

# ThermShield FDC

Circular CE Marked 'EIS' Rated Fire Damper



## KEY FEATURES

- EIS classification for integrity, low smoke leakage and insulation in demanding projects
- CE marked fulfilling the requirements of EN 15650
- Fire tested to EN 1366-2
- Classified to EN 13501-3
- Choice of tested installation methods to suit Concrete/Masonry Floors/Walls and Dry Walls, including out of wall installations.
- Choice of actuators to suit project requirements
- To suit circular ductwork
- Actionpac damper control system compatibility.

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## Advantages of ThermShield FDC

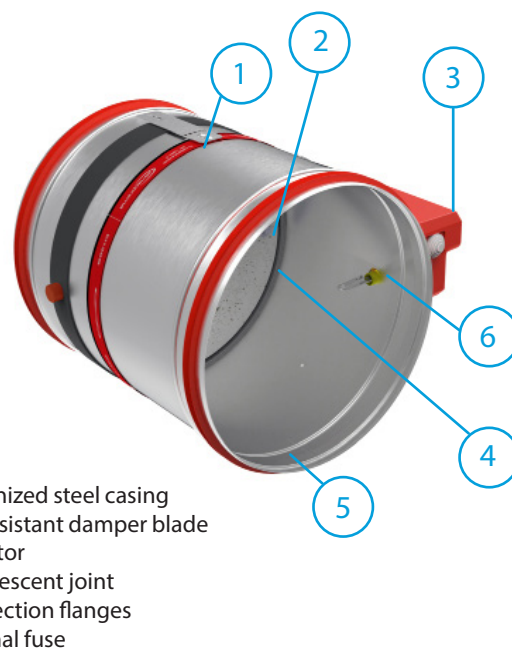
The list below shows a few of the benefits enjoyed by the specifier and installer when using the Actionair ThermShield FDC range of dampers...

### Specifiers will appreciate

- Dedicated technical support from Swegon through the project - from start to finish and beyond.
- Cause and effect knowledge with experience and support to create a holistic design that works well for all parties.
- Features an Insulated blade to provide protection against transmission of fire as a result of transfer of heat.
- Wide range of sizes to suit circular ductwork (Refer to ThermShield FD for square/rectangular).
- Tested to allow minimal separation between dampers and construction elements.
- Remote from wall and face of wall applications available.
- Easy to interface and design with the dedicated ACTIONPAC damper control systems.

### Installers will appreciate

- Available to suit a wide range of installation scenarios.
- Externally re-settable fusible link variant.
- Interchangeability from Fusible Link to Automatic Fire Damper.
- Installation support from Swegon, with years of experience and best practice.
- Easy commissioning with a dedicated specialist team available to commission alongside ACTIONPAC control panels.



## Product Overview

ThermShield FDC are used for prevention of fire spread through the ventilation ducts and between fire compartments. Fire dampers consist of steel sheet casing, calcium silicate damper blade, damper blade mechanism outside of the airflow and a manual or electric actuator.

ThermShield FDC casing is made out of galvanized steel sheet. Variants produced from stainless steel and powder coated steel are also available. Calcium silicate blade is equipped with brass bearings and seals made out of polyurethane and elastomer rubber.

ThermShield FDC25 are produced up to size d315 and have 25 mm thick damper blade. Fire dampers FDC40 are produced in sizes from d355 to d800 and have 40 mm thick damper blade.

FDC25 fire dampers are equipped with R25 manual mechanism and FDC40 fire dampers are equipped with R40 manual mechanism.

Manual spring return mechanism is equipped with thermal fuse that is triggered automatically when the temperature inside the duct reaches 72 °C. It can also be activated manually by the push of the button on the mechanism.

Additional equipment for manual mechanism include end contact switches for damper position signalling.

ThermShield dampers with electric actuators are equipped with Belimo actuator drives in 24 V or 230 V versions. Activation of fire dampers equipped with electric drives can be via 72 °C or 95 °C thermal fuse or remotely via control signal. Rearming of the electric fire damper can also be done remotely via control signal. All electric actuators are equipped with end switches for position signalling.

ATEX rated versions of fire dampers can be delivered with Schischek 24 V / 230 V electric actuators that are rated for installation in explosive atmosphere areas.

All fire dampers are tested according to the EN 1751 for airtightness and retain class 2 leakage on the closed damper blade and class C on the casing air leakage.

## Product Specification

Nominal sizes FDC	100 - 800 mm
Casing length	380 mm
Temperature range	-20 °C ... 50 °C
Release temperature	72 °C (standard) or 95 °C (optional with electric actuator)
Volume flow rate range	up to 21700 m³/h
Differential pressure range	up to 1000 Pa
Casing air leakage	Class C, EN 1751
Closed blade air leakage	Class 2, EN 1751
Upstream velocity	< 12 m/s
EC conformity	EN 13501-3, EN 1366-2, EN 15650, EN1751, CPR no.305/2011
Declaration of performance	DoP 711/2020_12_EN

## Actuators

### R (R-S)

Manual operating mechanism, optionally with end switches (R-S). In case of fire, the fire damper closes automatically. Damper closing can be initiated either by thermal fuse melting, or by manual activation on the operating mechanism. Upon closure, damper blade is locked in closed position and can only be opened manually. Thermal fuse melting point is 72 °C.

### M230-S

Belimo 230 V electro motor operating mechanism, comes with integrated end switches. In case of fire, the fire damper closes automatically.

Damper closing can be initiated either by thermoelectric release device or remotely by triggering the electro motor. Upon closure, damper blade is locked in closed position and can be opened by sending a signal to electro motor. Standard thermoelectric release point is 72 °C, optional 95 °C.

### M24-S

Belimo 24 V electro motor operating mechanism, comes with integrated end switches. In case of fire, the fire damper closes automatically.

Damper closing can be initiated either by thermoelectric release device or remotely by triggering the electro motor. Upon closure, damper blade is locked in closed position and can be opened by sending a signal to electro motor. Standard thermoelectric release point is 72 °C, optional 95 °C.

### EX

ATEX rated fire dampers are equipped with Schischek ExMax actuators, Exbox-TT thermal switches and ExBox plenum boxes.

Optional casing can be produced in AISI316L stainless steel.

## Installation

[Full installation details are available on our website and are sent out with each damper.](#)

Actionair ThermShield FDC PTC has the following approved installation methods...

### Standard

CE Marked 'EIS' Rated Fire/Smoke Dampers complete with Dry Wall Fix Flange and Cleats. See Standard (circular) installation document for details.

### Size Range:

FDC25 - 100 to 315mm

FDC40 - 355 to 800mm

### Applique

CE Marked 'EIS' Rated Fire/Smoke Dampers. See Applique installation document for details.

### Size Range:

FDC25 - 100 to 315mm

### MF1/MF2

CE Marked 'EIS' Rated Fire/Smoke Dampers See MF1/MF2 installation document for details.

### Size Range:

FDC25 MF1 - 100 to 315mm

FDC40 MF2 - 355 to 800mm

### Remote

CE Marked "EIS" Rated Fire Dampers. See Remote installation document for details.

### Size Range:

FDC25 MF1 - 100 to 315mm

FDC40 MF2 - 355 to 800mm

## Technical Data

### Casing Features

ThermShield FDC casing is manufactured from galvanized steel sheet, but on demand can be produced out of:

- Galvanized steel and powder coated
- Stainless steel (AISI 304/316)
- Stainless steel and powder coated (AISI 304/316)

Fire damper for areas with potentially explosive atmospheres are also available.

#### FD25

- Cylindrical fire damper with 25 mm damper blade and fire classification up to EI120S.
- Sizes range from 100 to 315mm.

#### FD40

- Cylindrical fire damper with 40 mm damper blade and fire classification up to EI120S.
- Sizes range from 355 to 800mm.

#### FD25-APP

- Fire damper with integrated Applique installation kit with 25 mm damper blade and fire classification up to EI90S. Sizes range from 100 to 315mm.

#### FD25/FD40-MF2

- Fire damper with integrated MF2 installation frame with and fire classification up to EI90S. Sizes range from 100 to 315mm (FDC25) and 355 to 800mm (FDC40).

Fire resistance of fire damper depends on classification of walls or ceilings. It is allowed to install products to walls or ceilings only according to products Declaration of Performance. Walls or ceilings with greater fire resistance can also be used. Fire damper should be installed according to the installation manual which can be found within this document.

E - Integrity

I - Insulation

120/90/60 - Classification time in minutes

S - Smoke leakage

ve - Damper installed in vertical compartment

ho - Damper installed in horizontal compartment

i<>o - Fire performance criteria are met on both sides



## Test and Certificates

All our dampers are submitted to a number of tests by official test institutes. Reports of these tests form the basis for the approvals of our dampers. Our fire dampers are also suitable for installation in buildings with high hygienic demands such as hospitals, clinics and pharmaceutical areas.

To confirm this, our products are tested by an independent Institute of Hygiene, based in Gelsenkirchen, Ruhr, and comply with directives and guidelines in VDI 6022

FDC fire resistance is tested according to EN 1366-2 "Fire resistance tests for service installations- Part 2: Fire dampers". Classification of the fire dampers is defined according to EN 13501-3 Fire classification of construction products and building elements.

### Fire Resistance Classification

Installation in both, vertical and horizontal axis of rotation of the dampers blade is acceptable (with the axis angle 0 - 360°).

## Pressure Drop Tables

Pressure drop values are described with the "Zeta" values for each size. The exact pressure drop in [Pa] is calculated using the following formula:

$$\Delta p [\text{Pa}] = \zeta * v^2 * 0,6$$

where  $\Delta$  is Zeta value from the tables below,  $v$  is air-flow velocity in [m/s]

FDC25	d100	d125	d160	d200	d250	d315
$\zeta$	1,759	0,852	0,545	0,445	0,340	0,293

FDC40	d355	d400	d450	d500	d560	d630	d710	d800
$\zeta$	0,428	0,389	0,344	0,325	0,312	0,232	0,206	0,179

## Dimensional Range

	Diameter [mm]	Cross section [dm <sup>2</sup> ]	Net area [dm <sup>2</sup> ]
FDC25	100	0,74	0,50
	125	1,17	0,87
	160	1,93	1,55
	200	3,05	2,56
	250	4,79	4,18
	315	7,64	6,87
FDC40	355	9,73	8,33
	400	12,37	10,79
	450	15,69	13,91
	500	19,39	17,41
	630	30,86	28,36
	710	39,24	36,42
	800	49,86	46,68

## Ordering Key

ThermShield FD-C

a b c d

Installation:

Standard

Applique

MF1/MF2

Remote

Duct Size:

600(W) x 450(H)

Actuator:

R (Mechanical)

R-S (Mechanical c/w limit switches)

M24-S

M230-S

Accessories:

DTU - Damper Test Unit

DSI - Damper Status Indicator

DCU - Damper Control Unit

DRIM - Damper Release and Indication Module

DCB - Connection Box For Control Mode 5, M24-S and M230-S

\*optional actuator for specialist applications, please contact us for more details

Example:

ThermShieldFD-C, standard, 600x450, M230-S, DCU

## Specification Text

ThermShield FD-C, circular CE Marked 'EIS' Rated Fire Damper. ThermShield FD-C consists of steel sheet case, calcium silicate damper blade, damper blade mechanism outside of the airflow and an actuating mechanism. Dampers are tested according to the EN 1751 for airtightness and retain class 2 leakage on the closed damper blade and class C on the casing air leakage. The ThermShield FD-C case is made out of galvanized steel sheet, Calcium silicate blade is equipped with brass bearings and seals made out of polyurethane and elastomer. Damper tested according to EN 1366-2 "Fire resistance tests for service installations- Part 2: Fire dampers". Classification of the fire dampers is defined according to EN 13501-3 Fire classification of construction products and building elements. The damper shall be installed as per the installation instructions, with the detailed performance for each installation method according to Declaration of Performance.

### For automatic operation

ThermShield FD-C, circular CE Marked 'EIS Rated' Fire Dampers with their appropriate actuators shall have spring Fail-Safe Closed operation only, with selected actuators, as fitted at point of manufacture.

### For manual operation

ThermShield FD-C, circular CE Marked 'EIS Rated' Fire Dampers with Manual spring return mechanism and thermal fuse, triggered automatically when the temperature inside the duct reaches 72 °C.