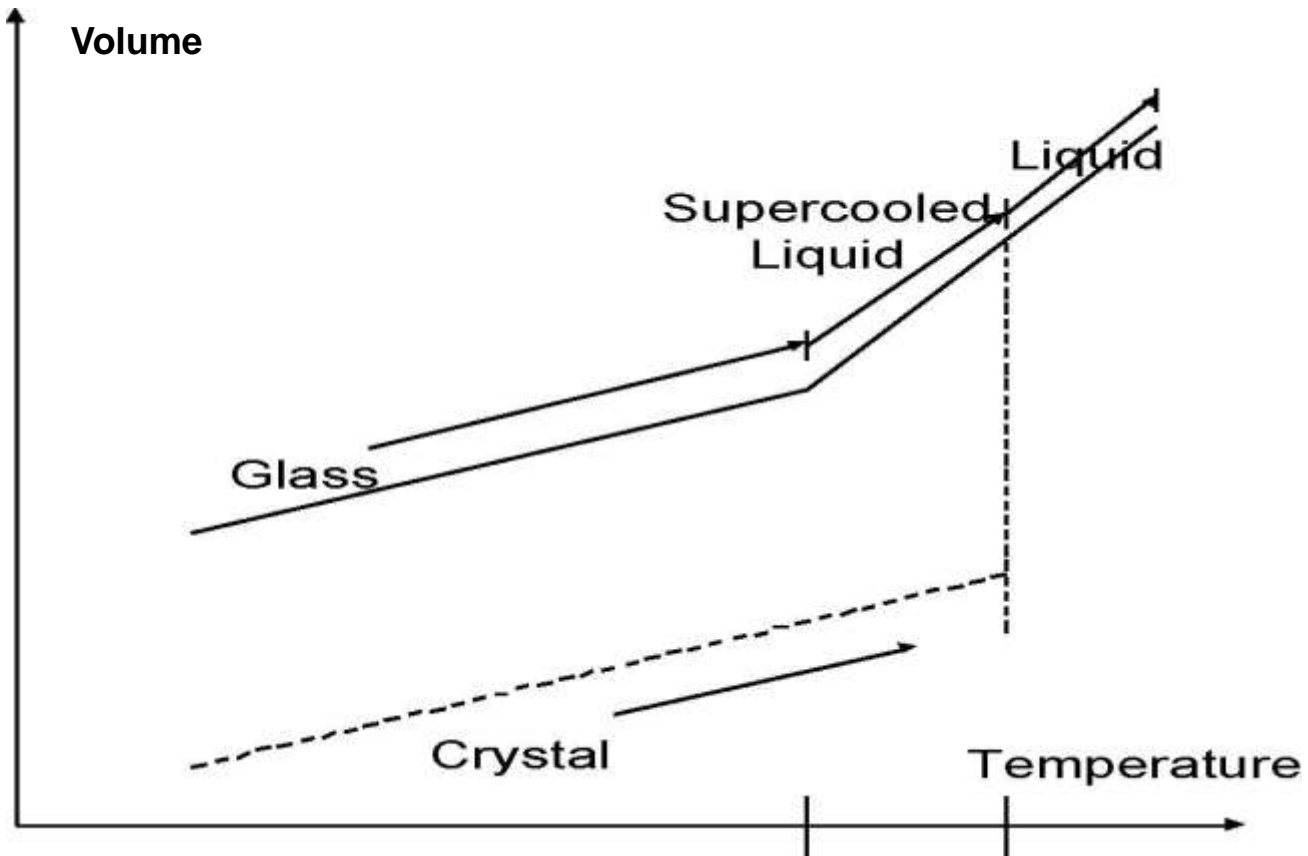


FIBER MANUFACTURING

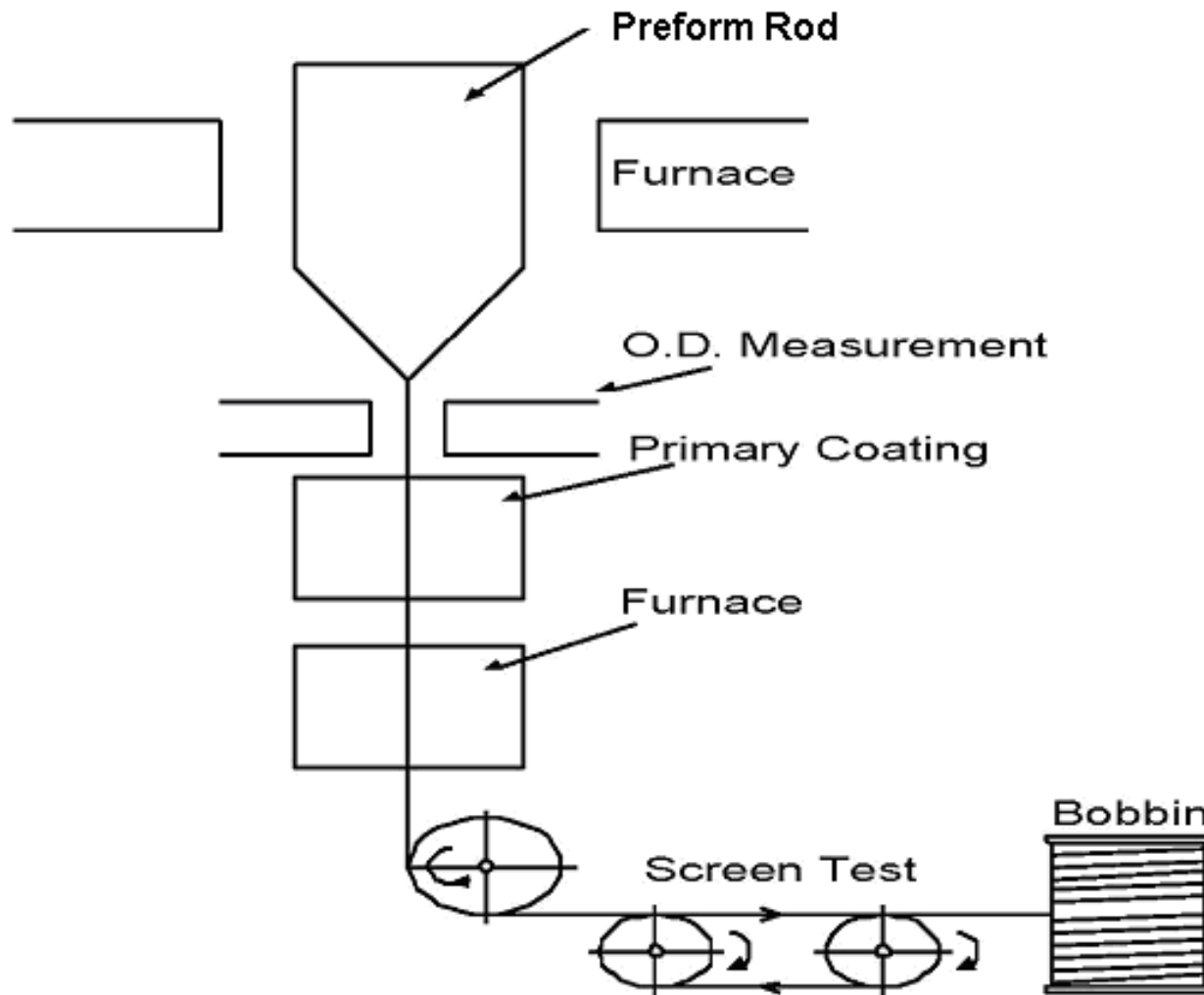
Pabrikasi Fiber

- **Dua teknik dasar pembuatan fiber :**
 - Direct melt
 - Vapor Phase Oxidation (VPO)
- **Direct melt :**
 - Mengikuti proses pembuatan gelas tradisional.
 - Fiber optik dibuat langsung pd tingkat cair dr komponen gelas silika yg dimurnikan.
- **VPO :**
 - Uap halida logam sangat murni (SiCl_4 , GeCl_4) bereaksi dng oksigen membentuk serbuk putih partikel SiO_2
 - Partikel dikumpulkan pd permukaan bagian terbesar gelas (salah satu dr 4 metode)
 - Sintering, yi mentransformasikan menjadi gelas yg homogen tanpa pencairan, menjadi preform (batang atau tabung).

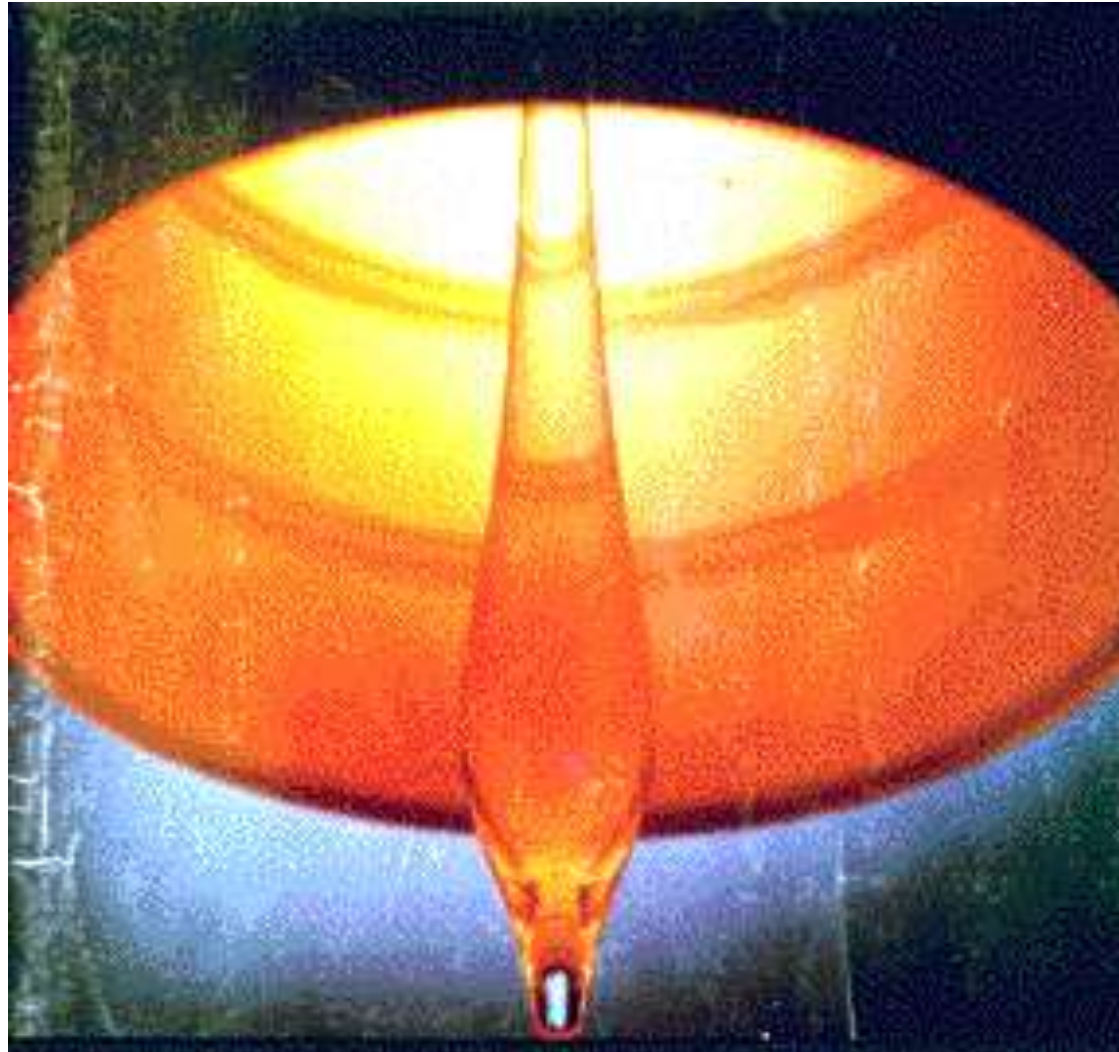
- VPO (lanjutan):
 - **Ukuran preform diameter 10 s/d 25 mm, panjang 60 s/d 120 cm**
 - **Dr preform dibuat fiber.**
- Metode VPO :
 - **OVPO : Outside Vapor Phase Oxidation**
 - **VAD : vapor phase axial deposition**
 - **MCVD : Modified Chemical Vapor Deposition → paling banyak digunakan.**
 - **PCVD : Plasma-activated Chemical Vapor Deposition**
 - **PMCVD : Plasma enhanced Chemical Vapor Deposition**



Glass Transition Temperature

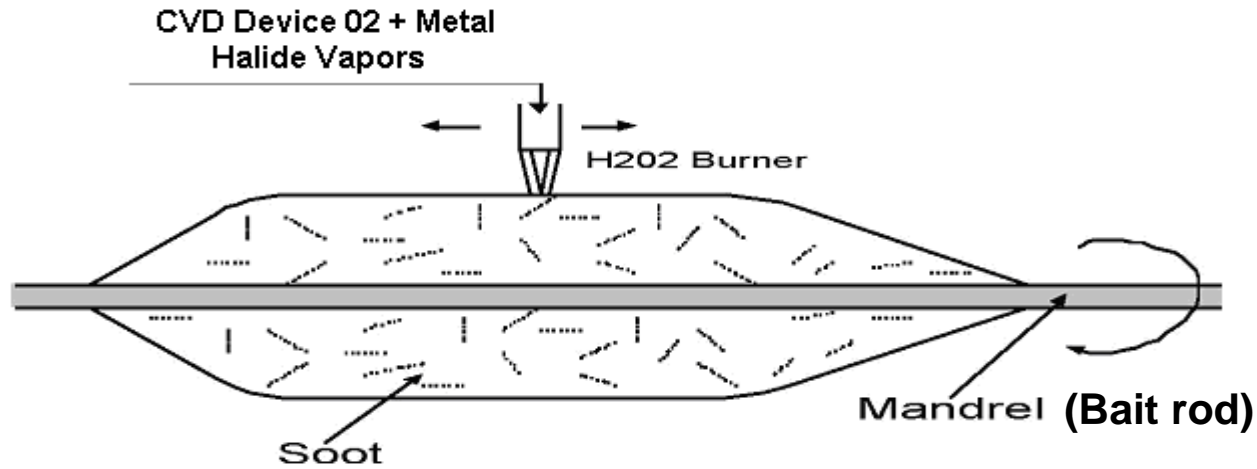


Pembuatan fiber dr preform

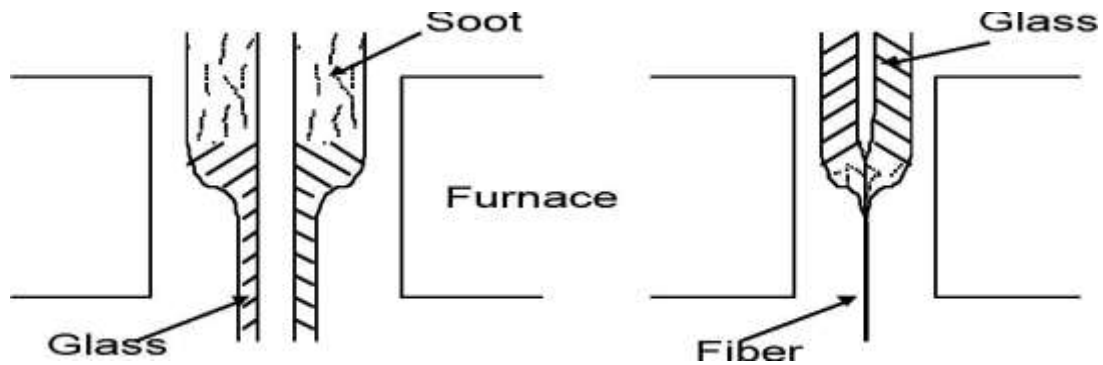


Fiber drawing

Fakultas Teknik Elektro

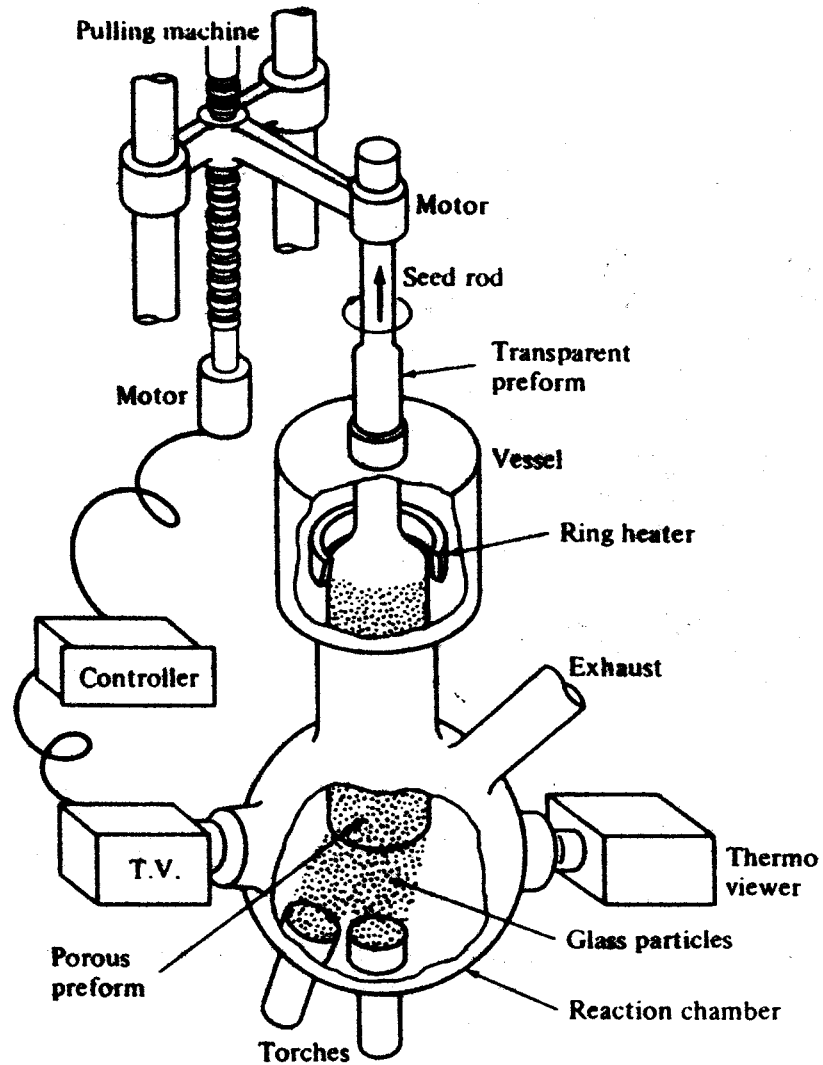


Soot deposition

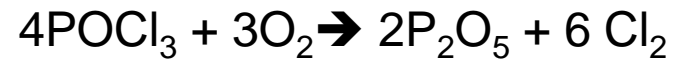
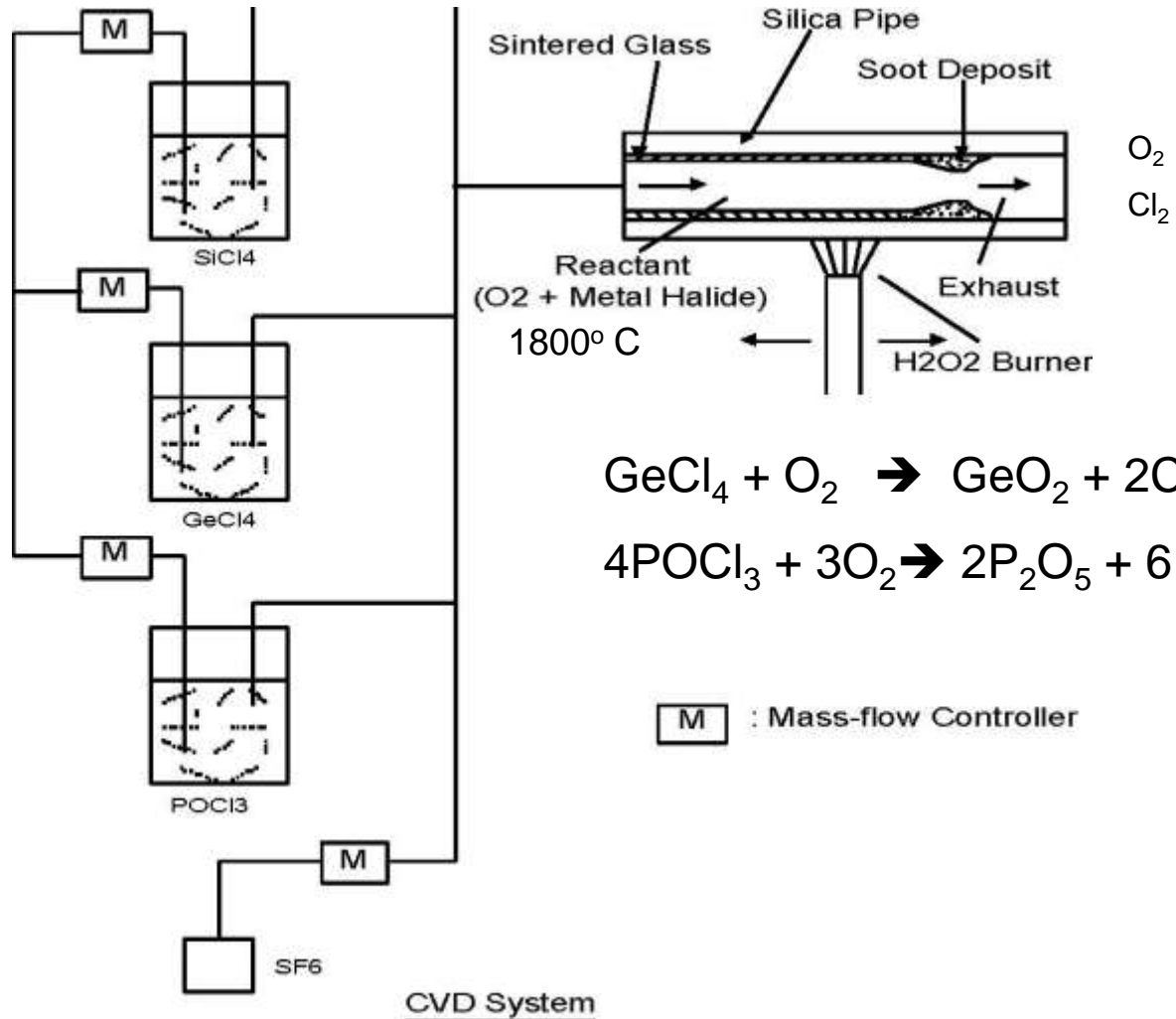


Preform Sintering

Fiber Drawing

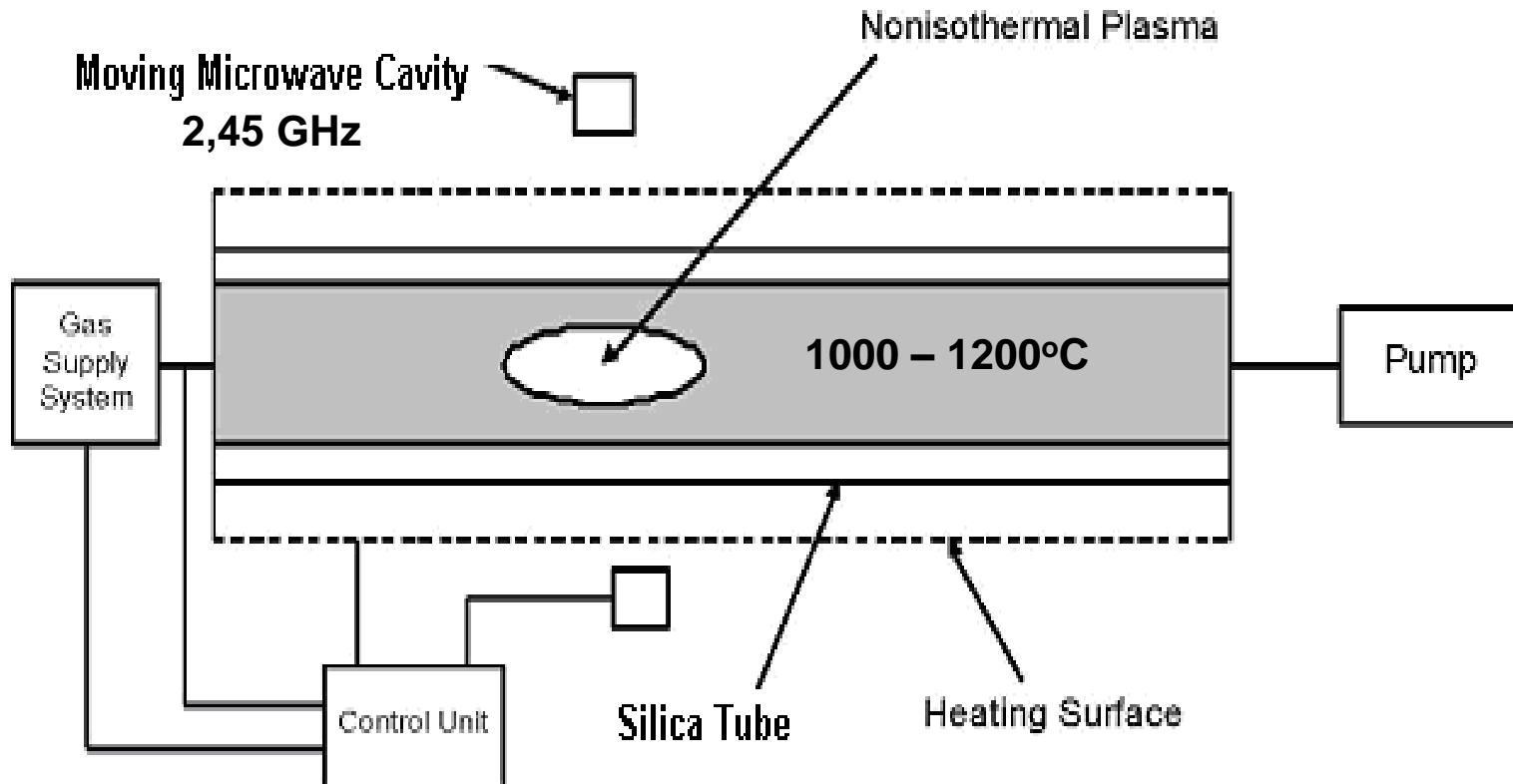


Metode VAD



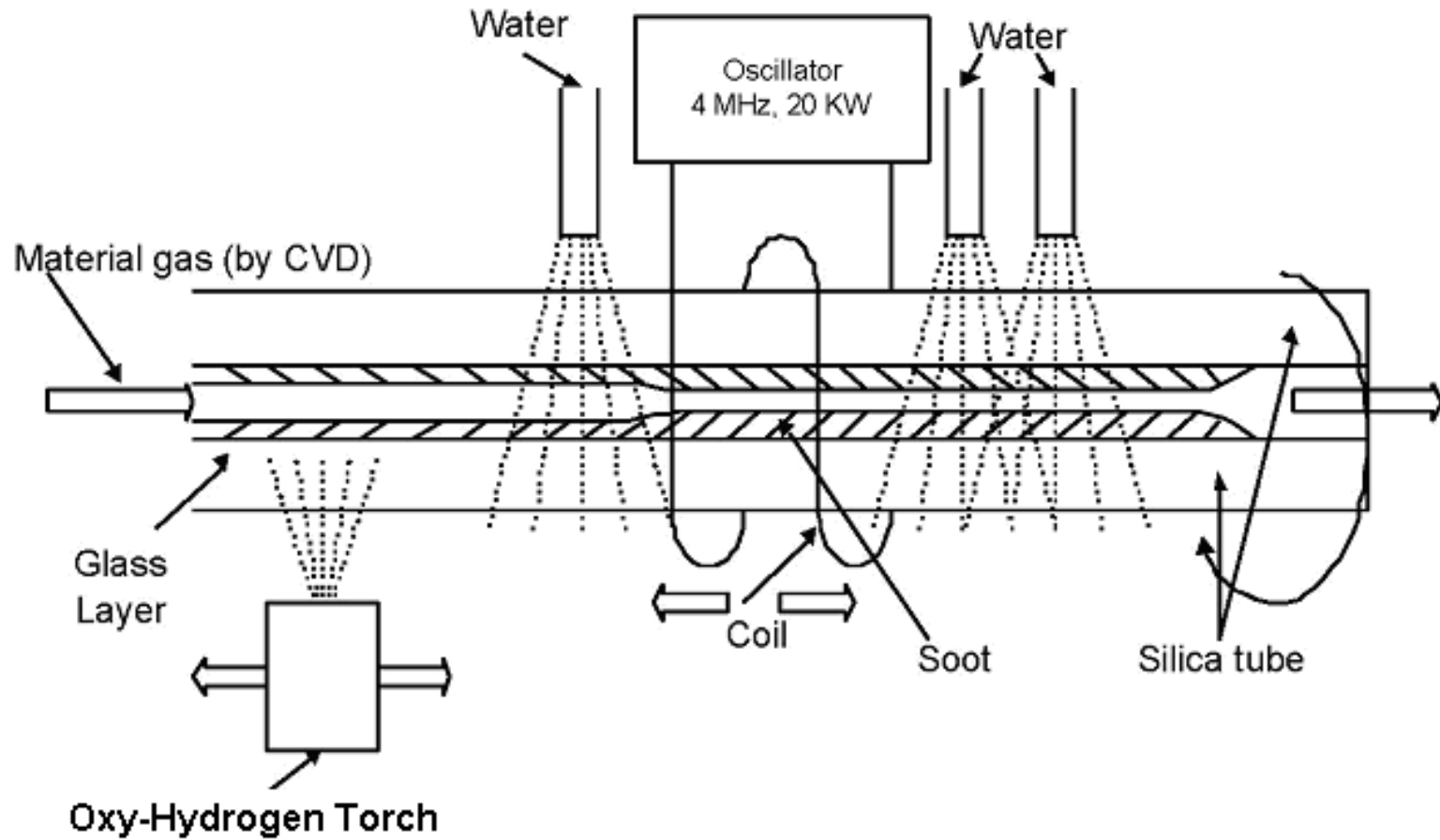
M : Mass-flow Controller

Metode MCVD

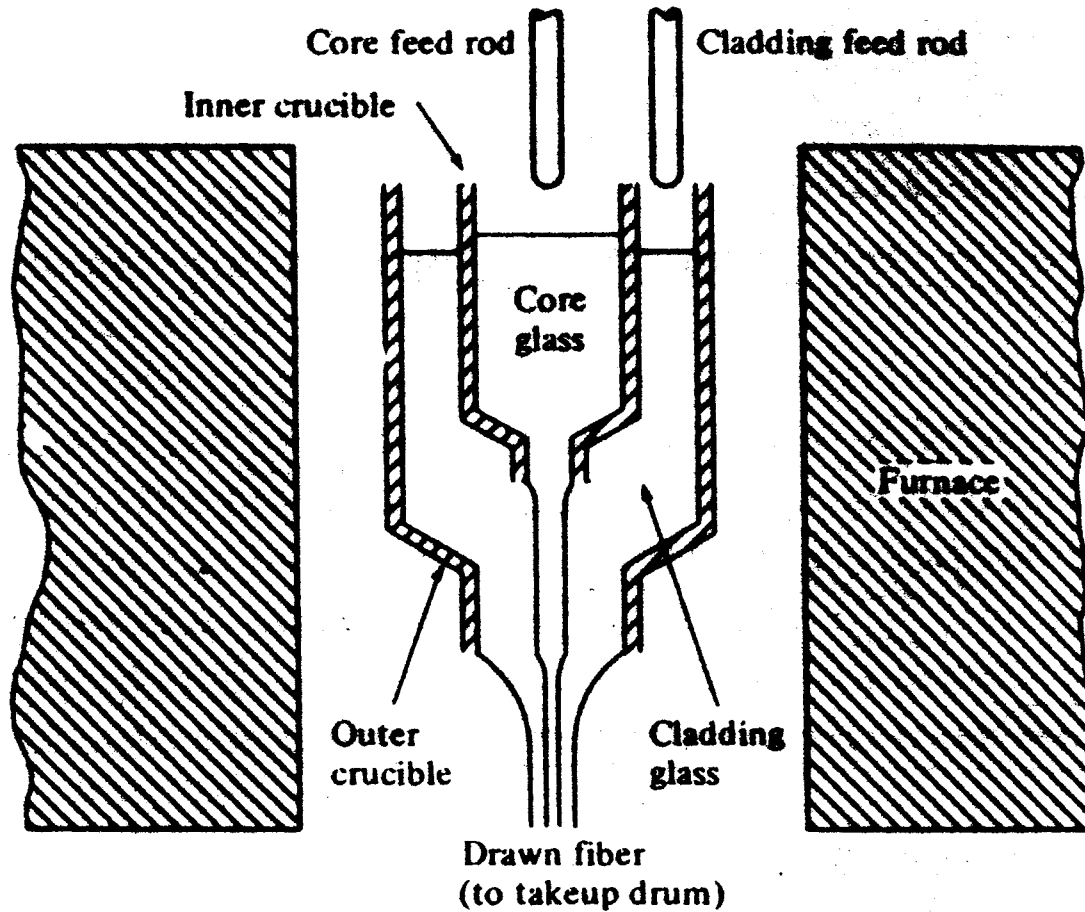


Metode PCVD

Plasma : gas terionisasi sempurna, keadaan materi ke-4

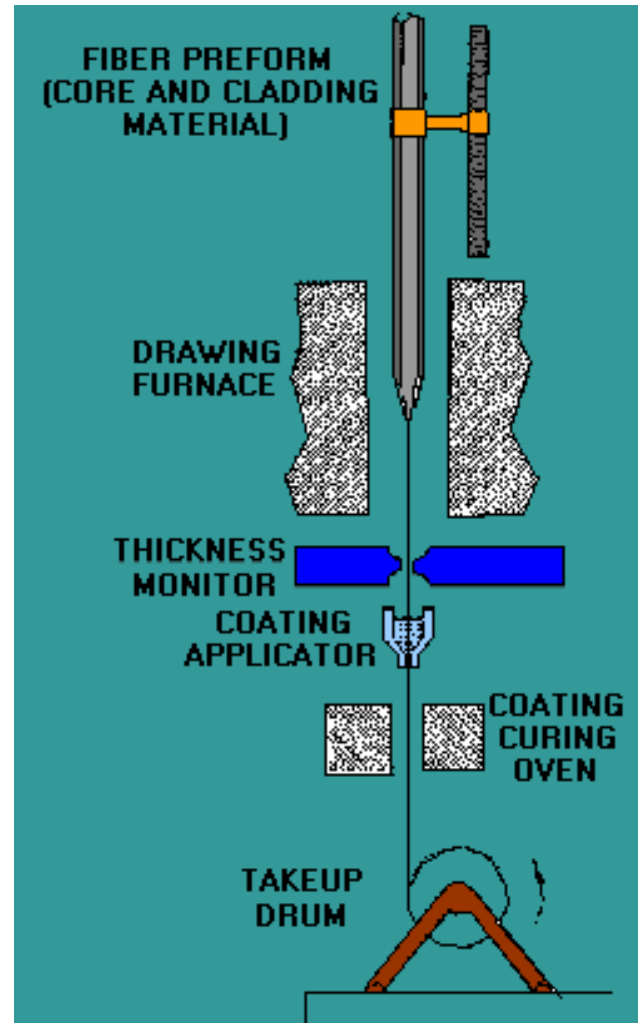


Metode PM-CVD



Metode Double-crucible

SINGLE CRUCIBLE



DOUBLE CRUCIBLE

