



## Volume Control Dampers

Incorporating



### NCA Series 900 Standard VCDs and shut-off dampers

- Volume control dampers and low leakage shut-off dampers for general applications
- Double skin aerofoil blades
- Square, circular and flat oval connections for all types of ductwork
- Galvanised steel, stainless steel or aluminium construction
- Full range of actuators



## NCA Series 900 dampers

Series 900 dampers are multi-leaf, opposed blade dampers available in two configurations:

**S900B:** Standard volume control dampers

Designed for balancing applications where a high level of shut-off is not required.

Fitted with a lockable plastic handle as standard.

**S900C:** Shut-off dampers

Fitted with additional seals, shut-off dampers have a far lower leakage than regular volume control dampers.

Supplied with an extended spindle as standard, facilitating motor fitment by others.



## Design features

<b>Material</b>	S900B: Galvanised steel throughout Stainless steel frame/case/blades or aluminium blades optional
	S900C: Galvanised steel frame and case, aluminium blades, stainless steel side seals, silicone rubber blade seal Stainless steel case and frame optional
<b>Sizes</b>	Minimum: 100mm x 100mm nominal
	S900B: Maximum single unit: 1000mm width, 1000mm height or 1000mm diameter S900C: Maximum single unit: 1000mm width, 800mm height or 800mm diameter Above any of these, units would be made in sections or with mullions
<b>Frame</b>	30mm wide flange  65mm overall depth
<b>Finish</b>	Bare metal
<b>Mass/m<sup>2</sup> face area</b>	16 kg (S900BAG - 1000mm x 1000mm nominal size). Smaller units will be proportionally heavier.  Models B, C and D will be approximately 50% heavier due to the case.
<b>Free area</b>	80% maximum

## Quality assurance

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



Assessed to ISO 9001  
Cert/Ref No. 1186

## Product testing

### DW144 - Leakage through case

NCA Series 900 volume control and shut-off dampers have been tested against:

#### DW144

HVCA sheet metal ductwork

This test measures leakage through the damper case at pressures from 100 Pa to 2000 Pa.

Model A units were not tested since they do not have a case.

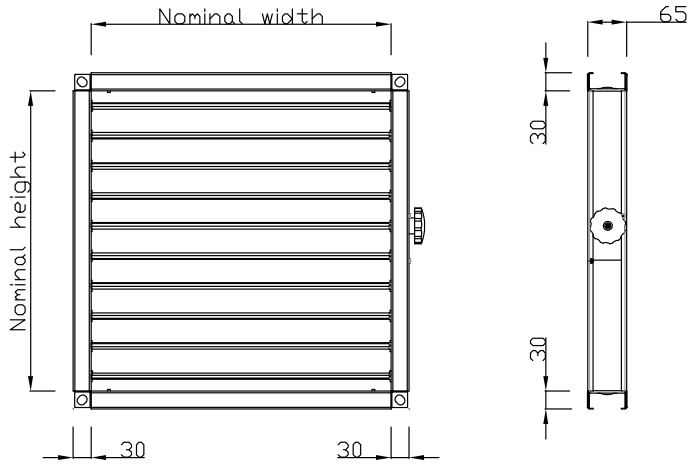
The testing was carried out in August 2009 by Building Testing Ltd in Surrey, England.

Copies of the test report are available on request.

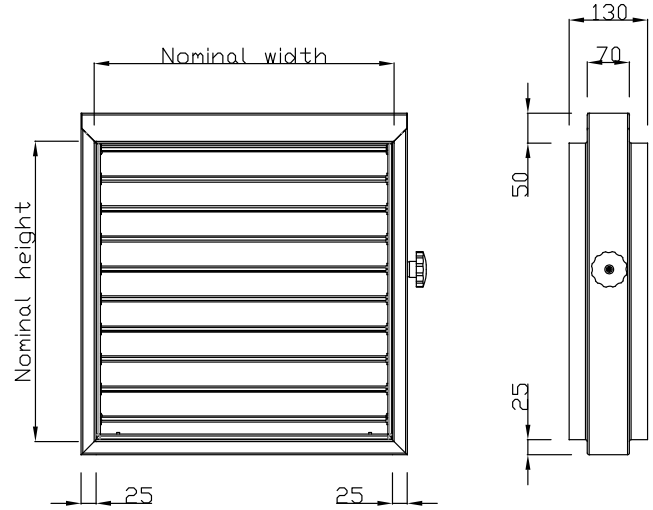
	Pressure (Pa)	Class achieved
<b>Model B</b>	100 - 500	A & B
	600 - 1000	B & C
	1100 - 2000	C
<b>Model C</b>	100 - 500	A
	600 - 2000	N/A
<b>Model D</b>	100	A
	200	A & B
	300 - 500	A
	600 - 2000	N/A

## Technical drawings

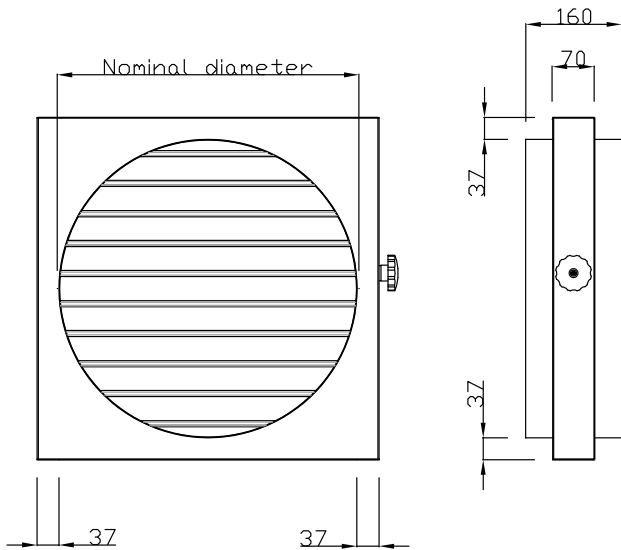
**Model A: Square flanged (no case)**



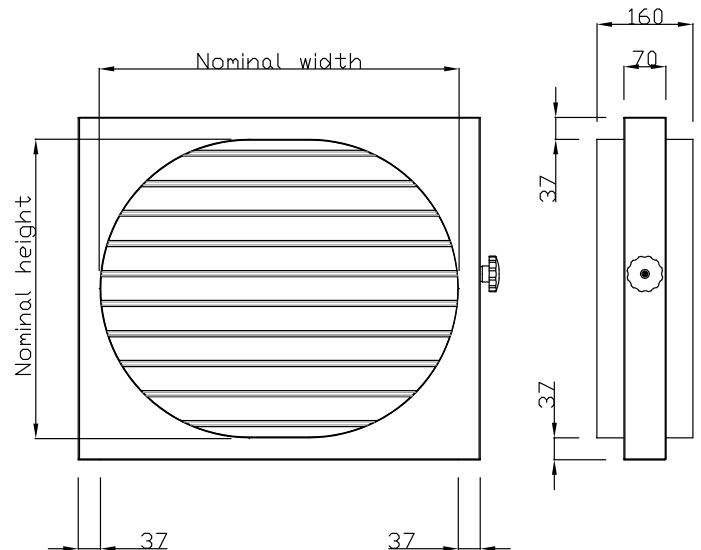
**Model B: Square spigotted**



**Model C: Circular spigotted**



**Model D: Flat oval spigotted**



**Spigots:** Model B spigots supplied 6mm under nominal size.  
Model C and D spigots supplied 3mm under nominal size.

**Manufacturing tolerance:** + or - 1.5mm

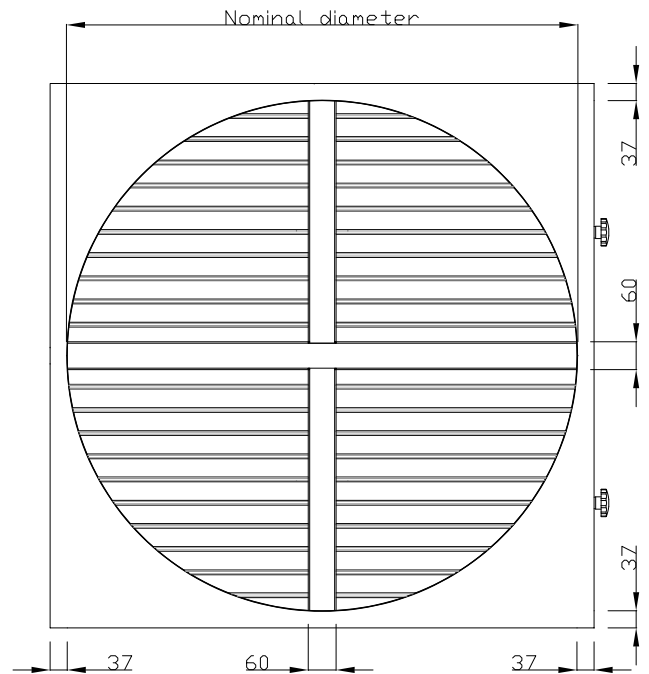
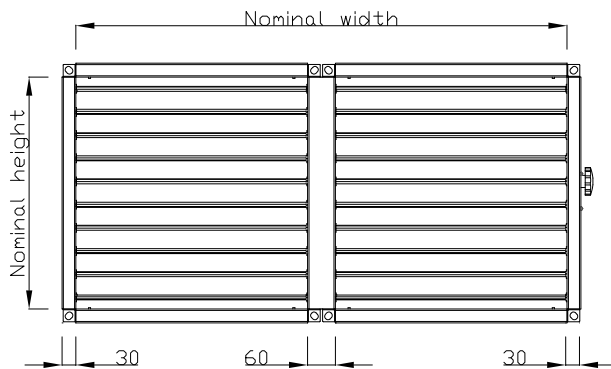
## Technical drawings

### Multiple units

If nominal width, height or diameter exceed that stated on page 2, units will be manufactured with mullions. If stated nominal height or diameter are exceeded, two control devices will be required.

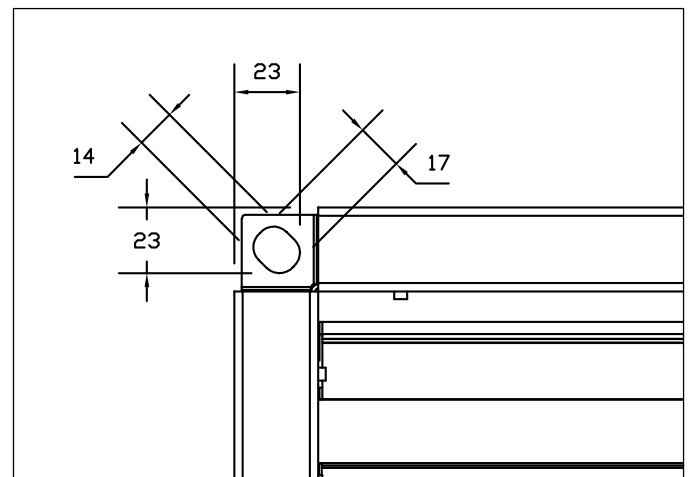
Very large units may need to be made in separate sections for joining together on site.

Alternatively, Series HVC-VCD aluminium volume control dampers are more suitable for sizes above 1m x 1m, and also do not require two control devices for dampers with nominal height over 1m.



### Model A fixing holes

All Model A Series 900 volume control and shut-off dampers have prepunched fixing holes at each corner to facilitate easy connection to flanged ductwork.



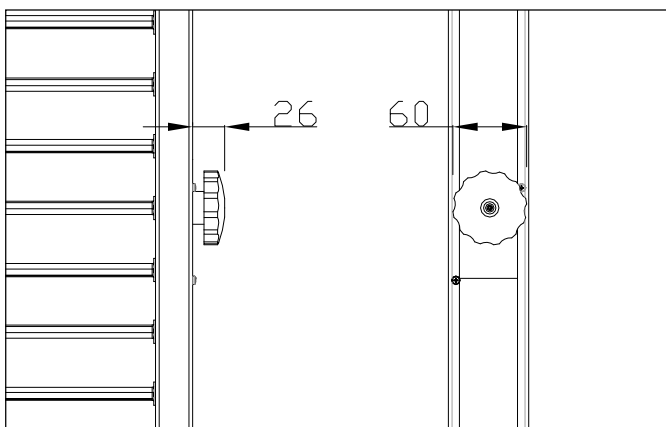
## Control options

### Manual plastic handles

Standard control method on Series 900B models.

The blue nylon handle is ergonomically designed for ease of use. An embossed arrow on the handle, and a sticker on the handle mounting plate show blade position without needing to look inside the duct.

Lockable with a single pozidrive screw in the handle centre (supplied).

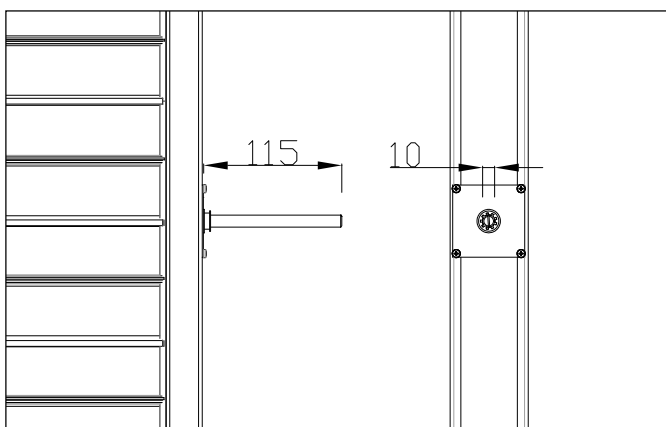


### Extended spindles

Standard control method on Series 900C models.

Allows fitting of an actuator by others.

- Galvanised steel
- 10mm diameter
- Extends 115mm from damper case

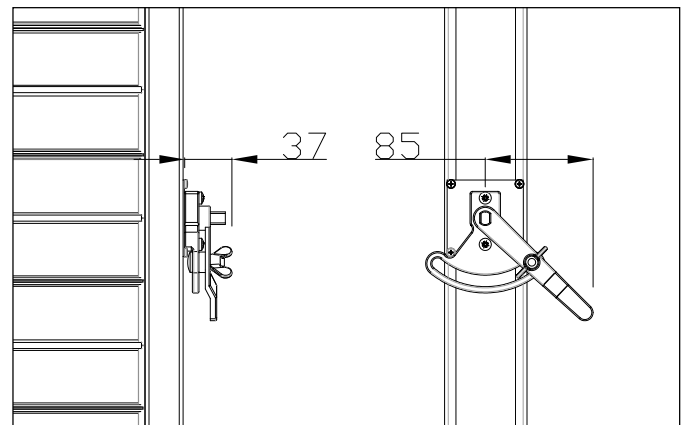


## Control options

### Locking quadrants

Cast aluminium locking quadrants can be fitted to enable manual operation of the VCD or shut-off damper.

Locking quadrants come with a cast-in position indicator and locking nut.



### Actuators

HVC can supply a range of factory fitted electronic and pneumatic actuators with S900 dampers, from manufacturers including:

- **Belimo** - Standard applications
- **Schischek** - Specialist explosion proof actuators
- **Kinetrol** - Pneumatic actuators

Please see pages 8 and 9 for more details on actuators.



## Belimo actuators

We recommend the use of Belimo actuators for applications in non-specialist environments.

All actuators are factory fitted and tested to confirm good operation. Other than connection to wiring, no alteration to the actuator is required on site.

Please see the below table to find the series of Belimo actuator you require for your application.



Series	Suitable for S900 dampers up to			Voltage		Action			
	0.4m <sup>2</sup>	1.0m <sup>2</sup>	2.0m <sup>2</sup>	24V	230V*	Power open	power close	Spring return	Modulating
LM24A	✓			✓			✓		
LM24A-SR	✓			✓			✓		✓
LM230A	✓				✓		✓		
LM230ASR	✓				✓		✓		✓
NM24A		✓		✓			✓		
NM24A-SR		✓		✓			✓		✓
NM230A		✓			✓		✓		
NM230ASR		✓			✓		✓		✓
SM24A			✓	✓			✓		
SM24A-SR			✓	✓			✓		✓
SM230A			✓		✓		✓		
SM230ASR			✓		✓		✓		✓
LF24	✓			✓				✓	
LF24-SR	✓			✓				✓	✓
LF230	✓				✓			✓	
NF24A		✓		✓				✓	
NF24A-SR		✓		✓				✓	✓
NF230A		✓			✓			✓	
SF24A			✓	✓				✓	
SF24A-SR			✓	✓				✓	✓
SFA			✓	✓	✓			✓	

\*Suitable for 240V supply.



## Schischek explosion-proof actuators

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Schischek produce a range of specialist explosion-proof actuators for use in areas with potentially explosive atmospheres; E.G. petro-chemical plants, whisky distilleries and grain silos.

ATEX approved.

All actuators are factory fitted and tested to confirm good operation. Other than connection to wiring, no alteration to the actuator is required on site.

Please contact us for more information on explosion-proof actuators with S900 dampers.



## Kinetrol pneumatic actuators

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We can factory fit S900 dampers with Kinetrol's compressed air driven pneumatic actuators. A range of additional options including spring return modules can be fitted to enhance functionality.

ATEX approved.

All actuators are factory fitted and tested to confirm good operation. Other than connection to pneumatic lines, no alteration to the actuator is required on site.

Please contact us for more information on pneumatic actuators with S900 dampers.



## Configurations

### Series 900B: Standard VCDs

Standard volume control dampers for general purpose applications.

Constructed from galvanised steel as standard, S900 VCDs are also available in fully stainless steel models. Blade material can be specified independently of frame material, with blades available in galvanised steel, stainless steel and aluminium.

Stainless grades available: 430, 304, 316 (marine grade).

Aerofoil blades keep noise generation and pressure drops to a minimum, while a system of nylon gears, protected from dust and debris by being mounted within the frame, ensures low operating torque and long term, smooth operation with minimal maintenance.



### Series 900C: Shut-off dampers

Modified volume control dampers with a greater shut off.

Shut-off dampers have the same basic construction as standard VCDs, with the same galvanised steel case (stainless steel optional) and fully protected gear train.

Blades are double skin aluminium aerofoil, and are alternated between blades fitted with a flexible silicone rubber seal, and a non-sealed version, meaning every blade interface is rubber on aluminium.

Stainless steel side seals are fitted at each side of the blade pack.



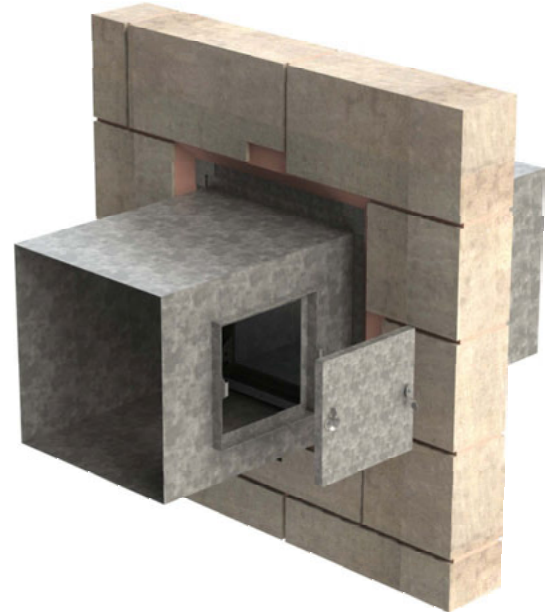
## Installation

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NCA Series 900 dampers are mechanical products with moving parts, as such installation should always take into account the requirements of future maintenance, with a view to providing adequate access to dampers.

If being installed into a larger assembly, please ensure provision for access is taken into account, for example through the use of removable access panels.

If being installed into ductwork we are able to supply a full range of access doors to facilitate quick and easy access.



## Maintenance

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We recommend all NCA Series 900 dampers are inspected to ensure good operation at least annually. This may need to be performed more frequently should local conditions dictate it.

An operation and maintenance manual (O & M) for NCA Series 900 dampers is available via:

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

## Finish

Bare metal only



## Ordering codes

### Example

1 - 500 x 500 - S900BAS - SS304 - Belimo SM24A-SR

### Codes

1)	<b>Quantity</b>		
2)	<b>Size (mm)</b>	(Width x height)	Nominal size
3)	<b>Series</b>	S900B S900C	Volume control damper Shut-off damper
	<b>Connection</b>	A B C D	Square flanged Square spigotted Circular spigotted Flat oval spigotted
	<b>Material</b>	*nothing* G M S F	Galvanised steel case, aluminium blades Galvanised steel throughout (not available with S900C) Galvanised steel case, stainless steel blades (not available with S900C) Stainless steel throughout (not available with S900C) Stainless steel case, aluminium blades
4)	<b>Stainless steel grade</b>	SS304 SS316 SS430	Grade 304 stainless steel Grade 316 stainless steel (marine grade, high corrosion resistance) Grade 430 stainless steel
		(Required if material code is M, S or F)	
5)	<b>Control</b>	*nothing* EX LQ (Actuator)	Standard: S900B - Lockable plastic handle S900C - Extended spindle Extended spindle Locking quadrant State actuator code When ordering a spring return actuator, please specify whether you require spring open or spring close operation.

**Important:** Size will be taken to be nominal unless stated otherwise.

Leave code section blank if no option is required.

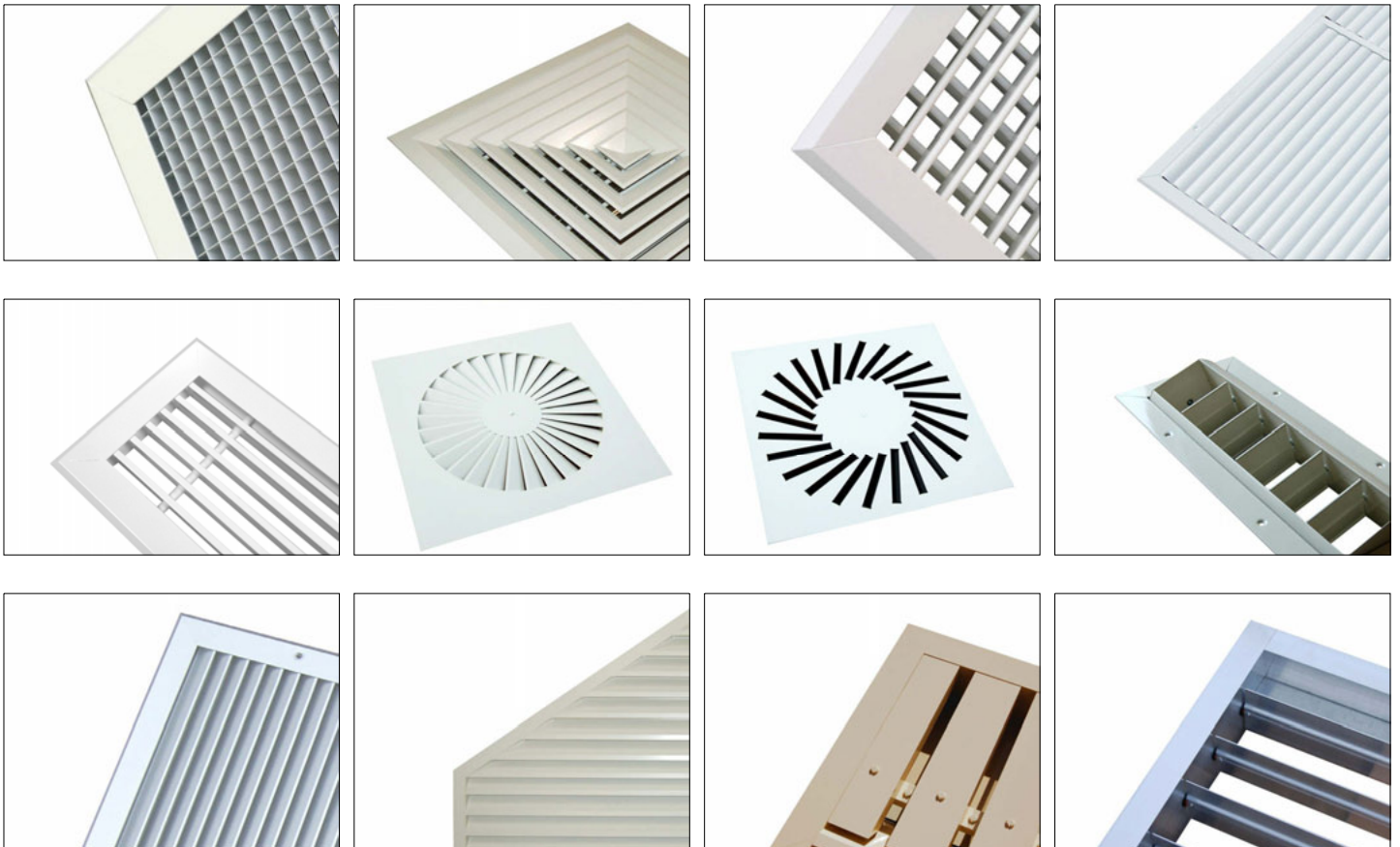
Material code only applies to damper cases, frames and blades.  
Various components including blade caps and gears will be made from plastic or other materials, regardless of above material choice.

## 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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