

Artillery Fuzes

SNC TEC has been producing the M739 mechanical fuze since 1984. It recently started manufacturing the C32A1 multi-option electronic artillery fuze under licence from Junghans.

M739 Mechanical Fuze

The PD M739 Point Detonating Fuze can be set in 2 modes: super quick (0.1 ms) and delay (30 to 70 ms). Produced economically in both small and large volumes, this fuze can be used on 105 mm, 155 mm and 8-in. howitzer weapon systems. Two independent mechanical devices activated by setback and rotation meet MIL-STD-1316 safety standards.



C32A1 Multi-Option Field Artillery Fuze

The C32A1 is an efficient electronic fuze with 4 very practical programmable operating modes: proximity (12 m), time (1 to 199.9 seconds), super quick (0.25 ms) and delay (within 5 ms). Extremely versatile, it can be used with 105 mm or 155 mm artillery ammunition and, thanks to lithium-battery activation (1,500 g), can be fired at a low charge. In addition, its highly reliable mechanical back-up mode ensures 98% overall functioning.

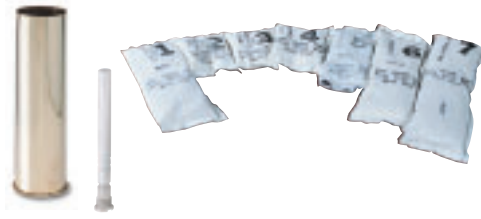


The C32A1 fuze carries many impressive characteristics:

- Fuze programmable in proximity, time, delay and super quick mode
- Manual programmability in proximity or delay
- Mechanical back-up mode (delay) ensuring 98% overall functioning
- 95% reliability in proximity mode
- Low-charge firing with lithium-battery activation (1,500 g)
- No signal emitted in flight if programmed for T-2 sec. flight before reaching targeted area (using fuze setter)
- Functioning under extreme weather conditions ranging from -46°C to +63°C
- Short-term storage between -54°C and +71°C.

Components

In addition to providing complete assemblies, SNC TEC can also provide components in response to clients' specific needs.



105 mm

Cartridge cases	M14, C12
Primers	C20, M28A2
Propelling charges	M67, M200



155 mm

Primers	M82, M2A4
Propelling charges	M3, M4 and M119 series



ARTILLERY AMMUNITION



Always on target™

For over 50 years, SNC TEC has been a leader in the manufacturing and assembly of reliable, high-quality ammunition for a wide range of military applications. Supporting its position at the cutting edge of this key industry are four operating sites offering complete integration of ammunition systems. Its Le Gardeur plant is a LAP (load, assemble and pack) facility handling the assembly of cartridges and fuzes, EXPRO TEC, its latest acquisition, produces propellants, while the St-Augustin plant manufactures required metal parts, including brass cartridges. Finally, components and cartridge assemblies are tested for compliance with technical specifications in Nicolet where the company operates a GO/CO proofing facility. SNC TEC also relies on a number of component suppliers — manufacturing partners who adhere to our strict quality control requirements.

An integrator of ammunition projectiles, propelling charges, fuzes and packaging systems, SNC TEC is committed to delivering products reflecting the highest standards of quality, security and performance. It is this stringency, from start to finish, which has allowed the company to successfully meet the demanding operational requirements of an international clientele for more than half a century.

...with long-range accuracy

In response to the needs of our military and allied forces, SNC TEC offers a full range of 105 mm and 155 mm-calibre artillery ammunition. A critical safety factor, their HE fillings, which consist of TNT or Composition B, are produced in our melt and pour facility. Our R&D Department is further involved in the development of an IM filling process for large-calibre ammunition.

Today, SNC TEC's line of artillery ammunition includes High-Explosives, Illuminating and Smoke rounds as well as Fuzes and Components.

105 mm

- 105 mm HEER C132*
- 105 mm HE M1
- 105 mm Smoke HCBE C102
- 105 mm Smoke RP XC160**
- 105 mm Illuminating M314A3
- 105 mm M395 Blank

155 mm

- 155 mm HE M107
- 155 mm Smoke HCBE DM45
- 155 mm Illuminating M485A2

Fuzes

- M739
- C32A1***

Components

- Primers C20, M28A2, M82, M2A4
- Propelling charges M3, M4, M119, M67, M200
- Cartridge cases C12, M14

* Manufactured under GIAT licence
 ** Joint venture with Buck Neue Technologien
 *** Manufactured under Junghans licence



Serving the Canadian Armed Forces Since 1880

Always on target™



Quality System SNC TEC Registered ❖ ISO 9001 (2000)

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105 mm Artillery Ammunition

SNC TEC manufactures the full line of 105 mm artillery ammunition in response to the stringent requirements of a diverse clientele.

105 mm HEER C132 Cartridge

Manufactured under GIAT licence, the 105 mm HEER increases the ammunition's range to 18 km and offers outstanding accuracy with a low PER. The C132 incorporates a host of impressive features:

- High-fragmentation steel body
- Probable error range (PER) ≤ 0.3% of range
- Probable error deflection (PED) ≤ 1 mil at low-angle gun elevation and ≤ 2 mil at a high angle
- Qualified NATO standard in accordance with STANAG 4224
- Can be fired from howitzer LG1, C3 or equivalent
- A two-zone propellant charge system ensures complete range overlap with 105 mm M1
- Can be safely fired from -46°C to +63°C
- Compatible with standard NATO fuzes
- Packaged in innovative flexible plastic containers.



TECHNICAL DATA

Cartridge length (with fuze)	847 mm
Cartridge weight	18 kg
Projectile length (with fuze)	566 mm
Projectile weight	Nominal: 12.7 kg
Explosive charge	TNT, 2.5 kg
Base bleed unit	Propergol grain, 0.5 kg

COMPONENTS

Fuze	M739 series, MOFA C32A1 or equivalent
Primer	C20
Cartridge case	C12
Propelling charge	Fixed charge of 1.6 kg plus one bag charge of 0.6 kg single base propellant

BALLISTICS

Howitzer	LG1 MK2	C3
Nominal muzzle velocity	715 m/s	740 m/s
Maximum range	18 km	18.5 km

105 mm HE M1 Cartridge

SNC TEC manufactures the 105 mm HE M1 with the client's choice of TNT or Compo B filling. This semi-fixed type ammunition uses an M67 propelling charge that can be adjusted incrementally to obtain different ranges. This ammunition can be fired from most howitzers.

TECHNICAL DATA

Cartridge length (with fuze)	789 mm
Cartridge weight	19 kg
Projectile length (with fuze)	495 mm
Projectile weight	14.45 kg
Explosive charge	Compo B, 2.3 kg

COMPONENTS

Fuze	M739 series, MOFA C32A1 or equivalent
Primer	M28A2
Cartridge case	M14
Propelling charge	M67

BALLISTICS (with M67 charge system)

Nominal muzzle velocity	465 m/s
Maximum range	11.2 km

105 mm Smoke HCBE C102 Cartridge

SNC TEC has been manufacturing the 105 mm HCBE C102 (DM15) since 1993. This projectile features two HC canisters that are ejected and obscure the visual band. It can be fired using an M67 propelling charge.

TECHNICAL DATA

Cartridge length (with fuze)	773 mm
Cartridge weight	18.2 kg
Projectile length (with fuze)	479 mm
Projectile weight	14.54 kg
Filling compound weight	2.6 kg

COMPONENTS

Fuze	M577A1, M762 or equivalent
Primer	M28A2
Cartridge case	M14
Propelling charge	M67

BALLISTICS (with M67 charge system)

Nominal muzzle velocity	465 m/s
Maximum range	11.2 km



105 mm RP Smoke XC160 Cartridge

SNC TEC combined its expertise with that of Buck Neue Technoligien to develop and manufacture the 105 mm RP Smoke XC160, ammunition that provides greater concealment than the HC in a less toxic unit. Delivering efficient screening in the visual, near and mid-infrared bands as well as part of the far infrared band, the cartridge will be type-classified IAW STANAG 4224.

Characteristics of the XC160 include:

- Smoke screen providing minimum two-minute obscuration in the visual band
- Obscuring screen capable of concealing a one-meter by two-meter wide radiated target with minimum 40°C thermal contrast observed with state-of-the-art infrared imaging devices
- Functioning under extreme weather conditions ranging from -46°C to +63°C
- Short-term storage between -54°C and +71°C
- Shelf life of at least 10 years
- Used with standard M67 propelling charge systems, charges 1 to 7 (up to 11.2 km range).

TECHNICAL DATA

Cartridge length (with fuze)	773 mm
Cartridge weight	18.2 kg
Projectile length (with fuze)	479 mm
Projectile weight	14.54 kg
Filling compound weight	1.3 kg RP

COMPONENTS

Fuze	M577A1, M762 or equivalent
Primer	M28A2
Cartridge case	M14
Propelling charge	M67

BALLISTICS (with M67 charge system)

Nominal muzzle velocity	465 m/s
Maximum range	11.2 km



105 mm M314A3 Illuminating Cartridge

The M314A3 is a semi-fixed cartridge. Carried inside the projectile is a pressed illuminating compound and parachute unit. The candle suspended from that parachute provides an average illumination of 525,000 candela from 55 seconds to 80 seconds. The cartridge case is the standard M14 type with an M67 propelling charge.

TECHNICAL DATA

Cartridge length (with fuze)	817 mm
Cartridge weight	18.2 kg
Projectile length (with fuze)	487 mm
Projectile weight	14.54 kg
Filling compound weight	800 g

COMPONENTS

Fuze	M577A1, M762 or equivalent
Primer	M28A2
Cartridge case	M14
Propelling charge	M67

BALLISTICS (with M67 charge system)

Nominal muzzle velocity	465 m/s
Maximum range	11.2 km



105 mm M395 Blank Cartridge

SNC TEC manufactures the M395 Blank used for saluting or simulating battlefield sounds. Consisting of a shortened cartridge, it is filled with 0.77 kg of black powder retained by a closing wad and fitted with an M1B1A2 primer. Detonation produces sound, flash and smoke.



155 mm Artillery Ammunition

SNC TEC manufactures a complete line of 155 mm artillery ammunition meeting the requirements of the Canadian Armed Forces and other clients worldwide.

155 mm HE M107 Projectile

Despite its unsophisticated aerodynamic shape and erratic fragmentation, the 155 mm HE M107 is probably the most widely used of all western artillery projectiles. Used for blast effect and fragmentation, it can be fired from most howitzers using the M3, M4 or M119 series of propelling charge.

TECHNICAL DATA

Projectile length (with fuze)	700 mm
Projectile weight	43 kg
Filling compound weight	Compo B, 7.1 kg

COMPONENTS

Fuze	M739 series, MOFA C32A1 or equivalent
Primer	M82 or M2A4
Propelling charge	M3, M4 or M119

BALLISTICS (with M4A2 charge system in M185 cannon)

Nominal muzzle velocity	568 m/s
Maximum range	14.7 km



155 mm M485A2 Illuminating Projectile

Manufactured by SNC TEC, the 155 mm M485A2 Illuminating Projectile features a shell interior containing a primary expulsion unit, canister assembly and drogue parachute. The canister assembly, in turn, contains a secondary expulsion charge, delay holder and illuminating compound as well as the main parachute. Its projectile has a base plug secured by shear pins, while a time fuze ignites the primary expulsion unit. The resulting pressure ruptures the base pins and ejects the drogue parachute and canister. The drogue parachute and deployed fins serve to decelerate the canister and stop the rotation. After approximately eight seconds, the secondary expulsion charge ignites the illuminating compound and expels the main parachute. The illuminating body descends at a rate of approximately 4.5 to 5 m/s, delivering 1 Mcd for 2 minutes. The 155 mm Illumination can be fired with the M3, M4 or the M119 propelling charge.



155 mm Smoke HCBE DM45 Projectile

The 155 mm Smoke HCBE DM45 is equivalent to the M116 family of projectiles. Its shell interior contains 4 smoke canisters carrying a total weight of approximately 10.9 kg of HC. In operation, it is fitted with a nose-mounted time fuze, which ignites an expulsion charge of approximately 154 g of black powder.

The build-up of internal pressure on the projectile baseplate serves to eject the canisters. The result is a greyish white smoke that is generated within 30 seconds and lasts up to 90 seconds. The HCBE DM45 can be fired with the M3, M4 or M119 series of propelling charges.

TECHNICAL DATA

Projectile length (with fuze)	693 mm
Projectile weight	43 kg
Filling compound weight	10.9 kg

COMPONENTS

Fuze	MTSQ M577A1, M762 or equivalent
Primer	M82 or M2A4
Propelling charge	M3, M4 or M119

BALLISTICS (with M4A2 charge system in M185 cannon)

Nominal muzzle velocity	568 m/s
Maximum range	14.7 km

