

無刷直流馬達 Cogging Torque 量測設備

BLDC Motor Cogging Torque Test Equipment



一、前言：

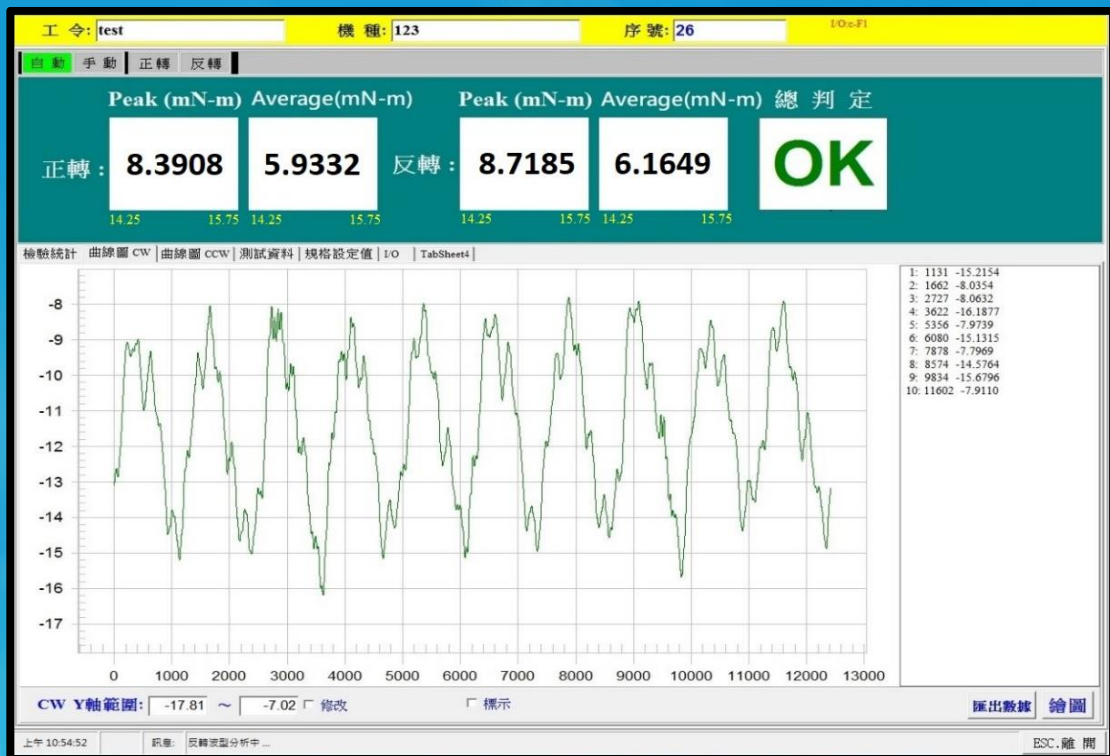
齒槽扭力(Cogging Torque)會使電機扭力及轉速波動，產生振動和噪音，使電機不能平穩運轉，影響電機的性能。在變速驅動中，當扭力脈動頻率與定子或轉子的機械共振頻率一致時，齒槽扭力(Cogging Torque)產生的振動和噪音將被放大。齒槽扭力(Cogging Torque)的存在同樣影響了電機在速度控制系統中的低速性能和位置控制系統中的高精度定位。

故齒槽扭力(Cogging Torque)對 BLDC 電機設計者是非常重要的參考數據，以便減低齒槽扭力，提高電機的性能及減低振動和噪音。

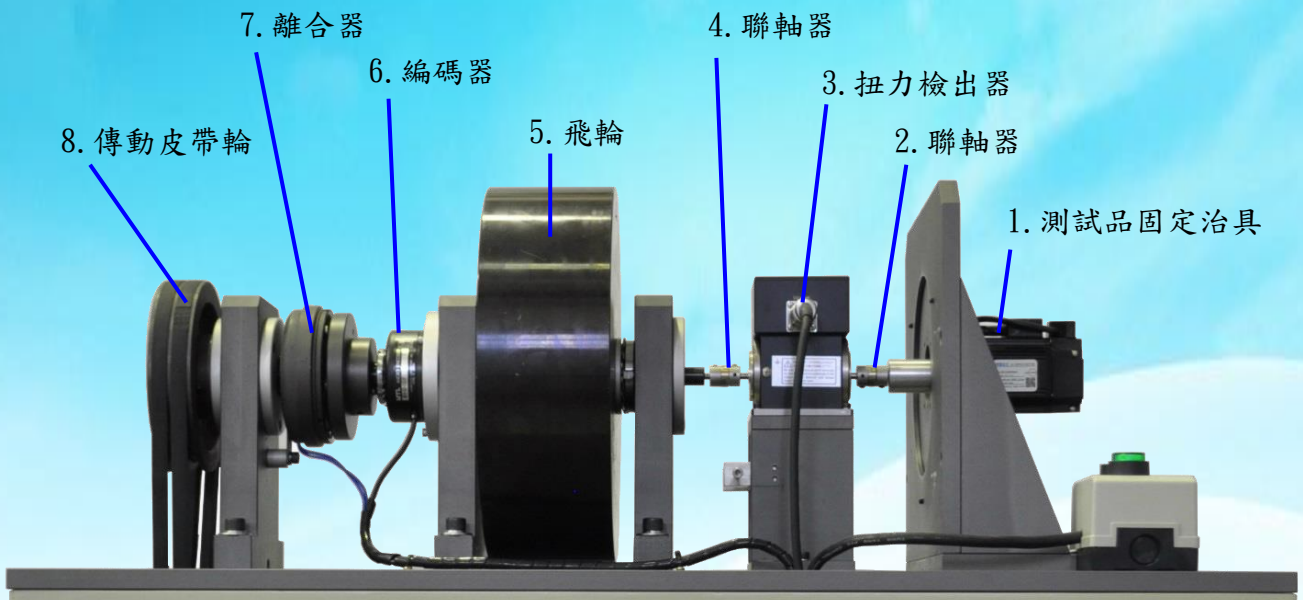
本設備是針對量測 BLDC 馬達的齒槽扭力(Cogging Torque)而設計製造，可作為研發者的設計參考及生產線的品質管理。

二、測試項目：

- 1.正、逆轉齒槽扭力漣波對應角度的關係。(Cogging Torque VS Rotation Angle)
- 2.正、逆轉齒槽扭力漣波的最大值。(Peak Cogging Torque)
- 3.正、逆轉齒槽扭力漣波的平均值。(Average Cogging Torque)



三、測試機台介紹：



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Motor Cogging Torque Test Equipment



I. Introduction

Cogging torque would cause the fluctuation of motor torque and speed which generate the vibration and noise, thereby, motor could not operate smoothly and the performance of motor would be affected. Under driving with variable-speed, the vibration and noise generated by cogging torque would be amplified while the frequency of torque ripple coincides with the mechanical resonance frequency of the stator or rotor. Also, cogging torque would affect the low-speed performance under speed control system and high-accuracy under position control system of motor

To reduce vibration and noise and improve the motor performance, cogging torque would be a very important reference data for motor designer

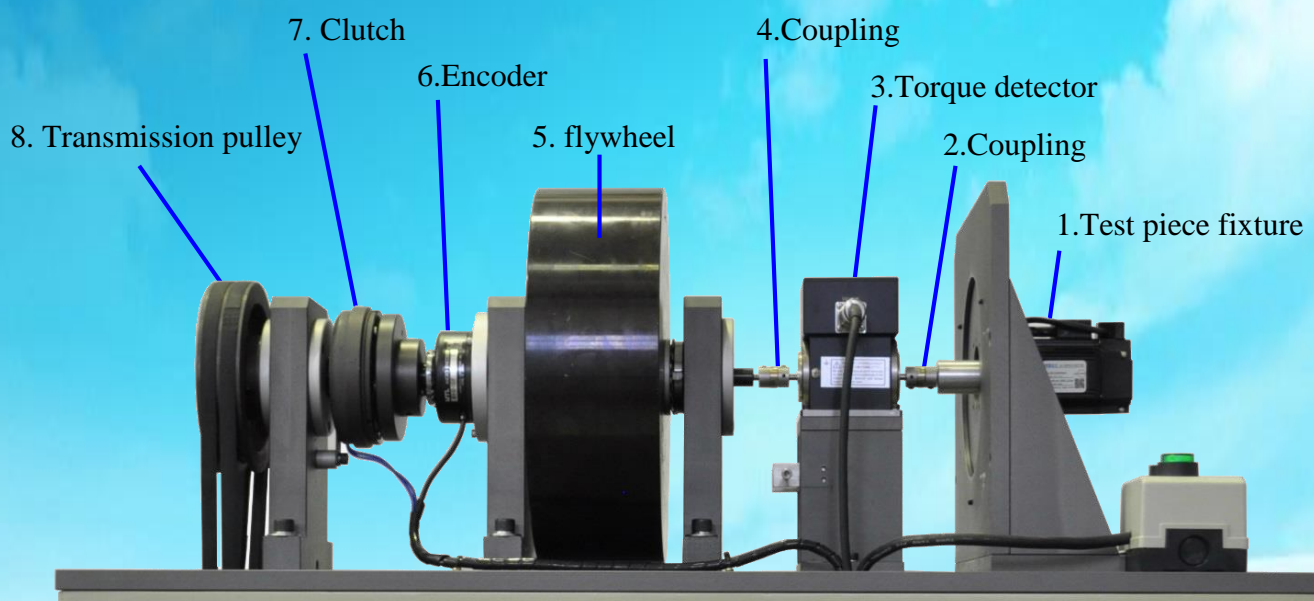
This equipment could be applied on measure the cogging torque of motor as design basic for R&D and quality management for production-line.

II. Test item

1. The relevance between cogging torque ripple and rotational angle of forward and reverse rotation
2. The peak cogging torque ripple of forward and reverse rotation
3. The average cogging torque ripple of forward and reverse rotation



III. Mainly test parts



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