عنوان مقاله:

Numerical and Economic Investigation of Centrifugal Pumps Operation Working as Turbines

محل انتشار:

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خلاصه مقاله:

In this paper, utilizing pumps as turbines (PAT) is investigated numerically. Three different specific speeds are considered and by using diagrams from catalogues and also CFturbo V.9 software, three pumps are designed. Next, models will be analyzed by Ansys CFX 11software and results will be compared with results of CFturbo software. Mesh independency for one case is performed too in order to show that grid does not have noticeable effect on solution. Also, three different flow rates that are %57, 1007, and 1557of best efficiency point (BEP) are considered for extracting head-flow rate diagrams and comparing results of CFX and CFturbo. In next step, using relations between pump and turbine modes (PAT formulations) and by changing boundary conditions in CFX, turbine mode will be investigated and efficiency will be compared with pump mode. Finally, by economic analysis a comparison between PATs and turbines with same nominal output powers will be performed to distinguish that which case is more profitable

کلمات کلیدی:

CFturbo, Ansys CFX, PAT, economic analysis

لینک ثابت مقاله در پایگاه سیویلیکا: