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Industry Spotlight Q&A:

What makes HIL solutions a unique tool for Danfoss Drives engineers

Interview with
Søren Bækhøj Kjær from Danfoss Drives



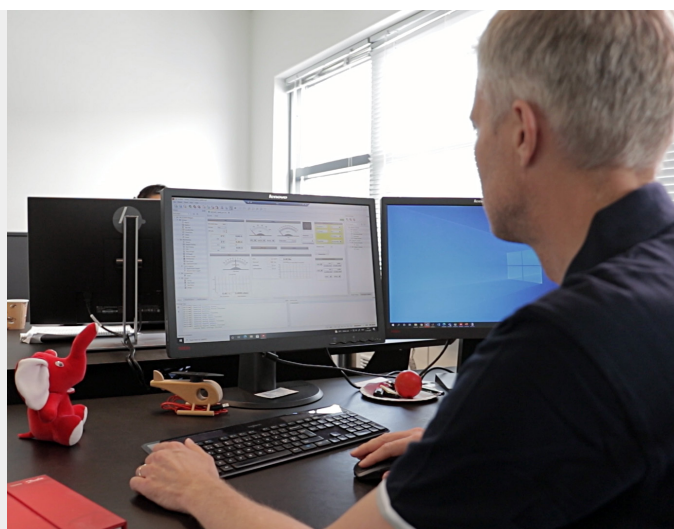
Søren Bækhøj Kjær,
Engineer at Danfoss Drive

Søren Bækhøj Kjær is an applications engineer at Danfoss Drives. In this blog interview, he tells us what makes Typhoon HIL solutions a unique tool for engineers. Watch the short video or read the full interview in this blog.



We want a system which could be used by everyone. A **Typhoon HIL system** is a test infrastructure which **works right out of the box.**

Søren Bækhøj Kjær



What is the mission of Danfoss Drives?

Many Danfoss products are made with energy conservation and efficiency in mind. By making sure we are controlling the drives, motors, heating, and air conditioning of buildings, we are not wasting energy. **The mission of Danfoss Drives is to make modern living possible and sustainable.**

What were the key challenges your engineering teams were facing before adopting a HIL system?

At Danfoss Drives, we develop, test, and manufacture drives for various motors. The smallest one we have is around 300 watts, while at the other end of the scale, we're talking several megawatts. If you want to test on bigger drives and bigger motors, it's difficult to find and build these setups for testing. Only after the software and motor control teams would spend about two years doing code, could you go into "Big Bang" integration in the lab. Then you would have to do lab test validation and verification for a long time before you are ready to launch a product. **Before HIL, it could easily take a few weeks to have the tests set up or upgraded. Then we adopted the Scrum and Agile development methodologies, and started developing in smaller sprints using HIL.**

We wanted a system that could be used by all persons, not only control electronics engineers but also test engineers and power electronics engineers. The **easiest tool to adopt was a Typhoon HIL system.**

Søren Bækhoj Kjær



What was the crucial advantage of the HIL system of choice from your viewpoint, as an engineer?

User-friendliness. Typhoon HIL offers seamless integration between the software, or how you go to make your model, and how you compile it for use in the simulator. With some of the other vendors, there was more hassle around doing this, and you would need to have a deeper knowledge of how to model things.

Not everybody inside our organizations has that knowledge. Of course, we could have also just made our own motor models and put them into a library which could then be used by everybody. But we are not manufacturers of test equipment, we are pure drives players, and we were just looking for a test infrastructure that works out of the box. **We were just looking for a test infrastructure which works out of the box.**

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What does a HIL system allow you to do that you couldn't do before?

With HIL, we can change the size of the motor and the drive with a push of a button. We can also test different applications, like motion control or pump applications. It is very easy to switch around and do different tests. **Performing tests on a HIL system, we can see immediately if what we have been implementing is working. Since we are doing much more testing upfront, we don't need as much time to make validation tests of software controls as we did before.**

How does using HIL affect your relationship with customers?

We have the possibility of making a huge number of tests all the time, in different motor sizes, technologies, and drives sizes. So, when a customer asks if we see an error, we can first recreate the test cases in real-time with HIL, and then "kill the bug". We then release software updates and make sure that we have satisfied customers. **Using HIL, it's easy for us to find and fix errors much faster.**

What does HIL Tested mean for Danfoss Drives engineers in one word?

Usability.

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