

RUAG



Pistol and Submachine Gun Ammunition
Calibre 9x19



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9x19, 9mm Luger or 9mm Parabellum is the most widely used pistol calibre in Europe and many other countries and is in service all over the world.

For army purpose the sidearm serves as a backup weapon or for special operations at close range. These cartridges need to work in every environment.

Law Enforcement units use a handgun as their primary weapon. RUAG Ammotec deformation ammunition operates as a multi-purpose tool, offering precisely defined stopping power and the highest possible prevention of collateral damage.

Thanks to the SINTOX®-Technology, shooters and shooting range personnel are not exposed to the harmful effect of heavy metals. A major part of the products are lead-free and thus environmentally-friendly.



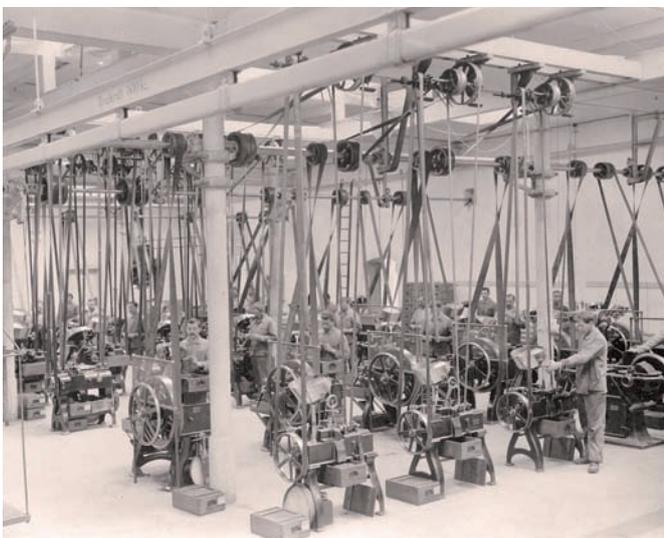
The officer's primary weapon, a pistol cal. 9x19

RUAG Premium Quality Ammunition

RUAG Ammotec stands for state-of-the-art ammunition technology, highest precision and absolute functional reliability. It develops and produces high-performance, small calibre standard and special ammunition for the Armed Forces, Law Enforcement authorities and the civilian market, as well as customer-specific components for the industry.

RUAG Ammotec emerged as an international company in spring 2002 following the merging of the small-calibre activities of

the Swiss company RUAG and the German company Dynamit Nobel. This created one of the world's leading ammunition manufacturers. RUAG Ammotec has production plants in Switzerland, Germany, Sweden, Hungary and the USA, and subsidiary sales and distribution companies in Belgium, France, Great Britain and Austria.



Production facility Thun at 1900

RUAG: a reliable partner since 1863

A pioneering spirit and innovation characterise the history of RUAG Ammotec. The original company began manufacturing ammunition for the military and police forces 150 years ago. It has also manufactured top brand ammunition for hunters and sports shooters for many years.

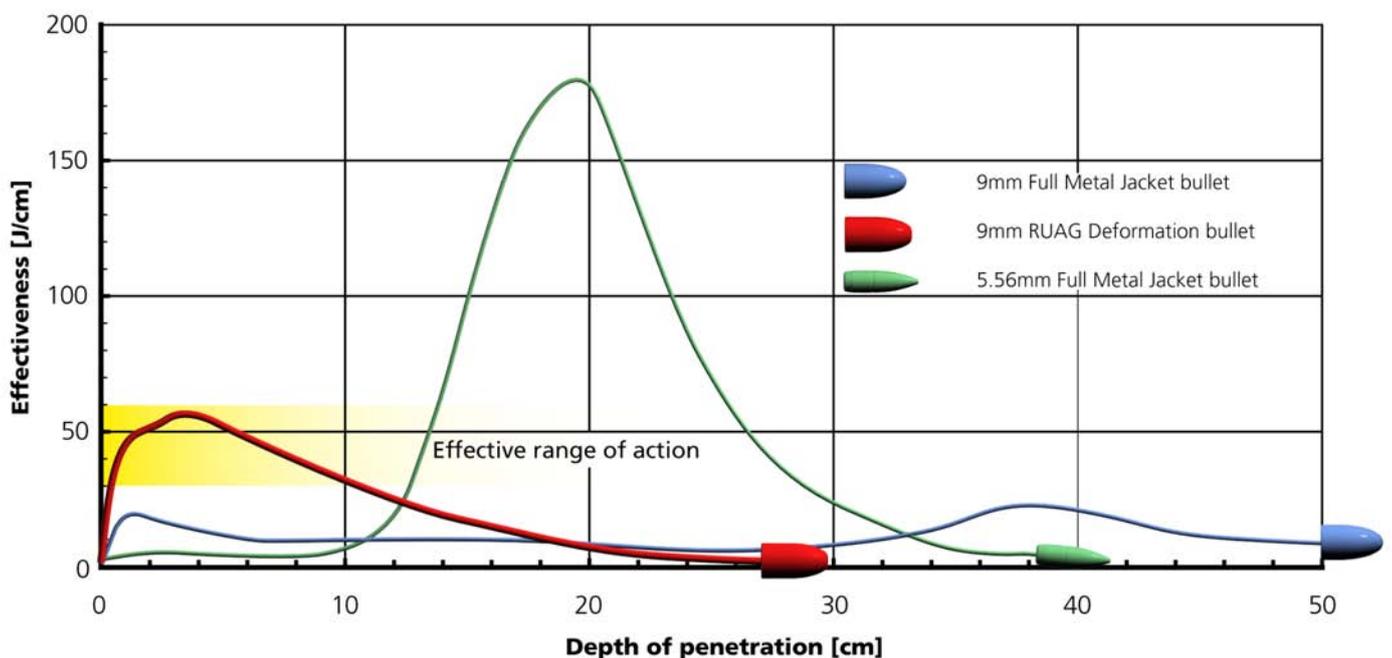
RUAG Ammotec strives to maintain and further expand its recognised position on the international market. By continually developing its products, it meets the high standards, requirements and expectations of its customers and will be an innovative and reliable partner in the future.



Safety for Officials and Bystanders

Conventional full metal jacket bullets cannot optimally meet the requirements of today's service ammunition for authorities. Low energy transfer in the target medium means they over penetrate soft targets much too easily, and thus endanger close bystanders. The increasing magnitude of violence in urban areas necessitates ammunition which is able to stop attackers, but without permanently injuring them.

RUAG Ammotec deformation ammunition is designed so that a large but limited energy transfer, of not more than 60 J/cm, takes place in the target. The bullets have a precisely defined penetration depth of at least 20 cm and maximum 35 cm, which prevents over penetration.



The bullet does not fragment; at least 98% of the residual body remains intact (100% in gelatine).

A medical X-ray contrast medium is enclosed with the plastic tip of the ACTION line.

RUAG deformation ammunition, a reliable partner

- Reduced risk of over penetration
- Optimum stopping power
- Defined energy transfer



9x19 SECA SXF & ACTION 4 SXF



Effective on Hard, Combined and Elastic Targets

RUAG Ammotec deformation ammunition* is designed for daily use by law enforcement officers and other security forces.

Serving as a multi-purpose round, good penetration through hard, combined and elastic targets, as well as through glass, is required.

Hard / combined targets

Because of the effect of the plastic bullet tip of the ACTION line and the bullet design of the SECA, no material penetrates the bullet's active area when hitting hard targets. Therefore there is no significant bullet deformation, but the bullet is axially compressed in the active area. This enables good penetration (min. 4 1 mm sheet steel plates with a distance of 20 mm).



Glass

When shooting at a target behind angled glass, the bullet still achieves a penetration depth of between 10 cm and 30 cm into a soft target. The deflection varies only within a 25° point angle cone based on the bullet-hole direction and bullet weight loss is less than 10 percent.



Tyres

A modern police bullet must be capable of deflating a car tyre and immobilising a vehicle as quickly as possible. Full metal jacket bullets leave a self closing flap of rubber, allowing the vehicle to continue driving for several minutes. A RUAG deformation bullet punctures a hole in the tyre, deflating it in less than 10 seconds.



*according to the German Technical Guideline for low-polluting duty ammunition for the Police



On Duty – Less Backsplash and Ricochet

In urban areas, backslashes and ricochets pose a significant risk for collateral damage.

Utilising suitable metal alloys all RUAG Ammotec ammunition is designed to have a minimal ricochet tendency. Deformation bullets, although they consist of solid material, have no more residual energy than conventional full metal jacket lead core bullets due to the optimised bullet shape.



Hard surfaces in urban areas pose a high risk of collateral damage

In Training – No Backslashes or Ricochets with Frangible Ammunition



Frangible COPPER-MATRIX bullets are specially developed for use in police, military and security training. Frangible ammunition provides a safe, effective and realistic shooting experience. It is ideally suited for tactical CQB training, allowing the teams to engage targets at close range without the risk of being hit by backslashes or ricochets.

Made from copper and polymer, Frangible COPPER-MATRIX is completely lead-free, environmentally-friendly and fully recyclable.

RUAG frangible ammunition for realistic training

- Reduces backslashes and ricochets
- “target friendly”, no damage to shooting range facilities
- Non-toxic, lead-free ammunition



9x19 Frangible COPPER-MATRIX SX



Ammunition for Use under Difficult Conditions

The conditions in which Armed Forces and Authorities work require ammunition which is fully functional and reliable even in extreme conditions such as heat, cold, humidity or dirt.

Seals on the primer and case mouth, as well as temperature-stable propellants, ensure functional reliability and stability.



Reliability under extreme conditions

NATO FMJ – Under extreme temperature fluctuations

These army cartridges meet NATO requirements, and are guaranteed to work between -54°C to $+52^{\circ}\text{C}$.

Tracer – At night

Tracer bullets enable precise tracing of the trajectory hits.

AP – For hard targets

Increased penetration for hard targets (penetrates at least 8 sheet steel registers).

Subsonic – For silent missions

Subsonic ammunition for silenced shooting.

Blank – No risk at training

Plastic blank cartridges enable realistic simulation with service weapons.



9x19 Plastic Blank, Tracer & AP SX



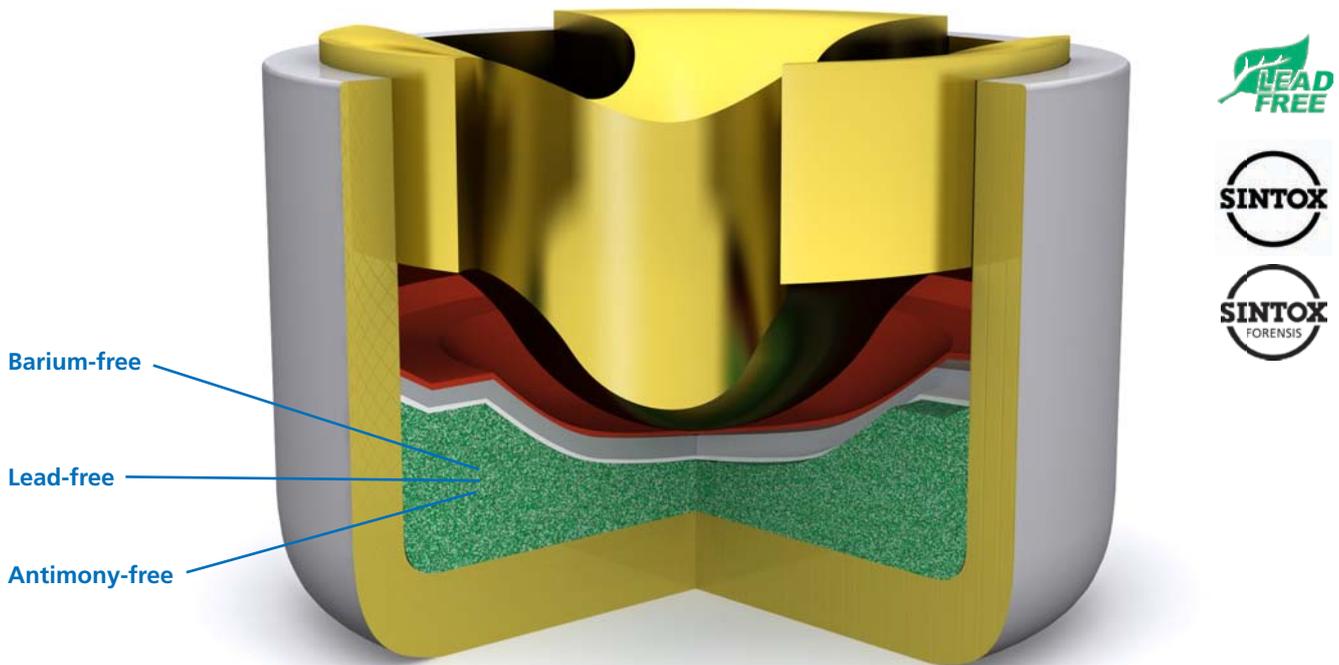
SINTOX® - No. 1 Choice for Reliable Low-Polluting Priming Technology

The most important point for choosing a primer is its reliability. RUAG has addressed this issue since 1928 with the invention of the most reliable, corrosion-free SINOXID-primer.

However standard primers contain lead styphenate, which shooters can get exposed to during the firing process. This may lead to hazardous overexposure.

SINTOX® is a further development of the SINOXID-technology, providing the same undisputed reliability, but heavy metal-free.

- Free of toxic heavy metals like barium
- No exposure to pollutants to the shooter or shooting range personnel
- Absolute reliability and functional stability, in the most extreme of conditions
- Consistent ignition of the propellant over a wide temperature range, from -54°C to 52°C
- Optimum shelf life, even in critical storage conditions
- Extraordinary ignition sensitivity
- Will not corrode or erode the barrel
- Successfully used for over 20 years
- Used with several NATO-qualified cartridges



SINTOX®-FORENSIS - All the Forensic Requirements are met

The SINTOX® technology has been further developed in recent years to enable analysis of gunshot residue. Use of a marking agent can clearly explain:

- whether police ammunition has been used
- whether police ammunition has been used appropriately
- the distance from which the shot was fired.

Gunshot particles are searched for and analysed using an SEM (Scanning Electron Microscope) or an EDX (Energy Dispersive X-ray Analysis). The tracer element Gadolinium from the rare-earth group is used as a marking agent. At the customer's request this can be refined to give them their own unique marker. The shooting distance is determined through a chemographic analysis (tinting method).

Calibre 9x19

		Weight (g / gr)	Description	Max. energy- transfer	Bullet- type
Deformation Ammunition					
	ACTION 1 SX	5.6 g / 86 gr	Deformation cartridge with high terminal performance on soft targets	●	SHP
	ACTION 3 SX	6.0 g / 92 gr	ACTION-cartridge without deformation Good penetration on combined and hard targets	○	SHP
	ACTION 4 SXF	6.1 g / 94 gr	Deformation cartridge with good performance on soft and hard targets, as well as glass and tyres	○	SHP
	ACTION 5 SXF	6.1 g / 94 gr	Deformation cartridge with high terminal performance on soft targets	●	SHP
	ACTION Effect SXF	6.1 g / 94 gr	ACTION-cartridge with max. deformation to the calibre diameter. Good penetration on combined and hard targets	○	SHP
	SECA SXF	6.4 g / 99 gr	Deformation cartridge with good performance on soft and hard targets, as well as glass and tyres	○	JDP
	HP SXF	8.0 g / 124 gr	Deformation cartridge with good terminal performance on soft targets (on request)	●	JHP
Ball Ammunition (FMJ)					
	FMJ	8.0 g / 124 gr	Training cartridge, specially suitable for outdoor shooting ranges		FMJ
	FMJ SX	8.0 g / 124 gr	FMJ-cartridge for training and service, especially suitable for indoor shooting ranges		FMJ
	FMJ SX	7.5 g / 115 gr	FMJ-cartridge with lighter bullet for training and service, especially suitable for indoor shooting ranges		FMJ
	FMJ SXF (+P)	8.0 g / 124 gr	Service cartridge with enhanced power and SINTOX®-FORENSIS primer		FMJ
	LF FMJ SXF (+P)	6.5 g / 100 gr	Training and service cartridge, completely lead free		FMJ
	NATO FMJ	8.0 g / 124 gr	FMJ-cartridge according to NATO requirements		FMJ
	NATO FMJ SX	8.0 g / 124 gr	Pollutant-reduced FMJ-cartridge according to NATO requirements		FMJ
Ammunition for Special Purposes					
	AP SX	7.0 g / 108 gr	Penetrator cartridge with solid bullet for enhanced penetration on light-armoured targets (penetrates 8 sheet steel registers at 15m)		solid
	Subsonic FMJ	10.0 g / 154 gr	Silenced subsonic cartridge with FMJ-bullet		FMJ
	Subsonic HP SX	9.5 g / 147 gr	Silenced subsonic cartridge with deformation-bullet		JHP
	Tracer	7.6 g / 118 gr	Tracer cartridge (red)		tracer
Training Ammunition					
	Frangible COPPER-MATRIX SX	5.5 g / 85 gr	Non-toxic cartridge for tactical training with reduced risk of ricochets (on request)		frangible
	Plastic Blank		Blank cartridge with plastic tip for safe simulation		
	Drill		Inert drill cartridge in solid brass		

(+P)	Higher Pressure	FMJ	Full Metal Jacket	JHP	Jacketed Hollow Point	SX	SINTOX
AP	Armour Piercing	HP	Hollow Point	LF	Lead-free	SXF	SINTOX-FORENSIS
BJHP	Bonded Jacketed Hollow Point	JDP	Jacketed Deformation Projectile	SHP	Solid Hollow Point		

C.I.P. Commission Internationale Permanente pour l'Épreuve des Armes à Feu Portatives
MCMOPI Multi Calibre Manual of Proof and Inspection Procedures
TR Technical Guideline (Technische Richtlinie)

Muzzle velocity	Muzzle energy	Gas pressure	Temperature range	Term of reference	Primer	Lead-free	Maschine pistol	Art. No.
450 m/s ***	565 J	2 600 bar	-20°C / +52°C					2554.4101
420 m/s ***	530 J	2 600 bar	-20°C / +52°C					2554.4102
420 m/s *	540 J	2 700 bar	-30°C / +52°C	TR				2554.4103
425 m/s *	550 J	2 700 bar	-30°C / +52°C					2554.4104
420 m/s ***	540 J	2 600 bar	-20°C / +52°C					2554.4105
400 m/s *	510 J	2 700 bar	-30°C / +52°C	TR				2554.4106
365 m/s **	530 J	2 350 bar	-30°C / +52°C	C.I.P.				2554.4107
380 m/s ***	575 J	2 350 bar		C.I.P.				2554.4110
370 m/s **	545 J	2 350 bar	-30°C / +52°C	C.I.P.				2554.4111
370 m/s **	515 J	2 350 bar	-30°C / +52°C	C.I.P.				2554.4114
350 m/s *	490 J	2 700 bar	-30°C / +52°C	TR				2554.4113
400 m/s *	520 J	2 700 bar	-54°C / +52°C	TR				2554.4133
395 m/s ***	620 J	2 850 bar	-54°C / +52°C	MCMOPI				2554.4115
395 m/s ***	620 J	2 850 bar	-54°C / +52°C	MCMOPI				2554.4116
420 m/s ***	615 J	2 600 bar	-20°C / +52°C					2554.4127
315 m/s ***	495 J	2 350 bar	-30°C / +52°C					2554.4128
325 m/s *	500 J	2 600 bar	-30°C / +52°C					2554.4129
420 m/s ***	670 J	2 600 bar	-20°C / +30°C					2554.4131
430 m/s ***	510 J	2 850 bar	-54°C / +52°C	MCMOPI				2554.4134
			-20°C / +40°C					2554.4136
								2554.4137

* 100mm barrel
** 150mm barrel
***200mm barrel

Technical specification and numerical data are given as an indication only and are of no contractual nature. Ask for a product overview sheet for further information.

Production Sites

RUAG Ammotec AG

Uttigenstrasse 67
3602 Thun • Switzerland
Tel. +41 332 282 220
Fax +41 332 282 627

RUAG Ammotec GmbH

Kronacher Strasse 63
90765 Fürth • Germany
Tel. +49 911 97961-110
Fax +49 911 97961-151

Norma Precision AB

Jälgatan
67040 Amotfors • Sweden
Tel. +46 571 315 00
Fax +46 571 315 40

RUAG Ammotec USA, Inc.

5402 E. Diana Street
Tampa, FL 33610 • USA
Tel. +1 813 626 0077
Fax +1 813 626 0078

RUAG Hungarian Ammotec Inc.

P.O. Box 9
3332 Sirok • Hungary
Tel. +36 36 561 303
Fax +36 36 561 027

Sales Subsidiaries

RUAG Ammotec Austria GmbH

IZ NÖ - Süd Strasse 7 - Objekt 58 D
2355 Wiener Neudorf • Österreich
Tel. + 43 2236 677 735 - 27
Fax + 43 2236 677 736

RUAG Ammotec France S.A.S.

47 Avenue des Genottes
BP 78307 Cergy
95803 Cergy Pontoise Cedex • France
Tel. +33 134 35 15 91
Fax +33 134 35 15 99

RUAG Ammotec Benelux B.V.B.A

Kapelleveldstraat 18
2530 Boecheut • Belgium
Tel. +32 3 455 7508
Fax +32 3 454 0446

RUAG Ammotec UK Ltd.

Upton Cross, Liskeard
PL14 5BQ Cornwall • UK
Tel. +44 15 79 36 23 19
Fax +44 15 79 36 23 33

Distributors Worldwide

Sales Defence & Law Enforcement

RUAG Ammotec AG

Uttigenstrasse 67
3602 Thun/Switzerland
www.ruag.com

Tel. +41 332 282 879
Fax +41 332 282 644
sales.ammotec@ruag.com

The logo for RUAG, consisting of the letters 'RUAG' in a bold, blue, sans-serif font.