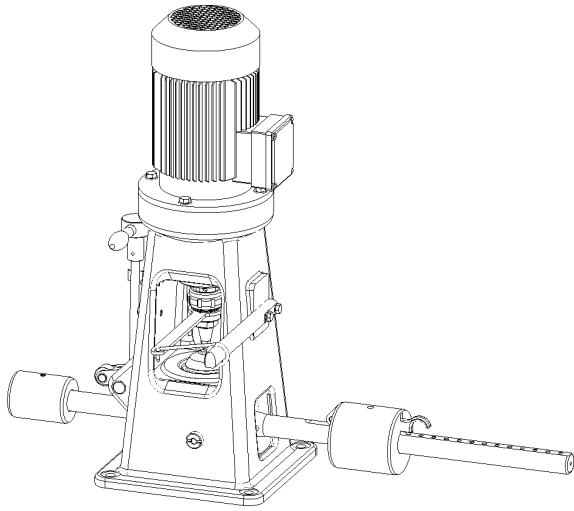


## VKA 110 Four Ball Tester



Four Ball Tester

The **HPM Four Ball Tester** (FBT) is a testing device standardized in DIN 51 350 Part 1 and is used to determine welding and metal loads (DIN 51 350 Part 2 and 3) as well as different friction and wear characteristics of lubricants (DIN 51 350 Part 4 and 5).

The standard test consists of a rotating ball of a ball bearing being pressed onto three similar but immobile balls while applying a load.

This testing device is especially common in the lubricant industry where it is used for routine product development and quality control testing. The friction torque can be recorded continuously. Wear is determined by optically measuring the formed calotte.

A separate shear adapter can be used to test the shear strength of lubricants containing polymers according to DIN 51 350 Part 6. Additional tests are possible with numerous special adapters.

### Test Station Parameters

Rpm	10 to 5800 1/min
Load	100 to 12000 Newton
Temperature	-30 to 150 °C
Movement types	Sliding, rolling
Friction states	Mixed friction, EHD
Contact geometry	Point contact
Measurements	Friction torque, temperature, transition resistance, calotte diameter

### Standard Tests

- Determination of Welding Load of Fluid Lubricants (DIN 51350/2)
- Determination of Wearing Characteristics of Fluid Lubricants (DIN 51350/3)
- Determination of Welding Load of Consistent Lubricants (DIN 51350/4)
- Determination of Wearing Characteristics of Consistent Lubricants (DIN 51350/5)
- Determination of Shear Stability of Lubricants Containing Polymers (DIN 51350/6)
- Pitting Stability of Components With Combined Sliding and Rolling Friction (Pitting Test) (VW PV 1444)
- Determination of Steady-State Temperature of an Axial Ball Bearing (VW PV 1454)
- Extreme Pressure Properties: Friction and Wear Tests for Lubrications (IP 239/85)
- Standard Meth. for Measurement of EP-Properties of Lubric. Fluids (ASTM D 2783-88)

- Standard Meth. for Wear Preventive Characteristics of Lubric. Grease (ASTM D 2266-86)
- Standard Meth. for Wear Preventive Characteristics of Lubric. Fluid (ASTM D 4172-88)
- Standard Meth. for Measurement of EP-Properties of Lubric. Grease (ASTM D 2783-88)
- Determination of Friction and Wear Characteristics Using the Three-Plate Model System (Ball-on-Three-Plates BOTP Test)

### Possible Specimen Geometries

