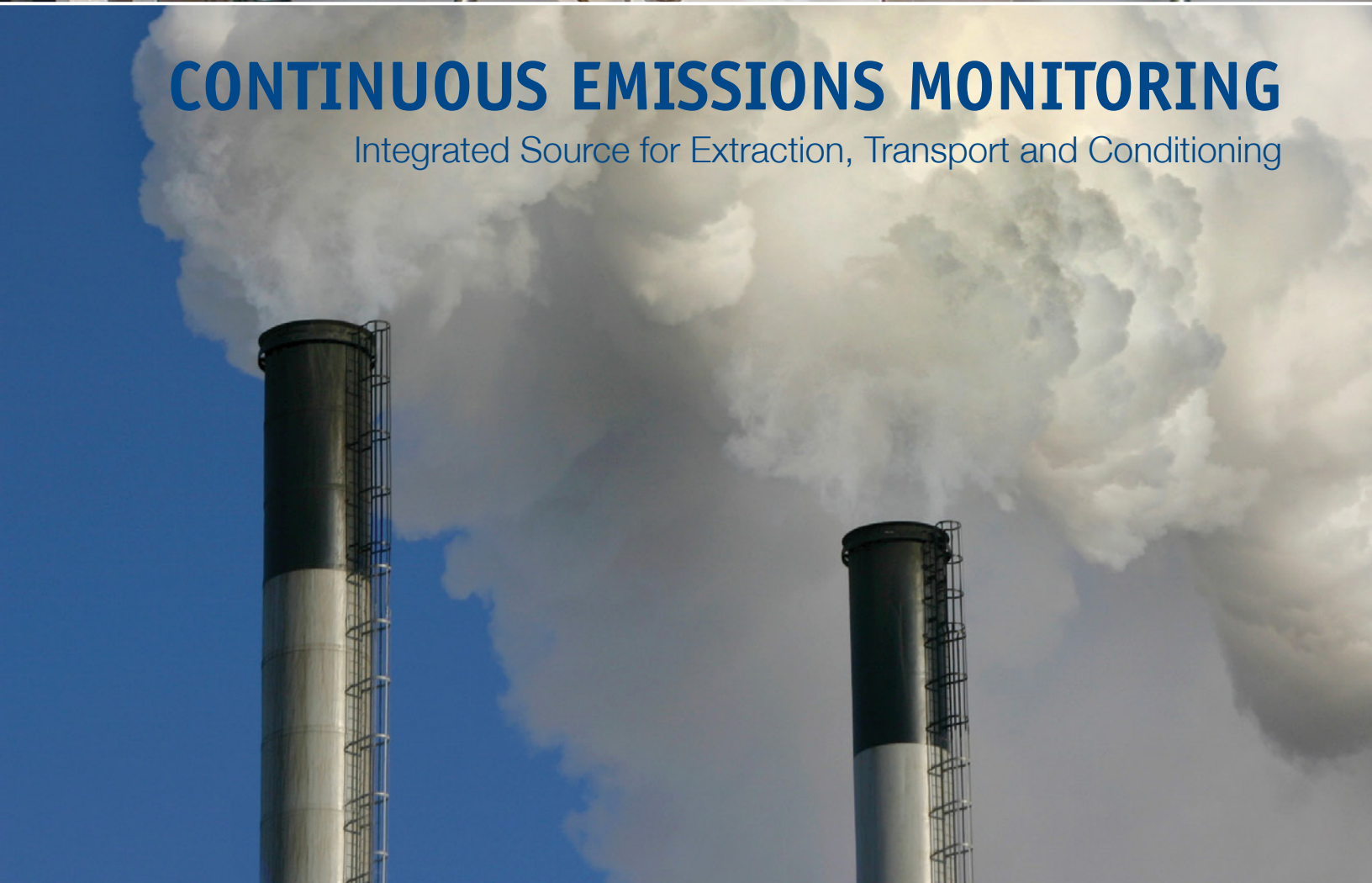


CONTINUOUS EMISSIONS MONITORING

Integrated Source for Extraction, Transport and Conditioning



Single Source from the Probe to the Analyzer

The team at Universal Analyzers and O'Brien Analytical will provide a complete system reliably delivering a properly conditioned sample to the analyzer. The interface between the sample probe, the heated sample line, the sample gas cooler and the balance of conditioning components are coordinated so that all necessary connections are provided in a single package.

Systems are engineered and configured to reduce installation time and maintenance while providing the proper technical solution and reliable performance.

- Eliminate specification problems between components
- Single source responsibility for design, installation details and operation
- Properly sized and configured sample probe and tube
- Maintain consistent temperature profile in the heated sample line
- Reduce sample dew point with minimum loss to water soluble compounds
- Provide a clean, dry, pressure and temperature regulated sample at a stable dew point

Sample Cooling and Conditioning

Universal Analyzers' thermoelectric, vortex and compressor gas coolers reduce the dew point of wet samples with minimal loss to soluble compounds. For highly acidic applications the 1095E Freezer Chiller provides a three stage flow path and -30°C dew point.

Rack, drawer and panel mounted sample conditioning systems are available for single or multiple streams and can include gas coolers, peristaltic and diaphragm pumps as well as user specified accessories such as water carryover sensors, gauges, flow meters and other components. Temperature controllers for the sample probe and transport bundle are often integrated within the sample conditioning system. On-board PLCs are available for automated control. For dilution applications, flow drawers and plant air cleanup systems are engineered to customer specifications.

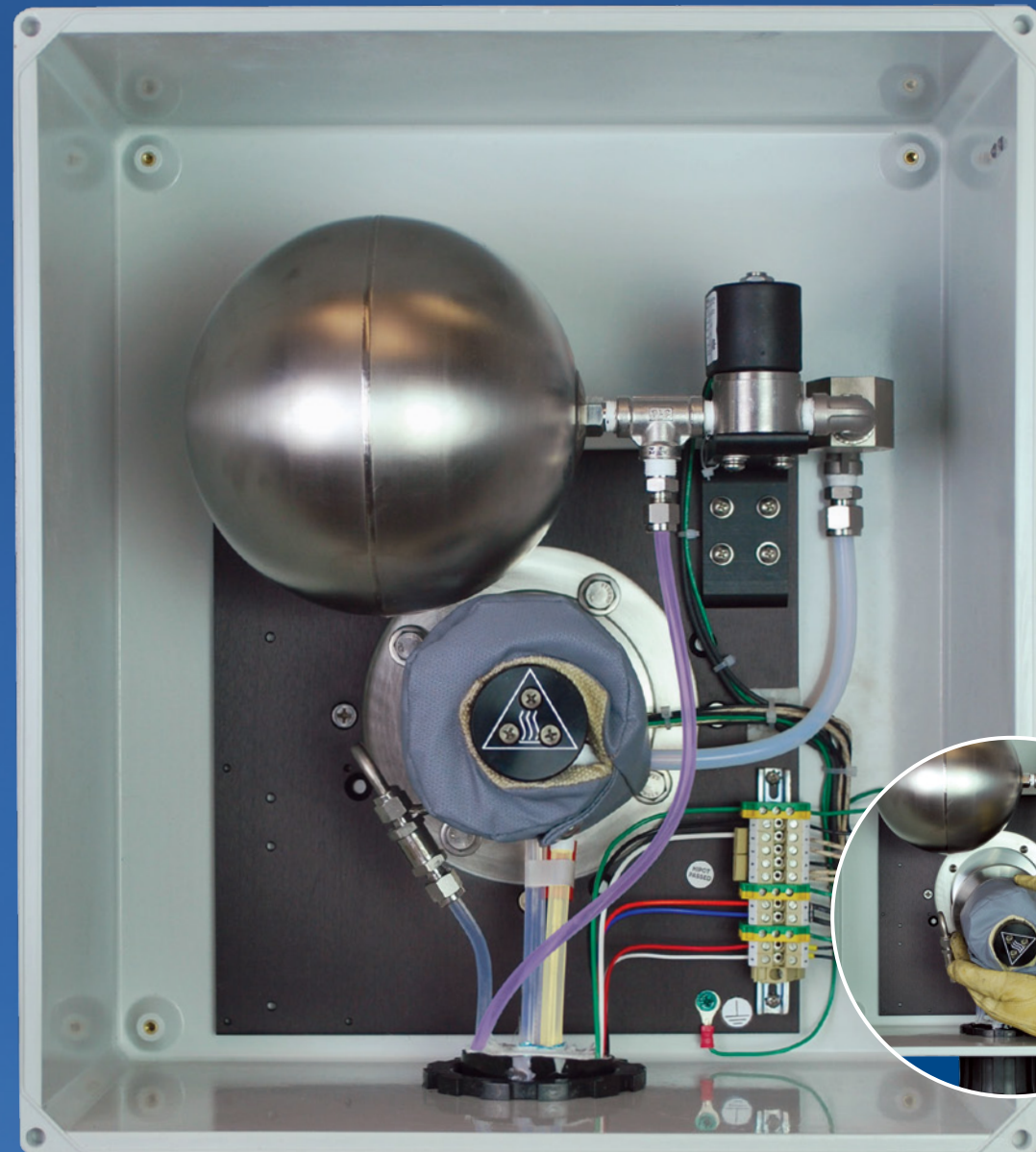
- Thermoelectric, compressor and vortex gas coolers
- Choice of flow path materials including SilcoNert® 2000
- Flow rates up to 16 l/min
- Optional hazardous area approvals
- Customized sample conditioning systems



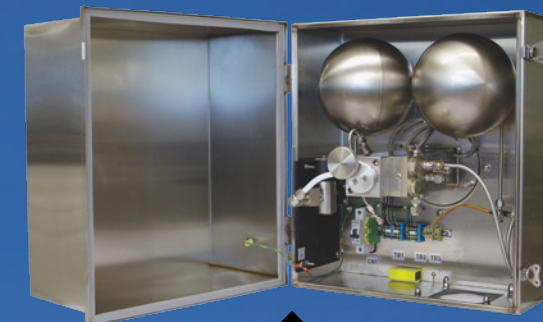
500 Series Thermoelectric Cooler



1100 Series Vortex Cooler



270SF Straight Extractive Probe with Removable Sub-Flange



275HD Dilution Probe

Sample Probe

Universal sample probes handle the most demanding CEMS, process and flare gas applications. We provide solutions for straight extractive and dilution systems including applications with high velocity, high temperature and high dust loading.

We also provide integrated ammonia converter and scrubber options for NOx differential methodologies commonly used to measure ammonia slip.

An integrated blow back system with accumulator tanks and solenoid valve reduce the likelihood of plugged filters while the heated no tool chamber makes changing the filter easy when needed. Our sub-flange assembly allows everything in the flow path, including the probe tube and probe tip filter, to be maintained without removing the enclosure.

Universal sample probes are engineered to maximize uptime and make maintenance easy when necessary.

- Accumulator tanks deliver high volume high velocity blow back to clean the filter
- No tool filter replacement
- Probe tube support collar reduces stress at connection
- Sub-flange allows maintenance without removing enclosure
- General purpose and hazardous area approvals
- Optional SilcoNert® 2000 coated flow path

Sample Transport Bundle

O'Brien TRACEPAK® STACKPAK™ bundles combine heated sample tubes with calibration gas and blow back lines while maintaining a consistent temperature throughout. Process tubing material and finish is selected according to the requirements of the application, including Teflon, TrueTube EP electropolished and TrueTube EPS SilcoNert 2000 coatings.

The necessary wiring for power to the probe heater, calibration gas and blow back switching is included in the bundle along with SensorTube™ for temperature monitoring and control.

STACKPAK™ bundles may be provided with factory finished ends and approvals for use in hazardous areas.

- Reliable and consistent temperature maintenance of sample during transport
- All required support systems incorporated in one bundle
- Heated and unheated tubes for sample, blow back and calibration gas
- Simplified installation and temperature control



Heated Sample Core

Unheated Support Bundle

Integrated Sample & Support



O'BRIENservices

O'BrienSERVICES provides a variety of specialty design, manufacturing, installation and warranty services. Universal Analyzers and O'Brien Analytical, ISO 9001 manufacturers, realize that turnkey services are a critical component to the process and emissions analyzer markets. As part of the O'BrienSERVICES team we coordinate internal and external resources to ensure a cost effective and reliable sample system.

- Design Optimization
- Applications Engineering
- Materials Management
- Installation Services
- Packaging & Logistics
- Field Support

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