

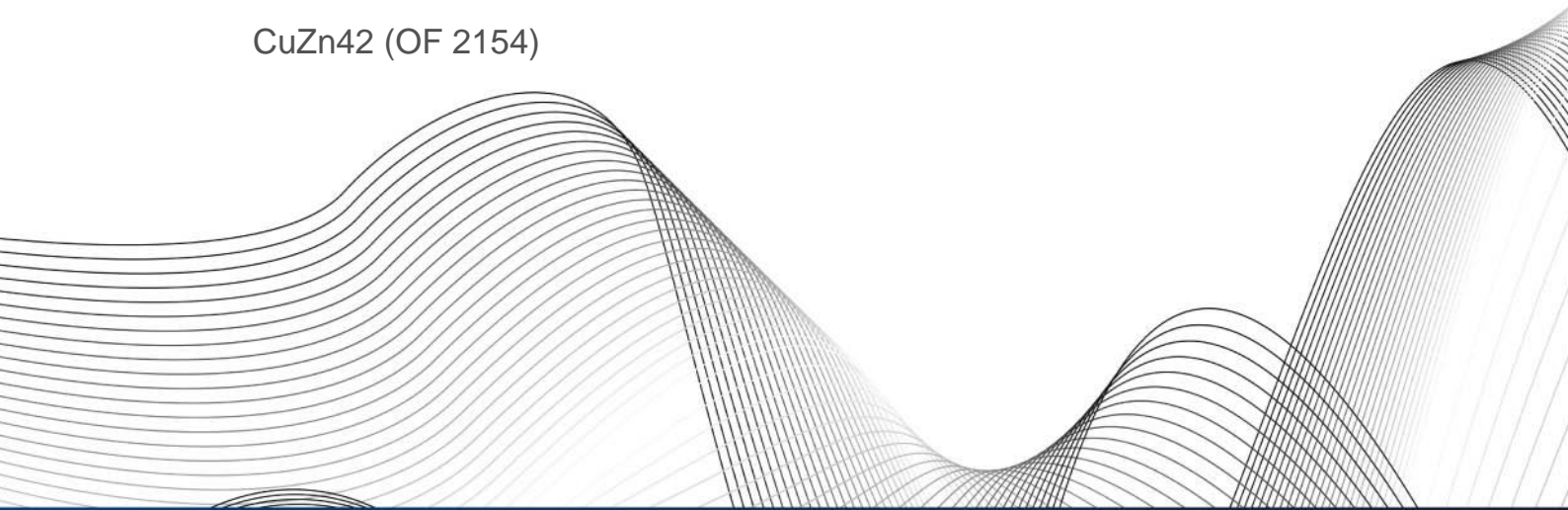


OTTO FUCHS
Dülken GmbH & Co. KG



Copper and Copper Alloys

CuZn42 (OF 2154)



	Cu	Zn	Pb	Sn	Fe	Mn	Ni	Al	Si	As	Co	Cr	Others
min.	57.0	Rem.	-	-	-	-	-	-	-	-	-	-	-
max.	59.0	-	0.1	0.3	0.3	-	0.02	0.05	-	-	-	-	0.2

Applications

CuZn42 is highly suitable for hot formed parts, especially for profiles. Due to a mixture of α - and β -phase OF 2157 is excellent for drilling parts, e.g. for use in drinking water, automotive or electronic applications.

CuZn42 is suitable for use in drinking water. The German Federal Office for the Environment enlists CuZn42 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).

Compared to other alloys of CuZn42 the alloy OF 2154 provides a lead content limited to 0.1 mass-%.

Examples of application:

- Extruded profiles
- Fittings
- Parts for process measuring and control technology
- Applications for drinking water

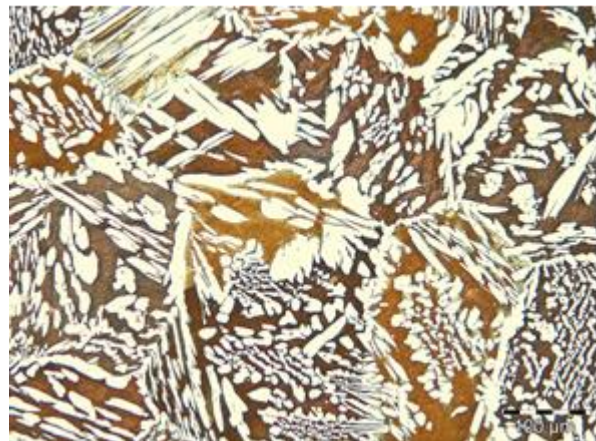
Physical properties

At room temperature

Density	8.4	g/cm ³
Electrical conductivity	15	MS/m
	25.9	% I.A.C.S
Heat conductivity	109	W/(m*K)
Heat capacity	377	J/(kg*K)
Coefficient of thermal expansion	20.9	10 ⁻⁶ /K
Young's modulus	95	GPa
Melting range	885-900	°C

Microstructures

The microstructures of CuZn42 consist of a heterogeneous mixture of α - and β -phase.





Consignment and measurements

Strength conditions

Norm/ DIN EN	Condition	Yield strength R _{p0.2} [MPa]	Tensile strength R _m [MPa]	Elongation at break A [%]	Brinell- Hardness HB 2.5/62.5
12163/12164/ 12165/12167/ 12168	M	**	**	**	**
12163/12164/ 12167/12168	R360	≤320	≥360	≥20	/
12163/12164/ 12167/12168	R430	≥220	≥430	≥10	/
12163/12164	R500	≥350	≥500	≥5	/
12167/12168		≥350	≥500	≥8	/
12163/12164/ 12167/12168	H090	/	/	/	90-125
12165		/	/	/	90-190
12163/12164/ 12167/12168	H110	/	/	/	110-160
12163/12164/ 12167/12168	H135	/	/	/	≥135

DIN EN 12163:
Bars, general purpose

DIN EN 12164:
Bars for machining

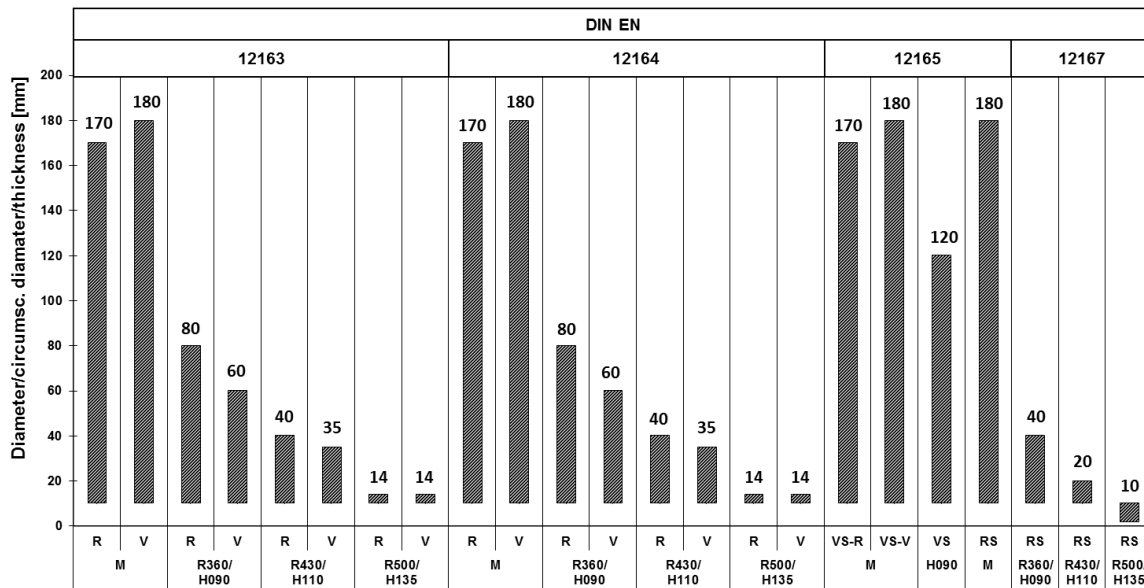
DIN EN 12165:
Pre-material for forging

DIN EN 12167:
Profiles, rectangular bars

DIN EN 12168:
Hollow bars for machining

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

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



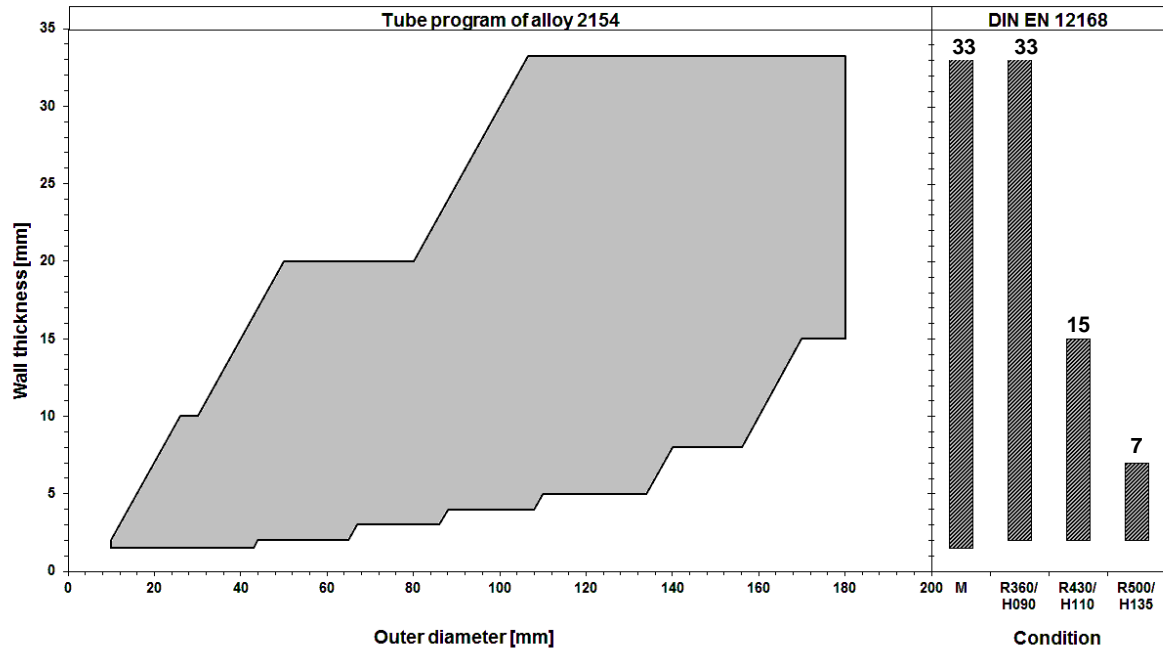
Condition and product

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	450-550°C
Machinability (CuZn39Pb3=100%)	average (65)	Stress relieving	200-300°C
Cold working	poor	<hr/> Special notes and remarks <hr/>	
Hot working	very good		
Hot working temperature	660-760°C	There is a risk of stress corrosion cracking (SCC) in case of concurrent presence of mechanical stress and corrosive media (in particular ammoniac atmosphere).	
Connecting		Compared to other alloys of CuZn42 the alloy OF 2154 provides a lead content limited to 0.1 mass-%.	
Resistance welding	good		
Shielded welding	average		
Brazing	average		
Soldering	very good		
Surface treatment			
Mechanical polishing	very good		
Electrolytic polishing	average		
Galvanisation	very good		
Tin coating	very good		

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