

sarbak



## TECHNICAL DATA SHEET

CW603N - CuZn36Pb3

S603 -S603DW

RODS / HOLLOW RODS

Product Code	EN Symbol	EN No	ASTM		Cu	Zn	Pb	Sn	Fe	Ni	Al	Si	Others Total
S603	CuZn36Pb3	CW603N	C36000	Min (%)	60,0	Rest	2,5	-	-	-	-	-	-
				Max (%)	62,0	Rest	3,5	0,2	0,3	0,3	0,05	-	0,2
(*)S603DW	CuZn36Pb3-DW	CW603N-DW	C36000	Min (%)	60,0	Rest	2,5	-	-	-	-	-	-
				Max (%)	62,0	Rest	3,5	0,2	0,3	0,2	0,05	0,02	0,2

(\*) Each of the other elements < 0,02 %

## Features And Applications

CW603N is standard free machining alloy in USA market and named C36000. Also this alloy compliance with RoHS II and REACH directives. CW603N-DW alloy be used suitable for 4MS vs UBA list for drinking water applications.

4MS and UBA Hygienic list group for CW603N-DW alloy: C and D

## Area of Usage

High speed machining parts, screws and nuts.

## Range of Products

S603 and S603-DW alloys can be produced in our extrusion and cold drawing unit as rods, hollows and profiles suitable for both forging and machining. Please contact us for other technical informations

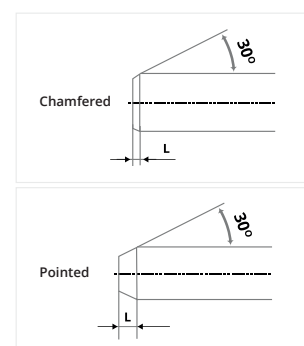
## TECHNICAL SPECIFICATIONS

Structure	$\alpha+\beta$	Melting Point	885-900 °C
Machinability	% 90	Hot Forming	700-800 °C
Density	8,5 g/cm <sup>3</sup>	Soft Annealing	450-600 °C
Electrical Conductivity	13 MS/m, 22 %IACS	Soft Annealing Time	1-3 Hours
Thermal Conductivity	100 W/(m·K)	Stress Relieving	200-300 °C
Elasticity Module	102 GPa	Stress Relieving Time	1-3 Hours
Coeff. of Thermal Expansion	20,6 10 <sup>-6</sup> /K	Max. Depth of Dezincification	-

## INDICATIVE SHAPED ENDS DIMENSIONS

Nominal Diameter or Width		Type A - Chamfer Length (L)		Type B - Point Length (L)	
Across-Flats (mm)		Min (mm)	Max (mm)	Min (mm)	Max (mm)
Over	Up to and including				
8	10	0,2	1,5	2	7
10	20	0,2	2	3	10
20	30	0,2	3	4	12

Unless otherwise specified by the buyer, the shape of the ends of products larger than 30 mm is up to the supplier.



Nominal Diameter or Width Across-flats (mm)		Preferred (available) Lengths (mm)	Tolerance on Length (mm)
Over	Up to and including		
8 inc	30	3.000-4.000	±50
30	80	3.000-4.000	±100

**Stress Relieving** The polygonal rods and hollow rods are subjected to stress relieving treatment

**Packaging** 500 or 1000 kg bundle – 3/5 metal straps different bundle packagings, up to 10 mm dimension products are packed with wooden case

### EN 12164 - Rods for Free Machining

Material Condition	Nominal Diameter (mm)		Width Across-Flats (mm)		Tensile Strength Rm N/mm <sup>2</sup> (MPa)	0,2 % Proof Strength N/mm <sup>2</sup> (MPa)		Elongation			Hardness (HBW)		
	Over	Up to and inc	Over	Up to and inc		Min	Min	Max	A100mm (%)	A11,3 (%)	A (%)	Max	Max
									Min	Min	Min		
M	All		All		As manufactured								
R340	8	65	8	55	340	-	280	-	-	20	-	-	
H070	8	65	8	55	-	-	-	-	-	-	70	120	
R400	8	25	8	20	400	200	-	4	8	12	-	-	
H100	8	25	8	20	-	-	-	-	-	-	100	140	
R480	8	14	8	10	480	350	-	3	5	8	-	-	
H125	8	14	8	10	-	-	-	-	-	-	125	-	

### EN 12168 - Hollow Rods for Free Machining

Material Condition	Wall Thickness (mm)		Tensile Strength Rm N/mm <sup>2</sup> (MPa)	0,2 % Proof Strength N/mm <sup>2</sup> (MPa)		Elongation A (%)	Hardness (HBW)		Hardness (HV)		
	Over	Up to and inc		Min	Min		Max	Min	Max	Min	Max
M	All		As manufactured								
R340	4	20	340	-	280	20	-	-	-	-	
H070	4	20	-	-	-	-	70	120	80	130	
R400	4	10	400	200	-	12	-	-	-	-	
H100	4	10	-	-	-	-	100	140	110	150	
R480	4	7	480	350	-	8	-	-	-	-	
H125	4	7	-	-	-	-	125	-	135	-	

STANDARD		EN 12164			EN 12165		EN 12168					
Dimension Range		Round Rod		Hexagonal, Square	Round Rod		Round and Hexagonal Hollow Rod, Outer Dim. Tol.			Hole Tolerance Round		Hole Tol. Hexagonal
Over	Up to & inc.	Class A	Class B	Rod	Class A	Class B	Class A	Class B	Class C	Class A	Class B	-
8	10	0 -0,06	0 -0,036	0 -0,09	-	-	-	-	-	-	-	-
10	13	0 -0,07	0 -0,043	0 -0,11	-	-	-	-	-	-	-	-
13	18	0 -0,07	0 -0,043	0 -0,11	-	-	-	-	-	±0,35	-	+0,70 -0
18	20	0 -0,08	0 -0,052	0 -0,13	-	-	-	-	-	±0,42	-	+0,84 -0
20	23	0 -0,08	0 -0,052	0 -0,13	-	-	-	-	-	±0,42	±0,17	+0,84 -0
23	26	0 -0,08	0 -0,052	0 -0,13	-	-	-	0 -0,21	-	±0,42	±0,17	+0,84 -0
26	30	0 -0,08	0 -0,052	0 -0,13	-	-	-	0 -0,21	0 -0,13	±0,42	±0,17	+0,84 -0
30	50	0 -0,16	-	0 -0,16	-	-	-	0 -0,25	0 -0,16	±0,80	±0,20	+1,6 -0
50	55	0 -0,19	-	0 -0,19	-	-	-	0 -0,46	0 -0,30	±0,95	±0,37	-
55	65	0 -0,19	-	-	-	-	±0,60	0 -0,46	0 -0,30	±0,95	-	-
65	80	0 -0,19	-	-	-	-	±0,60	0 -0,46	0 -0,30	-	-	-

### For Hollow Rods

Minimum wall thickness is 4 mm. Eccentricity: %8 (max).  
Minimum wall thickness is 5 mm over 65 mm.

**"For hollows, maximum outer diameter is Ø78 mm and maximum producible weight is 28 kg in 1 meter."**

#### Outer Cold Drawn - Internal Extruded

Outer Class B - Hole Class A tolerance

#### Inner-Outer Cold Drawn

Outer Class C - Hole Class B tolerance

#### Inner-Outer Extruded

Outer Class A - Hole Class A tolerance





#### Headquarter

SARBAK METAL TİC. ve SAN. A.Ş.  
Eğitim Mah. Adım Sok. Oran İş Merkezi No: 10 -18 Kat: 3 Daire No: 39 - 49 34722  
Hasanpaşa / Kadıköy / İstanbul / Türkiye  
T: +90 216 414 45 35 pbx | F: +90 216 414 45 40

#### Factory

Çerkezköy Organize Sanayi Bölgesi Gazi Osman Paşa Mah. 8.Cad. No: 3 59500  
Çerkezköy / Tekirdağ / Türkiye  
T: +90 282 725 19 60 pbx | F: +90 282 725 19 70