

Hana AMT

METAL POWDER



НАПА АМТ

## ABOUT US

### CEO GREETING

Since HanaAMT Co., Ltd. was founded to make our neighborhood happy through materials and components industry, we have been making efforts to develop customer-centered products and satisfy our customers' need through innovative ideas.

We will continue changing to make our customers happier and making the best possible efforts to grow into a company that is equipped with the world's best technology through ceaseless R&D.

As a result, we will become a long-lasting and good partner for our customers.

● **2003.06**

Hananics Company Established.

● **2005.03**

Commencement of Overseas Exporting of Magnesium Metal Powder.

● **2006.06**

Mass-Production of Stainless Powder based on First Domestic Gas Atomizing Method.

● **2009.06**

Selected Business (Participating Corporation) as The Energy Technology Development Business by the Ministry of Knowledge and Economy.

● **2010.08**

Corporate Entity Changed to HanaAMT Co., Ltd.

● **2010.10**

Commencement of glass processing business.

● **2010.11**

Venture Corporation Accreditation – New Technology Corporation (Korea Technology Finance Corporation)

● **2011.01**

Certification of company affiliated research institute (Korea Industrial Technology Association)

● **2011.05**

ISO 9001:2008/KS Q ISO 9001:2009, ISO 14001:2004/KS I ISO 14001:2009 Certification (ITQA)

● **2013.09**

INNO-BIZ Certification (Small and Medium Business Administration)

## HanaAMT is ISO Certified

HanaAMT is committed to adding quality to the AM process by supplying well defined powders and services to support the needs of our customers.

We are certificated to AS9100D, ISO13485, ISO9001, ISO14001, Net



- **2014. 05**  
Certificate of Parts & Materials-specialized Company (Ministry of Trade, Industry and Energy)
- **2015. 06**  
Advanced Technology & Product Confirmation Certificate (Ministry of Trade, Industry and Energy)
- **2016. 06**  
Certificate of Export Promising Small Business (Chungbuk Regional Small and Medium Business Administration)
- **2016. 09**  
Citation of Cheongju Mayor
- **2016. 12**  
Ministerial Citation from the Ministry of Trade, Industry and Energy

- **2017. 12**  
Commencement of Business in Jincheon Plant
- **2019. 05**  
Opened European Branch, Germany
- **2019. 09**  
Acquired AS9100D Certification
- **2019. 12**  
Acquired ISO13485 Certification
- **2020. 05**  
Acquired NeT Certification

## METAL POWDER

All Hana AMT products are suitable for,

- Medical certification(ISO13485)
- Aerospace & Aviation certification(AS9100D)
- New Excellent Technology (Net Certificate)

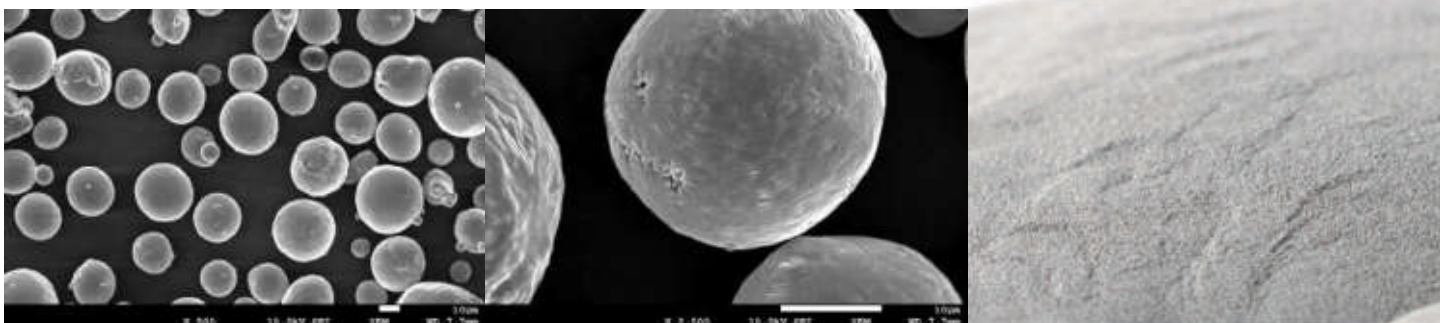
## 3D PRINTING METAL POWDERS

### Magnesium Alloys

Product	Grade	Shape	Composition(%)	AD(g/cm <sup>3</sup> )
WE43	MPWE43	Spherical	Mg 93.6 Y 4 Nd 2.25 Zr 0.15	0.8~1.5
AZ31B	MPAZ31B	Spherical	Mg 96 Al 3 Zn 1 Mn 0.2	0.8~1.5
AZ91	MPAZ91	Spherical	Mg 91 Al 8 Zn 0.6 Mn 0.2	0.8~1.5

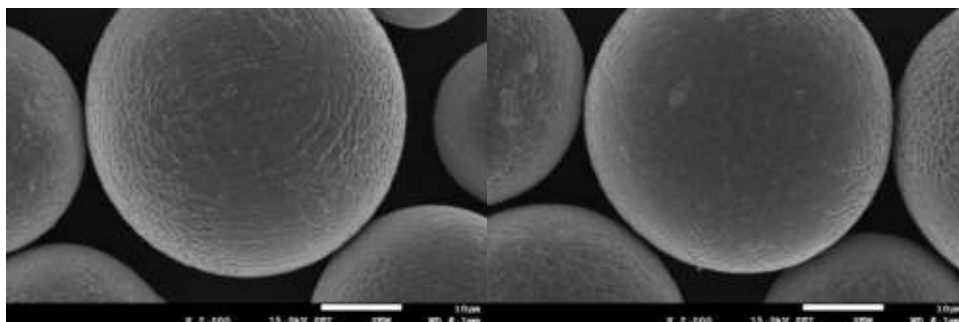
### Aluminium Alloys

Product	Grade	Shape	Composition(%)	AD(g/cm <sup>3</sup> )
Al12Si	A12SI-AM	Spherical	Si 12 Fe <0.55 Mn <0.45 Al Bal.	0.9~1.3
Al11Si1Mg	A11SIM-AM	Spherical	Si 11 Fe <0.55 Mg 0.8~1.1 Al Bal.	0.9~1.3
Al10SiMg	A10SIM-AM	Spherical	Si 10 Mg 0.2~0.45 Ai Bal.	0.9~1.3



Ferrous Alloys

Product	Grade	Shape	Composition(%)	AD(g/cm <sup>3</sup> )
304L	S304LAM	Spherical	Cr 19 Ni 10 Si 1.5 Fe Bal.	4~6
316L	S316LAM	Spherical	Cr 18 Ni 14 Mo 2.5 Fe Bal.	4~6
410	S410AM	Spherical	Cr 12 C <0.15 Fe Bal.	4~6
420	S420AM	Spherical	Cr 13 C 0.2 Fe Bal.	4~6
17-4PH	S630-AM	Spherical	Cr 16 Ni 4 Cu 4 Nb 0.3 Fe Bal.	4~6
M2	SM2-AM	Spherical	Cr 4 Si 0.3 Mo 5 V 2 Si 0.33 Mn 0.28 C 0.8 W 6 Fe Bal.	4~6
M4	SM4-AM	Spherical	Cr 4 Si 0.3 Mo 5 V 4 Si 0.33 Mn 0.28 C 1.3 W 5.8 Fe Bal.	4~6
18Ni300 (Maraging)	S18NI300-AM	Spherical	Ni 18 Mo 4.8 Cr 0.3 Co 9 Ti 0.7 Al 0.1 Si 0.1 Mn 0.1 C 0.03 Fe Bal.	4~6

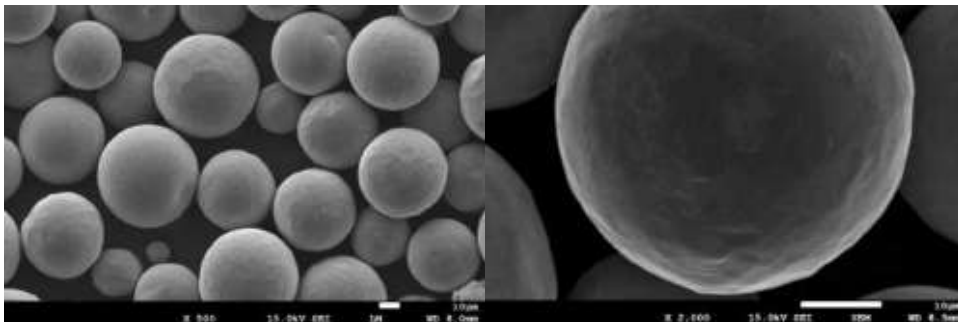


## Nickel Alloys

Product	Grade	Shape	Composition(%)	AD(g/cm <sup>3</sup> )
Inconel 625	NIP625-AM	Spherical	Cr 20-23 Mo 8-10 Nb 3.15-4.15 Ni Bal.	3.5 ~ 5.5
In718	NIP718-AM	Spherical	Cr 17-21 Mo 3 Nb 4.75-5.50 Ni 50-55	4 ~ 5.5
Hastelloy X	NIHX-AM	Spherical	Cr 4 Si 0.3 Mo 5 V 4 Mn 0.3 C 1.3 W 5.8	4 ~ 6

## Titanium Alloys

Product	Grade	Shape	Composition(%)	AD(g/cm <sup>3</sup> )
Ti6Al4V ELI (grade 5)	TIP5-AM	Spherical	Al 5.5-6.5 V 3.5-4.5 Fe < 0.3 Ti Bal.	2.2 ~ 3
Ti6Al4V ELI (grade 23)	TIP23-AM	Spherical	Al 5.5-6.5 V 3.5-4.5 Fe < 0.3 Ti Bal.	2.2 ~ 3
Ti grade 2	TIP2-AM	Spherical	C < 0.08 O < 0.25 N < 0.03 Fe < 0.3 Ti Bal.	2.2 ~ 3
Ti grade 4	TIP4-AM	Spherical	C < 0.08 O < 0.4 N < 0.03 Fe < 0.3 Ti Bal.	2.2 ~ 3



## Particle Size Distribution

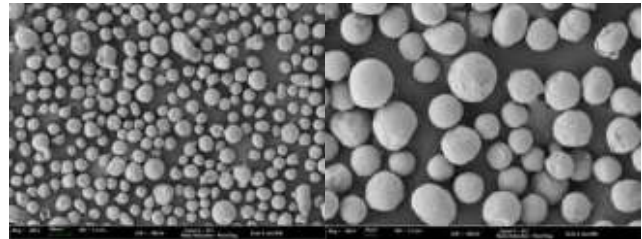
Grade	Size		
	D10	D50	D90
0 ~ 20	4 ~ 8	11 ~ 15	18 ~ 22
15 ~ 45	13 ~ 20	28 ~ 35	43 ~ 48
0 ~ 53	10 ~ 15	23 ~ 35	50 ~ 56
20 ~ 63	23 ~ 28	38 ~ 45	60 ~ 65
45 ~ 107	45 ~ 53	68 ~ 75	100 ~ 105
45 ~ 150	48 ~ 55	80 ~ 100	120 ~ 148

# From powder to performance

- 01 Uniform particle size distribution and spherical shaped powders
- 02 Easy to compose and mix different powders consist of other elements
- 03 High flowability
- 04 High density
- 05 Able to control Oxygen concentration of powders effectively
- 06 Able to make irregular shaped powders



# LIGHT METAL POWDERS



## Magnesium

Product	Grade	Shape	Composition(%)	AD(g/cm <sup>3</sup> )	Particle Size
Mg	AMP-30	Spherical	Mg 99.5 Min.	0.8 ~ 1.0	30/50 mesh(300 ~ 600μm)
	AMP-50	Spherical	Mg 99.5 Min.	0.8 ~ 1.0	50/100 mesh(150 ~ 300μm)
	AMP-100	Spherical	Mg 99.5 Min.	0.8 ~ 1.0	100/200 mesh(75 ~ 150μm)
	AMP-200	Spherical	Mg 99.5 Min.	0.9 ~ 1.1	200/325 mesh(45 ~ 75μm)
	AMP-325	Spherical	Mg 99.5 Min.	0.9 ~ 1.1	325/500 mesh(25 ~ 45μm)
	AMP-500	Spherical	Mg 99.5 Min.	0.9 ~ 1.1	-500 mesh (<25μm)

Product	Grade	Shape	Composition(%)	AD(g/cm <sup>3</sup> )	Particle Size
Mg	MIL-P-14067B	Spherical/Chip or Flake	Mg 98 Min.	0.95 Min.	30/50 mesh(300 ~ 600μm)
	MIL-P-14067B	Spherical/Chip or Flake	Mg 98 Min.	0.95 Min.	50/100 mesh(150 ~ 300μm)
	MIL-P-14067B	Spherical/Chip or Flake	Mg 98 Min.	0.95 Min.	100/200 mesh(75 ~ 150μm)
	MIL-P-14067B	Spherical/Chip or Flake	Mg 98 Min.	0.95 Min.	200/325 mesh(45 ~ 75μm)
	Defence Standard 13-130/1	Blown & Cut	Mg 98 Min.	0.95 Min. (BD)	Size 0~7
	MIL-M-382C	Spherical/Chip or Flake	Mg 98.5 Min.	0.45 Min.	Granule No.1~18

## Magnesium Alloys

Product	Grade	Shape	Composition(%)	AD(g/cm <sup>3</sup> )	Particle Size
Mg-Al	MAAP-60A	Spherical/Chip or Flake	Mg 60 Al 40	0.7 ~ 1.3	60/325 mesh (45 ~ 250μm)
	MAAP-60B	Spherical/Chip or Flake	Mg 55 Al 45	0.7 ~ 1.3	60/325 mesh (45 ~ 250μm)
	MAAP-60C	Spherical/Chip or Flake	Mg 50 Al 50	0.7 ~ 1.3	60/325 mesh (45 ~ 250μm)
	MAAP-60D	Spherical/Chip or Flake	Mg 45 Al 55	0.7 ~ 1.3	60/325 mesh (45 ~ 250μm)
	MAAP-60E	Spherical/Chip or Flake	Mg 40 Al 60	0.7 ~ 1.3	60/325 mesh (45 ~ 250μm)
	JAN-M-454 Type A	Spherical/Chip or Flake	Mg 50 Al 50	0.7 ~ 1.3	60/325 mesh (45 ~ 250μm)
	JAN-M-454 Type B	Spherical/Chip or Flake	Mg 65 Al 35	0.7 ~ 1.3	60/325 mesh (45 ~ 250μm)

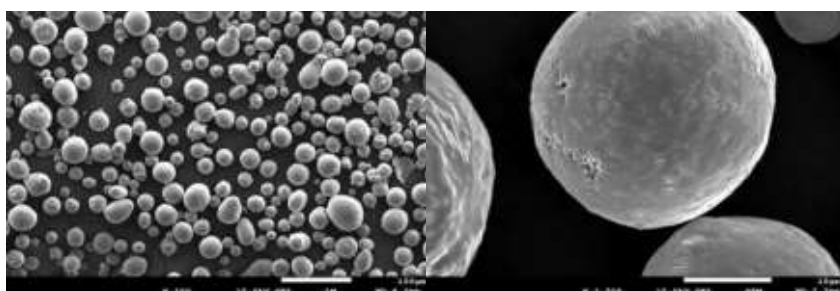


## Aluminium

Product	Grade	Shape	Composition(%)	AD(g/cm <sup>3</sup> )	Particle Size
Al	ALP-30	Irregular/Spherical	Al 99.5 Min.	0.8 ~ 1.2	30/50 mesh (300 ~ 600 $\mu$ m)
	ALP-100	Irregular/Spherical	Al 99.5 Min.	0.8 ~ 1.2	100/200 mesh (75 ~ 150 $\mu$ m)
	ALP-200	Irregular/Spherical	Al 99.5 Min.	0.8 ~ 1.2	200/325 mesh (45 ~ 75 $\mu$ m)
	ALP-325	Irregular/Spherical	Al 99.5 Min.	0.8 ~ 1.2	325/500 mesh (25 ~ 45 $\mu$ m)
	ALP-10S	Spherical	Al 99.5 Min.	0.9 ~ 1.3	Mean size: 4 ~ 10 $\mu$ m
	ALP-30S	Spherical	Al 99.5 Min.	0.9 ~ 1.3	Mean size: 15 ~ 25 $\mu$ m
	MIL-DTL-512C type1	Flake	Al 98 Min.	0.8 ~ 1.2	Class 1 ~ 3
	MIL-DTL-512C type2	Spherical	Al 99 Min.	0.8 ~ 1.2	Class 4 ~ 6
	MIL-DTL-512C type3	Spherical	Al 99 Min.	0.8 ~ 1.2	Class 6 ~ 8
	ALP-9S	Spherical	Al 99.7 Min.	0.8 ~ 1.2	9~11 $\mu$ m
	ALP-4S	Spherical	Al 99.7 Min.	0.8 ~ 1.2	4~9 $\mu$ m
	ALP-1S	Spherical	Al 99.7 Min.	0.8 ~ 1.2	1~2 $\mu$ m

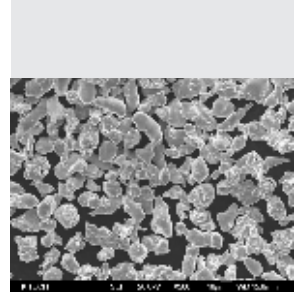
## Aluminium Alloys

Product	Grade	Shape	Composition(%)	AD(g/cm <sup>3</sup> )	Particle Size
Al-Si	ALSIP-30	Irregular	Si 14 Cu 2.6 Mg 0.7 Al Bal.	0.8 ~ 1.2	30/50 mesh (300 ~ 600 $\mu$ m)
	ALSIP-100	Irregular	Si 14 Cu 2.6 Mg 0.7 Al Bal.	0.8 ~ 1.2	100/200 mesh (75 ~ 150 $\mu$ m)
	ALSIP-200	Irregular	Si 14 Cu 2.6 Mg 0.7 Al Bal.	0.8 ~ 1.2	200/325 mesh (45 ~ 75 $\mu$ m)
	ALSIP-325	Irregular	Si 14 Cu 2.6 Mg 0.7 Al Bal.	0.8 ~ 1.2	325/500 mesh (25 ~ 45 $\mu$ m)
Al-Cu	ALCUP-30	Irregular	Si 0.7 Cu 4.5 Mg 0.5 Al Bal.	0.8 ~ 1.2	30/50 mesh (300 ~ 600 $\mu$ m)
	ALCUP-100	Irregular	Si 0.7 Cu 4.5 Mg 0.5 Al Bal.	0.8 ~ 1.2	100/200 mesh (75 ~ 150 $\mu$ m)
	ALCUP-200	Irregular	Si 0.7 Cu 4.5 Mg 0.5 Al Bal.	0.8 ~ 1.2	200/325 mesh (45 ~ 75 $\mu$ m)
	ALCUP-325	Irregular	Si 0.7 Cu 4.5 Mg 0.5 Al Bal.	0.8 ~ 1.2	325/500 mesh (25 ~ 45 $\mu$ m)



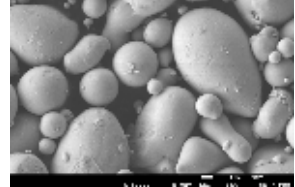
## Stainless Steel Powders

Product	Grade	Shape	Composition(%)	AD(g/cm <sup>3</sup> )	Particle Size
304L	S304L	Irregular	Cr 19 Ni 10 Si 1.5 Fe Bal.	2.65 ~ 2.85	-100 mesh (<150μm)
316L	S316L	Irregular	Cr 18 Ni 14 Mo 2.5 Fe Bal.	2.65 ~ 2.85	-100 mesh (<150μm)
410	S410	Irregular	Cr 12 C <0.15 Fe Bal.	2.65 ~ 2.85	-100 mesh (<150μm)
420	S420	Irregular	Cr 13 C 0.2 Fe Bal.	2.65 ~ 2.85	-100 mesh (<150μm)



## Tin Powders

Product	Grade	Composition(%)	AD(g/cm <sup>3</sup> )	Particle Size
Sn	TP-325	Sn 99.5 Min.	2.8 ~ 3.8	-325 mesh (<45μm)
	TP-800	Sn 99.5 Min.	1.0 ~ 2.0	<18μm



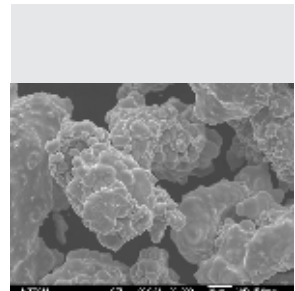
## Boron Powders

Product	Grade	Composition(%)	Particle Size
B	BP-98	B 98 Min.	< 1 μm
	BP-95	B 95 ~ 97	< 1 μm
	BP-90	B 90 ~ 92	< 1 μm
	BP-86	B 86 ~ 88 Min.	< 1 μm



## Copper Powders

Product	Grade	Shape	Composition(%)	AD(g/cm <sup>3</sup> )	Particle Size
Cu	CUPS-200	Spherical	Cu 99.5 Min.	2.8 ~ 3.8	200/325 mesh (45 ~ 75μm)
	CUPS-325	Spherical	Cu 99.5 Min.	2.8 ~ 3.8	325/500 mesh (25 ~ 45μm)
	CUP-200	Irregular	Cu 99.5 Min.	2 ~ 3	200/325 mesh (45 ~ 75μm)
	CUP-325	Irregular	Cu 99.5 Min.	2 ~ 3	325/500 mesh (25 ~ 45μm)



## Zirconium

Product	Grade	Gain on Ignition[%]	Zr(H)[%]	Auto Ignition Temperature [°C]	Combustion [sec/50cm]	Particle Size[ $\mu$ m]
Zr	MIL-Z-399D Type II Class1+2	Min.28.4	Min.95	235 $\pm$ 65	12.5 $\pm$ 7.5	3.6 $\pm$ 0.3
	MIL-Z-399D Type II Class2	31.5 $\pm$ 1.0	97.4 $\pm$ 0.8	180 $\pm$ 20	13.0 $\pm$ 5.0	3.8 $\pm$ 0.3
	MIL-Z-399D Type II Class3+4	31.4 $\pm$ 1.2	97.3 $\pm$ 0.9	190 $\pm$ 30	20.0 $\pm$ 10.0	4.2 $\pm$ 0.4
Zr Hybride	MIL-Z-21353	31.2 $\pm$ 1.0	97.2 $\pm$ 0.8(min1.9)	250 $\pm$ 50	600 $\pm$ 150	5.2 $\pm$ 0.6

## Customized Metal Powders

We are in the service of manufacturing metal powders.

Please contact us when you need metal powder for research and development, or when you need test production.

● Magnesium

● Aluminum

● Titanium

● Nickel

● Stainless Steel

● Copper

● Customized alloys

● Cobalt

● Tin



M E T A L P O W D E R



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**AS 9100D**  
CERTIFIED  
**ISO 9001**



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