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KES

Glossary of Terms used in Shape Memory Alloys

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1. Scope of Application

This standard shall regulate main terms and meanings related to shape memory alloys

2. Classification

Terms shall be classified as following

- (1) Basic property of matter
- (2) Test evaluation
- (3) Heat treatment and other treatment
- (4) Characteristics of shape memory

3. Definition of Terms

Definition of terms shall be same as followings

Also, corresponding English word is indicated as reference.

- Remark**
1. Thing attached () to out of explanation of terms or definition is two case that it is same meaning or abbreviation or terms is replaced with.
 2. Thing indicated by a, b, c, d out of explanation of meaning shows the characteristics or method.

(1) Basic property of matter

No.	Terms	Definition
1001	Shape memory effect	Phenomenon that it returns to shape before deformation as reverse transformation appears when it is heated to temperature which high temperature state becomes stable in spite of deforming arbitrary shape alloy into any shape in low temperature (Martensite).
1002	Shape memory alloys	Alloy having shape memory effect There are Ti-Ni alloy, Cu-Zn-Al alloy and etc.
1003	Stored energy	Energy stored in alloys in case of using superelasticity of shape memory alloy

No.	Terms	Definition
1003	Stored energy	<p>Energy stored in shape memory alloys is indicated with area (EU) that stress - strain curve and strain axis make at the moment of eliminating load and whole mechanical energy absorbed in shape memory alloys is indicated with area (EL) that stress - strain curve and strain axis make at the moment of applying load.</p> <p>Call EU/EL as storage efficiency.</p>
1004	Martensitic transformation	<p>Transformation that changes into low temperature phase (Martensite) with shear deformable instrument at any temperature at the moment of cooling it from high temperature to temperature area of stable phase (Parent phase) as 1 kind of solid phase transformation. Martensite transformation has following characteristics.</p> <ul style="list-style-type: none"> a. Non-diffusive transformation b. Come with surface undulation (Shape change) c. Have lattice homology between parent phase and martensite crystal lattice also have specific crystal azimuth relation between both crystals. d. Martensite has specific true wall.
1005	Martensite	<p>Name of low temperature side phase produced by martensite transformation.</p> <p>Martensite produce not only by cooling at parent phase but also by applying stress in parent phase.</p>
1006	parent phase	High temperature side phase out of two phase which relate in phase transformation.
1007	R-phase transition	<p>Transformation into R-phase from parent phase in Ti-Ni alloys.</p> <p>it is martensite transformation as large meaning but call it specially as R-phase transformation because crystal structure has Arhombohedral symmetry.</p>
1008	R-phase	<p>Name of phase produced by R-phase transformation in Ti-Ni alloys.</p> <p>Middle phase shown at middle temperature out of parent phase and low temperature phase.</p>