

# ***Grenade Launchers in China***

## ***(Upper)***



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# 1、 *Introduction*



Grenade launchers are used to kill & wound living targets, penetrate light armored targets and provide firepower supporting to infantry, which have become one of the most important small arms in modern wars.

# *China's Grenade Launchers*



The Grenade Launchers made in China include automatic grenade launcher, jet shot grenade launcher and under-slung grenade launcher. All these can be equipped with iron sights, white light sights, low-level-light sights or infrared sights. They can launch different ammunitions, such as anti-personnel, anti-armor, smoke, incendiary, training, etc.



China's Jet Shot Grenade Launcher



China's Under-Slung Grenade Launcher

# *Characteristics*



The grenade launchers independently developed by China are ones with light weight, high firepower, high precision, simple operation, good safety and low manufacturing cost features.

## 2、 *Looking Back*

At the beginning of 1980s, China began to develop automatic grenade launcher. The first problem was to select the caliber for the weapon. The caliber would influence the weight 、 power and mobility of the weapon.







Considering the fact that the terrain of China is of many mountains and walking was one of the main maneuvering ways for Chinese infantry, small arms R&D agency in China decided to develop 35 mm caliber automatic grenade launcher. In the specifications for the weapon, good mobility and capability of light armor piercing were highlights of the requirements



After years of arduous efforts, China finalized the design for its 35 mm automatic grenade launcher at the beginning of 1990s and designated the weapon as Type QLZ87 35mm ATL and then the weapon entered service in China. At the same time, other kinds of grenade launchers, such as jet shot ones, were developed in China.

In a short period of less than 40 years, China has made great progress in the area of grenade launchers. From nothing to serialization and from military employment to security application, Chinese grenade launchers have shown their unique capabilities in national defense and public security.



### **3、 *China's 35 mm ATL***



QLZ87 ATL is the first generation grenade launchers for squad service in Chinese army, which filled the blank of ATL weapon in China and was a milestone for the development of Chinese grenade launchers. It's a kind of infantry weapon capable of direct & indirect firing 、 killing and light armor-piercing.

QLZ87 ATL has light configuration and heavy configuration. The light configuration is mainly used in a direct range of 600 m by a single soldier while the heavy configuration includes the light one plus tripod and could also be operated by a single man.

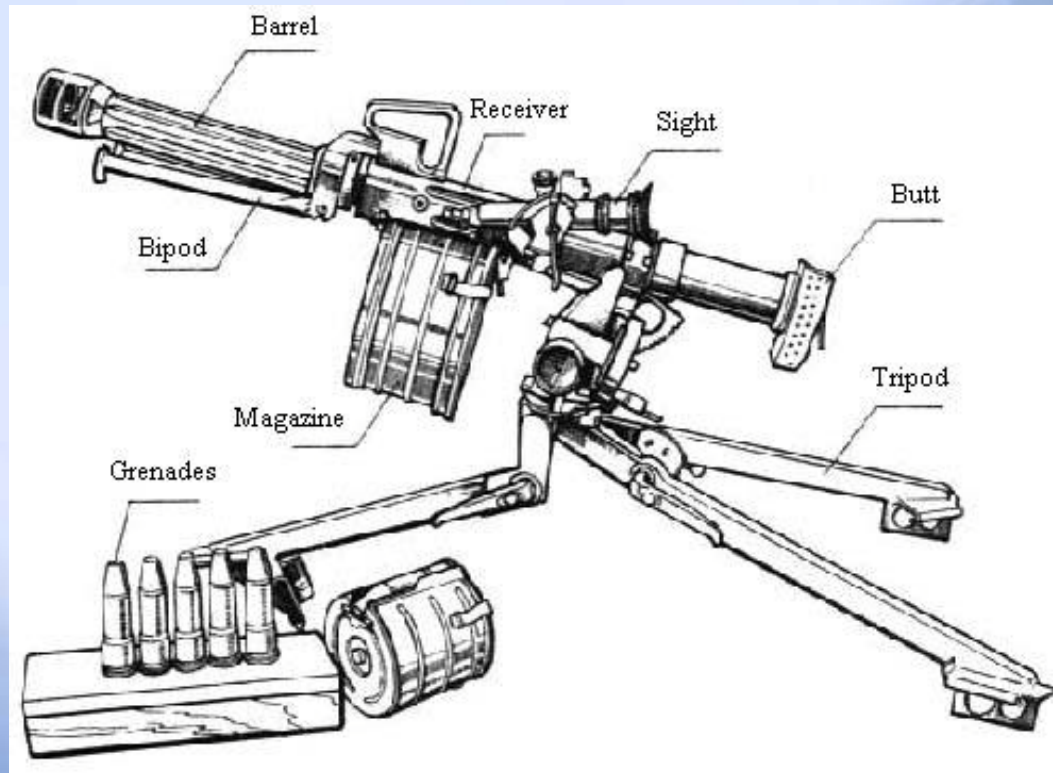


**Light Configuration of Type QLZ87 ATL**

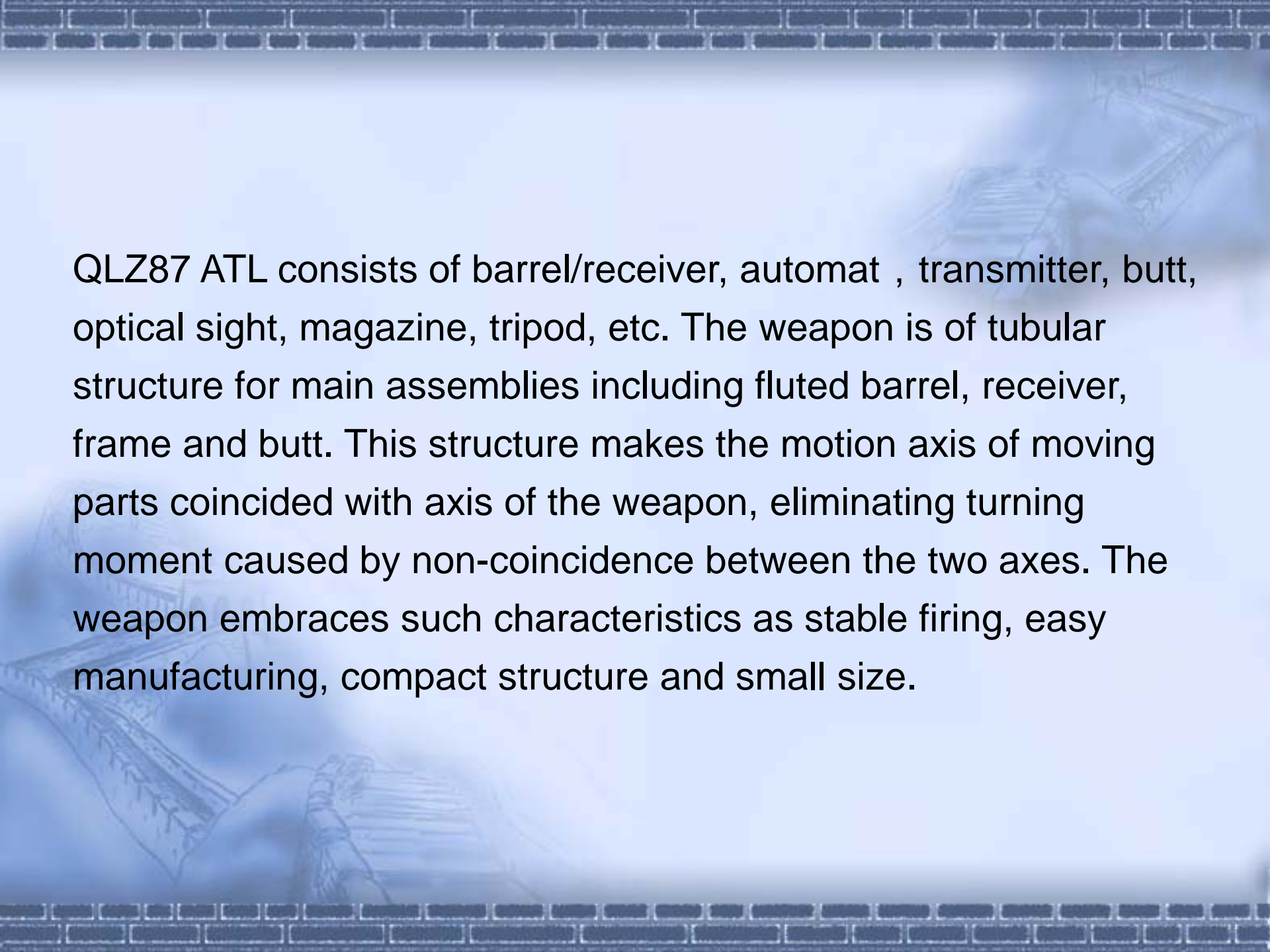


Heavy Configuration of Type QLZ87 ATL

# Structure



The Structure of QLZ87 ATL

The background of the slide features a faded, light blue image of a QZ87 AT rifle. The rifle is shown from a side-on perspective, highlighting its tubular design, the receiver, the magazine, and the buttstock. The image is semi-transparent, allowing the text to be clearly legible over it.

QLZ87 ATL consists of barrel/receiver, automat , transmitter, butt, optical sight, magazine, tripod, etc. The weapon is of tubular structure for main assemblies including fluted barrel, receiver, frame and butt. This structure makes the motion axis of moving parts coincided with axis of the weapon, eliminating turning moment caused by non-coincidence between the two axes. The weapon embraces such characteristics as stable firing, easy manufacturing, compact structure and small size.



# *Magazine*

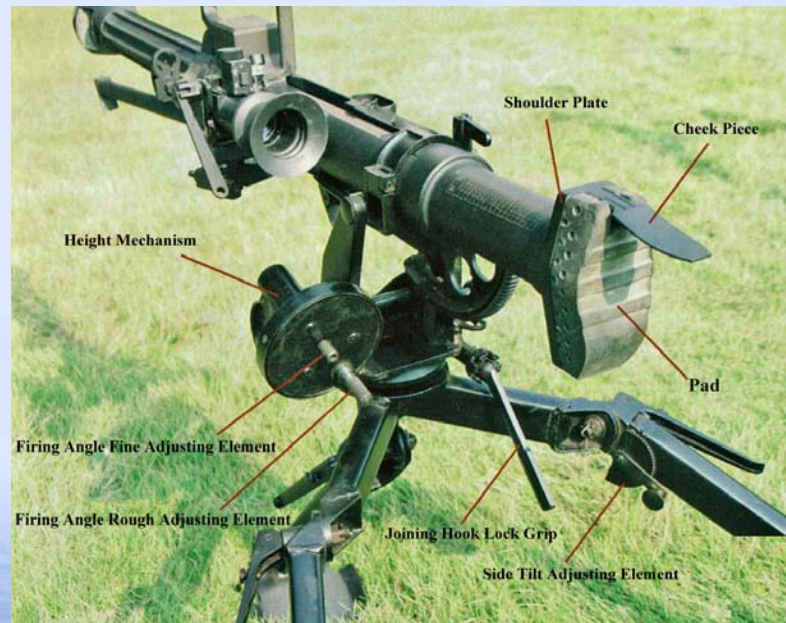
QLZ87 ATL is fitted with 6 or 15-round drum magazine at the bottom of the launcher, providing a clear FOV above the launcher for shooter's observation and aiming



Magazine of Type QLZ87 ATL

# Tripod

The heavy configuration of QLZ87 ATL is supported by tripod . The elevation range for it is  $-10^{\circ}$  -  $+70^{\circ}$  and traverse range is  $360^{\circ}$



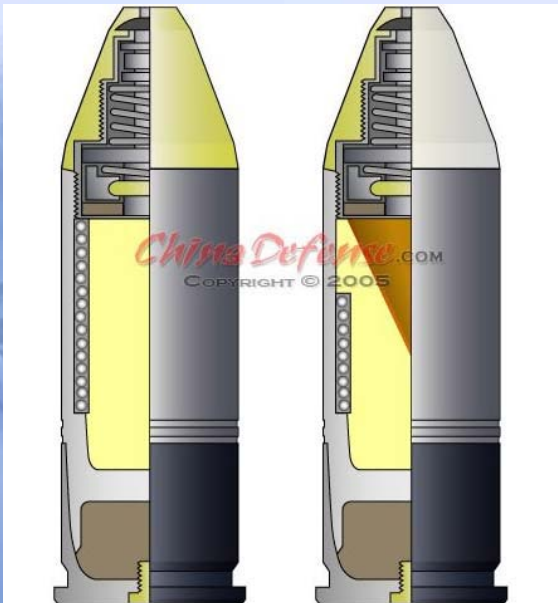
# Sight

Sights for QLZ87 ATL include optical sight and iron sight. The FOV for the optical sight is  $11^\circ$  and the magnification for it is  $3\times$ .



# Ammunition

QLZ87 ATL fires 35×32 mm SR grenades. Types of ammunition for it include DFS87 anti-personnel grenade, DFJ87 armor-piercing grenade, DFR87 incendiary grenade, DFN87 anti-personnel incendiary grenade, DFD87 smoke marking grenade, etc.



Anti-personnel Grenade and  
Armor-Piercing Grenade

# *Specifications*

Caliber: 35 mm

The total weight for the weapon

Light configuration (including optical sight): 12 kg

Heavy configuration (including optical sight, tripod): 20 kg

The total length for the launcher

Light configuration: 1040 mm

Heavy configuration: 1300 mm

Weight of tripod: 8 kg

Weight of sight: 0.9 kg

FOV of sight: 11°

Magnification of sight: 3×

Weight of 6-round drum magazine without/with ammunition: 1.3 kg/(2.8 kg)

Weight of 15-round drum magazine without/with ammunition: 2.3 kg/(6 kg)

Weight of grenade: 0.25 kg

# *Specifications*

Ammunition: HE, HEAT

Elevation: - 10° - + 70°

Traverse: 360°

Muzzle velocity: 190 m/s

Maximum range: 1750 m

Range for iron sight: 600m

Firing mode: single, burst

Rate of fire

Single mode: 15~20 shots/minute

Burst mode: 30~40 shots/minute

Blasting radius: 11 m

Armor penetration: 35 mm/ 60°, 80 mm/0°

Action: air cooling, gas operation

# *Review*

The function and performance of QLZ87 has satisfied the requirements made by Chinese army. It has a weight of 12 kg for light configuration and 20 kg for heavy configuration, which is tailored for tactical doctrine of stressing maneuverability by Chinese army. QLZ87 is mainly used to suppress enemy firepower in range of 800 m, kill and wound living targets in open and covered area in range of 1750 m, penetrate light armored targets in range of 600 m and burn combustible materials in warehouses, camps, vehicles, equipments and military facilities in range of 1750 m.

# *Upgrades*

To improve its burst firing capability and other performances, China furthermore developed Type QLZ04 ATL which is belt fed with much better burst firing capability and many new improvements.



Type QLZ04 ATL



# 4、 *China's Jet Shot Grenade Launchers*

China began its development of jet shot grenade launcher at the beginning of 1980s and finalized the design at the beginning of 1990s. The jet shot grenade launcher designated as Type QLT89 has already entered service in China.



Type QLT89 50 mm Jet Shot  
Grenade Launcher

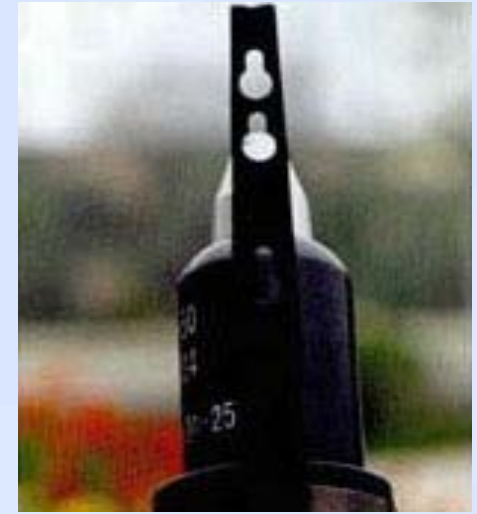
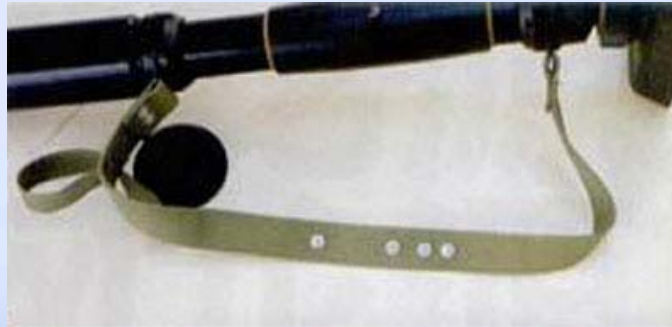
# ***Structure***

QLT89 consists of directional assembly, seat assembly, trigger assembly and belt. It embraces such characteristics as small volume, light weight and easy operation which make it suitable in employment in mountain or forest.



# *Aiming Unit*

The aiming unit consists of rear sight and firing-angle marks on the belt. The aiming of the weapon is provided through rear sight, belt and the tip of grenade.





Aiming Method of QLT89

# ***Ammunition***

50 mm anti-personnel grenade is the main ammunition for QLT89. 800 fragments will be released when exploded with killing zone radius of 16 m. Apart from anti-personnel grenade, 50 mm smoke incendiary grenade and illumination grenade are available.



# ***Specifications***

Weight of launcher: 4.1 kg  
Length of launcher: 600 mm  
Life of launcher: 6000 shots  
Caliber of grenade: 50 mm  
Weight of grenade: 700 g  
Length of grenade: 330 mm  
Effective range: 200-800 m

# *Review*

QLT89 is a kind of close range small arms portable by single soldier, which is fired indirectly with area lethality capability. It's mainly equipped into company or platoon unit. Generally it embraces such characteristics as small volume, light weight and easy operation. It's capable of suppressing enemy firepower, killing and wounding living targets behind covers and destroying fieldworks. In range of 200-800 m, it can provide firepower support for infantry units.

# Upgrades

The rough aiming method is not convenient in operation and considerable training is required for high accuracy. In addition, QLT89 is mainly designed for field operation which isn't suitable for urban fighting. Aiming at the above problems, china R&D agency has made some improvements to QLT89 .



Type QLT89A 50 mm Jet  
Shot Grenade Launcher



## **5, *Summary***

From blank to generalization, serialization and standardization, China's grenade launchers have experienced a span development in short time. For the development of grenade launchers in China, on the one hand, advanced technologies in the world should be studied to make further improvements and updates. On the other hand, stemming from the concept of defense & self guard, China also needs to consider its own requirements to find a way with Chinese characteristics.

# ***Purpose of Arms***



**Dagger of Ancient China**

# *Philosophy*

Through the development of Chinese grenade launchers, we can have a look at china's defense strategy of "Defense and Self-Guard", which reflects one of Chinese military philosophy from very ancient time, that is "Hold Dagger to Stop War with final purpose of Beating it into plowshares" .

**Thank You !**

May 19, 2010

