PRODUCT DATASHEET

High-Temperature H2/CO2 Membrane Test Rig (Pre-Combustion)

H2/CO2 syngas testing of palladium, ceramic and carbon membranes at temperature

Product page





Close-up: tube furnace with the membrane holder and gas train

OVERVIEW

The Tech Inc. High-Temperature H2/CO2 Membrane Test Rig (Pre-Combustion) tests the membranes used to separate hydrogen from CO_2 in pre-combustion capture, water-gas shift reactors and syngas clean-up. Hydrogen, CO_2, CO, nitrogen and steam are blended into a simulated shifted syngas and fed to a tubular or disc membrane inside a tube furnace.

TYPICAL DESIGN DATA

Feed gas	H_2, CO_2, CO and N_2 by mass flow controllers; steam from the steam generator; H_2S option
Temperature	Tube furnace; range to order
Pressure	Feed and permeate pressures set by back-pressure regulators; range to order
Codes and standards	PED 2014/68/EU or ASME B31.3 for pressure parts as required; CE marking
Analysis	Gas chromatograph on feed, retentate and permeate
Results	H_2 flux, permeance, H_2 purity and H2/CO2 selectivity against time and temperature
Safety	Hydrogen detection, interlocked shut-off and vented relief

MODELS AND CAPACITIES

- **TI-HTM-T** – rig for tubular membranes
- **TI-HTM-D** – rig for disc membranes
- **TI-HTM-R** – membrane reactor version

Rigs are built to the membrane format, temperatures and pressures you test.

ORDERING CODE

Example **TI-HTM-T**: **T** format: T tubular, D disc, R membrane reactor.

SCOPE OF SUPPLY

Included: factory acceptance test with a written report; drawings for approval, material certificates and manual. **Options:** membrane reactor package; H_2S dosing; second furnace; hydrogen generator; installation, commissioning and operator training.

KEY ADVANTAGES

- **Realistic syngas** – H_2, CO_2, CO and steam together
- **Reactor mode** – catalyst and membrane in one tube
- **At temperature** – tube furnace around the membrane
- **Hydrogen safety** – detection and interlocked shut-off

Designed and built by Tech Inc. · **Part of the Davey Group since 1990**

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