

### Product Overview

A flat, sheet material, comprising a solid or sponge silicone rubber, embedded with Monel or Aluminium metal wires orientated perpendicular to its surface. Excellent RFI/EMI/EMP shielding performance is achieved as the material has a wire density of 140 wires/cm<sup>2</sup> in solid silicone and 100 wires/cm<sup>2</sup> in sponge silicone providing an environmental and RFI/EMI seal when clamped between two metallic surfaces.

The wires are crimped to aid compression and are chemically bonded to ensure their retention in the silicone. They will also penetrate most oxide layers, ensuring a low contact resistance path when suitably compressed. This material also demonstrates EMP survivability.

#### Application

- A good solution for achieving RFI/EMI/EMP and Environmental sealing in a single gasket.
- Ideal for use as access panels, seals, connector gaskets etc.
- Good conformity to allow for uneven surfaces.

#### Availability

Kemtron is able to offer a wide variety of options as the material is cut in-house from large blocks, up to 228mm wide, using our high-speed slicer, enabling us to offer all thicknesses (subject to material type) to suit the customer's exact design requirement.

- Die-cut gaskets.
- Large fabricated gaskets.
- Virtually any flat shape can be produced.
- Sheet material.
- Strip material available in continuous lengths.
- Self-adhesive backing to allow for easy assembly.
- Can be fitted with compression limit stops or collars.

- Small gaskets can be punched in one operation, keeping production costs to a minimum.
- Larger gaskets can be produced cost effectively and without the constraint of sheet size limitation from strips of material fabricated into the required finished shape, thus avoiding waste material from the centre of the gasket.
- A fluorosilicone version is available for use in environments where fuels / oils / hydraulic fluids and other contaminants are present.
- Solid Silicone, for use in applications where higher compression forces allow for better environmental sealing.
- Sponge Silicone requiring lower compression forces.

## Product Overview (Continued)

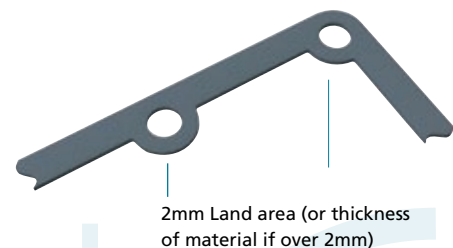
### Design Considerations

- It is important that this material is not over-compressed. If the design of the equipment does not allow for any mechanical method of preventing over-compression, the gasket should be fitted with built-in compression limiters, either metal stops fitted to the gasket, or metal collars fitted into each fixing hole.
- There is no need for a conductive connection where strips are joined as the wires forming the EMC contact run vertically through the material; a waterproof seal is achieved by vulcanising the join with silicone.
- The material is not suitable for frequent opening or sliding applications.
- Recommended compression: Solid – 15% to 20%, Sponge – 15% to 25%.
- Fluorosilicone: self-adhesive backing is not recommended for use with this type of elastomer.
- Minimum material width should not be less than 2mm or at least the material thickness in any part of the gasket. If this cannot be achieved around fixing holes consider using a slot. Particular attention is required if specifying compression collars in holes.
- Particular consideration must be given to compression forces (see data in this section) hole centres, size and number of fixings and rigidity of mating flanges.

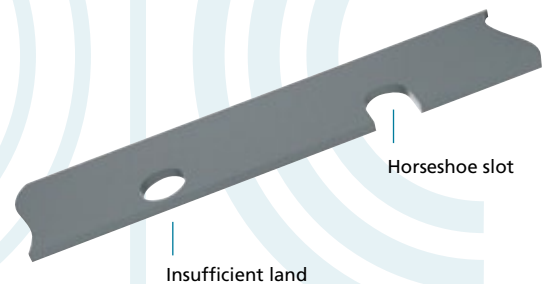
Gasket fabrication is a routine feature of our work, enabling us to produce economic gaskets by maximising material usage, without the limitations of sheet width. Joins are vulcanised using a silicone compound and over-compression stops or collars can be fitted to the gasket if required.

Our in-house production facilities are suitable for prototype, short and medium production runs, up to commercial quantities.

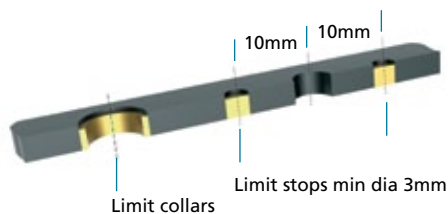
### Minimum Land



### Horse Shoe Slot



### Compression Limit Application



### Production Capabilities

Kemtron holds large stocks of raw material blocks, which are cut in-house on one of the most advanced slicing machines in Europe, and which enables us to produce bespoke gaskets economically and on time.

We are able to cut sheets up to 228mm wide by 900mm long, whilst holding a parallel tolerance of +/-0.2mm and can apply self-adhesive backing prior to die cutting and or fabrication.

### Notice

Information supplied in these data sheets is based on independent and laboratory tests which Kemtron believes to be reliable. Kemtron has no control over the design of customer's product which incorporates Kemtron's products, therefore it is the responsibility of the user to determine the suitability for his particular application and we recommend that the user make his own test to determine suitability.

The product described in this data sheet shall be of standard quality, however the products are sold without warranty of fitness for a particular purpose, either expressed or implied, except to the extent expressly stated on Kemtron's invoice, quotation or order acknowledgement. Kemtron does not warrant that products described in this data sheet will be free of conflict with existing or future patents of third parties. All risks of lack of fitness, patent infringement and the like are assumed by the user.

## Technical Specification

### Typical Shielding Performance

|           | 10KHz(M) | 100KHz(M) | 1MHz(E) | 100MHz(E) | 1GHz(E) | 10GHz(E) |
|-----------|----------|-----------|---------|-----------|---------|----------|
| Monel     | 55dB     | 72dB      | 138dB   | 125dB     | 108dB   | 60dB     |
| Aluminium | 41dB     | 64dB      | 138dB   | 100dB     | 98dB    | 48dB     |

### Typical Closing Force Required.

| Code    | Material Thickness | Compression % | N/cm <sup>2</sup> |     |
|---------|--------------------|---------------|-------------------|-----|
| 410/420 | 0.8                | 10%           | 45                |     |
|         |                    | 15%           | 60                |     |
|         |                    | 20%           | 90                |     |
|         |                    | 25%           | 120               |     |
|         |                    | 1.6           | 10%               | 60  |
|         |                    | 15%           | 85                |     |
|         |                    | 20%           | 120               |     |
|         |                    | 25%           | 160               |     |
|         |                    | 2.4           | 10%               | 80  |
|         |                    |               |                   | 15% |
| 20%     | 140                |               |                   |     |
| 25%     | 170                |               |                   |     |
| 3.2     | 10%                |               |                   | 90  |
|         |                    |               |                   | 15% |
|         |                    | 20%           | 140               |     |
|         |                    | 25%           | 170               |     |

### Typical Closing Force Required.

| Code    | Material Thickness | Compression % | N/cm <sup>2</sup> |     |
|---------|--------------------|---------------|-------------------|-----|
| 430/440 | 1.6                | 10%           | 50                |     |
|         |                    | 15%           | 50                |     |
|         |                    | 20%           | 55                |     |
|         |                    | 25%           | 60                |     |
|         |                    | 2.4           | 10%               | 50  |
|         |                    | 5%            | 50                |     |
|         |                    | 20%           | 50                |     |
|         |                    | 25%           | 50                |     |
|         |                    | 3.2           | 10%               | 40  |
|         |                    |               |                   | 15% |
| 20%     | 40                 |               |                   |     |
| 25%     | 45                 |               |                   |     |

The above data is representative of results from tests and show forces that you should expect to experience.

When using these figures you should allow for tolerances in the gasket material and also on the hardware.

These figures are given as a guide only.

### Dimensional Tolerances

Linear +/- 0.8mm,  
 Hole Centres +/- 0.4mm  
 Thickness +/- 0.13mm

### Handling Considerations

Care should be taken when handling this material as any exposed metal points may scratch unprotected skin

### Material Types and Sizes

| Part Number | Material Type                           | Min thickness | Sheet width(s) | Max sheet length |
|-------------|-----------------------------------------|---------------|----------------|------------------|
| 410         | Monel Wires in Solid Silicone           | 0.8mm         | 225mm          | 900mm            |
|             |                                         | 0.8mm         | 150mm          | 900mm            |
|             |                                         | 0.8mm         | 114mm          | 900mm            |
| 420         | Aluminium Wires in Solid Silicone       | 0.8mm         | 225mm          | 900mm            |
|             |                                         | 0.8mm         | 150mm          | 900mm            |
| 430         | Monel Wires in Silicone Sponge          | 1.2mm         | 114mm          | 900mm            |
| 440         | Aluminium Wires in Silicone Sponge      | 1.2mm         | 114mm          | 900mm            |
| 450**       | Monel Wires in solid Fluorosilicone     | 0.8mm         | 150mm          | 900mm            |
| 460**       | Aluminium Wires in solid Fluorosilicone | 0.8mm         | 150mm          | 900mm            |

\*\* Stock sheet thickness are 0.8mm, 1.1mm and 1.6mm, other sizes are available to order

### Available in a Range of Widths

To order strips use the material type number followed by the thickness and width (expressed as 4 digits to one decimal place). Add SAB to the end of the part number if you require self-adhesive backing.

| Example                                                                               | Part number      |
|---------------------------------------------------------------------------------------|------------------|
| 1.6mm thick Monel Wires in Silicone Sponge, width 12.7mm                              | 430-0016-0127    |
| 0.8mm thick Aluminium Wires in Solid Silicone, width 3.2mm with self-adhesive backing | 420-0008-0032SAB |

## Technical Specifications (Continued)

### Standard Strip Material

- 410: Monel Wire in Solid Silicone
- 420: Aluminium Wire in Solid Silicone
- 430: Monel Wire in Silicone Sponge
- 440: Aluminium Wire in Silicone Sponge
- 450: Monel in Solid Fluorosilicone
- 460: Aluminium in Solid Fluorosilicone

| Ht.   | Width | Material Code |     |     |     |     |     | Part Number |
|-------|-------|---------------|-----|-----|-----|-----|-----|-------------|
|       |       | 410           | 420 | 430 | 440 | 450 | 460 |             |
| 0.8   | 3.2   |               |     | *   | *   |     |     | 0008-0032   |
| 0.8   | 4.8   |               |     | *   | *   |     |     | 0008-0048   |
| 0.8   | 6.4   |               |     | *   | *   |     |     | 0008-0064   |
| 0.8   | 9.5   |               |     | *   | *   |     |     | 0008-0095   |
| 0.8   | 12.7  |               |     | *   | *   |     |     | 0008-0127   |
| 1.6   | 4.8   |               |     |     |     |     |     | 0016-0048   |
| 1.6   | 6.4   |               |     |     |     |     |     | 0016-0064   |
| 1.6   | 9.5   |               |     |     |     |     |     | 0016-0095   |
| 1.6   | 12.7  |               |     |     |     |     |     | 0016-0127   |
| 1.6   | 15.9  |               |     |     |     |     |     | 0016-0159   |
| 1.6   | 19.1  |               |     |     |     |     |     | 0016-0191   |
| 2.4   | 4.8   |               |     |     |     |     |     | 0024-0048   |
| 2.4   | 6.4   |               |     |     |     |     |     | 0024-0064   |
| 2.4   | 9.5   |               |     |     |     |     |     | 0024-0095   |
| 2.4   | 12.7  |               |     |     |     |     |     | 0024-0127   |
| 2.4   | 15.9  |               |     |     |     |     |     | 0024-0159   |
| 2.4   | 19.1  |               |     |     |     |     |     | 0024-0191   |
| 3.2   | 6.4   |               |     |     |     |     |     | 0032-0064   |
| 3.2   | 9.5   |               |     |     |     |     |     | 0032-0095   |
| 3.2   | 12.7  |               |     |     |     |     |     | 0032-0127   |
| 3.2   | 15.9  |               |     |     |     |     |     | 0032-0159   |
| 3.2.1 | 9.1   |               |     |     |     |     |     | 0032-0191   |

\*Not available in 0.8mm thick.

### Material Specifications

| Wire             |                  |                                             |            |
|------------------|------------------|---------------------------------------------|------------|
| Monel            |                  | USA Specification – QQ-N-281-B, 0.0045" dia |            |
| Aluminium        |                  | USA Specification – Alloy 5056, 0.005" dia  |            |
| Elastomers       | Specifications   | Temperature Range                           | Colour     |
| Silicone Solid   | ZZ-R-765 2b 40   | -60°C TO 200°C                              | Light Grey |
| Silicone Sponge  | AMS 3195         | -60°C TO 200°C                              | Light Grey |
| Flourosilicone   | MIL-R-25988 gr50 | -55°C TO 200°C                              | Blue       |
| Test             | Standard         | Solid Silicone                              |            |
| Tensile strength | ASTM D412        | 1.044Mpa (150psi)                           |            |
| Elongation       | ASTM D412        | 300% Minimum                                |            |

