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多流动区域耦合算法在液力元件中的应用

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摘要 讨论了多流动区域耦合算法及其在液力元件中的具体应用，给出了液力变矩器和液力偶合器的不同转速、多叶轮流场耦合计算的应用实例。计算结果表明：多流动区域耦合算法比液力元件通过上下游传递边界条件的单个叶轮算法更为先进。基于三维流场数值解计算出液力变矩器与液力偶合器特性，将其与试验结果进行对比后可知，多流动区域耦合算法具有更高的计算精度。

关键词 流体传动与控制；液力元件；计算流体力学；耦合算法；液力变矩器；液力偶合器

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Application coupling algorithm for multi flow region in hydrodynamic components

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Abstract The coupling algorithms for multi flow regions and its application in the hydrodynamic components are discussed. As application examples,the coupling algorithm was used in calculation of flow field in the multi impeller of the torque converter and the hydrodynamic coupling under different rotation speeds. It was shown that for the hydrodynamic components, the multi flow region coupling algorithm is better than the single impeller algorithm supported by up stream and down stream boundary conditions. The performances of the torque converter and the hydrodynamic coupling were calculated based on numerical solutions of 3 dimensional flow field, and their results were compared with test results, showing that the coupling algorithm is superior in calculation precision.

Key words fluid transmission and control；hydrodynamic component computational fluid dynamics(CFD) coupling algorithm torque converter hydrodynamic coupling

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