forAM® Alloy 59 15-45 VG

Advanced nickel based alloy for additive manufacturing

forAM Alloy 59 VG is a vacuum induction melted, argon gas atomized, and spherical powder for additive manufacturing. The powder is a nickel-chromium-molybdenum alloy with excellent corrosion resistance in the most aggressive environments. It is especially designed for high pitting corrosion.

forAM Alloy 59 is the first choice for applications in semiconductor equipment as well as in chemical and oil & gas sectors.

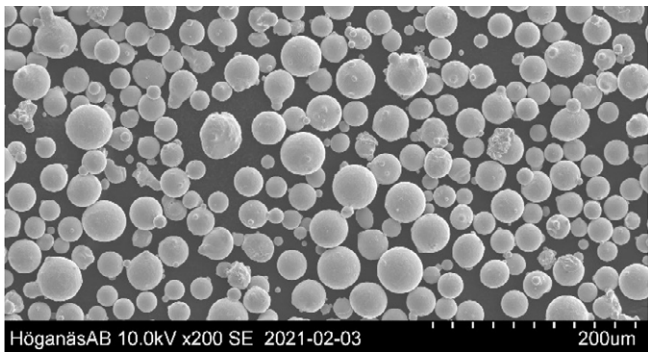
Equivalent materials:

- 2.4605
- UNS N06059

For more information on forAM product line and other of Höganäs products, please contact your local sales representative.

Powder properties

Chemical composition, (typical values)	
Element	**Content, %**
Cr	23
Mo	16
Al	0.3
Fe	0.1
C	<0.01
Ni	Balance



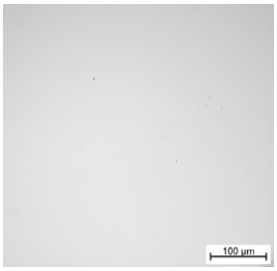
Typical powder properties		
Nominal particle range	15-45 µm (max 5% over and under size)	MPIF05, ASTM B214, ISO4497
Hall Flow	13 s/50 g	MPIF03, ASTM B213, ISO4490
Apparent Density	4.5 g/cm^3	MPIF04, ASTM B212, ISO3923/1

Mechanical properties

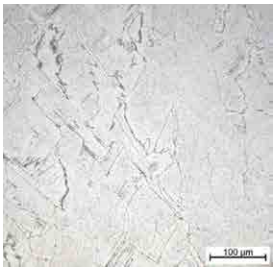
Surface condition is machined		
Heat treatment	**SR** (1)	**SA** (2)
Printed in Z-direction – Build direction		
UTS (MPa)	845	700
YS (MPa)	545	475
Elongation (%)	55	81
IE Notch in Y direction (J)	78	290

Heat treatment	SR (1)	SA (2)
Printed in X/Y-direction – Perpendicular		
UTS (MPa)	865	750
YS (MPa)	545	465
Elongation (%)	31	76
IE Notch in Z direction (J)	61	241
Hardness (HV10)	297	316

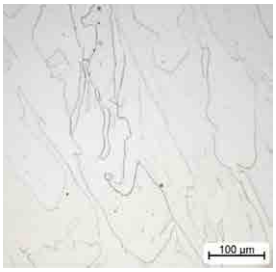
(1) Stress Relived at 1,038 °C for 2h
(2) Solution Annealed 1,120 °C – 1h followed by gas quench



As Polished



Etched – Stress Relieved (1) condition



Etched – Solution Annealed (2) condition

Standard packaging:

30 kg (6x5 kg, 2.5 L PE bottles packed in cardboard box)

200 kg / 500 kg Flexbag

(Other tailored particle sizes and packaging are available under conditions)