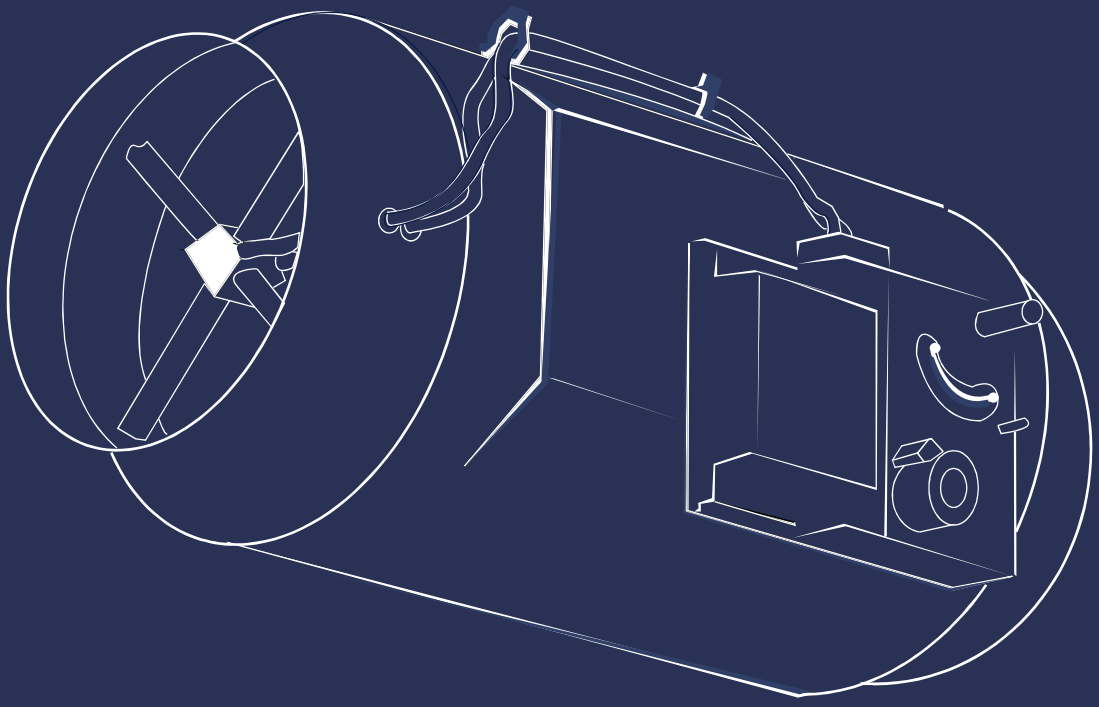


NA / NB series

Circular VAV and CAV air volume control terminals

BARCOL-AIR

Circular VAV and CAV air volume control terminals

Table of contents

Circular VAV and CAV air volume control terminals

Type designation NA / NB.....

Composition type designation:

N - A - O - Q - E - B / 200-4-Y / 1 / P

N Position 1: **Product group**

N = air volume control terminals

A Position 2: **Function**

A = single wall, circular volume control terminal
B = double wall, circular volume control terminal
1 = non standard, specify separately

O Position 3: **Controls**

O = without controls
R = with controls, contact Barcol-Air sales

N Position 4 : **Outlet**

A = rectangular outlet
B = circular outlet
C = 4 circular outlets (' Octopus')
G = rectangular outlet and provision for integral hot water reheat coil
J = 4 circular outlets and provision for integral hot water reheat coil
N = rectangular outlet and provision for integral electric reheat coil
Q = 4 circular outlets and provision for integral electric reheat coil
1 = non standard, specify separately

E Position 5: **Reheat coil**

O = without reheat coil
A = 1-row hot water reheat
B = 2-row hot water reheat
D = 4-row hot water reheat
E = 1-stage 230VAC/1-phase electric reheat coil
F = 2-stage 230VAC/1-phase electric reheat coil
G = 3-stage 230VAC/1-phase electric reheat coil
H = 1-stage 400VAC/3-phase electric reheat coil
J = 2-stage 400VAC/3-phase electric reheat coil
1 = non standard, specify separately

B Positon 7: **Sensor**

O = not applicable
B = Flo-cross, 2 x 12 point averaging and signal amplifying air flow sensor (standard)
1 = non standard, specify separately

200-4-Y Position 7 : **Multiple outlets attenuator**

200= air outlet size
4= air outlet quantity
Y=with manual regulator
N=without manual regulator
None represent no multiple outlets attenuator

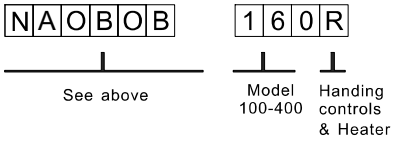
1 Position 8 : **Heating capacity**

1 = Heating capacity 1KW
None = No Heater

P Position 9 : **Finish**

P = powder paint coating
S = SUS304 + Aluminium paint
None = standard finish(Galvanised steel)

Ordering example



Ordering information:

Standard terminals:
- quantity of terminals
- complete 6 digit code
- terminal size or model
- air volume setting (V_{max}, V_{min} etc)
- control handing (standard right side)
- if applicable, electric reheat coil capacity
- supply or return air

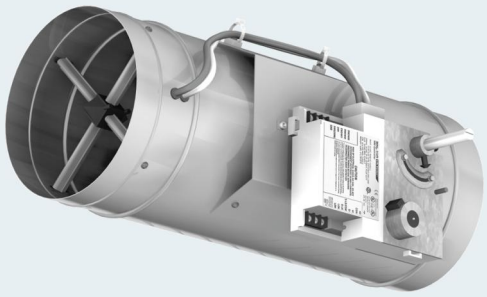
Non standard terminals:

- for non standard terminals a full description and / or drawing are requested.

BARCOL-AIR

Circular VAV and CAV
air volume control terminals

Technical data
Single wall (NA.....)
Double wall (NB.....)



Application

Types NA and NB are circular pressure independent VAV and CAV air volume control terminals. The terminals are designed for the accurate measurement and control of air volumes courtesy of the patented airflow sensor type Flo-Cross®.
In CAV application, the terminals maintain the required constant airflow independent to the inlet static pressure.
In VAV application, the terminals control the air volume to the room, to meet the cooling and heating loads or to control the room or air duct pressure.

The VAV or CAV terminals can be used either for supply or return air applications in new or refurbishment projects. The terminals have single wall (NA) or double wall (NB) construction and can be delivered with a distribution plenum and an accessory hot water or electric reheat coil.

Features:
- Pressure independent control functions.
- Volume control range 100% to 10%.
- Low pressure loss over the terminal.
- Single or double wall construction.
- Factory fitted distribution plenum with an accessory hot water or electric reheat coil.
- Oval shaped damper blade for linear control characteristics.
- Low leakage damper.
- Low noise level.
- Suitable for all control functions (VAV, CAV, shut-off, etc.) To maximise system energy savings
- Flo-Cross®, 2 x 12 points averaging and signal amplification airflow sensor, ensure airflow measurement accuracy of ± 2.5% in its operating range.
- Maintenance free.

Technical information

Casing:
Single or double wall, air-tight construction made of galvanized sheet steel with low casing leakage rate. Casing air leakage Class C according to Standard EN1751.

Insulation:
The NB models are internally insulated between the inner and outer galvanized steel skins to reduce heat transfer and radiatied noise.

Damper:
Damper blade: made of galvanized steel sandwich construction with twin blades and a neoprene gasket with low leakage. Closed blade damper air leakage, Class 4 according to standard EN1751,except diameters 100 and 125 are Class 3.
Damper shaft : A luminium,Φ 12mm with self lubricating nylon bearing

Flo-Cross:
Extruded aluminium construction with nylon core and feet.

Distribution plenum:
Made of galvanised sheet steel with 13 mm internal isolation. Plenum with standard rectangular or multiple (4 x circular) outlet construction. Optional 1,2,3 or 6 circular outlets are possible. Outlet spigots are made of galvanised steel and optionally can be provided with volume control dampers.

Reheat coil:
Choice of 1, 2 or 4-row hot water reheat coil or electric reheat coil (230VAC/1-phase or 400VAC/3-phase).

Controls:
Suitable for use with pneumatic, analogue electronic or DDC controllers. Controls can be factory fitted, wired and calibrated. Controls enclosure made from galvanized sheet steel can be provided as an option.

Delivery format:

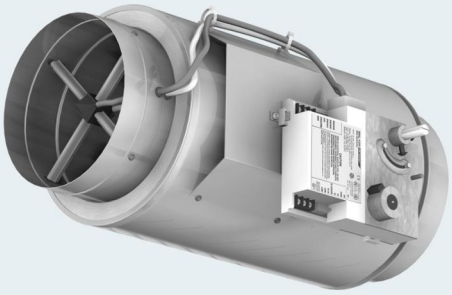
Delivery format:
- The VAV or CAV terminal will be supplied as a single mounting assembly.
  Optional ordered distribution plenum, reheat coil and/or controls are factory fitted, wired and calibrated. The terminal can be directly installed and commissioned when delivered to site.

- Controls location and hot water or electric connections are as standard fitted on the right hand side of the terminal when looking in the direction of the airflow.
  On request, the terminal can be delivered with connections on the left hand side.

- When terminals are ordered with controls, these will be factory fitted, wired and calibrated upon request.

Circular VAV and CAV
air volume control terminals

Technical data
Single wall (NA.....)
Double wall (NB.....)



Specify as:

Example:
Supply and install, variable air volume terminals with distribution plenum and 4 circular outlets, constructed from galvanized sheet steel. The casing leakage rate shall be class C according to standard EN1751. The closed blade damper air leakage shall be class 4 according to standard EN1751 except diameters 100 and 125 shall be class3.The VAV terminals shall have oval shaped damper blade with neoprene gasket and an aluminium damper shaft with self lubricating nylon bearings.

A Flo-cross averaging air flow sensor with at least 2 x 12 test points and amplified signal, with a sensing accuracy better than ±2.5% shall control the airflow. The terminals shall be supplied with 1-row hot water reheat coil.

The controller shall be I/A Series, DDC controller: LonMark compatible, type MNL-V2RVx or BACnet, type MNB-V2.

Controls must be factory fitted, wired and calibrated according to the following requirements:

Maximun air volume 250 l/s
Minimum air volume 60 l/s
Minimum air volume 120 l/s (in case of reheat)
Terminal size 200 mm
Max. pressure loss 38 Pa
Max. discharge sound index < NC30 (@250Pa Δp)
Max. radiated sound index < NC30 (@250Pa Δp)

Ordering example: type - model - handing= NAODJAB - 200R

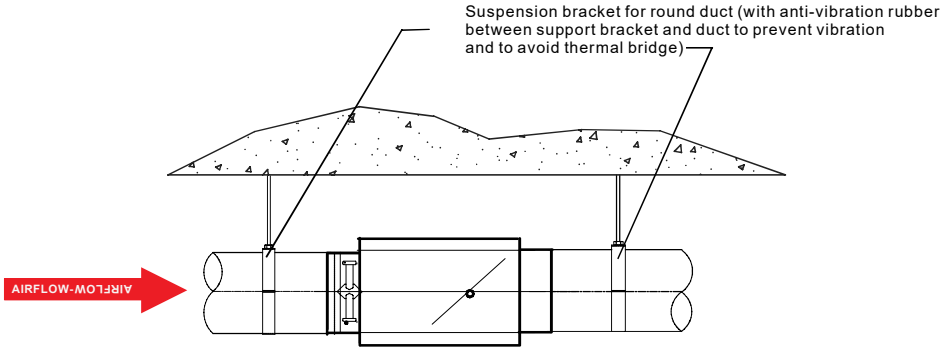
Manufacture: Barcol-Air

Installation Instructions:

The Barcol-Air VAV terminals shall be installed using at least two duct support brackets, with anti-vibration rubbers mounting as shown in the drawing below. Each of these bracket shall be fixed with threaded rods to the ceiling slab above.

The installation method:
1. Shall prevent the body of the VAV terminal from high mechanical tension, which could damage the construction and performance of the terminal.
2. Shall prevent torsion on the VAV terminals, which could cause malfunction of the damper blades.
3. Provides some flexibility to the final location of the VAV terminals.
4. Use at least one diameter length of straight air duct of the same cross section as the VAV unit before the VAV inlet to ensure the flow sensor accuracy.
5. Additional manual volume control dampers(VCD's) should not be installed before the unit inlet.
6. All connections shall be thermally isolated.
7. Pressure sensing tubes for the FloCross airflow sensor shall not be ″kinked″ or otherwise obstructed by external duct insulation.

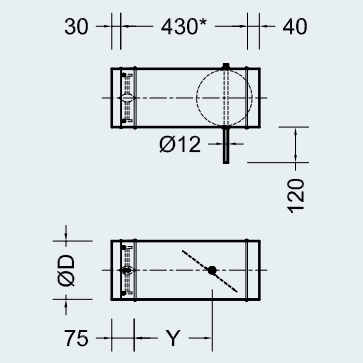
See drawing below.



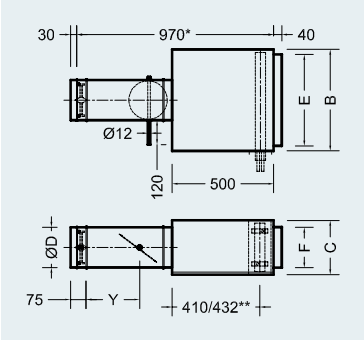
BARCOL-AIR

Circular VAV and CAV
air volume control terminals

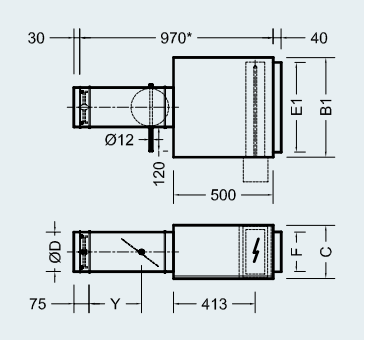
Technical data
Single wall (NA.....)



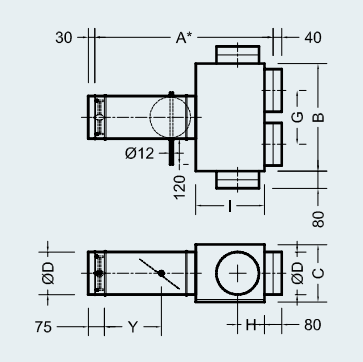
Type NAOAOOB



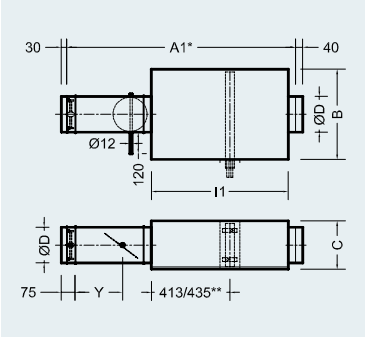
Type NAOG.OB



Type NAON.OB



Type NAOCOOB



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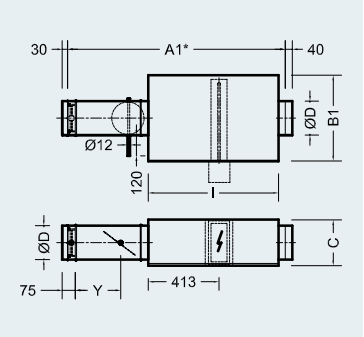

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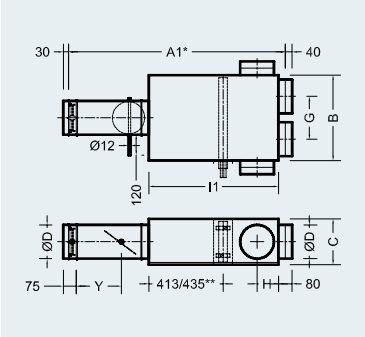
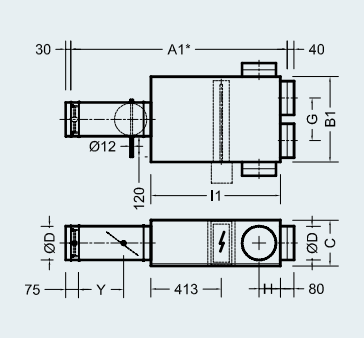


Type NAOJ.OB



Type NAOQ.OB

Dimensions NA terminals

Modle	100	125	160	200	250	315	355	400
A*	780	780	780	830	880	930	990	1030
A1*	1230	1230	1230	1280	1330	1380	1440	1480
B	330	330	400	500	600	740	820	910
B1	330	330	400	400	600	600	600	600
C	228	228	248	268	318	408	408	458
ØD	98	123	158	198	248	313	353	398
E	275	275	350	450	550	690	770	850
E1	275	275	350	350	550	550	550	550
F	170	170	175	200	250	330	330	380
G	180	180	215	255	305	370	410	455
H	125	125	125	125	170	200	250	250
I	270	270	270	320	370	420	520	520
I1	720	720	720	770	820	870	970	970
Y	304	304	304	294	279	254	239	229

All dimensions in mm.
* = Installed length.
** = Size varies with a 1- 2- row or 4-row hot water reheat coil.

Other dimensions are avaliable upon request.

Kv values

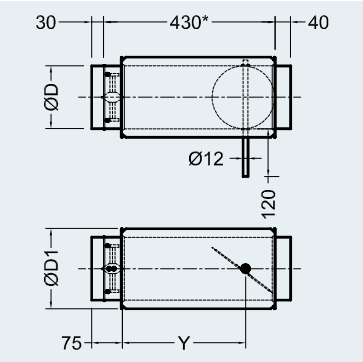
Modle	100	125	160	200	250	315	355	400
Kv (l/s / Pa)	5.5	8.5	15.0	24.9	35.4	58.9	74.3	92.6

Flow = Kv x √ΔPfc
ΔPfc = Flo-Cross signal
If ΔPfc = 30 Pa and VAV size = 160
Flow = 15.0 x √30 = 82 l/s

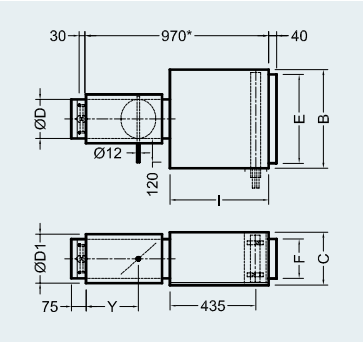
BARCOL-AIR

Circular VAV and CAV
air volume control terminals

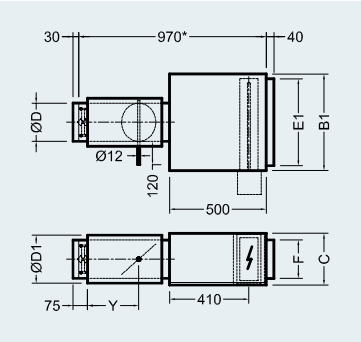
Model overview :
Double wall type (NB.....)



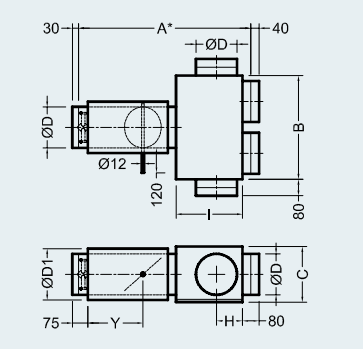
Type NBOBOOB



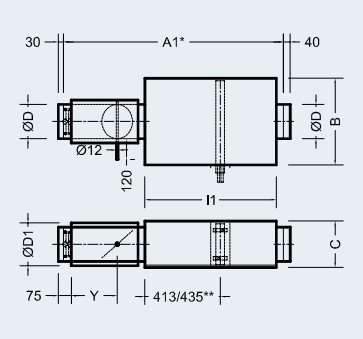
Type NBOG.OB



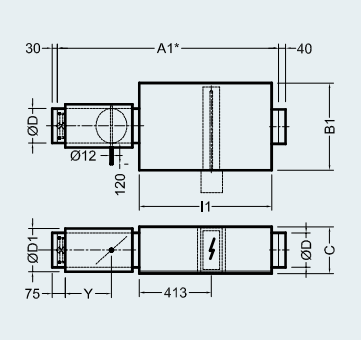
Type NBON.OB



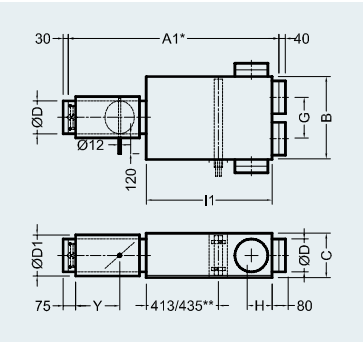
Type NBOCOOB



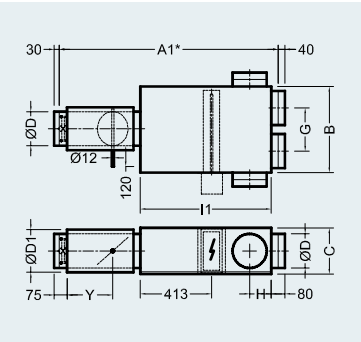
Type NBOH.OB



Type NBOP.OB



Type NBOJ.OB



Type NBOQ.OB

Dimensions NA terminals

规格	100	125	160	200	250	315	355	400
A*	780	780	780	830	880	930	990	1030
A1**	1230	1230	1230	1280	1330	1380	1440	1480
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B1	330	330	400	400	600	600	600	600
C	228	228	248	268	318	408	408	458
ØD	98	123	158	198	248	313	353	398
E	275	275	350	450	550	690	770	850
E1	275	275	350	350	550	550	550	550
F	170	170	175	200	250	330	330	380
G	180	180	215	255	305	370	410	455
H	125	125	125	125	170	200	250	250
I	270	270	270	320	370	420	520	520
I1	720	720	720	770	820	870	970	970
Y	304	304	304	294	279	254	239	229

All dimensions in mm.
* = Installed length.
** = Size varies with a 1- 2-row or 4-row hot water reheat coil.

Other dimensions are avaliable upon request.

Kv values

Modle	100	125	160	200	250	315	355	400
Kv (l/s / Pa)	5.5	8.5	15.0	24.9	35.4	58.9	74.3	92.6

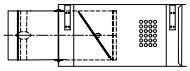
Flow = Kv x √ΔPfc
ΔPfc = Flo-Cross signal
If ΔPfc = 30 Pa and VAV size = 160
Flow = 15.0 x √30 = 82 l/s

BARCOL-AIR

Changes w/o notice or obligation

Circular VAV and CAV
air volume control terminals

Type NAOBOOB
NBOBOOB



Sound data Δp = 125 Pa

Model	data refering to inlet spigot				min. Δ Ps	Δp = 125 Pa																								
						discharge sound									radiated sound single wall									radiated sound double wall							
						L_w in dB/Oct.(re 1pW)						Lp values			L_w in dB/Oct.(re 1pW)						Lp values			L_w in dB/Oct.(re 1pW)						Lp values		
	Velocity	air volume				125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR
	m/s	l/s	CFM	m^3/h	Pa	dB									dB									dB							
100	2	15	31	53	2	43	44	40	38	34	22	--	--	--	19	-	19	20	23	21	--	--	--	-	-	-	-	-	-	--	--	--
	4	29	62	106	8	49	50	46	44	40	29	24	--	20	26	23	26	27	30	28	--	--	--	22	-	-	-	-	-	--	--	--
	6	44	94	160	17	53	54	51	48	44	34	28	22	24	30	27	30	31	34	32	--	--	--	26	20	-	-	-	18	--	--	--
	8	59	125	213	30	57	58	54	52	49	39	31	26	28	33	30	33	34	37	35	--	--	--	29	23	19	19	19	21	--	--	--
	10	74	156	266	47	59	61	58	55	52	43	34	29	31	35	32	35	36	39	37	--	--	--	32	26	22	21	21	23	--	--	--
125	2	23	49	84	2	40	43	40	39	34	25	--	--	--	28	24	25	22	23	17	--	--	--	-	-	-	-	-	-	--	--	--
	4	47	99	168	7	47	49	46	45	40	31	23	--	--	35	31	32	29	30	24	--	--	--	23	18	-	-	-	-	--	--	--
	6	70	149	253	16	52	54	51	49	44	36	27	21	24	39	35	36	33	34	28	--	--	--	27	22	19	18	-	19	--	--	--
	8	94	198	337	28	56	58	55	53	48	40	31	25	28	42	38	38	35	37	31	21	--	--	30	25	22	21	20	22	--	--	--
	10	117	248	421	44	59	61	58	56	51	44	34	29	31	44	40	41	38	39	33	23	--	--	33	28	25	23	22	24	--	--	--
160	2	39	82	139	2	39	41	40	38	37	32	--	--	--	28	24	25	22	23	18	--	--	--	18	-	-	-	-	-	--	--	--
	4	78	164	279	7	47	48	46	44	41	36	22	--	--	35	31	32	29	30	25	--	--	--	25	20	19	-	-	-	--	--	--
	6	116	246	418	15	52	52	50	49	44	39	26	--	22	39	35	36	33	34	29	--	--	--	29	24	23	20	18	20	--	--	--
	8	155	328	558	26	56	56	54	52	48	42	30	24	26	42	38	38	35	37	31	21	--	--	32	27	26	23	21	23	--	--	--
	10	194	410	697	41	60	60	58	56	51	45	34	28	30	44	40	41	38	39	34	23	--	--	34	29	28	25	23	25	--	--	--
200	2	61	129	219	2	39	34	37	34	30	23	--	--	--	29	24	24	23	23	18	--	--	--	19	-	-	-	-	-	--	--	--
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	6	183	387	658	14	54	51	52	47	42	36	26	--	20	40	35	35	33	34	29	--	--	--	30	26	25	22	20	21	--	--	--
	8	244	516	878	25	58	55	56	51	46	40	31	23	25	43	38	38	36	37	31	21	--	--	33	29	28	25	22	24	--	--	--
	10	305	645	1097	39	61	59	60	54	50	43	34	27	30	45	40	40	38	39	34	23	--	--	35	31	30	27	25	26	--	--	--
250	2	96	203	345	1	41	43	42	39	34	30	--	--	--	29	24	24	23	23	18	--	--	--	19	-	-	-	-	-	--	--	--
	4	192	406	690	6	50	51	50	45	40	35	25	--	20	36	31	31	29	30	25	--	--	--	26	21	21	18	-	-	--	--	--
	6	288	609	1035	13	56	56	55	50	44	39	30	23	26	40	35	35	33	34	29	--	--	--	30	25	25	22	20	21	--	--	--
	8	383	812	1380	23	60	60	59	53	47	43	34	28	30	43	38	38	36	37	31	21	--	--	33	28	28	25	23	24	--	--	--
	10	479	1015	1725	36	63	63	62	56	50	45	37	32	34	45	40	40	38	39	34	23	--	--	35	31	31	27	25	26	--	--	--
315	2	153	324	550	1	42	45	41	41	38	33	--	--	--	30	24	24	23	23	19	--	--	--	21	18	18	-	-	-	--	--	--
	4	306	648	1101	5	52	52	48	47	43	38	26	--	21	37	31	31	30	30	26	--	--	--	28	25	25	22	18	19	--	--	--
	6	459	971	1651	12	58	57	54	52	48	42	31	24	27	41	35	35	34	34	30	--	--	--	32	29	29	26	22	23	--	--	--
	8	612	1295	2202	22	63	61	58	56	52	46	35	29	31	44	38	38	36	37	32	21	--	--	35	32	32	29	25	26	--	--	--
	10	764	1619	2752	34	67	64	62	59	55	50	39	34	35	46	40	40	39	39	35	23	--	--	38	34	34	31	27	28	--	--	--
355	2	195	412	701	1	42	52	45	45	40	38	24	--	21	30	24	24	23	23	19	--	--	--	22	19	19	-	-	-	--	--	--
	4	389	824	1401	5	53	56	51	50	43	42	29	24	26	37	31	31	30	30	26	--	--	--	29	26	26	23	18	20	--	--	--
	6	584	1236	2102	12	59	60	56	54	46	45	33	28	30	41	35	35	34	34	30	--	--	--	33	30	30	27	23	24	--	--	--
	8	779	1649	2803	21	64	63	60	57	50	48	37	32	33	44	38	38	37	37	33	21	--	--	36	33	33	30	25	27	--	--	--
	10	973	2061	3503	33	68	66	64	61	53	52	41	36	37	46	40	40	39	39	35	24	--	--	38	35	35	32	28	29	--	--	--
400	2	248	524	891	1	43	54	46	46	42	36	26	21	24	30	24	24	23	23	19	--	--	--	22	19	19	-	-	-	--	--	--
	4	495	1049	1783	5	54	58	52	51	45	40	31	26	28	37	31	31	30	30	26	--	--	--	29	26	26	24	19	20	--	--	--
	6	743	1573	2674	11	60	62	57	55	48	43	35	30	32	41	35	35	34	34	30	--	--	--	33	30	30	28	23	24	--	--	--
	8	990	2097	3565	20	65	65	61	58	52	46	39	34	36	44	38	37	37	37	33	21	--	--	36	33	33	31	26	27	--	--	--
	10	1238	2326	4456	32	69	68	65	62	55	50	42	37	39	46	40	40	39	39	35	23	--	--	39	36	36	33	28	29	--	--	--

1. *Sound data is determined in a reverberation room at an independent sound laboratory, according to ISO3741 and ISO 5135 standards.*
2. *Lw in dB/Oct.(re 1pW) are sound power levels for discharge sound and case radiated sound. Figures less than 17 dB are indicated by "-".*
3. *The discharge sound pressure levels are determined with the assumptions as mentioned in table 1 for downstream ductwork including a diffuser with insulated plenum box.*
4. *The radiated sound pressure levels are determined with the assumptions as mentioned in table 1 for ceiling plenum and suspended ceiling absorption.*
5. *Lp values are including a room absorption of 10 dB/Oct.*
6. *DB(A), NC and NR index figures are sound pressure levels. Figures less than 20 are indicated by "- -".*
7. *Δps is static pressure drop across VAV air volume control terminal with damper fully open.*
8. *For non standard applications and/or selections, please contatct our technical staff.*

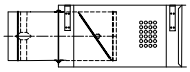
Table 1 : Assumptions for additional attenuation

Hz	125	250	500	1K	2K	4K
Discharge (dB)	5	10	20	30	30	25
Radiated (dB)	2	5	10	15	15	20

BARCOL-AIR

Circular VAV and CAV
air volume control terminals

Type NAOBOOB
NBOBOOB



Sound data Δp = 250 Pa

Model	data refering to inlet spigot				min. Δ Ps	Δp = 250 Pa																								
						discharge sound									radiated sound single wall									radiated sound double wall							
						L_w in dB/Oct.(re 1pW)						Lp values			L_w in dB/Oct.(re 1pW)						Lp values			L_w in dB/Oct.(re 1pW)						Lp values		
	Velocity	air volume				125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR
	m/s	l/s	CFM	m^3/h	Pa	dB									dB									dB							
100	2	15	31	53	2	45	48	45	43	40	29	21	--	--	26	23	26	27	30	28	--	--	--	21	-	-	-	-	-	--	--	--
	4	29	62	106	8	51	53	51	48	45	35	27	20	23	33	30	33	34	37	35	--	--	--	28	22	18	-	-	18	--	--	--
	6	44	94	160	17	55	57	54	52	49	40	31	25	27	37	34	37	38	41	39	21	--	--	32	26	22	20	20	22	--	--	--
	8	59	125	213	30	58	60	57	55	53	44	34	28	31	40	37	40	41	44	42	24	--	22	35	29	25	23	23	25	--	--	--
	10	74	156	266	47	60	63	60	57	56	47	36	32	33	42	39	42	43	46	44	26	22	24	38	32	28	25	25	27	--	--	--
125	2	23	49	84	2	43	47	46	43	40	33	20	--	--	35	31	31	28	30	24	--	--	--	22	17	-	-	-	-	--	--	--
	4	47	99	168	7	50	53	51	49	45	38	26	20	23	41	38	38	35	37	31	20	--	--	29	24	21	18	-	19	--	--	--
	6	70	149	253	16	54	57	55	53	48	41	30	25	27	45	42	42	39	41	35	24	--	--	33	28	25	22	21	23	--	--	--
	8	94	198	337	28	58	60	58	56	51	45	34	29	31	48	45	45	42	44	38	27	--	22	36	31	28	25	24	26	--	--	--
	10	117	248	421	44	61	63	61	58	54	48	37	32	34	50	47	47	44	46	40	29	22	24	39	34	31	27	26	28	--	--	--
160	2	39	82	139	2	42	47	46	44	43	40	20	--	--	35	31	31	234	30	24	--	--	--	24	19	18	-	-	-	--	--	--
	4	78	164	279	7	50	53	52	50	47	43	26	20	23	41	38	38	37	37	31	20	--	--	31	26	25	20	18	20	--	--	--
	6	116	246	418	15	55	57	55	54	50	46	31	24	27	45	42	42	39	41	35	24	--	--	35	30	29	24	22	24	--	--	--
	8	155	328	558	26	59	60	59	57	53	48	34	28	30	48	45	45	23	44	38	27	--	22	38	33	32	27	25	27	--	--	--
	10	194	410	697	41	62	63	61	59	55	50	37	32	33	50	47	47	30	46	40	29	22	24	40	35	34	29	27	29	--	--	--
200	2	61	129	219	2	43	38	41	39	36	30	--	--	--	36	31	31	8	30	24	--	--	--	25	21	20	-	-	-	--	--	--
	4	122	258	439	6	52	49	50	47	43	37	24	--	--	43	38	38	35	37	31	21	--	--	32	28	27	22	19	21	--	--	--
	6	183	387	658	14	57	55	56	51	47	42	30	22	24	47	42	42	39	41	35	25	--	--	36	32	31	26	23	25	--	--	--
	8	244	516	878	25	61	59	60	55	51	45	34	27	29	50	45	45	42	44	38	28	--	--	39	35	34	29	26	28	--	--	--
	10	305	645	1097	39	64	63	63	58	54	48	38	31	33	52	47	47	44	46	40	30	22	--	41	37	36	31	29	30	--	--	--
250	2	96	203	345	1	44	47	46	44	41	37	21	--	--	36	31	31	29	30	24	--	--	--	25	20	20	-	-	-	--	--	--
	4	192	406	690	6	53	55	54	50	46	42	29	23	25	43	38	38	36	37	31	21	--	--	32	27	27	22	20	21	--	--	--
	6	288	609	1035	13	59	60	59	54	50	46	34	28	31	47	42	42	40	41	35	25	--	--	36	31	31	26	24	25	--	--	--
	8	383	812	1380	23	63	64	62	57	53	48	38	33	35	50	45	45	43	44	38	28	--	22	39	34	34	29	27	28	--	--	--
	10	479	1015	1725	36	66	67	65	60	55	51	41	36	38	52	47	47	45	46	40	30	22	24	41	37	37	31	29	30	--	--	--
315	2	153	324	550	1	45	50	45	46	45	40	23	--	20	37	31	31	29	30	25	--	--	--	27	24	24	19	-	-	--	--	--
	4	306	648	1101	5	54	56	52	52	50	44	30	24	26	43	37	38	36	36	32	21	--	--	34	31	31	26	22	23	--	--	--
	6	459	971	1651	12	60	60	57	56	53	48	34	28	31	47	41	42	40	40	36	25	--	--	38	35	35	30	26	27	--	--	--
	8	612	1295	2202	22	65	64	61	59	56	51	38	33	34	50	44	44	43	43	39	27	--	21	41	38	38	33	29	30	--	--	--
	10	764	1619	2752	34	69	67	64	62	59	54	41	36	37	52	46	47	45	45	41	30	21	23	44	40	40	35	31	32	22	--	--
355	2	195	412	701	1	45	57	50	51	47	47	29	24	27	37	31	31	29	30	26	--	--	--	28	25	25	20	-	-	--	--	--
	4	389	824	1401	5	55	61	56	55	50	49	33	29	31	44	38	38	36	37	33	21	--	--	35	32	32	27	22	24	--	--	--
	6	584	1236	2102	12	61	64	60	58	52	51	37	32	34	48	42	42	40	41	37	25	--	--	39	36	36	31	26	28	--	--	--
	8	779	1649	2803	21	66	66	63	61	55	54	40	35	37	50	45	45	43	44	40	28	--	22	42	39	39	34	29	31	20	--	--
	10	973	2061	3503	33	70	69	66	64	57	56	43	38	39	53	47	47	45	46	42	30	22	24	44	41	41	36	32	33	23	--	--
400	2	248	524	891	1	46	59	51	52	49	45	31	27	29	37	31	30	30	30	26	--	--	--	28	25	25	21	-	17	--	--	--
	4	495	1049	1783	5	56	63	57	56	52	47	35	31	33	44	37	37	37	36	33	21	--	--	35	32	32	28	23	24	--	--	--
	6	743	1573	2674	11	62	66	61	59	54	49	39	35	36	48	41	41	41	40	37	25	--	--	39	36	36	32	27	28	--	--	--
	8	990	2097	3565	20	67	68	64	62	57	52	42	38	39	50	44	44	44	43	39	27	--	21	42	39	39	35	30	31	21	--	--
	10	1238	2326	4456	32	71	71	67	65	59	54	45	41	42	53	46	46	46	45	42	30	21	23	45	42	42	37	32	33	23	--	--

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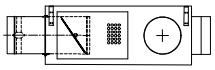
6. *DB(A), NC and NR index figures are sound pressure levels. Figures less than 20 are indicated by "- -".*
7. *Δps is static pressure drop across VAV air volume control terminal with damper fully open.*
8. *For non standard applications and/or selections, please contatct our technical staff.*

Table 1 : Assumptions for additional attenuation

Hz	125	250	500	1K	2K	4K
Discharge (dB)	5	10	20	30	30	25
Radiated (dB)	2	5	10	15	15	20

Circular VAV and CAV
air volume control terminals

Type NAOCOOB
NBOCOOB



Sound data Δp = 125 Pa

Model	data refering to inlet spigot				min. Δ Ps	Δp = 125 Pa																								
						discharge sound									radiated sound single wall									radiated sound double wall								
						L_w in dB/Oct.(re 1pW)						Lp values			L_w in dB/Oct.(re 1pW)						Lp values			L_w in dB/Oct.(re 1pW)						Lp values		
	Velocity	air volume				125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR
	m/s	l/s	CFM	m^3/h	Pa	dB									dB									dB								
100	2	15	31	53	2	34	32	22	18	-	-	--	--	--	19	-	19	20	23	21	--	--	--	-	-	-	-	-	-	--	--	--
	4	29	62	106	10	40	38	28	24	18	-	--	--	--	26	23	26	27	30	28	--	--	--	22	-	-	-	-	-	--	--	--
	6	44	94	160	22	44	43	33	28	22	-	--	--	--	30	27	30	31	34	32	--	--	--	26	20	-	-	-	18	--	--	--
	8	59	125	213	38	48	46	36	32	27	-	20	--	--	33	30	33	34	37	35	--	--	--	29	23	19	19	19	21	--	--	--
	10	74	156	266	60	50	49	40	35	30	19	23	--	--	35	32	35	36	39	37	--	--	--	32	26	22	21	21	23	--	--	--
125	2	23	49	84	2	31	31	22	19	-	-	--	--	--	28	24	25	22	23	17	--	--	--	-	-	-	-	-	-	--	--	--
	4	47	99	168	7	38	37	28	25	18	-	--	--	--	35	31	32	29	30	24	--	--	--	23	18	-	-	-	-	--	--	--
	6	70	149	253	17	43	42	33	29	22	-	--	--	--	39	35	36	33	34	28	--	--	--	27	22	19	18	-	19	--	--	--
	8	94	198	337	30	47	46	37	33	26	-	20	--	--	42	38	38	35	37	31	21	--	--	30	25	22	21	20	22	--	--	--
	10	117	248	421	46	50	49	41	36	29	20	23	--	--	44	40	41	38	39	33	23	--	--	33	28	25	23	22	24	--	--	--
160	2	39	82	139	2	30	29	22	18	-	-	--	--	--	28	24	25	22	23	18	--	--	--	18	-	-	-	-	-	--	--	--
	4	78	164	279	6	38	36	28	24	19	-	--	--	--	35	31	32	29	30	25	--	--	--	25	20	19	-	-	-	--	--	--
	6	116	246	418	14	43	40	32	29	22	-	--	--	--	39	35	36	33	34	29	--	--	--	29	24	23	20	18	20	--	--	--
	8	155	328	558	26	47	44	36	32	26	18	--	--	--	42	38	38	35	37	31	21	--	--	32	27	26	23	21	23	--	--	--
	10	194	410	697	40	51	48	40	36	29	21	23	--	--	44	40	41	38	39	34	23	--	--	34	29	28	25	23	25	--	--	--
200	2	61	129	219	1	30	22	19	-	-	-	--	--	--	29	24	24	23	23	18	--	--	--	19	-	-	-	-	-	--	--	--
	4	122	258	439	6	39	32	28	22	-	-	--	--	--	36	31	31	29	30	25	--	--	--	26	22	21	18	-	-	--	--	--
	6	183	387	658	13	45	39	34	27	20	-	--	--	--	40	35	35	33	34	29	--	--	--	30	26	25	22	20	21	--	--	--
	8	244	516	878	23	49	43	38	31	24	-	20	--	--	43	38	38	36	37	31	21	--	--	33	29	28	25	22	24	--	--	--
	10	305	645	1097	36	52	47	42	34	28	19	23	--	--	45	40	40	38	39	34	23	--	--	35	31	30	27	25	26	--	--	--
250	2	96	203	345	1	32	31	24	19	-	-	--	--	--	29	24	24	23	23	18	--	--	--	19	-	-	-	-	-	--	--	--
	4	192	406	690	5	41	39	32	25	18	-	--	--	--	36	31	31	29	30	25	--	--	--	26	21	21	18	-	-	--	--	--
	6	288	609	1035	11	47	44	37	30	22	-	--	--	--	40	35	35	33	34	29	--	--	--	30	25	25	22	20	21	--	--	--
	8	383	812	1380	19	51	48	41	33	25	19	23	--	--	43	38	38	36	37	31	21	--	--	33	28	28	25	23	24	--	--	--
	10	479	1015	1725	30	54	51	44	36	28	21	26	--	21	45	40	40	38	39	34	23		--	35	31	31	27	25	26	--	--	--
315	2	153	324	550	1	36	37	23	21	-	-	--	--	--	30	24	24	23	23	19	--	--	--	21	18	18	-	-	-	--	--	--
	4	306	648	1101	5	46	44	30	27	21	-	--	--	--	37	31	31	30	30	26	--	--	--	28	25	25	22	18	19	--	--	--
	6	459	971	1651	11	52	49	36	32	26	18	24	--	--	41	35	35	34	34	30	--	--	--	32	29	29	26	22	23	--	--	--
	8	612	1295	2202	19	57	53	40	36	30	22	28	21	23	44	38	38	36	37	32	21	--	--	35	32	32	29	25	26	--	--	--
	10	764	1619	2752	29	61	56	44	39	33	26	32	26	28	46	40	40	39	39	35	23	--	--	38	34	34	31	27	28	--	--	--
355	2	195	412	701	1	36	44	27	25	18	-	--	--	--	30	24	24	23	23	19	--	--	--	22	19	19	-	-	-	--	--	--
	4	389	824	1401	4	47	48	33	30	21	18	21	--	--	37	31	31	30	30	26	--	--	--	29	26	26	23	18	20	--	--	--
	6	584	1236	2102	10	53	52	38	34	24	21	26	--	21	41	35	35	34	34	30	--	--	--	33	30	30	27	23	24	--	--	--
	8	779	1649	2803	18	58	55	42	37	28	24	24	22	25	44	38	38	37	37	33	21	--	--	36	33	33	30	25	27	--	--	--
	10	973	2061	3503	28	62	58	46	41	31	28	28	28	29	46	40	40	39	39	35	23	--	--	38	35	35	32	28	29	--	--	--
400	2	248	524	891	1	37	46	28	26	20	-	--	--	--	30	24	24	23	23	19	--	--	--	22	19	19	-	-	-	--	--	--
	4	495	1049	1783	4	48	50	34	31	23	-	--	--	20	37	31	31	30	30	26	--	--	--	29	26	26	24	19	20	--	--	--
	6	743	1573	2674	9	54	54	39	35	26	19	19	21	24	41	35	35	34	34	30	--	--	--	33	30	30	28	23	24	--	--	--
	8	990	2097	3565	17	59	57	43	38	30	22	22	24	27	44	38	37	37	37	33	21	--	--	36	33	33	31	26	27	--	--	--
	10	1238	2326	4456	26	63	60	47	42	33	26	26	29	30	46	40	40	39	39	35	23	--	--	39	36	36		28	29	--	--	--

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7. *Δps is static pressure drop across VAV air volume control terminal with damper fully open.*
8. *For non standard applications and/or selections, please contatct our technical staff.*

Table 1 : Assumptions for additional attenuation

Hz	125	250	500	1K	2K	4K
Discharge (dB)	5	10	20	30	30	25
Radiated (dB)	2	5	10	15	15	20

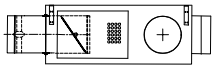
Table 2: Insertion Loss

Model	125	250	500	1K	2K	4K	Hz
100	9	10	11	13	15	15	dB
125	8	9	10	12	14	14	dB
160	8	9	10	12	14	14	dB
200	8	8	9	11	13	13	dB
250	7	8	9	11	13	13	dB
315	7	8	9	11	13	13	dB
355	7	8	9	11	13	13	dB
400	7	8	9	11	13	13	dB

BARCOL-AIR

Circular VAV and CAV
air volume control terminals

Type NAOCOOB
NBOCOOB



Sound data Δp = 250 Pa

Model	data refering to inlet spigot				min. Δ Ps	Δp = 250 Pa																								
						discharge sound									radiated sound single wall									radiated sound double wall								
						L_w in dB/Oct.(re 1pW)						Lp values			L_w in dB/Oct.(re 1pW)						Lp values			L_w in dB/Oct.(re 1pW)						Lp values		
	Velocity	air volume				125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR
	m/s	l/s	CFM	m^3/h	Pa	dB									dB									dB								
100	2	15	31	53	2	36	36	27	23	18	-	--	--	--	26	23	26	27	30	28	--	--	--	21	-	-	-	-	-	--	--	--
	4	29	62	106	10	42	41	33	28	23	-	--	--	--	33	30	33	34	37	35	--	--	--	28	22	18	-	-	18	--	--	--
	6	44	94	160	22	46	45	36	32	27	-	--	--	--	37	34	37	38	41	39	21	--	--	32	26	22	20	20	22	--	--	--
	8	59	125	213	38	49	48	39	35	31	20	22	--	--	40	37	40	41	44	42	24	--	22	35	29	25	23	23	25	--	--	--
	10	74	156	266	60	51	51	42	37	34	23	25	--	21	42	39	42	43	46	44	26	22	24	38	32	28	25	25	27	--	--	--
125	2	23	49	84	2	34	35	28	23	18	-	--	--	--	35	31	31	28	30	24	--	--	--	22	17	-	-	-	-	--	--	--
	4	47	99	168	7	41	41	33	29	23	-	--	--	--	41	38	38	35	37	31	--	--	--	29	24	21	18	-	19	--	--	--
	6	70	149	253	17	45	45	37	33	26	17	--	--	--	45	42	42	39	41	35	24	--	--	33	28	25	22	21	23	--	--	--
	8	94	198	337	30	49	48	40	36	29	21	22	--	--	48	45	45	42	44	38	27	--	22	36	31	28	25	24	26	--	--	--
	10	117	248	421	46	52	51	43	38	32	24	25	--	21	50	47	47	44	46	40	29	22	24	39	34	31	27	26	28	--	--	--
160	2	39	82	139	2	33	35	28	24	21	-	--	--	--	35	31	31	28	30	24	--	--	--	24	19	18	-	-	-	--	--	--
	4	78	164	279	6	41	41	34	30	25	19	--	--	--	41	38	38	35	37	31	--	--	--	31	26	25	20	18	20	--	--	--
	6	116	246	418	14	46	45	37	34	28	22	--	--	--	45	42	42	39	41	35	24	--	--	35	30	29	24	22	24	--	--	--
	8	155	328	558	26	50	48	41	37	31	24	22	--	--	48	45	45	42	44	38	27	--	22	38	33	32	27	25	27	--	--	--
	10	194	410	697	40	53	51	43	39	33	26	25	--	21	50	47	47	44	46	40	29	22	24	40	35	34	29	27	29	--	--	--
200	2	61	129	219	1	34	26	23	19	-	-	--	--	--	36	31	31	29	30	24	--	--	--	25	21	20	-	-	-	--	--	--
	4	122	258	439	6	43	37	32	27	21	-	--	--	--	43	38	38	36	37	31	21	--	--	32	28	27	22	19	21	--	--	--
	6	183	387	658	13	48	43	38	31	25	18	--	--	--	47	42	42	40	41	35	25	--	--	36	32	31	26	23	25	--	--	--
	8	244	516	878	23	52	47	42	35	29	21	23	--	--	50	45	45	43	44	38	28	--	22	39	35	34	29	26	28	--	--	--
	10	305	645	1097	36	55	51	45	38	32	24	27	--	21	52	47	47	45	46	40	30	22	24	41	37	36	31	29	30	--	--	--
250	2	96	203	345	1	35	35	28	24	19	-	--	--	--	36	31	31	29	30	24	--	--	--	25	20	20	-	-	-	--	--	--
	4	192	406	690	5	44	43	36	30	24	18	--	--	--	43	38	38	36	37	31	21	--	--	32	27	27	22	20	21	--	--	--
	6	288	609	1035	11	50	48	41	34	28	22	22	--	--	47	42	42	40	41	35	25	--	--	36	31	31	26	24	25	--	--	--
	8	383	812	1380	19	54	52	44	37	31	24	26	--	22	50	45	45	43	44	38	28	--	22	39	34	34	29	27	28	--	--	--
	10	479	1015	1725	30	57	55	47	40	33	27	29	22	25	52	47	47	45	46	40	30	22	24	41	37	37	31	29	30	--	--	--
315	2	153	324	550	1	39	42	27	26	23	-	--	--	--	37	31	31	29	30	25	--	--	--	27	24	24	19	-	-	--	--	--
	4	306	648	1101	5	48	48	34	32	28	20	22	--	--	43	37	38	36	36	32	21	--	--	34	31	31	26	22	23	--	--	--
	6	459	971	1651	11	54	52	39	36	31	24	27	--	22	47	41	42	40	40	36	25	--	--	38	35	35	30	26	27	--	--	--
	8	612	1295	2202	19	59	56	43	39	34	27	31	23	26	50	44	44	43	43	39	27	--	21	41	38	38	336	29	30	--	--	--
	10	764	1619	2752	29	63	59	46	42	37	30	34	28	29	52	46	47	45	45	41	30	21	23	44	40	40	35	31	32	20	--	--
355	2	195	412	701	1	39	49	32	31	25	23	21	--	--	37	31	31	30	30	26	--	--	--	28	25	25	20	-	-	--	--	--
	4	389	824	1401	4	49	53	38	35	28	25	25	20	23	44	38	38	37	37	33	21	--	--	35	32	32	27	22	24	--	--	--
	6	584	1236	2102	10	55	56	42	38	30	27	29	23	26	48	42	42	41	41	37	25	--	--	39	36	36	31	26	28	--	--	--
	8	779	1649	2803	18	60	58	45	41	33	30	32	26	28	50	45	45	44	44	40	28	--	22	42	39	39	34	29	31	20	--	--
	10	973	2061	3503	28	64	61	48	44	35	32	35	30	31	53	47	47	46	46	42	30	22	24	44	41	41	36	32	33	23	--	--
400	2	248	524	891	1	40	51	33	32	27	21	23	--	21	37	31	30	30	30	26	--	--	--	28	25	25	21	-	17	--	--	--
	4	495	1049	1783	4	50	55	39	36	30	23	27	22	25	44	37	37	37	36	33	21	--	--	35	32	32	28	23	24	--	--	--
	6	743	1573	2674	9	56	58	43	39	32	25	31	25	28	48	41	41	41	40	37	25	--	--	39	36	36	32	27	28	--	--	--
	8	990	2097	3565	17	61	60	46	42	35	28	34	28	31	50	44	44	43	43	39	27	--	21	42	39	39	35	30	31	21	--	--
	10	1238	2326	4456	26	65	63	49	45	37	30	37	31	33	53	46	46	46	45	42	30	21	23	45	42	42	37	32	33	23	--	--

1. *Sound data is determined in a reverberation room at an independent sound laboratory, according to ISO3741 and ISO 5135 standards.*
2. *Lw in dB/Oct.(re 1pW) are sound power levels for discharge sound and case radiated sound. Figures less than 17 dB are indicated by "-".*
3. *The discharge sound pressure levels are determined with the assumptions as mentioned in table 1 for downstream ductwork including a diffuser with insulated plenum box.*
4. *The radiated sound pressure levels are determined with the assumptions as mentioned in table 1 for ceiling plenum and suspended ceiling absorption.*
5. *Lp values are including a room absorption of 10 dB/Oct.*
6. *DB(A), NC and NR index figures are sound pressure levels. Figures less than 20 are indicated by "- -".*
7. *Δps is static pressure drop across VAV air volume control terminal with damper fully open.*
8. *For non standard applications and/or selections, please contatct our technical staff.*

Table 1 : Assumptions for additional attenuation

Hz	125	250	500	1K	2K	4K
Discharge (dB)	5	10	20	30	30	25
Radiated (dB)	2	5	10	15	15	20

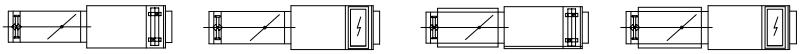
Table 2: Insertion Loss

Model	125	250	500	1K	2K	4K	Hz
100	9	10	11	13	15	15	dB
125	8	9	10	12	14	14	dB
160	8	9	10	12	14	14	dB
200	8	8	9	11	13	13	dB
250	7	8	9	11	13	13	dB
315	7	8	9	11	13	13	dB
355	7	8	9	11	13	13	dB
400	7	8	9	11	13	13	dB

BARCOL-AIR

Circular VAV and CAV
air volume control terminals

Type NAOG.OB NAON.OB
NBOG.OB NBON.OB



Sound data Δp = 125 Pa

Model	data refering to inlet spigot				min. Δ Ps	Δp = 125 Pa																						
						discharge sound									radiated sound single wall									radiated sound double wall							
						L_w in dB/Oct.(re 1pW)						Lp values			L_w in dB/Oct.(re 1pW)						Lp values			L_w in dB/Oct.(re 1pW)						Lp values		
	Velocity	air volume				125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR
	m/s	l/s	CFM	m^3/h	Pa	dB									dB									dB							
100	2	15	31	53	3	38	37	28	26	21	-	--	--	--	19	-	19	20	23	21	--	--	--	-	-	-	-	-	-	--	--	--
	4	29	62	106	11	44	43	34	31	27	-	--	--	--	26	23	26	27	30	28	--	--	--	22	-	-	-	-	-	--	--	--
	6	44	94	160	24	48	47	38	35	32	20	21	--	--	30	27	30	31	34	32	--	--	--	26	20	-	-	-	18	--	--	--
	8	59	125	213	43	51	50	41	38	35	24	24	--	--	33	30	33	34	37	35	--	--	--	29	23	19	19	19	21	--	--	--
	10	74	156	266	67	53	53	44	42	39	28	26	--	22	35	32	35	36	39	37	--	--	--	32	26	22	21	21	23	--	--	--
125	2	23	49	84	3	35	35	28	27	22	-	--	--	--	28	24	25	22	23	17	--	--	--	-	-	-	-	-	-	--	--	--
	4	47	99	168	10	42	42	34	32	27	-	--	--	--	35	31	32	29	30	24	--	--	--	23	18	-	-	-	-	--	--	--
	6	70	149	253	23	46	46	38	36	31	21	20	--	--	39	35	36	33	34	28	--	--	--	27	22	19	18	-	19	--	--	--
	8	94	198	337	40	50	50	42	40	35	25	23	--	--	42	38	38	35	37	31	21	--	--	30	25	22	21	20	22	--	--	--
	10	117	248	421	63	53	53	45	43	38	29	26	--	22	44	40	41	38	39	33	23	--	--	33	28	25	23	22	24	--	--	--
160	2	39	82	139	2	34	34	28	26	24	18	--	--	--	28	24	25	22	23	18	--	--	--	18	-	-	-	-	-	--	--	--
	4	78	164	279	9	41	40	33	32	28	21	--	--	--	35	31	32	29	30	25	--	--	--	25	20	19	-	-	-	--	--	--
	6	116	246	418	21	46	45	37	36	32	24	--	--	--	39	35	36	33	34	29	--	--	--	29	24	23	20	18	20	--	--	--
	8	155	328	558	38	50	48	41	39	35	27	22	--	--	42	38	38	35	37	31	21	--	--	32	27	26	23	21	23	--	--	--
	10	194	410	697	59	53	51	44	42	37	30	26	--	21	44	40	41	38	39	34	23	--	--	34	29	28	25	23	25	--	--	--
200	2	61	129	219	2	34	27	25	22	18	-	--	--	--	29	24	24	23	23	18	--	--	--	19	-	-	-	-	-	--	--	--
	4	122	258	439	9	43	37	34	30	25	-	--	--	--	36	31	31	29	30	25	--	--	--	26	22	21	18	-	-	--	--	--
	6	183	387	658	21	48	43	39	34	29	21	--	--	--	40	35	35	33	34	29	--	--	--	30	26	25	22	20	21	--	--	--
	8	244	516	878	38	52	47	43	38	33	24	23	--	--	43	38	38	36	37	31	21	--	--	33	29	28	25	22	24	--	--	--
	10	305	645	1097	59	55	51	46	40	36	27	26	--	20	45	40	40	38	39	34	23	--	--	35	31	30	27	25	26	--	--	--
250	2	96	203	345	2	36	36	29	27	22	-	--	--	--	29	24	24	23	23	18	--	--	--	19	-	-	-	-	-	--	--	--
	4	192	406	690	9	44	43	37	33	28	21	--	--	--	36	31	31	29	30	25	--	--	--	26	21	21	18	-	-	--	--	--
	6	288	609	1035	21	50	48	42	37	31	24	22	--	--	40	35	35	33	34	29	--	--	--	30	25	25	22	20	21	--	--	--
	8	383	812	1380	38	53	52	45	40	34	27	26	--	21	43	38	38	36	37	31	21	--	--	33	28	28	25	23	24	--	--	--
	10	479	1015	1725	59	57	55	48	42	37	30	29	22	25	45	40	40	38	39	34	23	--	--	35	31	31	27	25	26	--	--	--
315	2	153	324	550	2	40	42	29	29	36	18	--	--	--	30	24	24	23	23	19	--	--	--	21	18	18	-	-	-	--	--	--
	4	306	648	1101	9	49	48	36	34	31	23	22	--	--	37	31	31	30	30	26	--	--	--	28	25	25	22	18	19	--	--	--
	6	459	971	1651	21	55	53	41	39	35	27	27	--	22	41	35	35	34	34	30	--	--	--	32	29	29	26	22	23	--	--	--
	8	612	1295	2202	38	60	57	45	43	39	31	31	25	27	44	38	38	36	37	32	21	--	--	35	32	32	29	25	26	--	--	--
	10	764	1619	2752	59	64	60	48	46	42	34	35	30	31	46	40	40	39	39	35	23	--	--	38	34	34	31	27	28	--	--	--
355	2	195	412	701	2	40	49	33	33	27	24	20	--	--	30	24	24	23	23	19	--	--	--	22	19	19	-	-	-	--	--	--
	4	389	824	1401	9	50	53	39	37	31	27	25	--	22	37	31	31	30	30	26	--	--	--	29	26	26	23	18	20	--	--	--
	6	584	1236	2102	21	56	56	43	41	34	30	29	23	26	41	35	35	34	34	30	--	--	--	33	30	30	27	23	24	--	--	--
	8	779	1649	2803	38	61	59	47	44	37	33	33	27	29	44	38	38	37	37	33	21	--	--	36	33	33	30	25	27	--	--	--
	10	973	2061	3503	59	65	62	50	47	40	36	37	31	32	46	40	40	39	39	35	23	--	--	38	35	35	32	28	29	--	--	--
400	2	248	524	891	2	41	51	34	34	29	22	22	--	20	30	24	24	23	23	19	--	--	--	22	19	19	-	-	-	--	--	--
	4	495	1049	1783	9	51	55	40	38	33	25	27	22	25	37	31	31	30	30	26	--	--	--	29	26	26	24	19	20	--	--	--
	6	743	1573	2674	21	57	58	44	42	36	28	31	26	28	41	35	35	34	34	30	--	--	--	33	30	30	28	23	24	--	--	--
	8	990	2097	3565	38	62	61	48	45	39	31	35	29	31	44	38	37	37	37	33	21	--	--	36	33	33	31	26	27	--	--	--
	10	1238	2326	4456	59	66	64	51	48	42	34	38	33	34	46	40	40	39	39	35	23	--	--	39	36	36	33	28	29	--	--	--

1. *Sound data is determined in a reverberation room at an independent sound laboratory, according to ISO3741 and ISO 5135 standards.*
2. *Lw in dB/Oct.(re 1pW) are sound power levels for discharge sound and case radiated sound. Figures less than 17 dB are indicated by "-".*
3. *The discharge sound pressure levels are determined with the assumptions as mentioned in table 1 for downstream ductwork including a diffuser with insulated plenum box.*
4. *The radiated sound pressure levels are determined with the assumptions as mentioned in table 1 for ceiling plenum and suspended ceiling absorption.*
5. *Lp values are including a room absorption of 10 dB/Oct.*
6. *DB(A), NC and NR index figures are sound pressure levels. Figures less than 20 are indicated by "- -".*
7. *Δps is static pressure drop across VAV air volume control terminal with damper fully open.*
8. *For non standard applications and/or selections, please contatct our technical staff.*

Table 1 : Assumptions for additional attenuation

Hz	125	250	500	1K	2K	4K
Discharge (dB)	5	10	20	30	30	25
Radiated (dB)	2	5	10	15	15	20

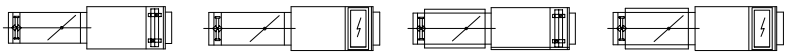
Table 2: Insertion Loss

Model	125	250	500	1K	2K	4K	Hz
100	3	4	6	11	10	12	dB
125	3	4	6	11	10	12	dB
160	2	6	10	10	10	11	dB
200	2	5	10	10	10	11	dB
250	2	5	10	11	10	10	dB
315	1	4	9	10	10	10	dB
355	1	4	9	10	10	10	dB
400	1	3	9	10	10	10	dB

BARCOL-AIR

Circular VAV and CAV
air volume control terminals

Type NAOG.OB NAON.OB
NBOG.OB NBON.OB



Sound data Δp = 250 Pa

Model	data refering to inlet spigot				min. Δ Ps	Δp = 250 Pa																						
						discharge sound									radiated sound single wall									radiated sound double wall							
						L_w in dB/Oct.(re 1pW)						Lp values			L_w in dB/Oct.(re 1pW)						Lp values			L_w in dB/Oct.(re 1pW)						Lp values		
	Velocity	air volume				125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR
	m/s	l/s	CFM	m^3/h	Pa	dB									dB									dB							
100	2	15	31	53	3	40	41	34	31	28	-	--	--	--	26	23	26	27	30	28	--	--	--	21	-	-	-	-	-	--	--	--
	4	29	62	106	11	46	46	39	36	33	21	20	--	--	33	30	33	34	37	35	--	--	--	28	22	18	-	-	18	--	--	--
	6	44	94	160	24	50	50	42	39	37	25	23	--	--	37	34	37	38	41	39	21	--	--	32	26	22	20	20	22	--	--	--
	8	59	125	213	43	52	53	45	42	40	29	26	--	22	40	37	40	41	44	42	24	--	22	35	29	25	23	23	25	--	--	--
	10	74	156	266	67	54	55	47	44	43	32	28	22	25	42	39	42	43	46	44	26	22	24	38	32	28	25	25	27	--	--	--
125	2	23	49	84	3	38	40	34	32	28	19	--	--	--	35	31	31	28	30	24	--	--	--	22	17	-	-	-	-	--	--	--
	4	47	99	168	10	45	46	39	37	33	24	--	--	--	41	38	38	35	37	31	20	--	--	29	24	21	18	-	19	--	--	--
	6	70	149	253	23	49	50	43	40	36	27	23	--	--	45	42	42	39	41	35	24	--	--	33	28	25	22	21	23	--	--	--
	8	94	198	337	40	52	53	46	43	39	30	26	--	22	48	45	45	42	44	38	27	--	22	36	31	28	25	24	26	--	--	--
	10	117	248	421	63	55	55	48	45	41	33	29	23	25	50	47	47	44	46	40	29	22	24	39	34	31	27	26	28	--	--	--
160	2	39	82	139	2	38	40	34	32	32	26	--	--	--	35	31	31	28	30	24	--	--	--	24	19	18	-	-	-	--	--	--
	4	78	164	279	9	45	46	40	38	35	29	--	--	--	41	38	38	35	37	31	20	--	--	31	26	25	20	18	20	--	--	--
	6	116	246	418	21	50	49	43	41	38	31	23	--	--	45	42	42	39	41	35	24	--	--	35	30	29	24	22	24	--	--	--
	8	155	328	558	38	53	52	46	44	40	33	26	--	22	48	45	45	42	44	38	27	--	22	38	33	32	27	25	27	--	--	--
	10	194	410	697	59	56	55	48	46	42	35	29	22	25	50	47	47	44	46	40	29	22	24	40	35	34	29	27	29	--	--	--
200	2	61	129	219	2	39	32	29	27	24	-	--	--	--	36	31	31	29	30	24	--	--	--	25	21	20	-	-	-	--	--	--
	4	122	258	439	9	47	41	38	35	31	23	--	--	--	43	38	38	36	37	31	21	--	--	32	28	27	22	19	21	--	--	--
	6	183	387	658	21	52	47	43	39	35	27	23	--	--	47	42	42	40	41	35	25	--	--	36	32	31	26	23	25	--	--	--
	8	244	516	878	38	55	51	47	42	38	30	27	--	21	50	45	45	43	44	38	28	--	22	39	35	34	29	26	28	--	--	--
	10	305	645	1097	59	58	54	50	44	41	33	30	22	24	52	47	47	45	46	40	30	22	24	41	37	36	31	29	30	--	--	--
250	2	96	203	345	2	40	41	34	32	29	23	--	--	--	36	31	31	29	30	24	--	--	--	25	20	20	-	-	-	--	--	--
	4	192	406	690	9	48	48	42	38	34	28	22	--	--	43	38	38	36	37	31	21	--	--	32	27	27	22	20	21	--	--	--
	6	288	609	1035	21	53	53	46	42	37	31	27	20	23	47	42	42	40	41	35	25	--	--	36	31	31	26	24	25	--	--	--
	8	383	812	1380	38	57	56	49	45	40	34	30	23	26	50	45	45	43	44	38	28	--	22	39	34	34	29	27	28	--	--	--
	10	479	1015	1725	59	60	59	52	47	42	36	33	27	29	52	47	47	45	46	40	30	22	24	41	37	37	31	29	30	--	--	--
315	2	153	324	550	2	43	47	34	35	33	26	20	--	--	37	31	31	29	30	25	--	--	--	27	24	24	19	-	-	--	--	--
	4	306	648	1101	9	52	53	40	40	37	30	26	20	23	43	37	38	36	36	32	21	--	--	34	31	31	26	22	23	--	--	--
	6	459	971	1651	21	58	57	45	43	40	33	31	24	27	47	41	42	40	40	36	25	--	--	38	35	35	30	26	27	--	--	--
	8	612	1295	2202	38	62	60	48	46	43	36	34	28	30	50	44	45	43	43	39	27	--	21	41	38	38	33	29	30	--	--	--
	10	764	1619	2752	59	66	63	51	49	46	39	37	32	33	52	46	47	45	45	41	30	21	23	44	40	40	35	31	32	22	--	--
355	2	195	412	701	2	43	54	38	39	35	33	26	21	24	37	31	31	30	30	26	--	--	--	28	25	25	20	-	-	--	--	--
	4	389	824	1401	9	53	58	44	43	38	35	30	25	28	44	38	38	37	37	33	21	--	--	35	32	32	27	22	24	--	--	--
	6	584	1236	2102	21	59	60	48	46	40	37	33	28	31	48	42	42	41	41	37	25	--	--	39	36	36	31	26	28	--	--	--
	8	779	1649	2803	38	63	63	51	48	42	39	36	31	33	50	45	44	44	44	40	28/	--	22	42	39	39	34	29	31	20	--	--
	10	973	2061	3503	59	67	65	53	51	44	41	39	34	35	53	47	47	46	46	42	30	22	24	44	41	41	36	32	33	23	--	--
400	2	248	524	891	2	44	56	39	40	37	31	28	24	26	37	31	31	30	30	26	--	--	--	28	25	25	21	-	17	--	--	--
	4	495	1049	1783	9	54	60	45	44	40	33	32	28	30	44	37	38	37	36	33	21	--	--	35	32	32	28	23	24	--	--	--
	6	743	1573	2674	21	60	62	49	47	42	35	35	31	33	48	41	42	41	40	37	25	--	--	39	36	36	32	27	28	--	--	--
	8	990	2097	3565	38	64	65	52	49	44	37	38	33	35	50	44	45	43	43	39	27	--	21	42	39	39	35	30	31	21	--	--
	10	1238	2326	4456	59	68	67	54	52	46	39	41	36	37	53	46	47	46	45	42	30	21	23	45	42	42	37	32	33	23	--	--

1. *Sound data is determined in a reverberation room at an independent sound laboratory, according to ISO3741 and ISO 5135 standards.*
2. *Lw in dB/Oct.(re 1pW) are sound power levels for discharge sound and case radiated sound. Figures less than 17 dB are indicated by "-".*
3. *The discharge sound pressure levels are determined with the assumptions as mentioned in table 1 for downstream ductwork including a diffuser with insulated plenum box.*
4. *The radiated sound pressure levels are determined with the assumptions as mentioned in table 1 for ceiling plenum and suspended ceiling absorption.*
5. *Lp values are including a room absorption of 10 dB/Oct.*
6. *DB(A), NC and NR index figures are sound pressure levels. Figures less than 20 are indicated by "- -".*
7. *Δps is static pressure drop across VAV air volume control terminal with damper fully open.*
8. *For non standard applications and/or selections, please contatct our technical staff.*

Table 1 : Assumptions for additional attenuation

Hz	125	250	500	1K	2K	4K
Discharge (dB)	5	10	20	30	30	25
Radiated (dB)	2	5	10	15	15	20

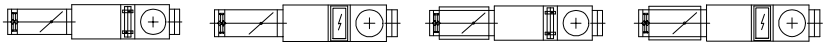
Table 2: Insertion Loss

Model	125	250	500	1K	2K	4K	Hz
100	3	4	6	11	10	12	dB
125	3	4	6	11	10	12	dB
160	2	6	10	10	10	11	dB
200	2	5	10	10	10	11	dB
250	2	5	10	11	10	10	dB
315	1	4	9	10	10	10	dB
355	1	4	9	10	10	10	dB
400	1	3	9	10	10	10	dB

BARCOL-AIR

Circular VAV and CAV
air volume control terminals

Type NAOJ.OB NAOQ.OB
NBOJ.OB NBOQ.OB



Sound data Δp = 125 Pa

Model	data refering to inlet spigot				min. Δ Ps	Δp = 125 Pa																								
						discharge sound									radiated sound single wall									radiated sound double wall							
						L_w in dB/Oct.(re 1pW)						Lp values			L_w in dB/Oct.(re 1pW)						Lp values			L_w in dB/Oct.(re 1pW)						Lp values		
	Velocity	air volume				125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR
	m/s	l/s	CFM	m^3/h	Pa	dB									dB									dB							
100	2	15	31	53	3	32	30	20	-	-	-	--	--	--	19	-	19	20	23	21	--	--	--	-	-	-	-	-	-	--	--	--
	4	29	62	106	11	38	36	26	21	-	-	--	--	--	26	23	26	27	30	28	--	--	--	22	-	-	-	-	-	--	--	--
	6	44	94	160	24	42	40	30	25	20	-	--	--	--	30	27	30	31	34	32	--	--	--	26	20	-	-	-	18	--	--	--
	8	59	125	213	43	45	43	33	28	23	-	--	--	--	33	30	33	34	37	35	--	--	--	29	23	19	19	19	21	--	--	--
	10	74	156	266	67	47	46	36	32	27	-	20	--	--	35	32	35	36	39	37	--	--	--	32	26	21	21	21	23	--	--	--
125	2	23	49	84	3	29	28	20	-	-	–	--	--	--	28	24	25	22	23	17	--	--	--	-	-	-	-	-	-	--	--	--
	4	47	99	168	10	36	35	26	22	-	-	--	--	--	35	31	32	29	30	24	--	--	--	23	18	-	-	-	-	--	--	--
	6	70	149	253	23	40	39	30	26	19	-	--	--	--	39	35	36	33	34	28	--	--	--	27	22	19	18	-	19	--	--	--
	8	94	198	337	40	44	43	34	30	23	-	--	--	--	42	38	38	35	37	31	21	--	--	30	25	22	21	20	22	--	--	--
	10	117	248	421	63	47	46	37	33	26	-	20	--	--	44	40	41	38	39	33	23	--	--	33	28	25	23	22	24	--	--	--
160	2	39	82	139	2	28	27	20	-	-	-	--	--	--	28	24	25	22	23	18	--	--	--	18	-	-	-	-	-	--	--	--
	4	78	164	279	9	35	33	25	22	-	-	--	--	--	35	31	32	29	30	25	--	--	--	25	20	19	-	-	-	--	--	--
	6	116	246	418	21	40	38	29	26	20	-	--	--	--	39	35	36	33	34	29	--	--	--	29	24	23	20	18	20	--	--	--
	8	155	328	558	38	44	41	33	29	23	-	--	--	--	42	38	38	35	37	31	21	--	--	32	27	26	23	21	23	--	--	--
	10	194	410	697	59	47	44	36	32	25	18	--	--	--	44	40	41	38	39	34	23	--	--	34	29	28	25	23	25	--	--	--
200	2	61	129	219	2	28	20	-	-	-	-	--	--	--	29	24	24	23	23	18	--	--	--	19	-	-	-	-	-	--	--	--
	4	122	258	439	9	37	30	26	20	-	-	--	--	--	36	31	31	29	30	25	--	--	--	26	22	21	18	-	-	--	--	--
	6	183	387	658	21	42	36	31	24	17	-	--	--	--	40	35	35	33	34	29	--	--	--	30	26	25	22	20	21	--	--	--
	8	244	516	878	38	46	40	35	28	21	-	--	--	--	43	38	38	36	37	31	21	--	--	33	29	28	25	22	24	--	--	--
	10	305	645	1097	59	49	44	38	30	24	-	20	--	--	45	40	40	38	39	34	23	--	--	35	31	30	27	25	26	--	--	--
250	2	96	203	345	2	30	29	21	-	-	-	--	--	--	29	24	24	23	23	18	--	--	--	19	-	-	-	-	-	--	--	--
	4	192	406	690	9	38	36	29	23	-	-	--	--	--	36	31	31	29	30	25	--	--	--	26	21	21	18	-	-	--	--	--
	6	288	609	1035	21	44	41	34	27	19	-	--	--	--	40	35	35	33	34	29	--	--	--	30	25	25	22	20	21	--	--	--
	8	383	812	1380	38	47	45	37	30	22	-	--	--	--	43	38	38	36	37	31	21	--	--	33	28	28	25	23	24	--	--	--
	10	479	1015	1725	59	51	48	40	32	25	18	22	--	--	45	40	40	38	39	34	23	--	--	35	31	31	27	25	26	--	--	--
315	2	153	324	550	2	34	35	21	19	-	-	--	--	--	30	24	24	23	23	19	--	--	--	21	18	18	-	-	-	--	--	--
	4	306	648	1101	9	43	41	28	24	19	-	--	--	--	37	31	31	30	30	26	--	--	--	28	25	25	22	18	19	--	--	--
	6	459	971	1651	21	49	46	33	29	23	-	21	--	--	41	35	35	34	34	30	--	--	--	32	29	29	26	22	23	--	--	--
	8	612	1295	2202	38	54	50	37	33	27	19	25	--	20	44	38	38	36	37	32	21	--	--	35	32	32	29	25	26	--	--	--
	10	764	1619	2752	59	58	53	40	36	30	22	29	22	24	46	40	40	39	39	35	23	--	--	38	34	34	31	27	28	--	--	--
355	2	195	412	701	2	34	42	25	23	-	-	--	--	--	30	24	24	23	23	19	--	--	--	22	19	19	-	-	-	--	--	--
	4	389	824	1401	9	44	46	31	27	19	-	--	--	--	37	31	31	30	30	26	--	--	--	29	26	26	23	18	20	--	--	--
	6	584	1236	2102	21	50	49	35	31	22	18	23	--	--	41	35	35	34	34	30	--	--	--	33	30	30	27	23	24	--	--	--
	8	779	1649	2803	38	55	52	39	34	25	21	27	--	22	44	38	38	37	37	33	21	--	--	36	33	33	30	25	27	--	--	--
	10	973	2061	3503	59	59	55	42	37	28	24	30	23	25	46	40	40	39	39	35	23	--	--	38	35	35	32	28	29	--	--	--
400	2	248	524	891	2	35	44	26	24	17	-	--	--	--	30	24	24	23	23	19	--	--	--	22	19	19	-	-	-	--	--	--
	4	495	1049	1783	9	45	48	32	28	21	-	20	--	--	37	31	31	30	30	26	--	--	--	29	26	26	24	19	20	--	--	--
	6	743	1573	2674	21	51	51	36	32	24	-	24	--	21	41	35	35	34	34	30	--	--	--	33	30	30	28	23	24	--	--	--
	8	990	2097	3565	38	56	54	40	35	27	19	28	21	24	44	38	37	37	37	33	21	--	--	36	33	33	31	26	27	--	--	--
	10	1238	2326	4456	59	60	57	43	38	30	22	32	25	27	46	40	40	39	39	32	23	--	--	39	36	36	33	28	29	--	--	--

1. *Sound data is determined in a reverberation room at an independent sound laboratory, according to ISO3741 and ISO 5135 standards.*
2. *Lw in dB/Oct.(re 1pW) are sound power levels for discharge sound and case radiated sound. Figures less than 17 dB are indicated by "-".*
3. *The discharge sound pressure levels are determined with the assumptions as mentioned in table 1 for downstream ductwork including a diffuser with insulated plenum box.*
4. *The radiated sound pressure levels are determined with the assumptions as mentioned in table 1 for ceiling plenum and suspended ceiling absorption.*
5. *Lp values are including a room absorption of 10 dB/Oct.*
6. *DB(A), NC and NR index figures are sound pressure levels. Figures less than 20 are indicated by "- -".*
7. *Δps is static pressure drop across VAV air volume control terminal with damper fully open.*
8. *For non standard applications and/or selections, please contatct our technical staff.*

Table 1 : Assumptions for additional attenuation

Hz	125	250	500	1K	2K	4K
Discharge (dB)	5	10	20	30	30	25
Radiated (dB)	2	5	10	15	15	20

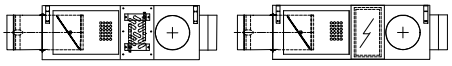
Table 2: Insertion Loss

Model	125	250	500	1K	2K	4K	Hz
100	13	17	23	26	28	30	dB
125	12	15	22	25	27	29	dB
160	12	15	22	25	27	29	dB
200	11	15	21	24	26	28	dB
250	11	15	21	24	26	28	dB
315	8	11	21	24	26	26	dB
355	8	11	21	24	26	26	dB
400	8	11	21	24	26	26	dB

BARCOL-AIR

Circular VAV and CAV
air volume control terminals

Type NAOJ.OB NAOQ.OB
NBOJ.OB NBOQ.OB



Sound data Δp = 250 Pa

Model	data refering to inlet spigot				min. Δ Ps	Δp = 250 Pa																						
						discharge sound									radiated sound single wall									radiated sound double wall							
						L_w in dB/Oct.(re 1pW)						Lp values			L_w in dB/Oct.(re 1pW)						Lp values			L_w in dB/Oct.(re 1pW)						Lp values		
	Velocity	air volume				125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB (A)	NC	NR
	m/s	l/s	CFM	m^3/h	Pa	dB									dB									dB							
100	2	15	31	53	3	34	34	26	21	-	-	--	--	--	26	23	26	27	30	28	--	--	--	21	-	-	-	-	-	--	--	--
	4	29	62	106	11	40	39	31	26	21	-	--	--	--	33	30	33	34	37	35	--	--	--	28	22	18	-	-	18	--	--	--
	6	44	94	160	24	44	43	34	29	25	-	--	--	--	37	34	37	38	41	39	21	--	--	32	26	22	20	20	22	--	--	--
	8	59	125	213	43	46	46	37	32	28	-	--	--	--	40	37	40	41	44	42	24	--	22	35	29	25	23	23	25	--	--	--
	10	74	156	266	67	48	48	39	34	31	20	22	--	--	42	39	42	43	46	44	26	22	24	38	32	28	25	25	27	--	--	--
125	2	23	49	84	3	32	33	26	22	-	-	--	--	--	35	31	31	28	30	24	--	--	--	22	17	-	-	-	-	--	--	--
	4	47	99	168	10	39	39	31	27	21	-	--	--	--	41	38	38	35	37	31	20	--	--	29	24	21	18	-	19	--	--	--
	6	70	149	253	23	43	43	35	30	24	-	--	--	--	45	42	42	39	41	35	24	--	--	33	28	25	22	21	23	--	--	--
	8	94	198	337	40	46	46	38	33	27	18	--	--	--	48	45	45	42	44	38	27	--	22	36	31	28	25	24	26	--	--	--
	10	117	248	421	63	49	48	40	35	29	21	22	--	--	50	47	47	44	46	40	29	22	24	39	34	31	27	26	28	--	--	--
160	2	39	82	139	2	32	33	26	22	20	-	--	--	--	35	31	31	28	30	24	--	--	--	24	19	18	-	-	-	--	--	--
	4	78	164	279	9	39	39	32	28	23	17	--	--	--	41	38	38	35	37	31	20	--	--	31	26	25	20	18	20	--	--	--
	6	116	246	418	21	44	42	35	31	26	19	--	--	--	45	42	42	39	41	35	24	--	--	35	30	29	24	22	24	--	--	--
	8	155	328	558	38	47	45	38	34	28	21	20	--	--	48	45	45	42	44	38	27	--	22	38	33	32	27	25	27	--	--	--
	10	194	410	697	59	50	48	40	36	30	23	22	--	--	50	47	47	44	46	40	29	22	24	40	35	34	29	27	29	--	--	--
200	2	61	129	219	2	33	25	21	17	-	-	--	--	--	36	31	31	29	30	24	--	--	--	25	21	20	-	-	-	--	--	--
	4	122	258	439	9	41	34	30	25	19	-	--	--	--	43	38	38	36	37	31	21	--	--	32	28	27	22	19	21	--	--	--
	6	183	387	658	21	46	40	35	29	23	-	--	--	--	47	42	42	40	41	35	25	--	--	36	32	31	26	23	25	--	--	--
	8	244	516	878	38	49	44	39	32	26	18	20	--	--	50	45	45	43	44	38	28	--	22	39	35	34	29	26	28	--	--	--
	10	305	645	1097	59	52	47	42	34	29	21	23	--	--	52	47	47	45	46	40	30	22	24	41	37	36	31	29	30	--	--	--
250	2	96	203	345	2	34	34	26	22	-	-	--	--	--	36	31	31	29	30	24	--	--	--	25	20	20	-	-	-	--	--	--
	4	192	406	690	9	42	41	34	28	22	-	--	--	--	43	38	38	36	37	31	21	--	--	32	27	27	22	20	21	--	--	--
	6	288	609	1035	21	47	46	38	32	25	19	20	--	--	47	42	42	40	41	35	25	--	--	36	31	31	26	24	25	--	--	--
	8	383	812	1380	38	51	49	41	35	28	22	23	--	--	50	45	45	43	44	38	28	--	22	39	34	347	29	27	28	--	--	--
	10	479	1015	1725	59	54	52	44	37	30	24	26	--	21	52	47	47	45	46	40	30	22	24	41	37	37	31	29	30	--	--	--
315	2	153	324	550	2	37	40	26	25	21	-	----	--	--	37	31	31	29	30	25	--	--	--	27	24	24	19	-	-	--	--	--
	4	306	648	1101	9	46	46	32	30	25	18	20	--	--	43	37	38	36	36	32	21	--	--	34	31	31	26	22	23	--	--	--
	6	459	971	1651	21	52	50	37	33	28	21	24	--	--	47	41	42	40	40	36	25	--	--	38	35	35	30	26	27	--	--	--
	8	612	1295	2202	38	56	53	40	36	31	24	28	20	23	50	44	44	43	43	39	27	--	21	41	38	38	33	29	30	--	--	--
	10	764	1619	2752	59	60	56	43	39	34	27	31	24	26	52	46	47	45	45	41	30	21	23	44	40	40	35	31	32	22	--	--
355	2	195	412	701	2	37	47	30	29	23	21	--	--	--	37	31	31	30	30	26	--	--	--	28	25	25	20	-	-	--	--	--
	4	389	824	1401	9	47	51	36	33	26	23	23	--	20	44	38	38	37	37	33	21	--	--	35	32	32	27	22	24	--	--	--
	6	584	1236	2102	21	53	53	40	36	28	25	27	20	23	48	42	42	41	41	37	25	--	--	39	36	36	31	26	28	--	--	--
	8	779	1649	2803	38	57	56	43	38	30	27	30	23	26	50	45	45	44	44	40	28	--	22	42	39	39	34	29	31	20	--	--
	10	973	2061	3503	59	61	58	45	41	32	29	33	26	28	53	47	47	46	46	42	30	22	24	44	41	41	36	32	33	23	--	--
400	2	248	524	891	2	38	49	31	30	25	19	21	--	--	37	31	30	30	30	26	--	--	--	28	25	25	21	-	17	--	--	--
	4	495	1049	1783	9	48	53	37	34	28	21	25	--	23	44	37	37	37	36	33	21	--	--	35	32	32	28	23	24	--	--	--
	6	743	1573	2674	21	54	55	41	37	30	23	28	23	25	48	41	41	41	40	37	25	--	--	39	36	36	32	27	28	--	--	--
	8	990	2097	3565	38	58	58	44	39	32	25	31	25	28	50	44	44	43	43	39	27	--	21	42	39	39	35	30	31	21	--	--
	10	1238	2326	4456	59	62	60	46	42	34	27	34	28	30	53	46	46	46	45	42	30	21	23	45	42	42	37	32	33	23	--	--

1. *Sound data is determined in a reverberation room at an independent sound laboratory, according to ISO3741 and ISO 5135 standards.*
2. *Lw in dB/Oct.(re 1pW) are sound power levels for discharge sound and case radiated sound. Figures less than 17 dB are indicated by "-".*
3. *The discharge sound pressure levels are determined with the assumptions as mentioned in table 1 for downstream ductwork including a diffuser with insulated plenum box.*
4. *The radiated sound pressure levels are determined with the assumptions as mentioned in table 1 for ceiling plenum and suspended ceiling absorption.*
5. *Lp values are including a room absorption of 10 dB/Oct.*
6. *DB(A), NC and NR index figures are sound pressure levels. Figures less than 20 are indicated by "- -".*
7. *Δps is static pressure drop across VAV air volume control terminal with damper fully open.*
8. *For non standard applications and/or selections, please contatct our technical staff.*

Table 1 : Assumptions for additional attenuation

Hz	125	250	500	1K	2K	4K
Discharge (dB)	5	10	20	30	30	25
Radiated (dB)	2	5	10	15	15	20

Table 2: Insertion Loss

Model	125	250	500	1K	2K	4K	Hz
100	13	17	23	26	28	30	dB
125	12	15	22	25	27	29	dB
160	12	15	22	25	27	29	dB
200	11	15	21	24	26	28	dB
250	11	15	21	24	26	28	dB
315	8	11	21	24	26	26	dB
355	8	11	21	24	26	26	dB
400	8	11	21	24	26	26	dB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