Technical Data Sheet

Environmental Ceiling Damper (ECD)

Technical Data

- Motorised Fire Damper tested to EN1366-2
- Damper classified to EN 13501-3
- Cyclic tested for 10,000 operations
- Unducted easy fix install from one side
- Actuator hidden from view on non-access side
- Complete with optional grille
- Certified to BS EN12101-8

Introduction

This Fire damper is designed for use within ceiling voids to allow the movement of air typically between the occupied area and extraction riser and is intended as an unducted installation.

It comes complete with optional purpose designed non-vision grille.

Fixed to the wall, it maintains fire compartmentation in the event of a fire. It requires access for installing on the single side only.

The ECD damper has been successfully tested to EN1366-2:2015 Fire Damper Test Standard and has achieved a 2 hour fire resistance performance to ES120. Throughout the test, a 300Pa pressure differential is applied across the damper and leakage measurements taken. To achieve the ES leakage class, a maximum leakage of 200m^3/hr/msq must not be exceeded. The leakage limit also apples to the smallest damper size.

Size range (mm)

- Minimum 200W x 175H
- Maximum 1000W x 300H

Design

The ECD damper assembly consists of a base damper housed within a fully welded galvanised steel sleeve. Its peripheral flange allows it to be fitted flush into the builder's aperture using side fixings only. Thermal fuse fixing bracket integral with damper sleeve. (requires site fixing to prevent possible transport/storage damage).

Function

A BSB PML-TF actuator (spring return closed, c/w 72˚C thermal fuse) is used to drive the damper blades to the open position for every day environmental ventilation. It will fail-safe spring closed upon removal of power or if the thermal fuse operates due to local temperature rise due to a fire.

Mid set-point option between 30˚ to 90˚ is built into the actuator to allow the damper to be set for every-day system air balancing. The grille has been designed to offer full non-vision aspect preventing the damper being seen, RAL 9010 white is offered as a neutral standard colour with other RAL colours to order.

Actuator

PML-TF actuator (motor open spring fail-safe closed).

- 71˚C thermal fuse.

Actuators are supplied in easy identifiable differing coloured housings.

- Grey Housing – 24 volt option
- Orange Housing – 230 volt option

The PML-TF actuator allows mid-point setting of the damper blades during commissioning of the system via its mechanical stop. Dampers can be set so that the open blade position is restricted between 30˚ and 90˚ (60˚ range) whilst still retaining fail safe spring closure in an alarm condition or power failure.

- Responsive to inputs from control detection system.
- Auxiliary contacts for position monitoring
- Actuator hidden from view with easy access for maintenance.
- 1m power and signal cables are provided. (See page 4 for wiring diagrams).
- The actuator thermal fuse cable length is 500mm.

Grille

The Stand-Off Grille has been designed to perfectly fit over damper flanges lining up with pre-punched damper flange holes and comes complete matching colour fixing screws.

Grille colour RAL9010 white supplied as standard. Other colours available on request.

Compliance

- Damper tested to EN1366-2
- Damper classified to EN 13501-3
- Achieving: E (120 Ve i->o) S

Shown with mid set-point feature.
(This is an optional extra , see page 5)

Damper Specification

1.2mm galvanised (BS EN10142 DX51D+Z275) steel frame with fully seam welded corners along the entire depth to produce a rigid and airtight construction.

All welds are coated with environmentally friendly water-based corrosion resistant paint finish.

0.7mm galvanised (BS EN10142 DX51D+Z275) double skin airfoil 100mm pitch damper blades with “opposed motion” interlocking engagement when damper is closed.

0.40mm type 301st/stl (1.4310 BS EN 10088-2:) peripheral gasketing around entire blade perimeter.

‘Out of airstream linkage mechanism.

Ambient leakage conforms to class ES of EN1366-2 / ISO10294-2 (200m^3/hr/m^2 – 55 l/s/m^2).

Pre-punched damper flange fixing holes.

Motorised operation – 24v ac/dc 230V a/c motor open, spring closed operation.

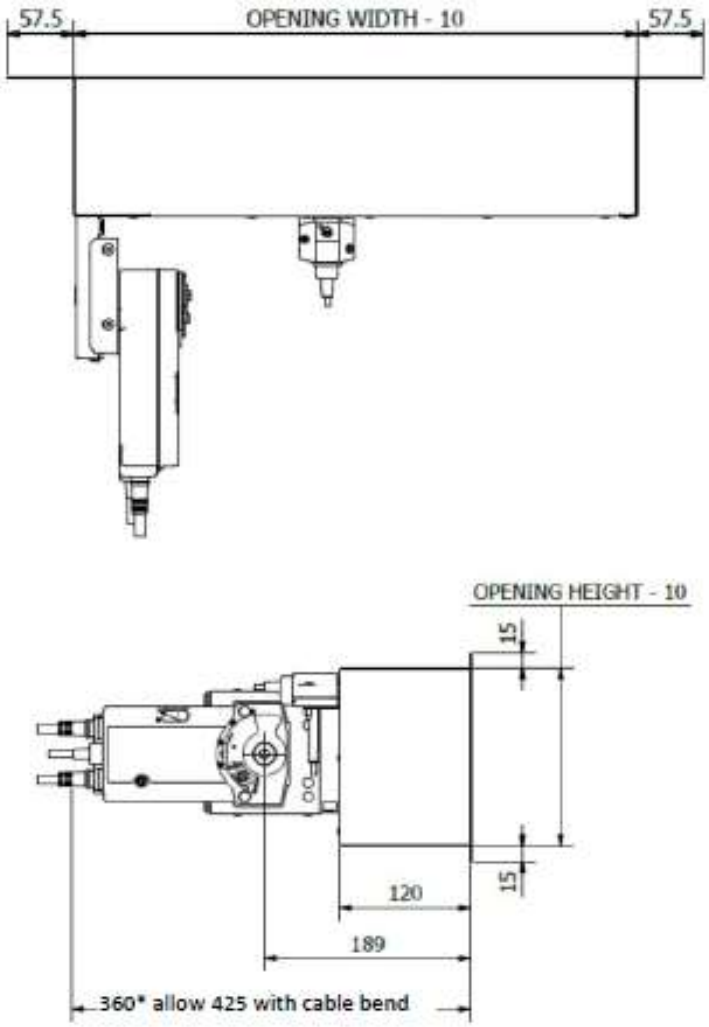
Supplied with PML-TF actuator*

*The PML actuator has mechanical limitation available as standard to set mid-point damper open position if required.

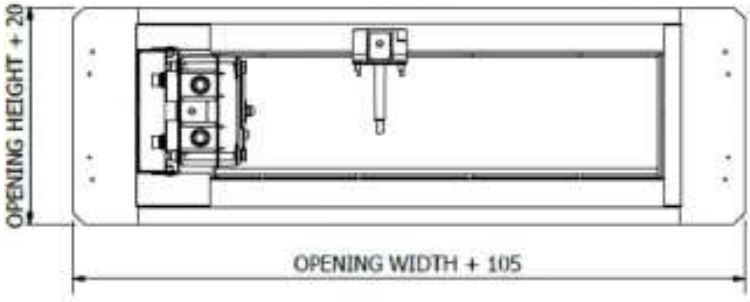
Actuator has less than 60 second motoring time and <30s fail-safe spring return time.

All actuators are factory fitted and the damper/actuator assembly is mechanically tested at final assembly.

Damper and Grille Dimensions



View from actuator side (non-access)-side



Grille

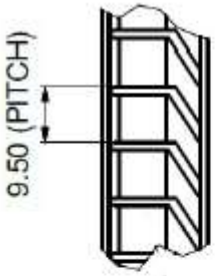
ECD Grilles are available as optional extra to the damper if required.

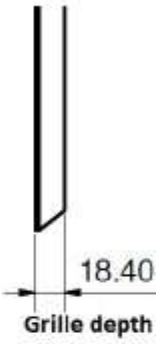
Grille fixing holes line up with pre-punched damper flange holes to allow grilles to be screwed directly into wall.

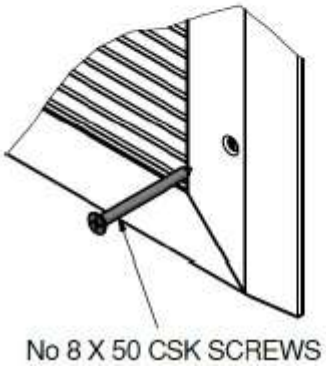
For ECD dampers up to 800mm wide, there are 2off fixings per vertical side. Above 800mm wide, an additional central top/bottom fixing is present.

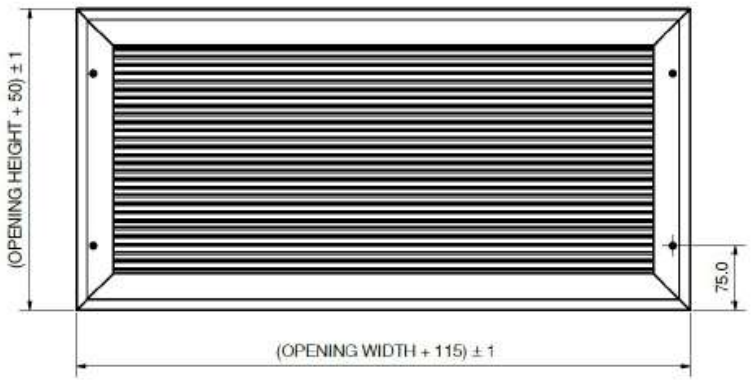
Grilles are powder coated polyester paint and RAL9010 white is supplied as standard. Other colours available on re-quest.

Grille fixing screws are colour matched to grille.

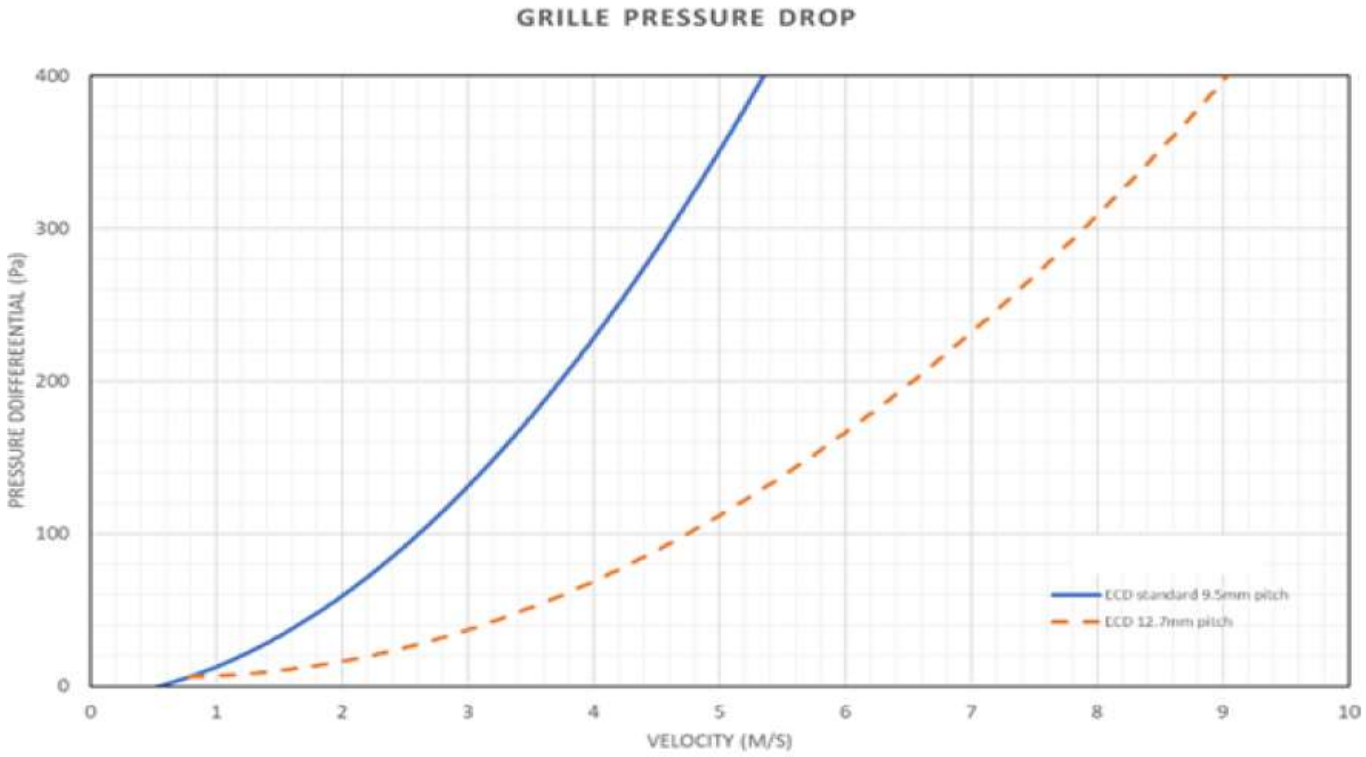








Grille Pressure Drop



ECD Damper Free Area (Aperture Sizes in mm and Area in m²)

	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
175	0.008	0.012	0.016	0.021	0.025	0.03	0.03	0.04	0.04	0.05	0.05	0.05	0.06	0.06	0.07	0.07	0.07
200	0.008	0.012	0.016	0.021	0.025	0.03	0.03	0.04	0.04	0.05	0.05	0.05	0.06	0.06	0.07	0.07	0.07
250	0.024	0.028	0.032	0.040	0.05	0.06	0.06	0.07	0.08	0.09	0.10	0.10	0.11	0.12	0.13	0.14	0.15
300	0.024	0.028	0.032	0.040	0.05	0.06	0.06	0.07	0.08	0.09	0.10	0.10	0.11	0.12	0.13	0.14	0.15

ECD Damper weight inc. PML-TF actuator (kg)

	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
175	6.5	7.0	7.5	7.5	8.0	8.5	9.0	9.5	9.5	10.0	10.5	11.0	11.0	11.5	12.0	12.5	13.0
200	6.5	7.0	7.5	8.0	8.5	9.0	9.5	9.5	10.0	10.5	11.0	11.5	12.0	12.5	12.5	13.0	13.5
250	7.5	8.0	8.5	9.0	9.5	9.5	10.0	10.5	11.0	11.5	12.0	12.0	12.5	13.0	13.5	14.0	14.5
300	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0

Actuator / Wiring Details

NOTE. MID SET-POINT is an optional extra and will only be included if ordered at time of ordering. (For standard option, see fig a. below).

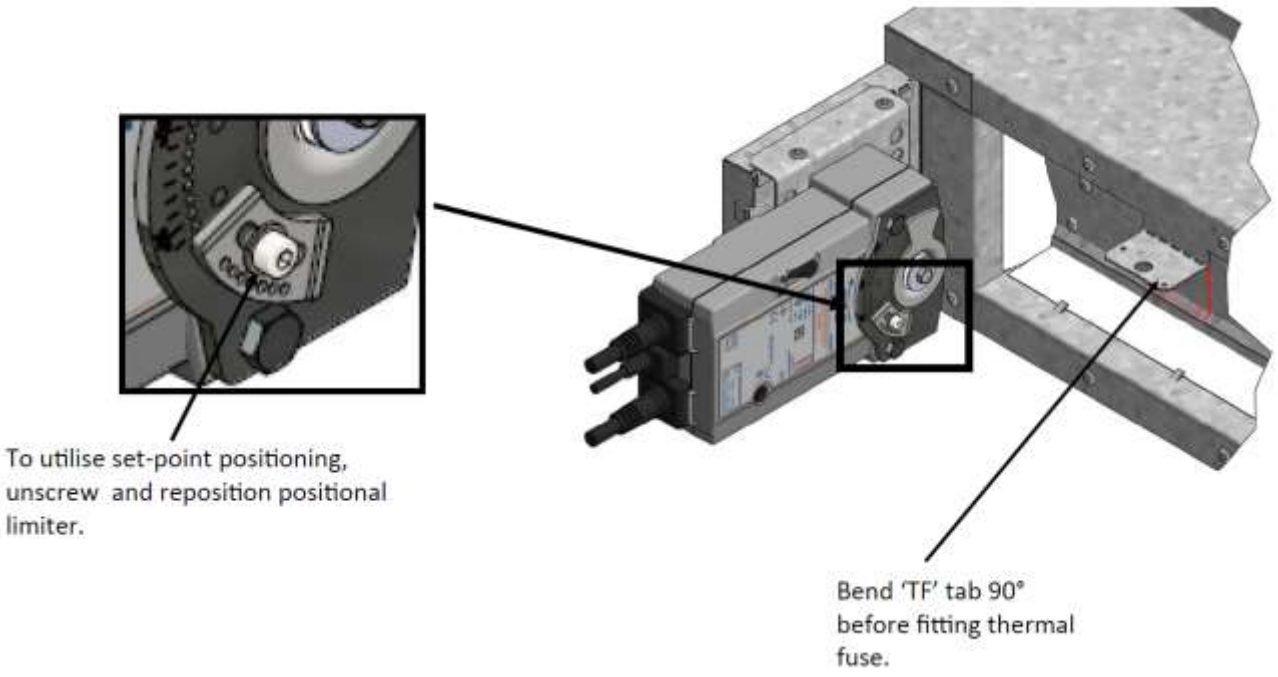


Fig. a. Default standard indication pointer

24V AC/DC (Grey actuator housing)

Nominal Voltage	AC/DC 24 V
Nominal Voltage Frequency	50/60 Hz
Nominal Voltage Range	AC 19.2...28.8 V / DC 21.6….28.8 V
Power Consumption in Operation	4 W
Power Consumption in Rest Position	1.4 W
Power Consumption Wire Sizing	6 VA
Power Consumption for Wire Sizing Note	Imax 8.3 A @ 5 ms
Auxiliary Switch	2 x SPDT
Switching Capacity Auxiliary Switch	1 mA…3 (0.5 inductive A) AC 250 V

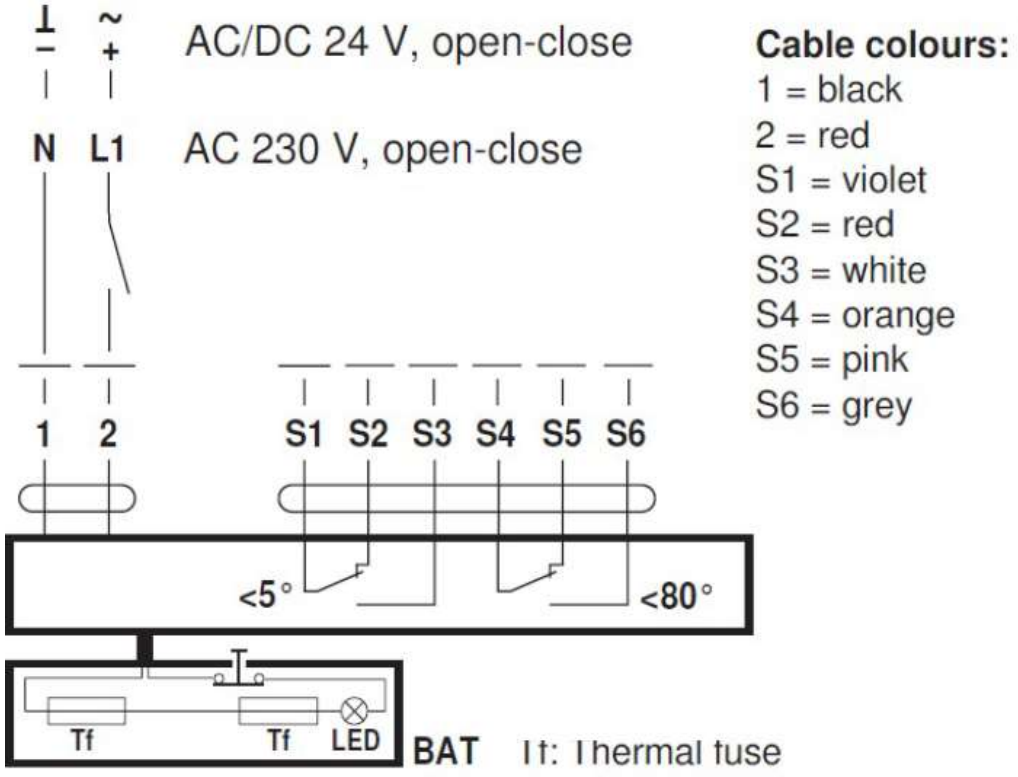
230V AC (Orange actuator housing)

Nominal Voltage	AC 230 V
Nominal Voltage Frequency	50/60 Hz
Nominal Voltage Range	AC 198…264 V
Power Consumption in Operation	5 W
Power Consumption in Rest Position	2.1 W
Power Consumption Wire Sizing	10 VA
Power Consumption for Wire Sizing Note	Imax 4 A @ 5 ms
Auxiliary Switch	2 x SPDT
Switching Capacity Auxiliary Switch	1 mA…3 (0.5 inductive) A, AC 250 V

Safety and Environmental (both 24V and 230V)

Protection Class IEC/EN	24V:III Safety extra-low voltage 230V: Protective Insulated
Protection Class Auxiliary switch IEC/EN	II Protective insulated
Degree of Protection IEC/EN	IP54 in all mounting positions
EMC	CE according to 2014/30/EU
Low Voltage Directive	CE according to 2014/35/EU
Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-14
Mode of Operation	Type 1.AA.B
Rated Impulse Voltage Supply / Control	24V: 0.8kV 230V: 4kV
Control Pollution Degree	3
Ambient Temperature Normal Operation	-30…55˚C
Ambient Temperature Safety Operation	The safety position will be attained up to max. 75˚C
Non-operating Temperature	-40…55˚C

Wiring Diagram



Typical Installation Procedure for the ECD Damper

- Actual damper (sleeve) size is 10mm below nominal size. This allows 5mm clearance per side.
- “Finished aperture size = nominal damper size + 5mm – 0mm
- Dry wall aperture must be ‘lined out’ with track and batons on all four sides as per figs 1 and 3.
- Masonry wall-fix directly into aperture. As per fig 4.
- Before installing damper into wall prepare all electrical connections, including cable entry holes as required. Refer to page 5 for wiring details.
- The TF bracket is deliberately left flat for transit and storage. This will require manually bending out 90˚ and the thermal fuse screwed to it using the two PZ2 head self-tap screws provided. Refer to Fig 2 and page 5.
- Test damper operation by fully opening and closing damper.
- If required, set damper set-point position (refer to page 5) by loosening cap head screw with a 2.5mm A/F allen key on positional limiter stop, repositioning and retightening screw. If further balancing adjustment is required, it will be necessary to remove damper from wall for further adjustment to be carried.
- Position damper centrally within opening (use temporary packing spacers on bottom if required).
- For drywalls, use 3.5 dia x 38mm long drywall screws, fix damper to wall using the 3.7mm dia pre-punched fixing holes inside flanges (there will be either 2off or 3off per side depending on damper height) (fig 3). Ensure the screws ‘pick up’ the track lining the hole, so that the required fire integrity of the installation will not be compromised. Take care not to use the holes that are reserved for grill fitting clearance holes.
- For masonry walls use 5mm dia x 40mm minimum steel fixings drilling out flange ‘A’ holes (fig 5) as required. (Do not use aluminium/zinc or plastic fixings or plugs).
- It is not necessary to apply intumescent mastic between damper and aperture joint for fire integrity purposes but may be applied if an airtight joint is required for everyday use.
- Fit grille if applicable with screws and provided drilling into dry-wall wall through into track with 3.5mm drill, or large to suit rawl fixings for masonry wall.

Fig 1
Typical
Aperture
Detail

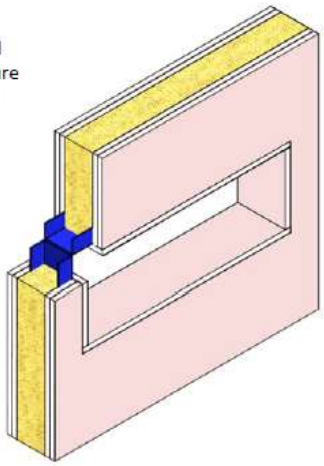


Fig 2
ECD Damper assembly
fitted (view from
Non-access side)

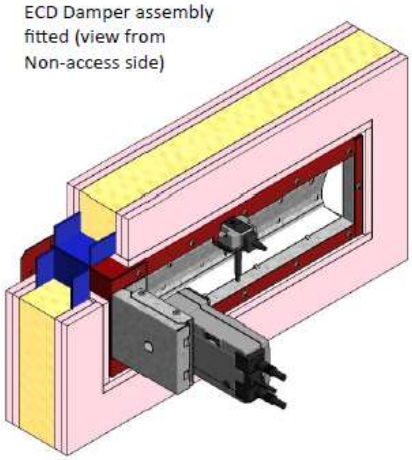
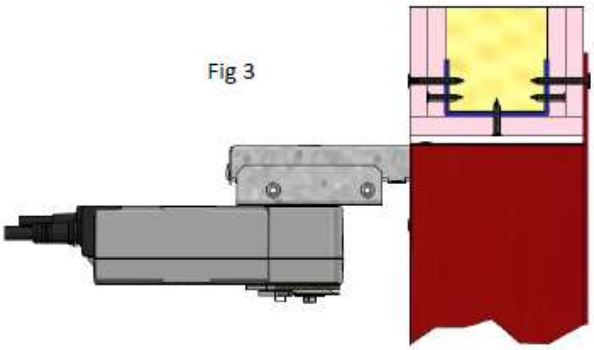


Fig 3



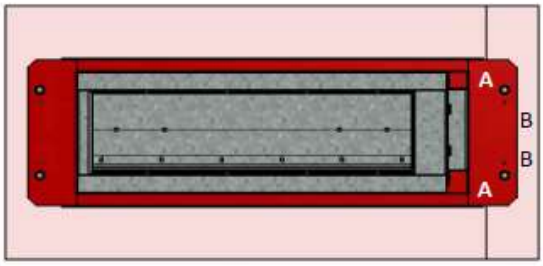


Fig 5

A. Flange fixing holes

B. Grille fixing holes

Fig 4