

# Autoclaves for HPHT Corrosion Testing



## SALIENT FEATURES

- For high pressure high temperature static, dynamic, loop & electrochemical corrosion studies
- Volumes from 100mL to 100L
- Design pressures up to 350 bar & temperatures up to 600°C.
- Available in different materials of construction – SS 316, Hastelloy C, Inconel, Titanium etc.
- Stirred / non-stirred autoclave systems
- Completely customizable system

## METHODS OF TESTING CORROSION USING AUTOCLAVES

- Weight loss method with corrosion coupons
- Electrical resistance probe
- Electrochemical probe
- Electrochemical noise in current or potential

## APPLICATIONS

- Instruments for corrosion application are mainly used in aggressive environments like technical institutes and chemical industries.
- Electro - chemical corrosion measurements in HPHT media-water and other solutions
- Coating and materials evaluation in high pressure simulated deep sea condition (submarine paint etc) using impedance measurements
- Instruments for cement curing under deep sea applications as per API standard.
- Polymer testing /curing/processing under HPHT conditions
- Slow strain rate tests for stress corrosion cracking under HPHT conditions



2L instrument with separate head for weight loss method & electrochemical corrosion studies



10L instrument for HPHT corrosion testing



5L instrument for corrosion testing by weight loss method, electrochemical & recirculation loop

## STATIC & STIRRED INSTRUMENTS

- Normally corrosion test coupons are suspended in static (non-stirred) or stirred instrument & corrosion is measured in terms of weight loss. In stirred instrument, sometimes the coupon holders are attached to the shaft & rotated during testing.
- Instruments are then fed with the corrosive media & designed temperature & pressure are reached & maintained. Optionally suitable electrodes like pH or ORP (MOC: SS316 / Hast-C) are provided to measure pH & redox potential under pressure.
- Instrument with working, counters / reference & auxiliary electrodes can also be offered with potential measurement system for electrochemical corrosion testing.



Parallel 1L & 5L instrument for corrosion testing



Rotating coupon holder assembly



High pressure electrochemical probes



Potentiostat

## RE-CIRCULATING LOOP INSTRUMENT FOR CORROSION TESTING

In this system, the instrument is connected with a special high pressure pump which can recirculate water/liquid continuously at very high velocity through the test spool & the instrument connected in line with each other.

