

AQUA

Swimming Pool Slot Diffuser



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Description

AQUA is a linear slot diffuser, mainly intended for air supply in ventilation systems for swimming pools and wet spaces with large windows or glass walls.

Highlights

- Modern slim and compact design
- Low noise at sufficiently high air discharge velocity
- Homogenous discharge pattern on the whole diffuser lengths
- Single diffuser segments of various lengths
- Segments with detachable slot dividing profiles and 90° angle segments available
- Installation in multiple diffuser segment arrays is possible
- Robust construction enables walking on the installed diffuser

Product Types

- **AQUA: Swimming Pool Slot Diffuser**
- **AQUA-DE: Swimming Pool Slot Diffuser with Dismountable Front Slot Dividing Profiles**
AQUA-DE is a slot diffuser element with dismountable front slot dividing profiles. It is intended for cleaning of the air channel built by the diffuser consoles. The front slot dividing profiles are laying loosely in the console framing, so they can be easily raised and detached. Only 2/3/4/5-slot elements with 1000 mm length are available.
- **AQUA-CE: 90° Corner Element**
(not functional for air distribution)
AQUA-CE is a corner element with 90° angle. It is intended just as an aesthetic element for combination with linear slot diffuser AQUA or AQUA-DE. It has no air distribution functionality. Therefore the bottom of the element is closed by detachable stainless steel plates.

Information about Accessories for AQUA Is Available from Page 8

- PB-AQUA: Plenum Box
- EC-AQUA: End Cap
- CP-HELLA: Connection Pins

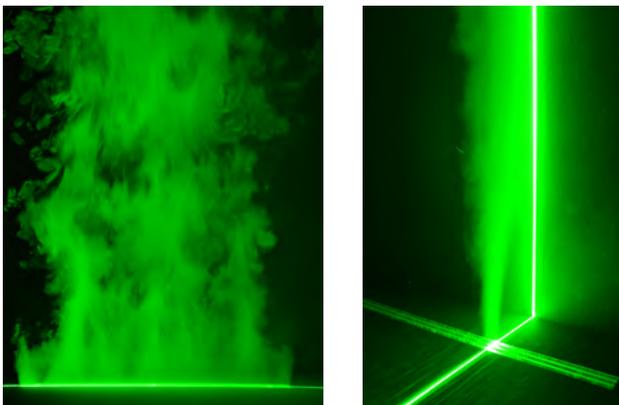


Fig. 1: Air flow visualisation

Design

Diffuser AQUA consists of a pressure equalizing console from two main aluminum profiles.

The profiles are connected by stainless steel thread bolts. The bolts also fix the aluminum profiles that separate the air discharge slots.

The diffuser console is open on the bottom, reducing longitudinal air flow in the console. Inside the consoles there are vertical deflectors, one per each 0,5 m length. They help the air discharge pattern becoming homogenous and correctly oriented.

The consoles can be connected into a multiple segment array by connection pins (accessory CP-HELLA). On both outermost ends of the array the end caps (accessory EC-AQUA) can be attached to the consoles. They avoid the fluid building materials (concrete, mortar...) from intruding into the diffuser console during installation and floor finishing.

Product Parts

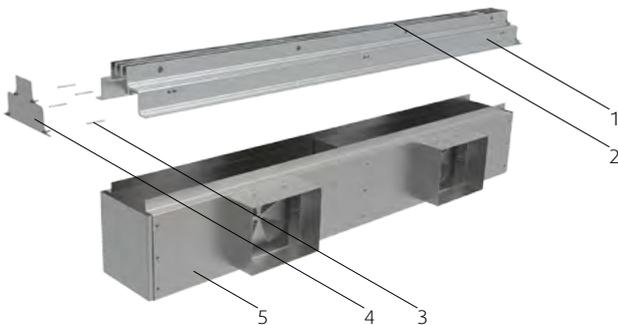


Fig. 2: Components of the AQUA

Legend

1	Console
2	Slot dividing profiles
3	CP-HELLA connection pins (accessory)
4	EC-AQUA end cap (accessory)
5	PB-AQUA plenum box (accessory)

Dimensions

AQUA

Swimming Pool Slot Diffuser

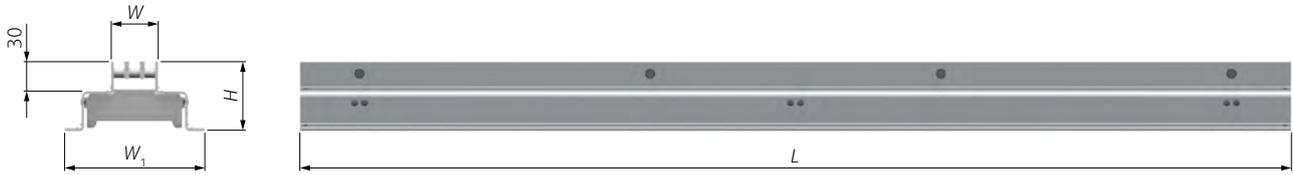


Fig. 3: Dimensions of the AQUA

Tab. 1: Dimensions of the AQUA

L (mm)	No. of Slots	Slot Width (mm)	W	W ₁	H
500/1000/1500/2000	1	8	9	109	70
		10	11	111	
		12	13	113	
	2	8	22	122	
		10	26	126	
		12	30	130	
	3	8	36	136	
		10	42	142	
		12	48	148	
	4	8	49	149	
		10	57	157	
		12	65	165	
	5	8	63	163	
		10	73	173	
		12	83	183	

Tab. 2: Weights of the AQUA

L (mm)	No. of Slots	m (kg)
500	1	1
	2	1,1
	3	1,3
	4	1,4
	5	1,6
1000	1	1,5
	2	1,8
	3	1,9
	4	2,1
	5	2,2
1500	1	2
	2	2,4
	3	2,6
	4	2,7
	5	2,9
2000	1	2,5
	2	3,1
	3	3,2
	4	3,4
	5	3,5

AQUA-DE

Swimming Pool Slot Diffuser with Dismountable Front Slot Dividing Profiles

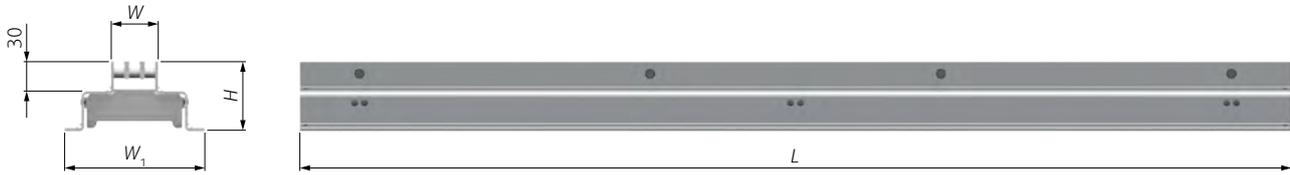


Fig. 4: Dimensions of the AQUA-DE

Tab. 3: Dimensions of the AQUA-DE

L (mm)	No. of Slots	Slot Width (mm)	W	W ₁	H
1000	1	8	9	109	70
		10	11	111	
		12	13	113	
	2	8	22	122	
		10	26	126	
		12	30	130	
	3	8	36	136	
		10	42	142	
		12	48	148	
	4	8	49	149	
		10	57	157	
		12	65	165	
	5	8	63	163	
		10	73	173	
		12	83	183	

Tab. 4: Weights of the AQUA-DE

L (mm)	No. of Slots	m (kg)
1000	1	1,7
	2	1,9
	3	2,1
	4	2,2
	5	2,3

AQUA-CE

90° Corner Element

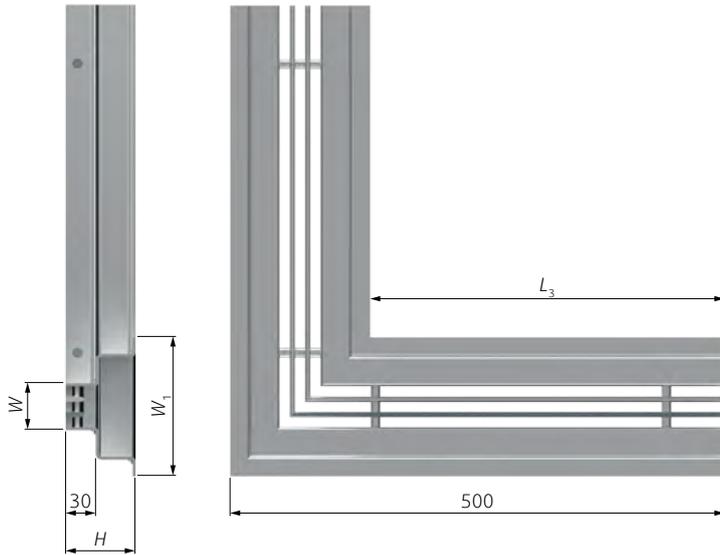


Fig. 5: Dimensions of the AQUA-CE

Tab. 5: Dimensions of the AQUA-CE

No. of Slots	Slot Width	W	W ₁	L ₃	H
	(mm)				
1	8	9	109	392	70
	10	11	111	390	
	12	13	113	388	
2	8	22	122	378	
	10	26	126	374	
	12	30	130	370	
3	8	36	136	365	
	10	42	142	359	
	12	48	148	353	
4	8	49	149	351	
	10	57	157	343	
	12	65	165	335	
5	8	63	163	338	
	10	73	173	328	
	12	83	183	318	

Tab. 6: Weights of the AQUA-CE

No. of Slots	m
	(kg)
1	2
2	2,2
3	2,3
4	2,4
5	2,5

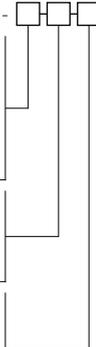
Ordering Codes

NOTE: 4 pieces of connection pins CP-HELLA are attached to each piece of products AQUA, AQUA-CE and AQUA-DE. They can be used if the diffuser elements shall be part of multiple elements array.

AQUA

Swimming Pool Slot Diffuser

	AQUA -
Number of Slots	1 2 3 4 5
Slot Width (mm)	8 10 12
Length (mm)	500 1000 1500 2000



Example of the Ordering Code

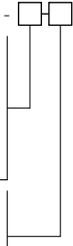
AQUA-4-10-1500

4-Slot diffuser with 10 mm slot width, 1500 mm length.

AQUA-CE

90° Corner Element

	AQUA-CE -
Number of Slots	1 2 3 4 5
Slot Width (mm)	8 10 12



Example of the Ordering Code

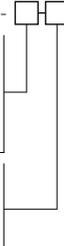
AQUA-CE-3-10

Corner element AQUA with 3 slots of 10 mm width.

AQUA-DE

Swimming Pool Slot Diffuser
with Dismountable Front Slot Dividing Profiles

	AQUA-DE -
Number of Slots	2 3 4 5
Slot Width (mm)	8 10 12



Example of the Ordering Code

AQUA-DE-3-10

Diffuser with detachable front slot dividing profiles,
1000 mm long, with 3 slots of 10 mm width.

NOTE: Only 2/3/4/5-slot elements with 1000 mm length are available.

Accessories

PB-AQUA

Plenum Box



Description

PB-AQUA is a plenum box installed with slot diffuser AQUA of corresponding dimension to achieve optimal air distribution and discharge over the whole length of the diffuser.

Design

The rectangular plenum box PB-AQUA is made from stainless steel A316L sheet. The air duct connections on the side of the box have circular or rectangular shape according to the diffuser capacity. The connections on the box are localized in regular distances, one connection on each 500 mm of the box length. The connections are flat without gasket. The diffuser connection opening is formed for diffuser to slide on precisely and easily.

Dimensions

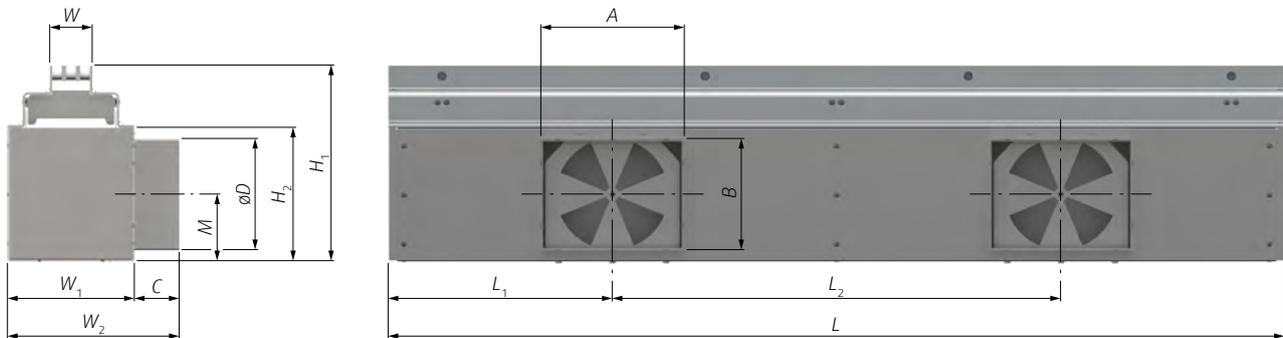


Fig. 6: Dimensions of the PB-AQUA

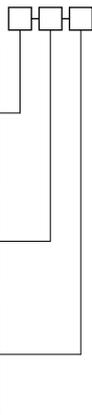
Tab. 7: Dimensions of the PB-AQUA

L (mm)	No. of Slots	Slot Width	W	W ₁	W ₂	C	M	A	B	øD	L ₁	L ₂	H ₁	H ₂			
		(mm)															
500/1000/1500/2000	1	8	9	109	159	50	75				100	250	500	220	153		
		10	11	111	161												
		12	13	113	163												
	2	8	22	122	172						-					-	125
		10	26	126	176												
		12	30	130	180												
	3	8	36	136	186						160					125	-
		10	42	142	192												
		12	48	148	198												
	4	8	49	149	199												
		10	57	157	207												
		12	65	165	215												
	5	8	63	163	213												
		10	73	173	223												
		12	83	183	233												

Tab. 8: Weights of the PB-AQUA

L (mm)	No. of Slots	m
		(kg)
500	1	2
	2	2,1
	3	2,2
	4	2,3
	5	2,4
1000	1	3,9
	2	4
	3	4,2
	4	4,3
	5	4,5
1500	1	5,8
	2	6
	3	6,2
	4	6,4
	5	6,6
2000	1	7,6
	2	7,9
	3	8,2
	4	8,5
	5	8,8

Ordering Code

	PB-AQUA -	
Number of Slots	1	
	2	
	3	
	4	
	5	
Slot Width (mm)	8	
	10	
	12	
Length (mm)	500	
	1000	
	1500	
	2000	

NOTE:

Plenum boxes PB-AQUA have for each 500 mm of their length one connection (sideways, horizontal). The connection shape and dimension is adapted to the number of diffuser slots.

Example of the Ordering Code

PB-AQUA-4-10-1500

Plenum box for 4-slot diffuser with 10 mm slot width, 1500 mm length.

EC-AQUA

End Cap



Description

The end caps for AQUA diffusers are optional part of the frame that covers the ends of the console of a sole diffuser or both outermost ends of the multiple diffusers array. They avoid the fluid building materials (concrete, mortar...) from intruding into the diffuser console during installation and floor finishing.

Design

EC-AQUA is made from stainless steel sheet. The end cap can be attached to the diffuser by screws, that are included in the package of EC-AQUA.

Ordering Code

	EC-AQUA -	<input type="checkbox"/>	<input type="checkbox"/>
		1	
		2	
		3	
		4	
Number of Slots		5	
		8	
		10	
Slot Width (mm)		12	

NOTE:

One ordering unit is 1 end cap with 4 screws in a package.

Example of the Ordering Code

EC-AQUA-2-10

End cap for the AQUA diffuser with 2 slots of 10 mm width.

CP-HELLA

Connection Pin



Description

CP-HELLA is a connecting pin for joining neighbouring diffusers AQUA in an array.

Design

Circular profile pin from galvanized steel. The pins are applied in the holes at the ends of the longitudinal frame profiles of the diffuser AQUA.

Other Specification

The quantity of CP-HELLA required to join multiple diffusers in an array: **$p = 4 \cdot (n - 1)$**

p = required quantity of CP-HELLA pins

n = number of AQUA diffusers in the array

Ordering Code

CP-HELLA

NOTE: One ordering unit is a package with 50 pieces of connection pins.

Technical Parameters

Legend

p_s	(Pa)	Pressure drop
q_v	(m ³ /h) (l/s)	Air flow volume
L_{WA}	(dB)	A-weighted sound power level
ΔT	(K)	Temperature difference Supply air - Room air
$L_{0,5}$	(m)	Air throw length with terminal velocity 0,5 m/s
L_x	(m)	Air throw length calculated for specific terminal velocity
x	(m/s)	Terminal velocity in range of (0,1 ÷ 1) m/s

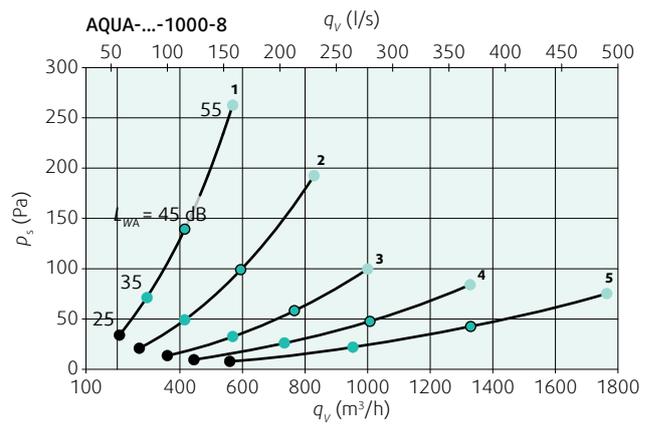


Diagram 1: Pressure drop & A-weighted total radiated sound power level depending on air flow volume

Calculation of Air Throw for Different Terminal Velocities

$$L_x = L_{0,5} \cdot 0,5/x$$

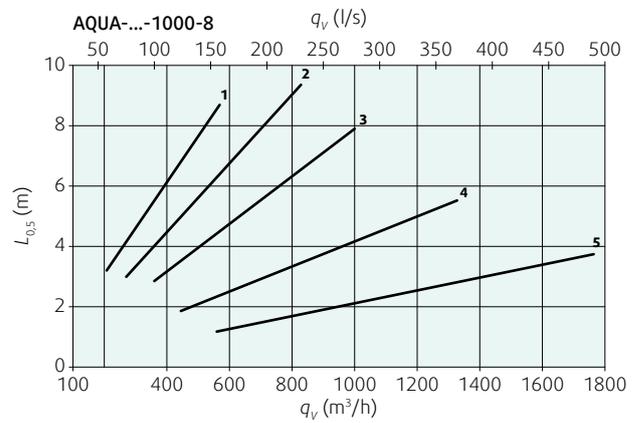


Diagram 2: Isothermal air throw length with terminal velocity 0,5 m/s depending on air flow volume

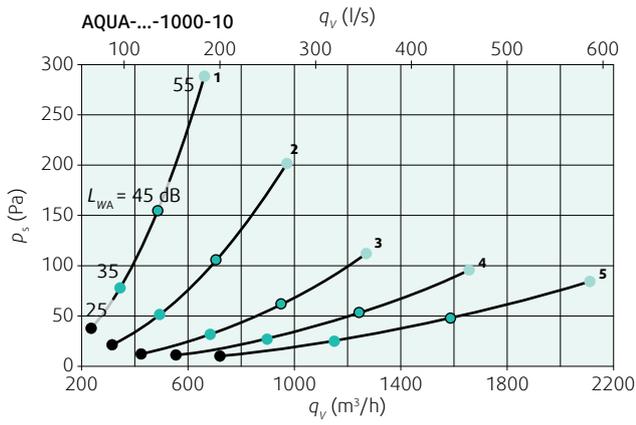


Diagram 3: Pressure drop & A-weighted total radiated sound power level depending on air flow volume

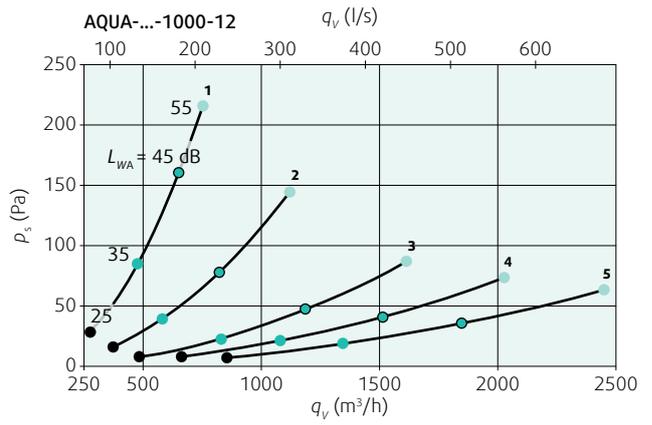


Diagram 5: Pressure drop & A-weighted total radiated sound power level depending on air flow volume

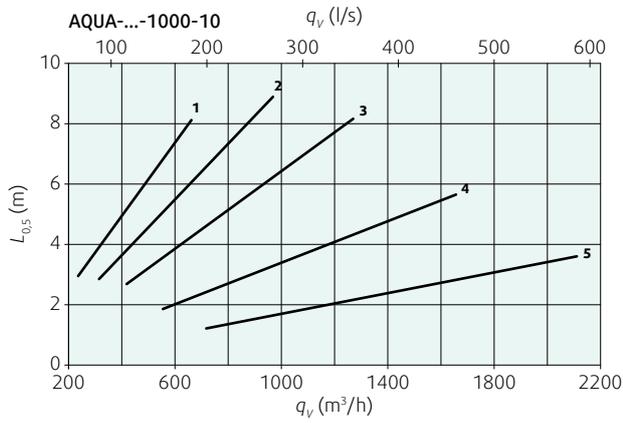


Diagram 4: Isothermal air throw length with terminal velocity 0,5 m/s depending on air flow volume

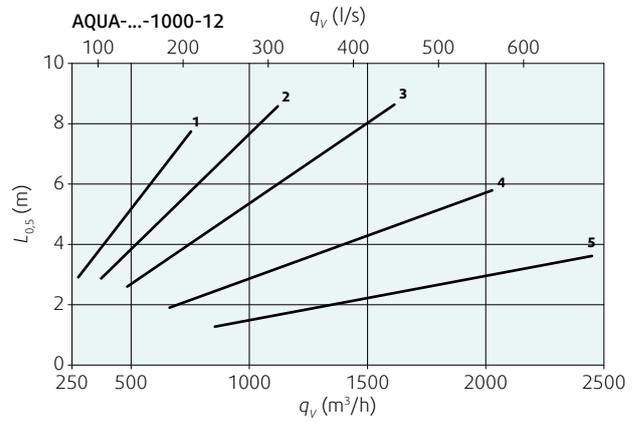


Diagram 6: Isothermal air throw length with terminal velocity 0,5 m/s depending on air flow volume

Installation, Maintenance & Operation

Information about installation, maintenance and operation are available in the User Manual (document "UserManual_AQUA").



Transport & Storage

Dry indoor conditions with temperature range - 20 °C to +80 °C.

Supplement

Any deviations from the technical specifications contained herein and the terms should be discussed with the manufacturer. We reserve the right to make any changes to the product without prior notice, provided that these changes do not affect the quality of the product and the required parameters.

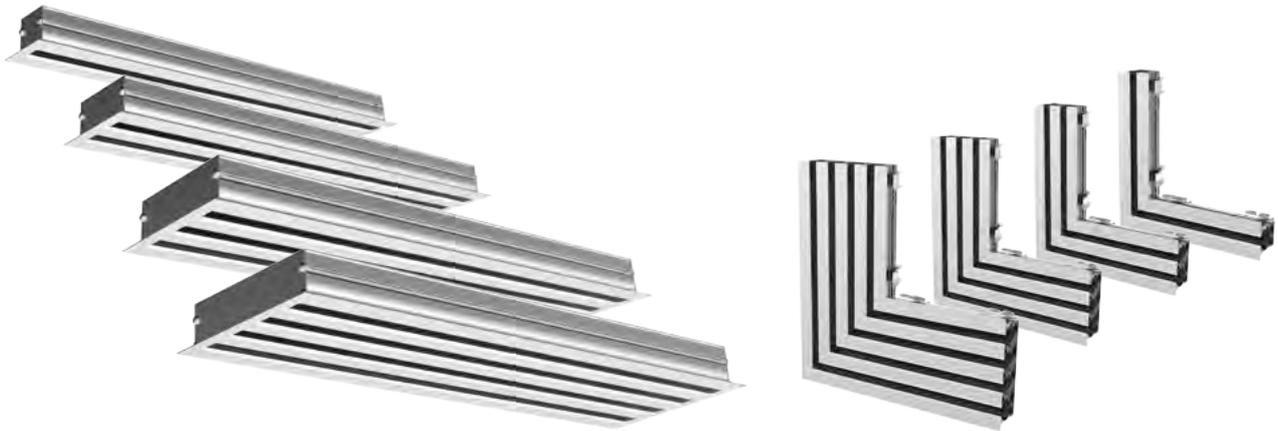
Current information on all products are available at www.systemair.com

Related Products

HELLA

Linear Slot Diffusers

Product information is available within the technical documentation DataSheet_HELLA and at www.systemair.com



KSV

Slot Diffusers

Product information is available within the technical documentation DataSheet_KSV.

