

Material Data sheet

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Heat-resistant ferritic steel W.-Nr. 1.4767**1. Application examples**

Due to the alloy with approx. 5% aluminum and small additions of hafnium and ytterbium, this stainless chrome steel has very good heat resistance. Therefore, the material 1.4767 is very well suited as a heat conductor and for exhaust gas treatment.

Further application examples:
stainless metal foils that should be magnetizable.

The material 1.4767 is **not** approved as a spring material in the DIN EN 10 151 standard.

If there are high requirements for corrosion resistance (e.g. in waste gas treatment from waste incineration plants), super alloys such as Alloy 625 (material no. 2.4856) should be used.

2. Material codes

German Norm:	1.4767, X8CrAl 20-5
AISI:	(similar to AISI 430 + Al+Y+Hf)
ASTM:	-
English Norm:	-
French Norm:	-
Japanese Norm:	-

3. Alloy Composition *

C:	max. 0,05%
Si:	max. 0,50%
Mn:	max. 0,50%
P:	max. 0,045%
S:	max. 0,015%
Cr:	19-22%
Ni:	max. 0,30%
Mo:	- %
Zr:	max. 0,07%
Y:	max. 0,10%
Hf:	max. 0,10%

* the exact composition of each batch can be documented by a test certificate 2.2 or 3.1 according to DIN 10 204

4. Delivery condition

Condition:	ferritic, not hardenable
Surface:	2H, roughness Ra max. 0,3 µm (depending on the roughness of the working roll)

Ultimate tensile strength: ca. 1000-1300 N/mm²

Further mechanical data: see chapter 7 and 8.

5. Sizes

thicknesses: 0,03-0,20 mm
raw material width: ca. 300 mm
edges: cut
Lengths: individual lengths from 5 to 10 000 mm or as Coil

The following sizes are available from stock (without obligation):

thickness	width	Annotation
0,03	ca. 312mm	
0,05	ca. 300mm	
0,10	ca. 300mm	
0,20	ca. 315mm	

without obligation, Issue: July 2023

6. Tolerances

thickness tolerance: DIN EN 9445 Table 1
width tolerance: DIN EN 9445
straightness: normal
flatness: wave height max. 1,0 mm

7. Further mechanical data

Yield strength Rp0,2 : depending on the tensile strength
Elongation A80: depending on the tensile strength

The highest application temperature is around 1150° Celsius. Please note that Young's modulus values drop as temperature increases.

8. Physical properties

Density: 7,16 g/cm³
Thermal conductivity: 9,8-12,4 W/(m °C) depending on the temperature
Heat capacity: 490 J/(kg °C) medium value bei 50 – 100 °C
Thermal expansion: 12,2 x 10⁻⁶ (between 30 - 100 °C)
12,4 x 10⁻⁶ (between 30 - 200 °C)
12,6 x 10⁻⁶ (between 30 - 300 °C)
Electric resistance: 0,14 Ohm x mm²/m
Modus of elasticity: 210 000 MPa bei 20 °C

Relative permeability μ r: 600-1000 (more data please see chapter 13)

9. Blanking

We recommend a punch-to-die clearance of 4-10 % of the strip thickness.

The corner radius should be at least 0.25 mm and the punching die should be at least twice the strip thickness.

The pieces should then be tumbled to receive a good edge roundness.

10. Laser cutting

This alloy can be laser cut without problems.

11. Photo etching

This alloy is very easy to etch.

12. Bending

As the alloy 1.4767 is supplied in the temper rolled condition, the rolling direction has a big influence on the bending.

Bending at right angle (90°) to the rolling direction:

	Tensile range 1000-1500 N/mm ²
Up to 0,25 mm	1,0 x t
0,25-0,50 mm	1,0 x t
0,50-0,75 mm	2,0 x t
0,75-1,00 mm	2,5 x t

t = strip thickness

Bending parallel to the rolling direction:

	Tensile range 1000-1500 N/mm ²
Up to 0,25 mm	2,5 x t
0,25-0,50 mm	3,0 x t
0,50-0,75 mm	4,0 x t
0,75-1,00 mm	5,0 x t

t = strip thickness

13. Flat grinding

Although this alloy is magnetisable enough to be fixed by magnetic clamping devices of flat grinding machines, we can not recommend grinding due to the low thickness of our stock material.

14. Welding

The alloy 1.4767 can be welded easily like other ferritic steels.

15. Corrosion resistance

This alloy is in the group 1 in the Nirosta-table of corrosion resistance of stainless steels (see www.nirosta.de/Publikationen).

This alloy is less resistant than the alloys 1.4310 (in group 5), and the grade 1.4404 (in group 5).

Nirosta is a registered trade mark of ThyssenKrupp AG.

Please check there and by tests if the alloy 1.4767 is resistant enough for your application.

Important Annotation

The specifications which are given in this technical information sheet about the condition

and application of the alloys are only for reference and are no confirmation about certain performances and characteristics.

The information correspond to our own experiences and experiences of our suppliers.
We can not guarantee for the results during processing and utilisation.