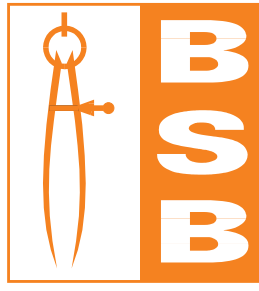


SMOKE CONTROL DAMPERS



SC
SERIES

Manufacturers of Air/Fire/Smoke Control Products

S M O K E C O N T R O L

Product Specifications

Introduction

The SC Series Smoke/Control Damper has been designed for installation primarily into Fire-Rated Ventilation Ducts to control low-medium air velocities.

Its all steel construction is robust, with detail to its application, performance and size as required by specifiers and contractors.

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

Single section units are available from 100mm² to 1200mm².

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
- ★ Conformance to DW144 and Eurovent 2/2 classes A - C, as relevant
- ★ Elevated temperature tests, reports 231297, 234486 and 27438 refer
- ★ Fire tested to BS 476 part 20, 1987. Test reports TE 92896A, TE 92896B and TE 94703 refer
- ★ Resistance tested by BSRIA, report 15633/1 refers
- ★ Leakage tested by BSRIA, report 15633/1 refers
- ★ 28 day salt corrosion tested. Chatfield report RLR3 refers

Features

- ★ Standard blade and case construction is galvanised mild steel, with grade 302S stainless steel side seals
- ★ Unique one-piece double-skin interlocking airfoil blades
- ★ Four casing options
- ★ Linkage out of airflow
- ★ Optional blades and case in grades 304, 316 or 430 stainless steel
- ★ Grade 316 stainless steel side seals available to order
- ★ Infinite sizing capability from 100mm square to 1200mm square
- ★ Variable flange dimensions and casing widths

Blades

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

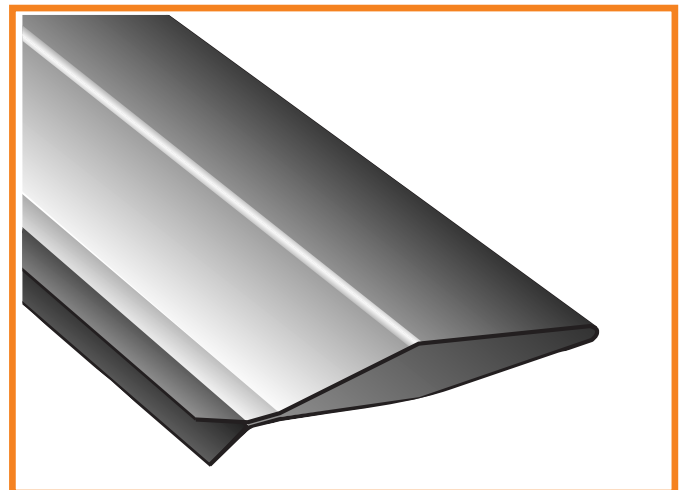
The option of grades 430, 304 or 316 stainless steel blades are available to order.

Fitted as standard, is grade 302S stainless steel blade end-seals.

Opposed blade operation only.

Special 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 blade friction.



Dimensions

Model SC - Flangefit

W x H = 100mm to 1200mm

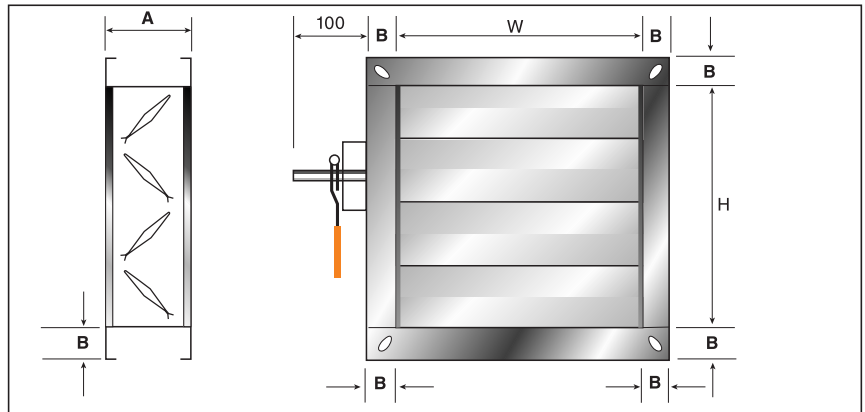
Standard Dimensions

A = 160mm as standard.

130mm & 200mm available to order

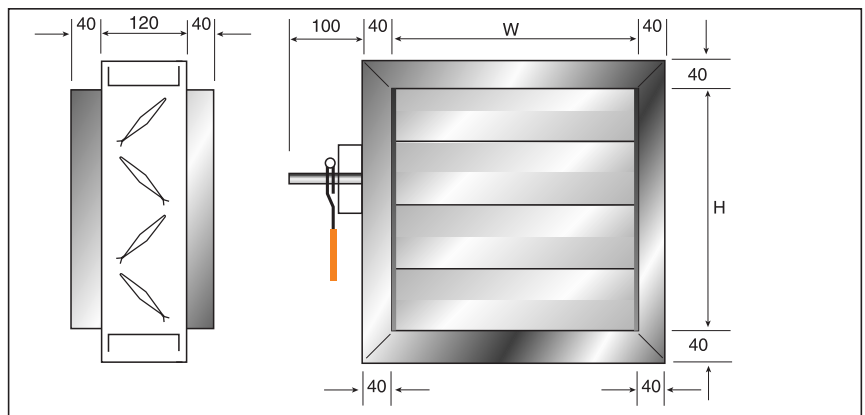
B = 40mm as standard. 30mm, 35mm and 50mm available as detailed below:

Flange Size	Case Width
30mm	160mm or 200mm
35mm	160mm or 200mm
40mm	all width variants
50mm	all width variants



Model SC - Spigotfit

W x H = 100mm to 1200mm

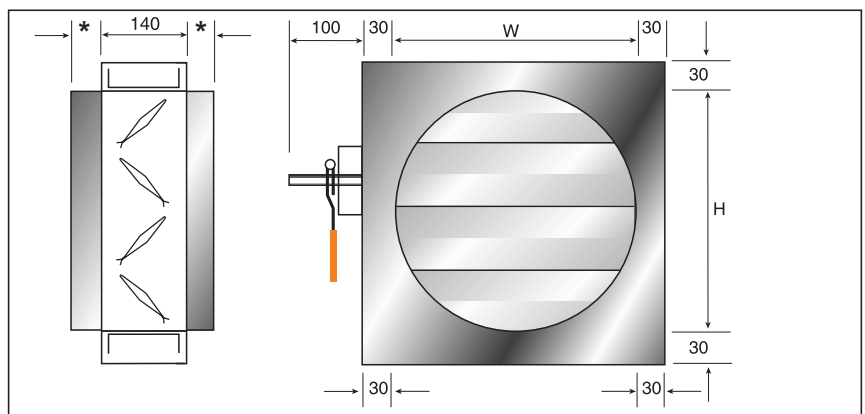


Model SC - Circular

W x H = 100mm to 1200mm

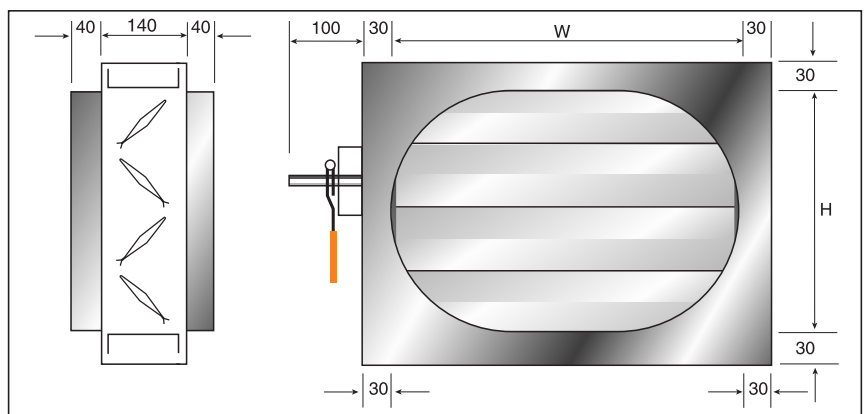
* = 40mm (100 - 354mm dia.)

55mm (355 - 1200mm dia.)



Model SC - Flat Oval

W x H = 100mm to 1200mm



All dimensions are nominal ± 1 mm

Weight Chart

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

Please note these values have been rounded up or down to whole values and are therefore illustrated for estimation purposes only.

Temperature Test

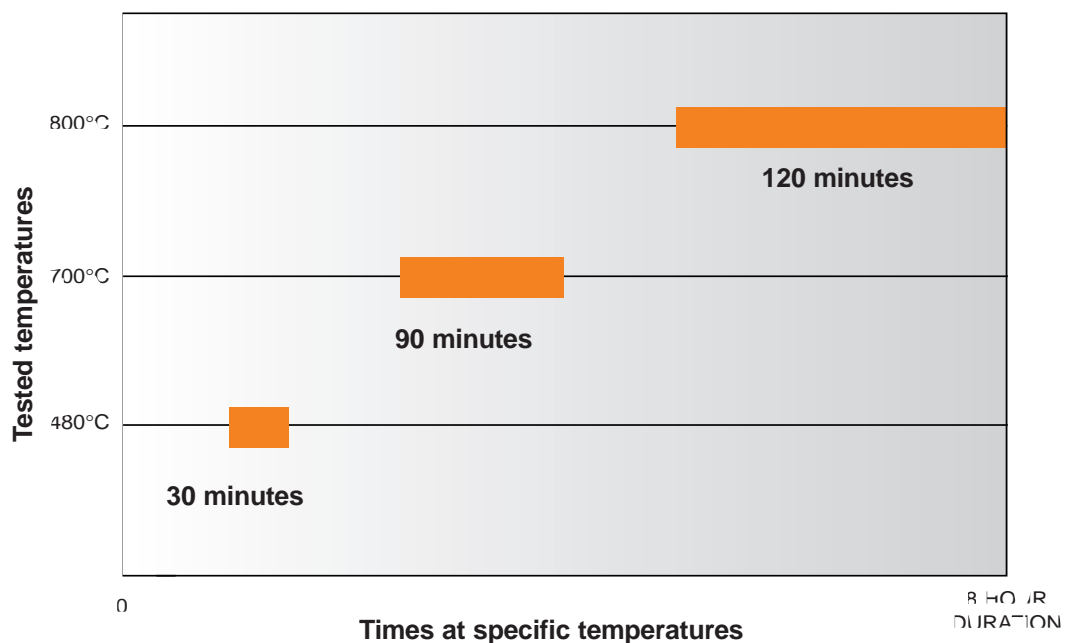
Elevated Temperature Test

A damper was placed into a furnace at ambient temperature (22°C), the furnace was ignited with the temperature being raised uniformly to 480°C and held for 30 minutes. The temperature was then raised to 700°C and held for a further 90 minutes. The temperature was then finally raised to 800°C for a further 120 minutes.

The damper was then removed and whilst still "cherry red" was inspected and operated. The blades and linkage rotated freely with all rivets, welds and components remaining intact.

The scope of the test was to test the damper's operation at an elevated temperature, in addition to establishing its integrity and distortion.

Test to a manually operated damper



The conclusion of this test is that the design, construction and engineering tolerances permitted this product to be tested and operated at an "elevated temperature" successfully.

Special Note:

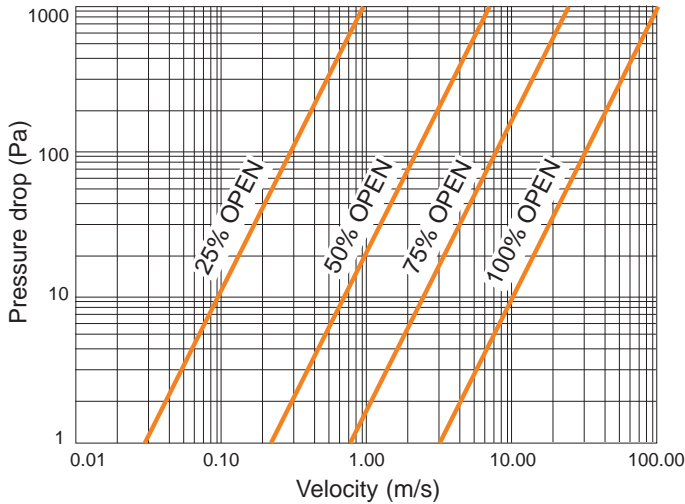
When motors and/or other ancillaries are used in elevated temperatures, please consult with the manufacturers for suitability to the application

BSB have concluded other tests at specific temperatures in addition to this test, all with satisfactory results.

Performance Characteristics

Pressure Drop BSRIA Report 15633/1

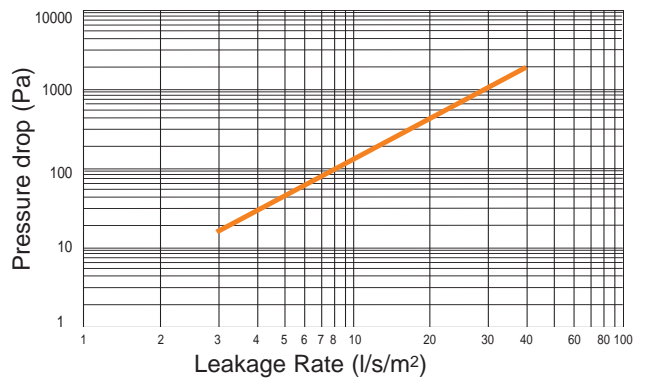
Calculated performance at various damper settings



Individual data sheets are available for each blade setting

Leakage BSRIA Report 15633/1

Static Pressure Pascals	Leakage per m ² l/s/m ²	Leakage l/s
15.6	2.970	0.891
29.4	4.239	1.272
74.8	7.035	2.111
162.2	10.636	3.191
225.4	12.604	3.781
380.0	16.230	4.869
660.0	21.583	6.475
955.0	25.511	7.653
2020.0	40.428	12.128

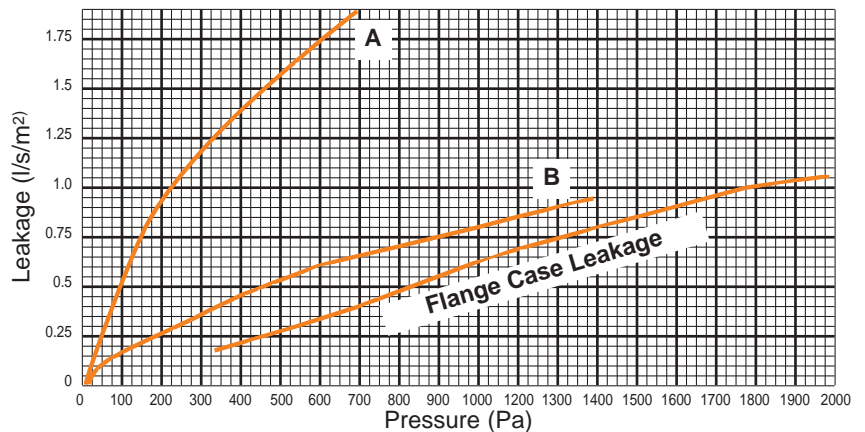


Permitted leakage at various pressures

The Graph from HVCA's Publication DW144 illustrates the Flange Models Casing Leakage to Classes A & B.

For conformance to Class C Leakage, the fully welded Spigot Model should be supplied.

BSRIA Report 15633/1 refers.



Torque Chart

Torque Chart Values in Nm

Duct Pressure (Pa)	Damper Size W x H (mm)		
	200 x 200	600 x 600	1200 x 1200
250	3	7	12
500	4	8	13
750	5	9	14
1000	6	10	15

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

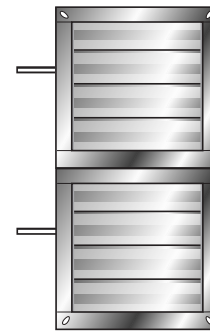
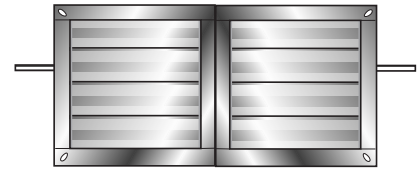
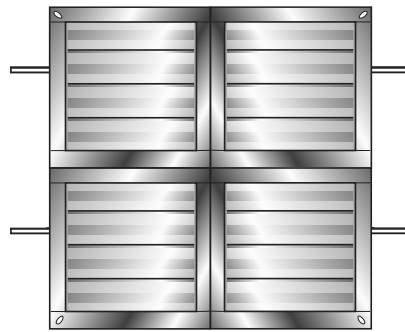
Manufacturers of Air/Fire/Smoke Control Products

Multiple Assemblies

Illustrated opposite are several variants to multiple section units. Where sizes exceed 1200mm x 1200mm square, multi-section units will be supplied. When there are transportation restrictions, large multiple units will be broken down and 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 blade friction.

Special Note:
BSB can manufacture to individual specifications and applications. Illustrated are standard variants only, with other variants to order.



Product Specification

Case

Material is 1.2mm galvanised coated mild steel to BS EN 10142 1991, coating class FE P02b Z275 Na.

Spindle covers are of "Top Hat" design to allow the use of clamps onto the flanges.

Blades

Nominal 100mm wide one-piece double skin airfoil interlocking blades.

Material is 0.9mm galvanised coated mild steel to BS EN 10142 1991, coating class FE P02b Z275 Na.

Stainless steel blades (0.8mm) to grades 430, 304 or 316 to BS 1449 Part2 1983 S172B are available.

Blade Spindles

Manufactured from 19mm steel tube, extending the full length of blade into and through the "blow through" bushes.

Material is 1.2mm galvanised coated mild steel to BS EN 10142 1991, coating class FE P02b Z275 Na.

Optional is grade 304 to BS 1449 Part 2 1983 S172B.

Blade End-Seals

Manufactured from grade 302S stainless steel to BS 5770 Part 4 1981. Radius profile 170mm.

Linkage

Operation via drive bars 3.2mm x 20mm in size, manufactured from bright mild steel to BS EN 10142 1991. drive bars are positioned out of airflow, connected to blade spindles via crank arms.

Opposed blade operation is standard.

Installed on both sides of the flange case are cover plates to protect the linkage from dust or damage, in addition to minimising casing leakage to requirements of DW144 as standard.

Bushes

Standard are "blow-through" bushes pre-formed into the galvanised steel flange casing, allowing the spindles to rotate freely.

Size Range

100mm x 100mm to 1200mm x 1200mm as a single section.

Damper Operating Temperature Range

BSB has tested the SC Series Smoke Control Damper at elevated temperatures for 4 hours. Our test reports 231297,234486 and 27438 refer.

Test Specification

Tested to BS 476 Part 20 for 4 hours. Our reports TE 92896A, TE 92896B and TE 94703 refer.

Conformance to DW144 as relevant.
Salt corrosion tested for 28 days.

Resistance Test

Tested by BSRIA, report 15633/1 refers.

Leakage Test

Tested by BSRIA, report 15633/1 refers.

(See Page 4 for illustrations)

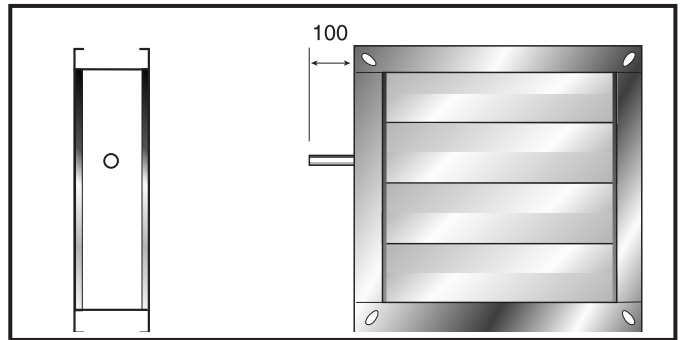
Control Options

Option E - Extended Spindle

For motorisation by others.

Supplied with 19mm spindle, 100mm in length.

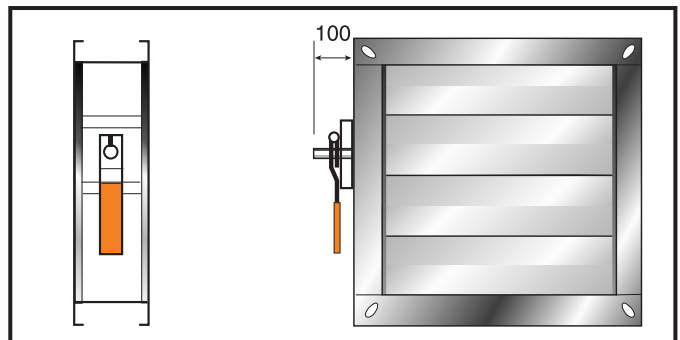
12mm square spindle available to order.



Option H - Hand Control

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

Option H is easily converted to Option E (regardless if during manufacture or after delivery)

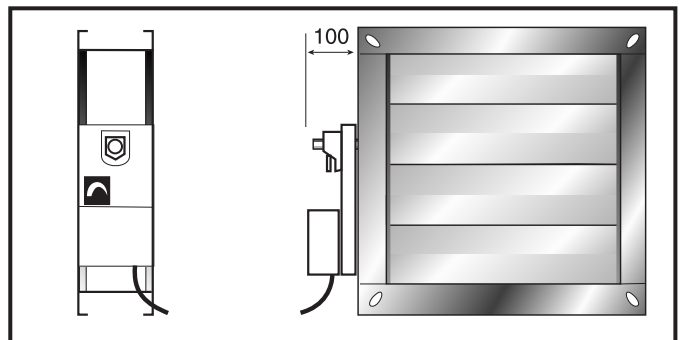


Option M - Electric Motor

Can be supplied with the following control motors fitted:

Open/Close operation
Spring Return operation
Or as specified

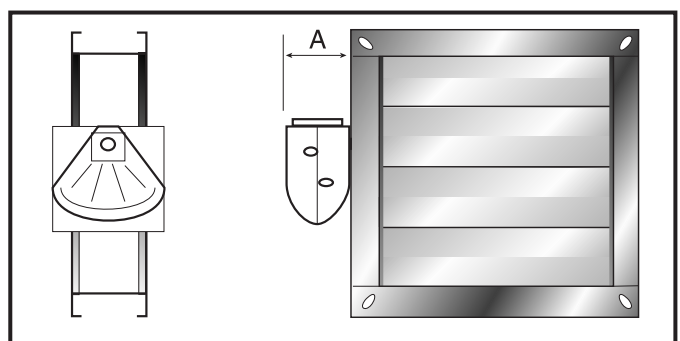
12mm square spindle available to order.



Option P - Pneumatic Operator

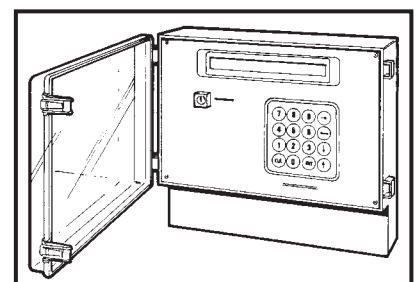
Operates between 20psi/1.4bar and 100psi/7bar. Supplied fitted to the damper complete with integral threaded airports to pressurise and vent the actuator. Accessories available.

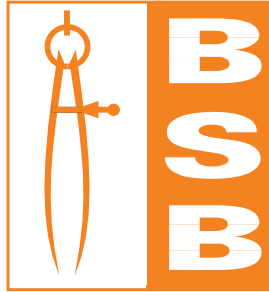
A = 100mm or 150mm dependent on actuator model supplied



Monitoring

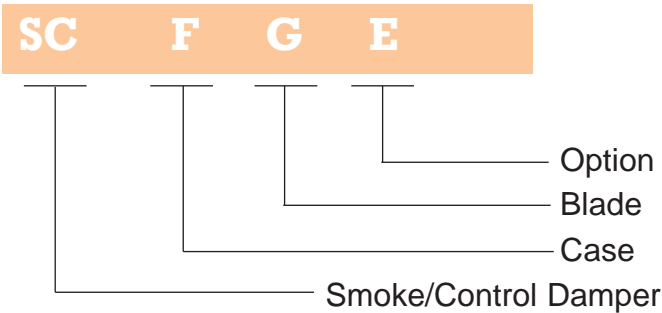
The Two Wire Interface Network has been designed to reduce the cost of electrical wiring installations. A number of devices can share the same two wires to communicate information to a central controller. This is particularly useful where control items are distributed through a building, e.g., security points, lighting, space temperature sensors, etc., where the cost of dedicated wiring is high. up to 300 points can be controlled or monitored at 100 or more locations up to 2km from the controller.





Ordering Codes

Example:



SC Smoke/Control Damper

Case:

- F Flangefit
- S Spigotfit
- C Circular
- O Flat Oval

Blade Material:

- G Galvanised Mild Steel
- S Stainless Steel (specify grade)

Options:

- E Extended Spindle
- H Hand Control
- M Electric Motor
- P Pneumatic Actuator

BSB Product Range



AD Series
Access
Doors



EF Series
Easifit
Damper



FSD Series
Fire/Smoke
Damper



SB Series
Single Blade
Regulating Damper



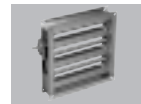
BD Series
Backdraught
Damper



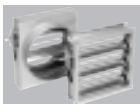
FD Series
Fire
Damper



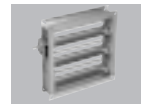
HD Series
Heavy
Duty
Control
Damper



SC Series
Smoke Control
Damper



DD Series
Duct Damper



SF Series
Slimfit Regulating
Damper



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BSB Engineering Services Ltd. reserves the right to modify or withdraw any specification without prior notice that may result from continuous product development. The information contained within this brochure is correct at the time of going to press.

BSBFS. Aug. 2000

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