Research Title : A New Simple Method for Post-tension Strands Friction Coefficient Measurement
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ABSTRACT

This research studied the using of the author's new self-invented method of measuring the friction coefficient between grouted post-tensioning strands and their conduits which are related to both wobble and curvature. The method requires both measured jacking force and elongation of each strand so the average tensile force along the entire length can be determined from non-linear stress and strain relationship. The total length and total curvature of each strand were calculated from shop drawing to simulate the friction calculation in the design process. The determined friction coefficients will include the effect due to misplace of the conduit layouts. The experimental measurements of 624 bonded system strands with spiral galvanized metal sheet conduits from the actual construction sites were conducted. From the construction site that uses CPAC prestressing subcontractor, the wobble coefficient is 0.0035 per foot and the curvature coefficient is 0.536 per radian and from the construction site that uses CPAC prestressing subcontractor, the wobble coefficient is 0.0040 per foot and the curvature coefficient is 0.578 per radian. Both coefficients are significantly higher than those recommended by ACI318-11 standard.

Keywords : Friction coefficient, Prestressing strands, Measurement method