



LVH-O Series Intumescent Fire Dampers Circular Fire Dampers

1 & 2 hour fire ratings

For use in vertical and horizontal fire barriers

THIS PRODUCT HAS BEEN FIRE TESTED WITH OPEN-OPEN END CONDITIONS FOR HVAC APPLICATIONS.

NOT TO BE CONFUSED WITH INTUMESCENT FIRE COLLARS!



General

Lorient LVH-O series circular intumescent fire dampers, are incorporated in a steel sleeve, allowing the use of circular steel or flexible ducting with out the need for square-to-round connectors. They are ideal for toilet exhaust applications in residential apartments and hotels. This innovative solution allows space savings, freedom of design and best of all reduces maintenance costs.

These Lorient LVH-O series circular intumescent fire dampers can be built in or retrofit into masonry walls and floors and drywall applications and do not require commissioning and ongoing operational checks.

Lorient LVH-O series intumescent fire dampers have been fire tested to AS1530.4 and comply with the Building Code of Australia, specification C3.15 and with the requirements of AS/NZS 1668.1.

KEY FEATURES

- Cost effective solution
- Ideal for toilet extraction systems
- No moving parts
- No thermal clearances required
- No hazardous fibrous packing required
- Maintenance cost savings (no Level 2 operational checks as per AS1851.6)
- Remote visual inspections an option for ongoing maintenance.



LVH-O Series Intumescent Fire Dampers

Description

The Lorient LVH-O series circular intumescent fire damper is designed to seal openings in fire walls and floors through which air handling ducts penetrate.

These circular intumescent fire dampers incorporate a number of intumescent slats housed in a rigid frame.

The LVH-O series circular intumescent fire damper is supplied pre-installed in a steel sleeve. This sleeve comes supplied with fixing brackets and acts as a spigot to allow the fixing of both metal and flexible duct work to the damper assembly in the conventional manner.

There is no requirement for special clearances or hazardous fibrous packing in this Lorient system. The openings are simply fire stopped using Lorient intumescent mastic.

Function

There are no moving parts in a Lorient intumescent fire damper. Instead, fixed, evenly spaced slats containing intumescent material swell when exposed to heat. A sudden increase in temperature resulting from the presence of hot flames or gases will cause the slats to swell to many times their original thickness, fusing together to provide an effective barrier to the passage of fire and hot smoke. Lorient LVH series intumescent fire dampers also provide a high degree of insulation from radiant heat, protecting any nearby combustible materials from ignition.

Reliability

Lorient LVH series intumescent fire dampers are trouble free in operation which results in increased system reliability. The absence of moving parts alleviates concerns relating to clearances, corrosion and dust build up which may render a conventional mechanical type damper inoperative. Extensive fire testing has shown that the orientation does not effect fire performance and the symmetrical construction allows bi-directional air flow.

Installation Cost Savings

Hazardous fibrous packing and special clearances are not required for the LVH series fire dampers. Any gaps between the damper assembly and opening are sealed with Lorient intumescent mastic.

The LVH series intumescent fire dampers can be cast or built into walls and floors.

No moving parts and bi-directional air flow means that the LVH series fire damper can be installed in any orientation in both floors and walls. Once installed there are no operational checks needed (only visual). These benefits provide a quick, trouble free installation and commissioning.

Maintenance

Maintenance routines are usually conducted in accordance with AS1851.6. The latest version of the standard has made significant concessions for Level 2 type inspections on intumescent type fire dampers, whereby exclusion of operational checks has been allowed due to the absence of any moving parts.

Design Specification

“All fire dampers shall be Lorient LVH-O series intumescent fire dampers. The installation shall be System XX and must comply with the requirements AS/NZS1668.1 and the air leakage test of AS1682.1.

Equivalent fire dampers must allow bi-directional airflow and have no moving parts.”

Sizing (standard sizes only)

Single module:	100 mm diameter
	150 mm diameter
	200 mm diameter
	250 mm diameter
	300 mm diameter
	350 mm diameter
	400 mm diameter
	450 mm diameter

Note

1. When ordering, specify exact size required.
2. No extra allowance for thermal expansion is needed as operation of intumescent damper is not impeded by distortion.
3. Sizes are nominal inside duct dimension



LVH-O Series Intumescent Fire Dampers

Construction

Damper casing:

AS/NZS1668.1 recognizes that intumescent fire dampers do not require thermal clearances and their operation is not hindered by building movement. Hence, the material restrictive design requirements of AS1682.1 are not applicable to intumescent fire dampers.

Fire tests have been performed using light gauge metal casings. This allows the option for the use of 0.8 mm through to 2.5 mm thick galvanized steel.

Damper blades:

None.

Intumescent slats:

Evenly spaced, fixed slats, with a 20 mm pitch.

Mounting flanges supplied:

1 mm thick steel angles 40 x 40 x 25mm wide

- For sizes up to and including 200mm diameter - 3 off mounting angles required
- For sizes greater than 200mm diameter 4 off mounting angles required

Bearings/linkages:

None.

Fusible link:

None.

Technical Details

Operation:

A sudden increase in temperature resulting from the presence of flames or hot gases causes the intumescent slats to swell to many times their original thickness, fusing together to provide a solid barrier to the passage of fire and hot smoke.

Maximum air velocity:

As there are no moving parts in the Lorient LVH series intumescent fire dampers, air velocity will not impede their operation. In terms of AS1682.2 clause 5.1.4 there is no limiting velocity for their effective operation.

Air-flow orientation:

Bi-directional air flow allows the Lorient LVH series intumescent fire damper assembly to be installed in any orientation.

Pressure drop:

Although Lorient LVH series intumescent fire dampers have slats in the air flow, their aerodynamic design and pitch results in minimal pressure drops as shown by independent testing. The method of using free area to calculate pressure drops yield very conservative results. Copies of pressure drop data can be found in Section 9.

Fire testing:

LVH-O series fire dampers have been fire tested to AS1530.4 and approved for use in most wall and floor types. Approval numbers and maximum fire ratings appropriate to the system are referenced on each installation instruction.

Smoke Leakage testing:

LVH-O series fire dampers provide an almost hermetic seal when closed. Extensive air/smoke leakage tests have been successfully conducted in accordance with AS1682.1 clause 5.3

Noise testing:

LVH-O series fire dampers have been tested by Noise Control & Research Laboratories for dB noise levels at various design velocities. Results are available on request.

Dust & Lint testing:

Extensive testing has been performed at Mechlab, Australia to conclude that dust and lint will not accumulate in the LVH-O series damper in the most onerous environments. Tests were performed at 90% relative humidity (bathroom exhaust scenario) for various dust and lint classifications at many design velocities. The full report is available on request.

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LVH-O Series Intumescent Fire Dampers

Index of installation instructions

System no.

Walls

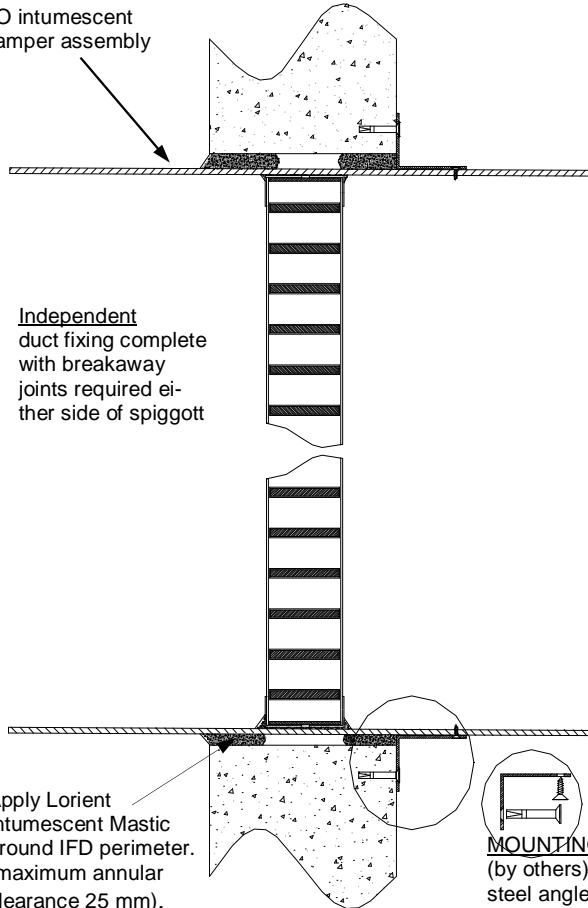
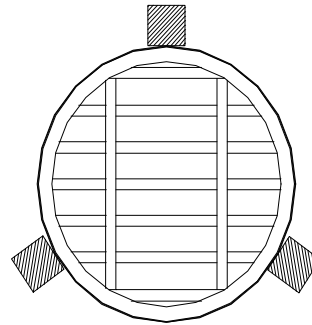
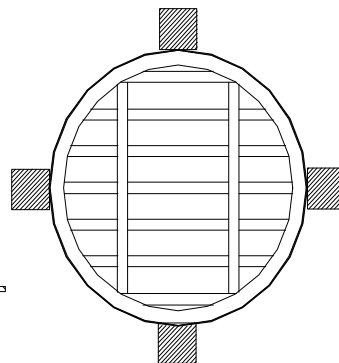
- OW1. Masonry wall mounting using mechanical fixings (duct-to-duct system)
- OW2. Masonry wall mounting using clamping (duct-to-duct system)
- OW3. Fire rated plasterboard wall using mechanical fixings (duct-to-duct system)
- OW4. Fire rated plasterboard wall using clamping (duct-to-duct system)
- OW5. Masonry wall mounting using mechanical fixings (duct-to-grille)

Floors

- OF1. Floor slab using mechanical fixings
- OF2. Floor slab floor using clamping



LVH-O series installation instruction

**Masonry wall mounting using mechanical fixings
(duct-to-duct system)****SYSTEM
OW1****FRL
-/120/-****APPROVAL(S)
FSP-0719
FSP-0750**LVH-O intumescent
fire damper assemblyIndependent
duct fixing complete
with breakaway
joints required ei-
ther side of spigottApply Lorient
Intumescent Mastic
around IFD perimeter.
(maximum annular
clearance 25 mm).**MOUNTING ANGLE**(by others) 40 x 40 x 1mm thick minimum galvanized
steel angles fixed to damper unit with specified self
drilling screws and to wall with masonry anchors.**Fixing option 1 - for
200mm diameter
and less**40 x 40 x 1mm thick
minimum angles, at
three points on the
edge of the LVH-O
fire damper.**Fixing option 2 - for
greater than 200mm
diameter**40 x 40 x 1mm thick
minimum angles, at
four points on the
edge of the LVH-O
fire damper.

1. Check position of where the IFD is likely to be mounted. The circular spigot may be cut to size to suit available clearances. Ensure that the IFD will be located within the wall thickness.
2. Mark the location of the mounting angles on the outside of the IFD spigot.
3. With even spacing, fix three or four mounting angles depending on the diameter (<math><200\text{Ø}</math> =3, $>200\text{Ø}$ =4) onto one side the LVH-O IFD circular spigot unit using 10g x 22mm min. wafer head self drilling screws to **one side only**.
4. Insert the IFD assembly into the masonry wall opening so that the IFD is located within the thickness of the wall. (Note: Lorient IFD's do not have to be centrally positioned in the opening).
5. Fix each mounting angle to the masonry wall with M6 x 40mm expanding masonry anchor.
6. Apply a bead of Lorient Intumescent Mastic around the perimeter of the IFD spigot on both sides as shown (note: maximum annular clearance of 25mm applies).
7. Connect ductwork directly to the spigot using approved breakaway connections to ensure compliance with AS1682.2.
8. Ensure label(s) supplied by Lorient Australia are in a prominent position(s) for identification during subsequent maintenance inspections.

Note: The maximum size for this method of installation is 450mm in diameter.

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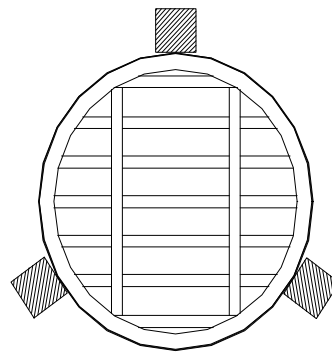
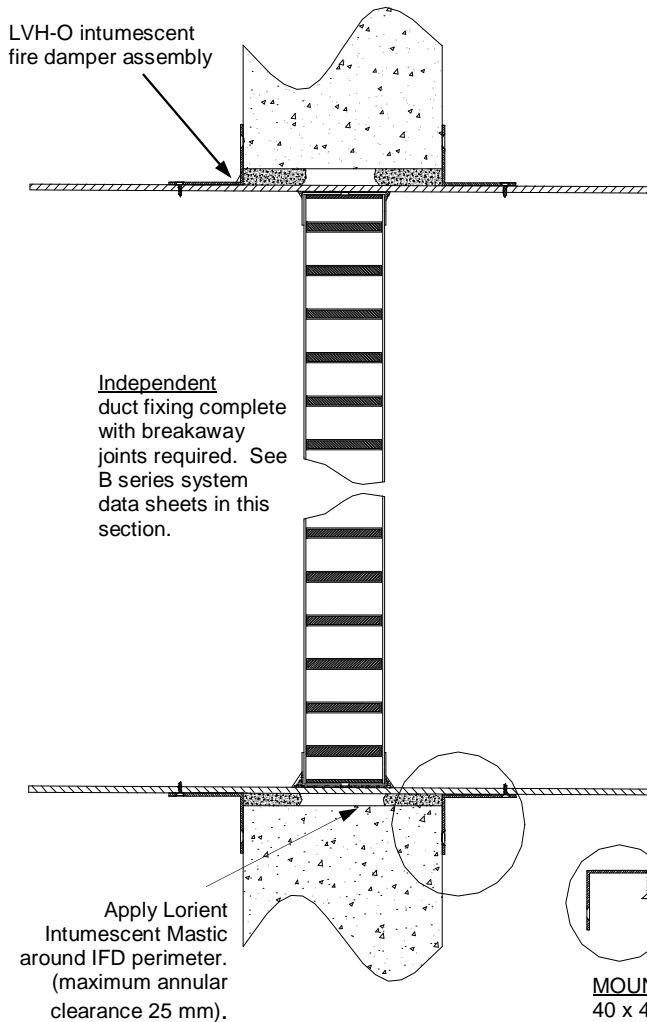


LVH-O series installation instruction

**Masonry wall mounting using clamping
(duct-to-duct system)**

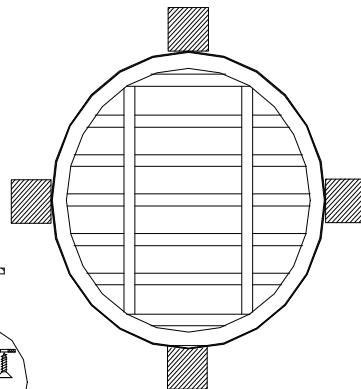
SYSTEM
OW2
FRL
-/120/-

APPROVAL(S)
FSP-0719
FSP-0750



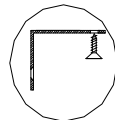
**Fixing option 1 - for
200mm diameter
and less**

40 x 40 x 1mm thick minimum angles, at three points on the edge of the LVH-O fire damper.



**Fixing option 2 - for
greater than 200mm
diameter**

40 x 40 x 1mm thick minimum angles, at four points on the edge of the LVH-O fire damper.



MOUNTING ANGLE (BOTH SIDES)

40 x 40 x 1mm thick minimum galvanized steel angles fixed to damper unit with specified self drilling screws.

1. Check position of where the IFD is likely to be mounted. The circular spigot may be cut to size to suit available clearances. Ensure that the IFD will be located within the wall thickness.
2. Mark the location of the mounting angles on the outside of the IFD spigot.
3. Fix the three or four mounting angles depending on the diameter ($<200\text{Ø} = 3$, $>200\text{Ø} = 4$) onto one side of the LVH-O damper unit using 10g x 22mm min. wafer head self drilling screws.
4. Insert the IFD assembly into the masonry wall opening so that the IFD is located within the thickness of the wall. (Note: Lorient IFD's do not have to be centrally positioned in the opening).
5. Apply a bead of Lorient Intumescent Mastic around the perimeter of IFD spigot on both sides as shown (note: maximum annular clearance of 25mm applies).
6. Fix a second set of mounting angles (supplied by others) using 10g x 22mm min. wafer head self drilling screws to clamp the Lorient IFD assembly in place.
7. Connect ductwork directly to the spigot using approved breakaway connections to ensure compliance with AS1682.2.
8. Ensure label(s) supplied by Lorient Australia are in a prominent position(s) for identification during subsequent maintenance inspections.

Note: The maximum size for this method of installation is 450mm in diameter.

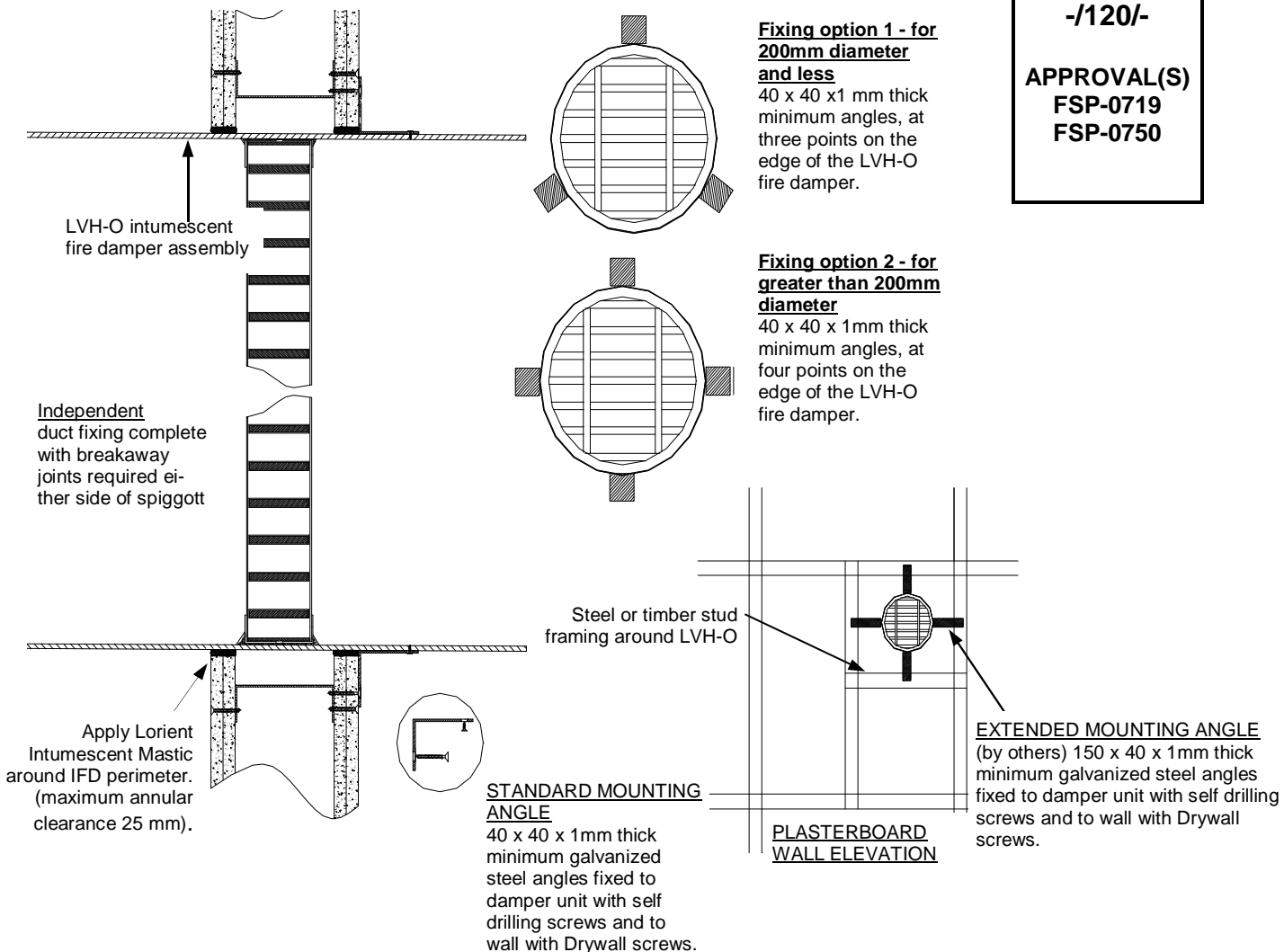
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**LVH-O series installation instruction****Fire rated plasterboard wall using mechanical fixings (duct-to-duct system)**

**SYSTEM
OW3
FRL
-/120/-**

**APPROVAL(S)
FSP-0719
FSP-0750**



1. Check position of where the IFD is likely to be mounted. The circular spigot may be cut to size to suit available clearances. Ensure that the IFD will be located within the fire rated plasterboard wall thickness.
2. Mark the location of the mounting angles on the outside of the IFD spigot.
3. With even spacing, fix three or four mounting angles depending on the diameter ($<200\text{Ø}=3$, $>200\text{Ø}=4$) onto one side the LVH-O IFD circular spigot unit using 10g x 22mm min. wafer head self drilling screws to **one side only**.
4. Insert the IFD assembly into the fire rated drywall opening so that the IFD is located within the thickness of the wall. (Note: Lorient IFD's do not have to be centrally positioned in the opening).
5. Fix each mounting angle to the fire rated drywall frame with 7g x 50mm min. bugle head self drilling screw.
6. Apply a bead of Lorient Intumescent Mastic around the perimeter of the IFD spigot on both sides as shown (note: maximum annular clearance of 25mm applies).
7. Connect ductwork directly to the spigot using approved breakaway connections to ensure compliance with AS1682.2.
8. Ensure label(s) supplied by Lorient Australia are in a prominent position(s) for identification during subsequent maintenance inspections.

Note: The maximum size for this method of installation is 450mm in diameter. Please contact our office for details on alternative drywall constructions.

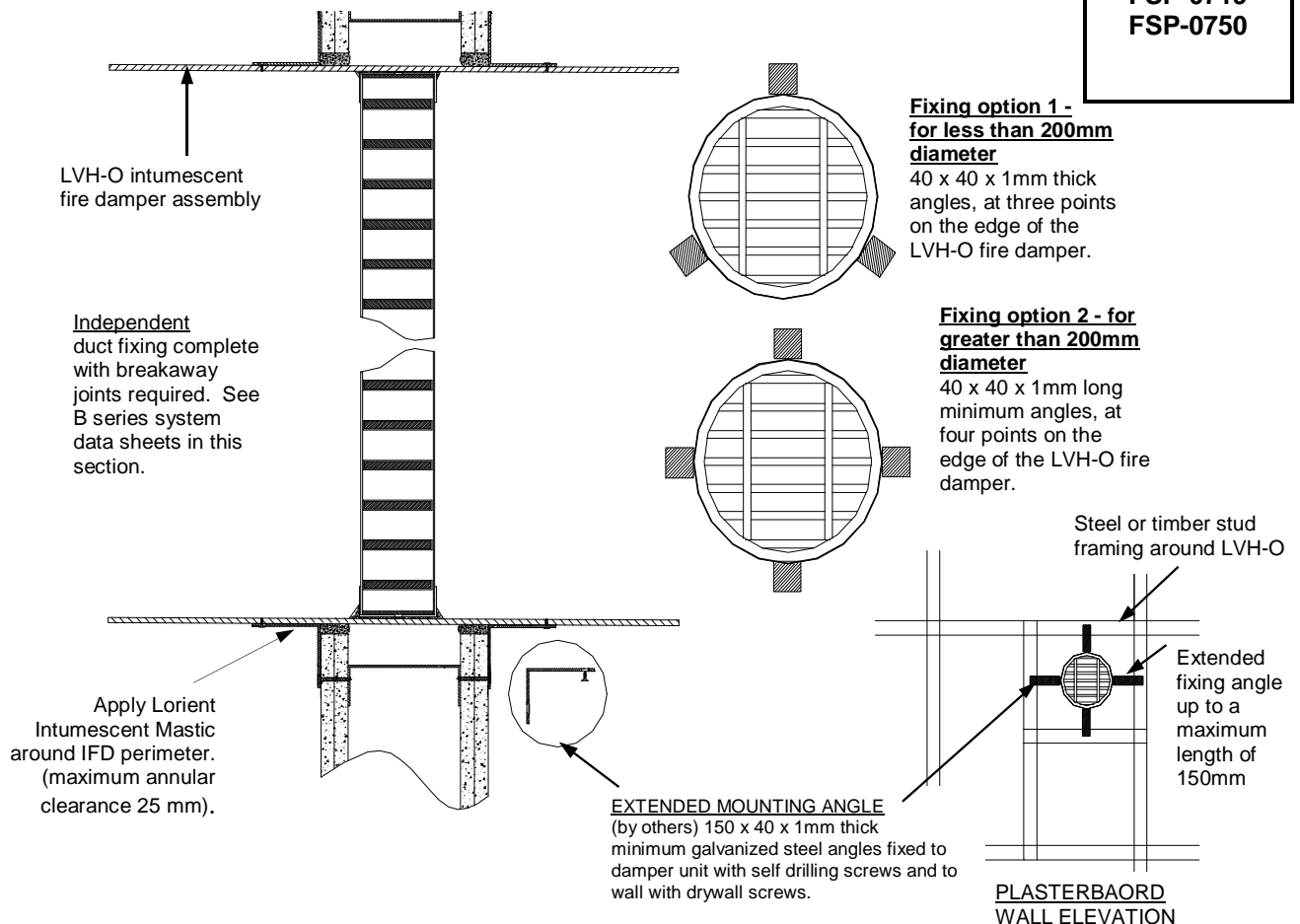
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**LVH-O series installation instruction****Fire rated plasterboard wall using clamping (duct-to-duct system)**

SYSTEM
OW4
 FRL
 -/120/-

APPROVAL(S)
 FSP-0719
 FSP-0750



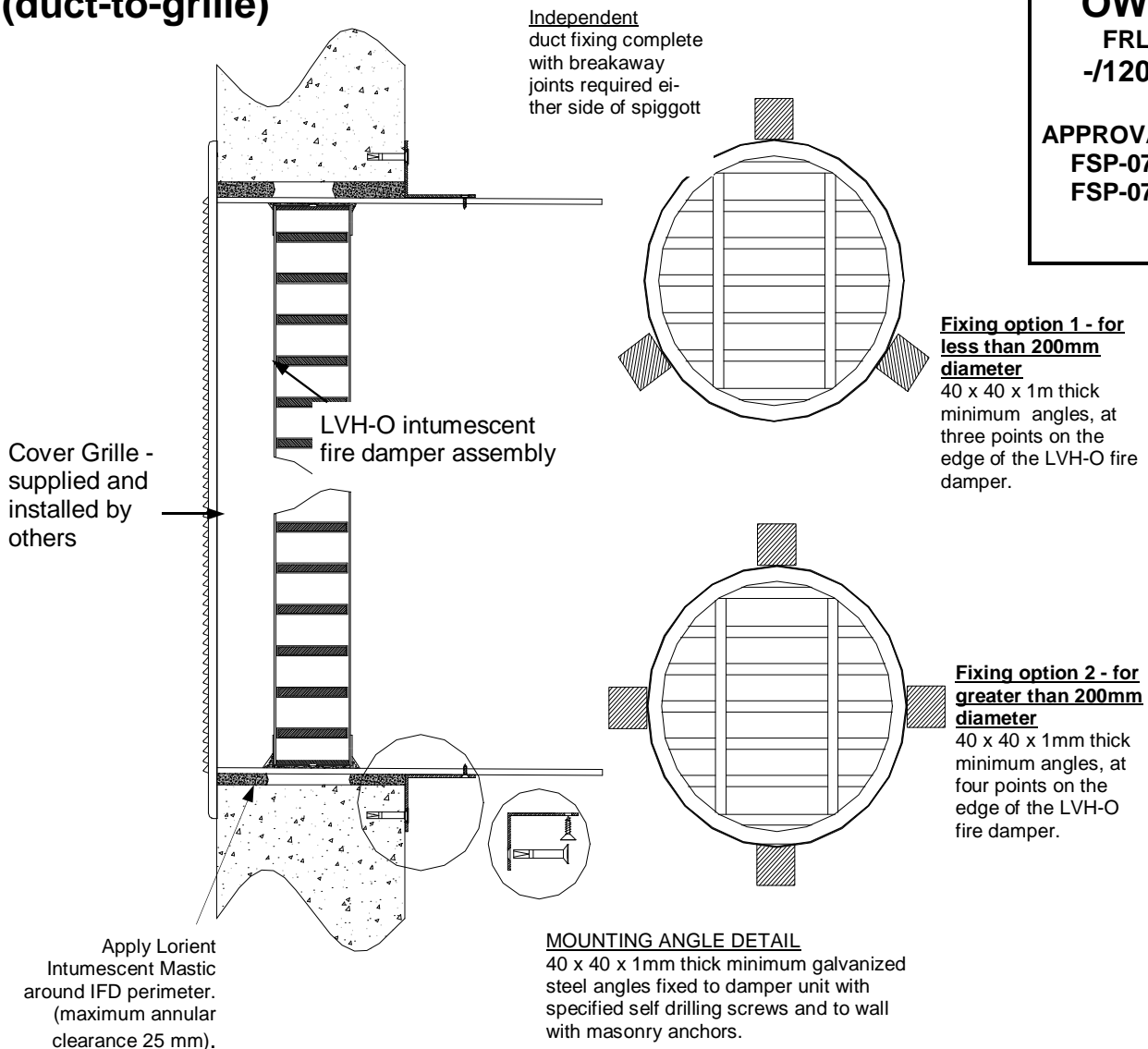
1. Check position of where the IFD is likely to be mounted. The circular spigot may be cut to size to suit available clearances. Ensure that the IFD will be located within the wall thickness.
2. Mark the location of the mounting angles on the outside of the IFD spigot.
3. Fix the three or four mounting angles depending on the diameter (<math><200\text{Ø}</math> =3, >200Ø =4) onto one side of the LVH-O damper unit using 10g x 22mm min. wafer head self drilling screws.
4. Insert the IFD assembly into the fire rated drywall opening so that the IFD is located within the thickness of the wall. (Note: Lorient IFD's do not have to be centrally positioned in the opening).
5. Apply a bead of Lorient Intumescent Mastic around the perimeter of IFD spigot on both sides as shown (note: maximum annular clearance of 25mm applies).
6. Fix a second set of mounting angles (supplied by others) using 10g x 22mm min. wafer head self drilling screws to clamp the Lorient IFD assembly in place.
7. Connect ductwork directly to the spigot using approved breakaway connections to ensure compliance with AS1682.2.
8. Ensure label(s) supplied by Lorient Australia are in a prominent position(s) for identification during subsequent maintenance inspections.

Note: The maximum size for this method of installation is 450mm in diameter. Please contact our office for details on alternative drywall constructions.

**LVH-O series installation instruction****Masonry wall mounting using mechanical fixings (duct-to-grille)**

SYSTEM
OW5
 FRL
 -/120/-

APPROVAL(S)
 FSP-0719
 FSP-0750



1. Check position of where the IFD is likely to be mounted. The circular spigot may be cut to size to suit available clearances. Ensure that the IFD will be located within the wall thickness.
2. Mark the location of the mounting angles on the outside of the IFD spigot.
3. Insert the IFD assembly into the masonry wall opening so that the IFD is located within the thickness of the wall. (Note: Lorient IFD's do not have to be centrally positioned in the opening).
4. Cut protruding galvanised steel casing to be flush with the face of the wall.
5. With even spacing, fix three or four mounting angles depending on the diameter (<200Ø =3, >200Ø =4) onto one side the LVH-O IFD circular spigot unit using 10g x 22mm min. wafer head self drilling screws.
6. Fix each mounting angle to the masonry wall with M6 x 40mm expanding masonry anchor.
7. Apply a bead of Lorient Intumescent Mastic around the perimeter of the IFD spigot on both sides as shown (note: maximum annular clearance of 25mm applies).
8. Connect ductwork directly to the spigot using approved breakaway connections to ensure compliance with AS1682.2.
9. Ensure label(s) supplied by Lorient Australia are in a prominent position(s) for identification during subsequent maintenance inspections.

**Note: The maximum size for this method of installation is 450mm in diameter.
 Also suitable for fire rated plasterboard systems.**

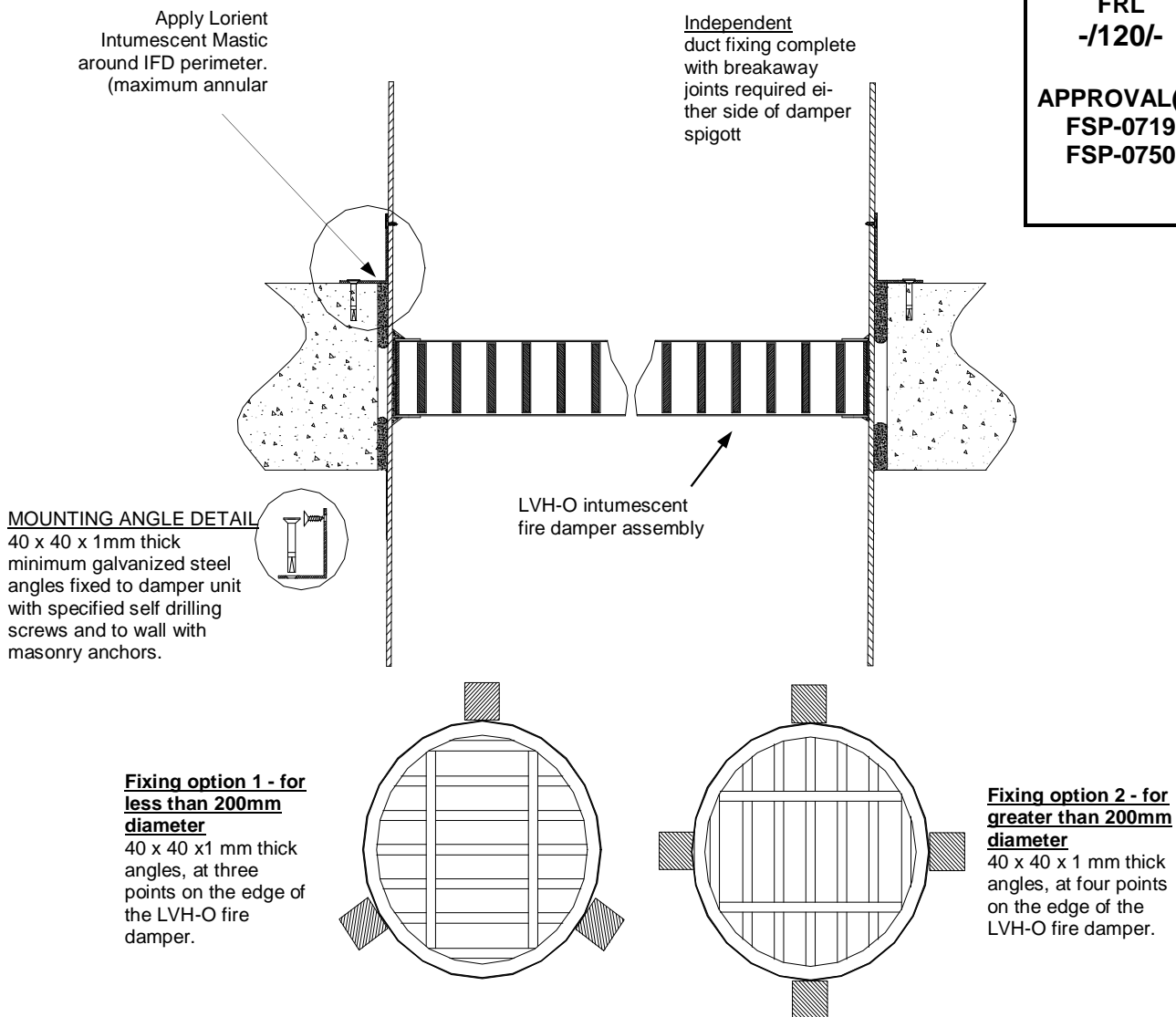


LVH-O series installation instruction

Floor slab using mechanical fixings

SYSTEM OF1 FRL -/120/-

APPROVAL(S) FSP-0719 FSP-0750



1. Check position of where the IFD is likely to be mounted. The circular spigot may be cut to size to suit available clearances. Ensure that the IFD will be located within the wall thickness.
2. Mark the location of the mounting angles on the outside of the IFD spigot.
3. With even spacing, fix three or four mounting angles depending on the diameter (<math><200\text{\AA}</math>=3, >math>>200\text{\AA}</math>=4) onto one side the LVH-O IFD circular spigot unit using 10g x 22mm min. wafer head self drilling screws to **one side only**.
4. Insert the IFD assembly into the floor slab so that the IFD is located within the thickness of the floor.. (Note: Lorient IFD's do not have to be centrally positioned in the opening).
5. Fix each mounting angle to the masonry wall with M6 x 40mm expanding masonry anchor.
6. Apply a bead of Lorient Intumescent Mastic around the perimeter of the IFD spigot on both sides as shown (note: maximum annular clearance of 25mm applies).
7. Connect ductwork directly to the spigot using approved breakaway connections to ensure compliance with AS1682.2.
8. Ensure label(s) supplied by Lorient Australia are in a prominent position(s) for identification during subsequent maintenance inspections.

Note: The maximum size for this method of installation is 450mm in diameter.

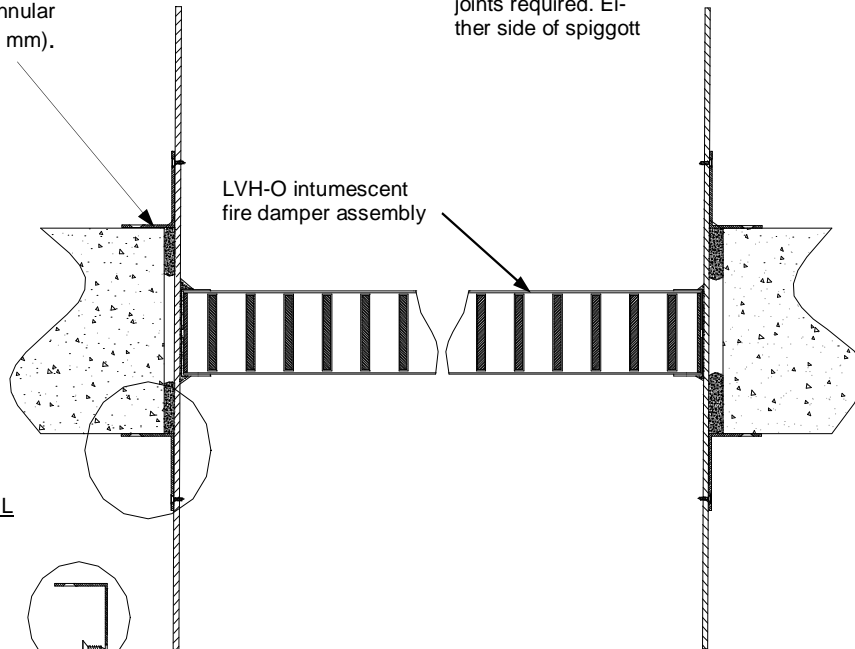
**LVH-O series installation instruction****Floor slab mounting using clamping angles**

**SYSTEM
OF2
FRL
-/120/-**

**APPROVAL(S)
FSP-0719
FSP-0750**

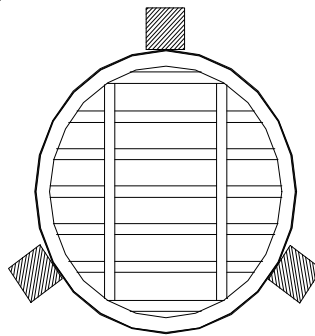
Apply Lorient Intumescent Mastic around IFD perimeter. (maximum annular clearance 25 mm).

Independent duct fixing complete with breakaway joints required. Either side of spiggot

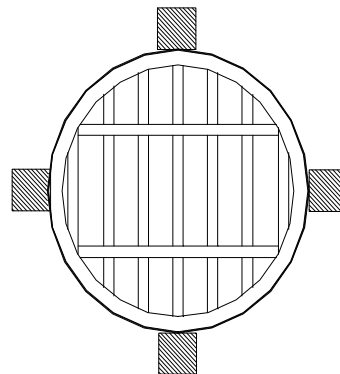


MOUNTING ANGLE DETAIL
40 x 40 x 1 mm thick minimum galvanized steel angles fixed to damper unit with specified self drilling screws.

Fixing option 1 - for less than 200mm diameter
40 x 40 x 1 mm thick angles, at three points on the edge of the LVH-O fire damper.



Fixing option 2 - for greater than 200mm diameter
40 x 40 x 1 mm thick angles, at four points on the edge of the LVH-O fire damper.



1. Check position of where the IFD is likely to be mounted. The circular spigot may be cut to size to suit available clearances. Ensure that the IFD will be located within the wall thickness.
2. Mark the location of the mounting angles on the outside of the IFD spigot.
3. Fix the three or four mounting angles depending on the diameter ($<200\text{Ø} = 3$, $>200\text{Ø} = 4$) onto one side of the LVH-O damper unit using 10g x 22mm min. wafer head self drilling screws.
4. Insert the IFD assembly into the floor slab so that the IFD is located within the thickness of the floor. (Note: Lorient IFD's do not have to be centrally positioned in the opening).
5. Apply a bead of Lorient Intumescent Mastic around the perimeter of IFD spigot on both sides as shown (note: maximum annular clearance of 25mm applies).
6. Fix a second set of mounting angles (supplied by others) using 10g x 22mm min. wafer head self drilling screws to clamp the Lorient IFD assembly in place.
7. Connect ductwork directly to the spigot using approved breakaway connections to ensure compliance with AS1682.2.
8. Ensure label(s) supplied by Lorient Australia are in a prominent position(s) for identification during subsequent maintenance inspections.

Note: The maximum size for this method of installation is 450mm in diameter.

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