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TECHNICAL DATA SHEET

CW603N - CuZn36Pb3

S603 -S603DW

RODS / HOLLOW RODS

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CW603N - CuZn36Pb3

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	0,03	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

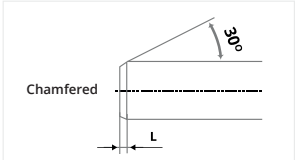
TECHNICAL SPECIFICATIONS

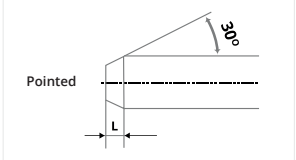
Structure	α+β	Melting Point	885-900 °C
Machinability	% 90	Hot Forming	700-800 °C
Density	8,5 g/cm³	Soft Annealing	450-600 °C
Electrical Conductivity	13 MS/m, 22 %IACS	Soft Annealing Time	1-3 Hours
Thermal Conductivity	100 W/(m·K)	Stress Relieving	200-300 °C
Elasticity Module	102 GPa	Stress Relieving Time	1-3 Hours
Coeff. of Thermal Expansion	20,6 10-6/K	Max. Depth of Dezincification	-

INDICATIVE SHAPED ENDS DIMENSIONS

Nominal Diameter or Width		Type A – Chamfer Lenght (L)		Type B – Point Lenght (L)	
Across-Flats (mm)		Min (mm)	Max (mm)	Min (mm)	Max (mm)
Over	Up to and including				
9,5	10	0,2	1,5	2	7
10	20	0,2	2	3	10
20	30	0,2	3	4	12

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





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Nominal Diameter or Width Across-flats (mm)		Preferred (available) Lengths (mm)	Tolerance on Length (mm)
Over	Up to and including		
9,5[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/mm² (MPa)	0,2 % Proof Strength N/mm² (MPa)		Elongation A100mm (%)	Elongation A11,3 (%)	Elongation A (%)	Hardness (HBW)	
	Over	Up to and inc	Over	Up to and inc	Min	Min	Max	Min	Min	Min	Max	Max
M	All		All		As manufactured							
R340	9,5	65	9,5	55	340	-	280	-	-	20	-	-
H070	9,5	65	9,5	55	-	-	-	-	-	-	70	120
R400	9,5	25	9,5	20	400	200	-	4	8	12	-	-
H100	9,5	25	9,5	20	-	-	-	-	-	-	100	140
R480	9,5	14	9,5	10	480	350	-	3	5	8	-	-
H125	9,5	14	9,5	10	-	-	-	-	-	-	125	-

EN 12168 - Hollow Rods for Free Machining

Material Condition	Wall Thickness (mm)		Tensile Strength Rm N/mm² (MPa)	0,2 % Proof Strength N/mm² (MPa)		Elongation A (%)	Hardness (HBW)		Hardness (HV)	
	Over	Up to and inc	Min	Min	Max	Min	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	-

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CW603N - CuZn36Pb3

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	-
9,5	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

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Headquarter

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