

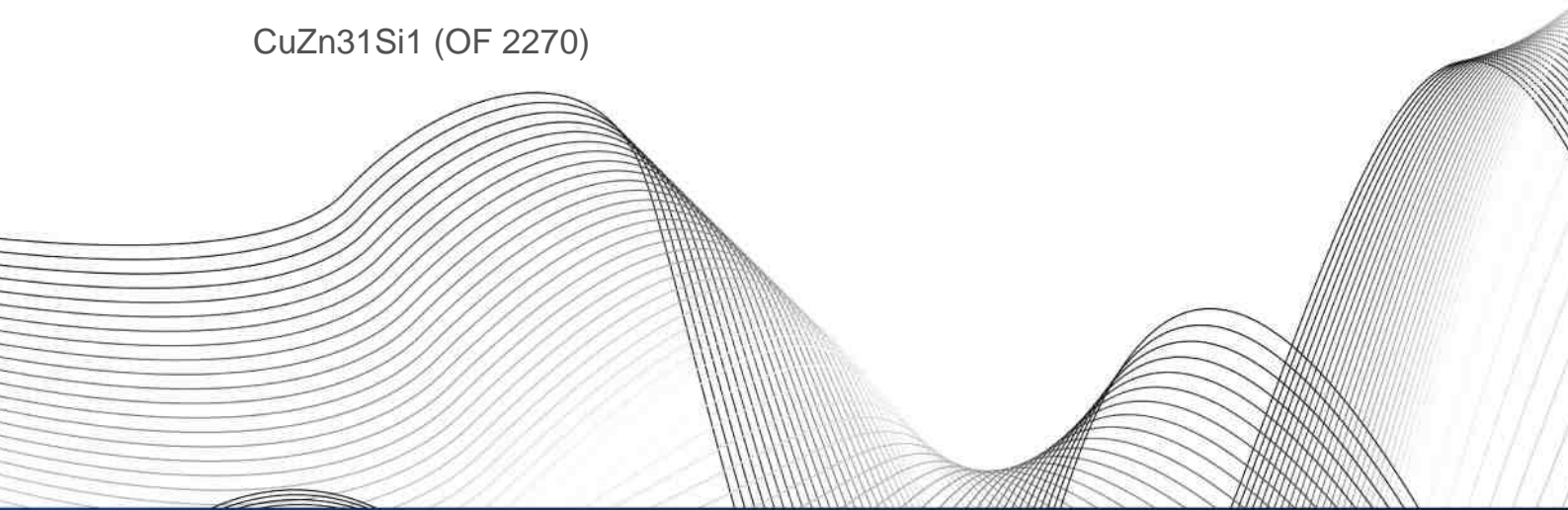


OTTO FUCHS  
Dülken GmbH & Co. KG



Copper and Copper Alloys

CuZn31Si1 (OF 2270)



	Cu	Zn	Pb	Sn	Fe	Mn	Ni	Al	Si	As	Co	Cr	Others
min.	66.0	Rem.	0.1	-	-	-	-	-	0.7	-	-	-	-
max.	70.0	-	0.3	-	0.4	-	0.5	-	1.3	-	-	-	0.5

## Applications

CuZn31Si1 provides excellent performance for applications of gliding. CuZn31Si1 shows a combination of good wear resistance, strength at elevated temperatures and resistance against tarnishing. Furthermore, its good corrosion resistance is to be mentioned for the application of CuZn31Si. A good cold formability is of advantage for the manufacturing of bushings and other gliding elements, which are made of CuZn31Si1.

Examples of application:

Bushings  
Plain bearings  
Guide bars and plates  
Others sliding elements

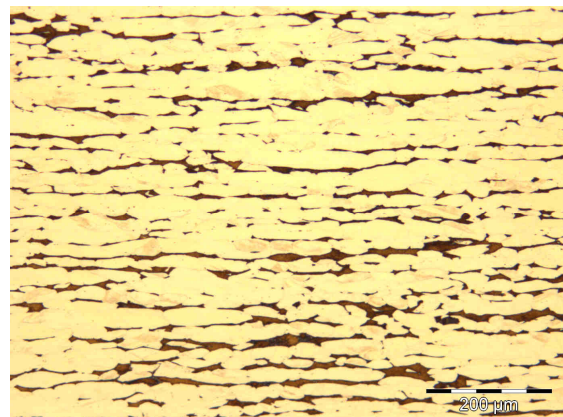
## Physical properties

At room temperature

Density	8.4	g/cm <sup>3</sup>
Electrical conductivity	8.9	MS/m
	15.3	% I.A.C.S
Heat conductivity	71	W/(m*K)
Heat capacity	377	J/(kg*K)
Coefficient of thermal expansion	19.2	10 <sup>-6</sup> /K
Young's modulus	108	GPa
Melting range	880-915	°C

## Microstructures

The microstructures of CuZn31Si1 consist of a matrix of  $\alpha$ -phase (face centred cubic) with embedded isles of  $\beta$ -phase (body centred cubic). There is a certain solubility of silicon. The content of silicon which exceeds the limit of solubility can contribute to the formation of Fe-silicides.





## Consignment and measurements

### Strength conditions

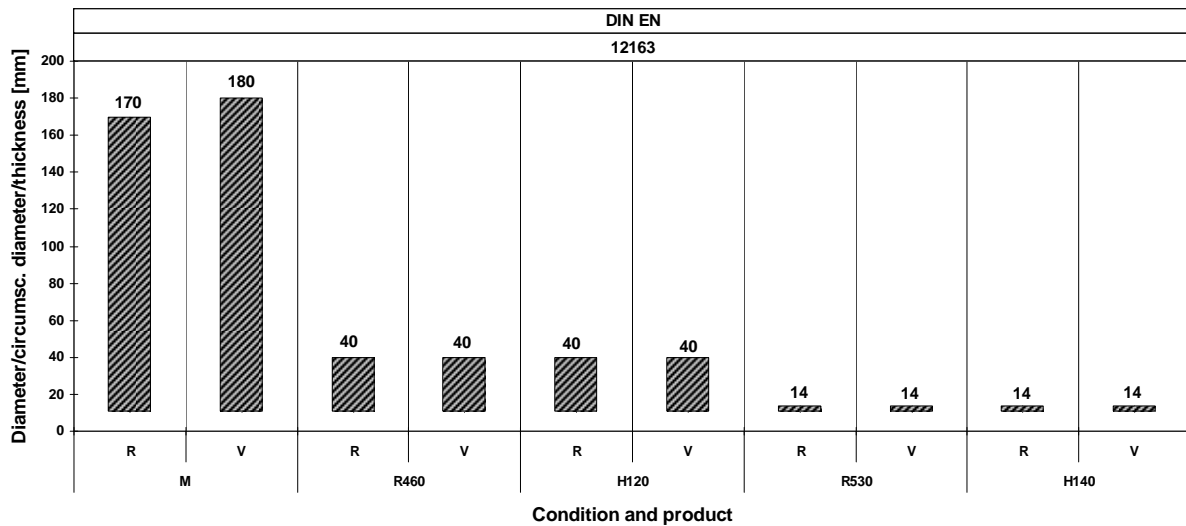
Spec./ DIN EN	Condition	Yield strength $R_{p0.2}$ [MPa]	Tensile strength $R_m$ [MPa]	Elongation A [%]	Brinell- Hardness HBW 2.5/62.5
12163	M	**	**	**	**
12449					
12449	R440	≥200	≥440	≥20	/
12163	R460	≥240	≥460	≥22	/
12449	R490	≥250	≥490	≥15	/
12163	R530	≥350	≥530	≥12	/
12449	H115	/	/	/	110-150
12163	H120	/	/	/	120-160
12163	H140	/	/	/	≥140
12449	H145	/	/	/	≥140
Spec.	R530	≥400	≥530	≥10	≥150
Spec.	R540	≥430	≥540	≥10	≥160

DIN EN 12163:  
Bars, general purpose

DIN EN 12449:  
Seamless tubes

\*\* Condition M = without specified properties-as manufactured  
/ No requirements in specification or not applicable  
Spec. Condition defined by OF

### Specified dimensions for rods

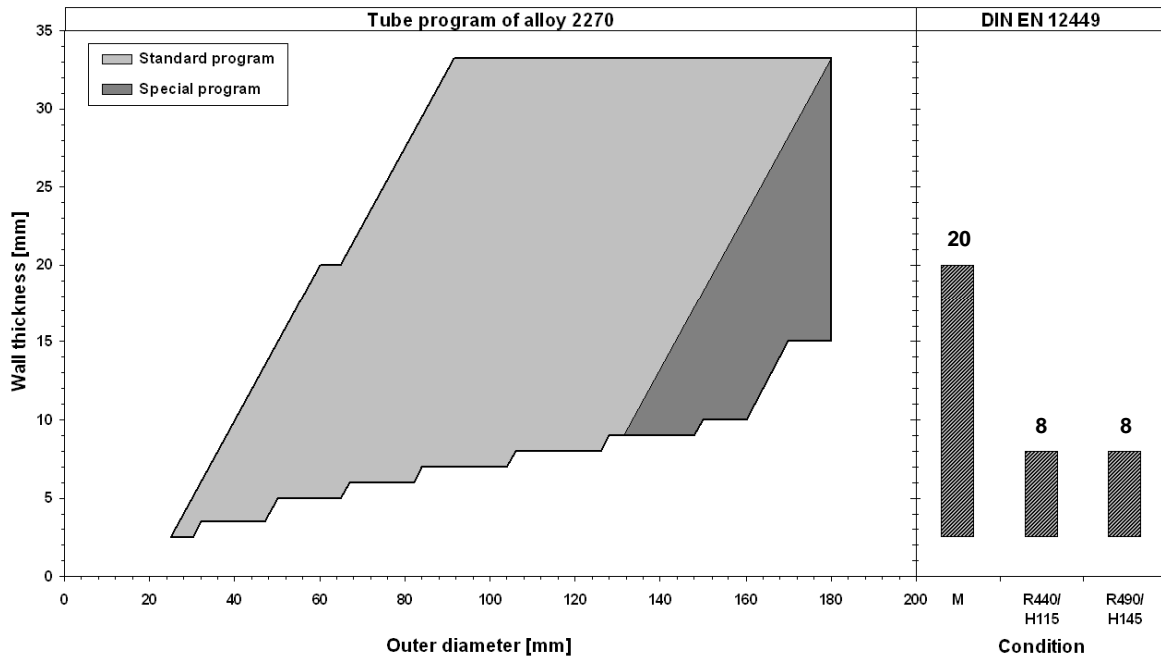


R Rod  
V Polygonal bars

Profiles and rectangular bars can be delivered up to 180 mm in extruded and up to 130 mm in cold drawn condition.



## Specified dimensions for hollow bars and round tubes



The conditions specified by OF internally can be delivered in the following dimensions: R530 up to 8 mm wall thickness and R540 up to 4 mm wall thickness.

Further dimensions for hollow bars and round tubes are available on request.

### Others consignments

Rods and tubes in other strength and hardness conditions and dimensions are available on request.

Processing		Heat treatment	
Shaping		Soft annealing	500-600°C
Machinability (CuZn39Pb3=100%)	average (40)	Stress relieving	200-350°C
Cold working	good	<b>Special notes and remarks</b>	
Hot working	average		
Hot working temperature	750-850°C	The alloy OF 2270 is a variant of CuZn31Si1 with excellent pureness concerning some accompanying elements, especially S and Se.	
Connecting		For use in corrosive environments (stress corrosion cracking) the products should be applied in a stress relieved condition. Persistency against special kinds of corrosion and chemicals has to be considered for each application in particular.	
Resistance welding	good		
Shielded welding	good		
Brazing	average		
Soldering	average		
Surface treatment			
Mechanical polishing	very good		
Electrolytic polishing	poor		
Galvanisation	average		
Tin coating	poor		



**OTTO FUCHS KG**

Derschlagler Straße 26  
D-58540 Meinerzhagen

Telefon +49 2354 73-0  
Telefax +49 2354 73 - 201

info@otto-fuchs.com  
www.otto-fuchs.com

---

**OTTO FUCHS Oberflächentechnik GmbH**

Poststrasse 57-59  
D-71229 Leonberg

Telefon +49 7152 94 02 - 0  
Telefax +49 7152 94 02 - 88

info@otto-fuchs-oberflaechentechnik.com  
www.otto-fuchs-oberflaechentechnik.com

---

**OTTO FUCHS Hungary Sales department  
c/o OTTO FUCHS KG**

Derschlagler Straße 26  
D-58540 Meinerzhagen, Germany

Telefon +49 2354 73 316  
Telefax +49 2354 73 241

info@otto-fuchs.com  
www.otto-fuchs.com

---

**OTTO FUCHS Technology (Shenyang) Co., Ltd.**

No. 26 Purong Road  
Shenbei New District  
Shenyang, P. R. China, 110164

info@otto-fuchs.cn  
www.otto-fuchs.cn

---

**Schüco International KG**

Karolinenstraße 1-15  
D-33609 Bielefeld

Telefon +49 521 783 - 0  
Telefax +49 521 783- 451

info@schueco.de  
www.schueco.de

---

**Weber Metals Inc.**

16706 Garfield Avenue  
Paramount CA 90723/USA

Telefon +1-562 602-0260  
Telefax +1-562 602-0468

wmi@webermetals.com  
www.webermetals.com

---

**Foxtec-Ikhwezi (Pty) Ltd.**

1 De Wet Road, West Bank  
East London, 5218 East London, Südafrika

Telefon +27 (043) 7033500  
Telefax +27 (043) 7033515

info@foxtec.org  
www.foxtecikhwezi.co.za



**OTTO FUCHS  
Dülken GmbH & Co. KG**



Heiligenstraße 70  
41751 Viersen

Telefon +49 2162 956-6  
Telefax +49 2162 956-762

duelken@otto-fuchs.com  
www.otto-fuchs-duelken.com

