625 AM

MISSION-CRITICAL AND SAFETY-CONSCIOUS APPLICATIONS

Material Description

GMP 625 metal powders have been specifically designed and optimised for use in Additive Manufacturing (AM).

GMP 625 processes well across the broad spectrum of AM machines and technologies due to its excellent fusion and melting characteristics in PBF and EBM applications.

GMP 625 is a nickel superalloy which offers good strength and toughness throughout a wide temperature range. Often used in high temperature, high corrosion applications, GMP 625 delivers excellent stress corrosion cracking resistance.

Material Properties	Typical Applications	Relevant Sectors	Applicable Specification
Good strength throughout wider temperature range Good toughness Corrosion resistance	Gas turbines Heat shields Corrosion resistant applications	Aerospace Marine Automotive	ASTM F3056, AMS 7001 Other specifications: DIN NiCr22Mo9Nb, UNS NO6625, AMS5666F, AMS5599G

PSD

20-53µm - 15-53µm - 15-45µm - 45-150µm - 45-106µm
Custom PSD available on request

APPLICATIONS

Powder Bed Fusion(PBF) - Direct Energy Deposition(DED)
Electron Beam Melting(EBM)

AEROSPACE & DEFENCE – ENERGY – MEDICAL – AUTOMOTIVE-
PRECISION ENGINEERING

YOUR GLOBAL LEADER IN GAS ATOMISED METAL POWDERS

Our range of metal powders for additive manufacturing is optimised for powder bed fusion, direct energy deposition and electron beam melting technologies. Deploying advanced processes including anti-satellite technology, Globus powders deliver excellent flowability and spreadability.

GENERAL PROPERTIES

PSD	d10, d50, d90 reported
Apparent Density	Measured and reported
Hall Flow	Measured and reported

Properties tested to standard guides used for Additive Manufacturing processes AMS7025, ASTM 52907, ASTM F3049

Chemical Composition

	wt%
Ni	bal
Cr	20.0 - 23.0
Mo	8.0 - 10.0
Fe	≤5.0
Nb	3.15 - 4.15
Co	≤1.0
Mn	≤0.50
Si	≤0.50
Al	≤0.40
Ti	≤0.40
C	≤0.10
O	≤0.015
N	≤0.02
P	≤0.005
S	≤0.003

Industry Powder Names

IN625
Alloy 625
Nickel 625

In625-0402

NickelAlloy IN625

Physical Properties*

Generic Data – Wrought Material	
Density	8.44 g/cm^3
Thermal Conductivity	9.8 W/mK
Melting Point	1290°C - 1350°C
Coefficient of Thermal expansion	12.8 10^{-6} K^{-1}

*typical values

Mechanical Properties

		0.2% Yield Strength (MPa)	Tensile Strength (MPa)	Elongation (%)	Reduction of Area (%)	Impact Toughness (J)	Hardness (HV)
After Heat Treatment	Horizontal	681	1057	33	39		301
	Vertical	601	942	39	53	96	290
ASTM Spec		275	485	30	30		

Heat Treatment

Stress relief may be performed per AMS2774 at 1038°C for 1 hour followed by air cooling,

Atomisation Process

Vacuum inert gas atomisation
Anti-Satellite technology
Argon gas atomised

Powder Quality

Highly Spherical
Very few satellites
Excellent flowability

Contact

Globus Metal Powders is committed to providing customers with premium powder with guaranteed **Excellence in Every Particle** as well as direct customer support, including metallurgy and AM experts.

Our range of metal powders includes steel, stainless steel, nickel & cobalt alloys.

Globus Metal Powders offers a diverse yet premium range of metal powders and alloys for Additive Manufacturing (AM) and Hot Isostatic Pressing (PM-HIP), along with next generation alloy development including custom grades.

Contact the Globus Metal Powders team for additional information or technical support.

Mechanical and physical properties are provided for guidance only and depict typically achievable properties and are not provided as guaranteed values or design data. Results achieved can vary significantly depending on AM processes, parameters, and part design/geometry.

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GMP HIP Optimised For PM-HIP
GMP AM Optimised For Additive Manufacturing
GMP Custom Next Generation Alloy Development

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