عنوان مقاله:

Hydraulic Analysis of Water Supply Networks Using a Modified Hardy CrossMethod

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خلاصه مقاله:

There are different methods for the hydraulic analysis of water supply networks. In the solution processof most of these methods, a large system of linear equationsis solved in each iteration. This usuallyrequires a high computational effort. Hardy Cross method is one of the approaches that do not needsuch aprocess and may converge to the solution through scalar divisions. However,this method has twoshort comings: first, initial discharges should satisfy continuity equation at each node; second a largenumber of iterations are required to converge to solution. In this article an algorithm is suggested forthe selection of initial discharges that are close to the final results while the continuity equations areautomatically established. This algorithm may be directly implemented in the Hardy Cross method. Toreduce the number of iterations the Hardy Cross method is combined with third-order and sixteenthordermethods. The results of some numerical examples demonstrate that the use of the combinedapproach with the suggested initial guess reduces the number of iterations and hydraulic analysis timeand the solutions converge with a high accuracy

کلمات کلیدی:

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