36.03 - Safety fuses; detonating fuses; percussion or detonating caps; igniters; electric detonators.

These products, which are generally called blasting accessories, are required to ignite powders and explosives.

The heading covers :

(A) **Safety fuses and detonating fuses**

Safety fuses (slow fuses or Bickford fuses) are devices designed to transmit a flame towards an ordinary igniter or detonator. They consist generally of a thin envelope of textile material, tarred or impregnated with rubber or plastics, containing a linear charge of black powder.

Detonating fuses serve to transmit one or more detonations, and generally comprise a core of pentrite or other explosive in a waterproofed covering of textile material or plastics (flexible fuses) or in a sheath of lead or tin (leaded or tinned fuses). In certain cases the explosive charge is placed, in a thin layer only, on the inner surface of a tube of plastics.

They are most frequently used in mines and quarries and on civil engineering sites.

(B) **Percussion or detonating caps.**

(1) **Percussion caps** (percussion primers) consist of a small container, generally metallic, usually containing a mixture based on lead trinitroresorcinate (styphnate) with the addition of tetrazene and various oxidising and reducing agents; charges of this explosive mixture usually weigh between 10 and 200 mg. These caps are intended for fixing in the bases of cartridge cases and are used to ignite propellent powder.

(2) **Friction percussion caps or firing tubes** consist generally of two concentric metal or cardboard tubes containing different charges. The explosive charge in the inner tube is ignited by the tearing out of a saw-toothed wire and thus fires the charge of powder between the two tubes which transmits the ignition. Like the caps described in (1) above, firing tubes are used for firing propellent powders.

(3) **Detonating caps** (detonators) consist of a small charge of primary explosive plus a charge of, e.g., pentrite, hexogen or tetryl, in a tube of metal or plastics under a protective capsule. They are used for igniting prepared explosives other than propellent powders and are generally fired by the flame from the safety fuse which leads into them.

(C) **Igniters**

This group includes :

(1) **Electric igniters** consisting of an electric fuse head and a small charge of igniting powder, generally black powder.

An electric fuse head consists of two insulated conductors to the ends of which a conducting metal filament is soldered to form an electrically resistant bridge; this filament is embedded in an igniter bead. It is used to ignite a powder charge or to initiate a primary explosive.

(2) **Chemical igniters** such as those consisting of a cylinder containing a glass ampoule filled with a chemical product (e.g., sulphuric acid) and a charge of potassium chlorate, the two being separated by a metal diaphragm. When the ampoule is broken the acid eats away the metal diaphragm (which serves as a delay element) and reacts with the potassium chlorate, producing intense heat capable of igniting a powder charge or safety fuse.

(D) **Electric detonators**

Electric detonators consist of an electric fuse head, as described in Item (C) (1) above, in a tube of metal (or possibly plastics), a small charge of primary explosive (50 to 500 mg of a composition based usually on lead azide) and a somewhat larger charge of another explosive (e.g., pentrite, hexogen or tetryl).

This group also includes certain electric detonators known as **electric primers**. These are often miniaturised, and the fuse head may be replaced by the incorporation, in the primary composition, of additives to make the composition conductive and enable it to be fired by induction.

This heading **does not include** :

(a) The paraffined amorce strips or rolls used in miners' lamps, nor caps for toy pistols (**heading 36.04**).

(b) Articles not containing any explosive or inflammable charge (small caps, tubes, electrical apparatus, etc.) which are classified according to their nature under their respective headings.

(c) Shell fuses and cartridge cases with or without caps (**heading 93.06**).