Printed Gaskets - Design Guidelines

Standard connector gaskets produced by printing are readily available and are covered in detail on the standard products information sheets. The flexibility of the printing process makes this method ideal for custom made special designs.

• *Gasket Variants*

Pure Print - this particular type of gasket is a very cost effective method of producing relatively small, simple gaskets. The gasket is merely printed to the correct form and design without any punching. Material wastage is minimal. Typical thickness - 0.5mm.

Punched gasket - to cater for more complex forms and offer clean edge definition, punching is utilised. However, the method does not generate excessive wastage of material as one would expect with die cutting from sheet. A special printing screen is used to minimise waste. Typical thicknesses of 1.00/1,50mm are possible.

Substrate gasket - as certain designs of gasket increase in size and complexity it is often necessary to use a rigid carrier to improve handling and assembly. The printing process is ideal for this method. The substrate can be a variety of materials, e.g., metallic, plastic, glass, etc., provided they are flat (i.e., free from protrusions) and able to withstand the curing temperature of the printing polymer. The substrate will have to be intrinsically conductive or have a conductive coating.

The ability to print on substrates lends itself to printing directly on component hardware. This can give major benefits in terms of handling, ease of assembly, serviceability and cost when compared to conventional gasket methods. The physical constraints of the component are 600mm x 800mm x 25mm deep.

Traditional flat gaskets can suffer limitations due to uneven contact stress (and hence sealing/shielding) due to the large contact area of the gasket joint.

Printed gaskets offer a solution and are unique in that the gasket can be produced with a stress raising bead (typically 2 to 4mm wide). The bead can be configured to provide optimum contact stress with the minimum clamping load.

The printing process can also provide the following

1: Additional environmental sealing from a sealing bead in conventional elastomer, protecting the EMC bead from the effects of fluid degradation and corrosion.
2: Compression limiting by printing hard stop pads in relevant areas thus preventing over compression of the sealing bead.

• *Gasket configuration*

Printed gaskets can have a variety of forms, from simple pure prints to complex sub-assemblies. However, there are certain rules that apply to the profile and positioning of the bead and its base, namely:

a) Beads, due to the meniscus effect, have a distinct relationship between height and width. Therefore, to achieve optimum performance, the bead width should be between 1.5 and 5.0mm.
b) Adjacent beads should be separated by at least 1.0mm. When printing on to substrates (or hardware) a minimum clearance of 0.5mm should be applied to the edge of the component (including fixing holes and cut outs).
c) It is possible to print a second bead onto a primary print but always allow for a maximum print thickness in the region of 0.3 to 0.5mm.

• *Design*

T. C. Shielding Ltd. offer complete technical service in the layout and design of printed gaskets, from simple punched forms to complex multi-gasket sub-assemblies.
To gain optimum benefit from printed product design, it is recommended that T. C. Shielding Ltd. be consulted at the earliest stage of any design programme. This will ensure that all aspects of design, cost and function are realised.

• *Materials*

A comprehensive range of highly conductive materials are available for the printing process - please refer to the material fact sheet.