



### Technical Advantages of Fused Silica Rolls

- Very stable in air or in sulphur dioxide containing gases.
- Low thermal conductivity reduces heat loss from the end of the rolls, resulting in a more uniform roll temperature, lower power requirement and a cool drive train.
- Very low thermal expansion results in superior resistance to thermal shock and excellent stability.
- Hard surface resists product damage and increases wear resistance.
- Superior thermal shock resistance permits rapid heating of the furnace.
- High temperature strength and creep resistance permits the rolls to withstand unplanned shutdowns caused by drive or power failures.
- High infrared reflectivity improves hot zone temperature uniformity throughout the furnace.

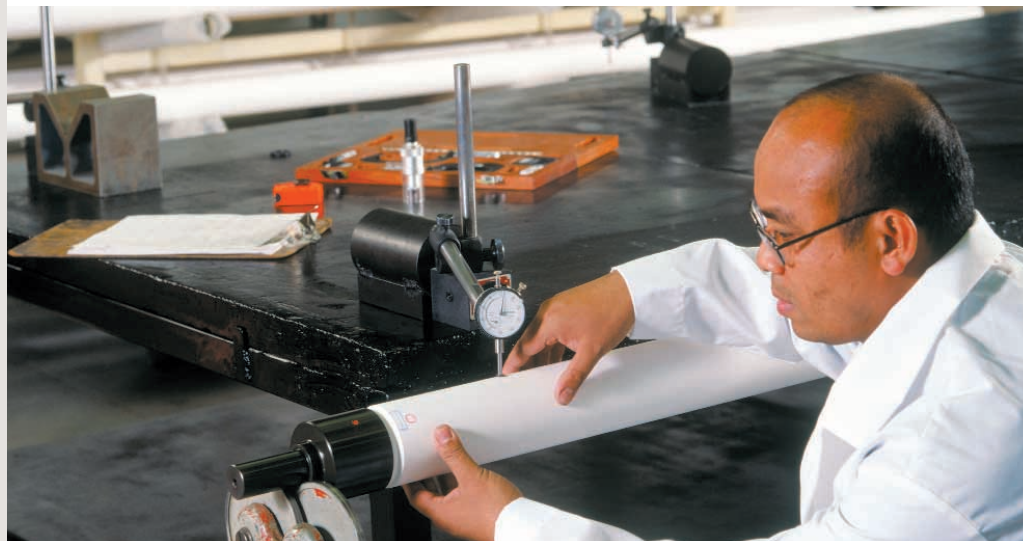
The Thermo Materials Division of Ceradyne, Inc. has produced only high quality, fused silica products since it was founded in 1967. The company has supplied more than 150,000 fused silica rolls over the past 20 years.



Ceradyne Thermo Materials is a Multi-National American Owned ISO 9000 Company

### Advantages of Ceradyne Produced Rolls:

- Advanced technology produces controlled microstructure for improved wear and superior mechanical properties.
- ISO 9000 quality system ensures the highest possible quality.
- Controlled Young's Modulus results in uniform deflection.
- Engineering assistance is available.
- Proprietary equipment produces superior surface finishes.
- On-site high precision CNC turning center for end caps.
- 100% strength testing eliminates premature failure.
- State-of-the-art ultrasonic cleaning ensures ultra-clean rolls.



### Typical Properties of a Ceradyne Thermo-Sil® Fused Silica Roll

Property	Units	
Modulus of Rupture*	MPa	34.5
Young's Modulus	GPa	37.2
Coefficient of Thermal Expansion	10 <sup>-6</sup> /°C	0.4
Hardness (Knoop 110g)	Kg/mm <sup>2</sup>	750
Reflectance (@ Infra Redλ)	Base %	95%-97% (Uniform Diffusivity)
Thermal Conductivity	W/m•°C	0.84
Specific Heat @ 760°C	J/g•°C	1.0
Standard Surface Finish	Raµm	2.0 (Max)
Surface Finish Capability	Raµm	0.8 (Surcharge)
Circular Runout		As Required



\*All rolls are proof tested to 8.3MPa Modulus of Rupture, in accordance with ASTM C-93-84. The above stated values are typical and not to be considered as specification values. Ceradyne, Inc. assumes no liability for the use of any of the above data.





## Furnace Rolls



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