

BIMESPRO TCS thermal coating curing system

Introduction & Application

Optical fibers for high temperature or demanding environment conditions require special coatings. Such coatings are applied by standard coating application equipment but are mostly cured by heat (IR waves).

Bimes' TCS curing systems are used in special fiber draw towers for curing (polymerization) silicones, polyimides, thermoplasts, varnishes or paints and photosensitive coatings.

Description

TCS systems consist of TCS oven body, electrical control cabinet and exhaust connections to remove polymerization process gases.

Thermally cured coating materials are polymerized using heat from a purpose-built oven, consisting of:

- Electrical control cabinet with interface to OptiFACT tower control system,
- Electrical, vertically split furnace with 3 temperature control zones, with thermocouples top and bottom iris, internal central silica tube for fiber to pass through the furnace, with N2 gas sweep purge,
- Gas panel for connection of pure nitrogen gas to sweep inside of the internal silica protective tube, as well as exhaust connection to remove gases and smell from curing process,
- Tower mounting bracket, with X-Y position adjustment.



Depending on application and required curing length, 1 – 4 TCS curing systems may be required. For PI application one TCS minimum should be used after each coater, silicone curing is slow, so for a single layer 2-4 TCS systems may be used (depending on required line speed).

To provide installation space in tower draw line, coating dies have to be moved up the tower (relative to acrylate application position) to provide space for TCS system(s).

Specifications:

Parameter	Value
Size	750 x 400 x 400 (HxWxD) in mm
Materials	Stainless steel, ceramic insulation, fused silica fiber protection tube
Electrical power supply	max 2 kW, 230V 50 Hz, 10A fuse
Temperature range	room temperature – 500°C (max 750°C), ±5°C
Temperature control zones	3 zones, each with own heater and K-type thermocouple, PID control
Effective curing length	approx. 700 mm
Effective fiber position area	5 mm diameter
Protective gas	Nitrogen, 2 – 10 slm, rotameter controlled
Cooling	ambient air cooled
Exhaust	DN 50 duct connection

For more information and quotes please write to sales@bimespro.com or info@bimespro.com