

Includes Short Case version for narrow walls and restricted access.

CSS Damper

CSS Smoke ES Rated Fire Damper

Features

- Tested to EN 1366-2.
- Achieved 2 hour ES classification.
- Suitable for standard or 50mm insulated circular ductwork.
- Available in standard duct sizes 100 to 355mm dia.
- Easy installation.
- Ex stock availability.



*action*air

Dampers Controls Fancoils

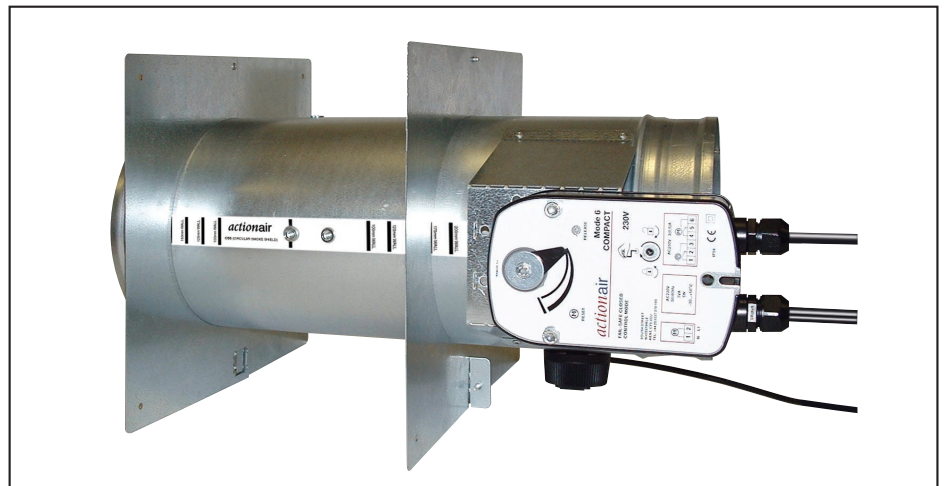
Ruskin Air Management Limited
www.ruskinuk.co.uk

Introduction

The CSS circular smoke and fire damper is the latest development to join the Actionair's innovative and tested range of damper products.

The damper has been developed for installing into standard circular spiral duct systems where the duct passes through, up to 2 hour rated walls. The easy fit flange system makes the installation quick and simple.

The CSS is available in a number of circular sizes to suit 50mm thermal insulated or non insulated ductwork, and is supplied with a factory fitted control mode, with Electrical Thermal Release (ETR) as utilised on our Smoke, Vent / Shield ranges.



Specification

Smoke/Fire (fail-safe closed) version

The Actionair CSS Circular automatic Smoke ES rated Fire dampers with a single galvanised steel blade incorporating patented seal to provide both ambient and fire rated low leakage.

Damper conforms to EN1366-2.

Classification E120 and ES120 and damper casings conform to BSEN1506.

1 pair of 1.2mm galvanised steel hinged Installation flanges are provided with each damper.

The Actionair Factory fitted Compact electrical control mode with thermal sensing to provide Fail-Safe-Closed operation.

Electrical actuators are fitted with halogen free low smoke and fume cables. They have 60 second reset time and a 20 second release time. Each actuator has a 72°C rated electrical thermal release (ETR). The ETR incorporates a safety electrical interlock that only permits actuator operation when correctly fitted. A green 'Healthy' indication lamp is built into the ETR to give a simple and clear visual check that the actuator is receiving power, the ETR is correctly fitted and the thermal fuse is intact.

A manual test switch allowing periodic operation of the damper for testing purposes simulates actuator fail-safe release under fire/smoke conditions. End switches are provided with each mode for reset and release monitoring. The CSS Damper and selected Compact Control Mode (Mode 5 –24v, or Mode 6 – 230v) as supplied by Actionair.

Vent (fail-safe open) version

The Actionair CSS Circular Vent automatic smoke release dampers with a single galvanised steel blade incorporating patented seal to provide ambient low leakage. Damper casings conform to BSEN1506. 1 pair of 1.2mm galvanised steel hinged

Installation flanges are provided with each damper.

The Actionair Factory fitted Compact electrical control mode with fail-safe open operation upon removal of electrical power. Electrical actuators are fitted with halogen free low smoke and fume cables. They have 60 second reset time and a 20 second release time.

End switches are provided with each mode for reset and release monitoring.

The CSS Damper and selected Vent Compact Control Mode (Mode 5 –24v, or Mode 6 – 230v) as supplied by Actionair.

The Range

The CSS circular range of Quality Engineered Dampers are suitable for air conditioning and ventilation systems requiring up to 2 hour fire protection.

These circular bladed dampers are fail – safe spring close with factory fitted electrical reset control modes.

Blade and Casing Features

The circular fire damper incorporates a unique and patented seal that provide ES leakage performance at both ambient and fire conditions. It is housed in a galvanised case complete with two installation flanges for easy fitting into stud and solid wall applications.

Sizes Available

100, 125, 150, 160, 200, 250, 300, 315, 350 and 355. Manufactured to BS EN 1506.

Control Options

A choice of two motorised compact Control Modes 5 (24 volt) and 6 (230 volt) are available, these are optimised motor / spring return type with remote reset-release facilities, with volt free contacts for provision of external indication, monitoring and control by means of Actionpac damper control system, or by suitable alternative proprietary control format. Factory fitted and fully tested Control Modes are located outside of the ductwork for easy access and installation.

Application Parameters

CSS circular smoke and fire dampers can be incorporated in Smoke/Shield systems or within exclusive circular ventilation systems as a competitively priced alternative to the circular Smoke/Shield 601 dampers.

The CSS dampers can be used where the operating total system pressure is up to 1500 Pascals and duct velocities to 15m/second.

The CSS round damper blade is normally open and fail-safe to the closed position. This product is ES rated.

Actionair CSS dampers are designed for application in normal dry filtered air systems. If exposed to fresh air intakes and / or inclement conditions, the dampers should be subject to a planned inspection programme.

Control Modes

Mode 5 CSS (24V System)

Power On – Damper motors open.
 Power Off – Spring closure.
 Electrical Thermal Release.
 External mechanical position indicator with pointer.
 Release Time ≈ 20 secs.
 Reset Time ≈ 60 secs.

(Connect 24V via a safety isolating transformer.)

* Not fitted to Vent versions.

**A.C./D.C.24V
50 / 60 Hz**

**7 VA
5 / 2.5 W**

**Imax
5.8A @ 5ms**

**-30...+50°C
CONTINUOUS**

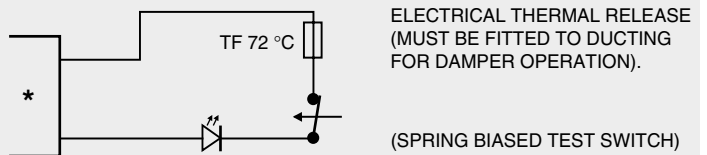
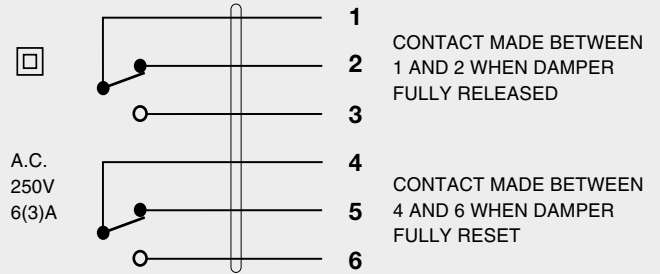
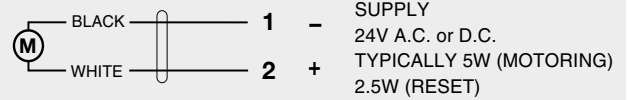


DIAGRAM SHOWS ACTUATOR IN FULLY RELEASED STATE

Mode 6 CSS (230V System)

Power On – Damper motors open.
 Power Off – Spring closure.
 Electrical Thermal Release.
 External mechanical position indicator with pointer.
 Release Time ≈ 20 secs.
 Reset Time ≈ 60 secs.

(To isolate from main power supply, the system must incorporate a device which disconnects the phase conductors, with a least 3mm contact gap.)

* Not fitted to Vent versions.

**A.C. 230V
50 / 60 Hz**

**7 VA
5 / 3 W**

**-30...+50°C
CONTINUOUS**

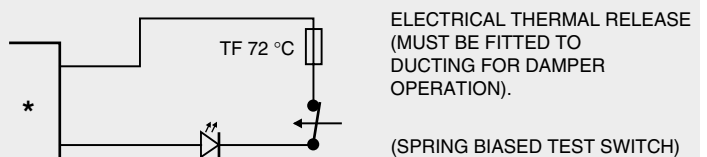
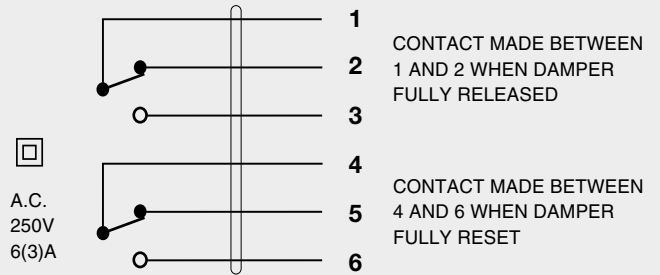
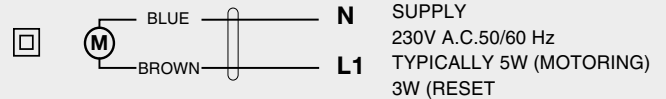


DIAGRAM SHOWS ACTUATOR IN FULLY RELEASED STATE

Electrical Thermal Release (ETR)

Compact Control Modes 5 and 6 fail-safe by means of a unique and patented electrical thermal release which operates at 72°C or if the power supply is interrupted, complying with BS 5588 Part 9: 1999.

The ETR incorporates triple safety features, including an ingenious device that ensures the fail-safe status of the damper if the ETR is not correctly fitted on to the damper case.

A manual test switch allows periodic operation of the damper for testing purposes simulating actual fail-safe release under smoke/fire conditions.

For safety reasons the ETR is designed to operate once only when the activation temperature is released.



As standard, a green LED lamp is built into the ETR housing. This gives the user a simple and clear visual check that the Actuator is receiving power, the ETR is correctly fitted and the thermal fuse is intact.



Vertical Mounting in a Rigid Construction Wall

General

This method of installation is effectively suitable for most wall types of rigid construction, where they are of an equal or greater density to the lightweight board partition tested. Details shown are essentially for an existing dry wall partition. However this installation method may be used for masonry or blockwork walls as long as they have a greater density than the partition shown. Also a drywall partition may be built around the damper, as long as the clearances are followed.

Health and Safety

This process must be undertaken by competent persons. More than one person may be required to ensure the safe handling of large dampers and other materials.

Use must be made of access equipment to ensure unsafe practices are not used to approach walls or difficult access areas. Standard site PPE should be used (minimum steel toe cap boots, hard hat); together with any protective eyewear, gloves and masks, when drilling or cutting is being undertaken. The latter should also be used when handling the wall construction materials, as defined by the material suppliers. If loud equipment is being used, hearing protection should be used. All waste materials should be collected and disposed of as defined by the relevant supplier.

Actuator

1. The control mode/actuator is supplied fitted. This should be checked for damage and the manual operation of the damper checked.
2. Check that the Electrical Thermal Release (ETR) is still firmly connected through the damper case. If it is not, the actuator/control mode may not work electrically.
3. A special feature of the Actionair CSS modes is that they may be adjusted from pointing straight out along the duct (standard configuration) through 90° to point either up or down if required.
4. The mode should be wired into the system using the site wiring detail, plus the details shown on the label.

Commissioning

1. The units should be carefully inspected and checked to ensure that they have been built in, in accordance with manufacturers' recommendations and fire authority and building control requirements.
2. The mode should be operated to ensure that it is moving the blade from open to closed and the reverse.
3. If the microswitches (voltage free contacts) within the mode are being used, they should be checked to ensure they are actually indicating that the blades are open and closed. This is done by running a cycle and checking both the blade open and closed position and the feedback indication from the microswitches is correct.

Maintenance

(Refer to BS 5588-12)

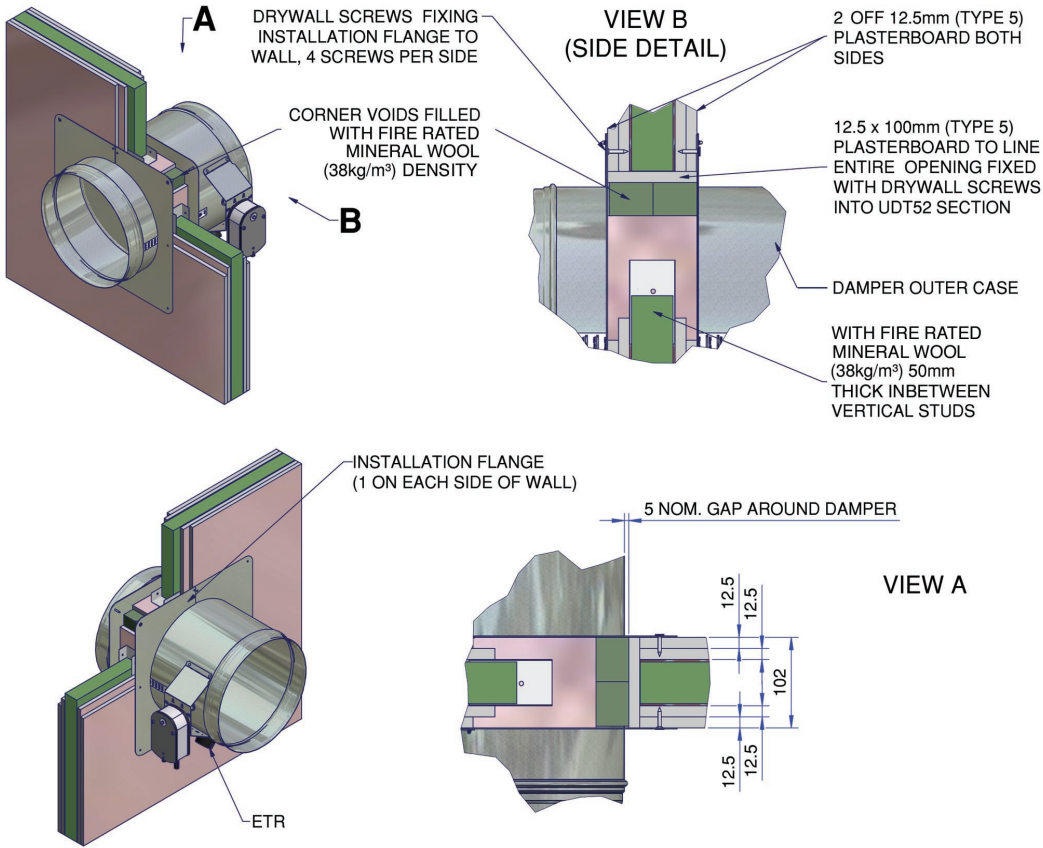
1. Carefully inspect the units and clean and remove any dust and debris.
2. Lubricate the units with a light oil spray, wiping over all the surfaces.
3. Operate the mode to ensure that it is moving the blade from open to closed and the reverse.
4. If the microswitches (voltage free contacts) within the mode are being used, they should be checked to ensure they are actually indicating that the blades are open and closed. This is done by running a cycle and checking both the blade open and closed position and the feedback indication from the microswitches is correct.

Damper Installation Method

A photo storyboard for this method follows on page 6.

1. Measure the overall damper casing size. Calculate the finished square hole size by adding 10mm ± 5mm to both width and height (For drywall partitions, calculate the hole to cut size by adding two board thicknesses to the finished hole width and height).
2. Mark out the hole on the partition and cut it out, cutting the top and bottom edges first to maintain stability.
3. For drywall partitions, frame out the hole with stud and track and cover this with board. Finish edges with joint filler.
4. Install the damper and fasten one Installation Flange so that the blade in its closed position is in the centre of the wall
5. Fill the 4 triangular voids between the damper and the edges of the hole with fire rated stone wool
6. Fit the remaining Installation Flange

STUD WALL - INSTALLATION DETAIL



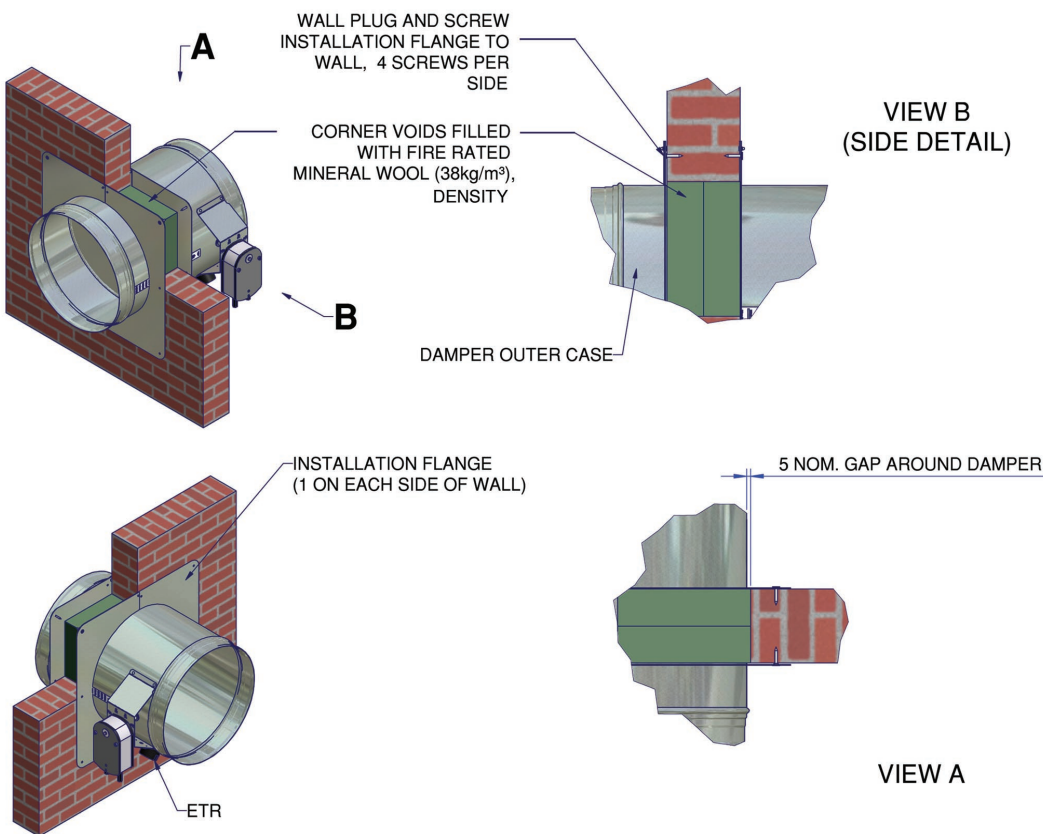
IF YOUR PROPOSED INSTALLATION DETAIL DIFFERS FROM THAT SHOWN, PLEASE DISCUSS THIS WITH THE BUILDING CONTROL AUTHORITY (BCA) USING THIS DOCUMENT AND THE ASSOCIATED FIRE TESTS ASSESSMENTS AND OTHER DOCUMENTS SHOWN. THEIR APPROVAL MUST BE OBTAINED PRIOR TO INSTALLATION.

PHOTO STORYBOARD
CSS CATALOGUE
www.actionair.co.uk

APPLICABLE TEST REPORTS EN1366-2

BRE 238072

BRICK WALL - INSTALLATION DETAIL



BSEN13501-3
CLASSIFICATION

| | | |
|------|-------|-------|
| E120 | ES120 | E120S |
|------|-------|-------|

VERTICAL APPLICATION
CIRCULAR
SMOKE/SHIELD
DAMPER SIZE:
355MM DIA.

Vertical Mounting in a Rigid Construction Wall - Story board

Drill the four corners to project the rectangle onto the far side of the wall

Drill through the wall at the four corners. The four resulting holes should then be connected to mark out the hole on the opposite side of the wall. The diagonals should be checked to confirm squareness.

Cut the top and bottom edges of the hole

It is important to cut the horizontal (top and bottom) edges of the hole first, as this keeps the verticals rigid, whilst any studs are cut through. Do one side of the wall and then the other. Use a fine jigsaw blade when cutting through any studs, to prevent "snagging".

Cut the vertical (side) edges of the hole

The vertical sides of the hole may now be cut.



Remove the cut material to leave the hole

The waste wall material should now be removed. Trying to remove some of the board layers first, rather than trying to remove the slug as a whole may ease this.



Tidy up all the edges of the hole

Tidy up all the edges of the hole to leave in as flat and clean a state as possible, so that it can be easily lined with fresh board material

For dry wall partitions, frame out top and bottom edges of the hole

Cut some track of the same type and dimension as that which was used in the wall construction. This should be slightly longer than the hole top and bottom edge dimension (up to 25mm longer). One piece is required for the bottom and one for the top of the hole. This track should be carefully be pushed in to gap to face of the cavity. It may be necessary to V-notch the ends of the track to be able to force it in at the ends.



Frame out the sides of the hole

Cut some stud of the same type and dimension as that which was used in the wall construction. This should be the same as the hole side edge dimension. One piece is required for each side. This stud should be carefully pushed into the gap around the opening.

Finish the installation of the track and stud

Finish the installation of the track and stud by fastening at 300mm centres with grabber plasterboard screws of length to suit the board thicknesses used.

Line the hole with board

Cut pieces of board to line all four sides of the hole.

These should be of a length to suit the width and then slightly reduced to fill in

the sides. The board should be cut to a width to suit the wall thickness. After installation any rough edges should be smoothed back. The board must be held in place with additional grabber plasterboard screws



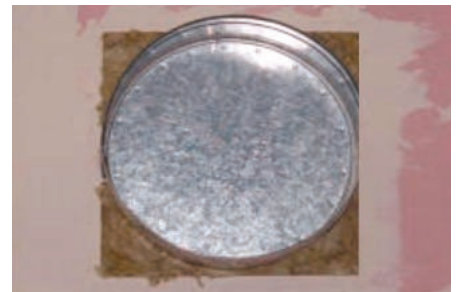
Finish the hole

Finish the edges with plasterboard joint filler.

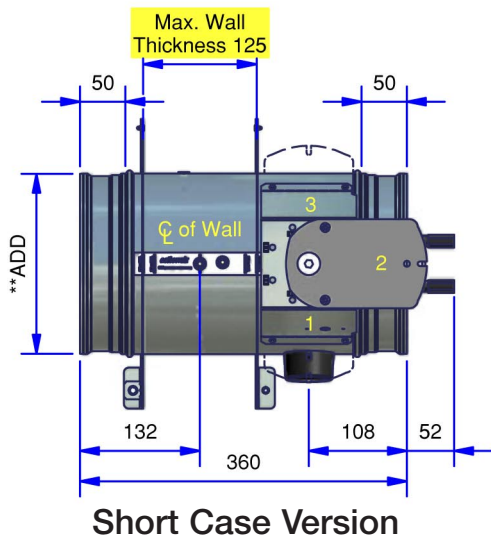
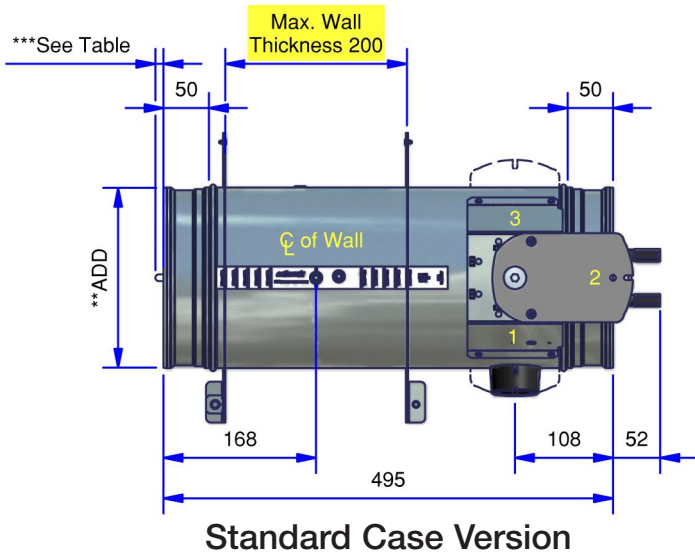
Install the damper

Fit one installation flange around the damper such that when it is pushed against the wall, the damper blade will be at the centre of the wall. Place the damper in the hole in the wall. Screw the flange to the wall through the holes provided.

Fill the gaps with fire rated stone wool and then fit the remaining flange in a similar way on the other side of the wall.



Dimensional Data



Control can be mounted in one of three positions vertically down, horizontally or vertically up. Position 1,2 and 3 are as shown. Factory fitted is position 2.

Short case version only be available for NDD <=250mm.

*NDD: Nominal duct diameter.

**ADD: Actual duct diameter. All sizes are accorded with BS EN 1506:1998.

Actual duct diameter is approximately 1mm below nominal duct diameter.

****Inc.flanges and M6 actuator.

| Model Ref | *Nominal Duct Diameter | *** Open Blade Protrusion (mm) | Casing Leakage Class | **** Weight (Kg) | |
|-----------|------------------------|--------------------------------|----------------------|-----------------------|--------------------|
| | | | | Standard Case Version | Short Case Version |
| CSS | 100 | - | C | 4.5 | 4.2 |
| CSS | 125 | - | C | 5.0 | 4.6 |
| CSS | 150 | - | C | 5.4 | 5.0 |
| CSS | 160 | - | C | 5.6 | 5.2 |
| CSS | 200 | - | C | 6.5 | 5.9 |
| CSS | 250 | - | C | 7.6 | 6.9 |
| CSS | 300 | - | C | 8.8 | |
| CSS | 315 | - | C | 9.2 | |
| CSS | 350 | 6.5 | C | 10.1 | |
| CSS | 355 | 9 | C | 10.2 | |

Ordering Information

Examples

| Quantity | Product | Case Depth | Type | Fail-Safe Position | Size | Control Mode | Thermal Release |
|----------|---------|------------|--------------|--------------------|---------|--------------|-----------------|
| 5 | CSS | 360 | Smoke / Fire | Closed | 150 Dia | Mode 6 | Yes (ETR 72) |
| 7 | CSS | 495 | Vent | Open | 125 Dia | Mode 5 | No (Non ETR) |

Ruskin Air Management Limited
a BS EN ISO 9000 registered company

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

**New Product
available now**



CIRCULAIR
Series Air Balancing
Dampers

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