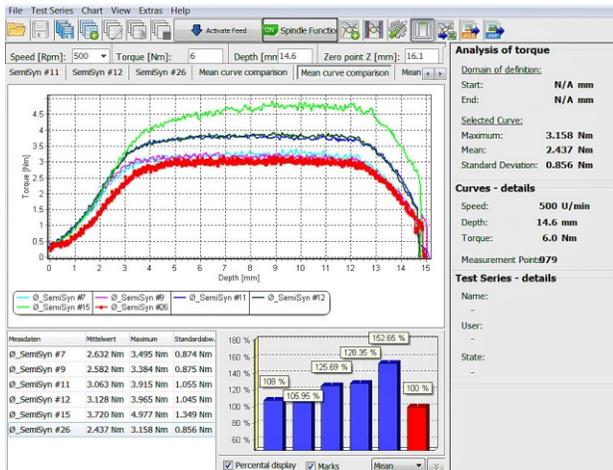


LT-120 Case Histories

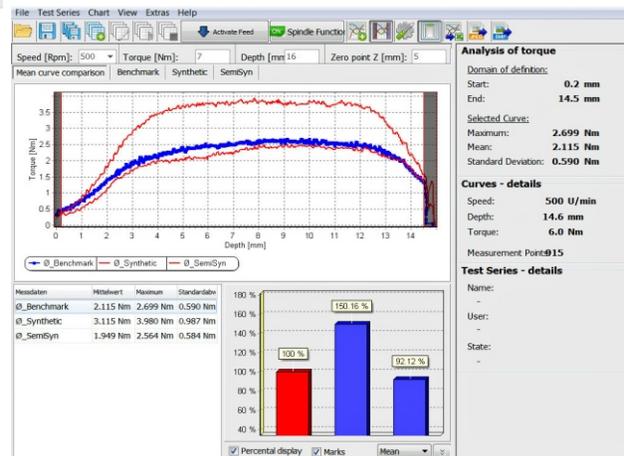
The **Tauro** tapping torque tester is more than a versatile research tool. Some of its other uses include quality control, lubricant monitoring and raw material substitution for cost savings. Testing can be carried out under a wide range of conditions and with a variety of metals.

Below are some examples of how the LT-120 can be used. These tests use 6061 aluminum test bars with an M6 forming tap operating at 500 rpm. Data from the LT-120 can be placed on a network for remote analysis since the software license allows multiple installations.



Research & Development

The marketing department of a coolant company has determined that their flagship synthetic coolant must machine both aluminum and ferrous metals. The current product works very well on ferrous metals but high concentrations are required to machine aluminum. This makes it uneconomical and causes residues that interfere with gauging and setup. A semi-synthetic product known to work well on aluminum is used to benchmark the research products.



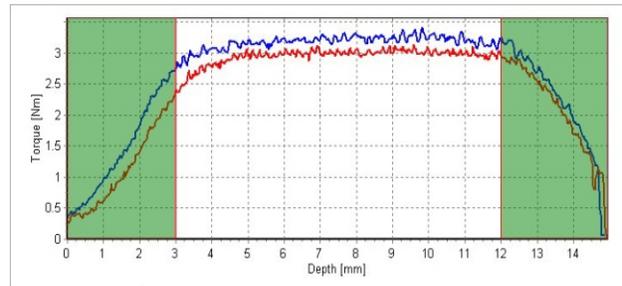
Two versions of a company's synthetic coolant (red curves) compared to a benchmark semi-synthetic (blue curve). The company will now test the lower torque version of the synthetic as a substitute for the semi-synthetic.

The TauroLink software shows the actual tapping curves in the upper portion of the window while the lower portion shows the data in tabular and column graph formats. Any of the test runs can be set as the reference and the data can be displayed in N-m or as a percent of the reference sample.

Sales Support

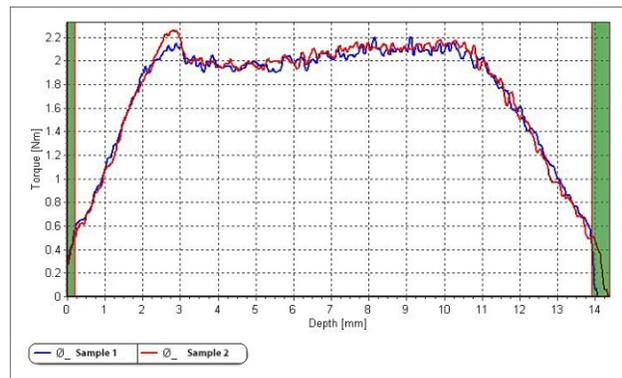
A local coolant company has a sales opportunity to replace a higher cost product from a well-known, international company. The local company would like to determine if one of their existing products is an acceptable alternative or if they must develop a new product.

Lubricity for two products is compared using the LT-120. The mean values and standard deviations are calculated for the plateaus using the LT-120's domain of definition feature. It can be seen that the competitor (red trace) is comparable to the Sales Department's suggestion shown in blue.



Long-Term Repeatability Study

The repeatability of the LT-120 is important for its use as a QC or tech service tool. To do this the lab prepares a 10% emulsion and then taps four holes using a 6061 aluminum substrate and M6 forming tap. The test is repeated with the same sample over a week later. Each curve is the average of four individual runs and there is variation of about 0.5%. It is important to retain the same test bar and tap.



Quality Control

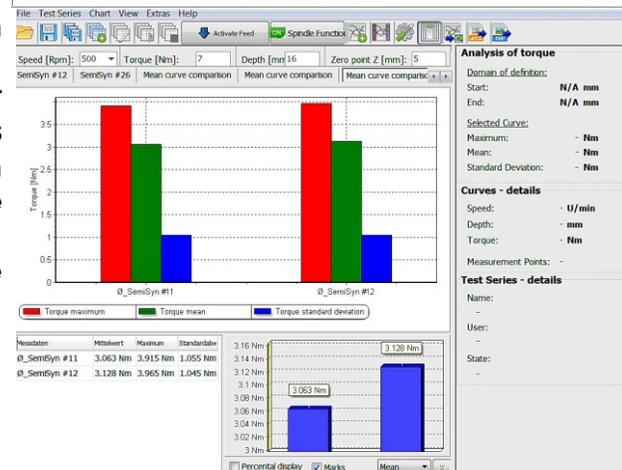
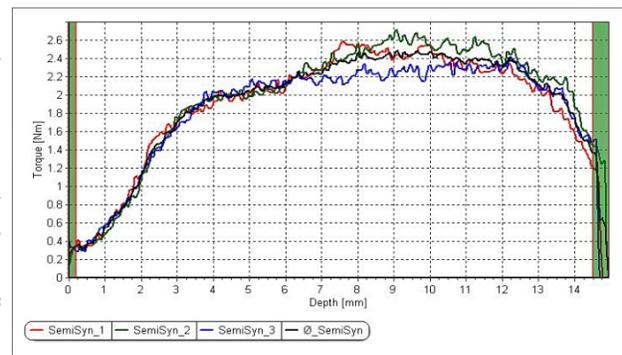
The QC Lab of a coolant supplier checks each batch of their semi-synthetic before packaging and shipment. Using the LT-120 the lab reports the lubricity for the certificate of analysis given to their customer.

Individual curves are shown in blue, red, and green curves and LT-120 then automatically averages the result (black curve) for the lab manager to compare to prior production batches.

Test bars contain 120 holes allowing many batches to be compared using the same test piece removing it as a variable. The test takes approximately 10 minutes to run and the cost of consumables is about \$5.00 - 10.00.

Comparison of the current production batch (right group) with a reference standard (left). The red bars show the maximum torque for each batch while the green and blue bars show the average and standard deviation values of the torque plateau. Both fall within the QC specification.

Units are in Newton-meters. Charts can also be created with one or two characteristics.



MICROTAP USA, INC.

1854 Star Batt Drive, Rochester Hills, Michigan 48309
sales@threadtapping.com phone +1-248-852-8277