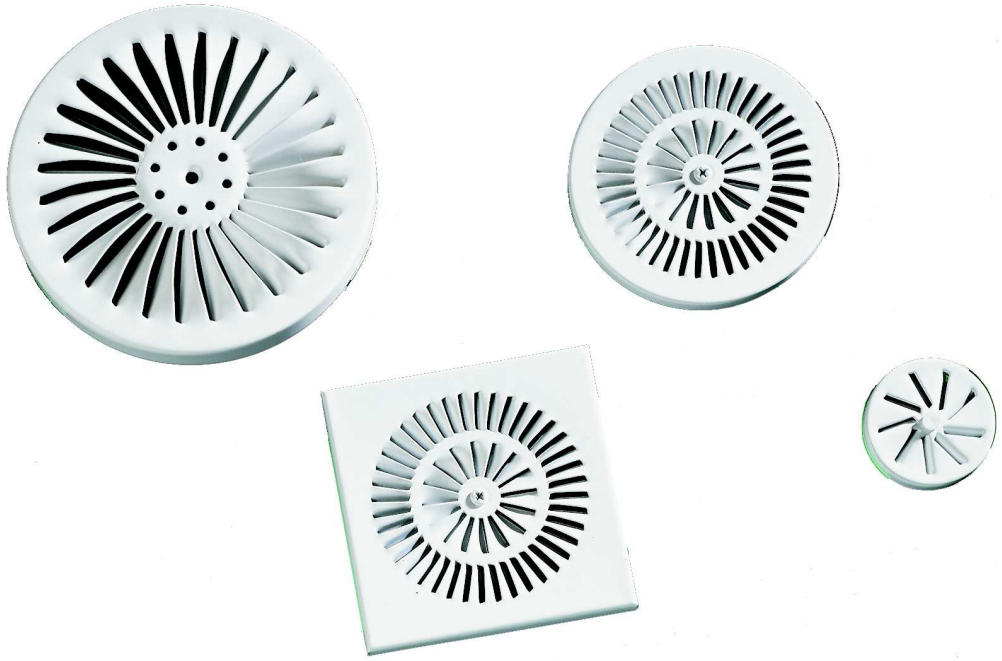
Step Swirl Diffuser

Models SAR/SAQ/SARP



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Step Swirl Diffuser Models SAR/SAQ/SARP

Contents

Step Swirl Diffuser Models SAR/SAQ/SARP

Description

The floor swirl diffusers types SAR / SAQ / SARP are suitable **for air-conditioning concert halls, auditoria, theatres, and cinemas**. During the development of the step swirl diffusers, in particular their extreme mounting situation has been taken into consiseration. This is due to the fact that the installation of the diffusers in steps, the distance between the diffusers and the legs of those inside the room are often < 0.4 m. Over such a short distance, both the velocity and the temperature difference must be quickly reduced, in order to achieve that no draughts are produced. If the air volume or the temperature difference ΔT_0 is too high, then the air velocity and temperature difference cannot be reduced over such a small distance, resulting in draughts. The maximum temperature difference is ± 6 K.
In order to achieve a rapid reduction of the air velocity and the temperature difference, **the non-adjustable, radially arranged air deflection blades produce a highly inductive air throw.** The step swirl diffusers are suitable **for vertical installation in steps.**
From NW 110 with integrated series resistor. The diffuser surface is thus evenly distributed with air, making it easier to adjust the air conditioning installation.
The step swirl diffuser is available in round design (type SAR) NW 060, 110 and 150 and in square design (type SAQ) NW 110. To reduce the assembly costs, up to seven step swirl diffusers (type SAR-060/-110) can be integrated into one panel.

Construction

Swirl diffuser plate
- stove-enamelled sheet steel RAL 9010 (white)

Mounting ring
- Sheet steel painted to the RAL colour of the swirl diffuser plate (for NW 060 and 150)
- Plastic, similar to RAL colour 9005 (black) (for NW 110)

Inlet connection spigot
- made of galvanised sheet steel (NW060 and NW150 only)
- made of plastic (NW110)

Inlet connection spigot with connection spigot (SAR-150 only, upon request)
- made of galvanized sheet steel

Model

SAR	-	with round faceplate and inlet connection spigot
SAQ	-	with square faceplate and inlet connection spigot
SARP	-	Several SARs integrated into panel

Fastening

Fastening prongs (-BK)
- for NW 150 (at an extra charge)

Spring mounting (-FM)
- for NW 060

Screw mounting (-SM)
- Standard for NW 110 and NW 150 and for SARP, screws to be provided by customer

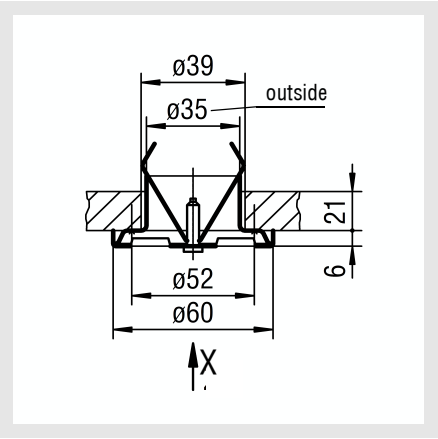
Concealed mounting (-VM)
- available for NW 110 and NW 150 and for SARP (at an extra charge)

Step Swirl Diffuser Models SAR/SAQ/SARP

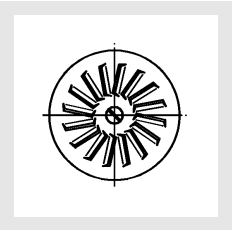
Models and dimensions

Dimensions

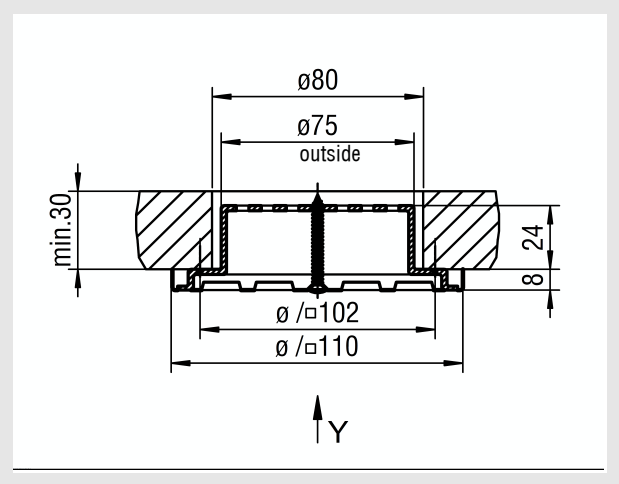
SAR-060-…-FM-A0



View X

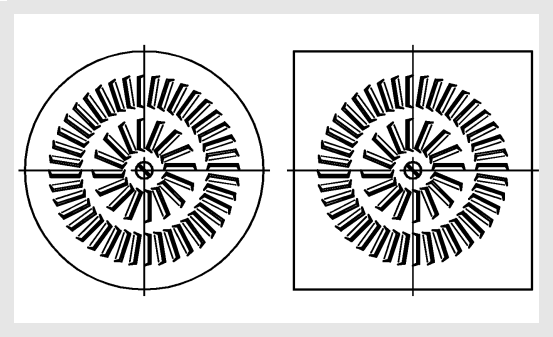


SAR/SAQ-110-…-SM-A0

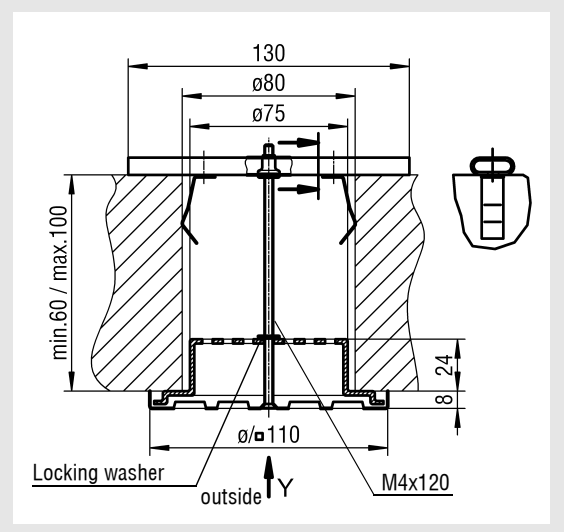


View Y

SAR **SAQ**



SAR/SAQ-110-…-VM-A0

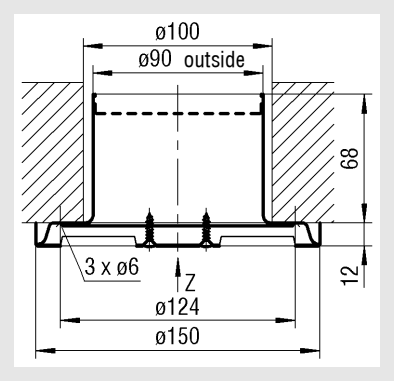


Series resistor

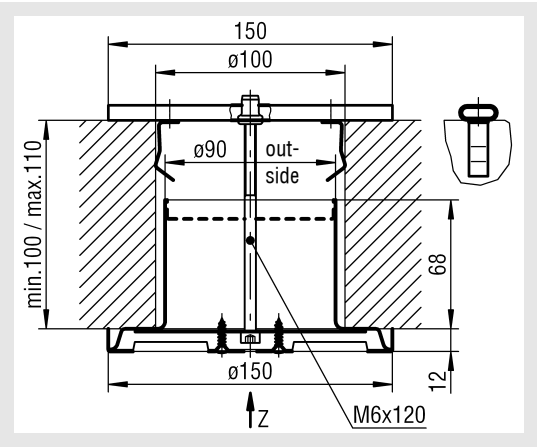
NW	FQ (%)	Perforated hole ø (mm)	Division (mm)
060	-	-	-
110	44	3,5	5

Step Swirl Diffuser Models SAR/SAQ/SARP

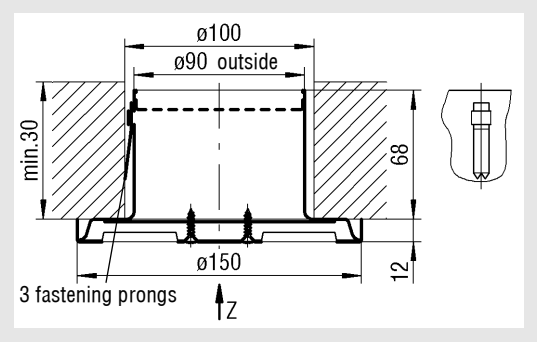
SAR-150-...-SM-A0



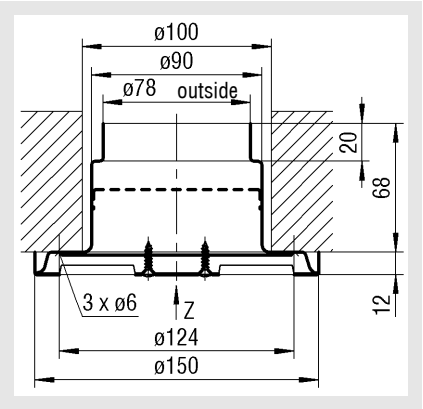
SAR-150-...-VM-A0



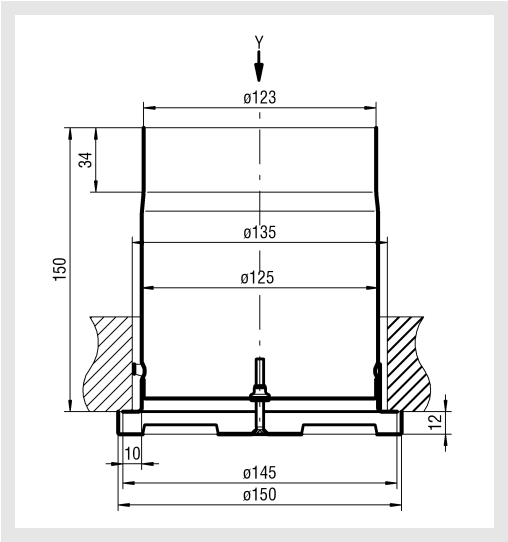
SAR-150-...-BK-A0



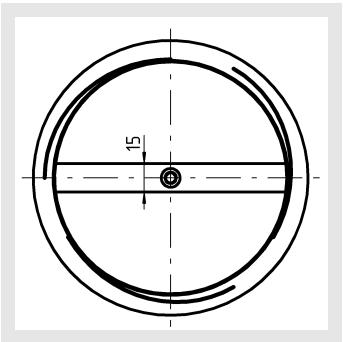
SAR-150-...-SM-A1 with inlet connection spigot with connection spigot DN 80



SAR-150-...-VM-A2 with connection spigot DN 125

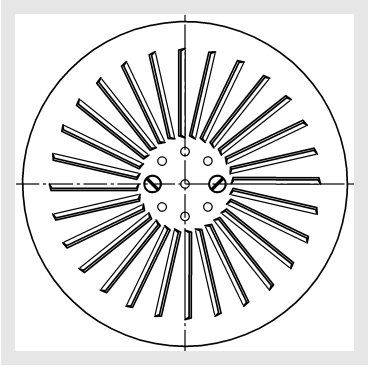


View Y



This view serves for representing the assembly of the fastening prong.

View Z



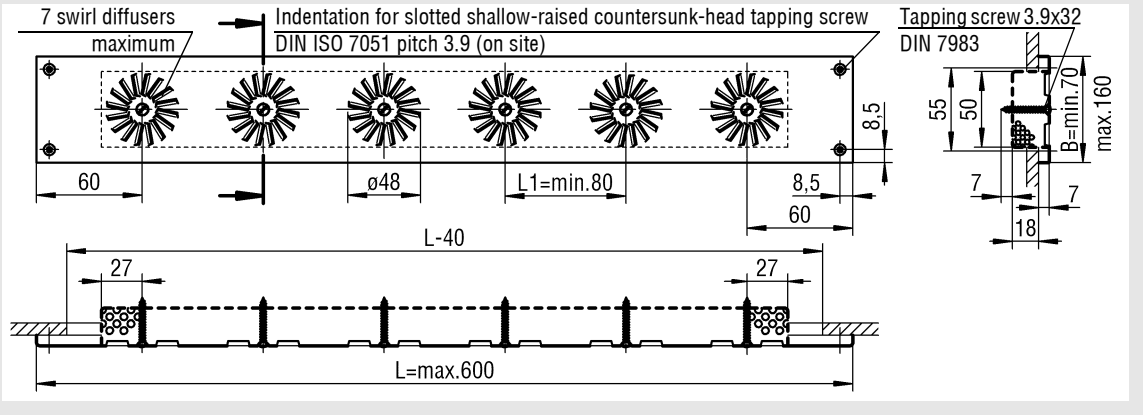
Series resistor

NW	FQ (%)	Perforated hole ø (mm)	Division (mm)
150	46	5	7

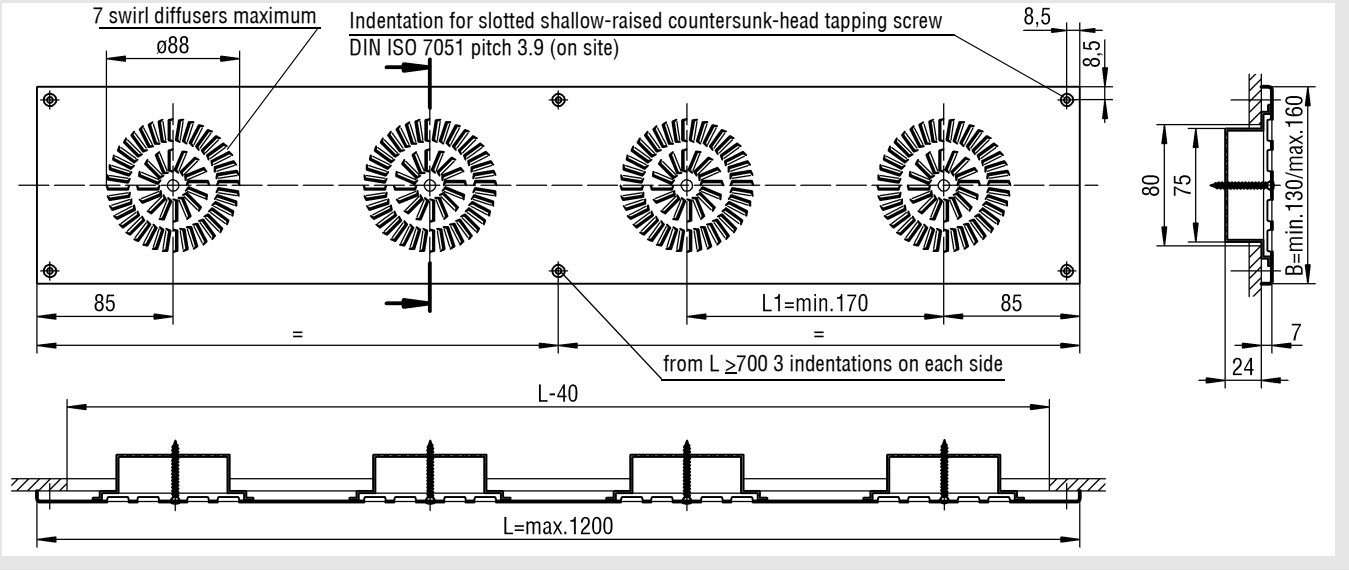
Step Swirl Diffuser Models SAR/SAQ/SARP

Fastening methods

with screw mounting SARP-060-...-SM



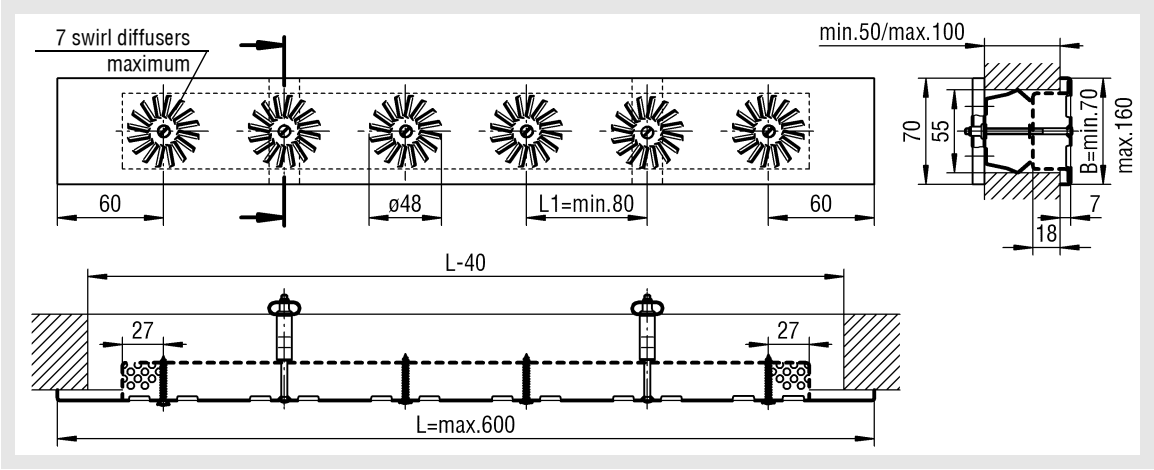
with screw mounting SARP-110-...-SM



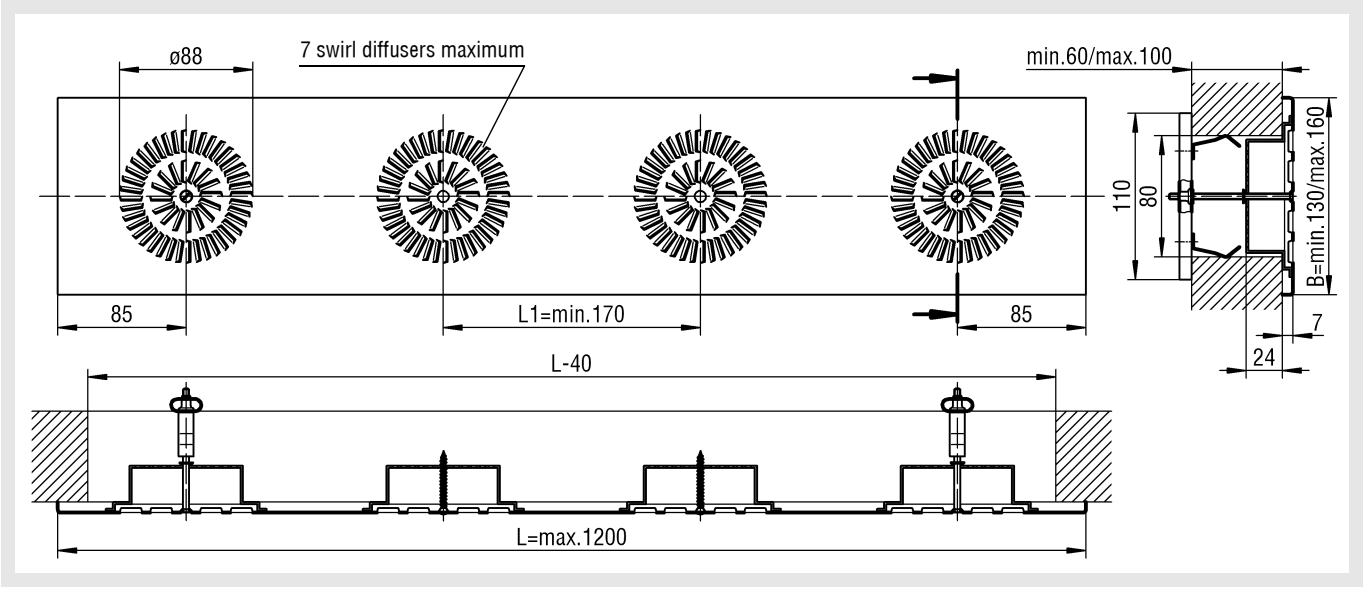
1. The other step swirl diffusers are always distributed evenly in panel design.
2. The left and right distances from the edge are always fixed at 60 and (85) mm, respectively.
3. The minimum distance between two centrally arranged swirl diffusers is at least 80 (170) mm.

Step Swirl Diffuser Models SAR/SAQ/SARP

with concealed mounting SARP-060-...-VM (standard)



with concealed mounting SARP-110-...-VM (standard)



Attention!
Please indicate the number of swirl diffusers as well as length and width of the panel on your order (see order code)!

Series resistor

NW	FQ (%)	Perforated hole ø (mm)	Division (mm)
060	33	3	5
110	44	3,5	5

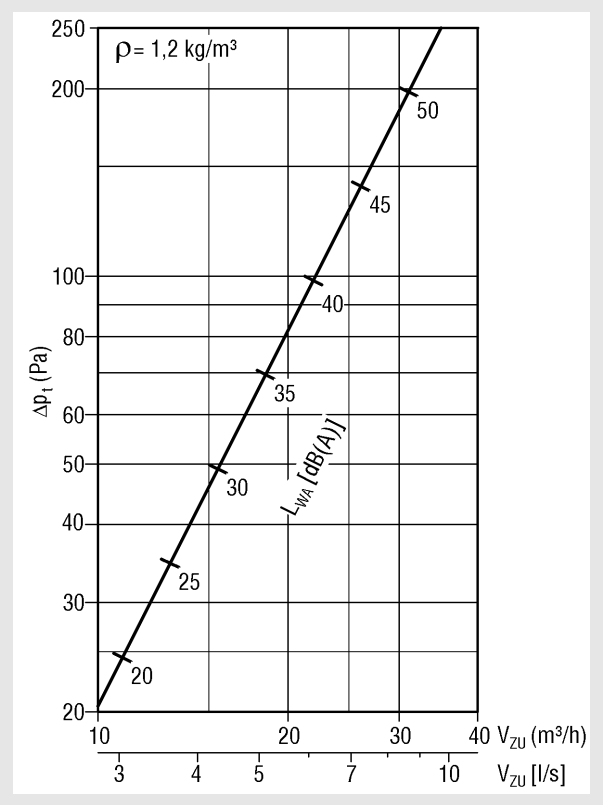
1. The other step swirl diffusers are always distributed evenly in panel design.
2. The left and right distances from the edge are always fixed at 60 and (85) mm, respectively.
3. The minimum distance between two centrally arranged swirl diffusers is at least 80 (170) mm.

Step Swirl Diffuser Models SAR/SAQ/SARP

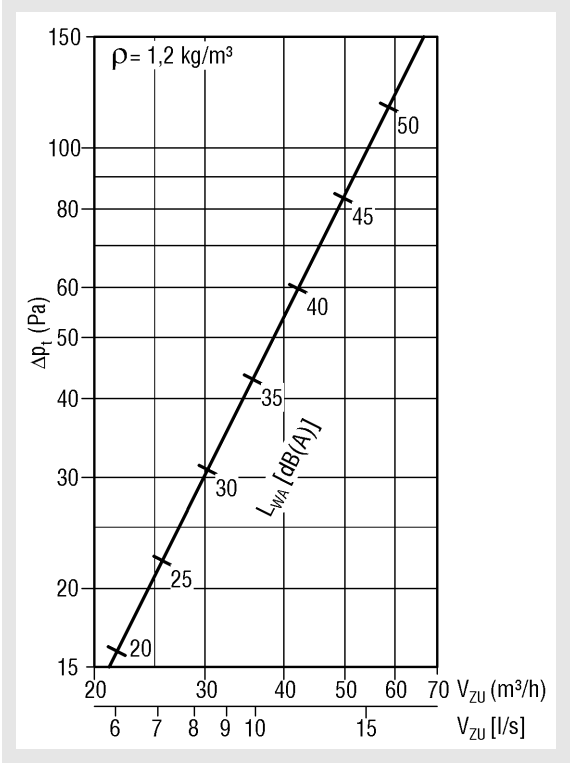
Technical data

Pressure loss and noise level

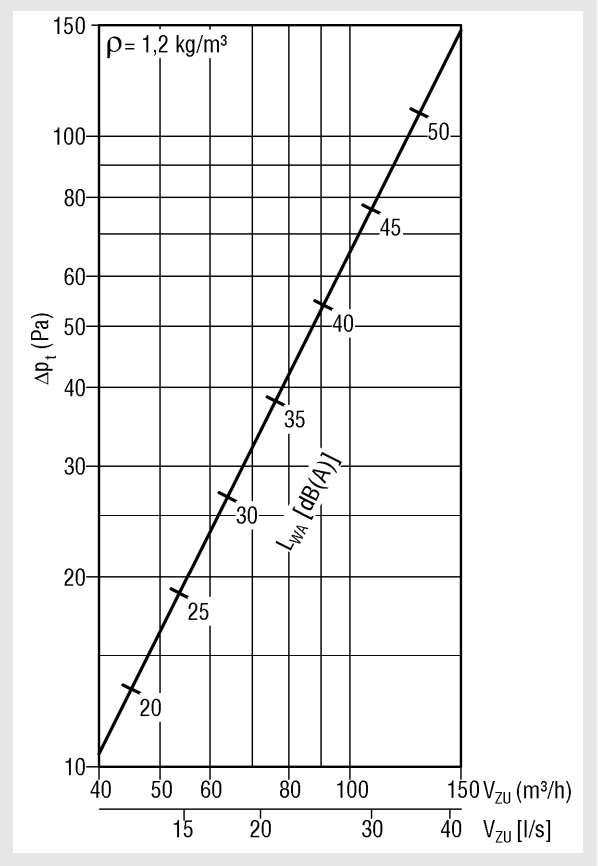
SAR-060

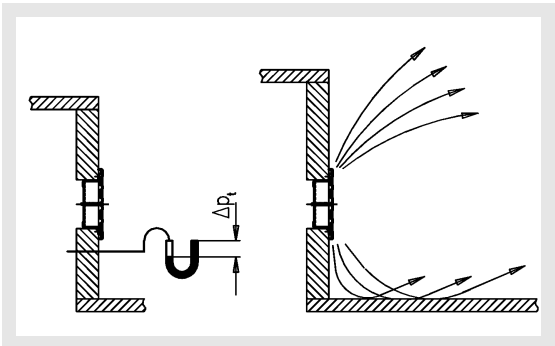


SAR / SAQ-110



SAR-150





The technical data may change according to the chair arrangement.

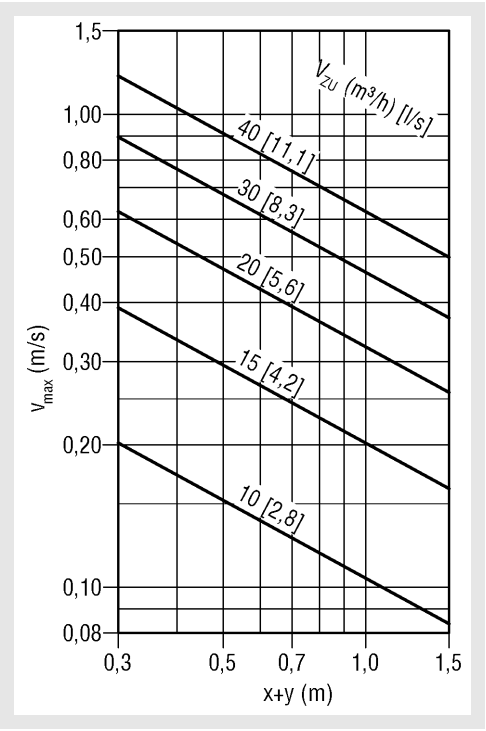
Added sound levels

Number of SAR/SAQ	1	2	3	4	5	6	7
CF [dB(A)]	0	+3	+4,8	+6	+7	+8	+9

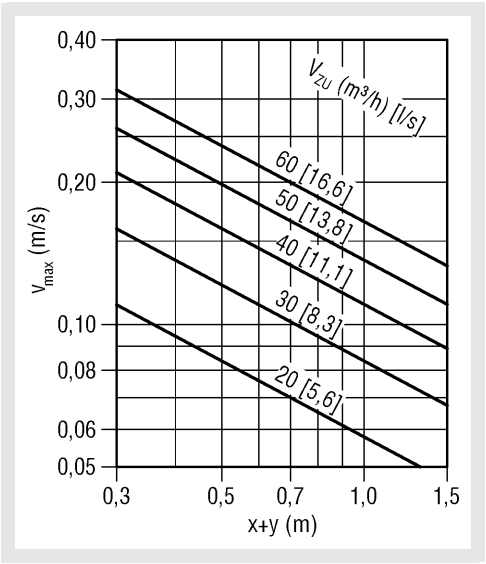
Step Swirl Diffuser Models SAR/SAQ/SARP

Maximum end velocity of jet

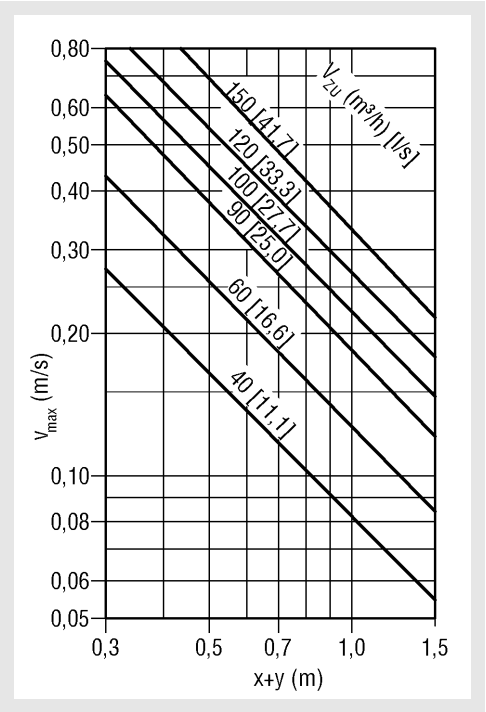
SAR-060



SAR / SAQ-110



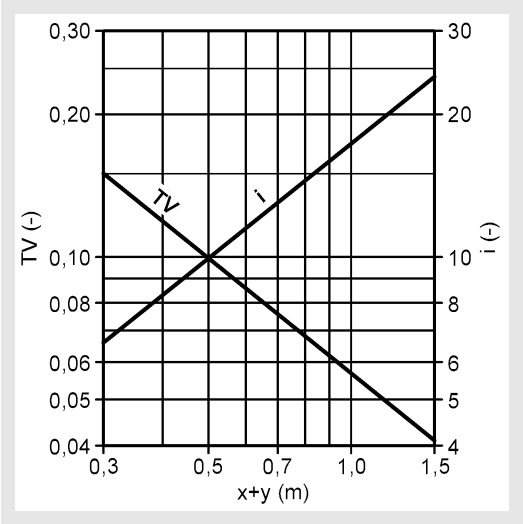
SAR-150



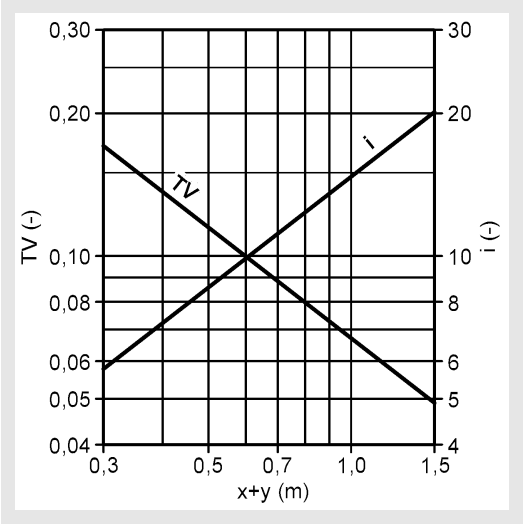
Step Swirl Diffuser Models SAR/SAQ/SARP

Temperature and induction ratios

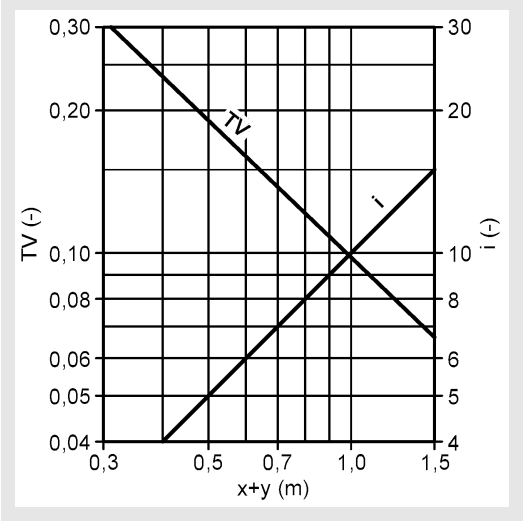
SAR-060



SAR / SAQ-110



SAR-150



Legend

V_{ZU}	(m³/h) [l/s]	=	Supply air volume
v_{max}	(m/s)	=	Maximum end velocity of jet
x+y	(m)	=	Horizontal + vertical throw
ρ	(kg/m³)	=	Density
Δp_t	(Pa)	=	Pressure loss
L_{WA}	[dB(A)]	=	A-weighted sound power level
TV	(-)	=	Temperature ratio ($TV = \Delta T_X / \Delta T_0$)
i	(-)	=	Induction ratio ($i = V_X / V_{ZU}$)
ΔT_0	(K)	=	Temperature difference between supply air temperature and room temperature ($\Delta T_0 = t_{ZU} - t_R$)
ΔT_X	(K)	=	Temperature difference at point x
t_{zu}	(°C)	=	Supply air temperature
V_X	(m³/h) [l/s]	=	Total air jet volume at point x
t_R	(°C)	=	Room temperature
NW		=	Nominal width

Step Swirl Diffuser Models SAR/SAQ/SARP

Order code SAR / SAQ

01	02	03	04	05	06
Type	Nominal size	Material	Paint	Mounting	connection spigot
Example					
SAR	-150	-SB	-9010	-SM	-A0

Sample
SAR-150-SB-9010-SM-A0
Step swirl diffuser type SA I round faceplate I NW 150 I sheet steel I RAL 9010 white I screw mounting I with inlet connection spigot without connection spigot

Order details

01 - Type

SAR = Step swirl diffuser with inlet connection spigot, round design

SAQ = Step swirl diffuser with inlet connection spigot, square design (size 110 only)

02 - Nominal size

060 = NW060

110 = NW110

150 = NW150

03 - Material

SB = Sheet steel

04 - Paint

9010 = RAL colour white (standard)

9005 = RAL colour black

XXXX = RAL colour can be freely selected

05 - Mounting

VM = Concealed mounting (only possible for NW110 and NW150)

SM = Screw mounting (standard) (only possible for NW110 and NW150)

FM = Spring mounting (only possible for NW 060)

BK = Fastening prong (only possible for NW 150)

06 - Connection pipe

A0 = Inlet connection spigot without connection spigot

A1 = Inlet connection spigot with connection spigot (NW 150 only, connection DN80)

A2 = Inlet connection spigot with connection spigot (NW 150 only, connection DN125)

Step Swirl Diffuser Models SAR/SAQ/SARP

Order code SARP

01	02	03	04	05	06	07	08
Type	Nominal size	Material	Number of diffusers	Total length L	Total width B	Paint	Mounting
Example							
SARP	-110	-SB	-4	-0680	-150	-9010	-SM

Sample
SARP-110-SB-4-0680-150-9010-SM
Step swirl diffuser in panel design type SARP I NW 110 I sheet steel I 4 diffusers I total length 680mm I total width 150mm I RAL 9010 white I screw mounting

Order details

01 - Type

SARP = Step swirl diffuser in panel design

02 - Nominal size

060 = NW060
110 = NW110

03 - Material

SB = Sheet steel

04 - Number of diffusers per panel

2 = 2 diffusers (with NW 060/110 - L_{min}=0200/0340 mm)
3 = 3 diffusers (with NW 060/110 - L_{min}=0280/0510 mm)
4 = 4 diffusers (with NW 060/110 - L_{min}=0360/0680 mm)
5 = 5 diffusers (with NW 060/110 - L_{min}=0440/0850 mm)
6 = 6 diffusers (with NW 060/110 - L_{min}=0520/1020 mm)
7 = 7 diffusers (with NW 060/110 - L_{min}=0600/1190 mm)

The maximum length for all diffusers is 600 mm for NW 060 and 1200 mm for NW 110.

05 - Total length L in mm

xxxx = Input always with 4 digits

06 - Total width B in mm

xxx = Input always with 3 digits (for NW 060 between 070 and 160, for NW 110 between 130 and 160)

07 - Paint

9010 = RAL colour white (standard)
9005 = RAL colour black
XXXX = RAL colour can be freely selected

08 - Mounting

VM = Concealed mounting
SM = Screw mounting (standard)

Step Swirl Diffuser Models SAR/SAQ/SARP

Specification texts

Step swirl diffuser for micro-air-conditioning, suitable for vertical installation in steps, consisting of a round swirl diffuser plate of stove-enamelled sheet steel painted to RAL 9010 (white) and quick-installation mounting ring, made of stove-enamelled sheet steel in the colour of the faceplate. In order to achieve an extremely rapid reduction of the air velocity and the temperature difference, the non-adjustable, radially arranged air deflection blades produce a highly inductive air throw. NW 060 with spring mounting (-FM).
Product: SCHAKO **type SAR-060-…**

Step swirl diffuser for micro-air-conditioning, suitable for vertical installation in steps, consisting of a round swirl diffuser plate made of sheet steel stove-enamelled to RAL 9010 (white) and quick-installation mounting ring with integrated series resistor for building up a pre-pressure, made of sheet steel stove-enamelled in the colour of the faceplate, for NW 110 made of plastic similar to RAL colour 9005 (black). Non-adjustable radial air deflection blades create a highly inductive throw for quick reduction of air velocity and temperature difference. NW 110 and 150 available with screw mounting (-SM) or concealed mounting (-VM) (at an extra charge). NW 150 also available with fastening prongs (-BK) (at an extra charge). NW 150 with inlet connection spigot plus connection spigot DN80 (-A1) or connection spigot DN125 (-A2).
Product: SCHAKO **type SAR-…**

Step swirl diffuser for micro-air-conditioning, suitable for vertical installation in steps, in panel design with integrated swirl diffusers NW 060 or NW 110, made of sheet steel stove-enamelled to the colour of the faceplate. Rectangular faceplate, 2-7 diffusers per faceplate possible. Non-adjustable radial air deflection blades create a highly inductive throw for quick reduction of air velocity and temperature difference. With screw mounting (-SM) or concealed mounting (-VM, standard).
Product: SCHAKO **type SARP-…**

Step swirl diffuser for micro-air-conditioning, suitable for vertical installation in steps, consisting of a square swirl diffuser plate made of stove-enamelled sheet steel RAL 9010 (white) and quick-installation mounting ring with integrated series resistor for building up a pre-pressure, made of plastic, similar to RAL colour 9005 (black). In order to achieve an extremely rapid reduction of the air velocity and the temperature difference, the non-adjustable, radially arranged air deflection blades produce a highly inductive air throw. NW 110 with screw mounting (-SM) or concealed mounting (-VM) (at an extra charge).
Product: SCHAKO **type SAQ-110-…**