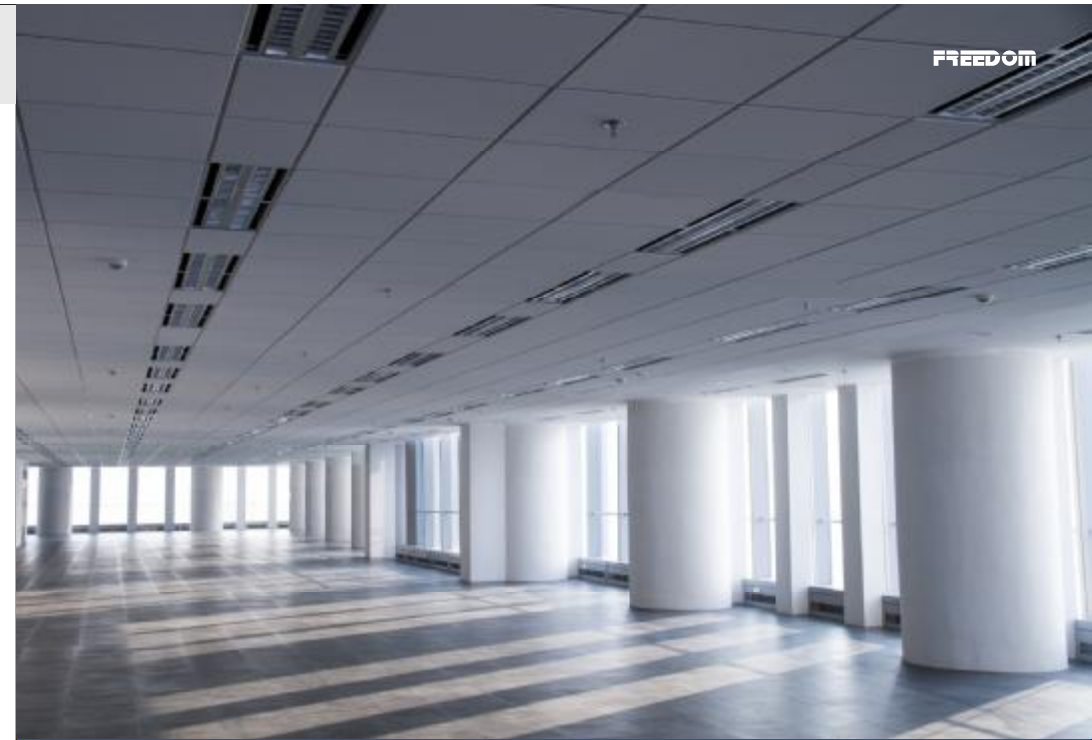


Beijing Fortune Financial Center is located in No. 23, East Third Ring North Road, Chaoyang District, Beijing and covers area of 9.21 hectares with total building area of 727,000m². It is jointly created by many international famous construction consultants in GMP, LPT, WITL and ARUP. It is integrated with international class A office building, platinum five-star hotel, high-end apartment, business and exhibition center, recreation & entertainment center, culture and art center, meeting center and other functions. It is in core area in CBD and is the business and wealth city in CBD.



After knowing the customer's requirements, we organized a professional design team which is composed of HVAC designers, structural engineers, interior designers and other professional personnel to research HVAC design of the Beijing Fortune Financial Center.

After many discussions, the HVAC designers rapidly put forward the practical and effective HVAC design scheme.



Detailed diagrams of construction and installation



Standard component processing

Providing exclusive customized service to customer is our responsibility. Guarantee of sequenced and highly efficient production is necessary condition of product timeliness. We use general purpose components and parts. Therefore, performance of our products is more excellent and quality is more reliable.



Accurate and highly efficient manufacture

As to the customized component, we use advanced production equipment imported from Germany and the United States for intelligent parameter manufacturing to ensure manufacture accuracy and performance stability of every product.



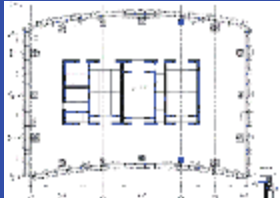
Excellent fittings of the third party

Freedom products are manufactured and assembled by excellent materials and fittings. All components and fittings are carefully selected from hundreds of similar products. Satisfying customers and reassuring users are our constant commitments.

Shenyang Shifuhenglong Square



Shenyang Shifuhenglong Square (OT1 office building) project is located in Qingnian Street, Shenhe District, Shenyang City and is in Shenyang National Financial Business Development Zone. Its building area is 190,000m² and building height is 350m. The project is integrated with world level shopping center, class A office buildings, hotel and service type apartments. The twin-tower office building with height higher than 350m is the highest office building in the northeast China.



Shenyang Shifuhenglong Square (OT1 office building) project is full of difficulties and challenges in overall design, manufacture and construction technology. The building has two large span arc curtain walls. Arc design requires high continuity in appearance after assembly of the equipment. Any small error in survey, design or construction, even 1mm error, will severely influence the final decoration effect. Our company organized technical experts and engineering experts to research and to carry out field test many times and finally solved all problems from design to construction successfully. We successfully finished the project. This project provides precious experience and data for us and perfectly shows and verifies our technology and capability.



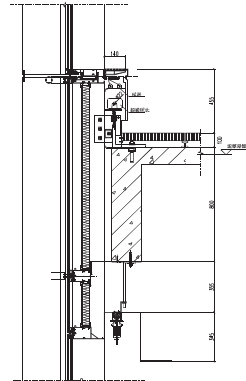
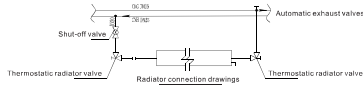
Equipment type and installation instructions

CAD drawing of integrated assembly type convector

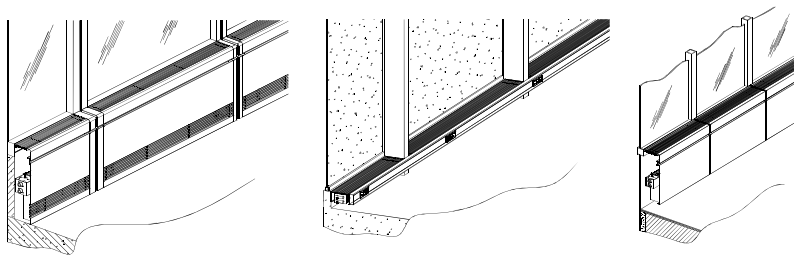
Integration assembly of integrated assembly type convector and curtain wall system

The right figure is the CAD engineering drawing of tight combination of integrated assembly type convector and curtain wall system in one 5A office building project of our company.

As shown in the figure, heat radiating element was configured and installed in a three dimensional space with width 140mm and height 455mm. The position and height are ideal data after calculation and research of our HVAC engineers and structural designers. Besides, we designed the single row heat radiating element according to requirements of customer which can effectively improve the aesthetic value and practical value of product under the premise of ensuring product performance.



Integration assembly of integrated assembly type convector and curtain wall system



Integration assembly of integrated assembly type convector and curtain wall system

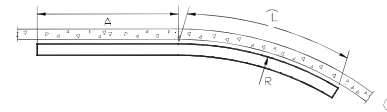
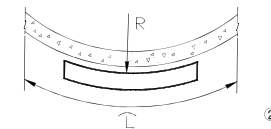
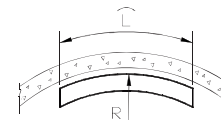
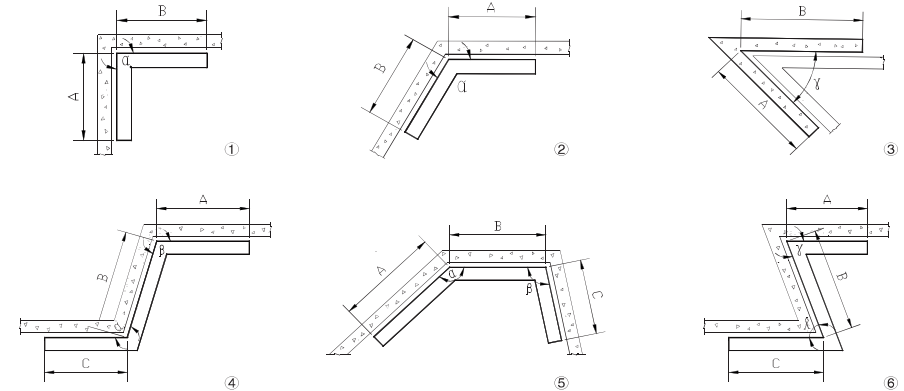


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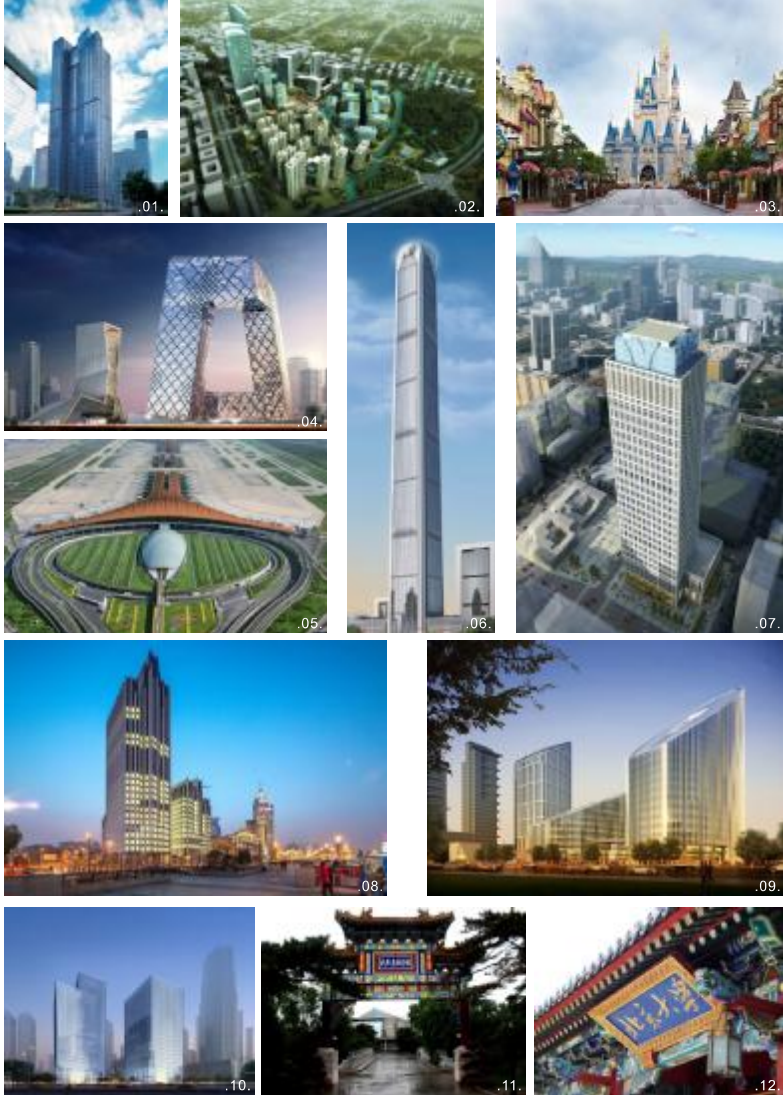
II

III

Wall-mounted convector combined with glass-curtain wall system and layout



Note: above layout mode is only for reference. Specific layout method shall be designed according to detailed design of building and construction site. Contact our Technology Department for latest and most comprehensive exclusive customized design scheme.



1. Beijing Fortune Financial Center
 2. Nike Great China Headquarters, Shanghai
 3. Shanghai Disney Resort
 4. CCTV - China Central Television
 5. Beijing Capital International Airport Domestic Reconstruction
 6. Tianjin Goldin Finance 117 Tower
 7. Grand Metropark North York Hotel, Shenyang
 8. Bund SOHO - Shanghai
 9. Huadou Center, Beijing
 10. Pudong Financial Plaza, Shanghai
 11. Diaoyutai State Guesthouse No. 12 Villas Repair and Reconstruction
 12. Peking University