

DISPLACEMENT VENTILATION ENGINEERING

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**Introduction: AFB**

The Krueger by Halton AFB is ideal for low velocity horizontal applications. It is well suited for integration into columns or similar architectural features within the space. The 180° discharge pattern is perfect for high traffic areas such as retail malls, gymnasiums, and offices. The detachable face facilitates easy cleaning of the internal baffle.

MODEL

AFB - U-Shaped, Low-Velocity Supply Unit

FEATURES

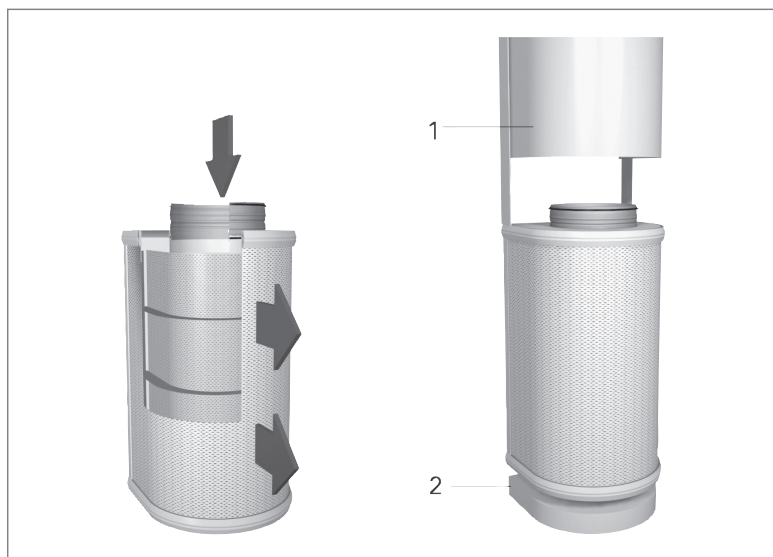
- 20 gage front panel.
- Horizontal low velocity discharge at floor level.
- Flow pattern at an angle of 180° enables large airflow rates with low residual velocities in the occupied zone.
- Detachable front panel and removable baffle enables cleaning of the unit and duct work.
- Round duct connection with integral gasket at the 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.
- Metal trim (painted to match).

FINISHES

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

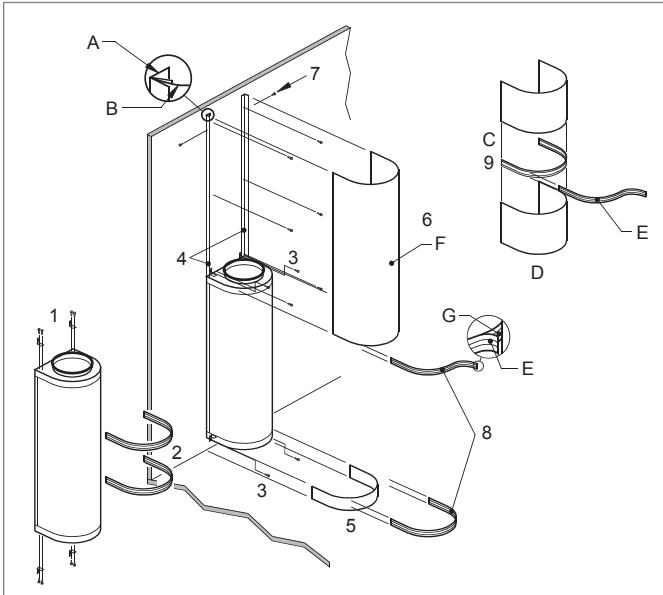
AFB Application**FUNCTION**

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 to the convection of warm surfaces.

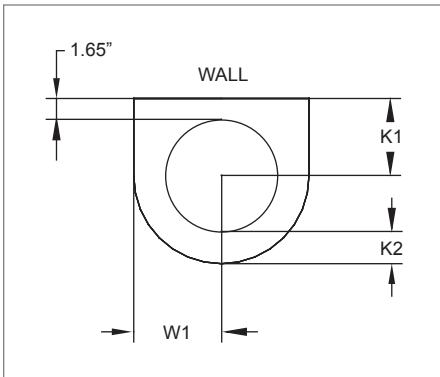
The low velocity flow pattern is semi-circular (180°).

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.

AFB 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


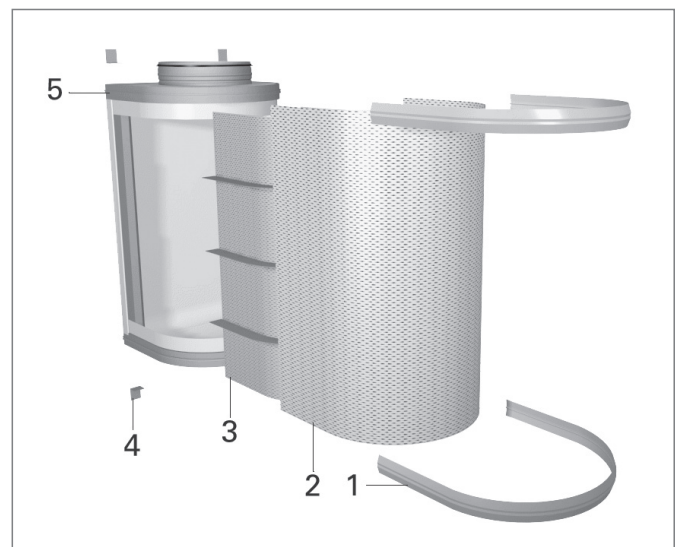
Inlet Size	W1	K1	K2
8"	6 3/8"	5 5/8"	2 1/4"
10"	7 3/4"	6 5/8"	2 11/16"
12"	9 1/16"	8"	2 11/16"
16"	11 1/8"	9 1/2"	3 1/16"
20"	13 7/8"	11 1/2"	3 13/16"
24"	16 1/4"	14 1/8"	3 7/8"
32"	19 3/8"	17 3/8"	3 1/2"

AFB 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.

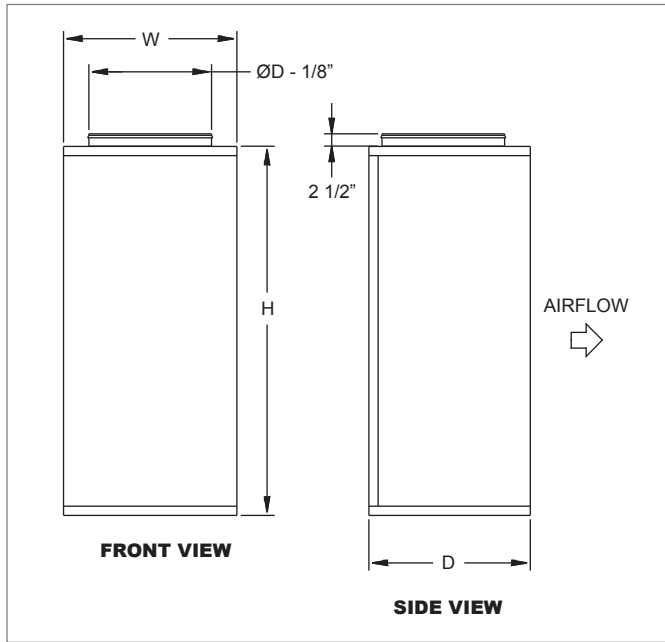
Wipe the parts with a damp cloth, instead of immersing in water. Reassemble after cleaning in reverse order.

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



AFB Dimensional Information

AFB FRONT AND SIDE VIEWS



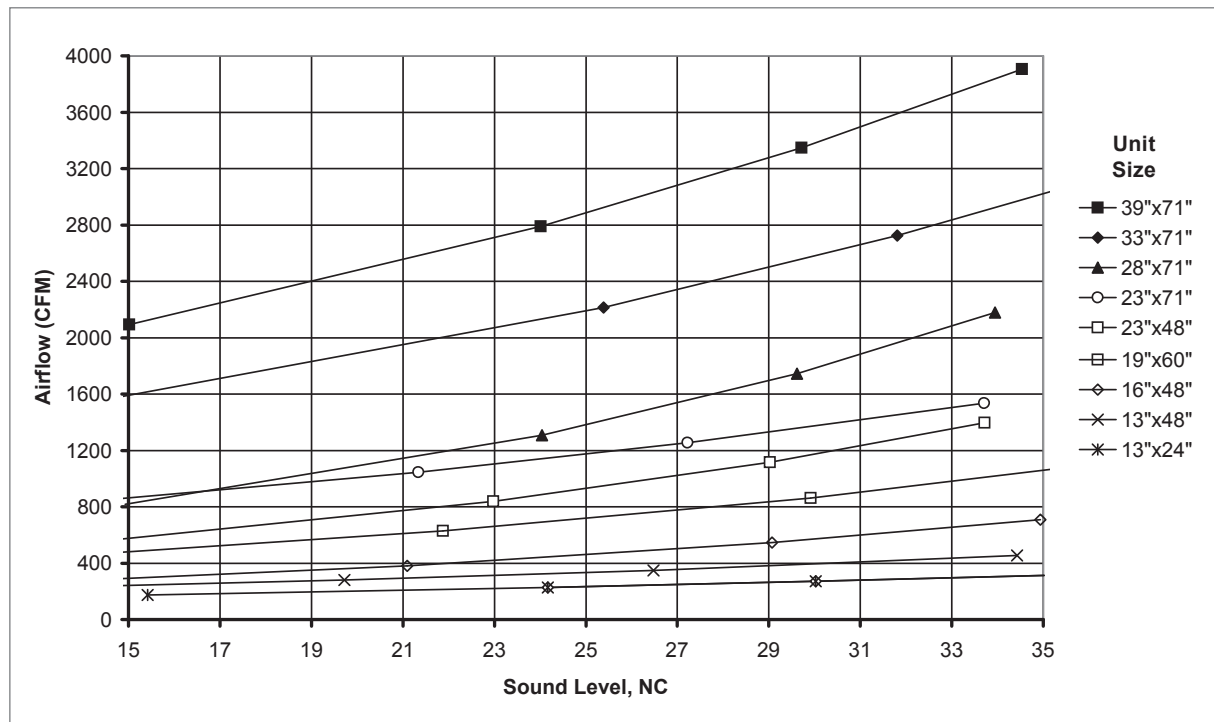
AFB DIMENSIONAL REFERENCES

AFB Size (Nominal WxH)	W	H	D	ØD
13"x24"	12 3/4"	23 5/8"	12"	8"
13"x48"	12 3/4"	47 1/4"	12"	8"
16"x48"	15 1/2"	47 1/4"	14 3/8"	10"
19"x60"	18 1/16"	59 1/16"	16 15/16"	12"
23"x48"	22 3/16"	47 1/4"	20 11/16"	16"
23"x71"	22 3/16"	70 7/8"	20 11/16"	16"
28"x71"	27 11/16"	70 7/8"	25 3/8"	20"
33"x71"	32 7/16"	70 7/8"	30 5/16"	24"
39"x71"	38 3/4"	70 7/8"	36 13/16"	32"

DISPLACEMENT VENTILATION

AFB Reference Chart

AIRFLOW VS. NC LEVEL: AFB SERIES



AFB Performance Data
IP/METRIC DATA: AFB 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							
13"x24"	500	174	.053	0.038	0	5	15	2.54	82	13.2	9.4	0.1	1.4	24	27	27	20	-	-	
	650	227	.090	0.064	0	6	24	3.30	107	22.4	15.8	0.1	1.8	29	33	33	29	19	16	
	775	270	.128	0.090	1	7	30	3.94	128	31.8	22.5	0.2	2.2	32	37	37	35	27	22	
	900	314	.172	0.122	1	8	35	4.57	148	42.9	30.3	0.2	2.5	35	40	41	40	34	27	
13"x48"	600	209	.030	0.008	0	6	11	3.05	99	7.6	2.0	0.1	1.7	21	24	23	14	-	-	
	800	279	.054	0.014	1	7	20	4.06	132	13.5	3.5	0.2	2.2	27	30	30	24	15	-	
	1000	349	.084	0.022	1	9	26	5.08	165	21.0	5.5	0.3	2.8	31	34	36	31	24	14	
	1300	453	.143	0.037	2	12	34	6.60	214	35.5	9.3	0.5	3.6	36	39	42	40	35	25	
16"x48"	500	273	.022	0.007	1	4	14	2.54	129	5.5	1.6	0.2	1.2	22	21	17	12	-	-	
	700	382	.043	0.013	1	6	21	3.56	180	10.8	3.2	0.3	1.7	28	28	26	22	11	15	
	1000	545	.088	0.026	2	8	29	5.08	257	22.0	6.5	0.7	2.5	33	36	36	33	26	23	
	1300	709	.149	0.044	4	11	35	6.60	334	37.2	10.9	1.2	3.2	37	41	43	41	37	29	
19"x60"	600	471	.032	0.009	1	7	15	3.05	222	7.9	2.3	0.4	2.1	22	22	20	12	-	-	
	800	628	.056	0.016	2	9	22	4.06	296	14.0	4.0	0.8	2.8	27	28	27	23	13	16	
	1100	863	.106	0.031	5	13	30	5.59	407	26.4	7.7	1.4	3.8	33	36	36	34	28	23	
	1400	1099	.172	0.050	8	16	36	7.11	519	42.8	12.4	2.3	4.9	38	41	42	43	39	29	
23"x48"	400	558	.032	0.022	1	6	14	2.03	263	7.9	5.5	0.3	1.9	20	20	14	-	-	-	
	600	837	.072	0.049	2	9	23	3.05	395	17.9	12.3	0.7	2.8	27	30	27	22	13	14	
	800	1116	.127	0.088	4	12	29	4.06	527	31.7	21.8	1.3	3.7	33	36	35	33	26	22	
	1000	1395	.199	0.137	7	15	34	5.08	658	49.6	34.1	2.0	4.6	37	41	42	41	37	28	
23"x71"	600	837	.033	0.010	5	10	14	3.05	395	8.1	2.5	1.4	3.1	29	26	22	18	-	-	
	750	1046	.051	0.016	6	13	21	3.81	494	12.7	4.0	1.8	3.8	32	31	29	26	16	16	
	900	1256	.074	0.023	7	15	27	4.57	593	18.3	5.7	2.1	4.6	35	35	34	32	24	21	
	1100	1535	.110	0.034	8	18	34	5.59	724	27.4	8.6	2.6	5.6	39	39	40	39	33	28	
28"x71"	375	818	.021	0.012	5	10	15	1.91	386	5.2	3.0	1.5	3.0	32	20	11	-	-	-	
	600	1308	.053	0.031	8	16	24	3.05	617	13.2	7.6	2.4	4.7	38	30	26	23	13	19	
	800	1744	.094	0.054	10	21	30	4.06	823	23.5	13.5	3.1	6.3	41	37	35	33	26	25	
	1000	2180	.147	0.085	13	26	34	5.08	1029	36.7	21.1	3.9	7.9	44	42	42	41	36	29	
33"x71"	450	1533	.045	0.032	7	13	14	2.29	723	11.1	7.9	2.2	3.8	40	31	21	15	-	-	
	650	2214	.093	0.067	10	18	25	3.30	1045	23.1	16.6	3.2	5.6	45	38	34	29	18	17	
	800	2725	.141	0.101	13	22	32	4.06	1286	35.0	25.1	3.9	6.8	47	41	41	37	27	21	
	900	3066	.178	0.128	15	25	35	4.57	1447	44.4	31.8	4.4	7.7	49	44	45	42	33	24	
39"x71"	375	2093	.062	0.054	13	19	15	1.91	988	15.6	13.4	4.1	5.7	41	27	20	11	-	-	
	500	2790	.111	0.095	18	25	24	2.54	1317	27.6	23.8	5.5	7.6	47	35	31	25	17	14	
	600	3348	.160	0.137	22	30	30	3.05	1580	39.8	34.2	6.6	9.1	52	40	39	34	26	18	
	700	3907	.218	0.187	25	35	35	3.56	1844	54.2	46.6	7.7	10.6	55	45	45	42	34	22	

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

AFB Suggested Specification & Configuration**AFB**

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

The U-shaped 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 duct cover 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)**
AFB - U-Shaped, Low-Velocity Supply Unit
- 2. UNIT SIZE: (XXxXX)**
13x24 - Nominal
13x48 - Nominal
16x48 - Nominal
19x60 - Nominal
23x48 - Nominal
23x71 - Nominal
28x71 - Nominal
33x71 - Nominal
39x71 - Nominal
- 3. INLET: (XX) ***
8, 10, 12, 16, 20, 24, 32
- 4. MATERIAL: (XX)**
GS - Steel
SS - 316 Stainless Steel **
- 5. FRONT PANEL THICKNESS: (XX)**
20 - 20 Gage (Standard)
16 - 16 Gage
- 6. TRIM: (XXX)**
WHT - White
BLK - Black
MTL - Metal, Painted to Match
- 7. DUCT COVER: (XX)**
00 - None
DP - Perforated Duct Cover
DS - Solid Sheet Duct Cover
- 8. DUCT COVER LENGTH: (XXX.XXX)**
xxx.xxx - Length in Inches
- 9. INSTALLATION BASE: (XX)**
00 - None
B2 - 2" Base Cover
B4 - 4" Base Cover
B6 - 6" Base Cover
- 10. FINISH: (XX)**
44 - White (RAL-9010)
35 - Black
90 - Polished ***
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: AFB - 23x48 - 10 - GS - 20 - WHT - DP - 120.250 - B4 - 44