



The Falex Four Ball Extreme Pressure Test Machine



The **Falex Four Ball Extreme Pressure Test Machine** measures a lubricant's extreme pressure properties under High Hertzian contact in pure sliding, or pure rolling motion. The test is used to determine the load carrying properties of a lubricant at high test loads. The Falex Four Ball EP Test Machine is available in two configurations : **Standard System** and **High Performance System with Data Acquisition**.

Standard Test Methods

The **Standard System** is suitable for the ASTM and IP standard test methods for Four Ball EP testing.

ASTM D2596 - D2783
DIN 51350-1 – 51350-2
DIN 51350-4
IP 239, AFNOR

The **High Performance System with Data Acquisition** is suitable for ASTM and IP standard test methods for Four Ball EP testing.

Optional Accessory Kits are available for **Four Ball Wear Testing** (ASTM D2266 and D4172) and **Shear Stability Determinations** (KRL Method).

ASTM D2266 - D4172
CEC L-45-A-99
DIN - 51350-6



Four Ball EP Standard Features

- Two speed motor and test spindle
- Dead weight load system and weights
- Digital timer and test shut-off
- Ball cup assembly
- Test stand
- Test cup table fixture
- Torque wrench
- Upper ball chuck

Four Ball EP High Performance with Data Acquisition Features

- **Torque Measurement**
 - Test torque load cell assembly
 - Torque and coefficient of friction display and Data acquisition
- **Temperature Control**
 - Ball cup heater assembly
 - Display and Data acquisition
- **Variable Drive Motor**
 - Variable speed motor assembly
 - Display and Data acquisition
 - Maximum spindle speed 1800 rpm

Four Ball EP High Performance Options

- **Four Ball Wear Testing Kit**
 - Accessories for wear testing using ASTM D2266 or D4172 test parameters
 - Includes precision test load assembly and wear test cup
- **KRL Mechanical Shear Stability Adapter Assembly**
 - Mechanical tapered roller bearing shearing device (KRL)
 - Determines shear loss of polymer containing multi-viscosity gear oils used in heavy duty manual transmissions and differentials
 - Meets CEC L-45-A-99 viscosity shear stability of transmission lubricants (taper roller bearing rig)
- **KRL Temperature Controller**
 - Refrigerated/heated recirculation system to control test temperature at 60°C for the mechanical shear stability adapter
 - Please inquire if you should require other temperature ranges*





Falex Tribology Product Datasheet

Quality
Knowledge
Partner Solutions

Four Ball Wear Extreme Pressure Machine Characteristics	
Contact	Three point contact, line (shear)
Motion	Sliding, rolling
Speeds	1760 rpm, 30-3600
Loads	6 to 1000 kg
Temperatures	Ambient to 177° C (350° F)
Environments	Liquid, semi-liquid, dry

Falex Four Ball Wear Test



- Longer test duration
- Light loads
- Controlled material removal
- Accuracy of test parameters (speed, load, temperature, duration)
- Requires **different equipment** than EP test

Falex Four Ball EP Test



- Shorter duration
- High load, often increasing to failure
- Wide range of test loads
- Extremely durable construction



Falex Scar Measurement Systems



High Precision System

Includes binocular microscope with X-Y base and digital display of measurement accurate to 0.001 mm. System includes ball cup stand with single ball holder. Allows reading of ball scar without removal from ball cup.

Digital System with CCD Camera

Includes a CCD camera and digital display of ball scar and capability of measurement on screen to 0.001 mm. System includes ball cup stand with single ball holder and CCD camera with USB port for recording scar diameters to Falex computerized data acquisition system or host computer. Allows for reading ball scar without removal from ball cup.

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