**DATS Case Study**

# Electric Motors and Gearboxes

End of Line Vibration Testing

- **Speeded up testing**
- **Works for all configurations of product**
- **Automatic recording of results**
- **Automatic test reports**

Prosig was contracted by USA-based electric motor manufacturer to integrate a system for end of line vibration test for electric motors they manufacture. The requirement was to qualify motors under final test to verify that vibration levels are within vibration specifications.

The customer requested the ability to switch between numerous motor models and apply different pass/fail limits for the different models as well as test gearboxes to evaluate gear tooth contact frequency.

## Motors

A simple pass/warn/fail test based on single channel overall RMS vibration levels was implemented. Warning and fail target levels are recorded in a CSV file and the motor test software recalls the appropriate values for the operator specified motor model.

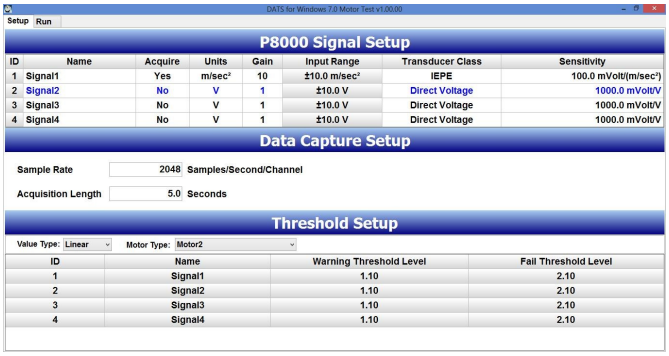
## Gearboxes

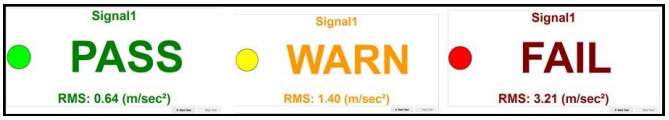
A more involved test was designed for the gearboxes to measure the vibration signal, calculate the vibration spectrum, integrate the signal to velocity, identify the 1x and 2x gear tooth contact frequencies and evaluate each to verify the gearbox is within specified velocity vibration levels.

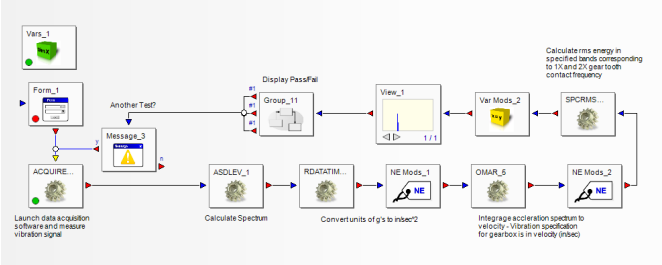
## Conclusions

The DATS test system allowed the end user to quickly, accurately and consistently test all of their motors and gearboxes and greatly speeded up end of line testing.






The flexibility of the software means that all the different configurations of motor and gearbox can be tested.

## About Prosig

Prosig is a UK company specialising in the testing and monitoring of complex machinery, vehicles and structures in the advanced engineering, automotive, aerospace and industrial sectors. It offers a wide range of system capabilities, experience and innovation, with a particular focus on advanced vibration and acoustic monitoring and analysis techniques. Prosig is part of CMTG (Condition Monitoring Technology Group), an international group headquartered in the UK.

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