

CarTech® Glass Sealing "27"

Type Analysis

Single figures are nominal except where noted.

Carbon	0.05 %	Manganese	0.60 %
Silicon	0.40 %	Chromium	28.00 %
Nickel (Maximum)	0.50 %	Iron	Balance

General Information

Description

CarTech Glass Sealing "27" is a ductile 28% chromium-iron alloy which is used for glass-to-metal seals in special electronic and vacuum tubes and in incandescent and fluorescent lamps. It exhibits no phase transformation up to 2100°F (1150°C) and is particularly adapted to outside sealing such as caps where it has the advantage of gripping the glass on cooling, thus increasing the tightness of the seal. Annealed strip can be used for many cold drawn shapes.

Corrosion Resistance

Important Note: The following 4-level rating scale is intended for comparative purposes only. Corrosion testing is recommended; factors which affect corrosion resistance include temperature, concentration, pH, impurities, aeration, velocity, crevices, deposits, metallurgical condition, stress, surface finish and dissimilar metal contact.

Nitric Acid	Excellent	Salt Spray (NaCl)	Moderate
Humidity	Excellent		

Properties

Physical Properties

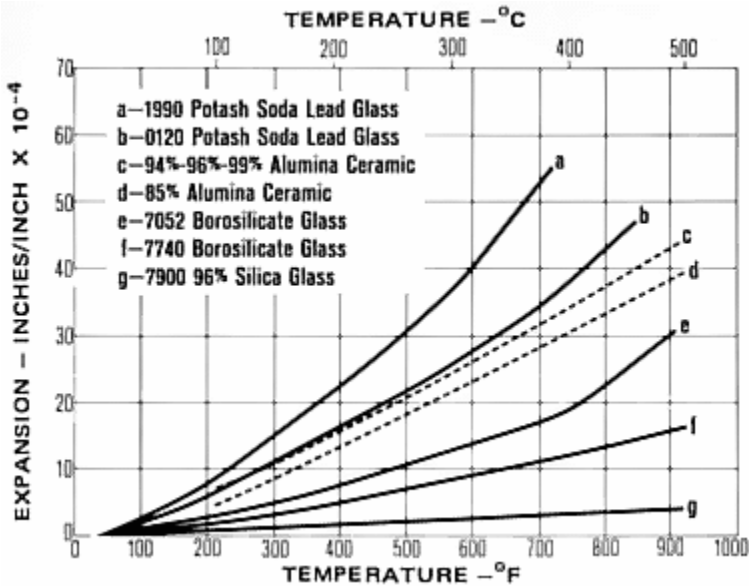
Specific Gravity	7.60
Density	0.2700 lb/in ³
Mean Specific Heat	0.1400 Btu/lb/°F
Mean CTE	
77 to 212°F, Annealed	5.25 x 10 ⁻⁶ in/in/°F
77 to 392°F, Annealed	5.60 x 10 ⁻⁶ in/in/°F
77 to 572°F, Annealed	5.86 x 10 ⁻⁶ in/in/°F
77 to 662°F, Annealed	5.94 x 10 ⁻⁶ in/in/°F
77 to 752°F, Annealed	5.98 x 10 ⁻⁶ in/in/°F
77 to 842°F, Annealed	6.06 x 10 ⁻⁶ in/in/°F
77 to 932°F, Annealed	6.19 x 10 ⁻⁶ in/in/°F
77 to 1112°F, Annealed	6.25 x 10 ⁻⁶ in/in/°F
77 to 1292°F, Annealed	6.46 x 10 ⁻⁶ in/in/°F
77 to 1472°F, Annealed	6.48 x 10 ⁻⁶ in/in/°F
77 to 1652°F, Annealed	7.09 x 10 ⁻⁶ in/in/°F

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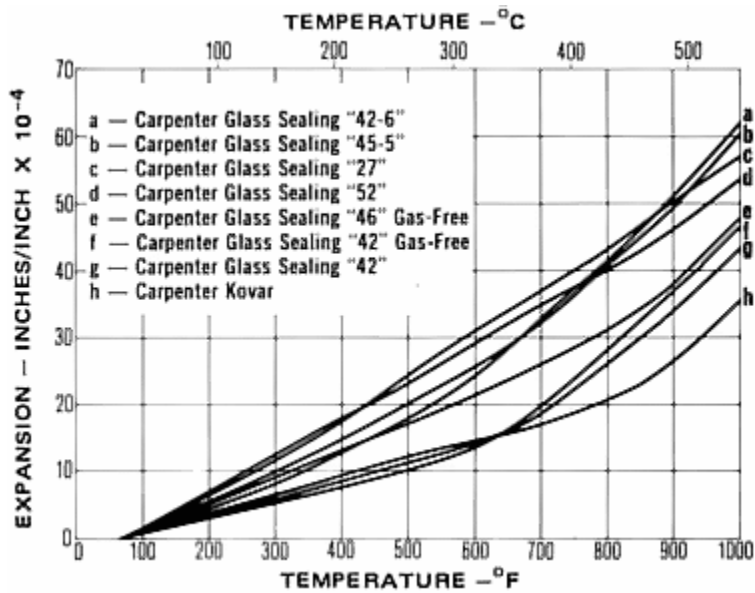
Coefficient of thermal expansion: As Annealed

Temperature		Coefficient	
77° F to	25° C to	10 ⁻⁶ /° F	10 ⁻⁶ /° C
212	100	5.25	9.4
392	200	5.60	10.1
572	300	5.86	10.5
662	350	5.94	10.7
752	400	5.98	10.8
842	450	6.06	10.9
932	500	6.19	11.1
1112	600	6.25	11.2
1292	700	6.46	11.6
1472	800	6.48	11.7
1652	900	7.09	12.8

Thermal Conductivity	158.0	BTU-in/hr/ft ² /°F
Modulus of Elasticity (E) (Annealed)	30.0	x 10 ³ ksi
Electrical Resistivity (70°F)	380.0	ohm-cir-mil/ft
Melting Range	2600	°F



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Other Information

Applicable Specifications

- ASTM F256

Forms Manufactured

- Bar-Rounds
- Wire
- Strip

Technical Articles

- [A Guide to Etching Specialty Alloys for Microstructural Evaluation](#)
- [After 100 Years, the Uses for Invar Continue to Multiply](#)

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Edition Date: 01/01/1983