

METAL SOLUTIONS

EOS StainlessSteel CX

Material Data Sheet

EOS STAINLESSSTEEL CX

Combines Corrosion Resistance with High Strength and Hardness

EOS StainlessSteel CX is a tooling grade steel characterized by having a good corrosion resistance combined with high strength and hardness. Parts built from EOS StainlessSteel CX can be machined, shot-peened and polished in as manufactured or heat treated state.

MAIN CHARACTERISTICS

- Stainless steel with excellent corrosion resistance combined with high strength and hardness
- The parts are easily machinable and offer excellent polishability
- The parts offer excellent wear and fatigue resistance

TYPICAL APPLICATIONS

- Plastic injection molding tools and tool parts for demanding applications
- Rubber molding tools and tool parts
- Molding tools and tool parts for corrosive plastics
- Other industrial applications where high strength and hardness are required

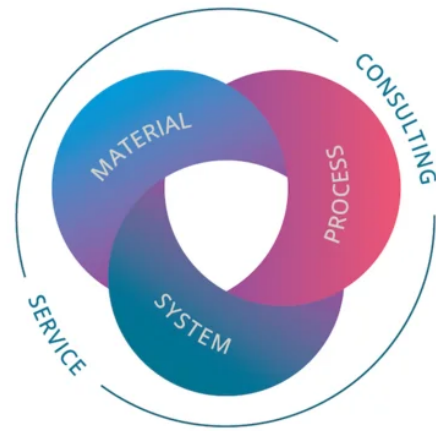
The EOS Quality Triangle

EOS uses an approach that is unique in the AM industry, taking each of the three central technical elements of the production process into account: the system, the material and the process. The data resulting from each combination is assigned a Technology Readiness Level (TRL) which makes the expected performance and production capability of the solution transparent.

EOS incorporates these TRLs into the following two categories:

- Premium products (TRL 7-9): offer highly validated data, proven capability and reproducible part properties.
- Core products (TRL 3 and 5): enable early customer access to newest technology still under development and are therefore less mature with less data.

All of the data stated in this material data sheet is produced according to EOS Quality Management System and international standards



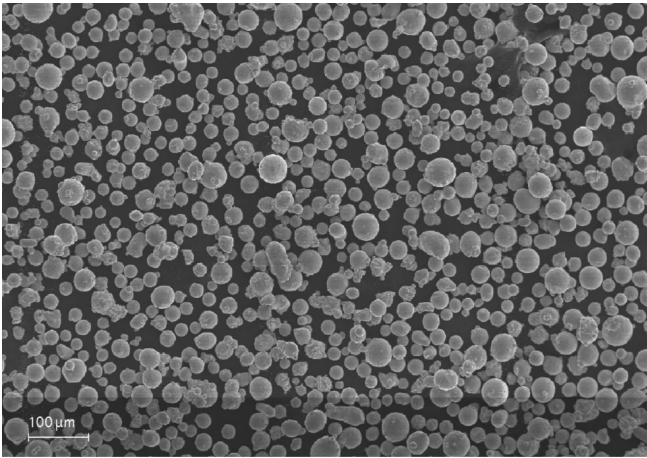
POWDER PROPERTIES

Powder Chemical Composition (wt.-%)

Element	Min.	Max.
Fe		Balance
Cr	11	13
Ni	8.4	10
Mo	1.1	1.7
Al	1.2	2
Mn	-	0.4
Si	-	0.4
C	-	0.05

Powder Particle Size

GENERIC PARTICLE SIZE DISTRIBUTION	20 - 65 μm
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SEM micrograph of EOS StainlessSteel CX powder

HEAT TREATMENT

Description

EOS StainlessSteel CX can be heat treated to match various needs of different applications. The two step heat treatment can be performed under vacuum or inert gas atmosphere. First step is solution annealing to minimize amount of austenite in the martensitic matrix. The needed hardness and strength is achieved through aging treatment where precipitation hardening takes place

Steps

Solution Annealing: 30 minutes at 850 °C (±10 °C) measured from the part followed by rapid air cooling to room temperature (below 32 °C). Cooling rate 20-60 °C/min. Reaching room temperature before starting aging treatment is required to achieve desired microstructure.

Aging: For peak hardness and strength 2 h at 525 °C (±10 °C) measured from the part followed by air cooling. Mechanical properties presented in this document achieved through this aging procedure.

HEADQUARTERS

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Status as of 20.05.2024. Subject to technical modifications. EOS is certified according to ISO 9001.

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