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Design of a solenoid valve for fuel cell vehicle pressure vessel using FEA

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Recently, demand of Green vehicles is increasing to reduce environmental pollution. Green vehicles include hybrid-electric vehicles, electric vehicles, natural-gas (CNG) vehicles, clean-diesel vehicles, hydrogen fuel cell vehicles (FCV), and vehicles that run on fuels such as biodiesel or an ethanol blend (flex-fuel vehicles, or FFVs). In this study, design of a solenoid valve for fuel cell vehicle pressure vessel using electromagnetic field analysis was done. FCV are equipped with solenoid valve installed in ultra high pressure vessel for hydrogen flow control on or off. The solenoid valve needs the optimum design of solenoid and plunger because pressure vessel at a ultra high storage pressure of hydrogen. For this purpose, optimum design of the solenoid valve is necessary to secure driving a FCV. First, CFD analysis was performed by steady state technique according to the inlet and outlet pressure for prediction of attraction force of solenoid valve. Second, electromagnetic field analysis performed by magnetostatic technique at some design parameter for optimum design of solenoid valve component.

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The effects of price-matching guarantees on consumer response in an online retail context

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Purpose: The main purpose of this study is to investigate the effects of three price-matching guarantee variables, including refund depth, refund period and competitive scope, on consumer response; the moderating role of consumer search costs is also examined.

Design/Methodology/Approach: This study uses a scenario simulation method with a 2x2x2 factorial design to test the research model and hypotheses.

Findings: The results indicate that refund depth has a significant effect on price perception and purchase intention, while competitive scope has a significant effect on purchase intention. In addition, the effects of both refund depth and competitive scope on price perception are moderated by consumer search costs.

Originality/Value: This study is a pioneering effort to explore the effects of price-matching guarantees variables on consumer response in the context of online retailing. These findings provide several important theoretical and practical implications for the price-matching guarantee strategy of online retailing.

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