forAM® 18Ni300 15-45 VG

Age-hardening tool steel for Additive Manufacturing

forAM 18Ni300 VG is a vacuum induction melted, argon gas atomized, spherical powder for additive manufacturing. After a thermal aging heat treatment of the built parts, it has high hardness >50 HRC, toughness, and strength, with high dimensional stability and low distortions. It has high machinability and retains properties at mildly elevated until ~400 °C.

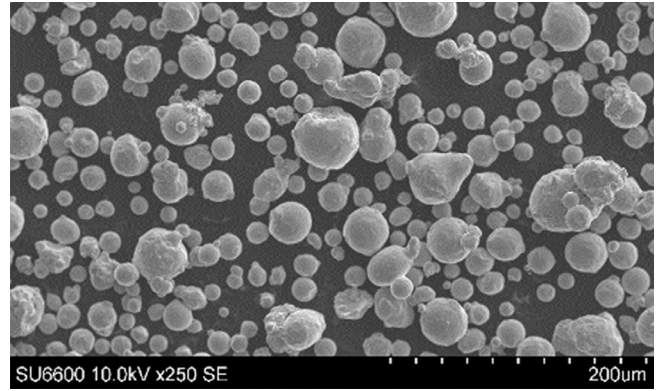Typical applications are in high wear components and dies.

Equivalent materials:

» X3NiCoMoTi 18-9-5
» 1.2709
» 18Ni300

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

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Powder properties

Chemical composition, (typical values)

Element	Content, %
Ni	18
Co	9
Mo	5
Ti	0.7
Al	0.1
C	0.01
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	4.0 g/cm³	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)	1,160	2,120
YS (MPa)	940	2,070
Elongation (%)	10	5

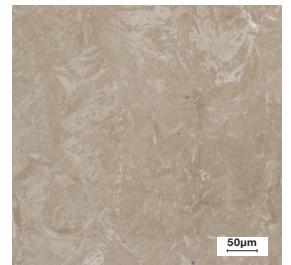| Heat treatment	As Printed [1]	Heat treated [2]
Printed in X/Y-direction – Perpendicular		
UTS (MPa)	1,060	1,980
YS (MPa)	800	1,950
Elongation (%)	13	5
Hardness (HRC)		52

(1) No Heat treatment
(2) Direct Ageing at 500 °C for 6 h in air
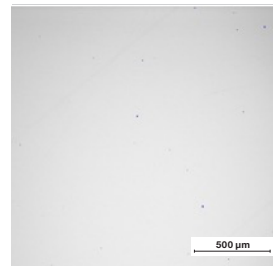
As polished
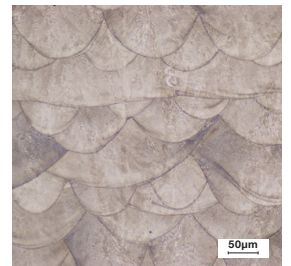
As Printed – Build direction

Heat Treated – Build direction

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)

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At Höganäs, we have designed our high-quality 3D printing metal powders for the special requirements of additive manufacturing. Manufacturers all over the globe achieve optimal results with our products and value them for the following characteristics: excellent flowability, good spherical shape, controlled oxygen and nitrogen content, full and high packing density and perfect reproducibility.