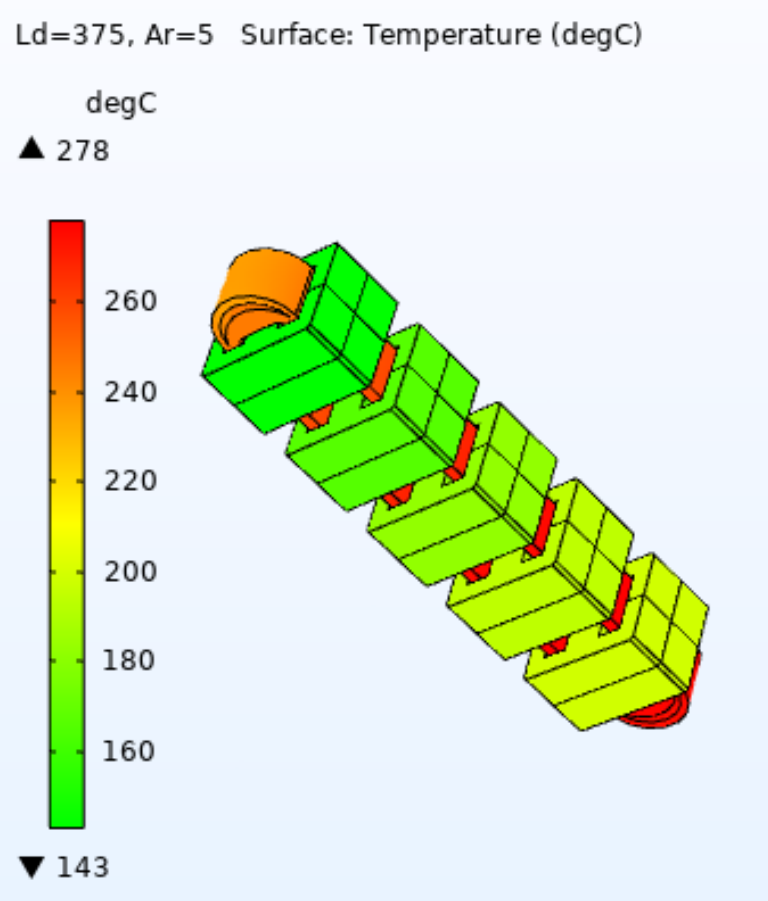
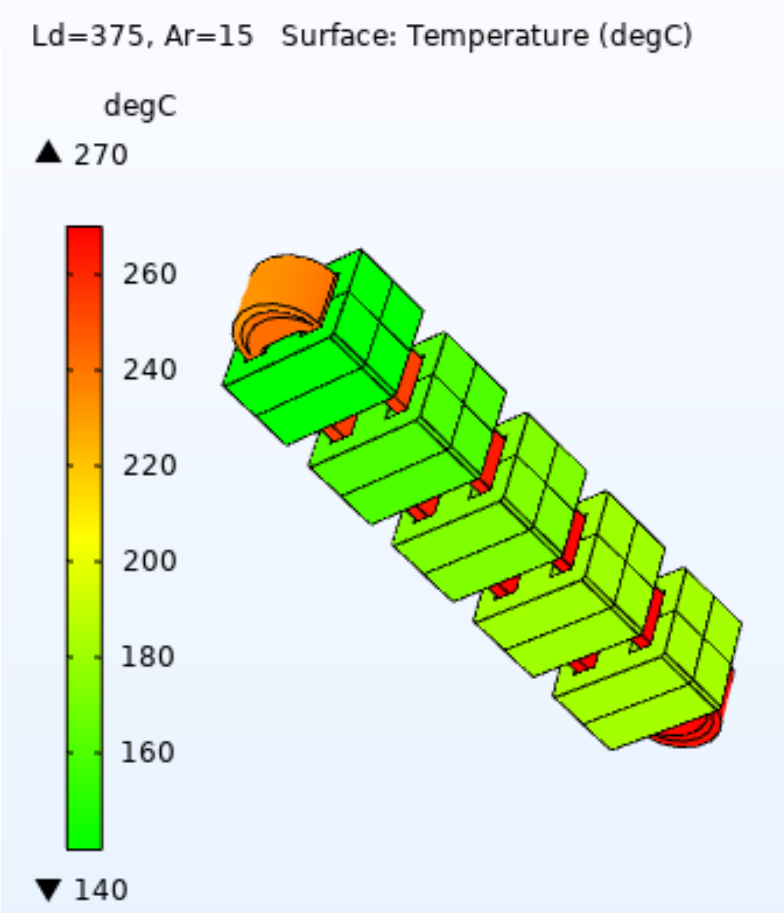
Thermal and Electromagnetics simulation – Part # HCS-601M-500AG-RB1– Current rated 500A @ 10kHz

Current 30% (150 A)
No Airflow
Natural convection

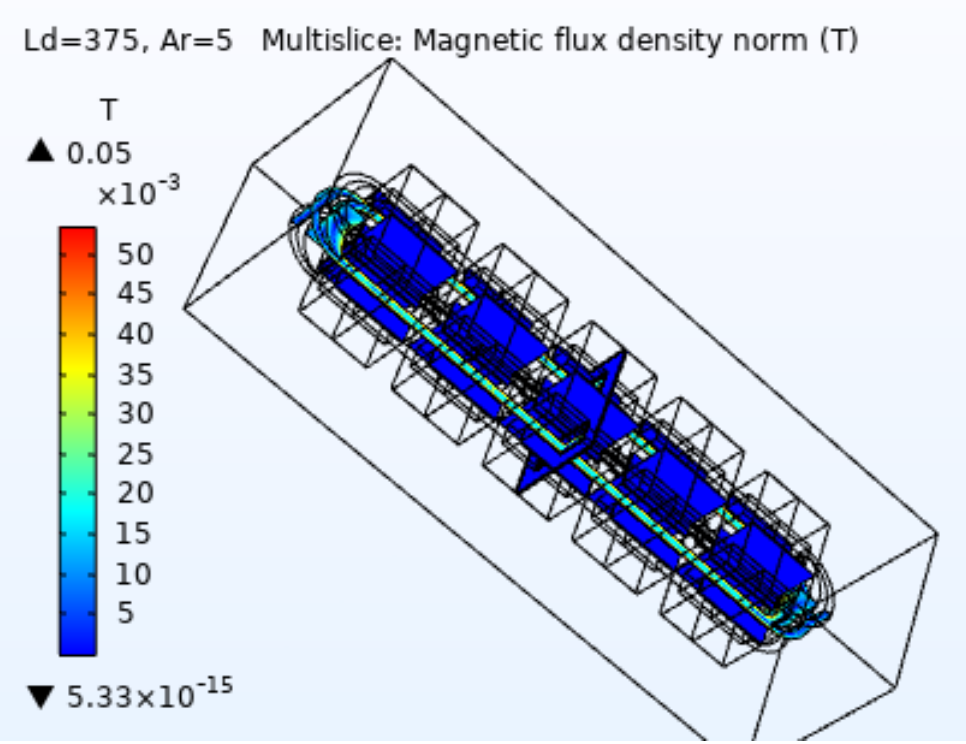


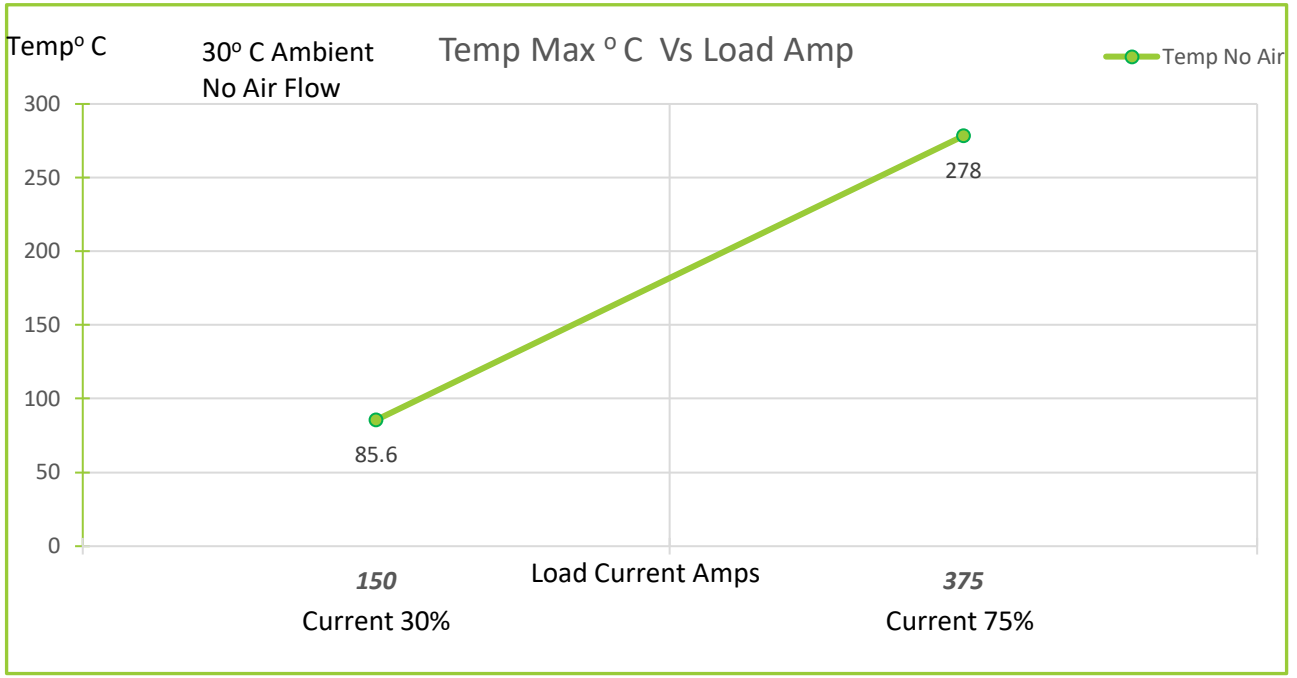
Current 75% (375A)
15 W/ (m^2K) or 3 m/s air flow..

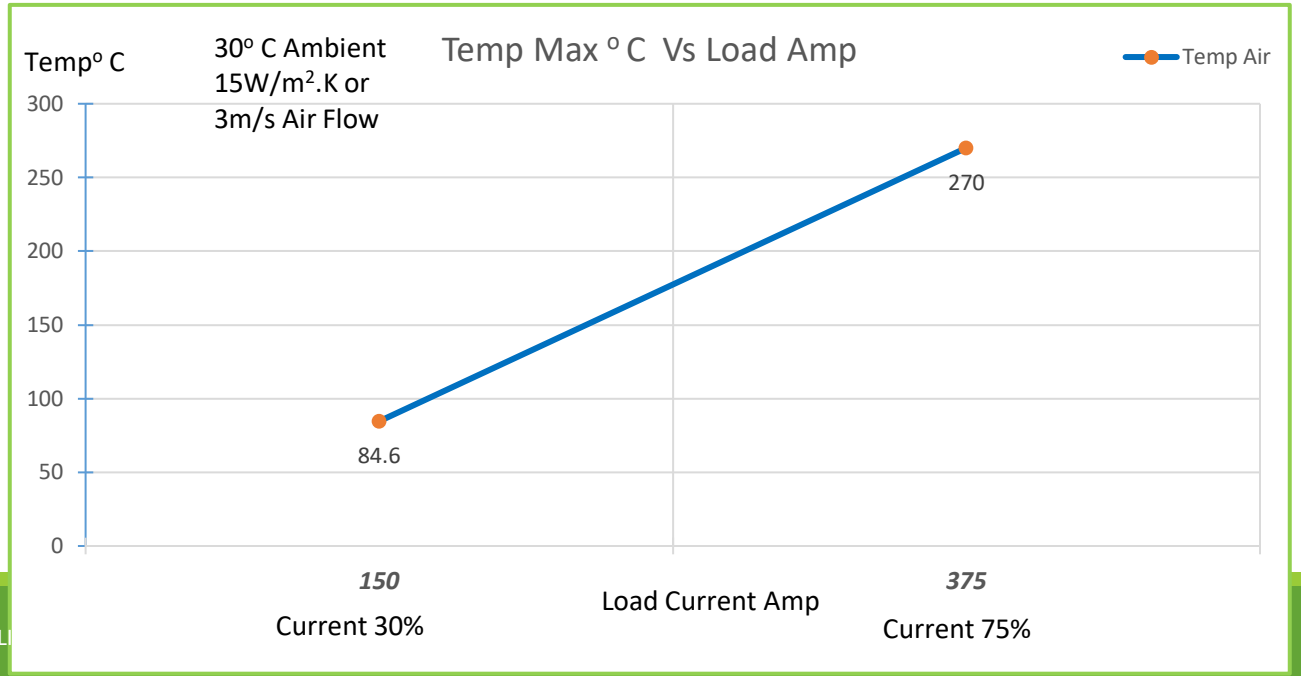
Additional forced air cooling of air flow 10 cm/s needed



Thermal and Electromagnetics simulation – Part # HCS-601M-500AG-RB1– Current rated 500A @ 10kHz

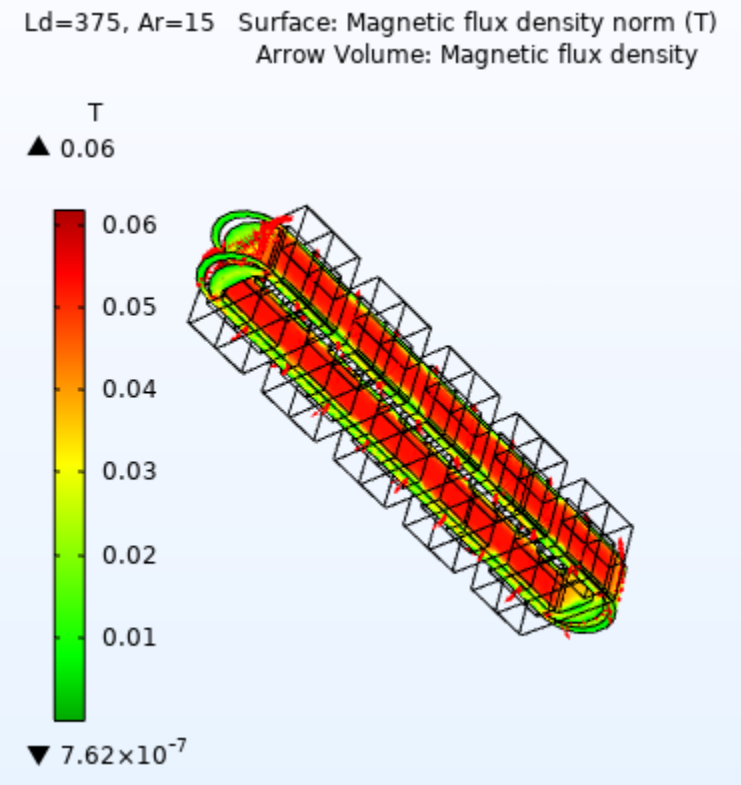




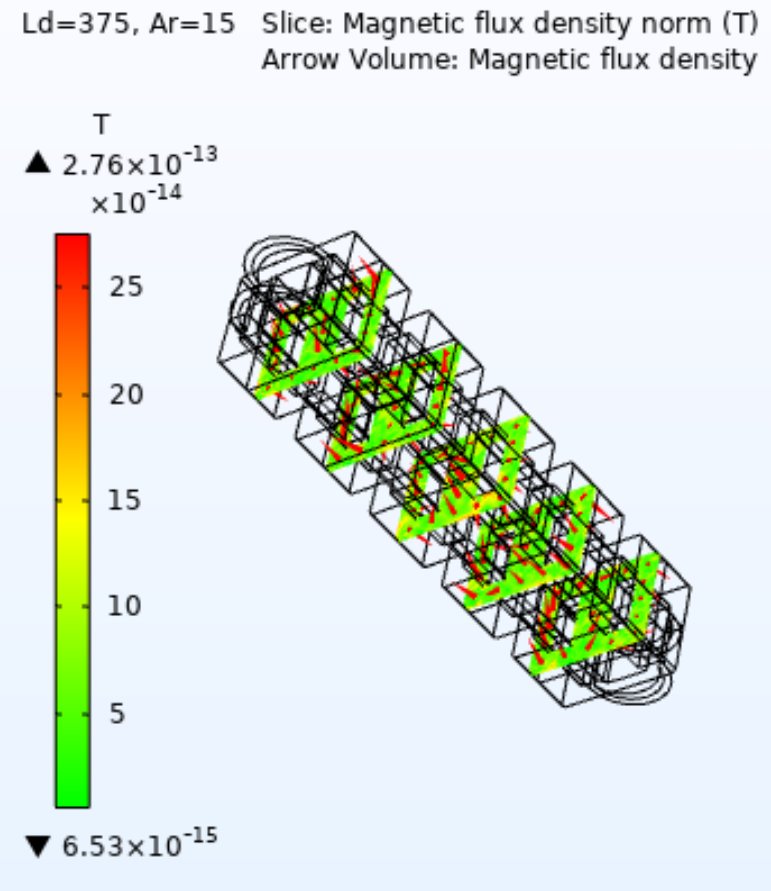


Thermal and Electromagnetics simulation – Part # HCS-601M-500AG-RB1– Current rated 500A @ 10kHz

Coil Flux



Core flux



Abbreviations

Ld : Current rated Amps
Ar : Airflow
$W/m^2.K$: Watts / Sq meter .Kelvin – Heat Convection rate
m/s : Meter/ Second - Airflow
degC : Temperature in Deg C
T : Tesla – Magnetic Flux density
Temp : Temperature
Temp max: Temperature Maximum
Amb : Ambient Temperature
Amps : Ampere Load current.
Slice : Sectional view

Disclaimer :
-Simulation MODEL is an effective tool for evaluating product performance by simulation; however, it does not simulate product performance in all test environments and is not intended to be a replacement for testing of the actual device by means of a test board or otherwise.
- Simulation results are for reference purposes only; CUSTOMER shall perform thorough testing using the actual device.