



NC600 (Sn100e)
NO CLEAN LEAD-FREE
DELTA[®] SOLDER WIRE

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Description

Flux Core

Delta® Solder Wire NC600 is a no clean formulation designed for both leaded and lead-free alloys, such as Sn100e. Qualitek® Sn100e alloy is a tin, copper, cobalt based alloy that provides better product performance than Sn/Cu/Ni alloys; and is more cost effective than SAC alloys. NC600 contains a synthetically refined resin and very effective activator so spreads like an RA type flux core. NC600 exhibits virtually no spattering and leaves minimal residue.

Main Features

- ❑ Designed for leaded and lead-free alloys
- ❑ Excellent wetting properties
- ❑ Clear, non-conductive residues

Technical Data (Flux Extract)

	Specification	Test Method
Color & Appearance	Light yellow opaque solid	Visual
Flux Classification	RELO	J-STD-004B
Copper Mirror	No removal of copper film	IPC-TM-650 2.3.32
Corrosion	Pass	IPC-TM-650 2.6.15
SIR		
J-STD-004, Pattern Up	2.44 x 10 ¹¹	IPC-TM-650 2.6.3.3
Acid Value (mgKOH/g)	190-210	IPC-TM-650 2.3.13
Spitting of Flux-Cored Solder	0.3%	IPC-TM-650 2.4.48
Solder Spread	100 mm ²	IPC-TM-650 2.4.46

Wire Diameter

Delta Solder Wire NC600 with Sn100e alloy 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	0.010
Diameter/mm	3.18	2.33	1.57	1.27	1.01	0.81	0.71	0.63	0.51	0.38	0.25
Std. Wire Gauge	11	13	16	18	19	21	22	23	25	28	31
Tolerance, in.	+/-0.006	+/-0.005	+/-0.003	+/-0.003	+/-0.002	+/-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 the Sn100e alloy solder is **1.1 – 3.3%**.

Physical Properties

Solder Composition

Qualitek has developed a no clean resin based core flux, NC600, with our Sn100e (Sn/Cu/Co) alloy. Qualitek alloys conform to and exceed the impurity requirements of IPC-J-STD-006C.

Typical Analysis														
Sn	Ag	Cu	Pb	Sb	Bi	In	As	Fe	Ni	Cd	Al	Zn	Au	Co
Bal	0.100 Max	0.3-0.7	0.070 Max	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	0.03-0.07

	Sn100e
Melting Point, °C	228 E
Hardness, Brinell	9 HB
Coefficient of Thermal Expansion	Pure Sn= 23.5
Tensile Strength, Mpa	28
Density, g/cc	7.40
Electrical Resistivity (μohm-cm)	0.123
Thermal Conductivity (J/m-s-K)	82

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

Delta® Solder Wire NC600 should be stored in a dry 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

Sn100e NC600 lead-free solder should be disposed of in accordance with federal, state & local authority requirements.