

Conductive Elastomer Extruded Gaskets



Electrically conductive silicone gaskets are manufactured in different standard profiles and upon client request, in silicone and fluorosilicone, loaded with conductive fillers such as Nickel Graphite, Silver Aluminium, Silver Copper, etc...The material is identified among those listed above based upon the resistance to corrosion characteristics and the shielding level required.

The characteristics that define the choice of materials are:

- IP 65/66/67 sealing grade;
- minimum and maximum temperature;
- type of assembly: the compressibility of the material and its elastic recovery;
- number of pieces to be produced;
- the consequent choice of tools and equipment;
- the need for a sample for shielding trials;
- UL 94 fire resistance;
- EMP and Tempest requirements (blends according to MIL-G-83528).

Applications

Conductive silicone gaskets are utilized to obtain a combination of electromagnetic shielding and IP environmental sealing, also in critical situations.

Materials according to MIL-G-83528 for use in military and industrial field.

Provision

In rolls or pieces cut to size.

Standard section (par.3) or custom section to produce on client drawing.

1. Material

Electrically conductive extruded profiles are composed of 2 components:

- Elastomer Binder
- Conductive filler

ELASTOMER BINDER	
Silicone	Fluorosilicone
Excellent high and low temperature properties. Fair physical properties	Resistant to oils and solvents of fluorinated rubber. Good for special applications where general resistance to oxidizing chemicals, aromatic and chlorinated solvent bases are required

Typical Elastomer Fluid Resistance		
Fluid	Silicone	Fluorosilicone
High Temperature	Excellent	Good
Low Temp	Excellent	Excellent
ASTM 1 Oil	Fair/Good	Good
Hydraulic Fluids (Phosphate Ester)	Poor	Poor
Hydrocarbon Fuels	Poor	Good
Ozone, Weather	Good	Good
STB (NBC Decontamination Fluid)	Poor	Fair/Good
Dilute Acids	Fair	Good

TYPICAL SHIELDING EFFECTIVENESS (dB)						
FREQUENCY	TEST METHOD	Silver Nickel	Silver Aluminum	Silver Glass	Silver Copper	Nickel Graphite
200 KHz (H)	MIL G 83528	70	70	55	70	70
100 MHz (E)	MIL G 83528	105	110	65	115	95
500 MHz (E)	MIL G 83528	105	105	70	115	90
2 GHz (Plane Wave)	MIL G 83528	100	100	70	115	90
10 GHz (Plane Wave)	MIL G 83528	100	100	65	115	90

These are typical values, to know the specific values of the compounds mentioned in par. 3, even beyond 10 GHz, please contact directly our technical department

2. Environmental Compatibility

FILLER TYPE	ENCLOSURE MATERIAL										
	Aluminium alloys	Magnesium Alloys	Stainless Steel	Copper Alloys	Cadmium plating	Tin Plating	Nickel Plating	Chromium plating	Silver Plating	Zinc Plated Galvanized Steel	Titanium
Pure Silver	×	×	●	●	×	□	●	●	●	×	●
Silver Aluminium	□	□	●	●	□	□	□	●	●	□	□
Silver Copper	×	×	●	●	×	×	□	●	●	×	●
Silver Glass	×	×	●	●	×	□	●	●	●	×	●
Nickel Graphite	□	□	●	●	□	●	●	●	●	□	●

●: Good

□: Satisfactory

×: Not Recommended

3. Elastomer characteristics

Codice	Elastomer binder	Conductive filler	Color	Hardness (Shore A) +/-5 ASTM S2240	Specific Gravity (g/cm3) +/-5% ASTM D792	Max Volume Resistivity (Ohm-cm) ASTM D991	Min Elongation (%) ASTM D412	MinTensile PSI (PSI) ASTM D412	Operating Temperature Range (°C)	Flammability rating	Compression Set (%) ASTM D395
AGNIS1	Silicone	Silver Nickel	Tan	65,0	4,32	0,047	100,0	181,0	-50+160	N/A	30,0
AGALS1	Silicone	Silver Aluminum	Tan	70,0	2,11	0,008	100,0	130,0	-50+160	N/A	30,0
AGALS2	Silicone	Silver Aluminum	Tan	65,0	2,00	0,008	175,0	130,0	-50+160	N/A	30,0
AGCUS1	Silicone	Silver Copper	Tan	75,0	3,32	0,005	100,0	181,0	-50+160	N/A	30,0
AGCUS2	Silicone	Silver Copper	Tan	60,0	3,02	0,008	100,0	145,0	-50+125	N/A	30,0
AGGLS1	Silicone	Silver Glass	Tan	65,0	1,85	0,050	60,0	80,0	-50+160	N/A	30,0
AGGLS3	Silicone	Silver Glass	Tan	65,0	1,80	0,005	75,0	51,0	-50+160	N/A	30,0
AGGLS4	Silicone	Silver Glass	Tan	60,0	7,75	0,05-0,1	80,0	130,0	-50+160	N/A	30,0
NIGS2	Silicone	Nickel Graphite	Gray	80,0	2,45	0,100	150,0	290,0	-50+160	N/A	30,0
NIGS3	Silicone	Nickel Graphite	Gray	60,0	1,99	0,1-0,5	100,0	145,0	-50+160	N/A	30,0
NIGSUL5	Silicone	Nickel Graphite	Gray	60,0	2,14	0,1-0,5	100,0	145,0	-50+160	UL 94-V1	35,0
NIGSU18	Silicone	Nickel Graphite	Gray	75,0	2,30	0,05-0,1	125,0	203,0	-50+160	UL 94-V1	30,0
AGNIF2A	Fluorosilicone	Silver Nickel	Tan	80,0	4,60	0,005	100,0	181,0	-50+160	N/A	30,0
AGCUF2B	Fluorosilicone	Silver Copper	Tan	75,0	5,00	0,005	100,0	181,0	-50+125	N/A	30,0
AGALF2D	Fluorosilicone	Silver Aluminum	Light Green	70,0	2,70	0,010	100,0	80,0	-50+160	N/A	30,0
NIGFJ	Fluorosilicone	Nickel Graphite	Dark Green	80,0	3,25	0,100	100,0	108,0	-50+160	N/A	30,0
NIGS390	Silicone	Nickel Graphite	Dark Gray	70,0	2,37	0,500	250,0	217,0	-50+160	N/A	30,0
CARBON-S	Silicone	Carbon	Black	70,0	1,19	9,000	150,0	725,0	-50+160	N/A	20,0

Table 1: Elastomer Characteristics