

Technical Note No. 18 GASKETS



Introduction

Gaskets are widely used to seal joints in the building envelope however lack of watertightness due to poor design, installation or durability of gaskets can arise and may be expensive to put right.

British Standards provide limited guidance on gaskets. BS 4255:Part1 gives requirements for material properties of some specified materials which may be used for gaskets but does not relate these properties to gasket performance. BS 6093 *Code of practice for Design of joints and jointing in building construction* gives some guidance on the use of gaskets. In general British Standards place limitations on the materials that can be used for gaskets and weatherstrips and as such they both prevent innovation and fail to inform the gasket or joint designer as to the key performance issues.

Technical Note 16 *Joints in the Building Envelope* gives an introduction to the types of joint in the building envelope and requirements for joint seals. This Technical Note gives further guidance on the properties of gaskets and their use as joint seals.

Purpose of gaskets

Gaskets are used to limit the passage of fluids through a joint. However, there are additional functions that a gasket may be required to perform and a more complete list might be:

- Control the passage of fluids (air and water) through the joint,

- Retain one component within another,
- Transmit forces across the joint,
- Enable positional adjustments to be made to overcome induced deviations (manufacturing and erection tolerances),
- Allow relative movement of the joint surfaces.

Some joints must satisfy all of the above criteria; for example, a gasket in the joint between a glass unit and its frame must:

- Prevent water penetration into the frame,
- Should limit air infiltration,
- Retain the glazing in the frame,
- Allow for permissible deviations on frame size and glazing unit thickness,
- Allow thermal movement of the glass without placing excessive forces on the edge of the glass,
- Transfer wind-load on the glazing to the frame and, ultimately, to the building structure.

To achieve all of these functions satisfactorily can be a difficult task for the designer.

Types of gasket

Gaskets are made in a range of shapes and sizes as shown in Figure 1 and can be categorised in several ways as follows: