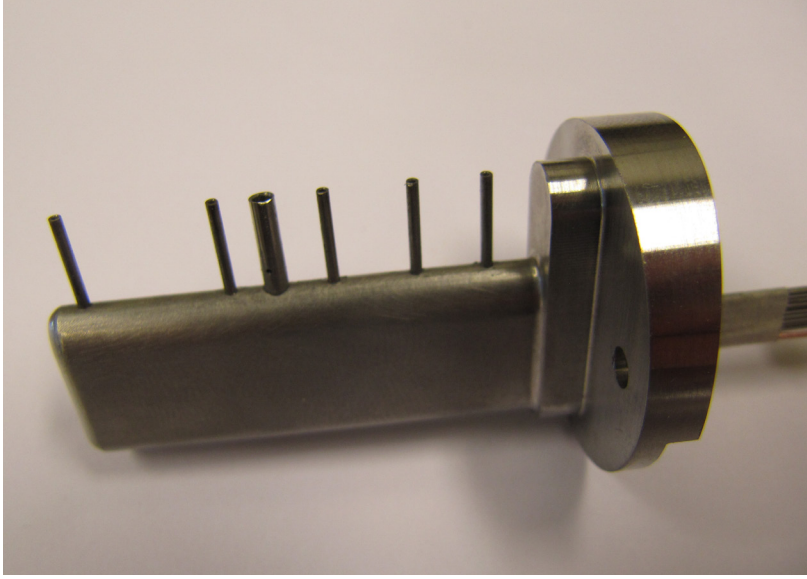
Dedicated to innovation in aerospace

Get the maximum out of your wind tunnel test

PRODUCTS & SERVICES

Wind tunnel test equipment for model integration and test enhancement

You require any system that is crucial for the test but not part of the wind tunnel itself or the model to be tested. This can be comprehensive mechanical test rigs used to support complete test setups, model upgrades to get a better and more efficient performance or additional flow measurement instrumentation that either has to be incorporated in a model or in the tunnel itself.



You need to integrate a wind tunnel model in a wind tunnel, for static models by means of stings and main internal or external balances or for powered models with integration of pressurized air piping. You want to update your wind tunnel with specialized instrumentation systems or you want to save test costs and improve your model efficiency by means of smart features such as remote controls and local balances or you simply want to enchance the sensory functionality of your model.

NLR has extensive experience with one-of-a-kind products and is used to prototyping and perfecting tailor engineered devices. Typical devices and tools for wind tunnels, model integration and enhancement that are part of our portfolio are:

- Remote controls for control surfaces of wind tunnel models
- Model stings and adapters (also instrumented with strain gauges)
- Test rig support for air powered propellers including pressure piping
- Pressure rakes
- Six component full or half model balances (also for cryogenic applications)
- Wind tunnel parts and instrumentation

NLR can help you get the most out of your test by designing, manufacturing and instrumenting specialized wind tunnel equipment.

NLR can assist you from the early beginning of the project until the commissioning and beyond.

REMOTE CONTROLS

NLR is your partner in applying remote controls in wind tunnel models. Remote controls are a valuable asset to any wind tunnel model because they substantially increase the measurement range compared to previously used brackets. This gives you the opportunity to investigate curious phenomena occurring in between predefined angular settings of the control surface. Remote controls also help to decrease costly wind tunnel occupation time and thus reducing your overall costs.

STINGS AND ADAPTERS

The interface between the model and wind tunnel is an important link in the whole chain of wind tunnel testing. Valuable wind tunnel time can be saved by ensuring a proper connection. NLR can design and manufacture all kind of model support systems and adapters for a model to be properly mounted in the tunnel.

Stings can be equipped with strain gauges to measure and monitor loads acting on the sting during the execution of tests.

TEST RIG SUPPORTS

Some models don't fit on a regular sting but need a specialized rig to be mounted on, for example in isolated propeller tests. NLR can provide you with a specialized rig supporting your model and additionally provide means for supply and return piping for pressurized air to power the propeller. Mounting systems for half models have as well been designed and manufactured.

PRESSURE RAKES

Some tests require detailed flow measurements somewhere in the tunnel itself or closely around the model. Instrumentation rakes including static and dynamic pressure and temperature sensors that have minimal impact on the flow can be made by our specialists.

BALANCES

The main internal or external strain gauge balance is one of the most important items of a wind tunnel test and is used for periods of many years. NLR provides fully instrumented and calibrated six component balances for any wind tunnel, (including cryogenic) so the quality of your force and moment measurements are guaranteed.

PRODUCTS & FEATURES

- Flawless integration of your model in any wind tunnel
- Acquisition of additional flow data by means of instrumentation systems
- Accurate measurement of aerodynamic characteristics by means of main balances
- Maximum return out of your wind tunnel tests

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