Difair

Serie
DRM20AT
DRM20ATPL



DIFUSOR DE CONOS MÓVILES TERMOAUTOMÁTICO

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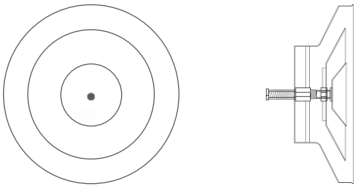
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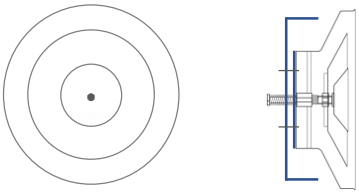
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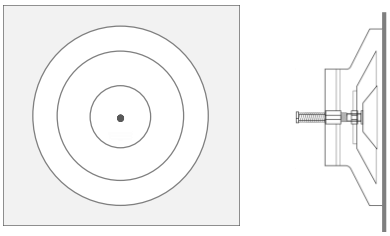
MODELS



DRM20AT
Thermo-automatic movable cone diffuser.



DRM20AT+PM
Thermo-automatic movable cone diffuser with crossbar.



DRM20AT-PL
Thermo-automatic movable cone diffuser mounted on plate.

Note:
Mounting crossbar NOT compatible with thermo-automatic movable cone diffusers mounted on a plate.

DESCRIPTION

From research comes a revolutionary solution for air conditioning systems, the right answer for adapting to all temperatures. As is well known, in heating mode, it is necessary to direct the airflow toward the floor to counteract the natural convection of hot air, which, being lighter, tends to rise.

Conversely, during the cooling phase, it tends to flow horizontally, creating a stream of fluid that adheres to the ceiling and forms a layer of cold air. Because it is so heavy, it will descend evenly, providing adequate comfort without causing precipitation or annoying localized cold drafts.

Currently, the adjustment of diffusers with adjustable cones at the start of each season is performed manually or using appropriate servomotors controlled by a complex management and control system. Clearly, this involves significant labor costs in the first case and a substantial investment in plant infrastructure and management systems in the second.

ACCESSORIES

- Mounting crossbar (**PM_CM**).
- Fixing Kit **KD**
- Flexible Duct Collar **CF_CM**

FINISH (Diffuser)

- **WHITE LACQUERED** diffuser (9010).
- **ANODIZED ALUMINUM** diffuser.
- On request, it can be manufactured in other colors from the **RAL** color chart.

REVOLUTIONARY - EFFICIENT - MAINTENANCE-FREE

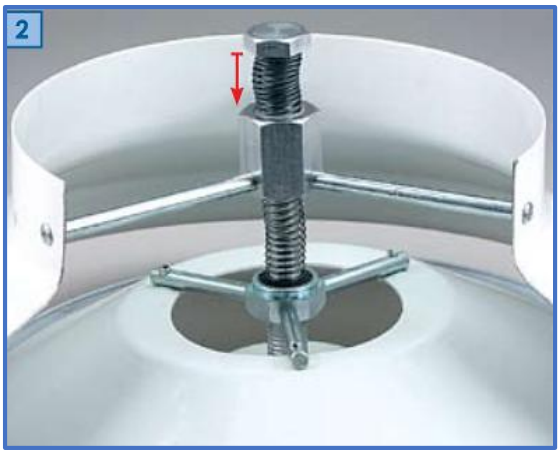


With the new SMA actuator, which weighs just 7 grams and is installed in the DCRT and DCRTQ moving-cone diffusers, the cones are automatically positioned according to the inlet air temperature, directing the airflow correctly as the room's climate needs change, without using any auxiliary power.

The shape-memory device installed in the diffusers begins to expand at a temperature of 20°C, and begins to contract below 20°C. It is capable of performing up to 100,000 cycles over its lifetime; therefore, if we assume the system is turned on in the morning and turned off at night, we can estimate its average lifespan to be 270 years.

ADVANTAGES

- No need for maintenance personnel at each climate station.
- No need for complex control and management systems.
- Lower production, design, and operating costs.
- Optimized energy consumption.



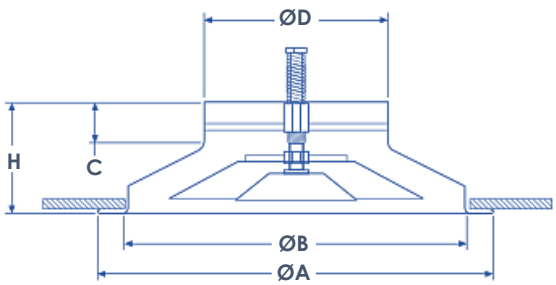
Cooling mode



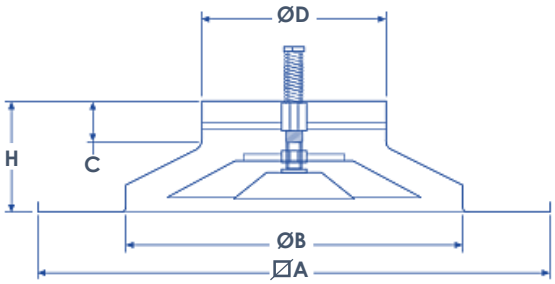
Heating mode

DIMENSIONS

DRM20AT



DRM20AT-PL

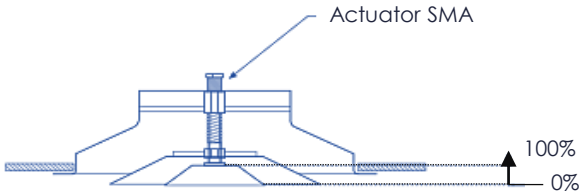


DIMENSIONES TABLE (mm) DRM20AT					
Mod.	**ØA**	**ØB**	**C**	**ØD**	**H**
6”	335	280	45	158	105
8”	423	360	48	198	118
10”	517	445	48	248	130
12”	640	560	48	313	146
14”	730	640	65	353	185
16”	766	700	65	398	185
18”	825	755	65	448	185
20”	917	825	65	498	185

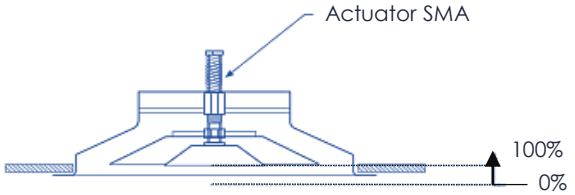
DIMENSIONS TABLE (mm) DRM20AT-PL					
Mod.	**⍁ A**	**ØB**	**C**	**ØD**	**H**
6”	596	280	45	158	100
8”	596	360	48	198	110
10”	596	445	48	248	120
12”	596	495	48	313	126

OPERATING SCHEME

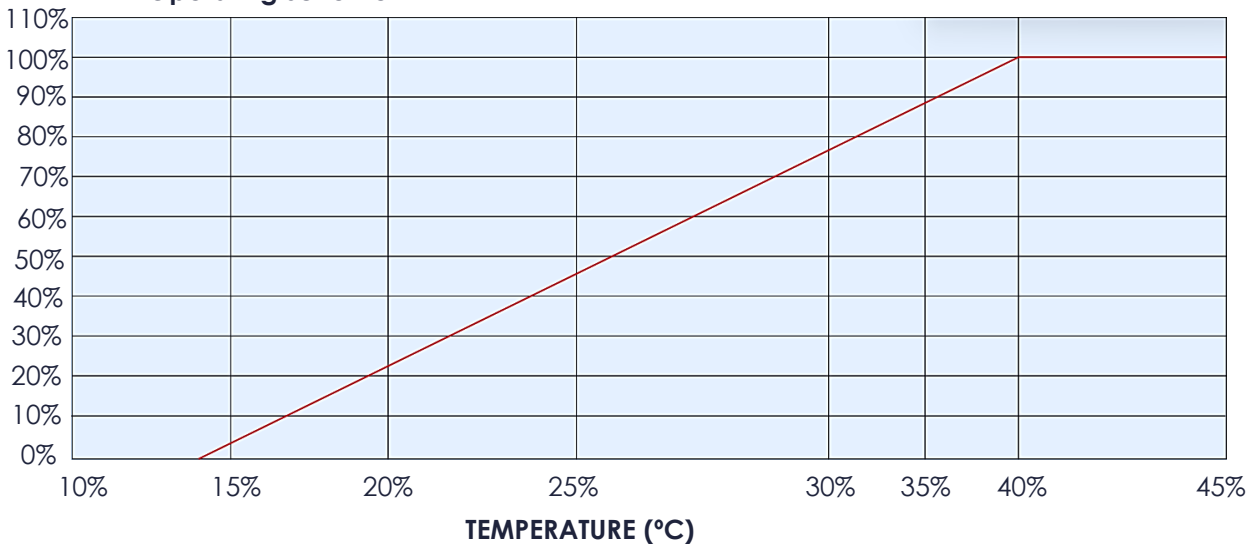
DRM20AT: cooling mode



DRM20AT: heating mode



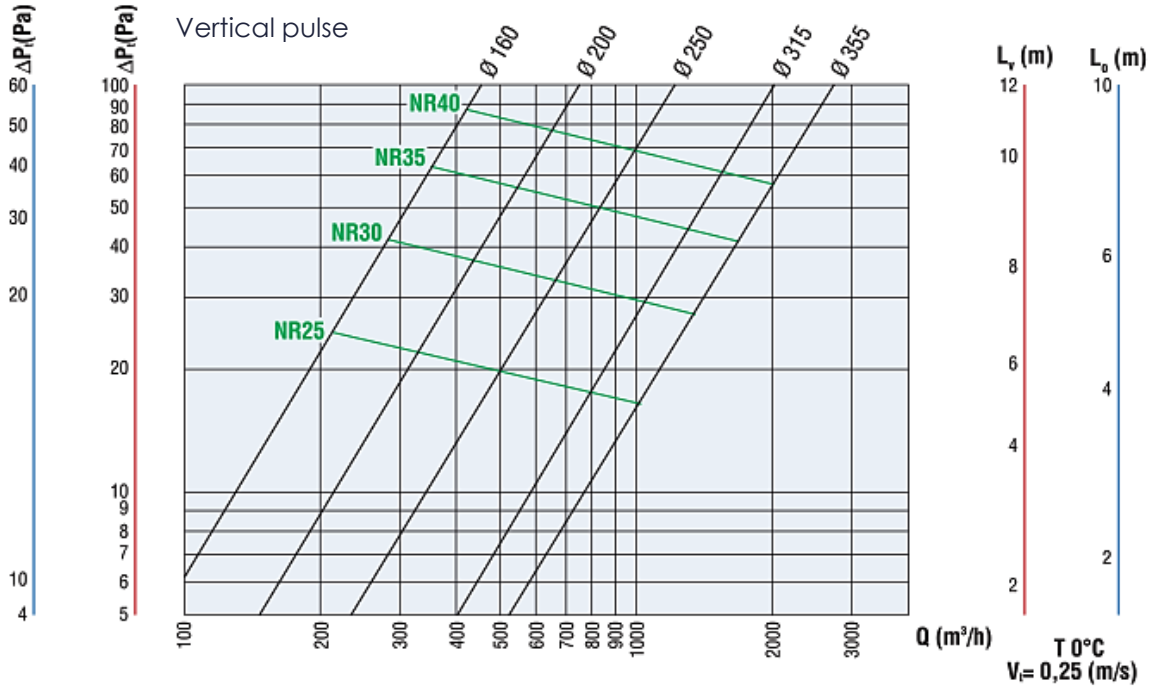
Operating scheme



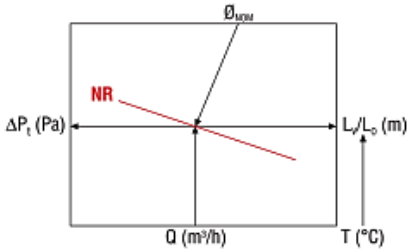
QUICK SELECTION DIAGRAM

Horizontal pulse

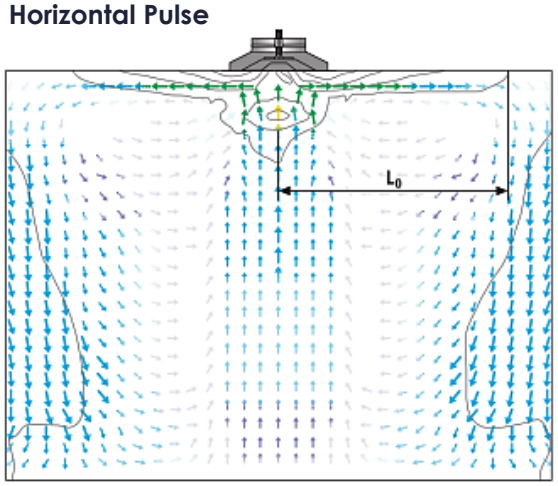
Vertical pulse



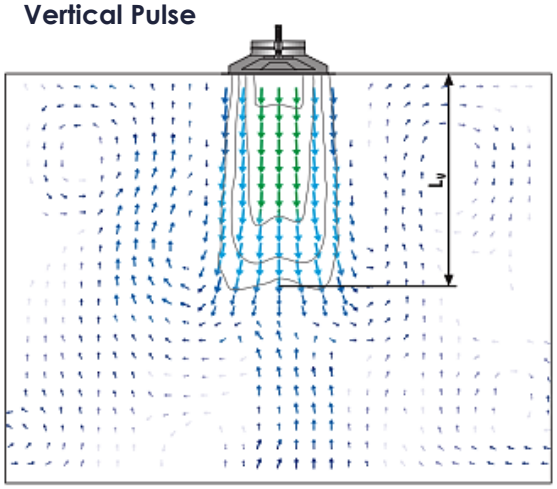
Legend:
Q (m³/h): Flow rate.
ΔPt (Pa): Pressure drop.
Lo (m): Vertical throw with terminal velocity Vt = 0.25
m/s. L (m): Vertical throw with terminal velocity Vt = 0.25 m/s.
NR: Noise index (ISO standard, referring to 10–12 W) does not take room attenuation into account.



Horizontal Pulse

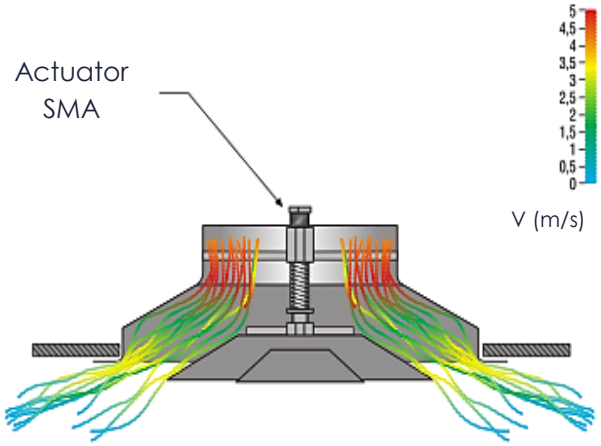


Vertical Pulse

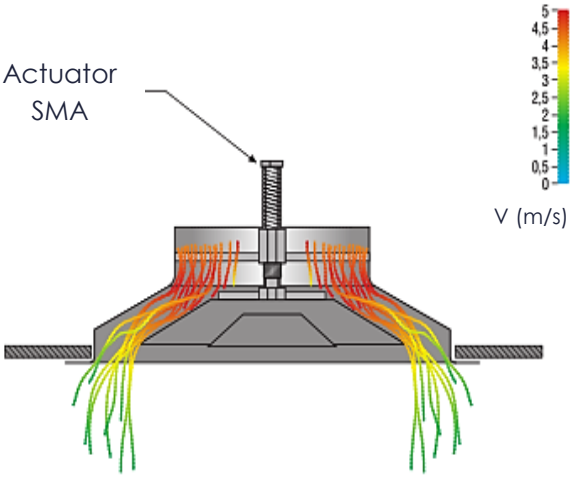


IMPULSION TYPE

Horizontal Pulse – Fig. A



Vertical Pulse – Fig. B



Figures "A" and "B" show how the diffuser behaves as the intake air temperature changes.

In Figure "A," we see that, when the air cools, the actuator lowers the intermediate cones, creating a horizontal airflow to enhance the Coanda effect.

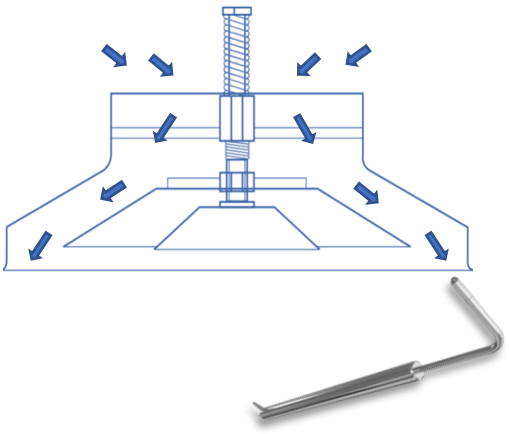
In Figure "B," we can see that as the air temperature rises, the actuator moves the cones toward the inside of the outer bell, resulting in a vertical airflow that promotes the penetration of warm air into the occupied zone.

AIR FLOW MEASUREMENT

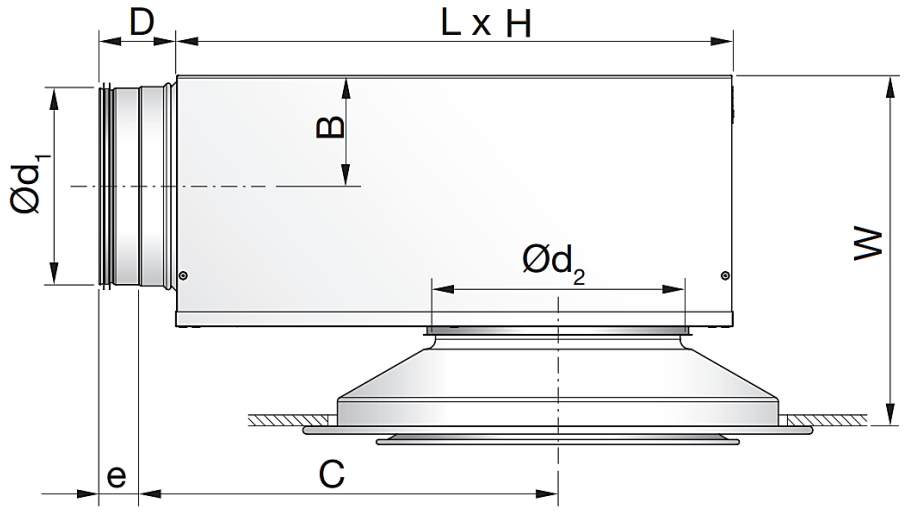
There are two ways to do this:

1- Measuring Air Speed at the Neck.

2- Measuring the effective flow speed using a Pitot tube at various points. **m²/h = Va × m² × 3,600**



PLENUM BOX



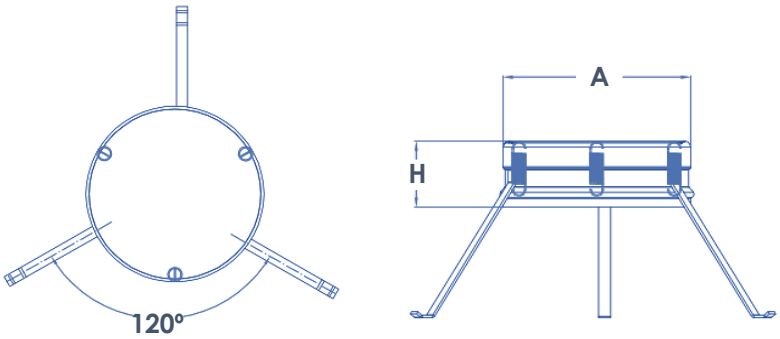
PLENUM BOX: DIMENSIONS TABLE (mm)								
Ød1	Mod: Ød2	B	C	D	e	W*	L	H
100	**6": 160**	62	245	78	40	221-143	310	260
125	**6": 160**	75	291	78	40	246-268	376	310
125	**8": 200**	75	291	78	40	257-281	376	310
160	**6": 160**	92	352	78	40	280-302	459	380
160	**8": 200**	92	352	78	40	291-315	459	380
160	**10": 250**	92	352	78	40	305-327	459	380
200	**8": 200**	112	425	78	40	332-356	565	460
200	**10": 250**	112	425	78	40	346-368	565	460
200	**12": 315**	112	425	78	40	363-384	565	460
250	**10": 250**	137	514	118	60	396-418	698	540
250	**12": 315**	137	514	118	60	413-434	698	540
250	**14": 400**	137	514	118	60	440-473	698	540
315	**12": 315**	170	675	118	60	478-499	858	540
315	**14": 400**	170	675	118	60	505-538	858	540

FIXING SYSTEM

KD – Pressure clips Kit.

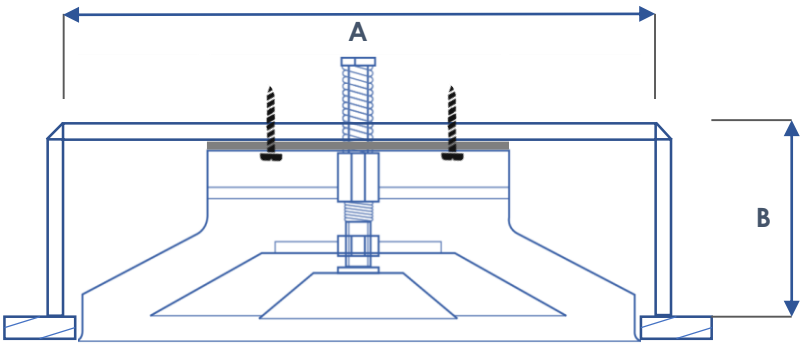


CF_CM- Flexible duct collar.

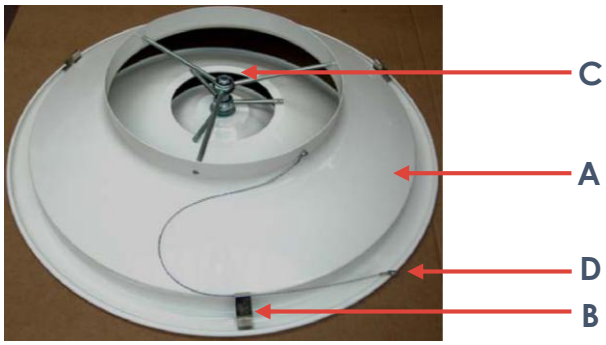


DIMENSIONS	160	200	250	315
A	154	194	244	309
H	60	60	60	60

PM_CM – Mounting crossbar.



DIMENSIONS TABLE								
Mod.	6"	8"	10"	12"	14"	16"	18"	20"
A	300	390	480	595	675	720	775	845
B	120	130	150	165	200	200	200	200



A) Difusor
B) Clip de fijación
C) Radio de soporte
D) Cable de seguridad

Instrucciones de montaje mediante **CLIPS DE FIJACIÓN** modelos **Ø6"-Ø14":**

1) Colocar los clips de fijación (B) en correspondencia de los radios de apoyo del difusor manteniendo un ángulo de unos 120°.

2) Ejerza una ligera presión sobre el clip (B) desde arriba hacia abajo.

3) Extienda en la parte final del cuello del difusor (junto al radio de conexión) un orificio pasante (Ø 5,5 mm) para la fijación del cable de acero de seguridad (D).

4) Fije la cabeza del cable de acero de seguridad (D) mediante tornillo y tuerca (M5) suministrados con el difusor. Fije el extremo del cable de acero de seguridad a la estructura del falso techo.

5) Inserte el difusor (A) en el orificio especial que se preparó previamente.

Ø6"; Ø8"; Ø10"; Ø12"; Ø14";

Atención: Para los modelos de Ø14" se recomienda utilizar 6 clips (kit de fijación n° 2 Ø12").

Fig. **1**



Fig. **2**



Fig. **3**



Fig. **4**

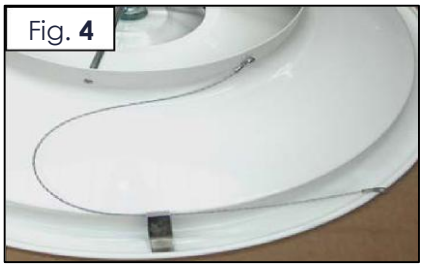


Fig. **5**



QUICK SELECTION TABLE

Flow m³/h		6"	8"	10"	12"	14"
100	Ve	1,5				
	L	0,7				
	Δ P	0,8				
	dB(A)	<20				
200	Ve	2,9	2			
	L	1,1	1			
	Δ P	1,6	0,7			
	dB(A)	25	<20			
300	Ve	5	2,6	1,8		
	L	1,8	1,3	1		
	Δ P	4,2	1,2	0,6		
	dB(A)	35	22	<20		
400	Ve	6,3	3,6	2,2	1,6	
	L	2,3	1,8	1,2	1	
	Δ P	6,5	2,3	1	0,5	
	dB(A)	43	28	22	<20	
500	Ve	8	4,5	3	2,1	
	L	3	2,2	1,6	1,4	
	Δ P	9,8	3,4	1,4	0,6	
	dB(A)	50	33	25	21	
600	Ve		5,4	3,5	2,5	1,9
	L		2,7	1,9	1,6	1,7
	Δ P		4,8	2,1	1	0,5
	dB(A)		38	27	23	<20
700	Ve		6,3	4,2	3	2,1
	L		3,1	2,3	1,9	1,9
	Δ P		6,3	2,5	1,3	0,7
	dB(A)		42	33	25	<20
800	Ve		7,3	4,8	3,4	2,2
	L		3,6	2,7	2,1	2,1
	Δ P		8	3,3	1,5	0,9
	dB(A)		46	34	27	22
900	Ve			5,6	3,8	2,9
	L			3	2,4	2,6
	Δ P			3,9	2,1	1,2
	dB(A)			38	29	24
1.000	Ve			6	4,2	3,1
	L			3,3	2,7	2,7
	Δ P			5	2,4	1,4
	dB(A)			40	33	26
1.100	Ve			6,5	4,6	3,2
	L			3,6	2,9	2,9
	Δ P			6,1	3	1,5
	dB(A)			43	35	28
1.200	Ve			7,2	5,1	4
	L			3,9	3,2	3,6
	Δ P			6,7	3,4	2,1
	dB(A)			45	37	29
1.300	Ve				5,5	4,1
	L				3,4	3,7
	Δ P				3,6	2,2
	dB(A)				38	30

Flow m³/h		12"	14"	16"	18"	20"
1.400	Ve	6	4,3	3,2	2,8	2,2
	L	3,7	3,9	3,3	3,5	2,7
	Δ P	4,6	2,4	1,4	1,1	0,5
	dB(A)	40	32	27	23	21
1.500	Ve	6,1	4,9	3,3	3	2,4
	L	3,8	4,4	3,4	3,6	2,9
	Δ P	4,7	3	1,5	1,2	0,6
	dB(A)	42	34	29	25	22
1.600	Ve	6,9	5	4,1	3,2	2,5
	L	4,2	4,5	4,2	3,8	3,1
	Δ P	6,1	3,2	2	1,4	0,7
	dB(A)	44	36	30	26	23
1.700	Ve	7	5,2	4,2	3,4	2,6
	L	4,3	4,6	4,3	4	3,4
	Δ P	6,1	3,3	2,1	1,6	0,8
	dB(A)	46	37	32	27	24
1.800	Ve	7,9	5,9	4,3	3,6	2,8
	L	4,9	5,3	4,4	4,4	3,8
	Δ P	7,7	4,3	2,2	1,5	1
	dB(A)	47	38	33	28	24
1.900	Ve	8	6	4,4	3,8	3
	L	5	5,4	4,5	4,6	3,9
	Δ P	7,8	4,4	2,3	1,7	1,1
	dB(A)	50	40	34	29	25
2.000	Ve	8,9	6,1	5	4	3,3
	L	5,6	5,5	5,2	4,8	4,3
	Δ P	9,6	4,6	3	1,9	1,3
	dB(A)	54	42	35	30	26
2.100	Ve		6,2	5,1	4,2	3,6
	L		5,6	5,3	5,5	4,7
	Δ P		4,7	3,1	2,3	1,5
	dB(A)		43	36	32	27
2.200	Ve		7	5,3	4,5	3,8
	L		6,3	5,5	6	5
	Δ P		5,8	3,3	2,5	1,7
	dB(A)		45	38	33	28
2.400	Ve		7,1	5,9	4,8	4
	L		6,4	6.2	6,5	5,2
	Δ P		6	4,1	2,7	1,9
	dB(A)		48	40	35	29
2.600	Ve		8	6,3	5,3	4,2
	L		7,2	6,7	6,5	5,5
	Δ P		7,4	5	3,1	2,1
	dB(A)		51	42	36	31
2.800	Ve			7	5,7	4,6
	L			7,1	6,9	6
	Δ P			5,4	3,8	2,4
	dB(A)			44	38	32
3.000	Ve			7,8	6	4,9
	L			8	7,2	6,3
	Δ P			6,8	4,1	2,6
	dB(A)			44	40	34

Ve = Neck Speed
Δ P = Pressure drop in mm c.a.
dB(A) = Sound level
L = Range in m for a final speed of 0.2–0.5 m/s

THERMO-AUTOMATIC MOVABLE CONE DIFFUSER
SERIE DRM20AT/DRM20AT-PL

Series	Model	Size
DRM	20AT	Ø
	20AT-PL	

Finish
AN
LB
RAL

Accessoreos
PM_CM
KD
CF_CM
PDRM



DESCRIPTION

SERIES & MODEL

- DRM: Thermo-automatic movable cone diffuser.

SIZE

- Diameter: De Ø6".

FINISH

- LB: Withe laquered.

ACCESSORIES (optional)

- PM6CM: Mounting frame for 6" movable cone diffuser.

Order example: DRM20AT-6”-LB+PM6CM

- To order a 6" thermo-automatic movable cone diffuser with a mounting crossbar, white lacquered, you should request:

Order	Description
Diffuser DRM20AT 6"- White laquered	6" thermo-automatic movable cone diffuser, white lacquered.
Crossbar PM6CM	Mounting crossbar for 6" movable cone diffuser.

Order example: DRM20AT-PL-10”-AN

- To order a 10" thermo-automatic movable cone diffuser on plate, anodized aluminum, you should request:

Order	Description
Diffuser DRM20AT-PL 10"- Anodized aluminum	10" thermo-automatic movable cone diffuser on plate, anodized aluminum.



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