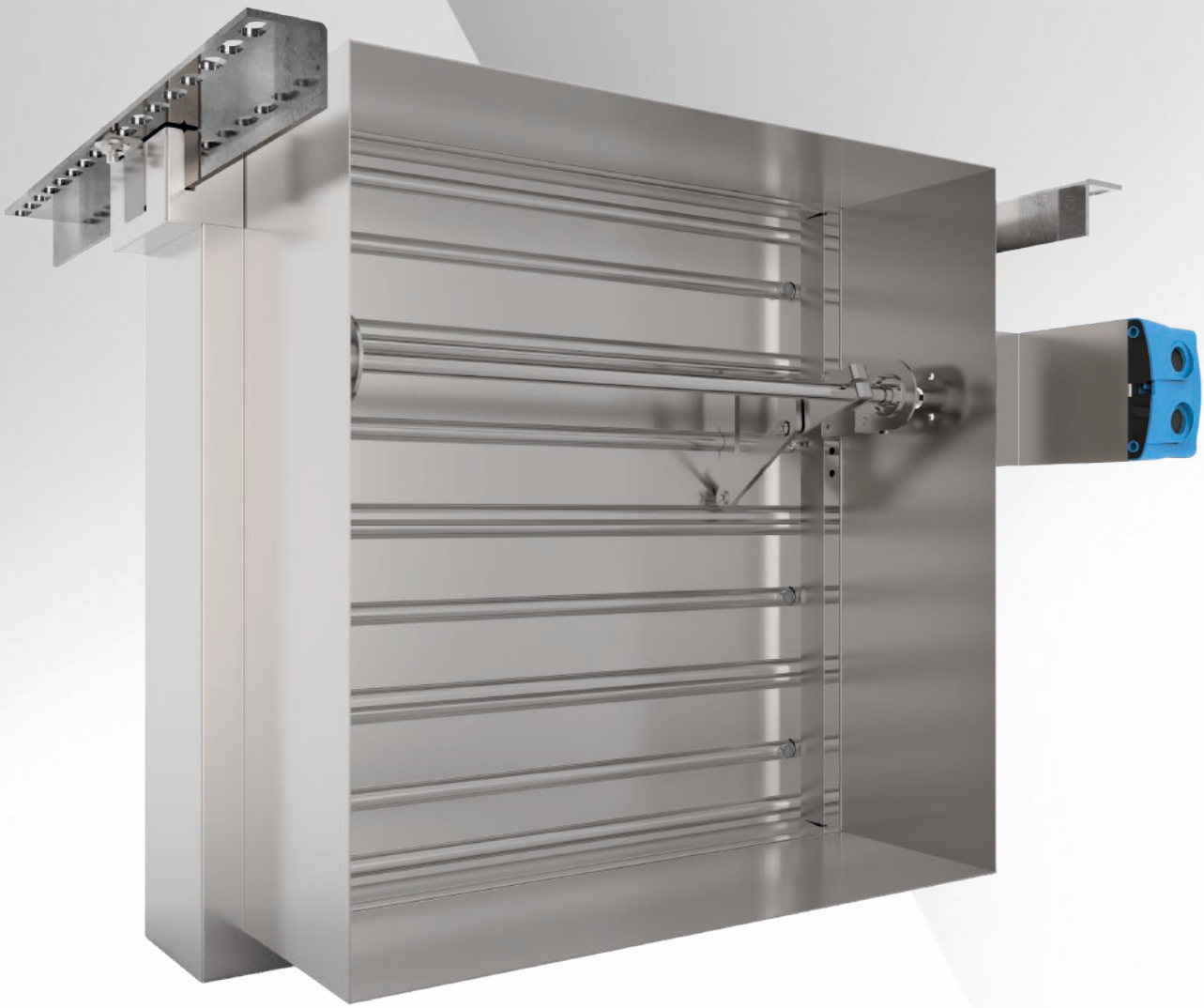

ADVANCED AIR

SMOKE CONTROL FIRE DAMPER

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SMOKE CONTROL FIRE DAMPER

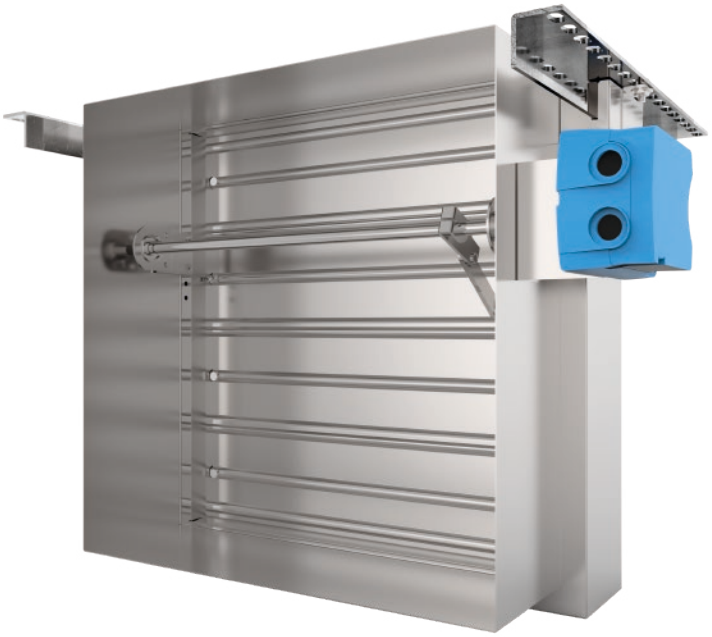
Product overview

Smoke control is paramount for saving lives. Advanced Air are proud to introduce a new low leakage smoke control damper to our range – for ventilation ductwork and dedicated smoke extract ventilation for installation with both commercial and residential buildings.

To be effective, smoke control dampers need to react quickly. Our damper operates within 16 seconds and meets all necessary requirements of BS EN 12101 Part 8 for either single or multi-compartment use with automatic systems. Our dampers have been tested to remain open or to maintain their integrity in the closed position for two hours. The dampers have been designed with easy installation in mind for both wall or ductwork installation.

Where a separate control panel is required, we offer our System 32, System 32S and System 42 addressable control panels. This panel offers a comprehensive solution meeting complex control requirements and stringent safety regulations for fire and smoke control. Initially it was designed to control and monitor fire and smoke control dampers, but this system also allows for other equipment such as AHUs, fans and ventilation louvres to be monitored.

Our System 32, System 32S and System 42 control panels have added flexibility to connect to a Building Management System (BMS) for remote control and monitoring.



Features and benefits

- BS EN 12101 Part 8 in full
- BS EN 1366-10 in both directions
- BS EN 1366-2 in both directions
- Tested for two hours
- Maximum leakage 200 $m^3/h/m^2$
- Single or multi-compartment use
- 16 second opening and closing
- Power open / power close actuator
- Maximum single section 1,000 x 1,000 mm
- For automatic alarm systems

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Classification

The product standard BS EN 12101-8 also includes BS EN 13501-4 that determines how a smoke damper will be classified for use under the CE label.

The damper has been tested for two hours in a wall, with the actuator inside the furnace and outside for use up to 1,000 Pa and has been cycle tested to 10,000 open / close operations, suitable for single or multiple compartments.

Material construction

The frames are formed from 1.6 mm galvanised mild steel, with a 25 mm flange which is 110 mm deep. The blades are manufactured from 1 mm galvanised mild steel, and are double skinned achieving low leakage without the need of synthetic blade seals. Linkage is direct drive, and includes the unique knee lock mechanism. The unit is housed in a fully welded galvanised case manufactured from 1.2 mm galvanised mild steel.

The damper has AFS brackets welded on each side, manufactured from 1.2 mm galvanised mild steel with a slot to allow the 50 x 50 support rail for independently support from drop rods.

The damper can be supplied with 430 grade stainless steel blades as an option.

Testing

Under the Construction Product Regulation (CPR) and Building Regulations smoke dampers must meet the requirements of BS EN 12101-8 to enable the dampers to be CE labelled. This standard clearly states that spring return motors are not a requirement and cannot be used.

Within the standard the dampers must be tested to BS EN 1366-10. This test requires the dampers to start in a closed position and after 30 seconds have elapsed, the damper is powered open and the damper must remain open for the duration of the test.

Most damper installations with be covered under multi-compartment, for this the dampers must also be tested to the BS EN 1366-2 fire test. This test requires dampers to be in the open position at the start of the test and after 30 seconds have elapsed, the damper is powered closed.

For the classification, the damper was tested with the actuator inside and outside of the furnace in both BS EN 1366-10 and BS EN 1366-2 tests.

At present inline duct-mounted smoke dampers are not covered by the current standard and when they are not installed within the wall or the side of a duct. However, we have carried out a successful test for two hours for the smoke damper being mounted in-duct, and away from the wall, to BS EN 1366-10 procedures.

Installation

Under the CPR and Building Regulations, dampers are to be installed as tested for the CE label to apply. We have tested many variations, so it is important that damper installation is considered as early as possible in the layout design.

For the smoke dampers installed in the wall they are fitted with the AFS (Adjustable Frame System) that includes a slotted angle for connecting support drop rods, so it is independently supported, with fire batt installed around the damper to seal the opening given the most flexibility.

For standard installation mounting in ductwork in-line, the damper includes AFS brackets mounted on the side for connection with a 90 mm slotted angle for connecting drop rods to give independent support.

Wiring and electrical

Supplied as standard with 2 metre flying leads. If connecting to the Advanced Air System 42 Control Panel, 2 metre plugged leads are supplied to ease electrical connections on site (longer leads optional).

Actuator

The actuator is mounted horizontal to the ductwork as standard – vertical mounting is available as an option. Power open / close within 16 seconds, to meet BS EN 12101 Part 8.

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Material specification

Blades
Opposed blades, double-skinned

Width – 135mm standard

Centres – 125mm

Material – 1mm galvanised mild steel – standard. 1.0mm grade 430 stainless steel – optional.

Case
Case depth – default 113mm, with 150mm spigot and 75mm spigot as standard. (75mm spigot will increase when single blade damper are manufactured, see product drawings.)

Should access doors be required to be fitted the 150mm spigot will increase to 225mm.

For existing / current projects the dampers will continue to be supplied with either a 125mm / 250mm and 50mm spigots. Units with a duct size under 200mm, circular and flat oval spigotted units will be supplied with additional step down spigots.

Material – Standard 1.2mm galvanised mild steel. Optional 1.2mm grade 430 stainless steel.

Corners – welded mitre corners finished with aluminium aerosol spray.

Linkage
External, zinc-electroplated mild steel enclosed with the frame, out of air stream, fixed for 90 degree operation.

Bearings
Standard 12.7mm diameter oil-filled sintered bronze suitable for use up to 200°C.

Optional 12.7mm diameter stainless steel suitable for use up to 650°C .

Axles
12.7mm diameter zinc-electroplated mild steel bolted directly through blade.

Jackshaft
12.7mm diameter zinc-electroplated mild steel.

Side jamb seals
Stainless steel grade 301 S21 – to BSEN10088-2 1.4310 – cambered profile.

Top and bottom jambs seals
Stainless steel grade 301 S21 – to BSEN10088-2 1.4310 – cambered profile.

Environment
These units are not suitable for installation with a corrosive or hostile environment or an area of high humidity.

Duct size (single section) CE Certified	
Rectangular	Minimum 100mm wide x 100mm high (case size 250mm x 250mm)
	Maximum single section 1,000mm wide x 1,000mm high
Circular	Minimum 100mm diameter (case size 250 x 250)
	Maximum 950mm diameter
Flat oval	Minimum 100mm wide x 100mm high (case size 250mm x 250mm)
	Maximum 950mm on longest dimension

Duct size (multi-section shipped as one piece) Important – these are not CE Certified	
Rectangular	Maximum multi-section 2,000mm wide x 2,000mm high
Circular	Maximum 1,500mm diameter
Flat oval	Maximum 1,500mm on longest dimension

Duct size (multi-section shipped in separate sections) Important – these are not CE Certified	
Rectangular	For sizes above 2,000mm x 2,000mm further structural support may be required, please consult a structural engineer for advice
Circular	Not available
Flat oval	Not available

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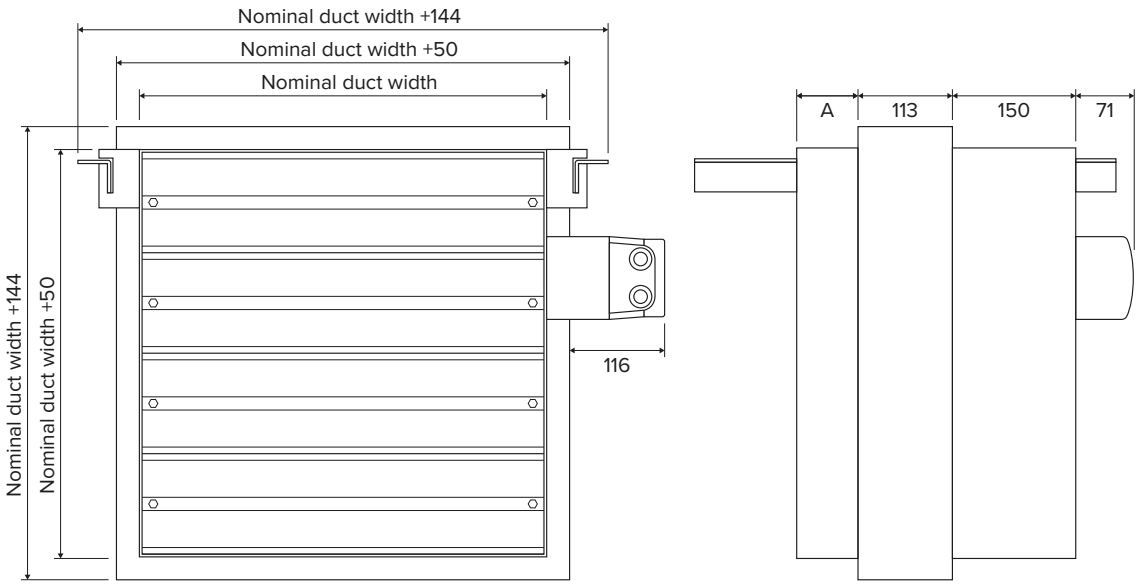
Dimensions



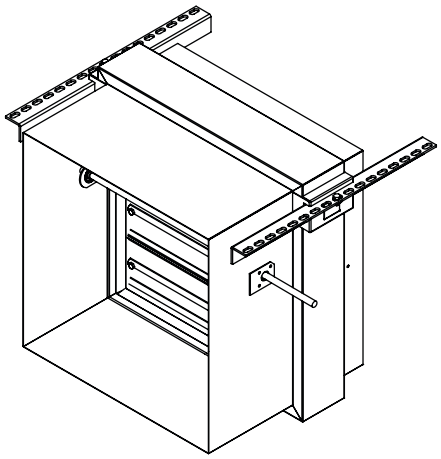
Front spigot size for nominal duct heights under 266mm

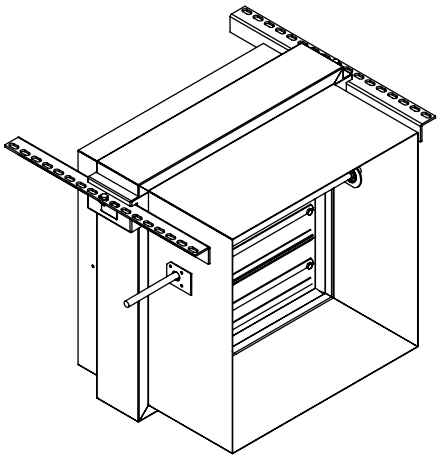
Nominal duct height (mm)	Dimension A (mm)
200-206	75
207-231	100
232-256	125
257-265	150
Above 265	75

Drive positioning

Right handed damper (RH) – The right handed damper has the actuator shaft on the right hand side as you view the damper looking into the access side (long spigot).

Left handed damper (LH) – The left handed damper has the actuator shaft on the left hand side as you view the damper looking into the access side (long spigot).





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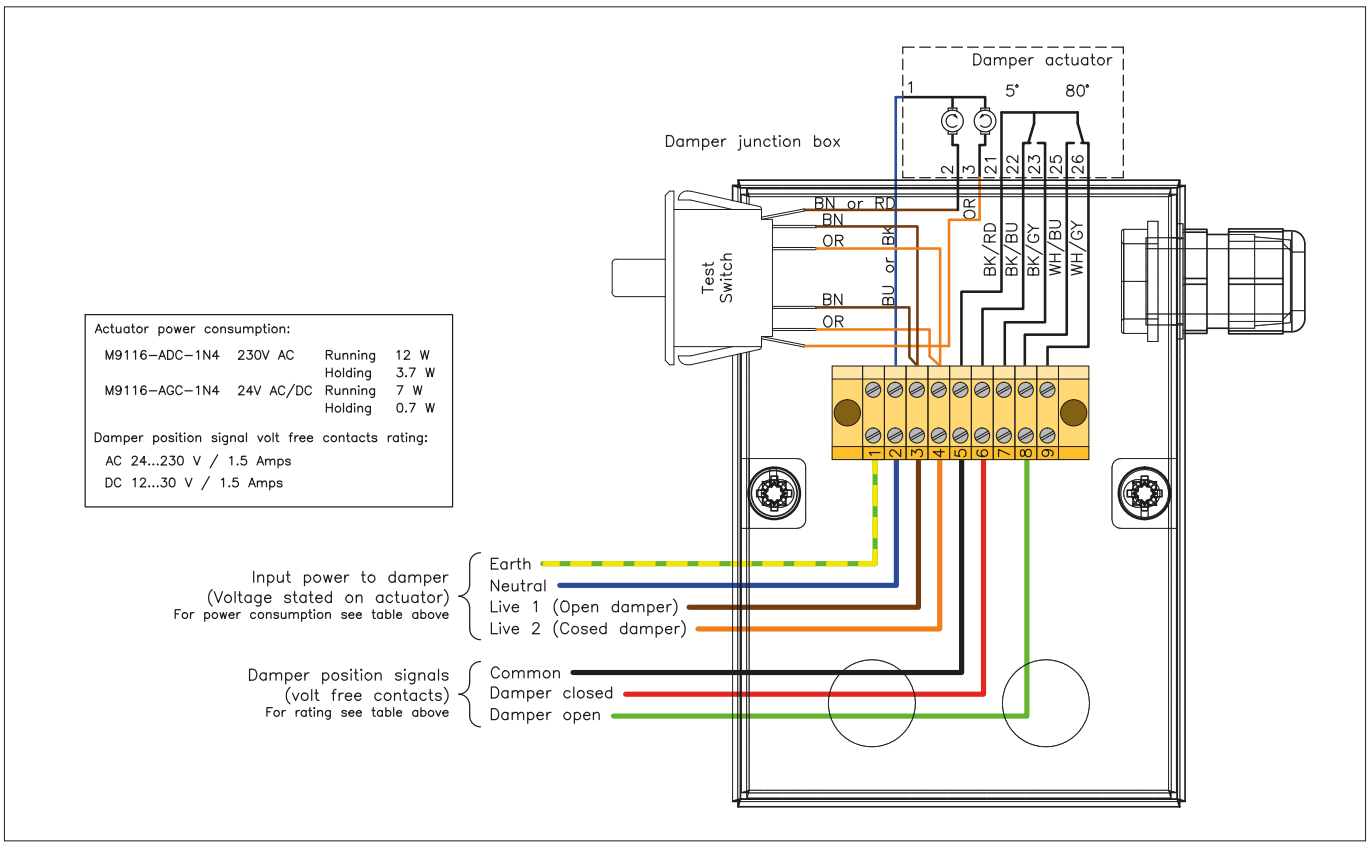
Actuator specification

Torque	16 Nm		
Damper area	3.0 m²		
Running time (open)	16 s		
Running time (closed)	16 s		
Supply voltage	M9116-ADC-1N4 – 230 V AC M9116-AGC-1N4 – 24 V AC/DC M9116-GGx-1N4 – 24 V AC/DC		
Frequency	50-60 Hz		
Power consumption	AC/DC 24 V	AC 230 V	Modulating
– running	7.0 W	12.0 W	6.0 W
– at end position	0.7 W	3.7 W	0.6 W
Dimensioning	M9116-ADC-1N4 – 13.0 VA / 0.35 A @ 2 ms M9116-AGC-1N4 – 13.0 VA / 3.4 A @ 2 ms M9116-GGx-1N4 – 15.0 VA / 3.6 A @ 2 ms		
Control signal	ON / OFF		
Angle of rotation / working range	90° (93° mechanical)		
Angle of rotation / limitation	5° to 85° in 5° steps		
Auxiliary switches	1.5A, AC 24...230, DC 12...30		
– S1 setting range			
– S2 setting range	5° to 85° < adjustable		

Cable	1.0 m halogen-free
– Motor – Switches	3-wire 1-2-3 (modulating – 5-wire 1-2-4-5-6) 5-wire 21-22-23-24-25
Lifetime	60,000 rotations
Noise level	45 dB (A)
Protection class	II
Degree of protection	IP 54
Mode of action	Type 1
Ambient conditions	
– Operating temperature – Storage temperature – Humidity	-20 to +50°C / IEC 721-3-3 -30 to +60°C / IEC 721-3-2 5 to 95% r.F no condensed
Weight	M9116-ADC-1N4 – 1.2kg M9116-AGC-1N4 / M9116-GGx-1N4 – 1.1kg
Service	Maintenance-free
Standards	
– Mechanics – Electronics – EMC emissions – EMC immunity	EN 60 529 / EN 60 730-2-14 EN 60 730-2-14 EN 50 081-1:92 / IEC 61000-6-3:96 EN 50 082-2:95 / IEC 61000-6-2:99

Wiring instructions

Wiring detail for dampers fitted with Johnson M9116-ADC-1N4 (230V AC) or M9116-AGC-1N4 (24V AC/DC) actuators.



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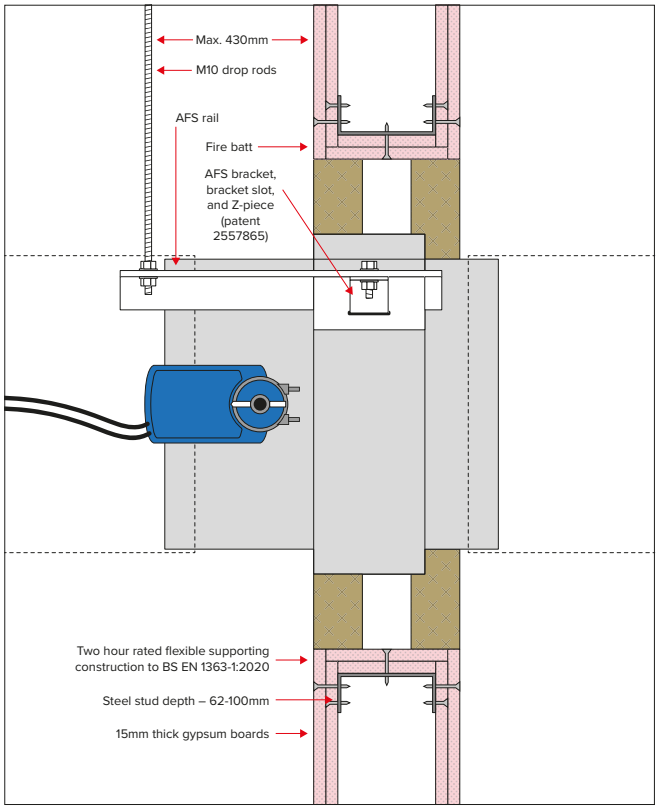
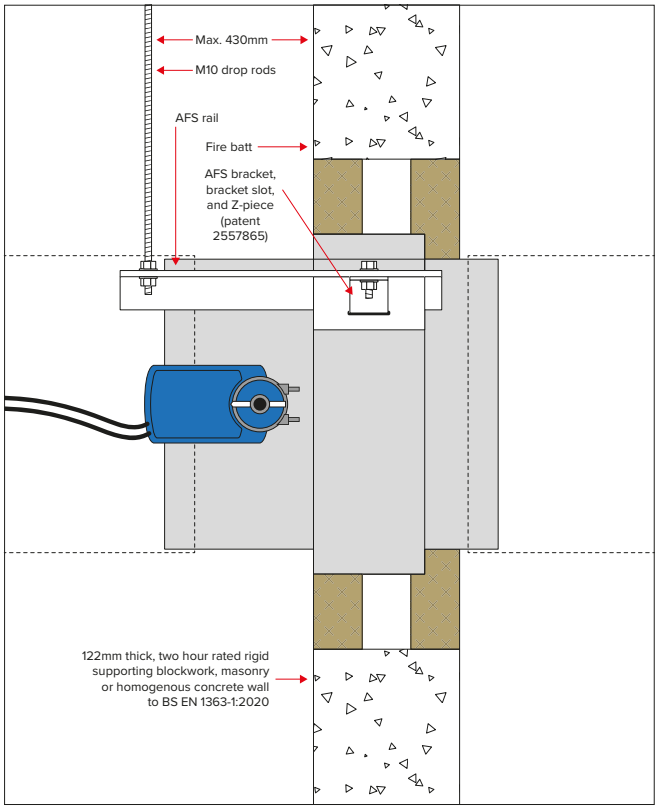
Typical drywall installation – E120 (Vedw i↔o) S



Typical blockwork installation – E120 (Vedw i↔o) S



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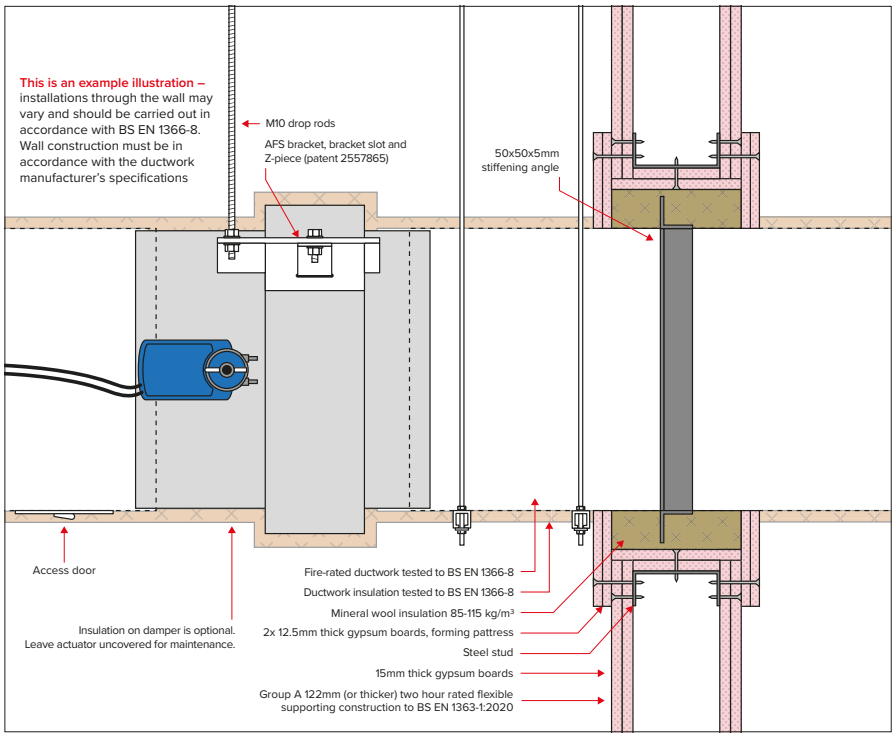
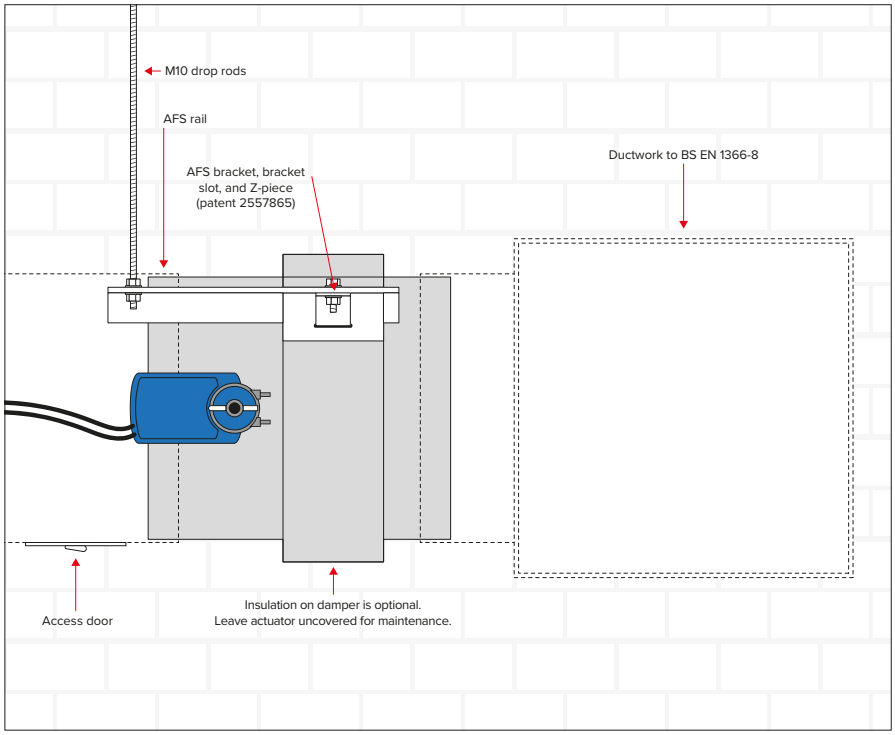
Typical away from wall installation – E120 (Vedw i↔o) S



Typical duct mounted on side spigot – E120 (Vedw i↔o) S



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