

High Temperature Probe Adapters

When do I need to use a High Temperature Probe Adapter?

High Temperature Probe Adapter (ZR22P)

The purpose of the High Temperature Adapter (ZR22P) is to accommodate the ZR22 series of Zirconia Oxygen Detectors for use in process gas temperatures that exceed 700°C (1292 °F).

The High Temperature Probe Adapter (ZR22P) can use either existing process pressure, or vacuum pressure to draw a sample away from the process, and cool the process sample to a temperature below 700°C. This allows the Zirconia oxygen detector to operate away from the high temperatures that would otherwise prevent cell temperature control.

Several models of the High Temperature Probe Adapter are available for different applications and environments, and can be designed to accommodate the varying needs of these process samples.

A few questions we need to ask:

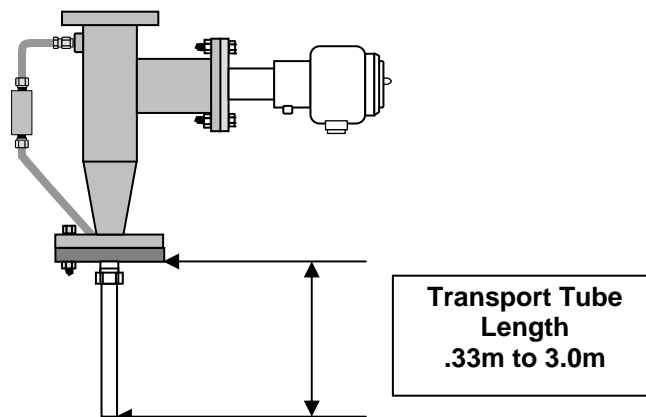
- What is the temperature of the process?
- What is the process pressure?
- Is there a high amount of particulate?
- Where does the sample gas go?
- What is my process flange connection?

What is the process temperature?

The High Temperature Probe Adapter (ZR22P) can be used with varying process temperatures, and different materials are used for the varying temperatures. The High Temperature Probe Adapter can accommodate process temperatures of **700°C (1292°F) to 1871°C (3400°F)**. The adapter itself is made of 316 Stainless Steel. The transport tube (in-situ portion) utilizes different materials based on the temperature ranges of the process gases.

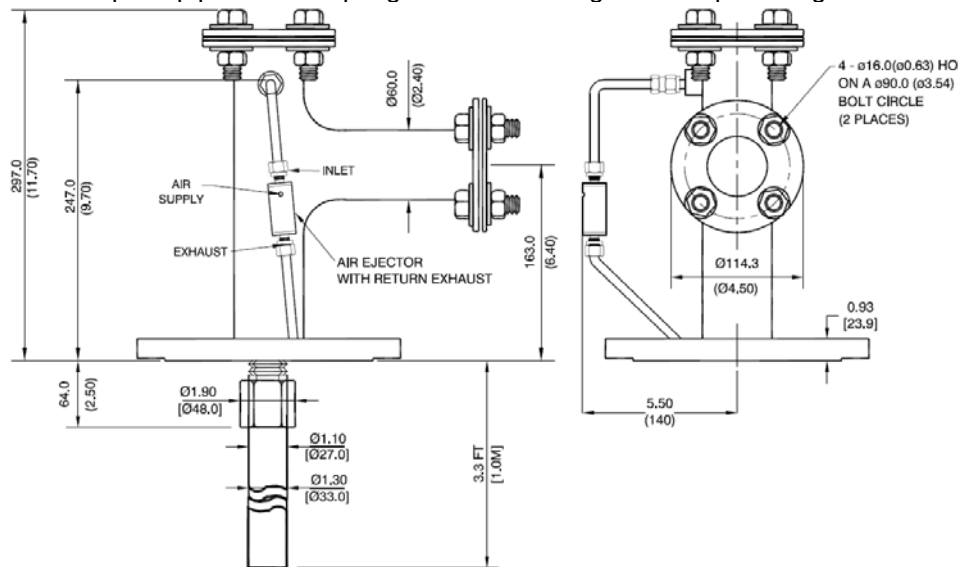
For temperatures up to:

- 1082°C (1980°F) – 310 Stainless Steel
- 1427°C (2600°F) – Silicon Carbide (SiC)
- 1871°C (3400°F) – Alumina Ceramic



What is the Process Pressure?

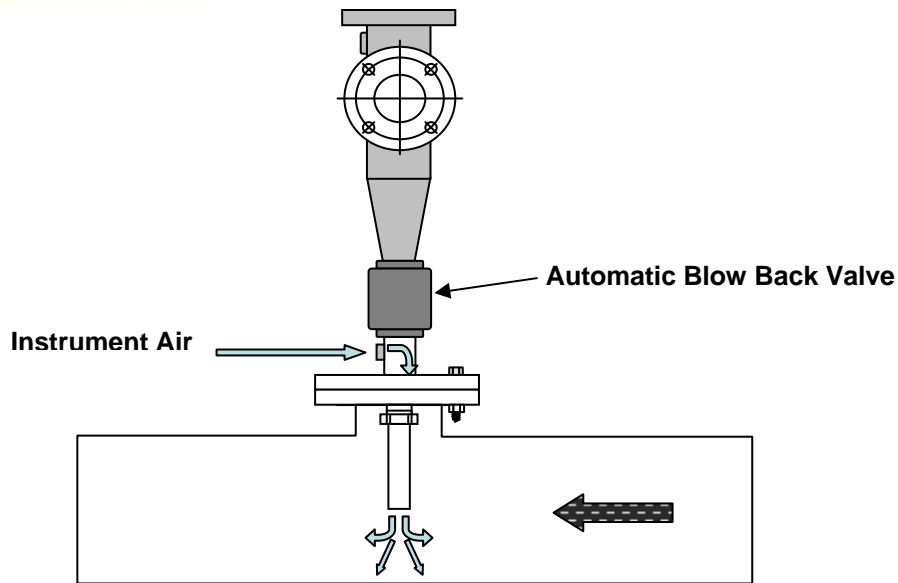
When the process gases are under positive pressure the sample gas will naturally be forced up to the oxygen probe. In instances when there is a negative process pressure, the sample will need to be drawn to the oxygen probe. The High Temperature Probe Adapter can be fitted with an air eductor, which creates a vacuum to draw the sample to the probe. Depending upon environmental regulations, the customer may wish to vent the sample gases to atmosphere, or return the sample back into the process. The Eductor Return option pipes the sample gases back through the adapter flange.



ZR22P-H.../ER (Eductor Return)

Particulate and Dust Loading

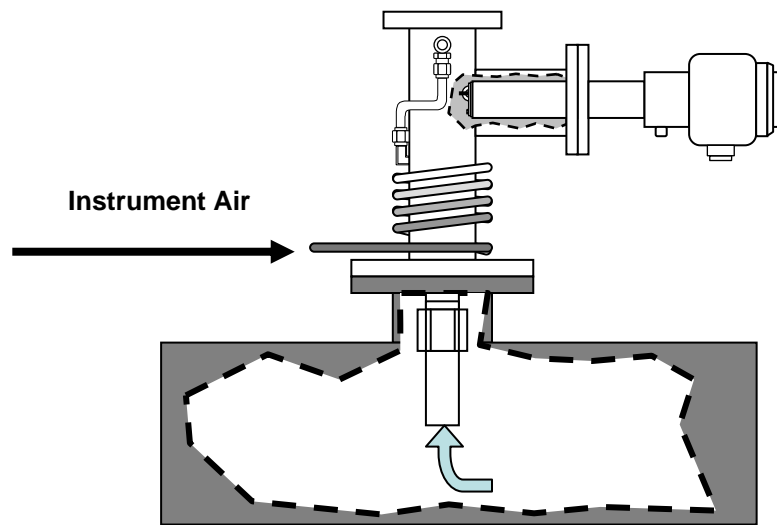
Many processes contain large amounts dust and particulates (i.e. lime kilns), and these particulates can cause clogging of the oxygen sampling system. The ZR22P can be provided with an Automatic Blowback system (/AV option) that can be controlled via the ZR402G Oxygen Converter or the AV550G Oxygen Averaging system. The actuator uses a 4-way, 2 position single solenoid valve with a double acting air actuator. The automated valve closes when blowback is initiated, thereby isolating the detector during blowback operations. The actuator is electrically controlled by a solenoid, which is pre-wired from the factory.



ZR22P-S.../AV (Automatic Blow Back)

Heated and Insulated Options

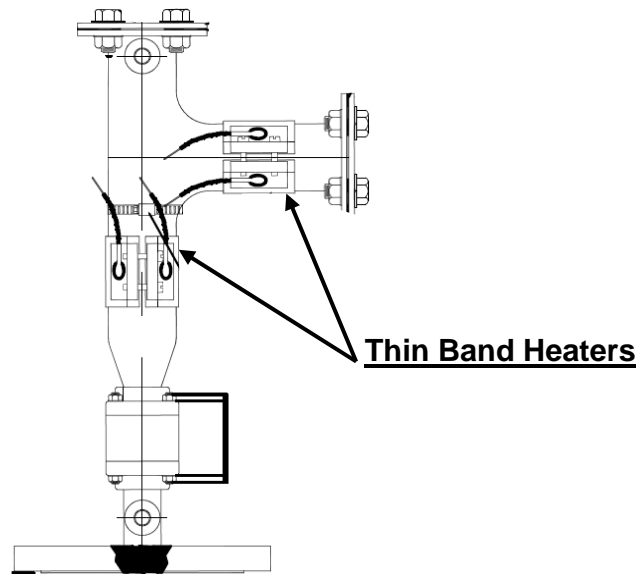
Occasionally, the ambient conditions outside of the process may lead to a condensation build up within the eductor. The /BE option uses conductive and convective heat from the process gasses to heat the instrument air prior to the eductor. As contact heat from the process gasses heat the adapter tee, the convective heat raises the temperature of the instrument air. The process gasses are then vented to atmosphere, instead of being piped back into the process.



ZR22P-H.../BE

ZR22P/HT Option

This option utilizes small thin band, electrical heaters and insulation to warm the adapter and eductor.



Note: Insulation not shown.

Selection

Model		Notes
ZR22P	High Temperature Probe Adapter	
Tee Configuration		
-H	Basic Design (Side Eductor Port)	
-T	Basic Design (Bottom Port)	
-S	Split Design (For Blowback)	
Transport Tube Material		
-A	Silicon Carbide (SiC). Up to 2600°F / 1427°C	
-B	310 S Stainless Steel. Up to 1980°F / 1082°C	
-C	Alumina Ceramic. Up to 3400°F / 1871°C	
-N	No Transport Tube	
Insertion Length		
-033	0.3 meter (11. 8")	
-050	0.5 meter (18")	
-100	1.0 meter (3' 3")	
-150	1.5 meter (4' 11")	
-300	3.0 meter (9' 10") Requires Probe Support or Protector	
-NNN	No Transport Tube	
Flange Connection		
-C*U	ANSI 4.0 inch, 150# FF Flange	
Option: Heater System		
/HT	Aux heater system (to 600°F). Incl controller & heater	
Option: Blowback Valve		
/AV	Automatic valve (Only with ZR22P-S)	
Option: Eductor		
/BE	Heated air eductor pre-attached with regulator & gauge Cannot be used with /HT, /AV	
/ER	Air ejector with return exhaust pre-attached with regulator & gauge.	
/SE	Separate air ejector, regulator (NOT pre-attached)	
/SCT	Stainless Steel tag plate	