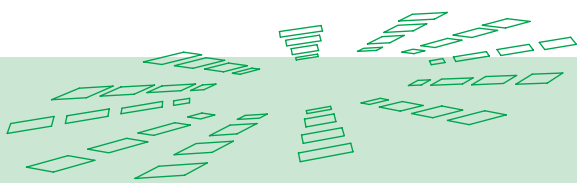
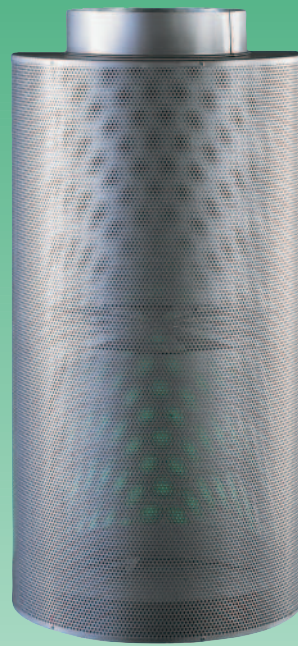




## displacement diffuser QV / QH / QR





**QV / QH / QR**

## **displacement diffuser**

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**QV / QH / QR**

## displacement diffuser

### description

The SCHAKO displacement diffuser is ideal for industrial plants and laboratories producing large amounts of harmful substances. The supply air leaks into the occupied zone at a low velocity with a temperature difference in cooling case of max -4K. The contaminated air is displaced by the low induction air flow. If the displacement diffusers are used at floor level, the supply air spreads out across the floor and is directed upwards by the convection flow from heat sources. The return air should ideally be at high level when using displacement diffusers. The displacement diffusers should be located evenly across the whole floor surface to ensure effective room flushing.

The displacement diffusers should be mounted at a height of 3-4 metres. They can also be installed above the occupied zone, especially in cases where dense contaminants are present. Approximately 50% of the return air should then be extracted at low level.

The displacement diffuser is available as either the quarter cylinder type QV for installation in corners (90° throw), the half cylinder type QH for wall and column mounting (180° throw), or the cylindrical type QR for mid-room installation (360° throw). It comprises a casing made from perforated sheet metal and a spigot connection. A filter pocket is fitted inside to ensure an even flow across the whole surface area. The filter cleans the supply air and ensures optimum air distribution. The perforated faceplate can easily be removed to change the filter pocket.

The diagrams are only valid until the supply air meets a heat source due to laws of physics.

### construction

connection spigot	- galvanised sheet steel
base	- galvanised sheet steel
filter pocket	- synthetic fiber class EU2
faceplate	- perforated sheet steel

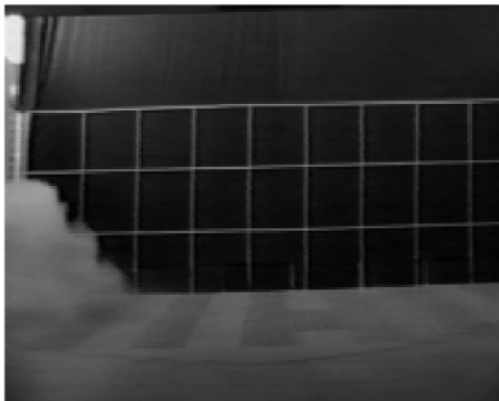
### model

QV	- 90° throw, for installation in corners
QH	- 180° throw, for installation against walls or columns
QR	- 360° throw, for mid-room installation

### features

#### smoke test

displacement diffuser type QH ø 600, L = 750



cooling mode

$V_{supp} = 900 \text{ m}^3/\text{h}$  (or 250 l/s)

$\Delta T_0 = -4 \text{ K}$

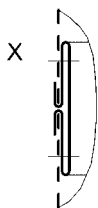
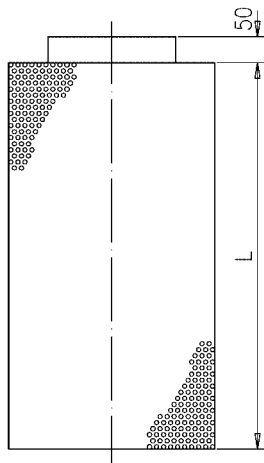


## QV / QH / QR displacement diffuser

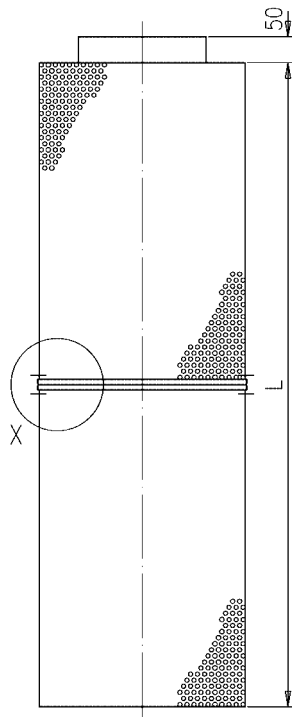


**attention**  
up to L = 1000 in one piece, otherwise as two pieces, put together on site !

L 500 - 1000



L 1250 - 2000



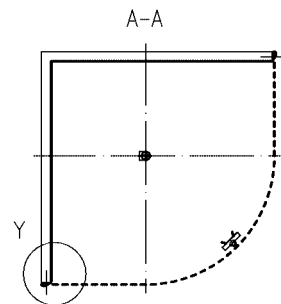
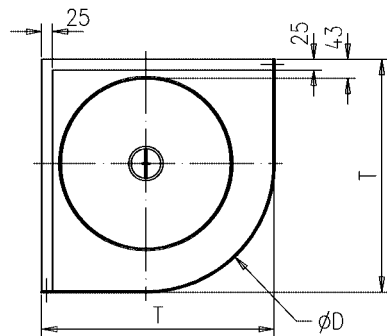
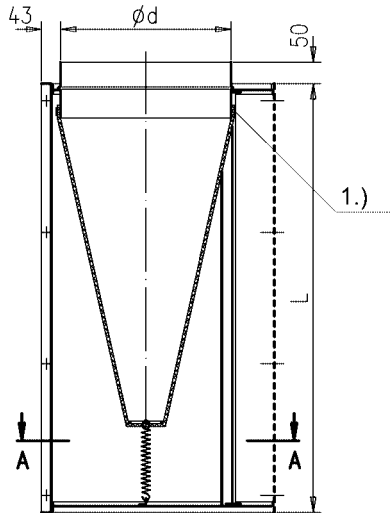


## QV / QH / QR displacement diffuser

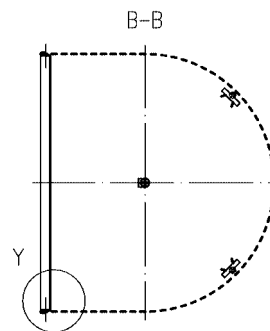
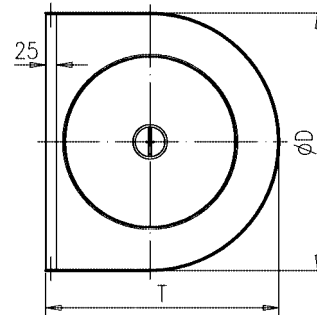
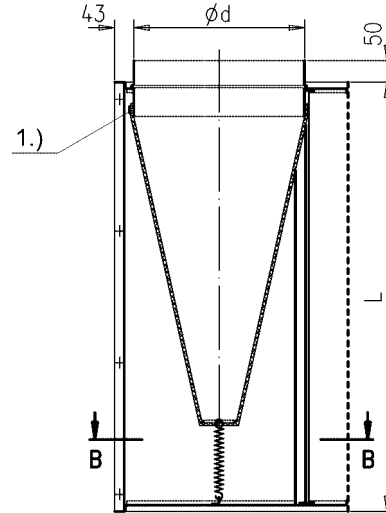
### models and dimensions

#### dimensions

QV, 90° throw



QH, 180° throw



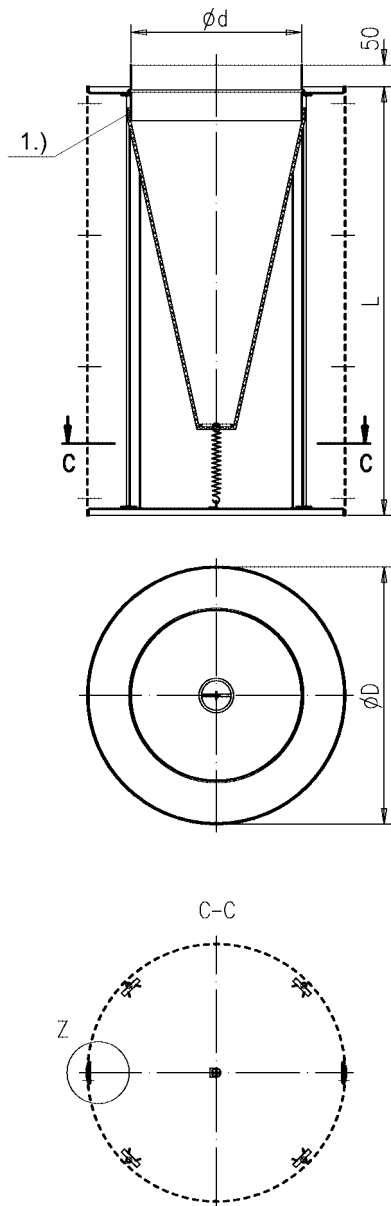
1.) Ring with fixing clasp



QV / QH / QR

## displacement diffuser

QR, 360 ° throw

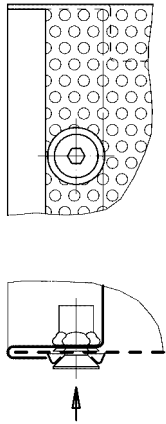


1.) ring with fixing clasp

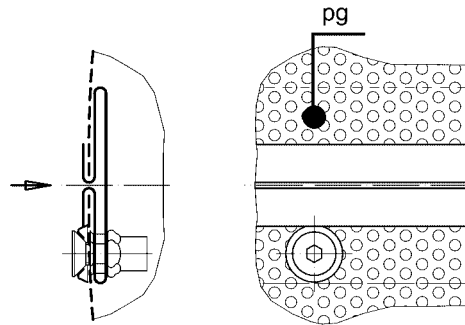


## QV / QH / QR displacement diffuser

detail Y



detail Z



filter is changed by loosening fixing clasp

pg = spot welded

### available sizes

NW	ø d	ø D	T	L	
				I	II
250	158	250	248	500	1250
300	198	300	293		
400	248	400	368		
450	298	450	418	750	1500
500	313	500	450		
600	398	600	543		
650	448	650	593	1000	2000
700	498	700	643		
830	628	830	773		
1000	628	1000	858		

QR all sizes in 2 pieces around the circumference

I = 1 piece

II = 2 piece



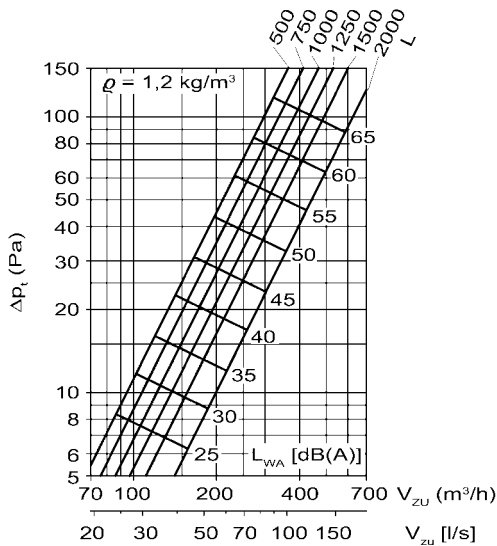
## QV / QH / QR displacement diffuser

### technical data

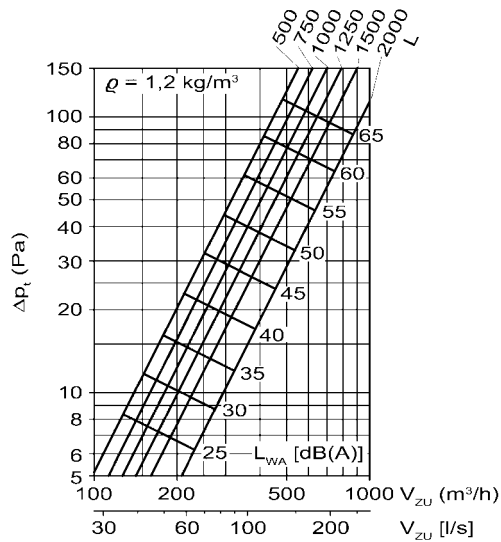
#### pressure loss and noise level

diagrams are valid up to a mounting height of 0.25m to the underside of the diffuser.

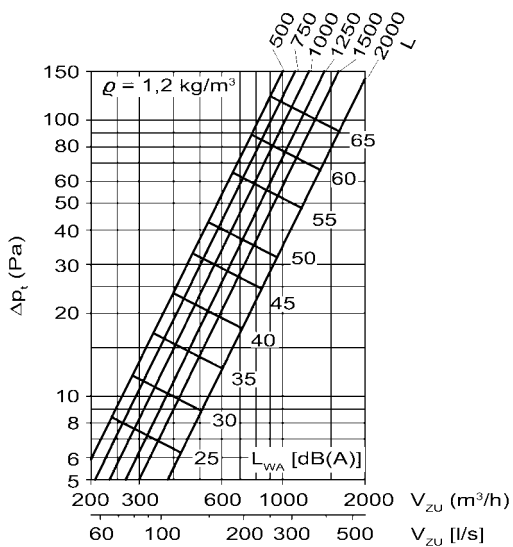
QV  $\varnothing$  250



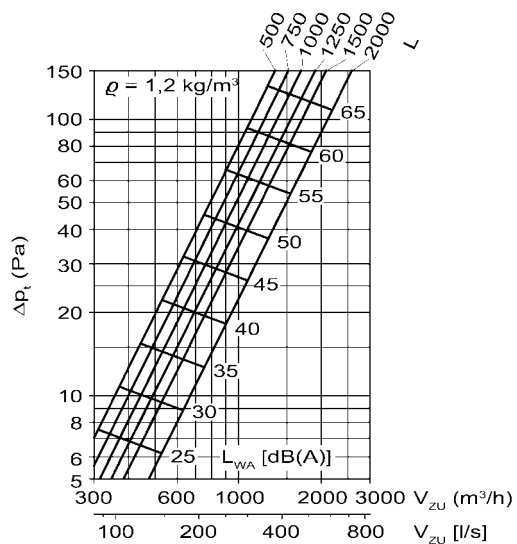
QV  $\varnothing$  300



QV  $\varnothing$  400



QV  $\varnothing$  450

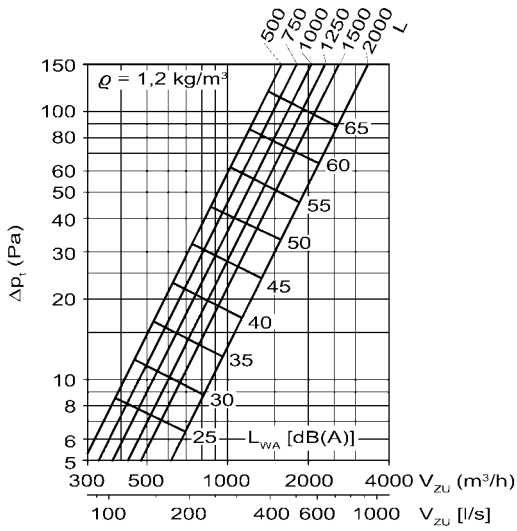




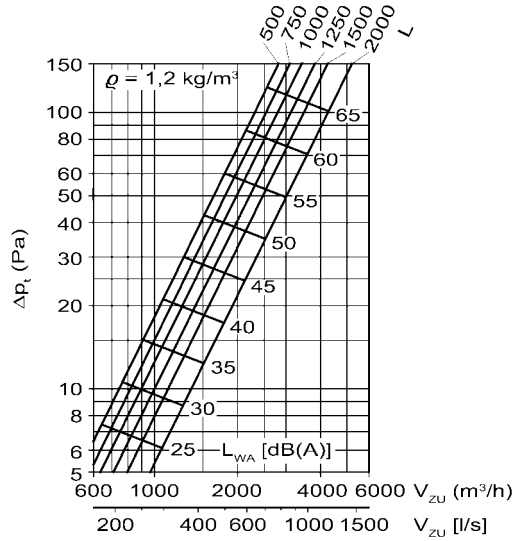
QV / QH / QR

## displacement diffuser

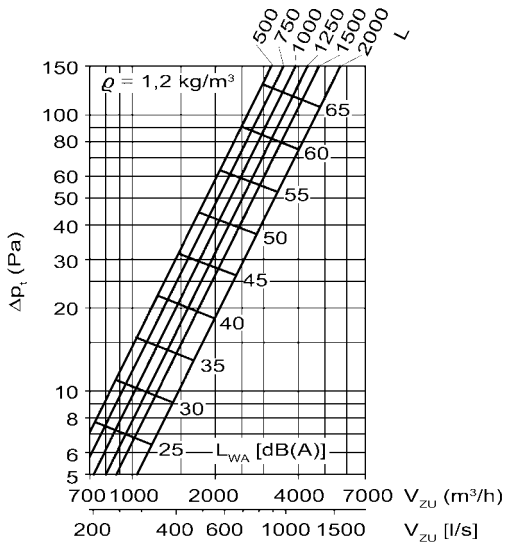
QV ø 500



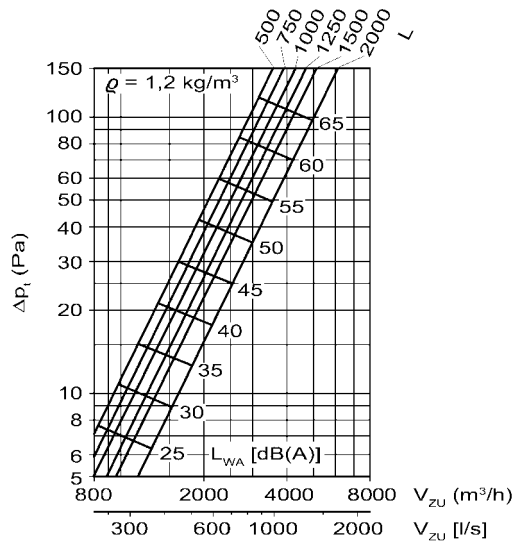
QV ø 600



QV ø 650



QV ø 700

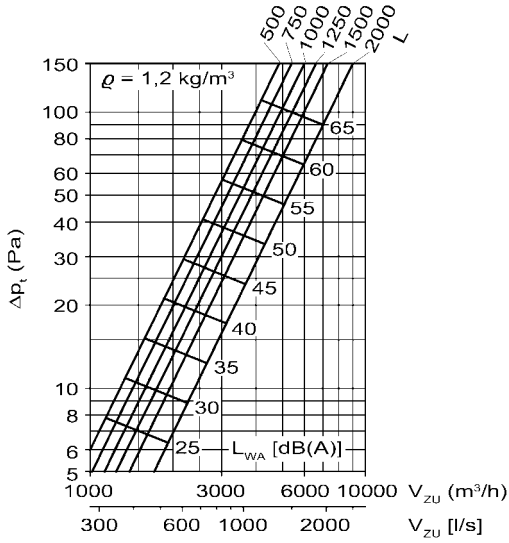




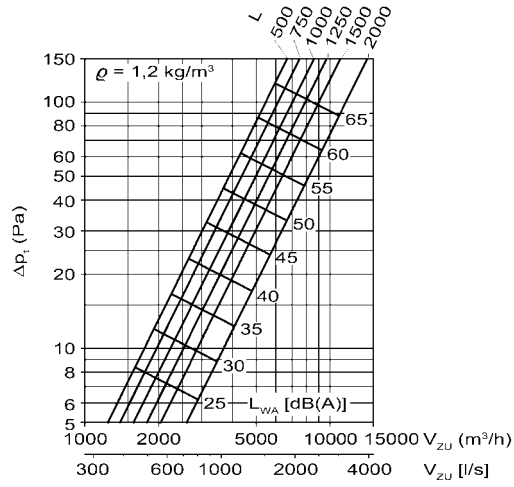
QV / QH / QR

## displacement diffuser

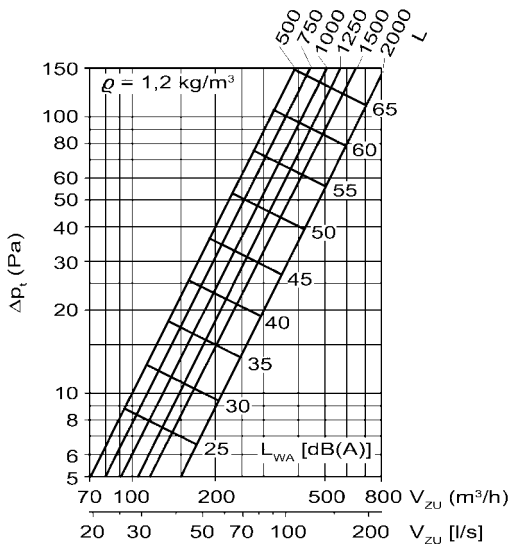
QV ø 830



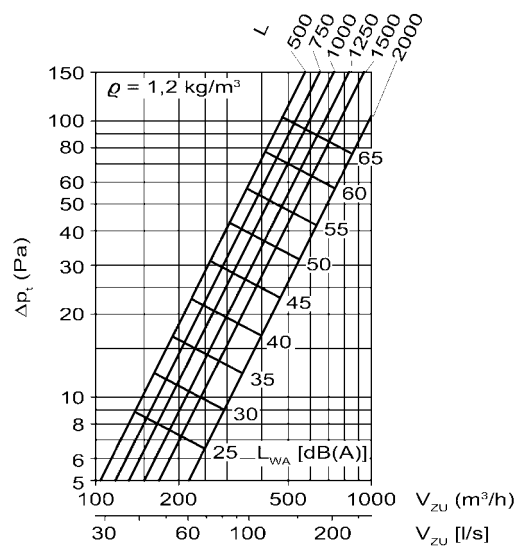
QV ø 1000



QH ø 250



QH ø 300

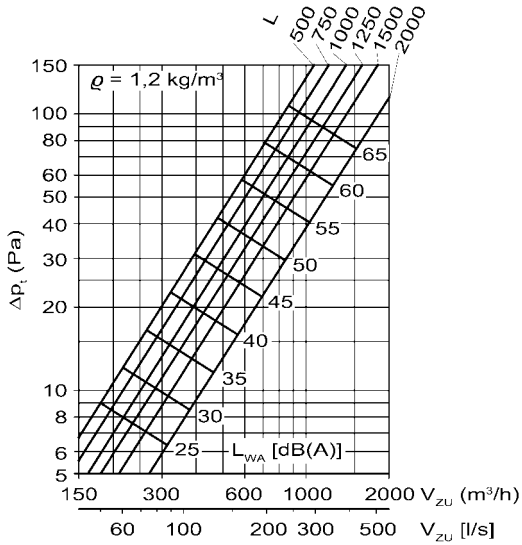




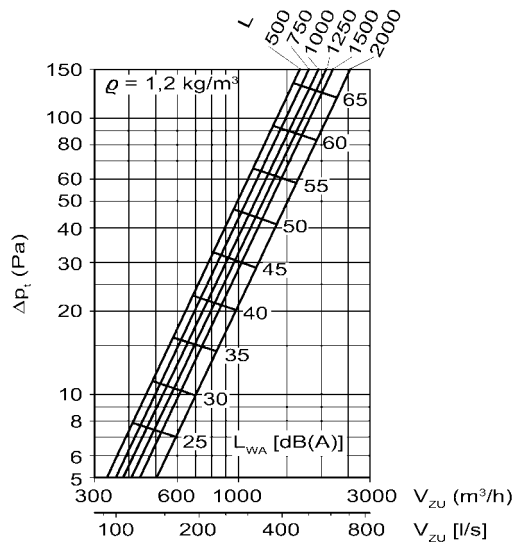
QV / QH / QR

## displacement diffuser

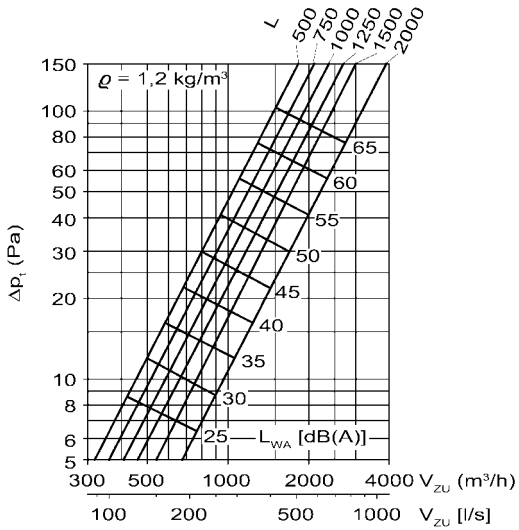
QH ø 400



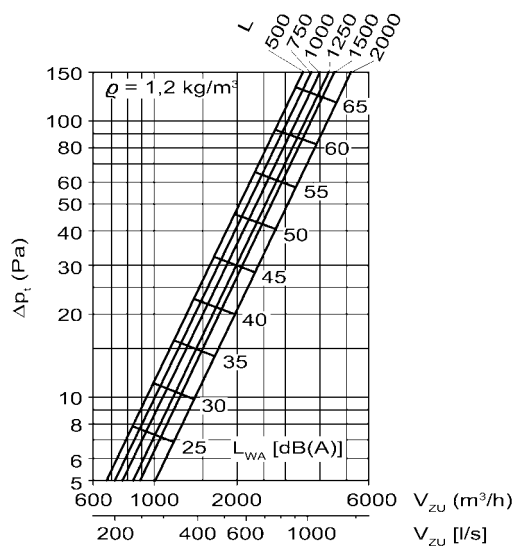
QH ø 450



QH ø 500



QH ø 600

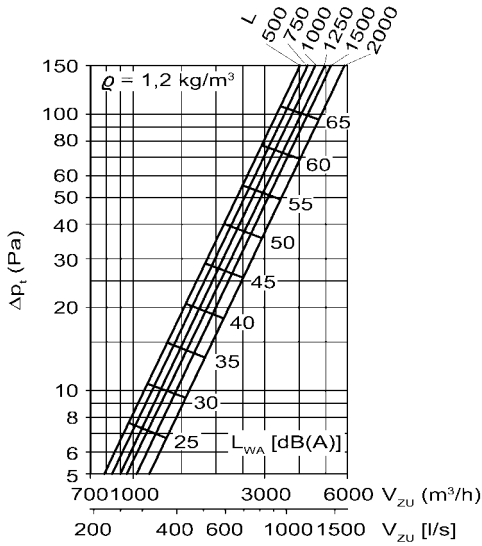




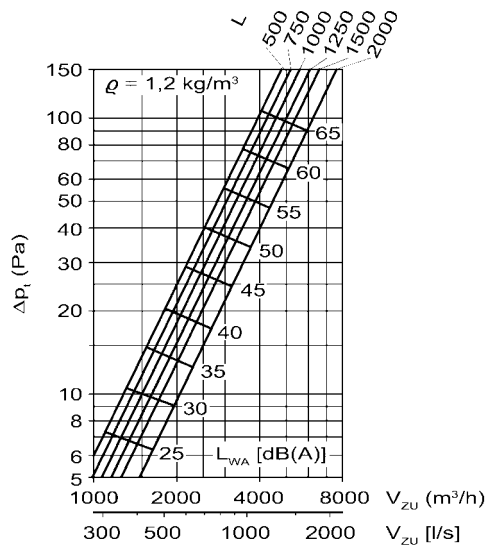
QV / QH / QR

## displacement diffuser

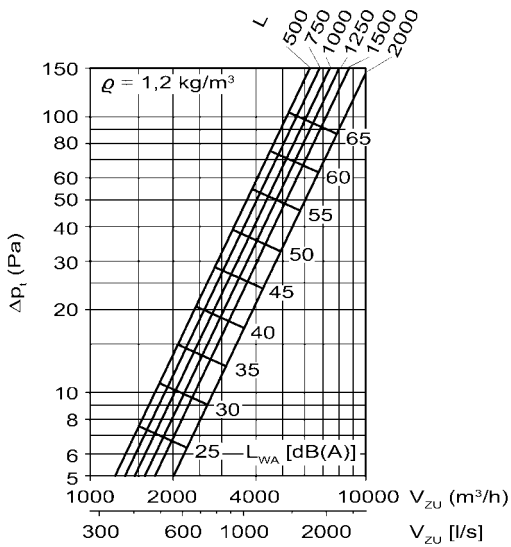
QH ø 650



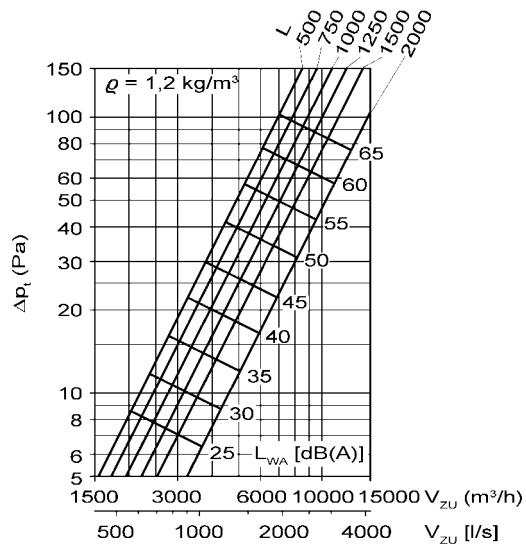
QH ø 700



QH ø 830



QH ø 1000

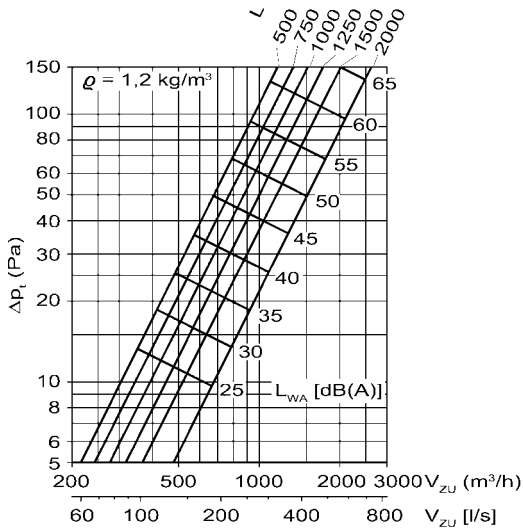




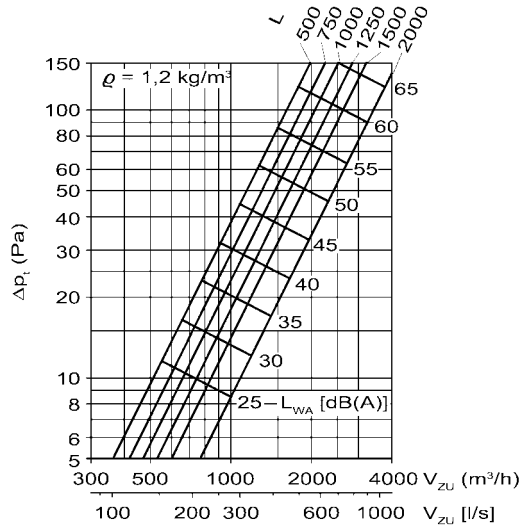
QV / QH / QR

## displacement diffuser

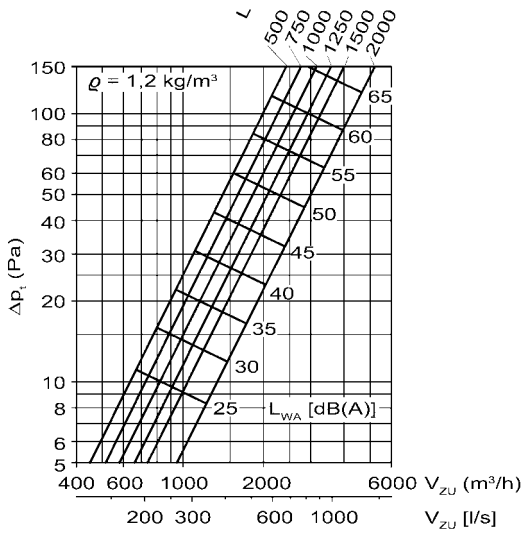
QR ø 250



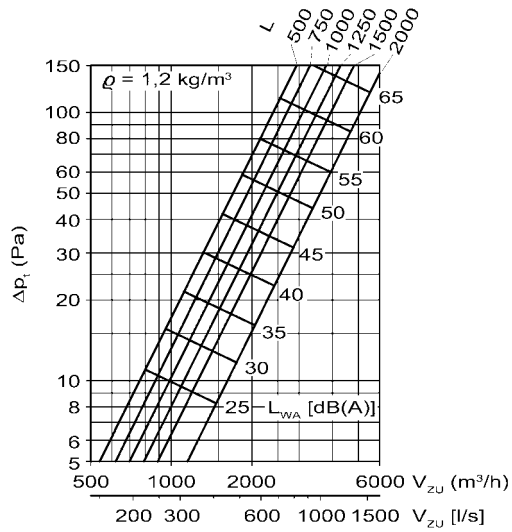
QR ø 300



QR ø 400



QR ø 450

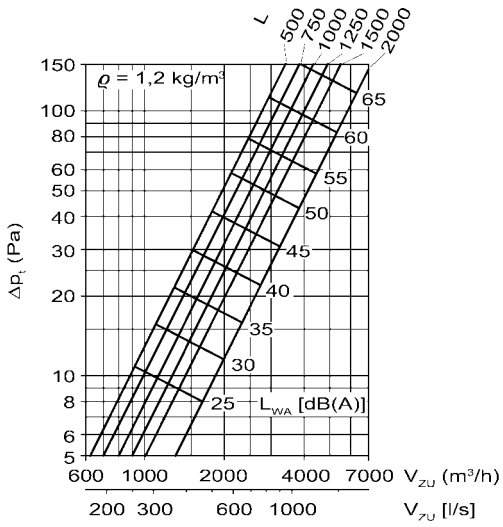




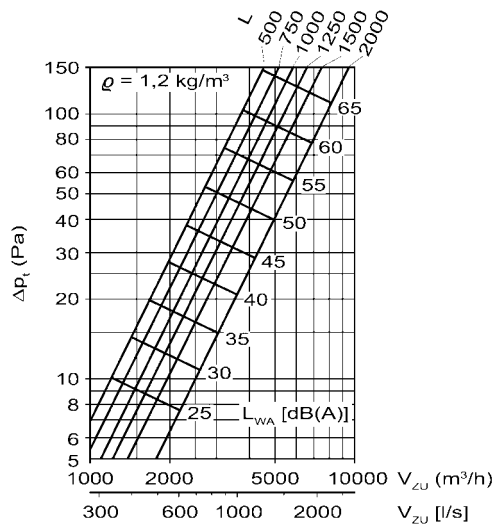
QV / QH / QR

## displacement diffuser

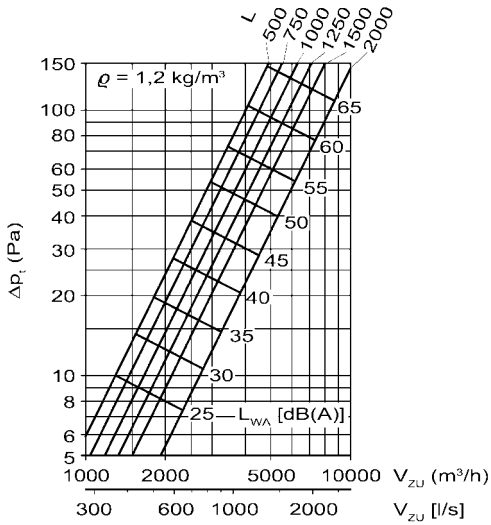
QR ø 500



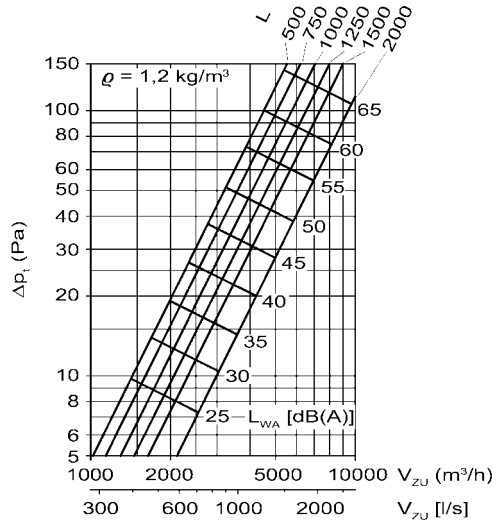
QR ø 600



QR ø 650



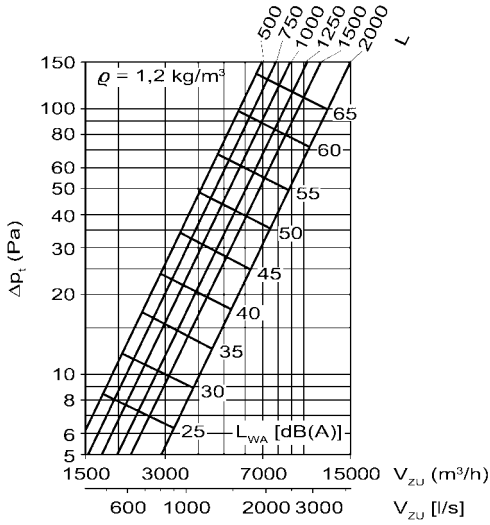
QR ø 700



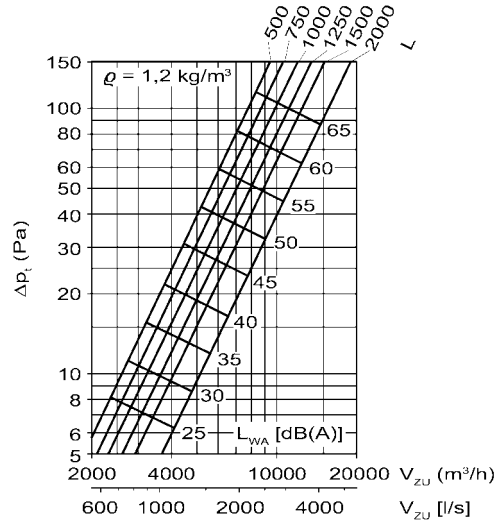


## QV / QH / QR displacement diffuser

QR ø 830



QR ø 1000



### correction factor for length

L (mm)	500	750	1000	1250	1500	2000
KF (-)	1,2	1,0	0,9	0,81	0,73	0,66

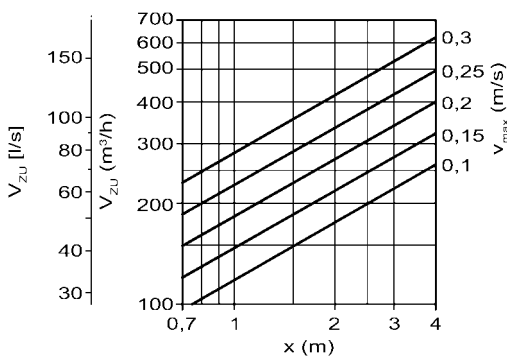
$$x \text{ (m)} = x_{750} \text{ (m)} \times \text{KF}$$

### maximum end velocity

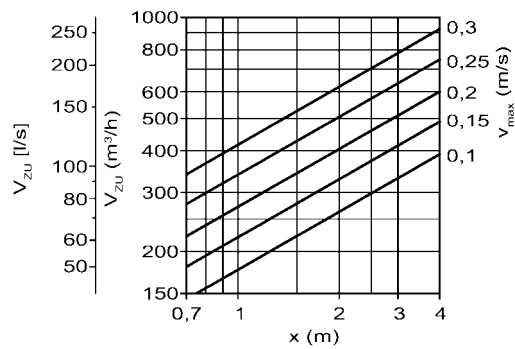
diagrams are valid up to a mounting height of 0.25m to the underside of the diffuser.

max. end velocity  
isothermal L = 750

QV ø 250



QV ø 300

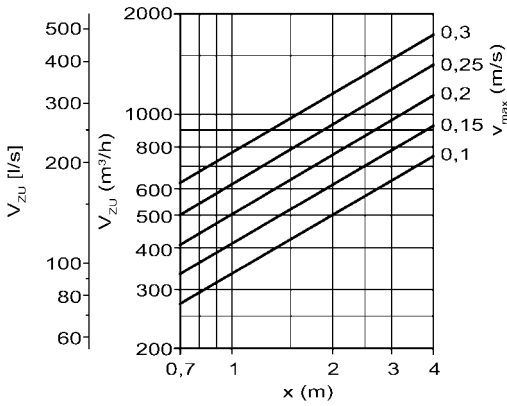




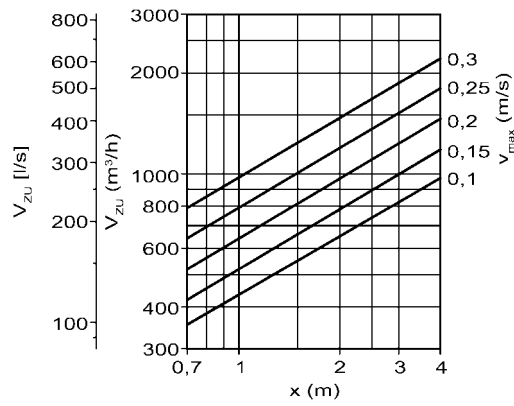
## QV / QH / QR

### displacement diffuser

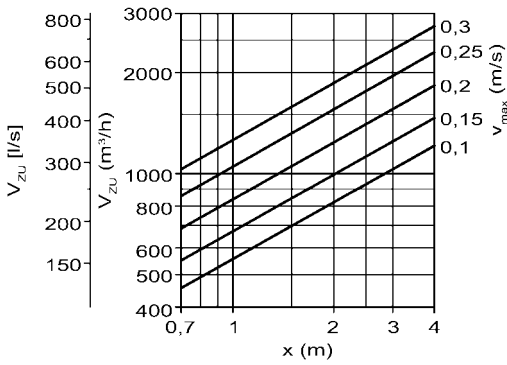
**QV ø 400**



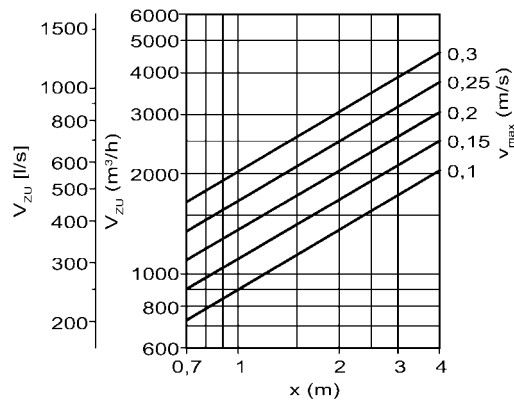
**QV ø 450**



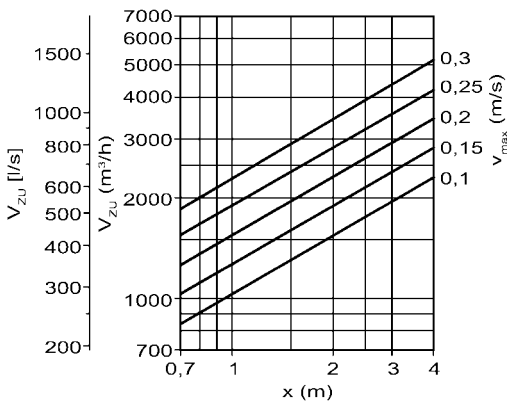
**QV ø 500**



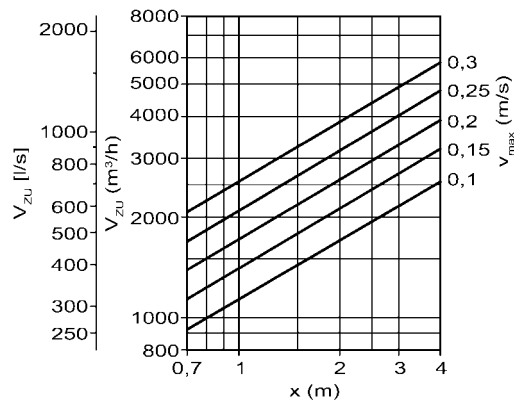
**QV ø 600**



**QV ø 650**



**QV ø 700**

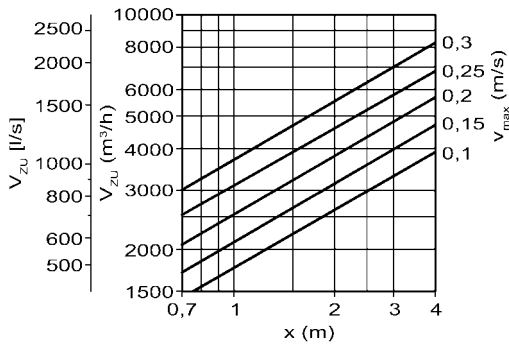




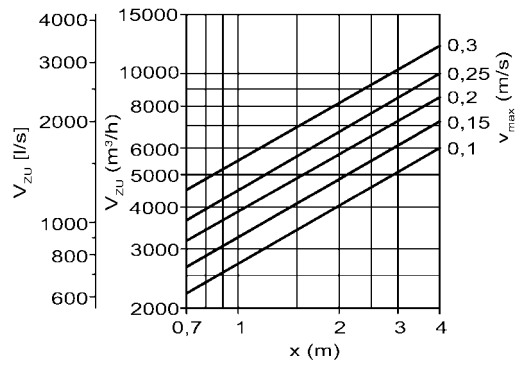
## QV / QH / QR

### displacement diffuser

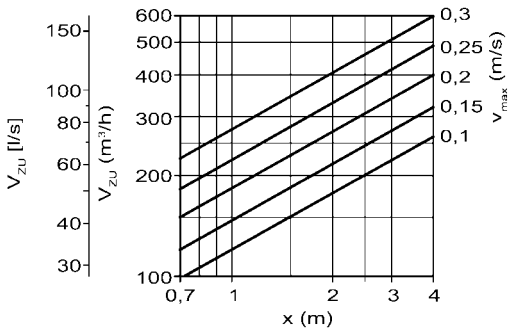
**QV ø 830**



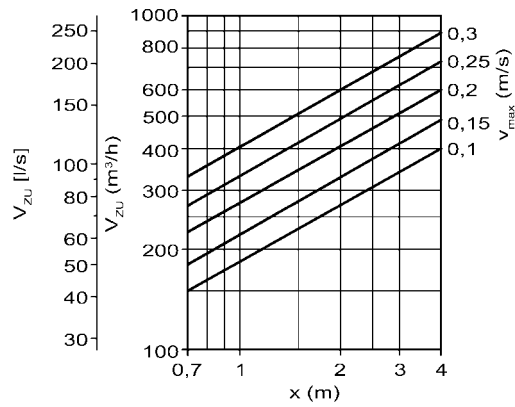
**QV ø 1000**



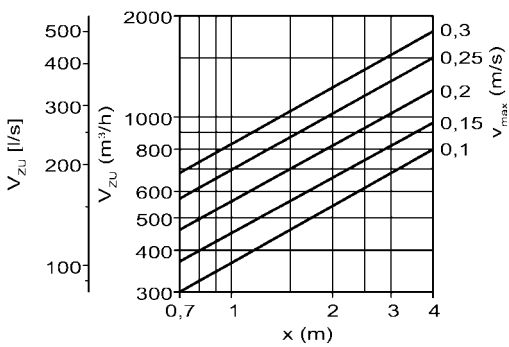
**QH ø 250**



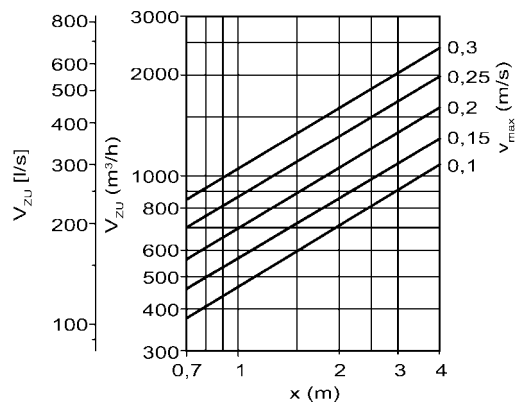
**QH ø 300**



**QH ø 400**



**QH ø 450**

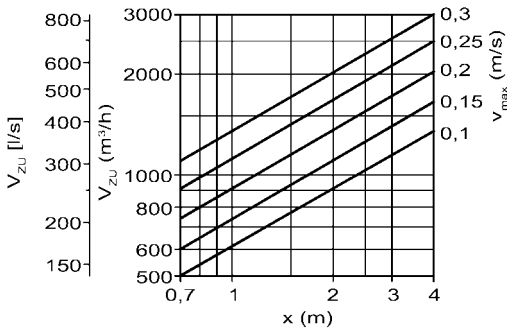




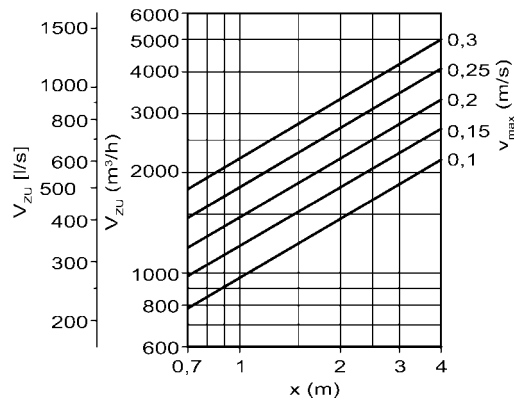
## QV / QH / QR

### displacement diffuser

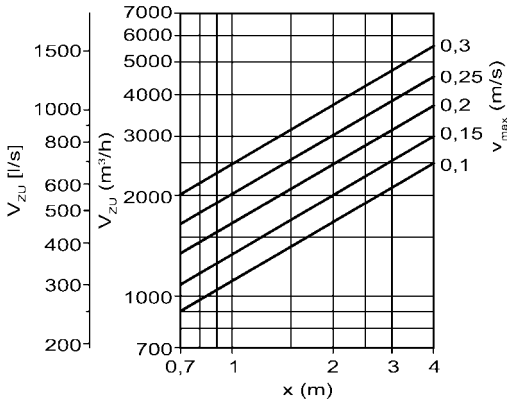
**QH ø 500**



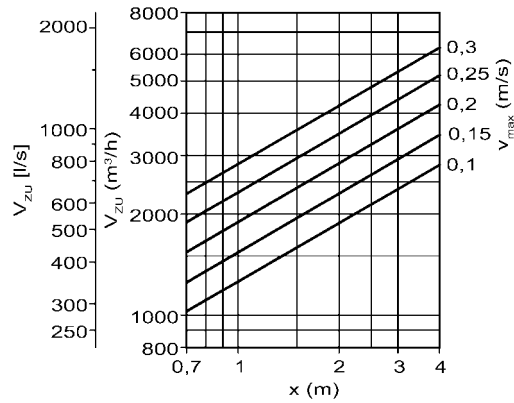
**QH ø 600**



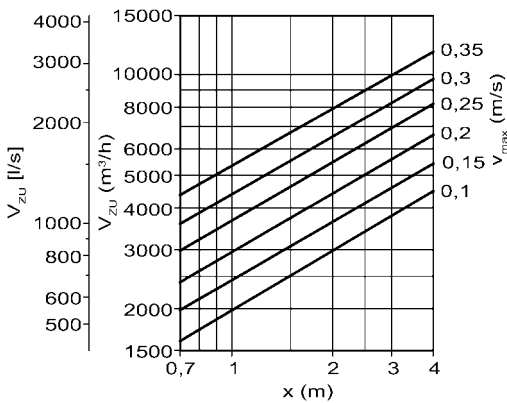
**QH ø 650**



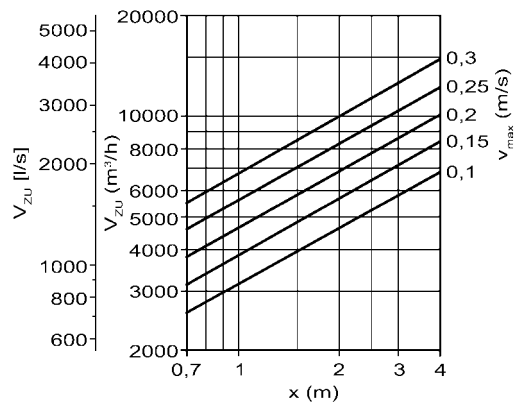
**QH ø 700**



**QH ø 830**



**QH ø 1000**

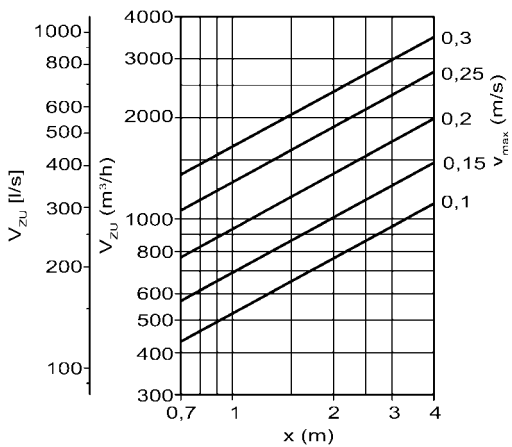




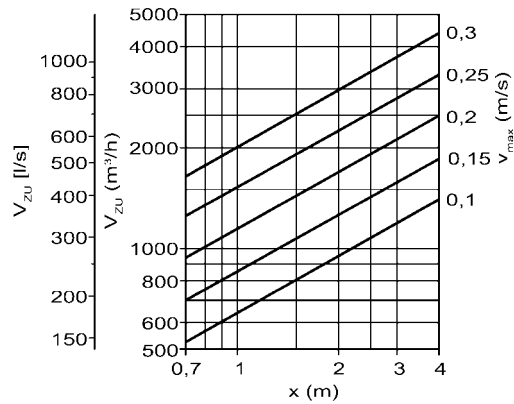
## QV / QH / QR

### displacement diffuser

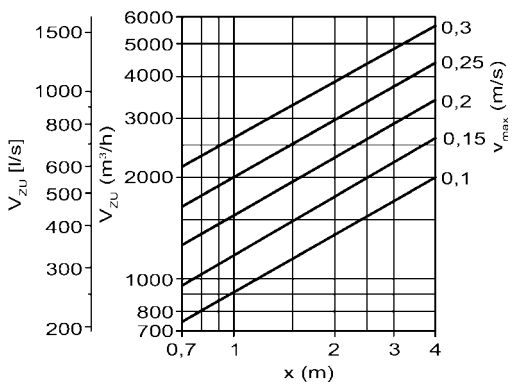
QR ø 250



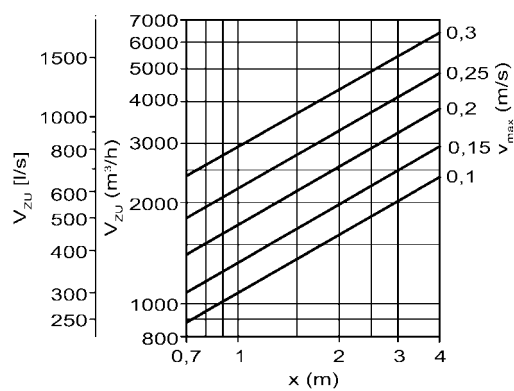
QR ø 300



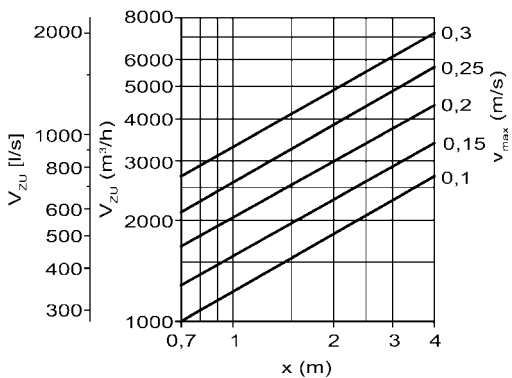
QR ø 400



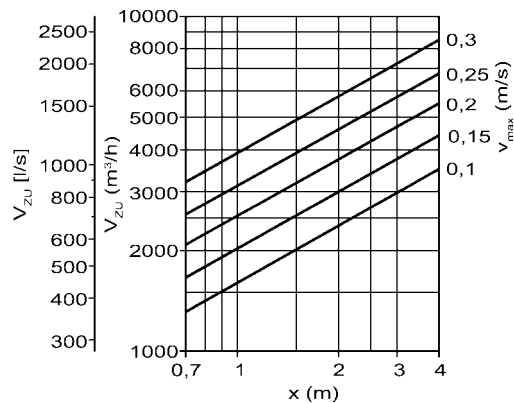
QR ø 450



QR ø 500



QR ø 600

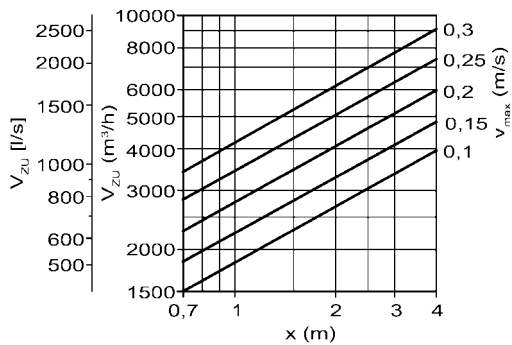




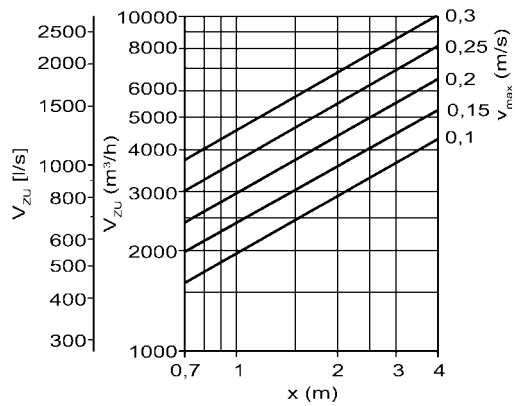
QV / QH / QR

## displacement diffuser

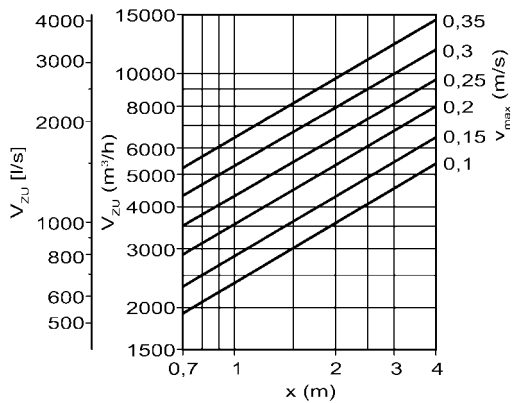
QR ø 650



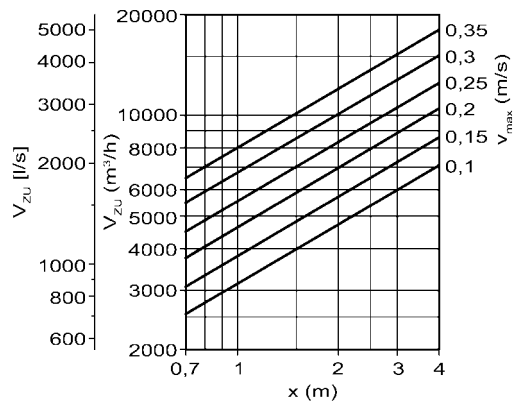
QR ø 700



QR ø 830



QR ø 1000



### correction factor for cooling mode

$\Delta T_o$ (K)	-1	-2	-3	-4
KF (-)	1,15	1,3	1,4	1,5

$$x_{cooling}(m) = x_{isothermal}(m) \times KF$$



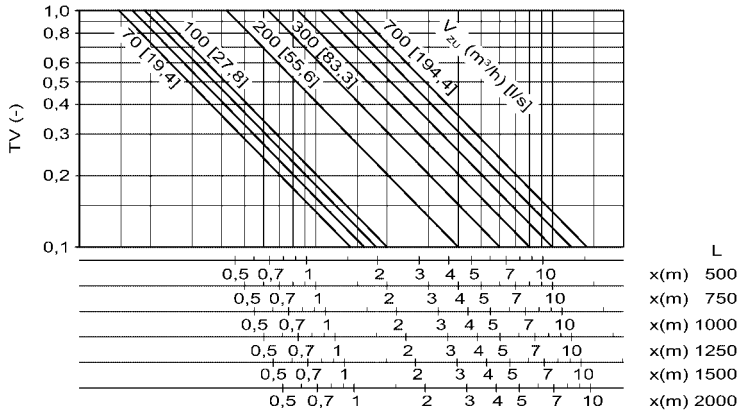
QV / QH / QR

## displacement diffuser

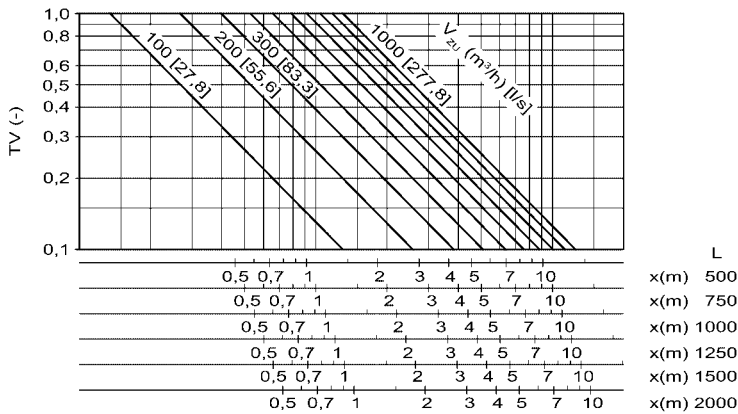
temperature ratio

diagrams are valid up to a mounting height of 0.25m from underside of the diffuser

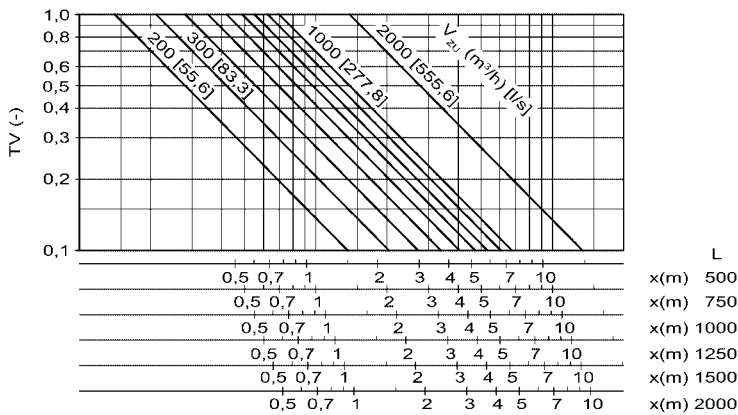
QV ø 250



QV ø 300



QV ø 400

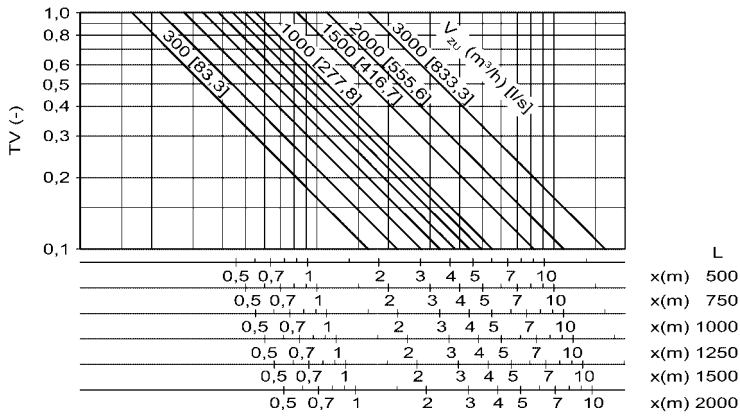




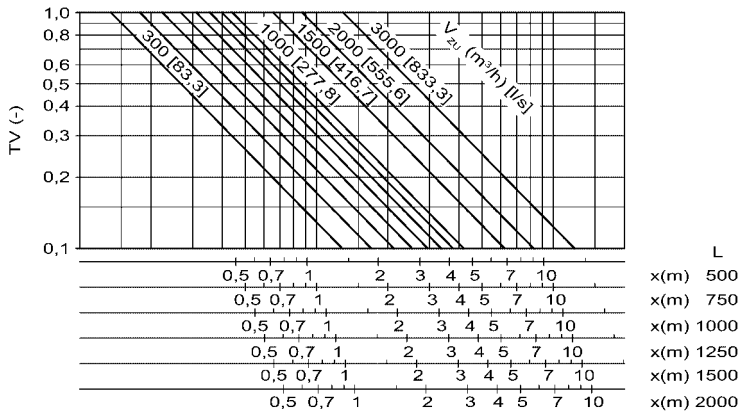
## QV / QH / QR

### displacement diffuser

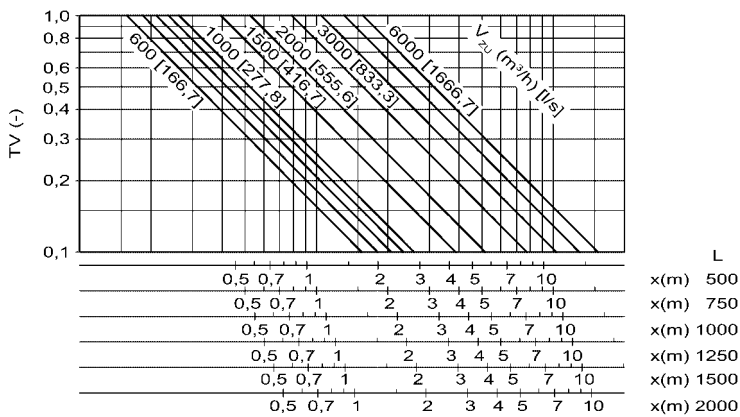
#### QV ø 450



#### QV ø 500



#### QV ø 600

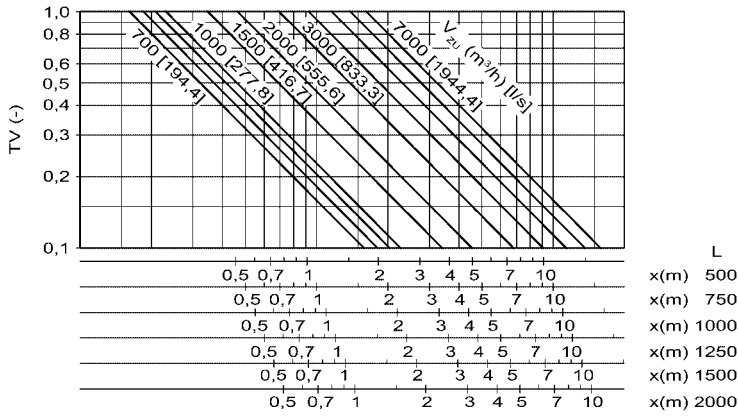




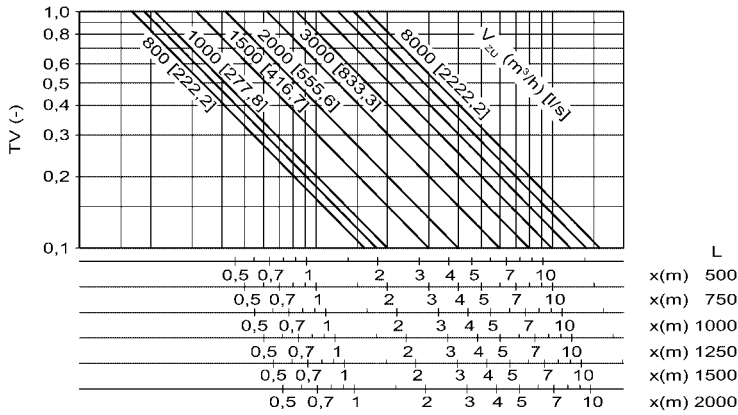
## QV / QH / QR

### displacement diffuser

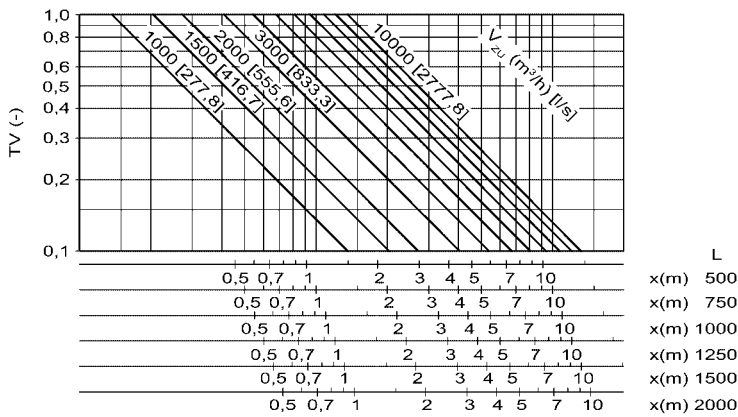
#### QV ø 650



#### QV ø 700



#### QV ø 830

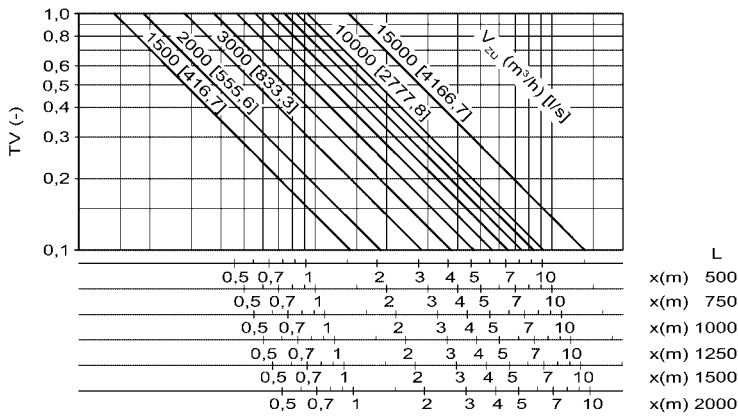




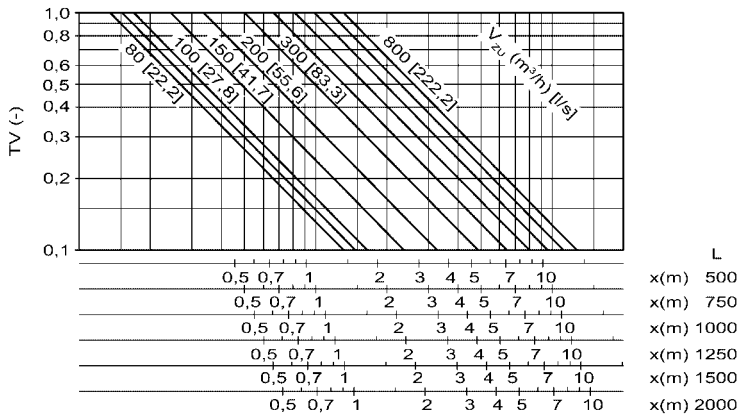
## QV / QH / QR

### displacement diffuser

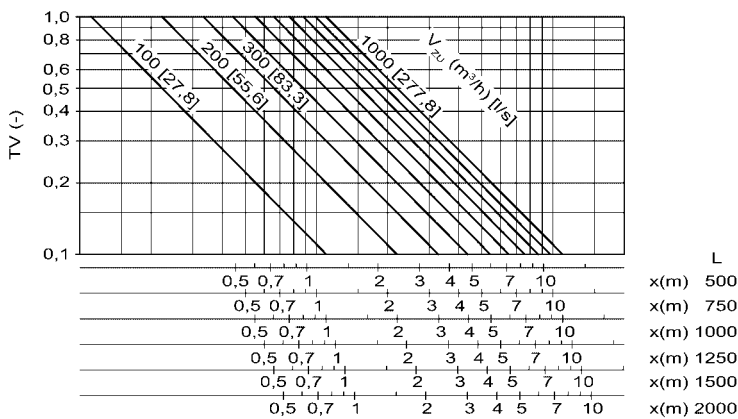
#### QV ø 1000



#### QH ø 250



#### QH ø 300

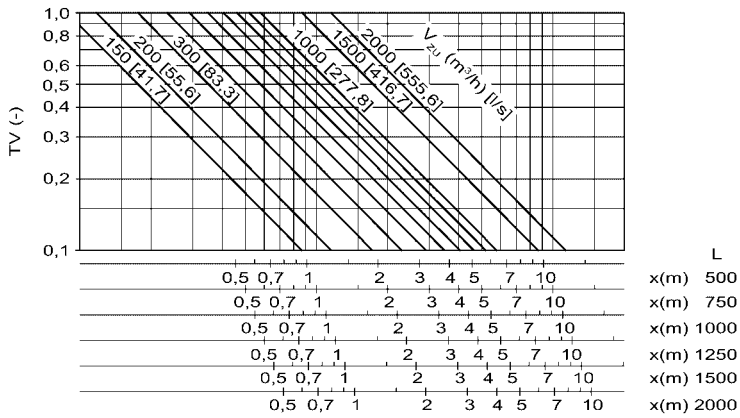




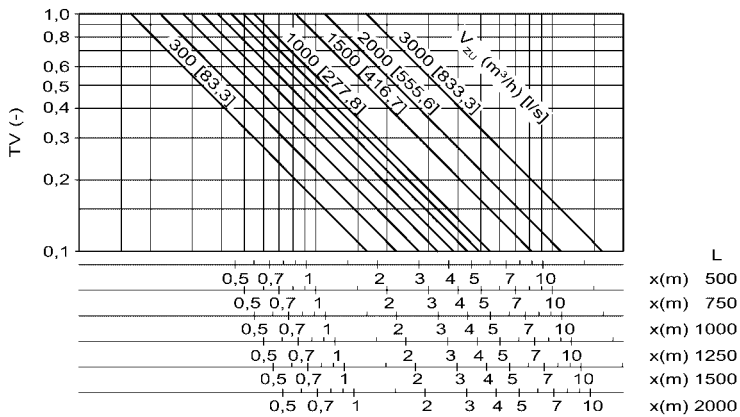
QV / QH / QR

## displacement diffuser

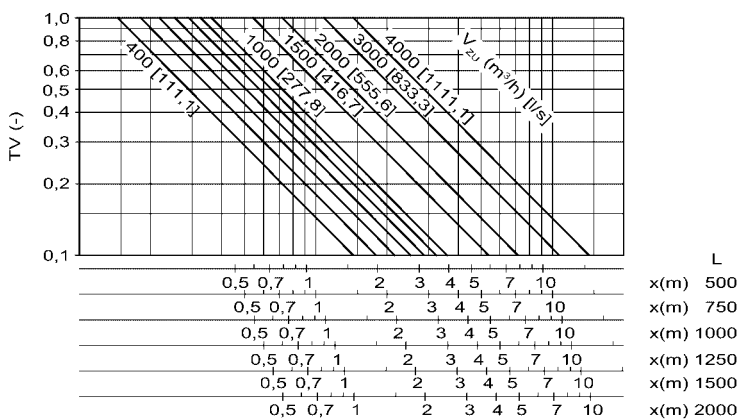
QH ø 400



QH ø 450



QH ø 500

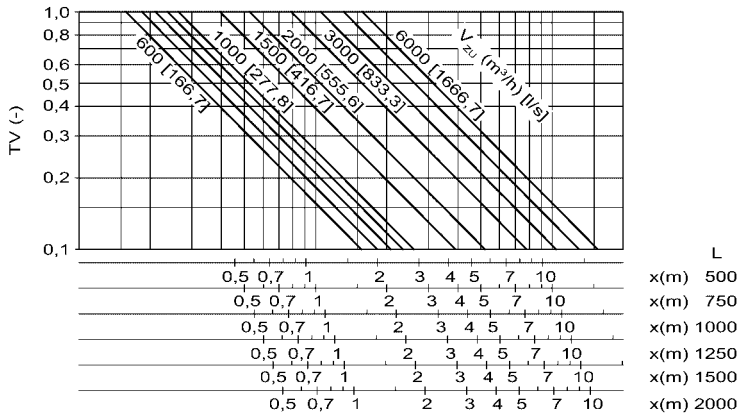




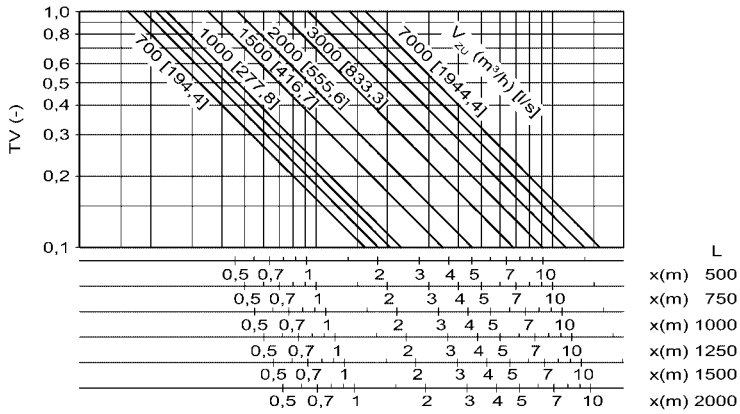
## QV / QH / QR

### displacement diffuser

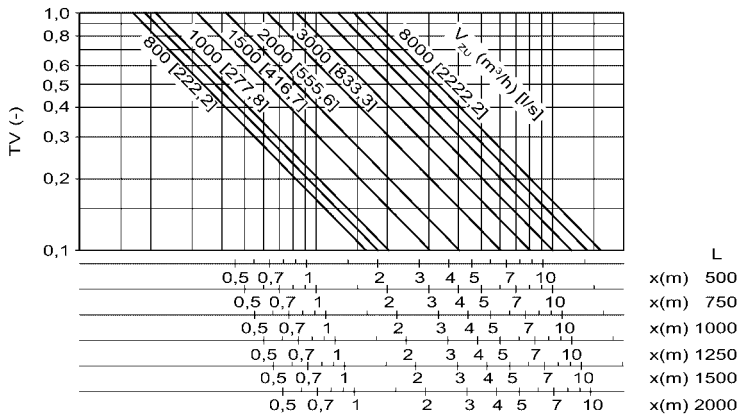
#### QH ø 600



#### QH ø 650



#### QH ø 700

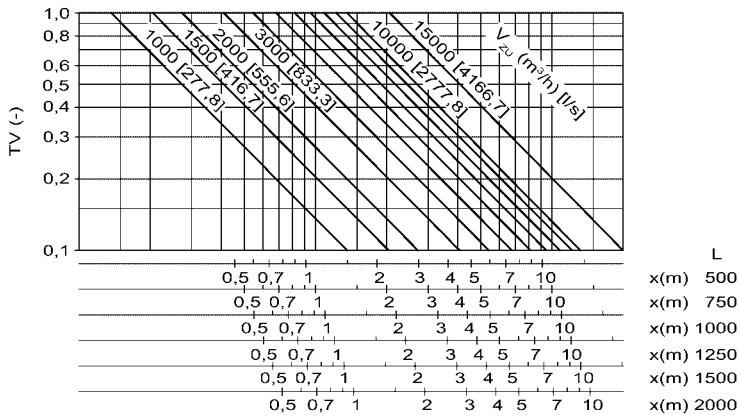




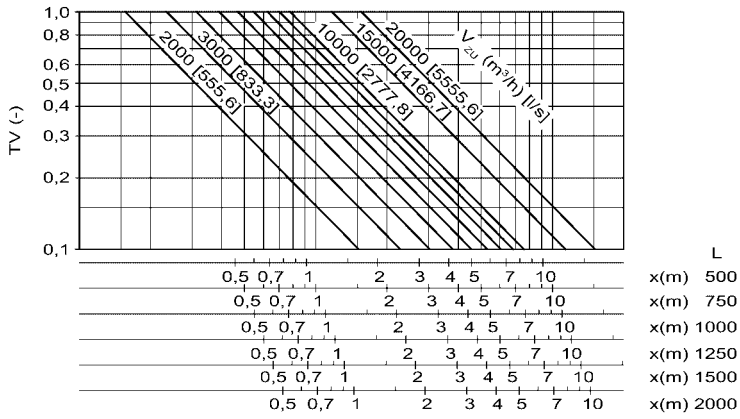
## QV / QH / QR

### displacement diffuser

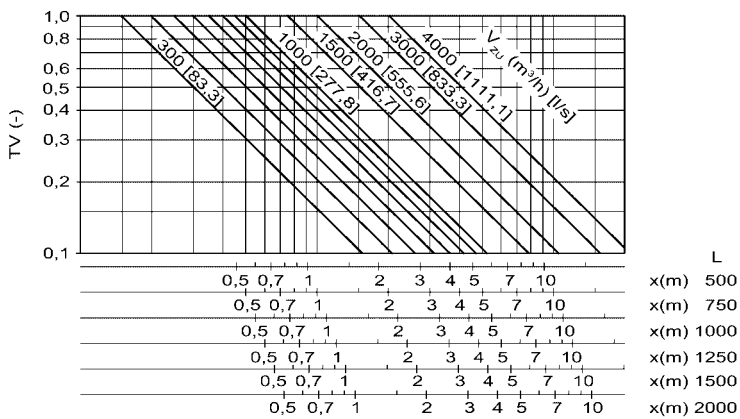
#### QH ø 830



#### QH ø 1000



#### QR ø 250

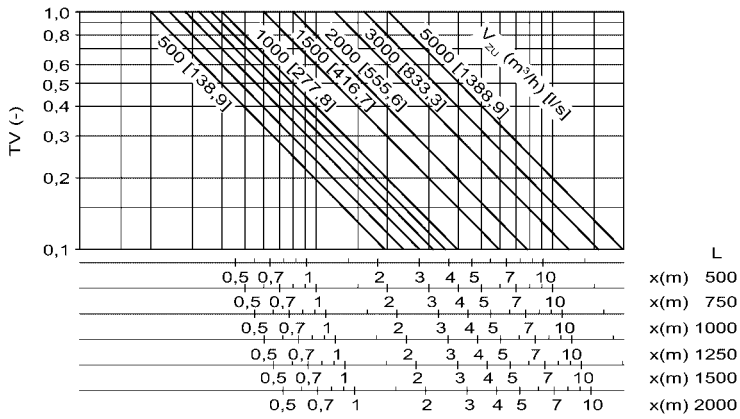




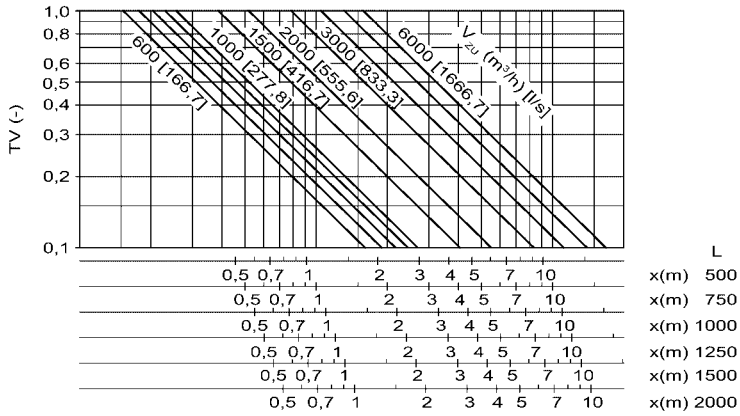
## QV / QH / QR

### displacement diffuser

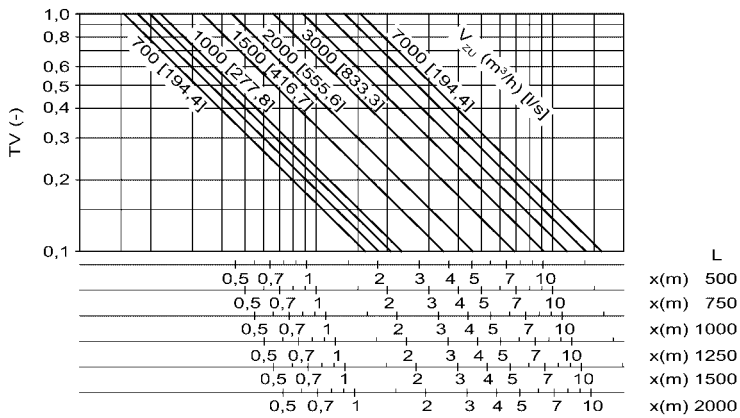
#### QR ø 300



#### QR ø 400



#### QR ø 450

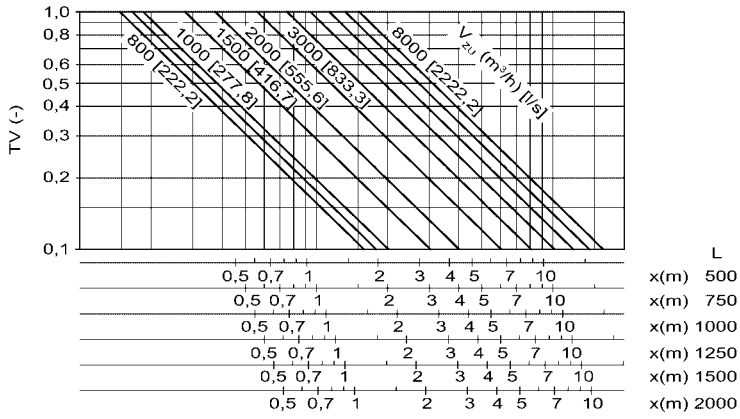




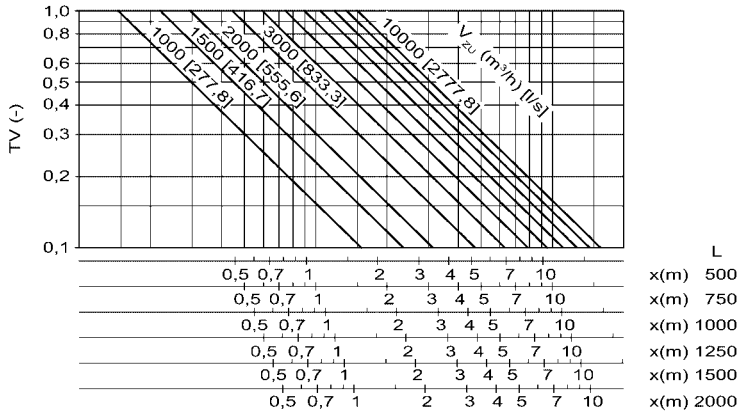
## QV / QH / QR

### displacement diffuser

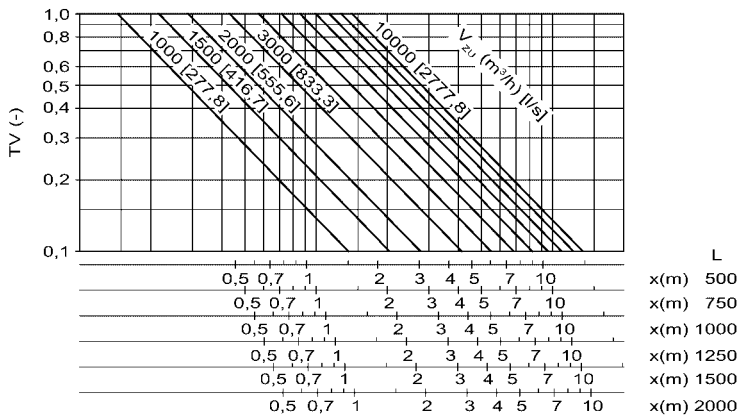
#### QR ø 500



#### QR ø 600



#### QR ø 650

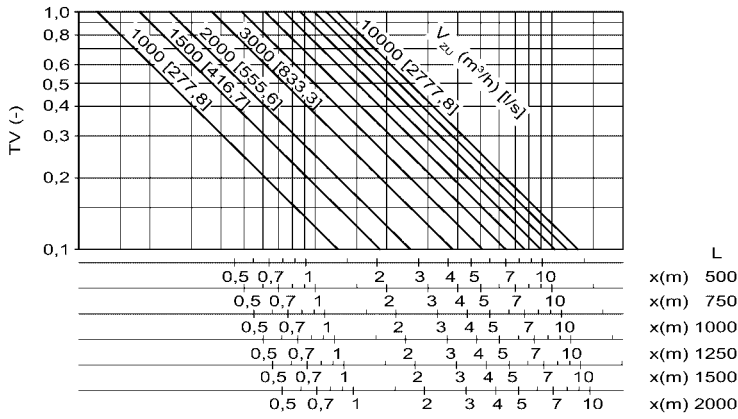




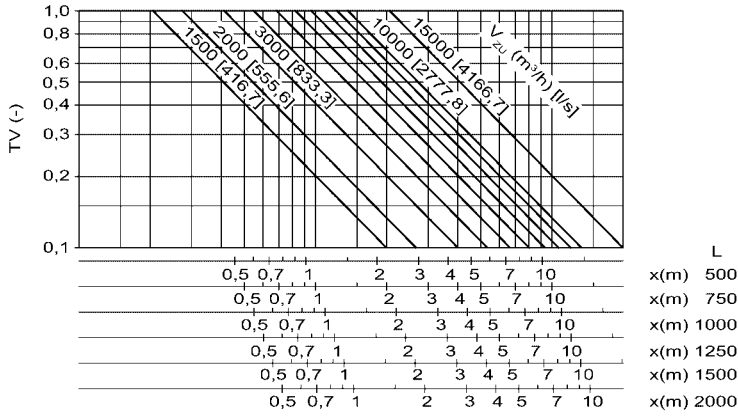
## QV / QH / QR

### displacement diffuser

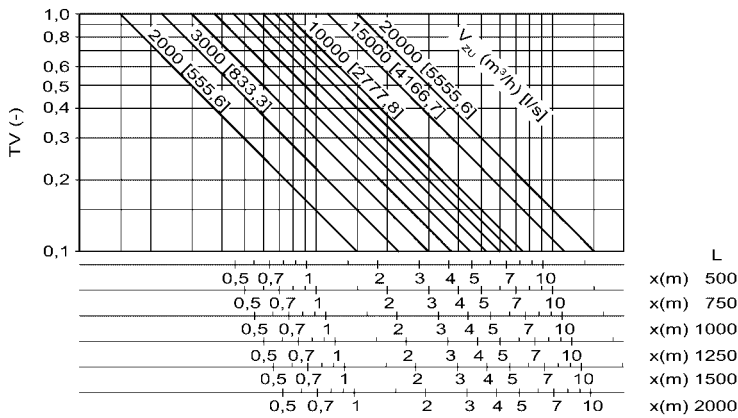
#### QR ø 700



#### QR ø 830



#### QR ø 1000





## QV / QH / QR

### displacement diffuser

#### legend

$V_{\text{supp}}$ ( $\text{m}^3/\text{h}$ )	=	supply air volume
$V_{\text{supp}}$ (l/s)	=	supply air volume
$\Delta T_o$ (K)	=	temperature difference between supply and room air temperature
$V_{\text{max}}$ (m/s)	=	maximum end velocity
x (m)	=	horizontal throw
KF (-)	=	correction factor
$\Delta p_1$ (Pa)	=	pressure loss
$\rho$ ( $\text{kg}/\text{m}^3$ )	=	density
$L_{\text{WA}}$ [dB(A)]	=	a weighted sound power level
TV (-)	=	temperature ratio
v (-)	=	vertical
L (mm)	=	length



**QV / QH / QR**

## **displacement diffuser**

### **specification texts**

displacement diffuser made from a removeable perforated face, with sheet steel spigot and base, with built in synthetic fibre filter pocket. class EU2.

- type QV, 90° throw, for corner installation  
manufacturer: SCHAKO type QV
- type QH, 180° throw, for wall and column installation  
manufacturer: SCHAKO type QH
- type QR, 360° throw, for mid-room installation  
manufacturer: SCHAKO type QR