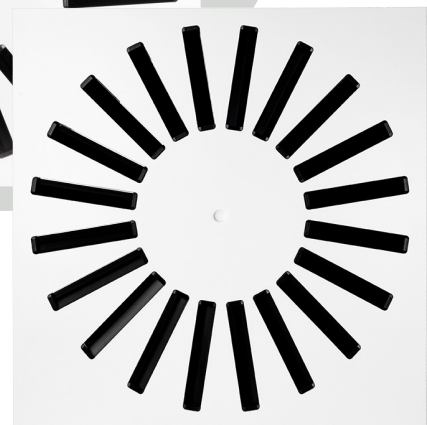
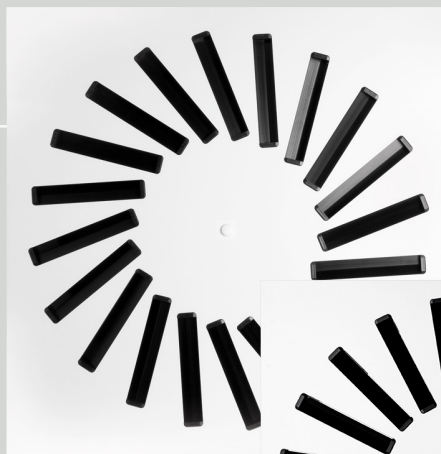
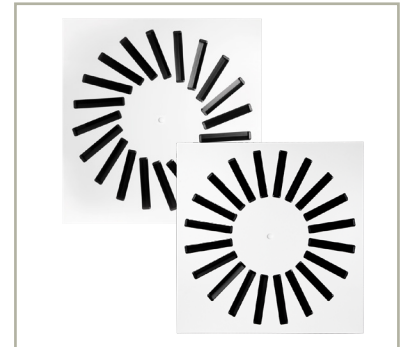


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Tel: 011 3836886, 3085740  
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# Swirl diffuser PWKA/PZKA

TECHNICAL DATA





Supply and exhaust swirl diffuser PWKA/PZKA is recommended to be used in commercial application buildings such as offices, conference rooms, shops, etc. Terminal can be either mounted in false ceiling or installed as a freely hanging.

PWKA/PZKA working in air supply function are equipped with adjustable deflectors for air diffusion pattern change. For air exhaust function diffusers are delivered without blades. Face panels are available in three profile types to fit most popular false ceiling constructions.

Face panels can be installed via SKHA/SKVA connection boxes, which are supplied with or without sound attenuation lining. SKHA is available in two versions: without regulation damper or with patented measurement and adjustment damper enables balanced and accurate values

### QUICK SELECTION

Panel size	Connection box	Airflow (m <sup>3</sup> /h)	Pressure drop (Pa)	Sound pressure level L <sub>p10A</sub> dB(A)
P(W,Z)KA-40	SK(H,V)A-16-40	70-300	10-300	25-45
P(W,Z)KA-50	SK(H,V)A-20-50	120-450	10-300	25-45
P(W,Z)KA-60	SK(H,V)A-16-60	180-400	10-300	25-45
P(W,Z)KA-60	SK(H,V)A-20-60	180-500	10-300	25-45
P(W,Z)KA-60	SK(H,V)A-25-60	180-600	10-300	25-45
P(W,Z)KA-62	SK(H,V)A-25-62	180-600	10-300	25-45

### SPECIFICATIONS

- Face panel sizes 400x400-625x625mm
- Duct connections from 160 to 250 mm
- Adjustable diffusion pattern
- 3 types of face panel profile
- Accurate air flow measurement and adjustment

### PRODUCT CODE EXAMPLE

#### Swirl diffuser PZKA-60-2-2-1

Terminal of size size 60, profile type B, with black deflectors, painted in RAL 9010 colour.

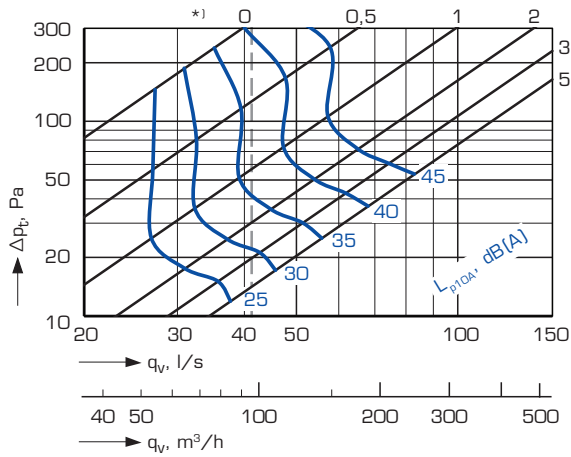
#### Connection box SKHA-16-60-1-2

Duct connection diameter of 160 mm, face panel size 600x600 mm, with sound attenuation material, with ZAEF damper.

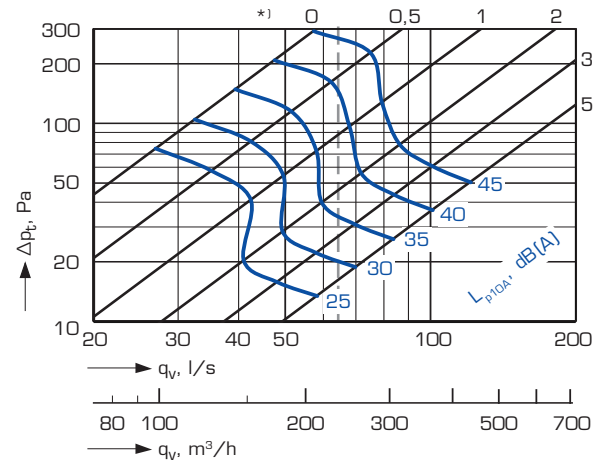
## AIR FLOW, PRESSURE DROP, SOUND LEVEL

### DIFFUSER WITH ACOUSTICALLY UNINSULATED CONNECTION BOX - SUPPLY AIR

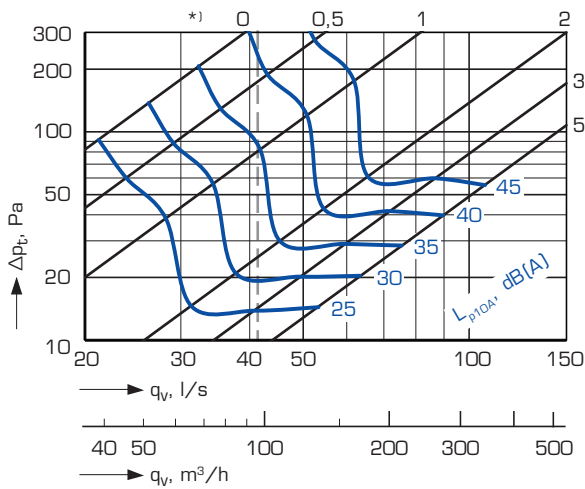
**P(W,Z)KA-40+SKHA-16-40-0-2**



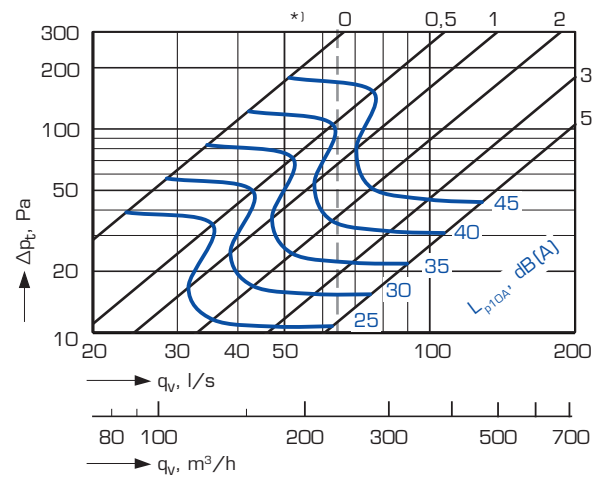
**P(W,Z)KA-50+SKHA-20-50-0-2**



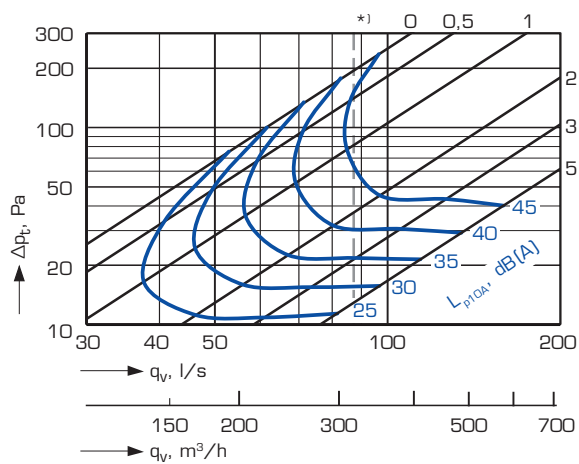
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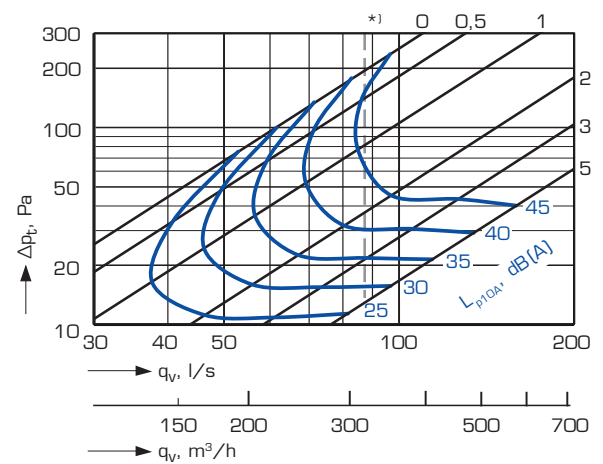
**P(W,Z)KA-60+SKHA-20-60-0-2**



**P(W,Z)KA-60+SKHA-25-60-0-2**



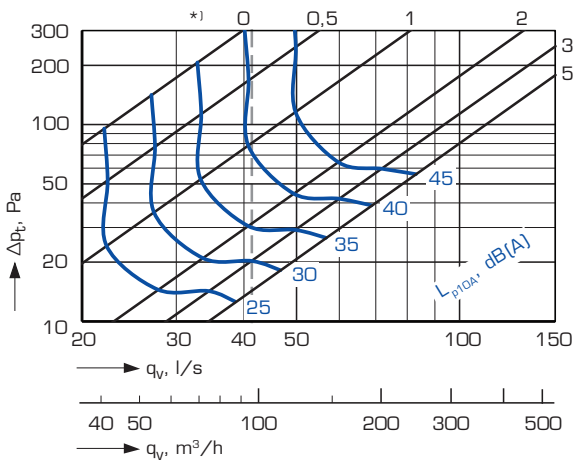
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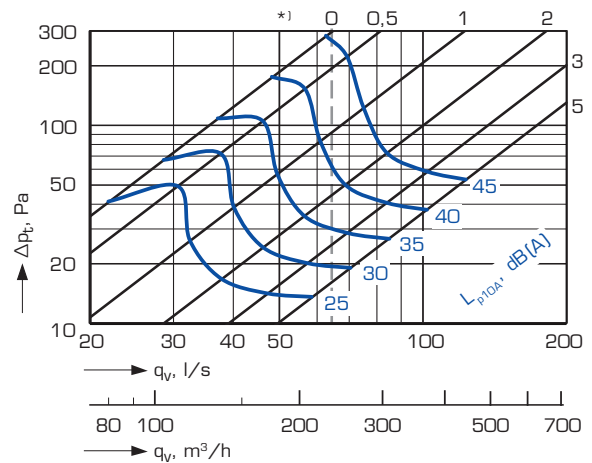
### AIR FLOW, PRESSURE DROP, SOUND LEVEL

#### DIFFUSER WITH ACOUSTICALLY INSULATED CONNECTION BOX - SUPPLY AIR

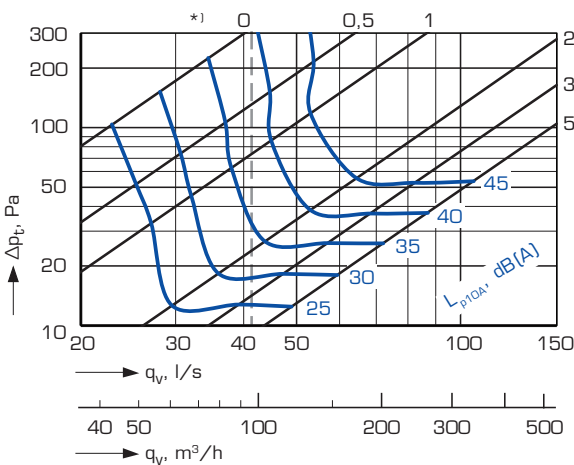
**P(W,Z)KA-40+SKHA-16-40-1-2**



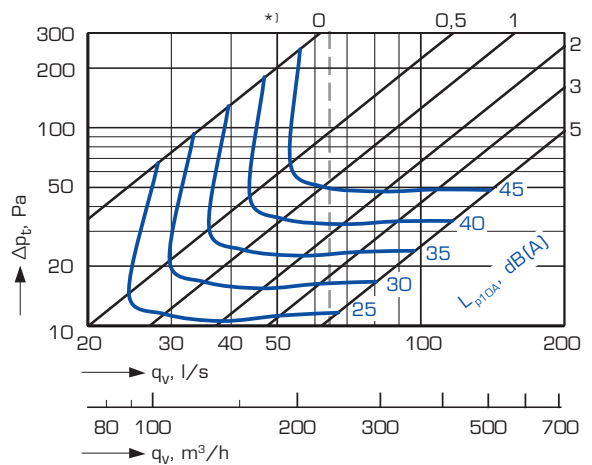
**P(W,Z)KA-50+SKHA-20-50-1-2**



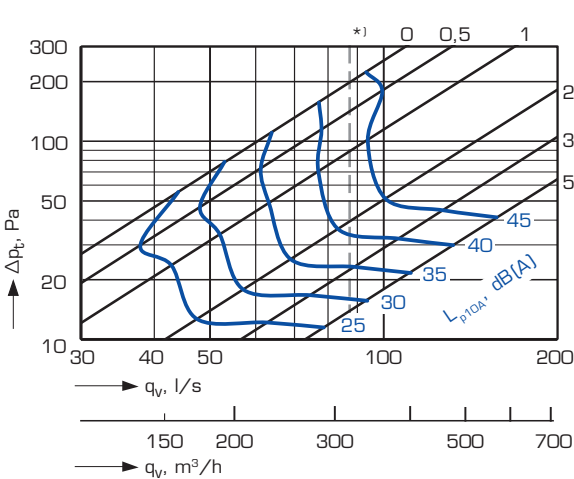
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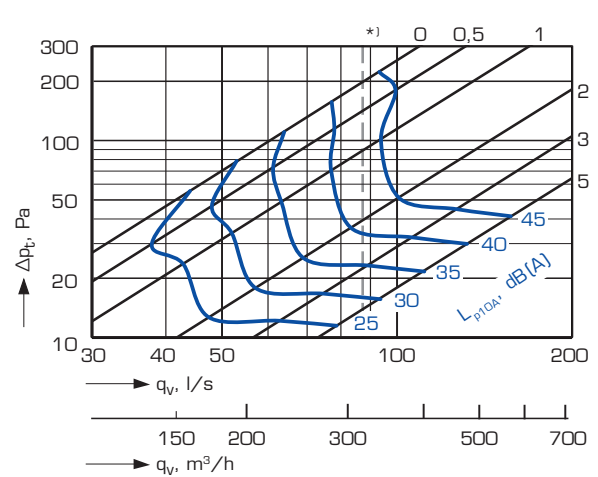
**P(W,Z)KA-60+SKHA-20-60-1-2**



**P(W,Z)KA-60+SKHA-25-60-1-2**



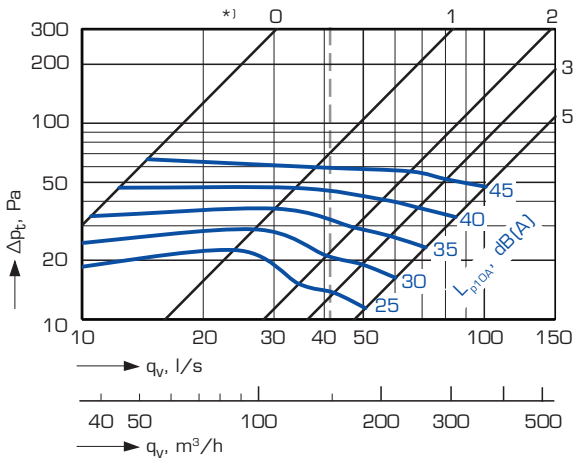
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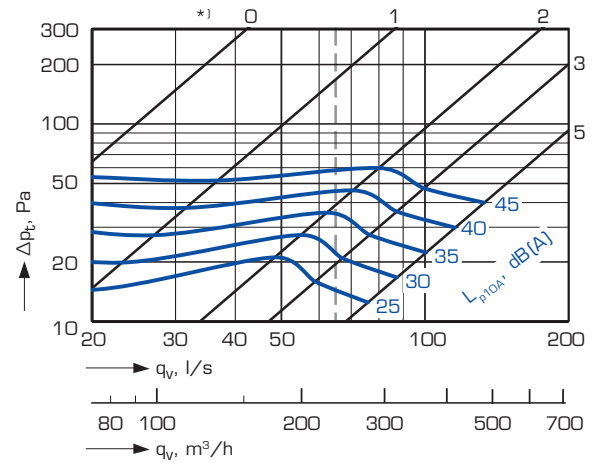
## AIR FLOW, PRESSURE DROP, SOUND LEVEL

### DIFFUSER WITH ACOUSTICALLY UNINSULATED CONNECTION BOX - EXHAUST AIR

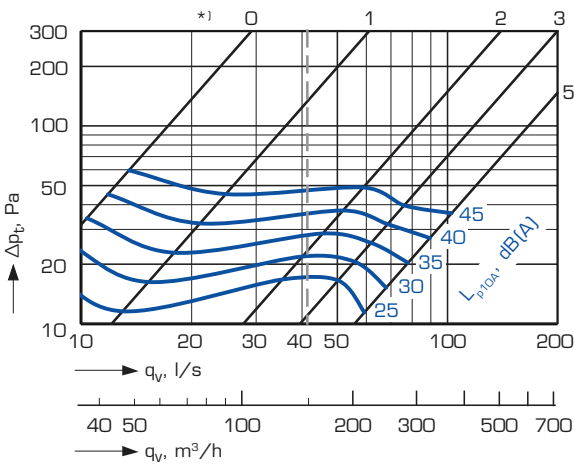
**P(W,Z)KA-40+SKHA-16-40-0-2**



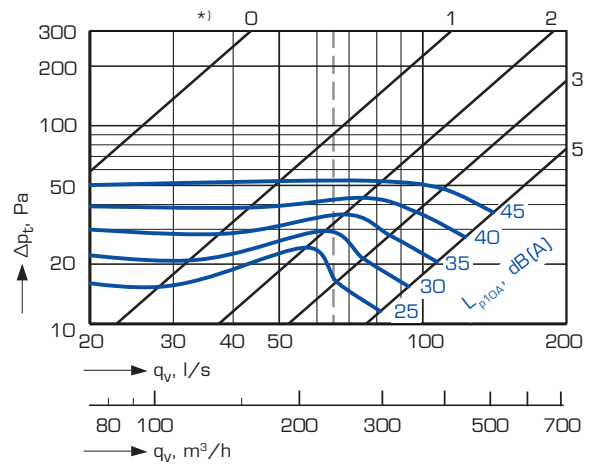
**P(W,Z)KA-50+SKHA-20-50-0-2**



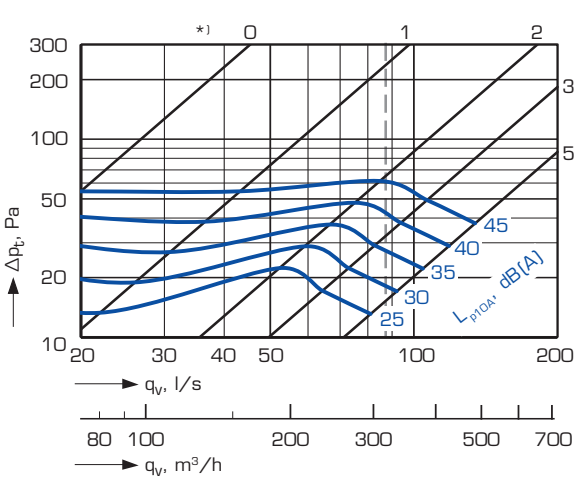
**P(W,Z)KA-60+SKHA-16-60-0-2**



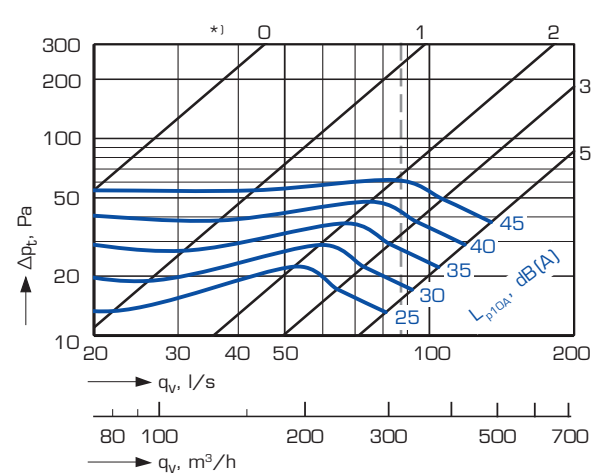
**P(W,Z)KA-60+SKHA-20-60-0-2**



**P(W,Z)KA-60+SKHA-25-60-0-2**



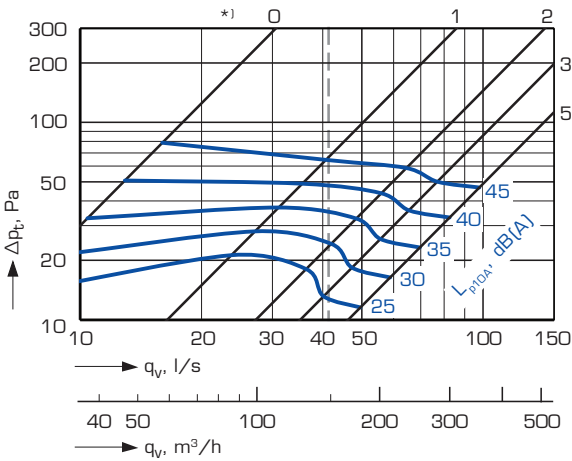
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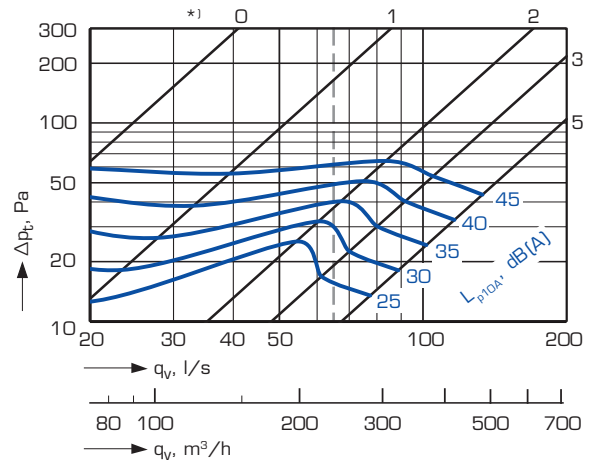
## AIR FLOW, PRESSURE DROP, SOUND LEVEL

### DIFFUSER WITH ACOUSTICALLY INSULATED CONNECTION BOX - EXHAUST AIR

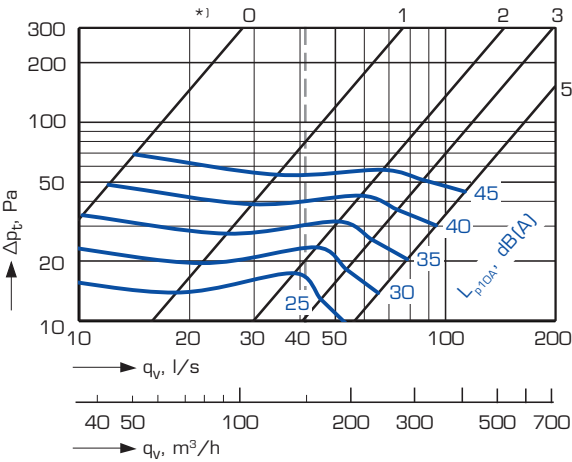
**P(W,Z)KA-40+SKHA-16-40-1-2**



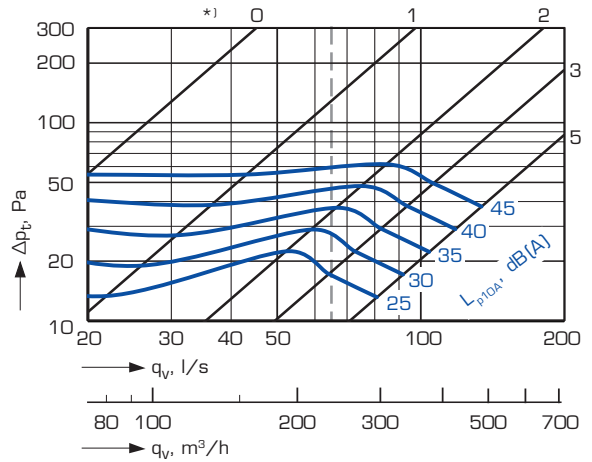
**P(W,Z)KA-50+SKHA-20-50-1-2**



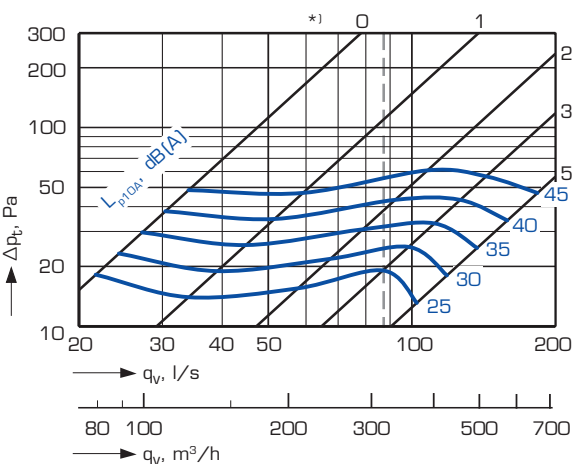
**P(W,Z)KA-60+SKHA-16-60-1-2**



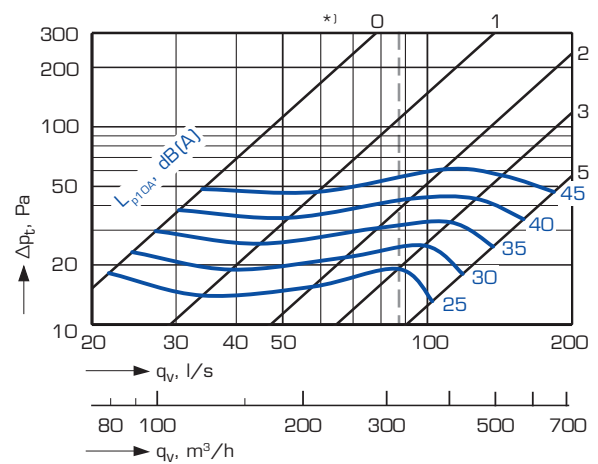
**P(W,Z)KA-60+SKHA-20-60-1-2**



**P(W,Z)KA-60+SKHA-25-60-1-2**

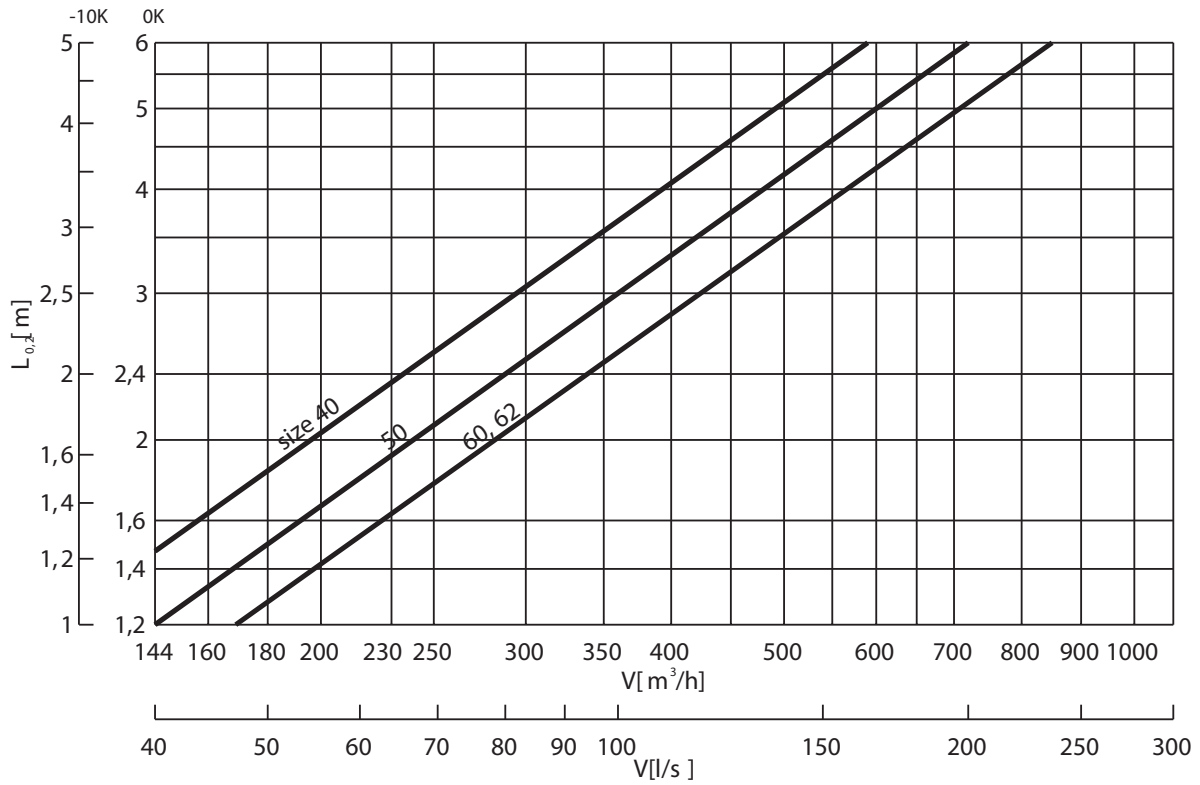


**P(W,Z)KA-62+SKHA-25-62-1-2**

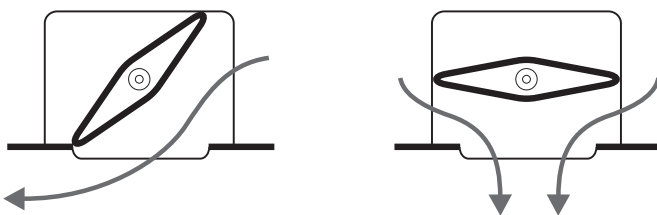


## THROW LENGTH, AIR DIFFUSION PATTERNS

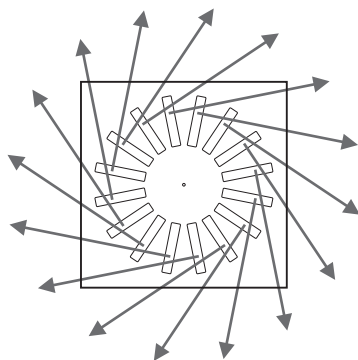
### THROW LENGTH - HORIZONTAL DIFFUSION PATTERN



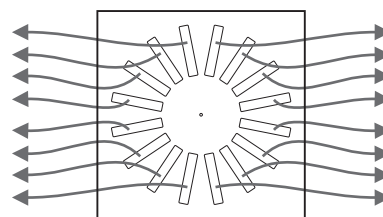
### DEFLECTOR SETTING



### AIR DIFFUSION PATTERN



Radial



Two-way

## ACOUSTICAL DATA, DEFINITIONS

### SOUND POWER LEVEL

Connection box SKHA (without attenuation material) - Supply air

Size	Correction of sound level $K_{oct}$ in dB for octave bands, mean frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
16-40	7	4	8	1	-2	-8	-15	-17
20-50	5	4	7	1	-1	-6	-12	-16
16-60	4	4	7	2	-2	-6	-13	-16
20-60	6	4	7	1	-1	-6	-14	-18
25-60	3	7	6	2	-1	-6	-14	-16
25-62	3	7	6	2	-1	-6	-14	-16
+/-	6	3	2	2	2	2	2	3

Connection box SKHA (with attenuation material) - Supply air

Size	Correction of sound level $K_{oct}$ in dB for octave bands, mean frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
16-40	4	2	8	1	-2	-7	-15	-18
20-50	6	3	7	1	-1	-6	-14	-17
16-60	5	3	7	2	-2	-7	-15	-17
20-60	4	4	8	1	-2	-7	-16	-18
25-60	3	5	5	2	-1	-5	-14	-18
25-62	3	5	5	2	-1	-5	-14	-18
+/-	6	3	2	2	2	2	2	3

Connection box SKHA (without attenuation material) - Exhaust air

Size	Correction of sound level $K_{oct}$ in dB for octave bands, mean frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
16-40	2	0	2	-2	-4	1	-16	-20
20-50	2	-1	2	0	-2	0	-15	-20
16-60	6	-1	1	-1	-3	0	-15	-19
20-60	3	-1	1	0	-3	0	-14	-20
25-60	4	-1	2	1	-2	-1	-17	-19
25-62	4	-1	2	1	-2	-1	-17	-19
+/-	6	3	2	2	2	2	2	3

Connection box SKHA (with attenuation material) - Exhaust air

Size	Correction of sound level $K_{oct}$ in dB for octave bands, mean frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
16-40	3	-1	3	-1	-4	0	-18	-20
20-50	2	-1	2	1	-2	-1	-17	-20
16-60	6	1	2	0	-3	0	-17	-19
20-60	4	-1	2	1	-2	-1	-17	-19
25-60	5	1	1	0	0	-2	-17	-20
25-62	5	1	1	0	0	-2	-17	-20
+/-	6	3	2	2	2	2	2	3

The sound power levels for different octave bands are obtained by adding together the sound pressure level  $L_{AIDP}$  in dB(A), and the corrections  $K_{oct}$  for the octave bands in the table with the help of the following formula:

$$L_W = L_{p10A} + K_{oct}$$

Correction  $K_{oct}$  is the mean value for the range of application of PWKA/PZKA.

### SOUND ATTENUATION

Connection box SKHA (without attenuation material) - Supply air

Size	Sound attenuation $\Delta L$ in dB at [Hz] octave bands, mean frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
16-40	18	9	2	11	9	5	6	10
20-50	12	5	0	10	1	2	2	6
16-60	17	8	1	5	5	3	4	7
20-60	12	5	0	4	2	0	2	5
25-60	5	0	0	1	0	0	0	4
25-62	5	0	0	1	0	0	0	4
+/-	6	3	2	2	2	2	2	3

Connection box SKHA (with attenuation material) - Supply air

Size	Sound attenuation $\Delta L$ in dB at [Hz] octave bands, mean frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
16-40	18	9	2	10	10	6	11	13
20-50	12	5	0	9	3	3	6	9
16-60	17	8	2	6	5	4	7	10
20-60	12	5	0	5	3	3	6	8
25-60	6	0	0	2	0	1	4	6
25-62	6	0	0	2	0	1	4	6
+/-	6	3	2	2	2	2	2	3

Connection box SKHA (without attenuation material) - Exhaust air

Size	Sound attenuation $\Delta L$ in dB at [Hz] octave bands, mean frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
16-40	18	10	1	9	8	3	5	8
20-50	13	5	-2	9	1	0	1	4
16-60	18	8	2	5	5	2	3	8
20-60	17	10	3	7	6	4	5	6
25-60	11	6	1	5	4	3	4	6
25-62	11	6	1	5	4	3	4	6
+/-	6	3	2	2	2	2	2	3

Connection box SKHA (with attenuation material) - Exhaust air

Size	Sound attenuation $\Delta L$ in dB at [Hz] octave bands, mean frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
16-40	18	10	1	7	8	3	9	12
20-50	12	6	0	7	2	1	4	8
16-60	18	9	1	6	5	3	7	11
20-60	12	5	0	4	2	1	4	7
25-60	12	6	1	6	4	4	7	9
25-62	12	6	1	6	4	4	7	9
+/-	6	3	2	2	2	2	2	3

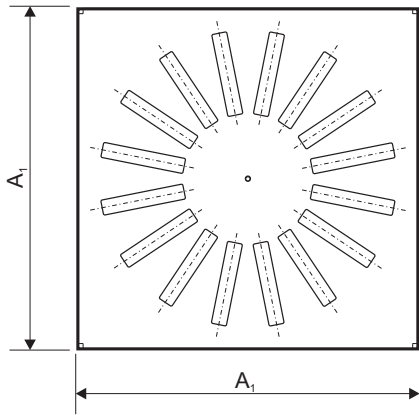
### DEFINITIONS

$q$	air flow	$l/s, m^3/h$
$\Delta p_t$	total pressure drop	Pa
$L_{o2}$	throw	m
$L_{p10A}$	sound pressure level with a room attenuation of 4 dB (10 m <sup>2</sup> room absorption area)	dB(A)
$L_W$	sound power level	dB
$K_{oct}$	octave band correction	dB
$\Delta L$	sound attenuation from the duct to the room	dB

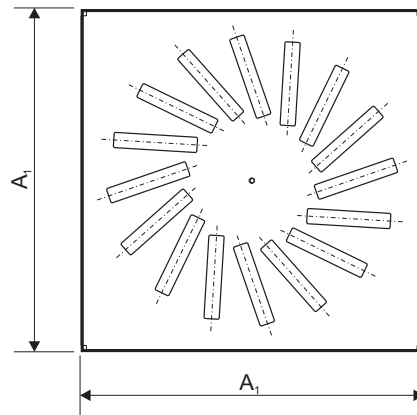


## DIMENSIONS AND WEIGHT

### FACE PANELS



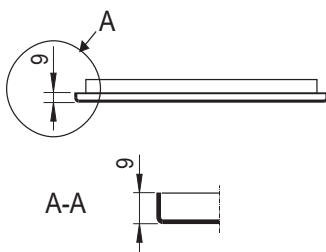
PZKA



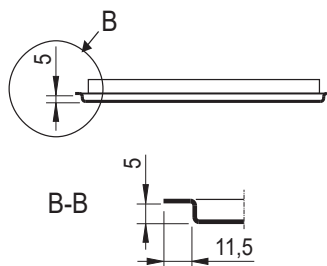
PWKA

Size	A <sub>1</sub> (mm)	Weight (kg)	Number of deflectors (pcs)
40	396	1,2	12
50	496	1,9	16
60	596	2,7	20
62	621	2,9	20

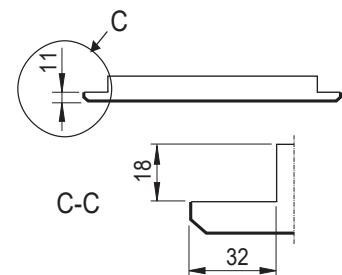
### PANEL PROFILES



Type A



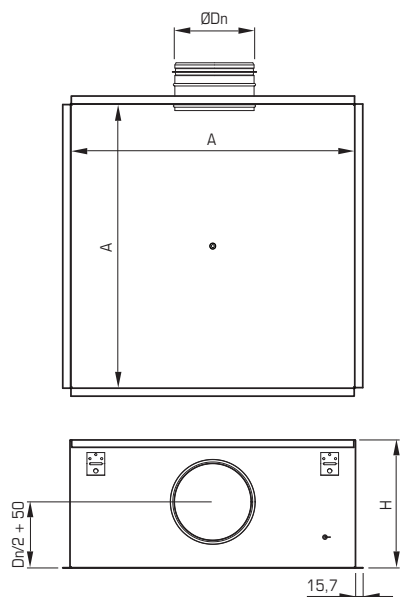
Type B



Type Clip-in

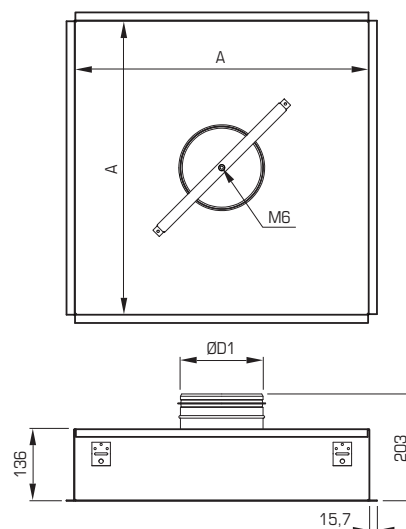
## DIMENSIONS AND WEIGHT

### SKHA CONNECTION BOX



Model	Ø Dn (mm)	A (mm)	H (mm)	Weight (kg)
SKHA-16-40-0-(0,2)	160	358	252	3,2
SKHA-16-60-0-(0,2)	160	558	252	5,5
SKHA-20-50-0-(0,2)	200	458	292	4,8
SKHA-20-60-0-(0,2)	200	558	292	6,0
SKHA-25-60-0-(0,2)	250	558	342	6,6
SKHA-25-62-0-(0,2)	250	583	342	7,0
SKHA-16-40-1-(0,2)	160	358	252	3,5
SKHA-16-60-1-(0,2)	160	558	252	5,8
SKHA-20-50-1-(0,2)	200	458	292	5,0
SKHA-20-60-1-(0,2)	200	558	292	6,4
SKHA-25-60-1-(0,2)	250	558	342	7,0
SKHA-25-62-1-(0,2)	250	583	342	7,5

### SKVA CONNECTION BOX



Model	Ø Dn (mm)	A (mm)	Weight (kg)
SKVA-16-40-0-0	160	358	2,4
SKVA-16-60-0-0	160	558	4,1
SKVA-20-50-0-0	200	458	3,6
SKVA-20-60-0-0	200	558	4,5
SKVA-25-60-0-0	250	558	5,0
SKVA-25-62-0-0	250	583	5,3
SKVA-16-40-1-0	160	358	2,6
SKVA-16-60-1-0	160	558	4,5
SKVA-20-50-1-0	200	458	3,8
SKVA-20-60-1-0	200	558	4,8
SKVA-25-60-1-0	250	558	5,3
SKVA-25-62-1-0	250	583	5,6

## GENERAL

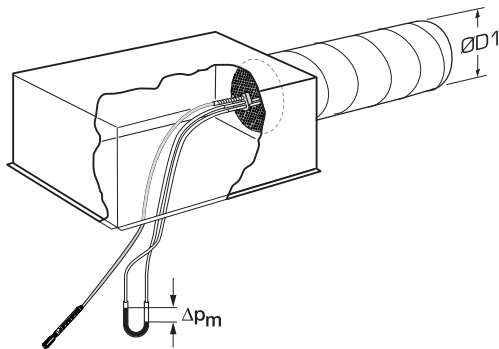
### ADJUSTMENT ZAEF DAMPER

$$q = k \sqrt{\Delta p_m}$$

(l/s) (Pa)

$$q = 3.6k \sqrt{\Delta p_m}$$

(m³/h) (Pa)



ØD1 (mm)	k		
	0 ØD1	1-7 ØD1	>7 ØD1
160	17,1	19,9	17,3
200	27,0	30,8	27,9
250	47,1	48,8	39,9

### CONSTRUCTION AND FUNCTION

PWKA/PZKA is a swirl ceiling supply and exhaust air terminal that is recommended to be mounted with SKHA/SKVA connection boxes. It is equipped with adjustable plastic deflectors ensures highly effective mixing of the supply air with the air in the premises (high induction rate). Air diffusion pattern can be changed from horizontal to vertical. Face panels are available in three versions to fit most popular false ceiling constructions.

The SKHA plenum box features an extremely quiet patented measurement and adjustment damper ZAEF for multipoint measuring with balanced and accurate values. The adjustment handle of the measurement and adjustment damper has a position indicator and a locking device. The measurement and adjustment damper can be easily removed for inspection and cleaning without changing the setting. For installation purposes, SKHA is equipped at the top with a rivet nut size M6 and there are threaded rods attached, cut to specific lengths. Plenum box is available with or without sound attenuation material. In each plenum box, there are lugs attached to the walls for hanging purposes. More information about plenum box may be found in separate technical brochure.

### MATERIAL AND SURFACE FINISH

Both diffuser and the plenum box are made from steel sheet. Deflectors are made of plastic. PWKA/PZKA is powder-coated for a high surface finish. The standard colour is RAL 9010, 70% of gloss. Sound attenuation lining is made of elastomeric foam based on synthetic rubber.

### INSTALLATION, ADJUSTMENT AND MAINTENANCE

The instructions for installation, adjustment and maintenance are available at [www.flaktgroup.com](http://www.flaktgroup.com)

### TECHNICAL DATA AND DIMENSIONING

For complete design details, please see the FläktGroup product selection program SELECT. The program can be found on the Internet at [www.flaktgroup.com](http://www.flaktgroup.com).

### SPECIFICATIONS TEXT EXAMPLE

The PWKA/PZKA is a ceiling supply and exhaust swirl diffuser available in 4 sizes of square face panel. Three kinds of panel profiles allow diffuser to be fit into different types of false ceiling. The SKHA plenum box includes a quiet, easily removable measurement and adjustment damper (ZAEF) and effective sound attenuation lining.

**PRODUCT CODE****Swirl diffuser****P(W,Z)KA-aa-b-c-d****Size (aa)**

40, 50, 60, 62

**Face panel profile (b)**

1 = type A

2 = type B

3 = type clip-in (only size 60)

**Deflectors (c)**

0 = without (exhaust mode)

1 = white

2 = black

**Colour (d)**

1 = standard RAL 9010

X = any other colour from RAL palette

**Connection box****SKHA-aa-bb-c-d****Duct connection size, cm (aa)**

16, 20, 25

**Face panel size, cm (bb)**

40, 50, 60, 62

**Sound attenuation material (c)**

0 = without

1 = with

**Damper (d)**

0 = without damper

2 = with measurement and adjustment damper ZAEF

**Connection box****SKVA-aa-bb-c-0****Duct connection size, cm (aa)**

16, 20, 25,

**Face panel size, cm (bb)**

40, 50, 60, 62

**Sound attenuation material (c)**

0 = without

1 = with



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