

ALLOY
DATA



MECHANICAL AND PHYSICAL PROPERTIES OF Alloy C18080

Olin Alloy C18080/K88 is a Cu Cr Ag Fe Ti Si system developed jointly by Olin Brass and Wieland-Werke of Germany. This alloy provides engineers a unique combination of properties. It incorporates very high electrical and thermal conductivity, excellent formability, good plateability and extremely high resistance to stress relaxation up to 200° C validating its use in high reliability electronics and relay springs. For more information contact Olin Market Development Engineering at 618-258-5255, OlinBrass.com, or email us at info@olinbrass.com.

**Table 1
Composition Limits of C18080**

Copper ¹	Remainder
Chromium	0.20-0.7%
Silver	0.01-0.30%
Iron	0.02-0.20%
Titanium	0.01-0.15%
Silicon	0.01-0.10%

1. Copper plus Named Elements, 99.8%

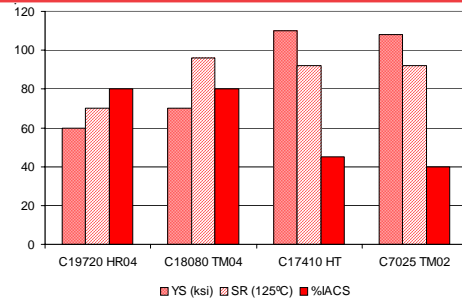


Figure 1: Comparison between typical alloys used in power electronics and automotive applications.

**Table 2
Physical Properties of C18080**

	English Units	Metric Units
Density	0.320 lb/in ³ @ 68°F	8.92 g/cm ³ @ 20°C
Thermal Conductivity	185 Btu-ft/ft ² -hr-°F @ 68°F	320 W/mK
Electrical Resistivity	12.96 ohm circ mils/ft @ 68°F	2.155 microhm-cm @ 20°C
Electrical Conductivity (Annealed)	80% I.A.C.S. † @ 68°F	46 MS/m @ 20°C
Modulus of Elasticity	TM04 20,300,000 psi TM08 18,500,000 psi	140 kN/mm ² 127 kN/mm ²
Coefficient of Thermal Expansion 68-572°F (20-300°C)	9.8 PPM/°F	17.6 PPM/°C
Magnetic Permeability	< 1.01	

† International Annealed Copper Standard

**Table 3
Mechanical Properties of C18080**

Temper	Tensile Strength ¹		Minimum Yield Strength (0.2% Offset)		Nominal % Elong. in 2 Inch (51mm)	90° Bend Formability GW/BW ³
	ksi	N/mm ²	ksi	N/mm ²		
TM04	70 – 81	480 – 560	65	450	8	0.8/0.5
TM08	78 – 91	540 – 600	75	520	4	1.4/1.2
TR08 ²	75 – 91	520 – 620	72	500	4	

1. C18080 is manufactured to a yield strength. Tensile strength and elongation are for reference only.
2. TR08 available above 0.016" (0.4mm). TM08 is limited in thickness.
3. R/T = Bend Radius/Material Thickness @ < 0.016" (0.4mm) thick 11/16 inch (17.5mm) wide.

MAIN OFFICE and MILL
Olin Brass
427 North Shamrock Street
East Alton, Illinois 62024-1197
Phone: 618-258-5255
Fax: 618-258-5772

OLIN ASIA PACIFIC
1 Kim Seng Promenade
Great World City, East Tower #13-04
Singapore 237994
Phone: 65.6238.1155
Fax: 65.6238.0660

OLIN BRASS JAPAN
145-1 Tokiwa-cho
Hamamatsu-shi, Shizuoka-ken
430-0917 Japan
Phone: 81.53.413.1500
Fax: 81.53.451.0010

OLIN CHINA
Room 2004, Aetna Tower
No. 107 Zunyi Road
Shanghai 200051, CHINA
Phone: 86.21.6237.5898
Fax: 86.21.6237.5805

**OLIN BRASS – HEADQUARTERS
OFFICE AND MILL**

427 North Shamrock Street
East Alton, Illinois 62024-1197
Phone: 618-258-5255
Fax: 618-258-2769

**WATERBURY ROLLING MILLS, INC.
OFFICE AND MILL**

240 East Aurora Street
Waterbury, Connecticut 06708
Phone: 203-754-0151
Fax: 203-754-1016

**BRYAN METALS INC.
OFFICE AND MILL**

1103 South Main Street
Bryan, Ohio 43506-0487
Phone: 419-636-4571
Fax: 419-636-3994

**SOMERS THIN STRIP
OFFICE AND MILL**

215 Piedmont Street
Waterbury, Connecticut 06706
Phone: 203-597-5000
Fax: 203-597-5081

**NEW HAVEN COPPER CO.
OFFICE AND MILL**

79 Main Street
Seymour, Connecticut 06483

INTERNATIONAL SALES OFFICES AND FACILITIES

OLIN ASIA PACIFIC

1 Kim Seng Road Promenade
Great World City, East Tower #13-04
Singapore 237994
Phone: 65.6238.1155
Fax: 65.6238.0660

OLIN BRASS JAPAN

Hamamatsu MH Bldg 13F
145-1 Tokiwa-cho
Hamamatsu-shi, Shizuoka-ken
430-0917 Japan
Phone: 81.53.413.1500
Fax: 81.53.451.0010

OLIN SHANGHAI

Room 2004, Aetna Tower
No. 107 Zunyi Road
Shanghai 200051, CHINA
Phone: 86.21.6237.5898
Fax: 86.21.6237.5805

OLIN LOUTONG METALS (GZ) LTD. CO.

No. 8 Jun Gong Lu, East District
Guangzhou Economic Technological & Dev. District
Guangzhou, P.R. China 510530
Phone: 86.20.8226.6818
Fax: 86.20.8226.6718

OLIN APPROVED INTERNATIONAL DISTRIBUTORS

UNITED KINGDOM / IRELAND

EIP Metals Limited

Heath Street South
Birmingham B18 7PZ
Phone: 44 (0) 121 452 1199
Fax: 44 (0) 121 456 1595
E-mail: sales@eipmetals.co.uk
Website www.eipmetals.co.uk

EUROPE

Walter Türkis GmbH

Struthstrasse 35
55743 Idar-Oberstein
Germany
Phone: 49 (0) 6781 62-0
Fax: 49 (0) 6781 62-28
E-mail: service@tuerkis-schneid-center.de
Website www.tuerkis-schneid-center.de

