

ARCHIVED REPORT

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Machine Guns (Europe)

Outlook

- European designs continue to dominate all three segments (light, medium, and heavy) of the international machine gun market
- We expect production of all machine gun types from all European sources to remain generally stable, averaging more than 47,500 weapons annually

Orientation

Description. Light, medium, and heavy machine guns.

Sponsor. European contractors and arsenals develop, produce, and market various machine gun designs.

Licensees. Several international contractors produce European machine gun designs, with or without license.

Status. Development through serial production.

Total Produced. Through 2023, we estimate European contractors produced at least 4.2 million machine guns since 1980 inclusive.

Application. Crew-served automatic weapons providing sustained direct-fire support for the infantry, as well as light air defense support.

Price Range. In 2024 U.S. dollars, European machine guns carry unit prices ranging from \$127 for the RPK-74 to \$17,820 for the BRG-15.

Contractors

Prime

BAE Systems plc	http://www.baesystems.com , 6 Carlton Gardens, Stirling Sq, London, United Kingdom, Tel: + 44 1252 373232, Fax: + 44 1252 383991, Prime
Beretta Holding SA	http://www.berettaholding.com , 9 rue Sainte Zithe, Luxembourg, Luxembourg, Tel: + 352 030 8341 1, Fax: + 352 030 8341 399, Prime
Ceska Zbrojovka AS	http://www.czub.cz , Svatopluka Cecha 1283, Uhersky Brod, Czech Republic, Tel: + 420 572 65 11 11, Fax: + 420 572 63 36 65, Email: info@czub.cz , Prime
FN Herstal SA	http://www.fnherstal.com , Voie de Liège 33, Herstal, Belgium, Tel: + 32 4 240 81 11, Fax: + 32 4 240 88 99, Email: info@fnherstal.com , Prime

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Federal State Unitary Enterprise, Rosoboronexport, Rosoboronexport State Corp	http://www.roe.ru , 27/3 Stromynka St, Moscow, Russian Federation, Tel: + 7 495 534 6183, Fax: + 7 495 534 6153, Prime
General Dynamics European Land Systems, Santa Bárbara Sistemas	http://www.gdels.com , Via de los Poblados 3, PE Cristalia Edificio 7/8, Madrid, Spain, Tel: + 34 91 585 04 55, Fax: + 34 91 585 02 18, Email: info.sbs@gdels.com , Prime
Heckler & Koch GmbH	http://www.heckler-koch.com , Heckler & Koch Strasse 1, Oberndorf a. Neckar, Germany, Tel: + 49 74 23 79 0, Fax: + 49 74 23 79 23 50, Email: hkinfoboard@heckler-koch.de , Prime
Nexter Munitions	http://www.nexter-group.fr , Route de Villeneuve, La Chapelle, Saint-Ursin, France, Tel: + 33 02 48 68 71 71, Fax: + 33 02 48 68 70 54, Prime
RUAG MRO Holding Ltd	http://www.ruag.ch , Allmendstrasse 86, Thun, Switzerland, Tel: + 41 58 467 06 00, Email: info.defence@ruag.com , Prime
Rheinmetall	http://www.rheinmetall.com/en , Rheinmetall Platz 1, Düsseldorf, Germany, Tel: + 49 211 473 01, Fax: + 49 211 473 4727, Email: info@rheinmetall-defence.com , Prime

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 75 Glen Road, Suite 302, Sandy Hook, CT 06482, USA; rich.pettibone@forecast1.com

Technical Data

The three traditional class designators for machine guns remain in common usage today:

- *Light Machine Guns.* Weapons such as the Minimi, RPK-74, and HK13 are man-portable, infantry squad-level machine guns. They typically fire the same intermediate-caliber ammunition as the squad's battle carbines.
- *Medium Machine Guns.* This term is really a misnomer, as it currently refers to those weapons more properly defined by the British and Germans as general-purpose machine guns. The GPMG is the jack-of-all-trades of the machine gun world, a multifunction weapon filling roles varying from

squad-level fire support to limited anti-aircraft defense. These so-called medium machine guns fire full-size rifle-caliber ammunition.

- *Heavy Machine Guns.* Defined by the immortal Browning 12.7x99mm (.50-cal) M2HB and the Russian 12.7x107mm NSV, these weapons fire ammunition significantly larger than that of other machine guns. Their range and power enable heavy machine guns to primarily fill an anti-materiel role, as opposed to the anti-personnel role of other classes of machine guns. Heavy machine guns are most often vehicle-mounted for use against enemy emplacements, vehicles, and aircraft.

<u>Caliber</u>	<u>Designation</u>	<u>Class</u>	<u>Type (Action/Fire Modes)</u>
<u>Manufacturer – BAE Systems plc</u>			
5.56x45mm NATO (.223 Remington)	L86A1 Engager	Light	Gas, selective
7.62x51mm NATO (.308 Winchester)	L7A2	Medium	Gas, auto
7.62x51mm NATO (.308 Winchester)	L37A2	Medium (Tank)	Gas, auto
7.62x51mm NATO (.308 Winchester)	L94A1	Medium	Externally powered chain, auto
<u>Manufacturer – Ceska Zbrojovka AS</u>			
5.45x39mm	CZ 2000	Light	Gas, selective
5.56x45mm NATO (.223 Remington)	CZ 2000	Light	Gas, selective
<u>Manufacturer – V.A. Degtyarev Plant (Rosoboronexport)</u>			
12.7x107mm	Kord	Heavy	Gas, auto
14.5x114mm	KPV	Heavy	Gas-assist short recoil, auto
14.5x114mm	KPVT	Heavy	Gas-assist short recoil, auto

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Caliber	Designation	Class	Type (Action/Fire Modes)
Manufacturer – Fabbrica D'Armeo Pietro Beretta SpA			
5.56x45mm NATO (.223 Remington)	AR70-84	Light	Gas, selective fire
5.56x45mm NATO (.223 Remington)	AS70/90	Light	Gas, selective
5.56x45mm NATO (.223 Remington)	Minimi	Light	Gas, automatic
7.62x51mm NATO (.308 Winchester)	MG42/59	Medium	Gas-assist short recoil, auto
Manufacturer – FN Herstal SA			
5.56x45mm NATO (.223 Remington)	Minimi	Light	Gas, auto
7.62x51mm NATO (.308 Winchester)	Minimi	Medium	Gas, auto
7.62x51mm NATO (.308 Winchester)	MAG	Medium	Gas, auto
12.7x99mm (.50 caliber)	M2 HB	Heavy	Short recoil, auto
12.7x99mm (.50 caliber)	M2 HB/QCB	Heavy	Short recoil, auto
Manufacturer – General Dynamics Santa Barbara Sistemas			
5.56x45mm NATO (.223 Remington)	Ameli	Light	Delayed blowback, auto
7.62x51mm NATO (.308 Winchester)	MG3	Medium	Gas-assist short recoil, auto
Manufacturer – Nexter Munitions			
7.62x51mm NATO (.308 Winchester)	AA 7.62 NF1	Medium	Delayed blowback, auto
Manufacturer – Heckler & Koch GmbH			
5.56x45mm NATO (.223 Remington)	HK13	Light	Delayed blowback, selective
5.56x45mm NATO (.223 Remington)	HK13E	Light	Delayed blowback, auto
5.56x45mm NATO (.223 Remington)	HK23E	Light	Delayed blowback, auto
5.56x45mm NATO (.223 Remington)	HK73	Light	Delayed blowback, auto
5.56x45mm NATO (.223 Remington)	G36	Light	Gas, selective
7.62x51mm NATO (.308 Winchester)	HK11A1	Medium	Delayed blowback, selective
7.62x51mm NATO (.308 Winchester)	HK11E	Medium	Delayed blowback, selective
7.62x51mm NATO (.308 Winchester)	HK21A1	Medium	Delayed blowback, selective
7.62x51mm NATO (.308 Winchester)	HK21E	Medium	Delayed blowback, selective
Manufacturer – IZHMAASH (Rosoboronexport)			
5.45x39mm	RPK-74	Light	Gas, selective
5.45x39mm	RPKS-74	Light	Gas, selective
Manufacturer – KBP Instrument Design Bureau (Rosoboronexport)			
12.7x107mm	NSV	Heavy	Gas, auto
Manufacturer – Kovrov Mechanical Plant (Rosoboronexport)			
7.62x54mm	PK	Medium	Gas, auto
7.62x54mm	PKB	Medium	Gas, auto
7.62x54mm	PKM	Medium	Gas, auto
7.62x54mm	PKMS	Medium	Gas, auto
7.62x54mm	PKMSN	Medium	Gas, auto
7.62x54mm	PKS	Medium	Gas, auto
7.62x54mm	PKT	Medium (Tank)	Gas, auto
7.62x54mm	PKMT	Medium (Tank)	Gas, auto
Manufacturer – Manroy Engineering Ltd			
12.7x99mm (.50 caliber)	M2 HB	Heavy	Short recoil, auto
12.7x99mm (.50 caliber)	M2 HB/QCB	Heavy	Short recoil, auto
Manufacturer – Molot Engineering Plant (Rosoboronexport)			
5.45x39mm	RPK-74	Light	Gas, selective
5.45x39mm	RPKS-74	Light	Gas, selective
12.7x107mm	NSV	Heavy	Gas, auto
12.7x107mm	NSVT	Heavy (Tank)	Gas, auto
Manufacturer – Rheinmetall Defence			
7.62x51mm NATO (.308 Winchester)	MG3	Medium	Gas-assist short recoil, auto

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<u>Caliber</u>	<u>Designation</u>	<u>Class</u>	<u>Type (Action/Fire Modes)</u>
<u>Manufacturer – RUAG Land Systems</u>			
7.5x55mm	M51	Medium	Gas-assist short recoil, auto
7.5x55mm	MG83	Medium (Tank)	Gas-assist short recoil, auto
7.5x55mm	M87	Medium (Tank)	Recoil, auto
<u>Manufacturer – TsNIITochMash (Rosoboronexport)</u>			
6x49mm Russian	Unified	Light	Gas, auto
7.62x54mm	Pecheneg	Medium	Gas, auto

Variants/Upgrades

Variants. Not generally applicable. To have the greatest degree of product differentiation and the largest range of products, small arms manufacturers usually give modified or upgraded models of their machine guns different designations.

Modernization and Retrofit Overview. Not generally applicable. Contractors usually integrate upgrades to existing weapons as production cut-ins.



British Army Para with Minimi

Source: U.K. Ministry of Defence

Program Review

Background. Perhaps more than any other infantry weapon, the machine gun has defined infantry combat since the dawn of the 20th century. The carnage of the Western Front in the First World War was a direct result of the Maxim-based machine guns employed by both sides. During the Second World War, the MG34 and MG42 general-purpose machine guns were the heart of the German Wehrmacht infantry squad's firepower and tactics. Light machine guns and general-purpose

(medium) machine guns remain the base-of-fire weapons for the infantry squad in combat.

Three Classes of Weapons

As indicated in the **Technical Data** section, machine guns fall into light, medium, and heavy classes.

Procurement of all machine gun classes will continue throughout the forecast period, as each class

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complements the capabilities of the other two classes. Thus, the current popularity of 5.45mm and 5.56mm light machine guns worldwide in no way diminishes the requirement for 7.62mm general-purpose machine guns. Yet, fruitless debates over which is better – light or medium machine guns – continue to rage on without resolution, keeping the doctrinal role of the machine gun somewhat in flux.

In marked contrast, the heavy machine gun remains in a class by itself, bringing unique and irreplaceable capabilities to the battlefield, as amply illustrated by the eight-decade longevity and continued popularity of the Browning 12.7x99mm (.50-cal) M2 HB heavy machine gun.

Belgium

FN Herstal SA. The names Fabrique Nationale (FN) and Mitrailleur d'Appui General (MAG) are synonymous with machine guns worldwide.

The firm's weapons remain the standard by which armies judge all other machine guns. The firm, operating in Belgium under the auspices of the government of the Walloon Region, continues as a world leader in military small arms production.

FN MAG: Solid Design

The 7.62x51mm NATO (.308 Winchester) MAG, a descendant of the original Mitrailleur à Gaz 58 (MAG 58), remains in serial production for the Belgian armed forces. In addition, this popular weapon is in licensed production in six countries. To date, at least 86 nations have produced over 200,000 units of this general-purpose machine gun. The U.S. Army has adopted this weapon as its M240.

Minimi: An International Hit

The 5.56x45mm NATO (.223 Remington) Minimi is essentially a companion weapon for the FNC battle carbine, although the family likeness to the MAG is quite noticeable.

The Minimi is currently in service with the armed forces of Australia (3,000), Belgium (10,000), Canada (7,000), Democratic Republic of the Congo, France, Greece, Indonesia, Italy, New Zealand, Sri Lanka, Sweden, the United Arab Emirates, the United Kingdom, the United States (over 75,000, designated the M249 SAW), and at least two other nations. FN produces the weapons for Australia, Canada, and the United States at local in-country FN subsidiaries.

For a more detailed discussion of U.S. procurement of the Minimi, see FI's "Military Small Arms (United States)" report. The British Army, which has been

evaluating contenders for its requirement for 2,000 light support weapons, will reportedly stay with the Minimi.

In 1996, FN introduced an improved version of the Minimi, the Mk 2. This improved design features a reinforced cocking handle mechanism, a folding carrying handle, and a new composite butt assembly replacing the earlier tubular butt assembly. The weapon is available in standard Mk 2 and Mk 2H models (the latter with a hydraulic buffer assembly). Mk 2 Para configurations, featuring a shorter barrel and collapsible stock, are available in the same Mk 2 and Mk 2H variants.

In mid-2006, FN introduced a 7.62x51mm NATO (.308 Winchester) version of the Minimi. FN expects the Minimi to eventually equal or exceed the commercial success of the MAG series.

The Immortal M2HB

FN also continues to produce its variants of the venerable Browning 12.7x99mm (.50-cal) M2HB heavy machine gun. The quick-change-barrel variant, the M2HB QCB, is currently in licensed serial production in the United States.

Czech Republic

Ceska Zbrojovka AS. In the mid-1990s, the world-famous Ceska Zbrojovka (CZ) firm absorbed the former Zbrojovka Brno, one of the most famous names in the field of small arms, into its organization.

Adopting NATO Standards

In 1983, Czechoslovakia initiated a new 5.56x45mm NATO (.223 Remington) family of weapons program. This family of weapons, originally called the LADA (or sometimes SRAZ) and later renamed the CZ2000, includes a light machine gun. Accepting a 30-round box or 75-round drum magazine, the CZ2000 is available on the export market in NATO-standard 5.56x45mm and Russian 5.45x39mm chamberings. CZ is aggressively marketing this weapons system for export. However, despite expectations that the Czech and Slovak Republics will adopt the CZ2000 family of weapons, procurement has thus far been limited.

France

Nexter Munitions. In the early 1990s, this multifaceted firm reorganized as a private entity under the name Giat Industries. It remains a significant player in the international small arms market.

Corporate Evolution

In October 2006, Giat Industries announced a corporate reorganization, under which the contractor changed its

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name to Nexter. Giat reorganized into four core operations:

- Nexter Systems
- Nexter Munitions
- Nexter Electronics
- Nexter Mechanics

Reportedly, the move was made to better prepare the firm for consolidation.

In 2015, Krauss-Maffei Wegmann and Nexter finally – after years of on-again, off-again discussion – signed an agreement on a merger plan.

As part of the process, the two companies contributed their shares into a newly incorporated joint holding company based in the Netherlands. They each received 50 percent of the shares of this company, which became the sole shareholder in KMW and Nexter. Completion of the merger of KMW and Nexter was formally announced in January 2016.

The firm is the third-largest land defense contractor in the world, behind General Dynamics and BAE Systems. Ownership is split between the French government's Giat Industries holding company and KMW parent the Wegmann Group (controlled by Germany's Bode family).

N AAT mle NF1

The contractor has been producing the 7.62x51mm NATO (.308 Winchester) N AAT mle NF1, a modernized version of the 7.5x54mm AA52 general-purpose machine gun, ever since the French finally abandoned their 7.5mm round in favor of NATO-standard ammunition. The N AAT mle NF1 is still available for orders.

Federal Republic of Germany

Heckler & Koch GmbH. This small arms powerhouse currently produces several models of machine guns in a number of variants.

H&K no longer produces the 7.62x51mm NATO (.308 Winchester) HK21 or the improved HK21A1, but licensed production continues with Industrias Nacionais de Defesa EP and Hellenic Arms (the A1 variant) on an as-needed basis. The weapon remains popular, despite losing to the FN Minimi in U.S. Army tests for the service's Squad Automatic Weapon (SAW). Further, current German infantry doctrine has precluded Bundeswehr adoption of the HK21. The HK21 medium machine gun is currently in service in Greece, Kenya, Portugal, and several other nations.

Product Improvements

The 7.62x51mm NATO (.308 Winchester) HK21E and 5.56x45mm NATO (.223 Remington) HK23E variants are reportedly more robust and easier to service than the original HK21 and HK21A1. Their most significant feature, however, is the lengthened receiver, which provides a longer sight radius and reduces recoil, increasing the accuracy of the weapon. These E-series weapons use the standard H&K fire control assembly, with a three-round burst capability. Mexico produces these weapons under license. Potential customers for these weapons include the armies of Bolivia, Chile, India, Pakistan, Portugal, and Spain, as well as several African nations.

HK11A1 and HK11E

Although H&K no longer produces the 7.62x51mm NATO (.308 Winchester) HK11 series of medium machine guns, they remain in wider service than the HK21 from which they were developed. Various African nations use the HK11A1; it is also in service in some Southeast Asian countries and in South America – possibly Chile and Bolivia (although not on a wide scale). Hellenic Arms of Greece continues to produce the HK11A1 under license.

HK13 Series

Essentially a 5.56x45mm NATO (.223 Remington) variant of the HK11 series, the HK13 can use either the SS109 or M193 pattern ammunition, depending on which quick-change barrel unit is used. Several countries tested and procured the original HK13. The current-production HK13E features a new burst control, rear sight, and grip. Production is ongoing for undisclosed customers.

G36 Light Support Weapon

The newest machine gun from Heckler & Koch is a light machine gun version of the 5.56x45mm NATO (.223 Remington) G36 battle carbine. The G36 LSW differs from the base G36 model primarily in having a selective-fire capability. An export model, with a more powerful optical sight, is also available. This weapon is in production for domestic Bundeswehr requirements.

Rheinmetall Defence. The world-famous Rheinmetall firm dates back to the earliest days of the modern machine gun. Its real success, however, remains its MG42 line of general-purpose machine guns, which first gained fame during World War II.

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MG42 Design Soldiers On

The Rheinmetall MG42, in its modern 7.62x51mm NATO (.308 Winchester) chambering, has carried the designations MG42/59, MG1, MG2 (a rechambered MG42), and MG3 (introduced in 1968). The current MG3 remains one of the most successful general-purpose machine guns ever fielded, true to its readily apparent MG42 heritage. The weapon offers proven short-recoil operation, easy use and maintenance, and a high rate of fire.

Though the length and weight of the MG3 have sometimes suffered unfavorable comparison with more modern machine guns, this weapon will likely remain in frontline service for several more years. It is worth noting that a number of other weapons (including the M60 machine gun) have incorporated MG42 design features.

Prior to terminating its production line, Rheinmetall had produced these weapons for service in Austria, Chile, Denmark, the Federal Republic of Germany, Iran, Italy, Norway, Pakistan, Portugal, Spain, Sudan, Turkey, and at least three other nations. Licensed production continues in Greece, Iran, Italy, Pakistan, Spain, and Turkey.

Italy

Fabrica D'Armee Pietro Beretta SpA. Reputedly the oldest family-owned small arms firm in Europe, Beretta (established in the 16th century) remains securely ensconced as one of the major players in the European small arms market. Since 1995, Beretta has acquired the Luigi Franchi firm and Finland's Sako Ltd.

AR70-84: Taking a Chance

The Beretta 5.56x45mm NATO (.223 Remington) AR70 small arms family includes a light machine gun, the Model AR70-84. Based on the AR70 battle carbine, this magazine-fed gun features an insulated forend grip and bipod for stability in support or defensive fire roles. The AR70-84 has yet to enter production, as the Italian armed forces have not issued a specific requirement for a weapon of this type. Beretta has taken this risk with an eye to the potential Italian procurement of as many as 30,000 weapons. Beretta reportedly could start serial production immediately, if necessary.

AS70/90: Foot in the Door

Beretta has also developed a 5.56x45mm NATO (.223 Remington) light machine gun member of the AR70/90 family, designated AS70/90. The AS70/90 light machine gun uses the same bolt system as the AR70/90 but features a heavier barrel and fires from an open bolt. Though there have been no export sales of

this weapon, the Italian Army procured the AS70/90 in limited numbers following its selection of the AR70/90 battle carbine.

Russian Federation

Both the 7.62x39mm RPK (based on the AKM) and the 5.45x39mm RPK-74 (based on the AK-74) are light machine guns, featuring bipods and heavier barrels than their battle carbine cousins. Although the original RPK is out of production in Russia, IZHMAH (Kalashnikov) and Molot continue to produce the RPK-74 for domestic and export sales.

The 12.7x107mm NSV heavy machine gun, which received its baptism of fire in Afghanistan, remains the most heavily produced machine gun in Russia today. KBP, Metallist, and Molot all maintain serial production of the NSV for domestic and export sales.

In addition, a number of older Soviet-era machine guns (RP-46, DPM, RPD, RPK, SG43/SGM, etc.) remain in production under license or in pirated versions in several countries.

The Russian Federation continues to consolidate its manufacturing infrastructure. State-owned and -operated facilities still produce the majority of Russian military hardware. Over the next several years, we believe semi-private Russian organizations will become increasingly active in the export market.

FSUE Rosoboronexport. This organization acts as the primary conduit between the Russian defense industry and the international market. All individual Russian contractors thus effectively operate under the auspices of Rosoboronexport. Major Russian contractors involved in the machine gun market (under Rosoboronexport) include the following:

V.A. Degtyarev Plant: Aside from its 12.7x107mm Kord heavy machine gun program, Degtyarev continues serial production of the 14.5x114mm KPVT and KPVT heavy machine guns. Open-source reporting indicates that the Kord, which has been in development since the 1990s, has finally started making its way into the hands of Russian troops.

Kovrov Mechanical Plant: Kovrov Mechanical Plant is one of the semi-privatized organizations that have emerged from the old Soviet State Arsenal system. This firm still produces the 7.62x54mm PK-series machine guns, as do four licensees. There are currently eight members of this versatile family of weapons.

Molot Engineering Plant: This organization continues low-rate production of the Kalashnikov-based 5.45x39mm RPK-74 and RPKS-74, as well as the 12.7x107mm NSV heavy machine gun.

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TsNIITochMash: This state-run organization, the Institute of Precise Mechanical Engineering, is actually a design bureau with an apparently limited production capability. This organization has been developing two new machine guns, neither of which has entered production. The first is the 6x49mm Unified, a long-barreled derivative of the 7.62x54mm Pulemet Kalashnikova (PK) firing an experimental cartridge.

The more conventional 7.62x54mm 6P41 Pecheneg is also a PK derivative, reputedly more accurate than the standard PK series. The Pecheneg is further along in development than the Unified; TsNIITochMash has already offered the Pecheneg on the international market. Deliveries to the Russian Army began in 2001; serial production is ongoing.

Spain

General Dynamics Santa Barbara Sistemas. Santa Barbara Sistemas, now a component of General Dynamics, produces the CETME-design weapons for the Spanish armed forces and for export.

Following NATO's Lead

The policy of the Spanish armed forces to comply with NATO initiatives (even before Spain entertained NATO membership) has led to the development of a 5.56x45mm NATO (.223 Remington) small arms family to augment Spain's existing stocks of 7.62x51mm NATO (.308 Winchester) MG3 and Heckler & Koch machine guns.

Ameli: Flexible Design

The 5.56x45mm NATO (.223 Remington) Ameli exhibits superficial similarities to the models L and LC battle carbines; a number of its parts are interchangeable with the L and LC models. The Ameli can fire either the M193 or the newer SS109 NATO cartridges from free disintegrating-link belts or boxed-belt magazines.

The weapon features a quick-change barrel and a roller-locking block bolt assembly reminiscent of the proven Heckler & Koch design. Following adoption, the Spanish Army procured 25,000 Ameli light machine guns. The British Army has evaluated the Ameli for possible use by Special Operations Forces. The British could potentially require at least 200 weapons for employment by 22 Special Air Service (SAS) Regiment.

Switzerland

RUAG Land Systems. This privatized firm – formerly Schweizerische Unternehmung für Waffensysteme (Swiss Ordnance Enterprise) and before that Eidgenoessische Waffenfabrik, Bern – has been supplying machine guns to the Swiss armed forces for decades.

Consolidation and RUAG

In 1998, the Swiss government consolidated the entire state-owned armaments industry into four semi-privatized organizations, one being Schweizerische Unternehmung für Waffensysteme. Under a further reorganization, the RUAG Group emerged with RUAG Land Systems as the producer of machine guns.

M51: Swiss MG42 Derivative

RUAG Land Systems still has the capability to produce the 7.5x55mm M51 light machine gun for use by the Swiss armed forces. Essentially an MG42 derivative, this weapon features machined components (instead of the MG42's stampings) and exhibits an overall higher quality than the serial-production MG42. In addition, RUAG produces the 7.5x55mm Model 87 tank machine gun on an as-needed basis. The Model 87 can easily be converted to fire 7.62x51mm NATO (.308 Winchester) ammunition.

MG83: Tanker's M51

The 7.5x55mm MG83 tank machine gun is an M51 derivative that can also fire 7.62x51mm NATO (.308 Winchester) ammunition with the replacement of four components. The Swiss mount the MG83 on their Panzer 87 tanks, as well as other vehicles.

United Kingdom

In 1994, the U.K. Ministry of Defence announced its requirement for an off-the-shelf weapon to replace the 7.62x51mm NATO (.308 Winchester) L7A1 general-purpose machine gun for infantry and armored vehicle use. Procurement of at least 1,000 weapons is reportedly underway.

RAF Requirements

The British MoD is also seeking a replacement for the Royal Air Force's helicopter-mounted machine guns. The RAF regards both the L7 GPMG and the 7.62x51mm NATO (.308 Winchester) M134 Minigun as lacking the desired firepower. Possible candidates to replace the RAF's current helicopter-mounted armament include FN Herstal's standard 12.7x99mm (.50-cal) M2 heavy machine gun and the 12.7x99mm GAU-19/A Gatling system by General Dynamics.

BAE Systems plc. As a component of BAE Systems, the former RO Defence (Royal Ordnance) organization produces machine guns for the British services and for government-approved export customers. In current serial production are infantry and vehicle-specific weapons and a medium machine gun.

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L7 Series: Licensed MAG

The L7 is actually a derivative of the Belgian 7.62x51mm NATO (.308 Winchester) MAG, produced under license. The L7A2 general-purpose machine gun is the latest iteration of the series, providing British infantry squads sustained fire support. As this weapon is an adaptation of the original MAG design, not all parts are interchangeable with the Belgian weapon. The L7A2, in its 13 variants, remains in use with all three British services.

Although no detailed export data are available, the L7 series of machine guns is reportedly in service with the armed forces of Australia, Canada, and New Zealand, as well as with several other former Commonwealth nations. When the Enfield Lock small arms factory closed, Manroy Engineering acquired the manufacturing rights for all versions of the L7 GPMG series.

In 2002, the British MoD purchased 932 sight brackets to mount the Common Weapon Sight, a version of the Thales Electronics Kite sight. In addition, the SUSAT (Sight Unit, Small Arms, Trilux – L9A1), can mount on the sight bracket.

L86A2 Light Support Weapon

As a component of the 5.56x45mm NATO (.223 Remington) Enfield Individual Weapon System, the L86A2 light support weapon provides fire support within the British infantry squad. It is the squad's standard-issue battle carbine. Like its American counterpart, the M249 SAW, the L86A2 LSW fires NATO-standard 5.56mm ammunition. This heavy-barreled L85A2 derivative features an optical sight and bipod, enabling it to deliver significantly more accurate fire than the standard L85 battle carbine.

The initial British Ministry of Defence requirement was for 8,000 L86A2 weapons for Army use, with further procurement to meet Royal Marine and Royal Air Force needs. As a component of the L85 series, the L86 has suffered its share of developmental problems. For a detailed discussion of the trials and tribulations of the L85 program, see FI's "Military Rifles (Europe)" report.

L94A1: British Chain Gun

The British Army has procured the L94A1 variant of the Alliant Techsystems 7.62x51mm NATO (.308 Winchester) Chain Gun for use on its Challenger 2 tanks, as well as its FV510 Warrior and Sabre armored vehicles. In June 1996, the MoD awarded Heckler & Koch (U.K.) a contract worth \$7 million for 606 L94A1 weapons.

Manroy Engineering Ltd. This firm produces the 12.7x99mm (.50-cal) M2HB machine gun under license for the British MoD and for authorized export. In 1992, the Republic of Ireland awarded Manroy a contract for an unspecified number (possibly 32) of M2HB machine guns; the contract also involved the modification of mounts. In March 1996, the British Ministry of Defence awarded Manroy a contract for M2HB Quick Change Barrel conversion kits. When the Enfield Lock small arms factory closed, Manroy acquired the manufacturing rights for the L7 general-purpose machine gun.

Analysis. The machine gun market is clearly the most stable of all European small arms markets, with a few proven designs continuing to dominate this market. These tried-and-true designs will soldier on through the forecast period, as no viable competitors have yet emerged.

Minimi Dominates LMG Class

In the light machine gun class, European small arms manufacturers continue to develop an increasingly wide array of magazine-fed light support weapons developed from basic intermediate-caliber battle carbine designs. In this line, we find the Russian 5.45x39mm RPK-74 and a variety of 5.56x45mm NATO (.223 Remington) light support weapons, including the HK13, the G36, the AS70/90, and the L86A2.

Yet the Fabrique Nationale 5.56x45mm NATO (.223 Remington) Minimi light machine gun continues to utterly dominate the infantry's squad automatic weapon role. With its adoption by the U.S. Department of Defense (as the M249 SAW) and the British 22 SAS Regiment, the Minimi has virtually defined the modern light machine gun role.

Problem of Semantics

The problem for the developers of these light support weapons is not so much one of design as of marketing. The magazine-fed light support weapon simply cannot provide a level of sustained fire comparable to a belt-fed light machine gun such as the Minimi. Consequently, as long as small arms companies market these weapons as light machine guns, they will suffer in comparison to true light machine guns. We see this realization in the growing use of the term *light support weapon* to describe these magazine-fed weapons.

European small arms manufacturers may ultimately market the magazine-fed light support weapon as a distinct class, filling a niche in the currently popular "family" of weapons concept between the individual infantryman's battle carbine and the infantry squad's light machine gun.

Machine Guns (Europe)

Tried-and-True GPMGs

In the medium (general-purpose) machine gun class, we find a very stable market segment, dominated by a few proven designs. The FN MAG, HK21, MG42/MG3, and Russian PK series continue to soldier on admirably in the GPMG role. These tried-and-true designs form the basis for any number of copies and variations worldwide. By firing a more potent rifle-caliber cartridge, the general-purpose machine gun provides a level of firepower and range well beyond the capabilities of lighter weapons.

European small arms firms have not placed great emphasis on developing radically new GPMG designs, simply because the existing designs are more than

satisfactory for their roles. We do not expect to see the introduction of a new generation of general-purpose machine guns during the current decade.

Classic Heavy Machine Guns

As for the heavy machine gun market segment, the legendary Browning M2HB and, to a lesser extent, the Russian NSV and KPV continue to reign supreme. Despite the advent of a number of more modern weapons, these highly successful older designs continue to dominate the heavy machine gun market. One might characterize the prevailing attitude of the heavy machine gun market as, "If it's not broken, don't fix it." Therefore, we expect to see production of these older weapons continue.



Parachute Regiment Land Rover, Mounting M2 and L7A2 Machine Guns

Source: U.K. Ministry of Defence

Funding

The various contractors, some of which are government-owned enterprises or state-owned arsenals, fund the development of Europe's machine guns.

Contracts/Orders & Options

Not available, as the various ministries of defense and contractors have not released contractual information regarding machine gun programs.

Machine Guns (Europe)

Timetable

Europe remains the international center of gravity for machine gun development. The light machine gun market segment continues to be the most active, with several new programs underway. The medium/general-purpose machine gun market segment remains stable, with introduction of the next generation of weapons not likely during the current decade. The heavy machine gun market segment also remains stable, with production of existing designs continuing at a steady pace.

Worldwide Distribution/Inventories

Export Potential. The growing capability of non-U.S. and non-European players to offer machine guns comparable in quality to European designs for a lower unit price remains the greatest threat to European players in this market. However, successful marketing strategies in this buyer's market favor identification with the tried-and-true designs. As in the European side arms market, reputation trumps innovation.

Countries. The distribution of machine guns produced by the major European players is worldwide in scope. Because most contracts go unreported and the distribution of many designs is so widespread, it is virtually impossible to determine the precise distribution of the machine guns covered in this report.

Forecast Rationale

While European players no longer dominate the international machine gun market in terms of production, European designs remain industry standards. Many non-U.S. and non-European weapons available on the international market are direct copies or derivatives of established European designs.

Evolutionary Market

Given the continued success of established European designs, we believe the European machine gun market will continue to be evolutionary rather than revolutionary in nature. Leading European players in this market tend to stick with successful designs rather than bet on radical new design concepts.

If It's Not Broken...

New designs face the obstacle of proving themselves against existing icons of the market. Even then, fiscal constraints on European armed forces may severely limit procurement of new designs if proven, dependable weapons in existing inventories are still operable.

While the light machine gun market segment will continue to be the most active, the European market for all classes of machine guns will remain stable. We expect a steady base level of procurement, averaging over 47,500 weapons per year.

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