

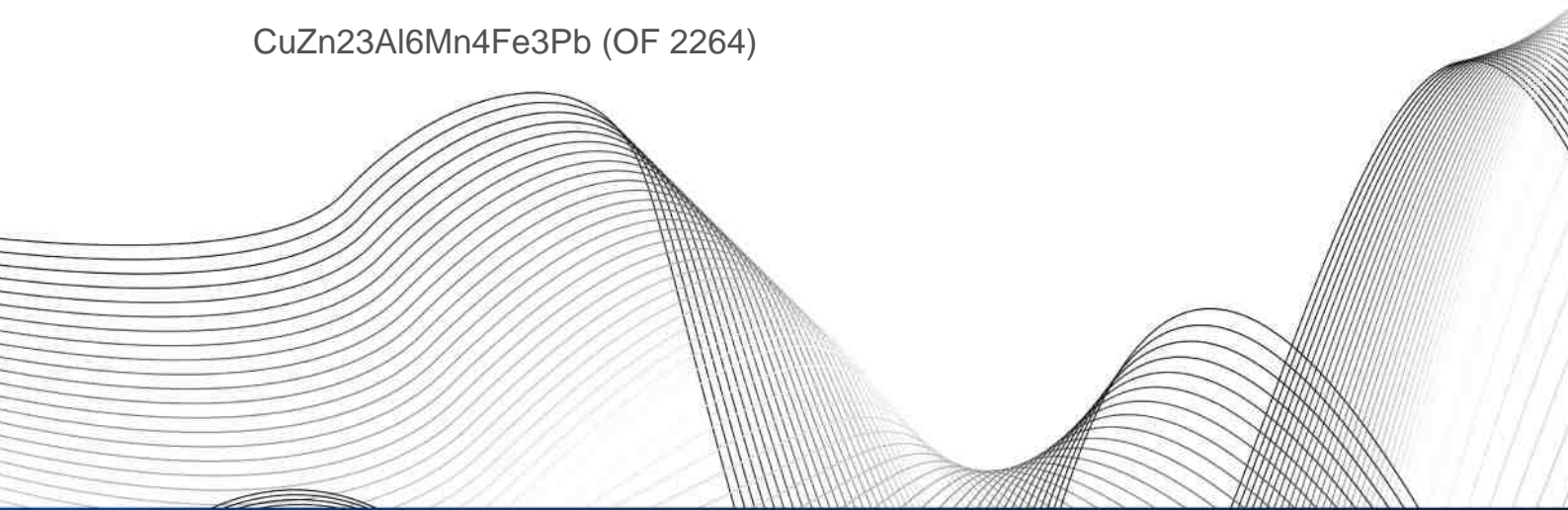


OTTO FUCHS
Dülken GmbH & Co. KG



Copper and Copper Alloys

CuZn23Al6Mn4Fe3Pb (OF 2264)





	Cu	Zn	Pb	Sn	Fe	Mn	Ni	Al	Si	As	Co	Cr	Others
min.	63.0	Rem.	0.2	-	2.0	3.5	-	5.0	-	-	-	-	-
max.	65.0	-	0.8	0.2	3.5	5.0	0.50	6.0	0.2	-	-	-	0.2

Applications

CuZn23Al6Mn4Fe3Pb is a special alloy for construction with hot formed parts combining a high level of hardness and both mechanical strength at room temperature and hot strength. OF 2264 is highly suitable for parts which are exposed to impact stresses, e.g. gears and gear racks.

Examples of application:

Bars, profiles and tubes
Die forgings
Parts for construction
Parts which are exposed to impact stresses, e.g. gears and gear racks
Synchroniser base material for coated synchronisers

Physical properties

At room temperature

Density	8.2	g/cm ³
Electrical conductivity	4.0	MS/m
	6.9	% I.A.C.S
Heat conductivity	27	W/(m*K)
Heat capacity	377	J/(kg*K)
Coefficient of thermal expansion	20.5	10 ⁻⁶ /K
Young's modulus	105	GPa
Melting range	930-1030	°C

Microstructures

The microstructures of CuZn23Al6Mn4Fe3Pb consist of a brass matrix with mainly β -phase. Intermetallics are embedded within the brass matrix and lead to an improvement of wear resistance.



Consignment and measurements

Strength conditions

Spec./ DIN EN	Condition	Yield strength R _{p0.2} [MPa]	Tensile strength R _m [MPa]	Elongation A [%]	Brinell- Hardness HB 2.5/62.5
12163	M	**	**	**	**
12165					
{12167}					
12163	R780	≥540	≥780	≥8	/
{12449}		≥540	≥780	≥8	/
12163	H190	/	/	/	≥190
12165		/	/	/	≥190
{12420}		(≥540)	(≥780)	(≥8)	≥190
{12449}		/	/	/	≥190
Synchro		(≥540)	(≥780)	(≥8)	190-240

DIN EN 12163:
Bars, general purpose

DIN EN 12165:
Pre-material for forging

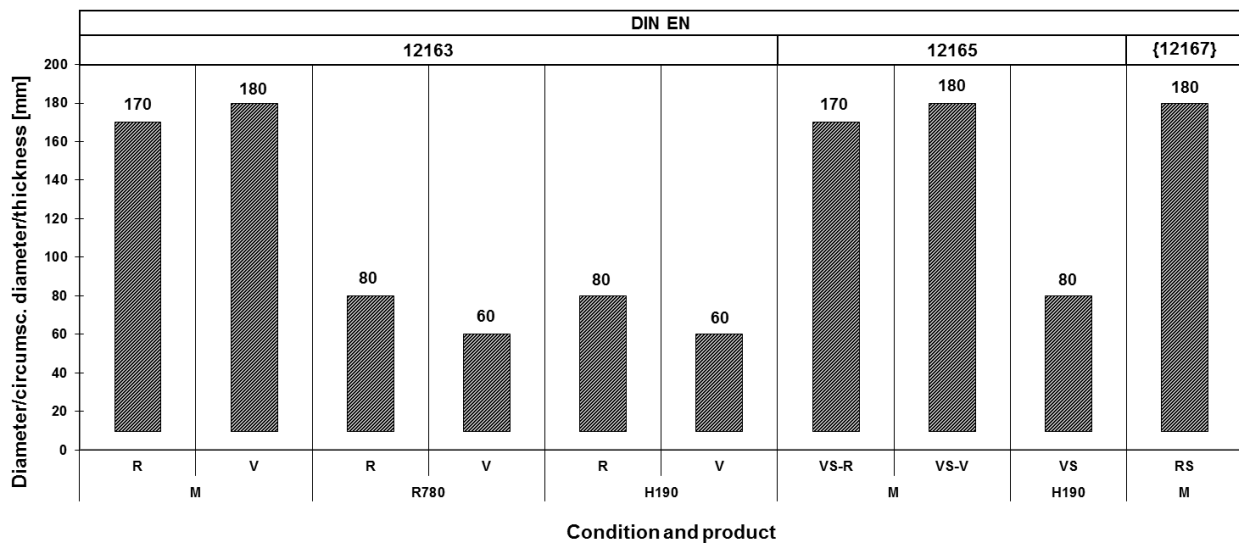
DIN EN 12167:
Profiles, rectangular bars

DIN EN 12449:
Seamless tubes

DIN EN 12420:
Forgings

- ** Condition M = without specified mechanical properties - as manufactured
- () The numbers are not requirements of the standard - they are for information only
- / No requirements in standard or not applicable
- { } The alloy is not in this standard - delivery on special terms
- Synchro Synchroniser

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

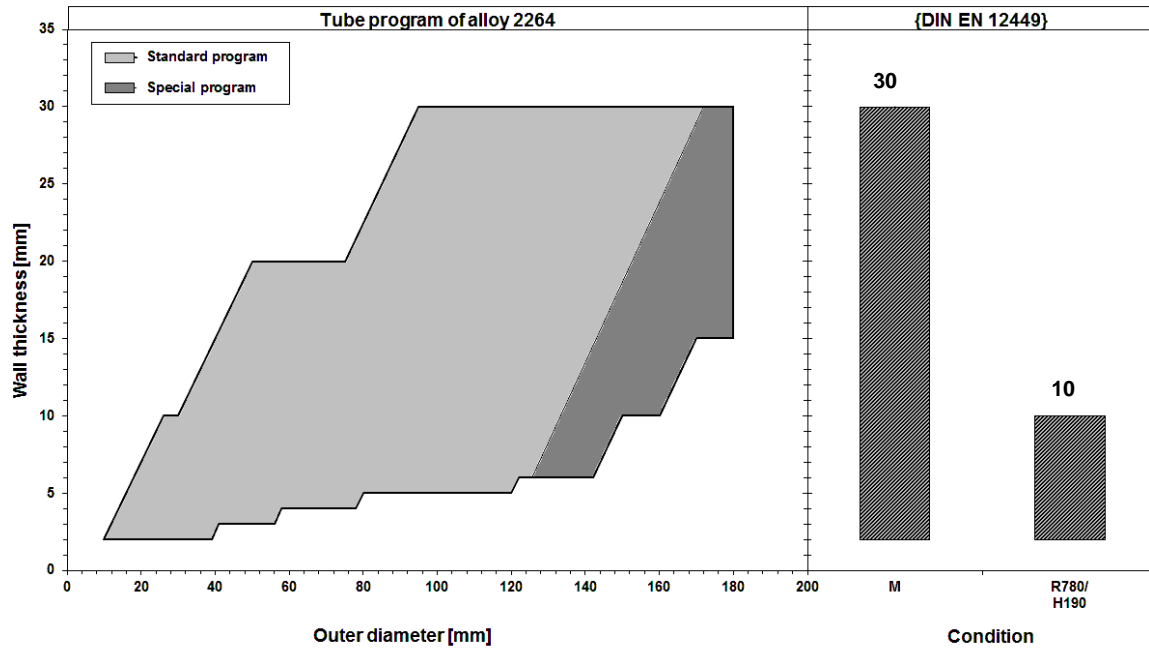


- R/V Rod/Polygonal bars
- VS-R/V Pre-material for forging round/polygonal
- RS Rectangular bar

Profiles and rectangular bars can be delivered up to 180 mm in extruded 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 dependent upon each individual case.

Other consignments

Rods and tubes in other strength or hardness conditions and dimensions are dependent upon each individual case.

Processing		Heat treatment	
Shaping		Soft annealing	-
Machinability (CuZn39Pb3=100%)	average (70)	Stress relieving	350-500°C
Cold working	poor	Fatigue strength	
Hot working	good	Fatigue strength (R=-1) in stress relieved condition at 10 ⁷ cycles:	
Hot working temperature	650-790°C	At 20°C:	200 MPa
Connect		At 100°C:	150 MPa
Resistance welding	average	At 200°C:	125 MPa
Shielded welding	average	Special notes and remarks	
Brazing	poor	There is a risk of stress corrosion cracking (SCC) in case of concurrent presence of mechanical stress and corrosive media (in particular ammoniac atmosphere).	
Soldering	poor		
Surface treatment			
Mechanical polishing	very good		
Electrolytic polishing	poor		
Galvanisation	poor		
Tin coating	-		

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