

## Technical Information

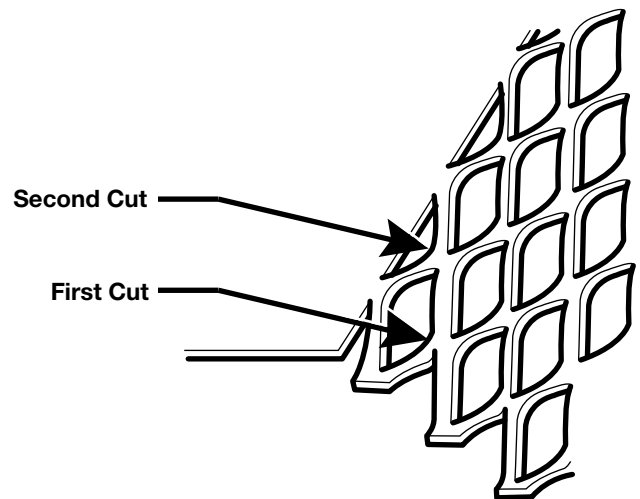
### Industrial Mesh - Expanded Metal

#### Introduction

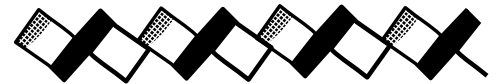
Siddall & Hilton Expanded Meshes are manufactured to ISO 9001:2000 from British-made carbon steel to BS 1449 Part 1:1991.

Sheets are supplied raised or flattened in a levelled condition, coated in oil as corrosion protection. Expanded Metal can also be supplied hot dip galvanised to BS EN ISO 1461:1991.

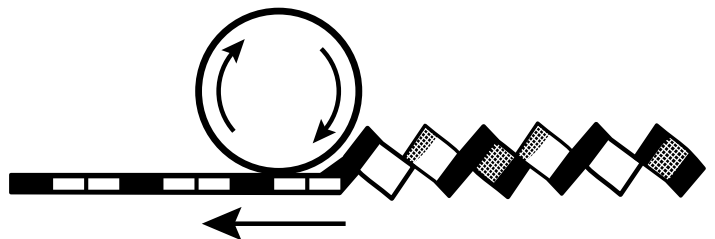
Siddall & Hilton Expanded Metal is a rhombic-shaped mesh, press produced by automatic transfer. The raw material is sheet metal plate, which is notched by a toothed top knife originating an opening in the steel. Continuing downward travel expands the opening; the knife retracts and moves laterally whilst the mesh moves forward one web width. The pattern is then repeated.



The mesh is now levelled for ease of use and transport and exhibits three-dimensional features with strand widths at an angle to the plane.



This increases the strength to weight ratio of the initial sheet prior to expanding. Expanded Metal can also be flattened to present a smooth plate surface.



Siddall & Hilton Expanded Metal is supplied in standard 2440mm x 1220mm sheets and can be manufactured to size in suitable production runs.

## Technical Information

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### Industrial Mesh - Expanded Metal

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## Expanded Metal Uses

Siddall & Hilton expanded metal can be used to some degree in virtually every home, commercial property, factory, building site and farm in the country. When and how it is used depends upon each individual requirement in terms of strength, size of mesh, aesthetic appearance, angle of strand, direction of mesh, weight, size of panel and the finished coating.

The product therefore, is extremely versatile. It is also economical due to the lack of wastage. Strong but flexible, it can be formed into many shapes and it is easily joined to other surfaces by fixing or welding.

Expanded metal can be used in many applications as an alternative to welded mesh and it is preferred in those which require some of its unique features.

Siddall & Hilton have an extensive range and large stocks are held.

Typical applications are:

#### Storage and Distribution

- Lorry sides
- Shelving
- Pallet sides
- Trays
- Tote bins
- Baskets
- Trolleys
- Racking
- Stillages
- Screens
- Lockers
- Consumable stores

#### Architectural / Construction

- Screens
- Parapet infills
- Reinforcement
- Room dividers
- Road / driveway heating
- Walkway
- Stairtreads
- Grating
- Suspended ceilings
- Platforms

#### Security

- High security fencing
- Site fencing & gates
- Perimeter fencing
- Window guards
- Lockers
- Grilles
- Anti-dazzle

#### General

- Filters
- Fabrication
- Ramps (car transporters)
- Reinforcement for glass, plastic composites
- Ironing boards
- Display boards
- Display units
- Point of sale units

#### Agriculture

- Gate infills
- Grain silos
- Trailer sides
- Pens
- Flooring

#### Safety

- Pedestrian barriers
- Machinery guards
- Ballustrading
- General guarding
- Heating / ventilation grilles

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### Industrial Mesh - Expanded Metal

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## Advantages

Siddall & Hilton Expanded Metal is produced from a single sheet of steel. The production process does not waste material and the cold worked 'knuckles' within the mesh give expanded metal some of its most important benefits.

- 1) These knuckles can withstand stress and can support a greater weight than joints or welds.
- 2) When galvanised to BS EN ISO 1461:1999 the heavier joints of expanded metal offer greater corrosion resistance than the smaller joints in a wire mesh or the joints in a woven mesh which can rub and wear.
- 3) Expanded Metal is a highly efficient conductor, particularly of heat and electricity.
- 4) As the mesh is formed from a continuous piece of metal there is nothing to work loose, and the material can consequently stand up better than other meshes to impact and rough treatment.
- 5) Expanded Metal does not fray, even when cut into different shapes. Often, Expanded Metal can be left unframed as its inherent strength is sufficient.
- 6) Expanding sheet steel strengthens its point load whilst utilising the steel more efficiently and economically.
- 7) The rhombic shape to the mesh and angled strand formation makes Expanded Metal an ideal reinforcing mesh for other materials.
- 8) Expanded Metal provides an anti-slip surface.
- 9) The angled strands of Expanded Metal make this type of mesh most suited to applications where the louvered effect has significant benefits (eg. Anti dazzle screens, retention of product but allowing air, water and light through or decorative work).

## Technical Information

### Industrial Mesh - Expanded Metal

## Specifications

### Raised (Conventional) Mesh

| Sheet Thickness | Mesh Reference | Mesh Size mm<br>Centre to Centre |       | Strand Size mm |           | Approx Weight<br>Kg/M <sup>2</sup> | Approx Panel<br>Weight Kg<br>2440 x 1220 |
|-----------------|----------------|----------------------------------|-------|----------------|-----------|------------------------------------|--|
|                 |                | LW                               | SW    | WIDTH          | THICKNESS |                                    |  |
| 1.00mm          | 1198           | 30.50                            | 11.70 | 1.60           | 1.00      | 2.17                               | 6.46                                     |
| 1.20mm          | 0952           | 28.60                            | 9.50  | 2.00           | 1.20      | 3.92                               | 11.65                                    |
|                 | 1196           | 30.50                            | 11.70 | 2.36           | 1.20      | 3.79                               | 11.29                                    |
|                 | 1199           | 30.50                            | 11.70 | 1.20           | 1.20      | 1.92                               | 5.72                                     |
|                 | 1798           | 38.00                            | 17.00 | 2.36           | 1.20      | 2.57                               | 7.65                                     |
|                 | 2296           | 50.80                            | 22.60 | 2.36           | 1.20      | 1.95                               | 5.81                                     |
| 1.60mm          | 1194           | 30.50                            | 11.70 | 2.36           | 1.60      | 5.06                               | 15.06                                    |
|                 | 1195           | 30.50                            | 11.70 | 2.00           | 1.60      | 4.24                               | 12.63                                    |
|                 | 1795           | 38.00                            | 17.00 | 3.00           | 1.60      | 4.57                               | 13.60                                    |
|                 | 2293           | 50.80                            | 22.60 | 3.00           | 1.60      | 3.39                               | 10.09                                    |
| 2.50mm          | 2291           | 50.80                            | 22.60 | 2.50           | 2.50      | 4.37                               | 13.00                                    |
|                 | 3998           | 85.70                            | 39.00 | 2.60           | 2.50      | 2.59                               | 7.71                                     |
| 3.00mm          | 1776           | 38.00                            | 17.00 | 4.75           | 3.00      | 13.20                              | 39.30                                    |
|                 | 2288           | 50.80                            | 22.60 | 3.90           | 3.00      | 8.09                               | 24.80                                    |
|                 | 2289           | 50.80                            | 22.60 | 3.15           | 3.00      | 6.52                               | 19.41                                    |
|                 | 3492           | 76.20                            | 34.00 | 3.60           | 3.00      | 4.97                               | 14.80                                    |
|                 | 4196           | 85.70                            | 41.00 | 3.18           | 3.00      | 3.67                               | 10.93                                    |
|                 | 5097           | 102.00                           | 50.80 | 3.35           | 3.00      | 3.11                               | 9.25                                     |
| *               | 5095           | 102.00                           | 50.80 | 5.03           | 3.00      | 4.66                               | 13.87                                    |

\* Type 5095 is available as a fencing panel 3.15m long in 1.8m high, 2m high and 2.4m high

All Standard sheet sizes are nominal and are generally oversize.

Non Standard panel sizes are available on request.

Available in galvanised to BS EN ISO 1461:1999

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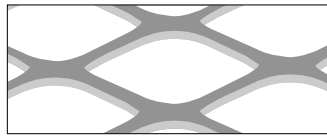
**Industrial Mesh - Expanded Metal**

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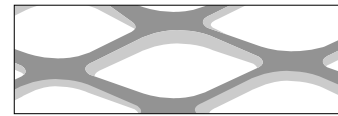
Raised (Conventional) Mesh Patterns



1194



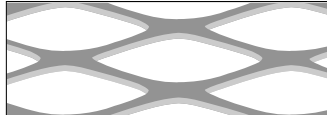
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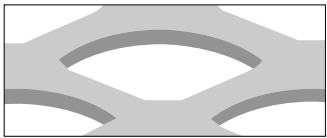
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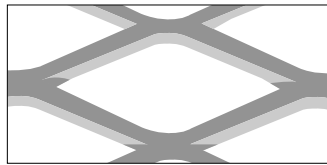
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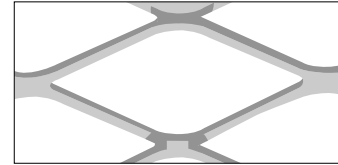
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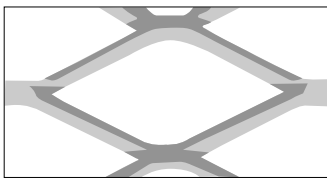
1776



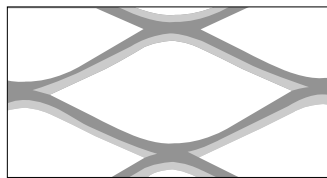
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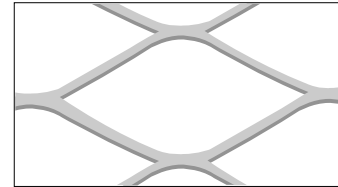
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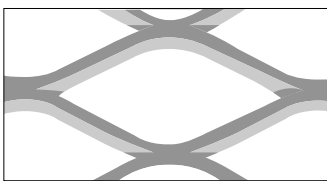
2291



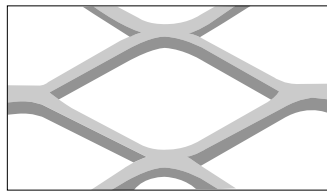
2293



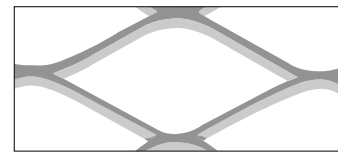
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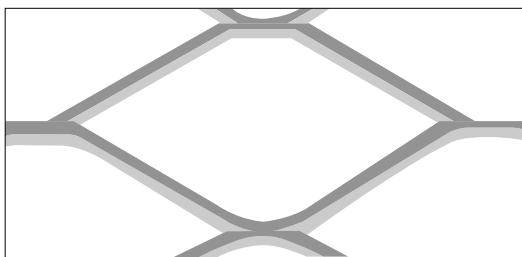
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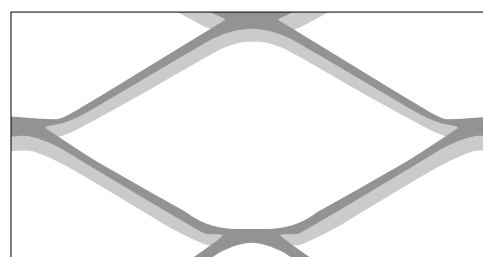
2289



3492



3998



4196

## Technical Information

### Industrial Mesh - Expanded Metal

## Specifications

### Flattened Mesh

| Thickness<br>before<br>flattening | Mesh<br>Reference | Mesh Size mm<br>Aperture |       | Strand Size mm |           | Approx<br>Weight<br>Kg/M <sup>2</sup> | Approx Panel<br>Weight Kg<br>2440 x 1220 |
|-----------------------------------|-------------------|--------------------------|-------|----------------|-----------|---------------------------------------|--|
|                                   |                   | LW                       | SW    | WIDTH          | THICKNESS |                                       |  |
| 1.20mm                            | 0780F             | 24.40                    | 7.10  | 2.40           | 1.15      | 3.64                                  | 10.84                                    |
|                                   | 0782F             | 24.40                    | 7.60  | 2.08           | 1.15      | 3.17                                  | 9.44                                     |
|                                   | 1685F             | 33.50                    | 12.50 | 2.34           | 1.15      | 2.47                                  | 7.35                                     |
|                                   | 1876F             | 43.40                    | 18.00 | 2.31           | 1.15      | 1.85                                  | 5.51                                     |
| 1.60mm                            | 0579F             | 23.10                    | 5.80  | 3.20           | 1.50      | 6.27                                  | 18.67                                    |
|                                   | 0781F             | 24.40                    | 7.90  | 2.06           | 1.47      | 4.07                                  | 12.12                                    |
|                                   | 1084F             | 32.80                    | 10.90 | 3.18           | 1.50      | 4.41                                  | 13.13                                    |
|                                   | 1777F             | 43.20                    | 17.30 | 3.23           | 1.45      | 3.24                                  | 9.65                                     |
| 2.00mm                            | 3295F             | 77.00                    | 32.80 | 3.81           | 1.85      | 2.80                                  | 8.34                                     |
| 2.50mm                            | 3794F             | 69.90                    | 37.10 | 5.49           | 2.15      | 3.97                                  | 11.82                                    |
| 3.00mm                            | 1473F             | 42.90                    | 14.20 | 4.60           | 2.70      | 8.59                                  | 25.57                                    |
|                                   | * 1875F           | 39.10                    | 18.30 | 4.72           | 2.75      | 7.55                                  | 22.48                                    |
|                                   | 2793F             | 77.50                    | 27.18 | 6.50           | 2.80      | 7.12                                  | 21.20                                    |

Long way of diamond across long way of panel except \*1875F (available both ways)

### Walkway Mesh

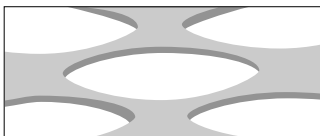
| Mesh<br>Reference | Mesh Size mm<br>Aperture |       | Strand Size mm |           | Approx<br>Weight<br>Kg/M <sup>2</sup> | Approx Panel<br>Weight Kg<br>2440 x 1220 |
|-------------------|--------------------------|-------|----------------|-----------|---------------------------------------|--|
|                   | LW                       | SW    | WIDTH          | THICKNESS |                                       |  |
| 1396              | 44.50                    | 12.70 | 6.10           | 4.70      | 17.70                                 | 52.66                                    |
| 2396              | 79.40                    | 23.80 | 6.35           | 4.70      | 13.82                                 | 41.14                                    |

Long way of diamond across short way of panel

Technical Information

**Industrial Mesh - Expanded Metal**

Flattened Mesh Patterns



0579F



0780F



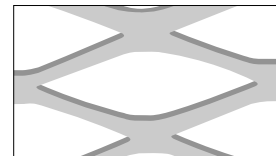
0781F



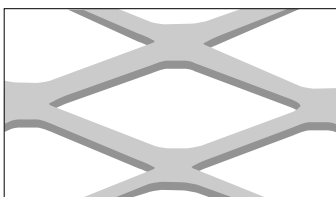
0782F



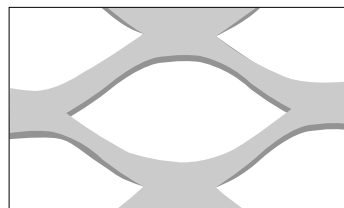
1084F



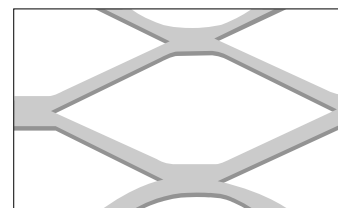
1473F



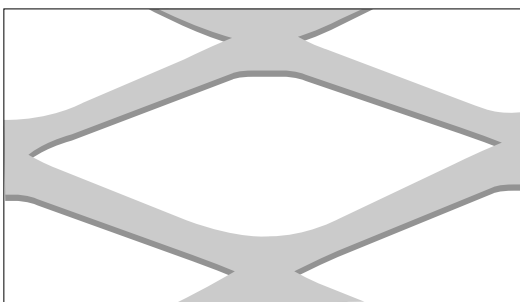
1777F



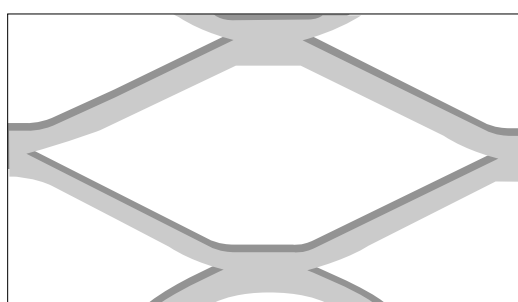
1875F



1876F

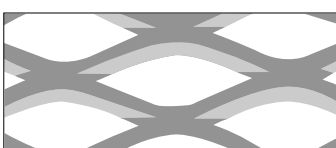


2793F

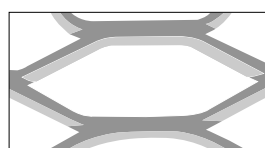


3295F

Walkway Mesh Patterns



1396



2396

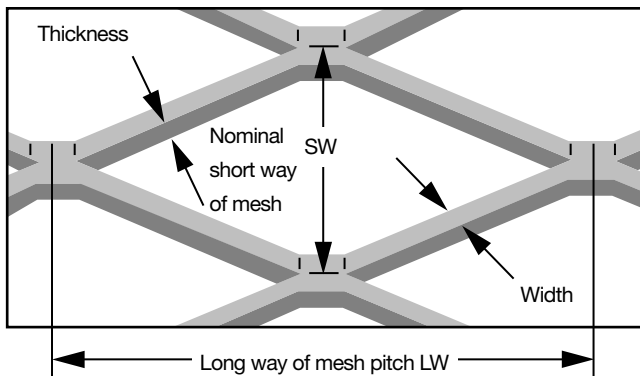
## Technical Information

### Industrial Mesh - Expanded Metal

## Mesh Dimensions

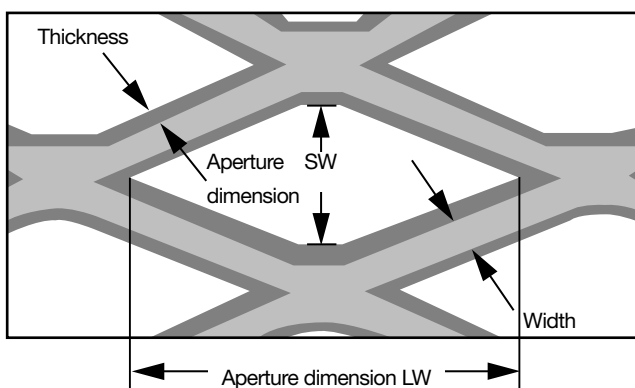
### Raised (Conventional) Mesh

For conventional meshes with angled strands dimensions from centre to centre of knuckles are shown.



### Flattened Mesh

For flattened meshes dimensions of the aperture point to point are shown.



## Technical Information

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### Industrial Mesh - Expanded Metal

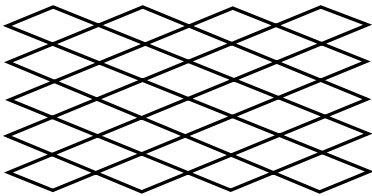
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## How to Order Expanded Metal

#### When ordering, please state:

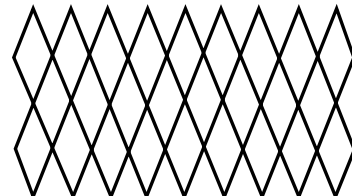
- 1) Reference number of mesh (include any alphabetical suffix)
- 2) Raw material
- 3) Quantity of sheets required
- 4) Sheet size (LW dimension first – the diagrams below illustrate this point)
- 5) Any special finish required

This sheet is 2440 x 1220mm LW x SW



LW denotes long way of mesh dimension  
SW denotes short way of mesh dimension

This sheet is 1220 x 2440mm LW x SW



#### Mesh Size and Specification

Illustrations of each mesh size are shown but please note that although the LW (Long Way of Mesh) dimension is precise and constant, the SW (Short Way of Mesh) dimension is approximate and is intended to be generally descriptive only. The SW dimension is subject to some variation according to the strand width and the material thickness.

#### Standard Sheet Sizes

Standard Sheet Sizes are nominal and sheets are sometimes oversize. Normally they are not sheared to the precise size (2440 x 1220mm etc) unless specified on the order, in which case shearing extras are applicable.

#### Non-Standard Sheet Sizes

Special size sheets can be supplied for most meshes – non-standard sheet size extras are applicable.

#### Pallet Quantities

Walkway - 25 panels per pallet  
Raised or Flattened - 25/50 panels per pallet

## Technical Information

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### Industrial Mesh - Expanded Metal

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## Steel Specifications Used In The Manufacture Of Siddall & Hilton Expanded Metal

### Raised (Conventional) Mesh

BS 1449: Steel Plate, Steel and Strip Part 1: Carbon and Carbon Manganese Steel Section 1.2:1991: Specification for hot rolled steel plate sheet and wide strip based on formability.

| Grade | Composition (max) |      |       |       | Plate Yield<br>N/mm <sup>2</sup> | Plate Tensile<br>N/mm <sup>2</sup> | Plate Elongation %<br>Over 50mm Length |
|-------|-------------------|------|-------|-------|----------------------------------|------------------------------------|--|
|       | C.                | Mn.  | S.    | P.    |                                  |                                    |  |
| HR4   | 0.12              | 0.60 | 0.050 | 0.050 | 170                              | 280                                | 25                                     |

### Flattened Mesh

BS 1449: Section 1.3:1991: Specification for cold rolled steel plate, sheet and wide strip.

| Grade | Composition (max) |      |       |       | Plate Yield<br>N/mm <sup>2</sup> | Plate Tensile<br>N/mm <sup>2</sup> | Plate Elongation %<br>Over 50mm Length |
|-------|-------------------|------|-------|-------|----------------------------------|------------------------------------|--|
|       | C.                | Mn.  | S.    | P.    |                                  |                                    |  |
| CR4   | 0.12              | 0.60 | 0.050 | 0.050 | 140                              | 280                                | 32                                     |

Note: Mechanical properties given as a guide only.

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### Industrial Mesh - Expanded Metal

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## Quality Standards

Siddall & Hilton expanded metal is manufactured from steel to ISO 9001:2000.  
The steel quality used conforms to BS 1449 Part 1:1991.

### Tolerances

#### Shearing Tolerances:

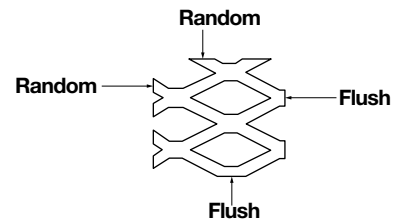
When shearing special meshes there are two finishes

Flush - cut where two strands intersect

Random - this cut leaves overhangs

Flush tolerance: Minus 0 plus 12mm, special tolerances available on request.

Random Tolerance:  $\pm 3.00\text{mm}$



#### Stock Size Sheets:

|                |  |
|----------------|--|
| Raised Mesh    | S.W plus 5.00mm Minus 0 per 300mm of width<br>L.W plus 20.00mm Minus 0 per 300mm of Length |
| Flattened Mesh | S.W plus 5.00mm Minus 0 per 300mm of Width<br>L.W plus 25.00mm Minus 0 per 300mm of Length |

#### Camber (out of level)

|                |   |
|----------------|---|
| Raised Mesh    | S.W 3.00mm per 300mm of width<br>L.W 3.00mm per 300mm of length |
| Flattened Mesh | S.W 3.00mm per 300mm of width<br>L.W 4.00mm per 300mm of length |

#### Out of square

Measured difference between diagonals not to exceed 24mm

#### Flattening

Flattened sheet thickness plus or minus 10% of published thickness.