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INDUSTRIAL ENGINEERING

# # : MAJOR

KEY WORD: CYLINDRICAL GRINDING / SURFFACE ROUGHNESS / ROUGHNESS AVERAGE / THE MICRO GRINDING FEED RATE / THE FEED STOP AFTER MICRO GRINDING

SURASIT THONGTAWEECHAIYAKIJ : INFLUENCE OF FEED RATE AND WORK SPINDLE SPEED IN EACH STEP OF CYLINDRICAL GRINDING PROCESS (ON CENTER) ON THE SURFACE ROUGHNESS. THESIS ADVISOR: ASST. PROF. PARAMES CHUTIMA, Ph.D. THESIS COADVISOR: ASSOC. PROF. SOMCHAI PUANGPERKSUK. 86 pp. ISBN 974-332-758-4.

This thesis is focused on the effect of cutting condition on surface roughness (roughness average (Ra)) in each step of cylindrical grinding process (on center). After the experiment and analysis of variance, it is found that the parameters which affect on roughness average are micro grinding feed rate (D), feed stop after micro grinding (E) and interaction between the both (DE) at 0.05 level of significance. As  $F_0=29.76$ , It is found that E has greatest effect, when use low level of E (E=-1) or when use longer feed stop after micro grinding. Which contribute to lower Ra. Also, D has effect on Ra as well. D affects lay of finished surface before feed stop after micro grinding. Therefore, if D were high or fast, it would cause deep lay, which is resulted from abrasive. If E is not long enough for other abrasive to clean top of lay. This leads rough surface or on the other words, high Ra. The result of experiment indicates that when controlling the micro grinding feed rate and the feed stop after micro grinding at appropriate level, the grinding time of specimens can be reduced to 31.58 percent. Consequently, comparing between results from the experiment and those from regression equation, there is about 95.24% accuracy.

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ลายมือชื่ออาจารย์ที่ปรึกษา

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม