Technical Data Sheet

Lobby Damper Natural Vent

Technical Data

- Damper tested to EN1366-10
- Damper classified to EN 13501-4
- Cyclic tested for 10,000 operations
- Actuator hidden from view with easy access for maintenance.
- Auxiliary contacts for position monitoring
- EASY FIX™ grille as standard
- The LDN damper has been successfully tested to the EN1366-2:2015 Fire Damper Test Standard and has achieved a 2-hour fire resistance performance to ES120.
- Certified to BS EN12101-8

fire design solutions

Introduction

The LDN series Lobby Damper-Natural Vent has been primarily developed for use in smoke control systems serving multi-storey buildings for both domestic and commercial smoke extraction shafts where a larger free area than the standard LD damper gives is needed.

Size range (mm)

- Minimum 300W x 1000H
- Maximum 1100W x 2300H

Sizes refer to aperture sizes and are typically available in 50mm increments.

Design

The Lobby damper assembly consists of two parts; damper and grille.

The main sleeved damper with peripheral flange allows it to be fitted flush into the builder's aperture. A Belimo (motor open/motor closed) actuator is used to drive the damper blades from the normal closed position to the fully open position on receipt of a signal from a fire/smoke fire detection system. All damper internal surfaces are spray painted matt black to allow this product to be discreet behind the EASY FIX™ grille. Vertical blades when open, assist easy air-flow movement in parallel with the shaft.

The grille has been designed to maximise the airflow while preventing physical interference with the damper blades. The grille is affixed to the damper with concealed colour matched fixings. RAL 9010 white is offered as a neutral standard colour with other RAL colours to order.

Function

The dampers are typically closed in normal operation. Should a fire or smoke be detected, then the damper on the level of the fire should receive an instruction from the control system to open to vent smoke.

The Lobby Dampers on all other levels remain closed, thus preventing the spread of fire from riser on those levels.

The low ES rated leakage characteristics of these dampers maximise the riser extraction design performance.

Damper and Grille assembly

Damper assembly

- BE actuator (motor open/motor closed).
- Actuator removable cover plate.
- Provision for connection box if required.
- Visible surfaces of damper spray painted matt black.

Grille

- The BSB LDN grille forms part of the tested solution to meet EN12101-8.
- Grille fitting kit supplied with each damper.
- Grille colour RAL9010 white supplied as standard. Other colours available on request.

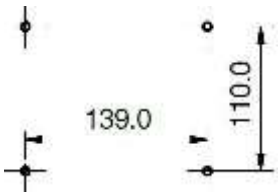
Compliance

- Damper/grille tested to EN1366-10
- Damper classified to EN 13501-4
- Achieving: E (120 Vew i<o) S C10,000 AA Multi

IMPORTANT. The Grille forms part of the fully tested solution. EN1666-10 states that if the grille is to be fitted within 200mm of the damper, then it must be tested with the damper. BSB have fire tested damper with the LDN grille fitted.

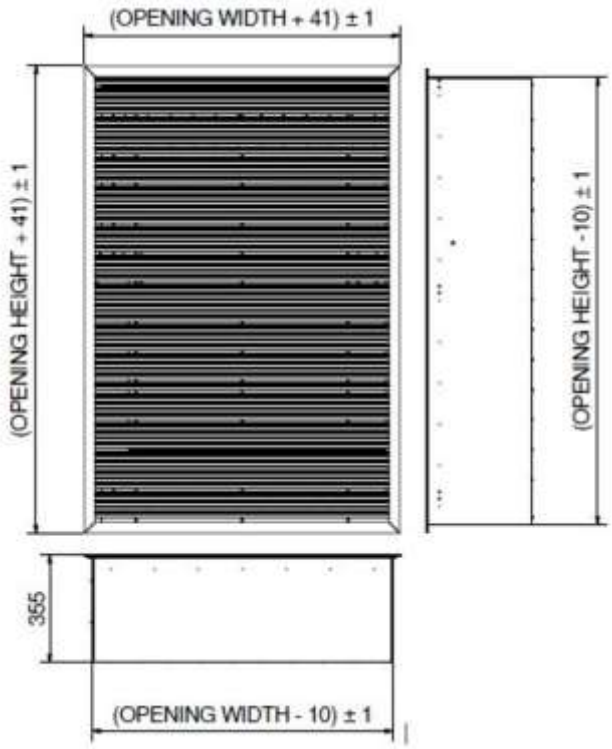
Actuator features

- Responsive to inputs from control detection system.
- Auxiliary contacts for position monitoring
- Actuator hidden from view with easy access for maintenance.
- 1m power and signal cables are provided. (See page 5 for wiring diagrams).
- Provision for wiring actuator to a control inter- face device has been allowed for behind the actuator cover using 4off M4 6mm raised pillars on centres as shown below.



An interface plate can be provided to allow for different fixing centres, please refer to Technical Sales for details

Damper and Grille Dimensions



- LDN damper tested to EN1366-10 and classified to EN13501-4 achieving: - E (120 Vew i(o) S C10,000 AA Multi
- 1.5mm galvanised steel (BS EN10142 DX51D +Z275) frame with fully seam welded corners along the entire depth to produce a rigid and air-tight construction.
- 0.7mm galvanised (BS EN10142 DX51D+Z275) double skin aerofoil 100mm pitch damper blades with inter−locking engagement when damper is closed.
- 0.4mm type 301 st ƒ stl (1.4310 BS EN10088-2) gasketing around entire internal perimeter.
- Steel support bar to assist handling and installation.
- Enclosed actuator and linkage mechanism.
- 24v ACƒDC or 230v AC Belimo BE motor open ƒ motor closed actuator.
- Volt Free Monitoring contacts.
- Actuator is on lobby side, hidden from view behind painted cover and can be manually operated if required.
- Pre-punched damper sleeve fixing holes for ease of replicating tested installation method.
- Simple to install and audit

Damper Blade Leakage

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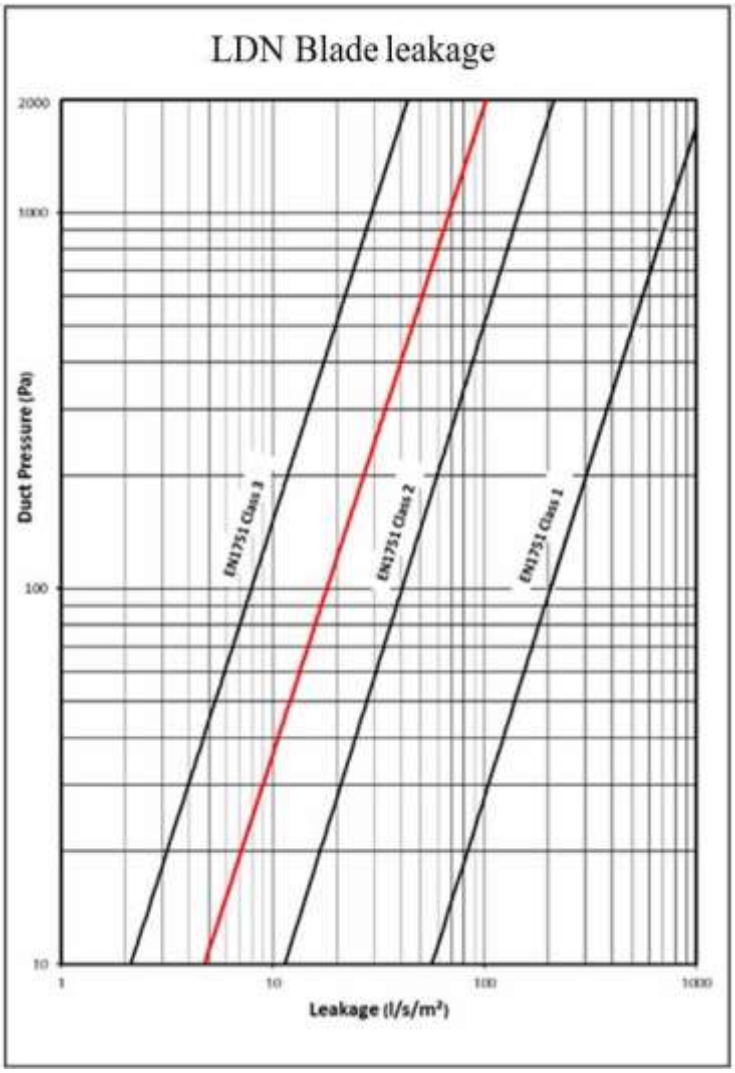
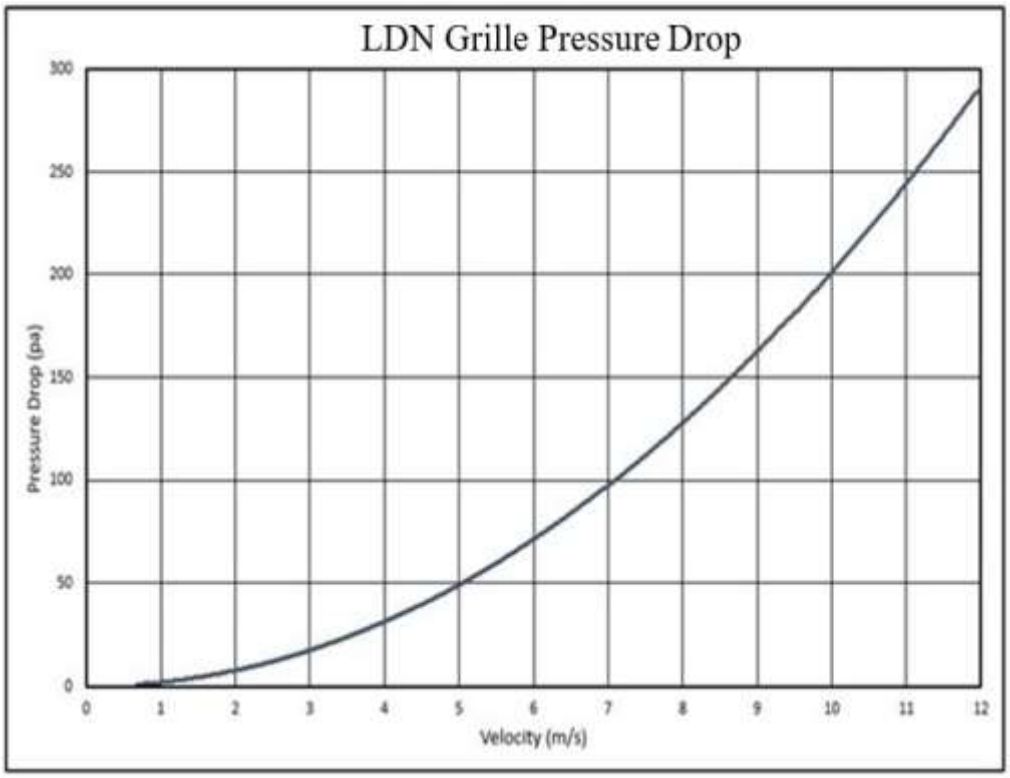
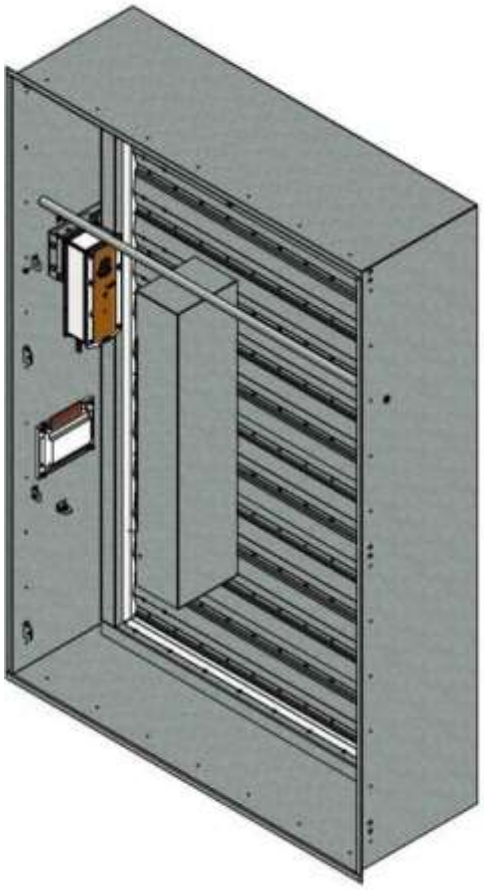


Damper Blade Leakage



LDN damper with grille removed

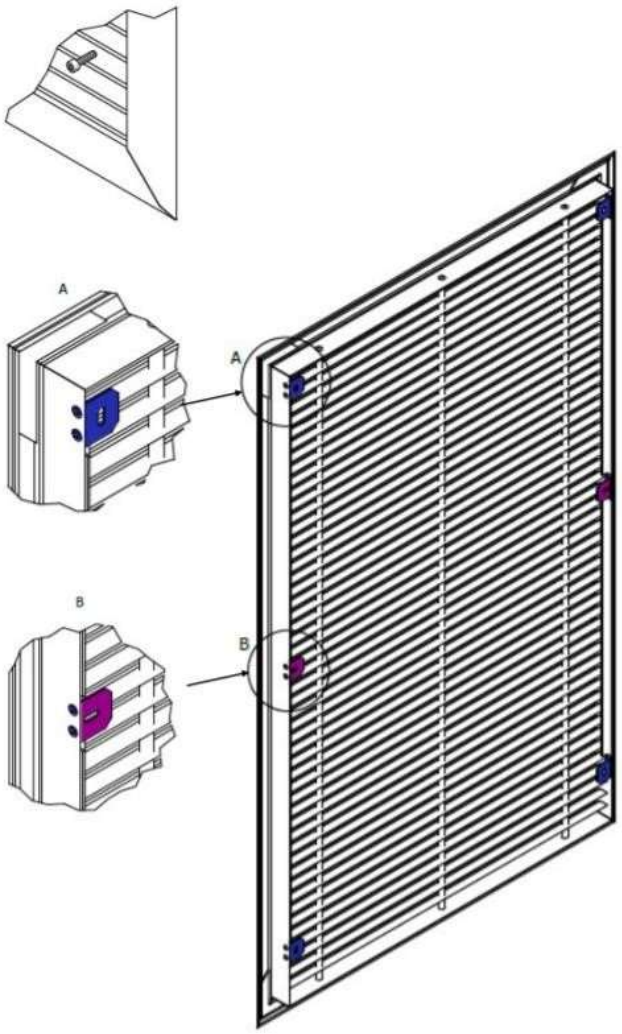


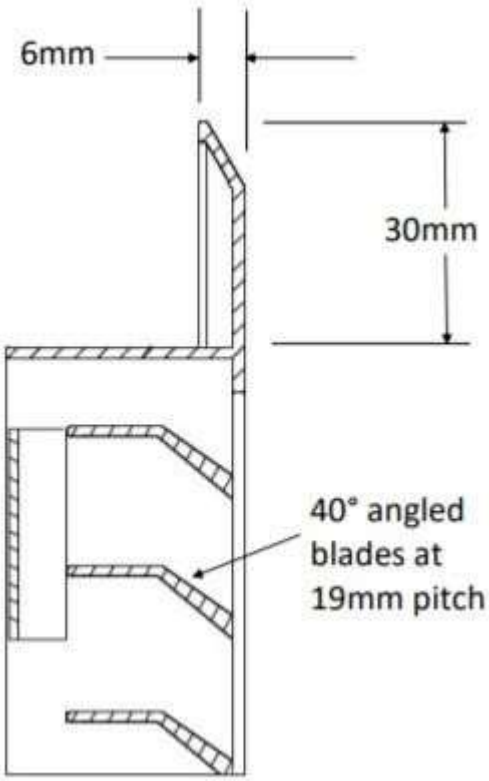
Packing and Transportation

LD dampers and LD grilles are despatched on pallets unless otherwise requested. The LD damper has a cardboard insert to protect paintwork during installation until after the grille is fitted. Dampers are secured to the pallet with shrink wrap. Grilles have protective corner pads and are packed in pairs with visible surface facing inwards and bubble wrapped.

Grille Detail

The grille fixing screws pass through the grille blades and into the grille fixing bracket. Use only the supplied Allen Key to fit the screws. The use of other non- supplied tools will damage the screw head and may scratch the grille blades.





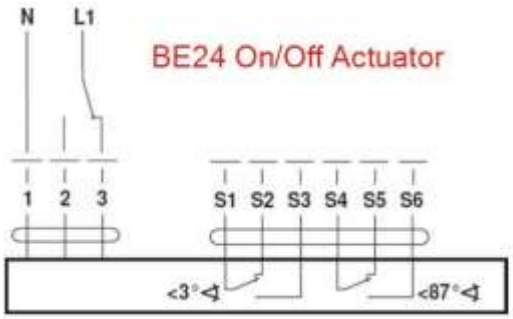
LDN Free Area - Opening sizes in mm and Area in m²

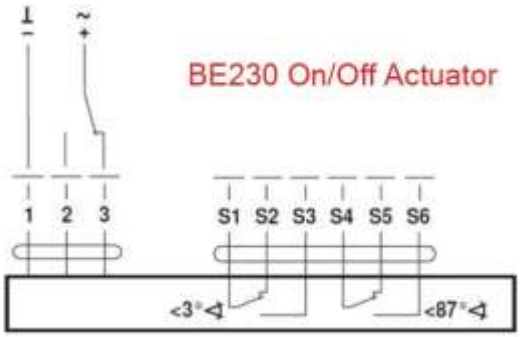
LDN Free Area (Opening sizes in mm and area in msq)																	
	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
1000	0.14	0.18	0.21	0.25	0.28	0.32	0.36	0.39	0.43	0.46	0.50	0.53	0.57	0.61	0.64	0.68	0.71
1050	0.14	0.18	0.21	0.25	0.28	0.32	0.36	0.39	0.43	0.46	0.50	0.53	0.57	0.61	0.64	0.68	0.71
1100	0.16	0.20	0.24	0.28	0.32	0.35	0.39	0.43	0.47	0.51	0.55	0.59	0.63	0.67	0.71	0.75	0.79
1150	0.16	0.20	0.24	0.28	0.32	0.35	0.39	0.43	0.47	0.51	0.55	0.59	0.63	0.67	0.71	0.75	0.79
1200	0.17	0.22	0.26	0.30	0.35	0.39	0.43	0.48	0.52	0.56	0.61	0.65	0.70	0.74	0.78	0.83	0.87
1250	0.17	0.22	0.26	0.30	0.35	0.39	0.43	0.48	0.52	0.56	0.61	0.65	0.70	0.74	0.78	0.83	0.87
1300	0.19	0.24	0.28	0.33	0.38	0.43	0.47	0.52	0.57	0.62	0.66	0.71	0.76	0.81	0.85	0.90	0.95
1350	0.19	0.24	0.28	0.33	0.38	0.43	0.47	0.52	0.57	0.62	0.66	0.71	0.76	0.81	0.85	0.90	0.95
1400	0.20	0.25	0.31	0.36	0.41	0.46	0.51	0.56	0.62	0.67	0.72	0.77	0.82	0.87	0.92	0.98	1.03
1450	0.20	0.25	0.31	0.36	0.41	0.46	0.51	0.56	0.62	0.67	0.72	0.77	0.82	0.87	0.92	0.98	1.03
1500	0.22	0.27	0.33	0.39	0.44	0.50	0.55	0.61	0.66	0.72	0.77	0.83	0.88	0.94	1.00	1.05	1.11
1550	0.22	0.27	0.33	0.39	0.44	0.50	0.55	0.61	0.66	0.72	0.77	0.83	0.88	0.94	1.00	1.05	1.11
1600	0.23	0.29	0.35	0.41	0.47	0.53	0.59	0.65	0.71	0.77	0.83	0.89	0.95	1.01	1.07	1.13	1.19
1650	0.23	0.29	0.35	0.41	0.47	0.53	0.59	0.65	0.71	0.77	0.83	0.89	0.95	1.01	1.07	1.13	1.19
1700	0.25	0.31	0.38	0.44	0.50	0.57	0.63	0.69	0.76	0.82	0.88	0.95	1.01	1.07	1.14	1.20	1.26
1750	0.25	0.31	0.38	0.44	0.50	0.57	0.63	0.69	0.76	0.82	0.88	0.95	1.01	1.07	1.14	1.20	1.26
1800	0.27	0.33	0.40	0.47	0.53	0.60	0.67	0.74	0.80	0.87	0.94	1.01	1.07	1.14	1.21	1.28	1.34
1850	0.27	0.33	0.40	0.47	0.53	0.60	0.67	0.74	0.80	0.87	0.94	1.01	1.07	1.14	1.21	1.28	1.34
1900	0.28	0.35	0.42	0.49	0.57	0.64	0.71	0.78	0.85	0.92	0.99	1.07	1.14	1.21	1.28	1.35	1.42
1950	0.28	0.35	0.42	0.49	0.57	0.64	0.71	0.78	0.85	0.92	0.99	1.07	1.14	1.21	1.28	1.35	1.42
2000	0.30	0.37	0.45	0.52	0.60	0.67	0.75	0.82	0.90	0.97	1.05	1.12	1.20	1.27	1.35	1.43	1.50
2050	0.30	0.37	0.45	0.52	0.60	0.67	0.75	0.82	0.90	0.97	1.05	1.12	1.20	1.27	1.35	1.43	1.50
2100	0.31	0.39	0.47	0.55	0.63	0.71	0.79	0.87	0.95	1.02	1.10	1.18	1.26	1.34	1.42	1.50	1.58
2150	0.31	0.39	0.47	0.55	0.63	0.71	0.79	0.87	0.95	1.02	1.10	1.18	1.26	1.34	1.42	1.50	1.58
2200	0.33	0.41	0.49	0.58	0.66	0.74	0.83	0.91	0.99	1.08	1.16	1.24	1.33	1.41	1.49	1.57	1.66
2250	0.33	0.41	0.49	0.58	0.66	0.74	0.83	0.91	0.99	1.08	1.16	1.24	1.33	1.41	1.49	1.57	1.66
2300	0.34	0.43	0.52	0.60	0.69	0.78	0.87	0.95	1.04	1.13	1.21	1.30	1.39	1.48	1.56	1.65	1.74

LDN Free Area - Opening sizes in mm and Area in m²

	300	400	500	600	700	800	900	1000	1100
1000	31	35	38	42	45	48	52	55	58
1100	34	37	41	44	48	52	55	59	62
1200	36	40	43	47	51	55	58	62	66
1300	38	42	46	50	54	58	62	66	70
1400	40	44	49	53	57	61	65	69	73
1500	42	47	51	55	60	64	68	73	77
1600	45	49	54	58	63	67	72	76	81
1700	47	52	56	61	66	70	75	80	85
1800	49	54	59	64	69	74	79	84	88
1900	51	56	62	67	72	77	82	87	92
2000	53	59	64	69	75	80	85	91	96
2100	56	61	67	72	77	83	88	94	99
2200	58	64	69	75	80	86	92	98	103
2300	60	66	72	78	83	89	95	101	107

Wiring Diagrams





Typical Installation Procedure for the Damper and Grille

The actual damper (overall sleeve) size is 10mm below the nominal aperture size. This allows clearance of 5mm per side.

For installing into dry walls, the aperture must be “lined out” with track and batons on all four sides as shown in figures 1 & 2.

A steel support bar is fitted to assist handling and installation.

Leave the protective cardboard packing piece supplied, inside the damper until the grille is fitted only removing as necessary.

Before installing the damper into the wall, remove actuator cover, fixings and retain for later. Prepare all electrical connections including cable entry holes as required.

Test the damper operation by fully opening and closing the damper electrically.

Position the damper centrally within the aperture with the damper flange leaving a 5-10mm gap between the wall and the flange. Its recommended to rest the damper on two packing spacers positioned at the bottom edge.

Apply a 6-10mm dia bead of intumescent mastic at the base of the entire damper flange and push the flange fully up against the wall and hold in this position.

For drywall installation, refer to figure 2 Using 3.5mm dia x 38mm long drywall screws, fix the damper to the wall using all the prepunched fixing holes in the sleeve ensuring screws ‘pick-up’ with the track lining the aperture so that the required fire integrity of the installation is not compromised. Once the screw head touches the damper sleeve, apply another ½ turn. DO NOT overtighten.

For masonry wall installation, refer to figure 3. Enlarge all the pre-punched 5mm dia fixing holes in the sleeve to 7mm dia. Using 6.5mm dia x 60mm (minimum) steel masonry fixings (e.g. multi-monti fixings), fix the damper to the wall. Once the screw head touches the damper sleeve, apply another ½ turn. DO NOT over− tighten.

Test/Inspect the damper a second time to ensure that the damper full travel is attained, refit actuator cover, check all fixings are in place, and that the damper is correctly fitted into the aperture. Refit cardboard protective sheet.

When the grille is ready to be fitted, remove the protective cardboard sheet from within the damper.

Fit the grille to the damper sleeve using 6 off M4 x 16mm screws provided. The screws pass through the grille blades and into the grille fixing brackets that align with the fixing brackets of the damper. Only the supplied 3mm aff allen key should be used, taking care not to scratch the grille blades. Do not use a battery drill.

Starting with the mid-height fixings, using the allen Key provided, secure the grille to the damper sleeve before finally securing the remaining fixings.

Finished Aperture Detail

Fig 1

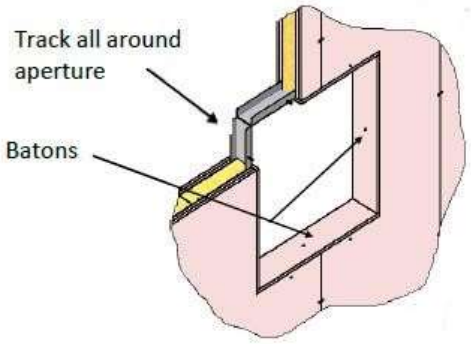


Fig 2

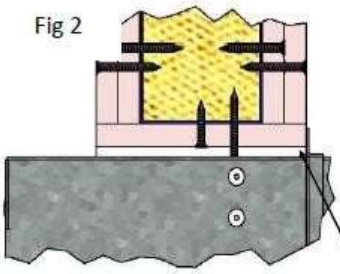


Fig 3