

## Studi perbandingan perilaku jembatan I Girder dan U Girder akibat pembebanan jembatan (Studi kasus: flyover Peterongan Jombang Jawa Timur = Study of I Girder and U Girder bridge behaviour due to bridge loading (Case study: Peterongan flyover Jombang East Java

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### Abstrak

Penelitian bertujuan untuk membandingkan keefektifan perilaku jembatan i girder dengan u girder akibat pembebanan yang terjadi pada struktur atas jembatan. Jembatan girder dengan panjang 36,6 meter dibebani oleh beberapa pembebanan yaitu berat sendiri, beban mati tambahan, beban lajur 'D', beban angin, beban rem, temperatur, dan beban gempa. Jembatan menggunakan beton prategang yang mempunyai kabel prategang pada setiap girdernya. Variasi analisis jembatan pada setiap kondisi awal, kondisi kosong, kondisi akhir 1, dan kondisi akhir 2 menghasilkan nilai lendutan, tegangan, gaya dalam, kehilangan prategang, dan volume pekerjaan. Hasil penelitian menunjukkan jembatan u girder mempunyai tingkat keefektifan yang lebih tinggi daripada jembatan i girder pada hasil perbandingan lendutan, tegangan, dan gaya dalam. Tetapi, volume pekerjaan pada jembatan u girder lebih besar daripada jembatan i girder dengan perbandingan volume adalah 9,86%.

.....The objective of this study was to compare the effectiveness of behavior of i girder bridge with u girder due to loading that occurs on top of the bridge structure. Girder bridge with a length of 36.6 meters which is burdened by a dead load, superimposed dead load, lane 'D' load, wind load, load brakes, temperature, and seismic loads. Prestressed concrete bridge using prestressed cable having at each girder. Variation analysis of the bridge at the beginning of each condition, empty condition, final condition 1 and condition 2 yields the value displacement, stress, internal force, loss of prestressed, and volume of works. The results showed u girder bridges have a higher level of effectiveness than i girder bridge of the results of the comparison displacement, stress, and internal force. However, the cost of construction on the u girder bridge is greater than the i girder bridge with comparison volume is 9,86%.