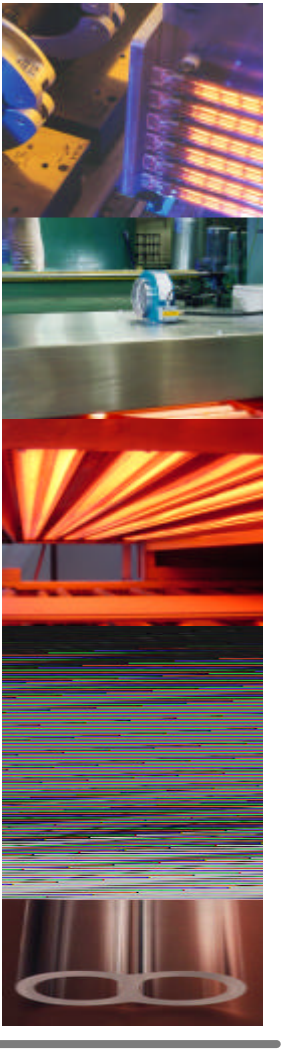
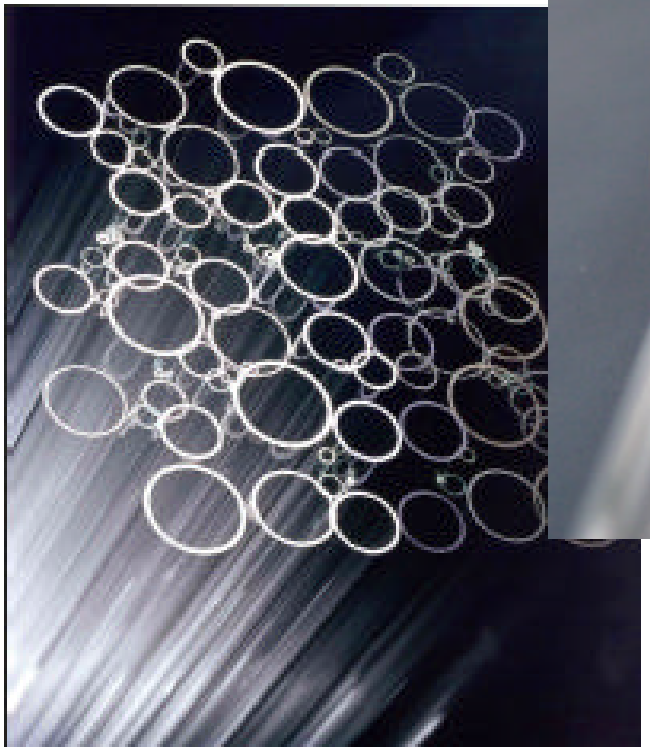
Chapter 2

Infrared Emitters

- Quartz Glass
- Twin Tube Design
- Gold Reflector
- Emitter Types
- Emitter Modification



Infrared Emitters are Made of Quartz Glass

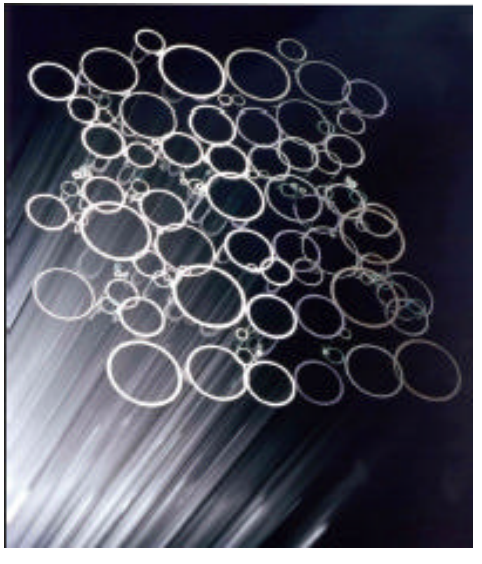


Why Quartz Glass ?

- high transmission for IR Radiation
- high thermal shock resistance
- good high temperature properties
- low thermal expansion
- chemical purity
- chemical resistance
- low hysteresis

Mechanical Data of Quartz Glass (Fused Silica) (at 20 °C)

Characteristics	Fused silica	Unit
Density	2.203	g/cm^3
Elasticity	$7.25 \cdot 10^4$	N/mm^2
Compressive strength	1150	N/mm^2
Tensile strength	50	N/mm^2
Bending strength	67	N/mm^2
Torsional strength	30	N/mm^2



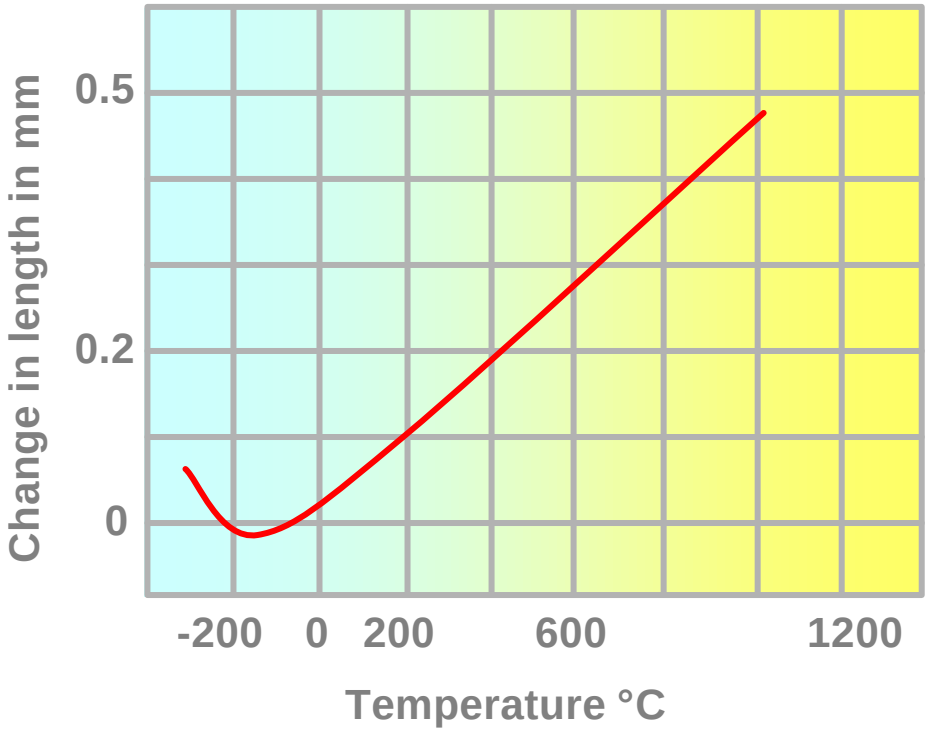
Thermal Data of Fused Silica

Maximum working temperature, continuous : **1100 °C**

Maximum working temperature, short term : **1300 °C**

Softening point : **1730 °C**

Change in length of a 1m long rod of transparent fused silica as a function of temperature



Technical Background

Transmission of Fused Silica (Low OH Content)