

JIS

JAPANESE INDUSTRIAL STANDARD

Glossary of Terms used in Damping Materials

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

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Glossary of Terms used in Damping Materials

1. Scope

This Japanese Industrial Standard specifies the main terms and definitions principally relating to metallic damping materials.

2. Classification

The terms shall be classified as follows:

- (1) Material and Material Characteristic
- (2) Performance
- (3) Test Method
- (4) Phenomena General

3. Terms and Definitions

The terms and definitions shall be as follows.

Further, English equivalent is shown for informative reference.

- Remarks
1. When two or more terms are arranged, preferential use shall follow the order thereof.
 2. When [] is affixed to a part in the term and definition, the character in [] may be omitted.
 3. When () is affixed to a part in the term and definition, the term in () may be substituted therefor.
 4. When (1) and (2) exist in the definition, two definitions of (1) and (2) are given.

Applicable Standards:

JIS C 1502-Sound Level Meters
JIS C 1505-Precision Sound Level Meters
JIS C 1510-Vibration Level Meters

Reference Standards:

JIS B 0153-Glossary of Terms Used in Mechanical Vibration and Shock
JIS G 0201-Glossary of Terms Used in Iron and Steel (Heat Treatment)
JIS Z 8106-Glossary of Acoustical Terms (General)

(1) Materials and Material Characteristics

No.	Term (Japanese character)	Reading	Definition	Informative reference	
				English equivalent	
1001	制振材 [料], ダンピング材 [料], 防振材 [料], 吸振材 [料]	SEISINZAI [RYŌ], DANPINGU ZAI [RYŌ], BŌSIN ZAI [RYŌ], KYŪSIN ZAI [RYŌ]	A material having large capacity which converts vibration energy having entered the material from the outside to heat energy to be absorbed. Though there are laminated damping steel sheets, clamping alloys, etc., there are also those materials having large capacity other than metallic materials. When the clamping materials are taken in a broad sense, those are contained.	damping materials	
1002	防音材 [料]	BŌON ZAI [RYŌ]	A material which is used especially on a countermeasure for noise taking into consideration the sound absorption or sound insulation. There are sound insulation materials and sound absorption materials according to its application purpose.	acoustical materials	
1003	制振合金, 防振合金, 吸振合金	SEISIN GŌKIN, BŌSIN GŌKIN, KYŪSIN GŌKIN	An alloy of a simple alloy substance, having capacity which damps vibration energy applied from the outside by converting it to heat energy in said material system by various mechanisms to be consumed.	damping alloys	
1004	転位型制振合金, 転位型防振合金	TEN'IGATA SEISIN GŌKIN TEN'IGATA BŌSIN GŌKIN	An alloy which absorbs vibration energy since dislocation fixed with an impurity atom is released by alternate stress and a dislocation line vibrates to display a static hysteresis phenomenon.	damping alloys of dislocation type	

No.	Term (Japanese character)	Reading	Definition	Informative reference	
				English equivalent	
1005	双晶型制振合金, 双晶型防振合金	SŌSYŌ GATA SEISIN GŌKIN, SŌSYŌ GATA BŌSIN GŌKIN	An alloy which absorbs vibration energy by static hysteresis and stress relaxation related to transfer of a boundary between a transformation twin following thermal elastic martensite transformation and a mother phase or of a boundary between a martensite and the mother phase.	damping alloys of interface type	
1006	強磁性型制振合金, 強磁性型防振合金	KYŌZISEI GATA SEISIN GŌKIN, KYŌZISEI GATA BŌSIN GOKIN	An alloy which absorbs vibration energy by magnetic mechanical static hysteresis formed by irreversible transfer of a ferromagnetic domain wall when a ferromagnetic substance receives alternate stress.	damping alloys of ferromagnetic type	
1007	複合型制振合金, 複合型防振合金	FUKUGŌ GATA SEISIN GOKIN, FUKUGŌ GATA BŌSIN GŌKIN	An alloy composed of a mother phase and a second phase, which absorbs vibration energy by viscous flow or plastic flow on an interface thereof.	damping alloys of composite type	
1008	制振鋼板, 複合型制振鋼板	SEISIN KŌHAN, FUKUGŌ GATA SEISIN KŌHAN	A composite type sheet material which absorbs vibration energy by a combination of a steel sheet and a visco-elastic polymer material. There are laminated damping steel sheets of constrained type and laminated damping steel sheets of unconstrained type.	laminated damping steel sheets	

No.	Term (Japanese character)	Reading	Definition	Informative reference	
				English equivalent	
1009	拘束型制振鋼板	KŌSOKU GATA SEISIN KŌHAN	A material of sheet state which is made into a sandwich structure by pinching a thin visco-elastic polymer material between two steel sheets. Damping capacity is indicated by shear deformation of the polymer material following flexural vibration.	laminated damping steel sheets of constrained type	
1010	非拘束型制振鋼板	HIKŌSOKU GATA SEISIN KŌHAN	A material of sheet state prepared by sticking a visco-elastic polymer material film (damping sheet) to the surface of steel sheet. Damping capacity is indicated by elongation deformation of a polymer material following flexural vibration.	laminated damping steel sheets of unconstrained type	
1011	圧延制振鋼板, 圧延防振鋼板	ATUEN SEISIN KŌHAN, ATUEN BŌSIN KŌHAN	A material of sheet state prepared by compressing a groove to form a thin cavity by rerolling a recessed steel sheet. Vibration energy is absorbed by friction of both side surfaces pinching the cavity.	rolled high damping steel sheets	
1012	片状黒鉛鋳鉄	HENZYŌ KOKUEN TYŪTETU	Gray cast iron containing flake graphite. Its damping capacity is large.	flake graphite cast iron	
1013	圧延鋳鉄	ATUEN TYŪTETU	Cast iron prepared by hot rolling of nodular graphite cast iron. It is joined by high damping capacity and mechanical strength.	rolled nodular cast iron	

No.	Term (Japanese character)	Reading	Definition	Informative reference	
				English equivalent	
1014	多孔質焼結鉄 多孔隙焼結鉄	TAKŌSITU SYŌKETU TYŪTETU	A material prepared by compression forming cut powder of flake graphite cast iron to be sintered. It has a continuous cavity, displays damping effect of a porous state due to this cavity in addition to damping capacity of the flake graphite cast iron, and displays high damping capacity.	porous sintered flake cast iron	
1015	微細粒超塑性合金	BISAIRYŪ TYŌSOSEI GŌKIN	An alloy composed of fine crystal grain of a micrometer order (μm), which displays superplasticity. When a fine grained alloy is deformed at a slow speed within a temperature range of an extent of about 0.5 to 0.7 of said melting point, maximum elongation of several hundreds to several thousands % is occasionally displayed. Many materials of high damping capacity exist often in such alloys.	fine grained super-plastic alloys	
1016	制振樹脂, 樹脂制振材	SEISIN ZYUSI, ZYUSI SEISIN ZAI	A visco-elastic polymer material to be used for laminated damping steel sheets. When vibrating external force is applied to a plastics, force in its mechanical energy applied to a viscous component, is converted to heat energy to be dispersed, and vibration is damped.	damping plastics	

No.	Term (Japanese character)	Reading	Definition	Informative reference	
				English equivalent	
1017	粘弾性高分子材料, 粘弾性樹脂	NENDANSEI KOBUNSI ZAIRYŌ NENDANSEI ZYUSI	A polymer material to which both viscosity and elasticity are provided.	visco-elastic polymers	
1018	共析組織	KYŌSEKI SOSIKI	A structure generated in process of cooling by transformation from one solid solution to a structure in which two or more solid phases are densely mixed.	eutectoid structure	
1019	共晶組織	KYŌSYŌ SOSIKI	A structure generated in process of cooling by a variation from one liquid phase to a structure in which two or more solid phases are densely mixed.	eutectic structure	
1020	析出	SEKI SYUTSU	An phenomenon wherein an atom solid solved excessively in supersaturated solid solution is released from the crystal lattice of solid solution to form a new phase, and a stable state in which a solid solution phase coexists with the new phase is generated.	precipitation	
1021	二相混合組織	NISŌ KONGŌ SOSIKI	A structure in which two different phases are densely mixed. It is formed by eutectic, eutectoid, precipitation, etc. Damping capacity of composite type is joined by such a structure.	microduplex structure	
1022	共晶合金	KYŌSYŌ GŌKIN	An alloy having eutectic structure. See the item of eutectic structure (No. 1019).	eutectic alloys	
1023	等軸晶組織	TŌZIKUSYŌ SOSIKI	A structure composed of a crystal grain of which the length is almost same in any direction.	equiaxed (grain) structure	

No.	Term (Japanese character)	Reading	Definition	Informative reference	
				English equivalent	
1024	[結晶] 粒界	[KESSYŌ] RYŪKAI	A boundary of adjacent crystal grains.	grain boundaries	
1025	結晶粒度	KESSYŌ RYŪDO	A unit of the size of crystal grain expressed by unit area or unit volume of a polycrystal material.	grain size number	
1026	粒界腐食	RYŪKAI HUSYOKU	A phenomenon wherein a grain boundary is selectively corroded.	intergranular corrosion	
1027	相 変 態	SŌ HENTAI	A phenomenon wherein substance transforms from a phase to other phase.	phase trans- formation	
1028	熱弾性型マルテンサイト変態	NETU DANSEI GATA MARUTEN SAITO HENTAI	A martensitic transformation likely to occur while variation of chemical free energy by transformation is equilibrating elastic strain energy following the transformation when temperature changes. In this kind of transformation, consistency of an interface between martensite and mother phase is good, and the martensite grows or contracts according to fine variation of temperature. Further, temperature hysteresis is characteristically small.	thermo-elastic martensitic trans- formation	
1029	双 晶	SŌSYŌ	A crystal in the case where adjacent two crystal grains have the same crystal structure and orientations of two crystal grains are of a symmetrical relation such as rotation symmetry, mirror image symmetry, etc.	twin	