PEFCO 44®
Attenuated Force Expanding Projectile

Made out of a soft elastomer and specially designed to be weaker than any part of the body, the PEFCO 44 round will self-destruct on impact by absorbing the impact's energy. The resultant effect is to prolong the duration of the impact as the round spreads across a wider surface area of the body thereby increasing the amount of pain. But the self-destruction of the round reduces very considerably the risk of serious injury or fatality when used at a range of between 1 to 25 metres.

TECHNICAL CARACTERISTICS

Calibre 44 mm	Ammunition weight 130 grams
Length : 83 mm	Projectile weight 27 grams
Aeronautic aluminum case	24 rounds per cardboard / 4 kg
Effective range 1 to 25 meters	Initial velocity 95 m/sec
Energy : 150 Joules at 2 m / 100 Joules at 25 m	

SECURENGY SAS - FRANCE
Société par action simplifiée au capital de 51 000 euros
RCS EVRY 820 346 203 -TVA FR 17820346203
TEL: +33 986 585 883 -MAIL:contact@securengy.com

PRINCIPLE OF ACTION

- Stabilized aerodynamic projectile for a range of fire from 1 to 25 meters.
- Using a Shore A value of less than 5, the elastomer round will self-destruct on impact by absorbing its own energy. Therefore, the duration of impact is increased while the strength of impact is decreased as the round expands over a bigger surface area.
- Thus, whilst the sensation of pain increases the traumatic effect to the body diminishes.

Applied force / (surface of impact x duration of impact)

- By using a 44mm calibre allied with the specific innovation and design of the projectile, the risk of fatal injury is drastically reduced at ranges of between 1 to 25m.

The projectile is encased in a cylindrical heat-shrinkable polyolefin sheet with a low coefficient of friction which ensures its structural resistance during all the ballistic phases and its movement through the barrel (weight about 0.2 g).

- Mass of the projectile: about 30 grams
- Total mass of the ammunition: about 115 g

OPERATION

- The primer of the propellant cartridge is initiated by the firing pin of the weapon.
- The flame caused by the primer ignites the propellant powder of the 36 Magnum cartridge.
- The pressure of the gases caused by the combustion of the powder allows the rupture of the vents of the high pressure chamber.
- The gases exit into the low-pressure chamber inside the tail assembly of the projectile (4) and the bottom of the sleeve (6) which act as a low-pressure chamber.
- The gases propel the projectile out of the chamber then to the end of the barrel of the weapon through a pneumatic effect, with the sealing ensured by the slight and reversible expansion of the tail assembly (4).

BALLISTIC CHARACTERISTICS

The projectile has been designed so that its centre of pressure is behind its centre of mass thereby ensuring the stability of its trajectory whilst in flight.

The following speeds are based on the average of the measurements taken using the current load, which can be adapted if a lower energy output is required by the customer:

- Average speed at 1 m: about 105 m / s or an energy of about 165 Joules
- Residual velocity at 10 m: about 93 m / s or an energy of about 130 Joules
- Residual velocity at 20 m: about 80 m / s is an energy of about 96 Joules

Since the ammunition is stabilized by its aerodynamic thrust, it can be used in smooth bore weapons. Its use in a 44mm rifled weapon is, however, still possible. Although a loss of speed due to the lack of compression created by the rifling should then be expected.

IMPACT EFFECTIVENESS

The kinetic effect of the impact causes the round's polyethylene cap to shatter and for the projectile to spread across a wide area because the thermoplastic elastomer used is of such a low hardness (55 Shore 00 is less than 10 Shore A). Projectile speed does not affect elastomer as it would for rubber. Elastomer remains soft when rubber tends to become harder.

The foam that sits between the projectile and its tail assembly absorbs the shock of the impact and prevents the tail assembly, which is in its own right extremely soft, thin (<1mm) and limited to 7 grams in weight, from causing any harm.

On a hard surface, such as a wall, the impact of the PEFCO 44 round is spread over approximately 90 mm in diameter, which compares favourably with the other 40mm or 44mm munitions where the spread is 2 to 4 times smaller. The duration of the PEFCO 44's impact would also last longer at 2 ms.

TERMS OF USE

The ammunition is designed to be used between 1 and 25m. However, whilst the ammunition is designed to greatly reduce the risk of serious injury, it should not be aimed at the area of the head which could result in life changing injuries.