



Ceiling Diffusers

IOTA R



At Gerhman we are driven by a strong desire to continuously generate improvements. We do that by developing products and systems that are easy to use and energy efficient, together with industry-leading knowledge, support, logistics and efficient availability.



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Ceiling Diffusers

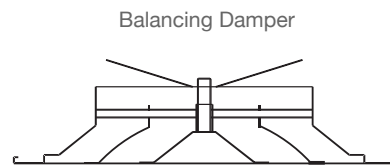
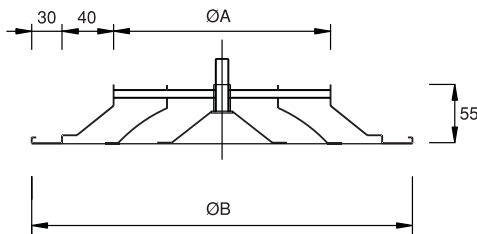
IOTA R



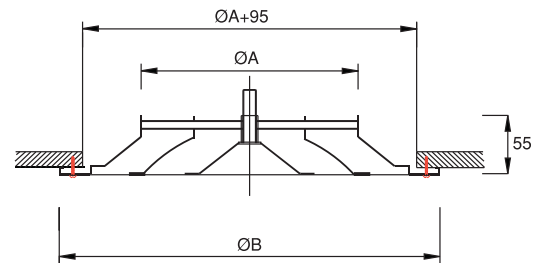
IOTA R round ceiling diffusers are compatible with low and medium pressure ventilation systems as well as A/C air supply and exhaust ducts. Aerodynamically designed blades provide a tight horizontal pattern that maintains stability even at low airflow rates. Excellent for architectural applications.

- Recommended for spaces with a maximum ceiling height of 4 - 6 m.
- Easy-to-install
- The diffuser vanes can be removed (Optionally)
- 360-degree pattern, horizontal to vertical pattern change
- Frame and inner cores: High quality steel construction
- Rear dampers steel sheet with black matt finish. (Optionally)

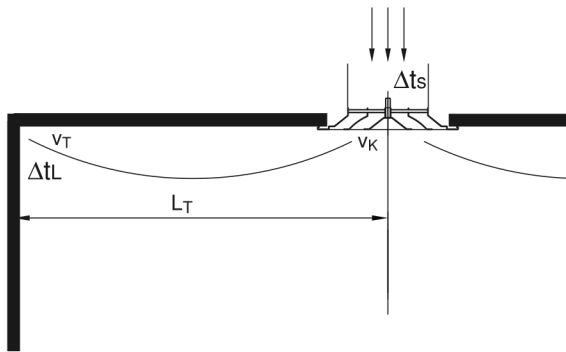
Sizes



Size	150	200	250	300	350	400	450	500	550
ØA	150	200	250	300	350	400	450	500	550
ØB	290	340	390	440	490	540	590	640	690

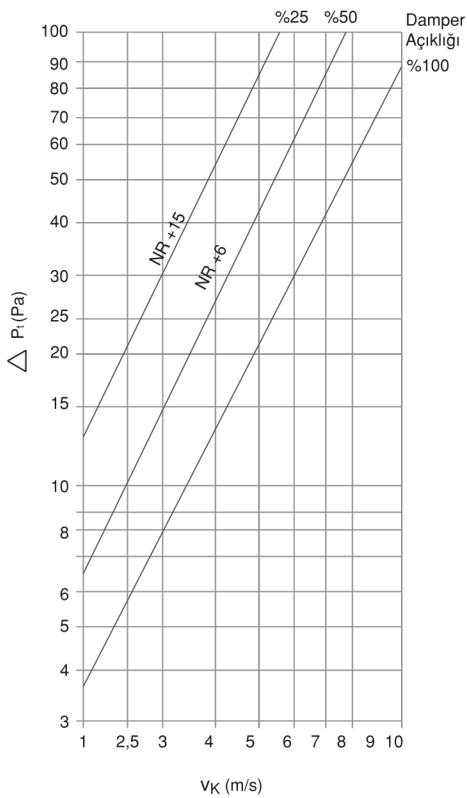


Performance Data

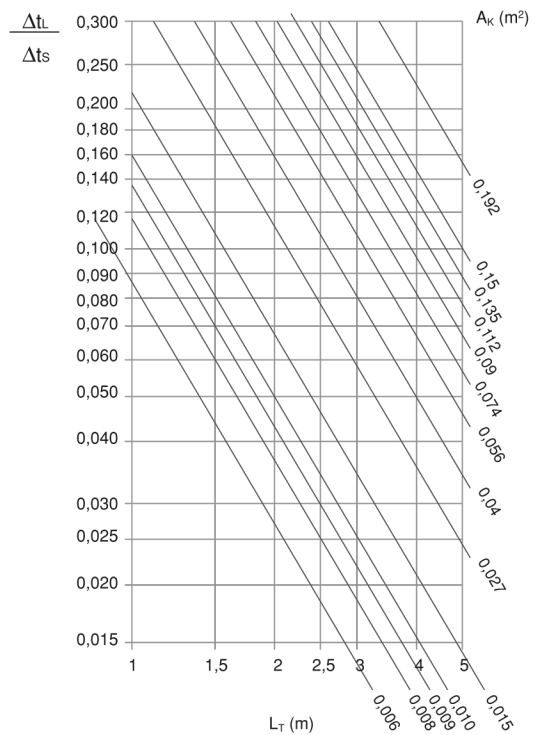


- V (m³/h) : Air volume
- ΔPt (Pa) : Pressure drop
- v_K (m/s) : Supply velocity
- A_K (m²) : Effective area
- L_T (m) : Horizontal flow distance
- v_T (m) : Velocity at comfort zone
- NR : Sound power level

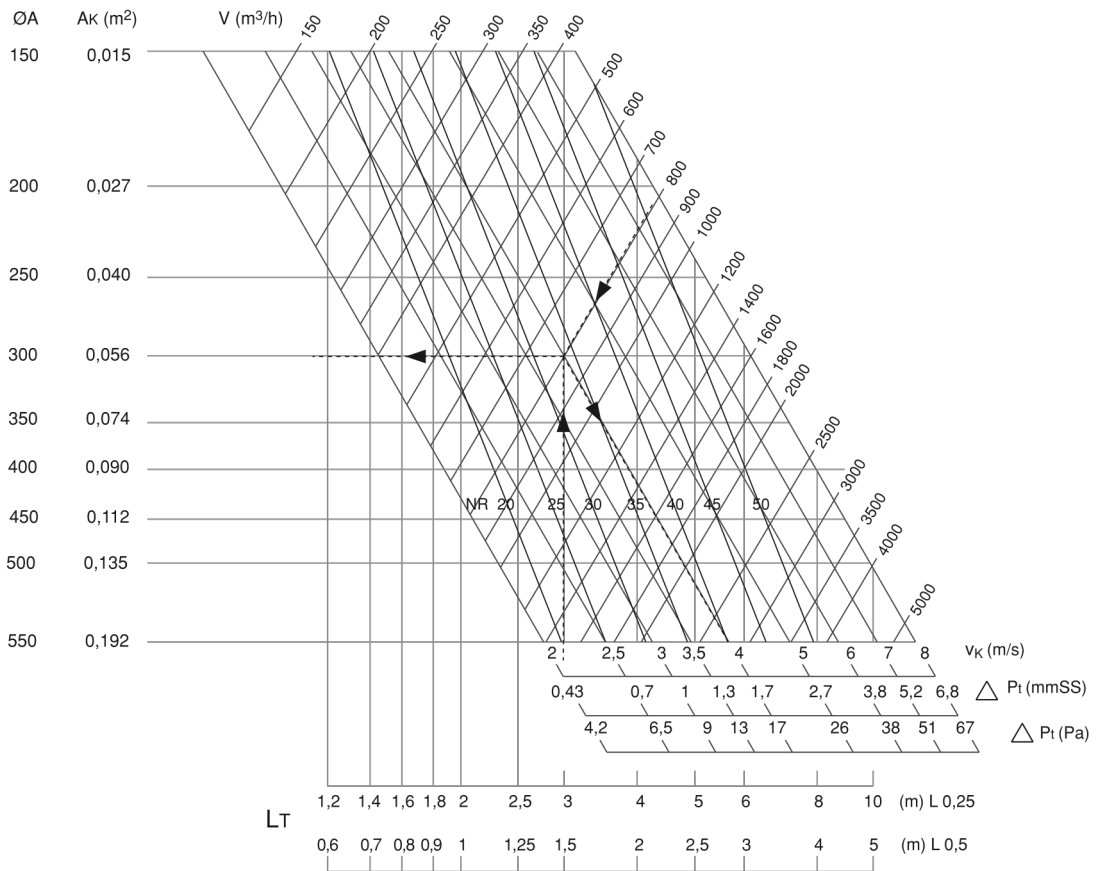
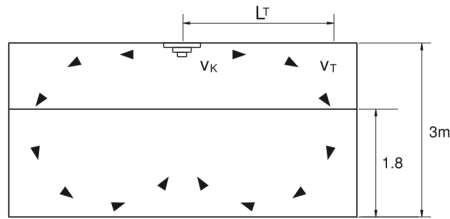
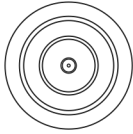
Pressure drop and sound power level



Thermal diagram



Performance Data



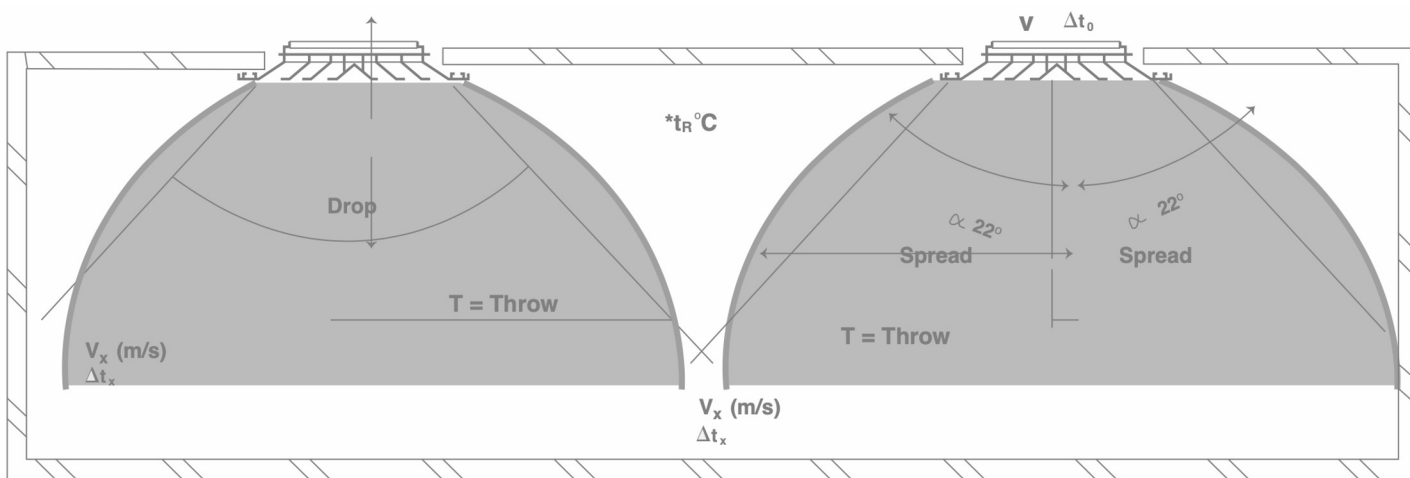
Engineering and Performance Data

Notes on Selection

Throw data are based on terminal velocities (V_t) at the ceiling for supply air temperatures of 11°C below room temperatures. To determine throw for isothermal and ± 11 °C temperature differential, use factors in following table.

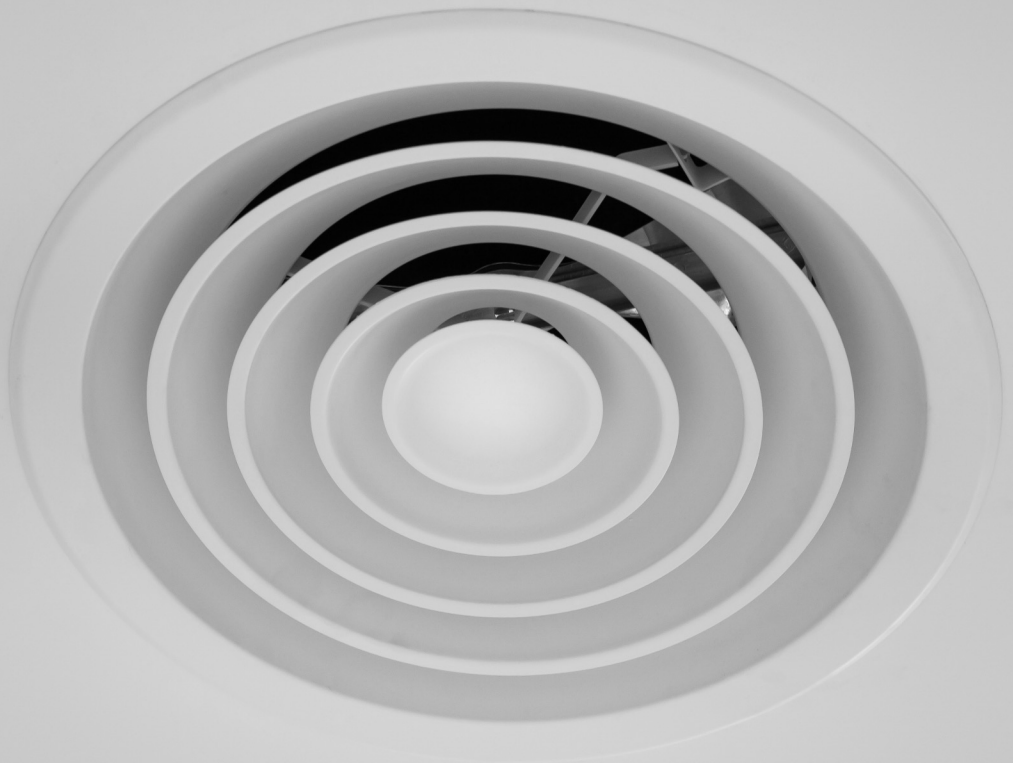
V_t m/s	Isothermal air flow	$dt = 11^\circ\text{C}$
0,75	1	1,00
0,5	1,05	1,10
0,25	1,11	1,22

Maximum throw show is based on a V_t of 0.25 m/s, and minimum throw on a V_t of 0.75 m/s. With diffusers mounted on a 2.7 m high ceiling and supplying air at 11°C below room temperature, the approximate average room velocities will be 0.175 m/s and 0.33 m/s respectively.



Air diffusion without side wall effect

- When two diffusers are discharging air towards each other, selection should be based on the diffuser size which will produce the required throw (one half the distance between diffuser centers) within the medium to maximum throw range at the air volume requirements.
- When diffusers are mounted on an exposed duct, or used with drop collars, the throw is decreased by approximately 40%. Air will be discharged downwards at an angle of approximately 20° from the horizontal. Horizontal air thrown can be obtained by extending a surface minimum of 300 mm beyond the periphery of the diffuser.
- For heating application, maximum mounting height is 3.7 metres at 16.5°C temperature differential with returns mounted at or near floor level.
- NC data are measured at a location from the diffuser of 1.5 metres and 45° angle from the face with an allowance of 10 dB for room effect and for diffusers without dampers or with dampers fully open. A blank space indicates no significant sound.
- Dampers fitted to diffusers are intended for fine balancing purposes. Excessive dampening to overcome high duct pressures will result in an increased sound level of approximately 8dB per doubling of pressure drop.



Engineering and Performance Data

Air Distribution

For ceiling diffusers, in addition to air flow, air throw and induction characteristics are the principle actors for selection.

The induction factor and the throw can be adjusted by the individual internal setting blades for slot diffusers but they are mostly fixed for ceiling diffusers.

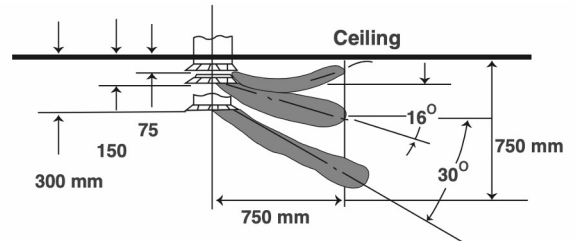
For such reason, the selection of ceiling diffuser must be made with precision, taking into consideration, the following procedure:

- Calculate the total air flow for the specific area.
- Locate diffusers uniformly and co-ordinate with lighting fixtures.
- Find maximum air flow rate per side of diffuser.
- Control the total air flow rate permissible per diffuser.
- Select the number of supply and return diffusers.
- Control sound level for the type of application.
- Select the size of diffusers from the air flow data and recontrol the horizontal throw of the selected diffusers.

Engineering and Performance Data

Ceiling Effect

Performance data as published in this catalogue is based on the diffuser being mounted at the ceiling. The published performance for the directional air pattern benefits from the ceiling coanda effect. When the diffuser is mounted remote from the ceiling, the air patterns to be anticipated are illustrated in Figure.



Sound data

- NC values are based on a room absorption of 10 db, re 10-12 watts.
- Performance data as tabulated is for supply air applications.
- Performance data assumes that IOTA R is mounted on the ceiling for maximum ceiling effect.
- When no ceiling effect is present, the horizontal throw will be reduced approximately by 25%.



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