GE Additive

M300

Steel M300 is a maraging tool steel which can be used for manufacturing tool components with conformal cooling for series injection-molding as well as diecasting and functional components.

Data in this document represents material built with 40 µm layer thickness and in a Nitrogen atmosphere on an M2 /M2 Multilaser machine. Values listed are typical.

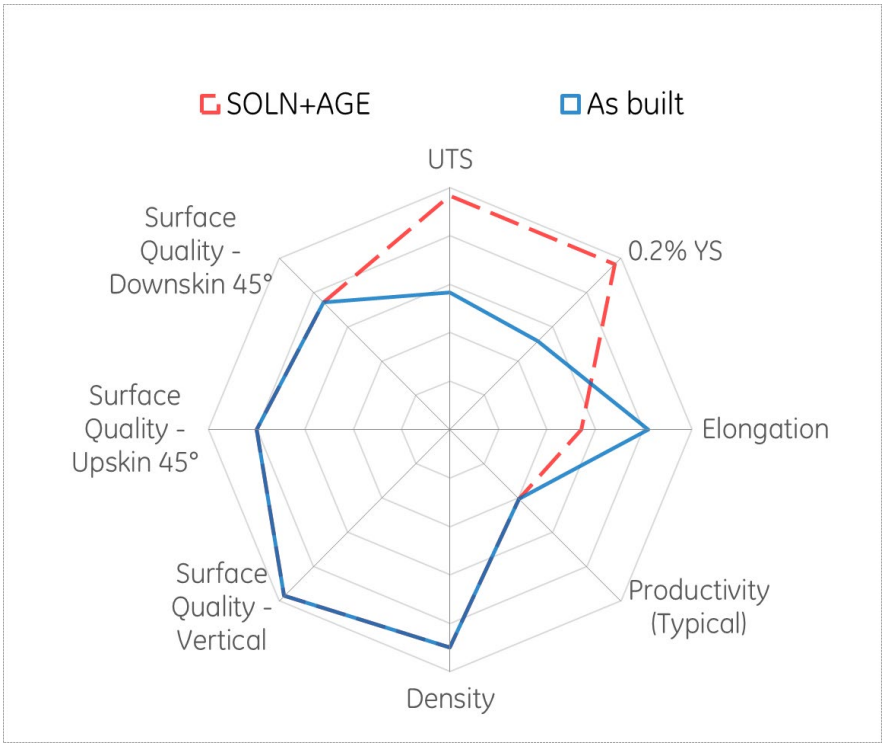
26
Fe

POWDER CHEMISTRY

Element	Indicative value (wt%)
C	0-0.03
Si	0-0.10
Mn†	0-0.15
P	0-0.01
S	0-0.01
Cr	0-0.25
Mo	4.50-5.20
Ni†	17.0-19.0
Ti†	0.80-1.20
Co†	8.50-10.0
Fe	Balance

†M300 (powder) chemical composition et al. according to ASTM A646/A646M with exception of Mn, Ni, Co, Ti content

SPIDER PLOT



MACHINE CONFIGURATION

- M2 / M2 Multilaser
- Nitrogen Gas
- Rubber blade
- Layer thickness 40µm
- Build rate dual laser w/ coating *[cm/h³]: 12.1
- Max. Build rate per Laser** [cm/h³]: 15.0

*Measured by using Factory Acceptance Test layout
**Calculated (layer thickness x scan velocity x hatch distance)

THERMAL STATES

1. AS BUILT
2. AGE: Age hardening at 540°C for 6 hour

PHYSICAL DATA AT ROOM TEMPERATURE

	Surface Roughness - Overhang (µm)		
	45°	60°	75°
Upskin	12	10	9
Downksin	14	11	8

	Surface Roughness (µm)
H	18
V	6

	Porosity (% Density)		Hardness (HV10)		Poisson's Ratio	
Thermal State	H	V	H	V	H	V
As-Built	99.9	99.9	370	--	--	--
SOLN+AGE	99.9	99.9	600	--	--	--

TENSILE DATA

Tensile testing done in accordance with ASTM E8 and ASTM E21

Temperature: RT

	Modulus of Elasticity (GPa)		0.2% YS (MPa)		UTS (MPa)		Elongation (%)		Reduction of Area (%)	
Thermal State	H	V	H	V	H	V	H	V	H	V
As-Built	158	148	865	1095	1120	1140	13.5	14.5	--	--
SOLN+AGE	190	176	1860	1800	1970	1895	5.7	5.8	--	--

H: HORIZONTAL (XY) orientation
V: VERTICAL (Z) orientation

* All of the figures contained herein are approximate only. The figures provided are dependent on a number of factors, including but not limited to, process and machine parameters, and the approval is brand specific and/or application specific. The information provided on this material data sheet is illustrative only and cannot be relied on as binding.