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Bend Moment Analysis Comparing Strand Annealed Titanium Beta III Wire to Super Elastic Binary Nitinol Wire (A_f ~15°C)?

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Bend moment testing was employed to characterize both force output and tolerable strain prior to permanent deformation of 0.020" diameter wires. Both wires were cold drawn and thermally straightened to maximize strength and elasticity. Each material was subjected to a 15° and 30° axial bend utilizing an Acculine Model #AE-3BM test system. (See inserted photo) The results are depicted in the graph below.

Beta III is a reasonable alternative for standard binary Nitinol wire when the deflection is kept below a 15° bend angle or approximately a 3% total strain at the outer material fiber relative to the neutral bending axis.