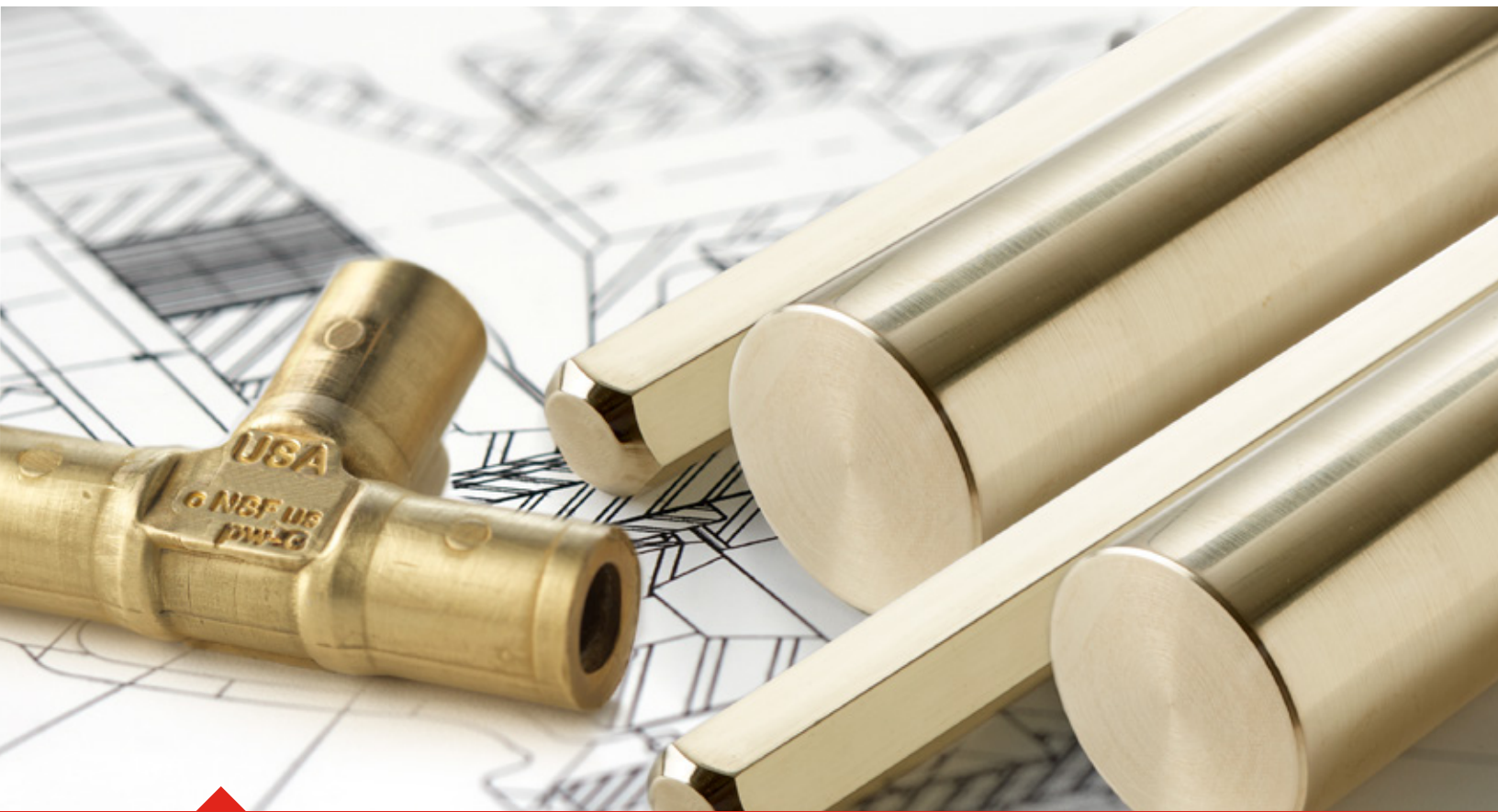


Wieland Chase

Brass Product Guide



Standard Alloys

HIGH PERFORMANCE BRASS

Quality and consistency allows customers to produce more components per hour, maintain tighter tolerances, and reduce costs through longer tool life.

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Advantages:

- Excellent machinability
- Good corrosion resistance
- High productivity alloy
- 100% recyclable
- Longer tool life



C36000

APPLICATION:
MACHINING
ASTM: B16
LENGTHS: 10 TO 16 FEET
BUNDLE WEIGHTS:
1,000 – 4,000 LBS.

C37700

APPLICATION:
MACHINING-FORGING
ASTM: B124, B981
LENGTHS: 10 TO 16 FEET
BUNDLE WEIGHTS:
1,000 – 4,000 LBS.

C34500, C35000,
C35300

APPLICATION:
MACHINING-COLD FORMING
ASTM: B453
LENGTHS: 10 TO 16 FEET
BUNDLE WEIGHTS:
1,000 – 4,000 LBS.

Chemistry Composition

Rod Alloy	CU	Pb	Fe	Zn
C36000	60.0 - 63.0%	2.5 - 3.0%	0.35% max	Remainder
C37700	58.0 - 61.0%	1.5 - 2.5%	0.30% max	Remainder
C34500	62.0 - 65.0%	1.5 - 2.5%	0.15% max	Remainder
C35000	61.0 - 63.0%	0.8 - 2.0%	0.15% max	Remainder
C35300	61.0 - 63.0%	1.5 - 2.5%	0.15% max	Remainder

C36000, C37700, C34500, C35000, & C35300
Sizes/shapes



Round
0.250" - 4.50"



Hex / RC Hex
0.250" - 2.50"



Square
0.250" - 2.00"



Shapes
Cross section
up to 2.50"

C36000, C34500, C35000 & C35300
Diameter/tolerances +/-

Diameter	Round	Hexagonal, Octagonal
>0.250" - 0.500"	0.0015"	0.003"
>0.500" - 1.000"	0.002"	0.004"
>1.000" - 2.000"	0.0025"	0.005"
>2.000"	0.15%	0.30%

C37700 Diameter/tolerances +/-

Diameter	Round	Hexagonal, Octagonal
>0.250" - 0.500"	0.002"	0.004"
>0.500" - 1.000"	0.003"	0.005"
>1.000" - 2.000"	0.004"	0.006"
>2.000"	0.20%	0.40%



C36000 Minimum Mechanical Properties

Diameter (inch)	Tensile (ksi)	Yield (ksi)	Elongation (%)	Hardness RD (Rb)	Hardness HX/OC (Rb)
<0.500"	57	25	7	—	—
0.500" - 1.000"*	55	25	10	60 - 80	55 - 80
>1.000" - 2.000"	50	20	15	55 - 75	45 - 80
>2.000" - 3.000"	45	15	20	45 - 70	40 - 65
>3.000" - 4.000"	45	15	20	40 - 65	35 - 60
>4.000"	40	15	20	25 min	25 min

C37700 Minimum Mechanical Properties

Diameter (inch)	Tensile (ksi)	Yield (ksi)	Elongation (%)
>0.250" - 0.500"	63	28	10
>0.500" - 1.000"	55	26	12
>1.000" - 2.000"	48	24	20
>2.000"	45	20	25

C34500, C35000, & C35300
Minimum Mechanical Properties

Diameter (inch)	Tensile (ksi)	Yield (ksi)	Elongation (%)	Hardness (Rb) (mid-radius)
>0.250" - 0.500"	57	25	7	-
>0.500" - 1.000"	55	25	10	60 - 80
>1.000" - 2.000"	50	20	15	50 - 75
>2.000"	50	20	15	40 - 70

* Properties for thread-rolling applications where the minimum tensile strength is 52 ksi.

Low Lead Alloys

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HIGH PERFORMANCE LOW-LEADED BRASS

Good machinability, forgeability and thread rolling capability. Easily recyclable with leaded brass, and available in multiple chemistry options for custom applications.

Advantages:

- Multiple chemistry options for custom applications
- 100% recyclable
- Good thread rolling capability
- Good forgeability



C27450*

APPLICATION:
MACHINING-FORGING
ASTM: B927
LENGTHS: 10 TO 16 FEET
BUNDLE WEIGHTS:
1,000 – 4,000 LBS.

C36300

APPLICATION:
MACHINING-FORGING
ASTM: B981
LENGTHS: 10 TO 16 FEET
BUNDLE WEIGHTS:
1,000 – 4,000 LBS.

C37000

APPLICATION:
MACHINING-FORGING
ASTM: B981
LENGTHS: 10 TO 16 FEET
BUNDLE WEIGHTS:
1,000 – 4,000 LBS.

Chemistry Composition

Rod Alloy	CU	Pb	P	Fe	Zn
C27450*	60.0 - 65.0%	0.25% max	0.04 - 0.10%	0.35% max	Remainder
C36300	61.0 - 63.0%	0.25 - 0.7%	0.04 - 0.15%	0.15% max	Remainder
C37000	59.0 - 62.0%	0.8 - 1.5%	—	0.15% max	Remainder

* Check with the Mill for product availability

C36300 Sizes/shapes

 Round
0.375" - 4.50"

 RC Hex
0.562" - 2.50"

 Square
0.562" - 2.00"

 Shapes
Consult Mill

C36300 Diameter/tolerances +/-

Diameter	Round	Hexagonal, Octagonal
>0.250" - 0.500"	0.002"	0.004"
>0.500" - 1.000"	0.003"	0.005"
>1.000" - 2.000"	0.004"	0.006"
>2.000"	0.20%	0.40%

C36300 Minimum Mechanical Properties

Diameter (inch)	Tensile (ksi)	Yield (ksi)	Elongation (%)
>0.250" - 0.500"	63	28	10
>0.500" - 1.000"	55	26	12
>1.000" - 2.000"	48	24	20
>2.000"	45	20	25

C37000 Sizes/shapes

 Round
0.375" - 4.50"

 RC Hex
0.562" - 2.50"

 Square
0.562" - 2.00"

 Shapes
Consult Mill

C37000 Diameter/tolerances +/-

Diameter	Round	Hexagonal, Octagonal
>0.250" - 0.500"	0.002"	0.004"
>0.500" - 1.000"	0.003"	0.005"
>1.000" - 2.000"	0.004"	0.006"
>2.000"	0.20%	0.40%

C37000 Minimum Mechanical Properties

Diameter (inch)	Tensile (ksi)	Yield (ksi)	Elongation (%)
>0.250" - 0.500"	63	28	10
>0.500" - 1.000"	55	26	12
>1.000" - 2.000"	48	24	20
>2.000"	45	20	25

ECO FORGE®

LEAD FREE FORGING ALLOY

Lower copper, highly forgeable,
lead-free* alloy that is
dezincification and stress
corrosion cracking resistant

* This product complies with 0.25% weighted average lead content on wetted surfaces in accordance with Safe Drinking Water Act (SDWA) / Federal Public Law No. 111-380.

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Advantages:

- Lead free* 0.09% max
- NSF/ANSI/CAN 61, NSF/ANSI 14, and NSF/ANSI/CAN 372
- Dezincification resistant
- Stress corrosion cracking resistant
- Excellent capacity for being hot forged




C69850

APPLICATION: FORGING
ASTM: B371
LENGTHS: 10 TO 16 FEET
BUNDLE WEIGHTS: 1,000 – 4,000 LBS.

Chemistry Composition

Rod Alloy	CU	Si	P	Pb	Fe	Sn	Ni	Mn	Sb	Zn
C69850	67.5-69%	1.53-2.0%	0.04-0.15%	0.09% max	0.10% max	0.20% max	0.10% max	0.10% max	—	Remain.

C69850 Sizes/shapes

 Round
0.375" - 2.50"

C69850 Diameter/tolerances +/-

Diameter	Round
>0.150" - 0.500"	0.002"
>0.500" - 1.000"	0.003"
>1.000" - 2.000"	0.004"
>2.000"	0.20%

C69850 Minimum Mechanical Properties

Diameter (inch)	Tensile (ksi)	Yield (ksi)	Elongation (%)
>0.150" - 0.500"	60	40	5
>0.500" - 1.000"	55	35	10
>1.000" - 2.000"	50	30	10



ECO BRASS®

wieland
chase

HIGH PERFORMANCE SILICON BRASS

Lead-free,* excellent machinability, forgeability, and high strength equivalent to stainless steel, while eliminating the problems of stress corrosion cracking and dezincification.

* This product complies with 0.25% weighted average lead content on wetted surfaces in accordance with Safe Drinking Water Act (SDWA) / Federal Public Law No. 111-380.



Advantages:

- No lead, no arsenic, and no bismuth added
- S3874 & AB1953 compliant
- Dezincification resistant
- Stress corrosion cracking resistant
- Meets NSF/ANSI 14 corrosion requirements
- NFS/ANSI/CAN 372 compliant
- Excellent machinability
- Hot forgeability
- Solders and brazes with standard materials
- Wear resistance equal to or better than SAE 660
- Strength comparable to annealed 303 stainless
- 100% recyclable



ECO BRONZE®

wieland
chase

HIGH PERFORMANCE SILICON BRONZE

Tough bearing material that is environmentally friendly and cost effective. With no added arsenic or bismuth, ECO BRONZE® is a great lead-free* alternative to C93200.

* This product complies with 0.25% weighted average lead content on wetted surfaces in accordance with Safe Drinking Water Act (SDWA) / Federal Public Law No. 111-380.

Advantages:

- No lead, no arsenic, and no bismuth added
- S3874 & AB1953 compliant
- Dezincification resistant
- Stress corrosion cracking resistant
- Meets NSF 14/ANSI corrosion requirements
- NSF/ANSI/CAN 372 compliant
- Excellent machinability
- Good castability
- Solders and brazes with standard materials
- Wear resistance equal to or better than SAE 660
- C69300 strength comparable to annealed 303 stainless
- 100% recyclable
- High fluidity



THIS IS
TOUGH
STUFF

C69300

APPLICATION: MACHINING-FORGING
ASTM: B371
LENGTHS: 10 TO 16 FEET
BUNDLE WEIGHTS: 1,000 – 4,000 LBS.

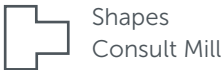
INGOT C87850

APPLICATION: CASTING
ASTM: B30
LENGTHS: 12 INCHES
INGOT WEIGHTS: 17 LBS / INGOT
2,500 LBS / PALLET

Chemistry Composition

Rod Alloy	CU	Si	P	Pb	Fe	Sn	Ni	Mn	Sb	Zn
C69300	73.0-77.0%	2.7-3.4%	0.04-0.15%	0.09% max	0.10% max	0.20% max	0.10% max	0.10% max	—	Remain.
C87850	75.0-78.0%	2.7-3.4%	0.05-0.20%	0.09% max	0.10% max	0.30% max	0.20% max	0.10% max	0.10% max	Remain.

C69300 Sizes/shapes



C69300 Diameter/tolerances +/-

Diameter	Round	Hexagonal, Octagonal
>0.150" - 0.500"	0.002"	0.004"
>0.500" - 1.000"	0.003"	0.005"
>1.000" - 2.000"	0.004"	0.006"
>2.000"	0.20%	0.40%

C69300 Minimum Mechanical Properties

Diameter (inch)	Tensile (ksi)	Yield (ksi)	Elongation (%)
>0.150" - 0.500"	85	45	5
>0.500" - 1.000"	75	35	10
>1.000" - 2.000"	70	30	10



C87850 Sizes/shapes

Shape	English	Length
Extruded Octagon Solid	2.400"	12"-12'
Available As Continuous Cast Product:		
Extruded Rounds Solids (sold as C693)	0.375" - 2.50"	105"
Cast Round Solids and Rectangles	0.500" - 12.00"	105"
Cast Round Hollows	0.500" - 12.00"	105"
	4.000" - 36.00"	52" Max

C87850 Minimum Mechanical Properties

Casting Method	Tensile (ksi)	Yield (ksi)	Elongation (%)	ASTM
Sand	59	22	16	B584
Permanent Mold	64	32	16	B806
Continuous Cast	65	25	8	B505



Specialty Alloy Rod

Specialty Alloy (S)

C44300
C67420
C69300
CuZn31Si1
CuZn35Ni3Mn2AlPb
CuZn38Mn1Al
CuZn40Mn2Fe1



Hollow Rod

OD from 0.236" to 11.810" | Wall from 0.120" to 1.181"



Copper Series (K)	Brass Series (M)	Machining Alloys (Z)	Specialty Alloy (S)	Bronze Series (B)	Nickel Series (N)
C10100 C10200 C10300 C11000 C12200 C18150 C19400	C21000 C22000 C23000 C24000 C26000 C27000 C27200 C28000	C33500 C34000 C35300 C36000 C37700 C38000 C38500	C67420 C69300 CuZn31Si1 CuZn35Ni3Mn2AlPb CuZn38Mn1Al CuZn40Mn2Fe1	C51000 C51900 C52100	C75700 CuNi18Zn20



Specialty Products

Shape Rod

Shape Size Cross Sections From: 0.098" to 5.900"



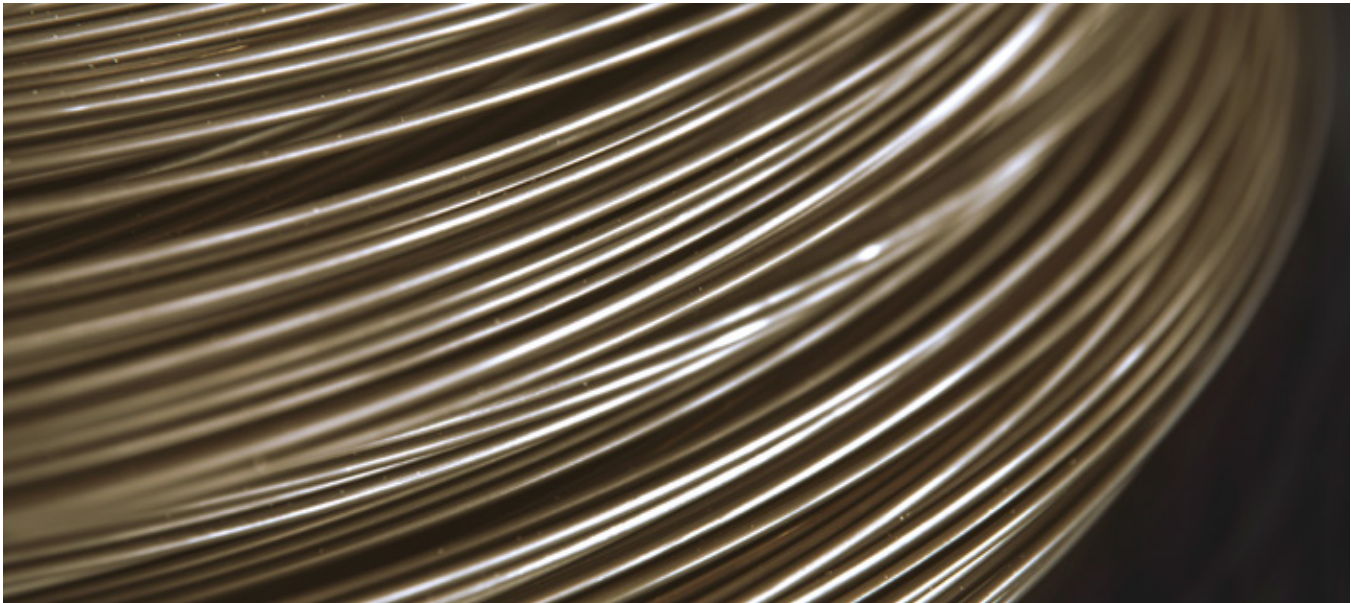
Copper Series (K)	Brass Series (M)	Machining Alloys (Z)	Specialty Alloy (S)	Bronze Series (B)	Nickel Series (N)
C10100	C21000	C33500	C67420	C51000	C75700
C10200	C22000	C34000	C69300	C51900	CuNi18Zn20
C10300	C23000	C34500	CuZn31Si1	C52100	CuNi72n39Pb3Mn2
C11000	C24000	C35300	CuZn35Ni3Mn2AlPb	C54400	CuNi2Zn30Pb1
C12200	C26000	C36000	CuZn40Mn2Fe1		CuNi18Zn19Pb1
C18150	C27000	C37700			
C19400	C27200	C38000			
	C28000	C38500			
	CuZn36As				
	CuZn30As				



Specialty Products

Small Diameter Rod and Coil

Small Diameter/Wire Size:
Round Coil: 0.012" & above | Square: 0.079" & above | Round Bar: 0.079" & above



Copper Series (K)	Brass Series (M)	Machining Alloys (Z)	Specialty Alloy (S)	Bronze Series (B)	Nickel Series (N)
C10100	C21000	C33500	C67420	C51000	C75700
C10200	C22000	C34000	C69300	C51900	CuNi18Zn20
C10300	C23000	C34500	CuZn31Si1	C52100	CuNi72n39Pb3Mn2
C11000	C24000	C35300	CuZn35Ni3Mn2AlPb	C54400	CuNi2Zn30Pb1
C12200	C26000	C36000	CuZn38Mn1Al		CuNi18Zn19Pb1
C14415	C27000	C37700	CuZn40Mn2Fe1		
C18150	C27200	C38000			
C19400	C28000	C38500			
CuNi3SiMg					
CuAg0.1P					



CuVerro® Antimicrobial Brass

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chase

CUVERRO® KILLS 99.9% OF HARMFUL BACTERIA*

CuVerro's® efficacy as an antimicrobial copper alloy has been proven to continuously kill the bacteria* that cause infections, and is the only solid touch surface approved by the EPA to be called antimicrobial.

* Laboratory testing shows that, when cleaned regularly, CuVerro® surfaces kill greater than 99.9% of the following bacteria within 2 hours of exposure: Methicillin-Resistant Staphylococcus aureus (MRSA), Staphylococcus aureus, Enterobacter aerogenes, Pseudomonas aeruginosa, E. coli O157:H7, and Vancomycin-resistant Enterococcus faecalis (VRE). The use of CuVerro® bactericidal copper products is a supplement to and not a substitute for standard infection control practices; users must continue to follow all current infection control practices, including those practices related to cleaning and disinfection of environmental surfaces. This surfaces has been shown to reduce microbial contamination, but do not necessarily prevent cross contamination. CuVerro® is a registered trademark of Wieland North America, Inc. and is used with permission. (C-0004-1303)

Advantages:

- Continuously kills 99.9% of bacteria* left behind by dirty hands within 2 hours
- Available in rod, shape, and as a near-net-shaped forged product
- Strength equal to stainless steel
- Highly machinable
- EPA-registered CuVerro® antimicrobial alloy*




C69300

APPLICATION:	MACHINING-FORGING
ASTM:	B371
LENGTHS:	10 TO 16 FEET
BUNDLE WEIGHTS:	1,000 – 4,000 LBS.


Chemistry Composition

Rod Alloy	CU	Si	P	Pb	Fe	Sn	Ni	Mn	Sb	Zn
C69300	73.0-77.0%	2.7-3.4%	0.04-0.15%	0.09% max	0.10% max	0.20% max	0.10% max	0.10% max	—	Remain.


C69300 Sizes/shapes



Round
0.375" - 2.50"



RC Hex
0.437" - 2.00"



Shapes
Consult Mill

C69300 Diameter/tolerances +/-

Diameter	Round	Hexagonal, Octagonal
>0.150" - 0.500"	0.002"	0.004"
>0.500" - 1.000"	0.003"	0.005"
>1.000" - 2.000"	0.004"	0.006"
>2.000"	0.20%	0.40%

C69300 Minimum Mechanical Properties

Diameter (inch)	Tensile (ksi)	Yield (ksi)	Elongation (%)
>0.150" - 0.500"	85	45	5
>0.500" - 1.000"	75	35	10
>1.000" - 2.000"	70	30	10



EZ-MELT GRANULAR INGOT

wieland
chase

START SMALL. MELT QUICKLY. MAXIMIZE PRODUCTIVITY

The smallest, yet most versatile, member of our product line. EZ-Melt provides more surface area in a furnace that results in more efficient melting and reduced BTU consumption than traditional Ingot.



Advantages:

ENERGY:

- Reduces melt time 10% or more
- Reduces BTU consumption
- Liquidus at 1616 °F

LABOR & PRODUCTIVITY:

- Labor saving
- Reduces pinch points vs traditional ingot
- Ideal form for charge automation
- No supplemental phosphorus required

MATERIAL PERFORMANCE

- High strength
- High fluidity
- Low gassing
- Low dross
- NSF/ANSI/CAN 372 compliant





C87850 Copper Silicon Bronze Alloy Properties

Melting Point - Liquidus (°F)	1616
Melting Point - Solidus (°F)	1571
Density (lb/cu in.)	0.3
Electrical Conductivity (%IACS at 68°F)	8
Thermal Conductivity (Btu/sq ft/ft hr/°F at 68°F)	21.8
Coefficient of Thermal Expansion (10 ⁻⁶ /°F, 68-212°F)	10.3
Coefficient of Thermal Expansion (10 ⁻⁶ /°F, 68-392°F)	10.3
Coefficient of Thermal Expansion (10 ⁻⁶ /°F, 68-572°F)	10.4
Specific Heat Capacity (Btu/lb/°F at 68°F)	0.09
Annealing Temperature Range (°F)	1,000-1,200
Hot Working Temperature Range (°F)	1,200-1,400

Chemistry Composition

Rod Alloy	CU	Si	P	Pb	Fe	Sn	Ni	Mn	Sb	Zn
C87850	75.0-78.0%	2.7-3.4%	0.05-0.20%	0.09% max	0.10% max	0.30% max	0.20% max	0.10% max	0.10% max	Remain.

The following properties can be expected for castings made using EZ-MELT Granular Ingot

Casting Method	Tensile Strength (ksi)	Yield Strength (ksi)	Elong. %	Brinell Hardness 500 lb Load
Sand	59	22	16	
Permanent Mold	64	32	16	
Continuous Cast	65	25	8	103



* This product complies with 0.25% weighted average lead content on wetted surfaces in accordance with Safe Drinking Water Act (SDWA) / Federal Public Law No. 111-380.

Brass Forgings

WE WANT YOU TO BRING YOUR BRASS PARTS BUSINESS BACK TO THE USA.

Wieland Chase provides raw forgings and finished products made with our high performance brass alloys, including our ECO BRASS® lead-free* alloy.

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C37700



C36300
C27450



C69300

* This product complies with 0.25% weighted average lead content on wetted surfaces in accordance with Safe Drinking Water Act (SDWA) / Federal Public Law No. 111-380.



Your Domestic Solution For Brass Forgings!



Maximize Machining Efficiency

- Near-net-shape forgings
- Up to three cores per part to minimize machining
- Less machining equals longer tool life and shorter cycle times

High Performing Parts

- More design freedom
- Enhanced forged microstructures

Brass Parts for a Changing World

- Domestic supply chain
- ECO BRASS® low-lead* alloy forgings for potable water and NSF certified applications
- Leaded brass alloys for air, gas and liquid transport applications

WIELAND CHASE CAN PROVIDE A LIST OF QUALIFIED MACHINING PARTNERS IF YOU ARE SOURCING FINISHED PARTS.



Manufactured in the USA



Your Leading Source For Brass Solutions

For More Information

Call Toll Free: 1-800-537-4291
14212 Selwyn Drive | Montpelier, OH 43543



www.wieland-chase.com



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