

The Revolutionary Tri-Pro

ducting express

Introduction

The revolutionary **Tri-Pro** damper has been developed after extensive market and engineering research, which has resulted in the design of 3 PRODUCTS-IN-ONE.

This unique **Tri-Pro** design combines Fire, Smoke and Volume Control in one damper – hence the product name.

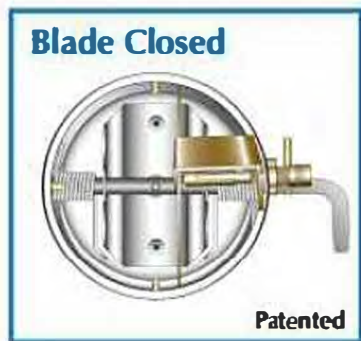
The **Tri-Pro** has many design features incorporated that assist the specifier, the installer and the operator to fulfil their responsibilities in the ever-demanding specifications of today's building codes and practices.

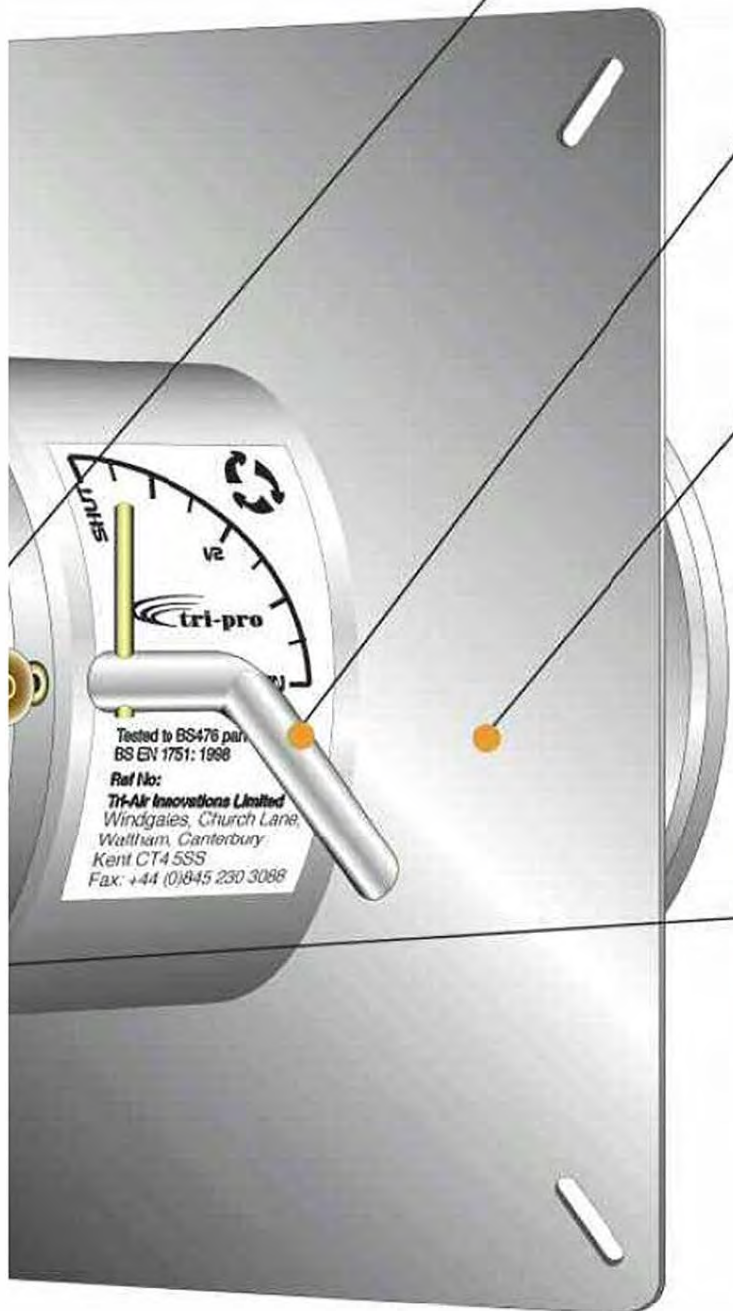
The **Tri-Pro** damper allows the re-setting of the blade, the changing of the thermal link and periodical testing of the damper to be completed from outside of the damper and ductwork, without the need of special tools or equipment.

When inspecting and operating the **Tri-Pro** damper, the detail to safety will be appreciated by engineers of all trades, as the **Tri-Pro** has been researched, designed, constructed and tested with safety of life and protection towards property being at the forefront of its development.

The Tri-Pro has been tested to the following standards:

Fire Tested to:	B.S. 476: parts 20 – 22: 1987 for 4 hours.
Aerodynamic Tested to:	B.S. E.N. 1751: 1998.
Conformance to:	HVCA Ductwork Specification DW 144 as relevant.
Conformance to:	Eurovent Specification 2 / 2 as relevant.





Thermal Link (Patented)

The thermal link has been designed to activate at the standard temperature of 72°C in the event of an elevated temperature within the duct.

The link is fitted within a holder, which is screwed into the case to lock the blade into the desired position. When set, the locking nut is 'hand-tightened' to secure the cartridge and the blade.

In the event of the thermal link being activated, the integral indicator will extend from the thermal link cartridge to indicate to the maintenance engineer that the thermal link has activated, with inspection of the system required if safe to do so.

Operating Handle

The operating handle is an integral component of the blade assembly which provides direct control of the blade, with an external indicator showing blade position.

To operate the handle and blade assembly, first ensure that the thermal link cartridge is loose, then rotate the handle to the desired position. Tighten the thermal link cartridge until contact is made with the regulating cam ensuring the cartridge locates a slot, then finally tighten the locking nut to the case.

Installation Plate

The **Tri-Pro** has been fire tested for over 4 hours within a wall, with the installation plate as its primary method of installation.

This installation plate has been the subject of extensive research to ensure that it allows the **Tri-Pro** to operate successfully as a Fire/Smoke/Volume Control Damper in ambient and elevated temperature conditions.

Its design allows the installer to fix the **Tri-Pro** into the structure quickly and professionally with minimal equipment required.

As shown, the installation plate has a number of diagonal slots pre-punched to assist the installer with installation.

Damper Case

The construction of the damper case has enabled the **Tri-Pro** to be successfully fire, cycle and leakage tested to current stringent specifications.

The design of the **Tri-Pro** damper case has been researched to assist the installer with quick and efficient connection to the ductwork, without causing interference to the operation of the damper, as cost is the essence of all installations.

The **Tri-Pro** Damper is available in sizes that conform to the recent "Rationalisation Initiative", as detailed in B.S. E.N. 1506: 1998, which is endorsed by the Latham and Egan 2001 directive.

The Revolutionary Tri-Pro

Manual Operation Model

MANUAL Operation Model Manually opened to commissioned position. Failsafe closed operation.

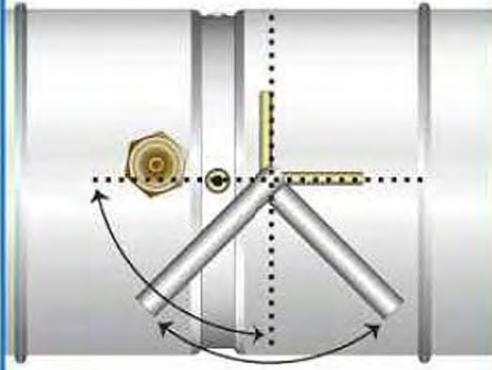
Manual Operation Plain Case



Manual Operation with installation plate



Blade Rotation



Each **Tri-Pro** Manual Damper is supplied with an externally replaceable thermal link (rated 72°C) that provides the following functions:

- Automatic failsafe closure of the blade upon a rise in the duct air temperature to 72°C ($\pm 2^\circ\text{C}$)
- Manual override of the thermal link to operate the blade for inspection or commissioning functions
- Manual replacement or resetting of the thermal link external of the damper
- Regulation of the airflow through the blade
- Local visual indication of the blade position external of the damper

Options

- Different rated thermal links to 93°C, 141°C, 182°C and 227°C
- Micro-switch for remote blade indication

NB

The circular spiral duct must not be deformed prior to fitting onto the **Tri-Pro** Damper, if the **Tri-Pro** Damper malfunctions due to duct deformation, then liability will not be accepted.

Part Numbers

Manual Model - Plain Case

Model Ref.	Dia.	Case Length
TPM	100	205
TPM	125	205
TPM	150	205
TPM	160	205
TPM	200	205
TPM	250	205
TPM	300	205
TPM	315	205

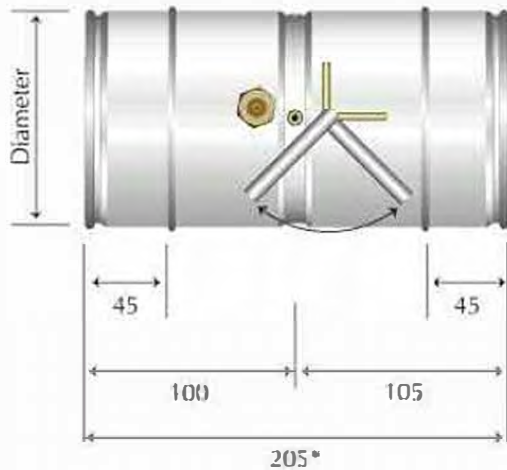
Manual Model - Plain Case with installation plate

Model Ref.	Dia.	Case Length
TPM	100	366
TPM	125	366
TPM	150	366
TPM	160	366
TPM	200	366
TPM	250	366
TPM	300	366
TPM	315	366

For product dimensions see opposite page

MANUAL Operation Model Dimensions All dimensions are in mm

Plain case

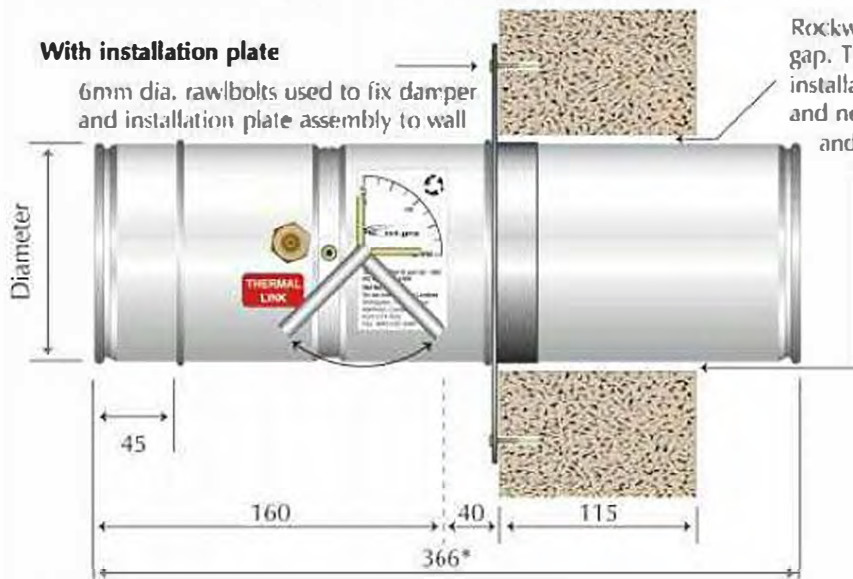


* These dimensions are nominal and may vary due to varying coil width(s).

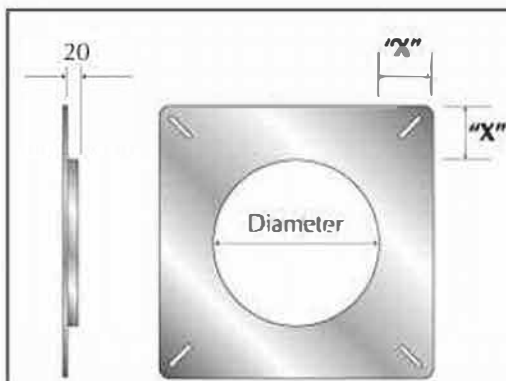


With installation plate

6mm dia. rawbolts used to fix damper and installation plate assembly to wall

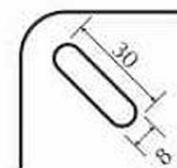


Rockwool infill is inserted into this gap. The gap allows easy installation, the damper to expand and negates the transfer of flame and/or smoke through the wall.



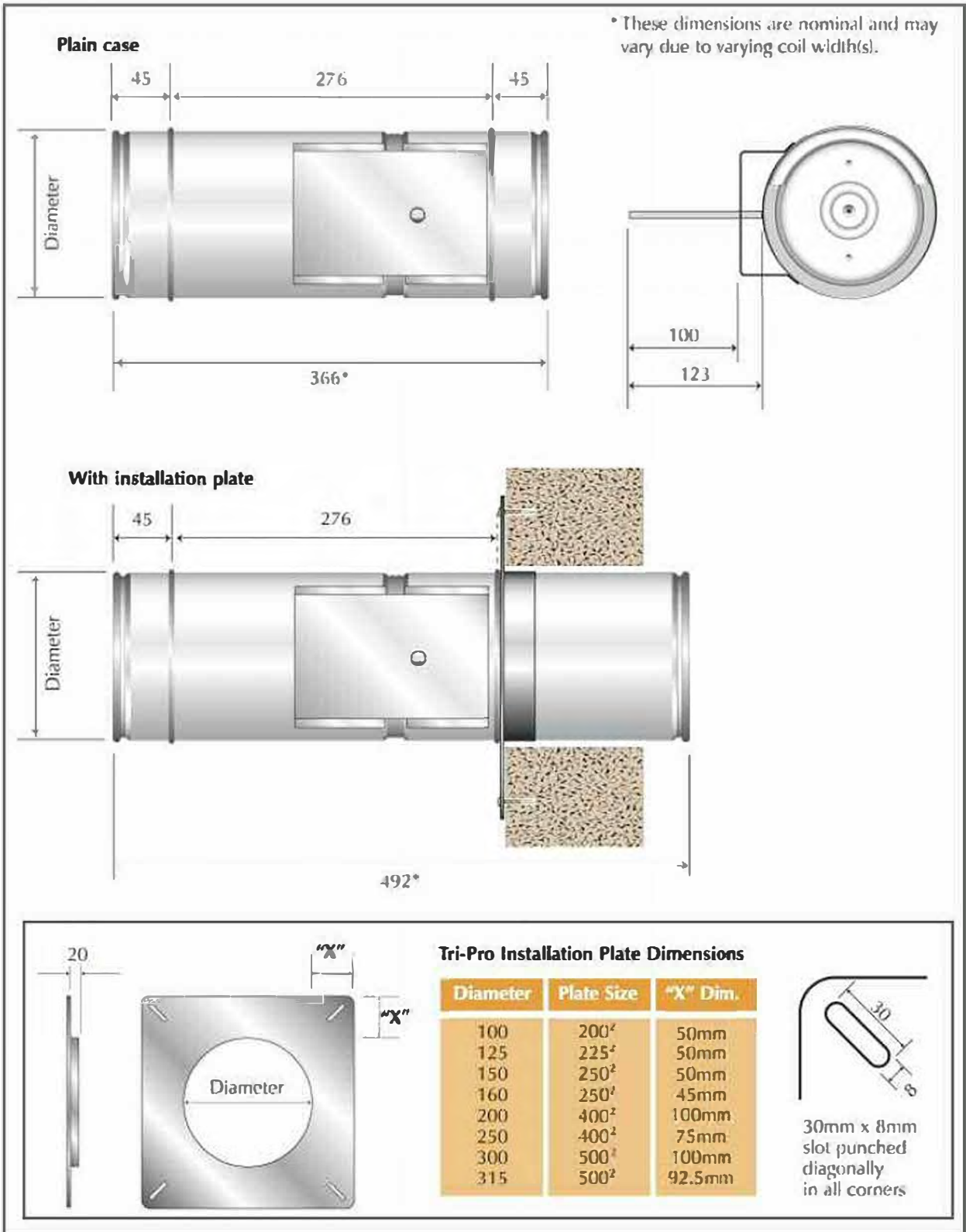
Tri-Pro Installation Plate Dimensions

Diameter	Plate Size	"X" Dim.
100	200 ²	50mm
125	225 ²	50mm
150	250 ²	50mm
160	250 ²	45mm
200	400 ²	100mm
250	400 ²	75mm
300	500 ²	100mm
315	500 ²	92.5mm



30mm x 8mm slot punched diagonally in all corners

MANUAL Operation Model Dimensions All dimensions are in mm



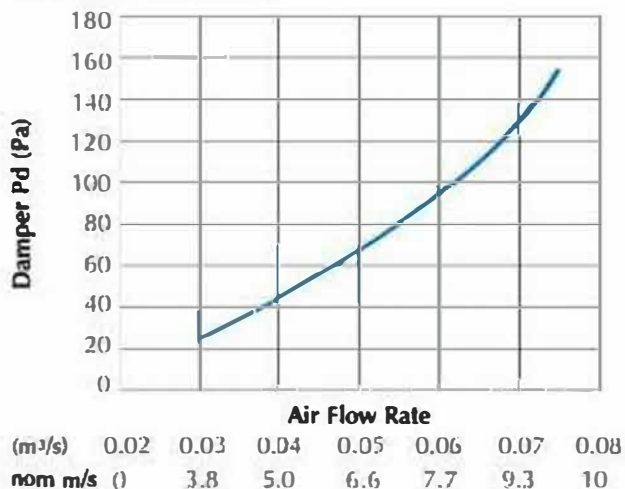
The Revolutionary Tri-Pro

Performance & Weight Chart

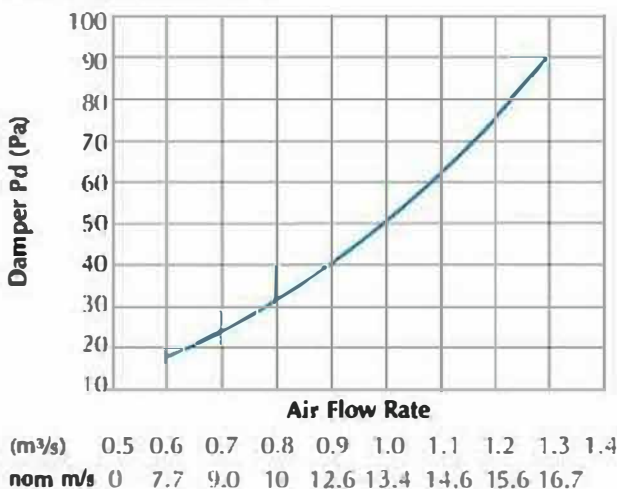
Performance Charts

Resistance to Airflow - Pressure Drop

100mm Manual Damper

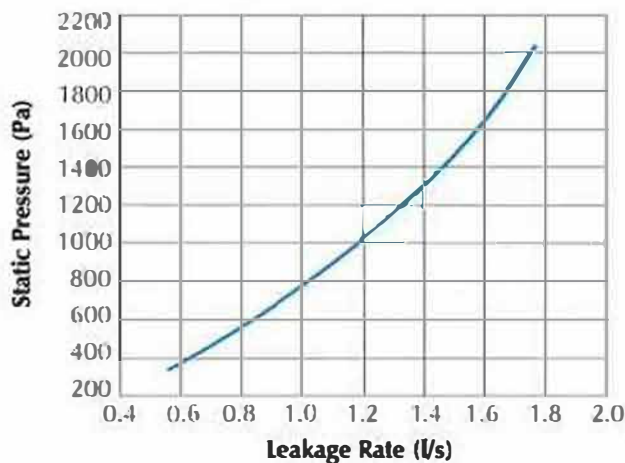


315mm Manual Damper

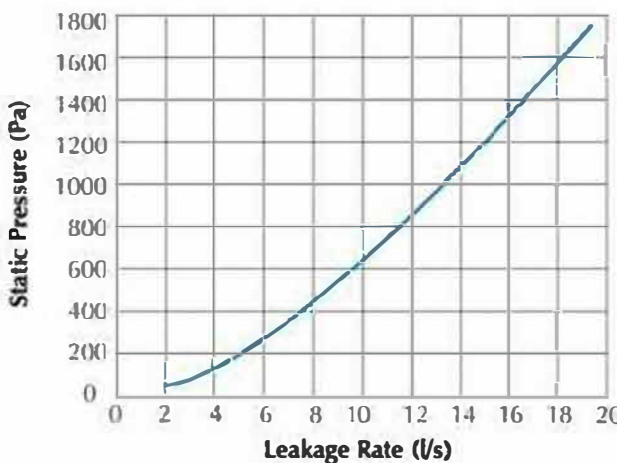


Leakage Tests

100mm Manual Damper



315mm Manual Damper

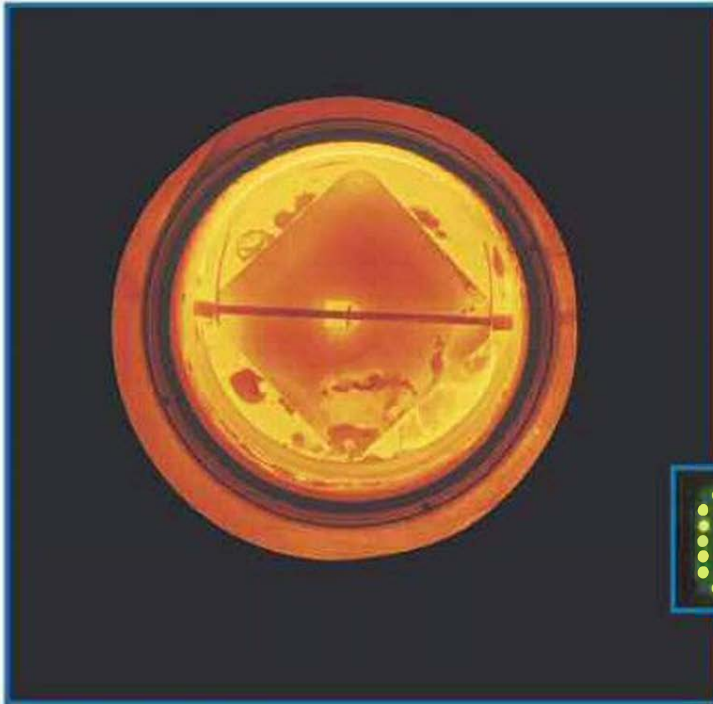


Weight Chart (kg)

Duct Lengths	Diameter							
	100	125	150	160	200	250	300	315
205mm plain	1.00	1.20	1.50	1.50	1.75	2.50	3.00	3.20
366mm with install. plate	1.75	2.00	2.50	2.75	4.00	5.00	6.00	7.00

Motor weights must be added to these weights.

Testing Reports and Conformances



Fire Tested to B.S. 476 parts 20 - 22: 1987 for 4 hours.
by BRE/LPC – reports FC 7386 and FC 7386a refers.

Aerodynamically tested for Leakage and Resistance to
B.S. E.N. 1751: 1998
by BSRIA – report 16593/1 refers.

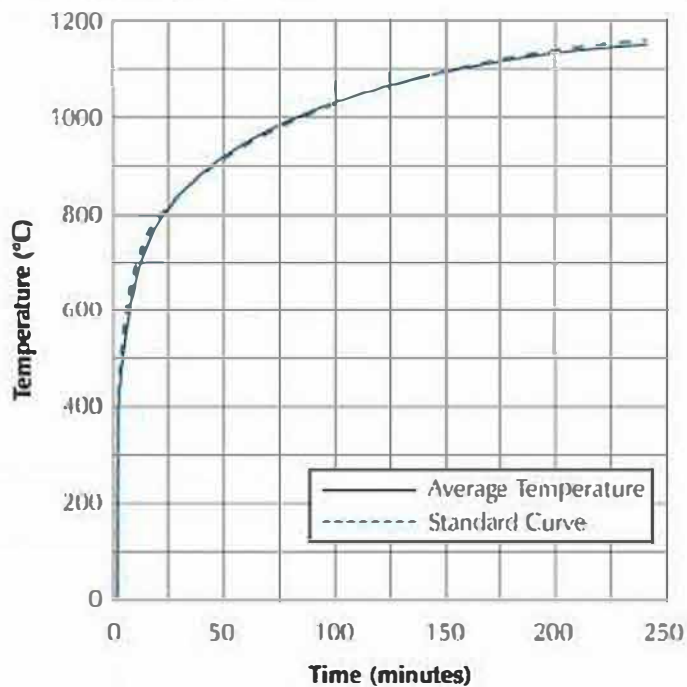
Conformance to HVCA Ductwork specification DW 144 as relevant.

Conformance to Eurovent specification 2/2 as relevant.



Fire Test Graph

Mean furnace temperature



The Revolutionary Tri-Pro

Specifications and Tooling

Product Specification

Case

Manufactured from 0.7mm galvanised coated mild steel to B.S. E.N 10142 1991, coating class FE PO0b Z275 Na, rolled into a circular case to specified lengths. The 10mm overlap joint is continuously stitch welded for a fire-rated airtight seam. The ends have safety edges formed for operator safety, with an 11mm swage formed for the fixing of the blade assembly.

Thermal Link (Patented)

The thermal link comprises of a brass tube with a brass element soldered over it. This combined component has been designed to alleviate possible linear creep of the soldered joint. This component is then inserted into a 13mm diameter zinc plated holder which screws into the locking assembly from outside the case. This holder has an integral 4mm zinc plated pin fitted to indicate if the thermal link has been activated by an increase in induct air temperature.

Pop-Rivets

A quantity of fire-rated pop-rivets are used within the construction of the Tri-Pro clamper.

Handle

The handle is 9mm diameter Grade 303 Stainless steel, and is an extension of the spindle that is fixed to the blade mounting assembly, extended through the case and formed into a handle. It has a 5mm diameter steel pin inserted for external blade position indication, to the external product label.

Intumescent Sealant

An air drying non-solvent based intumescent sealant is used between the blade mounting assembly and the internal surface of the case.

Blade (Patented)

The circular blade is a one piece pressing, formed from 1.5mm galvanised coated mild steel to B.S. E.N 10142 1991, coating class FE PO0b Z275 Na. It is fixed to a 1.5mm galvanised coated mild steel mounting assembly, which has a 9mm diameter Grade 303 Stainless steel spindle inserted for blade rotation and operation. Two coil springs are fitted onto this spindle and connect to the mounting assembly for fail-safe closure of the blade.

Blade Regulating Cam

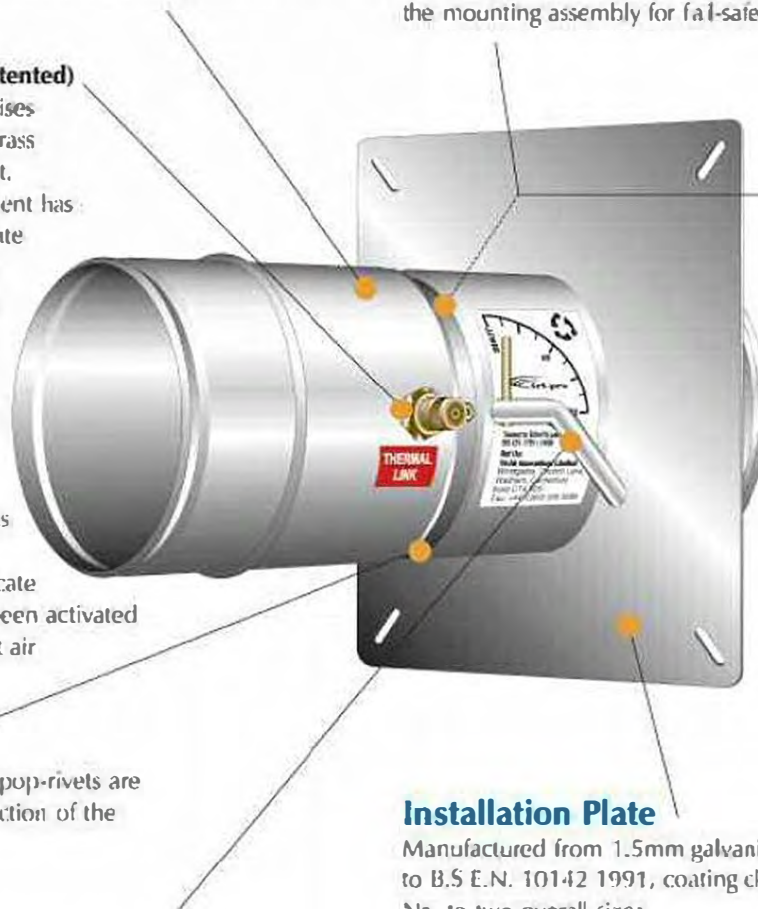
Manufactured from 1.2mm stainless steel Grade 304, with 9 slots punched into the cam plate at 10° pitch, for the thermal link to be screwed into so that the blade is set at its commissioned position.

Installation Plate

Manufactured from 1.5mm galvanised coated mild steel to B.S. E.N. 10142 1991, coating class FE PO2b Z275 Na, to two overall sizes. The installation plate has a 20mm flange formed in the centre for fitting over the case, with a number of slots pre-punched for site fixing.

Size Range

100mm diameter to 315mm diameter.
Conforming to BS EN 1506: 1998.



The Revolutionary Tri-Pro

Industry Awards and Sample Installations

Industry Award

Air Movement Product of the Year Finalist 2004

We were delighted to have been chosen by the H&V News Awards as a Finalist in the Air Movement Product of the Year 2004.

These awards have a reputation within the industry with manufacturers, consultants and contractors alike. The judging panel is drawn from all sectors of the heating and ventilation industry and provide an in-depth knowledge ensuring only the best entries are selected as finalists.

The **Tri-Pro** is an innovative product designed to meet the ever-changing demands upon the industry set by government and EU legislation and regulation.

Here's a summary of what they said about the **Tri-Pro**:

"The combination of technologies in the Tri-Pro product caught the judges attention. Offering fire, smoke and/or air flow control through ventilation ducts, the units versatility, easy installation qualities and cost-effectiveness were appreciated.

The subject of five patent applications, its 'green' credentials were noted, including use of chemical and toxic-free materials and production methods.

The product's suitability for recycling was also considered evidence of the good thinking behind its design and production."

