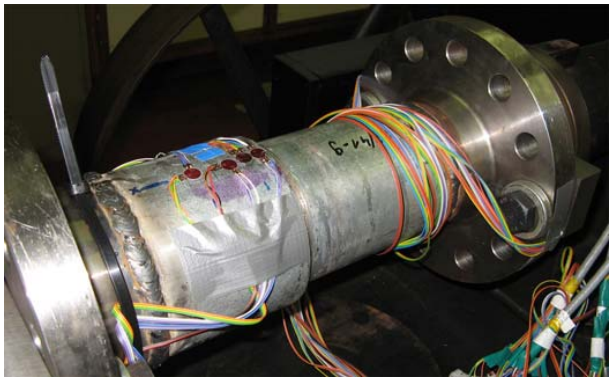
GHENT UNIVERSITY

SOETE LABORATORY

Torque machine



The torque machine was built on a modified Amsler torque frame and is used within the research of threaded pipe connections. This machine is used to assemble the connections by applying the so-called "make-up torque". During the make-up it is necessary to accurately control the rotation and to measure the resulting torque. From the measured signals, the contact properties of a threaded connection can be determined.

The test specimen, consisting of the male and female part of a threaded connection, is mounted in the torque machine by the use of flanges that are welded to the connection. Drive wheel rotates a worm which drives the gear. This causes the male part of the test specimen to rotate with respect to the stationary female part. The resulting torque is transmitted to the lever arm which is connected to the loadcell. The measured load multiplied by the length of the lever arm (1.00 m) equals the acting torque. To allow an axial motion during make-up, a linear guiding system is present.

By applying strain gauges to the sample, comparison can be made with the calculated strains from our finite element models. The relation between the measured angular rotation and torque can be used to calculate the coefficient of friction between the threads of the connection.

TEST RIG CHARACTERISTICS

Property	Value
Maximum Torque	2500 Nm
Maximum sample length (distance between clamps)	500 mm

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