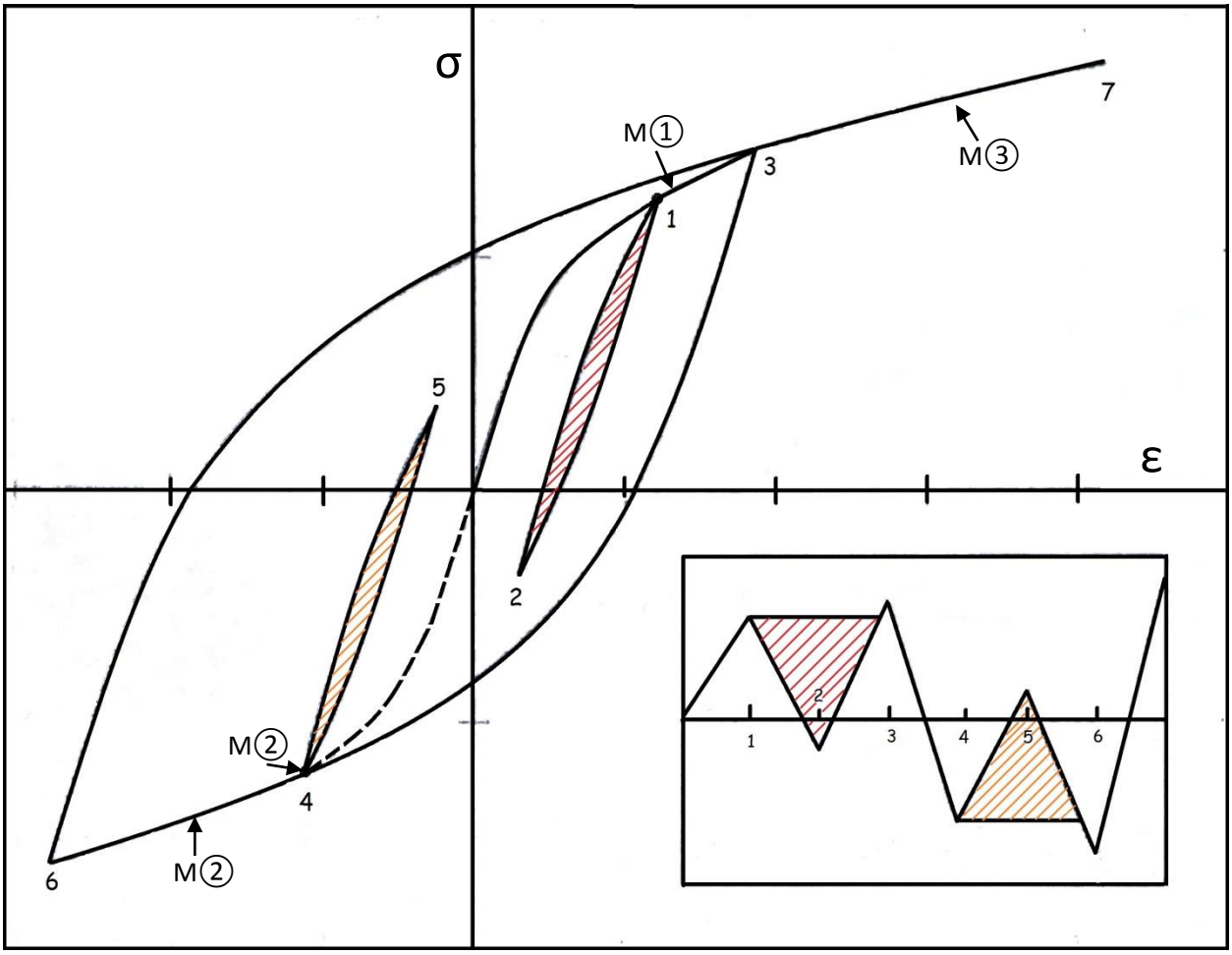
Step 6: Hysteresis



1. Masing-behavior

The shape of hysteresis loop curves corresponds to the doubled cyclic stress-strain curve

2. Memory behavior

For an irregular load history the stress-strain response exhibits memory effects which can be characterized by,

M①: Memory 1

After forming a closed hysteresis loop the starting point of which has been on the cyclic stress-strain curve (1-2-1), the stress-strain path follows the cyclic stress-strain curve.

M② : Memory 2

After forming a closed hysteresis loop the starting point of which has been on a superior hysteresis loop (4-5-4), the stress-strain path follows the original hysteresis loop (3-4-6).

M③ : Memory 3

A hysteresis loop started on the cyclic stress-strain curve ends in the opposite quadrant (between 4-6) when the stress or strain amount of its starting point is reached. Subsequent loading follows the cyclic stress-strain curve.