

ABSTRACT

The rocks in the earth having the nature and different characteristics, ranging from how of rocks formed and where rocks deposited. The existence of a discontinuous in the rock mass result shear strength reduce (Kartini et all, 2015). The condition roughness of the discontinuous is classified based on equation empirical Barton (1977) using Joint Roughness Coeficient (JRC) parameter.

Research was conducted on limestone taken from Bayat Distric area, Klaten Regency, Central Java Province. Testing of the shear plane and digitizing the roughness on the diaklas limestone. The result of testing thin slices classifying limestone are packstone, after Dunham 1962.

JRC value of limestone with smooth nearly planar roughness based on roughness profiles has a value range from 4-6 and the references given by ISRM (1981) with category III or slickensided stepped. Whereas the limestone with smooth surface has JRC value ranging from 12-14 is category IV or rough/irregular undulating. For limestone with rough surface JRC value around 14-16 with roughness profile has category IV or rough/irregular undulating. The results of direct shear testing, shear plane with a rough surface the cohesion value is greater than smooth surface and smooth nearly planar. Rough surface (rough), cohesion values and internal angle of friction area 185,14 kPa and 18,28°; Smooth surface 179,96 kPa and 6,82°; Smooth nearly planar 103,37 kPa and 5,77°. Based on the research it can be concluded that shear stress in Mohr-Coulomb criteria are among the Barton and Patton criteria, except the group of sample a smooth nearly planar. Because that, Barton includes roughness parameters such as JCS and JRC that are ignored in Mohr-Coulomb. Through the results of this analysis it can be concluded that as a criterion that takes into the influence of roughness, shear strength, that Barton criteria are more presentative in showing shear strength and roughness parameters compared to Mohr-Coulomb. And Barton criteria can also show that the cohesion parameters in the discontinuous field are better than those of Patton, which actually ignores these parameters.