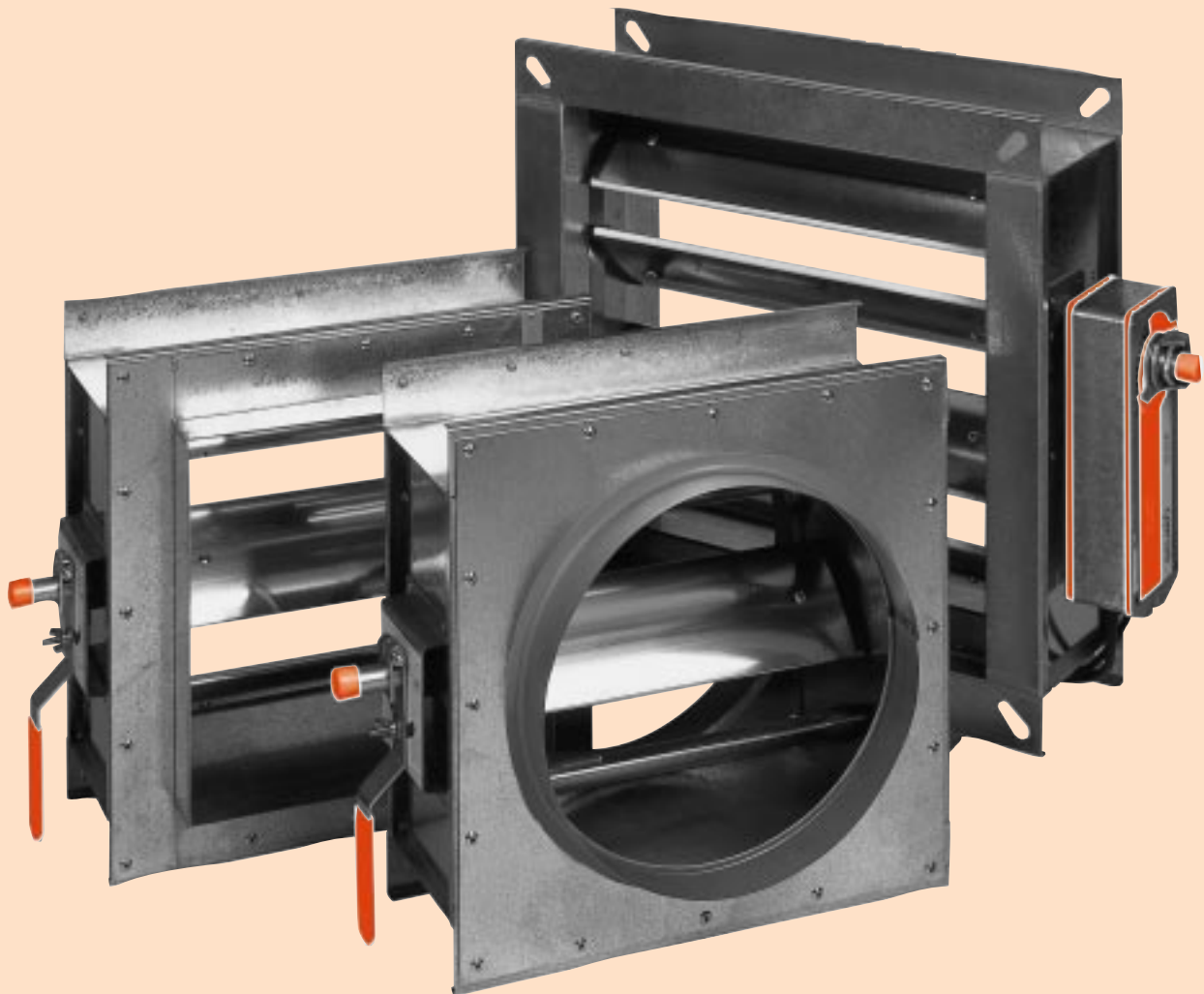


HEAVY DUTY BALANCE AND CONTROL DAMPER



HD
SERIES

Product Specifications

Introduction

The HD Series Multi-Leaf Volume Control Damper has been specifically designed for installation in systems where high air pressures and velocities are experienced.

Combined with its robust construction, the damper is particularly suitable for use on air handling units.

Single units designed to operate from one control point (hand locking quadrant or motor operation) can be manufactured in single module units to 2500mm x 2000mm.

Features

- ★ Standard case construction is galvanised mild steel
- ★ Three airfoil blade designs
- ★ Four casing options
- ★ Low and high pressure models
- ★ Out of airflow linkage
- ★ Easy conversion from manual to motorised and vice versa
- ★ Can be supplied with blades and case in Grade 304, 316 and 430 stainless steel
- ★ Balance and control dampers
- ★ Infinite sizing capability from 100mm to 2500mm widths and 100mm to 2000mm height
- ★ Variable flange dimensions and casing widths
- ★ Comprehensive control options
- ★ Stainless steel side seals to order

Specifications and Testing

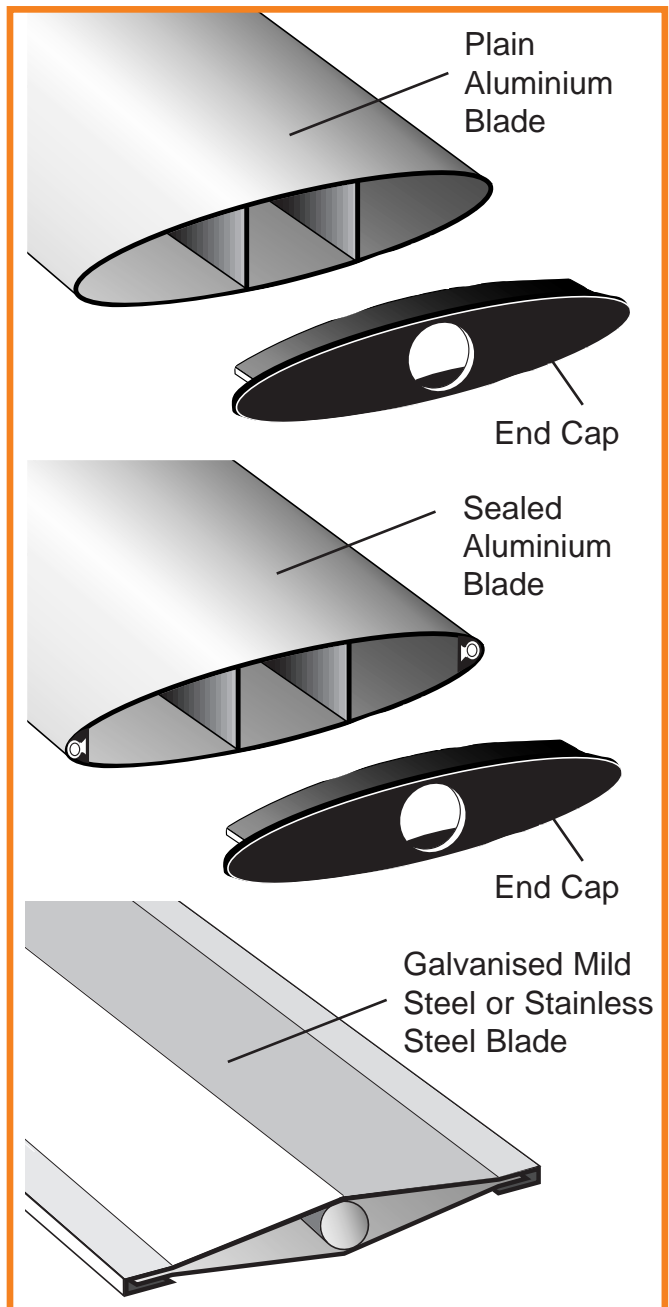
- ★ Unless stated otherwise, flange models are suitable for classes A & B of DW144, with spigot models suitable for classes A, B & C of DW144
- ★ Conforms to HVCA specification DW144
- ★ Conforms to Eurovent 2/2 classes A-C
- ★ Independent performance tests for pressure loss and leakage. Test reports 158 and 160 refer respectively

Blades

The 100mm wide extruded aluminium airfoil section blades are fitted to 19mm diameter spindles with the option of galvanised coated mild steel or Grades 304, 316 and 430 stainless steel blades available to order.

All models are available with either opposed or parallel blades (unless specified, opposed blades will be supplied as standard).

Fitted to the ends of the aluminium blades are End Caps to alleviate noise generation.



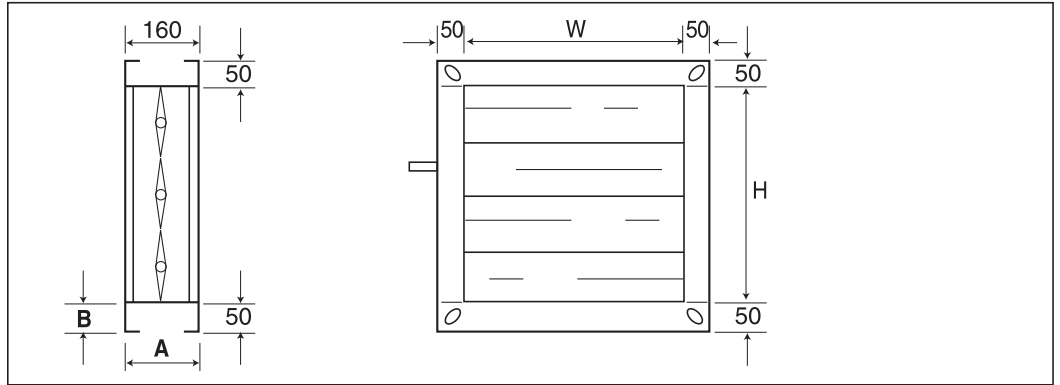
Dimensions

Heavy Duty Flangefit

W x H = 100-2000mm

A = 110,120,150 and 200mm to order (160mm standard)

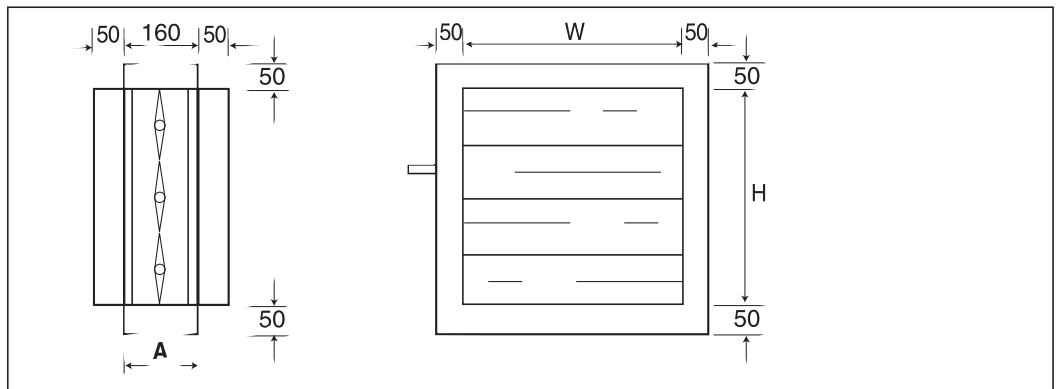
B = 35 and 40mm to order (50mm standard)



Heavy Duty Spigotfit

W x H = 100-2000mm

A = variable dimension (see above)

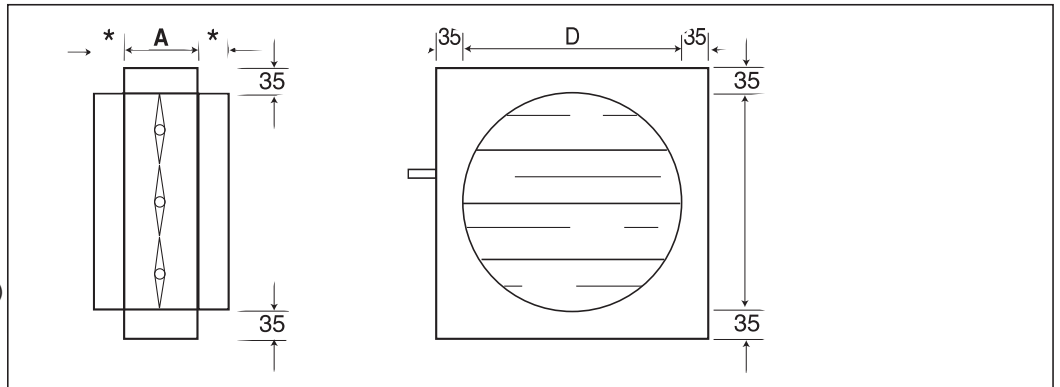


Heavy Duty Circular Spigotfit

D = 100-2000mm

A = 115mm (100-1250mm dia.)
160mm (1255-2000mm dia.)

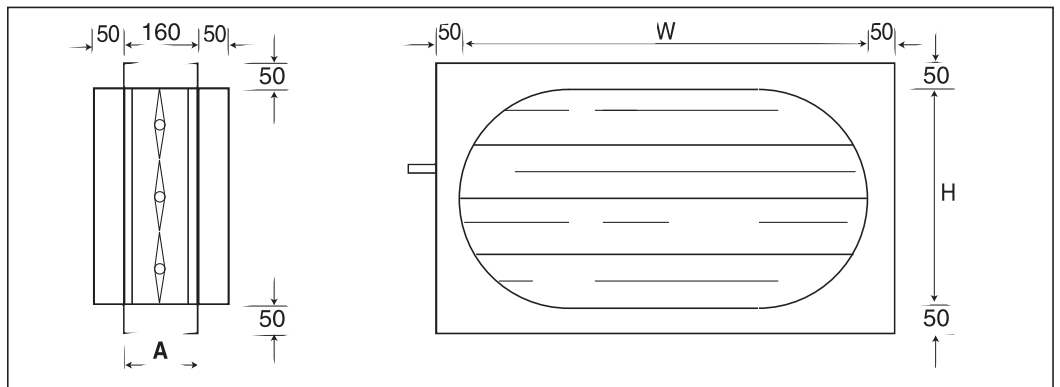
* = 40mm (100-354mm dia.)
60mm (355-2000mm dia.)



Heavy Duty Flat Oval Spigotfit

W x H = 100-2000mm

A = variable dimension (see above)



- Notes:
1. All dimensions are in mm.
 2. Spigotfit Models are supplied with actual spigot dimensions nominal less 5mm \pm 1mm
 3. For sizes greater than detailed maximum size, multiple section units would be supplied

Specifications

Multiple Assemblies

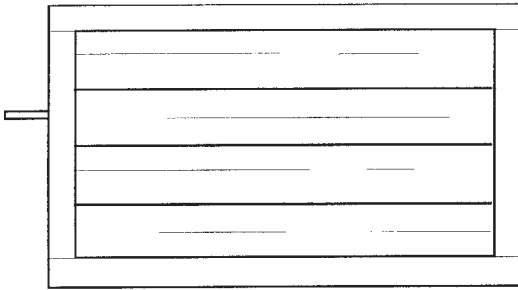
Illustrated below are several variants to multiple section units. Blade lengths are up to 1250mm with centre mullions used where case widths extend to sizes greater than maximum blade length.

It is important to note that the low leakage model is only supplied up to 1000mm in width

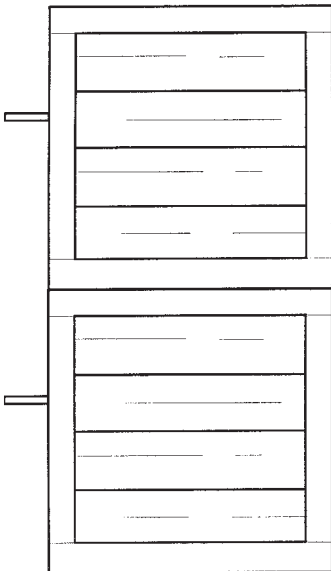
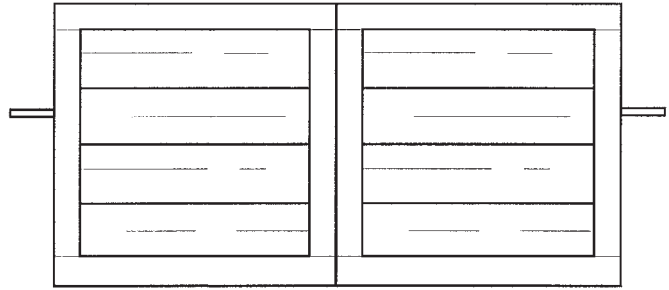
and height, with multiple sections supplied for units greater than 1000mm.

When there are transportation restrictions, large multiple units can be broken down and shipped as individual sections for site assembly. Unless requested, joining strips would not normally be supplied drilled.

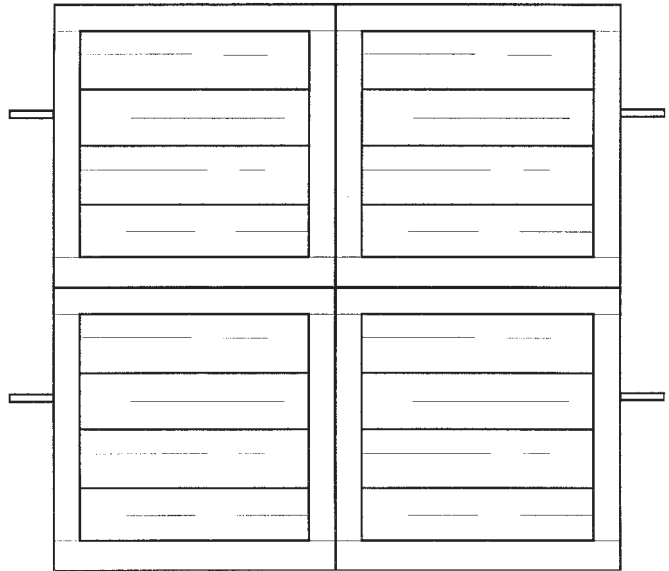
Sizes up to
2500mm x 2000mm



Sizes up to
5000mm x 2000mm



Sizes up to
2500mm x 4000mm



Sizes up to
5000mm x 4000mm

Special Note:

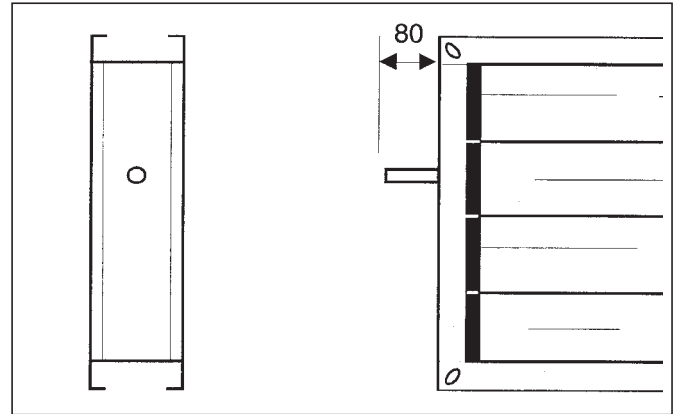
BSB can manufacture to individual specifications and applications. Illustrated above are standard variants with other variants available to order.

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 blade friction.

Control Options

Option E Extended Spindle

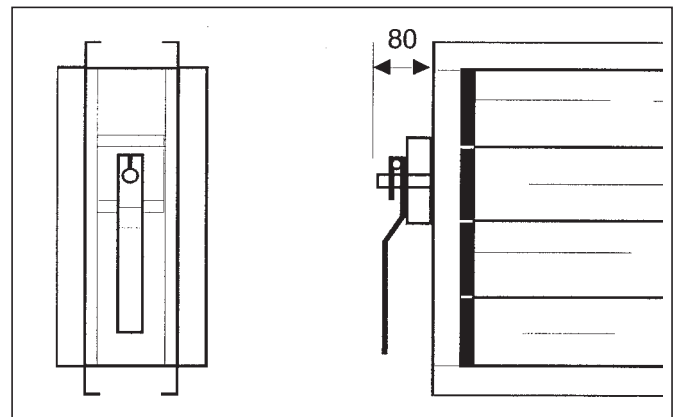
When the specification requires the HD Series Damper to be supplied for motorisation by others, BSB supplies the damper with a 19mm diameter spindle, 80mm in length.



Option H Hand Control

BSB's unique hand-lockable quadrant is supplied complete from the factory.

When the specification is amended from Option "E" to Option "H" (regardless if during manufacture or after delivery), conversion is easily completed.



Option M Electric Motor

The HD Series Damper can be supplied with the following control motors fitted:

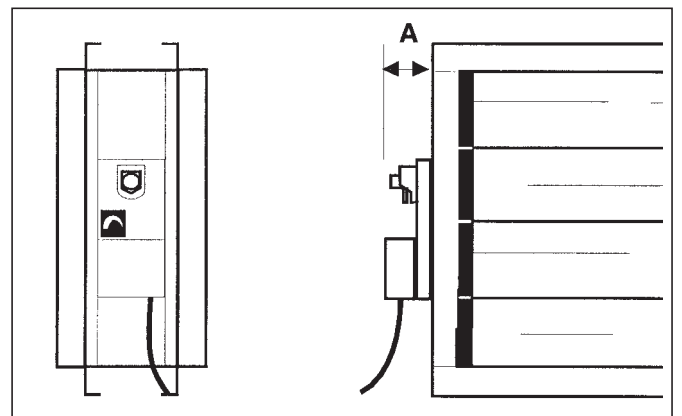
Open/Close operation:

A = 70mm, 15Nm

A = 80mm, 30Nm

Spring Return operation:

A = 95mm, 15Nm

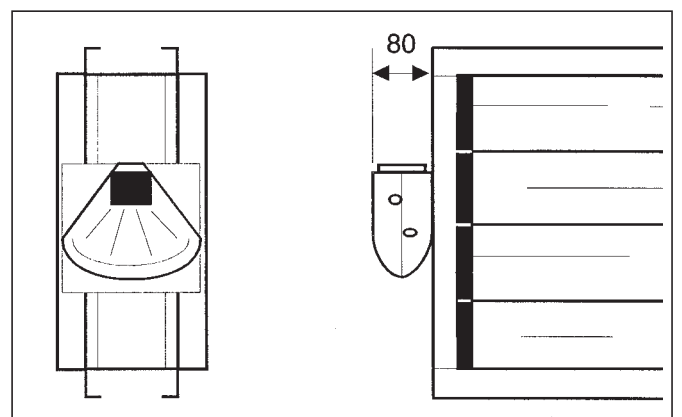


Option P Pneumatic Actuator

The model actuator used operates between 20psi/1.4bar and 100psi/7bar. It is supplied fitted to the damper complete with integral threaded air-ports to pressurize and vent the actuator.

Various accessories are available to this actuator.

For additional technical details, please contact BSB's sales office for data sheets to Option "M" and Option "P"



Specification Tables

Torque Chart (Balance Blade with End caps)

| Differential Pressure (Pa) | Damper Size (mm) | | | | | |
|----------------------------|------------------|--------|-------------|--------|-------------|--------|
| | 400 x 400 | | 1000 x 1000 | | 1500 x 1500 | |
| | Nm | lb/ins | Nm | lb/ins | Nm | lb/ins |
| 500 | 5.0 | 44.0 | 9.0 | 79.0 | 13.0 | 115 |
| 1000 | 6.0 | 53.0 | 11.0 | 97.0 | 15.0 | 132 |

These values have been rounded up and down to whole numbers and are illustrated for estimation purposes only.

Weight Chart (Kg) (Flangefit Model - Aluminium Blades)

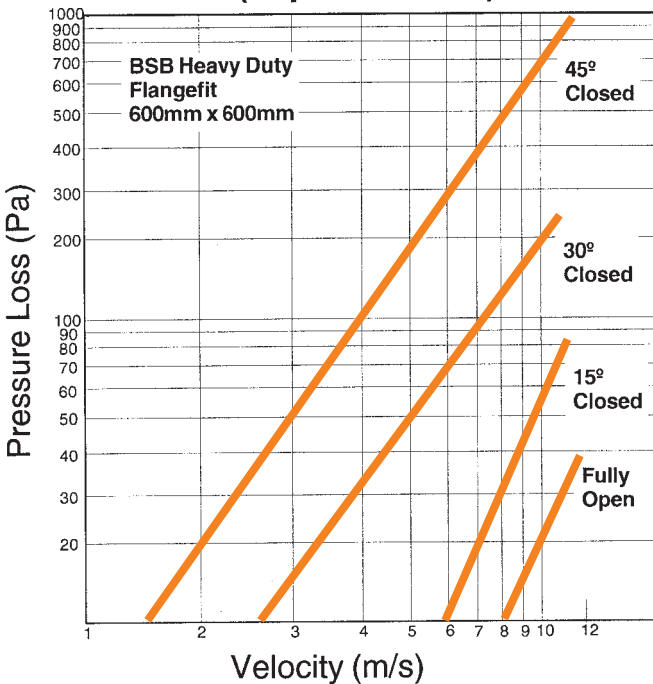
| Damper Height (mm) | Damper Width (mm) | | | | | | | | |
|--------------------|-------------------|------|------|------|------|------|------|------|------|
| | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |
| 100 | 2.5 | 3.0 | 4.0 | 4.5 | 5.5 | 6.0 | 7.0 | 7.5 | 8.5 |
| 200 | 4.0 | 4.5 | 5.5 | 6.0 | 7.0 | 7.5 | 8.5 | 9.0 | 10.5 |
| 300 | 4.5 | 6.0 | 7.0 | 8.5 | 9.0 | 10.0 | 10.5 | 12.0 | 13.5 |
| 400 | 6.0 | 7.5 | 9.0 | 10.0 | 12.0 | 13.0 | 13.5 | 15.0 | 16.0 |
| 500 | 7.0 | 8.5 | 10.0 | 12.0 | 13.0 | 14.0 | 16.0 | 16.5 | 18.0 |
| 600 | 8.5 | 10.0 | 12.0 | 13.5 | 15.0 | 16.5 | 18.0 | 19.5 | 21.0 |
| 700 | 9.0 | 12.0 | 13.5 | 16.0 | 18.0 | 19.5 | 21.0 | 22.5 | 23.5 |
| 800 | 10.5 | 13.0 | 14.0 | 16.5 | 19.0 | 20.5 | 22.5 | 25.0 | 26.5 |
| 900 | 12.0 | 13.5 | 16.5 | 19.0 | 20.5 | 22.5 | 23.5 | 25.5 | 27.5 |
| 1000 | 12.0 | 15.0 | 18.0 | 20.5 | 23.5 | 25.5 | 26.5 | 27.5 | 31.5 |

FOR SPIGOT MODELS ADD 10% TO THESE VALUES

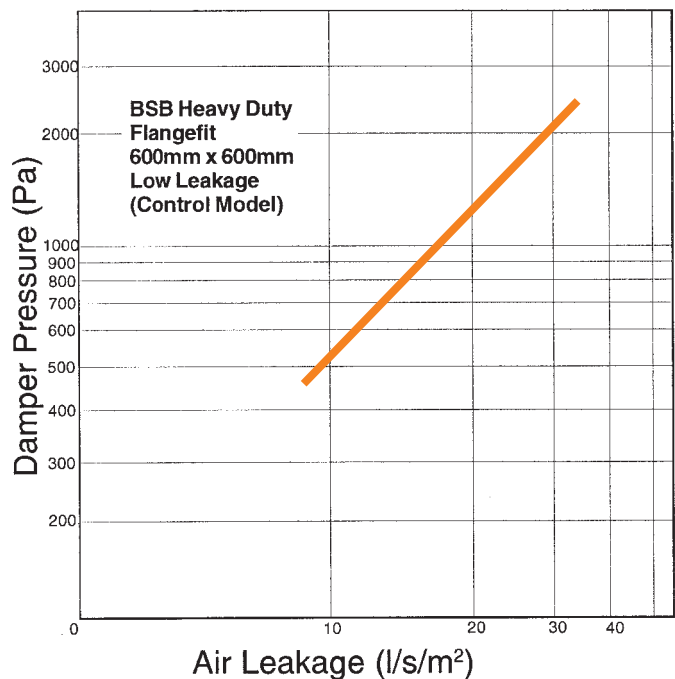
Please Note: These values have been rounded "up or down" to whole values and are therefore illustrated for estimation purposes only.

Performance Characteristics

Pressure Loss (Report Ref. 158)



Leakage (Report Ref. 160)



Material Specification

Casing

1.2mm (18swg) galvanised mild steel to BS EN 10142 1991. Coating Class Fe P02b Z275 Na.

Blades

Extruded airfoil aluminium to BS 1747 1987, wall thickness 1.25mm (18swg) minimum.

Blade End Caps

Injection moulded black polypropylene to BSB's recorded design.

Blade Spindles

19mm (3/4") diameter galvanised mild steel tube with corrosion resistant "Flo-Coat".

Drive Spindles

19mm (3/4") diameter galvanised mild steel tube with corrosion resistant "Flo-Coat".

Quadrant

1.2mm (18swg) galvanised mild steel chassis with integral rotation slot and blade position indication. 30mm x 2.75mm (1 3/16" x 1/8") zinc plated mild steel handle with integral clamp and locking nut to BS EN 10142 1991. Coating Class Fe P02b Z275 Na.

Linkage

Crank Arm: 30mm x 2.75mm zinc plated mild steel spindle clamp with integral 8mm diameter drive pins 3mm thick.
Drive Bar: 20mm x 3mm flat bar punched to fit onto zinc plated drive pins.

Bushes

Punch-formed bushes are formed within the casing to provide a low friction bearing for the blade spindles to rotate.

Rivets

High quality self-sealed rivets are used to European standards as relevant.

Sealant

All joints and seams are sealed with 3M sealant conforming to dictates of DW144.

Paint

Aluminium primer is applied to all welds and ground surfaces.

Operating Temperature

-10°C to +110°C as standard.
To order: -10°C to + 350°C (galvanised blades)
-10°C to + 275°C (aluminium blade & silicon seal).

Low Leakage Models

Blade Edge Seals

Extruded hollow section silicone seal with temperature before distortion -10°C to + 275°C.

Side Seal Gasket

Grade 302 stainless steel hard rolled to BS 5770 Part4 1981, 0.345mm (0.010") thick.

Options

Casing

Grades 304, 316 or 430 stainless steel.

Blades

Grades 304, 316 or 430 stainless steel or galvanised coated mild steel.

Blade and Drive Spindles

Grades 304 or 316 stainless steel.

Locking Quadrants

Grades 304, 316 or 430 stainless steel, 1.2mm thick.

Linkage

Crank arm and drive bar in grades 304 or 316 stainless steel.

Bearings

Injection moulded Nylon 66 "Top Hat" design.

Oilite Bronze Bushes

Impregnated with mineral oil to ISO VG 100 (SAE 30) would be supplied.

Side Seal Gasket

Grades 302 or 316 stainless steel hard rolled to BS 5770 Part 4 1981, 0.345mm (0.010") thick.

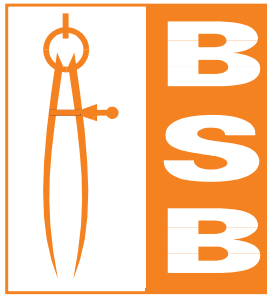
Paint

Galvafruid zinc rich paint.

Special Note:

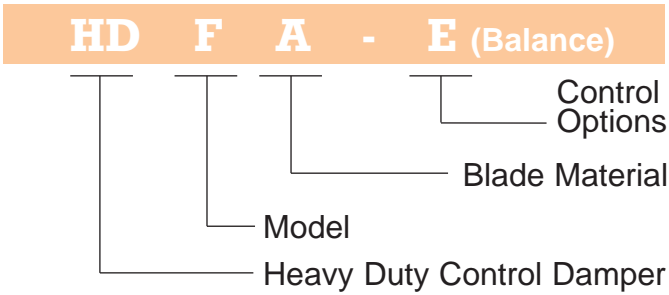
When rectangular spigots are supplied 1.6mm (16swg) material will be used. When circular or flat oval spigots are supplied, 1.6mm (16swg) material will be used for the mating plates with 0.8mm (22swg) material used for spigots.

Welded construction of circular models to order.



Ordering Codes

Example:



HD Heavy Duty Control Damper

Model:

- F** Flange-Fit
- S** Rectangular/Square Spigot-Fit
- C** Circular Spigot-Fit
- O** Flat Oval Spigot-Fit

Blade Material:

- A** Aluminium Airfoil Blades (state balance or control)
- G** Galvanised Mild Steel Airfoil Blades
- S** Stainless Steel Airfoil Blades (state grade)

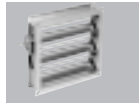
Control Options:

- E** Extended Spindle
- H** Hand Control
- M** Electric Motor (state voltage and model)
- P** Pneumatic Actuator Fitted

BSB Product Range



AD Series
Access Doors



EF Series
Easifit Damper



FSD Series
Fire/Smoke Damper



SB Series
Single Blade Regulating Damper



BD Series
Backdraught Damper



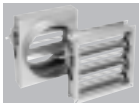
FD Series
Fire Damper



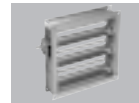
HD Series
Heavy Duty Control Damper



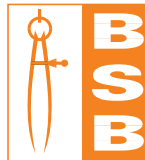
SC Series
Smoke Control Damper



DD Series
Duct Damper



SF Series
Slimfit Regulating Damper



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