

fresh**AIR**+

VERANO
G L O B A L



FRESHAIR+

FRESH AIR SUPPLY
SYSTEM

2020/06

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FRESHAIR+ DEVICES

Fan assisted trench heaters and climaconvectors with fresh air supply



Fan assisted trench heater
freshAIR+ VKN5P



2-pipe climaconvector
freshAIR+ CVK2P



4-pipe climaconvector
freshAIR+ CVK4P

Compact air handling units



Suspended AHU
freshAIR+ VCE



Wall-mounted AHU
freshAIR+ VWT/VWH/VWE



Floor-mounted AHU
freshAIR+ VST/VSH/VSE

Air heaters and coolers



Duct water heater
freshAIR+ VNK

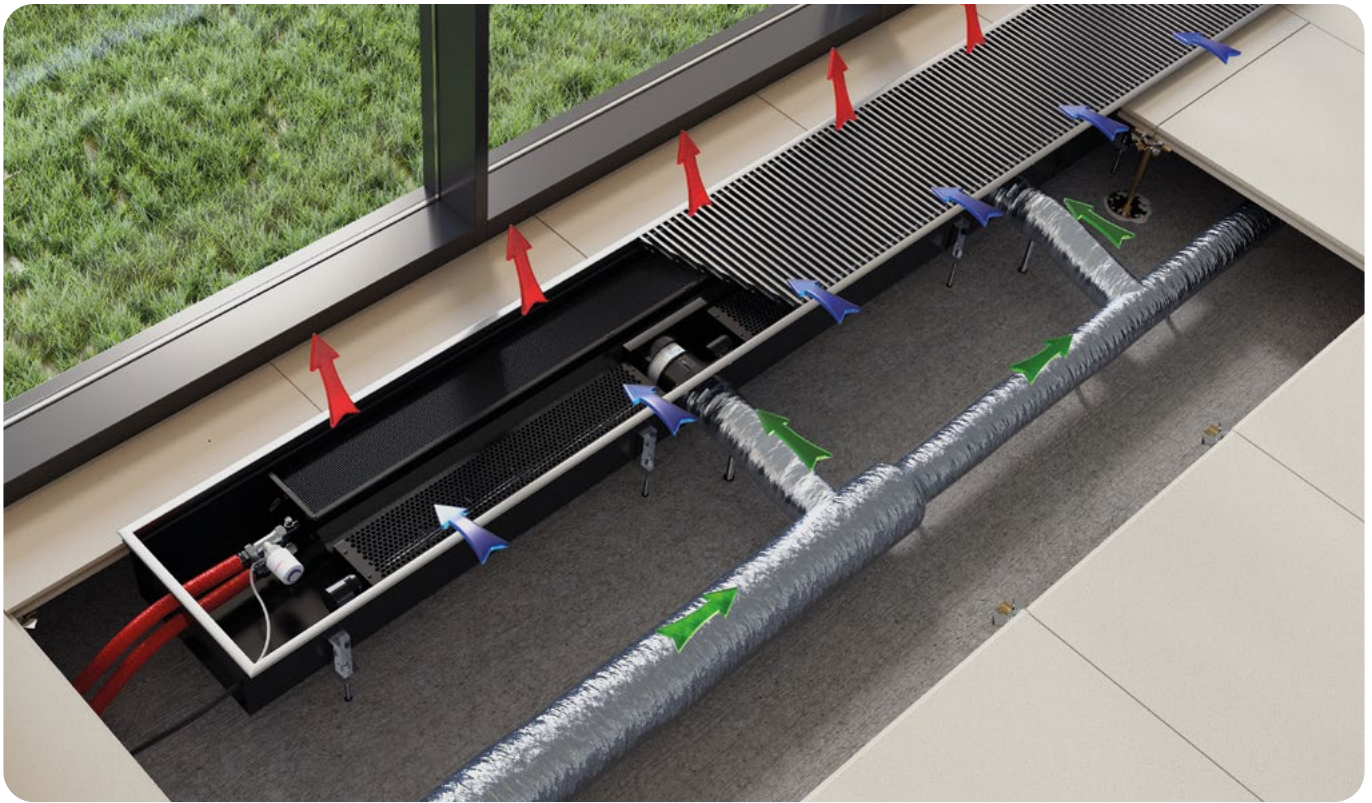


Electric duct heater
freshAIR+ eVNK



Duct water cooler
freshAIR+ VCK

PROPER MICROCLIMATE AND AIR QUALITY IN SUMMER AND WINTER



Currently people spend 90% of their lives in interior environments. Therefore, apart from ensuring adequate parameters of the internal environment, it is also necessary to ensure adequate air quality. The traditional heating or air-conditioning system is based on the use of circulating, recycled air, which can be subjected to a treatment (heating, cooling and filtration). However, such a system design does not allow for reduction of the amount of pollutants in the indoor environment, and thus prevents us from obtaining high quality of air in the room.

In order to reduce the pollutants in the interior air it is necessary to secure adequate air replacement in the rooms. Mechanical ventilation systems allow for proper organization of air streams in the room.

In the construction of VKN5P trench heaters and the CVKP heating and cooling units, which are part of the freshAIR+ system, treated air is supplied from a ventilation unit in which it is subjected to preliminary filtration. The stream of conditioned

air is supplied directly to the heat exchanger, which renders it possible to adjust the supply air temperature to user requirements locally.

In order to optimize air flow regulation, VKN5P heaters and CVKP climaconvectors have a factory-fitted constant air volume (CAV) regulator, which allows for quick and easy set-up of the designed air stream. When designing a Demand Controlled Ventilation (DCV) system, it is possible to install an additional module with a variable air volume (VAV) controller.

VKN5P heaters are considered the simplest to adjust and allow for the fastest response to changing heat demand in the room. Fan allows us to increase the volume of air flowing through the heat exchanger, which results in an increase in the dynamics of the heat transfer processes and a significant increase in the heat output of the trench heater.

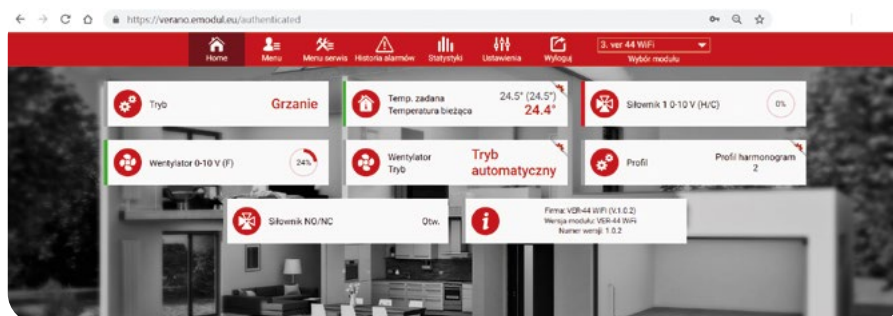
While the heaters ensure that the desired temperature is maintained in winter, the climaconvectors ensure optimal temperature and microcli-

mate both in winter and in the summer. Two-pipe CVK2P units have one circuit used for heating or chilled water, while the four-pipe CVK4P units have two circuits dedicated for both the heating installation and the chilled water installation.

The smooth regulation of the fan's operation with a 0-10V signal guarantees that the device is adapted to the current room demand for heating or cooling power.

The VKN5P and CVKP units also can be equipped with pressure independent control valves that precisely regulate the flow of the medium and the pressure in the installation.

The web application and the smartphone app allow you to remotely operate the VER-44 WiFi controller



Room controllers with BMS protocols are available for connecting the products to the building management system.



ADVANTAGES OF FRESHAIR+ VKN5P, CVK2P, CVK4P



HIGHLY EFFICIENT HEAT EXCHANGER AND FAN
Made of aluminium fins and copper tubes highly efficient heat exchanger with the modern EC 24V DC fan maintain thermal comfort in the room.



ADJUSTMENT OF THE TRENCH
Adjustment legs allow for easy, one-step adjustment of the height of the trench in the mounting hole, as well as its trouble-free levelling.



HYDRONIC INSTALLATION BALANCING
Units can be equipped with PICV valves and 0-10 V thermal actuators that regulate installation pressure and heating/cooling medium temperature.



DEDICATED CONTROL SYSTEM
The new dedicated VER-44 WiFi controller allows for precise control of CVK2P and CVK4P climaconvectors and VKN5P heaters by means of a telephone, tablet or computer.



BUILDING MANAGEMENT SYSTEM (BMS)
VERANO offers solutions that enable integration of CVKP climaconvectors and VKNP heaters with BMS systems based on the BACnet, KNX and Modbus protocol.



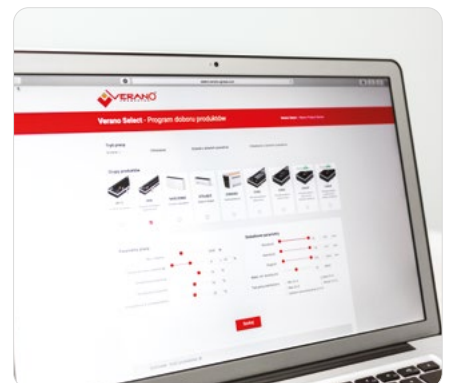
WIRELESS CONTROL
It is extremely easy to precisely control the climaconvectors and trench heaters using a phone, tablet or computer with the free application installed.



BUILT-IN CAV REGULATOR
The devices have a factory-fitted constant air volume CAV regulator, which allows simple and quick adjustment of the air stream.

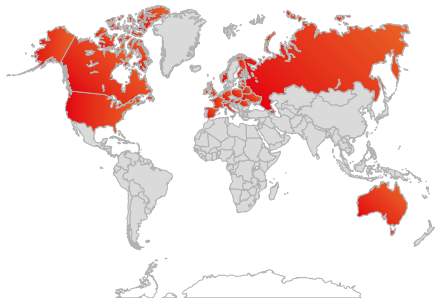


EN 16430 STANDARD
Climaconvectors and trench heaters have been tested in accordance with the applicable EN 16430 standard, which confirms their high quality.



VERANO SELECT
The selection program enables the selection of an appropriate type of device for any operating parameters, depending on the required heating/cooling demand.

HIGH QUALITY



VKN5P fan assisted trench heaters and CVKP climaconvectors with fresh air supply are designed for heating and cooling residential, office, service, hotel, sacral, sport and other types of buildings. Calculation and selection software, a wide range of available finishing variants and an individual approach to each project make VERANO products the first choice solution. The trouble-free and economical use of our devices is appreciated throughout world - CVKP climaconvectors with fresh air supply all year round ensure the comfort of users of luxury apartments, modern office buildings or industrial New York salons.

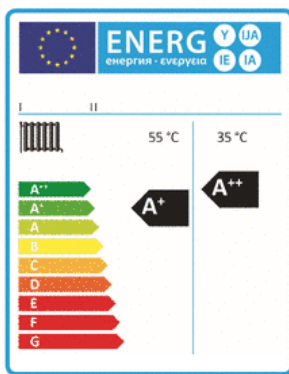
Knowledge and experience in the design of heating and cooling devices is based on analyzes, tests and measurements carried out over many years. Scientific and research cooperation with scientists of Warsaw University of Technology, Krakow University of Technology, Lublin University of Technology, Polish Academy of Sciences among others, as well as private research centers allows to continue improvement and verification of the performance of our products. Excellent technical properties of VKN5P fan assisted trench heaters and CVKP climaconvectors with fresh air supply have been confirmed at the HLK Stuttgart. Measurements of heating and cooling capacity were carried out in accordance with EN-16430.

VKN5P fan assisted trench heaters and CVKP climaconvectors with fresh air supply are manufactured in Poland in accordance with EU regulations.

Verano trench products are characterized by following documents required by the European Union:

- National declaration of properties in accordance with EN 16430
- EU declaration of properties
- Hygienic certificate PZH.

RESEARCH AND DEVELOPMENT



New VKN5P trench heaters and CVKP climaconvectors with fresh air supply are modern appliances with high efficient heating and cooling outputs.

The devices have been designed for ecological sources of heat and cold - heat pumps.

The research of heating and cooling power of VKN5P trench heaters and CVKP climaconvectors with fresh air supply was carried out in a specially prepared climatic chamber, in accordance with the requirements of the European Standard EN-16430 in cooperation with the HLK Stuttgart laboratory at the Institut für Gebaude Energetik Universität Stuttgart.

The highest quality is not only a performance - it is also the ability to combine work devices with the latest technologies and trends in construction.

VERANO makes every effort to ensure that VKN5P trench heaters and CVKP climaconvectors with fresh air supply fulfill this obligation both at the design stage (selection programs) as well as at the assembly and use stage.

FAN ASSISTED TRENCH HEATERS WITH FRESH AIR SUPPLY TYPEE VKN5P

PRODUCT VISUALIZATION



EQUIPMENT

STANDARD EQUIPMENT:

- Trench (casing) made of galvanized steel sheet in RAL 9005 black,
- Highly efficient copper and aluminium heat exchanger with air vent, powder coated in black RAL 9005,
- Modern fan with silent and efficient 24V DC motor,
- Constant flow controller CAV,
- One or two slots for ventilation system,
- Connection space cover,
- Fan cover, so called grill, with AIRFLOW baffle,
- Water connection: ¾" Female thread,
- Trench struts,
- Fixing anchors,
- Levelling legs.

ADDITIONAL EQUIPMENT:

- Trench (casing) powder coated in any RAL colour,
- L or F Type frame around the heater trench made of natural, powder coated or anodized aluminium,
- Decorative grille made of natural or anodized aluminium, roll-up, linear or modular Type; stainless steel grille; natural wooden grille,
- Assembly protection fibreboard for transporting and installation,
- Raised floor kit,
- Casing protective film,
- Foil sleeve for heat exchanger,
- Anti dust filter (requires raising the trench 10 mm),
- BMS controls.

DIMENSIONS

DIMENSIONS	[mm]
Trench height (H)	120, 140, 180
Trench bottom width (B)	300
Top width/Grille width (Bk)	324
Trench length (L)	<ul style="list-style-type: none"> • for 1 slot of ventilation system: 1000-2400 • for 2 slots of ventilation system: 1250-2550

Non-standard (NS) heater lengths are available on request.

EXAMPLE OF ORDER CODE:

VKN5P-12/30/100-I (L/P)

Trench height (H) [cm]

Trench width [cm]

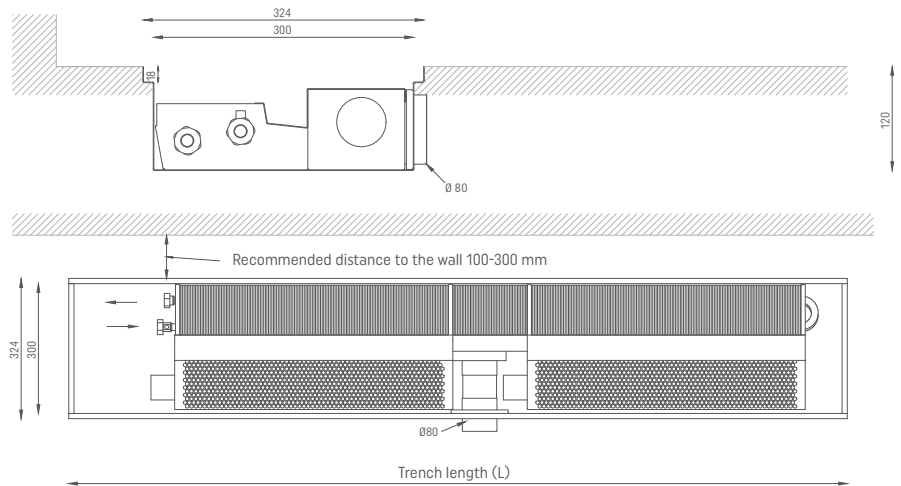
Trench length [cm]

Quantity of ventilation slots

Connection side: L - Left / P - Right

DIMENSIONS	[mm]
Trench height (H)	120
Trench bottom width (B)	300
Top width/Grille width (Bk)	324
Trench length (L)	1000-2400

CONNECTION	TYPE
Connection thread	3/4" Female thread
1 ventilation slot	DN 80 mm
Connection side	Left (L) standard, Right (P) option

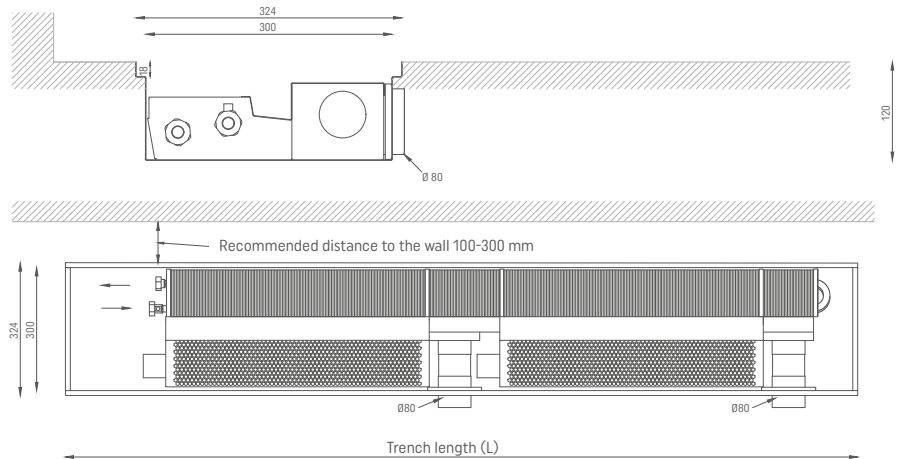


Trench length	Operating mode	Heating output for t_s/t_r °C																				Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS
		55/45/20										35/30/20														
L [mm]	N V [m³/h]	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10					
		Φ [W]																								
1000	Min	390	395	405	415	424	434	454	475	495	511	151	153	157	161	164	168	176	184	192	198	<18	<26	0,8	0,03	
	Med	536	542	552	563	573	585	606	629	650	667	208	210	214	218	222	227	235	244	252	259	18	26	1,7	0,07	
	Max	677	682	693	705	715	727	750	775	797	815	262	265	269	273	277	282	291	300	309	316	25	33	4,1	0,17	
	Boost	841	848	858	870	880	893	915	940	963	982	326	329	333	337	341	346	355	365	374	381	40	48	19,2	0,80	
1150	Min	556	564	577	592	604	619	647	677	705	728	216	219	224	229	234	240	251	263	273	282	<18	<26	1,2	0,05	
	Med	765	773	787	803	817	833	864	896	927	952	297	300	305	312	317	323	335	348	360	369	19	27	2,7	0,11	
	Max	964	973	987	1005	1020	1037	1069	1104	1136	1162	374	377	383	390	395	402	415	428	441	451	26	34	6,0	0,25	
	Boost	1199	1208	1222	1240	1255	1272	1305	1340	1372	1399	465	468	474	481	487	493	506	520	532	543	41	49	21,6	0,90	
1450	Min	789	800	818	840	857	879	918	962	1001	1033	306	310	317	326	333	341	356	373	388	401	<18	<26	1,5	0,06	
	Med	1085	1097	1116	1140	1159	1183	1226	1273	1316	1351	421	425	433	442	450	459	476	494	510	524	23	31	3,2	0,13	
	Max	1368	1381	1402	1426	1447	1472	1517	1567	1612	1649	531	536	544	553	561	571	588	608	625	640	29	37	8,0	0,33	
	Boost	1702	1714	1735	1760	1781	1806	1852	1902	1948	1985	660	665	673	683	691	701	718	738	755	770	41	49	33,6	1,40	
1700	Min	947	959	981	1006	1028	1054	1101	1153	1200	1239	367	372	380	390	399	409	427	447	466	480	<18	<26	2,0	0,08	
	Med	1301	1315	1338	1367	1390	1418	1470	1525	1577	1619	505	510	519	530	539	550	570	592	612	628	24	32	4,4	0,18	
	Max	1641	1655	1680	1710	1735	1764	1819	1878	1933	1977	636	642	652	663	673	684	705	728	750	767	30	38	10,1	0,42	
	Boost	2040	2055	2080	2110	2135	2165	2221	2280	2336	2380	791	797	807	818	828	840	861	884	906	923	43	51	40,8	1,70	
1900	Min	1112	1127	1153	1183	1208	1238	1294	1355	1410	1456	431	437	447	459	469	480	502	525	547	565	<18	<26	2,4	0,10	
	Med	1529	1546	1573	1607	1634	1667	1727	1794	1854	1903	593	600	610	623	634	647	670	696	719	738	24	32	5,3	0,22	
	Max	1928	1946	1975	2010	2039	2074	2138	2207	2271	2324	748	755	766	780	791	804	829	856	881	901	30	38	12,0	0,50	
	Boost	2398	2416	2445	2480	2509	2545	2610	2680	2745	2798	930	937	948	962	973	987	1012	1040	1065	1085	43	51	43,2	1,80	
2150	Min	1346	1364	1394	1431	1462	1498	1565	1639	1706	1761	522	529	541	555	567	581	607	636	662	683	18	26	2,7	0,11	
	Med	1850	1870	1903	1943	1977	2016	2090	2170	2243	2303	717	725	738	754	767	782	811	842	870	893	24	32	5,8	0,24	
	Max	2333	2354	2389	2431	2466	2509	2586	2671	2748	2811	905	913	927	943	956	973	1003	1036	1066	1090	31	39	14,0	0,58	
	Boost	2901	2922	2958	3000	3036	3078	3157	3242	3320	3384	1125	1133	1147	1164	1177	1194	1224	1257	1288	1312	44	52	55,2	2,30	
2400	Min	1578	1600	1636	1679	1715	1758	1837	1923	2002	2066	612	621	634	651	665	682	712	746	776	801	20	28	2,9	0,12	
	Med	2170	2194	2233	2280	2319	2366	2452	2546	2631	2702	842	851	866	884	899	917	951	987	1021	1048	26	34	6,3	0,26	
	Max	2737	2762	2803	2852	2894	2943	3034	3133	3223	3298	1062	1071	1087	1106	1122	1142	1177	1215	1250	1279	32	40	15,9	0,66	
	Boost	3403	3428	3470	3520	3562	3612	3704	3804	3896	3971	1320	1330	1346	1365	1381	1401	1437	1475	1511	1540	44	52	67,2	2,80	

- Standard heating output [W] compliant to EN-16430 for the room air temperature $\theta_r = 20^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed heating.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

DIMENSIONS		[mm]
Trench height (H)		120
Trench bottom width (B)		300
Top width/Grille width (Bk)		324
Trench length (L)		1250-2550

CONNECTION		TYPE
Connection thread		3/4" Female thread
2 ventilation slots		DN 80 mm
Connection side		Left (L) standard, Right (P) option



Trench length	Operating mode	Heating output for t_s/t_r °C																				Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS
		55/45/20										35/30/20														
L [mm]	N V [m³/h]	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10					
				28	34	44	56	66	78	100	124	146	164	28	34	44	56	66	78	100	124	146	164			
		Φ [W]																								
1250	Min	415	426	444	465	483	504	543	586	624	657	161	165	172	180	187	195	211	227	242	255	<18	<26	0,8	0,03	1
	Med	563	575	594	617	636	660	702	749	791	826	218	223	231	239	247	256	272	290	307	320	18	26	1,7	0,07	
	Max	705	718	738	762	783	807	852	901	946	983	273	278	286	296	304	313	331	349	367	381	25	33	4,1	0,17	
	Boost	870	883	903	928	949	974	1019	1069	1113	1151	337	342	350	360	368	378	395	414	432	446	40	48	19,2	0,80	
1450	Min	592	606	632	662	688	718	773	834	890	935	229	235	245	257	267	278	300	323	345	363	<18	<26	1,2	0,05	1
	Med	803	819	847	880	907	940	1001	1067	1127	1177	312	318	329	341	352	365	388	414	437	456	19	27	2,7	0,11	
	Max	1005	1023	1051	1086	1115	1150	1214	1284	1348	1400	390	397	408	421	432	446	471	498	523	543	26	34	6,0	0,25	
	Boost	1240	1258	1287	1322	1352	1387	1452	1523	1587	1640	481	488	499	513	524	538	563	591	615	636	41	49	21,6	0,90	
1700	Min	840	861	897	940	975	1018	1097	1183	1262	1326	326	334	348	364	378	395	426	459	489	514	<18	<26	1,5	0,06	1
	Med	1140	1163	1203	1249	1288	1336	1421	1515	1601	1672	442	451	466	484	500	518	551	588	621	648	23	31	3,2	0,13	
	Max	1426	1451	1493	1542	1583	1632	1723	1822	1913	1987	553	563	579	598	614	633	668	707	742	771	29	37	8,0	0,33	
	Boost	1760	1785	1827	1877	1918	1968	2060	2160	2252	2327	683	692	709	728	744	763	799	838	873	902	41	49	33,6	1,40	
1900	Min	1006	1032	1075	1127	1170	1222	1317	1420	1514	1592	390	400	417	437	454	474	511	551	587	617	<18	<26	2,0	0,08	2
	Med	1367	1395	1441	1498	1544	1600	1703	1816	1919	2003	530	541	559	581	599	621	661	704	744	777	24	32	4,4	0,18	
	Max	1710	1739	1789	1848	1898	1958	2066	2185	2294	2383	663	675	694	717	736	759	801	847	890	924	30	38	10,1	0,42	
	Boost	2110	2141	2191	2250	2301	2360	2471	2591	2700	2791	818	830	850	873	892	915	958	1005	1047	1082	43	51	40,8	1,70	
2100	Min	1183	1214	1264	1325	1375	1436	1547	1668	1779	1870	459	471	490	514	533	557	600	647	690	725	<18	<26	2,4	0,10	2
	Med	1607	1639	1695	1760	1815	1882	2002	2135	2256	2355	623	636	657	683	704	730	777	828	875	913	24	32	5,3	0,22	
	Max	2010	2044	2103	2172	2230	2301	2428	2568	2695	2800	780	793	815	842	865	892	942	996	1045	1086	30	38	12,0	0,50	
	Boost	2480	2515	2574	2645	2703	2774	2904	3045	3174	3280	962	975	998	1026	1048	1076	1126	1181	1231	1272	43	51	43,2	1,80	
2350	Min	1431	1468	1529	1602	1663	1737	1871	2017	2151	2261	555	569	593	621	645	674	726	782	834	877	18	26	2,7	0,11	2
	Med	1943	1983	2050	2130	2196	2276	2422	2582	2729	2849	754	769	795	826	852	883	940	1002	1058	1105	24	32	5,8	0,24	
	Max	2431	2473	2544	2628	2698	2783	2937	3106	3261	3387	943	959	987	1019	1046	1079	1139	1205	1265	1314	31	39	14,0	0,58	
	Boost	3000	3043	3114	3199	3270	3356	3512	3683	3839	3967	1164	1180	1208	1241	1268	1302	1362	1428	1489	1539	44	52	55,2	2,30	
2550	Min	1679	1722	1794	1880	1952	2038	2195	2367	2525	2654	651	668	696	729	757	790	851	918	979	1029	20	28	2,9	0,12	2
	Med	2280	2326	2405	2498	2577	2671	2842	3030	3202	3342	884	902	933	969	999	1036	1102	1175	1242	1296	26	34	6,3	0,26	
	Max	2852	2902	2984	3083	3166	3265	3446	3644	3825	3974	1106	1125	1157	1196	1228	1266	1337	1413	1484	1541	32	40	15,9	0,66	
	Boost	3520	3570	3654	3754	3837	3938	4121	4322	4506	4656	1365	1385	1417	1456	1488	1527	1598	1676	1747	1806	44	52	67,2	2,80	

- Standard heating output [W] compliant to EN-16430 for the room air temperature $\theta_r = 20^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed heating.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

CORRECTIVE FACTORS FOR 120 MM HIGH VKN5P HEATERST

Heating output corrective factors for VKN5P 120 mm high units for installation temperatures other than 55/45/20°C.

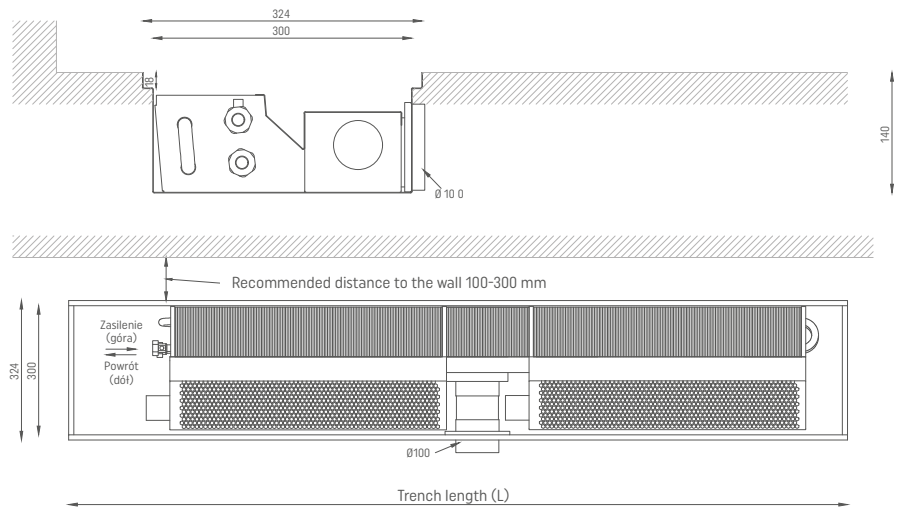
SUPPLY AND RETURN TEMPERATURES [°C]		ROOM AIR TEMPERATURE θ_r [°C]						
t_s	t_r	5	8	12	16	20	24	32
90	85	2,988	2,870	2,714	2,559	2,405	2,251	1,946
	80	2,890	2,773	2,617	2,462	2,308	2,155	1,851
	75	2,792	2,675	2,520	2,366	2,212	2,060	1,757
	70	2,695	2,578	2,424	2,270	2,117	1,965	1,663
85	80	2,792	2,675	2,520	2,366	2,212	2,060	1,757
	75	2,695	2,578	2,424	2,270	2,117	1,965	1,663
	70	2,598	2,482	2,328	2,174	2,022	1,870	1,569
	65	2,501	2,385	2,232	2,079	1,927	1,776	1,476
80	75	2,598	2,482	2,328	2,174	2,022	1,870	1,569
	70	2,501	2,385	2,232	2,079	1,927	1,776	1,476
	65	2,405	2,289	2,136	1,984	1,832	1,682	1,384
	60	2,308	2,193	2,041	1,889	1,738	1,588	1,291
75	70	2,405	2,289	2,136	1,984	1,832	1,682	1,384
	65	2,308	2,193	2,041	1,889	1,738	1,588	1,291
	60	2,212	2,098	1,946	1,794	1,644	1,495	1,200
	55	2,117	2,003	1,851	1,700	1,551	1,402	1,109
70	65	2,212	2,098	1,946	1,794	1,644	1,495	1,200
	60	2,117	2,003	1,851	1,700	1,551	1,402	1,109
	55	2,022	1,908	1,757	1,607	1,458	1,310	1,018
	50	1,927	1,813	1,663	1,513	1,365	1,218	0,928
65	60	2,022	1,908	1,757	1,607	1,458	1,310	1,018
	55	1,927	1,813	1,663	1,513	1,365	1,218	0,928
	50	1,832	1,719	1,569	1,421	1,273	1,127	0,839
	45	1,738	1,625	1,476	1,328	1,181	1,036	0,750
60	55	1,832	1,719	1,569	1,421	1,273	1,127	0,839
	50	1,738	1,625	1,476	1,328	1,181	1,036	0,750
	45	1,644	1,532	1,384	1,236	1,090	0,946	0,662
	40	1,551	1,439	1,291	1,145	1,000	0,857	0,575
55	50	1,644	1,532	1,384	1,236	1,090	0,946	0,662
	45	1,551	1,439	1,291	1,145	1,000	0,857	0,575
	40	1,458	1,347	1,200	1,054	0,910	0,768	0,489
	35	1,365	1,255	1,109	0,964	0,821	0,680	0,405
50	45	1,458	1,347	1,200	1,054	0,910	0,768	0,489
	40	1,365	1,255	1,109	0,964	0,821	0,680	0,405
	35	1,273	1,163	1,018	0,874	0,733	0,593	0,321
45	40	1,273	1,163	1,018	0,874	0,733	0,593	0,321
	35	1,181	1,072	0,928	0,786	0,645	0,507	0,239
40	35	1,090	0,982	0,839	0,697	0,558	0,422	0,160
	30	1,000	0,892	0,750	0,610	0,472	0,338	0,083
35	30	0,910	0,803	0,662	0,524	0,388	0,256	0,012

HEATING OUTPUT CORRECTIVE FACTORS FOR VKN5P HEATERS ACCORDING TO THE GRILLE TYPE

GRILLE TYPE	AIRFLOW	CORRECTIVE FACTOR
Roll-up double T-bar profile aluminium grille - 13 mm gap	67%	1,00
Roll-up double T-bar profile aluminium grille - 8 mm gap	63%	0,99
Roll-up closed profile aluminium grille	62%	1,00
Roll-up wooden grille	52%	0,98
Modular snap on profile aluminium grille	62%	0,97
Linear snap on profile aluminium grille	62%	1,08
Linear stainless steel grille	71%	1,09

DIMENSIONS	[mm]
Trench height (H)	140
Trench bottom width (B)	300
Top width/Grille width (Bk)	324
Trench length (L)	1000-2400

CONNECTION	TYPE
Connection thread	3/4" Female thread
1 ventilation slot	DN 100 mm
Connection side	Left (L) standard, Right (P) option

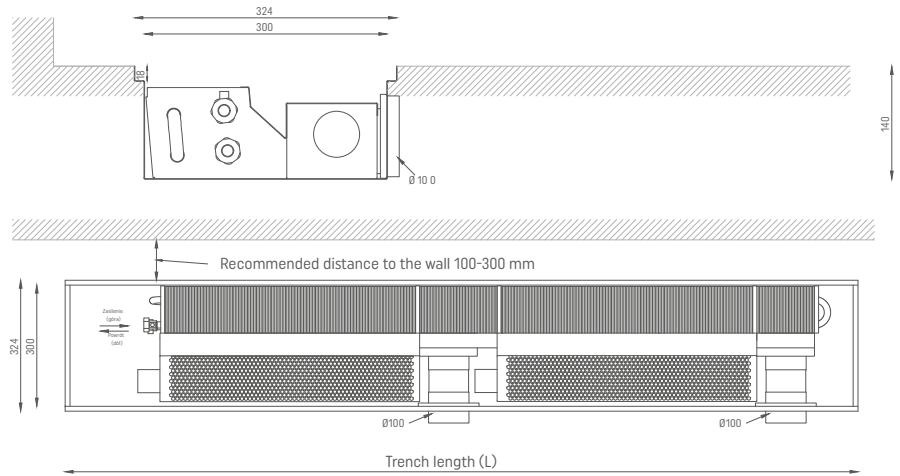


Trench length	Operating mode	Heating output for t_s/t_r °C																						Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS		
		55/45/20											35/30/20																	
L [mm]	N V [m³/h]	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11							
		Φ [W]																												
1000	Min	468	483	505	520	543	567	599	619	652	684	726	191	197	206	212	222	231	245	253	266	279	296	<18	<26	0,8	0,03	1		
	Med	814	830	855	872	896	924	960	982	1018	1054	1101	332	339	349	356	366	377	392	401	415	430	449	18	26	1,7	0,07			
	Max	1140	1158	1185	1203	1231	1261	1300	1325	1364	1404	1455	1465	473	484	491	503	515	531	541	557	573	594	594	25	33	4,1		0,17	
	Boost	1504	1524	1554	1574	1603	1637	1680	1707	1750	1793	1849	1849	614	622	634	643	655	668	686	697	714	732	755	755	40	48		19,2	0,80
1150	Min	666	688	720	741	773	808	854	882	928	974	1034	272	281	294	302	315	330	349	360	379	398	422	<18	<26	1,2	0,05	1		
	Med	1160	1183	1219	1242	1278	1317	1369	1400	1451	1502	1569	474	483	498	507	522	538	559	572	592	613	641	19	27	2,7	0,11			
	Max	1624	1650	1689	1715	1754	1797	1854	1888	1944	2001	2074	2074	663	674	690	700	716	734	757	771	794	817	847	847	26	34		6,0	0,25
	Boost	2143	2171	2214	2243	2285	2333	2394	2432	2494	2556	2636	2636	875	887	904	916	933	953	978	993	1018	1044	1076	1076	41	49		21,6	0,90
1450	Min	946	976	1021	1051	1096	1147	1212	1252	1317	1382	1468	386	399	417	429	448	468	495	511	538	564	599	<18	<26	1,5	0,06	1		
	Med	1646	1679	1730	1763	1813	1870	1942	1987	2059	2132	2227	672	686	706	720	740	763	793	811	841	871	909	23	31	3,2	0,13			
	Max	2305	2342	2398	2435	2490	2551	2631	2680	2760	2840	2944	2944	941	956	979	994	1017	1042	1074	1094	1127	1160	1202	1202	29	37		8,0	0,33
	Boost	3041	3082	3143	3183	3243	3311	3398	3452	3539	3627	3742	3742	1242	1258	1283	1300	1324	1352	1388	1410	1445	1481	1528	1528	41	49		33,6	1,40
1700	Min	1135	1171	1225	1261	1315	1375	1453	1501	1580	1658	1760	463	478	500	515	537	561	593	613	645	677	719	<18	<26	2,0	0,08	2		
	Med	1973	2013	2074	2114	2174	2241	2328	2381	2468	2556	2670	806	822	847	863	888	915	951	972	1008	1044	1090	24	32	4,4	0,18			
	Max	2764	2808	2875	2919	2985	3058	3154	3213	3309	3404	3529	3529	1129	1147	1174	1192	1219	1249	1288	1312	1351	1390	1441	1441	30	38		10,1	0,42
	Boost	3647	3695	3768	3816	3889	3969	4074	4139	4244	4349	4486	4486	1489	1509	1538	1558	1588	1621	1664	1690	1733	1776	1832	1832	43	51		40,8	1,70
1900	Min	1334	1376	1439	1482	1545	1616	1708	1765	1856	1948	2068	545	562	588	605	631	660	697	721	758	795	845	<18	<26	2,4	0,10	2		
	Med	2319	2367	2437	2485	2555	2634	2737	2799	2902	3004	3138	947	966	995	1014	1043	1076	1117	1143	1185	1227	1281	24	32	5,3	0,22			
	Max	3249	3300	3378	3430	3508	3595	3707	3777	3889	4001	4148	4148	1327	1348	1379	1401	1432	1468	1514	1542	1588	1634	1694	1694	30	38		12,0	0,50
	Boost	4286	4343	4428	4485	4571	4665	4789	4865	4988	5111	5273	5273	1750	1773	1808	1831	1866	1905	1955	1986	2037	2087	2153	2153	43	51		43,2	1,80
2150	Min	1613	1664	1741	1792	1869	1954	2066	2134	2245	2356	2502	659	679	711	732	763	798	844	871	917	962	1022	18	26	2,7	0,11	2		
	Med	2805	2863	2948	3006	3091	3187	3311	3386	3510	3634	3796	1145	1169	1204	1227	1262	1301	1352	1383	1433	1484	1550	24	32	5,8	0,24			
	Max	3930	3993	4087	4150	4244	4349	4485	4568	4705	4840	5018	5018	1605	1630	1669	1694	1733	1776	1831	1865	1921	1976	2049	2049	31	39		14,0	0,58
	Boost	5184	5253	5357	5426	5529	5643	5793	5885	6033	6183	6378	6378	2117	2145	2187	2215	2258	2304	2365	2403	2464	2525	2604	2604	44	52		55,2	2,30
2400	Min	1893	1953	2043	2103	2193	2294	2424	2505	2635	2765	2936	773	797	834	859	896	937	990	1023	1076	1129	1199	20	28	2,9	0,12	2		
	Med	3292	3359	3459	3526	3627	3739	3884	3973	4119	4264	4454	1344	1371	1413	1440	1481	1527	1586	1622	1682	1741	1819	26	34	6,3	0,26			
	Max	4611	4684	4795	4869	4979	5102	5262	5360	5520	5679	5888	5888	1883	1913	1958	1988	2033	2083	2149	2189	2254	2319	2404	2404	32	40		15,9	0,66
	Boost	6083	6164	6285	6366	6487	6622	6797	6904	7080	7255	7484	7484	2517	2566	2599	2649	2704	2775	2819	2891	2962	3056	3056	3056	44	52		67,2	2,80

- Standard heating output [W] compliant to EN-16430 for the room air temperature $\theta_r = 20^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed heating.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

DIMENSIONS	[mm]
Trench height (H)	140
Trench bottom width (B)	300
Top width/Grille width (Bk)	324
Trench length (L)	1250-2550

CONNECTION	TYPE
Connection thread	3/4" Female thread
2 ventilation slots	DN 100 mm
Connection side	Left (L) standard, Right (P) option



Trench length	Operating mode	Heating output for t_s/t_r °C																						Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS
		55/45/20											35/30/20															
L [mm]	N V [m³/h]	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11					
		Φ [W]																										
1250	Min	512	543	587	617	661	711	776	815	879	944	1028	209	222	240	252	270	290	317	333	359	385	420	<18	<26	0,8	0,03	1
	Med	863	896	946	979	1029	1084	1156	1200	1272	1344	1437	353	366	386	400	420	443	472	490	519	549	587	18	26	1,7	0,07	
	Max	1194	1231	1286	1322	1376	1437	1516	1564	1643	1722	1825	488	503	525	540	562	587	619	639	671	703	745	25	33	4,1	0,17	
	Boost	1564	1603	1663	1703	1763	1829	1916	1969	2056	2142	2255	638	655	679	695	720	747	782	804	839	875	921	40	48	19,2	0,80	
1450	Min	731	773	836	879	942	1013	1105	1161	1253	1345	1465	298	315	341	359	385	414	451	474	512	549	598	<18	<26	1,2	0,05	1
	Med	1230	1278	1348	1396	1467	1545	1648	1711	1813	1916	2050	502	522	551	570	599	631	673	699	740	782	837	19	27	2,7	0,11	
	Max	1702	1754	1832	1884	1962	2048	2160	2230	2342	2454	2601	695	716	748	769	801	836	882	910	956	1002	1062	26	34	6,0	0,25	
	Boost	2228	2285	2371	2428	2513	2608	2731	2807	2930	3054	3215	910	933	968	991	1026	1065	1115	1146	1197	1247	1313	41	49	21,6	0,90	
1700	Min	1036	1096	1187	1247	1337	1437	1568	1648	1778	1909	2080	423	448	484	509	546	587	640	673	726	779	849	<18	<26	1,5	0,06	1
	Med	1746	1813	1914	1981	2082	2193	2339	2428	2573	2719	2909	713	740	782	809	850	896	955	991	1051	1110	1188	23	31	3,2	0,13	
	Max	2416	2490	2600	2674	2785	2907	3067	3165	3325	3484	3693	987	1017	1062	1092	1137	1187	1252	1292	1358	1423	1508	29	37	8,0	0,33	
	Boost	3163	3243	3364	3445	3567	3701	3876	3984	4159	4334	4563	1291	1324	1374	1407	1456	1511	1583	1627	1698	1770	1863	41	49	33,6	1,40	
1900	Min	1243	1315	1423	1495	1603	1724	1880	1976	2133	2289	2493	507	537	581	611	655	704	768	807	871	935	1018	<18	<26	2,0	0,08	2
	Med	2094	2174	2294	2375	2495	2629	2804	2911	3085	3259	3487	855	888	937	970	1019	1074	1145	1189	1260	1331	1424	24	32	4,4	0,18	
	Max	2897	2985	3117	3206	3338	3485	3676	3794	3985	4177	4427	1183	1219	1273	1309	1363	1423	1501	1549	1627	1706	1808	30	38	10,1	0,42	
	Boost	3792	3889	4034	4131	4276	4437	4647	4776	4986	5196	5470	1548	1588	1647	1687	1746	1812	1898	1950	2036	2121	2234	43	51	40,8	1,70	
2100	Min	1460	1545	1673	1758	1884	2026	2209	2323	2506	2690	2930	596	631	683	718	769	827	902	948	1023	1099	1197	<18	<26	2,4	0,10	2
	Med	2461	2555	2697	2792	2933	3091	3296	3421	3626	3831	4099	1005	1043	1101	1140	1198	1262	1346	1397	1481	1564	1674	24	32	5,3	0,22	
	Max	3404	3508	3664	3768	3924	4096	4322	4460	4685	4910	5204	1390	1432	1496	1538	1602	1673	1765	1821	1913	2005	2125	30	38	12,0	0,50	
	Boost	4457	4571	4741	4855	5026	5216	5462	5614	5861	6108	6430	1820	1866	1936	1982	2052	2130	2230	2292	2393	2494	2626	43	51	43,2	1,80	
2350	Min	1766	1869	2023	2126	2279	2450	2672	2809	3032	3254	3545	721	763	826	868	931	1000	1091	1147	1238	1329	1447	18	26	2,7	0,11	2
	Med	2977	3091	3262	3377	3548	3739	3986	4139	4387	4635	4958	1215	1262	1332	1379	1449	1527	1628	1690	1791	1892	2025	24	32	5,8	0,24	
	Max	4118	4244	4432	4558	4746	4955	5228	5395	5667	5939	6295	1682	1733	1810	1861	1938	2023	2135	2203	2314	2425	2570	31	39	14,0	0,58	
	Boost	5391	5529	5735	5873	6080	6309	6607	6791	7089	7388	7778	2201	2258	2342	2398	2482	2576	2698	2773	2895	3017	3176	44	52	55,2	2,30	
2550	Min	2073	2193	2374	2495	2675	2875	3136	3297	3558	3819	4160	846	896	969	1019	1092	1174	1281	1346	1453	1559	1698	20	28	2,9	0,12	2
	Med	3493	3627	3828	3962	4163	4387	4677	4856	5146	5437	5817	1426	1481	1563	1618	1700	1791	1910	1983	2101	2220	2375	26	34	6,3	0,26	
	Max	4832	4979	5200	5348	5569	5815	6134	6330	6649	6969	7387	1973	2033	2123	2184	2274	2374	2504	2585	2715	2846	3016	32	40	15,9	0,66	
	Boost	6326	6487	6730	6891	7133	7403	7753	7969	8319	8669	9127	2583	2649	2748	2814	2913	3023	3166	3254	3397	3540	3727	44	52	67,2	2,80	

- Standard heating output [W] compliant to EN-16430 for the room air temperature $\theta_r = 20^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed heating.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

CORRECTIVE FACTORS FOR 140 MM HIGH VKN5P HEATERS

Heating output corrective factors for VKN5P 140 mm high units for installation temperatures other than 55/45/20°C.

SUPPLY AND RETURN TEMPERATURES [°C]		ROOM AIR TEMPERATURE θ_r [°C]						
t_s	t_r	5	8	12	16	20	24	32
90	85	2,854	2,746	2,603	2,460	2,318	2,176	1,892
	80	2,764	2,657	2,514	2,371	2,229	2,087	1,804
	75	2,675	2,567	2,425	2,282	2,140	1,998	1,716
	70	2,585	2,478	2,336	2,193	2,051	1,910	1,628
85	80	2,675	2,567	2,425	2,282	2,140	1,998	1,716
	75	2,585	2,478	2,336	2,193	2,051	1,910	1,628
	70	2,496	2,389	2,247	2,105	1,963	1,821	1,540
	65	2,407	2,300	2,158	2,016	1,874	1,733	1,452
80	75	2,496	2,389	2,247	2,105	1,963	1,821	1,540
	70	2,407	2,300	2,158	2,016	1,874	1,733	1,452
	65	2,318	2,211	2,069	1,927	1,786	1,645	1,365
	60	2,229	2,122	1,981	1,839	1,698	1,558	1,278
75	70	2,318	2,211	2,069	1,927	1,786	1,645	1,365
	65	2,229	2,122	1,981	1,839	1,698	1,558	1,278
	60	2,140	2,034	1,892	1,751	1,610	1,470	1,191
	55	2,051	1,945	1,804	1,663	1,522	1,382	1,104
70	65	2,140	2,034	1,892	1,751	1,610	1,470	1,191
	60	2,051	1,945	1,804	1,663	1,522	1,382	1,104
	55	1,963	1,857	1,716	1,575	1,435	1,295	1,017
	50	1,874	1,769	1,628	1,487	1,347	1,208	0,931
65	60	1,963	1,857	1,716	1,575	1,435	1,295	1,017
	55	1,874	1,769	1,628	1,487	1,347	1,208	0,931
	50	1,786	1,681	1,540	1,400	1,260	1,121	0,845
	45	1,698	1,593	1,452	1,313	1,173	1,035	0,759
60	55	1,786	1,681	1,540	1,400	1,260	1,121	0,845
	50	1,698	1,593	1,452	1,313	1,173	1,035	0,759
	45	1,610	1,505	1,365	1,225	1,087	0,948	0,674
	40	1,522	1,417	1,278	1,139	1,000	0,862	0,589
55	50	1,610	1,505	1,365	1,225	1,087	0,948	0,674
	45	1,522	1,417	1,278	1,139	1,000	0,862	0,589
	40	1,435	1,330	1,191	1,052	0,914	0,776	0,504
	35	1,347	1,243	1,104	0,965	0,828	0,691	0,420
50	45	1,435	1,330	1,191	1,052	0,914	0,776	0,504
	40	1,347	1,243	1,104	0,965	0,828	0,691	0,420
	35	1,260	1,156	1,017	0,879	0,742	0,606	0,337
45	40	1,260	1,156	1,017	0,879	0,742	0,606	0,337
	35	1,173	1,069	0,931	0,793	0,657	0,521	0,254
40	35	1,087	0,983	0,845	0,708	0,572	0,437	0,172
	30	1,000	0,897	0,759	0,623	0,487	0,353	0,092
35	30	0,914	0,811	0,674	0,538	0,404	0,271	0,014

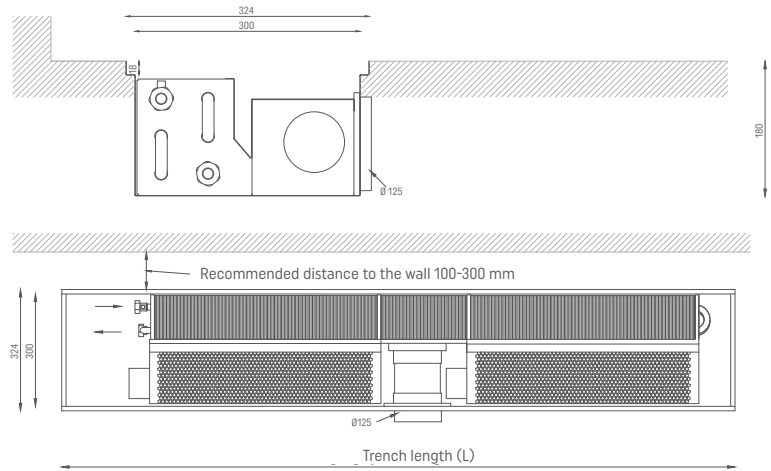
HEATING OUTPUT CORRECTIVE FACTORS FOR VKN5P HEATERS ACCORDING TO THE GRILLE TYPE

GRILLE TYPE	AIRFLOW	CORRECTIVE FACTOR
Roll-up double T-bar profile aluminium grille - 13 mm gap	67%	1,00
Roll-up double T-bar profile aluminium grille - 8 mm gap	63%	0,99
Roll-up closed profile aluminium grille	62%	1,00
Roll-up wooden grille	52%	0,98
Modular snap on profile aluminium grille	62%	0,97
Linear snap on profile aluminium grille	62%	1,08
Linear stainless steel grille	71%	1,09



DIMENSIONS	[mm]
Trench height (H)	180
Trench bottom width (B)	300
Top width/Grille width (Bk)	324
Trench length (L)	1000-2400

CONNECTION	TYPE
Connection thread	¾" Female thread
1 ventilation slot	DN 125 mm
Connection side	Left (L) standard, Right (P) option

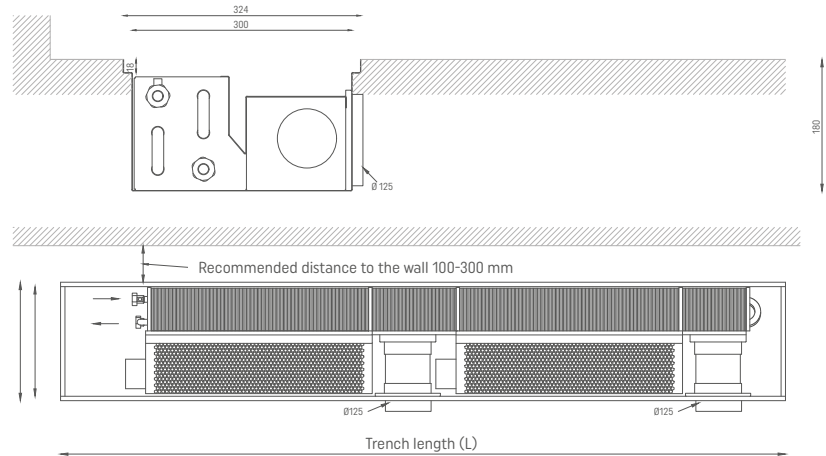


Trench length	Operating mode	Heating output for t_s/t_r °C																				Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS		
		55/45/20										35/30/20																
L [mm]	N V [m³/h]	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11					
		Φ [W]																										
1000	Min	915	937	962	989	1021	1061	1098	1142	1189	1241	1300	377	386	396	408	421	437	452	471	490	511	536	<18	<26	2,0	0,08	1
	Med	1598	1622	1648	1676	1710	1752	1790	1837	1886	1941	2003	659	668	679	691	705	722	738	757	778	800	826	21	29	3,9	0,16	
	Max	2125	2149	2176	2205	2240	2283	2323	2371	2422	2478	2542	876	886	897	909	923	941	957	977	998	1021	1048	29	37	7,5	0,31	
	Boost	2710	2734	2760	2790	2825	2867	2907	2955	3006	3062	3127	1117	1127	1138	1150	1164	1182	1198	1218	1239	1262	1289	42	50	21,6	0,90	
1150	Min	1316	1354	1396	1442	1496	1563	1626	1702	1781	1869	1970	543	558	575	594	617	644	670	701	734	770	812	<18	<26	2,2	0,09	1
	Med	2283	2324	2368	2418	2475	2547	2614	2694	2780	2873	2980	941	958	976	996	1020	1050	1077	1110	1146	1184	1228	23	31	4,4	0,18	
	Max	3029	3070	3117	3168	3228	3302	3372	3456	3544	3642	3753	1248	1266	1285	1306	1331	1361	1390	1425	1461	1501	1547	32	40	8,9	0,37	
	Boost	3855	3897	3944	3996	4057	4132	4202	4287	4376	4475	4588	1589	1606	1626	1647	1672	1703	1732	1767	1804	1845	1891	43	51	25,2	1,05	
1450	Min	1805	1853	1906	1964	2032	2117	2196	2291	2391	2502	2629	744	764	786	809	838	873	905	944	986	1031	1084	<18	<26	2,7	0,11	1
	Med	3152	3203	3261	3324	3400	3492	3579	3683	3793	3914	4052	1299	1320	1344	1370	1401	1439	1475	1518	1563	1613	1670	25	33	6,5	0,27	
	Max	4188	4243	4305	4372	4451	4549	4641	4751	4867	4996	5142	1726	1749	1774	1802	1835	1875	1913	1958	2006	2059	2120	35	43	14,4	0,60	
	Boost	5339	5396	5460	5529	5611	5712	5807	5920	6040	6173	6325	2201	2224	2250	2279	2313	2354	2393	2440	2490	2544	2607	46	54	42,0	1,75	
1700	Min	2208	2262	2323	2390	2468	2565	2656	2765	2880	3007	3152	910	932	957	985	1017	1057	1095	1139	1187	1239	1299	19	27	4,1	0,17	2
	Med	3857	3915	3979	4049	4133	4235	4332	4448	4569	4705	4859	1590	1614	1640	1669	1703	1746	1786	1833	1883	1939	2003	26	34	8,2	0,34	
	Max	5127	5188	5254	5327	5414	5520	5620	5740	5866	6006	6165	2113	2138	2165	2196	2231	2275	2316	2366	2418	2475	2541	34	42	16,4	0,68	
	Boost	6538	6598	6665	6739	6826	6933	7034	7154	7282	7422	7583	2695	2720	2747	2778	2813	2858	2899	2949	3001	3059	3125	46	54	46,8	1,95	
1900	Min	2586	2650	2722	2801	2895	3009	3116	3246	3382	3533	3705	1066	1092	1122	1154	1193	1240	1284	1338	1394	1456	1527	20	28	4,4	0,18	2
	Med	4517	4586	4662	4746	4846	4968	5083	5221	5366	5527	5711	1862	1890	1922	1956	1997	2048	2095	2152	2212	2278	2354	26	34	8,7	0,36	
	Max	6005	6077	6156	6244	6347	6475	6594	6737	6889	7056	7246	2475	2505	2538	2574	2616	2669	2718	2777	2839	2908	2987	35	43	17,8	0,74	
	Boost	7657	7729	7810	7898	8003	8132	8252	8397	8550	8719	8912	3156	3186	3219	3255	3299	3352	3401	3461	3524	3594	3673	46	54	50,4	2,10	
2150	Min	3099	3178	3267	3364	3479	3621	3755	3914	4083	4269	4482	1277	1310	1347	1387	1434	1493	1548	1613	1683	1759	1847	20	28	4,8	0,20	2
	Med	5410	5496	5592	5698	5823	5976	6121	6293	6475	6678	6908	2230	2265	2305	2349	2400	2463	2523	2594	2669	2752	2847	27	35	10,8	0,45	
	Max	7191	7282	7383	7494	7625	7787	7938	8120	8311	8523	8766	2964	3001	3043	3089	3143	3209	3272	3347	3426	3513	3613	36	44	23,3	0,97	
	Boost	9167	9260	9364	9478	9612	9778	9933	10119	10316	10533	10781	3778	3817	3860	3907	3962	4030	4094	4171	4252	4341	4443	48	56	67,2	2,80	
2400	Min	3611	3705	3812	3928	4065	4234	4392	4582	4783	5005	5259	1488	1527	1571	1619	1675	1745	1810	1889	1972	2063	2167	20	28	5,3	0,22	2
	Med	6303	6406	6522	6650	6800	6985	7158	7366	7586	7828	8105	2598	2640	2688	2741	2803	2879	2950	3036	3127	3227	3341	28	36	13,0	0,54	
	Max	8377	8487	8609	8744	8903	9099	9282	9502	9735	9992	10285	3453	3498	3548	3604	3669	3750	3826	3917	4012	4118	4239	38	46	28,8	1,20	
	Boost	10678	10792	10918	11057	11221	11424	11614	11841	12081	12346	12650	4401	4448	4500	4557	4625	4709	4787	4880	4979	5089	5214	49	57	84,0	3,50	

- Standard heating output [W] compliant to EN-16430 for the room air temperature $\theta_r = 20^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed heating.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

DIMENSIONS	[mm]
Trench height (H)	180
Trench bottom width (B)	300
Top width/Grille width (Bk)	324
Trench length (L)	1250-2550

CONNECTION	TYPE
Connection thread	¾" Female thread
2 ventilation slots	DN 125 mm
Connection side	Left (L) standard, Right (P) option



Trench length	Operating mode	Heating output for t_s/t_r °C																				Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS		
		55/45/20										35/30/20																
L [mm]	N V [m³/h]	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	Φ [W]				
		1250	Min	1011	1055	1105	1159	1223	1302	1376	1465	1559	1699	1781	417	435	455	478	504	537	567	604	643					
Med	1700		1746	1798	1855	1923	2006	2084	2177	2276	2424	2509	701	720	741	765	793	827	859	897	938	999	1034	21	29	3,9	0,16	
Max	2229		2278	2331	2390	2459	2545	2625	2722	2823	2976	3064	919	939	961	985	1014	1049	1082	1122	1164	1226	1263	29	37	7,5	0,31	
Boost	2814		2862	2915	2974	3044	3129	3209	3305	3407	3559	3648	1160	1180	1202	1226	1254	1290	1323	1362	1404	1467	1503	42	50	21,6	0,90	
1450	Min	1480	1555	1639	1731	1840	1974	2099	2250	2409	2648	2786	610	641	676	713	758	814	865	927	993	1092	1148	<18	<26	2,2	0,09	1
	Med	2458	2538	2628	2726	2842	2985	3119	3280	3449	3704	3851	1013	1046	1083	1124	1171	1230	1285	1352	1422	1527	1587	23	31	4,4	0,18	
	Max	3210	3293	3386	3488	3609	3758	3897	4064	4241	4506	4659	1323	1357	1396	1438	1488	1549	1606	1675	1748	1857	1920	32	40	8,9	0,37	
	Boost	4038	4123	4216	4320	4442	4593	4733	4903	5081	5349	5504	1664	1699	1738	1780	1831	1893	1951	2021	2094	2205	2268	43	51	25,2	1,05	
1700	Min	2012	2106	2212	2328	2465	2635	2793	2983	3184	3485	3659	829	868	912	960	1016	1086	1151	1229	1312	1436	1508	<18	<26	2,7	0,11	1
	Med	3377	3481	3596	3723	3874	4058	4231	4439	4659	4988	5179	1392	1435	1482	1535	1597	1673	1744	1830	1920	2056	2134	25	33	6,5	0,27	
	Max	4427	4537	4659	4794	4953	5148	5332	5552	5784	6133	6335	1825	1870	1920	1976	2041	2122	2198	2288	2384	2528	2611	35	43	14,4	0,60	
	Boost	5585	5699	5826	5964	6129	6331	6520	6748	6988	7348	7556	2302	2349	2401	2458	2526	2610	2687	2781	2880	3028	3114	46	54	42,0	1,75	
1900	Min	2444	2553	2674	2807	2964	3158	3340	3558	3788	4133	4333	1007	1052	1102	1157	1222	1302	1377	1466	1561	1703	1786	19	27	4,1	0,17	2
	Med	4107	4223	4351	4492	4659	4865	5058	5289	5533	5899	6111	1693	1741	1793	1852	1920	2005	2085	2180	2280	2431	2519	26	34	8,2	0,34	
	Max	5387	5507	5640	5786	5959	6172	6372	6611	6864	7243	7463	2220	2270	2324	2385	2456	2544	2626	2725	2829	2985	3076	34	42	16,4	0,68	
	Boost	6799	6920	7054	7201	7375	7589	7790	8031	8286	8667	8888	2802	2852	2907	2968	3040	3128	3211	3310	3415	3572	3663	46	54	46,8	1,95	
2100	Min	2865	2995	3138	3296	3482	3712	3927	4185	4458	4867	5104	1181	1234	1294	1358	1435	1530	1619	1725	1837	2006	2104	20	28	4,4	0,18	2
	Med	4816	4953	5106	5275	5473	5718	5948	6223	6514	6950	7202	1985	2042	2105	2174	2256	2357	2451	2565	2685	2865	2969	26	34	8,7	0,36	
	Max	6316	6459	6618	6793	7000	7254	7493	7779	8082	8535	8798	2603	2662	2728	2800	2885	2990	3088	3206	3331	3518	3626	35	43	17,8	0,74	
	Boost	7971	8116	8277	8454	8663	8920	9161	9451	9757	10216	10481	3285	3345	3411	3484	3571	3677	3776	3895	4022	4211	4320	46	54	50,4	2,10	
2350	Min	3444	3604	3781	3976	4207	4491	4757	5076	5413	5918	6211	1420	1485	1558	1639	1734	1851	1961	2092	2231	2439	2560	20	28	4,8	0,20	2
	Med	5784	5957	6149	6360	6610	6917	7205	7551	7916	8463	8780	2384	2455	2535	2622	2725	2851	2970	3112	3263	3488	3619	27	35	10,8	0,45	
	Max	7584	7766	7968	8190	8452	8776	9079	9442	9825	10400	10734	3126	3201	3284	3376	3484	3617	3742	3892	4050	4287	4424	36	44	23,3	0,97	
	Boost	9571	9757	9964	10191	10460	10791	11101	11473	11866	12456	12797	3945	4022	4107	4200	4311	4448	4576	4729	4891	5134	5275	48	56	67,2	2,80	
2550	Min	4023	4213	4424	4656	4931	5269	5586	5966	6368	6970	7318	1658	1736	1823	1919	2033	2172	2302	2459	2624	2873	3016	20	28	5,3	0,22	2
	Med	6753	6961	7193	7447	7747	8117	8464	8880	9319	9978	10359	2783	2869	2965	3069	3193	3345	3489	3660	3841	4112	4270	28	36	13,0	0,54	
	Max	8854	9074	9319	9588	9906	10298	10664	11105	11569	12267	12671	3649	3740	3841	3952	4083	4244	4396	4577	4769	5056	5222	38	46	28,8	1,20	
	Boost	11171	11398	11651	11930	12258	12662	13042	13496	13977	14697	15115	4604	4698	4802	4917	5052	5219	5375	5563	5761	6058	6230	49	57	84,0	3,50	

- Standard heating output [W] compliant to EN-16430 for the room air temperature $\theta_r = 20^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed heating.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

CORRECTIVE FACTORS FOR 180 MM HIGH VKN5P HEATERS

Heating output corrective factors for VKN5P 180 mm high units for installation temperatures other than 55/45/20 °C.

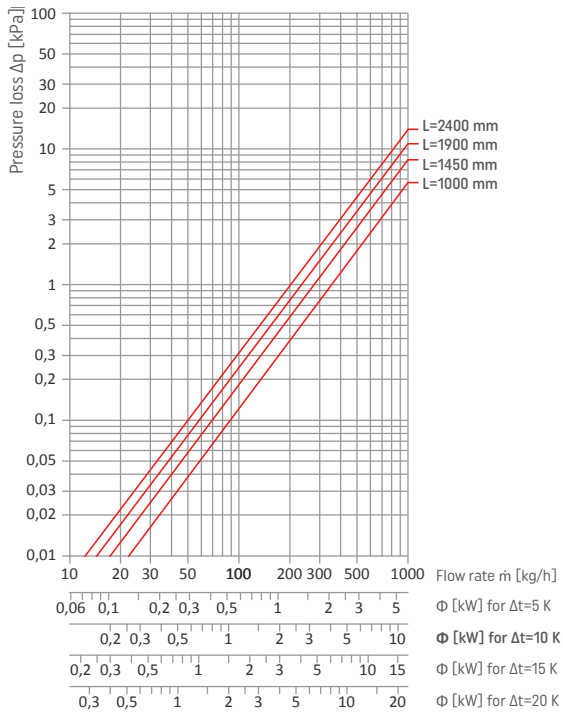
SUPPLY AND RETURN TEMPERATURES [°C]		ROOM AIR TEMPERATURE θ_r [°C]						
t_s	t_r	5	8	12	16	20	24	32
90	85	2,805	2,701	2,563	2,424	2,286	2,148	1,872
	80	2,718	2,615	2,476	2,338	2,200	2,062	1,786
	75	2,632	2,528	2,390	2,252	2,114	1,976	1,701
	70	2,545	2,442	2,303	2,165	2,027	1,890	1,615
85	80	2,632	2,528	2,390	2,252	2,114	1,976	1,701
	75	2,545	2,442	2,303	2,165	2,027	1,890	1,615
	70	2,459	2,355	2,217	2,079	1,941	1,804	1,529
	65	2,372	2,269	2,131	1,993	1,855	1,718	1,443
80	75	2,459	2,355	2,217	2,079	1,941	1,804	1,529
	70	2,372	2,269	2,131	1,993	1,855	1,718	1,443
	65	2,286	2,183	2,045	1,907	1,769	1,632	1,358
	60	2,200	2,096	1,958	1,821	1,683	1,546	1,273
75	70	2,286	2,183	2,045	1,907	1,769	1,632	1,358
	65	2,200	2,096	1,958	1,821	1,683	1,546	1,273
	60	2,114	2,010	1,872	1,735	1,598	1,461	1,187
	55	2,027	1,924	1,786	1,649	1,512	1,375	1,102
70	65	2,114	2,010	1,872	1,735	1,598	1,461	1,187
	60	2,027	1,924	1,786	1,649	1,512	1,375	1,102
	55	1,941	1,838	1,701	1,563	1,426	1,290	1,017
	50	1,855	1,752	1,615	1,478	1,341	1,204	0,932
65	60	1,941	1,838	1,701	1,563	1,426	1,290	1,017
	55	1,855	1,752	1,615	1,478	1,341	1,204	0,932
	50	1,769	1,666	1,529	1,392	1,255	1,119	0,847
	45	1,683	1,581	1,443	1,307	1,170	1,034	0,763
60	55	1,769	1,666	1,529	1,392	1,255	1,119	0,847
	50	1,683	1,581	1,443	1,307	1,170	1,034	0,763
	45	1,598	1,495	1,358	1,221	1,085	0,949	0,678
	40	1,512	1,409	1,273	1,136	1,000	0,864	0,594
55	50	1,598	1,495	1,358	1,221	1,085	0,949	0,678
	45	1,512	1,409	1,273	1,136	1,000	0,864	0,594
	40	1,426	1,324	1,187	1,051	0,915	0,780	0,510
	35	1,341	1,238	1,102	0,966	0,830	0,695	0,426
50	45	1,426	1,324	1,187	1,051	0,915	0,780	0,510
	40	1,341	1,238	1,102	0,966	0,830	0,695	0,426
	35	1,255	1,153	1,017	0,881	0,746	0,611	0,343
45	40	1,255	1,153	1,017	0,881	0,746	0,611	0,343
	35	1,170	1,068	0,932	0,797	0,661	0,527	0,260
40	35	1,085	0,983	0,847	0,712	0,577	0,443	0,177
	30	1,000	0,898	0,763	0,628	0,493	0,360	0,096
35	30	0,915	0,813	0,678	0,544	0,410	0,276	0,015

HEATING OUTPUT CORRECTIVE FACTORS FOR VKN5P HEATERS ACCORDING TO THE GRILLE TYPE

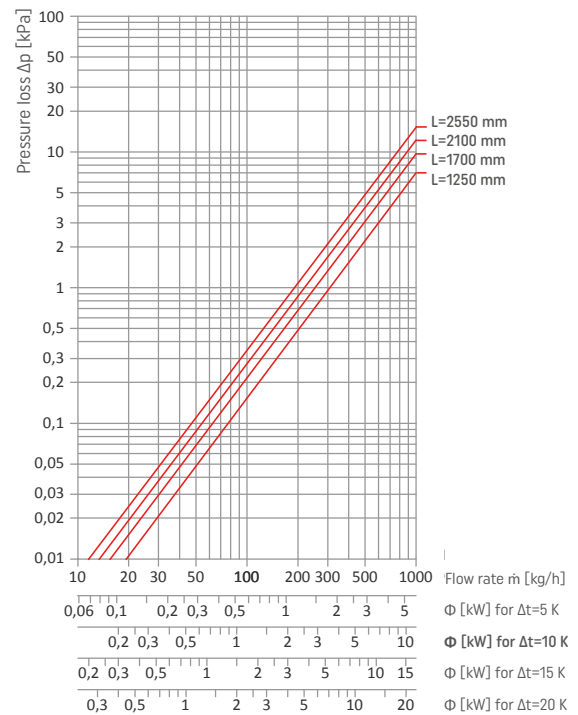
GRILLE TYPE	AIRFLOW	CORRECTIVE FACTOR
Roll-up double T-bar profile aluminium grille - 13 mm gap	67%	1,00
Roll-up double T-bar profile aluminium grille - 8 mm gap	63%	0,99
Roll-up closed profile aluminium grille	62%	1,00
Roll-up wooden grille	52%	0,98
Modular snap on profile aluminium grille	62%	0,97
Linear snap on profile aluminium grille	62%	1,08
Linear stainless steel grille	71%	1,09

PRESSURE LOSS

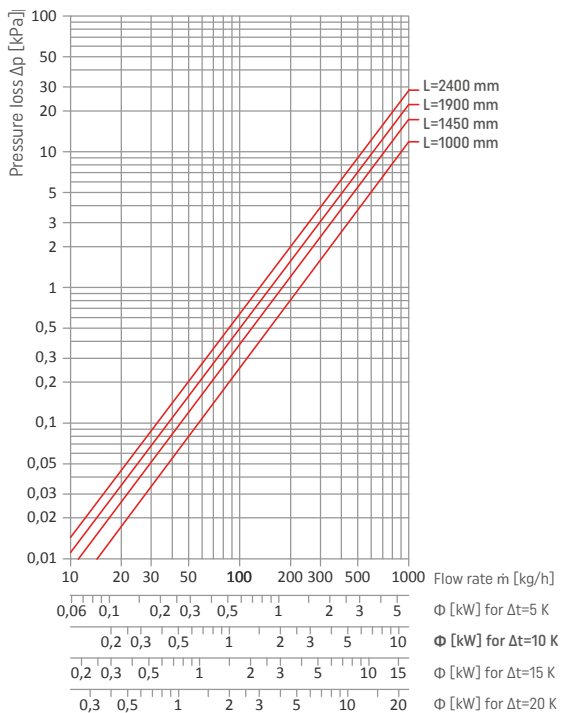
| VKN5P-12/30/L-I



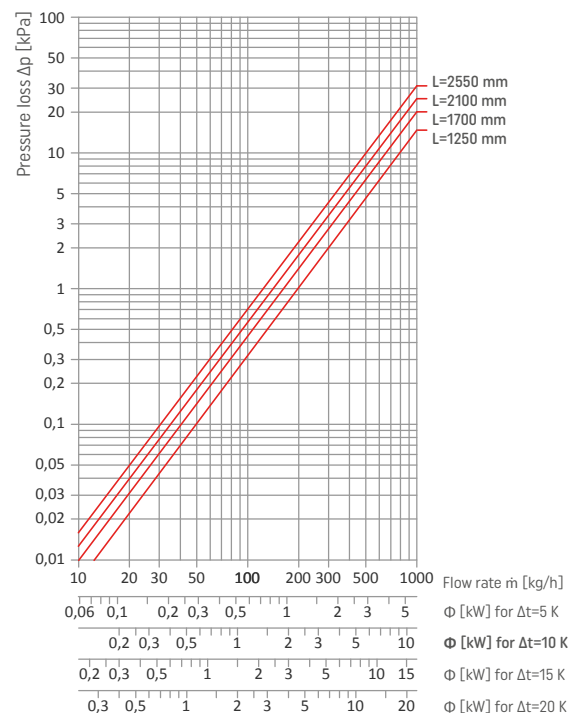
| VKN5P-12/30/L-II



| VKN5P-14/30/L-I

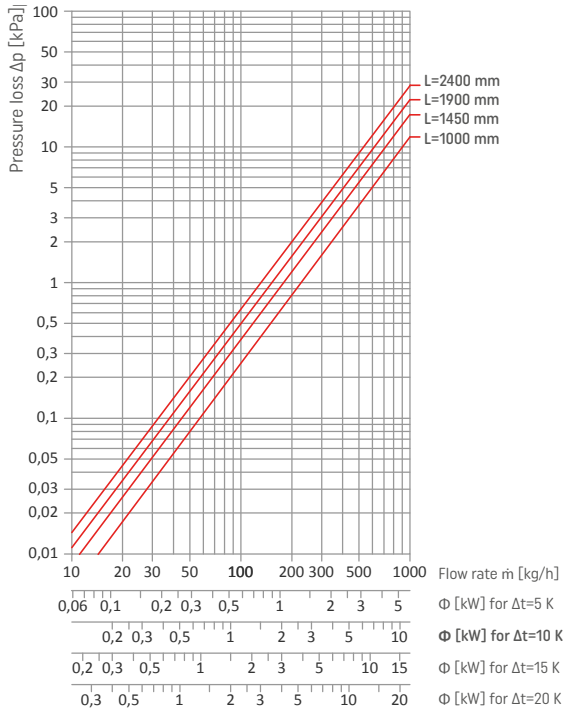


| VKN5P-14/30/L-II

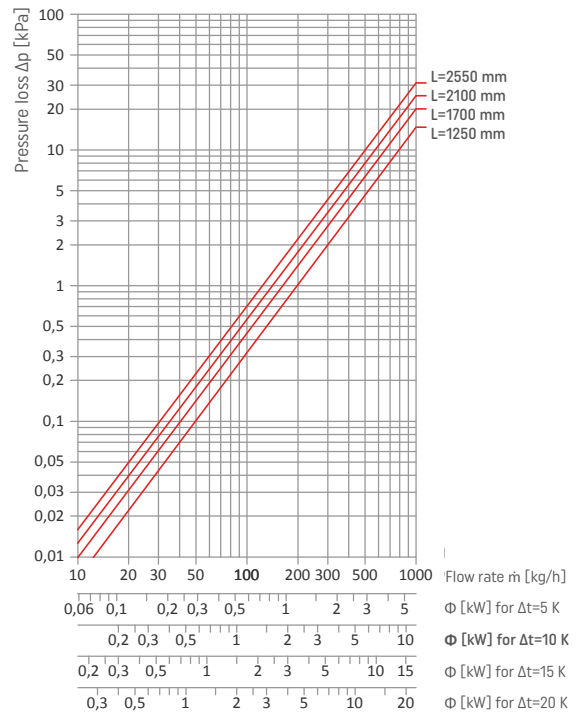


PRESSURE LOSS

| VKN5P-18/30/L-I



| VKN5P-18/30/L-II



VKN5P WATER CAPACITY

OPERATING MODE	HEATING		
TRENCH LENGTH L [mm]	WATER CAPACITY [dm ³]		
HEATER TYPE	VKN5P-12/30/L-I	VKN5P-14/30/L-I	VKN5P-18/30/L-I
1000	0,25	0,51	0,57
1150	0,31	0,63	0,68
1450	0,38	0,78	0,83
1700	0,45	0,91	0,97
1900	0,51	1,03	1,08
2150	0,58	1,18	1,23
2400	0,66	1,33	1,38
HEATER TYPE	VKN5P-12/30/L-II	VKN5P-14/30/L-II	VKN5P-18/30/L-II
1250	0,32	0,65	0,71
1450	0,37	0,76	0,82
1700	0,45	0,91	0,97
1900	0,52	1,05	1,11
2100	0,57	1,16	1,22
2350	0,65	1,31	1,37
2550	0,72	1,46	1,52

DECLARED PROPERTIES

- Maximum permissible operating pressure: **1,6 MPa.**
- Test pressure: **2,08 MPa.**
- Maximum hydraulic pressure: **2,70 MPa.**
- Minimum operating temperature: **6°C**
- Maximum operating temperature: **110°C**

2-PIPE CLIMACONVECTORS WITH FRESH AIR SUPPLY TYPE CVK2P

PRODUCT VISUALIZATION



EQUIPMENT

STANDARD EQUIPMENT:

- Trench (casing) made of galvanized steel sheet in RAL 9005 black,
- Highly efficient copper and aluminium heat exchanger with air vent, powder coated in black RAL 9005,
- Modern fan with silent and efficient 24V DC motor,
- Constant flow controller CAV,
- One or two slots for ventilation system,
- Connection space cover,
- Fan cover, so called grill, with AIRFLOW baffle,
- Water connection: ½" Female thread,
- Trench struts,
- Fixing anchors,
- Condensate drain pan,
- Connection stub for condensate drainage,
- Levelling legs.

ADDITIONAL EQUIPMENT:

- Trench (casing) powder coated in any RAL colour,
- L or F Type frame around the heater trench made of natural, powder coated or anodized aluminium,
- Decorative grille made of natural or anodized aluminium, roll-up, linear or modular type; stainless steel grille;
- Condensate pump (requires the trench to be extended by 10 cm),
- Assembly protection fibreboard for transporting and installation,
- Raised floor kit,
- Casing protective film,
- Foil sleeve for heat exchanger,
- Anti dust filter (requires raising the trench 10 mm),
- BMS controls.

DIMENSIONS

DIMENSIONS	[mm]
Trench height (H)	140, 180
Trench bottom width (B)	350
Top width/Grille width (Bk)	374

- for 1 slot of ventilation system: 1000-2400
- for 2 slots of ventilation system: 1250-2550

Non-standard (NS) climaconvector lengths are available on request.

EXAMPLE OF ORDER CODE:

CVK2P-14/35/100-I (L/P)

Trench height (H) [cm]

Trench width [cm]

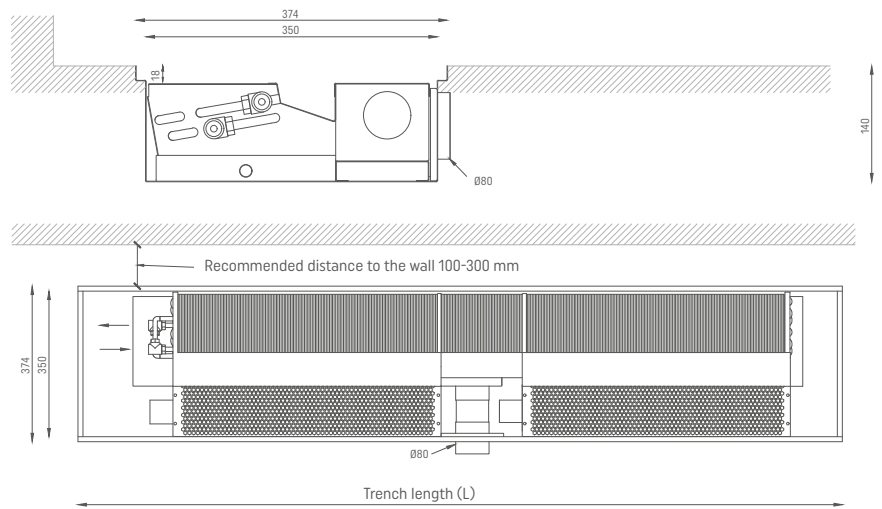
Trench length [cm]

Quantity of ventilation slots

Connection side: L - Left / P - Right

DIMENSIONS	[mm]
Trench height (H)	140
Trench bottom width (B)	350
Top width/Grille width (Bk)	374
Trench length (L)	1000-2400

CONNECTION	TYPE
Connection thread	½" Female thread
1 ventilation slot	DN 80 mm
Connection side	Left (L) standard, Right (P) option



Trench length	Operating mode	Heating output for t_s/t_r °C																				Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS
		55/45/20										35/30/20														
L [mm]	N V [m³/h]	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10					
				14	17	22	28	33	39	50	62	73	82	14	17	22	28	33	39	50	62	73	82			
		Φ [W]																								
1000	Min	527	537	554	573	590	610	646	686	722	752	214	218	225	233	240	248	263	279	294	306	<18	<26	0,8	0,03	1
	Med	895	906	923	945	963	984	1024	1067	1106	1139	364	368	375	384	392	400	416	434	450	463	18	26	1,7	0,07	
	Max	1272	1284	1303	1326	1344	1368	1410	1456	1498	1532	517	522	530	539	547	556	573	592	609	623	25	33	4,1	0,17	
	Boost	1787	1799	1819	1843	1863	1887	1931	1979	2022	2058	727	732	740	749	758	767	785	805	822	837	40	48	19,2	0,8	
1150	Min	751	765	789	817	841	869	921	977	1029	1071	305	311	321	332	342	353	374	397	418	436	<18	<26	1,2	0,05	1
	Med	1276	1291	1317	1347	1373	1404	1460	1521	1578	1623	519	525	535	548	558	571	594	619	641	660	19	27	2,7	0,11	
	Max	1813	1830	1857	1889	1916	1950	2009	2075	2135	2184	737	744	755	768	779	793	817	844	868	888	26	34	6	0,25	
	Boost	2548	2564	2593	2627	2655	2690	2752	2820	2883	2934	1036	1043	1054	1068	1080	1094	1119	1147	1172	1193	41	49	21,6	0,9	
1450	Min	1066	1087	1120	1160	1193	1233	1307	1386	1460	1520	434	442	455	472	485	501	531	564	594	618	<18	<26	1,5	0,06	1
	Med	1811	1832	1869	1912	1948	1992	2072	2159	2239	2304	736	745	760	778	792	810	843	878	910	937	23	31	3,2	0,13	
	Max	2573	2596	2635	2681	2720	2766	2852	2945	3030	3100	1046	1056	1071	1090	1106	1125	1160	1197	1232	1260	29	37	8	0,33	
	Boost	3616	3640	3680	3729	3769	3818	3906	4003	4091	4164	1470	1480	1496	1516	1533	1552	1588	1628	1664	1693	41	49	33,6	1,4	
1700	Min	1279	1303	1343	1391	1431	1479	1567	1663	1751	1823	520	530	546	565	582	601	637	676	712	741	<18	<26	2	0,08	2
	Med	2171	2197	2240	2292	2336	2388	2484	2588	2684	2762	883	893	911	932	950	971	1010	1052	1091	1123	24	32	4,4	0,18	
	Max	3085	3113	3159	3215	3262	3317	3419	3530	3632	3716	1255	1266	1285	1307	1326	1349	1390	1435	1477	1511	30	38	10,1	0,42	
	Boost	4335	4364	4412	4470	4519	4577	4683	4799	4905	4992	1762	1774	1794	1818	1837	1861	1904	1951	1995	2030	43	51	40,8	1,7	
1900	Min	1503	1531	1578	1634	1682	1738	1841	1954	2058	2142	611	622	642	665	684	707	749	795	837	871	<18	<26	2,4	0,1	2
	Med	2552	2583	2633	2695	2746	2807	2919	3042	3155	3246	1038	1050	1071	1096	1116	1141	1187	1237	1283	1320	24	32	5,3	0,22	
	Max	3626	3658	3713	3779	3833	3899	4019	4149	4270	4368	1474	1488	1510	1536	1559	1585	1634	1687	1736	1776	30	38	12	0,5	
	Boost	5095	5129	5186	5254	5311	5379	5504	5641	5765	5868	2072	2086	2109	2136	2159	2187	2238	2294	2344	2386	43	51	43,2	1,8	
2150	Min	1818	1852	1909	1977	2034	2102	2228	2364	2489	2591	739	753	776	804	827	855	906	961	1012	1054	18	26	2,7	0,11	2
	Med	3086	3124	3186	3260	3321	3396	3532	3680	3816	3927	1255	1270	1295	1325	1350	1381	1436	1496	1552	1597	24	32	5,8	0,24	
	Max	4386	4426	4492	4571	4637	4716	4861	5020	5164	5283	1783	1800	1826	1859	1885	1918	1977	2041	2100	2148	31	39	14	0,58	
	Boost	6163	6204	6273	6356	6424	6507	6658	6823	6974	7098	2506	2523	2551	2584	2612	2646	2707	2774	2836	2886	44	52	55,2	2,3	
2400	Min	2133	2173	2240	2320	2387	2467	2614	2774	2921	3041	867	884	911	943	970	1003	1063	1128	1188	1236	20	28	2,9	0,12	2
	Med	3622	3666	3738	3825	3897	3984	4144	4317	4477	4607	1473	1490	1520	1555	1585	1620	1685	1756	1820	1873	26	34	6,3	0,26	
	Max	5147	5193	5270	5363	5441	5534	5704	5890	6060	6200	2093	2111	2143	2181	2212	2250	2319	2395	2464	2521	32	40	15,9	0,66	
	Boost	7231	7280	7360	7457	7538	7635	7812	8005	8183	8328	2940	2960	2993	3032	3065	3104	3176	3255	3327	3386	44	52	67,2	2,8	

- Standard heating output [W] compliant to EN-16430 for the room air temperature $\Theta_r = 20^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed heating.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

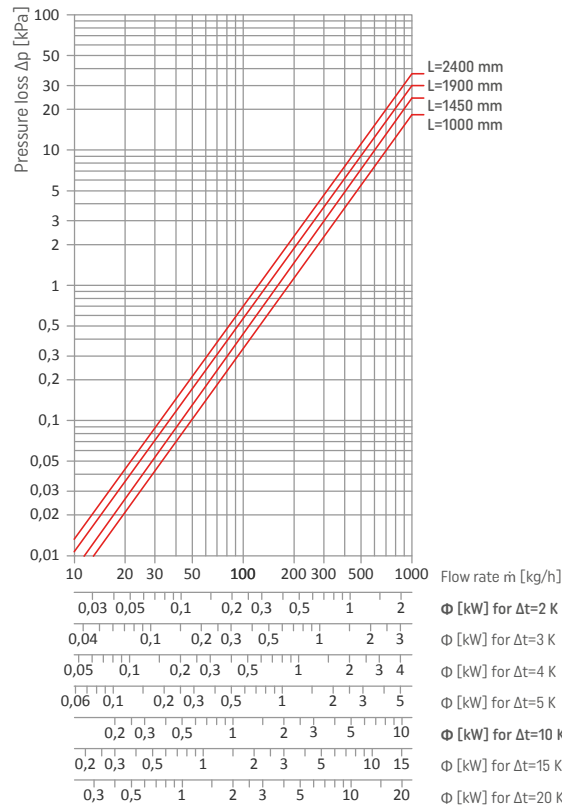
SENSIBLE COOLING OUTPUT

Trench length	Operating Mode	Cooling output for t_r/t_c °C																				Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS
		17/19/28										7/12/27														
L [mm]	N V [m³/h]	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10					
		Φ [W]																								
1000	Min	61	63	66	69	73	76	83	91	97	103	105	109	114	119	126	131	143	157	168	178	<18	<26	0,8	0,03	1
	Med	187	189	192	195	198	201	208	215	221	226	323	327	332	337	342	347	359	372	382	391	18	26	1,7	0,07	
	Max	318	319	322	325	328	331	337	344	350	355	550	551	556	562	567	572	582	594	605	613	25	33	4,1	0,17	
1150	Boost	500	501	504	507	510	513	519	526	532	537	864	866	871	876	881	886	897	909	919	928	40	48	19,2	0,80	1
	Min	86	89	94	99	103	109	119	129	139	147	149	154	162	171	178	188	206	223	240	254	<18	<26	1,2	0,05	
	Med	267	269	273	278	282	287	296	306	316	323	461	465	472	480	487	496	511	529	546	558	19	27	2,7	0,11	
1450	Max	453	455	459	464	468	472	481	490	499	506	783	786	793	802	809	816	831	847	862	874	26	34	6,0	0,25	1
	Boost	712	714	718	723	727	732	741	750	759	766	1230	1234	1241	1249	1256	1265	1280	1296	1312	1324	41	49	21,6	0,90	
	Min	123	126	133	140	146	154	168	183	197	208	213	218	230	242	252	266	290	316	340	359	<18	<26	1,5	0,06	
1700	Max	643	646	651	658	664	670	682	696	708	718	1111	1116	1125	1137	1147	1158	1179	1203	1223	1241	29	37	8,0	0,33	1
	Boost	1011	1014	1020	1026	1032	1039	1051	1065	1077	1087	1747	1752	1763	1773	1783	1795	1816	1840	1861	1878	41	49	33,6	1,40	
	Min	147	152	159	168	176	185	201	219	236	249	254	263	275	290	304	320	347	378	408	430	<18	<26	2,0	0,08	
1900	Max	770	774	781	789	795	803	818	834	849	861	1331	1337	1350	1363	1374	1388	1414	1441	1467	1488	30	38	10,1	0,42	2
	Boost	1212	1216	1223	1231	1237	1245	1260	1276	1291	1303	2094	2101	2113	2127	2138	2151	2177	2205	2231	2252	43	51	40,8	1,70	
	Min	173	178	187	197	206	217	236	257	277	293	299	308	323	340	356	375	408	444	479	506	<18	<26	2,4	0,10	
2150	Max	905	910	918	927	935	944	962	981	998	1012	1564	1572	1586	1602	1616	1631	1662	1695	1725	1749	30	38	12,0	0,50	2
	Boost	1424	1429	1437	1446	1454	1464	1481	1500	1517	1532	2461	2469	2483	2499	2513	2530	2559	2592	2621	2647	43	51	43,2	1,80	
	Min	209	215	226	239	249	262	286	311	335	354	361	372	391	413	430	453	494	537	579	612	18	26	2,7	0,11	
2400	Max	1095	1100	1110	1121	1131	1142	1163	1186	1207	1224	1892	1901	1918	1937	1954	1973	2010	2049	2086	2115	31	39	14,0	0,58	2
	Boost	1723	1729	1738	1750	1759	1771	1792	1815	1836	1853	2977	2988	3003	3024	3040	3060	3097	3136	3173	3202	44	52	55,2	2,30	
	Min	245	253	265	280	293	308	336	366	393	416	423	437	458	484	506	532	581	632	679	719	20	28	2,9	0,12	
2400	Max	1284	1291	1302	1315	1327	1340	1365	1391	1416	1436	2219	2231	2250	2272	2293	2316	2359	2404	2447	2481	26	34	6,3	0,26	2
	Boost	2021	2028	2039	2053	2064	2078	2102	2129	2154	2174	3492	3504	3523	3548	3567	3591	3632	3679	3722	3757	44	52	67,2	2,80	
	Min	245	253	265	280	293	308	336	366	393	416	423	437	458	484	506	532	581	632	679	719	20	28	2,9	0,12	

- Standard cooling output [W] compliant to EN-16430 for the Room air temperature $\Theta_r = 28^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed cooling.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

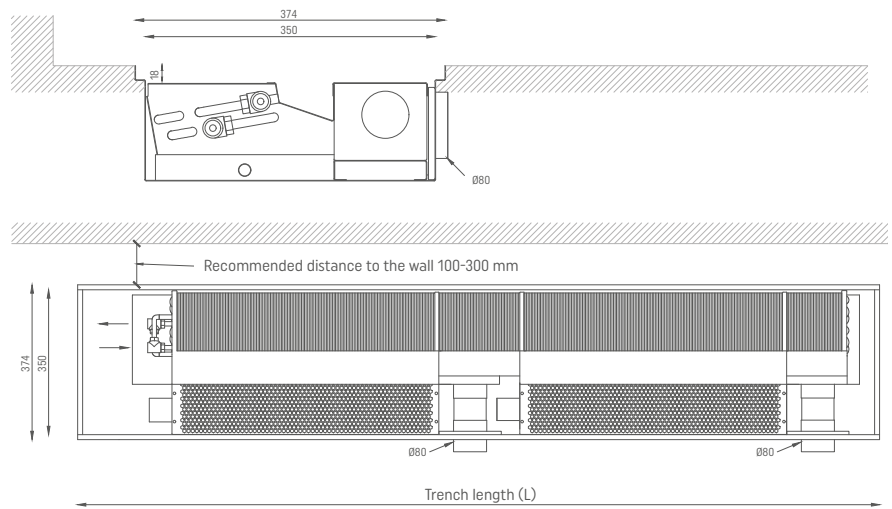
PRESSURE LOSS

CVK2P-14/35/L-1
HEATING / COOLING



DIMENSIONS	[mm]
Trench height (H)	140
Trench bottom width (B)	350
Top width/Grille width (Bk)	374
Trench length (L)	1250-2550

CONNECTION	TYPE
Connection thread	½" Female thread
2 ventilation slots	DN 80 mm
Connection side	Left (L) standard, Right (P) option



Trench length	Operating mode	Heating output for t_s/t_r °C																				Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS
		55/45/20										35/30/20														
L [mm]	N V [m³/h]	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10					
		28	34	44	56	66	78	100	124	146	164	28	34	44	56	66	78	100	124	146	164					
Φ [W]																										
1250	Min	573	593	626	666	699	739	812	891	963	1023	233	241	255	271	284	300	330	362	392	416	<18	<26	0,8	0,03	1
	Med	945	967	1003	1045	1081	1124	1203	1289	1368	1433	384	393	408	425	440	457	489	524	556	583	18	26	1,7	0,07	
	Max	1326	1349	1386	1433	1471	1517	1601	1692	1777	1846	539	548	564	583	598	617	651	688	723	750	25	33	4,1	0,17	
	Boost	1843	1867	1907	1955	1995	2042	2130	2226	2314	2386	749	759	775	795	811	830	866	905	941	970	40	48	19,2	0,8	
1450	Min	817	845	893	949	996	1052	1156	1269	1372	1457	332	344	363	386	405	428	470	516	558	592	<18	<26	1,2	0,05	1
	Med	1347	1378	1429	1491	1541	1603	1715	1838	1950	2042	548	560	581	606	627	652	697	747	793	830	19	27	2,7	0,11	
	Max	1889	1922	1977	2042	2097	2163	2283	2413	2533	2632	768	782	804	830	853	879	928	981	1030	1070	26	34	6	0,25	
	Boost	2627	2661	2718	2786	2843	2911	3036	3173	3298	3400	1068	1082	1105	1133	1156	1184	1235	1290	1341	1382	41	49	21,6	0,9	
1700	Min	1160	1200	1266	1347	1414	1494	1640	1801	1947	2067	472	488	515	548	575	607	667	732	792	841	<18	<26	1,5	0,06	1
	Med	1912	1956	2028	2115	2188	2275	2435	2609	2768	2898	778	795	825	860	890	925	990	1061	1125	1179	23	31	3,2	0,13	
	Max	2681	2728	2806	2898	2976	3069	3239	3425	3595	3734	1090	1109	1141	1179	1210	1248	1317	1393	1462	1518	29	37	8	0,33	
	Boost	3729	3777	3858	3955	4035	4132	4309	4503	4681	4826	1516	1536	1569	1608	1641	1680	1752	1831	1903	1962	41	49	33,6	1,4	
1900	Min	1391	1439	1519	1615	1695	1791	1967	2160	2335	2480	565	585	618	657	689	728	800	878	950	1008	<18	<26	2	0,08	2
	Med	2292	2345	2432	2536	2623	2727	2919	3127	3318	3475	932	953	989	1031	1066	1109	1187	1271	1349	1413	24	32	4,4	0,18	
	Max	3215	3270	3363	3475	3567	3679	3883	4106	4310	4477	1307	1330	1368	1413	1451	1496	1579	1669	1752	1820	30	38	10,1	0,42	
	Boost	4470	4528	4625	4741	4837	4954	5166	5399	5612	5786	1818	1841	1881	1928	1967	2014	2101	2195	2282	2352	43	51	40,8	1,7	
2100	Min	1634	1691	1785	1898	1992	2105	2312	2538	2745	2914	665	688	726	772	810	856	940	1032	1116	1185	<18	<26	2,4	0,1	2
	Med	2695	2756	2858	2981	3083	3205	3430	3675	3900	4084	1096	1121	1162	1212	1254	1303	1395	1494	1586	1661	24	32	5,3	0,22	
	Max	3779	3844	3953	4084	4193	4324	4564	4826	5066	5262	1536	1563	1607	1661	1705	1758	1856	1962	2060	2140	30	38	12	0,5	
	Boost	5254	5322	5436	5572	5686	5822	6072	6345	6595	6800	2136	2164	2210	2266	2312	2367	2469	2580	2682	2765	43	51	43,2	1,8	
2350	Min	1977	2045	2159	2296	2409	2546	2796	3069	3320	3524	804	832	878	933	980	1035	1137	1248	1350	1433	18	26	2,7	0,11	2
	Med	3260	3334	3457	3606	3729	3877	4149	4446	4718	4940	1325	1356	1406	1466	1516	1577	1687	1808	1918	2009	24	32	5,8	0,24	
	Max	4571	4650	4782	4940	5072	5231	5521	5838	6128	6365	1859	1891	1944	2009	2062	2127	2245	2374	2492	2588	31	39	14	0,58	
	Boost	6356	6438	6576	6741	6878	7043	7345	7675	7978	8226	2584	2618	2674	2741	2797	2864	2987	3121	3244	3345	44	52	55,2	2,3	
2550	Min	2320	2400	2533	2694	2827	2988	3281	3602	3896	4136	943	976	1030	1095	1150	1215	1334	1464	1584	1682	20	28	2,9	0,12	2
	Med	3825	3912	4057	4230	4375	4549	4868	5216	5535	5796	1555	1591	1649	1720	1779	1850	1979	2121	2251	2357	26	34	6,3	0,26	
	Max	5363	5456	5611	5797	5952	6138	6478	6850	7191	7470	2181	2219	2282	2357	2420	2496	2634	2785	2924	3037	32	40	15,9	0,66	
	Boost	7457	7554	7715	7909	8071	8264	8619	9006	9361	9652	3032	3072	3137	3216	3282	3360	3505	3662	3806	3924	44	52	67,2	2,8	

- Standard heating output [W] compliant to EN-16430 for the room air temperature $\theta_r = 20^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed heating.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

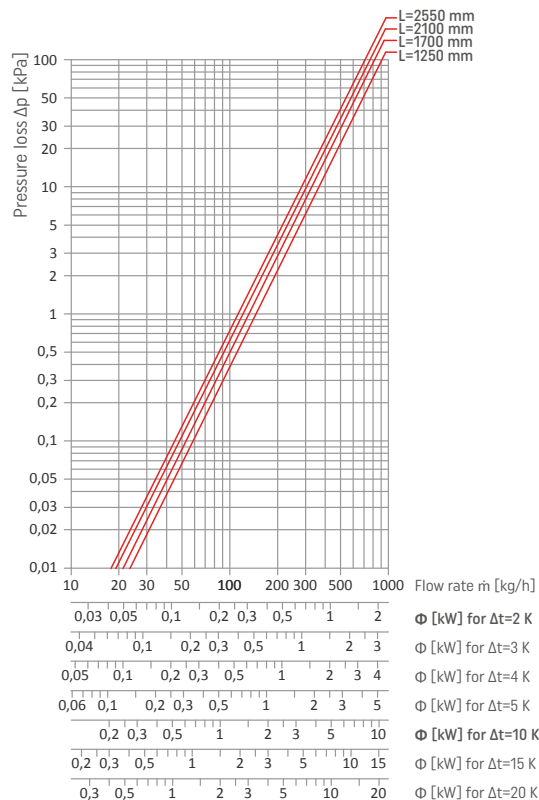
SENSIBLE COOLING OUTPUT

Trench length L [mm]	Operating Mode N V [m³/h]	Cooling output for t _r /t _c °C																				Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS	
		17/19/28										7/12/27															
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10						
		Φ [W]																									
		Min	69	73	79	87	93	101	114	129	143	154	119	126	137	150	161	175	197	223	247	266	<18	<26	0,8	0,03	
1250	Med	195	198	204	211	217	224	236	250	263	273	337	342	353	365	375	387	408	432	454	472	18	26	1,7	0,07	1	
	Max	325	329	334	341	346	353	365	378	390	400	562	569	577	589	598	610	631	653	674	691	725	40	48	19,2		0,8
	Boost	507	511	516	523	528	535	547	560	572	582	876	883	892	904	912	924	945	968	988	1006	40	48	19,2	0,8		
1450	Min	99	104	113	124	133	143	163	184	204	220	171	180	195	214	230	247	282	318	353	380	<18	<26	1,2	0,05	1	
	Med	278	283	291	301	310	320	338	358	376	391	480	489	503	520	536	553	584	619	650	676	19	27	2,7	0,11		
	Max	464	469	476	486	494	503	520	539	556	570	802	810	823	840	854	869	899	931	961	985	26	34	6	0,25		
	Boost	723	728	736	745	753	763	780	799	817	831	1249	1258	1272	1287	1301	1318	1348	1381	1412	1436	41	49	21,6	0,9		
1700	Min	140	148	160	175	188	203	231	261	288	311	242	256	276	302	325	351	399	451	498	537	<18	<26	1,5	0,06	1	
	Med	395	402	414	428	439	453	479	507	533	554	683	695	715	740	759	783	828	876	921	957	23	31	3,2	0,13		
	Max	658	665	676	689	700	714	738	765	789	809	1137	1149	1168	1191	1210	1234	1275	1322	1363	1398	29	37	8	0,33		
	Boost	1026	1033	1044	1058	1069	1083	1107	1134	1159	1179	1773	1785	1804	1828	1847	1871	1913	1960	2003	2037	41	49	33,6	1,4		
1900	Min	168	177	192	210	225	243	276	312	345	372	290	306	332	363	389	420	477	539	596	643	<18	<26	2	0,08	2	
	Med	473	482	496	513	527	543	574	608	639	664	817	833	857	886	911	938	992	1051	1104	1147	24	32	4,4	0,18		
	Max	789	797	810	826	840	856	885	917	947	971	1363	1377	1400	1427	1452	1479	1529	1585	1636	1678	30	38	10,1	0,42		
	Boost	1231	1239	1252	1268	1282	1298	1327	1359	1389	1413	2127	2141	2163	2191	2215	2243	2293	2348	2400	2442	43	51	40,8	1,7		
2100	Min	197	208	226	247	264	285	324	367	405	437	340	359	391	427	456	492	560	634	700	755	<18	<26	2,4	0,1	2	
	Med	556	566	583	602	619	639	675	715	751	781	961	978	1007	1040	1070	1104	1166	1236	1298	1350	24	32	5,3	0,22		
	Max	927	937	952	971	987	1006	1041	1078	1113	1141	1602	1619	1645	1678	1706	1738	1799	1863	1923	1972	30	38	12	0,5		
	Boost	1446	1456	1472	1491	1506	1525	1560	1598	1633	1661	2499	2516	2544	2576	2602	2635	2696	2761	2822	2870	43	51	43,2	1,8		
2350	Min	239	252	273	299	320	345	392	444	491	529	413	435	472	517	553	596	677	767	848	914	18	26	2,7	0,11	2	
	Med	673	685	704	728	748	772	816	863	907	943	1163	1184	1217	1258	1293	1334	1410	1491	1567	1630	24	32	5,8	0,24		
	Max	1121	1133	1152	1175	1194	1216	1258	1304	1346	1380	1937	1958	1991	2030	2063	2101	2174	2253	2326	2385	31	39	14	0,58		
	Boost	1750	1761	1780	1803	1822	1845	1887	1933	1976	2010	3024	3043	3076	3116	3148	3188	3261	3340	3415	3473	44	52	55,2	2,3		
2550	Min	280	295	321	351	376	406	461	522	577	622	484	510	555	607	650	702	797	902	997	1075	20	28	2,9	0,12	2	
	Med	789	803	826	854	878	906	957	1013	1064	1106	1363	1388	1427	1476	1517	1566	1654	1750	1839	1911	26	34	6,3	0,26		
	Max	1315	1329	1351	1378	1400	1427	1476	1530	1579	1619	2272	2297	2335	2381	2419	2466	2551	2644	2729	2798	32	40	15,9	0,66		
	Boost	2053	2066	2089	2116	2138	2165	2214	2268	2318	2358	3548	3570	3610	3656	3694	3741	3826	3919	4006	4075	44	52	67,2	2,8		

- Standard cooling output [W] compliant to EN-16430 for the Room air temperature $\Theta_r = 28^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed cooling.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

PRESSURE LOSS

CVK2P-14/35/L-II
HEATING / COOLING



CORRECTIVE FACTORS FOR 140 MM HIGH CVK2P CLIMACONVECTORS

Heating and cooling output corrective factors for CVK2P 140 mm high units for other installation temperatures.

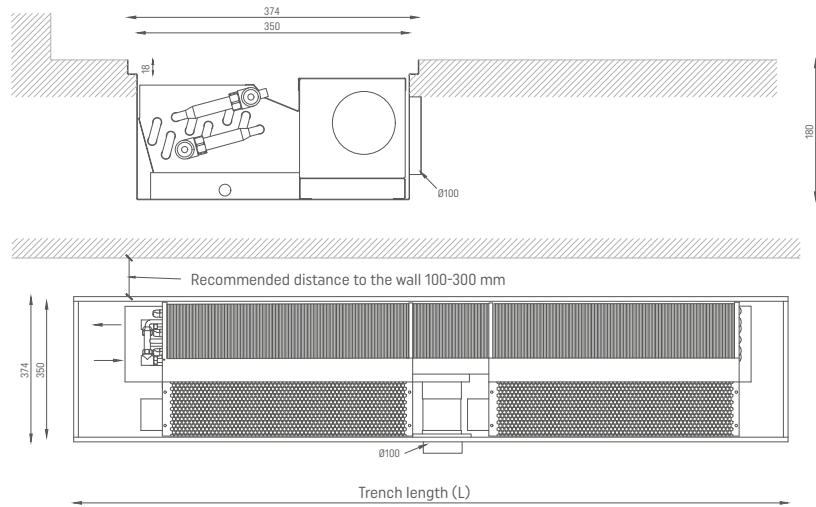
HEATING						COOLING						
Supply and return temperatures [°C]		Room air temperature θ_i [°C]				Supply and return temperatures [°C]		Room air temperature θ_i [°C]				
t_s	t_r	12	16	20	24	t_s	t_r	24	25	26	27	28
75	70	2,057	1,917	1,778	1,638	6	8	1,680	1,776	1,873	1,969	2,065
	65	1,969	1,830	1,691	1,552		9	1,631	1,728	1,824	1,921	2,017
	60	1,882	1,743	1,604	1,465		10	1,583	1,680	1,776	1,873	1,969
	55	1,795	1,656	1,517	1,379		11	1,535	1,631	1,728	1,824	1,921
70	65	1,882	1,743	1,604	1,465	7	12	1,486	1,583	1,680	1,776	1,873
	60	1,795	1,656	1,517	1,379		9	1,583	1,680	1,776	1,873	1,969
	55	1,708	1,569	1,431	1,292		10	1,535	1,631	1,728	1,824	1,921
	50	1,621	1,482	1,344	1,206		11	1,486	1,583	1,680	1,776	1,873
65	60	1,708	1,569	1,431	1,292	8	12	1,438	1,535	1,631	1,728	1,824
	55	1,621	1,482	1,344	1,206		13	1,389	1,486	1,583	1,680	1,776
	50	1,534	1,396	1,258	1,120		10	1,486	1,583	1,680	1,776	1,873
	45	1,448	1,310	1,172	1,034		11	1,438	1,535	1,631	1,728	1,824
60	55	1,534	1,396	1,258	1,120	10	12	1,389	1,486	1,583	1,680	1,776
	50	1,448	1,310	1,172	1,034		13	1,341	1,438	1,535	1,631	1,728
	45	1,361	1,223	1,086	0,949		12	1,292	1,389	1,486	1,583	1,680
	40	1,275	1,137	1,000	0,863		13	1,244	1,341	1,438	1,535	1,631
55	50	1,361	1,223	1,086	0,949	12	14	1,195	1,292	1,389	1,486	1,583
	45	1,275	1,137	1,000	0,863		15	1,146	1,244	1,341	1,438	1,535
	40	1,189	1,051	0,914	0,778		14	1,098	1,195	1,292	1,389	1,486
	35	1,103	0,966	0,829	0,693		15	1,049	1,146	1,244	1,341	1,438
50	45	1,189	1,051	0,914	0,778	16	16	1,000	1,098	1,195	1,292	1,389
	40	1,103	0,966	0,829	0,693		17	0,951	1,049	1,146	1,244	1,341
	35	1,017	0,880	0,744	0,608		18	0,706	0,804	0,902	1,000	1,098
	40	1,017	0,880	0,744	0,608		19	0,656	0,755	0,853	0,951	1,049
45	35	0,932	0,795	0,659	0,524	17	19	0,607	0,706	0,804	0,902	1,000
	30	0,846	0,710	0,575	0,440		20	0,557	0,656	0,755	0,853	0,951
	30	0,761	0,625	0,490	0,357		21	0,408	0,508	0,607	0,706	0,804
	35	0,676	0,541	0,407	0,274		22	0,358	0,458	0,557	0,656	0,755

HEATING/COOLING OUTPUT CORRECTIVE FACTORS FOR CVKP CLIMACONVECTORS ACCORDING TO THE GRILLE TYPE

GRILLE TYPE	AIRFLOW	CORRECTIVE FACTOR
Roll-up double T-bar profile aluminium grille - 13 mm gap	67%	1,00
Roll-up double T-bar profile aluminium grille - 8 mm gap	63%	0,99
Roll-up closed profile aluminium grille	62%	1,00
Modular snap on profile aluminium grille	62%	0,97
Linear snap on profile aluminium grille	62%	1,08
Linear stainless steel grille	71%	1,09

DIMENSIONS	[mm]
Trench height (H)	180
Trench bottom width (B)	350
Top width/Grille width (Bk)	374
Trench length (L)	1000-2400

CONNECTION	TYPE
Connection thread	½" Female thread
1 ventilation slot	DN 100 mm
Connection side	Left (L) standard, Right (P) option



Trench length	Operating mode	Heating output for t_s/t_r °C																						Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS	
		55/45/20											35/30/20																
L [mm]	N V [m³/h]	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11						
		Φ [W]																											
1000	Min	884	898	920	934	956	979	1010	1029	1060	1091	1132	337	343	351	356	365	374	386	393	405	417	432	<18	<26	2,0	0,08	1	
	Med	1552	1567	1591	1607	1631	1657	1690	1712	1746	1780	1824	592	598	607	613	622	632	645	653	666	679	696	21	29	3,9	0,16		
	Max	2072	2092	2122	2141	2172	2205	2247	2274	2317	2360	2416	2416	791	799	810	817	829	842	858	868	884	901	922	29	37	7,5		0,31
	Boost	2639	2664	2701	2726	2765	2806	2860	2894	2949	3003	3074	3074	1007	1017	1031	1041	1055	1071	1092	1105	1126	1146	1174	42	50	21,6		0,90
1150	Min	1248	1269	1300	1322	1353	1388	1434	1462	1507	1553	1613	476	484	496	504	516	530	547	558	575	593	616	<18	<26	2,2	0,09	1	
	Med	2190	2214	2250	2273	2309	2348	2400	2431	2482	2534	2600	836	845	859	868	881	896	916	928	948	967	993	23	31	4,4	0,18		
	Max	2925	2956	3001	3030	3075	3125	3190	3230	3295	3359	3444	3444	1117	1128	1145	1157	1174	1193	1218	1233	1258	1282	1315	32	40	8,9		0,37
	Boost	3725	3763	3820	3858	3914	3978	4060	4110	4192	4274	4381	4422	1437	1458	1473	1494	1518	1550	1569	1600	1632	1673	1714	43	51	25,2		1,05
1450	Min	1738	1770	1818	1849	1897	1950	2019	2062	2130	2199	2289	664	676	694	706	724	745	771	787	813	839	874	<18	<26	2,7	0,11	1	
	Med	3051	3088	3143	3180	3235	3297	3377	3426	3506	3586	3691	1165	1179	1200	1214	1235	1259	1289	1308	1338	1369	1409	25	33	6,5	0,27		
	Max	4074	4121	4192	4238	4309	4387	4489	4552	4653	4755	4888	4955	1573	1600	1618	1645	1675	1714	1738	1776	1815	1866	1915	35	43	14,4		0,60
	Boost	5188	5247	5337	5396	5485	5584	5713	5792	5921	6050	6219	6219	1981	2003	2037	2060	2094	2132	2181	2211	2260	2310	2374	46	54	42,0		1,75
1700	Min	2132	2167	2220	2255	2308	2367	2444	2491	2568	2644	2745	814	827	847	861	881	904	933	951	980	1009	1048	19	27	4,1	0,17	2	
	Med	3742	3782	3841	3880	3939	4005	4090	4142	4228	4313	4425	1429	1444	1466	1481	1504	1529	1561	1581	1614	1646	1689	26	34	8,2	0,34		
	Max	4998	5047	5122	5172	5246	5329	5437	5503	5612	5719	5860	5908	1927	1955	1974	2003	2034	2076	2101	2142	2183	2237	2315	34	42	16,4		0,68
	Boost	6364	6427	6522	6584	6679	6784	6920	7004	7141	7277	7455	7429	2453	2490	2513	2550	2590	2642	2674	2726	2778	2846	2924	46	54	46,8		1,95
1900	Min	2496	2538	2601	2643	2706	2776	2868	2924	3015	3107	3226	953	969	993	1009	1033	1060	1095	1116	1151	1186	1231	20	28	4,4	0,18	2	
	Med	4381	4429	4499	4547	4617	4697	4799	4862	4964	5067	5201	1673	1691	1718	1736	1763	1793	1832	1856	1895	1934	1985	26	34	8,7	0,36		
	Max	5851	5911	6001	6060	6150	6250	6380	6459	6589	6719	6888	6924	2256	2291	2313	2348	2386	2435	2466	2515	2565	2629	2704	35	43	17,8		0,74
	Boost	7450	7526	7640	7715	7829	7955	8119	8220	8384	8548	8763	8844	2873	2916	2945	2989	3037	3099	3138	3201	3263	3345	3434	46	54	50,4		2,10
2150	Min	2986	3039	3119	3171	3250	3339	3453	3523	3638	3752	3902	1140	1160	1190	1211	1241	1274	1318	1345	1389	1432	1490	20	28	4,8	0,20	2	
	Med	5242	5302	5393	5453	5544	5645	5776	5857	5989	6120	6291	2001	2024	2059	2082	2117	2155	2205	2236	2286	2336	2402	27	35	10,8	0,45		
	Max	7000	7076	7192	7269	7384	7512	7679	7782	7948	8115	8332	8372	2672	2701	2745	2775	2819	2868	2931	2971	3034	3098	3181	36	44	23,3		0,97
	Boost	8913	9011	9157	9254	9400	9562	9773	9903	10113	10324	10600	10600	3403	3440	3495	3533	3588	3650	3731	3780	3861	3941	4047	48	56	67,2		2,80
2400	Min	3477	3541	3636	3700	3795	3901	4039	4123	4261	4398	4579	1327	1352	1388	1412	1449	1489	1542	1574	1627	1679	1748	20	28	5,3	0,22	2	
	Med	6101	6176	6286	6360	6471	6594	6754	6852	7012	7172	7381	2329	2357	2400	2428	2470	2517	2578	2616	2677	2738	2818	28	36	13,0	0,54		
	Max	8149	8243	8384	8478	8619	8775	8979	9104	9307	9511	9777	9811	3111	3147	3200	3236	3290	3350	3428	3475	3553	3631	3732	38	46	28,8		1,20
	Boost	10377	10495	10674	10792	10971	11169	11427	11585	11843	12100	12437	12437	3961	4006	4075	4120	4188	4264	4362	4423	4521	4619	4748	49	57	84,0		3,50

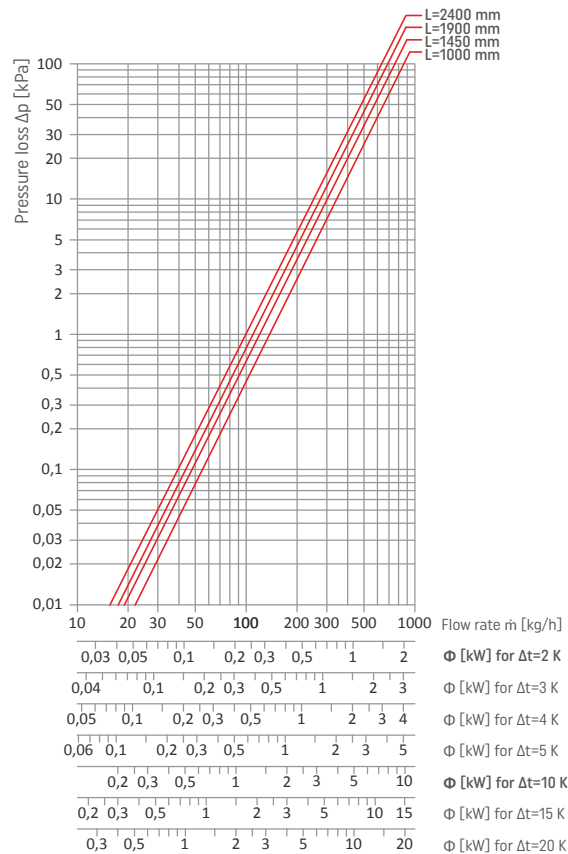
- Standard heating output [W] compliant to EN-16430 for the room air temperature $\theta_r = 20^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed heating.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

SENSIBLE COOLING OUTPUT

Trench length L [mm]	Operating Mode N V [m³/h]	Cooling output for t _s /t _r °C																								Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS
		17/19/28												7/12/27																
		1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11							
		Φ [W]																												
1000	Min	225	228	233	236	240	245	252	256	262	269	277	394	399	408	413	420	429	441	448	459	471	485	<18	<26	2,0	0,08	1		
	Med	466	468	472	474	478	482	487	490	495	500	507	816	819	826	830	837	844	852	858	866	875	887	21	29	3,9	0,16			
	Max	657	661	666	670	675	681	688	693	701	708	718	1150	1157	1166	1173	1181	1192	1204	1213	1227	1239	1257	1257	29	37	7,5		0,31	
1150	Boost	870	874	881	885	891	898	908	913	923	932	944	1523	1530	1542	1549	1559	1572	1589	1598	1615	1631	1652	42	50	21,6	0,90	1		
	Min	317	322	329	333	340	347	357	363	373	382	395	555	564	576	583	595	607	625	635	653	669	691	<18	<26	2,2	0,09			
	Med	658	662	668	671	677	683	691	696	704	712	723	1152	1159	1169	1174	1185	1195	1209	1218	1232	1246	1265	23	31	4,4	0,18			
1450	Max	929	934	942	948	956	965	977	985	996	1008	1024	1626	1635	1649	1659	1673	1689	1710	1724	1743	1764	1792	32	40	8,9	0,37	1		
	Boost	1228	1235	1245	1252	1262	1274	1288	1297	1312	1327	1346	2149	2161	2179	2191	2209	2230	2254	2270	2296	2322	2356	43	51	25,2	1,05			
	Min	443	449	460	466	477	488	503	512	527	542	561	775	786	805	816	835	854	880	896	922	949	982	<18	<26	2,7	0,11			
1700	Med	916	922	932	938	948	958	972	981	994	1008	1026	1603	1614	1631	1642	1659	1677	1701	1717	1740	1764	1796	25	33	6,5	0,27	1		
	Max	1292	1301	1315	1324	1338	1354	1374	1386	1407	1427	1453	2261	2277	2301	2317	2342	2370	2405	2426	2462	2497	2543	35	43	14,4	0,60			
	Boost	1711	1722	1739	1751	1768	1787	1812	1828	1852	1877	1910	2994	3014	3043	3064	3094	3127	3171	3199	3241	3285	3343	46	54	42,0	1,75			
1900	Min	542	550	561	569	580	592	608	618	635	651	672	949	963	982	996	1015	1036	1064	1082	1111	1139	1176	19	27	4,1	0,17	2		
	Med	1123	1130	1139	1145	1154	1164	1178	1186	1199	1213	1230	1965	1978	1993	2004	2020	2037	2062	2076	2098	2123	26	34	8,2	0,34				
	Max	1585	1594	1608	1617	1630	1645	1665	1677	1697	1716	1742	2774	2790	2814	2830	2853	2879	2914	2935	2970	3003	3049	34	42	16,4	0,68			
2150	Boost	2098	2109	2126	2137	2154	2172	2196	2211	2235	2259	2290	3672	3691	3721	3740	3770	3801	3843	3869	3911	3953	4008	46	54	46,8	1,95	2		
	Min	635	644	657	666	680	694	714	726	745	764	790	1111	1127	1150	1166	1190	1215	1250	1271	1304	1337	20	28	4,4	0,18				
	Med	1316	1323	1334	1342	1353	1366	1382	1392	1408	1425	1446	2303	2315	2335	2349	2368	2391	2419	2436	2464	2494	26	34	8,7	0,36				
2400	Max	1856	1867	1884	1895	1911	1929	1953	1968	1992	2016	2047	3248	3267	3297	3316	3344	3376	3418	3444	3486	3528	3582	35	43	17,8	0,74	2		
	Boost	2457	2470	2490	2504	2524	2547	2576	2594	2623	2652	2691	4300	4323	4358	4382	4417	4457	4508	4540	4590	4641	4709	46	54	50,4	2,10			
	Min	760	771	788	800	816	835	860	875	899	924	956	1330	1349	1379	1400	1428	1461	1505	1531	1573	1617	20	28	4,8	0,20				
2150	Med	1573	1584	1599	1609	1624	1641	1663	1676	1698	1720	1749	2753	2772	2798	2816	2842	2872	2910	2933	2972	3010	27	35	10,8	0,45	2			
	Max	2220	2235	2257	2272	2294	2319	2351	2370	2402	2434	2476	3885	3911	3950	3976	4015	4058	4114	4148	4204	4260	36	44	23,3	0,97				
	Boost	2939	2957	2984	3003	3030	3060	3100	3124	3164	3203	3255	5143	5175	5222	5255	5303	5355	5425	5467	5537	5605	5696	48	56	67,2		2,80		
2400	Min	884	898	918	932	952	975	1005	1023	1053	1082	1121	1547	1572	1607	1631	1666	1706	1759	1790	1843	1894	20	28	5,3	0,22	2			
	Med	1832	1845	1864	1876	1896	1917	1944	1961	1989	2016	2052	3206	3229	3262	3283	3318	3355	3402	3432	3481	3528	28	36	13,0	0,54				
	Max	2584	2603	2631	2649	2677	2708	2748	2813	2853	2905	4522	4555	4604	4636	4685	4739	4809	4851	4923	4993	5084	5180	38	46	28,8		1,20		
2400	Boost	3420	3443	3478	3501	3535	3573	3623	3654	3704	3754	3819	5985	6025	6087	6127	6186	6253	6340	6395	6482	6570	6683	49	57	84,0	3,50			

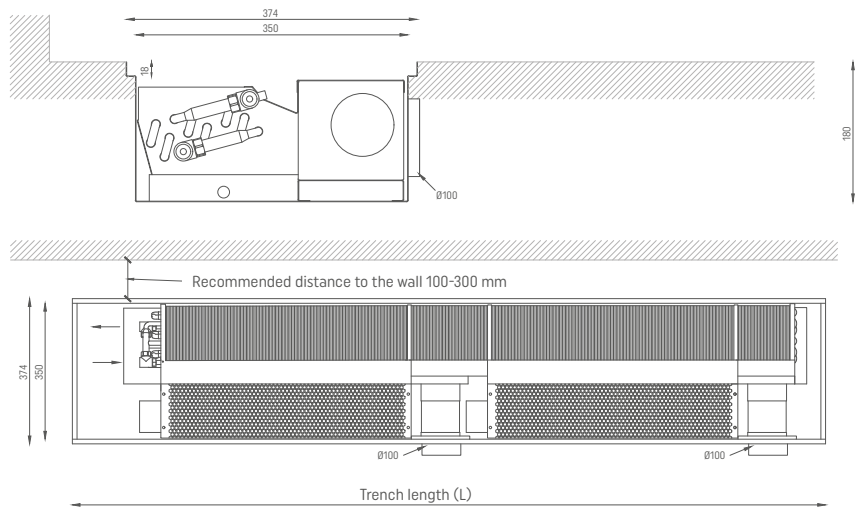
PRESSURE LOSS

CVK2P-18/35/L-1
HEATING / COOLING



DIMENSIONS	[mm]
Trench height (H)	180
Trench bottom width (B)	350
Top width/Grille width (Bk)	374
Trench length (L)	1250-2550

CONNECTION	TYPE
Connection thread	½" Female thread
2 ventilation slots	DN 100 mm
Connection side	Left (L) standard, Right (P) option



Trench length	Operating mode	Heating output for t_s/t_r °C																						Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS	
		55/45/20											35/30/20																
L [mm]	N V [m³/h]	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	Φ [W]	Lp	Lw	P	I	
		1250	Min	926	956	998	1027	1070	1117	1180	1217	1279	1341	1422	354	365	381	392	408	427	450	465	488						
Med	1599		1631	1677	1709	1756	1808	1877	1919	1987	2055	2144	610	622	640	652	670	690	716	733	758	785	819	21	29	3,9	0,16		
Max	2132		2172	2231	2271	2330	2396	2482	2535	2621	2708	2820	814	829	852	867	889	915	948	968	1001	1034	1076	29	37	7,5	0,31		
Boost	2714		2765	2840	2890	2965	3049	3158	3225	3333	3442	3585	1036	1055	1084	1103	1132	1164	1205	1231	1273	1314	1369	42	50	21,6	0,90		
1450	Min	1311	1353	1416	1458	1522	1592	1683	1739	1831	1922	2041	501	516	541	557	581	608	642	664	699	734	779	<18	<26	2,2	0,09	1	
	Med	2262	2309	2380	2427	2498	2577	2679	2742	2844	2947	3081	863	881	908	926	953	984	1023	1047	1086	1125	1176	23	31	4,4	0,18		
	Max	3015	3075	3165	3225	3315	3414	3544	3624	3753	3883	4052	1151	1174	1208	1231	1265	1303	1353	1383	1433	1482	1547	32	40	8,9	0,37		
	Boost	3839	3914	4028	4104	4217	4344	4507	4608	4772	4937	5151	1465	1494	1538	1567	1610	1658	1721	1759	1822	1885	1966	43	51	25,2	1,05		
1700	Min	1834	1897	1993	2056	2152	2257	2395	2479	2617	2755	2935	700	724	761	785	821	862	914	947	999	1052	1120	<18	<26	2,7	0,11	1	
	Med	3162	3235	3346	3420	3531	3654	3814	3913	4072	4233	4442	1207	1235	1277	1306	1348	1395	1456	1494	1555	1616	1696	25	33	6,5	0,27		
	Max	4215	4309	4450	4544	4685	4841	5045	5170	5373	5577	5843	1609	1645	1699	1735	1788	1848	1926	1974	2051	2129	2231	35	43	14,4	0,60		
	Boost	5367	5485	5664	5783	5961	6160	6417	6576	6833	7091	7428	2049	2094	2162	2207	2276	2351	2450	2510	2609	2707	2836	46	54	42,0	1,75		
1900	Min	2238	2308	2414	2485	2591	2709	2863	2957	3110	3263	3463	854	881	922	949	989	1034	1093	1129	1187	1246	1322	19	27	4,1	0,17	2	
	Med	3860	3939	4058	4136	4254	4385	4556	4661	4832	5002	5225	1474	1504	1549	1579	1624	1674	1739	1779	1844	1910	1995	26	34	8,2	0,34		
	Max	5147	5246	5396	5495	5645	5811	6026	6159	6375	6590	6872	1965	2003	2060	2098	2155	2218	2300	2351	2433	2516	2623	34	42	16,4	0,68		
	Boost	6553	6679	6868	6994	7182	7393	7665	7833	8106	8379	8736	2502	2550	2622	2670	2742	2822	2926	2990	3094	3199	3335	46	54	46,8	1,95		
2100	Min	2622	2706	2833	2917	3043	3184	3366	3478	3661	3843	4082	1001	1033	1081	1113	1162	1215	1285	1328	1397	1467	1558	20	28	4,4	0,18	2	
	Med	4523	4617	4759	4854	4996	5153	5358	5485	5689	5894	6162	1727	1763	1817	1853	1907	1967	2045	2094	2172	2250	2352	26	34	8,7	0,36		
	Max	6031	6150	6329	6449	6629	6828	7088	7247	7506	7766	8105	2302	2348	2416	2462	2530	2607	2706	2767	2865	2964	3094	35	43	17,8	0,74		
	Boost	7678	7829	8056	8207	8435	8687	9015	9217	9545	9873	10302	2931	2989	3075	3133	3220	3316	3442	3519	3644	3769	3933	46	54	50,4	2,10		
2350	Min	3145	3250	3409	3515	3673	3849	4078	4219	4448	4677	4976	1200	1241	1301	1342	1402	1469	1557	1611	1698	1785	1900	20	28	4,8	0,20	2	
	Med	5423	5544	5726	5847	6029	6231	6493	6654	6917	7180	7523	2070	2117	2186	2232	2302	2379	2479	2540	2641	2741	2872	27	35	10,8	0,45		
	Max	7230	7384	7615	7768	7999	8255	8589	8794	9126	9460	9896	2760	2819	2907	2966	3054	3151	3279	3357	3484	3611	3778	36	44	23,3	0,97		
	Boost	9205	9400	9692	9886	10178	10503	10925	11184	11606	12028	12579	3514	3588	3700	3774	3885	4009	4170	4269	4430	4592	4802	48	56	67,2	2,80		
2550	Min	3668	3795	3986	4113	4303	4515	4790	4960	5235	5510	5871	1400	1449	1522	1570	1643	1724	1829	1893	1999	2103	2241	20	28	5,3	0,22	2	
	Med	6323	6471	6692	6840	7062	7308	7628	7824	8144	8464	8882	2414	2470	2555	2611	2696	2790	2912	2987	3109	3231	3391	28	36	13,0	0,54		
	Max	8431	8619	8900	9088	9370	9683	10090	10341	10747	11154	11687	3218	3290	3398	3469	3577	3696	3852	3948	4103	4258	4461	38	46	28,8	1,20		
	Boost	10733	10971	11328	11565	11922	12318	12833	13150	13666	14181	14854	4097	4188	4324	4415	4551	4702	4899	5020	5217	5413	5671	49	57	84,0	3,50		

- Standard heating output [W] compliant to EN-16430 for the room air temperature $\theta_r = 20^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed heating.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

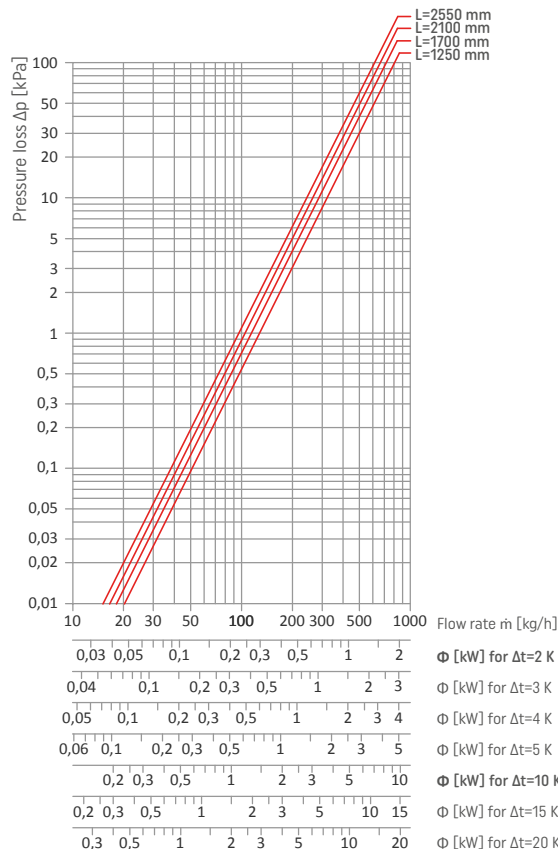
SENSIBLE COOLING OUTPUT

Trench length L [mm]	Operating Mode N V [m³/h]	Cooling output for t_v/t_r °C																								Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS
		17/19/28												7/12/27																
		1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11							
		Φ [W]																												
1250	Min	234	240	249	255	264	274	287	295	308	321	338	410	420	436	446	462	480	502	516	539	562	592	<18	<26	2,0	0,08	1		
	Med	473	478	485	490	497	505	515	521	531	542	555	828	837	849	858	870	884	901	912	929	949	971	21	29	3,9	0,16			
	Max	668	675	685	692	703	715	730	739	754	769	789	1169	1181	1199	1211	1230	1251	1278	1293	1320	1346	1381	29	37	7,5	0,31			
1450	Boost	883	891	904	913	925	940	958	970	988	1007	1031	1545	1559	1582	1598	1619	1645	1677	1698	1729	1762	1804	42	50	21,6	0,90	1		
	Min	331	340	353	362	376	391	410	422	441	461	486	579	595	618	634	658	684	718	739	772	807	851	<18	<26	2,2	0,09			
	Med	669	677	688	696	707	719	735	745	762	778	799	1171	1185	1204	1218	1237	1258	1286	1304	1334	1362	1398	23	31	4,4	0,18			
1700	Max	945	956	973	984	1000	1018	1042	1057	1081	1105	1136	1654	1673	1703	1722	1750	1782	1824	1850	1892	1934	1988	32	40	8,9	0,37	1		
	Boost	1249	1262	1283	1296	1317	1339	1369	1387	1416	1446	1484	2186	2209	2245	2268	2305	2343	2396	2427	2478	2531	2597	43	51	25,2	1,05			
	Min	463	477	497	511	531	554	584	602	632	661	700	810	835	870	894	929	970	1022	1054	1106	1157	1225	<18	<26	2,7	0,11			
1900	Med	935	948	967	979	999	1020	1047	1064	1092	1119	1155	1636	1659	1692	1713	1748	1785	1832	1862	1911	1958	2021	25	33	6,5	0,27	1		
	Max	1320	1338	1366	1385	1413	1444	1484	1509	1549	1589	1642	2310	2342	2391	2424	2473	2527	2597	2641	2711	2781	2874	35	43	14,4	0,60			
	Boost	1745	1768	1803	1826	1860	1898	1948	1979	2029	2079	2144	3054	3094	3155	3196	3255	3322	3409	3463	3551	3638	3752	46	54	42,0	1,75			
2100	Min	565	580	602	617	640	665	697	717	749	782	824	989	1015	1054	1080	1120	1164	1220	1255	1311	1369	1442	19	27	4,1	0,17	2		
	Med	1142	1154	1173	1185	1203	1224	1250	1267	1294	1320	1355	1999	2020	2053	2074	2105	2142	2188	2217	2265	2310	2371	26	34	8,2	0,34			
	Max	1612	1630	1658	1676	1703	1733	1772	1796	1836	1875	1926	2821	2853	2902	2933	2980	3033	3101	3143	3213	3281	3371	34	42	16,4	0,68			
2350	Boost	2131	2154	2187	2209	2242	2279	2327	2356	2404	2452	2515	3729	3770	3827	3866	3924	3988	4072	4123	4207	4291	4401	46	54	46,8	1,95	2		
	Min	662	680	706	724	751	781	820	843	882	921	972	1159	1190	1236	1267	1314	1367	1435	1475	1544	1612	1701	20	28	4,4	0,18			
	Med	1338	1353	1376	1391	1413	1439	1471	1491	1524	1557	1599	2342	2368	2408	2434	2473	2518	2574	2609	2667	2725	2798	26	34	8,7	0,36			
2550	Max	1889	1911	1944	1966	1999	2036	2084	2113	2161	2208	2271	3306	3344	3402	3441	3498	3563	3647	3698	3782	3864	3974	35	43	17,8	0,74	2		
	Boost	2497	2524	2565	2592	2632	2677	2736	2772	2830	2889	2965	4370	4417	4489	4536	4606	4685	4788	4851	4953	5056	5189	46	54	50,4	2,10			
	Min	794	816	850	873	907	945	994	1024	1073	1122	1186	1390	1428	1488	1528	1587	1654	1740	1792	1878	1964	2076	20	28	4,8	0,20			
2550	Med	1604	1624	1654	1675	1705	1739	1783	1810	1854	1898	1955	2807	2842	2895	2931	2984	3043	3120	3168	3245	3322	3421	27	35	10,8	0,45	2		
	Max	2265	2294	2338	2368	2412	2461	2525	2565	2628	2692	2776	3964	4015	4092	4144	4221	4307	4419	4489	4599	4711	4858	36	44	23,3	0,97			
	Boost	2993	3030	3085	3121	3176	3237	3316	3364	3444	3523	3626	5238	5303	5399	5462	5558	5665	5803	5887	6027	6165	6346	48	56	67,2	2,80			
2550	Min	925	952	993	1021	1062	1107	1167	1203	1262	1322	1399	1619	1666	1738	1787	1859	1937	2042	2105	2209	2314	2448	20	28	5,3	0,22	2		
	Med	1870	1896	1934	1959	1997	2039	2094	2128	2183	2238	2310	3273	3318	3385	3428	3495	3568	3665	3724	3820	3917	4043	28	36	13,0	0,54			
	Max	2640	2677	2732	2769	2825	2887	2967	3016	3096	3176	3281	4620	4685	4781	4846	4944	5052	5192	5278	5418	5558	5742	38	46	28,8	1,20			
2550	Boost	3489	3535	3604	3650	3719	3796	3896	3957	4057	4157	4287	6106	6186	6307	6388	6508	6643	6818	6925	7100	7275	7502	49	57	84,0	3,50			

- Standard cooling output [W] compliant to EN-16430 for the Room air temperature $\Theta_r = 28^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed cooling.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

PRESSURE LOSS

CVK2P-18/35/L-II
HEATING / COOLING



CORRECTIVE FACTORS FOR 180 MM HIGH CVK2P CLIMACONVECTORS

Heating and cooling output corrective factors for CVK2P 180 mm high units for other installation temperatures.

HEATING						COOLING						
Supply and return temperatures [°C]		Room air temperature θ_i [°C]				Supply and return temperatures [°C]		Room air temperature θ_i [°C]				
t_s	t_r	12	16	20	24	t_s	t_r	24	25	26	27	28
75	70	2,163	2,006	1,851	1,696	6	8	1,700	1,800	1,900	2,000	2,100
	65	2,065	1,909	1,754	1,600		9	1,650	1,750	1,850	1,950	2,050
	60	1,967	1,812	1,658	1,505		10	1,600	1,700	1,800	1,900	2,000
	55	1,870	1,715	1,562	1,410		11	1,550	1,650	1,750	1,850	1,950
70	65	1,967	1,812	1,658	1,505	7	12	1,500	1,600	1,700	1,800	1,900
	60	1,870	1,715	1,562	1,410		9	1,600	1,700	1,800	1,900	2,000
	55	1,773	1,619	1,467	1,316		10	1,550	1,650	1,750	1,850	1,950
	50	1,677	1,524	1,372	1,222		11	1,500	1,600	1,700	1,800	1,900
65	60	1,773	1,619	1,467	1,316	8	12	1,450	1,550	1,650	1,750	1,850
	55	1,677	1,524	1,372	1,222		13	1,400	1,500	1,600	1,700	1,800
	50	1,581	1,429	1,278	1,129		10	1,500	1,600	1,700	1,800	1,900
	45	1,486	1,335	1,185	1,037		11	1,450	1,550	1,650	1,750	1,850
60	55	1,581	1,429	1,278	1,129	10	12	1,400	1,500	1,600	1,700	1,800
	50	1,486	1,335	1,185	1,037		13	1,350	1,450	1,550	1,650	1,750
	45	1,391	1,241	1,092	0,945		12	1,300	1,400	1,500	1,600	1,700
	40	1,297	1,148	1,000	0,854		13	1,250	1,350	1,450	1,550	1,650
55	50	1,391	1,241	1,092	0,945	12	14	1,200	1,300	1,400	1,500	1,600
	45	1,297	1,148	1,000	0,854		15	1,150	1,250	1,350	1,450	1,550
	40	1,203	1,055	0,909	0,764		14	1,100	1,200	1,300	1,400	1,500
	35	1,111	0,963	0,818	0,675		15	1,050	1,150	1,250	1,350	1,450
50	45	1,203	1,055	0,909	0,764	16	16	1,000	1,100	1,200	1,300	1,400
	40	1,111	0,963	0,818	0,675		17	0,950	1,050	1,150	1,250	1,350
	35	1,018	0,872	0,729	0,588		18	0,700	0,800	0,900	1,000	1,100
	40	1,018	0,872	0,729	0,588		19	0,650	0,750	0,850	0,950	1,050
45	35	0,927	0,782	0,640	0,501	17	19	0,600	0,700	0,800	0,900	1,000
	30	0,836	0,693	0,553	0,415		20	0,550	0,650	0,750	0,850	0,950
	35	0,747	0,605	0,467	0,332		21	0,400	0,500	0,600	0,700	0,800
	30	0,658	0,518	0,382	0,250		22	0,350	0,450	0,550	0,650	0,750

HEATING/COOLING OUTPUT CORRECTIVE FACTORS FOR CVKP CLIMACONVECTORS ACCORDING TO THE GRILLE TYPE

GRILLE TYPE	AIRFLOW	CORRECTIVE FACTOR
Roll-up double T-bar profile aluminium grille - 13 mm gap	67%	1,00
Roll-up double T-bar profile aluminium grille - 8 mm gap	63%	0,99
Roll-up closed profile aluminium grille	62%	1,00
Modular snap on profile aluminium grille	62%	0,97
Linear snap on profile aluminium grille	62%	1,08
Linear stainless steel grille	71%	1,09

4-PIPE CLIMACONVECTORS WITH FRESH AIR SUPPLY TYPE CVK4P

PRODUCT VISUALIZATION



EQUIPMENT

STANDARD EQUIPMENT:

- Trench (casing) made of galvanized steel sheet in RAL 9005 black,
- Highly efficient copper and aluminium heat exchanger with air vent, powder coated in black RAL 9005,
- Modern fan with silent and efficient 24V DC motor,
- Constant flow controller CAV,
- One or two slots for ventilation system,
- Connection space cover,
- Fan cover, so called grill, with AIRFLOW baffle,
- Water connection: ½ " Female thread,
- Trench struts,
- Fixing anchors,
- Condensate drain pan,
- Connection stub for condensate drainage,
- Levelling legs.

DODATKOWE EQUIPMENT:

- Trench (casing) powder coated in any RAL colour,
- L or F Type frame around the heater trench made of natural, powder coated or anodized aluminium,
- Decorative grille made of natural or anodized aluminium, roll-up, linear or modular type; stainless steel grille,
- Condensate pump (requires the trench to be extended by 10 cm),
- Assembly protection fibreboard for transporting and installation,
- Raised floor kit,
- Casing protective film,
- Foil sleeve for heat exchanger,
- Anti dust filter (requires raising the trench 10 mm),
- BMS controls.

DIMENSIONS

DIMENSIONS	[mm]
Trench height (H)	140, 180
Trench bottom width (B)	350
Top width/Grille width (Bk)	374

- for 1 slot of ventilation system: 1000-2400
- for 2 slots of ventilation system: 1250-2550

Non-standard (NS) climaconvector lengths are available on request.

EXAMPLE OF ORDER CODE:

CVK4P-14/35/100-I (L/P)

Trench height (H) [cm]

Trench width [cm]

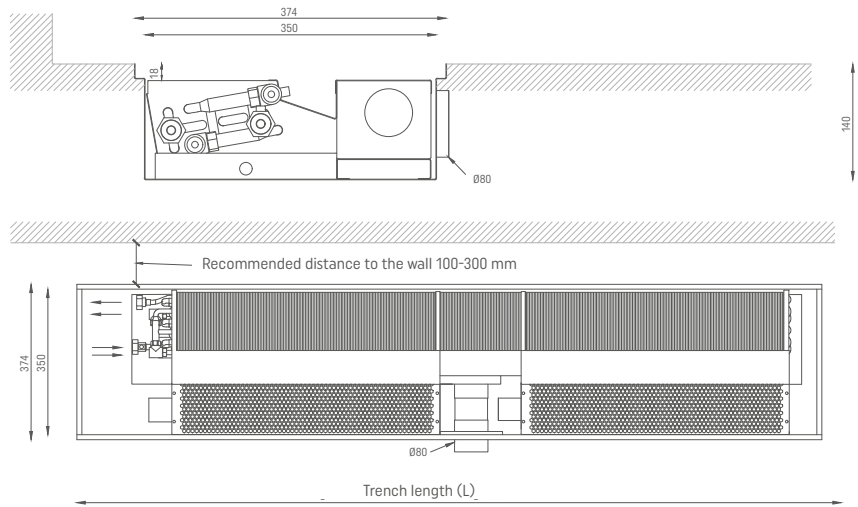
Trench length [cm]

Quantity of ventilation slots

Connection side: L - Left / P - Right

DIMENSIONS	[mm]
Trench height (H)	140
Trench bottom width (B)	350
Top width/Grille width (Bk)	374
Trench length (L)	950-2750

CONNECTION	TYPE
Connection thread	½" Female thread
1 ventilation slot	DN 80 mm
Connection side	Left (L) standard, Right (P) option



Trench length	Operating mode	Heating output for t_s/t_r °C																				Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS
		55/45/20										35/30/20														
L [mm]	N V [m³/h]	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10					
		Φ [W]																								
1000	Min	384	395	411	430	447	466	502	541	577	606	156	160	167	175	182	190	204	220	235	247	<18	<26	0,8	0,03	1
	Med	686	696	712	732	749	770	807	847	884	914	279	283	290	298	305	313	328	344	360	372	18	26	1,7	0,07	
	Max	986	996	1013	1034	1051	1072	1110	1151	1190	1220	401	405	412	420	427	436	451	468	484	496	25	33	4,1	0,17	
	Boost	1373	1384	1401	1422	1439	1460	1499	1540	1579	1610	558	563	570	578	585	594	609	626	642	655	40	48	19,2	0,8	
1150	Min	548	562	585	613	636	664	715	771	822	864	223	228	238	249	259	270	291	313	334	351	<18	<26	1,2	0,05	1
	Med	977	991	1015	1044	1068	1097	1150	1207	1260	1303	397	403	413	425	434	446	468	491	512	530	19	27	2,7	0,11	
	Max	1405	1420	1444	1473	1498	1528	1582	1641	1695	1739	571	577	587	599	609	621	643	667	689	707	26	34	6	0,25	
	Boost	1957	1972	1997	2027	2051	2081	2135	2195	2250	2294	796	802	812	824	834	846	868	893	915	933	41	49	21,6	0,9	
1450	Min	777	797	830	870	903	943	1016	1095	1167	1227	316	324	338	354	367	383	413	445	475	499	<18	<26	1,5	0,06	1
	Med	1386	1407	1441	1482	1516	1557	1632	1714	1788	1850	564	572	586	602	616	633	664	697	727	752	23	31	3,2	0,13	
	Max	1994	2015	2050	2092	2126	2168	2245	2329	2406	2468	811	819	833	850	865	882	913	947	978	1004	29	37	8	0,33	
	Boost	2778	2799	2834	2877	2911	2954	3031	3116	3194	3257	1129	1138	1152	1170	1184	1201	1233	1267	1299	1324	41	49	33,6	1,4	
1700	Min	932	956	996	1043	1082	1130	1217	1312	1400	1470	379	389	405	424	440	460	495	533	569	598	<18	<26	2	0,08	2
	Med	1662	1687	1728	1777	1818	1866	1956	2054	2144	2218	676	686	703	723	739	759	795	835	872	902	24	32	4,4	0,18	
	Max	2391	2416	2458	2508	2549	2600	2692	2792	2884	2959	972	982	999	1020	1037	1057	1095	1135	1173	1203	30	38	10,1	0,42	
	Boost	3330	3356	3398	3449	3490	3541	3634	3735	3828	3905	1354	1364	1382	1402	1419	1440	1478	1519	1557	1588	43	51	40,8	1,7	
1900	Min	1095	1123	1170	1226	1272	1329	1431	1542	1644	1728	445	457	476	498	517	540	582	627	669	703	<18	<26	2,4	0,1	2
	Med	1954	1983	2031	2088	2136	2194	2299	2415	2520	2606	794	806	826	849	869	892	935	982	1025	1060	24	32	5,3	0,22	
	Max	2810	2839	2888	2947	2997	3056	3163	3282	3390	3478	1143	1154	1174	1198	1218	1243	1286	1334	1378	1414	30	38	12	0,5	
	Boost	3914	3944	3993	4053	4103	4162	4271	4390	4500	4589	1591	1604	1624	1648	1668	1692	1737	1785	1830	1866	43	51	43,2	1,8	
2150	Min	1326	1359	1415	1483	1539	1607	1731	1866	1990	2091	539	553	576	603	626	653	704	759	809	850	18	26	2,7	0,11	2
	Med	2364	2399	2457	2526	2584	2654	2781	2921	3048	3153	961	975	999	1027	1051	1079	1131	1188	1239	1282	24	32	5,8	0,24	
	Max	3399	3435	3494	3566	3625	3696	3827	3970	4100	4207	1382	1397	1421	1450	1474	1503	1556	1614	1667	1711	31	39	14	0,58	
	Boost	4734	4771	4831	4903	4963	5035	5167	5311	5443	5551	1925	1940	1964	1994	2018	2047	2101	2160	2213	2257	44	52	55,2	2,3	
2400	Min	1555	1595	1660	1740	1806	1885	2030	2189	2334	2453	632	648	675	707	734	767	825	890	949	997	20	28	2,9	0,12	2
	Med	2773	2814	2882	2964	3032	3114	3263	3427	3577	3699	1128	1144	1172	1205	1233	1266	1327	1394	1454	1504	26	34	6,3	0,26	
	Max	3989	4031	4100	4184	4254	4337	4491	4658	4811	4937	1622	1639	1667	1701	1730	1763	1826	1894	1956	2007	32	40	15,9	0,66	
	Boost	5555	5597	5668	5752	5823	5907	6062	6232	6387	6513	2259	2276	2305	2339	2368	2402	2465	2534	2597	2648	44	52	67,2	2,8	

- Standard heating output [W] compliant to EN-16430 for the room air temperature $\theta_r = 20^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed heating.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

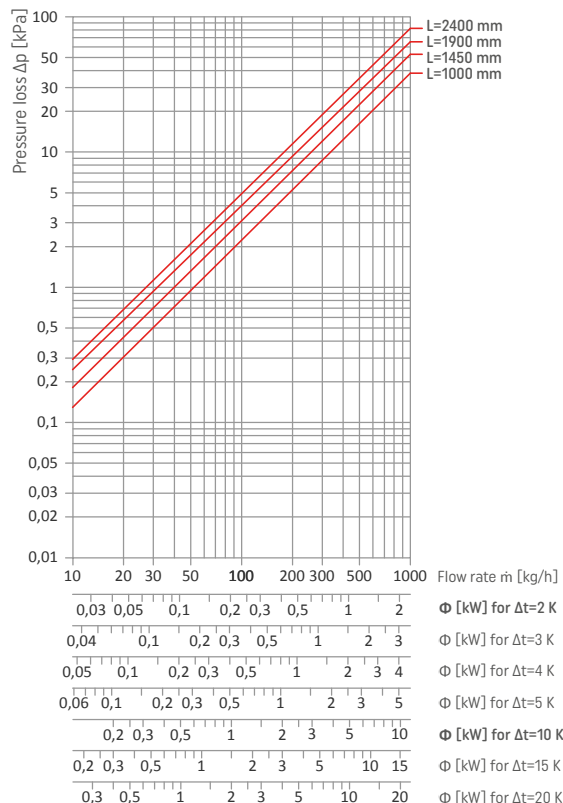
SENSIBLE COOLING OUTPUT

Trench length L [mm]	Operating Mode N V [m³/h]	Cooling output for t_r/t_i °C																				Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS
		17/19/28										7/12/27														
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10					
		Φ [W]																								
1000	Min	57	60	64	69	73	78	87	97	106	113	96	101	108	116	123	132	147	164	179	191	<18	<26	0,8	0,03	
	Med	178	180	184	189	193	197	206	215	224	231	301	304	311	319	326	333	348	363	378	390	18	26	1,7	0,07	
	Max	305	307	311	315	319	324	332	340	348	355	515	518	525	532	539	547	560	574	588	599	25	33	4,1	0,17	
1150	Boost	490	492	496	500	503	507	515	523	530	536	827	831	837	844	849	856	869	883	895	905	40	48	19,2	0,8	
	Min	81	85	91	98	104	111	124	138	150	161	137	144	154	165	176	187	209	233	253	272	<18	<26	1,2	0,05	
	Med	254	258	263	270	275	282	294	307	319	329	429	436	444	456	464	476	496	518	539	555	19	27	2,7	0,11	
1450	Max	436	439	444	450	456	462	473	486	498	507	736	741	750	760	770	780	799	820	841	856	26	34	6	0,25	
	Boost	698	701	706	712	717	723	733	745	755	764	1178	1183	1192	1202	1210	1221	1237	1258	1275	1290	41	49	21,6	0,9	
	Min	115	120	129	139	147	157	176	196	214	229	194	203	218	235	248	265	297	331	361	387	<18	<26	1,5	0,06	
1700	Med	361	366	373	383	391	400	417	436	453	467	609	618	630	647	660	675	704	736	765	788	23	31	3,2	0,13	
	Max	619	623	630	639	647	656	672	689	706	719	1045	1052	1064	1079	1092	1107	1134	1163	1192	1214	29	37	8	0,33	
	Boost	991	995	1002	1010	1017	1025	1040	1057	1072	1084	1673	1680	1692	1705	1717	1730	1756	1784	1810	1830	41	49	33,6	1,4	
1900	Min	139	145	155	167	177	189	210	234	256	274	235	245	262	282	299	319	355	395	432	463	<18	<26	2	0,08	
	Med	432	438	447	459	468	479	500	522	543	560	729	739	755	775	790	809	844	881	917	945	24	32	4	0,18	
	Max	741	746	755	766	775	785	805	826	846	862	1251	1259	1275	1293	1308	1325	1359	1394	1428	1455	30	38	10,1	0,42	
2150	Boost	1189	1194	1202	1212	1220	1230	1248	1267	1285	1300	2007	2016	2029	2046	2060	2077	2107	2139	2169	2195	43	51	40,8	1,7	
	Min	163	170	181	195	207	221	247	275	301	322	275	287	306	329	349	373	417	464	508	544	<18	<26	2,4	0,1	
	Med	508	515	526	539	550	563	587	614	638	658	858	869	888	910	929	950	991	1037	1077	1111	24	32	5,3	0,22	
2400	Max	871	877	888	900	911	923	946	971	994	1013	1470	1481	1499	1519	1538	1558	1597	1639	1678	1710	30	38	12	0,5	
	Boost	1397	1403	1412	1424	1434	1445	1467	1490	1511	1528	2358	2369	2384	2404	2421	2440	2477	2515	2551	2580	43	51	43,2	1,8	
	Min	197	205	220	237	251	268	299	333	364	390	333	346	371	400	424	452	505	562	615	658	18	26	2,7	0,11	
2400	Med	614	622	636	652	665	681	711	743	772	796	1037	1050	1074	1101	1123	1150	1200	1254	1303	1344	24	32	5,8	0,24	
	Max	1054	1062	1074	1089	1102	1117	1145	1175	1202	1225	1779	1793	1813	1838	1860	1886	1933	1984	2029	2068	31	39	14	0,58	
	Boost	1690	1697	1708	1722	1734	1748	1773	1801	1827	1848	2853	2865	2884	2907	2927	2951	2993	3041	3084	3120	44	52	55,2	2,3	
2400	Min	231	241	258	278	294	314	351	391	427	457	390	407	436	469	496	530	593	660	721	772	20	28	2,9	0,12	
	Med	721	730	746	765	780	799	834	871	906	934	1217	1232	1259	1292	1317	1349	1408	1470	1530	1577	26	34	6,3	0,26	
	Max	1236	1245	1260	1278	1293	1311	1343	1379	1411	1438	2087	2102	2127	2158	2183	2213	2267	2328	2382	2428	32	40	15,9	0,66	
2400	Boost	1983	1991	2005	2021	2035	2052	2082	2114	2144	2169	3348	3361	3385	3412	3436	3464	3515	3569	3620	3662	44	52	67,2	2,8	

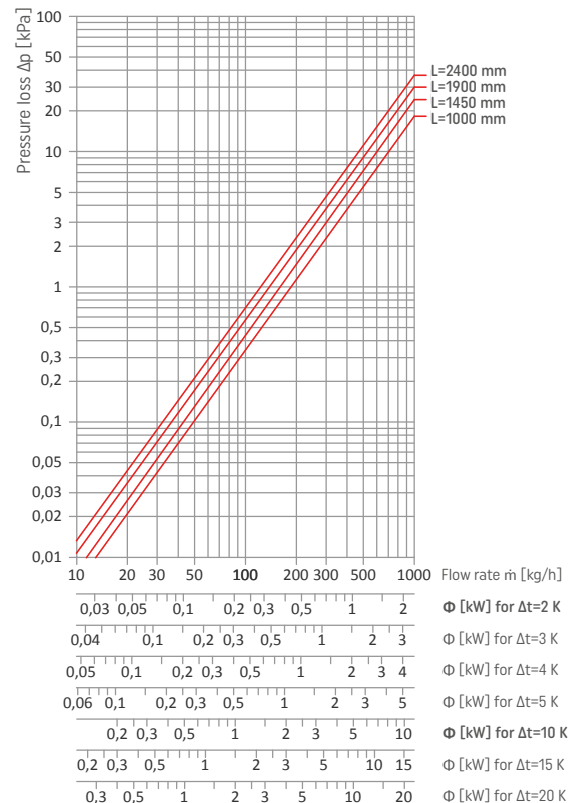
- Standard cooling output [W] compliant to EN-16430 for the Room air temperature $\Theta_r = 28^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed cooling.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

PRESSURE LOSS

CVK4P-14/35/L-I
HEATING

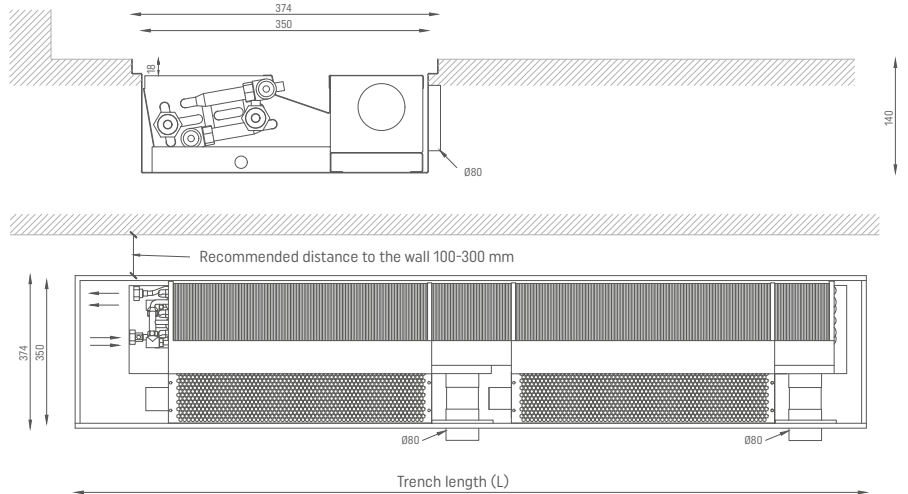


CVK4P-14/35/L-I
COOLING



DIMENSIONS	[mm]
Trench height (H)	140
Trench bottom width (B)	350
Top width/Grille width (Bk)	374
Trench length (L)	1250-2550

CONNECTION	TYPE
Connection thread	½" Female thread
2 ventilation slots	DN 80 mm
Connection side	Left (L) standard, Right (P) option



Trench length	Operating mode	Heating output for t_s/t_r °C																				Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS
		55/45/20										35/30/20														
L [mm]	N V [m³/h]	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	Φ [W]				
1250	Min	430	450	483	522	554	593	665	744	815	874	175	183	196	212	225	241	270	302	331	355	<18	<26	0,8	0,03	1
	Med	732	753	787	827	861	901	975	1056	1130	1191	298	306	320	336	350	366	397	429	459	484	18	26	1,7	0,07	
	Max	1034	1055	1089	1130	1165	1207	1282	1365	1441	1503	420	429	443	460	474	491	521	555	586	611	25	33	4,1	0,17	
	Boost	1422	1443	1478	1520	1554	1596	1673	1756	1833	1896	578	587	601	618	632	649	680	714	745	771	40	48	19,2	0,8	
1450	Min	613	641	687	743	790	845	948	1059	1162	1245	249	260	279	302	321	344	385	431	472	506	<18	<26	1,2	0,05	1
	Med	1044	1073	1121	1178	1226	1284	1389	1505	1610	1696	425	436	456	479	499	522	565	612	655	690	19	27	2,7	0,11	
	Max	1473	1503	1552	1611	1660	1719	1827	1945	2053	2141	599	611	631	655	675	699	743	791	835	871	26	34	6	0,25	
	Boost	2027	2056	2106	2166	2215	2274	2384	2503	2612	2701	824	836	856	881	901	925	969	1018	1062	1098	41	49	21,6	0,9	
1700	Min	870	910	976	1055	1121	1200	1346	1504	1650	1769	354	370	397	429	456	488	547	612	671	719	<18	<26	1,5	0,06	1
	Med	1482	1523	1591	1673	1741	1822	1972	2136	2286	2408	602	619	647	680	708	741	802	869	929	979	23	31	3,2	0,13	
	Max	2092	2134	2203	2287	2357	2441	2594	2761	2915	3040	850	868	896	930	958	992	1055	1123	1185	1236	29	37	8	0,33	
	Boost	2877	2919	2989	3073	3144	3228	3383	3553	3708	3835	1170	1187	1215	1250	1278	1313	1376	1445	1508	1559	41	49	33,6	1,4	
1900	Min	1043	1091	1170	1265	1344	1439	1613	1803	1977	2119	424	444	476	514	546	585	656	733	804	862	<18	<26	2	0,08	2
	Med	1777	1825	1907	2005	2087	2185	2364	2561	2740	2887	723	742	775	815	849	888	961	1041	1114	1174	24	32	4,4	0,18	
	Max	2508	2558	2642	2742	2826	2926	3110	3311	3495	3645	1020	1040	1074	1115	1149	1190	1264	1346	1421	1482	30	38	10,1	0,42	
	Boost	3449	3499	3583	3685	3770	3871	4057	4259	4445	4597	1402	1423	1457	1498	1533	1574	1649	1732	1807	1869	43	51	40,8	1,7	
2100	Min	1226	1282	1375	1486	1579	1691	1896	2119	2324	2491	498	521	559	604	642	688	771	862	945	1013	<18	<26	2,4	0,1	2
	Med	2088	2145	2242	2357	2452	2568	2779	3009	3220	3393	849	872	912	958	997	1044	1130	1224	1309	1380	24	32	5,3	0,22	
	Max	2947	3007	3105	3223	3321	3439	3655	3891	4107	4284	1198	1223	1262	1310	1350	1398	1486	1582	1670	1742	30	38	12	0,5	
	Boost	4053	4113	4212	4331	4430	4549	4768	5006	5224	5403	1648	1672	1712	1761	1801	1850	1939	2035	2124	2197	43	51	43,2	1,8	
2350	Min	1483	1550	1663	1798	1911	2046	2294	2564	2811	3014	603	630	676	731	777	832	933	1043	1143	1226	18	26	2,7	0,11	2
	Med	2526	2596	2711	2851	2967	3107	3362	3640	3896	4104	1027	1055	1103	1159	1206	1263	1367	1480	1584	1669	24	32	5,8	0,24	
	Max	3566	3637	3755	3898	4017	4160	4422	4707	4968	5182	1450	1479	1527	1585	1633	1692	1798	1914	2020	2107	31	39	14	0,58	
	Boost	4903	4975	5095	5239	5359	5503	5767	6056	6320	6536	1994	2023	2072	2130	2179	2238	2345	2462	2570	2658	44	52	55,2	2,3	
2550	Min	1740	1819	1951	2109	2242	2400	2691	3008	3298	3536	707	740	793	858	912	976	1094	1223	1341	1438	20	28	2,9	0,12	2
	Med	2964	3046	3182	3345	3482	3645	3944	4271	4571	4816	1205	1238	1294	1360	1416	1482	1604	1737	1859	1958	26	34	6,3	0,26	
	Max	4184	4267	4407	4574	4714	4881	5188	5522	5829	6080	1701	1735	1792	1860	1917	1985	2109	2245	2370	2472	32	40	15,9	0,66	
	Boost	5752	5837	5978	6147	6288	6457	6767	7105	7415	7668	2339	2373	2431	2499	2557	2625	2751	2889	3015	3118	44	52	67,2	2,8	

- Standard heating output [W] compliant to EN-16430 for the room air temperature $\theta_r = 20^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min – 2 V, Med – 4 V, Max – 6 V, Boost – 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed heating.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

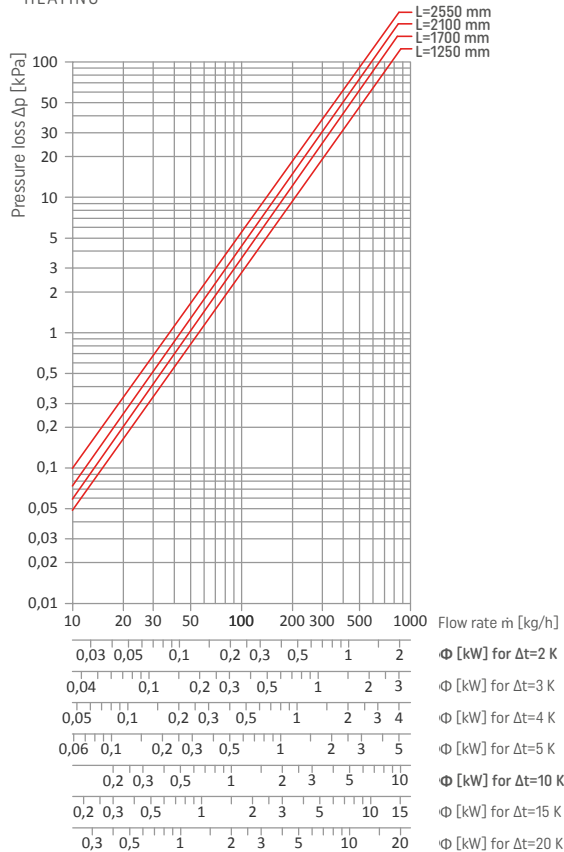
SENSIBLE COOLING OUTPUT

Trench length L [mm]	Operating Mode N V [m³/h]	Cooling output for t _r /t _i °C																				Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS
		17/19/28										7/12/27														
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10					
		Φ [W]																								
1250	Min	69	74	82	92	100	110	128	147	165	180	116	125	138	155	169	186	216	248	279	304	<18	<26	0,8	0,03	1
	Med	189	194	201	211	219	228	245	264	281	295	319	328	339	356	370	385	414	446	474	498	18	26	1,7	0,07	
	Max	315	320	327	336	343	352	368	386	402	415	532	540	552	567	579	594	621	652	679	701	25	33	4,1	0,17	
	Boost	500	504	511	519	525	533	548	564	579	591	844	851	863	876	886	900	925	952	977	998	40	48	19,2	0,8	
1450	Min	98	105	117	131	142	156	182	210	236	257	165	177	198	221	240	263	307	355	398	434	<18	<26	1,2	0,05	1
	Med	270	276	287	300	311	325	349	375	399	419	456	466	485	506	525	549	589	633	674	707	19	27	2,7	0,11	
	Max	450	457	467	480	490	503	526	551	574	593	760	772	788	810	827	849	888	930	969	1001	26	34	6	0,25	
	Boost	712	718	727	739	749	760	781	804	826	843	1202	1212	1227	1248	1264	1283	1319	1357	1394	1423	41	49	21,6	0,9	
1700	Min	139	149	166	186	202	222	259	299	336	366	235	252	280	314	341	375	437	505	567	618	<18	<26	1,5	0,06	1
	Med	383	392	408	426	442	461	495	533	567	595	647	662	689	719	746	778	836	900	957	1005	23	31	3,2	0,13	
	Max	639	648	663	681	695	713	746	781	813	840	1079	1094	1119	1150	1173	1204	1259	1319	1373	1418	29	37	8	0,33	
	Boost	1010	1018	1032	1048	1062	1079	1109	1141	1171	1196	1705	1719	1742	1769	1793	1822	1872	1926	1977	2019	41	49	33,6	1,4	
1900	Min	167	179	198	222	242	266	310	357	401	437	282	302	334	375	409	449	523	603	677	738	<18	<26	2	0,08	2
	Med	459	470	489	511	530	552	594	639	680	714	775	793	826	863	895	932	1003	1079	1148	1205	24	32	4,4	0,18	
	Max	766	777	794	816	834	855	894	937	976	1008	1293	1312	1340	1378	1408	1443	1509	1582	1648	1702	30	38	10,1	0,42	
	Boost	1212	1222	1238	1258	1274	1293	1329	1369	1405	1434	2046	2063	2090	2124	2151	2183	2244	2311	2372	2421	43	51	40,8	1,7	
2100	Min	195	209	233	261	284	312	364	420	471	513	329	353	393	441	479	527	615	709	795	866	<18	<26	2,4	0,1	2
	Med	539	552	574	601	623	649	698	751	799	839	910	932	969	1015	1052	1096	1178	1268	1349	1416	24	32	5,3	0,22	
	Max	900	913	934	959	979	1004	1050	1100	1146	1183	1519	1541	1577	1619	1653	1695	1773	1857	1935	1997	30	38	12	0,5	
	Boost	1424	1436	1455	1478	1497	1521	1563	1609	1652	1687	2404	2424	2456	2495	2527	2568	2639	2716	2789	2848	43	51	43,2	1,8	
2350	Min	237	254	282	316	345	379	441	509	572	623	400	429	476	533	582	640	745	859	966	1052	18	26	2,7	0,11	2
	Med	652	668	695	727	753	785	844	908	967	1015	1101	1128	1173	1227	1271	1325	1425	1533	1633	1714	24	32	5,8	0,24	
	Max	1089	1104	1130	1160	1185	1215	1270	1331	1386	1431	1838	1864	1908	1958	2001	2051	2144	2247	2340	2416	31	39	14	0,58	
	Boost	1722	1736	1759	1787	1811	1839	1890	1946	1997	2039	2907	2931	2970	3017	3057	3105	3191	3285	3371	3442	44	52	55,2	2,3	
2550	Min	278	298	331	371	404	444	517	596	669	729	469	503	559	626	682	750	873	1006	1129	1231	20	28	2,9	0,12	2
	Med	765	784	815	853	884	921	990	1066	1135	1191	1292	1324	1376	1440	1492	1555	1671	1800	1916	2011	26	34	6,3	0,26	
	Max	1278	1296	1325	1361	1391	1426	1491	1562	1628	1681	2158	2188	2237	2298	2348	2407	2517	2637	2748	2838	32	40	15,9	0,66	
	Boost	2021	2038	2065	2098	2125	2158	2218	2284	2344	2393	3412	3441	3486	3542	3588	3643	3745	3856	3957	4040	44	52	67,2	2,8	

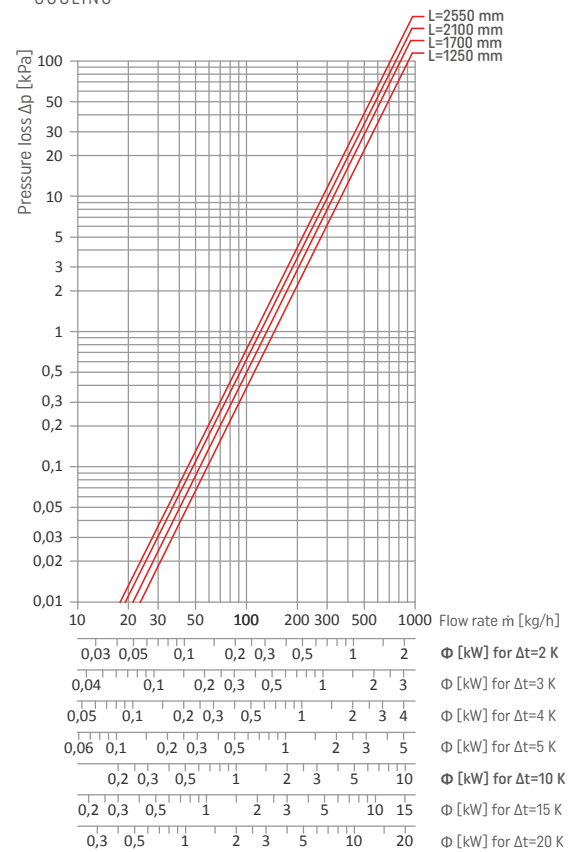
- Standard cooling output [W] compliant to EN-16430 for the Room air temperature Θ = 28°C.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed cooling.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

PRESSURE LOSS

CVK4P-14/35/L-II
HEATING



CVK4P-14/35/L-II
COOLING



CORRECTIVE FACTORS FOR 140 MM HIGH CVK4P CLIMACONVECTORS

Heating and cooling output corrective factors for CVK4P 140 mm high units for other installation temperatures.

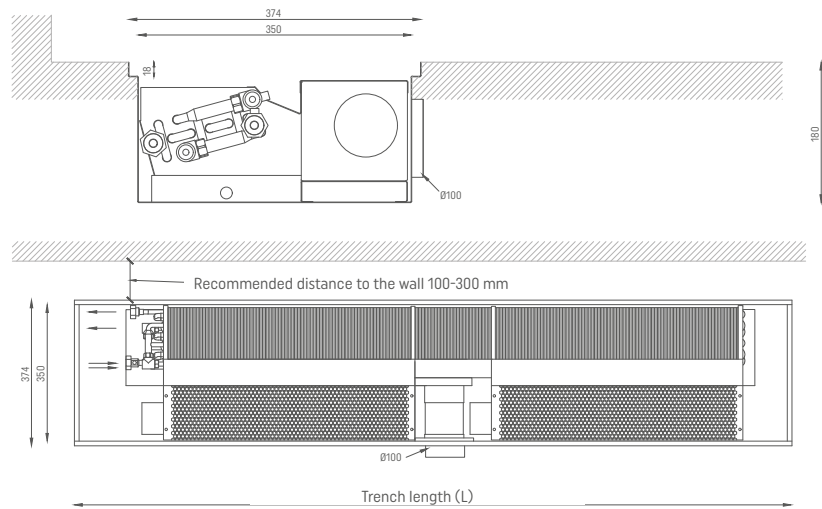
HEATING						COOLING						
Supply and return temperatures [°C]		Room air temperature θ_i [°C]				Supply and return temperatures [°C]		Room air temperature θ_i [°C]				
t_s	t_r	12	16	20	24	t_s	t_r	24	25	26	27	28
75	70	2,057	1,917	1,778	1,638	6	8	1,643	1,733	1,823	1,913	2,002
	65	1,969	1,830	1,691	1,552		9	1,598	1,688	1,778	1,868	1,958
	60	1,882	1,743	1,604	1,465		10	1,552	1,643	1,733	1,823	1,913
	55	1,795	1,656	1,517	1,379		11	1,507	1,598	1,688	1,778	1,868
70	65	1,882	1,743	1,604	1,465	7	12	1,461	1,552	1,643	1,733	1,823
	60	1,795	1,656	1,517	1,379		9	1,552	1,643	1,733	1,823	1,913
	55	1,708	1,569	1,431	1,292		10	1,507	1,598	1,688	1,778	1,868
	50	1,621	1,482	1,344	1,206		11	1,461	1,552	1,643	1,733	1,823
65	60	1,708	1,569	1,431	1,292	8	12	1,416	1,507	1,598	1,688	1,778
	55	1,621	1,482	1,344	1,206		13	1,370	1,461	1,552	1,643	1,733
	50	1,534	1,396	1,258	1,120		10	1,461	1,552	1,643	1,733	1,823
	45	1,448	1,310	1,172	1,034		11	1,416	1,507	1,598	1,688	1,778
60	55	1,534	1,396	1,258	1,120	10	12	1,370	1,461	1,552	1,643	1,733
	50	1,448	1,310	1,172	1,034		13	1,324	1,416	1,507	1,598	1,688
	45	1,361	1,223	1,086	0,949		12	1,278	1,370	1,461	1,552	1,643
	40	1,275	1,137	1,000	0,863		13	1,232	1,324	1,416	1,507	1,598
55	50	1,361	1,223	1,086	0,949	12	14	1,186	1,278	1,370	1,461	1,552
	45	1,275	1,137	1,000	0,863		15	1,140	1,232	1,324	1,416	1,507
	40	1,189	1,051	0,914	0,778		14	1,093	1,186	1,278	1,370	1,461
	35	1,103	0,966	0,829	0,693		15	1,047	1,140	1,232	1,324	1,416
50	45	1,189	1,051	0,914	0,778	16	16	1,000	1,093	1,186	1,278	1,370
	40	1,103	0,966	0,829	0,693		17	0,953	1,047	1,140	1,232	1,324
	35	1,017	0,880	0,744	0,608		18	0,716	0,812	0,906	1,000	1,093
	40	1,017	0,880	0,744	0,608		19	0,668	0,764	0,859	0,953	1,047
45	35	0,932	0,795	0,659	0,524	17	19	0,620	0,716	0,812	0,906	1,000
	30	0,846	0,710	0,575	0,440		20	0,572	0,668	0,764	0,859	0,953
	30	0,761	0,625	0,490	0,357		21	0,424	0,523	0,620	0,716	0,812
	35	0,676	0,541	0,407	0,274		19	0,374	0,474	0,572	0,668	0,764

HEATING/COOLING OUTPUT CORRECTIVE FACTORS FOR CVKP CLIMACONVECTORS ACCORDING TO THE GRILLE TYPE

GRILLE TYPE	AIRFLOW	CORRECTIVE FACTOR
Roll-up double T-bar profile aluminium grille - 13 mm gap	67%	1,00
Roll-up double T-bar profile aluminium grille - 8 mm gap	63%	0,99
Roll-up closed profile aluminium grille	62%	1,00
Modular snap on profile aluminium grille	62%	0,97
Linear snap on profile aluminium grille	62%	1,08
Linear stainless steel grille	71%	1,09

DIMENSIONS		[mm]
Trench height (H)		180
Trench bottom width (B)		350
Top width/Grille width (Bk)		374
Trench length (L)		1000-2400

CONNECTION		TYPE
Connection thread		½" Female thread
1 ventilation slot		DN 100 mm
Connection side		Left (L) standard, Right (P) option



Trench length	Operating mode	Heating output for t _s /t _r °C																						L _p [dB(A)]	L _w [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS
		55/45/20											35/30/20															
L [mm]	N V [m³/h]	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	Φ [W]				
		1000	Min	731	742	758	769	784	802	824	839	861	884	914	279	283	289	293	299	306	315	320	329					
Med	1122		1133	1149	1161	1177	1196	1219	1234	1258	1282	1313	428	432	439	443	449	456	466	471	480	489	501	21	29	3,9	0,16	
Max	1404		1415	1432	1443	1460	1478	1503	1518	1542	1566	1597	536	540	547	551	557	564	574	579	588	598	610	29	37	7,5	0,31	
Boost	1643		1653	1668	1678	1694	1711	1733	1746	1769	1791	1820	627	631	637	641	647	653	661	667	675	684	695	42	50	21,6	0,90	
1150	Min	1032	1048	1072	1087	1111	1137	1170	1192	1225	1259	1303	394	400	409	415	424	434	447	455	468	481	498	<18	<26	2,2	0,09	1
	Med	1584	1600	1625	1642	1667	1694	1731	1753	1788	1825	1872	605	611	620	627	636	647	661	669	683	697	715	23	31	4,4	0,18	
	Max	1982	1999	2024	2042	2067	2095	2132	2154	2192	2229	2276	757	763	773	779	789	800	814	822	837	851	869	32	40	8,9	0,37	
	Boost	2319	2334	2358	2374	2398	2424	2458	2480	2514	2548	2593	885	891	900	906	915	925	938	947	960	973	990	43	51	25,2	1,05	
1450	Min	1438	1462	1498	1522	1557	1597	1648	1680	1731	1783	1850	549	558	572	581	594	610	629	641	661	681	706	<18	<26	2,7	0,11	1
	Med	2206	2232	2271	2297	2336	2380	2436	2470	2527	2583	2657	842	852	867	877	892	908	930	943	965	986	1014	25	33	6,5	0,27	
	Max	2760	2787	2828	2855	2896	2941	3000	3036	3095	3154	3231	1054	1064	1079	1090	1105	1123	1145	1159	1182	1204	1233	35	43	14,4	0,60	
	Boost	3229	3254	3294	3320	3359	3402	3459	3494	3551	3607	3681	1232	1242	1257	1267	1282	1299	1320	1334	1355	1377	1405	46	54	42,0	1,75	
1700	Min	1764	1790	1830	1856	1895	1938	1995	2030	2087	2144	2218	673	683	698	708	723	740	762	775	797	818	847	19	27	4,1	0,17	2
	Med	2706	2734	2775	2803	2844	2890	2950	2987	3047	3107	3185	1033	1044	1059	1070	1086	1103	1126	1140	1163	1186	1216	26	34	8,2	0,34	
	Max	3386	3414	3457	3485	3527	3574	3635	3672	3733	3794	3874	1293	1303	1320	1330	1346	1364	1387	1402	1425	1448	1479	34	42	16,4	0,68	
	Boost	3961	3987	4026	4052	4091	4135	4192	4226	4283	4339	4413	1512	1522	1537	1547	1562	1579	1600	1613	1635	1656	1685	46	54	46,8	1,95	
1900	Min	2065	2096	2143	2174	2221	2274	2341	2383	2450	2518	2607	788	800	818	830	848	868	894	910	935	961	995	20	28	4,4	0,18	2
	Med	3168	3201	3251	3284	3334	3389	3461	3506	3578	3649	3743	1209	1222	1241	1254	1273	1294	1321	1338	1366	1393	1429	26	34	8,7	0,36	
	Max	3964	3998	4049	4083	4134	4190	4264	4310	4383	4457	4553	1513	1526	1546	1559	1578	1600	1628	1645	1673	1701	1738	35	43	17,8	0,74	
	Boost	4637	4669	4716	4748	4795	4848	4917	4959	5028	5097	5187	1770	1782	1800	1812	1831	1851	1877	1893	1920	1946	1980	46	54	50,4	2,10	
2150	Min	2471	2510	2570	2609	2668	2733	2819	2871	2957	3042	3153	943	958	981	996	1018	1043	1076	1096	1129	1161	1204	20	28	4,8	0,20	2
	Med	3790	3833	3897	3940	4003	4074	4166	4223	4315	4408	4528	1447	1463	1488	1504	1528	1555	1590	1612	1647	1683	1729	27	35	10,8	0,45	
	Max	4742	4786	4852	4896	4963	5036	5132	5191	5287	5383	5507	1810	1827	1852	1869	1895	1923	1959	1982	2018	2055	2102	36	44	23,3	0,97	
	Boost	5547	5589	5652	5694	5757	5827	5918	5974	6065	6156	6275	2117	2134	2157	2174	2197	2224	2259	2280	2315	2350	2395	48	56	67,2	2,80	
2400	Min	2877	2925	2996	3043	3115	3193	3296	3360	3462	3565	3700	1098	1116	1144	1162	1189	1219	1258	1283	1322	1361	1412	20	28	5,3	0,22	2
	Med	4412	4464	4542	4594	4672	4758	4871	4941	5053	5166	5313	1684	1704	1734	1754	1783	1816	1859	1886	1929	1972	2028	28	36	13,0	0,54	
	Max	5520	5574	5656	5710	5792	5883	6000	6073	6190	6308	6462	2107	2128	2159	2180	2211	2246	2290	2318	2363	2408	2467	38	46	28,8	1,20	
	Boost	6457	6508	6587	6640	6718	6805	6918	6987	7101	7214	7362	2465	2485	2515	2535	2564	2598	2641	2667	2711	2754	2810	49	57	84,0	3,50	

- Standard heating output [W] compliant to EN-16430 for the room air temperature $\Theta_r = 20^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min – 2 V, Med – 4 V, Max – 6 V, Boost – 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed heating.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

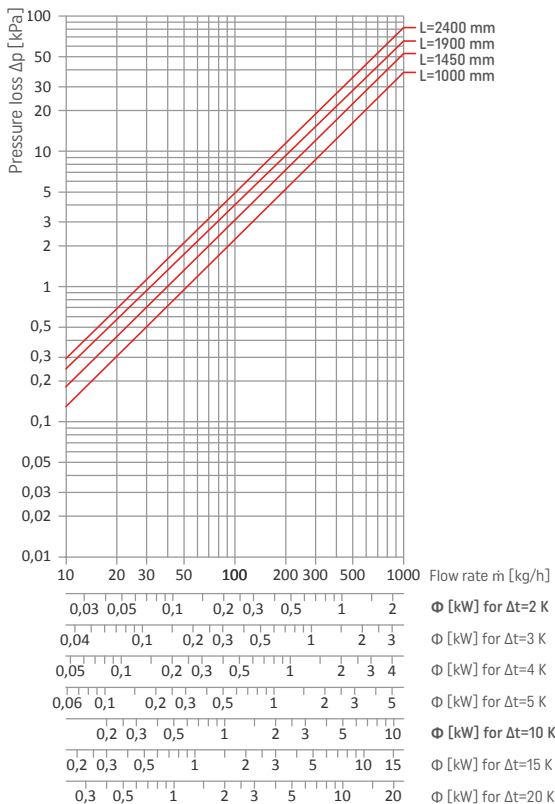
SENSIBLE COOLING OUTPUT

Trench length L [mm]	Operating Mode N V [m³/h]	Cooling output for t_s/t_r °C																						Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS
		17/19/28											7/12/27															
		1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11					
		Φ [W]																										
1000	Min	183	184	185	187	188	190	193	195	197	200	203	320	322	324	327	329	333	338	341	345	350	355	<18	<26	2,0	0,08	1
	Med	397	398	400	401	403	404	407	408	411	413	416	695	697	700	702	705	707	712	714	719	723	728	21	29	3,9	0,16	
	Max	560	561	562	563	564	566	568	569	571	573	576	980	982	984	985	987	991	994	996	999	1003	1008	29	37	7,5	0,31	
1150	Boost	733	734	734	735	736	736	737	738	739	740	741	1283	1285	1285	1286	1288	1290	1292	1293	1295	1297	1297	42	50	21,6	0,90	1
	Min	258	260	263	265	267	270	274	276	280	284	289	452	455	460	464	467	473	480	483	490	497	506	<18	<26	2,2	0,09	
	Med	561	562	565	567	570	573	577	580	584	588	593	982	984	989	992	998	1003	1010	1015	1022	1029	1038	23	31	4,4	0,18	
1450	Max	790	792	795	797	800	803	807	809	813	817	822	1383	1386	1391	1395	1400	1405	1412	1416	1423	1430	1439	32	40	8,9	0,37	1
	Boost	1035	1036	1038	1039	1041	1043	1046	1047	1050	1053	1056	1811	1813	1817	1818	1822	1825	1831	1832	1838	1843	1848	43	51	25,2	1,05	
	Min	359	362	366	369	374	379	385	389	395	402	410	628	634	641	646	655	663	674	681	691	704	718	<18	<26	2,7	0,11	
1700	Med	780	783	788	792	797	803	811	816	823	831	841	1365	1370	1379	1386	1395	1405	1419	1428	1440	1454	1472	25	33	6,5	0,27	1
	Max	1100	1104	1110	1114	1119	1126	1134	1139	1147	1155	1166	1925	1932	1943	1950	1958	1971	1985	1993	2007	2021	2041	35	43	14,4	0,60	
	Boost	1440	1443	1448	1452	1457	1462	1470	1474	1481	1489	1498	2520	2525	2534	2541	2550	2559	2573	2580	2606	2622	2622	46	54	42,0	1,75	
1900	Min	441	444	448	451	456	461	467	471	477	484	492	772	777	784	789	798	807	817	824	835	847	861	19	27	4,1	0,17	2
	Med	957	960	964	967	972	977	983	987	993	1000	1008	1675	1680	1687	1692	1701	1710	1720	1727	1738	1750	1764	26	34	8,2	0,34	
	Max	1350	1353	1357	1360	1364	1369	1375	1378	1384	1390	1398	2363	2368	2375	2380	2387	2396	2406	2412	2422	2433	2447	34	42	16,4	0,68	
2150	Boost	1768	1769	1772	1774	1776	1779	1782	1784	1788	1791	1796	3094	3096	3101	3105	3108	3113	3119	3122	3129	3134	3143	46	54	46,8	1,95	2
	Min	516	519	525	528	534	540	547	552	560	567	578	903	908	919	924	935	945	957	966	980	992	1012	20	28	4,4	0,18	
	Med	1120	1124	1129	1133	1139	1145	1153	1158	1166	1174	1185	1960	1967	1976	1983	1993	2004	2018	2027	2041	2055	2074	26	34	8,7	0,36	
2400	Max	1581	1584	1590	1593	1599	1605	1612	1617	1625	1632	1643	2767	2772	2783	2788	2798	2809	2821	2830	2844	2856	2875	35	43	17,8	0,74	2
	Boost	2069	2072	2075	2078	2081	2085	2091	2094	2099	2105	2111	3621	3626	3631	3637	3642	3649	3659	3665	3673	3684	3694	46	54	50,4	2,10	
	Min	617	622	629	634	641	649	659	665	675	686	699	1080	1089	1101	1110	1122	1136	1153	1164	1181	1201	1223	20	28	4,8	0,20	
2400	Med	1340	1345	1353	1359	1367	1376	1387	1395	1406	1418	1433	2345	2354	2368	2378	2392	2408	2427	2441	2461	2482	2508	27	35	10,8	0,45	2
	Max	1891	1896	1905	1910	1919	1928	1940	1948	1960	1972	1988	3309	3318	3334	3343	3358	3374	3395	3409	3430	3451	3479	36	44	23,3	0,97	
	Boost	2475	2479	2486	2491	2498	2505	2515	2521	2531	2541	2554	4331	4338	4351	4359	4372	4384	4401	4412	4429	4447	4470	48	56	67,2	2,80	
2400	Min	718	724	732	738	747	757	770	778	790	803	820	1257	1267	1281	1292	1307	1325	1348	1362	1383	1405	1435	20	28	5,3	0,22	2
	Med	1559	1566	1577	1584	1595	1606	1622	1631	1647	1662	1682	2728	2741	2760	2772	2791	2811	2839	2854	2882	2909	2944	28	36	13,0	0,54	
	Max	2201	2208	2220	2227	2239	2251	2268	2278	2294	2311	2332	3852	3864	3885	3897	3918	3939	3969	3987	4015	4044	4081	38	46	28,8	1,20	
2400	Boost	2880	2887	2897	2903	2914	2925	2939	2948	2963	2977	2996	5040	5052	5070	5080	5100	5119	5143	5159	5185	5210	5243	49	57	84,0	3,50	

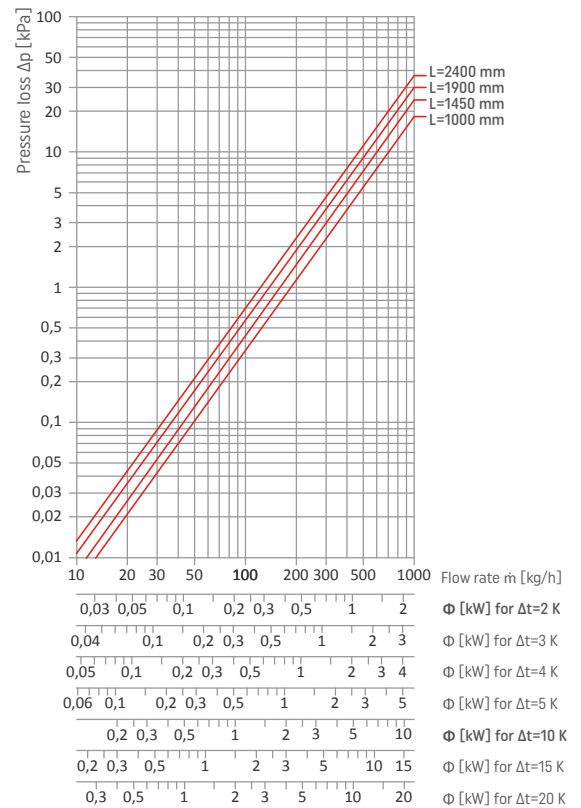
- Standard cooling output [W] compliant to EN-16430 for the Room air temperature $\Theta_r = 28^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed cooling.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

PRESSURE LOSS

CVK4P-18/35/L-I
HEATING

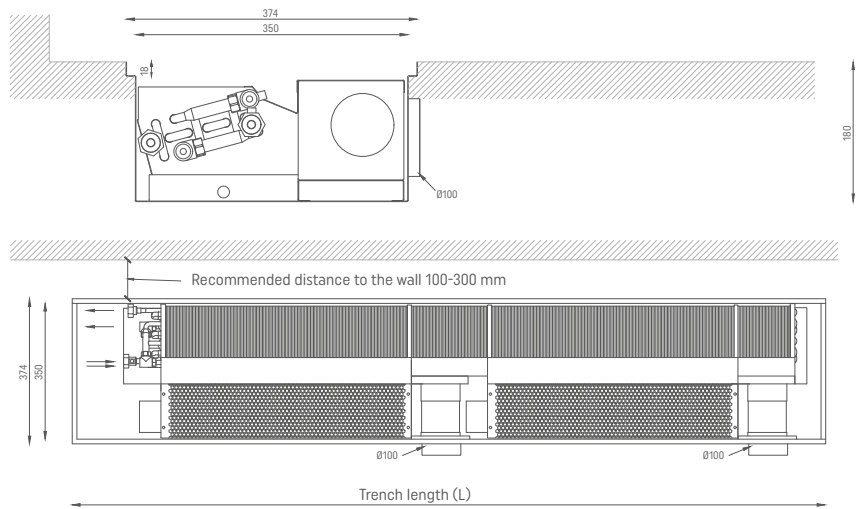


CVK4P-18/35/L-I
COOLING



DIMENSIONS	[mm]
Trench height (H)	180
Trench bottom width (B)	350
Top width/Grille width (Bk)	374
Trench length (L)	1250-2550

CONNECTION	TYPE
Connection thread	½" Female thread
2 ventilation slots	DN 100 mm
Connection side	Left (L) standard, Right (P) option



Trench length [mm]	Operating mode	Heating output for t _s /t _r °C																						Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS
		55/45/20											35/30/20															
		N	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10					
1250	Min	763	784	816	837	869	904	950	978	1024	1070	1129	291	299	311	319	332	345	363	373	391	408	431	<18	<26	2,0	0,08	1
	Med	1155	1177	1210	1232	1265	1302	1349	1379	1427	1474	1537	441	449	462	470	483	497	515	526	545	563	587	21	29	3,9	0,16	
	Max	1437	1460	1493	1515	1549	1586	1635	1664	1713	1761	1824	549	557	570	578	591	605	624	635	654	672	696	29	37	7,5	0,31	
	Boost	1673	1694	1724	1745	1775	1810	1854	1881	1925	1970	2028	639	647	658	666	678	691	708	718	735	752	774	42	50	21,6	0,90	
1450	Min	1079	1111	1157	1189	1235	1288	1355	1397	1465	1532	1621	412	424	442	454	472	492	517	533	559	585	619	<18	<26	2,2	0,09	1
	Med	1634	1667	1717	1750	1800	1855	1927	1971	2043	2115	2209	624	636	655	668	687	708	736	753	780	807	843	23	31	4,4	0,18	
	Max	2033	2067	2118	2152	2203	2259	2333	2379	2452	2526	2622	776	789	809	821	841	862	891	908	936	964	1001	32	40	8,9	0,37	
	Boost	2366	2398	2445	2477	2524	2578	2646	2689	2758	2826	2916	903	915	933	946	964	984	1010	1026	1053	1079	1113	43	51	25,2	1,05	
1700	Min	1510	1557	1628	1676	1747	1826	1929	1993	2095	2198	2333	576	594	622	640	667	697	736	761	800	839	891	<18	<26	2,7	0,11	1
	Med	2284	2336	2414	2466	2544	2631	2743	2813	2925	3038	3185	872	892	921	942	971	1004	1047	1074	1117	1160	1216	25	33	6,5	0,27	
	Max	2841	2896	2977	3032	3113	3204	3329	3511	3629	3783	4085	1105	1137	1157	1188	1223	1268	1296	1340	1385	1444	1501	35	43	14,4	0,60	
	Boost	3307	3359	3437	3490	3568	3655	3768	3838	3952	4064	4213	1262	1282	1312	1332	1362	1395	1439	1465	1508	1552	1608	46	54	42,0	1,75	
1900	Min	1843	1895	1973	2026	2104	2192	2305	2375	2489	2602	2750	703	723	753	773	803	837	880	907	950	993	1050	19	27	4,1	0,17	2
	Med	2789	2844	2927	2982	3065	3157	3276	3351	3470	3589	3746	1065	1086	1117	1138	1170	1205	1251	1279	1325	1370	1430	26	34	8,2	0,34	
	Max	3470	3527	3611	3668	3752	3846	3968	4043	4165	4287	4446	1325	1346	1379	1400	1432	1468	1515	1543	1590	1636	1697	34	42	16,4	0,68	
	Boost	4039	4091	4170	4222	4300	4387	4501	4570	4683	4796	4944	1542	1562	1592	1612	1642	1675	1718	1745	1788	1831	1887	46	54	46,8	1,95	
2100	Min	2159	2221	2315	2377	2471	2575	2711	2794	2929	3065	3242	824	848	884	908	943	983	1035	1067	1118	1170	1237	20	28	4,4	0,18	2
	Med	3267	3334	3434	3500	3600	3710	3854	3942	4087	4230	4418	1247	1273	1311	1336	1374	1416	1471	1505	1560	1615	1687	26	34	8,7	0,36	
	Max	4066	4134	4236	4304	4406	4519	4666	4757	4904	5051	5244	1552	1578	1617	1643	1682	1725	1781	1816	1872	1928	2002	35	43	17,8	0,74	
	Boost	4732	4795	4890	4954	5050	5155	5293	5377	5515	5653	5832	1806	1831	1867	1891	1928	1968	2021	2053	2105	2158	2226	46	54	50,4	2,10	
2350	Min	2589	2668	2786	2865	2983	3114	3284	3389	3560	3731	3954	988	1018	1064	1094	1139	1189	1254	1294	1359	1424	1509	20	28	4,8	0,20	2
	Med	3918	4003	4131	4216	4344	4486	4670	4784	4969	5153	5394	1496	1528	1577	1609	1658	1712	1783	1826	1897	1967	2059	27	35	10,8	0,45	
	Max	4875	4963	5095	5184	5316	5463	5722	5963	6155	6405	6615	1861	1895	1945	1979	2029	2086	2159	2204	2276	2350	2445	36	44	23,3	0,97	
	Boost	5673	5757	5883	5967	6093	6233	6415	6527	6709	6891	7129	2165	2197	2246	2278	2326	2379	2449	2492	2561	2631	2721	48	56	67,2	2,80	
2550	Min	3019	3115	3257	3352	3494	3652	3857	3984	4190	4395	4664	1153	1189	1243	1279	1334	1394	1473	1521	1599	1678	1780	20	28	5,3	0,22	2
	Med	4568	4672	4828	4932	5088	5261	5486	5625	5850	6075	6370	1744	1783	1843	1883	1942	2008	2094	2147	2233	2319	2432	28	36	13,0	0,54	
	Max	5683	5792	5955	6064	6227	6408	6644	6788	7024	7260	7568	2169	2211	2273	2315	2377	2446	2536	2591	2681	2771	2889	38	46	28,8	1,20	
	Boost	6613	6718	6875	6979	7136	7310	7536	7676	7902	8128	8424	2525	2564	2624	2664	2724	2790	2877	2930	3016	3103	3216	49	57	84,0	3,50	

- Standard heating output [W] compliant to EN-16430 for the room air temperature $\theta_r = 20^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed heating.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

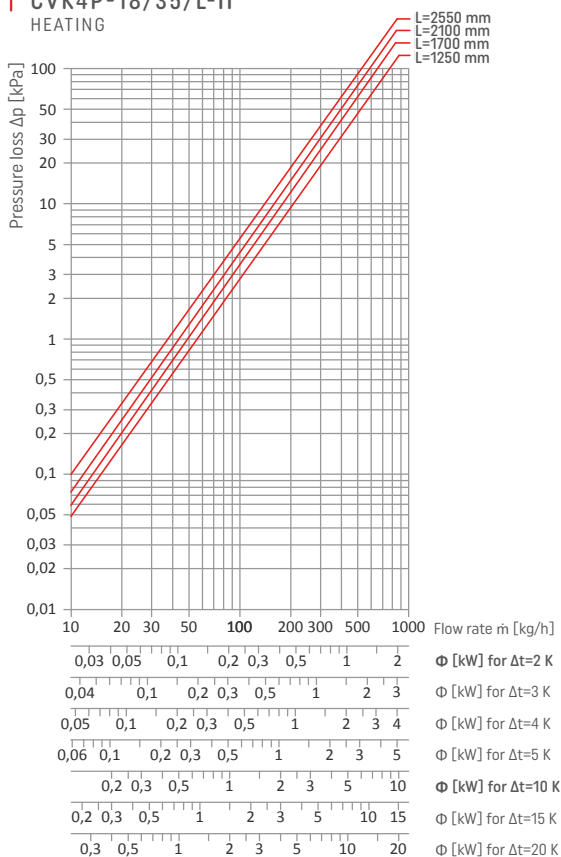
SENSIBLE COOLING OUTPUT

Trench length	Operating Mode	Cooling output for t_s/t_r °C																						Lp [dB(A)]	Lw [dB(A)]	P [W]	I [A]	NUMBER OF FAN MOTORS
		17/19/28											7/12/27															
		N	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10					
L [mm]		Φ [W]																										
	V [m³/h]	36	48	66	78	96	116	142	158	184	210	244	36	48	66	78	96	116	142	158	184	210	244					
1250	Min	186	188	192	194	198	202	207	210	215	220	227	326	329	336	340	347	354	362	368	376	385	397	<18	<26	2,0	0,08	1
	Med	400	403	406	408	411	415	420	422	427	432	438	700	705	711	714	719	726	735	739	747	756	767	21	29	3,9	0,16	
	Max	563	564	567	569	572	575	579	582	586	590	595	985	987	992	996	1001	1006	1013	1019	1026	1033	1041	29	37	7,5	0,31	
	Boost	735	736	737	738	739	741	742	744	746	747	750	1286	1288	1290	1292	1293	1297	1299	1302	1306	1307	1313	42	50	21,6	0,90	
1450	Min	264	267	272	276	281	287	295	300	307	315	325	462	467	476	483	492	502	516	525	537	551	569	<18	<26	2,2	0,09	1
	Med	566	570	576	579	585	591	599	604	612	620	631	991	998	1008	1013	1024	1034	1048	1057	1071	1085	1104	23	31	4,4	0,18	
	Max	796	800	805	809	814	820	828	833	841	849	859	1393	1400	1409	1416	1425	1435	1449	1458	1472	1486	1503	32	40	8,9	0,37	
	Boost	1038	1041	1045	1047	1051	1055	1060	1063	1069	1074	1081	1817	1822	1829	1832	1839	1846	1855	1860	1871	1880	1892	43	51	25,2	1,05	
1700	Min	368	374	382	388	397	407	420	428	440	453	470	644	655	669	679	695	712	735	749	770	793	823	<18	<26	2,7	0,11	1
	Med	790	797	808	815	826	837	853	862	878	893	913	1383	1395	1414	1426	1446	1465	1493	1509	1537	1563	1598	25	33	6,5	0,27	
	Max	1112	1119	1131	1138	1150	1162	1179	1189	1205	1222	1243	1946	1958	1979	1992	2013	2034	2063	2081	2109	2139	2175	35	43	14,4	0,60	
	Boost	1450	1457	1467	1473	1484	1495	1509	1518	1533	1547	1566	2538	2550	2567	2578	2597	2616	2641	2657	2683	2707	2741	46	54	42,0	1,75	
1900	Min	450	456	464	470	479	489	502	510	522	535	552	788	798	812	823	838	856	879	893	914	936	966	19	27	4,1	0,17	2
	Med	966	972	980	986	995	1005	1018	1026	1038	1051	1068	1691	1701	1715	1726	1741	1759	1782	1796	1817	1839	1869	26	34	8,2	0,34	
	Max	1359	1364	1372	1378	1386	1395	1407	1415	1426	1438	1454	2378	2387	2401	2412	2426	2441	2462	2476	2496	2517	2545	34	42	16,4	0,68	
	Boost	1773	1776	1781	1784	1789	1794	1801	1806	1813	1820	1829	3103	3108	3117	3122	3131	3140	3152	3161	3173	3185	3201	46	54	46,8	1,95	
2100	Min	526	534	544	551	562	574	589	599	614	630	650	921	935	952	964	984	1005	1031	1048	1075	1103	1138	20	28	4,4	0,18	2
	Med	1131	1139	1150	1157	1169	1181	1197	1207	1223	1239	1260	1979	1993	2013	2025	2046	2067	2095	2112	2140	2168	2205	26	34	8,7	0,36	
	Max	1591	1599	1609	1616	1627	1639	1654	1664	1679	1695	1715	2784	2798	2816	2828	2847	2868	2895	2912	2938	2966	3001	35	43	17,8	0,74	
	Boost	2077	2081	2089	2094	2101	2109	2120	2126	2137	2147	2161	3635	3642	3656	3665	3677	3691	3710	3721	3740	3757	3782	46	54	50,4	2,10	
2350	Min	631	641	655	664	679	694	715	727	748	768	795	1104	1122	1146	1162	1188	1215	1251	1272	1309	1344	1391	20	28	4,8	0,20	2
	Med	1356	1367	1383	1394	1410	1428	1451	1465	1488	1512	1542	2373	2392	2420	2440	2468	2499	2539	2564	2604	2646	2699	27	35	10,8	0,45	
	Max	1908	1919	1936	1947	1964	1982	2007	2022	2046	2070	2102	3339	3358	3388	3407	3437	3469	3512	3539	3581	3623	3679	36	44	23,3	0,97	
	Boost	2488	2498	2511	2520	2534	2549	2569	2581	2601	2621	2647	4354	4372	4394	4410	4435	4461	4496	4517	4552	4587	4632	48	56	67,2	2,80	
2550	Min	735	747	765	777	794	814	840	855	881	907	940	1286	1307	1339	1360	1390	1425	1470	1496	1542	1587	1645	20	28	5,3	0,22	2
	Med	1580	1595	1616	1630	1651	1675	1706	1724	1755	1786	1826	2765	2791	2828	2853	2889	2931	2986	3017	3071	3126	3196	28	36	13,0	0,54	
	Max	2223	2239	2261	2276	2299	2324	2357	2377	2410	2443	2486	3890	3918	3957	3983	4023	4067	4125	4160	4218	4275	4351	38	46	28,8	1,20	
	Boost	2900	2914	2934	2947	2967	2989	3018	3036	3065	3094	3132	5075	5100	5135	5157	5192	5231	5282	5313	5364	5415	5481	49	57	84,0	3,50	

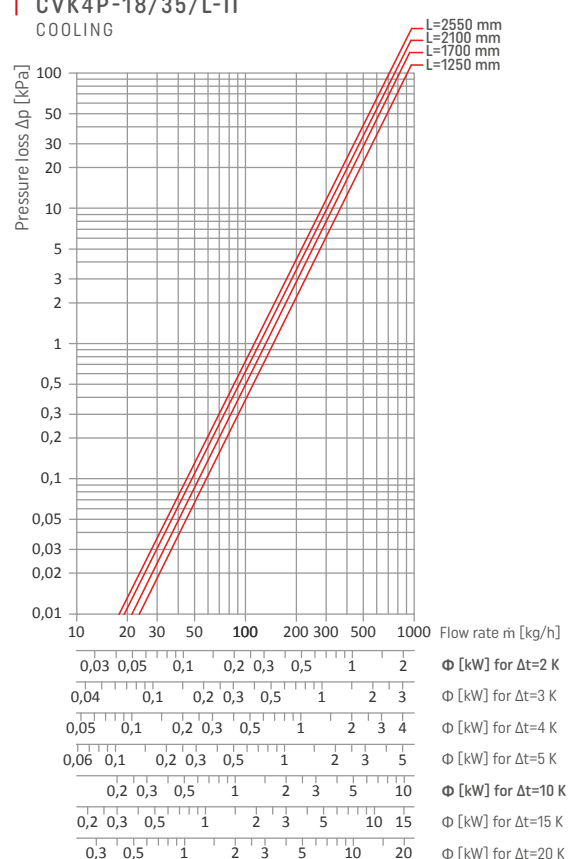
- Standard cooling output [W] compliant to EN-16430 for the Room air temperature $\Theta = 28^\circ\text{C}$.
- Control voltages for the respective modes of operation: Min - 2 V, Med - 4 V, Max - 6 V, Boost - 10 V.
- Min, Med, Max fan speeds are for continuous operations, the Boost mode is for speed cooling.
- Sound power level according to ISO-3745 standard, sound pressure level measured at distance of 2 m to the heater, in a 100 m³ volume room. Reverb time - 0,5 s, room damping - 8 dB(A).

PRESSURE LOSS

CVK4P-18/35/L-II
HEATING



CVK4P-18/35/L-II
COOLING



CORRECTIVE FACTORS FOR 180 MM HIGH CVK4P CLIMACONVECTORS

Heating and cooling output corrective factors for CVK4P 180 mm high units for other installation temperatures.

HEATING						COOLING						
Supply and return temperatures [°C]		Room air temperature θ_i [°C]				Supply and return temperatures [°C]		Room air temperature θ_i [°C]				
t_s	t_r	12	16	20	24	t_s	t_r	24	25	26	27	28
75	70	2,163	2,006	1,851	1,696	6	8	1,700	1,800	1,900	2,000	2,100
	65	2,065	1,909	1,754	1,600		9	1,650	1,750	1,850	1,950	2,050
	60	1,967	1,812	1,658	1,505		10	1,600	1,700	1,800	1,900	2,000
	55	1,870	1,715	1,562	1,410		11	1,550	1,650	1,750	1,850	1,950
70	65	1,967	1,812	1,658	1,505	7	12	1,500	1,600	1,700	1,800	1,900
	60	1,870	1,715	1,562	1,410		9	1,600	1,700	1,800	1,900	2,000
	55	1,773	1,619	1,467	1,316		10	1,550	1,650	1,750	1,850	1,950
	50	1,677	1,524	1,372	1,222		11	1,500	1,600	1,700	1,800	1,900
65	60	1,773	1,619	1,467	1,316	8	12	1,450	1,550	1,650	1,750	1,850
	55	1,677	1,524	1,372	1,222		13	1,400	1,500	1,600	1,700	1,800
	50	1,581	1,429	1,278	1,129		10	1,500	1,600	1,700	1,800	1,900
	45	1,486	1,335	1,185	1,037		11	1,450	1,550	1,650	1,750	1,850
60	55	1,581	1,429	1,278	1,129	10	12	1,400	1,500	1,600	1,700	1,800
	50	1,486	1,335	1,185	1,037		13	1,350	1,450	1,550	1,650	1,750
	45	1,391	1,241	1,092	0,945		12	1,300	1,400	1,500	1,600	1,700
	40	1,297	1,148	1,000	0,854		13	1,250	1,350	1,450	1,550	1,650
55	50	1,391	1,241	1,092	0,945	12	14	1,200	1,300	1,400	1,500	1,600
	45	1,297	1,148	1,000	0,854		15	1,150	1,250	1,350	1,450	1,550
	40	1,203	1,055	0,909	0,764		14	1,100	1,200	1,300	1,400	1,500
	35	1,111	0,963	0,818	0,675		15	1,050	1,150	1,250	1,350	1,450
50	45	1,203	1,055	0,909	0,764	16	16	1,000	1,100	1,200	1,300	1,400
	40	1,111	0,963	0,818	0,675		17	0,950	1,050	1,150	1,250	1,350
	35	1,018	0,872	0,729	0,588		18	0,900	0,800	0,900	1,000	1,100
	40	1,018	0,872	0,729	0,588		19	0,650	0,750	0,850	0,950	1,050
45	35	0,927	0,782	0,640	0,501	17	19	0,600	0,700	0,800	0,900	1,000
	40	0,836	0,693	0,553	0,415		20	0,550	0,650	0,750	0,850	0,950
	30	0,747	0,605	0,467	0,332		21	0,400	0,500	0,600	0,700	0,800
	35	0,658	0,518	0,382	0,250		19	0,350	0,450	0,550	0,650	0,750

HEATING/COOLING OUTPUT CORRECTIVE FACTORS FOR CVKP CLIMACONVECTORS ACCORDING TO THE GRILLE TYPE

GRILLE TYPE	AIRFLOW	CORRECTIVE FACTOR
Roll-up double T-bar profile aluminium grille - 13 mm gap	67%	1,00
Roll-up double T-bar profile aluminium grille - 8 mm gap	63%	0,99
Roll-up closed profile aluminium grille	62%	1,00
Modular snap on profile aluminium grille	62%	0,97
Linear snap on profile aluminium grille	62%	1,08
Linear stainless steel grille	71%	1,09

CVK2P WATER CAPACITY

OPERATING MODE	HEATING / COOLING	
TRENCH LENGTH L [mm]	WATER CAPACITY [dm ³]	
HEATER TYPE	CVK2P-14/35/L-I	CVK2P-18/35/L-I
1000	0,60	0,89
1150	0,74	1,10
1450	0,93	1,38
1700	1,10	1,63
1900	1,24	1,85
2150	1,43	2,13
2400	1,61	2,41
HEATER TYPE	CVK2P-14/35/L-II	CVK2P-18/35/L-II
1250	0,77	1,14
1450	0,91	1,35
1700	1,10	1,63
1900	1,27	1,89
2100	1,41	2,10
2350	1,60	2,38
2550	1,79	2,67

CVK4P WATER CAPACITY

OPERATING MODE	HEATING / COOLING	
TRENCH LENGTH L [mm]	WATER CAPACITY [dm ³]	
HEATER TYPE	CVK4P-14/35/L-I CVK4P-18/35/L-I	CVK4P-14/35/L-I CVK4P-18/35/L-I
1000	0,29	0,60
1150	0,36	0,74
1450	0,45	0,93
1700	0,54	1,10
1900	0,61	1,24
2150	0,70	1,43
2400	0,80	1,61
HEATER TYPE	CVK4P-14/35/L-II CVK4P-18/35/L-II	CVK4P-14/35/L-II CVK4P-18/35/L-II
1250	0,38	0,77
1450	0,45	0,91
1700	0,54	1,10
1900	0,63	1,27
2100	0,70	1,41
2350	0,79	1,60
2550	0,88	1,79

DECLARED PROPERTIES

- Maximum permissible operating pressure: **1,6 MPa.**
- Test pressure: **2,08 MPa.**
- Maximum hydraulic pressure: **2,70 MPa.**
- Minimum operating temperature: **6°C**
- Maximum operating temperature: **110°C**

HOW TO SELECT THE CORRECT FRESHAIR+ CLIMACONVECTOR/TRENCH HEATER

The selection of climaconvector with fresh air supply should be based on the sensible cooling power. To determine the heating power of climaconvector with fresh air supply or trench heater with fresh air supply, proceed in the same way as in the case of cooling power.

Exemplary calculations:

The calculated sensible cooling demand of the room is 945 W. The floor or ceiling structure allows the use of a 14 cm high CVK2P unit (CVK2P-14). The designed parameters of the supply and return water as well as the temperature inside the room are respectively: $t_s/t_r/\theta_i = 12/16/26^\circ\text{C}$. The required air flow for the device is $95 \text{ m}^3/\text{h}$.

- METHOD 1**
based on corrective factors

Read out the right conversion factor for project installation temperatures. In this case conversion factor is 1.195 (for CVK2P-14 climaconvector). Next, divide required cooling output value (945 W) by conversion factor (1.195). The result is 791 W which is

required cooling output value for standard installation temperatures $17/19/28^\circ\text{C}$. Due to the required air flow for the device, the right choice is a climaconvector with two ventilation slots. The climaconvector that meets the above assumptions is the

CVK2P-14/35/235-II which for the air flow of $100 \text{ m}^3/\text{h}$ in the Med Operating Mode for the parameters $17/19/28^\circ\text{C}$ will reach the power of 816 W, while for the parameters $12/16/26^\circ\text{C}$ will be 975 W ($816 \cdot 1.195$) for setting on ventilation slots $N=7$.

- METHOD 2**
based on **VERANO SELECT** program

VERANO SELECT program allows for precise CVKP climaconvector with fresh air supply selection for any installation temperatures. In this way many of values can be precisely define as a heating or cooling outputs, sound pressure level, operating mode of the fan, air flow for the

device and many others. The results of the selection can be print as a PDF or XLS file.

To use VERANO SELECT program visit our website: www.select.verano-global.com

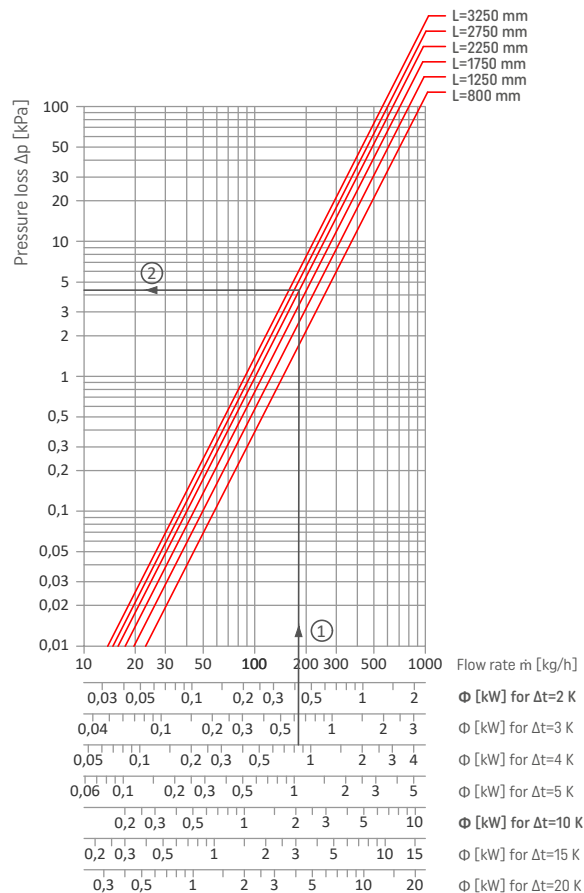
Scan the QR code:



PRESSURE LOSS

For previously selected CVK2P-14/35/235-II unit difference between supply and return temperature is $\Delta t=4 \text{ K}$ and cooling output is 975 W for Med Operating Mode.

- Use the axis for $\Delta t=4 \text{ K}$ value. Draw a vertical line up starting with cooling output value 975 W. End the line on crossing with the length of the climaconvector $L=2350 \text{ mm}$.
- Draw a horizontal line to the left end of the graph. Read out the pressure loss $\Delta p=4,3 \text{ kPa}$.



FRESHAIR+ TRENCH HEATERS AND CLIMACONVECTORS CONTROL OPTIONS

Heating and cooling CVKP units are designed to be installed in a floor void. One can distinguish two basic models of this product that are different through the way they are built and function:

2-PIPES CVK2P UNITS

The heat exchanger has only a single pipe circuit that can be used for heating or cooling. Only one set of valves and thermal actuator is required.

4-PIPES CVK4 UNITS

Two independent copper pipe circuits - one for heating and one for cooling and 2 sets of valves and thermal actuators are required (one for heating and one for cooling installation connection).

As freshAIR+ CVKP/VKN5P unit is a part of the heating/cooling system in the building they proper operation rely on:

- central heating installation being fitted correctly
- chilling/cooling installation being fitted correctly (for climaconvectors)
- the valves and controls have been fitted, connected and configured properly,
- ventilation system being fitted correctly.

The complete set of controls includes:

- room air controller that should be connected to the thermal actuators and fans,
- 24 V DC rail power supply (transformer).

Thanks to the built-in temperature sensor room controller measure the ambient temperature to keep it on the constant, required level:

- by adjusting the thermostatic valve opening/closing angle,
- by adjusting the fan speed.

Due to the ambient temperature sensor the room Controller should not be covered by any obstacles such as furniture or curtains. Each heating/cooling zone should be controlled by the single room temperature controller.

Due to the use of electric safe fans and low-voltage actuators, fan assisted units must be supplied with 24 V DC.

The 24 V DC power supply should be protected by an appropriate overcurrent circuit breaker and an installation switch off that allows the power cut off while conducting service work on VERANO products.

It is forbidden to connect the unit directly to the 230 V AC power grid.

An example of power supply selection is shown on page 45.

The recommended Type of wiring in the controlling system is LIY or LIYCY.

NOTE!

Electric wiring should be done only by the electrical skilled worker who can confirm his membership in an approved self-certification scheme. Power can only be switched back on when the correctness of the whole wiring was checked and approved.

CVKP UNITS OPERATIONS IN VARIOUS CONTROL SYSTEMS

CVKP climaconvectors and VKN5P trench heaters are suitable for any building and they are easy to select thanks to a variety of available options controlling the unit.

CONTROLLING BY STANDARD ROOM AIR TEMPERATURE CONTROLLER

Each heating zone has a separate controller, which is responsible for readout of the temperature in the room and controlling the work of connected heating/cooling units.

The controllers are not connected to each other, while each of them must be programmed separately.

Example: VER-24S, VER-24 WiFi, VER-44 WiFi, SIEMENS RDG160T

CONTROLLING BY ROOM AIR TEMPERATURE CONTROLLER CONNECTED TO INTERNET

The optional feature, that, when built into the standard wall mounted controller, allows you to manage your heating/cooling system through the smartphone application or a secure website.

Through the app you can manage the multiple devices or even create the entire home automation system.

Example: VERANO VER-24 WiFi, VER-44 WiFi

BUILDING MANAGEMENT SYSTEM (BMS)

The system that integrates the various technical installations in the building to allow single point of management is commonly known as the BMS. BMS is quite practical in the office and commercial buildings, yet these days might be also met in residential housing installations.

When concerning connecting the CVKP/VKN5P units into the BMS system, please be aware of such a solution benefits:

- combining as a part of the general HVAC in the building by coordinating its operation together with ventilation, A/C and heating/cooling sources,
- combining the operation of multiple home technical appliances into one management scheme by coordination the work between window blinds, lighting, audio/video devices etc.,
- better management of your heating system i.e. by more flexible and quicker temperature control from a central communication point,
- more flexibility for open space heating/cooling functions such as re-arranging the heating zones when complementing open space re-arrangements.

VERANO offers solutions that enable connecting CVKP/VKN5P units into the following BMS systems:

- - KNX
- - BACnet
- - Modbus

Example: Siemens RDG160KN (for KNX system), Produl TRC-1A4R and TRC-3A (for MODBUS and BACKNET systems)

FRESHAIR+ CVKP AND VKN5P UNITS HYDRONIC CONTROLLING

The advantage of heating and cooling units against the heaters is the optional functionality for providing the cooling during the summertime.

However, using the CVKP units requires two separate water circuits, where one is dedicated to heating and the other to cooling (for four-pipe CVK4P units) or alternatively adapting the current installation for servicing LTHW (low-temperature heating water) in the heating season and a coolant from the chiller during the summertime (in the case of 2-pipe CVK2P units). When specifying please bear in mind that the final thermal output of the units is reflected by the differences in the installation water/fluid temperature i.e. the one between the supply

and return of the water. For most of specifications it might be:

- $\Delta t = 2K$ for cooling,
- $\Delta t = 10K$ for heating.

Thermostatic and lockshield valves must comply special requirements due to the high water flow caused by small Δt temperatures (for the cooling installation) and high heating outputs of the CVKP units (for the heating installation). This narrows the selection of control valves to dedicated products. The range of operation of standard radiator valves used in classic wall, floor or trench convectors allow for maximum flow of the fluid at the level of 150-200 l/h, while valves dedicated to cooling and heating units allow for flow of up to 500 l/h.

The use of valves that have an incorrect flow range could limit the heating and cooling outputs.

Valves designed for use in climaconvectors allow for the precise temperature controlling in rooms thanks to the integrated differential pressure control. Maintaining a constant flow of heating or cooling medium ensures stable and consistent operation of the CVKP unit in a wide range of disposable pressure. Autonomous regulation and compensation of differential pressure fluctuations allows for limiting the remaining regulatory armature (e.g. resignation from balancing valves) and facilitates both the design of new installations and the modernization of existing buildings.

THERMAL ACTUATORS AND PICV VALVES



SIEMENS VPD MINI-COMBI VALVES

- Recommended for CVKP and VKN5P units
- Pre-set value of kv - achieved by limiting the valve stroke
- Possibility of manual and temporary operation of the installation during assembly works
- Model A - measuring pressure drop 0.05 bar (5 kPa)
- Model B - measuring pressure drop 0.1 bar (10 kPa)
- Maximum permissible pressure working: 1000 kPa (10 bar)
- Thermal actuator thread: M30x1,5
- The choice of valve depends on flow and the minimum required differential pressure across the valve Δp_{min} :
 - VPD A-45 - range 45 - 104 l/h, $\Delta p_{min} = 0,06$ bar
 - VPD A-90 - range 90 - 185 l/h, $\Delta p_{min} = 0,08$ bar
 - VPD A-145 - range 145 - 318 l/h, $\Delta p_{min} = 0,1$ bar
 - VPD B-200 - range 200 - 483 l/h, $\Delta p_{min} = 0,2$ bar

0-10 V DC THERMAL ACTUATOR

- Supplied with 24 V DC
- 7,7 W temporary power consumption, 1 W constant power consumption
- M30x1,5 thread
- Max current: 320 mA
- Max opening/closing time: 150 s

FRESHAIR+ CVKP AND VKN5P UNITS ADDITIONAL EQUIPMENT

- Pressure module condensate drain - extend the Trench length by 100 mm
- Assembly protective fiberboard cover
- Anti dust filter in black colour installed on the fan - increase the trench high by 10 mm
- Support system for raised floor
- Decorative grille and frame
- Valves and control devices

RAIL POWER SUPPLY SELECTION

1. Using the tables for CVKP units into this catalogue define the maximum fan power demand and maximum current. Choose the maximum value for units (value for boost mode). Selection of power lower than the maximal will result in switching off fans in higher fan speed and may result in damage to power supply unit or fan motor.
2. Using the data sheet for thermal actuator define the maximum power demand and maximum current - for 0-10 V DC actuator.
3. Using the technical sheet of the selected controller read its maximum electric power – e.g. 1.3 W / 0.06 A for VER-24 and VER-24S controllers.
4. Sum up all maximum powers and loads for all devices used (including multiple use of devices).
5. After calculations select the smallest power supply unit that provides the required electric power.

EXAMPLE:

There are 3 heating and cooling units in the room:

- 1x CVK2P-14/35/145-I,
- 2x CVK2P-14/35/255-II.

There are 3 thermal actuators Type 0-10 V DC and one room controller Type VER-24.

Using the power and current data for CVKP units and controls following values has been defined:

TYPE	MAX POWER	MAX CURRENT
1 x climaconvector CVK2P-14/35/145-I	1 x 33,6 W	1 x 1,4 A
2 x climaconvector CVK2P-14/35/255-II	2 x 67,2 W	2 x 2,8 A
3 x 0-10 V 24 V DC thermal actuator	3 x 7,7 W	3 x 0,32 A
1 x VER-24 controller	1 x 1,3 W	1 x 0,06 A
TOTAL:	192,4 W	8,02 A

**Z240-24VDC RAIL
POWER SUPPLY HAS
BEEN SELECTED
(240W / 10A)**

VKN5P TRENCH HEATERS AND CVKP CLIMACONVECTORS CONTROLS

The controlling function for climaconvectors is handled through wall-mounted room controller that service the actuators and fans. It has the temperature sensor built in that is responsible for measuring room ambient temperature and by regulating the opening angle of the actuating valves and fan revs it will keep the constant room temperature value.

It also offers the optional local temperature control that is managed over the Internet. Such a function is offered by VER-24 WiFi controller that is dedicated to VKN5P and CVK2P units and VER-44 WiFi the one to CVK2P ad CVK4P units.



VER-24 S / VER-24 / VER-24 WIFI

- for VKN5P trench heaters and CVK2P climaconvectors
- Room air temperature controlling
- built-in temperature sensor
- inputs for 0-10V DC thermal actuator and for ON/OFF NC/NO thermal actuator
- 24 V DC supplied
- wireless controlling via WiFi (for VER-24 WiFi only)



VER-44 WIFI

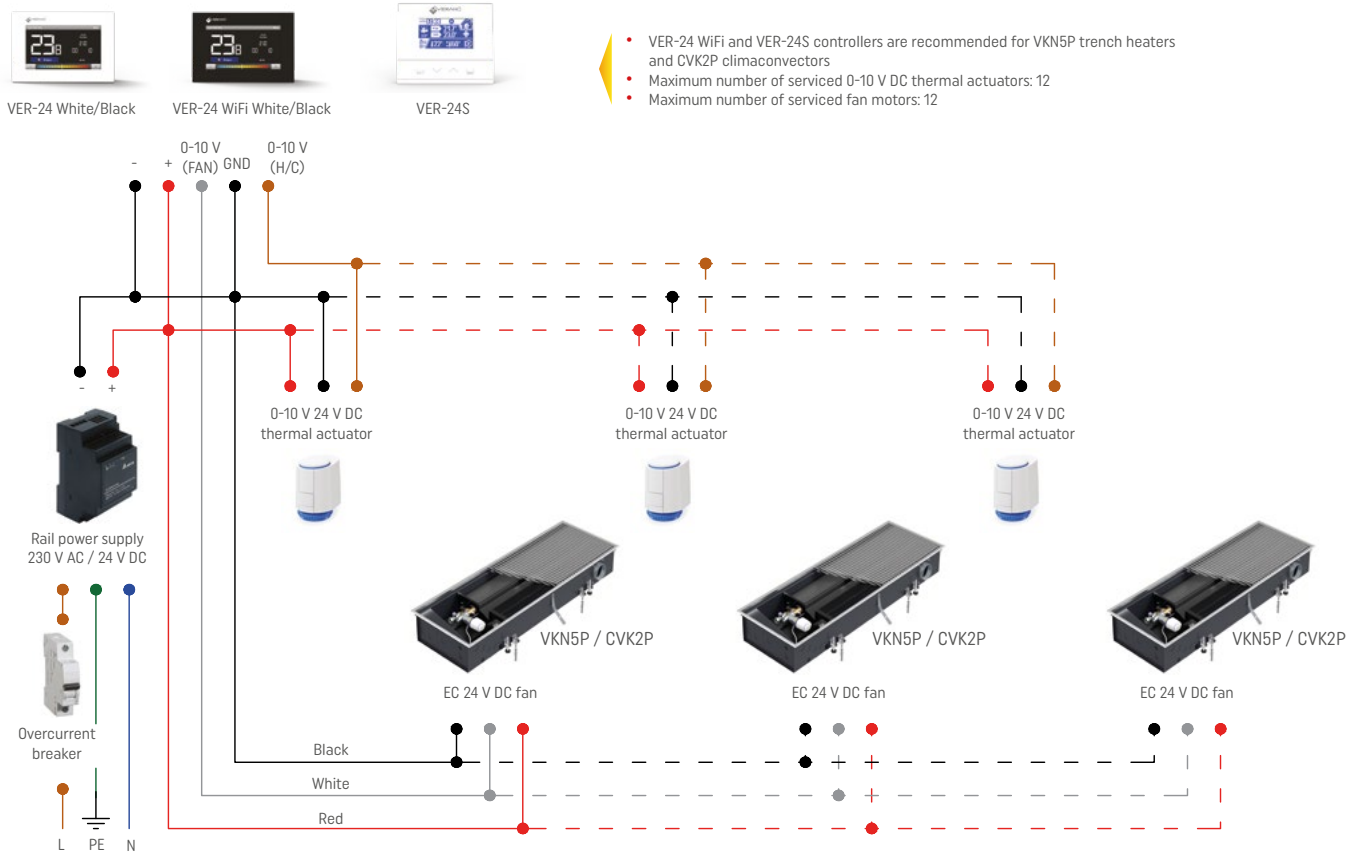
- for VKN5P trench heaters and CVK2P and CVK4P climaconvectors
- Room air temperature controlling
- built-in temperature sensor
- inputs for 0-10V DC thermal actuator and for ON/OFF NC/NO thermal actuator
- 24 V DC supplied
- colour touch display



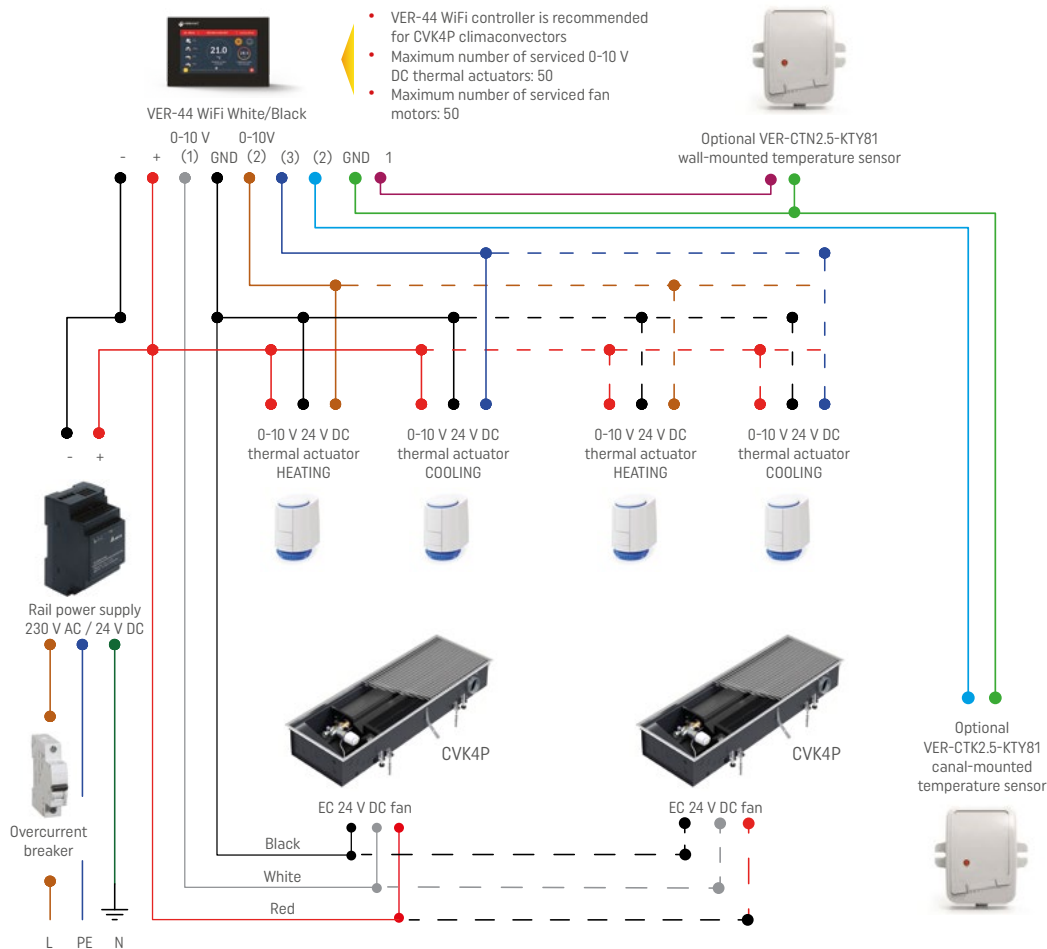
RDG160T

- for VKN5P trench heaters and CVK2P and CVK4P climaconvectors
- Room air temperature controlling
- built-in temperature sensor
- inputs for 0-10V DC thermal actuator and for ON/OFF NC/NO thermal actuator
- 24 V DC supplied

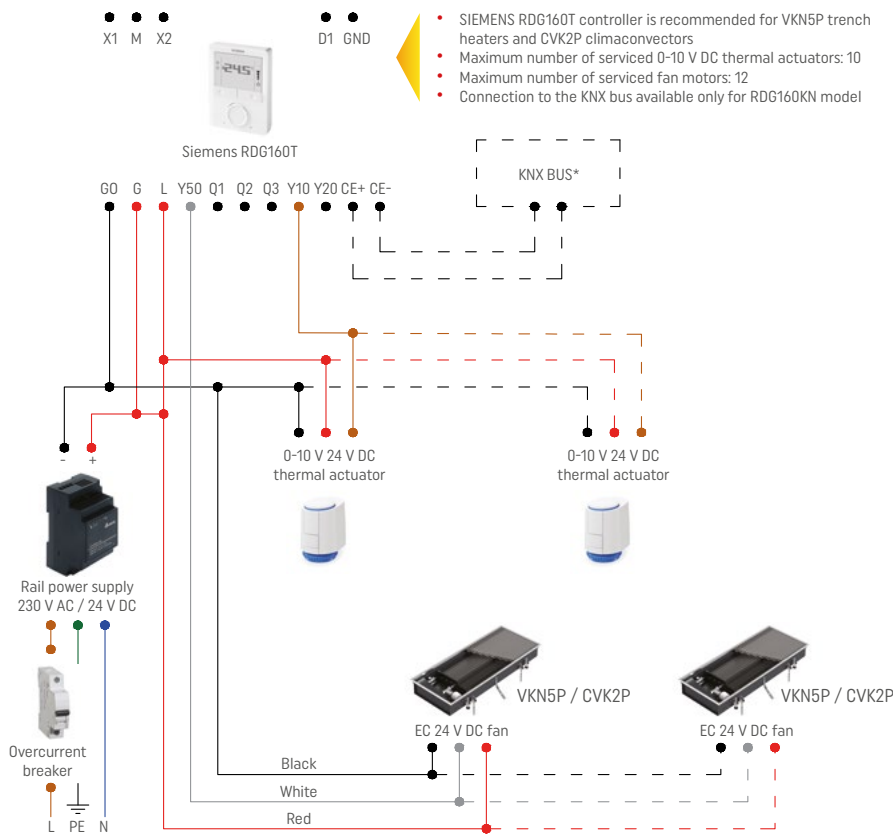
VKN5P/CVK2P UNITS CONNECTION SCHEME - WITH VER-24 / VER-24 WIFI / VER-24S ROOM CONTROLLER



CVK4P UNITS CONNECTION SCHEME - WITH VER-44 WIFI ROOM CONTROLLER



VKN5P/CVK2P UNITS CONNECTION SCHEME - RDG160T/RDG160KN ROOM CONTROLLER



An exemplary Connection diagram of one or several VKN5P/CVK2P units

SETTING OF OPERATION PARAMETERS RDG160T

Press the two buttons on the regulator for at least 3 seconds. Then release both buttons and press the left button for another more than 3 seconds. Without releasing, turn the controller's knob half a turn anti-clockwise.

The display will show the symbol of parameter, that confirms the entry into the service settings mode. The parameter is selected by turning the knob and confirming with the right button (OK).

Use the knob to set the desired value, eg. changing the setting P52=1, after changing P52=2. Use the right button to accept the selection. After finishing the settings, press the left button (ESC).

Configuration of RDG160T basic work parameters for VKN5P/CVK2P units

Configuration of switches inside the controller

DIP1	ON
DIP2	OFF
DIP3	OFF
DIP4	OFF
DIP5	OFF



Recommended settings of individual work parameters

Parameter	Setting	Description
P01	0	Heating only
	1	Cooling only
P05	-3...3 K	Temperature sensor calibration
P30	0,5...6 K	P-band/switching differential in heating mode
P31	0,5...6 K	P-band/switching differential in cooling mode
P38	0	No additional external sensor
P40	0	
P42	0	
P46	2	Output of 0-10 V DC thermal actuator
P52	1	Fan operation - Active
P60	89 min	Fan kick interval in Comfort mode
P61	359 min	Fan kick interval in Economy mode

Configuration of RDG160T basic work parameters for CVK4P units

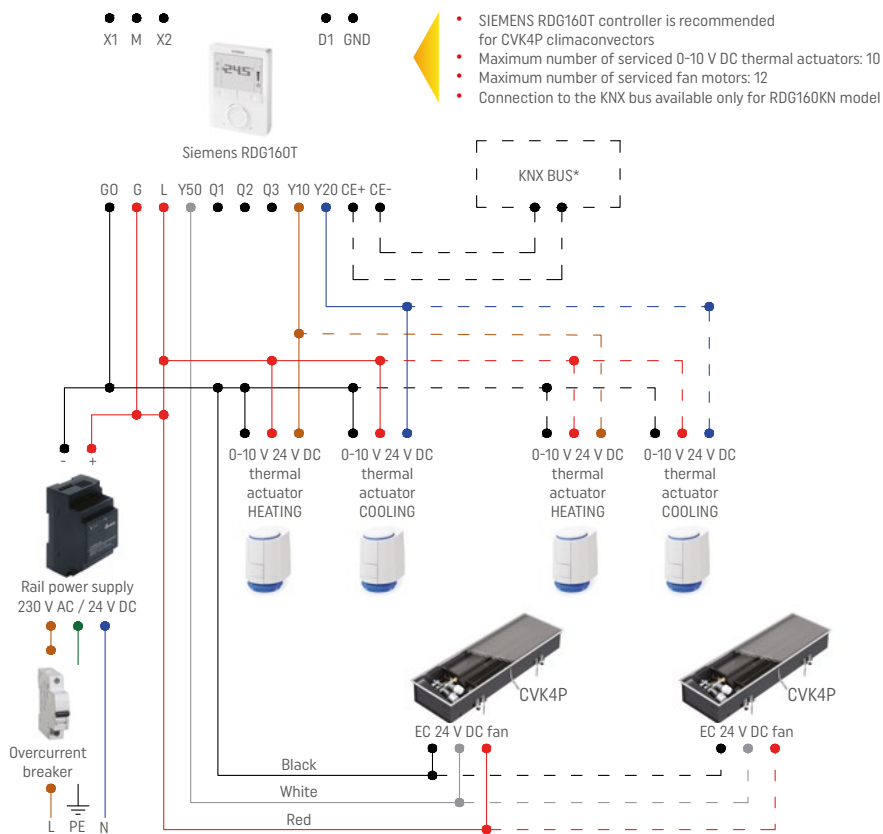
Configuration of switches inside the controller

DIP1	OFF
DIP2	OFF
DIP3	ON
DIP4	OFF
DIP5	OFF



Recommended settings of individual work parameters

Parameter	Setting	Description
P01	4	Heating and cooling
P05	-3...3 K	Temperature sensor calibration
P30	0,5...6 K	P-band/switching differential in heating mode
P31	0,5...6 K	P-band/switching differential in cooling mode
P33	0,5...6 K	Dead zone between heating and cooling
P38	0	No additional external sensor
P40	0	
P42	0	
P46	2	Output of 0-10 V DC thermal actuator (heating)
P47	2	Output of 0-10 V DC thermal actuator (cooling)
P52	1	Fan operation - Active
P60	89 min	Fan kick interval in Comfort mode
P61	359 min	Fan kick interval in Economy mode



An exemplary Connection diagram of one or several CVK4P units

VKN5P/CVKP UNITS INSTALLATION AND MAINTENANCE MANUAL

It is recommended to install the CVK2P/CVK4P climaconvectors and VKN5P trench heaters with fresh air supply in the raised floor. The levelling of the trench should be planned to ensure that the top of the grille is on the same level as floor finish level. Leveling of the trench casing of climaconvectors/trench heaters installed in the raised floor is performed with the use of lock nuts located on the mounting pins. Correct leveling of the trench casing affects the condensate drainage from the drip tray (for climaconvectors).

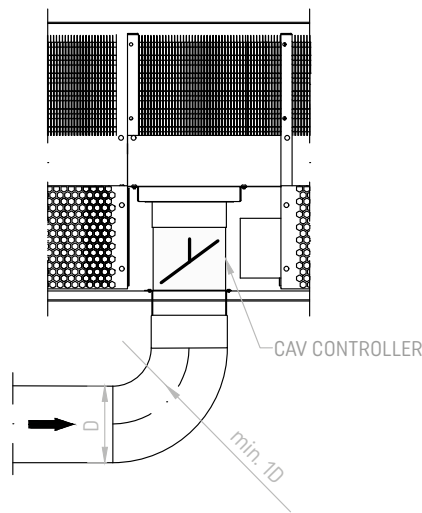
Before starting the assembly, take out and secure the heating kit. In CVKP/VKN5P units the heat exchanger should be on the glass facade/wall side and the fan on the room side. Devices are not universal. Please confirm the Connection side when placing the order.

In order to optimize the air flow regulation, heaters and fan coils have a factory built-in CAV (Constant Air Volume) constant flow regulator, which enables quick and easy adjustment of the designed air flow on the regulator scale using a torx screwdriver.

The accuracy of the volume flow rate control depends on the flow conditions. Elbows, tee joints, diffusers or confusers create turbulence that can affect control accuracy. connections of pipes, eg. branches, should be made in accordance with the PN-EN 1505 standard. Some places of installation in the installation require the use of a straight section of air inflow. Free inflow only with a straight 1D section.

SKETCH A

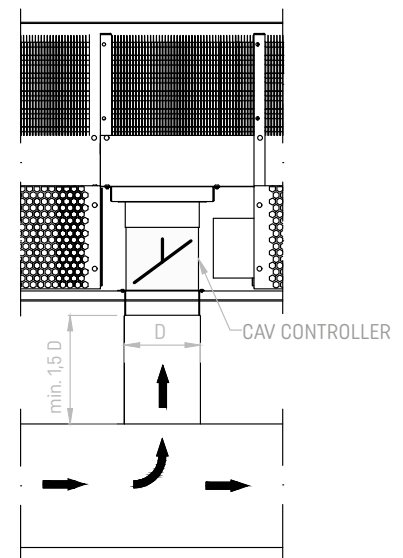
An example of connecting a climaconvector to a ventilation system directly behind the elbow with a minimum bend diameter of 1D. The installation of the regulator directly behind the elbow with a minimum bending diameter of 1D, excluding straight sections, has a negligible effect on the accuracy of the air volume flow control.



SKETCH A

SKETCH B

An example of connecting a climaconvector to the ventilation system directly after the tee joint. There is high turbulence behind the tee joint. The specified accuracy of the V control can be achieved by using a straight section of the air inflow with a length of min. 1.5D. For shorter straight sections, it is recommended to use a perforated sheet on the branch and in front of the controller. The complete omission of the straight section, even when using a perforated sheet, will prevent a stable adjustment.



SKETCH B

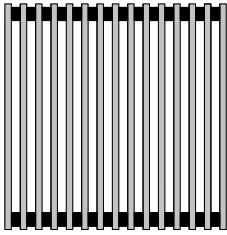
For the time of finishing works, it is recommended to cover the trench casing with an assembly cover that protects the elements of the device against mechanical damage and dirt. Before the final installation of the floor system, make sure that all installation connections have been made to the climaconvector/heater: heating/chilled water system, control system and ventilation system. Installation and electrical cables can be led to the trench from the short or long side. After plumbing and electrically connecting the climaconvector/heater, check the correctness of the control system and remove any contamination from the inside of the trench casing.

An element of additional EQUIPMENT that allows to finish the edge of the climaconvector/heater is the L or F Type frame installed during floor finishing works. All assembly work should be carried by qualified workers in the construction, electrical and installation industries. When using a climaconvector/heater, do not cover it with a rug, furniture or curtains. The grilles are resistant to pressure and abrasion for pedestrian traffic of low intensity. Avoid increased pressure on the grille bars, for example by placing furniture on them. Periodic cleaning of the inside of the trench casing is recommended due to the efficiency of the unit.

More detailed information on the installation of climaconvector/trench heaters with fresh air supply is available in the installation manual.

GRILLES FOR FRESHAIR+ CLIMACONVECTORS AND TRENCH HEATERS

Roll-up grille double T-bar profile



TOP VIEW



SINGLE BAR CROSS SECTION

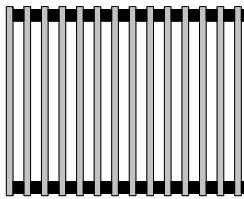
STANDARD:
Spacers 17 mm.
Distance between the bars - 13 mm.
Spacers made of black PVC.

OPCJA:
Spacers are available in other colours and size:
• grey 13 mm, 8 mm.

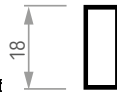
Maximum length of one grille section is 6 m.

GRILLE TYPE	COLOUR	ORDER CODE
Roll-up grille, double T-bar profile - natural aluminium	Natural aluminium	ZDW-1,8/B/L
	Satin	ZADWS-1,8/B/L
Roll-up grille, double T-bar profile - anodized aluminium	Stainless steel	ZADWST-1,8/B/L
	Gold	ZADWZ-1,8/B/L
	Black	ZADWC-1,8/B/L

Roll-up grille closed profile



TOP VIEW



SINGLE BAR CROSS SECTION

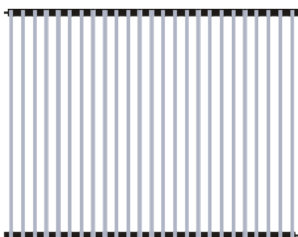
STANDARD:
Spacers 13 mm.
Distance between the bars - 13 mm.
Spacers made of black PVC.

OPTION:
Spacers are available in other colours and size:
• grey 17 mm, 8 mm.

Maximum length of one grille section is 6 m.

GRILLE TYPE	COLOUR	ORDER CODE
Roll-up grille, closed profile - natural aluminium	Natural aluminium	ZAL-1,8/B/L
Roll-up grille, closed profile - anodized aluminium	Satin	ZAALS-1,8/B/L
	Stainless steel	ZAALST-1,8/B/L

Modular grille (made of aluminium)



TOP VIEW



CROSS SECTION

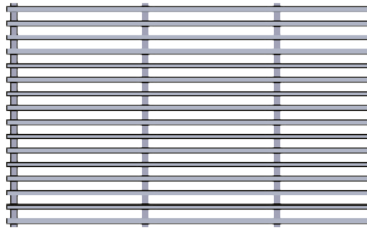
THE GRILLE IS AVAILABLE IN TWO VERSIONS:
• natural aluminium,
• anodized aluminium.

The grilles joints are made of black PVC only.

GRILLE TYPE	COLOUR	ORDER CODE
Modular grille - natural aluminium	Natural aluminium	MPZ-1,8/B/L
Modular grille - anodized aluminium	Satin	MPZAS-1,8/B/L
	Stainless steel	MPZAST-1,8/B/L

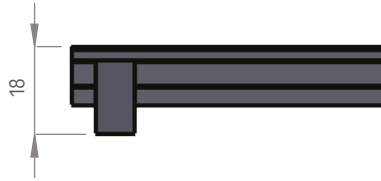
GRILLES FOR FRESHAIR+ CLIMACONVECTORS AND TRENCH HEATERS

Linear grille



TOP VIEW

GRILLE ENTIRELY MADE OF ALUMINIUM.



CROSS SECTION

The grille is available in the following variants:

- natural aluminium
(cross – bar joiners are coated in black RAL 9005),
- aluminium coated in any RAL colour
(grille entirely coated in RAL),
- anodized aluminium
(cross – bar joiners are coated in black RAL 9005).

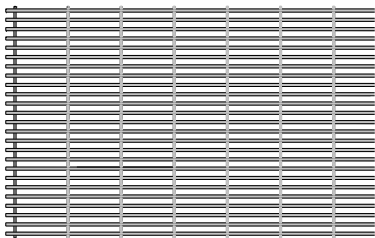
It is possible to make a corner grille for corner section of the heaters at an angle of 90° and others.

The corner grille can be made only if it is ordered with a heater at the same time.

Maximum length of one grille is 3 m.

GRILLE TYPE	COLOUR	ORDER CODE
Linear grille, snap profile - natural aluminium	Natural aluminium	PZW-1,8/B/L
Linear grille, snap profile - anodized aluminium	Satin	PZWAS-1,8/B/L
	Stainless steel	PZWAST-1,8/B/L
Linear grille, snap profile - any RAL colour	RAL colour	PZWR-1,8/B/L

Stainless steel linear grille



TOP VIEW

THE GRILLE IS AVAILABLE ONLY AS A RIGID VERSION.



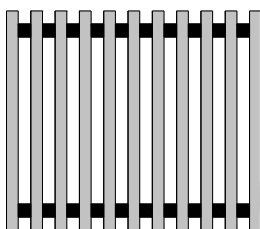
CROSS SECTION

Maximum length of one section of the grille is 2 m.

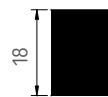
Grille length longer than 2 m are made of several elements of equal lengths.

GRILLE TYPE	COLOUR	ORDER CODE
Stainless steel linear grille	Stainless steel	SN-1,8/B/L

Roll-up natural wooden grille (only for VKN5P)



TOP VIEW



SINGLE BAR CROSS SECTION

STANDARD:

Spacers 13 mm
Distance between the bars - 13 mm
Spacers made of black PVC.

OPTION:

Spacers are available in other colours and size:

- wooden spacers (beech) 17 mm
- grey 17 mm, 8 mm

Maximum length of one grille section is 6 m.

It is possible to make a corner grille for corner section of the heaters at an angle of 90° (heringbone grille). The corner grille can be made only if it is ordered with a heater at the same time.



OAK



ASH



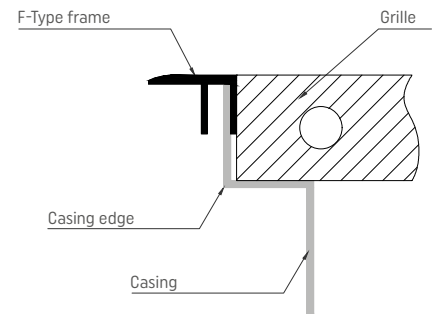
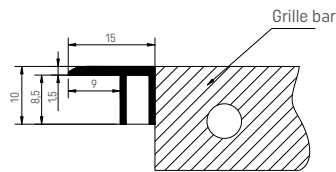
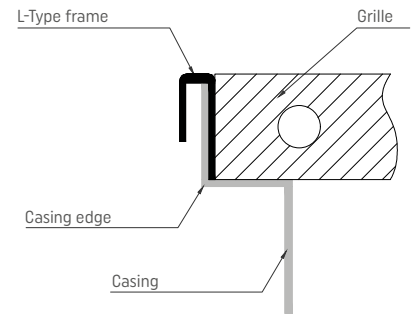
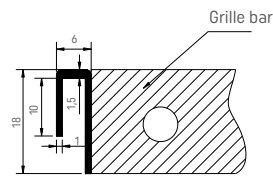
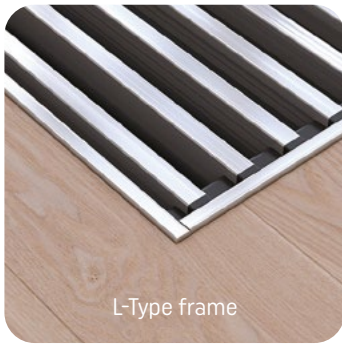
BEECH



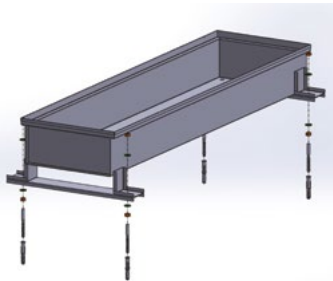
SAPELI

GRILLE TYPE	COLOUR	ORDER CODE
Roll-up wooden grille	Oak	ZD-1,8/B/L
	Ash	ZJ-1,8/B/L
	Beech	ZB-1,8/B/L
	Sapeli	ZS-1,8/B/L

L- AND F-TYPE FRAME



ADDITIONAL EQUIPMENT FOR VKN5P TRENCH HEATERS AND CVKP UNITS



Raised floor kit ZPP

Kit contains:

- 1 x support
- 2 x expansion bolt with a screw
- 4 x nut and washer

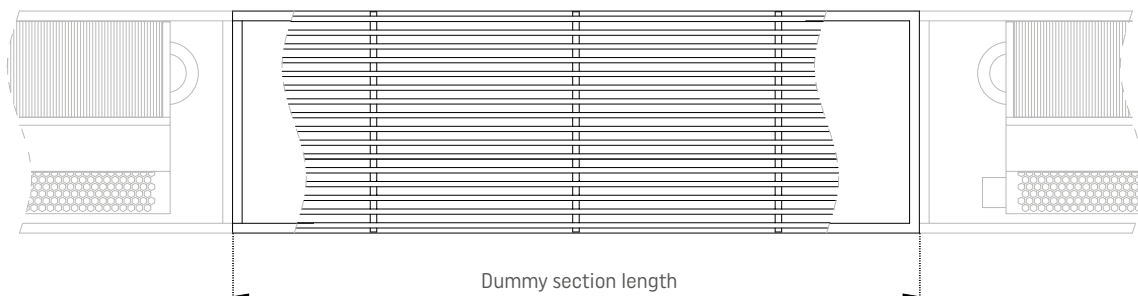
ZPP kit allow to level the unit up by 50 mm.
Other Heights on request.

DUMMY SECTION

Trench units can be produced as non-standard units with custom length adjusted to any recess or bay.

It can be done as:

- extended casing,
- separate dummy section.



CORNER TRENCH AND GRILLE OPTIONS



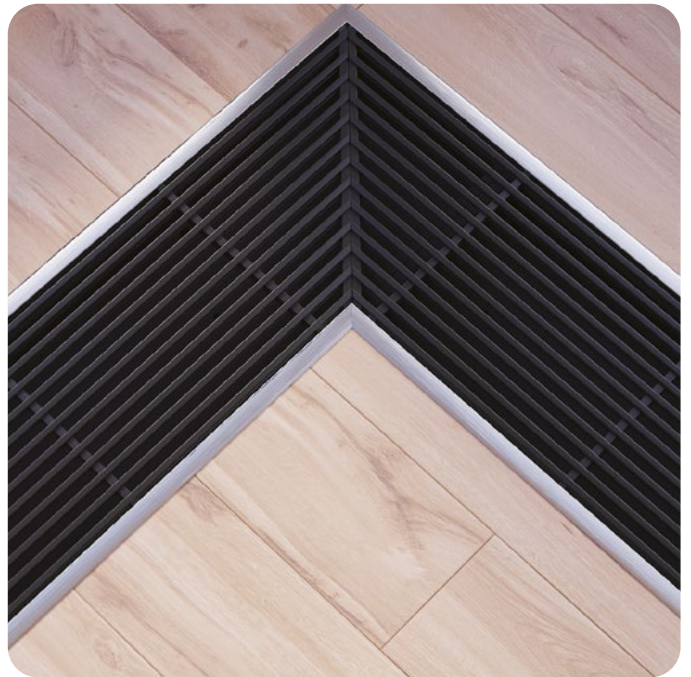
| CORNER TRENCH WITH LINEAR GRILLE AND F-TYPE FRAME



| CORNER TRENCH WITH CROSS-BAR GRILLE AND F-TYPE FRAME.



| CORNER TRENCH WITH CROSS-BAR GRILLE AND F-TYPE FRAME.
HERRINGBONE GRILLE SHAPE.



| CORNER TRENCH WITH LINEAR GRILLE AND F-TYPE FRAME.
HERRINGBONE GRILLE SHAPE.

AIR HANDLING UNITS (AHU)



Suspended AHU
freshAIR+ VCE

The freshAIR+ VCE air handling unit can be installed in any position: as a wall-mounted, suspended AHU or mounted at an angle. What's more, the lack of condensate discharge and built-in preheater and reheater ensure simple installation in small spaces.



Wall-mounted AHU
freshAIR+ VWT/VWH/VWE

The freshAIR+ VWT/VWH/VWE air handling unit is ideal for use in the attic of detached homes and residential buildings. Casing made of extruded polypropylene (EPP) with a thickness of 40 mm ensures optimal thermal insulation.

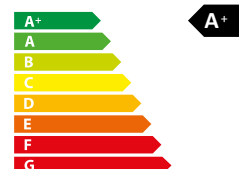


Floor-mounted AHU
freshAIR+ VST/VSH/VSE

The freshAIR+ VST/VSH/VSE air handling unit is characterized by its modern design, low energy consumption and quiet operation. The DIMENSIONS of the device enable its installation in narrow spaces of the flat, e.g. in the kitchen or in a wardrobe, ensuring high quality indoor air and heat comfort of inhabitants.



- Modern casing made of EPP,
- Recovery of temperature and moisture from the removed air,
- Automatic bypass,
- ePM10 and ePM1.0 anti-smog filters compliant with the new standard,
- Control with PM2.5 and CO₂ sensors,
- A constant stream of air regardless of weather conditions and the degree of filter contamination,
- Built-in PTC pre-heater
- Built-in secondary heater or water cooler,
- Energy-saving EC fans,
- Aesthetic frame masking the condensate drain,
- Wireless control via a mobile application (Android and iOS) and a website,
- High thermal and acoustic insulation,
- Light construction,
- High energy efficiency.



DUCT HEATERS AND COOLERS

The heaters and coolers have a built-in control valve and actuator. The used screw Connections allow to make releasable Connections, e.g. with use of the PEX connector. The coolers are also available in a variant with a built-in condensate pump.

VNK duct water heaters and VCK duct water coolers are used for heating and cooling air in ventilation and air conditioning systems.

VNK heaters and VCK coolers can also be used for individual heating or cooling of separate rooms or building zones. VNK heaters and VCK coolers are equipped with a two- or three-row heat exchanger.

The VNK heater can be installed in a horizontal or vertical ventilation duct, while the VCK cooler is designed for mounting in horizontal ventilation ducts.



To enable room temperature or intake air temperature control the duct heaters and coolers can be equipped with regulators, sensors, actuators, valves and anti-freeze protection.

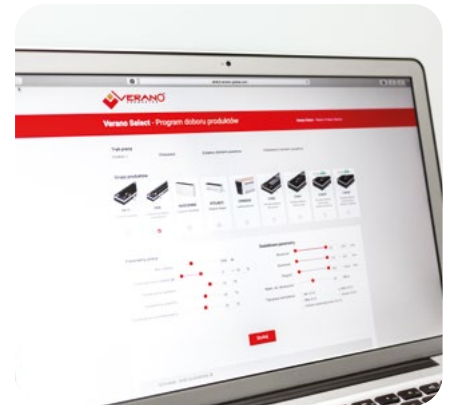
ADVANTAGES:

- Built-in controlling elements,
- Soldered half-thread Connection,
- Round duct connection,
- Steel sheet casing,
- Openable cover for inspection and cleaning,
- Stainless steel condensate drain pan,
- Condensate pump as option.



QUICK SELECTION AND MATCHING:

www.select.verano-global.com



TOOLS FOR DESIGNERS:

www.veranoconnector.co.uk/for-engineering-consultants.html



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2020/06

VKN
Fan assisted
trench heaters



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WALL-MOUNTED AND FLOOR-MOUNTED CONVECTORS

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COMODO CALIENTE STANDARD
Wall/Floor-mounted
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CVK
TRENCH HEATING AND COOLING
UNITS

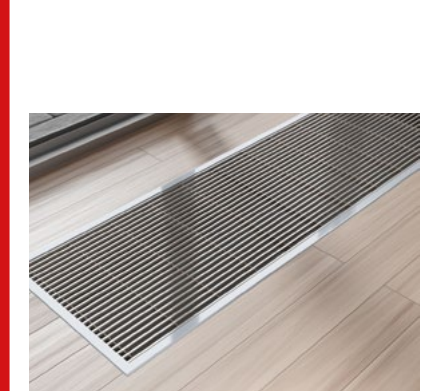
CVK Climaconvectors
Heating and cooling
trench units



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SYSTEM

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Fresh air
supply system



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