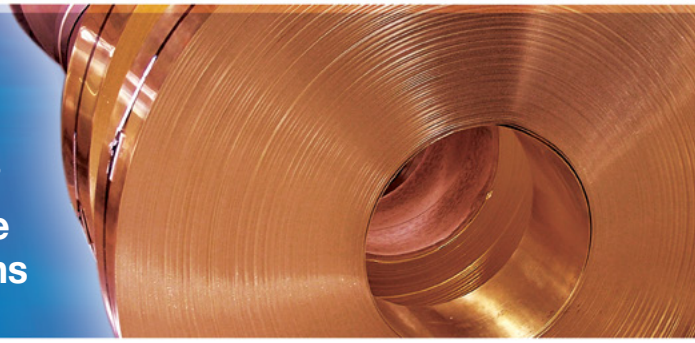




Copper and Copper Alloys

Premium Quality, Light and Medium Gauge Coil and Strip – Made to Your Specifications



Alloys

Heyco offers a wide array of copper and copper alloys including:

- C10200 • C21000 • C51000 • C75200
- C11000 • C22000 • C51100 • C77000
- C12200 • C23000 • C51900 • Monel 400
- C19010 • C24000 • C52100
- C19400 • C26000 • C70250
- C19500 • C26800 • C72500

Other alloys available by special arrangement (consult mill).

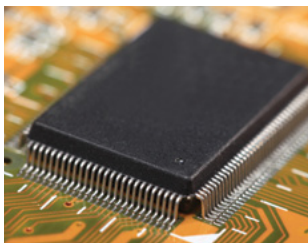
Capabilities

Rolling:	Down to .002" thick
Slitting:	.200 - 17.000" wide
Order Sizes:	250 lbs. and up
Traverse-wound reels:	500lb/1000lb/2000lb
Pancake coils:	Up to 580 PIW, I.D. ranging from 4" to 16"

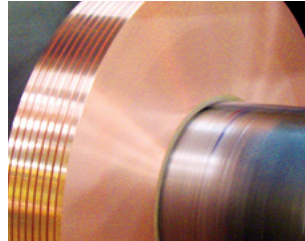
NOTE: Heyco is a major supplier to distributors on a national basis and also offers toll conversion programs.

Why Heyco Metals

Heyco Metals has built a reputation for industry-leading quality, rapid response, outstanding technical support and on-time delivery. Our extremely short lead times can keep your inventories lean while meeting unpredictable spikes



in demand. With over four decades of metals experience, Heyco Metals has done it all, including pioneering the use of real-time 100% surface inspection to ensure pristine surface quality.



Our wide variety of products are ready to be turned around – accurately and quickly – to meet your specific demands. We consistently produce copper and copper alloys that we’re proud to identify as “Heyco Metals.”

Here’s more of what sets us apart:

- Non-contact gauge control at rolling eliminates diamond marks – essential for leadframe, connector, and decorative applications. Similarly, non-contact air wipes eliminate wiper marks typically seen on static rubber-wiped product
- Proprietary oil filtration keeps rolling lubricant free of particulate matter and virtually eliminates any possibility of roll marks
- Thermal degreasing provides oil-free surfaces without the abrasion and contact associated with aqueous cleaning lines
- Automated on-line surface inspection (pioneered by Heyco), via Cognex vision systems, allows 100% surface integrity without reliance on error-prone human inspection
- Stringent preventive maintenance ensures that equipment downtime is an extremely rare occurrence
- Raw materials are sourced throughout the world in order to secure an optimal combination of value and capability
- Lead times at Heyco are consistently far shorter than those of our competitors
- 95% + On-Time-Delivery
- Heyco’s technical staff represents decades of combined experience that can provide valuable support for leadframe, connector, architectural, and general usage applications
- Corporate stability, conservative cash management and private shareholder base facilitate ongoing investment in the finest strip-processing technology available

Look to Heyco Metals for:

- Rolling • Bell Annealing • Strand Annealing
- Stretch Bend Leveling • Slitting • Traverse Winding

www.heycometals.com

Coppers

CDA No.	102	110	122	194	195
Alloy Name	C10200	C11000	C12200	C19400	C19500
Density (1)	0.323	0.322	0.321	0.322	0.322
Mod of Elast (2)	17	17	17	17	17.3
Elec. Cond (3)	97.16 (CR) - 100 (AN)		85	60	50
Thermal Cond (4)	226	226	196	150	115
Coef of Therm Exp (5)	9.8	9.8	9.8	9.8	9.6
Annealed (TM00)	Tensile (6)	38 Max.		40-63	50-60
	Yield (7)	10 Nom.		16 Min.	20 Min.
	Elong (8)	40 Nom.		10 Min.	23 Min.
	Rockwell (9)	15T-47-57		40-53	
1/4 Hard	Tensile	34-42			60-72
	Yield	33 Nom.			55 Min.
	Elong	23 Nom.			12 Min.
	Rockwell	18-51			61-71
1/2 Hard (TM02)	Tensile	37-46		53-63	68-78
	Yield	37 Nom.		36 Min.	69 Min.
	Elong	20 Nom.		6 Min.	6 Min.
	Rockwell	43-57		52-63	69-73
3/4 Hard (TM03)	Tensile	41-50			75-85
	Yield	44 Nom.			73 Min.
	Elong	15 Nom.			2 Min.
	Rockwell	47-59			72-74
Hard (TM04)	Tensile	43-52		60-70	82-90
	Yield	46 Nom.		53 Min.	80 Min.
	Elong	10 Nom.		3 Min.	2 Min.
	Rockwell	54-62		61-68	73-75
Ex Hard (TM06)	Tensile	47-56		67-73	
	Yield	51 Nom.		64 Min.	
	Elong	4 Nom.		2 Min.	
	Rockwell	56-64		67-69	
Spring (TM08)	Tensile	50-58		70-76	88-97
	Yield	53 Nom.		67 Min.	84 min.
	Elong	3 Nom.		2 Min.	2 Min.
	Rockwell	60-66		68-69	74-77
Ex Spring	Tensile	52 Min.		73-80	
	Yield	51 Min.		70 Min.	
	Elong	3 Max.		1 Min.	
	Rockwell	61 Min.		69-70	

Yield, Elongation, and Rockwell values are presented as reference values only for materials > .0080 and are not to be construed as actual specifications. For chemistry data, see appropriate ASTM/CDA specification.
 (1) Lbs. per cu. in. at 68°F (annealed) (x27.68 gms./cu. cm at 20°C); (2) 10⁶ PSI, tension; (3) % IACS at 68°F (20°C) as annealed; (4) BTU per sq. ft. per hr. per F° at 68°F (20°C);
 (5) Inches/inch°F x 106 from 68°F to 572°F (20°C to 300°C); (6) x 1,000 PSI; (7) x 1,000 PSI (0.2% offset); (8) % in 2 inches; (9) .020" gauge and above (30T scale) Certain properties reprinted with permission of Olin Corp.

Brasses

CDA No.		210	220	230	240	260	268
Alloy Name		C21000	C22000	C23000	C24000	C26000	C26800
Density (1)		0.320	0.318	0.316	0.313	0.308	0.306
Mod of Elast (2)		17	17	17	16	16	15
Elec. Cond (3)		56	44	37	32	28	27
Thermal Cond (4)		135	109	92	81	70	67
Coef of Therm Exp (5)		10	10.2	10.4	10.6	11.1	11.3
Annealed (TM00)	Tensile (6)	34-40	36-42	39-47	44-54*	45-61	44-61
	Yield (7)	10 Nom.	13 Nom.	8 Min.	20 Min.*	10 Min.	22 Min.
	Elong (8)	45 Nom.	48 Nom.	43 Min.	50 Min.*	40 Min.	45 Min.
	Rockwell (9)	15-20	15-36	15-44		16-60	17-62
1/4 Hard	Tensile	34-47	40-50	44-54	48-58	49-59	49-59
	Yield	31 Nom.	33 Nom.	23 Min.	28 Min.	21 Min.	32 Min.
	Elong	30 Nom.	20 Nom.	15 Min.	24 Min.	34 Min.	39 Min.
	Rockwell	34-51	38-53	42-57	42-60	43-57	43-57
1/2 Hard (TM02)	Tensile	42-52	47-57	51-61	55-65	57-67	55-65
	Yield	44 Nom.	48 Nom.	43 Min.	40 Min.	42 Min.	43 Min.
	Elong	13 Nom.	13 Nom.	8 Min.	16 Min.	19 Min.	33 Min.
	Rockwell	46-57	52-61	56-64	56-66	56-68	50-66
3/4 Hard (TM03)	Tensile	46-56	52-62	57-67	61-71	64-74	62-72
	Yield	50 Nom.	54 Nom.	51 Min.	50 Min.	55 Min.	52 Min.
	Elong	10 Nom.	7 Nom.	4 Min.	8 Min.	8 Min.	23 Min.
	Rockwell	52-60	58-64	63-68	63-70	65-70	67-71
Hard (TM04)	Tensile	50-59	57-66	63-72	68-77	71-81	68-78
	Yield	54 Nom.	58 Nom.	57 Min.	59 Min.	67 Min.	55 Min.
	Elong	5 Nom.	4 Nom.	4 Min.	3 Min.	6 Min.	15 Min.
	Rockwell	57-62	62-66	67-71	68-73	70-73	69-73
Ex Hard (TM06)	Tensile	56-64	64-72	72-80	78-87	83-92	79-89
	Yield	59 Nom.	64 Nom.	65 Min.	65 Min.	79 Min.	65 Min.
	Elong	2 Nom.	2 Nom.	3 Min.	2 Min.	2 Min.	3 Min.
	Rockwell	62-66	67-71	70-74	72-76	74-76	74-76
Spring (TM08)	Tensile	60-68	69-77	78-86	85-93	91-100	86-95
	Yield	63 Nom.	68 Nom.	69 Min.	72 Min.	82 Min.	69 Min.
	Elong	2 Nom.	2 Nom.	3 Min.	1 Min.	1 Min.	2 Min.
	Rockwell	64-68	70-72	74-76	75-78	76-78	76-78
Ex Spring	Tensile	61-69	72-80	82-90	89-97	95-104	90-99
	Yield	64 Nom.	71 Nom.	73 Min.	74 min.	86 Min.	70 Min.
	Elong	1 Nom.	1 Nom.	2 Min.	1 Min.	1 Min.	2 Min.
	Rockwell	65-69	71-73	75-77	76-79	77-79	77-79

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 (5) Inches/Inch°F x 106 from 68°F to 572°F (20°C to 300°C); (6) x 1,000 PSI; (7) x 1,000 PSI (0.2% offset); (8) % in 2 inches; (9) .020" gauge and above (30T scale) Certain properties reprinted with permission of Olin Corp.



Copper & Copper Alloys Specifications

		Phosphor-Bronzes				Cu-Ni & Ni-Ag			Cu-Ni-Si	
CDA No.		510	511	519	521	725	752	770	7025	19010
Alloy Name		C51000	C51100	C51900	C52100	C72500	C75200	C77000	C70250	C19010
Density (1)		0.320	0.320	0.319	0.318	0.321	0.316	0.314	0.318	0.322
Mod of Elast (2)		16	16	16	16	20	18	18	19	18.5
Elec. Cond (3)		15	20	14	13	11	6	5.5	40	50
Thermal Cond (4)		40	48	38	36	31	19	17	97.5	150
Coef of Therm Exp (5)		9.9	9.9	10	10.1	9.2	9	9.3	9.8	9.3
Annealed (TM00)	Tensile (6)	43-58	56-54	48-63	53-67	45-65	53-63	61-76	90-110	
	Yield (7)	19 Min.	16 Min.	34 Nom.	23 Min.	22 Nom.	18 Min.	32 Nom.	65-90	
	Elong (8)	48 Min.	45 Min.	55 Nom.	60 Min.	35 Nom.	29 Min.	44 Nom.	10	
	Rockwell (9)	24-59	16-50	25-64	27-68	50 Max.	32-64	35-65		
1/4 Hard	Tensile	49-61	46-58	53-66	63-75	55-75	58-72	69-87		
	Yield	22 Min.	20 Min.	48 Nom.	35 Min.	73 Max.	26 Min.	64 Nom.		
	Elong	32 Min.	25 Min.	45 Nom.	40 Min.	5 Min.	14 Min.	26 Nom.		
	Rockwell	43-63	35-65		59-71	72 Max.	49-67	63-75		
1/2 Hard (TM02)	Tensile	58-73	55-70	64-79	69-84	65-80	66-80	78-95	95-120	
	Yield	47 Min.	42 Min.	63 Nom.	51 Min.	69 Nom.	48 Min.	79 Nom.	85-110	
	Elong	10 Min.	12 Min.	25 Nom.	25 Min.	10 Nom.	6 Min.	15 Nom.	7	
	Rockwell	53-73	52-73	58-76	63-78	62-75	62-72	71-78		
3/4 Hard (TM03)	Tensile	68-79	67-82	72-86	80-92		74-86	88-101		67-77
	Yield	61 Min.	64 Min.	75 Nom.	70 Min.		69 Min.	92 Nom.		50 Min.
	Elong	10 Min.	6 Min.	14 Nom.	18 Min.		4 Min.	8 Nom.		12 Min.
	Rockwell	66-73	66-74		71-78		66-74	73-78		
Hard (TM04)	Tensile	76-91	72-87	80-96	85-100	75-90	78-91	91-109	100-125	71-81
	Yield	74 Min.	70 Min.	82 Nom.	78 Min.	81 Nom.	75 Min.	98 Nom.	95-120	60 Min.
	Elong	7 Min.	2 Min.	10 Nom.	12 Min.	3 Nom.	3 Min.	5 Nom.	5	10 Min.
	Rockwell	71-78	69-77	72-80	73-81	66-75	70-76	76-80		
Ex Hard (TM06)	Tensile	88-103	84-99	91-106	97-112	80-95	86-98	102-117		75-86
	Yield	85 Min.	81 Min.	96 Nom.	92 Min.	86 Nom.	85 Min.	108 Nom.		64 Min.
	Elong	2 Min.	1 Min.	4 Nom.	10 Min.	2 Nom.	3 Min.	2 Nom.		8 Min.
	Rockwell	74-81	73-80		77-83	70-80	74-79	79-82		
Spring (TM08)	Tensile	95-110	91-105	98-113	105-119	85-100	90-101	108-123		84 Min.
	Yield	92 Min.	88 Min.	104 Nom.	100 Min.	90 Nom.	88 Min.	113 Nom.		74 Min.
	Elong	1 Min.	1 Min.	3 Nom.	3 Min.	1 Min.	1 Min.	1 Nom.		6 Min.
	Rockwell	76-82	75-81		78-84	72-80	75-80	80 Min.		
Ex Spring	Tensile	100-114	96-109	102-117	110-122	90-105	96 Min.	116 Min.		
	Yield	98 Min.	92 Min.	108 Nom.	105 Min.	95 Nom.	95 Min.	115 Min.		
	Elong	1 Min.	1 Min.	1 Nom.	2 Min.	2 Max.	1 Min.	1 Max.		
	Rockwell	77-83	76-82		79-84	76-80	76 Min.	81 Min.		

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