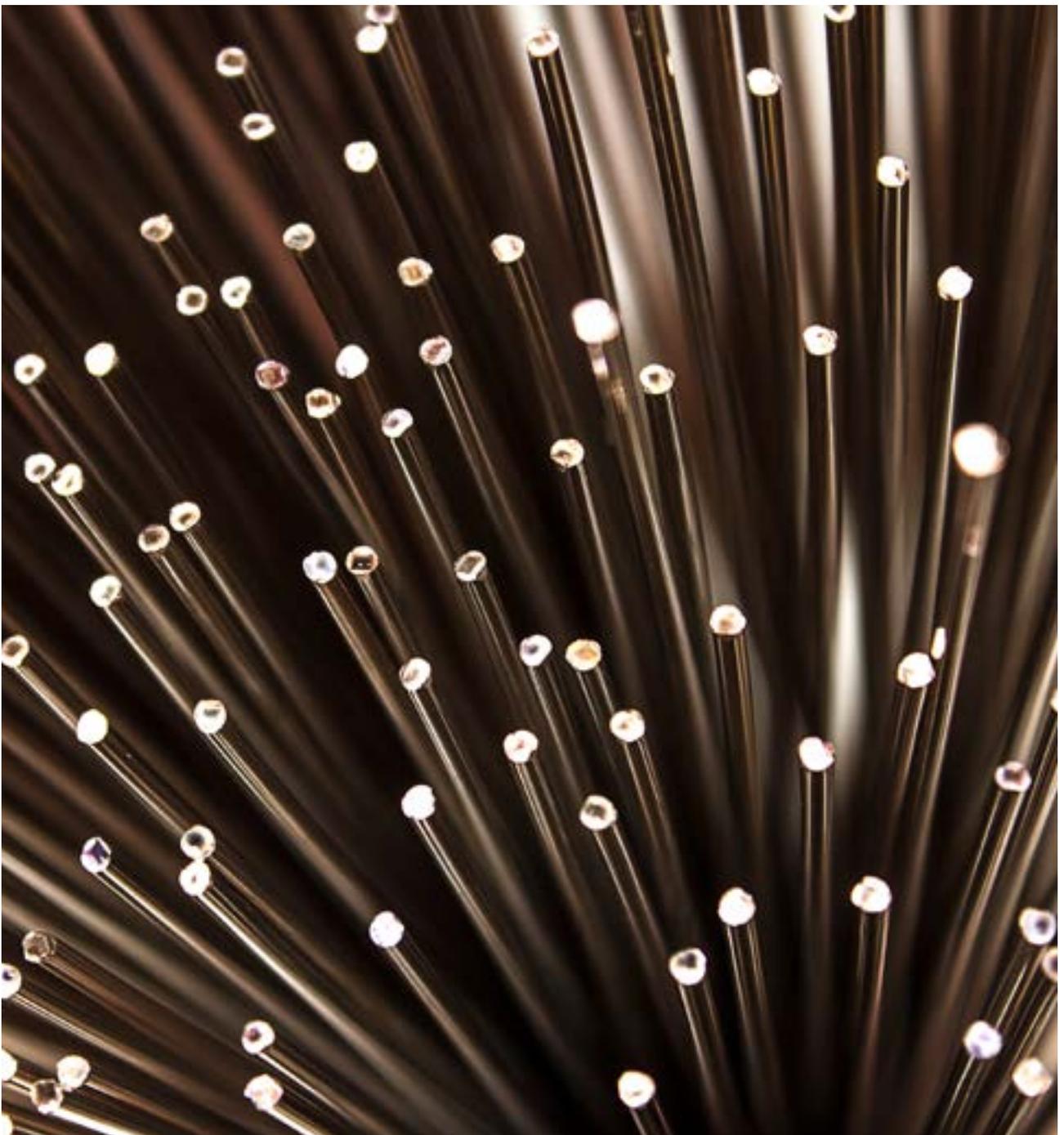




Pruducts and brazing solutions





*"Technology, service, quality.  
This is how we work."*



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# COMPANY

FLEXIBILITY, EXPERTISE AND AN ABILITY TO DEVISE DYNAMIC SOLUTIONS, EVEN WITHIN VERY SHORT TIME FRAMES.

Founded in 1982 in one of the most dynamic manufacturing centres in Italy's industrious Northeast, **Saldobrase** is a company specializing in the manufacture and sale, domestically and internationally, of welding, soldering and brazing materials.

We offer a range of alloys that meet the requirements of businesses in various sectors, from **engineering** to **heating**, from **plumbing** to **eyewear**, with an array of forms and materials catering to every need: bare and coated rod, wire, strip, rings, preforms, powder, paste and flux.



TAILORED PERFORMANCE AND COMPUTERIZED LOGISTICS FOR ONGOING CUSTOMER SUPPORT.

Over the years, we have amassed extensive know-how allowing us to meet any requirement, **ensuring ongoing support as well as flexibility and punctuality** when it comes to delivery methods and deadlines, with certified products inspected and tested by qualified personnel.

With our considerable production capacity, we can handle orders from customers of any size, drawing on a full complement of technical and manufacturing expertise.

We export our products to markets all across Europe as well as to North Africa, Asia and the Americas.



# BRAZING



Various heating methods can be used to heat the filler material depending, in part, on the material in question: torch brazing, electric heating, vacuum or controlled-atmosphere furnace brazing.

The quality parameters for perfect brazing results are illustrated below, such as the type of joint, preparation, filler material, flux and heat.

The type of joint should be chosen based on the stress it is required to withstand and, consequently, the type of connection will influence the strength of the end result.

It is essential to clean surfaces thoroughly before the process begins so as to achieve greater wettability and penetration of the filler material into the whole joint area.

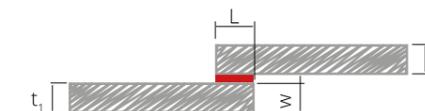
The choice of flux is key to getting a good result, ensuring a clean surface, protection of the weld pool and wetting, while also serving to indicate temperature.

## TYPE OF JOINT

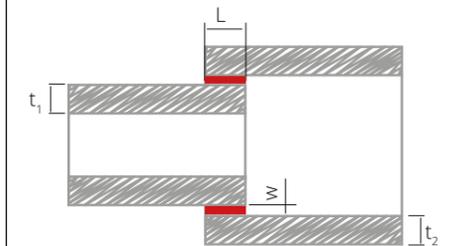
### Butt



### Overlapping



### Overlapping



Overlap  $L > 3t$  of the thinnest member, but no less than 5 mm. Remove burrs and sharp edges. Melting range, play.

Melting range	Play "w" mm
< 30 °C	0,05 - 0,10
30 - 80 °C	0,05 - 0,15
> 80 °C	0,10 - 0,25

Overlap  $L > 3t$  of the thinnest member, but no less than 5 mm. Remove burrs and sharp edges. Melting range, play.

Melting range	Play "w" mm
< 30 °C	0,05 - 0,10
30 - 80 °C	0,05 - 0,15
> 80 °C	0,10 - 0,25

## AN INTRODUCTION TO SOLDERING AND BRAZING

Here, the filler metal or brazing alloy is drawn into the gap between the workpieces to be joined by capillary action.

A distinction is made between brazing and soldering based on the temperatures involved:

- **brazing:** involves using filler metals with a melting temperature  $>450^{\circ}\text{C}$ .
- **soldering:** involves using filler metals with a melting temperature  $<450^{\circ}\text{C}$ .

Brazing can be applied to a wide range of metals and alloys for jobs such as: joining, hardfacing, rebuilding missing sections, all of which can be performed by brazing and, for joining work only, by soldering, too.

This process has many benefits, such as low brazing temperature, high fluidity and heat input, excellent capillary action, corrosion resistance and ease of use.

# APPLICATIONS

Offering versatility and ease of use, brazing and soldering can be used in countless sectors and applications. With our comprehensive range of products, ability to solve specific technical issues and manage the production process, we can cater to the demands of all the various industries, becoming a partner you can rely on.



**INSTALLATION OF COOLING, HEATING, REFRIGERATION SYSTEMS**

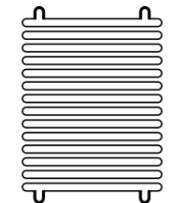
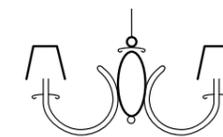
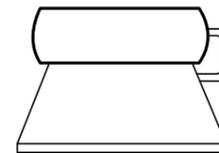
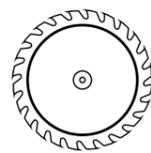
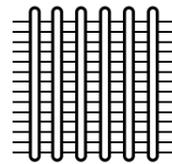
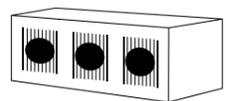
**DOMESTIC & INDUSTRIAL COOLING AND HEAT EXCHANGERS**

**DIAMOND TOOLS AND HARD METAL**

**SOLAR PANELS**

**LIGHTING AND LIGHT FIXTURES**

**RADIATORS AND TOWEL WARMERS**



**MEASURING AND CALIBRATION INSTRUMENTS**

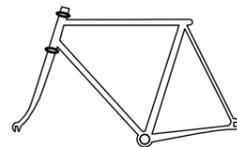
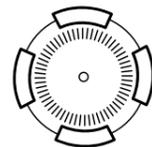
**ELECTROMECHANICAL SYSTEMS**

**TUBULAR SOLUTIONS**

**SILVERWARE AND JEWELLERY**

**GLASSES**

**AUTOMOTIVE**



# FORMATS

CAN'T YOU FIND THE RIGHT FORMAT?  
WE CAN CREATE IT.

Saldobrase supplies its welding and brazing products in different formats such as wires, rods, preformed products of various kinds, rings, foils, and sheets. We are available to manufacture tailored formats which will optimise your production process, minimising material and production time wastage.

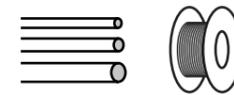


## BRAZING RINGS AND PREFORMS



Brazing rings and preforms are an advantageous solution as they allow you to boost quality, efficiency and productivity in a whole host of possible applications.

With an extensive range of alloys at their disposal, our technical staff can produce rings and preforms of any shape and size tailored to your needs.



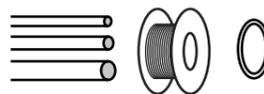
## WIRES AND RODS



## COATED RODS



## FOILS AND SHEETS



## FLUX CORED WIRES, RODS AND RINGS



## PREFORMED PRODUCTS



## POWDERS AND PASTES



# ALLOYS



## COPPER PHOSPHORUS ALLOYS

Copper Phosphorus alloys  
Silver Copper Phosphorus alloys  
Tin Copper Phosphorus alloys

## SILVER ALLOYS

Silver alloys with Tin  
Silver alloys without Tin  
Silver alloys with Nickel  
Silver alloys without Copper  
Silver alloys without Zinc

## BRASS AND COPPER ALLOYS

Brazing copper  
Brass with Nickel  
Brazing brasses  
Brazing bronzes

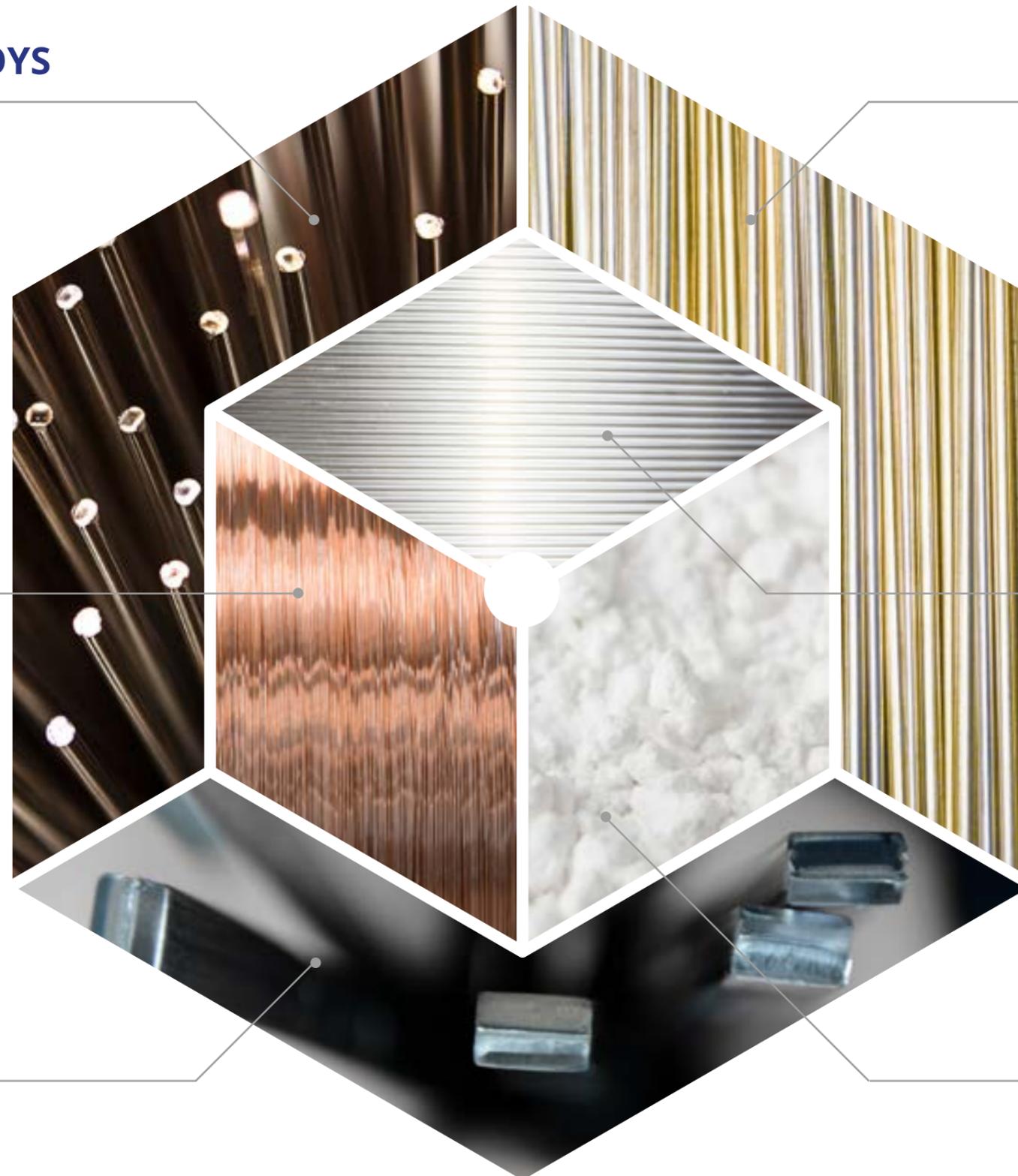
## ALUMINIUM ALLOYS

Aluminium Silicon alloys  
Aluminium Zinc alloys

## SOFT ALLOYS

Tin Silver alloys  
Copper Tin alloys

## FLUX



# COPPER PHOSPHORUS ALLOYS



## Available formats



	PHOSPORUS			PH. SILVER COPPER	TIN COPPER PHOSPHORUS				
Alloy	CuP6	CuP7	CuP8	CuP7Sn	SB/2	SB/5	SB/5 S	SB/15	SB/18
Composition	P 6% Cu 94%	P 7% Cu 93%	P 8% Cu 92%	P 7% Sn 7% Cu 86%	Ag2% P6,3% Cu91,7%	Ag 5% P 6% Cu 89%	Ag 6% P %7 Cu 87%	Ag15% P6% Cu80%	Ag 18% P 7% Cu 75%
Melting range (°C)	710-890	710-820	710-770	650-700	645-825	645-815	650-810	645-800	645-645
Working temperature (°C)	760	730	720	700	740	710	720	700	650
Specific gravity (g/cm <sup>3</sup> )	8,1	8,1	8	8	8,1	8,2	8,3	8,4	8,6
Tensile strength (N/mm <sup>2</sup> )	250	250	250	250	250	250	250	250	250
Matching international standards	ISO 17672 CuP179 EN 1044 CP203 DIN 8513 L-CuP6 -	ISO 17672 CuP 180 EN 1044 CP 202 DIN 8513 L-CuP7 AWS A5.8 BCuP-2	ISO 17672 CuP 182 EN 1044 CP 201 DIN 8513 L-CuP8 -	ISO 17672 CuP 386 EN 1044 CP 302 - AWS A5.8 BCuP-9	ISO 17672 CuP 279 EN 1044 CP 105 DIN 8513 L-Ag2P -	ISO 17672 CuP 281 EN 1044 CP 104 DIN 8513 L-Ag5P AWS A5.8 BCuP-3	ISO17672 CuP 283 - - AWS A5.8-04 BCuP-4	ISO 17672 CuP 284 EN 1044 CP 102 DIN 8513 L-Ag15P AWS A5.8 BCuP-5	ISO 17672 CuP 286 EN 1044 CP 101 DIN 8513 L-Ag18P AWS A5.8 BCuP-8
Recommended Flux	SB/CS SB/CS ULTRA	SB/CS SB/CS ULTRA	SB/CS SB/CS ULTRA	SB/CS	SB/CS SB/CS ULTRA	SB/CS SB/CS ULTRA	SB/CS SB/CS ULTRA	SB/CS SB/CS ULTRA	SB/CS SB/CS ULTRA

# SILVER ALLOYS with and without tin



Available Formats



Alloy	Composition	Melting range (°C)	Working temperature (°C)	Specific gravity (g/cm3)	Tensile strength (N/mm <sup>2</sup> )	Matching international standards	Recommended Flux
SB/25Sn	Ag 25% Cu 40% Zn 33% Sn 2%	680-760	780	8,7	420	ISO 17672 Ag 125 EN 1044 AG 108 DIN 8513 L-Ag25Sn AWS A5.8 BAg-37	SB/CS SB/CS ULTRA SB/CS DN
SB/30Sn	Ag 30% Cu 36% Zn 32% Sn 2%	665-755	740	8,9	460	ISO 17672 Ag 130 EN 1044 AG 107 DIN 8513 L-Ag30Sn -	SB/CS SB/CS ULTRA SB/CS DN
SB/34Sn	Ag 34% Cu 36% Zn 27,5% Sn 2,5%	630-730	710	9	420	ISO 17672 Ag 134 EN 1044 AG 106 DIN 8513 L-Ag34Sn -	SB/CS SB/CS ULTRA SB/CS DN
SB/38Sn	Ag 38% Cu 32% Zn 28% Sn 2%	650-720	700	9,1	430	ISO 17672 Ag 138 - AWS A5.8 BAg-34	SB/CS SB/CS ULTRA SB/CS DN
SB/40Sn	Ag 40% Cu 30% Zn 28% Sn 2%	650-710	690	9,1	430	ISO 17672 Ag 140 EN 1044 AG 105 DIN 8513 L-Ag40Sn AWS A5.8 BAg-28	SB/CS SB/CS ULTRA SB/CS DN

SILVER ALLOYS WITH TIN

SILVER ALLOYS WITHOUT TIN

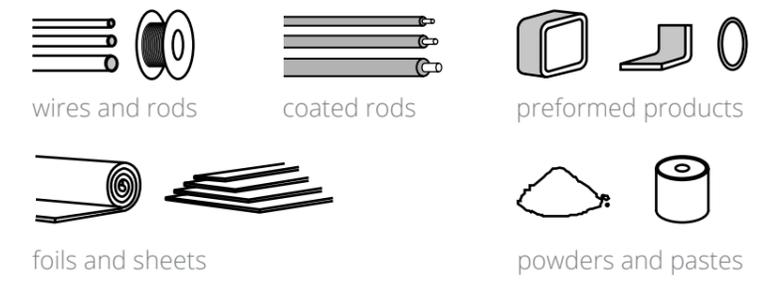
SB/45Sn	Ag 45% Cu 27% Zn 25,5% Sn 2,5%	640-680	670	9,2	350	ISO 17672 Ag 145 EN 1044 AG 104 DIN 8513 L-Ag45Sn AWS A5.8 BAg-36	SB/CS SB/CS ULTRA SB/CS DN
SB/55Sn	Ag 55% Cu 21% Zn 22% Sn 2%	630-660	650	9,4	390	ISO 17672 Ag 155 EN 1044 AG 103 DIN 8513 L-Ag55Sn -	SB/CS SB/CS ULTRA SB/CS DN
SB/56Sn	Ag 56% Cu 22% Zn 17% Sn 5%	620-655	650	9,5	410	ISO 17672 Ag 156 EN 1044 AG 102 - AWS A5.8 BAg-7	SB/CS SB/CS ULTRA SB/CS DN
SB/5T	Ag 5% Cu 55% Zn 40%	820-870	860	8,4	480	ISO 17672 Ag 205 EN 1044 AG 208 - -	SB/CS SB/CS ULTRA SB/CS DN
SB/20	Ag 20% Cu 44% Zn 36%	690-810	800	8,7	330	EN 1044 AG 206 DIN 8513 L-Ag20 -	SB/CS SB/CS ULTRA SB/CS DN
SB/25	Ag 25% Cu 40% Zn 35%	700-790	780	8,8	420	ISO 17672 Ag 225 EN 1044 AG 205 DIN 8513 L-Ag25 -	SB/CS SB/CS ULTRA SB/CS DN
SB/30	Ag 30% Cu 38% Zn 32%	680-765	740	8,9	505	ISO 17672 Ag 230 EN 1044 Ag 204 DIN 8513 L-Ag30 AWS A5.8 BAg-20	SB/CS SB/CS ULTRA SB/CS DN
SB/33	Ag 33% Cu 34% Zn 33%	700-740	730	8,9	535	-	SB/CS SB/CS ULTRA SB/CS DN
SB/35	Ag 35% Cu 32% Zn 33%	680-750	740	9	430	ISO 17672 Ag 235 - AWS A5.8 BAg-35	SB/CS SB/CS ULTRA SB/CS DN
SB/44	Ag 44% Cu 30% Zn 26%	675-735	730	9,1	545	ISO 17672 Ag 244 EN 1044 AG 203 DIN 8513 L-Ag44 -	SB/CS SB/CS ULTRA SB/CS DN
SB/45	Ag 45% Cu 30% Zn 25%	660-740	730	9,2	410	ISO 17672 Ag 245 - AWS A5.8 BAg-5	SB/CS SB/CS ULTRA SB/CS DN
SB/60	Ag 60% Cu 26% Zn 14%	695-730	720	9,5	450	ISO 17672 Ag 202 - -	SB/CS SB/CS ULTRA SB/CS DN
SB/65	Ag 65% Cu 20% Zn 15%	670-720	710	9,6	410	ISO 17672 Ag 265 - AWS A5.8 BAg-9	SB/CS SB/CS ULTRA SB/CS DN
SB/67	Ag 67% Cu 23% Zn 9%	700-730	730	9,8	470	-	SB/CS SB/CS ULTRA SB/CS DN
SB/74	Ag 74% Cu 18% Zn 8%	740-780	750	9,8	410	-	SB/CS SB/CS ULTRA SB/CS DN

# SILVER ALLOYS

with nikel  
without copper  
and without zinc

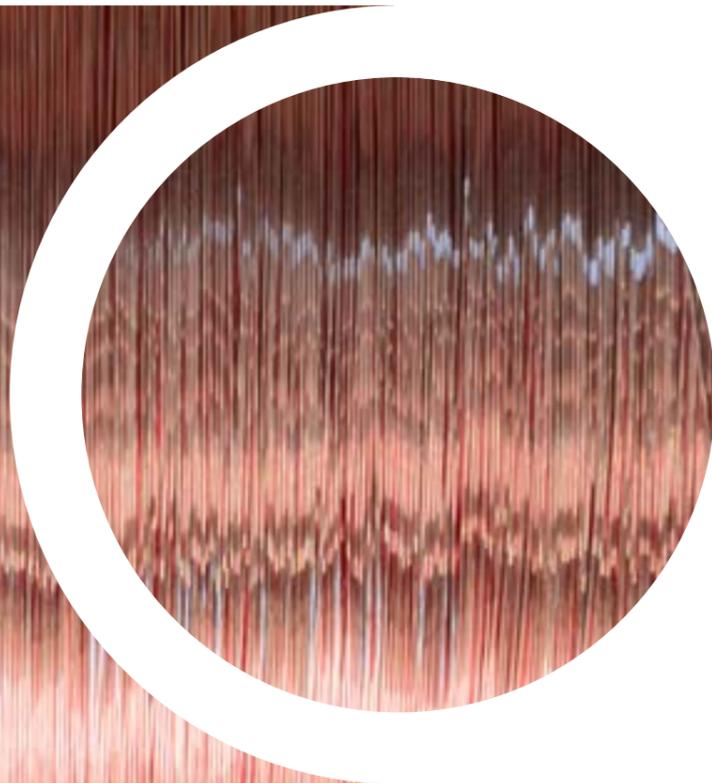


### Available formats



	SILVER WITH NICKEL			SILVER WITHOUT COPPER		SILVER WITHOUT ZINC	
Alloy	SB/40Ni	SB/49MnNi	SB/50Ni	SB/72Zn	SB/85Mn	SB/60Sn	SB/72
Composition	Ag 40% Cu 30% Zn 28% Ni 2%	Ag 49% Cu 16% Zn 23% Mn 7,5% Ni 4,5%	Ag 50% Cu 20% Zn 28% Ni 2%	Ag 72% Zn 28%	Ag 85% Mn 15%	Ag 60% Cu 30% Sn 10%	Ag 72% Cu 28%
Melting range (°C)	670-780	680-705	660-750	710-730	960-970	600-730	779
Working temperature (°C)	780	690	740	740	980	720	779
Specific gravity (g/cm <sup>3</sup> )	8,9	8,9	9,4	8,4	10	9,8	10
Tensile strength (N/mm <sup>2</sup> )	350	350	450	440		420	350
Matching international standards	ISO 17672 Ag 440 - AWS A5.8 BAg-4	ISO 17672 Ag 449 EN 1044 AG 502 DIN 8513 L-Ag49	ISO 17672 Ag 450 - AWS A5.8 BAg-24	-	ISO 17672 Ag 485 EN 1044 AG 501 AWS A5.8 BAg-23	ISO 17672 AG 160 EN 1044 AG 402 DIN 8513 L-Ag60Sn	ISO 17672 Ag 272 EN 1044 AG 401 AWS A5.8 BAg-8
Recommended Flux	SB/M	SB/M	SB/M	SB/CS ULTRA SB/R70	SB/CS ULTRA SB/R70	SB/CS ULTRA	SB/CS ULTRA

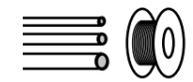
# BRASS AND COPPER ALLOYS



## Available formats



preformed products



wires and rods



powders and pastes



foils and sheets

	BRAZING COPPER			BRASS WITH NICKEL		BRAZING BRASSES				BRAZING BRONZES		
Alloy	Cu60Zn	Cu59ZnSn	Cu59ZnSnMn	SB/4Ni	SB/10Ni	Cu ETP	Cu OF	Cu DHP	CuSi3	Cu87MnC03	CuSn6	CuSn12
Composition	Cu 60% Zn 39,7% Si 0,3%	Cu 59% Zn 40,3% Sn 0,4% Si 0,3%	Cu 59% Zn 40,3% Sn 0,4% Si 0,3% Mn 0,7%	Cu57% Zn34,4% Ni4,4% Si0,2%	Cu 48% Zn 41,8% Ni 10% Si 0,2%	Cu 99,9%	Cu 99,95%	Cu 99,95% P 0,05%	Cu 97% Si 3%	Cu 87% Mn 10% Co 3%	Cu 93,3% Sn 6,5% P 0,2%	Cu 87,8% Sn 12% P 0,2%
Melting range (°C)	875-900	875-900	870-890	860-910	900-930	1085	1085	1085	965-1035	980-1030	910-1040	830-1000
Working temperature (°C)	900	900	900	950	950	1100	1100	1100	1050	1050	1050	1020
Specific gravity (g/cm <sup>3</sup> )	8,4	8,4	8,4	8,6	8,7	8,9	8,9	8,9	8,5	8,7	8,8	8,7
Tensile strength (N/mm <sup>2</sup> )	400	450	450	400	540	350	350	350	350	350	420	350
Matching international standards	ISO 17672 Cu 470a EN 1044 Cu 301 -	ISO 17672 Cu 470 EN 1044 Cu 302 AWS A5.8 RBCuZn-A	ISO 17672 Cu 471 EN 1044 Cu 304 AWS A5.8 RBCuZn-C	-	ISO 17672 Cu 773 EN 1044 CU 305 -	ISO 17672 Cu 110 EN 1044 CU 101 AWS A5.8 BCu-1b	ISO 17672 Cu 102 EN 1044 CU 102 AWS A5.8 BCu-3	ISO 17672 Cu 141 EN 1044 CU 104 AWS A5.8-04 BCu-1	-	-	UNI EN 1652 CuSn6 -	UNI EN 1982 CuSn12 -
Recommended Flux	SB/R70	SB/R70	SB/R70	SB/R70	SB/R70	Brazing in a controlled atmosphere	Brazing in a controlled atmosphere	Brazing in a controlled atmosphere	Brazing in a controlled atmosphere	Brazing in a controlled atmosphere	Brazing in a controlled atmosphere	Brazing in a controlled atmosphere

# ALUMINIUM ALLOYS



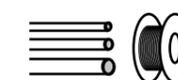
## Available formats



preformed products



fili e barrette e anelli animati



wires and rods



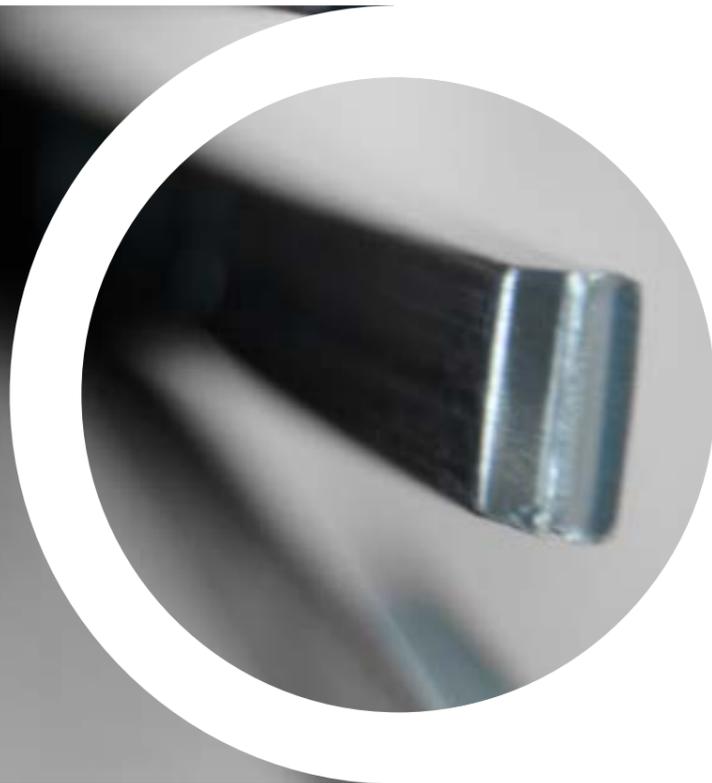
foils and sheets



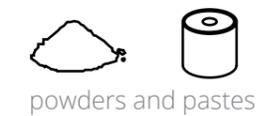
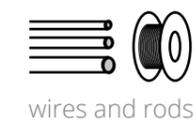
powders and pastes

	ALUMINIUM SILICON ALLOYS		ALUMINIUM ZINC ALLOYS	
Alloy	AlSi5	AlSi12	AlZn78	AlZn98
Composition	Si 5% Al 95%	Si 12% Al 88%	Al 22% Zn 78%	Al 2% Zn 98%
Melting range (°C)	575-630	575-585	440-470	380-405
Working temperature (°C)	-	-	-	-
Specific gravity (g/cm <sup>3</sup> )	-	-	-	-
Tensile strength (N/mm <sup>2</sup> )	-	-	-	-
Matching international standards	ISO 17672 AL 105 EN 1044 AL 101 -	ISO 17672 AL 112 EN 1044 AL 104 AWS A5.8 BAISI-4	-	-
Recommended Flux	SB/ALU	SB/ALU	SB/ALU	SB/ALU

# SWEET ALLOYS



## Available formats



	TIN SILVER				COPPER TIN
Alloy	Ag2Sn	Ag3,5Sn	Ag5Sn	Ag10Sn	SnCu3
Composition	Sn 98% Ag 2%	Sn 96,5% Ag 3,5%	Sn 95% Ag 5%	Sn 90% Ag 10%	Sn 97% Cu 3%
Melting range (°C)	221-225	221	221-235	221-300	230-250
Working temperature (°C)	-	-	-	-	-
Specific gravity (g/cm <sup>3</sup> )	-	-	-	-	-
Tensile strength (N/mm <sup>2</sup> )	-	-	-	-	-
Matching international standards	-	EN 29453 S-Sn97Ag3	DIN 1707 SnAg5	-	DIN 1707 SnCu3 EN 29453 S-Sn97Cu3
Recommended Flux	SB/211	SB/211	SB/211	SB/211	SB/211

# FLUX



## Available formats



powders, pastes and liquid

Flux	SB/CS	SB/CS ULTRA	SB/CS DN	SB/M	SB/R70	SB/ALU	SB/211	SB/M1	SB/M2	SB/M3
Type	Polvere/Pasta	Pasta	Pasta	Pasta marrone	Polvere	Polvere	Liquido	Liquido	Liquido	Liquido
Melting range (°C)	500-750	500-800	500-750	510-1000	800-1000	520-640	160-300	750-1100	750-1100	750-1100
Regulation EN 1045	FH 10	FH 10	FH 10	FH 12	FH 21	FL 10	n.c.	FH 21	FH 21	FH 21
Note	The removal of any residue can be carried out either mechanically or by washing or pickling..	The removal of any residue can be carried out either mechanically or by washing or pickling.	Stir well before using. The removal of any residue can be carried out either mechanically or by washing or pickling.	Stir well before using. The removal of any residue can be carried out either mechanically or by washing or pickling.	The removal of any residue can be carried out either mechanically or by washing or pickling.	The residues must be removed after brazing.	Thoroughly remove any residue with water after welding.	Average concentration. Also available in ECO-FRIENDLY variation.	Medium high concentration. Also available in ECO-FRIENDLY variation.	High concentration. Also available in ECO-FRIENDLY variation.

# Troubleshooting



## THE BRAZING ALLOY DOES NOT WET BOTH SURFACES OF THE JOINT

### Possible causes:

- High surface contamination
- Ineffective action of the flux
- Formation of oxides during the heating process

### Solutions:

- Thoroughly analyse the cleaning procedures
- Check the flux features and increase its amount
- Contact your customer service

## THE BRAZING ALLOY DOES NOT WET ONE OF THE SURFACES OF THE JOINT, WHILST THERE IS A GOOD FLOW ON THE OTHER

### Possible causes:

- High surface contamination
- Formation of oxides during the heating process
- Heating procedures
- Incorrect positioning

### Solutions

- Thoroughly analyse the cleaning procedures
- Contact your customer service
- Apply more heat to the thicker component
- Use a ring spacer to ensure an even coupling clearance

## POOR FLUIDITY OF THE ALLOY: ROUGH JUNCTION AND IRREGULAR BEAD

### Possible causes

- Incorrect assembly
- Irregular heating
- Poor ventilation of the coupling
- Insufficient flux
- Overheating
- Presence of liquation

### Solutions

- Check the joint's play and its uniformity
- Bring the entire junction to the brazing temperature simultaneously
- Ensure there is a proper relief
- Check the flux features and increase its amount
- Change the temperature to values closer to the liquidus temperature
- Increase the speed of heating or use an alloy with a narrow melting range

## CRACKS NEAR THE CENTRE OF THE BRAZING BEAD

### Possible causes

- Thermal stress during cooling (shrinkage strain)

### Solutions

- Make sure that the material with the highest thermal expansion is placed on the outside of the joint

## EXCESSIVE SHRINKAGE

### Possible causes

- Inadequate local tolerance
- Localised overheating
- General overheating
- High alloy cooling

### Solutions

- Change the size of the joint
- Balance the heating
- Reduce the heat cycle
- Use an alloy with a narrow melting range

## FADING

### Possible causes

- Overheating
- Insufficient flux
- Cleaning procedure never performed
- Components of the material or the flux

### Solutions

- Adjust the heating cycle
- Check the flux features, increase its amount
- Review the cleaning procedures
- Contact your customer service

## DISTORTIONS

### Possible causes

- Non-uniform heating

### Solutions

- Adjust the heating procedure to a slower thermal cycle with a more enveloping flame

## GAPS, DEFICIENCIES

### Possible causes

- Excessive or variable clearance
- Insufficient or irregular heating
- Poor ventilation of the coupling
- Inadequate flux

### Solutions

- Reduce or adjust the tolerances of the coupling
- Adjust the heating and the thermal cycle
- Provide appropriate gas relief
- Check the flux features and increase its quality

## INTERNAL POROSITY, ROUND AND BRILLIANT

### Possible causes

- High surface contamination
- Flux capture

### Solutions

- Adjust the flame to neutral or to slightly oxidising
- Check the heating procedure and the joint play





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