

# KOOLAIR

## series

# VFK-Q

## Active chilled beams



[www.koolair.com](http://www.koolair.com)



VFK-Q 600 x 600

## CONTENTS

<b>Model VFK-Q</b>	
General Characteristics	2
Dimensions and configurations	3
Technical Data	9
Selection Charts	14
Product Codes	15

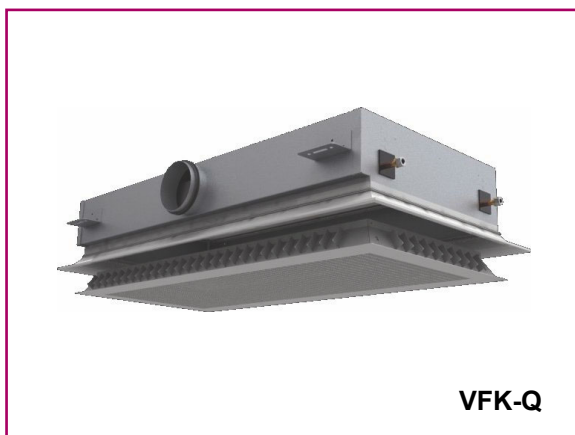
## General Features VFK-Q



VFK-Q 600 x 600



VFK-Q in false ceilings



VFK-Q

### Description

The VFK-Q ceiling-mounted induction terminal units (also known as active chilled beams) for four-ways air diffusion are used in air-water systems to provide a high level of comfort in interior environments with high internal thermal loads in cooling operation. The units include the following components:

- Linear slot diffusers, for supply and diffusion of the combined primary and induced air to the room.
- Hinged perforated front face, used as access for unit cleaning. Available in different perforation designs.
- Nozzle control mechanism, to configure different air discharge patterns in the nozzles.
- Integrated air deflectors in the linear slot diffusers, for the purpose of providing alternative air jet patterns.

### Materials

The outer and inner housings, nozzle plate and induction grille are of galvanised steel sheet construction and have a standard powder-paint finish of RAL 9010. Other RAL colours are available upon request. The coil is manufactured of copper pipes and aluminium fins.

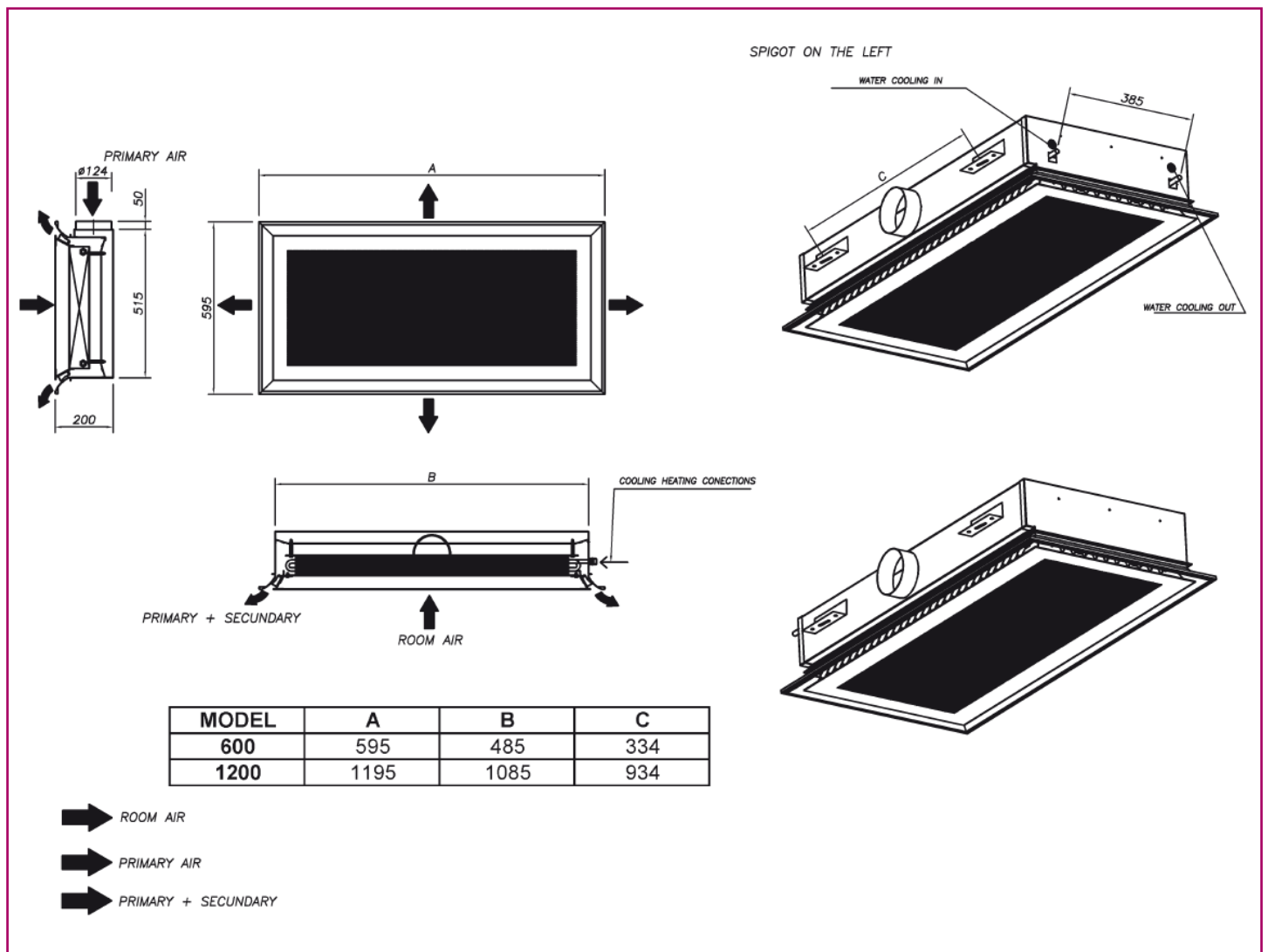
# Dimensions. Configurations

## VFK-Q Model

### Sizes 600 and 1200 - 2-pipe system

Three types of configurations are available, defined according to the position of the primary air connection with regard to the water connections (with the water connection viewed from the front), namely:

1. With opposite spigot to the water connection side, (-F) type
2. With side entry spigot/s on the left, (-LI) type
3. With side entry spigot/s on the right, (-LD) type



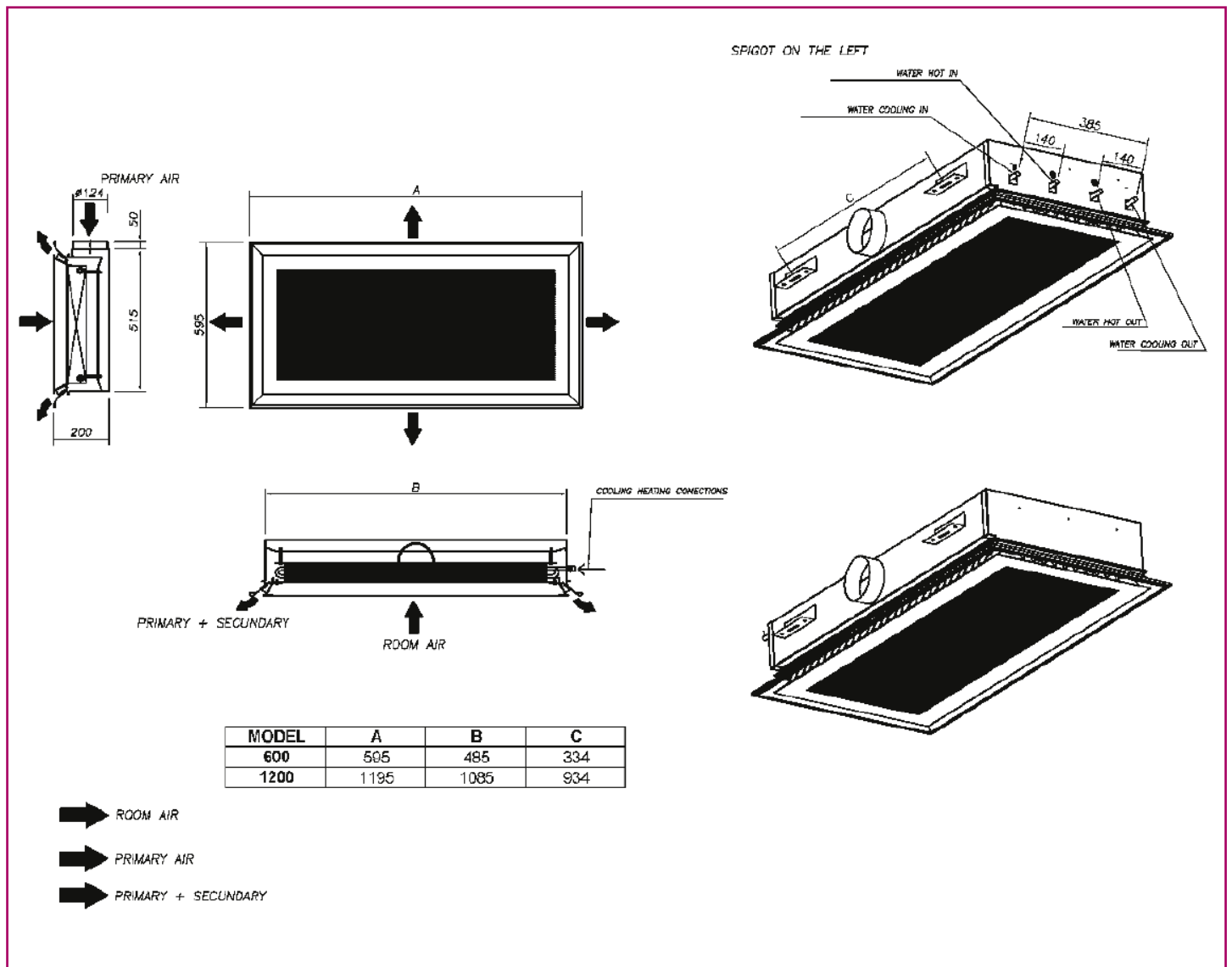
# Dimensions. Configurations

## VFK-Q Model

### Sizes 600 and 1200 - 4-pipe system

Three types of configurations are available, defined according to the position of the primary air connection with regard to the water connections (with the water connection viewed from the front), namely:

1. With opposite spigot to the water connection side, (-F) type
2. With side entry spigot/s on the left, (-LI) type
3. With side entry spigot/s on the right, (-LD) type

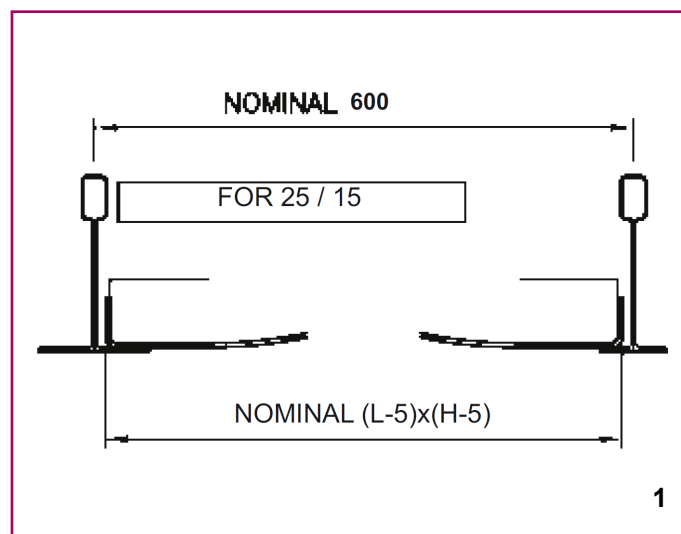


## Installation

### - Chilled beam designs for different types of ceilings

All VFK beam sizes are made to be installed in different kinds of false ceilings.

- Lay-in grid with T-support section with a width of 25 and 15 mm (1)

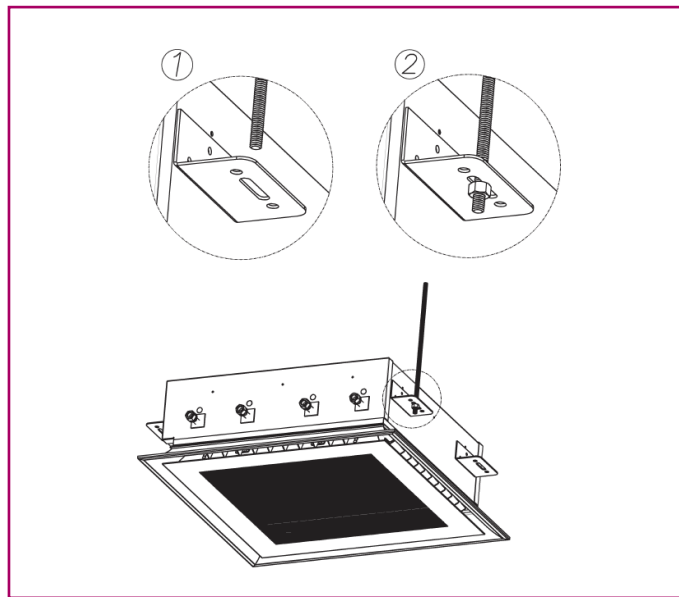


# Installation

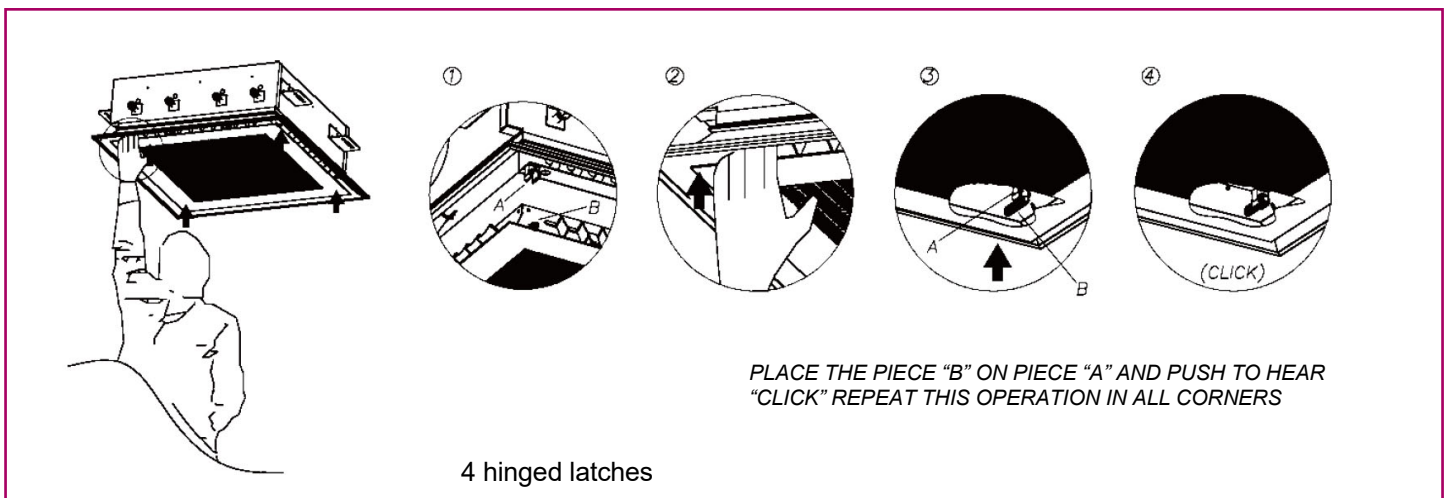
## - Fastening

The VFK-Q units include a series of hanging brackets on the two upper longitudinal sides of the beams, as shown in the following photographs. There are two brackets per side in sizes 600 and 1200.

These brackets are M-8 threaded rod, which is first attached to the ceiling slab to hang the unit.



# Access rack

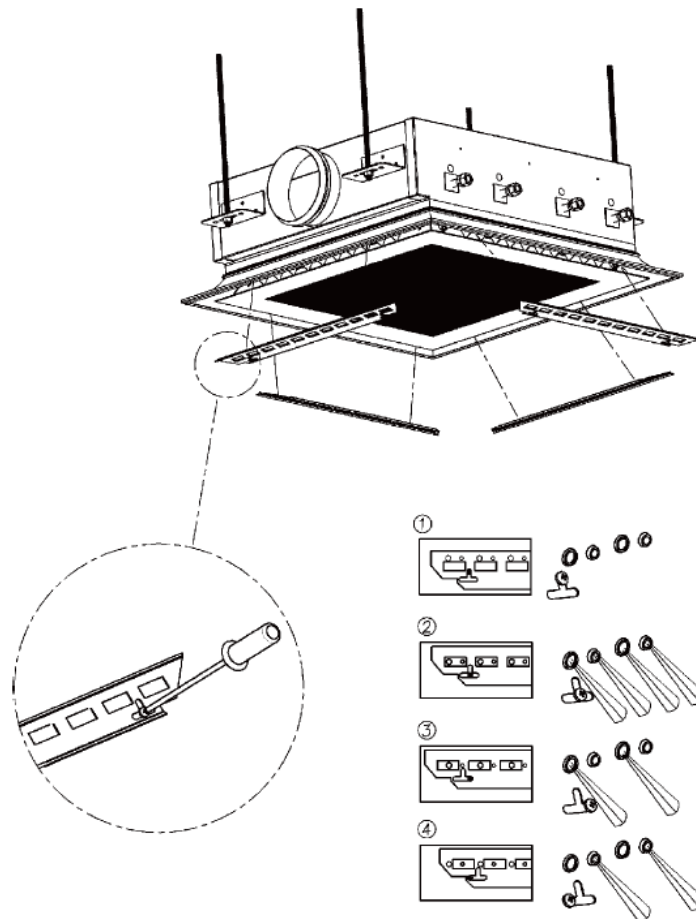


The induction grille or front perforated rack can be removed by operating small latches on the corners of the beam. This provides access to the interior of the chilled beam to clean the inner surfaces of the unit and to adjust the nozzles.

## Nozzle Control Mechanism

As an optional accessory, the unit can include a nozzle regulation mechanism (-SR). In this case, the chilled beams would be fitted with the two nozzle types or sizes, in which different air discharge configurations can be combined, making the installation highly flexible and able to adapt to various changes, situations or applications. The system allows the following nozzle configurations or types:

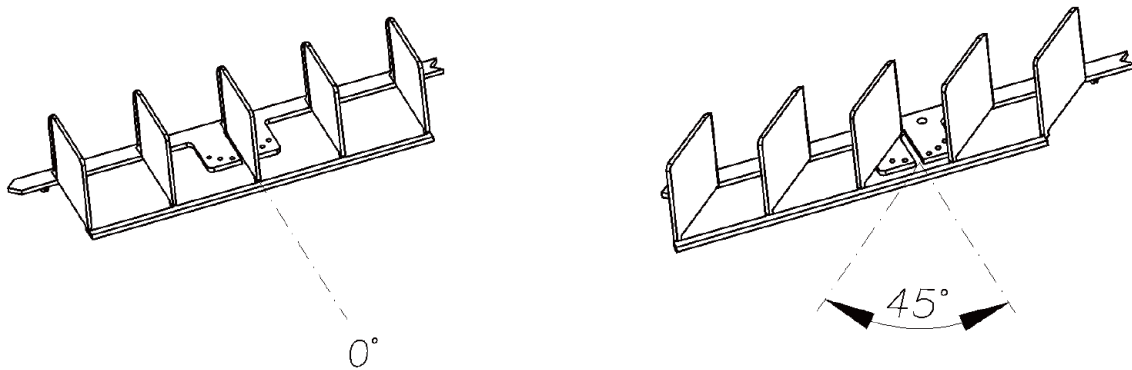
- Position 1: Closure of all nozzles prevents the air from flowing out in one or four directions of the chilled beam.
- Position 2: G type-location, opening of both nozzle types to move large air volumes.
- Position 3: M-type large nozzle opening, to move medium air volumes, obtaining an intermediate induction rate.
- Position 4: P-type small nozzle opening, to move smaller air volumes, but obtaining a higher induction rate.





## Air deflectors

As an optional accessory, the VFK-Q chilled beams can be fitted with air deflector slats (-DF) manufactured of M1 plastic, longitudinally built into the diffusers. By modifying the position, the air jet can be adjusted to different directions, making it a highly flexible unit to adapt to different situations in the installation. This makes it possible to handle obstacles, to broaden the width of the air jet and to slow the velocity of the jet over a specific throw, in short, to ensure an environment free of air currents. Several applications are shown below in the following figures:



Air deflector design. This allows the air jet to be oriented in 1 of 4 deflection angles (0-15-30-45°).



Examples of diffusion in different directions



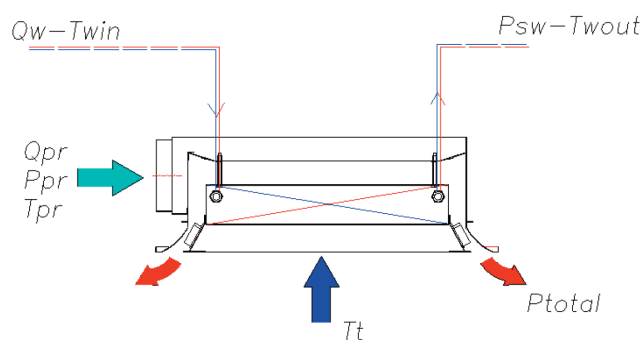
Koolair laboratory test.

## Technical Data

### Symbols

The symbols used in the selection tables on pages 10 to 13 for the VFK-Q chilled beam are the following:

$Q_{pr}$	Primary air flow
$L_w-dB(A)$	Sound power level, in dB(A)
$\Delta P_{pr}$	Primary air pressure drop, in Pa
$T_{pr}$	Primary air temperature, in °C
$T_R$	Room air temperature °C
$\Delta T_{pr}$	Temperature difference between room air and primary air ( $T_R - T_{pr}$ )
$Q_w$	Water flow rate, in l/h
$\Delta P_w$	Water pressure drop in the coil, in kPa
$T_{win}$	Water inlet temperature in the coil, in °C
$\Delta T_w$	Water temperature difference in the coil
$\Delta T_{swin}$	Temperature difference between room and unit water inlet
$P_{pr}$	Capacity supplied by primary air, in W
$P_{sw}$	Capacity supplied by the coil, in W
$P_T$	Total capacity $P_{pr} + P_{sw}$ in W
$X$	Throw of the air jet, in m, for a maximum velocity of 0.25 m/s in the occupied area, installation height of 3 m and $\Delta T = 0$ °C (supply - room)



# Technical Data. Selection Tables

## COOLING - 2-PIPE SYSTEM

Reference water flow (Q<sub>w</sub>) of 250 l/h

For other water flow rates, correct the unit capacity (P<sub>sw</sub>) in the table by the factors listed in the attached table.

VFK-Q - 2 PIPES SYSTEM COOLING		
SIZE	600	1200
Q <sub>w</sub> (l/h)	Power Factor Correction in battery	
80	0,75	0,69
100	0,81	0,77
120	0,88	0,85
150	0,92	0,89
180	0,96	0,95
210	0,99	0,97
250	1,00	1,00
290	1,01	1,01
340	1,03	1,03

VFK-Q-600 / VFK-Q-1200 - 2 PIPE SYSTEM - COOLING																		
Size	Nozzle	Q <sub>pr</sub>		L <sub>w</sub> - dB(A)	ΔP <sub>pr</sub> (Pa)	X (m)	ΔT <sub>pr</sub> (K)					ΔT <sub>SWIN</sub> (K)						ΔP <sub>w</sub> (kPa)
		l/s	m <sup>3</sup> /h				6	7	8	9	10	6	7	8	9	10	12	
600	P	5,6	20	<20	39	0,8	40	46	53	60	66	150	172	202	229	258	312	7.8
		6,7	24	20	56	0,9	48	56	64	72	80	174	200	234	263	296	358	
		8,3	30	24	88	1,2	60	70	80	90	100	207	240	278	312	351	423	
		10,6	38	29	142	1,5	76	88	101	114	126	249	290	334	374	420	504	
		13,9	50	35	246	1,0	100	116	133	150	166	307	358	411	460	514	617	
	M	10,8	39	<20	41	1,2	78	91	104	117	130	190	219	256	287	323	390	
		13,3	48	24	62	1,4	96	112	128	144	160	224	260	301	337	378	455	
		16,1	58	29	91	1,7	116	135	154	174	193	260	302	348	389	437	524	
		19,4	70	34	133	2,1	140	163	186	210	233	300	349	401	448	502	602	
		23,6	85	39	196	2,5	170	198	226	255	283	345	403	461	516	577	691	
	G	15,3	55	25	40	2,2	110	128	146	165	183	215	249	289	323	364	438	
		18,9	68	30	30	2,7	136	158	181	204	226	254	295	340	381	427	513	
		23,3	84	35	93	3,3	168	196	224	252	280	298	347	399	446	499	599	
		28,6	103	40	140	4,1	206	240	274	309	343	346	404	462	518	578	693	
		34,7	125	44	207	4,9	250	291	333	375	416	396	463	528	592	661	791	
1200	P	10,0	36	<20	40	1,1	72	84	96	108	120	313	390	443	490	549	650	14.4
		15,0	54	24	91	1,7	108	126	144	162	180	426	526	601	671	746	891	
		18,9	68	30	144	2,2	136	158	181	204	226	506	622	712	797	885	1059	
		22,8	82	35	209	2,6	164	191	218	246	273	578	710	814	912	1011	1213	
		27,2	98	39	299	3,1	196	228	261	294	326	654	802	919	1030	1142	1371	
	M	18,9	68	24	40	1,6	136	158	181	204	226	376	475	541	602	671	800	
		23,6	85	29	63	2,0	170	198	226	255	283	445	559	639	714	794	949	
		29,2	105	34	97	2,5	210	245	280	315	350	520	652	746	835	927	1110	
		36,1	130	39	149	3,1	260	303	346	390	433	605	756	866	971	1077	1292	
		45,8	165	45	240	3,9	330	385	440	495	550	708	884	1013	1136	1260	1513	
	G	26,1	94	28	39	1,9	188	219	250	282	313	413	524	599	668	743	887	
		34,7	125	35	70	2,6	250	291	333	375	416	510	645	738	826	917	1098	
		43,1	155	40	108	3,2	310	361	413	465	516	594	749	858	962	1067	1280	
		52,2	188	44	159	3,9	376	438	501	564	626	676	851	976	1094	1213	1457	
		59,7	215	47	208	4,4	430	501	573	645	716	736	927	1062	1190	1321	1586	

# Technical Data. Selection Tables

## COOLING - 4-PIPE SYSTEM

Reference water flow ( $Q_w$ ) of 250 l/h

For other water flow rates, correct the unit capacity ( $P_{sw}$ ) in the table by the factors listed in the attached table.

VFK-Q - 4 PIPES SYSTEM COOLING		
Size	600	1200
$Q_w$ (l/h)	Power Factor Correction in battery	
80	0,75	0,69
100	0,81	0,77
120	0,88	0,85
150	0,92	0,89
180	0,96	0,95
210	0,99	0,97
250	1,00	1,00
290	1,01	1,01
340	1,03	1,03

VFK-Q-600 / VFK-Q-1200 - 4 PIPE SYSTEM - COOLING																		
Size	Nozzle	$Q_{pr}$		$L_w$ - dB(A)	$\Delta P_{pr}$ (Pa)	X (m)	$\Delta T_{dr}$ (K)					$\Delta T_{SWIN}$ (K)						$\Delta P_w$ (kPa)
							6	7	8	9	10	6	7	8	9	10	12	
		l/s	m <sup>3</sup> /h				$P_{pr}$ (W)					$P_{sw}$ (W)						
600	P	5,6	20	<20	39	0,8	40	46	53	60	66	153	179	193	220	220	240	7.8
		6,7	24	20	56	0,9	48	56	64	72	80	173	203	221	251	261	292	
		8,3	30	24	88	1,2	60	70	80	90	100	203	239	263	297	318	365	
		10,6	38	29	142	1,5	76	88	101	114	126	240	283	314	354	389	454	
		13,9	50	35	246	1,0	100	116	133	150	166	291	343	386	433	482	572	
	M	10,8	39	<20	41	1,2	78	91	104	117	130	186	219	239	271	286	324	
		13,3	48	24	62	1,4	96	112	128	144	160	216	254	281	317	343	396	
		16,1	58	29	91	1,7	116	135	154	174	193	247	291	324	365	402	470	
		19,4	70	34	133	2,1	140	163	186	210	233	282	332	373	419	465	551	
		23,6	85	39	196	2,5	170	198	226	255	283	322	380	430	481	537	640	
	G	15,3	55	25	40	2,2	110	128	146	165	183	203	239	263	297	318	365	
		18,9	68	30	30	2,7	136	158	181	204	226	236	278	309	348	381	444	
		23,3	84	35	93	3,3	168	196	224	252	280	274	323	362	406	451	533	
		28,6	103	40	140	4,1	206	240	274	309	343	315	372	421	470	525	626	
		34,7	125	44	207	4,9	250	291	333	375	416	359	423	482	538	599	719	
1200	P	10,0	36	<20	40	1,1	72	84	96	108	120	364	412	426	507	553	634	14.4
		15,0	54	24	91	1,7	108	126	144	162	180	451	519	560	649	710	831	
		18,9	68	30	144	2,2	136	158	181	204	226	514	596	656	751	823	972	
		22,8	82	35	209	2,6	164	191	218	246	273	573	667	744	845	928	1102	
		27,2	98	39	299	3,1	196	228	261	294	326	636	743	836	945	1039	1240	
	M	18,9	68	24	40	1,6	136	158	181	204	226	418	478	509	595	650	756	
		23,6	85	29	63	2,0	170	198	226	255	283	472	545	593	684	749	879	
		29,2	105	34	97	2,5	210	245	280	315	350	533	620	685	782	857	1015	
		36,1	130	39	149	3,1	260	303	346	390	433	604	705	790	895	983	1171	
		45,8	165	45	240	3,9	330	385	440	495	550	695	812	919	1036	1141	1365	
	G	26,1	94	28	39	1,9	188	219	250	282	313	449	517	558	647	708	828	
		34,7	125	35	70	2,6	250	291	333	375	416	528	614	678	775	849	1005	
		43,1	155	40	108	3,2	310	361	413	465	516	599	699	783	887	975	1160	
		52,2	188	44	159	3,9	376	438	501	564	626	672	785	886	999	1100	1315	
		59,7	215	47	208	4,4	430	501	573	645	716	726	848	962	1083	1194	1430	

# Technical Data. Selection Tables

## HEATING - 2-PIPE SYSTEM

Reference water flow ( $Q_w$ ) of 250 l/h

For other water flow rates, correct the unit capacity ( $P_{sw}$ ) in the table by the factors listed in the attached table.

VFK-Q - 2 PIPES SYSTEM HEATING		
Size	600	1200
$Q_w$ (l/h)	Power Factor Correction in battery	
80	0,75	0,70
100	0,82	0,78
120	0,90	0,86
150	0,93	0,90
180	0,96	0,95
210	0,99	0,97
250	1,00	1,00
290	1,01	1,01
340	1,03	1,03

VFK-Q-600 / VFK-Q-1200 - 2 PIPE SYSTEM - HEATING																		
Size	Nozzle	$Q_{pr}$		$L_w$ - dB(A)	$\Delta P_{pr}$ (Pa)	X (m)	$\Delta T_{pr}$ (K)					$\Delta T_{SWIN}$ (K)					$\Delta P_w$ (kPa)	
							6	7	8	9	10	10	15	20	25	30		35
		l/s	m <sup>3</sup> /h				$P_{pr}$ (W)					$P_{sw}$ (W)						
600	P	5,6	20	<20	39	0,8	40	46	53	60	66	244	365	485	605	732	851	7.8
		6,7	24	20	56	0,9	48	56	64	72	80	280	421	560	700	844	985	
		8,3	30	24	88	1,2	60	70	80	90	100	334	502	668	836	1007	1178	
		10,6	38	29	142	1,5	76	88	101	114	126	402	604	805	1009	1213	1421	
		13,9	50	35	246	1,0	100	116	133	150	166	496	746	996	1247	1500	1757	
	M	10,8	39	<20	41	1,2	78	91	104	117	130	306	460	612	766	923	1078	
		13,3	48	24	62	1,4	96	112	128	144	160	360	541	722	903	1087	1273	
		16,1	58	29	91	1,7	116	135	154	174	193	418	628	837	1049	1262	1478	
		19,4	70	34	133	2,1	140	163	186	210	233	483	725	968	1213	1459	1709	
		23,6	85	39	196	2,5	170	198	226	255	283	559	839	1120	1404	1688	1976	
	G	15,3	55	25	40	2,2	110	128	146	165	183	345	519	692	866	1042	1220	
		18,9	68	30	30	2,7	136	158	181	204	226	408	613	818	1024	1232	1443	
		23,3	84	35	93	3,3	168	196	224	252	280	480	721	963	1206	1450	1699	
		28,6	103	40	140	4,1	206	240	274	309	343	559	840	1122	1406	1691	1980	
		34,7	125	44	207	4,9	250	291	333	375	416	644	966	1291	1617	1944	2275	
1200	P	10,0	36	<20	40	1,1	72	84	96	108	120	450	667	883	1105	1325	1558	14.4
		15,0	54	24	91	1,7	108	126	144	162	180	605	903	1200	1503	1805	2115	
		18,9	68	30	144	2,2	136	158	181	204	226	715	1071	1426	1786	2146	2511	
		22,8	82	35	209	2,6	164	191	218	246	273	817	1226	1634	2047	2460	2877	
		27,2	98	39	299	3,1	196	228	261	294	326	924	1388	1853	2320	2790	3259	
	M	18,9	68	24	40	1,6	136	158	181	204	226	545	812	1077	1349	1619	1900	
		23,6	85	29	63	2,0	170	198	226	255	283	641	959	1275	1597	1918	2247	
		29,2	105	34	97	2,5	210	245	280	315	350	747	1120	1492	1869	2245	2627	
		36,1	130	39	149	3,1	260	303	346	390	433	869	1304	1739	2179	2619	3061	
		45,8	165	45	240	3,9	330	385	440	495	550	1019	1533	2047	2563	3083	3599	
	G	26,1	94	28	39	1,9	188	219	250	282	313	601	897	1192	1494	1793	2102	
		34,7	125	35	70	2,6	250	291	333	375	416	739	1107	1475	1848	2220	2598	
		43,1	155	40	108	3,2	310	361	413	465	516	860	1291	1723	2158	2594	3031	
		52,2	188	44	159	3,9	376	438	501	564	626	980	1474	1968	2464	2963	3460	
		59,7	215	47	208	4,4	430	501	573	645	716	1070	1609	2150	2691	3237	3778	

# Technical Data. Selection Tables

## HEATING - 4-PIPE SYSTEM

Reference water flow ( $Q_w$ ) of 250 l/h

For other water flow rates, correct the unit capacity ( $P_{sw}$ ) in the table by the factors listed in the attached table.

VFK-Q - 4 PIPES SYSTEM HEATING		
Size	600	1200
$Q_w$ (l/h)	Power Factor Correction in battery	
30	0,69	0,57
50	1,00	0,77
70	1,07	0,88
90	1,14	0,95
110	1,19	1,00
130	1,22	1,03
150	1,24	1,05
180	1,27	1,07
210	1,28	1,09
250	1,30	1,11

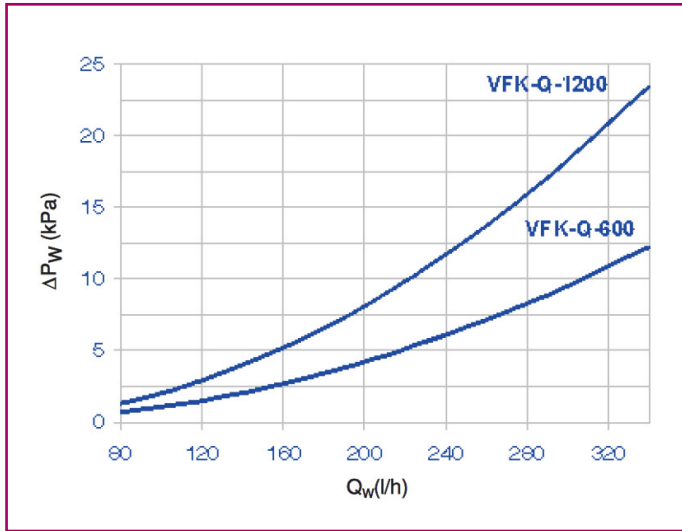
VFK-Q-600 / VFK-Q-1200 - 4 PIPE SYSTEM - HEATING																		
Size	Nozzle	$Q_{pr}$		$L_w$ - dB(A)	$\Delta P_{pr}$ (Pa)	$X$ (m)	$\Delta T_{pr}$ (K)					$\Delta T_{swin}$ (K)					$\Delta P_w$ (kPa)	
							6	7	8	9	10	10	15	20	25	30		35
		$P_{pr}$ (W)					$P_{sw}$ (W)											
600	P	5,6	20	<20	39	0,8	40	46	53	60	66	127	191	257	325	398	464	0.05
		6,7	24	20	56	0,9	48	56	64	72	80	136	207	279	352	429	500	
		8,3	30	24	88	1,2	60	70	80	90	100	150	229	309	391	474	552	
		10,6	38	29	142	1,5	76	88	101	114	126	168	256	346	439	529	616	
		13,9	50	35	246	1,0	100	116	133	150	166	191	292	397	502	602	702	
	M	10,8	39	<20	41	1,2	78	91	104	117	130	145	221	298	378	458	534	
		13,3	48	24	62	1,4	96	112	128	144	160	160	243	329	417	504	586	
		16,1	58	29	91	1,7	116	135	154	174	193	175	267	362	458	551	641	
		19,4	70	34	133	2,1	140	163	186	210	233	191	292	397	502	602	702	
		23,6	85	39	196	2,5	170	198	226	255	283	210	321	436	552	660	770	
	G	15,3	55	25	40	2,2	110	128	146	165	183	154	234	316	400	484	563	
		18,9	68	30	30	2,7	136	158	181	204	226	169	259	350	444	534	622	
		23,3	84	35	93	3,3	168	196	224	252	280	188	287	389	492	591	688	
		28,6	103	40	140	4,1	206	240	274	309	343	207	316	429	544	651	759	
		34,7	125	44	207	4,9	250	291	333	375	416	228	346	470	595	711	831	
1200	P	10,0	36	<20	40	1,1	72	84	96	108	120	270	384	501	624	768	891	
		15,0	54	24	91	1,7	108	126	144	162	180	321	467	615	768	933	1086	
		18,9	68	30	144	2,2	136	158	181	204	226	357	526	697	870	1052	1225	
		22,8	82	35	209	2,6	164	191	218	246	273	391	582	773	965	1162	1356	
		27,2	98	39	299	3,1	196	228	261	294	326	427	640	853	1065	1280	1494	
	M	18,9	68	24	40	1,6	136	158	181	204	226	306	443	582	726	885	1029	
		23,6	85	29	63	2,0	170	198	226	255	283	338	496	655	818	991	1154	
		29,2	105	34	97	2,5	210	245	280	315	350	374	555	736	919	1108	1292	
		36,1	130	39	149	3,1	260	303	346	390	433	416	622	828	1034	1243	1451	
		45,8	165	45	240	3,9	330	385	440	495	550	468	705	942	1177	1412	1649	
	G	26,1	94	28	39	1,9	188	219	250	282	313	320	466	613	766	931	1083	
		34,7	125	35	70	2,6	250	291	333	375	416	365	540	716	894	1080	1258	
		43,1	155	40	108	3,2	310	361	413	465	516	406	606	807	1008	1212	1414	
		52,2	188	44	159	3,9	376	438	501	564	626	447	672	896	1120	1344	1570	
		59,7	215	47	208	4,4	430	501	573	645	716	478	721	963	1203	1443	1686	

# Technical Data

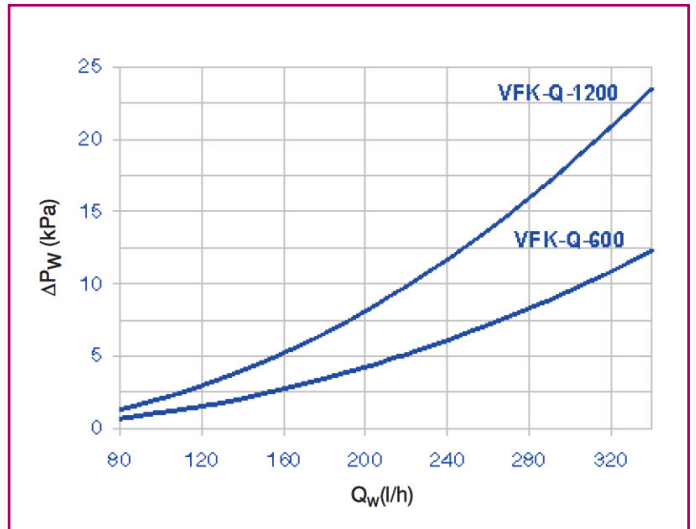
## Pressure drop in water

The charts to obtain the pressure drop in the coil for different water flow rates in the various systems are shown below:

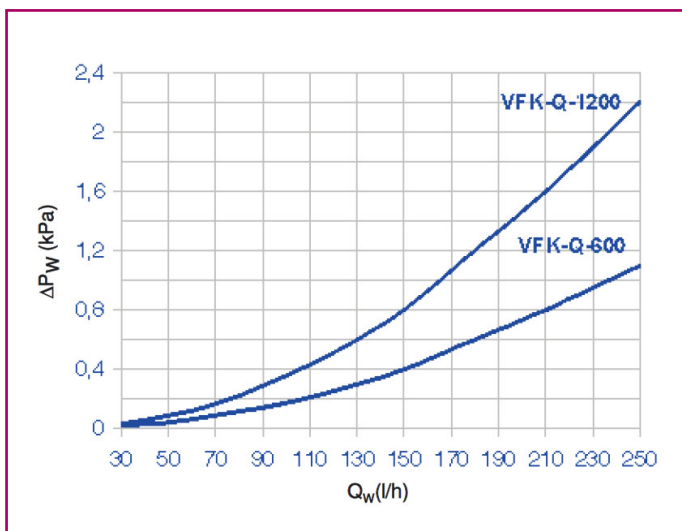
### 2-pipe system. Cooling - Heating



### 4-pipe system. Cooling



### 4-pipe system. Heating



## Product Codes

Coding example of an order. All of the different models, sizes, accessories, etc., existing in the KOOLAIR VFK-Q active chilled beam series are listed.

### -- Coding example

(a) (b) (c) (d) (e) (f) (g) (h) (i) (j) (k)  
VFK-Q – 1200 – M – 2 – LD – P1V – E – SR – DF – RAL 9010 – others

#### (a): Model

VFK-Q

#### (b): Length

VFK-Q : 600 – 1200 (mm)

#### (c): Nozzle configuration

- P
- M
- G

#### (d): Coil. Type of system

- 2 2-pipe system coil
- 4 4-pipe system coil

#### (e): Air/water connection configuration

- F Rear face primary air connection, on opposite side as water connections
- LI Primary air connection on left
- LD Primary air connection on right

#### (f): Perforated induction rack design

- P1H Rectangular perforations along the length of the beam
- P1V Rectangular perforations along the width of the beam
- P2H Round perforations distributed continuously along the width of the beam
- P2V Round perforations distributed continuously along the length of the beam

#### (g): Type of ceiling

- Design of standard lay-in grid T-Bar ceiling

#### (h): Nozzle regulation system

- No nozzle adjustment
- SR Nozzle adjustment



## Product Codes

### (i): Air deflectors

- No deflector slats
- DF Deflector slats

### (j): Finish

- RAL 9010 Standard finish in RAL 9010
- RAL ... Finish in RAL paint upon request

### (k): Other accessories or components

By special request on the order, other components can be requested, e.g.:

- **Electric resistor** For 2-pipe systems (chilled water), included inside the unit. Specify the power in watts (W) provided by it.
- **Control valve** Control and/or balancing valves can be included in the water connections by special order. Specify the model and type, as well as the respective servo drive if applicable.
- **Condensation detector** The unit can be fitted with a condensation detector attached to the surface of the chilled water inlet pipe by special order.
- **Air flow adjustment** Koolair has several different air regulation accessories that can be supplied along with the active chilled beam order.

## Technical specifications

Induction active chilled beam, **VFK-Q** model, of length **L** mm, width **B** mm and height 200 mm, for installation in modular or continuous false ceilings. Four linear slot diffusers are included on the sides, with M1 plastic air deflectors for horizontal air supply and Coanda effect of mixed (primary and secondary) air. Hinged front face for unit cleaning, with different perforation designs for room air induction. The interior of the unit includes a plenum box with nozzles (**P/M/G** type) to both sides for primary air supply, with a nozzle control mechanism. Inner horizontal coil of (**2/4 pipe**) for cooling and/or heating, copper pipes with thread connections (outer diameter, 12 mm) and aluminium fins. Equipped with one primary air connection (**front/side**) of diameter Ø124 mm. Front tray, enclosures, sections manufactured entirely of galvanised steel sheet. The unit is fitted with supports for hanging from top slab. Standard finish paint (RAL9010). Other **RAL** colours upon request.





**KOOLAIR, S.L.**

Calle Urano, 26

Poligono industrial nº 2 – La Fuensanta

28936 Móstoles - Madrid - (España)

Tel: +34 91 645 00 33

Fax: +34 91 645 69 62

e-mail: [info@koolair.com](mailto:info@koolair.com)

[www.koolair.com](http://www.koolair.com)