CW727R - CuZn35Sn1P

The alloy shows after heat treatment a good resistance to dezincification, sufficient machinability, very good hot working properties

All data are reference values and are not to be used as a basis for constructive stress calculation.

Designations

EN 12164* Bars

EN 12165* Forgings

EN 12167* Profiles and edged bars

EN 12168* Hollow bars

EN 12420* Forgings

* inclusion of this alloy in the standards has already been initiated

Chemical composition

Cu	63.5-65.0	Weight-%
Pb	≤ 0.1	Weight-%
Sn	0.5-1.0	Weight-%
P	0.05-0.15	Weight-%
Zn	Rest	Weight-%

Workability

Machinability	■	■	■		
Hot Forming	■	■	■	■	■
Cold Forming	■	■	■		
Mechanical Polishing	■	■	■	■	■
Soft Solderability*	■	■	■		
Hard Solderability*	■	■	■		

* The soldering properties must be analysed separately, depending on the solder used and are based on general experience.

Physical properties

Density (20°C)	8.36	g/cm³
Fusion temperature	880-910	°C
Thermal conductivity	122	W/mK
Thermal capacity	380	J/kgK
Electrical conductivity	15.1 26	MS/m % IACS
Young's modulus (20°C, annealed)	105	GPa
Thermal expansion coefficient	21.5	$10^{-6}K^{-1}$

Microstructure

Heterogeneous structure of α- and β'-mixed crystals. Tin and Phosphorus increase the corrosion resistance of this alloy. Tin maintains its machinability.

Corrosion resistance

CW727R shows a good corrosion resistance due to its high content of copper, tin and additions of phosphorus.
The max. dezincification depth measured acc. to DIN EN 6509-1 is less 100µm.
Forging material delivered according to EN 12165 has to be properly thermal treated after hot stamping to achieve the dezincification resistance.

HME Brass Euope Miraustraße 10-14 13509 Berlin Germany

Email: info@hmemetal,com www.hmemetal.com

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Potential Applications

Fittings, sanitary industry

Shaped turned parts

Forged parts

Mechanical properties at room temperature

Data for future European standard: EN 12164 (Rod for free machining purposes)											
Condition	Diameter mm da - a	Width across-flats mm da - a	Ultimate Tensile Strength R_m MPa min.	Yield Strength $R_{p\ 0,2}$ MPa min.	Yield Strength $R_{p\ 0,2}$ MPa max.	Elongation A_{100mm} % min.	Elongation $A_{11,3}$ % min.	Elongation A % min.	Hardness Brinell HBW min.	Hardness Brinell HBW max.
M	all dimensions		as manufactured							
R280	6 - 80	5 - 60	280		200		25	30		
H070									70	110
R320	6 - 60	5 - 50	320	180			13	20		
H080									80	135
R370	4-15	4 - 13	370	230			7	13		
H100									100	

Data for future European standard: EN 12168 (Hollow rod for free machining purposes)									
Condition	Diameter mm da - a	Ultimate Tensile Strength R_m MPa min.	Yield Strength $R_{p\ 0,2}$ MPa min.	Yield Strength $R_{p\ 0,2}$ MPa max.	Elongation A % min.	Hardness Brinell HBW min.	Hardness Brinell HBW max.	Hardness Vickers HV min.	Hardness Vickers HV max.
M	all	as manufactured							
R280	2 - alle	280		200	30				
H070						70	110	80	120
R320	2 - 20	320	180		20				
H080						80	135	90	145
R370	2 - 8	370	230		13				
H100						100		110	

This data sheet is for general information only and is not subject to revision.

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