

Edition from	11.03.2020	Alloy datasheet	No. 327
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Alloy	ISO	EN	ASTM
61D	CuZn36Pb3	CW603N	C36010

Others:

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Main characteristics

Copper-zinc alloy with ($\alpha + \beta$) microstructure and fine dispersed lead particles. Standard US quality for screw machine parts. Offers a longer tool life, but slightly longer chips than CuZn39Pb3. Also easier to cold form than CuZn39Pb3. 61D is a strictly non-magnetic version.

Chemical composition

Cu	Zn	Pb
61,0 – 62,0 %	Remainder	3,1 – 3,5 %

Impurities
Max.

Al	Fe	Ni	Sn	Others
0,05 %	0,01 %	0,05 %	0,05 %	0,1 %

Product portfolio

Hot extruded and cold drawn products

Section type Round, square, hexagonal, flat

Rod Available

Wire Available

Profile On demand

Examples of use

Any machined pieces in brass requiring a very low magnetic permeability.

Mechanical properties

Form	Temper	Dimension Ø	UTS N/mm ²	YS N/mm ²	A %	Hardness HV
Rod	EN 12164					
	R360	6,0 – 40,0	> 360	(180)	> 15	(90)
	R400	2,0 – 25,0	> 400	(250)	> 10	(120)
	R480	2,0 – 12,0	> 480	(380)	> 6	(150)
	R550	2,0 – 4,0	> 550	(450)	-	(150)
Wire (max. 6.35 mm)	ASTM B16					
	H02	1,5 – 12,0	> 395	> 170	> 7	-
		12,0 – 25,0	> 380	> 170	> 10	-
	H04	1,5 – 4,0	> 550	> 310	-	-
		4,0 – 12,0	> 480	> 240	> 4	-

Other tempers upon request

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Physical properties	Density	kg/dm ³	8,5
	Melting range	°C	885 – 900
	Linear expansion coefficient (20-400°C)		0,000020
	Specific heat	J/kg K	380
	Thermal conductivity at 20°C	W/m · K	117
	Electrical conductivity at 20°C	% IACS	26,0
	Elasticity modulus / Shear modulus	kN/mm ²	100 / 36

Workability	Cold working, maximum section reduction	%	poor, 35
	Hot working, temperature range	°C	poor, 700 - 775
	Machining, compared with CuZn39Pb3 (100 %)	%	excellent, 90
	Annealing temperatures	°C	450 - 650
	Stress relieving temperatures	°C	250 - 350
	Soft soldering		very good
	Hard soldering		good
	Autogenous welding		not recommended
	Arc welding		not recommended
Resistance welding		not recommended	

Symbols	Ø	= round rod diameter (mm)
	UTS	= ultimate tensile strength
	YS	= yield stress at 0,2 %
	A	= tensile elongation