

Description

Flux Core

Delta Solder Wire NC601 is a no clean cored solder wire that is available with both lead-containing alloys and lead-free alloys. It provides the fluxing activity levels that promote fast wetting action and maximum wetting spread. NC601 contains purely organic acid activators so leaves minimal residue and spreads like an RA type cored solder wire. NC601 exhibits virtually no spattering and conforms to IPC-J-STD-004B.

Main Features

- Excellent wettability
- Non-tacky residue

Technical Data (Flux Extract)

Specification	Test Method
Color & Appearance	Visual
Flux Classification	J-STD-004B
Copper Mirror	IPC-TM-650 2.3.32
Silver Chromate	IPC-TM-650 2.3.33
Corrosion	IPC-TM-650 2.6.15
SIR	
JSTD-004, Pattern Down	IPC-TM-650 2.6.3.3
Post Reflow Flux Residue	TGA Analysis
Acid Value	IPC-TM-650 2.3.13
Flux Residue Dryness	IPC-TM-650 2.4.47
Spitting of Flux-Cored Solder	IPC-TM-650 2.4.48
Solder Spread	IPC-TM-650 2.4.46

Wire Diameter

Sn63/Pb37 NC601 Delta Solder Wire 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.

Standard wire 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 Gauge	11	13	16	18	19	21	22	23	25	28
Tolerance, in.	+/-0.006	+/-0.005	+/-0.003	+/-0.003	+/-0.002	+/-0.002	+/-0.002	+/-0.002	+/-0.002	+/-0.002

Flux Percentage

Qualitek 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

Solder Composition

Qualitek has developed a no clean organic based core flux with alloy composition, Sn63/Pb37, which is a eutectic alloy. Qualitek Sn63/Pb37 alloy conforms to and exceeds the impurity requirements of IPC-J-STD-006C.

Typical Analysis

Sn	Ag	Cu	Pb	Sb	Bi	In	As	Fe	Ni	Cd	Al	Zn	Au
62.5 -63.5	0.100 Max	0.080 Max	Bal	0.200 Max	0.100 Max	0.100 Max	0.030 Max	0.020 Max	0.010 Max	0.002 Max	0.005 Max	0.003 Max	0.050 Max

	Sn63/Pb37
Melting Point, °C	183 E
Hardness, Brinell	14 HB
Coefficient of Thermal Expansion	24.7
Tensile Strength, psi	4442
Density, g/cm ³	8.42
Electrical Resistivity, (μΩ-cm)	14.5
Electrical Conductivity, 10 ⁴ /ohm-cm	6.9

	Sn63/Pb37
Yield Strength, psi	3950
Total Elongation,%	48
Joint Shear Strength, at 0.1mm/min 20 °C	23
Joint Shear Strength, at 0.1mm/min 100 °C	14
Creep Strength, N/mm ² at 0.1mm/min 20 °C	3.3
Creep Strength, N/mm ² at 0.1mm/min 100 °C	1
Joint Fatigue Cycle, 15N/mm ² 20 °C	1100
10N/mm ² 100 °C	900

Flux Residues & Cleaning

NC601 is a no clean formulation; therefore, residue removal is not required for typical applications. If residue removal is desired, the use of isopropanol or Everklean 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.

Packaging

Qualitek flux-core wire and solid wire are packed in

- 12.5lb -box of ½ lb spools
- 25 lb -box of 1 lb spools
- 12.5kg -box of ½ kg spools
- 8 kg -box of 1kg spools
- 40 lb -box of 5 lb spools
- 20 lb -box of 20 lb spools

Disposal

Sn63/Pb37 NC601 leaded solder should be disposed of in accordance with federal, state & local authority requirements.