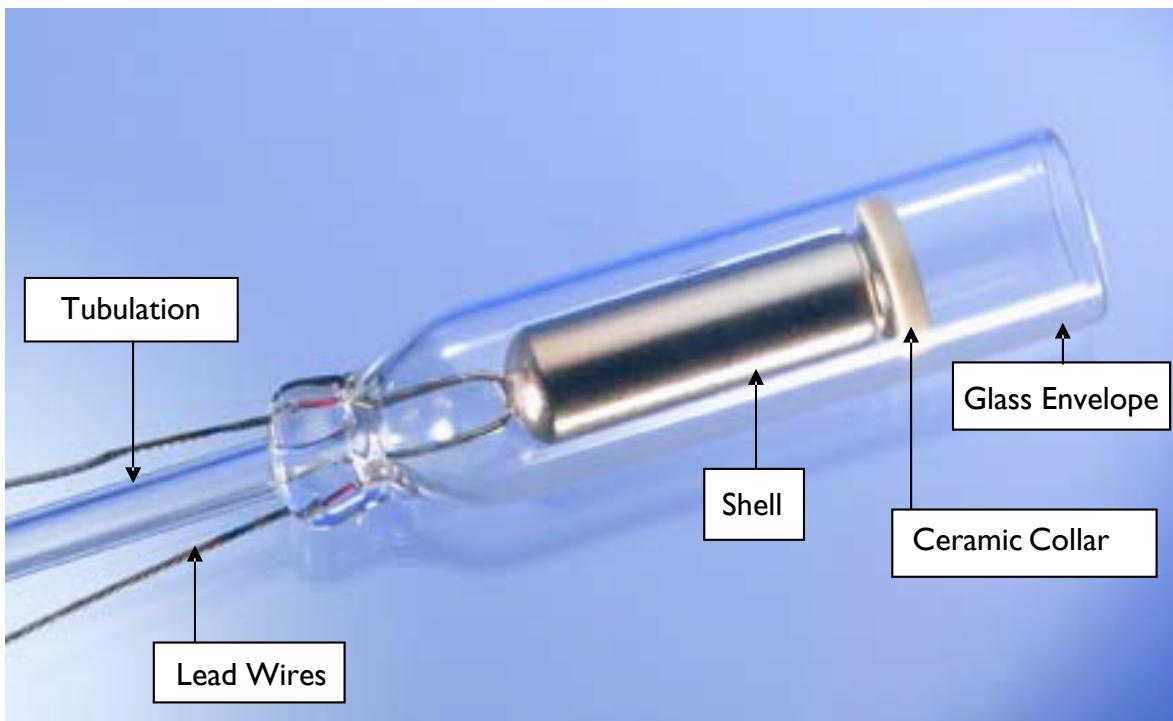


The 'NEON PRODUCTS' Electrode

These electrodes are described as 'cold cathode' electrodes, which are used in the production of high voltage neon tubes. The metal conductor of the electrode enables the electric current to pass into the gas discharge.



SPECIFICATION :

Electrode Shell - High purity iron shells which are cleaned and heated after forming, to remove residual impurities. The shell is nickel plated under vacuum to prevent corrosion in storage.

Ceramic Collar - the edge of the electrode shell at it's opening would be eroded by electrons bombarding the area, so this is protected by a ceramic collar.

Lead Wires - Three part lead wires: Nickel 'U' section welded to electrode shell; copper clad wire section for sealing in glass pinch seal to ensure matched expansion properties in the glass to metal seal; outer wires of stranded nickel to ensure strength and ease of connection in use.

Emissive Coating - Precisely formulated from carbonates of alkaline metals, the emissive coating is automatically applied to the inside of the electrode shell, under controlled atmospheric and material conditions to ensure even coating at all times. This coating, also called the 'activation' greatly increases the emission of electrons and, together with the dimensions of the inside of the shell, determines the maximum current that the electrode can stand.

Glass Envelope - The glass used is quality controlled. The external pinch is manufactured on the latest generation of automatic glass working machines and the electrode is then annealed in specially designed ovens to set the strain in the glass envelope and thus avoid cracking when the finished electrode is used.

Tubulation - a capillary tube which is used as the connection between the tube and the vacuum pump during processing. The tube is evacuated and filled with gas via the tubulation. After filling the tube, the tubulation is sealed by melting the glass.

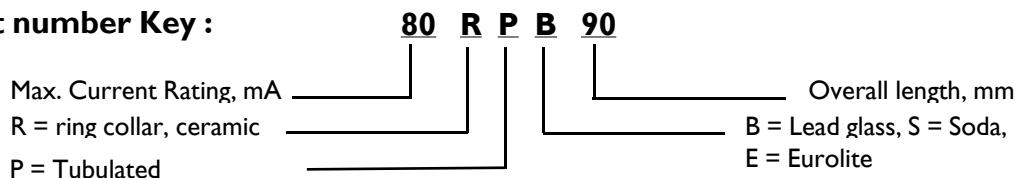
Quality Control - All electrodes are individually inspected prior to packing. Samples are routinely inspected under glass strain viewers. Random samples are also made into finished tubes and placed on life test, monitored for performance over various periods, sometimes years.

Dimensions of the electrode shells:

| Nominal Current | Shell - diameter in mm | Shell - length in mm |
|-----------------|------------------------|----------------------|
| 25 mA | 6.00 | 19.50 |
| 50 mA | 7.90 | 28.50 |
| 80 mA | 9.70 | 32.50 |
| 90 mA | 12.65 | 28.50 |
| 120 mA | 12.65 | 32.50 |
| 150 mA | 12.65 | 41.50 |
| 250 mA | 12.65 | 49.50 |

USING THESE ELECTRODES :

Part number Key :



Current Rating - The current rating given in the part number on Neon Products Electrodes is the **absolute maximum** running current when used on tubes filled with Argon or Argon / Neon mixtures and mercury. For **maximum life**, the second, 'recommended' current figure in the table below should be used. When used with Neon filled tubes, approximately 75% of the 'recommended' figure shown on the Price Tables should be adhered to.

| Nominal Current | Recommended max. Current in mA |
|-----------------|--------------------------------|
| 25 mA | 15 - 18 mA |
| 50 mA | 30 - 40 mA |
| 80 mA | 50 - 60 mA |
| 90 mA | 60 - 65 mA |
| 120 mA | 80 - 90 mA |
| 150 mA | 100 - 110 mA |
| 250 mA | 160 - 190 mA |

Choosing the right Electrode - this will help to ensure that your finished tube has it's maximum potential life. Using a small electrode on a large tube can lead to the electrode being overheated whilst the tube is being pumped - shortening the life of the electrode. Using an electrode that is too large can mean that the current required to convert the emitter during the final bombarding process will be too high for a small diameter tube. This could mean that the tube will be unable to dissipate the heat and damage to the phosphor coatings could occur. As a guide -

EL025 - Use with 8-10 mm tubing. Operates on 15 / 20 mA transformers. It is important when pumping these smaller diameter tubes to keep current levels as low as possible to avoid damaging the phosphors.

EL050 - Use with 12 mm tubing and transformers up to 40 mA. While this electrode will tolerate up to 50mA, this current level is not recommended for 12 mm tubing. Also, this electrode should not be used with smaller diameter tubing as the conversion current required at the final stage of bombarding (500 mA) is too high for the heat to dissipate from the tube.

EL080 - Use with any tubing 15 mm or above up to 60 mA. Not for smaller diameter tubes (see above).

EL150 - Use with 18-20 mm tubing up to 100/110 mA. A good choice for cold cathode installations. Ensure that your bombarder has enough output (mA) to complete the conversion process.