

# High Frequency Spindles for Test Applications

IBAG covers new applications

IBAG is a successful manufacturer of high frequency motor spindles for high speed cutting and grinding. Did you know IBAG is producing spindles for completely different applications, like for test benches?

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## Introduction

New technologies require drives and spindles with higher power and speeds. To be able to introduce them successfully, adequate testing is necessary, on the one hand to optimize the product during development, and on the other hand during industrial manufacturing to insure high quality requirements. IBAG offers solutions now with their long-term experience in production of high speed spindles with high power. Along with the spindles, IBAG can also offer complete solutions for testing corresponding products.

## Wide variety of applications

Testing requirements vary from customer to customer. The most common test-benches are dynamometers, where the IBAG spindle can be used to drive a *Device Under Test*(DUT) or where it can be used as a brake. If the spindle is used to drive an external device, it is usually used in speed control. This means the spindle will be accelerated to a given speed, where the DUT is loaded according to the requirements of the customer. In the opposite case the spindle is used as a brake, meaning the DUT is driving the spindle. In that case the spindle is used in torque control. The DUT can be loaded by a given torque to the spindle. The energy fed back from the mid-size and big spindle motors

can be sent back to the grid. The consumed energy from the grid will be reduced to a minimum, also eliminating unnecessary heating of the workshop. The tests are usually performed with different speeds and loads. The test cycles can be hard coded in the control of the supply unit or be commanded by superior control. IBAG has the ability to design and provide the system according to the requirements of the customer.

On a further application the DUT will be accelerated to a given speed and tested only to mechanical strength while at speed (burst-tests). These tests usually require certain speed profiles, meaning the DUT will be accelerated over a longer period step by step to top speed and later, it will be decelerated accordingly. IBAG



Korea Electrotechnology Research Institute (KERI)

also provides customized solutions for this type of application, providing complete engineered solutions according to the customers' requirements.



Kistler Instrumente AG, CH-8408 Winterthur

Manufacturers of encoders and resolvers often produce products that rotate at very high speeds. These products need to be tested as well. IBAG offers custom specific solutions for these applications, too. The IBAG spindle rotates an external mounted encoder which will be tested and measured to the required properties. Single- and series tests for this application are also possible.

There are also applications in material testing using IBAG spindles. One of those is the Rotary Flexure Tester. A rod (DUT) is clamped in two spindles laying in the same axis. One of the spindles is driving the rod, while the other is running at the same speed. The counter spindle is then rotated on a pivot, which applies a

bending moment to the DUT. This creates an alternating bending stress on the DUT while rotating. The test procedure can be accelerated by increasing the speed.



Walter + Bai AG, CH-8224 Löhningen

There are even test benches in use at IBAG, completely designed and built by IBAG. On the test equipment, the operator has the ability to select the motor currently connected by the operator panel. All media necessary to supply the spindle can be controlled individually by the panel, and complex test cycles can be executed automatically. Important information, like current, speed, voltage etc. can be read on the operator panel or decentralized on a PC in the office by Ethernet. If necessary, there are possibilities to interact to the test-process.



IBAG Switzerland AG, CH-8302 Kloten

## Competent, User Oriented Engineering

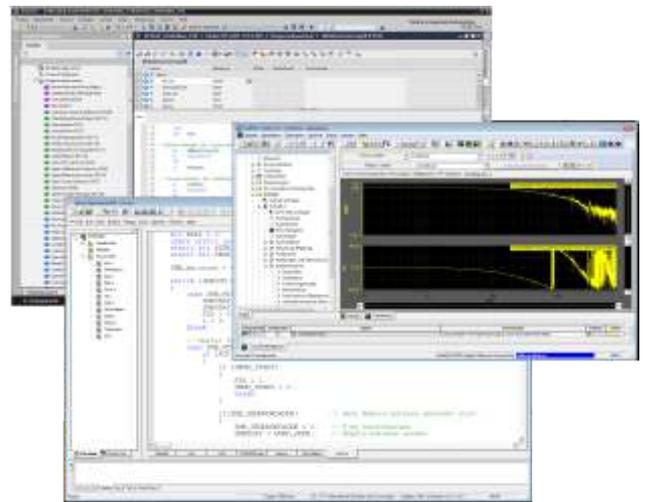
Since IBAG is not offering spindles only, but also complete systems, customized solutions for individual requirements of our customers are possible. Both hardware and software will be designed and tested at IBAG. The systems are usually controlled by a superior control, either conventional by 24V-signals, or by using a bus system. The system can also be controlled by an operator panel, either by simple push buttons and potentiometer or by a more complex HMI with touch-panel. If required, a mixture of control methods is possible. There are (almost) no limits. Just ask us!



HMI for Kistler Instrumente AG

## From the idea to the final product and further more ...

IBAG supports our customers from the beginning to the end. Is there a product you wish to test? Please ask us, we will support you from the inquiry up to the final test equipment delivery. By applying our extensive knowledge and long-term experience, a superior solution will be achieved. Do you have a test bench already, but it does not fulfill today's requirements? Please ask what solutions we can offer. Even existing test benches can be modernized and brought up to the current state of the art. Just ask us!



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