

Driving Technological Innovation with ANSYS

Nifco Inc. is a major supplier of quality plastic components for the global automotive industry. One of its four global R&D centres is based at Nifco UK, with an in-house dedicated team of technical specialists, design and development engineers. To remain at the forefront of its sector, Nifco requires the most technologically-advanced solutions available, including advanced engineering simulation tools to help accelerate product development. Wilde supplied ANSYS software and training, resulting in clear benefits that continue to drive forward Nifco’s innovative approach.

Company

Nifco Inc. designs, develops and manufactures quality plastic components for the global automotive industry. The company has a wealth of knowledge and expertise in many product areas relating to both the interior and exterior of a vehicle, including the engine.

Nifco supplies products to all major automotive manufacturers and has TS 16949 and ISO 14001 accreditations, as well as Ford Q1, Renault Nissan ASES Grade B and Jaguar Land Rover JLRQ.

Established in 1967, Nifco is headquartered in Tokyo, and has expanded into 17 countries with more than 35 production plants and four R&D Centres. It employs more than 9,000 people and with its global reach is situated to supply all key automotive production locations.

In the UK alone, Nifco has more than 530 employees, with a turnover exceeding £68m.

“CAE is an essential part of the R&D and design process for automotive systems and components. Our improved in-house capability has speeded up our development schedules and helps us to progress our designs and testing much faster than before, with lead time reductions of around 80%.”

Recently, Nifco UK won a 10-year Ford deal worth up to £50m, beating rival companies in Germany, Japan and China and has announced ambitious plans to double staff and turnover by 2020.

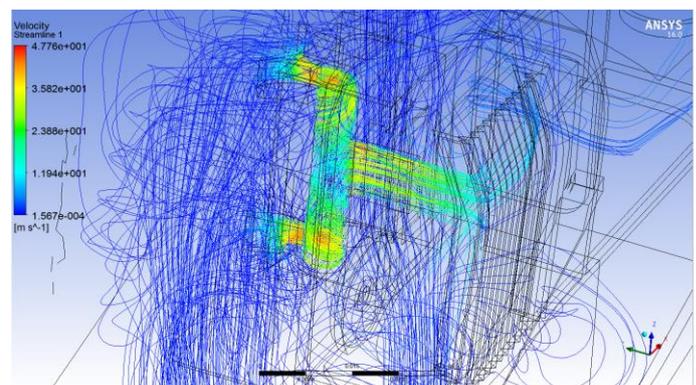


Fig 1: Nifco’s Niclone™ Oil Separator (Courtesy: Nifco UK)

“Wilde’s support and training has been invaluable in helping our engineers to understand the software, and validating our results. We like to work with Wilde for their speed of response and in-depth technical knowledge of the product and the engineering principles that lie behind them.”

Challenge

At the centre of Nifco’s success lie both a major investment in research and development and a strong commitment to staff training. To continue driving the business forward, they require the most

advanced technical solutions to meet complex design and analysis challenges, combined with appropriate training of their engineers to make the best use of these resources.

Solution

Nifco's requirement for modelling multiphase systems was met through the supply of **ANSYS Fluent**, with **ANSYS DesignXplorer** for optimisation. **ANSYS SpaceClaim Direct Modeler** was also provided for geometry manipulation together with **ANSYS Mechanical** for structural analysis (FEA).

Nifco's investment in software was supported by Wilde's programme of training. On-going technical support and advice is also provided by Wilde's dedicated services team to ensure Nifco engineers can fully exploit the capabilities of ANSYS.

Business Benefits

Nifco's engineers have provided the following direct feedback on the benefits they have realised through their investment in ANSYS, supported by Wilde Analysis.

- "Prior to our UK commitment to R&D, Nifco relied on its parent company in Japan for analysis, with typically 2-3 week turnarounds on results. The decision to invest in **ANSYS** software with Wilde, including **Fluent** and **ANSYS Mechanical** has meant turnaround on project design analysis has been reduced from weeks to hours, or even minutes. It has also helped to enable our success in winning the next generation thermostat housing business with Ford Motor Co, worth £50million, and oil separation business, worth £15million."
- "All Nifco's UK R&D projects involve a requirement for analysis, whether it be structural and/or flow analysis of the next generation of thermostats or oil separators, to thermal stress analysis of engine covers."
- "From a Nifco UK point of view, having Fluent & Mechanical software in-house has reduced our analysis turnarounds from weeks to hours or less."
- "It has paid dividends in our relationships with our automotive OEM customers due to our

rapid response. With analysis of flow conditions in crankcase breather, lubrication and cooling systems, we can respond within almost 1 working day compared to the previous timescale of 2 weeks or so. This has speeded up our customer's development times and helped us to learn faster about how our parts interact with their systems."

- "Through our own internal R&D projects, we are now defining, analysing and making viable prototype parts within 1 to 2 weeks, ready for testing in rigs or on real engines, and correlating practical results to the analytical findings much faster. Previously, this process could take us up to 2 months to complete."

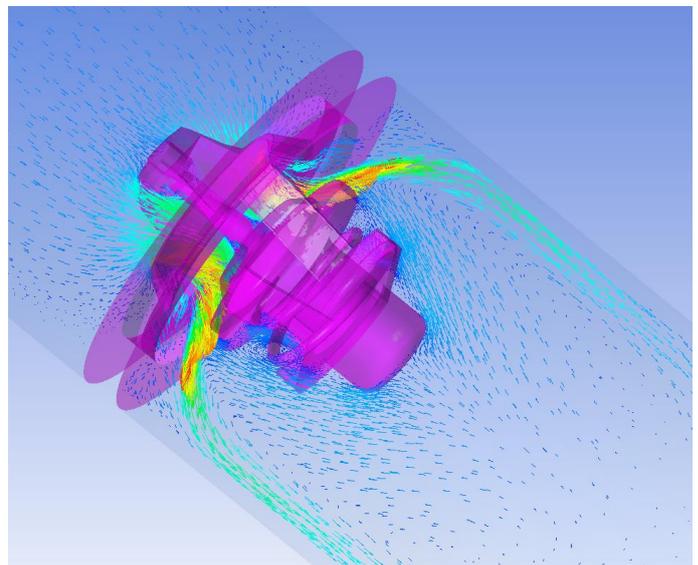


Fig 2: Thermostat Flow Modelling (Courtesy: Nifco UK)

“” Our customers are also seeing the benefits and our relationships with them are **continually improving** as we demonstrate **quality of results with reduced times**. This improved relationship, demonstrated capability, raised profile and increased understanding of our customer's needs, is **winning significant new business for Nifco**, and we see **Wilde Analysis as a key partner** in the development of our skills and software capability of this **increasingly business critical function**.

(Steve Garrett, Technical Specialist, Nifco UK)