



# ENGINEERING DATA

350 Series		See Footnotes E																									
SIZE	Velocity		300	400	500	600	700	800	900	1000																	
	Duct Pt		0.007	0.011	0.017	0.024	0.034	0.044	0.055	0.068																	
2x10	Eff. Area .089 ft <sup>2</sup>	CFM	26.9	35.8	44.8	53.8	62.7	71.7	80.6	89.6																	
		NC	<20	20	25	25	30	30	35	35																	
		Spread	2.5	3	4	5	5.5	6	7	8																	
		Throw	1.5   2   3	2   3   4	3   4   5	3   4   6	3.5   5   7	4   6   7.5	4.5   6   9	5   7   10																	
2x12	Eff. Area .102 ft <sup>2</sup>	CFM	30.9	41.2	51.5	61.8	72.1	82.4	92.7	103																	
		NC	<20	20	25	25	30	30	35	35																	
		Spread	3	3.5	4.5	5.5	6	7	8	9																	
		Throw	2   3   3.5	2.5   3   5	3   4   6	3.5   5   7	4   5.5   8	4.5   7   9	5   7   11	5.5   8   12																	
2x14	Eff. Area .117 ft <sup>2</sup>	CFM	35.5	47.4	59.4	71.1	82.9	94.8	106.6	118.5																	
		NC	<20	20	25	25	30	30	35	35																	
		Spread	3	4	5	5.5	6.5	7.5	8	9																	
		Throw	2   3   4	2.5   4   5	3   5   7	4   6   8	4.5   6.5   9	5   7   10	6   8   12	6.5   9   13																	
4x10	Eff. Area .171 ft <sup>2</sup>	CFM	48.9	64.5	81.1	96.7	113.4	129.0	145.6	160.2																	
		NC	<20	20	25	25	30	35	35	40																	
		Spread	3	4	5	6	7	8	10	11																	
		Throw	3.5   4   4.5	5   6   6	6.5   8   9	7   9   10	8.5   10.5   12	9.5   12   13	10   13   15	11   14   18																	
4x12	Eff. Area .199 ft <sup>2</sup>	CFM	60.3	80.1	100.9	119.6	137.3	158.1	177.8	198.6																	
		NC	<20	20	25	25	30	35	35	40																	
		Spread	3.5	5	6	7	8	9	10	12																	
		Throw	4.5   5   5.5	5.5   7   7	7   9   10	7.5   9   11	9.5   11   13	11   14   15.5	11.5   15   18	12.5   16   19																	
4x14	Eff. Area .226ft <sup>2</sup>	CFM	65.5	87.4	110.2	132.1	152.9	175.8	197.6	218.4																	
		NC	<20	20	25	25	30	35	35	40																	
		Spread	4	5	6	7	9	10	11	12																	
		Throw	4..5   6   6.5	6   7   8	7   8   9	8.5   11   12	10   11.5   14	11.5   14   16	12.5   15   18	13.5   17   20																	
6x8	Eff. Area .174 ft <sup>2</sup>	CFM	52	69	87	104	121	138	155	174																	
		NC	<20	20	25	30	35	35	40	40																	
		Spread	4.5	6	7	9	10	12	13	15																	
		Throw	3.5   4   4.5	5.5   6   7	6.5   7   8	7.5   9   11	8.5   10   12	10   12   14	11.5   15   17	12   15   18																	



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SIZE	Velocity		300	400	500	600	700	800	900	1000																	
	Duct Pt		0.007	0.011	0.017	0.024	0.034	0.044	0.055	0.068																	
6x10	Eff. Area .238 ft <sup>2</sup>	CFM	71	95	118	141	166	190	212	237																	
		NC	<20	20	25	30	35	40	40	40																	
		Spread	5	7	9	10.5	12	14	15	17																	
		Throw	4.5   5   5.5	6.5   7   8	7.5   9   10	8.5   10   12	10   12   14	11.5   14   15.5	12   15   18	13.5   17   20																	
6x12	Eff. Area .275 ft <sup>2</sup>	CFM	85	113	140	169	197	225	255	282																	
		NC	<20	20	25	30	35	40	40	45																	
		Spread	6	8	9	11	13	15	17	19																	
		Throw	5.5   6   6.5	6.5   7   8	8   9   10	9.5   11   13	11   13   15	13   15   17	13   17   20	15   19   22																	
6x14	Eff. Area .358 ft <sup>2</sup>	CFM	105	140	175	210	245	281	315	351																	
		NC	<20	20	25	30	35	40	40	45																	
		Spread	6	8	11	13	15	17	18	21																	
		Throw	5.5   6   6.5	7   8   9	9   10   11	10   12   14	12.5   14.5   17	14.5   17   20	15   19   22	17   21   25																	

# ENGINEERING FOOTNOTES

## Footnote A:

**Size:** Nominal size or the duct opening.

**Effective Area:** The space between the vanes actually utilized by the air.

**Velocity:** The actual velocity of the air through the vanes measured with a velometer or similar device.

**Duct Pt:** The total pressure behind the register in the duct forcing that air through the register.

**Throw:** The throws noted in the tables are the distance from the register to where the air stream velocity has dropped to not under 100/75/50 F.P.M.

## Footnote B:

**Size:** Nominal size or the duct opening.

**Effective Area:** The space between the vanes actually utilized by the air.

**Velocity:** The actual velocity of the air through the vanes measured with a velometer or similar device.

**Duct Ps:** The static pressure in the duct behind the grille. The static load on the fan chargeable against that grille. Velometer readings are taken between grille vanes giving actual velocity.

## Footnote C:

**Noise Criteria:** NC "A" scale. (1) Below NC25 extremely quiet. (2) Below NC30 Quiet Office.

(3) Below NC35 Conference Rooms; normal voice 10-30 ft. (4) Below NC40 Conference Rooms; 6-12 ft. normal voice.

(5) NC45 Conference Rooms; 3-6 ft. normal voice.

## Footnote D:

1) Tested without filters. Typical disposable 1" capacity is 2 cfm per square inch of gross filter area. Recommended velocity is 300-400 fpm. Velocities higher than 500 fpm will decrease filter performance. Increase flow resistance, and possibly blow off agglomerates of collected dirt. Velocity measured 1" from face.

2) Generally the more surface area of media you have in an air filter the lower pressure drop you will have across the filter.

3) Lower face velocities (the air speed at the face of the filter) will also produce less pressure drop across the filter while higher return air velocities cause higher pressure drop and can cause the filter to blow off agglomerates. Ashrae calls out for 300 FPM face velocity across the filter face. This is the ideal return air velocity. Actual face velocities will vary depending on the system design."

**Example:** 20x25 filter = 3.47 SF x 300 FPM face velocity = 1041 CFM

20x25 filter = 3.47 SF x 500 FPM face velocity = 1736 CFM

## Footnote E:

**Size:** Nominal size or the duct opening.

**Effective Area:** The space between the vanes actually utilized by the air.

**Velocity:** The actual velocity of the air through the vanes measured with a velometer or similar device.

**Duct Pt:** The total pressure behind the register in the duct forcing that air through the register.

**Throw:** The throws noted in the tables are the distance from the register to where the air stream velocity has dropped to not under 100/75/50 F.P.M.

**Noise Criteria:** NC "A" scale. (1) Below NC25 extremely quiet. (2) Below NC30 Quiet Office. (3) Below NC35 Conference Rooms; normal voice 10-30 ft. (4) Below NC40 Conference Rooms; 6-12 ft. normal voice. (5) NC45 Conference Rooms; 3-6 ft. normal voice.