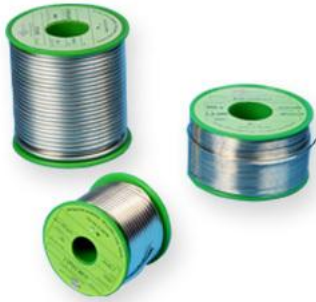


Solid and cored wires



Four characteristics used to describe wire are the alloy, the diameter, the type of flux and the winding. The chosen flux can be integrated into the wire or left separate, depending on the manufacturing process and the end use. There are in fact thousands of possibilities from which METACONCEPT has selected an extensive range of consistent products suitable for all major types of applications. Waste originating from the use of these products can be recycled. [Contact our recycling department](#) to find out more.

Characteristics

Alloys available for cored wires

This table shows the most commonly used alloys in the area of soft-soldering:

EN 29453 classification	Density g/cm ³	Solidus / Liquidus	Comments
Sn40 - Pb60	9.72	183°C - 235°C	All applications
Sn50 - Pb50	9.32	183°C - 215°C	Sheet metal works
Sn60 - Pb40	8.91	183°C - 190°C	Electrics, electromechanics
Sn62 - Pb36 - Ag2	8.81	178°C - 190°C	All applications
Sn63 - Pb37	8.79	183°C Eutectic	Electronics
Sn96 - Ag4*	7.39	221°C Eutectic	Lead-free* - All applications
SAC 305*	7.3	217°C - 219°C	Lead-free* - Electronics
SAC 307*	7.3	217°C - 228°C	Electronics
Sn97 - Cu3*	7.33	227°C - 310°C	Lead-free* - All applications
Sn99 - Cu1*	7.3	227°C Eutectic	Lead-free* - Electrics, electronics

(*) Lead-free alloys - European standard no. 2000 / 53 / CE

Integrated fluxes

Type	Nature	JSTD004 classification	Level of acidity (mg KOH/g)	Halogen rate (wt %)	Residue removal
MRS1	Inorganic	FSW21	NC	10	Clean with water
MRS2	Resin	ROM1	175	1.3	Clean with a solvent
MRS7	Resin	ROM1	220	1	Clean with a solvent
MSP7	Organic	ROM1	130	1.1	Clean with a solvent
MSP15	Organic	ROLO	386	0	Clean with a solvent
MSPALU	Inorganic	INH1	NA	NA	Clean with water
MZP3	Inorganic	INH1	NA	6.5	Clean with water

Have you defined the type of application? [Contact us](#). Our technical staff will be happy to assist you in choosing the diameter, the type of flux and the alloy.

Alloys available for solid wires

EN 29453 classification	Density	Solidus / Liquidus	Comments
Pb99.5 - Sb0.5	11.33	322°C - 325°C	Bulb manufacture
Sn5 - Ag2 - Pb93	11.13	296°C - 301°C	Tinning and cracking enamelled copper wire
Sn30 - Pb70	10.13	183°C - 255°C	Copper, zinc and steel brazing
Sn40 - Pb60	9.72	183°C - 235°C	Copper, zinc and steel brazing
Sn40 - Pb55 - Zn5 (Otaline)	9.51	170°C - 179°C	For aluminium brazing
Sn43 - Pb43 - Bi14	9.2	144°C - 163°C	Jewellery, tinware, models
Sn50 - Pb50	9.32	183°C - 215°C	Zinc elements
Sn60 - Pb40	8.91	183°C - 190°C	Copper, zinc, steel and nickel brazing
Sn62 - Pb36 - Ag2	8.81	178°C	Mainly copper brazing
Sn63 - Pb37	8.79	178°C - 190°C	Eutectic, mainly copper brazing
Sn70 - Zn30	7.24	199°C - 320°C	Heat sprays (metal spraying) - All applications
Sn96 - Ag4*	7.39	221°C	Eutectic - lead-free* - All applications
SAC 305*	7.3	217°C - 220°C	Electronics - Lead-free*
SAC 307*	7.3	217°C - 228°C	All applications - Lead-free*
Sn97 - Cu3*	7.33	227°C - 310°C	Electrics, electronics - Eutectic - Lead-free*
Sn99 - Cu1*	7.3	227°C	Eutectic - lead-free* - All applications
Sn100	7.28	232°C	Eutectic - lead-free* - All applications

(*) Lead-free alloys - European standard no. 2000 / 53 / CE

Standard diameters and spools

With standard dies it is possible to create wires with a minimum diameter of 0.3 mm and maximum diameter of 6 mm. The main intermediary values are: 0.5, 0.7, 1.0, 1.5, 2.0, 2.5, 3.0, 4.0 and 5.0 mm. Weight of commonly used spools: 100 g, 250 g, 500 g, 1 kg, 2.5 kg, 5 kg and 20 kg. For high volume industrial applications, 25 kg, 30 kg and 100 kg containers are also available.

Types of spools and packaging

The type of spool used varies depending on the desired volume. For standard uses, AMPRA spools are preferred. However, for intensive industrial uses, DIN spools are recommended. The following tables list the spools and their dimensions depending on the net weight of the packaged wire, as well as the standard packaging.

Weight	Type	Packaging	Type	Packaging
100 g	AMPRA	10 kg box	DIN 26/2	8 kg box
250 g	AMPRA	6 kg box	DIN 50	5 kg box
500 g	AMPRA	12 kg box	DIN 63	10 kg box
1 kg	AMPRA	12 kg box	DIN 80	16 kg box
2.5 kg – 3 kg	AMPRA	15 kg box	DIN 63	10 kg box for 2.5 kg spools 12 kg box for 3 kg spools 16 kg box for 4 kg spools
5 kg	AMPRA	15 kg box	DIN 80	20 kg box
20 kg	NC	NC	DIN 180	20 kg box
25 kg	Drum	NC	NC	NC
30 kg	Drum	NC	NC	NC
100 kg	Drum	NC	NC	NC

Details of AMPRA spools

AMPRA type	A (mm)	B (mm)	C (mm)	D (mm)
100 g	18	14	50	14
250 g	39	34	50	14
500 g	37	32	66	23.5
1 kg	68	63	66	23.5
3 kg	93	87	94	29
5 kg	104	99	120	46

Details of DIN spools

DIN type	D1	D2	D3	D4	L1	L2
100 g	39	21	9	N/A	44	38
250 g	50	32	11	15	50	38
500 g	63	40	11	15	63	49
1 kg	80	50	16	24	80	64
2 kg	100	63	16	24	100	80
5 kg	125	80	16	24	125	100
20 kg	300	180	51.5	N/A	103	85

25 kg and 30 kg drums > 360 mm high – 310 mm in diameter

Applications

- Electricity
- Plumbing - Sanitary facilities - Heating
- Electromechanics
- Electronics
- Tinware

Implementation

The product safety datasheet below is available upon request to the METACONCEPT Group.

In the case of a solid wire (non-fluxed), the parts must be clean, degreased and deoxidised. First, apply the appropriate flux to the parts.

Heat the parts using a propane or acetylene torch, or a soldering iron.

The parts must be heated to around 20°C above the liquidus temperature.

Melt the filler metal onto the parts being assembled to form a regular bead.

Allow the parts to cool without moving them. When the parts have returned to room temperature, brush the soldering beads using a metallic brush. If necessary, clean the assembly with clean water or water with a touch of citric or formic acid (1 to 2 %) in the case of water-soluble residues.

Use a solvent for residues from rosin or resinous fluxes.

In the case of a flux-cored wire (integrated flux), the fluxing stage described above is not always necessary. These wires may also be used with an automatic soldering machine. In this case, the diameter of the wire must be perfectly adapted to the diameter of the nozzle. In addition, it is advisable to use a wire where the % of flux is greater than that used for manual soldering.

Precautions for use

To prevent burns caused by the molten metal, it is advisable to wear a protective apron, shoes, gloves, helmet and glasses.

Do not smoke at the workstation.

The workstation must be well ventilated.

Wash your hands when leaving the workstation.

Comments:

Always use a flux suited to the intended use. [Contact our technical department](#) to ascertain which product is most suited to your application.

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