



forAM[®] H13 20-53 GA

Tool steel powder for Additive Manufacturing

forAM H13 GA is a nitrogen gas atomized, good flowable spherical powder for additive manufacturing. It is a Cr-Mo-V alloyed hot work tool steel, which after hardening and tempering exhibits very good resistance to thermal shock and thermal fatigue. Due to excellent high temperature strength, it is fit for hot pressing tools, extrusion and casting dies. Due to high wear resistance, the alloy is also suitable for cold working tools like punches.

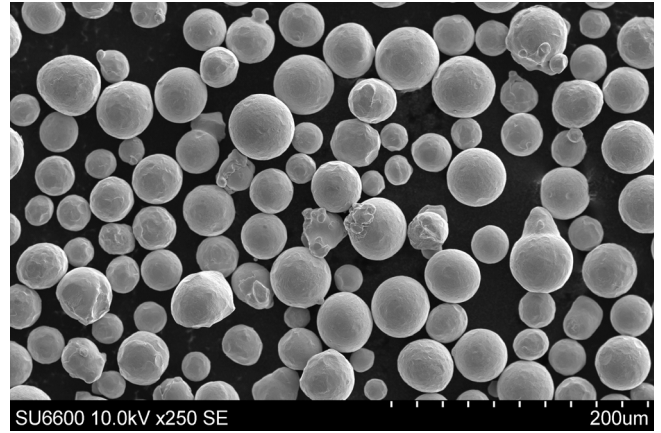
Equivalent materials:

- » X40CrMoV5-1
- » 1.2344
- » SAE H-13
- » AISI H13

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	5.2
Mo	1.5
V	1.0
Si	1.0
C	0.35
Mn	0.3
O	0.05
Fe	Balance



Typical powder properties		
Nominal particle range	20-53 µm (max 5% over and under size)	MPIF05, ASTM B214, ISO4497
Hall flow	13 s/50 g	MPIF03, ASTM B213, ISO4490
Apparent density	4.2 g/cm ³	MPIF04, ASTM B212, ISO3923/1

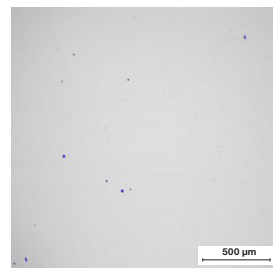
Mechanical properties

Surface condition is machined			
Heat treatment	SR ⁽¹⁾	SR ⁽²⁾	HT ⁽³⁾
Printed in Z-direction – Build direction			
UTS (MPa)	1,780	1,760	1,550
YS (MPa)	1,120	1,540	1,410
Elongation (%)	13	9	10
Hardness (HRC)	51	51	50

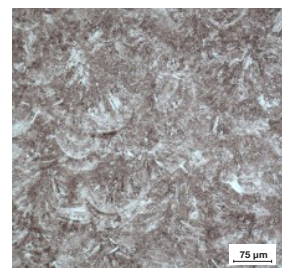
(1) Stress relieved at 200 °C in air

(2) Double Stress Relieved at 620 °C for 1 h in air with intermediate cooling to room temperature,

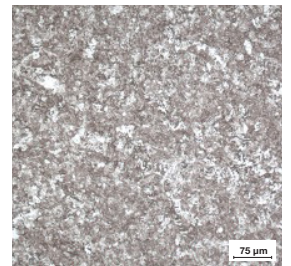
(3) Preheated to 750 °C for 2 h, austenitized at 1,050 °C for 2 h followed by air quench. Double tempered at 600 °C for 1 h with intermediate cooling to room temperature.



As polished



Stress relieved ⁽²⁾ – Build direction



HT ⁽³⁾ – Build direction

Standard packaging:

20 kg (4x5 kg, 1 L PE bottles packed in cardboard box)

(Other tailored particle sizes, and packaging eg. 200 kg / 500 kg Flexbag,

are available under conditions)