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不同挂位外挂物气动特性数值模拟研究(PDF)

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Title: The Research on Aerodynamic Characteristic of External Store on Different Suspension Based on Numerical Simulation

作者: [王立强¹](#); [敬代勇¹](#); [张泽远^{1; 2}](#)

1 中国空空导弹研究院,河南洛阳 471009;

2 航空制导武器航空科技重点实验室,河南洛阳 471009

Author(s): [WANG Liqiang¹](#); [JING Daiyong¹](#); [ZHANG Zeyuan^{1; 2}](#)

1 China Airborne Missile Academy, Henan Luoyang 471009, China;

2 Aviation Key Laboratory of Science and Technology on Airborne Guided Weapons, Henan Luoyang 471009, China

关键词: [结构重叠网格](#); [外挂物](#); [气动特性](#)

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摘要: 基于结构重叠网格技术,采用有限体积方法求解带有 $k-\epsilon$ 湍流模型的 Navier-Stokes 方程组,对不同挂位(弦向、展向及垂向)外挂物绕流流场进行数值模拟,通过对结果分析发现:不同挂位的外挂物气动特性各有特点,如,沿不同弦向同一攻角下侧向力相差不大,而法向力却差异明显;展向位置对侧向力影响较大,沿翼展向向外侧向力增大;沿垂向远离载机使得干扰变弱,各气动参数变小。

Abstract: Based on structured overlapping grids, Navier-Stokes equation teams with $k-\epsilon$ turbulent model solved with finite volume method were applied to numerically simulate flow field past external store on different suspension(chordwise, spanwise, vertical). Through analyzing the results, the conclusion could be reached: different suspension has different aerodynamic characteristic, for example, along the chordwise direction with the same attack angle, the side forces appear nearly the same, while the normal forces are

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obviously different; Along the spanwise direction, side forces are so different and more outer along spanwise, more larger of the forces; along the vertical direction, the interference between the wing and store is weak, and thus all the aerodynamic parameters become smaller.

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