



R3-MYDAS

Project document

Newsletter 6

Dissemination level:	PU - Public, fully open
Document leader:	FLE
Status - version, date:	Final - v1.0, 2025-06-26



Funded by the
European Union

This document is part of a project that is funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Health and Digital Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.

*The document is the property of the R3-Mydas project and should not be distributed or reproduced without prior approval.
Find us at www.r3-mydas.eu.*

FLENDER reaches milestone in development project in R3-Mydas to reuse and upgrade technologies for high torque density journal bearing gearboxes

Flender, as part of the R3-MYDAS project, is developing flange connection repair, reuse, remanufacture and upgrade options. Flender has over 40 years of experience in developing wind turbine drivetrain solutions and technology, upon which the R3-Mydas project dynamic tester is built. One project goal is to examine the potential of new “remanufacture” service processes and methodologies, providing cost and environmental benefits to the industry. This can also include options for repair and reuse of the component.

Since the start of the project, Flender has successfully implemented an upgrade option to bolted flange connections that are susceptible to fretting wear. This wear usually accumulates due to small movement between the bolted surfaces in operation (See Figure 1). The upgrade option with friction improvement to surfaces was investigated in a prototype gearbox and successfully passed the test program, including an overload robustness test.

Disassembly and documentation of the results showed a small amount of fretting wear, which was expected, but is a massive improvement to construct without friction improvement technologies implemented. Simulation models also match well with the observed fretting wear.

As a follow-up to the prototype testing, a beyond state-of-the-art flange connection tester has been designed and is currently in commissioning. This new tester allows for testing of flange connections in different boundary conditions and design setups. This allows for a better understanding of the fretting mechanism on how to prevent it, repair it and upgrade the existing designs. Specific objectives specified in the project for fretting wear remanufacturing have been successfully achieved as part of R3-Mydas, and will continue with other projects concerning gears and journal bearings.



Figure 1. Fretting damage on ring gear connection after initial test without friction improvement.