

2/S2
v 3.3 (en)

CEILING DIFFUSERS

ANK, ANO



TABLE OF CONTENTS

Ceiling diffuser ANK.....	57
Selection diagrams ANK.....	59
Ceiling diffuser ANO.....	61
Selection diagrams ANO.....	62
Discharge diagram.....	64

Definition of symbols:

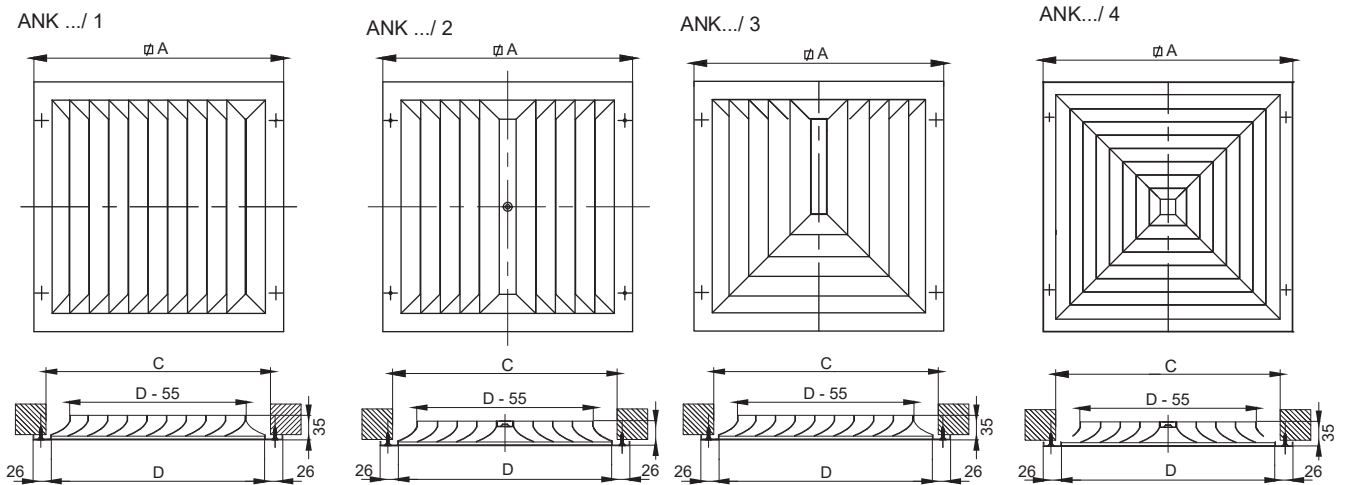
V [m ³ /h]	- Air flow	v_h [m/s]	- Average core velocity at distance h (m) from diffuser
V_{uk} [m ³ /h]	- Total air volume in motion	Δp [Pa]	- Total pressure drop
h [m]	- Distance from the ceiling to the occupied zone	t_p [°C]	- Air temperature in the room
H [m]	- Room height	t_z [°C]	- Supply air temperature
A, B [m]	- Distance between diffusers	t_m [°C]	- Core air temperature
x [m]	- Distance from wall	Δt_z [°C]	- ($t_z - t_p$)
L [m]	- Throw distance ($x+h$)	Δt_L [°C]	- ($t_m - t_p$)
A_{ef} [m ²]	- Effective discharge area	i	- Induction V_{uk}/V
v_{ef} [m/s]	- Effective jet velocity	L_{WA} [dB(A)]	- Sound power level
v_L [m/s]	- Average core velocity at distance L (m) from diffuser		


ANK

- Ceiling diffuser for room heights from 2,3 to 4m.
- Frame and blades made out of steel sheet, standard RAL 9010
- Fixed blades
- Fixing with visible screws

Options

- RAL...
- Plenum box
- Fixing with central screw (ANK../2, ANK../3, ANK../4)
- ANK-P perforated plate



*C - installation without plenum box

ANK	Size	1	2	3	4	5	6	7	8
	A[mm]	244	300	355	412	468	498	598	623
	C[mm]	208	264	320	375	432	462	562	587
	D[mm]	192	248	304	360	416	445	546	571

Ordering key:

Type

ANK - 4 way diffuser

ANK-P - 4 way diffuser with perforated plate

Size

Central screw

A - supply air

B - exhaust air

H - horizontal connection

V - vertical connection

Connection diameter

Insulation

ANK - 4 - CR - A - H - ød - Z

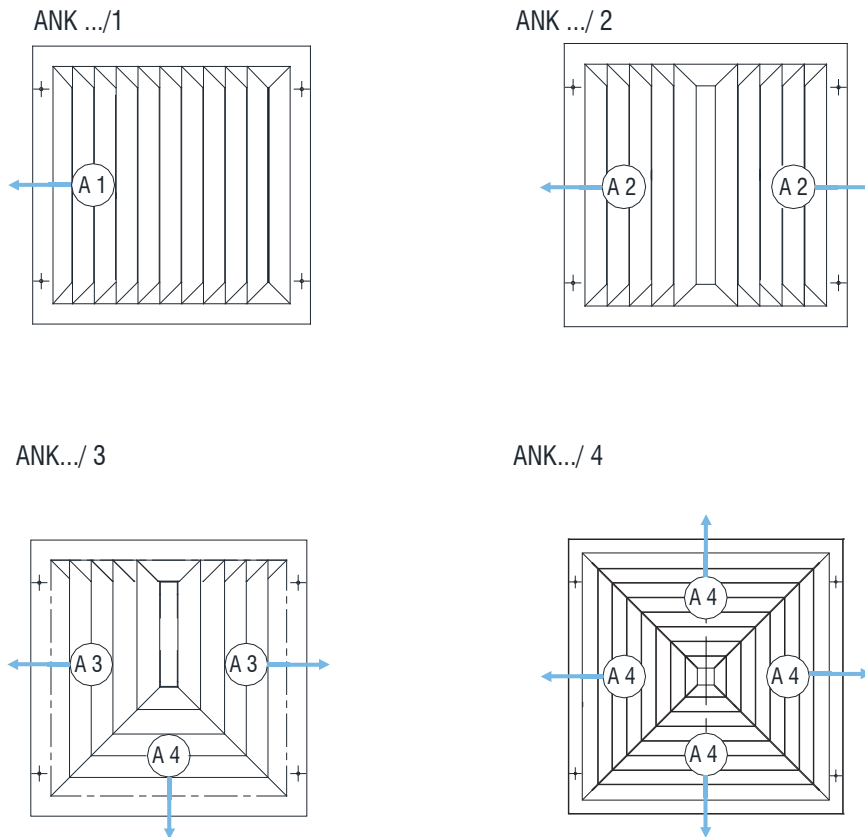
*Screws are not delivered

**Ordering key for Plenum box on page 184

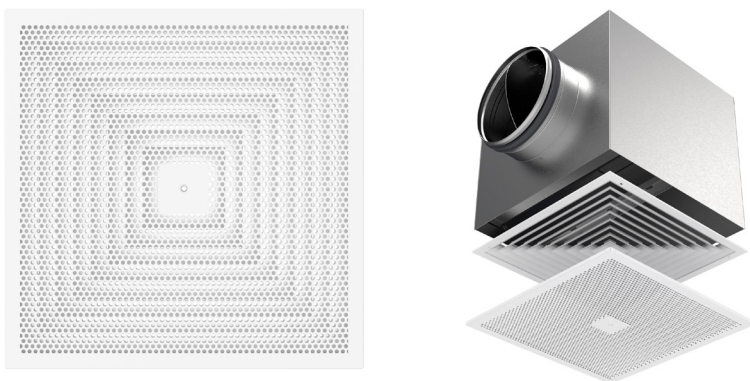
***Only plenum box UPK1

CEILING DIFFUSERS

Diffuser ANK with 1, 2, 3 or 4 discharge directions



Diffuser ANK-P with 4 discharge directions

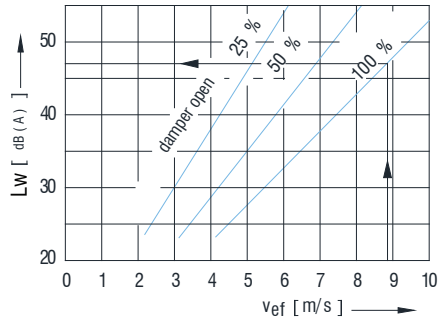
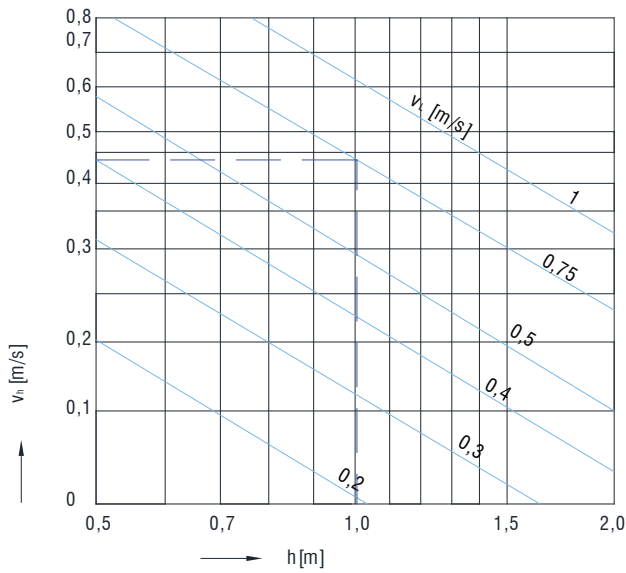


ANK diffuser can be ordered with additional perforated plate. Perforated plate is made out of galvanized steel sheet and is powdercoated to RAL 9010. Other RAL colours can be applied on request. Perforated plate is fixed with rivets to the ANK diffuser and is not detachable. Diffuser is fixed to the plenum box with central screw.

Effective discharge area table

ANK A_{el} [m ² /per outlet section]	Size	1	2	3	4	5	6	7	8
	A1	0,011	0,021	0,033	0,048	0,067	0,071	0,115	0,127
	A2	0,005	0,011	0,015	0,022	0,031	0,036	0,057	0,057
	A3	0,004	0,004	0,011	0,021	0,024	0,027	0,042	0,044
	A4	0,0027	0,0046	0,0074	0,0110	0,0157	0,0182	0,0293	0,0320

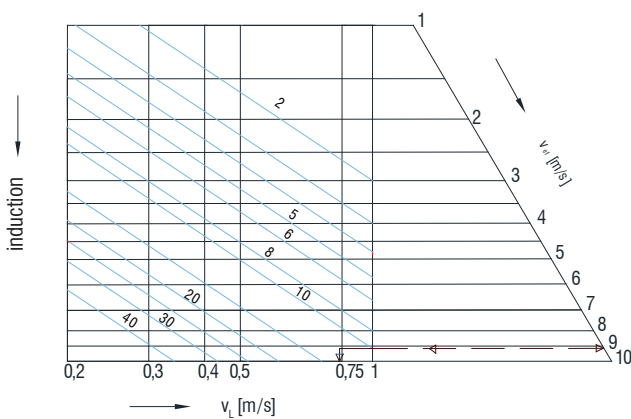
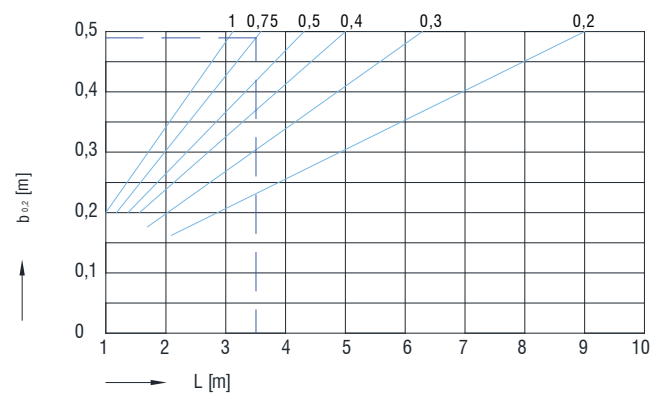
*C - installation without plenum box

Selection diagrams
1.1 Sound power level

1.2 Vertical air-stream velocity between two ceiling diffusers

ANK

Size	Aef [m ²]
1	0,0104
2	0,0185
3	0,0295
4	0,0440
5	0,0628
6	0,0728
7	0,1175
8	0,1280

Sound power level correction 1.3

Size	Correction [dB(A)]
	1
2	-3
3	-2
4	-1
5	0
6	0
7	4
8	5

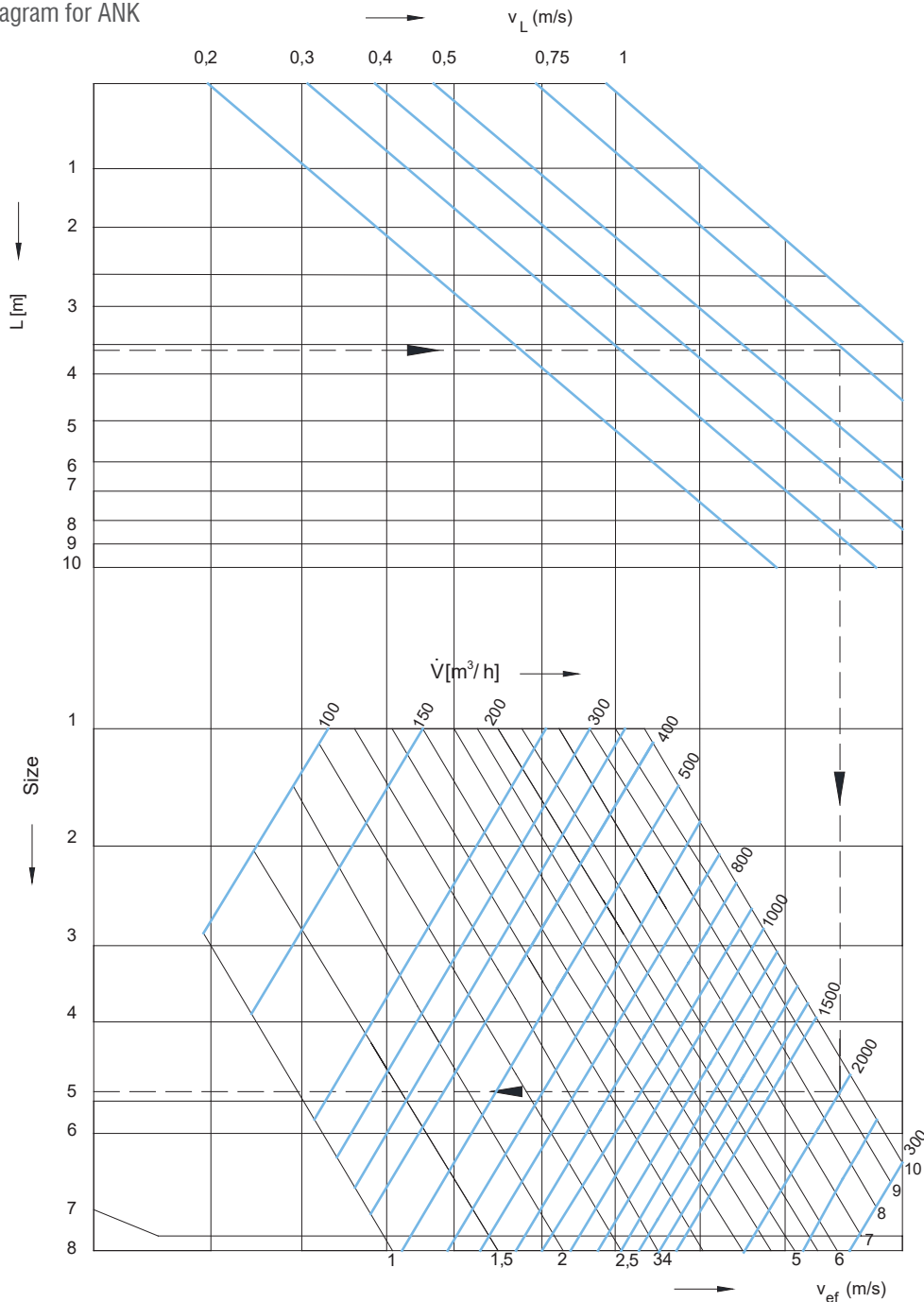
1.3 Induction

1.4 $b_{0,2}$ diagram


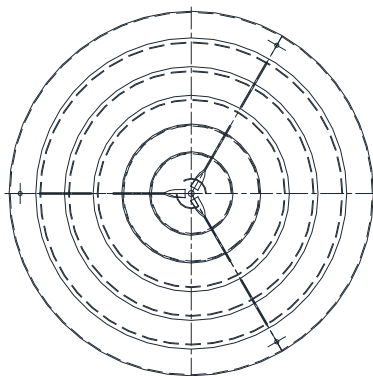
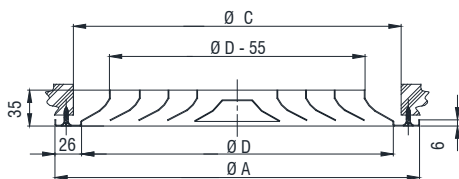
CEILING DIFFUSERS

Example 1:

<p>Given:</p> <p>ANK-L $L = 3.6$ m $V = 2000$ m³/h $v_L = 0.75$ m/s $h = 1$ m (damper 100% open)</p>	<p>Solution:</p> <p>Diagram 1.7 Model 5 $v_{ef} = 9$ m/s Diagram 1.5 $i = 11$ Diagram 1.6 $b_{02} = 0.49$ m</p>	<p>Diagram 1.4 $v_h = 0.44$ m/s Diagram 1.1 $\Delta p = 54$ Diagram 1.3 $L_{WA} = 47$ dB (A) Correction $L_{WA} = 47 - 0 = 47$ dB (A)</p>
---	--	--

1.5 Selection diagram for ANK




ANO

- Ceiling diffuser for room heights from 2,3 to 4m.
- Frame and blades made out of steel sheet, standard RAL 9010
- Fixed blades
- Fixing with visible screws

Options

- RAL...
- Plenum box
- Fixing with central screw

Size	ØA [mm]	ØC [mm]	ØD [mm]
1	244	208	192
2	300	264	248
3	356	320	304
4	412	376	360
5	468	432	416
6	542	506	472
7	598	562	528
8	654	618	584

Ordering key:

Type **ANO - 4 - CR - A - H - ød - Z**

Size

Central screw

A - supply air

B - exhaust air

H - horizontal connection

V - vertical connection

Connection diameter

Insulation

*Screws are not delivered

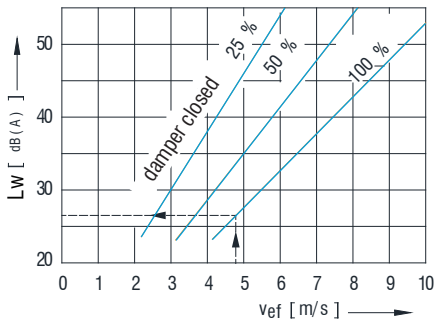
**Ordering key for Plenum box on page 184

***Only plenum box UPK2

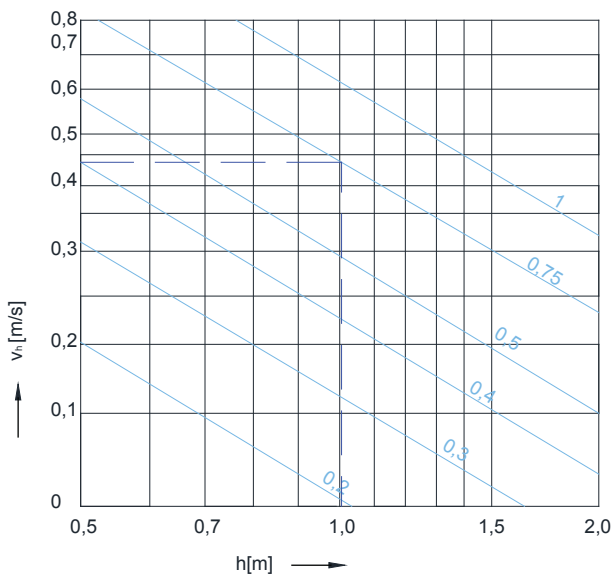
CEILING DIFFUSERS

SELECTION DIAGRAM

2.1 Sound power level



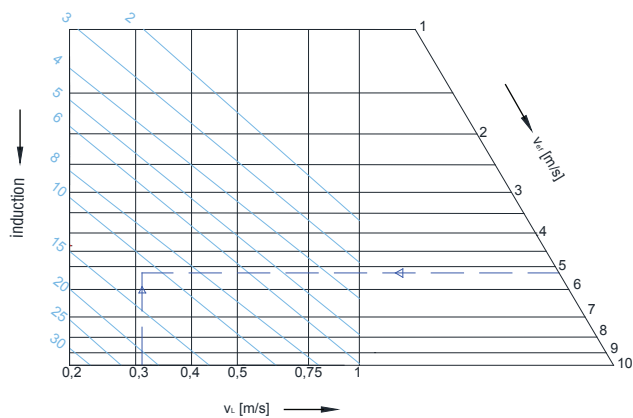
2.2 Vertical air-stream velocity between two ceiling diffusers



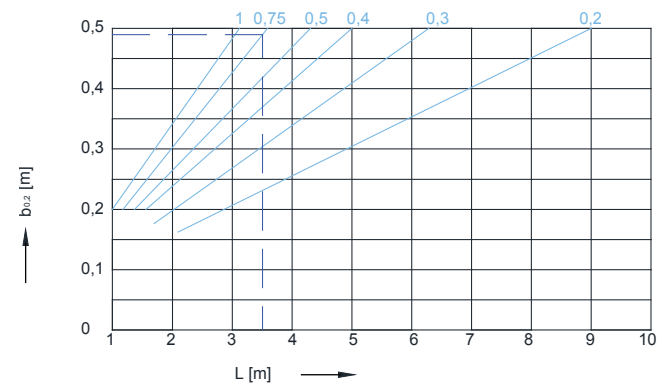
ANO	
Size	A_{ef} [m ²]
1	0,0085
2	0,0157
3	0,0257
4	0,0381
5	0,0536
6	0,0730
7	0,0955
8	0,1150

Sound power level correction 2.3	
Size	Correction
	[dB(A)]
1	-3
2	-3
3	-2
4	-1
5	0
6	0
7	4
8	5

2.3 Induction diagram



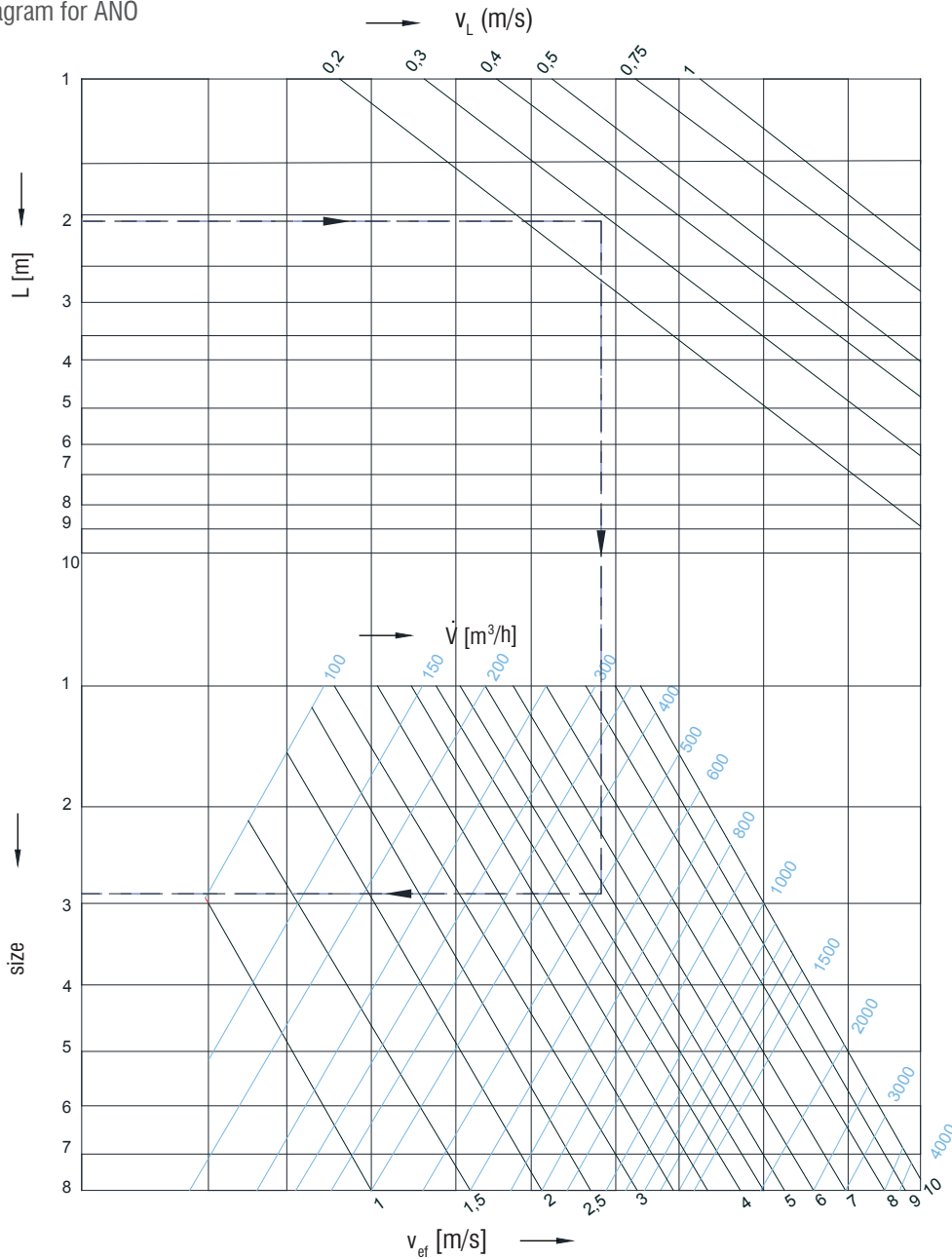
2.4 $b_{0,2}$ diagram



Example 2:

Given:	Solution:
ANO	Diagram 2.7
L = 2 m	Model 3
V = 500 m ³ /h	v _{ef} = 4.8 m/s
v _L = 0.3 m/s	Diagram 2.5
h = 0.6 m	i = 11
(damper open 100%)	Diagram 2.6
	b ₀₂ = 0.2 m
	Diagram 2.4
	v _h = 0.27 m/s
	Diagram 2.2
	Δp = 23 Pa
	Diagram 2.3
	L _{WA} = 27 dB (A)
	Correction L _{WA} = 27 - 1 = 26 dB (A)

2.5 Selection diagram for ANO



DISCHARGE DIAGRAM

