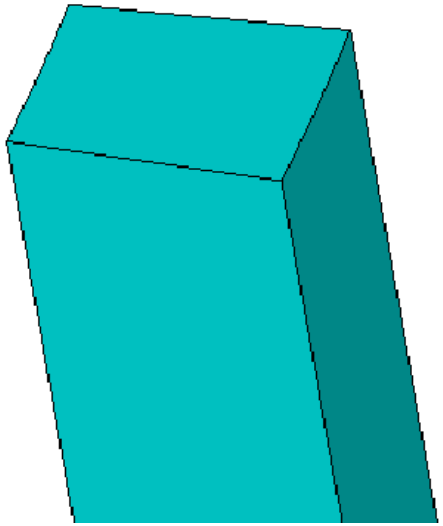
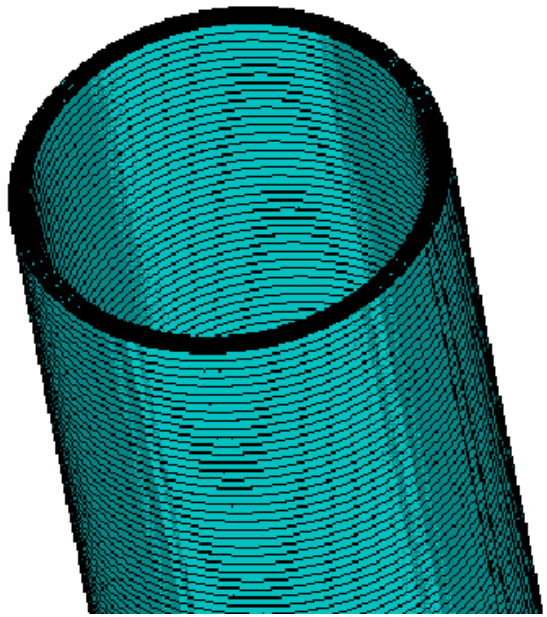
Magneto-structural analysis of horn under multiple charge pulses

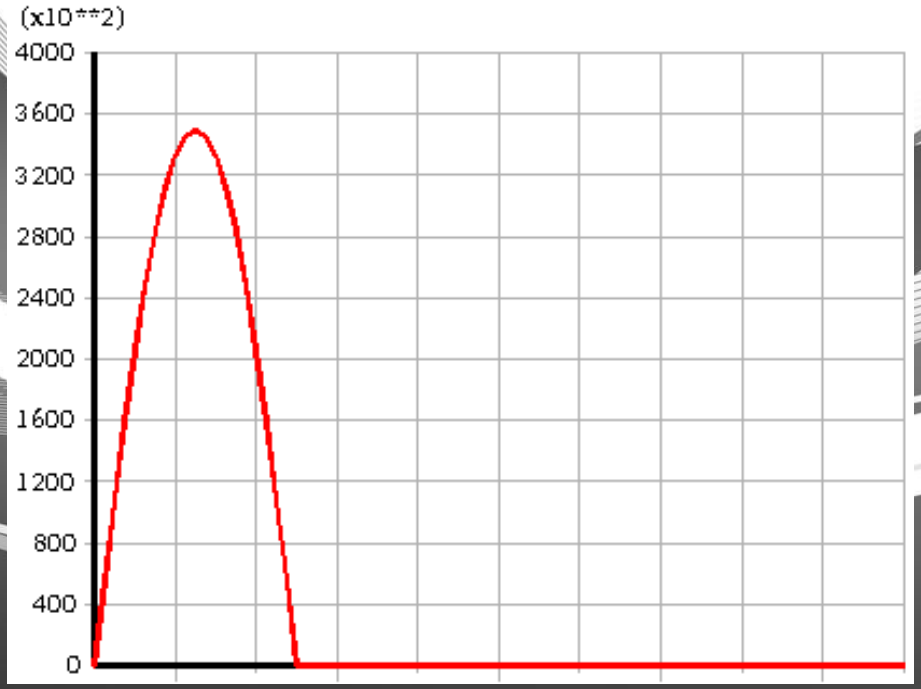
Cylinder model



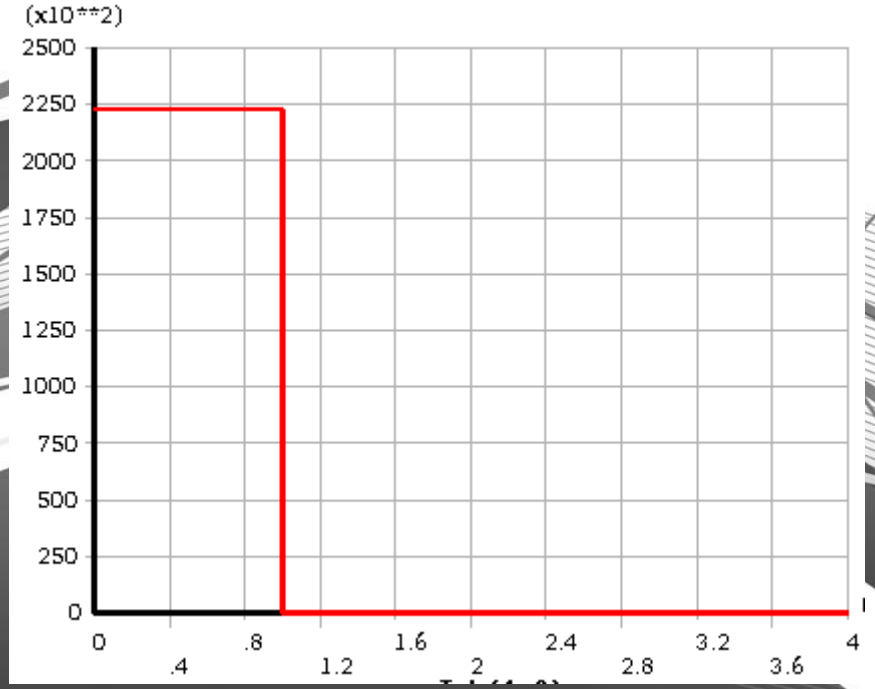


Impulse current shapes

Half-sine impulse



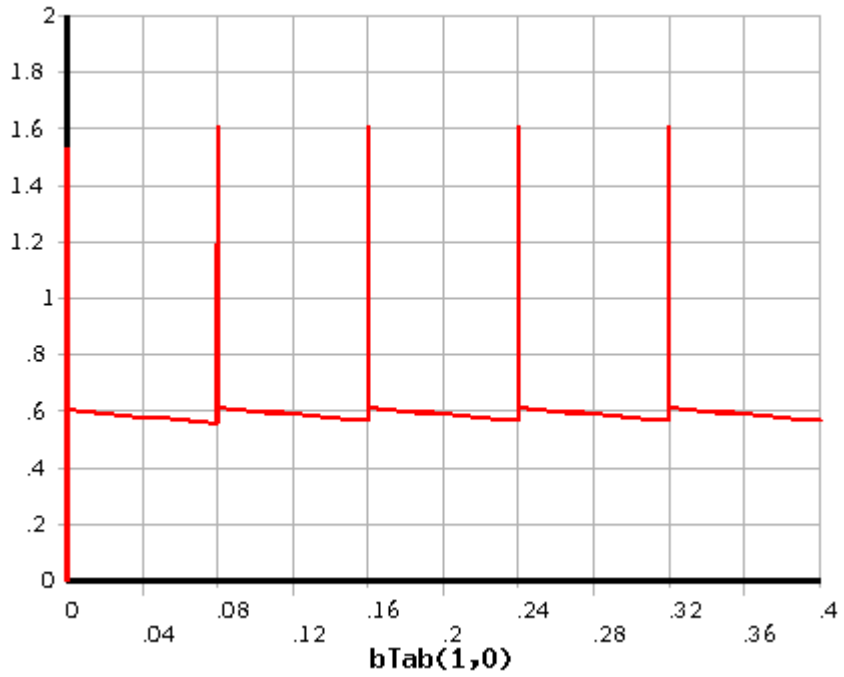
Square impulse



Cylinder magnetic results

Half-sine impulse current
I_{max}=350[kA], f_s=12.5[Hz],f=5000[Hz] [5 pulses]

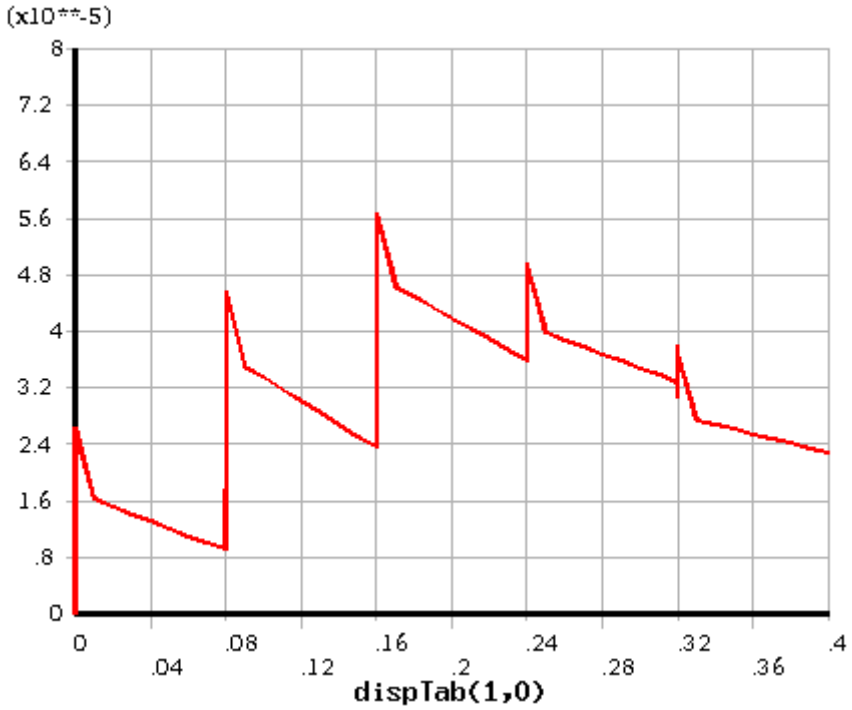
Max Magnetic Flux Density [T]



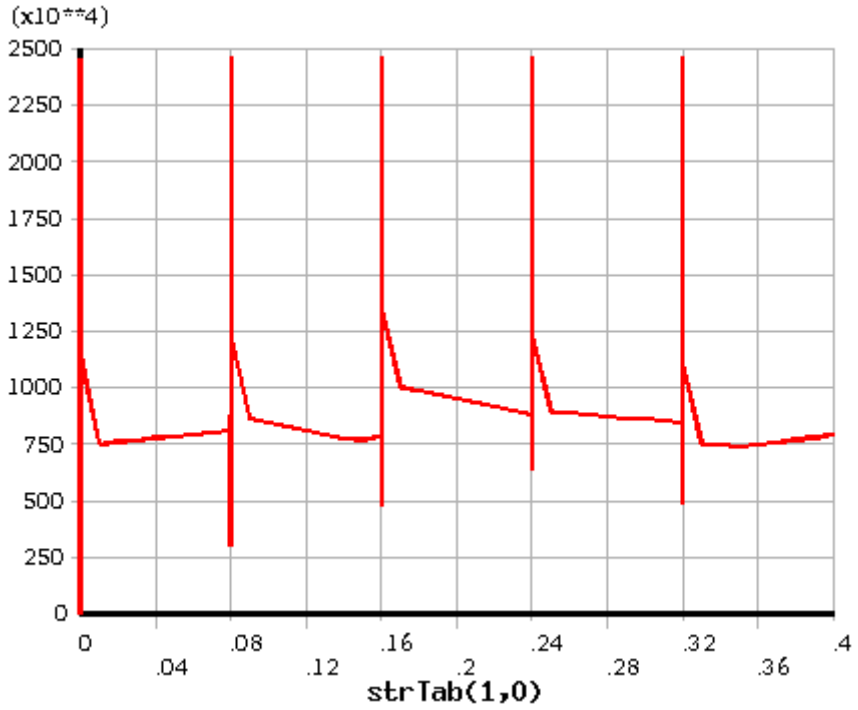
Cylinder structural results

Half-sine impulse current
I_{max}=350[kA], f_s=12.5[Hz],f=5000[Hz] [5 pulses]

Max Displacement [m]



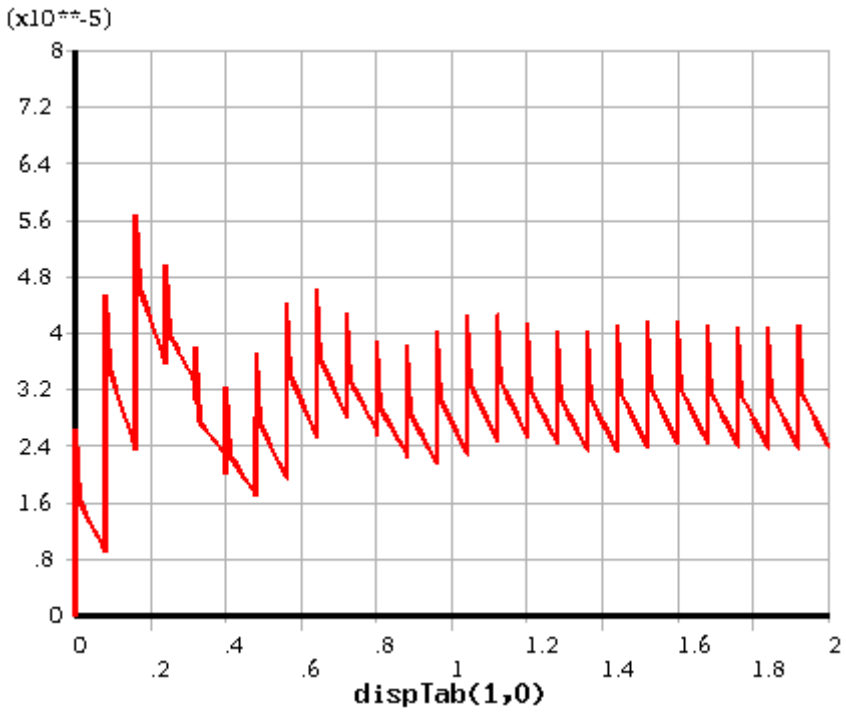
Max Stress [MPa]



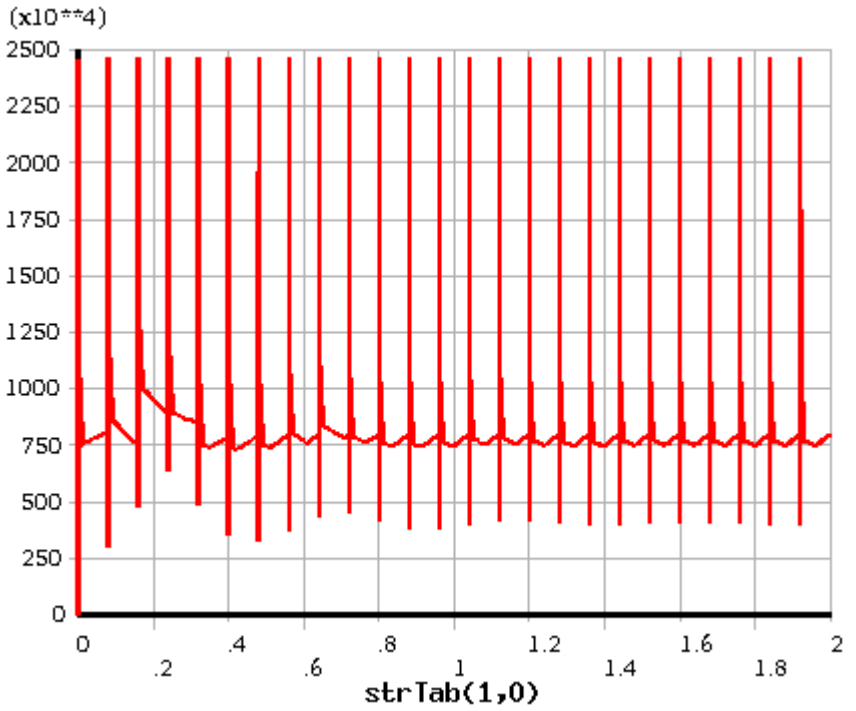
Cylinder structural results

Half-sine impulse current
I_{max}=350[kA], f_s=12.5[Hz],f=5000[Hz] [25 pulses]

Max Displacement [m]



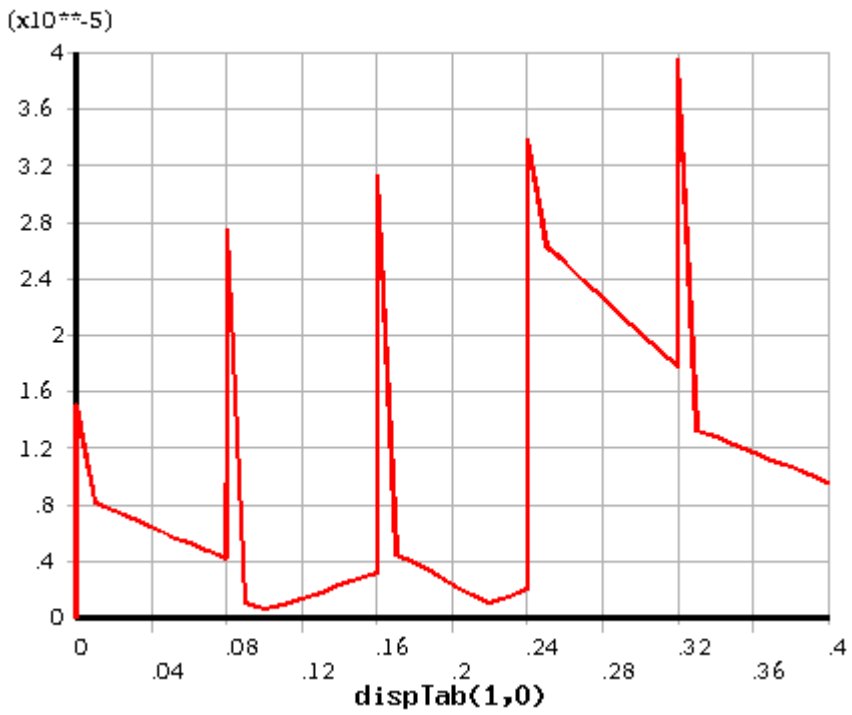
Max Stress [MPa]



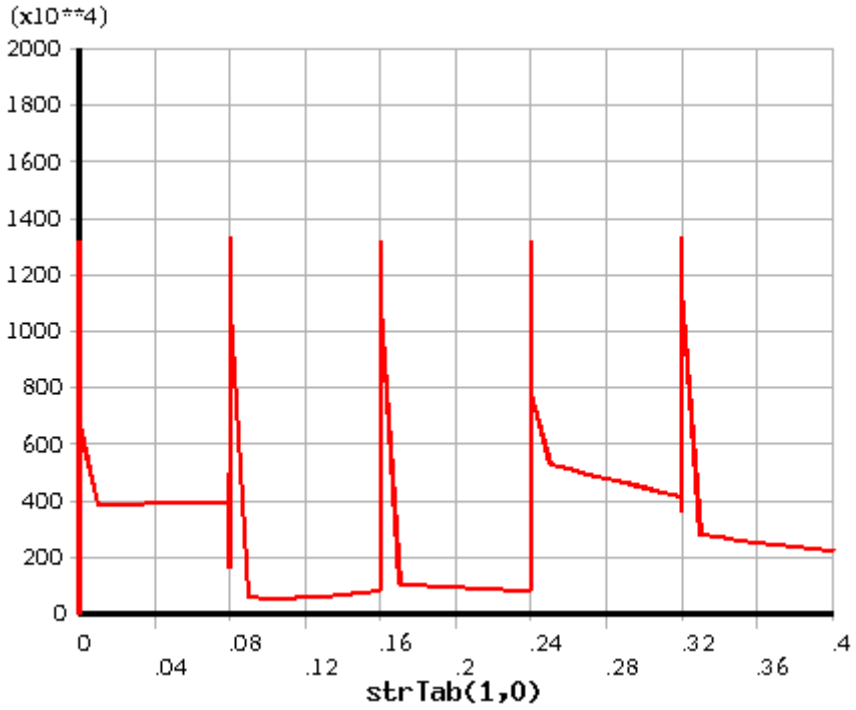
Cylinder structural results

Square impulse current
I_{max}=350[kA], f_s=12.5[Hz],f=5000[Hz] [5 pulses]

Max Displacement [m]



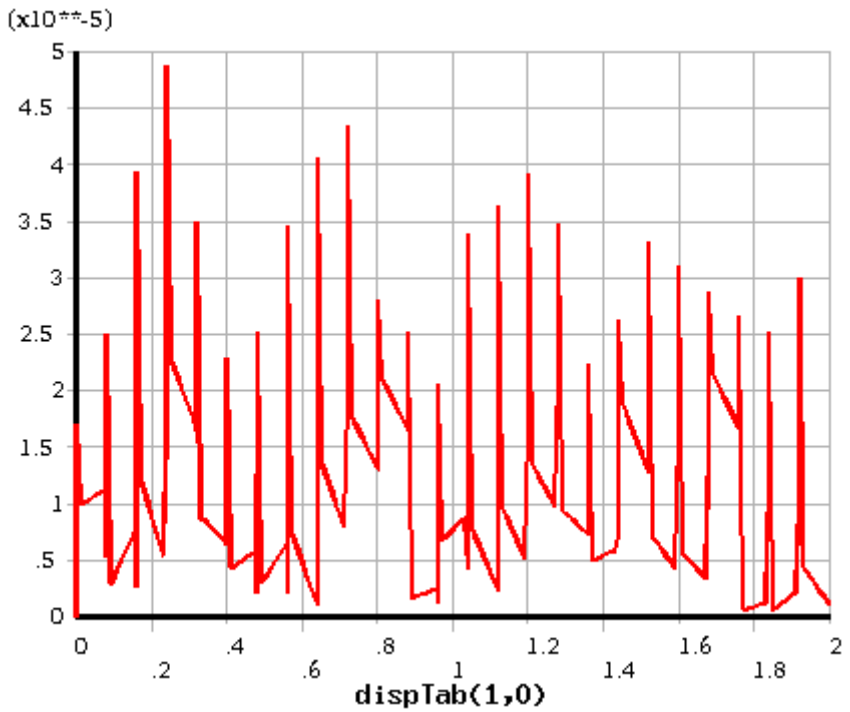
Max Stress [MPa]



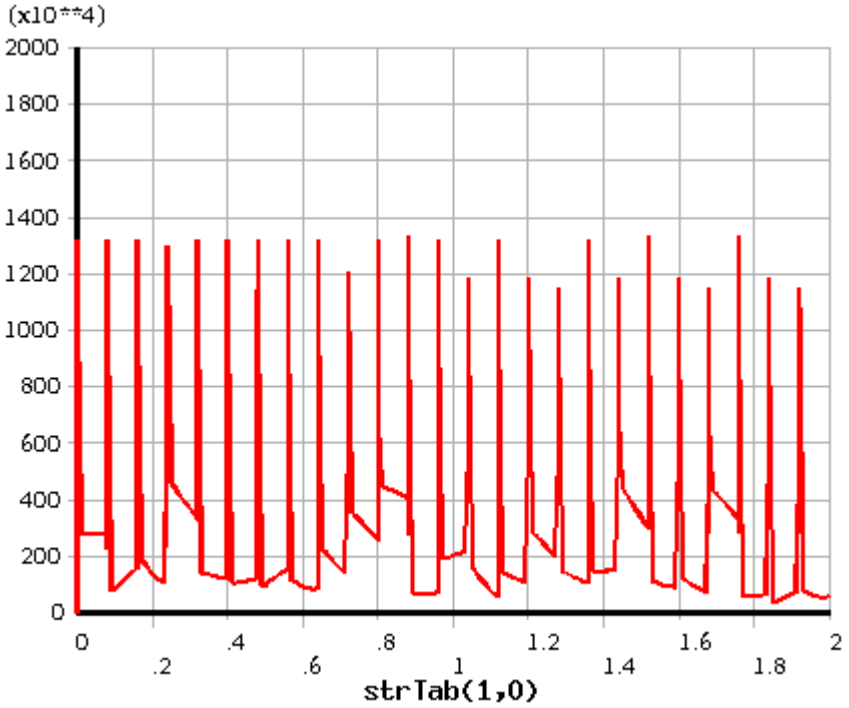
Cylinder structural results

Square impulse current
I_{max}=350[kA], f_s=12.5[Hz],f=5000[Hz] [25 pulses]

Max Displacement [m]



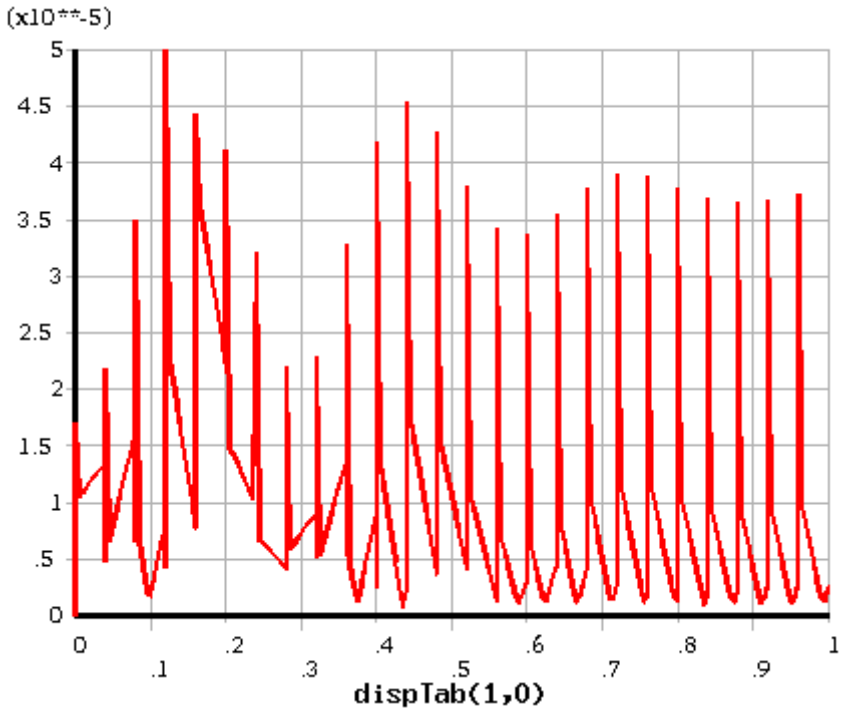
Max Stress [MPa]



Cylinder structural results

Square impulse current
I_{max}=350[kA], f_s=25[Hz],f=5000[Hz] [25 pulses]

Max Displacement [m]



Max Stress [MPa]