A regenerative elastocaloric device: Experimental results

Elastocaloric cooling and heating is an alternative cooling technology that has potential to be highly efficient and environmentally friendly. Experimental results are reported for two elastocaloric regenerators made of NiTi alloys in the form of parallel plates in two plate thicknesses. For the regenerator made of 0.2 mm plates, a maximum no-load temperature span of 17.6 K was achieved for an applied strain of 4.3%. For the regenerator with 0.35 mm plates, a maximum temperature span of 19.9 K was reached for a strain of 3.5%. The 0.2 mm regenerator failed after approximately 5200 cycles and the 0.35 mm regenerator failed after approximately 5500 cycles.