BEARING PRELOAD TEST

Challenge

In the manufacturing of precision bearings, every bearing must go through a final quality test where the breakaway torque and the running torque are measured to determine the bearing preload. The bearing preload is determined by measuring the torque required to rotate the inner race while the outer race is held. Every bearing manufactured is tested before it is shipped to the customer.

Application Requirements:

- Retrofitted into the existing assembly line
- Torque range of 1,000gm/cm
- Measure the breakaway torque
- Measure the running torque
- Data acquisition
- Connectable to plant network

Solution

The TorquePRO was chosen because it is an integrated system that contains both the torque monitoring and the motion control (servo motor). The TorquePRO had the sensor stability, repeatability and software flexibility to meet the requirements of the application. The TorquePRO replaced an existing system which did not give repeatable results. There are two individual quality checks performed by the TorquePRO system each time a bearing is tested. The first check measures and gauges the breakaway torque. The second check measures and gauges the running torque. These values are then stored into a data file for later analysis. If the torque values are outside the predetermined limits a fail signal will be sent to the PLC to reject the bearing. Individual pass and fail outputs from the Promess Motion Controller are tied to the PLC to provide closed-loop control of the process.

PROMESS