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Ice Machines & Cooling Systems

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DRUM DIFFUSER

Data Sheet

Product Data Sheet

Product Overview

The **ICEMAC Drum Diffuser (IC-DD Series)** is designed for high-performance air distribution in large or open-plan environments with high ceilings. Its cylindrical drum construction enables adjustable long-throw airflow, allowing precise directional control for supply air in retail, commercial, and industrial applications.

The series is available in two body sizes to meet different airflow demands and space constraints. Constructed from extruded aluminum, it combines aerodynamic efficiency with a robust, corrosion-resistant design. Its ability to be installed into round, rectangular, or wall-mounted ductwork makes it highly adaptable to varied HVAC layouts.

Materials and Construction

Material:
The drum diffusers are manufactured using high-grade aluminum profiles, ensuring durability, stability, and aerodynamic flow.

- **Frame and Blades:** Made from **extruded aluminum profiles**, offering excellent corrosion resistance and lightweight strength.
- **Internal Construction:** Engineered for **low pressure drop** and **quiet operation**, enabling consistent directional airflow.
- **Air Direction Control:** Adjustable drum and internal vanes enable **horizontal or vertical orientation**.

Variants:
The IC-DD Series offers two configurations optimized for specific space and airflow requirements.

- **IC-DD-S – Drum Diffuser with Small Cylindrical Body:** Compact size for efficient airflow in low or standard ceiling heights or limited ventilation zones.

- **IC-DD-L – Drum Diffuser with Large Cylindrical Body:** Suited for large-volume spaces with high ceilings, offering extended throw performance and broad airflow coverage.

Surface Finishing

Surface coatings are applied to protect the product and visually align with architectural finishes.

- **Standard Finishes:**
  - **Electrostatic powder coating** in **RAL 9010** (Pure White) or **RAL 9016** (Traffic White)
  - **Anodized aluminum** option for metallic finish and added corrosion resistance
- **Custom Options:**
  - Available in all **RAL color codes** upon request for visual integration.

Accessories

Optional accessories improve integration with system controls and duct transitions.

- **Adaptor (A):**
  Ensures tight, efficient connection between the diffuser and **round or rectangular ducts**, available in multiple sizes.

Applications

The IC-DD Series is engineered for spaces where **directional long-throw air delivery** is required with minimal noise and pressure loss.

- **Retail & Shopping Centers:**
  Delivers targeted air distribution in large atriums and open floor plans.
- **Cinemas, Auditoriums, and Theaters:**
  Provides controlled airflow across long distances without disturbing occupants.
- **Sports Halls and Exhibition Centers:**
  Maintains high-volume ventilation in elevated or large-capacity enclosures.
- **Airport Terminals, Warehouses, and Factories:**
  Ensures uniform airflow coverage in high-ceiling industrial zones with minimal obstructions.

Its aerodynamic profile and adjustability make it suitable for both comfort and ventilation-critical applications.

Assembly Options

The IC-DD Series offers flexible installation options for different duct connections and structural needs. Each method ensures secure mounting and proper directional flow.

- **Rectangular Duct Mounting:** Direct installation into rectangular supply ducts with mechanical fastening.
- **Round Duct Mounting:** Compatible with circular duct connections using adaptors.
- **Wall Mounting:** Designed for horizontal discharge applications near the ceiling plane using bracketed support.

All configurations support damper integration for volume control where needed.

Drum Diffuser Dimensions

This table allows for quick and easy selection of the appropriate diffusers

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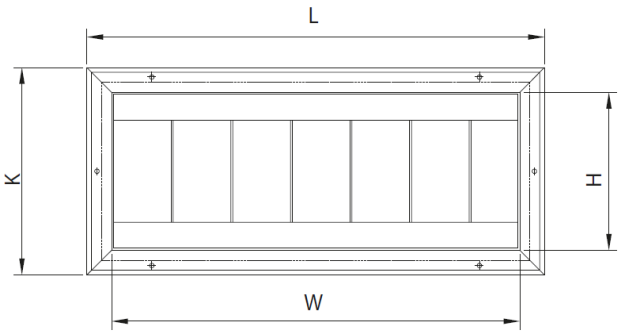
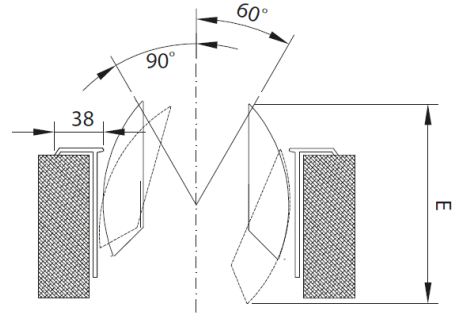
ICEMAC Drum Diffuser Dimensions and Effective Areas

The ICEMAC Drum Diffusers are produced in a range of standard sizes to accommodate diverse ceiling heights, duct configurations, and airflow requirements. These sizes are carefully selected to ensure compatibility with both round and rectangular ducts while maintaining optimal throw performance and directional control.

Below are detailed tables outlining the **dimensions, effective areas, throw distances, and pressure loss values** for both the **Small (IC-DD-S)** and **Large (IC-DD-L)** cylindrical body variants.





Drum Diffuser with Small Cylindrical Body						
Aeff (m²)	**IC-DD-S 18**	**IC-DD-S 23**	**IC-DD-S 24**	**IC-DD-S 29**	**IC-DD-S 37**	**IC-DD-S 49**
W (mm)	255	300	330	375	485	635
E (mm)			125			
L (mm)	300	360	375	435	530	680
H (mm)					160	
K (mm)						220

Drum Diffuser with Large Cylindrical Body						
Aeff (m²)	**IC-DD-L 62**	**IC-DD-L 72**	**IC-DD-L 77**	**IC-DD-L 90**	**IC-DD-L 108**	**IC-DD-L 127**
W (mm)	535	600	660	750	900	1050
E (mm)	195					
L (mm)	580	660	705	810	960	1110
H (mm)	260					
K (mm)	320					

Drum Diffusers

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ICEMAC Drum Diffuser Quick Selection Table

IC-DD-S							
V (m^3 / h)		Nominal Diameter					
		IC-DD-S 18	IC-DD-S 23	IC-DD-S 24	IC-DD-S 29	IC-DD-S 37	IC-DD-S 49
400	ueff. (m/s)	6.2					
	X(m)	6.6					
	ΔPt (Pa)	12					
	SPL (dBA)	27					
450	ueff. (m/s)	6.9	5.4	5.2			
	X(m)	7.7	6.2	6.1			
	ΔPt (Pa)	16	7	6			
	SPL (dBA)	29	23	22			
500	ueff. (m/s)	7.7	6	5.8	4.8		
	X(m)	8.7	7	6.8	6		
	ΔPt (Pa)	19	12	11	6		
	SPL (dBA)	30	24	23	21		
550	ueff. (m/s)	8.5	6.6	6.4	5.3		
	X(m)	9.4	7.5	7.3	6.4		
	ΔPt (Pa)	22	13	12	6		
	SPL (dBA)	31	25	24	21		
600	ueff. (m/s)	9.3	7.2	6.9	5.7		
	X(m)	11	8.8	8.5	7.5		
	ΔPt (Pa)	31	15	13	12		
	SPL (dBA)	32	26	25	23		
650	ueff. (m/s)	10	7.9	7.5	6.2		
	X(m)	12	9.5	9.2	7.9		
	ΔPt (Pa)	35	16	14	13		
	SPL (dBA)	34	27	26	24		
700	ueff. (m/s)	10.8	8.5	8.1	6.7		
	X(m)	13.5	11	10.5	9.2		
	ΔPt (Pa)	45	28	25	19		
	SPL (dBA)	36	29	28	25		
800	ueff. (m/s)	12.3	9.7	9.3	7.7		
	X(m)	15	12	11.7	10.2		
	ΔPt (Pa)	58	37	31	25		
	SPL (dBA)	39	30	29	27		
900	ueff. (m/s)		10.9	10.4	8.6	6.8	
	X(m)		13.5	13.2	11.3	9.5	
	ΔPt (Pa)		38	37	26	19	
	SPL (dBA)		32	31	28	25	
1000	ueff. (m/s)		12.1	11.6	9.6	7.5	
	X(m)		14.7	14	12.4	10.5	
	ΔPt (Pa)		50	48	36	25	
	SPL (dBA)		34	33	30	27	
1200	ueff. (m/s)		14.5	13.9	11.5	9	6.8
	X(m)		17.3	16.5	14.7	12.4	10
	ΔPt (Pa)		74	69	50	33	24
	SPL (dBA)		39	37	33	30	25
1400	ueff. (m/s)				13.4	10.5	7.9
	X(m)				18	15	12.5
	ΔPt (Pa)				76	48	28
	SPL (dBA)				39	35	29
1700	ueff. (m/s)					12.8	9.6
	X(m)					18	15
	ΔPt (Pa)					63	38
	SPL (dBA)					40	34
2000	ueff. (m/s)						11.3
	X(m)						18.5
	ΔPt (Pa)						60
	SPL (dBA)						41

Drum Diffusers

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ICEMAC Drum Diffuser Quick Selection Table

IC-DD-L							
V (m^3 / h)		Nominal Diameter					
		IC-DD-L 62	IC-DD-L 72	IC-DD-L 77	IC-DD-L 90	IC-DD-L 108	IC-DD-L 127
2500	ueff. (m/s)	11.2	9.6	9	7.7		
	X(m)	25	24	23	21		
	ΔPt (Pa)	44	44	41	24		
	SPL (dBA)	42	40	39	36		
3000	ueff. (m/s)	13.4	11.6	10.8	9.3		
	X(m)	29	28	27	26		
	ΔPt (Pa)	63	56	53	47		
	SPL (dBA)	46	45	44	41		
3500	ueff. (m/s)		13.5	12.6	10.8	9	7.7
	X(m)		31.6	31.2	29.2	27.1	26.1
	ΔPt (Pa)		75	72	59	41	38
	SPL (dBA)		49	48	46	42	40
4000	ueff. (m/s)				12.3	10.3	8.7
	X(m)				33	31	30
	ΔPt (Pa)				80	56	50
	SPL (dBA)				50	45	44
4500	ueff. (m/s)					11.6	9.8
	X(m)					35	33
	ΔPt (Pa)					70	63
	SPL (dBA)					48	47
5000	ueff. (m/s)						10.9
	X(m)						36
	ΔPt (Pa)						75
	SPL (dBA)						50

Aeff (m^2): Effective area
Ueff (m/s): Effective velocity
V (m^3/h): Air flow rate
ΔPt (Pa): Total pressure drop

X (m): Throw distance in the comfort zone
SPL (dBA): Sound Level