

INVESTIGATION OF THE STARTING TORQUE
OF
SINGLE-PHASE CAPACITOR-START INDUCTION MOTOR
BY VARYING CAPACITANCE OF
STARTING CONDENSER

by

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ABSTRACT

This thesis deals with the investigation of the starting torque of single-phase capacitor-start induction motor at various starting capacitances.

The investigation of the starting torque was performed using three methods. The first method of investigation was to calculate the starting torque from the motor equivalent circuit. The motor equivalent circuit was obtained from no-load test and locked-rotor test. The second method of investigation was to calculate the starting torque from actual measurements. The starting torque was obtained by multiplying the torque arm length by the reading on the balance. The third method of investigation was to calculate the starting torque from the motor physical parameters. The motor physical parameters were obtained by disconnecting the motor into parts.

The results obtained from these three methods of investigation, when compared, were quite satisfactory. Some errors which occurred were discussed.

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หัวข้อวิทยานิพนธ์ .. การหาสสารตั้งทอรัคของอินคัทชั้นมอเตอร์ เฟส เกี่ยวว. แบบแคปแปซิเตอร์ ..
..... สสารท โดย เปลี่ยนค่าสสารทตั้งคอน เคน เซอ ..
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บทคัดย่อ

วิทยานิพนธ์ฉบับนี้ ว่าด้วยการตรวจหาและทดสอบการ เปลี่ยนแปลงค่าของสสารทตั้งทอรัค
ของอินคัทชั้นมอเตอร์ แบบแคปแปซิเตอร์สสารทที่ค่าต่าง ๆ ของสสารทตั้งแคปแปซิแทน

การตรวจหาได้กระทำโดยวิธีต่าง ๆ สามวิธี คือโดยการคำนวณหาจาก อีคิววาเลน
เซอคิท ซึ่งได้มาจากการทำโนโอด เทส และ ลอกรโเตอร์ เทส โดยการวัดสสารทตั้งทอรัค
จริง ๆ ของมอเตอร์ โดยใช้เทอร์คอร่าม และเครื่องชั่ง และโดยการร้อมมอเตอร์ออกเป็น ส่วน ๆ
เพื่อวัดขนาดโคยละเอียดของส่วนต่าง ๆ ของมอเตอร์ที่เกี่ยวข้องกับทอรัคและตรวจดูลักษณะการพันของ
ขดลวดต่าง ๆ แล้วนำผลที่ได้รับมาคำนวณหาสสารทตั้งทอรัค ที่ควรจะได้รับตามทฤษฎี

เมื่อนำผลของการตรวจสอบทั้งสามวิธีมาเปรียบเทียบปรากฏว่า ผลลัพธ์ที่ได้มีความ
แตกต่างกันบ้างเล็กน้อย และสาเหตุของความแตกต่างได้ถูกนำมาวิเคราะห์โดยละเอียด

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