

# ARCHIVED REPORT

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## Machine Guns (International)

### Outlook

- Licensed (and unlicensed) production of European designs accounts for most non-U.S. and non-European production
- IWI, NORINCO, and Singapore Technologies Kinetics have emerged as major international players
- We expect production of all machine gun types from all non-U.S. and non-European sources to average 45,000 weapons annually

### Orientation

**Description.** Light, medium, and heavy machine guns.

**Sponsor.** The respective contractors develop, produce, and market various machine gun designs.

**Licensees.** Several international contractors produce other firms' weapons, with or without license.

**Status.** Development through serial production.

**Total Produced.** Through 2023, we estimate non-U.S. and non-European contractors produced more than 2.2 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, non-U.S. and non-European machine guns carry unit prices ranging from \$211 for the NORINCO Type 74 to \$1,808 for the Ultimax 100 and \$12,132 for the Quick Change Barrel version of the M2HB.

### Contractors

#### Prime

<b>China North Industries Corp (NORINCO)</b>	<a href="http://www.norinco.cn">http://www.norinco.cn</a> , 12A Guang An Men Nan Jie, PO Box 100053, Beijing, China, Tel: + 86 10 6352 9988, Fax: + 86 10 6354 0398, Email: <a href="mailto:norinco@norinco.cn">norinco@norinco.cn</a> , Prime
<b>Colt Canada Corp, (formerly Diemaco Inc)</b>	<a href="http://www.coltcanada.com">http://www.coltcanada.com</a> , 1036 Wilson Ave, Kitchener, Ontario, Canada, Tel: + 1 (519) 893-6840, Fax: + 1 (519) 893-3144, Email: <a href="mailto:postmaster@coltcanada.com">postmaster@coltcanada.com</a> , Prime
<b>Denel SOC Ltd</b>	<a href="http://www.denel.co.za">http://www.denel.co.za</a> , Nellmapius Dr, Irene, South Africa, Tel: + 27 12 671 2700, Fax: + 27 12 671 2751, Email: <a href="mailto:marketing@denel.co.za">marketing@denel.co.za</a> , Prime
<b>Israel Weapon Industries Ltd, (formerly IMI Small Arms Division)</b>	<a href="http://iwi.net/">http://iwi.net/</a> , PO Box 63, Ramat Hasharon, Israel, Tel: + 972 3 760 6000, Fax: + 972 3 760 6001, Email: <a href="mailto:info@israel-weapon.com">info@israel-weapon.com</a> , Prime

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<b>SNT Motiv Co Ltd, (formerly S&amp;T Daewoo Co Ltd)</b>	<a href="http://www.sntmotiv.com">http://www.sntmotiv.com</a> , 363 Yeoraksongjeong-ro, Cheolma-myeon, Gijang-Gun, Busan, Korea, South, Tel: + 82 51 509 2114, Fax: + 82 51 508 3339, Email: bkyun@mail.dwpi.co.kr, Prime
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<b>Thales Australia, Armaments &amp; Ammunition</b>	<a href="http://www.thalesgroup.com">http://www.thalesgroup.com</a> , 7 Murray Rose Ave, Sydney Olympic Park, New South Wales, Australia, Tel: + 61 2 9562 3333, Email: communications@thalesgroup.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 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 the general-purpose machine gun. 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-caliber) M2HB and the Russian 12.7x107mm NSV, these weapons fire ammunition significantly larger than that of other machine guns. The range and power of heavy machine guns enable them 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 – Thales Australia</u>			
5.56x45mm NATO (.223 Remington)	F88 HP	Light	Gas, selective fire
5.56x45mm NATO (.223 Remington)	F89 Minimi	Light	Gas, auto
7.62x51mm NATO (.308 Winchester)	M1919A1	Medium	Short recoil, auto
<u>Manufacturer – China North Industries Corp</u>			
5.8x42mm	Type 95	Light	Gas, auto
5.56x45mm NATO (.223 Remington)	Type 97	Light	Gas, auto
7.62x39mm M1943	Type 56-1	Light	Gas, auto
7.62x39mm M1943	Type 74	Light	Gas, auto
7.62x39mm M1943	Type 81	Light	Gas, auto
7.62x39mm M1943	Type WQ 112	Light	Gas, selective
7.62x54mm	Type 67 series	Medium	Gas, auto
7.62x54mm	Type 80	Medium	Gas, auto
12.7x107mm	Type 54	Heavy	Gas, auto
12.7x107mm	Type 77	Heavy	Gas, auto
12.7x107mm	Type 85	Heavy	Gas, auto
12.7x107mm	QJZ89	Heavy	Gas, auto
14.5x114mm	Type 56	Heavy	Gas-assist short recoil, auto

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<u>Caliber</u>	<u>Designation</u>	<u>Class</u>	<u>Type (Action/Fire Modes)</u>
14.5x114mm	Type 75	Heavy	Gas-assist short recoil, auto
14.5x114mm	Type 75-1	Heavy	Gas-assist short recoil, auto
<u>Manufacturer – Colt Canada Corp</u>			
5.56x45mm NATO (.223 Remington)	C7	Light	Gas, auto
5.56x45mm NATO (.223 Remington)	Minimi	Light	Gas, auto
<u>Manufacturer – Denel SOC Ltd</u>			
5.56x45mm NATO (.223 Remington)	Vektor Mini SS	Light	Gas, auto
7.62x51mm NATO (.308 Winchester)	Vektor SS-77	Medium	Gas, auto
7.62x51mm NATO (.308 Winchester)	MG4	Medium	Recoil, auto
<u>Manufacturer – S&amp;T Motiv Co Ltd</u>			
5.56x45mm NATO (.223 Remington)	K-3	Light	Gas, selective
<u>Manufacturer – Israel Weapon Industries Ltd</u>			
5.56x45mm NATO (.223 Remington)	Galil ARM	Light	Gas, selective
5.56x45mm NATO (.223 Remington)	Negev	Light	Gas, selective
7.62x51mm NATO (.308 Winchester)	Galil ARM	Medium	Gas, selective
<u>Manufacturer – Maadi Co for Engineering Industries</u>			
7.62x39mm M1943	Suez	Light	Gas, auto
7.62x51mm NATO (.308 Winchester)	Helwan 920 (MAG)	Medium	Gas, auto
7.62x54mm	Aswan	Medium	Gas, auto
<u>Manufacturer – Ordnance Factories Organization of India</u>			
5.56x45mm NATO (.223 Remington)	INSAS	Light	Gas, selective
7.62x51mm NATO (.308 Winchester)	MAG	Medium	Gas, auto
7.62x51mm NATO (.308 Winchester)	L4A4 BREN	Medium	Gas, selective
7.62x54mm	PKT	Medium (Tank)	Gas, auto
<u>Manufacturer – Pakistan Ordnance Factories</u>			
7.62x51mm NATO (.308 Winchester)	MG1A3P	Medium	Short recoil, auto
7.62x51mm NATO (.308 Winchester)	MG3	Medium	Short recoil, auto
12.7x107mm	Type 54	Heavy	Gas, auto
<u>Manufacturer – Singapore Technologies Kinetics Ltd</u>			
5.56x45mm NATO (.223 Remington)	Ultimax 100	Light	Gas, auto
5.56x45mm NATO (.223 Remington)	SAR-21	Light	Gas, auto
7.62x51mm NATO (.308 Winchester)	MAG	Medium	Gas, auto
12.7x99mm (.50 caliber)	CIS	Heavy	Gas, auto



Ultimax 100 5.56x45mm NATO (.223 Remington) Light Machine Gun

Source: Singapore Technologies Kinetics Ltd

## Machine Guns (International)

### Variants/Upgrades

**Variants.** Not generally applicable. 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.

### 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. 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 over the next 10 years, as each class complements the capabilities of the other two classes. Thus, the current worldwide popularity of 5.45x39mm, 5.56x45mm, and 7.62x39mm light machine guns in no way diminishes the requirement for full-size 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 80-year longevity and continued popularity of the Browning 12.7x99mm (.50-cal) M2.

### AFRICA

#### **Republic of South Africa**

**Denel SOC Ltd.** The Republic of South Africa's indigenous military arms industry, under the corporate umbrella of ARMSCOR, reflects a response to the three decades of U.N.-sponsored arms embargoes and economic sanctions. Under ARMSCOR, Vektor acted as the prime machine gun contractor, with Lyttleton Engineering Works the major subcontractor. In 1991, ARMSCOR reorganized, becoming mainly a government procurement agency; a new firm, Denel Ltd, assumed control of the various arms producers (including Vektor and Lyttleton Engineering Works) formerly under ARMSCOR.

With the formal lifting of U.N. sanctions in 1994, South African machine guns began competing openly on the international market.

#### *Vektor SS-77/L9*

The 7.62x51mm NATO (.308 Winchester) SS-77 general-purpose machine gun complements the South African National Defence Force (SANDF) 5.56x45mm NATO (.223 Remington) R4 battle carbine to a greater degree than the Belgian-produced Fabrique Nationale Herstal MAG machine gun long in service in the country. Based on the Rheinmetall MG151 general-purpose machine gun, the SS-77 entered serial production in 1986 as the L9; it remains in service with the SANDF. The simple, robust SS-77 features lightweight construction and compact size. Denel claims the SS-77/L9 is the smallest machine gun in the world that fires armor-piercing projectiles.

Denel has not yet explored the weapon's export potential. However, in 1997, Kuwait reportedly ordered an unspecified quantity of SS-77 weapons as part of an order worth \$6.3 million.

#### *Vektor Mini SS*

Introduced in 1994, the Mini SS is essentially an SS-77 in the 5.56x45mm NATO (.223 Remington) chambering. At present, the Mini SS exists as a conversion kit for the SS-77 general-purpose machine gun. Additional options include a folding stock and a 100-round magazine. Denel can also produce the Mini SS as a distinct product on demand.

#### *MG4: An Old Warhorse*

This weapon is a modernized Browning M1919, converted to fire 7.62x51mm NATO (.308 Winchester) ammunition. The updated weapon fires from an open bolt and features a new feed mechanism to accept disintegrating metal link ammunition belts. Denel had produced the MG4 exclusively for the SANDF. Although the production line is currently dormant, the MG4 remains available for new orders.

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### ASIA

#### India

Ordnance Factories Organization of India. Kanpur Small Arms Factory is engaged in licensed production of 7.62x51mm NATO (.308 Winchester) FN MAG and L4A4 BREN general-purpose machine guns, as well as Russian 7.62x54mm PKT GPMGs. Kanpur Factory has offered its MAG and BREN machine guns for export, apparently without any significant sales thus far.

#### *INSAS Light Machine Gun*

The INSAS 5.56x45mm NATO (.223 Remington) weapon is essentially a heavy-barreled version of the Indian Small Arms System battle carbine. Both standard and folding stock versions are available. For more information on this trouble-plagued small arms program, see FI's "Military Rifles (International)" report.

#### Pakistan

Pakistan Ordnance Factories. Government-owned Pakistan Ordnance Factories produces 7.62x51mm NATO (.308 Winchester) MG1A3P and MG3 general-purpose machine guns under license from Rheinmetall Defence. MG3 production in Wah continues, primarily to meet Pakistani Army requirements.

In November 1985, a new facility opened in Wah for production of the Chinese 12.7x107mm Type 54 machine gun to meet Pakistani domestic requirements. The facility reportedly could expand production to meet export requirements should sufficient market opportunity for the Type 54 arise.

#### People's Republic of China

China North Industries Corp. The People's Republic of China still places a great deal of reliance on license-produced versions of Russian machine guns. While the Chinese have developed a number of indigenous designs, the Russian influence is still very apparent.

#### *Export Potential*

Over the years, the PRC, through its NORINCO organization, has exported huge numbers of machine guns of all types to clients worldwide, including Angola, Bangladesh, Cambodia, Cuba, the Democratic People's Republic of Korea, the Democratic Republic of the Congo, Equatorial Guinea, Iran, Laos, Madagascar, Mozambique, Pakistan, Somalia, Sri Lanka, Sudan, Tanzania, Uganda, Vietnam, Yemen, and Zambia.

Given the wide variety of Chinese machine guns of all types available on the international market (not to mention the baffling series of designations), we will limit our discussion to those weapons currently in production or offered for export by NORINCO.

### *Light Machine Guns*

The 7.62x39mm Type 81 squad automatic weapon, an indigenous Kalashnikov derivative, is currently in serial production for People's Liberation Army (PLA) requirements and for export.

Another recent Chinese light machine gun is the 7.62x39mm Type WQ 112. This derivative of a modernized Kalashnikov features a heavy barrel, a carrying handle, and a 75-round drum magazine. Like the entire WQ family of small arms, the Type WQ 112 is primarily an export product, but NORINCO has not yet reported any export sales of this weapon.

Still another new light machine gun design currently in serial production for the PLA is the 5.8x42mm Type 95. This weapon is a derivative of the Type 95 rifle, also called the QBZ. The Type 95 light machine gun differs from the rifle in having a heavier barrel, a 75-round drum magazine, and a bipod. NORINCO also offers a 5.56x45mm NATO (.223 Remington) variant, the Type 97, for export.

### *Medium Machine Guns/GPMGs*

The 7.62x54mm Type 80 general-purpose machine gun is a direct copy of the Russian PK. It is currently in serial production, along with the Type 59 (a coaxial-mount variant for armored vehicles).

One of the more interesting indigenous designs is the 7.62x54mm Type 67 general-purpose machine gun. This 9.9-kilogram (21.8-lb) weapon combines selected features from five different machine guns:

- The Type 26 (ZB26) bolt and piston
- The Type 53 (DP M) trigger mechanism
- The Type 56 (RPD) gas regulator mechanism
- The Type 24 (M1910 Maxim) feed mechanism
- The Type 57 (SG43) barrel-change mechanism

The Type 67-2C is a lighter version, featuring extensive use of alloy materials. Types 67 and 67-2C are currently in serial production; the Chinese have exported the original Type 67 to Vietnam and at least one other Asian nation.

### *Heavy Machine Guns*

The 14.5x114mm Type 75 and Type 75-1 anti-aircraft weapons are essentially modified versions of the Russian KPV. The 12.7x107mm Type 77 and Type 85 (also known as the Type W-85) heavy machine guns are of modern indigenous design. The Type 77 is noteworthy in that it employs a direct gas-tube operating mechanism. While the Type 77 and Type 85 are

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primarily anti-aircraft weapons, they can also function in the heavy ground support role. Both weapons are reportedly in serial production.

The 12.7x107mm QJZ89 is another newer heavy machine gun, derived from the Type 85 as an infantry fire-support weapon. The QJZ89 is noteworthy for being very lightweight – 26.3 kilograms (57.86 lb) with the tripod – for a heavy machine gun of its type. The QJZ89 is currently in serial production.

### Republic of Korea

**S&T Motiv Co Ltd.** This manufacturer (formerly known as S&T Daewoo Co Ltd) acts as the prime contractor for the ROK small arms family development program.

#### *Korea's Minimi*

Like the K1 battle carbine and K2 submachine gun, the K3 light machine gun fires the 5.56x45mm NATO (.223 Remington) cartridge. Clearly exhibiting its basis on the FN Minimi design, the K3 will augment the U.S.-design 7.62x51mm NATO (.308 Winchester) M60 general-purpose machine gun in the short term. The K3 will eventually replace the M60 GPMG as the ROK infantry squad-level direct-fire support weapon. Production is ongoing.

**Tongil Industry Co.** Tongil continues to produce the 12.7x99mm (.50-cal) M2HB Browning heavy machine gun on an as-needed basis for the ROK Army. Tongil has produced the M2HB for at least 22 years.

### Republic of Singapore

**Singapore Technologies Kinetics Ltd.** Chartered Firearms Industries, a subsidiary of Singapore Technologies Kinetics (formerly Chartered Industries of Singapore), has developed and placed into production one of the most modern light machine guns in the world today, the 5.56x45mm NATO (.223 Remington) Ultimex 100.

#### *Competing with the Minimi*

The firm is reportedly producing the weapon for several unidentified customers; the Singapore Armed Forces (SAF) and Croatia are the only confirmed customers to date. ST-K offers the Ultimex 100 Mk III model at a unit price of about half what the U.S. Department of Defense pays for the FN Herstal Minimi in its M249 configuration. Unconfirmed reports indicate ST-K may also offer license-production rights to the weapon.

#### *CIS Heavy Machine Gun*

Singapore Technologies Kinetics has also developed and placed into production the 12.7x99mm (.50-cal) CIS heavy machine gun, a new-design weapon capable of firing Saboted Light Armor Penetrator (SLAP)

ammunition. This gas-operated, fixed-headspace weapon is lighter and simpler than the Browning M2HB. Its modular design consists of five basic assemblies, with fewer parts than the M2. While the CIS has generated a good deal of interest on the international market, the only reported sales of this gun to date have been to the SAF.

#### *SAR-21 LMG*

The latest machine gun design from ST-K is the 5.56x45mm NATO (.223 Remington) SAR-21 light machine gun. Based on the new bullpup-design SAR-21 assault weapon, this light machine gun fills the base-of-fire support role at the infantry squad level. It differs from the basic SAR-21 battle carbine only in firing from an open bolt and mounting a heavier barrel. This light machine gun can also fire from a tripod. The SAR-21 light machine gun is reportedly in serial production for the SAF.

#### *MAG Still in Production*

In addition to producing indigenous designs, ST-K produces the FN 7.62x51mm NATO (.308 Winchester) MAG general-purpose machine gun under license. The contractor produces both infantry and armored-vehicle-mounted versions on an as-needed basis. Though the Ultimex 100 will eventually supplant the MAG in the infantry role for Singapore's armed services, ST-K expects to continue serial production of the FN MAG for export.

## AUSTRALIA & NEW ZEALAND

### Australia

**Thales Australia.** In 1985, Australia initiated the Small Arms Replacement Project aimed at fielding a new range of small arms and ammunition. Among other efforts, this project involves replacement of the existing 7.62x51mm NATO (.308 Winchester) BREN, in addition to M1919A1 conversions. Since 1959, the U.S. has given Australia more than 3,280 M1919A1, M60, and M2HB machine guns through the Foreign Military Sales (FMS) program.

In October 2006, Thales Group (Paris, France) acquired ADI Ltd, the prime Australian contractor for small arms. The contractor now operates as Thales Australia.

#### *General-Purpose Machine Gun*

Under the Small Arms Replacement Project, Australia purchased 676 FN MAG 7.62x51mm NATO (.308 Winchester) general-purpose machine guns directly from FN Herstal in 1993. These weapons replaced M60 machine guns in frontline service. Those M60s relegated to reserve status replaced older M1919A1 medium machine guns.

Older M1919A1 and L4A4 BREN machine guns still in existence may well end up on the international market. Australia is especially interested in expanding its export trade with Malaysia.

### *Light Machine Gun*

Under the Small Arms Replacement Project, the Australian Army selected the Fabrique Nationale 5.56x45mm NATO (.223 Remington) Minimi as its new light machine gun. ADI then commenced licensed production of the Minimi (designated F89) at the small arms factory in Lithgow, New South Wales. The initial Australian Army order was for 3,420 weapons; the Army ordered a further 4,207 weapons in 1995. Thales Australia (formerly ADI Ltd) will also produce the Minimi for export to Asian and Pacific nations. New Zealand has adopted the Australian Minimi.

## MIDDLE EAST & NORTH AFRICA

### **Egypt**

Maadi Co for Engineering Industries. The former Soviet Union provided Egypt with large numbers of RPD, RPK, PK, SG-43, DShK, and KPV machine guns between 1954 and 1974, replacing Egypt's inventory of various British, American, and Spanish machine guns. In 1970, Egypt acquired licenses for the production of two types of Russian machine guns: the 7.62x39mm RPD (designated Suez) and the 7.62x54mm PK (designated Aswan). Maadi Co (Factory Number 54) produced both weapons in quantity.

### *Transition to NATO Standard*

In an effort to establish some level of ammunition commonality between its infantry and its now mostly Western-supplied armored vehicle force, the Egyptian Army adopted the 7.62mm NATO (.308 Winchester) FN MAG general-purpose machine gun for Army-wide use. In August 1984, Egypt ordered 500 MAGs with tripods and ammunition directly from FN Herstal. A second order for 551 more MAGs followed that October. Maadi subsequently secured a license to produce the MAG under the auspices of Egypt's Ministry of Defense. Serial production is ongoing.

### **Israel**

Israel Weapon Industries Ltd (IWI). Prior to developing an indigenous small arms production capability, Israel relied primarily on machine guns acquired through the U.S. FMS program. Since the 1950s, the Israelis have purchased over 24,800 U.S. machine guns – the 7.62x63mm (.30-06 Springfield) M1919A4, 7.62x51mm NATO (.308 Winchester) M60, and 12.7x99mm (.50-cal) M2 – under contracts worth around \$17.4 million. In 1966, Israel Military Industries (IMI) began licensed production of the

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7.62x51mm NATO (.308 Winchester) FN MAG general-purpose machine gun as the standard GPMG for the Israel Defense Forces (IDF).

In the early 1950s, IMI developed the 7.92x57mm (8mm Mauser) Dror general-purpose machine gun. The Dror was a recoil-operated, magazine-fed weapon of sound design. However, the Israeli government found it cheaper to procure machine guns on the open market than to buy the Dror. Not surprisingly, the Dror fell by the wayside.

### *Corporate Evolution*

Following the recent corporate restructuring of IMI (the prime contractor for Israeli small arms), the Small Arms Division of IMI became a separate company and now operates as Israel Weapon Industries Ltd.

### *Galil*

The contractor currently produces a light machine gun version of the Galil family of weapons. The Galil ARM is available in both the 5.56x45mm NATO (.223 Remington) and 7.62x51mm NATO (.308 Winchester) chamberings. Serial production continues, with some minimal export sales to unidentified customers.

### *Negev*

The 5.56x45mm NATO (.223 Remington) Negev is a versatile advanced-design light machine gun that can fire either M193- or M855-pattern ammunition by simply changing the barrel. The Negev features two optional firing rates; it can also fire rifle grenades. IMI designed the Negev to accept disintegrating-link belts, box magazines, or drum magazines. The shooter can fire the Negev from the hip, on a bipod or tripod mount, and from a vehicle mount. The Negev is in serial production for the IDF; the contractor also offers the weapon for export.

## NORTH AMERICA

### **Canada**

Colt Canada Corp. The Canadian machine gun inventory remains a curious mix of old and new designs. The standard infantry medium machine gun is the venerable Browning M1919, designated C1 and C5, rechambered to accept 7.62x51mm NATO (.308 Winchester) ammunition. The Canadians acquired these weapons from the United States during World War II and through U.S. FMS channels in later years.

Canada has also purchased 12.7x99mm (.50-cal) M2HB heavy machine guns from the United States and the United Kingdom, primarily for use as armored vehicle

## Machine Guns (International)

armament. In 1968, Canada ordered 424 M2s from the United States through FMS channels for \$1.2 million.

In 1984, the Canadian Army began procuring license-produced 5.56x45mm NATO (.223 Remington) Minimi light machine guns from Diemaco Inc of Kitchener, Ontario. This weapon, designated C9, has become the standard squad automatic weapon in Canadian service.

### *Enter the C7 LSW*

More recently, Diemaco and Colt cooperated in the development of a light machine gun version of the 5.56x45mm NATO (.223 Remington) C7, the Canadian version of the M16. Called the C7 light support weapon, it features a heavier barrel of such a robust design that it supposedly eliminates the need for a quick-change feature. The weapon fires from an open bolt; it also utilizes a new-design tripod. The weapon accepts standard M16 magazines. The C7 light support weapon is in serial production in Canada. At least two other nations have evaluated the C7 LSW; the Netherlands purchased the weapon in 1999.

### *From Licensee to Subsidiary*

On May 20, 2005, Colt announced the completion of its acquisition of Diemaco Inc, Colt's primary foreign licensee. Diemaco now operates as Colt Canada Corp, a wholly owned subsidiary of Colt Defense.

**Analysis.** The international machine gun market clearly reflects the dominance of a few proven European designs.

### *In the Shadow of FN Herstal*

Aside from some products of Denel, IWI, and ST-K, truly innovative new products in the international sector

are somewhat rare, with European staples such as the ever-popular Fabrique Nationale MAG and Minimi in licensed production worldwide. In the light and medium classes, even the United States has fallen by the wayside in the machine gun market, becoming instead a major FN customer.

In the international machine gun market, there is little incentive to produce new, innovative medium/general-purpose or heavy machine gun designs. Licensed production of proven designs (such as the FN MAG and the Browning M2HB) usually proves sufficient to meet all requirements at a reasonable price. Indigenous design tends to rise out of necessity in those cases where a country cannot secure production licenses from a European manufacturer.

### *Problem of Semantics*

The light machine gun segment of the international market, like its European counterpart, shows the most innovative activity. As with their European counterparts, many of the international small arms firms discussed in this report are developing some sort of magazine-fed weapon that fires intermediate-caliber ammunition. These small arms firms also face the same problem as their European counterparts. Magazine-fed light support weapons, often derivatives of existing battle carbine designs, simply cannot provide the sustained fire support of a true 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.

## Funding

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The various contractors, some of which are government-owned enterprises or state-owned arsenals, fund the development of machine guns on an international basis.

## Contracts/Orders & Options

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Contract information is generally not available.

## Timetable

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Machine gun production for the international market will generally remain stable over the next 10 years. 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 the introduction of the next generation of weapons not likely before the midterm of the forecast period. The heavy machine gun market segment also remains stable, with production of existing designs continuing at a steady pace.

## Machine Guns (International)

### Worldwide Distribution/Inventories

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**Export Potential.** Most non-U.S. and non-European machine gun manufacturers produce their weapons primarily for domestic procurement and sales. Although European machine gun designs continue to dominate the international market, firms such as Israel Weapon Industries and Singapore Technologies Kinetics are emerging as major players in their own right, paralleling their success in other segments of the international small arms market.

There is the special case of the People's Republic of China, which offers its products at bargain-basement prices or even gives them away for foreign policy purposes.

**Countries.** Because most contracts go unreported and much of the production is of types already in widespread use worldwide, it is virtually impossible to determine the precise distribution of the machine guns discussed in this report.

**Illegal Arms Trade.** The People's Republic of China and, to a somewhat lesser extent, the Democratic People's Republic of Korea continue to be sources of illicit weapons throughout East Asia. Cambodia, Hong Kong, Myanmar, the Republic of China (Taiwan), and Thailand serve as major conduits for the transfer of illegal arms throughout the region. In South Central Asia, Pakistan remains a virtual arms bazaar for those trafficking illicit arms; Myanmar continues to act as the prime conduit for Pakistani arms.

Legality and morality aside, the growth industry of the illegal arms trade has a very real impact on the international small arms market, as legitimate small arms producers must compete with the cheaper, more readily available small arms of illegal arms traffickers.

### Forecast Rationale

Established European designs clearly continue to dominate the international machine gun market. The vast majority of production in the international sector is of licensed (and unlicensed) European designs. Thus, while European contractors no longer dominate this market in terms of output volume, European machine gun designs continue to reign supreme.

The light machine gun segment of the market remains the most active for non-U.S. and non-European players. However, most new designs will likely fall by the wayside, victims of the widely successful Minimi design by FN Herstal.

#### *Market Characteristics*

The international machine gun market continues to exhibit three main characteristics. First, this market

remains stable, dominated by European market players and designs.

Second, the market is hosting a growing number of relatively minor producers, most concentrating on production for domestic requirements.

Third, select non-U.S. and non-European producers – notably Israel Weapon Industries, NORINCO, and Singapore Technologies Kinetics – are emerging as significant international players, owing as much to their marketing as to their design innovations.

While the light machine gun market segment will be the most active, the international market for all classes of machine guns will remain relatively stable. We expect a steady base level of procurement, averaging 45,000 weapons per year.

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