HEAVY DUTY BALANCE AND CONTROL DAMPER

Mech-Elec®

HD SERIES

BALANCE CONTROL

Product Description and Features

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.

Dampers for air control can be manufactured with a single drive to a maximum size of 2500mm wide x 2000mm high. Where low closed blade leakage is required, the maximum size with a single drive will be 1000mm x 1000mm.

Manual Quadrant Control, Motor Option or 19mm dia. Extended Spindle for actuation by others are available as standard.

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 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

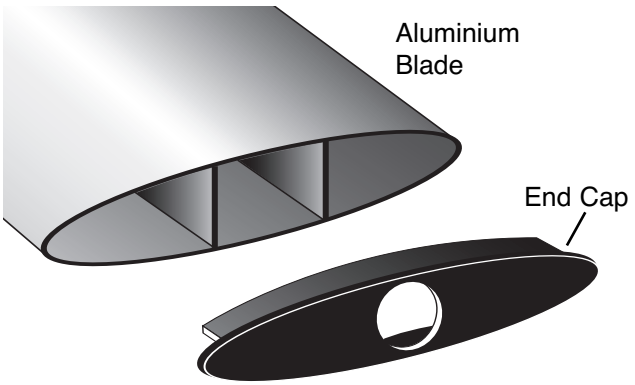
Blades

The 100mm wide galvanised blade is offered as standard with the option of extruded aluminium airfoil section or precision rolled grade 430 or 316 stainless steel available to order. All blades are fitted to 19mm diameter spindles.

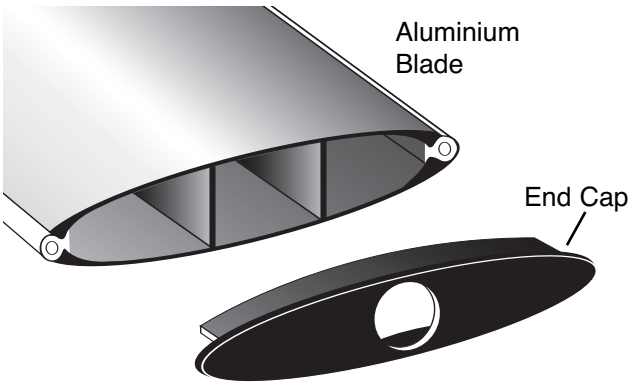
All models are available with either opposed or parallel blades (unless specified, opposed blades will be supplied as standard).

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

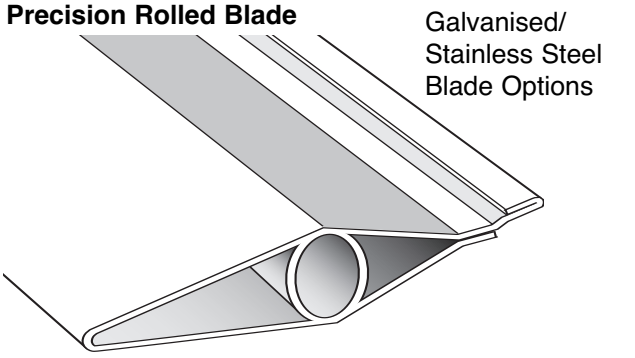
Plain Air Balance Blade



Twin Edge Seal Blade



Precision Rolled Blade



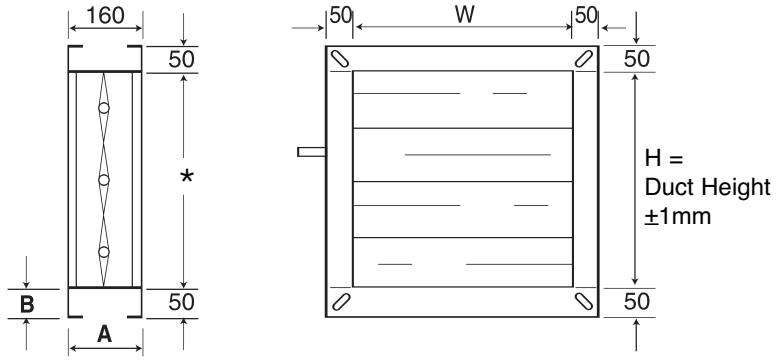
Dimensions

Heavy Duty Flangefit

Width: 100mm - 2500mm
Height: 100mm - 2000mm

A = 140, 150 and 200mm to order (160mm standard)
B = 35 and 40mm to order (50mm standard)

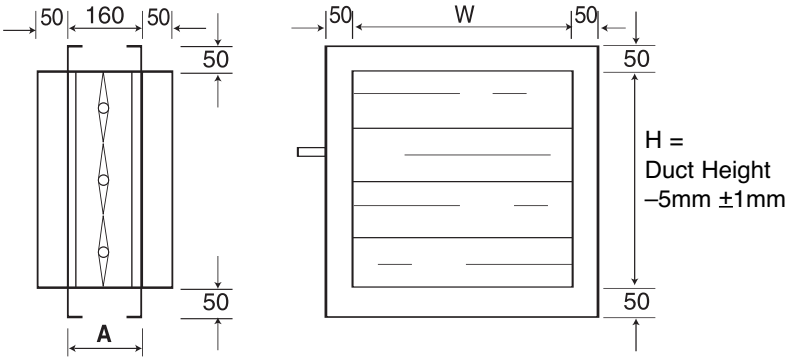
* Where damper heights are requested in 100mm increments, the damper air way size will be 12mm greater for stainless steel and galvanised blades and 5mm greater for aluminium blades. Top and bottom flanges are amended to accommodate the blade profile, with the overall flange size being unaffected.



Heavy Duty Spigotfit

Width: 100mm - 2500mm
Height: 100mm - 2000mm

A = 140, 150 and 200mm to order (160mm standard)



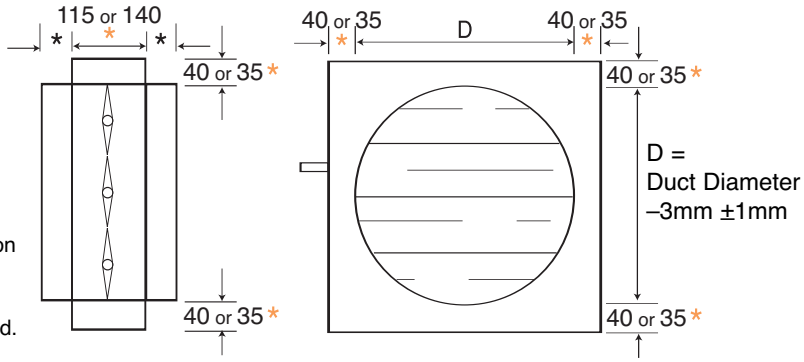
Heavy Duty Circular Spigotfit

Diameter: 100mm - 2000mm

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

* Damper case depth is 115mm where aluminium blades are fitted. 40mm dimension from spigot to case edge

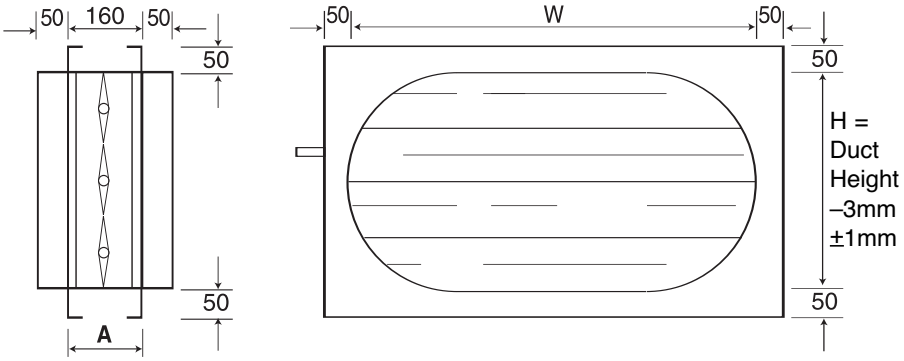
Damper case depth is 140mm where galvanised or stainless steel blades are fitted. 35mm dimension from spigot to case edge



Heavy Duty Flat Oval Spigotfit

Width: 100mm - 2000mm
Height: 100mm - 2000mm

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



Notes:
1. All dimensions are in mm
2. Spigotfit Models are supplied with actual spigot dimensions nominal less – *please see comments above*.
3. For sizes greater than detailed maximum size, multiple section units would be supplied.
4. To order always specify Duct Width x Duct Height

Multiple Assemblies

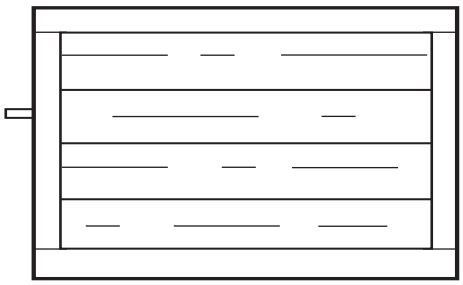
Illustrated below are several variants to multiple section units. Blade lengths are up to 1250mm with 15mm centre mullions used where case widths extend to sizes greater than maximum blade length.

Low Leakage Model

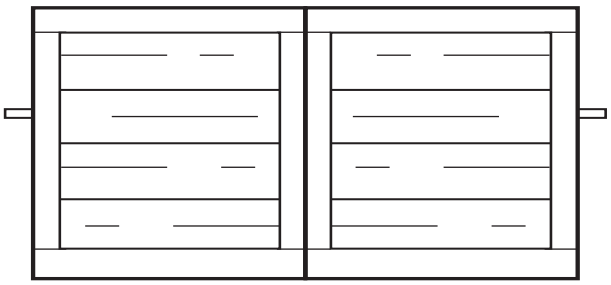
It is important to note that the low leakage model is only supplied up to 1000mm in width and height, with multiple sections supplied for units greater than 1000mm.

When there are transportation restrictions, large multiple units will be shipped in individual sections for site assembly by others. Joining strips are supplied un-drilled unless requested otherwise.

Large multiple units required to be shipped fully assembled will incur additional packing/shipping costs. Please contact our sales office for further information.



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.

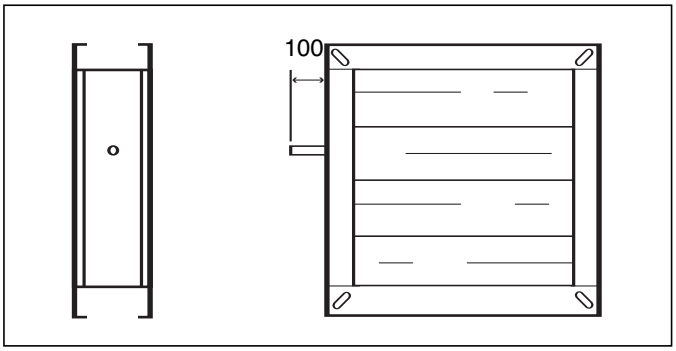
Single and Multiple Damper arrangements are designed to be installed with blades in the horizontal plane.

Drive spindle is always fitted to the second blade down. Alternative positions are possible to special order.

Control Options

Option E Extended Spindle

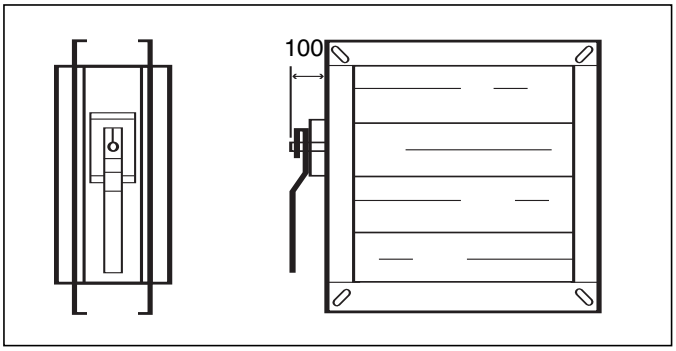
When the specification requires the HD Series Damper to be supplied for motorisation by others. BSB supplies the damper with a 19mm diameter spindle, 100mm in length.



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" conversion is easily completed.

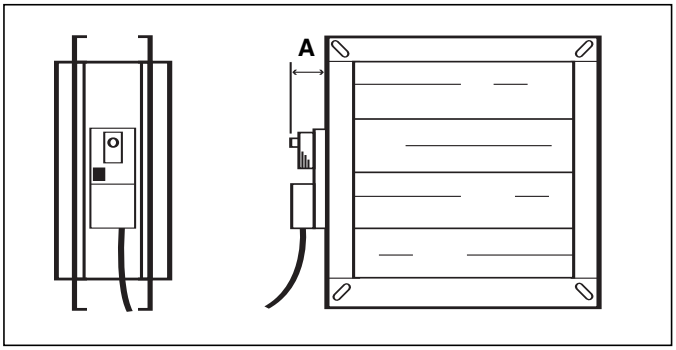


Option M Electric Motor

A dimension: Square/Rectangular = 100mm
Circular = 110mm

The HD Series Damper can be supplied factory fitted with electric actuators offering a choice of methods of operation.

For additional technical details, please contact BSB's sales office for data sheets.



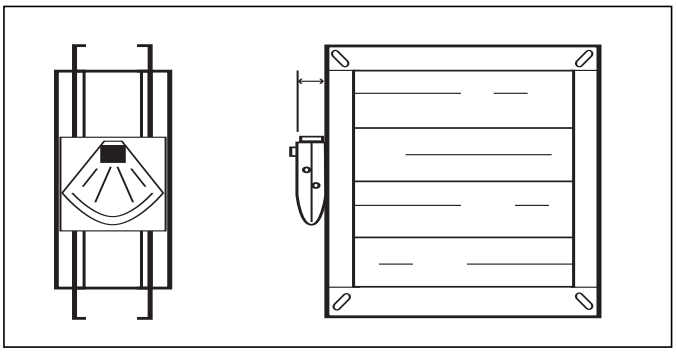
Option P Pneumatic Actuator

The model actuator used operates between 30psi/2bar and 120psi/8bar.

It is supplied fitted to the damper complete with integral threaded 1/4bsp air-ports to pressurize and vent the actuator.

Various accessories are available to this actuator.

For additional technical details and dimensions, please contact BSB's sales office for data sheets.



Performance, Weight and Torque Data

Torque Chart (Balance Blade with End Caps)

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

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	115.0
1000	6.0	53.0	11.0	97.0	15.0	132.0

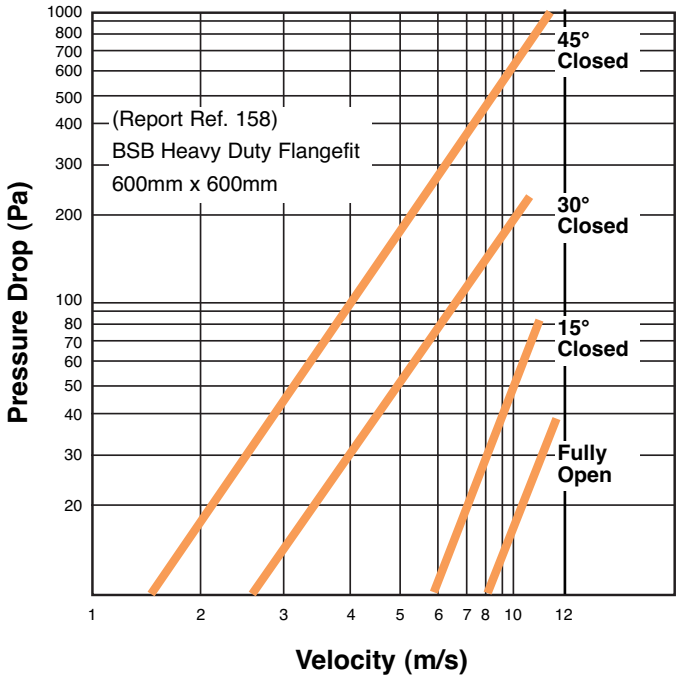
Weight Chart (Kg) (Flangefit Model - Aluminium Blades)

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

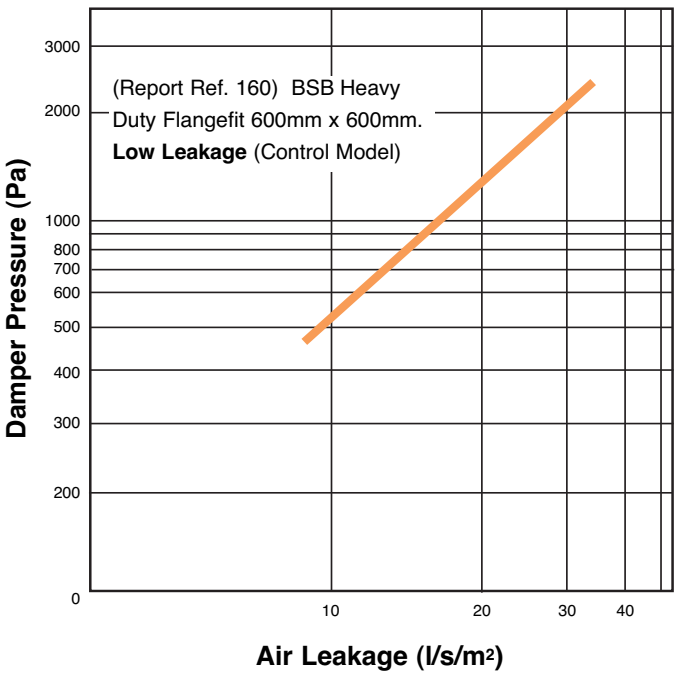
Damper Height (mm)	Damper Width (mm)								
	200	300	400	500	600	700	800	900	1000
100	2.5	3.0	4.0	4.5	5.5	6.0	7.0	7.5	8.5
200	4.0	4.5	5.5	6.0	7.0	7.5	8.5	9.0	10.5
300	4.5	6.0	7.0	8.5	9.0	10.0	10.5	12.0	13.5
400	6.0	7.5	9.0	10.0	12.0	13.0	13.5	15.0	16.0
500	7.0	8.5	10.0	12.0	13.0	14.0	16.0	16.5	18.0
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

Performance Characteristics

Pressure Drop



Low Leakage



Product Specification

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.
Precision rolled galvanised mild steel.
430 grade stainless steel.
316 grade stainless steel.

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 + 200°C (aluminium blade & silicon seal).

Low Leakage Models

Blade Edge Seals
Extruded hollow section silicone seal with temperature before distortion -10°C to + 200°C.

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

Options

Casing
Grades 316 or 430 stainless steel.

Blades
Grades 316 or 430 stainless steel or galvanised coated mild steel, 0.7mm thick.

Blade and Drive Spindles
Grade 316 stainless steel.

Locking Quadrants
Grades 316 or 430 stainless steel, 1.2mm thick.

Linkage
Crank arm and drive bar in grade 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
Galvafroid 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.

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Ordering Codes

Example:

HD F G - E

- E — Control Option
- G — Blade Material
- F — Model
- HD — Heavy Duty Control Damper

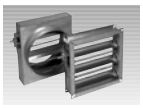
HD Heavy Duty Control Damper

Model:
- F Flangefit
- S Rectangular/Square Spigotfit
- C Circular Spigotfit
- O Flat Oval Spigotfit

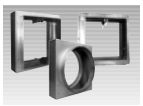
Blade Material:
- G Galvanised Mild Steel Airfoil Blades
- A Aluminium Airfoil Blades (state balance or low leakage)
- S Stainless Steel Airfoil Blades (state Grade)

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

BD Series
Backdraught Damper



DD Series
Duct Damper



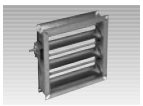
FD Series
Fire Damper

FSD Series
Fire/Smoke Damper

HD Series
Heavy Duty Control Damper

SB Series
Single Blade Regulating Damper

SC Series
Smoke Control Damper



SF Series
Slimfit Regulating Damper

Control Panel
Fully Addressable or Electro-Mechanical