

forAM® 17-4PH 15-45 VG

Precipitation hardening stainless steel powder for Additive Manufacturing

forAM 17-4PH VG is a vacuum induction melted, argon gas atomized, and spherical powder for additive manufacturing. It is a martensitic precipitation hardening stainless steel with high strength and hardness, and good corrosion resistance.

Typical applications are in chemical process and oil equipment like flanges, valves and pumps, as well as aircraft parts.

Equivalent materials:

- >> X5CrNiCuNb17-4
- ➢ UNS17400
- ≫ 1.4542
- ≫ SAE630

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	16	
Ni	4	
Cu	4	
Mn	0.06	
Nb+Ta	0.3	
Si	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/cm ³	MPIF04, ASTM B212, ISO3923/1		

Mechanical properties

Surface condition is machined			
Heat treatment	H860 ⁽¹⁾		
Printed in Z-direction – Build direction			
UTS (MPa)	1,260		
YS (MPa)	1,170		
Elongation (%)	12.5		

Heat treatment	H860 ⁽¹⁾	
Printed in X/Y-direction – Perpendicular		
UTS (MPa)	1,150	
YS (MPa)	1,020	
Elongation (%)	12.2	
Hardness (HRC)	38	

(1) Solution Annealed at 1,040 °C for 1 h in Ar followed by gas quench,

<u>500 µm</u>



As polished

Heat Treated – Build direction

Standard packaging:

Precipitation hardened at 460 °C in Ar

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.