

DISPLACEMENT VENTILATION ENGINEERING

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Introduction: AFE

The *Krueger by Halton* AFE provides a low velocity pattern that is ideal for flush mount, shallow applications. Mostly used in walls, this unit can also be installed in lay-in applications. The detachable face facilitates cleaning of the plenum and duct connections.

MODEL

AFE - Flat-Faced, Low-Velocity Supply Unit

FEATURES

- 20 gage front panel.
- Horizontal low velocity discharge at floor level.
- Easy integration into wall structure.
- Detachable panel enables cleaning of the unit and duct work.
- Rectangular duct connection at top/bottom of the unit.

OPTIONS

- Face only.

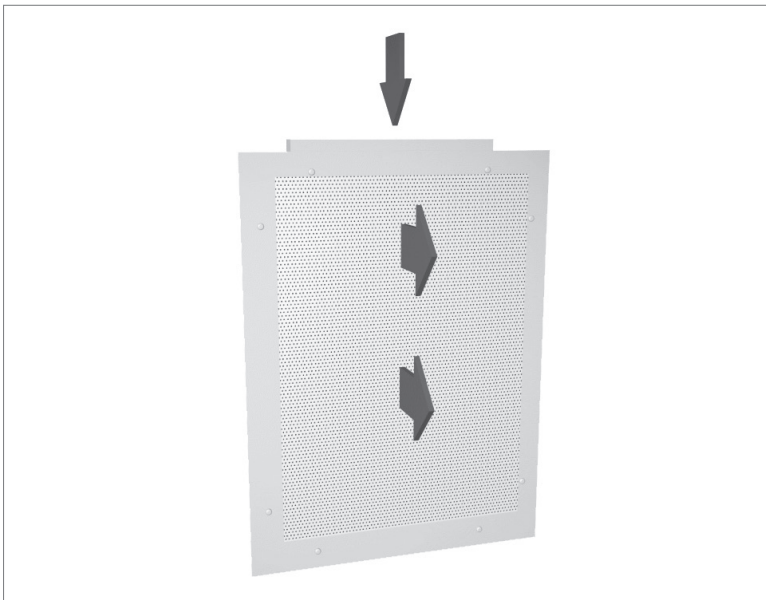
FINISHES

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



AFE

AFE Application



FUNCTION

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

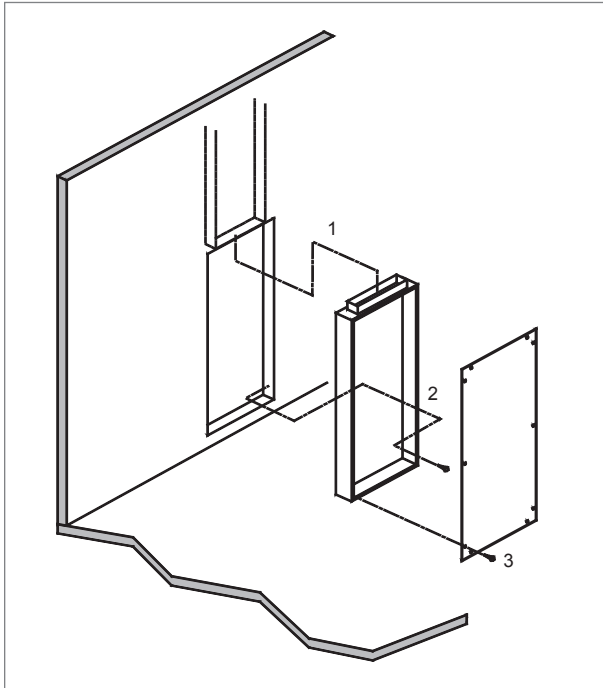
The supply air flows at floor level and gradually pervades through the occupied space before rising due to the convection of warm surfaces.

The low velocity flow pattern is directed perpendicular to the face.

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.

AFE Application & Installation

INSTALLATION EXPLODED VIEW

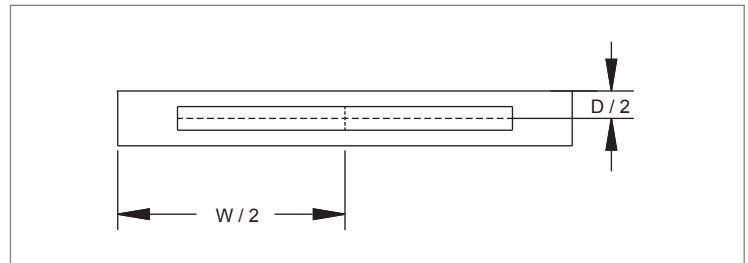


INSTALLATION

Perform the installation in order.

1. Locate the diffuser within the wall space and connect the duct work.
2. Fix the diffuser to the wall from inside the casing.
3. Screw the front plate to the casing and hide the screws with the plastic plugs supplied with the diffuser.

DUCT INSTALLATION



NOTES: See next page for 'D' and 'W' dimensions.

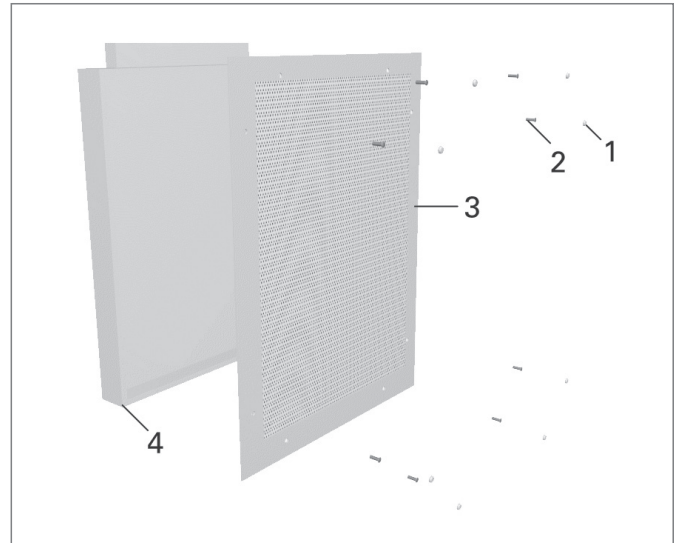
DISPLACEMENT VENTILATION

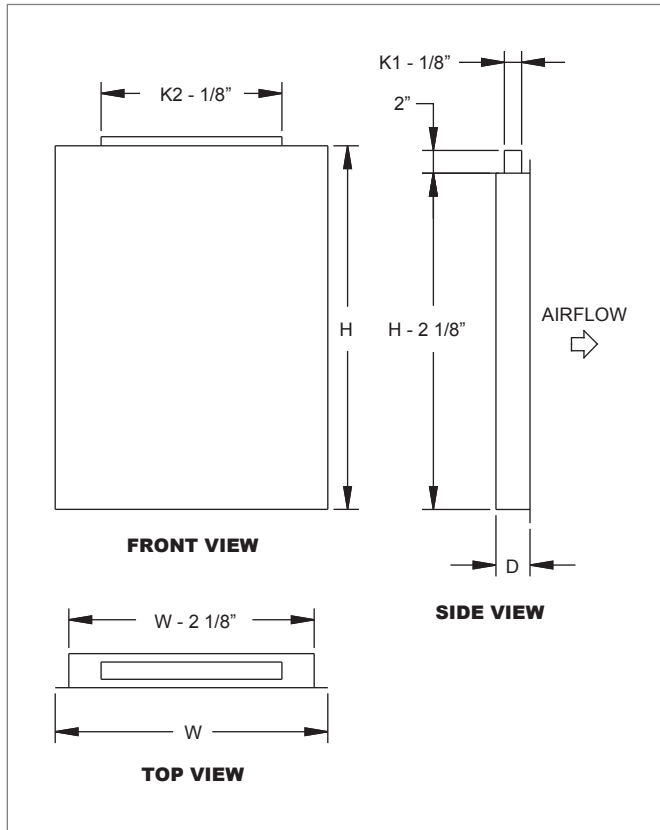
AFE Service & Maintenance

SERVICING

Open the front panel (3) by unscrewing the screws (2) under the cover plugs (1). Pull out the front panel. Clean the parts using a brush or damp cloth instead of immersing in water. Reassemble in reverse order when attaching the front panel to the casing (4).

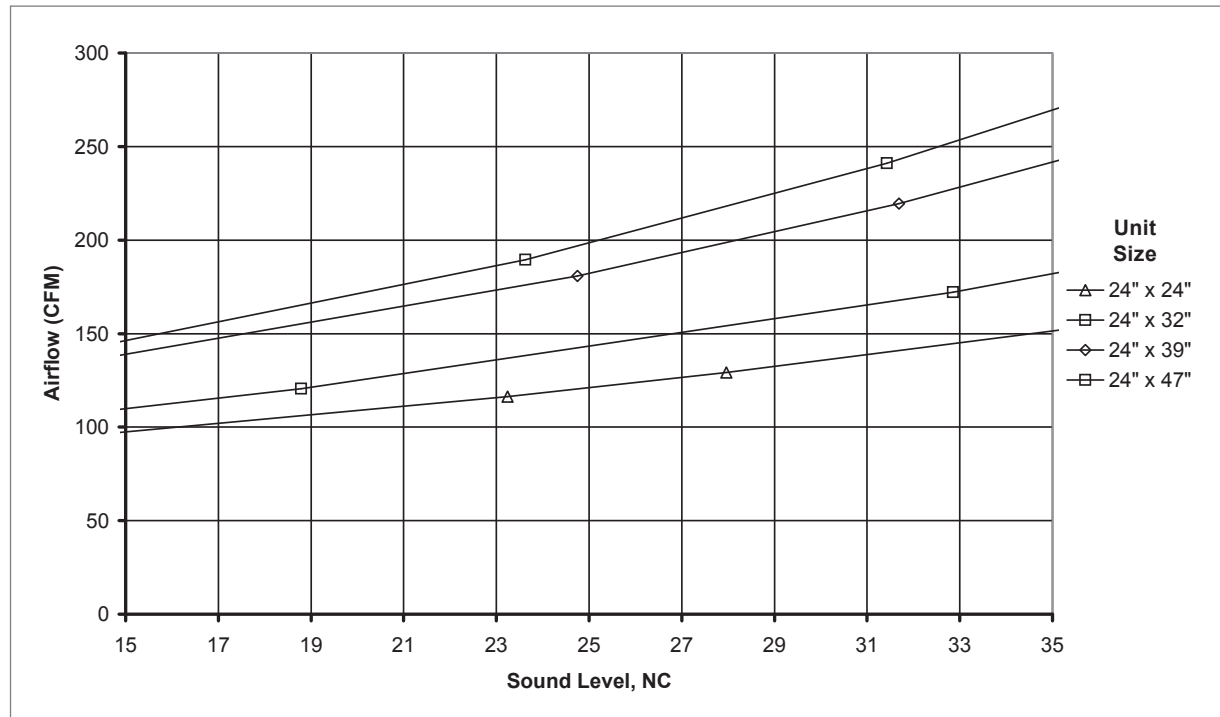
Code	Description
1	Cover Plug
2	Screw
3	Front Panel
4	Casing



AFE Dimensional Information
AFE FRONT AND SIDE VIEWS

AFE DIMENSIONAL REFERENCES

AFE Size (Nominal WxH)	W	H	D	K1	K2
24"x24"	23 5/8"	23 5/8"	2 5/9"	1 1/9"	15 11/16"
24"x32"	23 5/8"	31 1/2"	2 15/16"	1 1/2"	15 11/16"
24"x39"	23 5/8"	39 3/8"	3 3/4"	2 2/7"	15 11/16"
24"x47"	23 5/8"	47 1/4"	4 1/2"	3 1/16"	15 11/16"
15"x24"	15"	24"	3 1/2"	2 1/2"	12"
15"x30"	15"	30"	3 1/2"	2 1/2"	12"
15"x36"	15"	36"	3 1/2"	2 1/2"	12"
15"x48"	15"	48"	3 1/2"	2 1/2"	12"
23"x24"	23"	24"	3 1/2"	2 1/2"	18"
23"x30"	23"	30"	3 1/2"	2 1/2"	18"
23"x36"	23"	36"	3 1/2"	2 1/2"	18"
23"x48"	23"	48"	3 1/2"	2 1/2"	18"
24"x30"	24"	30"	3 1/2"	2 1/2"	18"
24"x36"	24"	36"	3 1/2"	2 1/2"	18"
24"x48"	24"	48"	3 1/2"	2 1/2"	18"
30"x24"	30"	24"	3 1/2"	2 1/2"	18"
36"x24"	36"	24"	3 1/2"	2 1/2"	18"
48"x24"	48"	24"	3 1/2"	2 1/2"	18"

DISPLACEMENT VENTILATION

AFE Reference Chart
AIRFLOW VS. NC LEVEL: AFE SERIES


AFE | Flat-Faced, Low-Velocity Supply

AFE Performance Data

IP/METRIC DATA: AFE 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							
24"x24"	700	90	.061	0.031	0.3	5	12	3.56	43	15.2	7.6	0.1	1.6	24	23	25	16	-	14	
	900	116	.101	0.050	0.5	7	23	4.57	55	25.1	12.6	0.1	2.1	28	29	33	28	17	17	
	1000	129	.125	0.062	0.6	7	28	5.08	61	31.0	15.5	0.2	2.3	29	32	36	33	23	18	
	1200	155	.180	0.090	0.9	9	36	6.10	73	44.7	22.4	0.3	2.7	31	36	42	42	33	20	
24"x32"	600	103	.055	0.032	0.2	6	13	3.05	49	13.6	8.0	0.1	1.9	29	19	24	19	-	-	
	700	121	.074	0.044	0.3	7	19	3.56	57	18.5	10.9	0.1	2.2	29	24	29	25	-	11	
	1000	172	.152	0.089	0.7	10	33	5.08	81	37.8	22.3	0.2	3.1	31	34	39	38	30	17	
	1100	189	.184	0.108	0.8	11	37	5.59	89	45.7	27.0	0.3	3.4	31	37	42	42	36	19	
24"x39"	500	129	.032	0.016	1	8	13	2.54	61	7.9	4.0	0.2	2.4	25	24	23	11	-	11	
	700	181	.062	0.032	1	11	25	3.56	85	15.5	7.9	0.4	3.3	27	32	34	26	13	15	
	850	220	.092	0.047	2	13	32	4.32	104	22.8	11.6	0.6	4.0	28	36	41	35	22	17	
	1000	258	.127	0.064	3	15	37	5.08	122	31.6	16.0	0.8	4.7	29	40	46	43	30	19	
24"x47"	400	138	.027	0.017	1	8	13	2.03	65	6.7	4.2	0.3	2.3	22	25	25	-	-	-	
	550	189	.051	0.032	2	10	24	2.79	89	12.6	7.9	0.5	3.2	27	31	34	20	18	11	
	700	241	.082	0.052	3	13	31	3.56	114	20.4	12.8	0.9	4.0	30	36	40	31	23	16	
	800	276	.107	0.067	4	15	36	4.06	130	26.7	16.8	1.1	4.6	32	39	44	37	27	18	

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.

AFE Suggested Specification & Configuration

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

The flat-face 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 a plenum. The front panel shall have holes on a staggered pattern providing a well-balanced appearance and enhancement to performance. The diffuser face shall be attached securely to the plenum frame. The diffuser design will be robust, rigid and sturdy with a 20ga. face and cabinet. The unit shall have a rectangular duct connection as required by the diffuser schedule.

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.

* 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).

- MODEL: (XXX)**
AFE - Flat-face, Low-Velocity Supply Unit
- UNIT SIZE: (XXxXX)**
24x24 - Nominal
24x32 - Nominal
24x39 - Nominal
24x47 - Nominal
See Krueger's selection software for additional sizes.
- MATERIAL: (XX)**
GS - Steel
SS - 316 Stainless Steel *
- FRONT PANEL THICKNESS: (XX)**
20 - 20 Gage (Standard)
16 - 16 Gage
- PLENUM: (XX)**
00 - None
01 - Plenum
- FINISH: (XX)**
44 - White (RAL-9010)
35 - Black
90 - Polished **
07 - Custom

DISPLACEMENT VENTILATION

AFE

SAMPLE CONFIGURATION: AFE - 24x24 - GS - 20 - 01 - 44