

DISPLACEMENT VENTILATION ENGINEERING

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AFQ

Introduction: AFQ

The *Krueger by Halton AFQ* provides a 90° discharge pattern which is well suited for corner installations with a curved face, the AFQ is able to handle high capacities at low sound levels. The detachable face facilitates cleaning of the internal baffle and duct connections.

MODEL

AFQ - Corner Round, Low-Velocity Supply Unit

FEATURES

- 20 gage front panel.
- Horizontal low velocity discharge at floor level.
- Corner installation with a 90° supply angle.
- Detachable front plate and removable baffle enables cleaning of the unit and duct work.
- Round duct connection with integral gasket on top or bottom of the diffuser.

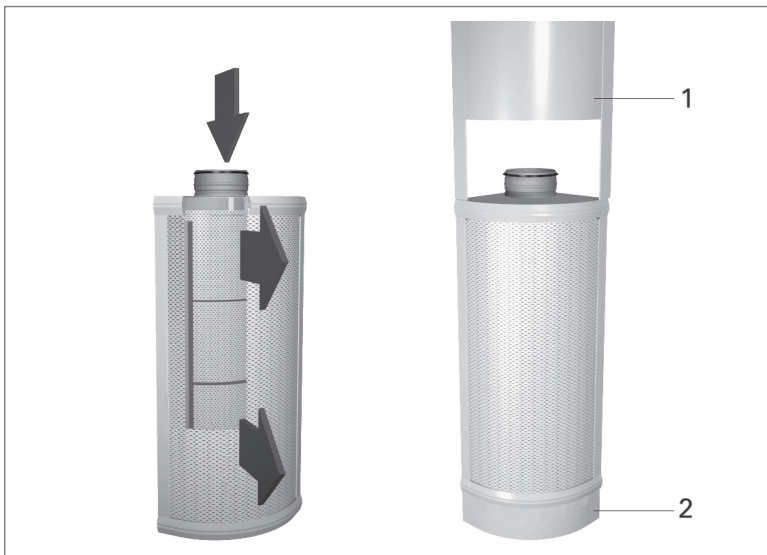
OPTIONS

- Stainless steel (AISI 316) design.
- 16 gage front panel.
- Duct cover (solid or perforated).
- Installation base (2", 4", 6").
- Vinyl trim in white or black.
- Flat face.
- Metal trim (painted to match).

FINISHES

- Standard is Polyester Painted White (RAL 9010).
- Custom colors available.

AFQ Application



FUNCTION

Air is discharged into the space through the front panel of the unit, normally at a slightly lower temperature than setpoint.

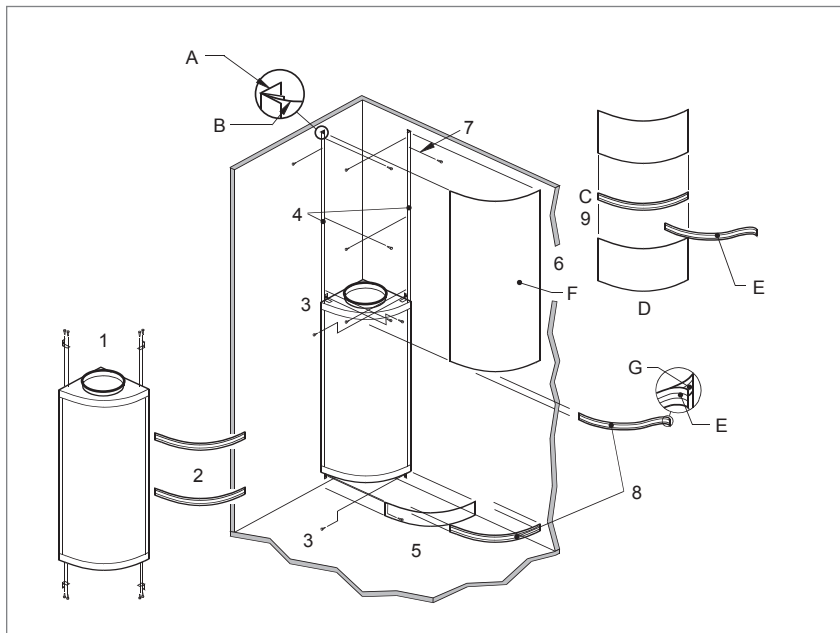
The supply air flows at floor level and gradually pervades through the occupied space before rising due of the convection of warm surfaces.

The low velocity flow pattern is quarter-circular (90°).

NOTES: The flow pattern data has been defined for floor installation. (1) Duct cover is for covering the duct work and is optional. (2) Installation base is used to raise the unit off the floor and is also optional.

AFQ Installation

INSTALLATION EXPLODED VIEW

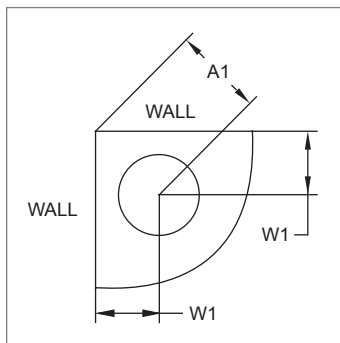


INSTALLATION

Perform the installation in order.

1. Fix mounting brackets (4 places) to low velocity unit.
2. Remove trim (E) from unit.
3. Locate unit against wall and secure through mounting brackets.
4. Fix duct cover support brackets (A) to wall between unit and ceiling.
5. Position base against lower flange of the unit.
6. After installation of duct work, locate duct cover as follows: Locate duct cover section (F) on top flange (G) of unit and firmly push into support brackets fixed to wall (B).
7. Secure duct cover with screws through cover into support brackets.
8. Re-fit trim between duct cover and unit, and between base and unit by bending trim back on itself (E) and pressing bead into groove in flange (G).
9. When multiple sections of duct cover are used (D), an aluminium coupling flange (C) is needed.

DUCT INSTALLATION



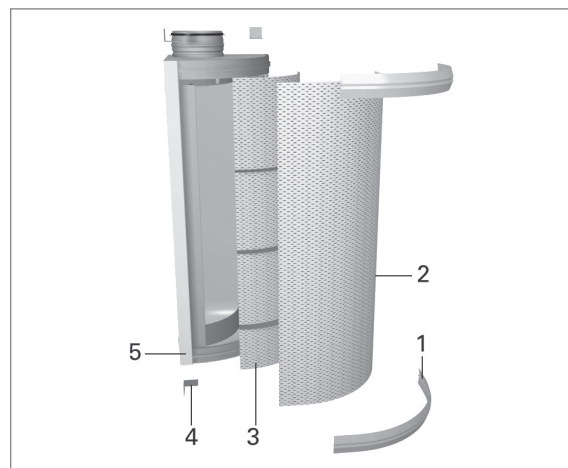
AFQ Size (Unit Size)	A1	W1
08"x23"	4 13/16"	3 7/16"
10"x23"	5 1/2"	3 7/8"
12"x31"	5 15/16"	4 3/16"
14"x47"	7 1/2"	5 5/16"
16"x47"	9"	6 3/8"
19"x59"	10 13/16"	7 5/8"
24"x71"	13 3/16"	9 5/16"
29"x71"	16 9/16"	11 3/4"
36"x71"	20 1/8"	14 3/16"

AFQ Service & Maintenance

SERVICING

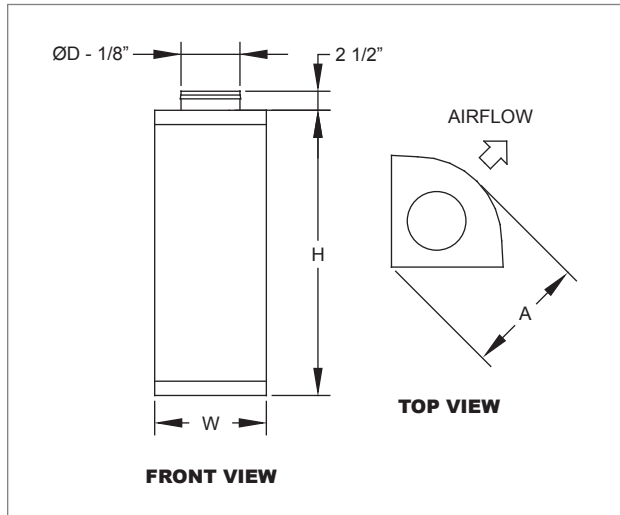
Open the front panel (2) by first removing the trim (1) and unscrewing the screws. Pull out the front panel. If required, the internal baffle (3) can be detached by unscrewing the fixing screws. Pull out the inner structure. Clean the parts with a brush or damp cloth. After cleaning, reassemble in reverse order.

Code	Description
1	Trim
2	Front Panel
3	Internal Baffle
4	Assembly Brackets
5	Casing



AFQ Dimensional Information

AFQ FRONT AND TOP VIEWS



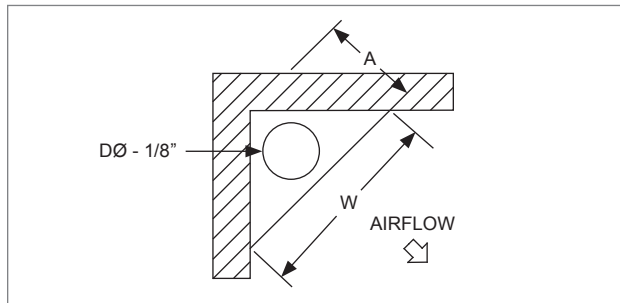
AFQ DIMENSIONAL REFERENCES

AFQ Size (Unit Size)	W	H	A	ØD
08"x23"	8 1/16"	23 5/8"	8 13/16"	4"
10"x23"	9 1/4"	23 5/8"	10 1/16"	5"
12"x31"	10 13/16"	31 1/2"	11 3/4"	6"
14"x47"	13"	47 1/4"	14"	8"
16"x47"	15 3/8"	47 1/4"	16 7/16"	10"
19"x59"	18 11/16"	59 1/16"	19 9/16"	12"
24"x71"	23 1/16"	70 7/8"	24 1/4"	16"
29"x71"	28 9/16"	70 7/8"	29 13/16"	20"
36"x71"	35 1/16"	70 7/8"	36 7/16"	24"

AFQ FLAT FACE DIMENSIONAL REFERENCES

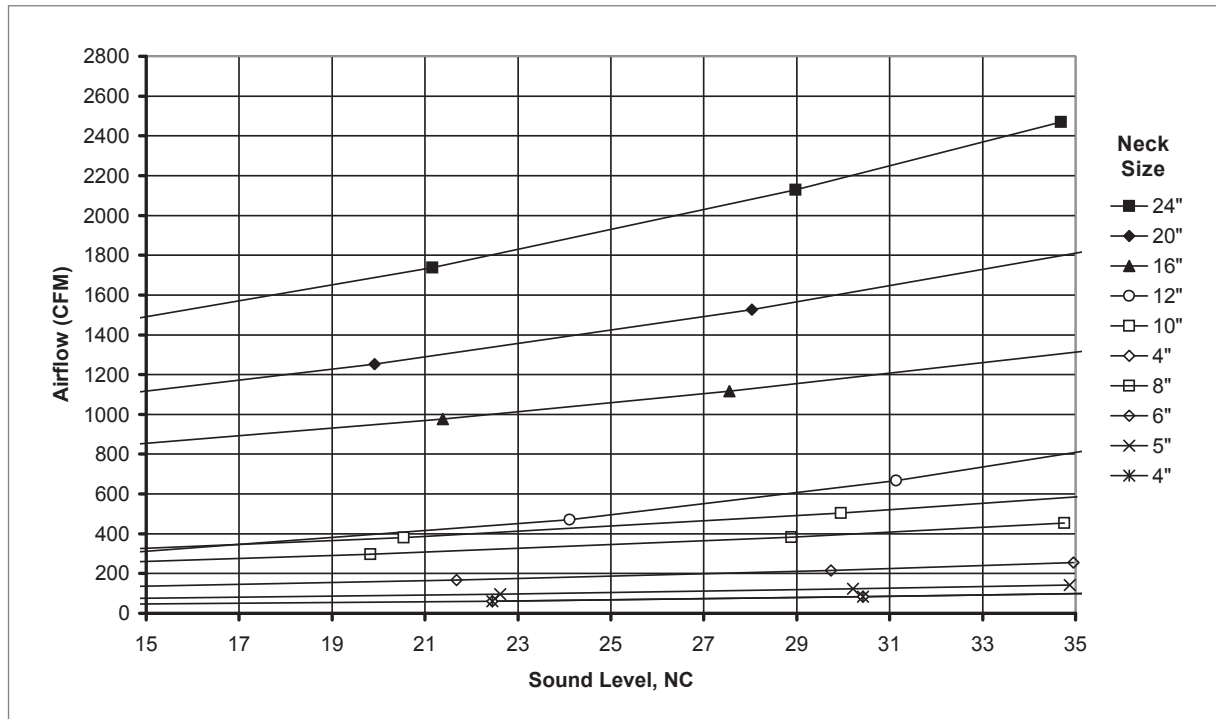
AFQ Size (W x H)	W	H	A	ØD
24"x24"	24"	24"	12"	8"
24"x36"	24"	36"	12"	8"
24"x48"	24"	48"	12"	8"
24"x60"	24"	60"	12"	8"
24"x72"	30"	72"	12"	8"
30"x24"	30"	24"	15"	8", 10"
30"x36"	30"	36"	15"	8", 10"
30"x48"	30"	48"	15"	10"
30"x60"	30"	60"	15"	10"
30"x72"	36"	72"	15"	10"
36"x24"	36"	24"	18"	10", 12"
36"x36"	36"	36"	18"	12"
36"x48"	36"	48"	18"	12"
36"x60"	36"	60"	18"	12"
36"x72"	36"	72"	18"	12"

AFQ FLAT FACE TOP VIEW



AFQ Reference Chart

AIRFLOW VS. NC LEVEL: AFQ SERIES



DISPLACEMENT VENTILATION

AFQ

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AFQ Performance Data
IP/METRIC DATA: AFQ SERIES

Unit Size	IP Data						NC	Metric Data						Octave Band, dB						
	Neck Vel	Air Flow	Pt	Ps	Near T ₅₀ @ 4 ft	T ₅₀ @ Floor		Neck Vel	Air Flow	Pt	Ps	Near T _{.25} @ 1.1 m	T _{.25} @ Floor	2	3	4	5	6	7	
	FPM	CFM	"WG	"WG	ft	ft		m/s	L/s	Pa	Pa	m	m							
08"x23"	450	39	.035	0.022	0	3	11	2.29	19	8.6	5.5	0.0	1.0	22	19	23	11	-	-	
	700	61	.084	0.053	0	5	22	3.56	29	20.9	13.3	0.1	1.6	24	28	32	26	14	-	
	950	83	.154	0.098	1	7	30	4.83	39	38.5	24.5	0.2	2.1	26	34	38	36	28	17	
	1150	100	.211	0.128	1	8	35	5.84	47	52.5	31.9	0.3	2.4	27	38	42	42	36	24	
10"x23"	475	65	.049	0.035	0	5	11	2.41	31	12.2	8.7	0.1	1.5	18	25	22	13	-	-	
	700	95	.107	0.076	0	7	23	3.56	45	26.5	18.9	0.1	2.3	25	32	32	26	17	-	
	900	123	.176	0.126	1	10	30	4.57	58	43.8	31.3	0.2	2.9	29	37	39	35	29	17	
	1050	143	.111	0.043	1	11	35	5.33	68	27.7	10.6	0.3	3.4	32	40	43	40	36	22	
12"x31"	600	118	.057	0.035	1	5	11	3.05	56	14.3	8.7	0.2	1.6	23	29	23	14	-	-	
	850	167	.115	0.070	2	8	22	4.32	79	28.7	17.4	0.5	2.3	28	34	31	26	17	-	
	1100	216	.193	0.117	3	10	30	5.59	102	48.0	29.2	0.8	3.0	31	37	37	35	29	17	
	1300	255	.280	0.175	4	12	35	6.60	120	69.7	43.5	1.1	3.5	33	40	41	41	36	24	
14"x47"	675	235	.046	0.018	2	8	12	3.43	111	11.5	4.4	0.5	2.4	25	29	23	16	-	-	
	850	296	.073	0.028	3	10	20	4.32	140	18.2	6.9	0.8	3.1	30	33	30	25	14	-	
	1100	384	.122	0.047	5	12	29	5.59	181	30.4	11.6	1.4	3.8	35	38	37	35	27	20	
	1300	453	.453	0.348	6	13	35	6.60	214	112.9	86.7	2.0	4.1	39	41	42	41	34	26	
16"x47"	525	286	.046	0.028	1	7	11	2.67	135	11.4	7.1	0.4	2.2	24	25	20	15	-	11	
	700	382	.081	0.051	2	10	21	3.56	180	20.2	12.6	0.7	2.9	29	31	28	25	15	17	
	925	504	.142	0.088	4	11	30	4.70	238	35.3	22.0	1.2	3.4	33	37	36	35	28	22	
	1075	586	.237	0.165	6	12	35	5.46	277	58.9	41.0	1.7	3.6	36	40	40	40	36	25	
19"x59"	325	255	.028	0.022	2	7	12	1.65	120	7.1	5.4	0.5	2.2	24	19	-	-	-	18	
	600	471	.097	0.074	6	13	24	3.05	222	24.0	18.5	1.9	4.1	33	32	26	20	13	23	
	850	667	.194	0.149	10	16	31	4.32	315	48.3	37.1	2.9	4.8	38	39	37	35	28	25	
	1050	824	.310	0.242	12	18	35	5.33	389	77.3	60.2	3.6	5.4	42	43	43	44	37	27	
24"x71"	575	802	.068	0.047	7	16	12	2.92	379	16.9	11.7	2.3	4.9	25	30	22	19	11	-	
	700	977	.100	0.070	11	19	21	3.56	461	25.0	17.4	3.4	5.9	30	34	29	27	21	-	
	800	1116	.131	0.091	15	22	28	4.06	527	32.6	22.7	4.4	6.8	33	36	34	33	27	14	
	950	1325	.371	0.314	20	26	35	4.83	626	92.3	78.3	6.2	8.0	37	40	40	41	36	24	
29"x71"	475	1036	.064	0.049	9	20	12	2.41	489	15.8	12.3	2.8	6.1	22	28	24	17	-	-	
	575	1254	.093	0.072	14	22	20	2.92	592	23.2	18.0	4.2	6.8	28	32	30	25	14	-	
	700	1526	.138	0.107	20	25	28	3.56	720	34.4	26.7	6.2	7.5	34	37	36	33	25	14	
	850	1853	.000	-0.045	27	27	36	4.32	875	0.0	(11.2)	8.1	8.3	41	41	43	42	36	22	
36"x71"	400	1363	.066	0.056	13	23	12	2.03	643	16.4	13.9	4.0	6.9	23	28	21	-	-	-	
	510	1737	.107	0.091	21	29	21	2.59	820	26.6	22.6	6.3	8.8	31	34	30	22	12	-	
	625	2129	.160	0.136	25	32	29	3.18	1005	39.9	33.9	7.7	9.9	38	39	38	33	21	-	
	725	2470	.216	0.183	29	35	35	3.68	1165	53.7	45.6	9.0	10.6	43	43	44	40	27	-	

NOTES: Throw values are given for terminal velocities of 50 fpm (0.25 m/s). Throw values are given for -6°F (-3°C) ΔT conditions. N.C. values are based on Octave Band 2 - 7 sound power levels minus a room absorption of 4dB. Dash in space denotes a NC or dB value of less than 10. Data was obtained from tests conducted in accordance with ANSI / ASHRAE Standard 70-1991.

DISPLACEMENT VENTILATION

AFQ

AFQ Suggested Specification & Configuration**AFQ**

Furnish and install Krueger by Halton AFQ displacement diffuser as indicated on the drawings and diffuser schedule.

The corner round low velocity diffuser shall be made of galvanized steel with a polyester powder coat finish. The unit shall include a detachable perforated front panel and include an internal equalization baffle. The front panel shall have holes on a staggered pattern providing a well-balanced appearance and enhancement to performance. Both the internal baffle and diffuser face shall be attached securely to the extruded aluminum frame or galvanized housing. The diffuser design will be robust, rigid and sturdy with a 20ga. face and cabinet. The unit shall have a round duct connection as required by the diffuser schedule. Round inlets shall include a fixed rubber gasket located near the edge of the inlet ensuring a proper seal of the attached duct work. The horizontal edges of the diffuser shall include a vinyl or metal trim for aesthetic appeal. Mounting brackets shall be included with the unit for installation.

BASE

Furnish and install the base as indicated on the drawings and diffuser schedule. The base shall be manufactured of 20ga. steel to match the footprint of the displacement diffuser. The base height will be indicated on the drawings and diffuser schedule. The base will be independently removable from the diffuser allowing access to the duct if supplied from below; or to the area beneath the diffuser. The base finish will match the diffuser.

DUCT COVER

Furnish and install the duct cover as indicated on the drawings and diffuser schedule. The duct cover will be supplied in either a solid or perforated 20ga. steel material. The perforated material will match the diffuser in pattern and stagger. The duct cover will be supplied with mounting angles and trim pieces for installation. The duct cover finish will match the diffuser.

PERFORMANCE

Unit performance shall be tested in accordance with the following standards: Air flow rate, EN-ISO 5167-1; Pressure Difference, EN-ISO 5135; Sound Power Level, EN-ISO 7235.

1. MODEL: (XXX)
AFQ - Corner Round, Low-Velocity Supply Unit

2. UNIT SIZE: (XXxXX)

08x23 - Nominal
10x23 - Nominal
12x31 - Nominal
14x47 - Nominal
16x47 - Nominal
19x59 - Nominal
24x71 - Nominal
36x71 - Nominal

See Krueger's selection software for additional sizes.

3. FACE: (XXX)

STD - Standard Curve
FLT - Flat Face

4. INLET: (XX) *

4, 5, 6, 8, 10, 12, 16, 20, 24

5. MATERIAL: (XX)

GS - Steel
SS - 316 Stainless Steel **

6. FRONT PANEL THICKNESS: (XX)

20 - 20 Gage (Standard)
16 - 16 Gage

7. TRIM: (XXX)

WHT - White
BLK - Black
MTL - Metal, Painted to Match

8. DUCT COVER: (XX)

00 - None
DP - Perforated Duct Cover
DS - Solid Sheet Duct Cover

9. DUCT COVER LENGTH: (XXX.XXX)

xxx.xxx - Length in Inches

10. INSTALLATION BASE: (XX)

00 - None
B2 - 2" Base Cover
B4 - 4" Base Cover
B6 - 6" Base Cover

11. FINISH: (XX)

44 - White (RAL-9010) 90 - Polished ***
35 - Black 07 - Custom

* *See dimensional information for unit and inlet size offerings.*

** *Material Code SS (316 stainless steel) not available with Front Panel Thickness code 16 (16 gage). Material Code SS (316 stainless steel) only available with Finish code 90 (polished). If Material Code SS (Stainless Steel) is selected, the Duct Cover and Installation Base, if selected will be Stainless Steel.*

*** *Finish code 90 (polished) not available with Material Code GS (steel).*

SAMPLE CONFIGURATION: AFQ - 16x47 - STD - 10 - GS - 20 - WHT - DP - 120.250 - B4 - 44