ALMAG

DATA SHEET:
OTS D CW718R

FREE MACHINING

HUG

OTS D CW718R

Special alloy with high mechanical resistance and wear resistance.

Alloy with excellent mechanical properties and resistance to wear. The good hot deformability combined with sufficient workability for chip removal allow it to be used for bearings, bushings and mechanical parts subject to wear.

NAME OF ALLOY

UNI EN: CW718R - CuZn39Mn1AlPbSi

CHEMICAL COMPOSITION UNI EN 12164:2024

Cu	Pb	Sn	Fe	Ni	Al	Mn	Si	Zn	Altri elementi
min. 57.0 max 59.0%	0.2 0.8 %	≤0.5 %	≤0.5 %	≤0.5 %	1.3 2.3 %	0.8 1.8 %	0.2 0.8 %	diff.	≤0.2 %

HEAT TREATMENTS

STRESS RELIEVING

Enables the redistribution of tensions induced by mechanical processing of cold plastic deformation, reducing the risk of stress corrosion cracking.
The treatment consists of heating the items to 200°C - 250°C for 2 hours and cooling within the furnace. The validation of the stress relieving treatment can be performed with the ISO 6957 test.

ANNEALING

Re-crystallizes the alloy, reducing its hardness and increasing its ductility.
The temperature of the treatment varies from 450°C to 550°C for an amount of time relative to the required results. The high temperature can induce changes in the surface appearance and in the tolerance of the finished part.

MECHANICAL PROPERTIES UNI EN 12164:2024

Condition of material	Diameter in mm		Hardness HBW*		Rm	$Rp_{0.2}$ N/mm²		Elongation %
	from	to (included)	min.	max.	min.	min.	max.	min.
M	All		As a product					
R540	5	80 (60)	-	-	540	280	-	15
H130	5	80 (60)	130	170	-	-	-	-
R590	5	50 (40)	-	-	590	370	-	10
H150	5	50 (40)	150	220	-	-	-	-

The hardness value is determined in the mid-range
The values in brackets refer to the hexagonal section bar.
Any other conditions must be requested when ordering - subject to feasibility request.

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Special alloy with high mechanical resistance and wear resistance.

TECHNOLOGICAL PROPERTIES

			low ▯▯▯▯▯▯▯ excellent
Structure	β	**Machinability**	■■▯▯▯▯▯
Density	8.1 kg/cm^2	**Weldability**	■■▯▯▯▯▯
Electrical conductivity	13% IACS	**Hot forming**	■■■▯▯▯▯
Coeff. of thermal expansion	20.3 10^{-6}/K	**Cold forming**	■▯▯▯▯▯▯
Thermal conductivity*	65 W/(m K)	**Corrosion resistance****	Not resistant
Specific heat	377 J/(kg K)		
Elasticity module	92 kN/mm^2		
Melting point	875-910 °C		

*at room temperature
**use care to ascertain compatibility with chemical substances

DIMENSIONS, TOLERANCES, AND STRAIGHTNESS UNI EN 12164:2024

ROUND section bar					HEXAGONAL and SQUARE		
Nominal diameter (mm)		TOLERANCES			Nominal key (mm)		Tolerance mm
from	to included	Class A	Class B	Class C	from	to included	
6	10	0 - 0.06	0 - 0.036	0 - 0.025	6	10	0 - 0.09
10	18	0 - 0.07	0 - 0.043		10	18	0 - 0.11
18	30	0 - 0.08	0 - 0.052		18	30	0 - 0.13
30	50	0 - 0.16			30	50	0 - 0.16
50	80	0 - 0.19			50	60	0 - 0.19

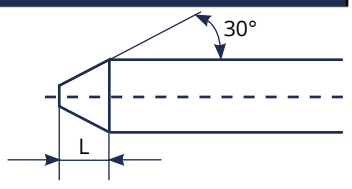
The standard tolerance for the round bar is Class A. Any different tolerances must be agreed upon when ordering
Semi-finished products can be supplied from Ø63 to Ø80 mm with Class A tolerances

Diameter (mm)		Length of bar (mm)	Tolerance (mm)
2	30	3000 o 4000	+/- 50
30	50	3000 o 4000	+/- 100
50	80	3000	+/- 100

Diameter or Key (mm)		Deviation from straightness in mm	
		Every 400 mm	Every m of length L ≥ 1
Round section bar			
10	50	0.4	1.0 x L
Hexagonal and square section bar			
10	50	0.6	1.5 x L

BAR FINISHING AND PACKAGING

Diameter or Key (mm)		Chamfer Length L mm		Tip Length L mm	
5	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

Ends of round bars	finishing with chamfer and tip up to and including Ø40 mm
	finishing with chamfer and cut greater than Ø40 mm
Ends of hexagonal bars	finishing with chamfer and cut
Bar surface	pickled
Packaging	1000 kg bundle – 3/5 metal straps different bundle packagings and quantities are possible upon request
Identification	adhesive label on bundle strap
Stress relieving	the polygonal bar was subjected to stress relieving treatment

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