

# Choice of brazing filler material.

Product alloys	Composition [%]							Melting temp. range Solid-Liquid [°C]	Density [g/cm <sup>3</sup> ]	Tensile strength [kg/mm <sup>2</sup> ]	Standards	
	Ag	Cu	Zn	Sn	P	Al	Si				EN 1044	EN ISO 17672
<b>Silver based</b>												
Silco 30 Ag Sn	30	36	32	2	-	-	-	665-755	8,8	48	Ag 107	Ag 130
Silco 40 Ag Sn	40	30	28	2	-	-	-	650-710	9,1	44	Ag 105	Ag 140
Silco 55 Ag Sn	55	31	22	2	-	-	-	630-660	9,4	44	Ag 103	Ag 150
<b>Phosphorous copper</b>												
Fosco Ag2	2	91,5	-	-	6,5	-	-	645-825	8,1	55	CP105	CuP279
Fosco Ag5	5	89	-	-	6,0	-	-	645-815	8,2	55	CP104	CuP281
Fosco Ag15	15	80	-	-	5,0	-	-	645-800	8,4	54	CP102	CuP284
<b>Brass based</b>												
Cobra Cu59ZnSn	-	59	Bal	0,4	-	-	0,3	875-895	8,4	45	Cu302	Cu470
<b>Aluminium based</b>												
AlSi 12	-	-	-	-	-	Bal	12	575-585	N/A	N/A	Al104	Al112

## About the choice of filler materials:

- Silco alloys are used to join Copper/Brass/Iron/Stainless steel/Acid resistant steel parts to each other or when needed to form cross joints between these materials. When using clear rods suitable flux must be used.
- Fosco alloys are used to join copper parts together without flux. In case copper is joined to brass components flux must be used.  
DO NOT use Fosco to braze Steel, Nickel or Nickel alloys!
- Cobra brass alloy is used to braze steel pipes, cast iron or nickel alloyed metal components.
- AlSi 12 aluminium alloy is used to braze components made of aluminium. Note: The magnesium content of the base material must not exceed 2 %.

## Choice of flux\*

Material/ Product alloys	Copper	Brass	Bronze	Carbon steel	Stainless steel	Acid resistant	Cast iron	Nickel & alloys	Hard metal	Aluminium
<b>Silver based</b>										
Silco 30 Ag Sn	600	600	600	600	RS	RS	600	RS	RS	-
Silco 40 Ag Sn	600	600	600	600	RS	RS	600	RS	RS	-
Silco 55 Ag Sn	600	600	600	600	RS	RS	600	RS	RS	-
<b>Phosphorous copper</b>										
Fosco Ag2	X	600	600	-	-	-	-	-	-	-
Fosco Ag5	X	600	600	-	-	-	-	-	-	-
Fosco Ag15	X	600	600	-	-	-	-	-	-	-
<b>Aluminium based</b>										
AlSi 12	-	-	-	-	-	-	-	-	-	AlSi

\* 600 = Silco 600, RS = Silco 600 RS, X = No flux needed, - = Not suitable for use, AlSi = AlSi flux

## AGA Product offer

Description	Article number	Description	Article number
Fosco Ag2 2,0 X 2,0 mm, 20 rods	336494	Silco 40 Ag bare Ø 2,0 x 500 mm, 5 rods	336615
Fosco Ag2 3,0 X 3,0 mm, 20 rods	336495	Silco 40 Ag ECOFLUX Ø 2,0x500 mm, 5 rods	336616
Fosco Ag5 2,0 X 2,0 mm, 20 rods	336496	Silco 55 Ag ECOFLUX Ø 1,5x500 mm, 5 rods	336617
Fosco Ag5 3,0 X 3,0 mm, 20 rods	336497	Cobra Cu59 ECOFLUX Ø3,0x500 mm, 10 rods	336618
Silco 30 Ag bare Ø 1,5 x 500 mm, 5 rods	336498	AlSi 12 bare Ø 2,0 x 500 mm, 20 rods	336619
Silco 30 Ag bare Ø 2,0 x 500 mm, 5 rods	336611	General flux Silco 600	336620
Silco 30 Ag ECOFLUX Ø 2,0x500 mm, 5 rods	336612	Corrosive flux Silco 600 RS	336621
Silco 40 Ag bare Ø 1,5 x 500 mm, 5 rods	336613	Aluminium AlSi flux	336622

# Properly made solder joints are smooth and clean, and do not require finishing.

## This is how it is done:

### 1. Clean the soldering surfaces.

Before you start to solder, rust, glow and oxides must be removed from the workpiece by mechanical or chemical means and impurities.

Thick layer of grease or oil can be removed from sensitive workpieces using solvents (e.g. tri- or carbon tetrachloride).

After cleaning, the oxide waste in the workpiece dissolves in the flux.

### 2. Apply flux to the surface to be soldered.

AGA's Flux is applied to the brazed body with a brush. Most fluxes are highly corrosive. They must not come into contact with the skin and, in particular, must not penetrate any wounds on the skin.

Wear protective gloves!

### 3. Attach the workpiece.

To maintain the workpiece in the correct position until the solder has solidified, you need to fixate it. Check that the air gap is small, if possible, only 0,05–0,2 mm!

### 4. Heat the soldering spot evenly.

In order for the solder to fill the gap, the soldering point must be heated evenly to the solder working temperature.

After a maximum of 3 minutes (preferably 1 minute) the working temperature should be reached. Overheating damage the solder joint.

### 5. Hold against the soldering point.

Once the flux has formed a smooth, glassy melt, the solder can be introduced into the solder joint. The solder fills the narrow solder rail, also rising upwards.

### 6. Cool the workpiece.

Once the soldering iron is filled with solder, the workpiece may cool in the fixture until the solder has solidified. After that the workpiece can be removed and cooled in water if it is suitable for the workpiece.

### 7. Remove any residual fluids.

In order to prevent corrosion, drainage residues must be removed after brazing. The removal may be by water rinsing or by mechanical means, for example by brushing.