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### 钢管混凝土格构柱偏压承载能力分析的数值方法

Numerical analysis method of the eccentric compression bearing capacity for the concrete filled steel tubular latticed columns

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中文关键词: [极限承载能力](#) [数值方法](#) [钢管混凝土](#) [格构柱](#) [偏心受压](#)

英文关键词: [ultimate bearing capacity](#) [numerical method](#) [concrete-filled steel tube](#) [latticed column](#) [eccentric compression](#)

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中文摘要:

采用泰勒级数作为分段插值函数, 在考虑多个截面的平衡条件和紧箍效应钢管混凝土应力-应变关系基础上, 提出了钢管混凝土格构柱弹塑性极限承载力数值方法, 并编制了相应的计算程序. 与现有的分段合成法相比, 该方法考虑了剪力对柱变形的影响, 不仅适用于两端偏心相等的偏压构件, 而且适用于两端偏心不等的偏压构件的弹塑性极限承载力的计算. 利用提出的计算方法和编制的程序对国内已有两端偏心相同的四肢钢管混凝土格构偏压长柱的试验结果进行了计算, 并与现有规程进行了比较, 结果表明: 现有计算方法结果偏于保守, 计算误差大, 本文提出的计算结果与试验结果吻合良好.

英文摘要:

The Taylor's series were used as the piecewise interpolation function. Based on the equilibrium condition of several sections and the stress-strain relationship of the concrete-filled steel tube considering the confinement effect, the numerical method for calculating the elastic-plastic ultimate loads of the concrete-filled tubular latticed columns were put forward, and the corresponding computing program was compiled. Compared with the existing methods, the effect of the shear was taken into account in this method, which was not only suitable for calculating the ultimate load of the eccentric compression members with equal eccentricity, but also the eccentric compression members with unequal eccentricity. The elastic-plastic ultimate loads of some domestic existing four-tube concrete-filled steel tubular latticed columns with equal eccentricity are computed using the numerical method, and the computed results are compared with the existing code. The computed results indicated that the existing computational methods are conservative, the computational errors are great, and the computed results in this article agree well with the test results.

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