

**2/S13**  
v 2.6 (hr)

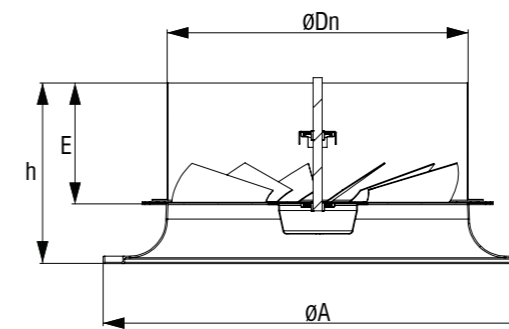
## DISTRIBUTER KRILASTI ZAKRETNI

DKZ



**SADRŽAJ**

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**DKZ**

- Za visine ugradnje od 4 do 10m
- Izrađen od čeličnog lima, standardno RAL 9010
- Podešavanje smjera istrujavanja

**Opcije**

- RAL...
- Priključna kutija
- Motorni pogon

• vertikalno istrujavanje topli mlaz



• koso istrujavanje izotermni mlaz



• horizontalno vrtložno istrujavanje hladni mlaz



Tablica 1: Dimenzije distributera

DKZ	V <sub>min</sub> [m <sup>3</sup> /h]	V <sub>max</sub> [m <sup>3</sup> /h]	ØA [mm]	ØD <sub>n</sub> [mm]	E [mm]	h [mm]	K [mm]	H [mm]	Ød [mm]
315	300	1200	464	313	143	205	384	340	248
400	600	2200	567	398	158	238	484	405	313
630	1000	4300	871	628	258	383	790	490	398
800	1400	5200	1077	798	408	568	950	590	498

**Oznake:**

V [m <sup>3</sup> /h]	- protok zraka	v <sub>Lmax</sub> [m/s]	- Maksimalna brzina zraka na udaljenosti L(m) od distributera
V <sub>n</sub> [m <sup>3</sup> /h]	- nominalni protok zraka	v <sub>h</sub> [m/s]	- srednja brzina mlaza između dva distributera na udaljenosti h
V <sub>uk</sub> [m <sup>3</sup> /h]	- ukupna količina zraka u kretanju	Δp [Pa]	- ukupni pad tlaka
h [m]	- udaljenost između zone boravka i ravnine istrujavanja	t <sub>p</sub> [°C]	- temperatura zraka u prostoriji
H [m]	- visina prostorije	t <sub>z</sub> [°C]	- temperatura dobavnog zraka
A,B [m]	- razmak između anemostata	t <sub>m</sub> [°C]	- temperatura zraka u mlazu
x [m]	- udaljenost od zida	Δt <sub>z</sub> [°C]	- (t <sub>z</sub> - t <sub>p</sub> )
y [m]	- vertikalni domet mlaza	Δt <sub>L</sub> [°C]	- (t <sub>m</sub> - t <sub>p</sub> )
L [m]	- ukupni domet mlaza (x+h)	i	- indukcija V <sub>uk</sub> /V
A <sub>ef</sub> [m <sup>2</sup> ]	- efektivna istrujna površina	L <sub>WA</sub> [dB(A)]	- razina zvučne snage
v <sub>ef</sub> [m/s]	- efektivna istrujna brzina		
v <sub>L</sub> [m/s]	- srednja brzina mlaza na udaljenosti L od difuzora		

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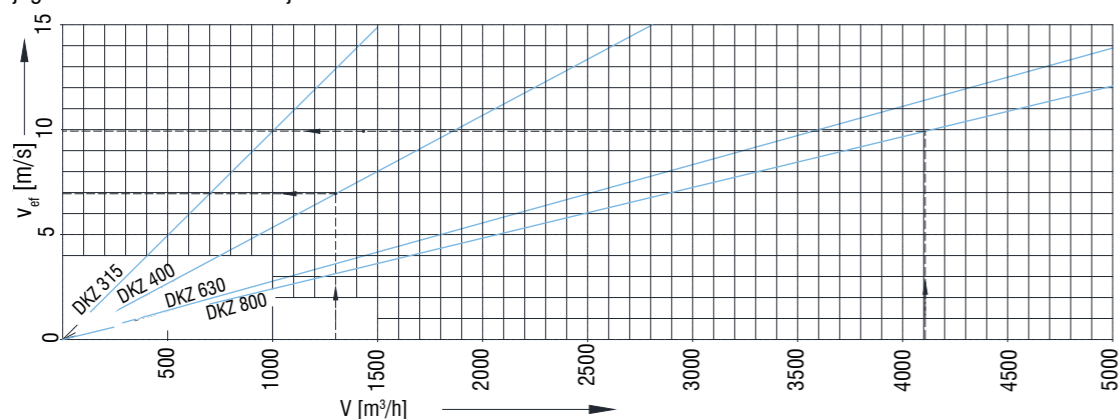
Oznaka za narudžbu:

Distributer krilasti zakretni	<b>DKZ - 630 - M230 - OZ - A - H - Ød - Z</b>
Veličina	
<b>M230</b> - elektromotor 230V	
<b>M24</b> - elektromotor 24V	
<b>R</b> - ručni pogon	
<b>OZ</b> - dvopoložajna regulacija	
<b>K</b> - kontinuirana regulacija	
<b>A</b> - dovod zraka	
<b>B</b> - odvod zraka	
<b>H</b> - horizontalni priključak	
Promjer priključka	
Izolacija	

\*Vijci se ne isporučuju  
 \*\*Oznaka za narudžbu priključne kutije na stranici 184  
 \*\*\*Samo za plitku kutiju UPK2

**IZBORNI DIJAGRAMI**

Dijagram 1.0 - Efektivna istrujna brzina



Tablica 3: Razina zvučne snage DKZ-H 400

$v_{ef} = 8 \text{ m/s}$	$\Delta L$	$L_{WA}$	$L_{WA} = L_{WA} + \Delta L$
63	4	53	57
125	1	53	54
250	0	53	53
500	-2	53	51
1000	-5	53	48
2000	-9	53	44
4000	-14	53	39
8000	-23	53	30

Tablica 4: Efektivne površine

DKZ	$A_{ef}$ [m²]	$v_{ef}$ [m/s]
315	0,028	
400	0,052	
600	0,100	
800	0,115	

$$v_{ef} = \frac{V \text{ (m}^3\text{/h)}}{A_{ef} \text{ (m}^2\text{)} \times 3600}$$

Primjer 1:  
 ZADANO  
 Model DKZ V 400 sa priključnom kutijom  
 $V = 1300 \text{ (m}^3\text{/h)}$

RJEŠENJE  
**Dijagram 1.0**  
 $v_{ef} = 6,95 \text{ (m/s)} \approx 7 \text{ (m/s)}$   
**Dijagram 1.2**  
 $\Delta p = 51 \text{ (Pa)}$   
 $L_{WA} = 53 \text{ (dB(A))}$   
 $L_W = L_{WA} + \Delta L$   
 Prikaz rezultata tablice 3

 Tablica 5: Relativne razine zvučne snage  $\Delta L$  za DKZ 315

DKZ 315	DKZ	DKZ-H	DKZ	DKZ-H	DKZ	DKZ-H	DKZ	DKZ-H
$v_{ef}$ (m/s)	3 (m/s)		5 (m/s)		8 (m/s)		12 (m/s)	
63	10	10	7	8	5	6	1	3
125	2	6	1	5	0	3	-1	1
250	2	2	1	1	0	-1	-2	-3
500	-1	-1	-2	-1	-3	-2	-5	-4
1000	-5	-6	-4	-5	-5	-5	-6	-5
2000	-18	-18	-14	-13	-9	-9	-7	-7
4000	-28	-28	-20	-21	-15	-14	-8	-10
8000	-37	-30	-30	-25	-21	-23	-17	-18

 Tablica 6: Relativne razine zvučne snage  $\Delta L$  za DKZ 400

DKZ 315	DKZ	DKZ-H	DKZ	DKZ-H	DKZ	DKZ-H	DKZ	DKZ-H
$v_{ef}$ (m/s)	3 (m/s)		5 (m/s)		8 (m/s)		12 (m/s)	
63	6	7	4	5	1	2	-1	-1
125	4	7	4	5	3	3	2	0
250	2	0	1	-1	0	-3	-1	-5
500	-1	-1	-1	-2	-2	-3	-3	-5
1000	-5	-5	-5	-4	-4	-4	-5	-5
2000	-21	-15	-16	-11	-11	-8	-8	-6
4000	-36	-26	-28	-19	-21	-13	-15	-9
8000	-44	-30	-36	-25	-29	-21	-23	-19

 Tablica 7: Relativne razine zvučne snage  $\Delta L$  za DKZ 600

DKZ 315	DKZ	DKZ-H	DKZ	DKZ-H	DKZ	DKZ-H	DKZ	DKZ-H
$v_{ef}$ (m/s)	3 (m/s)		5 (m/s)		8 (m/s)		12 (m/s)	
63	7	9	5	7	3	4	0	1
125	3	6	3	5	2	3	2	0
250	2	1	1	0	0	-2	-1	-4
500	-1	-1	-1	-1	-2	-3	-3	-5
1000	-5	-6	-4	-5	-4	-4	-5	-5
2000	-20	-16	-15	-12	-11	-9	-8	-7
4000	-33	-27	-25	-20	-18	-14	-12	-10
8000	-41	-30	-33	-25	-26	-21	-20	-19

 Tablica 8: Relativne razine zvučne snage  $\Delta L$  za DKZ 800

DKZ 315	DKZ	DKZ-H	DKZ	DKZ-H	DKZ	DKZ-H	DKZ	DKZ-H
$v_{ef}$ (m/s)	3 (m/s)		5 (m/s)		8 (m/s)		12 (m/s)	
63	7	4	5	12	3	9	0	6
125	3	6	3	4	2	3	1	1
250	2	3	1	2	0	1	-1	0
500	-1	-1	-1	-1	-2	-2	-3	-3
1000	-5	-7	-5	-6	-4	-5	-5	-5
2000	-20	-20	-15	-15	-11	-11	-8	-8
4000	-33	-31	-25	-23	-18	-17	-13	-12
8000	-42	-31	-35	-27	-26	-21	-22	-17

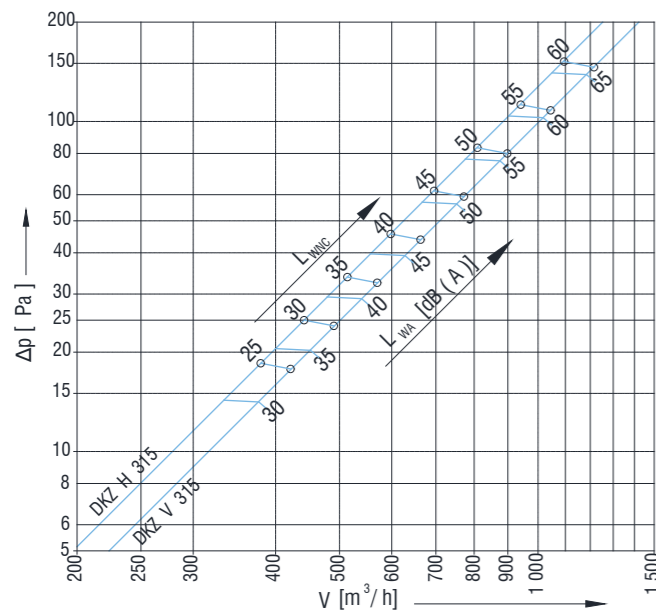


Za određivanje ukupne razine zvučne snage u prostoriji treba još uzeti u obzir broj distributera i apsorpcijska svojstva prostorije.

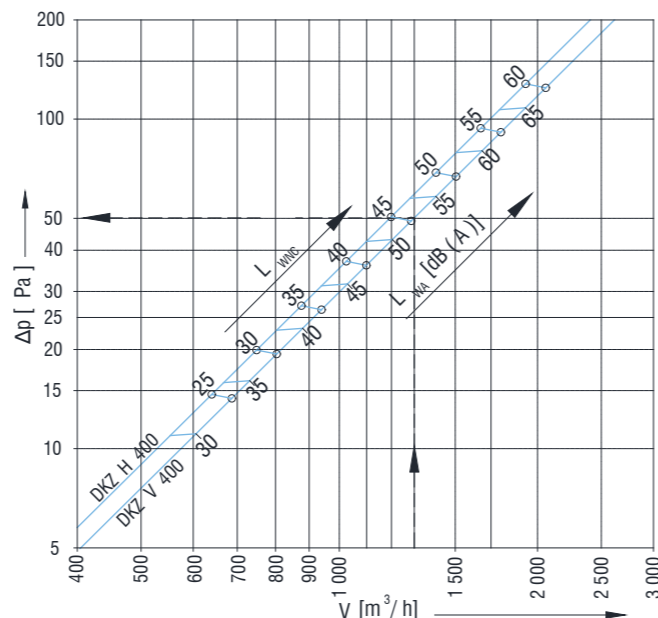
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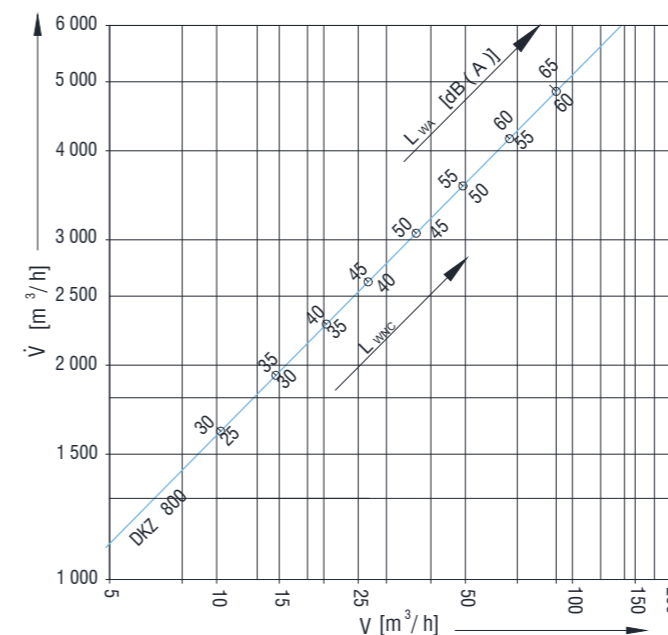
1.1 Dijagram ukupnog pada tlaka i razine zvučne snage za DKZ 315 - sa priključnom kutijom



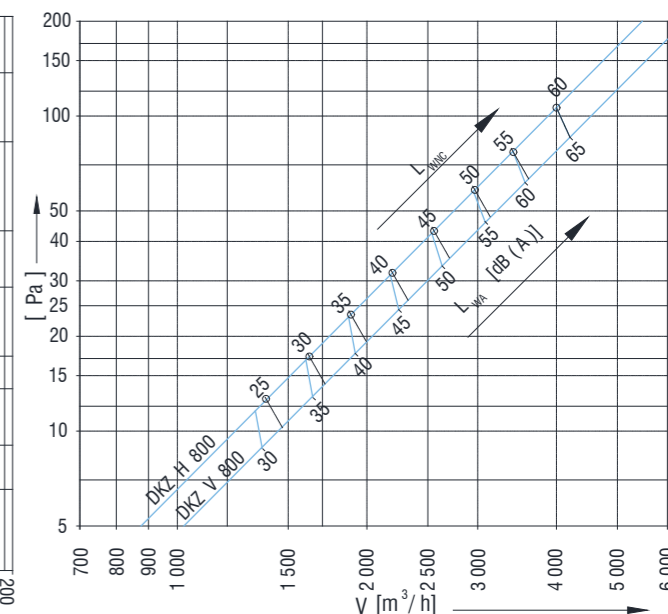
1.2 Dijagram ukupnog pada tlaka i razine zvučne snage za DKZ 400 - sa priključnom kutijom



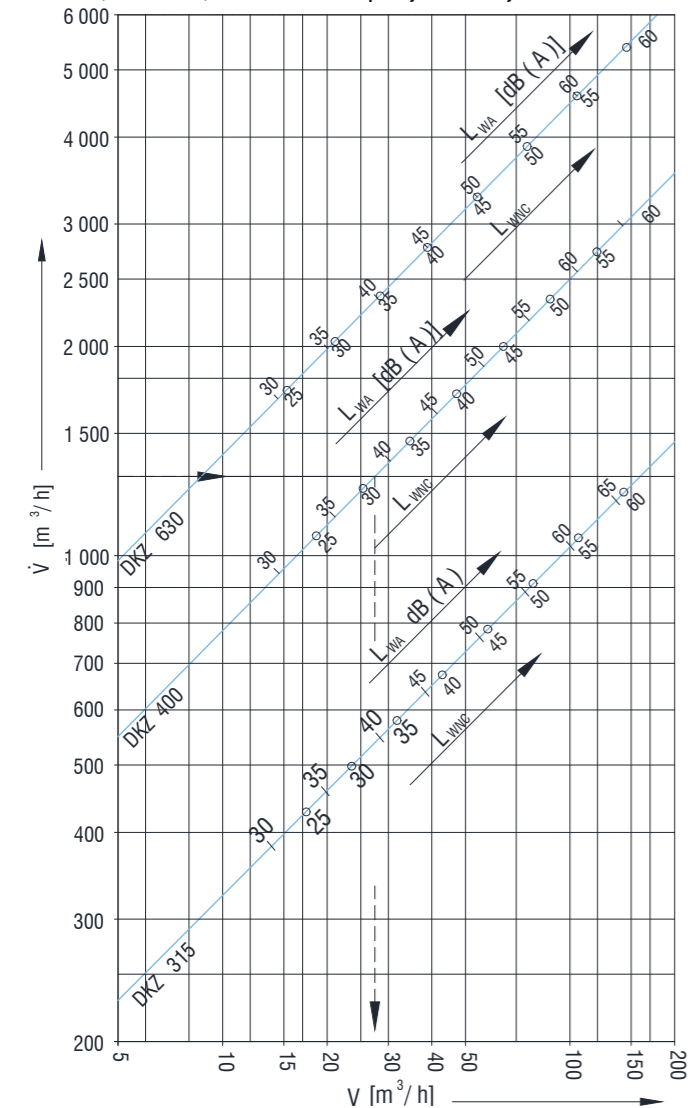
1.5 Dijagram ukupnog pada tlaka i razine zvučne snage za DKZ 800 - bez priključne kutije



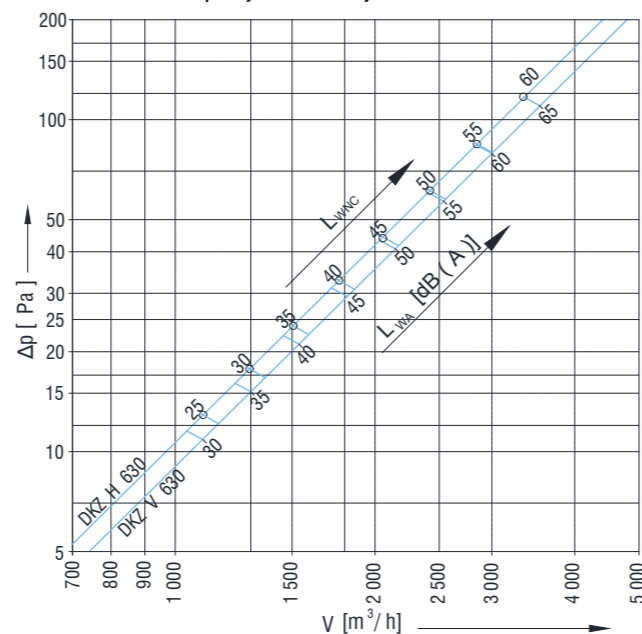
1.6 Dijagram ukupnog pada tlaka i razine zvučne snage za DKZ 800 - sa priključnom kutijom



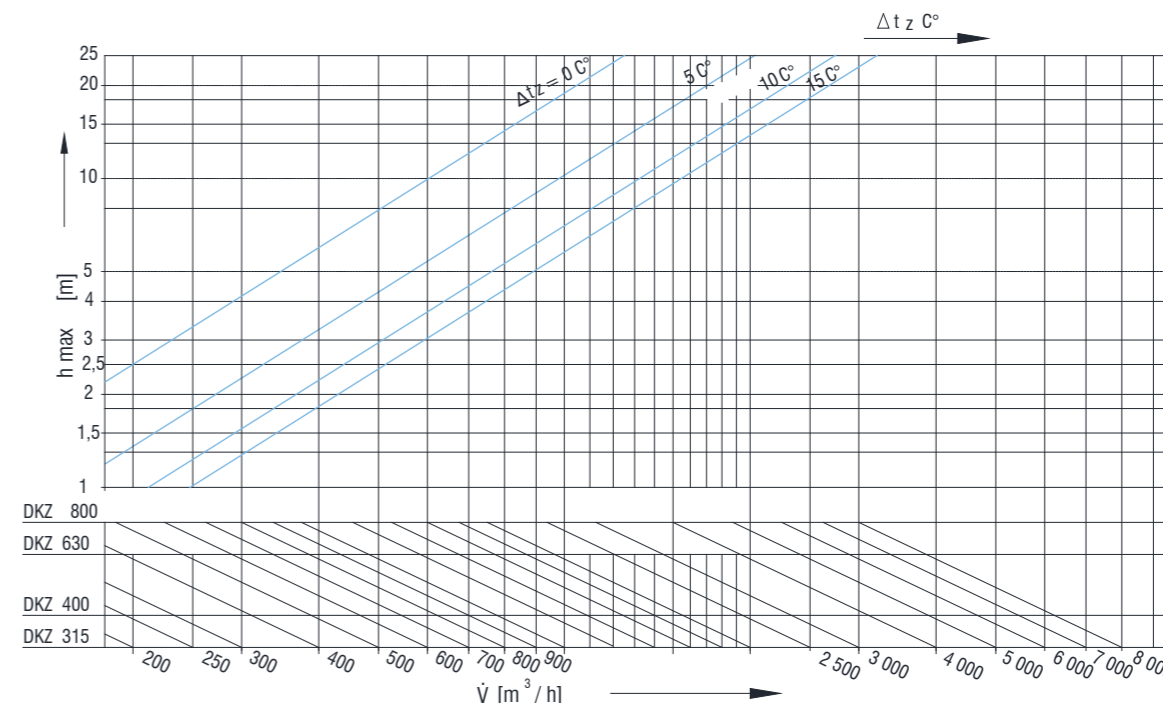
1.3 Dijagram ukupnog pada tlaka i razine zvučne snage za DKZ 315; DKZ 400; DKZ 630 - bez priključne kutije



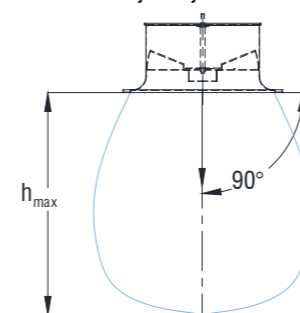
1.4 Dijagram ukupnog pada tlaka i razine zvučne snage za DKZ 630 - sa priključnom kutijom



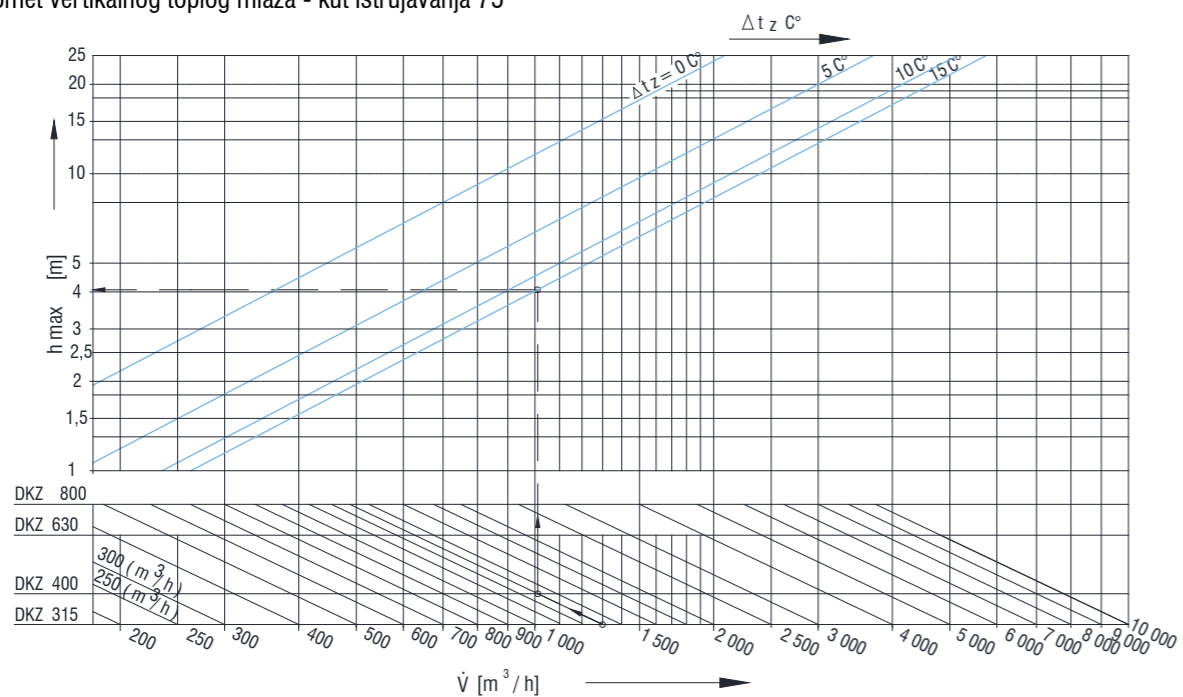
1.7 Domet vertikalnog toplog mlaza - kut istrujavanja 90°



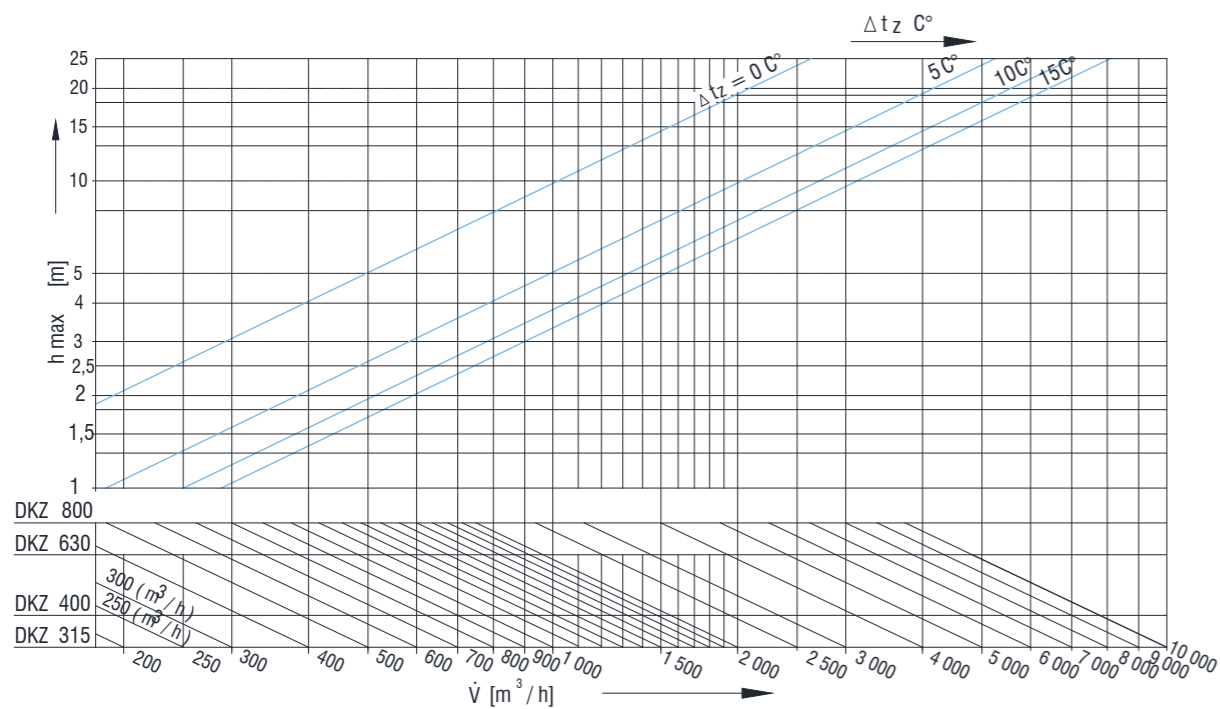
Kut istrujavanja mlaza 90°



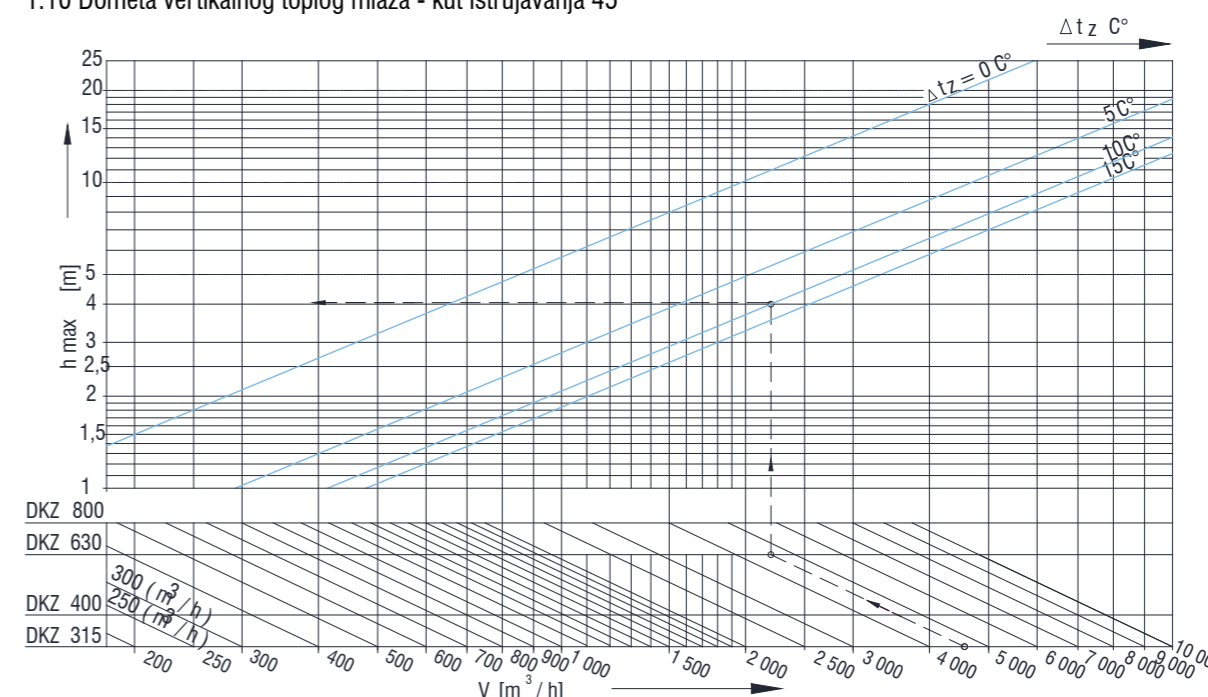
1.8 Domet vertikalnog toplog mlaza - kut istrujavanja 75°



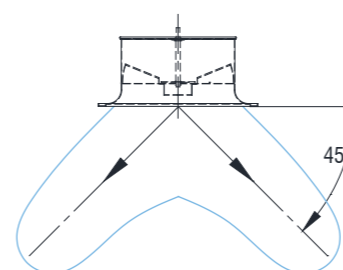
1.9 Domet vertikalnog toplog mlaza - kut istrujavanja 60°



1.10 Dometa vertikalnog toplog mlaza - kut istrujavanja 45°



Kut istrujavanja mlaza 45°

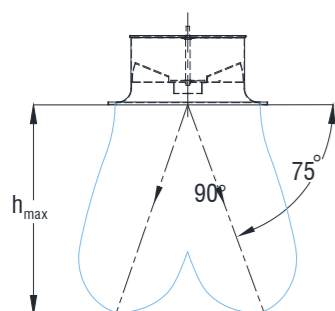


Primjer 3:  
 ZADANO  
 Model: DKZ 630  
 $V = 4600 \text{ m}^3/\text{h}$   
 Kut istrujavanja mlaza 45°  
 $\Delta t_z = +10 \text{ }^\circ\text{C}$   
 RJEŠENJE  
 Dijagram 1.7  
 $h_{max} = 4,0 \text{ m}$

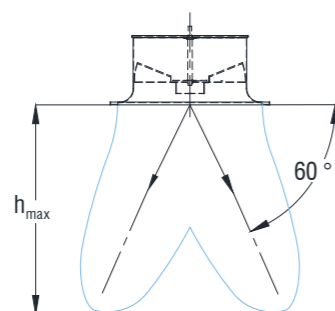
Dijagrami srednjih brzina mlaza  $v_n$  kod razmaka  $B \geq 5 \text{ m}$

- Vrijede za:
- horizontalno hladno istrujavanje zraka
  - slobodno viseći položaj distributera
  - $\Delta t_z = 0$  do  $-10 \text{ }^\circ\text{C}$

Kut istrujavanja mlaza 75°

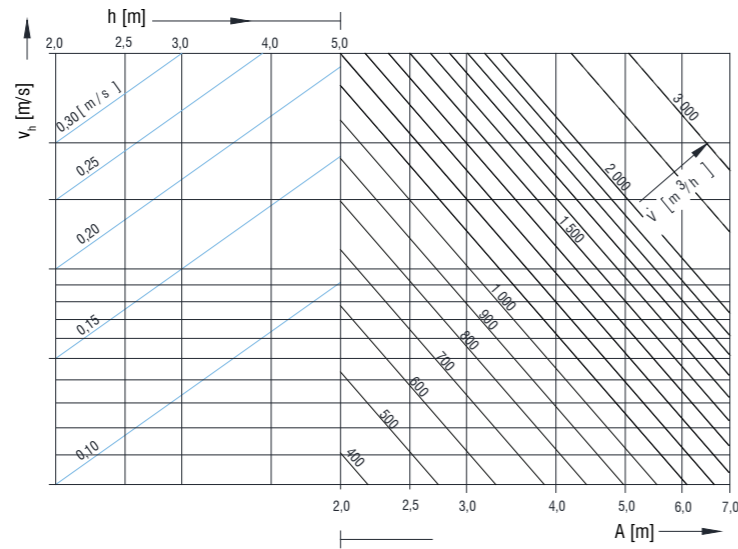


Kut istrujavanja mlaza 60°

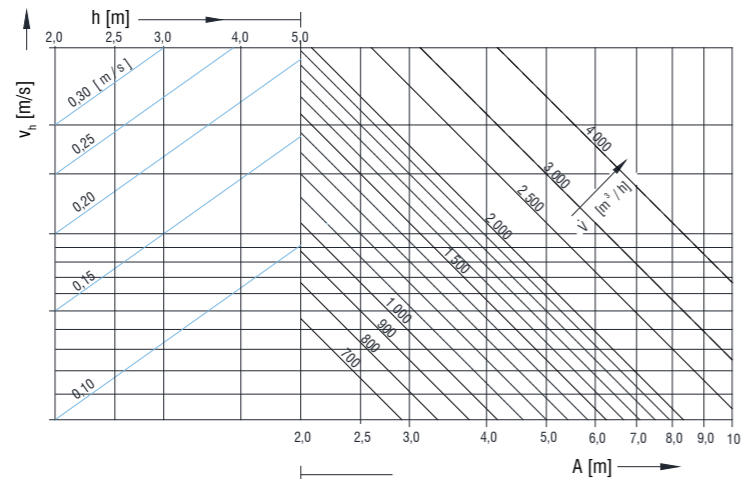


Primjer 2:  
 ZADANO  
 Model: DKZ 400  
 $V = 1400 \text{ m}^3/\text{h}$   
 Kut istrujavanja mlaza 60°  
 $\Delta t_z = +15 \text{ }^\circ\text{C}$   
 RJEŠENJE  
 Dijagram 1.9  
 $h_{max} = 3,8 \text{ m}$

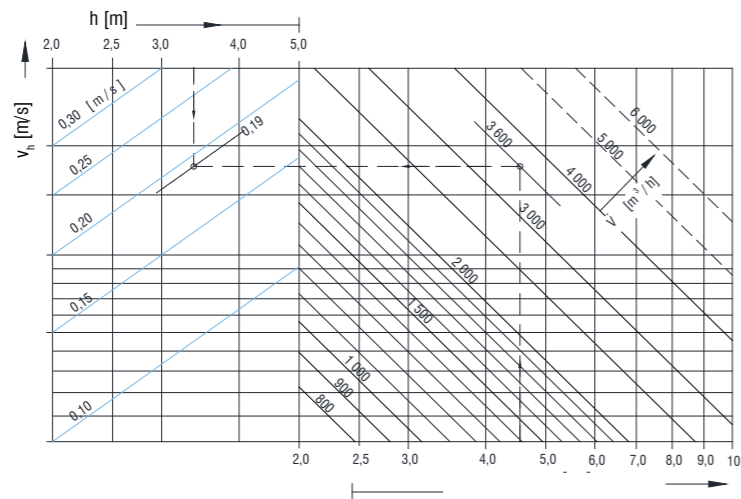
1.11 Dijagram srednjih brzina mlaza  $v_h$  kod razmaka  $B \geq 5$  m za DKZ 315



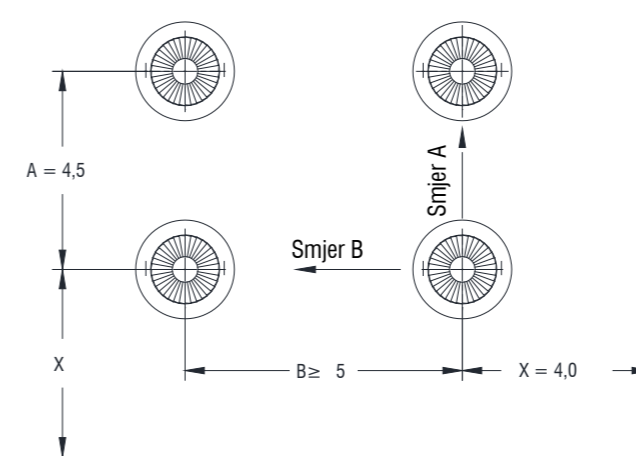
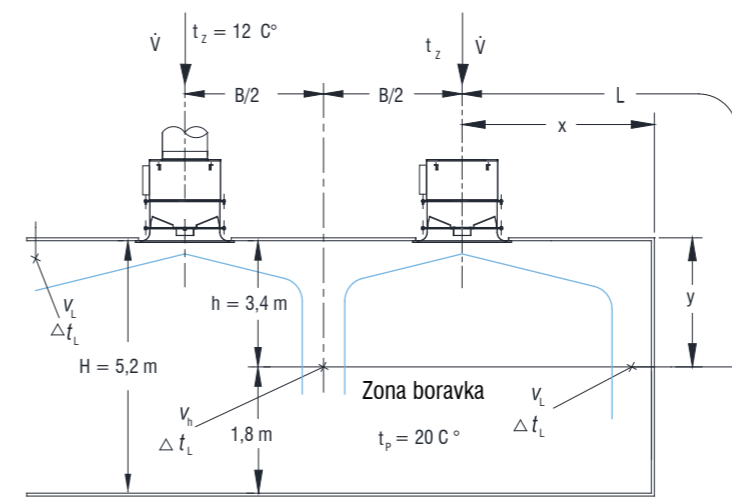
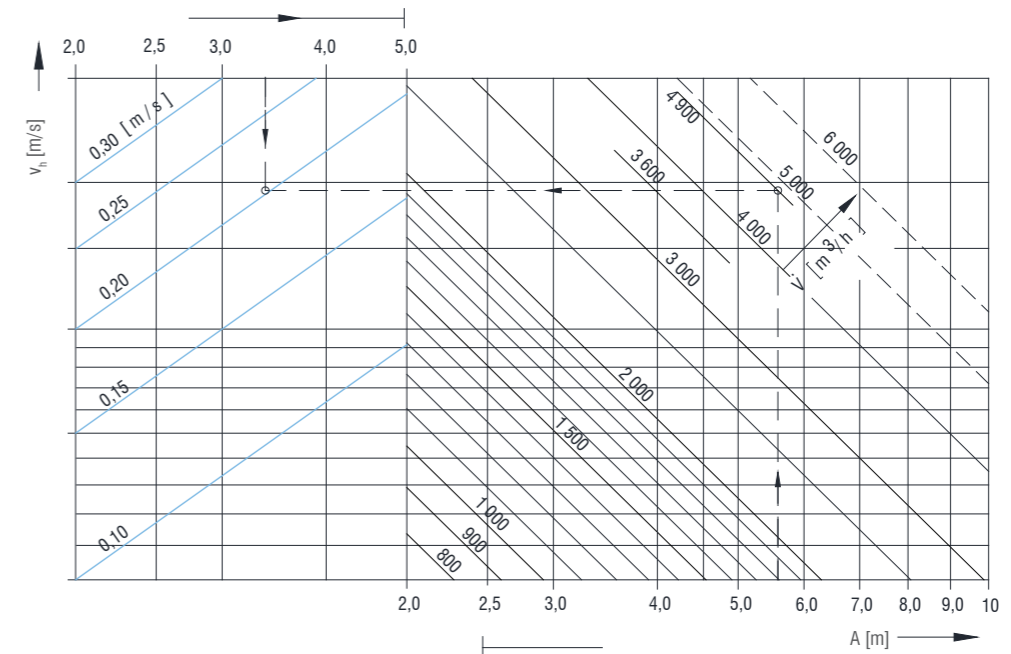
1.12 Dijagram srednjih brzina mlaza  $v_h$  kod razmaka  $B \geq 5$  m za DKZ 400



1.13 Dijagram srednjih brzina mlaza  $v_h$  kod razmaka  $B \geq 5$  m za DKZ 630



1.14 Dijagram srednjih brzina mlaza  $v_h$  kod razmaka  $B \geq 5$  m za DKZ 800



Primjer 4:

ZADANO  
 Model: DKZ 630

$A = 4,5$  m       $t_z = 12$  °C  
 $B \geq 5$  m       $t_p = 20$  °C  
 $V = 3600$  m<sup>3</sup>/h       $x = 4,0$  m  
 $h = 3,4$  m       $L = 7,4$  m  
 $\Delta t_z = -8$  °C

Ugradnja u nivou spušenog stropa

RJEŠENJE  
**Dijagram 1.10**  
 $v_h = 0,19$  m/s  
 Utjecaj stropa za horizontalno istrujavanje  
 $v_h \times 1,4 = 0,26$  m/s

**Dijagram 2.1**  
 $v_L = 0,37$  (m/s)  
 Utjecaj stropa za horizontalno istrujavanje  
 $v_L \times 1,4 = 0,52$  m/s

$\Delta t_L = 0,06 \times 1,4 = 0,084$   
 $\Delta t_z = -8$  °C

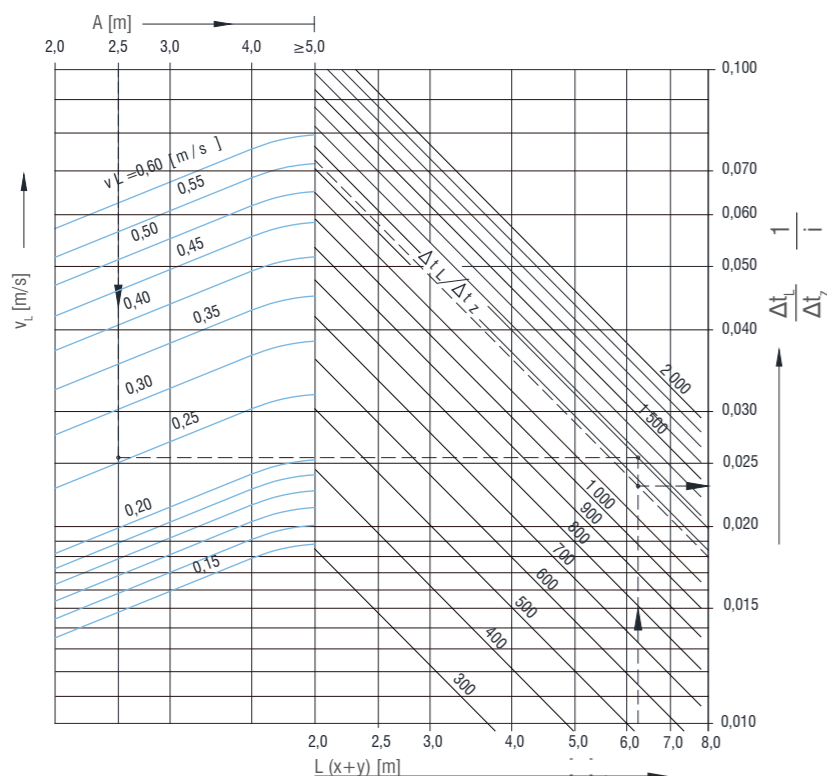
$t_L = 19,33$  °C  
 $i = 11,9$

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Dijagrami srednjih brzina mlaza  $v_L$  uz zid

2.0 Dijagram srednjih brzina hladnog horizontalnog mlaza uz zid  $v_L$  i temperaturni kvocijent za DKZ 315



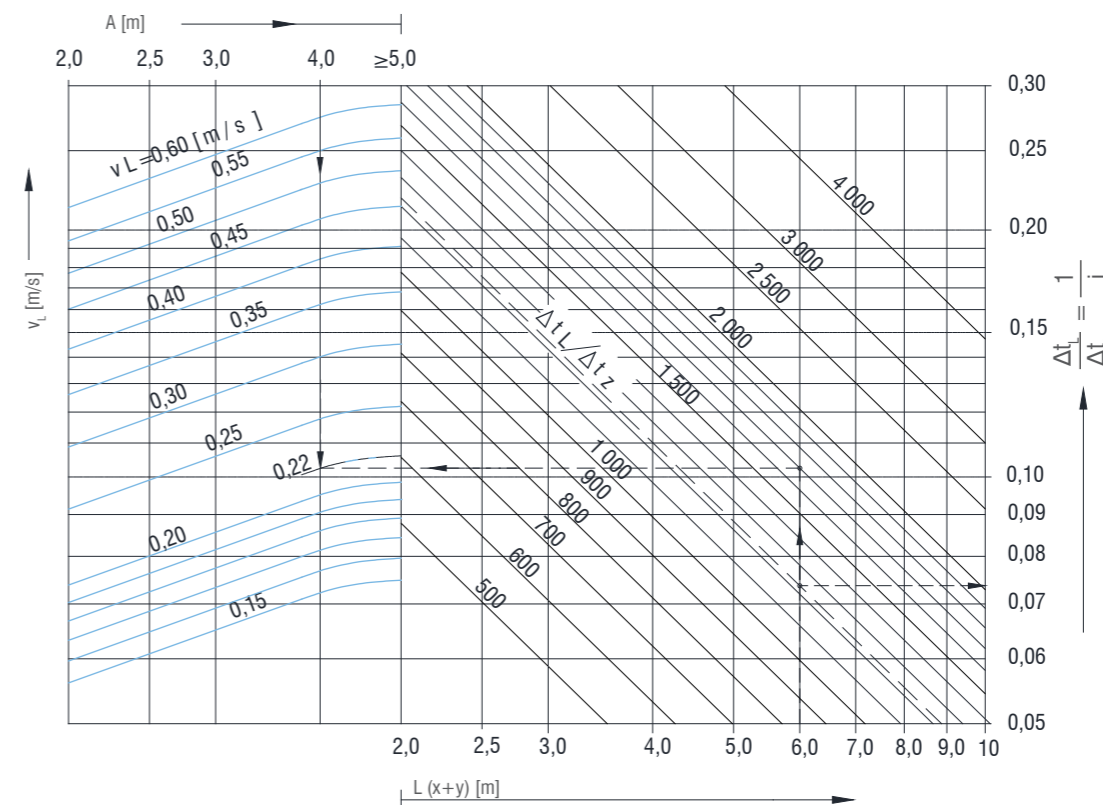
Vrijede za:

- horizontalno hladno istrujavanje zraka
- slobodno viseći položaj distributera
- $\Delta t_z = 0$  do  $-10$  °C



Kod ugradnje distributera u razini spuštenog stropa vrijednosti  $v_L$ ;  $v_L \cdot \frac{\Delta t_L}{h \Delta t_z}$  treba pomnožiti sa faktorom 1,4

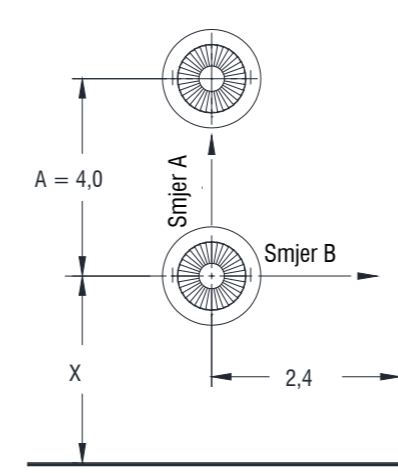
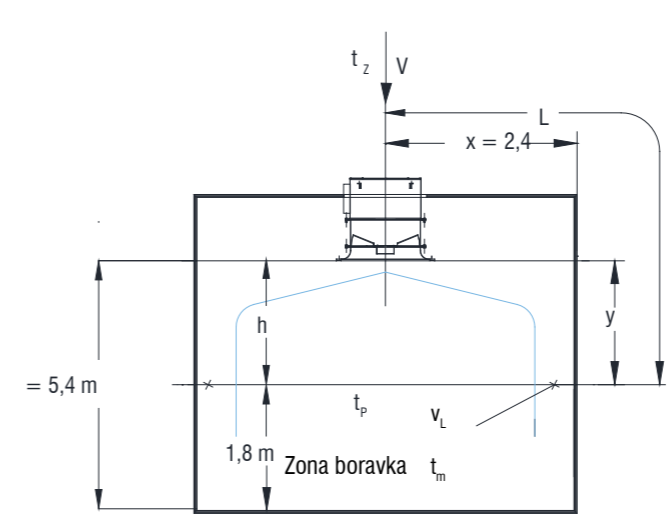
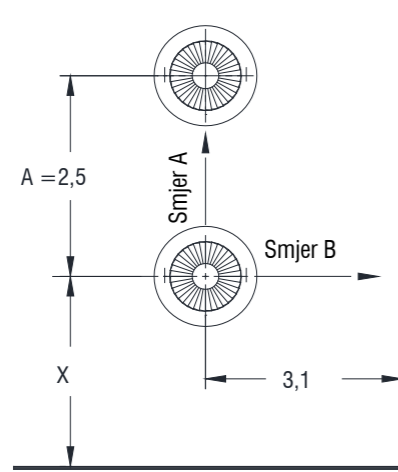
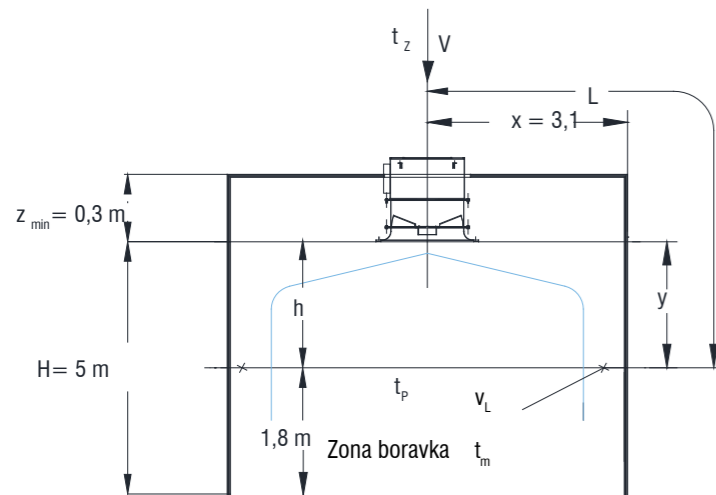
2.1 Dijagram srednjih brzina mlaza uz zid  $v_L$  i temperaturni kvocijent za DKZ 400



**Primjer 5:**  
**ZADANO**  
 Veličina: DKZ 315  
 $t_p = 20$  °C  
 $\dot{V} = 1300$  m³/h  
 $H = 5$  m  
 $A = 2,5$  m²  
 $x = 3,1$  m  
 $h = 3,2$  m  
 $L = 6,3$  m  
 $z_{min} = 0,3$  m  
**RJEŠENJE**  
**Dijagram 2.2**  
 $v_L = 0,25$  m/s  
 $\frac{\Delta t_L}{\Delta t_z} = 0,0235$   
 $i = 42,55$   
 $t_L = 19,88$  °C

$t_z = 15$  °C  
 $H = h + 1,8$   
 $L = x + h$

Ugradnja: slobodno viseći položaj

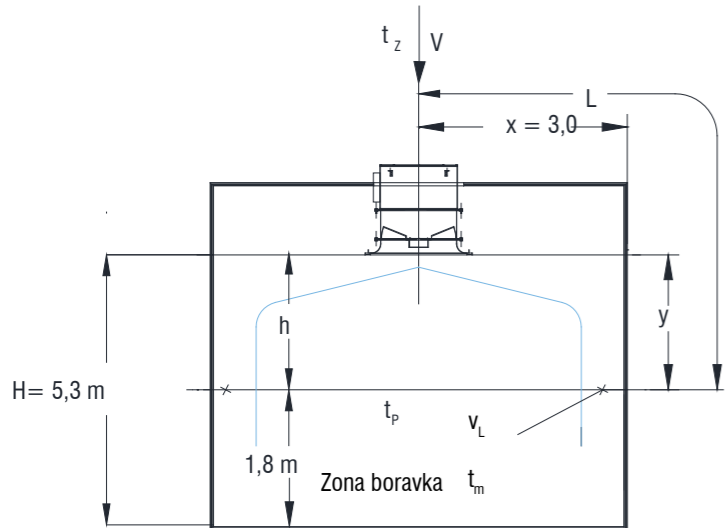
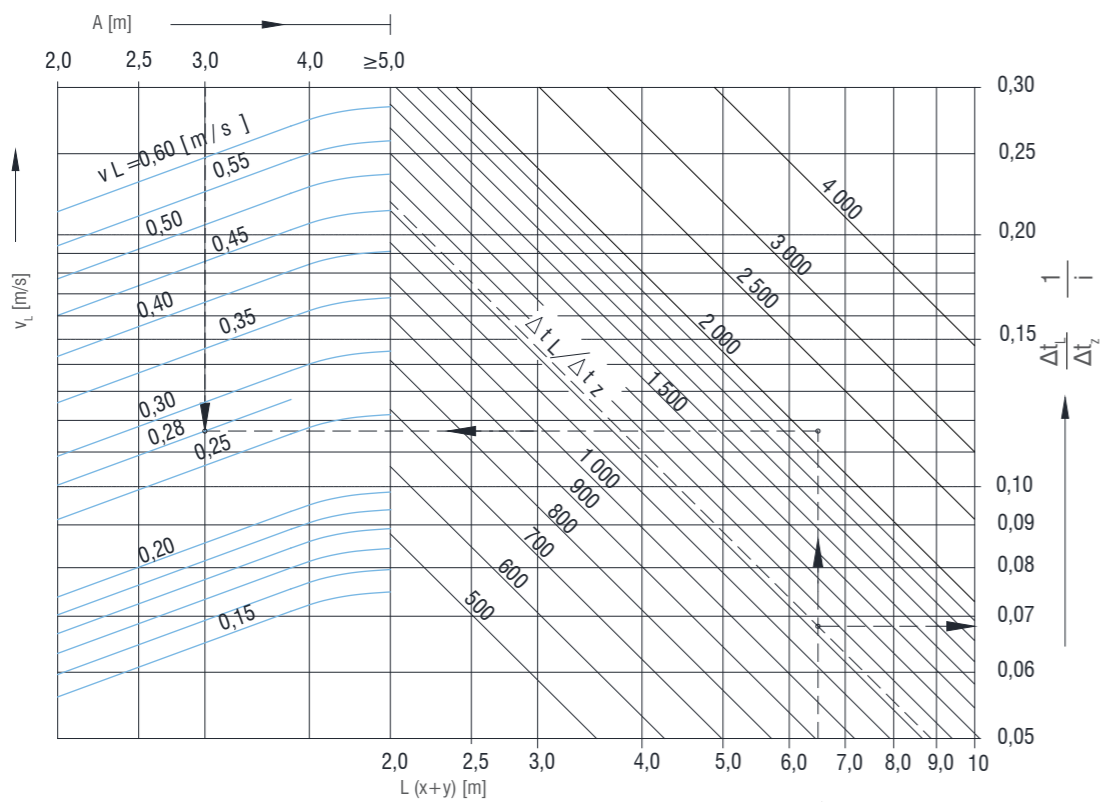


**Primjer 6:**  
**ZADANO**  
 Veličina: DKZ 400  
 $\dot{V} = 1700$  m³/h  
 $H = 5,4$  m  
 $A = 4,0$  m²  
 $x = 2,4$  m  
 $h = 3,6$  m  
 $L = 6,0$  m

**RJEŠENJE**  
**Dijagram 2.1**  
 $v_L = 0,22$  m/s

$\frac{\Delta t_L}{\Delta t_z} = 0,074$   
 $t_p = 20$  °C  
 $t_z = 12$  °C  
 $\Delta t_z = 12 - 20 = -8$  °C  
 $H = h + 1,8$   
 $L = x + h$   
 Ugradnja u strop:  
 $z < 0,3$  m  
 Ugradnja u strop:  
 $v_L \times 1,4 = 0,31$  m/s

$\frac{\Delta t_L}{\Delta t_z} \times 1,4 = 0,1036$   
 $i = 9,65$   
 $t_L = 19,17$  °C

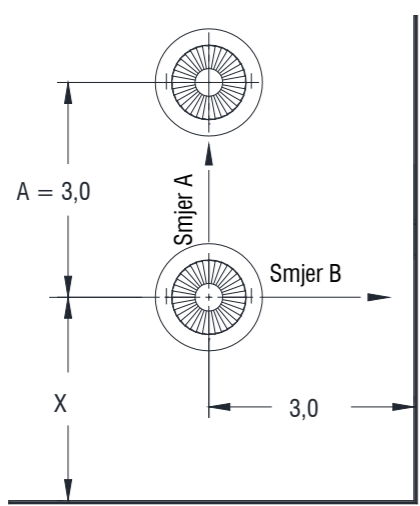
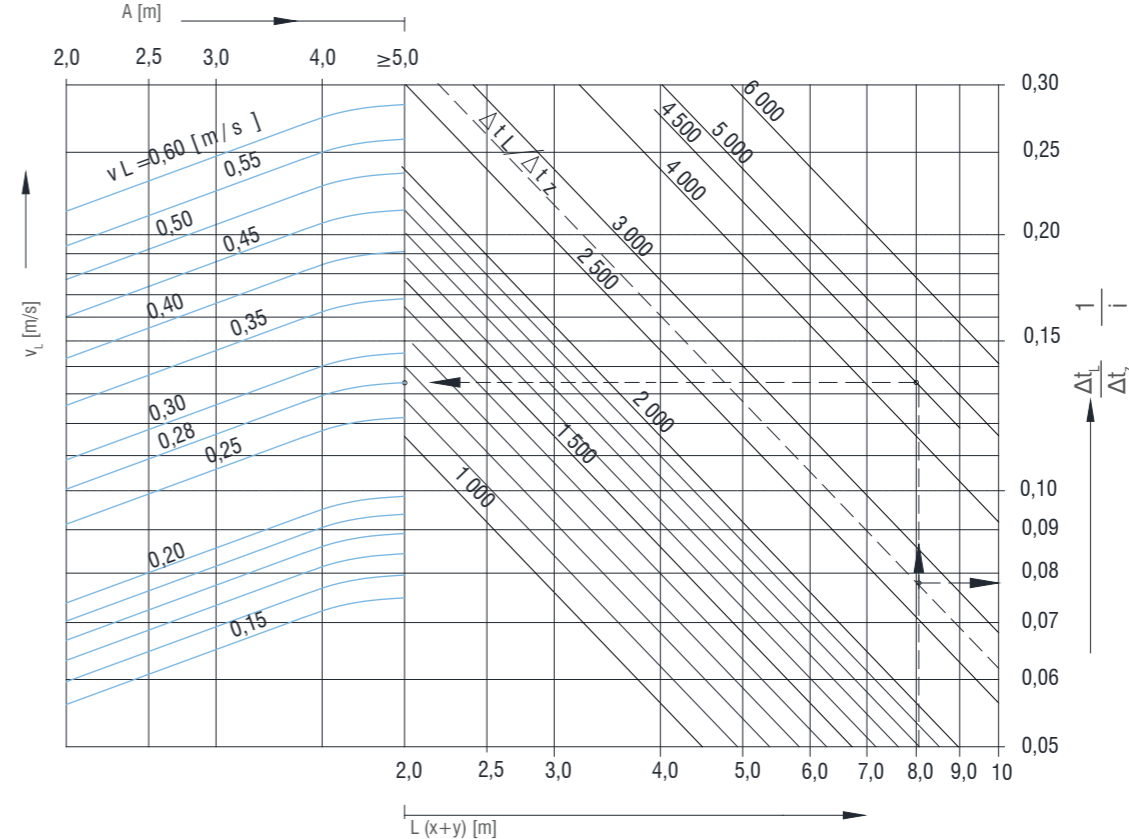
**2.2 Dijagram srednjih brzina mlaza uz zid v<sub>L</sub> i temperaturni kvocijent za DKZ 630**


**Primjer 7:**  
**ZADANO**  
 Veličina: DKZ 630

V = 2100 m<sup>3</sup>/h  
 H = 5,3 m  
 A = 3,0 m  
 x = 3,0 m  
 h = 3,5 m  
 L = 6,5 m

$t_p = 20\text{ °C}$   
 $t_z = 14\text{ °C}$   
 $H = h + 1,8$   
 $L = x + h$

**RJEŠENJE**  
**Dijagram 2.2**  
 $v_L = 0,28\text{ m/s}$   
 $\frac{\Delta t_L}{\Delta t_z} = 0,068$   
 Ugradnja u strop:  
 $v_L \times 1,4 = 0,39\text{ m/s}$   
 $\frac{\Delta t_L}{\Delta t_z} \times 1,4 = 0,0952$   
 $i = 10,5$   
 $t_L = 19,43\text{ °C}$


**2.3 Dijagram srednjih brzina mlaza uz zid v<sub>L</sub> i temperaturni kvocijent za DKZ 800**


**Primjer 9:**  
**Zadano**  
 Veličina: DKZ 800

V = 4500 m<sup>3</sup>/h  
 H = 6,0 m  
 A = 5,0 m  
 x = 3,8 m  
 h = 4,2 m  
 L = 8,0 m

$t_p = 20\text{ °C}$   
 $t_z = 14\text{ °C}$   
 $H = h + 1,8$   
 $L = x + h$   
 $\Delta t_z = -6\text{ °C}$

**RJEŠENJE**  
**Dijagram 2.3**  
 $v_L = 0,28\text{ m/s}$   
 $\frac{\Delta t_L}{\Delta t_z} = 0,078$   
 Ugradnja u strop:  
 $v_L \times 1,4 = 0,39\text{ (m/s)}$   
 $\frac{\Delta t_L}{\Delta t_z} \times 1,4 = 0,1092$   
 $i = 9,16$   
 $t_L = 19,3\text{ (°C)}$