

Contents of Work Package **4-WP12**: Methods for Gear Testing

4-WP12: Methods for Gear Testing

Coordinator of the WP

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Participants of the WP

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Main Goal of the WP

Increasing the service life of gears, optimizing the operating environment of gears, enabling simple inter-operational and output inspection of gears and gearboxes during production

Partial Goals for the Current Period

A test set of wheels with defined gear geometry, material and heat treatment will be manufactured to conduct experiments related to measuring gear error and gear life.

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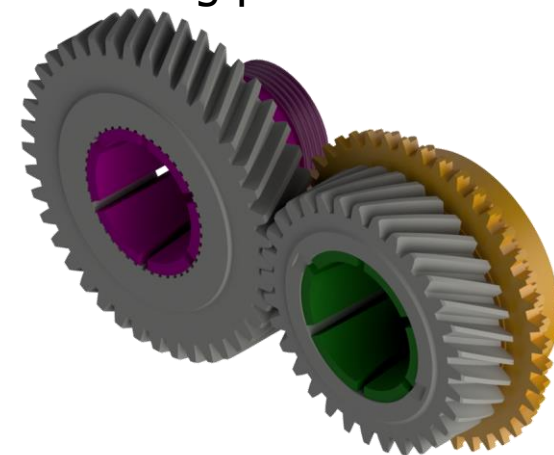
Official 4-WP12 Deliverables

- 4-WP12-001 | **Report on the dependence of gear life on working and material conditions of operation and transmission error**, O, XII./2025, TUO 0.9; SA 0.1
- 4-WP12-002 | **Set of test gears with specified geometry for testing gear error and gear life**, G-funk, XII./2025, TUO 0.2; SA 0.8

Activities in 4-WP12 R&D of Knowledge Database: Design Assistance SYstem - DASYS

4-WP12-002: Set of test gears with specified geometry for testing gear error and gear life

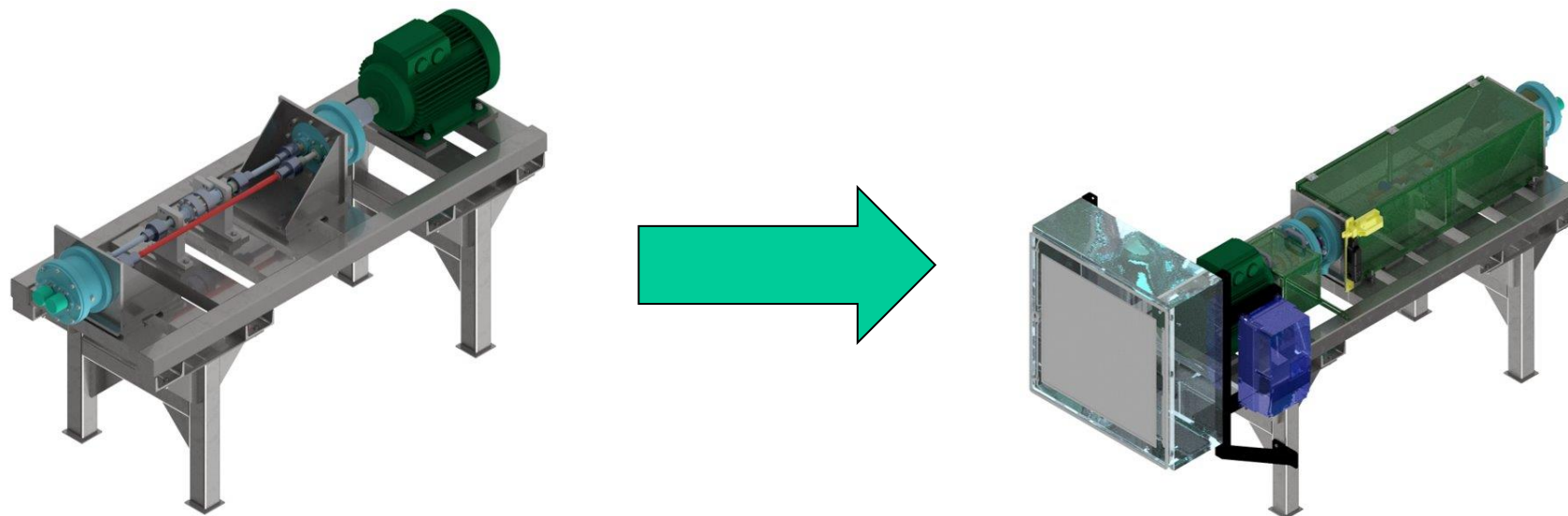
- In cooperation with our partner SKODA AUTO, the gears on which the life tests will be carried out has been selected. Specifically, the 3rd helical gear from the MQ 200 gearbox.
- In order to achieve as much stability as possible in the follow-up measurements, the results of which will be reported in the report on **4-WP12-001: Report on the dependence of gear life on working and material conditions of operation and transmission error**. The gear manufacturing process will be monitored in detail. Some of the parameters monitored during production:
 - Production batch of base material.
 - The position of the gears in the cage during hardening.
 - Stability of hardening process parameters.
 - Etc.



Activities in 4-WP12 R&D of Knowledge Database: Design Assistance SYstem - DASYS

4-WP12-002: Set of test gears with specified geometry for testing gear error and gear life

- In order to carry out the life tests with measurement of transmission error, a modification of the test rig on which the life tests will be carried out was designed. It is a closed-circuit test rig allowing two pairs of gears to be tested at one torque level. The necessary documentation has been prepared and all the modified elements of the equipment have been ordered. The manufactured parts are now arriving, and the installation of the equipment will start during November 2023.



Activities in **4-WP12 R&D of Knowledge Database: Design Assistance SYstem - DASy**

4-WP12-002: Set of test gears with specified geometry for testing gear error and gear life

- reconstruction of test rig includes, but is not limited to, the following:
 - A new control system to allow the test equipment to run unattended
 - Modification of the lubrication system, for wading lubrication
 - A new lubrication circuit to ensure a stable supply of an adjustable amount of oil at a stable temperature
 - Updating the transmission error monitoring system, increasing the accuracy of the measurement
 - New clutches, shafts and other components to allow testing of defined gearing and to allow torque increase in the system from 200N.m to 300 N.m.

