THICKNESS TESTER

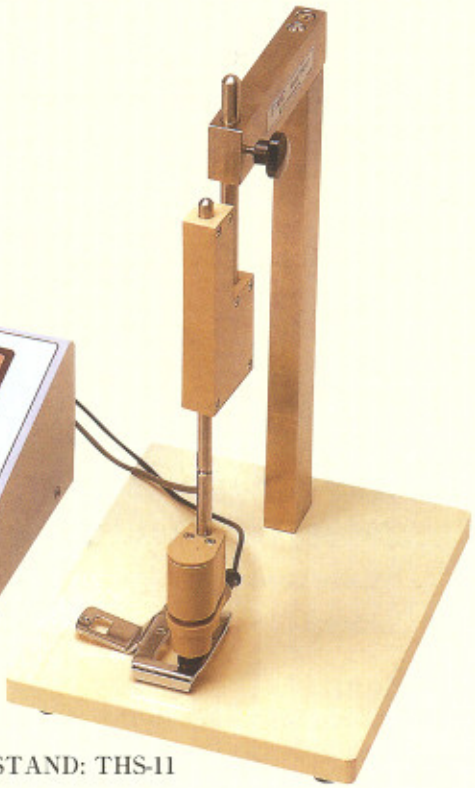
Model:TH-11

Interface:RS232C

Data Management Software (Option)
DENSHO DORI TH

PRINTER: THP-11A
(Option)

THICKNESS TESTER: TH-11
(Main Unit)



STAND: THS-11

Necessary for Quality Control on Coating・Shipping and acceptance inspection・Research & Development Tools
Data Storing, Searching and Editing through communication to the personal computers

★ Features

- Applicable to the thickness of almost alloy metallic coating: copper, nickel, chrome, zinc, tin, silver, gold, copper-zinc alloy and tin-lead alloy, further, cadmium, electroless nickel (Ni-P), tin-zinc alloy, lead and iron using an optional suitable electrolyte
- Readily measurement with displayed messages
- Any error quickly displayed as a message
- Messages available in either English or Japanese, please request at your order
- Connectable to the personal computer to store, search, print, edit measured data and create any report in real time
  Up to 50 data stored and searched on the tester alone
- Automatically setting the gasket calibration data, calculating alloy change conversion and de-electrolytic operation
- This tester measurement conformed to JIS H8501 and ISO 2177

★ Specifications

1) THICKNESS TESTER Model:TH-11

Testing System:	Limited area coulometric testing method
Measurement Area:	Gasket-L:10mm² Gasket-S: 5mm²
Thickness Range:	2.0-400.0μm divided by 0.1 unit 0.05-4.00μm divided by 0.01 unit
Guaranteed Range:	4.0-30.0μm divided by 0.1 unit 0.40-2.00μm divided by 0.01 unit
Measurement Accuracy:	±5%
Electronic Measurement Accuracy:	±0.5%
Measurement Rating:	0.2μm/sec. at 0.1 unit・・・ for Cu, Ni, Zn, Sn, Cu-Zn, Sn-Pb, Sn-Zn 0.1μm/sec. at 0.1 unit・・・ for Cr,Cu/Zn, Ag, Au, Pb, Fe,Cd, Ni-P 0.02μm/sec. at 0.01 unit・・・ for all the above material
Interface:	Centronics for the printer,RS232C for the personal computer
Power source:	Single-phase, AC90-260V, 50/60 Hz, 35VA or less
Ambient Temperature:	10-40℃
Weight:	2.3 kg
Dimensions:	W250×D215×H110mm

2) PRINTER Model:THP-11A (Option)

System:	Terminal dots/serial print
Printing items:	Measurement date, plating type, substrate, configuration, coating thickness and measurement condition
Recording sheet:	BS-80-15 W80×L15000mm
Interface:	Centronics standard
Power source:	Dedicated AC adapter, 4 Alkaline AA batteries or 6 Ni-MH AA batteries
Weight:	450g
Dimension:	W134×D180×H60mm
Accessories:	Printer cable(1.8m),Vinyl cover, Dedicated adapter

3) DATA MANAGEMENT SOFTWARE:DENSHO DORI TH (Option)

Software Task:	Data collecting, displaying, researching, printing and managing the customer work list
Signal Input / Output:	RS232C
Components:	CD-ROM,1×1.8m interface cable
Applicable Personal Computer:	PC/AT compatible (DOS/V machine)
Applicable OS:	Microsoft Windows 2000/XP

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An example of the printed report

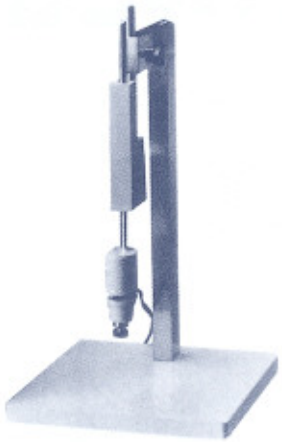
[Thickness measurement result]

Date: 01.05.09 16:26
Coating: Ni
Substrate: Fe
Form: Plate
Thickness: 10.1 μm

[Condition]

1. Gasket: L
2. Unit: 0.1
3. Sens: AUTO
4. Ratio:
5. Auto-reverse: —
6. Passivity: ON

STAND:THS-11
(195^{W}x245^{D}x340^{H}mm)



ACCESSORIES:THA-11
(400^{W}x280^{D}x145^{H}mm)

* Standard Kit

Main Unit (TH-11) · · · · · 1
Stand (THS-11) · · · · · · 1
Accessories (THA-11) · · · 1
Power cord · · · · · · · · 1
Manual · · · · · · · · · · 1

* Contents: ACCESSORIES (THA-11)

Chemicals case:1
Electrolyte: 250ml: each 1
S-101 (for Cu, Ag, Cu-Zn, Sn-Pb), S-103 (for Zn), S-104 (for Cr, Sn)
S-105 (for Ag), S-106 (for Cr), S-107 (for Ni), S-108 (for Cu/Zn)
S-110 (for Sn), S-111 (for Au)
Peeling agent: N-10 250ml: 1
Service bottle: 10, Cell-L: 1, Cell-S: 1, Gasket-L: 5, Gasket-S: 5
Stirring piece: 2, Standard thickness plate: 2
〔Optional Electrolyte: S-102 (for Cd), S-204 (for Ni-P), S-205 (for Sn-Zn)
S-206 (for Pb), S-207 (for Fe)〕

Measurement

Apply the gasket attached to the cell to the coated surface to limit the coulometric area and inject an electrolyte suitable to the coat and substrate into the cell. Set the objective substrate in the anode and cell in the cathode. Then, apply an accurately adjusted current to the coat to melt it. The voltage across the anode and cathode called as "coulometric voltage" is rapidly changed under such situation that the coat metal is being fully melted, results in an exposure of the substrate. The thicness of the coat is calculated from this change in the coulometric voltage and period of time from the start of the current to the end of the above voltage change measurement.

Maintenance

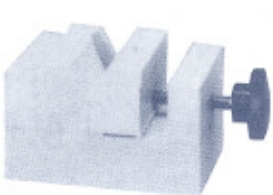
* In order to maintain accurate measurement for long time, a yearly periodical maintenance including calibration should be recommended.
* Deterioration of the backup battery leads the cease of the clock function even if the measurement circuit operation is normal. The battery should be replaced every five years at the maintenance.
* Supplement Parts: Electrolyte- 500ml/bottle, Recording sheet (BS-80-15)-10 rolls/set

Options

The following optional units will contributed to your measurement:

* Gasket- SS
(Measurement accuracy: ± 10%)
Measurement area: 2mm^2
Diameter : 1.6mm
For 2mm wide object

* Fixation unit
For readily fixing round bars or bolts



* Wire auxiliary device
For 0.2 to 13mm dia. wires or round bars

* Due to ongoing improvements, specifications may change without notice.

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