CAPROCO
INTERNAL CORROSION MONITORING SPECIALISTS

Corrosion Rings

General

Corrosion rings are designed to measure the corrosive effects of drilling fluid environments on drill pipe. Due to the extremely corrosive conditions present when drilling, including erosion from high sand content, sudden wall failures leading to blowouts can occur. They are particularly valuable in locations containing sour gas, oxygenated fluids and salt water.

Corrosion rings are an economical and accurate method of monitoring drill pipe condition during drilling operations, and help in evaluating the effectiveness of corrosion inhibitor treatment programs. Examining scale and pitting on the exposed rings can help in identifying the causes of corrosion and aid in selecting proper mitigation techniques.

Application

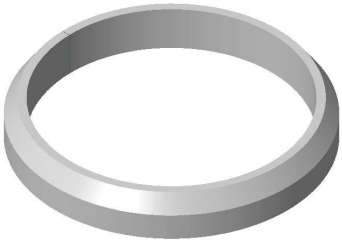
It is recommended to use corrosion rings in sets of two, locating them at the top and bottom of the drill string. The first ring is sized to fit in the tool box recess of the first single above the crossover sub. The second ring is placed in the box end of the first single below the kelly saver sub. Note that both boxes should be cleaned and clean dry gloves used during installation of the corrosion rings. The rings are sized to have the same bore as that of the tool joint to minimize turbulence effects.

Corrosion rings should be kept in the drill string for a minimum of 40 hours, as exposure periods shorter than this may show unusually high initial corrosion rates. They can be left in for more than one bit run. Rings are typically in place for two to ten days, depending on the corrosiveness of the environment.

Drilling conditions during exposure should be recorded, including: ring serial number, drilling fluid properties, chemicals additives, location of ring in the drill string, initial weight, time in, depth in, depth out, time out, % of sand and solids, color of scale and any general remarks. Once removed, the rings should be placed in their original envelopes and sent in for analysis.

Specifications

Typically manufactured from steel with similar chemical and mechanical properties as drill pipe, every ring has a machined finish and a stamped serial number linking it to its initial weight stored in the Caproco database. Each corrosion ring comes individually packaged in a vapor-inhibiting envelope to prevent atmospheric corrosion. Plastic insulated rings are also available upon request.



Due to the variation in drill pipe box sizes, Caproco offers corrosion rings in a variety of sizes and will custom manufacture rings to customer specifications. Post-exposure corrosion ring analysis is available, which includes accurate re-weighing, visual and pitting analysis and mpy wall-loss calculations provided in a concise report.

Drill Pipe Size & Type	Part Number
2 ⅞" SL-H90	35010
2 ⅞" Internal Flush & 3 ½" Slim Hole	35005
3 ½" Extra Hole & 3 ½" Full Hole	35007
3 ½" Internal Flush & 3 ½" Extra Hole	11523
4" Full Hole	35004
4" Internal Flush & 4 ½" Extra Hole	11526
4 ½" Full Hole	35002
4 ½" Internal Flush & 5" Extra Hole	35003
5 9/16" & 5 ½" API Regular & Full Hole 6 ⅝" API Regular	35006
5" XH Tool Joint	35009

Contact Caproco for Alternate Sizing & Material Options