

對撞式高壓均質閥之流場分析  
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摘要

The performance of a high pressure homogenizer valve (HPV) of collision type is mainly determined by the high velocity and high pressure characteristics of its work fluid when it goes through the narrow gaps. The theoretic and numerical limitations are caused due to the high aspect ratio between the gap size and other dimensions. Therefore, this study utilizes commercial packages to analyze the flow pattern of the HPV. The calculated numerical results are provided to facilitate the HPV design. The CFD package Fluent in 3D model is applied to calculate the velocity and pressure fields of a turbulent flow which is governed by the Navier-Stokes equation with the standard model. Finally, a parametric analysis is also done to investigate the influence of the gap size on the flow pattern of HPVs.

關鍵字：homogenizer valve; gap; turbulent flow