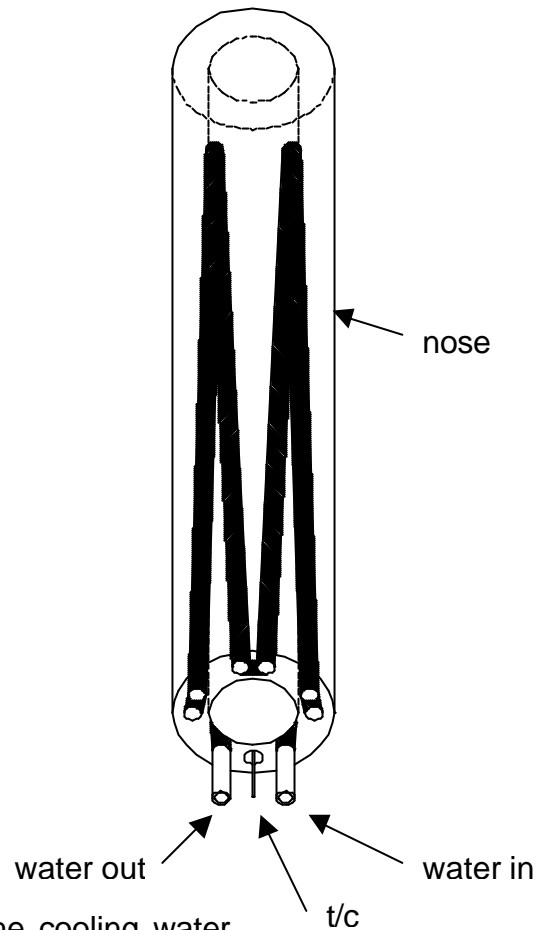


## SX Electrode Holders

KTG Engineering have supplied over two thousand of these electrode holders to many customers throughout the world, for use in all types of glass. We believe that it is the finest electrode holder on the market today.

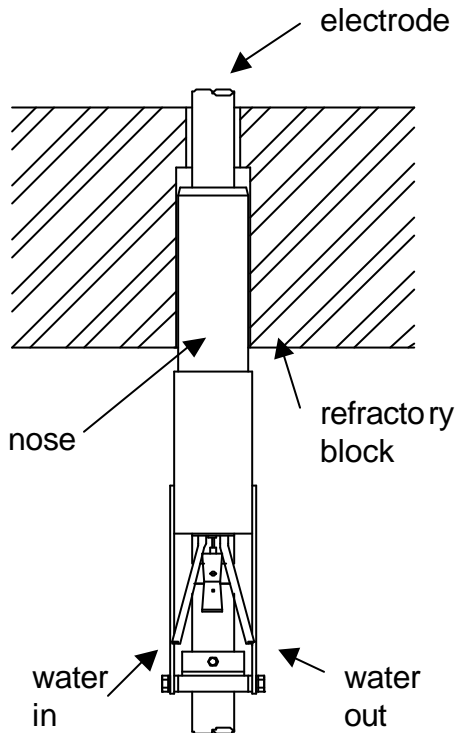
The SX's main advantage over all other electrode holders is that the nose of the holder (the front part which is in contact with frozen glass) is manufactured from solid material, with no welds being at the front of the holder. Traditionally, many other types of holders have leaked at the front of the nose where the water jacket has been welded, which becomes a weak point when subjected to sudden temperature changes that can be experienced during advancing or by external factors such as water failure, power cuts etc. The cooling is applied very close to the glass, allowing complete and reliable seals to be achieved, preventing the molybdenum electrodes from oxidising. The nature of the design, and proven reliability over a number of years, show that the SX electrode holder is fully expected to last the full campaign of the furnace without needing to be changed. This is dependant upon maintaining the water supply of an appropriate quality, and care is taken when advancing the electrodes.



A second advantage is that the design forces the cooling water right up to the nose/frozen glass interface at a number of points around the circumference of the holder. With some other types of holder there can be no such guarantee, leaving the holder subject to "steam pockets" forming within the water jacket, resulting in uneven cooling and possible problems with the water flow.

The SX nose is manufactured from a high temperature resistant alloy, which is machined to size and then has the holes for the waterways precision drilled into it. The holes are specially engineered to give optimum flow and therefore provide excellent cooling characteristics right to the tip of the electrode holder – where it is needed most.

The design of the SX holder enables electrodes to be advanced as many times as it is required, preventing excessive block wear and allowing the boost system to run at its most efficient levels. The SX holder can be used on both horizontal and vertical installations.



A hole for a type K thermocouple is also drilled into the nose so that accurate temperature readings can be monitored, allowing for block and electrode wear to be monitored over a long period of time. This thermocouple is also very useful when advancing the holders, to give indications as to when the glass around the nose and electrode is suitably molten, to allow advancing to take place.

All key materials used in the SX holder are of the highest specification available, fully traceable with material test certificates analysed and retained for future record. Each holder is individually flow tested to 12 litres per minute minimum and pressure tested to 7 bar. Every SX holder has its own unique serial number to ensure full traceability.

The SX holder is being used world-wide on all types of furnace, including green, amber and flint container glass, borosilicate, fibre glass etc. They are also used on a number of speciality furnaces used for waste disposal and vitrification processes. More and more glass producers are now operating with bottom boost installations using the SX holder. The SX holder gives added confidence because they know that the SX electrode holder is expected to last the full furnace campaign without needing to be changed.

The SX holder is supplied complete with standard installation kits for both horizontal and vertical applications, with no brackets, or brackets to suit individual customer designs. We have also supplied these holders modified for special applications, like twin thermocouples, extended noses, to suit 6" carbon electrodes, etc. The SX holder is also available with an inert gas purging facility, for extra security when sealing difficult glass types