

## SUMMARY

**Mohamad Derry Afandi**, *Department of Mechanical Engineering, Faculty of Engineering, University of Brawijaya, December 2016, effect of Pitch Size on Vertical Rectangular Rib Turbulator Against Fluid Flow, Academic Supervisor: Denny Widhiyanuriyawan and Suharto.*

*Solar water heater is more effective by changing the flow of fluid to form turbulent as the research conducted by rahmat (2016) who have studied the effect of adding turbulator on the installation of solar water heater doubles plates, the turbulator increase the heat transfer coefficient with increasing vortex that occurs in fluid from the solar water heater, but there is no specifically research about the use of the turbulator, the expect from this study is we can determine the characteristics of the flow pattern.*

*The variation that used in this study is the width of the pitch of the turbulator of 10mm, 15mm, 25mm with a gap to height ratio  $<1$ ,  $>1$ , and  $= 1$ . The tilt angle of turbulator installation is  $0^\circ$ ;  $10^\circ$ ;  $20^\circ$ ;  $30^\circ$ ;  $40^\circ$ ;  $50^\circ$ ;  $60^\circ$ ;  $70^\circ$ ;  $80^\circ$ ;  $90^\circ$  and Reynolds number is 846 and 1411. In this study we can determine the number of loopholes that visualized with dyes and also the vortex forms when it visualized.*

*The results showed that higher Reynolds number make percentage of the gap that visualized decreased, the widening gap in tubulator create eddies tend elliptic shape and evolving enlarged while the narrower pitch made into a vortex shape resembles a circle and small size. In this study, the percentage of the gap that visualized a significant decrease when angle reaches  $90^\circ$  and occurred dye leap phenomenon on turbulator with  $w/k < 1$  and 10mm pitch.*

**Keywords:** *Vertical Rectangular Rib Turbulator, Vortex, Visualized, Gap To Height.*