OTTO FUCHS
Dülken GmbH & Co. KG

Copper and Copper Alloys

CuZn20Mn7Al5Si1 (OF 2266)

	Cu	Zn	Pb	Sn	Fe	Mn	Ni	Al	Si	As	Co	Cr	Others
min.	63	Rem.	0.3	-	0.5	7.0	-	4.5	1.0	-	-	-	-
max.	66	-	0.8	0.5	1.5	8.5	0.5	6.0	2.0	-	-	-	0.3

Applications

CuZn20Mn7Al5Si1 provides high strength and good sliding and friction properties. The presence of relatively coarse Mn-silicides in OF 2266 leads to improved emergency running properties. OF 2266 is used for synchronisers.

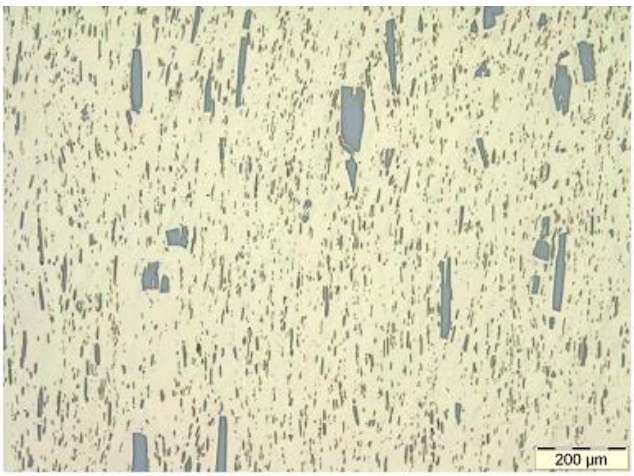
Physical properties

At room temperature

Density	7.7	g/cm^3
Electrical conductivity	4.5	MS/m
	7.8	% I.A.C.S
Heat conductivity	30	W/(m*K)
Heat capacity	400	J/(kg*K)
Coefficient of thermal expansion	20	10^{-6}/K
Young's modulus	103	GPa
Melting range	910-1030	°C

Microstructures

The microstructures of CuZn20Mn7Al5Si1 consist of mainly β-phase with Mn-silicides embedded in the brass matrix for improvement of wear resistance. The content of the Mn-silicides amounts to approx. 10 %.



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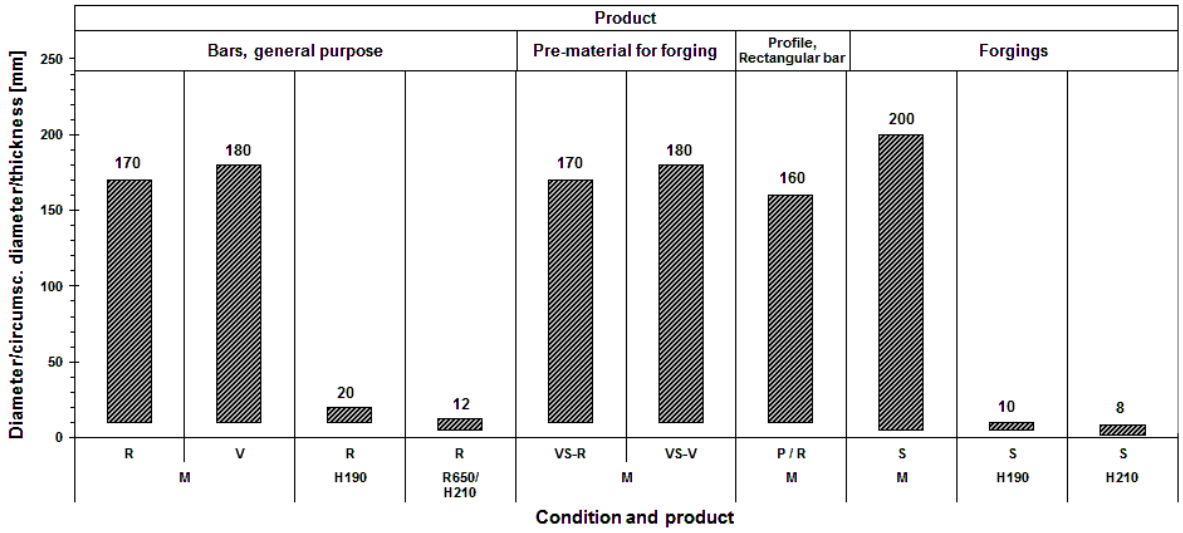
Consignment and measurements

Strength conditions

Spec./ DIN EN	Condition	Yield strength $R_{p_{0.2}}$ [MPa]	Tensile strength R_m [MPa]	Elongation at break A [%]	Brinell-Hardness HB 2.5/62.5
Bars, general purpose	M	**	**	**	**
Pre-material for forging					
Forgings					
Profile, Rectangular bar					
Seamless tubes					
Bars, general purpose	R650	≥450	≥650	≥2	/
Seamless tubes					
Bars, general purpose	H190	/	/	/	190-240
Forgings					
Seamless tubes					
Bars, general purpose	H210	/	/	/	210-260
Forgings		(≥450)	(≥650)	(≥2)	
Seamless tubes		/	/	/	

** Condition M = without specified mechanical properties-as manufactured
/ No requirements in standard or not applicable
( ) The numbers are not requirements of the standard - they are for information only

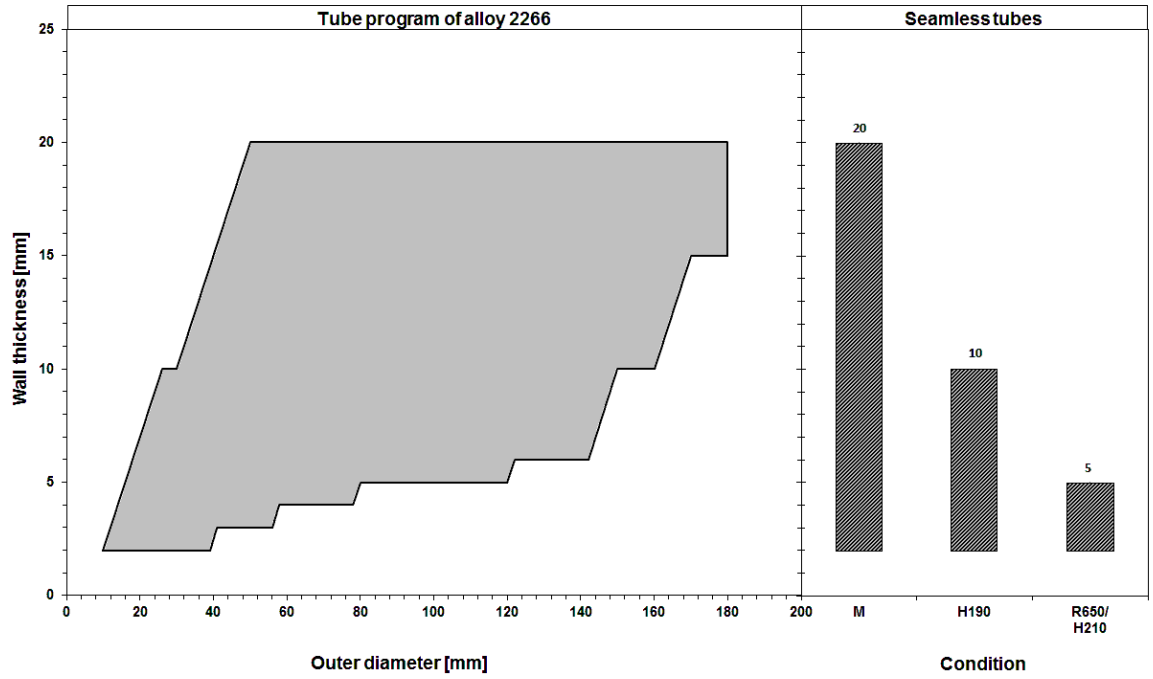
Specified dimensions for bars, pre-material for forging and forgings



VS-R Pre-material for forging round
VS-V Pre-material for forging polygonal
P/R Profile, rectangular bar
S Forgings

Profiles and rectangular bars can be delivered up to 180 mm in extruded 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 conditions

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

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Processing

Shaping

Machinability (CuZn39Pb3=100%)	average
Cold working	poor
Hot working	average
Hot working temperature	650-790°C

Connecting

Resistance welding	-
Shielded welding	-
Brazing	poor
Soldering	poor

Surface treatment

Mechanical polishing	good
Electrolytic polishing	poor
Galvanisation	poor
Tin coating	-

Heat treatment

Soft annealing	-
Stress relieving	350-500°C

Special notes and remarks

There is a risk of stress corrosion cracking (SCC) in case of concurrent presence of mechanical stress and corrosive media (in particular ammoniac atmosphere).

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