# **Technical Product Information**

### Flux Cored Solder Wire Type X3

Flux Classification	REL0 according to DIN EN 61190-1-1 and J-STD-004
Flux Content	3.0% (other flux content on request)
No Clean	Highest reliability with regard to corrosion and electromigration, advantageous
	optical appearance and haptics even without cleaning

- Fast and reliable wetting
- Up to 90% less spattering than conventional cored wires
- *K* Bright, transparent residues no dark discoloration
- *X* Ductile residues no brittle spalling



Based on powerful, chemical modified resins and a special composition of acids as activators TAMURA ELSOLD cored solder wire with flux X3 offers great advantages compared to conventional fluxes. During soldering X3 shows a fast and reliable wetting and a significantly reduced spattering. Hereby on the one hand soldered components stay cleaner and working conditions at manual soldering processes are improved. On the other hand more flux is effectively available where it is needed – at the solder joint. After soldering, advantages can be observed when looking at the residues, which fulfill even highest requirements also concerning the reliability: High resistance against corrosion, electrical conductivity and migration and also against mechanical impact, which prevents a brittle spalling. Furthermore the bright color, the prevention of dark discoloration and the low tackiness fulfill both esthetic and technical demands, for example for a safe automatic optical inspection system.

#### Test Results according to IPC-TM 650:

Copper Mirror Test:	LO
Corrosion:	None
SIR:	$> 10^{12} \Omega$
Spattering:	Up to 90% less spattering than conventional flux cored solder wires

#### **ELSOLD Lead-Free Alloys**

Alloy	<b>Sn</b> [%]	<b>Ag</b> [%]	<b>Cu [%]</b>	In [%]	Sb [%]	Densitiy [g/cm³]	Melting Range [°C]
SC07	99.3		0.7			7.32	227
SA35	96.5	3.5				7.35	221
SAC305	96.5	3.0	0.5			7.37	217 – 219
SAC3507	95.8	3.5	0.7			7.40	217 – 219
SAC3807	95.5	3.8	0.7			7.40	217
Sn95Sb5	95.0				5.0	7.25	230 - 240
ELSOLD W2	95.0	4.88		0.12		7.3	220 – 235

Alloys acc. to DIN EN ISO 9453. Tolerances: for content > 5 %  $\pm$  0.5 % | for content  $\leq$  5 %  $\pm$  0.2 %



# Flux Cored Solder Wire Type X3

### ELSOLD SN100(Ag) MA-S

TAMURA ELSOLD SN100(Ag) MA-S alloys contain the micro-alloying elements Nickel, Germanium and Phosphor. Additionally they are produced in a special process, called 'freshening'. This proprietary technique results in a highly pure and highly stabile solder alloy with a much lower tendency to oxidize during soldering. Both the Sn-Cu alloy SN100 MA-S (SC07) and silver containing alloys SN100Ag0.3 MA-S (SAC0307), SN100Ag1 MA-S (SAC107) and SN100Ag3 MA-S (SAC305) are available.

		ELSOLD SN100 MA-S	ELSOLD SN100Ag0.3 MA-S	ELSOLD SN100Ag1 MA-S	ELSOLD SN100Ag3 MA-S			
	Sn	99.3	99.0	98.3	96.5			
	Ag		0.3 ± 0.2	1.0 ± 0.2	3.0 ± 0.2			
Composition	Cu		0.7 ± 0.2		$0.5 \pm 0.2$			
[Wt%]	Ni	0.03 - 0.06						
	Ge	0.003 - 0.007						
	Р	0.001 - 0.005						
Melting Range [°C]		227 – 230	217 – 227	217 – 223	217			
Density [g/cm <sup>3</sup> ]		7.32	7.33	7.36	7.38			

#### TAMURA ELSOLD Lead bearing Alloys

Alloy	Sn [%]	Pb [%]	<b>Ag</b> [%]	Cu [%]	Density [g/cm³]	Melting Range [°C]
Sn60Pb40	60	Rest			8.5	183 — 190
Sn60Pb39Cu1	60	Rest		1.2-1.6	8.5	183 — 190
Sn62Pb36Ag2	62	Rest	2		8.4	178 — 180
Sn60Pb36Ag4	60	Rest	4		8.5	178 — 180
Sn63Pb37	63	Rest			8.4	183

#### Packaging / Spools / Diameters

Spools		Standard Diameter	
250 g, 500 g, 1000 g		0.30 ± 0.03 mm	1.00 ± 0.05 mm
Color Code		0.50 ± 0.05 mm	1.20 ± 0.05 mm
Lead bearing alloys:	green	0.75 ± 0.05 mm	1.50 ± 0.05 mm
Lead-free alloys:	neon-yellow		



# **Technical Product Information**

## Flux Cored Solder Wire Type X3

#### **Shelf Life**

We guarantee a minimum shelf life of 36 months if the material is properly stored in a clean environment.

The storage conditions should be based on the general storage conditions in electronics production, i.e. typical conditions would be 15-25 °C and a target value of <50% RH. Low-dust, clean storage, e.g. in closed boxes, is recommended. Temporarily or slightly exceeding individual target values is usually harmless, a larger deviation or permanent warm and humid storage should be avoided.

Most likely, TAMURA ELSOLD cored wires can be used without problems long beyond this period. However, the user should find this out by making appropriate test before using the solder.

#### Safety and Health

For advises concerning safety and health please see the safety data sheet.

