

# MATERIALS THICKNESS MEASUREMENT

- 
- Cool Drawer Single/Dual Sensors ..... N 02
  - Front Load Single/Dual Sensors..... N 04

## Cool Drawer Single/Dual Sensors

The Cool Drawer™ Single/Dual Sensors allow crystal installation into the sensor from the side, convenient for systems with insufficient room for front load crystal installation.

The Cool Drawer™ Dual Sensor is designed for use in critical processes where it is desirable to have a second crystal in the vacuum chamber.

The sensors employ the Cool Drawer Crystal Holder which is thermally shielded by the water-cooled housing insuring excellent crystal performance.

### ADVANTAGES

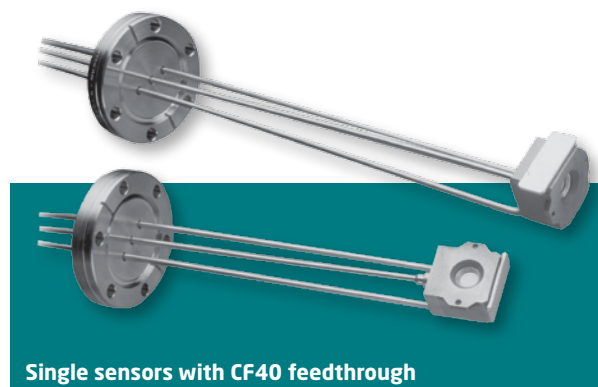
- No internal cables.
- Cool Drawer crystal holder.
- Easy installation.
- Bakeable if ordered with welded CF40 flange.
- Adjustable length if ordered with compression fittings.
- No brazing required if ordered with compression fittings.
- Sensor/Feedthrough combinations available welded to customer specified lengths.

#### Available with:

- CF40 feedthrough
- 2.54 cm (1") bolt feedthrough

### SENSOR CONFIGURATIONS

Two sensor configurations are offered: the standard version and the right angle version. The standard version is



designed for installation from the side or bottom of the chamber and the cooling tubes and the crystal face are parallel. The right angle version is designed for installation through the top of the vacuum system and the water cooling tubes are perpendicular to the crystal face.

Single Sensor: both versions are available with or without a crystal shutter.

Dual Sensor: the sensor with the CF40 flange is pre-installed in a special two piece CF40 feedthrough. This allows the sensor head to be rotated independently of the flange and circumvents the dimensional limitations of the CF flange. Available with crystal shutter.



Cool Drawer™ crystal holder

Compression fittings allow for easy adjustability without the need for brazing or welding. The feedthrough can be moved along the length of the tubes allowing the length inside the vacuum system to be adjusted over a range of 10 to 66 cm (4" to 26").

Once the desired length is determined, the compression fittings allow for a finger tight tube seal.

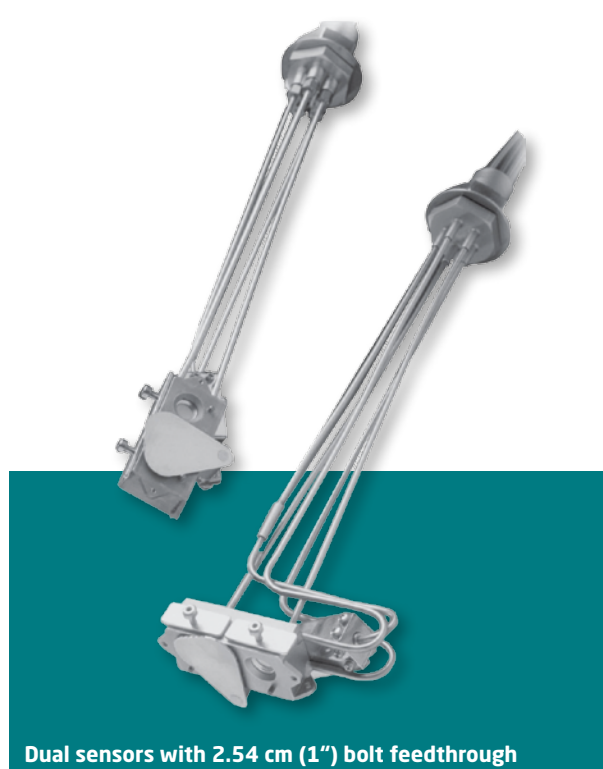
When selected with the welded CF40, the sensor is designed for high temperature processes where reliability is critical. Constructed of stainless steel and ceramic materials it is suitable for applications requiring high temperature bakeout (see specifications).

## FEEDTHROUGH CONNECTIONS

Cool Drawer single sensors must be ordered in combination with a feedthrough. The sensor / feedthrough connection can be either welded or made with compression fittings.

## SPECIFICATIONS

Temperature (1 inch bolt)	Operational environment to 300°C with water cooling or 165°C without
Temperature (CF 40)	Operational environment to 450°C with water cooling or 165°C without
Crystal	Industry standard 0.550" (13.97 mm) diameter, 5 MHz or 6 MHz



Dual sensors with 2.54 cm (1") bolt feedthrough



Dual sensors with CF40 feedthrough

## Front Load Single/Dual Sensors

Front Load Single/Dual crystal sensors offer proven reliability and durability and have the best thermal stability of any sensor head on the market. The front load design allows for easy insertion of the crystal holder in applications lacking sufficient room for side insertion.

Assembled mechanically rather than soldered, parts can be replaced conveniently in the field, if necessary. Sensors can be ordered individually or in a sensor/feedthrough combination that can be either welded or assembled with compression fittings.



Front load single sensor

### FRONT LOAD SINGLE SENSOR CONFIGURATION

Two sensor configurations are offered: the standard version and the right angle (compact) version. The standard version is designed for installation from the side or bottom of the chamber having the cooling tubes parallel to the crystal face. The right angle version is designed for installation through the top of the vacuum system having the water cooling tubes perpendicular to the crystal face. Optionally, sensors can be ordered with a pneumatically driven crystal shutter to protect the crystal during source warm up, when not used during deposition of an alternate material, or to extend crystal life when used with RateWatcher™. The shutter is designed to flip down allowing easy crystal replacement.

### FRONT LOAD DUAL SENSOR CONFIGURATION

The Front Load Dual Sensor is available in a standard mount configuration where the water tubes are parallel to the crystal face. A pneumatically driven crystal shutter comes standard to protect the back up crystal, while the primary crystal monitors the deposition rate. The shutter is designed to flip down allowing easy crystal replacement.

For the both Single and Dual Sensors, the exposed crystal electrode is fully grounded to effectively eliminate problems due to RF interference.

## FEEDTHROUGHS

INFICON offers two types of feedthroughs, either a 1 inch bolt feedthrough or a 2¾ inch (CF40) ConFlat® flange feedthrough. KF40 feedthroughs are available on request.

## FEEDTHROUGH CONNECTION

Front Load Single sensors can be ordered in combination with a feedthrough. The sensor / feedthrough connection can be either welded or made with compression fittings.

Compression fittings allow for easy adjustability without the need for brazing or welding. The feedthrough can be moved along the length of the tubes allowing the length inside the vacuum systems to be adjusted over a range of 20.3 to 71.1 cm (8 to 28 inches) for "E" length sensors and 20.3 cm to 121.9 cm (8 to 48 inches) for "G" length sensors. Once the desired length is determined, the compression fittings allow for a finger tight tube seal. Alternately, a welded connection may be chosen. If a welded connection is desired, a sensor length specification form, provided by INFICON, must be completed prior to ordering and submitted with the order.

## ADVANTAGES

- Front load crystal holder.
- Easy installation.
- Available with:
  - 2.54 cm (1 inch) bolt feedthrough,
  - CF40 feedthrough.
- Adjustable length if ordered with compression fittings.
- Sensor/Feedthrough combinations available welded to customer specified lengths.
- No brazing required if ordered with compression fittings or welded to feedthrough.

## SPECIFICATIONS

Maximum bakeout temperature with no water	130°C
Maximum operating isothermal environment temperature with minimum water flow	400°C
Standard single sensor size	27 mm x 61.47 mm x 17.53 cm
Right angle single sensor size	28.19 mm x 26.92 mm x 26.92 mm
Dual sensor size	39.12 mm x 82.04 mm x 49.54 mm
Crystal exchange	Front loading; self-contained package for ease of exchange
Mounting	Two #4-40 tapped holes on the back of the sensor body
Crystal	0.550" (13.97 mm) diameter, 5 MHz or 6 MHz



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Materials N 2013-2

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