MAKINO
Promise of Performance

Co6

Co-based Alloy Co6 Powder for Additive Manufacturing
53/20 µm, Gas Atomized
Designed HS-LMD

Chemical composition similar to UNS R30016, Stellite 6®

DESCRIPTION

Co6 is a gas atomized cobalt-based alloy powder engineered for additive manufacturing (AM).This alloy consists of cobalt, chromium, and tungsten, which offers high hardness properties and exhibits remarkable resistance to wear, corrosion, and galling. It is also able to retains these properties at elevated temperatures up to 500°C to 600°C .

This material is one of the most widely utilized cobalt-based alloys for coating applications. As a standard coating material for general-purpose wear and corrosion resistance, it is well suited across diverse mechanical and chemical conditions.The material finds extensive use in the marine and power generation industries because of its durability in high-stress environments, especially in components like seals and valves.

KEY PROPERTIES

- High hardness
- Good wear resistance
- Excellent corrosion resistance
- Retains hardness at higher temperatures

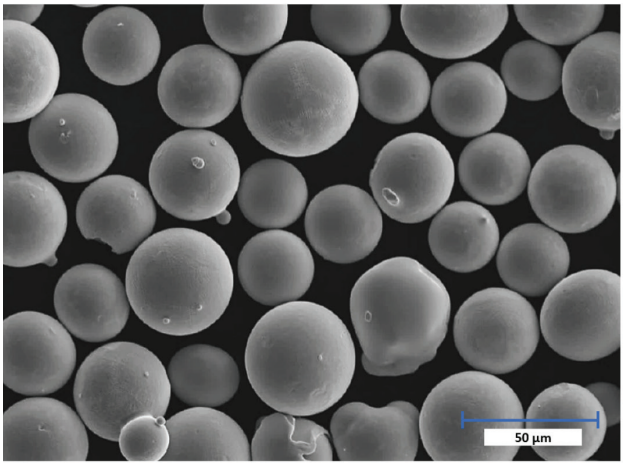
APPLICATIONS

- Pump shafts and bearings
- Valve seats and gate
- Piston valves
- Drilling hammer components
- Corrosion resistant machine tools

POWDER CHEMICAL COMPOSITION

Element	Min. (wt%)	Max. (wt%)
Co	Bal.	Bal.
Cr	28.0	31.0
W	3.5	5.5
C	1.0	1.4
Si	0.7	1.3
Fe	-	3.0
Ni	-	3.0
Mo	-	1.0
Mn	-	0.5

SEM IMAGE



POWDER PROPERTIES (ISO 4490, ISO 3923-1)

Particle Size Distribution (µm)	Hall Flow (s/50g)	Apparent Density (g/cm^3)
20 – 53	13.0	4.75

MICROGRAPHS

PHYSICAL PROPERTIES

Average Defect Percentage (%)
< 0.10

MECHANICAL PROPERTIES (ISO 6507-1, ISO 6508-1, ASTM G99)

Hardness ($HV_{0.5}$)	Hardness (HRC)	Specific Wear Rate (mm^3/Nm)
579	54	3.80×10^{-4}

MELTING POINT

Celsius (°C)	Fahrenheit (°F)
1285 - 1410	2345 - 2570

PROCESS INFORMATION:

The properties reported in this Technical Data Sheet are applicable to Makino AM powders tested and distributed by Makino and processed on Makino LMD machine utilizing parameters in accordance with relevant operating guidelines (inclusive of setup conditions and maintenance). The properties are obtained by following recommended protocols. Further information regarding the methods used by Makino can be provided upon inquiry.

DISCLAIMER:

The data and information provided represent, to the best of our knowledge, standard or average values and do not constitute guarantees for upper and lower limit parameters. The recommended applications for the material disclosed are exclusively for illustrative purposes that help the reader to conduct their independent assessments. These suggestions are not intended to be expressed or implied warranties of suitability for the specified applications or any other purposes. The information included may be subject to change at any time without prior notification.

CONTACT US:

Our Safety Datasheet (SDS) is available upon request. For more information or support please contact Makino at sales-am@makino.com.sg or visit www.makino.com.sg

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