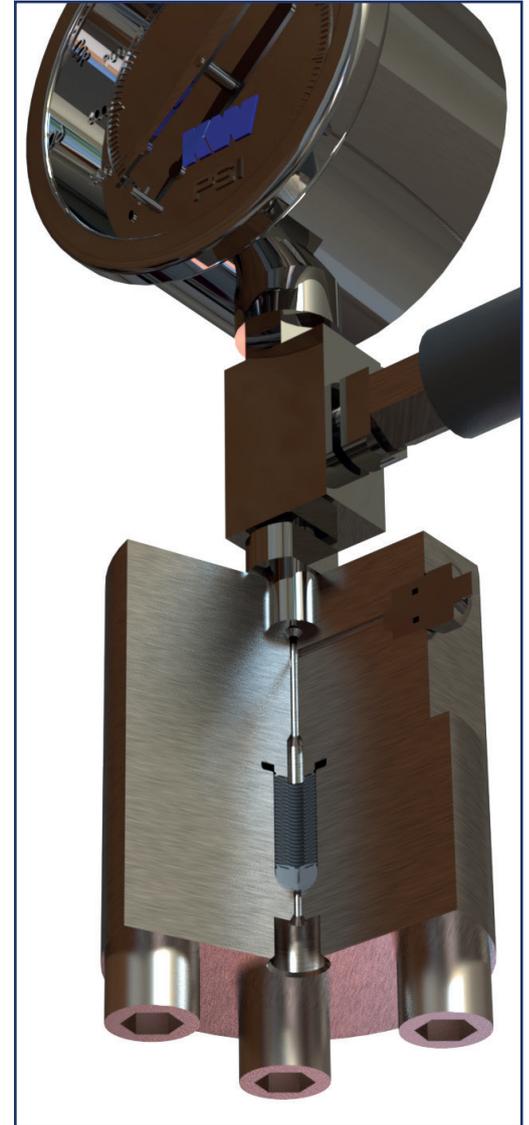


PRESSURE MEASUREMENT IN SOUR GAS ENVIRONMENTS

When KW Designed Solutions were asked to supply three high pressure test systems to TWI for simulating downhole sour gas environments in their new NSIRC facility, one of the key design challenges was how to safely monitor the operating pressure of the extremely corrosive media within the Autoclaves.

A good safe system of working will usually require dual diverse methods of pressure monitoring. This typically involves having both a mechanical (bourdon tube) pressure gauge and electronic pressure transmitter/transducer with digital readout. While pressure transmitters can be sourced with suitable diaphragm materials for the environment, the same is not the case for pressure gauges. To incorporate standard instrumentation in systems with aggressive media, the normal procedure would be to fit a media separator, or chemical seal, between the aggressive media and the delicate and often incompatible instrumentation. However, after an extensive product search there does not appear to be any commercially available seals for operating conditions of 1,700bar up to 300°C with Hastelloy wetted parts.

The only option was to use our in-house experience of incorporating media separation into pressure systems and design a special purpose chemical seal. Standard chemical seals use a diaphragm to isolate aggressive media from the closed pressure monitoring environment, however, the size of diaphragm required for a design pressure of 2,000bar would need a large housing to contain the pressure loading. To make a more compact unit, a bellows arrangement was designed into a much smaller unit with sufficient volume displacement for both the gauge and transmitter.



The completed assembly was proof tested to 3,000bar, certified in accordance with the PED and CE marked for compliance. The final chemical seal unit is extremely compact at Ø100mm X 120 mm long, can be easily incorporated into any high pressure system and comes calibrated with integral gauge and transmitter. Other versions are available with different pressure ratings; for more information, please send your enquiry to sales@kwdesign.co.uk or call +44 (0)1257 474507

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