

## Endurance test rig



### Task

Testing of motors in continuous operation under the according loads with continuous monitoring and data collection must be carried out. The products are categorised into four load stages. For the load endurance test of the motors, the externally supplied energy must be as low as possible. The project is first only started with one load stage and for six motors. It must be possible to connect an additional load via free programming. The control must already be designed and equipped for all load stages in the first phase. The software structure must also be designed for all load stages.

### Solution

A finished testing unit is made up of four test stations for four load stages. The modular construction makes it possible to start with the first load stages in the first expansion phase. The control is already integrated in the first load stage for the final completion. A test station consists of a basic structure with a table-top and six product reception devices. From the operating side they are arranged in a row for ideal operation and assembly. The base load is realised by means of a suspended load with a transmission. The additional load is connected via pneumatic actuators and can be freely programmed. The measuring data is collected by the controller and stored in the database.

### Result

At the testing unit the motor is loaded with an external counterforce. This is realised through a suspended weight with a pulley transmission. The additional load is added by means of a pneumatic cylinder and a proportional pressure regulating valve to simulate the different load stages. This additional load and the amount of cycles can therefore be freely programmed. The external energy supply was reduced to a minimum with this unit concept.

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