



EN	13284-1, 14385, 13211 21877, 1911, 1948-1 14791
ISO	16911-1
EPA	4, 5, 6, 7, 8, 11, 12, 13A/B, 16A, 23, 26/26A, 29, 30B
CEN/TS	17286, 17340

## Isokinetic Heated Probe **ROTATIVE** PROBE

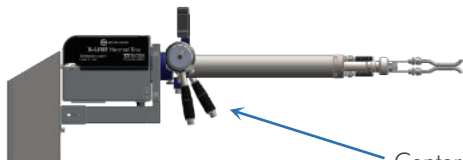
More and more standards forced stack emission testers to adapt their equipment and the necessary devices to carry out correct pollutants sampling activity. Cooling-condensed molecules presence in the exhausts makes it necessary to heat the probe and all the connected devices.

All the materials used therefore have to guarantee stability to processes and ensure resistance to high temperatures and corrosive gases.

To meet these requirements, **TCR Tecora<sup>®</sup>** developed a new heated isokinetic probe and placed it on the market, born from the needs of customers to face new scenarios in emission sampling.

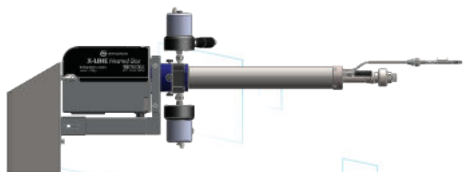
### 360° dynamic rotation of the heated box

A mechanical joint allows the rotation of the sampling tube to fit to non-vertical ducts or to perform swirl angle checks during verifications imposed by ISO 16911 standard.



Vertical Sampling Position

Center Rotation (tools not needed)



Horizontal Sampling Position

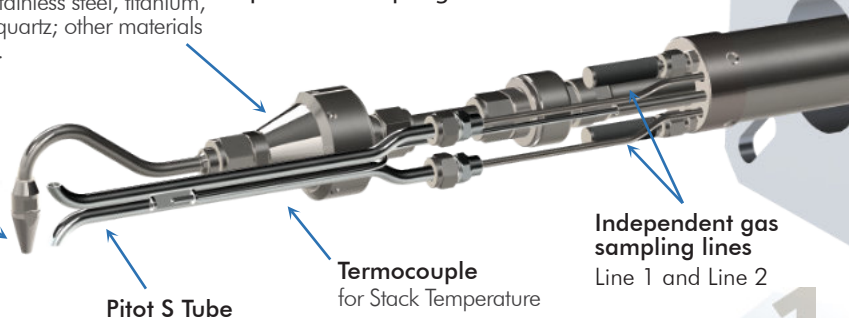
### 2 auxiliary sampling lines for GAS sampling!

#### Filter Holder

instack configuration available materials stainless steel, titanium, glass and quartz; other materials on request.

**Suction Tube with Goose Neck**  
nozzles set available in stainless steel, titanium, glass and quartz; other materials on request

The probe contains all the features to perform sampling:



Pitot S Tube

Termocouple  
for Stack Temperature

Independent gas  
sampling lines  
Line 1 and Line 2





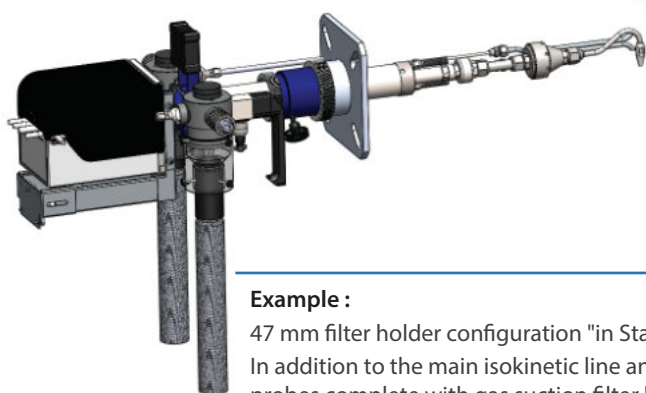
## ROTATIVE PROBE

### ISOKINETIC HEATED PROBE

### General Description

The probe consists of three main elements:

- Heated probe.
- Heated box for filter and filter holder.
- Holder with handles for box and probe that allows connection of other devices (dioxin trap, bubbler bath, and other accessories).

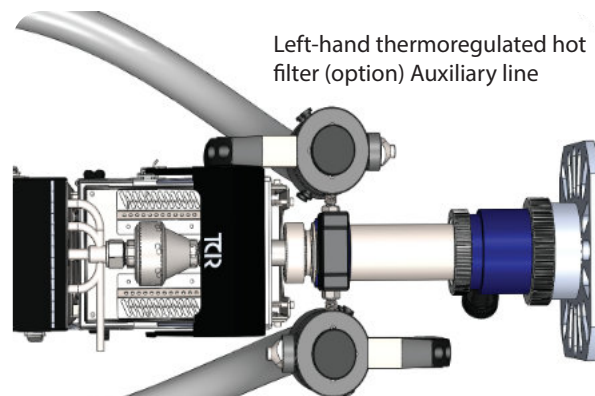


#### Example :

47 mm filter holder configuration "in Stack" on the left and "out Stack" in the right image.

In addition to the main isokinetic line and derivatives (hot) this configuration includes optional mounting of one or 2 probes complete with gas suction filter holder on independent titanium line for gas/fid analyzers (3 GAS PROBE).

#### Left Heated Line



Left-hand thermoregulated hot filter (option) Auxiliary line

#### Right Heated Line

Hot thermoregulated filter Right (option) Auxiliary line

### Sonda Riscaldata:

**1** External protective tube made of AISI 316L stainless steel that serves as the "supporting structure." The design precautions taken made it watertight, preventing the entry of gas from outside.

Internal coaxial heated tube, also made of AISI 316L stainless steel, heated by a cylindrical stainless steel armored heating element, equal in length to its extension.

This allows homogeneous distribution of heat over the entire surface and assurance that the gas is actually heated to the required conditions.

Confirmatory tests with primary standard temperature gauges are carried out during testing.

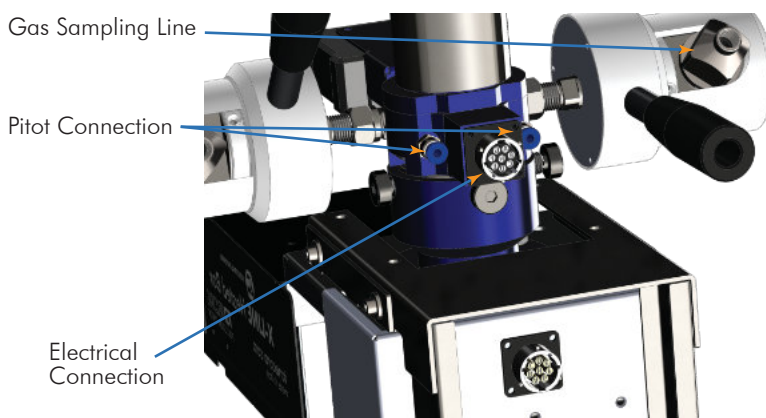
A temperature sensor (thermocouple type K) inserted on a stainless steel support and in contact with the pipe is used as a measuring element of the heat emitted by the armored heating element.

Regulation is by ISOTERM (electronic device with PID controllers and SSR relay) or by option installed on G4 Isokinetic automatic sampler.

**2** Sampling tube, inserted inside the heated tube. This is the actual passage of the aspirated sample.

Available in:

✓ Titanium ✓ Borosilicate Glass ✓ Quartz



The materials used are imposed by the relevant regulations regarding the types of pollutants to be researched: it must be ensured that they do not react chemically by absorbing some of them or altering their composition.

**3** Auxiliary sampling lines. In the same area where the heating element acts are two titanium tubes with an inner diameter of 4 mm, which can be used to extract the gas to be sampled (humidity, VOCs and other parameters) or analyzed by continuous analyzers (TOC, SO<sub>2</sub>, NO<sub>x</sub>, CO and others).

2

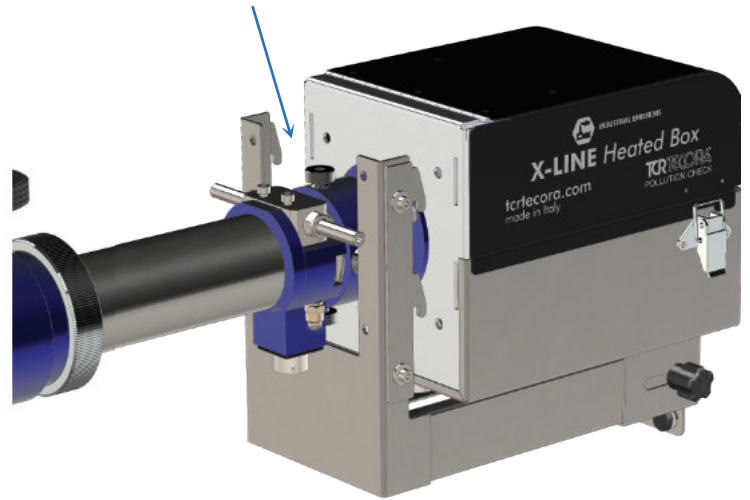


**4** Gas velocity measurement. Inside the carrier tube are the differential pressure lines measured by the Darcy Tube installed at the front of the probe via sealed metal fittings.

Probe lengths range from a minimum of 0.5 mt to a maximum of 3 mt.

Other lengths are available on request.

Fast-Lock (tools not needed for assembly)



## Heated Box:

An integral part of the probe, this device allows particulate matter to be sampled with the use of a filter holder (47 mm or 90 mm) or thimble holder installed externally. This arrangement is mandatory if the characteristics of the process (gas with the presence of suspended or condensing condensate due to low temperature, e.g., low boiling VOCs) require it.

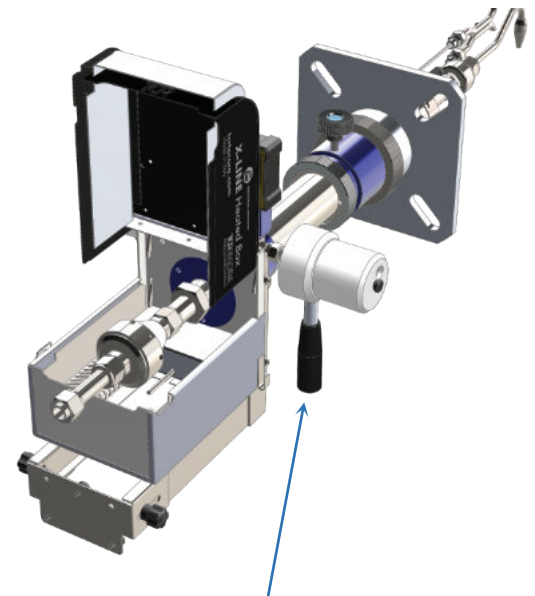
For this purpose, it is also necessary to heat the box:

**160°C (230Vac – 200W).**

**180°C (120Vac – 400W).**

The box consists of a stainless steel casing thick enough to withstand any mechanical shocks due to impacts during transport. A special insulating material covering its inner surface decreases heat exchange with the outside, preventing the metal surface from becoming dangerous due to contact burns.

The inner volume is heated by a pair of stainless steel armored heating elements that distribute the heat inside. A temperature sensor (thermocouple type K) inserted on a stainless steel support and exposed inside the box is used as a measuring element of the heat emitted by the armored heating elements. Regulation is by ISOTHERM (electronic device with PID controllers and SSR relays) or by option installed on G4 automatic sampler.



Fast-Lock (tools not needed for assembly)

Its heated body can be used since it is compatible with the gas line connection of the new rotary probe. Dilution sampling with absorbent vials can also be carried out in this case.

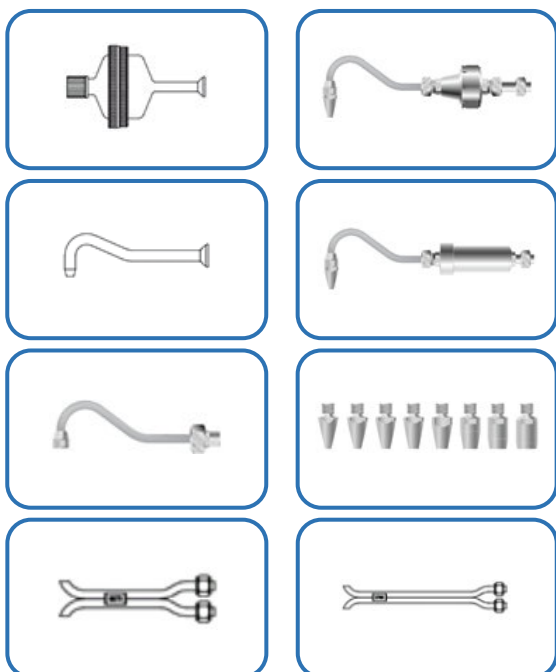
In addition, one can connect a continuous analyzer to the outlet of the heated filter and take advantage of the inlet connection for dilution by introducing zero and/or span gas for calibration verification.





## ROTATIVE PROBE

### ISOKINETIC HEATED PROBE



### Sampling Accessories

In order to perform sampling under isokinetic conditions, as required by the standards (e.g., EN 13284-1), all necessary elements such as nozzle and nozzle support curve are available in AISI 316L or Titanium. In case the use of glass or quartz is mandatory, nozzle and curve are integrated in one part. A special ferrule is used to lock nozzle and glass/quartz tube to the front of the probe.

If process conditions permit (non-condensed gas and temperature not exceeding 400 °C) either filter holder or thimble holder can be installed inside the duct. In case of glass device this is equipped with metal protection cylinder.

For auxiliary sampling lines, bends are available for direct suction (without filtration) or sintered steel filters to be applied via steel fitting.

### Flange for sliding Probe:

#### Optional:

Flange for probe sliding and insertion inside the chimney with sliding bushing system in order to facilitate probe handling during grid verifications and procedures according to ISO 16911-1;

Sleeve roller flange over 1.5m for rotary heated probe aluminum version

AC99-080-9801SP

Sleeve roller flange up to 1.5m for rotary heated probe

AC99-080-9802SP



### Rotation angle verification system Probe:

#### Optional:

For the determination of the angle necessary for the verification of cyclonic / tangential flows to emissions, ROTATIVE PROBE can be equipped with digital system to calculate the angle and measure the flow according to ISO 16911-1.

2-axis Swirl Angle Control Device

AC99-004-9926SP





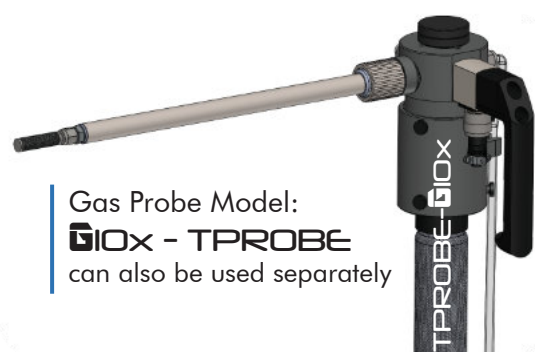
# GIOX

## LINEA GIOX

TCR Tecora® GIOX professional line is the line dedicated to industry professionals.

GIOX automatically handles multiple sampling, on isokinetic main line, up to 2 isolated gas lines.

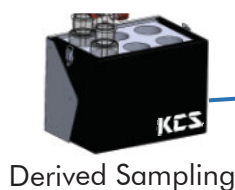
GIOX line, thanks to the latest generation of drying systems, automatic temperature control and high capacity filtration systems is the complete line for all monitoring to atmospheric emissions.



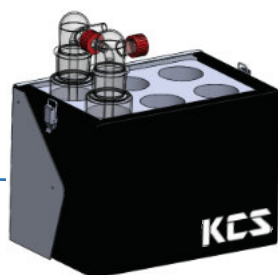
Gas Probe Model:

**GIOX - TPROBE**

can also be used separately

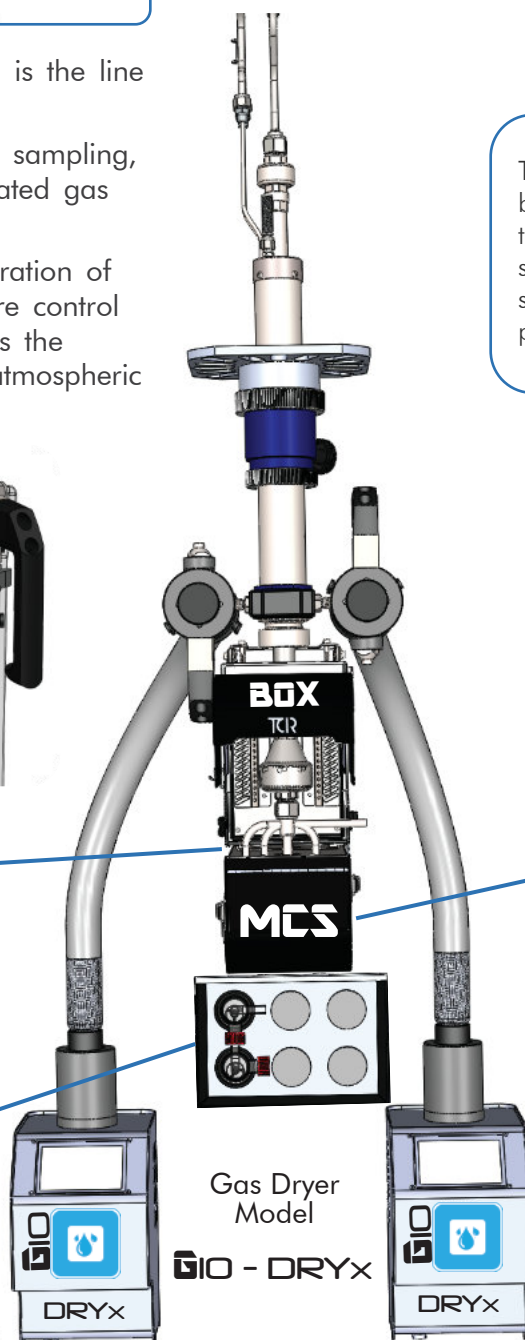


Derived Sampling



Impinger Bathtub  
**GIOX - KCS**

Can be used installed on the probe or used separately



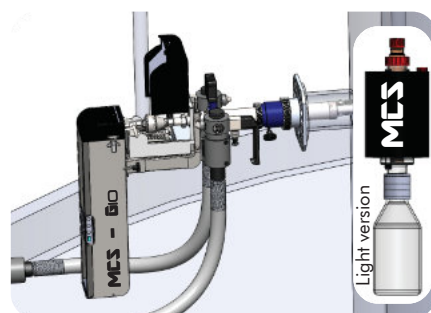
Gas Dryer  
Model

**GIO - DRYx**

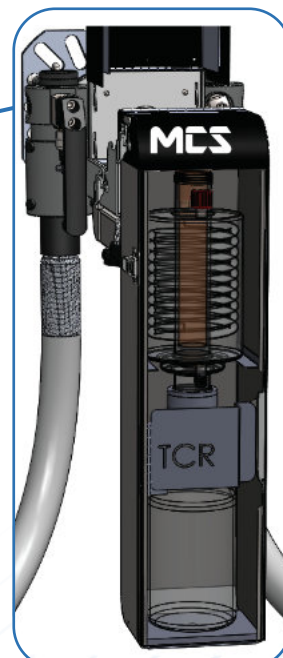
For Gas Analyzer

## Complete Condenser **GIOX - MCS**

The entire professional line has been tested over a long period in the field, and technical field solutions have been adapted to simplify the operations required to prepare the probe and accessories.



Light version



5

