

# ENDURICA PRESENTS RUBBER FATIGUE SIMULATION SOFTWARE

Endurica's fatigue solvers show how your design will endure in specific application scenarios within all three major nonlinear finite element codes: Abaqus, Ansys and Marc.

Endurica's software is the first (and only) commercial FEA software to predict when and where cracks will show up in an elastomer product with complex loading history and geometry. Endurica's methods are in use across the globe by virtually all industry sectors.

## BENEFITS

- Save the costs of build and break experiments for well-qualified designs.
- Quickly see how changes to material behavior, part geometry, or load history influence fatigue life.
- Inform design decisions with a patented tool that has been continuously developed for more than a decade, and successfully validated against a wide range of benchmarks and real-world problems.
- Find out where your part might develop a crack, how long it can be expected to endure, which events are damaging and which are harmless.
- Communicate effectively about durability issues with realistic, physics-based presentation of simulation results.

## THE ENDURICA DIFFERENCE

Learn more at:

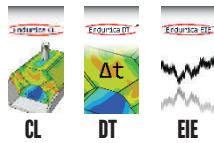
[www.endurica.com/fatigue-solver-software](http://www.endurica.com/fatigue-solver-software)

Call today to request a trial: **+1.419.957.0543**

**Endurica**  
Get Durability Right®



# COMPREHENSIVE SOLUTIONS FEATURES GRID



## MATERIALS DATABASE

	CL	DT	EIE	fe-safe/Rubber™
Materials database	X	X		X
Hyperelastic laws: NeoHookean, Arruda-Boyce, Mooney-Rivlin, Reduced Polynomial, Van der Waals, Ogden	X	X		X
Mullins Effect	X	X		X
Crack Growth Rate laws: Thomas, Lake-Lindley, table-lookup	X	X		X
Crystallization laws: None, Mars-Fatemi, table lookup	X	X		X
Ozone attack, creep crack growth	X	X		X
Temperature dependence: coefficient or table-lookup	X	X		coefficient only
Hysteresis / Self-heating: powerlaw, Kraus, Table-Lookup	X	X		

	CL	DT	EIE	fe-safe/Rubber™
Critical plane analysis	X	X		X
Total formulation fatigue solver	X			X
Safety Factor / Infinite Life Design	X			
Safe Life Design	X			
Rainflow counting w/time indices preserved for event identification	X	X		X
Block cycle generation from road loads	X			
Signal defeaturing	X			
Rolling structures (ie tires) with axi- or cyclic- symmetry	X	X		
Periodic results transfers for tires	X	X		
Diagnostics: critical plane vector, load history on critical plane, crack open/close history	X	X		X
Endurica Viewer	X	X		Note 1
Incremental formulation fatigue solver		X		
Ageing	X	X		
Security encryption	X	X		
Block cycle schedules / multi-step protocols		X		Miner's rule
Sequence effects		X		
Restart capability		X		
Stiffness loss cosimulation		X		
Residual life		X		
Digital Twin applications		X	X	
Nonlinear load/displacement->stress/strain map			X	
Auto-generation of FE model boundary conditions for map generation			X	
As many as 6 independent input channels			X	
Mapping methods: Case Vectors, Spiral Grid, User-Defined			X	
Accelerated strain history generation			X	
Multi-threading / parallel processing	X	X	X	X
Damage extrapolation		X		

	CL	DT	EIE	fe-safe/Rubber™
Abaqus	X	X	X	X
Ansys	X	X	X	
Marc	X	X	X	
fe-safe/Rubber			X	

	CL	DT	EIE	fe-safe/Rubber™
Node-locked	X	X	X	
Network floating	X	X	X	
Annual lease	X	X	X	
Perpetual	X	X	X	
Maintenance and support	X	X	X	
Single site, Regional, Global	X	X	X	

Note 1 - Available as free download from Endurica for licensed fe-safe/Rubber™ users.

## C-SUITE INSIGHTS



### DURABILITY WINS NEW BUSINESS

Show your customer who is the boss of durability. Let us help you win their business.

### RIGHT THE FIRST TIME SAVES BIG

Missing the durability qualification resets your development cycle and puts you back big time. Let us support your people with our tools and expertise.

### GET THERE FIRST

Getting design decisions right for durability will get you to market faster.

### START WITH QUALITY

Don't let poor durability turn into costly reliability or warranty issues.

### FUTURE PROOF YOUR BUSINESS

Ask about our Digital Twin capabilities. Get durability online for your IoT and Big Data applications.



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