

forAM 718[®] 15-45 VG

Advanced nickel superalloy for Additive Manufacturing

forAM 718 VG is a vacuum induction melted, argon gas atomized, and spherical powder for additive manufacturing. The main strengthening mechanism of this Nickel-Chromium based superalloy occurs by precipitation of γ' -phases during the precipitation hardening. The material has exceptional mechanical properties at elevated temperature (up to 700 °C) and excellent corrosion resistance to many media. Due to its outstanding workability, it is the first choice for aerospace, oil and gas industry and the chemical processing field.

Some typical applications are gas turbine engines, high temperature engineering, liquid fuel and exhaust systems, nuclear engineering, cryogenic engineering.

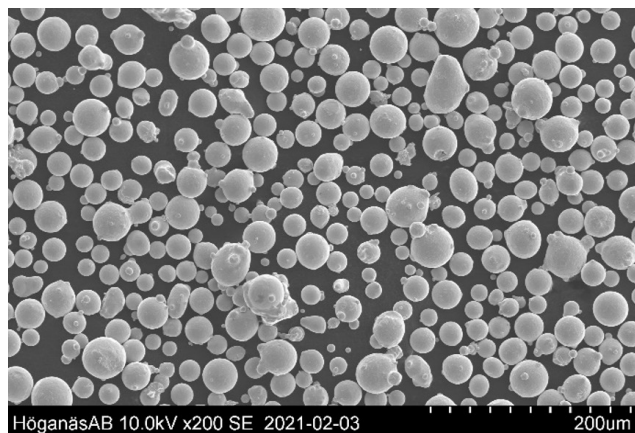
Equivalent materials:

- » 2.4668
- » UNS N07718
- » ASTM B637

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	19
Nb	5.1
Mo	3
Ti	1
Al	0.5
C	0.04
Ni	53
Fe	Balance

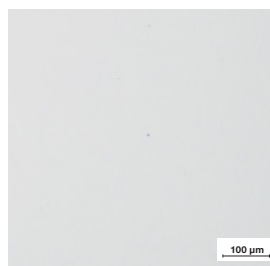


Typical powder properties		
Nominal particle range	15-45 μm (max 5% over and under size)	MPIF05, ASTM B214, ISO4497
Hall flow	15 s/50 g	MPIF03, ASTM B213, ISO4490
Apparent density	4.4 g/cm ³	MPIF04, ASTM B212, ISO3923/1

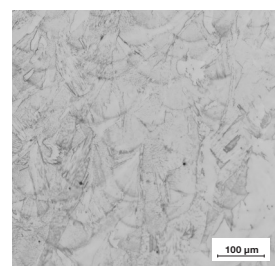
Mechanical properties

Surface condition is machined		
Heat treatment	As Printed ⁽¹⁾	Heat treated ⁽²⁾
Printed in Z-direction – Build direction		
UTS (MPa)	940	1,320
YS (MPa)	640	1,170
Elongation (%)	35	18
IE Notch in Y direction (J)	110	36

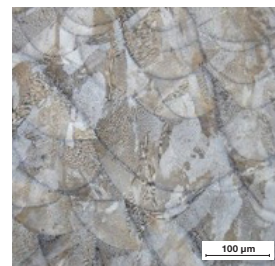
Heat treatment	As Printed ⁽¹⁾	Heat treated ⁽²⁾
Printed in X/Y-direction – Perpendicular		
UTS (MPa)	1,040	1,430
YS (MPa)	750	1,200
Elongation (%)	29	18
IE Notch in Z direction (J)	100	27
Hardness (HV10)	320	440



As polished



As Printed – Build direction



Heat Treated – Build direction

(1) No Heat Treatment

(2) Solution annealed at 1.065 °C for 1h. Precipitation hardened at 760 °C for 10 h, cooled to 650 °C in 2 h, hold at 650 °C for 8h followed by an air cooling

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)