Studi terhadap displacement dan strain pada kubus beton menggunakan digital image correlation = Study on displacement and strain of concrete cubes using digital image correlation

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Abstrak

Digital Image Correlation (DIC) adalah metode teknologi baru yang digunakan untuk mempelajari full-field displacement dan strain dari material; termasuk beton. DIC menggunakan foto yang diambil selama pengujian. Penelitian serupa belum pernah dilakukan di UI dengan menggunakan alat sederhana. Penelitian ini membuktikan hal tersebut dapat dilakukan. Penelitian membahas mengenai speckle pattern, metode perekaman, foto yang diproduksi, dan hasil komputasi data. Melalui penelitian ini, prilaku displacement dan strain beton saat pengujian dilakukan dapat diteliti. Hasil dari penelitian adalah berupa data kualitatif berdasarkan komputasi data menggunakan software. Mengingat penelitian adalah penelitian awal, ditemukan banyak temuan dan rekomendasi yang dapat dilakukan untuk penelitian-penelitian kedepannya.   <hr /> Digital Image Correlation (DIC) is a new, cutting edge technology employed the study full-field displacement of materials; concrete included. DIC uses the help of digital images that was recorded sequentially during testing period. There had never been a research conducted using the method in Universitas Indonesia using conventional tools. This research proves that such thing is possible. The component and steps to DIC are extensively discussed in the research; speckle pattern, method of record, images produced, and data computation. Through this research, the behavior of how displacement and strain develops when concrete is subjected to compressive testing can be studied. The results of the research were analyzed quantitatively using the digital images and its computation based on computer software used. Additionally, provided that this was a preliminary research, there are many aspects and suggestions found from this research that will be applicable for future researches.