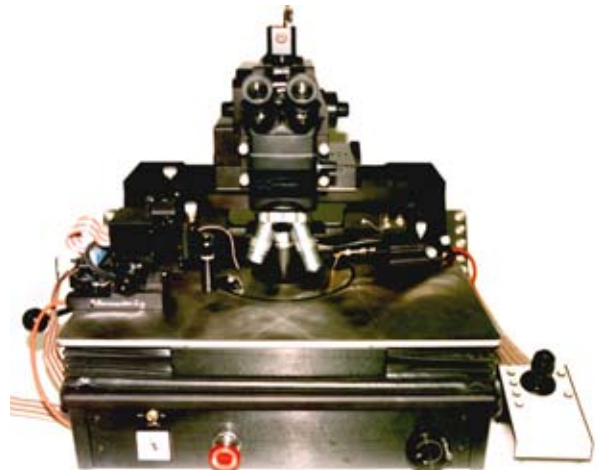


8800 SERIES TEMPSEAL AND DRYER SYSTEM

Introduction

The 8800-TEMPSEAL option for Micromanipulator's 8800 series probers (8060, 8065 and 8860) provides a dry environment in which low temperature probing may be accomplished with no condensation or 'frost' formation on the test device, system chuck, or the prober stage drive.



8065 with 8800-TEMPSEAL

In a dry environment samples may be probed to temperatures of -65°C using probe cards, individual probes, or a combination of both.

The 8800-TEMPSEAL with dry air maintains the prober chuck surface and sample in a dry condition. In addition, it also maintains the stage drive and chuck plumbing system in a dry state. This is not currently available in other dry probing system and offers the distinct benefits of reducing problems due to:

- Condensation at the sample edges to cause shorting or unpredictable effects.
- Condensation on the stage drive system which interferes with stage accuracy and repeatability.
- Condensation on the chuck plumbing cables and hoses causing wear, breakage or possible electrical shorting.

- Reduced residual moisture contaminating the prober internal drive system and causing reliability / life problems or leaking underneath or around the prober.

Tempseal and Dryer System

The 8800-TEMPSEAL provides an integrated enclosure which closes the probe station base, the space between the base and platen, and the top probing area. The enclosure width is that of the platen itself, thus resulting in no increase in size to the probe station footprint.

The 8800-TEMPSEAL enclosure houses the probe station stage drive system, the wafer chuck (or other sample holder), and the internal plumbing cables and hoses for the hot/cold chuck.

The internal plumbing cables and hoses are connected via an interface/feedthrough panel on the rear of the probe station. Provided by the user or Micromanipulator's model 8800-DRY-VO air drying system, dry air is introduced into the 8800-TEMPSEAL. Dry air flows from the rear of the probe station to the ring above the chuck surface ensuring a low level of internal positive pressure and maintaining a dry environment.

Access through the 8800-TEMPSEAL is provided via a removable front platen "wedge" for sample loading and unloading, via a rear port for probe card cables and via sample covers which provide access for the prober microscope objectives and individual probes.

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Specifications subject to change without notice.

Typical Application* with TEMPSEAL and 8800-DRY:

1. Load sample onto wafer chuck, center chuck position, and replace the 8800-TEMPSEAL loading platen wedge, closing the 8800-TEMPSEAL environment.

2. Position probe card and/or individual probes as required using 8800-TEMPSEAL sample cover. Use the cover with the fewest number of access ports for best results.

3. Turn on the dry air system (8800-DRY-VO) with input pressure 80-100 PSIG and set the output flow to 20 SCFH minimum to purge moist air from station.

Note: Air dryness decreases significantly with reduced input pressure. For example, with 50 PSIG input pressure, the dewpoint at the sample environment is typically -10 to -15°C. Increases in air flow rates will not significantly alter the environment dewpoint but may instead cause undesirable turbulence.

4. Keep hot/cold chuck controller off during the purge. (Some chucks maintain a cold flow to parts of the chuck at all times, therefore purge times will be reduced if the environment is purged with the chuck controller off).

5. Purge environment: purge time will vary with the desired temperature, ambient humidity, and input pressure to dryer. Purge time must be determined empirically for a particular application. For example, a typical purge time of 30-40 minutes may be adequate for -40°C probing.

6. Turn on chuck controller and elevate temperature (typically to 100°C) for 5 to 10 minutes to drive off residual chuck moisture.

7. Chuck temperature may now be set to the cold probing temperature and the dry environment will be maintained.

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Specifications 8800-TEMPSEAL

Availability:
For model 8060, 8065, and 8860, 6 or 8-inch (150mm or 200mm) probing stations.

Environment maintained:
Prober chuck, stage drive, and internal plumbing are maintained in the dry environment.

Physical configuration:
Fully contained within the standard probe station physical "envelope." No increase in probe station space occupied is realized.

* Purge time and chuck temperature may vary with specific conditions. Increase time and temperature to receive desired results.

Dry temperature range:

To -65°C (depends upon dewpoint of incoming air provided by user or with Micromanipulator model 8800-DRY-VO air dryer/filter system).

Application:

May be used with a probe card, individual manipulators and probes (manual or programmable) or a combination of both.

8800-DRY-VO



8800-DRY-VO

Electrical:

- 110/240 volts AC, 50/60 Hz switchable

Physical

Dimensions:

- Castors provided
- 30.4" X 40" X 13" (76 X 99 X 33 cm) WXHXD

Input Air:

- 80-100 PSIG (551K to 689Kpascal)
- Cleaned and filtered to remove oil vapor and hydrocarbon to 0.5 to 2.0 PPM

Output Air:

- Flow 0 to 20 SCFM (0 to 9.4 l/sec)
- Flow 5 to 7 SCFM (2.4 to 3.3 l/sec) recommended with 8800-TEMPSEAL
- Particulates filtered to 0.3µm / 0.5-2.0ppm with 99.97% DOP efficiency
- Dewpoint to -73.3°C (-100°F), with 100 PSIG (7.0kg/cm² gauge) input pressure