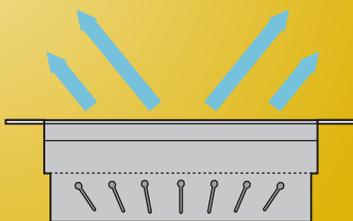


Linear Floor Grilles

The Price Linear Floor Grille family consists of strong, durable floor grilles that are specifically designed for underfloor applications. LFG grilles are available with many core styles and the DFG/DFGL grilles also provide comfortable displacement flow patterns for placement near occupants.

Linear Floor Grilles:

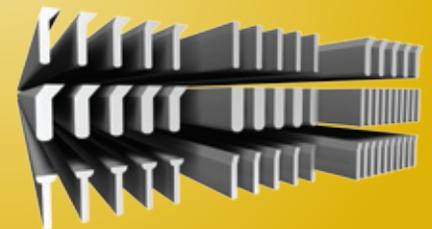
- LFG
- DFG
- DFGL



Adjustable air patterns



Efficient air distribution



Large selection of core styles

Underfloor - Linear Floor Grilles DFGL



Product Information

Price DFGL displacement floor grilles provide a uniform low velocity flow into a space with minimal turbulence or induction of room air. Well suited for perimeter applications, the DFGL may be installed with a continuous or segmented look and is typically used in raised floors, floor cavities, or on the top of sills. The cool supply air flows across the floor and gradually fills the occupied space. The superior air quality and low noise levels associated with the DFGL make it suitable for office spaces, churches, galleries, museums, schools, or any application that demands a comfortable, quiet space.

Features

- Extruded aluminum frame with reinforcing support bars.
- 1 way or 2 way discharge patterns.
- Variety of core styles and fasteners.
- Integrated equalization baffle.

Options

- 3 flanged frames available: Types 750, 1000, 1250.
- Fastening options:
 - "A" Fastening - countersunk screws (frames 1000 and 1250).
 - "B" Fastening - spring clips.
 - "O" Fastening - no holes.
 - "H" Fastening - straight holes (frame 750).
- Multiple core styles available.
- Optional black perforated baffle.

Construction/Finish

- Extruded aluminum frame with reinforcing support bars.
- Extruded aluminum core, pressed core construction.
- Perforated aluminum baffle.
- Finish - B12 B13, B15, B17, PC12, B25, 66, MILL, SPL, AC, ALB, AMB, ADB, AB, ASPL, PA, B11.

For optional and special finishes, please see color matrix.

Available Sizes

Length

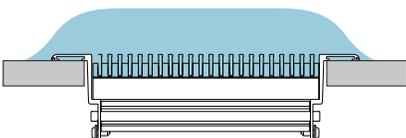
- Minimum 12" (300)
- Maximum 72" (1829) per section

Width

- Minimum 6" (150)
- Maximum 12" (305)

Multiple section lengths are provided with alignment splice plates.

Air Pattern



□ **15A**
0° Deflection
1/4" (6) Spacing

□ **16A**
15° Deflection
1/4" (6) Spacing

□ **25C**
0° Deflection
7/16" (11) Spacing

□ **26C**
15° Deflection
7/16" (11) Spacing

□ **27C**
30° Deflection
7/16" (11) Spacing

Flanged Mount Detail - Imperial, in.

Frame	Dimension A	Dimension B
750	3 1/4	1 1/8
1000	1	1 5/8
1250	1 1/4	2 1/8

Flanged Mount Detail - Metric, mm

Frame	Dimension A	Dimension B
750	19	29
1000	25	41
1250	32	54

UNDERFLOOR AIR DISTRIBUTION

Performance Data - Imperial Units

Unit Size L x W (in.) [Face Area (ft ²)]	Face Velocity (fpm)	Air Flow (cfm)	Total Pressure (in. w.g.)	Static Pressure (in. w.g.)	Noise Criteria (NC)	Proximity to Outlet (ft)			
						$\Delta T = 5\text{ }^\circ\text{F}$		$\Delta T = 10\text{ }^\circ\text{F}$	
						DR		DR	
						15%	20%	15%	20%
24 x 12 [1.9]	20	38	--	--	--	--	--	--	--
	30	57	--	--	--	--	--	--	--
	40	76	0.01	0.01	--	--	--	--	--
	50	95	0.02	0.02	--	--	1	--	--
48 x 12 [3.8]	20	77	--	--	--	--	--	--	--
	30	115	--	--	--	--	--	1	--
	40	154	0.01	0.01	--	--	--	3	--
	50	192	0.02	0.02	--	--	--	4	1
72 x 12 [5.8]	20	116	--	--	--	--	--	1	--
	30	173	--	--	--	--	--	4	1
	40	231	--	--	--	2	--	5	2
	50	289	0.01	0.01	--	3	--	8	4

Performance Notes:

- Sound and pressure drop tested in accordance with ASHRAE Standard 70-2006 (RA 2011) "Method of Testing for Rating the Performance of Air Outlets and Inlets."
- Air flow is in cubic feet per minute, cfm.
- Pressure is in inches of water, in. w.g.
- The NC values, sound pressure level, are based on a room absorption of 10 dB, re 10⁻¹² watts and one diffuser
- Blanks (–) indicate NC below 15 or a pressure below .01 in. w.g.
- ΔT is the difference between the room air temperature ½ ft above the floor and the temperature of the supply air.
- Proximity to outlet is the minimum distance from an outlet to the occupant in order to achieve the listed DR value.
- DR is the predicted percentage of people dissatisfied (PPD) due to draft. A value of less than 20 meets the requirements of ASHRAE Standard 55-2013, "Thermal Environmental Conditions for Human Occupancy."
- DR catalog data is presented for an occupant density of 25 people/1000ft², which is the default occupancy density for classrooms (ages 5-8) given by ASHRAE 62.1-2013. For other occupant densities, please refer to the DV Room Designer Software.
- Performance data for standard diffusers not listed in the catalog is available in Price AIO Software.

Performance Data - Metric Units

Unit Size L x W (mm) [Face Area (m ²)]	Face Velocity (m/s)	Air Flow (L/s)	Total Pressure (Pa)	Static Pressure (Pa)	Noise Criteria (NC)	Proximity to Outlet (m)			
						$\Delta T = 2.8\text{ }^\circ\text{C}$		$\Delta T = 5.6\text{ }^\circ\text{C}$	
						DR		DR	
						15%	20%	15%	20%
600 x 300 [0.19]	0.10	19	-	-	-	--	--	--	--
	0.15	28	-	-	-	--	--	--	--
	0.20	38	2	2	-	--	--	--	--
	0.25	47	5	5	-	--	--	0.3	--
1200 x 300 [0.37]	0.10	38	-	-	-	--	--	--	--
	0.15	57	-	-	-	--	--	0.3	--
	0.20	76	2	2	-	--	--	0.9	--
	0.25	94	5	5	-	--	--	1.2	0.3
1825 x 300 [0.56]	0.10	57	-	-	-	--	--	0.3	--
	0.15	85	-	-	-	--	--	1.2	0.3
	0.20	113	-	-	-	0.6	--	1.5	0.6
	0.25	142	2	2	-	0.9	--	2.4	1.2

Performance Notes:

- Sound and pressure drop tested in accordance with ASHRAE Standard 70-2006 (RA 2011) "Method of Testing for Rating the Performance of Air Outlets and Inlets."
- Air flow is in litres per second, L/s.
- Pressure is in Pascals, Pa.
- The NC values, sound pressure level, are based on a room absorption of 10 dB, re 10⁻¹² watts and one diffuser
- Blanks (–) indicate NC below 15 or a pressure below 2.5Pa.
- ΔT is the difference between the room air temperature 1 m above the floor and the temperature of the supply air.
- Proximity to outlet is the minimum distance from an outlet to the occupant in order to achieve the listed DR value.
- DR is the predicted percentage of people dissatisfied (PPD) due to draft. A value of less than 20 meets the requirements of ASHRAE Standard 55-2013, "Thermal Environmental Conditions for Human Occupancy."
- DR catalog data is presented for an occupant density of 25 people/100m², which is the default occupancy density for classrooms (ages 5-8) given by ASHRAE 62.1-2013. For other occupant densities, please refer to the DV Room Designer Software.
- Performance data for standard diffusers not listed in the catalog is available in Price AIO Software.

Linear Floor Grilles

SECTION 23 06 30 – PRODUCT

PART 1 - GENERAL

1.1 Summary

- A. This section includes the following:
 - 1. Linear floor grilles

1.2 Related Documents

- A. 23 01 00 – Operation and Maintenance of HVAC Systems
- B. 23 05 00 – Common Work Results for HVAC
- C. 23 09 00 – Instrumentation of Control for HVAC
- D. 23 20 00 – HVAC Piping and Pumps
- E. 23 30 00 – HVAC Air Distribution

1.3 Submittals

- A. Product Data: For each type of product indicated, include rated capacities, furnished specialties and accessories.
- B. Shop Drawings: For each type of product indicated, include the following:
 - 1. Detail equipment assemblies and indicated dimensions.
 - 2. Required clearances.
 - 3. Method of field assembly.
 - 4. Revit models
- C. Coordination Drawings: Include floor plans, and other details, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:
 - 1. Floor or underfloor-mounted items including:
 - a. Floor structure (floor tiles, concrete, etc.)
 - b. Floor finishing (carpet, tile, etc.)
 - c. Access panels
 - d. Electrical components
 - e. Plumbing
 - f. Networking components
 - g. Terminal Units and other HVAC components
- D. Operation and Maintenance Data: To include in emergency, operation and maintenance manuals, maintenance schedules and repair part lists for all parts.

1.4 Quality Assurance

- A. Product Options: Include drawings indicating size, profiles and dimensional requirements of the linear floor grilles that are based on the specific system indicated.
- B. Electrical Components, Devices and Accessories: Listed and labeled as defined in NFPA 70 Article 100 by a testing agency acceptable to authorities having jurisdiction and marked for intended use.

1.5 Coordination

- A. Coordinate layout and installation of diffusers with other construction that penetrates flooring, including but not limited to: electrical fixtures, network equipment, HVAC equipment, and partition assemblies.
- B. Specific configuration of the supply and return ductwork, electrical work, and piping at each unit has been indicated on the drawings. If the configuration of the units furnished on the project differs from that indicated on the drawings (whether or not the units furnished are the specific units or an acceptable substitute), it shall be the contractor's responsibility to modify ductwork, piping, etc., as required to accommodate the actual configuration of units furnished on the project.

PART 2 – PRODUCTS

2.1 General

- A. Manufacturer shall be responsible for examining applications of each type of unit to assure that each will operate properly in the intended application.
- B. Unit sizes are shown as selected in accordance with the principles set forth in the ASHRAE guide and manufacturer's literature.
- C. All items of a given type shall be the products of the same manufacturer.

2.2 Manufacturers

- A. Subject to compliance with requirements, provide products by one of the manufacturers specified. Manufacturers shall demonstrate that they have successfully supplied and installed underfloor HVAC products, as well as the computer modeling thereof for a minimum of 10 years. Manufacturers must be pre-qualified to bid based on the completion of a minimum of ## jobs in similar climates. Manufacturers shall provide a list of completed jobs and references.

2.3 LFG Linear Floor Grilles

- A. Approved Manufacturers:
 - 1. Price
- B. Description: Furnish and install Price model LFG (min. 4" length x 1.5" – 12.0" width) with (15A, 16A, 25C, 26C, 27C) core in the sizes, configurations and capacities indicated on the plans and air outlet schedule.
- C. Performance: Air shall be delivered to the space at low noise levels without the use of nozzles. Diffuser manufacturer shall provide sound and pressure drop data derived from tests in accordance with ASHRAE Standard 70-2006 (RA 2011).

Linear Floor Grilles Suggested Specifications

Linear Floor Grilles

- D. Construction: The LFG shall be constructed in the (pressed core, mandrel core) assembly style. The grille face must have a (0", 1/8", 3/16", 3/8", 1/2", 5/8", 1", 1 1/4") extruded aluminum border with (both ends mitered, one end open and one end mitered, both ends open). Grilles shall have fixed (0, 15, 30 degree) bars spaced (1/4", 7/16") on center. The outlet core shall have extruded aluminum bars mechanically locked into (extruded aluminum receiving bars, 5/16 in. O.D. aluminum Mandrel tubes with .035 in. thick walls). Bars shall run parallel to the long dimension of the grille. The grille border shall be heavy-duty extruded aluminum construction with precise factory mitered corners and reinforcing support bars for extra support for the core receiving bar. The support and (receiving bars, mandrel tubes) shall not exceed 6" on center. The core shall be held into the border with removable core clips allowing the removal of the core without special tools. The air pattern shall be adjustable by individually regulating 1" directional vanes installed in the frame for spread control. The grilles shall be provided with optional integral volume control dampers, which shall be of the opposed blade type and shall be constructed of coated (aluminum, cold rolled steel). The damper shall be operable from the register face. The grille shall be finished in (B11 - PURE WHITE, B12 - WHITE - POWDER COAT, B13 - OFF-WHITE - POWDER COAT, B15 - ALUMINUM - POWDER COAT, B17 - BLACK - POWDER COAT, B25 - COLOR TO MATCH, PC12 - PRIME COAT - POWDER COAT, 66 - BRUSHED AND POWDER COAT CLEAR, MILL - RAW ALUMINUM, PA - PREPARED ALUMINUM - MILL FINISH FACTORY CLEANED, AB - ANODIZED BLACK, AC - ANODIZED CLEAR, ALB - ANODIZED LIGHT BRONZE, AMB - ANODIZED MEDIUM BRONZE, ADB - ANODIZED DARK BRONZE, ACH - Champagne Anodized, ASPL - ANODIZED COLOR OTHER THAN LISTED, SPL - SPECIAL FINISHES). Paint finish shall pass 500 hours of salt spray exposure with no measurable creep in accordance with ASTM D1654 and 1000 hours with no rusting or blistering as per ASTM D610 and ASTM D714.
- E. Mounting/Fastening: The frame shall be attached to the floor with (no screw holes, countersunk screws, spring clips, concealed mounting).

2.4 DFG Displacement Floor Grilles

- A. Approved Manufacturers:
1. Price
- B. Description: Furnish and install Price model DFG (10-1/2"x10-1/2") with (27C-1W, 27C-2W) core in the sizes, configurations and capacities indicated on the plans and air outlet schedule.
- C. Performance: Air shall be delivered to the space at low noise levels and low velocities that are even result in low induction horizontal flow resulting in a stratified zone temperature distribution within the occupied zone without the use of nozzles. Diffuser manufacturer shall provide sound and pressure drop data derived from tests in accordance with ASHRAE Standard 70-2006 (RA 2011). Performance data for Draft Rate (%DR) shall be provided based on tests in accordance with ASHRAE Standard 55-2013. A manufacturer software program that allows room comfort evaluation for specific operating conditions and

diffuser locations shall be available to aid in performance assessment. If such a computer program is not available from the manufacturer, the manufacturer shall supply, free of charge, a CFD model of the representative spaces completed by a modeling contractor who has demonstrable qualifications to model such spaces. These shall include no less than 10 years of experience in the modeling of displacement ventilation systems, thorough validation of the code through comparison to empirical data as well as a list of references.

- D. Construction: The displacement floor grille model (DFG) shall be constructed with an equalization baffle and individually adjustable extruded 1" directional vanes behind the diffuser face for uniform, low velocity distribution of supply air. The equalization baffle and directional vanes shall be securely retained in the diffuser frame. The baffle shall be constructed of perforated aluminum. The diffusers shall have a removable core section with bars spaced 7/16" on center and a fixed deflection of 30 degrees. The outlet core shall have extruded aluminum bars mechanically locked into extruded aluminum receiving bars. The (3/4", 1", 1-1/4") wide diffuser border shall be heavy duty extruded aluminum construction with precise factory mitered corners and reinforcing support bars for additional support. The core shall be held in the border with removable core clips allowing the removal of the core without special tools. The grille shall be finished in (B11 - PURE WHITE, B12 - WHITE - POWDER COAT, B13 - OFF-WHITE - POWDER COAT, B15 - ALUMINUM - POWDER COAT, B17 - BLACK - POWDER COAT, B25 - COLOR TO MATCH, PC12 - PRIME COAT - POWDER COAT, 66 - BRUSHED AND POWDER COAT CLEAR, MILL - RAW ALUMINUM, PA - PREPARED ALUMINUM - MILL FINISH FACTORY CLEANED, AB - ANODIZED BLACK, AC - ANODIZED CLEAR, ALB - ANODIZED LIGHT BRONZE, AMB - ANODIZED MEDIUM BRONZE, ADB - ANODIZED DARK BRONZE, ACH - Champagne Anodized, ASPL - ANODIZED COLOR OTHER THAN LISTED, SPL - SPECIAL FINISHES). Paint finish shall pass 500 hours of salt spray exposure with no measurable creep in accordance with ASTM D1654 and 1000 hours with no rusting or blistering as per ASTM D610 and ASTM D714.
- E. Mounting/Fastening: The frame shall be attached to the floor (with countersunk screws (for 1", 1-1/4" borders only)/straight screws (for 3/4" borders only)/spring clips/without any holes).

Linear Floor Grilles

Suggested Specifications



Linear Floor Grilles

2.5 DFGL Linear Displacement Floor Grilles

- A. Approved Manufacturers:
1. Price
- B. Description: Furnish and install Price model DFGL (L (min. 12") x W (6"-12") with (15A, 16A, 25C, 26C, 27C) core in the sizes, configurations and capacities indicated on the plans and air outlet schedule.
- C. Performance: Air shall be delivered to the space at low noise levels and low velocities that are even result in low induction horizontal flow resulting in a stratified zone temperature distribution within the occupied zone without the use of nozzles. Diffuser manufacturer shall provide sound and pressure drop data derived from tests in accordance with ASHRAE Standard 70-2006 (RA 2011). Performance data for Draft Rate (%DR) shall be provided based on tests in accordance with ASHRAE Standard 55-2013. A manufacturer software program that allows room comfort evaluation for specific operating conditions and diffuser locations shall be available to aid in performance assessment. If such a computer program is not available from the manufacturer, the manufacturer shall supply, free of charge, a CFD model of the representative spaces completed by a modeling contractor who has demonstrable qualifications to model such spaces. These shall include no less than 10 years of experience in the modeling of displacement ventilation systems, thorough validation of the code through comparison to empirical data as well as a list of references.
- D. Construction: The displacement floor grille model (DFG) shall be constructed with an equalization baffle and individually adjustable extruded 1" directional vanes behind the diffuser face for uniform, low velocity distribution of supply air. The equalization baffle and directional vanes shall be securely retained in the diffuser frame. The baffle shall be constructed of perforated aluminum and shall be available in (black finish, finish matching grille face). The diffusers shall have a removable core section with bars spaced (1/4", 7/16") on center and a fixed deflection of (0, 15, 30 degrees). The outlet core shall have extruded aluminum bars mechanically locked into extruded aluminum receiving bars. The (3/4", 1", 1-1/4") wide diffuser border shall be heavy duty extruded aluminum construction with precise factory mitered corners and reinforcing support bars for additional support. The core shall be held in the border with removable core clips allowing the removal of the core without special tools. The grille shall be finished in (B11 - PUREWHITE, B12 - WHITE - POWDER COAT, B13 - OFF-WHITE - POWDER COAT, B15 - ALUMINUM - POWDER COAT, B17 - BLACK - POWDER COAT, B25 - COLOR TO MATCH, PC12 - PRIME COAT - POWDER COAT, 66 - BRUSHED AND POWDER COAT CLEAR, MILL - RAW ALUMINUM, PA - PREPARED ALUMINUM - MILL FINISH FACTORY CLEANED, AB - ANODIZED BLACK, AC - ANODIZED CLEAR, ALB - ANODIZED LIGHT BRONZE, AMB - ANODIZED MEDIUM BRONZE, ADB - ANODIZED DARK BRONZE, ACH - Champagne Anodized, ASPL - ANODIZED COLOR OTHER THAN LISTED, SPL - SPECIAL FINISHES). Paint finish shall pass 500 hours of salt spray exposure with no measurable creep in accordance with ASTM D1654 and 1000 hours with no rusting or blistering as per ASTM D610 and ASTM D714.
- E. Mounting/Fastening: The frame shall be attached to the floor (with countersunk screws (for 1", 1-1/4" borders only)/straight screws (for 3/4" borders only)/spring clips/without any holes).

PART 3 - EXECUTION

3.1 Installation - General

- A. Install linear floor grilles level and plumb. Maintain sufficient clearance for normal services, maintenance, or in accordance with construction drawings.
- B. Complete installation and startup checks according to manufacturer's instructions and perform the following.
1. Verify that inlet duct connections are as recommended by manufacturer to achieve proper performance.
 2. Verify that all identification tags are visible.
 3. Verify locations of thermostats, humidistats, and other exposed control sensors with drawings and room details before installation.