

## Description and application

Swirl diffuser quadrilateral NWK-6, with the function of changing the direction of the ventilation, willingly used in the industry (production halls) and wherever to increase the level of comfort mentions a large amount of air. They have also the use in public buildings such as restaurants, conference rooms and hospitals, gym halls. Diffusers are mounted in conjunction with plenum box or directly on the ventilation ducts in suspended ceilings or directly under the ceiling. Change the direction of air flow from horizontal to vertical (pointing down), makes this diffuser especially useful in case the rapid heating-up (several times faster than in the case of horizontal ventilation) or efficient cooling-levels of airflow direction.

Changes in the direction of the airflow is followed by adjusting:

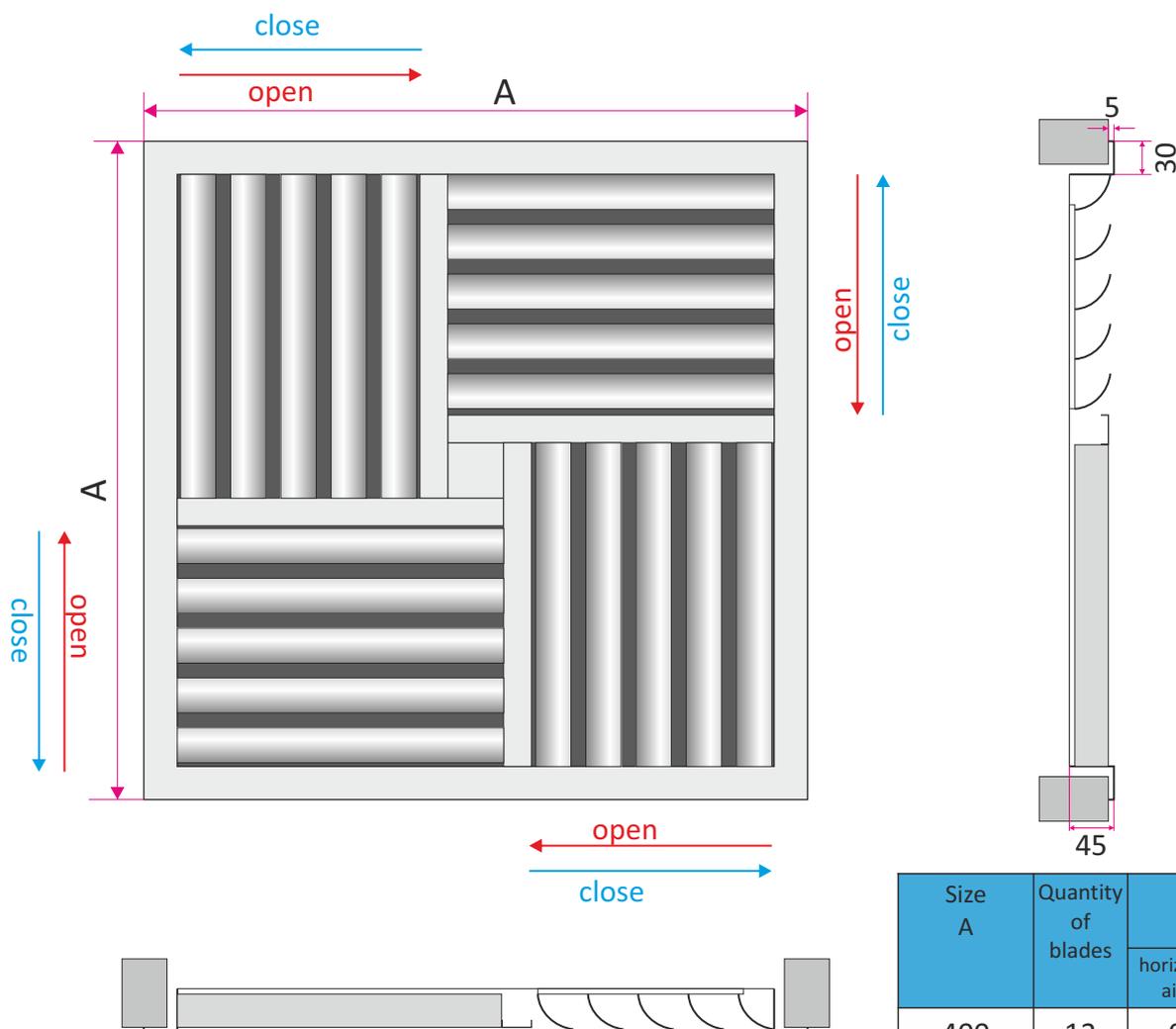
- a) manual (RR)
- b) Belimo LH actuator control (RS)

## Swirl diffuser has Hygienic Certificate

## Material and workmanship

Diffusers are made of galvanized steel powder coated, standard on the white color 9016 or on request to any color from the RAL palette and special execution of stainless steel or aluminum. The manufacturer reserves the right to make technological changes.

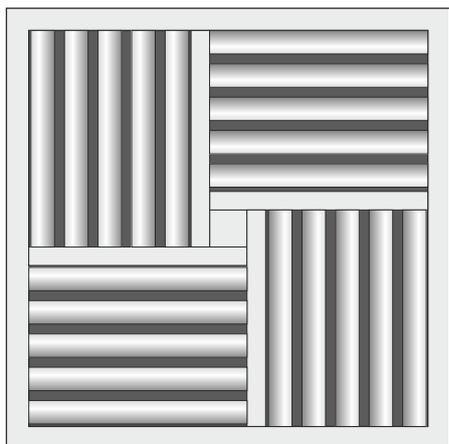
## Size



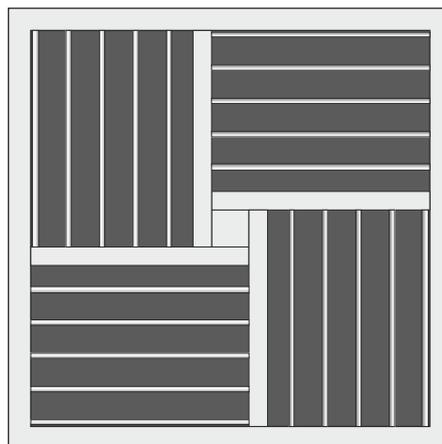
Size A	Quantity of blades	Aef (m <sup>2</sup> ) effective area of flow	
		horizontal supply air (cooling)	vertical supply air (heating)
400	12	0,0281	0,0848
595	20	0,0664	0,2289
750	24	0,1050	0,3581
1000	32	0,1992	0,6570

DIFFUSER OPERATING MODE NWK-6

1. cooling function



2. heating function



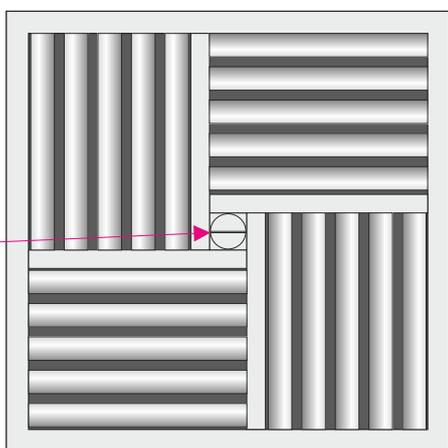
4x

4x

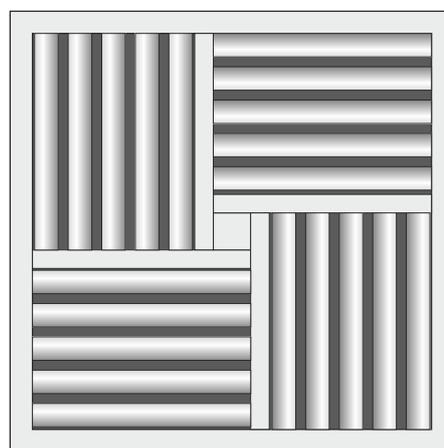
The method of regulation

1. manual adjustment RR

releasing the mechanism  
locking the mechanism



2. actuator control RS



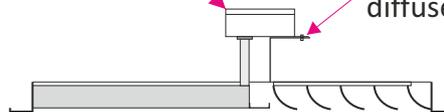
To change the blades you should:

- release the locking mechanism (2 turns →)
- set one of the blades at the proper angle (one blade sets the vanes all of the blocks)
- tighten locking mechanism (2 turns ←)



rotary actuator  
OPEN /CLOSE

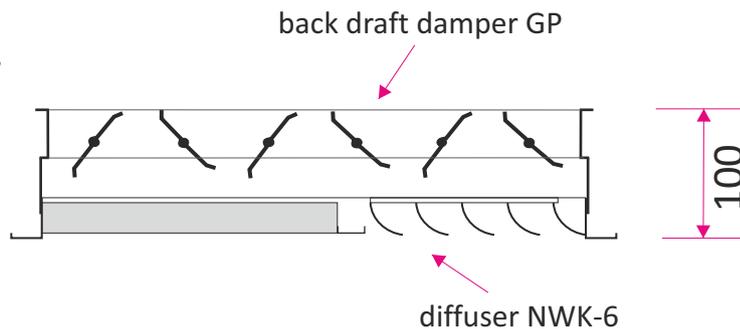
connection  
actuator with  
diffuser



## Accessories - back draft damper GP

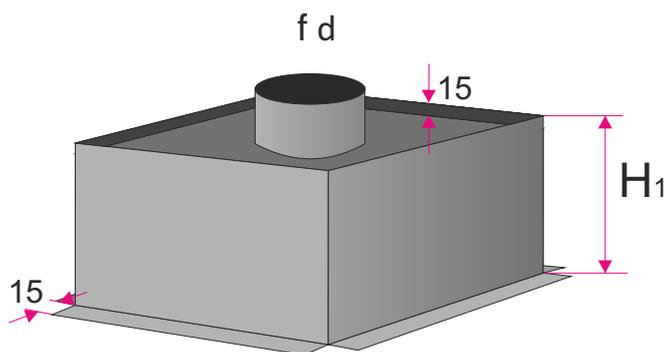
Swirl diffuser can also be equipped with a back draft damper, localized directly behind the blades.

Damper control is possible from the panel side in diffuser type with manual control RR.

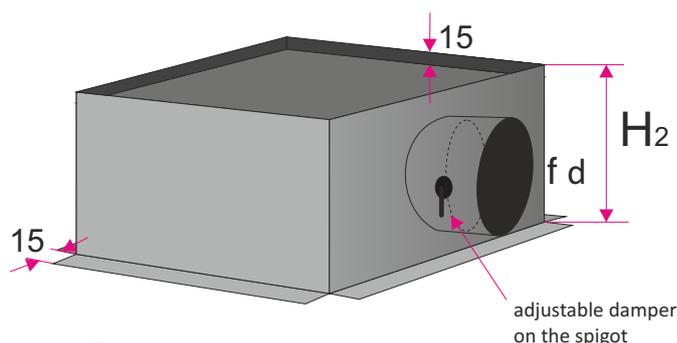


## Accessories- plenum box

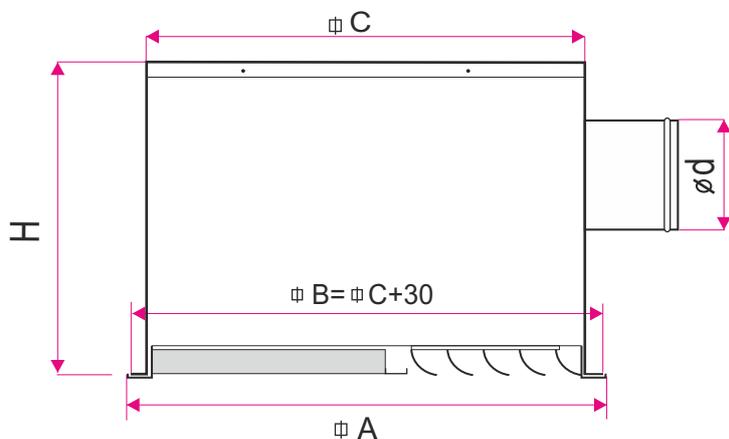
Plenum box is made of galvanized steel. On request it can be equipped with a damper control onto the connected spigot. The plenum box is isolated inside with rubber (acoustic) or outside with mineral wool (thermal). In the standard height of the plenum box is adapted to size of the spigot or diffuser size (you can specify the height of the plenum box).



Rectangular plenum box with the spigot on the top



Rectangular plenum box with the spigot on the side

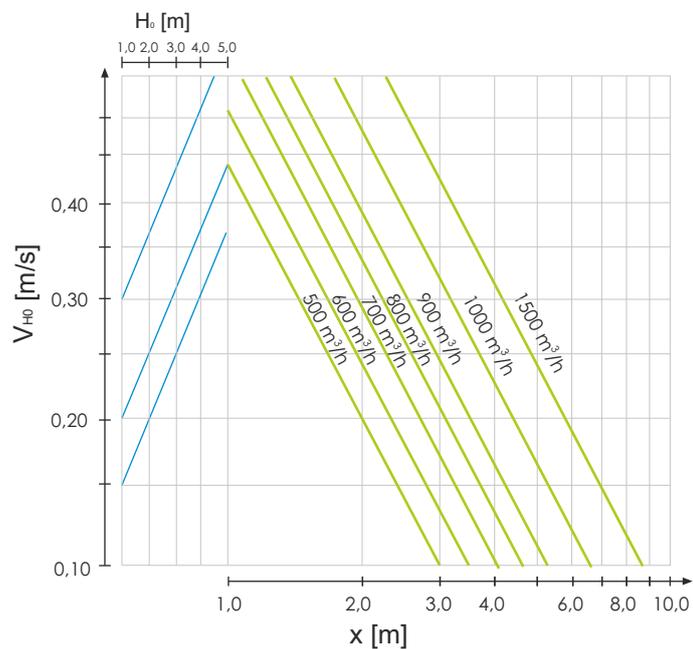


Size A	C	H1	H2	f d
400x400	365x365	310	280	158
595x595	560x560	310	330	248
750x750	715x715	310	330	248
1000x1000	965x965	310	380	313

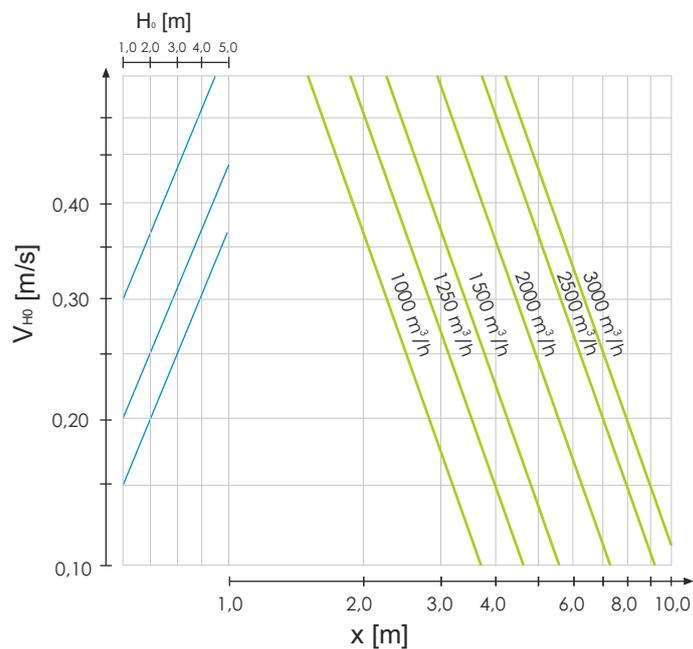
Other sizes are produced on customer request

## Dependence of the air speed from stream range

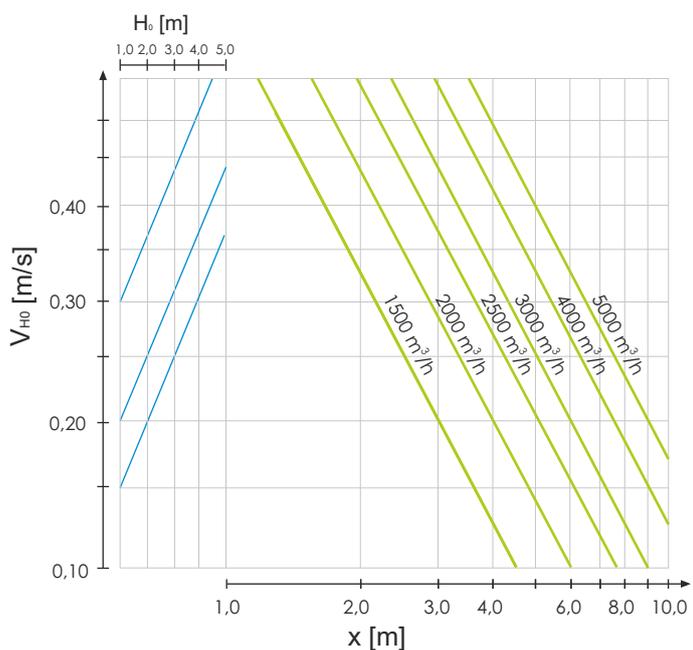
**Size: 400**



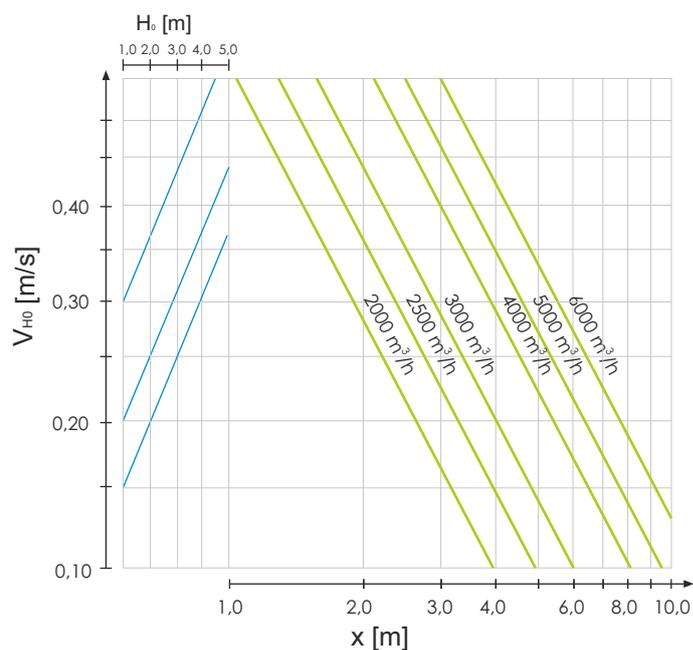
**Size: 595**



**Size: 750**



**Size: 1000**



### Marking:

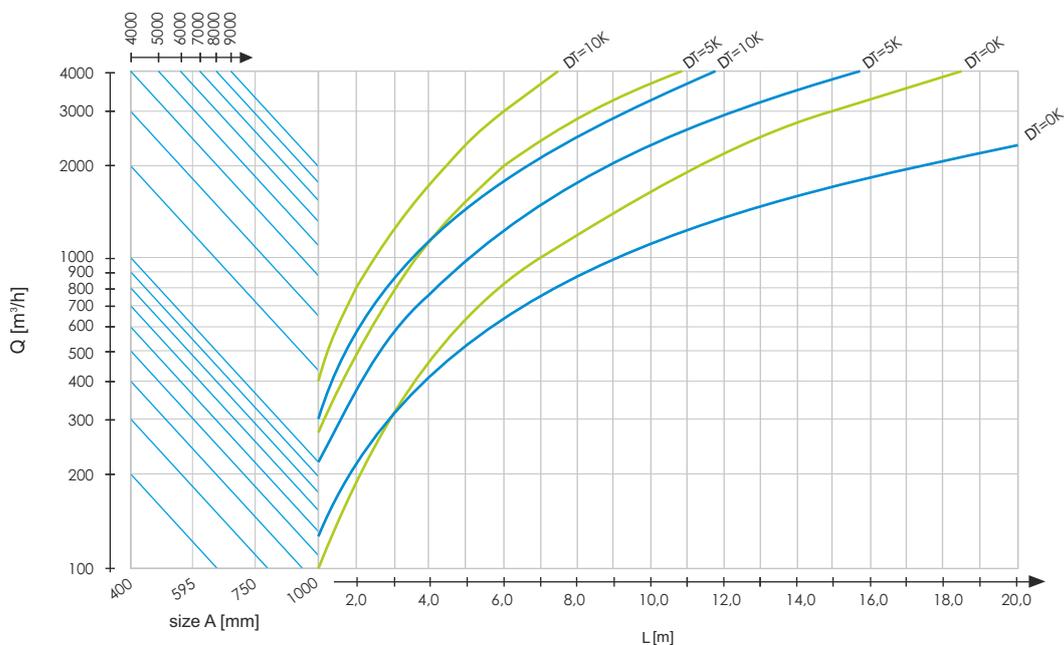
$H_0$  [m] - distance from the ceiling to the occupied zone

$Q$  [ $m^3/h$ ] - air volume flow

$V_{H_0}$  [m/s] - speed of air stream at a distance off  $H_0$

$x$  [m] - the distance between diffusers

The dependence of air flow from the maximum flow range and the difference of temperature between the air in the room and supply air



**Marking:**

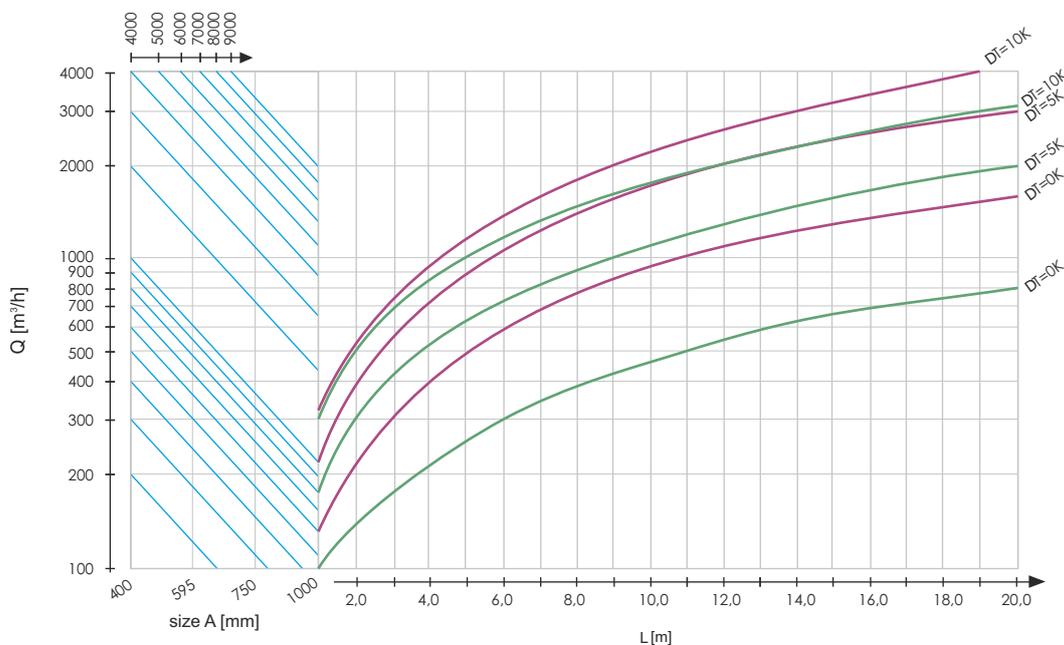
Q [m<sup>3</sup>/h] - air volume flow

L[m] - air stream range

DT[K] - difference of air temperature in the room and supply air

setting the blades 45°

setting the blades 60°



**Marking:**

Q [m<sup>3</sup>/h] - air volume flow

L[m] - air stream range

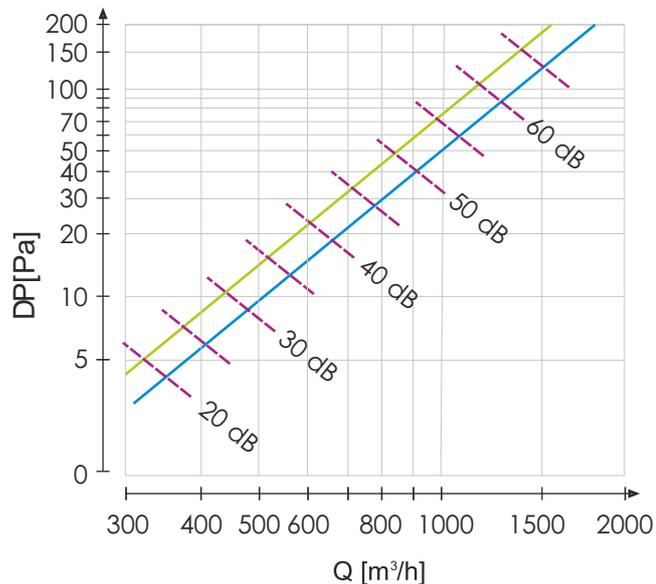
DT[K] - difference of air temperature in the room and supply air

setting the blades 75°

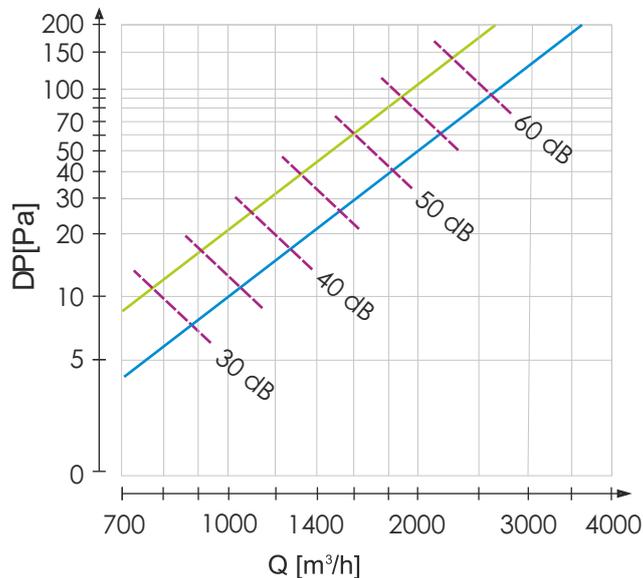
setting the blades 90°

## PRESSURE DROP AND ACOUSTIC POWER

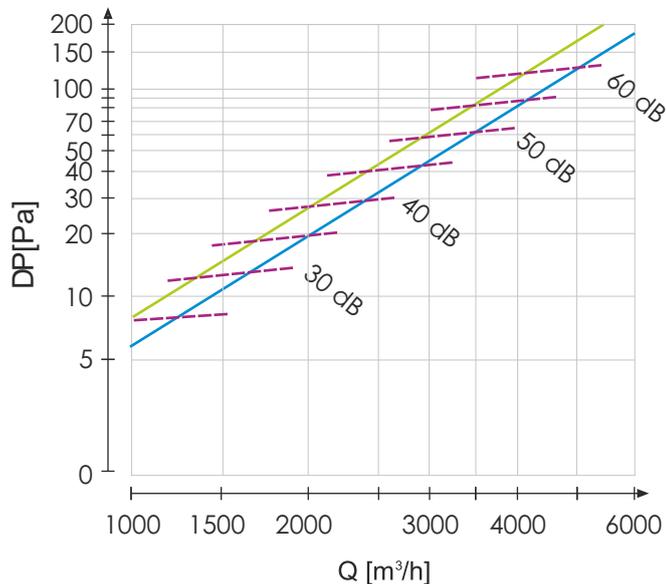
**Size : 400**



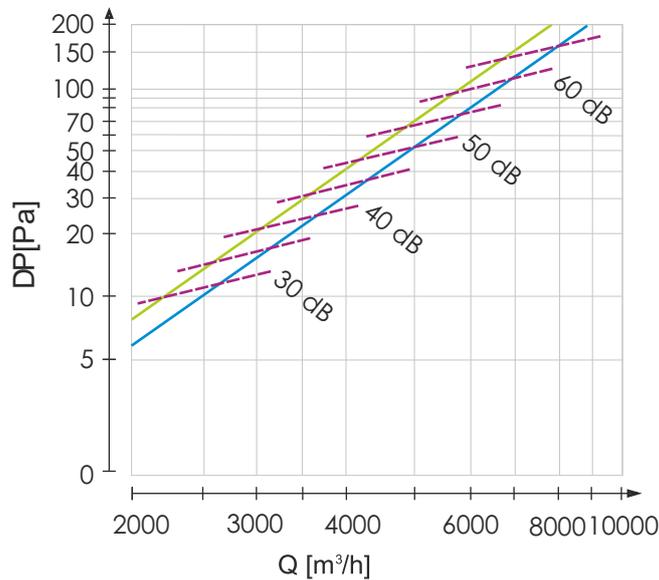
**Size : 595**



**Size : 750**



**Size : 1000**



**Marking::**

[dB(A)] - sound level  
 Q [m³/h] - air volume flow  
 DP [Pa] - pressure drop

spigot on the top ————  
 spigot on the side ————

## EXAMPLE

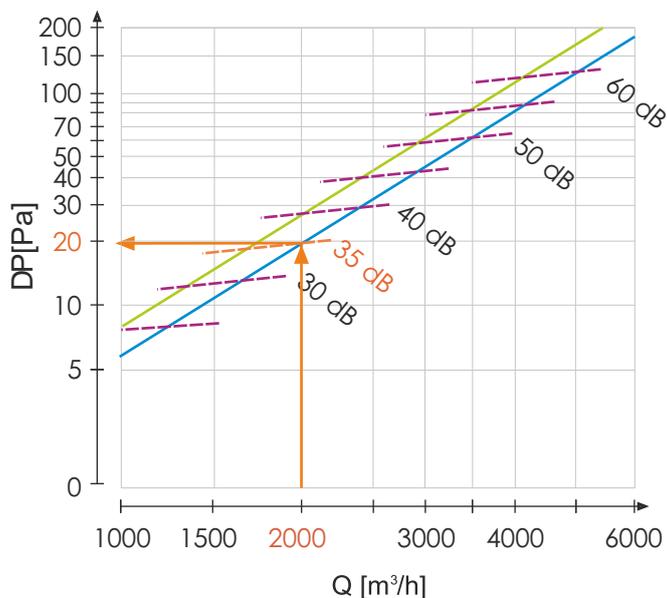
### Data:

air flow attributable to one diffuser: 2000 m<sup>3</sup>/h  
 mounting: spigot the top  
 height of the room: 4,8m  
 distance from the ceiling to the occupied zone H<sub>0</sub>=3,0 m  
 desired speed in the occupied zone V<sub>H0</sub>=0,2 m/s  
 temperature in the room: 18°C  
 temperature of supply air: 23°C (heating → vertical ventilation → the angle of the blades 75°)

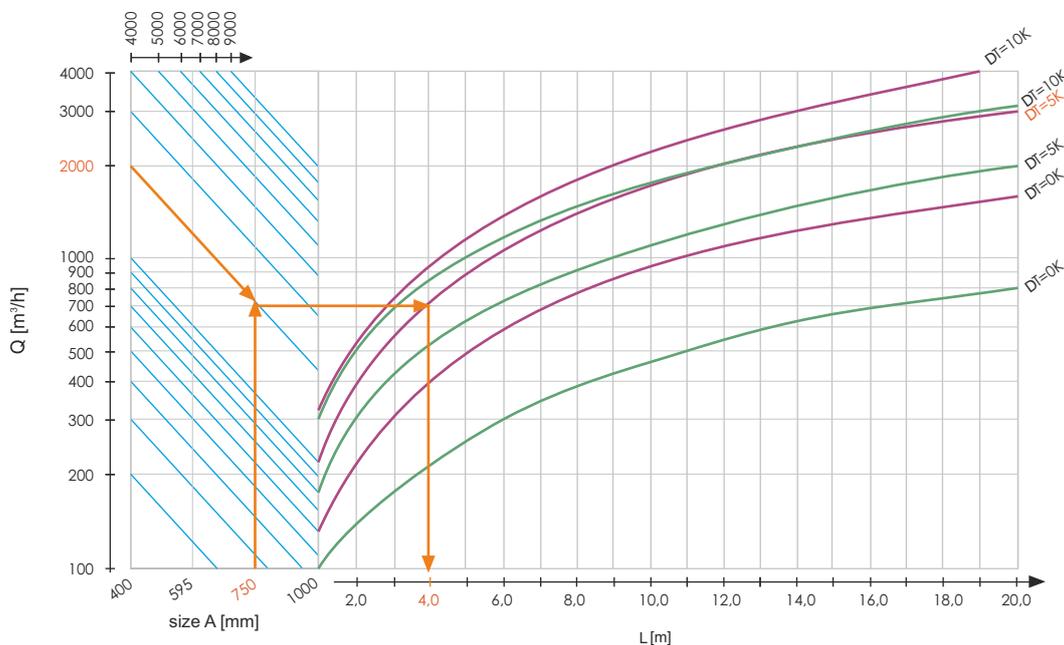
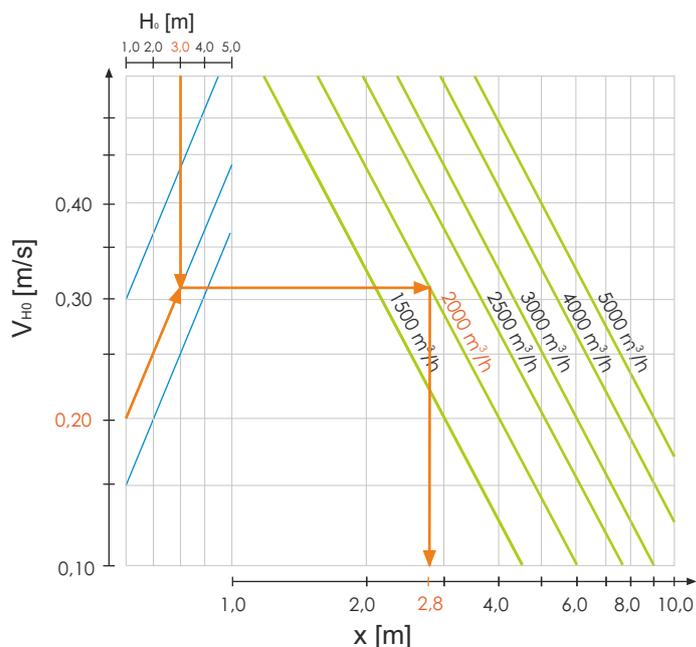
### Reading from the graph:

Selected anemostat: 750  
 Distance between diffusers 2,8 m.  
 Air stream range 4,0 m.  
 Pressure drop : 20 Pa  
 Sound level: 35 dB

### Size : 750



### Size : 750



## The method of placing an order

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Please make orders according to the following formula:

**NWK-6 / 'R' / 'AxA' / 'RAL' / 'M' / 'W' + 'SR' / 'I' / 'P' / 'K' / 'H'**

'R'	the method of adjusting the diffuser: <b>RR</b> - manual adjustment <b>RS</b> - Belimo LH actuator control (actuator on request)
'AxA'	the size of the diffuser: <b>400, 595, 750, 1000</b>
'RAL'	diffuser color according to RAL palette (standard RAL9016*)
'M'	material: <b>ST</b> - powder coated steel* <b>AL</b> - aluminum powder coated <b>KO</b> - stainless steel / acid proof steel (type 1.4301 or 1.4404)
'W'	mounting option: <b>W1</b> - mounting screws through the mounting holes in the diffuser frame
'SR'	plenum box: <b>SR-G</b> - plenum box with top spigot connection <b>SR-B</b> - plenum box with side spigot connection
'I'	isolation: <b>none</b> - plenum box without isolation* <b>Iz</b> - outside isolation (thermal) <b>Iw</b> - inside isolation (acoustic)
'P'	adjustment damper at spigot connection: <b>none</b> - no damper* <b>P</b> - damper on spigot connection adjustable from the outside <b>PP</b> - damper on spigot connection adjustable from the inside
'K'	diameter spigot connection in size mm
'H'	the height of the plenum box in mm*

\* - If you do not give the information will be used standard parameters.