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TROX® TECHNIK

Product Information Multi Leaf Fire Damper Type JFM

PI/3/10.1/M/4

Tunnel & Industrial Multi Leaf Fire Damper Type JFM

- **High integrity fire damper for arduous locations including tunnel, marine and industrial applications.**
- **Available in galvanized mild steel or stainless steel construction.**
- **Low leakage rate with option for high temperature seals meeting UL555S Class 1 leakage rate (40 l/s/m² at 1.125 kPa) for smoke containment.**
- **Rated for operation at 250°C for 2 hours and 400°C for 1 hour to enable smoke control.**
- **Designed for 30 years service life.**
- **4 hour fire integrity rated in accordance with BS 476 Part 20, for both vertical and horizontal installations.**
- **Achieved BS EN 1366 Part 2, 1999 for 1 hour.**
- **Suitable for operation at +/– 3 kPa.**
- **Will withstand +/- 6kPa (BSRIA tested for 8 million pressure cycles).**

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Description

The JFM damper has been developed from the Trox type JFO and JFS which have a long record of performance and reliability over the past 30 years. This has been gained within arduous industrial applications including nuclear, chemical, offshore and tunnel ventilation installations. The JFM is suitable for fire, isolating, balancing or smoke control/extract applications. Operation can either be pneumatic, electric or manual with ancillary control components to meet the clients' specific requirements.

Performance

1. Fire Rating

- Warrington Fire Research — 4 hours BS476 Part 20 1987 Horizontal & Vertical BS EN 1366 Part 2, 1999 for 1 hour.

2. Smoke Control Ratings

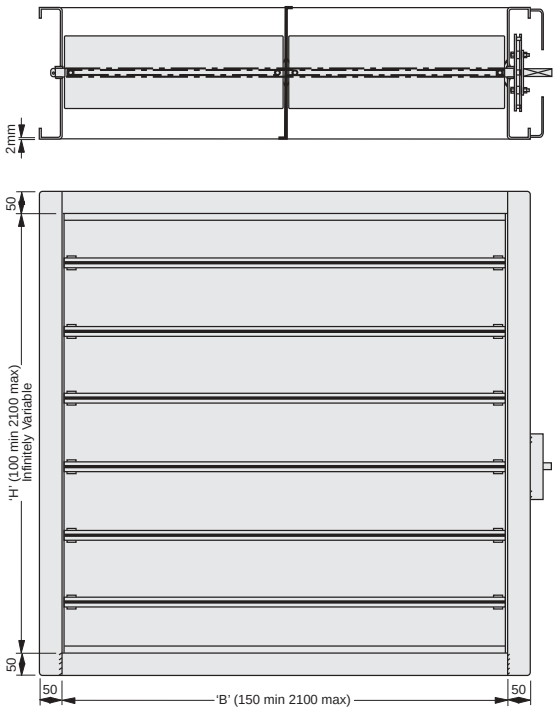
- Warrington Fire Research — Functional for up to 2 hours in 250°C ambient and 400°C for 1 hour.

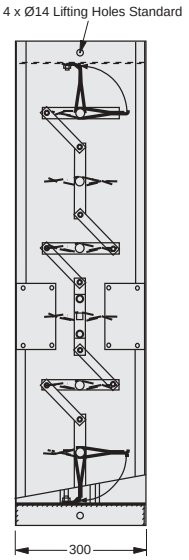
3. Open blade Pressure Drop — 20 Pa with 10 m/s air face velocity.

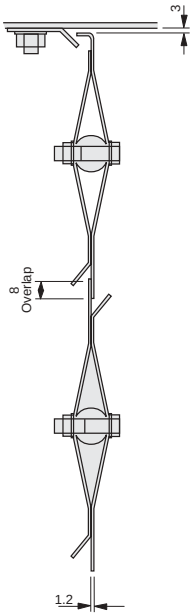
4. Closed-blade leakage rate — 100 l/s/m² @ 1000 Pa standard
40 l/s/m² @ 1125 Pa with kerlane blade tip seals (equal to UL555S Class 1 leakage rating).

5. Pressure rating — 6 kPa pressure differential across closed blades

Type JFM Construction







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Material Specification Type JFM

Case
2 or 3 mm thick-formed channel section. 300 mm deep with 50 mm flanges. Case sections are fully welded externally at corner joints. Mullions fitted into case above 1050 mm wide will be stitch welded.

Blades
1.2 or 2.0 mm thick formed sections spot welding together resulting in a double skin aerofoil section fitted over Ø 20 mm shaft. Opposed action linkage geometry allows blades to interlock forming a fireproof barrier. Blades are bolted to shafts.

Bearings
Flanged bearing pressed into case complete with ”O“ ring seal for low leakage variant.
Material – Brass to BS 12164.

Shafts
Continuous shafts Ø 20 mm through blade and bearings. Bolted to blades with nuts and spring lock washers.

Finish
Generally natural. All welds on damper face to be ground flush. Welds zinc rich painted for galvanized mild steel construction.

Guards
Fitted over the external drive linkage as an option for all motorized dampers.

Table 1: Dimensions in mm (standard sizes)
Infinitely variable between stated limits. Above these sizes multiple modules are offered.

Standard size	Single module	Double module driven by one actuator
Minimum B	150 mm	2101 mm
Maximum B	2100 mm	4350 mm
Minimum H	200 mm	200 mm
Maximum H	2100 mm	2100 mm

Linkage
Heavy duty- opposed action.

Blade Side Seals
Roll formed from 75 x 0.3 mm hardened and ground stainless spring steel. Forming gives an approximate 8 mm convex profile compressed by the blades closing the gap between the blade and the inside of the case.

Actuator Mounting Angles
Formed angle sections welded to damper case, pre-punched for actuator mounting plate.

Landing Angles
15 mm x 40 mm x 3 mm full width bolted to case.

Drilling
Standard drilling patterns available, other flanges drillings available upon request.

Material
Damper can be manufactured from:

- Hot Dipped Galvanized Mild Steel to BS EN 10142: 1991 FEPOZ97275NA
- Stainless steel grade 304 to ASTMA
- Stainless steel grade 316L to ASTMA
- Other materials at customers request

Actuation
Available with a variety of actuators and accessories:

- Pneumatic, semi-rotary spring return type
- Electric semi rotary spring return type
- Pneumatic, semi-rotary, double acting type
- Electric, semi-rotary, double acting type
- Fusible link rated at 68°C
- Micro switches or Proximity switches for open and closed position indication
- Positioners suitable for modulating control with potentiometer feedback

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Product Information
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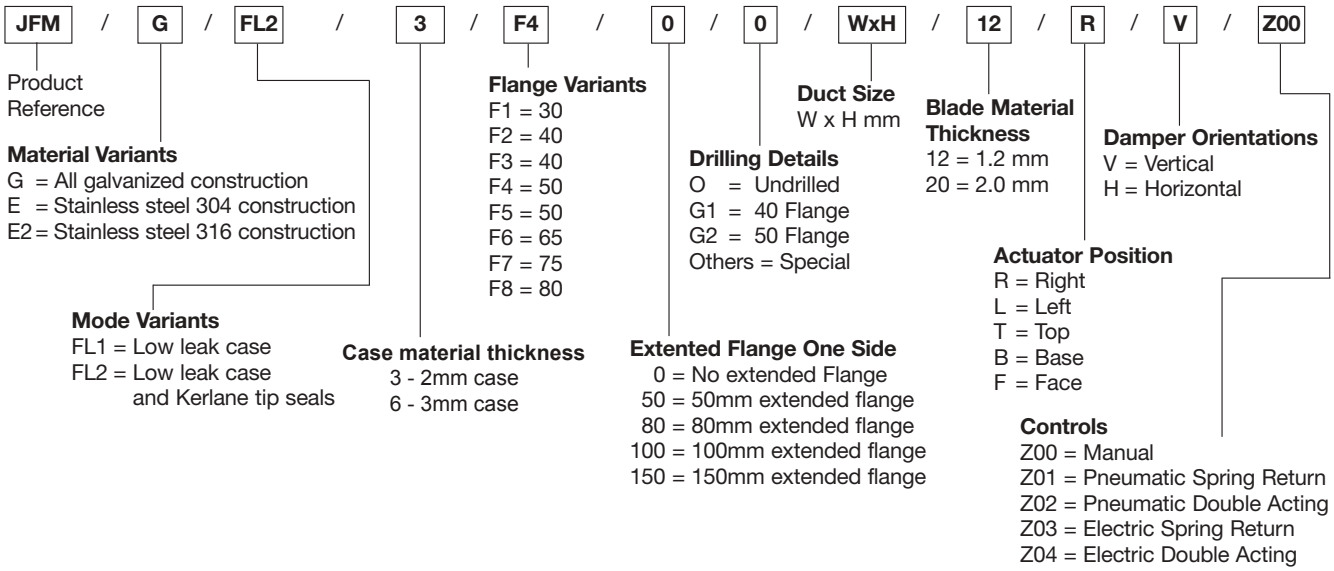
Order Code

Tunnel & Industrial Fire Damper Type JFM



Specification

Specification for Motorized Fire Damper.

General Construction

The dampers shall be of opposed blade multi-leaf design with the blades being encased in a fabricated channel frame. The damper shall be suitable for operation in the vertical or horizontal orientation with the airflow in either direction. The damper frame sections shall be minimum of 300 mm deep, with flanges for mounting to ductwork or structural openings.

The frame section shall be continuously welded at corners to form a rigid frame in which the blades are housed. The rigidity shall be such that the blades are correctly aligned so that there is no chattering or binding resulting in dependable operation. Flanges will be 50 mm wide as standard.

The damper blades shall be opposed blade action and shall be manufactured to provide a double skin aerofoil section with intermeshing tip-to-tip configuration.
Blades shall be fitted with Kerlane tip seal.

Mullions shall be fitted into the damper case to limit the blade length to a maximum of 1050 mm.

The blade width dimension shall be such that when fully open it shall not extend beyond the damper case, and when closed there will be a minimum of 8 mm blade-to-blade overlap.

The blades shall be bolted to the shaft. Shaft diameter shall be 20 mm diameter. The clearance between blade ends and inside case sides shall be sealed using stainless steel sprung side seals.

The shaft ends shall be housed in brass bearings. The bearings at each end of the blade shaft shall be contained within the casing. The bearings shall be removable and fitted with ”O“ ring seals.

Principal welds should be continuously welded except where unacceptable distortion would occur.

All external flange face welds are to be ground flush.

Each damper shall incorporate lifting points in the case.

The damper manufacturer shall be registered to Quality Assurance Standard ISO 9001: 2000 and accept responsibility for mechanical testing of the units before leaving the factory to the satisfaction of the clients inspector.

Control and Operation – Actuated

Each damper shall be suitable for being driven by an electric or pneumatic actuator via an extended drive shaft. The actuator shall be supplied, fitted and tested by the damper manufacturer.