

# Sunnyside Mirror Coating Procedure

## Sunnyside 2m chamber description

The vacuum chamber diameter: 84" I.D

The vacuum chamber height: 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.

## Sunnyside Chamber Lid Drawings

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