

Printdur® 4404

Stainless, austenitic steel for Additives Manufacturing

GENERAL INFORMATION

Printdur® 4404 (1.4404 / 316L) has established itself within additive manufacturing as the all-rounder in the field of iron-based alloys. Printdur® 4404 is characterized by the following properties:

- Good processability with LPBF.
- Good mechanical properties.
- High PREN of 36 (Pitting Resistance Equivalent Number) and therefore a high corrosion resistance.
- Good resistance to oxidation.

Our production is certified according to DIN EN ISO 9001 (quality management systems) and IATF 16949 (quality management automotive). Thus, we can guarantee a constant high quality of our metal powder.

POWDER PROPERTIES

The powder is produced by gas atomization. This manufacturing process ensures spherical powder particles in combination with excellent flow characteristics.

Chemical Composition [weight-%]

C	Si	Mn	Cr	Mo	Ni	Fe
< 0.03	1.0	1.0	17.0	2.0	13.0	Base

Powder characterization¹

Bulk density	Flow characteristics
4,2 ± 0,4 g/cm ³	16 ± 4 s/50g

¹ The properties were determined in the particle size distribution of 10 - 53 µm. The powder properties may differ due to different particle size distributions.

ADDITIVE MANUFACTURING²

Printdur® 4404 can be processed on LPBF systems. The process parameters are similar to those of 1.4404/316L. Please contact us for further information.

² Process parameters for LPBF systems have been developed for our alloys and can be supplied on request. Depending on the system, it may be necessary to deviate from these recommendations. We would be pleased to support you in the implementation.

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MECHANICAL PROPERTIES³

The mechanical properties listed below were achieved with a particle size distribution of 10 - 53 µm. The used system was an EOS M290 with a layer thickness of 40 µm.

R _{p0.2}	490 MPa ± 50 MPa
R _m	570 MPa ± 50 MPa
A _{5.65}	45 %
A _V	165 J
HV 0.5	220 HV

³ The mechanical properties were determined in vertical direction and thus represent the lower limit of the properties due to the component orientation / print orientation of the alloy. A different - e.g. horizontal - orientation of the specimens / components generally leads to higher mechanical properties.

MICROSTRUCTURE

In printed condition Printdur® 4404 is characterized by an 99 % austenitic microstructure. As a result, the material is non-magnetic ($\mu_r < 1.01$).

CORROSION RESISTANCE

In printed condition Printdur® 4404 is corrosion resistant according to SEP 1877 Method II (intergranular corrosion resistance test) and ASTM G48 Method E (pitting corrosion resistance test).

We reserve us the right to change/ remove and/or edit the content of our technical datasheets in any time. Errors and missprints reserved.

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