



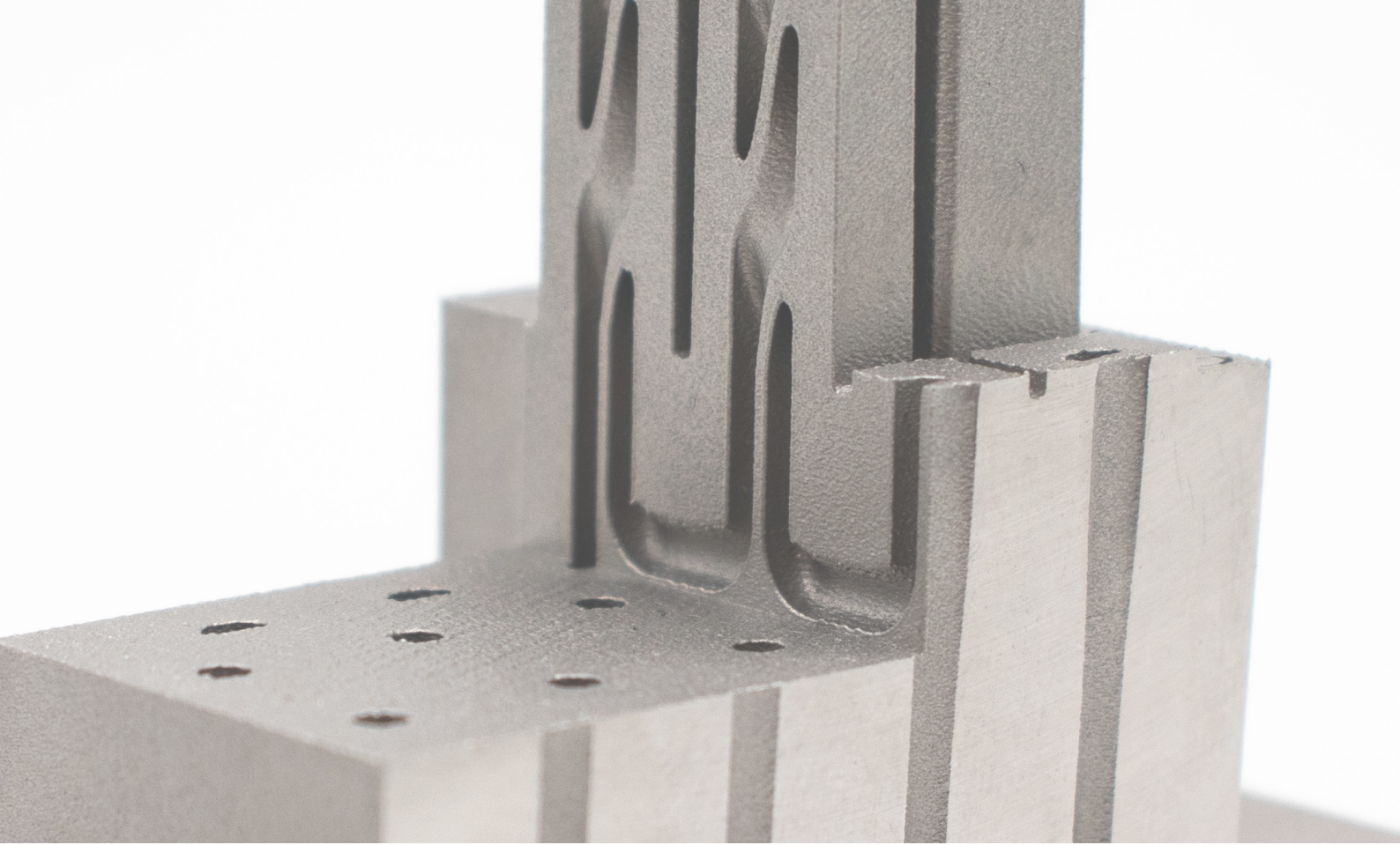
ONE CLICK METAL

Tool Steel Cxplus

MATERIAL DATA SHEET

www.oneclickmetal.com

2025.10



Cxplus

Cxplus is a corrosion-resistant, maraging (martensitic aging) steel that combines the excellent processability and low cracking tendency of maraging steels in the LPBF process with outstanding strength and good corrosion resistance. The already high mechanical properties in the as-built condition can be further enhanced through aging, turning the material into a high-performance alloy with exceptional mechanical characteristics reaching hardness levels of up to 54 HRC. Thanks to its superior all-round property profile, Cxplus is the material of choice for demanding industries such as aerospace, motorsport, defense, oil & gas, and tool and mold making.

Properties

- Great strength
- Good corrosion resistance
- Good mechanical properties

Applications

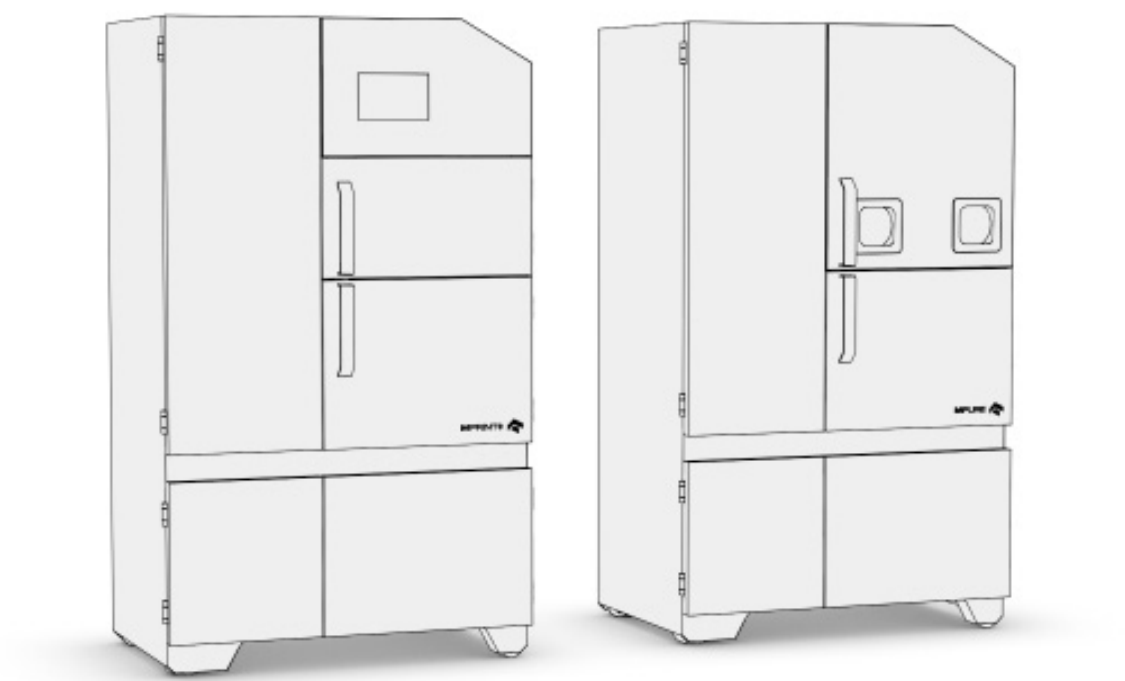
- Tooling & die
- Automotive
- Defense
- Machine parts

Powder Properties

Powder chemical composition (wt.-%)

Element	Min.	Max.
C	<<<	
Cr	11.5	13.5
Fe	Basis	
Ni	9	11
Mo	<2	
Ti	<2	
Al	<2	



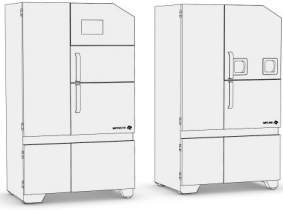


Process information

The Cxplus powder provided by One Click Metal is optimized for the production of robust components with One Click Metal systems.

System Set-up	MPRINT
Parameter	Cxplus 30µm
Powder part-no.	Cxplus
Layer thickness	30µm
Coater	X-Lip
Inert gas	Nitrogen





Powder properties

Particle Size Distribution (D10/D50/D90)	23µm/34µm/47µm
Bulk Density	4,02g/ cm ³
Flowability	3

Physical and Mechanical Properties

The mechanical properties of CXplus are in the high range, offering excellent hardness and strength while maintaining good toughness. In the annealed condition, it typically exhibits a tensile strength of around 800 to 1000 MPa, and through heat treatment, its mechanical properties can be further enhanced. The alloy provides an optimal balance of wear resistance, corrosion resistance, and dimensional stability, making it suitable for demanding applications.

Relative Density (%)

≥ 99.7

Surface quality (measured along the z-axis)

As built	Ra [µm]	3,3
	Rz [µm]	7,2
Blasted	Ra [µm]	2,1
	Rz [µm]	6,8

Mechanical properties ISO6892-1 as built

Vertical	Yield strength Rp0.2 [MPa]	Tensile strength Rm [MPa]	Elongation at break A [%]	Elastic Modulus (GPa)
Average	680	999	13,8	159
Standard deviation absolute	19	18	0,8	6
Standard deviation percentage	3	2	6	4

Heat treatment

Aging

The part is heated and held at 490°C for 6hrs and then left to air cool. Fine precipitates form within the material and thereby increase the strength of the part.

Mechanical properties ISO6892-1 after heat treatment

Vertical	Yield strength Rp0.2 [MPa]	Tensile strength Rm [MPa]	Elongation at break A [%]	Elastic Modulus (GPa)
Average	1487	1612	7.7	191
Standard deviation absolute	25	22	0.9	1
Standard deviation percentage	2	1	12	1

