

Elcometer CG70 Corrosion Thickness Gauges



The CG70 range of corrosion thickness gauges with its large, easy to read display, provides users with A and B-Scan options for accurate interpretation of measurements.

The Elcometer CG70 corrosion thickness gauge is available in two models: CG70BDL and CG70ABDL.

Both models offer 2D cross sectional block view, providing a graphical representation of a material's thickness, ideal for accurate analysis and identification of pits and corroded areas.

Features

- Range of display & measurement options: Pulse-Echo, Echo-Echo ThruPaint™ technology
- Multiple calibration and material selection options
- Adjustable gain: -30dB to 70dB range
- Automatic gain control (AGC)
- 64 User definable setups
- High speed scan: 32 readings per second
- Differential and minimal thickness alarm modes
- Data output and storage: 12,000 readings and waveforms or B-Scans
- Download to ElcoMaster® data management software



CG70BDL

Taking 32 readings per second in scan mode, the internal data logger stores up to 12,000 readings together with their waveforms. RS232 output to the Elcometer NDT data management software allows ease of analysis and professional reporting.



CG70ABDL

As well as all the features of the CG70BDL, the CG70ABDL also features an A-Scan display, allowing users to fully interpret and control measurement readings. The user can select to view either the full waveform (RF) or the rectified waveform (RECT) showing either the positive or the negative cycle of the full waveform.



The CG70 range has 64 user definable setups and works with a wide range of transducers which can be selected from the gauges internal menu.

The gain control function in Echo-Echo mode automatically adjusts the amplitude of the received echo, but it can be overridden using the selectable low, medium and high gain options to suit the properties of the material being measured, ideal for difficult applications.

CG70 Features Explained

Repeatability / Stability Indicator

Consisting of 6 vertical bars, when all the bars are fully illuminated and the last digit on the digital thickness value is stable, the gauge is reliably measuring the material thickness.

High Speed Scan with Minimum Thickness Display

By significantly increasing the measurement refresh rate this mode allows the user to make scanned passes over the test material. The smallest thickness value is held in memory and displayed when scanning is complete. This feature can also be used in conjunction with the minimum & maximum limit alarm feature (model dependant).

Differential Mode

Once a user defined nominal thickness value has been set, the gauge will display the +/- thickness difference from the nominal value entered.

Limit Alarm Mode

The user can define minimum and maximum thickness limits. If the measurement falls outside the upper or lower limit a red LED will light and the beeper sounds. A green LED will light to indicate an acceptable thickness.

V-Path Correction

Dual element transducers consist of a probe with two crystals (one to transmit and one to receive the sound pulse). The crystals are separated by an acoustic barrier - generating a 'V-shaped' sound path as the sound travels from one element to the other.



This path is slightly longer than the direct path therefore V-path correction is used to calculate the correct thickness.

CG70 Measurement Modes Explained

Pulse - Echo Mode (PE):

The normal display mode measures the total thickness from the base of the transducer probe to the material density boundary (typically the back wall). Ideal for pit and flaw detection.



Echo - Echo Mode (EE):

Also known as the ThruPaint™ Mode, EE ignores the coating thickness, displaying the material thickness from the top surface of the material to the material density boundary.



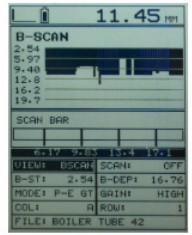
CG70 Display Modes Explained

Material Thickness Digits Display

The standard display on all models, this displays the numerical thickness value in either millimetres (MM) or inches (IN)

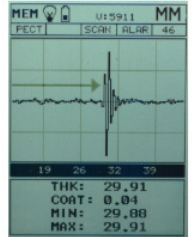
Scan Bar Display:

A time based cross sectional 2D block view of the thickness provides a graphical view of the material thickness - ideal for relative depth analysis



A-Scan Display; Full Wave (RF):*

The A-Scan display shows the sine wave created by the reflected sound, or oscillation, from the material being measured. In RF mode the full wave form is displayed.



A-Scan Display; Rectified (+ or -):*

Users can select to view either the positive or the negative cycle of the full waveform (RF). This rectified (RECT) display shows the amplitude of the echo versus the transit time.

* Available on CG70ABDL Model only

Technical Specification

Model & Part Number	CG70BDL	CG70ABDL
Material thickness digits display	■	■
B-Scan cross sectional display	■	■
Combined B-Scan and digits display	■	■
Scan bar display	■	■
A-Scan display		+ Rectified, - Rectified, Full Waveform (RF)
Measurement Mode	PE & EE (ThruPaint™)	PE & EE (ThruPaint™)
Measurement Rate		
Manual:	8 readings per second	8 readings per second
Scan mode	250 readings per second	250 readings per second
Scan bar display	10 readings per second	10 readings per second
Measuring Range ¹	PE: 0.63 - 30,480mm EE: 2.54 - 152.4mm	PE: 0.63 - 30,480mm EE: 2.54 - 152.4mm
Measurement Accuracy ¹	0.01mm	0.01mm
Measurement Resolution	0.01mm	0.01mm
Velocity Calibration Range	309.88 - 18,542m/s	309.88 - 18,542m/s
High speed scan mode	■	■
Differential mode	■	■
Limit alarm mode	■	■
B-Scan display speed	10 to 200 readings per second	10 to 200 readings per second
Calibration setups	64 user-definable setups transferrable to and from a PC archive	64 user-definable setups transferrable to and from a PC archive
Gates		• PE: 1 gate; EE: 2 gates, 1 gate with hold off • Adjustable threshold
Pulser type	Square wave pulser	Square wave pulser with adjustable pulse width (spike, thin, wide)
Gain	Manual or automatic gain control (AGC) with 50dB range (depending on mode selected)	Manual or automatic gain control (AGC) with 50dB range (depending on mode selected)
Timing	100MHz 8 bit ultra low power digitizer	100MHz 8 bit ultra low power digitizer

Model & Part Number	CG70BDL	CG70ABDL
Data logging	<ul style="list-style-type: none"> • 4GB internal memory • Sequential and grid logging <ul style="list-style-type: none"> • Alpha numeric batch identification • OBSTRUCT indicates inaccessible locations • Bitmap graphic capture 	<ul style="list-style-type: none"> • 4GB internal memory • Sequential and grid logging <ul style="list-style-type: none"> • Alpha numeric batch identification • OBSTRUCT indicates inaccessible locations • Bitmap graphic capture
Calibration Options	Single, two point, velocity & material type	Single, two point, velocity & material type
Transducer Probe Type	Dual element	Dual element
Transducer Frequency Range	1 - 10MHz	1 - 10MHz
Transducer recognition	Manual - selectable from a list	Manual - selectable from a list
V-path / dual path error correction	Automatic	Automatic
Probe zero	Manual (via integrated probe disk)	Manual (via integrated probe disk)
Display	62 x 45.7mm viewable area	62 x 45.7mm viewable area
Units (selectable)	mm or inches	mm or inches
LED Backlight	on / off / auto	on / off / auto
Repeatability / Stability Indicator	■	■
Battery Type	3 x AA alkaline	3 x AA alkaline
Battery Life (approximate)	Alkaline – 35 hrs, Nicad – 10 hrs NI-MH – 35 hrs	Alkaline – 35 hrs, Nicad – 10 hrs NI-MH – 35 hrs
Low Battery Indicator	■	■
Battery Save Mode	Auto	Auto
Operating Temperature	-10 to 60°C	-10 to 60°C
Size (w x h x d)	63.5 x 165.0 x 31.5mm	63.5 x 165.0 x 31.5mm
Weight (including batteries)	383g	383g
Aluminium case design with gasket sealed end caps, waterproof membrane keypad	■	■
Transducer Connector Type	LEMO	LEMO
Interface	USB	USB

Packing List

Elcometer NDT CG70BDL gauge

Couplant

Carry case

User Manual

Test certificate

3 x AA batteries

ElcoMaster® Software

USB cable

Elcometer NDT CG70ABDL gauge

Couplant

Carry Case

User Manual

Test Certificate

3 x AA batteries

ElcoMaster® Software

USB cable

Corrosion Thickness Gauge Transducers

A complete range of dual element thickness transducers, ideal for inspecting metal substrates.

Part Number	Probe Diameter	Probe Characteristic	Damping	Connector Type						Suitable for measuring				
				ThruPaint™	Potted	Microdot	Lemo	Top	Side	Cast Iron	Plastics	Fibreglass	Thin Fibreglass	Steel
1.00 MHz Dual Element Thickness Transducer														
TX1M00EP-1	1/2"	Standard	S		■			■		■	■	■		
TX1M00EP-2	1/2"	Standard	S		■				■	■	■	■		
TX1M00EM-1	1/2"	Standard	S			■		■		■	■	■		
TX1M00EM-2	1/2"	Standard	S			■			■	■	■	■		
TX1M00EP-3	1/2"	Composite	S		■				■	■	■	■		
TX1M00EL	1/2"	Composite	S				■		■	■	■	■		
2.25 MHz Dual Element Thickness Transducer														
TX2M25CP-1	1/4"	Standard	S		■				■		■			■
TX2M25CP-2	1/4"	Standard	S		■					■	■			■
TX2M25CM-1	1/4"	Standard	S			■		■		■	■			■
TX2M25CM-2	1/4"	Standard	S			■			■	■	■			■
TX2M25CP-3	1/4"	Hi Temp ²	S		■				■		■			■
TX2M25CM-3	1/4"	Hi Temp ²	S			■		■		■	■			■
TX2M25EP-1	1/2"	Standard	S		■				■		■			■
TX2M25EP-2	1/2"	Standard	S		■					■	■			■
TX2M25EM-1	1/2"	Standard	S			■		■		■	■			■
TX2M25EM-2	1/2"	Standard	S			■			■	■	■			■
TX2M25EP-3	1/2"	Hi Temp ²	S		■				■		■			■
TX2M25EM-3	1/2"	Hi Temp ²	S			■		■		■	■			■
TX2M25EP-4	1/2"	Composite	S		■					■	■			■
TX2M25EL-1	1/2"	Armoured	S				■		■	■	■			■
3.50 MHz Dual Element Thickness Transducer														
TX3M50EP-4	1/2"	Standard	H	■	■				■	■	■		■	■
TX3M50EP-1	1/2"	Coating Thickness	CT	■	■				■	■	■		■	■

² High temperature probes suitable for measuring 343°C
 S - Standard Undamped Transducer
 CT - Damped Coating Thickness Transducer
 HD - Highly damped Transducer
 H - Highly Damped Transducer



Part Number	Probe Diameter	Probe Characteristic	Damping	Connector Type						Suitable for measuring				
				ThruPaint™	Potted	Microdot	Lemo	Top	Side	Cast Iron	Plastics	Fibreglass	Thin Fibreglass	Steel
5.00 MHz Dual Element Thickness Transducer														
TX5M00BP-2	3/16"	Standard	S		■				■			■	■	■
TX5M00BP-3	3/16"	Standard	S		■					■		■	■	■
TX5M00BP-5	3/16"	Standard	H	■	■					■		■	■	■
TX5M00BM	3/16"	Standard	S			■				■		■	■	■
TX5M00BP-1	3/16"	Low Profile	S		■					■		■	■	■
TX5M00BP-4	3/16"	Coating Thickness	CT	■	■					■		■	■	■
TX5M00CP-3	1/4"	Standard	S		■				■			■	■	■
TX5M00CP-9	1/4"	Standard	H	■	■				■			■	■	■
TX5M00CP-4	1/4"	Standard	S		■					■		■	■	■
TX5M00CP-10	1/4"	Standard	H	■	■					■		■	■	■
TX5M00CM-1	1/4"	Standard	S			■		■				■	■	■
TX5M00CM-2	1/4"	Standard	S			■				■		■	■	■
TX5M00CM-9	1/4"	Standard	H	■		■				■		■	■	■
TX5M00CP-1	1/4"	Low Profile	S		■					■		■	■	■
TX5M00CP-2	1/4"	Low Profile	S		■					■		■	■	■
TX5M00CP-6	1/4"	Coating Thickness	CT	■	■					■		■	■	■
TX5M00CM-3	1/4"	Coating Thickness	CT	■		■				■		■	■	■
TX5M00CP-7	1/4"	Hi Temp ²	S		■				■			■	■	■
TX5M00CP-8	1/4"	Hi Temp ²	H	■	■				■			■	■	■
TX5M00CM-4	1/4"	Hi Temp ²	H	■		■			■			■	■	■
TX5M00CM-5	1/4"	Hi Temp ²	S			■		■				■	■	■
TX5M00EP-2	1/2"	Standard	S		■				■			■	■	■
TX5M00EP-3	1/2"	Standard	S		■					■		■	■	■
TX5M00EP-10	1/2"	Standard	H	■	■					■		■	■	■
TX5M00EM-1	1/2"	Standard	S			■		■				■	■	■
TX5M00EM-2	1/2"	Standard	S			■				■		■	■	■
TX5M00EP-4	1/2"	Coating Thickness	CT	■	■					■		■	■	■
TX5M00EP-5	1/2"	Hi Temp ²	S		■				■			■	■	■
TX5M00EM-3	1/2"	Hi Temp ²	S			■		■				■	■	■
TX5M00EM-4	1/2"	Hi Temp ²	S			■		■				■	■	■
TX5M00EP-6	1/2"	Hi Temp ²	H	■	■				■			■	■	■
TX5M00EL-1	1/2"	Armoured	S				■			■		■	■	■
TX5M00EP-1	1/2"	Cylinder Probe – Iron	S		■					■	■	■	■	■

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HD - Highly damped Transducer

H - Highly Damped Transducer

Part Number	Probe Diameter	Probe Characteristic	Connector Type							Suitable for measuring				
			Damping	ThruPaint™	Potted	Microdot	Lemo	Top	Side	Cast Iron	Plastics	Fibreglass	Thin Fibreglass	Steel
7.50 MHz Dual Element Thickness Transducer														
TX7M50BP-1	3/16"	Standard	S		■		■		■	■	■	■		
TX7M50BP-2	3/16"	Standard	S		■			■	■	■	■	■		
TX7M50BP-3	3/16"	Coating Thickness	CT	■	■			■	■	■	■	■		
TX7M50CP-1	1/4"	Exxon Spec	S		■		■		■	■	■	■		
TX7M50CP-2	1/4"	Exxon Spec	S		■			■	■	■	■	■		
TX7M50CM-1	1/4"	Exxon Spec	S			■	■		■	■	■	■		
TX7M50CM-2	1/4"	Exxon Spec	S			■		■	■	■	■	■		
TX7M50CP-3	1/4"	High Resolution	S		■		■		■	■	■	■		
TX7M50CP-4	1/4"	High Resolution	S		■			■	■	■	■	■		
TX7M50CP-6	1/4"	Standard	H	■	■			■	■	■	■	■		
TX7M50CP-5	1/4"	Coating Thickness	CT	■	■			■	■	■	■	■		
TX7M50CM-3	1/4"	High Resolution	S			■	■		■	■	■	■		
TX7M50CM-4	1/4"	High Resolution	S			■		■	■	■	■	■		
10.00 MHz Dual Element Thickness Transducer														
TX10M0BP-1	3/16"	Standard	S		■			■		■	■	■	■	
TX10M0BP-2	3/16"	Standard	S		■		■			■	■	■	■	
TX10M0CP-3	1/4"	Standard	S		■		■				■	■	■	
TX10M0CP-4	1/4"	Standard	S		■			■			■	■	■	
TX10M0CM-1	1/4"	Standard	S			■	■				■	■	■	
TX10M0CM-2	1/4"	Standard	S			■		■			■	■	■	
TX10M0CP-1	1/4"	Low Profile 1" Wand	S		■			■	■		■	■	■	
TX10M0CP-2	1/4"	Low Profile 9" Wand	S		■			■	■		■	■	■	
TX10M0EP-2	1/2"	Standard	S		■		■				■	■	■	
TX10M0EP-3	1/2"	Standard	S		■			■			■	■	■	
TX10M0EM-1	1/2"	Standard	S			■	■				■	■	■	
TX10M0EM-2	1/2"	Standard	S			■		■			■	■	■	
TX10M0EP-1	1/2"	Cylinder Probe - Aluminium	S		■			■	■		■	■	■	

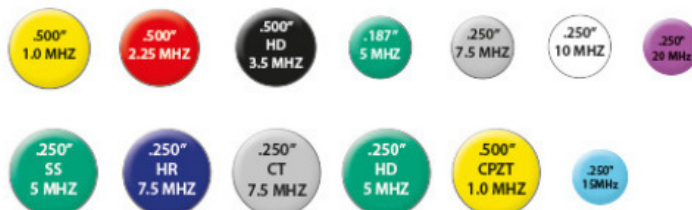
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Accessories

Cables & Adaptors

TL-24030-6	T/Cable: 4' Dual Lemo to Lemo
TL-24030-7	T/Cable: 4' Dual Lemo to Microdot
TL-24030-8	T/Cable: 4' Dual Lemo to Microdot Single
TL-24030-9	T/Cable: 4' Dual Lemo to M/dot, HT Arm
TL-24031	RS232 Cable (6'); DB-9 to Lemo
TL-24032	USB to Serial Adapter



Couplant

TC-24034-1	Couplant: Standard; 4oz Bottle (Material Safety Data Sheet)
TC-24034-2	Couplant: Standard; 12oz Bottle (Material Safety Data Sheet)
TC-24034-3	Couplant: Standard; 1 Gallon (Material Safety Data Sheet)
TC-24034-9	Couplant: Hi-Temp 510oC; 2oz Tube (Material Safety Data Sheet)