

NEW

Actionair Energy/Shield ES

Heavy Duty Air Control and
Shut-off Dampers

Features and Design Guide

Dampers suitable for systems requiring air control and low closed blade leakage characteristics.

Low torque characteristics.

Rectangular versions available in Flanged or Spigotted type casings.

Circular and Flat Oval versions available in Spigotted casings.

Blades completely within casing.

Standard opposed blade movement.

Optional parallel blade movement.

Product Range

ES35

Heavy duty damper for air control and system balancing

ES36

Heavy duty damper for air control, system balancing and low closed blade leakage to EN1751 class 2*.

ES50

Aluminium heavy duty aerofoil bladed, galvanised casing for air control, system balancing and low closed blade leakage to EN1751 class 3*.

*Based on a 1m x 1m damper.

Dampers built in the UK.



www.actionair.co.uk



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*action*air

Application Parameters

The ES range of heavy duty dampers are suitable for air conditioning and ventilation systems requiring air control and low closed blade leakage performance.

Heavy duty blade construction for system pressures up to 1000Pa and duct velocities of up to 10m/s on the ES35 and ES36 range and 1500Pa, and 20m/s on the ES50 range.

Suitable for applications in normal dry filtered air systems, including modulation function. If exposed to fresh air intakes, and/or inclement conditions, the 316 stainless steel option should be considered by the client.

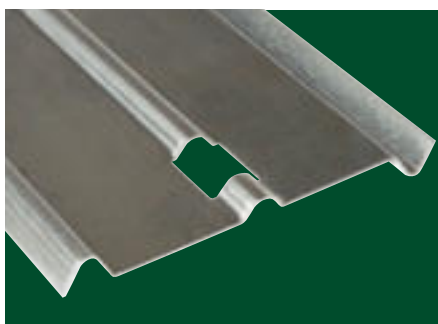
All installations should be subject to a planned inspection programme, frequency of which is dependant upon application and environmental conditions.

For specialist applications and products outside specified parameters, please consult with our Technical Sales Office.



Please note:
ES dampers must not be installed with blades running vertical.

Blade Features

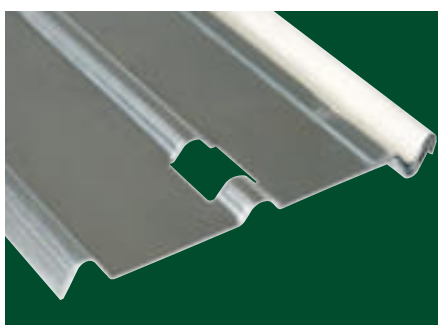


ES35

1.5mm thick triple "Vee" groove blades profile, to give maximum strength. Suitable for systems with an operational temperature range of -40°C to $+70^{\circ}\text{C}$.

Standard: Galvanised steel.

Optional: 316 stainless steel.



ES36

1.5mm thick triple "Vee" groove blades profile, to give maximum strength. With additional blade seals attached within blade "Vee" groove to create low closed blade leakage.

Suitable for systems with an operational temperature range of -40°C to $+70^{\circ}\text{C}$.

Standard: Galvanised steel.

Optional: 316 Stainless steel.



ES50

Profiled aerodynamic aluminium extrusion for low noise generation. Blade tip seals to give very low closed blade leakage.

Suitable for systems with an operational temperature range of -40°C to $+70^{\circ}\text{C}$.

Casing and Drive Features

All damper blades are within the casing i.e. they do not protrude beyond the casing depth. This ensures blades will not foul equipment (such as grilles or louvres) that may be fitted adjacent to the damper. This feature also allows easy fitting and removal of the Flanged damper (FLA).

The 165mm wide FLA casing consists of a single skin 1.2mm steel frame with 40mm flanges and pre-punched corner holes to suit proprietary duct flanges.

The Spigot (SPG) type casings are 178mm wide that include spigotted end caps fitted to either side of the FLA casing.

Total depth over spigots

Type SPG (square/rectangular) = 254mm
Type SPG (circular (CIRC) and flat oval (FLOV) = 304mm

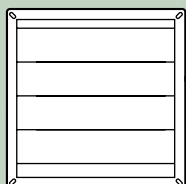
For all ES Dampers, the damper casing leakage conforms to HVCA Ductwork Specification DW144 class A,B and C.

301 grade stainless steel side gasketing is fitted as standard to series ES36, and ES50 which significantly reduces air leakage between the blade ends, and the internal sides of the damper casing.

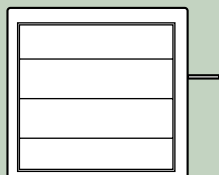
Blade Drive Mechanism

The blade drive mechanism is mounted out of the airstream to minimise pressure and noise generation, blade axles are 11.1mm hexagonal zinc plated steel. Synthetic blade bearings give a corrosion resistant, hard wearing and free running operation.

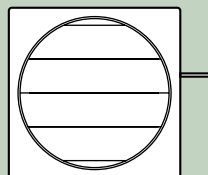
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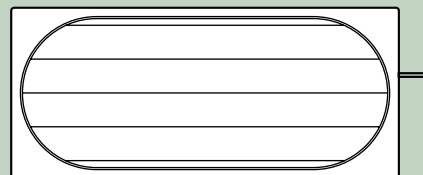
Type FLA
Square/Rectangular



Type SPG
Square/Rectangular



Type SPG Circular



Type SPG Flat Oval

Size Range

Type FLA and Type SPG (Rectangular) Single section

Widths in any size from 200mm to 1200mm.

Heights in any height from 200mm to 1800mm (SPG: 1700mm) in increments of 50mm.

Double section

1. Single drive with coupling

Widths in any size from 1201mm to 2080mm.

Heights in any height from 200mm to 1800mm (SPG: 1700mm) in increments of 50mm (ES35).

Heights in any height from 200mm to 1000mm in increments of 50mm (ES36/ES50).

2. Single Drive with jackshaft (ES35/ES36, GALV, FLA)

Widths in any size from 1201mm to 2480mm.

Heights in any height from 350mm to 1800mm in increments of 50mm.

Refer to Technical Sales for Jackshaft option.

3. Drive both sides

Widths in any size from 1201mm to 2480mm.

Heights in any height from 200mm to 1800mm (SPG: 1700mm) in increments of 50mm.

Type CIRC

Diameters in any size from 200mm to 1000mm.

Type Flat Oval

Single section

Widths in any size from 300mm to 1200mm.

Double section

Widths in any size from 1201mm to 2000mm.

Single or double section

Heights in any size from 200mm to 550mm.

Double section arrangement

Heights up to and including 1000mm, supplied factory assembled

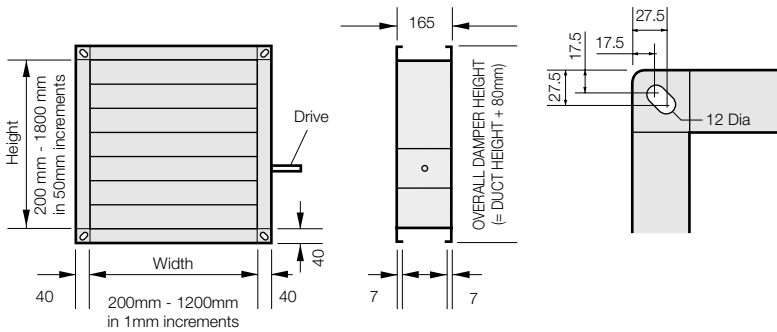
Heights above 1000mm, supplied individually with joining strips for site assembly, by others.

Additional note for multiple Type SPG (Rectangular)

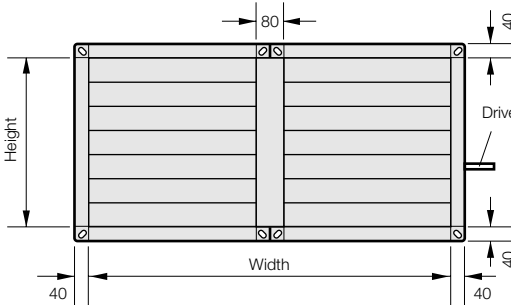
Spigots attached to individual single section dampers. On-site provision of filling gaps between spigot and duct where dampers join required by others.

Dimensions

Flanged Casing (Type FLA). Single Drive (no mullion)



80mm central vertical mullion, blade drive coupling and joining strips.



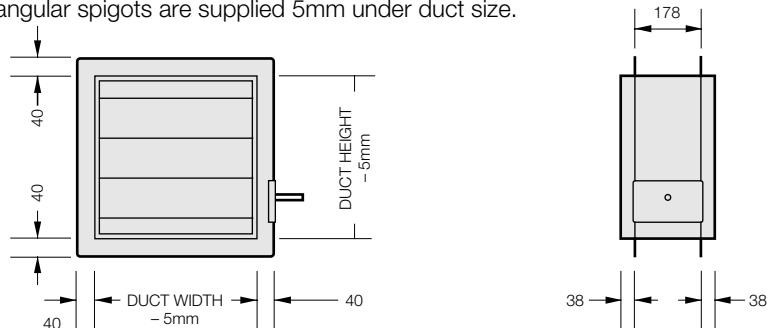
Sizes up to and including 2000W and 1000H supplied factory assembled.

Sizes of 2001W or 1001H or greater supplied individually with joining strips for site assembly, by others.

For widths above 2080mm Jackshafted versions are available. Refer to Actionair Technical Sales for further information.

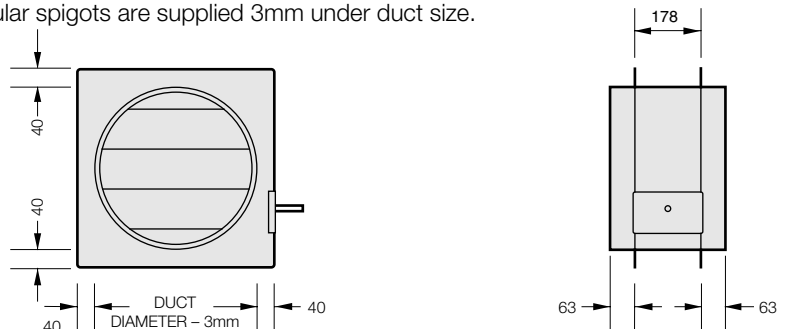
Spigot Casing (Type SPG Rectangular)

SPG rectangular spigots are supplied 5mm under duct size.



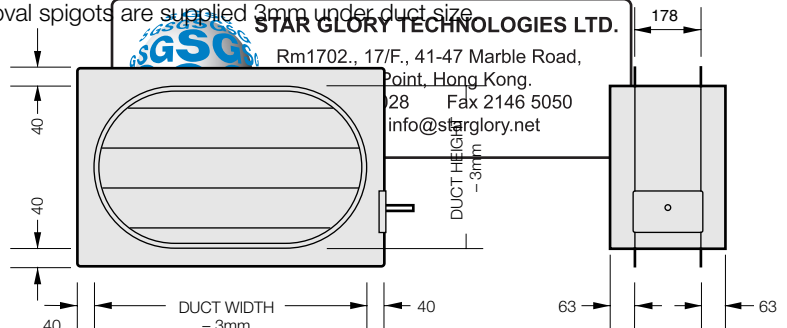
Spigot Casing (Type SPG Circular)

SPG circular spigots are supplied 3mm under duct size.



Spigot Casing (Type SPG Flat Oval)

SPG flat oval spigots are supplied 3mm under duct size.



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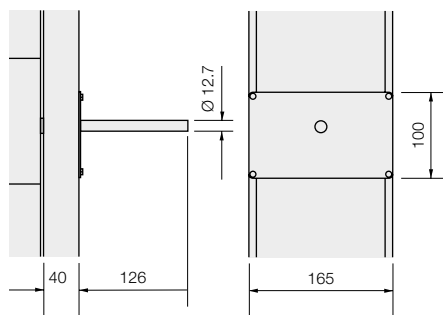
Control Options

Extended Shaft Control (Option X)

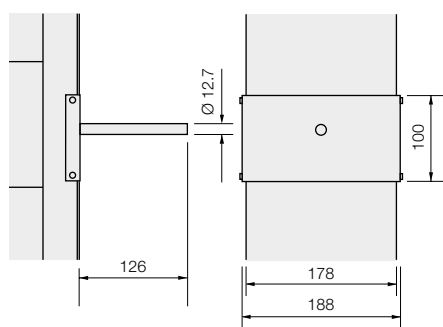
12.7mm diameter Zinc plated steel Extended Spindle for motorised control. Supplied as standard. Loose for site fitting by others.



FLA Type Casing

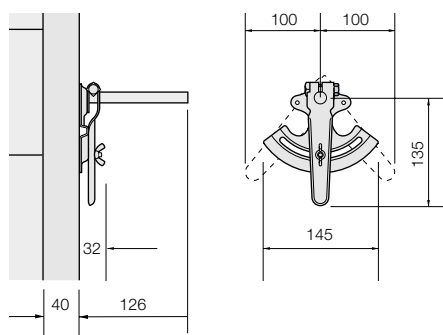


SPG Type Casing



Manual Quadrant Control (Option Q)

Manual Quadrant Control, fits onto extended shaft control above. Supplied loose for site fixing by others.



Weights

FLA Damper Weight Table ES35 base product (Kg)

Height	Width					
	200	400	600	800	1000	1200
200	3.8	5.4	7.0	8.6	10.2	11.8
400	6.0	8.3	10.6	12.9	15.1	17.4
600	7.8	10.6	13.4	16.3	19.1	21.9
800	9.5	12.9	16.3	19.7	23.1	26.5
1000	11.4	15.3	19.1	23.0	26.9	30.7
1200	13.2	17.7	22.1	26.6	31.0	35.5
1400	15.1	20.3	25.5	30.6	35.8	41.0
1600	17.0	22.8	28.5	34.2	39.9	45.6
1800	18.7	25.0	31.2	37.4	43.6	49.9

CIRC Damper Weight Table ES35 (Kg)

200 dia	5.4
400 dia	11.7
600 dia	19.0
800 dia	27.5
1000 dia	37.3

Multipliers for alternative configurations (select nearest size up from chart and use multiplier below).

ES36 multiply by 1.1
ES50 multiply by 0.91

Example:

600 x 1000 ES36
19.1 x 1.1 = 21.01 Kg approx.

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 89/336/EEC.



5 Nm LM-A



10 Nm NM-A



20 Nm SM-A



40Nm SM



4Nm LF



15Nm AF

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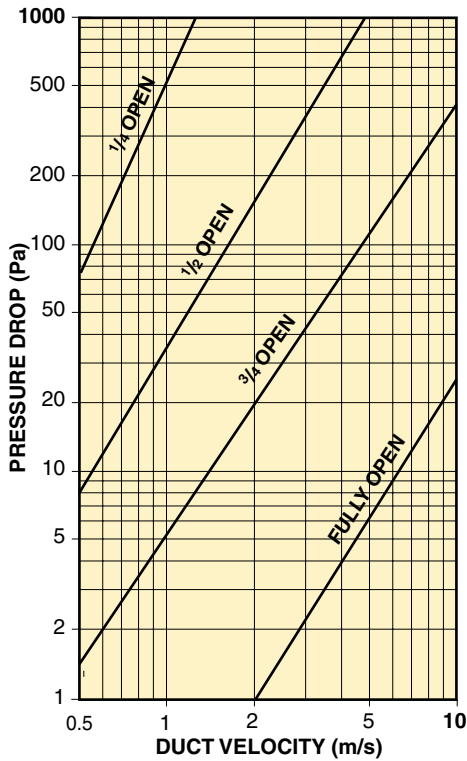
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Technical Data

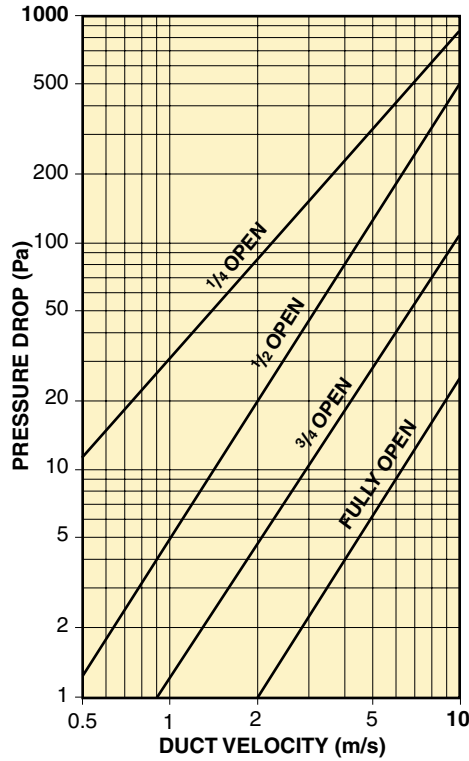
Pressure Drop Vs Velocity at intermediate Blade positions.

Dampers tested were 600mm x 600mm square

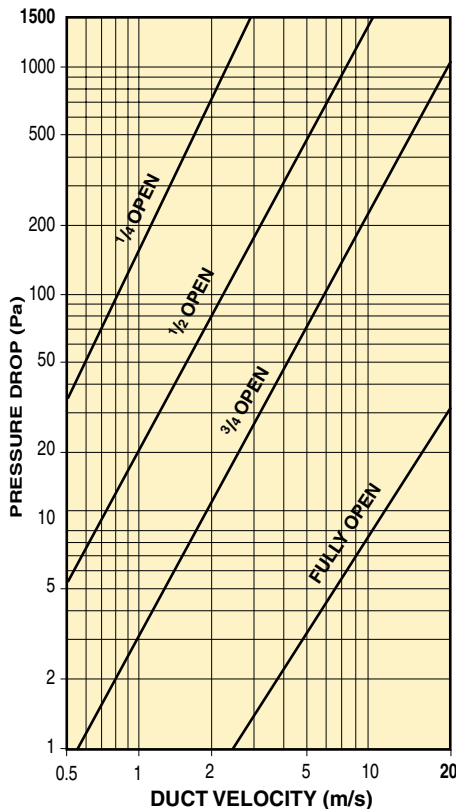
ES35R, 36R (Opposed Blade)



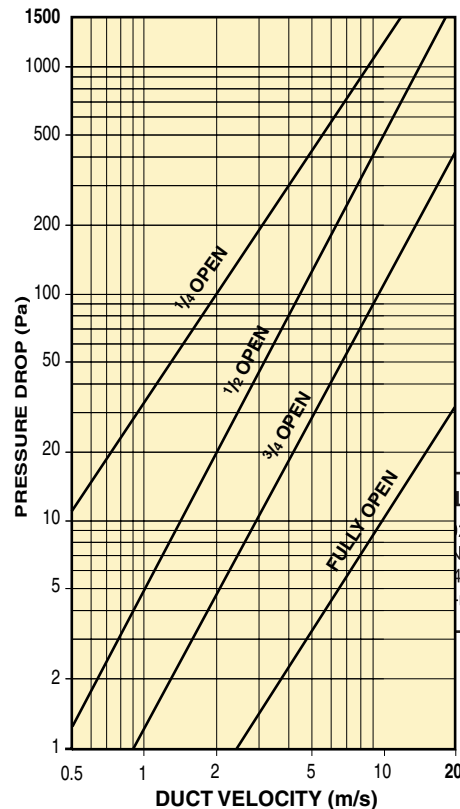
ES35P, 36P (Parallel Blade)



ES50R (Opposed Blade)



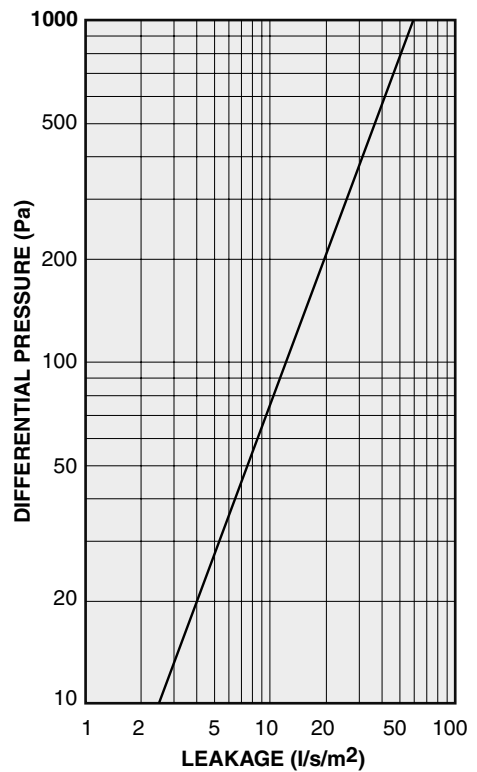
ES50P (Parallel Blade)



Damper Leakage

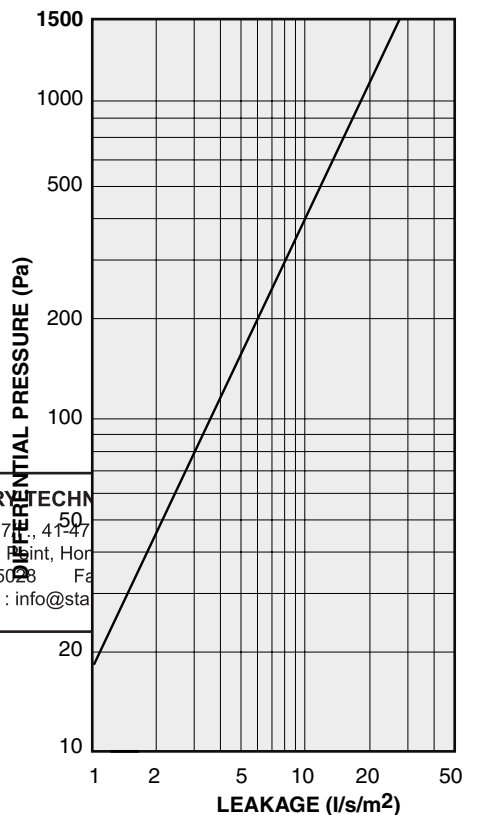
ES36 Closed Blade leakage

1000mm wide x 1000mm high damper



ES50 Closed Blade leakage

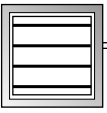
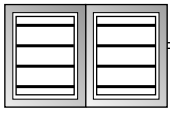







1000mm wide x 1000mm high damper



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Selection

Electrical Controls (Option E)

Single Section	Double Section	Dia mm	Open/Close or Modulating				Spring Return	
								
RECTANGULAR/FLOV		CIRCULAR	5 Nm LM-A	10 Nm NM-A	20 Nm SM-A	40Nm GM	4Nm LF	15Nm AF
ES35								
		Up to 500mm Dia	●				●	
		Up to 600mm Dia	●					●
		Above 600mm Dia		●				●
					●			●
	Up to 0.72 M ²			●				●
	Up to 1.60 M ²				●			●
	Up to 2.50 M ²				●			†
	Above 2.50M ²					●		†

ES36/50

Up to 0.16 M ²		Up to 400mm Dia	●				●	
Up to 0.20 M ²		Up to 450mm Dia	●					●
Up to 0.80 M ²		Up to 900mm Dia		●				●
Up to 1.60 M ²		Above 900mm			●			●
Above 1.60M ²					●			†
	Up to 0.65M ²				●			●
	Up to 1.36 M ²				●			†
	Above 1.36M ²					●		†

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† Refer to Actionair Technical Sales Office.

Specification

ES35

Air control dampers to EN1751 class 0* and DW144 class C casing leakage comprising of 1.5mm thick x 157mm triple "Vee" galvanised steel blades with synthetic blade bearings. Housed in a 1.2mm thick x 165mm deep galvanised steel casing. Integral 40mm peripheral flanges with pre-punched corner fixing holes to suit proprietary duct flanges. Damper blades within damper casing. Drive mechanism mounted outside airstream. ES35 as manufactured and supplied by Actionair

ES36

Air control and shut-off dampers EN1751 class 2* and DW144 class C casing leakage comprising of 1.5mm thick x 157mm triple "vee" galvanised steel blades with silicone coated glassfibre scrim blade seals and stainless steel side gasketting. Synthetic blade bearings. Housed in a 1.2mm thick x 165mm deep galvanised steel casing. Integral 40mm peripheral flanges with pre-punched corner fixing holes to suit proprietary duct flanges. Damper blades within damper casing. Drive mechanism mounted outside airstream. ES36 as manufactured and supplied by Actionair.

ES35 Stainless Steel

Air control dampers EN1751 class 0* and DW144 class C casing leakage comprising of 1.5mm thick x 157mm triple "Vee" 316 stainless steel blades with stainless steel blade bearings. Housed in a 1.2mm thick x 165mm deep 316 stainless steel casing. Integral 40mm peripheral flanges with pre-punched corner fixing holes to suit proprietary duct flanges. Damper blades within damper casing. Drive mechanism mounted outside airstream. ES35 Stainless Steel as manufactured and supplied by Actionair

ES36 Stainless Steel

Air control and shut-off dampers EN1751 class 2* and DW144 class C casing leakage comprising of 1.5mm thick x 157mm triple "Vee" 316 stainless steel blades with silicone coated glassfibre scrim blade seals and stainless steel side gasketting. Stainless steel blade bearings. Housed in a 1.2mm thick x 165mm deep 316 stainless steel casing. Integral 40mm peripheral flanges with pre-punched corner fixing holes to suit proprietary duct flanges. Damper blades within damper casing. Drive mechanism mounted outside airstream. ES36 stainless steel as manufactured and supplied by Actionair.

ES50

Air control dampers EN1751 class 3* and DW144 class C casing leakage comprising of profiled aerodynamic aluminium aerofoil blades with blade seal tips. Synthetic blade bearings. Housed in a 1.2mm thick x 165mm deep galvanised steel casing. Integral 40mm peripheral flanges with pre-punched corner fixing holes to suit proprietary duct flanges. Damper blades within damper casing. Drive mechanism mounted outside airstream. ES50 as manufactured and supplied by Actionair.

ES-CIRC, ES-FLOV and ES-SPG
As appropriate rectangular model with additional note:-

Spigotted circular or flat oval components sealed and attached to damper flanges manufactured in the same material as the base damper.

*Based on a 1m x 1m damper.

Standard Ordering Procedure ES35, ES36 and ES50

- Quantity** Number Required.
- Series** ES35 ES36 ES50
- Operation** **R** Opposed Blade Movement
 P Parallel Blade Movement
- Control Options** **X** Extended Shaft Control (standard option).
 Q Manual Hand Quadrant
 E Electrical Operator.
 24V or 230V open/closed
 24V or 230V spring return
 or 24V modulating.



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Example	2	ES35	FLA	R	X	1200(W) x 400(H)
	Quantity	Series	Casing Type	Operation	Control Option	Duct Size

For further application, technical and pricing information, please refer to Actionair Sales Office.

Actionair Air/Shield



Aerofoil Air Control Damper



Aeroseal Air Control and Shut-Off Damper

Air/Shield Aerofoil Air Control Dampers Air/Shield Aeroseal Air Control and Shut-Off Dampers

Air/Shield Features and Design Guide

- Opposed blade dampers suitable for systems requiring air control (Aerofoil) and low closed blade leakage (Aeroseal).
- 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 500mm in a single drive arrangement.

Product Range

Aerofoil

For system air balancing having aerodynamic ribbed double skin Stainless Steel blades, housed within a galvanised mild steel flanged or galvanised spigotted casing.

Aeroseal

For system air balancing and shut off having aerodynamic double skin Stainless Steel blades with synthetic trailing edge blade seals and Stainless Steel side seals. Housed within a galvanised mild steel flanged or galvanised spigotted casing.

Please refer to the Air/Shield catalogue for full details.

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no compromise...

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