VisualFEA

- **VisualFEA**는 자연과학과 공학의 여러 분야에서 발생되는 물리적인 문제들을 수치적으로 풀고 분석하는 유한요소해석 소프웨어입니다.

- **VisualFEA**는 유한 요소해석 모델링을 위한 여러가지 간편하면서도 강력한 기능을 지니고 있는 전문적인 고급 유한요소해석 소프트웨어입니다.

- **VisualFEA**의 가장 큰 장점은 사용자가 쉽고 편리하게 사용할 수 있으며, 유한요소해석의 다양한 기능들이 하나의 프로그램에 통합되어 있다는 점입니다. 이 소프트웨어의 독특하고 독창적인 사용자 인터페이스는 유한요소해석을 한층 쉽고 편리하게 만들었습니다.

- **VisualFEA**는 mesh intersection, mesh operation, mesh carving등 혁신적인 모델링 기능을 비롯하여 편리하고 강력한 전처리 기능을 갖추고 있어서 복잡한 유한요소모델을 아주 쉽고 빠르게 완성할 수 있도록 해줍니다.

- **VisualFEA** 는 구조해석, 열전달해석, 침투류해석을 독립적으로, 또는 연동해서 간편하게 수행할 수 수행할 수 있으며, embedded bar 등 VisualFEA만의 독특한 요소들을 다양하게 갖추고 있어서 정밀하고, 실제에 가까운 유한요소해석 결과를 얻을 수 있습니다.

- **VisualFEA**는 iso-surface 등 여러가지 3차원 가시화 기능으로 복잡한 해석 결과를 쉽게 분석하고 이해할 수 있도록 처리해 줍니다.

- **VisualFEA**는 유한요소법을 공부하는 학생으로부터, 전문적인 유한요소해석 실행자에이르기까지 많은 사람들에게 유용한 도구이며, 편리함과 생산성을 크게 높여줄 수 있는 소프트웨어입니다.

주 요 기 능

전처링

요소망 생성 / 편집(intersection, operation, carving 등), 조건 및 성질 부여, 시공단계별 모델 정의

혁처링

등고선 / 그래프 / 다이아그램 / 수준면 / 등가면 / 3D 공간 절단 / 벡터표시 / 애니메이션

리 신

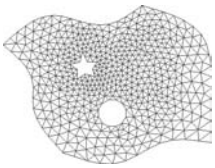
구조 해석	열전달 해석	침투류 해석	연동 해석
선형정적 해석 비선형 해석 동적 해석 적응적 해석 시공단계별 해석	정류 및 부정류	정류 및 부정류	열전달과 구조해석 침투류 및 구조해석

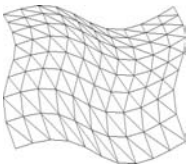
교육적 기능

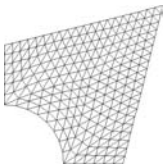
강성계수의 개념 / 형상함수 / 요소 방정식 / 방정식 조립과 해법 / 고유치 해석 / 응력 복구와 평활화 적응적 해석 과정 등을 컴퓨터 시뮬레이션을 통해서 이해할 수 있도록 해주는 교육적 기능

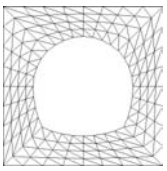
Mesh Generation

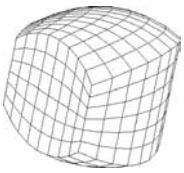
기본적인 요소망 생성 기능

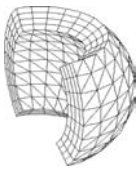

Auto triangulation

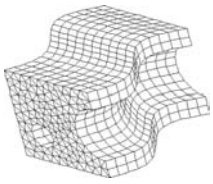

Transfinite mapping(2D)


Triangular mapping


Lofting


Transfinite mapping(3D)

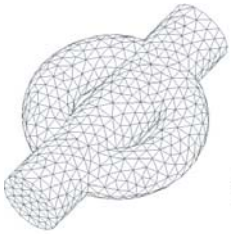

Extrusion


Sweeping

Revolution

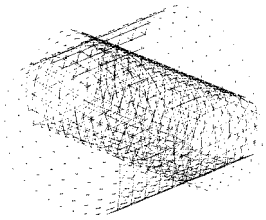
Twisting

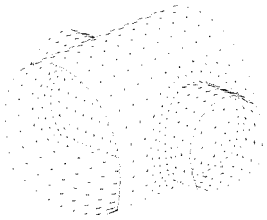
3차원 고체 요소망 자동 생성


Boundary surface meshes

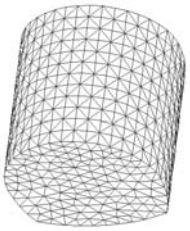
Volume mesh generated
by automatic tetrahedronization
(exploded view)

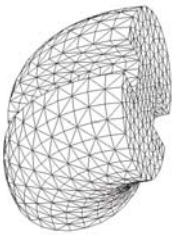
Mesh Intersecion

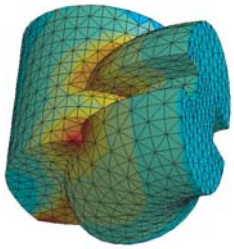

Before mesh intersection

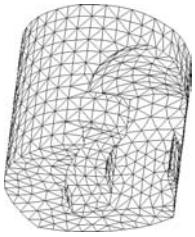

After mesh intersection

Mesh Operation

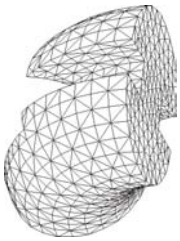

Mesh A


Mesh B


Mesh A or B

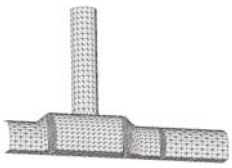

A and Not B

A and B

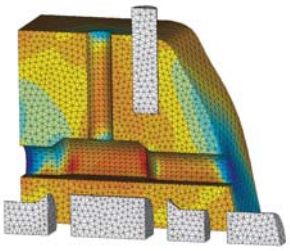

B and Not A

Mesh Carving

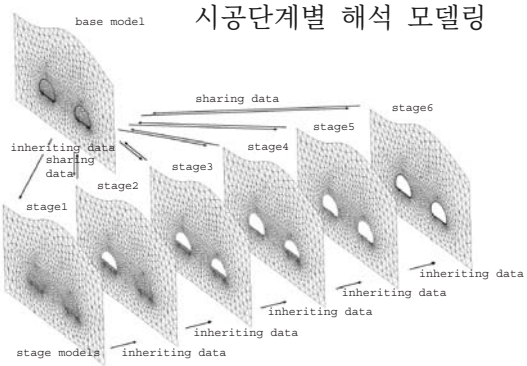
Source volume


Carving surface

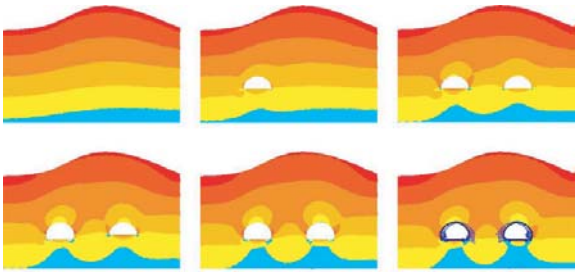
Mesh carving


Carved model

시공단계별 해석 모델링

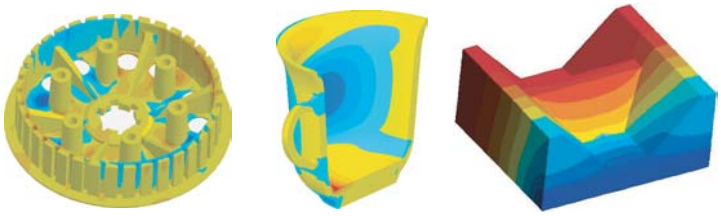


시공단계별 해석 결과 후처리



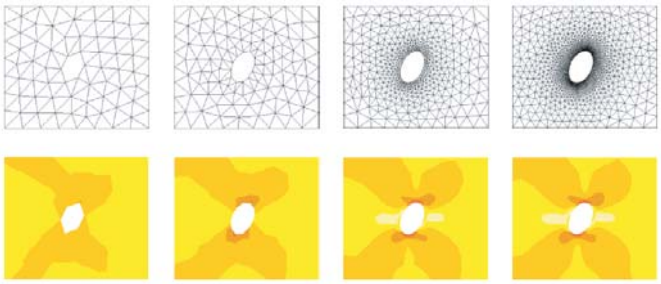
VisualFEA
Innovative finite element modeling software
www.visualfea.com

3차원 고체 모델링 해석 후처리 예

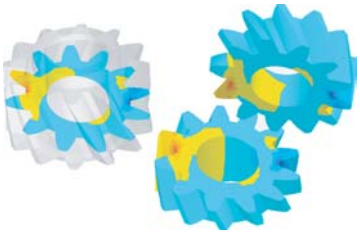


Stress Temperature hydraulic head

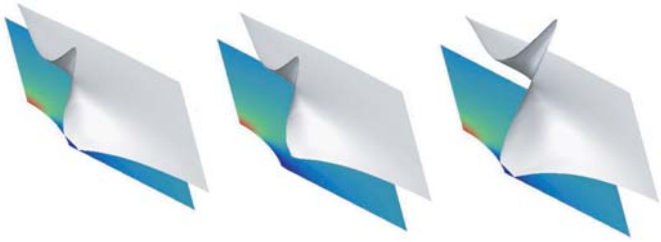
적응적 해석



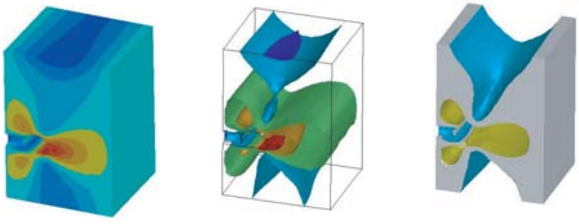
절단에 의한 3차원 데이타 표현



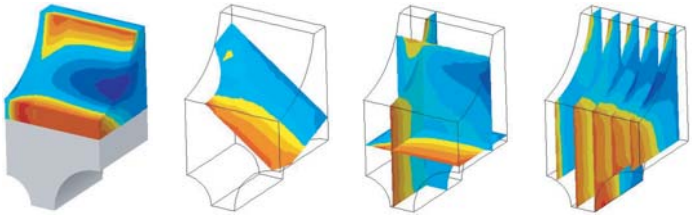
수준면(level surface)에 의한 스칼라 데이터 표시



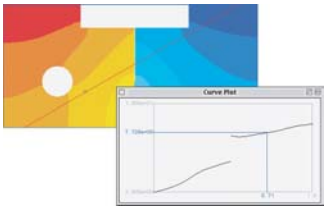
등가면(iso-surface)을 이용한 3차원 데이타 표시



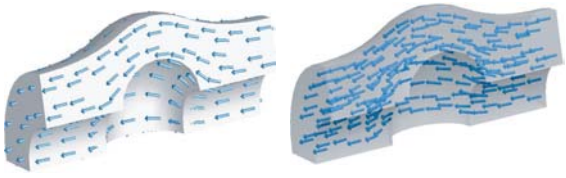
3차원 공간내부 데이타 표시 예



Curve plotting

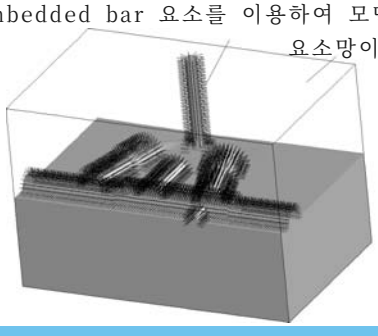


3차원 벡터 데이타 표시



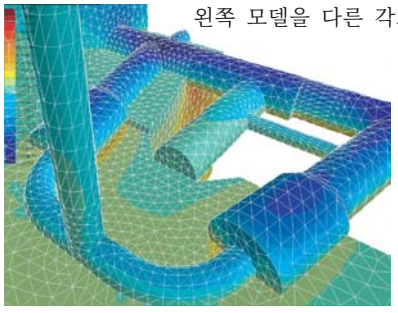
Embedded bars를 이용한 록볼트 모델링

Embedded bar 요소를 이용하여 모델링한 수천개의 록볼트 요소망이 숨겨진 부분

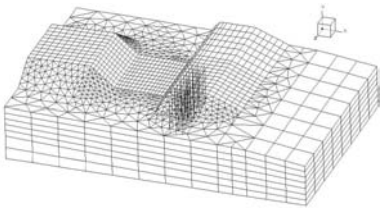


Embedded bars를 포함한 3차원 터널해석

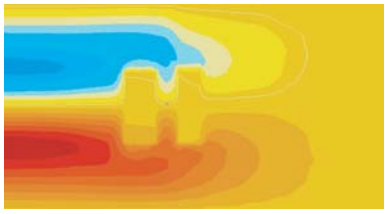
왼쪽 모델을 다른 각도에서 투시한 모습



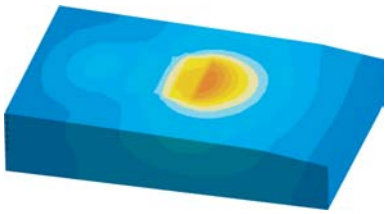
교대부 측방유동 해석



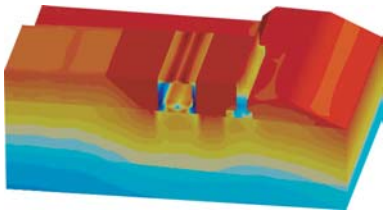
3차원 모델링



Z축방향 변위

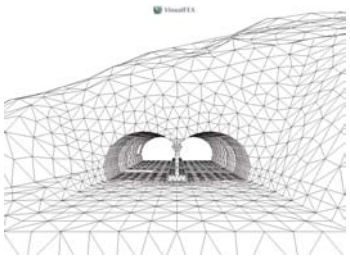


X축방향 변위

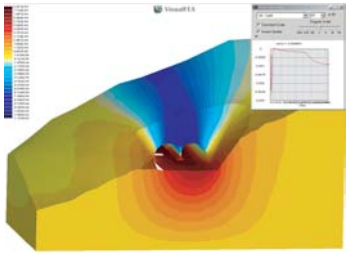


Y축방향 응력

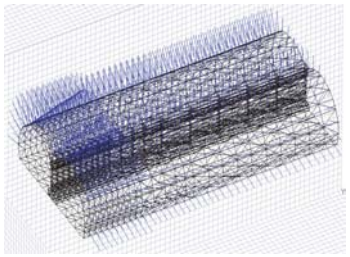
터널 해석



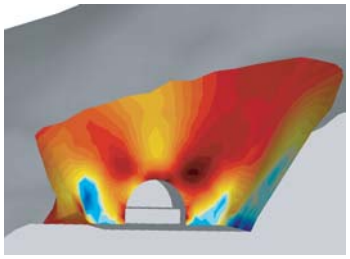
3차원 모델링



후행터널 변위분석

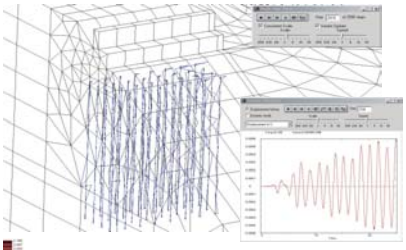


Rock Bolt

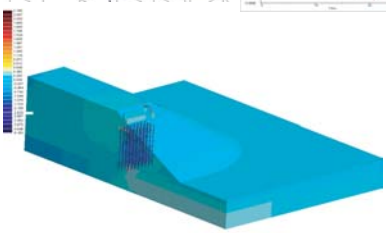


사면의 변위

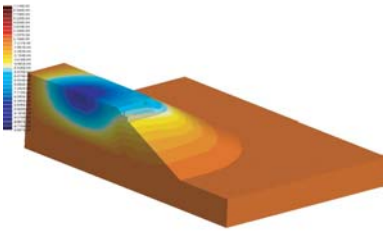
말뚝의 진동 해석



굽힘 모멘트와
X축방향 변위

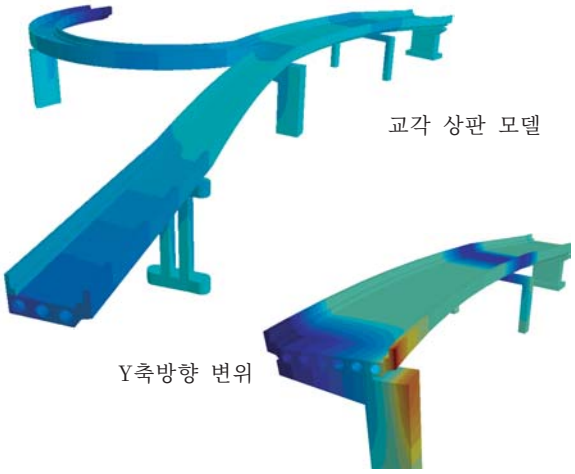


수평 응력



수평 변위

교량 해석



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