

HCr1Zr0.15 (C18150)

Material Designation *

UNS	C18150
EN	CuCr1Zr (CW 106 C)
JIS	/
GB	TCr1-0.15

Chemical Composition

Cu	Balance	%
Cr	0.5-1.2	%
Zr	0.03-0.3	%
Fe	≤0.08	%
Si	≤0.1	%
Others	≤0.2	%



Characteristics

The product is easy to be welded. It has good wear resistance and is widely used in motor commutator, spot welder, seam welder and butt welder, and other high temperature requirements of strength, hardness and electrical conductivity.

Typical Application

The alloy is widely used in automobile, vehicles, agricultural machinery, ships, civil electrical appliances TV, refrigeration equipment, washing machines and other products of electric resistance welding (such as welding electrodes for spot welding, seam welding, butt welding, CO2 protection welding), and the metallurgy continuous casting crystallizer, motor, power distribution equipment and high-speed train with sliding connection, etc.

Physical Properties

Density ^①	8.9	g/cm ³
Melting point	1080	°C
Electrical conductivity ^①	79	%IACS
Thermal conductivity ^①	324	W/(m·K)
Coefficient of thermal expansion ^②	16.5	10 ⁻⁶ /K
Modulus of elasticity	117	GPa

Note①: Temperature for testing is 20°C.

Note②: Temperature range for testing is 20-100°C.

Fabrication Properties

Cold workability	Good
Brazing	Good
Resistance welding	Not recommended
Hot forging compared with C37700	80%
Machinability compared with C36000	20%

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Mechanical Properties

Diameter	Temper	Tensile Strength	Yield Strength	Elongation
mm		MPa min.	MPa min.	% min.
4 < Φ ≤ 30	R470	470	420	8
30 < Φ ≤ 50	R430	430	350	10
50 < Φ ≤ 100	R370	370	250	16

Tolerance and Delivery Form

Straight Bar

Diameter	Tolerance ^③	Ovality	Length	Straightness
mm	mm	mm	mm max.	mm/m max.
5 ≤ Φ ≤ 10	0.06	0.03	4000	1.0
10 < Φ ≤ 20	0.10	0.05	4000	1.0
20 < Φ ≤ 25	0.16	0.08	4000	1.0
25 < Φ ≤ 30	0.18	0.09	4000	1.0
30 < Φ ≤ 40	0.20	0.10	4000	1.0
40 < Φ ≤ 45	0.24	0.12	4000	1.0
45 < Φ ≤ 50	0.30	0.15	4000	1.0
50 < Φ ≤ 60	0.34	0.17	4000	1.0
60 < Φ ≤ 80	0.44	0.22	2500	3.0
80 < Φ ≤ 100	0.60	0.30	2000	3.0
100 < Φ ≤ 120	1.00	0.50	1500	3.0
100 ≤ Φ ≤ 160	2.00	1.00	1000	5.0

Diameter	Tolerance ^③	Standard coil weights	Coil ID
mm	mm	kg	mm
1.0 < Φ ≤ 1.6	0.03	18-30	260-300
1.6 < Φ ≤ 2.5	0.03	25-40	320-350
2.5 < Φ ≤ 4.0	0.04	30-45	370-400
2.8 < Φ ≤ 6.5	0.04	100-250	400-650
4.0 < Φ ≤ 6.5	0.05	45-60	370-400
6.5 < Φ ≤ 10.0	0.05	200-400	1000-1200
8.0 < Φ ≤ 12.0	0.06	200-400	1200-1400

Note③: The tolerances listed in the table are specified as all plus or all minus. When tolerances are specified as plus and minus (\pm), half the values given.

Composition BSEN 12163-2016
 Conductivity BSEN 12163-2016
 Mechanical Properties BSEN 12163-2016
 Fabrication Properties For reference only
 Other Physical Properties CDA

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