

## MIMETE® V 718

FOMAS Group's metal powder plant has been specifically designed to serve the additive manufacturing market. A VIGA, Vacuum Induction melting Inert Gas (argon or nitrogen) Atomization, ensures high purity and spherical powders.

FOMAS Group's guarantees the properties of the standard powder "V 718" set forth in the datasheet included in this page, which is available on stock.

PRODUCT	MIMETE® V 718	According to UNS N07718 and EN 2.4668
<i>Nickel-chromium alloy characterized by oxidation and corrosion resistance, excellent mechanical properties also at high temperature.</i>		
Production process	Vacuum Inert Gas Atomization	
Packaging	10 kg plastic sealed bottle or 100 kg steel drum, with silica bags	

CHEMICAL PROPERTIES <sup>1,2</sup>											
MIMETE® V 718	Al	C	Co	Cr	Fe	Mn	Mo	Nb	Ni	Si	Ti
MIN	0,20	0	0	17,0	bal	0	2,80	4,75	50,0	0	0,65
MAX	0,80	0,080	0,099	21,0		0,35	3,30	5,50	55,0	0,35	1,15

<sup>1</sup> Minor element ranges, even if not explicitly listed in the table, comply with both UNS and EN standards.

<sup>2</sup> MIMETE® powders are supplied to a tighter specification to minimise batch-to-batch variations.

PHYSICAL PROPERTIES <sup>3</sup>		Sampling / Analysis Methods
Nominal particle range	15-45 (max 5% over and under size)	ASTM B215 / ASTM B822 / B214

<sup>3</sup> Other standard particle ranges (i.e. 0-20, 50-100 and 50-150 µm) available on request.

*The production plant has also a testing laboratory accredited by ACCREDIA in compliance with the requirements of the ISO/IEC 17025 international standard.*

*Unless provided otherwise hereto, terms and conditions ruling the offer of MIMETE® apply.*

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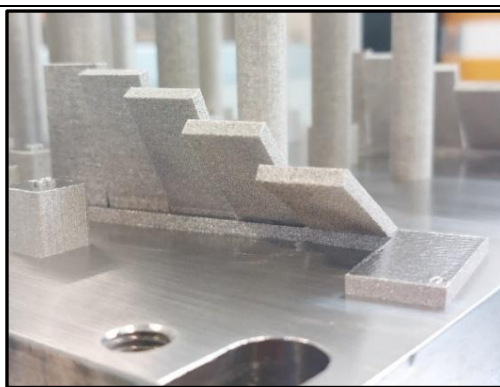
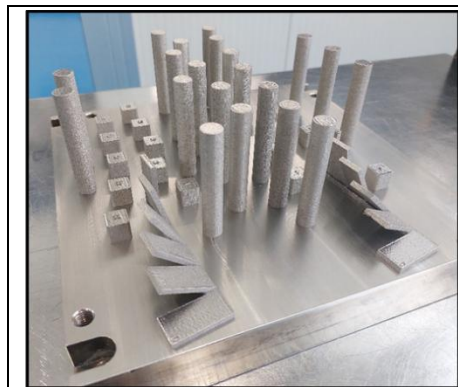
## MIMETE® V 718

### LEGAL DISCLAIMER

All data included in following pages are for reference purposes only. They are not sufficient for designing or certifying components and no warranties or guarantees are expressed against these results. However, psd and chemical composition of the powder lot 8240444S003 are compliant to allowable limits reported on page 1.

INSPECTION CERTIFICATE TYPE 3.1 ACCORDING TO EN10204.

POWDER LOT	8240444S003
PRINTER - SOFTWARE	EOS M290 - EOSPrint 2.13 (IN718_040_PerformanceM291_2.12)
INERT GAS	Argon
RECOATER BLADE	HSS
LAYER THICKNESS	40 $\mu\text{m}$
VOLUME RATE	4.2 $\text{mm}^3/\text{s}$ (15.2 $\text{cm}^3/\text{h}$ )



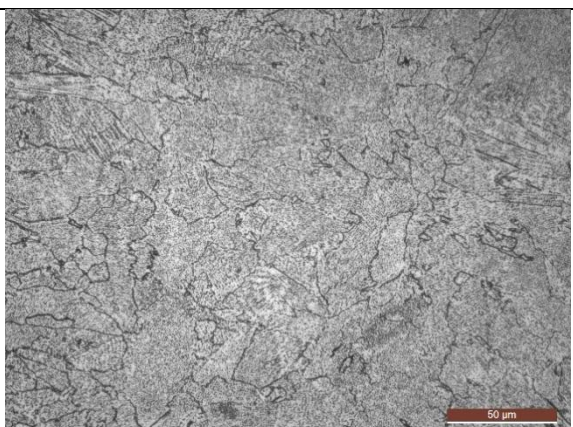
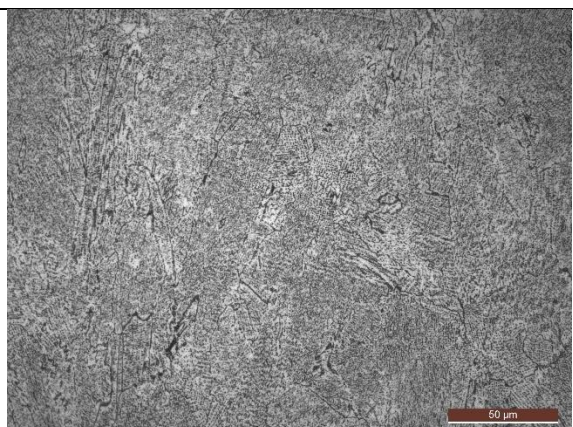
PROPERTIES (as built, AVG)	Test Standard	F3055-14a	V 718
Hardness HRC	UNI EN ISO 6508-1	NA	31
Hardness HBW	UNI EN ISO 6506-1	NA	281
Yield strength (vertical) [MPa]	ASTM E8-2024	$\geq 600$	644
Tensile strength (vertical) [MPa]		$\geq 920$	947
Elongation at break (vertical) [%]		$\geq 27$	34,7
Reduction of area (vertical) [%]		NA	50,9

HEAT TREATMENT	According to AMS 2774H (heat treatment condition S1750DP)
Solution annealing: hold 1 hour per 25 mm of thickness at 954 °C - Air cool (AC)	
Ageing: hold 8 hours at 718 °C, furnace cool at 621 °C and hold for total precipitation time of 18 hours - AC.	

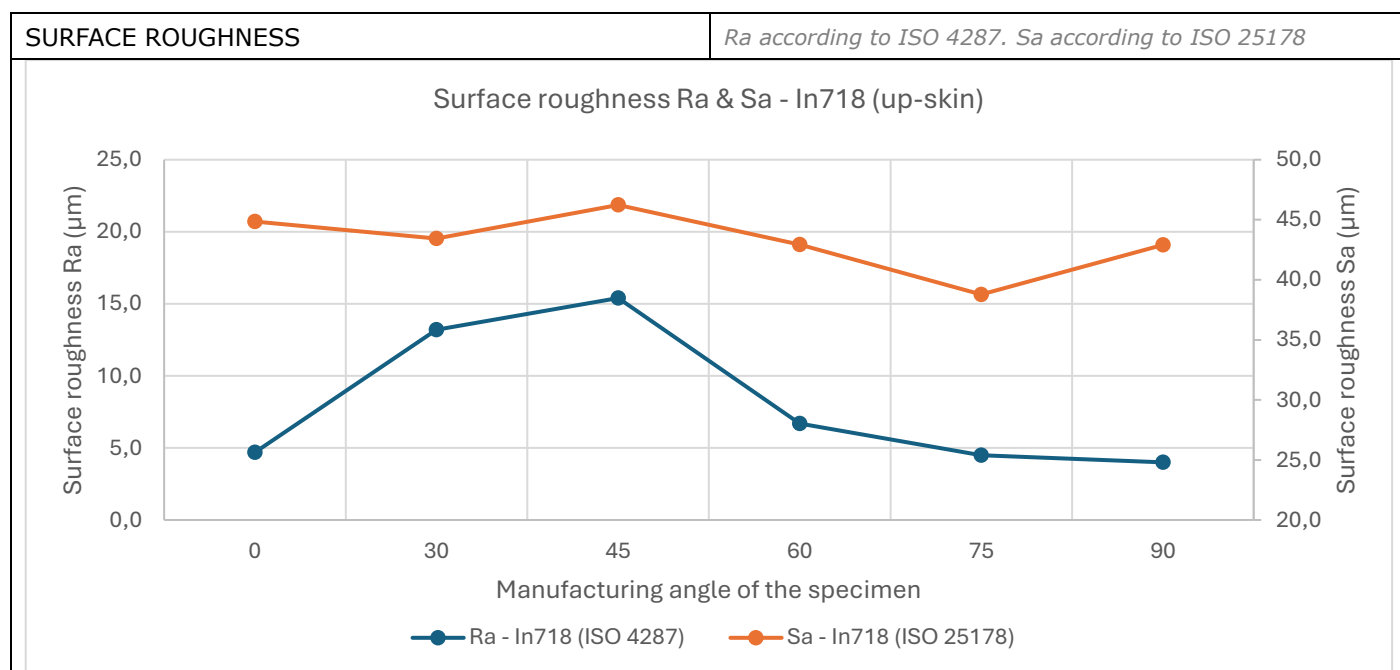
PROPERTIES (heat treated, AVG)	Test Standard	F3055-14a	V 718
Hardness HRC	UNI EN ISO 6508-1	NA	48
Hardness HBW	UNI EN ISO 6506-1	NA	428
Yield strength (vertical) [MPa]	ASTM E8-2024	$\geq 920$	1157
Tensile strength (vertical) [MPa]		$\geq 1240$	1342
Elongation at break (vertical) [%]		$\geq 12$	19,6
Reduction of area (vertical) [%]		NA	32,9

ASTM F3055-14A: Standard Specification for Additive Manufacturing Nickel Alloy (UNS N07718) with Powder Bed Fusion (Table 3)

## MIMETE® V 718

HEAT TREATED MICROSTRUCTURE		Etched according to ASTM E407-23 with Kalling's 2 reagent.	
			
Section_XY_500x		Section_YZ_500x	

PROPERTIES	Test Standard	V 718
Density [g/cm <sup>3</sup> ]	UNI EN ISO 3369-2010	8,23
Avg. Defects [%]	ASTM E3-11(2025)	0,03



Manufacturing angle: 0° is the horizontal printing plane.

COEFFICIENT OF THERMAL EXPANSION (avg $\alpha_m$ ) (as built)	According to ASTM E228-22 [*10-6/K]
25-100 °C	13,05
25-200 °C	13,35
25-300 °C	13,83
25-400 °C	14,22
25-500 °C	14,54
25-600 °C	15,05
25-700 °C	15,62