Commissioning Guide

Version 2010:07

Air diffusers
Flow control
Climate systems

Swegon

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This commissioning guide shows the measurement instructions for measurable ventilation products made by Swegon AB.

The products are equipped with adjustable dampers and measuring units, which are designed to measure a reference pressure.

Measurement instructions:

There are several different ways to measure a product. It depends on the product and the design of the measuring function:

- Ductwork with fixed measuring unit.
- Exhaust air terminals with fixed measuring units.
- Supply air terminals with fixed measuring units.

In this commissioning guide you will find these three categories.

Most of the products have measuring tubes connected to the measuring units. The tubes can easily be reached through the front of the terminal device. Some products have one tube and some have two tubes.

A few products have what we call a "nipple well" with a cover. The cover should be shut when balancing has been done.

Some of the flow control products do not have any measuring tubes. Instead you reach the measuring unit easily.

All the products documented together with commissioning boxes ALS, ALV and TRG must be measured together with the commissioning boxes as the measuring units are placed within those.

Procedure:

1. Define the k-factor for the specific terminal by using the tables in this commissioning guide.
2. Connect the manometer to the measuring tube(s), (measuring units, nipple well).
3. The manometer gives you a measurement pressure, pi (balancing pressure).
4. The airflow can now be calculated according to the equation on next page.
5. Adjust the damper to change the airflow. A few of the products do not have ordinary dampers. Instead you use adjustable slot openings or plastic plugs.
6. Lock the damper regulator.

When the correct flow/pressure has been achieved the damper regulator should be locked in one of the following ways:

Supply air diffusers:

1. In air terminals in which the damper position adjustment control consists of one white and one black nylon cord, the outstretched cords should be tied together to form a so-called commissioning knot. Doing so ensures that the preset damper position is always indicated

2. Wind the cords one turn around the locking screw provided in the product. Lock the damper position by tightening the screw.

Extract air diffusers:

Takes place analogous to the supply airflow. If the air device is an air extract air register, the position of the cone can be locked in position by tightening a wing nut on the rear side of the air register.

Kanalprodukter:

On the duct products in which measurement/commissioning takes place according to Method A2, the damper knob is equipped with a locking device.

Calculation of airflow – k-factor equations:

There is a specific balancing factor, k-factor, for each measurable Swegon product.

The products are normally marked with a k-factor.

The following equations are used to obtain the actual airflow or the balancing pressure that is valid for the designed airflow.

$$q = k \cdot \sqrt{p_i} \qquad (l/s)$$

q = measured airflow (l/s)
p_i = actual balancing pressure (Pa)
k = k-factor

$$p_i = \left(\frac{q}{k} \right)^2 \qquad (Pa)$$

p_i = balancing pressure at designed airflow (Pa)
q = designed airflow (l/s)
k = k-factor

If temperature and atmospheric pressure differ from standard settings (20 °C and 1013 mbar) at the time of commissioning, the balancing pressure is recalculated according to the following equation:

$$p_i = p_{i,\,measured} \cdot \frac{1{,}2}{\rho_{time\ of\ measurement}} \qquad (Pa)$$

Or the airflow can be recalculated to the standard settings according to:

$$q = q_{measured} \cdot \sqrt{\frac{1{,}2}{\rho_{time\ of\ measurement}}} \qquad (Pa)$$

Air diffusers

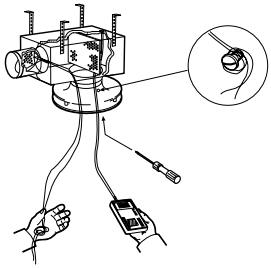


Figure 1. Measurement with one tube.

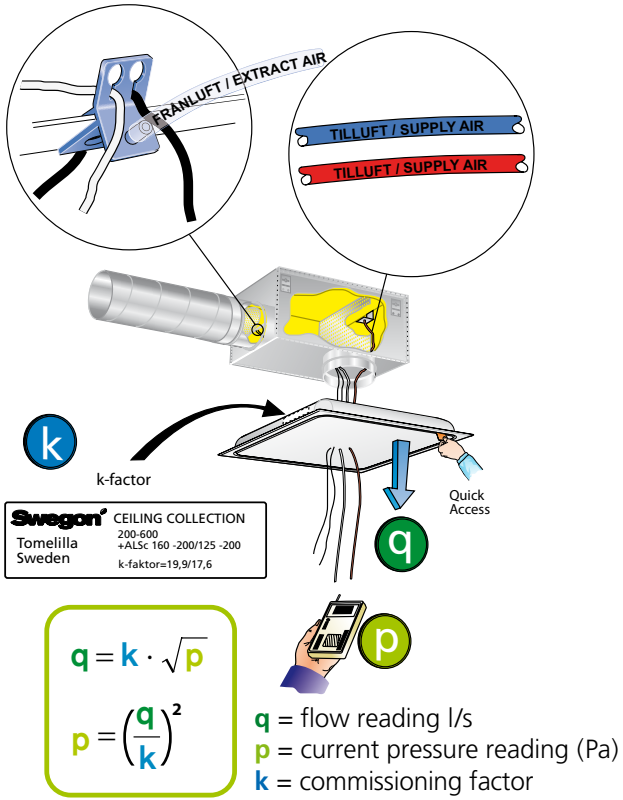


Figure 2. Measurement with two tubes, Ceiling Collection.

ALCa

ALSc	ALBATROSS ALCa		
Size	Size	Supply air	Tube colour
200-250	250	30,1	Red
250-315	315	42,6	Red
315-400	400	59,4	Red
400-500	500	78,2	Red
500-630	630	153,0	Red
	1 measuring tube		

CBEa

ALSc	CBEa		
Size	Size	Supply air	Tube colour
80-100	100	4,6	Red
100-125	125	7,3	Red
125-160	160	11,9	Red
	1 measuring tube		

CDDb

ALSc	CDDb supply air 360°				
Size	Size	Slot 20 mm	Slot 30 mm	Slot 40 mm	Tube colour
80-100	100	5,8	6,1	–	Red
100-125	125	8,2	8,9	–	Red
125-160	160	–	14,4	15,0	Red
160-200	200	–	21,3	23,4	Red
200-250	250	–	24,4	31,1	Red
250-315	315	–	34,6	43,3	Red
	1 measuring tube				

CDKa

ALSc	CDKa supply air 360°				
Size	Size	Slot 20 mm	Slot 30 mm	Slot 40 mm	Tube colour
80-100	100	6,8	6,9	–	Red
100-125	125	9,8	10,1	–	Red
125-160	160		16,3		Red
160-200	200	–	26,9	27,6	Red
200-250	250	–	38,5	42,1	Red
250-315	315	–	57,6	69,9	Red
	1 measuring tube				

CDRb

ALSc	CDRb supply air 360°				
Size	Size	Slot 20 mm	Slot 30 mm	Slot 40 mm	Tube colour
80-100	100	5,0	5,6	–	Red
100-125	125	7,1	8,1	–	Red
125-160	160	–	13,1	13,9	Red
160-200	200	–	18,4	20,3	Red
200-250	250	–	24,3	28,5	Red
250-315	315	–	36,1	42,6	Red
	1 measuring tube				

CKDa

ALSc	CKDa supply air			
Size	Size	Diffused	Concentrated	Tube colour
160-200	200	13,9	12,6	Red
200-250	250	22,8	21,1	Red
250-315	315	34,7	32,3	Red
315-400	400	55,8	52,9	Red
	1 measuring tube			

CKPa

ALSc	CKPa supply air 360°				
Size	Size	Slot 20 mm	Slot 30 mm	Slot 40 mm	Tube colour
80-100	100	3,8	6,8	–	Red
100-125	125	9,9	10,1	–	Red
125-160	160	–	16,2	16,5	Red
160-200	200	–	27,3	27,9	Red
200-250	250	–	39,8	42,2	Red
250-315	315	–	60,6	68,7	Red
	1 measuring tube				

CVHb

ALSc	CVHb supply air 360°			
Size	Size	Horizontal	Vertical	Tube colour
100-125	125	8,9	8,3	Red
125-160	160	13,5	11,8	Red
160-200	200	22,3	16,8	Red
200-250	250	33,9	24,3	Red
250-315	315	52,4	37,7	Red
315-400	400	79,8	58,7	Red
	1 measuring tube			

DPGa

ALSc	DPGa		
Size	Size	Supply air	Tube colour
100-125	125-0	3,8	Red
	1 measuring tube		

EAGLE S/D a

ALSc	EAGLE S/D supply air		
Size	EAGLE S	EAGLE D	Tube colour
100-125	7,5	8,1	Red
125-160	12,1	13,5	Red
160-200	20,1	22,2	Red
200-250	29,8	33,5	Red
250-315	42,3	50,4	Red
315-400	67,8	79,6	Red
	1 measuring tube		

EIVa

ALSc	EIVa		
Size	Size	Supply air	Tube colour
80-80	80	4,6	Red
80-100	100	5,9	Red
100-125	125	8,2	Red
125-160	160	10,3	Red
	1 measuring tube		

LOCKZONE Ba

ALSc	LOCKZONE Ba		
Size	Size	Supply air	Tube colour
80-100	100	2,7	Red
100-125	125	3,7	Red
125-160	160	5,6	Red
	1 measuring tube		

LPAa

ALSc	LPAa	Supply air		Extract air	
Size	Size	Supply air	Tube colour	Extract air	Tube colour
125-160	160	11,0	Röd	7,0	Transparent
160-200	200	18,1	Röd	11,5	Transparent
200-250	250	27,5	Röd	17,7	Transparent
250-315	315	38,0	Röd	28,5	Transparent
315-400	400	58,7	Röd	41,6	Transparent
		1 measuring tube		1 measuring tube	

ROCa

ALSc	ROCa	Supply air		Extract air	
Size	Size	Supply air	Tube colour	Extract air	Tube colour
100-125	125	7,1	Red	4,6	Transparent
125-160	160	11,2	Red	7,0	Transparent
		1 measuring tube		1 measuring tube	

COLIBRI CCa

ALSc	COLIBRI CCa supply air			
Size	Size	Standard	Low version	Tube colour
100-125	125-400	7,3	7,0	Red
100-125	125-600	7,3	7,0	Red
100-160	160-400	9,3	8,9	Blue
100-160	160-600	9,3	8,9	Blue
125-160	160-400	9,8	9,3	Red
125-160	160-600	9,8	9,3	Red
125-200	200-500	15,6	14,5	Blue
125-200	200-600	15,6	14,5	Blue
160-200	200-500	16,8	15,2	Red
160-200	200-600	16,8	15,0	Red
160-250	250-600	23,4	21,7	Blue
200-250	250-600	24,9	22,8	Red
200-315	315-600	26,4	25,4	Blue
250-315	315-600	27,4	25,6	Red
315-400	400-600	32,5	–	Red
	1 measuring tube			

ALSc	COLIBRI CCa extract air		
Size	Size	Standard	Tube colour
200-250	250-600	14,4	Transparent
250-315	315-600	18,7	Transparent
315-400	400-600	25,5	Transparent
	1 measuring tube		

COLIBRI CRa

ALSc	COLIBRI CRa supply air			
Size	Size	Standard	Low version	Tube colour
100-125	125-400	7,4	7,2	Red
100-125	125-600	7,4	7,2	Red
100-160	160-400	9,5	9,2	Blue
100-160	160-600	9,5	9,2	Blue
125-160	160-400	10,0	9,6	Red
125-160	160-600	10,0	9,6	Red
125-200	200-500	16,7	15,5	Blue
125-200	200-600	16,7	15,5	Blue
160-200	200-500	17,7	16,5	Red
160-200	200-600	17,7	16,5	Red
160-250	250-600	26,4	24,7	Blue
200-250	250-600	28,9	26,4	Red
200-315	315-600	30,3	28,6	Blue
250-315	315-600	32,1	29,5	Red
315-400	400-600	37,7	–	Red
	1 measuring tube			

ALSc	COLIBRI CRa extract air		
Size	Size	Standard	Tube colour
200-250	250-600	16,2	Transparent
250-315	315-600	21,2	Transparent
315-400	400-600	29,1	Transparent
	1 measuring tube		

EAGLE Ca

ALSc	EAGLE Ca supply air			
Size	Size	Standard	Low version	Tube colour
100-125	125-400	7,8	7,6	Red
100-125	125-600	7,7	7,6	Red
100-160	160-400	11,8	11,5	Blue
100-160	160-600	11,8	11,2	Blue
125-160	160-400	12,6	11,9	Red
125-160	160-600	12,6	11,7	Red
125-200	200-500	17,6	16,9	Blue
125-200	200-600	17,6	16,7	Blue
160-200	200-500	19,9	17,9	Red
160-200	200-600	19,9	17,9	Red
160-250	250-600	26,5	24,1	Blue
200-250	250-600	28,2	25,9	Red
200-315	315-600	35,2	32,2	Blue
250-315	315-600	37,3	33,5	Red
315-400	400-600	53,1	–	Red
	1 measuring tube			

ALSc	EAGLE Ca extract air		
Size	Size	Standard	Tube colour
200-250	250-600	18,6	Transparent
250-315	315-600	26,4	Transparent
315-400	400-600	39,6	Transparent
	1 measuring tube		

HAWK Ca

ALSc	HAWK Ca supply air			
Size	Size	Standard	Low version	Tube colour
100-125	125-600	8,4	8,0	Red
100-160	160-600	11,7	10,9	Blue
125-160	160-600	12,3	11,9	Red
125-200	200-600	19,1	17,0	Blue
160-200	200-600	20,9	18,2	Red
160-250	250-600	29,1	25,7	Blue
200-250	250-600	32,5	28,5	Red
200-315	315-600	37,0	34,2	Blue
250-315	315-600	39,4	35,3	Red
315-400	400-600	50,9	-	Red
	1 measuring tube			

ALSc	HAWK Ca extract air		
Size	Size	Standard	Tube colour
200-250	250-600	19,1	Transparent
250-315	315-600	25,4	Transparent
315-400	400-600	34,9	Transparent
	1 measuring tube		

LOCKZONE Ca

ALSc	LOCKZONE Ca supply air			
Size	Size	Standard	Low version	Tube colour
100-125	125-400	8,3	7,9	Red
100-125	125-600	8,2	7,8	Red
100-160	160-400	11,1	10,8	Blue
100-160	160-600	11,2	10,8	Blue
125-160	160-400	12,1	11,4	Red
125-160	160-600	12,4	11,4	Red
125-200	200-500	18,0	16,9	Blue
125-200	200-600	17,8	16,9	Blue
160-200	200-500	19,7	18,4	Red
160-200	200-600	19,7	18,0	Red
160-250	250-600	28,1	25,6	Blue
200-250	250-600	30,9	27,4	Red
200-315	315-600	36,5	35,1	Blue
250-315	315-600	39,6	39,6	Red
315-400	400-600	56	–	Red
	1 measuring tube			

ALSc	LOCKZONE Ca extract air		
Size	Size	Standard	Tube colour
200-250	250-600	18,4	Transparent
250-315	315-600	27,1	Transparent
315-400	400-600	42,5	Transparent
	1 measuring tube		

PELICAN CSa

ALSc	PELICAN CSa supply air			
Size	Size	Standard	Low version	Tube colour
100-125	125-400	7,1	7,7	Red + Red
100-160	160-400	10,6	10,1	Blue + Red
125-160	160-400	11,4	11,8	Red + Red
125-200	200-600	16,0	16,5	Blue + Red
160-200	200-600	18,1	19,0	Red + Red
160-250	250-600	25,7	27,1	Blue + Red
200-250	250-600	29,0	28,4	Red + Red
200-315	315-600	37,6	36,1	Blue + Red
250-315	315-600	44,0	38,1	Red + Red
315-400	400-600	68,2	–	Red
	2 measuring tubes			

PELICAN CEa

ALSc	PELICAN CEa extract air			
Size	Size	Standard	Low version	Tube colour
100-125	125-400	4,9	4,6	Transparent
125-160	160-400	7,6	7,2	Transparent
160-200	200-600	14,2	12,6	Transparent
200-250	250-600	21,2	20,2	Transparent
250-315	315-600	27,9	27,7	Transparent
315-400	400-600	41,6	–	Transparent
	1 measuring tube			

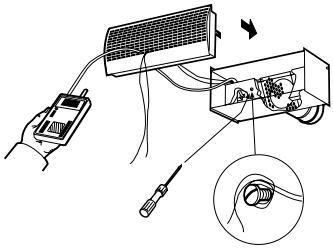


Figure 1. Measurement with one tube.

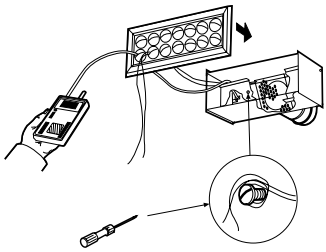


Figure 2. Measurement with one tube.

COLIBRI Wa

ALVd	COLIBRI Wall supply air				
		Back side connection		Short side connection	
Size	Size	Closed slot	Open slot	Closed slot	Open slot
300-150-100	300-150	5,4	7,1	5,1	6,6
400-150-125	400-150	7,8	9,9	7,6	9,4
400-200-160	400-200	10,2	12,7	10,1	12,4
550-250-200	550-250	16,9	20,5	16,5	20
550-300-250	550-300	19,8	23,7	19,6	23,5

EAGLE Wa

ALVd	EAGLE Wall supply air				
		Back side connection		Short side connection	
Size	Size	Closed slot	Open slot	Closed slot	Open slot
300-150-100	300-100	7,8	9,2	7,2	8,1
400-150-125	400-150	9,9	11,8	9,6	11,1
400-200-160	400-200	14,8	17,1	14	15,9
550-250-200	550-250	25,5	27,8	24,4	26,8
550-300-250	550-300	31,1	33,9	30,5	33,4

LOCKZONE Wa

ALVd	LOCKZONE Wall supply air	
Size	Back side connection	Short side connection
300-150	7,4	6,9
400-150	10	9,9
400-200	15	14,3
550-250	26,3	24,9
550-300	32,4	32

PELICAN Wa

ALVd	PELICAN Wall supply air		
Size	Size	Back side connection	Short side connection
300-150-100	300-100	8,8	8,1
400-150-125	400-150	10,9	11,1
400-200-160	400-200	17,3	17,3
550-250-200	550-250	25,6	25,1
550-300-250	550-300	32,2	32,6

ROWb

ALVd	ROWb supply air	
Size	Back side connection	Short side connection
400-150-125-B	400-150	10,0
400-200-160-B	400-200	15,0

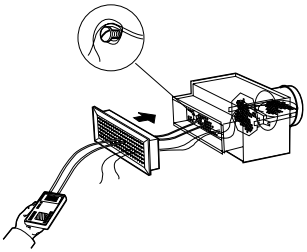
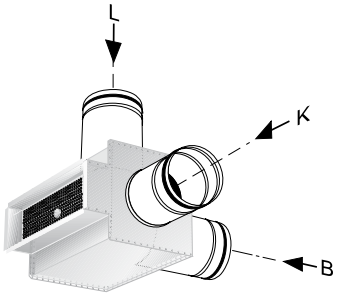


Figure 1. Measurement with two tubes.

ALGc

TRGc	ALGc supply air			ALGc extract air		
	Connection			Connection		
Size	B	K	L	B	K	L
200-100-125	7,2	7,1	7,4	7,6	7,7	7,2
300-100-160	11,9	12,2	12,3	13,4	13,0	12,3
400-100-160	15,9	16,2	15,5	19,3	18,2	17,4
500-100-200	21,4	21,4	22,2	23,2	23,0	21,2
300-150-200	19,6	19,4	20,2	20,9	21,4	19,2
400-150-250	26,9	26,3	27,3	28,9	28,2	26,4
500-150-250	35,0	34,5	32,4	36,3	35,7	33,3
400-200-250	36,8	38,5	42,0	45,6	44,3	41,0
500-200-315	52,4	50,8	48,5	56,3	56,1	51,5
600-200-315	61,9	60,7	57,6	70,7	69,6	61,0
2 measuring tubes. Connection alternatives B= Back side, K = Short side, L = Long side						



GRLc

TRGc	GRLc extract air		
	Connection		
Storlek	B = back side	K = short side	L = long side
200-100-125	7,9	8,5	7,0
300-100-160	13,3	13,2	11,8
400-100-160	18,9	18,5	16,9
500-100-200	23,2	23,3	21,0
300-150-200	21,0	20,9	18,5
400-150-250	29,1	28,4	25,3
500-150-250	36,6	35,7	32,4
400-200-250	46,6	42,9	39,8
500-200-315	56,8	55,4	47,9
600-200-315	70,0	68,5	59,4
600-300-400	109,0	107,0	104,0
2 measuring tubes			

GTHc

TRGc	GTHc supply air, straight blades			GTHc supply air, blades 45°		
	Connection			Connection		
Size	B	K	L	B	K	L
200-100-125	7,5	7,2	7,3	7,2	7,0	7,1
300-100-160	12,1	12,1	12,3	11,3	11,9	12,1
400-100-160	16,2	16,6	15,4	15,0	16,1	15,0
500-100-200	21,1	20,7	22,1	20,1	20,4	21,1
300-150-200	19,3	19,2	19,7	19,4	18,8	19,2
400-150-250	26,5	26,1	27,9	25,4	25,8	26,6
500-150-250	34,8	33,5	32,9	33,8	33,4	30,9
400-200-250	38,1	39,2	41,2	37,4	38,1	41,1
500-200-315	50,5	48,4	48,3	48,0	48,2	46,4
600-200-315	60,3	58,7	56,6	57,6	57,8	54,4
2 measuring tubes Connection alternatives: B = Back side, K = Short side, L = Long side						

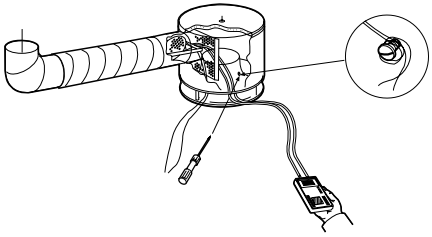


Figure 1. Measurement with two tubes.

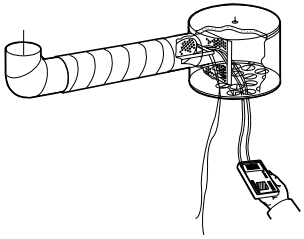


Figure 2. Measurement with two tubes.

Straight sections are required before the diffuser to secure that the stated method errors, 5 %, will be obtained, see table:

1 · 90° bend	3 · Ød
2 · 90° bend	4 · Ød
T-joint	4 · Ød
Damper 45°	6 · Ød

ACDa

	ACDa supply air		
Size	Slot 20 mm	Slot 30 mm	Slot 40 mm
100	5,5	5,5	–
125	8,9	8,9	–
160	–	15,5	15,5
200	–	25,8	25,8
250	–	39,6	39,6
315	–	67,4	67,4
	2 measuring tubes. Spread pattern: 360°		

EAGLE Fb

	EAGLE Fb supply air		EAGLE Fb extract air	
Size	k-factor	Tube colour	K-factor	Tube colour
100	5,2	Blue + transparent	7,0	Transparent
125	8,2	Blue + transparent	11,4	Transparent
160	14,8	Blue + transparent	16,6	Transparent
200	24,5	Blue + transparent	26,0	Transparent
250	36,9	Blue + transparent	36,0	Transparent
315	62,6	Blue + transparent	46,0	Transparent
400	101,0	Blue + transparent	74,0	Transparent
	2 measuring tubes		1 measuring tube	

LOCKZONE Fa

	LOCKZONE Fa supply air	
Size	Slot 20 mm	Slot 30 mm
125	14,1	15,2
160	23,4	25,7
200	35,1	38,6
250	51,5	56,7
315	74,5	83,1
	1 measuring tube Spread pattern: 360° No straight section required.	

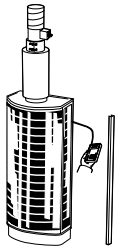
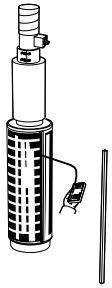


Figure 1. DBC, DHC, DVC. Measurement with one tube.



Figur 2. DCP. Measurement with one tube.

DBCa

DBRe

	DBCa	DBRe
Size	Supply air	Supply air
200	34,0	36,8
250	54,0	41,0
315	89,5	46,5
400	142,5	–
200-600	122,0	–
300-600	185,0	–
	1 measuring tube.	


DCPe


DHCe


DVCe

	DCPe	DHCe	DVCe
Size	Supply air	Supply air	Supply air
125	12,2	12,0	12,0
160	22,8	20,0	20,0
200	37,0	33,0	33,0
250	58,0	50,0	50,0
315	88,0	84,0	84,0
400	141,0	134,0	134,0
500	210,0	202,0	–
630	295,0	285,0	–
800	–	520,0	–
	1 measuring tube		


ICPa


IHCa


IVCa

	ICPa	IHCa	IVCa
Size	Supply air	Supply air	Supply air
200	22,9	22,9	22,9
250	35,9	35,9	35,9
315	54,4	54,4	54,4
	1 measuring tube		

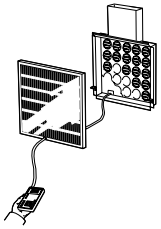


Figure 3. DIR. Measurement with one tube.

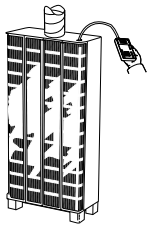


Figure 4. DRC and DKC. Measurement with one tube.

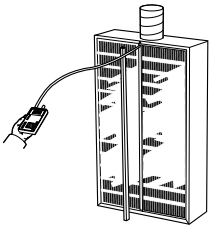


Figure 5. DRI. Measurement with one tube.

	DIRc	DKCe	DRCe	DRIf
Size	Supply air	Supply air	Supply air	Supply air
400-100	13,1	–	–	–
500-125	18,7	–	–	–
600-160	23,5	–	–	–
900-200	46,8	–	–	–
200	–	–	32,0	32,0
250	–	–	53,0	53,0
315	–	–	85,0	85,0
400	–	–	130,0	130,0
200-600	–	–	120,0	120,0
250-800	–	–	176,0	176,0
500	–	133,0	–	–
630	–	223,0	–	–
800	–	350,0	–	–
	1 measuring tube			

DOMO b

DOMO b	
Adjustment	k-factor
R 1	1,3
R 2	2,3
R 3	3,3
R 4	3,9

IBIS Ca

Adjustable measuring unit IBIS Ca	
Size	k-factor
160-1500	14,8
200-1500	22,5
250-1500	36,1
315-1500	61,2
400-1500	96

SLAa

SLAT1	SLAa supply air	
Size	90°	0°
2-600	7,1	7,9
4-600	14,8	17,5
6-600	22,0	27,5
2-900	10,6	12,5
4-900	21,2	25,3
6-900	29,4	35,4
	1 measuring tube	

SLAa

SLAT2	SLAa supply air	
Size	90°	0°
2-600	7,5	9,2
4-600	15,0	18,4
6-600	22,5	27,6
2-900	11,0	13,8
4-900	22,0	27,6
6-900	33,0	41,4
	1 measuring tube	

SRYb

SRYT 1b	SRYb			
Size	Size	Supply air	Size	Supply air
1-500-125-L	1-900-1	4,5	1-1200-1	5,3
2-500-160-L	2-900-1	8,6	2-1200-2	6,5
3-500-160-L	3-900-1	12,4	3-1200-2	9,4
4-500-200-L	4-900-1	16,2	4-1200-2	12,4

1 measuring tube
Note! The K-factor is valid for one commissioning box.
Ex: With two or three commissioning boxes for one diffuser, the total of the designed airflow shall be divided by the number of commissioning boxes.

SRYb

SRYT 2b	SRYb			
Size	Size	Supply air	Size	Supply air
1-500-125-L	1-1500-2	4,2	1-1800-2	4,6
2-500-160-L	2-1500-2	7,8	2-1800-2	8,6
3-500-160-L	3-1500-2	11,4	3-1800-2	13,0
4-500-200-L	4-1500-2	14,4	4-1800-3	12,4

1 measuring tube
Note! The K-factor is valid for one commissioning box.
Ex: With two or three commissioning boxes for one diffuser, the total of the designed airflow shall be divided by the number of commissioning boxes.

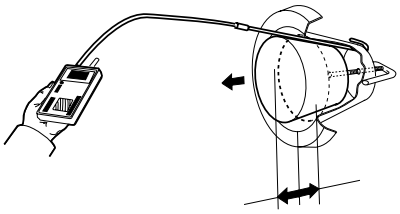


Figure 1. EXC and ROE. Measurement with one tube.

EXCa

	EXCa 100	EXCa 125	EXCa 160	EXCa 200
Cone position	k-factor	k-factor	k-factor	k-factor
-15	0,6	–	–	–
-12	0,8	–	–	–
-10	1,0	1,3	2,0	–
-5	1,4	1,9	2,8	–
-3	–	–	–	1,8
0	1,8	2,6	3,6	2,6
+5	2,3	3,2	4,5	3,8
+10	2,7	3,9	5,4	5,2
+15	–	–	6,2	6,4
+20	–	–	–	7,5
+25	–	–	–	8,6
	Measured by pressure gauge.			

ROEa

	ROEa 100	ROEa 125	ROEa 160	ROEa 200
Cone position	k-factor	k-factor	k-factor	k-factor
-15	0,6	–	–	–
-12	0,8	–	–	–
-10	1,0	1,3	2,0	–
-5	1,4	1,9	2,8	–
-3	–	–	–	1,8
0	1,8	2,6	3,6	2,6
+5	2,3	3,2	4,5	3,8
+10	2,7	3,9	5,4	5,2
+15	–	–	6,2	6,4
+20	–	–	–	7,5
+25	–	–	–	8,6
	Measured by pressure gauge			

Flow control

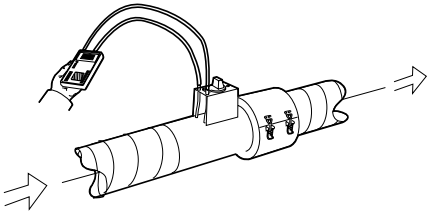


Figure 1. Number of measuring tubes: 2. Connected to "nipple well". The K-factor is also valid for the combination VAR with sound attenuator CLA L=500 or 1000mm.

Straight sections are required before the damper to secure that stated method errors, 5%, will be obtained, see table:

1 · 90° bend	3 · Ød
2 · 90° bends	4 · Ød
1 · T-joint	4 · Ød
Mixing box	4 · Ød

VARd circular

Size	VARd 1, 2, 4
100	5,3
125	8,7
160	15,5
200	24,8
250	40,0
315	63,4
400	102
500	164

VARd rectangular

Size	VARd
200-200	33,5
300-200	50,0
400-200	66,5
500-200	83,5
600-200	100,0
700-200	117,0
800-200	133,0
1000-200	167,0
400-300	102,0
500-300	127,0
600-300	152,0
700-300	178,0
800-300	203,0
850-300	216,0
1000-300	254,0
400-400	136,0
500-400	171,0
600-400	205,0
700-400	239,0
800-400	273,0
1000-400	341,0
1200-400	409,0
1400-400	478,0
1600-400	546,0

Size	VARd
500-500	214,0
600-500	257,0
800-500	343,0
1000-500	429,0
1200-500	514,0
1400-500	600,0
1600-500	686,0
600-600	309,0
800-600	412,0
1000-600	515,0
1200-600	618,0
1400-600	722,0
1600-600	825,0
700-700	422,0
800-700	482,0
1000-700	603,0
1200-700	723,0
1400-700	844,0
1600-700	964,0

IRISa

IRIS a, k-factor								
Size	1	1,5	2	2,5	3	3,5	4	4,5
80	6,1	–	4,1	–	3,2	–	2,3	–
100	10,4	7,9	7,5	6,6	6,0	5,2	4,5	3,8
125	13,8	10,4	8,8	7,3	6,5	5,5	4,7	4,0
150	24,1	20,0	16,5	14,9	13,4	12,0	11,0	10,0
160	22,1	17,2	14,8	13,4	12,5	11,5	10,7	9,5
200	44,2	36,6	30,9	26,9	23,2	20,6	18,2	15,9
250	64,4	53,5	45,6	41,8	38,7	34,5	30,7	27,3
315	118,0	88,3	70,0	64,5	58,7	53,0	45,1	42,4
400	131,0	–	102,0	–	88,3	–	67,3	–
500	230,0	–	177,0	–	146,0	–	112,0	–
630	451,0	–	297,0	–	238,0	–	169,0	–
800	489,0	–	402,0	–	344,0	–	267,0	–

IRIS a, k-factor							
Size	5	5,5	6	6,5	7	7,5	8
80	1,4	–	0,9	–	0,6	–	–
100	3,4	2,9	2,5	2,1	1,7	1,2	0,9
125	3,5	3,1	2,7	2,2	1,5	–	–
150	8,9	7,9	6,9	6,0	5,2	4,4	3,7
160	8,5	7,5	6,8	5,6	4,9	4,0	3,5
200	14,0	12,3	11,0	9,6	8,4	6,5	5,0
250	24,1	21,4	18,4	15,8	12,8	10,9	8,9
315	37,0	33,3	30,0	25,9	21,8	19,0	15,8
400	52,7	–	38,5	–	28,4	–	15,5
500	88,5	–	66,6	–	48,0	–	30,0
630	127,0	–	91,6	–	62,8	–	35,1
800	217,0	–	170,0	–	122,0	–	73,7

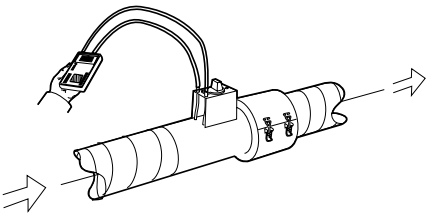


Figure 2. Measurement with two tubes.

Straight sections are required before the damper to secure that the stated method errors, 5%, will be obtained, see table:

1 · 90° bend	3 · Ød
2 · 90° bends	4 · Ød
T-joints	4 · Ød
Damper 45°	6 · Ød

CRMc 1

CRMc 5

Size	CRMc 1	CRMc 5
80	5,0	
100	9,2	9,2
125	9,6	9,6
160	15,8	15,8
200	23,5	23,5
250	35,6	35,6
315	59,2	59,2
400	95,6	95,6
500	147,0	–
630	230,0	–
2 measuring tubes		

Climate systems

Calculation formula

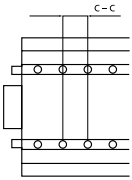
$$q = k \cdot \sqrt{p_i} \qquad (l/s)$$

q = primary air fl ow in l/s
p = balancing pressure in Pa
k = the pressure constant (k-factor) of the unit
The pressure constant is valid by 20°C and 1013 mbar

Measuring point

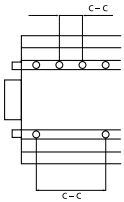
All climate beams and comfort modules are equipped with a tube where the nozzle pressure can be measured. When commissioning connect a manometer to the tube (inside diameter: 4 mm).

The positioning of the tube depends on the type of product. For beams with only one primary air connection the tube is placed close to the opposite end of the unit seen from the connection side. For beams with alternative primary air connections the tube is placed in the centre of the beam. For comfort modules the tube is placed in one of the corners.



Nozzle configuration 1 – 4

(Same distance between the nozzles on both sides of the unit)



Nozzle configuration E, N, and 75/25%

(Different distance between the nozzles on the right and the left side of the unit)

C-C distance between nozzles

Nozzle configuration	C–C (mm)
1	30
2	40
3	60
4	15
E	30/90
N	12/36


BALTIC/BRC

BALTIC / BRC						
	Nozzle configuration					
Length	1	2	3	4	E	N
1,2	2	1,5	1	4,1	1,4	3,4
1,5	2,6	1,9	1,3	5,2	1,7	4,3
1,8	3,1	2,4	1,6	6,3	2,1	5,2
2,1	3,7	2,8	1,9	7,4	2,5	6,2
2,4	4,3	3,2	2,1	8,5	2,8	7,1
2,7	4,8	3,6	2,4	9,7	3,2	8
3	5,4	4	2,7	10,8	3,6	9
3,3	5,9	4,5	3	11,9	4	9,9
3,6	6,5	4,9	3,3	13	4,3	10,8
3,9	7,1	5,3	3,5	14,1	4,7	11,8

Adjustable nozzles: Addition of 0.15 per adjustable nozzle
E.G: BALTIC a 2.4-4-N4x5
Pressure constant= 8.5+ (20x0.15)= 11.5

BISCAY

BISCAY							
	Nozzle configuration						
Length	60/60	48/48	36/36	24/24	12/12	24/72, 72/24	12/36, 36/12
1092	0,92	1,16	1,54	2,31	4,62	1,54	3,08
1192	1,02	1,27	1,7	2,54	5,09	1,7	3,39
1242	1,06	1,33	1,77	2,66	5,32	1,77	3,55
1342	1,16	1,45	1,93	2,89	5,79	1,93	3,86
1392	1,2	1,51	2,01	3,01	6,02	2,01	4,01
1492	1,3	1,62	2,16	3,24	6,49	2,16	4,32
1692	1,48	1,86	2,47	3,71	7,42	2,47	4,95
1792	1,58	1,97	2,63	3,94	7,89	2,63	5,26
1867	1,65	2,06	2,75	4,12	8,24	2,75	5,49
2017	1,79	2,23	2,98	4,49	8,94	2,98	5,96
2092	1,86	2,32	3,1	4,64	9,29	3,1	6,19
2392	2,14	2,67	3,56	5,34	10,69	3,54	7,12
2492	2,23	2,79	3,72	5,58	11,15	3,72	7,44
2692	2,42	3,02	4,03	6,04	12,09	4,03	8,06
2992	2,7	3,37	4,5	6,74	13,49	4,5	8,99

BSAd

BSAd				
	Nozzle			
Length	1	2	3	E
1,2	2	1,5	1	1,4
1,5	2,6	1,9	1,3	1,7
1,8	3,1	2,4	1,6	2,1
2,1	3,7	2,8	1,9	2,5
2,4	4,3	3,2	2,1	2,8
2,7	4,8	3,6	2,4	3,2
3	5,4	4	2,7	3,6
3,3	5,9	4,5	3	4
3,6	6,5	4,9	3,3	4,3
3,9	7,1	5,3	3,5	4,7

PARASOL 592

PARASOL 592 MF	
Nozzle configuration*	k_{pl}
LLLL	1,01
LLMM	1,39
MMMM	1,76
MMHH	2,27
HHHH	2,77
* All four sides of the unit can be adjusted individually. The description of the nozzle setting follows the order shown in figure 5. See example shown in figure 6.	

PARASOL 592 MF		
Nozzle configuration per side	Nozzle size	k_{pl} per side
L	Small	0,253
M	Large	0,440
H	Small + Large	0,693
C	Closed	0

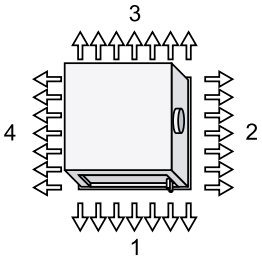


Figure 1. Top view of nozzle configuration, single-module unit, sides 1-4.

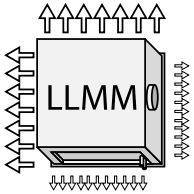


Figure 2. Example of nozzle configuration for a single-module unit - LLMM.

PARASOL 1192

PARASOL 1192 LF					
Nozzle configuration*	k_{pl}	Nozzle configuration per side	Side	Nozzle configuration	k_{pl} per side
LLLL	0,9	L	Short side	Small	0,124
LLMM	1,09	L	Long side	Small	0,328
MMMM	1,28	M	Short side	Large	0,176
MMHH	1,73	M	Long side	Large	0,464
HHHH	2,18	H	Short side	Small + Large	0,3
		H	Long side	Small + Large	0,792
		C	Short side	Closed	0
		C	Long side	Closed	0

* All four sides of the unit can be adjusted individually. The description of the nozzle setting follows the order shown in figure 3. See example shown in figure 2, p 43.

PARASOL 1192 MF					
Nozzle configuration*	k_{pl}	Nozzle configuration per side	Side	Nozzle configuration	k_{pl} per side
LLLL	1,28	L	Short side	Small	0,176
LLMM	1,56	L	Long side	Small	0,464
MMMM	1,84	M	Short side	Large	0,253
MMHH	2,48	M	Long side	Large	0,667
HHHH	3,12	H	Short side	Small + Large	0,429
		H	Long side	Small + Large	1,131
		C	Short side	Closed	0
		C	Long side	Closed	0

* All four sides of the unit can be adjusted individually. The description of the nozzle setting follows the order shown in figure 3. See example shown in figure 2, p 43.

PARASOL 1192 HF					
Nozzle configuration*	k_{pl}	Nozzle configuration per side	Side	Nozzle configuration	k_{pl} per side
LLLL	1,84	L	Short side	Small	0,253
LLMM	2,52	L	Long side	Small	0,667
MMMM	3,2	M	Short side	Large	0,44
MMHH	4,12	M	Long side	Large	1,16
HHHH	5,04	H	Short side	Small + Large	0,693
		H	Long side	Small + Large	1,827
		C	Short side	Closed	0
		C	Long side	Closed	0
* All four sides of the unit can be adjusted individually. The description of the nozzle setting follows the order shown in figure 3. See example shown in figure 2, p 43.					

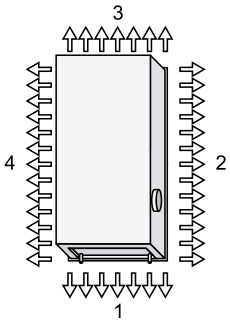


Figure 3. Top view nozzle configuration double-module unit, sides 1-4.

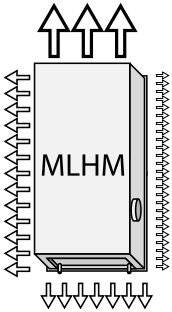


Figure 4. Example of nozzle configuration for a double-mounted unit - MLHM.

PARASOL EX 690

PARASOL EX 690 MF	
Nozzle configuration*	k_{pl}
LLLL	1,01
LLMM	1,39
MMMM	1,76
MMHH	2,27
HHHH	2,77
* All four sides of the unit can be adjusted individually. The description of the nozzle setting follows the order shown in figure 1. See example shown in figure 2.	

PARASOL EX 690 MF		
Nozzle configuration per side	Nozzle side	k_{pl} per side
L	Small	0,253
M	Large	0,44
H	Small+Large	0,693
C	Closed	0

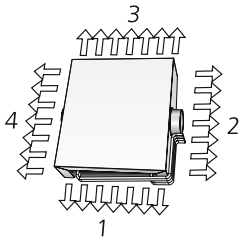


Figure 1. Top view of nozzle setting single-module unit, sides 1-4.

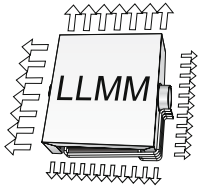


Figure 2. Example of nozzle setting for a single-module unit - LLMM.

PARASOL EX 1290

PARASOL EX 1290 MF					
Nozzle configuration*	k_{pl}	Nozzle configuration per side	Side	Nozzle configuration	k_{pl} per side
LLLL	1,28	L	Short side	Small	0,176
LLMM	1,56	L	Long side	Small	0,464
MMMM	1,84	M	Short side	Large	0,253
MMHH	2,48	M	Long side	Large	0,667
HHHH	3,12	H	Short side	Small+Large	0,429
		H	Long side	Small+Large	1,131
		C	Short side	Closed	0
		C	Long side	Closed	0
* All four sides of the unit can be adjusted individually. The description of the nozzle setting follows the order shown in figure 7. See example shown in figure 8.					

PARASOL EX 1290 HF					
Nozzle configuration*	k_{pl}	Nozzle configuration per side	Side	Nozzle configuration	k_{pl} per side
LLLL	1,84	L	Short side	Small	0,253
LLMM	2,52	L	Long side	Small	0,667
MMMM	3,2	M	Short side	Large	0,44
MMHH	4,12	M	Long side	Large	1,16
HHHH	5,04	H	Short side	Small+Large	0,693
		H	Long side	Small+Large	1,827
		C	Short side	Closed	0
		C	Long side	Closed	0
* All four sides of the unit can be adjusted individually. The description of the nozzle setting follows the order shown in figure 7. See example shown in figure 8.					

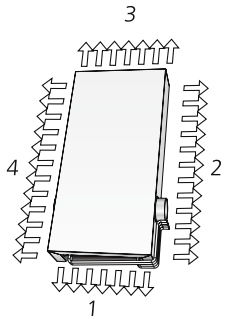


Figure 7. Top view nozzle setting, double-module unit sides 1-4.

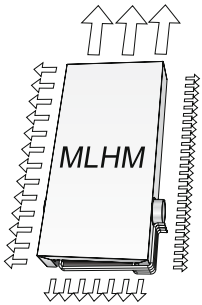


Figure 8. Example of nozzle setting for a double-module unit - MLHM.

ADRIATIC VF

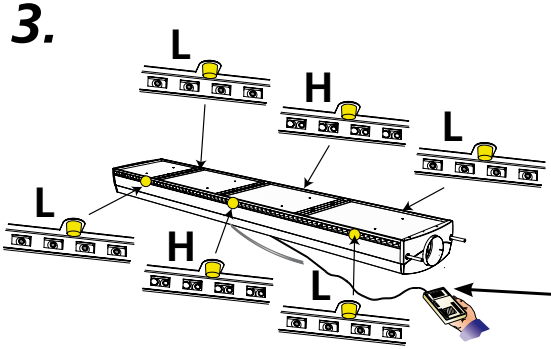
1.

2. **ADRIATIC 1,8**

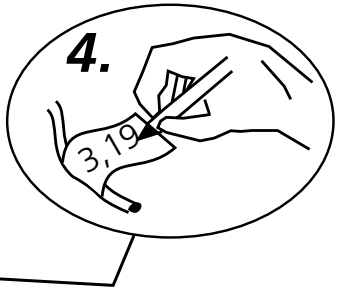
q=17,5-26,5 (l/s)

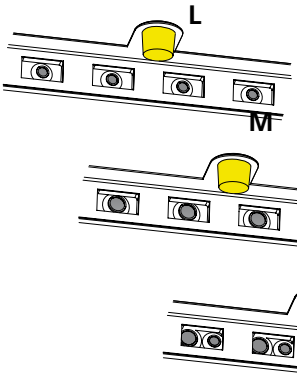
k=3,19
q50%=>2LH
q50%=>2LH

3.



4.

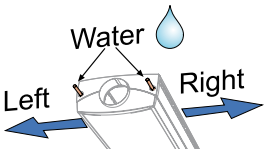




L: $k_{600mm\ (1side)} = 0{,}314$

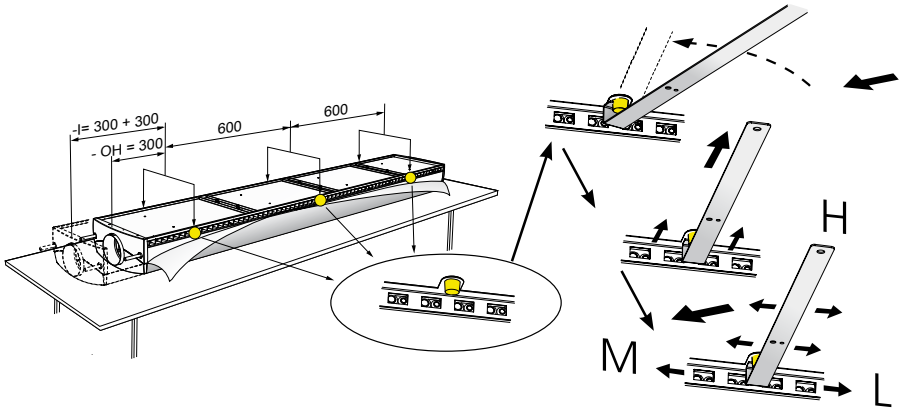
M: $k_{600mm\ (1side)} = 0{,}694$

H: $k_{600mm\ (1side)} = 0{,}969$



$$q = k \cdot \sqrt{p_i}\ [l/s]$$

$$p_i = (q/k)^2\ [Pa]$$



ADRIATIC VF

	SYMMETRIC (q=50%/50%)				
	p_i (Pa)	q (l/s)	k	q=50%	q=50%
ADRIATIC 1,2-OH	30-70Pa	7,0-10,5	1,25	2L	2L
	30-70Pa	11,0-17,0	2,01	LM	LM
ADRIATIC 1,5-I	30-70Pa	14,0-21,5	2,57	LH	LH
	30-70Pa	15,5-23,5	2,77	2M	2M
	30-70Pa	18,5-27,5	3,33	MH	MH
	30-70Pa	21,5-32,5	3,88	2H	2H
ADRIATIC 1,8-OH	30-70Pa	10,5-15,5	1,88	3L	3L
	30-70Pa	14,5-22,0	2,64	2LM	2LM
ADRIATIC 2,1-I	30-70Pa	17,5-26,5	3,19	2LH	2LH
	30-70Pa	21,5-33,0	3,95	LMH	LMH
	30-70Pa	24,5-37,5	4,50	L2H	L2H
	30-70Pa	28,5-44,0	5,26	M2H	M2H
	30-70Pa	31,5-48,5	5,81	3H	3H
ADRIATIC 2,4-OH	30-70Pa	13,5-21,0	2,51	4L	4L
	30-70Pa	18,0-27,0	3,27	3LM	3LM
ADRIATIC 2,7-I	30-70Pa	22,0-33,5	4,03	2L2M	2L2M
	30-70Pa	26,5-40,0	4,79	L3M	L3M
	30-70Pa	30,5-46,0	5,55	4M	4M
	30-70Pa	36,5-...	6,65	2M2H	2M2H
	30-70Pa	42,5-...	7,75	4H	4H
ADRIATIC 3,0-OH	30-70Pa	17,5-26,0	3,14	5L	5L
	30-70Pa	21,5-32,5	3,90	4LM	4LM
ADRIATIC 3,3-I	30-70Pa	25,5-38,5	4,66	3L2M	3L2M
	30-70Pa	30,0-45,0	5,42	2L3M	2L3M
	30-70Pa	34,0-51,5	6,18	L4M	L4M
	30-70Pa	41,0-...	7,49	4MH	4MH
	30-70Pa	47,0-...	8,59	2M3H	2M3H
ADRIATIC 3,6-OH	30-70Pa	20,5-31,5	3,76	6L	6L
	30-70Pa	25,0-37,5	4,52	5LM	5LM
ADRIATIC 3,9-I	30-70Pa	29,0-44,0	5,28	4L2M	4L2M
	30-70Pa	33,0-50,5	6,04	3L3M	3L3M
	30-70Pa	39,5-...	7,14	3LM2H	3LM2H
	30-70Pa	43,5-..	7,90	2L2M2H	2L2M2H
	30-70Pa	47,5-...	8,66	L3M2H	L3M2H

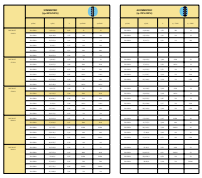
ADRIATIC VF

	ASYMMETRIC (q≈70%/30%)				
	p_i (Pa)	q (l/s)	k	q≈70%	q≈30%
ADRIATIC 1,2-OH **ADRIATIC 1,5-I**	30-70Pa	11,0-17,0	2,01	2M	2L
	30-70Pa	14,0-21,5	2,57	2H	2L
	30-70Pa	16,0-24,5	2,95	2H	LM
ADRIATIC 1,8-OH **ADRIATIC 2,1-I**	30-70Pa	14,5-22,0	2,64	L2M	3L
	30-70Pa	19,5-30,0	3,57	M2H	3L
	30-70Pa	21,0-32,0	3,85	3H	3L
	30-70Pa	23,0-35,5	4,23	3H	2LM
	30-70Pa	25,5-38,5	4,61	3H	L2M
ADRIATIC 2,4-OH **ADRIATIC 2,7-I**	30-70Pa	18,0-27,0	3,27	2L2M	4L
	30-70Pa	22,0-33,5	4,03	4M	4L
	30-70Pa	25,0-38,0	4,58	2M2H	4L
	30-70Pa	28,0-42,5	5,13	4H	4L
	30-70Pa	34,5-52,0	6,27	4H	L3M
ADRIATIC 3,0-OH **ADRIATIC 3,3-I**	30-70Pa	25,5-39,0	4,66	L4M	5L
	30-70Pa	30,5-46,5	5,59	3M2H	5L
	30-70Pa	35,5-...	6,41	5H	5L
	30-70Pa	39,0-...	7,17	5H	3L2M
ADRIATIC 3,6-OH **ADRIATIC 3,9-I**	30-70Pa	26,5-40,0	4,80	4LMH	6L
	30-70Pa	33,0-50,5	6,04	6M	6L
	30-70Pa	37,5-...	6,87	3M3H	6L
	30-70Pa	40,5-...	7,42	M5H	6L

BISCAY VF/VF-OH

1.

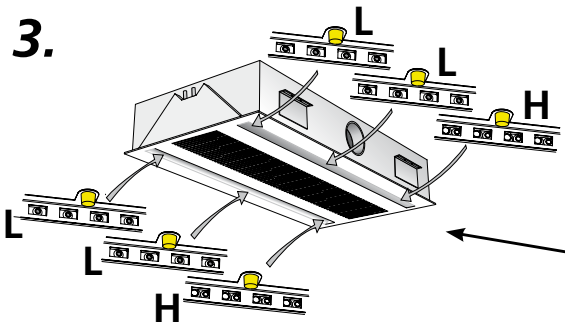
2. **BISCAY 1792**



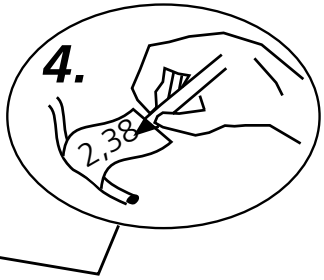
q=16,8-29,1 (l/s)

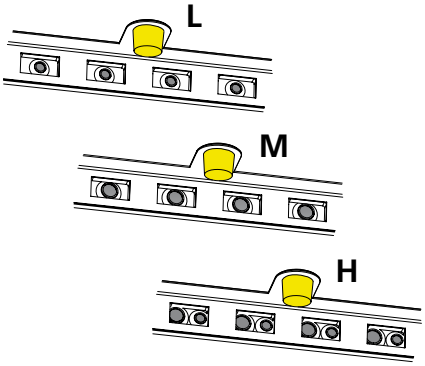
k=2,38
q50%=>2LH
q50%=>2LH

3.



4.

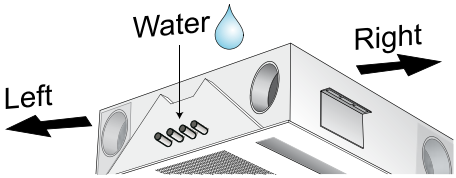




L: $k_{600mm\ (1side)} = 0{,}233$

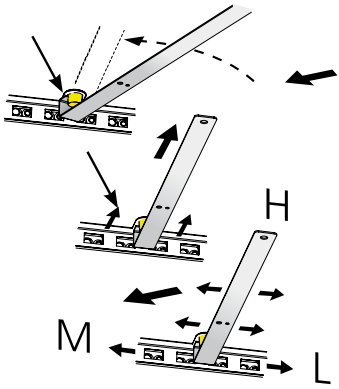
M: $k_{600mm\ (1side)} = 0{,}532$

H: $k_{600mm\ (1side)} = 0{,}722$



$$q = k \cdot \sqrt{p_i}\ [l/s]$$

$$p_i = (q/k)^2\ [Pa]$$



BISCAY VF

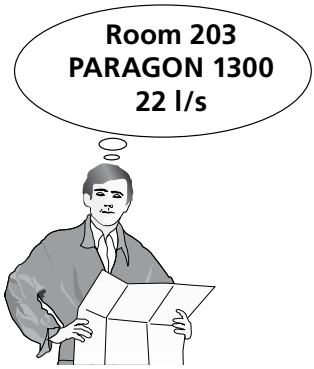
	SYMMETRIC (q=50%/50%)				
	p_i (Pa)	q (l/s)	k	q=50%	q=50%
BISCAY VF 1192	50-150Pa	6,6-11,4	0,93	2L	2L
	50-150Pa	10,8-18,8	1,53	LM	LM
	50-150Pa	13,5-23,4	1,91	LH	LH
	50-150Pa	15,0-26,1	2,13	2M	2M
	50-150Pa	17,7-30,7	2,51	MH	MH
	50-150Pa	20,4-35,4	2,89	2H	2H
BISCAY VF 1715	50-150Pa	9,4-16,3	1,33	3L	3L
	50-150Pa	13,4-23,2	1,89	2LM	2LM
	50-150Pa	15,9-27,6	2,25	2LH	2LH
	50-150Pa	19,9-34,5	2,82	LMH	LMH
	50-150Pa	22,5-38,9	3,18	L2H	L2H
	50-150Pa	26,5-45,9	3,74	M2H	M2H
BISCAY VF 1792	50-150Pa	9,9-17,2	1,40	3L	3L
	50-150Pa	14,1-24,5	2,00	2LM	2LM
	50-150Pa	16,8-29,1	2,38	2LH	2LH
	50-150Pa	21,0-36,4	2,98	LMH	LMH
	50-150Pa	23,7-41,1	3,36	L2H	L2H
	50-150Pa	30,6-53,1	4,33	3H	3H
BISCAY VF 2392	50-150Pa	13,2-22,9	1,87	4L	4L
	50-150Pa	17,4-30,2	2,47	3LM	3LM
	50-150Pa	21,7-37,5	3,06	2L2M	2L2M
	50-150Pa	22,6-39,1	3,19	4M	4M
	50-150Pa	35,5-61,4	5,02	2M2H	2M2H
	50-150Pa	40,8-70,7	5,78	4H	4H
BISCAY VF 2992	50-150Pa	16,5-28,6	2,34	5L	5L
	50-150Pa	20,7-35,9	2,93	4LM	4LM
	50-150Pa	25,0-43,2	3,53	3L2M	3L2M
	50-150Pa	37,6-65,2	5,32	5M	5M
	50-150Pa	45,7-79,1	6,46	2M3H	2M3H
	50-150Pa	51,1-88,4	7,22	5H	5H

BISCAY VF

	ASYMMETRIC (q~70%/30%)				
	p_i (Pa)	q (l/s)	k	q~70%	q~30%
BISCAY VF 1192	50-150Pa	10,8-18,8	1,53	2M	2L
	50-150Pa	13,5-23,4	1,91	2H	2L
	50-150Pa	15,6-27,1	2,21	2H	LM
BISCAY VF 1715	50-150Pa	13,4-23,2	1,89	L2M	3L
	50-150Pa	17,9-31,1	2,54	M2H	3L
	50-150Pa	19,2-33,3	2,72	3H	3L
	50-150Pa	21,2-36,7	3,00	3H	2LM
	50-150Pa	23,2-40,2	3,28	3H	L2M
BISCAY VF 1792	50-150Pa	14,1-24,5	2,00	L2M	3L
	50-150Pa	18,9-32,8	2,68	M2H	3L
	50-150Pa	20,3-35,1	2,87	3H	3L
	50-150Pa	22,4-38,8	3,17	3H	2LM
	50-150Pa	24,5-42,4	3,46	3H	L2M
BISCAY VF 2392	50-150Pa	17,4-30,2	2,47	2L2M	4L
	50-150Pa	21,7-37,5	3,06	4M	4L
	50-150Pa	24,3-42,2	3,44	2M2H	4L
	50-150Pa	27,0-46,8	3,82	4H	4L
	50-150Pa	33,4-57,8	4,72	4H	L3M
BISCAY VF 2992	50-150Pa	25,0-43,2	3,53	L4M	5L
	50-150Pa	29,8-51,5	4,21	3M2H	5L
	50-150Pa	33,8-58,5	4,78	5H	5L
	50-150Pa	38,0-65,8	5,38	5H	3L2M

PARAGON / PARAGON WALL -i

1.



2.

PARAGON 1300

900	50 - 150 Pa	16,4 - 28,4	1,5	L / L
900	50 - 150 Pa	12 - 20,8	1,7	L / M
900	50 - 150 Pa	11,2 - 19,1	1,85	M / M
900	50 - 150 Pa	10,8 - 19	2,07	L / H
900	50 - 150 Pa	10,2 - 17,5	2,07	M / H
900	50 - 150 Pa	22,9 - 39,7	0,24	H / H
1100	50 - 150 Pa	13,7 - 23,8	1,94	L / L
1100	50 - 150 Pa	11,5 - 24,4	2,15	L / M

q=16,4-28,4 (l/s)

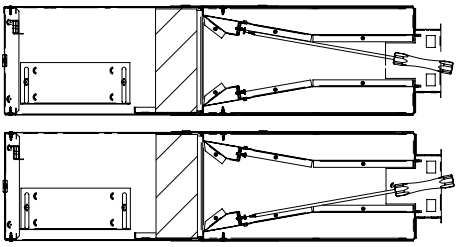
k=2,32

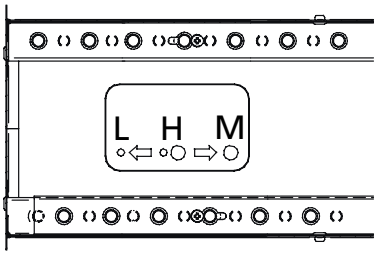
q=L/L

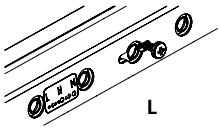
$q = k \cdot \sqrt{p_i}$ [l/s]

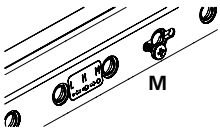
$p_i = (q/k)^2$ [Pa]

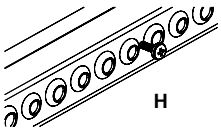
3.











PARAGON / PARAGON WALL -i

Size (mm)	Nozzle pressure (Pa)	Airflow (l/s)	K_{pl}	Nozzle configuration
900	50 - 200 Pa	10,6 - 21,2	1,5	L / L
900	50 - 200 Pa	12 - 24	1,7	L / M
900	50 - 200 Pa	13,4 - 26,7	1,89	M / M
900	50 - 200 Pa	16,8 - 33,5	2,37	L / H
900	50 - 200 Pa	18,2 - 36,3	2,57	M / H
900	50 - 200 Pa	22,9 - 45,8	3,24	H / H
1100	50 - 200 Pa	13,7 - 27,4	1,94	L / L
1100	50 - 200 Pa	15,5 - 31	2,19	L / M
1100	50 - 200 Pa	17,3 - 34,5	2,44	M / M
1100	50 - 200 Pa	21,7 - 43,4	3,07	L / H
1100	50 - 200 Pa	23,5 - 47	3,32	M / H
1100	50 - 200 Pa	29,6 - 59,3	4,19	H / H
1300	50 - 200 Pa	16,4 - 32,8	2,32	L / L
1300	50 - 200 Pa	18,5 - 37,1	2,62	L / M
1300	50 - 200 Pa	20,6 - 41,3	2,92	M / M
1300	50 - 200 Pa	25,9 - 51,8	3,66	L / H
1300	50 - 200 Pa	28 - 56	3,96	M / H
1300	50 - 200 Pa	35,4 - 70,7	5	H / H
1500	50 - 200 Pa	13,9 - 27,9	1,97	L / L
1500	50 - 200 Pa	18,8 - 37,6	2,66	L / M
1500	50 - 200 Pa	23,7 - 47,4	3,35	M / M
1500	50 - 200 Pa	25,1 - 50,2	3,55	L / H
1500	50 - 200 Pa	30 - 60	4,24	M / H
1500	50 - 200 Pa	36,2 - 72,4	5,12	H / H

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