



# Supply & Return Grilles

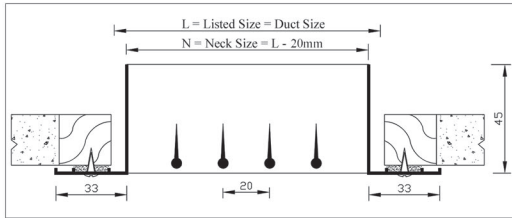
دریچه های رفت و برگشت



## Single Deflection

Model : D 50 Front Horizontal Blades

Model : D 55 Front Vertical Blades



### Tech. Spec.

- The frame and blades are of high quality extruded aluminium profiled.
- Blades are fixed to the frame with aluminium pins loaded with steel springs.
- Foam gasket is sealed around the back of the frame to avoid air leakage.
- The blades (rear or face) are individually adjustable to any setting.

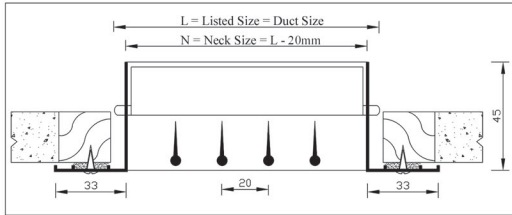
### مشخصات فنی

- قاب و تیغه ها از جنس آلومینیوم اکستروژن شده.
- اتصال تیغه ها به قاب بوسیله پین و فنر.
- قاب دریچه مجهز به فوم به منظور هوا بندی.
- قابلیت تنظیم هوا در سطوح افقی یا عمودی.

## Double Deflection

Model : D 60 Front Horizontal Blades

Model : D 65 Front Vertical Blades



### Tech. Spec.

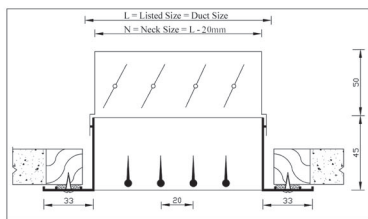
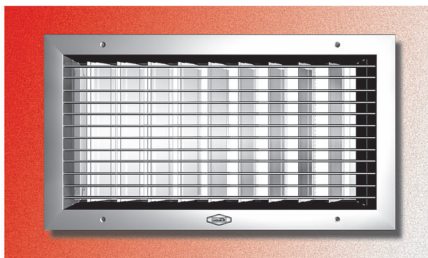
### مشخصات فنی

- The frame and blades are of high quality extruded aluminium profiled.
  - Blades are fixed to the frame with aluminium pins loaded with steel springs.
  - Foam gasket is sealed around the back of the frame to avoid air leakage.
  - The blades (rear or face) are individually adjustable to any setting.
- قاب و تیغه ها از جنس آلومینیوم اکستروژد شده.
  - اتصال تیغه ها به قاب بوسیله پین و فنر.
  - قاب دریچه مجهز به فوم به منظور هوا بندی.
  - قابلیت تنظیم هوا در سطوح افقی یا عمودی.

## Single Deflection

Model : D 70 Front Horizontal Blades

Model : D 75 Front Vertical Blades



### Tech. Spec.

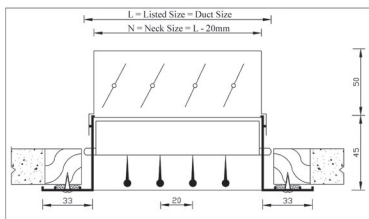
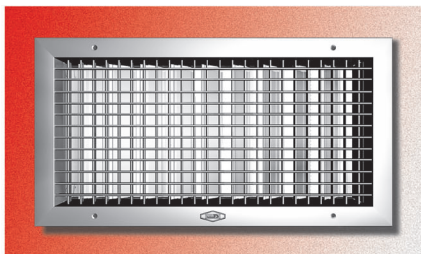
- The frame and blades are of high quality extruded aluminium profiled.
- Blades are fixed to the frame with aluminium pins loaded with steel springs.
- Foam gasket is sealed around the back of the frame to avoid air leakage.
- The blades (rear or face) are individually adjustable to any setting.
- Grilles are rigidly fixed with parallel or opposed blade damper.
- Damper blade is screw or slide operated from the face opening.
- قاب و تیغه ها از جنس آلومینیوم اکستروژد شده.
- اتصال تیغه ها به قاب بوسیله پین و فنر.
- قاب دریچه مجهز به فوم به منظور هوا بندی.
- قابلیت تنظیم هوا در سطوح افقی یا عمودی.
- مجهز به دمپر از نوع موازی یا مخالف.
- تنظیم دمپر با کلید مخفی یا کشویی.

### مشخصات فنی

## Double Deflection

Model : D 80 Front Horizontal Blades

Model : D 85 Front Vertical Blades



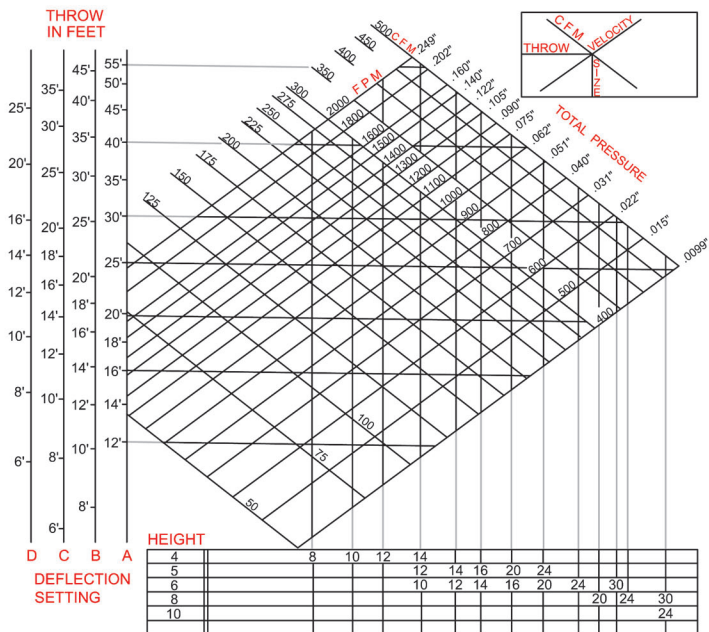
### Tech. Spec.

- The frame and blades are of high quality extruded aluminium profiled.
- Blades are fixed to the frame with aluminium pins loaded with steel springs.
- Foam gasket is sealed around the back of the frame to avoid air leakage.
- The blades (rear or face) are individually adjustable to any setting.
- Grilles are rigidly fixed with parallel or opposed blade damper.
- Damper blade is screw or slide operated from the face opening.
- قاب و تیغه ها از جنس آلومینیوم اکسترود شده.
- اتصال تیغه ها به قاب بوسیله پین و فنر.
- قاب دریچه مجهز به فوم به منظور هوا بندى.
- قابلیت تنظیم هوا در سطوح افقی یا عمودی.
- مجهز به دمپر از نوع موازی یا مخالف.
- تنظیم دمپر با کلید مخفی یا کشویی.

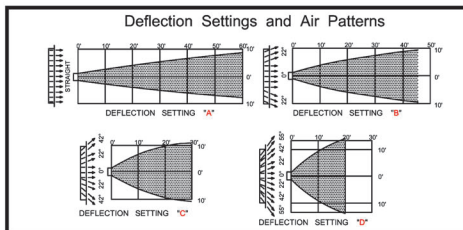
### مشخصات فنی



# Size Selection Chart 50 -500 CFM



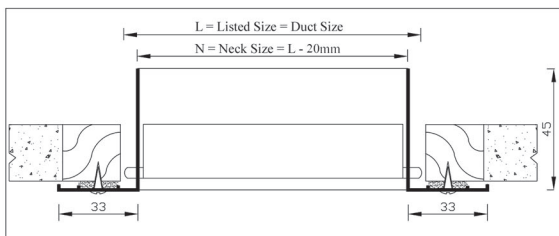
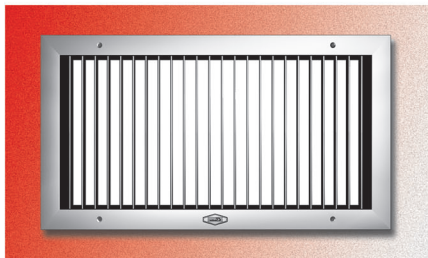
**GRILLE WIDTH**  
ALL DIMENSIONS IN INCHES





## Vertical Blades

Model : D 90

**Tech. Spec.**

- The frame and blades are of high quality extruded aluminium profiled.
- Blades are fixed to the frame with aluminium pins loaded with steel springs.
- Foam gasket is sealed around the back of the frame to avoid air leakage.

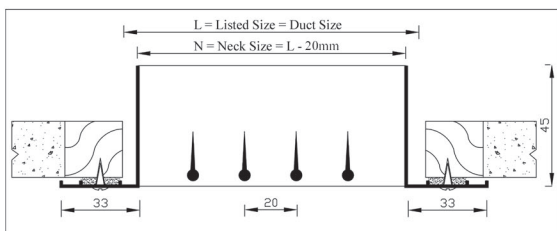
**مشخصات فنی**

- قاب و تیغه ها از جنس آلومینیوم اکستروژن شده.
- اتصال تیغه ها به قاب بوسیله پین و فنر.
- قاب دریچه مجهز به فوم به منظور هوا بندگی.



## Horizontal Blades

Model : D 95

**Tech. Spec.****مشخصات فنی**

- The frame and blades are of high quality extruded aluminium profiled. • قاب و تیغه ها از جنس آلومینیوم اکستروژد شده.
- Blades are fixed to the frame with aluminium pins loaded with steel springs. • اتصال تیغه ها به قاب بوسیله پین و فنر.
- Foam gasket is sealed around the back of the frame to avoid air leakage. • قاب دریچه مجهز به فوم به منظور هوابندی.

## Vertical &amp; Horizontal Blades

Models : D90-D95

## Air flow data

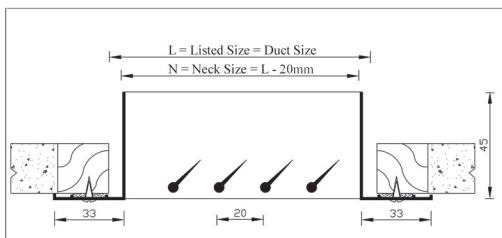
Listed size in Inch × inch	Face vel F.P.M S.P. inch H <sub>2</sub> O	500	600	700	800	900	1000	1100	1200
		0.06	0.1	0.13	0.17	0.22	0.27	0.33	0.39
10"×4" /8"×5" 6"×6"	CFM	150	180	210	240	270	300	330	360
	NC	<15	19	22	25	29	33	36	38
8"×6" /10"×5" 12"×4"	CFM	180	210	240	280	320	350	390	420
	NC	<15	18	22	26	29	33	35	37
10"×6" /12"×5" 16"×4"	CFM	220	260	310	350	400	440	490	530
	NC	16	20	25	28	31	35	38	40
12"×6" /14"×5" 18"×4"	CFM	240	290	340	390	440	490	540	590
	NC	15	20	24	27	30	34	37	40
10"×8" /14"×6" 16"×5" /20"×4"	CFM	270	320	370	420	480	530	590	640
	NC	<15	17	21	24	28	31	35	38
10"×10" /12"×8" 16"×6" /20"×5"	CFM	310	370	430	490	550	610	680	740
	NC	15	19	23	26	30	34	36	39
12"×10" /18"×6" 20"×6" /24"×5"	CFM	360	440	510	580	660	730	810	880
	NC	15	20	24	27	31	34	37	39
12"×12" /14"×10" 18"×8" /24"×6"	CFM	420	500	590	670	750	840	930	1020
	NC	<15	15	23	27	30	34	37	40
14"×12" /16"×10" 20"×8"	CFM	450	540	630	720	810	900	1000	1090
	NC	<15	16	21	25	29	33	37	40
14"×14" /16"×12" 20"×10" /24"×8"	CFM	510	620	720	820	930	1030	1140	1240
	NC	15	20	24	29	32	37	40	43
16"×16" /20"×12" 24"×10" /32"×8"	CFM	580	700	820	940	1050	1170	1290	1400
	NC	15	20	25	30	34	38	41	44
20"×14" /24"×12" 28"×10" /36"×8"	CFM	660	800	930	1060	1200	1330	1470	1600
	NC	16	22	26	32	35	39	42	45
18"×18" /20"×16" 30"×10"	CFM	700	840	980	1120	1270	1400	1550	1690
	NC	16	21	25	30	33	35	39	43
20"×20" /22"×18" 30"×12"	CFM	800	970	1130	1280	1440	1600	1770	1930
	NC	18	23	27	33	38	40	43	45

- 100 F.P.M = 0.5 m/sec .
- One inch H<sub>2</sub>O static pressure = 249 pascal(N/m<sup>2</sup>) = 24.9 mm H<sub>2</sub>O .
- One m<sup>3</sup>/sec = 2120 C.F.M.
- NC based on a room attenuation of 10 dB.



## Fixed Horizontal Blades (40°)

Model : D 100



### Tech. Spec.

- The frame and blades are of high quality extruded aluminium profiled.
- Blades are fixed to the frame with aluminium pins loaded with steel springs.
- Foam gasket is sealed around the back of the frame to avoid air leakage.
- Blades are fixed rigidly to the frame at an angle 40° to the horizontal plane.

### مشخصات فنی

- قاب و تیغه ها از جنس آلومینیوم اکستروژد شده.
- اتصال تیغه ها به قاب بوسیله پین و فنر.
- قاب دریچه مجهز به فوم به منظور هوا بندگی.
- قرارگیری تیغه ها به صورت افقی و ثابت با زاویه ۴۰ درجه.

## Fixed Horizontal Blades (40°)

Model : D100

## Air flow data

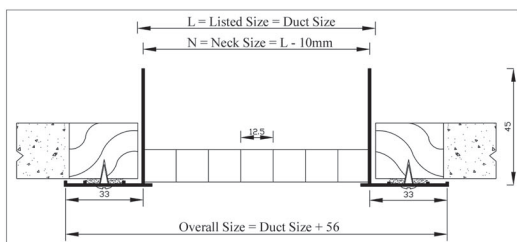
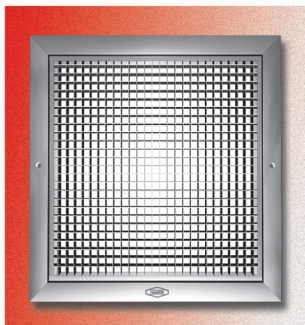
Listed size in Inch × inch	Face vel F.P.M S.P. inch H <sub>2</sub> O	300	400	500	600	700	800	900	1000
		0.036	0.065	0.1	0.15	0.2	0.26	0.33	0.4
10"×4" / 8"×5" 6"×6"	CFM NC	60 <15	80 16	100 24	120 27	140 31	160 36	180 41	200 46
8"×6" / 10"×5" 12"×4"	CFM NC	81 <15	108 16	135 24	162 27	189 31	216 36	243 41	270 46
10"×6" / 12"×5" 16"×4"	CFM NC	102 <15	136 15	170 24	204 27	238 31	272 36	306 41	340 46
12"×6" / 14"×5" 18"×4"	CFM NC	120 <15	160 15	200 25	240 28	280 31	320 36	360 41	400 47
10"×8" / 14"×6" 16"×5" / 20"×4"	CFM NC	141 <15	188 16	235 24	282 27	329 31	376 35	423 40	470 47
10"×10" / 12"×8" 16"×6" / 20"×5"	CFM NC	162 <15	216 16	270 24	324 27	378 31	432 35	486 42	540 47
12"×10" / 18"×6" 20"×6" / 24"×5"	CFM NC	180 <15	270 17	300 23	360 27	420 31	480 35	540 40	600 46
12"×12" / 14"×10" 18"×8" / 24"×6"	CFM NC	240 <15	320 18	400 23	480 27	560 31	640 35	720 40	800 47
14"×12" / 16"×10" 20"×8"	CFM NC	300 <15	400 19	500 23	600 27	700 32	800 36	900 40	1000 48
14"×14" / 16"×12" 20"×10" / 24"×8"	CFM NC	360 <15	480 21	600 24	720 27	840 32	960 36	1080 40	1200 48
16"×14" / 22"×10" NC	CFM NC	420 <15	560 21	700 24	840 28	980 33	1120 37	1260 41	1400 49
16"×16" / 20"×12" 24"×10" / 32"×8"	CFM NC	480 16	640 22	800 25	960 29	1120 33	1280 38	1440 42	1600 49
20"×14" / 24"×12" 28"×10" / 36"×8"	CFM NC	540 17	720 22	900 25	1080 29	1260 34	1440 42	1620 43	1800 50
18"×18" / 20"×16" 30"×10"	CFM NC	600 18	800 23	1000 26	1200 30	1400 35	1600 43	1800 41	2000 50
20"×20" / 22"×18" 30"×12"	CFM NC	660 18	880 23	1100 27	1320 31	1540 36	1760 40	1980 44	2200 52

- 100 F.P.M = 0.5 m/sec .
- One inch H<sub>2</sub>O static pressure = 249 pascal(N/m<sup>2</sup>) = 24.9 mm H<sub>2</sub>O.
- One m<sup>3</sup>/sec = 2120 C.F.M.
- NC based on a room attenuation of 10 dB.



## Egg - Crate

Model : DR - 40

Tech. Spec.

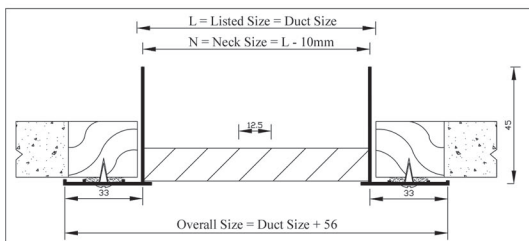
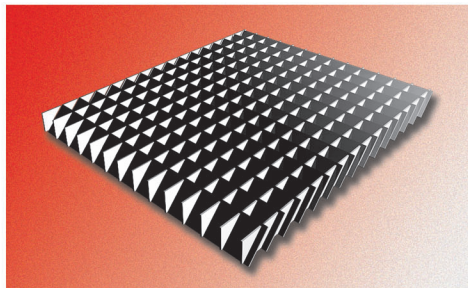
- Frame is constructed of high quality extruded aluminium profiled.
- Aluminium egg crate 12.5mm x 12.5mm size is fixed rigidly to the frame.
- Foam gasket is sealed around the back of the frame to avoid air leakage.

مشخصات فنی

- قاب از جنس آلومینیوم اکستروژنه شده.
- تیغه ها از جنس ورق آلومینیوم با فواصل ۱۲/۵ میلیمتر.
- قاب دریچه مجهز به فوم به منظور هوا بندی.

## Egg - Crate

Model : DR - 45

**Tech. Spec.**

- Frame is constructed of high quality extruded aluminium profiled.
- Aluminium egg crate 12.5mm x 12.5mm size is fixed rigidly to the frame.
- Foam gasket is sealed around the back of the frame to avoid air leakage.

**مشخصات فنی**

- قاب از جنس آلومینیوم اکستروژن شده.
- تیغه ها از جنس ورق آلومینیوم با فواصل ۱۲/۵ میلیمتر.
- قاب دریچه مجهز به فوم به منظور هوا بندی.

## Egg - Crate

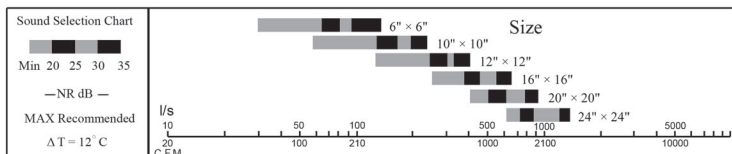
Models: DR 40 - 45

## Air flow data

Face Velocity in F.P.M	250	300	400	500	600	700	800	900	1000
Pressure drop in inch H <sub>2</sub> O	0.001	0.014	0.025	0.04	0.06	0.08	0.1	0.13	0.16
Listed size	Air flow in C.F.M								
6" × 6"	65	75	100	125	150	175	200	225	250
10" × 10"	180	200	270	350	410	480	550	620	700
12" × 12"	240	290	390	480	580	680	780	870	970
16" × 16"	450	530	710	880	1060	1240	1420	1600	1770
20" × 20"	710	820	1100	1370	1650	1920	2200	2470	2750
24" × 24"	970	1270	1550	1940	2300	2700	3100	3500	3880

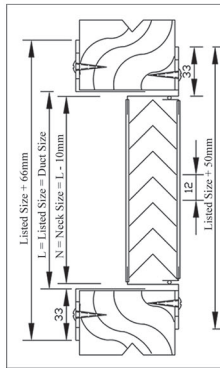
- Air flow data for non standard sizes can be interpolated from the above data.
- 100 F.P.M = 0.5 m/sec .
- One inch H<sub>2</sub>O = 249 pascal(N/m<sup>2</sup>) = 24.9 mm H<sub>2</sub>O.

## Sound Selection Guide



## Door Grille With Double Frame

Model : D110



### Tech. Spec.

### مشخصات فنی

- قاب و تیغه ها از جنس آلومینیوم اکستروژد شده.
- اتصال تیغه های "V" شکل به قاب به صورت ثابت.
- The frame and blades are of high quality extruded aluminium profiled.
- Inverted "V" type horizontal blades are fixed rigidly to the frame.



Size Selection Table

Size	Effective Area Sq. Ft.	AIR CAPACITIES IN CFM							
		200 FPM	300 FPM	400 FPM	500 FPM	600 FPM	700 FPM	800 FPM	900 FPM
12×6	.270	55	80	110	135	160	190	215	245
18×6	.440	90	130	175	220	265	310	350	395
24×6	.630	125	190	250	315	380	440	505	565
12×8	.373	75	110	150	185	225	260	300	335
18×8	.630	125	190	250	315	380	440	505	565
24×8	.870	175	260	350	435	520	610	695	785
12×10	.520	105	155	210	260	310	365	415	470
18×10	.820	165	245	330	410	490	575	655	740
24×10	1.120	225	335	450	560	670	785	895	1010
30×10	1.420	285	425	570	710	850	995	1135	1280
12×12	.630	125	190	250	315	380	440	505	565
18×12	.985	195	295	395	490	590	690	790	885
24×12	1.370	275	410	550	685	820	960	1095	1235
30×12	1.750	350	525	700	875	1050	1225	1400	1575
36×12	2.100	420	630	840	1050	1260	1470	1680	1890
18×16	1.370	275	410	550	685	820	960	1095	1235
24×16	1.860	370	560	745	930	1115	1300	1490	1675
30×16	2.340	470	700	935	1170	1405	1640	1870	2105
36×16	2.840	570	850	1135	1420	1705	1990	2270	2555
24×20	2.340	470	700	935	1170	1405	1640	1870	2105
30×20	2.950	590	885	1180	1475	1770	2065	2360	2655
36×20	3.570	715	1070	1430	1785	2140	2500	2855	3215
42×20	4.220	845	1265	1690	2110	2530	2955	3375	3800
48×20	4.830	965	1450	1930	2415	2900	3380	3865	4345
24×24	2.840	570	850	1135	1420	1705	1990	2270	2555
30×24	3.570	715	1070	1430	1785	2140	2500	2855	3215
36×24	4.320	865	1295	1730	2160	2590	3025	3455	3890
42×24	5.100	1020	1530	2040	2550	3060	3570	4080	4590
48×24	5.840	1170	1750	2335	2920	3505	4090	4670	5255
36×36	6.580	1315	1975	2630	3290	3950	4605	5265	5920
42×36	7.340	1470	2200	2935	3670	4405	5140	5870	6605
48×36	8.750	1750	2625	3500	4375	5250	6125	7000	7875
STATIC PRESS. DIFFERENTIAL ACROSS V TYPE GRILLE IN INCHES W.G.		.025	.040	.072	.108	.159	.221	.283	.359





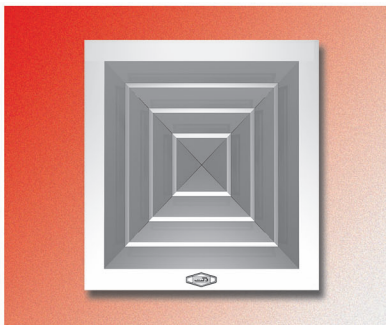
1-Way



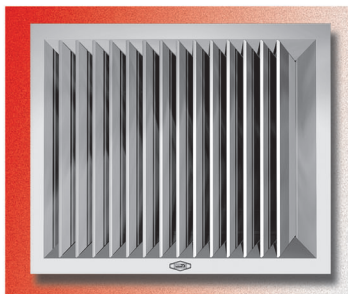
2-Way



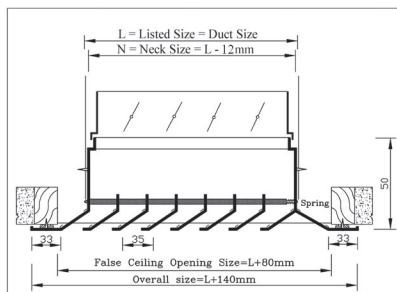
3-Way



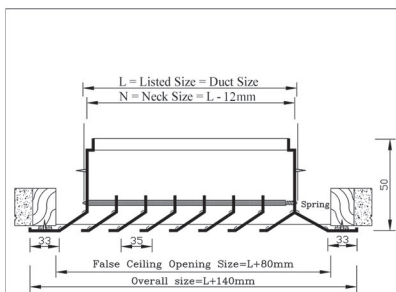
4-Way



## 1-Way



Model D1+D



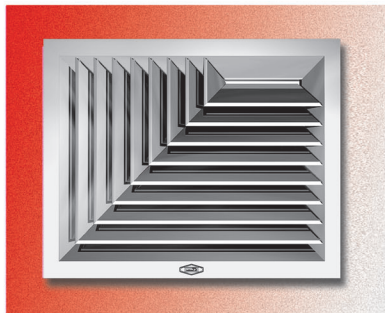
Model D1

### Tech. Spec.

- The frame and blades are of high quality extruded aluminium profiled construction with the advantages of corrosion resistance and rigidity.
- Louvered type core is fixed to the frame with aluminium pins loaded with steel springs.
- Core can be easily removable and interchangeable to allow for maximum flexibility in installation, maintenance and damper adjustment.
- Damper is fixed rigidly to the frame by aluminium rivets. Fixing by spring clips as option.
- Foam gasket is sealed around the back of the frame as option to avoid air leakage.

### مشخصات فنی

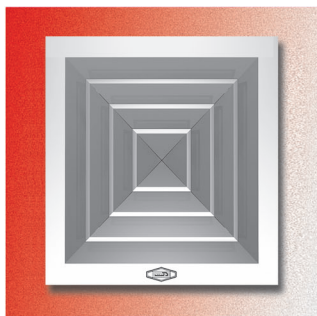
- قاب و تیغه ها از جنس آلومینیوم اکستروژنه مقاوم در برابر زنگ زدگی.
- اتصال تیغه ها به قاب بوسیله پین و فنر.
- امکان برداشتن تیغه ها و دسترسی به دمپر.
- اتصال دمپر به قاب با پرچ کاری.
- قاب دریچه مجهز به فوم به منظور هوا بندی.



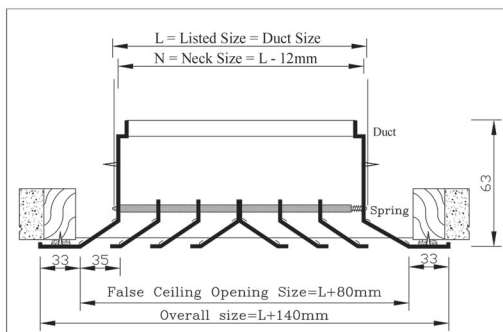
**2-Way**







**3-Way**



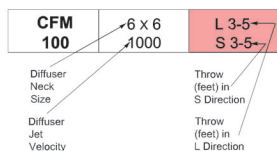
**4-Way**



# 1,2,3,4 Way Size Selection Table

C.F.M	 TYPE 4		 TYPE 3		 TYPE 2		 TYPE 1					
100	6x6 1000	L 3-5 S 3-5			6x9 670	L 2-3 S 4-7			6x6 1140	L 6-9	6x6 1140	L 10-14
	9x9 440	L 2-4 S 2-4	9x9 440	L 1-2 S 4-7					9x9 510	L 5-7	9x9 510	L 6-9
	6x6 1250	L 4-6 S 4-6			6x9 830	L 2-4 S 4-8			6x6 1430	L 9-13	6x6 1430	L 12-18
125	9x9 550	L 2-4 S 2-4	9x9 550	L 2-3 S 5-9	9x12 420	L 2-3 S 3-6			9x9 640	L 6-8	9x9 640	L 8-12
	6x6 1500	L 4-8 S 4-8			6x9 1000	L 3-6 S 5-9			6x6 1710	L 10-15	6x6 1710	L 15-21
	9x9 670	L 3-5 S 3-5	9x9 670	L 2-3 S 6-11	9x12 500	L 2-3 S 4-8			9x9 760	L 6-9	9x9 760	L 10-14
175	6x6 1750	L 5-9 S 5-9			6x9 1170	L 4-7 S 6-11			6x6 2000	L 12-18	6x6 2000	L 16-24
	9x9 780	L 3-5 S 3-5	9x9 780	L 2-4 S 7-12	9x12 580	L 2-4 S 5-9			9x9 890	L 8-12	9x9 890	L 11-17
	12x12 440	L 2-4 S 2-4									12x12 500	L 8-12
200	6x6 2000	L 6-11 S 6-11			6x9 1330	L 4-8 S 7-12						
	9x9 890	L 4-6 S 4-6	9x9 890	L 3-6 S 8-14	9x12 670	L 3-6 S 6-10			9x9 1020	L 9-13	9x9 1020	L 13-19
	12x12 500	L 3-5 S 3-5							12x12 570	L 6-9	12x12 570	L 10-14
225											9x9 1140	L 15-21
											12x12 640	L 10-15
					6x9 1670	L 6-10 S 9-15						
250	9x9 1110	L 4-8 S 4-8	9x9 1110	L 4-7 S 10-18	9x12 830	L 4-7 S 7-12			9x9 1270	L 11-17	9x9 1270	L 16-24
	12x12 630	L 4-6 S 4-6	12x12 630	L 2-4 S 7-13	12x15 500	L 2-4 S 6-10			12x12 710	L 9-13	12x12 710	L 12-18
												9x9 1400
275											12x12 790	L 13-19
					6x9 2000	L 6-11 S 11-19						
	9x9 1330	L 6-11 S 6-11	9x9 1330	L 4-8 S 12-21	9x12 1000	L 4-8 S 8-14			9x9 1520	L 14-20	9x9 1520	L 19-29
300	12x12 750	L 4-8 S 4-8	12x12 750	L 3-6 S 9-15	12x15 600	L 3-6 S 7-12	12x18 500	L 3-6 S 6-10	12x12 860	L 10-15	12x12 860	L 15-21
	15x15 480	L 4-6 S 4-6	15x15 480	L 2-4 S 7-13	15x18 400	L 2-4 S 6-10			15x15 550	L 8-12	15x15 550	L 11-17
	9x9 1550	L 6-12 S 6-12	9x9 1550	L 5-9 S 14-24	9x12 1170	L 5-9 S 9-16			9x9 1780	L 16-24	9x9 1780	L 22-33
350	12x12 880	L 5-9 S 4-6	12x12 880	L 4-7 S 11-19	12x15 700	L 4-7 S 8-14	12x18 580	L 4-7 S 6-11	12x12 1000	L 12-18	12x12 1000	L 18-26
	15x15 560	L 4-6 S 4-6	15x15 560	L 3-5 S 9-15	15x18 470	L 3-5 S 7-12			15x15 640	L 10-14	15x15 640	L 14-20
	9x9 1790	L 7-13 S 7-13	9x9 1790	L 6-10 S 16-28	9x12 1330	L 6-10 S 11-20			9x9 2030	L 18-26	9x9 2030	L 25-38
400	12x12 1000	L 6-11 S 6-11	12x12 1000	L 4-8 S 12-21	12x15 800	L 4-8 S 9-15	12x18 670	L 4-8 S 7-12	12x12 1140	L 14-20	12x12 1140	L 20-30
	15x15 640	L 4-8 S 4-8	15x15 640	L 3-6 S 10-18	15x18 530	L 3-6 S 7-13	15x21 460	L 3-6 S 6-11	15x15 730	L 10-15	15x15 730	L 15-23

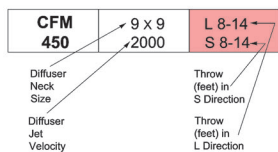
## EXPLANATION OF SIZE SELECTION TABLES







# 1,2,3,4 Way Size Selection Table

C.F.M	 TYPE 4		 TYPE 3				 TYPE 2		 TYPE 1			
	9x9	L 8-14 S 8-14	9x9	L 6-11 S 18-32	9x12	L 6-11 S 12-22						
450	2000		2000		1500							
	12x12	L 6-11 S 6-11	12x12	L 5-9 S 13-23	12x15	L 5-9 S 10-18	12x18	L 5-9 S 8-14	12x12	L 15-23		
	1130		1130		900		750					
	15x15	L 5-9 S 5-9	15x15	L 4-7 S 11-20	15x18	L 4-7 S 9-15	15x21	L 4-7 S 7-12	15x15	L 12-18		
720		720		600		510		820	12x12 1290	L 23-35		
18x18	L 4-8 S 4-8								15x15	L 18-26		
500									820			
500					9x12	L 7-12 S 14-24						
	12x12	L 6-12 S 6-12	12x12	L 6-10 S 15-26	12x15	L 6-10 S 11-20	12x18	L 6-10 S 9-15	12x12	L 17-25		
	1250		1250		1000		830		1430	12x12 1430	L 24-36	
	15x15	L 6-11 S 6-11	15x15	L 4-8 S 12-21	15x18	L 4-8 S 9-16	15x21	L 4-8 S 8-14	15x15	L 14-20		
800		800		670		570		910	15x15	L 19-29		
18x18	L 4-8 S 4-8	18x18	L 4-7 S 10-18	18x21	L 4-7 S 8-14			640	18x18	L 16-24		
550									640			
550	12x12	L 7-13 S 7-13							12x12	L 17-25	L 24-36	
	1380								1570	L 18-27	12x12 1570	L 27-40
	15x15	L 6-11 S 6-11							1010	L 15-23	15x15 1010	L 21-31
	880								700	18x18	700	L 18-26
18x18	L 5-9 S 5-9											
600					9x12	L 9-15 S 16-28						
600	12x12	L 8-14 S 8-14	12x12	L 6-11 S 18-32	12x15	L 6-11 S 14-24	12x18	L 6-11 S 11-19	12x12	L 20-30	12x12 1710	L 28-41
	1500		1500		1200		1000		1710		15x15	L 23-35
	15x15	L 6-12 S 6-12	15x15	L 5-9 S 14-25	15x18	L 5-9 S 11-20	15x21	L 5-9 S 9-16	15x15	L 17-25	15x15	L 19-29
	900		900		800		690		1100		1190	L 16-24
18x18	L 6-11 S 6-11	18x18	L 4-8 S 12-21	18x21	L 4-8 S 10-18	18x24	L 4-8 S 8-14	18x18	L 14-20	18x18	L 19-29	
670		670		570		500		760		21x21	L 16-24	
										560	L 30-43	
650											12x12	L 30-43
											1860	L 25-37
											1190	L 21-31
											830	
700	12x12	L 9-17 S 9-17	12x12	L 7-13 S 21-36	12x15	L 7-13 S 16-27	12x18	L 7-13 S 12-22	12x12	L 23-35	12x12 2000	L 33-45
	1750		1750		1400		1170		2000		2000	L 27-40
	15x15	L 8-14 S 8-14	15x15	L 6-10 S 17-30	15x18	L 6-10 S 13-23	15x21	L 6-10 S 11-20	15x15	L 18-27	15x15	L 22-33
	1120		1120		940		800		1280		1280	L 22-33
18x18	L 6-12 S 6-12	18x18	L 5-9 S 14-24	18x21	L 5-9 S 11-20	18x24	L 5-9 S 9-16	18x18	L 15-23	18x18	L 19-28	
780		780		670		580		890		890		
21x21	L 6-11 S 6-11	21x21	L 4-8 S 12-21	21x24	L 4-8 S 10-18			21x21	L 14-20	21x21	L 19-28	
570		570		500				650		650		
800	12x12	L 10-19 S 10-19	12x12	L 8-14 S 24-42	12x15	L 8-14 S 18-32	12x18	L 8-14 S 14-25	15x15			
	2000		2000		1600		1330		1330			
	15x15	L 8-15 S 8-15	15x15	L 6-11 S 19-34	15x18	L 6-11 S 15-26	15x21	L 6-11 S 12-22	15x15	L 22-32	15x15	L 30-43
	1280		1280		1070		920		1460		1460	L 25-38
18x18	L 7-13 S 7-13	18x18	L 6-10 S 16-27	18x21	L 6-10 S 13-23	18x24	L 6-10 S 11-19	18x18	L 18-26	18x18	L 22-33	
890		890		760		670		1020		1020		
21x21	L 6-12 S 6-12	21x21	L 5-9 S 14-24	21x24	L 5-9 S 11-20	21x27	L 5-9 S 10-18	21x21	L 15-23	21x21	L 22-33	
650		650		570		510		750		750		
900					12x15	L 9-16 S 20-35	12x18	L 9-16 S 16-28				
	15x15	L 10-18 S 10-18	15x15	L 7-13 S 22-38	15x18	L 7-13 S 17-30	15x21	L 7-13 S 14-25	15x15	L 24-36	15x15	L 35-46
	1440		1440		1200		1030		1650		1650	L 28-41
	18x18	L 8-15 S 8-15	18x18	L 6-11 S 18-32	18x21	L 6-11 S 14-25	18x24	L 6-11 S 12-22	18x18	L 20-30	18x18	L 28-41
1000		1000		860		750		1140		1140		
21x21	L 7-13 S 7-13	21x21	L 5-9 S 16-27	21x24	L 5-9 S 13-23	21x27	L 5-9 S 11-20	21x21	L 18-26	21x21	L 25-37	
740		740		640		570		840		840		
24x24	L 6-12 S 6-12	24x24	L 4-8 S 14-24	24x27	L 4-8 S 12-21			24x24	L 15-23	24x24	L 22-32	
560		560		500				640		640		

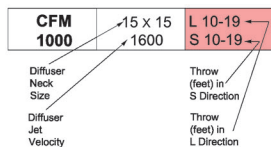
## EXPLANATION OF SIZE SELECTION TABLES



# 1,2,3,4 Way Size Selection Table

C.F.M	 TYPE 4		 TYPE 3		 TYPE 2		 TYPE 1					
1000	15x15 1600	L 10-19 S 10-19	15x15 1600	L 8-14 S 25-43	15x18 1330	L 8-14 S 19-33	15x21 1140	L 8-14 S 16-27	15x15 1830	L 26-39		
	18x18 1110	L 9-17 S 9-17	18x18 1110	L 7-12 S 20-35	18x21 950	L 7-12 S 16-28	18x24 830	L 7-12 S 14-24	18x18 1270	L 22-33	18x18 1270	L 32-45
	21x21 820	L 8-14 S 8-14	21x21 820	L 6-10 S 17-30	21x24 720	L 6-10 S 14-25	21x27 640	L 6-10 S 12-22	21x21 930	L 19-29	21x21 930	L 27-40
	24x24 630	L 7-13 S 7-13	24x24 630	L 5-9 S 15-26	24x27 560	L 5-9 S 13-23	24x30 500	L 5-9 S 11-20	24x24 710	L 17-25	24x24 710	L 24-36
1200	15x15 1920	L 13-23 S 13-23	15x15 1920	L 10-18 S 30-45	15x18 1600	L 10-18 S 22-39	15x21 1370	L 10-18 S 19-33				
	18x18 1340	L 10-19 S 10-19	18x18 1340	L 9-15 S 24-42	18x21 1140	L 9-15 S 19-34	18x24 1000	L 9-15 S 16-28	18x18 1520	L 27-40	18x18 1520	L 40-47
	21x21 980	L 9-17 S 9-17	21x21 980	L 7-12 S 21-36	21x24 860	L 7-12 S 17-31	21x27 760	L 7-12 S 15-26	21x21 1120	L 23-35	21x21 1120	L 32-45
	24x24 750	L 8-14 S 8-14	24x24 750	L 6-11 S 18-32	24x27 670	L 6-11 S 16-28	24x30 600	L 6-11 S 13-23	24x24 860	L 20-30	24x24 860	L 28-41
1400	27x27 590	L 7-13 S 7-13	27x27 590	L 5-9 S 16-28	27x30 530	L 5-9 S 14-24			27x27 680	L 18-26	27x27 680	L 25-38
	18x18 1560	L 13-23 S 13-23	18x18 1560	L 10-18 S 28-42	18x21 1330	L 10-18 S 22-39	18x24 1170	L 10-18 S 19-34	18x18 1780	L 31-44		
	21x21 1140	L 10-19 S 10-19	21x21 1140	L 8-14 S 24-42	21x24 1000	L 8-14 S 20-35	21x27 890	L 8-14 S 18-32	21x21 1310	L 27-40		
	24x24 880	L 9-17 S 9-17	24x24 880	L 7-13 S 21-37	24x27 780	L 7-13 S 19-33	24x30 700	L 7-13 S 16-27	24x24 1000	L 23-35		
1600	27x27 690	L 8-15 S 8-15	27x27 690	L 6-11 S 19-34	27x30 620	L 6-11 S 16-28	27x33 570	L 6-11 S 14-25	27x27 790	L 21-31		
	18x18 1780	L 15-27 S 15-27	18x18 1780	L 11-20 S 30-45	18x21 1520	L 11-20 S 27-40	18x24 1330	L 11-20 S 22-38				
	21x21 1310	L 12-22 S 12-22	21x21 1310	L 9-16 S 28-42	21x24 1140	L 9-16 S 23-40	21x27 1020	L 9-16 S 21-36	21x21 1500	L 30-43		
	24x24 1000	L 10-19 S 10-19	24x24 1000	L 8-14 S 25-43	24x27 890	L 8-14 S 21-37	24x30 800	L 8-14 S 17-31	24x24 1140	L 26-39		
1800	27x27 790	L 10-18 S 10-18	27x27 790	L 7-13 S 22-38	27x30 710	L 7-13 S 19-33	27x33 650	L 7-13 S 16-28	27x27 900	L 24-36		
	18x18 2000	L 16-30 S 16-30	18x18 2000	L 12-22 S 30-45	18x21 1710	L 12-22 S 30-45	18x24 1500	L 12-22 S 25-43				
	21x21 1460	L 14-26 S 14-26	21x21 1460	L 11-19 S 30-45	21x24 1290	L 11-19 S 26-40	21x27 1140	L 11-19 S 23-40	21x21 1590	L 30-43		
	24x24 1130	L 12-22 S 12-22	24x24 1130	L 9-16 S 28-42	24x27 1000	L 9-16 S 24-42	24x30 900	L 9-16 S 20-35	24x24 1140	L 26-39		
27x27 890	L 10-19 S 10-19	27x27 890	L 8-14 S 25-43	27x30 800	L 8-14 S 21-36	27x33 730	L 8-14 S 19-33					

## EXPLANATION OF SIZE SELECTION TABLES



## Selection Procedure

The Type D Diffuser selection data incorporates a simple method of size selection from a wide range of pattern styles and air volumes. Following is the step - by - step procedure for selecting Type D Diffusers.

1. Select the diffuser pattern arrangement best suited to the contemplated duct layout and the room area to be served.
2. Determine the CFM per outlet. Table 1 gives recommended limits of air volumes per diffuser for varying mounting heights and maximum cooling temperature differentials. Diffusers are assumed to be mounted flush on the ceiling or to have standard drop collar margins.

**TABLE 1**

Ceiling Height In feet	Maximum Cooling Temperature Differential	Maximum CFM per Diffuser			
		1-Way	2-Way	3-Way	4-Way
7'	15°	100	200	300	400
8'	20°	150	300	450	600
9'	24°	300	600	800	1000
10'	28°	450	900	1100	1400
11'	32°	600	1200	1500	1900
12'	32°	800	1600	2000	2400
14'	32°	1200	2400	3100	3800
16'	32°	1500	3000	4500	6000

3. In the appropriate Size Selection Table, proceed horizontally from the design CFM to a size which gives the required throws.
4. Noise Criteria ratings are determined in Table 2 by the intersection of the design CFM and the jet velocity found in the selection table under each diffuser size. The NC ratings apply to all diffuser pattern arrangements with the damper in the full-open position.



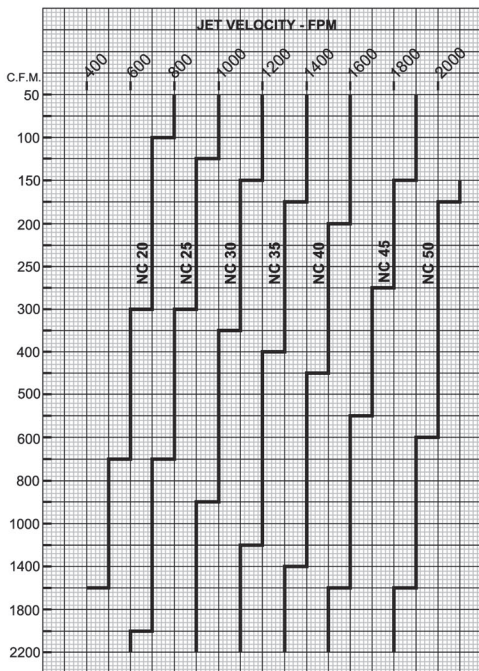
**TABLE 2**  
**Total Pressure Drop**

Jet Velocity FPM	Total Pressure ("H <sub>2</sub> O)	Jet Velocity FPM	Total Pressure ("H <sub>2</sub> O)
500	.015	1200	.090
600	.022	1300	.105
700	.031	1400	.122
800	.040	1500	.140
900	.051	1600	.160
1000	.062	1800	.202
1100	.075	2000	.249

Recommended resistance limits for return air systems using TYPE D DIFFUSERS:

For vent returns into above-ceiling plenum .03" For quiet operation in conservative areas .10"

For average general offices, stores, etc. .19"

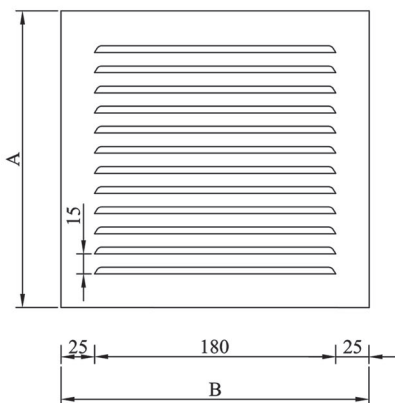
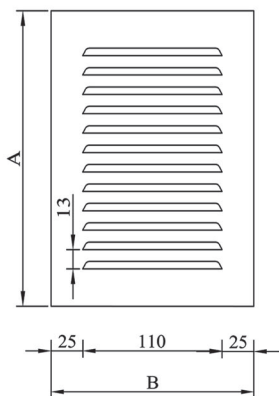


Noise criteria numbers identify sound pressure levels in eight octave bands measured in a typical environment as tabulated. A further discussion of NC criteria can be found in the latest chapter of Sound Control, ASHRAE Guide.

**TABLE 3**  
**RECOMMENDED NOISE CRITERIA**

- NC 20** Radio and TV Studios, Concert Halls.
- NC 25** Music Rooms, Conference Rooms, Theater Halls.
- NC 30** Apartments, Hotels, Homes, Conference Rooms, Hospitals, Churches, Courtrooms, Libraries, Schools.
- NC 35** Private and Semi-Private Offices, Laboratories.
- NC 40-45** General Offices, Engineering and Drafting Rooms, Dining Areas, Cafeterias.
- NC 50** Coliseums, Steno Machine Offices, Factories, Kitchen, Accounting Offices.



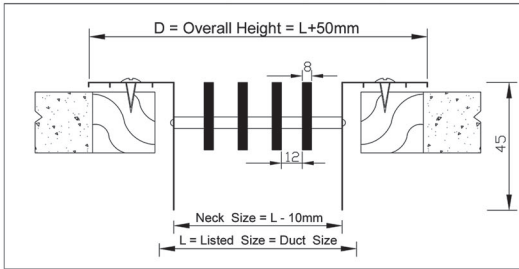
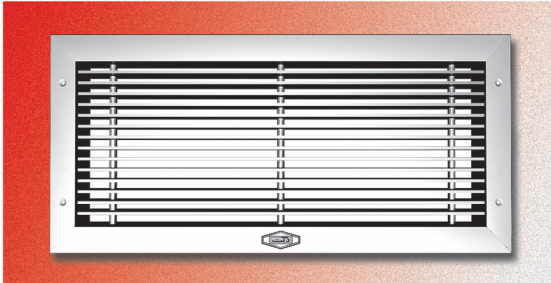


Aluminium grille

Size A x B	No. of opening	Net Area FT <sup>2</sup>
4" x 6"	4	0.024
5" x 6"	6	0.036
6" x 6"	8	0.048
7" x 6"	10	0.060
8" x 6"	12	0.072

Aluminium grille

Size A x B	No. of opening	Net Area FT <sup>2</sup>
4" x 9"	4	0.04
5" x 9"	6	0.06
6" x 9"	8	0.08
8" x 9"	10	0.1
9" x 9"	12	0.12



## Tech. Spec.

## مشخصات فنی

- The frame and blades are of high quality extruded aluminium profiled construction with the advantages of corrosion resistance and rigidity.
- Blades are assembly supported by a heavy duty aluminium square tube.
- Radial opposed blade damper is fixed to the frame by rivets. Damper can be operated by screw through diffuser face.
- Foam gasket is sealed around the back of the frame as option to avoid air leakage.

- قاب و تیغه‌ها از جنس آلومینیوم اکستروود شده مقاوم در برابر زنگ زدگی.
- قرارگیری تیغه‌ها روی قاب از جنس آلومینیوم.
- اتصال دمپر به قاب با پیچ.
- قاب مجهز به فوم بمنظور هوا بندی.