

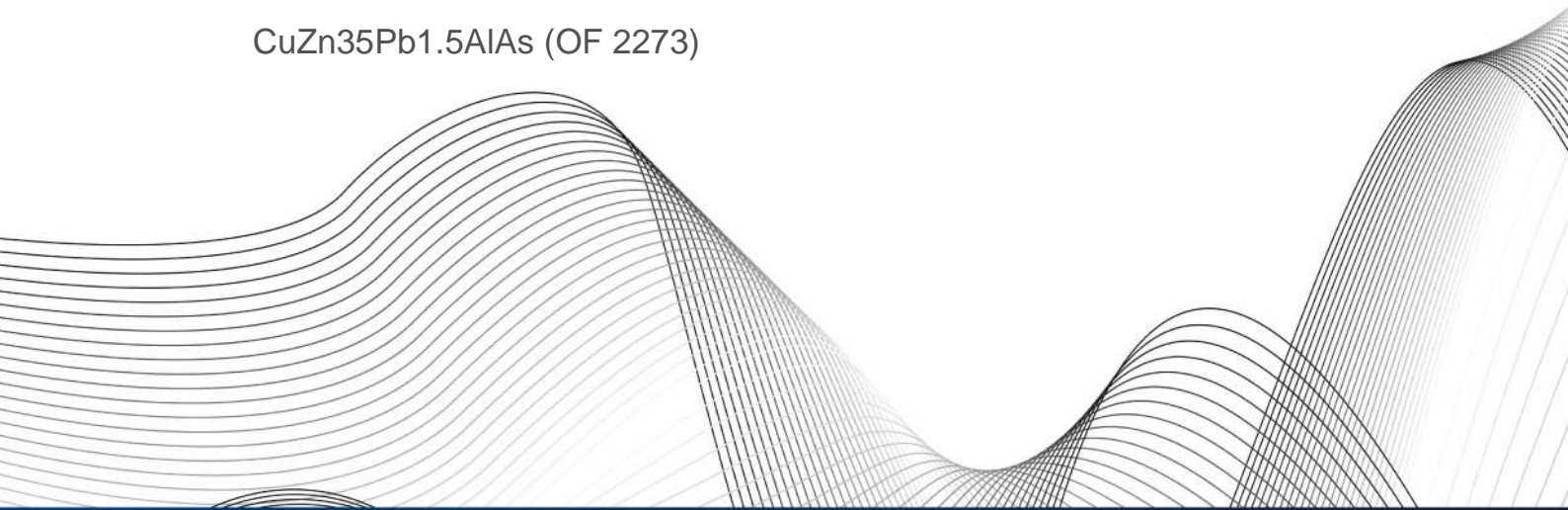


OTTO FUCHS
Dülken GmbH & Co. KG



Copper and Copper Alloys

CuZn35Pb1.5AlAs (OF 2273)





	Cu	Zn	Pb	Sn	Fe	Mn	Ni	Al	Si	As	Co	Cr	Others
min.	62.0	Rem.	1.2	-	-	-	-	0.5	-	0.02	-	-	-
max.	64.0	-	1.6	0.3	0.3	0.1	0.2	0.7	-	0.15	-	-	0.2

Applications

Due to its content of aluminium CuZn35Pb1.5AlAs provides good corrosion resistance. CuZn35Pb1.5AlAs in tailored heat treated condition is highly suitable for use in media with enhanced risk of dezincification.

OF 2273 is suitable for use in drinking water. The German Federal Office for the Environment enlists CuZn35Pb1.5AlSiAs 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).

Examples of application:

Parts with persistence against dezincification
Applications for drinking water
Forgings
Machined parts

Physical properties

At room temperature

Density	8.4	g/cm ³
Electrical conductivity	12.8	MS/m
	21	% I.A.C.S
Heat conductivity	101	W/(m*K)
Heat capacity	377	J/(kg*K)
Coefficient of thermal expansion	21	10 ⁻⁶ /K
Young's modulus	105	GPa
Melting range	880-920	°C

Microstructures

CuZn35Pb1.5AlAs in heat-treated conditions provides a homogeneous microstructure with a matrix of α -brass. Pb is insoluble in the brass matrix and forms fine precipitates improving the machinability of the alloy.



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
12164/12165/ 12167/12168/ Forgings/ Seamless tubes	M	**	**	**	**
12164/12167/ 12168 Seamless tubes	R280	≤200	≥280	≥30	/
12164/12167/ 12168 Seamless tubes	R290	≤250	≥290	≥40	/
12164/12167/ 12168 Seamless tubes	R320	≥200	≥320	≥20	/
12164/12167/ 12168 Seamless tubes	R370	≥250	≥370	≥20	/
12164/12167/ 12168 Seamless tubes	R400	≥250	≥400	≥8	/
12164/12165/ 12167/12168 Forgings	H070	/	/	/	70-110
12164/12165/ 12167/12168 Seamless tubes	H070	(≥90)	(≥280)	(≥30)	≥70
12164/12167/ 12168 Seamless tubes	H080	/	/	/	75-105
12164/12167/ 12168 Seamless tubes	H090	/	/	/	90-135
12164/12167/ 12168 Seamless tubes	H105	/	/	/	≥105
12164/12167/ 12168 Seamless tubes		/	/	/	100-135

DIN EN 12164:
Bars for machining

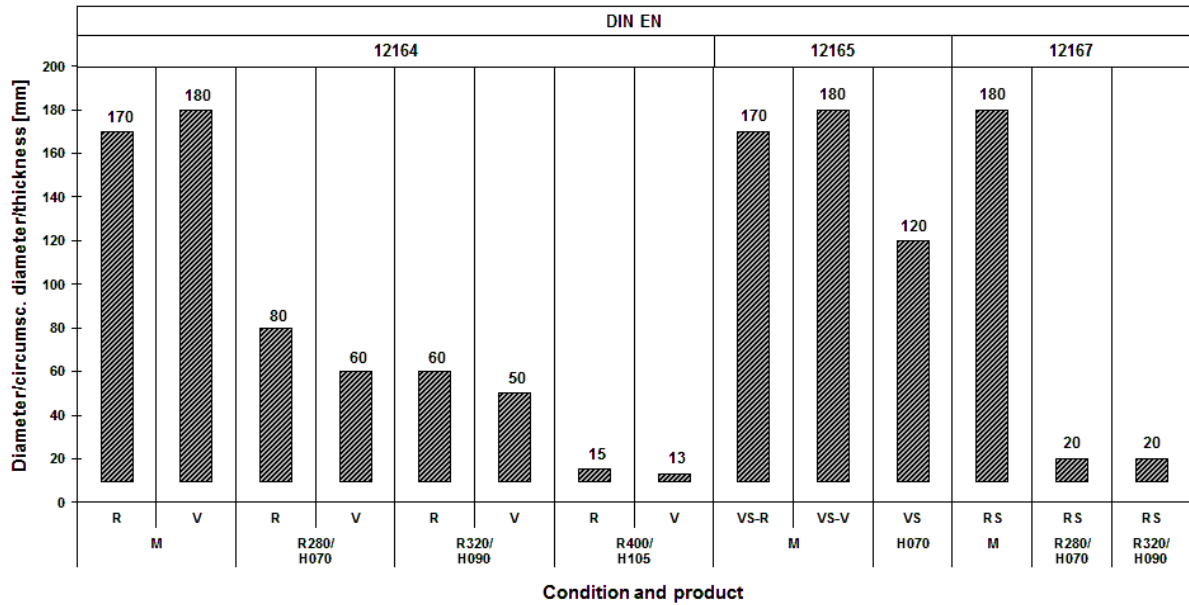
DIN EN 12165:
Pre-material for forging

DIN EN 12167:
Profiles, rectangular bars

DIN EN 12168:
Hollow bars for machining

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

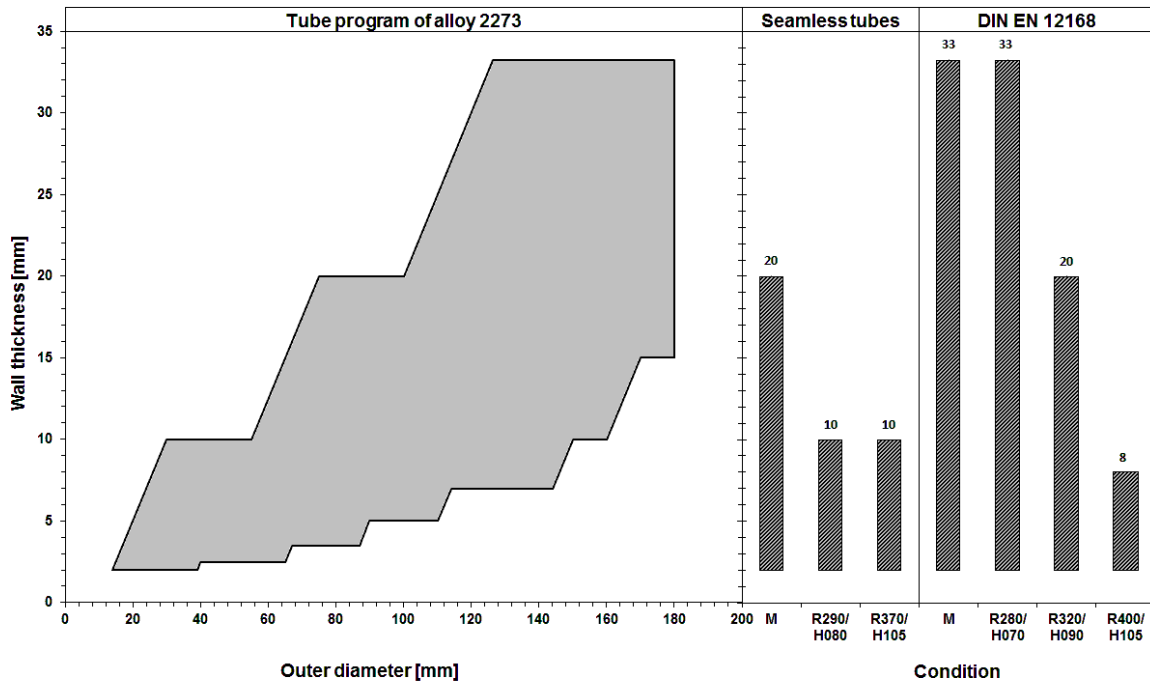
Specified dimensions for bars, pre-material for forging and forgings



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	450-600°C
Machinability (CuZn39Pb3=100%)	good (-)	Stress relieving	200-300°C
Cold working	average	Special notes and remarks	
Hot working	good		
Hot working temperature	650-800°C	After cold working on parts made of OF 2274 stress relieving at temperatures below 300°C is recommended. Forming operations or heat treatment above 600°C may reduce the resistance against dezincification. Consultation is recommended. Forgings should be heat treated after forging for improvement of resistance against dezincification.	
Connecting			
Resistance welding	average-good		
Shielded welding	average		
Brazing	average	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	good		
Surface treatment			
Mechanical polishing	very good		
Electrolytic polishing	poor		
Galvanisation	average		
Tin coating	good		

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