

# Dynamic Corrosion Test System

ALLOY EVALUATION AT HIGH TEMPERATURE AND PRESSURE

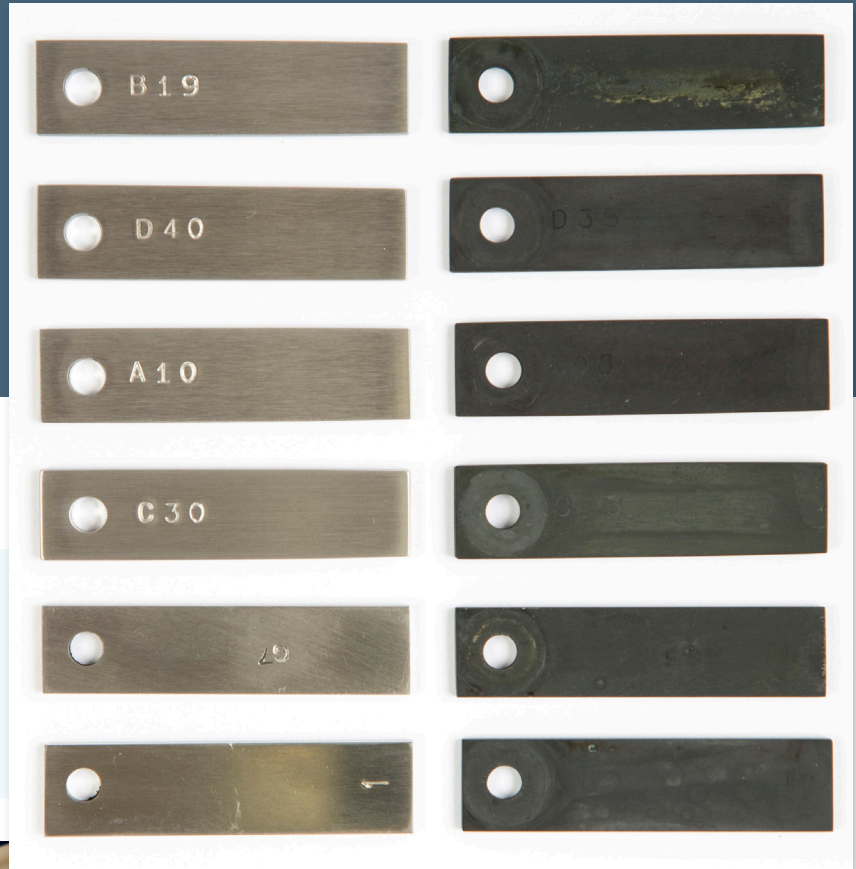


**THE EERC HAS DEVELOPED** a novel test system to dynamically evaluate alloy coupons in environments that mimic supercritical CO<sub>2</sub> cycles. Static test environments, such as autoclaves, do not fully represent the dynamic conditions of exposure. This system improves on the autoclave technique, yielding more representative results of actual processes.

The system tests up to 18 coupons at a time with dimensions 3.2 x 12.7 x 50.8 mm (0.125 x 0.5 x 2.0 in.).

## MAIN COMPONENTS OF THE SYSTEM

- Gas preheater
- High-temperature reactor
- Heat exchange section
- Acid removal/sampling section



## COUPONS CAN BE EXPOSED TO

- Pressures up to 300 bar (4350 psi)
- Temperatures up to 750°C (1380°F)

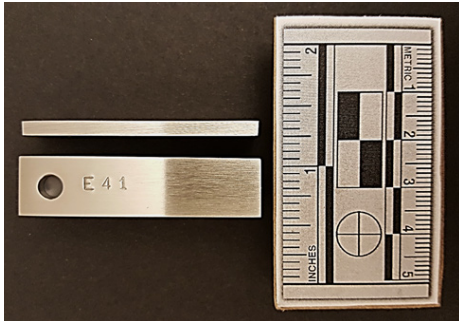
Gas mixtures can be combined to simulate actual environments.

Downstream of the reactor lies the heat exchange section. This section experiences acid condensation as temperature drops along its length. The section can be used to study acid condensation and composition. Condensed liquid flows to the acid removal/sampling section where acid samples can be taken for analysis.

The computer-controlled system can be operated for thousands of hours and is available for your organization's use. Contact us for more information on how this system will benefit your bottom line.

**MANY MATERIALS HAVE ALREADY BEEN TESTED IN THE SYSTEM:**

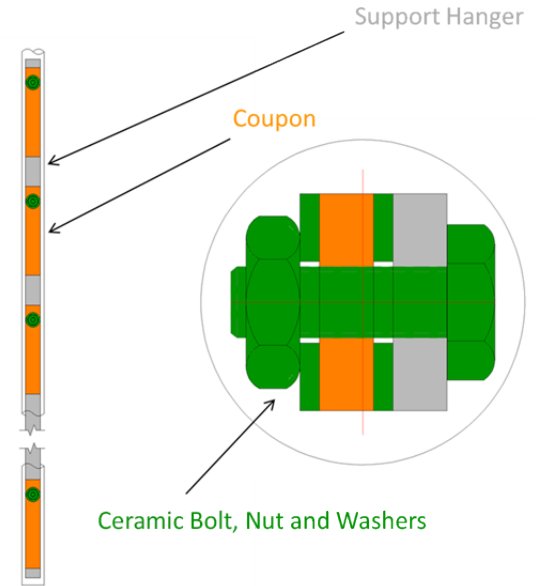
- Haynes 282
- Haynes 230
- Inconel 625
- Inconel 617
- Inconel 740H
- Stainless steel 316



Upper 6 ft Holds 18 Coupons

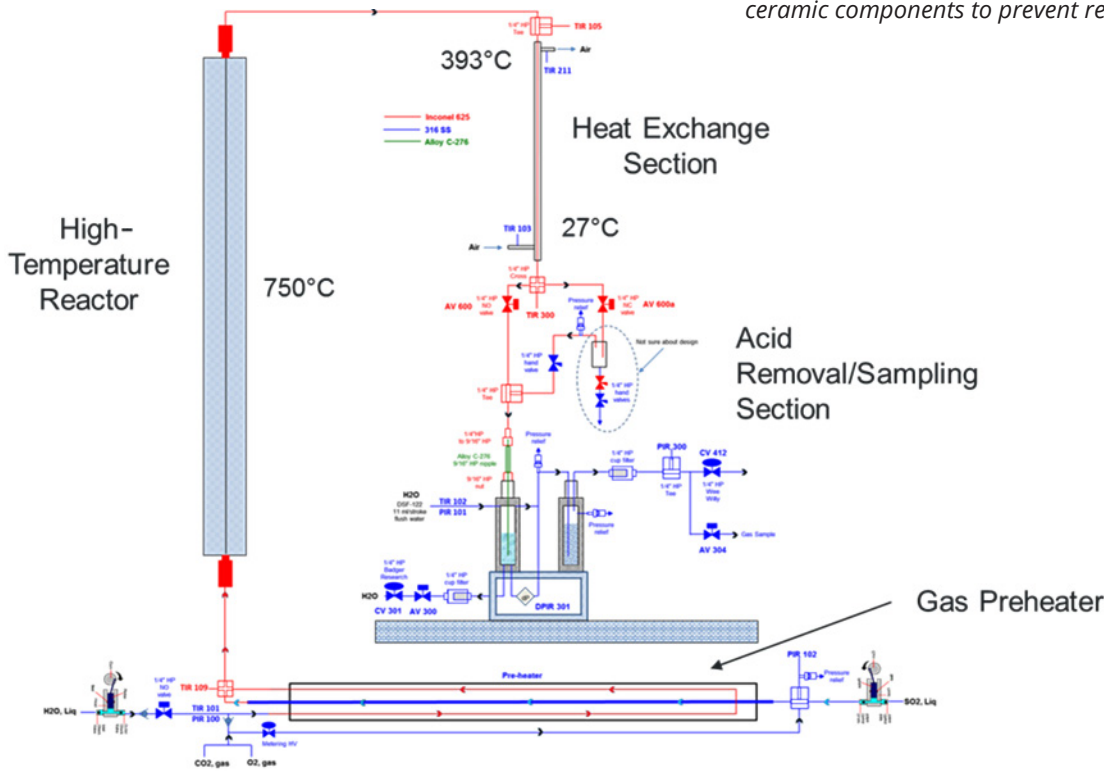
Reactor Gas Flow

Lower 6 ft Used as Preheat



Ceramic Bolt, Nut and Washers

*Coupons are loaded in the reactor vertically and held in place with ceramic components to prevent reaction with other materials.*



*Schematic and photo of the dynamic corrosion test system.*

**For More Information, Contact:**

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