

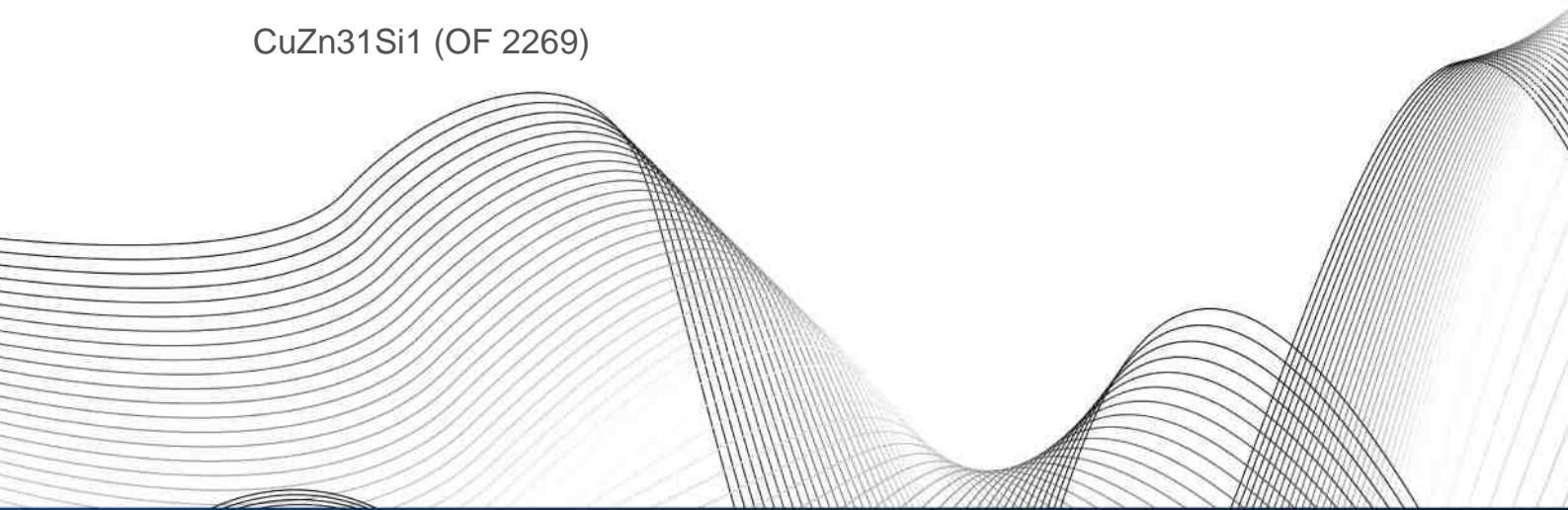


OTTO FUCHS
Dülken GmbH & Co. KG



Copper and Copper Alloys

CuZn31Si1 (OF 2269)



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

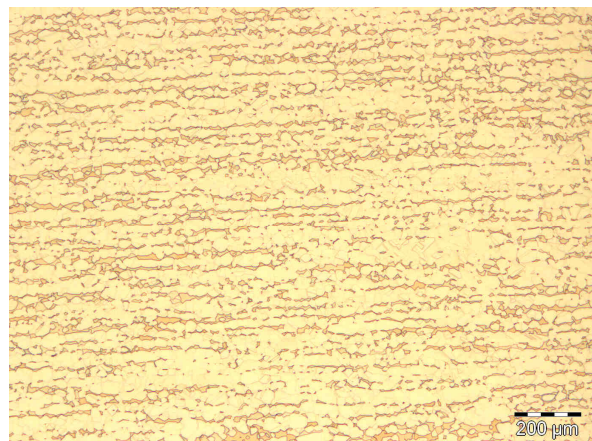
Physical properties

At room temperature

Density	8.4	g/cm ³
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 ⁻⁶ /K
Young's modulus	108	GPa
Melting range	880-915	°C

Microstructures

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





Consignment and measurements

Strength conditions

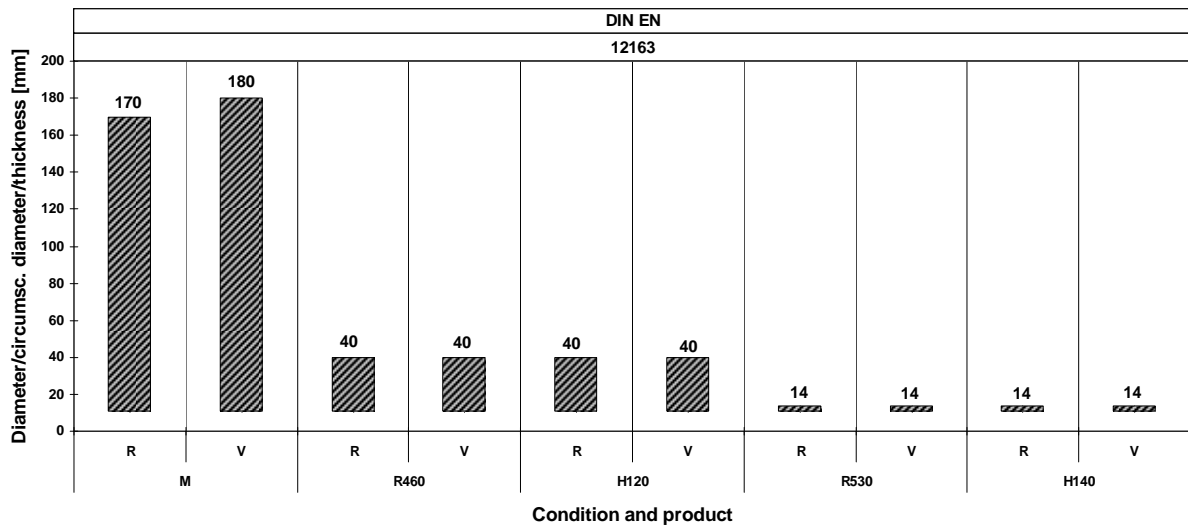
Spec./ DIN EN	Condition	Yield strength R _{p0.2} [MPa]	Tensile strength R _m [MPa]	Elongation at break A [%]	Brinell- Hardness HBW 2.5/62.5
12163	M	**	**	**	**
12449					
12449	R440	≥200	≥440	≥20	/
12163	R460	≥240	≥460	≥22	/
12449	R490	≥250	≥490	≥15	/
12163	R530	≥350	≥530	≥12	/
12449	H115	/	/	/	110-150
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

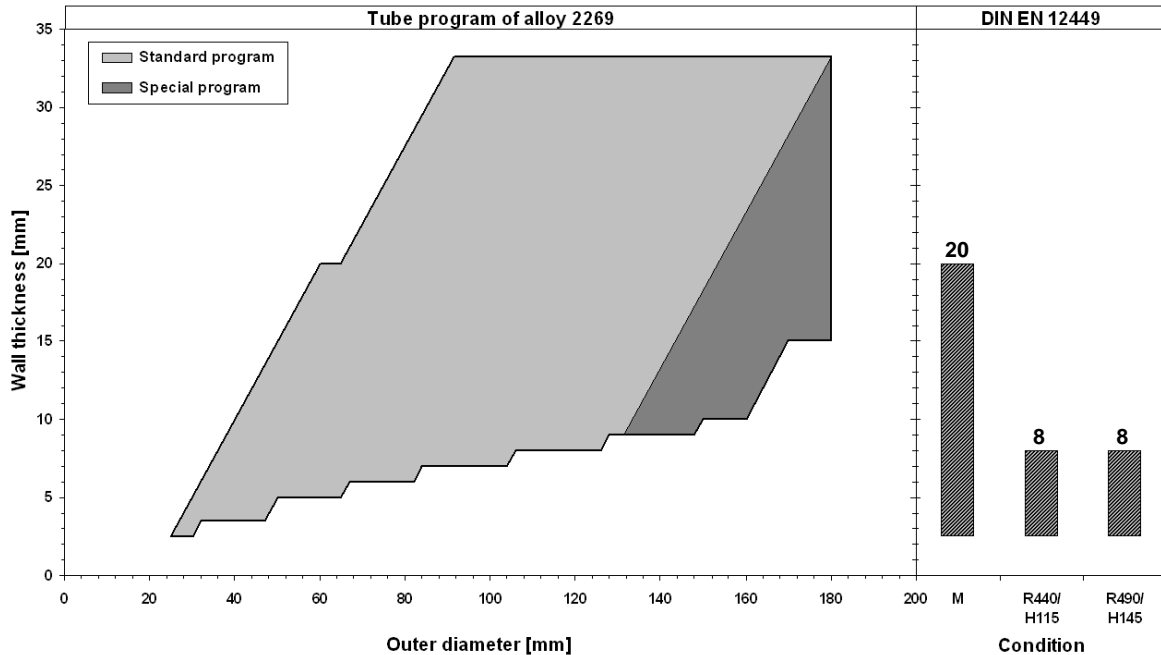


R Rod
V Polygonal bars

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. Other consignments are available on request.

Processing		Heat treatment	
Shaping		Soft annealing	500-600°C
Machinability (CuZn39Pb3=100%)	mediocre (40)	Stress relieving	200-350°C
Cold working	good	Special notes and remarks	
Hot working	mediocre		
Hot working temperature	750-850°C	For use in corrosive environments (stress corrosion cracking) the products should be applied in a stress relieved condition. Tolerance against special kinds of corrosion and chemicals has to be considered for each application in particular.	
Connect		The content of Pb is max. 0,1 % which is according to the recommendations of the European standard 2000/53/EG for cars. Thus, no special permission is needed for the content of PB of the alloy OF 2269.	
Resistance welding	good		
Shielded welding	good		
Brazing	mediocre		
Soldering	mediocre		
Surface treatment			
Mechanical polishing	very good		
Electrolytic polishing	poor		
Galvanisation	mediocre		
Tin coating	poor		

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