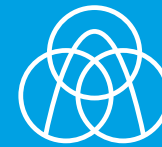


Materials Services
Copper and Brass Sales

thyssenkrupp Materials NA
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Materials Services
Copper and Brass Sales

Capabilities in Coil & Strip Processing.



thyssenkrupp

CBS 013-09-16 Revised

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Capabilities in Coil & Strip Processing.

A tradition of customer-focused service, exceptional quality, and proven dependability combine to make the Copper and Brass Sales Division of thyssenkrupp Materials NA a leader in nonferrous and specialty alloy coil and strip products. We process all products to strict mill specifications and precise tolerances with dependable short lead times and superior service.

Our nationwide network of coil and strip processing centers provides instant access to the broadest selection of nonferrous and specialty alloys available. Our goal is to be sure our customers get what they need, when they need it.

We maintain inventories of specialty nonferrous alloys for aerospace, electronics, chemical processing, automotive, consumer durables, jewelry, and many other general-purpose industrial applications.

For unmatched product availability, precision processing, and fast delivery, call (800) 926-2600 for quality products from the coil and strip experts at Copper and Brass Sales.

Slitting

Copper and Brass Sales’ precision coil slitting machinery is used only for nonferrous metals to ensure peak performance at all times. Our slitters accommodate widths up to 36” and thicknesses up to .249” with width tolerances as close as ±.002”.

Alloys	Aluminum, Copper, Copper Alloy, Stainless Steel, Zinc
Thickness Capability	Up to .249" depending on alloy
Width Capability	.1875" minimum; 36" maximum
Tolerances	±.005" standard; tighter on request
Edge Conditioning	.010" to .080" thick; rounded, deburred edge
Camber	One-half commercial tolerance, tighter on request
Other	ID capabilities: 4", 6", 10", 12", 14", 16", 20", 26.5"; OD capabilities: up to 60"; Pinch roll capabilities for burr height control

Re-rolling

Copper and Brass Sales re-rolls strip and coil on precision mills to provide customers the exact thickness of material necessary for light-gauge close-tolerance requirements. The result is the consistent thickness and uniform temper essential for critical electronic, aerospace, automotive and similar applications.

Thickness Capability	.004" to .125"	
Minimum Width	.500"	
Maximum Width	11.5" for Nickel Alloys; 14" for Copper and Brass Alloys	
Tolerances	Thickness	Tolerance
	.004" to .035"	±.0005"
	.035" to .060"	±.00075"
Other	.060" to .125"	±.001"
	46" maximum OD	

Annealing

Our custom-designed strand and bell annealing furnaces process copper and alloy strip plus nickel and special purpose alloys in a wide range of tempers and target grain sizes.

	Nickel Alloys	Copper and Brass Alloys
Thickness Capability	.004" to .125"	.005" to .157"
Minimum Width	1.0"	1.0"
Maximum Width	12.5"	24"
Other	16" ID; 46" Max OD	16" ID; 46" Max OD

Cut-To-Length

Our investment in exceptional equipment and experienced, highly trained operators allows us to deliver nonferrous and specialty alloys to mill certified flatness precisely as you need them - so you get exactly the size flat strip you need to minimize scrap.

Alloys	Copper, Copper Alloy, Aluminum, Stainless Steel, Zinc
Thickness Capability	.020" to .125"
Minimum Width	.1"
Maximum Width	15"
Length	14" to 144"
Length Tolerance	From ±.375" to +.250"/-.000"

Note: Cut-to-length services for sheet products are available up to 60" wide.

Tension Leveling

Our unique coil-to-coil tension levelers remove high crowns and edgewise curvature from coiled strip products. This allows us to deliver coil product processed with the close-tolerance flatness required for critical stamping, lead frame (nickel alloys) and chemical etching.

Alloys	All alloys
Thickness Capability	.004" to .045"
Minimum Width	.250"
Maximum Width	3"
Tolerances	1/4 commercial tolerance on camber, dish, and coil set
Process	Coil to coil
Coil Sizes	6" to 16" ID; 36" maximum OD

Traverse Winding

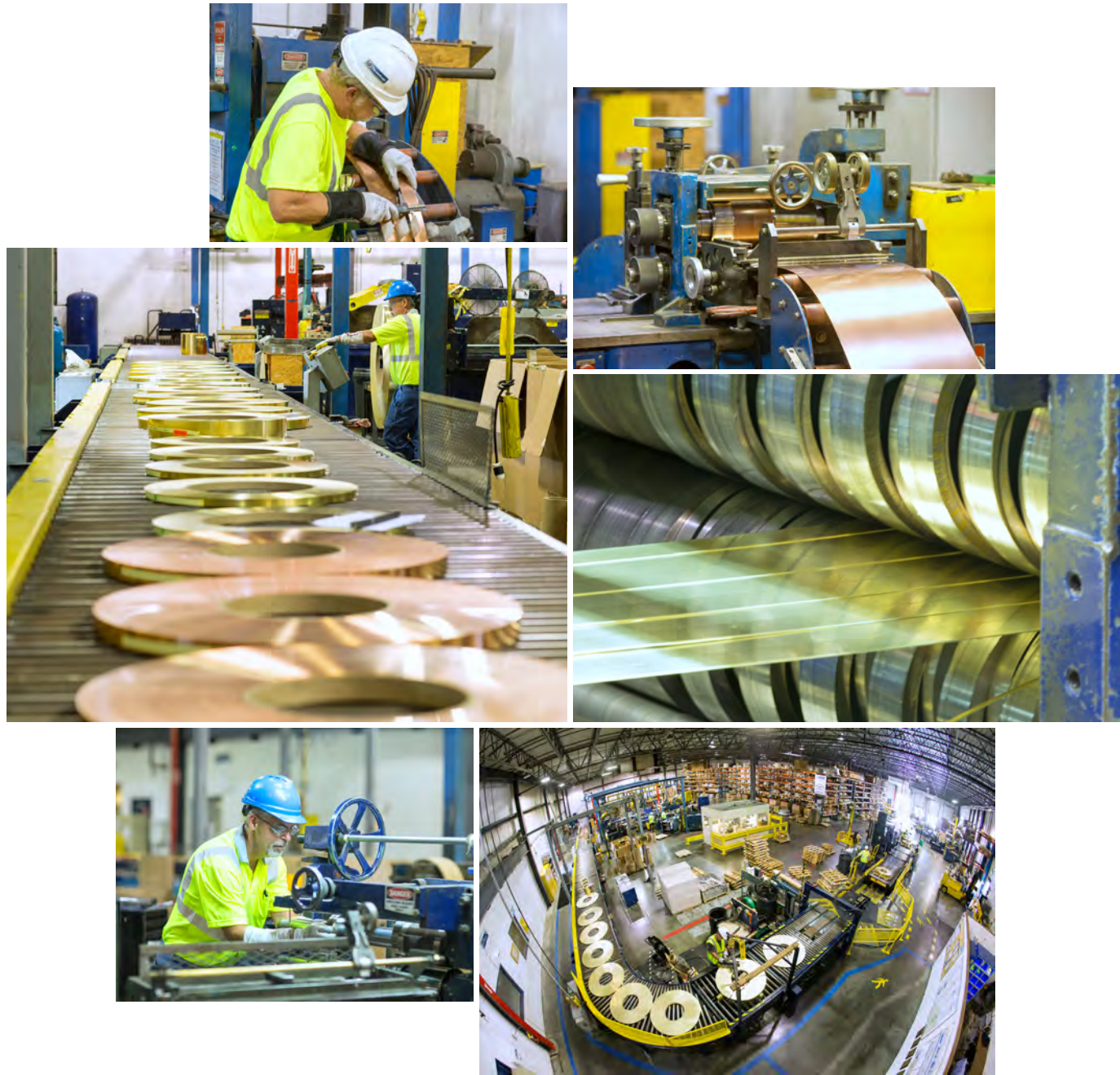
Programmable Logic Computer (PLC) controlled machinery like our custom built 5-head traverse winders provide reels with strip that is smooth and free of distortion and functional welds that won’t harm tooling. Traverse winding gives you longer coils for greater run time, efficiency, and productivity.

Alloys	All alloys
Thickness Capability	.006" to .062"
Minimum Width	.375"
Maximum Width	2.25"
Spool Size	Standard 1000# spools; Can provide 500# or 2000# spools upon request

Note: Traverse winding available down to .085" wide upon request.

Testing & Quality Control

Quality assurance at Copper and Brass Sales is an integral part of our entire process. Each coil we receive is inspected for damage, water stains, and blemishes before it is accepted for further processing. All material shipped is inspected by visual and dimensional methods to ensure that our customers receive the highest quality product available. All certification is also double-checked to guarantee material meets the requirements of the customer order. And when necessary, as in the case of internally annealed and/or re-rolled material, we utilize our in-house laboratory to test for mechanical properties and grain size.



Coil & Strip Stock Availability

Copper and Alloys

UNS No.	CDA	Common Industry / Trade Names
Copper		
C10100	101	OFE-HIT® Copper
C10200	102	OF Copper
C11000	110	ETP, Electrolytic Tough Pitch
C12200	122	ETP, Electrolytic Tough Pitch
C19400	194-HSM	Iron Copper
Brass		
C21000	210	95/5 Gilding Brass
C22000	220	90/10 Commercial Bronze
C23000	230	85/15 Red Brass
C24000	240	80/20 Low Brass
C26000	260	70/30 Cartridge Brass
C26800	268	66/34 Yellow Brass 66%
C35300	353	Leaded Brass
Refractory Alloys		
C42200	422	AmBronze
C42500	425	Lubaloy X
C51000	510	Phosphor Bronze, Grade A
C51100	511	Phosphor Bronze
C51900	519	Phosphor Bronze
C52100	521	Phosphor Bronze, Grade C
C70600	706	Copper Nickel 10%
C71500	715	Copper Nickel 30%
C72500	725	Copper-Nickel-Tin
C75200	752	18% Nickel Silver
C76200	762	12% Nickel Silver
C77000	770	18% Nickel Silver

High Performance Connector Alloys

ASTM Spec.	UNS No.
B422	C64725
B422	C70260
B422	C70265
B747	C15100
—	C18665
B422	C19010
B465	C19020
B465	C19210
B465	C19210

Special Purpose Alloys

(Controlled Expansion and Glass Sealing)

UNS No.	Alloy	Common Industry / Trade Names
K93600	36	Invar 36
K94100	42	Ni-Fe 42
K94610	29-17, F-15	Kovar®

Resistance Alloys

(Controlled Resistance for Shunt Applications)

Common Industry / Trade Names	
60 Ohm Nickel Alloy	
90 Ohm Nickel Alloy	
180 Ohm Nickel Alloy	
Manganin	

Aluminum Alloys

UNS No.	Alloy
A91100	1100
A91350	1350
A93003	3003
A95005	5005
A95052	5052
A95086	5086
A95657	5657
A96010	6010
A96061	6061

Stainless Steel

UNS No.	Type No.
S30100	301
S30400	304
S30500	305
S31600	316
S32100	321
S43000	430

Zinc

Alloy
190
191
700
750

Nickel Alloys

UNS No.	Alloy	Common Industry / Trade Names
N02201	201	—
N02233	233	—
N02290	290	—
N04400	400	Monel® Alloy 400
N04404	404	Monel® Alloy 404
N07718	718	Inconel® Alloy 718



Our Commitment

To You.

Everything we do at Copper and Brass Sales - from precision processing, to quality control, through dependable delivery - is focused on you, our customer. One call to (800) 926-2600 and we'll provide the finest quality nonferrous and specialty coil and strip alloys available. Just the way you want them - when you want them - from the coil and strip experts at Copper and Brass Sales.