

Sunnyside Mirror Coating Procedure

Sunnyside 2m chamber description

- The vacuum chamber diameter is 84" I.D
- The vacuum chamber height is 12' (13' including hemispherical bottom).
- The chamber has one filament ring 71.75" diameter (center of filaments).
- The chamber wall to the center of the filaments is 6.125".
- The optimum placement of the surface of the mirror in the chamber is 19" below the chamber lid.
- The top of the filaments to the edge of the mirror is 34" (vertical measurement - 72" diameter mirror).
- The top of the filaments to the chamber lid is 53".
- The mirrors are held from the chamber lid, the coated surface faces down.
- There is one ring of 36 filaments located near the periphery of the chamber, below the mirror.
- The filaments are made from 3 strand twisted tungsten wire (individual wire size 0.020"), 6 coils per filament, coiled section of filament 2.5" long, coil diameter 0.44" O.D., overall length of tungsten wire 12.625".
- Deposition material is aluminum, 99.999% purity, 1mm diameter wire, 1.25" or 1.375" long, folded twice, placed on the bottom of each filament loop, total of 216 pieces of aluminum.
- The tungsten filaments can be used for two or three shoots before they need to be replaced.
- Mechanical pump; Kinney KDH 250 rotary piston pump, pumping speed 248 (cfm)
- Roots Blower pump; Kinney KMBV 1300, pumping speed 1300 (cfm)
- (2) Diffusion pumps; Kinney KDP-32 (32" diameter) pumping speed 31000 l/s (baffled)
- Holding pump; Stokes Microvac 148-H9, pumping speed 40 (cfm)
- Rough vacuum pressure is measured with Granville-Phillips Series 275 controllers with Convectron gauge sensors.
- High vacuum pressure is measured with Granville-Phillips Series 270 controllers with Bayard-Alpert Series 274 ionization gauges.
- The deposition rate and total thickness are measured by a Maxtek TM-100 R, 6.0 MHz quartz crystal microbalance.

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