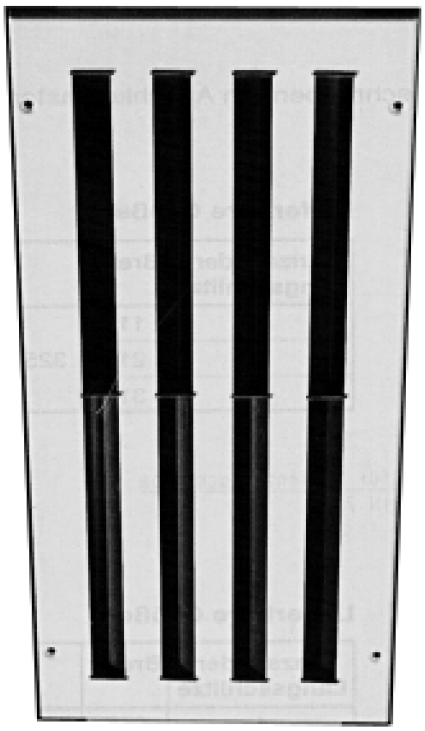
SCHAKO
KLIMA-LUFT

Ceiling Diffuser

DBB



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Ceiling Diffuser Model DBB

Contents

Ceiling Diffuser Model DBB

Description

The characteristic feature of the ceiling diffuser type DBB for supply and extract air is its high flexibility. The integrated blades allow many air distribution patterns even later on. It is often the case that unforeseen installations of components into the ceiling make it necessary to change the air throw pattern on-site. Some of the many available air throw options are shown below.

Attention:
As a standard feature, the return air model type DBB-...A is delivered with blades. Only for large air volumes will the DBB return air model be delivered without blades on request by the customer. This model is only available with hit-and-miss damper painted in black!

Construction

Faceplate

- Sheet steel painted to RAL 9010 (white)
- Natural colour anodised aluminium (E6/EV1) (only available with VM mounting)

Blades

- Plastic, RAL colour 9010 (white) or RAL colour 9005 (black).
- Aluminium painted to the RAL colour of the faceplate (at an extra charge) Painted blades can not be adjusted afterwards

Model

DBB-A - one- or two-way throw
DBB-B - two or three side throw
DBB-C - three- or four way throw

Accessories

Plenum box (-ASK)

- Galvanised sheet steel, with integrated perforated straightener (supply air model only) and fixing lugs.

Ball-impact guard (-BS)

- Sheet steel painted to RAL 9010 (white)

Rubber lip seal (-GD)

- Special rubber
- in the plenum box at the connection pipe

Throttle damper (-DK)

- in plenum box
- Damper made of galvanised sheet steel
- Damper fastening made of plastic

ROB version (-ROB)

- Removable diffuser plate, throttle damper and volumetric flow meter

Hit-and-miss damper (SS-K)

- for air volume regulation, made of galvanised sheet steel

Volumetric flow meter (-VME)

- Mounting made of galvanised sheet steel
- Measuring sensor made of plastic
- Aluminium connections.

Internal insulation (-Ii)

- Thermal insulation inside the plenum box

External insulation (-Ia)

- Thermal insulation on the outside of the plenum box

Fastening

Screw mounting (-SM)

- Standard, screws must be provided on-site

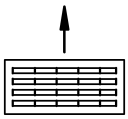
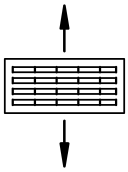
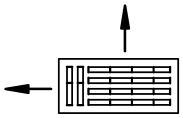
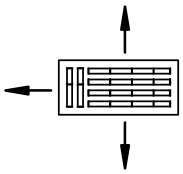
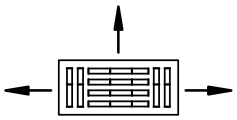
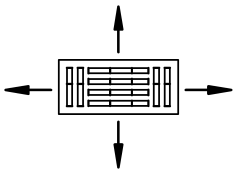
Concealed mounting (-VM)

- only available together with a plenum box!

Ceiling Diffuser Model DBB

Models and dimensions

Air throw pattern

	Throw pattern		
	Version "A"	Version "B"	Version "C"
1-way throw		-	-
2-way throw			-
3-way throw	-		
4-way throw	-	-	

DBB-A

Number of slots, lengthwise	B	L						
2	115	325	425	525	625	825	1025	1225
4	215							
6	315							

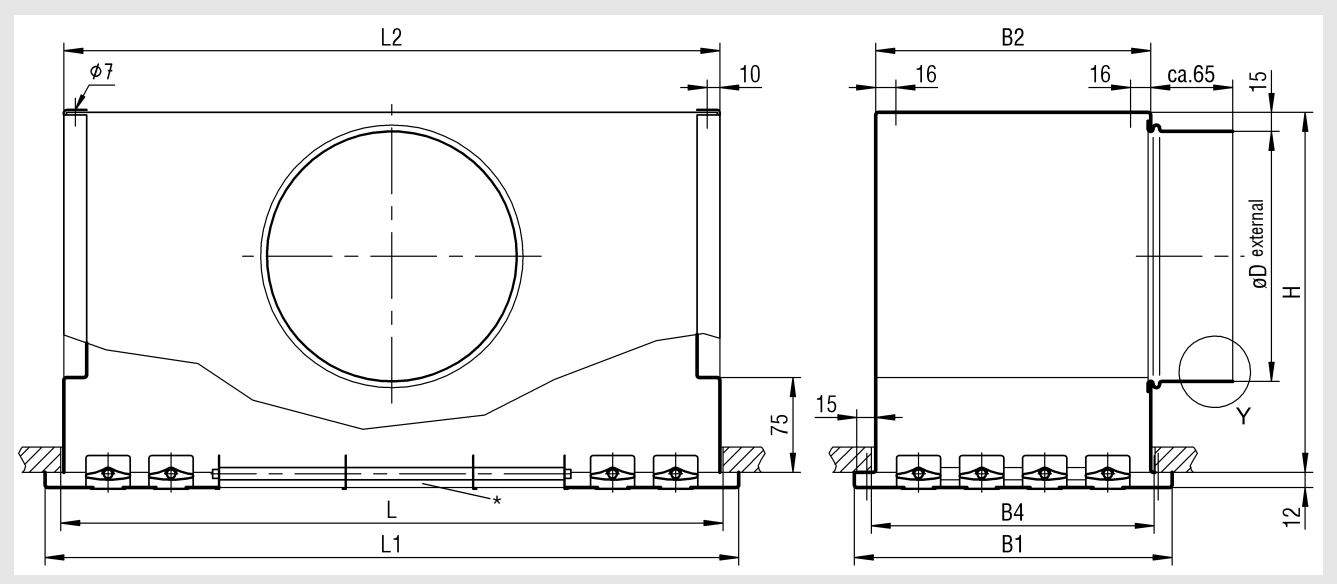
DBB-B / DBB-C

Number of slots, lengthwise	B	L					
4	215	425	525	625	825	1025	1225
6	315						
		1	2	2	3	3	4
		Number of slots, accross					

Ceiling Diffuser Model DBB

Dimensions

DBB-...-ASK-SM, with plenum box (-ASK) with lateral connection piece (-AS1)



Available sizes ASK -AS1

	115	215	315	B
	152	252	352	B1
	118	218	318	B2
	125	225	325	B4

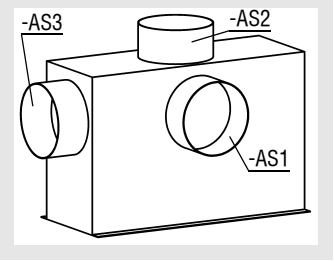
L	L1	L2	øD	H	øD	H	øD	H
325	350	320	158	245	198	285	248	335
425	450	420	158	245	198	285	248	335
525	550	520	158	245	198	285	248	335
625	650	620	158	245	248	335	313	400
825*	850	820	198	285	248	335	313	400
1025*	1050	1020	198	285	248	335	313	400
1225*	1250	1220	198	285	248	335	313	400

All combined lengths and heights available!

Grilles cannot be fitted with a hit-and-miss damper if a plenum box is attached, i.e. it can either be fitted with a hit-and-miss damper or a plenum box.

* With the model DBB-A from L≥825 with intermediate rail.

Arrangement of connection pieces

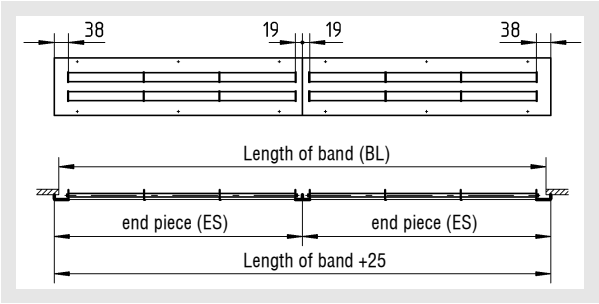


- Lateral connection piece (-AS1, standard)
- Connection piece from above (-AS2)
- Connection piece front side (-AS3)

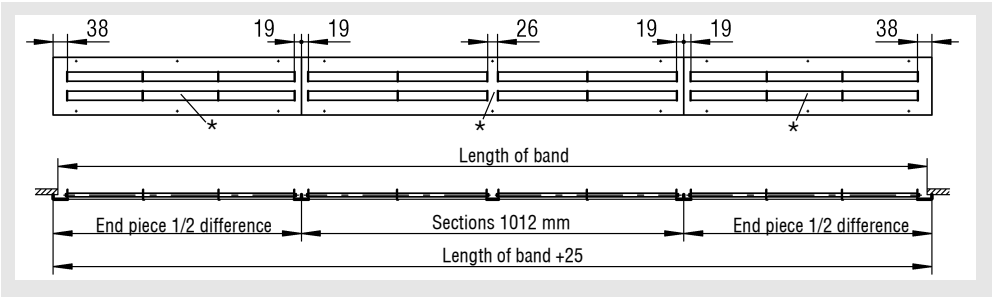
Dimensions and prices for connection piece from above (-AS2) and connection piece front side (-AS3) upon request.

Ceiling Diffuser Model DBB

Ceiling diffuser type DBB as band design
2-part if length of band BL ≤ 2025 mm

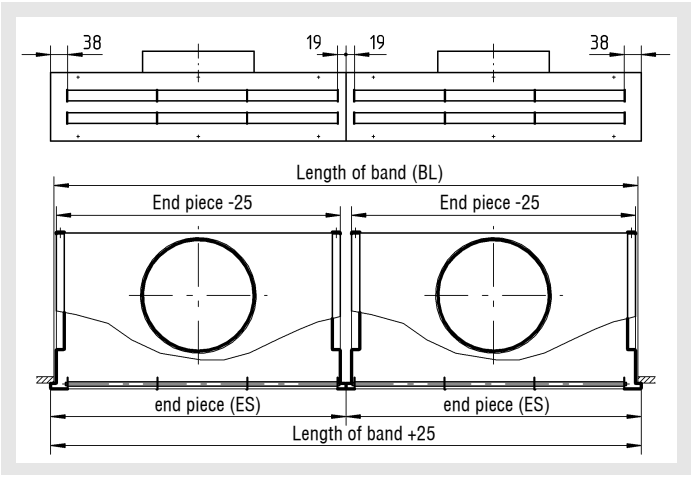


multi-part for a band length BL > 2025 mm

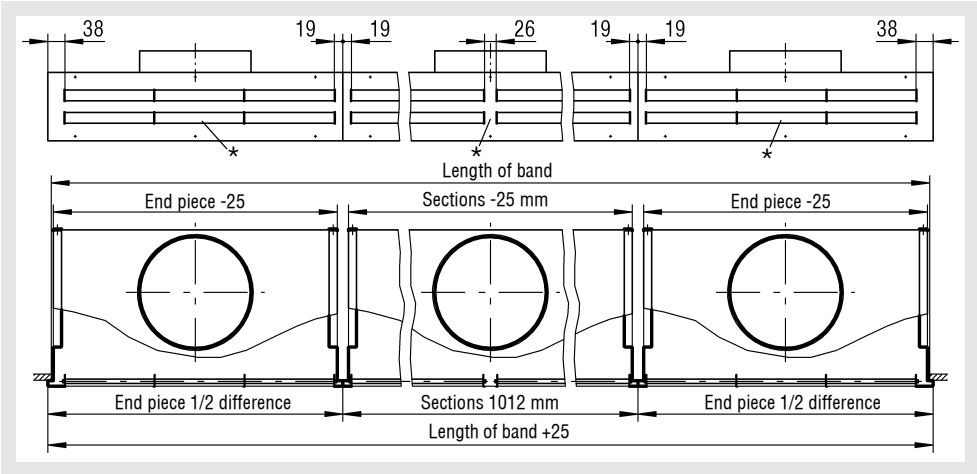


* With the model DBB-A from L≥825 with intermediate rail.

Ceiling diffuser type DBB as band design
2-part if length of band BL ≤ 2025 mm



multi-part for a band length BL > 2025 mm

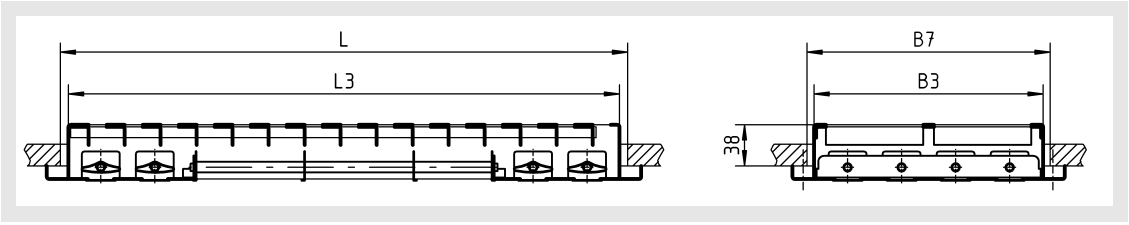


* With the model DBB-A from L≥825 with intermediate rail.

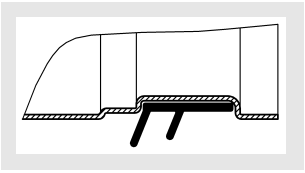
Ceiling Diffuser Model DBB

Dimensions of accessories

Hit-and-miss damper (SS-K)

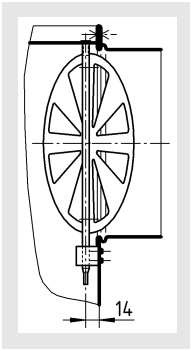


Rubber lip seal (-GD)
Detail Y

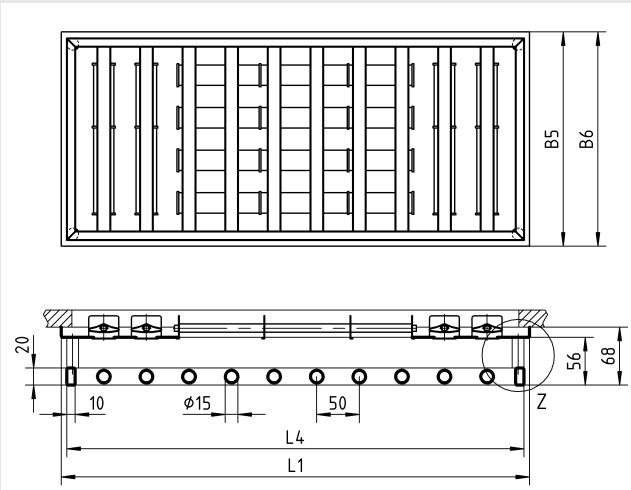


ROB version (-ROB)
Removable diffuser plate, throttle damper and volumetric flow meter

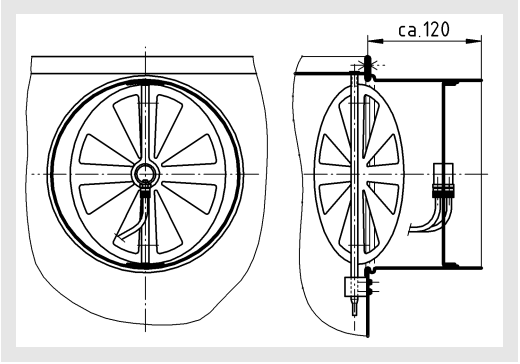
Throttle damper (-DK)



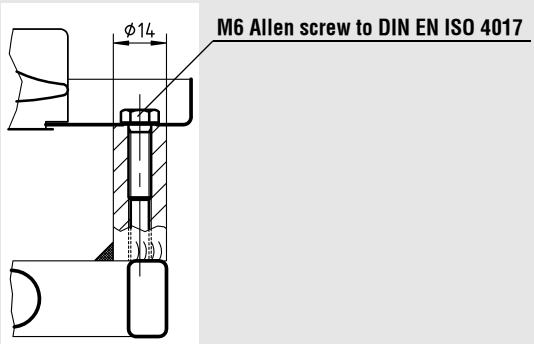
Ball-impact guard (-BS)



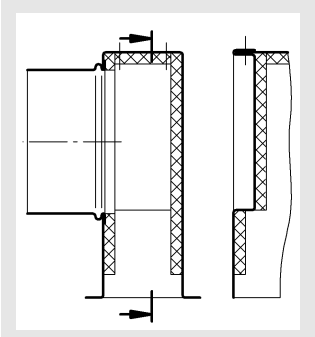
Volumetric flow meter (-VME)



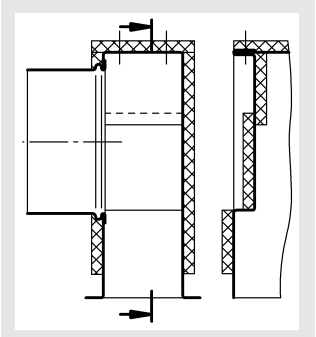
Detail Z



Insulation for plenum box inside(-li)



outside(-la)



Available sizes

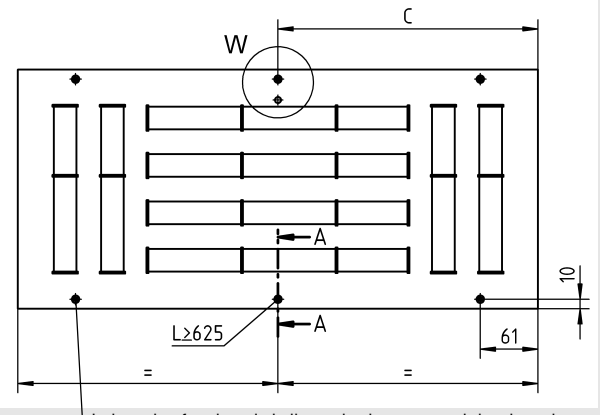
B	B3	B5	B6	B7
115	112	135	150	116
215	212	235	250	216
315	312	335	350	316

L	L1	L3	L4
325	350	310	335
425	450	410	435
525	550	510	535
625	650	610	635
825	750	810	835
1025	1050	1010	1035
1225	1250	1210	1235

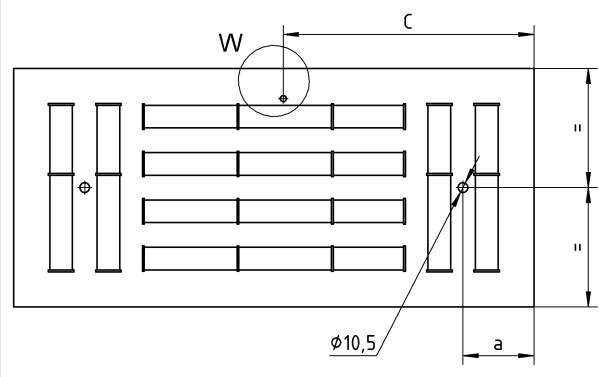
Ceiling Diffuser Model DBB

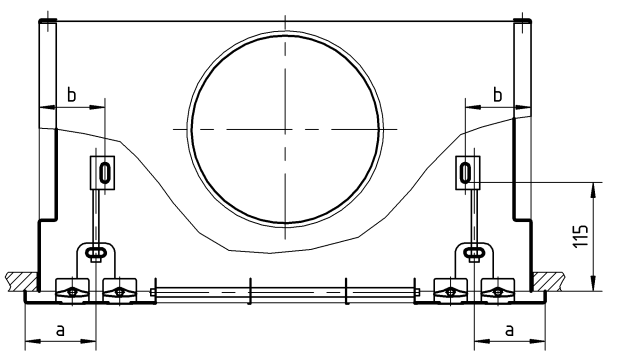
Fastening methods

Screw mounting (SM) (Model "DBB-C" shown)
with 4 and, from a length of ≥ 625, with 6 raised countersunk head tapping screws (on-site)



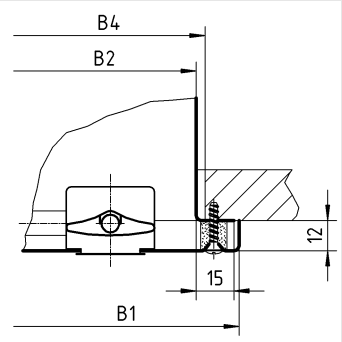
Concealed mounting (VM)
(Model "DBB-C" shown)



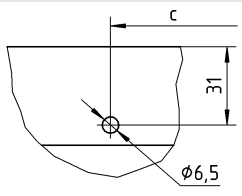


only available together with a plenum box!

Section A-A
(Drawn rotated by 90°)



Detail W
Hole for the damper adjustment
(only available for the version with damper)



Available sizes SM / VM

B	B1	B2	B4
115	152	118	125
215	252	218	225
315	352	318	325

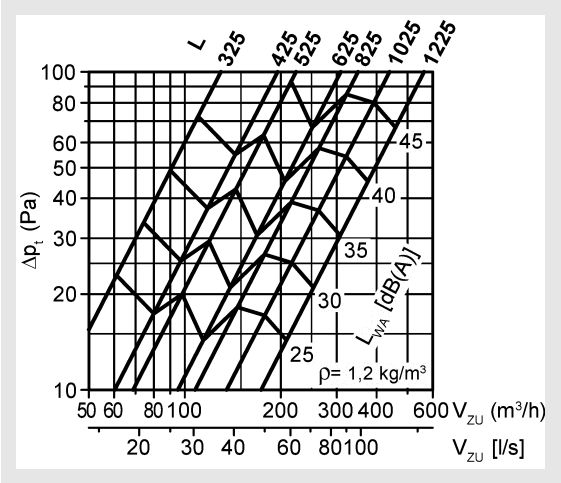
L	a	b	c
325	75	68	175
425			225
525			275
625			325
825	125	118	425
1025			525
1225			625

Ceiling Diffuser Model DBB

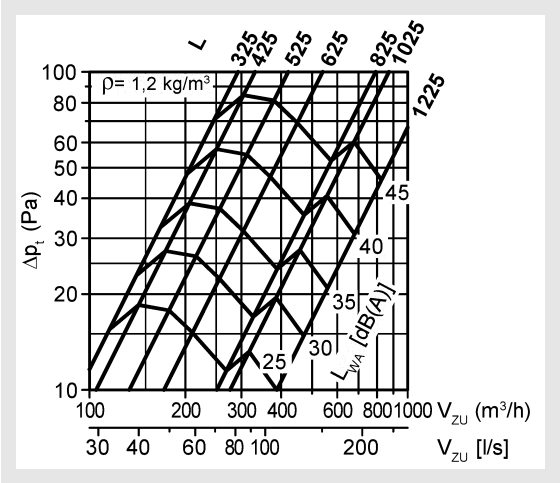
Technical Data

Pressure loss and noise level

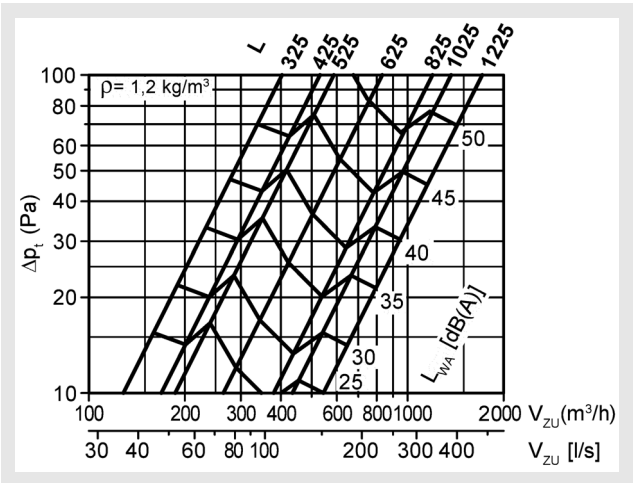
DBB-A, B = 115 mm, (damper OPEN)



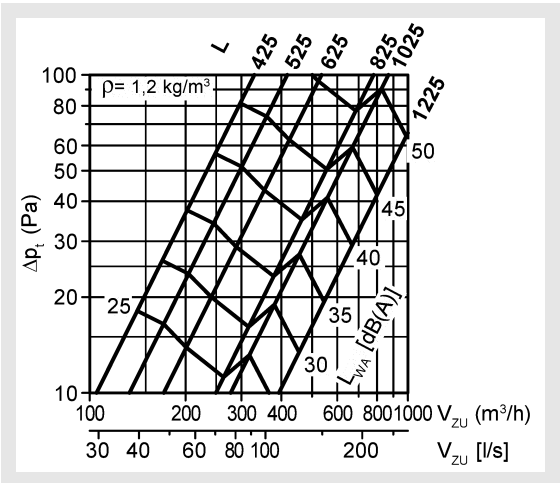
DBB-A, B = 215 mm, (damper OPEN)



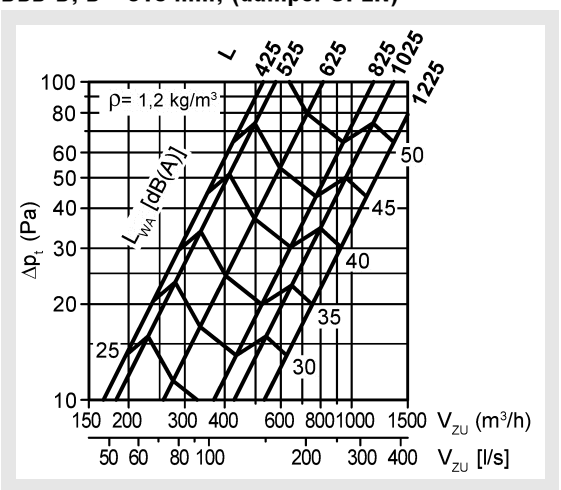
DBB-A, B = 315 mm, (damper OPEN)



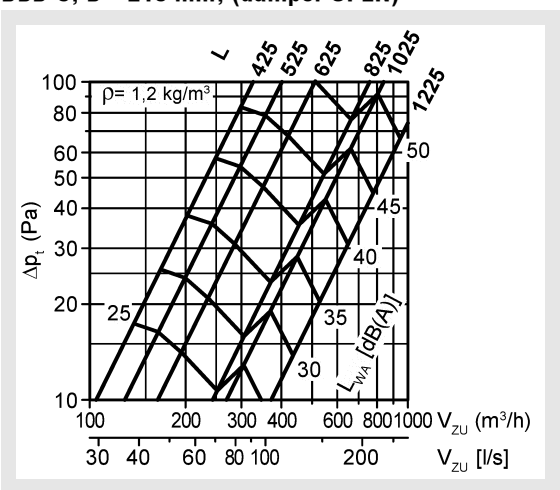
DBB-B, B = 215 mm, (damper OPEN)



DBB-B, B = 315 mm, (damper OPEN)

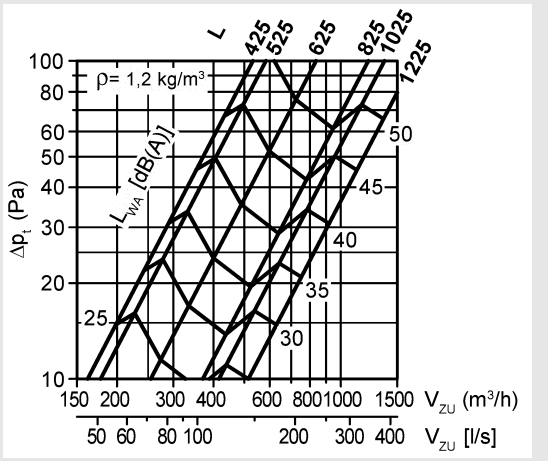


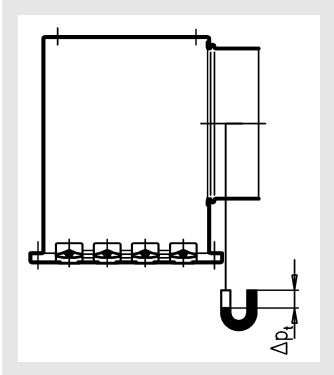
DBB-C, B = 215 mm, (damper OPEN)



Ceiling Diffuser Model DBB

DBB-C, B = 315 mm, (damper OPEN)





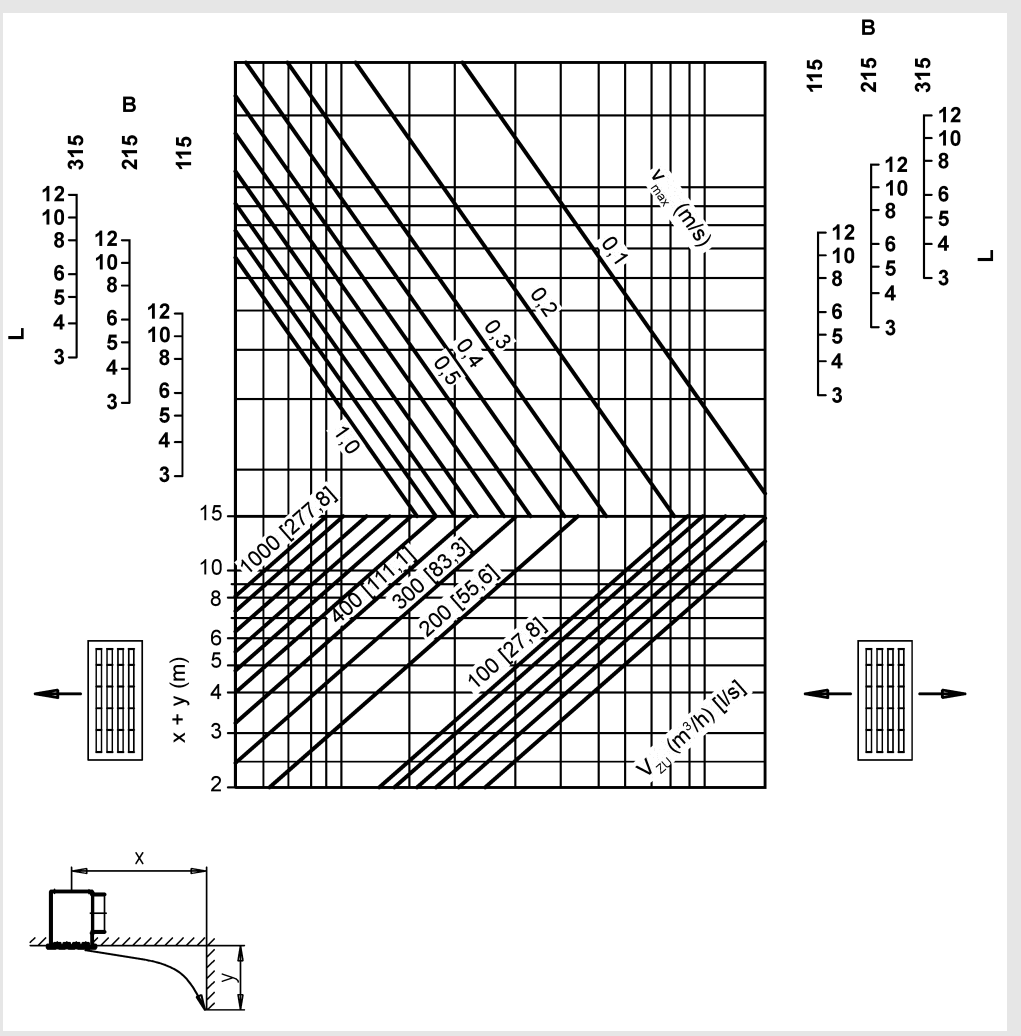
the following applies to damper "CLOSED":

Δp_t = diagram value x 2

L_{WA} = diagram value + 5dB(A)

Maximum end velocity of jet

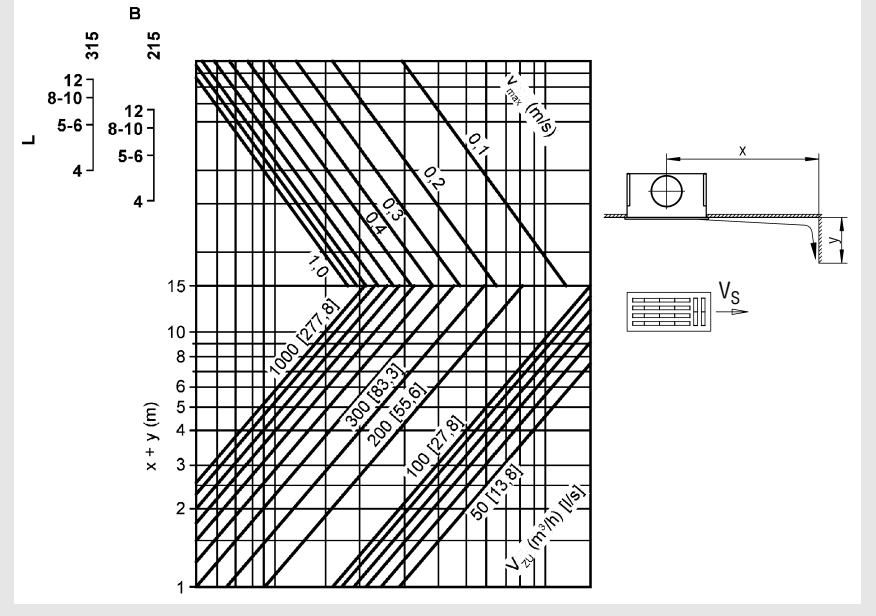
DBB-A, with coanda effect, one- or two-way throw



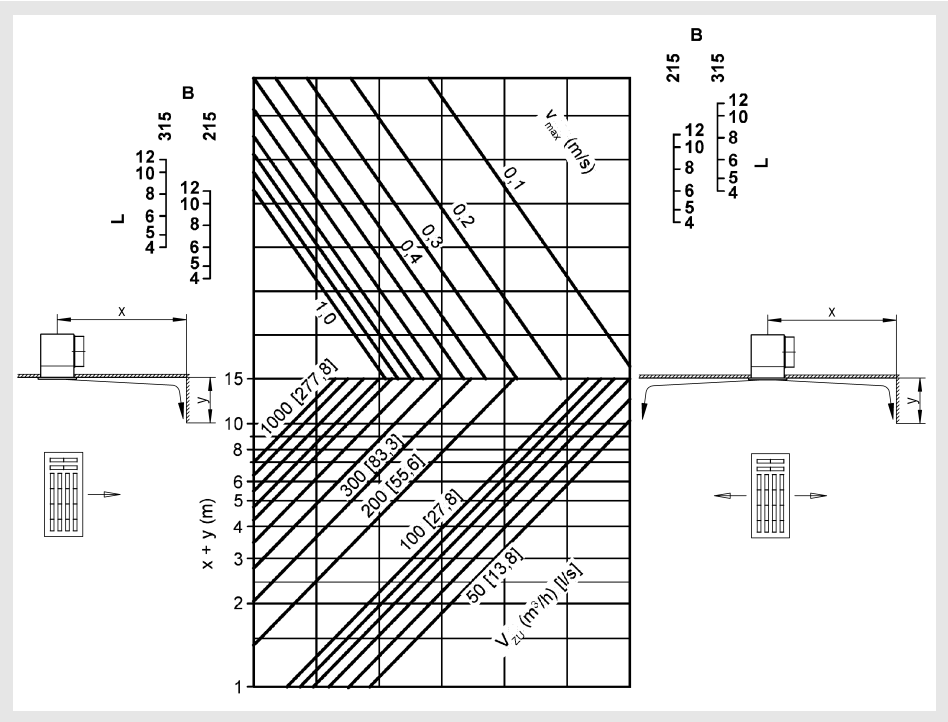
without coanda effect: diagram value x 0.7

Ceiling Diffuser Model DBB

DBB-B, with coanda effect, two- or three-way
Air flow direction sideways



Main air flow direction

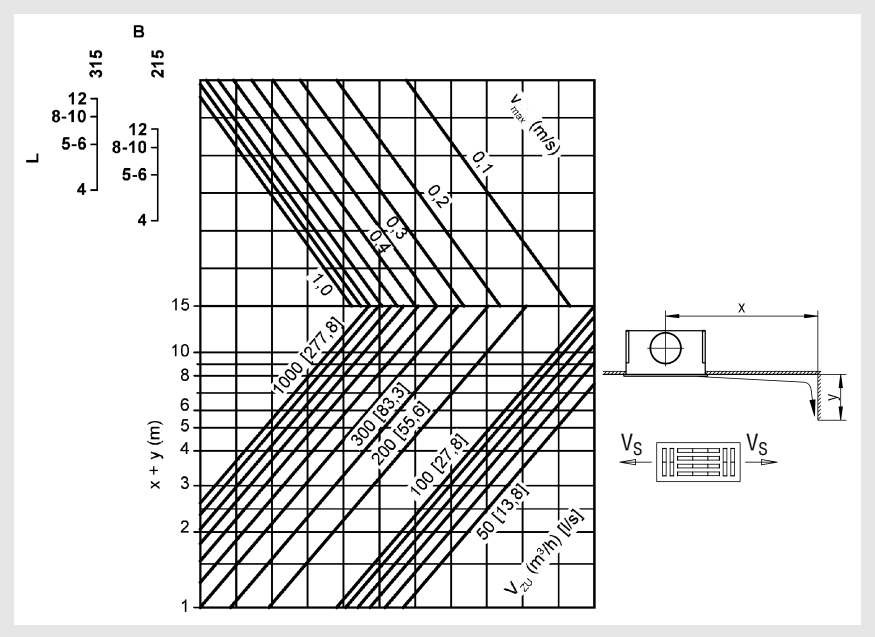


without coanda effect: diagram value x 0.7

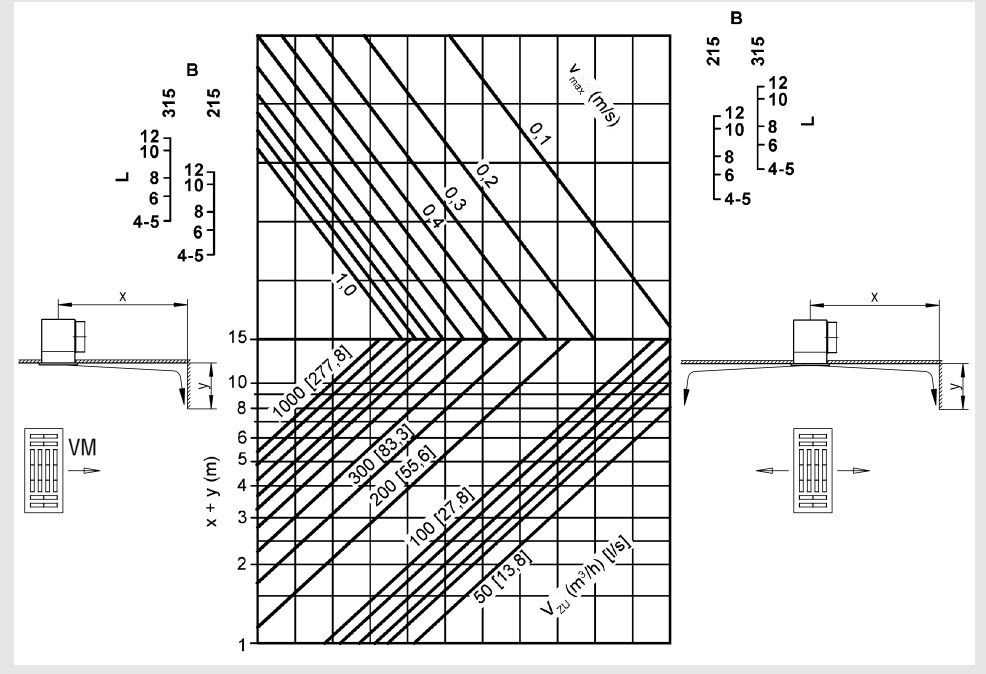
V_S = V_{side} = V_{ZU} x 0.16
V_M = V_{centre} = V_{ZU}x 0.84

Ceiling Diffuser Model DBB

DBB-C, with ceiling effect, three- or four-way throw
Air flow direction sideways



Main air flow direction



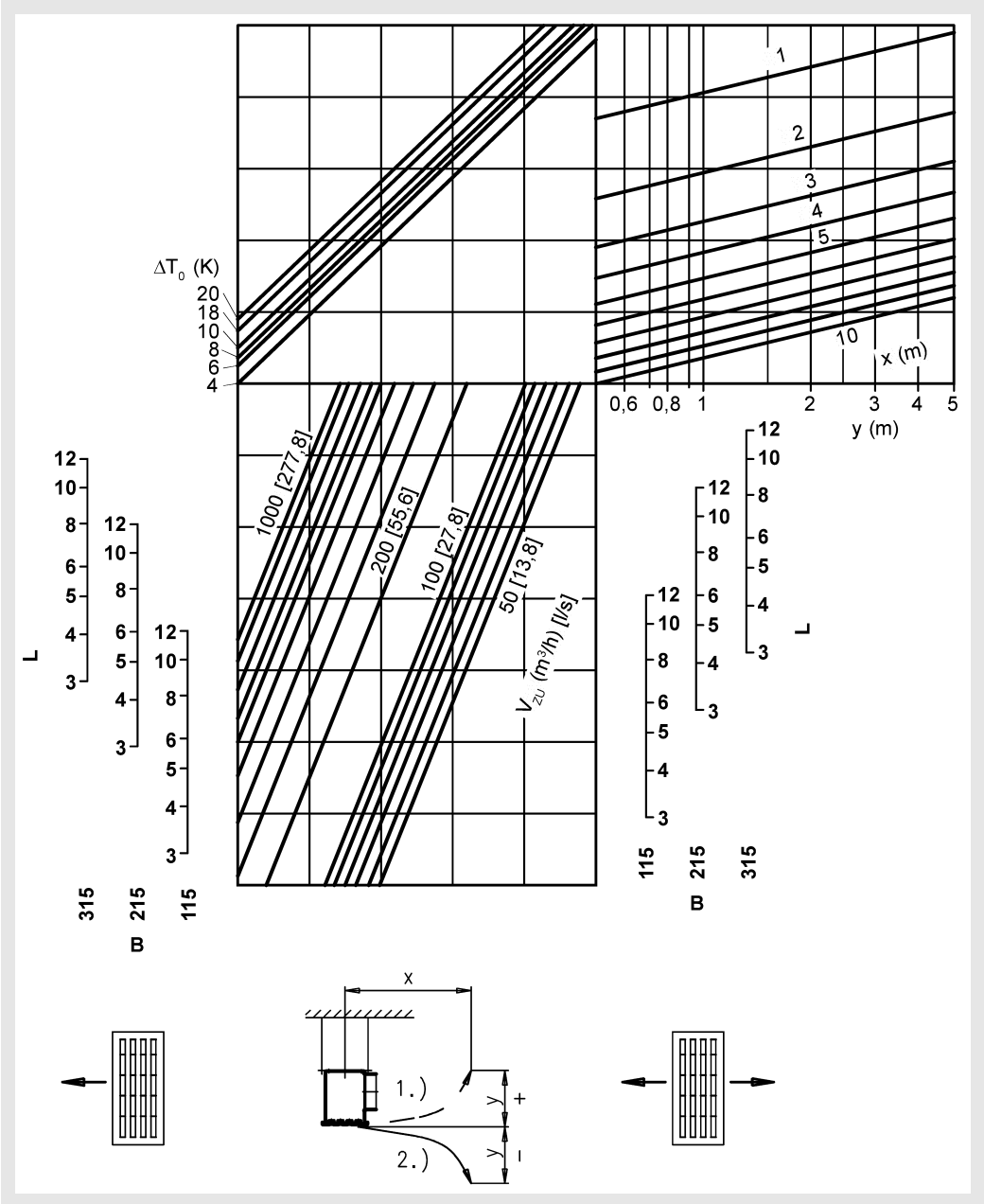
without coanda effect: diagram value x 0.7

V_S = V_{side} = V_{ZU} x 0.15
V_M = V_{centre} = V_{ZU} x 0.7

Ceiling Diffuser Model DBB

Jet path

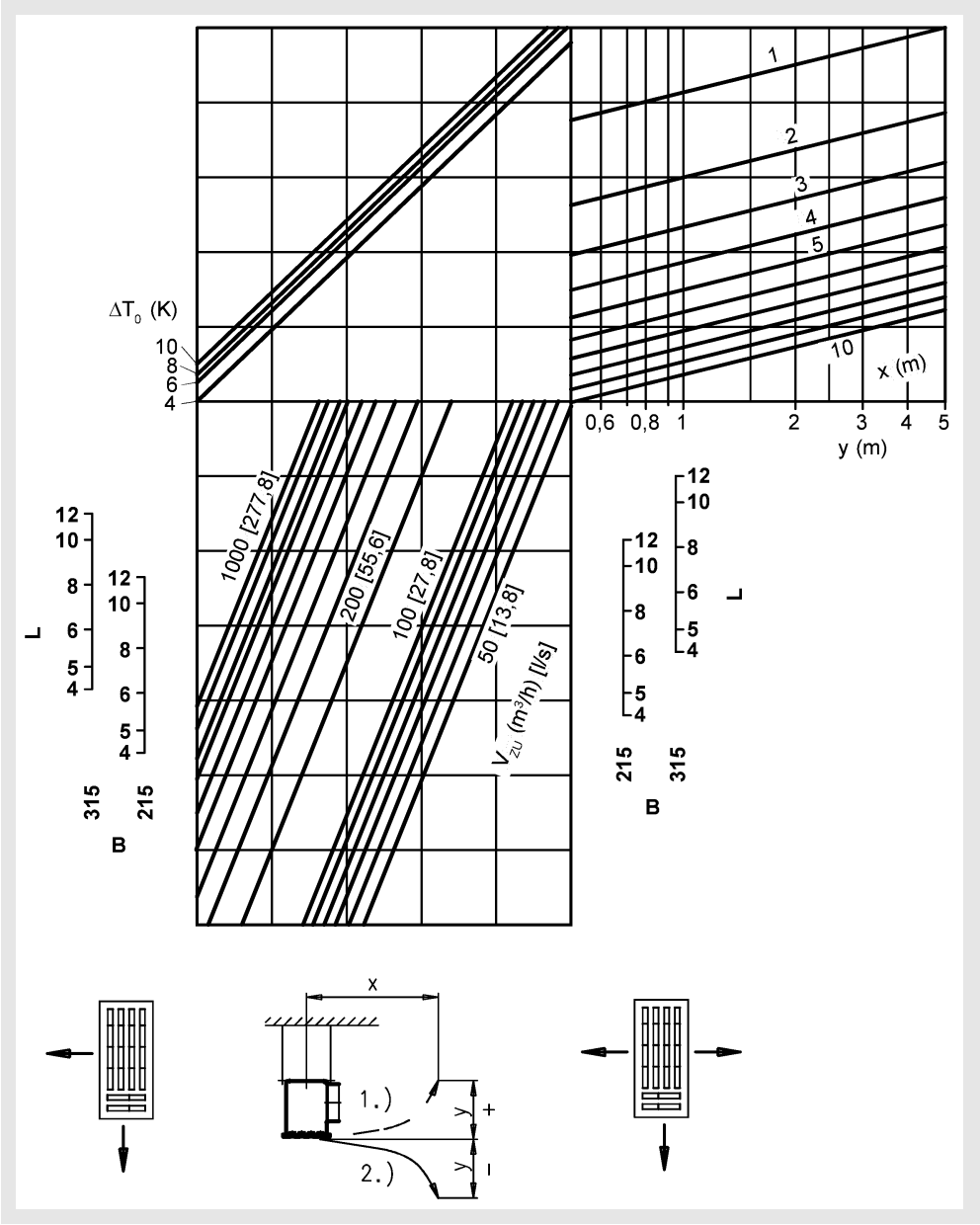
DBB-A, without coanda effect, one- or two-way throw



1.) Heating mode
2.) Cooling mode

Ceiling Diffuser Model DBB

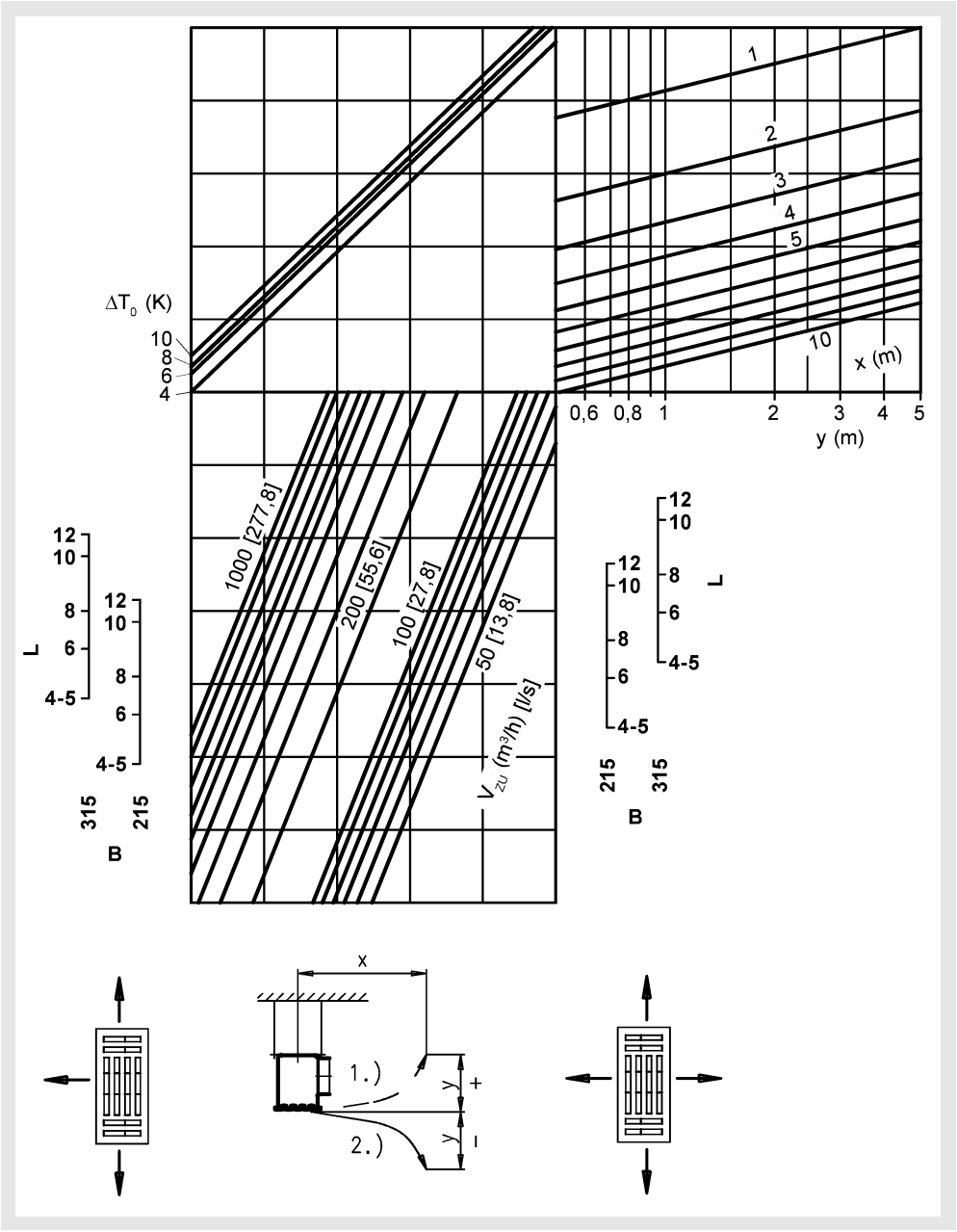
DBB-B, without coanda effect, two- or three-way throw



1.) Heating mode
2.) Cooling mode

Ceiling Diffuser Model DBB

DBB-C, without coanda effect, three- or four-way throw

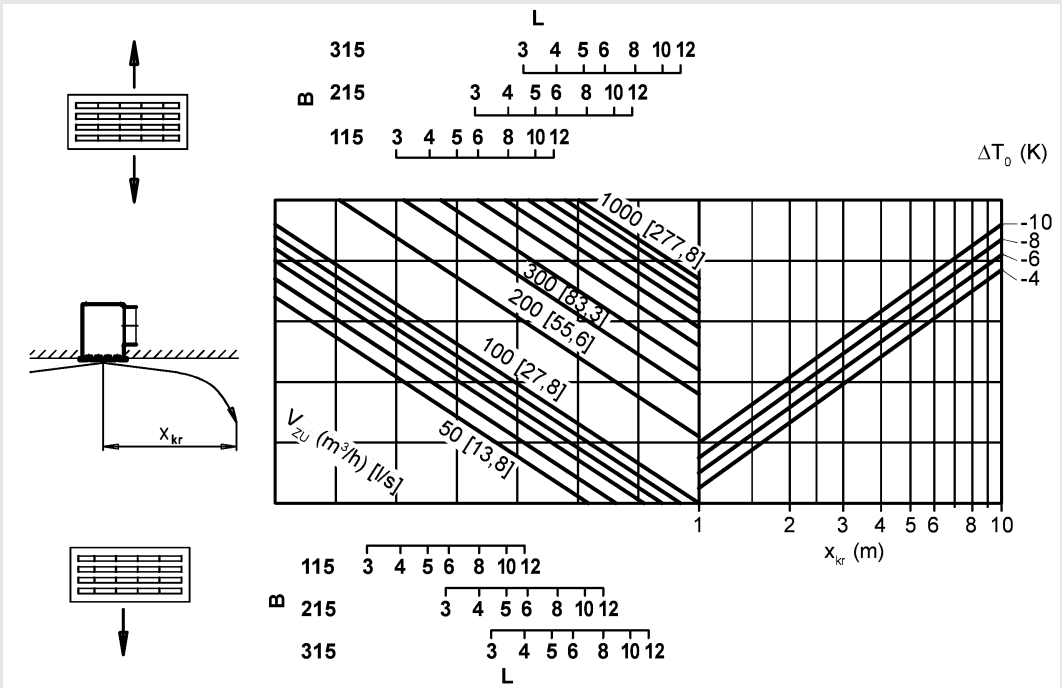


1.) Heating mode
2.) Cooling mode

Ceiling Diffuser Model DBB

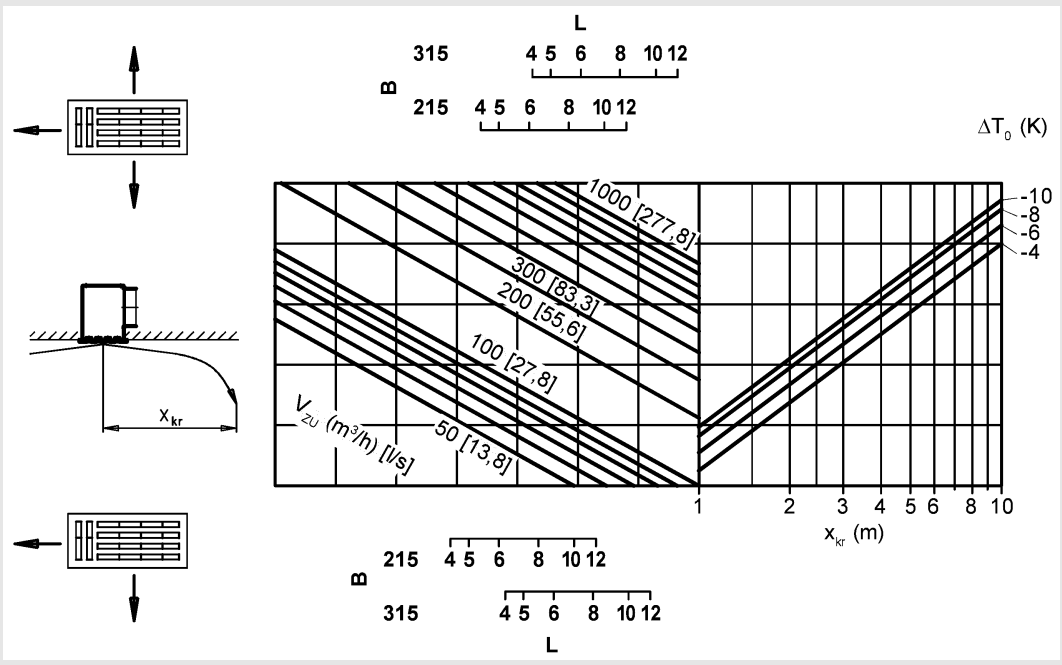
Critical throw

DBB-A, with coanda effect, one- or two-way throw



without coanda effect: diagram value x 0.7

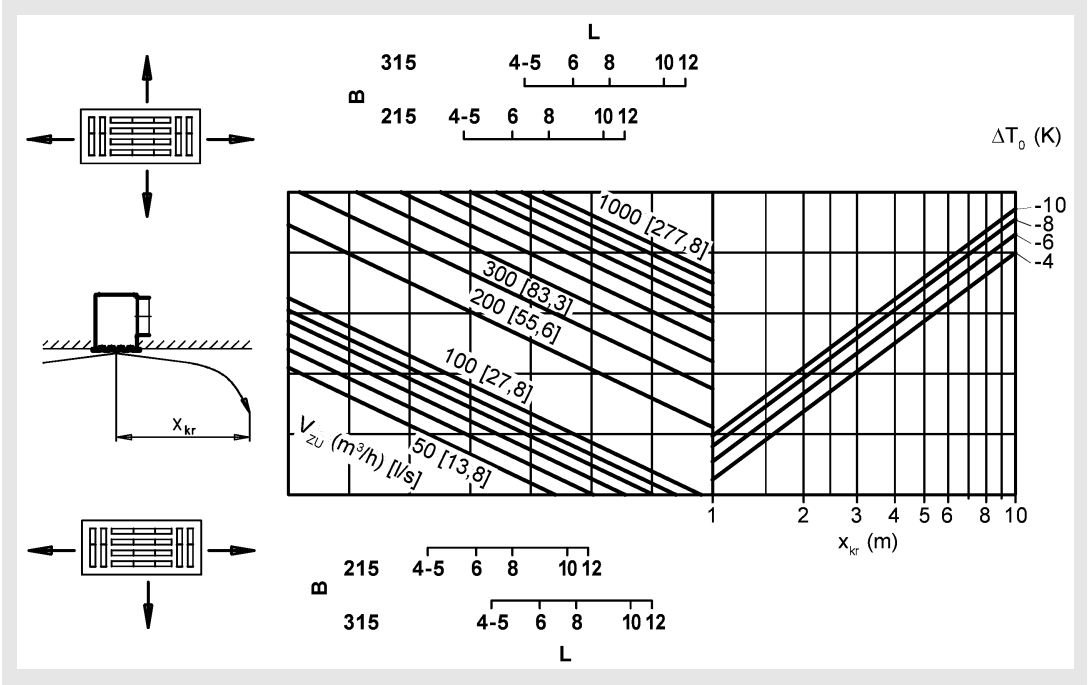
DBB-B, with coanda effect, two- or three-way throw



without coanda effect: diagram value x 0.7

Ceiling Diffuser Model DBB

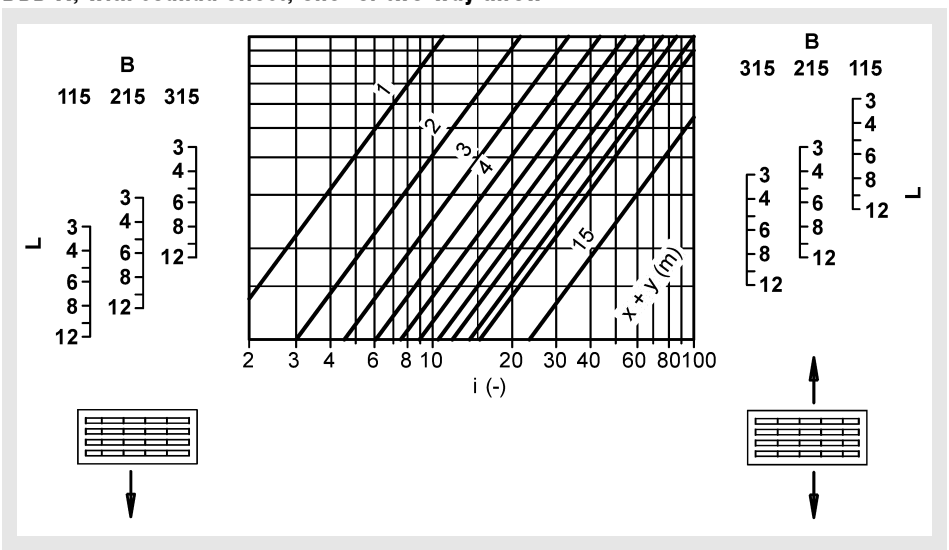
DBB-C, with coanda effect, three- or four-way throw



without coanda effect: diagram value x 0.7

Induction ratios

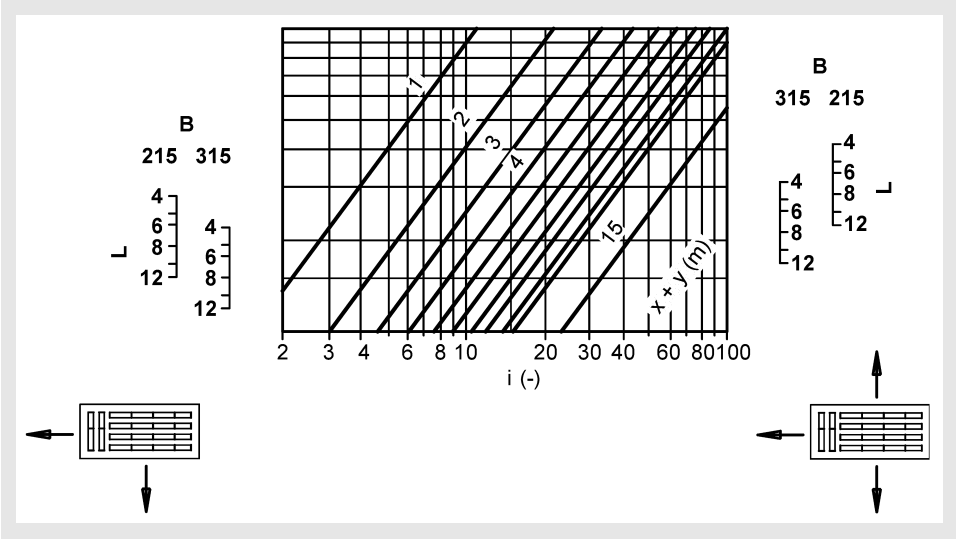
DBB-A, with coanda effect, one- or two-way throw



without coanda effect: diagram value x 0.7

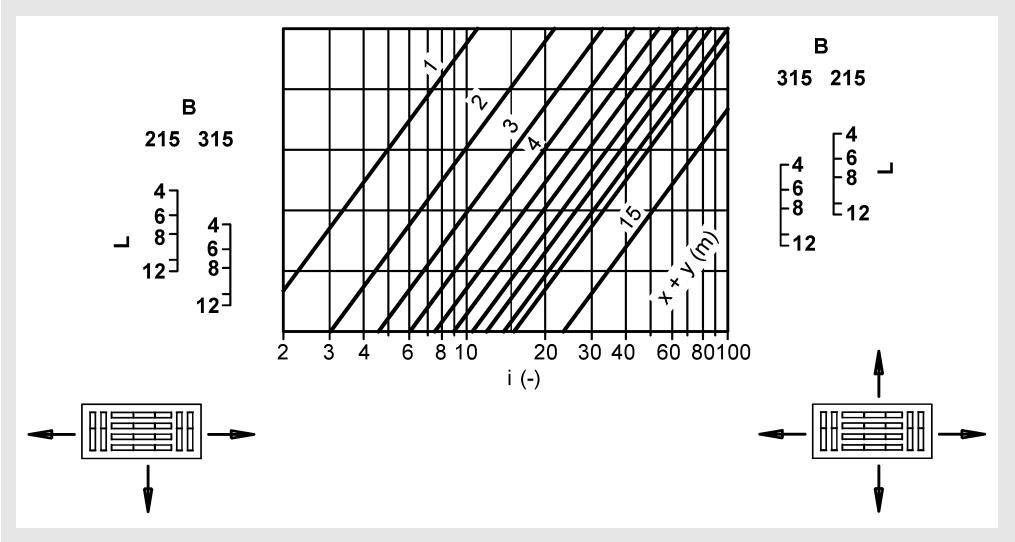
Ceiling Diffuser Model DBB

DBB-B, with coanda effect, two- or three-way throw



without coanda effect : diagram value x 1.4

DBB-C, with coanda effect, three- or four-way throw

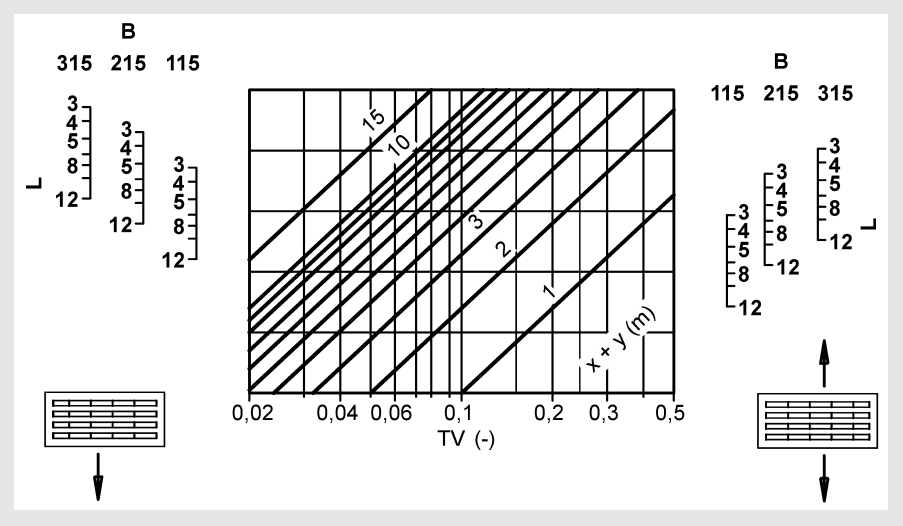


without coanda effect : diagram value x 1.4

Ceiling Diffuser Model DBB

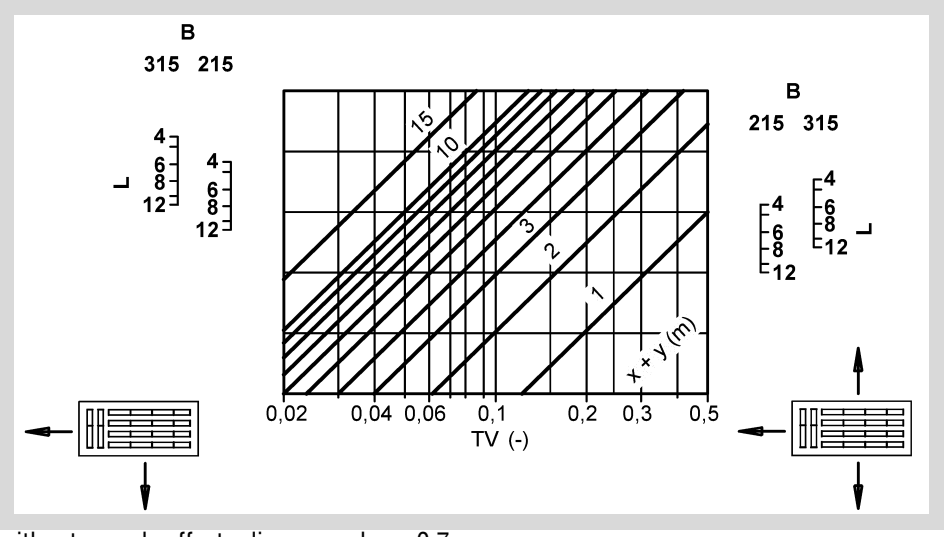
Temperature ratios

DBB-A, with coanda effect, one- or two-way throw



without coanda effect: diagram value x 0.7

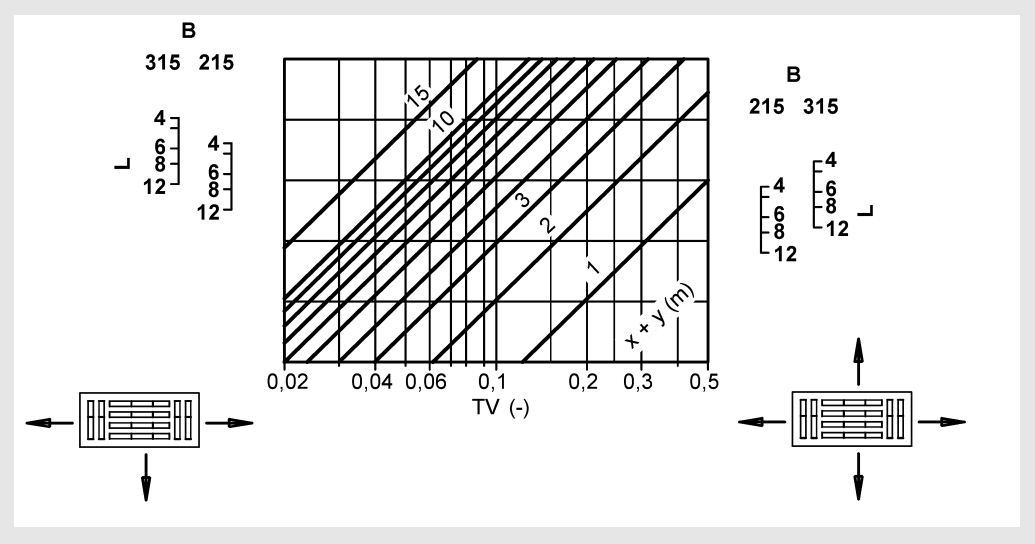
DBB-B, with coanda effect, two- or three-way throw



without coanda effect : diagram value x 0.7

Ceiling Diffuser Model DBB

DBB-C, with coanda effect, three- or four-way throw



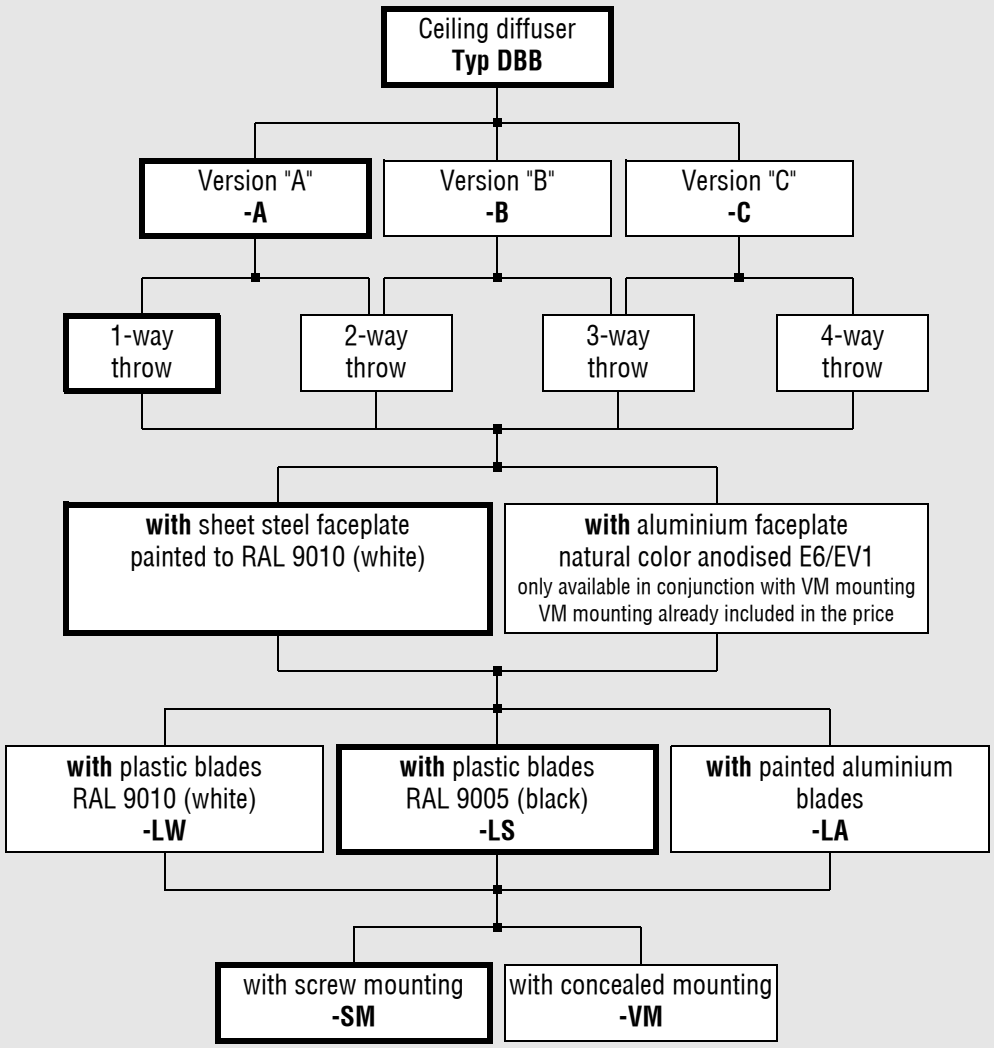
without coanda effect : diagram value x 0.7

Legend

V_{ZU}	(m³/h)	=	Supply air volume
V_{ZU}	[l/s]	=	Supply air volume
v_{max}	(m/s)	=	Maximum end velocity of jet
x	(m)	=	horizontal throw
y	(m)	=	vertical throw
x+y	(m)	=	horizontal and vertical throw
x_{kr}	(m)	=	Critical throw
ρ	(kg/m³)	=	Density
Δp_t	(Pa)	=	Pressure loss
L_{WA}	[dB(A)]	=	A-weighted sound power level [$L_{WA} = L_{WA1} + KF$]
KF	(-)	=	Correction factor
ΔT_0	(K)	=	Temperature difference between supply air temperature and room temperature ($\Delta T_0 = t_{ZU} - t_R$)
i	(-)	=	Induction ratio ($i = V_X / V_{ZU}$)
TV	(-)	=	Temperature ratio ($TV = \Delta T_X / \Delta T_0$)
B	(mm)	=	Width
L	(mm)	=	Length
ΔT_X	(K)	=	Temperature difference at point x
V_X	(m³/h)	=	total air jet volume at point x
V_X	[l/s]	=	total air jet volume at point x
t_{ZU}	(°C)	=	Supply air temperature
t_R	(°C)	=	Room temperature

Ceiling Diffuser Model DBB

Order details

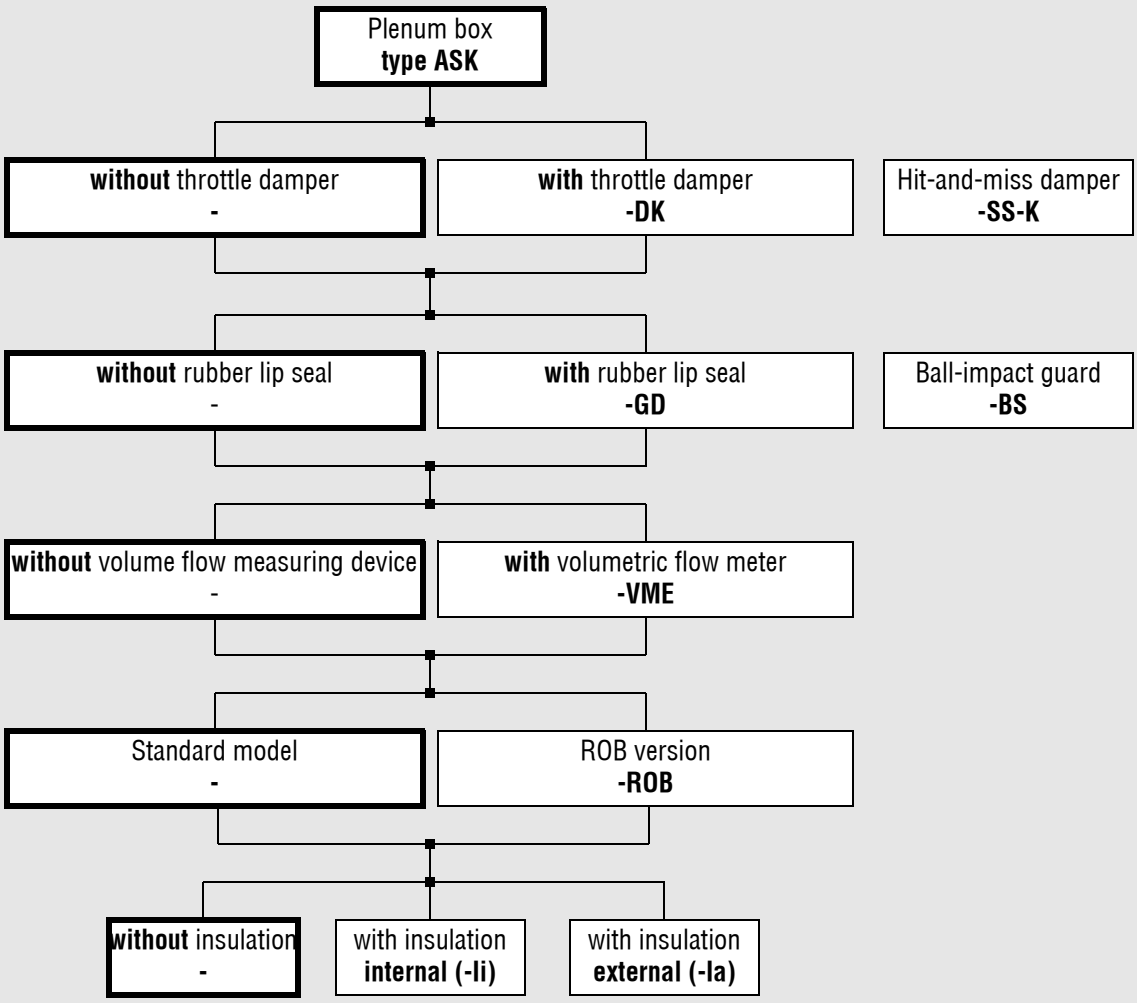


Order example:
DBB-A-LS-SM

Unless stated otherwise, the thick-frame model will be delivered!

Ceiling Diffuser Model DBB

Accessories:



Unless stated otherwise, the thick-frame model will be delivered!

Ceiling Diffuser Model DBB

Specification texts

Ceiling diffuser type DBB for supply and return air, free cross-section, resistance and noise level remain constant in all blade positions. Consisting of sheet steel faceplate painted to RAL 9010 (white), with visible
screw mounting (SM), with individually adjustable pivoting air deflection blades made of plastic RAL colour 9005 (black), RAL9010 (white) or aluminium painted to the RAL colour of the faceplate. Painted aluminium blades subsequent adjustment not possible.
Product: SCHAKO **type DBB**

Models:

- Version "A"
  - one-way throw
  - two-way throw

- Version "B" (available from length L = 425 / B = 225)
  - two-way throw
  - three-way throw

- Version "C" (available from length L = 425 / B = 225)
  - three-way throw
  - four-way throw

- Faceplate made of anodised aluminium E6/EV1 in natural colour. Only available in connection with VM-mounting.

- with concealed mounting (-VM) only available in connection with plenum box.

- band
  - 2-part (BL $\leq$ 2025)
  - multi-part (BL > 2025)

Accessories:

- plenum box (-ASK) made of galvanised sheet steel with lateral connection piece (only possible without hit-and-miss damper)
  - with a throttle damper (-DK) adjustable on the front side in plenum box, for air volume regulation.
  - with volumetric flow meter (-VME) in connection pipe
  - with ROB model (-ROB):
    Removable diffuser plate, throttle damper and volumetric flow meter
  - with rubber lip seal (-GD), made of special rubber at the lateral connection piece
  - with thermal insulation
    - internal (-li)
    - external (-la)

- with hit-and-miss damper (-SS-K) for air volume regulation, made of electrolytically galvanised sheet steel,

- Ball-impact guard (-BS), made of steel painted to RAL 9010 (white).