elcometer® 224 Digital Surface Profile Gauges

Roughness Measurement & Blast Profiles to
ASTM D 4417-B, SANS 5772, US Navy NSI 009-32, US Navy PPI 63101-000

The Elcometer 224 provides the very latest in surface profile measuring technology. Accurate, fast and very user friendly, this gauge is available with Bluetooth® and with or without memory. The Elcometer 224 Top model is available with wireless technology and can store up to 150,000 readings in 2,500 batches.

The Elcometer 224 can now be used on curved surfaces including pipes and tanks

Features

- Accurate, immediate and repeatable results
- Integral & separate probe variants for flat and convex* surfaces
- **The separate probes can now measure on pipes and tanks**
- Tough tungsten carbide user replaceable tip, can be used for up to 20,000 readings.
- Stores up to 150,000 readings in alpha numeric batches (Model T only).
- Auto rotating display with tap awake feature
- Cost per test is significantly lower than other test methods.
- Large backlit screen makes viewing readings easy.
- Digital display prevents reading interpretation errors.
- Intuitive menus in multiple languages enables use straight from the box.
- Dust and water resistant rugged design equivalent to IP64
- Ergonomic design for comfort during continuous use
- 2.4" colour screen provides enhanced reading visibility at all angles
- Fast reading rate at 60+ readings per minute
- Review batch data or last 20 readings in a graph format
- Counted average mode stores the average value of a preset number of readings. (Model T only).
- USB and Bluetooth® data output to ElcoMaster™ 2.0 software (Model T only).

Integral or separate probes measure profiles up to 500 microns on flat or curved surfaces*

Ergonomic design for comfort during continuous use

2.4" colour screen provides enhanced reading visibility at all angles

Designed with you in mind

User Friendly

- Large buttons ideal for gloved hands
- Easy to use menus in multiple languages
- High contrast colour LCD with auto rotate
- High and low reading limit indicators
- Factory calibrated for immediate use

Accurate

- Measurement capability to ±5%
- Conforms to National & International Standards
- Temperature stable measurements
- Statistics are calculated and displayed in real time.
- Live and batch readings graph format for instant analysis

Reliability

- Repeatable and reproducible
- 2 year gauge warranty
- Supplied with fully traceable Test Certificates
- Batch & individual reading date and time stamp facility

Tough

- Sealed, heavy duty and impact resistant
- Dust and waterproof equivalent to IP64
- Scratch and solvent resistant display
- Durable gauge and probe construction
- Suitable for use in harsh environments

Efficient

- Fast reading rate of 60+ per minute
- Integral and separate probe options to suit your application on flat or curved surfaces*
- Alpha numeric batch identification
- Compatible with ElcoMaster™ 2.0 and ElcoMaster™ for Android™.
- Powersave mode with tap awake

Powerful

- Tough tungsten carbide user replaceable tip - can be used for up to 20,000 readings
- USB and Bluetooth® data output
- Stores up to 150,000 readings in 2,500 batches
- Measures profiles up to 500µm

Standards

- ASTM D 4417-B
- SANS 5772
- US Navy NSI 009-32
- US Navy PPI 63101-000

Test Method - ASTM D4417 Method B

In summary, ASTM D 4417 Method B requires the mean of ten measurements to be calculated at an agreed series of locations, which characterise the surface.

The gauge should be set to zero on a piece of glass prior to the measurements.

Features

	Basic	Top
Fast, accurate reading rate; 60+ readings per minute	•	•
Repeatable & reproducible measurements	•	•
Easy to use menu structure; in 30+ languages	•	•
Tough, impact, water & dust resistant; equivalent to IP64	•	•
Bright colour screen; with permanent back light	•	•
Scratch & solvent resistant display; 2.4" (6cm) TFT	•	•
Large positive feedback buttons	•	•
USB power supply; via PC	•	•
Test certificate	•	•
2 year gauge warranty	•	•
Automatic rotating display; 0°, 90°, 180° & 270°	•	•
Ambient light sensor; with adjustable auto brightness	•	•
Emergency light mode	•	•
Gauge software updates[1]; via ElcoMaster™ 2.0 software	•	•
Data output	•	•
USB; to computer	•	•
Bluetooth®: to computer, Android™ mobile phone or tablet		•
On screen statistics	•	•
Number of readings; η, Mean (average); x, Standard deviation; σ,		
Highest reading; hi, Lowest reading; lo, Coefficient of variation; COV	•	•
High & low limits; definable audible & visual alarms		•
Number above high limit;		•
Number below low limit; lo		•
ElcoMaster™ 2.0 software & USB cable		•
Alarm; daily (d), interval (i) d,i		d, i
Date and time stamp for each reading		•
Replaceable screen protectors	•	•
Protective case	•	•
Plastic transit case		•
Measurement range	0-500µm	0-500µm
On-screen calibration instructions; in 30+ languages		•
Number of batches 2,500		2,500
Gauge memory; number of readings	Last 5	150,000
Calibration lock		•
Delete last reading*	•	•
Limits; user definable audible & visual pass/fail warnings		•
Gauge (g) or gauge & batch specific (gb) limits gb		gb
Batch types; normal, counted average		•
Review, clear & delete batches		•
Copy batches and calibration settings		•
Alpha-numeric batch names; user definable on the gauge		•
Fixed batch size mode; with batch linking		•
Trend Graph; last 20 readings		•
Review batch graph		•

Elcometer 224 Digital Surface Profile Gauge

The Elcometer 224 is available in two different models: Model B and Model T. Each gauge provides the user with increasing functionality - from the entry level Elcometer 224 Model B, to the top of the range Elcometer 224 Model T, with memory, alpha-numeric batching and Bluetooth® communication.

Integral gauges are ideal for single handed operation as the wide footprint of the internal probe provides greater stability during measurement - allowing for consistent, repeatable and accurate results.

Standard and armoured probes are available for the separate models, providing even greater measurement flexibility. Elcometer surface profile probes are supplied with a glass zero plate, calibration test foils (nominal values 125 µm & 508 µm and an Elcometer Test Certificate.

Part Numbers

Part Number		Description	Certificate
Integral Gauge	Separate Gauge		
E224C-BI	E224C-BS	Elcometer 224 Model B Digital Surface Profile Gauge	●
E224C-TI	E224C-TS	Elcometer 224 Model T Digital Surface Profile Gauge	●

Probe Description		Part Number	Minimum Headroom	Minimum Sample Diameter	Certificate
Flat Surface: Standard	Separate	T224C500US	125mm	25mm	●
Flat Surface: Armoured	Separate	T224C500UARM	165mm	25mm	●
Convex Surface: Standard ^	Separate	T224C500UX	135mm	75mm △	●
Convex Surface: Armoured ^	Separate	T224C500UXARM	175mm	75mm △	●
Gauge with Integral Probe			185mm	25mm	●

^ Patent applied for   △ Minimum pipe diameter   * Whichever is the greater

Technical Specifications

Display information	2.4" (6cm) QVGA colour TFT display, 320 x 240 pixels
Battery type	2 x AA dry cell batteries, rechargeable batteries can also be used
Battery life	Approximately 24 hours of continuous use at 1 reading per second#
Gauge dimensions (h x w x d)	Integral: 168 x 73 x 37mm
	Separate: 141 x 73 x 37mm
Gauge weight	Integral: 218g
(including batteries)	Separate 161g
Measurement range	0-500µm
Probe tip	Tungsten carbide tip 60° angle 50µm
Operating temperature	-10 to 50°C
Storage temperature	-10 to 60°C
Accuracy & Resolution Accuracy*:	±5% or ±5µm; Resolution: 1µm

Packing List

- Elcometer 224 gauge
- Glass Zero Tile
- 2 X Calibration Foils
- Wrist Harness
- Plastic Transit Case (T)
- Protective Case
- Screen Protector
- Probe Protection Cap
- 2 X Aa Batteries
- Test Certificate
- Operating Instructions
- USB cable (T)
- ElcoMaster™ 2.0 software (T)

Total Quality Assurance
(see separate Datasheet for more info)

Professional inspection reports provide a competitive advantage in today's industrial environment.

The new ElcoMaster 2.0 is a fast, easy to use software solution for all your reporting requirements.

ElcoMaster 2.0™

At a Glance
- **Data can be stored in a simple file tree, by project and by inspection type. Data is clearly displayed in tabular format**
- **Using ElcoMaster's™ inbuilt Report Designer, readings can quickly be displayed on an image or drawing**
- **Readings from different Elcometer gauges can be printed on the same report – and can be quickly inserted into standard report tables**

ElcoMaster 2.0 gives you the power to review your data and produce professional reports quickly and easily.
Internal wizards guide you through each step, from connecting a gauge to generating a report.

Features include:
- Produce and combine measurements from any Elcometer inspection gauge in one report
- Add photographs, limits & notes to your reports
- Export to Excel or other spreadsheet formats
- Print, email or generate .pdf reports
- Design your own reports and drag & drop readings or statistics onto the report
- Combine multiple batches into one report
- Communicate and link with ElcoMaster™ for Android™
- Automatic upgrade notifications inform and allow users to upgrade their Elcometer gauges & ElcoMaster™ 2.0 software in the field

ElcoMaster™ for Android™
allows users to:
- Collect data via collection image templates, identifying where each reading should be taken
- Transfer live readings or batches from Elcometer Bluetooth® gauges to Android™ phones or tablet PC's.
- Provides instant data analysis remotely and email key data, including readings, notes & photographs, etc. to the office from the field