

ETD Series



Elevated Temperature Volume Control Damper

- Suitable for 300°C continuous operation
- Unique support actuator carrier bracket
- Standard actuators compatible
- Blade linkage out of airstream
- Unique double skin interlocking blades

BSB

MANUFACTURERS OF AIR, FIRE AND SMOKE CONTROL PRODUCTS

ETD Series

Elevated Temperature Volume Control - Introduction



Introduction

The ETD Series damper is designed for the control of air through the connecting ductwork and is suitable for continuous elevated temperatures up to 300°C. Exposure to temperatures greater than this will compromise the case leakage.

Its design, construction and material selection have been specific to ensure a high quality, low-maintenance product is manufactured, supplied and installed.

The ETD Series control damper is not intended to comply with EN12101-8 Smoke and Heat Control Systems - Smoke Control Dampers.

In addition to operation at elevated temperatures, the ETD Series damper can also be used in conventional ducted systems where manual or motorised control dampers are called for.

Controls

Hand control will be supplied as standard, for control and setting the system design air flow.

Dampers can be supplied with a range of factory fitted actuators where required.

Motorised dampers will be supplied with a 250mm long extended bracket to minimise heat transfer from the duct/damper to the actuator.

The ambient temperature surrounding the fitted actuator must be no greater than 35°C and the ductwork should be insulated with a minimum of 50mm thick mineral wool.

For ambient temperature applications, actuators can be supplied without the extended bracket. Please see Page 6 for extended spindle and manual operation.

Size Range

Flanged Single Section ETD - F -
100mm wide x 100mm high minimum
up to 1200mm wide x 1200mm high - one section.

Rectangular Spigot Case ETD - S -
100mm wide x 100mm high minimum
up to 1200mm wide x 1200mm high - one section.

Circular Spigot Case ETD - C -
100mm dia. minimum up to 1200mm dia. - one section.

Specifications and Testing

- Test conditions - Case Leakage Classes A, B & C of Eurovent 2/2 Table 1, DW144 2016 Edition and BS EN 1751 Table C.2
- Normal operating conditions - not exceeding 1000Pa, Classes A & B of DW144 2016 Specification will apply.

Features

- Standard blade and case construction is galvanised mild steel, with Grade 301S (1.4310) stainless steel side seals
- Unique one-piece double-skin interlocking airfoil blades
- Linkage out of airflow
- Optional blades and case in Grades 316 (1.4404) or 430 (1.4016) stainless steel
- Available in 1mm increments.
- 40mm flange detail as standard
- 130mm flange case depth as standard
- Fitted side covers as standard

Gaskets

Grade 301 (1.4310) stainless steel peripheral gasket is fitted as standard to the damper inner sides only.

Landing Angle

Landing angle will be supplied top and bottom of damper for intermediate damper heights.

Blades

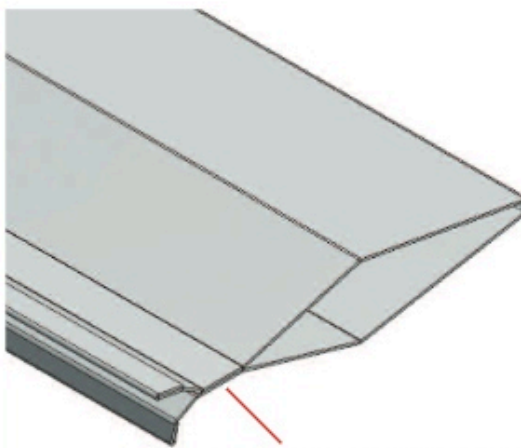
The 100mm pitch steel airfoil interlocking blades are fitted to 19mm diameter spindles for robust, low-friction rotation.

Galvanised blades DX 51D Z275 are offered as standard, with Stainless Steel Grade 430 (1.4016) and Grade 316 (1.4404) options available to order.

Opposed blade operation only.

Vertical Blades

For applications which necessitate the blade axis to be installed vertically, BSB's Sales Office must be informed so that due allowance can be made for the additional components required.



Profile with dutch fold safe edges to allow interlocking of blades

Product Specification

Case

Material is 1.2mm galvanised coated mild steel to BS EN 10346 DX 51D Z275. Cover plates are of "Top Hat" profile to allow the use of clamps onto the flanges. Doby Verrotec or similar.

Blades

Nominal 100mm pitch one-piece double skin airfoil interlocking blades. Material is 0.7mm galvanised coated mild steel to BS EN 10346 DX 51D Z275. Stainless steel blades (0.7mm) to grades 430 (1.4016) or 316 (1.4401) to BS EN 10088-2 are available.

Blade Spindles

Manufactured from 19mm steel tube rotating in punched formed bushes. Material is 1.2mm galvanised coated mild steel to BS EN 10305-3. Optional is grade 316L (1.4404) to BS EN 10217-7.

Drive shaft

19mm solid steel drive shaft zinc plated.

Side Gasketing

Manufactured from 0.4mm grade 301 (1.4301) stainless steel to BS EN 10088-2.

Linkage

Operation via drive bars 3.2mm x 20mm, manufactured from galvanised mild steel to BS EN 10346 DX 51D Z275. Drive bars are positioned out of airflow, connected to blade spindles via crank arms. Opposed blade operation.

Side Covers

Galvanised 0.7mm side cover plates fitted sealed on both sides of the flange case to protect the linkage from dust or damage, minimising casing leakage to requirements of DW144 Class A, B & C as standard. See Table on Page 5.

Bushes

"Burst through" bushes pre-formed into the galvanised steel flange casing, or inner side frames for spigot models allowing the spindles to rotate freely.

Size Range

See Page 3.

Sealant Specification

Neutral Oxime Curing Sealing Silicone conforming to EN15651-1 F EXT-INT.

Multiple Assemblies

Illustrated variant for a multiple section unit.

Where size exceeds 1200mm width, multi-section units will be supplied.



Large multiple units will be shipped as individual sections for site assembly.

Unless requested, joining strips would not normally be supplied drilled.

Note:

For applications which necessitate the blades to be installed vertically, BSB's Sales Office must be informed so that thrust bearings are fitted to eliminate gasket compression.

Standard Typical Tender/Specification Text

The ETD Series damper is designed for the control of air through the connecting ductwork and is suitable for continuous elevated temperatures up to 300°C. Exposure to temperatures greater than this will compromise the case leakage. It's design, construction and material selection have been specific to ensure a high quality, low maintenance product is manufactured, supplied and installed.

The ETD Series control damper is not intended to comply with EN12101-8 Smoke and Heat Control Systems - Smoke Control Dampers.

In addition to operation at elevated temperatures, the ETD Series damper can also be used in conventional ducted systems where manual or motorised control dampers are called for.

Galvanising

Where detailed, galvanised mild steel is to the following specification: hot dipped zinc coated steel to BS EN 10142 DX51D + Z 275.

Zinc plating

Zinc electroplated to BS EN ISO 2081.

Casings

The ETD casings are made in 1.2mm galvanised mild steel and have welded corner joints. Silicone sealant is applied to seams and joints. All accessible welds are coated with environmentally friendly water based paint.

Drive shaft

19mm solid steel drive shaft zinc plated.

Blades

Dampers are supplied with opposed blade operation. The blades have a dutch fold safe edge profile and are made in 0.7mm galvanised, grade 430 (1.4016) stainless steel or grade 316 (1.4401) stainless steel. 316L (1.4404) available.

The blades are a specially formed double skin airfoil shape, specific to BSB, on a 100mm pitch that interlock when closed.

Side gasketing

Manufactured from 0.4mm grade 301 (1.4301) stainless steel to BS EN 10088-2.

Blade shafts, bearings and linkage

The blades are each mounted on two 19mm diameter tube spindles (1.2mm wall thickness) made from zinc plated mild steel to BS EN 10305-3: Zinc Plate = EN 20181. The spindles are linked using a gear system 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.

Actuators

Dampers will be supplied with a factory fitted extended spindle carrier system complete with an actuator mounting plate to ensure heat migration via the drive spindle has minimal impact.

ETD Series

Elevated Temperature Volume Control - Dimensions



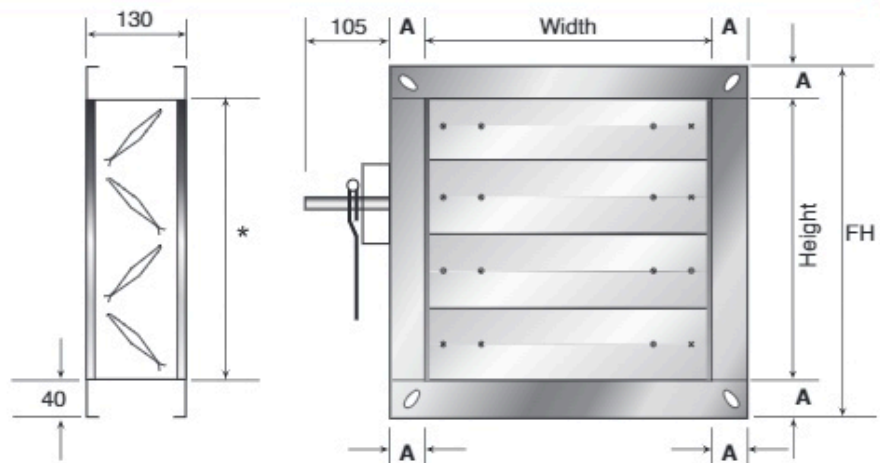
Model ETD Flangefit

Width x Height = 100mm to 1200mm

Standard Dimensions:

A = 40mm as standard.

35mm and 50mm options available

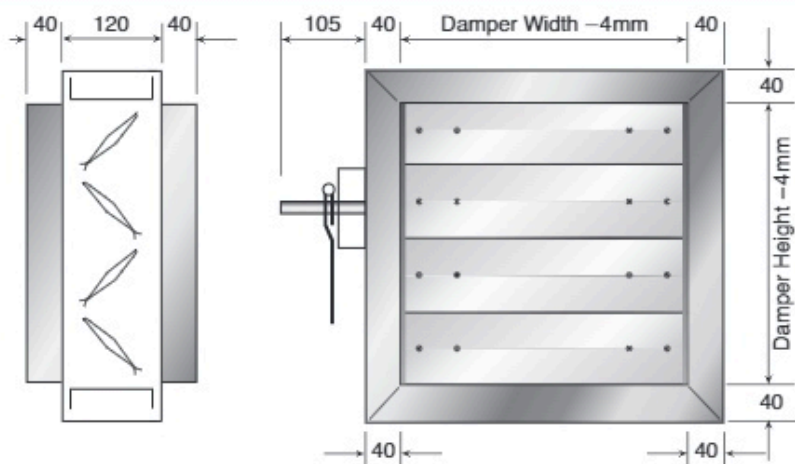


★ Where damper heights are requested in 100mm increments, the damper airway size will be 12mm greater with top and bottom flanges amended to accommodate the blade profile, with the overall frame height "FH" (full height) being unaffected.

Model ETD Spigotfit

Width = 100mm to 1200mm

Height = 100mm to 1200mm

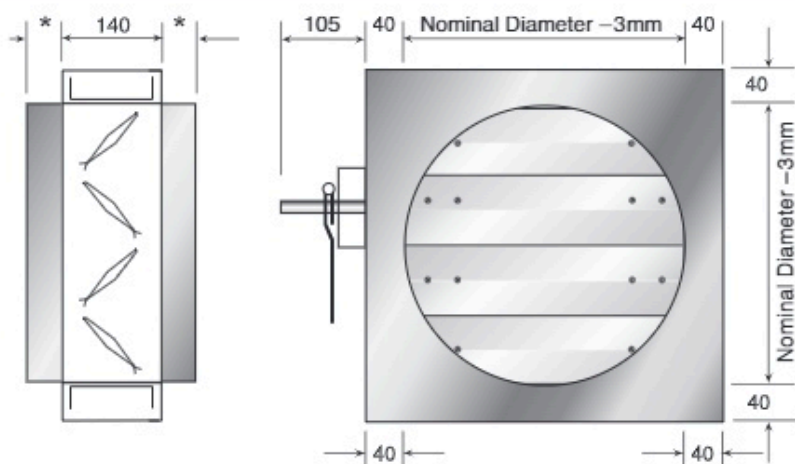


Model ETD Circular

Diameter = 100mm to 1200mm

* = 41mm (100 - 354mm diameter)

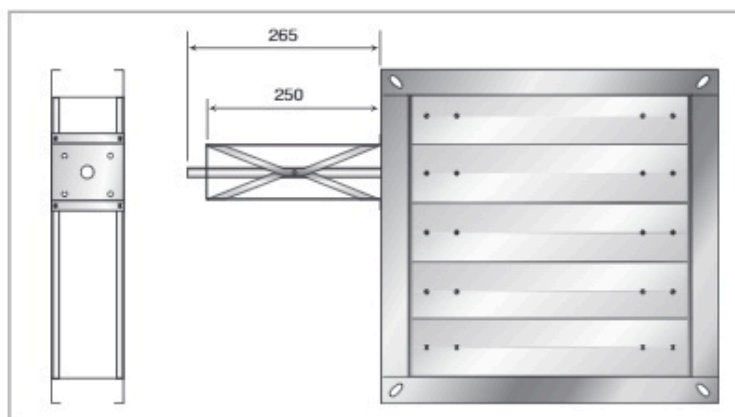
55mm (355 - 1200mm diameter)



Option E Extended Spindle

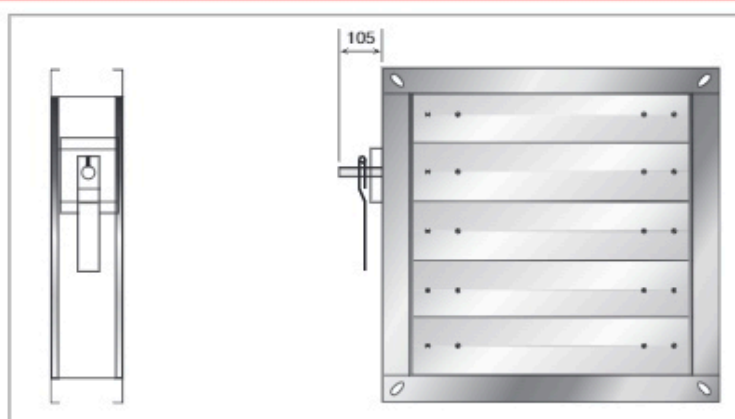
For motorisation by others.

Supplied with support carrier bracket with a 19mm dia. solid spindle having a 15mm long, 12mm square end to accept clients own actuator. 12mm dia. spindle available to order.



Option H Hand Control

Hand lockable quadrant.



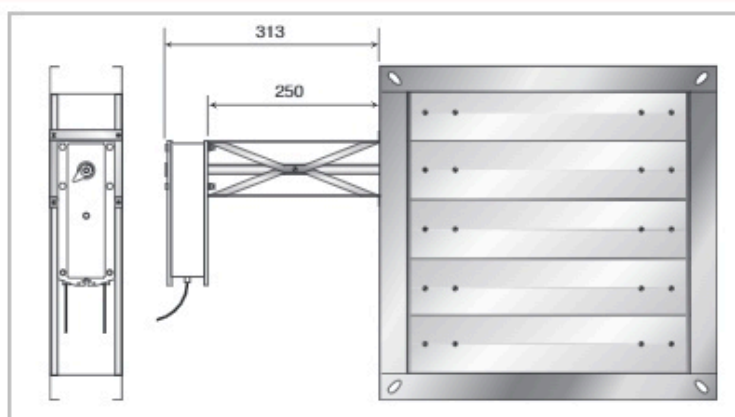
Option M Electric Motor

Elevated temperature applications

Can be supplied with actuators with the following control motor functions:

- Motor open/Motor close Operation
- Spring Return Operation
- Or as specified

12mm dia. spindle available to order



Weight Chart (Kg) Flanged Model

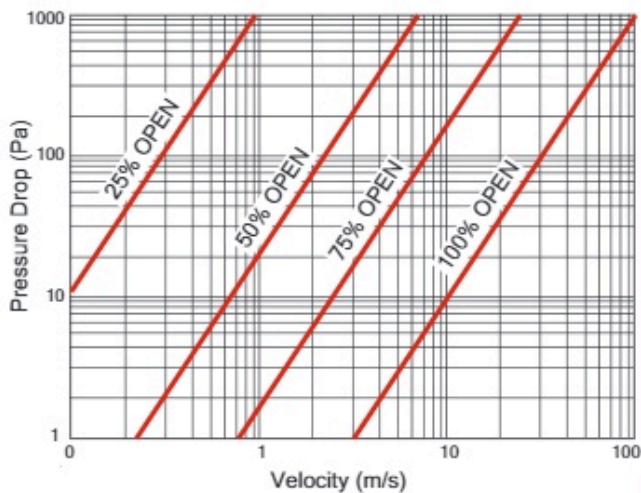
| Damper Height (mm) | Damper Width (mm) | | | | | | | | | | | |
|-----------------------|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 |
| 100 | 4 | 4 | 5 | 6 | 6 | 8 | 8 | 9 | 10 | 10 | 12 | 13 |
| 200 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 300 | 6 | 8 | 9 | 10 | 11 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 400 | 8 | 9 | 10 | 11 | 13 | 14 | 15 | 16 | 18 | 19 | 20 | 21 |
| 500 | 10 | 11 | 13 | 14 | 15 | 16 | 18 | 19 | 21 | 23 | 24 | 25 |
| 600 | 12 | 13 | 14 | 16 | 18 | 19 | 21 | 23 | 25 | 27 | 28 | 29 |
| 700 | 14 | 15 | 16 | 18 | 19 | 21 | 23 | 25 | 27 | 29 | 31 | 32 |
| 800 | 15 | 16 | 18 | 19 | 21 | 23 | 25 | 27 | 29 | 31 | 33 | 35 |
| 900 | 16 | 18 | 19 | 21 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 |
| 1000 | 17 | 19 | 21 | 23 | 26 | 28 | 30 | 32 | 34 | 36 | 39 | 41 |
| 1100 | 18 | 21 | 23 | 25 | 28 | 30 | 33 | 35 | 37 | 40 | 43 | 45 |
| 1200 | 20 | 22 | 25 | 28 | 30 | 33 | 35 | 38 | 40 | 43 | 45 | 48 |

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Elevated Temperature Volume Control - Performance Characteristics

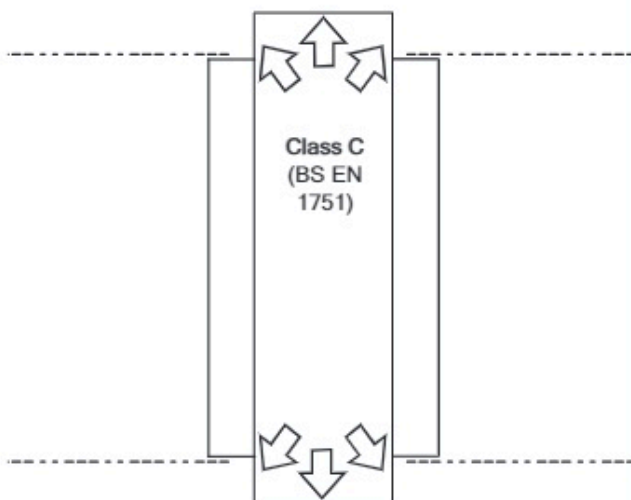


Pressure Drop BSRIA Report 15633/1

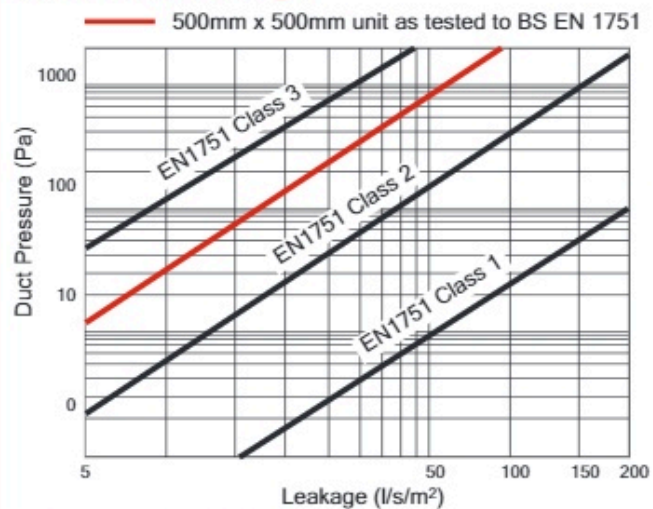


Ambient Case Leakage

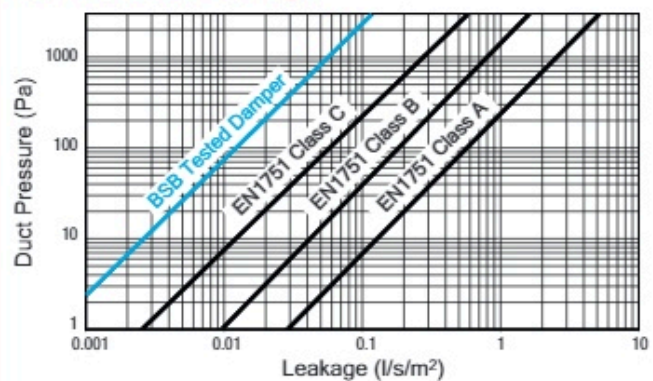
An ETD damper was tested and was found to meet Class 'C' Classification BS EN 1751. With leakage being recorded at less than 0.1 l/s/m² at 2000 Pa.



Ambient Blade Leakage



Permitted Case Leakage EN 1751



The blue line represents a tested damper 100mm x 100mm. Larger size damper leakage improves as the size increases pro rata.

Torque Chart (Nm) 1500Pa maximum duct pressure

| Damper Size (Width x Height in mm) | | | |
|------------------------------------|-----------|-------------|-------------|
| 200 x 200 | 500 x 500 | 1000 x 1000 | 1200 x 1200 |
| 5 Nm | 10 Nm | 20 Nm | 30 Nm |

Please note that these values have been rounded up or down at blade interaction, with actual blade rotation being at reduced torque levels.

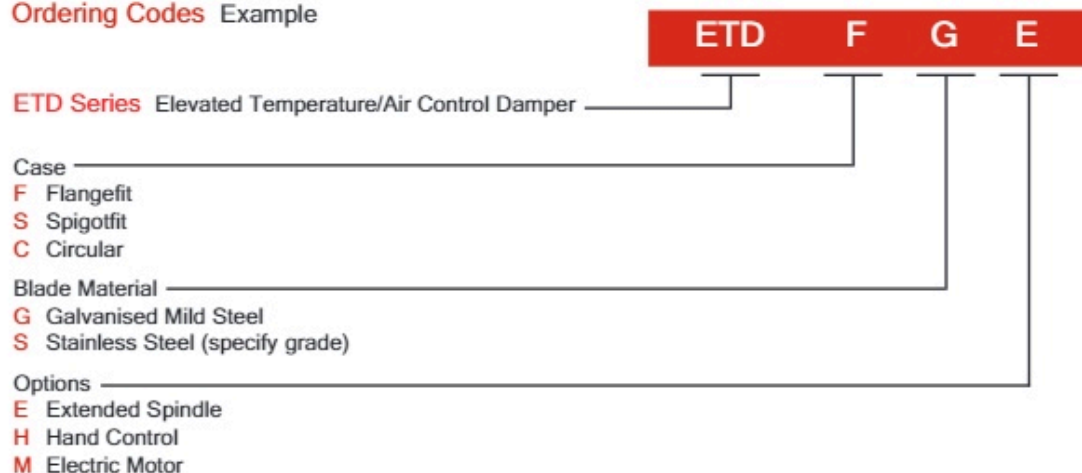


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Elevated Temperature Volume Control - Notes

Notes:

Ordering Codes Example



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.