CTE MODEL 10-400 CORROSION TESTER

INTRODUCTION

High temperature, high pressure (HTHP) corrosion testing is commonly used to evaluate the corrosion perfromance of metallic materials under conditions that involve HTHP service environments. A few industry examples include aerospace propulsion, electric power systems, food processing, pressurized cooling water, chemical processing, petroleum production and refining. Tests performed under HTHP by their nature have special requirements. The corrosion apparatus makes it possible to determine the reaction rate of metal samples in response to different corrosive elements. This is accomplished by placing the metal samples into Teflon® sample cups along with the corrosive liquid. The samples are stirred at elevated temperature and pressure to ensure a respresentative test.

The production of oil and gas is often accompanied by water either from the formation, condensation, or from water injection. Acid gases such as hydrogen sulfide (H2S) and Carbon dioxide (CO2) are often present in produced fluids. Oxygen is sometimes a contaminant in the water used for injection. These acid gases increase the corrosivity of the water in contact with service environments and can significantly impact the safe operating life of the production system. The control of corrosion in HTHP service environments can be a complex problem requiring detailed analysis and a thorough understanding of the range of conditions expected during the life of the system prior to developing a corrosion management plan.

DESCRIPTION

The corrosion apparatus consists of a pressure vessel that is capable of achieving pressures up to 10,000 psig/69 MPa and temperatures up to 400 F/ 204 C. Four sample containers are stacked into a holder which is then lowered into the pressure vessel. The top is closed and mineral oil is then pumped into the pressure chamber and acts as the hydraulic fluid. Oil pressure is applied through the use of an air driven, hydraulic pump and maintained through the use of a high pressure regulator. The PID temperature controller is then programmed to perform a heat cycle to your specified heat ramp. External heater bands and cooling coils are used to maintain temperature. A precision magnetic drive system completely isolates the pressure vessel from the outside and allows the motor to spin the sample holder at 40 rpm. This isolated drive system keeps the system from leaking and creating nasty spills like experienced in older systems. The small, space-saving cabinet reduces the instrument's overall laboratory foot-print. A simple water flush system keeps maintanence fast and easy and ready for the next test.

WARRANTY

All CTE products are covered by a full one-year warranty against defect in materials and workmanship. A sales terms, conditions, and warranty statement is included with each quotation or confirmation of order.

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BENEFITS

- Hastelloy components are highly corrosion resistant and allow instrument to have a long operating life.
- Add additional oil to resevoir easily through top panel cap.
- Oil level seen through front panel.
- Fused circuitry protects against component failure.
- Rupture disc protects against over-pressure danger.
- Magnetic drive eliminates messy clean-up and maintenance.
- Multiple-ramp programmable temperature controller.
- Side-wall thermocouple.
- Post-test cooling reduces in between test timing.
- Small footprint cabinet reduces the need for laboratory space.
- Dual scale pressure gauge.
- On-board timer
- Supplied with air and water utility connectors and power cord ready to be connecting to local outlets.
- Easy access to electrical and plumbing compartments.
- Replacement parts and setup help available from CTE.

ENVIRONMENTAL & UTILITY CONNECTIONS

ELECTRICAL

Input Voltage	230 VAC (±10%)
Input Power	3000 W
Current	13 A
Input Frequency	50 -60 Hz

ENVIRONMENTAL

Operating Temperature
32 - 105 °F (0 - 40 °C)
Operating Humidity
0 - 95% non-condensing

DRIVE UNIT

Drive Motor	Baldor
Motor Control	Baldor Drive
Magnetic Drive	

MECHANICAL

Height	36 in. (91 cm)
Width	26 in. (66 cm)
Depth	15 in. (38 cm)
Weight	220 lbs. (100 kg)

HEATER

Heater Power	3000 W
Heater Type	Band Heaters x3
Heater Control	SS Relay

AIR/WATER CONNECTIONS

Water In/Out	1/4 MNPT (3)
Air Input	1/4 MNPT (1) (Max 150psi)