



CERTIFICATE OF APPROVAL

No ME 5088

PUMA FIRE PRODUCTS LIMITED

Unit C, Alexander Bell Centre, Hopkinson Way,
West Portway Business Park, Andover, Hampshire, SP10 3UR
Tel: 01264 333305

Have been assessed against the requirements of the test standard(s)
denoted below and are approved for use subject to the conditions
appended hereto:

CERTIFIED PRODUCT

Pressure Relief Damper Models:

Inert Gas Pressure Relief
Dampers

Duplex MS Pressure Relief
Dampers

Synthetic Gas (FM200 & NOVEC
1230) Dual Flow Pressure Relief
Dampers

Duplex ST Pressure Relief
Dampers

TEST STANDARD

ETS 001 - Technical Schedule
For The Fire Performance Of
Construction Products And
Building Elements

Signed and sealed for and on behalf of Warringtonfire Testing and Certification Limited

Paul Duggan
Certification Manager



Issued: 13th April 2017
Expired: 1st December 2022
Reissued: 22nd April 2023
Valid to: 1st December 2027

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This certification is provided to the client for their own purposes and we cannot opine on whether it will be accepted by Building Control authorities or any other third parties for any purpose.

Approved Manufacturing Location

E/222

Certification Evidence - Inert Gas, Duplex MS and Synthetic Gas Pressure Relief Dampers

- WF Test Reports No's. 196004 & 378553 – generally in accordance with BS EN 1634-1:2008 & BS EN 1634-1:2014, respectively.
- WF Test Reports No's. 514816 & 524538 – in accordance with BS EN 1634-1:2014+A1:2018.

BS EN 1634-1 - Fire resistance and smoke control tests for door and shutter assemblies and openable windows.

Certification Evidence - Duplex ST Pressure Relief Dampers

- BRE Test Report No. 285031 – an ad-hoc hydrocarbon fire resistance test adopting the general procedures of IMO Resolution MSC.307(88). Adoption of international code for application of fire test procedures, 2010 (2010 FTP Code)

Sampling and Factory Production Control

The Puma Fire Products Limited and the Adept Precision Sheet Metal Limited facilities where the damper units are manufactured has been subjected to an audit of the Factory Production Control procedures and found to be in accordance with the Warringtonfire Certification requirements. Fire test damper specimens have been sampled.

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Product Description

Inert Gas and Duplex MS Pressure Relief Dampers

Inert Gas and Duplex MS Pressure Relief Dampers are designed to provide over pressure venting relief when inert gaseous extinguishing systems are employed. The fire integrity section (FIS) of the damper units is fitted with balanced, weighted blades, hinged on stainless steel rods and bronze alloy bushes. The Duplex units are designed so that they can be installed either from inside or outside the building

The units are available with and without self-closing doors (SCD) fitted with weatherproof seals and a magnetic catch.

Details of the free venting performance are also reported within this certificate.

Maximum room pressure is controlled by the pressure relief vents opening to release excess pressure generated during gas discharge. They are designed to close during the discharge once the initial peak pressures have been relieved to retain the levels of suppressant within the protected area to prevent re-ignition.

The units are constructed as follows:

- shutter casing - 1.6mm Zintec steel
- Damper blade - 1.6mm Zintec steel with stainless steel blade rod
- Gaskets – Scapa 3124 PVC 12mm wide x 4mm thick (white self-adhesive tape) on FIS and Scapa 3239 PVC 20mm wide x 2.5mm thick (black self-adhesive tape) on the SCD
- SCD casing - 1.6mm Zintec steel

It is permissible to replace any mild steel component with stainless steel but not v.v.

The Inert Gas and Inert Gas Duplex MS Pressure Relief Dampers are supplied in standard sizes as follows:

- PRD 150 (nominal size of 150mm x 150mm)
- PRD 225 (nominal size of 225mm x 225mm)
- PRD 300/150 (nominal size of 300mm x 150mm)
- PRD 300 (nominal size of 300mm x 300mm)
- PRD 375 (nominal size of 375mm x 375mm)
- PRD 450 (nominal size of 450mm x 450mm)
- PRD 525 (nominal size of 525mm x 525mm)
- PRD 600 (nominal size of 600mm x 600mm)
- PRD 675 (nominal size of 675mm x 675mm)
- PRD 750 (nominal size of 750mm x 750mm)
- PRD 825 (nominal size of 825mm x 825mm)
- PRD 900 (nominal size of 900mm x 900mm)
- PRD 975 (nominal size of 975mm x 975mm)

Alternative vent sizes are available in 75mm increments from nominal 75mm to 975mm.
See Figures 1 & 2 for damper drawings.

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Synthetic Gas Dual Flow Pressure Relief Dampers

Synthetic Gas Dual Flow Pressure Relief Dampers are designed to provide both under pressure and over pressure venting relief when synthetic hydrofluorocarbon gaseous extinguishing systems are employed. The units comprise separate sections for over pressure and under pressure relief with the under pressure relief section typically having approximately 30% higher free vent area than the over pressure relief section. The fire integrity sections (FIS) of the damper units are fitted with balanced, weighted blades, hinged on stainless steel rods and bronze alloy bushes.

The units are fitted with self-closing doors (SCD) fitted with weatherproof seals and a magnetic catch. The units are constructed as follows:

- shutter casing - 1.6mm Zintec steel
- Damper blade - 1.6mm Zintec steel with stainless steel blade rod
- Gaskets – Scapa 3124 PVC 12mm wide x 4mm thick (white self-adhesive tape) on FIS and Scapa 3239 PVC 20mm wide x 2.5mm thick (black self-adhesive tape) on the SCD
- SCD casing - 1.6mm Zintec steel

It is permissible to replace any mild steel component with stainless steel but not v.v.

The Synthetic Gas (FM200) Dual Flow Pressure Relief Dampers are supplied in standard sizes as follows:

- DF PRD 150/375 (nominal size for over pressure 150mm x 150mm & nominal size for under pressure 150mm x 225mm)
- DF PRD 300/375 (nominal size for over pressure 300mm x 150mm & nominal size for under pressure 300mm x 225mm)
- DF PRD 450/375 (nominal size for over pressure 450mm x 150mm & nominal size for under pressure 450mm x 225mm)
- DF PRD 450/600 (nominal size for over pressure 450mm x 225mm & nominal size for under pressure 450mm x 375mm)
- DF PRD 600/600 (nominal size for over pressure 600mm x 225mm & nominal size for under pressure 600mm x 375mm)
- DF PRD 750/600 (nominal size for over pressure 750mm x 225mm & nominal size for under pressure 750mm x 375mm)
- DF PRD 675/750 (nominal size for over pressure 675mm x 300mm & nominal size for under pressure 675mm x 450mm)
- DF PRD 825/750 (nominal size for over pressure 825mm x 300mm & nominal size for under pressure 825mm x 450mm)
- DF PRD 975/750 (nominal size for over pressure 975mm x 300mm & nominal size for under pressure 975mm x 450mm)

Alternative vent sizes are available in 75mm increments from nominal 75mm to 975mm.

See Figure 3 for damper drawing.

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The Synthetic Gas (**NOVEC 1230**) Pressure Relief Dampers are supplied in standard sizes as follows:

- DF PRD 150/300 (nominal size for over pressure 150mm x 75mm & nominal size for under pressure 150mm x 225mm)
- DF PRD 300/300 (nominal size for over pressure 300mm x 75mm & nominal size for under pressure 300mm x 225mm)
- DF PRD 450/300 (nominal size for over pressure 450mm x 75mm & nominal size for under pressure 450mm x 225mm)
- DF PRD 450/450 (nominal size for over pressure 450mm x 75mm & nominal size for under pressure 450mm x 375mm)
- DF PRD 600/450 (nominal size for over pressure 600mm x 75mm & nominal size for under pressure 600mm x 375mm)
- DF PRD 750/450 (nominal size for over pressure 750mm x 75mm & nominal size for under pressure 750mm x 375mm)
- DF PRD 675/675 (nominal size for over pressure 675mm x 150mm & nominal size for under pressure 675mm x 600mm)
- DF PRD 825/675 (nominal size for over pressure 825mm x 150mm & nominal size for under pressure 825mm x 600mm)
- DF PRD 975/675 (nominal size for over pressure 975mm x 150mm & nominal size for under pressure 975mm x 600mm)

Alternative vent sizes are available in 75mm increments from nominal 75mm to 975mm

See Figure 4 for damper drawing.

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Duplex ST Pressure Relief Dampers

Duplex ST Pressure Relief Dampers are designed to provide over pressure venting relief when inert gaseous extinguishing systems are employed in marine and offshore environments. The fire integrity section (FIS) of the damper units is fitted with balanced, weighted blades, hinged on stainless steel rods and bronze alloy bushes. The Duplex ST units should be installed in an insulated steel duct protruding 450mm from each face on an insulated steel bulkhead.

The units are available with and without self-closing doors (SCD) fitted with weatherproof seals and a magnetic catch.

Maximum room pressure is controlled by the pressure relief vents opening to release excess pressure generated during gas discharge. They are designed to close during the discharge once the initial peak pressures have been relieved to retain the levels of suppressant within the protected area to prevent re-ignition.

The units are constructed as follows:

- shutter casing - 1.5mm Grade 316L stainless steel pickle and passivated
- Damper blade - 1.5mm Grade 316L stainless steel pickle and passivated with stainless steel blade rod
- SCD casing - 1.5mm Grade 316L stainless steel pickle and passivated
- gaskets – Scapa 3124 PVC 12mm wide x 4mm thick (white self-adhesive tape) on FIS and Scapa 3239 PVC 20mm wide x 2.5mm thick (black self-adhesive tape) on the SCD

The Synthetic Duplex ST Pressure Relief Dampers are supplied in standard sizes as follows:

- PRD 150 (nominal size of 150mm x 150mm)
- PRD 225 (nominal size of 225mm x 225mm)
- PRD 300 (nominal size of 300mm x 300mm)
- PRD 375 (nominal size of 375mm x 375mm)
- PRD 450 (nominal size of 450mm x 450mm)
- PRD 525 (nominal size of 525mm x 525mm)
- PRD 600 (nominal size of 600mm x 600mm)
- PRD 675 (nominal size of 675mm x 675mm)
- PRD 750 (nominal size of 750mm x 750mm)

See Figure 5 for damper drawing.

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Certificated Product Performance

Inert Gas and Duplex MS Pressure Relief Dampers

The Inert Gas Pressure Relief Dampers certificated provide the following performance when tested generally in accordance with BS EN 1634-1: 2014:

Fire Resistance	240 minutes Integrity
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The damper units can be installed with the Self Closing Door (SCD) either exposed to the fire risk or on the opposite unexposed face.

Radiation	15kW/m² - 240 minutes
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Synthetic Gas Dual Flow Pressure Relief Dampers

The Synthetic Gas Dual Flow Pressure Relief Dampers certificated provide the following performance when tested generally in accordance with BS EN 1634-1: 2014: and applies to both the over pressure and under pressure sections.

Fire Resistance	240 minutes integrity
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Radiation	15kW/m² - 240 minutes
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Duplex ST Pressure Relief Dampers

Fire Resistance	H0
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The pressure relief damper should be mounted inside an insulated duct extending 450mm either side of the steel bulkhead and can be installed with the Self Closing Door (SCD) either exposed to the fire risk or on the opposite unexposed face.

Radiation	120 minutes – 6.5 kW/m²
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*see note 4 on page 8



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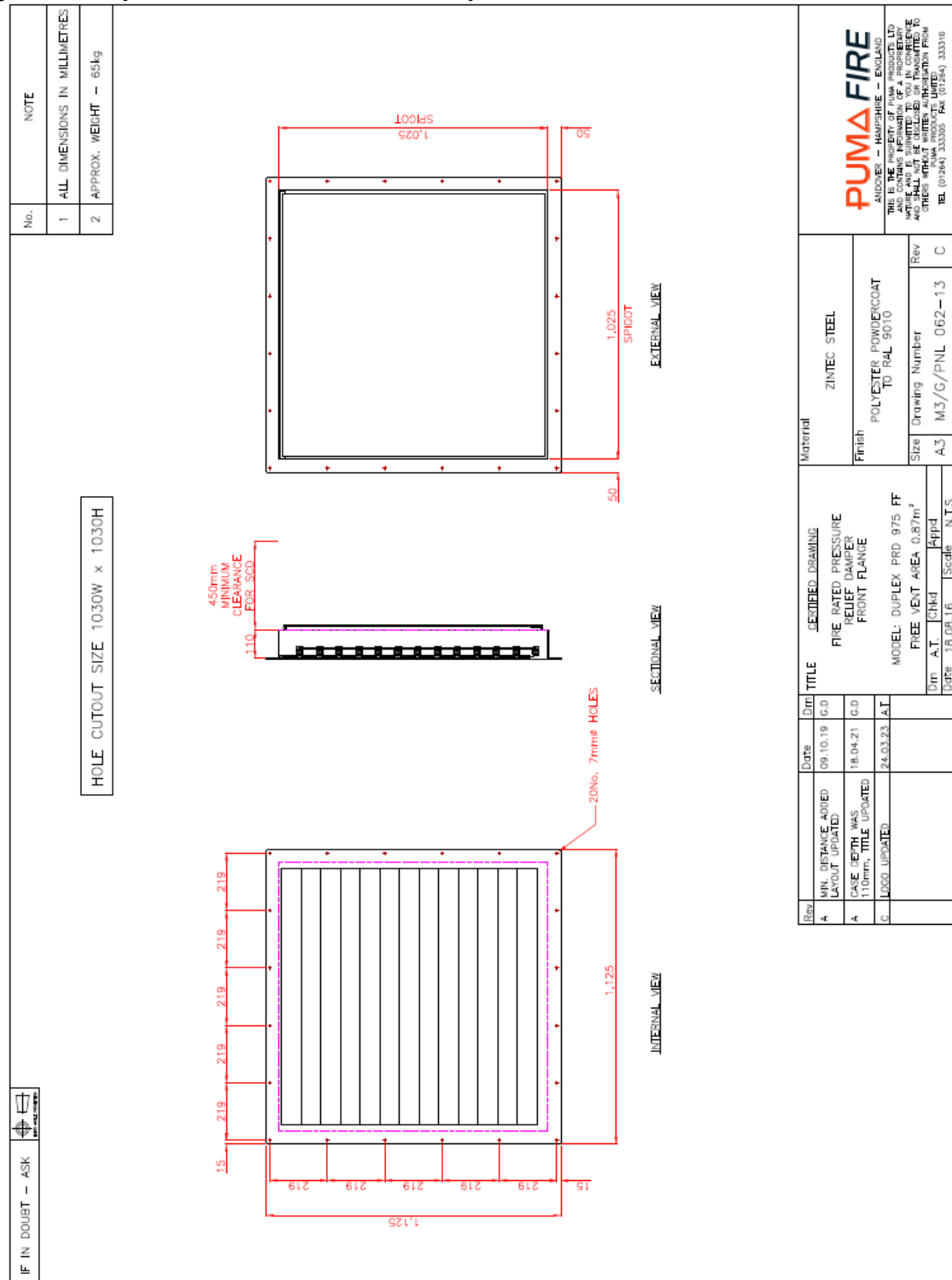
Information

1. It is the responsibility of the user of the information contained within this document to establish appropriate safety and health practices and determine the applicability of regulatory requirements prior to use of the product
2. The performance of the Inert Gas, Duplex MS and Synthetic Gas Dual Flow Pressure Relief Dampers stated herein relates only to the specimens of the product in the form in which they were tested and assessed, installed within both plasterboard faced partition walls and rigid concrete/masonry walls. Installation within walls of 120 minutes rating will provide a pressure relief damper unit rating of 120 minutes and installation within a wall of 240 minutes rating will provide 240 minutes fire resistance performance.
3. The performance of the Duplex ST Pressure Relief Dampers stated herein relates only to the specimens in the form in which they were tested installed within minimum H60 rated steel bulkhead structures.
4. This certification relates to on-going production. The product and/or its immediate packaging shall be identified with the certification mark including the certification number, and the manufacturer's name and the product name or code reference.

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Figure 2. Duplex MS Pressure Relief Dampers



[illegible]

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Figure 5. Duplex ST Pressure Relief Dampers

