

## **ABSTRAK**

### **PENGARUH VARIASI PANJANG SERAT BAJA DRAMIX 3D TERHADAP BETON KONVENSIONAL**

**Oleh**

**MUHAMMAD NAUFAL ABYAN**

Beton memiliki kuat tekan yang tinggi, namun kuat tarik yang rendah. Penambahan serat baja Dramix 3D menjadi salah satu solusi untuk meningkatkan nilai kuat tarik belah dan kuat lentur beton. Penelitian ini menggunakan serat baja Dramix 3D dengan variasi panjang 20 mm, 40 mm, dan 60 mm sebagai bahan campuran beton. Pengujian kuat tekan dan kuat tarik belah pada beton dilakukan menggunakan silinder beton berdimensi 150 x 300 mm sebanyak 24 buah sampel, sedangkan untuk kekuatan lentur beton menggunakan balok beton berdimensi 100 x 100 x 400 mm sebanyak 12 buah sampel dengan tiap variasinya menggunakan 3 buah sampel.

Hasil pengujian didapatkan: 1) Kuat tekan beton dengan kandungan serat Dramix 3D mengalami penurunan dibandingkan dengan beton normal, namun penurunan terkecil terjadi pada serat dengan variasi panjang 60 mm, yaitu sebesar 3,557%. (2) Kuat tarik lentur tertinggi dicapai pada variasi serat 60 mm, dengan peningkatan sebesar 70,16% dibandingkan beton normal. (3) Uji kuat tarik belah juga menunjukkan peningkatan signifikan sebesar 20,76% pada variasi serat 60 mm dibandingkan beton tanpa serat.

Kata Kunci: serat baja, dramix 3d, kuat tekan, kuat tarik belah, kuat tarik lentur

## **ABSTRACT**

### **THE EFFECT OF DRAMIX 3D STEEL FIBER LENGTH VARIATION ON CONVENTIONAL CONCRETE**

**By**

**MUHAMMAD NAUFAL ABYAN**

Concrete has high compressive strength, but low tensile strength. The addition of Dramix 3D steel fibers is one solution to increase the split tensile and flexural strength values of concrete. This research uses Dramix 3D steel fibers with length variations of 20 mm, 40 mm, and 60 mm as concrete mix ingredients. Testing the compressive strength and split tensile strength of concrete was carried out using concrete cylinders with dimensions of 150 x 300 mm as many as 24 samples, while for the flexural strength of concrete using concrete beams with dimensions of 100 x 100 x 400 mm as many as 12 samples with each variation using 3 samples.

The test results obtained: 1) The compressive strength of concrete with Dramix 3D fiber content decreased compared to normal concrete, but the smallest decrease occurred in fiber with a length variation of 60 mm, which was 3.557%. (2) The highest flexural tensile strength was achieved in the 60 mm fiber variation, with an increase of 70.16% compared to normal concrete. (3) The split tensile strength test also showed a significant increase of 20.76% in the 60 mm fiber variation compared to concrete without fiber.

Keywords: steel fiber, dramix 3d, compressive strength, split tensile strength, flexural tensile strength