

二輪車起動馬達特性測試設備

Motorcycle Starting Motor Performance Testing Equipment



一、前言：

本系統是一套自動化扭力計，用來試驗機車起動馬達特性，藉由控制馬達負載，快速地擷取電壓、電流、輸入功率、輸出扭力及馬達轉速，再經由電腦快速演算出相關數據，並且將所資料儲存於硬碟之中，以作為生產馬達時判定之重要依據。本設備適用於機車起動馬達生產線負載特性測試。

◆ Introduction：

This is automatic test equipment for motorcycle starting motor performance, controlling the load of motor, then gather all data of each point at same time to calculate and save to hard-disk as important information for motor production. Those data includes voltage, current, input wattage, torque and rpm. This equipment is applicable for performance test of motorcycle starting motor on production line.

二、測試項目：

1. 線上檢驗：自動連續測試無載、滿載、堵住三點，並自動依電腦設定之上下限自動判斷 OK/NG，測定值可儲存。
2. 定點測試：分別測試負載、無載、堵住。
3. 連續取值：由無載至負載多點測試、負荷特性曲線繪製及列表。
4. 電瓶壓降設定功能：自動模擬電瓶內阻壓降。

◆ Test item：

1. Test on production-line: Test load, no load and lock test automatically. And judge the OK/NG automatically according to the limits set on the computer, which the test data could be saved.
2. Fixed- point mode test: Test load, no load and lock test separately.
3. Gather value continuously: Performance curve would be graphed and listed according to test values of no load to load.
4. Simulate battery voltage drop setting: Simulate internal resistance of battery voltage drop automatically.

三、測試範圍：

1. 扭力：最大 10kg.cm，精度 $\pm 0.2\text{kg.cm}$ (依客戶需求)
 2. 轉速：最高 20000rpm，精度 $\pm 100\text{rpm}$ (依客戶需求)
 3. 電壓：0~15V，精度 F.S. $\pm 0.5\%$ (依客戶需求)
 4. 電流：0~150A，精度 F.S. $\pm 0.5\%$ (依客戶需求)
- 註：控制穩定度：1~10kg.cm $\pm 2\%$

◆ Test range：

1. Torque: Maximum 10kg.cm, accuracy $\pm 0.2\text{kg.cm}$ (Per customer's requirement)
 2. Rotation speed: Maximum 20000rpm, accuracy $\pm 100\text{rpm}$ (Per customer's requirement)
 3. Voltage: 0~15V, accuracy F.S. $\pm 0.5\%$ (Per customer's requirement)
 4. Current: 0~150A, accuracy F.S. $\pm 0.5\%$ (Per customer's requirement)
- Note: Control stabilization: 1~10kg.cm $\pm 2\%$

四、主要組成：

1. 測試工件馬達(由 貴公司提供)
2. 直流電源供應器
3. 輸入電力量測系統
4. 扭力及轉速量測系統
5. 負載控制系統
6. 測試馬達安裝治具
7. 資料擷取及管理系統

◆ Components

1. Test piece (Supplied by customers)
2. DC power supply
3. Input power measure system
4. Torque and speed measure system
5. Load control system
6. Fixture for test piece
7. Data acquisition and processing system

五、設備構成：

1. 磁滯式煞車器
2. 轉速及扭力檢出器及顯示器
3. 無載轉速檢出器
4. 測試機構及治具
5. 直流電源供應器
6. 分離式工業電腦

◆ Equipment composition

1. Hysteresis brake
2. Torque and speed detector and converter
3. No-load speed detector
4. Test bench and fixture
5. DC power supply
6. Industrial type computer

六、測試數據及曲線圖：

◆ Performance data and graph

Prod. Report

Prod. Report

Tcmd Name chuyi

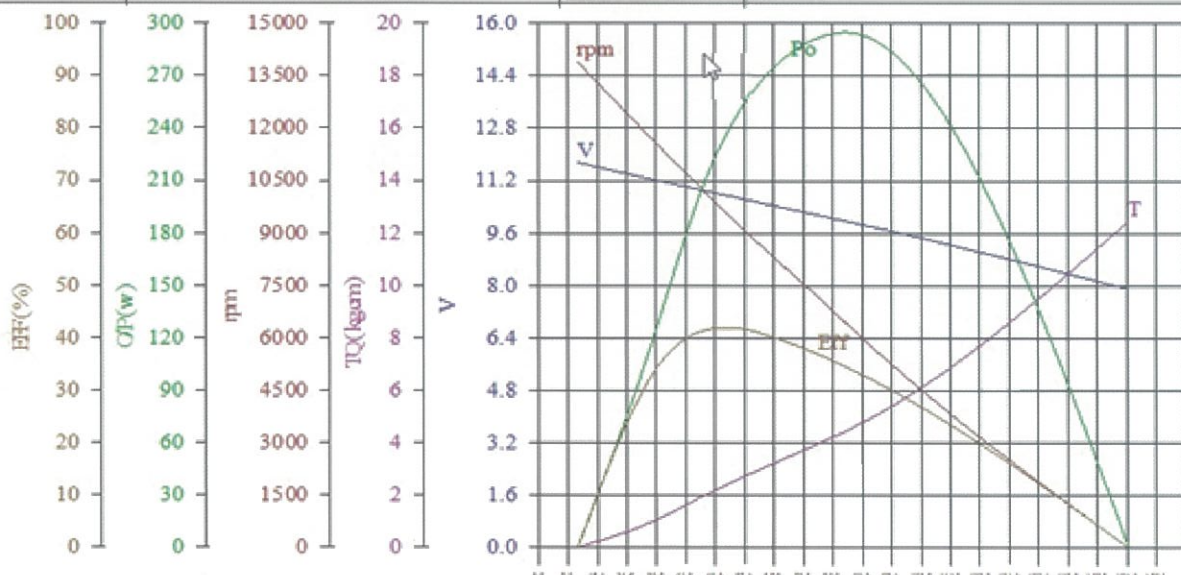
Base Name chuyi

Serial No	27	Decision	Pass	Test Date	3/14/2017	Test Time	4:07:57 PM		
Cat.	Load	(V) Volt.	(A) Amp.	(W) Input	(kg-cm) TQ	(rpm) rpm	(W) Output	(%) Eff	Decision
Lock	0.00	7.05	198.1	1396.0	12.40	0	0.0	0.0	Pass
Load	5.00	9.72	96.2	934.5	4.89	6641	333.5	35.7	Pass
Load	4.00	10.13	78.8	798.0	3.98	7952	324.9	40.7	Pass
Load	3.00	10.55	60.9	642.6	2.99	9405	288.3	44.9	Pass
NoLoad	0.00	11.33	14.9	168.9	0.00	12869	0.0	0.0	Pass

GRAPH XXX

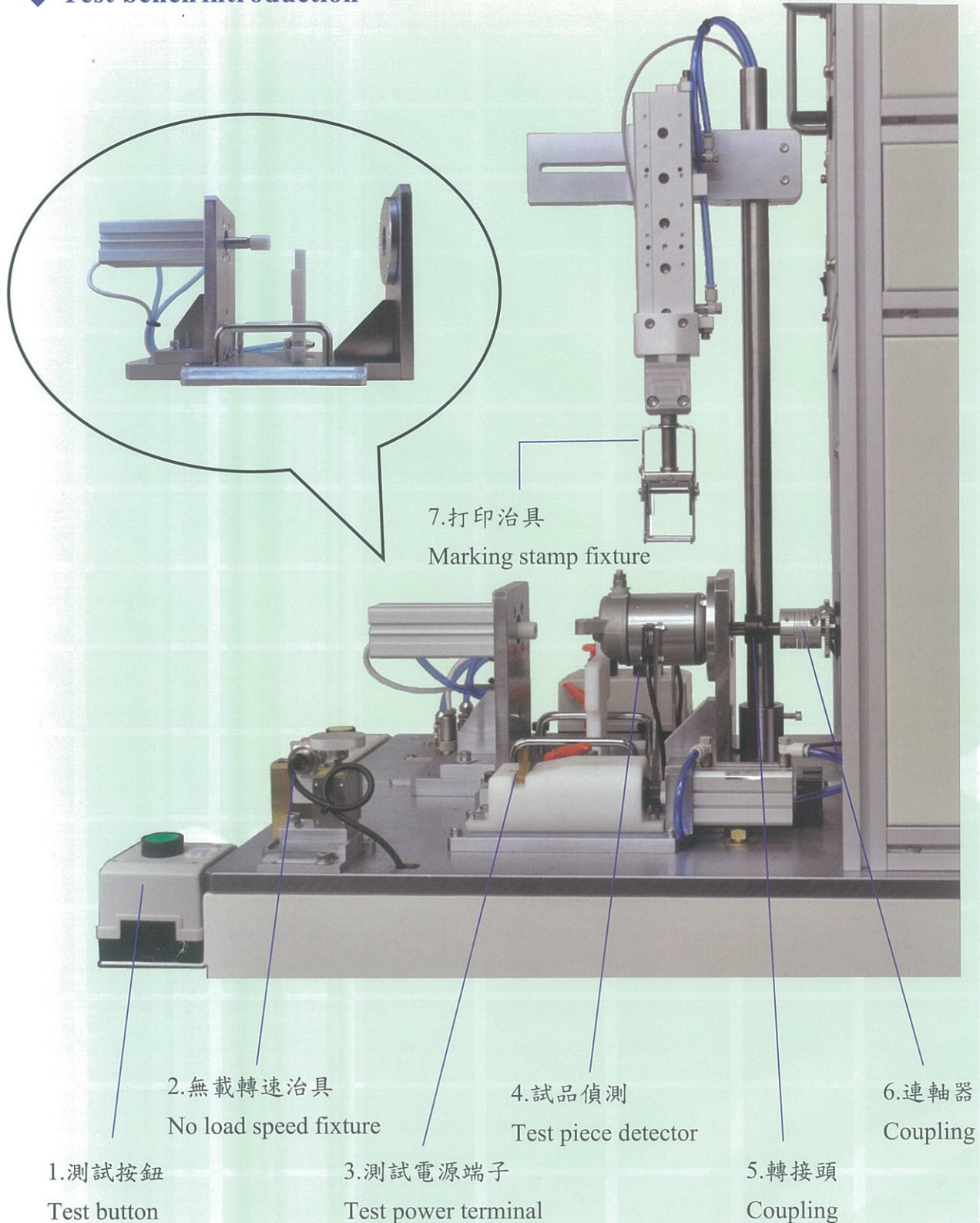
Graph Report

Tcmd Name	chuyi	Base Name	chuyi		
Motor Cat.	STARTERMOTOR	Motor Name	123		
Q Name	20170314-01	Test Date	3/14/2017	Test Time	4:02:11 PM
Batt.Type	MFH 40A	Bat.Volt	12 V	Bat.Resis	0.025 Ω
Gear Ratio	1 / 1	Inner Gear Ratio	1	Gear Eff	1
Load Value	5 ~ 1 kg.cm	Test Points	5		



七、測試機台介紹：

◆ Test bench introduction



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