

Congratulations on becoming the proud owner of an ergoFET500, one of the latest in Hoggan Health Industries line of innovative ergonomics measurement products.

From the original hand-held ergoFET push pull force gauge, to the revolutionary ergoPAK real-time job analysis kit, Hoggan has been creating innovative solutions to real-life measurement issues since 1984.

ergoFET500 joins other recent product introductions, including digitFET - a miniature push and pinch force gauge for sensitive hand and finger force measurements, and ergoPAK - a measurement kit which features highly flexible, mix and match devices for measuring force, angle, velocity, and torque in any combination, for real-time job analysis and ergonomics research.

Hoggan's ergo products are recognized for innovation, excellent quality, and long-lasting accuracy and reliability. Our highly satisfied customers include automotive, aerospace, consumer products, and food manufacturers, as well as ergonomics consultants, universities, and research institutions worldwide.

At Hoggan, we understand the value of customer feedback. In fact, our customers provide us with many of our best product improvement ideas, as well as interesting new measurement applications. As you have comments and suggestions, we'd love to hear from you. Please drop us a line at feedback@hogganhealth.com.

In the meantime, we hope you enjoy using your ergoFET500, immediately, and for many years to come.

Signed,

Marva L. Sadler,
President



Warranty Exclusions and Limitations

The ergoFET500 warranty does not cover damage by negligence, misuse, or accident. Damage or unit failure caused by modifications or repair other than by Hoggan or its authorized repair agent, or damage to equipment resulting from improper use or operation is not covered. Any warning or instructional labels or decals must remain on the unit for the warranty to be valid.

This warranty applies to the original purchaser. Some states do not allow the exclusion or limitation of incidental or consequential damages, in which case the exclusions and limitations may not apply. This warranty gives specific legal rights, and may also have other rights, which vary from state to state. To determine the legal rights in your state, consult your local or state consumer affairs office or State Attorney General.

Customer Service / Repairs

Customer satisfaction is important to Hoggan. We are happy to assist with questions, problems or service issues on any Hoggan products you may own. Our business has grown on the basis of excellent product quality and customer satisfaction. Our full-time customer service representatives are available from 8:30 am to 5:30 pm MST (1-800-678-7888) to meet your needs.

Any repairs to the ergoFET500 unit should be completed by a qualified service technician.

Ordering Replacement Parts

Hoggan ergo Products are manufactured to exacting specifications. When replacing worn or damaged parts, use only original 'Hoggan' manufactured parts. The use of substitute or unauthorized parts will void your warranty and may increase the possibility of injury to the user, or cause additional damage to the unit.

When ordering Replacement Parts, Please take the unit out of service, and complete the following:

1. Identify the brand, model, and serial number, and note the unit's function.
2. Identify and document the problem and the worn or missing parts.
3. Contact Hoggan Health Industries.

- Replacement parts (attachments) will be shipped directly from Hoggan.

- All repair services will be performed at Hoggan Health Industries Manufacturing plant.

*Except for replacing batteries, do not attempt to repair the unit on your own. This will void all warranties.

Contact Information

For any questions, Customer Service Representatives are available from 8:30 am to 5:30 pm MST 1-800-678-7888 or customerservice@hogganhealth.com

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ergoFET500 Push/Pull Testing Device



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ergoFET500 User Manual

Product Warranty Information

ergoFET500 is warranted for a period of one year from the time of purchase. If ergoFET500 fails to operate because of a defect in materials or workmanship at any time within one year of the purchase date, it will be repaired or replaced free of charge by Hoggan Health industries.

In addition, your first annual re-calibration will be performed without charge as part of your warranty (customer pays shipping).

Extended warranties (additional 1 or 2 years) are available at an additional nominal fee.

Warranty Registration

To ensure that your warranty is in force, please complete and mail or fax your warranty card to Hoggan Health Industries, or visit www.hogganergo.com to register your warranty information online.

Please save proof of your original purchase date, such as your sales slip, invoice, credit card voucher, or cancelled check to establish the warranty period.

Warranty Repairs

Before deciding that your ergoFET500 is inoperable or defective, please review and follow the information in this instruction booklet.

In the unlikely event that your ergoFET500 becomes inoperable, please contact Hoggan Health to arrange to have the equipment repaired or replaced. Hoggan reserves the right to repair or replace the unit with new or refurbished parts or equipment.

Hoggan's Customer Service Department can be contacted at 800-678-7888, or by email at customerservice@hogganhealth.com

When a Hoggan Customer Service Representative authorizes return of the product, you will be given a Return Merchandise Authorization (RMA) number. Please include the RMA number with your unit.

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What Is ErgoFET 500?

ergoFET 500 is a cost effective, digital force gauge for measuring compression and tension forces to a maximum capacity of 500 pounds. ergoFET 500 is excellent for ergonomic task analysis, job analysis, musculoskeletal strength testing, functional capacity evaluations, A.D.A. compliance, and any general push and pull test application. ergoFET 500 is part of a growing family of Hoggan Health pioneering measurement products for ergonomic, healthcare and engineering professionals.

The ergoFET 500 contains an internal load cell which measures Compression (Push) or Tension (Pull) from a single input shaft. Two large diameter handles screw into the sides of the durable aluminum case to provide the operator a convenient place to apply force. The large, easy to read liquid crystal display (LCD) displays real time force and peak force for any Push or Pull force.

The ergoFET 500 is powered by a 9 volt battery, and features an automatic power shut off to extend battery life. The unit can be set to display force in Pounds, Kilograms, or Newtons.

ergoFET500 offers the following features:

- Displays real time force and peak force
- Two operation test modes:
 - Un-timed test mode: Record and display peak force and an average force for tension or compression.
 - Timed (Static Strength Test) Mode: Record and display peak force and a 3 second average force over the last three seconds of a five second exertion for tension or compression.
- 4 selectable threshold settings (2 low and 2 high settings) to accommodate a variety of testing applications.

ergoFET500 was designed as a stand-alone gauge for capturing individual force measurements under any job condition. However, the ergoFET500 can also be connected to a computer for use with The Blankenship System (TBS) Software for functional capacity evaluations and static strength testing.

ergoFET500 in use



ergoFET500 Maintenance

Low Battery

Fading LCD display or unlit segments of the LCD are indications that ergoFET500's battery power may be low. If LCD segments remain unlit after pressing Reset, the battery should be changed.

Changing Batteries

ergoFET500 uses a replaceable 9 volt battery for convenience, and ease of replacement. The battery is accessible through the battery cover on the back of the gauge.

To change the battery, remove the battery cover, using a small Phillips head screw driver. Carefully remove the battery from the holder. When installing a new battery, make sure the positive (+) post aligns with the (+) mark on the ergoFET500 body.

If LCD segments do not light up after properly installing a new battery, please contact Hoggan Health Industries Ergonomics Customer Service Department 1-800-678-7888

Calibration

ergoFET500 comes with a calibration certificate, ensuring that the unit was properly calibrated at the time of shipment. To ensure continued accuracy and reliability your ergoFET500 unit should be recalibrated annually, by a properly authorized service technician. The first annual calibration is included as part of the product warranty.

Transporting ergoFET500

Hoggan Health strongly recommends that you store and transport ergoFET500 in the hard sided protective carrying case provided.

What Is Included:

- ergoFET 500 Force Gauge
- Test Attachments
 - (2) 1" diameter, 4 7/8" length handles
 - 3 ¼" diameter circular flat disc
 - 4 ¼ x 1 ½" curved bar
 - 3 ½ x 5/8" curved finger tester
 - #2 carabineer snap eye stationary hook
 - Cable with eye loops
- User Manual
- Product/Warranty card
- Calibration certificate
- Carrying case



Specifications:

- Weight: 2 pounds
- Dimensions: 6" Height x 2" Width x 1 3/8" Depth
- Power Source: Replaceable 9 Volt Battery
- Operating Temperature: (52 - 92 F) (11 - 33 C)
- Humidity: 10-40% non-condensing
- Accuracy: 2% Full Scale
- Sampling Rate: 100 Samples Per Second
- Controls: On/Reset, Avg., and Threshold
- Load Cell Capacity Test Range:
 - o Tension: 500 lbs. in 0.5 lb. increments
 - o Compression: 200 lbs. in 0.2 lb. increments
- Threshold Setting: 4 selectable threshold settings - 2 low and 2 high:
 - o Low #1: Tension at 1.5 lbs., compression .6 lbs.
 - o Low #2: Tension at 5.0 lbs., compression at 2.0 lbs.
 - o High #1: Tension at 10.0 lbs., compression at 4.0 lbs.
 - o High #2: Tension at 15.0 lbs., compression at 6.0 lbs.
- Auto Power Shutoff After 3 Minutes
- Force Unit of Measure: Is selectable by the operator at the time of testing. Measurement can be set in Pounds (lbs), Newtons (N), or Kilograms (kg), by depressing the appropriate button.

Operating Features

Turning on Device

Depress the On/Reset keypad button located on the front of the device, to turn on the ergoFET500. Once the On/Reset button is depressed, the LCD window will display zeros in the screen.

Turning Off Device/Battery Saver

ergoFET500 has an automatic shutoff function. The unit will automatically shut off when it has not been used for more than 3 minutes. Auto shutoff ensures that battery power is preserved when the unit is not in use, and avoids the power drainage that can occur when an on/off switch is accidentally left on.

LCD Window

The large LCD Window displays easy to read test results, either peak force or average force depending on the selected operating mode. Results are displayed in whole numbers or decimal measures in tenths, depending on the threshold level selected.

Units of Measure

The ergoFET500 has dedicated unit keys for selecting unit of measure. The gauge measures either force or load, and displays results in Pounds, Kilograms or Newtons. Depress the key for the desired unit of measure. The ergoFET500 will display test results in the unit of measure selected.

Muscle Testing

The ergoFET500 has some limitations for Manual Muscle Testing. The number of muscles that can be tested depends largely on evaluator strength. The ergoFET500 is a large gauge and is difficult to hold in one hand while performing either a Break Test or a Make test. Therefore, some practice will be necessary to develop a technique which works well for each evaluator.

To perform muscle tests, select the appropriate Muscle Testing attachment and screw it into the input shaft.

Attachments- Muscles Tested

" 3/4" x 5/8" Finger Tester- All Individual finger and Toe tests

" 4 1/2" x 1 1/2" Flat Bar- Fingers and Toes as a Group

" 3 1/2" x 3/4" Curved Bar- All Extremity Tests

Recording Test Data

To avoid confusion, ergoFET500 does not save test data. Results are displayed for the most recent test only. Initiating a new test, pushing the reset button, or turning the unit off erases previous results. If you desire a record of the test results, please remember to record each result on a test record sheet before beginning the next test.

Using ErgoFET With TBS Clinical Software

ergoFET500 was designed as a stand-alone gauge for simple measurements. However, the serial port located on the side of the unit allows ergoFET500 to be cabled to a computer and used with TBS software for functional capacity evaluations and static strength testing.

ErgoFET500 Maintenance

Your ergoFET500 is built to provide long lasting, reliable service. As with any precision instrument, it should be used with care. It should not be dropped, banged against hard surfaces, or used as a scale.

ergoFET500's exterior surface can be cleaned with a damp soft cloth. A small amount of household spray cleaner can be used, and any cleaner residue should be removed with a soft cloth dampened with clean water.

We recommend that you periodically inspect your unit for wear, and proper functioning.

Performing Static Strength Test

For static strength testing, selecting a higher threshold setting will minimize the potential for false starts or accidental movement of the gauge.

The ergoFET500 is an ideal gauge for Static Strength Testing.

To prepare the unit for Static Strength Testing, screw the two 1" Diameter 4 7/8" long handles snugly into the sides of the gauge and attach the Small Snap Eye Hook onto the input shaft. Check to make sure the attachments are finger tight.

Have the patient hold the ergoFET500 so the evaluator can view the display. Ensure that the patient is properly positioned, and given instructions for testing. Before handing the patient the ergoFET 500, set the gauge to the Timed/Static strength test mode; attach the ergoFET500 to the appropriate chain link and place it in the patient's hands. The ergoFET 500 will now read the weight of the chain which is part of the weight the patient is lifting.

To begin a test, instruct the patient to begin pulling. When the force exerted passes the threshold value selected, the 5 second countdown will begin. The LCD will display "0000", then the display will cycle through "1, 2, 3, 4" as the gauge counts the 5 seconds required for the timed test. At the end of the five second test, the peak force is displayed. This signals the end of the five second static strength test. Instruct the patient to immediately stop pulling.

The ergoFET500 should be taken from the patient between exertions so they can relax the tested muscles for a full 30 seconds.

Peak Force

At the end of the five second timed/static strength test, the peak force recorded for the test is displayed.

Average (Last 3 Seconds of 5 Second Test)

To display or show the average force of the last three seconds of the five second test performed, depress the Avg button once. The average force is displayed. After 2 seconds, the gauge will default back displaying peak force. To view the average force again, simply depress the Avg button.

Resetting Gauge Back To Un-Timed Test Mode

To reset the gauge to the un-timed test mode, depress the Avg Button, and while holding down the Avg Button, depress and release the On/Reset Button. This will set the gauge to the un-timed test mode. To return to the Timed Test Mode, simply repeat the process. Depress and hold the Avg Button and depress and release the On/Reset Button.

Key Pad Operation

On/Reset

Depress the On/Reset button once to turn on the ergoFET500.

Average

The Average keypad button is used to calculate average force for the duration of a test. Average force can be displayed for either Un-Timed or Timed (Static Strength Test) operating modes. Detailed instructions on using the average function are included in the Testing section of this manual (Pages 7 & 8).

Threshold

Four selectable threshold settings allow testing flexibility for a variety of applications. Low Threshold settings are for small or sensitive force measurements. Selecting a higher threshold minimizes the potential for false starts or accidental movement of the gauge.

The four preset threshold settings are as follows:

Number in Displayed Preset Threshold Setting

LCD Window

1 Low #1: Tension at 1.5 lbs., compression 0.6 Lbs.

2 Low #2: Tension at 5.0 lbs., compression at 2.0 Lbs.

3 High #1: Tension at 10.0 lbs., compression at 4.0 Lbs.

4 High #2: Tension at 15.0 lbs., compression at 6.0 Lbs.

Example: If threshold High #1 - 10 lbs. is selected, the gauge will begin recording test data when the load cell has detected 10 lb. of force. The load cell will continue to record test data until the force drops below 70% (in this case, 7Lbs.) of the threshold setting. The test will then end and data is no longer recorded.

Setting the Threshold Setting

Depress the Threshold button to select the desired threshold setting. If a "1" is displayed, this is low setting #1 (1.5 lbs. - tension, 0.6 lbs. - compression). Each time the Threshold button is depressed the gauge will toggle through to the next preset threshold setting. (2, 3, 4)

Operating Your Gauge

When using the ergoFET 500 force gauge, make sure to apply the load axially to the load cell transducer and shaft. Keep the gauge perpendicular to the item being measured to ensure axial loading.

WARNING

The gauge is designed for axial loads only.

Do not apply side loads to the load cell transducer and shaft. Applying side loads could cause damage to the unit, and may increase the risk of operator injury. Take precautions to ensure load is applied axially.

Handheld Operation

The ergoFET500 can be used with or without handles. For high force load capacity testing, screw handles into each side of force gauge housing. Following are examples of the ergoFET500 force gauge in use, for performing compression (push), and tension (pull) tests with handles.

Affixing Test Attachments

A variety of attachments are provided to accommodate a wide variety of compression and tension test applications. When affixing test attachments to the load cell shaft, screw the appropriate attachment into the shaft by hand until finger tight. Do not use tools to secure or tighten the test attachments. Finger tight torque is sufficient for all attachments. Over-tightening with tools may damage the load cell.

Testing

Un-timed Test Operation Mode:

Active Force Reading

The LCD window continuously displays the active (or live) force reading for the duration of the test.

The active force display begins when the force exerted reaches the selected threshold setting. The active display will end when the force applied drops below 70% of the threshold setting, or the test has stopped.

The Active force display applies to both peak force and average force operating modes.

Peak Force - Tension and Compression

In the Un-Timed Test Mode, perform your push or pull test. During the test, active force readings will be displayed. At the end of the test, a final value will be displayed. This is the maximum (peak) force measured by the ergoFET500 for the test performed.

Peak force is commonly used to measure the force required to complete a task. For example, peak force is necessary to understand the force required to raise the hood of an automobile or to throw a switch.

Average Force

At the conclusion of any push or pull test, Peak Force is displayed. To obtain the Average Force exerted for the entire duration of the test, depress the Avg button once. Average force will be displayed for 5 seconds. After 5 seconds, the gauge will return to displaying peak force. To view the average force again, simply depress the Avg button.

The average force measurement is generally used to measure continuous tasks, such as pushing or pulling a cart across a given distance or sliding an object across a smooth surface.

Timed Test Operation Mode (Static Strength Test)

Setting ergoFET500 To Timed/Static Strength Test Mode

To set the gauge to the timed or static strength test mode, depress the Avg. Button, and while holding down the Avg Button, depress and release the On/Reset Button. When the static strength test begins, four zeros - "0000" will appear in the display window. Then the display will cycle through "1, 2, 3, 4" as the gauge counts the 5 seconds required for the timed test. At the conclusion of the 5 second test, the Peak Force is displayed. This signals the end of the test.