A technical choice: the gasket raw materials

The material was not chosen in regards of its price or ease of molding like gaskets made of PU foam injected through the process "Formed in place foam gasket or FIPFG ", or even of the possibility of die-cutting, but to meet the technical requirements of electrical heating applications: heat resistance, fire resistance, mechanical resistance to successive openings and closings, UV resistance.

Comparison chart of the common materials used for housing gaskets (Compared with equivalent density of 2.4 g/cm3 and equivalent hardness of 12 to 18 Shore A)

Material	Minimum using temperature (weakening) (ASTM D 746)	Maximum permanent using temperature (SAE J-2236)	Residual distortion after compression (ASTM D1056)	Breakage mechanical resistance	Fire resistance (UL94)	UV resistance (SAE J1960= Automotive Industry) UL508 : boxes	Required force for a 25% compression (ASTM D1056)
Polyurethan foam	-20°C	+90°C	< 5%	455KPa (ASTM D3574, test E)	HBF (the lowest class)	Medium deterioration	76 kPa
Silicone foam	-55°C	+200°C	< 5%	246Kpa (ASTM) D412)	V0 and HF1 (the highest class)	No deterioration	27 kPa: the smallest constraint to close a lid or a window

Average values for general comparison only as characteristics may vary from a supplier to another.

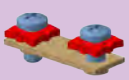
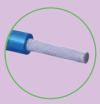
A technical choice: the main connection block

Main terminal block features (6mm²+2.5mm² version)
The plastic material of this terminal block is different from that of the box base and has been selected to meet its use specific constraints.
The most important constraint submitted to a terminal block is an overheating due to a lead bad tightening. The class of plastic having a GWFI (glow wire flammability index) above 850 ° C provides the highest resistance to overheating. This class is mandatory for applications involving unsupervised applications, as specified in the EN60335-1 § 30-2-3-1Standard. The material used for connectors has a GWFI of 960 °, which is much higher.
The other constraints of the application are:
Resistance to current tracking: CTI> 600 (Class 1, the highest).
Clearances and creepage distances: > 9 mm. 30% and 40% higher than the 6.3 and 5 mm @ 500V values requested under the highest pollution 3 environmental conditions. Distances measured in the worst case, with the largest possible cable gauge.
Protection against accidental electrical contacts : a screwed protection plate, exceeding the related specifications of the Standard 60-335-1

A technical choice: main connection block screws

Use of screws with captive notched square washers, allows to connect two slightly different size conductors on each terminal without compromising the clamping quality. This solution provides a universal wiring capability, independent of the wire end termination: bare conductors, tinned conductors, spade or eyelet terminals and conductors with cable shoes can be used.
As the conductor end is not hidden by the connection block, the user can clearly see if the wire is correctly inserted in the terminal, which is a common problem of the cage type terminal blocks in which the wire is often wrongly inserted under the cage and not tightened.

Comparative table of connection types accepted by the different terminal styles

Terminal type	Column header			
	Direct screw	Screw with plate	Cage terminal	Screw with notched square washer
				
Bare wire (solid or finely stranded)				
Bare tinned wire				
Cable shoe				
Spade terminal				
Eyelet terminal				

E-Mail: info@ultimheat.com Web: www.ultimheat.com