

LOUVRE FACE DIFFUSER

GRD Series

Louvre Face Diffuser Series

Louvre face diffuser is an excellent choice for diffusion purposes due to its architectural appearance and high performance characteristics. It features large square and rectangular inlets for reduced inlet velocity, ensuring quiet operation and low pressure drop, even at high airflow volumes. Concentrated airflow is directed from each active side of the diffuser, providing extended throws that make it ideal for high-ceiling applications.

Louvre Face Diffuser Series - Model LFD

Most of the time when a square ceiling diffuser is mentioned, it is generally referring to the louvre face diffuser. The diffuser is highly configurable with multiple core styles, airflow patterns and frame styles for easy integration with modular ceiling systems.

Material

High-quality extruded aluminum frame and blades for exceptional corrosion resistance and structural durability.

Construction

The frame is manufactured from extruded aluminium with hairline mitred joints mechanically held. The core consists of multiple louvre blades, and the blade rings can be 1) welded onto aluminum bars or 2) crimped onto aluminum tubes.

Model LFD Standard Neck Size (mm)

Sizes start from 150mm x 150mm and up to 600mm x 600mm, based on nominal neck dimensions (Width x Height). Custom sizes can be accommodated upon request to meet specific project requirements.

Fixing

Optional countersunk face fixing holes can be punched into the diffuser outer frame, allowing quick and easy fitting on site.

Finish

The LFD Series comes standard with a durable white powder-coated finish (RAL 9010), with optional custom finishes available upon request.

Core Option

Available in multiple directional discharge patterns: 1-way, 2-way (opposite or corner), 3-way, and 4-way, to suit diverse air distribution requirements.



1-way discharge



2-way corner discharge



2-way opposite discharge



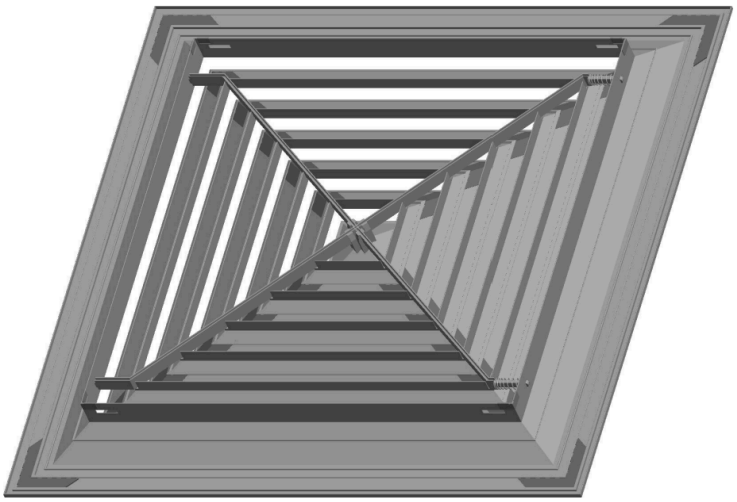
3-way discharge



4-way discharge

Blade Construction Option

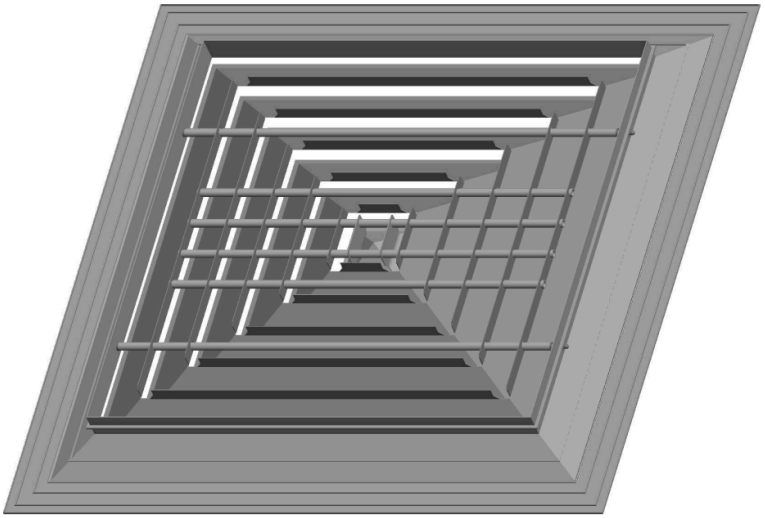
The Louvre face diffusers are currently offered in two blade construction styles:



Model LFDB4W - Bar Welded 4-way Louvre Face Diffuser

Style 1 (Model LFDB) - Blade rings are welded onto two cross aluminum bars diagonally. This style applies to all core options.

Style 2 (Model LFDT) - Blades are crimped onto aluminium tubes. This style currently only applies to the 4-way core option.



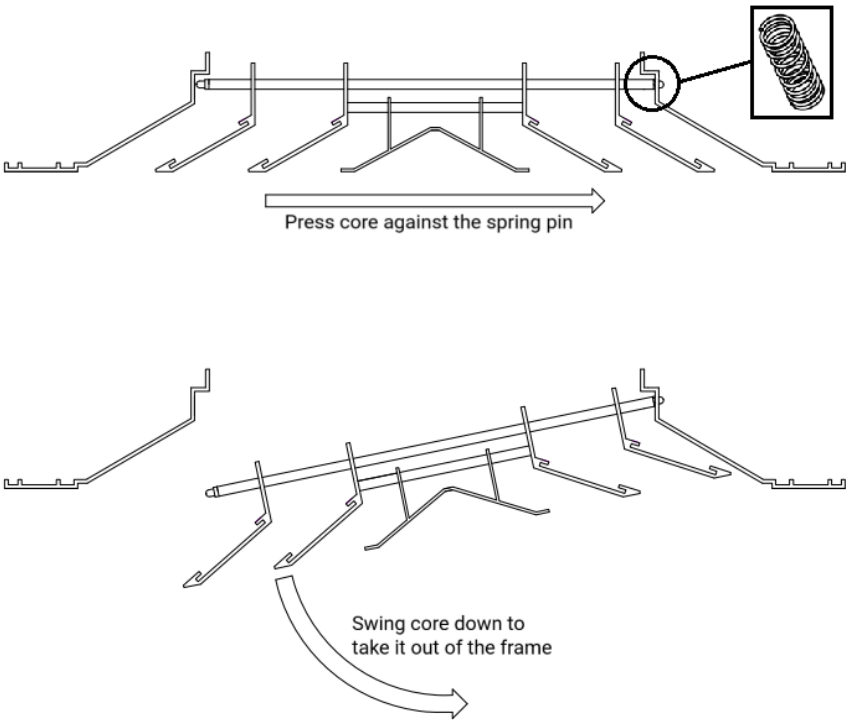
Model LFDT4W - Tube Crimped 4-way Louvre Face Diffuser

Removable Core Feature

Series LFD louvre face diffusers are equipped with removable cores regardless of the core or blade construction options. Cores can be removed by pushing the core to compress the side where spring pins are installed onto either the bars or tubes.

- **Simplified Installation** - The outer frame can be installed separately, allowing for a more efficient and precise ceiling mounting before inserting the core.
- **Easy Maintenance & Cleaning** - Hassle-free access to the diffuser's interior and connected ductwork, making routine cleaning and dust removal more convenient.
- **Flexible Adjustment & Replacement** - Adjusting or replacing the accessories (such as opposed blade damper or any filter) behind the diffuser becomes easier.

Note: It is recommended that above a certain size, the core shall be fixed into the outer frame for safety. Safety wire is optional to provide additional safety by preventing the core being able to fall down entirely.



Removing Guide of Tube Crimped 4-way Louvre Face Diffuser (Model LFDT4W)

Frame Option

Three standard frame options are provided, with customization available.



Standard Flat Flange (SF)



Beveled Flange (BV)



Wide Flat Flange (WF)

Material Option

Apart from the standard aluminum option, Series LFD louvre face diffuser can also be crafted in the following materials:

- **Galvanized Steel** - Strength and impact resistance for industrial facilities, warehouses, and heavy-duty applications;
- **ABS (Plastic)** - Cost-effective and resistant to moisture for residential, hotel or restrooms;
- **Wooden** - A warm, natural aesthetic, wooden square diffusers blend seamlessly into luxury interiors, high-end residential spaces, and heritage buildings.

Note: Limited sizes and options are available—please contact us for further details.

Model LFD Accessories

Neck Adaptor - Enables a seamless transition from a square grille to a round air duct, ensuring compatibility with different ducting systems and facilitating efficient airflow distribution.





Opposed Blade Damper (OBD) - Allows precise airflow regulation without disrupting the air pattern by adjusting the position of interlocking blades. This accessory ensures optimal ventilation control and is ideal for fine-tuning air distribution in HVAC systems.

Plenum Box - A metal enclosure fitted to the diffuser's rear to evenly distribute airflow before it enters the room, reducing noise and turbulence.



Louvre Face Diffuser Series

Model LFD - How to Specify or To Order *(* represents standard option)*

Example Ordering Code: LFDB4W-L-SF-NL-450x450-WPC		
	Model No.	- LFDB1W (Bar Welded 1-way) - LFDB2OW (Bar Welded 2-way Opposite) - LFDB2CW (Bar Welded 2-way Corner) - LFDB3W (Bar Welded 3-way) - LFDB4W (Bar Welded 4-way) - LFDT4W (Tube Crimped 4-way)
	Material	- L (Aluminum) * - ABS (Plastic) - G (Galvanized Steel) - M (Wooden)
	Frame Option *Customization available to meet specific requirements.*	- SF (Standard Flat Flange) * - BV (Beveled Flange) - WF (Wide Flat Flange)
	Accessory Option	- NL (No Accessory) * - OBD (Opposed Blade Damper) - NA (Neck Adaptor) - SC (Safety Cable) - PB (Plenum Box)
	Width x Height (mm) *Customization available to meet specific requirements.*	- 450mm x 450mm (595mm x 595mm overall face size) * - Max: 600mm x 600mm - Min: 150mm x 150mm
	Finish *Special finishes are available.*	- WPC (White polyester powder finish RAL 9010) * - MF (Mill Finish)

Model LFD - Performance Data

The following table contains performance data for the standard square sizes ranging from 150mmx150mm to 600mmx600mm neck size.

Neck Size (mm)	Neck Area (m2)	Neck Velocity (m/s)		1.5	2.0	2.5	3.0	3.6	4.0	4.5
		Velocity Pressure (Pa)		1.5	2.5	4.0	5.5	7.8	10.0	12.5
		Total Pressure (Pa)		9.0	16.0	25.0	36.0	49.0	64.0	80.0
150x150	0.023	Flow Rate (l/s)		35.4	47.2	59.0	70.8	82.6	94.4	106.2
		NC		-	-	-	23	27	31	36
		4-way	l/s On Side	8.97	11.80	14.63	17.94	20.77	23.60	26.43
			Throw (m)	1.2-1.8-3.7	1.5-2.4-4.6	2.1-3.0-4.9	2.4-3.7-5.5	2.7-4.3-5.8	3.4-4.6-6.4	3.7-4.9-6.7
		3-way	l/s On Side	13.22	17.94	22.18	26.43	31.15	35.40	39.65
			Throw (m)	1.5-2.1-4.3	1.8-3.0-4.9	2.4-3.7-5.5	3.0-4.3-6.1	3.4-4.6-6.7	4.0-4.9-7.0	4.3-5.2-7.6
		2-way	l/s On Side	17.94	23.60	29.74	35.40	41.54	47.20	53.34
			Throw (m)	1.8-2.4-4.6	2.1-3.4-5.5	2.7-4.3-6.1	3.4-4.6-6.7	4.0-5.2-7.3	4.6-5.5-7.6	4.6-5.8-8.2
		1-way	l/s On Side	35.40	47.20	59.00	70.80	82.60	94.40	106.20
			Throw (m)	2.4-3.7-5.8	3.4-4.6-6.7	4.0-5.2-7.3	4.6-5.8-8.2	5.2-6.1-8.8	5.5-6.7-9.4	5.8-7.0-10.1
225x225	0.051	Flow Rate (l/s)		79.8	106.2	133.1	159.5	186.0	212.4	239.3
		NC		-	-	21	27	31	35	39
		4-way	l/s On Side	19.82	26.43	33.51	40.12	46.73	53.34	59.94
			Throw (m)	1.8-2.7-4.9	2.4-3.7-5.5	3.0-4.6-6.4	3.7-4.9-7.0	4.3-5.2-7.3	4.6-5.5-7.9	4.9-6.1-8.5
		3-way	l/s On Side	29.74	39.65	50.03	59.94	69.86	79.77	89.68
			Throw (m)	2.1-3.4-5.5	3.0-4.6-6.4	3.7-4.9-7.0	4.6-5.5-7.6	4.9-5.8-8.2	5.2-6.4-8.8	5.5-6.7-9.4
		2-way	l/s On Side	40.12	53.34	66.55	79.77	92.98	106.20	119.89
			Throw (m)	2.4-4.0-5.8	3.4-4.9-6.7	4.3-5.5-7.6	4.9-5.8-8.5	5.2-6.4-9.1	5.5-6.7-9.8	5.8-7.3-10.4
		1-way	l/s On Side	79.77	106.20	133.10	159.54	185.97	212.40	239.30
			Throw (m)	3.7-5.2-7.3	4.9-5.8-8.2	5.5-6.7-9.4	5.8-7.3-10.4	6.4-7.9-11.0	6.7-8.2-11.9	6.4-8.8-12.5
300x300	0.090	Flow Rate (l/s)		141.6	188.8	236.0	283.2	330.4	377.6	424.8
		NC		-	-	24	30	34	38	42
		4-way	l/s On Side	35.40	47.20	59.00	70.80	82.60	94.40	106.20
			Throw (m)	2.4-3.7-5.8	3.4-4.6-6.7	4.0-5.2-7.3	4.6-5.8-8.2	5.2-6.1-8.8	5.5-6.7-9.4	5.8-7.0-10.1
		3-way	l/s On Side	53.34	70.80	88.74	106.20	124.14	141.60	159.54
			Throw (m)	3.0-4.6-6.4	4.0-5.2-7.3	4.9-5.8-8.2	5.2-6.4-9.1	5.8-7.0-9.8	6.1-7.3-10.7	6.4-7.9-11.3
		2-way	l/s On Side	70.80	94.40	118.00	141.60	165.20	188.80	212.40
			Throw (m)	3.4-4.9-7.0	4.6-5.8-7.9	5.2-6.4-9.1	5.8-7.0-9.8	6.1-7.6-10.7	6.7-7.9-11.3	7.0-8.5-12.2
		1-way	l/s On Side	141.60	188.80	236.00	283.20	330.40	377.60	424.80
			Throw (m)	4.9-6.1-8.5	5.8-7.0-9.8	6.4-7.9-11.0	7.0-8.5-12.2	7.6-9.1-13.1	7.9-9.8-14.0	8.5-10.4-14.6
375x375	0.141	Flow Rate (l/s)		220.9	295.0	368.6	442.7	516.4	590.0	663.6
		NC		-	-	26	32	35	40	44
		4-way	l/s On Side	55.22	73.63	92.04	110.45	128.86	147.74	166.14
			Throw (m)	3.0-4.6-6.4	4.0-5.2-7.6	4.9-6.1-8.5	5.2-6.4-9.1	5.8-7.0-10.1	6.1-7.6-10.7	6.4-7.9-11.3
		3-way	l/s On Side	83.07	110.45	138.30	166.14	193.52	221.37	248.74
			Throw (m)	3.7-5.2-7.3	4.9-6.1-8.5	5.5-6.7-9.4	6.1-7.3-10.4	6.4-7.9-11.3	7.0-8.5-11.9	7.3-8.8-12.8
		2-way	l/s On Side	110.45	147.74	184.55	221.37	258.18	295.00	331.82
			Throw (m)	4.3-5.5-7.9	5.2-6.4-9.1	5.8-7.3-10.4	6.4-7.9-11.3	7.0-8.5-12.2	7.6-9.1-13.1	7.9-9.8-13.7
		1-way	l/s On Side	220.90	295.00	368.63	442.74	516.37	590.00	663.63
			Throw (m)	5.5-6.7-9.8	6.4-7.9-11.3	7.3-8.8-12.5	7.9-9.8-13.7	8.5-10.4-14.6	9.1-11.3-15.8	9.8-11.9-16.8
450x450	0.203	Flow Rate (l/s)		318.6	424.8	531.0	637.2	743.4	849.6	955.8
		NC		-	21	28	34	38	42	46
		4-way	l/s On Side	79.77	106.20	132.63	159.54	185.97	212.40	238.83
			Throw (m)	3.7-5.2-7.3	4.9-5.8-8.2	5.5-6.7-9.4	5.8-7.3-10.4	6.4-7.9-11.0	6.7-8.2-11.9	7.3-8.8-12.5
		3-way	l/s On Side	119.42	159.54	199.18	238.83	278.95	318.60	358.25
			Throw (m)	4.6-5.8-8.2	5.5-6.7-9.4	6.1-7.3-10.4	6.7-8.2-11.6	7.0-8.8-12.5	7.6-9.4-13.1	8.2-10.1-14.0
		2-way	l/s On Side	159.54	212.40	265.74	318.60	371.94	424.80	478.14
			Throw (m)	5.2-6.1-8.8	5.8-7.3-10.1	6.7-7.9-11.3	7.3-8.8-12.5	7.6-9.4-13.4	8.2-10.1-14.3	8.8-10.7-15.2
		1-way	l/s On Side	318.60	424.80	531.00	637.20	743.40	849.60	955.80
			Throw (m)	6.1-7.6-10.7	7.0-8.8-12.5	7.9-9.8-13.7	8.8-10.7-15.2	9.4-11.6-16.5	10.1-12.5-17.7	10.7-13.1-18.6
525x525	0.276	Flow Rate (l/s)		433.8	578.2	722.6	867.5	1,012.0	1,156.4	1,300.8
		NC		-	23	30	36	40	44	48
		4-way	l/s On Side	108.56	144.43	180.78	216.65	252.99	289.34	325.21
			Throw (m)	4.3-5.5-7.9	5.2-6.4-9.1	5.8-7.3-10.1	6.4-7.9-11.3	7.0-8.5-12.2	7.3-9.1-12.8	7.9-9.8-13.7
		3-way	l/s On Side	162.84	216.65	270.93	325.21	379.49	433.77	488.05
			Throw (m)	5.2-6.4-8.8	5.8-7.3-10.4	6.7-8.2-11.6	7.3-8.8-12.5	7.9-9.4-13.4	8.2-10.4-14.3	8.8-11.0-15.2
		2-way	l/s On Side	216.65	289.34	361.55	433.77	505.98	578.20	650.42
			Throw (m)	5.5-6.7-9.8	6.4-7.9-11.0	7.3-8.8-12.5	7.9-9.8-13.7	8.5-10.4-14.6	9.1-11.0-15.8	9.8-11.9-16.8
		1-way	l/s On Side	433.30	578.20	722.63	867.06	1,011.50	1,156.40	1,300.83
			Throw (m)	6.7-8.2-11.6	7.9-9.4-13.4	8.8-10.7-15.2	9.4-11.6-16.5	10.4-12.8-18.0	11.0-13.4-19.2	11.6-14.3-20.4

Louvre Face Diffuser Series

Neck Size (mm)	Neck Area (m2)			Neck Velocity (m/s)	1.5	2.0	2.5	3.0	3.6	4.0	4.5
				Velocity Pressure (Pa)	1.5	2.5	4.0	5.5	7.8	10.0	12.5
				Total Pressure (Pa)	9.0	16.0	25.0	36.0	49.0	64.0	80.0
600x600	0.360	Flow Rate (l/s)			566.4	755.2	944.0	1,132.8	1,321.6	1,510.4	1,699.2
		NC			-	24	31	37	41	45	49
		4-way	l/s On Side		141.60	188.80	236.00	283.20	330.40	377.60	424.80
			Throw (m)		4.9-6.1-8.5	5.8-7.0-9.8	6.4-7.9-11.0	7.0-8.5-12.2	7.6-9.1-13.1	7.9-9.8-14.0	8.5-10.4-14.6
		3-way	l/s On Side		212.40	283.20	354.00	424.80	495.60	566.40	637.20
			Throw (m)		5.5-6.7-9.4	6.4-7.9-11.0	7.0-8.8-12.5	7.9-9.4-13.4	8.5-10.4-14.6	9.1-11.0-15.5	9.4-11.6-16.5
		2-way	l/s On Side		283.20	377.60	472.00	566.40	660.80	755.20	849.60
			Throw (m)		6.1-7.3-10.4	7.0-8.5-11.9	7.6-9.4-13.4	8.5-10.4-14.6	9.1-11.3-15.8	9.8-11.9-17.1	10.4-12.8-18.0
		1-way	l/s On Side		566.40	755.20	944.00	1,132.80	1,321.60	1,510.40	1,699.20
			Throw (m)		7.3-8.8-12.5	8.5-10.4-14.6	9.4-11.6-16.5	10.4-12.5-18.0	11.3-13.7-19.2	11.9-14.6-20.7	12.5-15.5-21.9

Performance Note

1. Tested in accordance with *ASHRAE Standard 70-2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets"*.
2. Blanks "-" indicate an NC level below 20.
3. Throw data is based on supply air and room air being at isothermal conditions.
4. Throw data is given in meter [m] to terminal velocities of 0.75m/s (min), 0.5m/s (middle), 0.25m/s (max).
5. Data assumes the diffuser is ceiling mounted for the maximum Coanda effect. If no ceiling is present, the horizontal throw will be reduced by approximately 20%.
6. This data to be used for quick selection only, not to be used for commissioning.