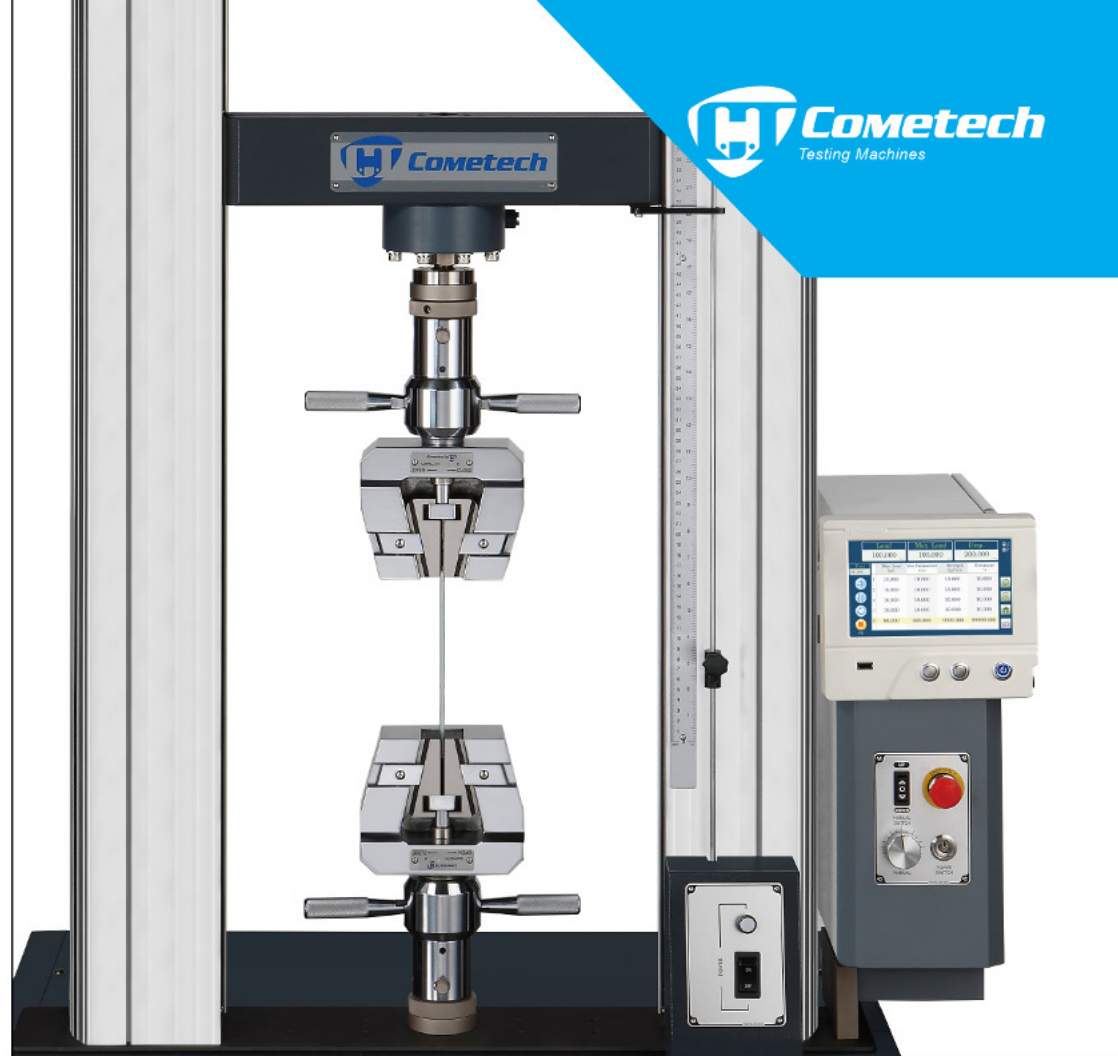




UNIVERSAL Testing Machine

萬能材料試驗機



ตัวแทนจำหน่าย Astro Instrument Co., Ltd.

Tel. 0-2716-3144

<https://www.astroinstrument.com>

Universal Testing Machine

萬能材料試驗機

Universal Testing Machine - Floor Type

落地型材料試驗機

Model (M1F / M2F)	50A	500	501	502	503
Capacity	600kN	500kN	300kN	200kN	100kN
Stroke	1500mm			1100mm	
Max. speed		330mm			375mm
Space Between Columns			550mm		
Dimension	155 x 85 x 295 cm	140 x 66 x 235 cm		120 x 60 x 220 cm	
Motor Type			Servo Motor		
Power Supply	3 phase 200V-240 V 70A	30A	20A	Signal phase 200~240 V 10A	

Universal Testing Machine - Floor Type

落地型材料試驗機

Model	QC-505M1F/M2F
Capacity	50kN
Stroke	1100mm
Max. speed	600mm/min
Space Between Columns	420mm
Dimension	105 x 60 x 195 cm
Motor Type	Servo Motor
Power Supply	Signal phase 200~240 V 8A

Universal Testing Machine - Tabletop

桌上型材料試驗機

Model	QC-506M1F	QC-506M2F
Capacity	20kN	20kN
Stroke	800mm	1200mm
Max. speed	830 mm/min	830 mm/min
Space Between Columns	425mm	425mm
Dimension	95 x 58 x 151 cm	95 x 58 x 151 cm
Motor Type	Servo Motor	Servo Motor
Power Supply	Signal phase 200~240 V 5A	Signal phase 200~240 V 5A

Universal Testing Machine - Tabletop

桌上型單柱材料試驗機

Model	QC-508M1F/M2F	QC-513M1F/M2F
Capacity	5kN	
Stroke	800mm	400mm
Max. speed	1000 mm/min	
Space Between Columns	Ø70mm	
Dimension	50 x 53 x 145 cm	50 x 53 x 100 cm
Motor Type	Servo Motor	
Power Supply	Signal phase 200~240 V 5A	



Universal Testing Machine - Tabletop

桌上型單柱材料試驗機

Model	QC-528M1F
Capacity	500N
Stroke	400mm
Max. speed	600mm/min
Space Between Columns	Ø55.2mm
Dimension	45 x 27 x 88 cm
Motor Type	Step Motor
Power Supply	Single phase 100 ~ 220VAC

Universal Testing Machine - Tabletop

桌上型材料試驗機

Model	QC-546M2F
	Standard Extended
Capacity	20kN
Stroke	850mm 1250mm
Max. speed	1000mm/min
Space Between Columns	425mm
Dimension	100 x 58 x 151 cm 100 x 58 x 190 cm
Motor Type	Servo Motor
Power Supply	Single phase 200V-240 V, 5A

Universal Testing Machine - Tabletop

桌上型單柱材料試驗機

Model	QC-548M2F
	Standard Extended
Capacity	5kN 2kN
Stroke	800mm 1100mm
Max. speed	1000mm/min
Space Between Columns	75mm
Dimension	50 x 53 x 145 cm 50 x 53 x 180 cm
Motor Type	Servo Motor
Power Supply	Single phase 200V-240 V, 5A

Universal Testing Machine - Horizontal Type

臥式拉力機

Model	QC-527M2F
Capacity	500N
Stroke	600mm
Max. speed	30,000mm/min
Dimension	125 x 44 x 71 cm

Optional Accessory

選用配件 | 0 | 1 | 2 |

Display 顯示器



Maximum kgf	Maximum mm	Maximum kgf/mm²	Maximum Elongation %
13.83	21.468	1.383	107.337
17.54	20.205	1.754	101.025
13.11	12.852	1.311	64.263
10.47	21.583	1.047	107.913
11.93	25.56	1.193	127.8
23	20.575	2.3	102.875
16.14	13.758	1.614	68.787
20.89	9.492	2.089	47.462
17.6	10.28	1.76	51.4
19.56	9.355	1.956	46.775

Data Table

	A	B	C
1	Load	Encoder	Time
2	N	mm	S
3	5.83	0.02	0.02
4	6.57	0.03	0.04
5	7.10	0.05	0.06
6	7.54	0.07	0.08
7	8.11	0.09	0.10
8	8.76	0.12	0.12
9	9.37	0.14	0.14
10	10.05	0.17	0.16
11	10.89	0.20	0.18
12	11.65	0.22	0.20
13	12.25	0.25	0.22
14	12.64	0.28	0.24
15	12.87	0.32	0.26
16	13.13	0.35	0.28
17	13.42	0.39	0.30
18	13.70	0.42	0.32
19	14.03	0.46	0.34
20	14.28	0.50	0.36
21	14.48	0.54	0.38
22	14.63	0.59	0.40
23	14.81	0.63	0.42
24	14.94	0.68	0.44
25	15.07	0.72	0.46
26	15.27	0.77	0.48
27	15.52	0.82	0.50
28	15.90	0.87	0.52
29	16.37	0.93	0.54
30	16.91	0.98	0.56

Raw Data

- Adopted with 7-inch of TFT Color touch screen.
採用7吋TFT彩色觸控式螢幕。

- Chinese, English, Japanese,
Three different languages can be selected.
中文、英文、日文三種語言可選擇。

- Test setting, can set test speed, test direction,
automatic position return, breaking point machine stop.
可進行測試設定、測試速度、測試方向、自動回位、斷點停機。

- Data analysis, can read the maximum force,
internal force, breaking point force and so on.
可進行資料分析、可讀取最大力量、區間力量、斷裂點力量...等資訊。

- Over-travel, overload protection and overtime machine stop.
可進行超行程、超容量保護、超時間停機。

- Can store up to 50 data, USB storage data function.
最多可儲存50筆的資料、亦有USB儲存資料功能。

Software 軟體



M1F-Software

Data sampling rate can be set up to 400Hz
資料擷取頻率最高可設定至400 Hz

Operation method : Conduct test by mouse or keyboard,
can also adjust the cross arm by up-down button.

操作方式：由鍵盤、滑鼠操控測試，亦可由機台快速升降鍵調整夾具位置。

Has multiple languages including Chinese, English, Japanese, Korean, Spanish and Polish.
具有、英、日、韓、西班牙、波蘭文顯示。

Flexible form, can arrange data analysis you want.
表格彈性化，可自行規劃分析資料。

Can select to show test data, graphics or simultaneously on test screen.

測試畫面可選擇資料顯示、圖形顯示或同時顯示。

Various testing steps, e.g. holding while
tensile/compression, can set up 10 steps of action.
多樣化的測試動作，Ex. 持拉(壓)，10 段動作變化。

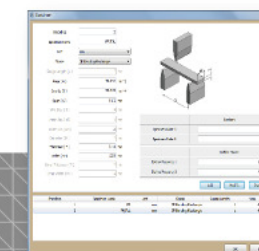
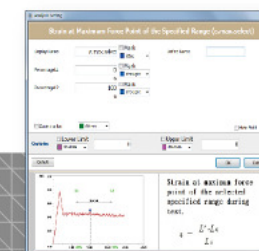
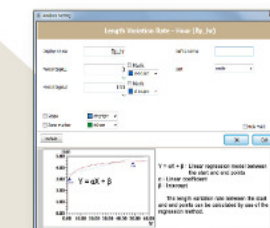
Various testing steps, e.g. reciprocation, creep, holding
while tensile/compression, test pause, slip test, etc.
多樣化的測試動作，Ex. 往復蠕變、持拉(壓)、測試暫停、滑移測試等.....

Modularized sample settings, can easily set up sample info.

試片設定模組化，提供方便簡易的試片設定。

Modularized test conditions, reduce human errors when setting up.

測試條件模組化，減少人為設定的疏忽與誤差。



Anti-Collision Function

荷重元安全機制



Anti-Collision Function

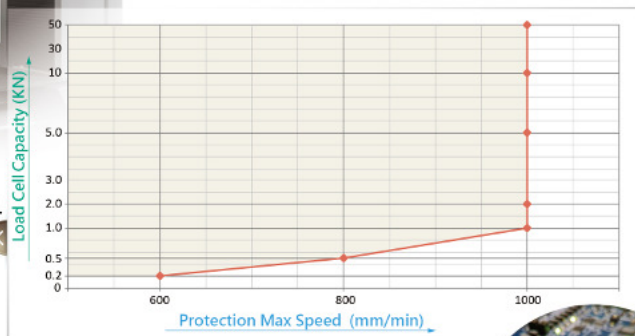
荷重元保護系統

As the machine moves faster, the impact energy upon collision may damage the load cell. ComeTech system provides real-time monitoring on the state of force, it will shut the machine down when collision happened to greatly reduce the force on impact and prevent the load cell from being damaged.

系統「監控」即時的力量狀態，隨著機台移動速度越快，撞擊時的衝擊能量可能造成荷重元損壞，「荷重元保護系統」的建立，在撞擊發生瞬間啟動停機，可大幅降低衝擊力量，防止荷重元損壞。

This chart is result from specific model and sensors for your reference.

本圖表為指定機型及配合感應器呈現之狀態，提供參考。

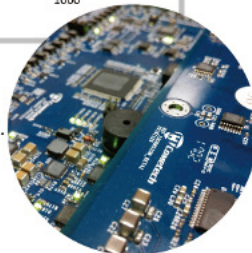


Initiative

主動

ComeTech's independent R&D controller has faster data processing speed, providing initiative on real-time state of force. Giving our machines the fastest response for Anti-Collision Function.

荷重元保護系統，搭配ComeTech自主研發控制器，具備快速資料處理能力，主動掌控即時力量狀態，給予機台最快速的反應。



Transmission

傳動

ComeTech enhances dynamic performance on universal testing machines. Not only does this make shutdown process more stable, but it also improves machines' rigidity.

ComeTech拉力機強化動態效能，讓停機狀態更加穩定，同時兼顧機台剛性。

Analyzation

分析

We adopt quick and effective way to filter out errors and invalid signals for accurate data analysis.

數據分析上，我們採用快速且有效的判斷，過濾錯誤與無效訊號。

$$W = Fd = mad = ma \left(\frac{V_2^2 - V_1^2}{2a} \right) = \Delta E_k, d = \frac{V_2^2 - V_1^2}{2a}$$

$$W = \int_{x_1}^{x_2} F \cdot dx = m \int_{v_1}^{v_2} v \cdot \frac{dv}{dt} \cdot dt = \frac{1}{2} m (v_2^2 - v_1^2)$$

Anti-Collision Function can prevent load cell from crashing in 90% of collisions cause by human errors during testing. All load cells above 50 kg can be benefit from this protection. Exceptions may occur due to various testing methods.

此機制防範90%操作錯誤時所發生撞機情形，可以保護荷重元不因撞擊力量過大而損毀，選用專用50公斤以上荷重元皆能有此防護能力，但測試撞擊多元仍可能出現保護外情形。

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D1

Universal Testing Machine

萬能材料試驗機



Universal Testing Machine - Floor Type

落地型材料試驗機

Model	QC-505D1
Capacity	30kN
Stroke	1100mm
Max. speed	400mm/min
Space Between Columns	420mm
Dimension	90 x 60 x 195 cm
Motor Type	DC Motor
Power Supply	Single phase 110V or 240 V

Universal Testing Machine - Tabletop

桌上型材料試驗機

Model	QC-506D1
Capacity	20kN
Stroke	800mm 1200mm (Lengthened)
Max. speed	650 mm/min
Space Between Columns	425mm
Dimension	95 x 58 x 151 cm 95 x 58 x 190 cm
Motor Type	DC Motor
Power Supply	Single phase 110V or 240 V



Universal Testing Machine - Tabletop

桌上型單柱材料試驗機

Model	QC-508D1	QC-513D1
Capacity	800mm	5kN
Stroke	400mm	
Max. speed	1000 mm/min	
Space Between Columns	Ø70mm	
Dimension	50 x 53 x 145 cm	50 x 53 x 100 cm
Motor Type	DC Motor	
Power Supply	Single phase 100 ~ 240 V	



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Interface introduction

介面介紹

Display 顯示器 (標配)

- Adopted with 7-inch of TFT Color touch screen.
採用7吋TFT彩色觸控式螢幕。
- Chinese, English, Japanese,
Three different languages can be selected.
中文、英文、日文三種語言可選擇。
- Data Display: Force, Stress, Torque,
Displacement, Time.
數據顯示: 力量、壓力、扭力、位移、時間
- Can be calibrated in stand-alone mode.
可用單機模式進行校正。
- Can do hardware setting, testing setting, unit setting,
data setting, protection setting, graph setting.
可進行硬體設定、測試設定、單位設定、資料設定、保護設定、曲線圖設定。
- Unit selection can be Metric unit, Imperial units of variety changed.
公、英制單位切換。
- Can store up to 50 data.
最多可儲存50筆的資料。
- Can switch between curves or data tables.
可以切換測試曲線與測試資料表格。

Can output Raw Data and Data Table through USB.
USB可以輸出Raw Data(原始資料)與Data Table(資料分依表格)

Maximum kgf	Maximum mm	Maximum kgf/mm ²	Maximum Elongation %
13.83	21.468	1.383	107.337
17.54	20.205	1.754	101.025
13.11	12.852	1.311	64.263
10.47	21.583	1.047	107.913
11.93	25.56	1.193	127.8
23.75	20.575	2.3	102.875
16.14	13.758	1.614	68.787
20.89	9.492	2.089	47.462
17.6	10.28	1.76	51.4
19.56	9.355	1.956	46.775

Data Table

	A	B	C
1	Load	Encoder	Time
2	N	mm	S
3	5.83	0.02	0.02
4	6.57	0.03	0.04
5	7.10	0.05	0.06
6	7.54	0.07	0.08
7	8.11	0.09	0.10
8	8.76	0.12	0.12
9	9.37	0.14	0.14
10	10.05	0.17	0.16
11	10.89	0.20	0.18
12	11.65	0.22	0.20
13	12.25	0.25	0.22
14	12.64	0.28	0.24
15	12.87	0.32	0.26
16	13.13	0.35	0.28
17	13.42	0.39	0.30
18	13.70	0.42	0.32
19	14.03	0.46	0.34
20	14.28	0.50	0.36
21	14.48	0.54	0.38
22	14.63	0.59	0.40
23	14.81	0.63	0.42
24	14.94	0.68	0.44
25	15.07	0.72	0.46
26	15.27	0.77	0.48
27	15.52	0.82	0.50
28	15.90	0.87	0.52
29	16.37	0.93	0.54
30	16.91	0.98	0.56

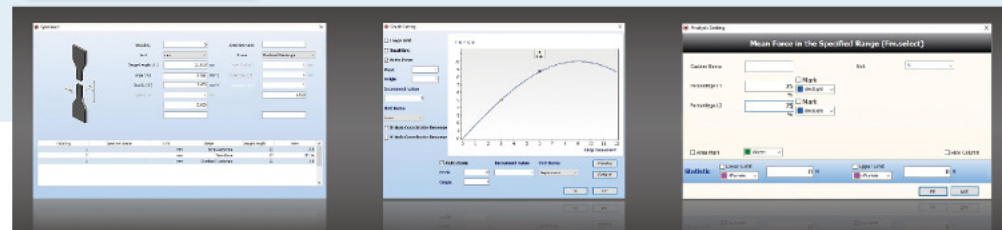
Raw Data

Software 軟體 (選配)

- Data sampling rate can be set up to 1200Hz
資料擷取頻率最高可設定至1200 Hz
- Operation method:
Full-computerized control to run the test or Jog button control.
分析資料、不可操控機台。
- Software has multi-languages.
彩色畫面並具中文、英文、日文、簡體中文、韓文、西班牙文顯示。
- Multi-curves display and real-time plot.
操作畫面可多次測試數據同時顯示。
- Testing screen is selective to display data,
graph at the same time.
測試畫面可選擇資料顯示、圖形顯示或同時顯示。
- Tensile test, compression test, bending test, peel test.....
可測試抗拉、抗壓、彎曲、剝離等試驗.....

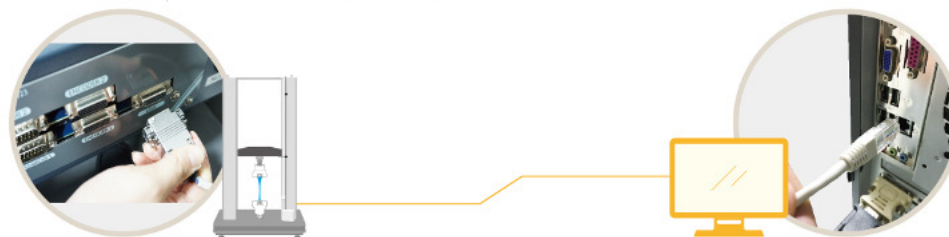


- Curves modifying:
Curve mode and X, Y axis is editable, e.g. force-displacement, force-time, stress-strain, etc.
曲線切換: 力量—位移、力量—時間、應力—應變.....等、曲線模式。
- Data Analysis:
Hundreds of Analysis is accessible.
資料存取: 超過上百種資料分析
- A variety of built-in sample shapes:
Include squares, rounds, concentric, dumbbells, flexural, etc.
多種內建試片形狀: 方形、圓形、同心圓、啞鈴狀、抗彎等試片形式。



Data Transmission 傳輸形式

- Connection method:
Through TCP/IP RJ 45 network connection, the signal acquisition is faster and more stable.
連線方式: 以TCP/IP RJ 45網路連線, 訊號擷取更快速穩定。



Load Cell Features 荷重元特色

- Easily install/uninstall, only need hexagonal wrench to process.
拆換容易, 只需要六角板手即可卸下。
- Our load cell has a dedicated chip to memorize the load cell parameters and status.
荷重元有專屬晶片, 記憶該荷重元參數與狀態。
- No need to calibrate load cells before using it every time.
荷重元隨插隨用, 不需另行校正。
- No limits on the number of different load cells on one machine.
可更換荷重元數量無限制。



QC-551 Long Extensometer

兩點延伸器 (長延伸器)

QC-551 Long extensometer is suitable for higher than 20% of elongation of rubber, plastic, PE, fabric, webbing of material which are high elongation measurement accessories.

The specimen usually made dumbbell-shape.

The extensometer can link with Cometech machine and auto-detect the deformation of the test piece during the test.

QC-551 長延伸器適用於延伸率高於30%如橡膠材料、塑膠、PE類、布類、織帶類等高延伸性材料伸長率量測時使用的重要配件，通常會將試片作成啞鈴狀，延伸器可與COMETECH生產的機台連結並自動偵測試片測試過程中之變形量。

Type 型式	S標準型 standard	L加長型 extended
Resolution 解析度	0.025mm	
Test stroke 量測行程	700mm	1100mm
Gauge length 標點長度	10~50mm	
Thickness of specimen 試片厚度	0.2~6mm	
Signal 使用訊號	A B phase signal (A B相訊號)	
Installation 安裝型式	Fixed or revolving type 固定支架/旋轉支架任選	

QC-557 Short Extensometer

金屬短伸長計

QC-557 Short extensometer can measure metal, hard plastic of less than 50% elongation of material deformation.

During test, it can measure complete test deform rate and do not dismantle it when during the test.

When the specimen gauge length is longer or elongation rate is bigger, customized longer extensometer is also available.

QC-557 短延伸器可量測金屬、硬質塑膠等延伸率低於100%的材料變形量，測試過程中可量測完整的測試變形率不需中途拆下延伸器，當試片標點距離更大或延伸率更大時也可以另行訂做加長型成的延伸器。

Gauge Length 標點長度	25mm / 50mm (switchable two gauge length) 25mm / 50mm (可更換2個標點長度)
Elongation 延伸率	100% (at 25mm) / 50% (at 50mm) 100% (25mm時) / 50% (50mm時)
specimen thickness 可夾持試片厚度	0-22mm and round specimen dia. 6-22mm 0-22mm 圓型試片直徑6-22mm
Resolution 解析度	0.5μm
Output signal 輸出訊號格式	DC single-ended output/A, B differential output DC單端輸出 / A, B相差動輸出
Max output frequency 最大輸出頻率	64KHZ
Input voltage 入力電壓	DC5V±5%

■ With flat grip and round grip of accessories.
可直接測試到試片斷裂再拆除不需測試中拆除。

■ Can do test until the specimen broken and do not dismantle it.
長平板夾具和圓型夾具配件。

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Grips

夾具

■ There are also a variety of fixtures to choose from.
另有多種夾具可供選擇。



GR-B04
90° peel grips



GR-D02
Miniature Tensile Grip



GR-J02
Webbing Grip



GR-E08
Large Circular Bollard Grip



GR-G04
Spring Grip



GR-F01
Wedge Grip



GR-H17
Pneumatic Grip



GR-C01
3 point bend/flexure



GR-G060
Compression Grip



GR-J010
Heavy Duty Belt Grip



GR-D030
High Force Wedge Grip



GR-H040
Hydraulic Grip

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