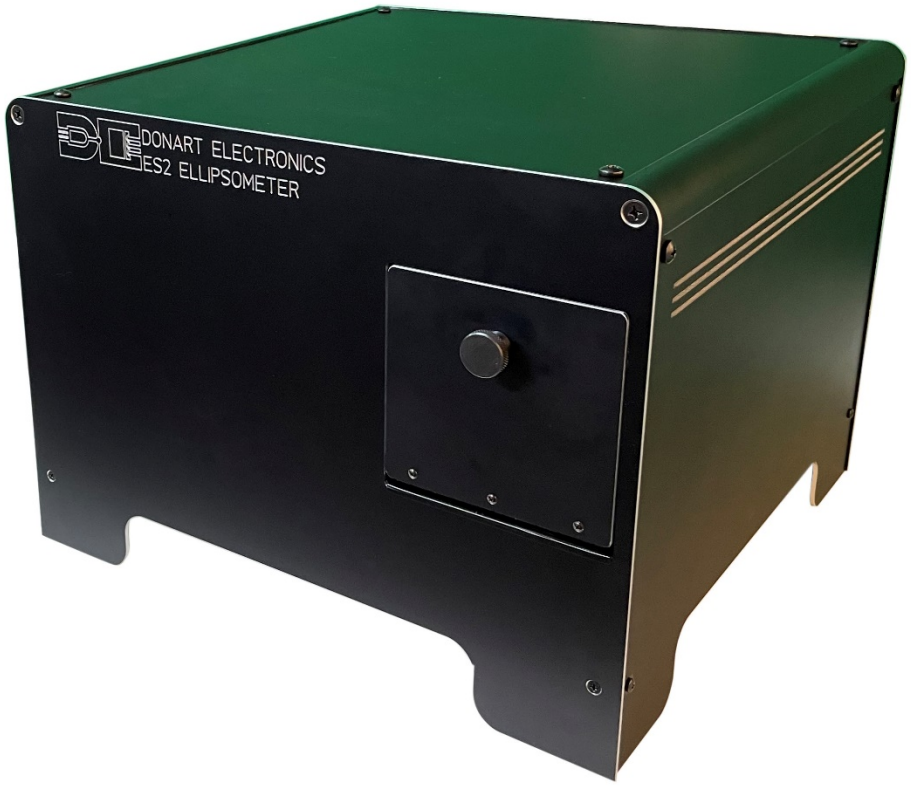
DONARTelectronics

ES2 ELLIPSOMETER



Thin Film Oil Measurement

Our new Ellipsometer provides faster, more repeatable, and more accurate measurements over the same range of materials such as tinplate, chrome, chrome oxide and TFS (tin free steel) in gm/bb and mg/m^2.

The ES2 is the newest model of Donart Electronics' Ellipsometer. Completely redesigned from the ground up, the ES2 is a tenth of the size and weight of the original Ellipsometer. In addition to its smaller, more convenient size, the new ES2 is more reliable than ever before, requiring less maintenance and less setup time.

The ES2 features a new spraying solvent that requires no heating for vaporless oil removal. Requiring far less maintenace and filling, the new oil removal system will save you time and money.

Designed for ease of use, the ES2 is controlled by a provided Windows 10 computer and the test is completely automated, only requiring the operator to insert a sample and click "start test." Data can then be saved locally to the computer or sent over your network.

10 TIMES SMALLER

At only 13.5" tall, the new ES2 is almost 10 times smaller than the original Ellipsometer, allowing for more versatile placement.

VAPORLESS SPRAYING

The new oil removal system requires no heating, resulting in no wait time prior to testing as well as no fumes or constant refilling.

COMPUTER CONTROLLED

Controlled by a provided Windows 10 computer, the ES2 Ellipsometer allows for easy measurement aqusition and data transmission.

For more information on any of our products or services please visit us on the Web at: www.donartelectronics.com

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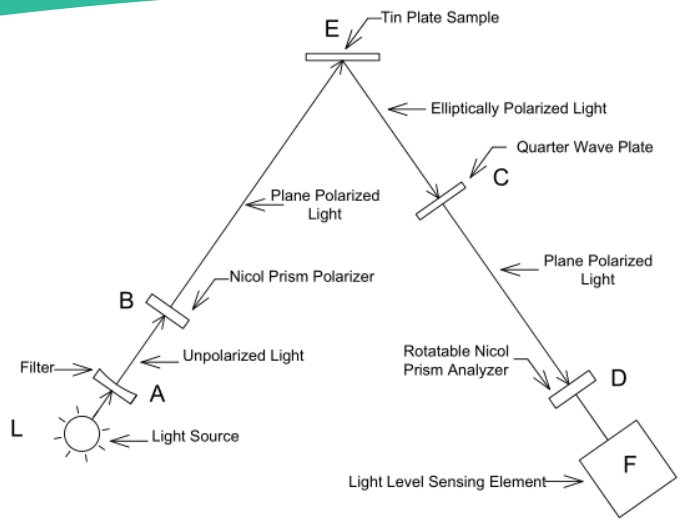
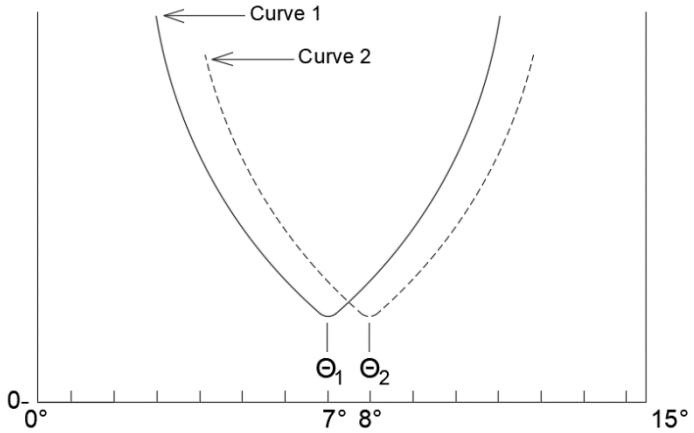
What is Ellipsometry?



A through *D* are the basic components of an Ellipsometer. *E* is the oiled tin plate sample to be measured. The light from the light source *L* is filtered through *A* to become monochromatic light and then through the polarizer *B*. The resulting plane polarized light is directed onto the tin plate sample *E*. Due to the optical charateristics of the metal surface and coating, the reflected light is elliptically polarized. This ellipticity is related to the thickeness of the coating. The reflected beam passes through the quarter wave plate *C*, which converts the light back to plane polarized light. The angle of polarization of the light leaving the quarter wave plate is dependent upon the ellipticity of the light reflected from the sample and is therefore related to the coating thickness. This angle of polarization is the parameter measured for oil thickness determinations. By rotating the nicol prism analyzer *D*, to a position where the light reaching *F* is at a minimum, or null point, the angle of polarization can then be read in degrees.



A null reading is taken with a coating present, after which a repeat reading is taken at the same spot on the same sample with the coating removed. The resulting change in analyzer null position (change in angular rotation) is proportional to oil coating thickness. Assume curve 1 to be obtained from a tin plate sample containing an oil coating. Curve 2 then represents that obtained from the sample after degreasing. The angular difference, $\Theta_2 - \Theta_1$, is 1 degree in this case. For 1 degree of change the corresponding oil weight would then be 0.4 gm/bb.

GREATER VERSATILITY

Use of an ellipsometer and the differential reading method eliminates errors due to the varying surface characteristics of tin plate.

HIGHLY ACCURATE

Ellipsometry can read oil thicknesses down to a millionith of an inch.

AUTOMATED ELLIPSOMETRY

The Donart Electronics ES2 completely automates the Ellipsometer process for you. Letting the operator simply insert a sample and hitting a button.

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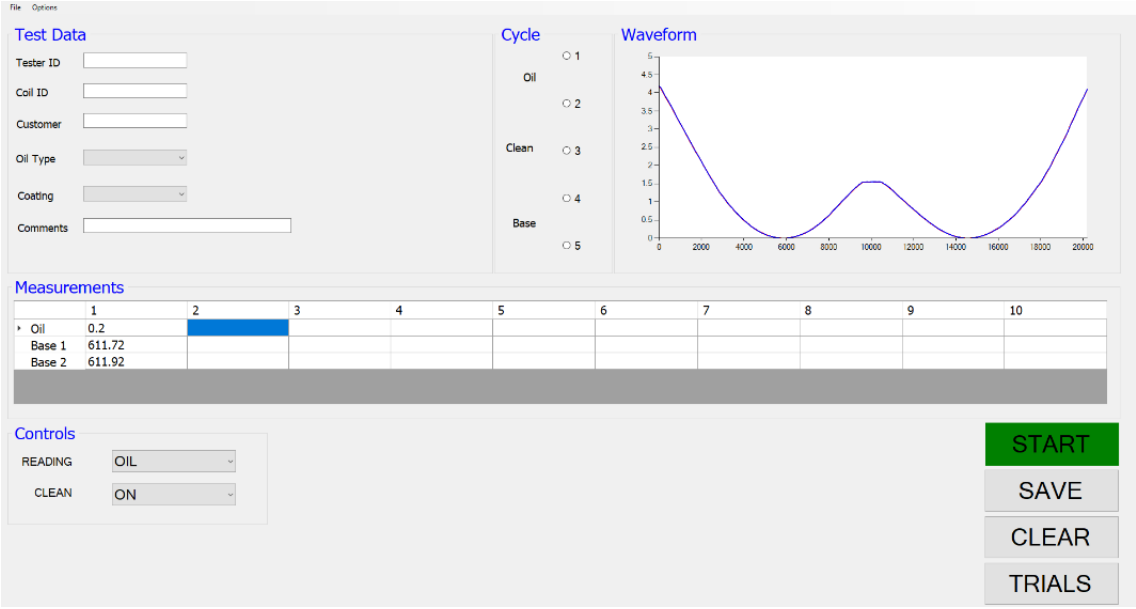
ELLIPSOFT



WINDOWS 10

The ES2 is compatible with Windows 10, allowing for longterm support.

CUSTOM BUILT COMPUTER

Each Ellipsometer comes with a custom built Windows 10 computer, built with only the best parts on the market.

CUSTOMIZATION

Need a custom requirement for your software? Contact us for a custom software quote.

For more information on any of our products or services please visit us on the Web at: www.donartelectronics.com

With all test data, results, controls and options accesible on a computer screen, Ellipsoft makes the ES2 the easiest Ellipsometer ever to be used.

Ellipsoft allows the user to enter all relevant test data such as Coil ID, Oil Type, Comments, etc. prior to starting a test.

Once ready to test, the ES2 can be complety controlled from the software. The user selects whether the ES2 is reading an oil or base, turns clean on or off, and then clicks “start test.” It’s that simple.

Once testing is finished the user can measure more samples and fill in the easy to read measurements section. Saving this information can be done locally or with a .CSV string for sending over network or importing into Microsoft Excel.

Gone are the days of manually writing in test results and test data. Gone are the days of adjusting null or high voltage. Ellipsoft takes the Ellipsometer into the future.

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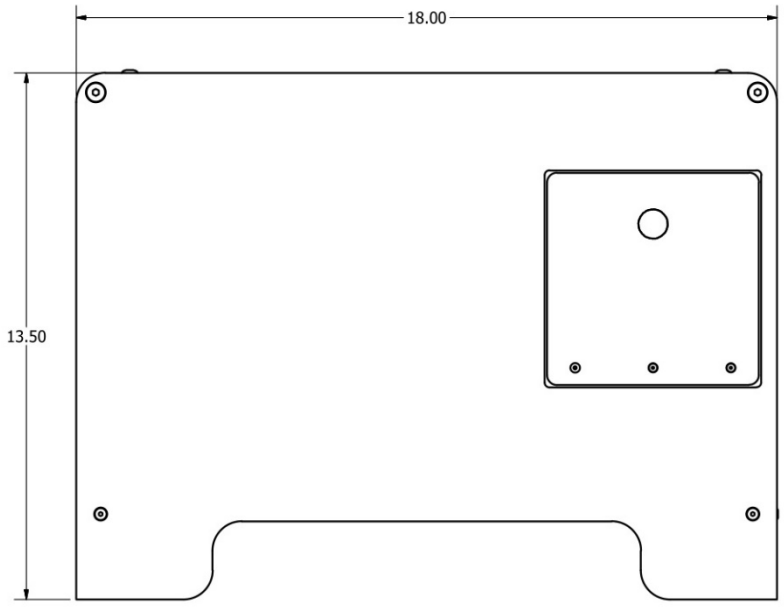
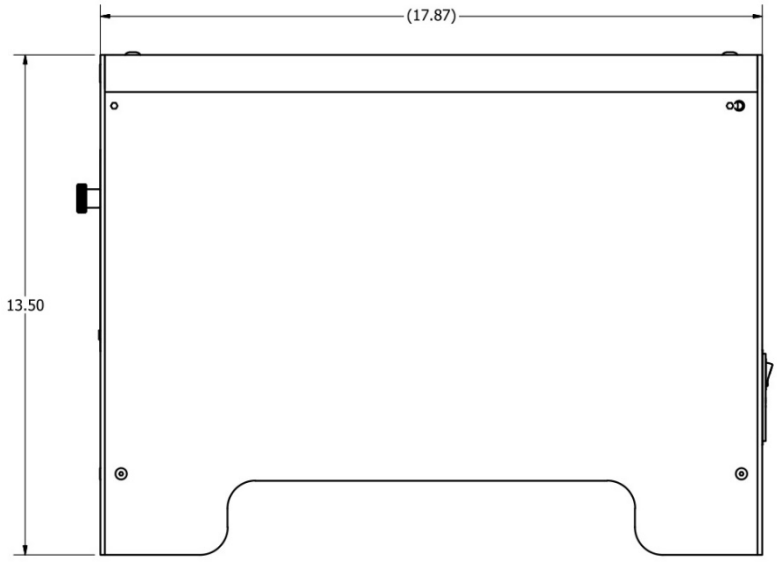
DIMENSIONS



Front View



Side View

10 TIMES SMALLER

At only only 13.5" tall, the new ES2 is almost 10 times smaller than the original Ellipsometer, allowing for more versatile placement.

10 TIMES LIGHTER

Weighing only 40 lbs, the ES2 is almost 10 times lighter than the original Ellipsometer, allowing for easier movement and setup. Its new size also allows for better customer support as it can easily be shipped back to Donart Electronics.

BLACK ANONDIZED FINISH

The black anondized finish will make the ES2 look sleek and stylish in any lab.

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SPECIFICATIONS

Measurable Materials	Tinplate, chrome, chrome oxide and TFS
Test Data Reported	gm/bb or mg/m^2 (option for multiplier e.g. divide by 2)
Repeatability	±0.02 gm/bb (± .5mg/m^2)
Measurement Range	0 - 1.0 gm/bb (0 - 24.7mg/m^2)
Sample Size	1” – 3” (2.5-8cm) Ø
Measurement time	25 Seconds
Power Requirement	115V 60hz, 220V 50hz
Dimensions	18”x17.875”x13.5” (45.72x45.40x34.29cm)
Weight	40 lbs (18.14kg)

BIGGER BETTER RANGES

With the new autoranging light feature, a wider range of samples can be tested such as dull material.

SPEED

At only 25 seconds per test, an operator can test large groups of samples quickly for every coil tested.

ACCURACY AND REPEATABILITY

All of these advacements and changes make the ES2 the most efficient Donart Ellipsometer ever made.

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