# Round swirl diffuser NWO-12

## Description and application

Round swirl diffusers NWO-12, 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. Diffusers are mounted in conjunction with plenum box or directly on the ventilation ducts in ceilings or directly under the ceiling. Change the direction of the flow of air 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.

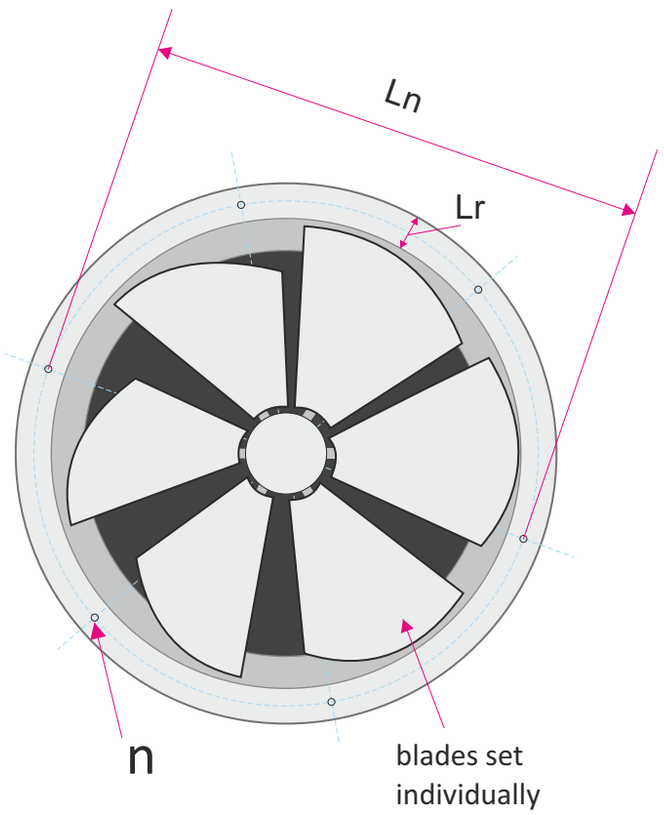
Changing the direction of the airflow is manually and individually for each blade.
With such a possibility diffuser NWO-12 can operate both in cooling function and heating.

**Diffusers have the Hygienic Certificate HK/K/0522/01/2016**

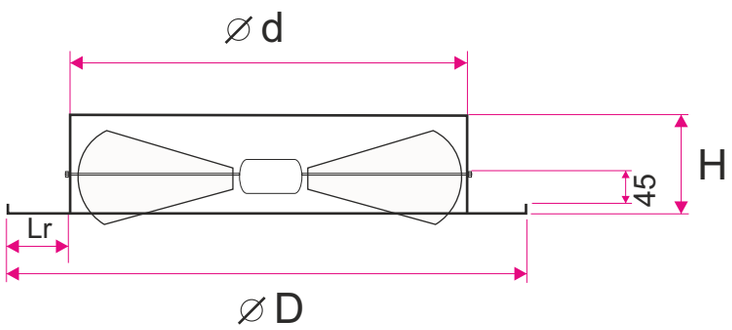
## Material and workmanship

Diffusers are made of galvanised sheet steel powder coated, standard on the white color 9016 or on request to any color from the RAL palette. On request can be made of stainless steel or aluminum.
Ceiling diffusers NWO-12 can be equipped with modular plate, for example size 595x595mm adapted for installation in ceiling suspended.

## Size



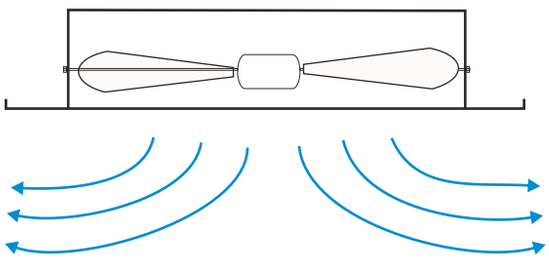

The height of the diffuser can be increase in the case of variant installation with crossbar **W2** (ok.+30mm)



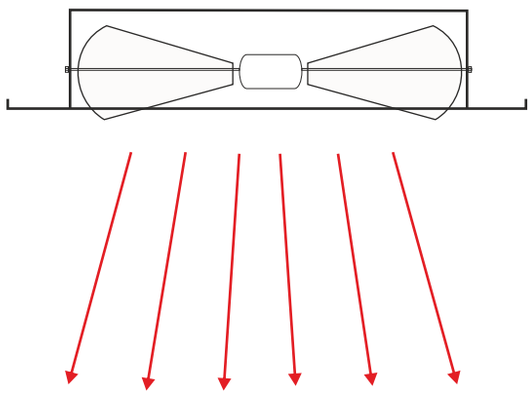

| Size | Lr | n | Ln | ϕd | ϕD | H |
|---|---|---|---|---|---|---|
| **200** | 30 | 6 | 225 | 195 | 255 | 120 |
| **250** | 30 | 6 | 275 | 245 | 305 | 120 |
| **315** | 30 | 6 | 340 | 310 | 370 | 120 |
| **355** | 30 | 6 | 380 | 350 | 410 | 120 |
| **400** | 40 | 6 | 435 | 395 | 475 | 120 |
| **500** | 60 | 6 | 555 | 495 | 615 | 120 |
| **630** | 60 | 6 | 685 | 625 | 745 | 120 |
| **710** | 70 | 6 | 775 | 705 | 845 | 120 |
| **800** | 70 | 6 | 865 | 795 | 935 | 120 |
| **1000** | 90 | 6 | 1085 | 995 | 1175 | 120 |

# OPERATING MODE OF DIFFUSER NWO-12

A) cooling function

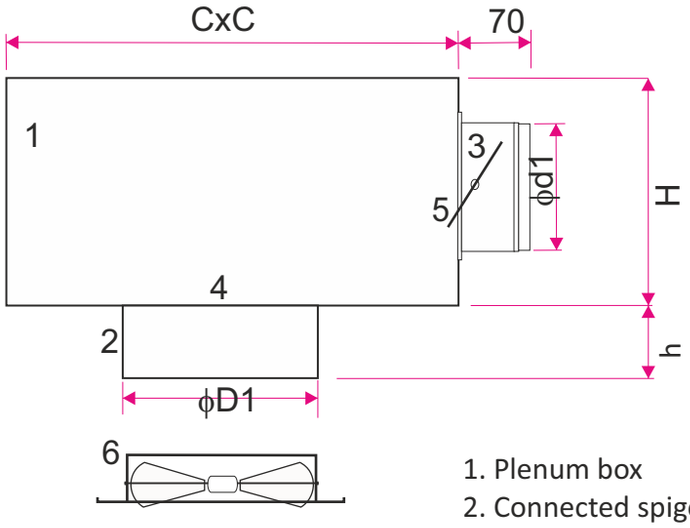


B) heating function



## 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 box can be lined on the inside or outside with rubber insulation or mineral wool.
The box can also include a measurement tip.



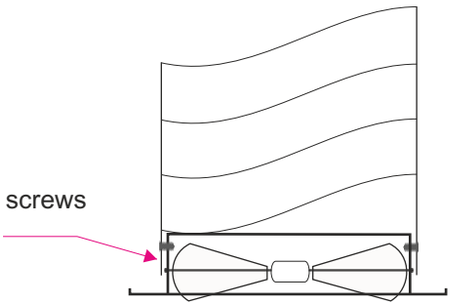

| Size | C | H | ϕd1 | ϕD1 |
|---|---|---|---|---|
| **200** | 400 | 280 | 158 | 200 |
| **250** | 400 | 280 | 198 | 250 |
| **315** | 580 | 330 | 248 | 315 |
| **355** | 580 | 330 | 248 | 355 |
| **400** | 590 | 380 | 313 | 400 |
| **500** | 700 | 380 | 313 | 500 |
| **630** | 800 | 595 | 398 | 630 |
| **710** | 900 | 595 | 398 | 710 |
| **800** | 1000 | 595 | 398 | 800 |
| **1000** | 1250 | 595 | 398 | 1000 |

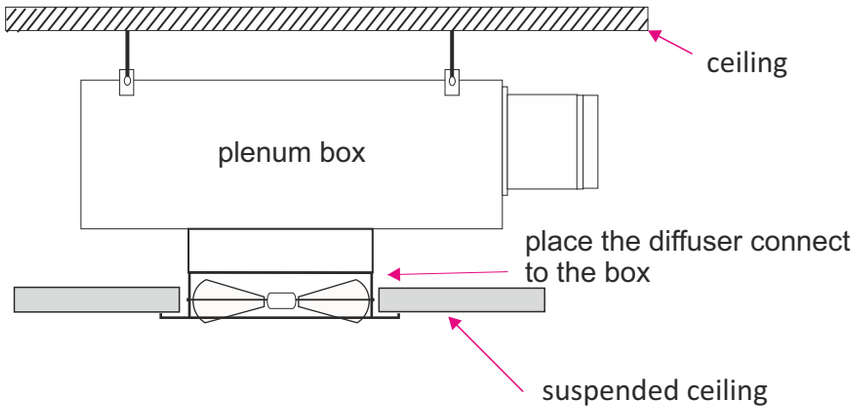
1. Plenum box
2. Connected spigot
3. Air intake spigot
4. Crossbar
5. Control damper ?
6. Round swirl diffuser NWO-12

## Methods of mounting

Swirl round diffusers NWO-12 can be fitted directly on a circular duct using self-drilling screws (variant W1), or using screws at the back of the diffuser mounted in the channel / box crosspiece (variant W2).
The diffuser can also be screwed to the ceiling through the mounting holes in the diffuser frame(variant of W3).

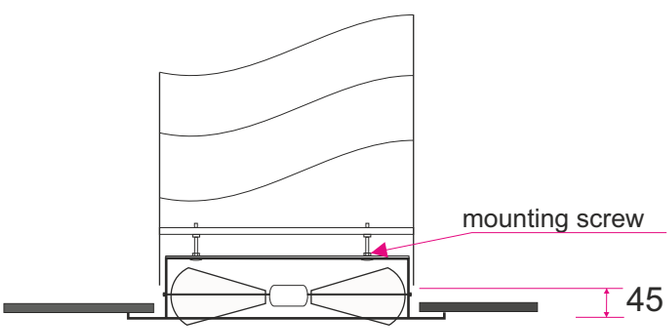
### W1




Mounting screws directly into the duct round or spigot connection plenum box.

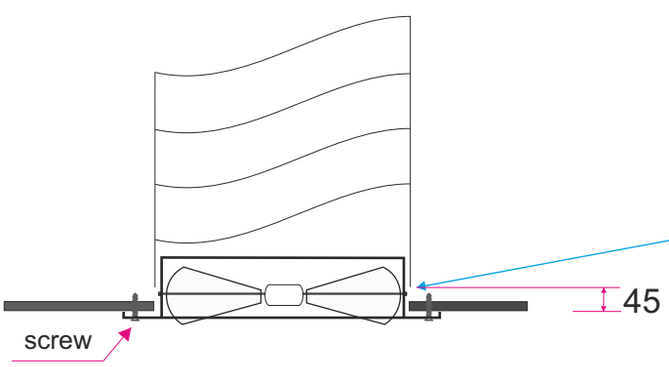
### W2

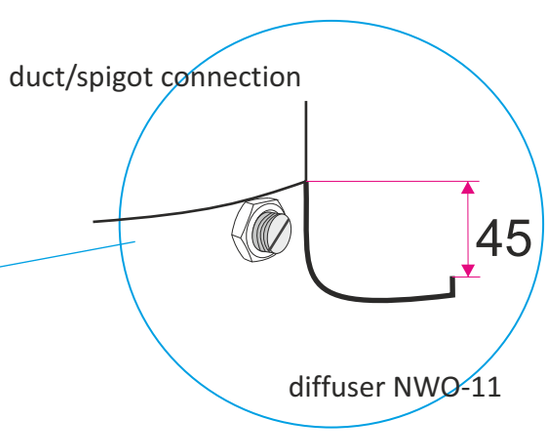



**ATTENTION**
**For dimensions of 710, 800, ... mounted in the ceiling, is used exclusively variant assembly W3 (mounting holes in the frame)**

Screw mounting placed
inside the diffuser to a fastening strip
round duct or spigot connection plenum box .
Fixing is possible at max. the opening of the blades
the diffuser.

### W3

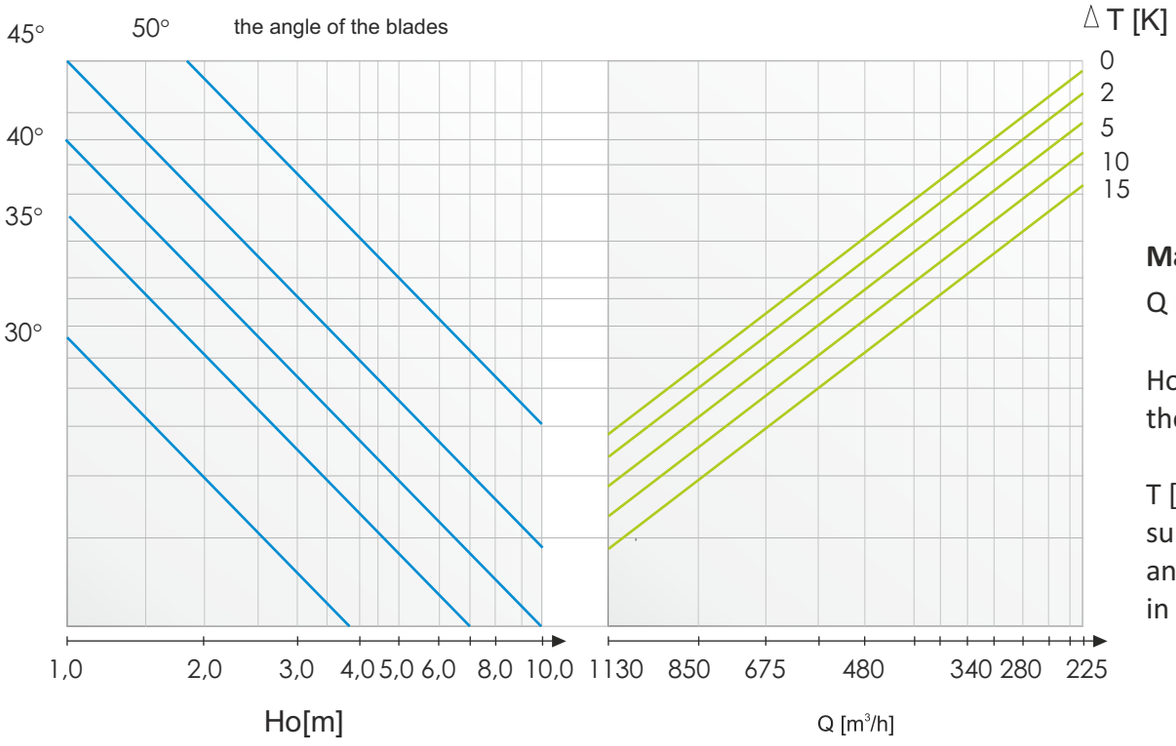



Screw mounting
directly to the plate

## The angle of the blades depending on the height of the room, temperature and air stream (cooling)

## Round swirl diffuser NWO-12 Dn-250 COOLING



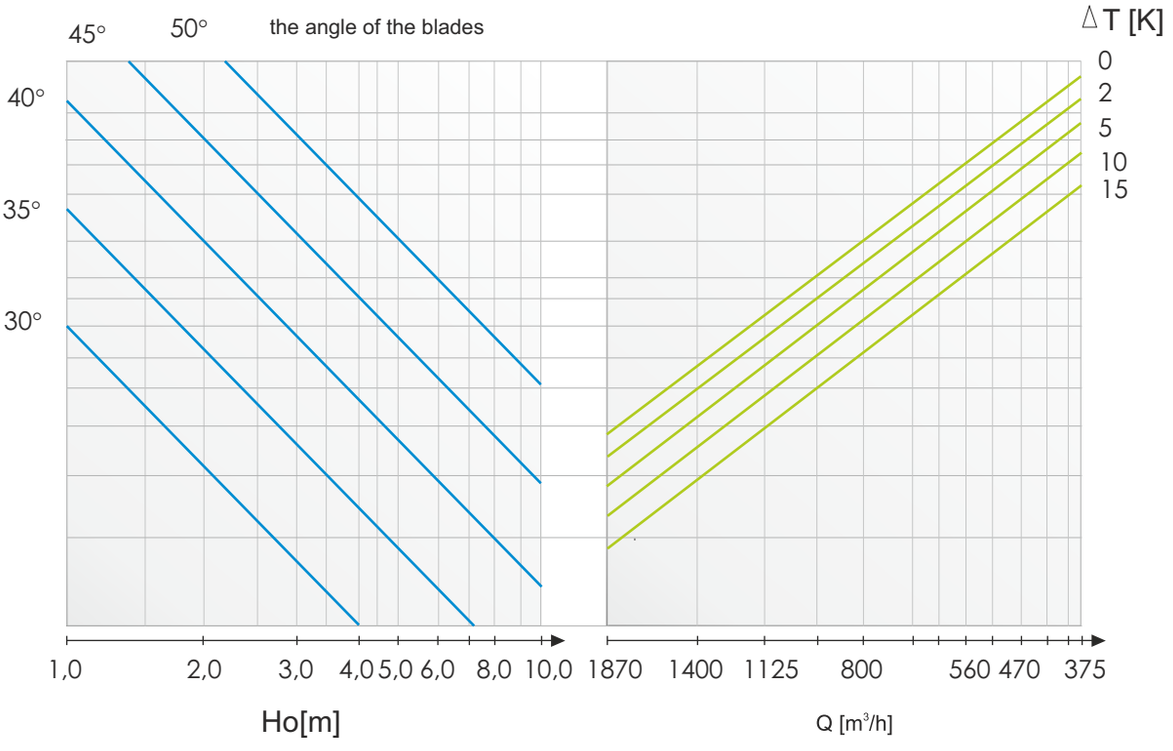

**Marking:**

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

Ho [m] - the distance to the presence of people

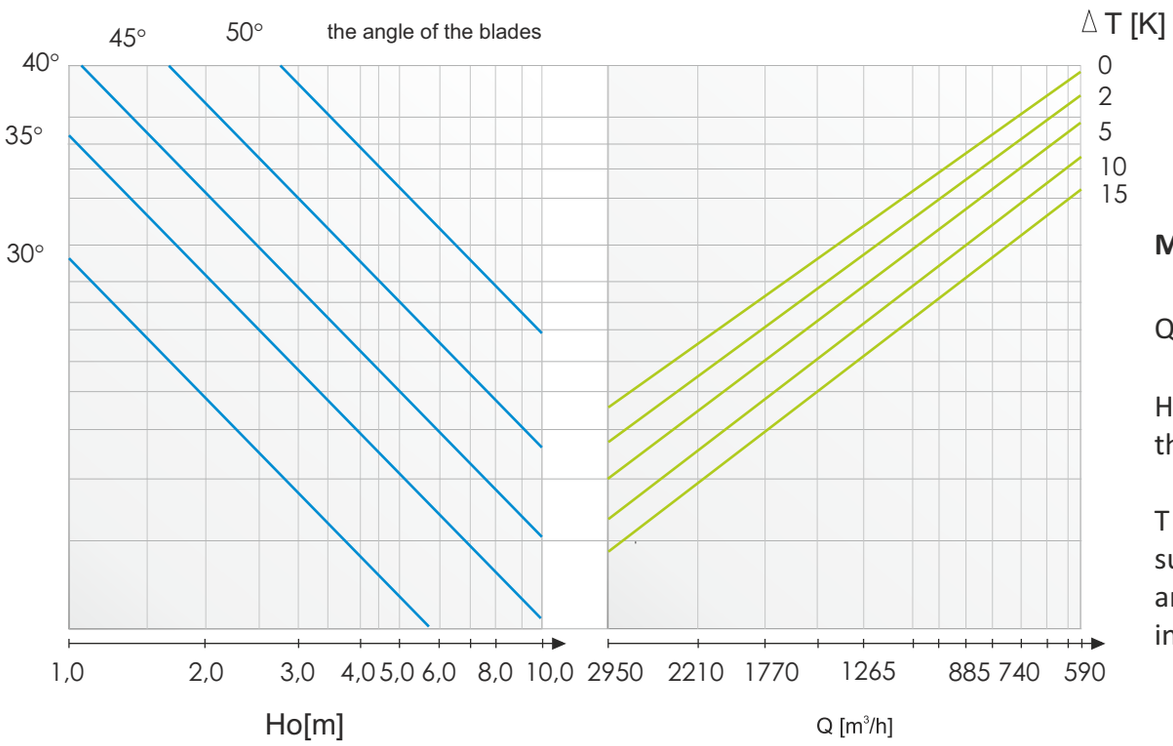
T [K] - difference between supply air temperature and the temperature in the room

## Round swirl diffuser NWO-12 Dn-315 COOLING



## The angle of the blades depending on the height of the room, temperature and air stream (cooling)

## Round swirl diffuser NWO-12 Dn-400 COOLING



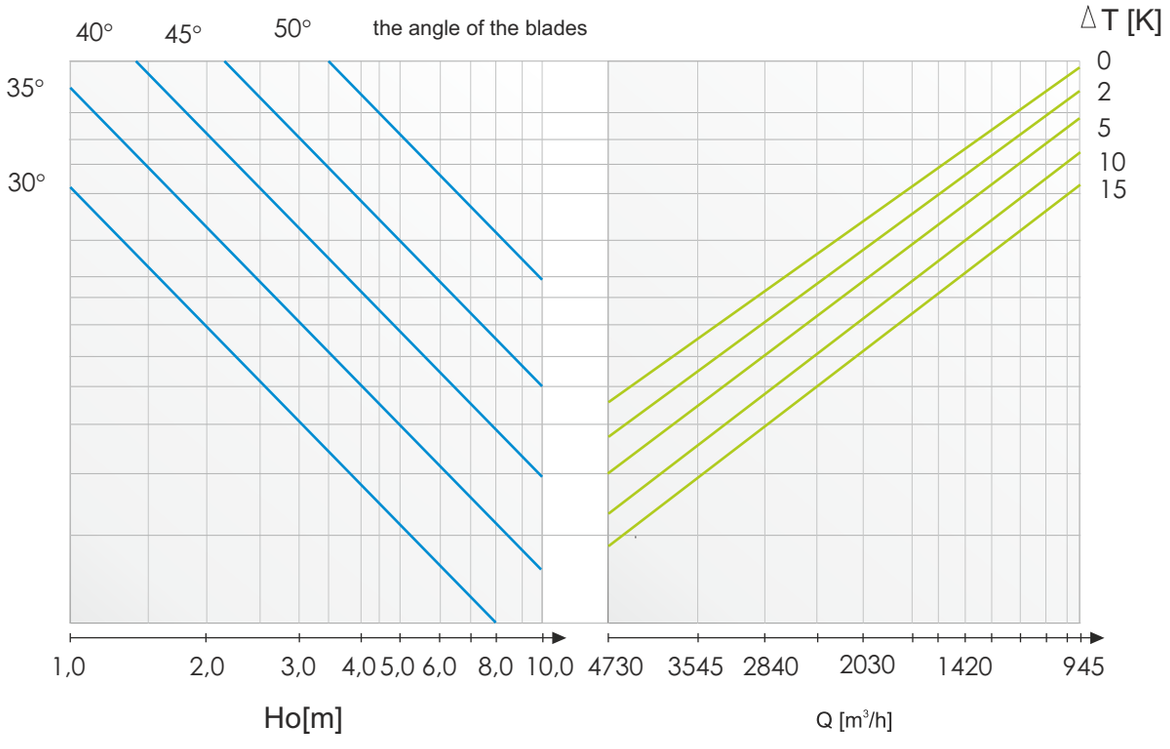

**Marking:**

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

Ho [m.] - the distance to the presence of people

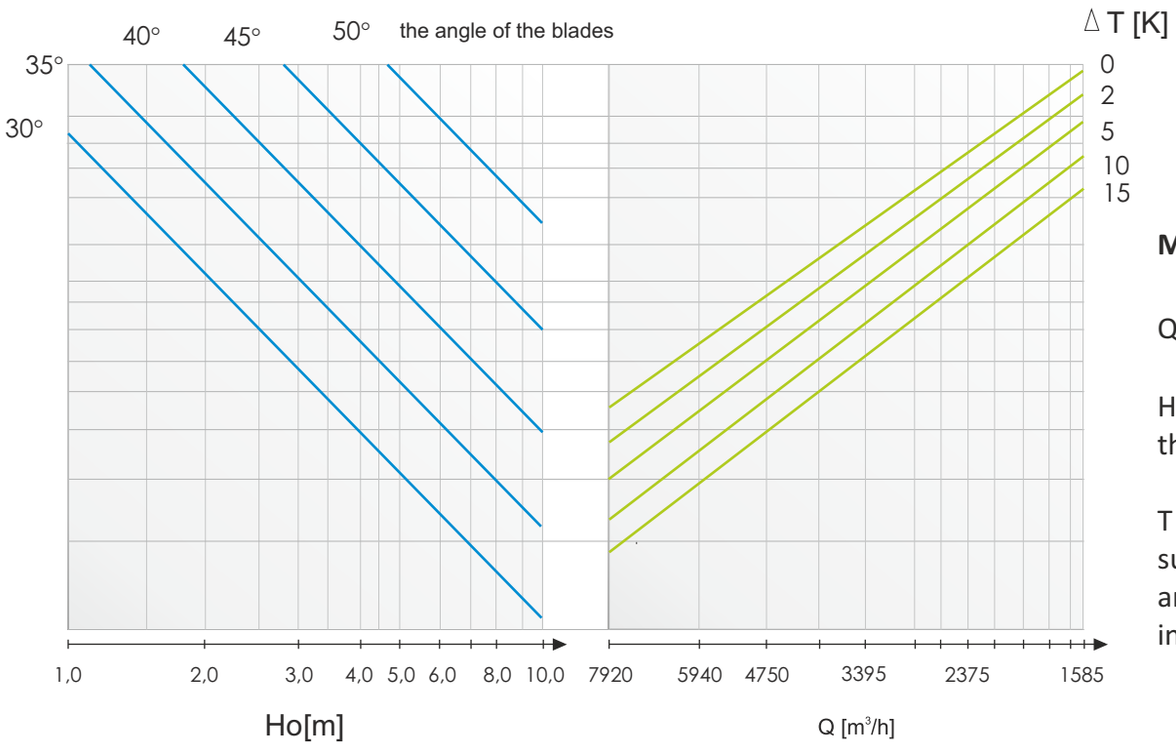
T [K] - difference between supply air temperature and the temperature in the room

## Round swirl diffuser NWO-12 Dn-500 COOLING



## The angle of the blades depending on the height of the room, temperature and air stream (cooling)

## Round swirl diffuser NWO-12 Dn-630 COOLING



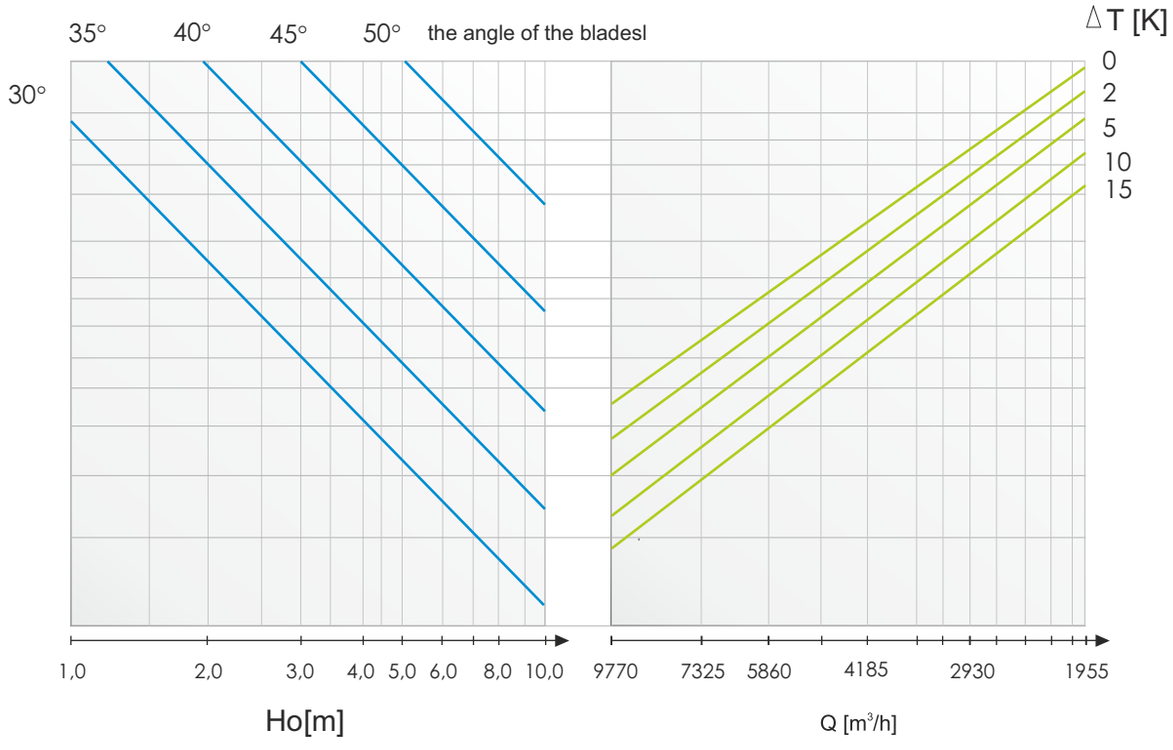

**Marking:**

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

Ho [m.] - the distance to the presence of people

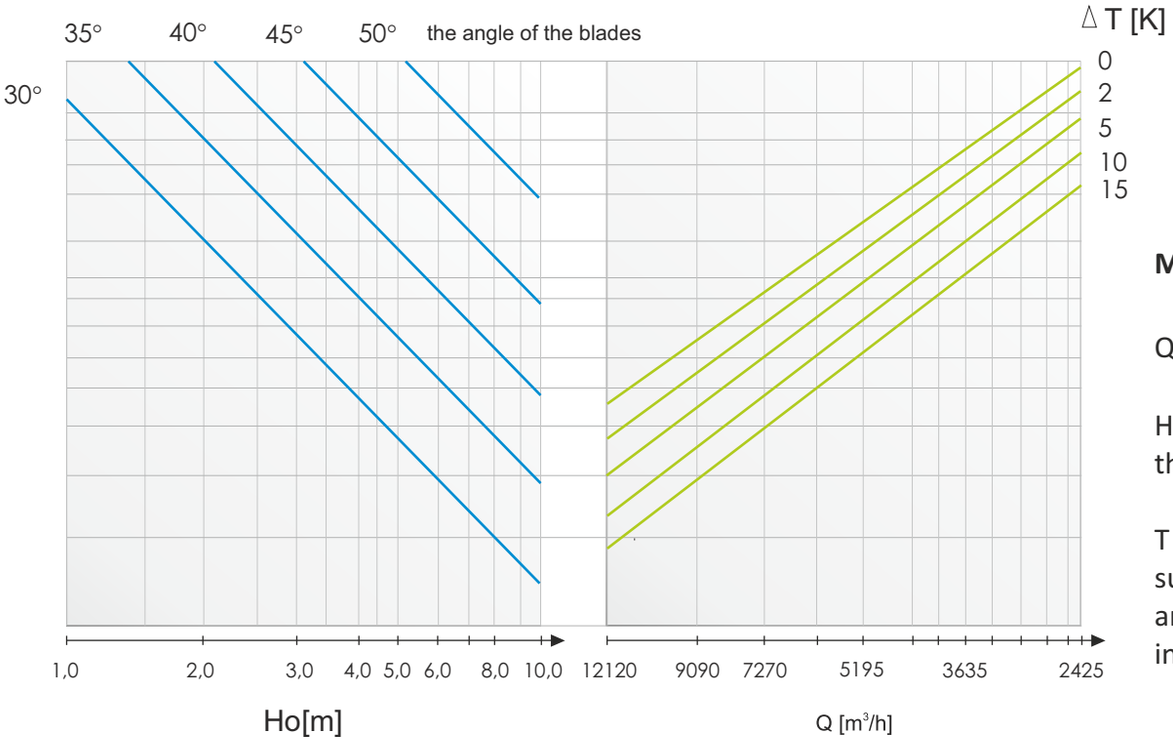
T [K] - difference between supply air temperature and the temperature in the room

## Round swirl diffuser NWO-12 Dn-710 COOLING



## The angle of the blades depending on the height of the room, temperature and air stream (cooling)

## Round swirl diffuser NWO-12 Dn-800 COOLING




**Marking:**

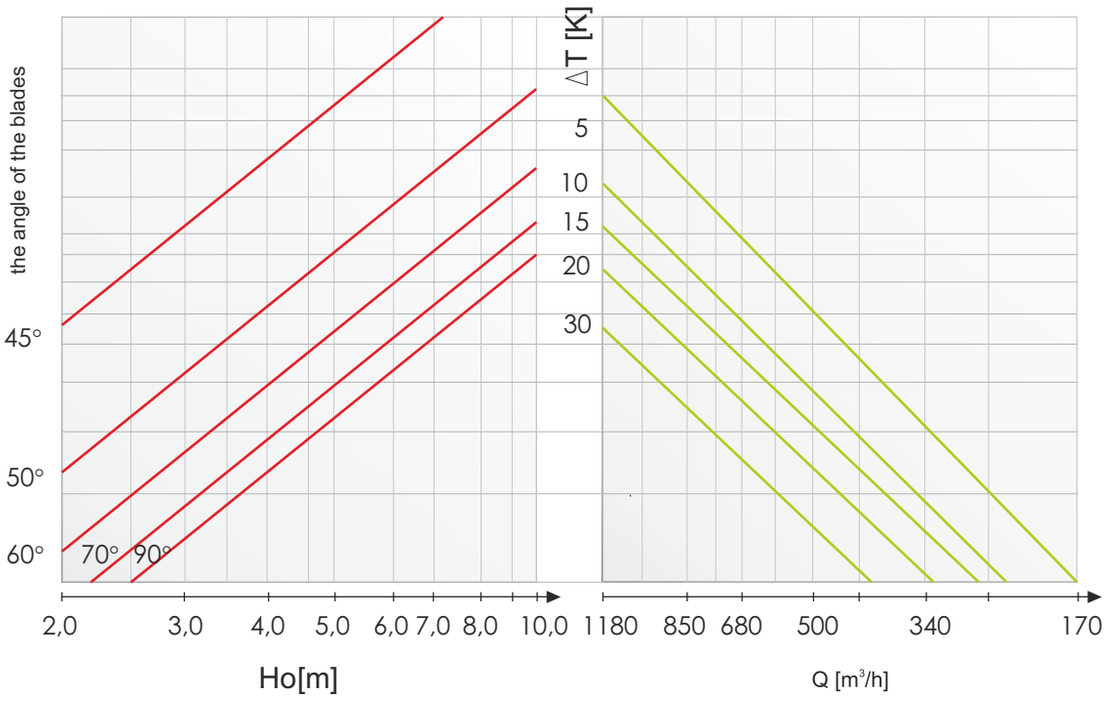
Q [$m^3$/h] - air volume flow

Ho [m.] - the distance to the presence of people

T [K] - difference between supply air temperature and the temperature in the room

## The angle of the blades depending on the height of the room, temperature and air stream (heating)

## Round swirl diffuser NWO-12 Dn-250 HEATING



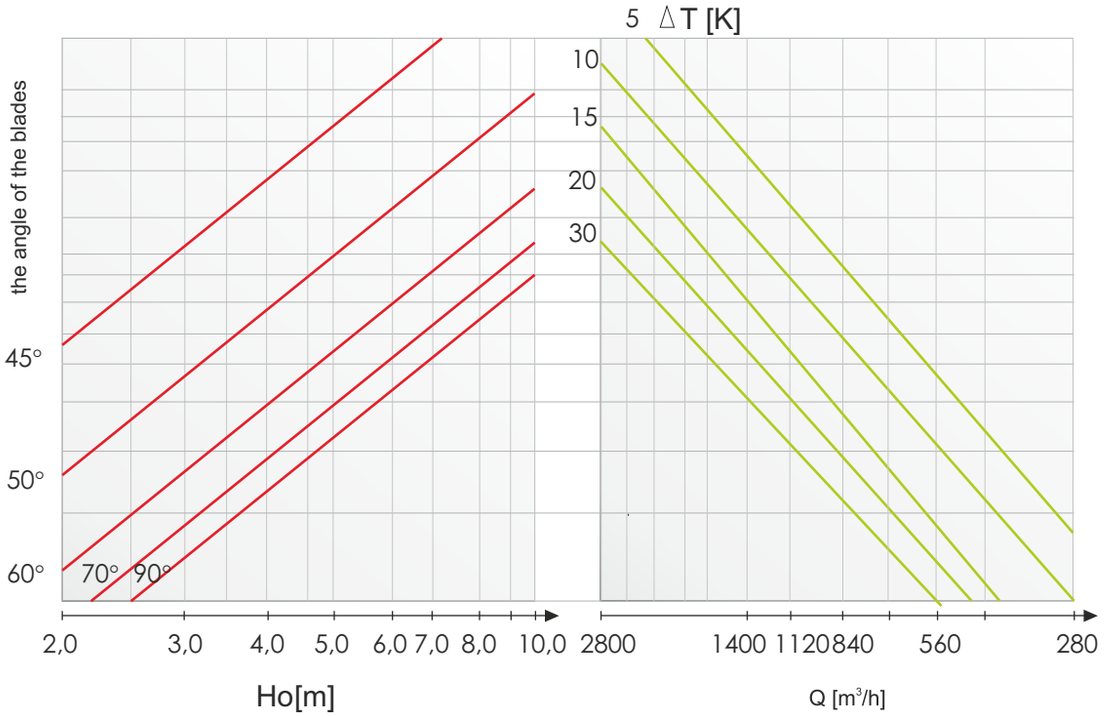

**Marking:**

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

Ho [m.] - the distance to the presence of people

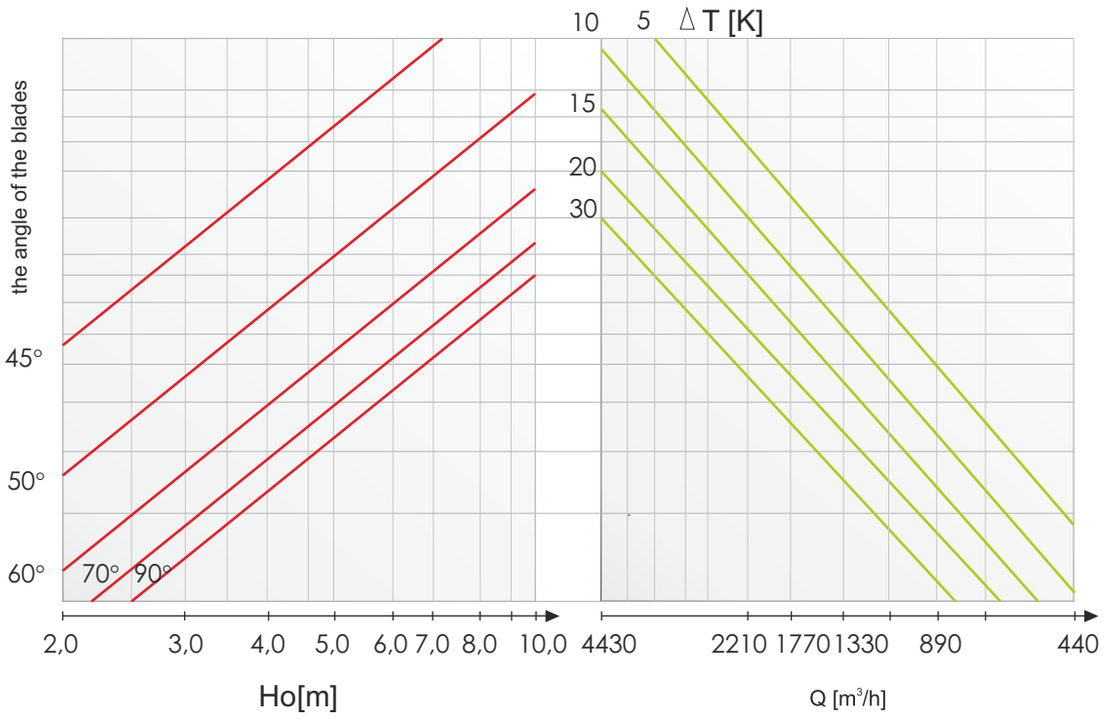
T [K] - difference between supply air temperature and the temperature in the room

## Round swirl diffuser NWO-12 Dn-315 HEATING



## The angle of the blades depending on the height of the room, temperature and air stream (heating)

## Round swirl diffuser NWO-12 Dn-400 HEATING



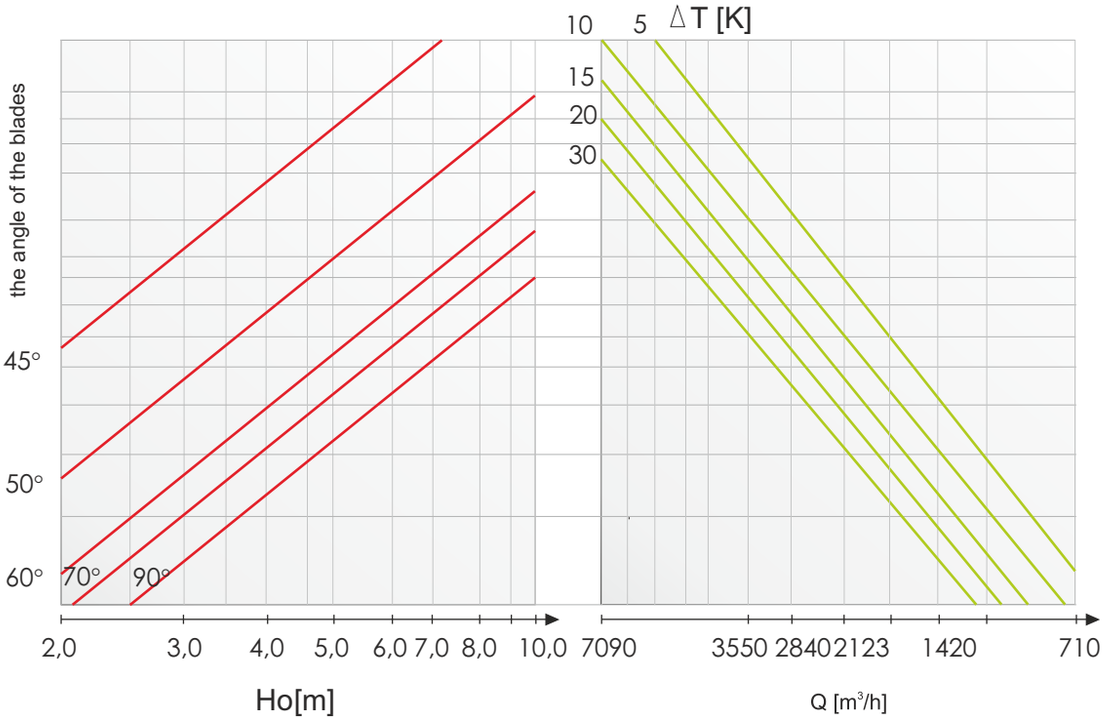

**Marking:**

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

Ho [m.] - the distance to the presence of people

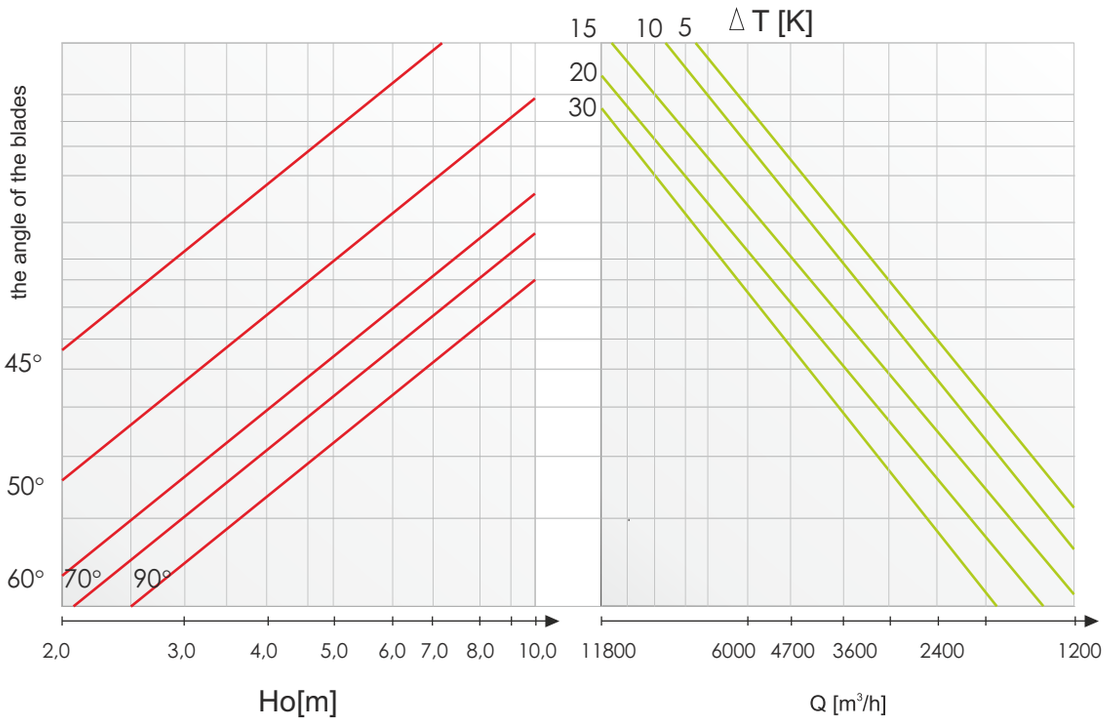
T [K] - difference between supply air temperature and the temperature in the room

## Round swirl diffuser NWO-12 Dn-500 HEATING



## The angle of the blades depending on the height of the room, temperature and air stream (heating)

## Round swirl diffuser NWO-12 Dn-630 HEATING



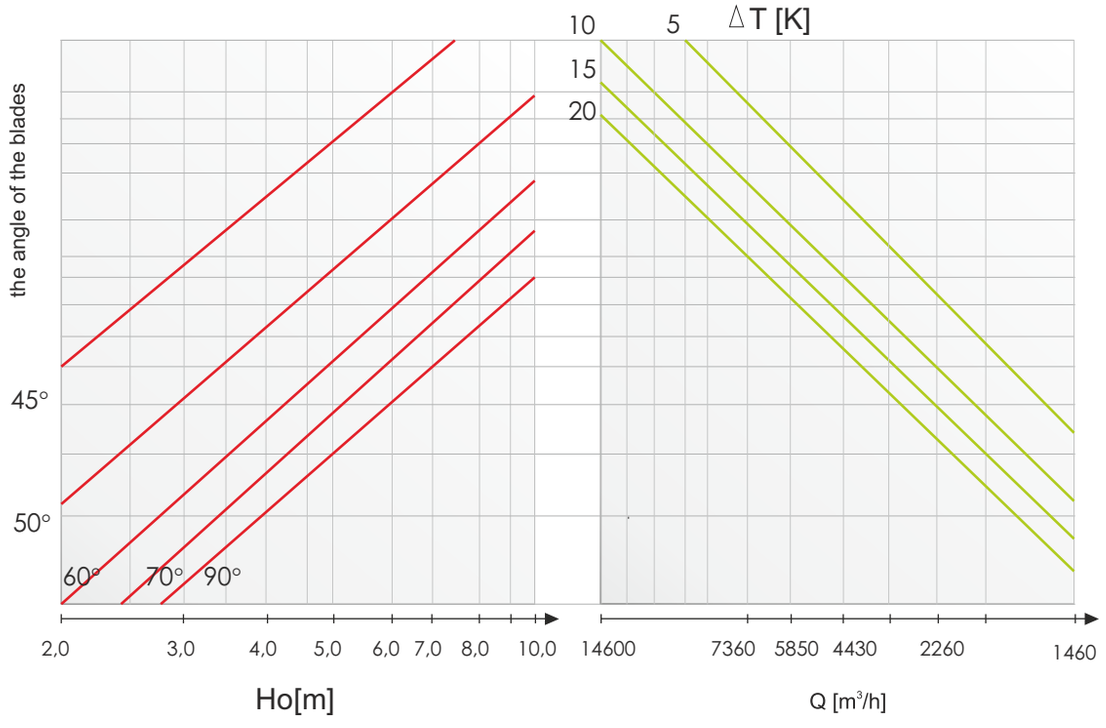

**Marking:**

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

Ho [m.] - the distance to the presence of people

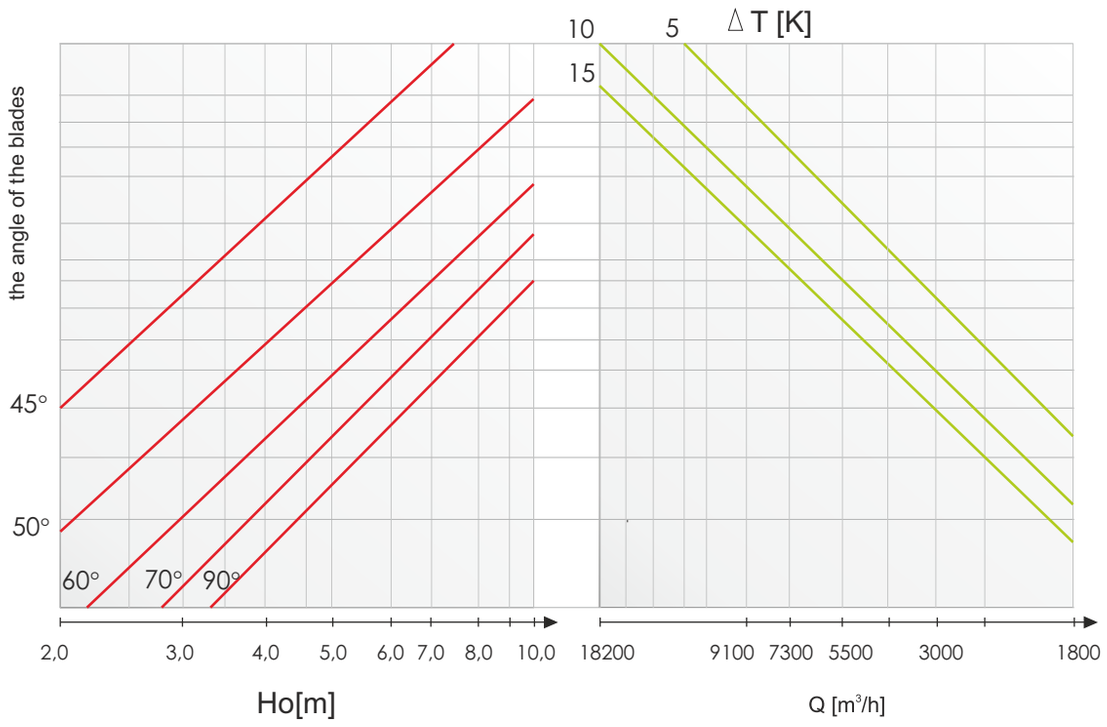
T [K] - difference between supply air temperature and the temperature in the room

## Round swirl diffuser NWO-12 Dn-710 HEATING



## The angle of the blades depending on the height of the room, temperature and air stream (heating)

## Round swirl diffuser NWO-12 Dn-800 HEATING




**Marking:**

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

Ho [m.] - the distance to the presence of people

T [K] - difference between supply air temperature and the temperature in the room

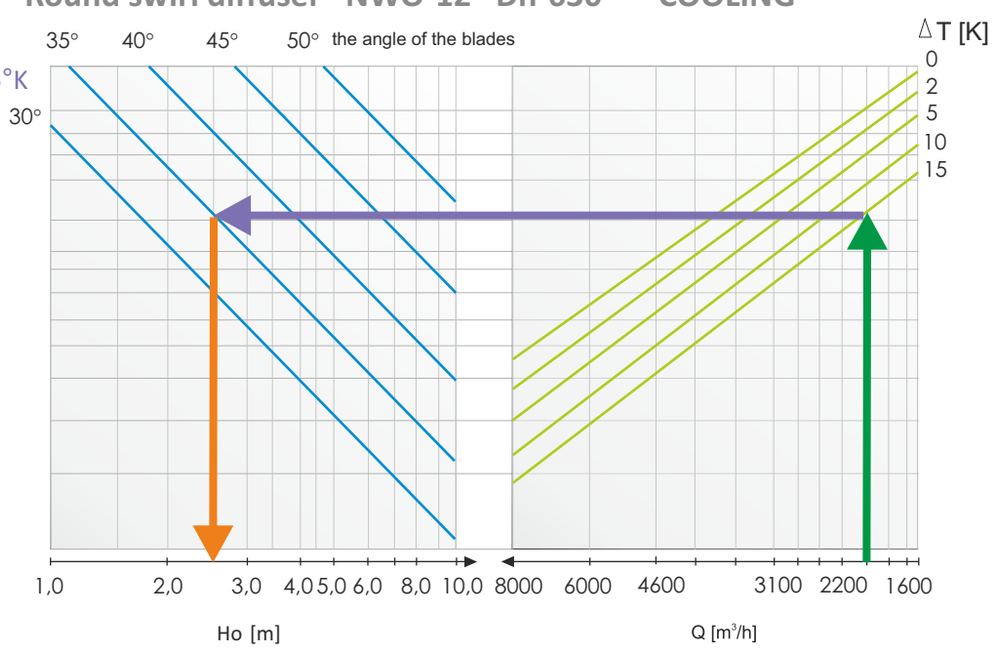
**EXAMPLE (for cooling)**

- round swirl diffuser NWO-12 (ϕ630)
- air volume flow Q=2000 $m^3$/h
- difference between the temperature ΔT=15°K
- the angle of the blades 35°

**Reading from the graph:**

- stream range X=2,5 m (to the presence of people)

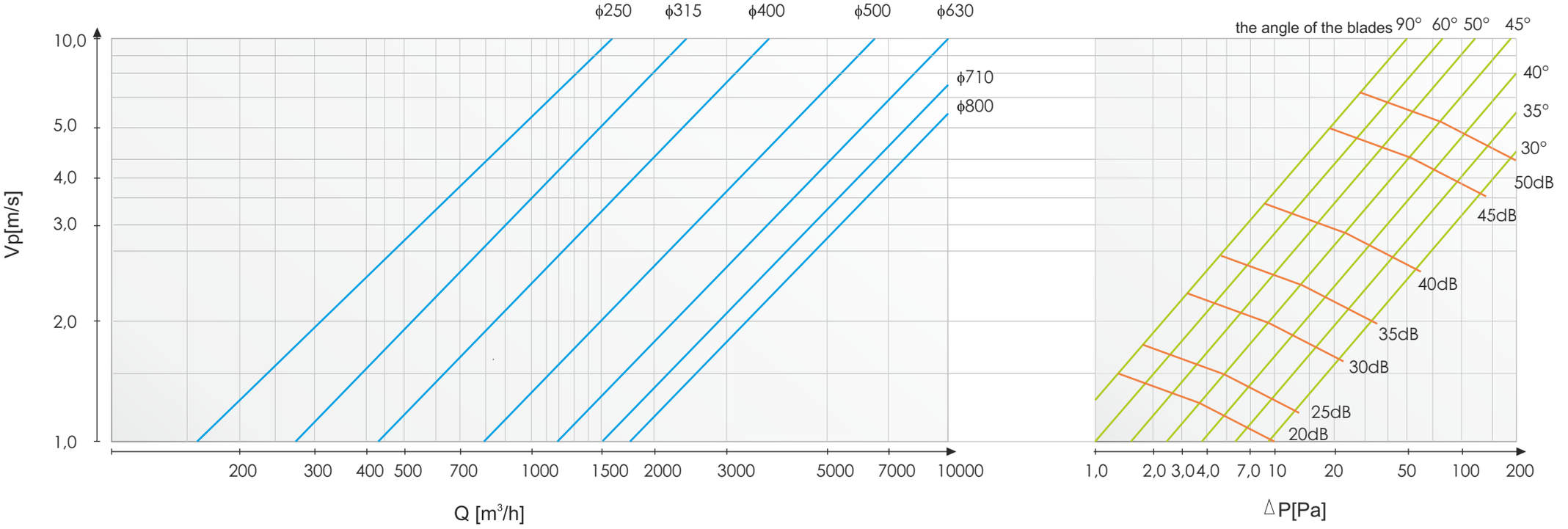
## Round swirl diffuser NWO-12 Dn-630 COOLING



SAW-POL

# Round swirl diffuser NWO-12

## PRESSURE LOSS AND ACOUSTIC POWER




**Designation:**

Q [m³/h] - air volume flow

T [K] - difference between supply air temperature and the temperature in the room

Vp [m/s] - the speed of air flowing from the diffuser

△P [Pa ] -pressure drop through the diffuser

LWA[dB(A)] - acoustic power

**Marking:**

Q [m³/h] - air volume flow

Vp [m/s] - the speed of air flowing from the diffuser

T [K] - difference between supply air temperature and the temperature in the room

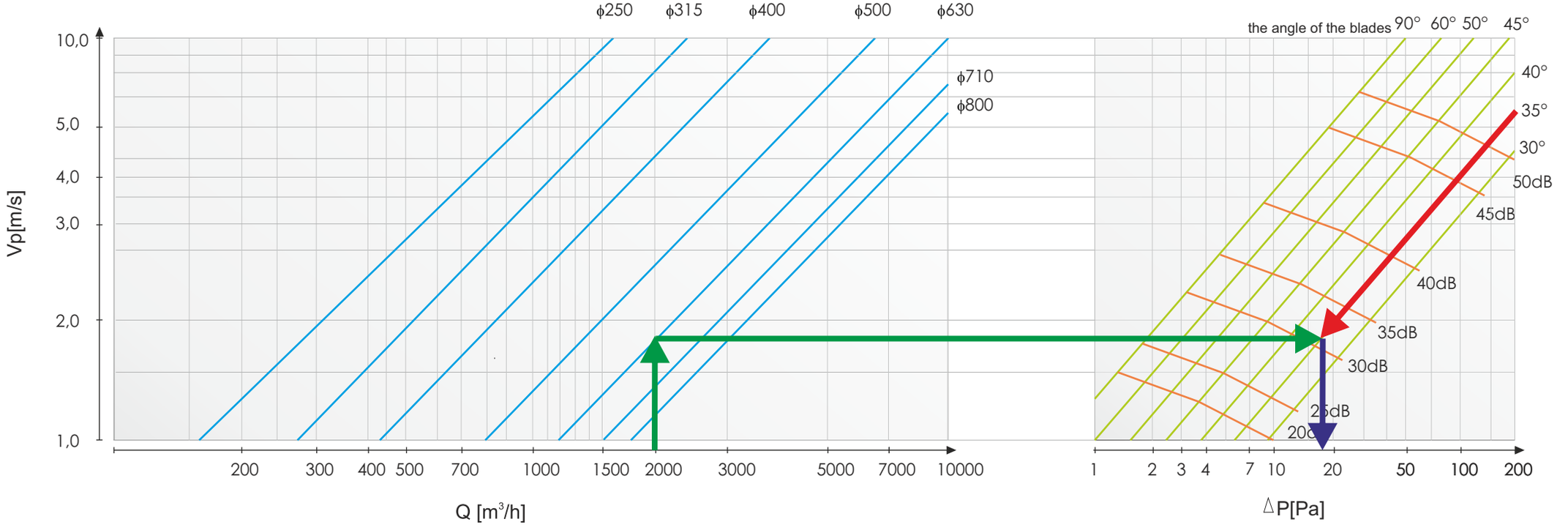
# Round swirl diffuser NWO-12

**EXAMPLE**

- round swirl diffuser NWO-12 (ϕ630)
- air volume flow Q=2000 $m^3/h$
- the angle of the blades 35°

**Reading from the graph:**

- pressure drop through the diffuser Δp=18 Pa
- acustic power $L_{WA}$<35 dB



# Round swirl diffuser NWO-12

## The method of placing an order

Please make orders according to the following formula:

**NWO-12 / 'd' / 'RAL' / 'M' / 'W' + 'SR' / 'I' / 'P' / 'K' / 'H'**

| | |
|---|---|
| **'d'** | the size of the diffuser **200, 250**, **315**, **355**, **400**, **500**, **630, 710, 800**, **1000** |
| **'RAL'** | diffuser color according to RAL palette (standard RAL9016*) |
| **'M'** | material:<br>**ST** - powder coated steel*<br>**AL** - aluminum powder coated<br>**KO** - stainless steel / acid proof steel (1.4301 or 1.4404) |
| **'W'** | mounting option:<br>**W1** - mounting in duct round or plenum box using self-drilling screws<br>**W2** - invisible assembly to the crossbar mounted in the duct / plenum box<br>**W3** - mounting screws through the mounting holes in the diffuser frame |
| **'SR-2'** | plenum box:<br>**SR-G2** - plenum box with top spigot connection<br>**SR-B2** - plenum box with side spigot connection |
| **'I'** | insulation:<br>**absence** - plenum box without insulation*<br>**Iz** - outside insulation<br>**Iw** - inside insulation |
| **'P'** | control damper at spigot connection:<br>**absence** - no damper*<br>**P** - damper on spigot connection adjustable from the outside<br>**PP** - 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.