

# Use Case: Adaptive Vibration control

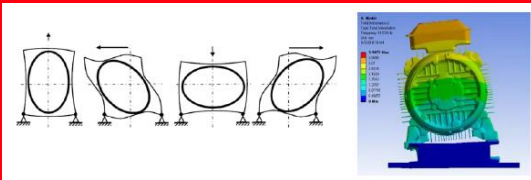
In the past we would develop our solution on an OPAL RT system and would become available to customers only if it got integrated into the drive firmware. Now we can develop and deploy much faster!

**SJOERD BOSGA**  
Principal Scientist, ABB

## CHALLENGE

Drive systems often have critical resonance frequencies which should be avoided.

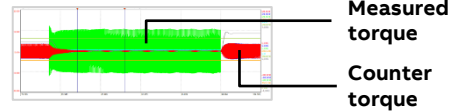
This limits operation range and creates risk for damages and early failures due to the vibrations.



## APPROACH

In the past this problem was solved by rapidly passing certain speeds or modifying the mechanical design, which limited the usability of the powertrain.

We have developed an algorithm that calculates a counter torque in real-time and hence actively dampens the system vibrations.



## BENEFIT AND METRIC

Using ABB Crealizer™ enabled the team to explore and iterate the solution within several weeks.

Thanks to the reduced vibrations the system lifetime is extended and wear and tear reduced.

Furthermore, the user can now use the full operation range of the powertrain.

It also leads to reduced noise levels

## ALTERNATIVE SOLUTIONS

Alternative or traditional solutions, such as PLC or mechanical adjustments, are too slow or not as cost efficient:

- Too slow for a closed-loop interaction with relatively fast vibrations
- Extra cost for additional equipment
- Mechanical changes in the machine foundation