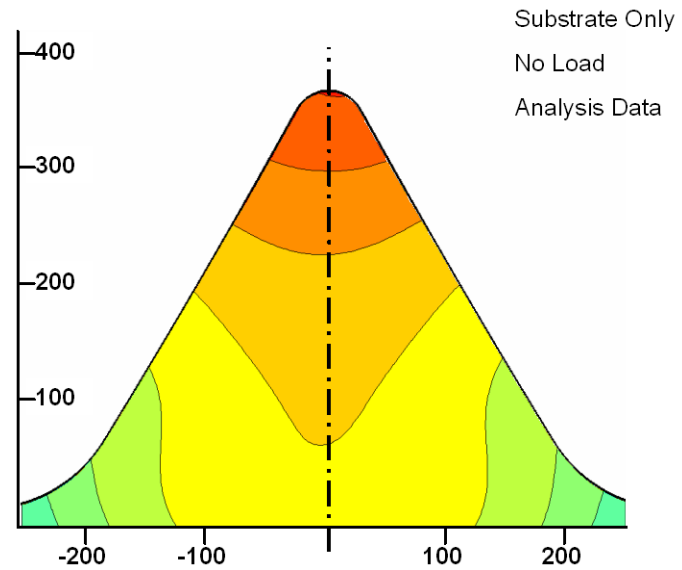
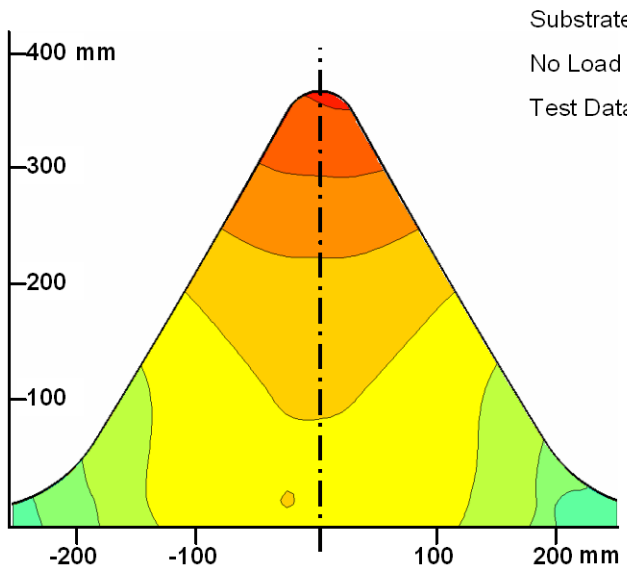
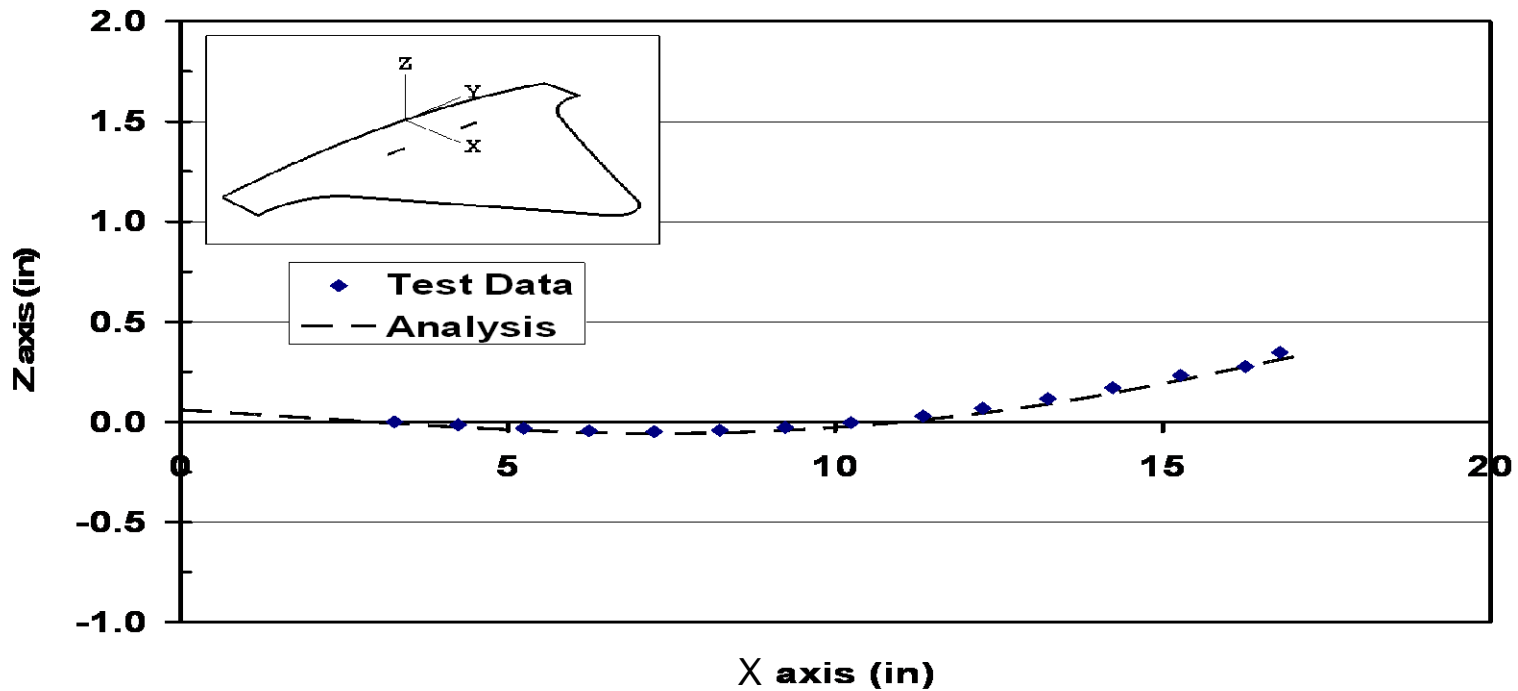


Thermal Mapping of Boeing Chevron

July 12, 2007

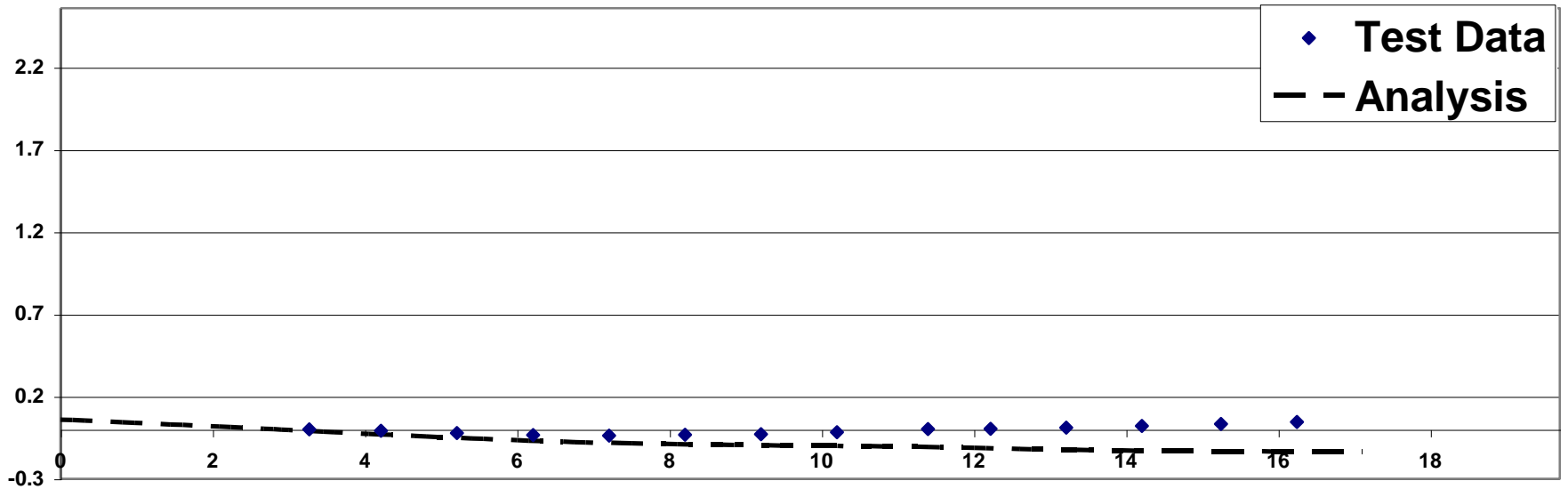
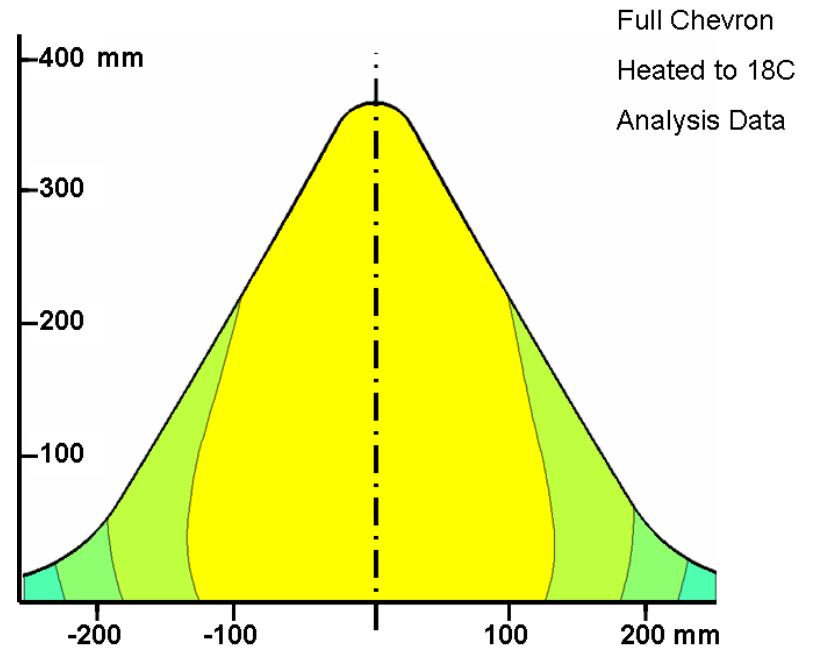
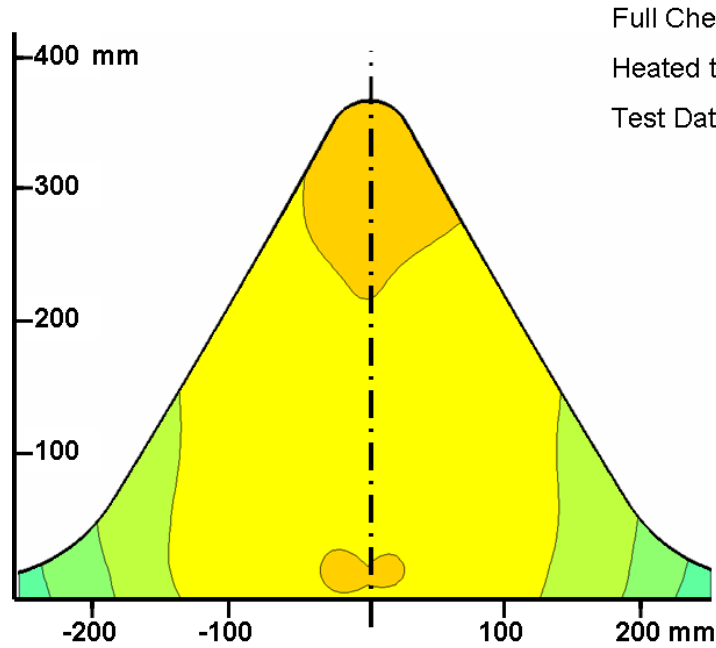
Reference Configuration



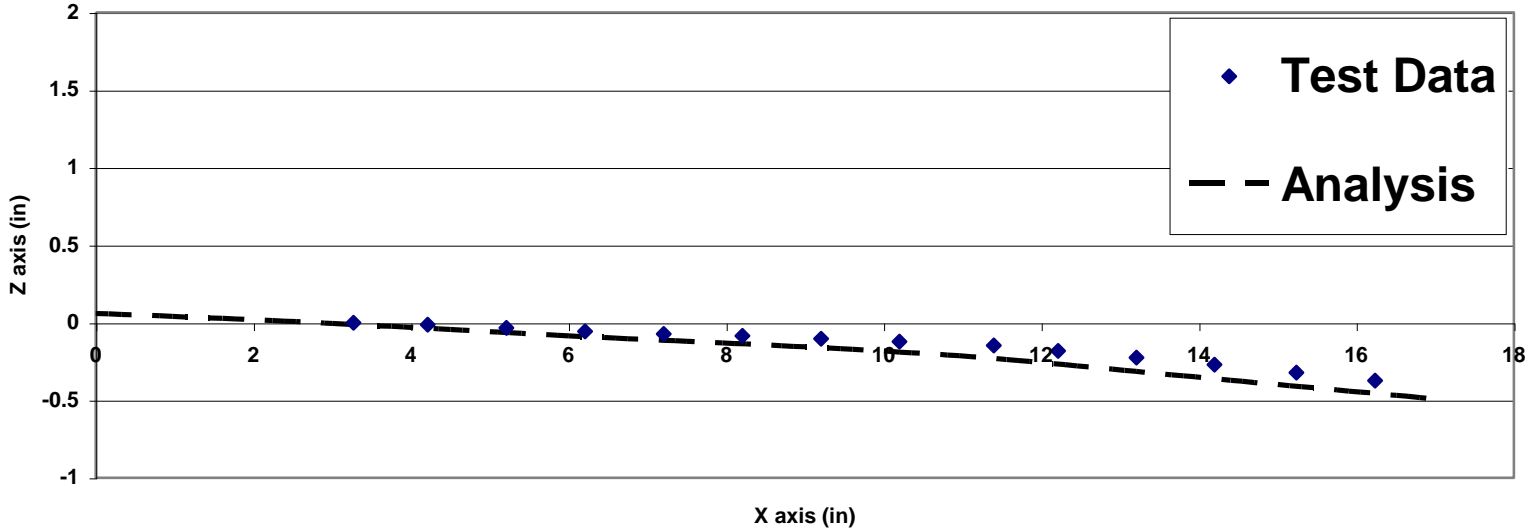
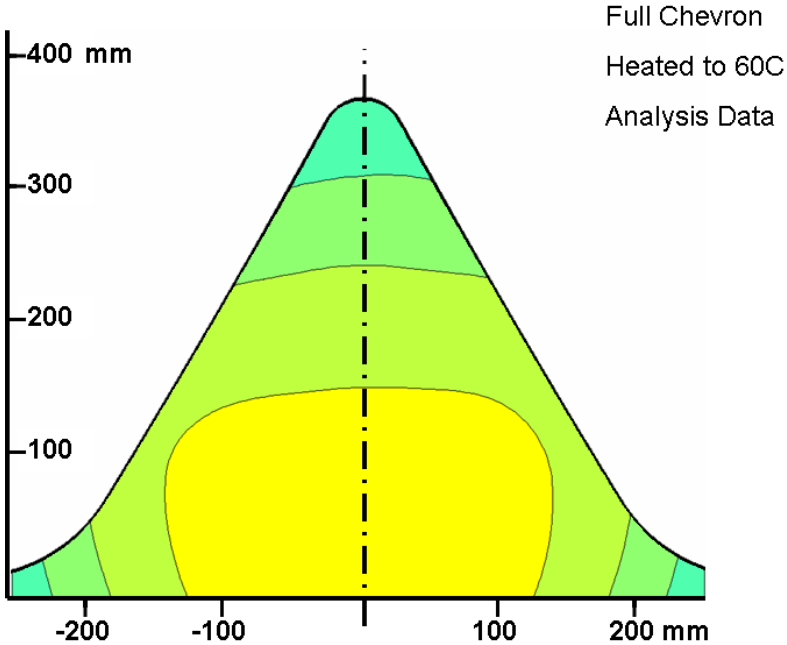
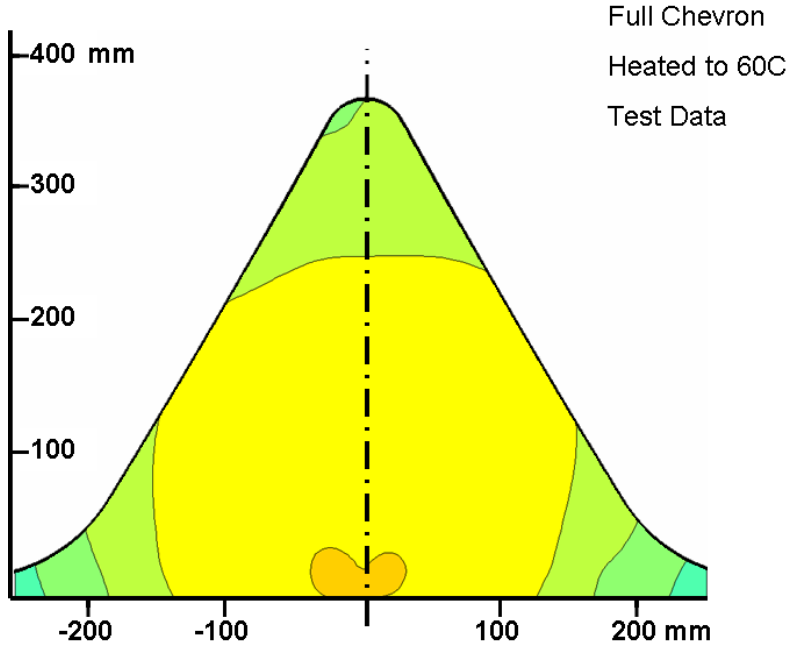
Heating

Beams Clamped in Martensite,
Initial Temperature = 18C

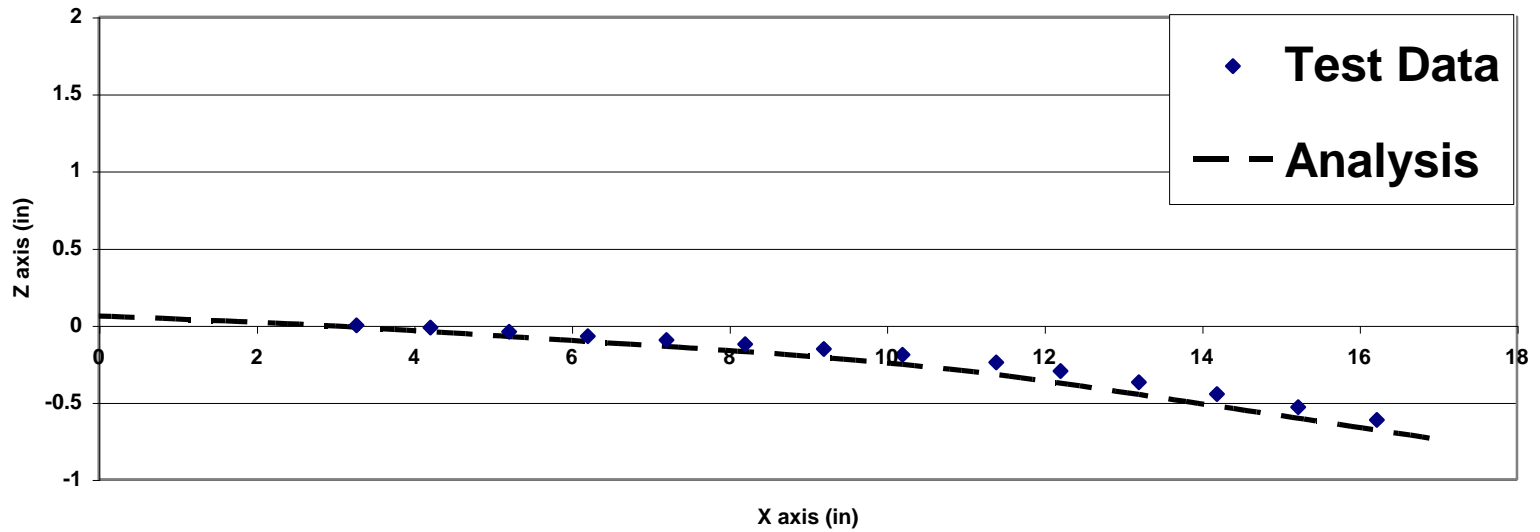
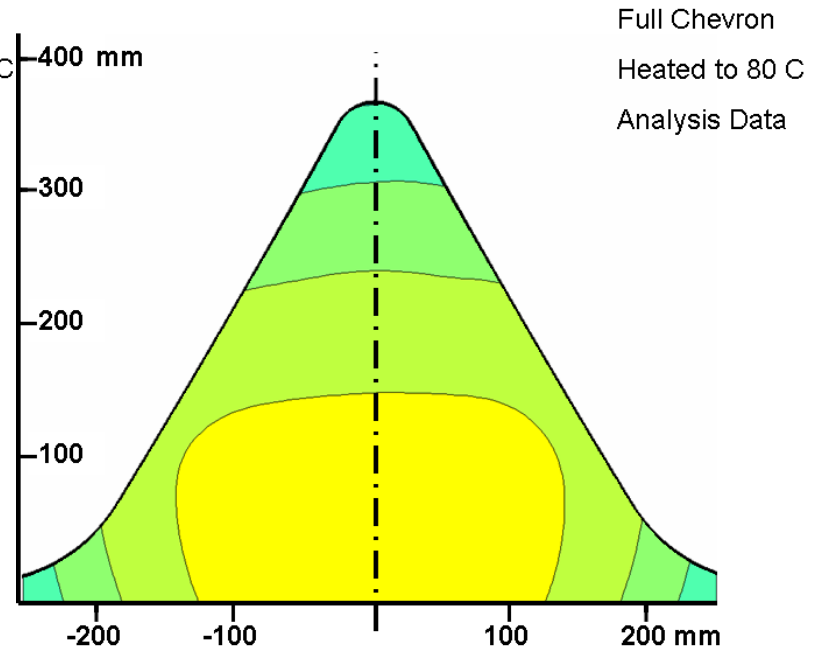
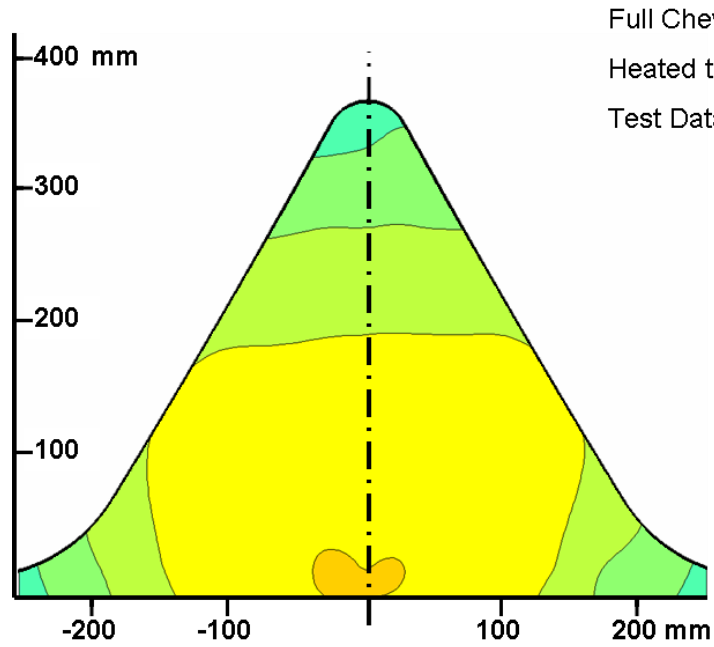
Martensitic Beams Clamped, Temperature = 18 C



Temperature = 60°C



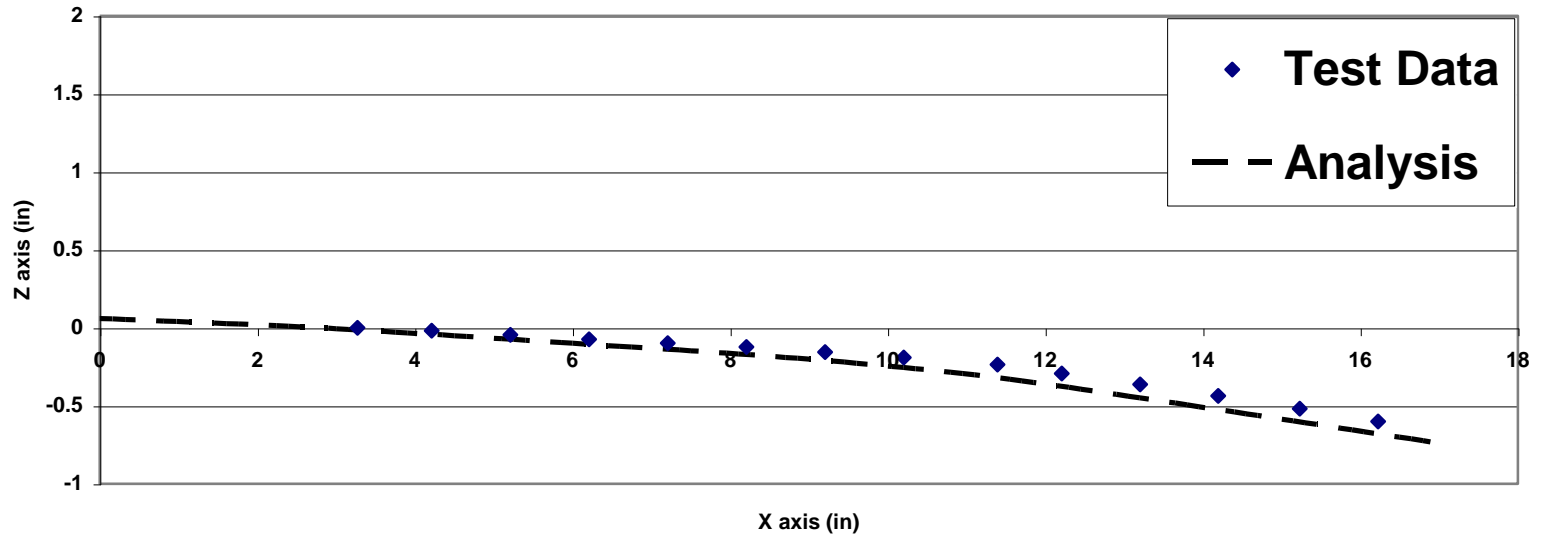
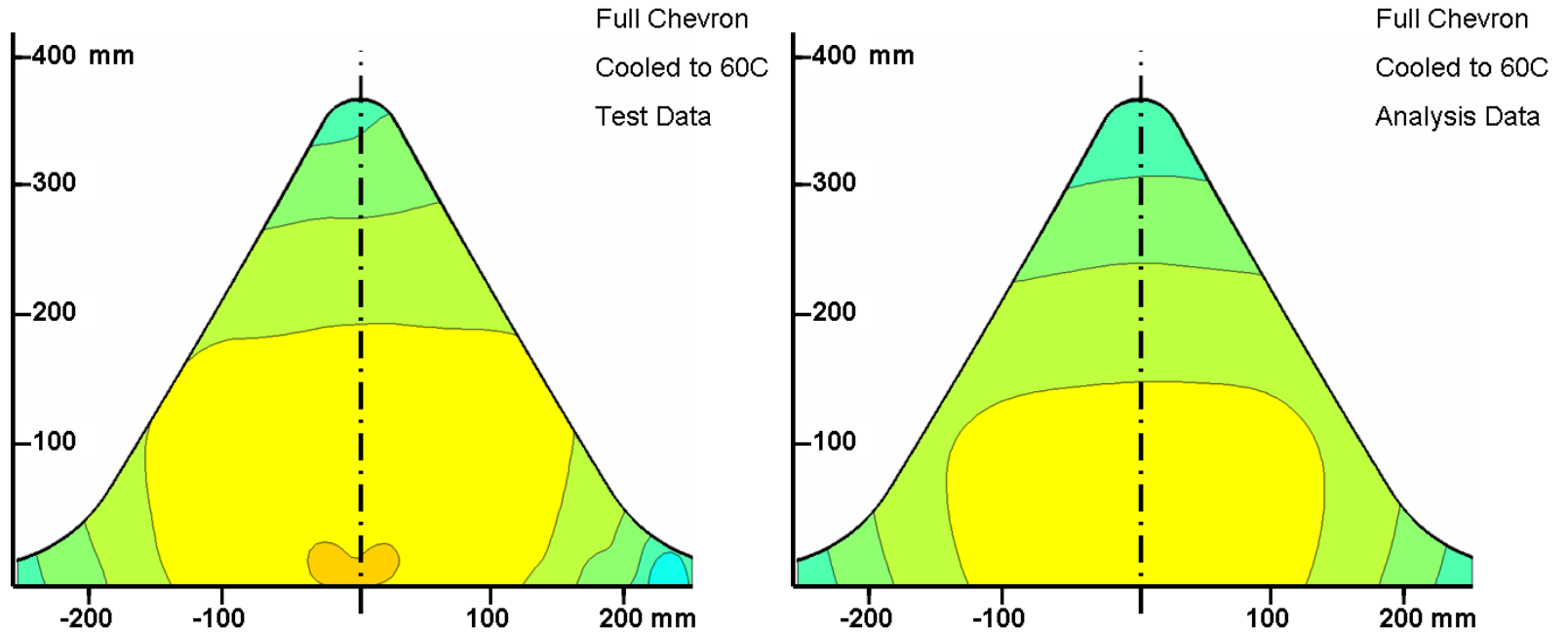
Temperature = 80°C



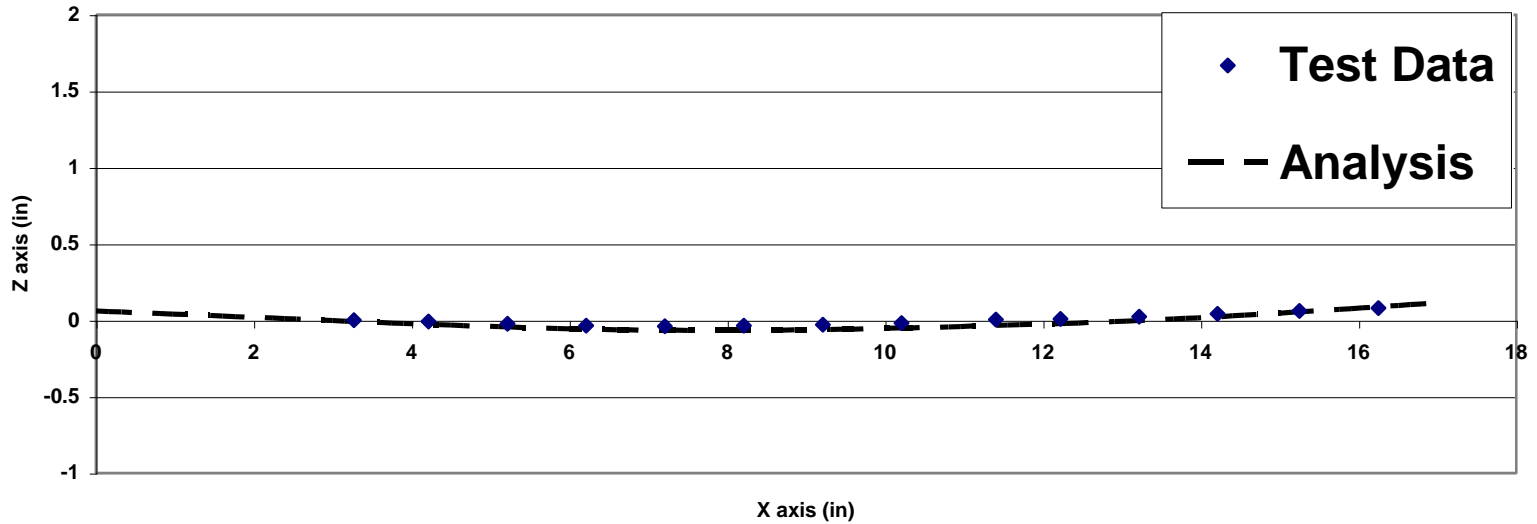
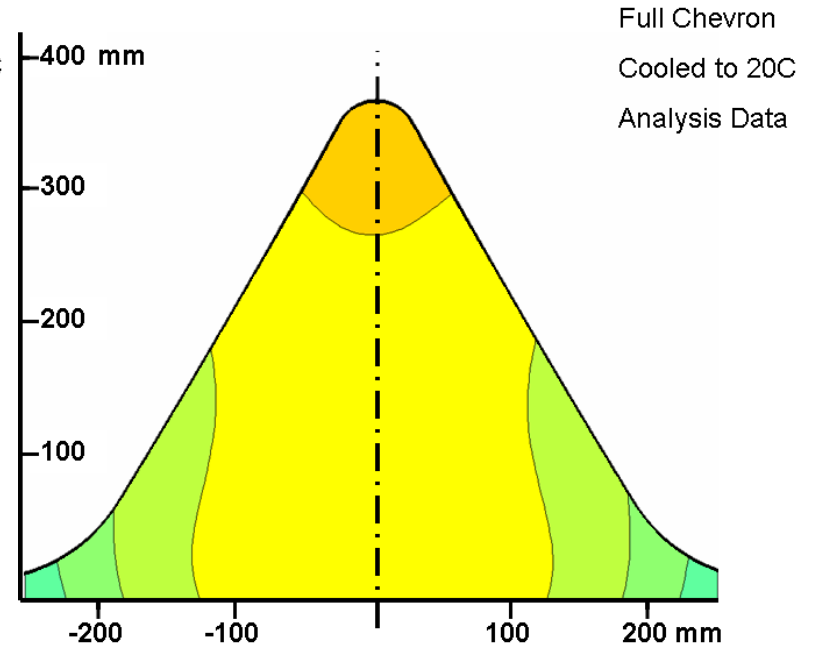
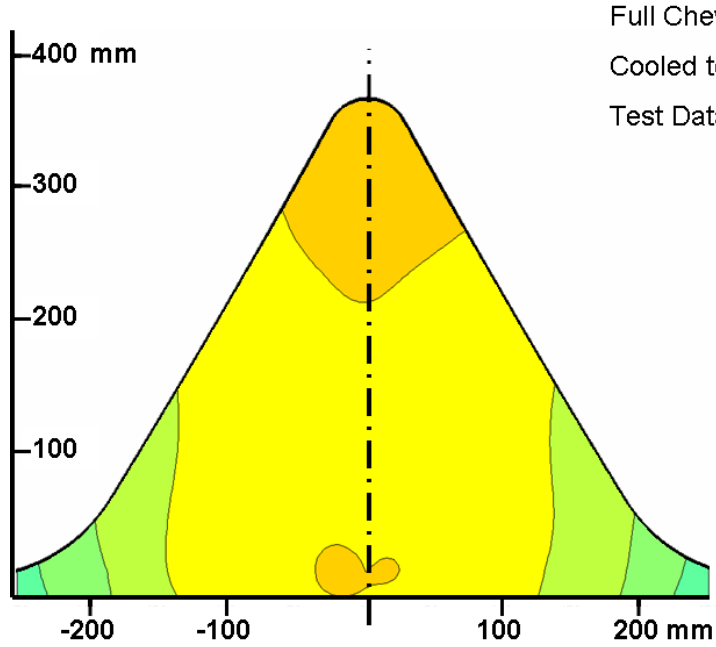
Cooling

Cooled from 80C

Temperature = 60°C



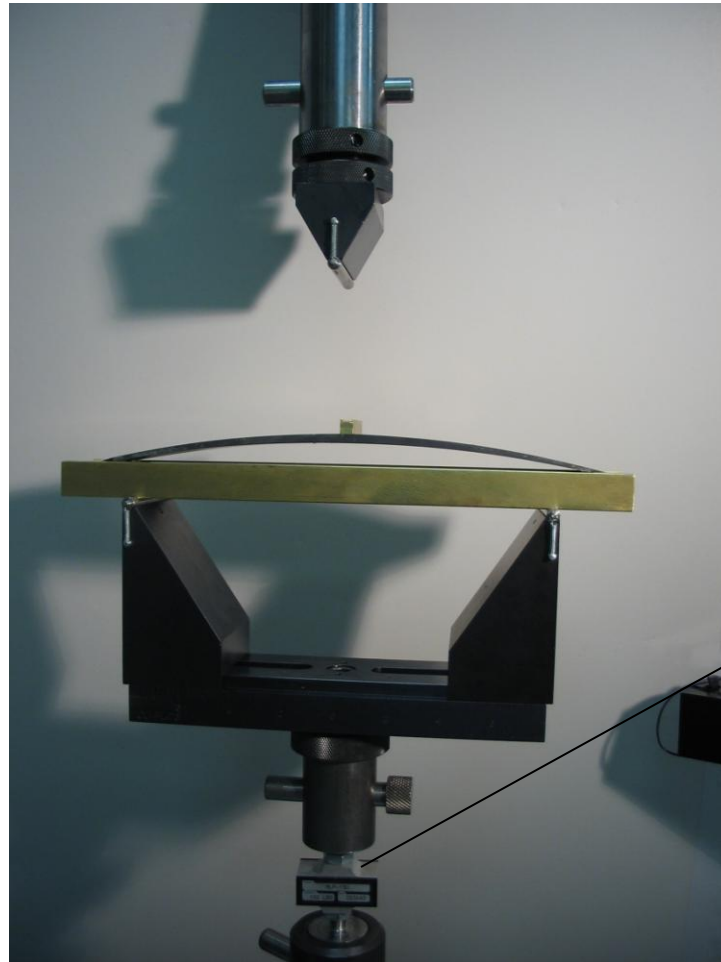
Temperature = 20°C



SMA Beam Testing (TAMU)

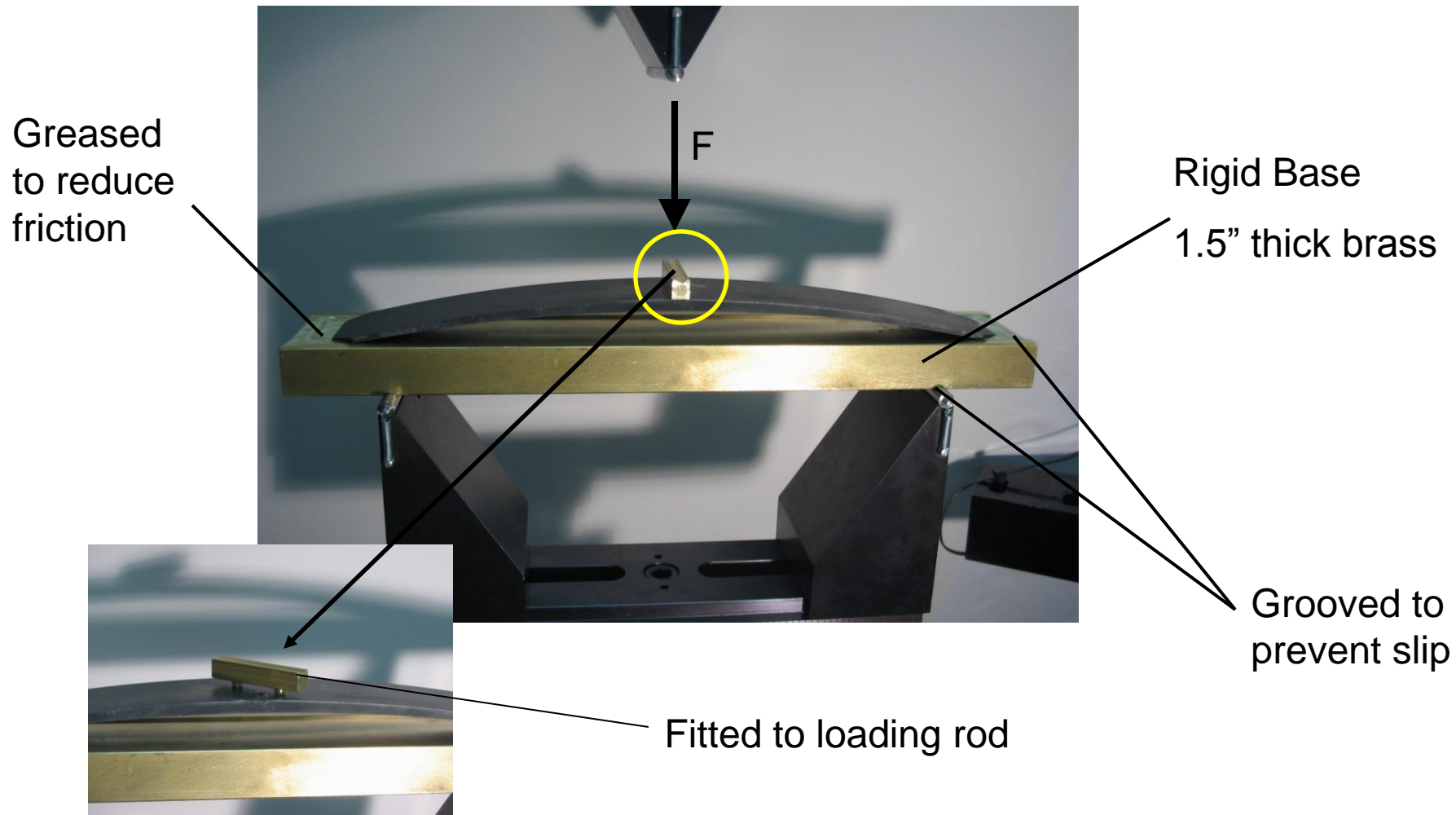
Three Point Bending of Boeing
Flight Beam

Experimental Configuration (1)

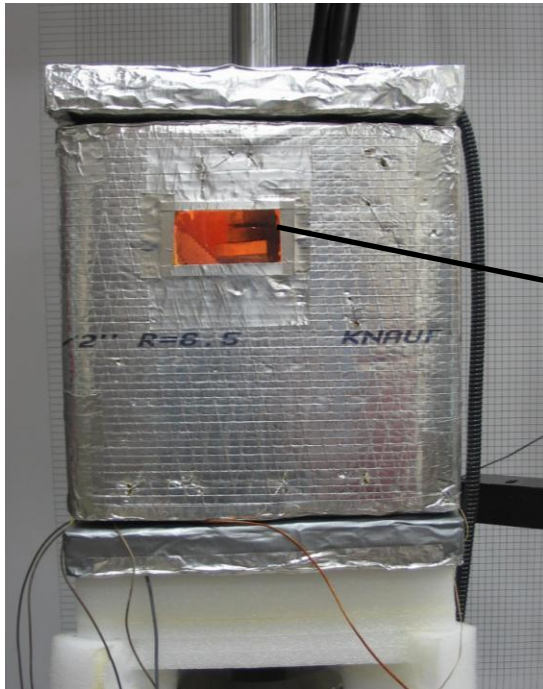


150 lb
Load Cell

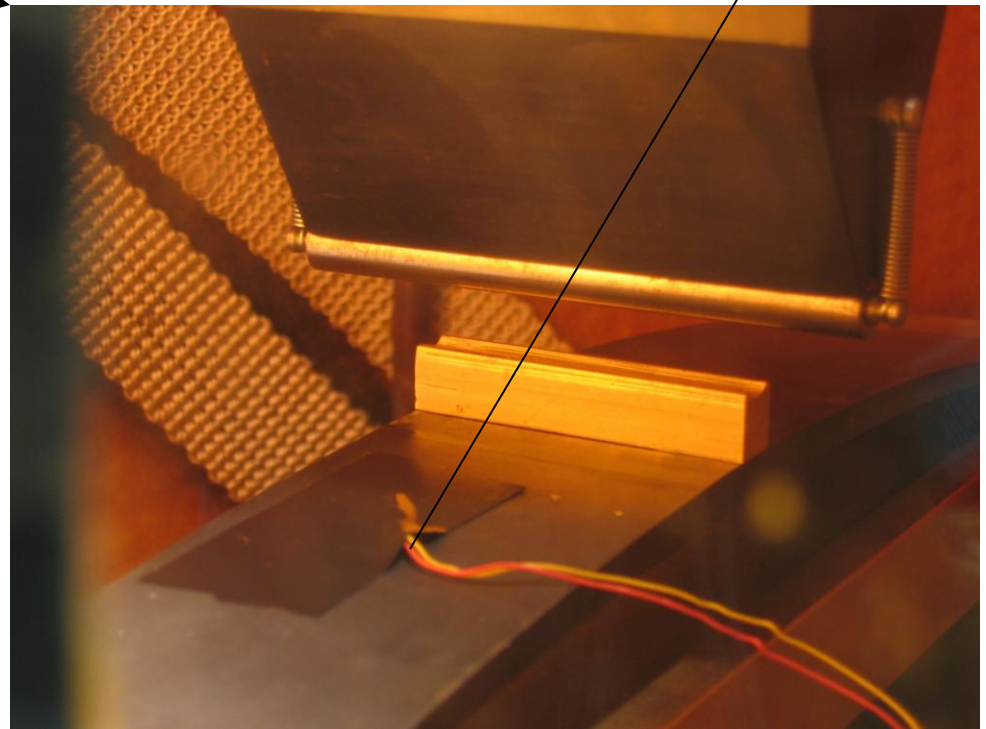
Experimental Configuration (2)



Heating and Cooling the Specimen



Insulated Box
Furnace with resistive
heating strips and
nitrogen cooling
system

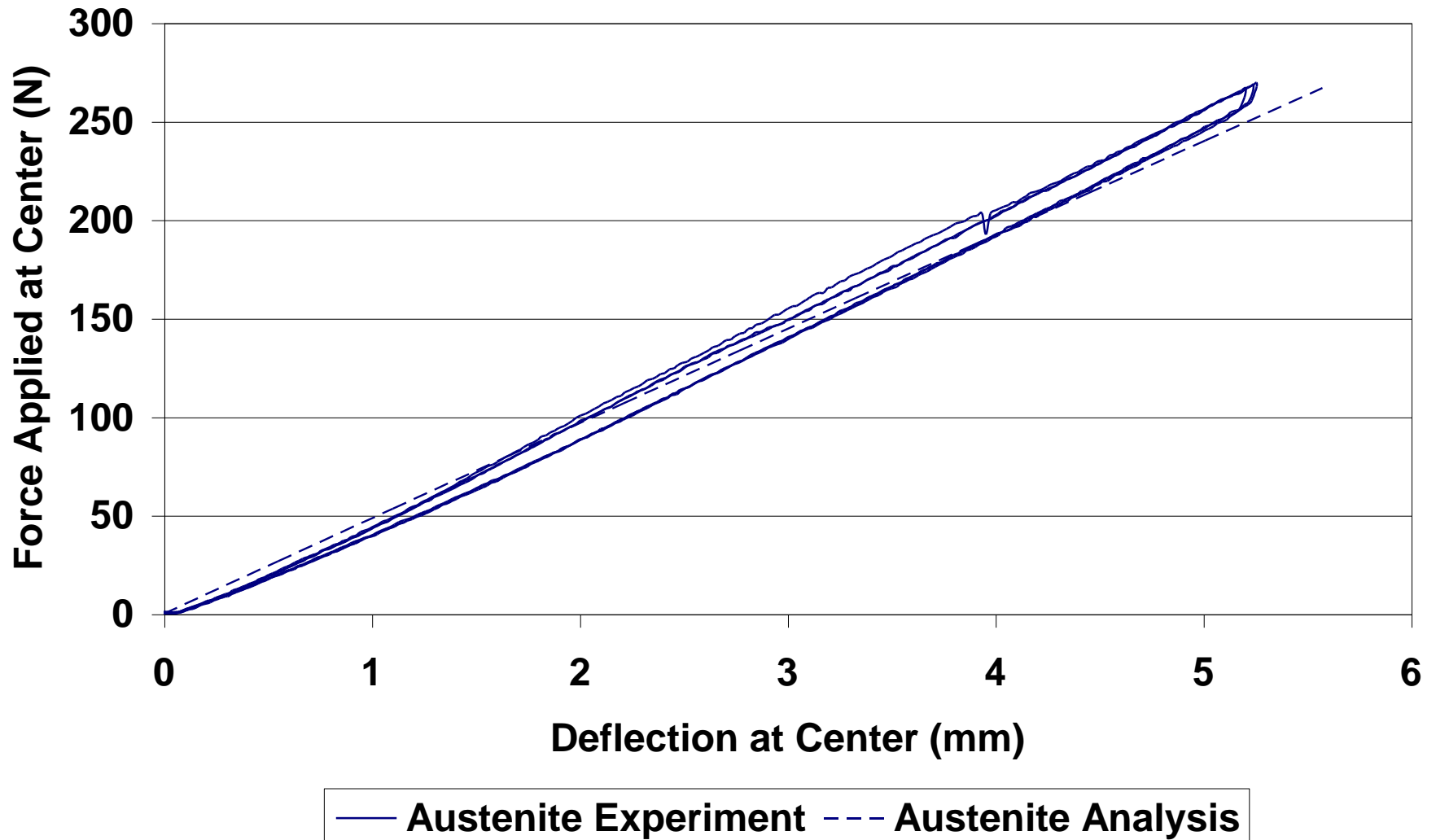


Thermal
Couple

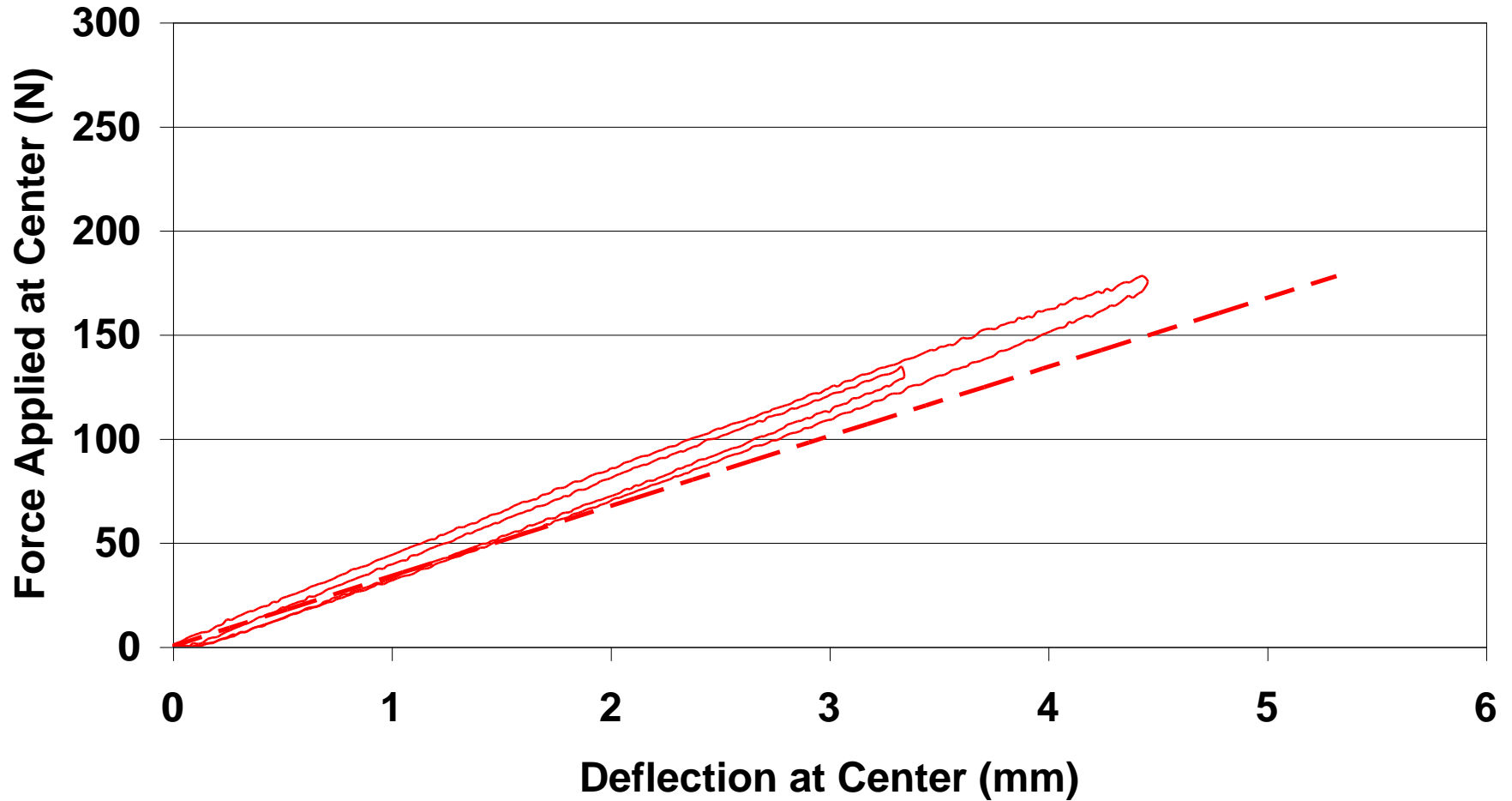
Results

Comparisons between the
experiment and model predictions
for ELASTIC loading

Elastic 3-Point Bending of Beam - Austenite (80 C)



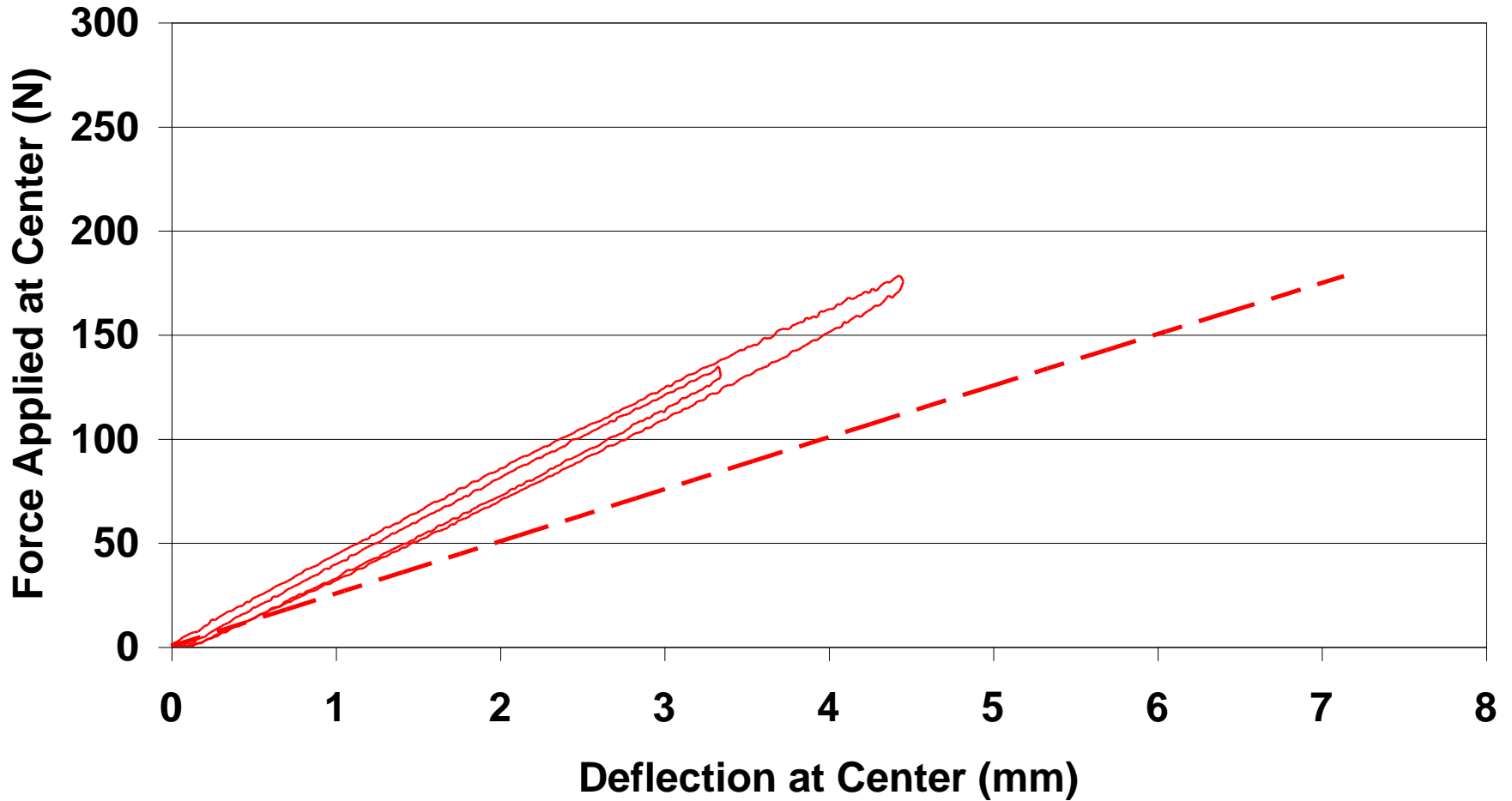
Elastic 3-Point Bending of Beam - Martensite (25 C)



— Martensite Experiment - - Martensite Analysis

Elastic 3-Point Bending of Beam - Martensite (25 C)

(Initial Problematic Result)



— Martensite Experiment - - Martensite Analysis

Stress vs. Strain - Test 1A (Mart. and Recovery)

