Difair

Serie
DF10TR



MOTORIZED LINEAR
DIFFUSER

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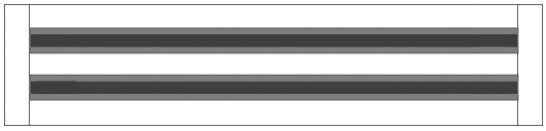
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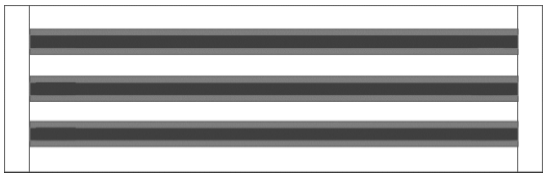


MODELS

DF10TR (L x 2-slots)
Motorized linear diffuser with adjustable blades, L (mm) x 2-slots.



DF10TR (L x 3-slots)
Motorized linear diffuser with adjustable blades, L (mm) x 3-slots.



DESCRIPTION

The new zone control and home automation systems allow for individualized temperature control of different zones using a single HVAC unit, thereby increasing comfort in each room. These systems reduce the unit's operating time, extending its service life and providing energy savings. The motor operates completely silently, promoting rest and comfort when the grilles are installed in bedrooms or offices.

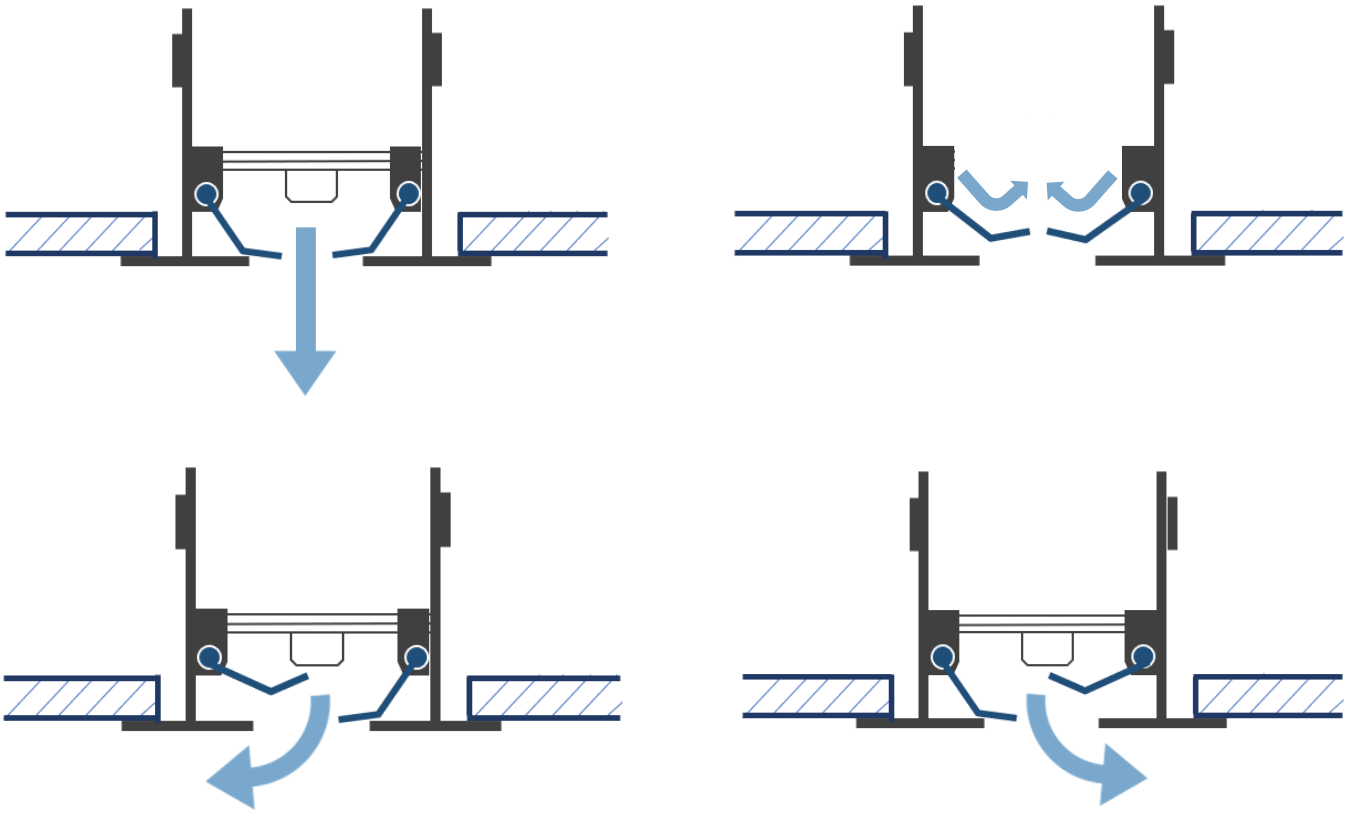
DIFAIR's exclusive **DF10TR** diffusers can be integrated into any existing control system on the market, since all they require to operate is a **220 V** or **24 V** power supply to open them. This system can range from a simple switch to the most complex home automation system on the market.

APPLICATIONS

A motorized linear blade diffuser designed specifically for ceiling-mounted installation; it can be used to direct the airflow horizontally or vertically depending on the ceiling height and temperature difference.

Its design and the configuration of its ducts allow for great flexibility in adjusting the air inlet positions.
Easy to mount on the ceiling for plenum return.

AIRFLOW DIRECTION



ACCESSORIES

- **PLENUM BOX** (View the **PLENUM SERIES** technical data sheet).

FINISH (Diffuser)

- Diffuser made of ANODIZED ALUMINUM**.**
- Diffuser made of WHITE-LACQUERED ALUMINUM.
- On request, it can be manufactured in aluminum painted in other colors from the **RAL** color chart.

FINISH (Blades)

- BLACK-PAINTED aluminum blades (**STANDARD**).
- Aluminum blades PAINTED WHITE.
- On request, aluminum blades can be manufactured and painted in other colors from the **RAL** color chart.

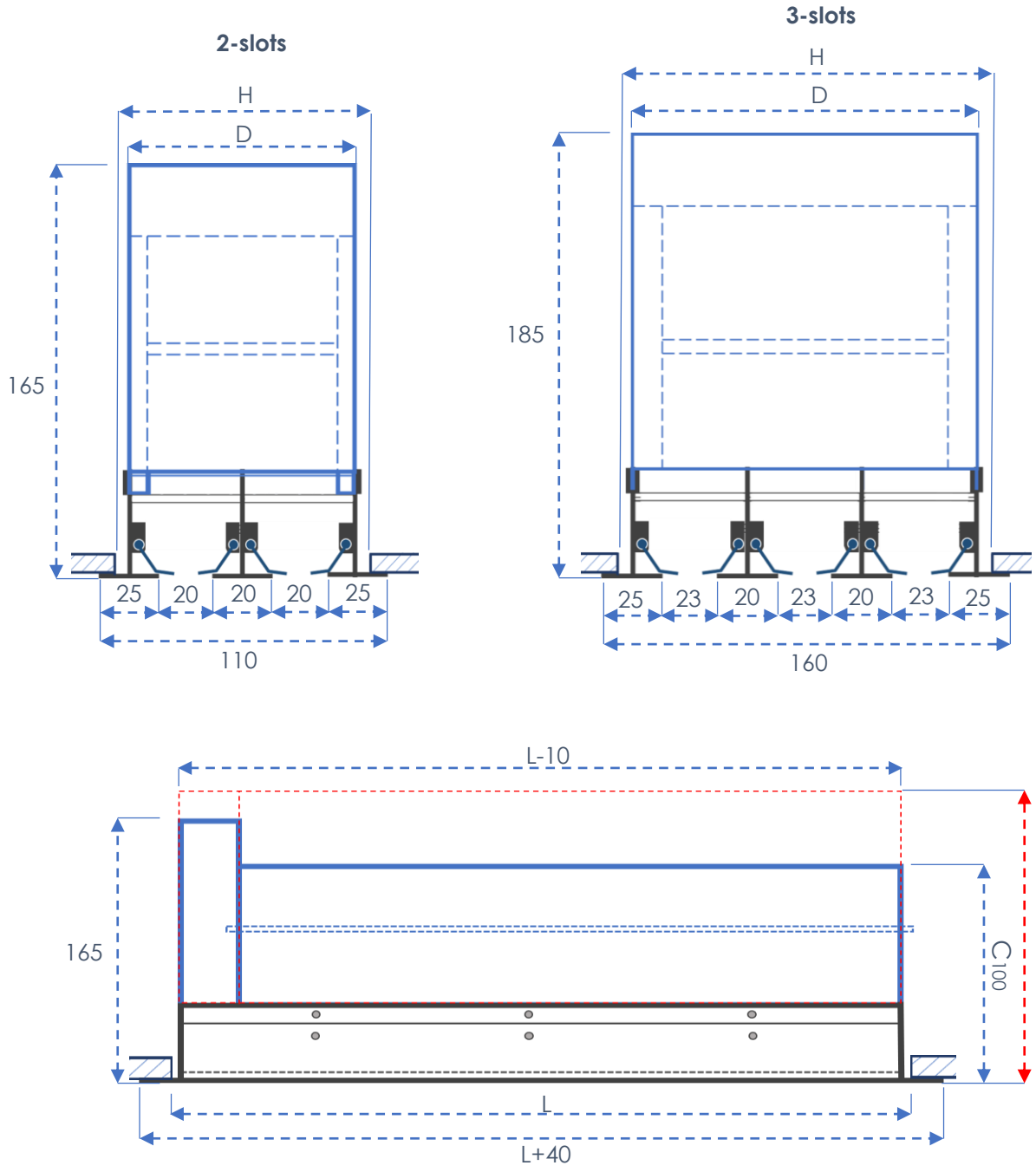
CONSTRUCTION FEATURES

2-slots or 3-slots diffuser constructed of anodized or painted aluminum, with motorized adjustment consisting of a frame made of aluminum or sheet steel painted with black epoxy paint. A single natural aluminum blade with built-in rubber gaskets to ensure optimal airtightness in this type of installation. Highly durable brass bushings.

It incorporates a low-power, thermosilicon-coated electrical device. This gate/damper control mechanism is an exclusive DIFAIR design that makes no noise when activated (only the sound of air flowing through it can be heard).

CONSIDERATIONS:
To achieve zone-by-zone temperature control, any supply grille in an HVAC system may be replaced with one from this series (DF10TR), provided that, if the grilles being replaced account for more than 60% of the system's total airflow, a weighted overpressure damper (**RCSLP** SERIES) must be installed to divert the excess airflow back to the unit's return duct, thereby preventing noise and/or potential duct damage caused by excess pressure.

DIMENSIONS



	SIZE	H (mm)	C (mm)	D (mm)
DF10TR	L x 2 Vías	95	C_{100} = 135	C_{100} = 87
DF10TR	L x 3 Vías	145	C_{150} = 185	C_{150} = 135

L x H → Nominal Size = Hole Size

Dimensions may be provided in L x H, with a maximum of 1,200 x 2-slots and a minimum of 300 x 2-slots.

TECH. SPECIFICATIONS OF THE THERMOACTUATOR MOTOR

Unless otherwise specified, the following characteristics must be verified at room temperature = **25 ± 5°C** and relative humidity = **45–75%**.

- **CORROSION RESISTANCE OF METAL PARTS**
  According to **UNE-EN-60335-1**, section **31**.

- **HUMIDITY RESISTANCE**
  Degree of protection against water ingress: **IP 00** (unprotected, per **IEC 60529**). Resistance to humid conditions: per **UNE-EN 60730-2-14**, Section **12.2** (Part **2-14** – Section **12.2**). Although the "silicone-molded" actuator does not have a higher IP rating, it can operate under severe environmental and relative humidity conditions (see **2.2** Operating Conditions).

- **HEAT AND FIRE RESISTANCE**
  According to **UNE-EN-60730-2-14**, Section **21** (Part **2-14** – Section **21**). The plastic materials of the thermoactuator that come into contact with the active parts are classified as **V0** self-extinguishing (**0.8 mm**) according to **UL94**. The thermoactuator also successfully passes the **140°C** ball test, **ref. UNE-EN-60335-1**, section **30.1** (Part **1** – Section **30.1**).

- **RESISTANCE TO SURFACE CURRENTS**
  According to **UNE-EN 60730-2-14**, section **21** (Part **2-14** – section **21**), the plastic materials of the thermoactuator that come into contact with live parts are guaranteed to have a **PTI 250** resistance to surface currents, in accordance with **IEC 60112**.

ELECTRICAL CHARACTERISTICS

- **POWER SUPPLY VOLTAGE**
  Available power ranges**:**
  -110/240 V_{AC} a 50/60 Hz.
  -12/24 V_{AC} a 50/60 Hz.
  -12/24 V_{DC}.

- **ENERGY ABSORPTION:**
  Power absorption under steady-state conditions after 300 seconds of operation.

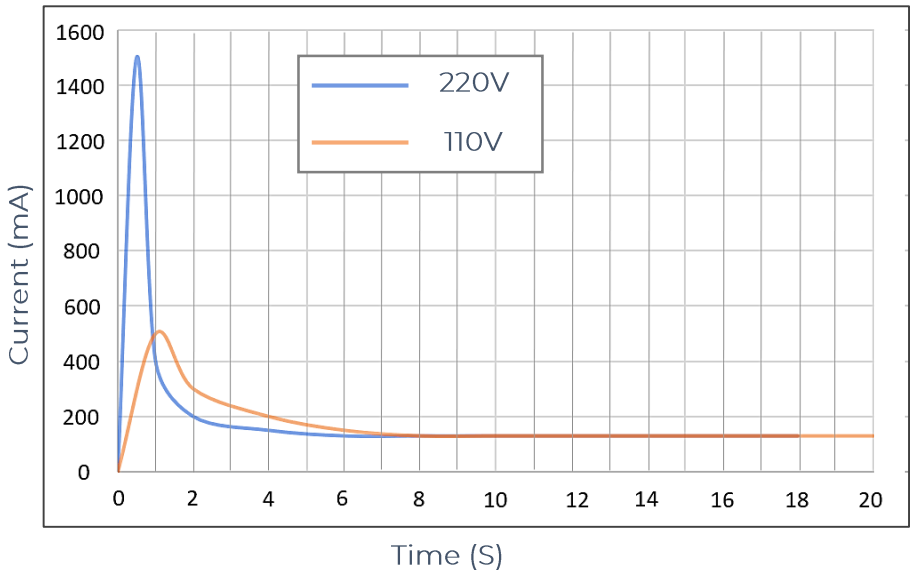
12/24 V	110V	220V
2.8 ± 1W	5.8 ± 1W	5.5 ± 1W

- **INTENSITY-TIME CURVE CHARACTERISTICS**

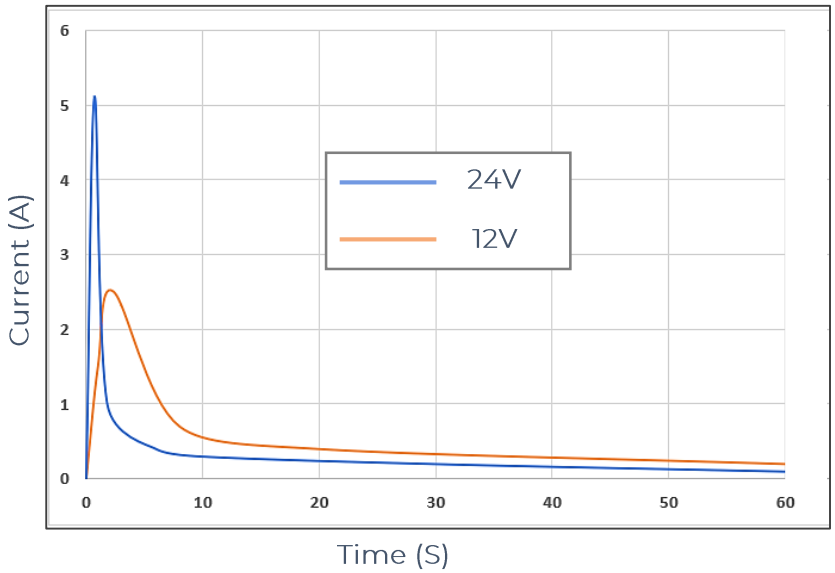
  A diagram illustrating the variation in current absorption over time. The curves are categorized by thermoactuator type and voltage.

  The diagram was obtained under the following conditions:
  - thermoactuators energized for more than 5 minutes;
  - no counteracting load;
  - ambient temperature of 25°C.

CURRENT ABSORPTION FOR 110-220V MOTOR



CURRENT ABSORPTION FOR 12-24 Vdc MOTOR



ENERGY CONSUMPTION PER MOTOR

MODEL	Consumption:			
	Peak consumption up to 120 s		Stable consumption starting at 120 s	
DF10TR-220V	110 V	0,5 A	110 V	0,05 A
	220 V	1,5 A	230 V	0,03 A
DF10TR-24V	12 VDC	2,4 A	12 VDC	0,25A
	24 VDC	5 A	24 VDC	0,15 A

MODEL	Available voltage supply range:
DF10TR-220V	110 ÷240 VAC a 50 ÷ 60 Hz.
DF10TR-24V	- 12 ÷ 24 VAC a 50 ÷ 60 Hz - 12 ÷ 24 VDC

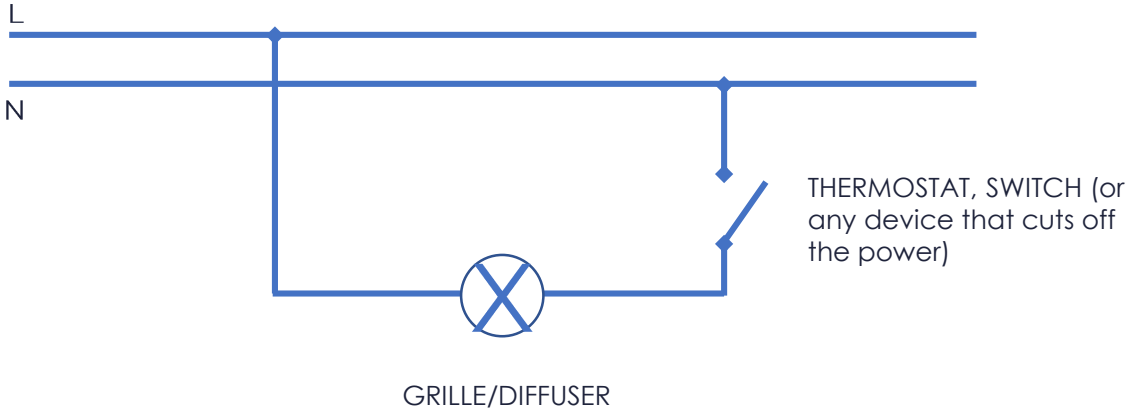
Note: The DF10TR SERIES motorized diffusers are manufactured in a standard 220V configuration; therefore, unless otherwise specified at the time of ordering, they will be supplied at this voltage.

NUMBER OF MOTORS PER GRILLE BASED ON SIZE

	300	400	500	600	700	800	900	1000	1200
2-slots	1	1	1	1	2	2	2	2	2
3-slots	1	1	1	1	2	2	2	2	2

Note: When calculating electricity consumption, take into account the number of motors per diffuser

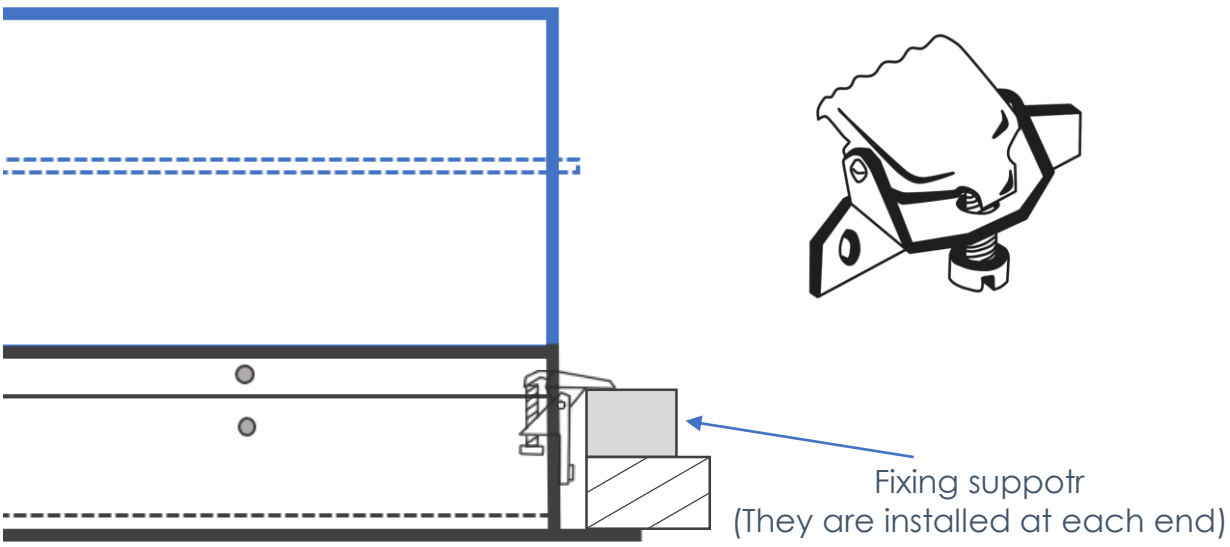
CONNECTION DIAGRAM

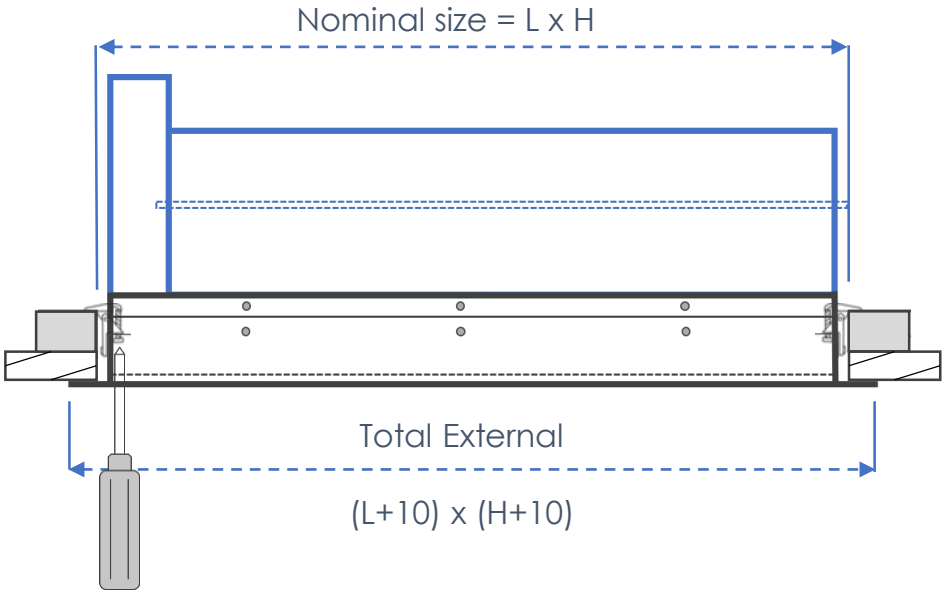


FIXING SYSTEM

GRILLE INSTALLATION WITH HIDDEN FIXING

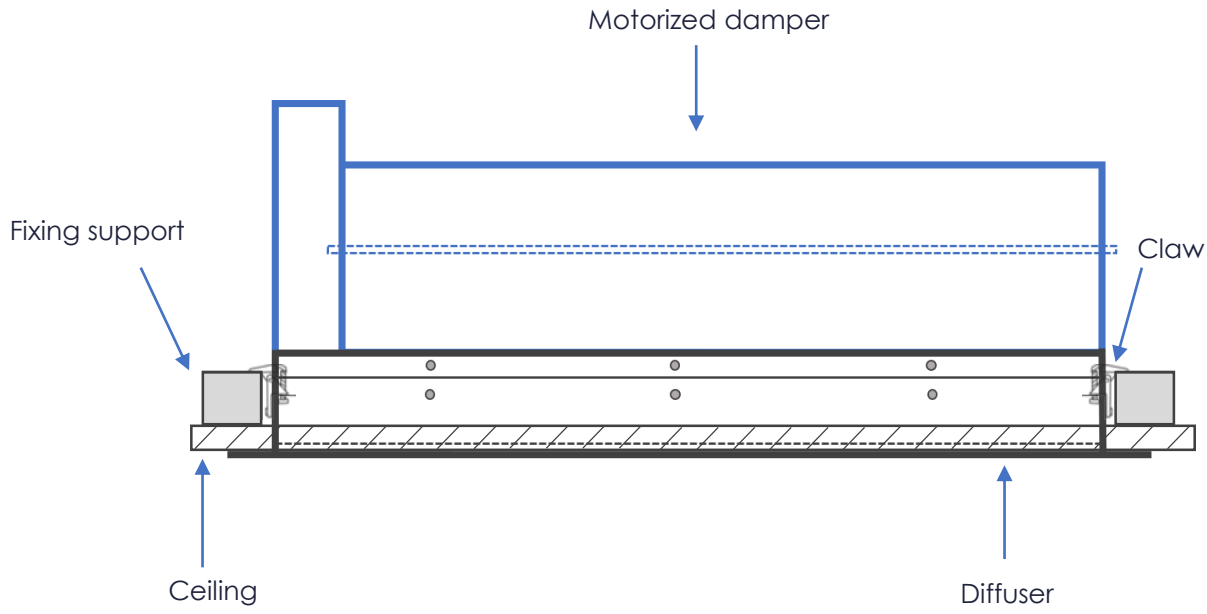
By turning the indicated screw with a screwdriver, the tab is pressed against the mounting support (which is 15 mm thick; when added to the 15 mm thickness of the drywall, this provides the 30 mm of height the clip needs to secure itself), thus holding the grille firmly in place. To remove the grille, simply loosen the screw; the steel spring will return the claw/clamp to its horizontal position.

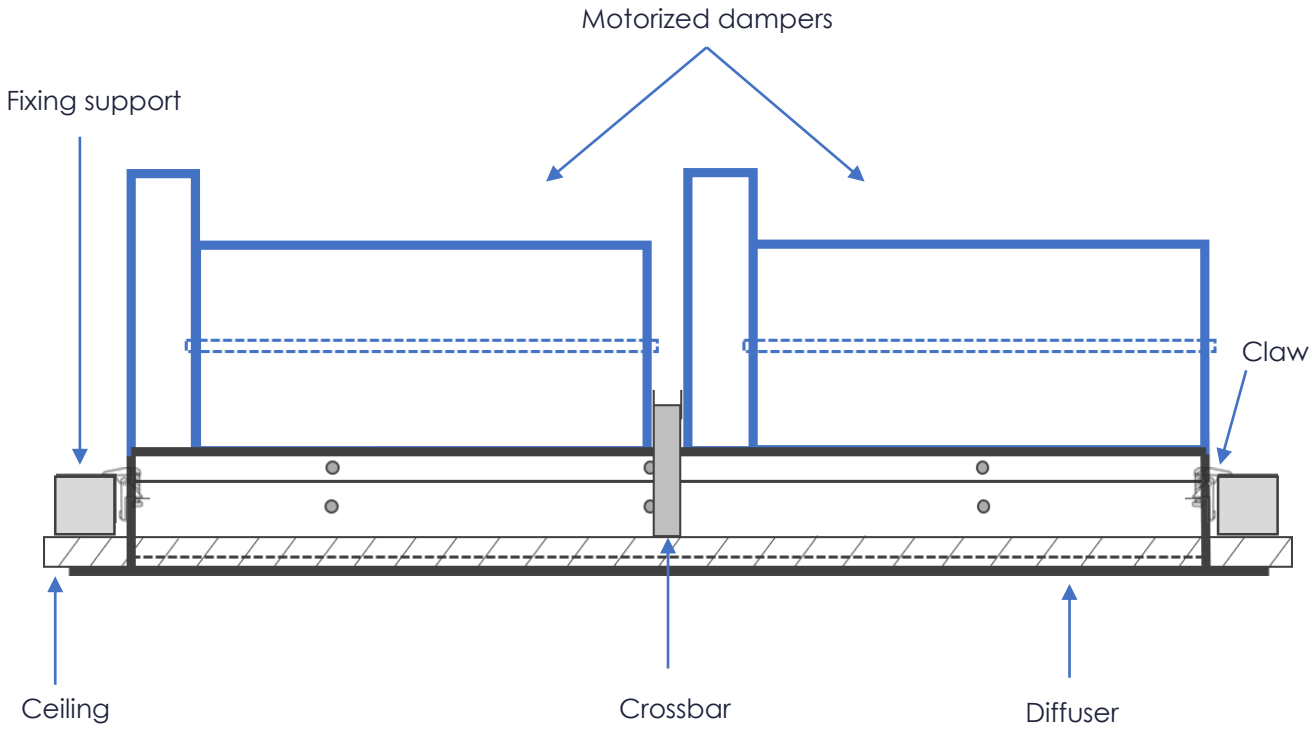




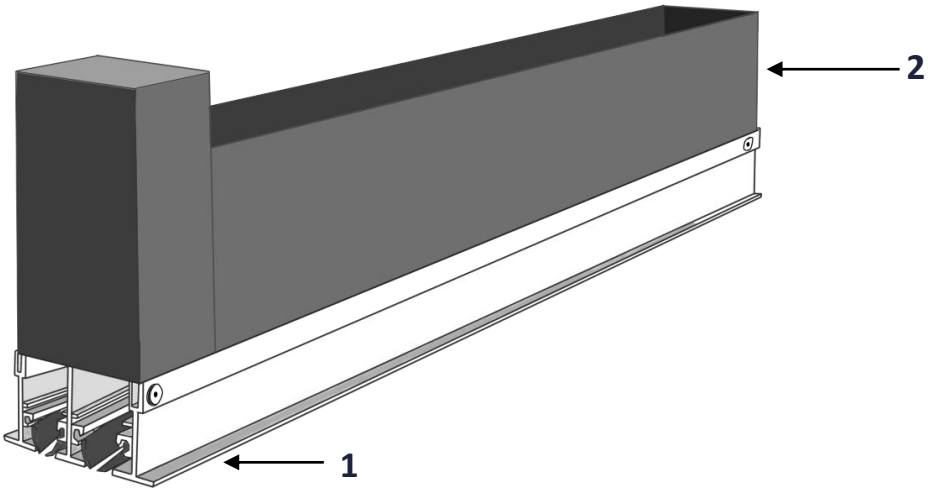
Mounting crossbar

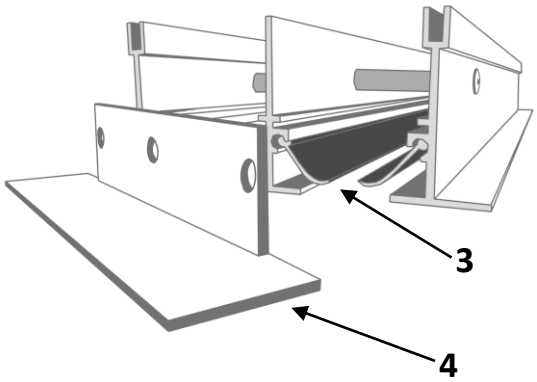
Note: For diffusers with L > 600 mm, two motorized dampers will be supplied, and a space will be left between the dampers in which a mounting crossbar will be installed to support the weight of the diffuser.

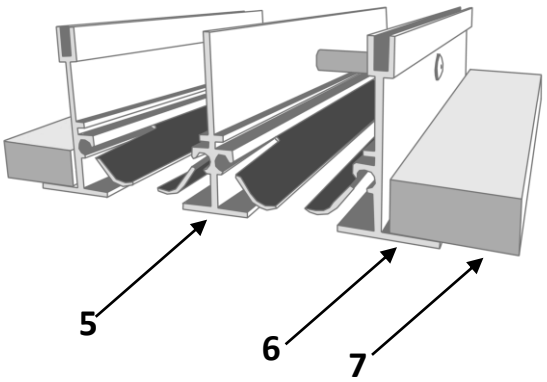




INSTALLATION DETAILS







1. Diffuser
2. Motorized damper
3. Blades
4. Pair of end caps
5. Center profile
6. Side profile
7. Ceiling

QUICK SELECTION TABLE

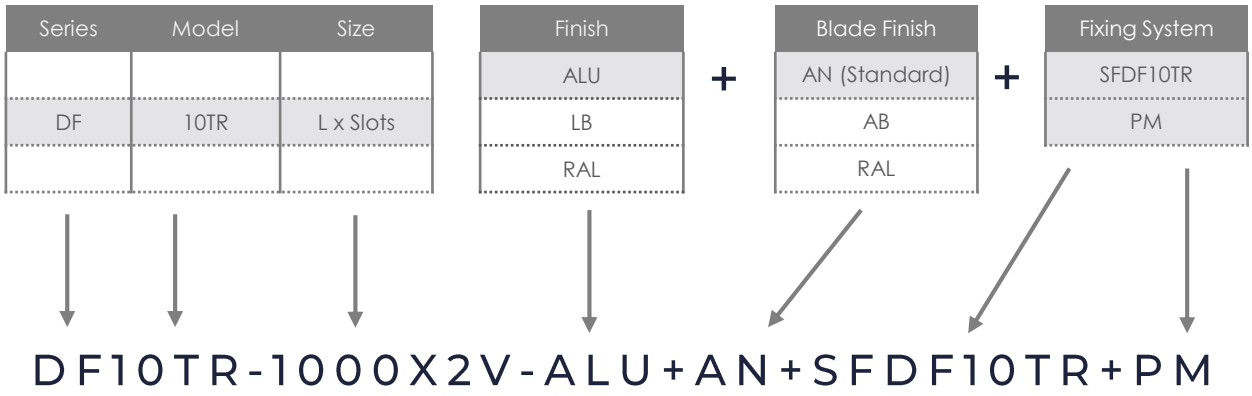
HEIGHT		LENGTH											
3-slots				300	350	400	450	500	600	700	800	1000	1200
2-slots		300	400	500	600	700	800	900	1000	1200			
m³/h													
80	Ve	4.6	3.8	2.8									
	Alc	3.1	2.8	2.2									
	dB(A)	2.2	1.7	1.2									
	Δ P	24	<15	<15									
100	Ve	5.8	4.7	3.5	2.9								
	Alc	3.8	3.2	2.6	2.3								
	dB(A)	3	2.4	1.5	1.3								
	Δ P	31	25	<15	<15								
120	Ve	7	5.6	4.2	3.5	3.1							
	Alc	4.1	3.6	3.1	2.6	2.4							
	dB(A)	4	2.7	1.8	1.5	1.4							
	Δ P	>35	31	22	<15	<15							
160	Ve		7.1	5.6	4.5	4.1	3.8	3.2	2.8				
	Alc		4.1	3.6	3.1	2.9	2.8	2.4	2.2				
	dB(A)		4.1	2.7	2.2	1.9	1.7	1.4	1.2				
	Δ P		>35	31	23	20	<15	<15	<15				
200	Ve			6.9	5.7	5.2	4.7	4.1	3.5	2.9			
	Alc			4.1	3.6	3.4	3.2	2.9	2.6	2.3			
	dB(A)			3.9	2.9	2.7	2.4	1.9	1.5	1.3			
	Δ P			>35	31	28	25	20	<15	<15			
250	Ve				7.1	6.5	5.8	5.1	4.3	3.6	3.2		
	Alc				4.2	4	3.8	3.5	3.2	2.7	2.4		
	dB(A)				4.1	3.6	3	2.5	2	1.6	1.4		
	Δ P				>35	>35	31	27	21	<15	<15		
300	Ve						6.7	5.9	5.2	4.2	3.8	3.0	
	Alc						4	3.7	3.4	3	2.8	2.4	
	dB(A)						3.8	3.2	2.6	1.9	1.7	1.4	
	Δ P						>35	>35	28	20	<15	<15	
400	Ve								6.9	5.7	5.2	4.1	3.5
	Alc								4.1	3.6	3.4	2.9	2.6
	dB(A)								3.9	2.9	2.7	1.9	1.5
	Δ P								>35	31	28	20	<15
500	Ve									7.1	6.5	5.1	4.3
	Alc									4.2	4	3.5	3.2
	dB(A)									4.1	3.6	2.5	2
	Δ P									>35	>35	28	21
600	Ve											5.9	5.2
	Alc											3.7	3.4
	dB(A)											1.3	2.6
	Δ P											>35	28

Alc = For a residual speed of 0.5 m/s.

dB(A) = Noise level with open blades and no damper.

ΔP = Static pressure drop mm.ca.

MOTORIZED LINEAR DIFFUSER
SERIE DF10TR



DESCRIPTION

SERIES

- DF: Linear diffuser.

MODEL

- DF10TR: Linear diffuser with motorized damper.

SIZE (mm)

- LxV: 1000mm x 2-slots.

FINISH

- Alu: Anodized aluminum.

BLADE FINISH

- AN: Black blades (standard).

FIXING ACCESSORIES

- SFDF10TR: Fixing support for DF10TR.
- PM2V: Mounting crossbar for 2-slots DF10TR.

Order example: DF10C 1000x2-slots ALU+AN+SFDF10TR+PM

- To order a 1000x2-slots motorized linear diffuser made of anodized aluminum with black blades, a fixing support, and mounting crossbar, you should request:

Order	Description
1 Diffuser DF10TR 1000x2V-Alu-AN	1000x2-slots motorized linear diffuser made of anodized aluminum with black blades.
2 Fixing system SFDF10TR	Fixing support for 2-slots diffuser DF10TR.
1 Crossbar PM2V	Mounting crossbar for 2- slots DF10TR.

Order example: DF10P 500x1vía LB+AB+SFDF10TR

- To order a 500x1-slot motorized linear diffuse, white laquered, with white blades and fixing support, you should request:

Order	Description
1 Diffuser DF10P 500x1V-LB-AB	500x1-slot motorized linear diffuser, white laquered, with white blades.
2 Fixing system SFDF10TR	Fixing support for 1-slot diffuser DF10TR.



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