

# GHGS

GESELLSCHAFT FÜR  
HÜLSENLOSE GEWEHRSYSTEME MBH

**LK** HECKLER & KOCH  
**Dynamit Nobel**

[www.hkarms.eu](http://www.hkarms.eu)

## Weapon-Ammunition-System

# C11 Rifle

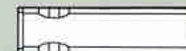
## with caseless ammunition

## Technical Data



Calibre	4.73 mm × 33 (0.185 in)	Modes of fire:	
Type of ammunition	caseless	• Single fire	
		• 3-round burst	
		• Sustained fire	
Length of weapon	750 mm	Theoretical rates of fire:	
Width of weapon	74 mm	• 3-round burst	> 2000 rounds/min
Height of weapon	295 mm	• Sustained fire	approx. 450 rounds/min
Weight of weapon		Max. shoulder pressure:	
with 2 magazines	3.8 kg (8.38 lb)	• 3-round burst	approx. 160 N
loaded with 90 rounds	4.3 kg (9.48 lb)	• Single and sustained fire	approx. 110 N
Weight of reloading unit		Magazine capacity	45 rounds
including 15 rounds	0.11 kg (3.89 oz)	Combat range	> 300 m (328 yd)
		Steel helmet penetration	up to 600 m (656 yd)
Barrel length, less chamber	540 mm (21.26 in)	Operating principle	Gas-operated, cartridge in chamber
Rifling twist length	155 mm (6.10 in)	Breech principle	Cylindrical drum
(Right hand twist)			

### Caseless ammunition



Length	33 mm (1.29 in)	Ignition	mechanical
Cross-section	8 × 8 mm (0.32 in)	Mean gas pressure	3850 bar
Total weight	5.20 g (0.18 oz)	Muzzle velocity $V_0$	approx. 930 m/s
Projectile weight	3.25 g (0.12 oz)		(3051 ft/s)

### Optical sight



Magnification	1:1
Entry pupil	10.0 mm (0.43 in)
Exit pupil	9.5 mm (0.37 in)
Pupil clearance	46.0 mm (1.81 in)
Field of view	200 mil
Eyepiece adjustment	-6 dpt
Light transmission	> 85 %

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GHGS  
D-4089 KOBLENZ 1  
BUNDESKANZLERPLATZ  
TELEFON 0228/21 10 23-24  
TELEFAX 0228/21 10 24

Subject to technical modifications

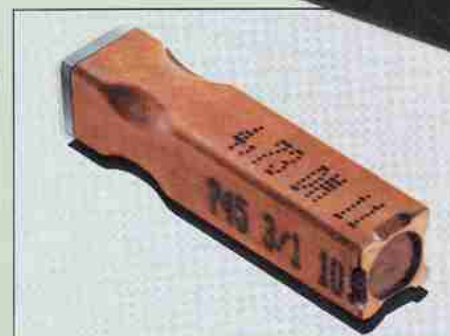


## The G11 Rifle with caseless ammunition sets new standards

- High hit probability even under combat conditions
- Quick readiness to fire
- Maximum reliability under all environmental conditions
- No impeding recoil effect on the shooter
- Low system weight
- Compact form
- No ejected cases
  - Simple care and maintenance
  - Short training times for users
  - Small cartridge dimensions
  - Low cartridge weight
  - Large number of rounds can be carried

**G 11 – the new weapon-ammunition-system with caseless ammunition for high hit probability.**

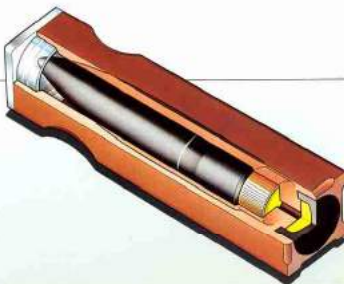
This new technology has, for the first time, provided a solution meeting the tough demands of a modern battlefield.





## The caseless ammunition

The propellant body of the caseless round has a quadratic cross-section, thus avoiding unused space in packages and magazines. In order to achieve optimum exterior and terminal ballistic performances, the projectile combines an extremely slim ogive shape with a high sectional density. The effect on soft targets is in accordance with international conventions. Even at short ranges the round does not fragment in the soft target medium. Penetration capability through steel and concrete is comparable with conventional ammunition of larger calibre. The penetration performance against hard targets is so high that a German steel helmet (NATO test standard) is penetrated with a soft core bullet at ranges up to 800 m.



## Ammunition packaging

The water-tight ammunition pack doubles as the reloading unit. These reloading units are so small that they can be stowed almost anywhere. The caseless ammunition is absolutely safe. In the absence of a case no overpressure can be generated by exposure to fire or bullet impact. The risk of cook-off is largely eliminated by the extremely high self-ignition temperature of the propellant.



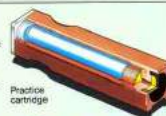
## Ballistic table

Range (m)	0	100	300	600
Velocity (m/s)	830	840	860	880
Time of flight (s)	0	0.11	0.26	0.34
Kinetic energy (J)	1000	1100	1300	1500
Trajectory deviation (m)	0	0.02	0.11	0.47
Overpressure (kPa)	0	0.05	0.6	2.6

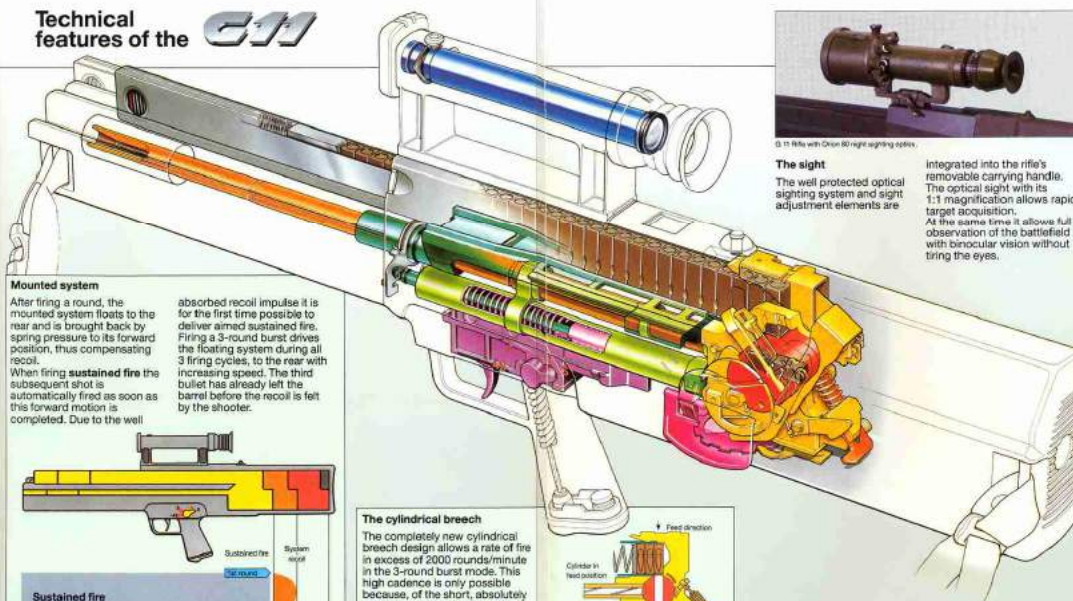
## Types of ammunition

In addition to the combat cartridge with jacketed softcore bullet, the following types of ammunition are available:

- Combat cartridge with soft-core tracer bullet
- Practice cartridge with plastic training bullet and plastic training tracer bullet
- Blank cartridge
- Dummy cartridge



## Technical features of the G11



## Mounted system

After firing a round, the mounted system floats to the rear and is brought back by spring pressure to its forward position, thus compensating recoil. When firing sustained fire the subsequent shot is automatically fired as soon as this forward motion is completed. Due to the well

absorbed recoil impulse it is for the first time possible to deliver aimed sustained fire. Firing a 3-round burst drives the floating system during all 3 firing cycles, to the rear with increasing speed. The third bullet has already left the barrel before the recoil is felt by the shooter.

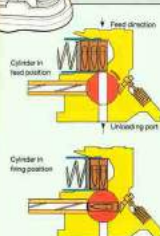


**Sustained fire**  
130 ms ± 480 rds/min

**3-round burst**  
60 ms ± 2000 rds/min

## The cylindrical breech

The completely new cylindrical breech design allows a rate of fire in excess of 2000 rounds/minute in the 3-round burst mode. This high cadence is only possible because, of the short, absolutely straight cartridge feed into the vertically positioned chamber. The cylinder with the chamber carrying the cartridge is then rotated 90° into the firing position. The cartridge is mechanically ignited. The propellant gas drive rotates the cylinder back into the feeding position, the next cartridge is chambered and the cylinder tilted again into the firing position.



## The sight

The well protected optical sighting system and sight adjustment elements are



integrated into the rifle's removable carrying handle. The optical sight with its 1:1 magnification allows rapid target acquisition. At the same time it allows full observation of the battlefield with binocular vision without tiring the eyes.

## The receiver

All moving parts of the G 11 are protected in a completely sealed receiver.

This not only guarantees operation under adverse conditions, but also considerably simplifies care, maintenance and logistics. The G 11 remains fully functional under all climatic and operational conditions.

All materials are chosen to resist corrosion, wear, NBC war influences as well as all kinds of chemical substances. Visible light and IR light reflection is reduced to a minimum. The smooth surface facilitates easy decontamination.

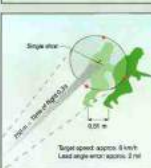


Combat analyses show that conventional rifles achieve only low hit rates. Physical fatigue, target motion, battle noises, enemy fire, etc. handicap the gunner when he tries to properly aim his rifle. The G 11 achieves its high hit probability by firing automatically limited three-round bursts with defined dispersion. This weapon dispersion does not depend upon the shooter or his training level.



## System comparison

G 11	M16 A2	G3 A3
Calibre 4,73 mm	Calibre 5,56 mm	Calibre 7,62 mm
90 cartridges carried in magazine + 30 fixed reloading units	30 cartridges carried in magazine + 7 spare magazines	20 cartridges carried in magazine + 4 spare magazines
Weight < 10 kg	Weight < 10 kg	Weight < 10 kg
510 cartridges available	240 cartridges available	100 cartridges available
7,35 kg	7,35 kg	7,35 kg



## Hit probability

Despite aiming and lead angle errors the 3-round burst with its defined dispersion increases hit probability considerably and thus also reduces ammunition consumption.