



Vulcan Grilles & Cages – LPS1175 Issue 6 SR2

Outline Description and Specification

PRINCIPLE OF DESIGN.

To produce a retractable grille (with fixed option) able to resist the tools and methods of attack used in the above testing and trials. The design must also maintain the high aesthetics of the range, including the fixing free internal and external surfaces, and the minimal maintenance requirements.

- GRILLES

- Element and components.

- Frame
- Wheeled rail and Deep rail.

The wheeled rail carries the weight of the retractable grid(s) via a wheeled carrier. The deep rail entraps the guide. Either may be at the bottom or top of a vertically mounted grille.

A horizontally mounted grille has two wheeled rails and no guide rail.

A fixed grid has two deep rails and no wheeled rail.

- Anchor Jamb

The side of the grille into which the grid is connected.

- Strike Jamb

The side of a single grid into which the lock engages.

- The Rails and Jambs are connected at all four corners to provide a continuous frame.

- Lock stile.

Attached to the retracting grid and contains the keyed locking mechanism. On a single grid locks into the strike jamb, on a double grid into the strike stile and on a free grid with two lock stiles each locking into a strike jamb.

- Strike stile

Attached to the non key locking grid of a double grid and into which the lock engages.

- Bars

Arranged in pairs to form the main body of the grid. They are entrapped in the rails by carriers and guides and attached into the anchor jambs and stiles. The bar pairs locate and retain the linkage sets which bind the grid(s) together.

- Carriers and Guides

Components attached to the ends of the bar pairs and positioned into the rails.

The carriers have wheels attached.

- Links

The structural components within a linkage set form the lattice structure tying together the bar pairs.

- Stops and plates.

Stops limit the grid movement preventing over extending beyond locking the locking point. Various

plates are used to tie the linkage sets into the frame, stiles, bars and strengthen and protect the locking points.

- Shafts, axles, link rivets and assembly screws.
The solid shafted assembly components which tie all the separate components together.
- Saw and bolt cropper resistant rods. A loose fitting rod, free to rotate, and reinforcing side rods are fitted into the bars.
- Spacers, wheels and washers. Separate moving components to reduce direct metal to metal contact.
- Bar insert channel. Spacers within the length of the bar to ensure the linkage components are correctly spaced.

- CAGES

The cages are constructed using the grilles described above and joined as describe below.

- Cage support frame
 - Vertical corners. Internal and external.
A bespoke profile is used to form the corner junctions. Shaped to restrict access to the bolted assembly points from outside the cage.
The individual wall panels are joined to the corners using M8 DIN912 bolts, washers and nyloc nuts.
 - Horizontal wall/roof beam junction.
These are formed exactly as the external corners.
Where the required access width creates a larger load on the wall/roof junction member one or more of a range of additional support sections is added. These additional sections are to ensure the retracting access grille runs freely and are not additional security elements.
The individual wall panels are joined to the corners using M8 DIN912 bolts, washers and nyloc nuts.
 - Junction between wall panels.
Adjacent panels are joined using a bespoke frame channel with M8 DIN912 bolts, washers and nyloc nuts.
 - Junction between roof panels.
These are formed exactly as the wall panel junctions with the addition of a range of additional support sections where required. These additional sections are to allow greater roof spans without excessive deflection and are not additional security elements.
 - Junction between external vertical corner and horizontal wall/roof beam.
These points are covered by a fabricated cap bolted through the three meeting sections with M8 DIN7380 button head set screws, nyloc nuts and washers.
 - Junction along a horizontal wall/roof beam.
The junction will be located over a vertical junction between wall panels. These junctions are covered by a splice plate bolted through the two meeting beam sections and the frame channel of the wall junction with M8 DIN7380 button head set screws, nyloc nuts and washers.

MATERIAL SPECIFICATIONS					
<u>GRILLE ELEMENTS</u>	Aluminium	Steel	Stainless Steel	Plastics	Finish
Frame	6063 T6				*PPC
Stiles	6063 T6				*PPC
Bars	6063 T6				*PPC
Carriers & Guides	6063 T6				Mill
Links		CS80			**PPC
Stops & Reinforcing Plates			304		Mill
Shafts, axles, link rivets, & assembly screws			303 / 304		Self
Spacers, wheels & washers.				Acetal / Nylon	Self
Bar insert channel	6060 T6				Mill
Saw resistant rods		Silicon Chrome			Oil quench
Bolt cutter resistant rods			Cold drawn		Self

MATERIAL SPECIFICATIONS					
<u>CAGE ELEMENTS</u>	Aluminium	Steel	Stainless Steel	Acetal	Finish
Grille Panels	As above				
Corner & beam profiles	6063 T6				*PPC
Wall & roof panel junctions	6063 T6				*PPC
Corner Cap	5251 (H24)				*PPC
Mid wall Splice plate	5251 (H24)				*PPC
Assembly bolts & set screws		Hi Tensile			BZP

- Hardware used. Grilles & Cages.
 - Locks with inside (protected side) cylinder.
Euro profile profile cylinder to certified standard fitted into a bespoke lock ref: CL03 containing a Cisa mortice lock case ref: 46270 25 0 with bolt driving mechanisms, engaging in locking loops fixed into the strike jambs / stile.
 - With outside (attack side) cylinder.
As above with an added custom designed interlocking protection for the cylinder.

Paint finish * PPC:

- RAL 9016 Traffic White:
Polyester Powder Coating applied to all aluminium profile stock lengths then cut to size for specific.
- All other colours:
Polyester Powder Coating applied to cut to length aluminium profiles.

Paint finish **PPC:

- Steel links for internal locations:
Degreased (iron phosphate), rinsed and passivated, then Polyester Powder Coated.
- Steel links for external locations:
As above but electro zinc plated prior to finishing.