

## 엔진 커넥팅로드의 좌굴평가를 위한 유한요소법 및 실험방법 연구

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### Analytical and Experimental Evaluation of Engine Connecting Rod Buckling

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**Key Words:** Buckling(좌굴), Connecting Rod(커넥팅로드), FEA(유한요소해석)

**Abstract :** To reduce the weight of the connecting rod of a vehicle's engine, the accurate buckling estimation is used as a major valuation basis. This study improves the previous efforts, based on finite element analysis, to include experimental results and accurate geometrical conditions. The critical buckling stresses of connecting rods which were cut off shank portion with various slenderness ratios, were estimated using the rig device which was made in this lab. Also the finite element model was improved by addition to the geometrical contact condition on the basis of experimental results. Hence this result indicates that the buckling prediction through FEA is more effective method than the classical formula.

## 전기방사법을 이용한 3D-scaffold용 발포 나노파이버 지지체의 개발

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### New 3-D Scaffold Manufacturing Technology Using an Electrospinning Method

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**Key Words:** Electrospinning(전기방사), 3D-scaffold(3차원지지체), Blowing agent(발포제)

**Abstract :** Polymeric biomaterial which has been an interesting area as improvement of manufacturing technology was focused to tailoring the morphological structures of fabricated one for various applications including tissue repair, wound healing, implant, and drug delivery system. Electrospinning technology has been utilized to fabricate nano-size fibers formed by subjecting a fluid jet to a high electric field. The ability to generate nanofibers, which mimic the size scales of fibers composing the extracellular matrix of native tissues and organs, has been developed for a long time. In this paper the high porous 3-D scaffold of biodegradable electrospun nanofibers could be manufactured with blowing agents and the fabricated structures were characterized via an optical microscopy, scanning electron microscopy, and thermo-mechanical test. Also, the tailored scaffolds were analyzed in the aspect of degradation behavior.