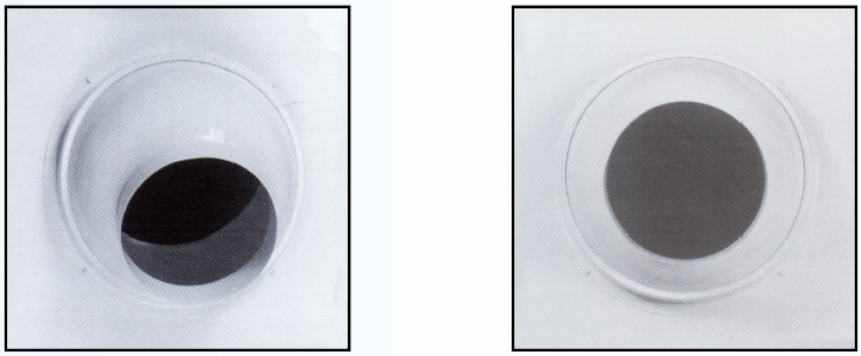
JET NOZZLE CF

فوهة قذف بعيد المدى
Long Range Blower JET NOZZLE



From JET NOZZLE CF

Long Range Blower CF:

Features:

- Self blowing of the network.
- Diffuser easily orientated.
- Long range.

Available Types:

5 Types from 100 to 3000 m^3/hr.

Application / Use:

Blow age in long volume, high ceiling building

Material:

- Aluminum blower rotating on disk.
- Painted aluminum in white colors.

Technical specifications:

Sphere blowers rotating on disks enabling the orientation of the air sheaves of all directions.

فوهة قذف بعيدة المدى CF

المميّزات:

- توازن ذاتي للشبكة
- دفيوزر كامل التوجيه
- مدى بعيد

الموديلات المتوفرة:

خمس أنواع من 100 إلى 3000 م^3/ساعة.

الاستعمالات:

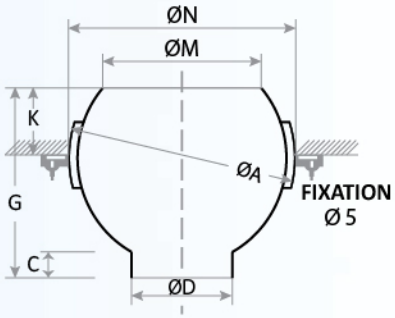
مباني كبيرة الحجم أو ذات الأسف المرتفعة.

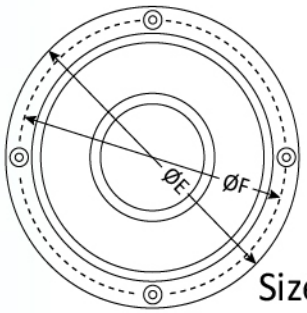
المواد:

- فوهات ألمنيوم مثبتة على إطار دائري
- ألمنيوم مطلي باللون الأبيض

المواصفات الفنية:

فوهات كروية مثبتة على إطار دائري تسمح بتوجيه الهواء في جميع الاتجاهات.





Sizes

ØN	ØD	ØE	ØF	G	K	ØM	ØN
142	65	148	162	115	26	109	142
209	100	253	235	169	42	172	209
318	165	158	337	265	66	256	318
422	230	474	450	353	106	348	422
500	300	558	526	421	128	415	500

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The table below gives a guide for selecting the sizes of jet nozzles.

The value shown are determined for isothermal, single, free horizontal air stream.

Air velocities of, for example 0.2 mis with a throw of 30 m are only possible in theory.

However. Comprehensive test has shown that room parameters must be taken into account with this distance. If the supply air temperature difference changes, the air stream deflection in diagram 2 must be taken into account.

No values are given for effective di charge velocities of less than 2 mis. Similarly, values above the sound power level of 60 dB (A) are not given. If the values required lie outside the limiting value of this table, they must be taken from the diagrams.

Size	Throw												Air Velocity
	10m				20m				30m				
	V		L_{wa}	L_{wnc}	V		L_{wa}	L_{wnc}	V		L_{wa}	L_{wnc}	V m/s
	1/s	M^3/h	dB(A)	NC	dB(A)	NC	dB(A)	NC	1/s	M^3/h	dB(A)	NC	
142	18	66	<20	<20	37	132	<20	<20	55	199	27	23	0.2
209	24	87	<20	<20	48	174	<20	<20	73	261	142	<20	
318	-	-	-	-	78	280	<20	<20	117	421	<20	<20	
422	-	-	-	-	103	371	<20	<20	155	557	<20	<20	
142	46	165	20	<20	92	331	41	37	138	496	53	49	0.5
209	61	218	<20	<20	121	436	36	31	182	654	48	43	
318	98	351	<20	<20	195	702	28	23	293	1053	39	34	
422	129	464	<20	<20	258	928	25	22	387	1392	36	33	
142	92	330	42	38	184	662	61	57	-	-	-	-	1.0
209	121	436	36	31	242	872	56	51	-	-	-	-	
318	195	702	28	23	390	1404	48	43	585	2106	58	53	
400	258	928	25	22	516	1856	45	41	773	2784	56	52	

Example

Data given:

2 Nozzles are to be fitted at a spacing of 30m (A= 15m) and a height above the occupied zone H= 6m, discharging towards each other.

The hall is very high, so that free jet steams can be assumed.

For cooling, $\dot{V}_k$= 280 l/s for each nozzle with Δt_k= -8 K and for heating,$\dot{V}_w$ = 70 l/s with Δt_w= +4K.

A motorised swivel movement is required for the nozzles. As people will be in the occupied zone during the heating process, i. e. in these conditions primary air may enter this area, see diagram, an air velocity $\bar{V}_L$= 0.3 m/s should not be exceeded.

Solution

Proceed as described on the previous page.
Jet nozzles size 250 is chosen from the preliminary selection table

Cold Air

① $(\iota_K$=30°
② L=A / C= 15 / 0.87 = 17.2 m (C from table 1)
③ H_2 = T. A= 0.58 . 15= 8.7 m (T from table 2)
④ From diagram 1: $\bar{V}_L$ = 1.1 m/s
⑤ From diagram 2: y = 0.32 m
⑥ $H_1 = H + H_2 - y = 6 + 8.7 - 0.32 = 14.4$ m
⑦ From diagram 3: $\bar{V}_{H1}$ < 0.05 m/s

Warm Air

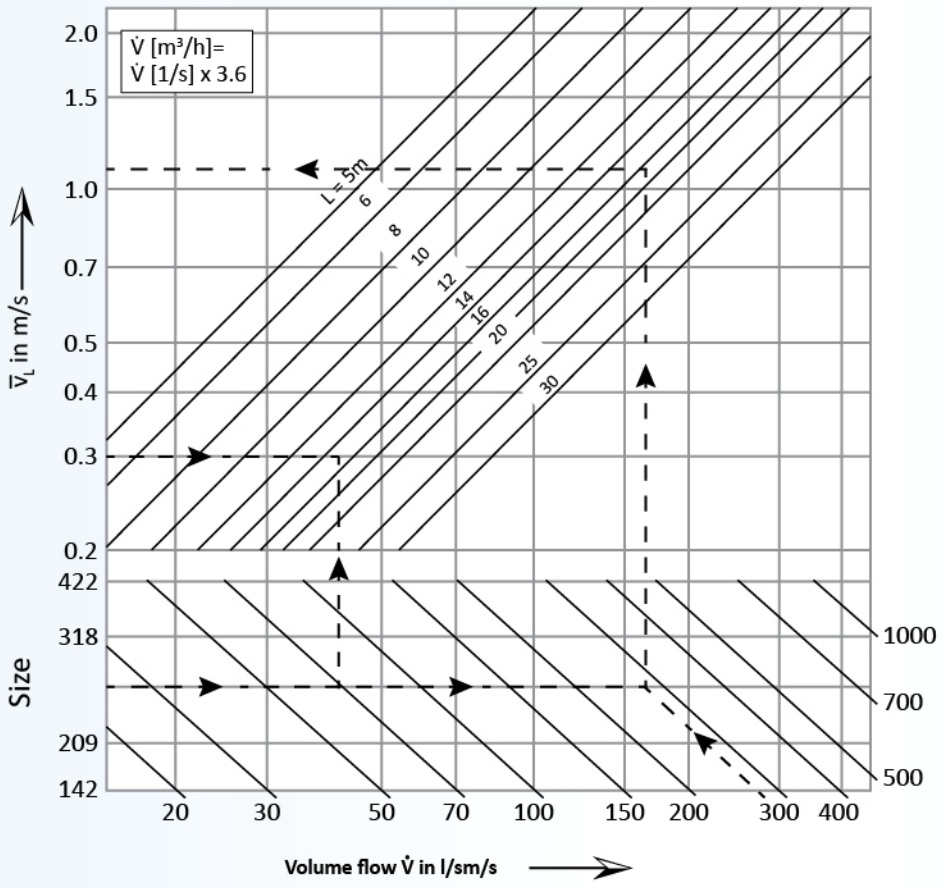
① Given: $\bar{V}_L$ = 0.3 m/s
② From diagram 1: L = 15.5 m
③ From diagram 2: y = 1.75 m
④ S= (H + y) IL= (6+1.75) 115.5 = 0.50
from table 3: $(\iota_w$=30°

From dagram 7:

at $\dot{V}$ = 280 l/s
L_{WA}= 49 + 1= 50 dB(A)
L_{WNC}= 42 + 1= 43 NC
ΔP_1= 260 Pa

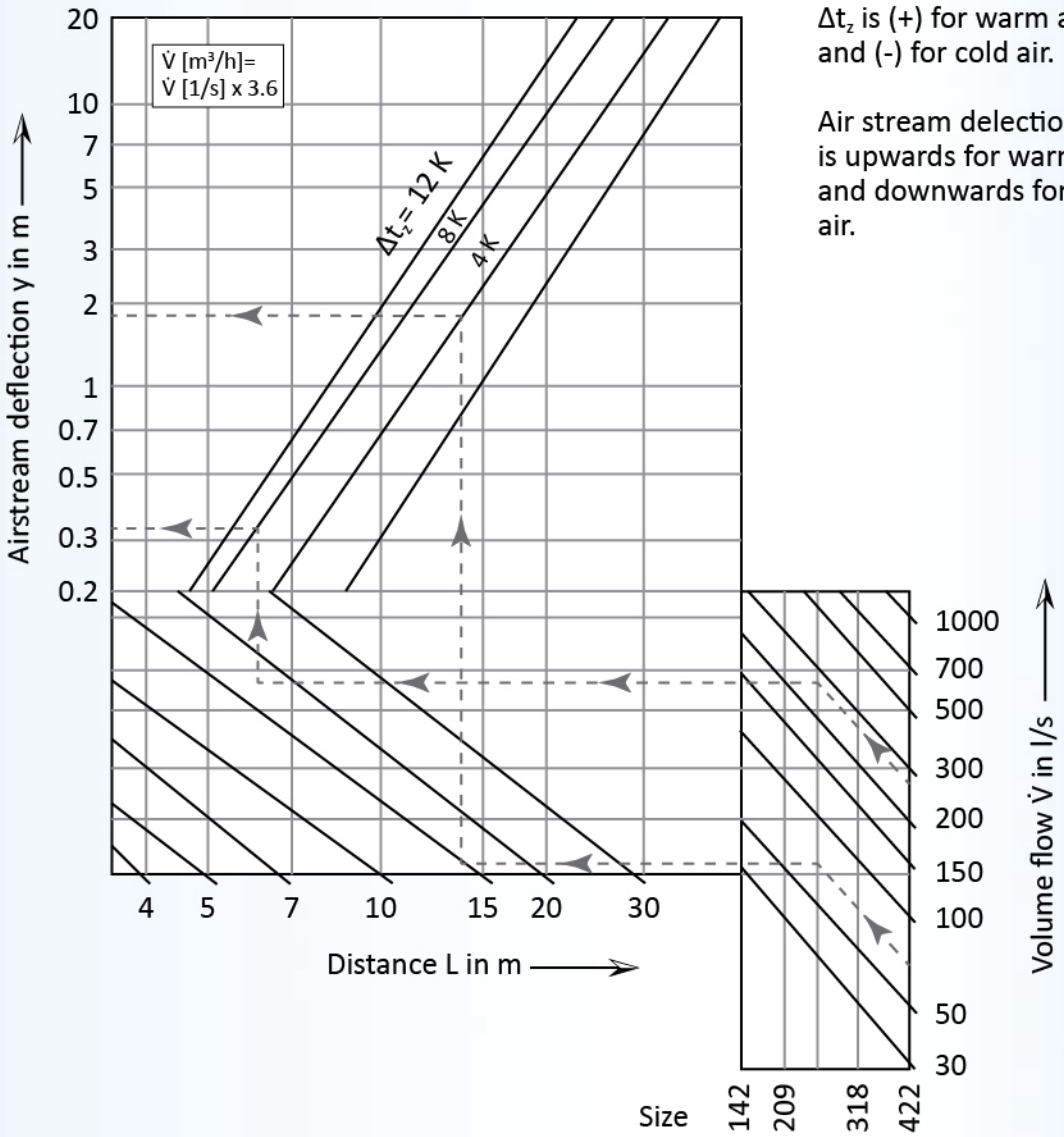
at $\dot{V}$ = 70 l/s
L_{WA} = <20 dB (A)
L_{WNC}=<10NC
ΔP_1= 16 Pa

1 Core velocity and throw



Result:
The jet nozzles must be installed horizontally, with the motorised action set, so as to give a swivel angle of 30° upwards for cold air, and 30° downwards for warm air.

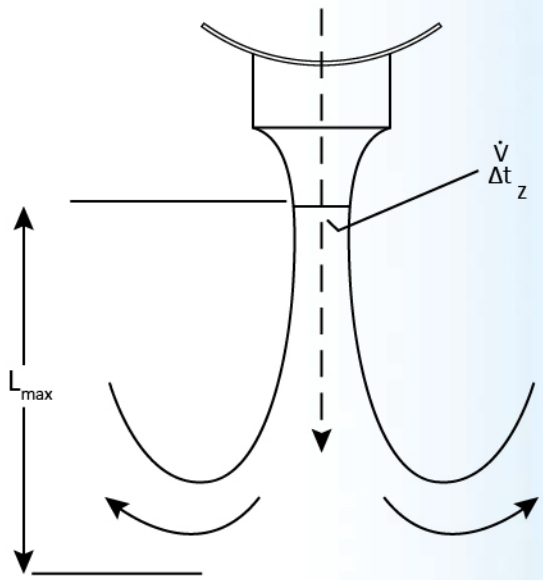
2 Airstream deflection



Δt_z is (+) for warm air and (-) for cold air.

Air stream delection y is upwards for warm air and downwards for cold air.

L_{max} is the maximum depth to which a warm airstream can penetrate vertically downwards as a function of temperature difference.



6 Maximum pentration depth of a warm airstream directed vertically downwards