

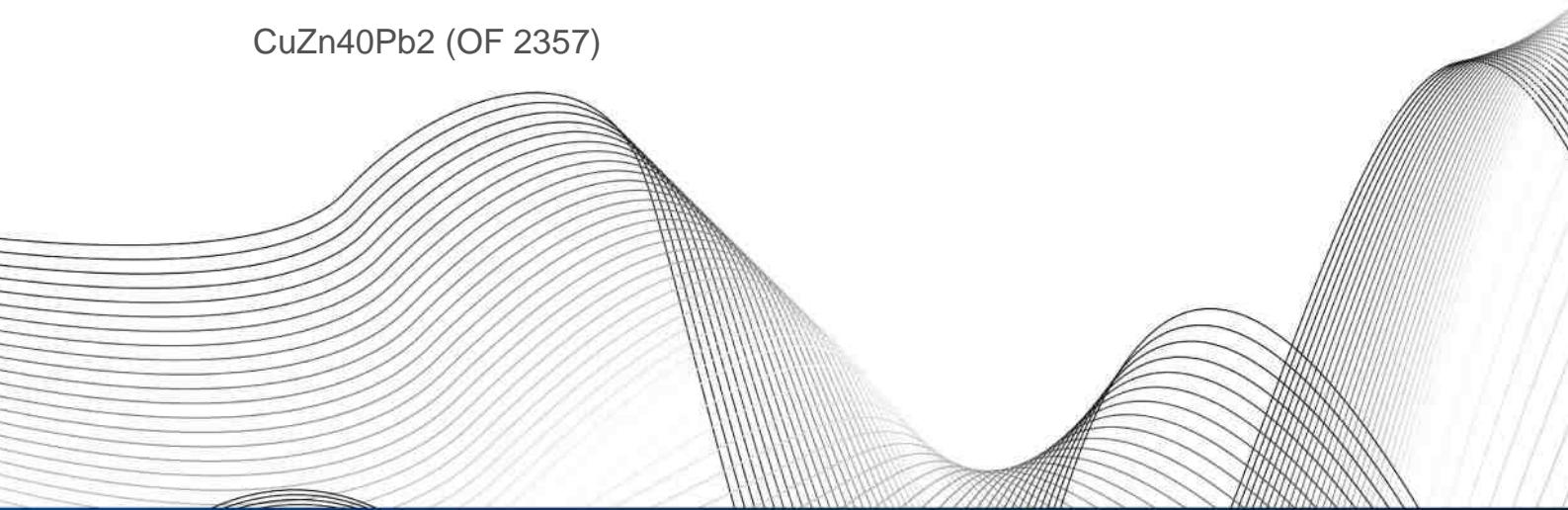


OTTO FUCHS  
Dülken GmbH & Co. KG



Copper and Copper Alloys

CuZn40Pb2 (OF 2357)



	Cu	Zn	Pb	Sn	Fe	Mn	Ni	Al	Si	As	Co	Cr	Others
min.	57.0	Rem.	1.6	-	-	-	-	-	-	-	-	-	-
max.	59.0	-	2.2	0.3	0.3	0.02*	0.2	0.05	-	-	-	-	0.2 incl. *

## Applications

CuZn40Pb2 is very good for use for parts which are produced by machining or by hot forming by means of extrusion or forging. Complex profile shapes can be made out of CuZn40Pb2.

The alloy OF 2357 is suitable for use in drinking water. The alloy OF 2357 meets the specification DIN 50930-6 for fittings and connecting tubes.

Examples of application:

- Machined parts
- Screws
- Tubes
- Die-forged parts with thin wall
- Dispensing machine profiles
- Fittings and connecting tubes for drinking water applications

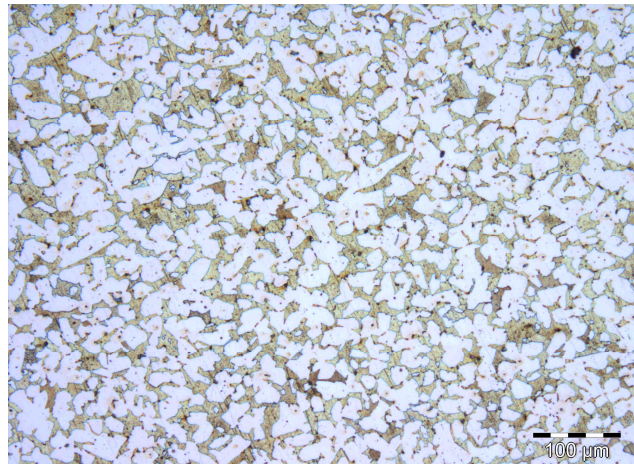
## Physical properties

At room temperature

Density	8.4	g/cm <sup>3</sup>
Electrical conductivity	14.9	MS/m
	25.7	% I.A.C.S
Heat conductivity	113	W/(m*K)
Heat capacity	377	J/(kg*K)
Coefficient of thermal expansion	21.1	10 <sup>-6</sup> /K
Young's modulus	96	GPa
Melting range	880-895	°C

## Microstructures

The microstructures of CuZn40Pb2 provide a mixture of  $\alpha$ - and  $\beta$ -phase. Pb is insoluble in the brass matrix and forms fine precipitates improving the machinability of the alloy.





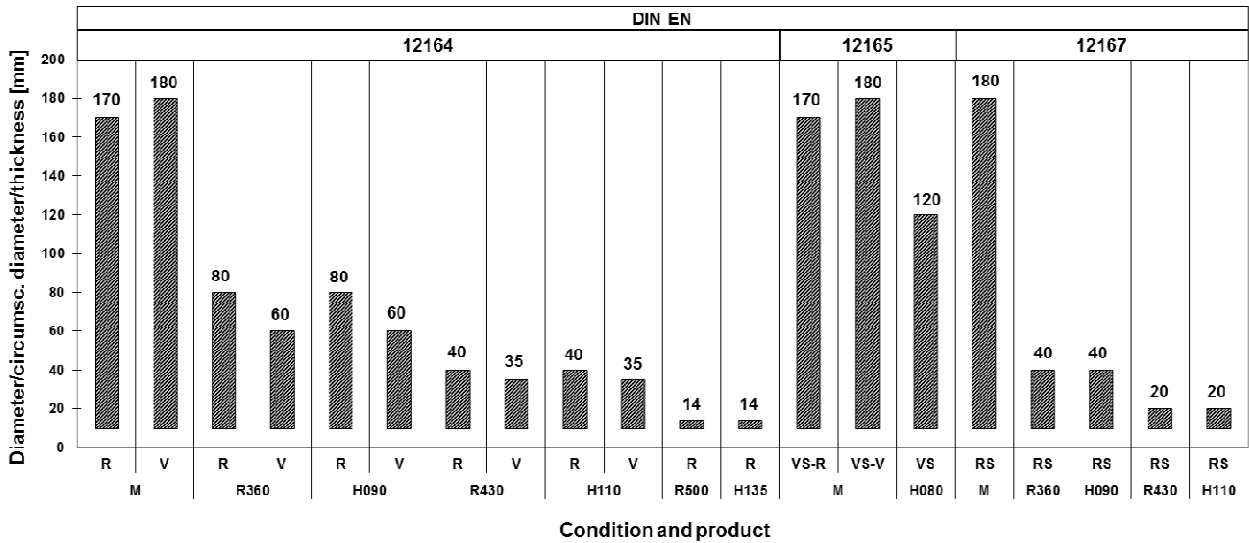
## Consignment and measurements

### Strength conditions

Spec./ DIN EN	Condition	Yield strength R <sub>p0.2</sub> [MPa]	Tensile strength R <sub>m</sub> [MPa]	Elongation at break A [%]	Brinell- Hardness HBW 2.5/62.5	
12164	M	**	**	**	**	DIN EN 12164: Bars for machining
12165						DIN EN 12165: Pre-material for forging
12167						DIN EN 12167: Profiles, rectangular bars
12168						
12420						
12449						
12164	R360	≤320	≥360	≥20	/	DIN EN 12168: Hollow bars for machining
12167		≤320	≥360	≥20	/	
12168		≤320	≥360	≥20	/	DIN EN 12420: Forgings
12449		≤250	≥360	≥25	/	
12164	R430	≥220	≥430	≥10	/	DIN EN 12449: Seamless tubes
12167		≥220	≥430	≥10	/	
12168		≥220	≥430	≥10	/	
12449		≥250	≥430	≥12	/	
12164	R500	≥350	≥500	≥5	/	
12167		≥350	≥500	≥8	/	
12168		≥350	≥500	≥8	/	
12449		≥370	≥500	≥8	/	
12420	H075	(≥110)	(≥340)	(≥20)	≥75	
12165	H080	/	/	/	80-170	
12420		(≥120)	(≥360)	(≥20)	≥80	
12449	H085	/	/	/	80-115	
12164	H090	/	/	/	90-125	
12167		/	/	/	90-125	
12168		/	/	/	90-125	
12164		H110	/	/	/	110-160
12167	/		/	/	110-160	
12168	/		/	/	110-160	
12449	H115		/	/	/	110-145
12164	H135	/	/	/	≥135	
12167		/	/	/	≥135	
12168		/	/	/	≥135	
12449	H140	/	/	/	≥135	

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

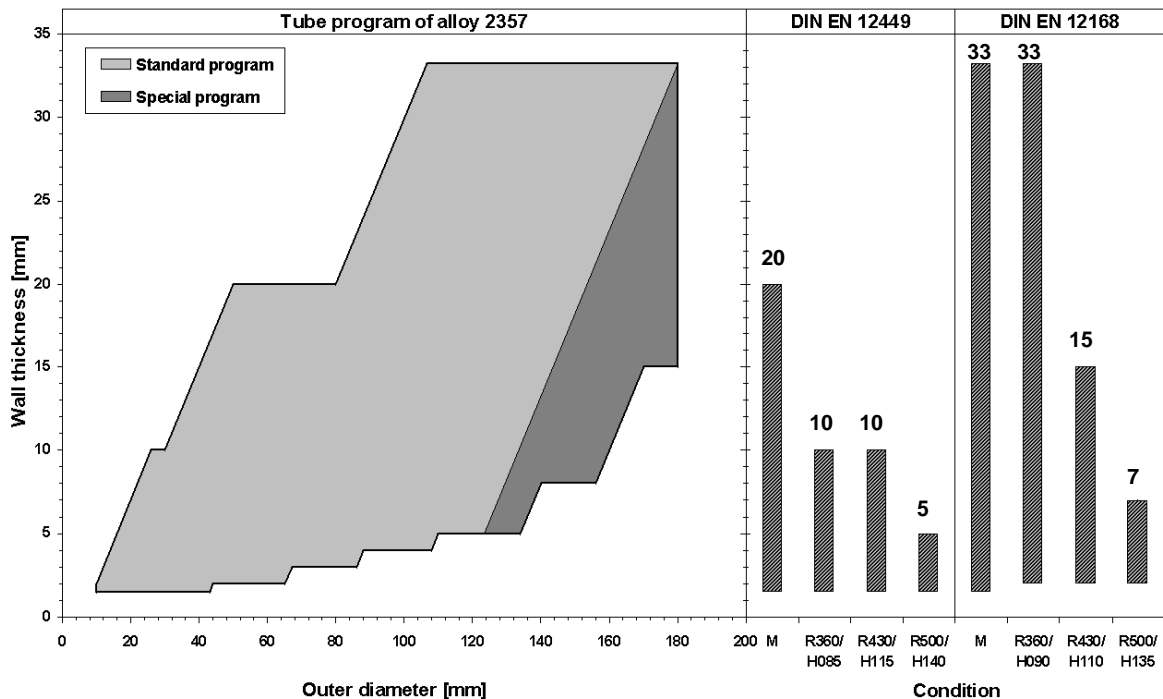
### Specified dimensions for bars, pre-material for forging and forgings



R/V Round bars/Polyhedral 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 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 available on request.



<b>Processing</b>		<b>Heat treatment</b>	
Shaping		Soft annealing	450-600°C
Machinability (CuZn39Pb3=100%)	very good (90)	Stress relieving	200-380°C
Cold working	poor		
Hot working	very good		
Hot working temperature	650-800°C		
<b>Connecting</b>			
Resistance welding	average		
Shielded welding	poor		
Brazing	average		
Soldering	very good		
<b>Surface treatment</b>			
Mechanical polishing	very good		
Electrolytic polishing	poor		
Galvanisation	very good		
Tin coating	very good		

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**Special notes and remarks**

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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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