

## **Air Excellent - Air Distribution System**



**> Technical Reference Document**

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## EN INTRODUCTION

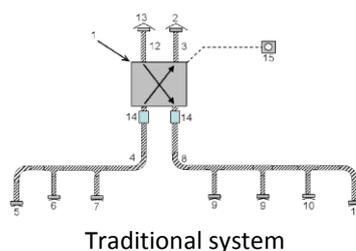
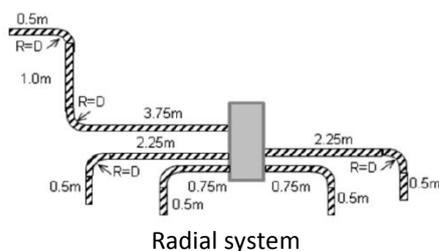
The Air Excellent air distribution system is ductwork designed to distribute air for central mechanical ventilation systems with heat recovery used to ventilate residential and small commercial buildings. The system has several components:

1. Two distribution boxes; one for air supply and the other for air extraction;
2. Semi-rigid duct and accessories, including rigid 90° horizontal and vertical bends, valve adaptors and supply and extract valves.

The ventilation unit is connected to the distribution boxes using insulated mass flow ducts and silencers and the semi-rigid duct is rolled out to supply fresh air to the habitable rooms and extract stale, moist from the wet rooms. A range of accessories make it possible to make air tight connections without using adhesive tape, fix the semi-rigid duct to the floor, suspend it from ceilings, make shallow bends around obstacles and make sharp horizontal and vertical bends if required.

The air flow rate in each duct run is determined by air flow restrictors in the distribution box and Ubbink supplies a free commissioning tool which can be used to determine how many rings to cut out of the air flow restrictors. The commissioning tool requires the following information:

1. Semi-rigid duct type (AE35 or AE55);
2. Lengths of the ducts runs;
3. Number and type of bends (horizontal or vertical).

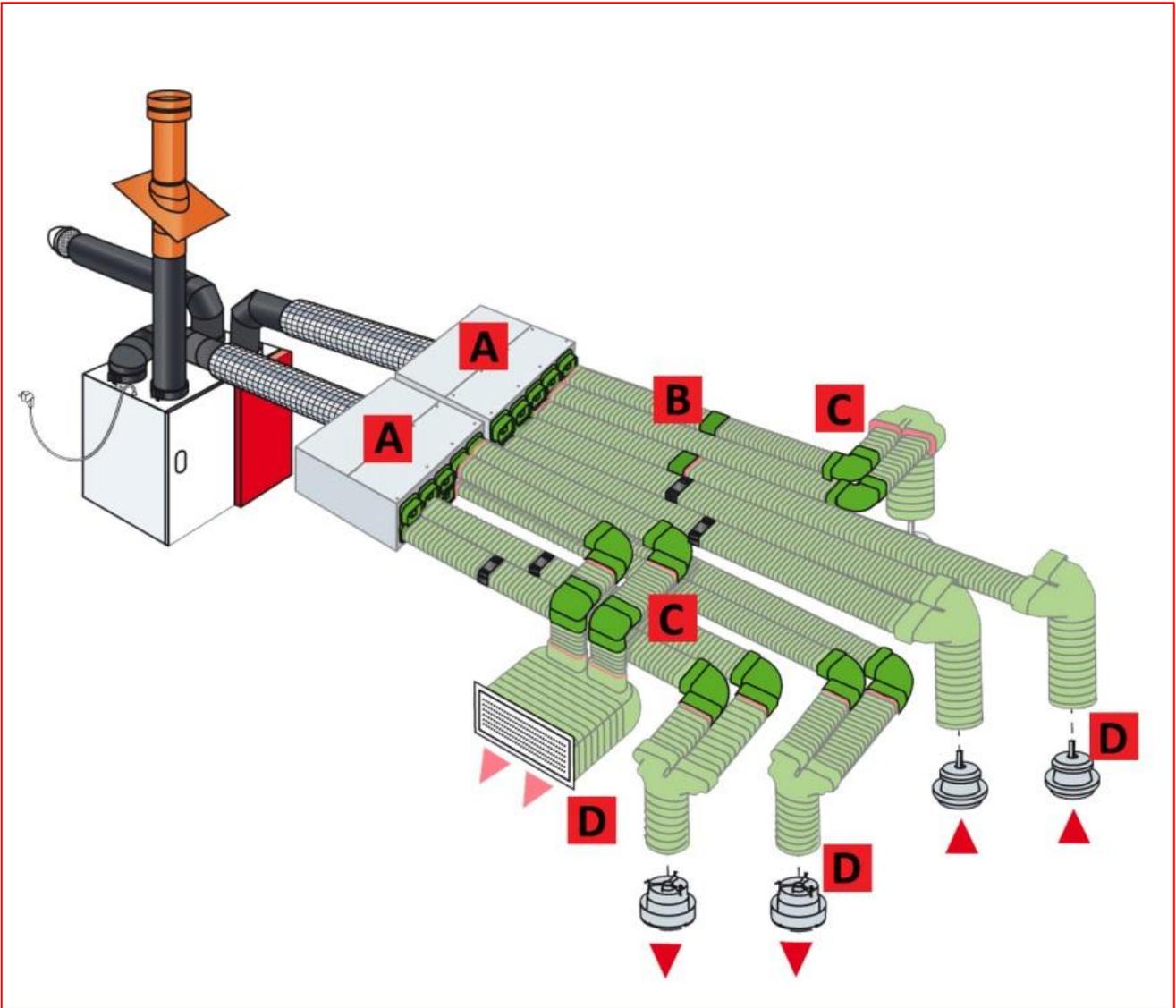


The advantages at a glance:

- > Low(er) pressure loss than traditional systems due to radial design
- Mechanical connections long-term airtightness
- > Installation:
  - A plastic duct on a roll is easy and quick to cut to length and bend around obstacles
  - Mechanical connections (i.e. no duct tape) means quick, clean and consistent quality of installation
- > Quick, quality and consistent commissioning using the configuration tool and air flow restrictor rings
- > Insulation in air distribution boxes reduces noise transfer to and between rooms
- > Easy and quick maintenance
- > Mix and match duct types AE35 and AE55 to reduce system cost
- > Low duct height for in-wall and/or screed floor application
- > Anti-static and anti-bacterial properties
- > No migration of harmful substances or ingredients

Features	
Temperature range	-30 ... +60°C
Medium / Purpose	Ventilation air
Airtightness	Air tightness (class) depends on the system design and installation. Lab and field tests by an independent consultant have shown that class B is achievable.

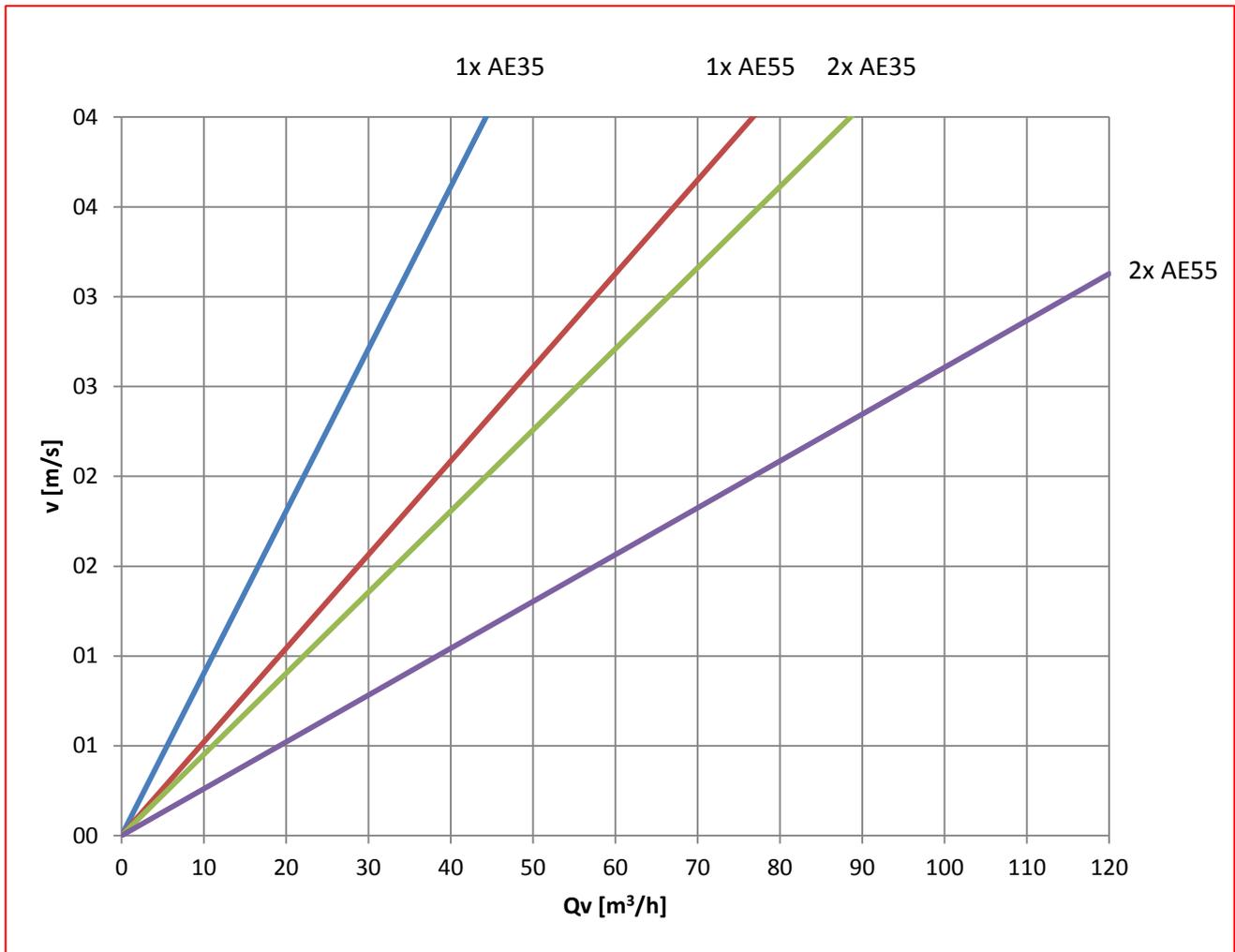




	A	B	C	D
EN	Distribution boxes	Connectors	90° bends	Supply / extract valves



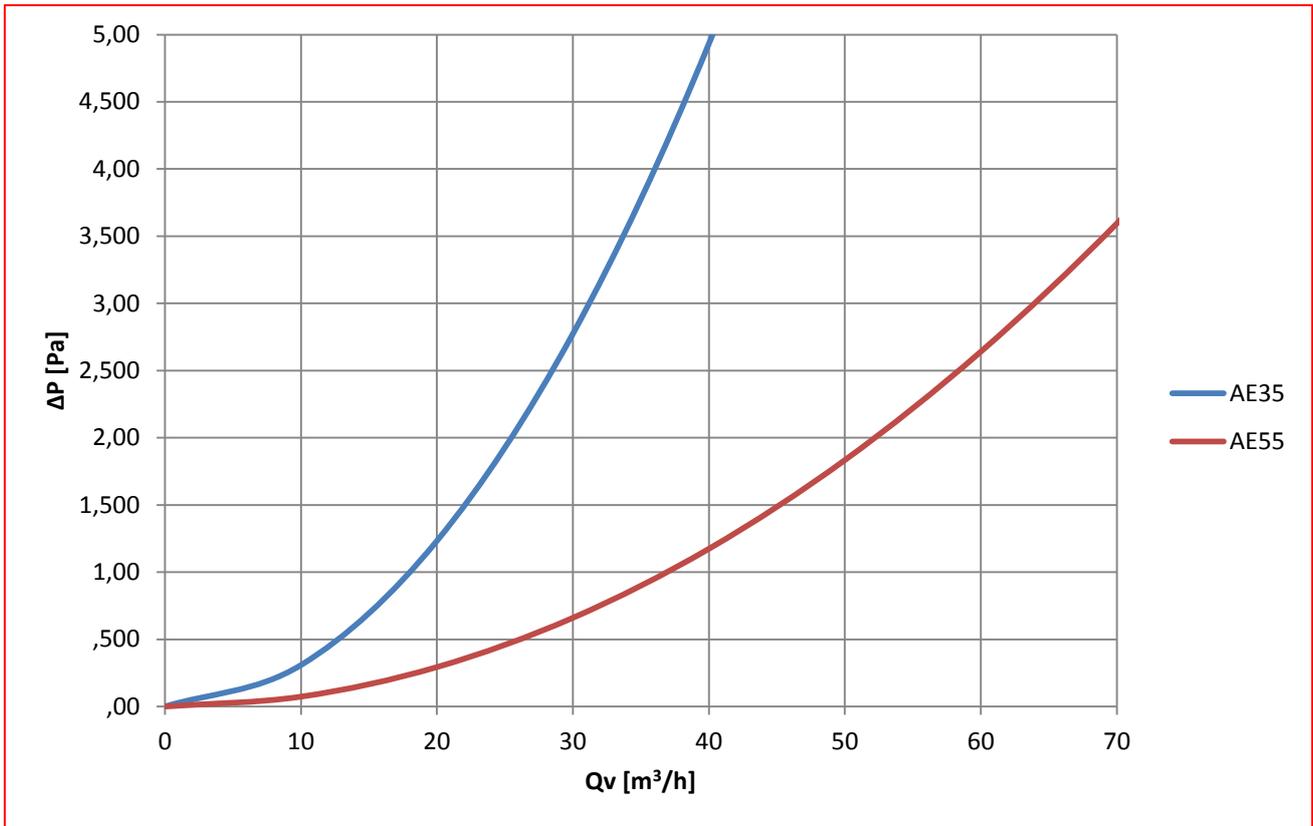
**EN** **DIAGRAM AIR VELOCITY AS A FUNCTION OF THE FLOW RATE**

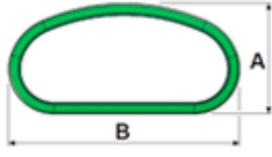
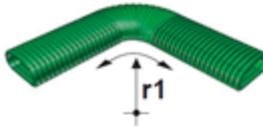
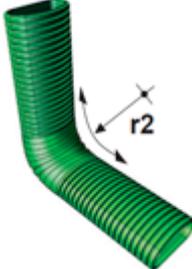
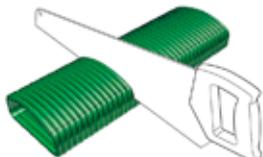


Capacity diagram					
		v [m/s]			
		2,5	3,0	3,5	4,0
$Q_v$ [m³/h]	(AE55) + (AE55)	96	115	134	153
	(AE35) + (AE35)	55	66	78	89
	(AE55)	48	58	67	77
	(AE35)	28	33	39	44



**EN** **DIAGRAM PRESSURE LOSS AS A FUNCTION OF THE FLOW RATE (L = 1 m)**



Semi-rigid duct						
			<b>AE35</b>	<b>AE55</b>		
		A [mm]	50	60		
		B [mm]	102	132		
		<b>ΔP [Pa]</b>				
		10 m <sup>3</sup> /h	0,3	0,1		
		20 m <sup>3</sup> /h	12	0,3		
		30 m <sup>3</sup> /h	2,8	0,7		
		40 m <sup>3</sup> /h	4,9	1,2		
		50 m <sup>3</sup> /h	7,7	1,8		
		60 m <sup>3</sup> /h	11,1	2,6		
			<b>AE35</b>	<b>AE55</b>		
		r <sub>1</sub> [mm]	>200	>400		
		r <sub>2</sub> [mm]	>150	>200		
		H [mm]	50	60		
						
		Zeta [-]	0,24 (r=200)	0,60 (r=150)	0,55 (r=400)	0,50 (r=200)
		<b>ΔP [Pa]</b>				
		10 m <sup>3</sup> /h	0,1	0,3	0,0	0,0
		20 m <sup>3</sup> /h	0,5	1,2	0,1	0,1
		30 m <sup>3</sup> /h	1,1	2,6	0,4	0,3
40 m <sup>3</sup> /h	1,9	4,7	0,8	0,7		
50 m <sup>3</sup> /h	2,9	7,3	1,4	1,3		
60 m <sup>3</sup> /h	4,2	10,6	2,2	2,0		
	<b>EN</b>	<ul style="list-style-type: none"> <li>➤ PE outer and smooth PE inner layer with anti-static and anti-bacterial properties</li> <li>➤ Cutting: use a saw or knife to cut the semi-rigid duct.</li> </ul>				



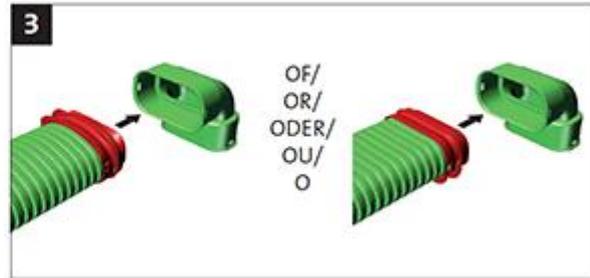
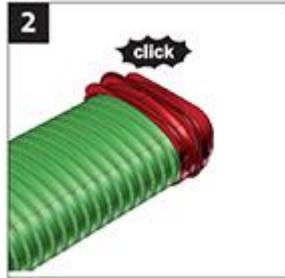
## Seal rings



EN

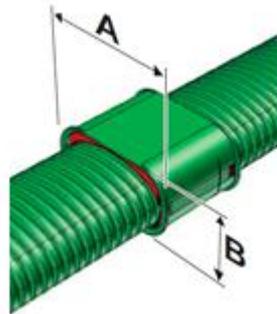
- > TPE and PP 2-component-injection-moulding
- > The seal ring is a vital component of the system and ensures airtight and sustainable connections. The seal ring must be used to make all connections in the system.

## Installation



OF/  
OR/  
ODER/  
OU/  
O

## Connectors



	AE35	AE55
A [mm]	118	148
B [mm]	61	71
Zeta [-]	0	0

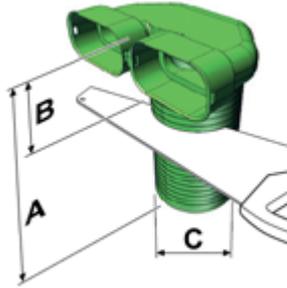
EN

- > PP with anti-static and anti-bacterial properties



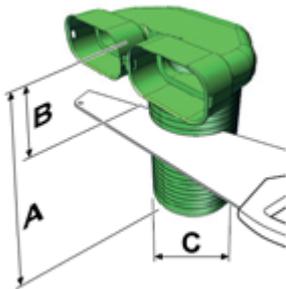


### Valve adaptor 90°



		AE35			
A [mm]	301				
B [mm]	Min. 100 mm				
C [mm]	DN125				
Zeta [-]	2,79	9,50	4,60	10,20	
m <sup>3</sup> /h		ΔP [Pa]			
1 x 10	1,4		2,3		
2 x 10		4,6		5,0	
1 x 20	5,5		9,0		
2 x 20		18,6		20,0	
1 x 30	12,3		20,3		
2 x 30		41,8		44,9	
1 x 40	21,8		36,0		
2 x 40		74,4		79,9	
1 x 50	34,1		56,3		
2 x 50		116,2		124,8	
1 x 60	49,1		81,0		
2 x 60		167,3		179,7	

### Valve adaptor 90°



		AE55			
A [mm]	388				
B [mm]	Min. 100 mm				
C [mm]	DN125				
Zeta [-]	7,67	29,97	8,21	24,34	
m <sup>3</sup> /h		ΔP [Pa]			
1 x 10	1,3		1,3		
2 x 10		4,4		4,0	
1 x 20	5,0		5,4		
2 x 20		17,6		15,9	
1 x 30	11,3		12,0		
2 x 30		39,6		35,7	
1 x 40	20,0		21,4		
2 x 40		70,3		63,5	
1 x 50	31,3		33,5		
2 x 50		109,9		99,2	
1 x 60	45,0		48,2		
2 x 60		158,3		142,8	

EN

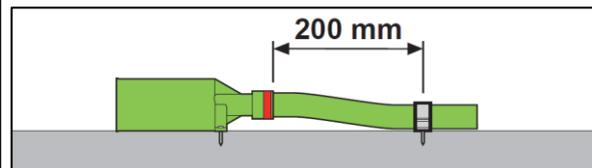
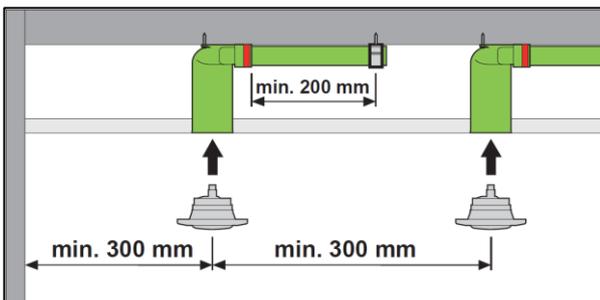
- > PP with anti-static and anti-bacterial properties
- > **Note:** zeta values include a supply or extract valve which is 12 mm opened



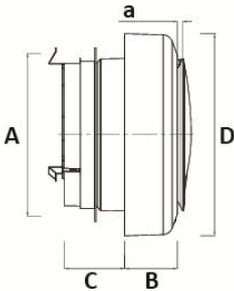
## Valve adaptor 180°

		AE55			
	A [mm]	402			
	B [mm]	Min. 100 mm			
	C [mm]	DN125			
					
	Zeta [-]	8,23	29,07	8,35	24,38
m <sup>3</sup> /h		ΔP [Pa]			
1 x 10	1,3		1,4		
2 x 10		4,7		4,0	
1 x 20	5,4		5,4		
2 x 20		19,0		15,9	
1 x 30	12,1		12,3		
2 x 30		42,7		35,8	
1 x 40	21,5		21,8		
2 x 40		75,8		63,6	
1 x 50	33,5		34,0		
2 x 50		118,5		99,4	
1 x 60	48,3		49,0		
2 x 60		170,6		143,1	
<b>EN</b>		> PP with anti-static and anti-bacterial properties > <b>Note:</b> zeta values include a supply or extract valve which is 12 mm opened			

## Installation

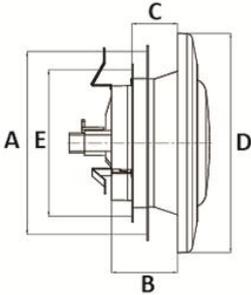


## Supply valve

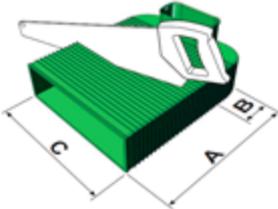
		AE35 / AE55	
		A [mm]	125
		B [mm]	40
		C [mm]	46
		D [mm]	155
		a	Ventielopening / valve opening /



Extract valve / Afvoerventiel / Abluftventil / Bouche d'extraction ronde / Valvola di estrazione

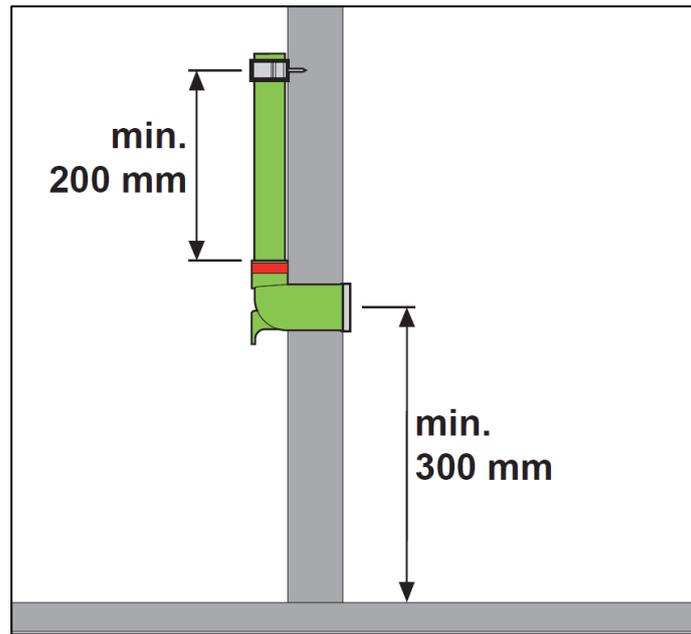
		<b>AE35 / AE55</b>	
		A [mm]	125
	B [mm]	45	
	C [mm]	31	
	D [mm]	150	
	E [mm]	100	

Floor grille adaptors

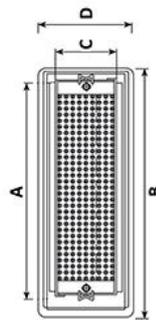
	<b>AE35</b>		<b>AE55</b>	
	A [mm]	285 mm		
	B [mm]	Min. 80 mm		
	C [mm]	309x86 mm		
	<b>ΔP [Pa]</b>			
	1x10 m <sup>3</sup> /h	0,4		0,2
	2x10 m <sup>3</sup> /h		1,1	
	1x20 m <sup>3</sup> /h	1,7		0,9
	2x20 m <sup>3</sup> /h		4,3	
	1x30 m <sup>3</sup> /h	3,8		2,1
	2x30 m <sup>3</sup> /h		9,7	
	1x40 m <sup>3</sup> /h	6,7		3,8
	2x40 m <sup>3</sup> /h		17,2	
	1x50 m <sup>3</sup> /h	10,5		5,9
2x50 m <sup>3</sup> /h		26,9		
	1x 60 m <sup>3</sup> /h	15,1		8,5
	2x60 m <sup>3</sup> /h		38,8	
<b>EN</b>	> PP with anti-bacterial and anti-static properties > <b>Note:</b> Remark: zeta values include a grid			



## Installation



## Floor grills



	AE35 / AE55
A [mm]	296
B [mm]	350
C [mm]	80
D [mm]	130

## Flow restrictors

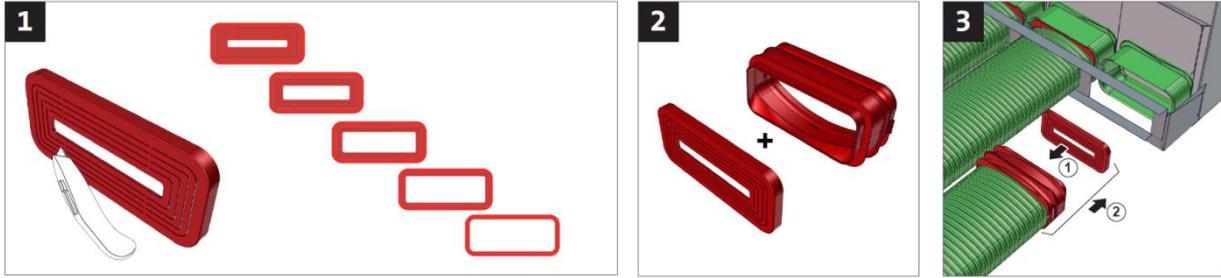


**EN**

- > PP (red)
- > A flow restrictor is used to ensure that the correct flow rate is achieved in each duct run. The flow restrictor has 4 rings which can be cut out using a knife. The number of rings to be removed can be determined by the Ubbink configuration tool. The flow restrictor is placed in the sealing ring of the associated duct before it is attached to the distribution box.



## Installation



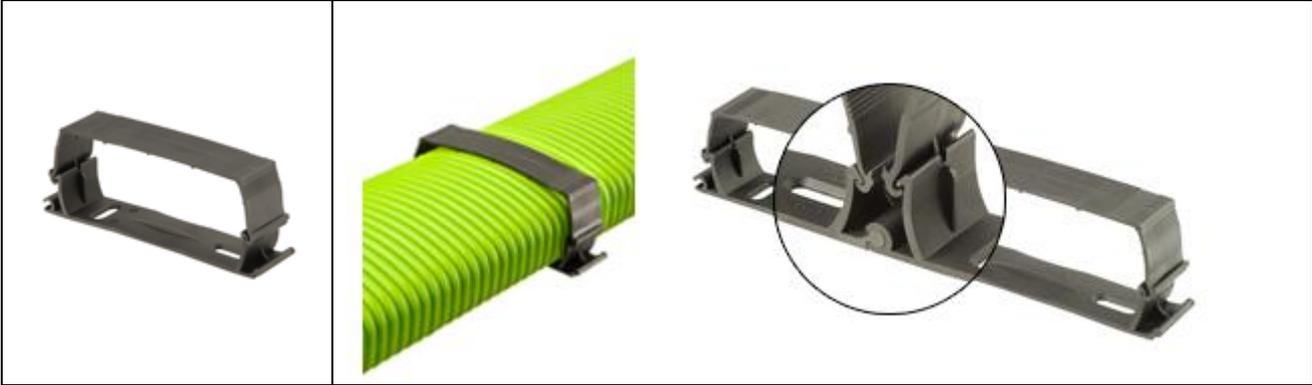
## Flow restrictors



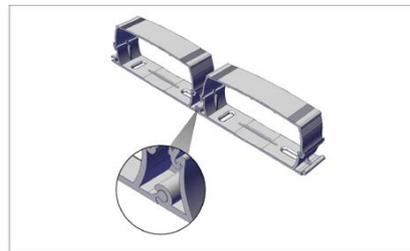
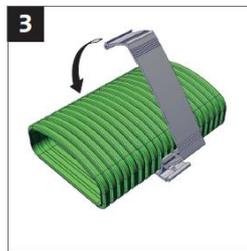
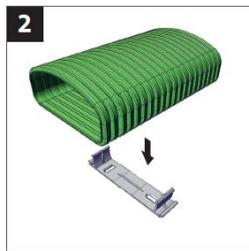
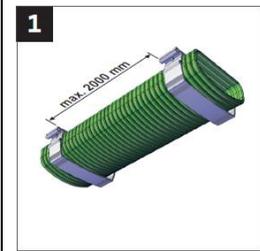
	Number of rings removed				
	0	1	2	3	4
					
<b>AE35</b>					
Zeta [-]	19,32	5,18	1,52	0,45	0,23
<b>ΔP [Pa]</b>					
10 m <sup>3</sup> /h	9,5	2,5	0,7	0,2	0,1
20 m <sup>3</sup> /h	37,8	10,1	3,0	0,9	0,5
30 m <sup>3</sup> /h	85,1	22,8	6,7	2,0	1,0
40 m <sup>3</sup> /h	151,3	40,6	11,9	3,5	1,8
50 m <sup>3</sup> /h	236,3	63,4	18,6	5,5	2,8
60 m <sup>3</sup> /h	340,3	91,2	26,8	7,9	4,1
<b>AE55</b>					
Zeta [-]	36,80	7,10	2,30	0,60	0,10
<b>ΔP [Pa]</b>					
10 m <sup>3</sup> /h	6,0	1,2	0,4	0,1	0,0
20 m <sup>3</sup> /h	24,0	4,6	1,5	0,4	0,1
30 m <sup>3</sup> /h	54,0	10,4	3,4	0,9	0,1
40 m <sup>3</sup> /h	96,0	18,5	6,0	1,6	0,3
50 m <sup>3</sup> /h	150,0	28,9	9,4	2,4	0,4
60 m <sup>3</sup> /h	216,0	41,7	13,5	3,5	0,6



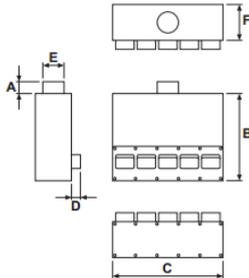
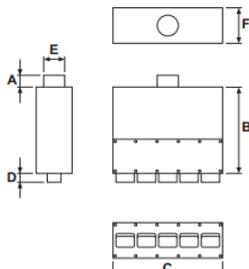
**PP Mounting clips / PP Montagebeugels / PP Befestigungsschelle / Colliers de fixation en PP / PP Collari di fissaggio**

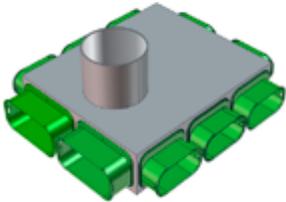
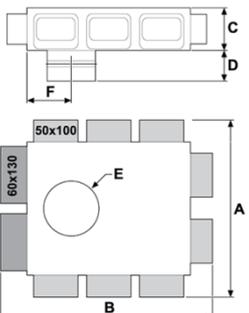


**Installation**

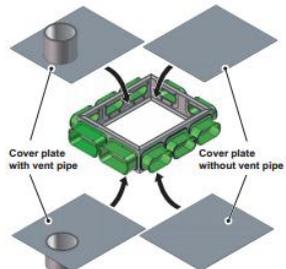


**EN** STANDARD DISTRIBUTION BOXES

Standard distribution boxes		AE35	AE55	A	B	C	D	E	F		
		1	5x	-	70	510	635	44	125	210	
		2	10x	-	70	510	635	44	150	210	
		3	15x	-	70	600	635	44	180	300	
		4	7x	2x	70	510	635	44	150	210	
		5	11x	3x	70	600	635	44	180	300	
		6	-	4x	70	510	635	44	150	210	
		7	-	8x	70	600	635	44	180	300	
											

Flat distribution boxes		AE35	AE55	A	B	C	D	E	F	
		1	8x	2x	403	479	97	70	150	100
		2	12x	2x	Coming soon...					
		3	6x	4x	403	479	97	70	125	100
		4	8x	2x	403	479	97	70	125	100

**EN** Note: Availability varies per country

Possible configurations	
	<p><b>EN</b> 3 possible configurations</p>



	<b>EN</b>	Installation with mass flow duct downwards
	<b>EN</b>	Installation with mass flow duct upwards
	<b>EN</b>	Installation without mass flow duct



**DR. RALPH DERRA**  
Umwelt- und Nachhaltigkeitsmanagement für Unternehmen, Institutionen, Staaten und Labordienste



**ISEGA – Forschungs- und Untersuchungs-Gesellschaft mbH**  
**Aschaffenburg**



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 Web: www.isega.de

13 February 2012  
 Dr. Ockelhof

**EXPERT'S OPINION**  
**Z102.GD.12**

**for Messrs:** CENTROTHERM Systemtechnik GmbH  
 Am Patbergischen Damm 9  
 59629 Bilton / Germany

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**Product:** AF-Dichtung 100x09  
 Ventilatordichtung 50x09  
 O-Ring Reglette 100x09  
 Green plastic (interior white / exterior green)

The products handed in for evaluation by the company mentioned above are used for the controlled ventilation of living rooms, among others, in companies treating foodstuffs.

The following documents formed the basis of this evaluation:  
 Test report no. 50943 of the company ISEGA Forschungs- und Untersuchungsgesellschaft Aschaffenburg of 24 January 2012.

The products were examined by us for the release of volatile substances by means of thermal desorption.

In the course of the analysis, the products do not transfer substances in quantities into food-stuffs able to endanger human health.

The demands of the  
 Regulation (EC) No 1935/2004 of the European Parliament and of the Council of 27 October 2004 on materials and articles intended to come into contact with food and repealing Directives 85/384/EEC and 89/108/EEC, Official Journal of the European Union L 3054 of 13.11.2004, modified by Reg. (No. 5) of the regulation (EC) No 595/2009 of 18 June 2009, Official Journal of the European Union L 180 of 18 July 2009, article 3.

- 2 -

Geschäftsführer: Dr. Ralph Derra | Niederlassung: Aschaffenburg 1490 0100  
 Die Haftpflichtversicherung des Ingenieurverbandes für Sachverständige des Bundes der Sachverständigen für Technische Berufe – nach dem Gesetz vom 28.07.1974 (Sachverständigen-Gesetz) – ist bei der Haftpflichtversicherung des Ingenieurverbandes für Sachverständige des Bundes der Sachverständigen für Technische Berufe abgeschlossen.

**Ventilation systems**

**REACH declaration**

Declaration in accordance with the EU regulation 1907/2006/EG concerning the

**Registration  
 Evaluation  
 Authorisation  
 Restriction of  
 Chemicals**

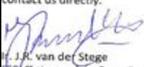
Target of this regulation is to register all substances which are produced or used in the EU and to document the environmental influences.

CENTROTEC produces ventilation ducts and components to be used in ventilation systems made of plastic materials. According to REACH we are only concerned as so-called "downstream user", because we are not producing primary substances or chemicals. We are not obligated to register our products.

As a downstream user we will follow the obligations and we request from our suppliers to make sure that all chemical substances used are registered in the REACH data base. To hold our high level of product security we will control the implementation of REACH with our suppliers.

Until now we don't have any indication that REACH will influence our products or our methods of production. If this will change, we'll inform you immediately.

If you have any further question according to REACH in our company we kindly ask you to contact us directly.

  
**J. R. van der Stege**  
 CEO, Chairman of the Group Board, Ubbink/Centrotherm Group



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