



## SMOKE VENTS

*The Worldwide Source for Speciality Access Products*



# Smoke Vents

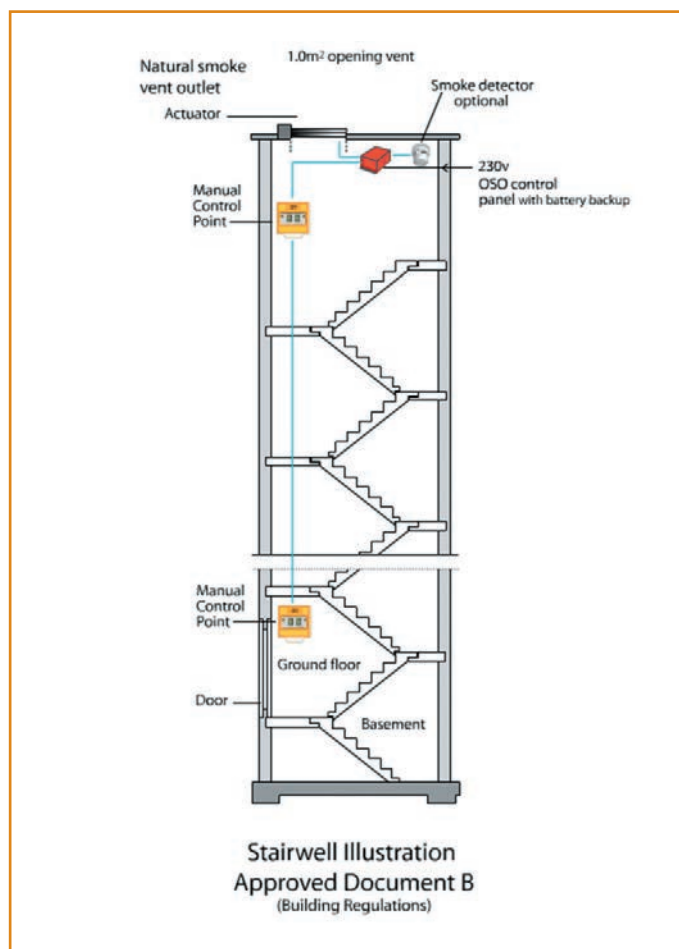
## Natural Smoke and Heat Exhaust Ventilators (NSHEV)

Bilco smoke ventilators are fully compliant to the Construction Products Directive 89/106/EEC and EU Regulation No 305/2011. The evaluation is based upon the requirements of EN12101-2 2003-09.

Under the requirements of the Regulation it is mandatory that CE marking is provided with the product and that a Declaration of Conformity is provided by the manufacturer.

EN12101-2 sets out the performance and test methods for natural smoke and heat exhaust ventilators which are intended to be installed as a component of a natural smoke and heat exhaust system. Bilco smoke vents can also be used as dual function vents to provide comfort ventilation to manage the internal temperature within a building. Bilco can also provide control equipment for smoke control systems, comfort ventilation and access.

Both single and double leaf vents manufactured by Bilco offer excellent thermal and air leakage performance and can be manufactured to suit project specific requirements for size, curb options and paint finishes.



### Key Features and Benefits

Increased evacuation time and decreased risk of smoke inhalation and damage

Enhanced visibility to allow firefighters to quickly locate the fire

Protection against secondary ignitions and lateral fire spread

Exhausting of noxious and potentially explosive fumes

Structure protection from damaging heat

Reduce damage to building contents

Can be used for access and comfort ventilation.

### Typical Applications

High-Rise Housing

Offices and Commercial Buildings

Aircraft Hangars

Auditoria

Concert Halls and Theatres

Convention Centres

Gymnasiums

Manufacturing Plants

Retail Centres

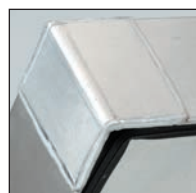
Schools

Hospitals

Distribution Depots

Warehouses



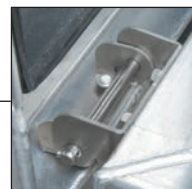


Entire vent shall be weathertight with fully welded corner joints on cover and curb

Newly designed closed cell EPDM sponge gasket, helps meet Building Regulations air leakage targets by providing a better seal of the cover to the curb, ensuring complete weather-tightness



A single linear actuator mounted on a pivoting carriage capable of opening the cover to the fire open position of 140 degrees within 60 seconds



Enclosed hinge assembly

Fully insulated cover and curb. 50mm thick faced rigid polyisocyanurate thermal insulation board. U value of 0.47Wm<sup>2</sup>/K

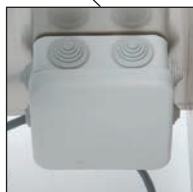
Standard product - clear vent areas of 1m<sup>2</sup> and 1.5m<sup>2</sup>



Flange with pre-drilled fixing points for easy installation



Wind deflector to protect open vent against wind loads



Curb mounted junction box with terminal block enclosed for power cable connection



Insulated curb with cap flashing and Bilclip® flashing system. Installation is simply a matter of placing the vent over the roof opening and securing it to the roof deck through the holes provided in the base flange. The integral capflashing readily accepts roofing felts reducing installation time and costs.



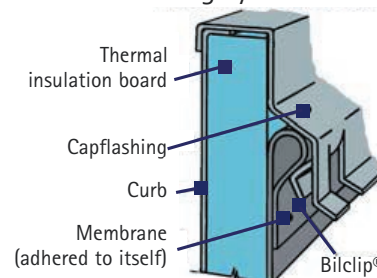
VIDEO



## Type ESW-50REM

Typically positioned at the head of a stairwell. The vent will act as a chimney clearing the building of heat and smoke.

### Bilclip® flashing system





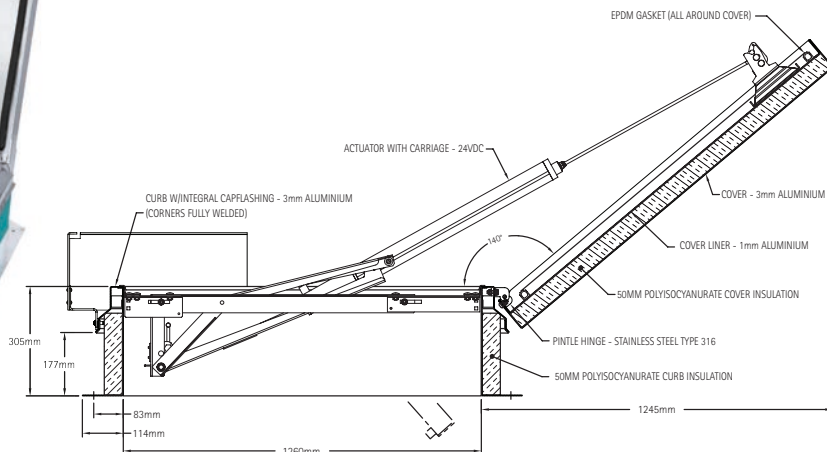
# Stairwell (NSHEV)

## Type ESW-50REM Smoke Vent – Single Leaf 140°



ESW-50REM

ESW-50REM



### SPECIFICATIONS

The smoke vent shall be single leaf and provide 1.0m<sup>2</sup> clear vent area. The smoke vent shall be pre-assembled from the manufacturer.

**Performance characteristics:** Cover shall be reinforced to support a minimum live load of 195 kg/m<sup>2</sup> with a maximum deflection of 1/150th of the span.

Operation of the cover shall be through a 24VDC battery backed control system that will open the cover to the fire open position within 60 seconds and be capable of closing the cover.

Operation of the cover shall not be affected by temperature.

Entire vent shall be weathertight with fully welded corner joints on cover and curb.

**Cover:** Shall be 3mm aluminium with a 100mm beaded flange with formed reinforcing members. Cover shall have a heavy extruded EPDM rubber gasket that is bonded to the cover interior to ensure a continuous seal when compressed to the top surface of the curb.

**Cover insulation:** Shall be polyisocyanurate of 50mm thickness with a U-value of 0.47 W/m<sup>2</sup>K. Insulation shall be fully covered and protected by an aluminium liner.

**Curb:** Shall be 305mm in height and of 3mm aluminium. The curb shall be formed with a 114mm flange with 11mm holes provided for securing to the roof deck. The curb shall be equipped with an integral metal capflashing of 2mm aluminium, fully welded at the corners, that features the Bil-Clip® flashing system, including stamped tabs, 153mm on centre, to be bent inward to hold single ply roofing membrane securely in place.

**Wind deflectors:** Wind deflectors shall be 4mm aluminium with 3mm EPDM gasket.

**Curb insulation:** Shall be polyisocyanurate of 50mm thickness with a U-value of 0.47W/m<sup>2</sup>K.

**Operating mechanism:** A single linear actuator mounted on a pivoting carriage capable of opening the cover to the fire open position of 140° (note – roof obstructions should be considered).

**Hardware:** Heavy pintle hinges shall be provided.  
Curb mounted junction box with a terminal block enclosed for power cable connection.

**Finish:** Factory finish shall be mill finish aluminium.

**Controls:** See pages 18 and 19.

**Options:** See pages 40 and 41.

### PERFORMANCE CHARACTERISTICS to EN12101-2

Free Aerodynamic area	1.0m <sup>2</sup>
Reliability	RE 1000 (10,000*)
Snow Load	SL 400
Low Ambient Temp	T (-15)
Wind Load	WL 1500
Resistance to Heat	B 300

\*10,000 when used as a day to day ventilator.

### STANDARD SIZES and WEIGHTS

Type	Size – clear internal dimensions	Overall dimensions	Weight	Clear Vent Area
ESW-50REM	1260mm x 1260mm	1488mm x 1488mm	140 kg	1.0m <sup>2</sup>
ESW-50REM CL	1260mm x 1260mm	1488mm x 1488mm	150 kg	1.0m <sup>2</sup>



# Double Leaf (NSHEV)

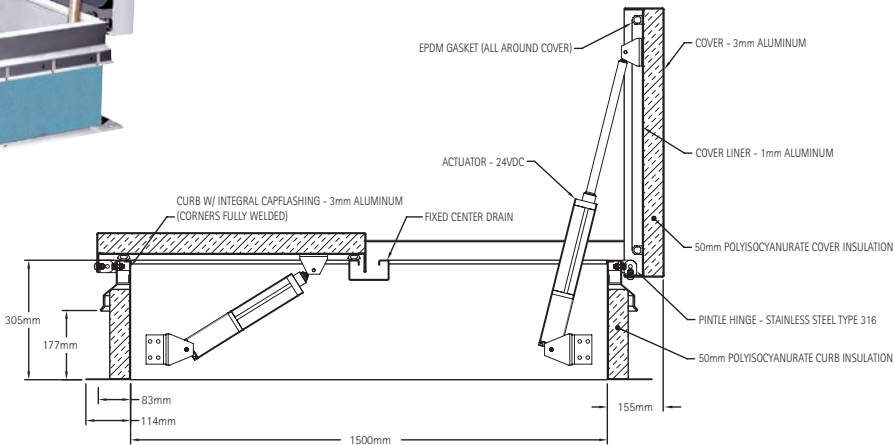
## UDF-50REM Smoke Vent – Double Leaf 90°



Type UDF-50REM -  
shown without wind deflector



UDF-50REM



### SPECIFICATIONS

The smoke vent shall be double leaf and provide 1.5m<sup>2</sup> clear vent area. The smoke vent shall be pre-assembled from the manufacturer.

<b>Performance characteristics:</b>	Covers shall be reinforced to support a minimum live load of 195 kg/m <sup>2</sup> with a maximum deflection of 1/150th of the span. Operation of the covers shall be through a 24VDC battery backed control system that will open the covers to the fire open position within 60 seconds and be capable of closing the covers. Operation of the covers shall not be affected by temperature. Entire vent shall be weathertight with fully welded corner joints on covers and curb.
<b>Cover:</b>	Shall be 3mm aluminium with a 100mm beaded flange with formed reinforcing members. Cover shall have a heavy extruded EPDM rubber gasket that is bonded to the cover interior to ensure a continuous seal when compressed to the top surface of the curb.
<b>Cover insulation:</b>	Shall be polyisocyanurate of 50mm thickness with a U-value of 0.47 W/m <sup>2</sup> K. Insulation shall be fully covered and protected by an aluminium liner.
<b>Curb:</b>	Shall be 305mm in height and of 3mm aluminium. The curb shall be formed with a 114mm flange with 11mm holes provided for securing to the roof deck. The curb shall be equipped with an integral metal capflashing of 2mm aluminium, fully welded at the corners, that features the Bil-Clip® flashing system, including stamped tabs, 153mm on centre, to be bent inward to hold single ply roofing membrane securely in place. There shall be a fixed central drip channel through the centre section of the curb.

<b>Wind deflectors:</b>	Wind deflectors shall be 4mm aluminium with 3mm EPDM gasket.
<b>Curb insulation:</b>	Shall be polyisocyanurate of 50mm thickness with a U-value of 0.47 W/m <sup>2</sup> K.
<b>Operating mechanism:</b>	Two 24VDC linear actuators per cover ( four actuators total) capable of opening the cover to the fire open position of 90°.
<b>Hardware:</b>	Heavy pintle hinges shall be provided. Curb mounted junction box ( 2 no.) with terminal blocks enclosed for power cable connection.
<b>Finish:</b>	Factory finish shall be mill finish aluminium.

### PERFORMANCE CHARACTERISTICS to EN12101-2

Free Aerodynamic area	1.5m <sup>2</sup>
Reliability	RE 1000 (10,000*)
Snow Load	SL 500
Low Ambient Temp	T (-15)
Wind Load	WL 1500
Resistance to Heat	B 300

\*10,000 when used as a day to day ventilator.

### STANDARD SIZES and WEIGHTS

Type	Size – clear internal dimensions	Overall dimensions	Weight	Clear Vent Area
UDF-50REM	1500mm x 1620mm	1728mm x 1848mm	215 kg	1.5m <sup>2</sup>
UDF-50REM CL	1500mm x 1620mm	1728mm x 1848mm	230 kg	1.5m <sup>2</sup>



# Smoke Vents – Special Size

## Type ESS-50REM – Special Size

### SPECIFICATIONS

The smoke vent shall be single leaf and provide the specified clear vent area.  
The smoke vent shall be pre-assembled from the manufacturer.

**Performance characteristics:** Cover shall be reinforced to support a minimum live load of 195 kg/m<sup>2</sup> with a maximum deflection of 1/150th of the span.  
Operation of the cover shall be through a 24VDC battery backed control system that will open the cover to the fire open position within 60 seconds and be capable of closing the cover.  
Operation of the cover shall not be affected by temperature.  
Entire vent shall be weathertight with fully welded corner joints on cover and curb.

**Cover:** Shall be 3mm aluminium with a 100mm beaded flange with formed reinforcing members. Cover shall have a heavy extruded EPDM rubber gasket that is bonded to the cover interior to ensure a continuous seal when compressed to the top surface of the curb.

**Cover insulation:** Shall be polyisocyanurate of 50mm thickness with a U-value of 0.47 W/m<sup>2</sup>K. Insulation shall be fully covered and protected by an aluminium liner.

**Curb:** Shall be 305mm in height and of 3mm aluminium. The curb shall be formed with a 114mm flange with 11mm holes provided for securing to the roof deck. The curb shall be equipped with an integral metal capflashing of 2mm aluminium, fully welded at the corners, that features the Bil-Clip® flashing system, including stamped tabs, 153mm on centre, to be bent inward to hold single ply roofing membrane securely in place.

Type ESS-50REM – special size



<b>Wind deflectors:</b>	Wind deflectors shall be 4mm aluminium with 3mm EPDM gasket.
<b>Curb insulation:</b>	Shall be polyisocyanurate of 50mm thickness with a U-value of 0.47W/m <sup>2</sup> K.
<b>Operating mechanism:</b>	A single linear actuator mounted on a pivoting carriage capable of opening the cover to the fire open position of 140° (note – roof obstructions should be considered).
	Heavy pintle hinges shall be provided.
<b>Hardware:</b>	Curb mounted junction box with a terminal block enclosed for power cable connection.
<b>Finish:</b>	Factory finish shall be mill finish aluminium.

### PERFORMANCE CHARACTERISTICS to EN12101-2

Consult Bilco UK office for details.



## Type D-50REM – Special Size

### SPECIFICATIONS

The smoke vent shall be double leaf and provide the specified clear vent area.  
The smoke vent shall be pre-assembled from the manufacturer.

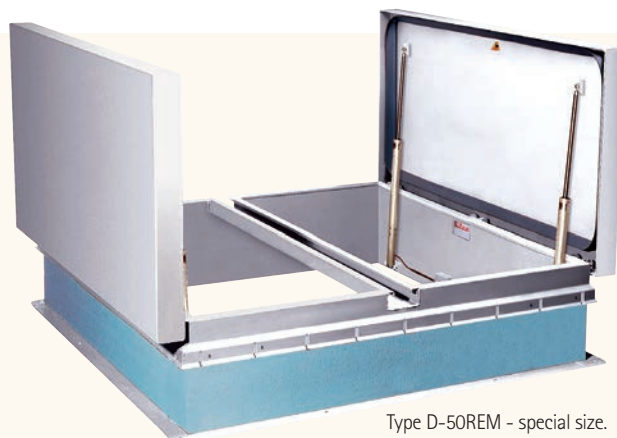
**Performance characteristics:** Covers shall be reinforced to support a minimum live load of 195 kg/m<sup>2</sup> with a maximum deflection of 1/150th of the span.  
Operation of the covers shall be through a 24VDC battery backed control system that will open the covers to the fire open position within 60 seconds and be capable of closing the covers.  
Operation of the covers shall not be affected by temperature.  
Entire vent shall be weathertight with fully welded corner joints on covers and curb.

**Cover:** Shall be 3mm aluminium with a 100mm beaded flange with formed reinforcing members. Cover shall have a heavy extruded EPDM rubber gasket that is bonded to the cover interior to ensure a continuous seal when compressed to the top surface of the curb.

**Cover insulation:** Shall be polyisocyanurate of 50mm thickness with a U-value of 0.47 W/m<sup>2</sup>K. Insulation shall be fully covered and protected by an aluminium liner.

**Curb:** Shall be 305mm in height and of 3mm aluminium. The curb shall be formed with a 114mm flange with 11mm holes provided for securing to the roof deck. The curb shall be equipped with an integral metal capflashing of 2mm aluminium, fully welded at the corners, that features the Bil-Clip® flashing system, including stamped tabs, 153mm on centre, to be bent inward to hold single ply roofing membrane securely in place. There shall be a fixed central drip channel through the centre section of the curb.

Type D-50REM – special size.  
Shown without wind deflector



<b>Curb insulation:</b>	Shall be polyisocyanurate of 50mm thickness with a U-value of 0.47 W/m <sup>2</sup> K.
<b>Operating mechanism:</b>	Two 24VDC linear actuators per cover ( four actuators total) capable of opening the cover to the fire open position of 90°.
<b>Hardware:</b>	Heavy pintle hinges shall be provided. Curb mounted junction box ( 2 no.) with terminal blocks enclosed for power cable connection.
<b>Finishes:</b>	Factory finish shall be mill finish aluminium.

### PERFORMANCE CHARACTERISTICS to EN12101-2

Consult Bilco UK office for details.

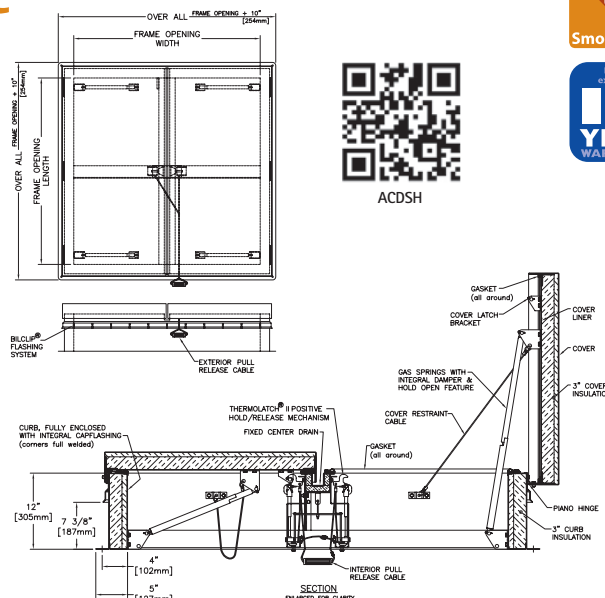
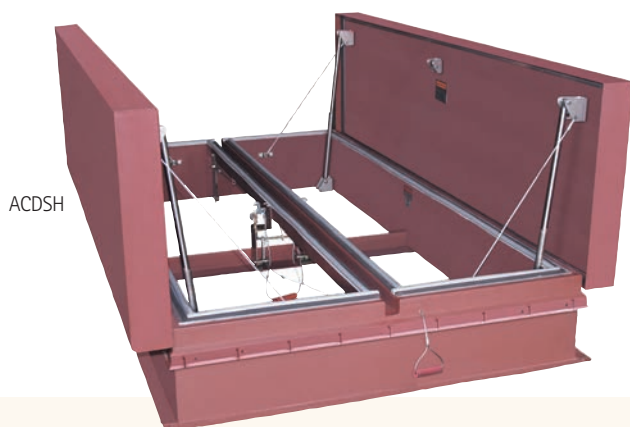
# Smoke Vents – Acoustic

## Type ACDSH – Double Leaf 90°

Mechanically operated smoke vents. Ideal for concert halls, theatres, casinos, sporting arenas and other applications.



ACDSH



### SPECIFICATIONS

Furnish and install where indicated on plans metal fire vent Type ACDSH, size [insert: width ( ) x length ( )]. Length denotes hinge side.  
The roof fire vent shall be double leaf. The roof fire vent shall be pre-assembled from the manufacturer.

**Performance:** Vent(s) shall be UL listed.

**Characteristics:** Covers shall be reinforced to support a minimum live load of 40 psf (195 kg/m<sup>2</sup>) with a maximum deflection of 1/150th of the span or 90 psf (439 kg/m<sup>2</sup>) wind uplift.  
Corrosion resistant gas springs shall open the vent covers simultaneously when latch is manually released or when heat breaks the UL listed fusible link. Opening shall be in a controlled manner to avoid damage to surrounding roof surfaces.  
Entire roof fire vent shall be weathertight with fully welded corner joints on cover and curb.  
Latch mechanisms shall hold the covers in the closed position without overstressing the fusible link and withstand 90 psf (439 kg/m<sup>2</sup>) wind uplift forces acting on the cover.

**Latch Operation:** When heat parts the UL listed fusible link, the latch shall release instantaneously, allowing vent covers to open. The latch shall be designed for easy resetting, after a fire or test, so that the covers cannot be latched closed unless the mechanism has been reset properly. Manufacturer shall provide instructions for resetting the latch with each unit.

**Transmission Sound Rating:** Vent(s) shall carry STC-46 sound rating.

**Covers:** 14 gauge (2mm) paint bond G-90 galvanized steel with a 5" (127mm) beaded flange with formed reinforcing members.

**Gasket:** PVC gaskets shall be permanently adhered to the underside of the covers and on top of the curb.

**Cover insulation:** Fibreglass of 3" (76mm) in thickness, fully covered and protected by a 14 gauge (2mm) paint bond G-90 galvanized steel liner.

**Curb:** 12" (305mm) in height and of 14 gauge (2mm) paint bond G-90 galvanized with a fixed centre channel. Curb shall be formed with a 5" (127mm) flange with 7/16" (11mm) holes provided for securing to roof deck. Curb shall be equipped with integral metal capflashing of the same gauge and material as the curb and feature the Bil-Clip® flashing system, including stamped tabs, 6" (153mm) on centre, to be bent inward to hold single-ply roofing membrane securely in place.

**Curb insulation:** 3" (76mm) fibreglass insulation, fully enclosed by a 14 gauge (2mm) paint bond G-90 galvanized steel liner.

**Lifting Mechanisms:** Corrosion resistant gas springs open covers automatically against a 10 lb/ft<sup>2</sup> (49Kg/m<sup>2</sup>) snow/wind load. Gas springs shall have built in dampers to assure a controlled rate of opening and automatically lock the covers in the full open position. A release mechanism shall be provided to allow the covers to be closed.

**Latch Mechanism:** Shall be the BILCO Thermolatch® II positive hold/release mechanism with a separate latching point for each cover controlled by a single UL listed 165°F (74°C) fusible link. Fusible link shall be curb mounted on a non-hinged end to allow the latching mechanism to be easily reset from the roof level.

**Hardware:** Corrosion resistant gas springs and hot dip galvanized steel stop cables. All other hardware is zinc plated/chromate sealed.

**Finish:** Factory finish shall be alkyd base red oxide primer.

**Options:** See pages 40 and 41.

### STANDARD SIZES and WEIGHTS

Type	Size – clear internal dimensions	Overall dimensions	Weight
ACDSH4848	1220mm x 1220mm	1398mm x 1398mm	363 kg
ACDSH4872	1220mm x 1830mm (H)	1398mm x 2008mm	426 kg
ACDSH4890	1220mm x 2290mm (H)	1398mm x 2468mm	533 kg
ACDSH4896	1220mm x 2440mm (H)	1398mm x 2618mm	558 kg
ACDSH6060	1520mm x 1520mm	1698mm x 1698mm	528 kg
ACDSH6096	1520mm x 2440mm (H)	1698mm x 2618mm	701 kg
ACDSH66144*	1680mm x 3660mm (H)	1858mm x 3838mm	1032 kg
ACDSH7272	1830mm x 1830mm	2008mm x 2008mm	685 kg

(H) – Hinge Side

\*This size has four covers.







# Control Options

## The heart of the system

Bilco controls and accessories are designed to work effectively with the range of natural smoke ventilators and roof hatches.

The OS2 control unit can be a stand-alone management system - in its own right, or it can be integrated into a fully networked fire alarm or BMS system. In the event of a fire, if the mains electrical supply to the building is cut the OS2 offers a failsafe option as it incorporates a backup battery system to ensure the natural smoke vents will still open. Special control units for unique applications can also be manufactured.

Other control accessories are available to independently open and close access equipment in non-emergency situations for example for roof inspection and maintenance, as well as making it easier to utilize the roof space for plant and recreational use.

There are a number of security accessories available and options for comfort ventilation. With the growing demand for buildings to be sustainable, energy efficient and environmentally friendly, a building that can ventilate solar heat gains in the summer and retain heat in the winter is vitally important.

Controls such as thermostats and rain sensors can for example, moderate a building 'over-heating' during the day, as well as providing additional revenue saving benefits in terms of reducing the use of energy hungry H&V equipment.



Dumb Reset Key  
1RPREM-23



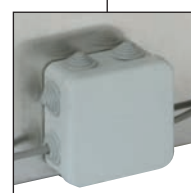
### MCP

Designed to allow the Fire Officer to manually override the smoke control system through a user friendly interface. Design includes an open button and a close/reset button, which are accessed by lifting the clear front door. Dumb Reset Key required to close in accordance with PrEN 12101-9.

1RPREM-02



Typical  
smoke vent



### JUNCTION BOX

Fitted as standard to all smoke vents ready for wiring. Meets IP55

### CONTROL PANEL

The OS2 control unit can be a stand-alone management system or it can be integrated into a fully networked fire alarm or BMS system.

OS2 accepts a supply of 230V AC 50/60 Hz from a 3A fused un-switched spur and has a current rating of 2A. Output is 24V DC 2-Channels. Combined output must not exceed 8A. Intermittent - 6 mins in any 1 hour; 5A continuous. Other options are available.

The backup battery module comprises 2x12V DC which has 2.2Ah sealed lead-acid batteries.

1RPREM-09



### CONTROL PANEL KIT

Comprises- control panel, fireman's switch (MCP) and smoke detector.

1RPREM-01





**MCP**  
Tamper-proof MCP  
1RPREM-21



**SMOKE DETECTOR**  
1RPREM-03



**OPEN/CLOSE SMOKE VENT SWITCH**  
Stainless steel face plate, designed to be used as a keyed or paddle switch

1RPREM-08 (keyed)  
1RPREM-08A (paddle)



**OPEN/CLOSE SWITCH**  
10 amp durable white plastic retractable switch

1RPREM-10



**WEATHERPROOF OPEN/CLOSE SWITCH**  
Made from steel the keyed switch is sprung to centre and cannot be operated with out the security key

1RPREM-11 (keyed)  
1RPREM-11A (paddle)



**PANIC BUTTON**  
For use above or below smoke vent for emergency escape

1RPREM-11B



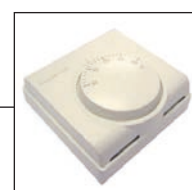
**AUTO/MANUAL CONTROL SWITCH**  
To be used in conjunction with thermostat and/or rain sensor. Stainless steel face plate, designed to be used as a 2 position switch

1RPREM-07

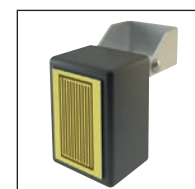


**THERMOSTAT**  
Industry standard 10° to 30°C range

1RPREM-04



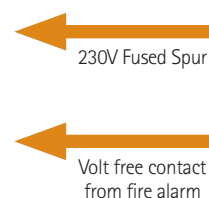
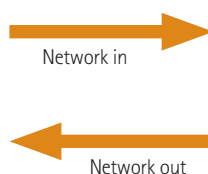
**WIND SPEED SENSOR**  
1RPREM-26



**RAIN SENSOR**  
Robust and cost effective

1RPREM-15

**BMS**  
External Connections (eg. alarm and ventilation systems)



## CURB OPTIONS

### Curb Liner

Metal insulation liner of the same materials as the curb and capflashing. Ideal for applications where aggressive adhesives or torch applied weather proofing systems are being used.

### Fully Enclosed Curb

Insulation liner of the same materials as the curb, which replaces the capflashing. Used with hot applied systems or where the hatch is welded directly to the roofing panel.

### Flanged Apron Design

A 'top-hat' design which makes installation very easy and virtually eliminates the problems of water proofing on the roof. Ideal for situations where the roofing material is applied prior to the hatch or vent arriving on-site.

### Built-in Louvers

Useful for reducing condensation in buildings or for air displacement in lift shafts.

## POWERED ACCESS OPTION – Single leaf

Control kit for powered access hatch (RPREM-D24).

## POWERED ACCESS OPTION – Double leaf

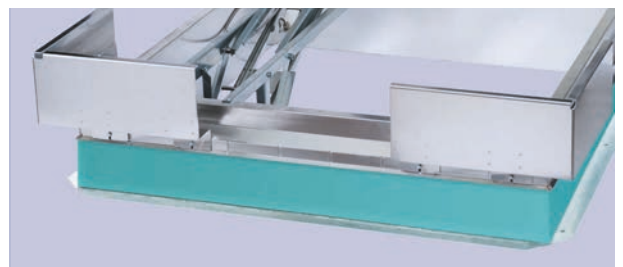
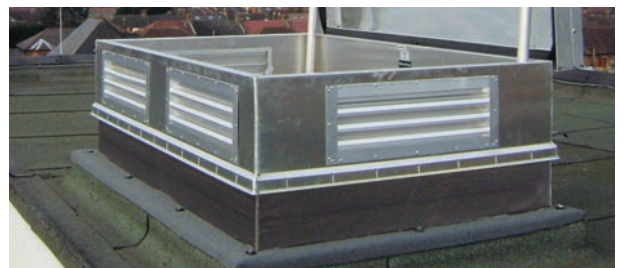
Control kit for powered access hatch.

Control panel with two synchronising units (RPREM-22).

## WIND DEFLECTORS

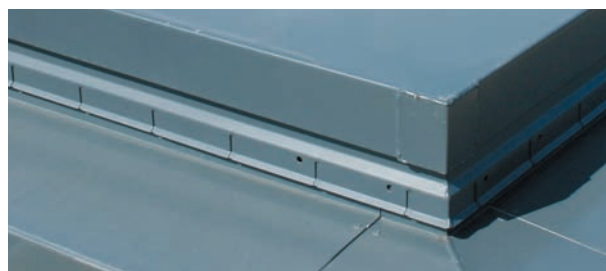
Wind deflector for ESW-50REM (WD1).

Wind deflector for UDF-50REM (WD2).



## PAINT FINISHES

Common options include polyester powder coating, anodizing aluminium as well as Tnemec® finishes. Stock items can be polyester powder coated to any standard RAL or BS colour within 2-3 weeks.



## SECURITY OPTIONS

### Keyed Cylinder Locks

Provide keyed exterior access and are available with either keyed or turn knob interior access. Ideal security enhancement for many applications. For added security and weathertightness, the lock cylinder is accessed from the exterior through a gasketed, threaded deck plate.



### Detention Locks

Provide keyed interior and exterior access and are ideal for prisons and other buildings requiring a maximum level of security. For added security and weathertightness, the lock is accessed from the exterior through a gasketed, threaded deckplate. Bilco roof hatches can be prepared for field installation of many leading lock brands.



### Emergency Egress

Bilco roof hatches can be supplied with a panic latch for rapid egress in an emergency situation. Available with keyed exterior access.

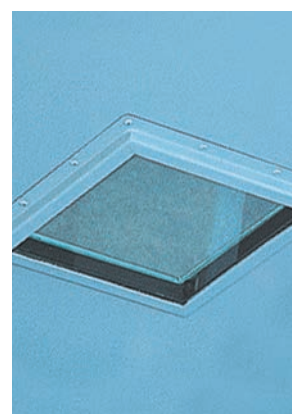
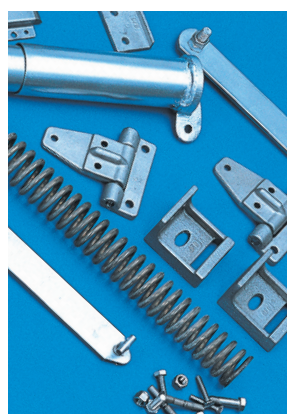
## EXPLOSION RELIEF SMOKE VENTS

Bilco automatic smoke vents may also be equipped to operate as explosion vents or as combination fire/explosion vents. The explosion release mechanism is preset and factory-tested to release at between 122kg/m<sup>2</sup> and 146kg/m<sup>2</sup> of pressure on the underside of the covers.



## STAINLESS STEEL HARDWARE

Installation in highly corrosive environments, Type 316 stainless steel hardware, including slam latch and lifting mechanism assemblies; hold-open arms and guides; all brackets, hinges, pins, and fasteners are standard on J-AL, JD-AL, J-ALH20 and JD-ALH20.



## SECURITY GLAZING

Allows personnel to visibly scan a secure area before entering or exiting a roof area. Glazing is available in ballistic ratings.



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brochure without notice as we deem advisable.