INSTALAZA

C-90 C

DISPOSABLE ANTI-TANK WEAPON SYSTEM

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The C-90 anti-tank weapon system has been developed by INSTALAZA to provide soliders with an effective means of defence against tanks and armoured vehicles at short ranges, this being of prime importance in view of the important defensive improvements introduced in the most modern models of tanks.

The system consists of a rocket with a shaped-charge warhead which is fired from its own container-launcher, thus enabling practically any soldier to put a tank out of action and reinforcing the defensive organization of such vital targets as main unit headquarters, telecommunication posts, airports, etc., against in-depth penetrations of enemy armoured forces.

It can also be used in antitank warfare in towns, ambushes, etc., even when visibility is poor or at night thanks to its permanently lit-up aiming unit.

The container-launcher, made of reinforced plastic, holds the rocket in place and supports all the other elements ot the system (the firing mechanism, optical sight, and carrying strap).

It is closed at both ends by means of two protective covers and the whole assembly is watertight and tough enough to ensure that the system is always ready to be used regardless of the adverse environmetal conditions likely to be encountered on the battlefield or during transport operations.

Three systems are packed in a wooden box, and the gunner can carry them using the carrying strap.

The C-90 system, which is ready for use at any time, requires no maintenance whatsoever.

The round consists of a shaped-charge warhead, fuze, initiation system, rocket motor, stabilizing unit and ignition system.

The warhead is designed as a shaped-charge with a precision manufactured liner and high explosive charge. The warhead design together with the type of fuze used make it possible to use this system with an incidence angle of more than 76º. It can penetrate the double Nato, heavy tank target.

The instant fuze, armed by the acceleration of the rocket upon firing and with a safe arming distance of about 6 meters, and a safe-bore device, is placed in the middle of the rocket.

The fuze works by the intantaneous deceleration caused by the round hitting the target and is therefore effective no matter which part of the warhead hits the target.

The initiation system and general configuration of the shaped-charge are designed in such a way as to obtain optimum performance in its role, as an antitank weapon: that is to say maximum penetration power and maximum effect inside the tank after complete piercing of its armour.

The rear part of the round is the rocket motor with its igniter and stabilizing unit. The rocket motor is made of high alloy steel, head-treated to a strength of about 190 Kp/mm^2. The propellant burns out before the round leaves the container-launcher. The absence of recoil allows the gunner to fire in any position and in no way affects the aim at the moment of firing.

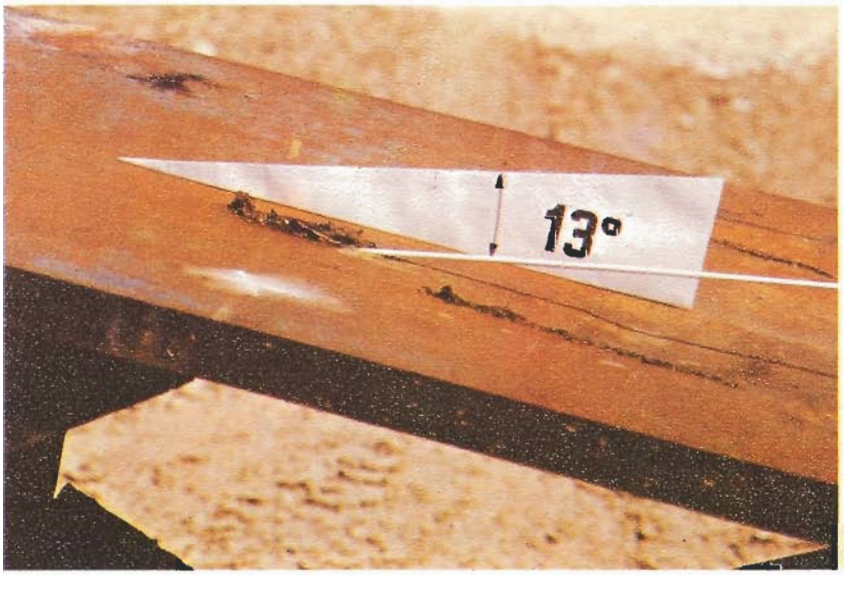
When the stabilizing unit leaves the launcher, a set of six spring-loaded fins open. The profile and angles of these fins have been designed to ensure excellent accuracy.

The igniter is placed on the nozzle of the rocket motor and is set off by a pyrotechnic device which comes from the firing mechanism. The firing mechanism is placed on top of the container launcher. Its external form allows the gunner to grip it with extreme ease and find the trigger and safety/fire selector automatically, thus enabling him to concentrate his attention on the target he is aiming at.

No electrical devices or storaged energy of any kind are used in this particular firing mechanism. After taking into account such factors as the strong electromagnetic enviroment likely to surround the operation of this weapon, the advantage of dispensing with even the simplest maintenance, the need for immediate readiness in any situation and the cost-efficiency

relationship which governed all the development of this system, we were led to use a mechanical system in which the energy needed is obtained by simply pushing an arming rod, setting the mechanism ready for the gunner to press the trigger at any moment.

OPTICAL SIGHT



PENETRATION INCIDENCE 77º

The firing mechanism is protected by a cover, held in position by a sealing tape. This cover has to be taken off to arm the firing mechanism. A safety button, placed on one side of the firing mechanism, prevents the arming rod from being armed accidentally if the system is dropped or bumps against hard objects. In order to arm the firing mechanism the safety button must be pressed and the arming rod pushed simultaneously; moreover, there is a Safety/Fire selector which the gunner can easily turn while aiming at the target, and which can be returned to the Safety position should he decide not to fire. The firing mechanism can likewise be de-energized just by pressing the safety button, this action releasing an internal latch and returning the arming rod to the unarmed position. These operations can be repeated whenever necessary.

In the C-90 system, the aiming unit is a built-in optical sight, with a magnification of 2 and markings for every 50 m. distance to the target. At distances of 100 and 200 m. there are also side markings for prediction when firing at a transversally moving target.

The reticule of the optical sight is permanently lit up in such a way that the markings of the reticule are always visible to the gunner irrespective of light conditions.

The optical sight itself has, as an option, a built-in device which automatically compensates for the differences in launching temperature.

This optical sight, as a part of the whole system, is also disposable.

The C-90 system is available in two slightly different versions, the main characteristics of which are listed overleaf. This general description refers to both versions.

A training device, externally identical to the C-90 C system and with exactly the same operation procedure and optical sight, fires a light alloy arrow which can be tracked by the gunner to the target, thus allowing him to verify the point of impact. The arrow is fired by a special cartridge and the recoil is automatically compensated in such a way that the gunner feels no recoil.

With a properly chosen soft target these arrows can be used repeatedly and their plastic stabilizer, should it be necessary, may be easily replaced.

With this device, an intense but inexpensive training programme can be carried out, leaving the firing of inert rockets of a final stage once the gunner is familiar with the system.

When firing practice rockets or live ones in peace time training, the optical sight can be reused, further reducing the cost of a thorough training programme.

To sum up, the C-90 is an antitank weapon system which combines extremely easy operation, toughness, accuracy and absence of maintenance with great penetrating power and post-effects after total piercing. If we add to this its production in large quantities, an excellent cost-efficiency relationship is attained.

CHARACTERISTICS

	C90-C	C90-CR
Warhead diameter	90 mm.	90 mm.
Overall length (round)	660 mm.	675 mm.
Overall length (container)	830 mm.	940 mm.
Rocket weight	2.300 g.	2.700 g.
Weight of system	3.900 g.	4.450 g.
Initial velocity	140 m/s	182 m/s
Optical sight	2 x	2 x
Effective range, moving target	200 m.	280 m.
Effective range, static target	300 m.	400 m.
Penetration on steel	400 mm.	480 mm.
Operating temperature	—20 +50 ºC	—20 +50 ºC