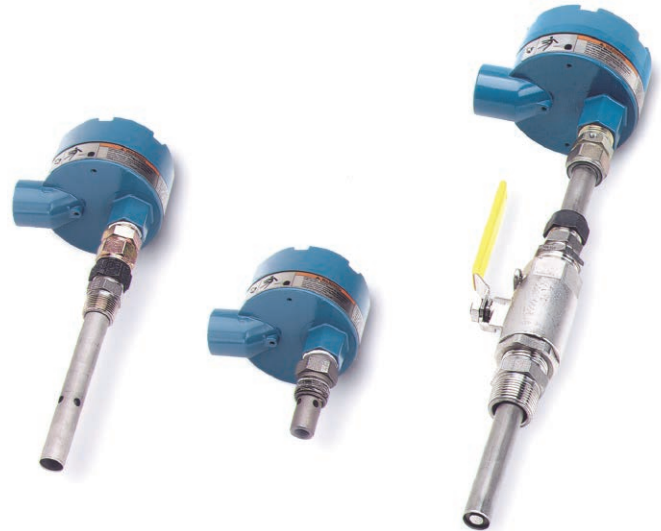


# Conductivity Sensors

- Rugged construction withstands high temperature and pressure
- Two Mounting Configurations: screw-in and retractable
- Integral Junction Box allows easy access to field wiring
- Stainless Steel Electrodes



## Applications

The 140, 141, and 142 sensors are contacting conductivity sensors intended for the determination of electrolytic conductivity in applications ranging from high purity water to clean cooling water. The sensors are ideal for use in clean, non-corrosive water having conductivity less than about 20,000  $\mu\text{S}/\text{cm}$ . For dirty or corrosive sample or for samples having high conductivity, a toroidal sensor such as the 228 or 226 is recommended.

## Features

The 140 series sensors are available with a range of cell constants, allowing optimum matching of the sensor to the expected conductivity. For low conductivity, choose the 142 sensor (available with either 0.01 or 0.1/cm cell constants). For moderately high conductivity choose either the 140 or 141 sensors (both available with 0.2 or 1.0/cm cell constants). The cell constant is accurate to within  $\pm 5\%$  of the nominal value, so the error in the measured conductivity will be at least  $\pm 5\%$ . For higher accuracy, the sensor must be calibrated by the user. A broad range of calibration standards is available.

Although the 141 and 142 sensors, which have screw-in process connections, are suitable for most applications, the 140 sensor has the advantage of being retractable. It can be removed from the process piping without shutting down and draining the line or vessel. The retraction assembly and ball valve must be purchased separately.

All three models have 316 stainless steel electrodes and process connections and use either PEEK or PCTFE insulators. A high temperature option allows the sensor to be used at 392 °F (200 °C).

For ease of field wiring, all three models are equipped with an integral cast aluminum junction box.

## Specifications for 140 Sensor

**Cell constants:** 0.2 and 1.0/cm (nominal, to within ±5%)

**Wetted materials:**

- Electrodes: 316 stainless steel
- Body: 316 stainless steel
- Insulator: PEEK
- O-rings: Viton®

**Junction box:** cast aluminum, NEMA 7D

**Process Connection:** 1 inch MPT through 1-inch full port ball valve (retractable)

**Temperature:**

- Standard: 32 °F to 302 °F (0 °C to 150 °C) maximum
- High temperature: 32 °F to 392 °F (0 °C to 200 °C) maximum

**Pressure:** 100 psig (791 kPa abs) maximum

**Vacuum:** At 1.6 in. Hg (5.2 kPa) air leakage is less than 0.005 SCFM (0.00014 m³/min)

**Maximum retraction pressure:** 100 psig (791 kPa abs)

**Weight/Shipping Weight:** 5 lb/6 lb (2.5 kg/3.0 kg)  
Weights rounded up to nearest whole lb or 0.5 kg

## Specifications for 141 Sensor

**Cell constants:** 0.2 and 1.0/cm (nominal, to within ±5%)

**Wetted materials:**

- Electrodes: 316 stainless steel
- Body: 316 stainless steel
- Insulator: PEEK

**O-rings:** Viton

**Junction box:** cast aluminum, NEMA 7D

**Process Connection:** ¾ inch MPT

**Temperature and pressure:** see graphs

**Vacuum:** At 1.6 in. Hg (5.2 kPa) air leakage is less than 0.005 SCFM (0.00014 m³/min)

**Weight/Shipping Weight:** 2 lb/3 lb (1.0 kg/1.5 kg)  
Weights rounded up to nearest whole lb or 0.5 kg

## Specifications for 142 Sensor

**Cell constants:** 0.01 and 0.1/cm (nominal, to within ±5%)

**Wetted materials:**

- Electrodes: 316 stainless steel
- Body: 316 stainless steel
- Insulator: PEEK (high temperature option)  
PCTFE (low temperature option)
- O-rings: Viton

**Junction box:** cast aluminum, NEMA 7D

**Process Connection:** ¾ inch MPT

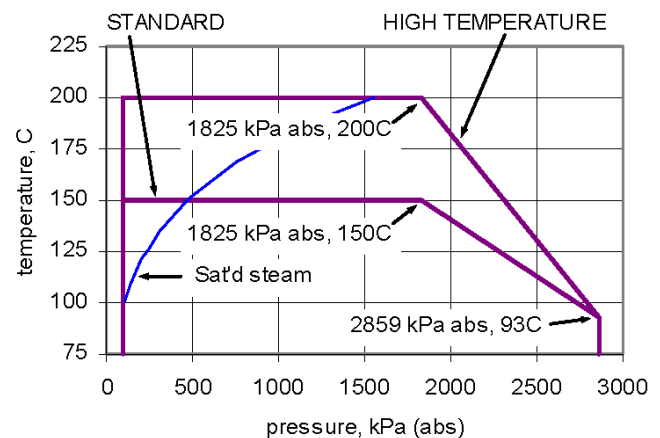
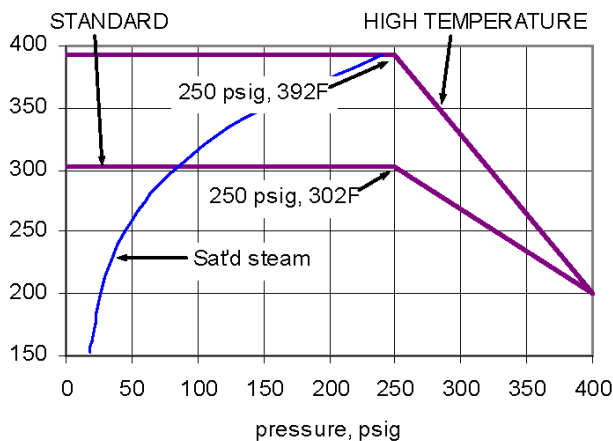
**Temperature and pressure:** see graphs

**Vacuum:** At 1.6 in. Hg (5.2 kPa) air leakage is less than 0.005 SCFM (0.00014 m³/min)

**Weight/Shipping Weight:** 2 lb/3 lb (1.0 kg/1.5 kg)  
Weights rounded up to nearest whole lb or 0.5 kg

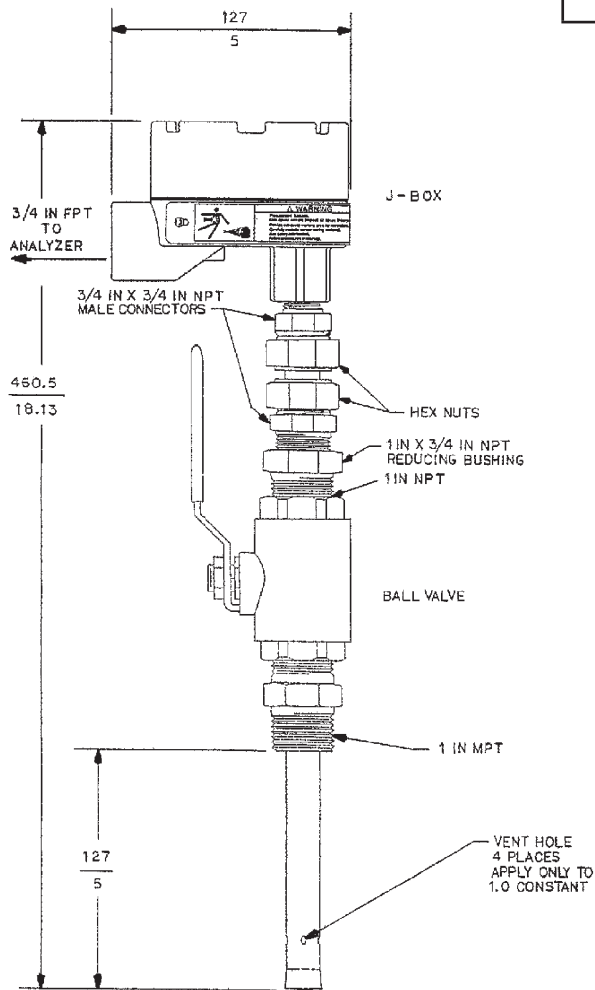
## Specifications for PN 23724 Ball Valve Kit

**Wetted Materials:** 316 stainless steel except Teflon® seat and seals in ball valve

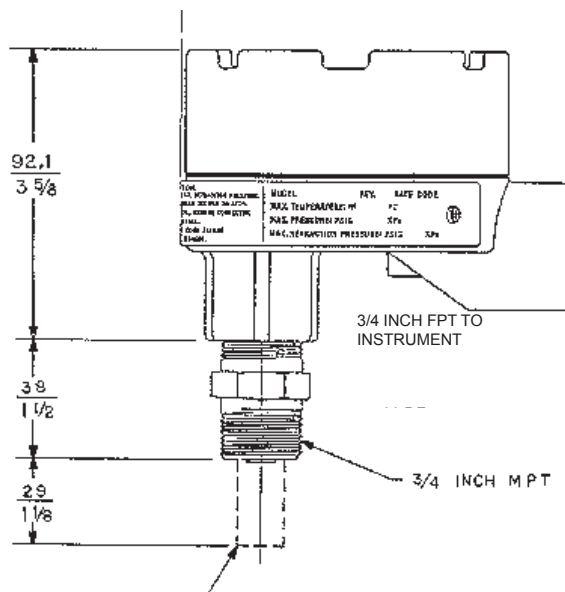


141 and 142 Sensor Pressure Temperature Graph

mm
in

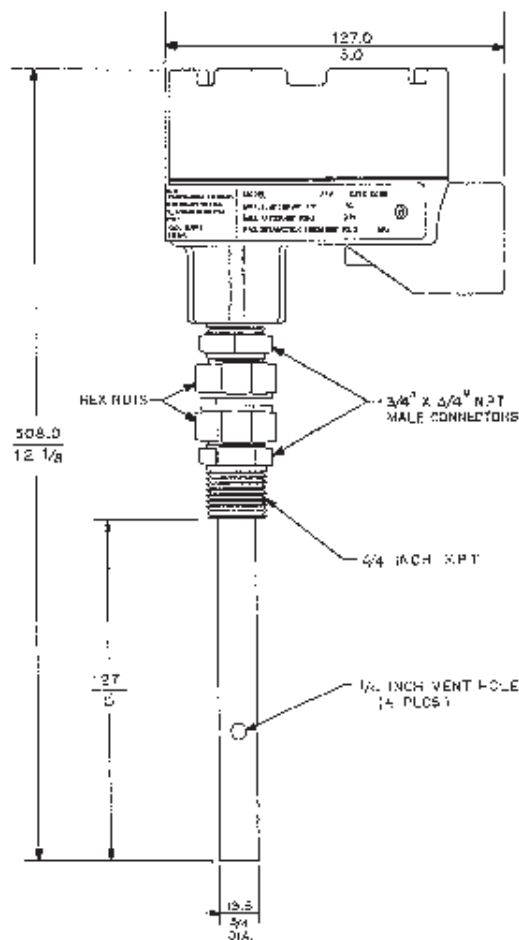


Dimensions for 140 Sensor

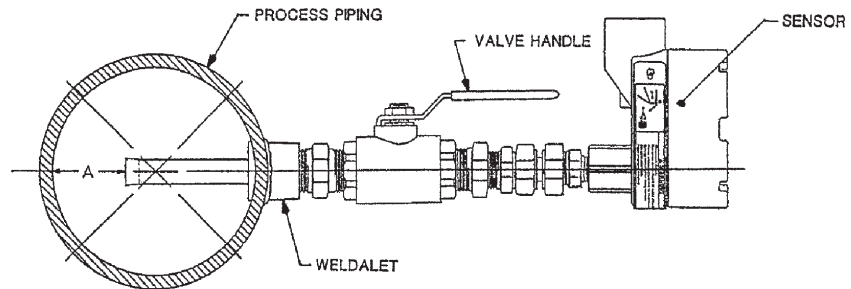


Dimensions for 141 Sensor

Note: The tip of the 141-06 sensor extends 1 1/8 inch below the bottom of the threads. The tip of the 141-06 sensor is even with the bottom threads.

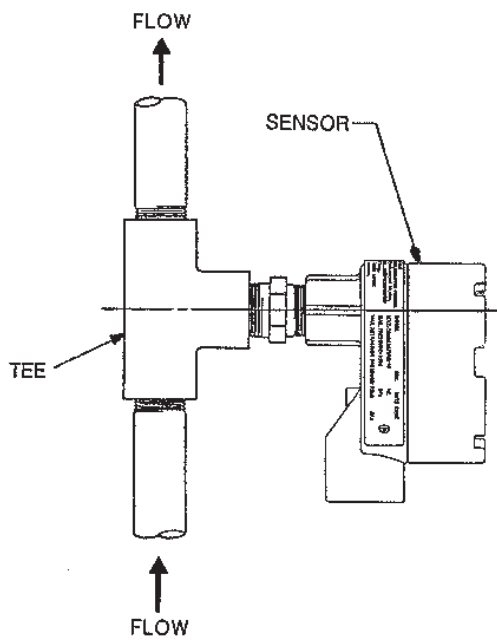


Dimensions for 142 Sensor

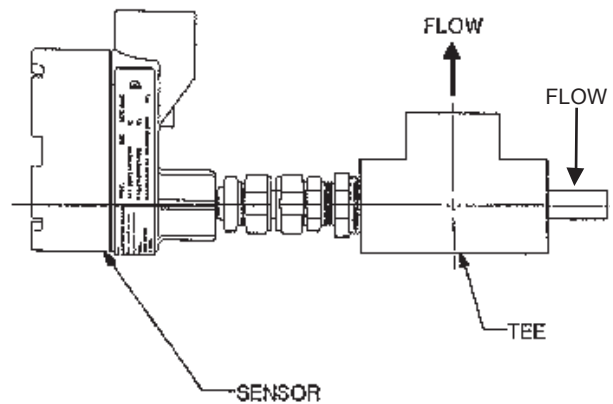


**A TO BE ONE INCH OR MORE FROM VESSEL WALL**

*Installation Details for 140 Sensor*



*Installation Details for 141 Sensor*



*Installation Details for 142 Sensor*

## Ordering Information

The 140 Retractable Conductivity Sensor is intended for the measurement of conductivity in process liquids having moderately high conductivity where the ability to remove the sensor without shutting down the process or draining the line is required. The sensor is compatible with 1056, 56, 1066-C, 5081-C, and 6081-C. Interconnecting cable and ball valve kit must be ordered separately.

140	Retractable Conductivity Sensor		
CODE	Cell constant and temperature construction (required selection)		
54	0.2/cm cell constant, standard temperature, to 302 °F (150 °C)		
55	0.2/cm cell constant, high temperature, to 392 °F (200 °C)		
56	1.0/cm cell constant, standard temperature, to 302 °F (150 °C)		
57	1.0/cm cell constant, high temperature, to 392 °F (200 °C)		
140	54	EXAMPLE	

NOTE: Interconnecting cable and the retraction assembly must be ordered separately. See Accessories

The 141 and 142 Insertion Conductivity Sensors are intended for the measurement of conductivity in process liquids over a range of conductivity. Choose smaller cell constants (0.01 and 0.1/cm) for low conductivity liquids and high cell constants (0.2 and 1.0/cm) for moderate and high conductivity. The sensor is compatible with 1056, 56, 1066-C, 5081-C, and 6081-C. Interconnecting cable must be ordered separately.

141/142	Insertion Conductivity Sensor			
CODE	Cell Constant (Required Selection)			
01	0.01/cm cell constant (142 only)			
03	0.1/cm cell constant, (142 only)			
04	0.2cm cell constant, (141 only)			
06	1.0/cm cell constant, (141 only)			
CODE	Temperature (Required Selection)			
13	Standard construction for use up to 302 °F (150°C)			
14	High temperature construction for use up to 392 °F (200 °C)			
CODE	RTD (Required Selection)			
54	For use with 1056, 56, 1066-C, 5081-C, and 6081-C			
140	01	13	54	EXAMPLE

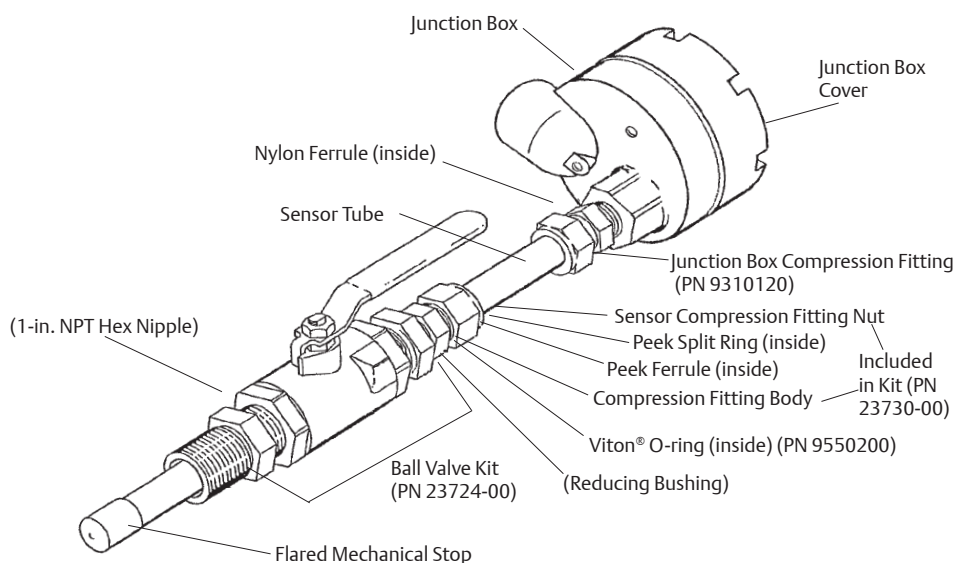
NOTE: Interconnecting cable and the retraction assembly must be ordered separately. See Accessories

## Accessories for all models

Part Number	Description	Weight	Shipping Weight
23550-00	Junction box for remote cable connection	8 lb (4.0 kg)	9 lb (4.5 kg)
9200275	Connecting cable, unterminated, specify length	0.6 lb/10 ft. (1 kg/10 m)	Add 1 lb (0.5 kg)
23747-00	Connecting cable, terminated, specify length	0.6 lb/10 ft. (1 kg/10 m)	Add 1 lb. (0.5 kg)
05010781899	Conductivity standard SS-6, 200 $\mu$ S/cm, 32 oz. (0.95 L)	3 lb (1.5 kg)	4 lb (2.0 kg)
05010797875	Conductivity standard SS-6A, 200 $\mu$ S/cm, 1 gal (3.78 L)	9 lb (4.5 kg)	10 lb (4.5 kg)
05010782468	Conductivity standard SS-5, 1000 $\mu$ S/cm, 32 oz (0.95 L)	3 lb (1.5 kg)	4 lb (2.0 kg)
05010783002	Conductivity standard SS-5A, 1000 $\mu$ S/cm, 1 gal (3.78 L)	9 lb (4.5 kg)	10 lb (4.5 kg)
05000705464	Conductivity standard SS-1, 1409 $\mu$ S/cm, 32 oz (0.95 L)	3 lb (1.5 kg)	4 lb (2.0 kg)
05000709672	Conductivity standard SS-1A, 1409 $\mu$ S/cm, 1 gal (3.78 L)	9 lb (4.5 kg)	10 lb (4.5 kg)
05010782147	Conductivity standard SS-7, 5000 $\mu$ S/cm, 32 oz (0.95 L)	3 lb (1.5 kg)	4 lb (2.0 kg)
05010782026	Conductivity standard SS-7A, 5000 $\mu$ S/cm, 1 gal (3.78 L)	9 lb (4.5 kg)	10 lb (4.5 kg)

## Accessories for 140 Sensor





Part Number	Description	Weight	Shipping Weight
23724-00	Ball valve kit	3 lb (1.5kg)	4 lb (2.0 kg)
23730-00	Process compression fitting, 3/4 inch NPT	1 lb (0.5 kg)	2 lb (1.0 kg)
23731-00	Process fitting rebuild kit	1 lb (0.5 kg)	2 lb (1.0 kg)
9310120	Junction box compression fitting	1 lb (0.5 kg)	2 lb (1.0 kg)
9550200	O-ring® 2-116, Viton®	1 lb (0.5 kg)	2 lb (1.0 kg)



140 Sensor with Ball Valve Kit (PN 23724-00)

## Accessories for 142 Sensor

Part Number	Description	Weight	Shipping Weight
	Process compression fitting 3/4 inch NPT	1 lb (0.5 kg)	2 lb (1.0 kg)
33107-01	Compression fitting, 3/4 inch		
9310063	Ferrule, 3/4 inch		
9310066	Compression nut, 3/4 inch		

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