

SOLDER CONNECTION

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QUALITEK® Technical Bulletin

NC600 62/36/2 SOLDER WIRE

DESCRIPTION

A no clean flux system that is available in lead-containing alloys. It provides the fluxing activity levels that promote fast wetting action and maximum wetting spread. Utilizing synthetically refined resin and very effective activator, NC600 wets and spreads like an RA type flux core. NC600 exhibits virtually no spattering and leaves minimal residue.

FEATURES AND BENEFITS

- Excellent wettability
- Yields clear, non-conductive residues

FEATURES AND BENEFITS

	Specification	Test Method
Colour & Appearance	Light yellow opaque solid	Visual
Flux Classification	RELO	IPC-TM-650 2.3.32
Copper Mirror	No removal of copper film	IPC-TM-650 2.6.15
Corrosion	Pass	IPC-TM-650 2.6.3.3
SIR	1.52 x 10 ¹¹	Bellcore GR-78-CORE 13.1.4
JSTD-004, Pattern Down	Pass	TGA Analysis
Electromigration	Pass	IPC-TM-650 2.3.13
Post Reflow Flux Residue	55%	
Acid Value (mgKOH/g) Flux	190-210	
Residue Dryness Spitting of	Pass	IPC-TM-650 2.4.47
Flux-Cored Solder Solder	0.3%	IPC-TM-650 2.4.48
Spread	100 mm ²	IPC-TM-650 2.4.46

WIRE DIAMETER

Delta Solder Wire NC600 62/36/2 is available in a variety of diameters. The chosen diameter is based on application methods, pad size, and desired solder joint volume. Generally, the diameter of the wire should be slightly larger than the width/diameter of the joint or connection to be soldered. Below is a list of standard diameters /

Diameter/Inch	0.125	0.092	0.062	0.050	0.040	0.032	0.028	0.025	0.020	0.015
Diameter/mm	3.18	2.33	1.57	1.27	1.01	0.81	0.71	0.63	0.51	0.38
Std.Wire	11	13	16	18	19	21	22	23	25	28
Gauge										
Tolerance, in.	+/-0.006	+/-0.005	+/-0.003	+/-0.003	+/-0.002	+/-0.002	+/-0.002	+/-0.002	+/-0.002	+/-0.002

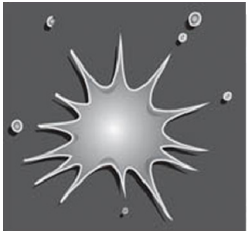
FLUX PERCENTAGE

Utilizes a state-of-the-art automatic wire extrusion and wire drawing machines to manufacture consistent solder. The introduction of flux core in the wire extrusion process involves continual monitoring of flux percentage to ensure minimal flux voids and irregular wire. Typical flux percentage for leaded solder is 1.1 – 3.3%.

PHYSICAL PROPERTIES

A no clean resin based core flux with alloy composition Sn62/36/2, which is a eutectic alloy. 62/36/2 alloys conform to and exceed the impurity requirements of IPC-J-STD-006C.

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TYPICAL ANALYSIS

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Sn	Pb	Cu	Ag	Sb	Bi	In	As	Fe	Ni	Cd	Al	Zn	Au
61.5–62.5	Bal.	0.080 Max	1.8 – 2.2	0.200 Max	0.100 Max	0.010 Max	0.030 Max	0.020 Max	0.010 Max	0.002 Max	0.005 Max	0.003 Max	0.050 Max

	Sn62/Pb36/Ag2
Melting Point, °C	179 - 189
Hardness, Brinell	14 HB
Coefficient of Thermal Expansion	27.0
Tensile Strength, psi	4442
Density, g/cc	8.50
Electrical Resistivity, (μohm-cm)	14.5
Electrical Conductivity, 10 ⁴ /ohm-cm	6.9

	Sn62/Pb36/Ag2
Yield Strength, psi	3950
Total Elongation, %	48
Joint Shear Strength, at 0.1mm/min 20 °C	37.0
Joint Shear Strength, at 0.1mm/min 100 °C	16.2
Creep Strength, N/mm ² at 0.1mm/min 20 °C	3.3
Creep Strength, N/mm ² at 0.1mm/min 20 °C	1
Thermal Conductivity, W/m.K	50.9

FLUX RESIDUES & CLEANING

NC600 is a no clean formulation; therefore, residue removal is not required for typical applications. If residue removal is desired, the use of Everkleen 1005 Buffered Saponifier with a 5-15% concentration in hot 60 °C (140 °F) de-ionized water will aid in residue removal.

STORAGE & SHELF LIFE

Solder wire storage should be in a 65-80 °F environment away from direct heat. We recommend using gloves when handling solder wire directly. Solder wire has an indefinite shelf life.

DISPOSAL

NC600 62/36/2 solder should be disposed of in accordance with federal, state & local authority requirements.

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