

# ADRIATIC VF

Active climate beam with cooling, heating and ventilation



## QUICK FACTS

- The ADRIATIC VF is a climate beam with integrated recirculated air opening in the face plate
- Air is discharged into the room along the ceiling
- Integrated VariFlow airflow distribution for simple adjustment at the site
- An attractive climate beam designed for suspended installation

Cooling capacity				
$P_k$ (W/m)	$q$ (l/sm)	$p_i$ (Pa)	$\Delta T_{mk}$ K	$\Delta T_i$ K
460	10	60	10	10
550	15	55	10	10
640	20	55	10	10

Primary airflow:	Up to 60 l/s
Pressure range:	30 to 70 Pa
Total cooling capacity:	Up to 2400 W
Heating capacity:	Up to 3400 W
Size - Length:	From 1.2 to 3.6 m in increments of 0.6 m
Width:	363 mm
Height:	172 mm

# Contents

Operation .....	3
Application .....	3
Advantages of the ADRIATIC VF .....	3
Operation .....	4
Installation .....	4
ADRIATIC VF with VariFlow.....	6
ADRIATIC VF with ADC .....	7
Accessories .....	8
<b>Technical Data .....</b>	<b>9</b>
Cooling.....	9
Heating.....	16
Acoustics .....	21
<b>Dimensions.....</b>	<b>23</b>
<b>Ordering Key .....</b>	<b>25</b>
Contractor demarcation .....	25
Contractor demarcation/ Point of connection.....	25
Specification .....	26
Product.....	26
Accessories .....	26
<b>Specification Text.....</b>	<b>27</b>

# Technical description

## ADRIATIC VF

The ADRIATIC VF is a closed, active climate beam with two-way air discharge. Cooling and ventilation or cooling, heating and ventilation.

## Installation

The ADRIATIC VF is designed for suspended installation from hangers or mounting directly against the ceiling.

## Connection dimensions:

Cooling (water): Ø 12 x 1.0 mm Cu plain pipe end.

Heating (water): Ø 12 x 1.0 mm Cu plain pipe end.

Air: Insertion piece (sleeve) Ø125 mm

## Suspension:

The units are delivered without mounting parts. If mounting parts are required, they can be ordered separately.

The SYST MS M8 assembly piece is required for suspended installation from hangers.

The SYST MD4S is required for mounting the beam directly against the ceiling

## Operation

- Cooling
- Heating (optional)
- Ventilation
- ADC air deflectors
- VariFlow airflow distribution

## Application

The ADRIATIC VF is well-suited for use in all types of rooms with waterborne climate cooling:

- Offices and conference rooms
- Hotels
- Classrooms
- Data processing rooms
- Bank premises
- Restaurants



## Advantages of the ADRIATIC VF

- The ADRIATIC VF has an attractive design and extremely low installation height that fits in well in all types of room decor.
- Since the ADRIATIC VF is a closed climate beam with integrated recirculating air opening in the face plate, it can be mounted directly against the ceiling without regard to circulation air slots.
- The ADRIATIC VF combines the superior air discharge properties of ceiling units with the stringent design requirements of suspended climate beams. The discharge of air along the ceiling provides the optimal coanda effect that is always the objective when it is desirable to maintain low air velocities in the occupied zone.
- The connection components, valves and dampers are concealed in a simple manner by an attractive connection casing. The casing is installed after the climate beam has been suspended and connected.
- Swegon's ADC air deflectors, which are standard, provide a unique possibility to check the air discharge performance of the climate beam.
- Integrated VariFlow airflow distribution for simple adjustment at the site. The airflow can be varied to suit the application by means of nozzle strips. The fixed nozzles guarantee that the airflow will be correct and all in all offers a flexible and simple solution.



[www.eurovent-certification.com](http://www.eurovent-certification.com)  
[www.certiflash.com](http://www.certiflash.com)

## Operation

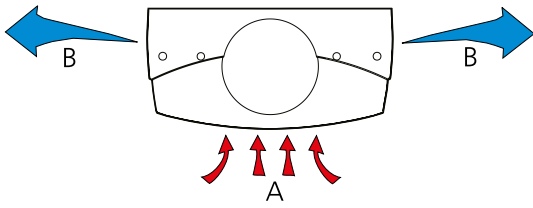


Figure 1. Cooling and ventilation.

A = Room air

B = Primary air and chilled room air

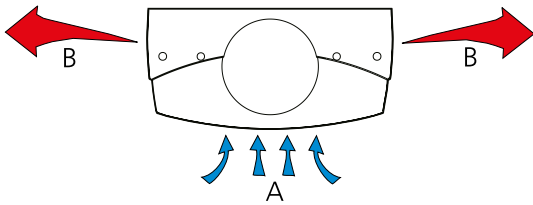


Figure 2 Heating and ventilation.

A = Room air

B = Primary air and heated room air

## Installation

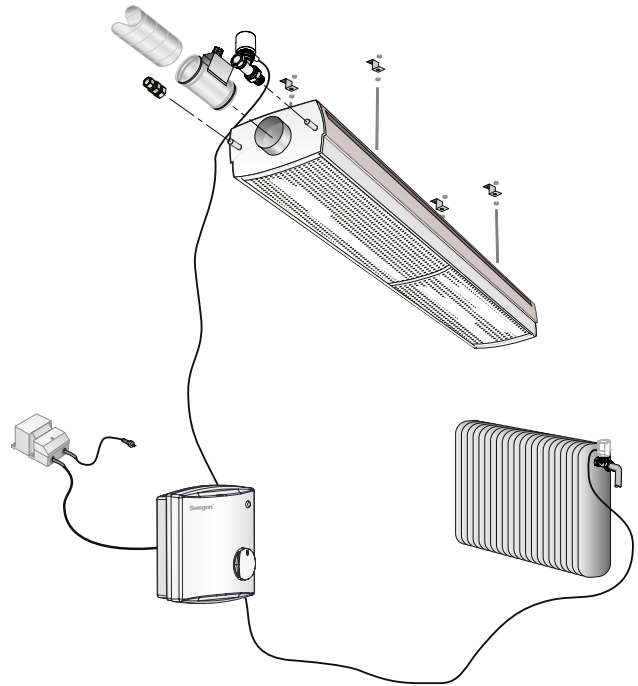


Figure 3. Installation.

**Range of products held in stock:**

ADRIATIC VF 1,8-A-OH-ADC-STOCK, (2LH/2LH)

ADRIATIC VF 2,4-A-OH-ADC-STOCK, (2L2M/2L2M)

ADRIATIC VF 3,0-A-OH-ADC-STOCK, (3L2M/3L2M)

**Available to order:**

Full length (-OH): From 1.2 to 3.6 m

Installed connection (-I): From 1.5 to 3.9 m

The lengths above are available with 600 mm increments.

**Waterborne heating, Variant -B**

See the section on heating, further ahead.

**Installed connection (-I):**

With 300 mm empty section and end panel without openings for pipes and an air duct. Designed for vertical connection to the climate beam. For particulars of the capacity, calculate the active length as follows:  $L_{\text{aktive}} = L_{\text{rated}} - 300 \text{ mm}$ .

**Special Types**

The ADRIATIC VF can, on enquiry, be supplied painted in an optional colour or relief finish paint.

For further particulars about special types, get in touch with your nearest Swegon representative.

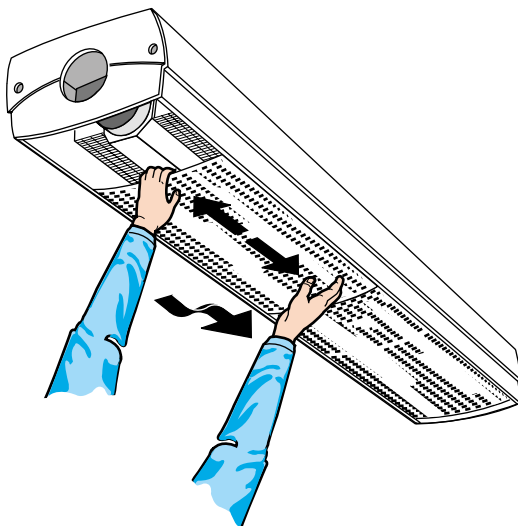


Figure 4. Access from below.

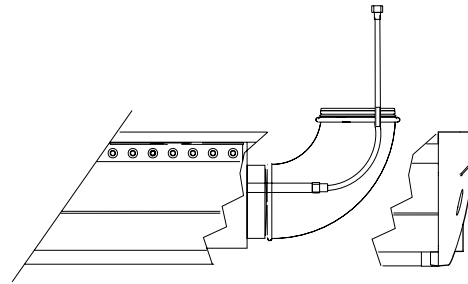
**Available to order**

Figure 5. Installed connections for vertical coupling. The duct bend and hose must be ordered separately.

## ADRIATIC VF with VariFlow

Swegon's built-in airflow distributor can be set to three different positions and makes it possible to check the airflow.

The ADRIATIC VF with VariFlow, among others, offers the following benefits:

- Shorter delivery time because the stocked products have a substantial working range
- It is simple to change the airflow if changes are made in the installation
- Asymmetrical airflow (for example 70/30 %) can be set directly on the stocked product.
- Interacts very well with our ADC air deflectors. Combined, there is enormous potential to affect air distribution patterns and air motion

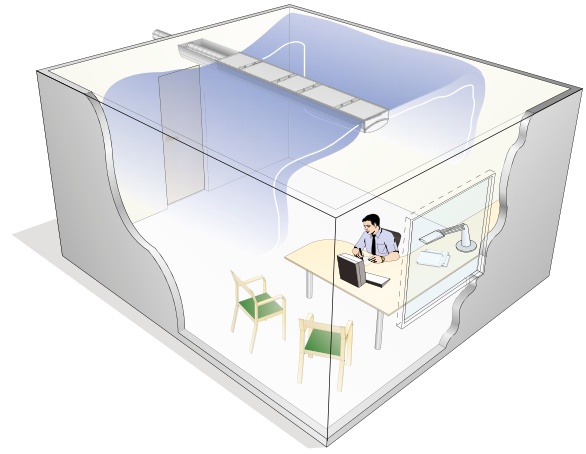


Figure 6. Example of symmetrical air distribution with VariFlow.

### Flexible nozzle configuration by means of VariFlow

Nozzle configuration, i.e. the number of nozzle openings in the air duct for discharging air to the room. For further particulars, see the relevant Technical Data Sheet. The number of nozzle configurations that are possible to set is enormous, however the basic concept is based on three different fixed nozzles:

L = Low flow for low airflows

M= Medium Flow for medium-sized airflows

H= High Flow for high airflows and combinations of these.

You can also combine the nozzle settings for the airflows if a one-way version is used (70/30%).

the most common nozzle combinations are tabulated, see Technical Data.

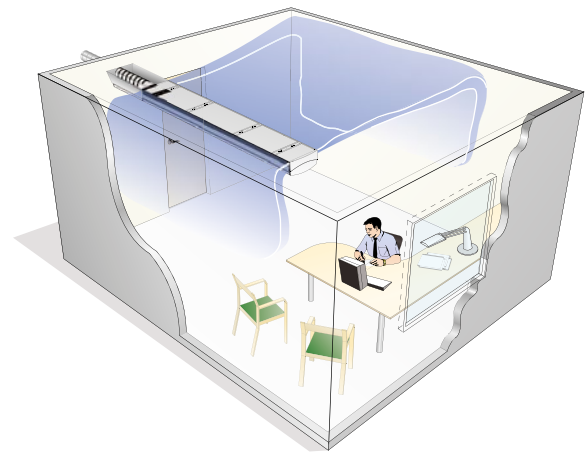


Figure 7. Example of symmetrical air distribution with VariFlow.

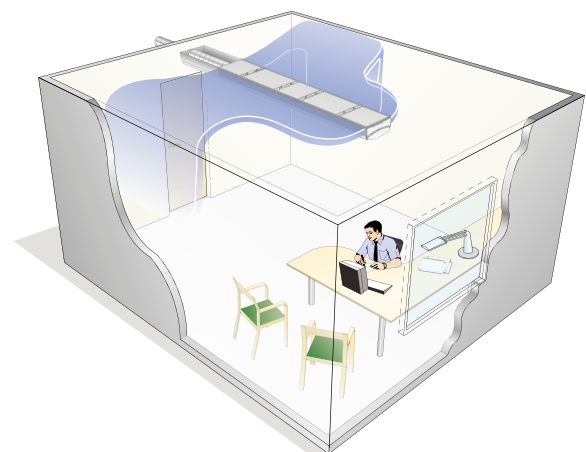


Figure 8. Example of displaced air distribution with VariFlow

## ADRIATIC VF with ADC

The Swegon ADRIATIC VF climate beam contains ADC as standard. ADC stands for Anti Draught Control, which enables you to set the diffusion pattern of the air being distributed to avoid risk of draught.

A number of ADC sections with four air deflectors per section are arranged on each side of the unit. Each section is adjustable from a straight setting to 40° air deflection to the right or left in increments of 10°. This provides enormous flexibility and can be easily adjusted without at all having to affect the system as a whole. The static pressure is not at all affected by ADC. The sound level increases slightly when the air deflectors are set for "V-shape" air discharge. For more information, see Swegon's ProSelect sizing program.

The ADRIATIC VF with ADC, among others, offers the following benefits:

- Shorter distance between contra-discharging climate beams
- Simple correction of the direction of air discharge to compensate for obstructions
- Simple to adjust at the site
- Enables the user to adjust the comfort setting in the room
- Offers great flexibility for future conversion of the rooms.

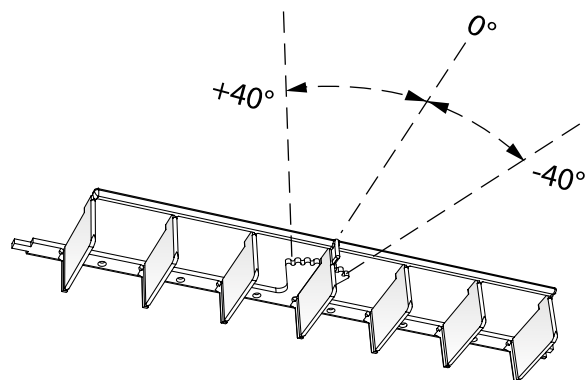


Figure 9. Swegon's ADC air deflectors

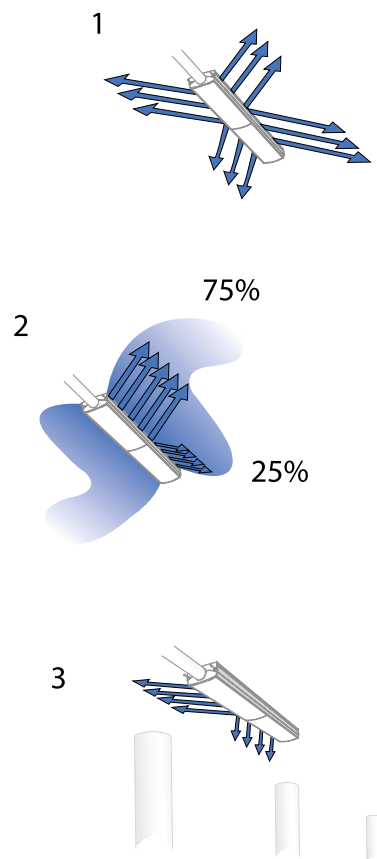


Figure 10. Flexible air discharge with ADC  
 1. Climate beam with ADC set to V-shape.  
 2. Climate beam with ADC set to L-shape.  
 3. Climate beam with ADC set for avoiding obstacles

## Accessories

### CRP Commissioning damper

Circular commissioning damper Ø125 mm with perforated damper blade designed for climate beam installations and a manual actuator with knob.

### Flexible connection hose

Flexible hose with quick-fit coupling at both ends for connection to a copper tube. Ø12 mm or quick-fit coupling in one end and G20ID threads for connection to valve in the other end. Supplied piece by piece.

### Angled duct connection part

Connection piece for vertical connection, 90°.

### Connection casing, connection against a wall

Connection casing to be mounted in the extended section of the climate beam and beyond to a wall designed for concealing pipe and duct connections.

### MD4S assembly piece

Special assembly piece for installation directly against the ceiling.

### SYST MS M8, assembly piece

Assembly piece for suspended installation containing threaded rods of various lengths (200; 500 and 1000 mm). Specify the length required as needed. The set also contains plastic caps designed for concealing the threaded rods and giving the beam a more attractive appearance. Ceiling mounting brackets, nuts and washers are included in the set.

### Recommended limit values – water

Max. recommended operating pressure:	1600 kPa
Max. recommended test pressure for testing a completed installation:	2400 kPa
Recommended min. cooling water flow:	0.03 l/s
Increase in temperature, cooling water:	2 - 5 K
Min. permissible inlet flow temperature:	Should always be sized so that the system operates without condensation
Decrease in temperature, heating water:	2 - 10 K
Max. permissible inlet flow temperature:	60°C
Recommended min. hot water flow:	0.013 l/s
The min. recommended water flow per circuit ensures evacuation of any air pockets in the circuit.	

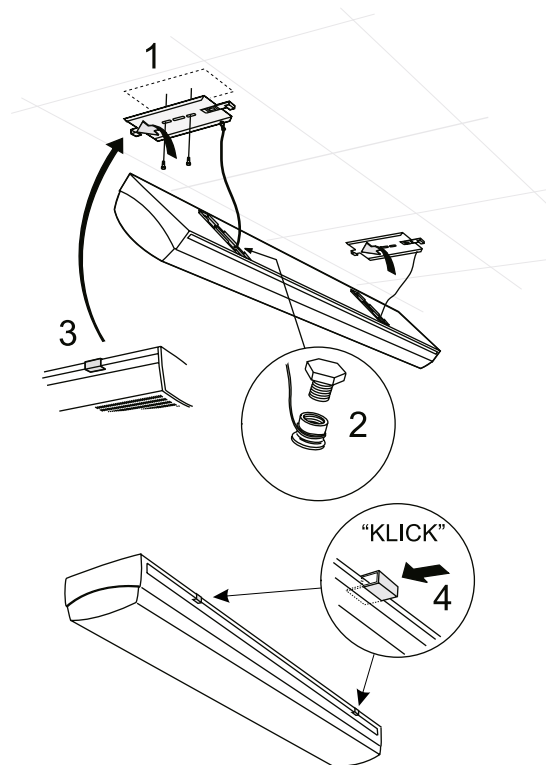


Figure 11. Installation directly against the ceiling, MD4S.

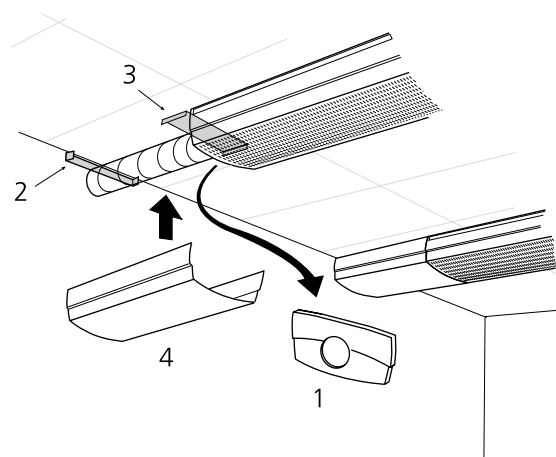


Figure 12. Casing for connection against a wall.

1. Remove the plastic end panel of the climate beam.
2. Attach the wall mounting bracket on the wall.
3. Push the mounting plate to fit over and rest on the top of the climate beam.
4. Fit the casing in the wall mounting bracket and against the beam. Lock the casing in position by pushing it up to engage in the mounting plate

# Technical Data

## Cooling

The cooling capacities have been measured in conformance with EN 15116 Standard and have been recalculated for a constant water flow according to Diagram 3.

### Sizing Guides, Tables 1 – 6.

The tables are arranged according to duct pressure and the nozzle configuration in the air duct, i.e. the number of nozzle openings in the air duct for discharging air to the room. The air volume, duct pressure and the cooling capacity can be affected by utilizing the optional nozzle configurations (Tables 1 – 6).

The following can be read in the Sizing Guide:

The length of the climate beam (m)

The primary airflow (l/s)

The noise level for an open damper, with ADC

Nozzle pressure,  $p_i$  (Pa)

Airborne cooling capacity,  $P_i$  (W)

Waterborne cooling capacity,  $P_k$  (W)

N.B.! The total cooling capacity is the sum of the airborne and waterborne cooling capacities.

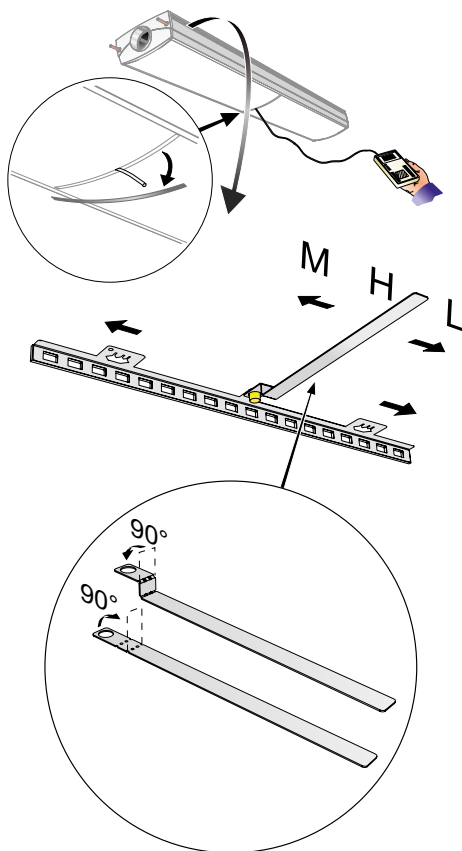


Figure 13. Change of nozzle configuration by means of an adjustment tool.

## Flexible nozzle configuration by means of VariFlow (see Figure 13)

A large number of variants can be configured by adjusting the nozzle strips. Each nozzle strip is 600 mm long and can easily be adjusted with a supplied tool to the required position. There are three different settings (different sized fixed nozzles) on each nozzle strip:

L= Low for low airflows

M= Medium for medium large airflows

H= High for high airflows

There are different numbers of nozzle strips depending on the length:

1.2 m 4 nozzle strips (2 + 2 strips)

1.8 m 6 nozzle strips (3 + 3 strips)

2.4 m 8 nozzle strips (4 + 4 strips)

3.0 m 10 nozzle strips (5 + 5 strips)

3.6 m 12 nozzle strips (6 + 6 strips)

Each side can also be freely configured for asymmetrical airflows. The number of nozzle strips for a certain length of beam is always the same.

N.B.! For specifying asymmetrical distribution, see Figure 14 which describes the mutual relation between the sides viewed from above (Top view) based on the arrangement of the water pipes.

The most common nozzle combinations are tabulated, see Tables 1 - 6.

For more detailed information, refer to the Swegon Pro-Select sizing program available at website: [www.swegon.com](http://www.swegon.com)

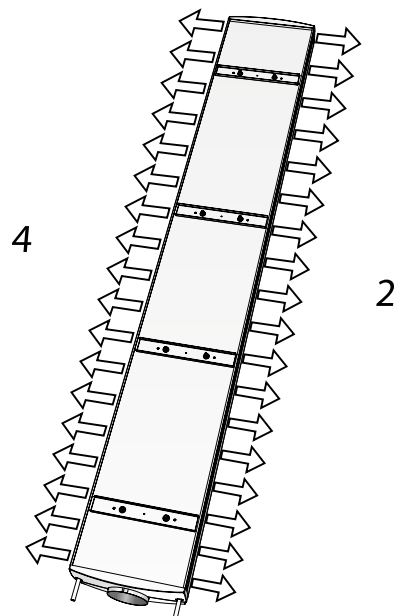


Figure 14. air flow, pages 1-4

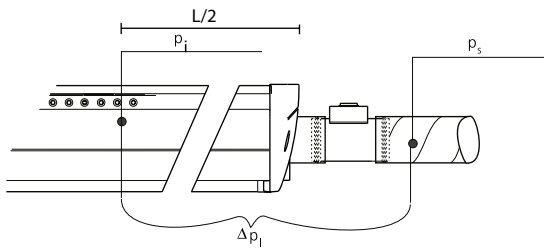


Figure 15. Pressure relationship, air.

$p_i$  = nozzle pressure (measured in the measurement hose or in the centre of the nozzle), obtained from Tables 1 - 6  
 $p_s$  = The pressure upstream of the unit and damper  
 $\Delta p_i$  = The throttling range, mounted damper (obtained from Diagram 6)

### The pressure drop on the water side

can be calculated using the formula:

$\Delta p_k = (q_k / k_{pk})^2$  [kPa] where:

$\Delta p_k$  = pressure drop in the water circuit (kPa)

$q_k$  = the water flow (l/s), read from Diagram 1

$k_{pk}$  = Pressure drop constant.

### Calculate the cooling capacity of the air

using the formula:

$P_i$  (W) =  $q_i \times 1.2 \times \Delta T_i$ , where:

$P_i$  = Cooling capacity of the air (W)

$q_i$  = Airflow (l/s)

$\Delta T_i$  = temperature difference K

## Designations

P:	Capacity W, kW
$t_r$ :	Room temperature, °C
$t_m$ :	Mean water temperature, °C
v:	Velocity, m/s
q:	Airflow, l/s
p:	Pressure, Pa, kPa
$\Delta p$ :	Pressure drop, Pa, kPa
$\Delta T_m$ :	Temperature difference [ $t_r - t_m$ ] K
$\Delta T$ :	Temperature difference, between inlet – return K

Supplementary index: v = heating, k = cooling, l = air, i = commissioning

**Table 1. Data – Cooling. Sizing guide, ADRIATIC VF -OH Symmetrical, 30 Pa nozzle pressure**

Length of the unit m	Nozzle setting, pages 2 and 4		Air-flow (l/s)	Noise level, dB (A)	p <sub>i</sub> (Pa)	Cooling capacity, primary air (W) ΔT <sub>i</sub>				Cooling capacity of water (W) for ΔT <sub>mk</sub>						Pressure drop constant, air k <sub>pl</sub>	
	≈50%	≈50%				6	8	10	12	6	7	8	9	10	11		12
1,2	2L	2L	6,8	<20	30	49	65	82	98	137	160	181	203	224	247	268	1,25
1,2	LM	LM	11	<20	30	79	106	132	158	175	204	232	261	289	317	344	2,01
1,2	LH	LH	14,1	<20	30	102	135	169	203	194	225	257	289	321	352	384	2,57
1,2	2M	2M	15,2	<20	30	109	146	182	219	194	225	257	288	320	351	382	2,77
1,2	MH	MH	18,2	<20	30	131	175	218	262	203	236	269	302	334	368	401	3,33
1,2	2H	2H	21,3	22	30	153	204	256	307	211	245	279	314	349	383	419	3,88
1,8	3L	3L	10,3	<20	30	74	99	124	148	218	254	288	323	358	393	427	1,88
1,8	2LM	2LM	14,5	<20	30	104	139	174	209	263	306	348	390	432	474	516	2,64
1,8	2LH	2LH	17,5	<20	30	126	168	210	252	287	334	381	428	474	521	568	3,19
1,8	LMH	LMH	21,6	20	30	156	207	259	311	302	352	401	450	499	548	597	3,95
1,8	L2H	L2H	24,6	23	30	177	236	295	354	316	368	419	472	524	575	627	4,50
1,8	M2H	M2H	28,8	23	30	207	276	346	415	323	377	430	484	537	589	643	5,26
2,4	4L	4L	13,7	<20	30	99	132	164	197	298	345	393	440	487	534	580	2,51
2,4	3LM	3LM	17,9	<20	30	129	172	215	258	347	403	459	513	569	624	680	3,27
2,4	2L2M	2L2M	22,1	<20	30	159	212	265	318	379	441	502	563	624	685	746	4,03
2,4	L3M	L3M	26,2	21	30	189	252	314	377	402	467	532	597	662	726	790	4,79
2,4	4M	4M	30,4	22	30	219	292	365	438	415	482	550	616	683	750	816	5,55
2,4	2M2H	2M2H	36,4	23	30	262	349	437	524	439	510	582	654	725	797	868	6,65
3,0	5L	5L	17,2	<20	30	124	165	206	248	379	439	501	560	620	680	739	3,13
3,0	4LM	4LM	21,4	<20	30	154	205	257	308	436	506	576	646	715	784	854	3,89
3,0	3L2M	3L2M	25,5	<20	30	184	245	306	367	471	547	623	699	774	850	925	4,65
3,0	2L3M	2L3M	29,7	22	30	214	285	356	428	493	574	653	733	811	891	970	5,42
3,0	L4M	L4M	33,8	23	30	243	324	406	487	516	600	682	765	849	932	1014	6,18
3,0	4MH	4MH	41	25	30	295	394	492	590	538	626	713	801	889	976	1062	7,49
3,6	6L	6L	20,6	20	30	148	198	247	297	459	533	606	679	751	824	896	3,76
3,6	5LM	5LM	24,8	20	30	179	238	298	357	517	601	684	766	850	931	1013	4,52
3,6	4L2M	4L2M	28,9	20	30	208	277	347	416	556	646	736	825	914	1003	1091	5,28
3,6	3L3M	3L3M	33,1	21	30	238	318	397	477	588	683	778	872	966	1061	1155	6,04
3,6	3LM2H	3LM2H	39,1	23	30	282	375	469	563	626	728	831	934	1035	1137	1239	7,14
3,6	2L2M2H	2L2M2H	43,3	26	30	312	416	520	624	640	745	849	953	1058	1161	1265	7,90

The grey-shaded area indicates the delivery setting for climate beams ordered from stock. For the sizing of alternative nozzle settings, use the Swegon ProSelect sizing program that is available for use at [www.swegon.com](http://www.swegon.com)

\*) = The specified sound level is applicable to air discharge with the ADC air deflectors in the V-shape setting and to 4 dB room attenuation (10 m<sup>2</sup> Sabine)

\*\*)= The cooling capacity of the water is specified for a water flow of 0.064 l/s and may vary depending on how the climate beams are installed and how the ADC air deflectors are set.

**Table 2. Data – Cooling. Sizing guide, ADRIATIC VF -OH Symmetrical, 50 Pa nozzle pressure**

Length of the unit m	Nozzle setting, pages 2 and 4		Air-flow (l/s)	Noise level, dB (A)	p <sub>i</sub> (Pa)	Cooling capacity, primary air (W) ΔT <sub>i</sub>				Cooling capacity of water (W) for ΔT <sub>mk</sub>						Pressure drop constant, air k <sub>pl</sub>	
	≈50%	≈50%				6	8	10	12	6	7	8	9	10	11		12
1,2	2L	2L	8,8	<20	50	63	84	106	127	175	205	234	264	292	321	351	1,25
1,2	LM	LM	14,2	<20	50	102	136	170	204	216	252	286	321	356	390	424	2,01
1,2	LH	LH	18,2	<20	50	131	175	218	262	234	274	313	352	391	430	470	2,57
1,2	2M	2M	19,6	24	50	141	188	235	282	236	274	312	349	387	425	461	2,77
1,2	MH	MH	23,5	24	50	169	226	282	338	245	284	325	366	405	445	485	3,33
1,2	2H	2H	27,4	28	50	197	263	329	395	251	293	335	376	419	461	503	3,88
1,8	3L	3L	13,3	21	50	96	128	160	192	281	328	374	422	468	515	561	1,88
1,8	2LM	2LM	18,7	20	50	135	180	224	269	328	382	435	488	541	594	647	2,64
1,8	2LH	2LH	22,6	21	50	163	217	271	325	353	411	470	528	587	646	705	3,19
1,8	LMH	LMH	27,9	26	50	201	268	335	402	369	429	490	550	612	672	732	3,95
1,8	L2H	L2H	31,8	29	50	229	305	382	458	379	442	505	569	631	695	759	4,50
1,8	M2H	M2H	37,2	30	50	268	357	446	536	391	456	521	584	649	714	778	5,26
2,4	4L	4L	17,7	21	50	127	170	212	255	385	449	513	577	640	704	769	2,51
2,4	3LM	3LM	23,1	22	50	166	222	277	333	438	509	580	652	723	793	865	3,27
2,4	2L2M	2L2M	28,5	22	50	205	274	342	410	471	547	624	699	775	850	926	4,03
2,4	L3M	L3M	33,9	27	50	244	325	407	488	490	571	649	727	806	883	962	4,79
2,4	4M	4M	39,2	28	50	282	376	470	564	505	586	667	748	827	908	987	5,55
2,4	2M2H	2M2H	47	29	50	338	451	564	677	527	615	701	787	874	960	1046	6,65
3,0	5L	5L	22,2	22	50	160	213	266	320	486	568	648	728	810	889	969	3,13
3,0	4LM	4LM	27,6	23	50	199	265	331	397	541	630	718	807	895	983	1071	3,89
3,0	3L2M	3L2M	33	23	50	238	317	396	475	578	673	767	861	953	1047	1139	4,65
3,0	2L3M	2L3M	38,3	29	50	276	368	460	552	608	706	804	902	999	1096	1193	5,42
3,0	L4M	L4M	43,7	29	50	315	420	524	629	625	726	826	927	1026	1125	1224	6,18
3,0	4MH	4MH	53	31	50	382	509	636	763	655	761	867	973	1078	1183	1288	7,49
3,6	6L	6L	26,6	23	50	192	255	319	383	591	689	788	886	984	1082	1179	3,76
3,6	5LM	5LM	32	24	50	230	307	384	461	647	754	860	966	1070	1176	1281	4,52
3,6	4L2M	4L2M	37,3	25	50	269	358	448	537	681	792	903	1013	1123	1234	1343	5,28
3,6	3L3M	3L3M	42,7	26	50	307	410	512	615	722	838	955	1072	1187	1303	1419	6,04
3,6	3LM2H	3LM2H	50,5	29	50	364	485	606	727	760	885	1011	1135	1262	1387	1512	7,14
3,6	2L2M2H	2L2M2H	55,9	33	50	402	537	671	805	775	902	1029	1157	1283	1411	1537	7,90

The grey-shaded area indicates the delivery setting for climate beams ordered from stock. For the sizing of alternative nozzle settings, use the Swegon ProSelect sizing program that is available for use at [www.swegon.com](http://www.swegon.com)

\*) = The specified sound level is applicable to air discharge with the ADC air deflectors in the V-shape setting and to 4 dB room attenuation (10 m<sup>2</sup> Sabine)

\*\*) = The cooling capacity of the water is specified for a water flow of 0.064 l/s and may vary depending on how the climate beams are installed and how the ADC air deflectors are set.

**Table 3. Data – cooling. Sizing guide, ADRIATIC VF -OH Symmetrical, 70 Pa nozzle pressure**

Length of the unit m	Nozzle setting, pages 2 and 4		Air-flow (l/s)	Noise level, dB (A) *	p <sub>i</sub> (Pa)	Cooling capacity primary air (W) ΔT <sub>i</sub>				Cooling capacity of water (W) for ΔT <sub>mk</sub>						Pressure drop constant, air k <sub>pl</sub>	
	≈50%	≈50%				6	8	10	12	6	7	8	9	10	11		12
1,2	2L	2L	10,5	23	70	76	101	126	151	203	237	272	306	339	375	408	1,25
1,2	LM	LM	16,8	22	70	121	161	202	242	243	283	323	362	401	440	478	2,01
1,2	LH	LH	21,5	22	70	155	206	258	310	260	303	347	390	434	478	522	2,57
1,2	2M	2M	23,2	29	70	167	223	278	334	262	303	345	387	427	470	511	2,77
1,2	MH	MH	27,9	29	70	201	268	335	402	274	319	364	409	453	498	543	3,33
1,2	2H	2H	32,5	32	70	234	312	390	468	279	327	374	421	468	515	562	3,88
1,8	3L	3L	15,7	24	70	113	151	188	226	321	376	429	484	538	592	647	1,88
1,8	2LM	2LM	22,1	24	70	159	212	265	318	371	431	491	552	612	673	732	2,64
1,8	2LH	2LH	26,7	24	70	192	256	320	384	394	461	527	593	659	726	793	3,19
1,8	LMH	LMH	33	31	70	238	317	396	475	412	478	547	615	682	750	818	3,95
1,8	L2H	L2H	37,6	34	70	271	361	451	541	421	491	562	632	703	775	845	4,50
1,8	M2H	M2H	44	34	70	317	422	528	634	434	507	579	651	723	795	867	5,26
2,4	4L	4L	21	25	70	151	202	252	302	439	514	588	663	737	812	886	2,51
2,4	3LM	3LM	27,4	25	70	197	263	329	395	493	574	655	736	817	897	979	3,27
2,4	2L2M	2L2M	33,7	26	70	243	324	404	485	528	614	698	783	869	953	1037	4,03
2,4	L3M	L3M	40,1	32	70	289	385	481	577	553	642	731	819	907	994	1083	4,79
2,4	4M	4M	46,4	33	70	334	445	557	668	568	658	749	839	929	1018	1106	5,55
2,4	2M2H	2M2H	55,6	34	70	400	534	667	801	584	680	776	872	968	1064	1159	6,65
3,0	5L	5L	26,3	26	70	189	252	316	379	559	653	747	842	935	1030	1126	3,13
3,0	4LM	4LM	32,6	26	70	235	313	391	469	614	715	816	917	1018	1119	1220	3,89
3,0	3L2M	3L2M	39	27	70	281	374	468	562	653	760	866	972	1078	1183	1288	4,65
3,0	2L3M	2L3M	45,3	33	70	326	435	544	652	682	793	903	1013	1122	1231	1339	5,42
3,0	L4M	L4M	51,7	34	70	372	496	620	744	700	813	926	1037	1148	1259	1370	6,18
3,0	4MH	4MH	62,7	36	70	451	602	752	903	731	850	968	1086	1203	1321	1437	7,49
3,6	6L	6L	31,5	27	70	227	302	378	454	676	789	904	1018	1132	1247	1362	3,76
3,6	5LM	5LM	37,8	27	70	272	363	454	544	732	854	975	1095	1217	1337	1457	4,52
3,6	4L2M	4L2M	44,2	29	70	318	424	530	636	777	903	1030	1157	1283	1408	1534	5,28
3,6	3L3M	3L3M	50,5	30	70	364	485	606	727	810	941	1072	1203	1333	1463	1591	6,04
3,6	3LM2H	3LM2H	59,7	33	70	430	573	716	860	847	987	1129	1270	1411	1551	1691	7,14
3,6	2L2M2H	2L2M2H	66,1	37	70	476	635	793	952	863	1005	1147	1289	1430	1574	1715	7,90

The grey-shaded area indicates the delivery setting for climate beams ordered from stock. For the sizing of alternative nozzle settings, use the Swegon ProSelect sizing program that is available for use at [www.swegon.com](http://www.swegon.com)

\*) = The specified sound level is applicable to air discharge with the ADC air deflectors in the V-shape setting and to 4 dB room attenuation (10 m<sup>2</sup> Sabine)

\*\*)= The cooling capacity of the water is specified for a water flow of 0.064 l/s and may vary depending on how the climate beams are installed and how the ADC air deflectors are set.

**Table 4. Data – Cooling. ADRIATIC VF -OH Asymmetrical, 30 Pa nozzle pressure**

Length of the unit m	Nozzle setting		Air-flow (l/s)	Noise level, dB (A)*	p <sub>i</sub> (Pa)	Cooling capacity, primary air (W) ΔT <sub>i</sub>				Cooling capacity of water (W) for ΔT <sub>mk</sub>						Pressure drop constant, air k <sub>pl</sub>	
	q≈30%	q≈70%				6	8	10	12	6	7	8	9	10	11		12
1,2	2L	2M	11,0	<20	30	79	106	132	158	165	192	218	244	270	297	323	2,01
1,2	LM	2H	16,1	<20	30	116	155	193	232	194	225	258	289	320	353	383	2,95
1,8	3L	L2M	14,5	<20	30	104	139	174	209	254	294	335	375	416	457	497	2,64
1,8	L2M	3H	25,3	23	30	182	243	304	364	309	360	409	460	510	561	611	4,61
2,4	4L	2L2M	17,9	<20	30	129	172	215	258	339	394	449	503	557	610	665	3,27
2,4	L3M	4H	34,3	25	30	247	329	412	494	427	498	568	638	708	777	847	6,27
3,0	5L	L4M	25,5	<20	30	184	245	306	367	448	520	592	663	735	806	877	4,66
3,0	3L2M	5H	39,3	27	30	283	377	472	566	522	609	694	779	863	949	1034	7,17
3,6	6L	4LMH	26,3	20	30	189	252	316	379	523	609	693	776	860	944	1027	4,80
3,6	6L	M5H	40,6	24	30	292	390	487	585	573	666	759	852	946	1038	1131	7,42

**Table 5. Data – Cooling. ADRIATIC VF -OH Asymmetrical, 50 Pa nozzle pressure**

Length of the unit m	Nozzle setting		Air-flow (l/s)	Noise level, dB (A)*	p <sub>i</sub> (Pa)	Cooling capacity, primary air (W) ΔT <sub>i</sub>				Cooling capacity of water (W) for ΔT <sub>mk</sub>						Pressure drop constant, air k <sub>pl</sub>	
	q≈30%	q≈70%				6	8	10	12	6	7	8	9	10	11		12
1,2	2L	2M	14,2	<20	50	102	136	170	204	206	240	273	307	340	373	407	2,01
1,2	LM	2H	20,9	28	50	150	201	251	301	234	273	312	350	388	426	465	2,95
1,8	3L	L2M	18,7	20	50	135	180	224	269	319	371	423	474	526	577	629	2,64
1,8	L2M	3H	32,6	29	50	235	313	391	469	377	439	500	562	625	685	747	4,61
2,4	4L	2L2M	23,1	22	50	166	222	277	333	429	499	570	639	709	778	848	3,27
2,4	L3M	4H	44,3	31	50	319	425	532	638	517	602	686	772	856	940	1024	6,27
3,0	5L	L4M	33,0	23	50	238	317	396	475	557	648	738	828	918	1009	1099	4,66
3,0	3L2M	5H	50,7	33	50	365	487	608	730	633	738	842	946	1050	1155	1259	7,17
3,6	6L	4LMH	33,9	24	50	244	325	407	488	656	765	872	981	1089	1197	1305	4,80
3,6	6L	M5H	52,5	30	50	378	504	630	756	709	827	945	1063	1180	1298	1416	7,42

**Table 6. Data – Cooling. ADRIATIC VF -OH Asymmetrical, 70 Pa nozzle pressure**

Length of the unit m	Nozzle setting		Air-flow (l/s)	Noise level, dB (A)*	p <sub>i</sub> (Pa)	Cooling capacity, primary air (W) ΔT <sub>i</sub>				Cooling capacity of water (W) for ΔT <sub>mk</sub>						Pressure drop constant, air k <sub>pl</sub>	
	q≈30%	q≈70%				6	8	10	12	6	7	8	9	10	11		12
1,2	2L	2M	16,8	22	70	121	161	202	242	233	272	310	348	385	424	461	2,01
1,2	LM	2H	24,7	32	70	178	237	296	356	262	305	349	392	435	478	521	2,95
1,8	3L	L2M	22,1	24	70	159	212	265	318	361	420	479	538	597	656	715	2,64
1,8	L2M	3H	38,6	34	70	278	371	463	556	420	489	558	628	696	765	834	4,61
2,4	4L	2L2M	27,4	25	70	197	263	329	395	485	565	645	725	804	883	963	3,27
2,4	L3M	4H	52,5	36	70	378	504	630	756	578	673	767	861	956	1050	1145	6,27
3,0	5L	L4M	39,0	27	70	281	374	468	562	630	733	837	940	1044	1146	1250	4,66
3,0	3L2M	5H	60,0	38	70	432	576	720	864	710	827	944	1062	1180	1296	1414	7,17
3,6	6L	4LMH	40,2	28	70	289	386	482	579	740	865	988	1112	1235	1359	1483	4,80
3,6	6L	M5H	62,1	34	70	447	596	745	894	796	929	1063	1196	1330	1464	1598	7,42

\*) = The specified sound level is applicable to air discharge with the ADC air deflectors in the V-shape setting and to 4 dB room attenuation (10 m<sup>2</sup> Sabine)

\*\*) = The cooling capacity of the water is specified for a water flow of 0.064 l/s and may vary depending on how the climate beams are installed and how the ADC air deflectors are set.

**Cooling**

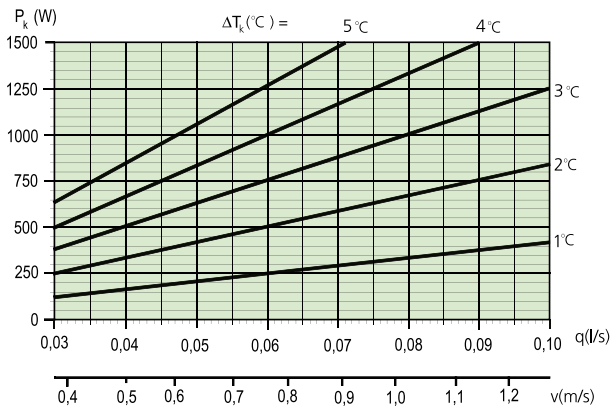
**Diagram 1.** Cooling capacity,  $P_k$  (W), as a function of the change in temperature  $\Delta T_k$  K and cooling water flow,  $q_k$  (l/s).

**Diagram 2.** Pressure drop  $\Delta p_k$  (kPa) in the cooling water circuit, as a function of the cooling water flow  $q_k$  (l/s) and the length of the unit.

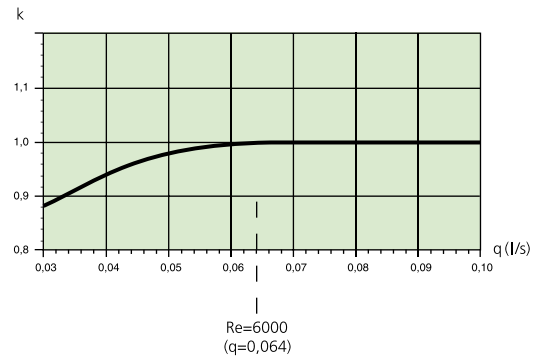
**Table 7.** Cooling capacity for natural convection (without supply air).

**Diagram 3.** The correction factor for the cooling capacity,  $P_k$  (W) as a function of cooling water flow,  $q_k$  (l/s). Different water flow rates to some extent have an effect on the capacity output. By checking calculated water flow against Diagram 3, the capacity indicated in Tables 1 – 6 may need to be slightly adjusted up or down according to the formula:  $P_{corrected} = P_{k(table 1-6)} \cdot k_{(Diagram 3)}$ .

**Diagram 1. Water flow – Cooling capacity**



**Diagram 3. Water flow – Capacity correction, cooling**



**Table 7. Capacity, natural convection, cooling (W)**

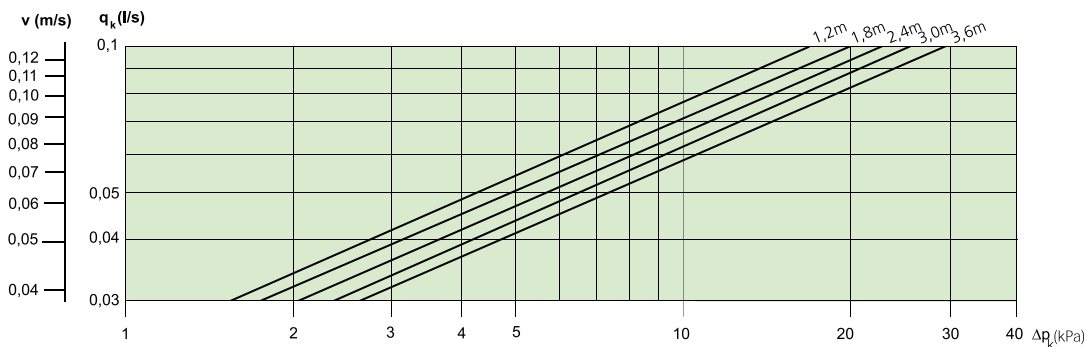
Length	Temperature, room – water, K							
	$\Delta T_{mk}$	6	7	8	9	10	11	12
1.2 m		49	60	71	84	96	110	123
1.8 m		77	94	113	132	152	173	194
2.4 m		105	129	154	180	208	236	265
3.0 m		133	163	195	229	263	299	336
3.6 m		161	198	237	277	319	363	408

For a water flow of 0.064 l/s

**Table 8. Pressure drop constant, water, cooling**

Length	$k_{pk}$
1.2 m	0,0245
1.8 m	0,0225
2.4 m	0,0210
3.0 m	0,0197
3.6 m	0,0187

**Diagram 2. Pressure Drop – Water flow, Cooling**



# Heating

## Additional heat – Heating coil

The heating function is intended for use only as a supplement if surplus heat is available, however during shorter periods a smaller amount of surplus heat will be needed, for example in the evening and at night.

The supply air fan must then be in operation in order for the additional heat to reach the room. The supply air is used for mixing the warm air with chilled air, which is why the temperature distribution in the room is completely dependent on the ratio between supply air and the capacity taken from the climate beam.

The heat is conducted along the ceiling which, in order to work properly, requires low supply flow temperature and a certain impulse. A temperature gradient of 3 K is normally obtained between floor and ceiling.

### Recommendations for excess heat operation

- Max. permissible inlet flow temperature: 60°C
- Min. permissible heating water flow: 0.013 l/s
- Nozzle pressure,  $p_i$ : >30 Pa

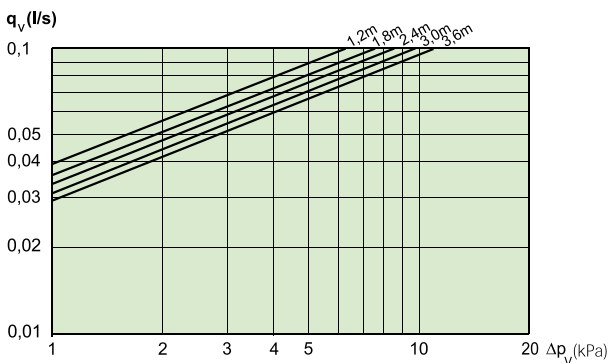
For perimeter walls with large glazed surfaces, it is recommended that radiant heating in the ceiling or radiators along the perimeter wall be used for compensating the radiant cooling energy of the glazed surfaces. For advice concerning other conditions, contact Swegon.

**Diagram 4.** Pressure drop  $\Delta p_v$  (kPa), in the hot water circuit, as a function of the hot water flow,  $q_v$  (l/s).

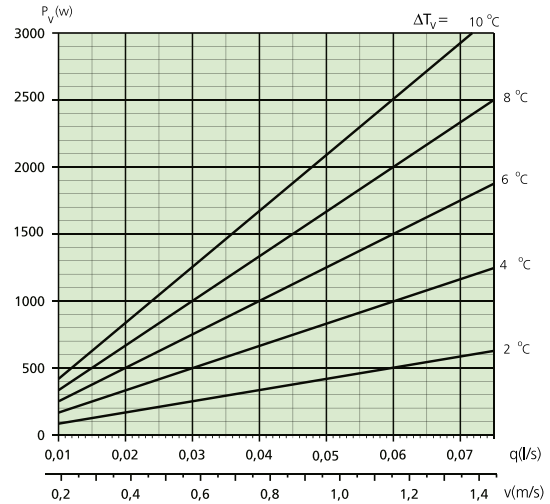
**Diagram 5.** Water flow – Heating  
The function between the hot water flow,  $q_v$  (l/s), temperature change  $\Delta T_v$  K and the heating capacity,  $P_v$  (W).

**Diagram 6.** Correction factor for the heating capacity  $P_v$  (W) as a function of the heating water flow  $q_v$  (l/s). Different water flow rates to some extent have an effect on the capacity output. By checking the calculated water flow against Diagram 6, the capacity indicated in Tables 11-16 may need to be slightly adjusted up or down according to the formula:  $P_{corrected} = P_{v(table\ 11-16)} \cdot k_{(diagram\ 6)}$

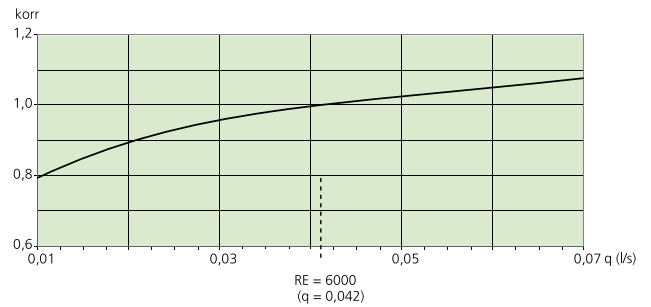
### Diagram 4. Pressure Drop – Water Flow, Heating



### Diagram 5. Water Flow – Heating Capacity



### Diagram 6. Water flow – capacity correction, heating



### Table 9. Capacity, natural convection, heating (W)

Length	Temperature differential, room – water, K							
	$\Delta T_{mv}$	5	10	15	20	25	30	35
1.2 m		14	39	71	108	149	194	243
1.8 m		23	62	112	170	235	307	383
2.4 m		31	85	153	233	322	419	524
3.0 m		40	108	194	295	408	531	664
3.6 m		48	131	235	357	494	643	805

*For a water flow of 0.042 l/s*

### Table 10. Pressure drop constant, water, heating

Length	$k_{pv}$
1,2	0,0390
1,8	0,0360
2,4	0,0336
3,0	0,0316
3,6	0,030

**Table 11. Data – Heating. Sizing guide, ADRIATIC VF -OH Symmetrical, 30 Pa nozzle pressure**

Length of the unit m	Nozzle setting, pages 2 and 4		Airflow (l/s)	Noise level, dB (A)*	p <sub>i</sub> (Pa)	Heating capacity, water (W) ** for $\Delta T_{mv}$							Pressure drop constant, air K <sub>pl</sub>
	q ≈50%	q ≈50%				5	10	15	20	25	30	35	
1,2	2L	2L	6,8	<20	30	108	211	313	413	513	612	711	1,25
1,2	LM	LM	11	<20	30	124	244	362	479	596	711	827	2,01
1,2	LH	LH	14,1	<20	30	121	244	368	492	618	744	870	2,57
1,2	2M	2M	15,2	<20	30	131	259	383	508	632	756	879	2,77
1,2	MH	MH	18,2	<20	30	127	256	384	513	643	772	901	3,33
1,2	2H	2H	21,3	22	30	125	254	385	517	651	785	920	3,88
1,8	3L	3L	10,3	<20	30	171	334	496	656	814	971	1128	1,88
1,8	2LM	2LM	14,5	<20	30	190	374	554	733	911	1088	1265	2,64
1,8	2LH	2LH	17,5	<20	30	187	375	563	753	943	1133	1324	3,19
1,8	LMH	LMH	21,6	20	30	196	392	589	784	982	1179	1375	3,95
1,8	L2H	L2H	24,6	23	30	193	391	591	792	996	1199	1404	4,50
1,8	M2H	M2H	28,8	23	30	200	402	607	812	1018	1225	1432	5,26
2,4	4L	4L	13,7	<20	30	233	456	676	895	1110	1325	1538	2,51
2,4	3LM	3LM	17,9	<20	30	255	499	741	980	1218	1455	1691	3,27
2,4	2L2M	2L2M	22,1	<20	30	267	526	781	1034	1286	1535	1785	4,03
2,4	L3M	L3M	26,2	21	30	276	544	807	1070	1330	1589	1847	4,79
2,4	4M	4M	30,4	22	30	283	556	828	1096	1363	1629	1894	5,55
2,4	2M2H	2M2H	36,4	23	30	274	550	829	1107	1385	1664	1944	6,65
3,0	5L	5L	17,2	<20	30	297	580	860	1136	1412	1684	1955	3,13
3,0	4LM	4LM	21,4	<20	30	318	625	928	1228	1526	1821	2116	3,89
3,0	3L2M	3L2M	25,5	<20	30	333	655	972	1287	1599	1911	2221	4,65
3,0	2L3M	2L3M	29,7	22	30	344	677	1006	1331	1655	1978	2299	5,42
3,0	L4M	L4M	33,8	23	30	352	693	1029	1363	1696	2026	2355	6,18
3,0	4MH	4MH	41	25	30	354	703	1050	1396	1741	2086	2430	7,49
3,6	6L	6L	20,6	20	30	359	702	1041	1375	1708	2038	2366	3,76
3,6	5LM	5LM	24,8	20	30	382	750	1112	1471	182	2182	2535	4,52
3,6	4L2M	4L2M	28,9	20	30	398	782	1161	1536	1910	2281	2650	5,28
3,6	3L3M	3L3M	33,1	21	30	411	808	1199	1588	1974	2358	2741	6,04
3,6	3LM2H	3LM2H	39,1	23	30	402	806	1211	1617	2024	2431	2838	7,14
3,6	2L2M2H	2L2M2H	43,3	26	30	412	824	1236	1648	2062	2475	2889	7,90

\*) = The specified sound level is applicable to air discharge with the ADC air deflectors in the V-shape setting and to 4 dB room attenuation (10 m<sup>2</sup> Sabine)

\*\*) = The heating capacity of the water is specified for a water flow of 0.042 l/s and may vary depending on how the climate beams are installed and how the ADC air deflectors are set.

Tabell 12. Data - Heating. Sizing guide, ADRIATIC VF -OH Symmetrical, 50 Pa nozzle pressure

Length of the unit m	Nozzle setting Pages 2 and 4		Airflow (l/s)	Noise level, dB (A)*	p <sub>i</sub> (Pa)	Heating capacity, water (W) **							Pressure drop constant, air K <sub>pl</sub>
	q ≈50%	q ≈50%				for ΔT <sub>mv</sub>							
						5	10	15	20	25	30	35	
1,2	2L	2L	8,8	<20	50	124	242	358	473	587	701	814	1,25
1,2	LM	LM	14,2	<20	50	141	278	415	550	686	821	955	2,01
1,2	LH	LH	18,2	<20	50	126	260	398	539	681	824	968	2,57
1,2	2M	2M	19,6	24	50	139	275	410	545	678	812	946	2,77
1,2	MH	MH	23,5	24	50	132	269	410	552	696	841	987	3,33
1,2	2H	2H	27,4	28	50	127	266	411	558	709	862	1016	3,88
1,8	3L	3L	13,3	21	50	196	382	567	749	930	1110	1289	1,88
1,8	2LM	2LM	18,7	20	50	208	410	609	807	1005	1200	1396	2,64
1,8	2LH	2LH	22,6	21	50	199	405	616	830	1045	1262	1480	3,19
1,8	LMH	LMH	27,9	26	50	205	419	634	852	1071	1292	1514	3,95
1,8	L2H	L2H	31,8	29	50	199	415	636	863	1092	1324	1559	4,50
1,8	M2H	M2H	37,2	30	50	204	424	648	876	1106	1339	1574	5,26
2,4	4L	4L	17,7	21	50	267	523	774	1023	1270	1515	1759	2,51
2,4	3LM	3LM	23,1	22	50	281	552	821	1087	1353	1616	1879	3,27
2,4	2L2M	2L2M	28,5	22	50	289	571	850	1128	1404	1678	1952	4,03
2,4	L3M	L3M	33,9	27	50	295	584	870	1155	1438	1721	2003	4,79
2,4	4M	4M	39,2	28	50	299	593	884	1174	1463	1751	2038	5,55
2,4	2M2H	2M2H	47	29	50	284	581	885	1191	1501	1814	2127	6,65
3,0	5L	5L	22,2	22	50	339	664	983	1300	1613	1925	2234	3,13
3,0	4LM	4LM	27,6	23	50	354	695	1033	1367	1700	2031	2360	3,89
3,0	3L2M	3L2M	33	23	50	364	717	1066	1413	1759	2103	2445	4,65
3,0	2L3M	2L3M	38,3	29	50	371	731	1089	1445	1799	2152	2504	5,42
3,0	L4M	L4M	43,7	29	50	376	743	1107	1470	1830	2191	2550	6,18
3,0	4MH	4MH	53	31	50	371	745	1122	1499	1878	2256	2636	7,49
3,6	6L	6L	26,6	23	50	411	803	1190	1573	1952	2330	2705	3,76
3,6	5LM	5LM	32,0	24	50	426	837	1243	1644	2044	2441	2837	4,52
3,6	4L2M	4L2M	37,3	25	50	436	564	1278	1693	2107	2517	2927	5,28
3,6	3L3M	3L3M	42,7	26	50	444	877	1305	1731	2155	2577	2998	6,04
3,6	3LM2H	3LM2H	50,5	29	50	425	866	1314	1767	2225	2684	3146	7,14
3,6	2L2M2H	2L2M2H	55,9	33	50	432	879	1332	1790	2250	2714	3179	7,90

\*) = The specified sound level is applicable to air discharge with the ADC air deflectors in the V-shape setting and to 4 dB room attenuation (10 m<sup>2</sup> Sabine)

\*\*)= The heating capacity of the water is specified for a water flow of 0.042 l/s and may vary depending on how the climate beams are installed and how the ADC air deflectors are set.

**Table 13. Data – Heating. Sizing guide, ADRIATIC VF -OH Symmetrical, 70 Pa nozzle pressure**

Length of the unit m	Nozzle setting pages 2 and 4		Airflow (l/s)	Noise level dB(A)*	p <sub>i</sub> (Pa)	Heating capacity, water (W) ** vid ΔT <sub>mv</sub>							Pressure drop constant air K <sub>pl</sub>
	q ≈50%	q ≈50%				5	10	15	20	25	30	35	
1,2	2L	2L	10,5	23	70	135	262	920	514	638	762	884	1,25
1,2	LM	LM	16,8	22	70	141	278	415	550	686	821	955	2,01
1,2	LH	LH	21,5	22	70	130	271	419	569	722	877	1033	2,57
1,2	2M	2M	23,2	29	70	144	289	428	568	709	849	990	2,77
1,2	MH	MH	27,9	29	70	135	279	428	579	732	888	1044	3,33
1,2	2H	2H	32,5	32	70	128	274	428	587	749	913	1081	3,88
1,8	3L	3L	15,7	24	70	211	414	613	810	1006	1200	1393	1,88
1,8	2LM	2LM	22,1	24	70	220	434	646	856	1066	1275	1482	2,64
1,8	2LH	2LH	26,7	24	70	205	435	651	880	1112	1347	1583	3,19
1,8	LMH	LMH	33,0	31	70	212	436	665	896	1130	1366	1604	3,95
1,8	L2H	L2H	37,6	34	70	203	430	666	908	1156	1407	1660	4,50
1,8	M2H	M2H	44,0	34	70	208	437	674	917	1164	1414	1666	5,26
2,4	4L	4L	21	25	70	290	566	839	1109	1376	1642	1906	2,51
2,4	3LM	3LM	27,4	25	70	299	588	875	1159	1442	1723	2004	3,27
2,4	2L2M	2L2M	33,7	26	70	304	601	896	1189	1481	1772	2062	4,03
2,4	L3M	L3M	40,1	32	70	308	610	911	1210	1509	1807	2105	4,79
2,4	4M	4M	46,4	33	70	310	616	921	1226	1529	1831	2134	5,55
2,4	2M2H	2M2H	55,6	34	70	290	602	922	1247	1578	1911	2247	6,65
3,0	5L	5L	26,3	26	70	368	720	1065	1408	1747	2084	2419	3,13
3,0	4LM	4LM	32,6	26	70	376	741	1101	1459	1814	2168	2520	3,89
3,0	3L2M	3L2M	39	27	70	382	757	1127	1494	1861	2226	2590	4,65
3,0	2L3M	2L3M	45,3	33	70	387	767	1144	1520	1893	2267	2638	5,42
3,0	L4M	L4M	51,7	34	70	390	776	1158	1539	1919	2298	2677	6,18
3,0	4MH	4MH	62,7	36	70	382	774	1169	1567	1967	2368	2771	7,49
3,6	6L	6L	31,5	27	70	445	871	1289	1704	2114	2522	2928	3,76
3,6	5LM	5LM	37,8	27	70	454	894	1327	1758	2184	2610	3034	4,52
3,6	4L2M	4L2M	44,2	29	70	461	910	1356	1797	2237	2675	3112	5,28
3,6	3L3M	3L3M	50,5	30	70	466	923	1375	1826	2275	2722	3168	6,04
3,6	3LM2H	3LM2H	59,7	33	70	439	905	1382	1867	2356	2850	3347	7,14
3,6	2L2M2H	2L2M2H	66,1	37	70	445	915	1396	1882	2374	2870	3369	7,90

\*) = The specified sound level is applicable to air discharge with the ADC air deflectors in the V-shape setting and to 4 dB room attenuation (10 m<sup>2</sup> Sabine)

\*\*) = The heating capacity of the water is specified for a water flow of 0.042 l/s and may vary depending on how the climate beams are installed and how the ADC air deflectors are set.

**Tabell 14. Data – Heating. Sizing guide, ADRIATIC VF -OH Asymmetrical, 30 Pa nozzle pressure**

Length of the unit m	Nozzle setting pages 2 and 4		Airflow (l/s)	Noise level dB(A)*	p <sub>i</sub> (Pa)	Heating capacity, water (W) ** vid ΔT <sub>mv</sub>							Pressure drop constant air K <sub>pl</sub>
	q ≈30%	q ≈70%				5	10	15	20	25	30	35	
1,2	2L	2M	11	<20	30	124	244	362	479	596	711	827	2,01
1,2	LM	2H	16,2	<20	30	125	251	377	504	632	761	889	2,95
1,8	3L	L2M	14,5	<20	30	190	374	554	733	912	1088	1265	2,64
1,8	L2M	3H	25,3	23	30	198	398	600	801	1004	1207	1411	4,61
2,4	4L	2L2M	17,9	<20	30	250	499	741	980	1218	1455	1691	3,27
2,4	L3M	4H	34,3	25	30	271	546	821	1097	1374	1651	1930	6,27
3,0	5L	L4M	25,5	<20	30	333	655	883	1287	1599	1911	2221	4,66
3,0	3L2M	5H	39,3	27	30	338	681	1026	1372	1720	2068	2418	7,17
3,6	6L	4LMH	26,3	20	30	380	753	1122	1488	1854	2220	2583	4,80
3,6	6L	M5H	40,6	24	30	401	806	1214	1624	2034	2446	2859	7,42

**Tabell 15. Data – Heating. Sizing guide, ADRIATIC VF -OH Asymmetrical, 50 Pa nozzle pressure**

Length of the unit m	Nozzle setting pages 2 and 4		Airflow (l/s)	Noise level dB(A)*	p <sub>i</sub> (Pa)	Heating capacity, water (W) ** vid ΔT <sub>mv</sub>							Pressure drop constant air K <sub>pl</sub>
	q ≈30%	q ≈70%				5	10	15	20	25	30	35	
1,2	2L	2M	14,2	<20	50	134	264	394	522	650	778	904	2,01
1,2	LM	2H	20,9	28	50	129	265	405	547	690	835	960	2,95
1,8	3L	L2M	18,7	20	50	208	410	609	807	1005	1200	1396	2,64
1,8	L2M	3H	32,6	29	50	205	422	642	866	1092	1319	1549	4,61
2,4	4L	2L2M	23,1	22	50	281	552	821	1087	1353	1616	1879	3,27
2,4	L3M	4H	44,3	31	50	281	577	879	1185	1494	1805	2118	6,27
3,0	5L	L4M	33	23	50	364	717	1066	1413	1759	2103	2445	4,66
3,0	3L2M	5H	50,7	33	50	351	723	1104	1489	1879	2273	2669	7,17
3,6	6L	4LMH	33,9	24	50	420	835	1248	1661	2074	2487	2899	4,80
3,6	6L	M5H	52,5	30	50	421	864	1317	1776	2239	2707	3177	7,42

**Tabell 16. Data – Heating. Sizing guide, ADRIATIC VF -OH Asymmetrical, 70 Pa nozzle pressure**

Length of the unit m	Nozzle setting pages 2 and 4		Airflow (l/s)	Noise level dB(A)*	p <sub>i</sub> (Pa)	Heating capacity, water (W) ** vid ΔT <sub>mv</sub>							Pressure drop constant air K <sub>pl</sub>
	q ≈30%	q ≈70%				5	10	15	20	25	30	35	
1,2	2L	2M	16,8	22	70	141	278	415	550	686	821	955	2,01
1,2	LM	2H	24,7	32	70	133	276	424	575	727	883	1039	2,95
1,8	3L	L2M	22,1	24	70	220	434	646	856	1066	1275	1482	2,64
1,8	L2M	3H	38,6	34	70	210	437	670	909	1151	1395	1642	4,61
2,4	4L	2L2M	27,4	25	70	299	588	875	1159	1442	1723	2004	3,27
2,4	L3M	4H	52,5	36	70	288	599	918	1243	1574	1907	2245	6,27
3,0	5L	L4M	39	27	70	382	757	1127	1494	1861	2226	2590	4,66
3,0	3L2M	5H	60	38	70	360	752	1155	1567	1986	2408	2835	7,17
3,6	6L	4LMH	40,2	28	70	445	890	1334	1778	2223	2667	3111	4,80
3,6	6L	M5H	62,1	34	70	434	902	1384	1876	2374	2877	3385	7,42

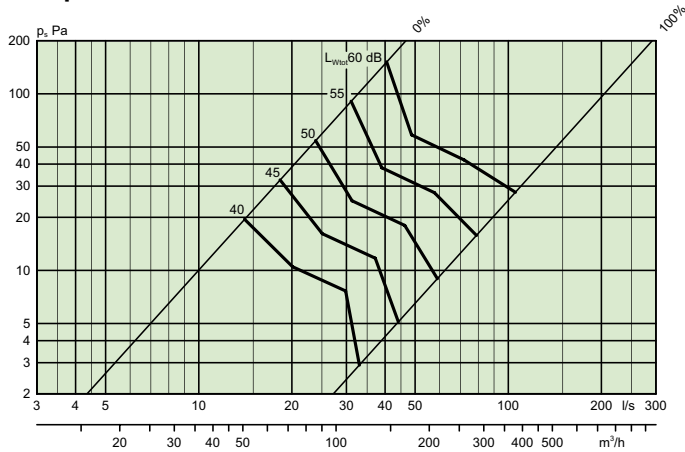
\*) = The specified sound level is applicable to air discharge with the ADC air deflectors in the V-shape setting and to 4 dB room attenuation (10 m<sup>2</sup> Sabine)

\*\*) = The heating capacity of the water is specified for a water flow of 0.042 l/s and may vary depending on how the climate beams are installed and how the ADC air deflectors are set.

## Acoustics

**Diagram 7.** The diagrams show the total generated sound power ( $L_{Wtot}$  dB), as a function of the airflow and pressure drop across the damper. By correcting  $L_{Wtot}$  with the correction factors from Table 17, the sound power levels for the corresponding octave bands can be obtained ( $L_W = L_{Wtot} + K_{ok}$ ).

**Diagram 7. Throttling range of SYST CRPc 9-125 damper**



**Table 17. Sound power level for CRPc 9-125 damper, Correction factor,  $K_{ok}$**

Size	Mid-frequency (Octave band) Hz							
	63	125	250	500	1000	2000	4000	8000
CRPc	63	125	250	500	1000	2000	4000	8000
125	0	-2	-9	-15	-20	-25	-29	-35
Tol. +	2	2	2	2	2	2	2	2

### Cooling example

An office with dimensions  $w \times d \times h = 3.6 \times 4.0 \times 2.7$  m requires a cooling capacity of  $55 \text{ W/m}^2 = 792 \text{ W}$ . The airflow must be  $2 \text{ l/s m}^2$ . This produces  $29 \text{ l/s}$  in the room. The noise level must not exceed  $30 \text{ dB(A)}$ . Design room temperature, summer:  $24^\circ\text{C}$   
 A heating water temperature of  $14/18$  produces:  
 $\Delta T_k = 4 \text{ K}$ ;  $\Delta T_{mk} = 8 \text{ K}$   
 A supply air temperature of  $18^\circ\text{C}$  produces:  $\Delta T_l = 6 \text{ K}$ .

### SOLUTION

#### Cooling

The supply air that maintains  $18^\circ\text{C}$  temperature produces  $P_l = 1.2 \cdot 6 \cdot 29 = 209 \text{ W}$  cooling capacity. The ADRIATIC VF must therefore achieve  $792 - 209 = 583 \text{ W}$ .

Table 2 provides for a length of  $2.4 \text{ m}$  climate beam and an airflow of  $29 \text{ l/s}$  more than  $583 \text{ W}$  in cooling capacity ( $50 \text{ Pa}$  with  $2\text{L}2\text{M}/2\text{L}2\text{M}$  nozzles produce  $624 \text{ W}$ ), which is sufficient for meeting requirements.

#### Cooling water

If  $624 \text{ W}$  cooling capacity is required, the necessary cooling water flow can be obtained in Diagram 1. A temperature increase of  $\Delta T_k = 4 \text{ K}$  produces a water flow of  $0.037 \text{ l/s}$ .

In Diagram 3, we can read that a water flow of  $0.037 \text{ l/s}$  needs to be compensated if the water flow is not completely turbulent. This means that we cannot make use of full capacity from the climate beam. The reduction in this case will be approx.  $7 \%$ .  $624 \text{ W}$  is therefore reduced to  $580 \text{ W}$ , which still meets the requirement.

The pressure drop is calculated on the basis of a water flow of  $0.037 \text{ l/s}$  and the pressure drop constant  $k_{pk} = 0.0210$ , obtained from Table 8.

The pressure drop will then be:  $\Delta p_k = (q_k / k_{pk})^2 = (0.037 / 0.0210)^2 = 3.1 \text{ kPa}$ .

The pressure drop can also be obtained from Diagram 2.

#### Noise level

In Table 2 we see that the sound pressure level without a damper (or with a completely open damper) is  $22 \text{ dB(A)}$ . Diagram 6 shows a SYST CRPc 9-125 damper throttling range.

### Heating example

An office with dimensions  $w \times d \times h = 3.6 \times 4.0 \times 2.7$  m requires a heating capacity of  $400 \text{ W}$ . The air flow should be  $29 \text{ l/s}$ . Design room temperature, winter:  $22^\circ\text{C}$   
 A heating water temperature of  $39/35$  produces:  $\Delta T_v = 4 \text{ K}$ ;  $\Delta T_{mv} = 15 \text{ K}$ .  
 A supply air temperature of  $18^\circ\text{C}$  provides:  $\Delta T_l = 4 \text{ K}$ .

### SOLUTION

The supply air that maintains  $18^\circ\text{C}$  temperature produces  $P_l = 1.2 \cdot 4 \cdot 29 = 139 \text{ W}$  cooling capacity. The ADRIATIC VF must therefore achieve  $400 + 139 = 539 \text{ W}$ .

Table 12 provides for a length of  $2.4 \text{ m}$  climate beam and an airflow of  $29 \text{ l/s}$  more than  $539 \text{ W}$  in cooling capacity ( $50 \text{ Pa}$  with  $2\text{L}2\text{M}/2\text{L}2\text{M}$  nozzles produce  $850 \text{ W}$ ), which is sufficient for meeting the requirement.

#### Heating water

If  $539 \text{ W}$  heating capacity is required, the necessary water flow can be obtained in Diagram 5. With a decrease in temperature of  $\Delta T_v = 4 \text{ K}$  produces a water flow of  $0.032 \text{ l/s}$ .

The pressure drop is calculated on the basis of a water flow of  $0.032 \text{ l/s}$  and the pressure drop constant  $k_{pv} = 0.0336$ , which is obtained from Table 10. The pressure drop will then be:  $\Delta p_v = (q_v / k_{pv})^2 = (0.032 / 0.0336)^2 = 0.9 \text{ kPa}$ . The pressure drop can also be obtained from Diagram 4.

# Dimensions

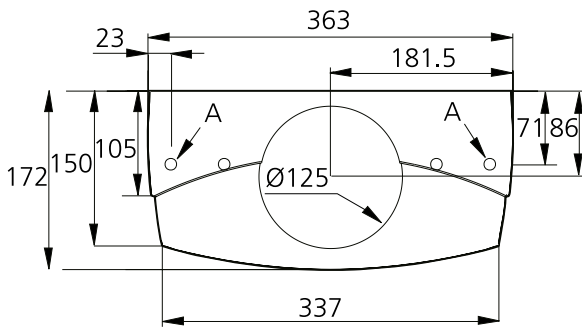


Figure 16. 125 mm duct connection, end view.

A = Cooling, Cu 12 x 1.0 mm pipes

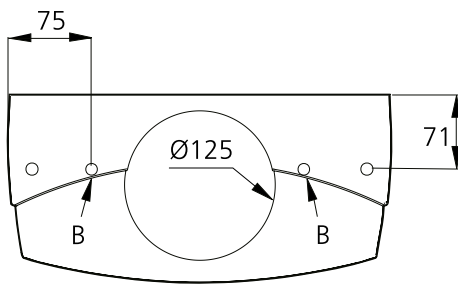


Figure 17. 125 mm duct connection, end view.

B = Heating, Cu 12 x 1.0 mm pipes

## Length, ADRIATIC VF

Nominal dimensions: 1.2; 1.8; 2.4; 3.0 and 3.6 m  
 Length: Nominal – 15 mm (+4/-2) mm.  
 Length to the division of the face plate,  $L_u = L / 2$

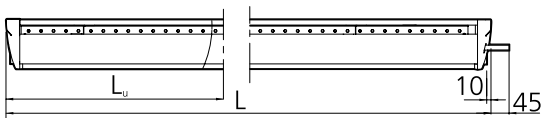


Figure 18. Horizontal connections in end panel, long side view.

L = Length, ADRIATIC VF

$L_u$  = length to the division of the face plate

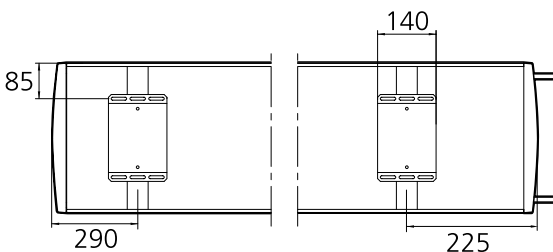


Figure 19. Horizontal connections in end panel (-OH), top view.

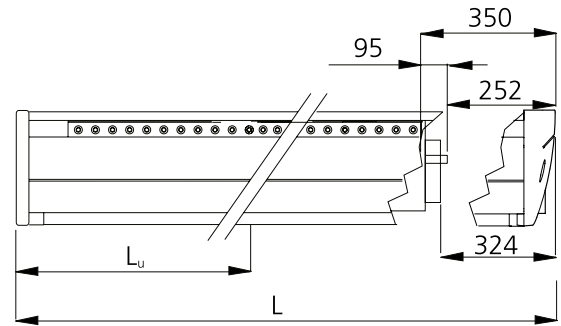


Figure 20. Internal connections (-I), long side view.

L = Length, ADRIATIC VF

$L_u$  = length to the division of the face plate

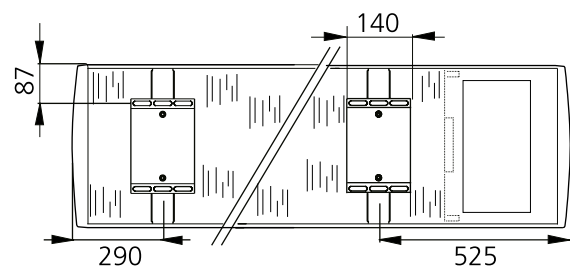


Figure 21. Internal connections (-I), top view.

## Installation space

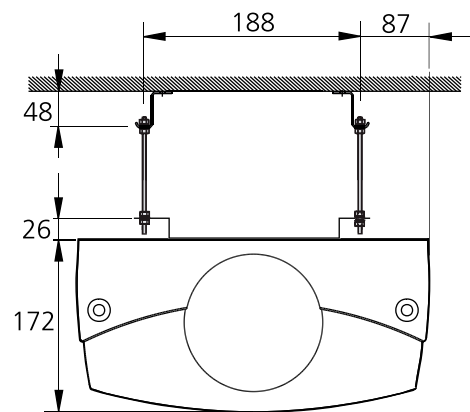


Figure 22. SYST MS M8 assembly piece.

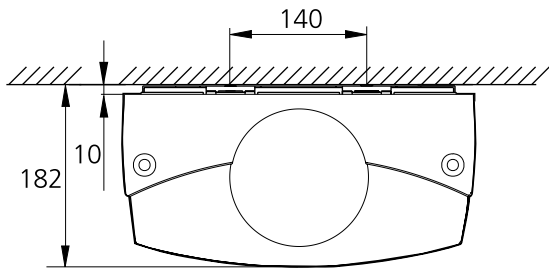


Figure 23. MD4S assembly piece.

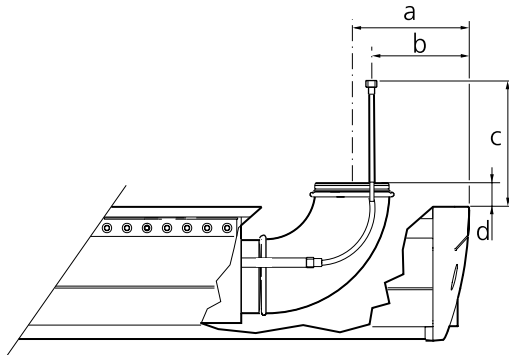


Figure 24. Internal connections (-I), vertical connections.

Dimensions, vertical connection to the climate beam.

a	b	c	d
172 mm	120 mm	Length of hose, -180 mm	70 mm

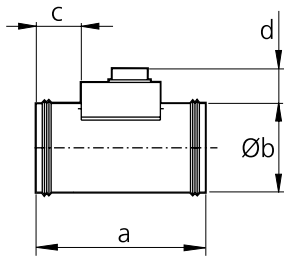


Figure 25. CRPc 9-125 Commissioning damper

Dimensions, SYST CRPc 9-125

a	b	c	d
184 mm	124 mm	40 mm	42 mm

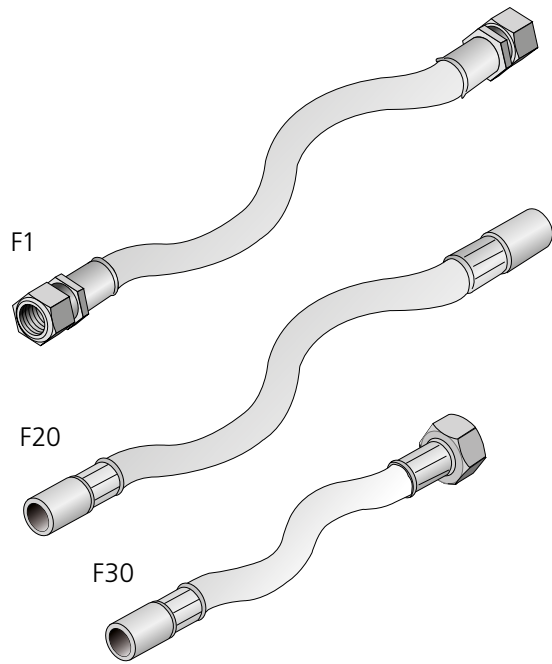


Figure 26. Flexible connection hose. SYST FH

F1 = Ø12, Length 300; 500 or 700 mm.  
 F20 = Ø12, Length 275; 475 or 675 mm.  
 F30 = Ø12, Length 200; 400 or 600 mm.

## Ordering Key

Type ADRIATIC VF active climate beam including ADC air deflectors for cooling and ventilation or cooling, heating and ventilation.

The units are supplied painted in Swegon's standard shade of white, RAL 9003, gloss ratio  $30 \pm 6\%$ .

## Contractor demarcation

Swegon's limits of supply are at the points of connection for water and air respectively. At these connection points, the pipework contractor connects to plain pipe ends, fills the system, bleeds it and tests the pressure in the circuits. The ventilation contractor connects to the duct connections with dimensions as specified on the basic size drawing under "Dimensions – Contractor Demarcation/ Points of connection". If valves and actuators are installed in the connection section, this must take place before the damper and ventilation duct is connected. When mounting a casing, the end panel must be removed before the unit can be mounted in the ceiling! The units are delivered without mounting parts for suspended installation.

## Contractor demarcation/ Point of connection

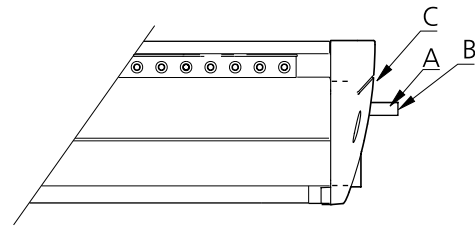


Figure 27. Points of connection.

*A = Cooling: The pipework contractor connects the beam to Cu 12 x 1.0 mm pipes*

*B = Heating: The pipework contractor connects the beam to Cu 12 x 1.0 mm pipes*

*C = Ventilation: The ventilation contractor connects ducting to the connection piece (sleeve). Ø125 mm*

## Weight

Weight per metre, ADRIATIC VF	length $\leq 2.4$	length $\geq 2,4$
Dry weight	11.0 kg/m	11.5kg/m
Weight, filled with water	12.0 kg/m	12.5kg/m

## Specification

### Product

ADRIATIC VF c	aa-	b-	c-	dddd/ddd
Climate beams				
Incl. ADC air deflesters				
Length:				
-OH: 1.2; 1.8; 2.4; 3.0; 3.6 m				
-I: 1.5; 2.1; 2.7; 3.3; 3.9 m				
Operation:				
A = Cooling and supply air				
B = Cooling, heating and supply air				
Connection:				
-OH = Horizontal connection				
-I = Internal connection				
Nozzle configuration:				
see Table 1 or ProSelect for selection				

### Ordering examples

Active climate beam for suspended installation with cooling, ventilation and length 2.4 m:

ADRIATIC VF c 2.4-A-OH (2L2M/2L2M).

Active climate beam for suspended installation with cooling and ventilation. 70% of the air volume should be conveyed from the right-hand side of the climate beam viewed from the coil connections. The length is 2.4 m:

ADRIATIC VF c 2.4-A-OH (4L/4H).

### Range of products held in stock:

ADRIATIC VF 1,8-A-OH-ADC-STOCK, (2LH/2LH)

ADRIATIC VF 2,4-A-OH-ADC-STOCK, (2L2M/2L2M)

ADRIATIC VF 3,0-A-OH-ADC-STOCK, (3L2M/3L2M)

### Accessories

Connection casing	ADRIATIC VF c T-KA	aaa	
Length: 120, 300; 500; 700			
Loose end panel	ADRIATIC VF c T-GL	aa	
UH = Without openings MH = With openings			
Assembly piece	SYST MD 4S		
(For installation directly against the ceiling)			
Assembly piece	SYST MS M8	aaaa-	b-
(For suspended installation)			
Length of threaded rod: 200, 500, 1000 mm			
1 = Threaded rod only 2 = Double threaded rods with thread locking device.			
Flexible connection hose (1)	SYST FH F1	aaa	12
Clamping ring coupling against pipe on both ends			
Length: 300, 500 or 700 mm			
Dimension (Ø) mm: 12			
Flexible connection hose (1)	SYST FH F20	aaa	12
Quick-fit coupling (push-on) against pipe on both ends			
Length: 275; 475 or 675 mm			
Dimension (Ø) mm: 12			
Flexible connection hose (1)	SYST FH F30	aaa	12
Quick-fit coupling (push-on) against pipe on one end, G20ID sleeve nut on the other end			
Length: 200; 400 or 600 mm			
Dimension (Ø) mm: 12			
Connection piece	SYST CA-125-90		
(90° duct bend)			
Commissioning damper	SYST CRPc 9-125		

# Specification Text

Example of a specification text conforming to VVS AMA Standard.

KB XX

Swegon's ADRIATIC VF climate beam that conveys the air along the ceiling and has an integrated circulation air opening in the face plate. For suspended installation from the ceiling, with the following functions:

- Cooling
- Heating (optional)
- Ventilation
- VariFlow for simple adjustment of the airflows
- ADC air deflectors
- Ø125 mm duct connection
- Integrated circulating air opening in face plate
- Sliding face plate
- Cleanable
- Fixed measurement tapping with hose
- Painted in standard shade of white (RAL 9003)
- Contractor demarcation at point of connection for water and air as in outline drawing.
- At the points of connection the pipe contractor connects to 12 mm plain pipe end after which the ventilation contractor connects the Ø125 mm insertion piece (sleeve).
- The pipe contractor fills, bleeds, tests the pressure and assumes responsibility for the design water flows reaching each branch of the system and the unit.
- Ventilation contractor conducts initial commissioning of the airflows.

## Accessories:

- Connection casing, ADRIATIC VF c-T-KA-aaa xx items
- Commissioning damper, SYST CRPc 9-125, xx items.
- Assembly piece, against ceiling, SYST MD 4S xx items
- Assembly piece for suspended installation SYST MS M8 aaaa-b-RAL9003
- Flexible connection hose, SYST FH aaa bbb – 12 xx items
- 90°duct bend, SYST CA 125-90 xx items  
etc.

Specify the quantity separately or with reference to the drawing.

Size: KB XX-1 ADRIATIC VF c aa - b - cc (ddd/ddd) xx items  
KB XX-2 ADRIATIC VF c aa - b - cc (ddd/ddd) xx items  
etc.

Control equipment, see separate section in catalogue on waterborne indoor climate systems