

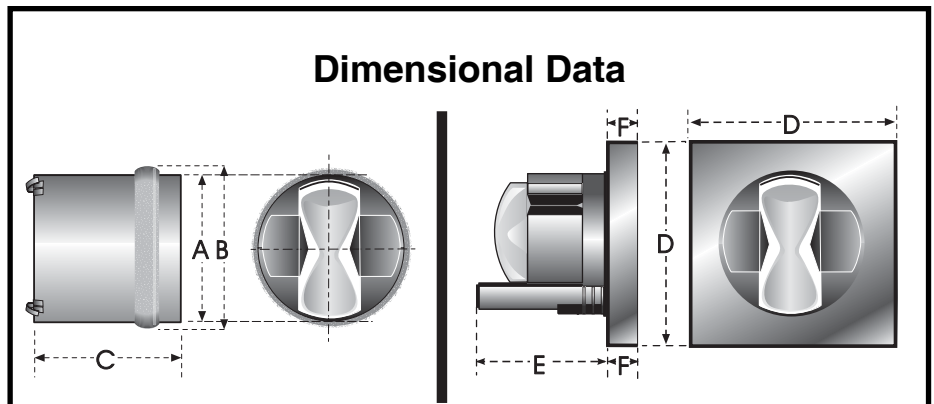
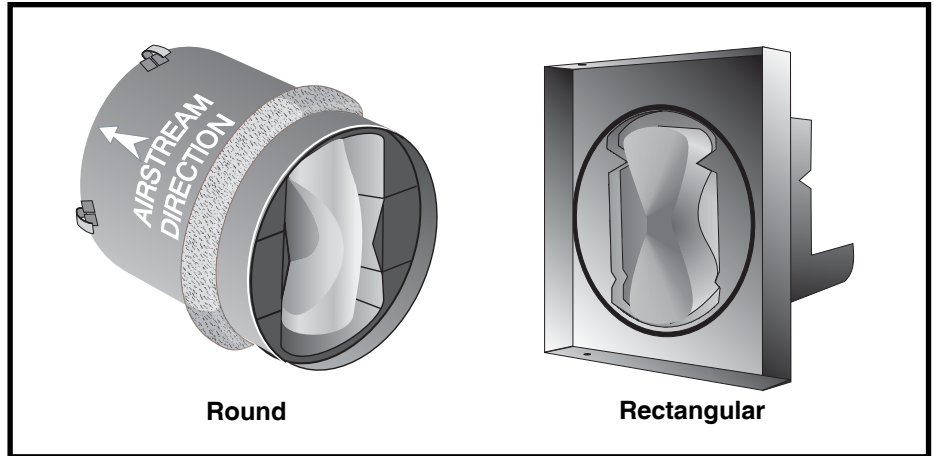
**General:** The model CAR Constant Airflow Regulator is a modulating orifice that automatically regulates airflows in duct systems to constant levels. The passive control element responds to duct pressure, and requires no electric or pneumatic sensors or controls.

The CAR compensates for changes in duct pressure caused by thermal stack effect, building pressure, dust clogging of filters, etc. The CAR also provides a low cost solution to balancing forced air systems for heating, air conditioning and ventilation, eliminating the need for on-site balancing. The CAR will regulate airflow in supply, return or exhaust duct systems.

The active control element of the CAR is a flexible bulb, which inflates and deflates in response to the static pressure difference across the control. This operation regulates the free-area opening through the control, resulting in maintenance of velocity and specific airflow set points. Each CAR is designed and produced for control of air in temperatures ranging from -25° to 140° F (-32° to 60° C.)

**Construction (Round):** The round CAR regulating element is housed in a heavy gauge rolled galvanized steel sleeve. Each sleeve is seam welded to prevent leakage. The assembly is sized to fit inside standard rigid round ducting, as well as fittings such as take-offs, tees, etc. A brush or flex-type ring seal gasket around the circumference ensures a tight, no-leak fit. Spring action metal clips on the housing grip the interior of the duct or fitting to secure the control firmly in place with minimal installation effort.

**Construction (Rectangular):** The CAR regulating element is available in a rectangular duct mounting plate. The assembly is sized to fit inside standard square or rectangular ducting, as well as register boots, return grille collars, etc. Each mounting plate is designed to specifically accommodate the control element, and prevent unwanted air leakage.



Duct	CAR	A	B	C	D*	E	F
Round							
4"	4	3.9	4.1	3.1	-	-	-
5"	5	4.8	5.0	5.4	-	-	-
6"	6	5.7	6.3	5.4	-	-	-
8"	8	7.7	8.1	6.1	-	-	-
10"	10	9.7	10.0	7.5	-	-	-
Rectangular							
6"x6"	4	-	-	-	5.9	2.3	1.0
6"x6"	5	-	-	-	5.9	3.7	1.0
8"x8"	5	-	-	-	7.9	3.7	1.0
8"x8"	6	-	-	-	7.9	4.0	1.0
10"x10"	5	-	-	-	9.9	3.7	1.0
10"x10"	6	-	-	-	9.9	4.0	1.0
10"x106"	8	-	-	-	9.9	4.8	1.0
12"x12"	8	-	-	-	11.9	4.8	1.0
12"x12"	10	-	-	-	11.9	6.1	1.0
14"x14"	10	-	-	-	13.9	6.1	1.0

\*Standard sizes shown.  
Mounting plates are also available to accommodate any rectangular duct size.

All sizes shown are in inches.

**Performance:** The CAR airflow regulators control airflow accurately to within 10% of rated flow (*15% for units 50 cfm or less*), throughout the target operating pressure range of 0.2 to 0.8 in. w.g. (*50 to 200 Pa*). Each CAR is factory tested and calibrated to the rated set point before shipping. On-site field adjustment of airflow set points can be made for supply air applications (*contact factory*). Each diameter of CAR regulator is available in multiple factory calibrated set points (*see performance curves*).

**Maintenance:** The CAR needs no maintenance when used in normal conditions. There is no risk of dust deposit or obstruction because the CAR has no airways subject to clogging. If the intended application includes air heavily loaded with grease or dust, a fitting with an access panel or door, such as that used for flame dampers, should be provided.

**Warranty:** Guaranteed for 5 years, from date of shipment, against all defects in material or workmanship, provided that the material has been installed and utilized under normal conditions. This warranty is limited to the repair or replacement of the material.

*The CAR is a patented ALDES product. We reserve the right to change specifications without notice.*

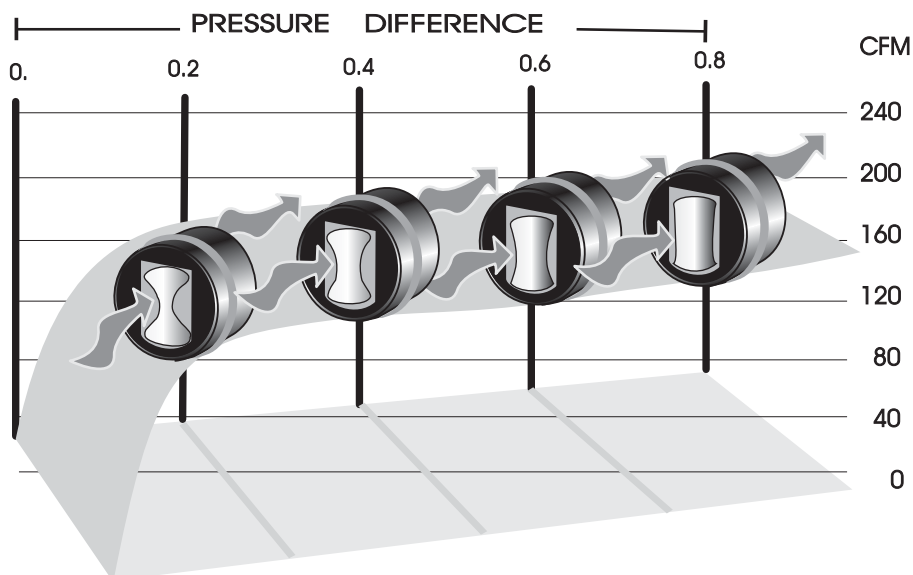
## Typical Applications

- **Supply and exhaust air of offices.**
- **Balancing exhaust and supply airflows in high-rise building duct risers.**
- **Bathroom exhaust in nursing homes, hotels, motels, dormitories, apartment buildings, offices, etc.**
- **Clean room air supply balancing for ceiling filter modules. Maintains constant airflow even as filter resistance increases.**
- **Regulation of makeup air.**
- **Balancing supply airflow from packaged roof top A/C units.**
- **Balancing supply and exhaust of heat recovery ventilation systems**
- **Regulating outdoor air injection from central supply fan into individual room fan coil units, or heat pumps.**
- **Balancing airflows on series fan powered terminal unit systems.**
- **Supply air to sleeping quarters in military facilities, submarines, etc.**

## Typical Specification

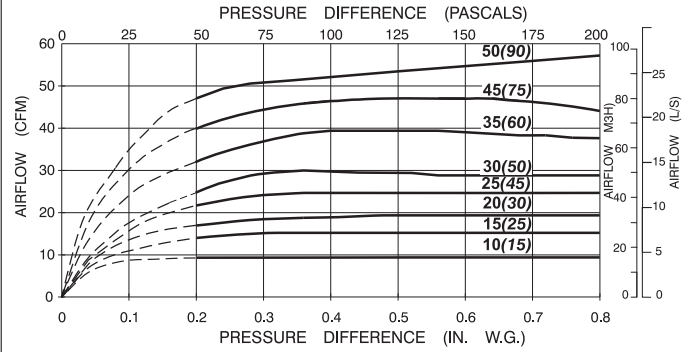
Model CAR Constant Airflow Regulators by **American ALDES Ventilation Corporation**, Sarasota, Florida, shall solely operate on duct pressure and require no external power supply. Each regulator shall be preset and factory calibrated requiring no field adjustment to the airflows as indicated on the schedule, and shall be rated for use in air temperatures ranging from -25° to 140° F (*-32° to 60° C.*) Constant airflow regulators shall be capable of maintaining constant airflow within +/- 10% of scheduled flow rates (*15% for units 50 cfm or less*), within the operating range of 0.2 to 0.8 in. w.g. differential pressure, or 0.6 to 2.4 in. w.g. on high-pressure models. Sound power levels shall not exceed those for each size and cfm rating as scheduled. Regulators shall be provided as an assembly consisting of a flame resistant plastic body with self-inflating silicon element housed within a .75mm galvanized steel sleeve or flanged plate for mounting in either round or rectangular duct. Each round sleeve must be fitted with a brush gasket to assure perimeter air tightness with the interior surface of the duct. All Constant Airflow Regulators will require no maintenance and must be warranted for a period of no less than five years. Constant Airflow Regulators shall be installed in tight ducting systems in accordance with all applicable codes and manufacturer's instructions.

**How the CAR Works:** Constant airflow is achieved by the inflating action of CAR's bulb. At minimum static air pressure, the bulb is deflated and has the shape similar to an hourglass. As the static pressure increases across the bulb, it inflates, thereby reducing the free area around the bulb. At the same time, the higher static pressure increases the air velocity resulting in **CONSTANT AIRFLOW**. This occurs regardless of pressure differences in the range of 0.2 to 0.8 in. w. g. (*50 to 200 Pa*). The air velocity in the duct is in the range of 60 to 700 ft/min. (*0.3 to 3.5 m/s*).



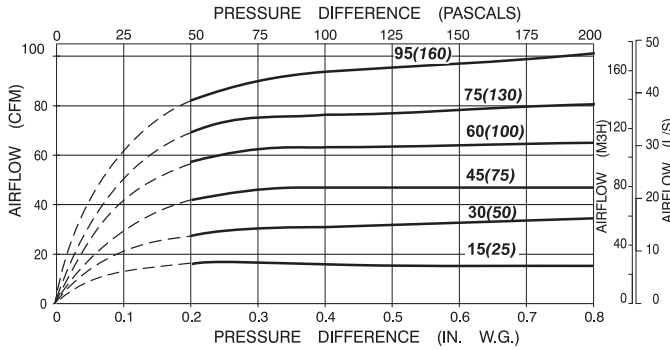
**CAR Airflow Performance Data:** Performance charts reflect airflow measurements taken at 68° (20° C) at 1 atmosphere pressure. CAR's designed for system pressures above 0.8 in. w.g. are also available. Consult the factory for information.

### 4" DIA. (100mm)



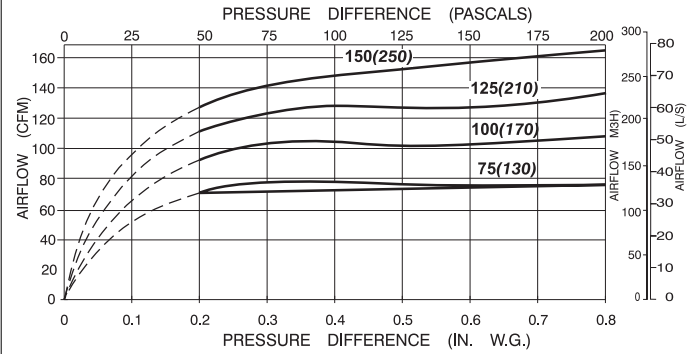
P/N #16 330	<b>10 cfm</b> (15 m3/h)	#16 337	<b>30 cfm</b> (50 m3/h)
#16 336	<b>15 cfm</b> (25 m3/h)	#16 333	<b>35 cfm</b> (60 m3/h)
#16 331	<b>20 cfm</b> (30 m3/h)	#16 334	<b>45 cfm</b> (75 m3/h)
#16 332	<b>25 cfm</b> (45 m3/h)	#16 335	<b>50 cfm</b> (90 m3/h)

### 5" DIA. (125mm)



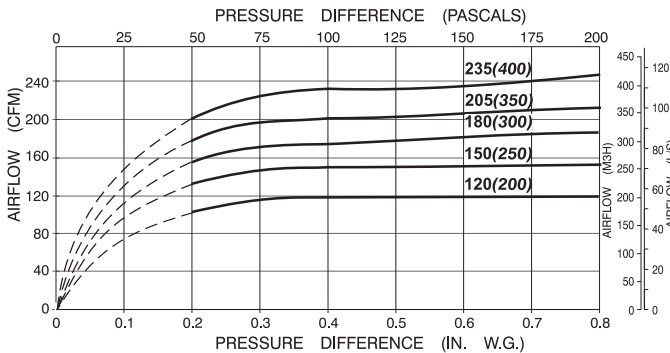
P/N #16 340	<b>15 cfm</b> (25 m3/h)	#16 343	<b>60 cfm</b> (100 m3/h)
#16 341	<b>30 cfm</b> (50 m3/h)	#16 344	<b>75 cfm</b> (130 m3/h)
#16 342	<b>45 cfm</b> (75 m3/h)	#16 345	<b>95 cfm</b> (160 m3/h)

### 6" DIA. (150mm)



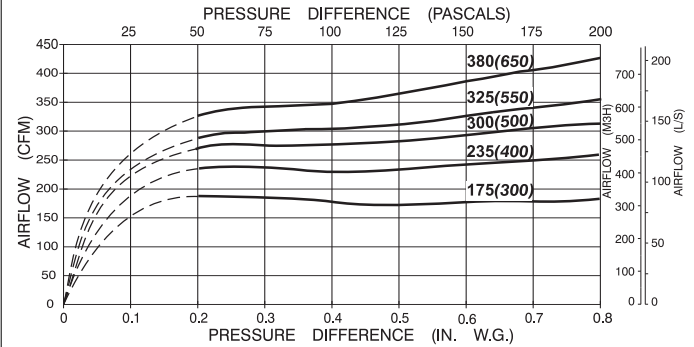
P/N #16 370	<b>75 cfm</b> (130 m3/h)	#16 372	<b>125 cfm</b> (210 m3/h)
#16 371	<b>100 cfm</b> (170 m3/h)	#16 373	<b>150 cfm</b> (250 m3/h)

### 8" DIA. (200mm)



P/N #16 360	<b>120 cfm</b> (200 m3/h)	#16 363	<b>205 cfm</b> (350 m3/h)
#16 361	<b>150 cfm</b> (250 m3/h)	#16 364	<b>235 cfm</b> (400 m3/h)
#16 362	<b>180 cfm</b> (300 m3/h)		

### 10" DIA. (250mm)



P/N #16 366	<b>175 cfm</b> (300 m3/h)	#16 368	<b>325 cfm</b> (550 m3/h)
#16 365	<b>235 cfm</b> (400 m3/h)	#16 369	<b>380 cfm</b> (650 m3/h)
#16 367	<b>300 cfm</b> (500 m3/h)		

# ACOUSTIC PERFORMANCE

## AIRFLOW

0.2 in. w.g. (50 PA)

0.4 in w.g. (100 PA)

0.6 in. w.g. (150 PA)

0.8 in w.g. (200 PA)

CAR DIA.	CFM	m3/h	L/s	0.2 in. w.g. (50 PA)					0.4 in w.g. (100 PA)					0.6 in. w.g. (150 PA)					0.8 in w.g. (200 PA)																					
				125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	Lw - dB (A)	Lw - NR	Lw - NC	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	Lw - dB (A)	Lw - NR	Lw - NC	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	Lw - dB (A)	Lw - NR	Lw - NC										
4" 100mm	TEST WITHOUT ACOUSTICALLY LINED DUCT	10	15	4	15	14	12	9	11	11	18	17	15	15	14	21	22	11	12	24	21	20	21	14	21	25	11	12	27	25	23	22	14	25	29	19	12	31	29	28
	15	25	7	21	14	17	12	11	12	20	18	15	27	21	30	22	16	12	29	26	24	28	23	32	23	19	17	31	28	26	28	25	34	25	21	20	33	30	29	
	20	30	8	21	19	18	12	11	12	20	18	15	22	25	28	25	11	12	29	25	23	24	27	33	30	18	12	34	30	29	20	27	33	31	23	23	35	31	30	
	25	45	13	22	23	21	20	11	12	24	20	18	25	31	31	30	19	12	33	30	29	27	35	36	35	21	17	38	35	34	30	39	41	37	25	22	42	37	36	
	30	50	14	25	17	23	18	11	12	24	20	16	28	27	31	21	11	12	29	27	25	29	33	38	28	19	17	37	34	33	33	35	42	31	24	18	40	38	37	
	35	60	17	25	24	24	22	14	12	26	22	20	27	33	33	29	18	12	34	29	28	29	36	38	34	22	17	39	34	33	29	40	42	36	27	22	42	38	37	
	45	75	21	24	25	25	22	16	12	27	22	20	28	33	33	31	26	20	35	31	30	31	38	39	34	27	26	40	36	34	34	42	44	37	31	30	44	40	39	
	50	90	25	25	27	26	23	16	12	28	23	21	32	38	35	31	27	24	37	32	30	36	43	40	34	31	30	42	37	35	37	36	44	39	32	32	43	40	39	
	TEST WITH ACOUSTICALLY LINED DUCT	10	15	4	-	-	-	-	-	<15	<10	<10	-	-	-	-	-	<15	<10	<10	-	-	-	-	-	-	-	<15	<10	11	19	10	16	11	-	-	17	<10	13	
	15	25	7	-	-	-	-	-	-	<15	<10	<10	-	-	-	-	-	19	15	14	26	17	22	-	-	-	20	17	15	26	19	24	-	-	-	22	20	17		
20	30	8	-	-	-	-	-	-	<15	<10	<10	19	21	19	-	-	-	19	14	14	21	23	24	12	-	-	23	20	17	22	23	24	13	-	-	23	20	17		
25	45	13	19	19	12	-	-	-	-	15	<10	12	12	22	27	22	12	-	-	23	18	15	24	31	27	17	-	-	27	23	21	28	35	32	19	-	-	31	27	
26	30	14	23	11	13	-	-	-	15	<10	12	26	21	21	-	-	-	20	16	15	28	27	28	-	-	-	26	23	22	31	29	32	11	-	-	30	29	26		
35	60	17	22	20	15	-	-	-	17	10	12	24	29	24	11	-	-	24	20	17	26	32	29	16	-	-	28	24	23	27	36	33	18	-	-	32	28	27		
45	75	21	21	21	16	-	-	-	17	12	13	25	29	24	13	-	-	25	20	17	28	34	30	16	-	-	30	26	24	32	38	35	19	-	-	34	32	30		
50	90	25	22	23	17	-	-	-	18	13	13	29	34	26	13	-	-	28	25	21	33	39	31	16	-	-	33	29	25	35	32	35	21	-	-	33	32	30		
5" 125 mm	TEST WITHOUT ACOUSTICALLY LINED DUCT	15	25	7	21	14	17	12	11	12	20	18	15	27	21	30	22	16	12	29	26	24	28	23	32	23	19	17	31	28	26	28	25	34	25	21	20	33	30	29
	30	50	14	25	17	23	18	11	12	24	20	16	28	27	31	21	11	12	30	27	25	30	33	38	28	19	17	37	34	33	33	35	42	31	24	18	40	38	37	
	45	75	21	24	17	24	14	16	11	24	20	17	24	26	31	24	25	14	32	28	26	24	30	36	28	27	21	36	32	31	24	33	40	31	30	25	40	36	35	
	60	100	28	24	24	26	19	16	11	26	22	20	32	30	35	27	29	17	35	32	30	33	33	39	30	31	24	39	35	34	36	38	43	33	33	27	42	39	38	
	75	130	36	27	25	28	21	20	11	28	25	22	30	32	37	28	30	21	37	33	32	36	39	43	34	34	28	43	39	38	38	41	46	37	38	33	46	42	41	
	95	160	44	31	25	31	23	23	14	31	27	25	41	35	39	31	32	23	39	35	34	45	43	47	37	37	30	47	43	42	43	44	49	40	40	35	49	46	45	
	TEST WITH ACOUSTICALLY LINED DUCT	15	25	7	-	-	-	-	-	<15	<10	<10	25	15	20	-	-	-	19	15	14	26	17	22	-	-	-	20	17	15	26	19	24	-	-	-	22	20	17	
	30	50	14	23	11	13	-	-	-	15	<10	12	26	21	21	-	-	-	20	16	15	28	27	28	-	-	-	26	23	22	31	29	32	11	-	-	30	29	26	
	45	75	21	22	11	14	-	-	-	15	<10	12	22	20	21	-	-	-	20	18	15	22	24	26	-	-	-	24	21	20	22	27	30	11	-	-	28	27	24	
	60	100	28	22	18	16	-	-	-	17	11	13	30	24	25	-	-	-	24	22	18	31	27	29	10	-	-	27	24	23	34	32	33	13	-	15	31	30	27	
75	130	36	25	19	18	-	-	-	18	13	14	28	26	27	-	-	-	25	24	21	35	33	33	14	-	10	32	30	27	36	35	36	17	11	17	34	33	31		
95	160	44	29	19	21	-	-	-	20	17	15	39	29	29	11	-	-	29	28	23	43	37	37	17	10	12	36	34	32	41	38	39	20	13	19	37	35	34		
6" 150 mm	TEST WITHOUT ACOUSTICALLY LINED DUCT	75	130	36	18	27	31	20	21	11	31	27	25	29	34	38	26	30	22	37	34	33	29	37	43	31	32	25	42	39	38	34	41	44	33	34	27	44	41	39
	100	170	47	18	28	33	25	26	16	33	29	27	30	34	39	30	32	24	39	35	34	36	40	43	32	34	27	43	39	38	39	44	47	35	37	31	46	44	42	
	125	210	58	18	29	33	27	28	16	34	32	28	34	35	40	31	35	25	41	37	36	37	41	45	35	38	29	45	42	40	40	45	49	39	41	35	49	46	45	
	150	250	69	26	29	33	26	26	16	33	29	27	34	37	42	33	32	25	42	38	37	39	41	46	36	35	30	45	43	41	42	45	50	40	39	35	49	47	46	
	TEST WITH ACOUSTICALLY LINED DUCT	75	130	36	16	23	25	-	-	-	23	21	19	27	30	32	11	-	-	30	29	26	27	33	37	16	17	-	35	33	32	32	37	38	18	-	11	36	33	33
	100	170	47	16	24	27	10	-	-	25	23	21	28	30	33	15	-	-	31	30	27	34	36	37	17	19	11	35	33	32	32	37	40	41	33	20	12	15	39	37
8" 200 mm	TEST WITHOUT ACOUSTICALLY LINED DUCT	120	200	56	25	28	28	22	18	12	28	24	22	32	39	37	31	31	20	39	34	32	34	41	42	34	33	26	41	38	39	36	44	44	37	34	30	45	41	39
	150	250	69	27	28	28	22	19	12	29	24	22	32	35	36	30	29	20	37	33	31	35	41	42	33	31	26	42	38	37	40	44	45	37	34	31	45	42	40	
	180	300	83	29	28	30	25	21	12	31	26	24	33	34	37	31	29	20	38	34	32	35	41	42	35	34	29	43	38	37	40	43	45	38	38	34	46	44	40	
	205	350	97	28	27	31	28	26	17	33	29	27	32	35	37	34	33	30	40	34	34	35	41	42	35	37	31	44	40	38	43	47	47	41	41	36	49	44	42	
	235	400	111	30	29	32	29	26	18	34	29	28	35	36	37	35	33	30	41	35	34	40	43	44	38	38	31	45	41	39	44	48	49	41	41	36	50	46	45	
	TEST WITH ACOUSTICALLY LINED DUCT	120	200	56	24	25	20	-	-	-	21	15	14	31	36	29	-	-	-	30	26	24	33	38	34	-	-	13	33	30	29	35	41	36	12	-	17	36	33	31
10" 250 mm	TEST WITHOUT ACOUSTICALLY LINED DUCT	175	300	83	26	28	31	23	20	13	30	27	25	33	40	38	32	32	21	39	36	33	35	42	43	34	35	27	43	38	38	37	45	45	38	35	31	45	41	40
	235	400	111	28	28	30	23	22	16	30	26	24	33	38	37	32	31	21	38	35	32	37	43	42	34	34	28	42												