

# Explanation of the Material list

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# Revision history

No.	Date	Note	No.	Date	Note
1	October 1, 2006	Newly issue for Version 2.01	14	June 1, 2014	Issued for Version 2.21
2	July 1, 2007	Issued for Version 2.02	15	October 1, 2014	Issued for Version 2.30
3	November 1, 2008	Issued for Version 2.04	16	June 1, 2015	Issued for Version 2.31
4	June 1, 2009	Issued for Version 2.05	17	November 1, 2015	Issued for Version 2.32
5	October 1, 2009	Issued for Version 2.10	18	June 1, 2016	Issued for Version 2.33
6	June 1, 2010	Issued for Version 2.11	19	November 1, 2016	Issued for Version 2.40
7	October 1, 2010	Issued for Version 2.12	20	June 1, 2017	Issued for Version 2.41
8	June 1, 2011	Issued for Version 2.13			
9	October 1, 2011	Issued for Version 2.14			
10	June 1, 2012	Issued for Version 2.16			
11	October 1, 2012	Issued for Version 2.17			
12	June 1, 2013	Issued for Version 2.18			
13	October 1, 2013	Issued for Version 2.20			

# 1. Explanation of input rules regarding material information

- 1-1. Material number (Metal or materials other than plastics or rubber)  
Material symbol (plastics or rubber)

## (1) General rules

- 1) If a material is regulated by a public standard, the material with the public standard shall be chosen.
- 2) If a material is not regulated by any public standard, the material with JAMxxxxx \* (Unique Code) shall be chosen.

\*: xxxxx: A1111, A2222, A4444, H4444, HC, HCRF

### Notes:

If some of actual chemical composition are different from the public standard specification as follows, a material with a "Unique code" shall be chosen.

- The case that a portion range of certain substance exceeds specification range regulated by the public standard.
- The case that certain substance not regulated by the public standard is included.

### Remarks:

Plastics and rubber materials don't have specifications in their public standards, but material types are regulated by them. So 'Unique codes' are not defined.

For plastics and rubber materials, material symbols shall be chosen in the Material list.

## (2) Usage of symbols regulated by Public standards

1) Material number and Material symbol in JAMA Material list refer to latest public standards.

Note: With engineering drawings which have not been updated to reflect the latest JIS, discrepancies may occur between the engineering drawing and the Material list, so please refer to updated JIS and check material information.

2) In some JIS standards, both current symbols and old symbols are listed. In such JISs, only current symbols are registered in the Material list. Refer to the example on the right.

3) If public standards are revised after release of this updated Material list (Material number or Material symbol changes), material information shall be inputted using the current version.

4) In some JIS both JIS symbols and ISO symbol are listed. In such a JIS, only JIS symbols are registered in the Material list.  
Refer to Attachment 1-6. Comparative charts (JIS symbol – ISO symbol) are attached.

### Example for 2) JISG4401 (Carbon tool steels)

Old	Current
SK1	SK140
SK2	SK120
SK3	SK105
SK4	SK95
SK5	SK85
SK6	SK75
SK7	SK65

### (3) Usage of Unique Codes

Unique codes are classified as follows.

Equivalent of Norm	Material Name
JAMAA1111	Supplied parts
JAMAA2222	Electronic parts
JAMAA4444	Supplied parts, Electronic parts and (Other than Surface treatment)
JAMAH4444	Surface treatment (Other than 5, 6)
JAMAHC	Surface treatment (Chromate film)
JAMAHCRF	Surface treatment (Trivalent Chromium Passivation, Chromium-free Passivation)

The lists of Unique Codes are shown in Appendix 2 (Page: Attachment 7 to 15). Please refer to them when searching for Unique Codes.

## (4) Material number for Metal (\$ mark)

In ver.2.01, various JIS standard materials were added to JAMA Material list, including materials used for minor applications. For these materials, Material number is filled by '\$' mark for the following reasons.

- It is estimated that the use of these materials is small frequency.
- The data volume is too large to register all JIS material into the JAMA Material list (Excel file).  
(Concerns arise over degradation of working speed of personal computers.)

Input rule and notes concerning '\$' mark are found below..

<Input rule>

Material name	Norms/Standards	Material number	VDA Classification
Titanium and titanium alloy castings	JISH5801	\$	2.3

Default

Manual replacing

(Only a symbol from JIS shall replace.)

<Notes>

- Please refer to JIS HANDBOOK or the homepage of Japanese Industrial Standards Committee (JISC\*) when searching for Material numbers (i.e. Symbols regulated by JIS)

\*:URL of JISC: <http://www.jisc.go.jp/app/JPS/JPSO0020.html>

- Prescribed information shall replace the '\$' mark. (Lack of input will cause an error.)
- Only symbols regulated by JIS shall replace.
- Please be careful not to make a mistake when replacing the '\$' mark..

## (5) Material symbols for Plastics

The Material symbol for polymer alloy shall be indicated in the same way as material symbols regulated by ISO1043 or the recycling mark.

The Material symbol for polymer is inputted using a '\$' mark as follows.

Surface treatment flag	Material name	Norms/Standards	Material number	Material symbol	VDA Classification
	Plastics PBT (Filled)	ISO1043		PBT-\$	5.1.a
	Plastics PBT (Unfilled)	ISO1043		PBT	5.1.b
	Plastics PBT alloy (Filled)	ISO1043		PBT+\$-\$	5.1.a
	Plastics PBT alloy (Unfilled)	ISO1043		PBT+\$	5.1.b

+\$ (left): Polymer, -\$ (right): Filler

Examples of entry method:

### Ex.1) PBT/PC alloy (Unfilled)

For PBT>PC, please choose 'PBT+\$' and replace '\$' with 'PC'.

For PBT<PC, please choose 'PC+\$' and replace '\$' with 'PBT'.

For PBT=PC, both 'PBT+PC' and 'PC+PBT' are allowed to be used.

(It depends on the agreement between purchaser and supplier whether 'PBT+PC' or 'PC+PBT' is used.)

### Ex.2) Polymer alloy composed of three polymers (Unfilled)

Please replace '\$' with the symbols for the second and the third components.

In the case of PBT/PET/PC (PBT: main component), please choose 'PBT+\$' and replace '\$' with 'PET+PC'.

Material symbols (Plastic materials) are listed on P.8-10.

Reference chart for  
**Material symbols**  
**(Plastic materials) [1/3]**

Material name	Material symbol
acrylonitrile-butadiene plastic	AB
acrylonitrile-butadiene-acrylate plastic; preferred term for ABA	ABAK
acrylonitrile-butadiene-styrene plastic	ABS
acrylonitrile-chlorinated polyethylene-styrene; preferred term for ACPES	ACS
acrylonitrile-(ethylene-propylene-diene)-styrene plastic; preferred term for AEPDMS	AEPDS
acrylonitrile-methyl methacrylate plastic	AMMA
acrylonitrile-styrene-acrylate plastic	ASA
cellulose acetate	CA
cellulose acetate butyrate	CAB
cellulose acetate propionate	CAP
cellulose formaldehyde	CEF
carboxymethyl cellulose	CMC
cellulose nitrate	CN
cycloolefin copolymer	COC
cellulose propionate	CP
cellulose triacetate	CTA
ethylene-acrylic acid plastic	EAA
ethylene-butyl acrylate plastic; preferred term for EBA	EBAK
ethyl cellulose	EC
ethylene-ethyl acrylate plastic; preferred term for EEA	EEAK
ethylene-methacrylic acid plastic	EMA
ethylene-propylene plastic; preferred term for EPM	E/P
ethylene-tetrafluoroethylene plastic	ETFE
ethylene-vinyl acetate plastic; preferred term for EVA	EVAC
ethylene-vinyl alcohol plastic	EVOH
perfluoro(ethylene-propylene) plastic; preferred term for PFEP	FEP
liquid-crystal polymer	LCP
methyl methacrylate-acrylonitrile-butadiene-styrene plastic	MABS
methyl methacrylate-butadiene-styrene plastic	MBS
methyl cellulose	MC
$\alpha$ -methylstyrene-acrylonitrile plastic	MSAN
polyamide	PA
polyamide 11; polyamide 12	PA11; PA12
polyamide 46	PA46
polyamide 6	PA6
polyamide 610 ; polyamide612	PA610 ; PA612
polyamide 66	PA66
polyamide 6T	PA6T
polyamide 9T	PA9T
poly(acrylic acid)	PAA
polyaryletherketone	PAEK
polyamideMXD6	PAMXD6
polyacrylate	PAK
polyacrylonitrile	PAN
polyarylate	PAR



Reference chart for  
Material symbols  
(Plastic materials) [2/3]

Material name	Material symbol
poly(aryl amide)	PARA
polybutene	PB
poly(butyl acrylate)	PBAK
1, 2-polybutadiene	PBD
poly(butylene naphthalate)	PBN
poly(butylene terephthalate)	PBT
polycarbonate	PC
poly(cyclohexylene dimethylene cyclohexanedicarboxylate)	PCCE
polycaprolactone	PCL
poly(cyclohexylene dimethylene terephthalate)	PCT
polychlorotrifluoroethylene	PCTFE
polydicyclopentadiene	PDCPD
polyethylene	PE
polyethylene, chlorinated; preferred term for CPE	PE-C
polyethylene, high density; preferred term for HDPE	PE-HD
polyethylene, low density; preferred term for LDPE	PE-LD
polyethylene, linear low density; preferred term for LLDPE	PE-LLD
polyethylene, medium density; preferred term for MDPE	PE-MD
polyethylene, ultra high molecular weight; preferred term for UHMWPE	PE-UHMW
polyethylene, very low density; preferred term for VLDPE	PE-VLD
polyester carbonate	PEC
polyetheretherketone	PEEK
polyetherester	PEEST
polyetherimide	PEI
polyetherketone	PEK
poly(ethylene naphthalate)	PEN
poly(ethylene oxide)	PEOX
polyesterurethane	PESTUR
polyethersulfone	PESU
poly(ethylene terephthalate)	PET
polyetherurethane	PEUR
perfluoro alkoxyl alkane resin	PFA
polyisobutylene	PIB
polyisocyanurate	PIR
polyketone	PK
polymethacrylimide	PMI
poly(methyl methacrylate)	PMMA
poly-N-methylmethacrylimide	PMMI
poly-4-methylpent-1-ene	PMP
poly- $\alpha$ -methylstyrene	PMS
polyoxymethylene; polyacetal; polyformaldehyde	POM
polypropylene	PP
polypropylene, expandable; preferred term for EPP	PP-E
polypropylene, high impact; preferred term for HIPP	PP-HI
poly(phenylene ether)	PPE

Reference chart for  
Material symbols  
(Plastic materials) [3/3]

Material name	Material symbol
poly(propylene oxide)	PPOX
poly(phenylene sulfide)	PPS
poly(phenylene sulfone)	PPSU
polystyrene	PS
polystyrene, expandable; preferred term for EPS	PS-E
polystyrene, high impact; preferred term for HIPS	PS-HI
polysulfone	PSU
polytetrafluoroethylene	PTFE
poly(trimethylene terephthalate)	PTT
poly(vinyl acetate)	PVAC
poly(vinyl alcohol), preferred term for PVOH	PVAL
poly(vinyl butyral)	PVB
poly(vinyl chloride)	PVC
poly(vinyl chloride), chlorinated; preferred term for CPVC	PVC-C
poly(vinyl chloride), unplasticized; preferred term for UPVC	PVC-U
poly(vinylidene chloride)	PVDC
poly(vinylidene fluoride)	PVDF
poly(vinyl fluoride)	PVF
poly(vinyl formal)	PVFM
poly-N-vinylcarbazole	PVK
poly-N-vinylpyrrolidone	PVP
styrene-acrylonitrile plastic	SAN
styrene-butadiene plastic	SB
styrene-maleic anhydride plastic; preferred term for S/MA or SMA	SMAH
styrene- $\alpha$ -methylstyrene plastic	SMS
vinyl chloride-ethylene plastic	VCE
vinyl chloride-ethylene-methyl acrylate plastic; preferred term for VCEMA	VCEMAK
vinyl chloride-ethylene-vinyl acetate plastic	VCEVAC
vinyl chloride-methyl acrylate plastic; preferred term for VCMA	VCMAK
vinyl chloride-methyl methacrylate plastic	VCMMA
vinyl chloride-octyl acrylate plastic; preferred term for VCOA	VCOAK
vinyl chloride-vinyl acetate plastic	VCVAC
vinyl chloride-vinylidene chloride plastic	VCVDC
polyurethane	PUR
unsaturated polyester resin	UP
cresol-formaldehyde resin	CF
epoxide; epoxy resin or plastic	EP
furan-formaldehyde resin	FF
melamine-formaldehyde resin	MF
melamine-phenol resin	MP
poly(diallyl phthalate)	PDAP
perfluoro alkoxy alkane resin	PFA
polyimide	PI
polyamidimide	PAI
silicone plastic	SI
urea-formaldehyde resin	UF
vinyl ester resin	VE

# 1–2. VDA classification

Reference chart of VDA classification (Code-definition) is as follows.

VDA Classification	Definition
0	undefined
1	Steels and iron materials
1.1*	Steels / cast steels / sintered steels
1.1.1	unalloyed, low alloyed
1.1.2	highly alloyed
1.2*	Cast iron
1.2.1	Cast iron with lamellar graphite / tempered cast iron
1.2.2	Cast iron with nodular graphite / vermicular cast iron
1.2.3	Highly alloyed cast iron
2	Light alloys, cast and wrought alloys
2.1*	Aluminium and aluminium alloys
2.1.1	Cast aluminium alloys
2.1.2	Wrought aluminium alloys
2.2*	Magnesium and magnesium alloys
2.2.1	Cast magnesium alloys
2.2.2	Wrought magnesium alloys
2.3	Titanium and titanium alloys
3	Heavy metals, cast and wrought alloys
3.1	Copper (e.g. copper amounts in cable harnesses)
3.2	Copper alloys
3.3	Zinc alloys
3.4	Nickel alloys
3.5	Lead
4	Special metals
4.1	Platinum / rhodium
4.2	Other special metals

VDA Classification	Definition
5	Polymer materials
5.1	Thermoplastics
5.1.a	filled Thermoplastics
5.1.b	unfilled Thermoplastics
5.2	Thermoplastic elastomers
5.3	Elastomers / elastomeric compounds
5.4*	Duromer
5.4.1	Polyurethane
5.4.2	Unsaturated polyester
5.4.3	Others duromers
5.5	Polymeric compounds (e.g. inseparable laminated trim parts)
5.5.1*	Plastics (in polymeric compounds)
5.5.2*	Textiles (in polymeric compounds)
6	Process polymers
6.1	Lacquers
6.2	Adhesives, sealants
6.3*	Underseal
7	Other materials and material compounds (scope of mixture)
7.1	Modified organic natural materials (e.g. leather, wood, cardboard)
7.2	Ceramics / glass
7.3	Other compounds (e.g. friction linings)
8	Electronics / electrics
8.1	Electronics (e.g. pc boards, displays)
8.2	Electrics
9	Fuels and auxiliary means
9.1*	Fuels
9.2	Lubricants
9.3	Brake fluid
9.4	Coolant / other glycols
9.5	Refrigerant
9.6	Washing water, battery acids
9.7*	Preservative
9.8	Other fuels and auxiliary means

## Remarks:

- VDA Classification highlighted in gray color cannot be chosen in IMDS and JAMA sheet.  
In addition, VDA Classification with \* mark after number cannot be chosen in JAMA sheet.
- For Silver/Silver alloy, 4.2 and 8.1 are assigned, but 8.1 must be used for Electronics.

## 1-3. Others

- 1) Please be careful not to make mistakes when replacing “\$” mark with some mark.  
(in the field for Material number or Material symbol) .  
Objectives:
  - a) Plastics alloys (Example: PBT+\$, please see p.6)
  - b) JIS materials whose Material number has “\$” mark as a default setting
  
- 2) Supplemental remarks and notes regarding choice of material information are shown on P.13. Please refer to it.
  
- 3) Various silicone materials and the main component are shown on P. 14.  
There are a lot of cases confusing silicon (Si: silicon) with silicone (SI: organic polymeric materials which contain the silicon).
  
- 4) The EXLIST file to be used for Ver.2.41 is ‘EXLIST-2017-06-01EN.xlsx’.  
Please be careful not to use the EXLIST file for Ver.2.40.  
(The file for Ver.2.40 is ‘EXLIST-2016-11-01EN.xlsx’.)
  
- 5) Change information on registered material  
Please refer to “changes from the previous version” on P.15 - P.16.

## [Supplemental remarks and notes regarding choice of material information]

Surface treatment flag	Material name	Norms/Standards (Public standard)	Material number (Metal or other than plastics or rubber materials)	VDA Classification	Supplemental remarks and notes
	Sintered Metal Materials (Iron materials)	JAMAA4444	SINTERFE	1.1.1	Left column is applied only to Iron materials.
	Sintered Metal Materials (Stainless steels)	JAMAA4444	SINTERSUS	1.1.2	Left column is applied only to stainless materials.
	Sintered Metal Materials (Copper materials)	JAMAA4444	SINTERCU	3.2	Left column is applied only to copper materials.
1	Lining	JAMAH4444	LINING	6.1	Left column is applied to lining of paint.
	Carbon	JAMAA4444	CARBON	7.1	Example of use: bearing, vane, activated carbon, carbon fiber and packing
	Cotton	JISL0204	COTTON	7.1	If adhesive is impregnated to cotton, information of adhesive must be inputted to datasheet.
1	Coating (ceramics, glass)	JAMAH4444	COATINGCERAMICS	7.2	Left column is applied to coating (ceramics and glass).
	Ceramics	JAMAA2222	CERAMICS	7.2	• Example of use: ZrO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , MoSi <sub>2</sub> , SiO <sub>2</sub> , Boron Nitride, Silicon Nitride, Silicon Oxide, Soft Ferrite, Fused Silica, Mica • Left column is applied to Zeolite and Silica-gel et.al.
	Ceramics	JAMAA4444	CERAMICS	7.2	Same as above
	Friction Materials	JAMAA4444	FRICM	7.3	Left column is applied to Silicone Oil.
	Supplied parts	JAMAA1111	SUPPLIED	7.3	Left column is applied only to materials used for supplied parts.
1	Coating (Other compounds)	JAMAH4444	COATINGOTHER	7.3	Left column is applied to other coatings.

## [Symbols and the names for the various types of silicone materials]

Symbol	Name
FMQ	fluoroalkylmethyl silicone rubber
FVMQ	fluoroalkylvinylmethyl silicone rubber
MQ	dimethyl polysiloxane, (methyl silicone rubber)
PMQ	phenylmethyl silicone rubber
PVMQ	phenylvinylmethyl silicone rubber
VMQ	vinylmethyl silicone rubber
SI	silicone resin

## [Combination of the various types of silicone materials and the main components]

VDA	Material Name	IMDS Name	Main Ingredient (BSL)	
			Substance Name	Node-ID
5.3	Rubber FMQ	FMQ	Basic Rubber: FMQ	1339993
5.3	Rubber FVMQ	FVMQ	Basic Rubber: FVMQ	23391
5.3	Rubber MQ	MQ	Basic Rubber: MQ	1340142
5.3	Rubber PMQ	PMQ	Basic Rubber: PMQ	1340174
5.3	Rubber FVMQ	PVMQ	Basic Rubber: PVMQ	1340192
5.3	Rubber VMQ	VMQ	Basic Rubber: VMQ	1340223
5.4.3	Plastics SI	SI	Basis Duromer: Silicone resin (Compound of a polymeric network)	4116482
6.1	Lacquer SI	SI	Basis Duromer: Silicone resin (Compound of a polymeric network)	4116482
6.2	Adhesive SI	SI	Basis Duromer: Silicone resin (Compound of a polymeric network)	4116482
6.2	Adhesive VMQ	VMQ	Basic Rubber: VMQ	1340223
6.2	Sealer FVMQ	FVMQ	Basic Rubber: FVMQ	23391
6.2	Sealer VMQ	VMQ	Basic Rubber: VMQ	1340223

The main components in the table are just examples. Therefore, there might be some cases that other combinations exist.

## 2. Changes from the previous version

### 2-1. Reflection of revised JIS standards

The material codes were changed.

JIS Norm	Revision date	Explanation of the revision
JISZ2550 (Sintered metal materials - Specifications)	Sep., 2016	Change of Material Codes C-T10-K110, F-00-K170, F-00C2-K200, F-03G3-K70 and so on

### 2-2. Committee materials for phosphate coatings.

#### (1) Addition

Material Name	Norms/Standards	Material Number	VDA Classification	IMDS Name
Zinc phosphate coating Ni-content	EN ISO9717	ZnNiph	9.8	Zinc phosphate coating Ni-content
Zinc phosphate coating, Mn-content	EN ISO9717	ZnMnph	7.3	Zinc phosphate coating, Mn-content

Note: VDA Classification and Material Name with/without “,” were input according to the committee materials.  
Material Numbers are added to avoid an error during data checking in JAMA sheet.

# 2. Changes from the previous version

## 2-3. Committee materials for phosphate coatings

### (2) Correction and Compliance with IMDS

<before>

Material Name	Norms /Standards	Material Number	VDA Classification	IMDS Name
Zinc phosphate coating	EN12476	Znph	9.8	Zinc phosphate coating
Iron phosphate coating	EN12476	Feph	9.8	Iron phosphate coating
Manganese phosphate coating	EN12476	Mnph	9.8	Manganese phosphate coating
Zinc calcium phosphate coating	EN12476	ZnCaph	9.8	Zinc calcium phosphate coating



<after>

Material Name	Norms /Standards	Material Number	VDA Classification	IMDS Name
Zinc phosphate coating	EN ISO9717	Znph	9.8	Zinc phosphate coating
Iron phosphate coating	EN ISO9717	Feph	9.8	Iron phosphate coating
Manganese phosphate coating	EN ISO9717	Mnph	9.8	Manganese phosphate coating
Zinc calcium phosphate coating	EN ISO9717	ZnCaph	9.8	Zinc calcium phosphate coating



## Appendix 1: Comparative chart (JIS symbol – ISO symbol)

	Norms	Material Name	Table No.	Page No.
1	JISZ3282	Solder	Appendix table 1-1	Attachment 2-3
2	JISZ3261	Silver Brazing Filler Metal	Appendix table 1-2	Attachment 4
3	JISZ3262	Copper Brazing Filler Metal	Appendix table 1-3	
4	JISZ3264	Copper Phosphorus Brazing Filler Metal	Appendix table 1-4	
5	JISZ3265	Nickel Alloy Brazing Filler Metals	Appendix table 1-5	Attachment 5
6	JISZ3266	Gold brazing filler metals	Appendix table 1-6	
7	JISZ3267	Palladium brazing filler metals	Appendix table 1-7	
8	JISZ3268	Precious brazing filler metals for vacuum service	Appendix table 1-8	
9	JISH2222	Magnesium alloy ingots for die castings	Appendix table 1-9	Attachment 6
10	JISH5202	Aluminium alloy castings	Appendix table 1-10	
11	JISH5203	Magnesium alloy castings	Appendix table 1-11	
12	JISH5303	Magnesium alloy die castings	Appendix table 1-12	

Appendix table 1-1.JISZ3282 (Solder)

[1/2]

Class		Symbol (JIS)	Symbol (ISO)
Lead-containing Solder	Sn-Pb series	H95A	Sn95Pb5
		H63A	Sn63Pb37
		H63E	Sn63Pb37E
		H60A	Sn60Pb40
		H60E	Sn60Pb40E
		H50A	Pb50Sn50
		H50E	Pb50Sn50E
		H45A	Pb55Sn45
		H40A	Pb60Sn40
		H35A	Pb65Sn35
		H30A	Pb70Sn30
		H20A	Pb80Sn20
		H10A	Pb90Sn10
	H5A	Pb95Sn5	
	Sn-Pb-Bi series	H57Bi3A	Sn57Pb40Bi3
		H46Bi8A	Sn46Pb46Bi8
		H43Bi14A	Sn43Pb43Bi14
	Sn-Pb-Ag series	H62Ag2A	Sn62Pb36Ag2
		H1Ag1.5A	Pb97.5Ag1.5Sn1

Appendix table 1-1. JISZ3282(Solder)

[2/2]

Class			Symbol (JIS)	Symbol (ISO)
Lead-free solder	High temperature series	Sn-Sb series	S50	Sn95Sb5
		Sn-Cu series	C30	Sn97Cu3
			C7	Sn99.3Cu0.7
		Sn-Cu-Ag series	C60A20	Sn92Cu6Ag2
			C40A10	Sn95Cu4Ag1
	C7A3		Sn99Cu0.7Ag0.3	
	Sn-Ag series	A50	Sn95Ag5	
	Middle and high temperature series	Sn-Ag series	A30	Sn97Ag3
			A37	Sn96.3Ag3.7
			A35	Sn96.5Ag3.5
		Sn-Ag-Cu series	A30C5	Sn96.5Ag3Cu0.5
			A40C5	Sn95.5Ag4Cu0.5
			A35C7	Sn95.8Ag3.5Cu0.7
			A38C7	Sn95.5Ag3.8Cu0.7
	Middle temperature series	Sn-Ag-Bi-Cu series	A25B10C5	Sn96Ag2.5Bi1Cu0.5
		Sn-In-Ag-Bi series	N40A35B5	Sn92In4Ag3.5Bi0.5
			N80A35B5	Sn88In8Ag3.5Bi0.5
Middle and low temperature series	Sn-Zn series	Z90	Sn91Zn9	
	Sn-Zn-Bi series	Z80B30	Sn89Zn8Bi3	
Low temperature series	Sn-Bi series	B580	Bi58Sn42	
	Sn-In series	N520	In52Sn48	

Appendix table 1-2. JISZ3261  
(Silver Brazing Filler Metal)

Symbol (JIS)	Symbol (ISO)
B <sub>Ag</sub> -1	B-Ag45CdZnCu-605/620
B <sub>Ag</sub> -1A	B-Ag50CdZnCu-625/635
B <sub>Ag</sub> -2	B-Ag35CuZnCd-605/700
B <sub>Ag</sub> -3	B-Ag50CdZnCuNi-630/660
B <sub>Ag</sub> -4	B-Ag40CuZnNi-670/780
B <sub>Ag</sub> -5	B-Ag45CuZn-665/745
B <sub>Ag</sub> -6	B-Ag50CuZn-690/775
B <sub>Ag</sub> -7	B-Ag56CuZnSn-620/650
B <sub>Ag</sub> -7A	B-Ag45CuZnSn-640/680
B <sub>Ag</sub> -7B	B-Ag36AgZnSn-630/730
B <sub>Ag</sub> -8	B-Ag72Cu-780
B <sub>Ag</sub> -8A	B-Ag72Cu(Li)-770
B <sub>Ag</sub> -8B	B-Ag60CuSn-600/720
B <sub>Ag</sub> -20	B-Cu38ZnAg-675/765
B <sub>Ag</sub> -20A	B-Cu41ZnAg-700/800
B <sub>Ag</sub> -21	B-Ag63CuSnNi-690/800
B <sub>Ag</sub> -24	B-Ag50ZnCuNi-660/705

Appendix table 1-3. JISZ3262  
(Copper Brazing Filler Metal)

Symbol (JIS)	Symbol (ISO)
B <sub>Cu</sub> -1	B-Cu100-1083
B <sub>Cu</sub> -1A	B-Cu99-1083
B <sub>Cu</sub> -2	B-Cu87-1083
B <sub>Cu</sub> -3	B-Cu94Sn(P)-910/1040
B <sub>Cu</sub> -4	B-Cu88Sn(P)-825/990
B <sub>Cu</sub> -5	B-Cu60Zn-900/905
B <sub>Cu</sub> -6	B-Cu59ZnSn-890/900
B <sub>Cu</sub> -7	B-Cu59ZnSnNi(Mn,Si)870/890
B <sub>Cu</sub> -8	B-Cu48ZnNi(Si)890/920

Appendix table 1-4. JISZ3264  
(Copper Phosphorus Brazing Filler Metal)

Symbol (JIS)	Symbol (ISO)
B <sub>CuP</sub> -1	B-Cu95P-710/925
B <sub>CuP</sub> -2	B-Cu93P-710/795
B <sub>CuP</sub> -3	B-Cu89PA <sub>g</sub> -645/815
B <sub>CuP</sub> -4	B-Cu87PA <sub>g</sub> -645/720
B <sub>CuP</sub> -5	B-Cu80PA <sub>g</sub> -645/800
B <sub>CuP</sub> -6	B-Cu91PA <sub>g</sub> -645/790

Appendix table 1-5. JISZ3265  
(Nickel Alloy Brazing Filler Metals)

Symbol (JIS)	Symbol (ISO)
BNi-1	B-Ni73CrFeSiB(C)-975/1060
BNi-1A	B-Ni74CrFeSiB-975/1060
BNi-2	B-Ni82CrSiBFe-970/1000
BNi-3	B-Ni92SiB-980/1040
BNi-4	B-Ni95SiB-980/1065
BNi-5	B-Ni71CrSi-1080/1135
BNi-6	B-Ni89P-875
BNi-7	B-Ni76CrP-890

Appendix table 1-6. JISZ3266  
(Gold brazing filler metals)

Symbol (JIS)	Symbol (ISO)
BAu-1	B-Cu62Au-990/1015
BAu-2	B-Au80Cu-890
BAu-3	B-Cu62AuNi-975/1030
BAu-4	B-Au82Ni-950
BAu-5	B-Pd34NiAu-1135/1165
BAu-6	B-Au70NiPd-1005/1045
BAu-11	BV-Cu50Au-955/970
BAu-12	BV-Au75AgCu-890/895

Appendix table 1-7. JISZ3267  
(Palladium brazing filler metals)

Symbol (JIS)	Symbol (ISO)
BPd-1	B-Ag68CuPd-805/810
BPd-2	B-Ag58CuPd-825/850
BPd-3	B-Ag67CuPd-830/860
BPd-4	B-Ag65CuPd-850/900
BPd-5	B-Ag52CuPd-875/900
BPd-6	B-Ag54PdCu-900/950
BPd-7	B-Ag95Pd-970/1010
BPd-8	B-Cu82Pd-1080/1090
BPd-9	B-Ag75PdMn-1000/1120
BPd-10	B-Ag64PdMn-1180/1200
BPd-11	B-Ni48MnPd-1120
BPd-12	B-Cu55PdNiMn-1060/1110
BPd-14	B-Pd60Ni-1235

Appendix table 1-8. JISZ3268  
(Precious brazing filler metals for vacuum service)

Symbol (JIS)	Symbol (ISO)
BVAg-0	BV-Ag100-961
BVAg-6B	BV-Cu50-780/870
BVAg-8	BV-Ag72Cu-780
BVAg-8B	BV-Ag71CuNi-780/795
BVAg-18	BV-Ag60CuSn-600/720
BVAg-29	BV-Ag61CuIn-625/710
BVAg-30	BV-Ag68CuPd-805/810
BVAg-31	BV-Ag58CuPd-825/810
BVAg-32	BV-Ag54PdCu-900/950
BVAu-1	BV-Cu63Au-990/1015
BVAu-2	BV-Au80Cu-890
BVAu-3	BV-Cu62AuNi-975/1030
BVAu-4	BV-Au82Cu-950
BVAu-11	BV-Cu50Au-955/970
BVAu-12	BV-Au75CuAg-880/895

Appendix table 1-9.JISH2222  
(Magnesium alloy ingots for die castings)

Symbol (JIS)	Symbol (ISO)
MD1B	MgAl9Zn1(B)
MD1D	MgAl9Zn1(A)
MD2B	MgAl6Mn
MD3B	MgAl4Si
MD4	MgAl5Mn
MD5	MgAl2Mn
MD6	MgAl2Si

Appendix table 1-10.JISH5202  
(Aluminium alloy castings)

Symbol (JIS)	Symbol (ISO)
AC1B	Al-Cu4MgTi
AC4C	Al-Si7Mg(Fe)
AC4D	Al-Si5Cu1Mg
AC5A	Al-Cu4Ni2Mg2
AC4CH	Al-Si7Mg

Appendix table 1-11.JISH5203  
(Magnesium alloy castings)

Symbol (JIS)	Symbol (ISO)
MC2C	MgAl9Zn1(B)
MC2E	MgAl9Zn1(A)
MC8	MgRE3Zn2Zr
MC9	MgAg2RE2Zr
MC10	MgZn4RE1Zr
MC11	MgZn6Cu3Mn
MC12	MgY4RE3Zr
MC13	MgY5RE4Zr
MC14	MgRE2Ag1Zr

Appendix table 1-12.JISH5303  
(Magnesium alloy die castings)

Symbol (JIS)	Symbol (ISO)
MDC1B	MgAl9Zn1(B)
MDC1D	MgAl9Zn1(A)
MDC2B	MgAl6Mn
MDC3B	MgAl4Si
MDC4	MgAl5Mn
MDC5	MgAl2Mn
MDC6	MgAl2Si

## Appendix 2: Reference chart of Unique Codes

	Norms	Material Name	Table No.	Page No.
1	JAMAA1111	Supplied parts	Appendix table 2-1	Attachment 8
2	JAMAA2222	Electronic parts	Appendix table 2-2	
3	JAMAA4444	Supplied parts, Electronic parts and (Other than Surface treatment)	Appendix table 2-3	Attachment 9-12
4	JAMAH4444	Surface treatment (Other than 5, 6)	Appendix table 2-4	Attachment 13-14
5	JAMAHC	Surface treatment (Chromate film)	Appendix table 2-5	Attachment 15
6	JAMAHCRF	Surface treatment (Trivalent Chromium Passivation, Chromium-free Passivation)		

Appendix table 2-1.Unique Code (JAMAA1111, JAMAA2222)

Surface treatment flag	Material name	Norms/Standards (Public standard)	Material number (Metal or other than plastics or rubber materials)	VDA Classification
	Supplied parts	JAMAA1111	SUPPLIED	7.3

Appendix table 2-2.Unique Code (JAMAA2222)

Surface treatment flag	Material name	Norms/Standards (Public standard)	Material number (Metal or other than plastics or rubber materials)	VDA Classification
	Ceramics	JAMAA2222	CERAMICS	7.2
	Glass	JAMAA2222	GLASS	7.2
	Ferrite Magnet	JAMAA2222	MAGNETFERRITE	7.2
	Pyrotechnic initiator of air bag	JAMAA2222	ABPP	7.3
	Silver/Silver alloy	JAMAA2222	AG@	8.1
	Solder	JAMAA2222	SOLDERPB	8.1



## Appendix table 2–3.Unique Code (JAMAA4444)

[1/4]

Surface treatment flag	Material name	Norms/Standards (Public standard)	Material number (Metal or other than plastics or rubber materials)	VDA Classification
	Iron/Other Iron alloy (Unalloyed, low alloyed)	JAMAA4444	FE@	1.1.1
	Sintered Metal Materials (Iron materials)	JAMAA4444	SINTERFE	1.1.1
	Iron/Other Iron alloy (Highly alloyed)	JAMAA4444	FE@	1.1.2
	Other Stainless Steel	JAMAA4444	SUS	1.1.2
	Sintered Metal Materials (Stainless steels)	JAMAA4444	SINTERSUS	1.1.2
	Iron/Other Iron alloy (Cast iron with lamellar graphite / tempered cast iron)	JAMAA4444	FE@	1.2.1
	Iron/Other Iron alloy (Cast iron with nodular graphite / vermicular cast iron)	JAMAA4444	FE@	1.2.2
	Iron/Other Iron alloy (Highly alloyed cast iron)	JAMAA4444	FE@	1.2.3
	Aluminium/Other Aluminium alloy (Cast aluminium alloys)	JAMAA4444	AL@	2.1.1
	Aluminium/Other Aluminium alloy (Wrought aluminium alloys)	JAMAA4444	AL@	2.1.2
	Magnesium/Other Magnesium alloy (Cast magnesium alloys)	JAMAA4444	MG@	2.2.1
	Magnesium/Other Magnesium alloy (Wrought magnesium alloys)	JAMAA4444	MG@	2.2.2
	Titanium/Other Titanium alloy	JAMAA4444	TI@	2.3
	Copper	JAMAA4444	CU	3.1
	Copper alloy	JAMAA4444	CU@	3.2
	Sintered Metal Materials (Copper materials)	JAMAA4444	SINTERCU	3.2
	Zinc/Other Zinc alloy	JAMAA4444	ZN@	3.3
	Nickel/Other Nickel alloy	JAMAA4444	NI@	3.4

Appendix table 2–3. Unique Code (JAMAA4444)

[2/4]

Surface treatment flag	Material name	Norms/Standards (Public standard)	Material number (Metal or other than plastics or rubber materials)	VDA Classification
	Platinum/Platinum alloy	JAMAA4444	PT@	4.1
	Rhodium/Rhodium alloy	JAMAA4444	RH@	4.1
	Molybdenum/Molybdenum alloy	JAMAA4444	MO@	4.2
	Cobalt/Cobalt alloy	JAMAA4444	CO@	4.2
	Gold/Gold alloy	JAMAA4444	AU@	4.2
	Silver/Silver alloy	JAMAA4444	AG@	4.2
	Palladium/Palladium alloy	JAMAA4444	PD@	4.2
	Iridium/Iridium alloy	JAMAA4444	IR@	4.2
	Tantalum/Tantalum alloy	JAMAA4444	TA@	4.2
	Tungsten/Tungsten alloy	JAMAA4444	W@	4.2
	Tin/Other Tin alloy	JAMAA4444	SN@	4.2
	Lithium/Other Lithium alloy	JAMAA4444	LI@	4.2
	Mercury	JAMAA4444	HG	4.2
	Magnet	JAMAA4444	MAGNET	4.2
	Lead Free Solder	JAMAA4444	SOLDERNONPB	4.2
	Semiconductor	JAMAA4444	SEMICON	4.2

## Appendix table 2–3. Unique Code (JAMAA4444)

[3/4]

Surface treatment flag	Material name	Norms/Standards (Public standard)	Material number (Metal or other than plastics or rubber materials)	VDA Classification
	Ink	JAMAA4444	INK	6.1
	Lacquer CNR	JAMAA4444	CNR	6.1
	Adhesive CNR	JAMAA4444	CNR	6.2
	Adhesive STARCH	JAMAA4444	STARCH	6.2
	Carbon	JAMAA4444	CARBON	7.1
	Wood	JAMAA4444	WOOD	7.1
	Pulp	JAMAA4444	PULP	7.1
	Paper	JAMAA4444	PAPER	7.1
	Leather	JAMAA4444	LEATHER	7.1
	Ceramics	JAMAA4444	CERAMICS	7.2
	Glass	JAMAA4444	GLASS	7.2
	Ferrite Magnet	JAMAA4444	MAGNETFERRITE	7.2
	Stone	JAMAA4444	STONE	7.2
	Pad	JAMAA4444	PAD	7.3

Appendix table 2–3. Unique Code (JAMAA4444)

[4/4]

Surface treatment flag	Material name	Norms/Standards (Public standard)	Material number (Metal or other than plastics or rubber materials)	VDA Classification
	Friction Materials	JAMAA4444	FRICM	7.3
	Flux	JAMAA4444	FLUX	7.3
	Pyrotechnic initiator	JAMAA4444	PRP	7.3
	Pyrotechnic gas generator	JAMAA4444	Pyrotechnic gas generator	7.3
	Carbon brush	JAMAA4444	CARBONBRUSH	8.2
	Grease	JAMAA4444	GREASE	9.2
	Lubricating Oil	JAMAA4444	LUBOIL	9.2
	Oil	JAMAA4444	OIL	9.2
	Lubricants	JAMAA4444	LUBSOLID	9.2
	Refrigerant	JAMAA4444	REFRIGERANT	9.5
	Washing water	JAMAA4444	FLUID	9.6
	Battery Acids	JAMAA4444	BATTERY	9.6
	Other Liquid	JAMAA4444	LIQUID	9.6
	Gas Xe	JAMAA4444	XE	9.8
	Gas Halogen	JAMAA4444	HALOGEN	9.8
	Gas He	JAMAA4444	HE	9.8
	Gas Kr	JAMAA4444	KR	9.8

## Appendix table 2-4. Unique Code (JAMAH4444)

[1/2]

Surface treatment flag	Material name	Norms/Standards (Public standard)	Material number (Metal or other than plastics or rubber materials)	VDA Classification
1	Electroless Zinc Plating	JAMAH4444	ELp-Zn	3.3
1	Electroless Silver Plating	JAMAH4444	ELp-Ag	4.2
1	Electroless Chromium Plating	JAMAH4444	ELp-Cr	4.2
1	Electroless Gold Plating	JAMAH4444	ELp-Au	4.2
1	Electroless Tin Plating	JAMAH4444	ELp-Sn	4.2
1	Electroless Tin-Copper Plating	JAMAH4444	ELp-Sn-Cu	4.2
1	Electroless Nickel-Boron Plating	JAMAH4444	ELp-Ni-B	3.4
1	Electroless Nickel-Phosphorus-Boron Plating	JAMAH4444	ELp-Ni-P-B	3.4
1	Electroless Nickel-Phosphorus+PTFE Plating	JAMAH4444	ELp-Ni-P-PTFE	3.4
1	Electroless Nickel-Phosphorus+SiC Plating	JAMAH4444	ELp-Ni-P-SiC	3.4
1	Electroless Nickel-Phosphorus+BN Plating	JAMAH4444	ELp-Ni-P-BN	3.4
1	Electroless Palladium Plating	JAMAH4444	ELp-Pd	4.2
1	Electroless Co-Phosphorus Plating	JAMAH4444	ELp-Co-P	4.2
1	Electroless Co-Nickel-Phosphorus Plating	JAMAH4444	ELp-Co-Ni-P	4.2
1	Electrolytic Copper Plating	JAMAH4444	Ep-Cu	3.1
1	Electrolytic Chromium Plating (Decorative)	JAMAH4444	Ep-Cr	4.2
1	Electrolytic Zinc-Iron Plating	JAMAH4444	Ep-Zn-Fe	3.3
1	Electrolytic Zinc-Nickel Plating	JAMAH4444	Ep-Zn-Ni	3.3
1	Electrolytic Tin-Zinc Plating	JAMAH4444	Ep-Sn-Zn	4.2
1	Electrolytic Platinum Plating	JAMAH4444	Ep-Pt	4.1
1	Electrolytic Rhodium Plating	JAMAH4444	Ep-Rh	4.1
1	Electrolytic Zinc-Cobalt Plating	JAMAH4444	Ep-Zn-Co	3.3
1	Electrolytic Palladium Plating	JAMAH4444	Ep-Pd	4.2
1	Electrolytic Tin-Bismuth Plating	JAMAH4444	Ep-Sn-Bi	8.1
1	Electrolytic Tin-Silver Plating	JAMAH4444	Ep-Sn-Ag	8.1
1	Electrolytic Tin-Copper Plating	JAMAH4444	Ep-Sn-Cu	8.1

## Appendix table 2-4. Unique Code (JAMAH4444)

Surface treatment flag	Material name	Norms/Standards (Public standard)	Material number (Metal or other than plastics or rubber materials)	VDA Classification
1	Aluminium alloy hot dip galvanizing	JAMAH4444	HDAL	2.1.1
1	Zinc alloy hot dip galvanizing	JAMAH4444	HDZN	3.3
1	ZAY Coating	JAMAH4444	ZNALMG	3.3
1	Lacquer CNR	JAMAH4444	CNR	6.1
1	Lacquer	JAMAH4444	LACQUER	6.1
1	Lining	JAMAH4444	LINING	6.1
1	Black Oxide Coatings	JAMAH4444	FE3O4	7.2
1	CrN Coatings	JAMAH4444	CRN	7.2
1	DLC Coatings	JAMAH4444	DLC	7.2
1	TiN Coatings	JAMAH4444	TIN	7.2
1	Coating (ceramics, glass)	JAMAH4444	COATINGCERAMICS	7.2
1	Non electrolytically applied zinc flake coatings (Dacarotizing No	JAMAH4444	FLZNNCOTHER	7.3
1	GEOMET Coating	JAMAH4444	GMTNC	7.3
1	BONDE Coating (Oxalic)	JAMAH4444	OXALICBONDE	7.3
1	Corrosion protection of aluminium alloys ZR	JAMAH4444	ZR	7.3
1	Corrosion protection of aluminium alloys TI	JAMAH4444	TI	7.3
1	Corrosion protection of aluminium alloys CO	JAMAH4444	CO	7.3
1	Coating (Other compounds)	JAMAH4444	COATINGOTHER	7.3

Appendix table 2–5. Unique Code (JAMAHCRF, JAMAHC)

Surface treatment flag	Material name	Norms/Standards (Public standard)	Material number (Metal or other than plastics or rubber materials)	VDA Classification
1	Passivation clear/yellow for Zn/Zn alloy plating	JAMAHCRF	JAMAHCRF-TR-ZNPL C/Y	7.3
1	Passivation black for Zn/Zn alloy plating	JAMAHCRF	JAMAHCRF-TR-ZNPL B	7.3
1	Chromium-free Passivation for Zn/Zn alloy plating	JAMAHCRF	JAMAHCRF-FR-ZNPL	7.3
1	Trivalent Chromium Passivation for Zn Die castings	JAMAHCRF	JAMAHCRF-TR-ZNDC	7.3
1	Chromium-free Passivation for Zn Die castings	JAMAHCRF	JAMAHCRF-FR-ZNDC	7.3
1	Trivalent Chromium Passivation for Al/Al alloy	JAMAHCRF	JAMAHCRF-TR-AL	7.3
1	Chromium-free Passivation for Al/Al alloy	JAMAHCRF	JAMAHCRF-FR-AL	7.3
1	Trivalent Chromium Passivation for Mg/Mg alloy	JAMAHCRF	JAMAHCRF-TR-MG	7.3
1	Chromium-free Passivation for Mg/Mg alloy	JAMAHCRF	JAMAHCRF-FR-MG	7.3
1	Chromate film for Zn Die castings	JAMAHC	JAMAHC-ZNDC	7.3
1	Chromate film for Al/Al alloy	JAMAHC	JAMAHC-AL	7.3
1	Chromate film for Mg/Mg alloy	JAMAHC	JAMAHC-MG	7.3