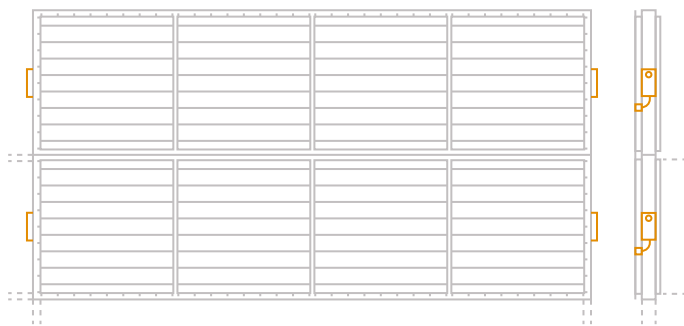


FIRE & SMOKE DOUBLE BANK DAMPERS

Information & Spec Sheet



V6



DESIGN

Smoke, like air will pass through a ventilation system. The purpose of a smoke damper is to prevent the progression of smoke through the system.

To be truly effective therefore, a smoke damper must have low leakage factor. A combination fire/smoke damper has more demanding criteria, it must maintain its physical integrity in the most demanding conditions of temperature, and throughout this period it must maintain a low leakage rate, if it is not capable of doing this, then it cannot be an effective fire/smoke damper.

Quite definitely, simply adding a device to a fire damper, which will initiate operation following a signal from a smoke sensor does not make a fire damper a smoke damper.

The absence in the U.K. of specific smoke leakage standards and criteria has permitted manufacturers to self-define what a smoke damper is. Careful consideration and evaluation should therefore be made when choosing your fire/smoke damper.

Smoke/Fire dampers specifically address leakage rates at ambient and elevated temperatures. The blades are supplied in either stainless steel or galvanised, with opposed blade operation. This new design will enable us to manufacture out the problem of having the actuators within the airway of large units.

For example a 4000mm wide x 4000mm high unit would have 8 actuators on the outside and 8 within the airflow, this design will allow us to have two modules joined together and have both actuators outside of the airstream, this will solve this issue of motors burning out when seeing temperatures of over 60DegC



All Engineered Air Treatment Damper designs have been tried and tested for over 35 years.

All materials used are class 'A' Fully traceable as part of ISO 9001



CERTIFICATION

The Double Bank System is designed for Metal on Metal installations, for example on Containers, fire rated Attenuators or protection sites at the weather louvre side of buildings. If dampers are used to stop the spread of fire between rooms, then we advise customers to get the required permission from the fire building officer if using the double bank system. We have solutions for other apertures such as dry wall and brick and customers should inform us of the location of the dampers so we can fully assist ensuring they stay within the require limits created by such tight building regulations.

The Double Banks system was tested by BRE for an Ad hoc 2 Hr re test to BS476: Part 22: 1987 for 120 minutes and B.R.E who have assessed for multiple arrangement to BS476: part 22:1987.

Fire/ Smoke Dampers in steel walls should be signed off by a competent fire consultant.



The Double Bank Smoke/Fire dampers are supplied by agreement to BSB-Damper and can achieve up to the following: Engineered Air Treatment own the test results for this arrangement. The Double Bank Damper design is specific to the Noise Control and Power Generation Industry. The damper modules have been tested with different installations to:

LPCB certificated fire dampers (LPS 1162)

ES classified fire dampers with reduced smoke leakage characteristics (BS EN 13501-3)

Tested installation methods in differing supporting constructions (BS EN 1366-2)

Able to respond to smoke alarms for the protection of escape routes and areas with sleeping risk (ADB)

Able to be controlled by smoke and fire control systems including BSB damper control panels

Tested and assessed installation methods in differing supporting constructions (BS 476-20/22)

Casing Leakage Class 2

Blade leakage Class 2

Slotted flanges as standard on multiple units.

FEATURES & BENEFITS

Manufactured from tried and test designs.

Pre-Slotted Flange Arrangements

Dampers in Dry environment have very little Maintenance requirements

2 Year warranty from date of despatch,

Excellent Customer Service from Engineers that have manufactured the dampers they sell. Our Sales Staff have over 30 years' experience, we could if they wanted to build your damper.

STANDARD LAYOUT

MATERIALS	Pre-Galvanised M.S. to BS EN 10346 2015 DX51D
CASING	1.2mm Fully Welded and Cleaned for Smoother finish Coated in silver enamel QD8 (C3 Class top coat)
BLADES	0.8mm 'Z' Type Double Skinned, parallel opening standard
SPINDLES	BZP
HARDWARE	BZP
BUSHES	Self Bushed in the casing
MESH	1/2" x 16g Mesh Fingerguard ideal for keeping fingers and pests out
INTEGRITY	Class 2
FLANGES	2mm and Pre Slotted 150ctrs in accordance with our certification.
ACTUATOR	Pm Range - C/W Aux Switches- 24VDC OR 230V AC
THERMAL FUSE	95Deg as standard- 72deg c and 120de c also available.

OPTIONS FOR MATERIALS

MATERIALS 304, 316 Stainless Steel

OPTIONAL EXTRAS

Lifting Eyes.

Mesh Bird Guard and Insect Mesh

Covers over the Actuators and Mechanisms

External visual indicators- Already on actuator.

Actuators can be situated in the Airstream if needed

Flanges can be drilled to Suit and be 40mm to 100mm

Fan Plenum boxes can also be supplied to the rear of the Dampers

ADDITIONAL DAMPER INFORMATION

Engineered Air Treatment Ltd. Pride themselves on solving Damper issues and due to the many options available we would recommend contacting our sales team who would also assist where possible.



We have experience of supplying dampers from **-50°C to +400°C**



Approx **50Kg's per m²**. We can supply lifting eyes if required.



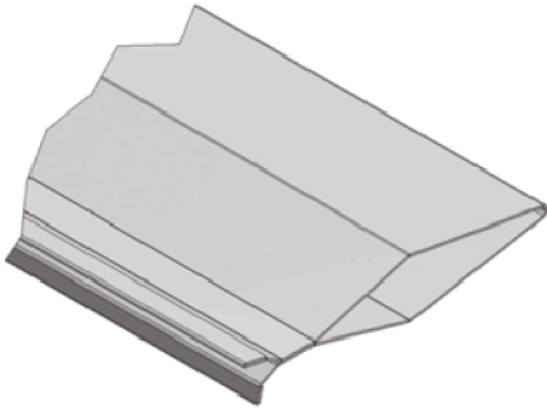
Please see graph overleaf



Minimum **300mm**, maximum **1200mm** diameter.

BLADES

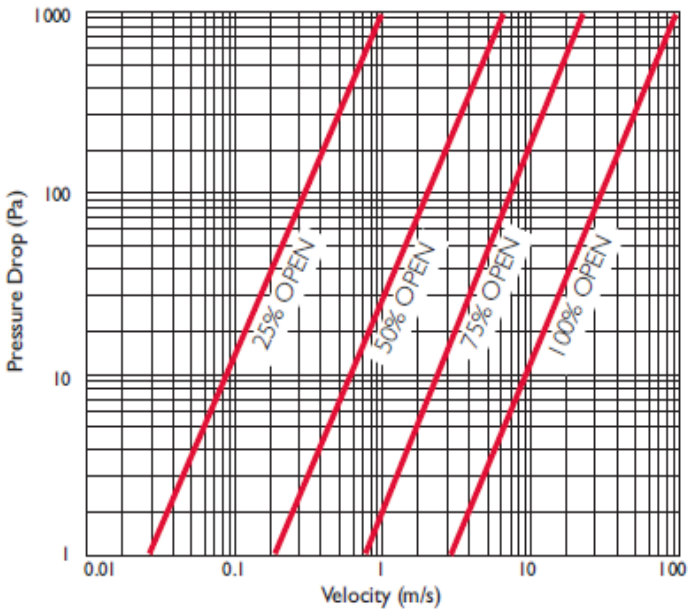
Specially Formed Double Skinned Aerofoil shape on 100mm Pitch that interlock when closed.



WEIGHT

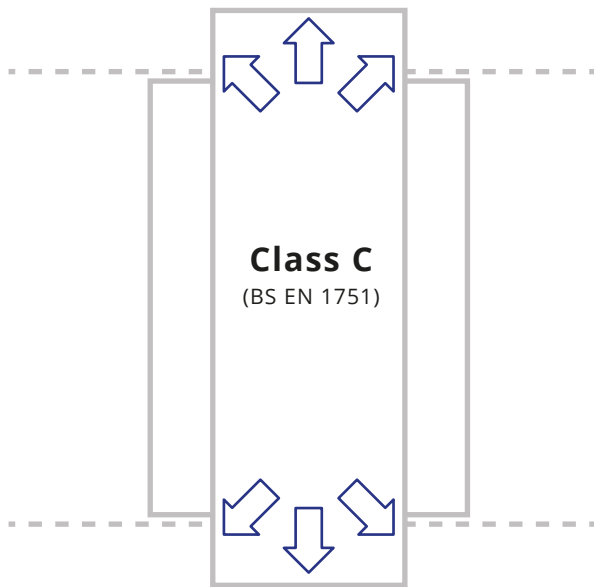
Height (mm)	Width (mm)									
	100	200	300	400	500	600	700	800	900	1000
100	7.8	9.0	9.8	10.8	11.9	13.2	14.3	15.4	16.5	17.7
200	9.0	10.5	11.3	12.4	13.6	15.4	16.7	18.1	19.4	20.7
300	10.3	11.9	12.8	14.1	15.4	17.7	19.3	20.8	22.4	23.9
400	11.6	13.4	14.4	15.8	17.3	20.0	21.8	23.6	25.4	27.2
500	12.9	14.9	16.0	17.6	19.1	22.3	24.3	26.4	28.4	30.4
600	14.2	16.3	17.6	19.3	21.0	24.6	26.9	29.1	31.4	33.6
700	15.5	17.8	19.1	21.0	22.8	26.9	29.4	31.9	34.3	36.8
800	16.8	19.3	20.7	22.7	24.6	29.3	31.9	34.6	37.3	40.0
900	18.1	20.8	22.3	24.4	26.5	31.6	34.5	37.4	40.3	43.2
1000	19.4	22.3	23.9	26.1	28.3	33.9	37.0	40.2	43.3	46.4

PERFORMANCE DATA



Pressure Drop

BSRIA Report 15633/1
 Calculated performance at various damper settings
 Size tested: 500mm x 600mm

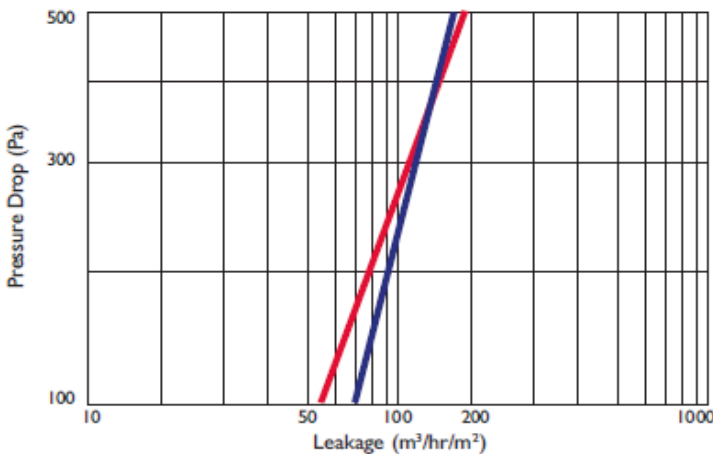


Ambient Case Leakage

An FSD-TD damper was tested and found to meet Class 'C' Classification BS EN 175 1:1999. With leakage being recorded at less than 0.11/s/m² at 2000 Pa

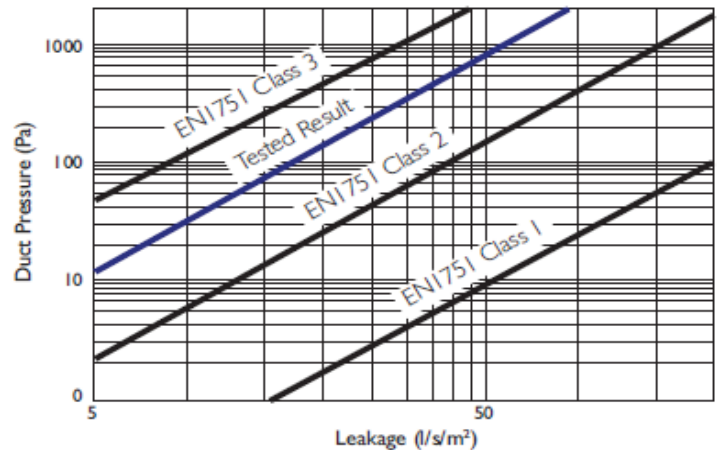
Ambient Blade Leakage tested to BSEN 1366-2

- 100x100mm (Smallest) unit
- 1000x1000mm (Largest) unit

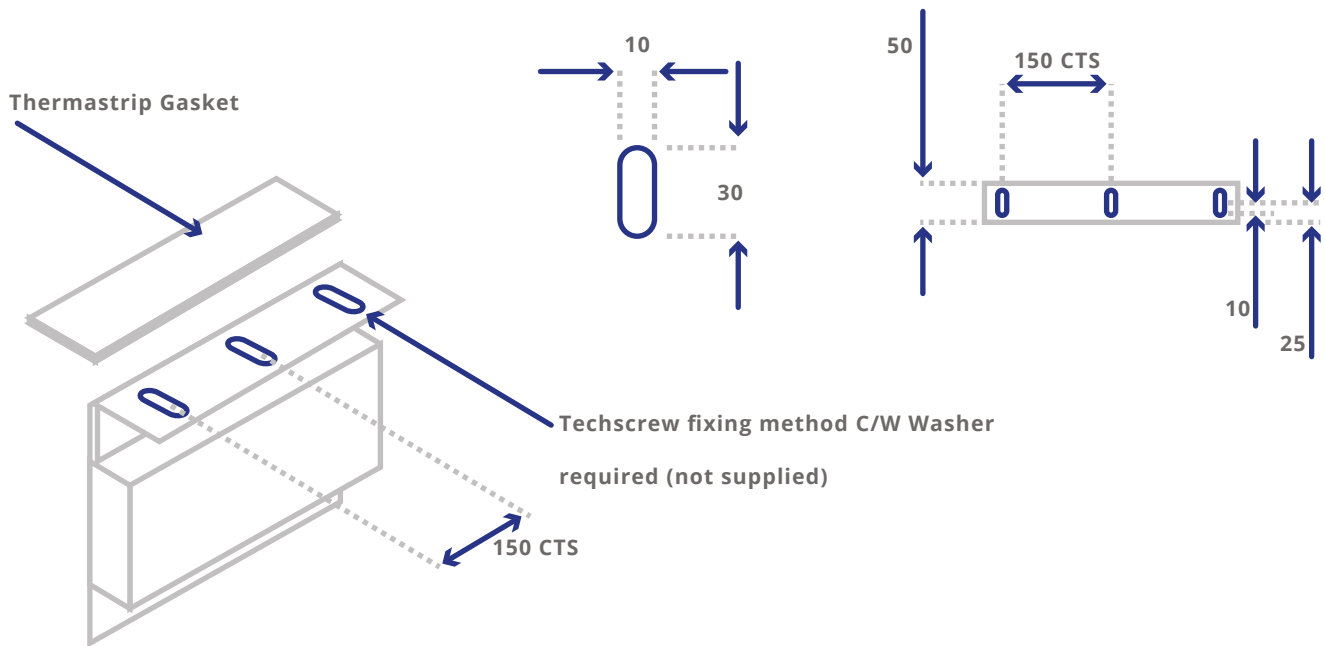


Ambient Blade Leakage for a 500mm square FSD-TD Damper

- 500x500mm unit as tested to BS EN 1366-2

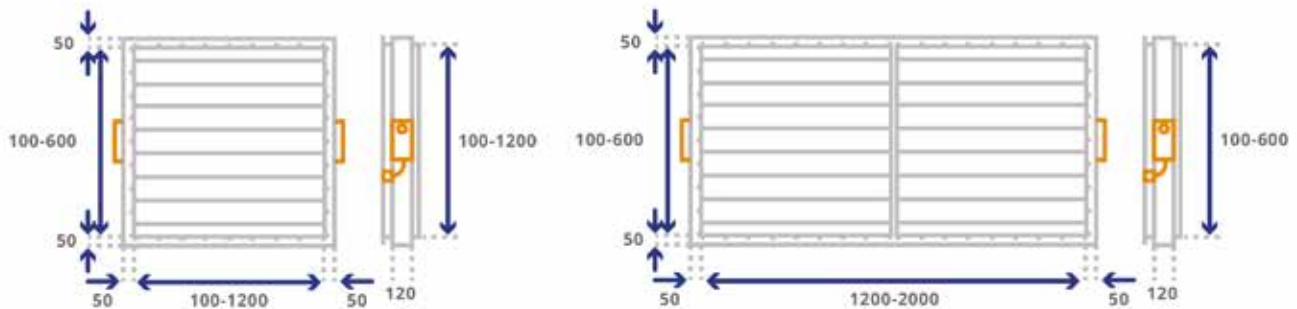
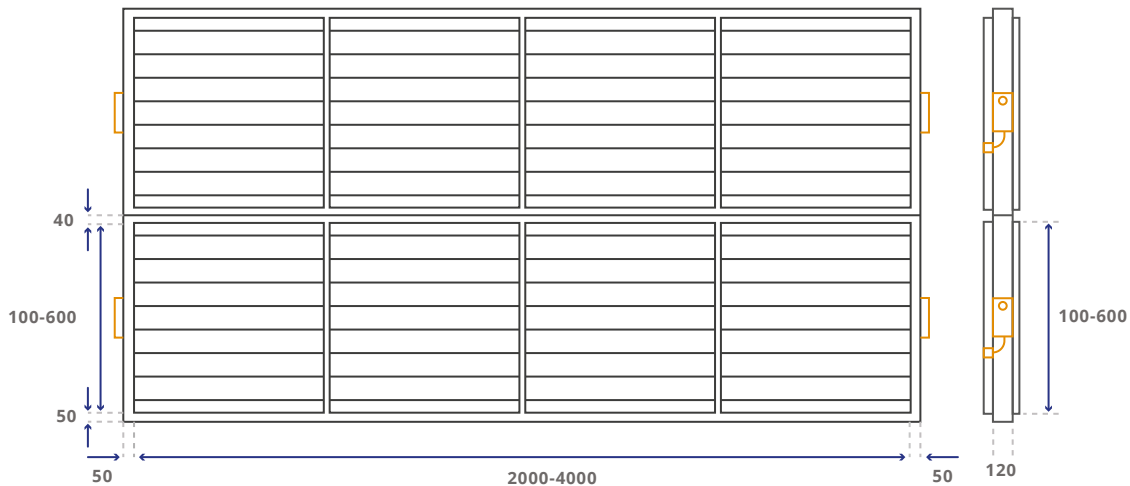


SLOTTED FLANGE INFORMATION



EXAMPLE OF LAYOUTS WITHOUT FLANGE

Different size options for Flange (50mm Standard), Fingerguard (1/2" Standard) and Spigot (50mm Standard). All available on request.



Fire/ Smoke Installation Notes.

- Maximum multiple arrangements, 2 Modules Wide X 2 Modules High Or 1 Modules Wide X 4 Modules High. Anything bigger requires 6mm support channel.

ACTUATORS

	BSB PM24 -TF	BSB PM230 -TF	BSB PM24 -NTF	BSB PM230 -NTF
Electrical data				
Nominal voltage	24V AC, 50/60 Hz / 24V DC	230V AC, 50/60 Hz	24V AC, 50/60 Hz / 24V DC	230V AC, 50/60 Hz
Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V	AC 196...264V	AC 19.2...28.8V / DC 21.6...28.8V	AC 196...264V
Power consumption motoring	10 W @ nominal torque	12 W @ nominal torque	10 W @ nominal torque	12 W @ nominal torque
Holding	2 W	4 W	2 W	4 W
For wire sizing	12.5VA / I _{max} 8.3 A @ 5 ms	14VA	12.5VA / I _{max} 8.3 A @ 5 ms	14VA
Auxiliary switch	2 x 1 SPDT	2 x 1 SPDT	2 x 1 SPST	2 x 1 SPST
Contact rating (contacts gold plate on silver)	1 mA ... 6 A (3 A) DC 5V ... AC 250V	1 mA ... 6 A (3 A) DC 5V ... AC 250V	1 mA ... 6 A (3 A) DC 5V ... AC 250V	1 mA ... 6 A (3 A) DC 5V ... AC 250V
Switching points	5° / 85°	5° / 85°	5° / 85°	5° / 85°
Thermal fuse	72°C	72°C	-	-
Supply cable (halogen free)	1.0 m, 2 x 0.75 mm ²	1.0 m, 2 x 0.75 mm ²	1.2 m, 2 x 0.75 mm ² (300°C, for 1 hour)	1.2 m, 2 x 0.75 mm ² (300°C, for 1 hour)
Signal cable (halogen free)	1.0 m, 6 x 0.75 mm ²	1.0 m, 6 x 0.75 mm ²	1.2 m, 4 x 0.75 mm ² (300°C, for 1 hour)	1.2 m, 4 x 0.75 mm ² (300°C, for 1 hour)
Functional data				
Running time motor	< 60 s	< 60 s	< 60 s	< 60 s
Spring-return (at 20°C)	< 30 s	< 30 s	< 30 s	< 30 s
Sound power level motor	Max. 45 dB (A)	Max. 45 dB (A)	Max. 45 dB (A)	Max. 45 dB (A)
Spring-return	~62 dB (A)	~62 dB (A)	~62 dB (A)	~62 dB (A)
Position indication	Mechanical with pointer	Mechanical with pointer	Mechanical with pointer	Mechanical with pointer
Service life	Min. 10,000 full cycles @ 15Nm followed by 50 full cycles @ 20Nm	Min. 10,000 full cycles @ 15Nm followed by 50 full cycles @ 20Nm	Min. 10,000 full cycles @ 15Nm followed by 50 full cycles @ 20Nm	Min. 10,000 full cycles @ 15Nm followed by 50 full cycles @ 20Nm
Safety				
Protection class	III Safety extra low voltage	II totally insulated	III Safety extra low voltage	II totally insulated
Degree of protection (including Thermal Fuse)	IP54 in all mounting positions	IP54 in all mounting positions	IP54 in all mounting positions	IP54 in all mounting positions
EMC	CE according to 89/336/EEC, 92/31/EEC, 93/68/EEC	CE according to 89/336/EEC, 92/31/EEC, 93/68/EEC	CE according to 89/336/EEC, 92/31/EEC, 93/68/EEC	CE according to 89/336/EEC, 92/31/EEC, 93/68/EEC
Ambient temperature range	normal duty -30°C to +50°C	normal duty -30°C to +50°C	normal duty -30°C to +50°C	normal duty -30°C to +50°C
Non-operating temperature	-40°C ... +50°C	-40°C ... +50°C	-40°C ... +50°C	-40°C ... +50°C
Ambient humidity range	95% rH, non-condensing (EN60730-1)	95% rH, non-condensing (EN60730-1)	95% rH, non-condensing (EN60730-1)	95% rH, non-condensing (EN60730-1)
Maintenance	Maintenance-free	Maintenance-free	Maintenance-free	Maintenance-free
Weight				
Weight	Approx. 3.1kg	Approx. 3.5kg	Approx. 3.1kg	Approx. 3.5kg

ACTUATOR WIRING INFORMATION

BSB FSD-TD-TF

BSB PM24-TF & BSB PM230-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)

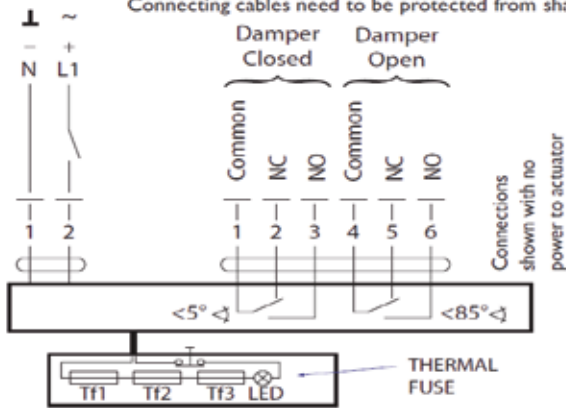
For damper closed indication use terminals 1 & 2

For damper open indication use terminals 4 & 6

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



BSB FSD-TD-NTF

BSB PM24-NTF & BSB PM230-NTF 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 supply

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

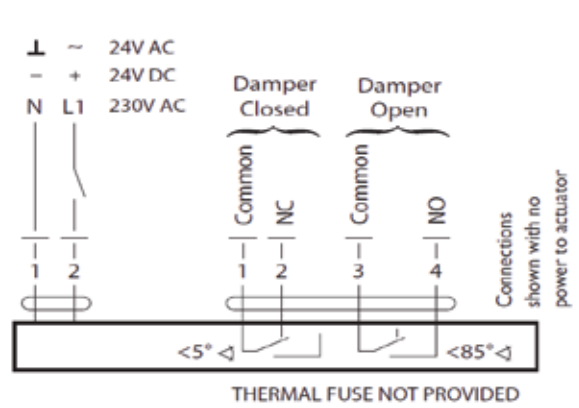
230V AC: For disconnection from the supply, a separate device must be incorporated in the fixed wiring (at least 3mm contact gap in all poles)

For damper closed indication use terminals 1 & 2

For damper open indication use terminals 3 & 4

Terminals 1 & 3 can be linked where required as an option

Connecting cables need to be protected from sharp edges



BSB FSD-TD HOT300

BSB PM24-NTF & BSB PM230-NTF 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 supply

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

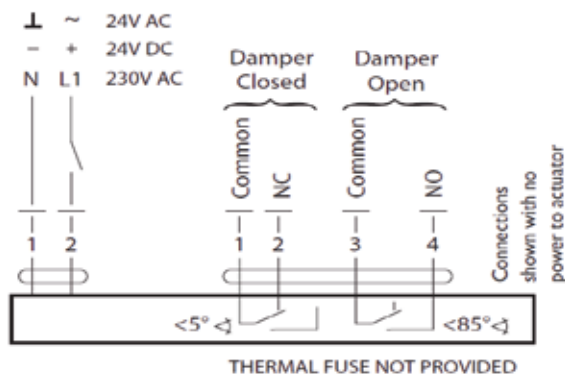
230V AC: For disconnection from the supply, a separate device must be incorporated in the fixed wiring (at least 3mm contact gap in all poles)

For damper closed indication use terminals 1 & 2

For damper open indication use terminals 3 & 4

Terminals 1 & 3 can be linked where required as an option

Connecting cables need to be protected from sharp edges



BSB FSD-TD SEVAC + HOT300 SEVAC

BSB PM24-NTF & BSB PM230-NTF ELECTRICAL CONNECTIONS DAMPER ENERGISED CLOSED / SPRING OPEN OPTION

- Wiring diagram shows switch positions based on no power to actuator
- Damper required normally closed
- Spring open on removal of power supply

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

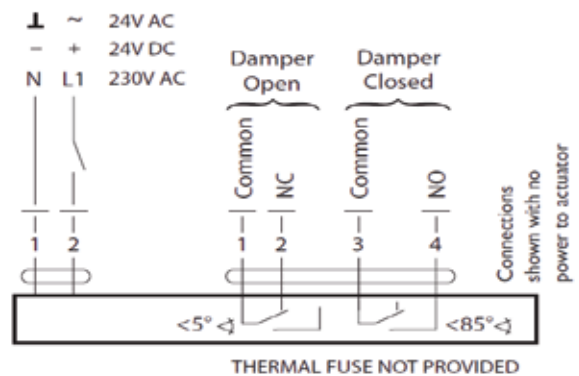
230V AC: For disconnection from the supply, a separate device must be incorporated in the fixed wiring (at least 3mm contact gap in all poles)

For damper open indication use terminals 1 & 2

For damper closed indication use terminals 3 & 4

Terminals 1 & 3 can be linked where required as an option

Connecting cables need to be protected from sharp edges





Engineered Air Treatment are proud of our quality record which allows us to have complete confidence in the products we offer. We adhere to our ISO9001 accreditation and install these values into our valuable employees. This confidence allows us to offer a 2 year warranty with all our products.

We also have complete traceability and files over 20 years old to look back on. We are a can do company.

SMOKE/FIRE DAMPERS IN THIS FORMAT ARE NOT CE MARKED DUE TO THE BESPOKE NATURE OF THE APPLICATIONS, WE HAVE THEREFORE HAD THESE INDEPENDENTLY TESTED BY INDEPENDANT FIRE CONSULTANTS WITH OUR APPROVED FLANGING SYSTEM TO SHOW DUE CARE AND DILIGENCE , ALSO BACKED UP BY OUR BRE REPORTS.

Engineered Air Treatment Ltd use 95Deg C Thermostatic Probes as standard.

The BSB PM24-TF & PM230-TF Actuators incorporate a thermal fuse(TF),

which operates at 72Deg C. This is in accordance with BS 9999 and BS5588 part 9.

This must be fitted through a hole into the ductwork and screwed into position.

the TF is fitted with a green LED indication light which provides a quick visual

check that the control option is receiving power and the TF is intact. Also included

is a manual sprung test switch for periodic testing of the damper.

For safety

reasons the TF is designed to operate only once upon reaching the activation

