

Product description

MTC-400 – Reactive supply air diffuser [fixed underplate]

Introduction MTC-400

MTC, like MTN, is a self-activating reactive air diffuser intended for demand-controlled ventilation. The variable airflow is evenly distributed over a number of diffusers, all of which are served by one common damper on the supply air duct.

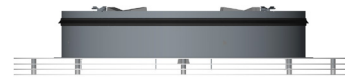
- It is used together with Lindinvent's duct-mounted room climate control unit DCV-RC.
- It has a fixed underplate, which means that with zero flow the diffuser has a profile against the ceiling that is similar to the active diffuser TTC.
- It is intended for larger premises with a low requirement for flexibility, such as educational premises, large conference rooms, open-plan offices, restaurants, foyer areas etc.
- It can handle low and high flows (up to 115 l/s at 30 dBA) with under-temperature air (down to 15°C) while maintaining the recirculation of room air.
- Like the active diffuser TTC, it is equipped with moving slots. The opening of the diffuser (height of the slots) is changed reactively in response to pressure changes and thereby the air flow in the supply air duct,.

Function

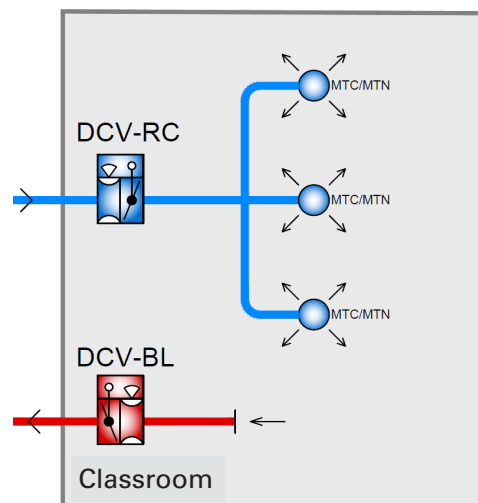
With the variable air flow, the height of the diffuser's slots is adjusted. As a result of the variable opening (slot height), air speed is maintained from the edge of the diffuser even at low flow levels, so that no downdraughts occur. The air is diffused along the ceiling with a strong injection of air from the room, which means that after only 1.5 metres the air stream will have reached room temperature.



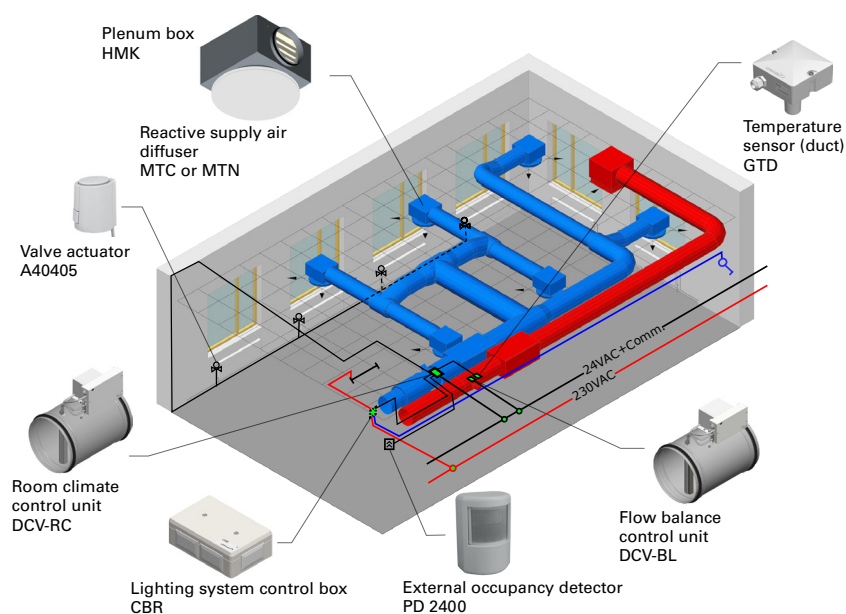
MTC - Reactive supply air diffuser.



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Functional chart for DCV-RC with MTC and DCV-BL.



Type solution - Open-plan with MTC.

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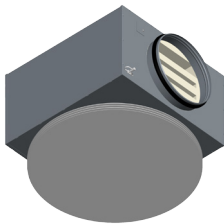
Installation options

MTC, like MTN, is mounted in a dropped ceiling via plenum box HMK or as a free hanging diffuser using plenum box HMR. The plenum boxes are of the same type used for active supply air diffusers, which makes it possible to change to active diffusers if the room structure is changed.

Adapter DAB or DAS can be used as an alternative to a plenum box. DAB is used for mounting directly in a rectangular channel. DAS is used for mounting directly in a circular channel.

Lindinvent's devices are mounted via bayonet mounting.

Examples of MTC mounting and flow distribution



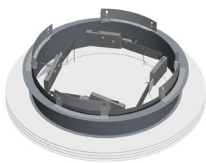
Mounted in plenum box HMK-250/400.

- HMK is equipped with a pressure drop mat with detachable plugs which is used when flow equalization between diffusers is required. The carpet sits in the inlet to the plenum box.



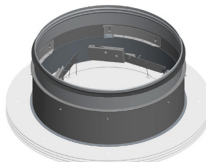
Mounted in plenum box HMR-250/400.

- HMR is equipped with a manually adjustable damper in the inlet to the plenum box which can be adjusted when flow equalization is needed.



Mounted via DAB-400.

- When mounting with DAB, a separate manually adjustable damper is used when flow adjustment is needed.



Mounted using DAS-400. This solution can be used to extend the outlet of plenum box HMK.

- When mounting is done via DAS, without a plenum box, a separate manually adjustable damper is required for airflow adjustment.

Throw length reduction

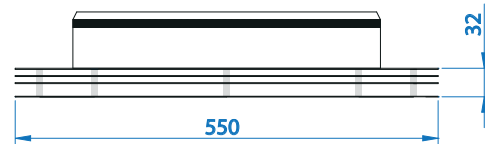
The throw length from a device can be reduced via a spacer which mechanically prevents opening in a certain direction. A description of the procedure for flow equalization and reduction of throw length can be found in the operating instructions for MTC.

Technical specifications MTC

General

Dimensions (mm)

The dimensions of MTC-400 appear in the illustration below. For plenum box dimensions, see the product descriptions for HMK and HMR respectively.



MTC with width and height in mm when mounted in the ceiling.

Material

Powder coated aluminium and steel plate.

Colour

Standard: RAL9003; Gloss 30

Other colours may be specially ordered.

Weight

5.4 kg.

Air flow

Flow area: Up to 115 l/s at 30 dB(A). Limits depending on sound requirements according to Diagrams 1 and 2.

Pressure, flow and sound levels

See page 3.

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Pressure, flow and sound levels

Sound pressure levels L_{PA} in diagrams 1 and 2 correspond to A-weighted sound level in the reverberation zone with 10 m² equivalent sound absorption area. This corresponds to 4 dB room absorption in a room with normal absorption and a volume of 25 m³. Note the examples of corrections for other types of room in table 2.

Sound effect level/octave band $L_w = L_{PA} + K_0$ [dB]
 L_{PA} = Sound pressure level [dB(A)] (Diagram 1 and 2)
 K_0 = Correction factor/octave band [dB] (Table 3)

Self-damping according to table 4-6.

The measurements have been performed according to ISO 9614-2 and ISO 691:1995.

Diagram 1 Flow, pressure and sound level for MTC-400 and HMK with different initial HMK inserts adjustment positions.

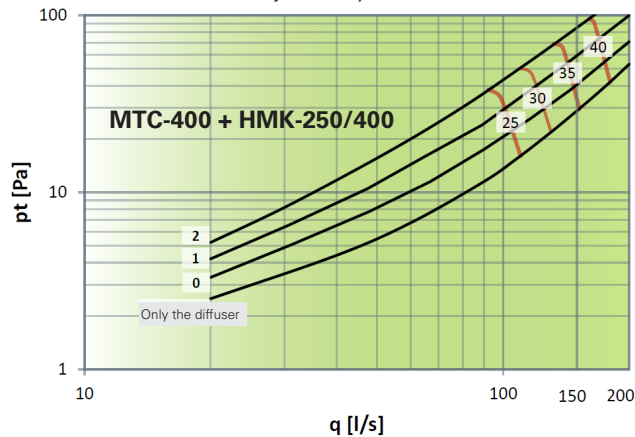


Diagram 2 Flow, pressure and sound level for MTC-400 and HMR.

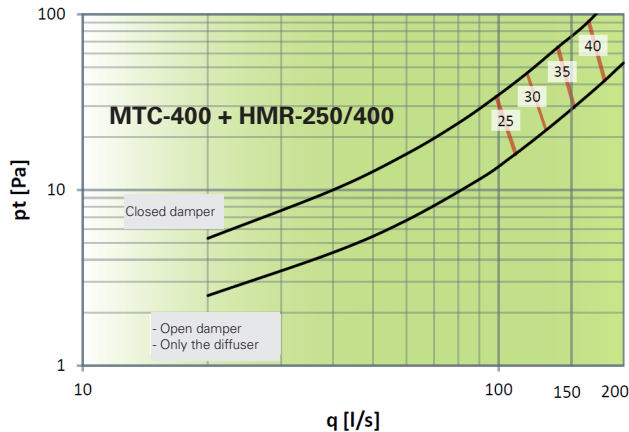


Table 1: Tolerances [dB]

MTN	Octave band [Hz]							
	63	125	250	500	1K	2K	4K	8K
400	3	3	2	2	2	2	2	2

Table 2: Correction for room damping [dB]

Room volume	Type of room	Correction
25 m ³	hard room	+2 dB
25 m ³	normal room	0 dB
25 m ³	damped room	-2 dB
150 m ³	hard room	-3 dB
150 m ³	normal room	-5 dB
150 m ³	damped room	-7 dB

Table 3: Correction factors, K_0 [dB]

MTN	Octave band [Hz]							
	63	125	250	500	1K	2K	4K	8K
400	11	12	5	0	-2	-5	-12	-15

Table 4: Self-damping [dB]
MTC with plenum box HMK.

MTN +HMK	Octave band [Hz]							
	63	125	250	500	1K	2K	4K	8K
400	16	12	22	22	23	20	24	25

Table 5: Self-damping [dB]
MTC with plenum box HMR.

MTN +HMR	Octave band [Hz]							
	63	125	250	500	1K	2K	4K	8K
400	12	7	15	12	14	14	16	18

Table 6: Self-damping [dB]
Only diffuser part MTC mounted
with transformer DAB or DAS.

MTM	Octave band [Hz]							
	63	125	250	500	1K	2K	4K	8K
400	18	16	12	13	14	12	15	18

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Additional product documentation MTC

Table 6: Additional documentation for MTC can be obtained via links on the product's website under Products at www.lindinvent.se

Document	Available	Not available	Comments
Installation Instruction	●		Combined installation instruction for MTC and plenum boxes HMK and HMR.
Start-up instruction	●		Instructions on air flow distribution between diffusers.
Maintenance instruction		●	Regarded as maintenance-free
External connection diagram		●	Not applicable
Environmental product declaration	●		Assessed by Byggsvarubedömningen and Sundahus
User information		●	Not applicable
Modbus list		●	Not applicable
AMA text	●		

Product documentation can be downloaded via
www.lindinvent.se/produkter/



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The company offers products and systems for controlling ventilation, lighting, solar shading and local utilization. Equipment and climate solutions are being developed for offices, schools, hospitals, laboratories and similar working environments. Lindinvent's systems work together to provide high indoor comfort and the lowest possible energy use.