

# UHV Bakeable Sensor

INFICON UHV Bakeable Sensors offer proven reliability and durability and have the best thermal stability of any sensor head on the market. Made from 304 stainless steel, molybdenum, Inconel®, nickel, and alumina materials, UHV Bakeable Sensor is designed to withstand continuous bakeout temperatures up to 450°C (for bakeout only, water flow required for actual deposition monitoring). The front load design allows for easy insertion of the crystal holder in applications lacking sufficient room for side insertion.

## Sensor Configurations

UHV Bakeable Sensor is available in a standard configuration where the water tubes are parallel 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 exposed crystal electrode is fully grounded to effectively eliminate problems due to RF interference.

## Feedthrough and Feedthrough Connection

All UHV Bakeable Sensors come welded to a CF40 (2 3/4 in. ConFlat®) flange feedthrough.

## ADVANTAGES

- High temperature braze and welded construction
- Bakeout temperatures to 450°C
- Crystal shutter (option)
- Front load crystal holder
- Easy installation
- CF40 feedthrough
- No brazing or welding to feedthrough required
- Sensor / feedthrough combination welded to customer specified lengths



## ORDERING INFORMATION

### UHV Bakeable Sensor

**Type of sensor** (Includes crystal snatcher and user manual.  
Crystals sold separately)  
Standard (water lines parallel to crystal face).....

### Shutter Assembly (see note 3)

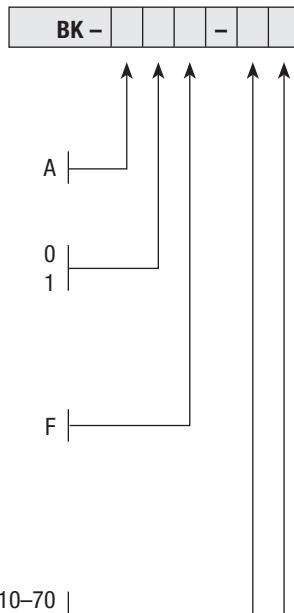
None.....  
Standard shutter .....

### Length of sensor (see note 1)

Standard length:  
Shuttered sensors: 17–99 cm (28–39 in.)  
Non-shuttered sensors: 10–99 cm (28–39 in.).....  
\*\*\* Sensor lengths over 71 cm (28 in.) are subject to an  
additional charge as well as 2–4 weeks additional lead time.

### Welded Sensor Length (see notes 1 and 2)

Weld length in centimeters, 10–70 cm (4–27.5 in.)..... 10–70 |  
Weld length in centimeters, 71–99 cm (28–39 in.)..... 71–99 |



#### NOTE 1:

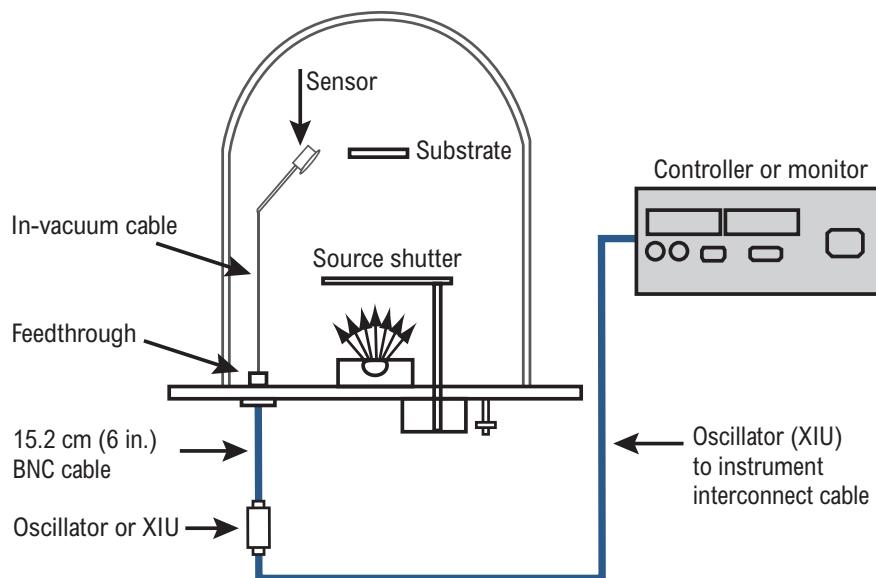
UHV Bakeable Sensor orders are measured from center of the crystal to the vacuum side (sealing surface) of the feedthrough. Once a welded sensor order is confirmed, it cannot be cancelled.

#### NOTE 2:

All UHV Bakeable Sensors are welded to a CF40 feedthrough.

#### NOTE 3:

Shutter air tube is connected to the feedthrough tube using VCR fittings for field replacement.



## SPECIFICATIONS

### BK-A0F series UHV Bakeable Sensor without shutter

Maximum temperature	450°C continuous (for bake only; water flow recommended for actual deposition monitoring)
Sensor head size (maximum envelope)	34 x 35 x 24 mm high (1.35 x 1.38 x 0.94 in. high)
Crystal exchange	Front loading, self-contained package for ease of exchange. Cam-type locking handle allows easy removal and good thermal contact.
Mounting	Four #4-40 tapped holes on the back of the body
Feedthrough	CF40 (2 3/4 in. ConFlat), integral with sensor head
	Water and coax tubes are semi-rigid, but easily formed. (50.8 mm [2.0 in.] minimum bend radius)
Utilities	Minimum water flow 150–200 cm <sup>3</sup> /min., 30°C max. (Do not allow to freeze.) (Customer should provide means of easily disconnecting the 6.4 mm (0.25 in.) water tubes during bakeout.)

#### Materials

Body and holder	304 type stainless steel
Springs	Molybdenum and Inconel X-750
Water and coax lines	3 mm (0.125 in.) O.D. water x 0.4 mm (0.015 in.) wall thickness seamless 304 stainless steel; 5 mm (0.188 in.) O.D. coax
Other mechanical parts	18-8 or 304 stainless
Insulators	>99% Al <sub>2</sub> O <sub>3</sub> in vacuum; other high density ceramics used elsewhere
Wire	1) Ni (in vacuum) 2) Ni plated Cu (elsewhere)
Braze	Vacuum process high temperature Ni-Cr alloy
Crystal	13.97 mm (0.550 in.) diameter

## SPECIFICATIONS

### BK-A1F series UHV Bakeable Sensor with shutter

Maximum temperature	400°C continuous (for bake only; water flow recommended for actual deposition monitoring)
Sensor head size (maximum envelope)	34 x 35 x 31 mm high (1.35 x 1.38 x 1.21 in. high)
Crystal exchange	Front loading, self-contained package for ease of exchange. Cam-type locking handle allows easy removal and good thermal contact. Pneumatically operated shutter flips up for easy crystal exchange.
Mounting	Four #4-40 tapped holes on the back of the body
Feedthrough	CF40 (2 3/4 in. ConFlat®), integral with sensor head
	Water, air and coax tubes are semi-rigid, but easily formed (50.8 mm [2.0 in.] minimum bend radius)
Utilities	1) Minimum water flow 150–200 cm <sup>3</sup> /min, 30° C max. (Do not allow to freeze.) (Customer should provide means of easily disconnecting the 6.4 mm [0.25 in.] water tubes during bakeout.) 2) Filtered, oil-free air, regulated at 80 psi (gauge) {95 psi (absolute)} 6.5 bar (absolute) [653 kPa (absolute)] (maximum) 3) Solenoid valve, PN 750-420-G1, 24 V (ac) or V (dc), or equivalent valve required

## SPECIFICATIONS

### BK-A1F series UHV Bakeable Sensor with shutter (continued)

#### Materials

Body and holder	304 type stainless steel
Springs	Molybdenum and Inconel X-750
Water, air and coax lines	3 mm (0.125 in.) O.D. water and air x 0.4 mm (0.015 in.) wall thickness seamless 304 stainless steel; 5 mm (0.188 in.) O.D. coax
Other mechanical parts	18-8 or 304 stainless
Insulators	>99% $\text{Al}_2\text{O}_3$ in vacuum; other high density ceramics used elsewhere
Wire	1) Ni (in vacuum) 2) Ni plated Cu (elsewhere)
Braze	Vacuum process high temperature Ni-Cr alloy
Crystal	13.97 mm (0.550 in.) diameter

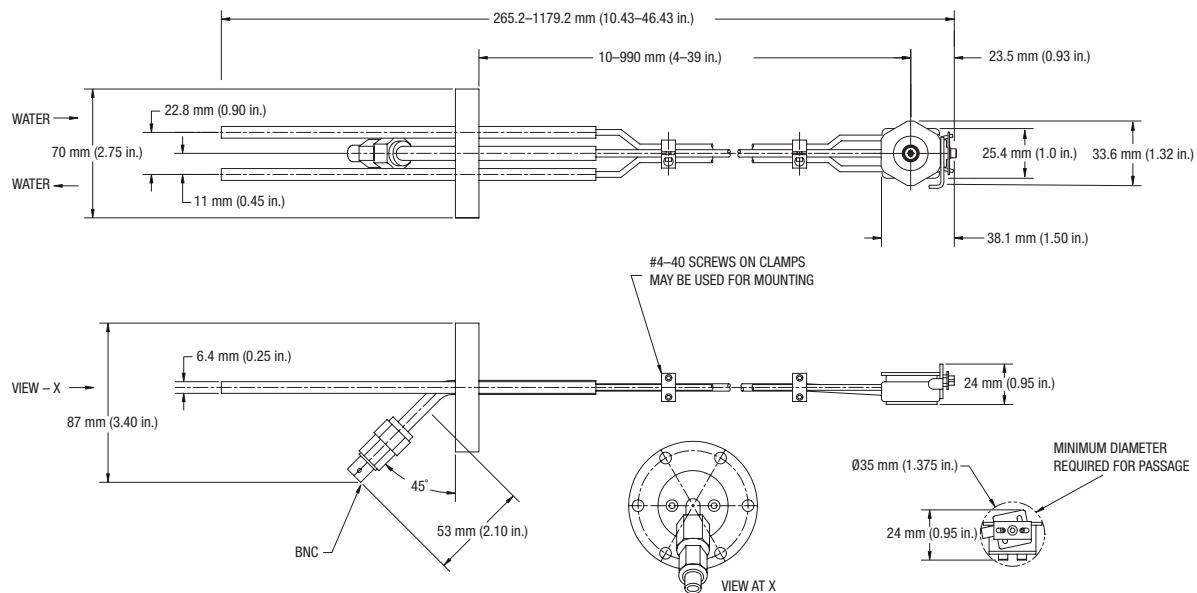
## SPARE PARTS LIST

PN	Description
007-064	Ceramic retainer
007-094	Clamping spring
007-095	Handle
007-098	Female connector (includes ferrules and nut)
007-099	Bakeable head contact
007-100	Insulator for BNC
007-103	Insulator for bakeable head contact
007-104	BNC body
007-147	#4-40 x 3/8 screw
007-007	Retainer spring (part of crystal holder)
007-228	#4-40 x 5/8 screw
059-0084	VCR gasket
070-0201	#4 split lockwasher

PN	Description
007-267-P2	Spreader bar
007-268-P1	Shoulder washer
007-269-P1	Shoulder washer
084-069-P1	#4-40 x 3/16 screw
750-018-P3	Split clamp
750-018-P5	Split clamp
750-022-G7	Bellows assembly – 76.2 cm (30 in.)
750-115-P4	Coupling
750-118-P4	Actuator support
750-120-G3	Shaft assembly
750-216-G1	Shutter assembly
750-218-G1	Crystal holder

## DIMENSIONS

### BK-A0F sensor / feedthrough combination



## DIMENSIONS

### BK-A1F sensor / feedthrough combination

