

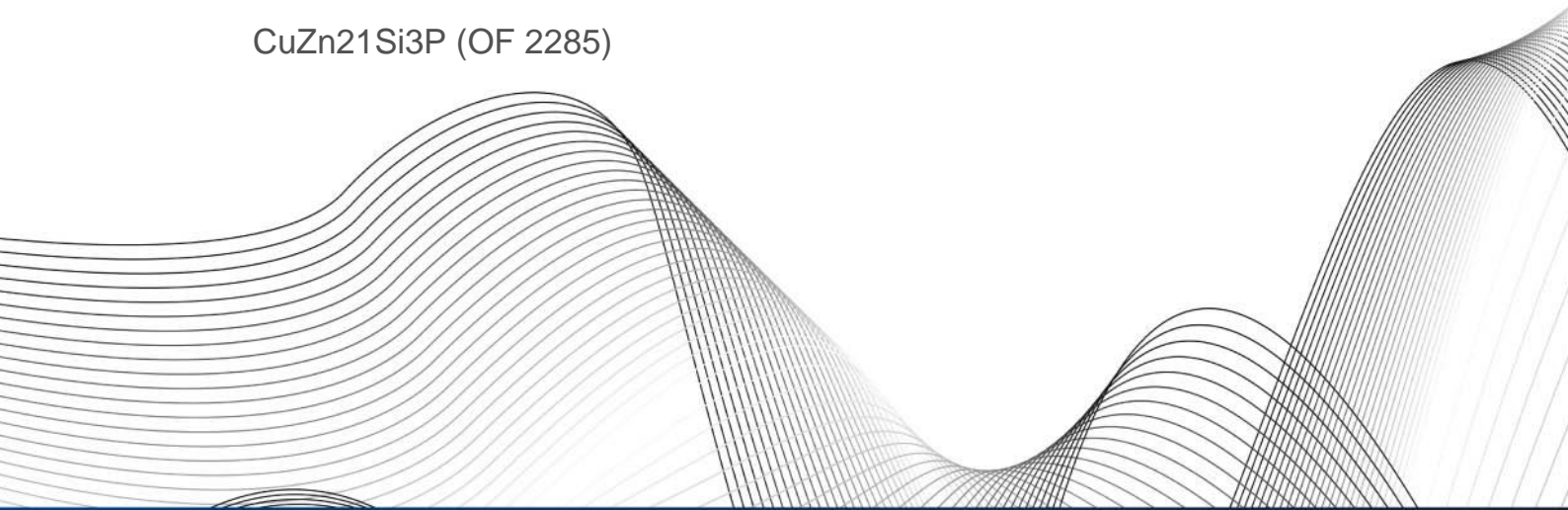


OTTO FUCHS
Dülken GmbH & Co. KG



Copper and Copper Alloys

CuZn21Si3P (OF 2285)





	Cu	Zn	Pb	Sn	Fe	Mn	Ni	Al	Si	As	Cr	P	Others
min.	75.0	Rem.	-	-	-	-	-	-	2.7	-	-	0.02	-
max.	77.0	-	0.10	0.3	0.3	0.05	0.2	0.05	3.0	-	-	0.10	max. 0.2

Applications

CuZn21Si3P is a special brass alloy with silicon providing good corrosion resistance. The addition of silicon in CuZn21Si3P improves the resistance against dezincification and stress corrosion cracking. Due to its good machinability the alloy is used for machined parts. CuZn21Si3P as OF 2285 is offered especially when good cold formability is demanded by the customer.

CuZn31Si3P is suitable for use in drinking water. The German Federal Office for the Environment enlists CuZn31Si3P for products which are used in drinking water (category B: fittings and connectors, pumps and other devices; category C: components whose surface is in contact with drinking water at less than 10% of the total surface).

Physical properties

At room temperature

Density	8.3	g/cm ³
Electrical conductivity	4.5	MS/m
	7.8	% I.A.C.S
Heat conductivity	33	W/(m*K)
Heat capacity	377	J/(kg*K)
Coefficient of thermal expansion	19.7	10 ⁻⁶ /K
Young's modulus	85	GPa
Melting range	860-925	°C

Microstructures

The microstructures consist of α -Phase with κ - und γ -phase. The amount of the κ -phase exceeds the amount of the γ -phase. Depending on the heat treatment condition of the alloy the phase composition of CuZn21Si3P can show variations.



Consignment and dimensions

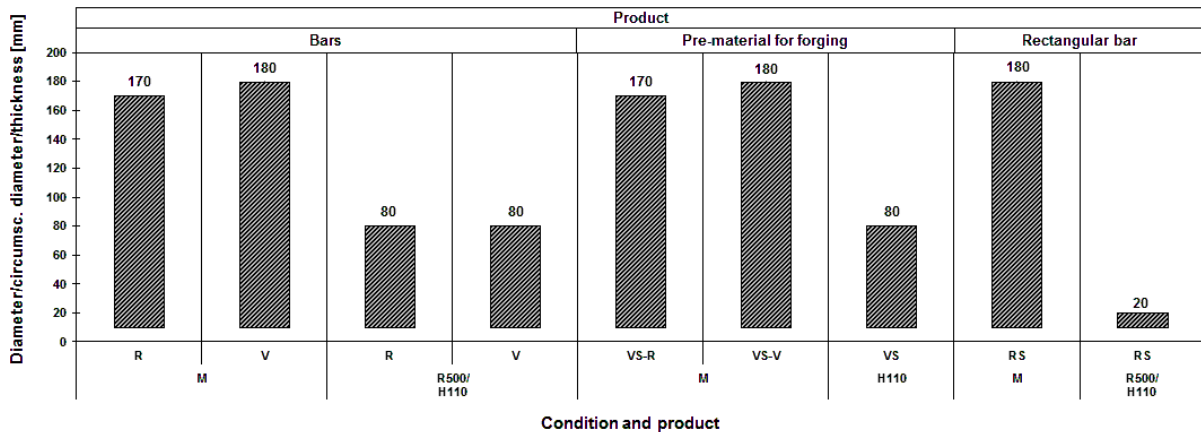
Strength conditions

Product	Condition	Yield strength $R_{p0.2}$ [MPa]	Tensile strength R_m [MPa]	Elongation at break A [%]	Brinell-Hardness HBW 2.5/62.5
Bars	M	**	**	**	**
Pre-material for forging					
Profile, rectangular bar					
Hollow bars for machining					
Forgings					
Seamless tubes	R500	≤450	≥500	≥15	/
Bars		≤450	≥500	≥15	/
Profile, rectangular bar		≤450	≥500	≥15	/
Hollow bars for machining		≤450	≥500	≥15	/
Seamless tubes	H110	/	/	/	110-170
Bars		/	/	/	110-220
Pre-material for forging		/	/	/	110-170
Profile, rectangular bar		/	/	/	110-170
Hollow bars for machining		/	/	/	110-170
Seamless tubes	/	/	/	110-170	

** Condition M = without specified mechanical properties-as manufactured
/ No requirements in specification or not applicable

Special strength conditions are available on request.

Specified dimensions for bars, pre-material for forging and forgings

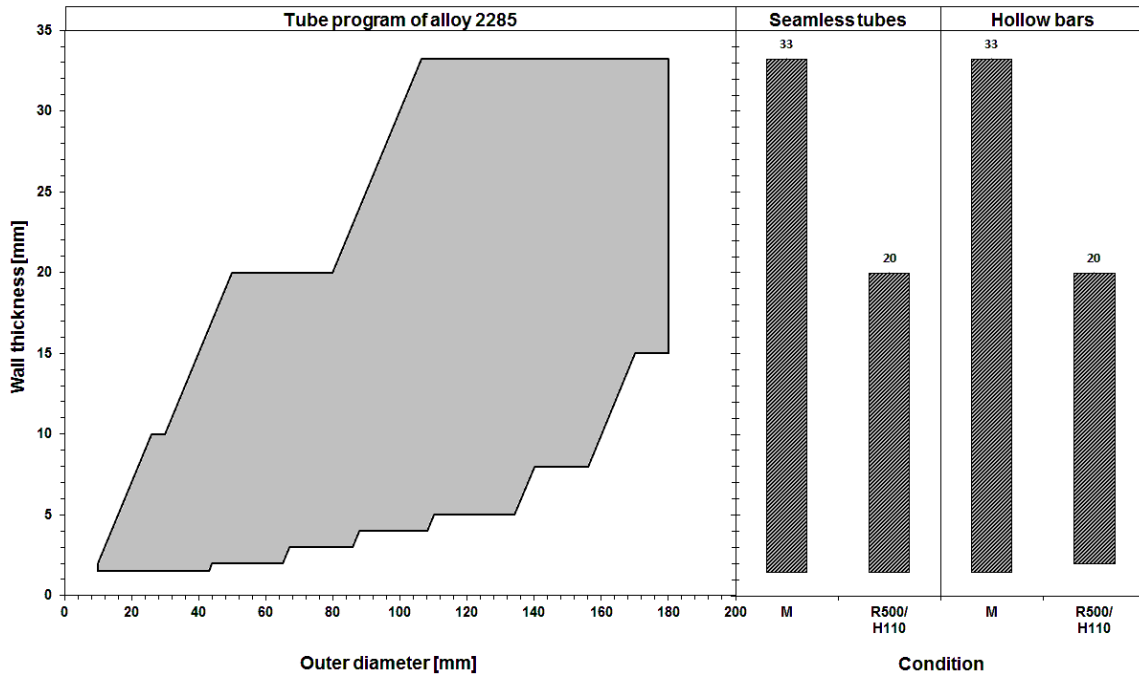


R/V Round/polygonal bar
VS-R/V Pre-material for forging round/polygonal
RS Rectangular bar

Profiles and rectangular bars can be delivered up to 180 mm in extruded and up to 130 mm in cold drawn condition. Pre-material for forging and forgings is dependent upon each individual case.



Specified dimensions for hollow bars and round tubes



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

Other consignments

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



Processing		Heat treatment	
Shaping		Soft annealing	530-700°C
Machinability (CuZn39Pb3=100%)	good (80)	Stress relieving	250-300°C
Cold working	good	<hr/> Special notes and remarks <hr/>	
Hot working	very good		
Hot working temperature	700-750°C		
Connecting		CuZn31Si3P corresponds to ECOBRASS® (brass for drilling) and is suitable for use in drinking water (CUPHIN®).	
Resistance welding	good		
Shielded welding	good		
Brazing	very good		
Soldering	very good		
Surface treatment			
Mechanical polishing	good		
Electrolytic polishing	poor		
Galvanisation	good		
Tin coating	average		

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