



Fire protection

**NCA Series 400**

Single blade leakage rated fire dampers

*Incorporating*



- CE marked against the requirements of EN 15650
- Classified in accordance with EN 13501-3
- Fire tested to EN 1366-2
- 120 minute installations for drywall partitions of min. spec EI60, masonry walls and concrete floor slabs
- No backfilling or sealing of apertures required
- Hand operated or motorised, with on-site conversion between types
- Unique single handed test and set mechanism
- UK patent application pending



## NCA Series 400 fire dampers

Designed to maintain compartmentation in buildings at locations where ductwork penetrates a fire barrier, a fire damper's basic function is to prevent fires spreading through ductwork.

NCA Series 400 motorised leakage rated fire dampers go beyond this basic requirement with their reduced leakage design, making them suitable for areas requiring dampers with 'ES' classification.

The result of years of intensive research, development and testing, the new S400 fire damper is available in two variants:

- S400A (motorised)**  
 Equipped with a Belimo BFL or BFN series actuator (24V or 230V) complete with 72°C thermal probe.
- S400H (hand operated)**  
 Equipped with a mechanism permitting testing and resetting of the damper to be completed in seconds with one hand. The thermal link is externally replaceable and available in 68°C or 93°C variants.

On-site conversion between types is quick and simple and can be completed with the damper remaining in situ if already installed.

S400 fire dampers are currently available with 120 minute rated installations to suit drywall partitions of minimum specification EI60 group A, masonry walls and concrete floor slabs. All installations are classified 'i↔o' meaning air is permitted to flow in either direction through the damper.



## Design features

<b>Materials</b>	Plate frame, case and blade - Galvanised steel Blade seal - Specialist fire resistant fabric Drive system - BZP steel throughout S400H handle - Fire retardant plastic
<b>Nominal diameters</b>	100, 125, 150, 160, 200, 250, 300 and 315mm
<b>Operation</b>	Directly driven single blade
<b>Controls</b>	S400A (motorised): Belimo BFL24-T or BFL230-T actuator (100mm - 200mm nominal diameter) Belimo BFN24-T or BFN230-T actuator (250mm - 315mm nominal diameter)  Power open, spring return, non-modulating operation complete with 72°C thermal probe  S400H (hand operated): Manual handle assembly with set and test functionality Thermal link available in 68°C (standard) or 93°C (optional) variants

## Quality assurance

HVC Supplies (Stourbridge) Ltd is an ISO 9001 certified company.



Assessed to ISO 9001  
Cert/Ref No. 1186

## Damper design

**1. Plate frame**

Serves as the mounting point for fixing the damper to the partition. Pre-punched 5mm diameter fixing holes assist installation on site.

**2. Case**

Rolled, seam welded and swaged tube made from 0.7mm thick galvanised steel, rolled edges for safety.

**3. Case sealing rings**

EPDM sealing rings provide an airtight seal when connected to ductwork without the use of mastic.

**4. Case swages**

Swages located 35mm from each end provide stops up to which ductwork is fitted.

**5. Blade**

Two layers of specialist fire resistant fabric sandwiched between two discs of 1.2mm thick galvanised steel.

**6. Thermal link (S400H)**

Externally replaceable and available in 68°C or 93°C variants. The thermal link engages with the setting handle to hold the damper open in normal use. Upon duct air temperatures exceeding the link's rated temperature, the external portion retracts, disengaging the setting handle and closing the damper.

**7. Torsion spring (S400H)**

A clock style torsion spring which biases the damper blade towards its closed position.

**8. Setting handle (S400H)**

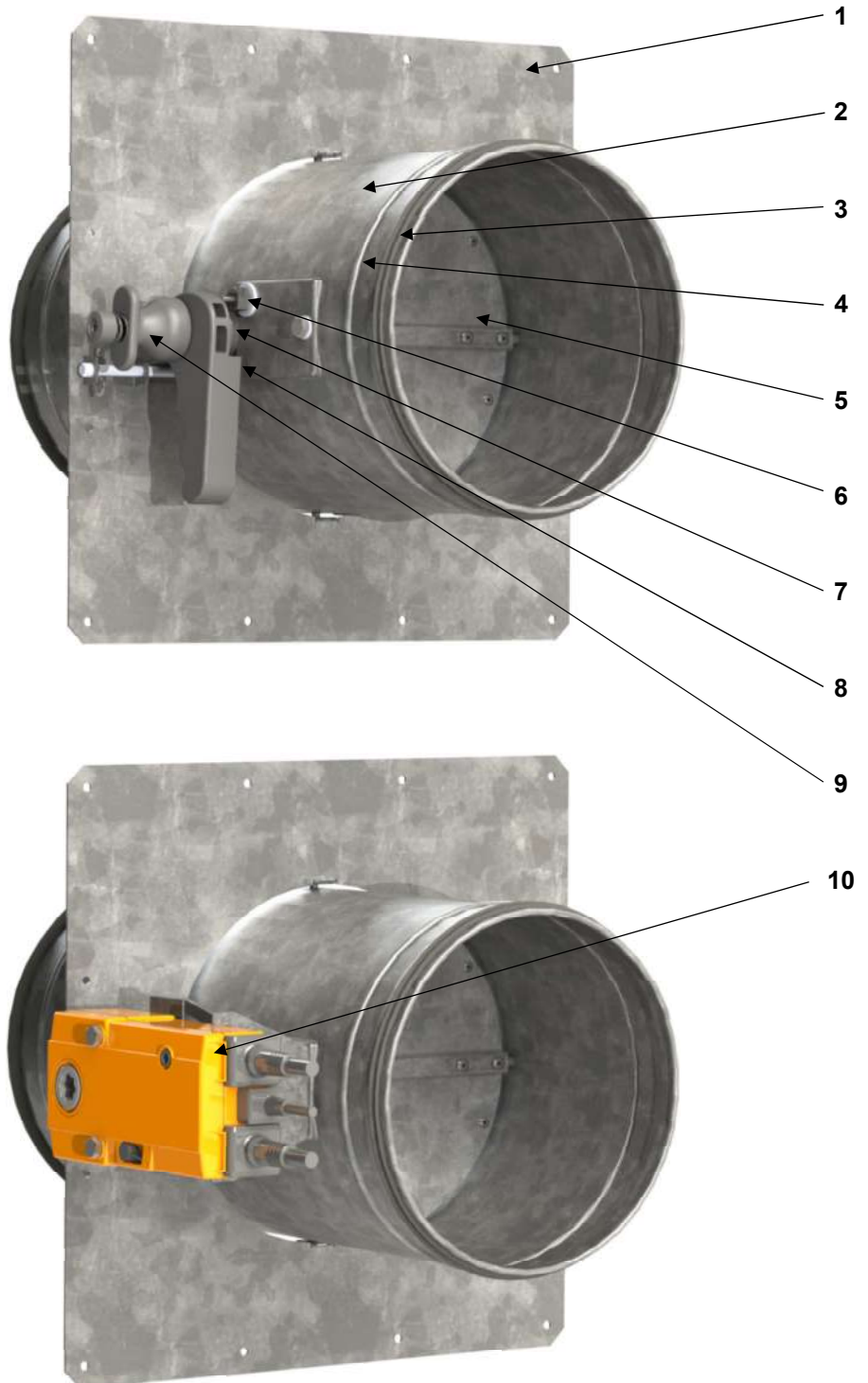
Ergonomic handle which engages on the thermal link to hold the damper in its open position, allows single handed setting. Handle body is parallel with blade to show blade position from outside the duct.

**9. Test handle (S400H)**

Pulling the test handle disengages the setting handle from the thermal link, allowing single handed testing. Test handle does not rotate with the setting handle, avoiding injury to the user.

**10. Belimo BFL/BFN series actuator (S400A)**

A specialist fire damper actuator with integrated thermal probe, powered open during normal use, springs closed when required.



On-site conversion between types is quick and simple, and can be completed with the damper remaining in situ if already installed.

Conversion kits are supplied containing all required parts, basic hand tools will be required (not supplied).

A full set of conversion instructions is available via our website.

## Installation guide

HVC currently have three CE marked installations available for Series 400 fire dampers.

Installation code	Frame type	Substrate			Orientation		Nominal size range (dia, mm)	Classification (EN 13501-3)
		Drywall partition	Masonry wall	Concrete slab	Vertical	Horizontal		
S400-2VP/M	Plate	✓ (P) Min. spec EI60 group A*	✓ (M) Min. thickness 100mm		✓		100 - 315	E 120 (ve i↔o) S
S400-2HC				✓ Min. thickness 150mm Min. density 500kg/m <sup>3</sup>		✓		E 120 (ho i↔o) S

\* As per EN 1363-1:2020

### Installation S400-2VP NCA Series 400 fire damper c/w plate frame in drywall partition



Installation classified to (in accordance with BS EN 13501-3):

**E 120 (ve i↔o) S**

120 minute rated reduced leakage vertical installation  
Air permitted to flow in either direction through damper

#### Installation procedure:

Position the damper spigot centrally within a correctly sized aperture, constructed in accordance with our S400 installation instructions.

Screw the damper to the wall through the factory punched fixing holes in the plate frame, ensuring all screws gain a positive fix on the steel framework inside the partition.

If equipped with an actuator, fit the actuator's thermal probe to the top half of ductwork.

No backfilling or sealing of the aperture, nor a pattress frame are required.

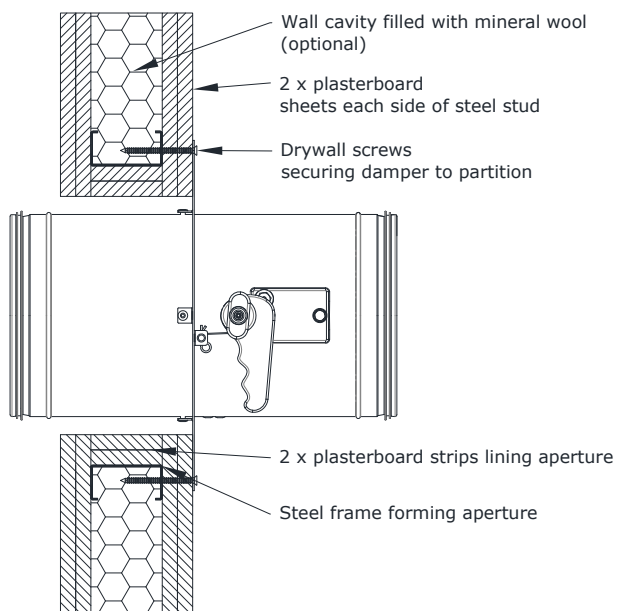
The blade axis can be on any angle.

Mineral wool infill in the wall cavity is not mandatory.

The above is a shortened version of our full installation method and does not contain all details necessary to perform a compliant installation.

To download full installation instructions go to:

[www.h-v-c.com/installations](http://www.h-v-c.com/installations)



## Installation S400-2VM

NCA Series 400 fire damper c/w plate frame in masonry wall

Installation classified to (in accordance with BS EN 13501-3):

**E 120 (ve i↔o) S**

120 minute rated reduced leakage vertical installation  
Air permitted to flow in either direction through damper

### Installation procedure:

Open the factory punched 5mm diameter fixing holes in the plate frame out to 8mm diameter.

Position the damper spigot centrally within a correctly sized aperture, constructed in accordance with our S400 installation instructions.

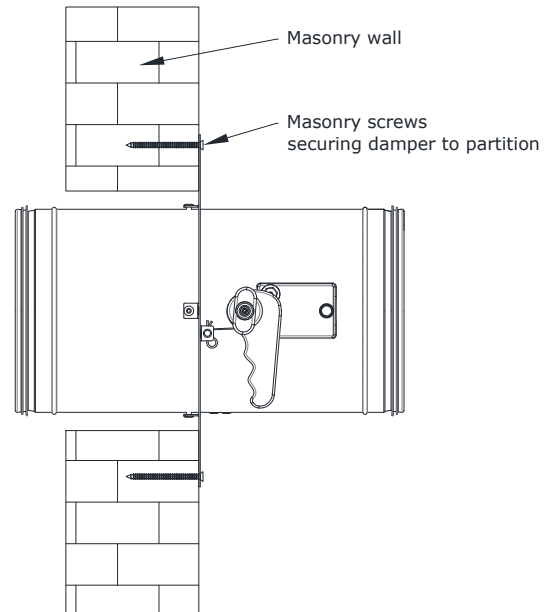
Screw the damper to the wall through the enlarged fixing holes in the plate frame, ensuring all screws gain a positive fix on the masonry.

If equipped with an actuator, fit the actuator's thermal probe to the top half of ductwork.

No backfilling or sealing of the aperture, nor a pattress frame are required.

The blade axis can be on any angle.

This aperture can be square or circular (circular not common with S700).



## Installation S400-2HC

NCA Series 400 fire damper c/w plate frame in aerated concrete floor slab

Installation classified to (in accordance with BS EN 13501-3):

**E 120 (ho i↔o) S**

120 minute rated reduced leakage horizontal installation  
Air permitted to flow in either direction through damper

### Installation procedure:

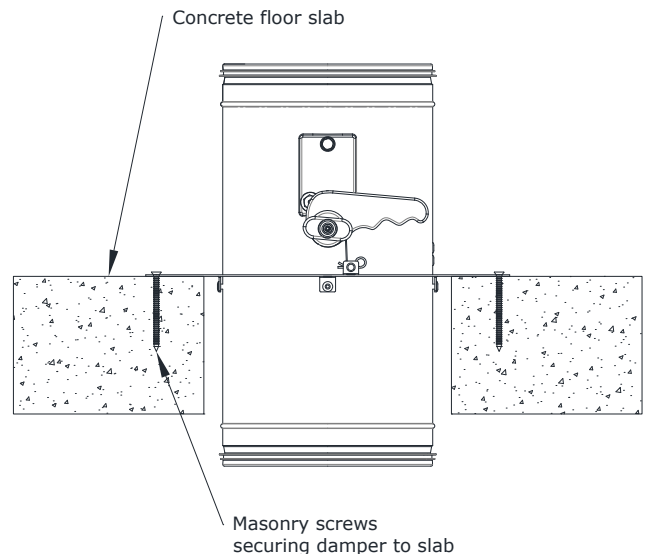
Position the damper spigot centrally within a correctly sized aperture, constructed in accordance with our S400 installation instructions.

Open the factory punched 5mm diameter fixing holes in the plate frame out to 8mm diameter, then screw the damper to the floor slab ensuring all screws gain a positive fix.

Fit ductwork to damper spigots and, if equipped with an actuator, then fit the actuator's thermal probe to ductwork.

No backfilling or sealing of the aperture, nor a pattress frame are required.

This aperture can be square or circular (circular not common with S700).



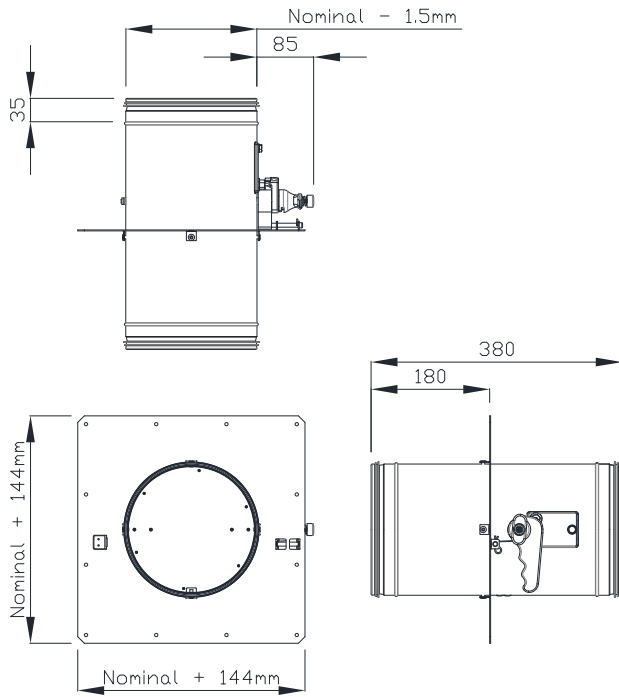
The above are shortened versions of our full installation method and do not contain all details necessary to perform a compliant installation.

To download full installation instructions go to:

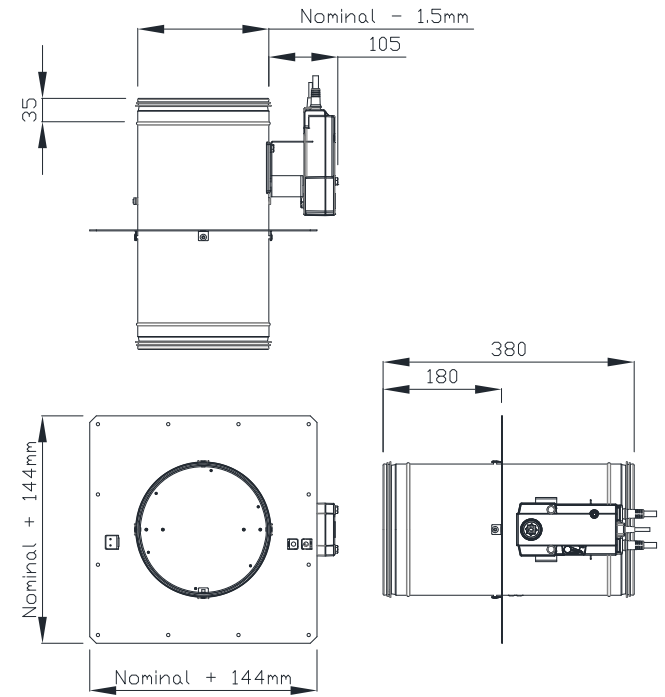
[www.h-v-c.com/installations](http://www.h-v-c.com/installations)

## Technical drawings

### S400H - Hand operated



### S400A - Motorised



## Weight charts

Nominal diameter (mm)								
100	125	150	160	200	250	300	315	
2	2	3	3	3	4	5	6	

- Weights are in kg.
- For S400A add 1kg to the above



## Accessories

### MS - Microswitch

Microswitches can be fitted to S400 fire dampers to remotely indicate blade position.

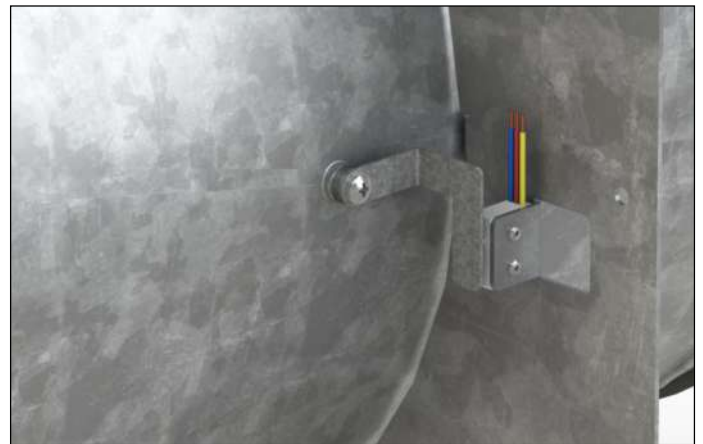
Microswitches are mounted to the plate frame, a steel armature is then mounted to the blade axle which throws the micro-switch in the event of the damper closing.

Retrofit on-site possible.

**Model:** Saia V4NSY1UL  
Single pole double throw  
3A 250V AC rated  
Prewired (500mm long, shown short in below images)  
IP67 rated



Damper open



Damper closed

## Further information: Direct field of application

### Separation between fire dampers and between fire dampers and construction elements

- There should be a minimum of 200mm of supporting construction between fire dampers installed in separate ducts.
- There should be a minimum of 75mm of supporting construction between the fire damper and any adjacent construction element, e.g. a wall or ceiling.

### Supporting construction

A test result obtained for a fire damper mounted in or on the face of a standard supporting construction is applicable to a supporting construction of the same type with a fire resistance equal to or greater than that of the standard supporting construction used in the test (thicker, denser, more layers of board etc.)

## Control panels

HVC are able to supply, install and commission a full range of fire damper control panels to suit both S400 and S700 fire dampers throughout the UK and Republic of Ireland, including:

- Single/multiple zone electro-mechanical systems
- Basic addressable systems
- Fully addressable systems

For further information on control panels please contact HVC.





## Installation

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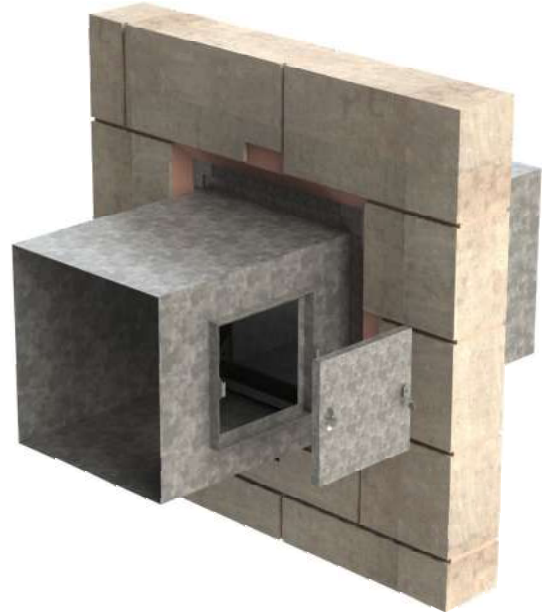
Installation should take into account the requirements of future maintenance, with a view to providing adequate access to fire dampers for testing and cleaning purposes.

We are able to supply a full range of access doors to facilitate access into ductwork.

### Installation into chlorinated environments

We are unable to supply S400 fire dampers suitable for installation into chlorinated environments, swimming baths for example.

Any dampers installed into environments where chlorine is present shall be considered to be installed in an unsuitable location and will therefore not be covered by our standard 12 month warranty.



## Maintenance

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Maintenance of fire dampers is essential to ensure they remain in good working condition for the life of the building.

An operation and maintenance manual for NCA Series 400 fire dampers is available via:

[www.h-v-c.com/oandm](http://www.h-v-c.com/oandm)

## Finish

Bare metal only



## Ordering codes

### Example

1 - 150 - S400A - BFL24-T

### Codes

1)	<b>Quantity</b>		
2)	<b>Size (mm)</b>	(Diameter)	Nominal diameter (100, 125, 150, 160, 200, 250, 300, 315mm)
3)	<b>Series</b>	S400A S400H	Series 400 circular leakage rated fire damper - Actuator operated Series 400 circular leakage rated fire damper - Hand operated
4)	<b>Actuator</b> S400A only	BFL24-T BFL230-T  BFN24-T BFN230-T	Belimo BFL series actuator c/w 72°C rated thermal probe, 24 volt (100mm - 200mm dia.) Belimo BFL series actuator c/w 72°C rated thermal probe, 230 volt (100mm - 200mm dia.)  Belimo BFN series actuator c/w 72°C rated thermal probe, 24 volt (250mm - 315mm dia.) Belimo BFN series actuator c/w 72°C rated thermal probe, 230 volt (250mm - 315mm dia.)
5)	<b>Thermal link temperature</b> S400H only	68°C 93°C	68°C rated thermal link (standard) 93°C rated thermal link (optional)
6)	<b>Microswitch</b>	MS	Microswitch

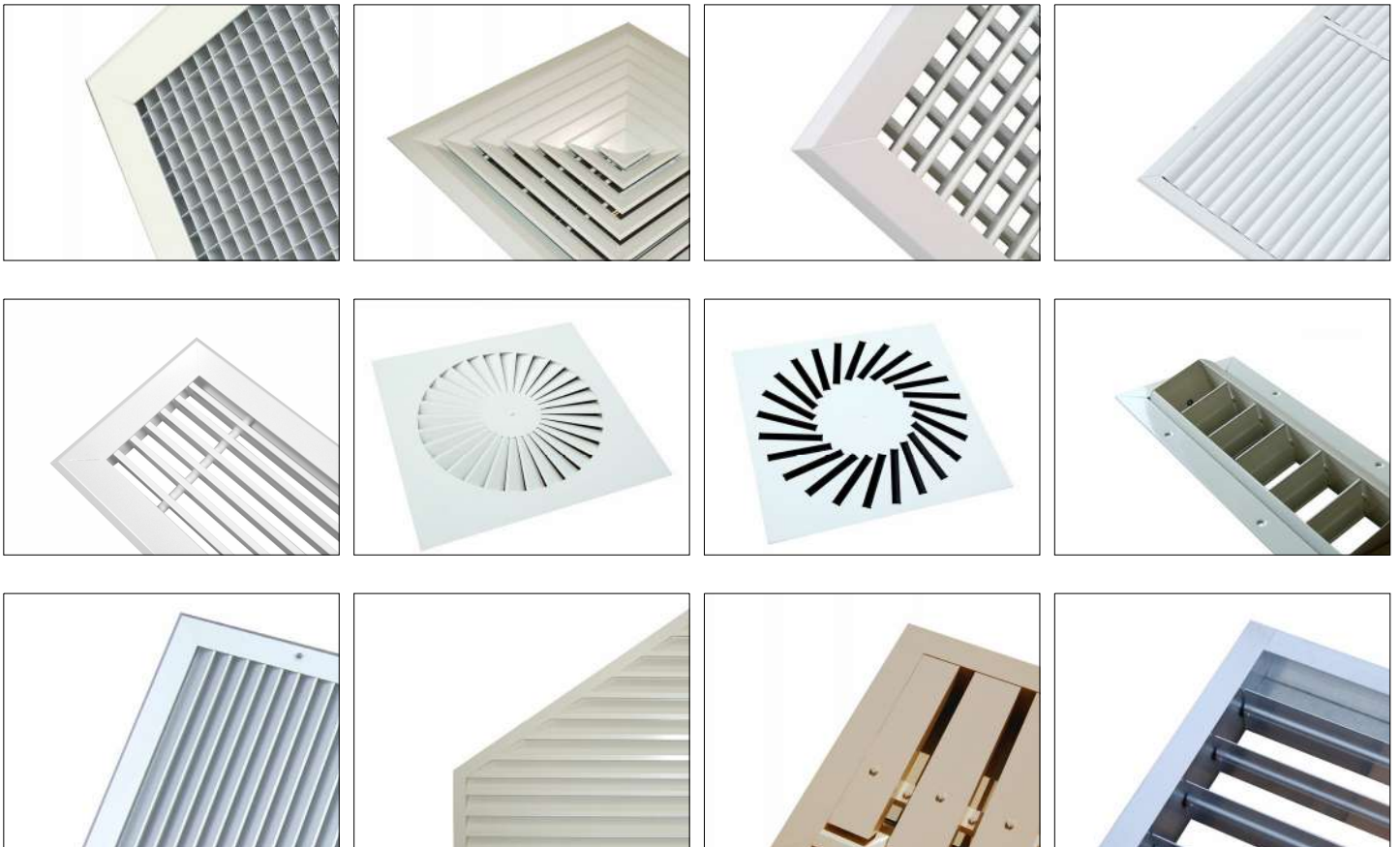
**Important:** Actuators must always be used in a power open, spring return (fail closed) configuration with S400 fire dampers.

## HVC & NCA products

HVC offer the significant advantage of manufacturing both in duct and duct terminal equipment, making us a one stop shop for all your HVAC needs.

The products shown below are a selection, not an exhaustive list. Go to [www.h-v-c.com](http://www.h-v-c.com) for details on all HVC and NCA products.

### HVC: Grilles, Diffusers, Louvres and Volume Control Dampers



### NCA: Fire and volume control dampers





Assessed to ISO 9001  
Cert/Ref No. 1186

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