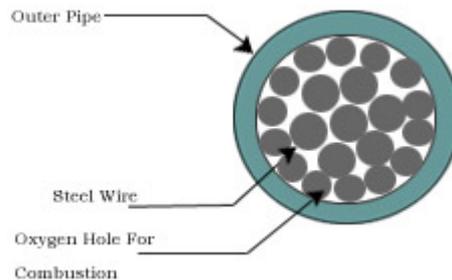




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Thermal Cutting Lance



Thermic Cutting Lance is used as one of the methods of boring and severing concrete, steel, cast iron and hard to clean materials without noise or vibration in a fraction of the time taken by conventional methods. It is ideal for demolition work, where noise or vibration are unacceptable, or where speed is essential particularly on reinforced concrete. The equipment is extremely simple and easy to operate, and the capital cost in comparison to drills etc. is negligible.

Process

This process was developed following the Second World War, as a means to assist in the break up of gun emplacements, submarine pens, and other large concrete structures.

The principles of the operation are as follows, Oxygen is fed through a length of steel tube, usually ¼", 3/8" & ½" bore, to a spot on the material which has been previously been heated, and the oxygen combines with the iron to form a slag rich in iron oxides. The slag produced is very fluid which enables cutting and boring to take place. The flow of slag is assisted by the velocity of the gas and vapours expelled within it.

The lance is ignited by applying heat to the end of the tube with oxygen- acetylene equipment. With the addition of a lance packed with mild steel rods the ratio of iron to oxygen is greater thus providing sufficient heat to melt ferrous and non-ferrous materials.

The heat generated from the iron/oxygen reaction is sufficient to melt concrete, steel or refractory, as melting point varies between 1800-2500oC. The formations of iron silicate increase the fluidity of the slag produced, therefore the silicate content of the material has an appreciable effect on the speed of operation and the rate of consumption of packed lance and oxygen.

Equipment

Consists of a steel tube packed with special steel rods (Aluminium or Magnesium are often added to the packing to increase the heat output) where oxygen is passed through so that when the lance is ignited it becomes a great source of heat, and forms a fluid slag which flows out of the cavity being cut.

1. Lance holder : contains a gas control valve, steel tube also screws into holder. Cylinders (Oxygen) are connected via a length of rubber hose. The sizes of lance available are, ¼", 3/8" & ½" NB. The steel tubes are approximately 3 meters long.