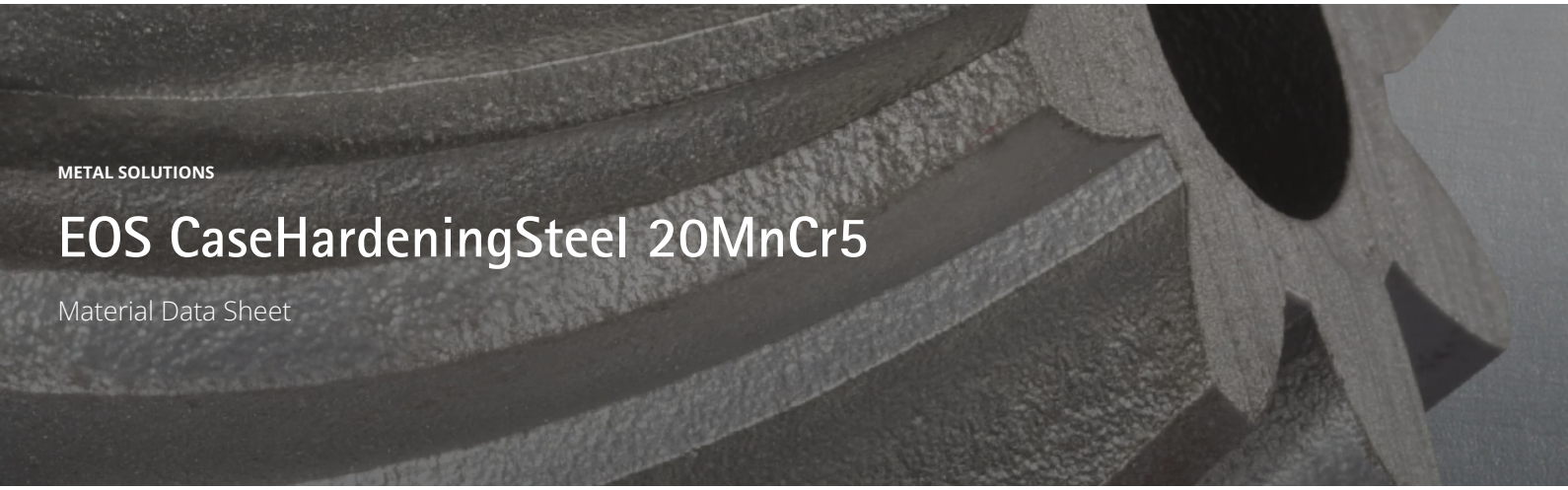


METAL SOLUTIONS

EOS CaseHardeningSteel 20MnCr5

Material Data Sheet

EOS CASEHARDENINGSTEEL 20MNCR5

Case hardening steel with good hardenability reaching good wear resistance due to high surface hardness after heat treatment.

MAIN CHARACTERISTICS

- Good wear resistance
- Excellent surface hardness after carburizing
- Material according to EN-10084 alloy number 1.7147
- Carburizable to achieve surface hardness of 60 HRC

TYPICAL APPLICATIONS

- Automotive and general engineering applications
- Gears, mechanical parts

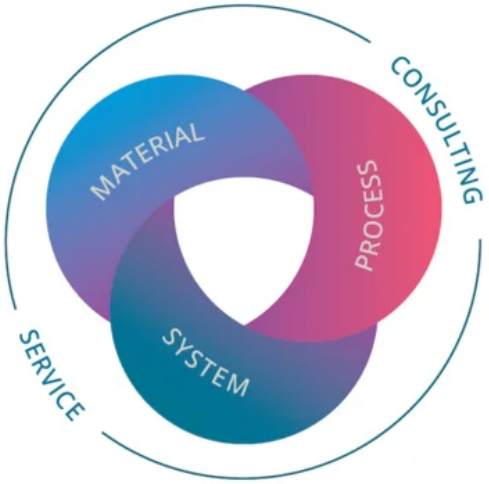
The EOS Quality Triangle

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

EOS CaseHardeningSteel 20MnCr5 powder material is in accordance with EN-10084 alloy number 1.7147.

Powder Chemical Composition (wt.-%)

Element	Min.	Max.
Fe	Balance	
Mn	1.1	1.4
Cr	1	1.3
C	0.17	0.22
Si	-	0.4
S	-	0.035

Powder Particle Size

GENERIC PARTICLE SIZE DISTRIBUTION	**15 - 55 µm**

HEAT TREATMENT

Steps

Step 1

Hardening:
840 - 870 °C, hold time 30 min when thoroughly heated, water or oil quenching

Step 2

Tempering:
160 - 200 °C, hold time 2 h when thoroughly heated, air cooling

Optional softening:
Step 1: Hardening
Step 2: Tempering

Optional softening treatment:
Normalizing 870 °C, hold time 1 h when thoroughly heated, air cooling

Optional carburizing in carbon rich atmosphere:
Carburizing treatment 860-900 °C, cooling in air. Hardening and tempering to be performed after carburizing.

HEADQUARTERS

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Status as of 03.09.2024. Subject to technical modifications. EOS is certified according to ISO 9001.