

FCE Series Digital Functional Capacity Evaluator

Specification Sheet
SS-FM-3007-0807
August 2007

The CHATILLON® FCE Series is ideal for functional capacity evaluations. This compact, easy-to-use force gauge is designed for physical medicine, occupational medicine and sports medicine applications and general patient assessment in family, neurological and orthopedic practices. Simplicity was a key design criteria for both clinicians and technicians. Measurement accuracy is better than 0.25% full scale. A large, easy-to-read, high resolution dot matrix LCD display supports a variety of measurements including functional capacity based on a force or a time duration. The gauge also displays normal and peak readings, pass/fail results and statistics based on up to 10 stored results. Measurements are displayed in ozf, gf, lbf, kgf and N units. The display can be inverted and displayed results may be "hidden" from the patient during testing. The FCE gauge comes standard with carrying case, battery adapter/charger and NIST Certificate of Calibration with data. A variety of testing fixtures are optionally available. The FCE has been designated by the Food and Drug Administration (FDA) to be a Class II Medical Device.

Features

- ❑ FDA Class II Medical Device
- ❑ Advanced Operating Modes
 - Functional Capacity
 - Force-Based
 - Time Duration-Based
 - Normal
 - Peak Strength
 - Strength Limits
 - Pass-Fail Limits
- ❑ Statistical Calculations
 - Mean with Maximum and Minimum Values
 - Coefficient of Variation with Mean and Standard Deviation
 - Standard Deviation with Variance and Mean
 - % Differentiation
- ❑ Integral Loadcells
 - Accuracy $\pm 0.25\%$ Full Scale
 - Mechanical Overload Protection to 150% Full Scale
- ❑ Simple Operator Interface
 - High Resolution Dot-Matrix
 - Menus with Prompts for Easy Use
 - Dedicated and Function Keys with Navigation Pod
- ❑ NIST Calibration with Data
 - Available IEC/ISO17025 Cert with Uncertainty
- ❑ 2 Year Warranty



You Get More with Your CHATILLON Gauge.



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Because You Expect More from a Chatillon® Gauge...

Physical Medicine

Use the Chatillon FCE to accurately measure and document musculoskeletal strength. Evaluate individual muscle groups in flexion/extension, internal/external rotation, plantar flexion, dorsi flexion and abduction/adduction.

Occupational Medicine

Conduct job task analysis, ergonomic analysis and functional capacity testing with the Chatillon FCE. Measure actual push, pull or lift forces to determine job task requirements. Then quantitatively evaluate the subject's ability to perform those job tasks. Help ensure that a person is ready to assume work after an injury or test to ensure that an operation meets ADA compliance guidelines.

Sports Medicine

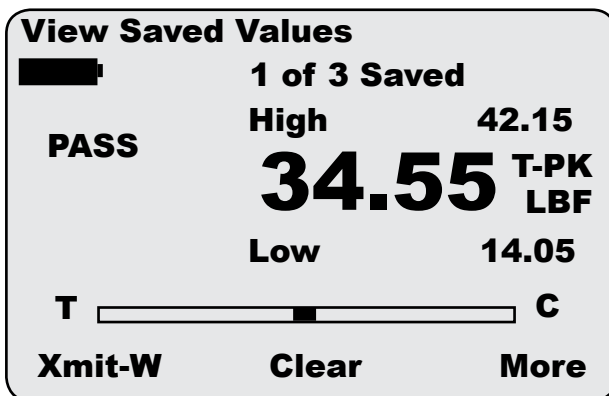
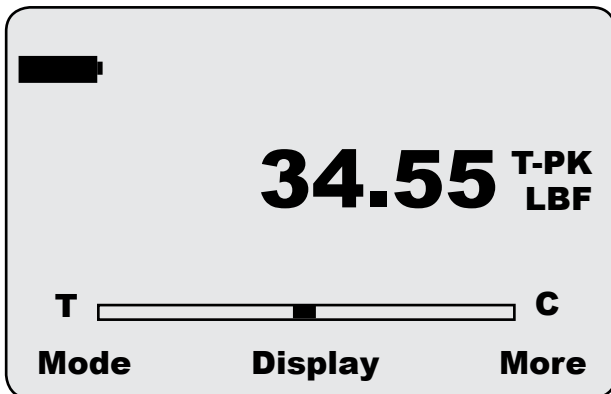
Objectively quantify an athlete's musculoskeletal force output. Evaluate and document the effectiveness of the training regimen and track the athlete's progress.

Class II Medical Device

The FCE has been classified by the Food and Drug Administration to be a Class II Medical Device.

Normal and Peak Modes

When used as a force measurement instrument, the FCE will display peak tension and compression loads. When in peak modes, the maximum force exerted during a test is displayed and may be stored for statistical comparisons or output to an external device using serial data communications.



High & Low Load or Pass-Fail Limits

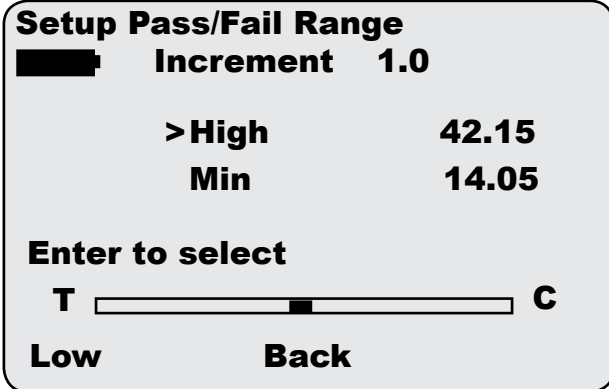
The FCE Series may be configured with High and Low Load Limits or Pass-Fail Limits. Load limits allow you to establish setpoints for your testing. If the gauge exceeds a setpoint value, the gauge can provide a visual and audible alarm. You can also setup the gauge to operate as a pass-fail system. You can setup a pass-fail limit based on a limit range or on a nominal value with a % bandwidth. Based on your setup, the gauge will provide you with a Pass-Fail indication.

... You Get More from a Chatillon® Gauge.

Intuitive Operation

A large, easy-to-read dot matrix display contains can display up to 8 lines of information. The high resolution display features contrast adjustments and can be inverted when required. The display can even be "hidden" at the press of a button. A measurement bargraph indicates load and torque direction, measured load and torque and safe load and torque and helps prevent overloads. The sensors feature mechanical overload protection of 150% Full Scale.

The rubber keypad features dedicated and dynamic function keys. The function keys correspond to displayed options and guide the user during operation. A navigation pod lets you navigate in the menus and to scroll and change values quickly. The innovative "T" key can be used to display critical information on the gauge such as gauge capacity and resolution, battery life, loadcell overload history, even service information including last calibration date, or the location of service centers.



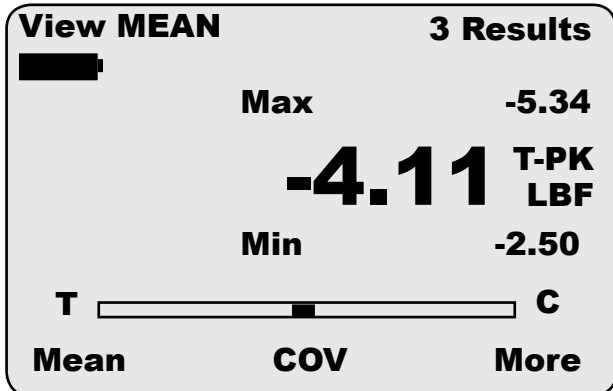
Simplified Setup

Menus and intelligent prompts make gauge setup fast and easy. Gauge options are presented in a "List Format". Using the navigation pod and function keys, you simply select the functions and parameters required. The gauge will guide the user through the setup process. Default settings are provided and a "Quick Reset" allows the user to re-establish defaults with a single key press.

Statistical Results

You may save and store up to 10 results in instrument memory for later recall or to calculate statistical results when in Peak mode. The gauge labels each results and indicates memory capacity. The gauge will alert you when memory is full. Statistical results include:

- Calculate Mean and also show you the MAX and MIN values for your calculation
- Coefficient of Variation is calculated and displayed with the Mean and Standard Deviation value
- Standard Deviation is calculated and displayed with the Mean and the Variance value. Total Population and Sample (n-1) methods supplied.
- Calculate and display % Difference between consecutive test results

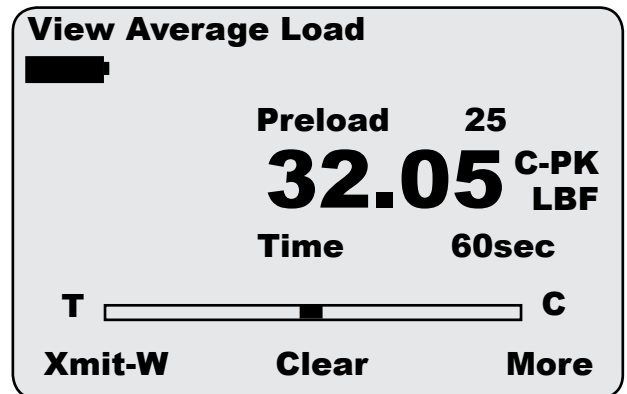
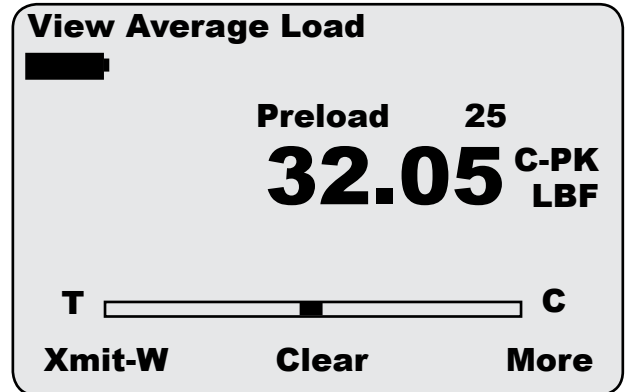


Functional Capacity Evaluation

Two methods of determining functional capacity are standard with your FCE. Functional capacity is useful to determine the functional stamina of a muscle group based on strength or time. It may be used to assess a subject's strength pre- and post conditioning or to evaluate a subject's strength after an injury.

Strength Method

This method allows you to define a strength threshold. The gauge will begin taking readings once the strength threshold has been reached and will continue to take and average readings until the measured strength value falls below the threshold value.



Time Method

The Time method allows you to establish your strength averaging based on a strength threshold and time duration. The strength threshold determines the start of the averaging, while the time duration defines the length of the test period. The gauge will begin taking readings when the threshold is reached and will continue to take and average readings until the time duration has expired.

Ordering

Functional Capacity Evaluator

Model	lbf	kgf	N
FCE-200	200 x 0.2	100 x 0.1	1000 x 1
FCE-500	500 x 0.5	250 x 0.2	2500 x 2

Functional Capacity Kits

Model	lbf	kgf	N
K-FCE-200	200 x 0.2	100 x 0.1	1000 x 1
K-FCE-500	500 x 0.5	250 x 0.2	2500 x 2

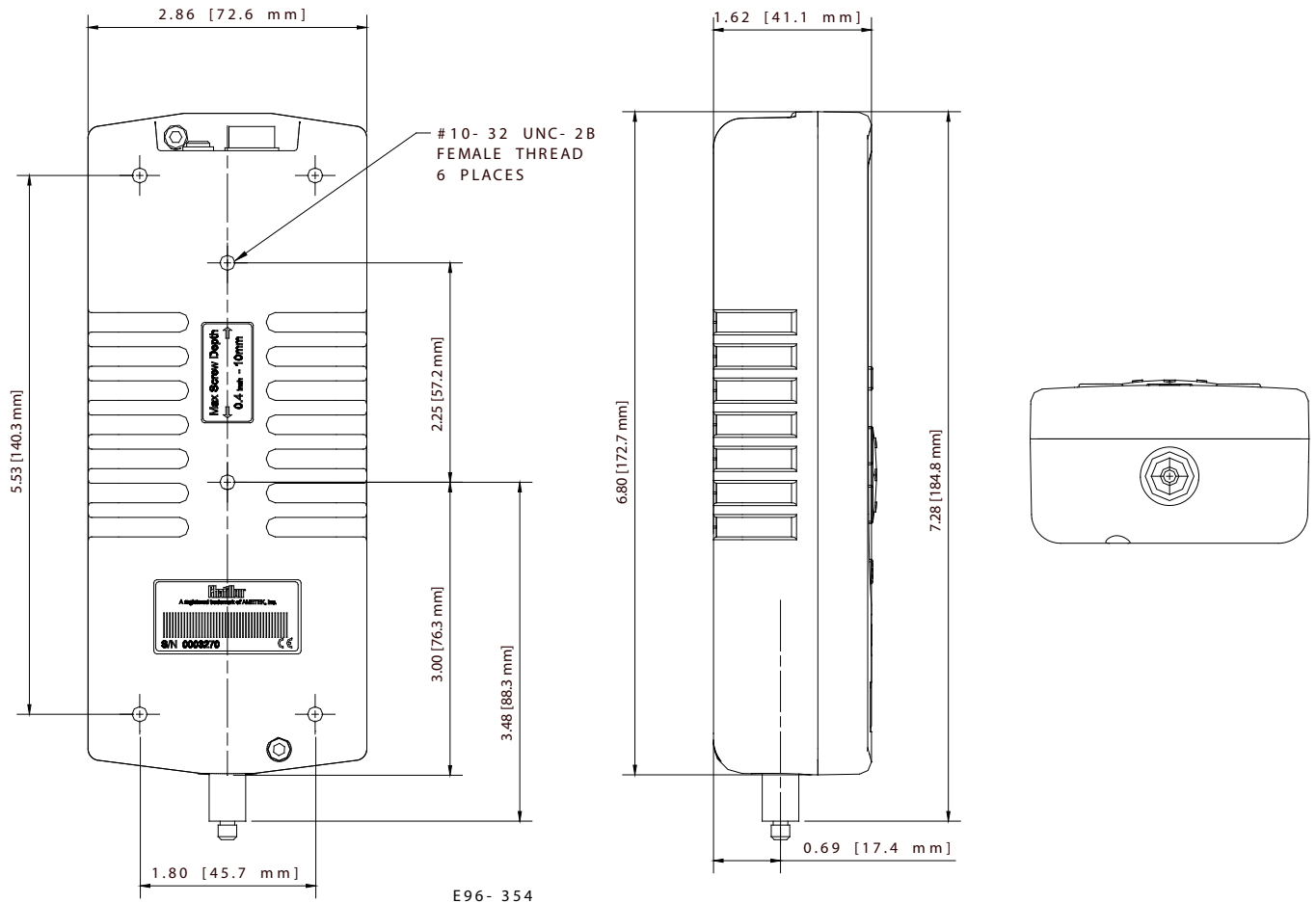
Accessories for the FCE Series Medical Dynamometer

Item	Capacity	Part No.	FCE-XXX	K-FCE-XXX
Battery Charger, 120/240V		NC002860	Standard	Standard
Handle Assembly		SPK-DF-HANDLE	Standard	Standard
Hook, with Latch	500 lbf	NC002500	Standard	Standard
Compression Circle	500 lbf	SPK-FMG-143	Standard	Standard
Pistol Grip	-	SPK-FMG-141	Standard	Standard
Medical Carrying Case		SPK-FMG-130	Standard	NA
Travel Carrying Case		SPK-FMG-147	NA	Standard
Knurled Nut	-	NC000857	Standard	Standard
V-Notch Fixture, 1"	500 lbf	NC000725	Optional	Standard
V-Notch Fixture, 5/8"	500 lbf	NC000721	Optional	Standard
Extension Rod, 6"	500 lbf	SPK-FMG-013B	Optional	Standard
Compression Curve	500 lbf	SPK-FMG-142	Optional	Standard
Palm Fixture	500 lbf	SPK-FMG-144	Optional	Standard
Compression Pad, Large	500 lbf	SPK-FMG-145	Optional	Standard
Compression Pad, Small	500 lbf	SPK-FMG-146	Optional	Standard
Grasping Cable	500 lbf	NC002844	Optional	Standard
Soft Fanny Pack		NC002845	Optional	Optional



Shown: K-FCE Series with all accessories

Dimensions - FCE Series



Specifications

Accuracy: $\pm 0.25\%$ of full scale

Certification: Calibration with NIST Data, IEC/ISO17025 optional

Data Sampling Rate: 5000 Hz

Peak Capture Rate: 5000 Hz

Display Update Rate: 10 Hz

Tare Capacity: 10% full scale

Overload Protection: 150% full scale

Display Characteristics: High resolution, dot-matrix LCD, 8 lines, 40 characters, adjustable contrast, invert and "hide" capability

Automatic Shut Down: Configurable time. May be disabled.

Data Storage: 10 results, Optional NEXYGEN™ software for unlimited storage and automated testing and analysis

Outputs: RS-232, Mitutoyo (Digimatic) and +2Vdc analog

Power: Battery or direct AC operation. Universal Power 110V/230V, Rechargeable Nickel Metal Hydride (supplied), International Universal AC Adapter

Battery Life: Approximately 30 hours, continuous use

Instrument Weight: 1.5 lbs (0.7 kg)

Operating Temperature: 40° to 100°F (4° to 38°C)

FDA Classification: Class II Medical Device

Warranty: 2 year

AMETEK

MEASUREMENT & CALIBRATION TECHNOLOGIES

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