New Moment Rotation Model of Single Web Angle Connections

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Abstract : Single angle connections, which are bolted to the beam web and the column flange, are studied to investigate moment-rotation behavior. Elastic–perfectly plastic material behavior is assumed. ABAQUS software is used to analyze the nonlinear behavior of a single angle connection. The same geometric and material conditions with Yanglin Gong's test are used for verifying finite element models. Since Kishi and Chen's Power model and Lee and Moon's Log model are accurate only for a limited range, simpler and more accurate hyperbolic function models are proposed. The equation for calculating rotation at ultimate moment is first proposed.