



# UNIVERSAL TESTING MACHINE

Made In Thailand

**BRAVO**  
By *Tech Quality Co.,Ltd.*

The Stealth MS Pro Series desktop Universal Testing Machine are designed to test a wide spectrum of materials including metal wire & foil, plastics, rubber, textiles, paper, yarn, adhesives, ceramics, timber, foods, composites & finished components in tension, compression, flexural or shear . Maximum frame capacities are from 20N to 5KN In compliance with various international standards, such as ASTM, BS EN, JIS, ISO, IEC, TISI

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## Features

1. Panasonic servo motor drive set
2. UK or JAPAN Brand Load cell grade 0.05%
3. 10 Point calibration adjustment
4. High Accuracy Ball Screw
5. Load Resolution  $1/10^9$
6. Force measurement range 0.1% to 100%FS
7. Data Transfer Rate to PC 1 kHz..
8. Automatically sample Height measurement
9. Modern extruded profile High-quality load-frame design
10. Load Measuring System EN ISO 7500:2015 Class 0.5
11. USB or Wireless Communication or Ethernet
12. Smart Control Box & HAND-HELD Remote control
13. 32-bit A/D converter/ EEPROM Plug



## Simple to use Test Setup

Limit Testing Break Testing Loop Testing Preload Setup Elongation Auto Return, Over Load Protection

## Multi-control mode

- Position Control
- Strain Control
- Force Control
- Stress Control
- Multi-step control

## Applications

Metal, Plastic, Rubber, Textile, Synthetic, Wire, Cable, Food, Packaging, Autopart, AeroSpace, Woods, Composit etc.

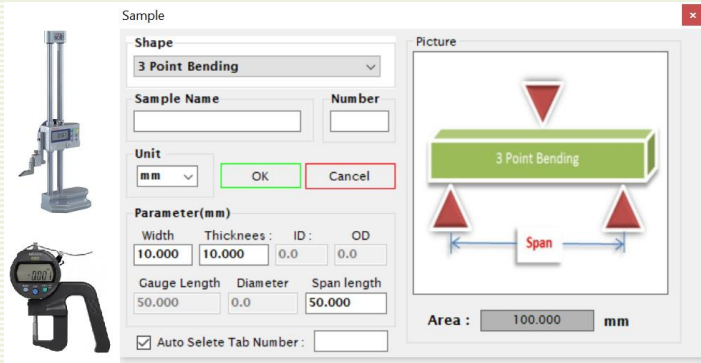
## Test Types

Tensile Testing • Compression Testing • Flexural Testing • Friction • Insertion/Extraction • Peeling • Tearing • Creep/Relaxation

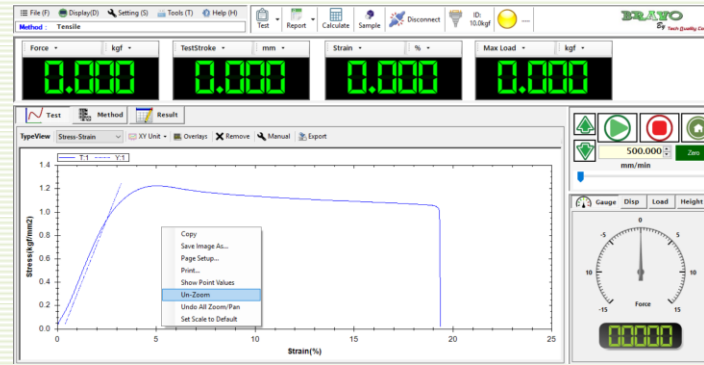
## Specifications : Bench-top frame to apply loads - from 1 KN to 5 KN capacity

Model : Stealth	MS1 Pro	MS1/LL Pro	MS2 Pro	MS5 Pro	Remark
Capacity (KN)	1	1	2	5	
Load Accuracy (%) FS	0.1	0.1	0.1	0.1	
Min. Load Resolution	1/10 <sup>9</sup>	1/10 <sup>9</sup>	1/10 <sup>9</sup>	1/10 <sup>9</sup>	
Crosshead Speed (mm/min)	0.0002 - 1500	0.0002 - 1500	0.0002 - 1500	0.0001 - 1000	
Maximum Return Speed (mm/min)	2,250	2,250	2,250	1,500	
Speed Accuracy (%) FS	0.1	0.1	0.1	0.1	
Extension Resolution (µm per encoder count)	0.0003	0.0003	0.0003	0.0003	
Crosshead Travel (mm)	560	1,400	560	850	
Throat Depth (mm)	90	90	90	90	
Weight Approx (kg)	45	70	45	70	
Plug 'n' Play, automatic identification of BRAVO series load cells					
The Windows® 10 (64 Bit) compatible <b>Black Hole Software</b>					
Power 220Vac/ 50Hz					
Operating Temperature 5° to 35°C (41° to 95°F)					
Warranty 1 Year					

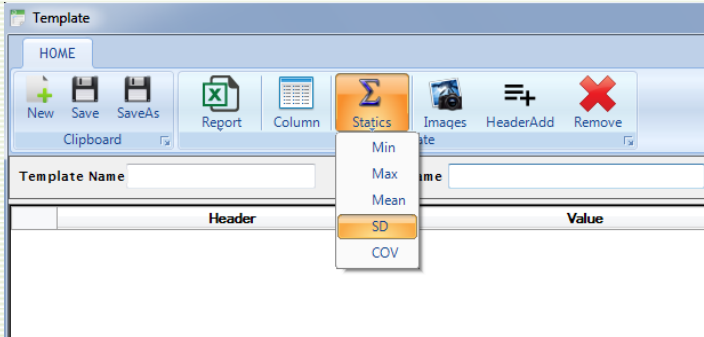
## Sample Information & Connect to Mitutoyo Gauge



## Software & Report, Offset & Zoom Graphics



## Statistic Reports



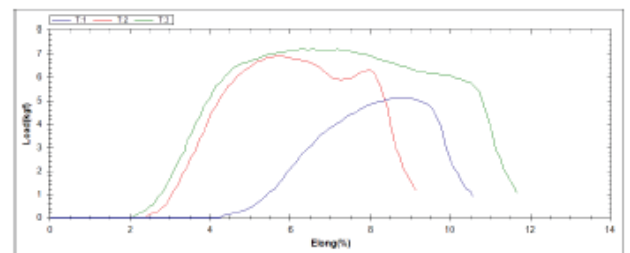
## Excel csv ,Excel , PDF User design Reports

<b>Tech Quality Co.,Ltd.</b>	
Test By	Mr. Nukool Boonklam
Test Standard	ASTM D882 Thin Plastic Sheet
Temperature	25C
Humidity	55%

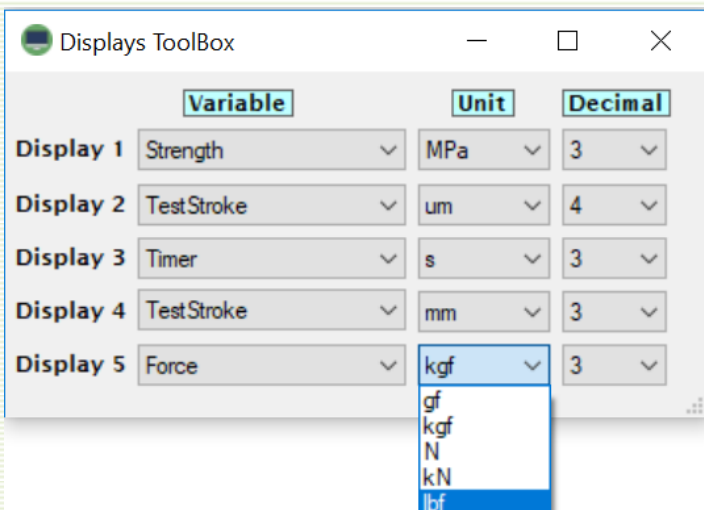
## Multi-stage testing with Black Hole software

Step	Direct	Control Break Type	Speed:mm/min	Target:Unit
1	Tensile	PreLoad	1000.mm/min	1:N
2	Tensile	Load	50.mm/min	15:N
3	Tensile	Stroke	300.mm/min	29mm
4	Tensile	Stress	20.mm/min	10kgf/mm2
5	Compress	Load	99.mm/min	1.kgf

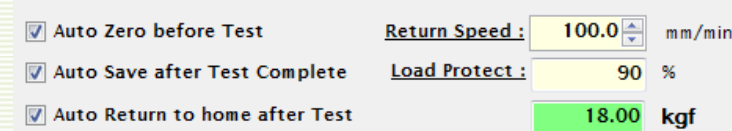
No	Date	Gauge Length (mm)	Thickness (mm)	Width (mm)	Max Load (kgf)	Strength (MPa)	Elong @ Break (%)
T1	28/5/2016	50.0000	10.0000	10.0000	5.1971	0.5008	80.5000
T2	28/5/2016	50.0000	10.0000	10.0000	5.1989	0.6276	13.2892
T3	28/5/2016	50.0000	10.0000	10.0000	5.0235	0.4928	100.2591
T4	28/5/2016	50.0000	10.0000	10.0000	5.0285	0.4831	101.2256
T5	28/5/2016	50.0000	10.0000	10.0000	5.0144	0.5888	118.4542
T6	28/5/2016	50.0000	10.0000	10.0000	5.0218	0.5925	80.0473
T7	28/5/2016	50.0000	10.0000	10.0000	5.0220	0.4925	80.2088
T8	28/5/2016	50.0000	10.0000	10.0000	4.9101	0.3833	85.4156
T9	28/5/2016	50.0000	10.0000	10.0000	5.0385	0.5020	85.4304
T10	28/5/2016	50.0000	10.0000	10.0000	5.0285	0.5030	10.5780
T11	28/5/2016	50.0000	10.0000	10.0000	5.0259	0.6792	8.1414
T12	28/5/2016	50.0000	10.0000	10.0000	7.2116	0.7072	11.6477
Min		50	10	10	4.9101	0.3833	85.4156
Max		50	10	10	7.2116	0.7072	116.5042
Mean		50	10	10	5.8439	0.5025	84.9901
SD		0	0	0	0.9152	0.0887	41.8827
COV		0	0	0	16.2148	18.2145	84.182



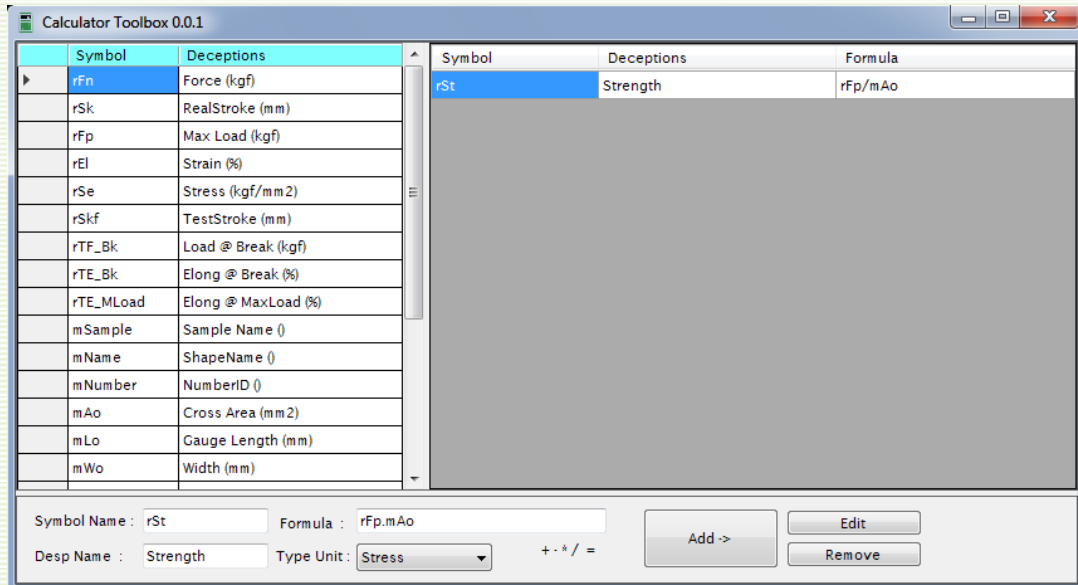
## Multi Display - Unit & Decimal Point



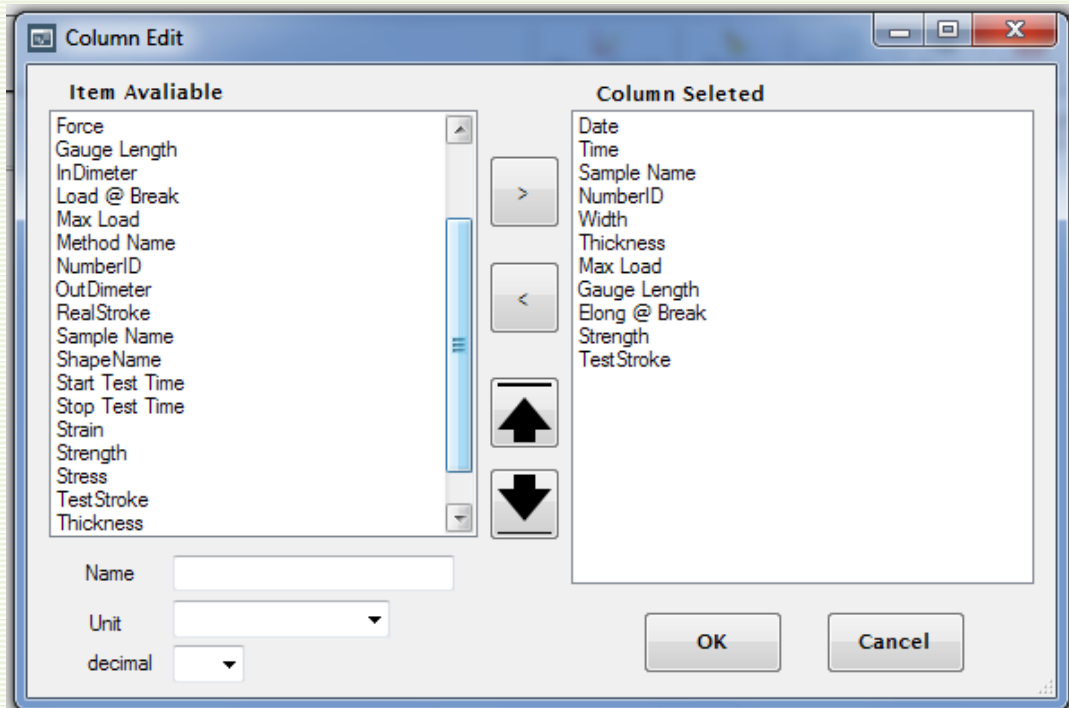
## Auto test setup & load protect



## Formula Design by user



## Selectable Result



Results can be color coded for immediate pass/fail recognition.

The screenshot shows the main software interface. At the top, there are several digital readouts (DROs) for Force, Max Load, RealStroke, TestStroke, and Strain, all showing 0.000. Below these is a 'Result Tables' section with a data table. The table has columns for Items, Date, Time, Max Load (N), Load @ Break (N), Sample Height (mm), Gauge Length (mm), and Elong @ MaxLoad (%). The first three rows are color-coded: green for pass and red for fail.

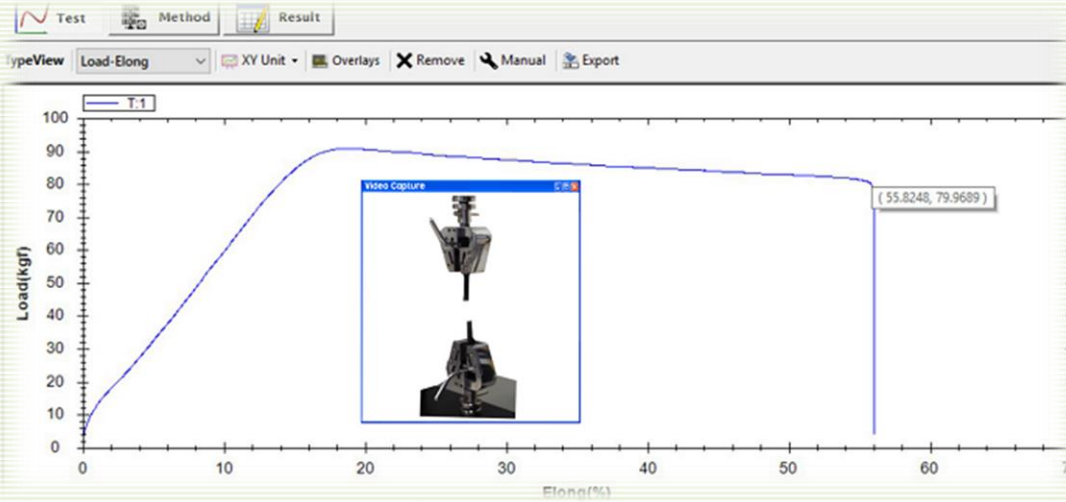
Items	Date	Time	Max Load (N)	Load @ Break (N)	Sample Height (mm)	Gauge Length (mm)	Elong @ MaxLoad (%)
1	16/9/2016	7:43:43 AM	11.5518	4.5594	183.0094	50.0000	114.1734
2	16/9/2016	7:44:02 AM	18.4136	6.1964	183.0094	50.0000	107.7579
3	16/9/2016	7:44:15 AM	11.5916	3.8266	183.0094	50.0000	116.1913
Min			11.5518	3.8266	183.0094	50	107.7579
Max			18.4136	6.1964	183.0094	50	116.1913
Mean			13.9657	4.8608	183.0094	50	112.7075
SD			3.8567	1.2133	0	0	4.4036
COV			27.6156	24.9611	0	0	3.9071

A 'Pass/Fail' dialog box is open, showing a 'Key' dropdown set to 'Max Load', a 'Min' field set to 11, and a 'Max' field set to 15. There is also an 'Auto Open when Test' checkbox and 'OK' and 'Clear' buttons.

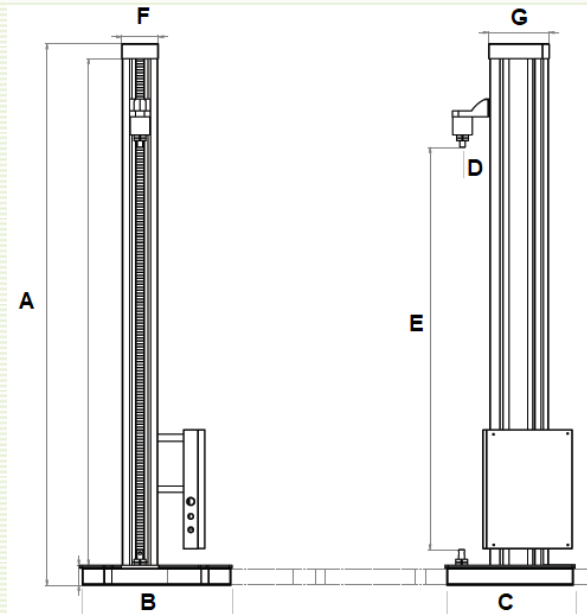
At the bottom right, there are control panels for 'Displacement', 'LoadControl', 'Stroke' (set to 10.000 mm), 'Speed' (set to 50.0 mm/min), and 'PreLoad (%)' (set to 0.010).

## Video and still capture

Video Capture and Synchronisation System enables UTM users to view 20fps video recordings frame by frame. it's a fantastic tool for teaching physical material test for those new to the field, or to help you gain a frame-by-frame understanding of your product strength.



## Dimension



	unit (unit)	MS1 Pro	MS1/LL	MS2 Pro	MS5 Pro
A	Machine Height	1078	1830	1078	1378
B	Machine Width	510	510	510	510
C	Machine Depth	440	440	440	440
D	Throat Depth	100	100	100	100
E	Crosshead Travel	560	1400	560	850
F	Column Width	120	120	120	120
G	Column Depth	200	200	200	200

### Ordering Information

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