

DESCRIPTION

It is difficult to use ceiling air vents in low rooms. However, it is still possible to utilise air-supply/air-exhaust grates mounted on walls which ensure proper ventilation of the room.

The air is tangentially supplied from the ceiling, from one side of the room. Thanks to this, an air cylinder is created which effectively ventilates the entire area guaranteeing even distribution of fresh air. All ZNW grate designs ensure a stable air stream for temperature difference $DT_0 = -10K$ which does not fall in an uncontrollable manner to the zone where people are present.

The permissible volume of supplied air depends on the speed of the air stream which returns through the zone where people are present. The recommended air exchange volume is max. 5 w/k.

FEATURES

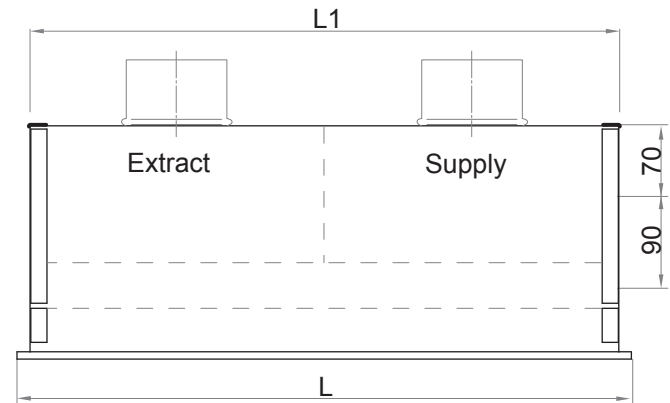
- connection box – steel galvanized sheet;
- nozzles – plastic, colour RAL 9003 (white);
- front plate - steel sheet veneered RAL 9003 (white);
- lamellas – plastic, RAL 9003 colour (white) or RAL 9005 (black)

CONSTRUCTION

ZNW-DZ 2/3 – front plate with integrated movable nozzles (2- or 3-row) for air-supply with perforated air-exhaust surface.

ZNW-L 3 – slot with lamellas (3-slot) for air-supply with perforated air-exhaust sheet metal.

DESIGN AND DIMENSIONS



INSTALLATION

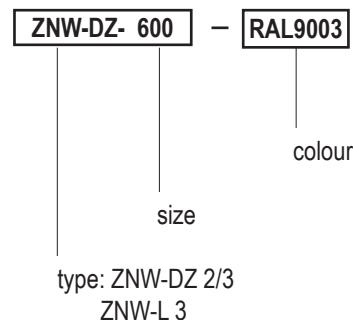
Drill an opening in the wall according to the dimensions given in the table. Then place there the expansion box making sure its edges protrude approx. 50 mm over the wall surface. Insert the front plate into the box and fix it with sheet metal screws to its sides. Push the air vent with the expansion box to the wall and fix it with screws through the mounting holes to the wall.

Instead of using the expansion box, an air vent may be similarly mounted directly to the ending of the rectangular ventilation duct. In this case, the duct dimensions must be equal to a proper plenum box dimensions.

Provided sizes

NW	nozzles per 1 row	lamellas	ZNW-DZ-2 ZNW-L-1		ZNW-DZ-3 ZNW-L-2		L	L1
			oD	KB	oD	KB		
600	23	38	98	132	158	207	615	575
800	31	50					815	775
1000	39	65					1015	975
1200	49	77					1215	1175

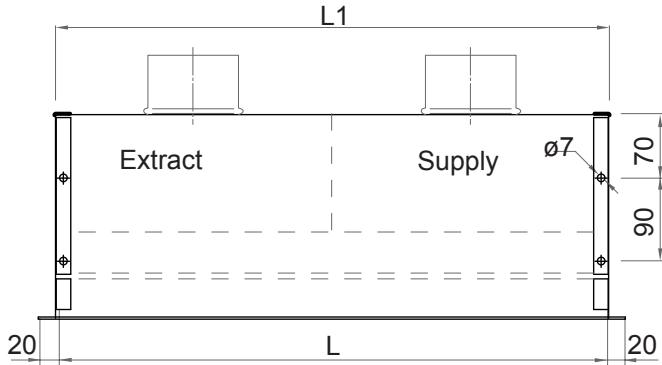
ORDER REFERENCE



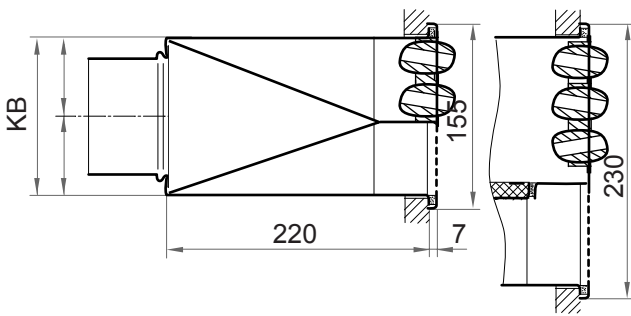
6.5 ZNW

Air-supply/air exhaust unit

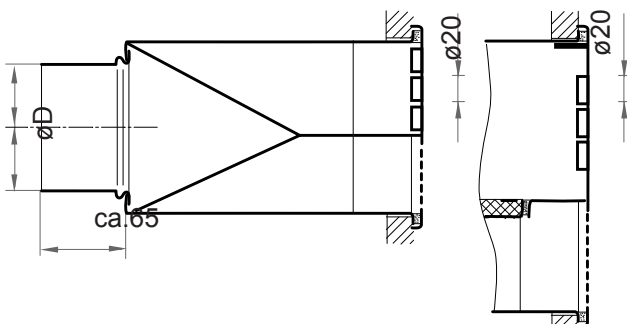
ZNW-L 3, ZNW-DZ 2/3 AIR-SUPPLY/AIR EXHAUST UNIT



ZNW-DZ-2,3



ZNW-L2,3

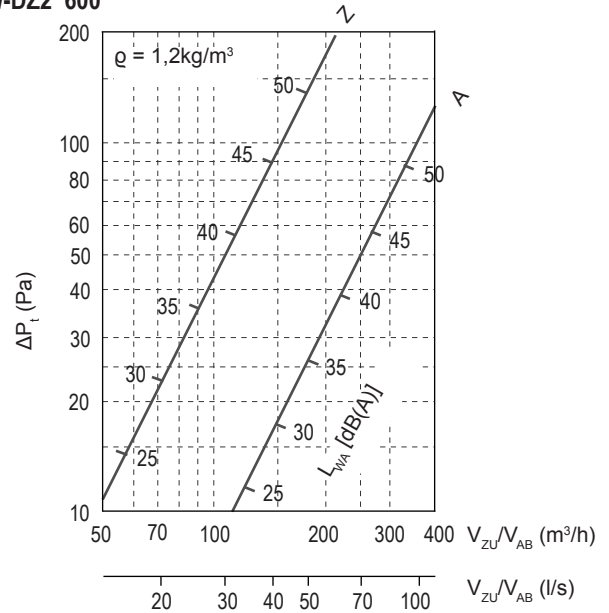


NW	ZNW-DZ-1		ZNW-DZ-2		L	L1
	oD	KB	oD	KB		
600	98	132	158	207	615	575
800					815	775
1000					1015	975
1200					1215	1175

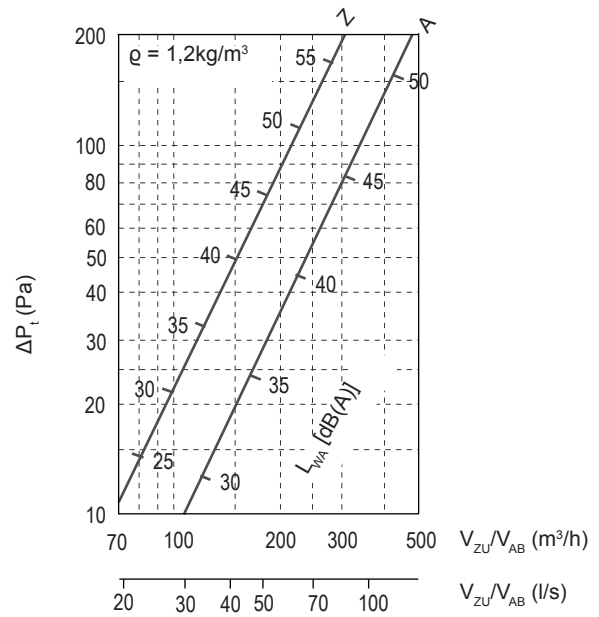
CHARACTERISTICS

PRESSURE LOSSES AND ACOUSTIC POWER LEVEL

ZNW-DZ2 600

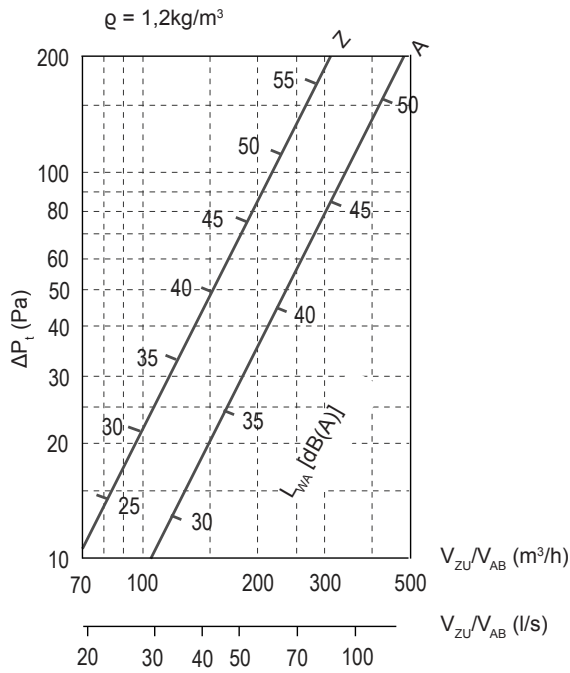


ZNW-DZ2 800

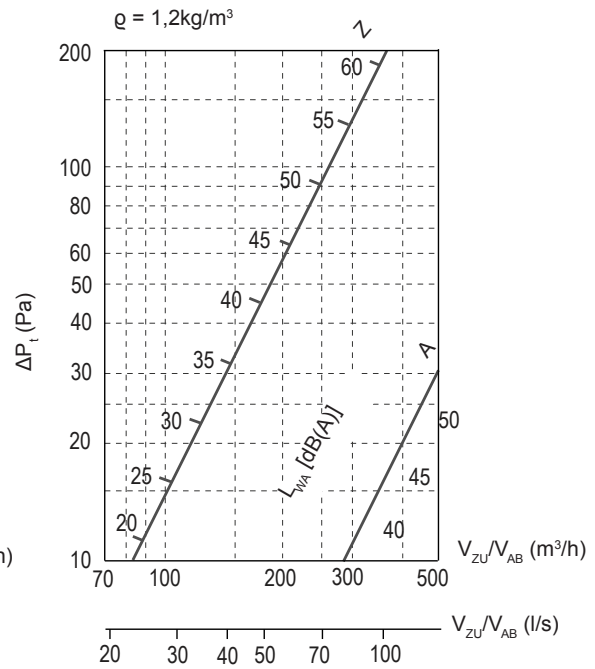


6.5.2

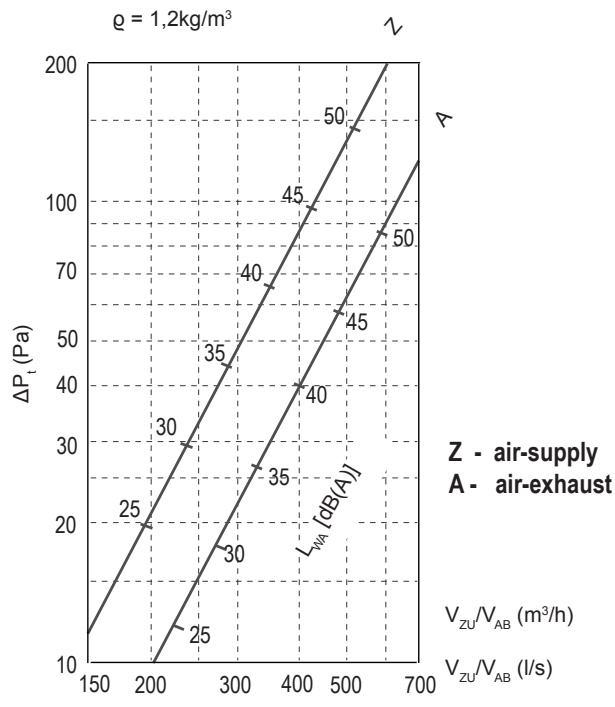
ZNW-DZ2 1000



ZNW-DZ2 1200



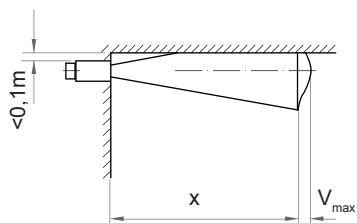
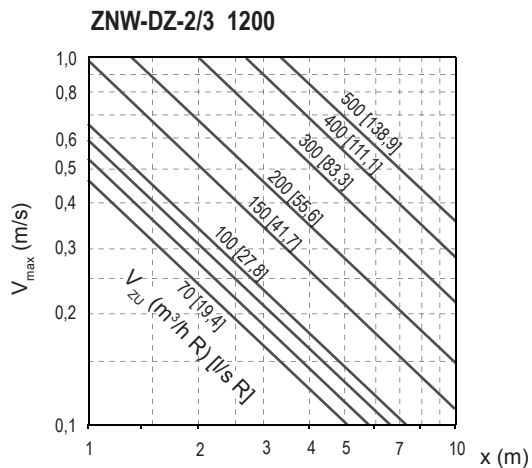
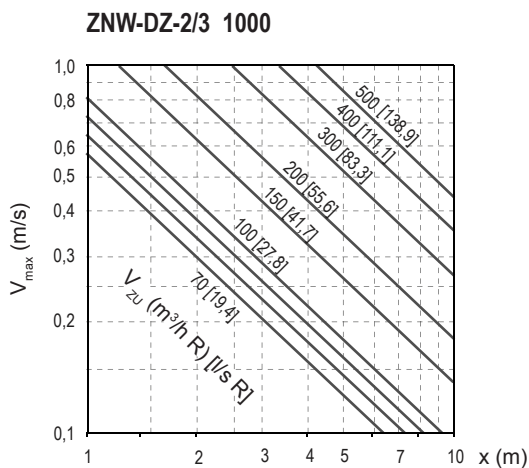
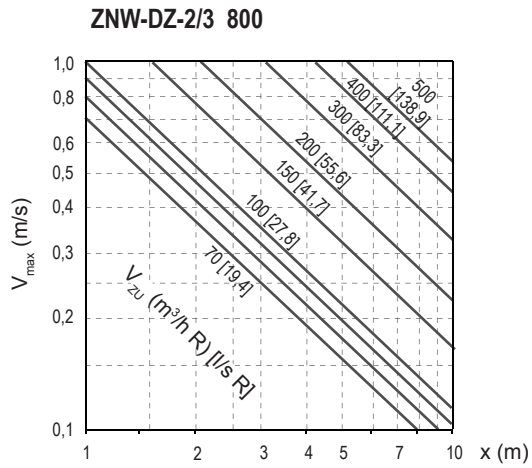
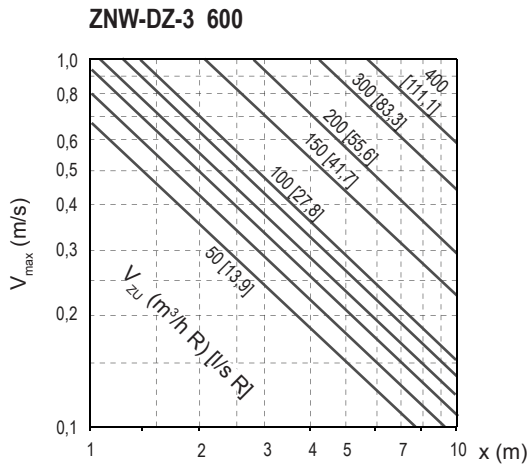
ZNW-DZ-3 NA METR



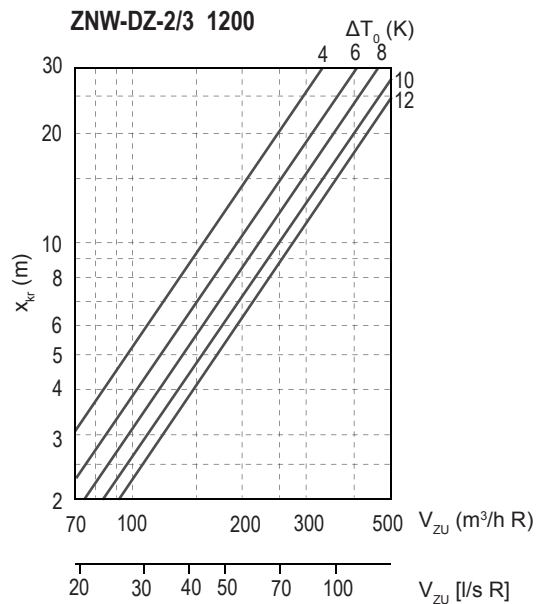
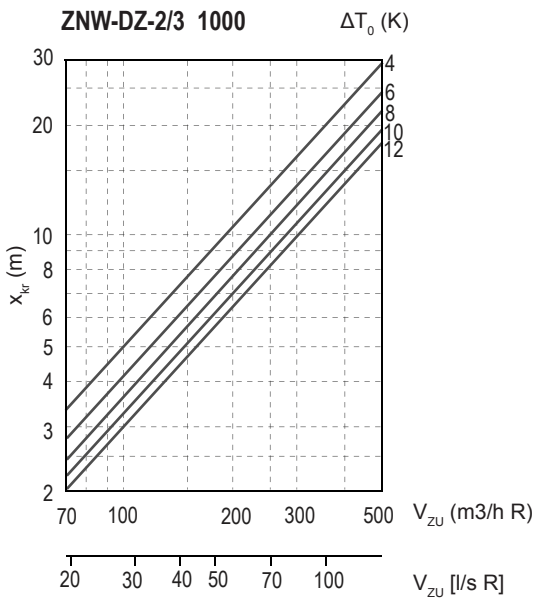
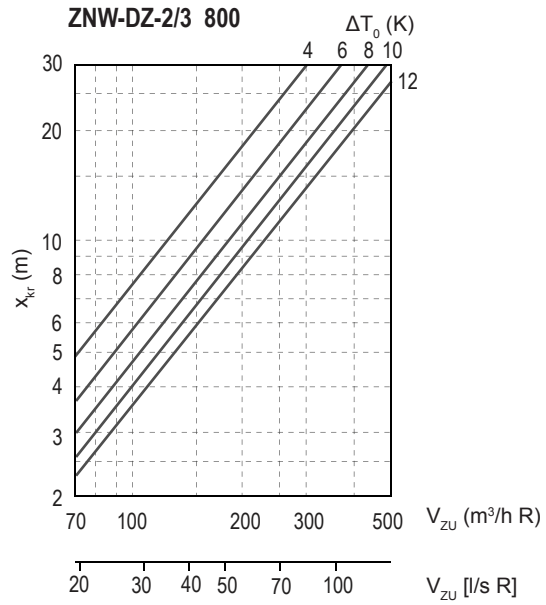
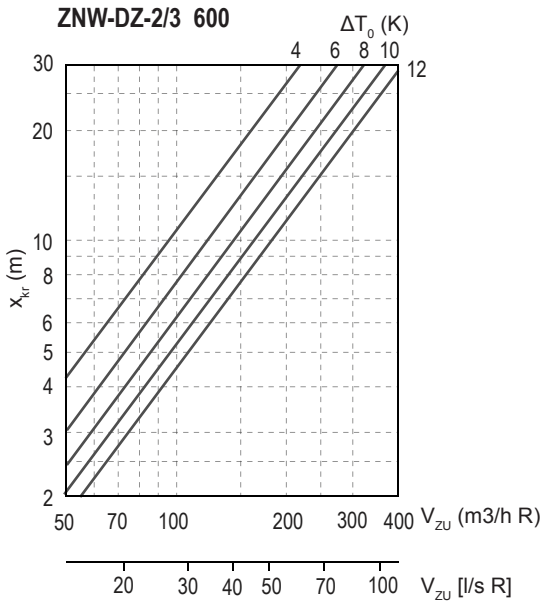
6.5 ZNW

Air-supply/air exhaust unit

MAXIMUM AIR STREAM SPEED



CRITICAL RANGE OF AIR STREAM

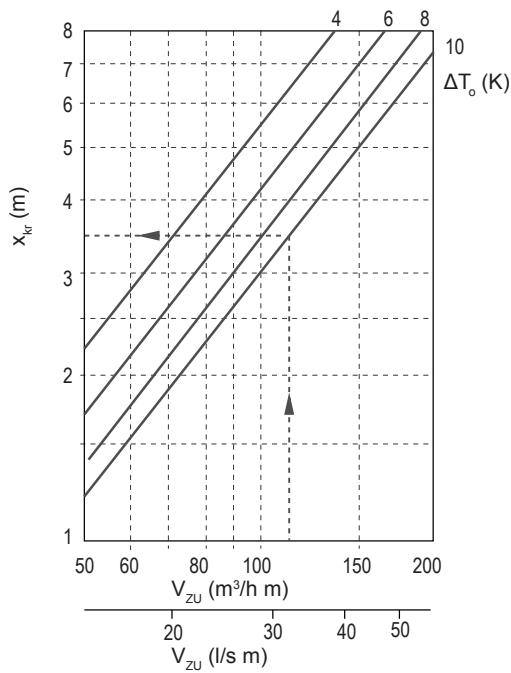


6.5 ZNW

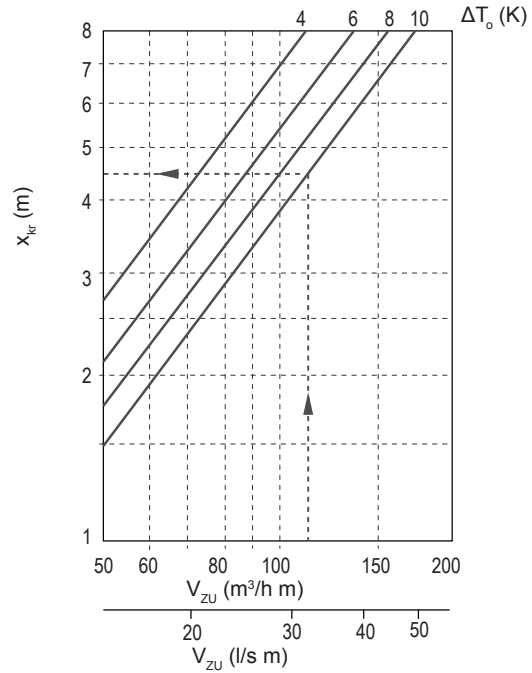
Air-supply/air exhaust unit

INTAKE- EXHAUST ZNW-L

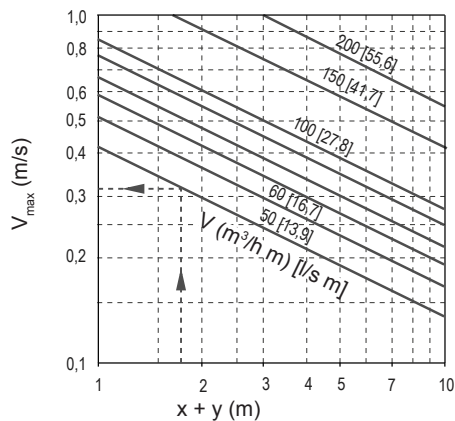
ZNW-L per meter diagonal ventilation



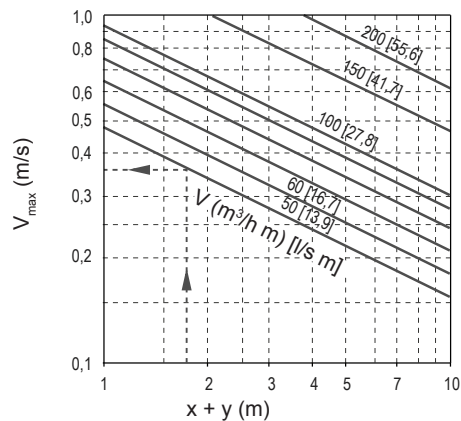
ZNW-L per meter vertical ventilation



ZNW-L per meter tangentially to the ceiling

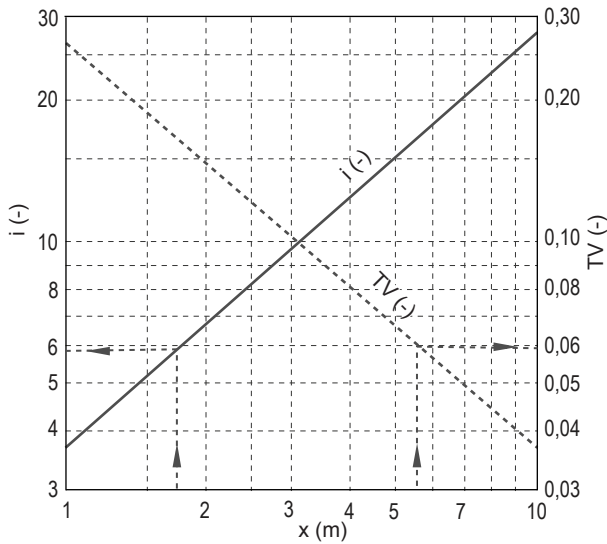


ZNW-L per meter below the ceiling



CRITICAL RANGE OF AIR STREAM

ZNW-DZ 2/3



V_{ZU}	(m^3/h)	= volume of supplied air
V_{ZU}	(l/s)	= volume of supplied air
V_{ZU}	($m^3/h R$)	= volume of air supplied to nozzle row
V_{ZU}	($l/s R$)	= volume of air supplied to nozzle row
V_{AB}	(m^3/h)	= volume of exhausted air
V_{AB}	(l/s)	= volume of exhausted air
Z	(-)	= air-supply
A	(-)	= air-exhaust
H	(m)	= room height
L	(m)	= room length
V_{ZU}	($m^3/h m$)	= volume of supplied air per 1 metre
V_{ZU}	($l/s m$)	= volume of supplied air per 1 metre
V_{AB}	($m^3/h m$)	= volume of exhausted air per 1 metre
V_{AB}	($l/s m$)	= volume of exhausted air per 1 metre
ρ	(kg/m^3)	= density

D_{pt}	(Pa)	= pressure loss
L_{WA}	[dB(A)]	= acoustic power level in scale A
L_{WA1}	[dB(A)]	= acoustic power level for filter A as regards air-supply or air-exhaust
x+y	(m)	= horizontal + vertical air stream range
i	(-)	= induction factor
TV	(-)	= temperature difference reduction factor
x	(-)	= horizontal stream range
v_{max}	(m/s)	= maximum air stream speed
x_{kr}	(m)	= critical range of air stream
DT_{Δ}	(K)	= difference between supplied air temperature and room temperature ($DT_{\Delta} = t_{ZU} - t_R$)
t_{ZU}	(K)	= supplied air temperature
t_R	(K)	= room temperature
NW	(mm)	= size