

# CFD-01-ICB – EI120S Insulated fire damper



## Overview

- The CFD-01-ICB comprises of a single or multi-blade design that when open allows air to flow through the damper. In the event of a fire or high temperature event the damper will close, to form a barrier that provides protection against the spread of flame, smoke and heat transfer
- The CFD-01-ICB Fire Damper has been developed by Flamgard for the latest Nuclear New Build projects working to the highest safety standards
- Type tested/approved and compliant to EN1366-2 Fire Resistant to E (Integrity) S (Smoke) and I (Insulation) from 60 to 120 minutes. Also available E180. (Patents Pending)
- BS 15650 accredited
- Case and Blade leakage compliant to EN 1751
- ISO 9001:2015 accredited
- ISO 45001
- Seismically tested
- Irradiation Resistance
- 10/30/60 year lifespan
- 10kpa Pressure resistant

## Specification

The CFD-01-ICB Fire Damper is an insulated Fire Damper used to prevent the spread of flame, smoke and heat through a HVAC system, in the event of a fire. The Fire Dampers in normal position are open allowing air to flow through the ductwork. The Fire Dampers shall shut in the event of a fire. The Fire Dampers consists of an insulated stainless steel case with internal insulated blades and an electrical actuator; and can be manufactured in various sizes.

The actuator only requires power to open the Fire Damper. In the event of a fire the pre-loaded spring on the Fire Damper, closes the Fire damper automatically by the way of the Thermal Trigger Mechanism. The Fire Damper can also be open/closed manually or closed remotely. Seal material is used between blades to assist with the ambient blade leakage rate. Intumescent is also provided between the blades and surrounding case, which upon even of high temperature (fire) will activate and expand; assisting with the fire barrier.

## Dimensions

The damper can be manufactured in various sizes from 200mm x 200 mm up to 1000mm x 1000mm.

## Casing

Formed from 3.0 mm thick stainless-steel sheet to BS EN 10088-2 with a 2B finish into a rigid channel section to ensure proper alignment of blades and shafts. Damper case shall be 300mm deep, internally insulated with Calcium Silicate Insulation.

## Blades

The blades are a formed double-skin aerofoil section from 1.5mm thick stainless-steel sheet to BS EN 10088-2 which operate on the 'Firelock' principle creating a 3-pass labyrinth between the blades which fire cannot penetrate. A Calcium Silicate Insulation is affixed to the blades to ensure low thermal conductivity. Furthermore, to aid with leakage and provide an additional fire stop between the blades a Intumescent seal is used coupled with ambient cold seals, for superior hot/cold leakage performance.

## Blade Stops

3.0mm thick stainless-steel sheet to BS EN 10088-2 with Calcium Silicate Insulation complete with intumescent seals fitted to the top and bottom stops, retained and protected with 0.25mm stainless-steel to BS EN 10088-2 Type 1.4401

## Side Seals

Ø19.05 mm continuous shafts formed from stainless steel round bar to BS EN 10088-3.

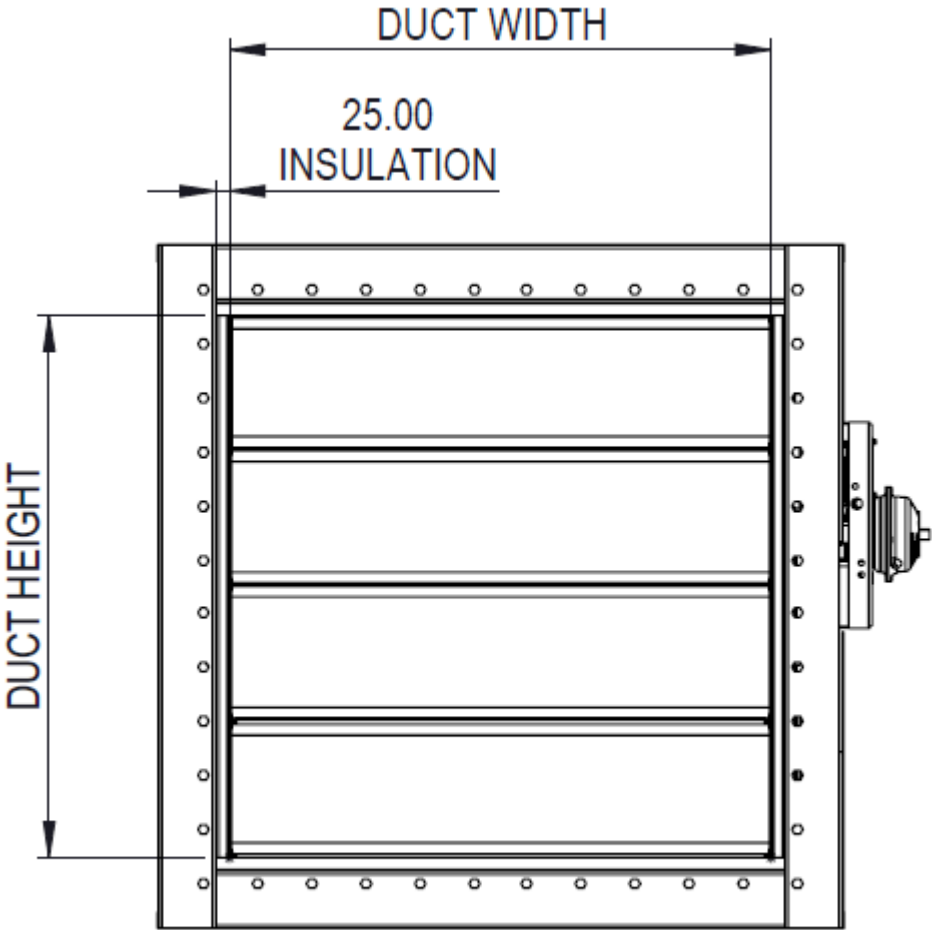
## Linkage

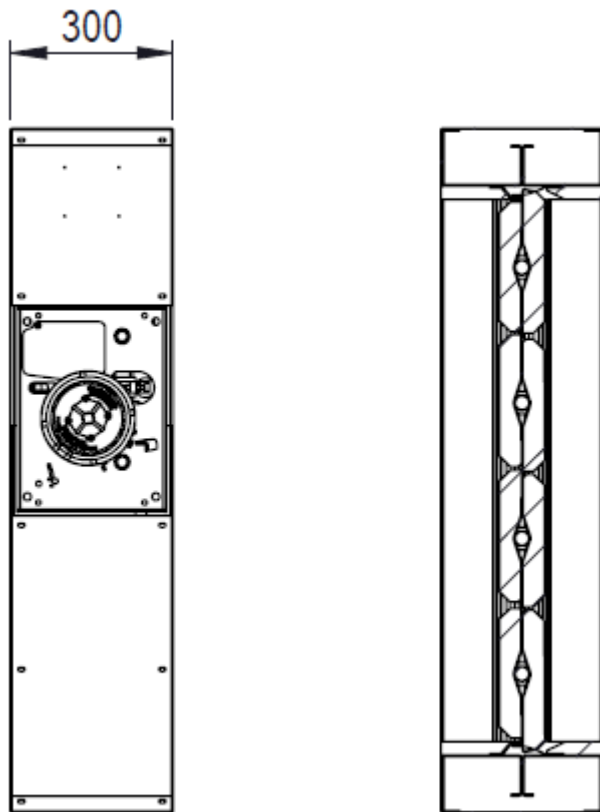
Opposed 'pinned' linkage with blade drive levers coupled together with stainless steel link bars manufactured from 6mm and 5mm thick stainless steel to BS EN 10088-2.

# Bearings

Self-lubricating sintered bronze housed within a stainless steel lipseal bearing boss with EPDM high temperature lipseals.

## CFD-01-ICB General Drawings





## Material and Finishing

Part	Material	Finishing
Case	Stainless Steel – 1.4307 (304L) Stainless Steel – 1.4404 (316L)	–
Blades	Stainless Steel – 1.4307 (304L) Stainless Steel – 1.4404 (316L)	–
Blade Stop	Stainless Steel – 1.4307 (304L) Stainless Steel – 1.4404 (316L)	–
Shafts	Stainless Steel – 1.4307 (304L) Stainless Steel – 1.4404 (316L)	–
Bearings	Phosphor bronze self-lubricated plain ‘Oilite’	–
Insulation	Calcium Silicate	

## Product Models and Accessories

The control system has been designed to EDF specifications and complies fully to the bespoke control philosophy requirement for the new Hinkley Point C Nuclear Power Station.

The control system along with our CFD-01-CB Fire Damper have successfully undertaken stringent

testing in accordance with the project requirements, ensuring that the Flamgard Calidair Fire Damper and Control System will provide first class operation.

- The Actuator comprises a 24V DC electrically operated motor, spring and latch system design to open and close a damper. The Actuator is enclosed within a stainless-steel case to protect the system from impact damage and provide operator protection. All moving parts are fully enclosed.
- The Flamgard Latch mechanism is manufactured from stainless steel with all moving parts fully enclosed. The latch mechanism engages when the damper is fully open releasing the electric motor and restraining the closure spring.
- The Latch mechanism contains thermal trigger with twin frangible bulbs that will cause the damper to fail safe close at the designated temperature. Mounted both inside and outside of the duct section, the trigger affords protection against room or duct fire conditions.
- The thermal trigger mechanism is a mechanical device and does not require an electrical supply to operate.
- A handle on the latch mechanism allows for a local manual over ride to close the damper. This is a simple pull handle operation for local damper closure. This is an electrical power free operation.
- The actuator mechanism also includes two sets of Open and Closed limit switches (one set = one open and one close), reflecting the actual position of the damper blades.

## Operation Principle

The fire damper can be electrically operated using the 24V DC actuator. This will power open the fire damper while concurrently tensioning the spring return function. The Latching unit is engaged at the completion of the opening cycle where the actuator then disengages. The fire damper is then held open by a latch mechanism until a close signal is received. The close signal can be instigated via the frangible trigger device exceeding the temperature set-point limit. The frangible trigger device can be activated by a temperature rise either within the duct or external to the duct. The fire damper can also be closed by a manual override lever or by the emission of a 24V DC signal sent from a control panel.

The fire damper can also be manually opened by means of a manual override when power is unavailable.

## Weights

Weights for specific sizes are issued on the quotation document.

## Installation

Dampers can be duct mounted, floor mounted, roof mounted, or bulkhead mounted depending upon the application.

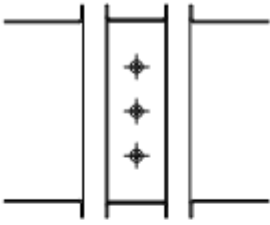


Fig.3  
Duct Mounted



Fig.4  
Floor Mounted

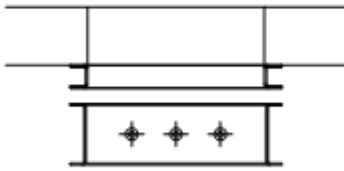


Fig.5  
Roof Mounted

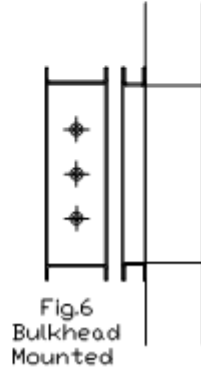


Fig.6  
Bulkhead Mounted