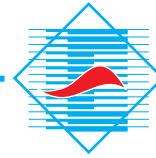


ADJUSTABLE HIGH THROW DIFFUSERS DT 04-H

Throw Distance: 3,8 mt to 30 mt



ELEKTROTEKNIK



DT04-H Adjustable High Throw Swirl Diffuser



DT04-H

High throw diffusers are designed to use in air conditioning, ventilation and heating applications. These type of diffusers can be used in places with height of 3,8 meters and up to 30 meters (airports, theatres, banks and factories...etc). They are ideal for places that need high air volume. With its high distinctness property, it allows quick reduction of the temperature difference and it provides effective air distribution.

Properties:

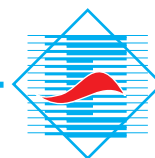
- Diffusers are used as supply diffuser on air duct systems.
- They are generally used with plenum boxes. Air adjustment clips that is on the neck entrance of the box adjusts air flow.
- There are two types according to blade movements.

DT04-H

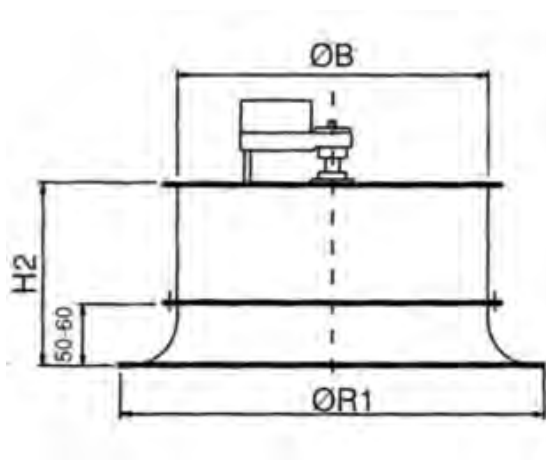
- They are made of DKP sheet with 1mm thickness.
- Can be produced with electrostatic powder coating and different colors can be selected from RAL catalogue.
- Plenum boxes to suit are also available.

DT04 H

The adjustable blade design diffuser provides an optimum discharge in cooling (horizontal discharge) and heating (vertical discharge) enabling the diffuser to meet the required comfort criteria by moving its blades. The diffuser is available in 9 sizes ranging from Ø160 mm to Ø 800 mm.

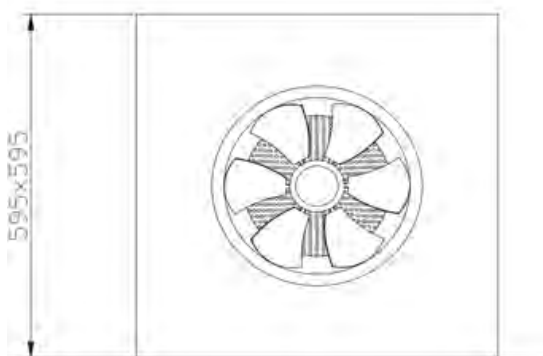
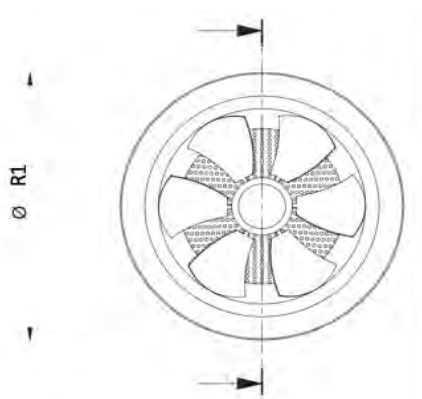


TECHNICAL SIZES

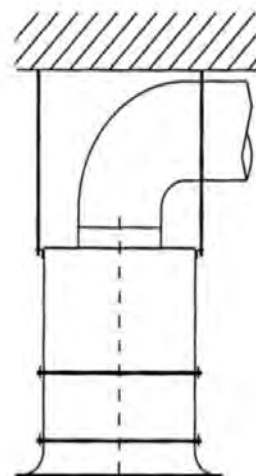
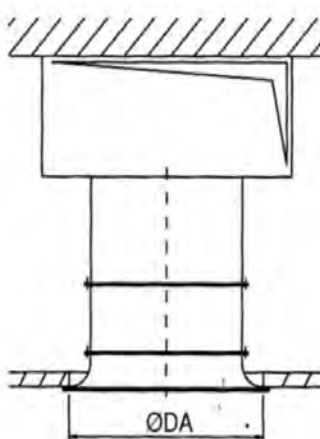
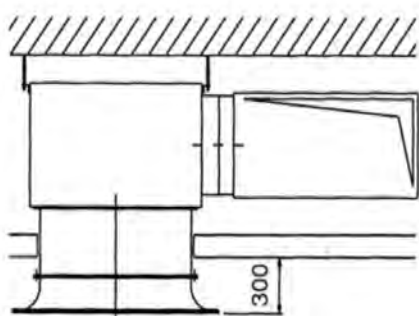


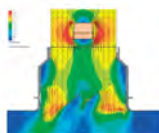
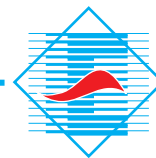
Sizes \varnothing (mm)	Cut-out size \varnothing (mm)	B \varnothing (mm)	R1 \varnothing (mm)	H2 \varnothing (mm)
160	215	159	253	155
200	255	199	303	174
250	305	249	353	200
315	370	314	418	240
355	410	354	458	250
400	455	399	503	265
500	555	499	600	320
630	685	629	730	380
800	855	799	900	555

B \varnothing (mm) : Neck Size
 R1 \varnothing (mm) : Frame Size
 H2 \varnothing (mm) : Length



Connection Types





90° vertical air discharge

Q		Size	160	200	250	315	355	400	500	630	800
m ³ /h											
100	X	$v_t = 0,3$	1,7								
		$v_t = 0,5$	1,0								
		$v_t = 1,0$	0,6								
		ΔP_t L_{WA}	6 <15								
150	X	$v_t = 0,3$	3,5	2,9							
		$v_t = 0,5$	1,9	1,7							
		$v_t = 1,0$	1,2	0,8							
		ΔP_t L_{WA}	18 30	7 19							
250	X	$v_t = 0,3$	4,7	3,6	2,4	1,8	1,5				
		$v_t = 0,5$	2,8	2,0	1,5	1,0	0,9				
		$v_t = 1,0$	1,5	1,2	0,8	0,6	0,4				
		ΔP_t L_{WA}	40 41	17 30	10 <15	3 <15	2 <15				
300	X	$v_t = 0,3$	5,8	4,8	3,5	2,2	1,8				
		$v_t = 0,5$	3,4	2,8	2,1	1,4	1,2				
		$v_t = 1,0$	1,7	1,4	1,2	0,8	0,6				
		ΔP_t L_{WA}	70 49	30 41	20 25	5 <15	4 <15				
400	X	$v_t = 0,3$		5,8	4,4	2,5	2,4	1,8	1,4		
		$v_t = 0,5$		3,7	2,4	1,7	1,3	1,1	0,8		
		$v_t = 1,0$		1,8	1,5	0,9	0,7	0,5	0,3		
		ΔP_t L_{WA}		45 44	25 30	8 16	5 <15	2 <15	1 <15		
500	X	$v_t = 0,3$			5,2	3,3	2,7	2,0	1,5		
		$v_t = 0,5$			3,0	1,8	1,7	1,4	0,9		
		$v_t = 1,0$			1,5	1,0	0,9	0,7	0,3		
		ΔP_t L_{WA}			39 35	15 21	8 17	5 <15	2 <15		
750	X	$v_t = 0,3$			6,8	4,8	3,8	2,5	1,8	1,4	
		$v_t = 0,5$			4,1	2,7	2,5	1,5	1,1	0,8	
		$v_t = 1,0$			2,0	1,5	1,2	0,8	0,6	0,4	
		ΔP_t L_{WA}			65 46	21 31	13 26	8 20	3 <15	1 <15	
1.000	X	$v_t = 0,3$			8,5	5,2	4,5	3,5	2,5	1,9	
		$v_t = 0,5$			5,2	3,1	2,7	2,0	1,4	1,2	
		$v_t = 1,0$			2,5	1,7	1,4	1,0	0,8	0,5	
		ΔP_t L_{WA}			90 47	32 38	21 31	12 25	3 <15	1 <15	
2.000	X	$v_t = 0,3$				10,7	9,2	6,7	4,5	3,3	2,4
		$v_t = 0,5$				6,3	5,5	3,9	2,9	2,2	1,4
		$v_t = 1,0$				3,4	2,8	2,1	1,4	1,0	0,7
		ΔP_t L_{WA}				114 52	81 49	50 48	18 35	6 21	2 <15
3.000	X	$v_t = 0,3$						9,9	6,7	5,0	3,5
		$v_t = 0,5$						5,8	4,3	3,0	2,1
		$v_t = 1,0$						2,9	2,2	1,5	1,1
		ΔP_t L_{WA}						110 60	40 45	13 33	5 18
4.000	X	$v_t = 0,3$							9,2	6,8	4,5
		$v_t = 0,5$							5,5	4,2	2,8
		$v_t = 1,0$							2,9	2,2	1,4
		ΔP_t L_{WA}							70 55	23 41	7 28
5.000	X	$v_t = 0,3$								8,2	5,8
		$v_t = 0,5$								5,2	3,4
		$v_t = 1,0$								2,5	1,9
		ΔP_t L_{WA}								33 45	12 34

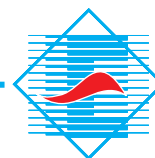
-Q (m³/h): Air flow.

- V_c (m/s): Neck velocity.

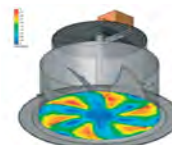
-X (m): Throw for a maximum velocity of 0,25 m/s at the occupied zone.

- ΔP_t (Pa): Pressure drop.

- L_{WA} [dB(A)]: Sound power level.



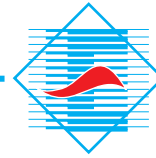
PERFORMANCE DATA



30° horizontal air discharge

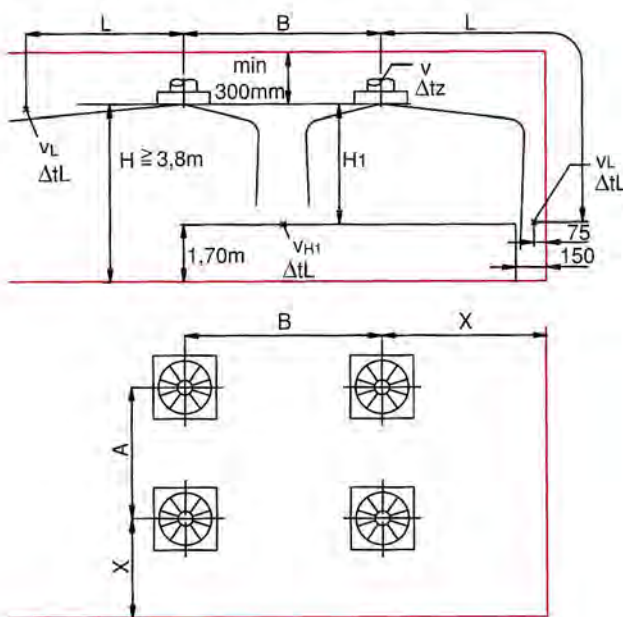
Q		Size	160	200	250	315	355	400	500	630	800
m³/h											
200	V _c	2,2	1,4	0,9							
	X	1,3	1,2	1,0							
	ΔP _f	30	11	5							
	L _{WA}	30	18	<15							
250	V _c	2,7	1,8	1,0	0,7						
	X	1,6	1,4	1,3	1,0						
	ΔP _f	58	23	9	4						
	L _{WA}	36	25	17	<15						
300	V _c	3,2	2,2	1,5	0,9	0,7	0,6				
	X	2,2	1,8	1,	1,3	1,2	1,2				
	ΔP _f	85	35	13	6	4	3				
	L _{WA}	44	32	20	<15	<15	<15				
350	V _c	4,1	2,5	1,6	1,1	0,9	0,7				
	X	2,7	2,1	1,9	1,7	1,5	1,4				
	ΔP _f	130	51	20	9	6	4				
	L _{WA}	50	39	28	<15	<15	<15				
400	V _c		3,6	2,2	1,4	1,1	0,8	0,6			
	X		2,6	2,5	2,1	1,9	1,8	1,5			
	ΔP _f		89	34	15	10	7	3			
	L _{WA}		45	35	17	15	<15	<15			
500	V _c		4,4	2,9	1,8	1,4	1,1	0,7			
	X		3,3	3,0	2,5	2,3	2,3	1,8			
	ΔP _f		143	56	25	16	11	4			
	L _{WA}		54	43	26	22	18	<15			
750	V _c			4,2	2,6	2,0	1,5	1,1	0,7		
	X			4,7	3,9	3,5	3,4	2,9	1,7		
	ΔP _f			125	55	36	24	9	4		
	L _{WA}			50	37	32	30	20	<15		
1.000	V _c				3,6	2,8	2,3	1,4	0,9	0,6	
	X				5,2	4,7	4,6	3,8	2,6	1,9	
	ΔP _f				90	65	40	16	6	3	
	L _{WA}				45	44	40	28	18	<15	
1.500	V _c					4,1	3,3	2,1	1,3	0,8	
	X					7,2	6,9	5,9	3,9	2,9	
	ΔP _f					138	90	35	15	6	
	L _{WA}					54	52	40	31	20	
2.000	V _c							2,8	1,8	1,2	
	X							7,3	5,1	3,6	
	ΔP _f							62	25	11	
	L _{WA}							50	41	29	
3.000	V _c								2,6	1,6	
	X								7,9	5,7	
	ΔP _f								55	22	
	L _{WA}								50	40	

CORRECTION FACTOR ΔL (OUTLET VELOCITY and BOX CONNECTION TYPE)



Size	Effective Velocity (m/s)	Directly Mounted to the Diffusor								Side Mounted to the Plenum								Top Mounted to the Plenum							
		Frequency (Hz)																							
		63	125	250	500	1000	2000	4000	8000	63	125	250	500	1000	2000	4000	8000	63	125	250	500	1000	2000	4000	8000
315	3	10	2	2	-1	-5	-18	-28	-37	10	6	2	-1	-6	-17	-28	-30	8	4	2	0	-6	-16	-28	-36
400		6	4	2	-1	-5	-21	-36	-44	7	7	0	-1	-5	-15	-26	-30	7	4	2	0	-6	-16	-28	-36
500		6	4	2	-1	-5	-21	-36	-44	7	7	0	-1	-5	-15	-26	-30	7	4	2	0	-6	-16	-28	-36
630		7	3	2	-1	-5	-20	-33	-41	9	6	1	-1	-6	-16	-27	-30	6	4	2	0	-6	-15	-27	-37
800		7	3	2	-1	-5	-20	-33	-42	14	6	3	-1	-7	-20	-31	-31	10	4	3	0	-7	-17	-31	-36
315	5	7	1	1	-2	-4	-14	-20	-29	8	5	1	-1	-5	-13	-25	-25	6	3	1	-1	-5	-12	-21	-29
400		4	4	1	-1	-5	-16	-28	-36	5	5	-1	-2	-4	-11	-25	-25	6	3	1	-1	-5	-12	-21	-29
500		4	4	1	-1	-5	-16	-28	-36	5	5	-1	-2	-4	-11	-25	-25	6	3	1	-1	-5	-12	-21	-29
630		5	3	1	-1	-4	-15	-25	-33	7	5	0	-1	-5	-12	-25	-25	4	3	1	-1	-5	-11	-20	-30
800		5	3	1	-1	-5	-15	-25	-34	12	4	2	-1	-6	-15	-26	-26	9	3	2	-1	-6	-13	-23	-28
315	8	5	0	0	-3	-5	-10	-13	-22	6	3	-1	-2	-5	-9	-21	-21	4	1	0	-2	-5	-9	-14	-23
400		1	3	0	-2	-4	-11	-21	-29	2	3	-3	-3	-4	-8	-21	-21	4	1	0	-2	-5	-9	-14	-23
500		1	3	0	-2	-4	-11	-21	-29	2	3	-3	-3	-4	-8	-21	-21	4	1	0	-2	-5	-9	-14	-23
630		3	2	0	-2	-4	-11	-18	-26	4	3	-2	-3	-4	-9	-21	-21	2	1	-1	-3	-5	-8	-13	-23
800		3	2	0	-2	-4	-11	-18	-26	10	3	1	-2	-5	-11	-21	-21	7	2	1	-2	-5	-10	-16	-22
315	12	1	-1	-2	-5	-6	-7	-8	-17	3	1	-3	-4	-5	-7	-18	-18	1	-1	-2	-4	-5	-7	-10	-18
400		-1	2	-1	-3	-5	-8	-15	-23	-1	0	-5	-5	-5	-6	-19	-19	1	-1	-2	-4	-5	-7	-10	-18
500		-1	2	-1	-3	-5	-8	-15	-23	-1	0	-5	-5	-5	-6	-19	-19	1	-1	-2	-4	-5	-7	-10	-18
630		0	1	-1	-3	-5	-8	-12	-20	1	0	-4	-5	-5	-7	-19	-19	0	-1	-3	-5	-5	-7	-9	-19
800		0	1	-1	-3	-5	-8	-13	-21	7	-1	0	-3	-5	-8	-18	-18	5	0	-1	-4	-5	-8	-11	-17

Technical Datas



$V(l/s)(m^3/h)$: Flow rate

A-B(m): Distance between two diffusers

X(m): Distance between wall and center of the diffuser

H₁(m): Distance between wall and the comfort zone

V_{H1}(m/s): Velocity from the ceiling to the comfort zone

L(m): Supply air distance including vertical and horizontal (X+H₁) flow direction

V_L(m/s): Velocity of air flow

Δt_z(K): Temperature difference between room and supply air

Δt_L(K): Temperature difference between room and through L distance

$$L = A/2 + H_1$$

$$L = B/2 + H_1$$

$$L = X/2 + H_1$$

A_{eff}(m²): Effective area

ΔP_t(Pa): Total pressure loss

L_{WA} dB(A): Sound power level dB(A)

L_{WNC}: Sound power level NC

L_{WNR}: L_{WNR} = L_{WNC} + 2

L_{pA}, L_{pNC}: The calculation of sound power level with A-mass, NC ratio;

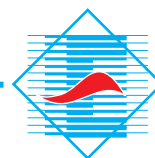
$$L_{pA} \sim L_{WA} - 8 \text{ dB}$$

$$L_{pNC} \sim L_{WNC} - 8 \text{ dB}$$

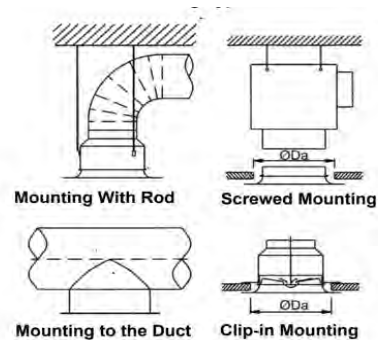
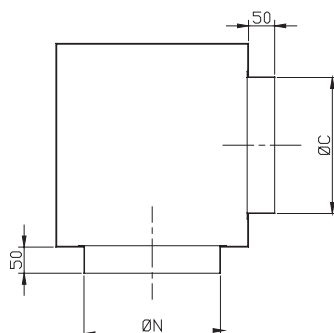
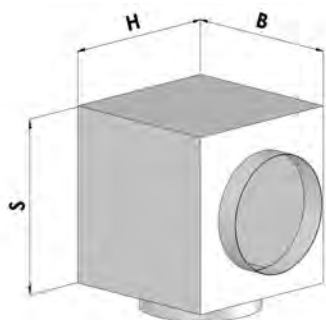
ΔL dB/oct.: Sound power level according to L_{WA}

L_w dB/oct.: Regenerated sound power level

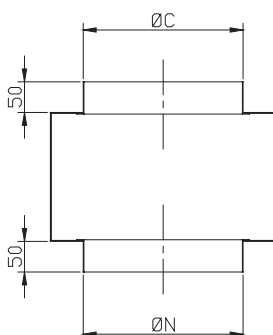
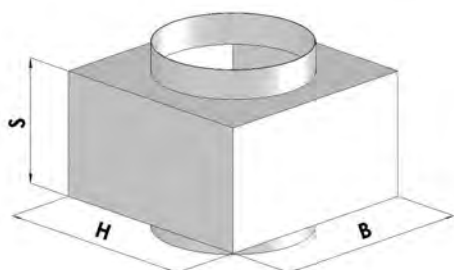
$$L_w = L_{WA} + \Delta L$$



Side Entry

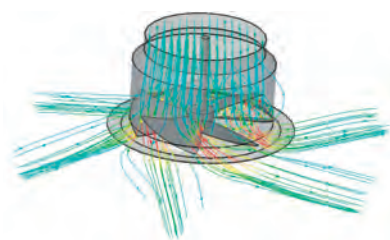


Top Entry

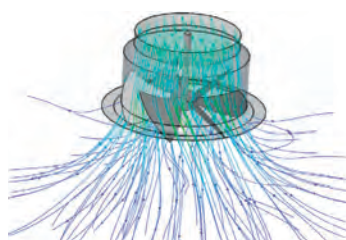


Side Entry						Top Entry				
Ø (mm)	BXH (mm)	S (mm)	ØC (mm)	ØN (mm)	(kg)	BXH (mm)	S (mm)	ØC (mm)	ØN (mm)	(kg)
160	285	175	123	162	2,5	285	200	123	162	2,5
200	325	210	158	202	3	325	200	158	202	3
250	375	250	198	252	4,5	375	200	198	252	3,5
315	440	300	248	317	6	440	200	248	317	4,5
400	525	365	313	402	8,5	525	200	313	402	5,5
500	625	450	398	502	12	625	200	398	502	7
630	755	550	498	632	17,5	755	200	498	632	10

THROW PATTERN



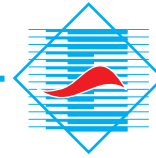
Horizontal Throw



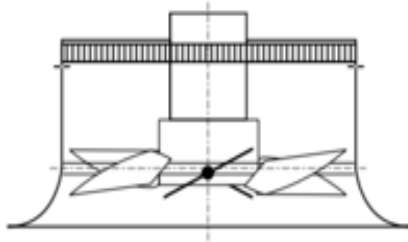
Vertical Throw



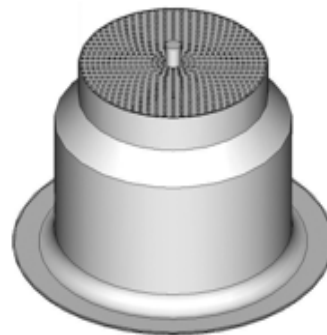
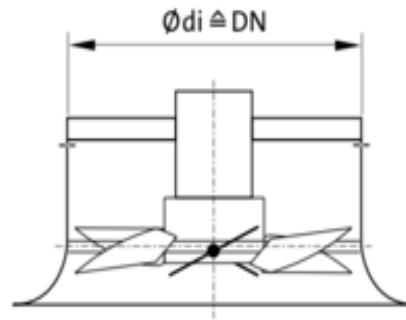
Mixed Throw



Honeycomb rectifier



Perforated plate insert



Method of operation

Different flow patterns are imposed upon the air analogue to the respective blade angle, those patterns ranging from round free jet to axial and radial swirling jets. This guarantees that all cases of cooling, ventilating or heating can be distinguished. Every possible load has a defined angular dimension assigned to it. Moreover, setting the blades to asymmetrical angles allow interference from obstructions in the jet dispersion to be avoided from the outlet.



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