

AirShield

AirShield Aerofoil Air Control Dampers
AirShield Aerofoil Air Control
and Shut-Off Dampers

AirShield Features and Design Guide

- Opposed blade dampers suitable for systems requiring air control (Aerofoil) and low closed blade leakage (Aerofoil).
- Suitable for low/medium pressure and velocity systems.
- Available in flanged type casing up to 1000mm square or spigotted type casings up to 1000mm square/1000mm diameter or flat oval up to 1000mm x 550mm in a single drive arrangement.



*action*air

Dampers Controls Fancoils

Ruskin Air Management Limited
www.ruskinuk.co.uk

AirShield Control and Shut Off Dampers

The Range

The AirShield range of quality engineered dampers are suitable for air conditioning and ventilation systems requiring air control and low closed blade leakage characteristics. For standard low/medium pressure and velocity systems.

These aerodynamic precise movement opposed blade dampers can be either factory fitted with manual, electric or pneumatic controls and can be supplied in a flanged or spigotted casing. (Motorised option on Aerofoil only)

Application Parameters

AirShield Dampers to maximum width and height dimensions (see page 4) can be used where the operating total system pressure is up to 1000 Pascals and duct velocities to 12m/second.

Actionair AirShield Dampers are designed for applications in normal dry filtered air systems. When required for modulating function, or if exposed to fresh air intakes and/or inclement conditions, the dampers should be subject to a planned inspection programme.

Any application involving corrosive and/or aggressive hostile environmental conditions (e.g. swimming pools) may invalidate our warranty and should be referred to Actionair Sales Office.

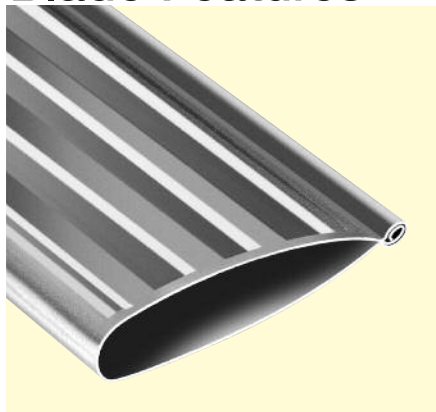


Aerofoil Air Control Damper



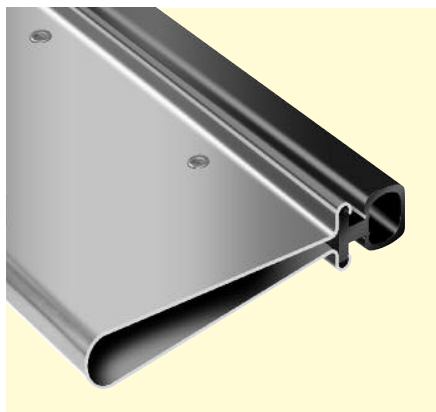
Aerofoil Air Control and Shut-Off Damper

Blade Features



Series Aerofoil

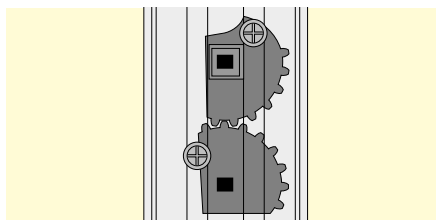
Series Aerofoil for system air balancing having aerodynamic ribbed double skin type 1.4016 (430) Ferritic Stainless Steel 50mm wide x 0.4mm thick blades. Housed within a galvanised mild steel flanged or galvanised spigotted casing being suitable for systems with a temperature range of -20°C through to $+70^{\circ}\text{C}$.



Series Aerofoil

Series Aerofoil for system air balancing and shut-off having aerodynamic double skin type 1.4016 (430) Ferritic Stainless Steel 50mm wide x 0.4mm thick blades with synthetic trailing edge blade seals and Stainless Steel side seals. Housed within a galvanised mild steel flanged or galvanised spigotted casing being suitable for systems with a temperature range of 0°C through to $+70^{\circ}\text{C}$.

Optional Blade construction type 1.4401 (316) Austenitic Stainless Steel.



Blade Drive Mechanism

The totally enclosed, precise movement, opposed blade cap and bar drive mechanism positioned out of the airstream for protection against damage is hard wearing and free running.

Casing Features

The damper casing having a single penetration for the drive control shaft making these dampers suitable for inclusion into air distribution systems of Class A and B of Eurovent Document 2/2 and Test Procedures for Classes A, B, and C (up to 1000 Pa) of HVCA Ductwork Specification DW144.

Flanged

A 1.5mm thick galvanised mild steel casing having peripheral flanges with pre-punched elongated corner holes to suit proprietary duct flanges.

Stainless Steel Options

See Dimensional Data and refer to Actionair Sales Office – Available on Aeroseal only.

Spigotted

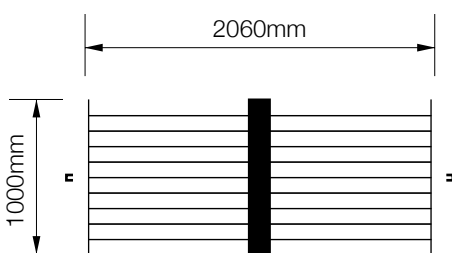
Consists of Flanged Casing above with 0.9mm minimum thickness spigots on both sides.

Stainless Steel Options

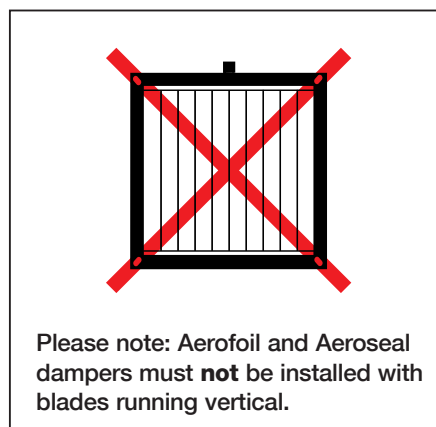
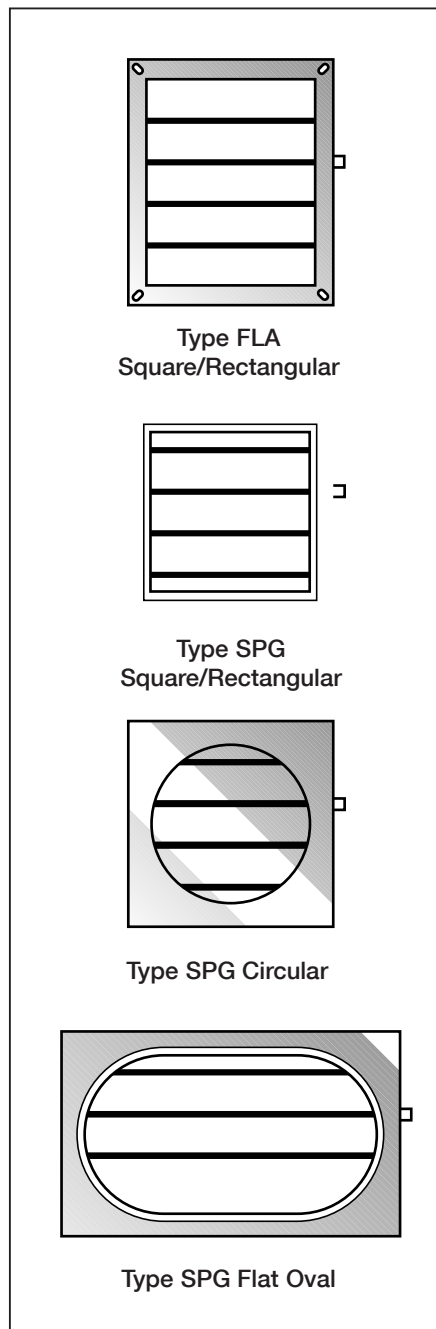
See Dimensional Data and refer to Actionair Sales Office – Available on Aeroseal only.

Please Note: AirShield, Aerofoil and Aeroseal dampers are only available in widths and heights up to 1000mm, please refer to page 4 for full sizing parameters.

Multiple Assemblies



For flanged damper arrangements with dimensions in excess of 1000mm wide, the ES35 or ES36 will always be offered, (please refer to the Actionair brochure ES Heavy Duty Air Control and Shut-off Dampers). However, should individual AirShield dampers be preferred (due to damper depth limitations etc.), i.e. arranged side by side having 2-drives, ensuring that adequate space is allowed for access / fitting to each drive arrangement. They can be supplied up to 2060mm wide, by specific written instruction from customer at the time of Enquiry / Quotation / Order only.



Weights

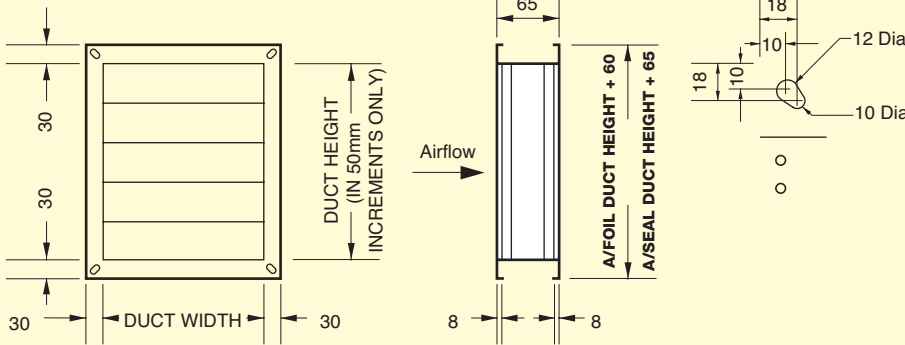
AirShield Aerofoil and Aeroseal Approximate Weights (Kg)

SQUARE/ CIRCULAR DUCT SIZE	TYPE FLA RECT.	TYPE SPG RECT.	TYPE SPG CIRCULAR
100	1.5	1.8	2.1
150	2.0	2.4	2.9
200	2.5	3.1	3.8
250	3.1	3.8	4.7
300	3.8	4.6	5.8
350	4.5	5.4	6.9
400	5.2	6.3	8.0
450	5.8	7.0	9.0
500	6.6	7.9	10.3
550	7.5	9.0	11.6
600	8.4	10.0	13.0
650	9.3	11.0	14.4
700	10.0	11.9	15.7
750	11.3	13.3	17.5
800	12.4	14.5	19.2
850	13.3	15.6	20.7
900	14.7	17.1	22.7
950	15.7	18.2	24.3
1000	16.8	19.4	26.1

For Type SPG Flat Oval weights please contact Actionair Sales Office.

Dimensions

Flanged Casing (Type FLA)



Sizing Parameters

Type FLA

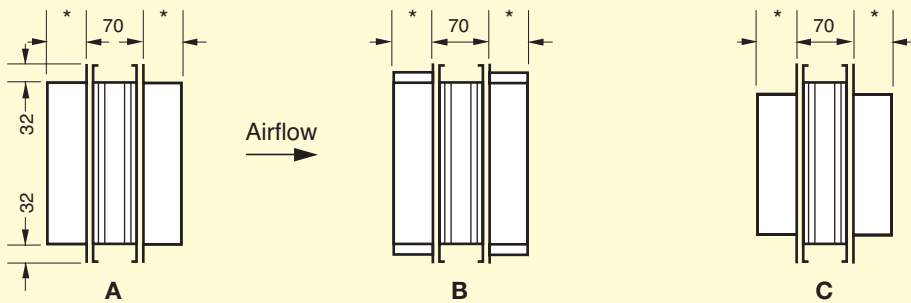
Widths from 100 – 1000mm in 1mm increments.
Heights from 100 – 1000mm in 50mm increments.

Type SPG Rectangular

Widths from 100 – 1000mm in 1mm increments.
Heights from 100 – 1000mm in 1mm increments.

Spigot Casing (Type SPG Rectangular, Circular and Flat Oval)

SPG Rectangular spigots are supplied 5mm under duct size, Circular and Flat Oval 3mm under duct size.



A = Standard 50mm height increments

B = up to 10mm above 50mm height increments

C = All other cases

* = 38mm Rectangular, 65mm Circular and Flat Oval

Type SPG Circular

Diameters from 100 – 1000mm in 1mm increments.

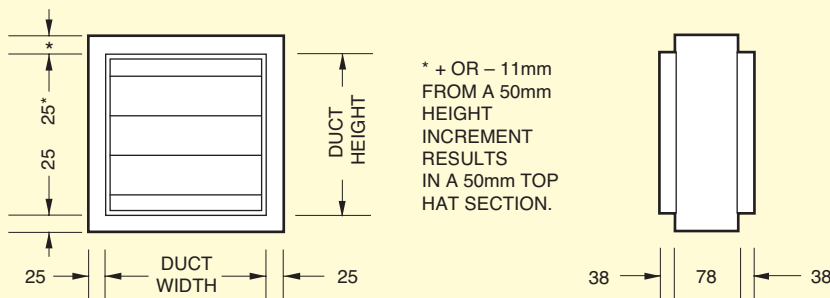
Type SPG Flat Oval

Widths from 300 – 1000mm in 1mm increments.
Heights from 100 – 550mm in 1mm increments.

Stainless Steel Options

Spigot Casing (Type SPG Rectangular)

SPG Rectangular spigots are supplied 5mm under duct size.

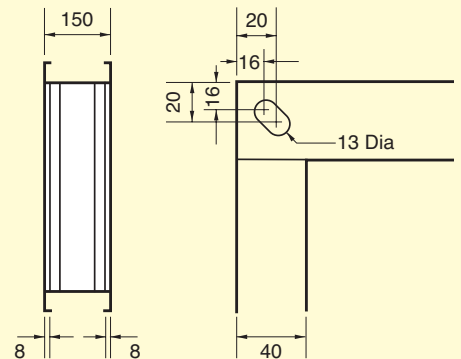


* + OR - 11mm FROM A 50mm HEIGHT INCREMENT RESULTS IN A 50mm TOP HAT SECTION.

Size Parameters as above.

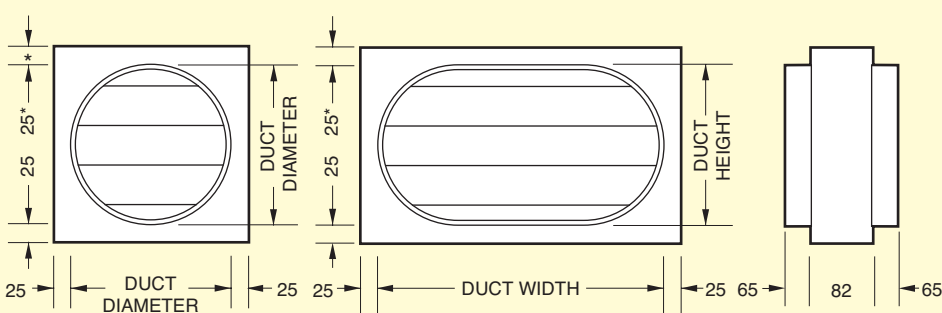
Stainless Steel Type FLA

Damper casings will have a depth of 150mm with 40mm peripheral flanges (Please refer to Actionair Sales Office).



Spigot Casing (Type SPG Circular and Flat Oval)

SPG Circular and Flat Oval spigots are supplied 3mm under duct size.



* + OR - 11mm FROM A 50mm HEIGHT INCREMENT RESULTS IN A 50mm TOP HAT SECTION.

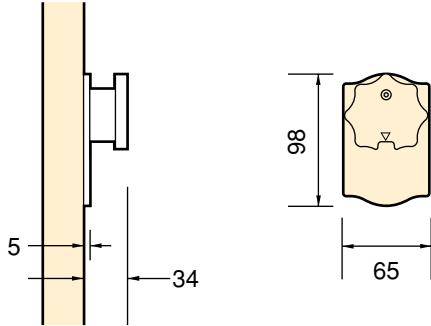
Control Options

Manual Control (Option M)

Always fitted as standard on Series Aerofoil units. Not suitable for Series Aerofoil or any Stainless Steel options.

Type FLA/SPG

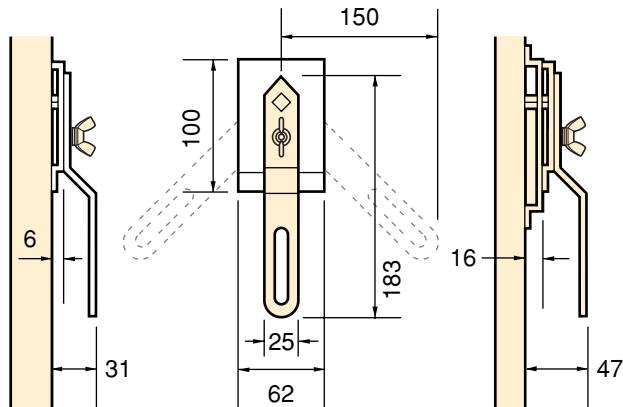
Consists of a red knob and slimline control box with blade position locking facility (a no. 6 pk screw supplied and fitted by others pierces through membrane in the control box) and visual blade position indication.



Manual Quadrant Control (Option Q)

Type FLA/SPG

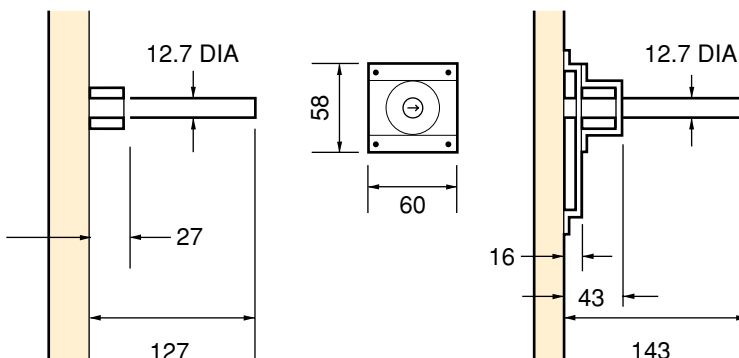
Consists of a dark brown steel handle, blade position locking facility and quadrant bracket with visual position indication.



Extended Shaft Control (Option X) (Aerofoil only)

Type FLA/SPG

A solid 12.7mm diameter stainless steel shaft marked to provide visual blade indication complete with support bracket for attachment of couplings and/or linkages for motorisation by others. (Shaft rotates clockwise to close damper).



Technical Data

(Aerofoil only)

Pneumatic Controls (Option E)

Factory fitted Hytork Pneumatic Actuators are available in on/off and spring return versions.

Factory fitted Controls will be selected to suit the torque requirements of the dampers.

Please refer to Actionair Sales Office if you require any further information.



(Aerofoil only)

Electrical Controls (Option E)

Factory fitted Belimo Actuators for 24V or 230V open/closed or spring return operation and 24V modulating are available. These will comply with EMC Directive 2004/108/EC.



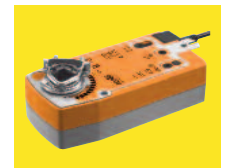
5 Nm LM-A



10 Nm NM-A



20 Nm SM-A



10Nm NF



20Nm SF

Specification

AirShield Aerofoil

Air control and system balancing dampers comprising of 50mm ribbed stainless steel aerodynamic blades with synthetic blade end bearings.

Housed in either a galvanised mild steel frame having integral peripheral flanges, with prepunched corner holes to suit proprietary duct flanges (Type FLA) or with spigot plates on both

sides, for square, rectangular, circular or flat oval connections (Type SPG).

The totally enclosed precise movement opposed blade mechanism positioned out of the airstream for protection against damage is hard wearing and free running. AirShield Aerofoil as supplied by Actionair.

AirShield Aeroseal

Air control and system balancing shut-off dampers comprising of 50mm stainless steel aerodynamic blades with synthetic trailing edge blade seals, synthetic blade end bearings and stainless steel top and side spring tempered flexible gasketing.

Dampers to have a maximum closed blade leakage of 27 l/s at 1000 Pa when measured on a 1000mm wide x 1000mm high damper.

Housed in either a galvanised mild steel frame having integral peripheral flanges, with prepunched corner holes to suit proprietary duct flanges (Type FLA) or with spigot plates on both sides, for square, rectangular, circular or flat oval connections (Type SPG).

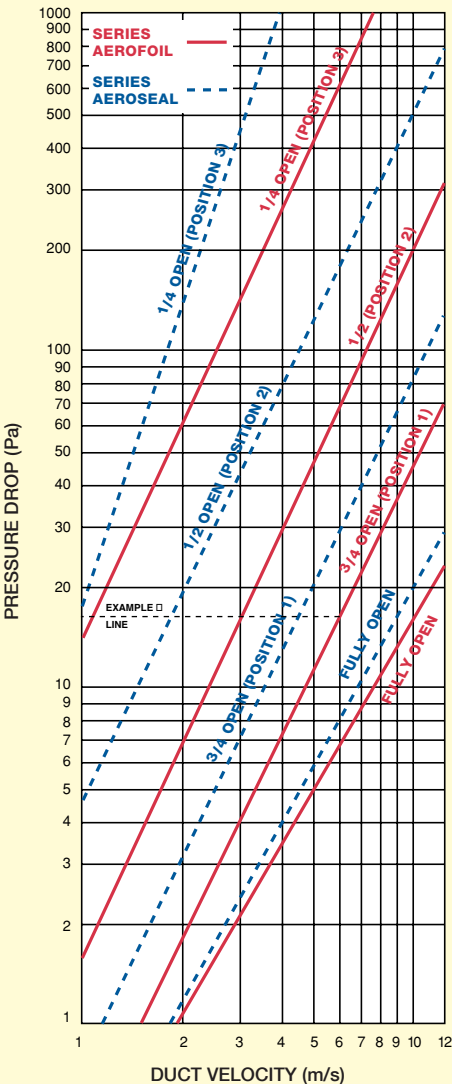
The totally enclosed precise movement opposed blade drive mechanism positioned out of the airstream for protection against damage is hard wearing and free running.

AirShield Aeroseal as supplied by Actionair.

Technical Data

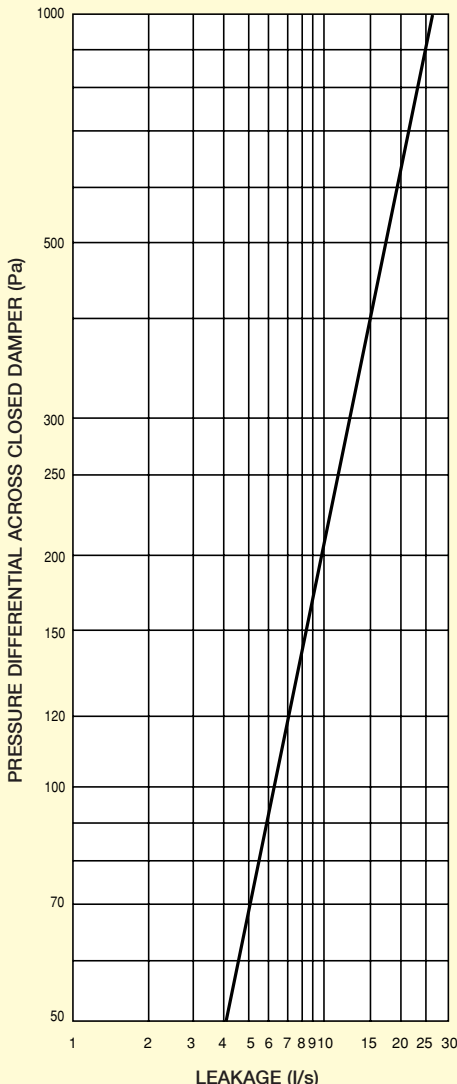
Pressure Drop Vs Velocity

Positions 1, 2 and 3 are blade positions as indicated on dampers fitted with Manual Control or Manual Quadrant Control.



Aeroseal Damper Leakage

AirShield Series Aeroseal closed blade leakage 1000mm wide x 1000mm high Damper.



AirShield

Aerofoil dampers are supplied fitted as standard with type Manual Control (Option M).

Aeroseal dampers are supplied fitted as standard with type Manual Quadrant Control (Option Q).

Aeroseal Stainless Steel dampers are supplied with type Manual Quadrant Control (Option Q) fitted as standard.

AirShield dampers can be factory fitted with one of the alternative control options as detailed on page 5 (Aeroseal and Stainless Steel dampers not suitable for Option M).

Maintenance








The Actionair range of AirShield Dampers are designed for applications in normal dry filtered air systems and should be subjected to a planned inspection programme, with cleaning and light oil lubrication in accordance with good industry practice. When exposed to fresh air intakes and/or inclement conditions this may need to be performed more regularly based on experience gained from previous inspections.

Selection

Please refer to individual sections of the brochure for specific product detailed information.

	Aerofoil	Aeroseal
Flanged Casing - Minimum 100 x 100 (Height increments of 50mm)	■	■
Flanged Casing - Maximum 1000 x 1000	■	■
30mm Flange - Galvanised. 40mm Flange - Stainless Steel	■	■
Flanged Casing Depth - 65mm Galvanised. 150mm Stainless Steel	■	■
Spigotted Casing - Minimum 100 x 100, Maximum 1000 x 1000	■	■
Circular Option - Minimum 100 diameter, Maximum 1000 diameter	■	■
Flat Oval Option - Minimum 300 x 100, Maximum 1000 x 550	■	■
Air Balancing	■	■
Shut-off Function	N/A	■
Opposed Blade Movement	■	■
Manual Control - Option M (Standard for Aerofoil)	■	N/A (Not Stainless Steel)
Manual Quadrant Control - Option Q (Standard for Aeroseal)	■	■
Extended Spindle Control	N/A	■
Electrical Control (Optional)	N/A	■
Blade Drive Mechanism mounted out of the airstream	■	■
Casing Leakage Conforms to DW144 Class C up to 1000Pa	■	■
Galvanised Case with 430 Stainless Steel Blades (Standard)	■	■
Stainless Steel Options 430 and 316 available (Aeroseal only)	N/A	■

Electrical Controls (Option E)

Area m ²	Dia mm	Open/Close or Modulating			Spring Return	
						
RECTANGULAR / FLOV	CIRCULAR	5 Nm LM-A	10 Nm NM-A	20 Nm SM-A	10Nm NF	20Nm SF
Airshield Aeroseal						
Up to 0.09 M ²	Up to 300mm Dia	■			■	
Up to 0.10 M ²	Up to 315mm Dia	■			■	
Up to 0.30 M ²	Up to 550mm Dia		■		■	
Above 0.30 M ²	Above 550mm Dia			■		■

Due to a policy of continuous product development the specification and details contained herein are subject to alteration without prior notice.

Ordering Information

Example

Quantity	Series	Type	Control Option	Duct Size
10	AirShield Aerofoil	FLA	Q	800 (W) x 400 (H)

Number
Required

AirShield Aerofoil
or
AirShield Aerofoil

FLA
Flanged Casing

SPG
Spigotted Casing, in
Rectangular, Circular or
Flat Oval Configuration.

M Manual Control
(fitted as standard to Series
AirShield Aerofoil).

Q Manual Quadrant Control
(always fitted as standard to
Series AirShield Aerofoil
and Stainless Steel options).

E Electrical Operator (Aerofoil only)
24V or 230V open/closed
24V or 230V spring return
or 24V modulating.

X Extended Shaft Control (Aerofoil only)

Pneumatic Actuator

Double acting.
Spring Return.

Ruskin Air Management Limited is a ISO 9001 and 14001 registered company

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Dampers Controls Fans IIs