

## SPAN PAC™ 61 H<sub>2</sub>O Gas Standard Generator

### SP61-H<sub>2</sub>O



#### Features

- The Span Pac™ 61 H<sub>2</sub>O can be remotely or manually operated.
- The high thermal mass oven keeps the permeation tube at a constant temperature. (Temperature range: 30 °C to 150 °C).
- The oven temperature and flow devices are certified NIST Traceable.
- All Span Pac™ H<sub>2</sub>O Systems use disposable (max. 7 cm membrane), or refillable type Trace Source™ water permeation tubes.
- The electropolished, stainless steel tubing reduces moisture adsorption within the system.
- Special vacuum fittings on the input and output ports prevent atmospheric contamination of the system.
- A mass flowmeter or mass flow controller measures the dilution flow to 1% of full scale. (Standard range: 0.25 to 5.0 slpm).
- The direct dilution flow readout and accessible dilution flow adjust on the back panel make flow adjustments easy.
- Laboratory and process models have cabinets that are purgeable with dry, inert gas to insure the integrity of the system.

#### Applications

- Calibrate sensitive moisture monitors (100 ppb).
- Verify moisture sensors and probes.
- Calibrate for product quality.
- Calibrate on-line process monitors.

The Span Pac™ 61 H<sub>2</sub>O Gas Standard Generator (SP61-H<sub>2</sub>O) is a laboratory instrument specifically designed to calibrate sensitive moisture analyzers using Trace Source™ water permeation tube(s) to generate low concentration moisture gas standards. The SP61-H<sub>2</sub>O is equipped with a highly accurate permeation oven that holds the water permeation tube at a constant temperature. A small controlled flow of Ultra-High Purity Nitrogen passes through the oven and sweeps the moisture permeating from the tube to a larger volume of controlled dilution gas to form the final ppm or ppb moisture gas standard. Varying the amount of dilution gas provides a wide range of concentrations to be produced without changing permeation tubes.

All SP61-H<sub>2</sub>O Gas Standard Generators have a purgeable cabinet and VCR input and output fittings to prevent atmospheric contamination and insure the integrity of the moisture standard. Each model has stainless steel electropolished tubing to minimize adsorption. Most Trace Source™ water permeation tubes used for trace moisture calibration (ppb concentrations) have a lifetime of over 1 year and can be recertified annually to maintain NIST Traceability.

The Span Pac™ 61 H<sub>2</sub>O series of instruments varies with respect to the application and the level of moisture required for calibration. The basic system, SP61-H<sub>2</sub>O, is a single permeation oven system that provides trace concentration moisture calibration from above 100 ppm to 100 ppb using a mass flow meter for measuring dilution flow from 0.25 to 5.0 slpm. The SP261-H<sub>2</sub>O is like the SP61-H<sub>2</sub>O but has two permeation ovens to provide dual range moisture concentration capabilities using one oven for low concentrations and the other oven for higher concentrations. For more critical moisture applications, the SP61-H<sub>2</sub>O-Welded (SP61-H<sub>2</sub>O-W) system is required to achieve ppm to low ppb (10 ppb) concentration levels. Electronically controlled high purity mass flow controllers control oven flow and dilution flows and orbitally welded joints with heat traced output insure the integrity of the moisture standard. For highly critical moisture applications, a secondary dilution capability is added to the SP61-H<sub>2</sub>O-W to make the model SP61-H<sub>2</sub>O-W-SD (Secondary Dilution). Wide range concentrations and ultra-low moisture standards are possible from > 10 ppm to below 1 ppb. Secondary dilution phase high purity mass flow controllers are added to allow user control of primary concentrations and adjust to secondary dilution phases, as needed. Each model SP61-H<sub>2</sub>O uses either disposable type water tubes or refillable type water tubes. Laboratory models or Industrial models are available depending on the conditions.

## Specifications

### Laboratory Models:

- Span Pac™ 61-H<sub>2</sub>O – a single oven unit with mass flow meter and VCR fittings.
- Span Pac™ 261-H<sub>2</sub>O – a two oven unit with two separate concentration ranges available simultaneously, mass flow meter, VCR fittings. (One oven is usually set at high ranges such as 10 ppm and one set at lower levels such as 100 pbb).
- SP61-H<sub>2</sub>O-W – a single oven unit with orbitally welded joints, high purity mass flow controllers, VCR fittings, and heat traced.
- SP261-H<sub>2</sub>O-W – a two oven unit with orbitally welded joints, high purity mass flow controllers, VCR fittings, and heat traced.
- SP61-H<sub>2</sub>O-W-SD – a single oven unit with orbitally welded joints, high purity mass flow controllers, VCR fittings, heat traced, and secondary dilution capability.

**Oven Capacity:** Up to six 1/4" dia. X 5" long disposable water permeation tubes or one refillable water permeation tube.

**Flow Range:** 0.25 to 5.0 standard liters per minute

**Dimensions:** 20" wide x 10" high x 19" deep

**Weight:** ~35 – 40 lbs.

### Process (Industrial) Models:

- All process models are available in NEMA 4 cabinet configurations. These units meet Class 1, Group C, D, Div. 2 requirements.
- Span Pac™ 61-H<sub>2</sub>O-I – a single oven unit with one concentration range, mass flow meter, VCR fittings.
- Span Pac™ 261-H<sub>2</sub>O-I – a two oven unit with two separate concentration ranges available simultaneously, mass flow meter, VCR fittings. (One oven is usually set at high ranges such as 10 ppm and one set at lower levels such as 100 pbb).

**Oven Capacity:** Up to six 1/4" dia. X 5" long disposable water permeation tubes or one refillable water permeation tube.

**Flow Range:** 0.25 to 5.0 standard liters per minute

**Dimensions:** 24" wide x 14" high x 12" deep

**Weight:** ~50-55 lbs.

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