Products · Planning · Prices

emcoair quick selection catalogue 2017/18

Air diffusers · Grids · Dampers · Controllers

Price list is valid from 01.04.2017

emco Klima creates atmosphere.

emcoair

emcoair price list 2017/18
All prices are in EUROS and do not include VAT.
This price list supersedes all previous information regarding prices and conditions.
We reserve the right to change prices and technical details.
Please refer to our general conditions of business, delivery and payment.
Product orders with a value of 400,- Euros or less are subject to a processing fee of 100,- Euros.

EMCO

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emcoair

swirl diffusers

ceiling air diffusers

linear diffusers

circular pipe diffusers

displacement diffusers

industrial diffusers

wide-angle nozzles

combination linear diffusers

floor diffusers

grids

multileaf diffusers

regulation components

electronic
regulation components

In 1972 emco klima was launched to produce a series of best quality air diffusers.
Continuous development of products for various different air delivery systems and their 'on-time' despatch, gradually secured the creation of well earned trust between emco and the consultant specifiers, contractors and end users.

emco klima also offers 'In-house' services that include laboratory testing, computer analysis and product selection during the planning process, to provide functional dependability and optimum economic efficiency for the entire range of air and water based systems.

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Index of symbols and basic terms

Symbol	Description	Unit
A	Area	m²
A_{eff}	Geometrically free cross section of stream	m² bzw. m²/m
B	Width	mm
C	Correction factor of the induction ratio for an amended aperture angle	-
D, d	Diameter	mm, m
D_{min}	Distance of the grids, from the ceiling	m
F	Power	N
f	Correction value for vertical stream velocity	-
f_m	Center frequency	Hz
g	Acceleration due to gravity	ms^{-2}
H, h	Height	mm, m
i	Induction ratio	-
K	Correction factor of the effective blow out speed for an amended slat angle β	-
k	Height of roughness	mm
L, l	Length (of the room), length of the course of the stream	mm, m
L_W	Sound power level	dB
L_{WA}	A-weighted sound-intensity level	dB (A)
L_P	Sound pressure level	dB
L_{PA}	A-weighted sound pressure level	dB (A)
ΔL	Room attenuation	dB
$\Delta L_{Okt.}$	Sound power per Okt.	dB/Okt.
m	Mass	kg
$\dot{m}$	Mass flow rate water	$kg\,s^{-1}$
n	Number (quantity)	-
P	Sound power	W
p	Sound pressure	Pa
p_d	Dynamic pressure	Pa
p_0	External pressure (air pressure)	Pa
p_{st}	Static pressure	Pa
p_t	Total pressure	Pa
Δ_p	Pressure difference	Pa
Δp_R	Drop in pressure through friction	Pa
Δp_t	Total pressure difference	Pa
R, r	Radius	mm, m

Symbol	Description	Unit
T	Thermodynamic temperature	K
T_R	Thermodynamic temperature of the room	K
T_{ab}	Thermodynamic temperature of the outgoing air	K
T_{zu}	Thermodynamic temperature of the supply air	K
t	Time	s
t_0, t_R	Supply air temperature / Room air temperature	°C
$t_{x\,max}$	Maximum temperature in the airstream cross section after airstream path x	°C
ΔT_0, Δt_0	Temperature difference between supply air and room air	K
ΔT_{xy}	Temperature difference between stream and room air after point x or x+y in the length of the course of a stream	K
$\Delta t_{x\,max}$	Max. temperature difference between stream and room air	K
V, V_{geo}	Room volume	m³
$\dot{V}$	Air volume flow	$m^3\,h^{-1}$
$\dot{V}_x$	Total volume flow at coordinate x	$m^3\,h^{-1}$
$\dot{V}_0$	Volume flow of supply air	$m^3\,h^{-1}$ resp. $m^3\,(hm)^{-1}$
v	Velocity	ms^{-1}
v_{eff}	Effective blow out speed near the grid	ms^{-1}
vβ	Effective blow out speed near the grid for an amended slat angle β	ms^{-1}
v_{max}	Maximum average velocity after point x or x+y in the length of the course of a stream	ms^{-1}
X, x	Length of a stream's course	mm, m
x_{krit}	Critical airflow distance	m
y	Vertical length of a stream's course after the blast	m
y_{max}	Vertical penetration depth	m
Y, y	Vertical deflection of the non isothermal stream	m
$Y_{0,2}$, $y_{0,2}$	Distance to airstream axis at an airl-flow speed of 0,2 m/	m
α, β, γ, δ	Angle, airstream diffusion angle	°
ζ	Resistance coefficient	-
λ	Friction coefficient	-
ρ	Density	$kg\,m^{-3}$

Basic terms

Coanda-Effect

The coanda effect is the property of flowing mediums, where they are flowing in parallel or even in divergent directions, to align themselves with level surfaces or even other streams, or to attract such streams.

Critical airflow distance

When there is a difference between the room temperature and the airflow temperature, then, depending on whether its temperature is lower or higher than the room temperature, in addition to the change in elevation brought about by diffusion, the effect will be for the airflow to rise or fall. If supply air at a lower temperature is blown into a room horizontally, then the axis of the current of such a free airstream will follow a course that immediately curves downward. With ceiling streams (wall streams), the Coanda effect will cause the stream to cling to the ceiling for a certain distance in spite of the lower temperature; the stream does not start to drop off until a later time point. This distance from the air diffuser to the point where the colder stream unsticks from the ceiling is called the "critical airflow distance".

Temperature ratio

The temperature ratio is the ratio of the temperature difference at a point x and the temperature difference at the air diffuser. The temperature ratio is a nondimensional quantity. The smaller the temperature ratio is after a certain length of a stream's course, the faster temperature differences will be reduced, and the greater the airflow induction will be.

Induction ratio

The induction ratio is the ratio from the total volume flow in motion at a point x and the volume flow of the supply air. As the induction ratio cannot be determined experimentally, it is calculated indirectly from the temperature ratio.

Airflow distance x and y

Airflow distance x is:

- the distance from the geometric center of a diffuser to a junction with an airstream flowing in the opposite direction.
- the length of the course of an airstream from the geometric center of the diffuser along a horizontal and vertical wall to a point for which the parameters relevant to the stream are to be determined.

Airflow distance y is:

- the vertical distance of a vertical airstream created by the meeting of two horizontal streams flowing toward one another, from their junction point to the point for which the parameters relevant to the stream are to be determined.

The definitions for x and y also apply when, owing to their geometry, diffusers are not flush with the ceiling or are suspended. In such cases one must take into account the fact that after the airflow distance (x + y), the following interrelationship between the velocities applies with and without any ceiling influence:

$v_{max\ (with\ ceiling)} = 1{,}4 \times v_{max\ (without\ ceiling)}$

respectively

$v_{max\ (without\ ceiling)} = 0{,}71 \times v_{max\ (with\ ceiling)}$

Vertical penetration depth

Vertical penetration depth, y_{max} is understood to be the vertical distance of an airstream at a higher temperature, introduced into a room from the diffuser to its reversal point.

Acoustics
Sound causes vibrations in the air, which alternately compress and expand. These changes in pressure overlay the existing air pressure and reproduce sinusoidally in the air. If these pressure variations reach the human ear, the air pressure waves are converted into mechanical vibrations by the ear drums. The hearing process has been started. The human ear perceives only an airborne sound, whereby the following two parameters are decisive:

a. sound pressure
b. frequency

1. Sound pressure
Sound pressure is the pressure change in the air which is generated by an acoustic source. These variations in pressure are measured in N/m^2 and identified with p. Sound pressure represents a gauge for volume. It depends on the distance between the acoustic source and the measurement point as well as the condition of the room.
Sound pressure as a pure parameter is not suited to calculate sound propagation. The sound power of the acoustic source must be determined.

2. Sound power
Sound power is energy emitted from an acoustic source and transformed into sound. Sound power is fed to the air in the form of pressure fluctuations. Sound power is a parameter that cannot be measured directly.
It is determined when the acoustic pressure surrounds the acoustic source.
Sound power is thus a parameter not dependent upon the room and distance. It will be used for all further calculations, and will be specified in watts [W].

For practical reasons, non-dimensional operational figures are adpoted, which go back to A.G. Bell.

3. Sound pressure level
The logarithmic ratio of sound pressure p to the reference value p_0 is identified as sound pressure level L_p and is measured in decibels [dB].

$$L_p = 10 \log \left(\frac{p}{p_0}\right)^2 \text{ in dB}$$

The reference value is $p_0 = 2 * 10^{-5}$ N/m² and is the minimum sound power that humans perceive. It is identified as the auditory threshold. The acoustic range (auditory threshold – pain threshold) therefore lies between 0 and 120 dB.

4. Sound power level
The logarithmic ratio of sound power (W) to reference value (W_0) is identified as the sound power level and is also measured in decibels [dB].

$$L_W = 10 \log \frac{W}{W_0} \text{ in dB}$$

The reference value is $W_0 = 10^{-12}$ W.
Although the sound pressure level and sound power levels are both expressed in decibels (dB), they are two different things. The sound power level is the sound generated at the source and the sound pressure level is a sound perceived at a certain distance from the sound source. Thus the sound power level is generally higher than the sound pressure level.

5. Frequency weighting
When the frequencies vary, humans perceive equal acoustic pressure levels differently. Generally an acoustic pressure level at a low frequency is perceived to be softer and less disruptive than at a high frequency. In order to accommodate this subjective sense, objectively measured acoustic pressure levels are adapted to the perception of volume. This is referred to as weighting acoustic pressure.
The weighting is done as follows.
A certain value from the gauged sound pressure level is subtracted from the frequencies to which humans are less sensitive, at the same time a certain value is added to other frequency ranges.
The a-weighting has established itself as the primary type of weighting. Here the statement is a singular designation, referred to as an A-weighted sound pressure level or A-weighted sound power level. It is indicated in dB(A).

6. Sound level addition
If there are several acoustic sources, the respective energies (sound power level) and sound intensity (sound pressure level) must be added to make a total sound level. The same principles are valid for both the sound power level and the sound pressure level. The following relation is valid for multiple acoustic sources with the same level:

$$L_{ges} = L_1 + 10 * \log n \text{ [dB]}$$

In this equation, n is the number of acoustic sources. The function is illustrated in graph 1.
If there are acoustic sources with varying levels, a level increase of ΔL is added to the higher level, the increase being dependent on the level difference and calculated according to the following equation:

$$\Delta L = 10 * \log (1 + 10^{(L_1 - L_2/10)})$$

This correlation is also valid for $L_2 > L_1$ and illustrated in graph 2.

If there are several acoustic sources with varying levels, the addition should be done in steps. First the sum level should be calculated from two levels. The sum level is then added to a third and so on. Each individual addition is done according to the equation stated or the graph. The order of the calculation is not important, as the result is always the same.
Thus the following conclusion can be made:
The addition of two sound sources with the same level results in an increase of 3 dB.
If the level difference is greater than 10 dB, there is practically no addition. Formally there is an increase of 0,4 dB, but this is not taken into consideration because the human ear can only perceive changes of at least 3 dB.

Graph 1: Increase in level with equally loud acoustic sources

Graph 2: Increase in level with unequally loud acoustic sources

7. Determining the sound pressure level in the room

To determine the sound pressure level in a room, the acoustic source and its sound power level must be known. The sound power level generated and emitted by an acoustic source creates a certain sound pressure level, which is independent of the distance to the sound's source, its direction gain and the room absorption.
This leads to a overlapping of the direct and diffuse acoustic field and is described with the following equation:

$$L_p = L_W + 10 \log \left(\frac{Q}{4\pi r^2} + \frac{4}{A} \right) \text{ in dB}$$

Q: directivity factor
r: distance from the acoustic source in m
A: absorption area in m² Sabin

Differentiation is made between the following directivity factors:

1 in the middle of the room
2 in the middle of the wall
3 in the middle of the room angle
4 in the corner of the room

The value of the directivity factor is between 1 and 8 and is dependent on the angular distribution.

For practical calculation, set the directivity factor – independent of all other parameters - to 8 and the angular distribution to 0°. For all other cases, use a directivity factor of 4.
Absorption area: the equivalent absorption area can be determined from reverberation time T.

$$A = 0{,}163 \frac{V}{T} \text{ in m}^2$$

V: Space (volume) in m³
T: Reverberation Time in s

Reverberation time can be determined experimentally. During planning, everberation time can be determined according to VDI 2081 using the following chart.

Type of room	Example	Average reverberation time [s]
Workspace	Single office	0.5
	Open-plan office	0.5
	Workshops	1.5
Assembly rooms	Concert halls. Opera houses	1.5
	Theaters, Cinemas	1.0
	Conference rooms	1.0
Housing	Hotel rooms	0.5
Social rooms	Break rooms	0.5
Classrooms	Reading rooms	1.0
	Lecture halls	1.0
	Classrooms/seminar rooms	1.0
Hospitals	Operating theatre (room)	2.0
	Patient rooms	1.0
	Spas and swimming pools	2.0
Public areas	Museums	1.5
	Restaurants	1.0
	Showrooms	1.0
Sport facilities	Gymnasiums. Swimming pools	2.0
Other	Radio and TV Studios	0.5
	Computer rooms	1.5

Chart: Reverberation time (From VDI 2081)

Indoor attenuation, subject to the absorption area, directivity and distance from the acoustic source can be seen in the above showing graph

Absorption factor a
A wall which absorbs all incoming acoustic waves, has an absorption factor of $\alpha = 1$. The above mentioned a_m-values are the ratio of actual absorption to an ideally absorbing wall. They represent a average value.

Absorption area m² Sabin
This is the area which completely absorbs all sound waves. It is **not identical** with the **entire room area**.

Conversion graph sound power in sound pressure level

Example Acoustic:

Fact: *Device with a sound pressure level of 40 dB(A) installed in a conference room with a volume of 100 m³*

Question: *How high is the sound pressure level at a distance of 3 m from the device?*

For practical reasons assume: *Directivity factor is 4*

1. *Starting at point ① follow the parallel line distance 3 m to the intersection point with the horizontal line of directivity factor 4 (point ②).*
2. *From there draw a perpendicular line upwards.*
3. *New start at point ③ Room volume 100 m³ (left side) then follow perpendicular line upwards to the intersection point ④ with the absorption factor line for conference rooms.*
4. *From this point, follow the both the subsidiary line of the left graph to intersection point ⑤*
5. *From point ⑤ follow the horizontal line to the ordinate, which results in a room attenuation of 8 dB (point ⑥).*

Thus the sound pressure level is $L_p = L_W - \Delta L$ = 40 dB(A) – 8 dB(A) = 32 dB(A)
This value of 8 dB(A) indoor attenuation is kept in mind when specifying the sound pressure level.

Swirl diffusers

Swirl diffusers represent the most significant development in classic ventilation technology. The use of swirl diffusers made it possible to bring high levels of volume air into commercial areas and to discharge high thermal loads. Despite this, high levels of comfort are reached, because emco swirl diffusers have an adjustable induction feature that quickly and effectively reduces supply air velocity and differences in temperature and thus create a pleasant and cosy climate in occupied areas.

An aesthetically pleasing design adds to the excellent quality of the emco swirl diffuser. Available in various standard designs and sizes as well as in special sizes and colours, depending on the architetural requirements.

Swirl diffusers are ideal for use in most commercial and industrial air conditioning applications. The highly inductive flat horizontal airstream created by the diffuser with its rapid reduction of temperature and velocity guarantees a high level of comfort in all occupied areas, even when cooling loads are high and ceilings heights are low.

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emcoair swirl diffuser model DRS
Diffuser model DRS is a highly inductive swirl diffuser with a round or square front plate and pressed air control blades and an integrated steel diffuser. The device is suitable for use in commercial and industrial applications and can be installed flush with or suspended from the ceiling.
The swirl diffuser is typically operated via a plenum box but can also be installed directly at the end of the pipe via a connector piece with an integrated perforated metal element.

Construction
The DRS swirl diffuser consists of a front plate (1) with air control blades. The blades are integrated into the exit level of a diffuser (2). The swirl diffuser is fastened by a center screw.

Areas of application
- Commercial areas
- Offices and clean rooms
- Assembly rooms
- Computer rooms
- Department stores
- Systems with constant and variable volume flow
- Recommended for rooms heights of 2.20 to 6 m and high cooling loads

Method of operation
The air control blades proportion the airflow into a multitude of single, highly inductive streams.
By integrating the blades into the diffusor's exit level, an excellent horizontal stream can be achieved even when the device is used in a suspended installation.

Product benefits
- Optimal airflow
- Low sound power level in high volume flow
- Rapid reduction of velocity and temperature differences through high induction

Aerodynamic data DRS

Nominal size [-]	L_{WA} [dB(A)]	$\dot{V}_0$ [m³/h]	Δp [Pa]	Minimum spacing [m]	x_{krit} [m]
DN 100	30 35 40	75 95 125	28 45 73	0.25 0.15 1.5	3.4 4.3 5.5
DN 125	30 35 40	110 130 165	32 45 68	0.5 1.3 2.3	2.9 3.6 4.5
DN 180	30 35 40	192 230 270	27 38 54	1.5 2.4 3.5	2.3 2.8 3.3
DN 250	30 35 40	365 440 530	29 43 62	3.7 5.1 6.7	2.0 2.4 2.8
DN 315	30 35 40	550 670 820	28 40 60	5.7 7.5 9.8	1.7 2.1 2.6
DN 355	30 35 40	750 900 1100	34 49 69	7.4 9.6 12.3	1.8 2.2 2.6

Specification: The minimum spacing for heights of 3.0 m so that velocity in occupied areas does not exceed 0.2 m/s.
Critical Stream Path ΔT= –8 K

Ranges of application DRS

---- = ideal range of application = possible range of application

Dimensions DRS U Connection "transition"

Size	DN 100	DN 125	DN 180	DN 250	DN 315	DN 355
Size B	83	103	118	165	175	189
Size C	108	125	151	205	230	249
Size Ø D	155	185	280	380	490	550
Size ☐ D	620	620	620	620	620	620
Size Ø d	98	98	158	198	248	278
Size Ø E	120	150	245	345	455	515
Size Ø G	6.5	6.5	6.5	6.5	6.5	6.5
Size ☐ G	12	12	12	12	12	12

Dimensions DRS KLFL Connection "clamp flange"

Size	DN 100	DN 125	DN 180	DN 250	DN 315	DN 355
Size C	90	96	119	143	169	185
Size Ø D	155	185	280	380	490	550
Size ☐ D	620	620	620	620	620	620
Size Ø E	117	142	226	311	400	448
Size Ø F	148	175	255	340	429	478
Size Ø d	98	98	158	198	248	278

Dimensions DRS AK Connection "plenum box"

Size	DN 100	DN 125	DN 180	DN 250	DN 315	DN 355
Size A	142	168	251	336	425	473
Size B	113	130.5	158	188	228	248
Size C	177	207	252	302	367	402
Size D	122	148	231	316	405	453
Size Ø d	98	123.5	158	198	248	278.5
Size H	62.5	67.3	77.5	87.5	102.5	107.3

Version key for model DRS

										Charac.
1	**= emcoair**									1
	0DRS	**= swirl diffuser model DRS**								2 - 5
		Q	**= square front panel**							
		R	= round front panel							6
			0	**= supply air / exhaust air**						7
				0100	**= 100 mm nominal size**					
				0125	= 125 mm					
				0180	= 180 mm					
				0250	= 250 mm					
				0315	= 315 mm					
				0355	= 355 mm					8 - 11
					0155	**= 155 mm external dimension (version R only)**				
					0185	= 185 mm (version R only)				
					0280	= 280 mm (version R only)				
					0380	= 380 mm (version R only)				
					0490	= 490 mm (version R only)				
					0550	= 550 mm (version R only)				
					0620	= 620 mm (version Q only)				
					XXXX	= specification of the requested external dimension in mm				12 - 15
						V	**= material is steel, galvanised**			16
							9010	**= surface front panel varnished in RAL 9010, gloss polished (gloss level 75-84%)**		
							XXXX	= varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)		
							0NCS	= varnished in NCS colour		
							00DB	= varnished in DB colour		
							RALP	= varnished in RAL-Pearl colour		
							RALG	= varnished in RAL colour, gloss level different from standard		
							YYYY	= special surfaces		17 - 20
								U	**= mounting type is transition (= standard)**	
								C	= transition with angle	
								K	= transition with clamp flange	
								F	= front panel only	21

Product group (1=emcoair)	Model designation	Diffuser geometry	Function	Nominal size (mm)	External dimension (mm)	Material	Surface Front panel	Mounting type	
1	**0DRS**	**Q**	**0**	**0100**	**0155**	**V**	**9010**	**U**	**= Example**

Version key plenum boxes (standard) round version for model DRS

														Charac.
1	**= emcoair**													1
	A = plenum box for air diffusers emcoair DRS and emcoair DIA													2
		1 = round version 1												3
			0100 = nominal size DN 100											
			0125 = nominal size DN 125											
			0180 = nominal size DN 180											
			0250 = nominal size DN 250											
			0315 = nominal size DN 315											
			0355 = nominal size DN 355											4 - 7
				177 = mm height for DN 100										
				287 = mm height for DN 125										
				252 = mm height for DN 180										
				302 = mm height for DN 250										
				367 = mm height for DN 315										
				402 = mm height for DN 355										8 - 10
					S = side spigot									11
						098 = mm spigot diameter for DN 100								
						123 = mm spigot diameter for DN 125								
						158 = mm spigot diameter for DN 180								
						198 = mm spigot diameter for DN 250								
						248 = mm spigot diameter for DN 315								
						278 = mm spigot diameter for DN 355								12 - 14
							1 = number of spigots							15
								V = material steel, galvanised						16
									0000 = unvarnished surface					17 - 20
										A = external chamfer				21
											0 = without insulation			22
												G = with perforated plate, with throttle, without sealing lip		
												H = with perforated plate, with throttle, with sealing lip		23
Product group (1=emcoair)	Model designation	Diffuser geometry	Nominal size DN (mm)	Height in mm	Spigot position	Spigot diameter (mm)	Number of spigots	Material	Surface	Chamfer	Insulation	Equipment		
1	**A**	**1**	**0100**	**177**	**S**	**098**	**1**	**V**	**0000**	**A**	**0**	**G**	**= Example**	

Price list

emcoair model	Diffuser geometry	Function	Nominal size DN	External dimension	Material	Front panel surface	Mounting type	Red prices are stock types. Prices €/unit	Additional charge for **transition (U)**	Additional charge for **transition with angle (C)**	Additional charge for **transition with clamp flange (K)**	Additional charge for **Standard plenum box***	Additional charge for **RALG or NCS at own's choice**	Additional charge for **RAL-Pearl or DB varnish**
10DRS	Q	0	0100	620	V	9010 [1]	F	**51.-**	14.-	19.-	26.-	41.-	29.-	41.-
			0125	620				**52.-**	16.-	21.-	29.-	42.-	29.-	41.-
			0180	620				**55.-**	18.-	23.-	31.-	48.-	29.-	41.-
			0250	620				**60.-**	22.-	28.-	40.-	55.-	29.-	41.-
			0315	620				**79.-**	27.-	33.-	46.-	64.-	29.-	41.-
			0355	620				**84.-**	31.-	37.-	51.-	72.-	29.-	41.-
10DRS	R	0	0100	155	V	9010	F	**22.-**	14.-	19.-	26.-	41.-	19.-	27.-
			0125	185				**27.-**	16.-	21.-	29.-	42.-	20.-	28.-
			0180	280				**34.-**	18.-	23.-	31.-	48.-	21.-	29.-
			0250	380				**41.-**	22.-	28.-	40.-	55.-	23.-	32.-
			0315	490				**70.-**	27.-	33.-	46.-	64.-	27.-	38.-
			0355	550				**78.-**	31.-	37.-	51.-	72.-	29.-	41.-

[1] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours, please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.

*** Version key and specifications of the standard plenum boxes (square version): see pages 36-39.**

Price list standard plenum boxes with throttle, round version for model DRS

emcoair model	Diffuser geometry	Nominal size DN	Height in mm	Spigot position	Spigot diameter	Number of spigots	Material	Surface	Chamfer	Insulation	Equipment	Red prices are stock types. Prices €/unit	Additional charge for **sealing lip (H)**	
1A	1	0100	177	S	098	1	V	0000	A	0	G	**41.-**	7.-	
		0125	287		123							**42.-**	7.-	
		0180	252		158							**48.-**	8.-	
		0250	302		198							**55.-**	9.-	
		0315	367		248							**64.-**	9.-	
		0355	402		278							**72.-**	10.-	

emcoair swirl diffuser model DAL359
Diffuser model DAL359 is a highly inductive swirl diffuser with a round or square front plate and fitted air control blades of ABS.
It is suitable for use in both closed and open ceiling systems and allows optimal adaptation of the air distribution system to the prevailing site conditions.
The large number of air conducting elements, with optimized airflow and acoustic characteristics, makes this device visually attractive and effective in managing high cooling loads in low ceiling heights.
Step-by-step reduction of the discharge free area makes it possible to adjust the device to meet changes in volume flow and discharge temperatures even after installation.
The use of blind elements or so-called double clips allows the discharge direction, length or airstream thickness to be varied while maintaining optical appearance.

Areas of application
- Commercial areas
- Offices
- Clean rooms
- Administration areas
- Computer rooms
- Department stores
- Assembly rooms
- Multipurpose halls
- Systems with constant and variable volume flow

Product benefits
- Low acoustic power level in high volume flow
- Rapid reduction of velocity and temperature differences through high induction
- Change of airflow direction and air stream pattern possible
- Ability to influence the discharge velocity and thus penetration depth

Construction
Diffuser model DAL359 consists of a round or square front plate and fitted air control blades of ABS.
Diffusers up to size 625 have the front plate attached to the plenum box with a concealed center screw, sizes 600 and 625 additional with cross-bar. Size 800 has screws around the border.

Method of operation
The blades, designed as wing-shaped profiles, produce a favorable deflection of the vertically streaming air into the horizontal direction of the face plate. Form-fitting bearings and grated components prevent any accidental or unallowable adjustment.
Rotating around the bearing center achieves a defined and reproducible reduction by 50% of the discharge free area. A greater penetration depth and flat, horizontal air distribution is achieved with the same discharge volume flow.
By using vertically discharging air control elements (double clips), the horizontal airstream can be enlarged. In flush mounted installations, this airstream pattern allows shorter distances between the diffusers, whereby higher air change can be achieved. Use of optional blind clips can further increase the discharge direction.

DAL359-300

DAL359-400

DAL359-500

DAL359-600/625

DAL359-800

DAL359 R-300

DAL359 R-400

DAL359 R-500

DAL359 R-600/625

DAL359 R-800

rotating discharge

right-side horizontal discharge

two-sided horizontal discharge

Aerodynamic data

Nominal size [-]	L_{WA} [dB(A)]	$\dot{V}_0$ [m³/h]	Δp [Pa]	Minimum spacing [m]	x_{krit} [m]
DN 300	30 35 40	110 135 160	18 27 39	1.3 1.5 1.8	0.9 1.1 1.4
DN 400	30 35 40	300 360 440	23 34 51	4.4 5.4 6.6	2.2 2.7 3.3
DN 500	30 35 40	430 530 650	19 29 42	5.4 6.6 8.2	2.7 3.3 4.1
DN 600	30 35 40	550 650 800	9 14 19	3.4 4.4 5.0	1.7 2.2 2.5
DN 625	30 35 40	550 650 800	9 14 19	3.4 4.4 5.0	1.7 2.2 2.5
DN 800	30 35 40	1150 1360 1750	13 18 28	5.0 5.8 7.0	2.5 2.9 3.5

Specification: The minimum spacing for heights of 3.0 m so that velocity in occupied areas does not exceed 0.2 m/s.
Critical stream path ΔT= –8 K.

Ranges of application

Dimensions/weights DAL359 plenum box square

Nominal size	300	400	500	600	625	800
Size ☐ A	298	398	498	595	620	800
Size B	170	190	203	215	215	248
Size H	275	315	340	365	365	430
Size Ø D	158	198	222	248	248	313
Size E	12	12	12	12	12	12
Weight [kg]	4.7	5.4	8.0	12.6	13.2	18.9
$A_{eff.}$ [m²]	0.0158	0.0226	0.0356	0.0574	0.0574	0.1148

Dimensions/weights DAL359 plenum box round

Größe	400	500	600	625	800
Size Ø A	400	500	600	623	800
Size H	250	300	300	300	400
Size Ø D	198	222	248	248	313
Size E	10	10	10	10	10
Weight [kg]	5.1	7.6	12.0	17.5	18.0
$A_{eff.}$ [m²]	0.0226	0.0356	0.0574	0.0574	0.1148

Note:
Both designs are available with top or side spigot. are equivalent to the designs with the marked spigots.
The height sizes of the plenum boxes at top spigot position: see table “round”.
The height sizes of the plenum boxes at side spigot position: see table “square”..

with squared plenum box

with round plenum box

Version key for model DAL359

											Charac.
1 = emcoair											1
	D359 = swirl diffuser model DAL359										2 - 5
		Q = squared front panel									
		R = round front panel									6
			Z = supply air								
			A = exhaust air								7
				0625 = 625 mm nominal size							
				0300 = 300 (version Q only)							
				0400 = 400 mm							
				0500 = 500 mm							
				0600 = 600 mm							
				0800 = 800 mm							
				XXXX = specification of the requested external dimension in mm							8 - 11
					600 = 600 mm hole pattern size						
					300 = 300						
					400 = 400						
					500 = 500						
					800 = 800						12 - 14
						V = material is steel, galvanised					
						A = aluminium (AlMgSi0,5)					
						E = stainless steel V2A (material no. 1.4301)					
						S = stainless steel V4A (material no. 1.4571)					15
							9010 = surface front panel varnished in RAL 9010, gloss polished (gloss level 75-84%)				
							XXXX = varnished in RAL colour at own's choice, gloss polished (gloss level 75-84%)				
							0NCS = varnished in NCS colour				
							00DB = varnished in DB colour				
							RALP = varnished in RAL-Pearl colour				
							RALG = varnished in RAL colour, gloss level different from standard				
							YYYY = special surfaces				
							E6C0 = anodised in natural colour (E6/C0)				
							EELO = anodised in stainless steel colour (E2/C31)				
							W320 = ground surface (stainless steel)				
							GGGG = satin (stainless steel)				
							UNBE = untreated (stainless steel)				16 - 19
								S = colour of the clip elements is black			
								W = white			
								G = grey			
								Y = special colour			
								E = not applicable (with exhaust air only)			20
									T = concealed mounting by means of a centre screw (not for nominal size 800 mm)		
									L = mounting by screw holes in the front panel		21
Product group (1=emcoair)	Model designation	Diffuser geometry	Function	Nominal size (mm)	Hole pattern size (mm)	Material	Surface front panel	Colour of the clip elements	Mounting type		
1	**D359**	**Q**	**Z**	**0625**	**600**	**V**	**9010**	**S**	**T**	**= Example**	

Additional charges apply for:

1. **Front panel version in aluminium** (anodised in natural colour (E6/C0) material = **A** in version key), square version: list price plus 90% round version: list price plus 90%
2. **Front panel version in stainless steel V2A**, material: 1.4301 (material = **E** in version key), square version: list price plus 120% round version: list price plus 120%
3. **Front panel version in stainless steel V4A**, material: 1.4301 (material = **S** in version key), square version: list price plus 130% round version: list price plus 130%
4. **Surfaces of the ront panels (differed from standard**) standard surface is RAL 9010.

- For RAL varnish at own's choice (XXXX in version key) please enter a 4-digit number in the version key for the "Surface" code if the required gloss level is 75-84% (for example 3003 for RAL 3003)
- For RAL colours with a different gloss level, please enter the code **RALG** and specify the precise colour designation with the specific gloss level.
- For NCS colours, please enter the code **0NCS** and specify the precise colour designation.
- For RAL pearl colours, please enter the code **RALP** and specify the precise colour designation. For DB colours, please enter the code **00DB** and specify the precise colour designation.
- Additional charges: see price lists on next pages
- Special varnish or covering (**YYYY** in version key): prices on request.

5. **Plenum boxes (differed from standard**) version keys and additional charges for plenum boxes, which differs from standard, see pages 36-39.

Price list for model DAL359

emcoair model	Diffuser geometry	Function (Z = supply air)	Nominal size DN	Hole pattern size	Material	Front panel surface	Colour of the clip element (S, W or G at the same price)	Mounting type	Red prices are stock types. Prices € /unit	Additional charge for **Standard plenum box**	Additional charge for **RAL at own's choice, RALG or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for **E6CO** anodised in natural colour	Additional charge for **stainless steel V2A** (material 1.4301)	Additional charge for **stainless steel V2A** (material **V4A** (1.4571)
1D359	Q	Z	0300	300	V	9010	S	T	**52.-**	41.-	21.-	29.-			
			0400	300				T	**56.-**	41.-	23.-	32.-			
			0400	400				T	**56.-**	47.-	23.-	32.-			
			0500	300				T	**73.-**	41.-	27.-	38.-			
			0500	400				T	**73.-**	47.-	27.-	38.-			
			0500	500				T	**73.-**	52.-	27.-	38.-			
			0600	300				T	**80.-**	41.-	29.-	41.-			
			0600	400				T	**80.-**	47.-	29.-	41.-	+90%	+120%	+130%
			0600	500				T	**80.-**	52.-	29.-	41.-			
			0600	600				T	**80.-**	57.-	29.-	41.-			
			0625	300				T	**80.-**	41.-	29.-	41.-			
			0625	400				T	**80.-**	47.-	29.-	41.-			
			0625	500				T	**80.-**	52.-	29.-	41.-			
			0625	600				T	**80.-**	57.-	29.-	41.-			
			0800	300				L	**150.-**	41.-	53.-	74.-			
			0800	400				L	**150.-**	47.-	53.-	74.-			
			0800	500				L	**150.-**	52.-	53.-	74.-			
			0800	600				L	**150.-**	57.-	53.-	74.-			
			0800	800				L	**150.-**	89.-	53.-	74.-			
1D359	R	Z	0300	300	V	9010	S	T	**62.-**	50.-	21.-	29.-			
			0400	300				T	**66.-**	50.-	23.-	32.-			
			0400	400				T	**66.-**	56.-	23.-	32.-			
			0500	300				T	**83.-**	50.-	27.-	38.-			
			0500	400				T	**83.-**	56.-	27.-	38.-			
			0500	500				T	**83.-**	63.-	27.-	38.-			
			0600	300				T	**90.-**	50.-	29.-	41.-			
			0600	400				T	**90.-**	56.-	29.-	41.-	+90%	+120%	+130%
			0600	500				T	**90.-**	63.-	29.-	41.-			
			0600	600				T	**90.-**	69.-	29.-	41.-			
			0625	300				T	**90.-**	50.-	29.-	41.-			
			0625	400				T	**90.-**	56.-	29.-	41.-			
			0625	500				T	**90.-**	63.-	29.-	41.-			
			0625	600				T	**90.-**	69.-	29.-	41.-			
			0800	300				L	**160.-**	50.-	53.-	74.-			
			0800	400				L	**160.-**	56.-	53.-	74.-			
			0800	500				L	**160.-**	63.-	53.-	74.-			
			0800	600				L	**160.-**	63.-	53.-	74.-			
			0800	800				L	**160.-**	106.-	53.-	74.-			

Price list for model DAL359

emcoair model	Diffuser geometry	Function (A = exhaust air)	Nominal size DN	Hole pattern size	Material	Front panel surface	Colour of the clip element (E = not applicable)	Mounting type	Red prices are stock types. Prices € /unit	Additional charge for **Standard plenum box**	Additional charge for **RAL at own's choice, RALG or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for **E6CO** anodised in natural colour	Additional charge for **stainless steel V2A** (material 1.4301)	Additional charge for **stainless steel V2A** (material **V4A** (1.4571)
1D359	Q	A	0300	300	V	9010	E	T	**48.-**	41.-	21.-	29.-			
			0400	300				T	**51.-**	41.-	23.-	32.-			
			0400	400				T	**51.-**	47.-	23.-	32.-			
			0500	300				T	**63.-**	41.-	27.-	38.-			
			0500	400				T	**63.-**	47.-	27.-	38.-			
			0500	500				T	**63.-**	52.-	27.-	38.-			
			0600	300				T	**65.-**	41.-	29.-	41.-			
			0600	400				T	**65.-**	47.-	29.-	41.-	+90%	+120%	+130%
			0600	500				T	**65.-**	52.-	29.-	41.-			
			0600	600				T	**65.-**	57.-	29.-	41.-			
			0625	300				T	**65.-**	41.-	29.-	41.-			
			0625	400				T	**65.-**	47.-	29.-	41.-			
			0625	500				T	**65.-**	52.-	29.-	41.-			
			0625	600				T	**65.-**	57.-	29.-	41.-			
			0800	300				L	**125.-**	41.-	53.-	74.-			
			0800	400				L	**125.-**	47.-	53.-	74.-			
			0800	500				L	**125.-**	52.-	53.-	74.-			
			0800	600				L	**125.-**	57.-	53.-	74.-			
			0800	800				L	**125.-**	89.-	53.-	74.-			
1D359	R	A	0300	300	V	9010	E	T	**58.-**	50.-	21.-	29.-			
			0400	300				T	**61.-**	50.-	23.-	32.-			
			0400	400				T	**61.-**	56.-	23.-	32.-			
			0500	300				T	**73.-**	50.-	27.-	38.-			
			0500	400				T	**73.-**	56.-	27.-	38.-			
			0500	500				T	**73.-**	63.-	27.-	38.-			
			0600	300				T	**75.-**	50.-	29.-	41.-			
			0600	400				T	**75.-**	56.-	29.-	41.-	+90%	+120%	+130%
			0600	500				T	**75.-**	63.-	29.-	41.-			
			0600	600				T	**75.-**	69.-	29.-	41.-			
			0625	300				T	**75.-**	50.-	29.-	41.-			
			0625	400				T	**75.-**	56.-	29.-	41.-			
			0625	500				T	**75.-**	63.-	29.-	41.-			
			0625	600				T	**75.-**	69.-	29.-	41.-			
			0800	300				L	**135.-**	50.-	53.-	74.-			
			0800	400				L	**135.-**	56.-	53.-	74.-			
			0800	500				L	**135.-**	63.-	53.-	74.-			
			0800	600				L	**135.-**	63.-	53.-	74.-			
			0800	800				L	**135.-**	106.-	53.-	74.-			

emcoair swirl diffuser DAL358
Diffuser model DAL358 is a highly inductive swirl diffuser with a round or square front plate and integrated ABS eccentric cylinders with straightening profiles. It is suitable use in both closed and open ceiling systems.
The ability to rotate the eccentric cylinder after installation makes it possible to achieve any desired airstream pattern. DAL358 allows optimal adaptation of the air distribution system to the prevailing site conditions.
The cylinder elements, integrated into the front plate, make it possible to adjust the airstream to any desired pattern, even after installation has taken place. The favorable air distribution at the cylinder elements allows high discharge velocities with low sound power levels.
The stable jet distribution, high induction at the discharge slot (as a result of circulating flow around the cylinders) as well as the stable airstream characteristics make these swirl diffusers well suited for variable volume flow. A reduction of the volume flow to 30% is possible without changing the airstream pattern. The swirling effect and induction ratio remain unchanged.

Areas of application
- Commercial areas
- Offices
- Clean rooms
- Administration areas
- Computer rooms
- Department stores
- Assembly rooms
- Multipurpose halls
- Systems with constant and variable volume flow

Product benefits
- Low acoustic power level in high volume flow
- Rapid reduction of velocity and temperature
- 360° rotating eccentric cylinder
- On-site change of airstream pattern possible
- Specific change of discharge velocity possible

Configuration
Diffuser model DAL358 consists of a round or square front plate with radial receptacle (half-bearing) and ABS eccentric cylinders with integrated straighteners.
The diffuser is operated with a plenum box. Diffusers up to size 625 have the front plate attached to the plenum box with a concealed center screw, sizes 600 and 625 additional with cross-bar, size 800 comes only with screws (4 additional screws at the corners of the plate).

DAL358-300

DAL358-400

DAL358-500

DAL358-600/625

DAL358-800

DAL358 R-400

DAL358 R-500

DAL358 R-600/625

DAL358 R-800

Swirl diffuser model DAL358 can be integrated into various ceiling systems.

Method of operation
The 100-mm long patented emco eccentric cylinders can be rotated by 360° in their individual bearings.
In the standard working range (drum positions between 1A and F6) the air can be continuously redirected by 180° at a constant discharge cross-section and discharge momentum. When turned beyond this range (drum positions 21 to 65), the discharge cross section is decreased step by step. By keeping the specific supply air volume, this increases the supply air velocity and discharge momentum.
Together with the receptacle, the drums forces a strong underpressure on their off-center surface, which forces the air in circular paths. In this manner each air jet of the drums is directed and the resulting streaming pattern can be influenced.

drum position 1A

drum position 21

drum position CD

drum position 43

This makes infinitely variable adjustment of the airstream possible with or without reduction of area.

Rotating Ceiling Jet
Setting all cylinders to the default position creates a rotating ceiling jet with swirling characteristics and thus high induction.

One-Sided Ceiling Jet
This discharge direction is achieved when all cylinders are set in different positions on both sides of the diffuser.

Two-Sided Ceiling Jet
A two-sided ceiling jet is achieved when the cylinders in two quandrantal segments are set to opposing positions.

Discharge behavior
The DAL358 is characterized by a front plate with radially arranged slot diffuser elements. By rotating the individual cylinders, a multitude of various discharge patters are possible. This allows air to flow around obstacles such as light fixtures, ceiling protrusions or columns. When used in rooms with high ceilings, the cylinders in the center segments should be set for vertical discharge. When using the DAL358, no adjacent slab construction is necessary to achieve a stable horizontal flow dispersion. In addition to the discharge patterns listed, various additional patterns are available upon request.

Aerodynamic data DAL358

Nominal size [-]	L_{WA} [dB(A)]	$\dot{V}_0$ [m³/h]	Δp [Pa]	Minimum spacing [m]	x_{krit} [m]
DN 300*	30 35 40	100 120 150	15 22 34	0.4 0.5 0.8	0.7 0.8 1.0
DN 400	30 35 40	170 220 270	18 23 32	0.40 0.40 0.90	1.20 1.50 1.80
DN 500	30 35 40	300 360 430	18 24 32	0.65 1.30 2.10	1.30 1.50 1.50
DN 600	30 35 40	430 520 620	14 19 27	1.30 2.10 3.10	1.40 1.60 1.90
DN 625	30 35 40	430 520 620	14 19 27	1.30 2.10 3.10	1.40 1.60 1.90
DN 800	30 35 40	550 660 800	12 17 23	1.60 2.60 3.70	1.10 1.40 1.70

Specification: The minimum spacing for heights of 3.0 m so that velocity in occupied areas does not exceed 0.2 m/s.
Critical stream path ΔT = –8 K.
* Size only available in square version.

Ranges of application DAL358

Dimensions/weights DAL358 plenum box square

Size	300	400	500	600	625	800
Size ☐ A	298	398	498	595	620	800
Size B	170	190	203	215	215	248
Size H	275	315	340	365	365	430
Size Ø D	158	198	222	248	248	313
Size E	12	12	12	12	12	12
Weight [kg]	5.2	7.4	11.3	15.2	16.2	22.9
$A_{eff.}$ [m²]	0.0081	0.0134	0.0214	0.0347	0.0347	0.0508

Dimensions/weights DAL358 plenum box round

Size	400	500	600	625	800
Size Ø A	400	500	600	623	800
Size H	250	300	300	300	400
Size Ø D	198	222	248	248	313
Size E	10	10	10	10	10
Weight [kg]	8.7	10.4	14.1	15.0	21.4
$A_{eff.}$ [m²]	0.0134	0.0200	0.0307	0.0307	0.0508

Note:
Both designs are available with top or side spigot.
The height sizes of the plenum boxes at spigot position top: see table “round”.
The height sizes of the plenum boxes at spigot position top: see table “square”.

with squared plenum box

with round plenum box

Version key

| | | |

Price list for model DAL358

emcoair model	Diffuser geometry	Function (Z = supply air)	Nominal size DN	Hole pattern size	Material	Front panel surface [1]	Colour of the eccentric cylinder (S, W or G at the same price)	Mounting type	Red prices are stock types. Prices € /unit	Additional charge for **Standard plenum box**	Additional charge for **RAL at own's choice, RALG or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for **E6CO** anodised in natural colour	Additional charge for **stainless steel V2A** (material 1.4301)	Additional charge for **stainless steel V2A** (material **V4A** (1.4571)
1 D358	Q	Z	0300	300	V	9010 [1]	S	T	**120.-**	41.-	21.-	29.-			
			0400	300				T	**125.-**	41.-	23.-	32.-			
			0400	400				T	**125.-**	47.-	23.-	32.-			
			0500	300				T	**145.-**	41.-	27.-	38.-			
			0500	400				T	**145.-**	47.-	27.-	38.-			
			0500	500				T	**145.-**	52.-	27.-	38.-			
			0600	300				T	**175.-**	41.-	29.-	41.-			
			0600	400				T	**175.-**	47.-	29.-	41.-	+90%	+120%	+130%
			0600	500				T	**175.-**	52.-	29.-	41.-			
			0600	600				T	**175.-**	57.-	29.-	41.-			
			0625	300				T	**175.-**	41.-	29.-	41.-			
			0625	400				T	**175.-**	47.-	29.-	41.-			
			0625	500				T	**175.-**	52.-	29.-	41.-			
			0625	600				T	**175.-**	57.-	29.-	41.-			
			0800	300				L	**250.-**	41.-	53.-	74.-			
			0800	400				L	**250.-**	47.-	53.-	74.-			
			0800	500				L	**250.-**	52.-	53.-	74.-			
			0800	600				L	**250.-**	57.-	53.-	74.-			
			0800	800				L	**250.-**	89.-	53.-	74.-			
1 D358	R	Z	0400	300	V	9010	S	T	**135.-**	50.-	23.-	32.-			
			0400	400				T	**135.-**	56.-	23.-	32.-			
			0500	300				T	**155.-**	50.-	27.-	38.-			
			0500	400				T	**155.-**	56.-	27.-	38.-			
			0500	500				T	**155.-**	63.-	27.-	38.-			
			0600	300				T	**185.-**	50.-	29.-	41.-			
			0600	400				T	**185.-**	56.-	29.-	41.-	+90%	+120%	+130%
			0600	500				T	**185.-**	63.-	29.-	41.-			
			0600	600				T	**185.-**	69.-	29.-	41.-			
			0625	300				T	**185.-**	50.-	29.-	41.-			
			0625	400				T	**185.-**	56.-	29.-	41.-			
			0625	500				T	**185.-**	63.-	29.-	41.-			
			0625	600				T	**185.-**	69.-	29.-	41.-			
			0800	300				L	**260.-**	50.-	53.-	74.-			
			0800	400				L	**260.-**	56.-	53.-	74.-			
			0800	500				L	**260.-**	63.-	53.-	74.-			
			0800	600				L	**260.-**	63.-	53.-	74.-			
			0800	800				L	**260.-**	106.-	53.-	74.-			

[1] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours, please enter the code **RALP** or **00DB** respektively and specify the precise colour designation..

Price list for model DAL358

emcoair model	Diffuser geometry	Function (A = exhaust air)	Nominal size DN	Hole pattern size	Material	Front panel surface [1]	Colour of the eccentric cylinder (E = not applicable)	Mounting type	Red prices are stock types. Prices € /unit	Additional charge for **Standard plenum box**	Additional charge for **RAL at own's choice, RALG or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for **E6CO** anodised in natural colour	Additional charge for **stainless steel V2A** (material 1.4301)	Additional charge for **stainless steel V2A** (material **V4A** (1.4571)
1 D358	Q	A	0300	300	V	9010	E	T	**95.-**	41.-	21.-	29.-			
			0400	300				T	**95.-**	41.-	23.-	32.-			
			0400	400				T	**95.-**	47.-	23.-	32.-			
			0500	300				T	**110.-**	41.-	27.-	38.-			
			0500	400				T	**110.-**	47.-	27.-	38.-			
			0500	500				T	**110.-**	52.-	27.-	38.-			
			0600	300				T	**135.-**	41.-	29.-	41.-			
			0600	400				T	**135.-**	47.-	29.-	41.-	+90%	+120%	+130%
			0600	500				T	**135.-**	52.-	29.-	41.-			
			0600	600				T	**135.-**	57.-	29.-	41.-			
			0625	300				T	**135.-**	41.-	29.-	41.-			
			0625	400				T	**135.-**	47.-	29.-	41.-			
			0625	500				T	**135.-**	52.-	29.-	41.-			
			0625	600				T	**135.-**	57.-	29.-	41.-			
			0800	300				L	**190.-**	41.-	53.-	74.-			
			0800	400				L	**190.-**	47.-	53.-	74.-			
			0800	500				L	**190.-**	52.-	53.-	74.-			
			0800	600				L	**190.-**	57.-	53.-	74.-			
			0800	800				L	**190.-**	89.-	53.-	74.-			
1 D358	R	A	0400	300	V	9010	E	T	**105.-**	50.-	23.-	32.-			
			0400	400				T	**105.-**	56.-	23.-	32.-			
			0500	300				T	**105.-**	50.-	27.-	38.-			
			0500	400				T	**105.-**	56.-	27.-	38.-			
			0500	500				T	**105.-**	63.-	27.-	38.-			
			0600	300				T	**145.-**	50.-	29.-	41.-			
			0600	400				T	**145.-**	56.-	29.-	41.-	+90%	+120%	+130%
			0600	500				T	**145.-**	63.-	29.-	41.-			
			0600	600				T	**145.-**	69.-	29.-	41.-			
			0625	300				T	**145.-**	50.-	29.-	41.-			
			0625	400				T	**145.-**	56.-	29.-	41.-			
			0625	500				T	**145.-**	63.-	29.-	41.-			
			0625	600				T	**145.-**	69.-	29.-	41.-			
			0800	300				L	**200.-**	50.-	53.-	74.-			
			0800	400				L	**200.-**	56.-	53.-	74.-			
			0800	500				L	**200.-**	63.-	53.-	74.-			
			0800	600				L	**200.-**	63.-	53.-	74.-			
			0800	800				L	**200.-**	106.-	53.-	74.-			

Dimensions AK-Q plenum box square

Size DN	300	400	500	600	625	800
Size ☐ A	298	398	498	595	620	800
Size B	170	190	203	215	215	248
Size H	275	315	340	365	365	430
Size Ø D	158	198	222	248	248	313

Dimensions AK-R plenum box round

Size DN	300	400	500	600	625	800
Size ☐ A	-	400	500	600	623	800
Size H	-	250	300	300	300	400
Size Ø D	-	198	222	248	248	313

Notes:
Both designs are available with top or side spigot.
The height sizes of the plenum boxes at spigot position top: see table “round”.
The height sizes of the plenum boxes at spigot position side: see table “square”.

emcoair plenum box AK

Made from galvanised sheet steel with spigot, perforated plate and suspension straps.
square diffusers with side spigot and throttle that can be operated from the front;
round diffusers with top spigot and throttle that can be operated on connecting piece.

emcoair AK-Q
squared plenum box

emcoair AK-R
round plenum box

Price list for standard plenum boxes for emcoair swirl diffusers and ceiling air diffusers (Exceptions: Models emcoair DRS and DIA round)

Article numbers based on standard versions.
More possible specifications of the plenum boxes: see version key on pages 38/39.

emcoair model	Diffuser geometry	Nominal size DN	Heigh (mm)	Spigot position	Spigot diameter (mm)	Number of spigots	Material (V = steel, galvanised)	Surface (0000 = unvarnished)	Chamfer (A = outward)	Insulation	Equipment	Height of the traverse	Mounting type	**Red prices are stock types. Prices € /unit**	Additional charge for **sealing lip**	Additional charge for **height modification**	Additional charge for **extra spigot**	Additional charge for **modification of spigot-Ø**
1A	Q	0300	298	S	158	1	V	0000	A	0	G	0	T	**41.-**	8.-	10.-	7.-	7.-
		0400	315		198								T	**47.-**	9.-	12.-	8.-	8.-
		0500	340		222								T	**52.-**	9.-	13.-	9.-	9.-
		0600	365		248								T	**57.-**	9.-	14.-	10.-	10.-
		0625	365		248								T	**57.-**	9.-	14.-	10.-	10.-
		0800	430		313								L	**89.-**	10.-	15.-	12.-	12.-
1A	Q	0300	298	O	158	1	V	0000	A	0	G	0	T	**41.-**	8.-	10.-	7.-	7.-
		0400	315		198								T	**47.-**	9.-	12.-	8.-	8.-
		0500	340		222								T	**52.-**	9.-	13.-	9.-	9.-
		0600	365		248								T	**57.-**	9.-	14.-	10.-	10.-
		0625	365		248								T	**57.-**	9.-	14.-	10.-	10.-
		0800	430		313								L	**89.-**	10.-	15.-	12.-	12.-
1A	R	0400	250	S	198	1	V	0000	A	0	G	0	T	**56.-**	9.-	12.-	8.-	8.-
		0500	300		222								T	**63.-**	9.-	13.-	9.-	9.-
		0600	300		248								T	**69.-**	9.-	14.-	10.-	10.-
		0625	300		248								T	**69.-**	9.-	14.-	10.-	10.-
		0800	400		313								L	**106.-**	10.-	15.-	12.-	12.-
1A	R	0400	250	O	198	1	V	0000	A	0	G	0	T	**56.-**	9.-	12.-	8.-	8.-
		0500	300		222								T	**63.-**	9.-	13.-	9.-	9.-
		0600	300		248								T	**69.-**	9.-	14.-	10.-	10.-
		0625	300		248								T	**69.-**	9.-	14.-	10.-	10.-
		0800	400		313								L	**106.-**	10.-	15.-	12.-	12.-

All orders differed from these standard plenum boxes: Prices on request!

Version key plenum boxes (standard) model AKD

	Charac
1 = emcoair	1
A = plenum box model AKD	2
Q = squared version	
R = round version	
Y = special version	3
0625 = 625 mm nominal size	
0300 = 300 (squared version only)	
0400 = 400 mm	
0500 = 500 mm	
0600 = 600 mm	
0800 = 800 mm	
XXXX = specification of the requested dimension in mm	4 - 7
365 = 365 mm height	
300 = 300 mm	
250 = 250 mm	
400 = 400 mm	
275 = 275 mm	
315 = 315 mm	
340 = 340 mm	
430 = 430 mm	
XXX = specification of the requested height in mm	8 - 10
S = side spigot	
O = top spigot	
Y = special position or special size	11
248 = 248 mm spigot diameter	
158 = 158 mm	
198 = 198 mm	
222 = 222 mm	
313 = 313 mm	
XXX = specification of the requested spigot diameter in mm	12 - 14
1 = 1 (number of spigots)	
2 = 2	
X = requested number of spigots	15
V = material steel, galvanised	
A = aluminium (AlMgSi0,5)	
E = stainless steel V2A (material-no. 1.4301)	
S = stainless steel V4A (material-no. 1.4571)	16
0000 = unvarnished (standard)	
9010 = surface front panel varnished in RAL 9010, gloss polished (gloss level 75-84%)	
XXXX = varnished in RAL colour at own's choice, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surfaces	
E6C0 = anodised in natural colour (E6/C0)	
W320 = ground surface (stainless steel)	
GGGG = satin (stainless steel)	
UNBE = untreated (stainless steel)	17 - 20
A = external chamfer	
I = inward chamfer	21

Product group (1=emcoair)	Model designation	Diffuser form	Nominal size DN (mm)	Height (mm)	Spigot position	Spigot diameter (mm)	Number of spigots	Material	Surface	Chamfer	Insulation	Equipment	Height of the traverse (mm)	Mounting type		
											0 = without insulation					
											1 = with insulation inside (20 mm mineral wool)					
											2 = with insulation outside (13 mm Armaflex)					
											7 = with insulation outside (19 mm Armaflex)					
											3 = with insulation inside (20 mm mineral wool) and outside (13 mm Armaflex)					
											6 = with insulation inside (20 mm) and outside (19 mm Armaflex)					22
												G = with perforated plate, with throttle, without sealing lip				
												A = without perforated plate, with throttle, with sealing lip				
												B = without perforated plate, without throttle, without sealing lip				
												C = without perforated plate, without throttle, with sealing lip				
												D = without perforated plate, with throttle, without sealing lip				
												E = with perforated plate, without throttle, without sealing lip				
												F = with perforated plate, without throttle, with sealing lip				
												H = with perforated plate, with throttle, with sealing lip				23
													0 = height of the traverse (standard)			
													Y = special position or special size			24
														T = concealed mounting by means of a centre screw (not for nominal size 800 mm)		
														L = mounting by screw holes in the front panel		25
1	**A**	**Q**	**0625**	**365**	**S**	**248**	**1**	**V**	**0000**	**A**	**0**	**G**	**0**	**T**	**= Example**	

Ceiling air diffusers

Sophisticated ceiling systems and interior design specifications often require air diffusers that can vary in form and function as necessary for a specific project.
emco has developed a series of air diffusers whose designs and functions allow them optimal integration into the ceiling system.
In most cases, the standard dimensions listed in the catalogue can be adapted to meet special installation demands.
The required flow patterns can be attained by either a fixed default setting or motordriven adjustment.
When used in combination with control technology, a thermically comfortable room temperature as well as an energy-efficient flow of air can be achieved even in rooms with high ceilings, such as concert halls, exhibition halls and other event venues..

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emcoair ceiling air diffusers

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emcoair ceiling air diffuser model DIA
Diffuser model DIA is a highly inductive swirl diffuser with a round or square front plate and pressed air control blades and an integrated steel diffuser.
The device is suitable for use in commercial and industrial applications and can be installed flush with or suspended from the ceiling.
The swirl diffuser is typically operated via a plenum box but can also be installed directly at the end of the pipe via a connector piece with an integrated perforated metal element.

Areas of application
- Commercial areas
- Offices and clean rooms
- Assembly rooms
- Computer rooms
- Department stores
- Systems with constant and variable volume flow
- Recommended for rooms heights of 2.20 to 6 m and high cooling loads

Product benefits
- Optimal airflow
- Low sound power level in high volume flow
- Rapid reduction of velocity and temperature diff erences through high induction

Configuration
The DIA ceiling air diffuser consists of a front plate (1) with air control blades. The blades are integrated into the exit level of a diffuser (2). The diffuser is fastened by a center screw.

Method of operation
The air control blades proportion the airflow into a multitude of single, highly inductive streams.
By integrating the blades into the diffusor's exit level, an excellent horizontal stream can be achieved even when the device is used in a suspended installation.

Aerodynamic data DIA

Nominal size [-]	L_{WA} [dB(A)]	$\dot{V}_0$ [m³/h]	Δp [Pa]	Minimum spacing [m]	x_{crit} [m]
DN 180	30 35 40	140 170 200	20 29 40	1.3 2.0 3.1	1.8 2.2 2.6
DN 250	30 35 40	250 290 340	20 26 37	3.3 4.6 6.0	1.6 1.9 2.2
DN 315	30 35 40	350 410 490	18 25 37	5.1 6.8 8.8	1.3 1.6 2.0
DN 355	30 35 40	410 480 540	17 23 29	6.7 8.6 11.0	1.4 1.6 2.0

Specification: The minimum spacing for heights of 3.0 m so that velocity in occupied areas does not exceed 0.2 m/s.
Critical stream path ΔT= –8 K

Range of application DIA ---- ideal range of application = possible range of application

Dimensions DIA U Connection “transition”

Nominal size DN *	180	250	315	355
Size B	118	165	175	189
Size C	151	205	230	249
Size Ø D	284	384	494	554
Size ☐ D	620	620	620	620
Size Ø d	158	198	248	278
Size Ø E	245	345	455	515
Size Ø G	10	10	10	10
Size ☐ G	12	12	12	12

Dimensions DIA KLFL Connection “clamp flange”

Nominal size DN	180	250	315	355
Size C	119	143	169	185
Size Ø D	284	384	494	554
Size ☐ D	620	620	620	620
Size Ø DK	226	311	400	448
Size Ø F	255	340	429	478
Size Ø d	158	198	248	278

Dimensions DIA AK Connection “plenum box” (round)

Nominal size DN	180	250	315	355
Size A	251	336	425	473
Size B	158	188	228	248
Size C	252	302	367	402
Size D	231	316	405	453
Size Ø d	158	198	248	278.5
Size H	77.5	87.5	102.5	107.3

Version key

										Charac
1	**= emcoair**									1
	0DIA	**= ceiling air diffuser model DIA**								2 - 5
		Q = square front panel								
		R = round front panel								6
			0 = supply air /exhaust air							7
				0100 = 100 mm nominal size						
				0250 = 250 mm						
				0315 = 315 mm						
				0355 = 355 mm						8 - 11
					0159 = 159 mm external dimension (version R only)					
					0384 = 384 mm (version R only)					
					0494 = 494 mm (version R only)					
					0554 = 554 mm (version R only)					
					0620 = 620 mm (version Q only)					
					XXXX = specification of the requested external dimension in mm					12 - 15
						V = material is steel, galvanised				16
							9010 = surface front panel varnished in RAL 9010, gloss polished (gloss level 75-84%)			
							XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)			
							0NCS = varnished in NCS colour			
							00DB = varnished in DB colour			
							RALP = varnished in RAL-Pearl colour			
							RALG = varnished in RAL colour, gloss level different from standard			
							YYYY = special surfaces			17 - 20
								U = mounting type is transition (= standard)		
								K = transition with clamp flange		
								F = front panel only		21
Product group (1=emcoair)	Model designation	Diffuser geometry	Function	Nominal size (mm)	External dimension (mm)	Material	Surface front panel	Mounting type		
1	**0DIA**	**Q**	**0**	**0100**	**0159**	**V**	**9010**	**U**	**= Example**	

Version key plenum boxes (standard) round version for model DIA

													Charac.
1												**= emcoair**	1
	A											**= plenum box for air diffusers emcoair DRS and emcoair DIA**	2
		1										**= round version 1**	3
			0100									**= nominal size DN 100**	
			0250									= nominal size DN 250	
			0315									= nominal size DN 315	
			0355									= nominal size DN 355	4 - 7
				177								**= mm height for DN 100**	
				302								= mm height for DN 250	
				367								= mm height for DN 315	
				402								= mm height for DN 355	8 - 10
					S							**= side spigot**	11
						158						**= mm spigot diameter for DN 180**	
						198						= mm spigot diameter for DN 250	
						248						= mm spigot diameter for DN 315	
						278						= mm spigot diameter for DN 355	12 - 14
							1					**= number of spigots**	15
								V				**= material steel, galvanised**	16
									0000			**= unvarnished surface**	17 - 20
										A		**= external chamfer**	21
											0	**= without insulation**	22
												G = with perforated plate, with throttle, without sealing lip	
												H = with perforated plate, with throttle, with sealing lip	23
Product group (1=emcoair)	Model designation	Diffuser geometry	Nominal size DN (mm)	Height in mm	Spigot position	Spigot diameter (mm)	Number of spigots	Material	Surface	Chamfer	Insulation	Equipment	
1	**A**	**1**	**0180**	**252**	**S**	**158**	**1**	**V**	**0000**	**A**	**0**	**G**	**= Example**

Price list for model DIA

emcoair model	Diffuser geometry	Function	Nominal size DN	External dimension	Material	Front panel surface	Mounting type	Prices €/unit	Additional charge for **transition**	Additional charge for **transition with clamp flange**	Additional charge for **Standard plenum box***	Additional charge for **RAL, RALG or NCS at own's choice**	Additional charge for **RAL-Pearl or DB varnish**
10DIA	Q	0	0180	620	V	9010 [1]	F	**164.-**	18.-	31.-	48.-	29.-	41.-
			0250					**181.-**	22.-	40.-	55.-	29.-	41.-
			0315					**205.-**	27.-	46.-	64.-	29.-	41.-
			0355					**214.-**	31.-	51.-	72.-	29.-	41.-
10DIA	R	0	0180	280	V	9010	F	**66.-**	18.-	31.-	48.-	21.-	29.-
			0250	380				**102.-**	22.-	40.-	55.-	23.-	32.-
			0315	490				**159.-**	27.-	46.-	64.-	27.-	38.-
			0355	550				**190.-**	31.-	51.-	72.-	29.-	41.-

[1] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours, please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.

*** Version key and specifications of the standard plenum boxes (square version): see pages 36-39.**

Price list for standard plenum boxes with throttle, round version for model DIA

emcoair model	Diffuser geometry	Nominal size DN	Height in mm	Spigot position	Spigot diameter	Number of spigots	Material	Surface	Chamfer	Insulation	Equipment	Prices €/unit	Additional charge for **sealing lip (H)**
1A	1	0180	252	S	158	1	V	0000	A	0	G	**48.-**	8.-
		0250	302		198							**55.-**	9.-
		0315	367		248							**64.-**	9.-
		0355	402		278							**72.-**	10.-

Supply air (SUP)

emcoair multifunctional ceiling air diffuser model MPC

The emcoair MPC is a diffuser (supply air/exhaust air) with a perforated front plate for installation in ceilings. It is available in three versions for different flow types such as displacement flow (source air), radial flow dispersion along the ceiling or variable airflow directions (air outlet on one to four sides). The flow type can be changed subsequently simply by replacing the air control element. A fold-down front panel mounted with quick-release locks makes inspection and cleaning easy.

The diffuser is available in the nominal sizes

- MPC 600
- MPC 300

Other sizes are available on request.

Areas of application

- Comfort areas
- Hospitals
- Offices and meeting rooms
- Constant and variable flow volume systems
- Department stores
- Open-plan offices
- Administration centres

Product benefits

- Perforated front plate with a sophisticated, timeless design
- High degree of variability in terms of air diversion
- Low installation heights
- Easy inspection and maintenance
- Fast and simple installation
- All components easily accessible
- Hygiene conforms to VDI 6022
- Modular design for installation flush with the ceiling application areas

Method of operation

The method of operation depends on the flow types and diffuser versions selected:

1. Version MPC-Q displacement flow

As a ceiling displacement flow diffuser, this version produces a steady vertical stream at minimum pressure loss and the lowest sound power levels (Fig. 1).

2. Version MPC-R radial flow dispersion

The radial ceiling flow with concentric air distribution along the ceilingensures even air distribution along the ceiling with fast reduction in air speeds and at low sound power levels (Fig. 2 and 3).

3. Version MPC-V
variable flow direction
Thanks to its four air control elements, this version is able to produce several individual airflows along the ceiling, thus enabling variable flow patterns to be created. Here too, air speeds are guaranteed to be reduced quickly and a low sound power level is ensured (Fig. 4 to 7).

1

4

5

2

6

3

7

Design and material
The modular design consists of the following components:

1. Plenum box
Made from galvanised sheet steel with an all-around panel frame support, RAL varnishing (surface coating can be selected on request); manufactured in air-tightness class C according to EN 1751.

2. Air control element
According to flow type

MPC-Q (source ventilation)
Plenum box with panel frame support and rectifier nonwoven fabric for displacement flow.

MPC-R (radial ceiling flow)
Plenum box with panel frame support and air control element for radial flow dispersion along the ceiling.

MPC-V (variable flow direction)
Plenum box with panel frame support and air control element for variable flow direction along the ceiling.

3. Perforated front diffuser

Technical performance data – quick selection

Design [-]	L_{WA} [dB(A)]	$\dot{V}_0$ [m³ / h]	Δp [Pa]	Minimun spacing* [m]	x_{crit}**w [m]
MPC-Q DN 600/625	25	480	12	-	-
	30	610	19	-	-
	35	680	23	-	-
MPC-R DN 600/625-S	30	240	13	0.8	1.4
	35	290	19	0.9	1.9
	40	350	27	1.1	2.5
MPC-R DN 600/625-M	30	325	16	0.8	1.2
	35	395	24	1.3	1.8
	40	470	34	2.0	2.4
MPC-R DN 600/625-L	30	410	18	1.8	1.6
	35	490	25	2.1	2.3
	40	570	33	2.4	3.3
MPC-V*** DN 600/625	30	300	10	- **	- **
	35	380	16	- **	- **
	40	460	24	- **	- **
MPC-Q DN 300	25	200	11	-	-
	30	275	25	-	-
	35	330	39	-	-
MPC-V DN 300	30	100	6	- **	- **
	35	130	11	- **	- **
	40	165	17	- **	- **
MPC-R DN 300	30	150	13	0.8	0.7
	35	170	17	0.9	0.9
	40	195	20	1.1	1.2

* The mounting clearance is based on an installation height of 3.0 m, where the top edge of the occupied area is at 1.8 m, and is intended to keep the speed in the occupied area below 0.2 m/s.
** Values available on request. The critical airflow path is based on a temperature difference of 4 K between the supply air and the room air.
*** 4-sided

Recommended application area

Versions of emcoair model MPC 600

Model MPC-Q 600 (source air)

Model MPC-R 600 (radial)

Model MPC-V 600 (variable)

Dimensions of emcoair model MPC 600

The following applies to all dimensional specifications: Protruding fastening parts, such as gusset plates and rounded head screws, are not taken into account in dimensions!

emcoair model MPC 600 – dimensions

No.	Size version	Q 600	R 600-S	R 600-M	R 600-L	V 600	unit
1	☐ Plenum box, overall	595	595	595	595	595	mm
2	Height plenum box, overall	300	300	300	300	300	mm
3	Hole spacing mounting/suspension 1	593	593	593	593	593	mm
4	Hole spacing mounting/suspension2	472	472	472	472	472	mm
5	Length supply air spigot	48	48	48	48	48	mm
6	Diameter supply air spigot(nominal size DN 250*)	248	248	248	248	248	mm
7	Clearance fixing bracket/plenum box top edge	155	155	155	155	155	mm
8	Clearance spigot/plenum box top edge	137	137	137	137	137	mm

*Other nominal sizes DN 125/160/200

Versions of emcoair model MPC 300

Model MPC-Q 300 (source air)

Model MPC-R 300 (radial)

Model MPC-V 300 (variable)

Dimensions of emcoair model MPC 300

The following applies to all dimensional specifications: Protruding fastening parts, such as gusset plates and rounded head screws, are not taken into account in dimensions!

emcoair model MPC 300 – dimensions

No.	Size version	Q 300	R 300	V 300	unit
1	☐ Plenum box, overall	295	295	295	mm
2	Height plenum box, overall	241	241	241	mm
3	Hole spacing mounting/suspension 1	293	293	293	mm
4	Hole spacing mounting/suspension2	172	172	172	mm
5	Length supply air spigot	47	47	47	mm
6	Diameter supply air spigot(nominal size DN 250*)	158	158	158	mm
7	Clearance fixing bracket/plenum box top edge	155	155	155	mm
8	Clearance spigot/plenum box top edge	100	100	100	mm

*Other nominal sizes DN 125/160/200

Version key

											Charac.
1	**= emcoair**										1
	0MPC	**= multi-functional ceiling air diffuser model MPC**									2 - 5
		Q	**= version MPC-Q: flow type: displacement flow**								
		S	= version MPC-RS: flow type: radial flow dispersion along the ceiling (small design)								
		M	= version MPC-RM: flow type: radial flow dispersion along the ceiling (medium design)								
		L	= version MPC-RL: flow type: radial flow dispersion along the ceiling (large design)								
		V	= version MPC-V: flow type: variable flow direction (outlet on one to four sides)								6
			Q	**= square front panel**							7
				0	**= supply air / exhaust air**						8
					0625	**= 625 mm nominal size DN**					
					0300	= 300 mm(not versions M and L)					
					0600	= 600 mm					9 - 12
						V	**= material steel, galvanised**				13
							9010	**= surface front panel varnished in RAL 9010, gloss polished (gloss level 75-84%)**			
							XXXX	= varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)			
							0NCS	= varnished in NCS colour			
							00DB	= varnished in DB colour			
							RALP	= varnished in RAL-Pearl colour			
							RALG	= varnished in RAL colour, gloss level different from standard			
							YYYY	= special surfaces			14 - 17
								248	**= 248 mm spigot diameter (standard for nominal sizes 625 and 600)**		
								098	= 98 mm spigot diameter (for nominal size 300)		
								123	= 123 mm spigot diameter		
								158	= 158 mm spigot diameter (standard for nominal size 300)		
								198	= 198 mm spigot diameter (for nominal sizes 600 and 625)		
								XXX	= spigot diameter in mm at own's choice		18 - 20
									1	**= with sealing lips**	21
Product group (1=emcoair)	Model designation	Flow type	Diffuser geometry	Function	Nominal size DN (mm)	Material	Surface front panel	Spigot diameter (mm)	Sealing lips		
1	**0MPC**	**Q**	**Q**	**0**	**0625**	**V**	**9010**	**248**	**1**	**= Example**	

Version key accessories

					Charac.
1	**= emcoair**				1
	ZMPC	**= ZMPC air control elements as accessory**			2 - 5
		Q	**= version MPC-Q: flow type: displacement flow**		
		S	= version MPC-RS: flow type: radial flow dispersion along the ceiling (small design)		
		M	= version MPC-RM: flow type: radial flow dispersion along the ceiling (medium design)		
		L	= version MPC-RL: flow type: radial flow dispersion along the ceiling (large design)		
		V	= version MPC-V: flow type: variable flow direction (outlet on one to four sides)		6
			0300	**= 300 mm nominal size (not version M und L)**	
			0600	= 600 mm	
			0625	= 625 mm	7 - 10
Product group (1=emcoair)	Model designation	Flow type	Nominal size DN (mm)		
1	**ZMPC**	**Q**	**0300**	**= Example**	

Price list

emcoair model	Flow type	Diffuser geometry	Function (0 = supply air/exhaust air)	Nominal size DN (mm)	Material	Surface front panel	Spigot diameter (mm)	Sealing lips	Prices €/unit	Additional charge for **RAL, RALG or NCS at own's choice**	Additional charge for **RAL-Pearl or DB varnish**
10MPC	Q	Q	0	0300	V	9010 [1]	160	1	**207.-**	14.-	23.-
				0600			248		**299.-**	24.-	39.-
				0625			248		**299.-**	24.-	39.-
10MPC	S	Q	0	0300	V	9010 [1]	160	1	**242.-**	14.-	23.-
				0600			248		**349.-**	24.-	39.-
				0625			248		**349.-**	24.-	39.-
10MPC	M	Q	0	0600	V	9010 [1]	248	1	**349.-**	24.-	39.-
				0625			248		**349.-**	24.-	39.-
10MPC	L	Q	0	0600	V	9010 [1]	248	1	**349.-**	24.-	39.-
				0625			248		**349.-**	24.-	39.-
10MPC	V	Q	0	0300	V	9010 [1]	160	1	**247.-**	14.-	23.-
				0600			248		**444.-**	24.-	39.-
				0625			248		**444.-**	24.-	39.-

[1] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours, please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.

Price list for flow type elements as accessory for model MPC

emcoair model	Flow type	Nominal size DN	Price €/unit
1ZMPC	Q	0300	**10.-**
		0600	**10.-**
		0625	**10.-**

emcoair model	Flow type	Nominal size DN	Price €/unit
1ZMPC	V	0300	**40.-**
		0600	**145.-**
		0625	**145.-**

emcoair model	Flow type	Nominal size DN	Prices €/unit
1ZMPC	S	0300	**35.-**
		0600	**50.-**
		0625	**50.-**

emcoair model	Flow type	Nominal size DN	Price €/unit
1ZMPC	M	0300	**not available**
		0600	**50.-**
		0625	**50.-**

emcoair model	Flow type	Nominal size DN	Price €/unit
1ZMPC	L	0300	**not available**
		0600	**50.-**
		0625	**50.-**

emcoair multi-jet diffuser MSA
Model MSA is an adjustable ceiling diffuser with a square front plate and integrated, parallel slot sections with eccentric cylinder of ABS and straightening profiles.
The diffuser can be used in both continuous and open ceilings. The ability to rotate the eccentric cylinder, even after installation, makes it possible to achieve any desired type of jet. Diffuser model MSA can be adapted as required to the prevailing room conditions and thus makes it possible to achieve just about any desired type of jets, from bundled wide-angle to ceiling jets; retroactive adjustment after installation is possible. The favorable airflow control at the drums make possible high discharge velocities with low sound power levels.
The stable jet control, high induction at the discharge slot (created by circulating flow around the cylinders) and stable jet characteristics make this diffuser especially suitable for use where variable volume flow rates are present.

It is possible to reduce the volume flow rate to 30% without changing the discharge pattern. Jet dispersion and induction ration remain unchanged.

Multi-jet diffuser MSA-V
Diffuser MSA-V offers the option of adjusting the jets to match the heating or cooling operating conditions via a manually or motorized sliding element. Diffuser MSA-V is available only in size 625 x 1250 mm.

Areas of application
- Commercial areas
- Offices
- Administration areas
- Department stores
- Assembly rooms
- Multipurpose halls
- Systems with constant and variable volume flow

Product benefits
- Rapid temperature and velocity reduction according to the jet setting
- Low sound power level in high volume flow
- Particular stability due to form-fitting integrated slot sections and rear-mounted cross traverse (from size 500)
- 360° rotating eccentric cylinder
- On-site change of airstream pattern possible
- Specific change of discharge velocity possible

Configuration
Multi-jet diffuser MSA consists of a square front plate with parallel arranged slot sections into which eccentric cylinder of ABS with integrated straightening profiles are inserted. The diffuser is operated with a plenum box. The front plate is fixed by a concealed center screw.

Method of operation MSA:
One-sided jet dispersion
A one-sided jet dispersion (right or left) is achieved by turning all cylinders to position 1A (or F6 for the other direction) and results in an under approx. 45° divided, high-induction ceiling jet.
This setting is especially suited for heating and cooling in rooms with a height of up to 3 m.

Separate discharge directions
Two separate discharge directions can be achieved by setting all cylinders on one side of the diffuser to position 1A and all cylinders on the other side to position F6. This setting is especially suited for use in rooms with low ceiling heights and large indoor loads.

Two-sided jet dispersion
This type of dispersion results when the elements aligned back-to-back in the roll longitudinal axis are alternately positioned to 1A and F6. Corresponding to the number of cylinders contained in a slot row, the result is a multitude of individual jets, whose velocity is quickly reduced through the high induction.

Vertical jet
Setting all cylinders to position CD creates a vertical jet with a good level of induction. Due to the square form of the diff user, a rectangular jet develops which reaches good penetration depths. This setting is especially suited for high volume flow rates and high ceilings of up to 5 m. If the cylinders in the individual slots are positioned against each other, the immediate result is two horizontal jets who then meet in the middle of the diffuser and are then re-directed downward in a vertical stream. The initial constriction of the jet allows only a low induction rate. This option is especially suited for applications with high volume flow rates when heating and for ceiling heights of up to 10 m. Varying the roll settings allows the penetration depth to adapt to the conditions as required.

Aerodynamic data MSA/MSA-V

Nominal size [-]	L_{WA} [dB(A)]	$\dot{V}_0$ [m³/h]	Δp [Pa]	Minimum spacing [m]	x_{crit} [m]	y [m]
DN 300	25 30 35	130 155 190	17 25 37	5.6 7.0 9.0	2.2 2.9 3.5	variable
DN 400	25 30 35	190 230 270	10 14 20	5.2 6.0 9.0	1.9 2.4 2.9	variable
DN 500	25 30 35	320 400 480	7 10 14	7.0 8.0 10.0	2.4 2.6 3.0	variable
DN 600 / DN 625	25 30 35	450 550 680	6 8 12	7.0 9.0 11.0	1.6 2.2 2.8	variable
MSA-V	25 30 35	540 650 820	10 15 23	> 10.0 > 10.0 > 10.0	2.2 2.6 3.5	1.6 2.0 2.5

Specification: The minimum spacing for heights of 3.0 m so that velocity in occupied areas does not exceed 0.2 m/s.
Critical Stream Path ΔT= –8 K; Penetration depth when heating y for ΔT = 10 K

Project: Palace Hotel, Berlin (Germany)

Dimensions MSA with plenum box

Size	300	400	500	600	625
Size A	298	398	498	595	620
Size B	170	190	203	215	215
Size H	275	315	340	365	365
Size Ø D	158	198	222	248	248
Size E	10	10	12	12	12
Number of slots [piece]	6	8	12	14	14
Slot length [m]	1.2	2.4	4.8	7.0	7.0

MSA

MSA-V

Top spigot also possible!

Version key for MSA

												Charac.
1											**= emcoair**	1
	0MSA										**= multi-jet diffuser model MSA**	2 - 5
		Q									**= squared front panel**	6
			Z								**= supply air**	
			A								= exhaust air	7
				0625							**= 625 mm nominal size DN**	
				0300							= 300 mm	
				0400							= 400 mm	
				0500							= 500 mm	
				0600							= 600 mm	
				XXXX							= specification of the requested external dimension in mm	8 - 11
					600						**= 600 mm hole pattern size**	
					300						= 300 mm	
					400						= 400 mm	
					500						= 500 mm	
					800						= 800 mm	12 - 14
						V					**= material: steel, galvanised**	
						A					= aluminium (AlMgSi0,5)	
						E					= stainless steel V2A (material-no. 1.4301)	
						S					= stainless steel V4A (material-no. 1.4571)	15
							9010				**= surface front panel varnished in RAL 9010, gloss polished (gloss level 75-84%)**	
							XXXX				= varnished in RAL colour at own's choice, gloss polished (gloss level 75-84%)	
							0NCS				= varnished in NCS colour	
							00DB				= varnished in DB colour	
							RALP				= varnished in RAL-Pearl colour	
							RALG				= varnished in RAL colour, gloss level different from standard	
							YYYY				= special surfaces	
							E6C0				= anodised in natural colour (E6/C0)	
							EELO				= anodised in stainless steel colour (E2/C31)	
							W320				= ground surface (stainless steel)	
							GGGG				= satin (stainless steel)	
							UNBE				= untreated (stainless steel)	16 - 19
								S			**= colour of the eccentirc cylinder is black**	
								W			= white	
								G			= grey	
								Y			= special colour	
								E			= not applicable (with exhaust air only)	20
									T		**= concealed mounting by means of a centre screw**	
									L		= mounting by screw holes in the front panel	21
Product group (1=emcoair)	Model designation	Diffuser geometry	Function	Nominal size (mm)	Hole pattern size (mm)	Material	Surface front panel	Colour of the eccentric cylinder	Mounting type			
1	**0MSA**	**Q**	**Z**	**0625**	**600**	**V**	**9010**	**S**	**T**		**= Example**	

Price list for MSA

emcoair model	Diffuser geometry	Function	Nominal size DN	Hole pattern size	Material	Front panel surface [1]	Colour of the eccentric cylinder (S, W or G at the same price, E = not applicable)	Mounting type	Prices € /unit	Additional charge for **Standard plenum box***	Additional charge for **RAL at own's choice, RALG or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for **E6CO** anodised in natural colour	Additional charge for **stainless steel V2A** (material 1.4301)	Additional charge for **stainless steel V2A** (material **V4A** (1.4571)
10MSA	Q	Z	0300	300	V	9010 [1]	S	T	**164.-**	41.-	21.-	29.-			
			0400	300					**196.-**	41.-	23.-	32.-			
			0400	400					**196.-**	47.-	23.-	32.-			
			0500	300					**228.-**	41.-	27.-	38.-			
			0500	400					**228.-**	47.-	27.-	38.-			
			0500	500					**228.-**	52.-	27.-	38.-	+90%	+120%	+130%
			0600	300					**276.-**	41.-	29.-	41.-			
			0600	400					**276.-**	47.-	29.-	41.-			
			0600	500					**276.-**	52.-	29.-	41.-			
			0600	600					**276.-**	57.-	29.-	41.-			
			0625	300					**276.-**	41.-	29.-	41.-			
			0625	400					**276.-**	47.-	29.-	41.-			
			0625	500					**276.-**	52.-	29.-	41.-			
			0625	600					**276.-**	57.-	29.-	41.-			
10MSA	Q	A	0300	300	V	9010 [1]	E	T	**139.-**	41.-	21.-	29.-			
			0400	300					**166.-**	41.-	23.-	32.-			
			0400	400					**166.-**	47.-	23.-	32.-			
			0500	300					**193.-**	41.-	27.-	38.-			
			0500	400					**193.-**	47.-	27.-	38.-			
			0500	500					**193.-**	52.-	27.-	38.-	+90%	+120%	+130%
			0600	300					**236.-**	41.-	29.-	41.-			
			0600	400					**236.-**	47.-	29.-	41.-			
			0600	500					**236.-**	52.-	29.-	41.-			
			0600	600					**236.-**	57.-	29.-	41.-			
			0625	300					**236.-**	41.-	29.-	41.-			
			0625	400					**236.-**	47.-	29.-	41.-			
			0625	500					**236.-**	52.-	29.-	41.-			
			0625	600					**236.-**	57.-	29.-	41.-			

[1] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours, please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.

*** Version key and specifications of the standard plenum boxes (square version): see pages 36-39.**

Linear diffusers

emco's patented eccentric cylinder builds the core of the slot diffuser and is furthermore an important air control element in other emco air control systems.
Upon request, each individual cylinder element can be delivered in a defined setting, which is easily readable on the cylinder body. This guarantees not only maximum comfort but also saves the user from having to make possibly complex or timeconsuming settings.

The optional motorized adjustment mechanism allows the diffuser to be used for heating and cooling, whereby diffuser SAL stands out from conventional slot diffusers through its innovative design.

The latest developments in slot technology have led to rounded slot diffusers, the first of their kind that allow completely harmonious integration into the building's architectural structure.
Free choice of color for the slot profiles and cylinder bodies complete the list of reasons why you should make emco diffusers your product of choice.

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SAL50

SAL35

emcoair linear diffuser SAL
Linear diffuser SAL is a linear diffuser available with profile widths of 35 and 50 mm. It consists of aluminum extruded profiles with inserted eccentric cylinders of ABS and is operated via a plenum box.

SAL35
Diffuser SAL35 is available in single or multirow version, depending on the situation and air volume, and can be joined together to make slot bands of any desired length.

SAL50
This diffuser is available in the same configuration as SAL35. the essential difference being the greater profile width and thus greater possible volume flow capacity.

Areas of application

- Cooling and heating in commercial areas with average room heights
- Areas with high air change rates and low air velocities
- Situations in which the diffuser must fit both the form and color of the room
- Systems with variable air volume flow
- Offices, conference rooms, computer rooms, clean rooms, department stores, cinemas and theaters.

Product benefits

- Full control of the discharge velocity and volume flow by changing the diameter at the air control cylinder
- Ability to influence the critical throw (e.g. extend)
- Ability to influence the induction characteristics
- Adjustable penetration depth
- Optional adjustment of Coanda effect
- Full ability to vary the discharge direction up to 180°
- Repeatable diffuser settings
- Can be manufactured with defined, project-specific diffuser settings
- Ability to adjust even after installation
- Settings remain in place even during cleaning

Controlling the direction of airflow

Configuration

① Aluminium extruded profiles
② Cover or support profiles
③ Eccentric cylinders (drums)
④ Plenum box
⑤ Straightening blade
⑥ Reading / Setting disc

Linear diffuser SAL consists of aluminum extruded profiles (1) with cover or support profiles (2), inserted 360° rotatable eccentric cylinder (3) and a plenum box (4).
The acoustically and aerodynamically optimized eccentric cylinder (3) has several straightening blades (5),a reading and setting disc (6) with alphabetical index to ensure defined and repeatable cylinder settings. The slot profiles are riveted to the plenum box.

Method of operation
The drum with the off-centre supports forms an airflow duct that conducts the air in circular paths in conjunction with the slotted sections. At high velocities a strong partial vacuum develops, just like in a whirlwind, on the inner circular paths near the surface of the body of the drum. This produces a stable airflow and stable deflection of airflow at low acoustic power levels.
At the same time a high degree of induction already takes place in the area of the slot's discharge level.
Depending on the drum position any direction of airflow you like, or variable volume flows can be adjusted for by narrowing the cross section as a function of the drum position.
Sectional rectifiers are attached to develop the discharge velocities over the length of the drum as evenly and perpendicularly to the drum as possible.

Mode of operation

Controlling the direction of airflow
Governing the air on the basis of the partial vacuum area around the body of the drum allows an infinitely variable change in direction by 180°.
In this process there are two drum positions possible for each direction of airflow ('reduced' and 'not reduced').
This interrelationship can be seen in the figure opposite. When linear diffusers are installed in free suspension, the direction of airflow always adjusts itself according to the graph. In the event of an installation that is flush with the ceiling and has an effective total drum length of 300 mm, a ceiling stream develops as a result of the Coanda effect in the drum settings E/F, F/6, 1/A, A/B and 2/1, 3/2, 5/4 as well as 6/5. The individually adjustable drums have a length of 100 mm (SAL35) and 150 mm (SAL50). This results in a virtually unlimited number of flow combinations. In the standard setting made by the facto y consecutive drums have alternating 1/A and F/6 settings.
This highly inductive setting can be set without difficulty even in the event of high cooling loads and air changeover figures.

Ranges of application

The number of rows of parallel slots depends on the total air volume flow. We recommend the following specific air volume flows (applied to 1 m of active slot length:

SAL35: 50 .... 90 m³/hm
SAL50: 100 ... 180 m³/hm

A_{geom}:
SAL35: 0.00668 m²/m
SAL50: 0.01171 m²/m

Discharged air volume flow

The adjacent diagram shows the interrelationship between the outgoing volume flow and the drum position at an equal system supply pressure. The discharge velocities can be noticeably increased, however, by increasing the supply pressure but with the „reduced" drum positions with the volume flow held constant.

Example:

The example shows the drum position C/D with an angle of the direction of airflow of 0°. In this case the ratio of air volume flow ratio/ max. volume flow is approx. 90 %.

Aerodynamic data SAL35. SAL50 (Chart applies to L = 1 m)

Nominal size [-]	L_{WA} [dB(A)]	$\dot{V}_0$ [m³/hm]	Δp [Pa]	Minimum spacing [m]	x_{krit} [m]	$\dot{V}_0$ [m³/hm]	Δp [Pa]	y [m]
SAL35-1	30 35 40	90 115 140	15 23 33	0.5 2.7 10.5	8.0 10.5 13.3	95 118 142	21 32 45	1.6 2.2 2.7
SAL35-2	30 35 40	165 200 250	12 18 27	3.3 12.0 > 15.0	10.6 13.8 > 15.0	170 210 250	18 25 36	2.3 2.9 3.6
SAL35-3	30 35 40	230 275 350	10 15 23	8.0 > 15.0 > 15.0	12.3 15.0 > 15.0	240 290 360	15 22 33	2.7 3.4 4.5
SAL35-4	30 35 40	280 360 440	9 14 21	11.0 > 15.0 > 15.0	13.4 > 15.0 > 15.0	300 370 450	13 20 29	2.9 3.8 4.9
SAL50-1	30 35 40	170 205 250	18 25 38	8.3 > 15.0 > 15.0	8.4 10.6 13.8	165 200 240	21 31 42	1.6 2.1 2.6
SAL50-2	30 35 40	300 375 445	15 22 30	> 15.0 > 15.0 > 15.0	11.6 14.8 > 15.0	300 360 440	18 25 36	2.3 2.8 3.6
SAL50-3	30 35 40	430 520 630	13 19 27	> 15.0 > 15.0 > 15.0	13.6 > 15.0 > 15.0	420 510 600	16 22 31	2.7 3.4 4.3
SAL50-4	30 35 40	540 660 790	11 17 24	> 15.0 > 15.0 > 15.0	> 15.0 > 15.0 > 15.0	520 640 760	14 20 28	3.0 3.8 4.7

Specification: The minimum spacing for heights of 3.0 m so that velocity in occupied areas does not exceed 0.2 m/s.
Critical Stream Path ΔT= –8 K; Penetration depth when heating (the table valid for L = 1 m) ΔT= 10K.
Blue columns: cylinder position 1/A, F6 (horizontal jet), red columns: cylinder position CD (vertical jet)

Project: VW company („Gelber Saal"), Wolfsburg (Germany)

Configuration SAL35
Slot diffuser profile of aluminum extruded profiles with one or two-rows (combine to make a multirow unit). Cover and support profiles in natural anodized finish (E6 C0) with eccentric cylinders of ABS.

Available sizes (length in mm):
500. 600. 700. 800. 900. 1000. 1100. 1200. 1300. 1400. 1500. 1600. 1700. 1800. 1900. 2000

Non-standard dimensions are possible upon request. Slot bands of various lengths can be created from the standard lengths, the connection is made via connector sections and centering profiles and is not visible.

SAL35-1
One-slot SAL profile
with cover profile (ZS)

SAL35-1
One-slot SAL profile
with support profiles (ZB)

SAL35-2
Two-slot SAL profile
with cover profile (ZS)

SAL35-2
Two-slot SAL profile
with support profiles (ZB)

Suspension
The plenum box is suspended by straps and exterior M4 – M5 rods

Subframe mounting
Mount slot units up to 2 m long with plenum box or use in an exterior vent via a Subframe.

Throttle/damper

SAL35. 1-row
with plenum box and support profiles

SAL35. 2-row
with plenum box and support profiles

SAL35. multirow
with plenum box

SAL35. 1-row with plenum box

Sizes [mm]	to 1500 mm	1600 to 2000 mm
Size B	88	88
Size H	227	227
Size E	25.3	25.3
Size F	34	34
Size K	36	36
Size M	61	61
Size Ø D	123	123
Spigot [piece]	1	2

SAL35. 2-row with plenum box

Sizes [mm]	to 1500 mm	1600 to 2000 mm
Size B	120	120
Size H	242	242
Size E	57.4	57.4
Size F	67	67
Size K	69	69
Size M	92	92
Size Ø D	138	138
Spigot [piece]	1	2

SAL35. 3-row with plenum box

Sizes [mm]	to 1500 mm	1600 to 2000 mm
Size B	152	152
Size H	262	262
Size E	89.5	89.5
Size F	99	99
Size K	101	101
Size M	126	126
Size Ø D	158	158
Spigot [piece]	1	2

SAL35. 4-row with plenum box

Sizes [mm]	to 1500 mm	1600 to 2000 mm
Size B	184	184
Size H	302	302
Size E	121.6	121.6
Size F	132	132
Size K	134	134
Size M	158	158
Size Ø D	198	198
Spigot [piece]	1	2

Version key for model SAL35

	Charac.
1 = emcoair	1
S35 = linear diffuser model SAL35	2 - 4
01 = 1 (number of slots)	
02 = 2	
03 = 3	
04 = 4	
XX = number of slots at own's choice	5 - 6
0500 = 500 mm length	
1000 = 1000 mm	
XXXX = length at own's choice in mm (standard distance 100 mm)	7 - 10
A = drum position 1/A / F/6	
B = all C/D	
C = all D/E	
D = all 1/A	
E = all F/6	
F = 2 x 1/A / 1 x F/6	
Y = special position	11
A = support profile (ZB)	
B = support profile (ZB), pre-drilled	
C = cover profile (ZS)	
Y = special profile	12
E6C0 = surface slot profile anodised in natural colour (E6/C0)	
SELO = anodised in black colour (E6/C35)	
9010 = varnished in RAL 9010. gloss polished (gloss level 75-84%)	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surfaces	13 - 16
S = black (colour of the eccentric cylinder)	
W = white	
G = grey	
Y = special colour (version 1-row only)	17
0 = without end cap	
A = end plate, left	
B = end plate, right	
C = end plate, both sides	
D = end angle, left	
E = end angle, right	
F = end angle, both sides	
G = foam rubber, left	
H = foam rubber, right	
I = foam rubber, both sides	
J = with mitre cut	
K = with mitre cut and end plate	
L = with mitre cut and end bracket	
Y = special end caps	18

Product group (1=emcoair)	Model designation	Number of slots	Length (mm)	Drum position	Front profile	Surface front profile	Colour of the eccentric cylinders	End caps	Mounting at plenum box	Fixed resiostor	Blank length left side (mm)	Blank length right side (mm)	
									0 = mounted at plenum box (factory-made pre-mounted)				
									1 = with straps (without plenum box)				
									2 = traverse without plenum box				
									3 = traverse with plenum box, not mounted				
									4 = traverse with plenum box, mounted				
									5 = pre-mounted for traverse mounting				19
										0 = without perforated plate (fixed resistor)			
										2 = perorated plate with 21% free cross-section			
										3 = perorated plate witht 33% free cross-section			
										4 = perorated plate with 46% free cross-section			
										5 = perorated plate with 58% free cross-section			20
											0000 = 0 mm blank length on left side		
											XXXX = blank length on left side at own's choice in mm		21 - 24
												0000 = 0 mm blank length on right side	
												XXXX = blank length on right side at own's choice in mm	25 - 28
1	**S35**	**01**	**0500**	**A**	**A**	**E6C0**	**S**	**0**	**0**	**0**	**0000**	**0000**	**= Example**

When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.

For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.

For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.

For RAL pearl colours or DB colours, please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.

Price list for model SAL35 / 1-row, anodised in natural colour

emcoair model	Number of slots	Length (mm)	Drum position	Front profile	Surface front profile	Colour of the eccentric cylinders	End caps	Mounting at plenum box	Fixed resiostor	Blank length left side (mm)	Blank length right side (mm)	Red prices are stock types. Prices €/unit	Additional charge for **Standard plenum box***	Additional charge for **Fixed resistor**	Additional charge for **RAL or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for srew fastening **ZB profile (pre-drilled)**
1 S35	01	0500	A	C	E6C0	S	0	0	0	0000	0000	**26.50**	27.50	12.00	6.75	9.45	-
		0600										**29.80**	29.00	13.90	7.60	10.64	-
		0700										**33.10**	30.50	15.80	8.45	11.83	-
		0800										**36.40**	32.00	17.70	9.30	13.02	-
		0900										**39.70**	33.50	19.60	10.15	14.21	-
		1000										**43.00**	35.00	21.50	11.00	15.40	-
		1100										**46.30**	36.50	23.40	11.85	16.59	-
		1200										**49.60**	38.00	25.30	12.70	17.78	-
		1300										**52.90**	39.50	27.20	13.55	18.97	-
		1400										**56.20**	41.00	29.10	14.40	20.16	-
		1500										**59.50**	42.50	31.00	15.25	21.35	-
		1600										**62.80**	60.00	32.90	16.10	22.54	-
		1700										**66.10**	61.50	34.80	16.95	23.73	-
		1800										**69.40**	63.00	36.70	17.80	24.92	-
		1900										**72.70**	64.50	38.60	18.65	26.11	-
		2000										**76.00**	66.00	40.50	19.50	27.30	-
1S35	01	0500	A	A	E6C0	S	0	0	0	0000	0000	**27.50**	27.50	12.00	6.75	9.45	10.25
		0600										**31.00**	29.00	13.90	7.60	10.64	11.60
		0700										**34.50**	30.50	15.80	8.45	11.83	12.95
		0800										**38.00**	32.00	17.70	9.30	13.02	14.30
		0900										**41.50**	33.50	19.60	10.15	14.21	15.65
		1000										**45.00**	35.00	21.50	11.00	15.40	17.00
		1100										**48.50**	36.50	23.40	11.85	16.59	18.35
		1200										**52.00**	38.00	25.30	12.70	17.78	19.70
		1300										**55.50**	39.50	27.20	13.55	18.97	21.05
		1400										**59.00**	41.00	29.10	14.40	20.16	22.40
		1500										**62.50**	42.50	31.00	15.25	21.35	23.75
		1600										**66.00**	60.00	32.90	16.10	22.54	25.10
		1700										**69.50**	61.50	34.80	16.95	23.73	26.45
		1800										**73.00**	63.00	36.70	17.80	24.92	27.80
		1900										**76.50**	64.50	38.60	18.65	26.11	29.15
		2000										**80.00**	66.00	40.50	19.50	27.30	30.50

When ordering other lengths than given above, please enter a 4-digit number in the version key for „Length“ code in mm.
Prices for special lengths are calculated on the basis of the next highest standard length price.
Other special versions can be supplied on request: **Prices on request!**

***ATTENTION:** Above given plenum boxes correspond to standard specification as per description on pages 77/78.
Further specifications of the plenum boxes: see version key on page 76.

Additional charge for **end angle:** **anodised in natural colour 8.00 €/unit,** **varnished 12.00 €/unit**
Additional charge for **end plate:** **anodised in natural colour 7.00 €/unit,** **varnished 10.50 €/unit**

Specifications of the mitred corners: see version key on page 79.

Price list for model SAL35 / 2-row, anodised in natural colour

emcoair model	Number of slots	Length (mm)	Drum position	Front profile	Surface front profile	Colour of the eccentric cylinders	End caps	Mounting at plenum box	Fixed resiostor	Blank length left side (mm)	Blank length right side (mm)	Red prices are stock types. Prices €/unit	Additional charge for **Standard plenum box***	Additional charge for **Fixed resistor**	Additional charge for **RAL or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for srew fastening **ZB profile (pre-drilled)**
1 S35	02	0500	A	C	E6C0	S	0	0	0	0000	0000	**44.00**	56.00	13.50	8.25	11.55	-
		0600										**49.80**	60.00	15.50	9.20	12.88	-
		0700										**55.60**	64.00	17.50	10.15	14.21	-
		0800										**61.40**	68.00	19.50	11.10	15.54	-
		0900										**67.20**	72.00	21.50	12.05	16.87	-
		1000										**73.00**	76.00	23.50	13.00	18.20	-
		1100										**78.80**	80.00	25.50	13.95	19.53	-
		1200										**84.60**	84.00	27.50	14.90	20.86	-
		1300										**90.40**	88.00	29.50	15.85	22.19	-
		1400										**96.20**	92.00	31.50	16.80	23.52	-
		1500										**102.00**	96.00	33.50	17.75	24.85	-
		1600										**107.80**	120.00	35.50	18.70	26.18	-
		1700										**113.60**	124.00	37.50	19.65	27.51	-
		1800										**119.40**	128.00	39.50	20.60	28.84	-
		1900										**125.20**	132.00	41.50	21.55	30.17	-
		2000										**131.00**	136.00	43.50	22.50	31.50	-
1S35	02	0500	A	A	E6C0	S	0	0	0	0000	0000	**45.00**	56.00	13.50	8.25	11.55	10.25
		0600										**51.00**	60.00	15.50	9.20	12.88	11.60
		0700										**57.00**	64.00	17.50	10.15	14.21	12.95
		0800										**63.00**	68.00	19.50	11.10	15.54	14.30
		0900										**69.00**	72.00	21.50	12.05	16.87	15.65
		1000										**75.00**	76.00	23.50	13.00	18.20	17.00
		1100										**81.00**	80.00	25.50	13.95	19.53	18.35
		1200										**87.00**	84.00	27.50	14.90	20.86	19.70
		1300										**93.00**	88.00	29.50	15.85	22.19	21.05
		1400										**99.00**	92.00	31.50	16.80	23.52	22.40
		1500										**105.00**	96.00	33.50	17.75	24.85	23.75
		1600										**111.00**	120.00	35.50	18.70	26.18	25.10
		1700										**117.00**	124.00	37.50	19.65	27.51	26.45
		1800										**123.00**	128.00	39.50	20.60	28.84	27.80
		1900										**129.00**	132.00	41.50	21.55	30.17	29.15
		2000										**135.00**	136.00	43.50	22.50	31.50	30.50

When ordering other lengths than given above, please enter a 4-digit number in the version key for „Length“ code in mm.
Prices for special lengths are calculated on the basis of the next highest standard length price.
Other special versions can be supplied on request: **Prices on request!**

***ATTENTION:** Above given plenum boxes correspond to standard specification as per description on pages 77/78.
Further specifications of the plenum boxes: see version key on page 76.

Additional charge for **end angle:** **anodised in natural colour 7.00 €/unit,** **varnished 10.50 €/unit**
Additional charge for **end plate:** **anodised in natural colour 6.00 €/unit,** **varnished 9.00 €/unit**

Specifications of the mitred corners: see version key on page 79.

Price list for model SAL35 / 3-row, anodised in natural colour

emcoair model	Number of slots	Length (mm)	Drum position	Front profile	Surface front profile	Colour of the eccentric cylinders	End caps	Mounting at plenum box	Fixed resiostor	Blank length left side (mm)	Blank length right side (mm)	Red prices are stock types. Prices €/unit	Additional charge for **Standard plenum box***	Additional charge for **Fixed resistor**	Additional charge for **RAL or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for srew fastening **ZB profile (pre-drilled)**
1 S35	03	0500	A	C	E6C0	S	0	0	0	0000	0000	**64.00**	68.50	15.00	11.25	15.75	-
		0600										**72.80**	73.00	17.10	12.20	17.08	-
		0700										**81.60**	77.50	19.20	13.15	18.41	-
		0800										**90.40**	82.00	21.30	14.10	19.74	-
		0900										**99.20**	86.50	23.40	15.05	21.07	-
		1000										**108.00**	91.00	25.50	16.00	22.40	-
		1100										**116.80**	95.50	27.60	16.95	23.73	-
		1200										**125.60**	100.00	29.70	17.90	25.06	-
		1300										**134.40**	104.50	31.80	18.85	26.39	-
		1400										**143.20**	109.00	33.90	19.80	27.72	-
		1500										**152.00**	113.50	36.00	20.75	29.05	-
		1600										**160.80**	142.00	38.10	21.70	30.38	-
		1700										**169.60**	146.50	40.20	22.65	31.71	-
		1800										**178.40**	151.00	42.30	23.60	33.04	-
		1900										**187.20**	155.50	44.40	24.55	34.37	-
		2000										**196.00**	160.00	46.50	25.50	35.70	-
1S35	03	0500	A	A	E6C0	S	0	0	0	0000	0000	**65.00**	68.50	15.00	11.25	15.75	10.25
		0600										**74.00**	73.00	17.10	12.20	17.08	11.60
		0700										**83.00**	77.50	19.20	13.15	18.41	12.95
		0800										**92.00**	82.00	21.30	14.10	19.74	14.30
		0900										**101.00**	86.50	23.40	15.05	21.07	15.65
		1000										**110.00**	91.00	25.50	16.00	22.40	17.00
		1100										**119.00**	95.50	27.60	16.95	23.73	18.35
		1200										**128.00**	100.00	29.70	17.90	25.06	19.70
		1300										**137.00**	104.50	31.80	18.85	26.39	21.05
		1400										**146.00**	109.00	33.90	19.80	27.72	22.40
		1500										**155.00**	113.50	36.00	20.75	29.05	23.75
		1600										**164.00**	142.00	38.10	21.70	30.38	25.10
		1700										**173.00**	146.50	40.20	22.65	31.71	26.45
		1800										**182.00**	151.00	42.30	23.60	33.04	27.80
		1900										**191.00**	155.50	44.40	24.55	34.37	29.15
		2000										**200.00**	160.00	46.50	25.50	35.70	30.50

When ordering other lengths than given above, please enter a 4-digit number in the version key for „Length“ code in mm.
Prices for special lengths are calculated on the basis of the next highest standard length price.
Other special versions can be supplied on request: **Prices on request!**

***ATTENTION:** Above given plenum boxes correspond to standard specification as per description on pages 77/78.
Further specifications of the plenum boxes: see version key on page 76.

Additional charge for **end angle:** **anodised in natural colour 8.00 €/unit,** **varnished 12.00 €/unit**
Additional charge for **end plate:** **anodised in natural colour 7.00 €/unit,** **varnished 10.50 €/unit**

Specifications of the mitred corners: see version key on page 79.

Price list for model SAL35 / 4-row, anodised in natural colour

emcoair model	Number of slots	Length (mm)	Drum position	Front profile	Surface front profile	Colour of the eccentric cylinders	End caps	Mounting at plenum box	Fixed resiostor	Blank length left side (mm)	Blank length right side (mm)	Red prices are stock types. Prices €/unit	Additional charge for **Standard plenum box***	Additional charge for **Fixed resistor**	Additional charge for **RAL or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for srew fastening **ZB profile (pre-drilled)**
1 S35	04	0500	A	C	E6C0	S	0	0	0	0000	0000	**79.00**	82.00	16.50	12.50	17.50	-
		0600										**89.80**	87.00	18.70	13.50	18.90	-
		0700										**100.60**	92.00	20.90	14.50	20.30	-
		0800										**111.40**	97.00	23.10	15.50	21.70	-
		0900										**122.20**	102.00	25.30	16.50	23.10	-
		1000										**133.00**	107.00	27.50	17.50	24.50	-
		1100										**143.80**	112.00	29.70	18.50	25.90	-
		1200										**154.60**	117.00	31.90	19.50	27.30	-
		1300										**165.40**	122.00	34.10	20.50	28.70	-
		1400										**176.20**	127.00	36.30	21.50	30.10	-
		1500										**187.00**	132.00	38.50	22.50	31.50	-
		1600										**197.80**	165.00	40.70	23.50	32.90	-
		1700										**208.60**	170.00	42.90	24.50	34.30	-
		1800										**219.40**	175.00	45.10	25.50	35.70	-
		1900										**230.20**	180.00	47.30	26.50	37.10	-
		2000										**241.00**	185.00	49.50	27.50	38.50	-
1S35	04	0500	A	A	E6C0	S	0	0	0	0000	0000	**80.00**	82.00	16.50	12.50	17.50	10.25
		0600										**91.00**	87.00	18.70	13.50	18.90	11.60
		0700										**102.00**	92.00	20.90	14.50	20.30	12.95
		0800										**113.00**	97.00	23.10	15.50	21.70	14.30
		0900										**124.00**	102.00	25.30	16.50	23.10	15.65
		1000										**135.00**	107.00	27.50	17.50	24.50	17.00
		1100										**146.00**	112.00	29.70	18.50	25.90	18.35
		1200										**157.00**	117.00	31.90	19.50	27.30	19.70
		1300										**168.00**	122.00	34.10	20.50	28.70	21.05
		1400										**179.00**	127.00	36.30	21.50	30.10	22.40
		1500										**190.00**	132.00	38.50	22.50	31.50	23.75
		1600										**201.00**	165.00	40.70	23.50	32.90	25.10
		1700										**212.00**	170.00	42.90	24.50	34.30	26.45
		1800										**223.00**	175.00	45.10	25.50	35.70	27.80
		1900										**234.00**	180.00	47.30	26.50	37.10	29.15
		2000										**245.00**	185.00	49.50	27.50	38.50	30.50

When ordering other lengths than given above, please enter a 4-digit number in the version key for „Length“ code in mm.
Prices for special lengths are calculated on the basis of the next highest standard length price.
Other special versions can be supplied on request: **Prices on request!**

***ATTENTION:** Above given plenum boxes correspond to standard specification as per description on pages 77/78.
Further specifications of the plenum boxes: see version key on page 76.

Additional charge for **end angle:** **anodised in natural colour 9.00 €/unit,** **varnished 13.50 €/unit**
Additional charge for **end plate:** **anodised in natural colour 9.00 €/unit,** **varnished 12.00 €/unit**

Specifications of the mitred corners: see version key on page 79.

Version key plenum boxes (standard) for model SAL35

	Charac.
1 = emcoair	1
AS35 = plenum box for linear diffuser SAL35	2 - 5
01 = 1 (number of slots)	
02 = 2	
03 = 3	
04 = 4	
XX = number of slots at own's choice	6 - 7
1000 = 1000 mm length	
XXXX = length at own's choice in mm	8 - 11
088 = 88 mm width (1 slot)	
120 = 120 mm (2 slots)	
152 = 152 mm (3 slots)	
184 = 184 mm (4 slots)	
XXX = width at own's choice in mm	12 - 14
167 = 167 mm height (1 slot)	
182 = 182 mm (2 slots)	
202 = 202 mm (3 slots)	
242 = 242 mm (4 slots)	
XXX = height at own's choice in mm	15 - 17
060 = 60 mm spigot length incl. front profile	
XXX = spigot length at own's choice in mm	18 - 20
123 = 123 mm spigot diameter (1 slot)	
138 = 138 mm (2 slots)	
158 = 158 mm (3 slots)	
198 = 198 mm (4 slots)	
XXX = spigot diameter at own's choice in mm	21 - 23
1 = 1 (number of spigots)	
2 = 2 (for lengths more than 1500 mm 2 spigots standard)	
X = number of spigots at own's choice (max. 5)	24
S = side spigot position (symmetric)	
O = top spigot position (symmetric)	
Y = special spigot position/size	25
V = material steel, galvanised	26
0 = without insulation	
1 = with insulation inside (20 mm mineral wool)	
2 = with insulation outside (13 mm Armaflex)	
7 = with insulation outside (19 mm Armaflex)	
3 = with insulation inside (20 mm mineral wool) and outside (13 mm Armaflex)	
6 = with insulation inside (20 mm) and outside (19 mm Armaflex)	27
0 = symmetric	
1 = asymmetric	28
0 = without throttle	
1 = with throttle operated from the front	
2 = with self-locking throttle	29
0 = without sealing lips	
1 = with sealing lips	30

Product group (1=emcoair)	Model designation	Number of slots	Length (mm)	Width (mm)	Height (mm)	Spigot length (mm)	Spigot diameter (mm)	Number of spigots	Spigot position	Material	Insulation	Layout	Equipment	Sealing lips	
1	AS35	01	1000	088	167	060	123	1	S	V	0	0	0	0	= Example

Price list for standard plenum boxes for model SAL35 / 1-row and 2-row

emcoair model	Number of slots	Length (mm)	Width (mm)	Height (mm)	Spigot length (mm)	Spigot diameter (mm)	Number of spigots	Spigot position	Material	Insulation	Layout	Equipment	Sealing lips	Price €/unit	Additional charge for **throttle operated from the front** (per plenum box)	Additional charge for **self-locking throttle** (per plenum box)	Additional charge for **sealing lips at spigot** (per spigot)
1 AS35	01	0500	088	167	060	123	1	S	V	0	0	0	0	**27.50**	10.-	8.-	6.-
		0600					1							**29.00**	10.-	8.-	6.-
		0700					1							**30.50**	10.-	8.-	6.-
		0800					1							**32.00**	10.-	8.-	6.-
		0900					1							**33.50**	10.-	8.-	6.-
		1000					1							**35.00**	10.-	8.-	6.-
		1100					1							**36.50**	10.-	8.-	6.-
		1200					1							**38.00**	10.-	8.-	6.-
		1300					1							**39.50**	10.-	8.-	6.-
		1400					1							**41.00**	10.-	8.-	6.-
		1500					1							**42.50**	10.-	8.-	6.-
		1600					2							**60.00**	10.-	8.-	6.-
		1700					2							**61.50**	10.-	8.-	6.-
		1800					2							**63.00**	10.-	8.-	6.-
		1900					2							**64.50**	10.-	8.-	6.-
		2000					2							**66.00**	10.-	8.-	6.-
AS35	02	0500	120	182	060	138	1	S	V	0	0	0	0	**56.00**	13.-	11.-	7.-
		0600					1							**60.00**	13.-	11.-	7.-
		0700					1							**64.00**	13.-	11.-	7.-
		0800					1							**68.00**	13.-	11.-	7.-
		0900					1							**72.00**	13.-	11.-	7.-
		1000					1							**76.00**	13.-	11.-	7.-
		1100					1							**80.00**	13.-	11.-	7.-
		1200					1							**84.00**	13.-	11.-	7.-
		1300					1							**88.00**	13.-	11.-	7.-
		1400					1							**92.00**	13.-	11.-	7.-
		1500					1							**96.00**	13.-	11.-	7.-
		1600					2							**120.00**	13.-	11.-	7.-
		1700					2							**124.00**	13.-	11.-	7.-
		1800					2							**128.00**	13.-	11.-	7.-
		1900					2							**132.00**	13.-	11.-	7.-
		2000					2							**136.00**	13.-	11.-	7.-

Other special versions can be supplied on request: **Prices on request!**
Specifications of the plenum boxes: see previous page.

Additional charge for **other spigot diameters** per unit: **12.00 € (1 slot), 13.00 € (2 slot)**
Additional charge for **further spigot** per unit: **12.00 € (1 slot), 13.00 € (2 slot)**

Price list for standard plenum boxes for model SAL35 / 3-row and 4-row

emcoair model	Number of slots	Length (mm)	Width (mm)	Height (mm)	Spigot length (mm)	Spigot diameter (mm)	Number of spigots	Spigot position	Material	Insulation	Layout	Equipment	Sealing lips	Price €/unit	Additional charge for **throttle operated from the front** (per plenum box)	Additional charge for **self-locking throttle** (per plenum box)	Additional charge for **sealing lips at spigot** (per spigot)
1 AS35	03	0500	152	202	060	158	1	S	V	0	0	0	0	**68.50**	15.-	12.-	8.-
		0600					1							**73.00**	15.-	12.-	8.-
		0700					1							**77.50**	15.-	12.-	8.-
		0800					1							**82.00**	15.-	12.-	8.-
		0900					1							**86.50**	15.-	12.-	8.-
		1000					1							**91.00**	15.-	12.-	8.-
		1100					1							**95.50**	15.-	12.-	8.-
		1200					1							**100.00**	15.-	12.-	8.-
		1300					1							**104.50**	15.-	12.-	8.-
		1400					1							**109.00**	15.-	12.-	8.-
		1500					1							**113.50**	15.-	12.-	8.-
		1600					2							**142.00**	15.-	12.-	8.-
		1700					2							**146.50**	15.-	12.-	8.-
		1800					2							**151.00**	15.-	12.-	8.-
		1900					2							**155.50**	15.-	12.-	8.-
		2000					2							**160.00**	15.-	12.-	8.-
AS35	04	0500	184	242	060	198	1	S	V	0	0	0	0	**82.00**	16.-	13.-	9.-
		0600					1							**87.00**	16.-	13.-	9.-
		0700					1							**92.00**	16.-	13.-	9.-
		0800					1							**97.00**	16.-	13.-	9.-
		0900					1							**102.00**	16.-	13.-	9.-
		1000					1							**107.00**	16.-	13.-	9.-
		1100					1							**112.00**	16.-	13.-	9.-
		1200					1							**117.00**	16.-	13.-	9.-
		1300					1							**122.00**	16.-	13.-	9.-
		1400					1							**127.00**	16.-	13.-	9.-
		1500					1							**132.00**	16.-	13.-	9.-
		1600					2							**165.00**	16.-	13.-	9.-
		1700					2							**170.00**	16.-	13.-	9.-
		1800					2							**175.00**	16.-	13.-	9.-
		1900					2							**180.00**	16.-	13.-	9.-
		2000					2							**185.00**	16.-	13.-	9.-

Other special versions can be supplied on request: **Prices on request!**
Specifications of the plenum boxes: see page 76.

Additional charge for **other spigot diameters** per unit: **14.00 € (3 slot), 15.00 € (4 slot)**
Additional charge for **further spigot** per unit: **14.00 € (3 slot), 15.00 € (4 slot)**

Version key mitred corners for model SAL35

	Charac.
1 = emcoair	1
GE35 = mitred corner model SAL35	2 - 5
01 = 1 (number of slots)	
02 = 2	
03 = 3	
04 = 4	
XX = number of slots at own's choice	6 - 7
090 = 90° mitred angle	
XXX = degrees of the mitred angle at own's choice	8 - 10
A = drum position 1/A / F/6	
B = all C/D	
C = all D/E	
D = all 1/A	
E = all F/6	
F = 2 x 1/A / 1 x F/6	
Y = special position	11
A = support profile (ZB)	
B = support profile (ZB), pre-drilled	
C = cover profile (ZS)	
Y = special profile	12
E6C0 = surface of the slot profile anodised in natural colour (E6/C0)	
SELO = anodised in black colour (E6/C35)	
9010 = varnished in RAL 9010, glänzend (Glanzgrad 75-84%)	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surfaces	13 - 16
S = black (colour of the eccentric cylinder)	
W = white	
G = grey	
Y = special colour	17
0300 = 300 mm side length left	
XXXX = side length left at own's choice in mm	18 - 21
0300 = 300 mm side length right	
XXXX = side length right at own's choice in mm	22 - 25

Product group (1=emcoair)	Model designation	Number of slots	Mitred angle (°degrees)	Drum position	Front profile	Surface of front profile	Colour of the eccentric cylinders	Side length left (mm)	Side length right (mm)	
1	**GE35**	**01**	**090**	**A**	**A**	**E6C0**	**S**	**0300**	**0300**	**= Example**

Price list for mitred corners for model SAL35

emcoair model	Number of slots	Mitred angle (°degrees)	Drum position	Front profile	Surface slot profile	Colour of the eccentric cylinders	Side length left (mm)	Side length right (mm)	**Price €/unit**	Additional charge for **RAL or NCS**	Additional charge for **RAL-Pearl or DB-Lack**	Additional charge for srew-fastening **ZB profile (pre-drilled)**
1GE35	01	090	A	C	E6C0	S	0300	0300	**75.-**	13.-	18.-	-
		XXX					XXXX	XXXX	**75.-**	13.-	18.-	-
1GE35	02	090	A	C	E6C0	S	0300	0300	**130.-**	15.-	21.-	-
		XXX					XXXX	XXXX	**130.-**	15.-	21.-	-
1GE35	03	090	A	C	E6C0	S	0300	0300	**185.-**	18.-	25.-	-
		XXX					XXXX	XXXX	**185.-**	18.-	25.-	-
1GE35	04	090	A	C	E6C0	S	0300	0300	**235.-**	20.-	28.-	-
		XXX					XXXX	XXXX	**235.-**	20.-	28.-	-
1GE35	01	090	A	A	E6C0	S	0300	0300	**75.-**	13.-	18.-	11.60
		XXX					XXXX	XXXX	**75.-**	13.-	18.-	11.60
1GE35	02	090	A	A	E6C0	S	0300	0300	**130.-**	15.-	21.-	11.60
		XXX					XXXX	XXXX	**130.-**	15.-	21.-	11.60
1GE35	03	090	A	A	E6C0	S	0300	0300	**185.-**	18.-	25.-	11.60
		XXX					XXXX	XXXX	**185.-**	18.-	25.-	11.60
1GE35	04	090	A	A	E6C0	S	0300	0300	**235.-**	20.-	28.-	11.60
		XXX					XXXX	XXXX	**235.-**	20.-	28.-	11.60

When placing your order, please enter the angle in degrees here (3 characters, whole numbers).
Other special versions can be supplied on request: **Prices on request!**
Specifications of the mitred corners: see version key on previous page.

Accessories SAL, SAL-V

EW End angle

*) SAL35 = 15
SAL50 = 20

EP End plate

Combinations EW/EP possible

End caps
End caps must be indicated in your order. If no specification is made, the diffuser will be delivered without end caps. End angles can be combined with end plates. To achieve better alignment within large SAL slot diffuser system, the pressure loss of the diffuser can be increased by inserting a fixed resistor in the spigot. Fixed resistors are designed as perforated metal discs with a free space of 21. 35. 40. 46 or 58%.

Connectors
Individual slots are connected with a connecting and centering profile, which are part of the standard delivery package when linear constructions are ordered.

Object: Depfa-Bank, Wiesbaden (Germany)

Configuration SAL50
Slot diffuser profile of aluminum extruded profiles with one or two-rows (combine to make a multirow unit).
Cover and support profiles in natural anodized finish (E6 C0) with eccentric cylinders of ABS

Available sizes L (mm):
600. 750. 900. 1050. 1200. 1350. 1500. 1650. 1800. 1950
Non-standard dimensions are possible on request.

Slot bands of various lengths can be created from the standard lengths, the connection is made via connector sections and centering profiles and is not visible.

SAL50/1
One-slot SAL profile with cover profile (ZS)

SAL50/1
One-slot SAL profile with support profiles (ZB)

SAL50/2
Two-slot SAL profile with cover profile (ZS)

SAL50/2
Two-slot SAL profile with support profiles (ZB)

Suspension
The plenum box is suspended by straps and exterior M4 – M5 rods.

Subframe Mounting
Mount slot units up to 2 m long with plenum box or use in an exterior vent via a subframe.

Throttle/damper

SAL50. 1-row
with plenum box
and support profile

SAL50. 2-row
with plenum box and
support profile

SAL50. multirow
with plenum box

SAL50. 1-row with plenum box

Size [mm]	to 1500 mm	1600 to 1950 mm
Size B	101	101
Size H	277	277
Size E	38.4	38.4
Size F	48	48
Size K	51	51
Size M	75	75
Size Ø D	158	158
Spigot [piece]	1	2

SAL50. 2-row with plenum box

Size [mm]	to 1500 mm	1600 to 1950 mm
Size B	148	148
Size H	317	317
Size E	85	85
Size F	94	94
Size K	97	97
Size M	121	121
Size Ø D	198	198
Spigot [piece]	1	2

SAL50. 3-row with plenum box

Size [mm]	to 1500 mm	1600 to 1950 mm
Size B	194	194
Size H	341	341
Size E	131.6	131.6
Size F	141	141
Size K	144	144
Size M	168	168
Size Ø D	222	222
Spigot [piece]	1	2

SAL50. 4-row with plenum box

Size [mm]	to 1500 mm	1600 to 1950 mm
Size B	241	241
Size H	367	367
Size E	178.2	178.2
Size F	187	187
Size K	190	190
Size M	215	215
Size Ø D	248	248
Spigot [piece]	1	2

Version key for model SAL50

	Charac.
1 = emcoair	1
S50 = linear diffuser model SAL50	2 - 4
01 = 1 (number of slots)	
02 = 2	
03 = 3	
04 = 4	5 - 6
0600 = 600 mm length	
1050 = 1050 mm	
XXXX = length at own's choice in mm (standard distance 100 mm)	7 - 10
A = drum position 1/A / F/6	
B = all C/D	
C = all D/E	
D = all 1/A	
E = all F/6	
F = 2 x 1/A / 1 x F/6	
Y = = special position	11
A = support profile (ZB)	
B = support profile (ZB), pre-drilled	
C = cover profile (ZS)	
Y = special profile	12
E6C0 = surface slot profile anodised in natural colour (E6/C0)	
SELO = anodised in black colour (E6/C35)	
9010 = varnished in RAL 9010. gloss polished (gloss level 75-84%)	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surfaces	13 - 16
S = black (colour of the eccentric cylinder)	
W = white	
G = grey	
Y = special colour (version 1-row only)	17
0 = without end cap	
A = end plate, left	
B = end plate, right	
C = end plate, both sides	
D = end angle, left	
E = end angle, right	
F = end angle, both sides	
J = with mitre cut	
K = with mitre cut and end plate	
L = with mitre cut and end bracket	
Y = special end caps	18
0 = mounted at plenum box (factory-made pre-mounted)	
1 = with straps (without plenum box)	
2 = traverse without plenum box	
3 = traverse with plenum box, not mounted	
4 = traverse with plenum box, mounted	
5 = pre-mounted for traverse mounting	19

Product group (1=emcoair)	Model designation	Number of slots	Length (mm)	Drum position	Front profile	Surface front profile	Colour of the eccentric cylinders	End caps	Mounting at plenum box	Fixed resiostor	Blank length left side (mm)	Blank length right side (mm)		
										0			**= without perforated plate (fixed resistor)**	
										2			= perorated plate with 21% free cross-section	
										3			= perorated plate witht 33% free cross-section	
										4			= perorated plate with 46% free cross-section	
										5			= perorated plate with 58% free cross-section	20
											0000		**= 0 mm blank length on left side**	
											XXXX		= blank length on left side at own's choice in mm	21 - 24
												0000	**= 0 mm blank length on right side**	
												XXXX	= blank length on right side at own's choice in mm	25 - 28
1	**S50**	**01**	**0600**	**A**	**A**	**E6C0**	**S**	**0**	**0**	**0**	**0000**	**0000**	**= Example**	

When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.

For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.

For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.

For RAL pearl colours or DB colours, please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.

Price list for model SAL50 / 1- to 4-row with front profile ZS, anodised in natural colour

emcoair model	Number of slots	Length (mm)	Drum position	Front profile	Surface front profile	Colour of the eccentric cylinders	End caps	Mounting at plenum box	Fixed resiostor	Blank length left side (mm)	Blank length right side (mm)	Prices €/unit	Additional charge for **Standard plenum box***	Additional charge for **Fixed resistor**	Additional charge for **RAL or NCS**	Additional charge for **RAL-Pearl or DB varnish**
1 S50	01	0600	A	C	E6C0	S	0	0	0	0000	0000	**39.80**	53.00	15.50	10.20	14.28
		0750										**44.75**	57.50	18.50	12.00	16.80
		0900										**49.70**	62.00	21.50	13.80	19.32
		1050										**54.65**	66.50	24.50	15.60	21.84
		1200										**59.60**	71.00	27.50	17.40	24.36
		1350										**64.55**	75.50	30.50	19.20	26.88
		1500										**69.50**	80.00	33.50	21.00	29.40
		1650										**74.45**	106.50	36.50	22.80	31.92
		1800										**79.40**	111.00	39.50	24.60	34.44
		1950										**84.35**	115.50	42.50	26.40	36.96
1S50	02	0600	A	C	E6C0	S	0	0	0	0000	0000	**77.80**	69.00	22.20	14.80	20.72
		0750										**87.25**	75.00	25.50	16.75	23.45
		0900										**96.70**	81.00	28.80	18.70	26.18
		1050										**106.15**	87.00	32.10	20.65	28.91
		1200										**115.60**	93.00	35.40	22.60	31.64
		1350										**125.05**	99.00	38.70	24.55	34.37
		1500										**134.50**	105.00	42.00	26.50	37.10
		1650										**143.95**	136.00	45.30	28.45	39.83
		1800										**153.40**	142.00	48.60	30.40	42.56
		1950										**162.85**	148.00	51.90	32.35	45.29
1 S50	03	0600	A	C	E6C0	S	0	0	0	0000	0000	**115.80**	85.00	29.20	18.40	25.76
		0750										**129.75**	92.50	32.88	20.50	28.70
		0900										**143.70**	100.00	36.55	22.60	31.64
		1050										**157.65**	107.50	40.23	24.70	34.58
		1200										**171.60**	115.00	43.90	26.80	37.52
		1350										**185.55**	122.50	47.58	28.90	40.46
		1500										**199.50**	130.00	51.25	31.00	43.40
		1650										**213.45**	165.50	54.93	33.10	46.34
		1800										**227.40**	173.00	58.60	35.20	49.28
		1950										**241.35**	180.50	62.28	37.30	52.22
1 S50	04	0600	A	C	E6C0	S	0	0	0	0000	0000	**153.80**	101.00	36.20	22.00	30.60
		0750										**172.25**	110.00	40.25	24.25	33.75
		0900										**190.70**	119.00	44.30	26.50	36.90
		1050										**209.15**	128.00	48.35	28.75	40.05
		1200										**227.60**	137.00	52.40	31.00	43.20
		1350										**246.05**	146.00	56.45	33.25	46.35
		1500										**264.50**	155.00	60.50	35.50	49.50
		1650										**282.95**	195.00	64.55	37.75	52.65
		1800										**301.40**	204.00	68.60	40.00	55.80
		1950										**319.85**	213.00	72.65	42.25	58.95

Addit. charge for **End angle:** natural anodised **9.00 €/unit**; varnished **13.50 €/unit**
Addit. charge for **End plate:** natural anodised **8.00 €/unit**; varnished **12.00 €/unit**

Addit. charge for **End angle:** natural anodised **10.00 €/unit**; varnished **15.00 €/unit**
Addit. charge for **End plate:** natural anodised **9.00 €/unit**; varnished **13.50 €/unit**

Addit. charge for **End angle:** natural anodised **11.00 €/unit**; varnished **16.50 €/unit**
Addit. charge for **End plate:** natural anodised **10.00 €/unit**; varnished **15.00 €/unit**

Addit. charge for **End angle:** natural anodised **12.00 €/unit**; varnished **18.00 €/unit**
Addit. charge for **End plate:** natural anodised **11.00 €/unit**; varnished **16.50 €/unit**

When ordering other lengths than given above, please enter a 4-digit number in the version key for „Length“ code in mm.
Prices for special lengths are calculated on the basis of the next highest standard length price.
Other special versions can be supplied on request: **Prices on request!**

***ATTENTION:** Above given plenum boxes correspond to standard specification as per description on page 89.
Further specifications of the plenum boxes: see version key on page 88.

Specifications of the mitred corners: see version key on page 90.

Price list for model SAL50 / 1- to 4-row with front profile ZB, anodised in natural colour

emcoair model	Number of slots	Length (mm)	Drum position	Front profile	Surface front profile	Colour of the eccentric cylinders	End caps	Mounting at plenum box	Fixed resiostor	Blank length left side (mm)	Blank length right side (mm)	Prices €/ unit	Additional charge for **Standard plenum box***	Additional charge for **Fixed resistor**	Additional charge for **RAL or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for srew fastening **ZB profile (pre-drilled)**
1 S50	01	0600	A	A	E6C0	S	0	0	0	0000	0000	**41.00**	53.00	15.50	10.20	14.28	11.60
		0750										**46.25**	57.50	18.50	12.00	16.80	13.63
		0900										**51.50**	62.00	21.50	13.80	19.32	15.65
		1050	Addit. charge for **End angle: natural anodised 9.00 €/unit**									**56.75**	66.50	24.50	15.60	21.84	17.68
		1200	**varnished 13.50 €/unit**									**62.00**	71.00	27.50	17.40	24.36	19.70
		1350	Addit. charge for **End plate: natural anodised 8.00 €/unit**									**67.25**	75.50	30.50	19.20	26.88	21.73
		1500	**varnished 12.00 €/unit**									**72.50**	80.00	33.50	21.00	29.40	23.75
		1650										**77.75**	106.50	36.50	22.80	31.92	25.78
		1800										**83.00**	111.00	39.50	24.60	34.44	27.80
		1950										**88.25**	115.50	42.50	26.40	36.96	29.83
1S50	02	0600	A	A	E6C0	S	0	0	0	0000	0000	**79.00**	69.00	22.20	14.80	20.72	11.60
		0750										**88.75**	75.00	25.50	16.75	23.45	13.63
		0900										**98.50**	81.00	28.80	18.70	26.18	15.65
		1050	Addit. charge for **End angle: natural anodised 10.00 €/unit**									**108.25**	87.00	32.10	20.65	28.91	17.68
		1200	**varnished 15.00 €/unit**									**118.00**	93.00	35.40	22.60	31.64	19.70
		1350	Addit. charge for **End plate: natural anodised 9.00 €/unit**									**127.75**	99.00	38.70	24.55	34.37	21.73
		1500	**varnished 13.50 €/unit**									**137.50**	105.00	42.00	26.50	37.10	23.75
		1650										**147.25**	136.00	45.30	28.45	39.83	25.78
		1800										**157.00**	142.00	48.60	30.40	42.56	27.80
		1950										**166.75**	148.00	51.90	32.35	45.29	29.83
1 S50	03	0600	A	A	E6C0	S	0	0	0	0000	0000	**117.00**	85.00	29.20	18.40	25.76	11.60
		0750										**131.25**	92.50	32.88	20.50	28.70	13.63
		0900										**145.50**	100.00	36.55	22.60	31.64	15.65
		1050	Addit. charge for **End angle: natural anodised 11.00 €/unit**									**159.75**	107.50	40.23	24.70	34.58	17.68
		1200	**varnished 16.50 €/unit**									**174.00**	115.00	43.90	26.80	37.52	19.70
		1350	Addit. charge for **End plate: natural anodised 10.00 €/unit**									**188.25**	122.50	47.58	28.90	40.46	21.73
		1500	**varnished 15.00 €/unit**									**202.50**	130.00	51.25	31.00	43.40	23.75
		1650										**216.75**	165.50	54.93	33.10	46.34	25.78
		1800										**231.00**	173.00	58.60	35.20	49.28	27.80
		1950										**245.25**	180.50	62.28	37.30	52.22	29.83
1 S50	04	0600	A	A	E6C0	S	0	0	0	0000	0000	**155.00**	101.00	36.20	22.00	30.60	11.60
		0750										**173.75**	110.00	40.25	24.25	33.75	13.63
		0900										**192.50**	119.00	44.30	26.50	36.90	15.65
		1050	Addit. charge for **End angle: natural anodised 12.00 €/unit**									**211.25**	128.00	48.35	28.75	40.05	17.68
		1200	**varnished 18.00 €/unit**									**230.00**	137.00	52.40	31.00	43.20	19.70
		1350	Addit. charge for **End plate: natural anodised 11.00 €/unit**									**248.75**	146.00	56.45	33.25	46.35	21.73
		1500	**varnished 16.50 €/unit**									**267.50**	155.00	60.50	35.50	49.50	23.75
		1650										**286.25**	195.00	64.55	37.75	52.65	25.78
		1800										**305.00**	204.00	68.60	40.00	55.80	27.80
		1950										**323.75**	213.00	72.65	42.25	58.95	29.83

When ordering other lengths than given above, please enter a 4-digit number in the version key for „Length“ code in mm.
Prices for special lengths are calculated on the basis of the next highest standard length price.
Other special versions can be supplied on request: **Prices on request!**

***ATTENTION:** Above given plenum boxes correspond to standard specification as per description on page 89.
Further specifications of the plenum boxes: see version key on page 88.

Specifications of the mitred corners: see version key on page 90.

Version key plenum boxes (standard) for model SAL50

Charac.

- **1 = emcoair** — 1
  - **AS50 = plenum box for linear diffuser SAL50** — 2 - 5
    - **01 = 1 (number of slots)**
    - 02 = 2
    - 03 = 3
    - 04 = 4
    - XX = number of slots at own's choice — 6 - 7
      - **0600 = 600 mm length**
      - 1050 = 1050 mm
      - XXXX = length at own's choice in mm — 8 - 11
        - **101 = 101 mm width (1 slot)**
        - 148 = 148 (2 slots)
        - 194 = 194 (3 slots)
        - 241 = 241 (4 slots)
        - XXX = width at own's choice in mm — 12 - 14
          - **202 = 202 mm height (1 slot)**
          - 242 = 242 (2 slots)
          - 266 = 266 (3 slots)
          - 292 = 292 (4 slots)
          - XXX = height at own's choice in mm — 15 - 17
            - **075 = 75 mm spigot length incl. front profile**
            - XXX = spigot length at own's choice in mm — 18 - 20
              - **158 = 158 mm spigot diameter (1 slot)**
              - 198 = 198 (2 slots)
              - 222 = 222 (3 slots)
              - 248 = 248 (4 slots)
              - XXX = spigot diameter at own's choice in mm — 21 - 23
                - **1 = 1 (number of spigots)**
                - 2 = 2 (for lengths more than 1500 mm 2 spigots standard)
                - X = number of spigots at own's choice (max. 5) — 24
                - **S = side spigot position (symmetric)**
                - O = = top spigot position (symmetric)
                - Y = special spigot position/size — 25
                - **V = material steel, galvanised** — 26
                - **0 = without insulation**
                - 1 = with insulation inside (20 mm mineral wool)
                - 2 = with insulation outside (13 mm Armaflex)
                - 7 = with insulation outside (19 mm Armaflex)
                - 3 = with insulation inside (20 mm mineral wool) and outside (13 mm Armaflex)
                - 6 = with insulation inside (20 mm) and outside (19 mm Armaflex) — 27
                - **0 = symmetric**
                - 1 = asymmetric — 28
                - **0 = without throttle**
                - 1 = with throttle operated from the front
                - 2 = with self-locking throttle — 29
                - **0 = without sealing lips**
                - 1 = with sealing lips — 30

Product group (1=emcoair)	Model designation	Number of slots	Length (mm)	Width (mm)	Height (mm)	Spigot length (mm)	Spigot diameter (mm)	Number of spigots	Spigot position	Material	Insulation	Layout	Equipment	Sealing lips	
1	AS50	01	0600	101	202	075	158	1	S	V	0	0	0	0	= Example

Price list for standard plenum boxes for mode SAL50

emcoair model	Number of slots	Length (mm)	Width (mm)	Height (mm)	Spigot length (mm)	Spigot diameter (mm)	Number of spigots	Spigot position	Material	Insulation	Layout	Equipment	Sealing lips	Price €/unit	Additional charge for **throttle operated from the front** (per plenum box)	Additional charge for **self-locking throttle** (per plenum box)	Additional charge for **sealing lips at spigot** (per spigot)
1 AS50	01	0600	101	202	075	158	1	S	V	0	0	0	0	**53.00**	15.-	12.-	8.-
		0750					1							**57.50**	15.-	12.-	8.-
		0900					1							**62.00**	15.-	12.-	8.-
		1050					1							**66.50**	15.-	12.-	8.-
		1200					1							**71.00**	15.-	12.-	8.-
		1350					1							**75.50**	15.-	12.-	8.-
		1500					1							**80.00**	15.-	12.-	8.-
		1650					2							**106.50**	15.-	12.-	8.-
		1800					2							**111.00**	15.-	12.-	8.-
		1950					2							**115.50**	15.-	12.-	8.-
1 AS50	02	0600	148	242	075	198	1	S	V	0	0	0	0	**69.00**	18.-	16.-	11.-
		0750					1							**75.00**	18.-	16.-	11.-
		0900					1							**81.00**	18.-	16.-	11.-
		1050					1							**87.00**	18.-	16.-	11.-
		1200					1							**93.00**	18.-	16.-	11.-
		1350					1							**99.00**	18.-	16.-	11.-
		1500					1							**105.00**	18.-	16.-	11.-
		1650					2							**136.00**	18.-	16.-	11.-
		1800					2							**142.00**	18.-	16.-	11.-
		1950					2							**148.00**	18.-	16.-	11.-
1 AS50	03	0600	194	266	075	222	1	S	V	0	0	0	0	**85.00**	21.-	19.-	15.-
		0750					1							**92.50**	21.-	19.-	15.-
		0900					1							**100.00**	21.-	19.-	15.-
		1050					1							**107.50**	21.-	19.-	15.-
		1200					1							**115.00**	21.-	19.-	15.-
		1350					1							**122.50**	21.-	19.-	15.-
		1500					1							**130.00**	21.-	19.-	15.-
		1650					2							**165.50**	21.-	19.-	15.-
		1800					2							**173.00**	21.-	19.-	15.-
		1950					2							**180.50**	21.-	19.-	15.-
1 AS50	04	0600	241	292	075	248	1	S	V	0	0	0	0	**101.00**	25.-	22.-	18.-
		0750												**110.00**	25.-	22.-	18.-
		0900					1							**119.00**	25.-	22.-	18.-
		1050					1							**128.00**	25.-	22.-	18.-
		1200					1							**137.00**	25.-	22.-	18.-
		1350					1							**146.00**	25.-	22.-	18.-
		1500					1							**155.00**	25.-	22.-	18.-
		1650					2							**195.00**	25.-	22.-	18.-
		1800					2							**204.00**	25.-	22.-	18.-
		1950					2							**213.00**	25.-	22.-	18.-

Other special versions can be supplied on request: **Prices on request!**
Specifications of the plenum boxes: see previous page.

Additional charge for **other spigot diameters** per unit: **14.00 € (1 slot), 16.00 € (2 slot), 18.00 € (3 slot), 20.00 € (4 slot)**
Additional charge for **further spigot** per unit: **14.00 € (1 slot), 16.00 € (2 slot), 18.00 € (3 slot), 20.00 € (4 slot)**

Version key mitred corners for model SAL50

| | | |

Price list for mitred corners for model SAL50

emcoair model	Number of slots	Mitred angle (°degrees)	Drum position	Front profile	Surface slot profile	Colour of the eccentric cylinders	Side length left (mm)	Side length right (mm)	Price €/unit	Additional charge for **RAL, RALG or NCS at own's choice**	Additional charge for **RAL-Pearl or DB-Lack**	Additional charge for srew-fastening **ZB profile (pre-drilled)**
1GE50	01	090	A	C	E6C0	S	0300	0300	**130.-**	18.-	25.-	-
		XXX					XXXX	XXXX	**130.-**	18.-	25.-	-
1GE50	02	090	A	C	E6C0	S	0300	0300	**230.-**	23.-	32.-	-
		XXX					XXXX	XXXX	**230.-**	23.-	32.-	-
1GE50	03	090	A	C	E6C0	S	0300	0300	**340.-**	27.-	38.-	-
		XXX					XXXX	XXXX	**340.-**	27.-	38.-	-
1GE50	04	090	A	C	E6C0	S	0300	0300	**440.-**	31.-	43.-	-
		XXX					XXXX	XXXX	**440.-**	31.-	43.-	-
1GE50	01	090	A	A	E6C0	S	0300	0300	**130.-**	18.-	25.-	15.-
		XXX					XXXX	XXXX	**130.-**	18.-	25.-	15.-
1GE50	02	090	A	A	E6C0	S	0300	0300	**230.-**	23.-	32.-	15.-
		XXX					XXXX	XXXX	**230.-**	23.-	32.-	15.-
1GE50	03	090	A	A	E6C0	S	0300	0300	**340.-**	27.-	38.-	15.-
		XXX					XXXX	XXXX	**340.-**	27.-	38.-	15.-
1GE50	04	090	A	A	E6C0	S	0300	0300	**440.-**	31.-	43.-	15.-
		XXX					XXXX	XXXX	**440.-**	31.-	43.-	15.-

When placing your order, please enter the angle in degrees here (3 characters, whole numbers).
Other special versions can be supplied on request: **Prices on request!**
Specifications of the mitred corners: see version key on previous page.

emcoair Linear diffuser SAL-V (motorised adjustment)
SAL-V is an adjustable linear slot diffuser manufactured with 35 mm profile width. It consists of aluminum extruded profiles with inserted eccentric or nozzle cylinders of ABS and is operated via a plenum box. Depending on the situation and the volume of air, the diffuser can be manufactured as a multirow unit and joined together to make slot bands of any desired length.
Its integrated emco cylinders allow ideal adaptation of the discharge direction to the climatization demands as well as perfect integration into structural conditions.
Cylinder settings necessary to achieve specific functions are made during manufacture, but settings can also be changed even after the unit has been installed. Their stable, high induction jet control make slot diffusers or slot bands well suited for use in open or continuous ceilings as well as in variable volume flow systems.

Areas of application
- Cooling and heating in commercial areas with average room heights
- Areas with high air change rates and low air velocities
- Situations in which the diffuser must fit both the form and color of the room
- Systems with variable volume flow
- Offices, conference rooms, computer rooms, clean rooms, department stores, cinemas and theaters

Product benefits
- Motorized adjustment of jet direction, from high diffusion to vertical
- Adjustable to meet changes in room use
- Quick temperature and velocity reduction when cooling
- Adjustable penetration depth
- Repeatable diffuser settings
- Can be manufactured with defined, project-specific diffuser settings
- Ability to adjust even after installation
- Settings remain in place even during cleaning

Configuration
SAL-V consists of aluminum extruded profiles with inserted 100 mm long eccentric or nozzle cylinders of ABS and is operated via a plenum box.
The specially developed slot profiles have a feeding track in which the sliding sections in axis can be moved freely.
The sliding sections are developed so that an open section always connects to a closed section and vice versa.
All sliding sections are connected via a transmission plate to a threaded spindle, which is operated by an electric motor.

Method of operation

In addition to the standard eccentric cylinders, some slot rows also have nozzle cylinders whose aerodynamic characteristics are quite different from those of the eccentric cylinders.
The nozzle cylinders are opened or closed via a motorized slot slider.
If the nozzle cylinders are closed, a horizontal jet is produced according to the respective eccentric cylinder setting.
This makes it possible to cool and heat with one system.

Design

For reasons of space and method of operation, the principle just explained does cause some restrictions to the dimensions:

- SAL-V must be at least 1000 mm and a maximum of 2000 mm in length.
- SAL-V must have at least 4 rows of slots.
- SAL-V may have a maximum of 10 parallel slot rows.

Determine the total number of slots needed by first measuring the overall volume flow to be discharged above a slot diffuser and the mean slot load (approx. 75 m³/hm).
Use the chart to determine the number of slots to be manufactured or the possible combinations.

Design – Number of slots	Manufacture – Number of slots
2	4
3	6
4	8
5	10

Setup

1. Delivery of SAL-V includes servo motor. For repairs, plenum box dispose of a maintenance opening. Alternatively, diffuser can be delivered with traverses to connect detachable profiles and plenum box.
2. For function check of servo motor SAL-V can be provide with additionally position indicator switches.

Dimensions / Accessories

The SAL-V sizes and plenum boxes follow the manufacture number of slots and are identcal to SAL 35.
This applies to all necassary accessories like end plates connections for several liear diffusers and support or covering profiles (page 97).

Project: Palace Hotel, Berlin (Germany)

Version key for model SAL-V

	Charac.
1 = emcoair	1
SLV = linear diffuser model SAL-V (motorised adjustment)	2 - 4
03 = 3 (number of slots)	
XX = number of slots at own's choice	5 - 6
1000 = 1000 mm length (3 slots only)	
XXXX = length at own's choice in mm (standard distance 100 mm)	7 - 10
A = drum position 1/A/F6	
Y = special position	11
A = support profile (ZB)	
B = support profile (ZB), pre-drilled	
C = cover profile (ZS)	12
E6C0 = surface slot profile anodised in natural colour (E6/C0)	
9010 = varnished in RAL 9010. gloss polished (gloss level 75-84%)	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surfaces	
SELO = anodised in black colour (E6/C35)	13 - 16
S = black (colour of the eccentric cylinder)	
W = white	
G = grey	
Y = special	17
0 = factory-made pre-mounted	
2 = traverse without plenum box	
3 = traverse with plenum box, not mounted	
4 = traverse with plenum box, mounted (only with 3 slot rows)	
5 = pre-mounted for traverse mounting	18
0 = without perforated plate (fixed resistor)	
2 = perorated plate with 21% free cross-section	
3 = perorated plate witht 33% free cross-section	
4 = perorated plate with 46% free cross-section	
5 = perorated plate with 58% free cross-section	19
0000 = 0 mm blank length on left side	
XXXX = blank length on left side at own's choice in mm	20 - 23
0000 = 0 mm blank length on right side	
XXXX = blank length on right side at own's choice in mm	24 - 27

Product group (1=emcoair)	Model designation	Number of slots	Length (mm)	Drum position Front profile		Surface front profile	Colour of the eccentric cylinders	Mounting at plenum box	Fixed resiostor	Blank length left side (mm)	Blank length right side (mm)	
1	SLV	03	1000	A	A	E6C0	S	0	0	0000	0000	= Example

Prices on request.

emcoair linear diffuser model SAL-S
Slot diffuser SAL-S is a linear diffuser manufactured with 35 mm profile width. It is made complexly of aluminum extruded profiles with integrated throttle valves and is operated via a plenum box.
Diffuser SAL-S is ideal for use in many situations. It generates a horizontal jet with rapid temperature and velocity reduction, and thus fulfills all demands of comfort in occupied zones.

Areas of application
- Cooling and heating in commercial areas with average room heights
- Areas with high air change rates and low air velocities
- Situations in which the diffuser must fit both the form and color of the room
- Systems with variable volume flow
- Offices, conference rooms, computer rooms, clean rooms, department stores, cinemas and theaters.

Product benefits
- Can be moved in radii, smallest radius r = 600 mm (n = 1), 2100 mm (n = 4)
- Made completely of aluminum
- No increase in fire load in the ceiling zone
- Can be manufactured with defined, project-specific diffuser settings
- Settings remain in place even during cleaning
- Integrated, easily-accessible throttle element
- Draft-free air intake when cooling
- Low acoustic power level

Configuration
Slot diffuser SAL-S consists of aluminum extruded profiles (1) as side profiles, a connector piece (2) with a defined arrangement of air discharge openings and a throttleslide profile (3) located lengthwise on the connecting piece.
Standard finish for cover and support profiles is a natural anodized finish (E6C0). End caps and connectors are designed analogous to diffuser model SAL 35.

Available sizes L (mm):
500. 600. 700. 800. 900. 1000.1100. 1200. 1300. 1400. 1500. 1600. 1700. 1800. 1900. 2000
Non-standard dimensions are possible upon request. Slot bands of various lengths can be created from the standard lengths, the connection is made via connector sections and centering profiles and is not visible.

SAL-S-1
One-slot SAL profile
with cover profile

SAL-S-2
Two-slot SAL profile
with cover profile

SAL-S-1
One-slot SAL profile
with support profile

SAL-S-2
Two-slot SAL profile
with support profile

Aerodynamic data

Nominal size [-]	L_{WA} [dB(A)]	$\dot{V}_0$ [m³/h]	Δp [Pa]	Minimum spacing [m]	x_{crit} (diffus)
SAL-S-1	30 35 40	95 115 140	16 23 34	– 3.3 15.0	2.1 2.6 3.4
SAL-S-2	30 35 40	160 195 235	18 25 37	5.0 11.2 > 15.0	1.9 2.4 3.2
SAL-S-3	30 35 40	205 245 295	18 26 38	4.8 9.8 > 15.0	1.7 2.1 2.6
SAL-S-4	30 35 40	240 290 345	18 26 38	4.4 8.5 14.5	1.5 1.9 2.3

Specification: The minimum spacing for heights of 3.0 m so that velocity in occupied areas does not exceed 0.2 m/s.
Critical Stream Path ΔT= –8 K; (table valid for L=1 m)

Method of operation

Air meets the connector profile in a vertical position between the side profiles and depending on the number of perforation holes in the connector profile, is then separated into the respective number of individual jets.

Standard design foresees alternate rows of 92 mm long perforation holes on each side of the connector profile, the result being that the individual jets also are alternately discharged thus making them highly diffused. A defined hole position within the profile guarantees horizontal discharge.

Depending on the situation, multiple perforations in a row can be made on one side of the profile to achieve greater horizontal penetration depths. This method can also produce a completely one-sided discharge jet.

The number of slot rows depends on the overall volume flow. Recommended are 50 – 100 m³/hm specific volume flows (based on 1 m active slot length): For aerodynamic and acoustic reasons, the number of parallel slot rows is limited to four.

SAL-S, 1-row with plenum box

Size [mm]	to 1500 mm	1600 to 2000 mm
Size B	88	88
Size H	215	215
Size E	25	25
Size F	32	32
Size K	35	35
Size M	59	59
Size Ø D	123	123
Spigot [piece]	1	2

SAL-S, 2-row with plenum box

Size [mm]	to 1500 mm	1600 to 2000 mm
Size B	120	120
Size H	230	230
Size E	57	57
Size F	65	65
Size K	67	67
Size M	91	91
Size Ø D	138	138
Spigot [piece]	1	2

SAL-S, 3-row with plenum box

Size [mm]	to 1500 mm	1600 to 2000 mm
Size B	152	152
Size H	250	250
Size E	89.5	89.5
Size F	97	97
Size K	100.5	100.5
Size M	124.5	124.5
Size Ø D	158	158
Spigot [piece]	1	2

SAL-S, 4-row with plenum box

Size [mm]	to 1500 mm	1600 to 2000 mm
Size B	184	184
Size H	290	290
Size E	122	122
Size F	130	130
Size K	133	133
Size M	157.5	157.5
Size Ø D	198	198
Spigot [piece]	1	2

Version key for model SAL-S

	Charac.
1 = emcoair	1
SLS = linear diffuser model SAL-S	2 - 4
01 = 1 (number of slots)	
02 = 2	
03 = 3	
04 = 4	
XX = number of slots at own's choice	5 - 6
1000 = 1000 mm length	
0500 = 0500 mm	
XXXX = length at own's choice in mm (standard distance 100 mm)	7 - 10
A = air control adjustment 1/A / F/6	
B = C/D	
D = 1/A	
E = F/6	
S = exhaust air (standard)	11
A = support profile (ZB)	
B = support profile (ZB), pre-drilled	
C = cover profile (ZS)	
Y = special profile	12
E6C0 = surface slot profile anodised in natural colour (E6/C0)	
9010 = varnished in RAL 9010. gloss polished (gloss level 75-84%)	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surfaces	
SELO = anodised in black colour (E6/C35), only with 1 slot row	13 - 16
0 = surface of the air control element is aluminium, untreated	
Y = special version	17
0 = without end caps	
A = end plate, left	
B = end plate, right	
C = end plate, both sides	
D = end angle, left	
E = end angle, right	
F = end angle, both sides	
J = with mitre cut	
K = with mitre cut and end plate	
L = with mitre cut and end bracket	
Y = special end caps	18
0 = mounted at plenum box (factory-made pre-mounted)	
1 = with straps (without plenum box)	
2 = traverse without plenum box	
3 = traverse with plenum box, not mounted	
4 = traverse with plenum box, mounted	19

Product group (1=emcoair)	Model designation	Number of slots	Length (mm)	Air control adjustment	Front profile	Surface front profile	Surface air control element	End caps	Mounting at plenum box	Blank length left side (mm)	Blank length right side (mm)		
										0000		**= 0 mm blank length on left side**	
										XXXX		= blank length on left side at own's choice in mm	20 - 23
											0000	**= 0 mm blank length on right side**	
											XXXX	= blank length on right side at own's choice in mm	24 - 27
1	**SLS**	**01**	**1000**	**I**	**A**	**E6C0**	**0**	**0**	**0**	**0000**	**0000**	**= Example**	

When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.

For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.

For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.

For RAL pearl colours or DB colours, please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.

The specifications of this version key only contains choices for linear diffusers (model SAL-S) without radiuses.

Specifications for radial diffusers (model SAL-R) on request.

Price list for model SAL-S / 1-row, anodised in natural colour

emcoair model	Number of slots	Length (mm)	Air control adjustment	Front profile	Surface front profile	Surface air control element	End caps	Mounting at plenum box	Blank length left side (mm)	Blank length right side (mm)	Throttle slide profile	Prices €/unit	Additional charge for **Standard plenum box***	Additional charge for **RAL or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for srew fastening **ZB profile (pre-drilled)**
1SLS	01	0500	I	C	E6C0	0	0	0	0000	0000	0	**26.50**	27.50	6.75	9.45	-
		0600										**29.80**	29.00	7.60	10.64	-
		0700										**33.10**	30.50	8.45	11.83	-
		0800										**36.40**	32.00	9.30	13.02	-
		0900										**39.70**	33.50	10.15	14.21	-
		1000										**43.00**	35.00	11.00	15.40	-
		1100										**46.30**	36.50	11.85	16.59	-
		1200										**49.60**	38.00	12.70	17.78	-
		1300										**52.90**	39.50	13.55	18.97	-
		1400										**56.20**	41.00	14.40	20.16	-
		1500										**59.50**	42.50	15.25	21.35	-
		1600										**62.80**	60.00	16.10	22.54	-
		1700										**66.10**	61.50	16.95	23.73	-
		1800										**69.40**	63.00	17.80	24.92	-
		1900										**72.70**	64.50	18.65	26.11	-
		2000										**76.00**	66.00	19.50	27.30	-
1SLS	01	0500	I	A	E6C0	0	0	0	0000	0000	0	**27.50**	27.50	6.75	9.45	10.25
		0600										**31.00**	29.00	7.60	10.64	11.60
		0700										**34.50**	30.50	8.45	11.83	12.95
		0800										**38.00**	32.00	9.30	13.02	14.30
		0900										**41.50**	33.50	10.15	14.21	15.65
		1000										**45.00**	35.00	11.00	15.40	17.00
		1100										**48.50**	36.50	11.85	16.59	18.35
		1200										**52.00**	38.00	12.70	17.78	19.70
		1300										**55.50**	39.50	13.55	18.97	21.05
		1400										**59.00**	41.00	14.40	20.16	22.40
		1500										**62.50**	42.50	15.25	21.35	23.75
		1600										**66.00**	60.00	16.10	22.54	25.10
		1700										**69.50**	61.50	16.95	23.73	26.45
		1800										**73.00**	63.00	17.80	24.92	27.80
		1900										**76.50**	64.50	18.65	26.11	29.15
		2000										**80.00**	66.00	19.50	27.30	30.50

When ordering other lengths than given above, please enter a 4-digit number in the version key for „Length“ code in mm.
Prices for special lengths are calculated on the basis of the next highest standard length price.
Other special versions can be supplied on request: **Prices on request!**

***ATTENTION:** Above given plenum boxes correspond to standard specification as per description on pages 107/108.
Further specifications of the plenum boxes: see version key on page 106.

Additional charge for **end angle:** **anodised in natural colour 6.00 €/unit,** **varnished 9.00 €/unit**
Additional charge for **end plate:** **anodised in natural colour 5.00 €/unit,** **varnished 7.50 €/unit**

Specifications of the mitred corners: see version key on page 110.

Price list for model SAL-S / 2-row, anodised in natural colour

emcoair model	Number of slots	Length (mm)	Air control adjustment	Front profile	Surface front profile	Surface air control element	End caps	Mounting at plenum box	Blank length left side (mm)	Blank length right side (mm)	Throttle slide profile	Prices €/unit	Additional charge for **Standard plenum box***	Additional charge for **RAL or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for srew fastening **ZB profile (pre-drilled)**
1SLS	02	0500	I	C	E6C0	0	0	0	0000	0000	0	**44.00**	56.00	8.25	11.55	-
		0600										**49.80**	60.00	9.20	12.88	-
		0700										**55.60**	64.00	10.15	14.21	-
		0800										**61.40**	68.00	11.10	15.54	-
		0900										**67.20**	72.00	12.05	16.87	-
		1000										**73.00**	76.00	13.00	18.20	-
		1100										**78.80**	80.00	13.95	19.53	-
		1200										**84.60**	84.00	14.90	20.86	-
		1300										**90.40**	88.00	15.85	22.19	-
		1400										**96.20**	92.00	16.80	23.52	-
		1500										**102.00**	96.00	17.75	24.85	-
		1600										**107.80**	120.00	18.70	26.18	-
		1700										**113.60**	124.00	19.65	27.51	-
		1800										**119.40**	128.00	20.60	28.84	-
		1900										**125.20**	132.00	21.55	30.17	-
		2000										**131.00**	136.00	22.50	31.50	-
1SLS	02	0500	I	A	E6C0	0	0	0	0000	0000	0	**45.00**	56.00	8.25	11.55	10.25
		0600										**51.00**	60.00	9.20	12.88	11.60
		0700										**57.00**	64.00	10.15	14.21	12.95
		0800										**63.00**	68.00	11.10	15.54	14.30
		0900										**69.00**	72.00	12.05	16.87	15.65
		1000										**75.00**	76.00	13.00	18.20	17.00
		1100										**81.00**	80.00	13.95	19.53	18.35
		1200										**87.00**	84.00	14.90	20.86	19.70
		1300										**93.00**	88.00	15.85	22.19	21.05
		1400										**99.00**	92.00	16.80	23.52	22.40
		1500										**105.00**	96.00	17.75	24.85	23.75
		1600										**111.00**	120.00	18.70	26.18	25.10
		1700										**117.00**	124.00	19.65	27.51	26.45
		1800										**123.00**	128.00	20.60	28.84	27.80
		1900										**129.00**	132.00	21.55	30.17	29.15
		2000										**135.00**	136.00	22.50	31.50	30.50

When ordering other lengths than given above, please enter a 4-digit number in the version key for „Length“ code in mm.
Prices for special lengths are calculated on the basis of the next highest standard length price.
Other special versions can be supplied on request: **Prices on request!**

***ATTENTION:** Above given plenum boxes correspond to standard specification as per description on pages 107/108.
Further specifications of the plenum boxes: see version key on page 106.

Additional charge for **end angle:** **anodised in natural colour 7.00 €/unit,** **varnished 10.50 €/unit**
Additional charge for **end plate:** **anodised in natural colour 6.00 €/unit,** **varnished 9.00 €/unit**

Specifications of the mitred corners: see version key on page 110.

Price list for model SAL-S / 3-row, anodised in natural colour

emcoair model	Number of slots	Length (mm)	Air control adjustment	Front profile	Surface front profile	Surface air control element	End caps	Mounting at plenum box	Blank length left side (mm)	Blank length right side (mm)	Throttle slide profile	Prices €/unit	Additional charge for **Standard plenum box***	Additional charge for **RAL or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for srew fastening **ZB profile (pre-drilled)**
1 SLS	03	0500	I	C	E6C0	0	0	0	0000	0000	0	**64.00**	68.50	11.25	15.75	-
		0600										**72.80**	73.00	12.20	17.08	-
		0700										**81.60**	77.50	13.15	18.41	-
		0800										**90.40**	82.00	14.10	19.74	-
		0900										**99.20**	86.50	15.05	21.07	-
		1000										**108.00**	91.00	16.00	22.40	-
		1100										**116.80**	95.50	16.95	23.73	-
		1200										**125.60**	100.00	17.90	25.06	-
		1300										**134.40**	104.50	18.85	26.39	-
		1400										**143.20**	109.00	19.80	27.72	-
		1500										**152.00**	113.50	20.75	29.05	-
		1600										**160.80**	142.00	21.70	30.38	-
		1700										**169.60**	146.50	22.65	31.71	-
		1800										**178.40**	151.00	23.60	33.04	-
		1900										**187.20**	155.50	24.55	34.37	-
		2000										**196.00**	160.00	25.50	35.70	-
1 SLS	03	0500	I	A	E6C0	0	0	0	0000	0000	0	**65.00**	68.50	11.25	15.75	10.25
		0600										**74.00**	73.00	12.20	17.08	11.60
		0700										**83.00**	77.50	13.15	18.41	12.95
		0800										**92.00**	82.00	14.10	19.74	14.30
		0900										**101.00**	86.50	15.05	21.07	15.65
		1000										**110.00**	91.00	16.00	22.40	17.00
		1100										**119.00**	95.50	16.95	23.73	18.35
		1200										**128.00**	100.00	17.90	25.06	19.70
		1300										**137.00**	104.50	18.85	26.39	21.05
		1400										**146.00**	109.00	19.80	27.72	22.40
		1500										**155.00**	113.50	20.75	29.05	23.75
		1600										**164.00**	142.00	21.70	30.38	25.10
		1700										**173.00**	146.50	22.65	31.71	26.45
		1800										**182.00**	151.00	23.60	33.04	27.80
		1900										**191.00**	155.50	24.55	34.37	29.15
		2000										**200.00**	160.00	25.50	35.70	30.50

When ordering other lengths than given above, please enter a 4-digit number in the version key for „Length“ code in mm.
Prices for special lengths are calculated on the basis of the next highest standard length price.
Other special versions can be supplied on request: **Prices on request!**

***ATTENTION:** Above given plenum boxes correspond to standard specification as per description on pages 107/108.
Further specifications of the plenum boxes: see version key on page 106.

Additional charge for **end angle:** **anodised in natural colour 8.00 €/unit,** **varnished 12.00 €/unit**
Additional charge for **end plate:** **anodised in natural colour 7.00 €/unit,** **varnished 10.50 €/unit**

Specifications of the mitred corners: see version key on page 110.

Price list for model SAL-S / 4-row, anodised in natural colour

emcoair model	Number of slots	Length (mm)	Air control adjustment	Front profile	Surface front profile	Surface air control element	End caps	Mounting at plenum box	Blank length left side (mm)	Blank length right side (mm)	Throttle slide profile	Prices €/unit	Additional charge for **Standard plenum box***	Additional charge for **RAL or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for srew fastening **ZB profile (pre-drilled)**
1 SLS	04	0500	I	C	E6C0	0	0	0	0000	0000	0	**79.00**	82.00	12.50	17.50	-
		0600										**89.80**	87.00	13.50	18.90	-
		0700										**100.60**	92.00	14.50	20.30	-
		0800										**111.40**	97.00	15.50	21.70	-
		0900										**122.20**	102.00	16.50	23.10	-
		1000										**133.00**	107.00	17.50	24.50	-
		1100										**143.80**	112.00	18.50	25.90	-
		1200										**154.60**	117.00	19.50	27.30	-
		1300										**165.40**	122.00	20.50	28.70	-
		1400										**176.20**	127.00	21.50	30.10	-
		1500										**187.00**	132.00	22.50	31.50	-
		1600										**197.80**	165.00	23.50	32.90	-
		1700										**208.60**	170.00	24.50	34.30	-
		1800										**219.40**	175.00	25.50	35.70	-
		1900										**230.20**	180.00	26.50	37.10	-
		2000										**241.00**	185.00	27.50	38.50	-
1 SLS	04	0500	I	A	E6C0	0	0	0	0000	0000	0	**80.00**	82.00	12.50	17.50	10.25
		0600										**91.00**	87.00	13.50	18.90	11.60
		0700										**102.00**	92.00	14.50	20.30	12.95
		0800										**113.00**	97.00	15.50	21.70	14.30
		0900										**124.00**	102.00	16.50	23.10	15.65
		1000										**135.00**	107.00	17.50	24.50	17.00
		1100										**146.00**	112.00	18.50	25.90	18.35
		1200										**157.00**	117.00	19.50	27.30	19.70
		1300										**168.00**	122.00	20.50	28.70	21.05
		1400										**179.00**	127.00	21.50	30.10	22.40
		1500										**190.00**	132.00	22.50	31.50	23.75
		1600										**201.00**	165.00	23.50	32.90	25.10
		1700										**212.00**	170.00	24.50	34.30	26.45
		1800										**223.00**	175.00	25.50	35.70	27.80
		1900										**234.00**	180.00	26.50	37.10	29.15
		2000										**245.00**	185.00	27.50	38.50	30.50

When ordering other lengths than given above, please enter a 4-digit number in the version key for „Length“ code in mm.
Prices for special lengths are calculated on the basis of the next highest standard length price.
Other special versions can be supplied on request: **Prices on request!**

***ATTENTION:** Above given plenum boxes correspond to standard specification as per description on pages 107/108.
Further specifications of the plenum boxes: see version key on page 106.

Additional charge for **end angle:** **anodised in natural colour 8.00 €/unit,** **varnished 13.50 €/unit**
Additional charge for **end plate:** **anodised in natural colour 8.00 €/unit,** **varnished 12.00 €/unit**

Specifications of the mitred corners: see version key on page 110.

Version key plenum boxes (standard) for model SAL-S

Charac.

- **1 = emcoair** — 1
  - **ASOS = plenum box for linear diffuser SAL-S** — 2 - 5
    - **01 = 1 (number of slots)**
    - 02 = 2
    - 03 = 3
    - 04 = 4
    - XX = number of slots at own's choice — 6 - 7
      - **1000 = 1000 mm length**
      - XXXX = length at own's choice in mm — 8 - 11
        - **088 = 88 mm width (1 slot), without inside insulation**
        - 120 = 120 (2 slots), without inside insulation
        - 152 = 152 (3 slots), without inside insulation
        - 184 = 184 (4 slots), without inside insulation
        - XXX = width at own's choice in mm — 12 - 14
          - **155 = 155 mm height (1 slot)**
          - 170 = 170 (2 slots)
          - 190 = 190 (3 slots)
          - 230 = 230 (4 slots)
          - XXX = height at own's choice in mm — 15 - 17
            - **060 = 60 mm spigot length incl. front profile**
            - XXX = spigot length at own's choice in mm — 18 - 20
              - **123 = 123 mm spigot diameter (1 slot)**
              - 138 = 138 (2 slots)
              - 158 = 158 (3 slots)
              - 198 = 198 (4 slots)
              - XXX = spigot diameter at own's choice in mm — 21 - 23
                - **1 = 1 (number of spigots)**
                - 2 = 2 (for lengths more than 1500 mm 2 spigots standard)
                - X = number of spigots at own's choice — 24
                - **S = side spigot position (symmetric)**
                - O = top spigot position (symmetric)
                - Y = special spigot position/size — 25
                - **V = material steel, galvanised** — 26
                - **0 = without insulation**
                - 1 = with insulation inside (20 mm mineral wool)
                - 2 = with insulation outside (13 mm Armaflex)
                - 7 = with insulation outside (19 mm Armaflex)
                - 3 = with insulation inside (20 mm mineral wool) and outside (13 mm Armaflex)
                - 6 = with insulation inside (20 mm) and outside (19 mm Armaflex) — 27
                - **0 = symmetric**
                - 1 = asymmetric — 28
                - **0 = without throttle**
                - 1 = with throttle operated from the front
                - 2 = with self-locking throttle — 29
                - **0 = without sealing lips**
                - 1 = with sealing lips — 30

Product group (1=emcoair)	Model designation	Number of slots	Length (mm)	Width (mm)	Height (mm)	Spigot length (mm)	Spigot diameter (mm)	Number of spigots	Spigot position	Material	Insulation	Layout	Equipment	Sealing lips	
1	ASOS	01	1000	088	155	060	123	1	S	V	0	0	0	0	= Example

Price list for standard plenum boxes for model SAL-S / 1-row and 2-row

emcoair model	Number of slots	Length (mm)	Width (mm)	Height (mm)	Spigot length (mm)	Spigot diameter (mm)	Number of spigots	Spigot position	Material	Insulation	Layout	Equipment	Sealing lips	Price €/unit	Additional charge for **throttle operated from the front** (per plenum box)	Additional charge for **self-locking throttle** (per plenum box)	Additional charge for **sealing lips at spigot** (per spigot)
1AS0S	01	0500	088	155	060	123	1	S	V	0	0	0	0	**27.50**	10.-	8.-	6.-
		0600					1							**29.00**	10.-	8.-	6.-
		0700					1							**30.50**	10.-	8.-	6.-
		0800					1							**32.00**	10.-	8.-	6.-
		0900					1							**33.50**	10.-	8.-	6.-
		1000					1							**35.00**	10.-	8.-	6.-
		1100					1							**36.50**	10.-	8.-	6.-
		1200					1							**38.00**	10.-	8.-	6.-
		1300					1							**39.50**	10.-	8.-	6.-
		1400					1							**41.00**	10.-	8.-	6.-
		1500					1							**42.50**	10.-	8.-	6.-
		1600					2							**60.00**	10.-	8.-	6.-
		1700					2							**61.50**	10.-	8.-	6.-
		1800					2							**63.00**	10.-	8.-	6.-
		1900					2							**64.50**	10.-	8.-	6.-
		2000					2							**66.00**	10.-	8.-	6.-
1AS0S	02	0500	120	170	060	138	1	S	V	0	0	0	0	**56.00**	13.-	11.-	7.-
		0600					1							**60.00**	13.-	11.-	7.-
		0700					1							**64.00**	13.-	11.-	7.-
		0800					1							**68.00**	13.-	11.-	7.-
		0900					1							**72.00**	13.-	11.-	7.-
		1000					1							**76.00**	13.-	11.-	7.-
		1100					1							**80.00**	13.-	11.-	7.-
		1200					1							**84.00**	13.-	11.-	7.-
		1300					1							**88.00**	13.-	11.-	7.-
		1400					1							**92.00**	13.-	11.-	7.-
		1500					1							**96.00**	13.-	11.-	7.-
		1600					2							**120.00**	13.-	11.-	7.-
		1700					2							**124.00**	13.-	11.-	7.-
		1800					2							**128.00**	13.-	11.-	7.-
		1900					2							**132.00**	13.-	11.-	7.-
		2000					2							**136.00**	13.-	11.-	7.-

Other special versions can be supplied on request: **Prices on request!**
Specifications of the plenum boxes: see previous page.

Additional charge for **other spigot diameters** per unit: **12.00 € (1 slot), 13.00 € (2 slot)**
Additional charge for **further spigot** per unit: **12.00 € (1 slot), 13.00 € (2 slot)**

Price list for standard plenum boxes for model SAL-S / 3-row and 4-row

emcoair model	Number of slots	Length (mm)	Width (mm)	Height (mm)	Spigot length (mm)	Spigot diameter (mm)	Number of spigots	Spigot position	Material	Insulation	Layout	Equipment	Sealing lips	Price €/unit	Additional charge for **throttle operated from the front** (per plenum box)	Additional charge for **self-locking throttle** (per plenum box)	Additional charge for **sealing lips at spigot** (per spigot)
1AS0S	03	0500	152	190	060	158	1	S	V	0	0	0	0	**68.50**	15.-	12.-	8.-
		0600					1							**73.00**	15.-	12.-	8.-
		0700					1							**77.50**	15.-	12.-	8.-
		0800					1							**82.00**	15.-	12.-	8.-
		0900					1							**86.50**	15.-	12.-	8.-
		1000					1							**91.00**	15.-	12.-	8.-
		1100					1							**95.50**	15.-	12.-	8.-
		1200					1							**100.00**	15.-	12.-	8.-
		1300					1							**104.50**	15.-	12.-	8.-
		1400					1							**109.00**	15.-	12.-	8.-
		1500					1							**113.50**	15.-	12.-	8.-
		1600					2							**142.00**	15.-	12.-	8.-
		1700					2							**146.50**	15.-	12.-	8.-
		1800					2							**151.00**	15.-	12.-	8.-
		1900					2							**155.50**	15.-	12.-	8.-
		2000					2							**160.00**	15.-	12.-	8.-
1AS0S	04	0500	184	230	060	198	1	S	V	0	0	0	0	**82.00**	16.-	13.-	9.-
		0600					1							**87.00**	16.-	13.-	9.-
		0700					1							**92.00**	16.-	13.-	9.-
		0800					1							**97.00**	16.-	13.-	9.-
		0900					1							**102.00**	16.-	13.-	9.-
		1000					1							**107.00**	16.-	13.-	9.-
		1100					1							**112.00**	16.-	13.-	9.-
		1200					1							**117.00**	16.-	13.-	9.-
		1300					1							**122.00**	16.-	13.-	9.-
		1400					1							**127.00**	16.-	13.-	9.-
		1500					1							**132.00**	16.-	13.-	9.-
		1600					2							**165.00**	16.-	13.-	9.-
		1700					2							**170.00**	16.-	13.-	9.-
		1800					2							**175.00**	16.-	13.-	9.-
		1900					2							**180.00**	16.-	13.-	9.-
		2000					2							**185.00**	16.-	13.-	9.-

Other special versions can be supplied on request: **Prices on request!**
Specifications of the plenum boxes: see page 106.

Additional charge for **other spigot diameters** per unit: **14.00 € (3 slot), 15.00 € (4 slot)**
Additional charge for **further spigot** per unit: **14.00 € (3 slot), 15.00 € (4 slot)**

Version key mitred corners for model SAL-S

| | | |

Price list for mitred corners for model SAL-S

emcoair model	Number of slots	Mitred angle (°degrees)	Air control adjustment	Front profile	Surface slot profile	surface air control element	Side length left (mm)	Side length right (mm)	Price €/unit	Additional charge for **RAL, RALG or NCS at own's choice**	Additional charge for **RAL-Pearl or DB-Lack**	Additional charge for srew-fastening **ZB profile (pre-drilled)**
1GE0S	01	090	G	C	E6C0	0	0300	0300	**75.-**	13.-	18.-	-
		XXX					XXXX	XXXX	**75.-**	13.-	18.-	-
1GE0S	02	090	G	C	E6C0	0	0300	0300	**130.-**	15.-	21.-	-
		XXX					XXXX	XXXX	**130.-**	15.-	21.-	-
1GE0S	03	090	G	C	E6C0	0	0300	0300	**185.-**	18.-	25.-	-
		XXX					XXXX	XXXX	**185.-**	18.-	25.-	-
1GE0S	04	090	G	C	E6C0	0	0300	0300	**235.-**	20.-	28.-	-
		XXX					XXXX	XXXX	**235.-**	20.-	28.-	-
1GE0S	01	090	G	A	E6C0	0	0300	0300	**75.-**	13.-	18.-	11.60-
		XXX					XXXX	XXXX	**75.-**	13.-	18.-	11.60-
1GE0S	02	090	G	A	E6C0	0	0300	0300	**130.-**	15.-	21.-	11.60-
		XXX					XXXX	XXXX	**130.-**	15.-	21.-	11.60-
1GE0S	03	090	G	A	E6C0	0	0300	0300	**185.-**	18.-	25.-	11.60-
		XXX					XXXX	XXXX	**185.-**	18.-	25.-	11.60-
1GE0S	04	090	G	A	E6C0	0	0300	0300	**235.-**	20.-	28.-	11.60-
		XXX					XXXX	XXXX	**235.-**	20.-	28.-	11.60-

When placing your order, please enter the angle in degrees here (3 characters, whole numbers).
Other special versions can be supplied on request: **Prices on request!**
Specifications of the mitred corners: see version key on previous page.

Circular pipe diffusers

Architects can choose to either fully integrate technical air conditioning equipment into the structure, rendering the system invisible, or they can choose to demonstratively show them, thus adding further emphasis to a building's modern appearance. The latter choice being the inspiration for emco to develop a system circular duct diffusers.
This system uses various materials and colors and allows air control in just about any type of circular duct system, whereby thermal comfort and an adjustment of the volume flow in the entire system are guaranteed.

Air is discharged at exactly the points where it is needed and penetrate the room exactly as emco engineers have planned. Should the ducts in greater heights need to be used for heating, cooling and ventilation, they can be equipped with a motorized adjusting mechanism to distinguish the jet direction between cooling and heating.

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emcoair circular pipe diffusers

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Circular pipe diffusers models RRA and RRA-V

Diffusers RRA / RRA-V are for visible mounting, and can be used as a part of the room's interior design.
They are particularly suitable when technology should not only have a functional purpose but is also used as an element of design.
These diffusers can be used in both commercial and industrial areas.
The discharge patterns available through these diffusers make it ideal to solve just about any climate control application in an uncomplicated and comfortable manner.
The RRA-V version is also electrically adjustable.

Areas of application

- Commercial areas
- Hall ventilation
- Production areas
- Laboratory areas
- Work safety
- Quality assurance

Product benefits

- Discharge direction can be set by the patented eccentric cylinder
- Easily adaptable to any changes in the utilisation of the room.
- Combination of all discharge patterns in one diffuser
- For sensitive or heavily exposed areas it can also be supplied in the V2A version with interior coating.
- Rapid temperature and velocity reduction during cooling
- Can be installed at any point in a circular duct system (horizontal or vertical)
- Can be installed onto any duct or fittings from DN 150 according to ISO standards
- Individual color schemes

Configuration

Linear diffuser RRA consists of a plain pipe element with a round cross section on the outside of which several slot sections are mounted in axial direction (the actual amount of slot sections is only limited through the diameter of the diffuser). The slot sections are flush with the pipe's outer wall and are fitted with 100 mm long eccentric cylinders that are individually rotatable.

Depending on the situation, fixed resistors can be fitted on to the slot sections. The resistors affect the discharge volumes by changing the effective free cross-section of the diffuser.
The pipe sections have drill holes on both sides to accommodate rods for mounting.

Method of operation

The linear pipe diffuser can be installed to any end section with an end cap and in any position (horizontal or vertical) into an existing duct system.
Air flows through the duct outlet lengthwise and is first discharged vertically and can then be diverted according to the cylinder setting.
It is possible to have multiple ducts in a pipeline, whereby in that case pressure should be adjusted hydraulically along the whole system (see Hydraulic adjustment for further details pages 125-127).

Directions of airstream

Controlling the airflow direction

The eccentric drum forms an airflow channel that conducts the air in circular paths together with the slotted section. Near the surface of the drum a strong vacuum develops with high flow velocities. As a result the air flowing out is deflected in a direction that is important for the further formation of the airflow. The design of the drum body allows a freely adjustable rotation of 180°.

The adjacent diagram describes the interrelationship between the drum position and the resulting directions of flow. If several slots with eccentric drums are arranged parallel to one another any form of airflow or airflow direction / diffusion can be achieved.

Two-sided discharge that is made up of many individual jets. This results in an intense induction of room air with a low discharge area.

Two-sided discharge with two distinct main flow directions. A high discharge area is achieved.

Setting the single jet direction perpendicular to the pipe wall creates a vertical airflow with a medium penetration depth when heating.

Setting the cylinder to a certain position constricts the airflow which in turn creates a vertical stream with low induction and a much higher penetration depth.

The wide fan-shaped discharge pattern and the low vertical dispersion make this setting especially suitable for ceiling heights of up to 3 m. The air will flow around any obstacles such as lamps, ledges etc.

When all the cylinders are set to the maximum jet deflection in the same direction an airflow on the pipe wall is created which results in an extreme deflection of the inserted air.

Project: Dresdner Bank, Munich, Germany

Aerodynamic data RRA

Table 1		Recommended air volume flow for complete pipe system [m³/h]																		
Nominal diameter [mm]	Max. number of slots	0	100	200	300	400	500	700	1000	① **1500**	2000	2500	3000	3500	4000	5000	6000	7000	8000	9000
150	4																			
160	4																			
180	4																			
200	6																			
224	6																			
250	6																			
280	6																			
300	6																			
315	6																			
355	8																			
② **400**	8																			
450	8																			
500	14																			
560	14																			
630	14																			
710	14																			
800	14																			
900	14																			

Example: ① $\dot{V}_{ges}$ *= 1500 m³/h*

Given: *Diameter chosen according to table:*
② *400 mm, requested number and length of RRA:*
③ *3 pieces, each 2000 mm long*

Calculation: V_0*/number of RRA per RRA* » $\frac{1500\ m^3/h}{3}$ *= 500 m³/h*

Result: ④ *Number of slots according to table: 4*

Table 2	Number of slots						
Pipe length [mm] Slot length [mm]	2	④ **4**	6	8	10	12	14
	Recommended air volume flow pro RRA [m³/h]						
1000 / 800	110	220	340	450	560	670	780
1500 / 1300	180	360	550	730	910	1100	1270
③ **2000** / 1700	240	480	710	950	1190	1430	1670

Other dimensions and numbers of slots available on request.
Models as oval pipe system also available. Technical specifications and prices on request.

Table 1 show a variety of possible cylinder diameters in combination to the total air flow volume of a cylindrical pipe system. In table 2 you can derive the amount of cylinder pipe diffuses along the length in reliance to the amount of slots required.
Please note however, that the possible number of slots are limited by the selected pipes diameter and that we only manufacturer the pipe lengths of 1700 mm and 2000 mm up to a pipe diameter of 450 mm due to stability and handling considerations. As a standard the slot elements are symmetrically arranged opposite the pipe's welding seam/fold. Other arrangements are conceivable and possible depending on application. These must be specified upon order. The recommended volume flows RRA in table 2 are based on an average capacity of 70 m³/h per meter of active slot length. This value is recommended purely for acoustic reasons in comfort areas. However, this value can be greatly exceeded depending on the acoustic requirements. When linear pipe diffusers are used for cooling, the minimum hourly admission capacity may not fall short of 50 m³/h per meter of active slot length otherwise the desired airflow can not be guaranteed (not enough discharge impulses with the temperature difference that is present at the same time).

Side view

Sectional view

Dimensions and weights model RRA*

Pipe length L_R	Slot length L_S	Weight increase per slot		DN 150 mm	DN 160 mm	DN 180 mm	DN 200 mm	DN 224 mm	DN 250 mm	DN 280 mm	DN 300 mm	DN 315 mm	DN 355 mm	DN 400 mm	DN 450 mm	DN 500 mm	DN 560 mm	DN 630 mm	DN 710 mm	DN 800 mm	DN 900 mm
[mm]	[mm]	[kg]*	[kg]**	Metal plate thickness 0.88 mm												Metal plate thickness 1.00 mm					
1000	800	0.36	0.34	2.80	2.99	3.36	3.72	4.17	4.65	6.94	7.43	7.80	8.78	9.89	11.13	14.79	16.27	18.00	19.96	22.19	24.66
1500	1300	0.60	0.55	4.18	4.46	5.02	5.57	6.24	6.95	10.39	11.10	11.68	13.16	14.80	16.68	20.96	23.18	25.77	28.72	32.05	35.70
1750	1500	0.68	0.63	-	-	-	6.50	7.27	8.11	12.11	12.98	13.63	15.35	17.29	19.44	-	-	-	-	-	-
2000	1700	0.82	0.76	-	-	-	7.42	8.31	9.27	13.83	14.83	15.57	17.54	19.75	22.23	-	-	-	-	-	-

* for metal plate thickness 0.88 mm ** for metal plate thickness 1.00 mm

The oval-shaped ORA

It is often the case that ceilings are not high enough to allow for installation of a circular pipe system of the required diameter. In these circumstances, ORA oval pipe systems are a great alternative. Emco offers an oval pipe system with the equivalent hydraulic cross-section for every nominal diameter commercially available for circular pipes. The table provides an overview of the relevant dimensions, together with the maximum number of slot rows per outlet.
Since slot rows can be accommodated in both the flat area (underside or top) of the outlet, as well as in the rounded side areas of oval pipe systems, there is a range of air feed possibilities, which can be perfectly adapted to the situation in the room. Due to the equivalent hydraulic diameters of the oval pipes, the technical data for the circular pipes with the corresponding nominal diameters applies to dimensioning, as per the table.

Dimensions model ORA oval

Circular pipe	Oval pipe		
Nominal diameter [mm]	Height h [mm]	Width b [mm]	Maximum number of slots
200	150	300	8
250	150	400	12
315	150	630	12
355	200	520	12
400	250	580	15
450	250	740	15
500	300	790	15
560	350	840	15
630	350	1000	20
710	450	1020	20
800	500	1160	20

Prices for oval pipe systems on request.

Basic principle of the method of operation model RRA-V

Method of operation RRA-V

The RRA-V is a motorised adjustable diffuser in which two different air-flows can be produced by just one diffuser. These air flows can be obtained by pre setting the eccentric cylinder in advance. The RRA-V is suited for areas of high installation to create a defined cool or warm airflow in one single system for example. Therefore the RRA-V has a larger number of slots than the RRA but with the same amount of airflow volume.

The motorised integrated slot valve operates the the drum to open and close. The linear pipe diffuser can be installed in a horizontal position at any point in a piping system (e.g. as a section of a system, end section with an end cap). The air flows through the pipe diffuser in a longitudinal direction, according to the drum setting and the positioning of the slides. If there are several diffusers in a system, then the pressure should be calibrated throughout the whole length of the system.

Power supply model emcoMFR-Z-NT-6W

Power unit model emcoMFR-Z-LT

Room temperature sensor model emcoMFR-Z-RT

Temperature sensor model emcoMFR-Z-TF

emcoMFR-TDR – Differential temperature control for RRA-V

If a manual intervention would like to be avoided when operating between heating and cooling then a pipe system containing electro-mechanically adjustable slots type RRA-V can be inserted and controlled using the emcoMFR Differential temperature control (TDR)

The differential temperature control emcoMFR-TDR is used to control the electro-mechanically adjustable slots based on the difference in temperatures between supply and room air. The control unit works independently and does not have to been monitored. Through constant monitoring of the supply and room air temperature the eccentric cylinders which operate the heating and cooling modes in the circular pipe diffusers can be opened and closed automatically. As a standard the emcoMFR- TDR contains two different set point curves which are pre installed according to the relative diffuser, the motor type and the planning specifications. In principle up to 10 servomotors in parallel operation can be connected to every distributor output. The control connection is provided via 0...10V or 2 point over a relay contact.

The emcoMFR-TDR consists of the following components:

- emcoMFR-Z-NT-6W (power supply)
- emcoMFR-Z-LT (power unit)
- emcoMFR-Z-RT (room temperature sensor)
- emcoMFR-Z-TF (temperature sensor)

There is also a possibility of implementing special applications if requested. For further enquiries please contact our head office.

Technical details for the emcoMFR-TDR:

- 8 analog outputs for up to 10 servomotors.
- 4 digital outputs (potential-free) for external control (output 0%, characteristic line 1 active, characteristic line 2 active, parameterised value active)
- 4 digital outputs (PT1000) to record the supply and room temperature (single and mix temperature parametrisable)
- All servomotors for 0-10V controls can be connected
- Operational voltage 24 V DC
- Relay contact to switch between heating and cooling mode (3 point system)
- USB service port for parameterisation

Parameterisation software.

- Adaption of the factory pre-set configurations (characteristic lines) on special systems
- Displaying the facility data and operating values

Moulded components / Accessories
The RRA circular pipe diffuser is available in the specified lengths ranging from DN 150 to DN 900 according to ISO standards for pipe and moulding dimensions. As circular pipe diffusers are mounted in visible areas it is advisable for optical reasons to adopt the same design and colour.

Plain pipes
Plain pipes are available in the same dimensions as the circular pipe diffusers. As a standard plain pipes are manufactured L < 500 mm as sleeves without beads.

Moulded components
All standard adapting pieces are available such as conduit elbows, branch pipes, reducers, etc. Conduit elbows are available in all nominal sizes as segmented conduit elbows. Pressed half shells are also available up to DN 315.
To seal the pipe system we recommend using the end covers for pipe or moulded components in accordance to ISO standards. The end covers of circular pipe diffusers can be custom-made to slope at any angle and then welded into position.

Connectors
Over-sleeve connections are recommended as a standard connection which match the diameter of the selected pipe. Further possible types of connectors are clamping rings to join the pipes together with connecting sleeves and sealing tape on the inner side.

Materials
All pipes and moulding components are available in the following designs and paint finished according to the RAL colour scheme.

- galvanised steel
- aluminium
- stainless steel

Plain pipe

Reducers
round to round

square to round

Branch pipe
90°

Y-pipe
45°

Stand pipe

Press conduit elbow
90°

Elbow joint parameterized

Sleeve
wire mesh guard

Segment conduit elbows
15°

30°

45°

60°

90°

Prices on request. Plain pipes see pages 138 and following!

Standardised optic despite special components within viewing range
If you don't wish to use rectangular piping for aesthetic reasons, circular pipe diffusers are perfectly suited for use in visible areas. An essential feature of a circular pipe system is its homogeneous optic which stands out throughout the length of the pipe system which has a constant diameter and same amount of slot sections in the cylinder piping.

To avoid ruining the homogeneous optic essential silencers are often hidden from view or can be positioned outside the ventilated area. Frequently due to architectural reasons there isn't adequate space to separate these components.

Silencers
For this reason emco offer a special silencer which has an internal insulation and can be seamlessly integrated in to the cylindrical piping without disturbing the pipes harmonious and balanced optic.

Prices on request !

The revision sleeve
In accordance with the hygiene requirements laid down in Article VDI 6022: *"All (air ducting) components (a RLT System) have to be accessible for all the necessary inspections and cleaning maintenance".*

The desire for a homogenous optic of the cylindrical piping which could be ruined by inspection and maintenance openings in visible areas may cause a problem for some people. For this reason emco offer a special revision sleeve which is made of two half-pipes which are connected by a locking hinge and can be easily accessed using a simple open and closure mechanism. The revision sleeves can be installed at regular intervals in the piping between the diffuser slots and therefore fit seamlessly into the optic of the cylindrical piping.

Prices on request !

Pos.	Number	Component
10	4	RRA; DN = 450 mm; L = 1500 mm; Ls = 1300 mm; Nominal fitting size; Colour = 9010; Surface = just outside; N = 05; Angle = 000°; Mat. = steel, galvanised; Colour of the ecc. cylinders = black
20	1	RRA; DN = 450 mm; L = 1500 mm; Ls = 1300 mm; Nom. fit. size; Col. = 9010; Surface = just outside; N = 05; Throttle vers. = L; Angle = 000°; Mat. = steel, galvanised; Col. of the ecc. cyl. = black
30	1	GR; DN = 450 mm; L = 500 mm; Nominal fitting size without cut-out; Colour = 9010; Surface = just outside; Material = steel, galvanised
40	7	Sleeve; DN = 450 mm; L = 135 mm; Over-sleeve connection; Colour = 9010; Surface = just outside; Material = steel, galvanised
50	1	Branch pipe; DN = 450 mm; L = 780 mm; Colour = 9010; Surface = just outside; Material = steel, galvanised
60	6	GR; DN = 450 mm; L = 1000 mm; Nominal fitting size without cut-out; Colour = 9010; Surface = just outside; Material = steel, galvanised
70	7	Sleeve; DN = 450 mm; L = 110 mm; Over-sleeve connection; Colour = 9010; Surface = just outside; Material = steel, galvanised
80	2	Conduit elbow; DN = 450 mm; Angle = 45°; Segmented conduit elbow ; Colour = 9010; Surface = just outside; Material = steel, galvanised
90	2	End cap; DN = 450 mm; Nominal pipe size; Colour = 9010; Surface = just outside; Material = steel, galvanised

For larger view with key see following pages.

Thinking it through to the end: Hydraulic balance in the emco circular pipe diffuser.

Circular pipe diffusers are installed as part of a complete system of various air supply components built in to a cylindrical pipe system. The hydraulic balance of a circular pipe system is very complex and requires profound expertise due to the wide range of possible components (elbow joints, bow curves, branches) as well as the high variability of slot diffusers in relation to the diameter, amount of slots and slot lengths.

Furthermore due to aesthetic reasons there is a continual demand for a constant pipe diameter as well as a constant amount of slots over the whole length of the system. A hydraulic balance cannot be achieved within the whole system by using reducers or by varying the amount of slots along the pipe system. This is why it is necessary to apply fixed resistors into the pipe system which influence the pressure ratios inside the system without disturbing the harmonious optic.

For this reason emco have designed a software which enables a reliable statement in regard to the emco circular pipe diffuser's hydraulic balance. The software calculates the pressure ratio necessary for the hydraulic balance within the whole circular pipe system according to the components resistance values as well as the emerging air flow velocities. The results of the calculations are based on the position of the resistor units within the circular pipe system ensuring a perfect hydraulic balance. In addition the specific amount of air flow which is exhausted per diffuser is calculated together with further technical details of the circular pipe system. It also compiles a loss in pressure, acoustic levels together with a schematic drawing as well as a quantity structure. This guarantees that the customer can obtain the desired technical details of the circular pipe system from the beginning of a construction project.

Prices on request!

Hydraulic balance in the emco Circular pipe diffuser.

Key

1. Basic technical data of the system
2. Hydraulic balancing via throttle damper
3. Calculation of specific supply air flow at diffuser
4. Hydraulic balance due to resistor
5. Technical data of RRA diffuser
6. Quantity structure

1

Technical Data

Overall flow rate [m³/h]:	4600
velocity at inlet of system [m/s]:	8.0
Specific flow rate per meter slot [m³/h/m]	88
Sound power per meter Slot [dB(A)]:	31
Pressure drop [Pa]:	96
Eccentric drum setting:	1A/F6

Climate creates atmosphere.

6

Pos.	Number	Component
10	4	RRA; DN = 450 mm; L = 1500 mm; Ls = 1300 mm; Nominal fitting size; Colour = 9010; Surface = just outside; N = 05; Angle = 000°; Mat. = steel, galvanised; Colour of the ecc. cylinders = black
20	1	RRA; DN = 450 mm; L = 1500 mm; Ls = 1300 mm; Nom. fit. size; Col. = 9010; Surface = just outside; N = 05; Throttle vers. = L; Angle = 000°; Mat. = steel, galvanised; Col. of the ecc. cyl. = black
30	1	GR; DN = 450 mm; L = 500 mm; Nominal fitting size without cut-out; Colour = 9010; Surface = just outside; Material = steel, galvanised
40	7	Sleeve; DN = 450 mm; L = 135 mm; Over-sleeve connection; Colour = 9010; Surface = just outside; Material = steel, galvanised
50	1	Branch pipe; DN = 450 mm; L = 780 mm; Colour = 9010; Surface = just outside; Material = steel, galvanised
60	6	GR; DN = 450 mm; L = 1000 mm; Nominal fitting size without cut-out; Colour = 9010; Surface = just outside; Material = steel, galvanised
70	7	Sleeve; DN = 450 mm; L = 110 mm; Over-sleeve connection; Colour = 9010; Surface = just outside; Material = steel, galvanised
80	2	Conduit elbow; DN = 450 mm; Angle = 45°; Segmented conduit elbow ; Colour = 9010; Surface = just outside; Material = steel, galvanised
90	2	End cap; DN = 450 mm; Nominal pipe size; Colour = 9010; Surface = just outside; Material = steel, galvanised

Version key for circular pipe diffusers

Charac

1 = emcoair — 1

- **RF = circular pipe diffuser (nominal fitting size)**
- RV = circular pipe diffuser (nominal fitting size) with motor adjustment (in 1500 mm pipe length and without fixed resistor)
- RR = circular pipe diffuser (nominal pipe size) — 2 - 3
  - **01 = 1 (number of slots), not version RV)**
  - 02 = 2
  - 03 = 3
  - 04 = 4
  - 05 = 5
  - 06 = 6
  - 07 = 7
  - 08 = 8
  - 09 = 9
  - 10 = 10
  - 11 = 11
  - 12 = 12
  - 13 = 13
  - 14 = 14 — 4 - 5
    - **150 = 150 mm nominal size (1 – 4 slots only)**
    - 160 = 160 mm (1 – 4 slots only)
    - 180 = 180 mm (1 – 4 slots only)
    - 200 = 200 mm (1 – 6 slots only)
    - 224 = 224 mm(1 – 6 slots only)
    - 250 = 250 mm (1 – 6 slots only)
    - 280 = 280 mm (1 – 6 slots only)
    - 300 = 300 mm (1 – 6 slots only)
    - 315 = 315 mm (1 – 6 slots only)
    - 355 = 355 mm (1 – 10 slots only)
    - 400 = 400 mm (1 – 10 slots only)
    - 450 = 450 mm (1 – 10 slots only)
    - 500 = 500 mm
    - 560 = 560 mm
    - 630 = 630 mm
    - 710 = 710 mm
    - 800 = 800 mm
    - 900 = 900 mm
    - XXX = pipe diameter at own's choice in mm (min. 150 / max. 900 mm) — 6 - 8
      - **1000 = 1000 mm pipe length**
      - XXXX = pipe length at own's choice in mm (min. 500 / max. 2000 mm) — 9 - 12
        - **0800 = 800 mm slot length**
        - XXXX = slot length at own's choice in mm (in 100-mm-steps) — 13 - 16
          - **S = with welded straight bead**
          - P = with spot-welded straight bead (up to 180 mm nominal size only)
          - F = with welted straight bead — 17
            - **V = material: steel, galvanised**
            - A = aluminium (AlMgSi0.5)
            - E = stainless steel V2A (material-No. 1.4301)
            - S = stainless steel V4A (material-No. 1.4571) — 18

Product group (1=emcoair)	Model designation	Number of slots	Nominal diameter (mm)	Pipe length (mm)	Slot length (mm)	Straight bead	Material	Surface of the pipe	Varnishing	Drum position	Colour of the eccentric cylinders	Fixed resistor	Sealing lips	Dispalcement angle (degrees)		
								9010	**= varnished in RAL 9010, gloss polished (gloss level 75-84%) (surface of the pipe)**							
								XXXX	= varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)							
								0NCS	= varnished in NCS colour							
								00DB	= varnished in DB colour							
								RALP	= varnished in RAL-Pearl colour							
								RALG	= varnished in RAL colour, gloss level different from standard							
								YYYY	= special surfaces							
								W320	= ground surface (stainless steel)							
								GGGG	= satin (stainless steel)							
								0000	= unpainted							
								GRUN	= primed							
								UNBE	= untreated (stainless steel)							
								A000	= aluminium, untreated							19 - 22
									A = varnishing outside							
									B = varnishing outside and inside (not version RV)							
									I = varnishing inside (not version RV)							
									0 = unpainted							23
										A = drum position 1A/F6						
										Y = special position						24
											S = black (colour of the eccentric cylinder)					
											W = white					
											G = grey					
											Y = special colour					25
												A = without slot resistor, without pipe resistor				26
													0 = without sealing lips			
													1 = wit sealing lips on both sides			27
														000 = 0° displacement angle		
														YYY = 360°		
														XXX = displacement angle at own's choice		28 - 30
1	**RF**	**01**	**150**	**1000**	**0800**	**P**	**V**	**9010**	**A**	**A**	**S**	**A**	**0**	**000**	**= Example**	

Price list for model RRA – DN 150 · 160 · 180 and 200 · 224 · 250 mm

emcoair model	Number of slots	Nominal diameter (mm)	Pipe length (mm)	Slot length (mm)	Straight bead [1]	Material [3]	Surface of the pipe [2]	Varnishing	Drum position	Colour of the eccentric cylinders	Fixed resistor	Dispalcement angle (degrees)	Price €/unit
1 RF	01	180 [4]	1000	0800	P	V	XXXX	A	A	S	A	000	**347.00**
			1500	1300									**362.50**
1RF	02	180 [4]	1000	0800	P	V	XXXX	A	A	S	A	000	**358.00**
			1500	1300									**375.50**
1RF	03	180 [4]	1000	0800	P	V	XXXX	A	A	S	A	000	**369.00**
			1500	1300									**388.50**
1RF	04	180 [4]	1000	0800	P	V	XXXX	A	A	S	A	000	**380.00**
			1500	1300									**401.50**
1 RF	01	250 [5]	1000	0800	S	V	XXXX	A	A	S	A	000	**366.-**
			1500	1300									**398.-**
			1750	1550									**414.-**
			2000	1700									**430.-**
1RF	02	250 [5]	1000	0800	S	V	XXXX	A	A	S	A	000	**377.-**
			1500	1300									**411.-**
			1750	1550									**430.-**
			2000	1700									**448.-**
1RF	03	250 [5]	1000	0800	S	V	XXXX	A	A	S	A	000	**388.-**
			1500	1300									**424.-**
			1750	1550									**446.-**
			2000	1700									**466.-**
1RF	04	250 [5]	1000	0800	S	V	XXXX	A	A	S	A	000	**399.-**
			1500	1300									**437.-**
			1750	1550									**462.-**
			2000	1700									**484.-**
1RF	05	250 [5]	1000	0800	S	V	XXXX	A	A	S	A	000	**410.-**
			1500	1300									**450.-**
			1750	1550									**478.-**
			2000	1700									**502.-**
1RF	06	250 [5]	1000	0800	S	V	XXXX	A	A	S	A	000	**421.-**
			1500	1300									**463.-**
			1750	1550									**494.-**
			2000	1700									**520.-**

[1] Pipes of nominal sizes up to 180 mm in spot-welded version, from DN200 in welded or welted version (straight bead).
[2] When ordering **RAL colour at your discretion**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the **RALG** code and specify the precise colour designation.
For NCS colours, please just enter the **0NCS** code and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the **RALP** or **00DB** codes respectively and specify the precise colour designation **(Additional charge)**.
Unvarnished versions: price reduction 15%
[3] Varnished aluminium version: add. 60%, stainless steel (V2A), add. 120%.
[4] Prices also apply to nominal diameters 150 and 160 mm.
[5] Prices also apply to nominal diameters 200 and 224 mm.

Price list for model RRA – DN 280 · 300 · 315

emcoair model	Number of slots	Nominal diameter (mm)	Pipe length (mm)	Slot length (mm)	Straight bead [1]	Material [3]	Surface of the pipe [2]	Varnishing	Drum position	Colour of the eccentric cylinders	Fixed resistor	Dispalcement angle (degrees)	Price €/unit
1 RF	01	315 [6]	1000	0800	S	V	XXXX	A	A	S	A	000	**386.00**
			1500	1300									**426.50**
			1750	1550									**446.75**
			2000	1700									**467.00**
1RF	02	315 [6]	1000	0800	S	V	XXXX	A	A	S	A	000	**397.00**
			1500	1300									**439.50**
			1750	1550									**462.75**
			2000	1700									**485.00**
1 RF	03	315 [6]	1000	0800	S	V	XXXX	A	A	S	A	000	**408.00**
			1500	1300									**452.50**
			1750	1550									**478.75**
			2000	1700									**503.00**
1RF	04	315 [6]	1000	0800	S	V	XXXX	A	A	S	A	000	**419.00**
			1500	1300									**465.50**
			1750	1550									**494.75**
			2000	1700									**521.00**
1RF	05	315 [6]	1000	0800	S	V	XXXX	A	A	S	A	000	**430.00**
			1500	1300									**478.50**
			1750	1550									**510.75**
			2000	1700									**539.00**
1RF	06	315 [6]	1000	0800	S	V	XXXX	A	A	S	A	000	**441.00**
			1500	1300									**491.50**
			1750	1550									**526.75**
			2000	1700									**557.00**

[1] Pipes of nominal sizes up to 180 mm in spot-welded version, from DN200 in welded or welted version (straight bead).
[2] When ordering **RAL colour at your discretion**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the **RALG** code and specify the precise colour designation.
For NCS colours, please just enter the **0NCS** code and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the **RALP** or **00DB** codes respectively and specify the precise colour designation **(Additional charge)**.
Unvarnished versions: price reduction 15%
[3] Varnished aluminium version: add. 60%, stainless steel (V2A), add. 120%.
[6] **Prices also apply to nominal diameters 280 and 300 mm.**

Price list for model RRA – DN 355 · 400 · 450

emcoair model	Number of slots	Nominal diameter (mm)	Pipe length (mm)	Slot length (mm)	Straight bead [1]	Material [3]	Surface of the pipe [2]	Varnishing	Drum position	Colour of the eccentric cylinders	Fixed resistor	Dispalcement angle (degrees)	Price €/unit
1 RF	01	450 [7]	1000	0800	S	V	XXXX	A	A	S	A	000	**415.00**
			1500	1300									**463.50**
			1750	1550									**487.75**
			2000	1700									**512.00**
1RF	02	450 [7]	1000	0800	S	V	XXXX	A	A	S	A	000	**426.00**
			1500	1300									**476.50**
			1750	1550									**503.75**
			2000	1700									**530.00**
1 RF	03	450 [7]	1000	0800	S	V	XXXX	A	A	S	A	000	**437.00**
			1500	1300									**489.50**
			1750	1550									**519.75**
			2000	1700									**548.00**
1RF	04	450 [7]	1000	0800	S	V	XXXX	A	A	S	A	000	**448.00**
			1500	1300									**502.50**
			1750	1550									**535.75**
			2000	1700									**566.00**
1RF	05	450 [7]	1000	0800	S	V	XXXX	A	A	S	A	000	**459.00**
			1500	1300									**515.50**
			1750	1550									**551.75**
			2000	1700									**584.00**
1RF	06	450 [7]	1000	0800	S	V	XXXX	A	A	S	A	000	**470.00**
			1500	1300									**528.50**
			1750	1550									**567.75**
			2000	1700									**602.00**
1RF	07	450 [7]	1000	0800	S	V	XXXX	A	A	S	A	000	**481.00**
			1500	1300									**541.50**
			1750	1550									**583.75**
			2000	1700									**620.00**
1RF	08	450 [7]	1000	0800	S	V	XXXX	A	A	S	A	000	**492.00**
			1500	1300									**554.50**
			1750	1550									**599.75**
			2000	17000									**638.00**
1RF	09	450 [7]	1000	0800	S	V	XXXX	A	A	S	A	000	**503.00**
			1500	1300									**567.50**
			1750	1550									**615.75**
			2000	17000									**656.00**
1RF	10	450 [7]	1000	0800	S	V	XXXX	A	A	S	A	000	**514.00**
			1500	1300									**580.50**
			1750	1550									**631.75**
			2000	1700									**674.00**

[1] [2] [3] [4] see next page.

[8] **Prices also apply to nominal diameters 355 and 400 mm.**

Price list for model RRA – DN 500

emcoair model	Number of slots	Nominal diameter (mm)	Pipe length (mm)	Slot length (mm)	Straight bead [1]	Material [3]	Surface of the pipe [2]	Varnishing	Drum position	Colour of the eccentric cylinders	Fixed resistor	Dispalcement angle (degrees)	Price €/unit
1 RF	01	500	1000	0800	S	V	XXXX	A	A	S	A	000	**446.-**
			1500	1300									**484.-**
1RF	02	500	1000	0800	S	V	XXXX	A	A	S	A	000	**457.-**
			1500	1300									**497.-**
1 RF	03	500	1000	0800	S	V	XXXX	A	A	S	A	000	**468.-**
			1500	1300									**510.-**
1RF	04	500	1000	0800	S	V	XXXX	A	A	S	A	000	**479.-**
			1500	1300									**523.-**
1RF	05	500	1000	0800	S	V	XXXX	A	A	S	A	000	**490.-**
			1500	1300									**536.-**
1RF	06	500	1000	0800	S	V	XXXX	A	A	S	A	000	**501.-**
			1500	1300									**549.-**
1RF	07	500	1000	0800	S	V	XXXX	A	A	S	A	000	**512.-**
			1500	1300									**562.-**
1RF	08	500	1000	0800	S	V	XXXX	A	A	S	A	000	**523.-**
			1500	1300									**575.-**
1RF	09	500	1000	0800	S	V	XXXX	A	A	S	A	000	**534.-**
			1500	1300									**588.-**
1RF	10	500	1000	0800	S	V	XXXX	A	A	S	A	000	**545.-**
			1500	1300									**601.-**
1RF	11	500	1000	0800	S	V	XXXX	A	A	S	A	000	**556.-**
			1500	1300									**614.-**
1RF	12	500	1000	0800	S	V	XXXX	A	A	S	A	000	**567.-**
			1500	1300									**627.-**
1RF	13	500	1000	0800	S	V	XXXX	A	A	S	A	000	**578.-**
			1500	1300									**640.-**
1RF	14	500	1000	0800	S	V	XXXX	A	A	S	A	000	**589.-**
			1500	1300									**653.-**

[1] Pipes of nominal sizes up to 180 mm in spot-welded version, from DN200 in welded or welted version (straight bead).
[2] When ordering **RAL colour at your discretion**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the **RALG** code and specify the precise colour designation.
For NCS colours, please just enter the **0NCS** code and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the **RALP** or **00DB** codes respectively and specify the precise colour designation **(Additional charge)**.
Unvarnished versions: price reduction 15%
[3] Varnished aluminium version: add. 60%, stainless steel (V2A), add. 120%.

Price list for model RRA – DN 560 · 600 · 630

emcoair model	Number of slots	Nominal diameter (mm)	Pipe length (mm)	Slot length (mm)	Straight bead [1]	Material [3]	Surface of the pipe [2]	Varnishing	Drum position	Colour of the eccentric cylinders	Fixed resistor	Dispalcement angle (degrees)	Price €/unit
1 RF	01	630 [8]	1000	0800	S	V	XXXX	A	A	S	A	000	**487.00**
			1500	1300									**530.50**
1RF	02	630 [8]	1000	0800	S	V	XXXX	A	A	S	A	000	**498.00**
			1500	1300									**543.50**
1 RF	03	630 [8]	1000	0800	S	V	XXXX	A	A	S	A	000	**509.00**
			1500	1300									**556.50**
1RF	04	630 [8]	1000	0800	S	V	XXXX	A	A	S	A	000	**520.00**
			1500	1300									**569.50**
1RF	05	630 [8]	1000	0800	S	V	XXXX	A	A	S	A	000	**531.00**
			1500	1300									**582.50**
1RF	06	630 [8]	1000	0800	S	V	XXXX	A	A	S	A	000	**542.00**
			1500	1300									**595.50**
1RF	07	630 [8]	1000	0800	S	V	XXXX	A	A	S	A	000	**553.00**
			1500	1300									**608.50**
1RF	08	630 [8]	1000	0800	S	V	XXXX	A	A	S	A	000	**564.00**
			1500	1300									**621.50**
1RF	09	630 [8]	1000	0800	S	V	XXXX	A	A	S	A	000	**575.00**
			1500	1300									**634.50**
1RF	10	630 [8]	1000	0800	S	V	XXXX	A	A	S	A	000	**586.00**
			1500	1300									**647.50**
1RF	11	630 [8]	1000	0800	S	V	XXXX	A	A	S	A	000	**597.00**
			1500	1300									**660.50**
1RF	12	630 [8]	1000	0800	S	V	XXXX	A	A	S	A	000	**608.00**
			1500	1300									**673.50**
1RF	13	630 [8]	1000	0800	S	V	XXXX	A	A	S	A	000	**619.00**
			1500	1300									**685.50**
1RF	14	630 [8]	1000	0800	S	V	XXXX	A	A	S	A	000	**630.00**
			1500	1300									**699.50**

[1] Pipes of nominal sizes up to 180 mm in spot-welded version, from DN200 in welded or welted version (straight bead).
[2] When ordering **RAL colour at your discretion**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the **RALG** code and specify the precise colour designation.
For NCS colours, please just enter the **0NCS** code and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the **RALP** or **00DB** codes respectively and specify the precise colour designation **(Additional charge)**.
Unvarnished versions: price reduction 15%
[3] Varnished aluminium version: add. 60%, stainless steel (V2A), add. 120%.
[8] **Prices also apply to nominal diameters 560 and 600 mm.**

Price list for model RRA – DN 710 · 800

emcoair model	Number of slots	Nominal diameter (mm)	Pipe length (mm)	Slot length (mm)	Straight bead [1]	Material [3]	Surface of the pipe [2]	Varnishing	Drum position	Colour of the eccentric cylinders	Fixed resistor	Dispalcement angle (degrees)	Price €/unit
1 RF	01	800 [9]	1000	0800	S	V	XXXX	A	A	S	A	000	**529.00**
			1500	1300									**578.50**
1RF	02	800 [9]	1000	0800	S	V	XXXX	A	A	S	A	000	**540.00**
			1500	1300									**591.50**
1 RF	03	800 [9]	1000	0800	S	V	XXXX	A	A	S	A	000	**551.00**
			1500	1300									**604.50**
1RF	04	800 [9]	1000	0800	S	V	XXXX	A	A	S	A	000	**562.00**
			1500	1300									**617.50**
1RF	05	800 [9]	1000	0800	S	V	XXXX	A	A	S	A	000	**573.00**
			1500	1300									**630.50**
1RF	06	800 [9]	1000	0800	S	V	XXXX	A	A	S	A	000	**584.00**
			1500	1300									**643.50**
1RF	07	800 [9]	1000	0800	S	V	XXXX	A	A	S	A	000	**595.00**
			1500	1300									**656.50**
1RF	08	800 [9]	1000	0800	S	V	XXXX	A	A	S	A	000	**606.00**
			1500	1300									**669.50**
1RF	09	800 [9]	1000	0800	S	V	XXXX	A	A	S	A	000	**617.00**
			1500	1300									**682.50**
1RF	10	800 [9]	1000	0800	S	V	XXXX	A	A	S	A	000	**628.00**
			1500	1300									**695.50**
1RF	11	800 [9]	1000	0800	S	V	XXXX	A	A	S	A	000	**639.00**
			1500	1300									**708.50**
1RF	12	800 [9]	1000	0800	S	V	XXXX	A	A	S	A	000	**650.00**
			1500	1300									**721.50**
1RF	13	800 [9]	1000	0800	S	V	XXXX	A	A	S	A	000	**661.00**
			1500	1300									**734.50**
1RF	14	800 [9]	1000	0800	S	V	XXXX	A	A	S	A	000	**672.00**
			1500	1300									**747.50**

[1] Rohre bis Nenndurchmesser 180 mm in gepunkteter, ab DN200 in geschweißter oder gefalzter Ausführung (Längsnaht).
[2] Hier bitte bei Bestellung **RAL nach Wahl** = RAL-Ton (4-stellig) angeben, wenn der Glanzgrad 75-84% betragen soll.
Ist ein anderer Glanzgrad gewünscht, bitte nur **RALG** eingeben und den Farbton gesondert angeben.
Ist ein NCS-Farbton gewünscht, bitte nur **0NCS** eintragen und den Farbton ebenfalls gesondert angeben.
Ist ein RAL-Pearl oder ein DB-Lack gewünscht **(Aufpreis)**, bitte bei Bestellung **RALP** respektive **00DB** eintragen und den Farbton gesondert angeben.
Unlackierte Ausführungen Minderpreis 15%
[3] Ausführung aus Aluminium, lackiert zzgl. 60%, Ausführung aus Edelstahl V2A, zzgl. 120%.
[9] Preise gelten auch für Nenndurchmesser 710 mm.

Price list for model RRA – DN 900

emcoair model	Number of slots	Nominal diameter (mm)	Pipe length (mm)	Slot length (mm)	Straight bead [1]	Material [3]	Surface of the pipe [2]	Varnishing	Drum position	Colour of the eccentric cylinders	Fixed resistor	Dispalcement angle (degrees)	Price €/unit
1 RF	01	900	1000	0800	S	V	XXXX	A	A	S	A	000	**570.-**
			1500	1300									**625.-**
1RF	02	900	1000	0800	S	V	XXXX	A	A	S	A	000	**581.-**
			1500	1300									**638.-**
1 RF	03	900	1000	0800	S	V	XXXX	A	A	S	A	000	**592.-**
			1500	1300									**651.-**
1RF	04	900	1000	0800	S	V	XXXX	A	A	S	A	000	**603.-**
			1500	1300									**664.-**
1RF	05	900	1000	0800	S	V	XXXX	A	A	S	A	000	**614.-**
			1500	1300									**677.-**
1RF	06	900	1000	0800	S	V	XXXX	A	A	S	A	000	**625.-**
			1500	1300									**690.-**
1RF	07	900	1000	0800	S	V	XXXX	A	A	S	A	000	**636.-**
			1500	1300									**703.-**
1RF	08	900	1000	0800	S	V	XXXX	A	A	S	A	000	**647.-**
			1500	1300									**716.-**
1RF	09	900	1000	0800	S	V	XXXX	A	A	S	A	000	**658.-**
			1500	1300									**729.-**
1RF	10	900	1000	0800	S	V	XXXX	A	A	S	A	000	**669.-**
			1500	1300									**742.-**
1RF	11	900	1000	0800	S	V	XXXX	A	A	S	A	000	**680.-**
			1500	1300									**755.-**
1RF	12	900	1000	0800	S	V	XXXX	A	A	S	A	000	**691.-**
			1500	1300									**768.-**
1RF	13	900	1000	0800	S	V	XXXX	A	A	S	A	000	**702.-**
			1500	1300									**781.-**
1RF	14	900	1000	0800	S	V	XXXX	A	A	S	A	000	**713.-**
			1500	1300									**794.-**

[1] Pipes of nominal sizes up to 180 mm in spot-welded version, from DN200 in welded or welted version (straight bead).
[2] When ordering **RAL colour at your discretion**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the **RALG** code and specify the precise colour designation.
For NCS colours, please just enter the **0NCS** code and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the **RALP** or **00DB** codes respectively and specify the precise colour designation **(Additional charge)**.
Unvarnished versions: price reduction 15%
[3] Varnished aluminium version: add. 60%, stainless steel (V2A), add. 120%.

part 1.0.0
ventilation components
basics

part 1.1.1
swirl diffusers

part 1.1.1
ceiling air diffusers

part 1.1.2
linear diffusers

part 1.1.3
circular pipe diffusers
model RRA / RRA-V

Project: Munich airport, Germany

Version key for plain pipes

	Charac.
1 = emcoair	1
RZ = accessory for circular pipe diffusers	2 - 3
GF = RRA plain pipe without cut-out (nominal fitting size)	
GB = RRA plain pipe without cut-out (nominal pipe size)	
GA = RRA plain pipe with cut-out (nominal fitting size)	
GR = RRA plain pipe with cut-out (nominal pipe size)	4 - 5
150 = 150 mm diameter (nominal size)	
160 = 160 mm	
180 = 180 mm	
200 = 200 mm	
224 = 224 mm	
250 = 250 mm	
280 = 280 mm	
300 = 300 mm	
315 = 315 mm	
355 = 355 mm	
400 = 400 mm	
450 = 450 mm	
500 = 500 mm	
560 = 560 mm	
630 = 630 mm	
710 = 710 mm	
800 = 800 mm	
900 = 900 mm	
XXX = pipe diameter at own's choice in mm (min. 150 / max. 900 mm)	6 - 8
1000 = 1000 mm pipe length	
XXXX = pipe length at own's choice in mm (min. 500 / max. 2000 mm)	9 - 12
S = with welded straight bead	
P = with spot-welded straight bead (up to 180 mm nominal size only)	
F = with welted straight bead	13
V = material: steel, galvanised	
A = aluminium (AlMgSi0.5)	
E = stainless steel V2A (material-No. 1.4301)	
S = stainless steel V4A (material-No. 1.4571)	14
9010 = varnished in RAL 9010, gloss polished (gloss level 75-84%) (surface of the pipe)	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surfaces	
W320 = ground surface (stainless steel)	
GGGG = satin (stainless steel)	
0000 = unpainted	
GRUN = primed	
UNBE = untreated (stainless steel)	
A000 = aluminium, untreated	15 - 18
A = varnishing outside	
B = varnishing outside and inside (not version RV)	
I = varnishing inside (not version RV)	
0 = unpainted	19

Product group (1=emcoair)	Model designation	Product version	Nominal diameter (mm)	Pipe length (mm)	Straight bead	Material	Surface of the pipe	Varnishing	Fixed resistor	Sealing lips		
									0		= without fixed resistor	20
										0	= with sealing lips on both sides	21
1	RF	GF	150	1000	P	V	9010	A	0	0	= Example	

Price list for model RRA – plain pipe

emcoair model	Product version	Nominal diameter (mm)	Pipe length (mm)	Straight bead [1]	Material [3]	Surface of the pipe [2]	Varnishing	Fixed resistor						Price €/unit
1 RZ	GF	180 [4]	500	P	V	XXXX	A	0						**89.00**
			1000											**100.00**
			1500											**111.00**
1 RZ	GF	250 [5]	500	S	V	XXXX	A	0						**92.00**
			1000											**117.00**
			1500											**142.00**
			1750											**154.50**
			2000											**167.00**
1 RZ	GF	315 [6]	500	S	V	XXXX	A	0						**100.50**
			1000											**134.00**
			1500											**167.50**
			1750											**184.25**
			2000											**201.00**
1 RZ	GF	450 [7]	500	S	V	XXXX	A	0						**120.00**
			1000											**162.00**
			1500											**204.00**
			1750											**225.00**
			2000											**246.00**
1 RZ	GF	500	500	S	V	XXXX	A	0						**156.50**
			1000											**190.00**
			1500											**224.00**
1 RZ	GF	630 [8]	500	S	V	XXXX	A	0						**190.00**
			1000											**229.00**
			1500											**268.00**
1 RZ	GF	800 [9]	500	S	V	XXXX	A	0						**224.00**
			1000											**269.00**
			1500											**314.00**
1 RZ	GF	900	0500	S	V	XXXX	A	0						**257.50**
			1000											**308.00**
			1500											**358.50**

[1] Pipes of nominal sizes up to 180 mm in spot-welded version, from DN200 in welded or welted version (straight bead).

[2] When ordering **RAL colour at your discretion**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.

For RAL colours with a different gloss level, please just enter the **RALG** code and specify the precise colour designation.

For NCS colours, please just enter the **0NCS** code and specify the precise colour designation.

For RAL pearl colours or DB colours please enter the **RALP** code or **00DB** respectively and specify the precise colour designation **(Additional charge)**.

Unvarnished versions:
price reduction 15%.

[3] Varnished aluminium version: add. 60%, stainless steel (V2A), add. 120%.

[5] **Prices also apply to nominal diameters 150and 160 mm**

[6] **Prices also apply to nominal diameters 200 and 224 mm.**

[7] **Prices also apply to nominal diameters 280 and 300 mm.**

[8] **Prices also apply to nominal diameters 355 and 400 mm.**

[9] **Prices also apply to nominal diameters 560 and 600 mm.**

[10] **Prices also apply to nominal diameters 800 mm.**

part 1.0.0
ventilation components
basics

part 1.1.1
swirl diffusers

part 1.1.1
ceiling air diffusers

part 1.1.2
linear diffusers

part 1.1.3
circular pipe diffusers
model RRA / RRA-V

Project: Kamen Meeting Center, Germany

Displacement flow diffusers

Displacement flow diffusers are currently the trend for systems that primarily conduct air. The streamlined intake of supply air via large inlet areas and the low temperatures allow not only an inaudible and invisible air conditioning system. The fresh air entering a room makes it possible for natural heat sources such as humans to take in the fresh air directly from their immediate surroundings. This natural and effective principle allows a load removal of up to approximately 50 W/m².

If the thermal loads are higher, emco displacement flow diffusers are combined with the chilled ceiling system emcocool.

Large outlet areas must have an aesthetically pleasing appearance or be integrated into the structural conditions. In addition to the conventional models QAL-R, QAL-H, QAL-V and QAL-L, special models such as QAL-K were developed.

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emcoair displacement flow diffusers models QAL

Displacement flow diffusers QAL are used both in commercial and industrial areas. Depending on the specific structural requirements, the diffuser is available in cylindrical, semi-circle, quarter-circle or linear design. The diffuser consists of a front plate of coated steel, ceiling and floor panels as well as a distribution mechanism. Blowing takes place through a spigot in the upper cover plate.

Depending on the ceiling height and the degree of activity among the occupants, diffuser QAL can remove cooling loads between 30 W/m² and 50 W/m². Because they direct the air from bottom to top, displacement flow diffusers are suitable for ventilation and cooling only, whereby depending on the degree of activity among the occupants, the temperature differences in the inlet air should not fall below –6 K.

When using displacement flow diffusers to cool a room, inlet air is brought in near the floor with low turbulence and very low discharge velocity.
Due to the high density the cooler inlet air creates an area of fresh air close to the floor. Heat sources within this area (e.g. humans or machines) convey air from the fresh area upwards through the occupied area to the ceiling. This flow is kept in motion by the warmed air's lifting forces. The rising air continuously pulls fresh air after it, which is warmed by the heat sources present and then itself rises.

This type of ventilation favours not only direct removal of noxious matter towards the outgoing air duct but also increases the air quality immediately surrounding occupants, because fresh air is constantly being supplied. Increased air quality and very low flow velocities make this system the ideal alternative to mixed air systems when the cooling loads are moderate.

Areas of application

- Single offices
- Open plan offices
- Conference rooms
- Administration areas
- Cinemas
- Restaurants
- Sport halls
- Industrial halls
- Laboratories
- Contaminated work areas

Product benefits

- Low flow velocities in occupied areas
- Increased air quality in occupied areas
- Removal capacity of 30 W/m² and 50 W/m² (depending on degree of activity)

Configuration

Displacement flow diffuser QAL consists of a cylindrical (full, half or quarter circle) or flat removable front plate of perforated steel (standard holes of 3 mm with approx. 21% free cross-section). Finer or coarser holes are used in special cases as required. The intensity of turbulence drops as the hole cross-section decreases. The internal distribution mechanism (2) does not need a filter cartridge and so is maintenance-free.

The bottom plate (3) has adjustment screws for making any alignments. For installation in walls and for a design with particularly flat plenum boxes, hit-and-miss dampers that can be adjusted zone by zone are also used to optimise the flow geometry. These guarantee an even flow response over the entire front of the perforated plate. Adjustments can be made via the removable front plate at any time as required.

Method of operation

The interior distribution mechanism distributes the supply air evenly across the whole surface of the front plate, making virtually all discharge velocities equal. These velocities are so low that the air – corresponding to its temperature difference in relation to the room temperature – drops quickly to the floor area and due to the low level of turbulence is distributed uninterrupted along the floor. When a heat source is encountered, part of the air rises.

Application possibilities

Displacement flow diffusers are for use in cooling applications only. Conventional versions foresee installation in the floor of the room to be ventilated. In order to maintain comfort requirements, the active height of the QAL diffuser should not exceed approximately 2 m.
Choose the shape and color that best correspond to the specific structural requirements.
In special cases, displacement flow diffusers can be installed as long, flat segments, i.e. as a type of „baseboard“ or as fitted elements in wall cupboards. At discharge speeds ≥ 0.25m/s, high-quality honeycomb rectifiers that are free of pressure loss are also used. They are particularly well suited for discharging the supply air perpendicular to the surface.

Order of Installation QAL

Legend:

L_{WA}	[dB(A)]	=	Sound power level A-weighted
Δp_t	[Pa]	=	Pressure loss
ΔT_0	[K]	=	Temperature difference between room and supply air
ΔT_x	[K]	=	Temperature difference between room and supply air at distance x to the diffuser
v_0	[m/s]	=	Velocity at diffuser
v_x	[m/s]	=	Velocity at up to 0.25 m height from floor and distance x to diffuser
$\dot{V}_0$	[m³/h]	=	Supply air volume flow
x	[m]	=	Distance from diffuser

Aerodynamic data QAL-L

Nominal size	Height [mm]	$\dot{V}_{min}$ [m³/h]	$\dot{V}_{max}$ [m³/h]	$\dot{V}_{nenn}$ [m³/h]	for $\dot{V}_{nenn}$ Δp [Pa]	for $\dot{V}_{nenn}$ L_{WA} [dB(A)]	for $\dot{V}_{nenn}$ L [m]
Width 400	750	160	270	220	4	< 20	1.3
	1000	220	360	290	5	< 20	1.6
	1250	270	450	360	5	< 20	1.8
	1500	320	540	430	5	20	2.0
Width 600	750	240	400	320	4	< 20	1.5
	1000	320	540	430	5	21	1.9
	1250	400	670	540	7	22	2.3
	1500	490	810	650	9	24	2.8
Width 800	750	320	540	430	5	22	1.8
	1000	430	720	580	9	26	2.6
	1250	540	900	720	10	27	3.1
	1500	650	1080	860	12	28	3.7
Width 1000	750	400	680	540	6	25	2.2
	1000	540	900	720	10	27	3.0
	1250	670	1120	900	14	29	3.6
	1500	810	1350	1080	15	30	4.2

Fixation:
$\dot{V}_{min}$: Air volume flow for a discharge velocitiy of 0.15 m/s;
$\dot{V}_{max}$: Air volume flow for a discharge velocitiy of 0.25 m/s;
$\dot{V}_{nenn}$: Air volume flow for a discharge velocitiy of 0.2 m/s;
L : horizontal distance from diffuser for $\Delta T_0 = -2K$, so that air velocity ≤ 0.25 m/s

Ranges of application QAL-L

The 3 air volume flow ranges given for the individual designs, sizes and heights have been determined on the basis of the discharge velocities. These discharge velocities relate to the displacement flow diffuser's overall surface (front panel surface.

Dimensions QAL-L
(linear displacement flow diffuser for wall installation)

Size	Width 400	Width 600	Width 800	Width 1000
Size A	402	602	802	1002
Size B	332	382	382	402
Size ØD	222	278	278	313
Size H	750/1000/1250/1500	750/1000/1250/1500	750/1000/1250/1500	750/1000/1250/1500

Version key for model QAL-L

	Charac.
1 = emcoair	1
QALL = displacement flow diffuser model QAL-L	2 - 5
0400 = 400 mm nominal size	
0600 = 600 mm	
0800 = 800 mm	
1000 = 1000 mm	
XXXX = nominal size at own's choice in mm	6 - 9
0750 = 750 mm height	
1000 = 1000 mm	
1250 = 1250 mm	
1500 = 1500 mm	
XXXX = height at own's choice in mm	10 - 13
332 = 332 mm depth (standard depth for DN400)	
382 = 382 mm (standard depth for DN 600 and 800)	
402 = 402 mm (standard depth for DN 1000)	
XXX = depth at own's choice in mm	14 - 16
222 = 222 mm spigot diameter (standard-Ø for DN400)	
278 = 278 mm (standard-Ø for DN 600 and 800)	
313 = 313 mm (standard-Ø for DN 1000)	
XXX = spigot diameter at own's choice in mm	17 - 19
O = top spigot position	
U = bottom spigot	
Y = special position/size	20
V = material: steel, galvanised	
E = stainless steel V2A (material no. 1.4301)	
S = stainless steel V4A (material no. 1.4571)	
A = aluminium (AlMgSi0.5)	21
9010 = varnished in RAL 9010. gloss polished (gloss level 75-84%) (surface of the pipe)	
0000 = unpainted	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surfaces	
W320 = ground surface (stainless steel)	
GGGG = satin (stainless steel)	
UNBE = untreated (stainless steel)	22 - 25
K = comfort front plate with current unperforated border 20 mm (standard)	
I = front plate in industrial layout (continuous perforated)	26

Product group (1=emcoair)	Model designation	Nominal size (mm)	Height (mm)	Depth (mm)	Spigot diameter (mm)	Spigot position	Material	Surface	Model type	
1	QALL	0400	0750	332	222	O	V	9010	K	= Example

Pricelist for model QAL-L

emcoair model	Nominal size (mm)	Height (mm)	Depth (mm)	Spigot diameter (mm)	Spigot position [1]	Material	Surface [2]	Model type	Price €/unit	Additional charge for **RAL at own's choice, RALG or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for **aluminium** version	Additional charge for **stainless steel V2A** (material 1.4301)	Additional charge for **stainless steel V2A** (material **V4A** (1.4571)
1QALL	0400	0750	332	222	O	V	9010	K	**440.-**	34.-	59.-	+90%	+120%	+130%
		1000							**470.-**	45.-	78.-			
		1250							**500.-**	56.-	98.-			
		1500							**530.-**	68.-	117.-			
1QALL	0600	0750	382	278	O	V	9010	K	**505.-**	50.-	84.-	+90%	+120%	+130%
		1000							**540.-**	67.-	112.-			
		1250							**575.-**	84.-	140.-			
		1500							**610.-**	101.-	168.-			
1QALL	0800	0750	382	278	O	V	9010	K	**563.-**	68.-	110.-	+90%	+120%	+130%
		1000							**600.-**	90.-	146.-			
		1250							**638.-**	113.-	183.-			
		1500							**675.-**	135.-	219.-			
1QALL	1000	0750	402	313	O	V	9010	K	**783.-**	84.-	134.-	+90%	+120%	+130%
		1000							**830.-**	112.-	179.-			
		1250							**878.-**	140.-	224.-			
		1500							**925.-**	168.-	269.-			

[1] **Prices also valid for bottom spigot.**

[2] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.
Unvarnished versions: price reduction 15%.

Aerodynamic data QAL-R

Nominal size	Height [mm]	$\dot{V}_{min}$ [m³/h]	$\dot{V}_{max}$ [m³/h]	$\dot{V}_{nenn}$ [m³/h]	for $\dot{V}_{nenn}$ Δp [Pa]	for $\dot{V}_{nenn}$ L_{WA} [dB(A)]	for $\dot{V}_{nenn}$ L [m]
DN 400	750	500	850	680	15	28	1.3
	1000	680	1130	900	20	31	1.6
	1250	850	1410	1130	25	32	1.9
	1500	1020	1700	1360	32	34	2.3
DN 600	750	760	1270	1020	19	33	1.5
	1000	1020	1700	1360	30	36	2.3
	1250	1270	2120	1700	40	38	2.5
	1500	1530	2540	2040	41	39	2.8
DN 800	750	1020	1700	1360	25	36	2.0
	1000	1360	2260	1810	35	40	2.6
	1250	1700	2830	2260	40	41	3.0
	1500	2040	3390	2710	50	42	3.5
DN 1000	750	1270	2120	1700	31	38	2.5
	1000	1700	2830	2260	36	41	3.0
	1250	2120	3530	2830	48	43	3.7
	1500	2540	4240	3390	57	45	4.5

Fixation:
$\dot{V}_{min}$: Air volume flow for a discharge velocitiy of 0.15 m/s;
$\dot{V}_{max}$: Air volume flow for a discharge velocitiy of 0.25 m/s;
$\dot{V}_{nenn}$: Air volume flow for a discharge velocitiy of 0.2 m/s;
L : horizontal distance from diffuser for $\Delta T_0 = -2K$, so that air velocity ≤ 0.25 m/s

Ranges of application QAL-R

The 3 air volume flow ranges given for the individual designs, sizes and heights have been determined on the basis of the discharge velocities. These discharge velocities relate to the displacement flow diffuser's overall surface (front panel surface.

Dimensions QAL-R
(round displacement flow diffuser [360°] for free-standing installation)

Size	DN 400	DN 600	DN 800	DN 1000
Size A	402	602	802	1002
Size ØD	313	398	448	498
Size H	750/1000/1250/1500	750/1000/1250/1500	750/1000/1250/1500	750/1000/1250/1500

Version key for model QAL-R

										Charac.
1	**= emcoair**									1
	QALR	**= displacement flow diffuser model QAL-R**								2 - 5
		0400	**= 400 mm nominal size**							
		0600	= DN600							
		0800	= DN800							
		1000	= DN1000							
		XXXX	= nominal size at own's choice in mm							6 - 9
			0750	**= 750 mm height**						
			1000	= 1000 mm						
			1250	= 1250 mm						
			1500	= 1500 mm						
			XXXX	= height at own's choice in mm						10 - 13
				313	**= 313 mm spigot diameter (standard-Ø for DN400)**					
				398	= 398 mm (standard-Ø for DN600)					
				448	= 448 mm (standard-Ø for DN800)					
				498	= 498 mm (standard-Ø for DN1000)					
				XXX	= spigot diameter at own's choice in mm					14 - 16
					O	**= top spigot position**				
					U	= bottom spigot				
					Y	= special position/size				17
						V	**= material: steel, galvanised**			
						E	= stainless steel V2A (material no. 1.4301)			
						S	= stainless steel V4A (material no. 1.4571)			
						A	= aluminium (AlMgSi0.5)			18
							9010	**= varnished in RAL 9010. gloss polished (gloss level 75-84%) (surface of the pipe)**		
							0000	= unpainted		
							XXXX	= varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)		
							0NCS	= varnished in NCS colour		
							00DB	= varnished in DB colour		
							RALP	= varnished in RAL-Pearl colour		
							RALG	= varnished in RAL colour, gloss level different from standard		
							YYYY	= special surfaces		
							W320	= ground surface (stainless steel)		
							GGGG	= satin (stainless steel)		
							UNBE	= untreated (stainless steel)		19 - 22
									K	**= comfort front plate with current unperforated border 20 mm (standard)**
									I	= front plate in industrial layout (continuous perforated) 23
Product group (1=emcoair)	Model designation	Nominal size (mm)	Height (mm)	Spigot diameter (mm)	Spigot position	Material	Surface	Model type		
1	**QALR**	**0400**	**0750**	**313**	**O**	**V**	**9010**	**K**	**= Example**	

Pricelist for model QAL-R

emcoair model	Nominal size (mm)	Height (mm)	Spigot diameter (mm)	Spigot position [1]	Material	Surface [2]	Model type	**Price €/unit**	Additional charge for **RAL at own's choice, RALG or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for **aluminium** version	Additional charge for **stainless steel V2A** (material 1.4301)	Additional charge for **stainless steel V2A** (material **V4A** (1.4571)
1QALR	0400	0750	313	O	V	9010	K	**675.-**	33.75	58.50	+90%	+120%	+130%
		1000						**750.-**	45.00	78.00			
		1250						**825.-**	56.25	97.50			
		1500						**900.-**	67.50	117.00			
1QALR	0600	0750	398	O	V	9010	K	**800.-**	50.25	84.00	+90%	+120%	+130%
		1000						**900.-**	67.00	112.00			
		1250						**1000.-**	83.75	140.00			
		1500						**1100.-**	100.50	168.00			
1QALR	0800	0750	448	O	V	9010	K	**1113.-**	67.50	109.50	+90%	+120%	+130%
		1000						**1300.-**	90.00	146.00			
		1250						**1488.-**	112.50	182.50			
		1500						**1675.-**	135.00	219.00			
1QALR	1000	0750	498	O	V	9010	K	**1220.-**	84.00	134.25	+90%	+120%	+130%
		1000						**1370.-**	112.00	179.00			
		1250						**1520.-**	140.00	223.75			
		1500						**1670.-**	168.00	269.00			

[1] **Prices also valid for bottom spigot.**

[2] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.
Unvarnished versions: price reduction 15%.

Aerodynamic data QAL-H

Nominal size	Height [mm]	$\dot{V}_{min}$ [m³/h]	$\dot{V}_{max}$ [m³/h]	$\dot{V}_{nenn}$ [m³/h]	for $\dot{V}_{nenn}$ Δp [Pa]	for $\dot{V}_{nenn}$ L_{WA} [dB(A)]	for $\dot{V}_{nenn}$ L [m]
DN 600	750	380	640	510	7	< 20	1.0
	1000	510	850	680	11	23	1.4
	1250	640	1060	850	14	25	1.7
	1500	760	1270	1020	16	26	2.0
DN 800	750	510	850	680	11	24	1.2
	1000	680	1130	900	15	27	1.6
	1250	850	1410	1130	18	29	1.9
	1500	1020	1700	1360	23	31	2.3
DN 1000	750	640	1060	850	13	26	1.3
	1000	850	1410	1130	16	27	1.8
	1250	1060	1770	1410	22	30	2.1
	1500	1270	2120	1700	25	32	2.5

Fixation:
$\dot{V}_{min}$: Air volume flow for a discharge velocitiy of 0.15 m/s;
$\dot{V}_{max}$: Air volume flow for a discharge velocitiy of 0.25 m/s;
$\dot{V}_{nenn}$: Air volume flow for a discharge velocitiy of 0.2 m/s;
L : horizontal distance from diffuser for $\Delta T_0 = -2K$, so that air velocity ≤ 0.25 m/s

Ranges of application QAL-H

The 3 air volume flow ranges given for the individual designs, sizes and heights have been determined on the basis of the discharge velocities. These discharge velocities relate to the displacement flow diffuser's overall surface (front panel surface.

Dimensions QAL-H
(semicircular displacement flow diffuser [180°] for wall installation)

Size	DN 600	DN 800	DN 1000
Size A	602	802	1002
Size B	386	404	504
Size ØD	278	313	353
Size E	193	202	252
Size H	750/1000/1250/1500	750/1000/1250/1500	750/1000/1250/1500

Version key for model QAL-H

		Charac
1	**= emcoair**	1
QALH	**= displacement flow diffuser model QAL-H**	2 - 5
0600	**= DN600 mm nominal size**	
0800	= DN800	
1000	= DN1000	
XXXX	= nominal size at own's choice in mm	6 - 9
0750	**= 750 mm height**	
1000	= 1000 mm	
1250	= 1250 mm	
1500	= 1500 mm	
XXXX	= height at own's choice in mm	10 - 13
386	**= 386 mm depth (standard depth for DN600)**	
404	= 404 mm (standard depth for DN800)	
504	= 504 mm (standard depth for DN1000)	
XXX	= depth at own's choice in mm	14 - 16
278	**= 278 mm spigot diameter (standard-Ø for DN600)**	
313	= 313 mm (standard-Ø for DN800)	
353	= 353 mm (standard-Ø for DN1000)	
XXX	= spigot diameter at own's choice in mm	17 - 19
O	**= top spigot position**	
U	= bottom spigot	
Y	= special position/size	20
V	**= material: steel, galvanised**	
E	= stainless steel V2A (material no. 1.4301)	
S	= stainless steel V4A (material no. 1.4571)	
A	= aluminium (AlMgSi0.5)	21
9010	**= varnished in RAL 9010. gloss polished (gloss level 75-84%) (surface of the pipe)**	
0000	= unpainted	
XXXX	= varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS	= varnished in NCS colour	
00DB	= varnished in DB colour	
RALP	= varnished in RAL-Pearl colour	
RALG	= varnished in RAL colour, gloss level different from standard	
YYYY	= special surfaces	
W320	= ground surface (stainless steel)	
GGGG	= satin (stainless steel)	
UNBE	= untreated (stainless steel)	22 - 25
K	**= comfort front plate with current unperforated border 20 mm (standard)**	
I	= front plate in industrial layout (continuous perforated)	26

Product group (1=emcoair)	Model designation	Nominal size (mm)	Height (mm)	Depth (mm)	Spigot diameter (mm)	Spigot position	Material	Surface	Model type	
1	**QALH**	**0600**	**0750**	**386**	**278**	**O**	**V**	**9010**	**K**	**= Example**

Pricelist for model QAL-H

emcoair model	Nominal size (mm)	Height (mm)	Depth (mm)	Spigot diameter (mm)	Spigot position [1]	Material	Surface [2]	Model type	Price €/unit	Additional charge for **RAL at own's choice, RALG or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for **aluminium** version	Additional charge for **stainless steel (V2A)**	Additional charge for **stainless steel (V4A)**
1QALH	0600	0750	386	280	O	V	9010	K	**653.-**	50.25	84.00	+90%	+120%	+130%
		1000							**720.-**	67.00	112.00			
		1250							**788.-**	83.75	140.00			
		1500							**855.-**	100.50	168.00			
1QALH	0800	0750	404	315	O	V	9010	K	**783.-**	67.50	109.50	+90%	+120%	+130%
		1000							**860.-**	90.00	146.00			
		1250							**938.-**	112.50	182.50			
		1500							**1015.-**	135.00	219.00			
1QALH	1000	0750	504	355	O	V	9010	K	**1025.-**	84.00	134.25	+90%	+120%	+130%
		1000							**1150.-**	112.00	179.00			
		1250							**1275.-**	140.00	223.75			
		1500							**1400.-**	168.00	268.50			

[1] **Prices also valid for bottom spigot.**

[2] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.
Unvarnished versions: price reduction 15%.

Aerodynamic data QAL-V

Nominal size	Height [mm]	$\dot{V}_{min}$ [m³/h]	$\dot{V}_{max}$ [m³/h]	$\dot{V}_{nenn}$ [m³/h]	for $\dot{V}_{nenn}$ Δp [Pa]	for $\dot{V}_{nenn}$ L_{WA} [dB(A)]	for $\dot{V}_{nenn}$ L [m]
DN 800	750	250	420	340	10	29	1.4
	1000	340	560	450	15	33	1.8
	1250	420	710	560	20	34	2.1
	1500	510	850	680	23	36	2.5
DN 1000	750	320	530	420	10	30	1.6
	1000	420	710	560	15	33	2.1
	1250	530	880	710	20	34	2.6
	1500	640	1060	850	23	37	3.0
DN 1200	750	380	640	510	11	33	1.7
	1000	510	850	680	18	37	2.2
	1250	640	1060	850	22	38	2.7
	1500	760	1270	1020	26	39	3.1
DN 1400	750	450	740	590	15	35	2.0
	1000	590	990	790	20	37	2.6
	1250	740	1240	990	25	39	3.1
	1500	890	1480	1190	30	41	3.6

Fixation:
$\dot{V}_{min}$: Air volume flow for a discharge velocitiy of 0.15 m/s;
$\dot{V}_{max}$: Air volume flow for a discharge velocitiy of 0.25 m/s;
$\dot{V}_{nenn}$: Air volume flow for a discharge velocitiy of 0.2 m/s;
L : horizontal distance from diffuser for $\Delta T_0 = -2K$, so that air velocity ≤ 0.25 m/s

Ranges of application QAL-V

The 3 air volume flow ranges given for the individual designs, sizes and heights have been determined on the basis of the discharge velocities. These discharge velocities relate to the displacement flow diffuser's overall surface (front panel surface.

Dimensions QAL-V
(quarter-circle displacement flow diffuser [90°] for corner installation)

Size	DN 800	DN 1000	DN 1200	DN 1400
Size A	404	504	604	704
Size ØD	222	278	278	313
Size E	169	210	251	293
Size H	750/1000/1250/1500	750/1000/1250/1500	750/1000/1250/1500	750/1000/1250/1500

Version key for model QAL-V

										Charac.
1	**= emcoair**									1
	QALV	**= displacement flow diffuser model QAL-V**								2 - 5
		0800	**= DN800 mm nominal size**							
		1000	= DN1000							
		1200	= DN1200							
		1400	= DN1400							
		XXXX	= nominal size at own's choice in mm							6 - 9
			0750	**= 750 mm height**						
			1000	= 1000 mm						
			1250	= 1250 mm						
			1500	= 1500 mm						
			XXXX	= height at own's choice in mm						10 - 13
				222	**= 222 mm spigot diameter (standard-Ø for DN800)**					
				278	= 278 mm (standard-Ø for DN1000 und 1200)					
				313	= 313 mm (standard-Ø for DN1400)					
				XXX	= spigot diameter at own's choice in mm					14 - 16
					O	**= top spigot position**				
					U	= bottom spigot				
					Y	= special position/size				17
						V	**= material: steel, galvanised**			
						E	= stainless steel V2A (material no. 1.4301)			
						S	= stainless steel V4A (material no. 1.4571)			
						A	= aluminium (AlMgSi0.5)			18
							9010	**= varnished in RAL 9010. gloss polished (gloss level 75-84%) (surface of the pipe)**		
							0000	= unpainted		
							XXXX	= varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)		
							0NCS	= varnished in NCS colour		
							00DB	= varnished in DB colour		
							RALP	= varnished in RAL-Pearl colour		
							RALG	= varnished in RAL colour, gloss level different from standard		
							YYYY	= special surfaces		
							W320	= ground surface (stainless steel)		
							GGGG	= satin (stainless steel)		
							UNBE	= untreated (stainless steel)		19 - 22
									K	**= comfort front plate with current unperforated border 20 mm (standard)**
									I	= front plate in industrial layout (continuous perforated) 23
Product group (1=emcoair)	Model designation	Nominal size (mm)	Height (mm)	Spigot diameter (mm)	Spigot position	Material	Surface	Model type		
1	**QALV**	**0800**	**0750**	**222**	**O**	**V**	**9010**	**K**	**= Example**	

Pricelist for model QAL-V

emcoair model	Nominal size (mm)	Height (mm)	Spigot diameter (mm)	Spigot position [1]	Material	Surface [2]	Model type	**Price €/unit**	Additional charge for **RAL at own's choice, RALG or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for **aluminium** version	Additional charge for **stainless steel (V2A)**	Additional charge for **stainless steel (V4A)**
1QALV	0800	0750	225	O	V	9010	K	**588.-**	33.75	58.50	+90%	+120%	+130%
		1000						**690.-**	45.00	78.00			
		1250						**793.-**	56.25	97.50			
		1500						**895.-**	67.50	117.00			
1QALV	1000	0750	280	O	V	9010	K	**650.-**	50.25	84.00	+90%	+120%	+130%
		1000						**760.-**	67.00	112.00			
		1250						**870.-**	83.75	140.00			
		1500						**980.-**	100.50	168.00			
1QALV	1200	0750	280	O	V	9010	K	**713.-**	67.50	109.50	+90%	+120%	+130%
		1000						**830.-**	90.00	146.00			
		1250						**948.-**	112.50	183.00			
		1500						**1065.-**	135.00	219.00			
1QALV	1400	0750	315	O	V	9010	K	**778.-**	84.00	134.00	+90%	+120%	+130%
		1000						**900.-**	112.00	179.00			
		1250						**1023.-**	140.00	224.00			
		1500						**1145.-**	168.00	269.00			

[1] **Prices also valid for bottom spigot.**

[2] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.
Unvarnished versions: price reduction 15%.

emcoair displacement flow diffuser model QAL-K

Displacement flow diffuser QAL-K is designed for direct duct installation. It consists of a galvanized steel front plate in a aluminum frame, a spacing plate, fleece and a wire mesh guard.

It is fixed to the ducting via screws in the frame. Together, the front plate and fleece (which can be cleaned or exchanged as necessary) guarantee a constant, low-turbulence outflow over the entire surface.

Areas of application

- Single offices
- Open plan offices
- Conference rooms
- Administration areas
- Cinemas
- Restaurants
- Sport halls
- Industrial halls
- Laboratories
- Contaminated work areas

Product benefits

- Low flow velocities in occupied areas
- Increased air quality in occupied areas
- Removal capacity of 30 W/m² and 50 W/m². depending on degree of activity

Available sizes

QAL-K is available in the following nominal sizes:
H = 225. 325. 425 [mm]
L = 425. 525. 625. 825 [mm]
Non-standard dimensions available upon request.
Outer dimensions including the frame are always 33 mm larger.
QAL-K can be operated with a discharge velocity between 0.2 and 0.3 m/s. In relation to the discharge area [(H-23) x (W-23)], the resulting volume flow is: $\dot{V} = v \times A$

Version key for model QAL-K

								Charac.
1	**= emcoair**							1
	QALK	**= displacement flow diffuser model QAL-K**						2 - 5
		0225	**= 225 mm height**					
		0325	= 325 mm					
		0425	= 425 mm					
		XXXX	= nominal size at own's choice in mm					6 - 9
			00425	**= 425 mm width**				
			00525	= 525 mm				
			00625	= 625 mm				
			00825	= 825 mm				
			01025	= 1025 mm				
			01225	= 1225 mm				
			XXXXX	= width at own's choice in mm				10 - 13
				V	**= material: steel, galvanised**			
				A	= aluminium (AlMgSi0.5)			14
					9010	**= varnished in RAL 9010. gloss polished (gloss level 75-84%) (surface of the pipe)**		
					0000	= unpainted		
					XXXX	= varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)		
					0NCS	= varnished in NCS colour		
					00DB	= varnished in DB colour		
					RALP	= varnished in RAL-Pearl colour		
					RALG	= varnished in RAL colour, gloss level different from standard		
					YYYY	= special surfaces		
					E6C0	= anodised in natural colour (E6/C0)		15 - 18
						1	**= with filter (class G3)**	
						0	= without filter	19
Product group (1=emcoair)	Model designation	Height (mm)	Width (mm)	Material	Surface	Filter		
1	**QALK**	**0225**	**00425**	**V**	**9010**	**1**	**= Example**	

Pricelist for model QAL-K

emcoair model	Height (mm)	Widtrh (mm)	Material	Surface [1]	Filter	Price €/unit	Additional charge for **Filter (G3)**	Additional charge for **RAL at own's choice, RALG or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for **aluminium-version (material)**
1QALK	0225	00425	V	9010	0	**166.13**	23.80	34.-	48.-	+90%
		00525				**174.63**	29.40	37.-	52.-	
		00625				**183.13**	35.00	40.-	56.-	
		00825				**200.13**	46.20	44.-	62.-	
		01025				**217.13**	57.40	47.-	66.-	
		01225				**234.13**	68.60	50.-	70.-	
1QALK	0325	00425	V	9010	0	**176.75**	28.48	37.-	52.-	+90%
		00525				**187.75**	35.18	41.-	57.-	
		00625				**198.75**	41.88	46.-	64.-	
		00825				**220.75**	55.28	50.-	70.-	
		01025				**242.75**	68.68	55.-	77.-	
		01225				**264.75**	82.08	59.-	83.-	
1QALK	0425	00425	V	9010	0	**187.38**	33.15	40.-	56.-	+90%
		00525				**200.88**	40.95	45.-	63.-	
		00625				**214.38**	48.75	52.-	73.-	
		00825				**241.38**	64.35	56.-	78.-	
		01025				**268.38**	79.95	63.-	88.-	
		01225				**295.38**	95.55	68.-	95.-	

Pricelist for model QAL-K as linear grid

emcoair model	Height (mm)	Widtrh (mm)	Material	Surface [1]	Filter	Price €/run. m	Additional charge for **Filter (G3)**	Additional charge for **RAL at own's choice, RALG or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for **aluminium-version (material)**
1QALK	0225	01000	V	9010	0	**234.-**	56.-	50.-	70.-	+90%
	0325	01000	V	9010	0	**265.-**	67.-	59.-	83.-	
	0425	01000	V	9010	0	**295.-**	78.-	68.-	95.-	

[1] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.
Unvarnished versions: price reduction 15%.

Industrial diffusers

A research project by the Federal Ministry for Research and Technology (BMFT, project number 01 HK 216) developed an air conduction model that has since become the standard in industrial ventilation. Layered ventilation balances out the warm air discharged from the occupied area with fresh air, creating comfortable conditions with low supply air rates. In large sized halls with low or no noxious matter – e.g. event halls or assembly areas – higher installation heights and greater vertical penetration depths are required.
emcoair industrial diffusers LUWIRO, VLV and VLD meet both these demands and the requirements of layered ventilation systems. In applications where greatest possible penetration depths at high supply air temperatures are required, the emcoair WKD is the ideal solution. Its integrated wide angle nozzle and installation at the highest installation point possible guarantee that warm air is supplied all the way into occupied areas. Its ability to rapidly heat up makes it that the diffuser ensures energy saving operation.

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emcoair displacement air diffuser IVA
The IVA is a circular displacement outlet developed for use in an industrial environment and in multifunctional halls. The discharge direction can be continuously adjusted between a horizontal radial stream and a vertical stream using a two-part valve mechanism. This enables an optimum and comfortable air flow pattern to be achieved at low sound power levels whatever the heating and cooling loads which need to be extracted and whatever the situation in the room.
.

Areas of application
- Commercial and industrial premises
- Assembly rooms
- Exhibition halls
- Multi-purpose halls
- Department stores

Product benefits
- Continuous control of flow direction from horizontal to vertical
- Top vertical penetration depths in heating applications through integrated inlet nozzles
- Easy manual or motorised adjustment
- Easily coupled with temperature difference regulation for fully automatic control of multiple diffusers

Configuration
The IVA consists of an elongated hole cylinder that enables the stream to be ideally adjusted from horizontal to vertical. The outlet is connected to the supply air duct via a plug connector. Inside the elongated hole cylinder, the air is concentrated onto the two-part adjustment valve by a flow-optimised inlet nozzle.

Method of operation

1. Heating application
If the IVA valve is open, a vertical stream results through the open base of the outlet. With this setting, the air escaping from the elongated hole cylinder is pulled along by the vertical stream, which leads to high penetration depths in heating applications.

2. Cooling application
If the valve is closed, this produces a horizontal stream, which leads to large air throws thanks to a high discharge momentum in cooling applications.

3. Intermediate setting
The continuous adjustment mechanism means that various types of stream between horizontal and vertical can be achieved too.

Aerodynamic data IVA

Nominal size [-]	L_{WA} [dB(A)]	$\dot{V}_0$ [m³/h]	Δp [Pa]	horizontal air throw x [m]
DN 250	40 50 60	600 950 1500	13 33 80	0.8 2.0 4.0
DN 315	40 50 60	1000 1550 2300	15 35 75	1.5 3.0 5.1
DN 355	40 50 60	1300 2000 3000	15 36 79	1.4 2.8 4.8
DN 400	40 50 60	1700 2500 3750	16 35 76	1.8 3.2 5.5
DN 450	40 50 60	2150 3200 4750	16 35 76	2.2 3.9 6.3
DN 500	40 50 60	2600 3900 5800	16 35 75	1.9 3.5 5.9
DN 560	40 50 60	3300 4900 7400	16 35 77	1.9 3.4 5.8
DN 630	40 50 60	4200 6300 9300	16 36 76	2.3 4.1 6.6

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emcoair IVA – Dimensions

Model IVA

Size DN	250	315	355	400	450	500	560	630
Dimension A	785.5	785.5	843.5	843.5	843.5	951.5	1059.5	1059.5
Dimension ØD	248	313	353	398	448	498	558	628

Version key IVA

										Charac.
1	**= emcoair**									1
	0IVA	**= IVA**								2 - 5
		0250	**= 250**							
		0315	= 315							
		0355	= 355							
		0400	= 400							
		0450	= 450							
		0500	= 500							
		0560	= 560							
		0630	= 630							6 - 9
			HZ	**= central manual adjustment**						
			BZ	= adjustment with bowden cable (hand lever)						
			BK	= adjustment with bowden cable (chain)						
			TV	= thermostatic adjustment						
			EI	= electrical adjustment (servo motor), inside						10 - 11
				360	**= 360**					
				XXX	= 0					12 - 14
					V	**= steel, galvanised**				
					E	= stainless steel V2A (material no. 1.4301)				
					S	= stainless steel V4A (material no. 1.4571)				15
						0000	**= unpainted**			
						9010	= varnished in RAL 9010. gloss polished (gloss level 75-84%)			
						XXXX	= varnished in RAL colour at own's option, gloss polished (gloss level 75-84%), except for RAL design			
						0NCS	= varnished in NCS colour			
						YYYY	= special surfaces			
						W320	= ground surface (stainless steel)			
						GGGG	= satin (stainless steel)			
						UNBE	= untreated (stainless steel)			16 - 19
							FT	**= standard connection in preformed part dimension**		20 - 21
								0	**= without wall fastening**	
								W	= with wall fastening	22
Product group (1=emcoair)	Model designation	Nominal size	Adjustment	Adjustment angle	Diffuser material	Surface	Connection	Fastening		
1	**0IVA**	**0250**	**HZ**	**360**	**V**	**0000**	**FT**	**0**	**= Example**	

Price list for model IVA

emcoair model	Nominal size (mm)	Adjustment	Adjustment angle (°degree)	Material	Surface	Connection	Version	Price €/unit
10IVA	0250	HZ	360	V	0000	FT	0	**330.-**
	0315							**346.-**
	0355							**361.-**
	0400							**408.-**
	0450							**455.-**
	0500							**488.-**
	0560							**521.-**
	0630							**562.-**
10IVA	0250	BZ	360	V	0000	FT	0	**350.-**
	0315							**366.-**
	0355							**381.-**
	0400							**428.-**
	0450							**475.-**
	0500							**508.-**
	0560							**541.-**
	0630							**582.-**
10IVA	0250	TV	360	V	0000	FT	0	**580.-**
	0315							**596.-**
	0355							**611.-**
	0400							**658.-**
	0450							**705.-**
	0500							**738.-**
	0560							**771.-**
	0630							**812.-**
10IVA	0250	EI	360	V	0000	FT	0	**440.-**
	0315							**456.-**
	0355							**471.-**
	0400							**518.-**
	0450							**565.-**
	0500							**598.-**
	0560							**631.-**
	0630							**672.-**

Version BK (adjustment with bowden cable (chain)) at the same price.

emcoair Typ VLD

emcoair Typ VLV

emcoair variable air diffuser model VLD / VLV

The discharge patterns available with diffuser models VLD and VLV make them well suited for use in commercial and industrial applications. Both horizontal (cooling) and vertical (heating) jets as well as localized displacement flow are possible. The latter being especially important for areas that are thermally loaded or polluted. These diffusers can be deployed directly under the ceiling or in a suspended installation. It is connected directly to the duct. VLD is designed to meet all demands that commercial and industrial sectors require.
Large vertical penetration depths can be achieved when heating and the cool air is supplied with high induction to the room.
VLV is especially designed to supply air to polluted workspaces. Air is supplied at low momentum, allowing noxious matter to be systematically discharged and at the same time reducing the concentrations of noxious matter more than with conventional mixed air systems.

Areas of application

- Industrial halls
- Shops
- Commercial space
- Laboratories
- Polluted workspace
- Sport halls
- Rooms with heights of 3 to 15 m

Product benefits

- Adjustable jet settings from horizontal to vertical
- Rapid reduction of temperature and velocity
- Draft-free supply of air when cooling
- Localized displacement ventilation in polluted areas, especially in model VLV
- Low pressure drop and sound power level
- Comfortable manual adjustment via cord pull mechanism
- Easily re-equipped from manual to motorised adjustment (even after installation)
- Can be operated without a plenum box

VLD / VLV DN 250

VLD / VLV DN 400

VLD / VLV DN 315

VLD / VLV DN 500

Configuration and dimensions

Diffuser VLD / VLV consists of a galvanized steel housing (1) with individual openings and a special shell plate with spigots (2) as well as four air control elements (3) that serve as the bottom of the device, each in a rotatable position on a horizontal axis (4). The air control elements are connected via rigid, hinged connectors (5) to a rack (6) which is in turn connected to a fixture with a gear wheel (7). Attached to this gear wheel is a shaft (8) which extrudes from one side of the spigot. A locking device or the adjustment mechanism (9), which is operable manually or via motor is located at the free end of the shaft.

It is no problem to re-equip the diffuser from manual to motorised operation without having to disassemble it.
A central disc (10) and an external control ring to increase the vertical discharge velocity are located on the side opposite the spigot.
All these parts form one unit which can be connected directly to the ventilation system with no need for an additional plenum box.

Method of operation

Air entering the diffuser through the spigot is diverted by the closed air control elements and is discharged in a horizontal jet through the opening of the shell plate. In suspended installations, and especially when smaller sizes of diffuser VLD are being used, there is a velocity component directed upwards.

By rotating the four bottom elements into the diffuser, the discharge angle is continuously shifted until the discharge is fully opened, thus creating a vertical jet. When set in an angle range of 0° to 45° (angle of the dampers) the specific position of the bottom elements creates an additional swirling effect.

With diffuser VLV, enlarging the discharge area noticeably reduces the discharge velocity and makes the localised displacement flow much more distinct.

Cooling / horizontal radial jet with diffuser VLD

Internal and external heat loads that occur as a result of production processes or the sun must be discharged through the ventiation system. To do this, the necessary cold air must be supplied above the working area at the highest induction possible to avoid drafts. The arrangement of the flow openings in the diffuser shell guarantees a horizontal or slightly upward discharge and rapid mixing with the room air.

Heating / vertical jet with diffuser VLD

Because diffusers are normally installed in upper sections of rooms, they must blow the warm supply air as a vertical jet with high momentum into the occupied areas. This is especially the case in the preheating phase of heating operation.
The illustration above shows jet dispersion with diffuser VLD when the four bottom dampers are completely open. VLV creates the same jet dispersion.

Displacement ventilation with diffuser VLV

In polluted working and production areas, the noxious matter must be expelled directly without being mixed with the other air. In addition to displaced fresh air intake, flow patterns are suitable for directing air at a low momentum directly into the working or occupied areas, which displaces the polluted air.
This illustration shows this option, which occurs when the bottom dampers are only partly opened.
The angle of the dampers influences the dispersion angle.

Aerodynamic data VLD / VLV

Nominal size [-]	L_{WA} [dB(A)]	$\dot{V}_0$ [m³/h]	Δp [Pa]	Minimum spacing [m]	y [m]
DN 250	30 40 50	450 650 900	10 20 40	~2 2 4	2.2 3.1 4.4
DN 315	30 40 50	850 1100 1550	10 20 40	~2 3 6	2.0 2.6 3.8
DN 400	30 40 50	1400 1900 2500	< 10 17 32	3 5 8	2.7 3.9 5.0
DN 500	30 40 50	2000 2800 4000	< 10 15 30	3 6 9	2.6 3.6 5.3

Specification: The minimum spacing for an installation height is 3.5 m so that velocity in occupied areas does not exceed 0.2 m/s.
Penetration depth when heating y for ΔT = +15 K

Ranges of application VLD / VLV

Version key for models VLD and VLV

										Charac.
1	**= emcoair**									1
	0VLD	**= variable air diffuser VLD**								
	0VLV	= variable air diffuser VLV								2 - 5
		0250	**= 250 mm nominal size**							
		0315	= 315 mm							
		0400	= 400 mm							
		0500	= 500 mm							6 - 9
			HZ	**= manual adjustment at diffuser**						
			SZ	= manual adjustment at diffuser with cord pull						
			EI	= electrical adjustment (servo motor), inside						
			BZ	= adjustment with bowden cable (hand lever)						
			BK	= adjustment with bowden cable (chain)						10 - 11
				V	**= diffuser material: steel, galvanised**					
				E	= stainless steel V2A (material no. 1.4301)					
				S	= stainless steel V4A (material no. 1.4571)					12
					0000	**= unpainted surface**				
					9010	= varnished in RAL 9010. gloss polished (gloss level 75-84%)				
					XXXX	= varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)				
					0NCS	= varnished in NCS colour				
					00DB	= varnished in DB colour				
					RALP	= varnished in RAL-Pearl colour				
					RALG	= varnished in RAL colour, gloss level different from standard				
					YYYY	= special surfaces				
					W320	= ground surface (stainless steel)				
					GGGG	= satin (stainless steel)				
					UNBE	= untreated (stainless steel)				13 - 16
						ST	**= without plenum box**			
						AK	= with plenum box			17 - 18
							CANC	**= not applicable**		
							M905	= varnished in RAL 9005. mat (gloss level 20-34%)		
							XXXX	= varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)		
							0NCS	= varnished in NCS colour		
							00DB	= varnished in DB colour		
							RALP	= varnished in RAL-Pearl colour		
							RALG	= varnished in RAL colour, gloss level different from standard		
							YYYY	= special surfaces		
							0000	= unpainted		19 - 22
								E	**= not applicable**	
								0	= without sealing lips	
								1	= with sealing lips	23
Product group (1=emcoair)	Model designation	Nominal size (mm)	Adjustment	Diffuser material	Diffuser surface	Connection	Surface plenum box	Sealing lips		
1	**0VLD**	**0250**	**HZ**	**V**	**0000**	**ST**	**0000**	**E**	**= Example**	

Price list for models VLD and VLV

emcoair model	Nominal size (mm)	Adjustment	Diffuser material [2]	Diffuser surface [1]	Connection	Surface plenum box [1]	Sealing lips	Price €/unit	Additional charge for **plenum box (AK)**	Additional charge for **sealing lips at plenum box (1)**
10VLD	0250	HZ	V	0000	ST	CANC	E	**566.-**	151.-	9.-
	0315							**582.-**	174.-	9.-
	0400							**599.-**	218.-	10.-
	0500							**616.-**	263.-	10.-
10VLD	0250	SZ	V	0000	ST	CANC	E	**611.-**	151.-	9.-
	0315							**627.-**	174.-	9.-
	0400							**644.-**	218.-	10.-
	0500							**661.-**	263.-	10.-
10VLD	0250	EI	V	0000	ST	CANC	E	**790.-**	151.-	9.-
	0315							**806.-**	174.-	9.-
	0400							**823.-**	218.-	10.-
	0500							**840.-**	263.-	10.-
10VLD	0250	BZ	V	0000	ST	CANC	E	**911.-**	151.-	9.-
	0315							**927.-**	174.-	9.-
	0400							**944.-**	218.-	10.-
	0500							**961.-**	263.-	10.-

Version BK (adjustment with bowden cable (chain)) at the same price.

10VLV	0250	HZ	V	0000	ST	CANC	E	**566.-**	151.-	9.-
	0315							**582.-**	174.-	9.-
	0400							**599.-**	218.-	10.-
	0500							**616.-**	263.-	10.-
10VLV	0250	SZ	V	0000	ST	CANC	E	**611.-**	151.-	9.-
	0315							**627.-**	174.-	9.-
	0400							**644.-**	218.-	10.-
	0500							**661.-**	263.-	10.-
10VLV	0250	EI	V	0000	ST	CANC	E	**790.-**	151.-	9.-
	0315							**806.-**	174.-	9.-
	0400							**823.-**	218.-	10.-
	0500							**840.-**	263.-	10.-
10VLV	0250	BZ	V	0000	ST	CANC	E	**911.-**	151.-	9.-
	0315							**927.-**	174.-	9.-
	0400							**944.-**	218.-	10.-
	0500							**961.-**	263.-	10.-

Version BK (adjustment with bowden cable (chain)) at the same price.

[1] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.
Prices for varnished versions on request!

[2] **Prices for stainless steel versions on request.**

emcoair displacement air diffuser model LDA

The LDA is used to create a swirl-free, low-induction displacement flow. It is an adjustable displacement air diffuser for a draft-free supply of conditioned supply air to air-conditioned rooms and halls in industrial applications. The LDA diffusers are available in four sizes: DN 315/400/500/630 (nominal diameter). These can accommodate standard applications involving installation heights of up to 13 m and individual flow volumes up to 9000 m³/h per diffuser.

Areas of application

- Aeroplane painting halls
- Industrial halls and assembly halls
- Production halls
- Machine tool building halls

Product benefits

- Variable air diversion to provide penetration depths of 3 to 18 m
- Steady air distribution
- Prevents induction of room air in the vicinity of the air diffuser
- Manual, electric or pneumatic adjustment mechanism
- Available as an option: explosion-proof version (Ex Zone 2)
- Available as an option: Confirmation of the absence of silicone in all components

Configuration

The diffuser is designed in the form of a nozzle-shaped pipe in aluminium/steel plate with radially-finished nozzle outflow. It is fitted with an interior control mechanism to create an axial or radial airflow (overall flow volume) using six adjustable blades. The central gearbox is activated with the aid of a shaft and the disc cam. A perforated cone downstream in the flow direction with an integrated circular honeycomb is used to direct the flow. This ensures that the supply air is admitted uniformly.
The segmented outflow hose placed in the centre of the cone forms the end.
The galvanised-steel plenum box with integrated control mechanism and the air distribution profile (cone) form one unit. LDA displacement air diffusers consist of the following components shown below:

1. **Metal nozzle body**
   with radially finished nozzle outflow
2. **Swirl blade insert**
   with adjustment mechanism
3. **Cone**
   perforated with integrated circular honeycomb
4. **Metal outlet nozzle**
   with vertical guide blades

Low penetration depths

High penetration depths

Method of operation:
Inside the nozzle body there is a swirl blade insert that holds the swirl blades for deflecting the supply air. The adjustment angle of the swirl blades can be adapted via a multiple adjustment mechanism. This means the division of the air into vertical and horizontal portions can be adjusted to the high or low penetration depths, respectively, depending on the position of the blades. Depending on the adjustment angle of the swirl blades, the combination of the adjustment and the rectifier elements create a steady air diversion inside the nozzle body. This creates different air penetration depths from 3 to 18 m and causes the supply air to behave differently when flowing out of the rectifier elements and the outflow hose. The nozzle body forms a spatial limitation for the supply airflow. Once the supply air has left the nozzle body, it comes to a compressor body and the supply air sinks downwards over a relatively wide area without causing any drafts and mixes with the existing room air.

For **high penetration depths** (see Fig. 2), if the swirl blade adjustment angle is steep (small), the supplied air flows out of the nozzle body with almost no rotation and is directed at ground level as a result of the lower rotation speed and the consequential increased discharge speed.

The adjustment angle α may be defined as the extent to which the swirl blades deviate from the vertical axis of the nozzle body in a clockwise direction (see figure below).

Depending on the design version, the adjustment of swirl blades or the swirl blade insert is carried out via various adjustment mechanisms.
The **HZ (central manual)** or **E (electric)** adjustment mechanisms are used in the LDA (see version key on page 180).

Swirl blade positions

Aerodynamic data LDA

Nominal size [-]	L_{WA} [dB(A)]	$\dot{V}_0$ [m³/h]	Δp [Pa]	Inst. height [m]	Minimum spacing* [m]	y** [m]
DN 315	35	750	9	3 – 8	1.5	2.8
	45	1000	15		2.0	4.3
	55	1350	26		3.0	6.4
DN 400	35	1200	9	3 – 12	2.0	3.2
	45	1750	18		3.5	5.5
	55	2200	27		5.5	7.1
DN 500	35	1800	8	3 – 15	3.0	3.8
	45	2700	17		4.5	5.9
	55	3500	28		6.5	7.8
DN 630	35	2800	8	5 – 18	3.5	4.2
	45	4200	17		5.0	6.1
	55	5500	27		6.0	8.7

* The minimum spacing listed in this table apply to suspended installations as per recommended installation heights at a pre-set blade angle of 50°.
** Vertical penetration depths are valid for a 15° blade angle and supply air temperature difference to the room air of +15 K.
Vertical penetration depth and minimum spacing can be adjusted through a manual or motorised change of the blade angle.

Ranges of application LDA

emcoair LDA – dimensions

Model LDA without plenum box

Model LDA with plenum box

Adjustment version HZ (LDA-HZ):
with central, manual blade adjustment (HZ)

Adjustment version EI, EA, EE (LDA-EI...):
with electric blade adjustment (EI, EA or EE)

Adjustment version PV (LDA-PV...):
with pneumatic blade adjustment (PV)

Material of all modes: - Nozzle: Sheet steel/aluminium
- Control unit: Sheet steel

No.	Nominal size DN	315	400	500	630	Unit
1	Suspension point spacing	565	735	910	1145	mm
2	Ø Plenum box diameter	525	695	870	1105	mm
3	Connecting piece length	100	100	100	100	mm
4	Top edge of plenum box/middle of connecting piece	190	225	299	330	mm
5	Ø Connecting piece diameter (outer)	279	354	498	559	mm
6	Outlet height, total	350	410	550	685	mm
7	Ø Connection diameter (pipe dimension)	318	403	503	633	mm
8	Ø Diffuser diameter (visible)	580	750	925	1160	mm
9	Plenum box height	420	550	700	900	mm
10	Ø Suspension drill hole diameter	9	9	9	9	mm
11	Cone height	175	195	270	330	mm

Version key for model LDA

	Charac.
1 = emcoair	1
0LDA = Displacement air diffuser LDA	2 - 5
0315 = 315 mm nominal size	
0400 = 400 mm	
0500 = 500 mm	
0630 = 630 mm	6 - 9
HZ = central manual adjustment	
EI = electrical adjustment (servo motor), inside	
EA = electrical adjustment (servo motor), outside	
EE = electrical adjustment (servo motor) („explosion-proof version")	
E3 = electrical adjustment 230V	
PV = pneumatic adjustment	10 - 11
050 = 50° adjustment angle	
XXX = designation of the adjustment angle in degrees	12 - 14
V = material air diffuser: steel, galvanised (nozzles aluminium)	
E = stainless steel V2A (material no. 1.4301)	
S = stainless steel V4A (material no. 1.4571)	15
M901 = surface varnished in RAL 9010. mat (gloss level 20-34%)	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surfaces	
0000 = unpainted	
W320 = ground surface (stainless steel)	
GGGG = satin (stainless steel)	
UNBE = untreated (stainless steel)	16 - 19
0 = without honeycomb rectifier	
1 = with honeycomb rectifier	20
0 = without perforated plate	
2 = with perforated plate with 21% free cross-section	
3 = with perforated plate with 33% free cross-section	
4 = with perforated plate with 46% free cross-section	
5 = with perforated plate with 58% free cross-section	21
ST = without plenum box	
ME = with METU quick-release lock without securing cord	
MS = with METU quick-release lock with securing cord	
AR = with plenum box (reversible)	22 - 23
0 = not applicable	
V = material plenum box: Steel, galvanised	
E = stainless steel V2A (material no. 1.4301)	
S = stainless steel V4A (material no. 1.4571)	24
E = not applicable	
S = side spigot position	
O = top spigot position	25
E = not applicable	
0 = without throttle	
1 = with throttle	26

Product group (1=emcoair)	Model designation	Nominal size (mm)	Adjustment	Adjustment angle (degrees)	Diffuser material	Diffuser surface	Honeycomb rectifier	Fixed resistor	Connection	Material plenum box	Spigot position	Equipment	Insulation	Sealing lips	
1	0LDA	0315	HZ	050	V	M901	0	0	ST	0	E	E	E	E	= Example

E = not applicable
0 = without insulation
1 = with insulation inside (20 mm mineral wool)
2 = with insulation outside (13 mm Armaflex)
7 = with insulation outside (19 mm Armaflex)
3 = with insulation inside (20 mm mineral wool) and outside (13 mm Armaflex)
6 = with insulation inside (20 mm) and ouzside (19 mm Armaflex) 27

E = not applicable
0 = without sealing lips
1 = with sealing lips 28

Price list for model LDA

emcoair model	Nominal size (mm)	Adjustment	Adjustment angle (degrees)	Diffuser material [1]	Diffuser surface [2]	Honeycomb rectifier	Fixed resistor	Connection	Material plenum box [1]	Spigot position	Equipment	Insulation	Sealing lips	Price €/unit
10LDA	0315	HZ	050	V	M901	0	0	ST	0	E	E	E	E	**1500.-**
	0400													**1788.-**
	0500													**2112.-**
	0630													**2605.-**
10LDA	0315	EI	050	V	M901	0	0	ST	0	E	E	E	E	**1885.-**
	0400													**2173.-**
	0500		**Version E3 (electrical adjustment 230 V) at the same price.**											**2497.-**
	0630													**2990.-**
10LDA	0315	EA	050	V	M901	0	0	ST	0	E	E	E	E	**1961.-**
	0400													**2249.-**
	0500													**2573.-**
	0630													**3066.-**
10LDA	0315	EE	050	V	M901	0	0	ST	0	E	E	E	E	**on request**
	0400													**on request**
	0500													**on request**
	0630													**on request**
10LDA	0315	PV	050	V	M901	0	0	ST	0	E	E	E	E	**on request**
	0400													**on request**
	0500													**on request**
	0630													**on request**

Price list accessories for model LDA

emcoair model	Nominal size (mm)	select suitable version key specification (...)	Additional charge for **RAL at own's choice. RALG or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for **honeycomb rectifier (1)**	Additional charge for **fixed resistor (2.3.4.5)**	Additional charge for **METU quick-release lock (ME)**	Additional charge for **METU quick-release lock with securing cord (MS)**	Additional charge for **plenum box (AR) steel. galvanised (V)**	Additional charge for **throttle in plenum box (1)**	Additional charge for **sealing lips at plenum box**
10LDA	0315	...	17.-	33.-	100.-	50.-	56.-	72.-	123.-	27.-	11.-
	0400	...	34.-	50.-	122.-	67.-	65.-	81.-	168.-	30.-	14.-
	0500	...	50.-	67.-	144.-	84.-	74.-	90.-	213.-	33.-	17.-
	0630	...	67.-	95.-	178.-	101.-	83.-	99.-	258.-	35.-	20.-

[1] **Price for stainless steel versions on request.**

[2] When ordering **RAL colour at own's option**. please enter 4-digit number (= RAL colour code) in the version key. if the required gloss level is 75-84%.
For RAL colours with a different gloss level. please just enter the code **RALG** and specify the precise colour designation.
For NCS colours. please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.
Unvarnished versions: price reduction 15%.

part 1.0.0 ventilation components basics
part 1.1.1 swirl diffusers
part 1.1.1 ceiling air diffusers
part 1.1.2 linear diffusers
part 1.1.3 circular pipe diffusers
part 1.1.4 displacement flow diffusers
part 1.1.5 industrial diffusers LDA

Project: DECKEL MAHO Pfronten GmbH, Pfronten (Germany)

emcoair industrial swirl diffuser model LDI

Diffuser LDI was especially developed for challenging air conditioning applications in rooms with high ceilings. It is suitable for free installation without any ceiling connection and a downward discharge opening, but can also be used in special cases for lateral installations. The individual diffuser consists of a circular metal nozzle with a radial wide edge that shallows out to make use of the Coanda effect. Air is generally supplied to the diffuser via tubes or ducts and flows through a control mechanism that is integrated into the diffuser before entering the room. The control mechanism is made up of six continuously adjustable blades.

The ability to continually adjust the supply air makes it possible to adapt velocity, penetration depth and induction ratio as needed to the actual conditions.

Areas of application

- Production halls
- Administration areas
- Department stores
- Assembly rooms
- Multi-purpose halls
- Printing facilities

Product benefits

- Continuous adjustment of air control to planned or unplanned changes of conditions while maintaining velocity critical values
- Systematic and thus energetically efficient supply of fresh air volume flow to the occupied areas
- Low installation costs due to easy mounting
- No drafts or cold air areas near the floor in occupied areas
- Reduction of energy costs for conditioning and handling of air
- Significantly shorter preheating phases by deliberately increasing the jet's penetration depth.

Configuration

This diffuser is designed as a nozzle-shaped circular corpus with a radial nozzle outlet.

Six individual blades are mounted on a central hub and from an interior control mechanism that can be continuously adjusted either manually, pneumatically or via motor.

This diffuser is available in the sizes 250/315/400/500/630/800 (nominal sizes) and roughly estimated are suitable for deployment in heights of up to 30 m and individual volume flows of up to 12.000 m^3/h per diffuser.

Method of operation

Different flow patterns are imposed upon the air analogue to the respective blade angle, those patterns ranging from round free jet to axial and radial swirling jets. This guarantees that all cases of cooling, ventilating or heating can be distinguished. Every possible load has a defined angular dimension assigned to it. Moreover, setting the blades to asymmetrical angles allow interference from obstructions in the jet dispersion to be avoided from the outlet.

Aerodynamic data LDI

Nominal size [-]	L_{WA} [dB(A)]	$\dot{V}_0$ [m³/h]	Δp [Pa]	Installation height [m]	Minimum spacing [m]	y [m]
DN 250	35 45 55	360 550 920	30 60 140	3.0 3.0 3.0	1.7 2.6 3.9	2.0 3.5 6.2
DN 315	35 45 55	800 1100 1500	48 85 162	4.5 4.5 4.5	2.5 4.0 5.2	3.0 4.7 7.0
DN 400	35 45 55	1200 1800 2400	47 84 150	6.0 6.0 6.0	2.7 4.5 5.9	3.0 5.2 7.2
DN 500	35 45 55	1700 2500 3800	32 70 150	8.0 8.0 8.0	3.0 4.5 7.5	4.0 5.3 8.5
DN 630	35 45 55	2600 3800 5600	25 55 125	10.0 10.0 10.0	3.5 5.0 6.0	4.0 5.5 8.6
DN 800	35 45 55	3700 5500 8500	25 50 110	12.0 12.0 12.0	4.0 5.5 7.0	4.0 5.5 9.0

The minimum spacing listed in this table apply to suspended installations as per recommended installation heights at a pre-set blade angle of 60°. Vertical penetration depths are valid for a 15° blade angle and supply air temperature difference to the room air of +15 K. Vertical penetration depth and minimum spacing can be adjusted through a manual or motorised change of the blade angle.

Ranges of application LDI

Adjustment model SM

Adjustment model LDI/SM
with separate, manual adjustable blade setting and basic nozzle shape,
Material:
nozzle of sheet: metal/aluminum,
guide vane of sheet: metal

Adjustment model EI or EA

Adjustment model LDI/EI or EA
with electronic adjustable blade setting and basic nozzle shape
Material:
nozzle of sheet: aluminum,
guide vane of sheet: metal

Adjustment model TA or TB

Adjustment model LDI/TA or TB
with thermostatic adjustable blade setting and basic nozzle shape
Material:
nozzle of sheet: aluminum,
guide vane of sheet: metal

Adjustment model SM

Adjustment model LDI-V/SM
with separate, manual adjustable blade setting and elongated nozzle shape (V)
Material:
nozzle of sheet: aluminum, guide vane of sheet: metal

Adjustment model EI or EA

Adjustment model LDI-V/EI or EA
with electronic adjustable blade setting and elongated nozzle shape (V)
Material:
nozzle of sheet: aluminum,
guide vane of sheet: metal

Adjustment model TA or TB

Adjustment model LDI-V/TA orTB
with thermostatic adjustable blade setting and elongated nozzle shape (V)
Material:
nozzle of sheet: aluminum, guide vane of sheet: metal

Size DN (mm)	250	315	400	500	630	800
Size Ø A mm	253	318	403	503	633	804
Size Ø R mm	330	415	535	660	830	1100
Size Ø R1 mm	480	580	750	925	1160	1420
Size H mm	140	175	215	280	355	425
Size K (LDI-V only) mm	8	8	8	8	8	8
Weight [kg] **SM**	2.4	3.6	6.0	8.5	12.2	24.0
Weight [kg] LDI-V **SM**	2.7	3.8	6.3	8.9	14.5	30.0
Weight [kg] **EI or EA**	3.8	5.1	6.9	9.8	14.8	27.0
Weight [kg] LDI-V **EI/EA**	4.1	5.3	7.0	10.2	15.4	31.2
Weight [kg] **TA or TB**	3.8	5.1	6.6	9.5	14.5	26.0
Weight [kg] LDI-V **TA or TB**	4.1	5.3	6.7	9.9	15.1	30.2
Height L (**EI/EA** only) mm	285	295	300	325	345	425
Height L (**TA/TB** only) mm	270	280	290	290	355	425

Optional version - TA/TB...
(thermostatic adjustment)
In the T-version (with thermostatic adjustment) the outlet vanes are positioned by the thermostatic driven motor which, based on changing room temperature adjusts the Vanes in the most optimal position.

Method of operation:
The thermostatic section is positioned on top of the star shaped housing and inside the primary air supply temperature.
By changing temperatures the thermostatic part of the motor will initiate a change of the outlet vanes.
In case of an air temperature increase (heating mode) the outlet vanes are positioned as vertical as possible by the supporting arms, which are connected between the thermostatic motor and the outlet vanes.
In case of an air temperature decrease (cooling mode) the vanes will be repositioned the most optimal position to a most horizontal position by the supporting arms.
A spring based functioning takes care of the repositioning of the supporting arms in combination with the thermostatic piston on top of the motor.
The movement from vertical to horizontal and back is managed as a central mechanism. The supporting arms managed by the motor are moved in a vertical way and thus allowing the outlet vanes to be repositioned from horizontal towards diagonal and in the end vertical position.
Depending on the room temperature requirements temperatures between 15 and 40 degrees Celsius can be entered into the room at the right position.

Note:
It has to be considered that this system is designed for temperature changes and not differences. For this reason one should consider that the changing of outlet vanes can take more time than expected and or requested.

emcoair LDI accessories: Plenum box model AK, round

Surface
- RAL9010 (as Standard)
- RAL - each colour on request
- Special colours (on request)
- Special surfaces (on request)

Accessories
- Quick-release lock, flange with counter flange
- Securing cord for quick-release lock
- Fixed resistor, designed as perforated plate in air intake
- Honeycomb rectifier
- Plenum box in round shape
- Connecting flange
- Impact resistance
- Management and control components (temperature difference controller model TDR III)

Option
- Different motor brand names: Siemens, Loventa (on request)
- External motor for vane adjustment by LON building
- Management system equipped systems
- Tailor made connecting plenum box (on request)
- Tailor made square or different shaped front plate (on request)

emcoair LDI accessories – Dimensions:

Plenum box model AK, round

Plenum box model AK, round, with throttle damper

Model AK

RAK-Size DN	250	315	400	500	630
Size Ø D (mm)	320	385	500	600	730
Size H (mm)	285	360	440	530	640
Size Ø D_1 (mm)	223	279	354	449	559
Size Ø D_2 (mm)	248	313	398	498	628
Size Ø d (mm)	356	425	540	640	770
Size Ø l_1 (mm)	120	120	200	200	200
Size Ø l_2 (mm)	100	110	150	190	240
Size Ø h_1 (mm)	151	180	230	275	330
Size Ø e (mm)	267	319	405	480	578
Size Ø f (mm)	308	368	468	554	667
Size Ø n (mm)	89	106	135	160	193
Size Ø y_1 (mm)	110	130	170	205	250
Size Ø y_2 (mm)	180	215	300	340	415
Size Ø x (mm)	80	96	125	150	183
Weight (kg)	3.5	5.0	8.5	12.0	16.0

Deviant dimensions for model AK with throttle damper

RAK-Size DN	250	315	400	500	630
Size l_1	225	280	355	450	560
Size z	112	140	177	225	183

All sizes in mm, weight in kg

emcoair LDI accessories – Rectifiers

Honeycomb rectifier

Perforated plate insert

Advised are the following installation methods

Connection	Air diffuser			
	Flexible hose	Form piece	Plenum box	Quick-release lock
Free installation	-	X	X	X
Connecting flange	X	-	-	-

Installation examples

Form piece
(free installation)

Plenum box
(free installation)

Quick-release lock

Flexible hose
Connection air diffuser/ceiling: Connecting flange

Version key for model LDI

	Charac.
1 = emcoair	1
0LDI = industrial swirl diffuser LDI	
LDIV = industrial swirl diffuser LDI-V	2 - 5
R = round diffuser geometry (version LDI), round front plate with elongated nozzle shape (version LDI-V)	
Q = square front plate (version LDI only)	6
0250 = 250 mm nominal size	
0315 = 315 mm	
0400 = 400 mm	
0500 = 500 mm	
0630 = 630 mm	
0800 = 800 mm	7 - 10
SM = separate manual adjustment	
EI = electrical adjustment (servo motor), inside	
EA = electrical adjustment (servo motor), outside	
PV = pneumatic adjustment	
EE = electrical adjustment (servo motor) („explosion-proof version")	
TA = thermostatic adjustment, variant A (starting point 20 °C)	
TB = thermostatic adjustment, variant B (starting point 15 °C)	
HZ = central manual adjustment	11 - 12
060 = 60° adjustment angle	
XXX = designation of the adjustment angle in degrees (min. 15° / max. 60°)	13 - 15
V = material air diffuser: Steel, galvanised (nozzles aluminium)	
E = stainless steel V2A (material no. 1.4301)	
S = stainless steel V4A (material no. 1.4571)	16
M901 = surface varnished in RAL 9010. mat (gloss level 20-34%)	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surfaces	
0000 = unpainted	
W320 = ground surface (stainless steel)	
GGGG = satin (stainless steel)	
UNBE = untreated (stainless steel)	17 - 20
0 = without impact resistance	
1 = with impact resistance	21
0 = without honeycomb rectifier	
1 = with honeycomb rectifier	22
0 = without perforated plate	
2 = with perforated plate with 21% free cross-section	
3 = with perforated plate with 33% free cross-section	
4 = with perforated plate with 46% free cross-section	
5 = with perforated plate with 58% free cross-section	23
ST = without plenum box	
ME = with METU quick-release lock without securing cord	
MS = with METU quick-release lock with securing cord	
AK = with plenum box	
AR = with plenum box (reversible)	24 - 25

Product group (1=emcoair)	Model designation	Diffuser geometry	Nominal size (mm)	Adjustment	Adjustment angle (degrees)	Diffuser material	Diffuser surface	Impact resistance	Honeycomb rectifier	Fixed resistor	Connection	Material plenum box	Spigot position	Equipment	Insulation	Sealing lips	
1	0LDI	R	0250	SM	060	V	M901	0	0	0	ST	0	E	E	E	E	= Example

0 = not applicable
V = material plenum box: Steel, galvanised
E = stainless steel V2A (material no. 1.4301)
S = stainless steel V4A (material no. 1.4571) 26

E = not applicable
S = side spigot position
O = top spigot position 27

E = not applicable
0 = without throttle
1 = with throttle 28

E = not applicable
0 = without insulation
1 = with insulation inside (20 mm mineral wool)
2 = with insulation outside (13 mm Armaflex)
7 = with insulation outside (19 mm Armaflex)
3 = with insulation inside (20 mm mineral wool) and outside (13 mm Armaflex)
6 = with insulation inside (20 mm) and ouzside (19 mm Armaflex) 29

E = not applicable
0 = without sealing lips
1 = with sealing lips 30

Price list for model LDI

emcoair model	Diffuser geometry	Nominal size (mm)	Adjustment	Adjustment angle (degrees)	Diffuser material [2]	Diffuser surface [1]	Impact resistance	Honeycomb rectifier	Fixed resistor	Connection	Material plenum box. [1]	Spigot position	Equipment	Insulation	Sealing lips	Price €/unit
10LDI	R	0250	SM	060	V	M901	0	0	0	ST	0	E	E	E	E	**148.-**
		0315														**170.-**
		0400														**215.-**
		0500														**282.-**
		0630														**450.-**
		0800														**1021.-**
10LDI	R	0250	EI	060	V	M901	0	0	0	ST	0	E	E	E	E	**533.-**
		0315														**555.-**
		0400														**600.-**
		0500														**667.-**
		0630														**835.-**
		0800														**1406.-**
10LDI	R	0250	EA	060	V	M901	0	0	0	ST	0	E	E	E	E	**609.-**
		0315														**631.-**
		0400														**676.-**
		0500														**743.-**
		0630														**911.-**
		0800														**1482.-**
10LDI	R	0250	TA	060	V	M901	0	0	0	ST	0	E	E	E	E	**464.-**
		0315														**486.-**
		0400														**531.-**
		0500														**598.-**
		0630														**766.-**
		0800														**1337.-**

[1] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.
Unvarnished versions: price reduction 15%.

[2] **Prices for stainless steel versions on request.**

Price list for model LDI-V

emcoair model	Diffuser geometry	Nominal size (mm)	Adjustment	Adjustment angle (degrees)	Diffuser material [2]	Diffuser surface [1]	Impact resistance	Honeycomb rectifier	Fixed resistor	Connection	Material plenum box. [1]	Spigot position	Equipment	Insulation	Sealing lips	Price €/unit
1LDIV	R	0250	SM	060	V	M901	0	0	0	ST	0	E	E	E	E	**177.-**
		0315														**199.-**
		0400														**244.-**
		0500														**311.-**
		0630														**479.-**
		0800														**1050.-**
1LDIV	R	0250	EI	060	V	M901	0	0	0	ST	0	E	E	E	E	**562.-**
		0315														**584.-**
		0400														**629.-**
		0500														**696.-**
		0630														**864.-**
		0800														**1435.-**
1LDIV	R	0250	EA	060	V	M901	0	0	0	ST	0	E	E	E	E	**638.-**
		0315														**660.-**
		0400														**705.-**
		0500														**772.-**
		0630														**940.-**
		0800														**1511.-**
1LDIV	R	0250	TA	060	V	M901	0	0	0	ST	0	E	E	E	E	**493.-**
		0315														**515.-**
		0400														**560.-**
		0500														**627.-**
		0630														**795.-**
		0800														**1366.-**

Price list accessories for models LDI and LDI-V

emcoair model	Diffuser geometry	Nominal size (mm)	select suitable version key specification (...)	Additional charge for **RAL at own's choice, RALG or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for **impact resistance (1)**	Additional charge for **honeycomb rectifier (1)**	Additional charge for **fixed resistor (2.3.4.5)**	Additional charge for **METU quick-release lock (ME)**	Additional charge for **METU quick-release lock with securing cord (MS)**	Additional charge for **plenum box (AK) steel, galvanised (V)**	Additional charge for **throttle in plenum box (1)**	Additional charge for **insulation at/in plenum box**	Additional charge for **sealing lips at plenum box**
10LDI or 1LDIV	R	0250	...	16.-	22.-	174.-	48.-	34.-	52.-	68.-	86.-	25.-	on request	9.-
	R	0315	...	18.-	25.-	190.-	73.-	50.-	56.-	72.-	120.-	28.-		11.-
	R	0400	...	20.-	28.-	207.-	97.-	67.-	65.-	81.-	165.-	30.-		13.-
	R	0500	...	22.-	31.-	224.-	122.-	84.-	74.-	90.-	209.-	32.-		17.-
	R	0630	...	25.-	35.-	252.-	144.-	101.-	83.-	99.-	243.-	35.-		20.-
	R	0800	...	28.-	39.-	297.-	178.-	129.-	106.-	122.-	310.-	40.-		25.-

emcoair displacement flow diffuser model LUWIRO

The displacement flow diffuser LUWIRO is a column diffuser used in working and production areas.
The entering supply air is made to rotate by a swirling blade mechanism and at the same time is dispersed over the entire perforated cylinder area.
The swirling blades help make this diffuser easily adapted to any heating or cooling application.
The diffuser consists of a perforated sheet metal cylinder, in which a swirl mechanism with an adjustable blade angle is installed on the supply air side. The front end of the cylinder is formed by a fixed circular ring plate.

The multiple adjustment mechanisms make this diffuser a key component in decontamination air systems of industrial halls.
Energetically it operates in an extremely economic manner and ergonomically is extremely efficient.

Areas of application

- Administration areas
- Restaurants
- Sport halls
- Industrial halls
- Laboratories
- Contaminated work areas

Product benefits

- Low flow velocities in occupied areas
- Increased air quality in occupied areas
- Removal capacity of 30 W/m² and 50 W/m². depending on degree of activity
- Can be placed just about anywhere
- Suitable for heating and cooling

Configuration

The body of the diffuser consists of a perforated sheet metal cylinder of which the air spreads out evenly over the entire cylinder area. Therefore the air enters the room with low momentum. To achieve this, air entering the diffuser is made to rotate by a swirling blade mechanism.
Radial dispersion over the entire discharge area is guaranteed by a honeycomb insert, fixed to the interior of the perforated sheet.

The diffuser is available in the sizes 200/250/315/355/400/450/500/560 and 630 mm – depending on the diameter of the cylinder and is designed for floor-standing or suspended installation. The adjusting mechanism is operated manually or electronically with a device for temperature difference measurement.
Nominal volume flow between 400 and 7900 m³/h per diffuser.
The cylinder is made of galvanized sheet metal, but special material available upon request. Thers is a free choice of color.

Method of operation

A small blade angle sets the supply air into rotation and in the process induces additive air depending on the intensity of rotation.
The resistance of the perforated plate is overridden by the modulated centrifugal force when the pressure of the room air – supply air mix drops. This mix then flows out in a radial stream over the cylindrical reference surface which has been narrowed by the swirl insert and cover.
Large blade angles notably reduce the swirling intensity of the supply air. Induction of the room air is no longer possible. Moreover, part of the supply air flows with some remaining rotation outward over the front cover.
The radial stream flowing over the cylinder surface defined by the swirl insert and cover is accordingly weakened.

Standing version

Diffuser LUWIRO, version SM (separate manual) is primarily used as a standing version. In this case the diffuser is installed in occupied zones close to working areas, whereby noxious matter is transported away from the occupied zone and into the exhaust via convective flow.

Suspended version

As a suspended design, LUWIRO has two versions: ZM (central manual) and E1 (electric).
The diffuser is mounted at a height of up to 3 m above the floor. When mounted as such, the discharge velocity should be set higher than in the standing version to counteract a premature drop of the colder air.
To keep the concentration of noxious matter as low as possible in the occupied zone, both the suspended and standing versions of diffuser LUWIRO should be installed as close to the working area as possible.

Cooling operation (standing version)

Cooling operation (suspended version)

Heating operation (suspended version)

LUWIRO (Displacement flow diffuser)

Size DN	200	250	315	355	400	450	500	560	630
Size A mm	1000	1000	1100	1100	1250	1500	1500	1700	2000
Size d mm	400	400	400	400	400	400	400	400	400
Size ØD1 mm	203	253	318	357	403	453	503	563	633
Size ØD2 mm	91	115	145	162	180	200	225	255	285
Size H mm	1400	1400	1500	1500	1650	1900	1900	2100	2400

Aerodynamic data LUWIRO

Nominal size [mm]	Version	$\dot{V}_{min}$ [m³/h]	$\dot{V}_{max}$ [m³/h]	$\dot{V}_{nenn}$ [m³/h]	for $\dot{V}_{nenn}$ Δp [Pa]	for $\dot{V}_{nenn}$ L_{WA} [dB(A)]	Minimum spacing* [m]	y* [m]
DN 200	standing suspended	400 700	700 900	600 800	35 65	47 57	≈ 2	4
DN 250	standing suspended	700 1000	1000 1400	900 1200	35 65	47 57	≈ 2	4
DN 315	standing suspended	1000 1500	1800 2100	1600 1900	35 65	47 57	≈ 2	4
DN 355	standing suspended	1200 1800	1900 2600	1800 2200	35 65	47 57	≈ 2	4
DN 400	standing suspended	1800 2100	2000 3100	1900 2900	35 65	47 57	≈ 2	4
DN 450	standing suspended	1800 2700	2700 4000	2200 3200	35 65	47 57	≈ 2	4
DN 500	standing suspended	2000 3200	3200 4700	2900 4000	35 65	47 57	≈ 2	4
DN 560	standing suspended	2800 4300	4300 6300	3200 4500	35 65	47 57	≈ 2	4
DN 630	standing suspended	3200 5300	5500 7900	4500 7000	35 65	47 57	≈ 2	4

* Lower minimum spacing and greater vertical penetration depth (y) possible, please consult your emco planning representative for more information.(y for ΔT = +10K).

Project: Institute Fresenius, Bad Homburg (Germany)

Optional version - TA or TB...
(thermostatic adjustment)
In the T-versions (with thermostatic adjustment) the outlet vanes are positioned by the thermostatic driven motor which, based on changing room temperature adjusts the vanes in the most optimal position.

Method of operation:
The thermostatic section is positioned on top of the star shaped housing and inside the primary air supply temperature.
By changing temperatures the thermostatic part of the motor will initiate a change of the outlet vanes.
In case of an air temperature increase (heating mode) the outlet vanes are positioned as vertical as possible by the supporting arms, which are connected between the thermostatic motor and the outlet vanes. In case of an air temperature decrease (cooling mode) the vanes will be repositioned to a most horizontal position by the supporting arms. A spring based functioning takes care of the repositioning of the supporting arms in combination with the thermostatic piston on top of the motor.
The movement from vertical to horizontal and back is managed in the same way as the central mechanism used in the versions ZM and E1.
The supporting arms managed by the motor are moved in a vertical way and thus allowing the outlet vanes to be repositioned from horizontal towards diagonal and in the end vertical position.
Depending on the room temperature requirements temperatures between 15 and 40 degrees Celsius can be entered into the room at the right position.

Note:
It has to be considered that this system is designed for temperature changes and not differences. For this reason one should consider that the changing of outlet vanes can take more time than expected and or requested.

Quick-release with securing cord **Perforated plate insert**

Accessories for control mechanism
The blade angle can be adjusted by an actor which is controlled by a temperature differential measured between supply air and room air.
If the temperature differences between supply air and room air are only small over the running time, a separate manual blade can be installed. Subsequent individual blade adjustment is made possible with a special key which is supplied with the unit.

Under the prediction that both heating and cooling conditions occur in the halls, a motor-driven blade adjustment operating via a temperature differential control is recommended at least for a certain percentage of the outlets.
The application of an additional honeycomb rectifier is also possible.

Version key for model LUWIRO

													Charac
1	**= emcoair**												1
	LUWI	**= Displacement flow diffuser model LUWIRO**											2 - 5
		0200	**= 200 mm nominal size**										
		0250	= 250 mm										
		0315	= 315 mm										
		0355	= 355 mm										
		0400	= 400 mm										
		0450	= 450 mm										
		0500	= 500 mm										
		0560	= 560 mm										
		0630	= 630 mm										6 - 9
			SM	**= separate manual adjustment**									
			ZS	= central manual adjustment									
			BZ	= adjustment with bowden cable (hand lever)									
			BK	= adjustment with bowden cable (chain)									
			TA	= thermostatic adjustment, variant A (starting point 20 °C)									
			TB	= thermostatic adjustment, variant B (starting point 15 °C)									
			EI	= electrical adjustment (servo motor), inside (24 V)									
			E3	= electrical adjustment (servo motor), inside (230 V)									10 - 11
				VH	**= Installation: vertically suspended**								
				HH	= horizontally suspended								
				SO	= standing version without heating attachment								
				SH	= standing version with heating attachment								12 - 13
					360	**= 360° perforated face in degrees**							
					XXX	= perforated face at own's option							14 - 16
						V	**= material air diffuser: steel, galvanised**						
						E	= stainless steel V2A (material no. 1.4301)						
						S	= stainless steel V4A (material no. 1.4571)						17
							0000	**= surface unpainted**					
							9010	= varnished in RAL 9010. gloss polished (gloss level 75-84%)					
							XXXX	= varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)					
							0NCS	= varnished in NCS colour					
							00DB	= varnished in DB colour					
							RALP	= varnished in RAL-Pearl colour					
							RALG	= varnished in RAL colour, gloss level different from standard					
							YYYY	= special surfaces					
							W320	= ground surface (stainless steel)					
							GGGG	= satin (stainless steel)					
							UNBE	= untreated (stainless steel)					18 - 21
								0	**= without honeycomb rectifier**				
								1	= with honeycomb rectifier				22
									0	**= without perforated plate**			
									2	= with perforated plate with 21% free cross-section			
									3	= with perforated plate with 33% free cross-section			
									4	= with perforated plate with 46% free cross-section			
									5	= with perforated plate with 58% free cross-section			23
										00	**= without connector**		
										ME	= with METU quick-release lock without securing cord		
										MS	= with METU quick-release lock with securing cord		24 - 25
											0	**= without wall fastening**	
											W	= with wall fastening	26

Product group	Model designation	Nominal size (mm)	Adjustment	Installation	Perforated face (degrees)	Diffuser material	Diffuser surface	Honeycomb rectifier	Fixed resistor	Connection	Fastening	
1	**LUWI**	**0200**	**SM**	**VH**	**360**	**V**	**0000**	**0**	**0**	**00**	**0**	**= Example**

Price list for model LUWIRO

emcoair model	Nominal size (mm)	Adjustment	Installation	Perforated face (°degrees)	Material [1]	Surface [2]	Surface [2]	Fixed resistor	Connection	Fastening [3]	Price €/unit	Additional charge for **RAL at own's choice, RALG or NCS**	Additional charge for **RAL-Pearl or DB varnish**	Additional charge for **honeycomb rectifier (1)**	Additional charge for **fixed resistor (2.3.4.5)**	Additional charge for **METU quick-release lock (ME) without securing cord** [4]
1LUWI	0200	SM	VH	360	V	0000	0	0	00	0	**374.-**	112.-	157.-	44.-	17.-	-
	0250										**441.-**	125.-	176.-	57.-	22.-	52.-
	0315										**508.-**	139.-	195.-	71.-	28.-	56.-
	0355										**576.-**	152.-	213.-	84.-	34.-	60.-
	0400										**643.-**	166.-	232.-	97.-	39.-	65.-
	0450										**710.-**	179.-	251.-	111.-	45.-	69.-
	0500										**777.-**	193.-	270.-	124.-	50.-	74.-
	0560										**844.-**	206.-	289.-	138.-	56.-	78.-
	0630										**912.-**	220.-	307.-	151.-	62.-	83.-
1LUWI	0250	ZS	VH	360	V	0000	0	0	00	0	**715.-**	125.-	176.-	57.-	22.-	52.-
	0315										**789.-**	139.-	195.-	71.-	28.-	56.-
	0355										**864.-**	152.-	213.-	84.-	34.-	60.-
	0400										**938.-**	166.-	232.-	97.-	39.-	65.-
	0450										**1011.-**	179.-	251.-	111.-	45.-	69.-
	0500										**1085.-**	193.-	270.-	124.-	50.-	74.-
	0560										**1159.-**	206.-	289.-	138.-	56.-	78.-
	0630										**1233.-**	220.-	307.-	151.-	62.-	83.-
1LUWI	0250	BZ	VH	360	V	0000	0	0	00	0	**786.-**	125.-	176.-	57.-	22.-	52.-
	0315										**853.-**	139.-	195.-	71.-	28.-	56.-
	0355										**921.-**	152.-	213.-	84.-	34.-	60.-
	0400										**988.-**	166.-	232.-	97.-	39.-	65.-
	0450										**1055.-**	179.-	251.-	111.-	45.-	69.-
	0500										**1122.-**	193.-	270.-	124.-	50.-	74.-
	0560										**1189.-**	206.-	289.-	138.-	56.-	78.-
	0630										**1257.-**	220.-	307.-	151.-	62.-	83.-
1LUWI	0250	TA	VH	360	V	0000	0	0	00	0	**757.-**	125.-	176.-	57.-	22.-	52.-
	0315										**824.-**	139.-	195.-	71.-	28.-	56.-
	0355										**892.-**	152.-	213.-	84.-	34.-	60.-
	0400										**959.-**	166.-	232.-	97.-	39.-	65.-
	0450										**1026.-**	179.-	251.-	111.-	45.-	69.-
	0500										**1093.-**	193.-	270.-	124.-	50.-	74.-
	0560										**1160.-**	206.-	289.-	138.-	56.-	78.-
	0630										**1228.-**	220.-	307.-	151.-	62.-	83.-
1LUWI	0250	EI	VH	360	V	0000	0	0	00	0	**826.-**	125.-	176.-	57.-	22.-	52.-
	0315										**893.-**	139.-	195.-	71.-	28.-	56.-
	0355										**961.-**	152.-	213.-	84.-	34.-	60.-
	0400										**1028.-**	166.-	232.-	97.-	39.-	65.-
	0450										**1095.-**	179.-	251.-	111.-	45.-	69.-
	0500										**1162.-**	193.-	270.-	124.-	50.-	74.-
	0560										**1229.-**	206.-	289.-	138.-	56.-	78.-
	0630										**1297.-**	220.-	307.-	151.-	62.-	83.-

LUWIRO DN 200 only in version „SM" (= separate, manual adjustment) available.

Version BK (adjustment with bowden cable (chain)) at the same price.

Version TB (thermost. adjustment with startpoint 20°C) at the same price.

Version E3 (electrical adjustment (servo motor), inside (230 V)) at the same price.

[1] **Price for stainless steel versions V4A on request.**

[2] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.

[3] **Additional charge for wall fastening (W): 28.- €/unit**

[4] **Additional charge for METU quick-release lock: 16.- €/unit**

emcoair turbulence chamber swirl diffuser model WKD380

WKD380 is a high induction swirl diffuser with a circular front plate, a turbulence chamber integrated in the plenum box and a steering nozzle. The turbulence chamber is made of high-grade slotted steel (powder-coated black). This diffuser is an excellent choice for heating and cooling applications in commercial and industrial ventilation. Jet dispersion can be adjusted manually or via actuator as needed to fit the actual load.
The adjustment mechanisms allow the WKD380 diffuser to operate with constant adjustment of the discharge direction (horizontal to vertical) and penetration depths to the thermal load and room height. Its high degree of flexibility makes this diffuser well suited for rooms with big heights. The integrated wideangle nozzles achieve large vertical penetration depths in heating operations.

Areas of application

- Commercial areas
- Offices
- Assembly rooms
- Computer rooms
- Exhibition halls
- Department stores
- Commercial and industrial rooms
- Clean rooms
- Volume flow from 700 m^3/h to 10.000 m^3/h at room heights of 3 to 20 m and temperature differences of –15 K to +30 K.

Product benefits

- Constant adjustment of discharge direction from horizontal to vertical.
- Constant modification of horizontal and vertical jet penetration depth by manipulation of the swirl intensity and induction.
- Highest possible vertical penetration depths through integrated wide-angle nozzle.
- Adjustable primary induction.
- Simple manual or motorised adjustment.
- Easily combined with temperature difference measurement for fully automated control of multiple diffusers.

Configuration

The WKD380 consists of a cylindrical turbulence chamber (1) with air control elements (2), a diffuser (3) and a manual or motor adjustable steering (wide-angle) nozzle (4).

part 1.0.0 ventilation components basics
part 1.1.1 swirl diffusers
part 1.1.1 ceiling air diffusers
part 1.1.2 linear diffusers
part 1.1.3 circular pipe diffusers
part 1.1.4 displacement flow diffusers
part 1.1.5 industrial diffusers WKD380

Method of operation
Tangential air is flowing through the slotted steel into the turbulence chamber (1). creating an intensive swirling motion.
The swirl intensity of the air (5) entering above the nozzle (4) is reduced by the nozzle's straightening characteristics.
The position of the nozzle effects the overall swirling of the air so that both horizontal and vertical jets of varying induction and penetration depth can be created.

Heating Operation (Nozzle Position 1)
Distinctive vertical jet with large penetration depth.

Heating Operation (Nozzle Position 2)
Vertical jet with superposed swirl.

Cooling Operation (Nozzle Position 3)
Horizontal jet with reduced swirling intensity and a relatively low penetration depth.

Cooling Operation (Nozzle Position 4)
Horizontal jet (also without ceiling effect) with a maximum horizontal penetration depth and high primary induction.

Aerodynamic data WKD380

Nominal size [-]	L_{WA} [dB(A)]	$\dot{V}_0$ [m³/h]	Δp [Pa]	Minimum spacing [m]	y [m]
DN 600/625	30 40 50	650 900 1200	14 27 50	~ 2 ~ 2 3	4.0 6.0 8.0
DN 800	40 50 60	1550 2400 3600	12 28 65	~2 3 8	6.5 10.0 12.0
DN 1000	45 55 65	2400 3600 5500	14 33 75	2 7 14	6.0 9.0 12.0

Specification: The minimum spacing for suspended installation is a height of 4.0 m so that velocity in occupied areas does not exceed 0.2 m/s. Penetration depth when heating y for ΔT= +10 K

Ranges of application WKD380

WKD380 round, side connection

Size	DN 600	DN 625	DN 800	DN 1000
Size ØA	600	623	800	1080
Size B	310	310	300	350
Size C	500	500	700	800
Size Ø D	353	353	498	598
Size E	50	50	60	60
Size F	7	12	15	15
Size G	15	15	15	5
Size H	460	460	610	710

WKD380 round, top connection

Size	DN 600	DN 625	DN 800	DN 1000
Size ØA	600	623	800	1080
Size C	500	500	700	800
Size Ø D	398	398	498	598
Size E	50	50	60	60
Size F	7	12	15	15
Size G	17	17	5	5
Size H	410	410	610	710

WKD380 square, side connection

Size	DN 600	DN 625
Size ☐ A	595	620

WKD380 square, side connection

Size	DN 600	DN 625
Size ☐ A	600	620

Version key for model WKD380

	Charac.
1 = emcoair	1
WKD0 = turbulence chamber swirl diffuser model WKD380	2 - 5
R = round geometry	
Q =square geometry	6
0600 = 600 mm nominal size	
0625 = 625 mm	
0800 = 800 mm (version R only)	
1000 = 1000 mm (version R only)	7 - 10
HZ = central manual adjustment	
EI = electrical adjustment (servo motor), inside	11 - 12
9010 = varnished in RAL 9010. gloss polished (gloss level 75-84%) (surface of the pipe)	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL- Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surfaces	
0000 = unpainted	13 - 16
0 = with impact resistance	
1 = without impact resistance	17
0000 = unpainted plenum box	
M905 = varnished in RAL 9005. mat (gloss level 20-34%)	
9010 = varnished in RAL 9010. gloss polished (gloss level 75-84%). Version R only.	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surfaces	18 - 21
S = side spigot position	
O = top spigot	22
0 = without throttle	23
0 = without insulation	
1 = with insulation inside (20 mm mineral wool)	
2 = with insulation outside (13 mm Armaflex)	
7 = with insulation outside (19 mm Armaflex)	
3 = with insulation inside (20 mm mineral wool) and outside (13 mm Armaflex)	
6 = with insulation inside (20 mm) and outside (19 mm Armaflex)	24

Product group (1=emcoair)	Model designation	Diffuser geometry	Nominal size (mm)	Adjustment	Surface diffuser	Impact resistance	Surface plenum box	Spigot position	Equipment	Insulation	
1	**WKD0**	**R**	**0600**	**HZ**	**9010**	**0**	**M905**	**S**	**0**	**0**	**= Example**

Price list for model WKD380

emcoair model	Diffuser geometry	Nominal size (mm)	Adjustment	Surface [1]	Impact resistance	Surface plenum box [1]	Spigot position [2]	Equipment	Insulation	Price €/unit	Additional charge for **impact resistance**	Additional charge for **RAL at own's choice, RALG or NCS**	Additional charge for **RAL-Pearl or DB varnish**
1WKD0	R	0600	HZ	9010	0	0000	S	0	0	**728.-**	84.-	34.-	67.-
		0625								**728.-**	84.-	34.-	67.-
		0800								**1176.-**	101.-	45.-	90.-
		1000								**1512.-**	134.-	56.-	112.-
1WKD0	R	0600	EI	9010	0	0000	S	0	0	**1131.-**	84.-	34.-	67.-
		0625								**1131.-**	84.-	34.-	67.-
		0800								**1579.-**	101.-	45.-	90.-
		1000								**1915.-**	134.-	56.-	112.-
1WKD0	Q	0600	HZ	9010	0	0000	S	0	0	**728.-**	84.-	34.-	67.-
		0625								**728.-**	84.-	34.-	67.-
1WKD0	Q	0600	EI	9010	0	0000	S	0	0	**1131.-**	84.-	34.-	67.-
		0625								**1131.-**	84.-	34.-	67.-

[1] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.

[2] **Prices also valid for top spigot.**

Other specifications possible: **Price on request !**

Additional charge for **insulation at/in plenum box on request !**

emcoair turbulence chamber swirl diffuser model WKD381

WKD381 is a high induction swirl diffuser with a square front plate, a turbulence chamber integrated in the plenum box and a steering nozzle. The turbulence chamber contains a ring-shaped eccentric air control cylinder of ABS with straightening segments. This diffuser is an excellent choice for heating and cooling applications in commercial and industrial ventilation projects. Jet dispersion can be adjusted manually or via actuator when needed to fit the actual load.

The adjustment mechanisms allow the WKD381 diffuser constant adjustment of the discharge direction (horizontal to vertical) and penetration depths to the thermal load and room height. Its high degree of flexibility makes this diffuser well suited for rooms with big heights. The integrated wideangle nozzles achieve large vertical penetration depths in heating operation.

Aeras of application

- Commercial areas
- Offices
- Assembly rooms
- Computer rooms
- Exhibition halls
- Department stores
- Commercial and industrial rooms
- Clean rooms

Product benefits

- Constant adjustment of discharge direction from horizontal to vertical.
- Constant modification of horizontal and vertical jet penetration depth by manipulation of the swirl intensity and induction.
- Highest possible vertical penetration depths through integrated wide-angle nozzle.
- Adjustable primary induction
- Simple manual or motorized adjustment.
- High volume flow at low sound power levels.
- Easily combined with temperature difference measurement for fully automated control of multiple diffusers.

Configuration

The WKD 381 diffuser consists of a cylindrical turbulence chamber (1) with air control elements (2), a diffuser (3) and a manual or motor adjustable steering (wide-angle) nozzle (4).

Method of operation:

Please refer to method of operation WKD380

Aerodynamic data WKD381

Nominal size [-]	L_{WA} [dB(A)]	$\dot{V}_0$ [m³/h]	Δp [Pa]	Minimum spacing [m]	x_{crit} [m]	y [m]
DN 300/1	35 40 45	160 200 250	60 100 150	~2 ~2 ~2	1.3 1.7 2.0	7.0 9.0 11.0
DN 500/1	30 35 40	240 300 400	17 30 50	~2 ~2 ~2	1.3 1.7 2.2	3.0 3.7 5.0
DN 600/1 DN 625/1	30 35 40	320 400 520	15 26 45	~2 ~2 2	1.1 1.4 1.8	2.8 3.6 4.7
DN 600/2 DN 625/2	30 35 40	500 650 850	15 25 45	2 3 5	1.7 2.3 3.0	4.5 5.5 7.5
DN 600/3 DN 625/3	30 35 40	800 1000 1200	20 30 45	4 6 8	1.6 2.0 2.4	7.5 9.0 11.0

Specification: The minimum spacing for an installation; height of 3.0 m so that velocity in occupied areas does not exceed 0.2 m/s.
Critical stream path for ΔT= –8 K; penetration depth when heating ΔT = +10K

Range of applications WKD381

Plenum box WKD381 with side spigot

WKD381. side spigot

Size	DN	300/1	500/1	600/1	625/1	600/2	625/2	600/3	625/3
Slot height	[mm]	100	100	100	100	200	200	300	300
Size □ A / Ø A	[mm]	300	500	595	620	595	620	595	620
Size B	[mm]	210	285	260	260	310	310	385	385
Size C	[mm]	300	400	400	400	500	500	600	600
Size Ø D	[mm]	148	198	248	248	353	353	398	398

Plenum box WKD381 with top spigot

WKD381. top spigot

Size	DN	300/1	500/1	600/1	625/1	600/2	625/2	600/3	625/3
Slot height	[mm]	100	100	100	100	200	200	300	300
Size □ A / Ø A	[mm]	300	500	595	620	595	620	595	620
Size C	[mm]	400	400	400	400	500	500	600	600
Size Ø D	[mm]	148	198	248	248	353	353	398	398

part 1.0.0 ventilation components basics
part 1.1.1 swirl diffusers
part 1.1.1 ceiling air diffusers
part 1.1.2 linear diffusers
part 1.1.3 circular pipe diffusers
part 1.1.4 displacement flow diffusers
part 1.1.5 industrial diffusers WKD381

Project: SLF Oberflächentechnik GmbH, Greven (Germany)

Version key for model WKD381

	Charac.
1 = emcoair	1
WKD1 = turbulence chamber swirl diffuser model WKD381 (slot height 100 mm)	
WKD2 = turbulence chamber swirl diffuser model WKD381 (slot height 200 mm)	
WKD3 = turbulence chamber swirl diffuser model WKD381 (slot height 300 mm)	2 - 5
Q = round geometry	
R =square geometry	6
0300 = 300 mm nominal size (version WKD1 only)	
0500 = 500 mm (version WKD1 only)	
0600 = 600 mm	
0625 = 625 mm	7 - 10
HZ = central manual adjustment	
EI = electrical adjustment (servo motor), inside	11 - 12
9010 = varnished in RAL 9010. gloss polished (gloss level 75-84%) (surface of the diffuser)	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surfaces	
E6C0 = anodised in natural colour (E6/C0)	
0000 = unpainted	13 - 16
0 = with impact resistance	
1 = without impact resistance	17
0000 = unpainted plenum box	
M905 = varnished in RAL 9005. mat (gloss level 20-34%)	
9010 = varnished in RAL 9010. gloss polished (gloss level 75-84%). Version R only.	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surfaces	18 - 21
S = side spigot position	
O = top spigot	22
0 = without throttle	23
0 = without insulation	
1 = with insulation inside (20 mm mineral wool)	
2 = with insulation outside (13 mm Armaflex)	
7 = with insulation outside (19 mm Armaflex)	
3 = with insulation inside (20 mm mineral wool) and outside (13 mm Armaflex)	
6 = with insulation inside (20 mm) and outside (19 mm Armaflex)	24

Product group (1=emcoair)	Model designation	Diffuser geometry	Nominal size (mm)	Adjustment	Surface diffuser	Impact resistance	Surface plenum box	Spigot position	Equipment	Insulation	
1	**WKD1**	**Q**	**0300**	**HZ**	**9010**	**0**	**M905**	**S**	**0**	**0**	**= Example**

Price list for model WKD381

emcoair model	Diffuser geometry [1]	Nominal size (mm)	Adjustment	Surface [2]	Impact resistance	Surface plenum box [3]	Spigot position [2]	Equipment	Insulation	Price €/unit	Additional charge for **impact resistance**	Additional charge for **RAL at own's choice, RALG or NCS (0NCS)**	Additional charge for **RAL-Pearl (RALP) or DB varnish (00DB)**
1WKD1	Q	0300	HZ	9010	0	0000	S	0	0	**437.-**	73.-	28.-	56.-
		0500								**526.-**	78.-	29.-	58.-
		0600								**594.-**	84.-	34.-	67.-
		0625								**594.-**	84.-	34.-	67.-
1WKD1	Q	0300	EI	9010	0	0000	S	0	0	**840.-**	73.-	28.-	56.-
		0500								**929.-**	78.-	29.-	58.-
		0600								**997.-**	84.-	34.-	67.-
		0625								**997.-**	84.-	34.-	67.-
1WKD2	Q	0600	HZ	9010	0	0000	S	0	0	**672.-**	84.-	34.-	67.-
		0625								**672.-**	84.-	34.-	67.-
1WKD2	Q	0600	EI	9010	0	0000	S	0	0	**1075.-**	84.-	34.-	67.-
		0625								**1075.-**	84.-	34.-	67.-
1WKD3	Q	0600	HZ	9010	0	0000	S	0	0	**751.-**	84.-	34.-	67.-
		0625								**751.-**	84.-	34.-	67.-
1WKD3	Q	0600	EI	9010	0	0000	S	0	0	**1154.-**	84.-	34.-	67.-
		0625								**1154.-**	84.-	34.-	67.-

[1] **Prices also valid for round versions !**

[2] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.

[3] **Prices also valid for top spigot.**

Other specifications possible: **Price on request !**

Additional charge for **insulation at/in plenum box on request !**

Wide angle nozzles

Wide-angle nozzles ensure exceedingly uniform air distribution within very high rooms. With adjustable wide-angle nozzles, the air throw (depth penetration) as well as the area coverage (effective area) can be adjusted to the situation in hand. This means that transmission heat consumption is significantly lower than with conventional air heating.
Thanks to the greater induction effect, low air temperature gradients and very high induction rates can be expected.
There is no heat build-up below the ceiling. The heat loss to the outside through the ceiling is also considerably lower.
Depending on the height of the building, the use of wide-angle nozzles leads to significant energy savings.
These advantages are enhanced by other advantages, for example lower running costs and flexible customising options.
The mode of operation of course guarantees that the comfort criteria in the occupied area are complied with at all times.

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emcoair WWD-S model
wide-angle nozzle
The products in the WWD series are rotating and swivelling wide-angle nozzles with high induction and adjustable flow direction.
These diffusers are ideal for installation in series or connected to a battery wherever high air volumes are the order of the day and operational reliability needs to be combined with good looks.

Technical description

- Diameters from DN 40 to 230 mm are available for delivery
- Made from natural aluminium or painted in RAL 9010 white
- Installation height between 2.8 and 30 m
- Flow volume ranges from 25 to 3140 m^3/h
- Version with servo motor supplied separately available for delivery
- Mounting with screws on the front directly in duct connection
- Joints for flexible pipes, circular duct and cover plates can be supplied separately
- WWD wide-angle nozzle with flexible connection (RF) and cover plate (C) (supplied as a set, cannot be ordered separately)
- Joints for flexible pipe (RF) or circular duct (RC)
- Cover plate, dual-disc flow rate adjustment (M0) and swirl insert (D0)

Accessories

C = Cover plate
TV = Thermostatic spring adjustment
RF = Joint for flexible pipes
RC = Joint for circular ducts
M0 = Flow rate adjustment
D0 = Swirl insert

More information:
See version key on page 221.

Dimensions

Size DN	Ø 1 [mm]	Ø 2 [mm]	Ø 3 [mm]	Ø 4 [mm]	Ø 5 [mm]	Number of holes	S [mm]	Ak [m²]
40	80	109	135	119	40	3	56	0.0013
50	102	132	166	148	50	3	78	0.0020
80	160	203	254	220	80	3	131	0.0050
110	200	246	285	266	110	3	144	0.0095
150	300	350	387	368	150	6	233	0.0177
200	400	448	485	472	200	6	308	0.0314
230	400	448	485	472	230	6	308	0.0415
23S*	400	448	485	472	230	6	308	0.0415

* Model without internal taper

Dimensions for emcoair WWD-S (standard version) and RF joint

(for mounting with flexible pipes)

Size DN	Ø D [mm]	Ø d [mm]	A [mm]	F [mm]	B [mm]	Ø G [mm]	I [mm]	L [mm]	C [mm]
40	119	40	56	22	78	109	113	40	40
50	148	50	78	30	98	132	138	40	60
80	220	80	131	57	158	203	210	100	60
110	266	110	144	60	195	246	251	100	60
150	368	150	233	103	298	350	358	170	60
200	472	200	308	141	398	448	462	170	60
230	472	230	308	141	398	448	462	170	60

Dimensions for emcoair WWD-S (standard version) with RC joint

(for mounting with circular pipes)

Size DN	Ø D [mm]	Ø d [mm]	Ø D1 [mm]	Ø D2 [mm]	H [mm]	Number of holes	Ø holes [mm]	Ø Duct min-max [mm]
40	119	40	109	129	150	3	4.2	160-450
50	148	50	138	158	150	3	4.2	200-500
80	220	80	210	230	200	3	5	315-630
110	266	110	251	282	300	3	5	315-800
150	368	150	358	378	300	6	5	500-800
200	472	200	460	480	350	6	5	500-1000
230	472	230	460	480	350	6	5	500-1000

emcoair WWD-S – Quick selection technical specifications (without flow rate adjustment or swirl insert)

Size DN	L_W [dB(A)]	$\dot{V}_0$ [m³/h]	Δp [Pa]	Air jet T [m] Vt = 0.25m/s	Ak [m²]
DN 40	< 20-35	25-95	20-276	8.5-20.1	0.001257
DN 50	< 20-36	40-150	20-281	11.7-24.4	0.001963
DN 80	< 20-41	110-380	24-276	18.3-31.3	0.005027
DN 110	< 20-46	205-720	23-277	20.7-33.5	0.009503
DN 150	< 20-47	380-1335	23-275	22.3-34.4	0.017671
DN 200	< 20-49	680-2375	23-276	25.0-37.0	0.031416
DN 230	< 20-54	695-3140	23-275	28.2-41.1	0.041548
DN 23S	30-67	895-3140	23-275	28.2-41.1	0.041548

emcoair WWD-S – Quick selection air volume flow (without flow rate adjustment or swirl insert)

emcoair WWD-L model wide-angle nozzle with extended nozzle (L)
WWD-L products differ from the standard version WWD in that they feature an extended nozzle instead of the internal taper. This increases airflow concentration. This solution enables the baffle to be installed inside the diffuser itself and makes it possible to design models with a larger output diameter housed in the same overall dimensions. As a result, the adjustable flow volume is much higher.

Technical description

- Diameters from DN 80 to 300 mm are available for delivery
- Made from natural aluminium or painted in RAL 9010 white
- Installation height between 2.8 and 30 m
- Flow volume ranges from 50 to 3200 m^3/h
- Available for delivery with servo motor supplied separately
- Mounting with screws on the front directly in duct connection
- Joints for flexible pipes, circular duct and cover plates can be supplied separately
- WWD wide-angle nozzle with flexible connection (RF) and cover plate (C) (supplied as a set, cannot be ordered separately)
- Connections for flexible pipe (RF) or circular duct (RC)
- Cover plate (C), dual-disc flow adjustment (M0) and swirl insert (D0)

Accessories

C = Cover plate
TV = Thermostatic spring adjustment
RF = Joint for flexible pipes
RC = Joint for circular ducts
M0 = Flow rate adjustment
D0 = Swirl insert

More information:
See version key on page 221.

Dimensions

Size DN	Ø N [mm]	Ø A [mm]	Ø B [mm]	Ø C [mm]	Ø D [mm]
80	80	160	203	220	254
110	100	200	246	266	285
150	150	300	350	368	387
200	200	400	448	472	485
230	230	400	448	472	485
250	250	400	448	472	485
300	300	400	448	472	485

Dimensions for emcoair WWD-L with extended nozzle (L) and RF joint

(for mounting with flexible pipes)

Size DN	Ø D [mm]	Ø d [mm]	A [mm]	F [mm]	B [mm]	Ø G [mm]	I [mm]	L [mm]	C [mm]
80	220	80	131	57	158	203	210	100	60
110	266	110	144	60	195	246	251	100	60
150	368	150	233	103	298	350	358	170	60
200	472	200	308	141	398	448	462	170	60
230*	472	230	308	141	398	448	462	170	60
250*	472	250	308	141	398	448	462	170	60
300*	472	300	308	141	398	448	462	170	60

* have the same accessory parts

Dimensions for emcoair WWD-L with extended nozzle (L) and RC joint

(for mounting with circular pipes)

Size DN	Ø D [mm]	Ø d [mm]	Ø D1 [mm]	Ø D2 [mm]	H [mm]	Number of holes	Ø Holes [mm]	Ø Duct min-max [mm]
80	220	80	210	230	200	3	5	315-630
110	266	110	251	282	300	3	5	315-800
150	368	150	358	378	300	6	5	500-800
200	472	200	460	480	350	6	5	500-1000
230*	472	230	460	480	350	6	5	500-1000
250*	472	250	460	480	350	6	5	500-1000
300*	472	300	460	480	350	6	5	500-1000

* have the same accessory parts

emcoair WWD-S/-L model wide-angle nozzle with motorised adjustment
WWD-S and WWD-L model wide angle nozzles are available for delivery with motorised adjustment.
The nozzles can be adjusted with either a constant control servo motor or an ON/OFF servo motor (24 V or 230 V).
In principle, versions with the servo motor on the inside or outside are available.
Versions with the servo motor on the outside require a special inspection option; this is made possible with a flange (see illustrations).

Servo motors for WWD-S and WWD-L model wide-angle nozzles

	ON / OFF		constant control	
Size DN	**24 Volt**	**230 Volt**	**24 Volt**	**230 Volt**
80*	CM24-L	CM230-L	CM24A-SRL	–
110*	NM24A	NM230A	NM24A-SR	NM230A-SR
150	NM24A	NM230A	NM24A-SR	NM230A-SR
200	NM24A	NM230A	NM24A-SR	NM230A-SR
230	NM24A	NM230A	NM24A-SR	NM230A-SR
250 (L model only)	NM24A	NM230A	NM24A-SR	NM230A-SR
300 (L model only)	NM24A	NM230A	NM24A-SR	NM230A-SR

* Motor must be located on the outside for these sizes

emcoair WWD-S model wide-angle nozzle with thermostatic adjustment
The wide-angle nozzles in the WWD series are available for delivery with thermostatic adjustment. The nozzles are adjusted with a thermostatic shape memory spring. The tilt of the nozzles is determined by the incoming air temperature. This enables the optimum throw conditions to be maintained constantly entirely without power, thereby maximising energy efficiency.

Technical description (deviating from WWD-S model)

- Diameters of DN 150. 200 and 230 mm are available for delivery
- Automatic adjustment of tilt between –30° and + 30°
- Flow volume ranges from 380 to 3140 m³/h

For more information, see WWD-S model and version key

Dimensions

Size DN	Ø N [mm]	H [mm]	Ø D [mm]
150	150	285	298
200	200	290	398
23S*	230	290	398

* Model without internal taper

Quick selection technical specifications (without flow rate adjustment or swirl insert)

Size DN	L_W [dB(A)]	$\dot{V}_0$ [m³/h]	Δp [Pa]	Air jet T [m] Vt = 0.25m/s	Ak [m²]
DN 150	< 20-47	380 - 1335	23 - 275	22.3 - 34.4	0.017671
DN 200	< 20-49	680 - 2375	25 - 37	25 - 37	0.031416
DN 230S	30-67	895 - 3140	28.2 - 41.1	28.2 - 41.1	0.041548

The ventilation data is identical to that for the WWD-S model; please refer to the diagrams.

Quick selection air volume flow (without flow rate adjustment or swirl insert)

Version key

	Charac.
1 = emcoair	1
WWDS = Standard wide-angle nozzle with cover plate	
WWDL = Wide-angle nozzle with extended nozzle and cover plate	2 - 5
040 = 40 mm nominal size DN (WWD-S model only)	
050 = 50 mm (WWD-S model only)	
080 = 80 mm	
110 = 110 mm	
150 = 150 mm	
200 = 200 mm	
230 = 230 mm	
23S = 230 S (WWD-S model only)	
250 = 250 mm (WWD-L model only)	
300 = 300 mm (WWD-L model only)	6 - 8
00 = without add-on parts (standard)	
M0 = with flow rate adjustment	
D0 = with swirl insert	
MD = with flow rate adjustment and swirl insert	9 - 10
A000 = Surface: Aluminium, untreated	
9010 = varnished in RAL 9010. gloss polished (gloss level 75-84%) (surface of the pipe)	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surfaces	11 - 14
00 = adjustment: no joint	
RF = with joint for flexible pipe duct	
RC = with joint for circular pipe duct	15 - 16
HZ = central manual adjustment	
V0 = preinstalled for an actuator	
BG = with Belimo CM24-L servo motor (ON/OFF) for DN80	
BH = with Belimo CM230-L servo motor (ON/OFF) for DN80	
BF = with Belimo CM24-SR-L servo motor (constant control) for DN80	
B6 = with Belimo NM24A servo motor (ON/OFF) for DN110 to 300	
B8 = with Belimo NM230A servo motor (ON/OFF) for DN110 to 300	
B9 = with Belimo NM24A-SR servo motor (for DN110 to 300)	
B5 = with Belimo NM230A-SR servo motor (for DN110 to 300)	
TV = with thermostatic spring adjustment (for DN 150. 200 and 23S only)	17 - 18
0 = without actuator (quote for version HZ or TV)	
A = external actuator (automatic with inspection cover)	
I = internal actuator (not for DN 80 and 110)	19

Product group (1=emcoair)	Model designation	Nominal size (mm)	Add-on parts	Surface	Connectors	Adjustment	Position of actuator	
1	**WWDS**	**040**	**00**	**A000**	**00**	**HZ**	**0**	**= Example**

Price list

emcoair model	Nominal size (mm)	Add-on parts	Surface [1]	Connectors	Adjustment	Position of actuator [2]	Price €/unit	**Flow rate adjustment** design code: M0)	**Swirl insert** (swirl insert code: D0)	**RAL or NCS paint finish** (finish code: see [1])	**Paint finish in pearl or DB** (finish code: see [1])	**Flexible pipes** (connector code: RF)	**Circular ducts** (connector code: RC)	**Preinstalled for motorised adjustment** (adjustment code: V0) [2]	**Thermostatic adjustment** (adjustment Code: TV)
1WWDS	040	00	A000	00	HZ	0	**101.-**	–	–	15.-	21.-	29.-	63.-	–	–
	050						**107.-**	–	–	16.-	22.-	30.-	64.-	–	–
	080						**120.-**	–	61.-	18.-	25.-	32.-	65.-	250.-	–
	110						**172.-**	89.-	102.-	26.-	36.-	50.-	83.-	250.-	–
	150						**223.-**	97.-	105.-	34.-	48.-	55.-	99.-	250.-	490.-
	200						**326.-**	112.-	140.-	49.-	69.-	73.-	135.-	250.-	490.-
	230						**346.-**	114.-	150.-	52.-	73.-	78.-	140.-	250.-	–
	23S						**253.-**	–		52.-	73.-	78.-	140.-	–	490.-
1WWDL	080	00	A000	00	HZ	0	**113.-**	–	61.-	18.-	25.-	32.-	65.-		–
	110						**153.-**	89.-	102.-	26.-	30.-	50.-	83.-		–
	150						**199.-**	97.-	105.-	34.-	48.-	55.-	99.-	250.-	–
	200						**276.-**	112.-	140.-	49.-	69.-	73.-	135.-	250.-	–
	230						**280.-**	114.-	150.-	52.-	73.-	78.-	140.-	250.-	–
	250						**290.-**	–		55.-	77.-	83.-	145.-	250.-	–
	300						**301.-**	–		65.-	91.-	88.-	150.-	250.-	–

Additional charges for adjustment with servo motor (Belimo)							**Model**	**€/unit**							
1WWDS oder **1WWDL**	080[3]				BF	A	**CM24A-SRL**	–	–	–	–	–	–	387.-	–
	080[3]				BG	A	**CM24-L**	–	–	–	–	–	–	266.-	–
	080[3]				BH	A	**CM230-L**	–	–	–	–	–	–	266.-	–
1WWDS oder **1WWDL**	110[3]	**All motors can be selected for these sizes.**			B5	A	**NM230A-SR**	–	–	–	–	–	–	540.-	–
	150				B5	I	**NM230A-SR**	–	–	–	–	–	–	540.-	–
	200				B6	A	**NM24A**	–	–	–	–	–	–	310.-	–
	230				B6	I	**NM24A**	–	–	–	–	–	–	310.-	–
	23S				B8	A	**NM230A**	–	–	–	–	–	–	320.-	–
	250				B8	I	**NM230A**	–	–	–	–	–	–	320.-	–
	300				B9	A	**NM24A-SR**	–	–	–	–	–	–	470.-	–
					B9	I	**NM24A-SR**	–	–	–	–	–	–	470.-	–

[1] **Note surfaces:**
When placing your order, please enter a 4-digit number e.g. **9010** (for RAL 9010) in the version key for the "Finish" code if the gloss level needs to be 75-84%. For a RAL shade with a different gloss level, please enter the code **RALG** and quote the exact colour designation with gloss level. For an NCS shade, please enter the code **0NCS** and quote the exact colour designation separately.

For a RAL pearl shade, please enter the code **RALP** and quote the exact colour designation separately.

For a DB shade, please enter the code **00DB** and quote the exact colour designation separately.

For other special paint finishes or coatings, please enter **YYYY** and quote the exact description/designation.

Prices for YYYY finishes can be supplied on request.

[2] **Note position actuator:**
Preinstallation is the same price for both internal and external motorised adjustment. If you select **A** (external) under the "Actuator position" code, you will need to order an individual inspection cover (flange). Price on request.

[3] **Note electric actuator:**
For sizes DN 80 and DN 110. the actuators are only available for delivery in the **A** position

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ventilation components
basics

part 1.1.1
swirl diffusers

part 1.1.1
ceiling air diffusers

part 1.1.2
linear diffusers

part 1.1.3
circular pipe diffusers

part 1.1.4
displacement flow diffusers

part 1.1.5
industrial diffusers

part 1.1.5
wide angle nozzles
WWD

Combination linear diffusers

Large-scale projects involving modern building services and engineering methods present different challenges to their older counterparts. Specific loads present in these buildings are discharged in various ways, using centralised, decentralised, water-based or air-only systems. At the same time, design engineers have to fulfil sophisticated architectural demands in both exterior and interior areas.

Designing and executing a multitude of large-scale projects has allowed emco to gain extensive experience in this area and acquire an impressive portfolio of solutions. Not only does the company employ this in its existing projects, it also uses it to research and develop new products and approaches. While it often makes sense to integrate products into the structure of the building or its fixtures and fittings, in other cases it may be a better option to combine supply and exhaust air control in a single product. Whatever the case, emco can offer the system you require for your project.

If you cannot find what you are looking for in our catalogue, please consult one of our expert field staff members for more information on how we can meet your specific project needs.

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emcoair combination linear diffusers

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Supply air (SUP)

Exhaust air (ETA)

emcoair KS combination linear diffuser
The emcoair KS is an adjustable combination linear diffuser for wall installation. The diffusers (supply and exhaust air) are combined in a front panel next to one another.
Swivelling silencers are integrated into the plenum box. All components can be accessed with ease via the front of the plenum box.
The equipment is connected using the rear connecting piece. Controllers for ensuring constant volume flow may be used as an option in this connecting piece. A range of dimensions and versions are available.

Areas of application

- Comfort areas with average room heights, for heating and cooling
- Variable air volume flow systems
- Offices, conference rooms, hotel rooms, etc.

Product benefits

- Low pressure losses
- Low sound power level
- Quick temperature and speed reduction along flow axis
- Good flow stability in heating and cooling applications
- Ideal for use in rooms with moveable partitions, as nothing needs to be installed in the suspended ceiling
- Required supply air volume flow easy to adjust at a later point
- Excellent transmission loss characteristics

part 1.0.0 ventilation components basics
part 1.1.1 swirl diffusers
part 1.1.1 ceiling air diffusers
part 1.1.2 linear diffusers
part 1.1.3 circular pipe diffusers
part 1.1.4 displacement flow diffusers
part 1.1.5 industrial diffusers
part 1.1.5 wide angle nozzles
part 1.1.7 combination linear diffusers model KS

Project: Axel Springer Publishing Company, Berlin (Germany)

Configuration

The KS consists of a galvanised sheet steel plenum box. The design of the silencers conforms to VDI 6022. The front panel itself is a multi-stream type featuring integrated SAL air control elements (eccentric cylinders). Its colour can be customised (RAL or NCS shades available). The air control elements are made from black plastic (ABS), but are also available as a white version if required. The front panel can be removed using a screw connection. Swivelling silencers enable quick and easy access to the connected duct system (e.g. in order to replace the controller for ensuring constant volume flow).

Key:

1. Supply air connecting piece
2. Exhaust air connecting piece
3. Silencers
4. Exhaust air eccentric cylinders
5. Supply air eccentric cylinders

Exhaust air (ETA) **Supply air (SUP)**

Air routes / air types key

Supply air (SUP) *Exhaust air (ETA)*

Method of operation

The supply air is blown into the room via air control rotors and is guided tangentially along the ceiling in a steady manner, according to the rotor setting, or is distributed throughout the room using a surging method. Nozzle cylinders in the front panel are used to guide the exhaust air, either using a connected duct system or by means of an overflow method with centralised exhaust air in the floor area.

The internal silencers reduce the transmission of system noise into the room, as well as cross-talk transmission through the duct system.
The silencers can be swivelled, which simplifies maintenance and cleaning work on the plenum box and connected duct system.
The connecting piece can be accessed easily, which means that controllers for ensuring constant volume flow can be used as an option for duct system balancing and limiting the amount of supply air supplied, and can be replaced as necessary.

Dimensions

emcoair models KS550-3 / KS750-3 / KS950-3 / KS1150-3

The following applies to all dimensional specifications: Protruding fastening parts, such as gusset plates and rounded head screws, are not taken into account in dimensions!

model KS – dimensions 3-slot versions

No.	Size / Model	550-3	750-3	950-3	1150-3	Unit
1	Depth (total)	370	370	370	370	mm
2	Height, front panel	170	170	170	170	mm
3	Width of front panel (total)	550	750	950	1150	mm
4	Height of plenum box (total)	150	150	150	150	mm
5	Width of plenum box	517	717	917	1117	mm
6	Length of supply air connecting piece / exhaust air connecting piece	50	50	50	50	mm
7	Supply air connecting piece / exhaust air connecting piece diameter	98	98	123	123	mm
8	Clearance between middle of supply air connecting piece/ middle of exhaust air connecting piece	354	554	754	954	mm
9	Depth of linear diffuser (approx.)	28	28	28	28	mm
10	Active slot length, supply air	900	1200	1500	1800	mm
11	Active slot length, exhaust air	600	900	1200	1500	mm

Version key for model KS

	Charac.
1 = emcoair	1
0KS = combination linear diffuser model KS	2 - 4
03 = 3 slot-rows	5 - 6
K = supply air / exhaust air combination	
Z = supply air	
A = exhaust air	7
0550 = 550 mm length	
0750 = 750 mm	
0950 = 950 mm	
1150 = 1150 mm	
XXXX = length in mm at own 's choice (min. 550 mm / max. 1150 mm)	8 - 11
9010 = varnished in RAL 9010, gloss polished (gloss level 75-84%) (surface of the front panel)	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surface	12 - 15
S = black (colour of air control element = eccentric cylinder)	
W = white	
G = grey	
Y = special colour	16
C = all DE (eccentric cylinder setting)	
Y = special adjustment	17
0 = without throttle	
1 = with throttle operated from the front	
3 = with air volume flow limiter (In case of an order please forward the nominal airflow rate)	18
4 = silencer class B1	
5 = silencer class A2	19
2 = 1 connecting piece	
1 = 2 connecting pieces	
X = number of connecting pieces at own's choice	20
098 = 98 mm diameter of connrcting piece	
123 = 123 mm diameter of connecting piece	
XXX = diameter of connecting piece at own's choice in mm	21 - 23
0 = without sealing lips	
1 = with sealing lips	24

Product group (1=emcoair)	Model designation	Number of slot-rows	Function	Length (mm)	Surface of the front panel	Colour of the eccentric cylinder	Air control adjustment	Equipment	Insulation	No. of connecting pieces	Diameter of the connecting pce.	Sealing lips	
1	0KS	3	K	0750	9010	S	C	0	4	2	098	0	= Example

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part 1.1.1 ceiling air diffusers
part 1.1.2 linear diffusers
part 1.1.3 circular pipe diffusers
part 1.1.4 displacement flow diffusers
part 1.1.5 industrial diffusers
part 1.1.5 wide angle nozzles
part 1.1.7 combination linear diffusers model KS

Project: Axel-Springer-Verlag, Berlin (Germany)

emcoair KSW 800-1

emcoair KSW 1000-2

Supply air (SUP)

Exhaust air (ETA)

emcoair KSW combination diffuser
The emcoair KSW is an adjustable combination diffuser (supply air / exhaust air) for installation in light-weight walls (S = 100 mm, e.g. dry walling).
Equipped with cross-talk absorption integrated into the plenum box and a cross-arm mounting bracket, the KSW can be supplied in a variety of lengths for installation between framework structures at the customer's site. The equipment is connected using the rear connecting pieces.
The partition can be installed in a number of ways at the factory to allow for different proportions of supply air / exhaust air

Material
The front panel, made from aluminium extruded profiles (standard surface anodised in a natural colour, RAL or NCS varnishing available on request), can be removed at any time using the screw connection.
The plenum box consists of galvanised sheet steel with an inner acoustic lining (conforming to VDI 6022.).

Method of operation
Supply air and exhaust air is supplied along the sound-absorbing element (conforming to VDI 6022) via the air connection of the rear connecting pieces. The linear diffuser feeds in air using eccentric cylinder as air control elements. An eccentric cylinder and the slot profile form a flow duct that guides the air in circuits. Where there are high flow speeds, a large amount of underpressure builds up near the surface of the rotor body, creating a stable flow and ensuring airflow diversion. Thanks to the eccentric cylinder settings, it is possible to adjust the airflow direction infinitely over a 180° range. Two rotor settings are available for each flow direction: 'reduced' (minimum) and 'not reduced' (maximum).

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part 1.1.7 combination linear diffusers model KSW

At the same time, significant induction takes place at the exit area of the slot, which means that a large amount of room air accompanies the air flowing out. This leads to a rapid reduction in temperature and speed. The individually adjustable cylinders measure 100 mm in length. With the default factory setting option, sequential cylinders are alternately set to D/E (45° in the direction of the ceiling).

Diagram without linear diffuser

Air routes / air types key

Supply air (SUP)

Exhaust air (ETA)

Installation

The emcoair KSW is installed in the following stages:

- Erection of framework structure
- Installation of dry walling panels at connecting side (incl. cutout for connecting pieces)
- Alignment and securing of plenum box on dry walling panels (e.g. using brackets supplied by the customer or by fixing it to the framework structure)
- Recommended clearance between front diffuser and ceiling: 300 mm
- Installation of dry walling panels on diffuser side
- Securing of front diffuser using screw connections on left and right (see diagram at bottom)

Key:

1. **Lightweight partition**
2. **Insulation**
3. **Installation opening at connecting piece side**
   model 500: Ø = 85 mm
   model 800: Ø = 85 mm
   model 1000: Ø = 105 mm
   model 1200: Ø = 105 mm
4. **Ø of air connecting piece**
5. **Suspended ceiling level**
6. **Diffuser screw connection**
7. **Sound absorption material**
8. **Ceiling**
9. **Recommended clearance**
   Diffuser / ceiling: 300 mm
10. **Installation opening at diffuser side**
    2 slots = 77 mm
    1 slot = 45 mm
11. **Support profile ZB**
    1-slot = 61 mm
    2-slot = 92 mm

Dimensions emcoair model KSW500-1 (not combination)

The following applies to all dimensional specifications: Protruding fastening parts, such as gusset plates and rounded head screws, are not taken into account in dimensions!

Dimensions emcoair model KSW800-1 / KSW1000-1 / KSW1200-1

emcoair model KSW – dimensions 1-slot versions

No.	Size / Model	500-1	800-1	1000-1	1200-1	Unit
1	Width of plenum box (total)	518	818	1018	1218	mm
2	Height of plenum box (total)	280	280	280	280	mm
3	Width of linear diffuser without end bracket	500	800	1000	1200	mm
4	Width of linear diffuser with 2 end brackets	530	830	1030	1230	mm
5	Height of linear diffuser (without support profile)	41	41	41	41	mm
6	Height of linear diffuser (total)	61	61	61	61	mm
7	Clearance between supply air connecting piece / exhaust air con.pce.	-	408	508	608	mm
8	Depth of plenum box	45	45	45	45	mm
9	Length of plenum box	50	50	50	50	mm
10	Clearance between top of plenum box / middle of connecting piece	53	53	63	63	mm
11	Supply air connecting piece / exhaust air connecting piece diameter	78	78	98	98	mm
12	Depth (total)	74	74	74	74	mm
13	Height of diffuser (total)	290	290	290	290	mm

Dimensions emcoair model KSW500-2 (not combination)

The following applies to all dimensional specifications: Protruding fastening parts, such as gusset plates and rounded head screws, are not taken into account in dimensions!

Dimensions emcoair model KSW800-2 / KSW1000-2 / KSW1200-2

emcoair model KSW – dimensions 2-slot versions

No.	Size / Model	500-2	800-2	1000-2	1200-2	Unit
1	Width of plenum box (total)	518	818	1018	1218	mm
2	Height of plenum box (total)	280	280	280	280	mm
3	Width of linear diffuser without end bracket	500	800	1000	1200	mm
4	Width of linear diffuser with 2 end brackets	530	830	1030	1230	mm
5	Height of linear diffuser (without support profile)	73	73	73	73	mm
6	Height of linear diffuser (total)	94	94	94	94	mm
7	Clearance between supply air connecting piece / exhaust air con.pce.	-	408	508	608	mm
8	Depth of plenum box	45	45	45	45	mm
9	Length of plenum box	50	50	50	50	mm
10	Clearance between top of plenum box / middle of connecting piece	53	53	63	63	mm
11	Supply air connecting piece / exhaust air connecting piece diameter	98	78	98	98	mm
12	Depth (total)	74	74	74	74	mm
13	Height of diffuser (total)	290	290	290	290	mm

Version key for model KSW

	Charac.
1 = emcoair	1
KSW = combination linear diffuser model KSW	2 - 4
01 = 1 slot-rows	
02 = 2 slot-rows	5 - 6
K = supply air / exhaust air combination (not available for 500 mm length)	
Z = supply air (to declare only at version 500 mm)	
A = exhaust air (to declare only at version 500 mm)	7
0500 = 500 mm length	
0800 = 800 mm	
1000 = 1000 mm	
1200 = 1200 mm	
XXXX = length in mm at own's choice (min. 500 mm / max. 1200 mm)	8 - 11
E6C0 = anodised in natural colour (E6/C0)	
9010 = varnished in RAL 9010, gloss polished (gloss level 75-84%)	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surface	
SELO = anodised in black colour (E6/C35)	12 - 15
S = black (colour of air control element = eccentric cylinder)	
W = white	
G = grey	
Y = special colour	16
C = all DE (eccentric cylinder setting)	
Y = special adjustment	17
0 = without throttle	
1 = with throttle operated from the front	18
4 = silencer class B1	
5 = silencer class A2	19
1 = 1 connecting piece	
2 = 2 connecting pieces	
X = number of connecting pieces at own's choice	20
098 = 98 mm diameter of connecting piece	
XXX = diameter of connecting piece at own's choice in mm	21 - 23
0 = without sealing lips	
1 = with sealing lips	24

Product group (1=emcoair)	Model designation	Number of slot-rows	Function	Length (mm)	Surface of the front panel	Colour of the ecc. cylinder	Air control adjustment	Equipment	Insulation	No. of connecting pieces	Diameter of the connecting pce.	Sealing lips	
1	KSW	1	K	0800	E6C0	S	C	0	4	1	098	0	= Example

Floor diffusers

When it comes to providing comfortable air conditioning for rooms that are subject to high thermal loads and affected by odours due to large numbers of people, conventional ventilation and air conditioning systems are not usually up to the job.

Even just looking at the issue from an energy perspective, directing the air from the top to the bottom is not advisable. In fact, it makes much more sense to direct the air from the bottom to the top.

Once it has been used, the heated air is carried upwards by the inevitable forces of convection. What is known as a layer zone forms underneath the ceiling and all the air that is similar with regard to temperature and levels of contamination can be extracted from here.

The mixed zone that forms above the floor contains a relatively pure combination of supply air and room air at a pleasant temperature.

The penetration depth is determined by the opposing differences in density and the outlet impulse.

Contents

emcoair floor diffusers model LBQ

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Supply air (SUP)

Exhaust air (ETA)

emcoair floor diffuser model LBQ

The emcoair LBQ is a linear displacement flow diffuser (supply air / exhaust air) for installation in floors and false floors.
It consists of a reinforced perforated floor plate surrounded by a panel frame and a plenum box with air connection on the side. On request, the surface of the floor plate can be supplied powder-coated to RAL or NCS specification, paint-finished in pearl RAL or with other special coatings.

Installation

For assembly the emcoair LBQ follow these steps:

- Screw in the feet
- Fit in the false floor
- Align the plenum box with the floor covering (e.g. by adjusting the feet)
- Install the air connection at the supply air connecting piece
- Lay the perforated floor plate

Key:

1. Foot with height adjusting facility
2. Plenum box
3. Connecting piece for air connection
4. Perforated floor plate
5. Surrounding panel frame
6. Air connection for supply air
7. Bare concrete floor
8. Cavity (false) floor
9. Floor covering
10. Insulation (to be provided by customer)
11. Lining (to be provided by customer)

Material

The housing and the floor plate are made from sendzimir galvanised sheet steel. The panel frame is made from aluminium.
The plenum box consists of coated steel plate (RAL 9005, black) and connecting pieces for the air connection. It may also feature a lip seal and/ or heat insulation on the outside (options).

Method of operation

The air is fed into the plenum box through the air connection of the side connecting pieces. The air passes through the integrated rectifier element and the perforated front plate and enters the room at low speed.

Example design: emcoair LBQ model 150-1000 mm

Aerodynamic data LBQ – quick selection

Model	Length [mm]	L_{WA} [dB(A)]	$\dot{V}$ [m³/h]	Δp [Pa]
LBQ 100	**500***	25 30 35	60 90 105	21 39 55
LBQ 100	**1000***	25 30 35	80 105 130	13 21 32
LBQ 100	**1500***	25 30 35	150 190 240	15 24 38
LBQ 100	**2000***	25 30 35	160 205 250	12 16 25
LBQ 150	**500***	25 30 35	72 90 110	13 21 32
LBQ 150	**1000***	25 30 35	90 110 135	12 19 29
LBQ 150	**1500***	25 30 35	165 205 250	12 19 29
LBQ 150	**2000***	25 30 35	140 190 240	10 18 27
LBQ 600	**600 1 connecting piece**	25 30 35	85 115 145	14 22 32
LBQ 600	**600 2 connecting pieces**	25 30 35	125 180 245	18 26 39

*Intermediate lengths are available in 100 mm increments

Configuration

1. Intermediate lengths are available in 100 mm increments)
2. Air distribution mechanism with nonwoven fabric
3. Perforated floor plate made from sendzimir galvanised sheet steel
4. Panel frame (aluminium)
5. Perforated metal plate throttle with supply air connecting piece

Dimensions of emcoair model LBQ 100 / 150 (1 connecting piece)

The following applies to all dimensional specifications: Protruding fastening parts, such as gusset plates and rounded head screws, are not taken into account in dimensions!

emcoair model LBQ 100 / 150 – dimensions for version with 1 connecting piece

No.	Size / Model	100-500	150-500	100-1000	150-1000	Unit
1	Overall length of plenum box	500	500	1000	1000	mm
2	Overall height of plenum box	160	160	160	160	mm
3	Overall width of plenum box	100	100	100	150	mm
4	Visible length	520	520	1020	1020	mm
5	Visible width	120	170	120	170	mm
6	Diameter of supply air connecting piece / exhaust air connecting piece	98	98	98	98	mm

Dimensions of emcoair model LBQ 100 / 150 (2 connecting pieces)

emcoair model LBQ 100 / 150 – dimensions for version with 2 connecting pieces

No.	Size / Model	100-1500	150-1500	100-2000	150-2000	Unit
1	Overall length of plenum box	1500	1500	2000	1000	mm
2	Overall height of plenum box	160	160	160	160	mm
3	Overall width of plenum box	100	150	100	150	mm
4	Visible length	1520	1520	2020	2020	mm
5	Visible width	120	170	120	170	mm
6	Diameter of supply air connecting piece / exhaust air connecting piece	98	98	98	98	mm
7	Connecting piece distance	498	498	666	666	mm

Dimensions of emcoair LBQ model 600

emcoair LBQ model 600 – dimensions for square versions

No.	Size Model	600 x 600	Unit
1	Overall length of plenum box	600	mm
2	Overall height of plenum box (without height adjusting facility)	160	mm
3	Overall width of plenum box	600	mm
4	Visible length	620	mm
5	Visible width	620	mm
6	Diameter of supply air connecting piece / exhaust air connecting piece	98	mm
7	Length of supply air connecting piece / exhaust air connecting piece	50	mm

emcoair LBQ models – sound power level and pressure loss depending on air volume flow

Width	100								150								600			
Length	500		1000		1500		2000		500		1000		1500		2000		600		600	
connecting pieces	1		1		2		2		1		1		2		2		1		2	
$\dot{V}$	L_{WA}	Δp	L_{WA}	Δp	L_{WA}	Δp	L_{WA}	Δp	L_{WA}	Δp	L_{WA}	Δp	L_{WA}	Δp	L_{WA}	Δp	L_{WA}	Δp	L_{WA}	Δp
m³/h	dB(A)	Pa	dB(A)	Pa	dB(A)	Pa	dB(A)	Pa	dB(A)	Pa	dB(A)	Pa	dB(A)	Pa	dB(A)	Pa	dB(A)	Pa	dB(A)	Pa
60	< 25	16																		
70	26	22							< 25	12										
80	29	30	< 25	13					27	16	< 25	10								
90	32	39	27	16					30	21	25	13					< 25	14		
100	34	49	29	19					33	26	28	16					27	17		
110	37	61	32	23					35	32	30	19					29	20		
120	39	74	34	27					37	38	32	23					31	23		
130	40	88	36	32					39	45	34	27					33	27	< 25	18
140	42	104	37	37			< 25	10	41	52	36	31					35	31	26	20
150	44	122	39	42	< 25	14	25	11	43	60	38	36					37	35	27	21
160	45	141	41	47	26	16	27	13	44	69	39	41	< 25	11	< 25	9	38	39	28	23
170			42	53	27	18	28	14	46	78	41	46	25	13	26	11	40	43	29	25
180			44	59	29	21	29	16			42	52	27	14	27	12	41	48	30	27
190			45	65	30	23	30	18			44	58	28	16	28	14	42	53	31	28
200					31	26	32	19			45	64	29	18	30	16	44	58	32	30
210					32	29	33	21					30	20	31	18	45	63	33	32
220					33	33	34	23					32	22	32	20	46	69	33	34
230					34	36	35	25					33	24	33	22			34	36
240					35	39	36	27					34	26	34	24			35	38
250					36	43	36	29					35	29	35	26			35	40
260					37	47	37	31					36	31	36	29			36	41
270					38	51	38	33					37	33	37	32			37	43
280					39	56	39	36					38	36	38	34			37	45
290					40	60	40	38					39	39	39	37			38	47
300					41	65	40	40					39	42	39	41			39	49

emcoair LBQ models – extent of transmission loss (according to DIN EN ISO 7235) in octave spectrum

Octave frequency band f_{Okt} [Hz]			125	250	500	1000	2000	4000	8000
LBQ 100	Extent of transmission loss	D_t [dB]	18	11	6	8	8	6	8
LBQ 150	Extent of transmission loss	D_t [dB]	18	11	6	8	8	6	8
LBQ 600	Extent of transmission loss	D_t [dB]	18	11	6	3	3	3	5

emcoair LBQ models – relative spectra DL_{W_Okt} [dB]

Model	Length	L_{WA}	Octave frequency band f_{Okt} [Hz]						
-	mm	[dB(A)]	125	250	500	1000	2000	4000	8000
LBQ 100	500	30	3	-2	-2	-12	-14	-11	-5
		35	2	-2	0	-8	-10	-12	-11
		40	-1	-3	-1	-7	-9	-13	-16
LBQ 100	1000	30	3	-1	-1	-9	-14	-12	-6
		35	2	-1	0	-6	-11	-13	-12
		40	-1	-2	-1	-5	-10	-15	-17
LBQ 100	1500	30	3	-1	-1	-10	-15	-14	-6
		35	2	-1	0	-7	-12	-14	-11
		40	0	-1	0	-6	-11	-15	-15
LBQ 100	2000	30	3	-1	-1	-9	-15	-13	-6
		35	1	-1	0	-7	-12	-14	-10
		40	-1	-2	0	-6	-10	-15	-15
LBQ 150	500	30	3	-2	0	-10	-13	-12	-8
		35	1	-2	0	-8	-10	-12	-12
		40	-1	-4	-1	-6	-7	-13	-17
LBQ 150	1000	30	2	-1	-1	-8	-13	-13	-9
		35	0	-1	-1	-6	-11	-14	-14
		40	-1	-2	-1	-5	-9	-15	-18
LBQ 150	1500	30	3	0	0	-8	-13	-13	-8
		35	1	-1	-1	-7	-12	-15	-12
		40	0	-1	0	-5	-10	-15	-17
LBQ 150	2000	30	3	-1	0	-8	-14	-13	-6
		35	1	-2	0	-7	-12	-14	-12
		40	-1	-2	0	-6	-10	-15	-15
LBQ 600	600 1 Stutzen	30	0	2	-1	-9	-14	-13	-7
		35	-2	1	0	-7	-13	-16	-13
		40	-4	0	0	-6	-12	-18	-18
LBQ 600	600 2 Stutzen	30	-1	1	-2	-10	-15	-14	-7
		35	-2	1	0	-7	-13	-15	-11
		40	-4	0	0	-7	-13	-18	-16

Calculation of relative spectrum: $L_{W_Okt} = L_{WA} + \Delta L_{_Okt}$ [dB]

Example application – relative spectra DL_{W_Okt} [dB]

emcoair model: ***LBQ 150***
Length: ***1000 mm***
Sound power level L_{WA}: ***35 dB(A)***

	Octave frequency band f_{Okt} [Hz]						
Model	125	250	500	1000	2000	4000	8000
L_{WA} in db(A)	35	35	35	35	35	35	35
$\Delta L_{W_}$Oct in dB	0	-1	-1	-6	-11	-14	-14
$L_{W_}$Oct in dB	35	34	34	29	24	21	21

emcoair LBQ models 100 and 150 mm wide – Load values

The maximum recommended load for the front plate depends on the force applied and distribution on the basis of the area under load. The table below shows the expected deflection of the front plate based on the load applied to the area. To avoid permanent deformation of the front plate, deflection must not exceed f=3.0 mm. (see red table values).

Load table

Load		Deflection **f** over load F					
Compression force	Weigth	LBQ B = 100 mm			LBQ B = 150 mm / B=600 mm		
F	m	Stamp 1	Stamp 2	Stamp 3	Stamp 1	Stamp 2	Stamp 3
N	kg	Point load D = 20 mm	Area load 55 x 55 mm	Area load Shoe	Point load D = 20 mm	Area load 55 x 55 mm	Area load 200 x 40 Shoe
200	20	0.7	0.5	0.4	1.0	0.7	0.5
400	41	1.1	0.8	0.7	1.5	1.1	0.9
600	61	1.5	1.0	0.9	2.0	1.5	1.2
800	82	1.8	1.2	1.1	2.5	1.8	1.5
1000	102	2.1	1.4	1.3	2.9	2.2	1.8
1200	122	2.4	1.6	1.5	3.3	2.5	2.1
1400	143	2.7	1.8	1.6	3.6	2.8	2.3
1600	163	3.0	2.0	1.8	4.0	3.1	2.6
1800	183	3.2	2.1	1.9	4.3	3.3	2.8
2000	204	3.5	2.3	2.0	4.6	3.6	3.1

Note: Values for LBQ 600 x 600 mm on request.

Types of load

Area load:
F_v corresponds to the evenly distributed load per m² with the resulting deflection **f**.

Point load:
F_p corresponds to the point load on a bearing surface measuring 200 x 200 mm with the resulting deflection **f1**.
f2 corresponds to the deflection value in mm given a load of 1.5 kN on 200 x 200 mm.

emcoair LBQ models 150 x 1500 mm – flow profiles for near-wall installation at 4 K

The following flow patterns illustrate an example characteristic for adjusting room air flow based on air speed, temperature and supply air risk for the installation versions:

- near-wall installation (p. 258)
- free installation in a room (p. 259)

A detailed technical dimensioning tool based on thermal comfort is available on the Internet at www.emco-klima.com

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part 1.1.8 floor diffusers model LBQ

emcoair LBQ model 150 x 1500 mm – flow profiles for installation in the middle of a room at 4 K

The example is valid for LBQ 150

Air volume flow $\dot{V}$:	150 m³/h
Temperature difference Δt_u:	−4K

Version key

	Charac.
1 = emcoair	1
LBQ = floor diffuser model LBQ	2 - 4
0100 = 100 mm width	
0150 = 150 mm	
0600 = 600 mm (For length 600 mm only)	5 - 8
0500 = 500 mm length	
0600 = 600 mm	
1000 = 1000 mm	
2000 = 2000 mm	9 - 12
Z = hinged frame as Z profile	
L = hinged frame as L profile	13
V = diffuser material: steel, galvanised	14
7012 = varnished in RAL 7012	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = lackiert in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surfaces	
0000 = unpainted	15 - 18
AK = with plenum box	
ST = Without plenum box	19 - 20
V = plenum box material: steel, galvanised	
0 = not applicable	21
1 = with 1 connecting piece (up to 1499 mm length standard)	
2 = with 2 connecting pieces (at and above 1500 mm length standard)	
X = Number of connecting pieces deviating from standard	
E = not applicable	22
0 = without throttle	
1 = with throttle	
E = not applicable	23
1 = with height adjustment	
0 = without height adjustment	
E = not applicable	24
1 = individual item	
2 = start of row	
3 = middle of row	
4 = end of row (not for version 600 mm)	25

Unternehmenssparte	Artikel	Width (mm)	Length (mm)	Hinged frame profile	Diffuser material	Diffuser surface	Plenum box	Plenum box material	Number of connecting pieces	Equipment	Height adjustment	Arrangement	
1	LBQ	0100	0500	Z	V	7012	AK	V	1	E	E	1	= Example

Prices on request.

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ventilation components
basics

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swirl diffusers

part 1.1.1
ceiling air diffusers

part 1.1.2
linear diffusers

part 1.1.3
circular pipe diffusers

part 1.1.4
displacement flow diffusers

part 1.1.5
industrial diffusers

part 1.1.5
wide angle nozzles

part 1.1.7
combination linear diffusers

part 1.1.8
floor diffusers
model LBQ

Grids

emcoair grids are used in all applications of classic ventilation and heating technology in which discharge openings in the fl oor, wall and ceiling should be covered in an aesthetically please yet functional manner. emco's entire range of grids is available in a variety of colours to best adapt to the interior and in most cases, they are also available as linear grids. Our grids are highly valued and have been used for years in other sectors, such as the furniture industry, because of their versatility and high quality.
One more reason why emco leaves nothing to chance, not even in the production of basic standard products.

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Model G326

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Opening

Within the field of climate control, air conditioning is becoming increasingly important.

Before now, creating a comfortable space was all that mattered, which meant implementing draft free air feeds in a way that took spatial, thermal and velocity-related considerations into account. Today, however, we are given the extra challenge of ensuring these requirements are met from an energy-saving perspective.
A key factor in achieving this is to not only look at the overall design concept for a system, but also to select the right fan grids, make the right calculations for them and ensure they meet the right requirements.
The details of the versions on the pages that follow are intended to provide the user of these technical documents with information about the key types of airflows and the criteria for them, as well as the characteristics they demonstrate.

They are also designed to help the user determine the right dimensions and choose the products that best meet the needs of the application, with the aid of selection diagrams. Each of the individual diagrams is accompanied by examples that enable users to get to grips with products quickly and easily.

However, we are very happy to answer any questions you might have.
We would also be delighted to receive any suggestions for improvements or other information.

The selection diagrams reflect the characteristics of airflows that are able to disperse through rooms unhindered after exiting a fan grid.
The flow characteristics of airflows that enter rooms with limited space are affected by:

- The shape of the room
- Where the supply air openings are situated, how many there are and their shape
- The difference in temperature between the supply air and the air in the room
- Fixtures in the room that hinder the airflow
- Heat sources that emit their own airflows (radiators, fans, etc.) To ensure you achieve reliable results when using the diagrams in this document, we recommend a supply air volume flow that produces a basic air change rate of Lw > 3 [1 / h].

Additionally, the ratio of room height to room depth (room depth = main flow direction of air introduced into room) must not exceed l/h < 4 to 4.5

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Aerodynamic data grids A_{eff} [m²] or linear grids [m²/m]

Dimensions H x L [mm]	G311 [m²]	GB 311 [m²/m]	G326 [m²]	GB 326 [m²/m]	G328 [m²]	GB 328 [m²/m]	G329 [m²]	G341* [m²]		GB 341* [m²/m]	
Slat spacing								8 mm	12 mm	8 mm	12 mm
75 x 225	–	–	0.004	0.019	0.004	0.019	–	–	–	–	–
75 x 325	–	–	0.006	–	0.006	–	–	–	–	–	–
75 x 425	–	–	0.008	–	0.008	–	–	–	–	–	–
75 x 525	–	–	0.010	–	0.010	–	–	–	–	–	–
75 x 625	–	–	0.012	–	0.012	–	–	–	–	–	–
75 x 825	–	–	0.016	–	0.016	–	–	–	–	–	–
75 x 1025	–	–	0.020	–	0.020	–	–	–	–	–	–
75 x 1225	–	–	0.024	–	0.024	–	–	–	–	–	–
125 x 225	0.016	0.075	0.012	0.045	0.012	0.045	0.009	–	–	0.041	0.048
125 x 325	0.024	–	0.014	–	0.014	–	0.013	0.012	0.014	–	–
125 x 425	0.032	–	0.018	–	0.018	–	0.018	0.016	0.019	–	–
125 x 525	0.040	–	0.023	–	0.023	–	0.022	0.020	0.024	–	–
125 x 625	0.048	–	0.028	–	0.028	–	0.026	0.024	0.029	–	–
125 x 825	0.064	–	0.037	–	0.037	–	0.035	0.033	0.039	–	–
125 x 1025	0.080	–	0.047	–	0.047	–	0.043	0.041	0.048	–	–
125 x 1225	0.096	–	0.056	–	0.056	–	0.052	0.050	0.059	–	–
225 x 325	0.046	0.150	0.030	0.099	0.030	0.099	0.030	0.026	0.030	0.089	0.105
225 x 425	0.062	–	0.041	–	0.041	–	0.039	0.036	0.041	–	–
225 x 525	0.077	–	0.051	–	0.051	–	0.049	0.045	0.052	–	–
225 x 625	0.093	–	0.062	–	0.062	–	0.059	0.054	0.063	–	–
225 x 825	0.124	–	0.083	–	0.083	–	0.079	0.073	0.085	–	–
225 x 1025	0.155	–	0.104	–	0.104	–	0.097	0.092	0.107	–	–
225 x 1225	0.186	–	0.125	–	0.125	–	0.117	0.110	0.128	–	–
325 x 425	0.092	0.225	0.063	0.154	0.063	0.154	0.061	0.054	0.063	–	–
325 x 525	0.115	–	0.079	–	0.079	–	0.077	0.069	0.079	–	–
325 x 625	0.138	–	0.096	–	0.096	–	0.092	0.083	0.097	–	–
325 x 825	0.184	–	0.128	–	0.128	–	0.123	0.113	0.130	–	–
325 x 1025	0.230	–	0.161	–	0.161	–	0.151	0.142	0.165	–	–
325 x 1225	0.276	–	0.193	–	0.193	–	0.181	0.171	0.198	–	–

*Values valid for models G345 and GB 345

Room airflow / basics / Method of operation

Picture 1
The picture shows the flow pattern of an isothermal open jet (i.e. airflow temperature and room air temperature are at the same level).
In the core flow (1; primary air) with length x_0, the open jet retains its original velocity. At the interface between the flowing and static air, air type 2 (secondary air) is also led out of the room as a result of friction. Swirling in the zone where the air types mix (3) causes the velocity at which the airflow exits the grid (v_{eff}) to fall to velocity v_{max}. Here, the total volume flow in the airflow ($\dot{V}_x$) is made up of the secondary and primary air.

Picture 1

Picture 2
If a ventilation grid is integrated into a side wall immediately beneath the ceiling, then the air flows towards the ceiling. There is less of a drop in velocity in the ceiling airflow than in the open jet, which creates a longer airflow path x (trajectory length).
$y_{0.2}$ is the distance from the airflow axis (open jet) or ceiling (ceiling airflow) at which the velocity v ≈ 0.2 m / s.

Picture 2

Picture 3
If a ventilation grid integrated into a side wall is more than 0.8 m away from the ceiling, the air that escapes will flow towards the ceiling after a certain distance (Coanda effect).
This also creates a longer airflow path x (trajectory length).

Picture 3

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Room airflow / basics / Method of operation

Picture 4
If the ventilation grid diverts an airflow at an angle of δ > 45°the air will flow towards the wall where the grid is installed.
The properties of the airflow may also be transferred to the wall and floor in the case of ventilation grids installed in the same way.

Picture 4

Picture 5
The airflow is affected by not only structural and spatial factors, but also thermal buoyant and output forces. The picture shows a diagram of the direction in which a non-isothermal open jet (i.e. airflow temperature and room air temperature are not at the same level) tends to flow. (See also diagrams “Vertical airflow diversion y (m) due to temperature differences” and “Descent of the ceiling airflows during the cooling operation”).

Picture 5

Picture 6
If two ceiling airflows meet, the max. vertical airflow velocity equals $v_{v\,max}$ after the airflow path x + y = e.

Picture 6

Standard attachment
Flow rate damper M
with opposed blade actions,
adjustable from front

Standard attachment
Control damper L
with vertical or horizontal blades,
individually adjustable

Rating:

Airflow spread and division

An airflow spread or airflow division can be obtained by means of the adjustment of the front slats of a grid. In this process the airflow path x, the velocity v_{xmax} in the centre of the airflow and the pressure drop Δp_t is altered depending on the slat angle of incidence β.

Airflow spread

Constantly diverging slats from interior outwards.

Grid aperture angle α	45°	90°
Airfl ow aperture angle γ	40°	70°

Airflow division

Half of the slats respectively with the same positive or negative angle of incidence β. The airflow is divided into two partial airflows.

All the slats with the same angle of incidence β

The angle of deflection δ approximately equates to the slat of incidence β (δ ≈ β). The air outgoing speed v_β is greater during the airflow guidance than v_{eff}.

β	0°	15°	30°	45°
K	1.0	1.04	1.15	1.41

$v_\beta = K \cdot x \cdot v_{eff}$

$v_{eff} = \frac{\dot{V}_0}{A_{eff}}$

emcoair supply and exhaust air grid model G311
with adjustable aluminium blades in a natural anodized finish (E6C0). Horizontal, individually adjustable front blades. Standard attachments in galvanized material with black baked-finish.
Attached to the subframe with concealed revolving interlock device or recessed screws in the frame.

emcoair supply and exhaust linear air grid model G311
emcoair linear grids are available in installation-friendly normed sections in the heights 125, 225 and 325 mm. The intermediate sections ("M") have a fixed length of 1220 mm and the two end sections ("E") are adjusted to the overall length of the linear grid.

The length of the end sections vary between 500 mm and 1220 mm so that the linear grid could be made up of two end sections.
Standard and special attachments (as per part no.) such as flow rate damper, flap damper, control damper, normal or angled hit-and-miss damper: see cap. emcoair grids standard- and special attachments.

Supply and exhaust air grid emcoair G311

Supply and exhaust linear air grid emcoair G311

Installation dimensions with subframe:
H/W = cutout size
Installation dimensions without subframe:
H/W – 8 mm = cutout size

Version key for model G311

											Charac.
1	**= emcoair**										1
	G311	**= G311 supply- and exhaust grid**									2 - 5
		0125	**= 125 mm height**								
		0225	= 225 mm								
		0325	= 325 mm								
		XXXX	= height in mm at own's choice								6 - 9
			00225	**= 225 mm width**							
			00325	= 325 mm							
			00425	= 425 mm							
			00525	= 525 mm							
			00625	= 625 mm							
			00825	= 825 mm							
			01025	= 1025 mm							
			01225	= 1225 mm							
			XXXXX	= width in mm at own's choice							10 - 14
				E6C0	**= surface anodised in natural colour (E6/C0)**						
				9010	= varnished in RAL 9010, gloss polished (gloss level 75-84%) (surface of the front panel)						
				XXXX	= varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)						
				0NCS	= varnished in NCS colour						
				00DB	= varnished in DB colour						
				RALP	= varnished in RAL-Pearl colour						
				RALG	= varnished in RAL colour, gloss level different from standard						
				YYYY	= special surface						15 - 18
					00	**= grid only**					
					L0	= with control damper					
					M0	= with flow rate damper					
					LM	= with control and flow rate damper					19 - 20
						B	**= with countersunk screw holes in edging**				
						D	= with installation frame with concealed twist locks				
						0	= without screw fastening				21
							00	**= 20 mm blade spacing**			22 - 23
								1	**= individual item**		
								5	= row arrangement		
								2	= start of row		
								3	= middle of row		
								4	= end of row		24
									0	**= without installation frame**	
									1	= with installation frame	25

Product group (1=emcoair)	Model designation	Height (mm)	Width (mm)	Surface	Add-on parts	Mounting type	Blade spacing (mm)	Arrangement	Accessories	
1	G311	0125	00225	E6C0	00	B	00	1	0	= Example

Price list for model G311

emcoair model	Height (mm)	Width (mm)	Surface [1]	Add-on parts	Mounting type	Blade spacing (mm)	Arrangement	Accessories	Price €/unit	Additional charge for Add-on part **control damper (LO)**	Additional charge for Add-on part **flow rate damper (MO)**	Additional charge for Add-on part **normal hit-and-miss dam. (SE)**	Additional charge for **installation frame (I)**
1G311	0125	00225	E6C0	00	B	00	1	0	**21.-**	7.-	13.-	15.-	8.-
		00325							**23.-**	12.-	16.-	16.-	8.-
		00425							**27.-**	15.-	19.-	17.-	9.-
		00525							**31.-**	20.-	23.-	17.-	9.-
		00625							**32.-**	22.-	26.-	19.-	10.-
		00825							**38.-**	28.-	32.-	32.-	10.-
		01025							**46.-**	33.-	41.-	35.-	11.-
		01225							**49.-**	40.-	48.-	39.-	12.-
1G311	0225	00325							**32.-**	12.-	19.-	19.-	9.-
		00425							**37.-**	18.-	22.-	19.-	9.-
		00525							**43.-**	20.-	27.-	22.-	10.-
		00625							**46.-**	23.-	31.-	25.-	10.-
		00825							**52.-**	30.-	38.-	36.-	11.-
		01025							**63.-**	38.-	47.-	43.-	11.-
		01225							**71.-**	46.-	53.-	48.-	15.-
1G311	0325	00325							**36.-**	15.-	22.-	21.-	9.-
		00425							**44.-**	18.-	27.-	24.-	10.-
		00525							**52.-**	23.-	31.-	26.-	10.-
		00625							**59.-**	27.-	34.-	29.-	10.-
		00825							**67.-**	34.-	42.-	41.-	11.-
		01025							**82.-**	43.-	51.-	48.-	12.-
		01225							**91.-**	51.-	60.-	53.-	15.-

Linear grids*									**Price per run. m**				
1G311	0125	XXXXX	E6C0	00	B	00	5	0	**49.-**	40.-	48.-	39.-	12.-
1G311	0225	XXXXX	E6C0	00	B	00	5	0	**71.-**	46.-	53.-	48.-	15.-
1G311	0325	XXXXX	E6C0	00	B	00	5	0	**91.-**	51.-	60.-	53.-	15.-

[1] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.
Pricing information for other surfaces available on request!

*** Widths more than 1225 mm will cleared as linear grid.**

emcoair supply and exhaust air grid model G326
Made of aluminum with rigid longitudinal blades for floor installation. Standard attachments in galvanized material with black baked-finish.

emcoair supply and exhaust linear air grid model G326
emco linear grids are available in installation-friendly normed sections in the heights 75, 125, 225 and 325 mm. The intermediate sections ("M") have a fixed length of 2020 mm and the two end sections ("E") are adjusted to the overall length of the linear grid.

Standard and special attachments such as normal or angled hit-and-miss damper: see cap. emcoair grids standard- and special attachments.

Subframe for floor installation
made of aluminum (AlMgSi 0.5),< dimensions 28 x 25 x 3 mm, unpainted.

Version key for model G326

											Charac.
1	**= emcoair**										1
	G326	**= G326 supply- and exhaust grid for floor installation**									2 - 5
		0075	**= 75 mm height**								
		0125	= 125 mm								
		0225	= 225 mm								
		0325	= 325 mm								
		XXXX	= height in mm at own's choice								6 - 9
			00225	**= 225 mm width**							
			00325	= 325 mm							
			00425	= 425 mm							
			00525	= 525 mm mm							
			00625	= 625 mm							
			00825	= 825 mm							
			01025	= 1025 mm							
			01225	= 1225 mm							
			XXXXX	= width in mm at own's choice							10 - 14
				E6C0	**= surface anodised in natural colour (E6/C0)**						
				9010	= varnished in RAL 9010, gloss polished (gloss level 75-84%) (surface of the front panel)						
				XXXX	= varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)						
				0NCS	= varnished in NCS colour						
				00DB	= varnished in DB colour						
				RALP	= varnished in RAL-Pearl colour						
				RALG	= varnished in RAL colour, gloss level different from standard						
				YYYY	= special surface						15 - 18
					00	**= grid only**					
					L0	= with control damper					
					M0	= with flow rate damper					
					LM	= with control and flow rate damper					19 - 20
						B	**= with countersunk screw holes in edging**				
						0	= without screw fastening				21
							00	**= 14 mm blade spacing (factory-made fix)**			22 - 23
								1	**= individual item**		
								5	= row arrangement		
								2	= start of row		
								3	= middle of row		
								4	= end of row		24
									0	**= without installation frame**	
									1	= with installation frame	25

Product group (1=emcoair)	Model designation	Height (mm)	Width (mm)	Surface	Add-on parts	Mounting type	Blade spacing (mm)	Arrangement	Accessories	
1	**G326**	**0075**	**00225**	**E6C0**	**00**	**B**	**00**	**1**	**0**	**= Example**

Price list for model G326

emcoair model	Height (mm)	Width (mm)	Surface [1]	Add-on parts	Mounting type	Blade spacing (mm)	Arrangement	Accessories	Price €/unit	Additional charge for Add-on part **control damper (LO)**	Additional charge for Add-on part **flow rate damper (MO)**	Additional charge for Add-on part **normal hit-and-miss dam. (SE)**	Additional charge for **installation frame (I)**
1G326	0075	00225	E6C0	00	B	00	1	0	**37.-**	7.-	13.-	13.-	10.-
		00325							**44.-**	12.-	16.-	13.-	15.-
		00425							**50.-**	15.-	19.-	16.-	19.-
		00525							**57.-**	20.-	23.-	16.-	24.-
		00625							**64.-**	22.-	26.-	17.-	28.-
		00825							**79.-**	28.-	32.-	29.-	37.-
		01025							**92.-**	33.-	41.-	33.-	46.-
		01225							**107.-**	40.-	48.-	36.-	55.-
1G326	0125	00225	E6C0	00	B	00	1	0	**45.-**	7.-	13.-	15.-	10.-
		00325							**53.-**	12.-	16.-	16.-	15.-
		00425							**61.-**	15.-	19.-	17.-	19.-
		00525							**70.-**	20.-	23.-	17.-	24.-
		00625							**78.-**	22.-	26.-	19.-	28.-
		00825							**97.-**	28.-	32.-	32.-	37.-
		01025							**112.-**	33.-	41.-	35.-	46.-
		01225							**126.-**	40.-	48.-	39.-	55.-
1G326	0225	00325	E6C0	00	B	00	1	0	**70.-**	12.-	19.-	19.-	15.-
		00425							**82.-**	18.-	22.-	19.-	20.-
		00525							**94.-**	20.-	27.-	22.-	24.-
		00625							**105.-**	23.-	31.-	25.-	29.-
		00825							**128.-**	30.-	38.-	36.-	38.-
		01025							**151.-**	38.-	47.-	43.-	47.-
		01225							**173.-**	46.-	53.-	48.-	57.-
1G326	0325	00325	E6C0	00	B	00	1	0	**85.-**	15.-	22.-	21.-	15.-
		00425							**102.-**	18.-	27.-	24.-	20.-
		00525							**120.-**	23.-	31.-	26.-	25.-
		00625							**137.-**	27.-	34.-	29.-	30.-
		00825							**168.-**	34.-	42.-	41.-	39.-
		01025							**197.-**	43.-	51.-	48.-	49.-
		01225							**227.-**	51.-	60.-	53.-	58.-

Linear grids*									**Price per run. m**				
1G326	0075	XXXXX	E6C0	00	B	00	5	0	**107.-**	40.-	48.-	36.-	55.-
1G326	0125	XXXXX	E6C0	00	B	00	5	0	**126.-**	40.-	48.-	39.-	55.-
1G326	0225	XXXXX	E6C0	00	B	00	5	0	**173.-**	46.-	53.-	48.-	57.-
1G326	0325	XXXXX	E6C0	00	B	00	5	0	**227.-**	51.-	60.-	53.-	58.-

[1] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.
Pricing information for other surfaces available on request!

*** Widths more than 1225 mm will cleared as linear grids.**

emcoair supply and exhaust air grid model G328
with aluminium blades in a natural anodized finish (E6C0). Rigid horizontal front blades. Standard attachments in galvanized material with black baked-finish.
Attached to the subframe with concealed revolving interlock device or recessed screws in the frame.

emcoair supply and exhaust linear air grid model G328
emco linear grids are available in installation-friendly normed sections in the heights 75, 125, 225 and 325 mm. The intermediate sections ("M") have a fixed length of 1220 mm and the two end sections ("E") are adjusted to the overall length of the linear grid.

Installation dimensions with subframe:
H/W = cutout size
Installation dimensions without subframe:
H/W – 8 mm = cutout size

Subframe E
for grid G328

Version key for model G328

	Charac.
1 = emcoair	1
G328 = G328 supply- and exhaust grid	2 - 5
0075 = 75 mm height	
0125 = 125	
0225 = 225	
0325 = 325	
XXXX = height in mm at own's choice	6 - 9
00225 = 225 mm width	
00325 = 325	
00425 = 425	
00525 = 525	
00625 = 625	
00825 = 825	
01025 = 1025	
01225 = 1225	
XXXXX = width in mm at own's choice	10 - 14
E6C0 = surface anodised in natural colour (E6/C0)	
9010 = varnished in RAL 9010, gloss polished (gloss level 75-84%) (surface of the front panel)	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surface	15 - 18
00 = grid only	
L0 = with control damper	
M0 = with flow rate damper	
LM = with control and flow rate damper	19 - 20
B = with countersunk screw holes in edging	
D = with installation frame with concealed twist locks	
0 = without screw fastening	21
00 = 14 mm blade spacing (factory-made fix)	22 - 23
1 = individual item	
5 = row arrangement	
2 = start of row	
3 = middle of row	
4 = end of row	24
0 = without installation frame	
1 = with installation frame	25

Product group (1=emcoair)	Model designation	Height (mm)	Width (mm)	Surface	Add-on parts	Mounting type	Blade spacing (mm)	Arrangement	Accessories	
1	G328	0075	00225	E6C0	00	B	00	1	0	= Example

Price list for model G328

emcoair model	Height (mm)	Width (mm)	Surface [1]	Add-on parts	Mounting type	Blade spacing (mm)	Arrangement	Accessories	Price €/unit	Additional charge for Add-on part **control damper (LO)**	Additional charge for Add-on part **flow rate damper (MO)**	Additional charge for Add-on part **normal hit-and-miss dam. (SE)**	Additional charge for **installation frame (I)**
1G328	0075	00225	E6C0	00	B	00	1	0	**23.-**	7.-	13.-	13.-	8.-
		00325							**28.-**	12.-	16.-	13.-	8.-
		00425							**31.-**	15.-	19.-	16.-	9.-
		00525							**36.-**	20.-	23.-	16.-	9.-
		00625							**40.-**	22.-	26.-	17.-	10.-
		00825							**48.-**	28.-	32.-	29.-	10.-
		01025							**55.-**	33.-	41.-	33.-	11.-
		01225							**62.-**	40.-	48.-	36.-	12.-
1G328	0125	00225	E6C0	00	B	00	1	0	**30.-**	7.-	13.-	15.-	8.-
		00325							**35.-**	12.-	16.-	16.-	8.-
		00425							**41.-**	15.-	19.-	17.-	9.-
		00525							**46.-**	20.-	23.-	17.-	9.-
		00625							**53.-**	22.-	26.-	19.-	10.-
		00825							**63.-**	28.-	32.-	32.-	10.-
		01025							**75.-**	33.-	41.-	35.-	11.-
		01225							**85.-**	40.-	48.-	39.-	12.-
1G328	0225	00325	E6C0	00	B	00	1	0	**49.-**	12.-	19.-	19.-	9.-
		00425							**58.-**	18.-	22.-	19.-	9.-
		00525							**68.-**	20.-	27.-	22.-	10.-
		00625							**76.-**	23.-	31.-	25.-	10.-
		00825							**93.-**	30.-	38.-	36.-	11.-
		01025							**110.-**	38.-	47.-	43.-	11.-
		01225							**128.-**	46.-	53.-	48.-	15.-
1G328	0325	00325	E6C0	00	B	00	1	0	**65.-**	15.-	22.-	21.-	9.-
		00425							**76.-**	18.-	27.-	24.-	10.-
		00525							**87.-**	23.-	31.-	26.-	10.-
		00625							**99.-**	27.-	34.-	29.-	10.-
		00825							**122.-**	34.-	42.-	41.-	11.-
		01025							**146.-**	43.-	51.-	48.-	12.-
		01225							**170.-**	51.-	60.-	53.-	15.-

Linear grids*									**Price per run. m**				
1G328	0075	XXXXX	E6C0	00	B	00	5	0	**62.-**	40.-	48.-	36.-	12.-
1G328	0125	XXXXX	E6C0	00	B	00	5	0	**85.-**	40.-	48.-	39.-	12.-
1G328	0225	XXXXX	E6C0	00	B	00	5	0	**128.-**	46.-	53.-	48.-	15.-
1G328	0325	XXXXX	E6C0	00	B	00	5	0	**170.-**	51.-	60.-	53.-	15.-

[1] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.
Pricing information for other surfaces available on request!

*** Widths more than 1225 mm will cleared as linear grid.**

part 1.0.0 ventilation components basics
part 1.1.1 swirl diffusers
part 1.1.1 ceiling air diffusers
part 1.1.2 linear diffusers
part 1.1.3 circular pipe diffusers
part 1.1.4 displacement flow diffusers
part 1.1.5 industrial diffusers
part 1.1.5 wide angle nozzles
part 1.1.7 combination linear diffusers
part 1.1.8 floor diffusers
part 1.1.6 grids model G329

emcoair screening grid model G329
with fixed horizontal inverted-vee aluminium blades in a natural anodized finish (E6C0) and the corresponding optional frame.
Attached to the frame with recessed holes in the frame for screw mounting.

Countered frame (Standard attachment)

Version key for model G329

											Charac.
1 = emcoair											1
	G329 = G329 screening grid										2 - 5
		0125 = 125 mm height									
		0225 = 225 mm									
		0325 = 325 mm									
		XXXX = height in mm at own's choice (20 mm-steps, max. 325 mm)									6 - 9
			00225 = 225 mm width								
			00325 = 325 mm								
			00425 = 425 mm								
			00525 = 525 mm								
			00625 = 625 mm								
			00825 = 825 mm								
			01025 = 1025 mm								
			01225 = 1225 mm								
			XXXXX = width in mm at own's choice								10 - 14
				E6C0 = surface anodised in natural colour (E6/C0)							
				9010 = varnished in RAL 9010, gloss polished (gloss level 75-84%) (surface of the front panel)							
				XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)							
				0NCS = varnished in NCS colour							
				00DB = varnished in DB colour							
				RALP = varnished in RAL-Pearl colour							
				RALG = varnished in RAL colour, gloss level different from standard							
				YYYY = special surface							
				ALBL = aluminium coloured powder-coated (RAL 9006)							15 - 18
					00 = grid only						
					GR = with countered frame						19 - 20
						B = with countersunk screw holes in edging					
						0 = without screw fastening					21
							00 = 20 mm blade spacing				22 - 23
								1 = individual item			24
									0 = without installation frame		25
Product group (1=emcoair)	Model designation	Height (mm)	Width (mm)	Surface	Add-on parts	Mounting type	Blade spacing (mm)	Arrangement	Accessories		
1	**G329**	**0125**	**00225**	**E6C0**	**00**	**B**	**00**	**1**	**0**	**= Example**	

Price list for model G329

emcoair model	Height (mm)	Width (mm)	Surface [1]	Add-on parts	Mounting type	Blade spacing (mm)	Arrangement	Accessories	Price €/unit	Additional charge for countered frame (GR)
1G329	0125	00225	E6C0	00	B	00	1	0	**25.-**	12.-
		00325							**30.-**	14.-
		00425							**36.-**	15.-
		00525							**40.-**	16.-
		00625							**46.-**	17.-
		00825							**56.-**	21.-
		01025							**65.-**	24.-
		01225							**77.-**	26.-
1G329	0225	00325	E6C0	00	B	00	1	0	**38.-**	14.-
		00425							**46.-**	16.-
		00525							**52.-**	18.-
		00625							**60.-**	18.-
		00825							**71.-**	23.-
		01025							**86.-**	24.-
		01225							**101.-**	28.-
1G329	0325	00425	E6C0	00	B	00	1	0	**55.-**	16.-
		00525							**63.-**	19.-
		00625							**71.-**	21.-
		00825							**89.-**	24.-
		01025							**107.-**	25.-
		01225							**122.-**	31.-

[1] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.
Pricing information for other surfaces available on request!

emcoair supply and exhaust air grid model G341
Ventilation grid in a solid, impact-resistant construction (DIN 18032). Standard attachments in galvanized material with black baked-finish. Blades and frame in a natural anodized finish (E6C0). Blade spacing 8 or 12 mm. Attached to the frame with recessed holes in the frame for screw mounting.

emcoair supply and exhaust linear air grid model G341
341 emco linear grids are available in installation-friendly normed sections in the heights 125, 225 and 325 mm. The intermediate sections ("M") have a fixed length of 2020 mm and the two end sections ("E") are adjusted to the overall length of the linear grid.

Standard and special attachments such as flow rate and control damper: see cap. emcoair grids standard and special attachments.

Installation dimensions with subframe: H/W = cutout size
Installation dimensions without subframe: H/W – 8 mm = cutout size

Subframe E
for grid G341

Version key for model G341

	Charac.
1 = emcoair	1
G341 = G341 supply- and exhaust grid	2 - 5
0125 = 125 mm height	
0225 = 225 mm	
0325 = 325 mm	
XXXX = height in mm at own's choice	6 - 9
00325 = 325 mm width	
00425 = 425 mm	
00525 = 525 mm	
00625 = 625 mm	
00825 = 825 mm	
01025 = 1025 mm	
01225 = 1225 mm	
XXXXX = width in mm at own's choice	10 - 14
E6C0 = surface anodised in natural colour (E6/C0)	
9010 = varnished in RAL 9010, gloss polished (gloss level 75-84%) (surface of the front panel)	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surface	15 - 18
00 = grid only	
L0 = with control damper	
M0 = with flow rate damper	
LM = with control and flow rate damper	19 - 20
B = with countersunk screw holes in edging	
0 = without screw fastening	21
08 = 8 mm blade spacing	
12 = 12 mm	22 - 23
1 = individual item	
5 = row arrangement	
2 = start of row	
3 = middle of row	
4 = end of row	24
0 = without installation frame	
1 = with installation frame	25

Product group (1=emcoair)	Model designation	Height (mm)	Width (mm)	Surface	Add-on parts	Mounting type	Blade spacing (mm)	Arrangement	Accessories	
1	G341	0125	00325	E6C0	00	B	08	1	0	= Example

Price list for model G341

emcoair model	Height (mm)	Width (mm)	Surface [1]	Add-on parts	Mounting type	Blade spacing (mm)	Arrangement	Accessories	Price €/unit	Additional charge for Add-on part **control damper (LO)**	Additional charge for Add-on part **flow rate damper (MO)**	Additional charge for Add-on part **normal hit-and-miss dam. (SE)**	Additional charge for **installation frame (I)**
1G341	0125	00325	E6C0	00	B	08	1	0	**54.-**	12.-	16.-	16.-,	9.-
		00425							**64.-**	15.-	19.-	17.-	10.-
		00525							**72.-**	20.-	23.-	17.-	10.-
		00625							**80.-**	22.-	26.-	19.-	11.-
		00825							**99.-**	28.-	32.-	32.-	12.-
		01025							**117.-**	33.-	41.-	35.-	12.-
		01225							**136.-**	40.-	48.-	39.-	13.-
1G341	0225	00325	E6C0	00	B	08	1	0	**80.-**	12.-	19.-	19.-	10.-
		00425							**94.-**	18.-	22.-	19.-	10.-
		00525							**108.-**	20.-	27.-	22.-	11.-
		00625							**119.-**	23.-	31.-	25.-	12.-
		00825							**141.-**	30.-	38.-	36.-	12.-
		01025							**167.-**	38.-	47.-	43.-	13.-
		01225							**189.-**	46.-	53.-	48.-	17.-
1G341	0325	00425	E6C0	00	B	08	1	0	**126.-**	18.-	27.-	24.-	11.-
		00525							**141.-**	23.-	31.-	26.-	12.-
		00625							**156.-**	27.-	34.-	29.-	12.-
		00825							**185.-**	34.-	42.-	41.-	12.-
		01025							**215.-**	43.-	51.-	48.-	13.-
		01225							**246.-**	51.-	60.-	53.-	17.-

Linear grids*									**Price per run. m**				
1G341	0125	XXXXX	E6C0	00	B	00	5	0	**136.-**	40.-	48.-	39.-	13.-
1G341	0225	XXXXX	E6C0	00	B	00	5	0	**189.-**	46.-	53.-	48.-	17.-
1G341	0325	XXXXX	E6C0	00	B	00	5	0	**246.-**	51.-	60.-	53.-	17.-

[1] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.
Pricing information for other surfaces available on request!

*** Widths more than 1225 mm will cleared as linear grid.**

part 1.0.0 ventilation components basics
part 1.1.1 swirl diffusers
part 1.1.1 ceiling air diffusers
part 1.1.2 linear diffusers
part 1.1.3 circular pipe diffusers
part 1.1.4 displacement flow diffusers
part 1.1.5 industrial diffusers
part 1.1.5 wide angle nozzles
part 1.1.7 combination linear diffusers
part 1.1.8 floor diffusers
part 1.1.6 grids model G345

emcoair supply and exhaust air grid model G345
Ventilation grid in a solid, impact-resistant construction (DIN 18032). Standard attachments in galvanized material with black baked-finish. Blades and frame in a natural anodised finish (E6C0). Blade spacing 8 or 12 mm. Attached to the frame with recessed holes in the frame for screw mounting.

emcoair supply and exhaust linear air grid model G345
emco linear grids are available in installation-friendly normed sections in the heights 125, 225 and 325 mm. The intermediate sections ("M") have a fixed length of 2020 mm and the two end sections ("E") are adjusted to the overall length of the linear grid.

Standard and special attachments such as flow rate and control damper: see cap. emcoair grids standard and special attachments.

Installation dimensions with sub-frame: H/W = cutout size
Installation dimensions without sub-frame: H/W – 8 mm = cutout size

Subframe E
for grid G345

Version key for model G345 and model 346

											Charac.
1 = emcoair											1
	G345 = G345 supply- and exhaust grid										2 - 5
		0125 = 125 mm height									
		0225 = 225 mm									
		0325 = 325 mm									
		XXXX = height in mm at own's choice									6 - 9
			00325 = 325 mm width								
			00425 = 425 mm								
			00525 = 525 mm								
			00625 = 625 mm								
			00825 = 825 mm								
			01025 = 1025 mm								
			01225 = 1225 mm								
			XXXXX = width in mm at own's choice								10 - 14
				E6C0 = surface anodised in natural colour (E6/C0)							
				9010 = varnished in RAL 9010, gloss polished (gloss level 75-84%) (surface of the front panel)							
				XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)							
				0NCS = varnished in NCS colour							
				00DB = varnished in DB colour							
				RALP = varnished in RAL-Pearl colour							
				RALG = varnished in RAL colour, gloss level different from standard							
				YYYY = special surface							15 - 18
					00 = grid only						
					L0 = with control damper						
					M0 = with flow rate damper						
					LM = with control and flow rate damper						19 - 20
						B = with countersunk screw holes in edging					
						0 = without screw fastening					21
							08 = 8 mm blade spacing				
							12 = 12 mm				22 - 23
								1 = individual item			
								5 = row arrangement			
								2 = start of row			
								3 = middle of row			
								4 = end of row			24
									0 = without installation frame		
									1 = with installation frame		25
Product group (1=emcoair)	Model designation	Height (mm)	Width (mm)	Surface	Add-on parts	Mounting type	Blade spacing (mm)	Arrangement	Accessories		
1	**G341**	**0125**	**00325**	**E6C0**	**00**	**B**	**08**	**1**	**0 = Example**		

Price list for model G345

emcoair model	Height (mm)	Width (mm)	Surface [1]	Add-on parts	Mounting type	Blade spacing (mm)	Arrangement	Accessories	Price €/unit	Additional charge for Add-on part **control damper (LO)**	Additional charge for Add-on part **flow rate damper (MO)**	Additional charge for Add-on part **normal hit-and-miss dam. (SE)**	Additional charge for **installation frame (I)**
1G345	0125	00325	E6C0	00	B	08	1	0	**70.-**	12.-	16.-	16.-,	15.-
		00425							**83.-**	15.-	19.-	17.-	19.-
		00525							**94.-**	20.-	23.-	17.-	24.-
		00625							**105.-**	22.-	26.-	19.-	28.-
		00825							**129.-**	28.-	32.-	32.-	37.-
		01025							**151.-**	33.-	41.-	35.-	46.-
		01225							**177.-**	40.-	48.-	39.-	55.-
1G345	0225	00325	E6C0	00	B	08	1	0	**105.-**	12.-	19.-	19.-	15.-
		00425							**122.-**	18.-	22.-	19.-	20.-
		00525							**140.-**	20.-	27.-	22.-	24.-
		00625							**155.-**	23.-	31.-	25.-	29.-
		00825							**183.-**	30.-	38.-	36.-	38.-
		01025							**217.-**	38.-	47.-	43.-	47.-
		01225							**245.-**	46.-	53.-	48.-	57.-
1G345	0325	00425	E6C0	00	B	08	1	0	**164.-**	18.-	27.-	24.-	20.-
		00525							**183.-**	23.-	31.-	26.-	25.-
		00625							**202.-**	27.-	34.-	29.-	30.-
		00825							**241.-**	34.-	42.-	41.-	39.-
		01025							**280.-**	43.-	51.-	48.-	49.-
		01225							**320.-**	51.-	60.-	53.-	58.-

Linear grids*									**Price per run. m**				
1G345	0125	XXXXX	E6C0	00	B	00	5	0	**177.-**	40.-	48.-	39.-	55.-
1G345	0225	XXXXX	E6C0	00	B	00	5	0	**245.-**	46.-	53.-	48.-	57.-
1G345	0325	XXXXX	E6C0	00	B	00	5	0	**320.-**	51.-	60.-	53.-	58.-

[1] When ordering **RAL colour at own's option**, please enter 4-digit number (= RAL colour code) in the version key, if the required gloss level is 75-84%.
For RAL colours with a different gloss level, please just enter the code **RALG** and specify the precise colour designation.
For NCS colours, please just enter the code **0NCS** and specify the precise colour designation as well.
For RAL pearl colours or DB colours please enter the code **RALP** or **00DB** respektively and specify the precise colour designation.
Pricing information for other surfaces available on request!

*** Widths more than 1225 mm will cleared as linear grid.**

Dampers and controllers

Modern air conditioning systems guarantee constant, high levels of comfort and reliablity yet are extremely energy efficient. To achieve this, the air flow rates must be accurately distributed throughout the building and in case of fire, the planned fire cells must be able to be securely sealed off.

Furthermore, air distribution using such systems can be planned in a way that complex and cost-intensive adjustments during the first set-up can be saved. A design optimised for flow must be included just as exact controllability. The dampers and controllers available include both purely mechanical systems which automatically regulating constant volume flows or can be used as fixed resistor, and fully electronic components.

In addition to use in flow and fire-protection applications, the dampers are often used in combination with weather-resistant and special acoustic grids. Their specially designed blades offer solid protection against driving rain and dirt and thus effectively protect the air conditioning system.

To avoid high acoustic loads in the direct surroundings, additional sound-absorbing elements can be added, whose high insertion loss drastically lowers the sound power level.

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emcoair multileaf damper model JKS481 (175 mm depth) and model JKS482 (120 mm depth) standard design

emcoair multileaf damper model JKD485 (175 mm depth) and model JKD486 (120 mm depth) airtight design

The casing is made of galvanized rolled sheet steel and guarantees universal installation.
The opposed operating blades are designed as aerofoil blades and thus operate at very effective drive and flow ratios.

The blades are controlled by aluminum gears, which can be located on one side (JKS) or on both sides (JKD).
The shaft bearing is made of maintenance-free polyamide.
Please refer to order chart for available sizes and designs. Non-standard dimensions available upon request.

Multileaf damper JK481 / JK482

Multileaf damper JK485 / JK486

Dimensions JK

[mm]	JK481	JK482	JK485	JK486
Install. depth	175	120	175	120
Blade depth	165	100	165	100

Version key for model JKS481

	Charac.
1 = emcoair	1
JKS = emcoair multileaf damper model JKS481	2 - 4
175 = 175 mm depth	5 - 7
0345 = 345 mm height	
0510 = 510 mm	
0675 = 675 mm	
0840 = 840 mm	
1005 = 1005 mm	
1170 = 1170 mm	
1335 = 1335 mm	
1500 = 1500 mm	
1665 = 1665 mm	
1830 = 1830 mm	
1995 = 1995 mm	
XXXX = height in mm at own's choice	8 - 11
0400 = 400 mm width	
0600 = 600 mm	
0800 = 800 mm	
1000 = 1000 mm	
1200 = 1200 mm	
1400 = 1400 mm	
1600 = 1600 mm	
1800 = 1800 mm	
2000 = 2000 mm	
XXXX = width in mm at own's choice	12 - 15
V = material steel, galvanised	
A = aluminium (AlMgSi0,5)	
E = stainless steel V2A (material No. 1.4301)	
S = stainless steel V4A (material No. 1.4571)	16
P = shaft bearing made of polyamide	
M = brass	
T = Teflon	
K = ball bearing	17
00 = manual adjustment	
HF = manual locking device	
MK = motor console for actuator	18 - 19
0 = without sealing lips	
5 = with sealing lips made of rubber	
7 = with sealing lips made of silicon	20
0 = blade control by internal gearwheels	
1 = blade control by external gearwheels	21

Product group (1=emcoair)	Model designation	Depth (mm)	Height (mm)	Width (mm)	Material	Material blade bearing	Adjustment	Sealing lips	Blade adjustment	
1	JKS	175	0345	0400	V	P	00	0	0	= Example

Price list for model JKS481 - Heights 345 · 510 · 675 mm

emcoair model	Depth (mm)	Height (mm) [1]	Width (mm) [1]	Material damper [2]	Material blade bearing	Adjustment [3]	Sealing lips [4]	Blade adjustment [5]	Price €/unit	Addition. charge for material blade bearing **brass (M) or Teflon (T)**	Addition. charge for blade bearing **as ball bearing (K)**
1JKS	175	0345	0400	V	P	00	0	0	**87.-**	22.-	67.-
			0600						**97.-**	22.-	67.-
			0800						**108.-**	22.-	67.-
			1000						**118.-**	22.-	67.-
			1200						**128.-**	22.-	67.-
			1400						**138.-**	22.-	67.-
			1600						**148.-**	22.-	67.-
			1800						**158.-**	22.-	67.-
			2000						**168.-**	22.-	67.-
1JKS	175	0510	0400	V	P	00	0	0	**111.-**	34.-	101.-
			0600						**124.-**	34.-	101.-
			0800						**138.-**	34.-	101.-
			1000						**151.-**	34.-	101.-
			1200						**165.-**	34.-	101.-
			1400						**178.-**	34.-	101.-
			1600						**192.-**	34.-	101.-
			1800						**205.-**	34.-	101.-
			2000						**218.-**	34.-	101.-
1JKS	175	0675	0400	V	P	00	0	0	**133.-**	45.-	134.-
			0600						**150.-**	45.-	134.-
			0800						**167.-**	45.-	134.-
			1000						**184.-**	45.-	134.-
			1200						**200.-**	45.-	134.-
			1400						**217.-**	45.-	134.-
			1600						**234.-**	45.-	134.-
			1800						**251.-**	45.-	134.-
			2000						**268.-**	45.-	134.-

[1] **The basic price for multileaf dampers with special dimensions is the price of the next highest standard size plus an additional charge for special dimensions (width +5%, height +15%, width and height +20%.**

[2] JK version (material): **aluminium (A): standard price x 4**
stainless steel V2A (E) with external rod: standard price x 6
stainless steel V4A (S) with external rod: standard price x 7

[3] Addition. charge for adjustment: **manual locking device (HF): 22.- €/unit**
motor console for actuator: 55.- €/unit

[4] Addition. charge for sealing lips: **rubber +5%** or **silicon +7%**

[5] Add. charge for blade adjustment: **adjustment with external rod: +20%**

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part 1.1.1 ceiling air diffusers
part 1.1.2 linear diffusers
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part 1.1.5 wide angle nozzles
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part 1.3.0 dampers and controllers multileaf dampers

Price list for model JKS481 - Heights 840 · 1005 · 1170 mm

emcoair model	Depth (mm)	Height (mm) [1]	Width (mm) [1]	Material damper [2]	Material blade bearing	Adjustment [3]	Sealing lips [4]	Blade adjustment [5]	Price €/unit	Addition. charge for material blade bearing **brass (M) or Teflon (T)**	Addition. charge for blade bearing **as ball bearing (K)**
1JKS	175	0840	0400	V	P	00	0	0	**157.-**	56.-	168.-
			0600						**177.-**	56.-	168.-
			0800						**197.-**	56.-	168.-
			1000						**217.-**	56.-	168.-
			1200						**237.-**	56.-	168.-
			1400						**258.-**	56.-	168.-
			1600						**278.-**	56.-	168.-
			1800						**298.-**	56.-	168.-
			2000						**318.-**	56.-	168.-
1JKS	175	1005	0400	V	P	00	0	0	**212.-**	67.-	202.-
			0600						**227.-**	67.-	202.-
			0800						**243.-**	67.-	202.-
			1000						**259.-**	67.-	202.-
			1200						**274.-**	67.-	202.-
			1400						**290.-**	67.-	202.-
			1600						**306.-**	67.-	202.-
			1800						**321.-**	67.-	202.-
			2000						**337.-**	67.-	202.-
1JKS	175	1170	0400	V	P	00	0	0	**237.-**	78.-	235.-
			0600						**255.-**	78.-	235.-
			0800						**273.-**	78.-	235.-
			1000						**291.-**	78.-	235.-
			1200						**309.-**	78.-	235.-
			1400						**327.-**	78.-	235.-
			1600						**345.-**	78.-	235.-
			1800						**363.-**	78.-	235.-
			2000						**381.-**	78.-	235.-

[1] **The basic price for multileaf dampers with special dimensions is the price of the next highest standard size plus an additional charge for special dimensions (width +5%, height +15%, width and height +20%.**

[2] JK version (material): **aluminium (A): standard price x 4**
stainless steel V2A (E) with external rod: standard price x 6
stainless steel V4A (S) with external rod: standard price x 7

[3] Addition. charge for adjustment: **manual locking device (HF): 22.- €/unit**
motor console for actuator: 55.- €/unit

[4] Addition. charge for sealing lips: **rubber +5%** or **silicon +7%**

[5] Add. charge for blade adjustment: **adjustment with external rod: +20%**

Price list for model JKS481 - Heights 1335 · 1500 · 1665 mm

emcoair model	Depth (mm)	Height (mm) [1]	Width (mm) [1]	Material damper [2]	Material blade bearing	Adjustment [3]	Sealing lips [4]	Blade adjustment [5]	Price €/unit	Addition. charge for material blade bearing **brass (M) or Teflon (T)**	Addition. charge for blade bearing **as ball bearing (K)**
1JKS	175	1335	0400	V	P	00	0	0	**264.-**	90.-	269.-
			0600						**284.-**	90.-	269.-
			0800						**305.-**	90.-	269.-
			1000						**325.-**	90.-	269.-
			1200						**345.-**	90.-	269.-
			1400						**365.-**	90.-	269.-
			1600						**385.-**	90.-	269.-
			1800						**405.-**	90.-	269.-
			2000						**426.-**	90.-	269.-
1JKS	175	1500	0400	V	P	00	0	0	**292.-**	101.-	302.-
			0600						**315.-**	101.-	302.-
			0800						**337.-**	101.-	302.-
			1000						**360.-**	101.-	302.-
			1200						**382.-**	101.-	302.-
			1400						**404.-**	101.-	302.-
			1600						**427.-**	101.-	302.-
			1800						**449.-**	101.-	302.-
			2000						**472.-**	101.-	302.-
1JKS	175	1665	0400	V	P	00	0	0	**325.-**	112.-	336.-
			0600						**347.-**	112.-	336.-
			0800						**370.-**	112.-	336.-
			1000						**392.-**	112.-	336.-
			1200						**414.-**	112.-	336.-
			1400						**437.-**	112.-	336.-
			1600						**459.-**	112.-	336.-
			1800						**482.-**	112.-	336.-
			2000						**504.-**	112.-	336.-

[1] **The basic price for multileaf dampers with special dimensions is the price of the next highest standard size plus an additional charge for special dimensions (width +5%, height +15%, width and height +20%.**

[2] JK version (material): **aluminium (A): standard price x 4**
stainless steel V2A (E) with external rod: standard price x 6
stainless steel V4A (S) with external rod: standard price x 7

[3] Addition. charge for adjustment: **manual locking device (HF): 22.- €/unit**
motor console for actuator: 55.- €/unit

[4] Addition. charge for sealing lips: **rubber +5%** or **silicon +7%**

[5] Add. charge for blade adjustment: **adjustment with external rod: +20%**

Price list for model JKS481 - Heights 1830 · 2000 mm

emcoair model	Depth (mm)	Height (mm) [1]	Width (mm) [1]	Material damper [2]	Material blade bearing	Adjustment [3]	Sealing lips [4]	Blade adjustment [5]	Price €/unit	Addition. charge for material blade bearing **brass (M) or Teflon (T)**	Addition. charge for blade bearing **as ball bearing (K)**
1JKS	175	1830	0400	V	P	00	0	0	**353.-**	123.-	370.-
			0600						**377.-**	123.-	370.-
			0800						**402.-**	123.-	370.-
			1000						**427.-**	123.-	370.-
			1200						**451.-**	123.-	370.-
			1400						**476.-**	123.-	370.-
			1600						**501.-**	123.-	370.-
			1800						**525.-**	123.-	370.-
			2000						**550.-**	123.-	370.-
1JKS	175	2000	0400	V	P	00	0	0	**383.-**	134.-	403.-
			0600						**410.-**	134.-	403.-
			0800						**437.-**	134.-	403.-
			1000						**464.-**	134.-	403.-
			1200						**491.-**	134.-	403.-
			1400						**517.-**	134.-	403.-
			1600						**544.-**	134.-	403.-
			1800						**571.-**	134.-	403.-
			2000						**598.-**	134.-	403.-

[1] **The basic price for multileaf dampers with special dimensions is the price of the next highest standard size plus an additional charge for special dimensions (width +5%, height +15%, width and height +20%.**

[2] JK version (material): **aluminium (A): standard price x 4**
stainless steel V2A (E) with external rod: standard price x 6
stainless steel V4A (S) with external rod: standard price x 7

[3] Addition. charge for adjustment: **manual locking device (HF): 22.- €/unit**
motor console for actuator: 55.- €/unit

[4] Addition. charge for sealing lips: **rubber +5%** or **silicon +7%**

[5] Add. charge for blade adjustment: **adjustment with external rod: +20%**

Version key for model JKS482

											Charac
1	**= emcoair**										1
	JKS	**= multileaf damper model JKS482**									2 - 4
		120	**= 120 mm depth**								5 - 7
			0200	**= 200 mm height**							
			0300	= 300 mm							
			0400	= 400 mm							
			0500	= 500 mm							
			0600	= 600 mm							
			0700	= 700 mm							
			0800	= 800 mm							
			0900	= 900 mm							
			1000	= 1000 mm							
			XXXX	= height in mm at own's choice							8 - 11
				0200	**= 200 mm width**						
				0300	= 300 mm						
				0400	= 400 mm						
				0500	= 500 mm						
				0600	= 600 mm						
				0700	= 700 mm						
				0800	= 800 mm						
				0900	= 900 mm						
				1000	= 1000 mm						
				XXXX	= width in mm at own's choice						12 - 15
					V	**= material steel, galvanised**					
					A	= aluminium (AlMgSi0,5)					
					E	= stainless steel V2A (material No. 1.4301)					
					S	= stainless steel V4A (material No. 1.4571)					16
						P	**= blade bearing made of polyamide**				
						M	= brass				
						T	= Teflon				
						K	= ball bearing				17
							00	**= manual adjustment**			
							HF	= manual locking device			
							MK	= motor console for actuator			18 - 19
								0	**= without sealing lips**		
								5	= with sealing lips made of rubber		
								7	= with sealing lips made of silicon		20
									0	**= blade control by internal gearwheels**	
									1	= blade control by external gearwheels	21

Product group (1=emcoair)	Model designation	Depth (mm)	Height (mm)	Width (mm)	Material	Material blade bearing	Adjustment	Sealing lips	Blade adjustment	
1	**JKS**	**120**	**0200**	**0200**	**V**	**P**	**00**	**0**	**0**	**= Example**

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part 1.1.5 wide angle nozzles
part 1.1.7 combination linear diffusers
part 1.1.8 floor diffusers
part 1.1.6 grids
part 1.3.0 dampers and controllers multileaf dampers

Price list for model JKS482 - Heights 200 · 300 · 400 mm

emcoair model	Depth (mm)	Height (mm) [1]	Width (mm) [1]	Material damper [2]	Material blade bearing	Adjustment [3]	Sealing lips [4]	Blade adjustment [5]	Price €/unit	Addition. charge for material blade bearing **brass (M) or Teflon (T)**	Addition. charge for blade bearing **as ball bearing (K)**
1JKS	120	0200	0200	V	P	00	0	0	**69.-**	22.-	67.-
			0300						**74.-**	22.-	67.-
			0400						**78.-**	22.-	67.-
			0500						**83.-**	22.-	67.-
			0600						**87.-**	22.-	67.-
			0700						**92.-**	22.-	67.-
			0800						**96.-**	22.-	67.-
			0900						**101.-**	22.-	67.-
			1000						**105.-**	22.-	67.-
1JKS	120	0300	0200	V	P	00	0	0	**87.-**	34.-	101.-
			0300						**93.-**	34.-	101.-
			0400						**99.-**	34.-	101.-
			0500						**104.-**	34.-	101.-
			0600						**110.-**	34.-	101.-
			0700						**115.-**	34.-	101.-
			0800						**121.-**	34.-	101.-
			0900						**127.-**	34.-	101.-
			1000						**132.-**	34.-	101.-
1JKS	120	0400	0200	V	P	00	0	0	**105.-**	45.-	134.-
			0300						**112.-**	45.-	134.-
			0400						**119.-**	45.-	134.-
			0500						**125.-**	45.-	134.-
			0600						**132.-**	45.-	134.-
			0700						**139.-**	45.-	134.-
			0800						**146.-**	45.-	134.-
			0900						**152.-**	45.-	134.-
			1000						**159.-**	45.-	134.-

[1] **The basic price for multileaf dampers with special dimensions is the price of the next highest standard size plus an additional charge for special dimensions (width +5%, height +15%, width and height +20%.**

[2] JK version (material): **aluminium (A): standard price x 4**
stainless steel V2A (E) with external rod: standard price x 6
stainless steel V4A (S) with external rod: standard price x 7

[3] Addition. charge for adjustment: **manual locking device (HF): 22.- €/unit**
motor console for actuator: 55.- €/unit

[4] Addition. charge for sealing lips: **rubber +5%** or **silicon +7%**

[5] Add. charge for blade adjustment: **adjustment with external rod: +20%**

Price list for model JKS482 - Heights 500 · 600 · 700 mm

emcoair model	Depth (mm)	Height (mm) [1]	Width (mm) [1]	Material damper [2]	Material blade bearing	Adjustment [3]	Sealing lips [4]	Blade adjustment [5]	Price €/unit	Addition. charge for material blade bearing **brass (M) or Teflon (T)**	Addition. charge for blade bearing **as ball bearing (K)**
1JKS	120	0500	0200	V	P	00	0	0	**122.-**	56.-	168.-
			0300						**130.-**	56.-	168.-
			0400						**138.-**	56.-	168.-
			0500						**146.-**	56.-	168.-
			0600						**153.-**	56.-	168.-
			0700						**161.-**	56.-	168.-
			0800						**169.-**	56.-	168.-
			0900						**177.-**	56.-	168.-
			1000						**185.-**	56.-	168.-
1JKS	120	0600	0200	V	P	00	0	0	**140.-**	67.-	202.-
			0300						**150.-**	67.-	202.-
			0400						**160.-**	67.-	202.-
			0500						**170.-**	67.-	202.-
			0600						**180.-**	67.-	202.-
			0700						**190.-**	67.-	202.-
			0800						**200.-**	67.-	202.-
			0900						**211.-**	67.-	202.-
			1000						**221.-**	67.-	202.-
1JKS	120	0700	0200	V	P	00	0	0	**158.-**	78.-	235.-
			0300						**169.-**	78.-	235.-
			0400						**180.-**	78.-	235.-
			0500						**192.-**	78.-	235.-
			0600						**203.-**	78.-	235.-
			0700						**214.-**	78.-	235.-
			0800						**225.-**	78.-	235.-
			0900						**236.-**	78.-	235.-
			1000						**248.-**	78.-	235.-

[1] **The basic price for multileaf dampers with special dimensions is the price of the next highest standard size plus an additional charge for special dimensions (width +5%, height +15%, width and height +20%.**

[2] JK version (material): **aluminium (A): standard price x 4**
stainless steel V2A (E) with external rod: standard price x 6
stainless steel V4A (S) with external rod: standard price x 7

[3] Addition. charge for adjustment: **manual locking device (HF): 22.- €/unit**
motor console for actuator: 55.- €/unit

[4] Addition. charge for sealing lips: **rubber +5%** or **silicon +7%**

[5] Add. charge for blade adjustment: **adjustment with external rod: +20%**

Price list for model JKS482 - Heights 800 · 900 · 1000 mm

emcoair model	Depth (mm)	Height (mm) [1]	Width (mm) [1]	Material damper [2]	Material blade bearing	Adjustment [3]	Sealing lips [4]	Blade adjustment [5]	Price €/unit	Addition. charge for material blade bearing **brass (M) or Teflon (T)**	Addition. charge for blade bearing **as ball bearing (K)**
1JKS	120	0800	0200	V	P	00	0	0	**176.-**	90.-	269.-
			0300						**188.-**	90.-	269.-
			0400						**200.-**	90.-	269.-
			0500						**213.-**	90.-	269.-
			0600						**225.-**	90.-	269.-
			0700						**237.-**	90.-	269.-
			0800						**250.-**	90.-	269.-
			0900						**262.-**	90.-	269.-
			1000						**274.-**	274.-	269.-
1JKS	120	0900	0200	V	P	00	0	0	**194.-**	101.-	302.-
			0300						**207.-**	101.-	302.-
			0400						**221.-**	101.-	302.-
			0500						**234.-**	101.-	302.-
			0600						**248.-**	101.-	302.-
			0700						**261.-**	101.-	302.-
			0800						**274.-**	101.-	302.-
			0900						**288.-**	101.-	302.-
			1000						**301.-**	101.-	302.-
1JKS	120	1000	0200	V	P	00	0	0	**211.-**	112.-	336.-
			0300						**226.-**	112.-	336.-
			0400						**242.-**	112.-	336.-
			0500						**258.-**	112.-	336.-
			0600						**273.-**	112.-	336.-
			0700						**289.-**	112.-	336.-
			0 800						**305.-**	112.-	336.-
			0900						**320.-**	112.-	336.-
			1000						**336.-**	112.-	336.-

[1] **The basic price for multileaf dampers with special dimensions is the price of the next highest standard size plus an additional charge for special dimensions (width +5%, height +15%, width and height +20%.**

[2] JK version (material): **aluminium (A): standard price x 4**
stainless steel V2A (E) with external rod: standard price x 6
stainless steel V4A (S) with external rod: standard price x 7

[3] Addition. charge for adjustment: **manual locking device (HF): 22.- €/unit**
motor console for actuator: 55.- €/unit

[4] Addition. charge for sealing lips: **rubber +5%** or **silicon +7%**

[5] Add. charge for blade adjustment: **adjustment with external rod: +20%**

Version key for model JKD485

										Charac.
1	**= emcoair**									1
	JKD	**= multileaf damper model JKD485**								2 - 4
		175	**= 175 mm depth**							5 - 7
			0345	**= 345 mm height**						
			0510	= 510 mm						
			0675	= 675 mm						
			0840	= 840 mm						
			1005	= 1005 mm						
			1170	= 1170 mm						
			1335	= 1335 mm						
			1500	= 1500 mm						
			1665	= 1665 mm						
			1830	= 1830 mm						
			1995	=1995 mm						
			XXXX	= height in mm at own's choice						8 - 11
				0400	**= 400 mm width**					
				0600	= 600 mm					
				0800	= 800 mm					
				1000	= 1000 mm					
				1200	= 1200 mm					
				1400	= 1400 mm					
				1600	= 1600 mm					
				XXXX	= width in mm at own's choice					12 - 15
					V	**= material steel, galvanised**				
					A	= aluminium (AlMgSi0,5)				
					E	= stainless steel V2A (material No. 1.4301) with external rod only				
					S	= stainless steel V4A (material No. 1.4571) with external rod only				16
						P	**= blade bearing made of polyamide**			
						M	= brass			
						T	= Teflon			
						K	= ball bearing			17
							00	**= manual adjustment**		
							HF	= manual locking device		
							MK	= motor console for actuator		18 - 19
								0	**= blade control by internal gearwheels**	
								1	= blade control by external gearwheels	20

Product group (1=emcoair)	Model designation	Depth (mm)	Height (mm)	Width (mm)	Material	Material blade bearing	Adjustment	Blade adjustment	
1	**JKD**	**175**	**0345**	**0400**	**V**	**P**	**00**	**0**	**= Example**

Price list for model - JKD485 - Heights 345 · 510 · 675 · 840 mm

emcoair model	Depth (mm)	Height (mm) [1]	Width (mm) [1]	Material damper [2]	Material blade bearing	Adjustment [3]	Blade adjustment [5]	Price €/unit	Addition. charge for material blade bearing **brass (M) or Teflon (T)**	Addition. charge for blade bearing **as ball bearing (K)**
1JKD	175	0345	0400	V	P	00	0	**194.-**	22.-	67.-
			0600					**212.-**	22.-	67.-
			0800					**230.-**	22.-	67.-
			1000					**248.-**	22.-	67.-
			1200					**265.-**	22.-	67.-
			1400					**283.-**	22.-	67.-
			1600					**301.-**	22.-	67.-
1JKD	175	0510	0400	V	P	00	0	**253.-**	34.-	101.-
			0600					**276.-**	34.-	101.-
			0800					**298.-**	34.-	101.-
			1000					**320.-**	34.-	101.-
			1200					**343.-**	34.-	101.-
			1400					**365.-**	34.-	101.-
			1600					**388.-**	34.-	101.-
1JKD	175	0675	0400	V	P	00	0	**311.-**	45.-	134.-
			0600					**338.-**	45.-	134.-
			0800					**365.-**	45.-	134.-
			1000					**392.-**	45.-	134.-
			1200					**419.-**	45.-	134.-
			1400					**446.-**	45.-	134.-
			1600					**473.-**	45.-	134.-
1JKD	175	0840	0400	V	P	00	0	**370.-**	56.-	168.-
			0600					**401.-**	56.-	168.-
			0800					**432.-**	56.-	168.-
			1000					**464.-**	56.-	168.-
			1200					**495.-**	56.-	168.-
			1400					**526.-**	56.-	168.-
			1600					**558.-**	56.-	168.-

[1] **The basic price for multileaf dampers with special dimensions is the price of the next highest standard size plus an additional charge for special dimensions (width +5%, height +15%, width and height +20%.**

[2] JK version (material): **aluminium (A): standard price x 3**
stainless steel V2A (E) with external rod: standard price x 4
stainless steel V4A (S) with external rod: standard price x 5

[3] Addition. charge for adjustment: **manual locking device (HF): 22.- €/unit**
motor console for actuator: 55.- €/unit

[5] Add. charge for blade adjustment: **adjustment with external rod: +20% (installation depth is increased by 140 mm)**

Price list for model - JKD485 - Heights 1005 · 1170 · 1335 · 1500 mm

emcoair model	Depth (mm)	Height (mm) [1]	Width (mm) [1]	Material damper [2]	Material blade bearing	Adjustment [3]	Blade adjustment [5]	Price €/unit	Addition. charge for material blade bearing **brass (M) or Teflon (T)**	Addition. charge for blade bearing **as ball bearing (K)**
1JKD	175	1005	0400	V	P	00	0	**423.-**	67.-	202.-
			0600					**463.-**	67.-	202.-
			0800					**502.-**	67.-	202.-
			1000					**541.-**	67.-	202.-
			1200					**580.-**	67.-	202.-
			1400					**619.-**	67.-	202.-
			1600					**659.-**	67.-	202.-
1JKD	175	1170	0400	V	P	00	0	**500.-**	78.-	235.-
			0600					**540.-**	78.-	235.-
			0800					**580.-**	78.-	235.-
			1000					**620.-**	78.-	235.-
			1200					**661.-**	78.-	235.-
			1400					**701.-**	78.-	235.-
			1600					**741.-**	78.-	235.-
1JKD	175	1335	0400	V	P	00	0	**560.-**	90.-	269.-
			0600					**606.-**	90.-	269.-
			0800					**652.-**	90.-	269.-
			1000					**698.-**	90.-	269.-
			1200					**744.-**	90.-	269.-
			1400					**790.-**	90.-	269.-
			1600					**836.-**	90.-	269.-
1JKD	175	1500	0400	V	P	00	0	**618.-**	101.-	302.-
			0600					**669.-**	101.-	302.-
			0800					**719.-**	101.-	302.-
			1000					**769.-**	101.-	302.-
			1200					**820.-**	101.-	302.-
			1400					**870.-**	101.-	302.-
			1600					**921.-**	101.-	302.-

[1] **The basic price for multileaf dampers with special dimensions is the price of the next highest standard size plus an additional charge for special dimensions (width +5%, height +15%, width and height +20%.**

[2] JK version (material): **aluminium (A): standard price x 3**
stainless steel V2A (E) with external rod: standard price x 4
stainless steel V4A (S) with external rod: standard price x 5

[3] Addition. charge for adjustment: **manual locking device (HF): 22.- €/unit**
motor console for actuator: 55.- €/unit

[5] Add. charge for blade adjustment: **adjustment with external rod: +20% (installation depth is increased by 140 mm)**

Price list for model - JKD485 - Heights 1665 · 1830 · 2000 mm

emcoair model	Depth (mm)	Height (mm) [1]	Width (mm) [1]	Material damper [2]	Material blade bearing	Adjustment [3]	Blade adjustment [5]	Price €/unit	Addition. charge for material blade bearing **brass (M) or Teflon (T)**	Addition. charge for blade bearing **as ball bearing (K)**
1JKD	175	1665	0400	V	P	00	0	**681.-**	112.-	336.-
			0600					**735.-**	112.-	336.-
			0800					**788.-**	112.-	336.-
			1000					**842.-**	112.-	336.-
			1200					**896.-**	112.-	336.-
			1400					**950.-**	112.-	336.-
			1600					**1004.-**	112.-	336.-
1JKD	175	1830	0400	V	P	00	0	**739.-**	123.-	370.-
			0600					**799.-**	123.-	370.-
			0800					**858.-**	123.-	370.-
			1000					**917.-**	123.-	370.-
			1200					**977.-**	123.-	370.-
			1400					**1036.-**	123.-	370.-
			1600					**1095.-**	123.-	370.-
1JKD	175	1995	0400	V	P	00	0	**800.-**	134.-	403.-
			0600					**864.-**	134.-	403.-
			0800					**927.-**	134.-	403.-
			1000					**991.-**	134.-	403.-
			1200					**1055.-**	134.-	403.-
			1400					**1119.-**	134.-	403.-
			1600					**1183.-**	134.-	403.-

[1] **The basic price for multileaf dampers with special dimensions is the price of the next highest standard size plus an additional charge for special dimensions (width +5%, height +15%, width and height +20%.**

[2] JK version (material): **aluminium (A): standard price x 3**
stainless steel V2A (E) with external rod: standard price x 4
stainless steel V4A (S) with external rod: standard price x 5

[3] Addition. charge for adjustment: **manual locking device (HF): 22.- €/unit**
motor console for actuator: 55.- €/unit

[5] Add. charge for blade adjustment: **adjustment with external rod: +20% (installation depth is increased by 140 mm)**

Version key for mode JKD486

										Charac.
1	**= emcoair**									1
	JKD	**= multileaf damper model JKD486**								2 - 4
		120	**= 120 mm depth**							5 - 7
			0200	**= 200 mm height**						
			0300	= 300 mm						
			0400	= 400 mm						
			0500	= 500 mm						
			0600	= 600 mm						
			0700	= 700 mm						
			0800	= 800 mm						
			0900	= 900 mm						
			1000	= 1000 mm						
			XXXX	= height in mm at own's choice						8 - 11
				0200	**= 200 mm width**					
				0300	= 300 mm					
				0400	= 400 mm					
				0500	= 500 mm					
				0600	= 600 mm					
				0700	= 700 mm					
				0800	= 800 mm					
				0900	= 900 mm					
				1000	= 1000 mm					
				XXXX	= width in mm at own's choice					12 - 15
					V	**= material steel, galvanised**				
					A	= aluminium (AlMgSi0,5)				
					E	= stainless steel V2A (material No. 1.4301) with external rod only				
					S	= stainless steel V4A (material No. 1.4571) with external rod only				16
						P	**= blade bearing made of polyamide**			
						M	= brass			
						T	= Teflon			
						K	= ball bearing			17
							00	**= manual adjustment**		
							HF	= manual locking device		
							MK	= motor console for actuator		18 - 19
								0	**= blade control by internal gearwheels**	
								1	= blade control by external gearwheels	20

Product group (1=emcoair)	Model designation	Depth (mm)	Height (mm)	Width (mm)	Material	Material blade bearing	Adjustment	Blade adjustment	
1	**JKD**	**120**	**0200**	**0200**	**V**	**P**	**00**	**0**	**= Example**

Price list for model - JKD486 - Heights 200 · 300 · 400 mm

emcoair model	Depth (mm)	Height (mm) [1]	Width (mm) [1]	Material damper [2]	Material blade bearing	Adjustment [3]	Blade adjustment [5]	Price €/unit	Addition. charge for material blade bearing **brass (M) or Teflon (T)**	Addition. charge for blade bearing **as ball bearing (K)**
1JKD	120	0200	0200	V	P	00	0	**148.-**	22.-	67.-
			0300					**152.-**	22.-	67.-
			0400					**157.-**	22.-	67.-
			0500					**161.-**	22.-	67.-
			0600					**166.-**	22.-	67.-
			0700					**170.-**	22.-	67.-
			0800					**175.-**	22.-	67.-
			0900					**179.-**	22.-	67.-
			1000					**184.-**	22.-	67.-
1JKD	120	0300	0200	V	P	00	0	**190.-**	34.-	101.-
			0300					**197.-**	34.-	101.-
			0400					**204.-**	34.-	101.-
			0500					**211.-**	34.-	101.-
			0600					**217.-**	34.-	101.-
			0700					**224.-**	34.-	101.-
			0800					**231.-**	34.-	101.-
			0900					**237.-**	34.-	101.-
			1000					**244.-**	34.-	101.-
1JKD	120	0400	0200	V	P	00	0	**235.-**	45.-	134.-
			0300					**243.-**	45.-	134.-
			0400					**251.-**	45.-	134.-
			0500					**259.-**	45.-	134.-
			0600					**267.-**	45.-	134.-
			0700					**274.-**	45.-	134.-
			0800					**282.-**	45.-	134.-
			0900					**290.-**	45.-	134.-
			1000					**298.-**	45.-	134.-

[1] **The basic price for multileaf dampers with special dimensions is the price of the next highest standard size plus an additional charge for special dimensions (width +5%, height +15%, width and height +20%.**

[2] JK version (material): **aluminium (A): standard price x 3**
stainless steel V2A (E) with external rod: standard price x 4
stainless steel V4A (S) with external rod: standard price x 5

[3] Addition. charge for adjustment: **manual locking device (HF): 22.- €/unit**
motor console for actuator: 55.- €/unit

[5] Add. charge for blade adjustment: **adjustment with external rod: +20%**

Price list for model - JKD486 - Heights 500 · 600 · 700 mm

emcoair model	Depth (mm)	Height (mm) [1]	Width (mm) [1]	Material damper [2]	Material blade bearing	Adjustment [3]	Blade adjustment [5]	Price €/unit	Addition. charge for material blade bearing **brass (M) or Teflon (T)**	Addition. charge for blade bearing **as ball bearing (K)**
1JKD	120	0500	0200	V	P	00	0	**278.-**	56.-	168.-
			0300					**287.-**	56.-	168.-
			0400					**296.-**	56.-	168.-
			0500					**305.-**	56.-	168.-
			0600					**314.-**	56.-	168.-
			0700					**323.-**	56.-	168.-
			0800					**332.-**	56.-	168.-
			0900					**340.-**	56.-	168.-
			1000					**349.-**	56.-	168.-
1JKD	120	0600	0200	V	P	00	0	**321.-**	67.-	202.-
			0300					**332.-**	67.-	202.-
			0400					**342.-**	67.-	202.-
			0500					**352.-**	67.-	202.-
			0600					**362.-**	67.-	202.-
			0700					**372.-**	67.-	202.-
			0800					**382.-**	67.-	202.-
			0900					**392.-**	67.-	202.-
			1000					**402.-**	67.-	202.-
1JKD	120	0700	0200	V	P	00	0	**366.-**	78.-	235.-
			0300					**377.-**	78.-	235.-
			0400					**389.-**	78.-	235.-
			0500					**400.-**	78.-	235.-
			0600					**411.-**	78.-	235.-
			0700					**422.-**	78.-	235.-
			0800					**433.-**	78.-	235.-
			0900					**445.-**	78.-	235.-
			1000					**456.-**	78.-	235.-

[1] **The basic price for multileaf dampers with special dimensions is the price of the next highest standard size plus an additional charge for special dimensions (width +5%, height +15%, width and height +20%.**

[2] JK version (material): **aluminium (A): standard price x 3**
stainless steel V2A (E) with external rod: standard price x 4
stainless steel V4A (S) with external rod: standard price x 5

[3] Addition. charge for adjustment: **manual locking device (HF): 22.- €/unit**
motor console for actuator: 55.- €/unit

[5] Add. charge for blade adjustment: **adjustment with external rod: +20%**

Price list for model - JKD486 - Heights 800 · 900 · 1000 mm

emcoair model	Depth (mm)	Height (mm) [1]	Width (mm) [1]	Material damper [2]	Material blade bearing	Adjustment [3]	Lamellenverstellung [5]	Price €/unit	Addition. charge for material blade bearing **brass (M) or Teflon (T)**	Addition. charge for blade bearing **as ball bearing (K)**
1JKD	120	0800	0200	V	P	00	0	**409.-**	90.-	269.-
			0300					**421.-**	90.-	269.-
			0400					**433.-**	90.-	269.-
			0500					**446.-**	90.-	269.-
			0600					**458.-**	90.-	269.-
			0700					**470.-**	90.-	269.-
			0800					**483.-**	90.-	269.-
			0900					**495.-**	90.-	269.-
			1000					**507.-**	274.-	269.-
1JKD	120	0900	0200	V	P	00	0	**454.-**	101.-	302.-
			0300					**467.-**	101.-	302.-
			0400					**480.-**	101.-	302.-
			0500					**494.-**	101.-	302.-
			0600					**507.-**	101.-	302.-
			0700					**521.-**	101.-	302.-
			0800					**534.-**	101.-	302.-
			0900					**548.-**	101.-	302.-
			1000					**561.-**	101.-	302.-
1JKD	120	1000	0200	V	P	00	0	**497.-**	112.-	336.-
			0300					**513.-**	112.-	336.-
			0400					**529.-**	112.-	336.-
			0500					**544.-**	112.-	336.-
			0600					**560.-**	112.-	336.-
			0700					**576.-**	112.-	336.-
			0 800					**591.-**	112.-	336.-
			0900					**607.-**	112.-	336.-
			1000					**623.-**	112.-	336.-

[1] **The basic price for multileaf dampers with special dimensions is the price of the next highest standard size plus an additional charge for special dimensions (width +5%, height +15%, width and height +20%.**

[2] JK version (material): **aluminium (A): standard price x 3**
stainless steel V2A (E) with external rod: standard price x 4
stainless steel V4A (S) with external rod: standard price x 5

[3] Addition. charge for adjustment: **manual locking device (HF): 22.- €/unit**
motor console for actuator: 55.- €/unit

[5] Add. charge for blade adjustment: **adjustment with external rod: +20%**

emcoair volume flow rate controllers models VR10 – VR34

In basic models, volume flow rate controllers operate without any external energy source and thus maintain a constant volume flow rate within a varying pressure range. An advanced model can vary the volume flow rate between a minimum and maximum value via an electric or pneumatic actuator. This makes it possible to use the device in volume flow rate systems with various load ranges and in VVT systems.

Areas of application

- Constant volume flow rate systems
- VVT systems
- In air conditioning systems with two different load ranges, e.g. day-night or summer-winter operation modes
- Operation independent of mounting position
- Suitable for intake or exhaust air ducts
- For temperatures between –20°C und +100°C

Product Benefits

- Solid design
- High level of sensitivity
- High level of adjustment precision (deviation 5 – 10%)
- Maintenance-free
- Easy installation
- Independent control without external energy sources

Configuration

The tube consists of a sendzimir galvanized steel, with a blunt laser-welded joint. The laser-jointed pipe forms a smooth surface without any overlap cracks, resulting in a tight duct connection. The tubes are manufactured with rolling rubber ring sealing. A surrounding ribbing ensures high level of rigidity. Using the rolling rubber ring sealing means that additional sealing of the connection joints is not necessary. The diameter and diameter tolerance of the tubes correspond to existing norms for duct components. The fixing plate is guided by special bearings of PTFE. The volume flow rate contcylinder is equipped with a silencer to compensate for air oscillation. The silencer is attached to the fixing plate and prevents the damper from making any sound.
The fixing plate is connected to the adjustment mechanism (which is mounted on the outside of the duct) via lever system with a control spring. Depending on the application, volume flow rate contcylinder can be manufactured in stainless steel or with a PUR paint finish. In general, the tubes and attachements are designed so that their tightness corresponds to existing norms for circular duct components. This ensures that leakage loss and singing noises can be avoided.

Method of operation

The volume flow rate contcylinder is an automatic control mechanism that operates without any external energy source. Control is carried out by a fixing plate with double bearings and an attached lever system with a control spring. Due to the geometry of the the plate, an early response in low pressure differences at the contcylinder is achieved.
The choice of spring and the geometry of the levers ensure that there is a defined damper position for each pressure difference, which in turn ensures that the volume flow rate is held constant.

VR 10

VR 20

VR 31–33

Dimensions and weights model VR

Nom.-size	Selectable velocity	Possible range	Optimal range	Max. static press. Diff.	Dimensions						Weights		
DN	v [m/s]	$\dot{V}$ [m³/h]	$\dot{V}$ [m³/h]	Δp_{st} [Pa]	L 1 [mm]	L 2 [mm]	A 1 [mm]	B 1 [mm]	A 2 [mm]	B 2 [mm]	VR 10 [kg]	VR 20 [kg]	VR 30 [kg]
80	2.7-6.0	40 - 125	50 - 108	1000	120	40	155	105	225	100	0.5	1.7	2.0
100	2.7-6.0	70 - 220	75 - 170	1000	170	40	155	105	225	100	0.6	1.8	2.1
125	2.7-6.0	100 - 280	120 - 265	1000	170	40	155	105	225	100	0.8	2.0	2.3
140	2.7-6.0	140 - 400	150 - 330	1000	170	40	155	105	225	100	1.0	2.2	2.5
160	2.7-6.0	180 - 500	200 - 430	1000	240	40	155	105	225	100	1.1	2.3	2.6
200	2.7-6.0	250 - 900	300 - 670	1000	240	40	155	105	225	100	1.8	3.0	3.3
250	2.7-6.0	500 - 1500	480 - 1050	1000	240	40	155	105	225	100	2.5	3.7	4.0
315*	2.7-6.0	800 - 3000	770 - 1900	1000	340	60	155	105	300	150	5.2	6.7	7.8
400*	2.7-6.0	1000 - 4500	1240 - 2850	1000	385	60	230	160	300	150	8.4	9.9	10.0

(*design VR10: NW 315 L 1=220 mm; NW 400 L 1=295 mm)

Version key for models VR

											Charac.
1	**= emcoair**										1
	VR10	**= volume flow rate controller model VR10**									
	VR20	= volume flow rate controller model VR20									
	VR31	= volume flow rate controller model VR31									
	VR32	= volume flow rate controller model VR32									
	VR33	= volume flow rate controller model VR33									2 - 5
		080	**= 80 mm nominal diameter DN**								
		100	= 100 mm								
		125	= 125 mm								
		140	= 140 mm								
		160	= 160 mm								
		200	= 200 mm								
		250	= 250 mm								
		315	= 315 mm								
		400	= 400 mm								6 - 8
			V	**= material steel, galvanised**							
			E	= stainless steel V2A (material no. 1.4301)							
			S	= stainless steel V4A (material no. 1.4571)							9
				0000	**= surface unpainted**						
				9010	= varnished in RAL 9010, gloss polished (gloss level 75-84%)						
				XXXX	= varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)						
				0NCS	= varnished in NCS colour						
				00DB	= varnished in DB colour						
				RALP	= varnished in RAL-Pearl colour						
				RALG	= varnished in RAL colour, gloss level different from standard						
				YYYY	= special surface						
				UNBE	= untreated (stainless steel)						10 - 13
					HZ	**= central manual adjustment (model VR10 only)**					
					B1	= actuator Belimo LM230A (model VR31 only)					
					B8	= actuator Belimo NM230A (model VR31 DN 400 only)					
					B2	= actuator Belimo LM24A-MF (model VR32 only)					
					B7	= actuator Belimo NM24A-MF (model VR32 DN 400 only)					
					B3	= actuator Belimo LM24A (model VR33 only)					
					B6	= actuator Belimo NM24A (model VR33 DN 400 only)					
					PV	= pneumatic drive (model VR20 only)					14 - 15
						00	**= without insulation shell**				
						25	= with insulation shell (25 mm)				
						50	= with insulation shell (50 mm)				16 - 17
							0	**= without PUR varnish**			
							1	= with PUR varnish inside			18
Product group (1=emcoair)	Model designation	Diameter (mm)	Material	Surface	Adjustment	Insulation	Varnishing				
1	**VR10**	**080**	**V**	**0000**	**HZ**	**00**	**0**	**= Example**			

Price list for models VR10 · VR20 · VR31

emcoair model	Nominal size DN (mm)	Material [1]	Surface [2]	Adjustment	Insulation [3]	Varnishing	Price €/unit	Additional charge for varnishing **PUR varnish inside**
1VR10	080	V	0000	HZ	00	0	**84.-**	94.-
	100						**81.-**	94.-
	125						**87.-**	103.-
	140						**90.-**	103.-
	160						**91.-**	104.-
	200						**97.-**	113.-
	250						**108.-**	121.-
	315						**156.-**	174.-
	400						**222.-**	272.-
1VR20	080	V	0000	PV	00	0	**329.-**	94.-
	100						**326.-**	94.-
	125						**332.-**	103.-
	140						**335.-**	103.-
	160						**336.-**	104.-
	200						**342.-**	113.-
	250						**353.-**	121.-
	315						**401.-**	174.-
	400						**467.-**	272.-
1VR31	080	V	0000	B1	00	0	**296.-**	94.-
	100			B1			**293.-**	94.-
	125			B1			**299.-**	103.-
	140			B1			**302.-**	103.-
	160			B1			**303.-**	104.-
	200			B1			**309.-**	113.-
	250			B1			**320.-**	121.-
	315			B1			**368.-**	174.-
	400			B8			**443.-**	272.-

[1] [2] [3] Other versions on request.

Price list for models VR32· VR33

emcoair model	Nominal size DN (mm)	Material [1]	Surface [2]	Adjustment	Insulation [3]	Varnishing	Price €/unit	Additional charge for varnishing **PUR varnish inside**
1VR32	080	V	0000	B2	00	0	**412.-**	94.-
	100			B2			**409.-**	94.-
	125			B2			**415.-**	103.-
	140			B2			**418.-**	103.-
	160			B2			**419.-**	104.-
	200			B2			**425.-**	113.-
	250			B2			**436.-**	121.-
	315			B2			**484.-**	174.-
	400			B7			**558.-**	272.-
1VR33	080	V	0000	B3	00	0	**296.-**	94.-
	100			B3			**293.-**	94.-
	125			B3			**299.-**	103.-
	140			B3			**302.-**	103.-
	160			B3			**303.-**	104.-
	200			B3			**309.-**	113.-
	250			B3			**320.-**	121.-
	315			B3			**368.-**	174.-
	400			B6			**443.-**	272.-

[1] [2] [3] Other versions on request.

part 1.0.0 ventilation components basics
part 1.1.1 swirl diffusers
part 1.1.1 ceiling air diffusers
part 1.1.2 linear diffusers
part 1.1.3 circular pipe diffusers
part 1.1.4 displacement flow diffusers
part 1.1.5 industrial diffusers
part 1.1.5 wide angle nozzles
part 1.1.7 combination linear diffusers
part 1.1.8 floor diffusers
part 1.1.6 grids
part 1.3.0 dampers and controllers models VR 10–33

emcoair electronic volume flow rate controller model EVR

EVR is a circular volume flow rate controller for variable volume flow systems. It is suitable for use in both supply and exhaust air lines.

Areas of application

- VVT systems
- Suitable for intake or exhaust air ducts
- Operation independent of mounting position
- For temperatures between 0 °C und 50 °C

Product benefits

- Solid design
- High level of sensitivity
- High level of control precision (deviation under observation of installation conditions max. 10%)
- Maintenance-free control damper mechanism
- Pressure difference range 5 - 600 Pa
- Pressure difference sensor is resistant to dirt

Configuration

The tube consists of galvanized steel with a blunt laser-welded joint. The result is a smooth surface without any overlap cracks. Spigots on both sides of the casing fit pipes according to DIN 24145 and DIN 24146 and come standardly equipped with a lip seal. The control damper is of galvanized steel with a surrounding rubber seal. The shaft of the control damper is supported in plastic bearings. The pressure difference sensor consists of an aluminum profile and when looking in flow direction is always located in front of the control damper. It is designed so that the mean value of the pressure difference is automatically measured via the diameter of the duct.

The control components (controller, transmitter, actuator) are integral parts of the volume flow rate controller and are mounted and connected at the factory.

Method of operation

The pressure difference sensor is designed and mounted in the duct so that the overall airflow pressure is measured on the inlet side and static pressure on the outlet side.

The difference between the two pressures (differential head) is quadratically dependent on the flow velocity in the duct and thus with a known cross-section functions as a gauge for volume flow. A pressure difference sensor gathers the pressure difference data and sends it as a sensor signal to the control unit. After it reaches the control unit, the signal is converted to a linear actual-value signal (stress signal). The controller compares the actual value with the set target value of 0 to 10 Volt.

If there is deviation, adjusting the control damper will hold the volume flow at a constant value over the entire pressure difference range.

Depending on the controller type or make, measurement of pressure difference or flow velocity will be done statically or dynamically. In static measurement, pressure difference bears against a diaphragm, whose distortion is then converted to stress signal. In dynamic measurement, a short flow of air passes through the pressure difference sensor. In the process, flow velocity is measured and processed further as an electronic signal, much like with a thermal anemometer.

When closed, the control damper is airtight according to DIN 1946, T2.

part 1.0.0 ventilation components basics
part 1.1.1 swirl diffusers
part 1.1.1 ceiling air diffusers
part 1.1.2 linear diffusers
part 1.1.3 circular pipe diffusers
part 1.1.4 displacement flow diffusers
part 1.1.5 industrial diffusers
part 1.1.5 wide angle nozzles
part 1.1.7 combination linear diffusers
part 1.1.8 floor diffusers
part 1.1.6 grids
part 1.3.0 dampers and controllers model EVR

Data acquisition
as seen in section (air inlet)

Dimensions and weights

Nominal diameter	Dimensions			Weights	
DN (mm)	L [mm]	ØD [mm]	ØD 1 [mm]	Standard [kg]	with insulation [kg]
100	400	98	178	1.75	3.2
125	400	123	223	2.1	3.7
160	400	158	258	2.4	4.4
200	400	198	298	2.9	5.3
250	600	248	348	4.5	8.1
315	600	313	413	7.1	11.4
400	600	398	498	9.3	14.5

Version key for model EVR

	Charac.
1 = emcoair	1
0EVR = electronic volume flow rate controller model EVR	2 - 5
100 = 100 mm nominal diameter DN	
125 = 125 mm	
160 = 160 mm	
200 = 200 mm	
250 = 250 mm	
315 = 315 mm	
400 = 400 mm	6 - 8
V = material steel, galvanised	
E = stainless steel V2A (material no. 1.4301)	
S = stainless steel V4A (material no. 1.4571)	9
0000 = surface unpainted	
9010 = varnished in RAL 9010, gloss polished (gloss level 75-84%)	
XXXX = varnished in RAL colour at own's option, gloss polished (gloss level 75-84%)	
0NCS = varnished in NCS colour	
00DB = varnished in DB colour	
RALP = varnished in RAL-Pearl colour	
RALG = varnished in RAL colour, gloss level different from standard	
YYYY = special surface	
UNBE = untreated (stainless steel)	10 - 13
01 = electric volume flow rate controller Belimo model LMV-D3-MOD (dynamic, compact controller)	
02 = electric volume flow rate controller Belimo model NMV-D3-MOD (dynamic, compact controller)	
04 = electric volume flow rate controller Belimo model LMV-D3-MP (dynamic, compact controller)	
05 = electric volume flow rate controller Belimo model NMV-D3-MP (dynamic, compact controller)	
07 = electric volume flow rate controller Belimo model LMV-D3-LON (dynamic, compact controller)	
08 = electric volume flow rate controller Belimo model NMV-D3-LON (dynamic, compact controller)	
YY = actuator (branding declaration)	14 - 15
00 = without insulation shell	
50 = with insulation shell (50 mm)	16 - 17
0 = activation/control signal 0-10V	
2 = 2-10V	18
D = dynamic measuring principle (with clean air)	19
0 = without PUR varnish	
1 = with PUR varnish internal	20

Product group (1=emcoair)	Model designation	Diameter (mm)	Material	Surface	Controller	Insulation	Activation / control signal	Measuring principle	Varnishing	
1	**0EVR**	**100**	**V**	**0000**	**01**	**00**	**0**	**D**	**0**	**= Example**

Price list for model EVR

emcoair model	Nominal diameter DN (mm)	Material [1]	Surface [2]	Controller	Insulation [3]	Activation/ control signal	Measure principle	Compact controller	Price €/unit	Additional charge for PUR varnish internal
10EVR	100	V	0000	04	00	0	D	LMV-D3-MP	**466.-**	94.-
	125			04				LMV-D3-MP	**476.-**	103.-
	160			04				LMV-D3-MP	**480.-**	104.-
	200			04				LMV-D3-MP	**490.-**	113.-
	250			04				LMV-D3-MP	**495.-**	121.-
	315			05				NMV-D3-MP	**547.-**	174.-
	400			05				NMV-D3-MP	**565.-**	272.-
10EVR	100	V	0000	01	00	0	D	LMV-D3-MOD	**507.-**	94.-
	125			01				LMV-D3-MOD	**517.-**	103.-
	160			01				LMV-D3-MOD	**521.-**	104.-
	200			01				LMV-D3-MOD	**531.-**	113.-
	250			01				LMV-D3-MOD	**536.-**	121.-
	315			02				NMV-D3-MOD	**588.-**	174.-
	400			02				NMV-D3-MOD	**606.-**	272.-
10EVR	100	V	0000	07	00	0	D	LMV-D3-LON	**584.-**	94.-
	125			07				LMV-D3-LON	**594.-**	103.-
	160			07				LMV-D3-LON	**598.-**	104.-
	200			07				LMV-D3-LON	**608.-**	113.-
	250			07				LMV-D3-LON	**613.-**	121.-
	315			08				NMV-D3-LON	**664.-**	174.-
	400			08				NMV-D3-LON	**682.-**	272.-

[1] [2] [3] Other versions on request.

emcoair electronic volume flow rate contoller model VRJK – standard

The VRJK is an electronic volume flow rate controller with a square or rectangular shape.
The controller is used for constant or infinitely adjustable flow volumes with complete shut-off of air volume flows in ventilation systems. It can be used in both supply-air and exhaust-air lines.

Areas of application

- In variable volume-flow systems (VVS)
- In supply air or exhaust-air lines
- Can be fitted anywhere in pipeline systems
- At temperatures between 0 °C and 60 °C
- In the aerosol version, in the kitchen exhaust air
- After a separator system with at least 90 - 95 % separation efficiency

Product benefits

- Product benefits
- Robust construction
- High response sensitivity
- High control accuracy (deviation when installation requirements are observed max. 10%)
- Maintenance-free butterfly-valve mechanism
- Differance pressure range 10 - 1000 Pa
- Differance pressure sensors resistance to dirt

Configuration

The square or rectangular control unit consists of a flow unit with connecting frame. The data acquisition system with universal-location integrated dynamic pressure amplifier (DPA) is fitted to the air intake side.
The pipe-shaped aluminium profile with external diameter 32 mm is fitted transversely to the flow direction across the entire pipe cross-section.
Pressure measured via the continually opened measuring gap across the entire cross-sectional area (averaging).
The data acquisition system for measuring dynamic differential pressure consists of a special aluminium profile and is located upstream of the regulating device.
The downstream regulating valve is optionally available in an airtight version (in accordance with DIN 1946 Part 4) inc. the valve bearing in plastic Tmax = 80 °C.

The electronic controller for variable flow volumes for switching external reference signals is operated with a supply voltage of 24 V AC.
Control voltage can be set from 2 to 10 V DC or 0 to 10 V DC as applicable.
Optionally with digital controller inc. integrated drive and P/PI control response, also suitable for forced regulation. Flow volume measurement using current value signals is also possible during subsequent operation. That also applies to adjustment of the factory-set maximum and minimum flow volumes.
The control components (controller, transmitter and actuator) are integral parts of the air volume controller, and are installed, configured and connected in the factory.

emcoair VRJK aerosol model
The emcoair VRJK aerosol is an electronic volume flow rate controller for constant or infinitely adjustable air volume flows containing aerosols*** (oil and grease) in ventilation systems.

Configuration
The control unit consists of a rectangular flow unit with connecting frame. The data acquisition system with universal-location integrated dynamic pressure amplifier (DPA) is fitted to the air intake side.
The pipe-shaped aluminium profile (external Ø = 32 mm) is fitted transversely to the flow direction over the entire length. Pressure measured via the continually opened measuring gap across the entire cross-sectional area. All components are fully installed and pre-set to the operating characteristics in the factory.
The downstream control valve is condensate tight inc. the oil- and grease-resistant valve bearing in Teflon (Tmax 120°C). Frame and damper blades are made of galvanised sheet steel; the valve gear is outside.

1. Duct piece in sendzimir galvanised steel plate in accordance with DIN 24190 pressure level 1; with SBM connecting frame, corners and side wall (welded); transverse beading for sound absorption; reinforcement up to 1000 Pa; leak tightness class II in accordance with DIN 24194
2. Control valve, reverse, with double-walled damper blades in 0.63-mm galvanised steel, mounted on valve axles; frame made of galvanised sheet steel, connecting rod for valve lever mounted on brass bushings
3. Controller VRP model
4. Static differential pressure sensor, VFP model
5. PVC tube
6. Integrated data acquisition system (DPA)
7. Valve gear
8. Actuator

*** Please follow installation instructions!

As exhaust air controller, placed after an aerosol separator with a separation efficiency of at least 90 - 95 %

Method of operation VRJK

Volume flow control is generally understood to mean the load-dependent adjustment of air volume flow for certain rooms, room areas or building sections. To do this, as a general rule, a control unit is fitted with a proportional controller and a data logging system. The method of operation is highly dependent on the range of application of the chosen control unit.

The VRJK's differential pressure sensor is designed and fitted in the flow unit in such a way that the flow's total pressure is measured on the upstream side, and the static pressure on the downstream side.

The difference between these two pressures (effective pressure) depends quadratically on the flow velocity in the pipe and is therefore a measurement for the flow volume with a known cross-section. The pressure difference is recorded using a differential pressure sensor and transmitted to the control unit as a sensor signal. The sensor signal is converted in the control unit into a linear actual value (voltage signal). The controller compares the actual value with the set point set from zero (2) to 10 volts.
In case of a discrepancy, the flow volume is maintained at a constant over the entire differential pressure area by the control flap's regulation by the actuator.

Depending on the controller model/make, the differential pressure, or the flow rate, measurement is taken statically or dynamically.
With a static measurement, the pressure difference is applied directly to a membrane, whose deformation is converted into a voltage signal.
In the dynamic measurement, a small stream of air flows through the pressure sensor.
In a manner similar to that of a thermal anemometer, the flow rate is measured and processed further as an electrical signal. In the closed position, the butterfly valve is airtight in accordance with the DIN standard.

Installation instructions

The installation position for the VRJK is crucial for the measuring accuracy of the DPA profile. The task of the data acquisition system (DPA – dynamic pressure amplifier) is the most accurate possible measurement of the average air speed. And it has practically no inherent resistance, which leads to higher pressure losses and consequently to higher operating costs.

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part 1.1.4 displacement flow diffusers
part 1.1.5 industrial diffusers
part 1.1.5 wide angle nozzles
part 1.1.7 combination linear diffusers
part 1.1.8 floor diffusers
part 1.1.6 grids
part 1.3.0 dampers and controllers model VRJK

Key:
Overall width = lamellae length

Controller models
1 Belimo LMV-D3 MP
2 Belimo NMV-D3 MP
3 Belimo SMV-D3 MP predefinition with a torque for 1000 Pa

DPA sensor model
E Single connection
D Double connection, from a width of 800 mm two sensors are used

Technical data (Quick selection) – Dimensions · Size · Volume flow ranges

Constr. height*	Constr. width*	Constr. length	Lamellae depth	Air speed v [m/s]					Controller model	DPA sensor model
				2	4	6	8	10		
H [mm]	W [mm]	L [mm]	[mm]	Air volume flow $\dot{V}_0$ [m³/h]						
200	200	350	100	288	576	864	1152	1440	1	E
200	300			432	864	1296	1728	2160	1	E
200	400			576	1152	1728	2304	2880	2	E
200	500			720	1440	2160	2880	3600	2	E
200	600			864	1728	2592	3456	4320	2	E
200	700			1008	2016	3024	4032	5040	3	E
200	800			1152	2304	3456	4608	5760	3	D
200	900			1296	2592	3888	5184	6480	3	D
200	1000			1440	2880	4320	5760	7200	3	D
200	1200			1728	3456	5184	6912	8640	3	D
300	200	350	100	432	864	1296	1728	2160	1	E
300	300			648	1296	1944	2592	3240	1	E
300	400			864	1728	2592	3456	4320	2	E
300	500			1080	2160	3240	4320	5400	2	E
300	600			1296	2592	3888	5184	6480	2	E
300	700			1512	3024	4536	6048	7560	3	E
300	800			1728	3456	5184	6912	8640	3	D
300	900			1944	3888	5832	7776	9720	3	D
300	1000			2160	4320	6480	8640	10800	3	D
300	1200			2592	5184	7776	10368	12960	3	D

*clear internal dimension

Technical data (Quick selection) – Dimensions · Size · Volume flow ranges

Constr. height*	Constr. width*	Constr. length	Lamellae depth	Air speed v [m/s]					Controller model	DPA sensor model
				2	4	6	8	10		
H [mm]	W [mm]	L [mm]	[mm]	Air volume flow $\dot{V}_0$ [m³/h]						
400	200	350	100	576	1152	1728	2304	2880	1	E
400	300			864	1728	2592	3456	4320	1	E
400	400			1152	2304	3456	4608	5760	2	E
400	500			1440	2880	4320	5760	7200	2	E
400	600			1728	3456	5184	6912	8640	2	E
400	700			2016	4032	6048	8064	10080	3	E
400	800			2304	4608	6912	9216	11520	3	D
400	900			2592	5184	7776	10368	12960	3	D
400	1000			2880	5760	8640	11520	14400	3	D
400	1200			3456	6912	10368	13824	17280	3	D
500	200	350	100	720	1440	2160	2880	3600	1	E
500	300			1080	2160	3240	4320	5400	1	E
500	400			1440	2880	4320	5760	7200	2	E
500	500			1800	3600	5400	7200	9000	2	E
500	600			2160	4320	6480	8640	10800	2	E
500	700			2520	5040	7560	10080	12600	3	E
500	800			2880	5760	8640	11520	14400	3	D
500	900			3240	6480	9720	12960	16200	3	D
500	1000			3600	7200	10800	14400	18000	3	D
500	1200			4320	8640	12960	17280	21600	3	D
600	200	350	100	864	1728	2592	3456	4320	1	E
600	300			1296	2592	3888	5184	6480	1	E
600	400			1728	3456	5184	6912	8640	2	E
600	500			2160	4320	6480	8640	10800	2	E
600	600			2592	5184	7776	10368	12960	2	E
600	700			3024	6048	9072	12096	15120	3	E
600	800			3456	6912	10368	13824	17280	3	D
600	900			3888	7776	11664	15552	19440	3	D
600	1000			4320	8640	12960	17280	21600	3	D
600	1200			5184	10368	15552	20736	25920	3	D
700	200	350	100	1008	2016	3024	4032	5040	1	E
700	300			1512	3024	4536	6048	7560	1	E
700	400			2016	4032	6048	8064	10080	2	E
700	500			2520	5040	7560	10080	12600	2	E
700	600			3024	6048	9072	12096	15120	2	E
700	700			3528	7056	10584	14112	17640	3	E
700	800			4032	8064	12096	16128	20160	3	D
700	900			4536	9072	13608	18144	22680	3	D
700	1000			5040	10080	15120	20160	25200	3	D
700	1200			6048	12096	18144	24192	30240	3	D

*clear internal dimension

Technical data (Quick selection) – Dimensions · Size · Volume flow ranges

Constr. height*	Constr. width*	Constr. length	Lamellae depth	Air speed v [m/s]					Controller model	DPA sensor model
				2	4	6	8	10		
H [mm]	W [mm]	L [mm]	[mm]	Air volume flow $\dot{V}_0$ [m³/h]						
800	200	350	100	1152	2304	3456	4608	5760	1	E
800	300			1728	3456	5184	6912	8640	1	E
800	400			2304	4608	6912	9216	11520	2	E
800	500			2880	5760	8640	11520	14400	2	E
800	600			3456	6912	10368	13824	17280	2	E
800	700			4032	8064	12096	16128	20160	3	E
800	800			4608	9216	13824	18432	23040	3	D
800	900			5184	10368	15552	20736	25920	3	D
800	1000			5760	11520	17280	23040	28800	3	D
800	1200			6912	13824	20736	27648	34560	3	D
900	200	350	100	1296	2592	3888	5184	6480	1	E
900	300			1944	3888	5832	7776	9720	1	E
900	400			2592	5184	7776	10368	12960	2	E
900	500			3240	6480	9720	12960	16200	2	E
900	600			3888	7776	11664	15552	19440	2	E
900	700			4536	9072	13608	18144	22680	3	E
900	800			5184	10368	15552	20736	25920	3	D
900	900			5832	11664	17496	23328	29160	3	D
900	1000			6480	12960	19440	25920	32400	3	D
900	1200			7128	14256	21384	28512	35640	3	D
1000	200	350	100	1440	2880	4320	5760	7200	1	E
1000	300			2160	4320	6480	8640	10800	2	E
1000	400			2880	5760	8640	11520	14400	2	E
1000	500			3600	7200	10800	14400	18000	3	E
1000	600			4320	8640	12960	17280	21600	3	E
1100	200	350	100	1584	3168	4752	6336	7920	1	E
1100	300			2376	4752	7128	9504	11880	2	E
1100	400			3168	6336	9504	12672	15840	2	E
1100	500			3960	7920	11880	15840	19800	3	E

*clear internal dimension

Technical data (Quick selection) – Dimensions · Size · Volume flow ranges

Constr. height*	Constr. width*	Constr. length	Lamellae depth	Air speed v [m/s]					Controller model	DPA sensor model
				2	4	6	8	10		
H [mm]	W [mm]	L [mm]	[mm]	Air volume flow $\dot{V}_0$ [m³/h]						
510	400	350	165	1469	2938	4406	5875	7344	1	E
675	400			1944	3888	5832	7776	9720	2	E
840	400			2419	4838	7258	9677	12096	2	E
1005	400			2894	5789	8683	11578	14472	2	E
1170	400			3370	6739	10109	13478	16848	3	E
1335	400			3845	7690	11534	15379	19224	3	E
1500	400			4320	8640	12960	17280	21600	3	E
1665	400			4795	9590	14386	19181	23976	3	E
345	500	350	165	1242	2484	3726	4968	6210	1	E
510	500			1836	3672	5508	7344	9180	2	E
675	500			2430	4860	7290	9720	12150	2	E
840	500			3024	6048	9072	12096	15120	2	E
1005	500			3618	7236	10854	14472	18090	3	E
1170	500			4212	8424	12636	16848	21060	3	E
1335	500			4806	9612	14418	19224	24030	3	E
1500	500			5400	10800	16200	21600	27000	3	E
345	600	350	165	1490	2981	4471	5962	7452	2	E
510	600			2203	4406	6610	8813	11016	2	E
675	600			2916	5832	8748	11664	14580	2	E
840	600			3629	7258	10886	14515	18144	2	E
1005	600			4342	8683	13025	17366	21708	3	E
1170	600			5054	10109	15163	20218	25272	3	E
1335	600			5767	11534	17302	23069	28836	3	E
1500	600			6480	12960	19440	25920	32400	3	E
345	700	350	165	1739	3478	5216	6955	8694	2	E
510	700			2570	5141	7711	10282	12852	2	E
675	700			3402	6804	10206	13608	17010	2	E
840	700			4234	8467	12701	16934	21168	2	E
1005	700			5065	10130	15196	20261	25326	3	E
1170	700			5897	11794	17690	23587	29484	3	E
1335	700			6728	13457	20185	26914	33642	3	E
345	800	350	165	1987	3974	5962	7949	9936	2	D
510	800			2938	5875	8813	11750	14688	2	D
675	800			3888	7776	11664	15552	19440	3	D
840	800			4838	9677	14515	19354	24192	3	D
1005	800			5789	11578	17366	23155	28944	3	D
1170	800			6739	13478	20218	26957	33696	3	D
1335	800			7690	15379	23069	30758	38448	3	D

*clear internal dimension

part 1.0.0 ventilation components basics
part 1.1.1 swirl diffusers
part 1.1.1 ceiling air diffusers
part 1.1.2 linear diffusers
part 1.1.3 circular pipe diffusers
part 1.1.4 displacement flow diffusers
part 1.1.5 industrial diffusers
part 1.1.5 wide angle nozzles
part 1.1.7 combination linear diffusers
part 1.1.8 floor diffusers
part 1.1.6 grids
part 1.3.0 dampers and controllers model VRJK

Technical data (Quick selection) – Dimensions · Size · Volume flow ranges

Constr. height*	Constr. width*	Constr. length	Lamellae depth	Air speed v [m/s]					Controller model	DPA sensor model
				2	4	6	8	10		
H [mm]	W [mm]	L [mm]	[mm]	Air volume flow $\dot{V}_0$ [m³/h]						
345	900	350	165	2236	4471	6707	8942	11178	2	D
510	900			3305	6610	9914	13219	16524	2	D
675	900			4374	8748	13122	17496	21870	3	D
840	900			5443	10886	16330	21773	27216	3	D
1005	900			6512	13025	19537	26050	32562	3	D
1170	900			7582	15163	22745	30326	37908	3	D
345	1000	350	165	2484	4968	7452	9936	12420	2	D
510	1000			3672	7344	11016	14688	18360	2	D
675	1000			4860	9720	14580	19440	24300	3	D
840	1000			6048	12096	18144	24192	30240	3	D
1005	1000			7236	14472	21708	28944	36180	3	D
1170	1000			8424	16848	25272	33696	42120	3	D
345	1200	350	165	2981	5962	8942	11923	14904	2	D
510	1200			4406	8813	13219	17626	22032	2	D
675	1200			5832	11664	17496	23328	29160	3	D
840	1200			7258	14515	21773	29030	36288	3	D
1005	1200			8683	17366	26050	34733	43416	3	D
345	1400	350	165	3478	6955	10433	13910	17388	2	D
510	1400			5141	10282	15422	20563	25704	3	D
675	1400			6804	13608	20412	27216	34020	3	D
840	1400			8467	16934	25402	33869	42336	3	D
345	1600	350	165	3974	7949	11923	15898	19872	2	D
510	1600			5875	11750	17626	23501	29376	3	D
675	1600			7776	15552	23328	31104	38880	3	D
840	1600			9677	19354	29030	38707	48384	3	D

*clear internal dimension

Version key for model VRJK

		Charac.
1	**= emcoair**	1
VRJS	**= emcoair electronic volume flow rate contoller model VRJK – standard**	
VRJA	= emcoair electronic volume flow rate contoller model VRJK aerosol (measuring principle: static only)	2 - 5
0200	**mm = construction height (lamellae height 100 mm)**	
0300	mm (lamellae height 100 mm)	
0345	mm (lamellae height 165 mm)	
0400	mm (lamellae height 100 mm)	
0500	mm (lamellae height 100 mm)	
0510	mm (lamellae height 165 mm)	
0600	mm (lamellae height 100 mm)	
0675	mm (lamellae height 165 mm)	
0700	mm (lamellae height 100 mm)	
0800	mm (lamellae height 100 mm)	
0840	mm (lamellae height 165 mm)	
0900	mm (lamellae height 100 mm)	
1000	mm (lamellae height 100 mm)	
1005	mm (lamellae height 165 mm)	
1100	mm (lamellae height 100 mm)	
1170	mm (lamellae height 165 mm)	
1335	mm (lamellae height 165 mm)	
1500	mm (lamellae height 165 mm)	
1665	mm (lamellae height 165 mm)	
XXXX	other (please specify the requested dimension)	6 - 9
0200	**mm = construction width**	
0300	mm	
0400	mm	
0500	mm	
0600	mm	
0700	mm	
0800	mm	
0900	mm	
1000	mm	
1100	mm	
1200	mm	
1400	mm	
1600	mm	
XXXX	other (please specify the requested dimension)	10 - 13
V	**= material steel, Sendzimir galvanised (casing and control damper)**	
E	= stainless steel V2A (material no. 1.4301), VRJK aerosol model only	
S	= stainless steel V4A (material no. 1.4571), VRJK aerosol model only	14
0000	**= surface untreated, galvanised**	
YYYY	= special surface / varnishing	
UNBE	= stainless steel, untreated	15 - 18
01	**= controller Belimo LMV-D3 MOD (dynamic, compact controller)**	
02	= Belimo NMV-D3 MOD (dynamic, compact controller)	
04	= Belimo LMV-D3 MP (dynamic, compact controller)	
05	= Belimo NMV-D3 MP (dynamic, compact controller)	
06	= Belimo SMV-D3 MP (dynamic, compact controller)	19 - 20

						07	= Belimo LMV-D3 LON (dynamic, compact controller)							
						08	= Belimo NMV-D3 LON (dynamic, compact controller)							
						09	= Belimo VRD3 (dynamic, to be combined with Belimo actuator)							
						10	= Belimo VRP (static, to be combined with Belimo actuator)							
						11	= Belimo VRP-STP (static, to be combined with Belimo actuator)							
						12	= Sauter RLP 10 (pneumatic, to be combined with Sauter actuator)							
						13	= Sauter RLP 20 (pneumatic, to be combined with Sauter actuator)							
						14	= Sauter RLP 100 (pneumatic, to be combined with Sauter actuator)	19 - 20						
							1 = sensor Belimo VFP-100 (static)							
							3 = sensor Belimo VFP-300 (static)							
							6 = sensor Belimo VFP-600 (static)							
							0 = sensor is included in controller / pressure transmitter (at all compact controllers)	21						
								BB = Belimo LM24A-V (for controllers Belimo VRP and VRD3)						
								BC = Belimo NM24A-V (for controllers Belimo VRP and VRD3)						
								BD = Belimo SF24A-V (for controllers Belimo VRP and VRD3)						
								BE = Belimo SM24A-V (for controllers Belimo VRP and VRD3)						
								A1 = Sauter AK41 P (3 Nm), pneumatic						
								A2 = Sauter AK42 P (10 Nm), pneumatic						
								00 = actuator is included in controller / pressure transmitter	22 - 23					
									00 = without insulation shell					
									50 = with insulation shell in 50-mm mineral wool	24 - 25				
										0 = activation / control signal 0 - 10 Volt				
										2 = 2 - 10 Volt	26			
											P = lamella bearings in polyamide, maintenance-free (VRJK standard model only)			
											K = ball bearing, encapsulated for high differential pressures (VRJK standard model only)			
											T = Teflon bearing, resistant to disinfectants (standard with VRJK aerosol)			
											M = brass bearing (as option for VRJK standard model only)	27		
												0 = internal lamella actuator (VRJK standard model only)		
												1 = external rod	28	
													1 = tightness class 1-2	
													4 = tightness class 4 (acc. to prEN 1751)	29
Product group (1=emcoair)	Model designation	Construction height in mm	Construction width in mm	Material	Surface	Controller / pressure transmitter	Sensor	Actuator	Insulation	Activation	Lamella bearings	Lamella actuator	Tightness class	
1	**VRJS**	**0200**	**0200**	**V**	**0000**	**01**	**1**	**BB**	**00**	**0**	**P**	**0**	**1**	**= Example**

Overview and assignment of the possible controllers, sensors and operators

Controller	Sensor	Operator
Belimo LMV-D3 MOD	contained	contained
Belimo NMV-D3 MOD	contained	contained
Belimo LMV-D3 MP	contained	contained
Belimo NMV-D3 MP	contained	contained
Belimo SMV-D3 MP	contained	contained
Belimo LMV-D3 LON	contained	contained
Belimo NMV-D3 LON	contained	contained
Belimo VRD3	contained	Belimo LM 24 A-V
		Belimo NM 24 A-V
		Belimo SF 24 A-V
		Belimo SM 24 A-V
Belimo VRP	Belimo VFP - 100	Belimo LM 24 A-V
	Belimo VFP - 300	Belimo NM 24 A-V
	Belimo VFP - 600	Belimo SF 24 A-V
		Belimo SM 24 A-V
Belimo VRP - STP	Belimo VFP - 100	Belimo LM 24 A-V
	Belimo VFP - 300	Belimo NM 24 A-V
	Belimo VFP - 600	Belimo SF 24 A-V
		Belimo SM 24 A-V
Sauter RLP 10	contained	AK41P
		AK42P
Sauter RLP 20	contained	AK41P
		AK42P
Sauter RLP 100	contained	AK41P
		AK42P

Assignment of the operators to be used based on the height and width of the multileaf damper
Widths of 200 to 700 mm

		Width (mm)					
		200	300	400	500	600	700
Height (mm)	200	LM / LMV / AK41P	LM / LMV / AK41P	NM / NMV / AK42P	NM / NMV / AK42P	NM / NMV / AK42P	SM / SF
	300	LM / LMV / AK41P	LM / LMV / AK41P	NM / NMV / AK42P	NM / NMV / AK42P	NM / NMV / AK42P	SM / SF
	345	--	--	--	LM / LMV / AK41P	NM / NMV / AK42P	NM / NMV / AK42P
	400	LM / LMV / AK41P	LM / LMV / AK41P	NM / NMV / AK42P	NM / NMV / AK42P	SM / SMV / SF	SM / SF
	500	LM / LMV / AK41P	LM / LMV / AK41P	NM / NMV / AK42P	NM / NMV / AK42P	SM / SMV / SF	SM / SF
	510	--	--	NM / NMV / AK42P	NM / NMV / AK42P	NM / NMV / AK42P	NM / NMV / AK42P
	600	LM / LMV / AK41P	NM / NMV / AK42P	NM / NMV / AK42P	NM / NMV / AK42P	SM / SMV / SF	SM / SF
	675	--	--	NM / NMV / AK42P	NM / NMV / AK42P	NM / NMV / AK42P	NM / NMV / AK42P
	700	LM / LMV / AK41P	NM / NMV / AK42P	NM / NMV / AK42P	NM / NMV / AK42P	SM / SMV / SF	SM / SF
	800	LM / LMV / AK41P	NM / NMV / AK42P	NM / NMV / AK42P	NM / NMV / AK42P	SM / SMV / SF	SM / SF
	840	--	--	NM / NMV / AK42P	NM / NMV / AK42P	NM / NMV / AK42P	NM / NMV / AK42P
	900	LM / LMV / AK41P	NM / NMV / AK42P	NM / NMV / AK42P	NM / NMV / AK42P	SM / SMV / SF	SM / SF
	1000	LM / LMV / AK41P	NM / NMV / AK42P	NM / NMV / AK42P	SM / SF	SM / SF	--
	1005	--	--	NM / NMV / AK42P	SM / SF	SM / SF	SM / SF
	1100	LM / LMV / AK41P	NM / NMV / AK42P	NM / NMV / AK42P	SM / SF	--	--
	1170	--	--	SM / SF	SM / SF	SM / SF	SM / SF
	1335	--	--	SM / SF	SM / SF	SM / SF	SM / SF
	1500	--	--	SM / SF	SM / SF	SM / SF	--
	1665	--	--	SM / SF	--	--	--

Widths of 800 to 1600 mm

		Width (mm)					
		800	900	1000	1200	1400	1600
Height (mm)	200	SM / SF	SM / SF	SM / SF	SM / SF	--	--
	300	SM / SF	SM / SF	SM / SF	SM / SF	--	--
	345	NM / NMV / AK42P	NM / NMV / AK42P	NM / NMV / AK42P	NM / NMV / AK42P	NM / NMV / AK42P	NM / NMV / AK42P
	400	SM / SF	SM / SF	SM / SF	SM / SF	--	--
	500	SM / SF	SM / SF	SM / SF	SM / SF	--	--
	510	NM / NMV / AK42P	NM / NMV / AK42P	NM / NMV / AK42P	NM / NMV / AK42P	SM / SF	SM / SF
	600	SM / SF	SM / SF	SM / SF	SM / SF	--	--
	675	SM / SF	SM / SF	SM / SF	SM / SF	SM / SF	SM / SF
	700	SM / SF	SM / SF	SM / SF	SM / SF	--	--
	800	SM / SF	SM / SF	SM / SF	SM / SF	--	--
	840	SM / SF	SM / SF	SM / SF	SM / SF	SM / SF	SM / SF
	900	SM / SF	SM / SF	SM / SF	SM / SF	--	--
	1000	--	--	--	--	--	--
	1005	SM / SF	SM / SF	SM / SF	SM / SF	--	--
	1100	--	--	--	--	--	--
	1170	SM / SF	SM / SF	SM / SF	--	--	--
	1335	SM / SF	--	--	--	--	--
	1500	--	--	--	--	--	--
	1665	--	--	--	--	--	--

Price list for model VRJK - Heights 200 · 300 · 345 · 400 mm

emcoair model	Construction height in mm	Construction width in mm	Material	Surface [1), 2)]	Controller/ pressure transmitter	Sensor	Actuator	Insulation shell	Activation/ control signal	Lamella bearings	Lamella actuator	Tightness class	Price €/unit
1VRJS	0200	0200	V	0000	04	0	00	00	0	P	0	1	**696.-**
		0300			04								**706.-**
		0400			05								**753.-**
		0500			05								**763.-**
		0600			05								**773.-**
		0700			06								**820.-**
		0800			06								**920.-**
		0900			06								**930.-**
		1000			06								**940.-**
		1100			06								**950.-**
		1200			06								**960.-**
1VRJS	0300	0200	V	0000	04	0	00	00	0	P	0	1	**796.-**
		0300			04								**807.-**
		0400			05								**855.-**
		0500			05								**866.-**
		0600			05								**877.-**
		0700			06								**925.-**
		0800			06								**1026.-**
		0900			06								**1037.-**
		1000			06								**1048.-**
		1100			06								**1059.-**
		1200			06								**1070.-**
1VRJS	0345	0300	V	0000	04	0	00	00	0	P	0	1	**771.-**
		0400			04								**791.-**
		0500			04								**811.-**
		0600			05								**868.-**
		0700			05								**888.-**
		0800			05								**908.-**
		0900			05								**1008.-**
		1000			05								**1028.-**
		1200			05								**1048.-**
		1400			05								**1068.-**
		1600			05								**1088.-**
1VRJS	0400	0200	V	0000	04	0	00	00	0	P	0	1	**896.-**
		0300			04								**908.-**
		0400			05								**957.-**
		0500			05								**969.-**
		0600			06								**1018.-**
		0700			06								**1030.-**
		0800			06								**1132.-**
		0900			06								**1144.-**
		1000			06								**1156.-**
		1100			06								**1168.-**
		1200			06								**1180.-**

part 1.0.0 ventilation components basics
part 1.1.1 swirl diffusers
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part 1.1.3 circular pipe diffusers
part 1.1.4 displacement flow diffusers
part 1.1.5 industrial diffusers
part 1.1.5 wide angle nozzles
part 1.1.7 combination linear diffusers
part 1.1.8 floor diffusers
part 1.1.6 grids
part 1.3.0 dampers and controllers model VRJK

Price list for model VRJK - Heights 500 · 510 · 600 · 675 mm

emcoair model	Construction height in mm	Construction width in mm	Material	Surface [1), 2)]	Controller/ pressure transmitter	Sensor	Actuator	Insulation shell	Activation/ control signal	Lamella bearings	Lamella actuator	Tightness class	Price €/unit
1VRJS	0500	0200	V	0000	04	0	00	00	0	P	0	1	**996.-**
		0300			04								**1009.-**
		0400			05								**1059.-**
		0500			05								**1072.-**
		0600			06								**1122.-**
		0700			06								**1135.-**
		0800			06								**1238.-**
		0900			06								**1251.-**
		1000			06								**1264.-**
		1100			06								**1277.-**
		1200			06								**1290.-**
1VRJS	0510	0300	V	0000	05	0	00	00	0	P	0	1	**918.-**
		0400			05								**943.-**
		0500			05								**968.-**
		0600			05								**993.-**
		0700			05								**1018.-**
		0800			05								**1043.-**
		0900			05								**1148.-**
		1000			05								**1173.-**
		1200			05								**1198.-**
		1400			06								**1260.-**
		1600			06								**1285.-**
1VRJS	0600	0200	V	0000	04	0	00	00	0	P	0	1	**1096.-**
		0300			05								**1147.-**
		0400			05								**1161.-**
		0500			05								**1175.-**
		0600			06								**1226.-**
		0700			06								**1240.-**
		0800			06								**1344.-**
		0900			06								**1358.-**
		1000			06								**1372.-**
		1100			06								**1386.-**
		1200			06								**1400.-**
1VRJS	0675	0300	V	0000	05	0	00	00	0	P	0	1	**1028.-**
		0400			05								**1058.-**
		0500			05								**1088.-**
		0600			05								**1118.-**
		0700			05								**1148.-**
		0800			06								**1215.-**
		0900			06								**1325.-**
		1000			06								**1355.-**
		1200			06								**1385.-**
		1400			06								**1415.-**
		1600			06								**1445.-**

Price list for model VRJK - Heights 700 · 800 · 840 · 900 mm

emcoair model	Construction height in mm	Construction width in mm	Material	Surface [1), 2)]	Controller/ pressure transmitter	Sensor	Actuator	Insulation shell	Activation/ control signal	Lamella bearings	Lamella actuator	Tightness class	Price €/unit
1VRJS	0700	0200	V	0000	04	0	00	00	0	P	0	1	**1196.-**
		0300			05								**1248.-**
		0400			05								**1263.-**
		0500			05								**1278.-**
		0600			06								**1330.-**
		0700			06								**1345.-**
		0800			06								**1450.-**
		0900			06								**1465.-**
		1000			06								**1480.-**
		1100			06								**1495.-**
		1200			06								**1510.-**
1VRJS	0800	0200	V	0000	04	0	00	00	0	P	0	1	**1296.-**
		0300			05								**1349.-**
		0400			05								**1365.-**
		0500			05								**1381.-**
		0600			06								**1434.-**
		0700			06								**1450.-**
		0800			06								**1556.-**
		0900			06								**1572.-**
		1000			06								**1588.-**
		1100			06								**1604.-**
		1200			06								**1620.-**
1VRJS	840	0300	V	0000	05	0	00	00	0	P	0	1	**1138.-**
		0400			05								**1173.-**
		0500			05								**1208.-**
		0600			05								**1243.-**
		0700			05								**1278.-**
		0800			06								**1350.-**
		0900			06								**1465.-**
		1000			06								**1500.-**
		1200			06								**1535.-**
		1400			06								**1570.-**
		1600			06								**1605.-**
1VRJS	0900	0200	V	0000	04	0	00	00	0	P	0	1	**1396.-**
		0300			05								**1450.-**
		0400			05								**1467.-**
		0500			05								**1484.-**
		0600			06								**1538.-**
		0700			06								**1555.-**
		0800			06								**1662.-**
		0900			06								**1679.-**
		1000			06								**1696.-**
		1100			06								**1713.-**
		1200			06								**1730.-**

part 1.0.0 ventilation components basics
part 1.1.1 swirl diffusers
part 1.1.1 ceiling air diffusers
part 1.1.2 linear diffusers
part 1.1.3 circular pipe diffusers
part 1.1.4 displacement flow diffusers
part 1.1.5 industrial diffusers
part 1.1.5 wide angle nozzles
part 1.1.7 combination linear diffusers
part 1.1.8 floor diffusers
part 1.1.6 grids
part 1.3.0 dampers and controllers model VRJK

Price list for model VRJK - Heights 1000 · 1005 · 1100 · 1170 · 1335 · 1500 · 1665 mm

emcoair model	Construction height in mm	Construction width in mm	Material	Surface [1), 2)]	Controller/ pressure transmitter	Sensor	Actuator	Insulation shell	Activation/ control signal	Lamella bearings	Lamella actuator	Tightness class	Price €/unit
1VRJS	1000	0200	V	0000	04	0	00	00	0	P	0	1	**1496.-**
		0300			05								**1551.-**
		0400			05								**1569.-**
		0500			06								**1624.-**
		0600			06								**1642.-**
1VRJS	1005	0300	V	0000	06	0	00	00	0	P	0	1	**1287.-**
		0400			06								**1327.-**
		0500			06								**1367.-**
		0600			06								**1407.-**
		0700			06								**1447.-**
		0800			06								**1487.-**
		0900			06								**1607.-**
		1000			06								**1647.-**
		1200			06								**1687.-**
1VRJS	1100	0200	V	0000	04	0	00	00	0	P	0	1	**1596.-**
		0300			05								**1652.-**
		0400			05								**1671.-**
		0500			06								**1727.-**
1VRJS	1170	0300	V	0000	06	0	00	00	0	P	0	1	**1397.-**
		0400			06								**1442.-**
		0500			06								**1487.-**
		0600			06								**1532.-**
		0700			06								**1577.-**
		0800			06								**1622.-**
		0900			06								**1747.-**
		1000			06								**1792.-**
1VRJS	1335	0300	V	0000	06	0	00	00	0	P	0	1	**1507.-**
		0400			06								**1557.-**
		0500			06								**1607.-**
		0600			06								**1657.-**
		0700			06								**1707.-**
		0800			06								**1757.-**
1VRJS	1500	0300	V	0000	06	0	00	00	0	P	0	1	**1617.-**
		0400			06								**1672.-**
		0500			06								**1727.-**
		0600			06								**1782.-**
1VRJS	1665	0300	V	0000	06	0	00	00	0	P	0	1	**1727.-**
		0400			06								**1787.-**

General terms and conditions of sale, delivery and payment

1. Introduction: These General Terms and Conditions of Sale, Delivery and Payment shall apply exclusively unless they are amended in any express written agreement. Quotations, acceptance of quotations or sale of any goods shall be subject to these terms and conditions. Any terms and conditions of the purchaser or provisions of the purchaser that are contradictory to these terms and conditions shall, even if they are known, be rejected. These terms and conditions shall furthermore provide the basis for all future transactions. Notice pursuant to Section 33 of the Federal German Data Protection Act (BDSG): Personal data from contracts shall also be held on computer.

2. Orders and quotations: All user quotations and delivery options are subject to confirmation. Orders shall only be deemed to have been accepted if they are accepted in writing within 21 days of submission (also by invoice or delivery note). The scope of delivery shall be governed exclusively by the written order confirmation. The purchaser shall bear responsibility for the accuracy of the order. If goods need to be manufactured, processed or treated, the purchaser shall be required to make good any damage that is caused because such contractually agreed processing or treatment of the goods, carried out on the basis of the purchaser's specification, is shown to be a breach of patent, copyright, trademark or other property right of a third party.

3. Prices and pricing: Unless prices are agreed for products, the list prices, plus value-added tax, shall apply that are in effect on the day of delivery. All prices are ex-works and exclude packaging. Tolerances in quantities delivered shall be permissible if they are in a reasonable proportion to the total quantity (plus/minus 10%).

4. Delivery of goods: Deliveries shall be made ex-works for the account and at the expense of the purchaser. If goods are kept in store for the sole disposal of the purchaser (call-off items), the purchaser shall be in default if, without being reminded, it fails to take delivery of such goods within the agreed period.

5. Delivery time: The delivery dates or delivery periods stated in the order confirmation indicate the earliest possible delivery time and are without obligation. Set calendar delivery dates shall only be binding if they have been expressly confirmed in writing. Delivery periods shall commence on the day on which the order confirmation is dispatched, however not before the submission of any documents, approvals, clearances to be furnished by the purchaser or before receipt of any agreed deposit payment. The delivery period is met once the goods have left the factory or notice is given that they are ready for shipment.

6. Passing of risk: The risk of goods becoming damaged or lost shall pass to the purchaser as soon as the goods have left the user's factory, this also being the case if part shipments are made. If the user has undertaken to deliver the goods to the purchaser, the purchaser shall bear the risk of transportation even if Incoterms to the contrary are agreed. If shipment is delayed for circumstances for which the purchaser is responsible, the risk shall pass to the purchaser as from the day on which the goods are ready for shipment. Goods shall be stored on the purchaser's account and at the purchaser's risk. Items delivered must be accepted by the purchaser without prejudice to the purchaser's rights.

7. Notification of defects: It shall not be possible to give notice of defects that the purchaser could have established if care had been exercised when delivery was taken or initial sample inspection had taken place. Even if selection samples have been sent, the purchaser must inspect the goods without delay on arrival and give notice of any defects in writing or the warranty will be void. Notice of complaints must be given in writing before the goods are processed, contain an exact description of the alleged claim or flaw and be accompanied by packing slips. The quality of the goods shall be considered to have been approved if the user does not receive a written notice of defects within 7 working days of the goods arriving.

8. Warranty: The user shall not assume any responsibility for the good being suitable for a specific purpose. If the item supplied is faulty or if it lacks warranted qualities or if it becomes defective within a warranty period as a result of manufacturing or material flaws, the user shall, in its equitably exercised discretion, be able to rectify defects or make a new delivery on return of goods already delivered. If it is not possible to remedy the defect or if such would involve unreasonable effort and expense, the purchaser may only demand a reduction in payment. The purchaser shall, by way of exception, also be able to demand a reduction in payment if it cannot be reasonably expected to remedy the defect. The user must be given the opportunity to locate the defect brought to its notice. On request, complaint goods must be returned without delay. Replaced parts shall become the property of the user. The latter shall take no responsibility for inappropriate or improper use, for incorrect assembly or repair by the purchaser or third party, for natural wear, improper or negligent treatment or for improper maintenance. If rectification is made by the purchaser or any third party, the user shall not be liable for any consequences that may arise therefrom. The same shall apply to any modifications that are made to the delivery item without the user's prior consent. If, within a reasonable period, warranty obligations are not met or not met in the manner agreed, the purchaser shall be able to set a final deadline in writing. If this deadline expires without result, the purchaser shall be able to make the necessary rectification itself or place rectification in the hands of a third party. If rectification has been carried out successfully by the purchaser or a third party, all claims on the part of the purchaser shall be settled upon reimbursement of the costs incurred by it. Only the user's product description shall be considered as the agreed quality of the goods. If the purchaser receives deficient assembly instructions, the user shall only be obliged to supply assembly instructions free of any deficiency if the deficiency in the assembly instructions prevents proper assembly.

9. Restrictions on liability: If the purchaser incurs damage as a result of a delay for which the user is responsible, the purchaser shall, to the exclusion of further claims, be entitled to demand compensation for damage caused by the delay. This shall amount to 0.5 per cent for each full week, however in total no more than 5 per cent of the value of that part of the overall shipment which, on account of the delay, cannot be used in time or as agreed. If, through fault on the part of the user as a result of failing to implement or of incorrectly implementing proposals or deliberations coming about before or after entering the contract, or as a result of infringing other contractual accessory obligations – in particular, instructions on operating and maintaining the delivery item – the delivery item cannot be used by the purchaser as agreed, the arrangements set forth in clause 8 of these terms and conditions and the following arrangements shall be applicable to the exclusion of further claims. The user shall only be liable for damage, including damage not occurring on the delivery item itself, if such is caused as a result of intent, of gross negligence, of a culpable harm to life, limb and health, of defects that the user has fraudulently concealed or whose absence it has guaranteed, of defects in the delivery item insofar as product liability law provides for liability for personal injury and damage to property caused by privately used objects. Liability for each occurrence of damage - for whatever legal ground - shall be limited to an amount of 30% of the order value. Any liability above and beyond this amount shall be ruled out.

10. Acts of God: Acts of God, industrial disputes, riots, government action, delivery stoppages or other unforeseeable, unpreventable and serious events shall release the user from its obligations for the duration of the disturbance and to the extent of the effect this disturbance has. This shall also apply if these events occur at a time at which the user is in default. The user shall, to the extent reasonably expected of it, immediately provide the necessary information and adapt its obligations in good faith to the changed circumstances.

11. Terms of payment: Unless otherwise agreed, all payments shall be due in the full amount upon delivery or upon acceptance of delivery. Without further notification, the purchaser shall be in arrears 30 days after the due date if payment is not made. The user grants 3% cash discount on payments made within 7 days of the invoice date provided the purchaser is not in arrears with the settlement of accounts receivables from preceding consignments of goods at the time of payment. If payment, or also part thereof, is not received by the user within 30 days, the purchaser shall not be entitled to cash discount. Bills of exchange will only be accepted on the basis of written agreement and only on account of performance without liability for protest. The purchaser may not offset counterclaims and has no right of retention on the basis of these claims unless the purchaser's claims are undisputed or final and absolute.

12. Default in payment and deterioration in purchaser solvency: If the purchaser is in arrears with the payment of amounts invoiced for transactions already delivered, the user shall be able to make delivery of outstanding orders contingent on the settlement of due invoices or on advance payment of the purchase price or withdraw from the contract. The same right shall exist if, after entering the contract, a significant deterioration becomes known in the purchaser's financial circumstances. The agreed payment dates must still be observed even if warranty claims are put forward. In the event that the purchaser defaults in payment and composition or insolv-ency proceedings are instigated against it in or out of court, discounts granted as well as freight reimbursements shall be withdrawn. The same legal consequences shall ensue on the 31st day after the invoice becomes due.

13. Retention of title: The goods delivered by the user shall remain the user's property until it receives all payments due to it from the business relationship with the purchaser. If the purchaser acts in breach of contract, in particular if the purchaser falls into arrears, the delivery item may be repossessed; the purchaser shall undertake to surrender possession; it shall allow the user to collect and repossess its goods at any time. Repossessing a delivery item does not equate to withdrawing from the contract unless such is expressly declared in writing. In the event of attachment or other intervention by third parties, the purchaser shall be required to provide immediate notification so that opposition proceedings can be instituted to prevent execution. If the third party is not in a position to reimburse the judicial and extra-judicial costs of opposition proceedings, the purchaser shall be liable for the arising loss. The purchaser shall be entitled to resell the delivery item in the ordinary course of business. Even at this stage, the purchaser assigns to the user all claims against its buyers or third parties in the amount of the final invoice balance, including value-added tax, that arise from the resale, regardless of whether the goods have been resold without having been processed or after they have been processed. The purchaser is empowered to collect such claims even after assignment unless the user prohibits the purchaser from doing so. The user's power to collect the claim itself shall remain unaffected. The user shall, however, undertake not to collect the claim itself as long as the purchaser duly meets it payment obligations and is not in arrears.

The user shall, at all events, be able to demand that the purchaser disclose the assigned claim and its debtors, provide all information necessary for collection, hand over the associated documents and notify the debtors of the assignment. The purchaser shall only process or refashion the goods for the user. If the goods are processed with other items, the user shall acquire joint ownership of the new article in the proportion of the value of the retained goods to the other processed items at the time of processing. In all other respects, the same shall apply to the article that is created as a result of processing as applies to the retained goods. If the goods are inseparably combined with other items, the user shall acquire joint ownership of the new article in the relation of the value of the goods to the other combined items at the time of combination. If combination takes place in such a manner that the purchaser's article must be regarded as the primary article, it shall be considered as agreed that the purchaser will assign proportional joint ownership to the user. The purchaser preserves sole ownership or joint ownership. The purchaser shall assign any claim to security accruing to it against any third party as a result of combining the goods with a piece of land.

14. Resale clause: The goods supplied may only be exported to those countries for which written clearance is given. Without consent, the purchaser must not sell to buyers known to have the intention of exporting the goods. This ban shall only apply if and to the extent by which it is covered by the EU Commission's notice on agreements of minor significance. In cases where goods are delivered abroad, the purchaser shall bear any risk arising from the applicability of laws and statutes in force abroad.

15. Warranty period and statute of limitation: The warranty period shall be 12 months from the time at which the goods are delivered under clause 4 of these terms and conditions. However, the consequences set forth in clause 7 of these terms and conditions shall apply if the purchaser fails to provide notification of the defect in good time. The warranty period for goods which, in accordance with their normal usage, have been used for an edifice and have caused its defectiveness, shall be five years. All claims on the part of the purchaser – for whatever legal grounds, in particular claims for damages on account of goods being defective - shall become statute-barred after 12 months from the time of delivery.

16. Place of performance, legal venue and applicable law: The place of performance for all obligations arising from the contractual relationship shall be the place of business of the user. If the purchaser is a merchant, a legal person under public law or a special asset under public law, the legal venue for all legal disputes, including those arising as part of proceedings related to a bill of exchange or cheque, shall be the place of business of the user. The user shall also have the right to take legal action at the seat of the court having jurisdiction over the purchaser or at any other court that may have jurisdiction under national or international law. The contractual relationship shall be subject to German law. Application of the UNCITRAL sales convention (United Nations convention on the international sales of goods) shall be excluded.

17. Escape clause: Should individual provisions of these General Terms and Conditions of Sale, Delivery and Payment be or become ineffective, this shall not affect the validity of the remaining provisions.

01.10.001.26 – 02/06

Headquarter, Germany
emco Bau- und Klimatechnik GmbH & Co. KG
Breslauer Str. 34-38 · 49808 Lingen, Germany
Tel. +49 (0)591-9140-0 · Fax +49 (0)591-9140851
E-mail: klima@emco.de · www.emco-klima.com

Sales Offices

Austria / Hungary / Slovakia / Slovenia / Croatia / Serbia / Bosnia-Herzegovina
emco Bau- und Klimatechnik
Vertriebsgesellschaft mbH
Johnstraße 4, Top B3
A-1150 Wien
Tel. +43 (0) 1 - 4 93 38 80
Fax +43 (0) 1 - 4 93 38 80 17
e-mail: office@emco-klima.at

Switzerland / Liechtenstein
A. Bachmann AG
Oberfeld 19
CH-6037 Root
Tel. +41 (0) 41-455 61 20
Fax +41 (0) 41-455 61 29
e-mail: info@abach.ch

Luxembourg
Emco Bau- und Klimatechnik GmbH & Co. KG
Vertriebsbüro NRW
Breslauer Str. 34 - 38
D 49808 Lingen
Tel. +49 (0) 5 91 - 91 40 - 613
e-mail: k.h.schneider@emco.de

Belgium
AIR-G s.p.r.l.
Rue Roosevelt 20 Bte D
B 4650 Herve
Tel. +32 (0) 87 33 25 63
e-mail: jean-marie.gerson@air-g.be

France
Viviane Ghibely
14 Route de Paray
F 91320 Wissous
Tel. +33 (169) 751 628
e-mail: bureau@ghibely.fr

Poland / Estonia / Latvia / Lithuania
emco Polska Sp. z o.o.
Ul. Makowskiego 1
02-784 Warszawa
Tel. +48 (022)-741 28 05
e-mail: t.stanuch@pl.emco.de

Russia / Ukraine
Emco Bau- und Klimatechnik GmbH & Co. KG
Office 105, bld 1, 16
Polessky proezd
RUS 125367 Moscow
Tel. +49(171) 300 42 90
e-mail: i.ginsburg@emco.de

China
Emco Building Technology (Chezhou) Ltd.
Shanghai Office
Room 1502
Building 1
No. 833 South Hongmei Road
Shanghei China
Tel. +86 550 3567 500
e-mail: w.ye@emco.de

Canada
H T S
Toronto
115 Norfinch Drive
CAD Toronto ON M3N 1W8
Tel. +1 416 661 3400
e-mail: paul.povolo@hts.com

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emco terms of trading · contacts

emco Bau- und Klimatechnik GmbH & Co. KG
Air conditioning technology division
Breslauer Straße 34 - 38
D - 49808 Lingen (Ems)
Germany
Tel. +49 (0) 591 9140-0
Fax +49 (0) 591 9140-851
klima@emco.de

www.emco.de

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