

Seals and Gaskets

Generally speaking there are three “standard” styles covering most industrial enclosure applications:

- 1) Self-gripping seal
- 2) Edge protection
- 3) Rectangular section gasket

In addition to various materials, the major characteristics which differentiate between the profiles are the diverse cross-sections and the way in which the gaskets are attached to the door or enclosure frame.

There are also special purpose gaskets and profiles designed specifically for inspection windows and also to provide RFI/EMC shielding. See page 2.

1. Self gripping seals and profiles



Self-gripping seals and profiles are available in a wide choice of styles to suit individual applications. Basically they comprise a hollow “bubble” or flexi-strip, bonded to an inverted “U” section incorporating a spring steel core. This is clipped to the enclosure frame to provide an efficient seal against the ingress of dust and moisture.

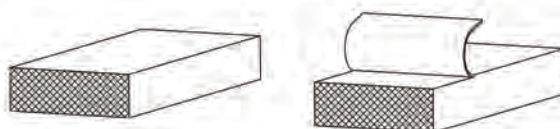
See page 3 for materials and properties. For specific information, please request technical data sheets or visit www.fdb.co.uk. NB To achieve efficient sealing, it is important to avoid multiple joints and to avoid mitres on 90° corners, we can supply radius adapters for a neat, professional solution. See page 3.

2. Edge Protections



Edge protections serve additional functions. By covering the sharp edges of enclosures and doors, they reduce the risk of injury at edges and corners. At the same time they can enhance the appearance of the panel. Comprising flexible PVC jackets with a spring steel core for simple clip-on fitting, they are available to fit from 0.8mm up to 10mm material. Supplied in black as standard but other colours are available to achieve a decorative effect.

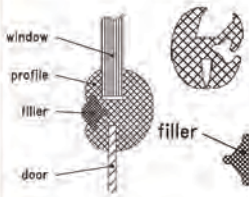
3. Rectangular section gaskets



Rectangular section gaskets provide a simple, easily installed and relatively low cost means of providing door sealing. However since they are applied flat and cut to size with four jointed corners, they are not normally recommended to meet IP65 rating. Rectangular section gaskets are available in closed-cell sponge rubber, EPDM or Neoprene (see page 3). They are non-stretching and can be supplied with an adhesive backing on one side as an aid to assembly. Many standard sizes of rectangular gasket are readily available but specials have longer lead times and may be subject to minimum order quantities.

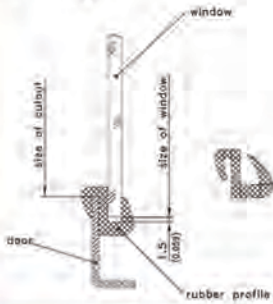
SPECIAL PURPOSE SEALS AND GASKETS:

Window Seals

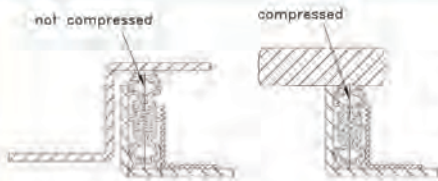


Ref. 5-130: This type is used to mount inspection panes in doors, casings and machine enclosures. The pane is clamped in place by means of the filler and held flush mounted in the cut-out.

Made from EPDM and neutral to paints, this seal has excellent weathering and ozone resistance. Choice of seals and fillers to suit most applications.



Ref. 5-140: The pane is mounted by simply pressing it into the window seal; additional tools are not required. The pane can be mounted inside or on the outside of the enclosure and hence is well suited for use under high pressure or vacuum conditions. Two sizes available for 4mm or 6mm panes. Available in either EPDM or Perbunan (NBR). NBR is oil resistant.



Ref. 5-100 Channel Sealing (4-lip profiles): For optimal sealing of doors and panels. They provide high tolerance compensation at minimal compression. The double symmetry design prevents incorrect fitting.



Round

Ref.5-127 Round Profiles: From 2mm up to 50mm diameter are available together with a castellated (crown) profile. Material: EPDM or Neoprene.



Castellated

RFI Sealing profiles



Ref.5-140 RFI Sealing Profiles: Provide electro-magnetic compatibility together with water and dust sealing without changing the cabinet design. These EMI/RFI shielding profiles provide enhanced gasketing by means of an additional Cu/Sn coated fleece. Available in three standard sizes and optional contact tape for use with pre-painted metalwork.

For all the seals discussed in this document, careful selection of material is important and we recommend you study the criteria on page 3.

NB the properties of most rubber products will be affected if they are stored under adverse conditions or improperly handled. For further information please request a copy of our storage guidelines.

These notes are intended for general guidance only. Please refer to the relevant data sheets for full details of any of the products mentioned.



Radius Adapter

For adequate ingress protection it is important to avoid multiple joints. To avoid the necessity for mitres on 90° corners, we can supply these handy radius adapters for a neat, professional solution.



Part: 209-4204.52

Explanations and instructions

Designations

Elastomer designation in accordance with ASTM D 1418-76

CR	Polychlorinated butadiene e.g. Neoprene
EPDM	Ethylene-propylene terpolymers e.g. Keltan
NBR	Acrylonitrile butadiene copolymers e.g. Perbunan
NR	Natural rubber (polyisoprene)

Elastomers and their properties

Chemical designation	Natural rubber	Nitrile rubber	Chloroprene-rubber	Ethylene-propylene-diene-rubber
Acronym according to ASTM D 1418	NR	NBR	CR	EPDM
Hardness range (Shore A) +/-5	40-90	45-90	40-90	40-85
Tear resistance N/mm ²	4-15	4-14	5-15	6-13
Rebound resilience at 20°C	++	0	+	+
Abrasion resistance	++	+	+	+
Elastic properties	++	+	+	+
Chemical resistance	A	0	+	++
Resistance to oil	A	++	+	-
Resistance to fuels	A	none	-	-
Solvent resistance	A	-	+	0
Temperature resistance °C	C	-40 to +80	-30 to +100	-25 to +100
Ozone resistance	0	0	++	++
Gen. weathering resistance	+	+	++	++
Gas impermeability	0	+	+	0
Resistance to permanent deformation	B	++	+	+
Bonding to metal	++	0	+	0
Dielectric properties	++	-	0	++

Explanation of symbols

A = Because of the numerous possible chemicals, solvents, application-temperatures and duration, the values stated may vary in individual cases. In particular, a type of elastomer that generally displays a low resistance may be very resistant to certain media.

B = In general, the resistance declines at relatively low or high temperatures.

C = These are limits that may fluctuate according to the composition of the mixture. Continuous use at limit levels brings about a change in the physical values. Special elastomer mixtures are necessary for extreme loads.

++ = excellent to very good

+ = good

0 = satisfactory to moderate

- = low to poor