

## INTISARI

Struktur bangunan umumnya hanya memperhatikan kekakuan dan kekuatan pada bangunan. Terdapat satu faktor yang harus diperhatikan yaitu memiliki daktilitas yang tinggi. Daktilitas beton artinya kekuatan beton mampu berdeformasi yang cukup besar. Peneliti mencoba menambahkan serat berupa potongan kawat galvanis karena bersifat elastis dan fleksibel.

Benda uji berupa balok beton ukuran 15 x 20 x 120 cm dengan tulangan pokok 4 $\phi$ 8 dan sengkang  $\phi$ 6-150, untuk variasi beton normal (0%); 1mm; 1.5mm; dan 2mm, 2% dari berat semen, dengan beberapa pengujian yaitu kuat lentur daktilitas balok beton, tarik belah silinder beton, kuat tekan silinder beton, daya serap beton, dan berat jenis beton, pada umur beton 28 hari.

Pengujian daktilitas balok beton dengan serat kawat galvanis tidak lebih besar dibanding beton normal, 0%; 1mm; dan 2mm dengan hasil analisis berturut-turut 64 kN; 38,5 kN; dan 48 kN. Pengujian kuat tarik belah ( $f_t$ ) silinder beton 0%; 1mm; 1.5mm; dan 2mm dengan ( $f_t$ ) berturut-turut 2,70 N/mm<sup>2</sup>; 2,03 N/mm<sup>2</sup>; 1,79 N/mm<sup>2</sup>; dan 1,71 N/mm<sup>2</sup>. Pengujian kuat tekan ( $f_c$ ) silinder beton 0%; 1mm; 1.5mm; dan 2mm dengan ( $f_c$ ) berturut-turut 29,11 MPa; 22,39 MPa; 26,92 MPa dan 22,98 MPa. Pengujian daya serap ( $W_A$ ), 0%; 1mm; 1.5mm; dan 2mm dengan ( $W_A$ ) berturut-turut 8,88%; 8,81%; 8,93%; dan 11,74%. Pengujian berat jenis ( $\gamma$ ) silinder beton 0%; 1mm; 1.5mm; dan 2mm dengan ( $\gamma$ ) berturut-turut 2,34 g/cm<sup>3</sup>; 2,33 g/cm<sup>3</sup>; 2,29 g/cm<sup>3</sup>; dan 2,34 g/cm<sup>3</sup>, untuk berat jenis ( $\gamma$ ) balok beton 2,47 g/cm<sup>3</sup>; 2,38 g/cm<sup>3</sup>; dan 2,44 g/cm<sup>3</sup>.

Kata kunci : daktilitas beton, berton bertulang, perkuatan serat kawat galvanis.

## ABSTRACT

*Building Structure in general just concern about stiffness and strength on the building. There is one factor which must be considered, that is have a high ductility. Concrete ductility means the strength of concrete capable to deforming high enough. Researcher try adding fiber in the pieces form of galvanis wire because it is elastic and flexible.*

*Test specimens in the form of concrete block dimensions 15 x 20 x 120 cm basic reinforcement 48 and cross bar 6-150 , for the variation of normal concrete (0%), 1 mm, 1.5 mm, and 2 mm. 2% from the weight of cement. With some of tests that is ductility strong bending, pull and split of concrete cylinder, compressive strength of concrete cylinder, concrete absorption, and density of concrete at 28 days.*

*Block concrete ductility test with fiber of galvanis wire no bigger than normal concrete, 0%, 1 mm, and 2 mm, with results of consecutive analyzes 64 kN; 38.5 and 48 kN. The pull and split test of concret cylinder (Ft) 0% , 1 mm, 1.5 mm, and mm with results of consecutive analyzes (Ft) 2.70 N/mm<sup>2</sup>; 2.03 N/mm<sup>2</sup>; 1.79 N/mm<sup>2</sup> and 1.71 N/mm<sup>2</sup>. The compressive strength test of concrete cylinder (fc) 0%, 1 mm, 1.5 mm, and 2 mm, with results of consecutive analyzes (fc) 29.11 22.39 Mpa; 26.92 MPa and 22.98 MPa. The concrete absorption test of concrete cylinder (Wa) 0%, 1 mm, 1.5 mm, and 2 mm, with results of consecutive analyzes (Wa) 8.88%; 8.81%; 8.93% and 11.74%. The density test of concrete cylinder (y) 0%, 1 mm, 1.5 mm, and 2 mm with results of consecutive analyzes (y) 2.34 g/cm<sup>3</sup>; 2.33 g/cm<sup>3</sup>; 2.29 g/cm<sup>3</sup> and 2.34 g/cm<sup>3</sup>. For density test of concrete block are g/cm<sup>3</sup>; 2.38 g/cm<sup>3</sup> and 2.44 g/cm<sup>3</sup>.*

*Keywords: concrete ductility, reinforced reinforcement, galvanized wire fiber reinforcement.*