

ZCS

www.adev.it

Data sheet

2018

Third generation probe
usable in applications from
700°C to 1050°C

Zirconia Probe

for carbon potential
control in heat treatments



The ZCS Carbon Probe is a resilient in situ analyser, intended to be used to control the carbon potential of an endothermic or Nitrogen/Methanol based heat treating atmosphere.

The patented electrode design and the special used alloy, reduce the contact area with Zirconia. This solution increases the probe service life, reduces carbon built up and guarantees a very fast response time.

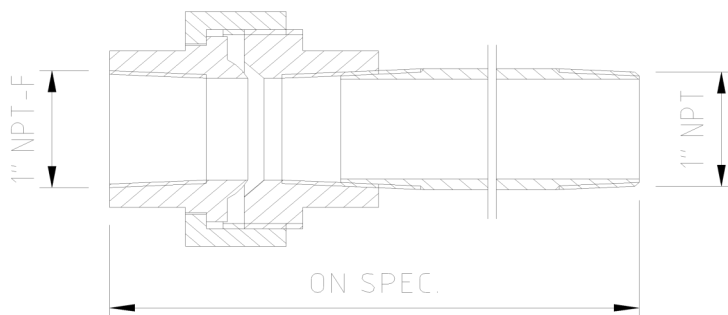
The use of a heavy duty metal sheath with high corrosion resistance to heat treatment atmospheres, gives the resistance advantages typical of chemically inert ceramics without renouncing at the metal resistance.



Technical Specification

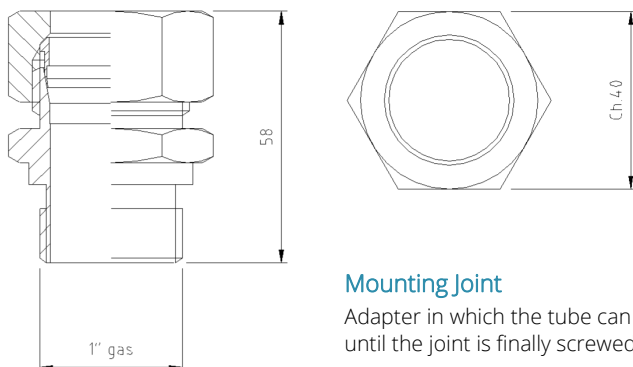
Measuring Principle	Zirconium Oxide (Zirconia)
Accuracy	± 0.03% in carbon weight within the used range
Response Time	less than 2 sec.
Output Signal	1000 ÷ 1300 mV (0.01 ÷ 1.6% C)
Type of Thermocouples	Type K, B, S (optional)
TC Output	E.M.F. function of the temperature
Impedance	Connect the probe to external devices with impedance 10 MΩ or higher
Wiring Connections	ZCS3: plug-in connector (male and female included) ZCS4: cable gland for cable max. 10 mm and inner terminal strip
Pneumatic Connections	Reference and purge air inlet: 1/8" NPT-F
Temperature Range	700°C to 1050°C
Head Temperature	Max. 150°C
Reference Air	Dry, clean and oil-free air. Flow rate: 50...100 cc/min.
Purge Air	Dry, clean and oil-free air. Flow rate: 2000 cc/min.
Process Connection	1" NPT
Sheath diameter	27 mm
Sheath Material	Special Alloy (field tested for long operation)

Mounting Accessories



Adapter

Adapt intermediate lengths and make installation and extraction easier.
Standard lengths: 84 / 60 mm. Others on specification



Mounting Joint

Adapter in which the tube can slide until the joint is finally screwed

Features

Extreme Roughness

- Ideal for use in carburizing, neutral hardening and gas generator applications.
- Resistant to sooting
- Equipped with purge port for probe burn-off
- Special selected Alloy sheath
- Resistant Alloy electrode welded to the metal sheath, acting like a lead wire. Failure of this system is virtually impossible.

Easy to Use

- Thermal and mechanical toughness makes the probe suitable to be installed and removed in very short time
- Optional integral thermocouple
- Set of adapters and joints to adapt the probe length to every mounting

Low Costs of Ownership

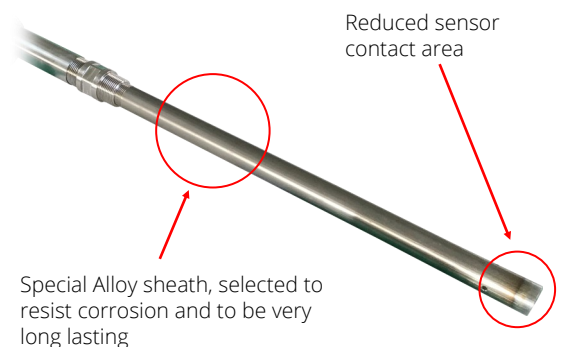
- Easy replacement with all first and second generation probes on the market
- Reconditioning and certification service with fast delivery time to reduce plant stop to the minimum

Made in ADEV

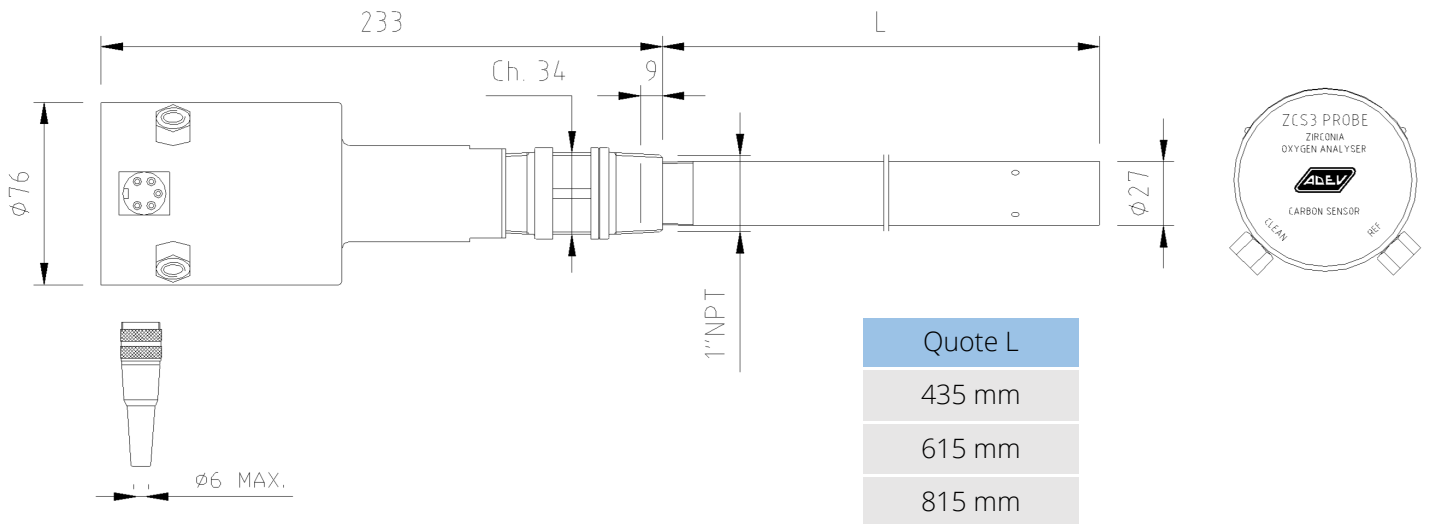
Completely designed and manufactured by ADEV, Italian leading company with more than 30 years of experience in heat treatments.

European Compliance

- Low Voltage Directive 2014/35/EU
- EMC Directive 2014/30/EU



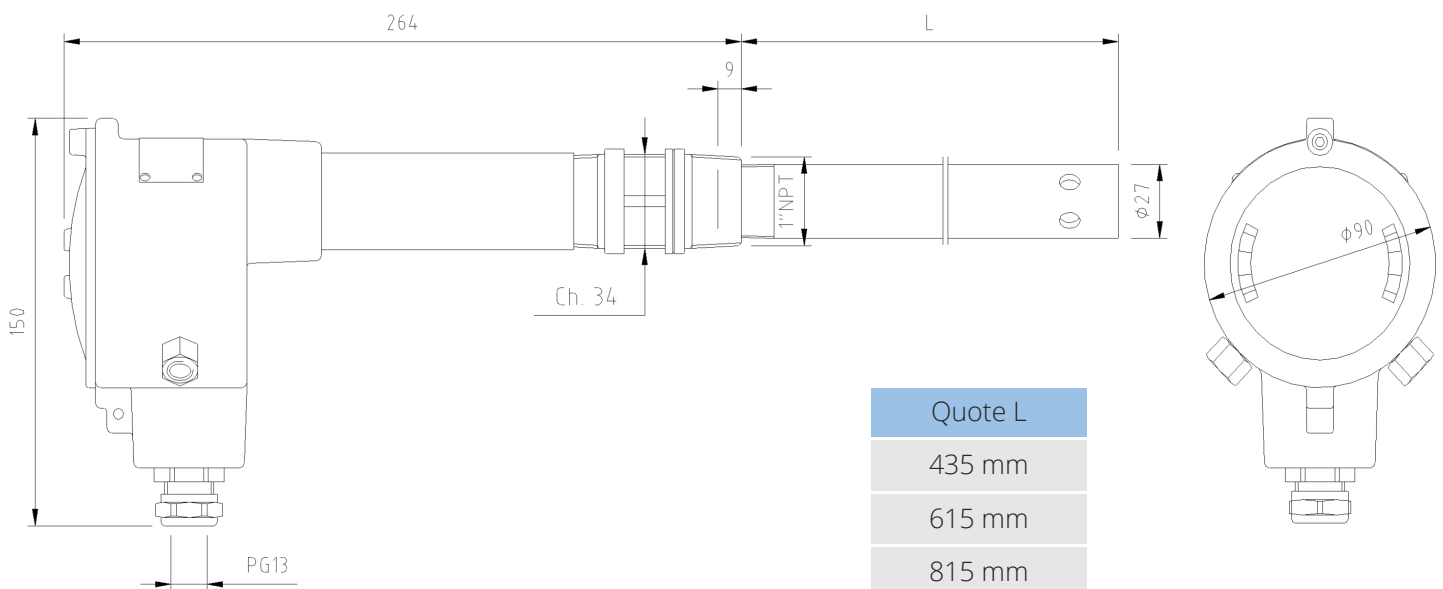
ZCS3 Dimensional Layout



ZCS Carbon Probe, located directly in the furnace heat zone, responds almost immediately to changes in the carburizing atmosphere and totally eliminate the need for gas sampling system



ZCS4 Dimensional Layout



Ordering

Contacts



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Zirconia Carbon Probe	ZCS
Wiring Connection Type				
Plug-in connector		3		
Terminal strip		4		
Special		9		
Nominal Insertion Length				
460 mm			5	
640 mm			6	
800 mm			8	
Special			9	
Thermocouple				
Not used				0
Type K				K
Type B				B
Type S				S

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