



NC600 (Sn60/Pb40)  
NO CLEAN DELTA<sup>®</sup>  
SOLDER WIRE

**CORPORATE HEADQUARTERS** USA: 315 Fairbank St. Addison, IL † 630-628-8083 FAX 630-628-6543

**EUROPE** UK: Unit 9 Apex Ct. Bassendale Rd. Bromborough, Wirral CH62 3RE † 44 151 334 0888 † FAX 44 151 346 1408

**ASIA-PACIFIC HEADQUARTERS** SINGAPORE: 6 Tuas South St. 5 Singapore 637790 † 65 6795 7757 † FAX 65 6795 7767

**PHILIPPINES:** Phase 1 Qualitek Ave. Mariveles, Bataan Philippines C-2106 † 6347 935 4163 † FAX 63475613717

**CHINA:** 3B/F, YiPa Print Bldg. 351 # JiHua Rd., Buji Shenzhen, China 518112 † 86 755 28522814 † FAX 86 755 28522787

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**Description**

**Flux Core**

Delta® Solder Wire NC600 is a no clean formulation designed for both tin/lead and lead-free alloys, such as Sn60/Pb40. 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)**

	<b>Specification</b>	<b>Test Method</b>
<b>Color &amp; Appearance</b>	Light yellow opaque solid	Visual
<b>Flux Classification</b>	RELO	J-STD-004B
<b>Copper Mirror</b>	No removal of copper film	IPC-TM-650 2.3.32
<b>Corrosion</b>	Pass	IPC-TM-650 2.6.15
<b>SIR</b>	$1.82 \times 10^{11}$	IPC-TM-650 2.6.3.3
<b>Post Reflow Flux Residue</b>	55%	TGA Analysis
<b>Acid Value</b>	190 - 210	IPC-TM-650 2.3.13
<b>Flux Residue Dryness</b>	Pass	IPC-TM-650 2.4.47
<b>Spitting of Flux-Cored Solder</b>	0.3%	IPC-TM-650 2.4.48
<b>Solder Spread</b>	100 mm <sup>2</sup>	IPC-TM-650 2.4.46

**Wire Diameter**

Sn60/Pb40 NC600 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	+/-0.002	+/-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 leaded solder is **1.1 – 3.3%**.

**Physical Properties**

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**Solder Composition**

Qualitek has developed a rosin activated based core flux with alloy composition, Sn60/Pb40. Qualitek Sn60/Pb40 alloy conforms to and exceeds the impurity requirements of IPC-J-STD-006C.

<b>Typical Analysis</b>													
<b>Sn</b>	<b>Ag</b>	<b>Cu</b>	<b>Pb</b>	<b>Sb</b>	<b>Bi</b>	<b>In</b>	<b>As</b>	<b>Fe</b>	<b>Ni</b>	<b>Cd</b>	<b>Al</b>	<b>Zn</b>	<b>Au</b>
<b>59.5 -60.5</b>	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

	<b>Sn60/Pb40</b>
Melting Point, °C	183 - 188
Hardness, Brinell	16 HB
Coefficient of Thermal Expansion	23.9
Tensile Strength, kgf/cm <sup>2</sup>	535
Tensile Elongation, %	40
Density, g/cm <sup>3</sup>	8.50
Electrical Resistivity, (μΩ-cm)	15.3
Thermal Conductivity, W/m-K	49

**Flux Residues & Cleaning**

NC600 is a no clean formulation; therefore, the residues do not need to be removed for typical applications. If residue removal is desired, the use of 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**

Sn60/Pb40 NC600 leaded solder should be disposed of in accordance with federal, state and local authority requirements.