Boot Anti Mine Infantry

Boot Anti Mine Infantry (BAMI) for assault operation has been designed as an effective foot protection system against anti-personnel mine blasts. It is lighter in weight, hence provide fatigue free walk. It also protects user's foot from hot and cold climate because the chrome tanned leather has the capacity to retain heat in winter and dissipate moisture and heat in summer. When an anti-personnel mine (35 gram High Explosive) blasts, the peak pressure generated about 45000 kg/cm^2. If this amount of pressure impinged directly to the human heel the leg bones will be pulverized. Boot Anti Mine Infantry attenuate the blast over pressure to a value below 100 kg/cm^2 which will be transmitted to heel of the user, which is a safe pressure. These Boot Anti Mine Infantry has been tested against the blast of 35 gram CE (composite explosive) pellet with a weight approximating to human weight and average transmitted peak over pressure from these boot is below 100 kg/cm^2.

This BAMI has chrome tanned leather upper which protect the foot from climatic condition and debris of anti-personnel mine blast. The sole of the Boot Anti Mine Infantry has two types of configuration for heel (rear) side and ball (front) side. Ball side configuration has FRP deflectors. A fraction of the total blast energy delivered to these FRP deflectors in the form of kinetic energy will be dissipated in plastic deformation of these FRP deflectors, delamination and some fraction will be deflected towards the ground. Ceramic honeycomb material of different shapes according to the shape of FRP deflectors has been embedded between these FRP deflectors as a shock absorbing material. A considerable amount of energy absorbed in crushing/pulverizing of the ceramic honeycomb material inserts. Hence, a very small fraction of energy generated during the anti-personnel mine blast will transmit to the user's foot.

Ball (rear) side configuration has ceramic honeycomb material and woolen felt. This felt is lighter in weight and comfortable. Both the configuration of heel side and ball side has been embedded into the Polyurethane sole. This polyurethane sole is flexible and wear resistant.