

# AT-FSD Series



## Air Transfer Fire Smoke Dampers

- Tested installation method in differing supporting constructions (BS EN 1366-2)
- ES Classified to EN 13501-3 E 120(ve i→o) S
- Unducted Easy Fix™ install from one side
- Actuator hidden from view on non-access side
- Optional grille
- CE marked EN 15650



A brand of  
**MAICO**

MANUFACTURERS OF AIR, FIRE AND SMOKE CONTROL PRODUCTS

# AT-FSD Series

## Air Transfer Fire and Smoke Dampers

### Introduction

The AT-FSD Series Fire dampers are designed for use above protective doorways and extended fire separations often within ceiling voids to allow the movement of air typically between the stairwell to the lobby and is intended as an unducted installation.

The optional purpose designed non-vision grille provides a discrete appearance.

Requiring access from one side of the fire separation wall only, the damper when installed maintains fire compartmentation in the event of a fire.

The AT-FSD damper has been successfully tested to the EN1366-2 Fire Damper Test Standard and has achieved a 2 hour fire resistance performance 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<sup>3</sup>/hr/msq must not be exceeded, applying to the largest and smallest damper sizes.

### Features and Benefits

- Purpose made matching grille
- Reduced top and bottom flange
- Integral thermal fuse bracket.
- Side flange fixings only required

### Size Range

Minimum 200mm(W) x 175mm(H)  
Maximum 1000mm(W) x 300mm(H)

### Design

The AT-FSD Series 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 builders aperture using side fixings only.

Thermal fuse fixing bracket integral with the damper sleeve, is supplied flat for delivery and will require bending outwards to accept and fit the thermal fuse.

### Function

A BSB PML-TF actuator 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 72°C thermal fuse operates due to local temperature rise in the event of a fire.

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.

### Testing and Conformities

- Damper tested to EN1366-2.
- Damper classified to EN 13501-3 Achieving: E(120 ve i → O) S

### Actuator

- PML-TF actuator (motor open spring fail-safe closed).
- 72°C thermal fuse rating as standard.
- Actuators are supplied with easy identifiable differing coloured housings with matching thermal fuse heads.
  - Grey housing - 24 volt option
  - Orange housing - 230 volt option
- 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 BSB Stand-Off Grille has been designed to perfectly fit over damper flanges lining up with pre-punched damper flange holes and comes complete with matching colour fixing screws.

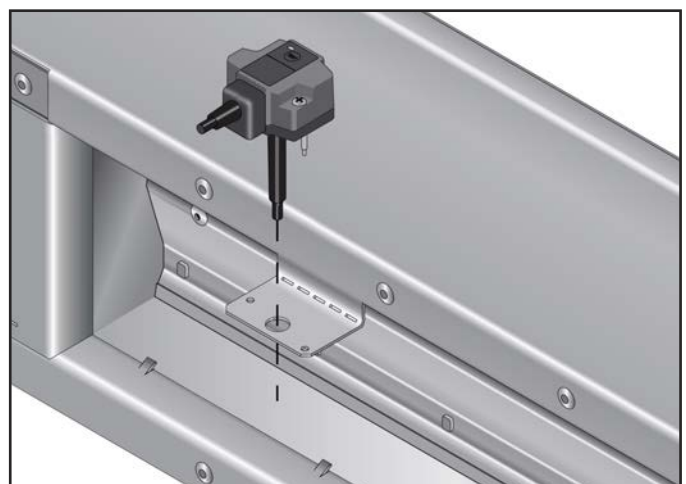
Grille Colour RAL9010 white supplied as standard. Other colours available on request.

### Thermal Fuse Bracket

Thermal fuse integral bracket shown flat for transporting from the factory. Requires bending outwards 90° in an arc along the easy bend perforation.



Thermal fuse bracket shown bent outwards into position to accept the thermal fuse.



### Specification Text

The AT-FSD fire and smoke dampers shall be CE marked conforming to EN 15650.

For maintenance of compartmentation and the protection of escape routes and areas of sleeping risk AT-FSD dampers shall have an ES classification to EN 13501-3 and include an actuator that can respond to a smoke or fire alarm signal to ensure closure on immediate detection. Refer to Approved Document B.

The actuator shall have a failsafe thermal fuse to ensure closure when the temperature exceeds 72°C. The actuator shall close the damper blades in less than 30 seconds and motor open in less than 60 seconds.

The AT-FSD damper shall have opposed blade action with interlocking double skin blades.

The fire and smoke damper blade drive linkage shall be fully enclosed outside of the airstream for protection against damage and air contamination.

Stainless steel gaskets shall be provided at the top and bottom and both sides of the fire and smoke damper to reduce ambient leakage to within smoke leakage levels stated in EN 13501-3.

The fire and smoke damper case shall be fully welded.

### 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<sup>3</sup>/hr/m<sup>2</sup> - 55 l/s/m<sup>2</sup>).

Pre-punched damper flange fixing holes.

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

Supplied with PML-TF actuator.

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.

### Elements of Construction

Where detailed, galvanised mild steel is to the following specification: hot dipped zinc coated steel to BS EN 10346 DX51D + Z 275.

#### Zinc plating

Zinc electroplated to BS EN ISO 2081.

#### Casings/inner frames/sleeve

The AT-FSD dampers are manufactured from 1.2mm galvanised mild steel and are fully welded.

Fully seam welded corners provide a rigid and airtight construction. Exposed welds are treated with protective corrosion resistant, environmentally friendly water based paint.

The inner bearing channels are manufactured from 1.2mm galvanised mild steel. The bearing channel incorporates punch formed low friction bearing surfaces that allow the blades to rotate freely.

Where necessary, intumescent mastic is applied to joints.

#### Blades

FSD-TD Series dampers are supplied with opposed blade operation only.

The blades are a specially formed double skin airfoil shape, specific to BSB, on a 100mm pitch that interlock when closed when two or more blades are used in the construction to suit the height requirement.

#### Peripheral gaskets

To complete the damper seal there are 0.4mm 301 grade stainless steel gaskets. They are fitted between the sides and across the top and bottom of the damper blades.

#### Blade shafts, bearings, and linkage

The blades are each mounted on two 19mm diameter solid spindles made from zinc plated mild steel to BS EN 10305-3.

The spindles are linked using a gear system, link arms and drive bars to give the opposed blade action. The gears are made from zinc plated 2.5mm thick mild steel. The link arms and drive strips are made from 2.5mm thick galvanised mild steel.

This linkage is fully enclosed and outside the airstream.

#### Other components

All other components are manufactured from zinc plated mild steel.

#### Actuators

The AT-FSD series dampers are supplied with spring return actuators, controlled to close automatically on loss of power or when the thermal fuse reaches 72°C.

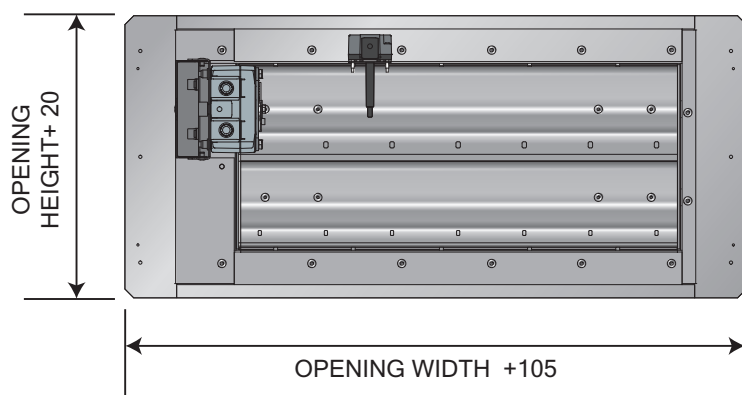
- BSB PM24-TF - 24VAC/DC spring return actuator
- BSB PM230-TF - 230VAC spring return actuator

# AT-FSD Series

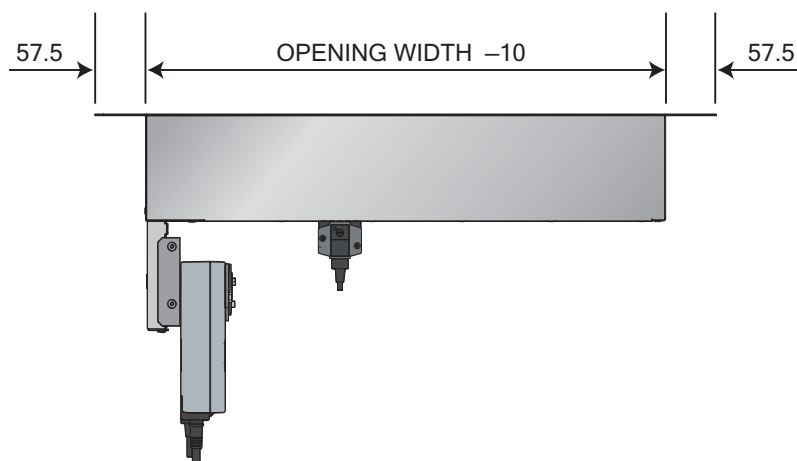
## Air Transfer Fire and Smoke Dampers

### Damper Dimensions

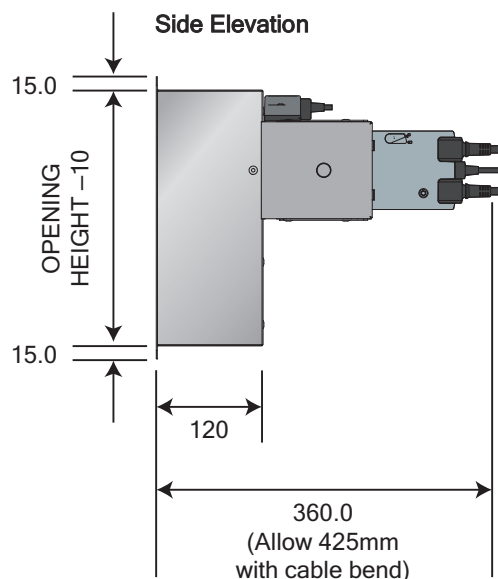
Front Elevation



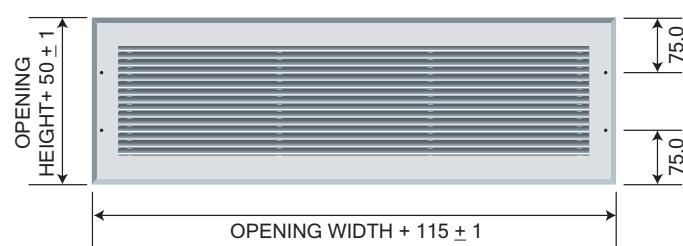
View from actuator side (non-access side)



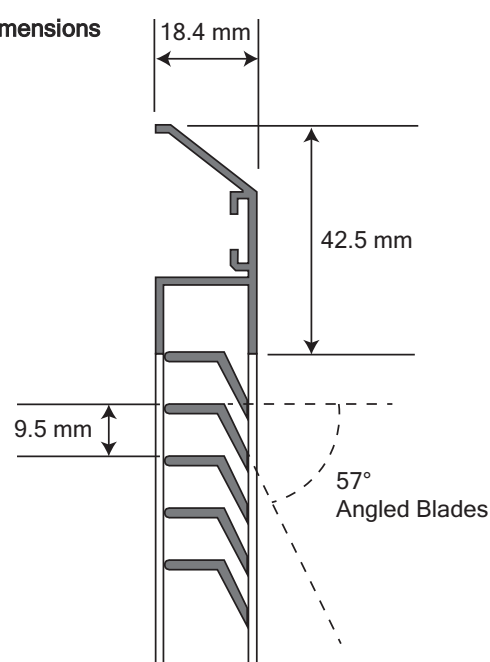
Side Elevation



### Grille Details



Grille Profile and Dimensions



AT-FSD Grilles are available as an 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 AF-FSD dampers up to 800mm wide, there are 2 off 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.

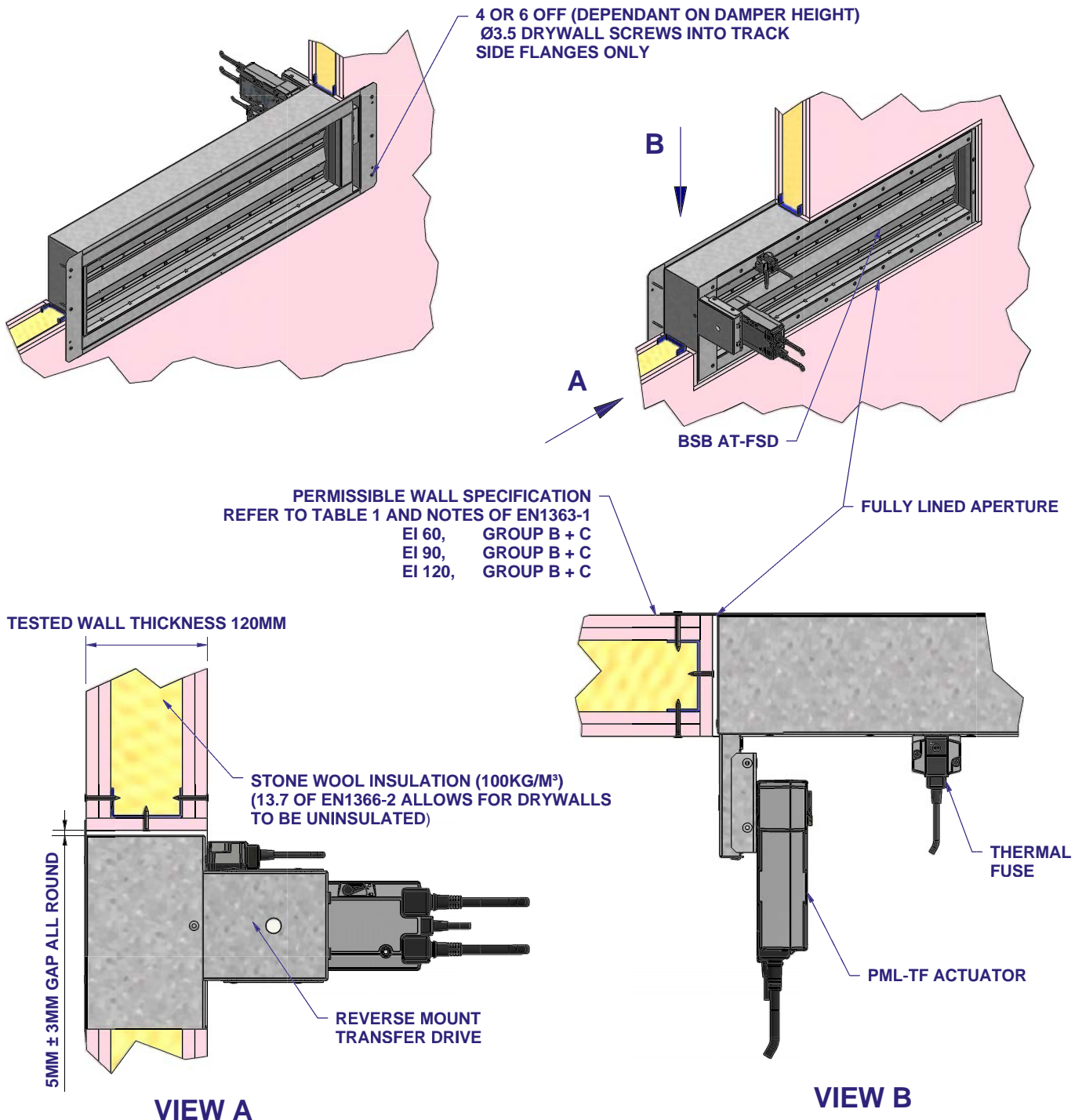


# INSTALLATION METHOD

## AT-FSD DRY WALL


PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.  
GRILLE OMITTED FOR CLARITY.  
THIS IS AN UN-DUCTED INSTALLATION.

AT-FSD M9



A MINIMUM OF 75MM SEPARATION BETWEEN FIRE DAMPER AND WALL OR FLOOR.  
AND 200MM BETWEEN SINGLE SECTION FIRE DAMPERS.

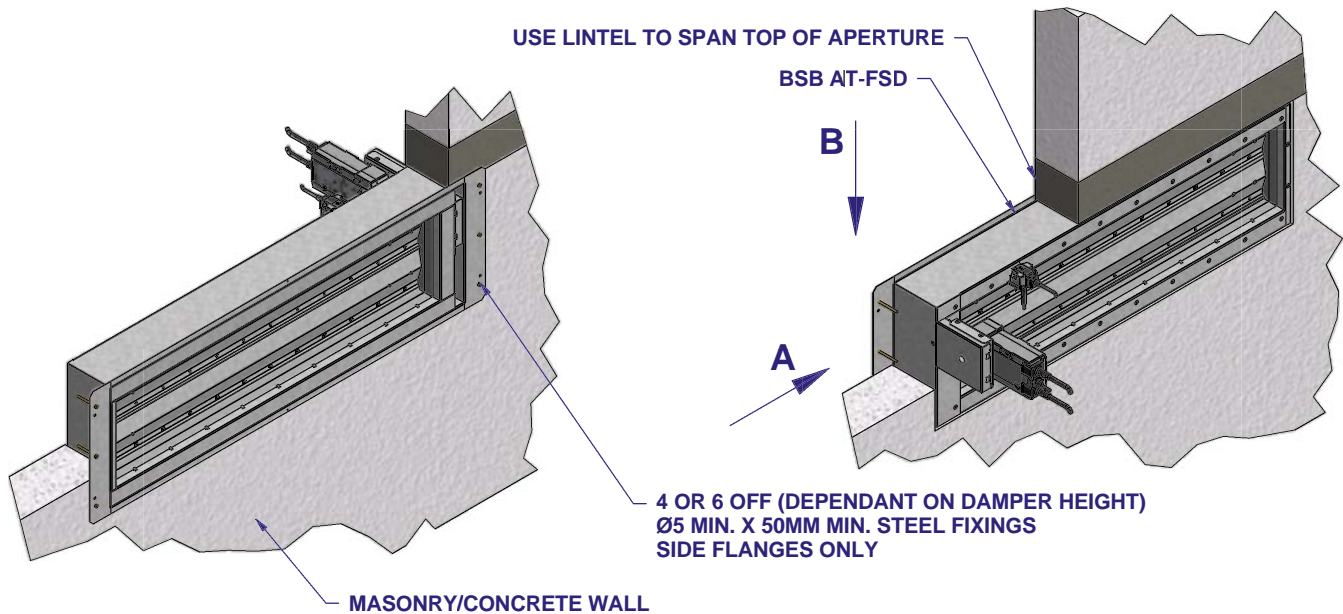
TESTED INSTALLATION METHOD SHOWN. DIFFERING INSTALLATION METHODS TO THIS MUST BE APPROVED BY THE BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DOCUMENT AND I, O & M IN ORDER TO CONSIDER APPROVAL.

Aperture size (Wmm x Hmm) 200 x 175 to 1000 x 300	 <b>120 MINUTES FIRE/SMOKE RESISTANCE E 120 (ve i → o) S</b>
BSB AT-FSD	
<a href="http://www.bsb-dampers.co.uk">www.bsb-dampers.co.uk</a>	<b>TESTED TO EN 1366-2 CLASSIFIED TO EN 13501-3</b>

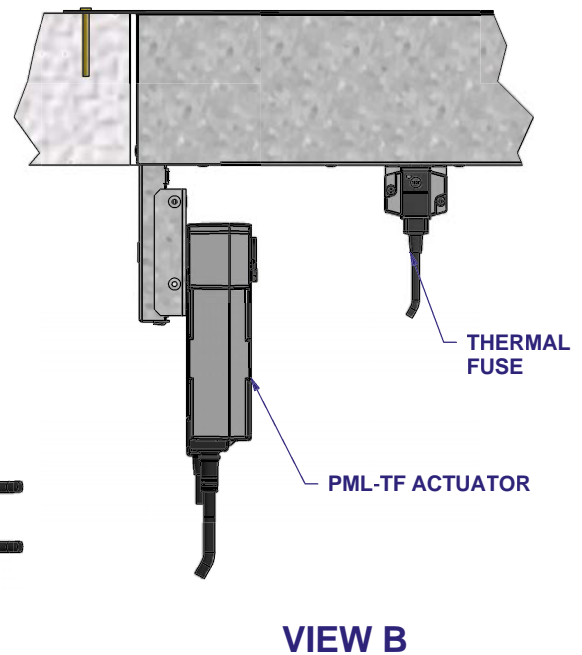
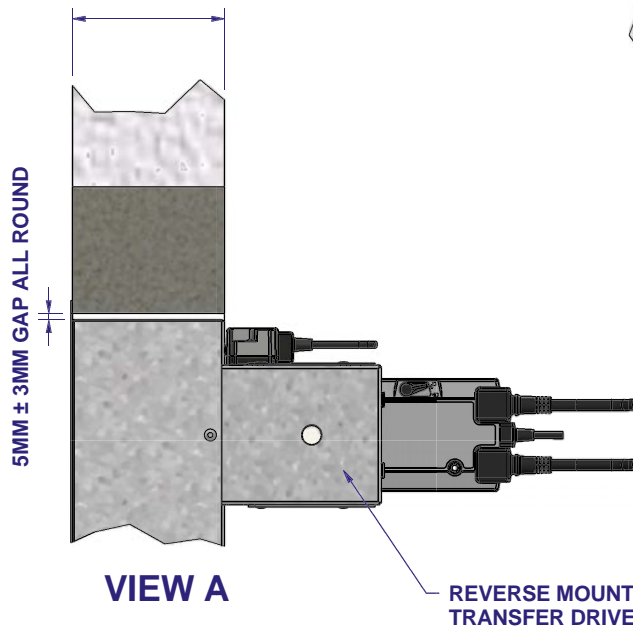
# INSTALLATION METHOD AT-FSD MASONRY WALL

PLEASE REFER TO INSTALLATION, OPERATING AND MAINTENANCE DOCUMENT FOR DETAILED INFORMATION.  
GRILLE OMITTED FOR CLARITY.  
THIS IS AN UN-DUCTED INSTALLATION.

AT-FSD M10




MINIMUM WIDTH TO SUIT FIRE RESISTANCE TIME  
EQUAL OR GREATER THAN THE FIRE RESISTANCE  
REQUIRED FOR THE DAMPER INSTALLATION



A MINIMUM OF 75MM SEPARATION BETWEEN FIRE DAMPER AND WALL OR FLOOR.  
AND 200MM BETWEEN SINGLE SECTION FIRE DAMPERS.  
\*USING DIRECT FIELD OF APPLICATION FROM EN 1366-2

TESTED INSTALLATION METHOD SHOWN\*. DIFFERING INSTALLATION METHODS TO THIS MUST BE APPROVED BY  
THE BUILDING CONTROL AUTHORITY (BCA) BEFORE PROCEEDING. THEY WILL NEED TO REFER TO THIS DOCUMENT  
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Aperture size (Wmm x Hmm) 200 x 175 to 1000 x 300	 <b>120 MINUTES FIRE/SMOKE RESISTANCE E 120 (ve i → o) S</b>
BSB AT-FSD	
<a href="http://www.bsb-dampers.co.uk">www.bsb-dampers.co.uk</a>	<b>TESTED TO EN 1366-2*</b> <b>CLASSIFIED TO EN 13501-3</b>

### Electrical data

	BSB PML24 -TF	BSB PML230 -TF
Nominal voltage	AC/DC 24 V	AC 230 V
Nominal voltage frequency	50/60 Hz	50/60 Hz
Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V	AC 198...264V
Power consumption in operation	4 W	5W
Power consumption in rest position	1.4 W	2.1 W
Power consumption for wire sizing	6 VA	10 VA
Power consumption for wire sizing note	I <sub>max</sub> 8.3 A @ 5 ms	I <sub>max</sub> 4 A @ 5 ms
Auxiliary switch	2 x SPDT	2 x SPDT
Switching capacity auxiliary switch	1 mA...3 (0.5 inductive) A, AC 250 V	1 mA...3 (0.5 inductive) A, AC 250 V

### Safety and Environmental

Protection Class IEC/EN	III Safety extra-low voltage	II Protective insulated
Protection class auxiliary switch IEC/EN	II Protective insulated	II Protective insulated
Degree of protection IEC/EN	IP54 in all mounting positions	IP54 in all mounting positions
EMC	CE according to 2014/30/EU	CE according to 2014/30/EU
Low voltage directive	CE according to 2014/35/EU	CE according to 2014/35/EU
Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-14	IEC/EN 60730-1 and IEC/EN 60730-2-14
Mode of operation	Type 1.AA.B	Type 1.AA.B
Rated impulse voltage supply/control	0.8kV	4.0kV
Control pollution degree	3	3
Ambient temperature normal operation	-30°...55°C	-30°...55°C
Ambient temperature normal operation	The safety position will be attained up to max. 75°C	The safety position will be attained up to max. 75°C
Non-operating temperature	-40...55°C	-40...55°C

### BSB PML24-TF & BSB PML230-TF

#### ELECTRICAL CONNECTIONS DAMPER ENERGISED OPEN / SPRING CLOSED OPTION

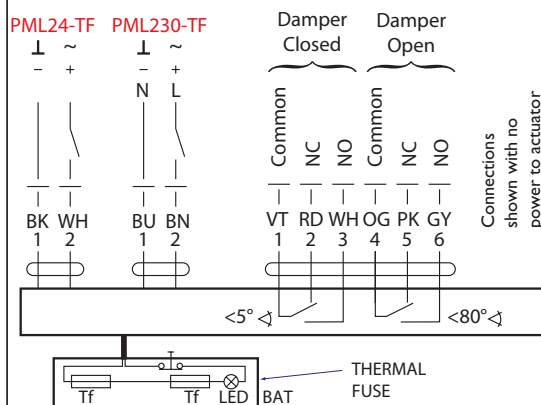
- Wiring diagram shows switch positions based on no power to actuator
- Damper required normally open
- Spring close on removal of power or thermal fuse activation

**24V AC/DC:** Connect via safety isolation transformer

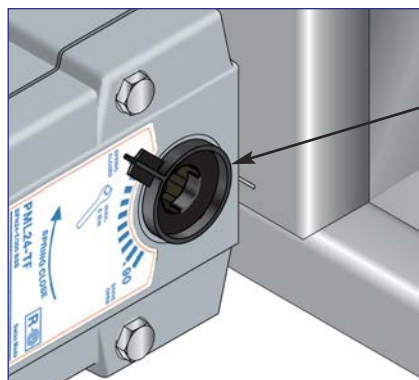
**230V AC:** For disconnection from the supply, a separate device must be incorporated in the fixed wiring (at least 3mm contact gap in all poles)

#### Six core signal cable:

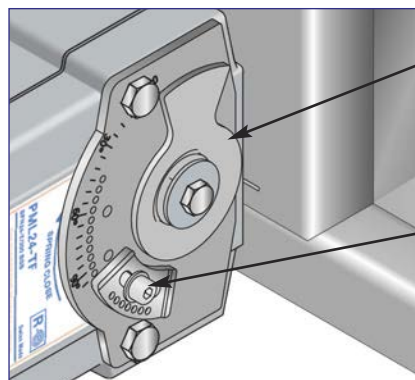
- For damper closed indication use terminals 1 & 2
- For damper open indication use terminals 4 & 6
- Open indication when using set-point position use terminals 1 & 3
- Terminals 1 & 4 can be linked where required as an option
- Unused cores should be isolated
- Connecting cables need to be protected from sharp edges



### Actuator Indication Options



Standard Indication Pointer supplied as standard



Optional mid set-point indicator

To utilise set-point positioning, unscrew and reposition positional limiter

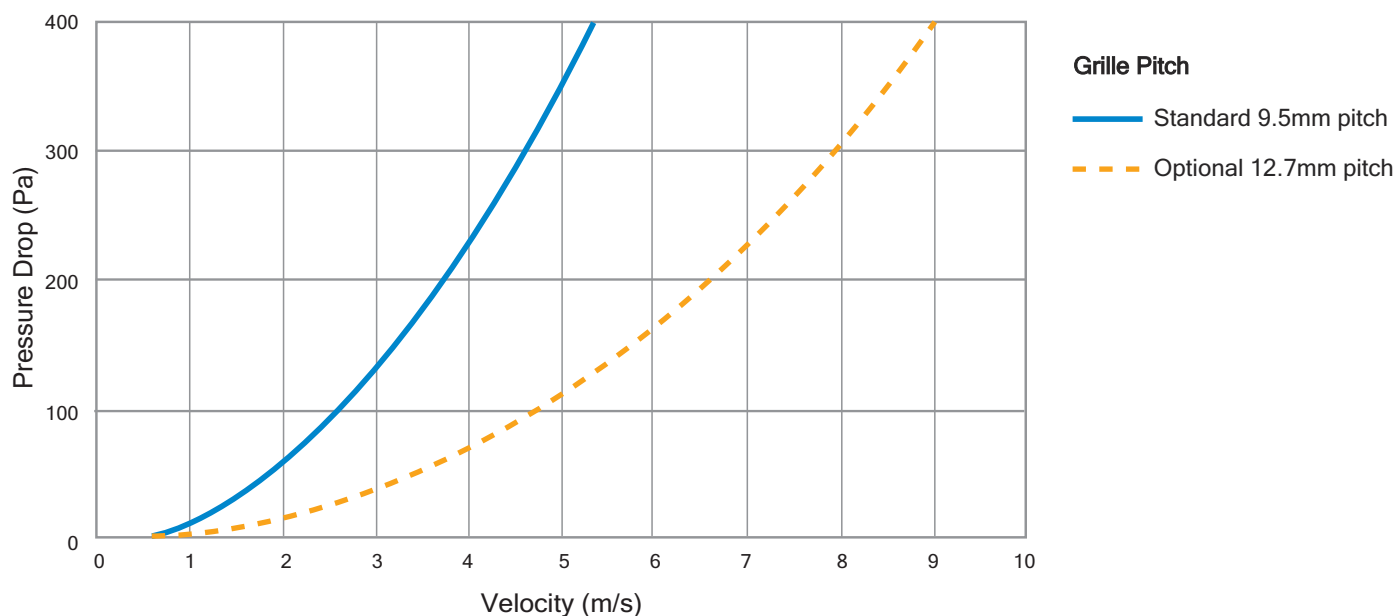
The Mid Set-Point is an optional extra and will only be included if ordered at time of placing an order.

# AT-FSD Series

## Air Transfer Fire and Smoke Dampers



### Grille Pressure Drop



### AT-FSD Damper Free Area

AT-FSD Series Free Area m<sup>2</sup> (Aperture size in mm)

	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

### AT-FSD Series Damper Weight Chart (kg) These values are approximate

Including PML-TF Actuator

Height (mm)	Damper width (mm)																
	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



### Maintenance

The AT-FSD Series dampers are designed for normal dry filtered air systems and should be included within a programme of planned inspections.

Records of each damper installation and location are recommended and should include the condition of the dampers at each inspection with any action taken recorded and kept in an accessible location, as these products come under the requirements of the Regulatory Reform (Fire safety) Order (RRFSO).

Inspection and maintenance programmes may need to be repeated more regularly if the dampers are exposed to inclement and dusty conditions or fresh air intakes where the frequency of such checks should be developed based on site experience.

#### Special Note:

All fire damper installations should be carried out to the satisfaction of the appropriate district surveyor, fire officer, building control authority and/or specifying authority as other approved methods of installation may well be used.

### Storage

Dampers received on site and not required for immediate installation should be stored in a purpose made storage area, where they can be protected from moisture, dust and impact damage until required.

### Installation Parameters

Installations involving corrosive and/or aggressive hostile environmental conditions (e.g. swimming pools) may invalidate our warranty and should be referred to our Sales Office.

Each damper must be installed within its own prepared aperture.

The separation between fire dampers and between fire dampers and the construction elements, In accordance with EN 1366-2: and the direct application rules, where two fire dampers are installed side by side within a fire separating element, there must be 200mm clear structural separation between damper casings.

There must also be a minimum of 75mm between the damper casing and the construction element. Please refer to EN 1366-2 section 13.6.

### Recycling

BSB recognises the need to preserve resources and reduce emissions and are actively working towards and introducing more efficient ways of manufacturing.

BSB supports and recommends that good waste management practice be adopted on all new and refurbishment projects, regardless of size. This not only reduces emissions, preserves raw materials and saves energy, but also reduces costs long term.

The AT-FSD series damper is 100% recyclable as it is manufactured all in a steel construction.

The PML actuator contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed including the WEEE regulations.

# AT-FSD Series

## Air Transfer Fire and Smoke Dampers



AT-FSD - SIZE - PML24 - AMSP-N - GRILLE-Y - RAL9010

**Model:** \_\_\_\_\_  
**AT-FSD** Air Transfer Fire and Smoke Damper

**Structural Opening Size:** \_\_\_\_\_  
 Width x Height

**Actuator Options:** \_\_\_\_\_  
**PML24-TF** Open/Closed  
**PML230-TF** Open/Closed

**Grille Colour:**  
**RAL9010** White Standard  
**SPECIAL** Please specify

**Grille (Optional):**  
**GRILLE-N** No Grille  
**GRILLE-Y** With Grille

**Mid Set Point (Optional):**  
**AMSP-N** No Mid Set Point  
**AMSP-Y** With Mid Set Point

## Other Air, Fire and Smoke Control Products in the BSB Range:



For full details of the complete BSB Product Range, please refer to our individual product brochures, sales office or website.



## BSB Engineering Services Limited

Unit 56, Trinity Trade Centre, Mill Way, Sittingbourne, Kent ME10 2PD, UK • Tel: +44 (0)1795 422609

For purchase orders and order related enquiries, please email: [orders@bsb-dampers.co.uk](mailto:orders@bsb-dampers.co.uk)

For pricing, technical and general enquiries, please email: [enquiries@bsb-dampers.co.uk](mailto:enquiries@bsb-dampers.co.uk)

Website: [www.bsb-dampers.co.uk](http://www.bsb-dampers.co.uk) • A member of the Maico group

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