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Behind a Veil of Secrecy:

Military Small Arms and Light Weapons Production in Western Europe

By Reinhilde Weidacher

small arms survey

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Acronyms and abbreviations

ATK	Alliant Techsystems
DRC	Democratic Republic of the Congo
EADS	European Aeronautic Defence and Space Company
EU	European Union
EUR	euro
Eurenco	European Energetics Corporation
FAMAS	Fusil Automatique, Manufacture d'Armes de Saint-Etienne
FELIN	Fantassins à Equipements et Liaisons Intégrées
FIST	Future Integrated Soldier Technology
FNMI	FN Manufacturing Inc.
GIAT	Groupement Industriel de l'Armement Terrestre
Indep	Indústrias Nacionais Defesa
LFK	Lenkflugkörpersysteme
MBT LAW	main battle tank light anti-tank weapon
MoD	Ministry of Defence
Nammo	Nordic Ammunition Company
NATO	North Atlantic Treaty Organization
NISAT	Norwegian Initiative on Small Arms Transfers
NORMANS	Norwegian Modular Arctic Network Soldier
OICW	Objective Individual Combat Weapon
PDW	Personal Defence Weapon
R&D	research and development
SALW	small arms and light weapons
SAK	Swedish krona
SIG	Schweizerische Industriegesellschaft
TMP	tactical machine pistol
USD	US dollar

About the author

Reinhilde Weidacher, a German-speaking Italian who lives in the Netherlands, studied political science in Bologna (Italy) and Stockholm (Sweden). Subsequently, she researched the global military industry for six years at the Stockholm International Peace Research Institute. Currently, she works as an analyst for the Stockholm-based company Ethix SRI (Social Responsible Investment) Advisers, primarily screening companies for military-related activities. She also works as an independent consultant on arms- and peace-related issues.

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Summary

Proliferation of small arms and light weapons (SALW) to irresponsible recipients continues. This study shows that such proliferation is, among others, fed by West European companies, some of which are among the largest producers of SALW in the world. Drawing on research conducted from January through October 2004, this survey maps the production of SALW in Western Europe. It looks at ownership relations and organizational structures in order to assess the weight and motivations of the interests that drive continued exports to controversial recipients. Production of military style small arms in Western Europe is carried out by companies that have seen significant restructuring and ownership changes over the past 10–15 years, but have not been integrated within the major land arms producers. While companies are strongly dependent on the US market, relatively small-scale exports to irresponsible recipients continue. Contrary to the production of small arms, production of light weapons, in particular man-portable guided missiles, is carried out within some of the largest arms producing companies in Western Europe.

Highlighting the lack of transparency in the sector, the survey compiles available data on the size of the largest producers of SALW, showing, where possible, changes over the past 10–15 years. Insufficient information about the size, structure, and ownership of producers of SALW in Western Europe is publicly available. Information provided by companies is very poor. The compilation and disclosure by governments of data on exports of SALW from Western Europe has improved markedly in recent years. Nevertheless, comparisons across countries or across time are still largely impossible, as data is offered in a non-standardized format.

Map: **Western Europe**

Section 1 **Introduction**

A small number of Western European companies are among the most significant producers and, even more so, designers worldwide of military small arms and light weapons (SALW). Small arms manufactured or designed by the leading European companies FN Herstal, Heckler & Koch, Steyr Mannlicher, and Beretta form the standard equipment of the armed forces of a large number of countries and are used by government and non-government forces in ongoing armed conflicts around the world. Ammunition manufacturing plants in a significant number of countries with repressive governments or governments involved in armed conflicts have been set up by small Western European producers of specialized machinery. Also, a range of sophisticated light weapons, including man-portable guided missiles, manufactured or designed in Western Europe, have proliferated all over the world.

Increased attention to the widespread availability of SALW in situations of conflict has resulted in a wealth of publications in recent years. How can yet another survey of the Western European small arms industry contribute to this ongoing debate? Firstly, ongoing changes in ownership and organization call for continued close monitoring. Overall, the Western European small arms and ammunition industry experienced severe financial difficulties in the 1990s. A considerable reduction in size was followed from the late 1990s by significant changes in ownership and organization. Light weapons production has been consolidated as a result of the process of restructuring in the wider land arms industry. Secondly, reliable, relevant, and comprehensive information on companies' dependency on different markets continues to be very poor and highly fragmented. Most small arms producing companies fail to disclose even basic information about their activities to the public.

This survey provides an overview of the Western European SALW industry.[1] It complements a number of studies on SALW production in other regions that have been published in recent years.[2] For small arms, the focus is on the production of weapons for military use. Production for civilian markets is

Definition of terms

The Small Arms Survey uses the term 'small arms and light weapons' broadly to cover small arms intended for both civilian and military use, as well as light weapons intended for military use. When possible, it follows the definition used in the *United Nations Report of the Panel of Governmental Experts on Small Arms* (UNGA, 1997):

Small arms: revolvers and self-loading pistols, rifles and carbines, sub-machine guns, assault rifles, and light machine guns.

Light weapons: heavy machine guns, hand-held under-barrel and mounted grenade launchers, portable anti-aircraft guns, portable anti-tank guns, recoilless rifles, portable launchers of anti-tank missile and rocket systems, portable launchers of anti-aircraft missile systems, and mortars of calibres of less than 100 mm.

The Survey uses the term 'firearm' to mean civilian and military hand-held weapons that expel a projectile from a barrel by the action of an explosive. Unless the context dictates otherwise, the term 'small arms' is used in the Survey to refer to both small arms and light weapons, whereas the term 'light weapons' refers specifically to this category of weapons.

touched upon whenever it can contribute to a better understanding of developments within the military and law enforcement sectors.

Two distinctive phenomena, both concerning issues of human security, are addressed within the ongoing small arms debate: (a) an increase in domestic firearms-related violence in a large number of countries; and (b) the long-overlooked importance of the widespread availability of SALW as a factor in the initiation, escalation, and continuation of armed conflicts.

Both concerns are legitimate and may in some specific situations be closely interlinked. The purpose of this survey, however, is limited to attaining a better understanding of the role of Western European small arms producers in situations of armed conflict; hence the primary focus on military weapons production.

The questions this report attempts to answer are: Who owns and controls Western European companies producing military SALW? What is the relative importance of different markets for small arms and how is this reflected in the organizational structure of companies? And to what degree are Western European SALW producers dependent on exports to countries outside Europe and the United States?

Section 2 **Secrecy**

Companies producing small arms—and to a lesser extent light weapons—have come under close scrutiny by policy-makers, NGOs, and researchers as a result of the ongoing debate about small arms as a factor contributing to the escalation and continuation of violence and armed conflict. The increased level of attention appears to have made such companies even less transparent, as they fear that any information they might disclose will be used against them. Statements about the industry's willingness to 'be positive and work together' (Glock, 2002) (with governments and NGOs) have certainly not been turned into practice with regard to public transparency. Most importantly, however, the SALW industry shares the traditional culture of secrecy of the wider arms industry. The primary motivation for not providing information is the protection of commercial confidentiality and perceived security interests in the recipient countries.

Company annual reports, including financial statistics according to national accounting standards and a description of company activities, are an important tool for public transparency. Over the past 5–10 years, major private arms producing companies worldwide have increased the amount of information provided to the general public, through press releases and regular financial reports, mostly published on their Web sites. Overall transparency has increased, even though information relevant to questions of war and conflict and presented in a format that allows for comparison continues to be scarce.

The increase in information provided is likely a response to the pressure of key stakeholders in the companies, shareholders, and NGOs working on issues related to arms production and the arms trade. It may also be a reflection of the increased level of government transparency on arms transfers. The number of governments publishing more comprehensive yearly arms export reports to parliaments has multiplied over recent years. In response to the high level of public attention on the issue, some of these reports contain information on SALW exports. Reports available by mid-2004 failed, however, to provide the information in a standardized and therefore comparable format.[3]

The small arms industry is even less transparent than the wider arms industry. This is likely to be at least partly a result of its ownership structure. Small arms producing companies in Western Europe are not stock market listed companies with a wide group of shareholders demanding information on performance and activities. FN Herstal and its parent company Herstal, the French GIAT Industries, the Greek Hellenic Defence Systems, and the Portuguese Indep are government owned, while other small arms producing companies, such as Heckler & Koch, Beretta, Glock, Steyr Mannlicher, JP Sauer, and Carl Walther, are owned by small groups of private investors. Few of these companies make annual reports publicly available (see below).

Press coverage of company activities is generally limited. Some companies are well known for their reluctance to provide even general information about company performance and activities. A case in point is the Austrian company Glock, owned by its founder, Gaston Glock, who is well known for his unwillingness to meet journalists.[4] Very little information can be found in the German and Italian press about Heckler & Koch and Beretta, or about minor small arms producing companies. One of the largest military small arms producers in Western Europe, FN Herstal, was the only company that refused to provide information for a study on Belgian arms producers carried out by the University of Antwerp in 2002 (*De Standaard*, 2003).

Light weapons are generally produced by subsidiaries or facilities of companies producing a wide range of land weapons, or of companies that are active in diverse military sectors, such as the British company BAE Systems, the Swedish Saab, the Swiss RUAG, or the French Thales. Annual reports of larger arms producing companies with a diverse shareholder base are commonly published on company Web sites and are easily accessible to a wide public. They do not, however, contain specific information on light weapons production.

Research methodology

For the purpose of this study, a request for economic statistics and information about products was sent to more than 30 Western European companies involved in the production of SALW.[5] Only two companies responded to the request—but declined to provide the information requested.

Information in this survey has therefore been derived primarily from publicly available financial documents, articles from mainly the local press in the relevant countries, and the findings of national NGOs monitoring the activities of arms producing companies.

None of the major small arms producing companies in Western Europe provide copies of company annual reports on their Web sites. Such copies should be obtainable, and in some cases actually can be obtained, from national banks, chambers of commerce, or company registers of local authorities. However, it was possible to obtain recent company reports for only two of the four major small arms companies, Herstal (FN Herstal)[6] and Beretta.[7] The type of information provided is comparable to that made available by companies active in other arms industry sectors. Details about the recipients of military and law enforcement small arms are scarce.

Two among the major small arms producers in Western Europe, Heckler & Koch and Glock, failed to file recent annual accounts and reports as required by German and Austrian law.[8] Despite repeated requests to the local authorities responsible for compiling the copies of such reports, Heckler & Koch did not file and thereby make publicly available its past annual accounts, nor did it respond to the general questionnaire. The company did, however, provide information on total sales, the export share of such sales, and the number of its employees.

None of the land weapons producing companies for which small arms account for a minor share of overall production provide detailed information about their small arms-related activities (GIAT Industries, General Dynamics Santa Bárbara Sistemas, and Hellenic Defence Systems).

Some pieces of information are available for most companies, but these refer to the type of products manufactured, overall sales, and the number of total employees. Only in rare cases is information made available about the breakdown of sales for different types of products, as well as for military and civilian markets, respectively. A high level of secrecy is also maintained with regard to ownership structures, in particular for SALW producing companies not linked to the major arms producers in the aerospace, military electronics, and land weapons industry. Examples in point are the German companies Heckler & Koch and Dynamit Nobel Defence. Lack of clarity persists about the owners of Heckler & Koch ever since the company was acquired by a small group of private investors at the end of 2002. In 2004 Dynamit Nobel Defence was established as an independent company. Both companies refused to provide information about their owners for this survey.

Section 3 **Overview**

The Western European military aerospace and electronics industry has undergone profound restructuring over the past 15 years. This has resulted in a considerable level of concentration in ownership and the establishment of a large number of industrial alliances across countries. To what extent overcapacity has been eliminated in the process is difficult to assess, yet it is certain that some consolidation has taken place. Restructuring and consolidation in the land arms industry lagged behind other sectors, but has accelerated in recent years not only within the military vehicles and large-calibre weapons sectors, but also in the SALW segments.[9]

By mid-2004, the most significant part of the Western European military small arms industry was located outside the wider arms industry. Producers of light weapons and ammunition, on the other hand, are integrated within the wider arms industry. Industrial structure and ownership have important implications for the possibilities for continued consolidation and the elimination of overcapacity.

There are no comprehensive and reliable estimates about the overall size (in terms of employment and output) of the European SALW industry. More so, even data on the level of single countries and companies is poor and fragmented. Companies producing SALW are part of the wider arms industry, and in particular of the land arms industry. The core business of this industry is, however, military vehicles and large-calibre weapons.

For these reasons, it is difficult to reach general conclusions on overall trends. Available information leads, however, to the assessment that the industry is significantly larger than required in order to satisfy strictly national or European demands, resulting in a high level of dependency on exports outside Europe.

The present section provides a summary of the characteristics of and trends among Western European producers of small arms, light weapons, and ammunition.[10] Table 4 presents available information on ownership and size. The main part of the survey provides more comprehensive profiles by country and major companies. The table in the appendix offers an additional and detailed overview of the type of weapons produced by the major companies.

Small arms

No reliable and accurate information is available about the aggregate trend in employment and output within the Western European military small arms industry for the past 15 years. Data provided by companies, though scarce and not comparable across either countries or companies, suggests that some downsizing has occurred.

Employment decreased by more than 20 per cent within FN Herstal between 1991 and 2001, and fell by more than 50 per cent within Heckler & Koch and the much smaller Steyr Mannlicher between 1990 and the late 1990s. The diversified Swiss company Schweizerische Industriegesellschaft (SIG) employed around 950 people in Germany and Switzerland within its small arms division, SIG Arms, in 1990. Employment in Switzerland was reduced in the late 1990s in response to falling orders and cut drastically in 2000, when the division was sold to private investors and broken up into separate companies. Trends in sales are not equally conclusive. Total sales fell by more than 50 per cent in real terms within FN Herstal and Steyr Mannlicher between 1991 and 2003, but increased within Heckler & Koch.

By 2004, virtually all countries in Western Europe hosted companies producing some military small arms or small arm parts. Only in half of the countries included in this survey, however, were standard military small arms, such as assault rifles, produced (see Table 1). A number of past producers of assault rifles have left the market.

Past producers and exporters of standard military small arms that discontinued production in the late 1990s are: Kongsberg of Norway, RO Defence (formerly Royal Ordnance) of the UK, Valmet/Sako of Finland, and SAN Swiss Arms (formerly SIG Arms) of Switzerland. According to the limited information available, the Portuguese company Indep, which in the past produced Heckler & Koch rifles under licence for the Portuguese Army and for export to African countries, has virtually discontinued production and is likely to be closed down. The Swedish company Saab Bofors Dynamics, which produced assault rifles for the Swedish Army up until the late 1990s, maintains small arms production capabilities, although production was negligible in 2004.

The Belgian company FN Herstal and the German Heckler & Koch dominate the military small arms market within Western Europe and belong to the handful of major suppliers worldwide. Combined sales and employment in military and law enforcement small arms produced in Europe amounted to roughly EUR 150–160 m. (USD 170–180 m.) and 1,400–1,500 workers, respectively, in 2003. Both companies are heavily dependent on sales to the US government. Heckler & Koch announced the establishment of a manufacturing facility in the United States in late 2003. Since the mid-1980s, FN Herstal's parent company has had a US-based military small arms facility, FN Manufacturing Inc. (FNMI).

After Heckler & Koch and FN Herstal, the most significant military small arms producers are the Italian company Beretta and the Austrian Steyr Mannlicher, as well as the small arms producing facilities of the French GIAT Industries, the Spanish Santa Bárbara Sistemas, and the Greek Hellenic Defence Systems. Information about the size of small arms production within these companies is, with the exception of Beretta, insufficient. Beretta, FN

Table 1
Production of military small arms in Western Europe (2004)

No or negligible production	Special forces only	Standard military small arms produced under licence	Standard military small arms developed and produced
Denmark	Finland	Greece	Austria*
Netherlands	Switzerland	Spain	Belgium
Norway	UK		Germany
Portugal			Italy
Sweden			France

* In 2004, Steyr Mannlicher announced that it would transfer all production and sales rights for military small arms to Malaysia (see Steyr Mannlicher company profile, below).

Herstal, Heckler & Koch, the Austrian Glock, and the German companies Carl Walther and JP Sauer are important producers of pistols for law enforcement forces (see Appendix).

Dependency on sales to regions outside Europe and North America appeared to be relatively low by 2004. Heckler & Koch exported 7 and 11 per cent of total sales to countries outside Europe and the United States in 2003 and 2002, respectively, compared to more than 20 per cent in the early 1990s. No comparable data is available for FN Herstal. The drastic decline in total sales, by more than 50 per cent, and available information about export contracts suggest that sales to regions outside Europe and the United States decreased over the past decade. Total sales of Herstal, FN Herstal's parent company, within Europe were as high as exports from European and US subsidiaries to countries in other regions over the past three years. Around two-thirds of total sales, however, were made in the United States.

The decline in sales to countries outside Europe and North America is likely a result of both the increased competition from non-European producers and the tightening of export controls in Western Europe in response to the significant increase in public attention to the devastating and long-lasting effects of uncontrolled flows of small arms to regions of conflict. It constitutes a significant change from the period between the early 1960s and the late 1980s, when small arms produced in Western Europe, as well as licences and machinery for their production, were exported to repressive regimes and governments involved in armed conflicts almost without restrictions. The decision of the Austrian company Steyr Mannlicher to move all production of military-style small arms from its facility in Austria to a joint venture company in Malaysia, announced in early 2004, stands in sharp contrast to the general trend (see below).

Companies producing military-style small arms in Western Europe can be roughly divided into two groups according to their structure and ownership: firstly, companies that are exclusively producing small arms, and secondly, small arms producing facilities within diversified land arms producers.

The German company Heckler & Koch, the Austrian companies Steyr Mannlicher and Glock, and the Italian Beretta specialize in the production of small arms. All of these companies produce both military-style and civilian small arms. Their dependency on sales to military and police varies from roughly two-thirds of total sales within Heckler & Koch to a mere 10 per cent within Beretta. All four companies were owned by small groups of private investors by mid-2004.

Standard military small arms, often produced under licence from specialized small arms companies, are or have been produced by the major Western European land arms companies. Assault rifles are produced by the state-owned French company GIAT Industries and the Greek Hellenic Defence Systems, as well as by the Spanish Santa Bárbara Sistemas, a subsidiary of the large and diversified US arms producer General Dynamics. Past production was carried out within the British company Royal Ordnance (now RO Defence), the Norwegian Kongsberg, and the Portuguese Indep.

Modernization programmes

A large number of countries have initiated so-called soldier modernization programmes aimed at integrating small arms with advanced electronic and optical equipment. The majority of countries investing in such programmes on a large scale are industrialized countries. Two developing countries, South Africa (African Warrior) and Israel have been reported to have embarked on similar programmes.

Small arms producers play a minor role within soldier modernization programmes, as military electronics companies assume the role of prime contractors and systems integrators. Programme costs are significant, around EUR 800–1,200 m. (USD 900–1,350 m.) in the major countries. Upgrades are likely to be carried out continually, offering significant business opportunities to military electronics and optronics manufacturers. Deliveries of the US Land Warrior system were initiated in 2002–03. Only a few years after the last stage of the current programme, a new system, Objective Force Warrior, is planned to enter into service. Western European companies have assumed an important role in the programme.

Development of the platform for the system, the Objective Individual Combat Weapon (OICW), started in the early 1990s and it is planned to replace M16 rifles and M4 carbines by the end of the decade. An industry team led by Alliant Techsystems (ATK) won the roughly USD 100 m. contract for the development (programme definition and risk reduction development phase) of the OICW in 2000 (ATK, 2000). Besides ATK, the industry team includes Heckler & Koch (weapon), Brashear LP (fire control), and Omega (training and logistics).

Table 2 provides an overview of some of the major ongoing programmes. Similar programmes are planned in Belgium (Belgium Soldier Technology), Denmark, the Netherlands, Sweden (MARKUS—Markstridsutrustad Soldat), Australia (Land 125 Soldier Combat System/Wundurra), and Canada (Canadian Soldier Modernization).

Table 2
Soldier modernization programmes, select countries

Country	Programme	Companies bidding for the contract*	Status/cost/small arms
France	FELIN (Fantassin à Equipements et Liaisons Intégrées)	• **SAGEM** • Thales, GIAT Industries	Contractor selected in April 2004 32,000 systems for EUR 800 m. (USD 900 m.) Small arms: FAMAS, Minimi, FRF2
Germany	IdZ Infanterist der Zukunft	• **EADS Defence Electronics** Projekthaus System Soldat including: **Heckler & Koch**, Thales Communications, Dräger, Zeiss Optronik, Schubert Helme, Mehler, and ESG • Alcatel, SEL/Thales	Initiated 1997; 1,600 systems to be delivered in the period 2004–08 Small arms: G36, MP7, MG4, G22
Italy	Soldato Futuro	• **Marconi Selenia Communication**, Galileo Avionica, Larimart, Aero-Sekur, Sistema Compositi, **Beretta**	Initiated 2001; development 2004–05; expected first deliveries 2006–07
Norway	NORMANS (Norwegian Modular Arctic Network Soldier)	• **Thales Communication**	R&D phase 2004; in service 2010
UK	FIST (Future Integrated Soldier Technology)	• **Thales UK** • BAE Systems	Assessment phase 2003–06; in service 2008–15 29,000 systems for GBP 800 m. (USD 1,300 m.)
USA	Land Warrior	• **General Dynamics Decision Systems**; the team includes General Dynamics Land Systems, General Dynamics C4 Systems, Computer Sciences Corporation, Kaiser Electro-Optics, Omega Training Group, PEMSTAR, and Thales Communications	Block I: 2002–03 Block II: 2007–08 Block III: 2010–11 Small arms: M16, M4
	Objective Force Warrior		Procurement: 2015–16 Small arms: (OICW) XM29, XM27

* Prime contractors are in bold type.

The Belgian company FN Herstal and the German Heckler & Koch were owned by foreign land arms producers GIAT Industries and Royal Ordnance, respectively, in the 1990s. Both faced severe financial problems at the time of foreign acquisition. Also, before the mid-1990s, the Austrian Steyr Mannlicher was part of a larger diversified company, Steyr Daimler Puch, which was also involved in the production of military vehicles and artillery systems.

Herstal is fully owned by the government of the Walloon region in Belgium, which took full control of the company as a temporary measure in order to prevent a foreign acquisition and the loss of local jobs—not unlike other governments' interventions in the process of the restructuring of the European arms industry after the end of the cold war. The company has been offered for sale since mid-2000. The Belgium-based FN Herstal and the US-based FNMI subsidiaries are fully dependent on military sales. The management of Herstal has ruled out the possibility of these companies leaving the group.

Light weapons

Light weapons production is largely integrated within larger arms producing companies. While more information is publicly accessible about these parent companies than about a number of specialized small arms companies, little information is made available about light weapons facilities and their activities. It is therefore impossible to make even a rough estimate of the size of employment and the value of sales related to the production of light weapons in Western Europe.

Nine companies in the region are known to produce mortars.[11] The same number of companies produce portable anti-tank weapons,[12] while only two of them, the Swedish Saab and MBDA France, produce guided weapons. Both companies also produce man-portable air defence systems (MANPADS). Anti-aircraft missiles are produced by the German LFK, which is being integrated into MBDA, and Thales Air Defence Systems in the UK (see Table 3).

Mortars, rocket launchers, and grenade launchers are partly produced within small and specialized companies such as the German Dynamit Nobel Defence and the Spanish Instalaza. Very little information is available about these companies. The majority of companies producing unguided light weapons

Table 3
Companies producing man-portable missiles

Country	Company	Weapons
France	MBDA	anti-aircraft (Mistral); anti-armour (Milan; Eryx)
Germany	LFK	anti-aircraft (Stinger)*
	Rheinmetall/Diehl	anti-armour (Spike)**
Sweden	Saab Bofors Weapon Systems	anti-aircraft (RBS70); anti-armour (BILL)
UK	Thales Air Defence Systems	anti-aircraft (Starstreak)

* Produced under licence from the US company Raytheon.
** Produced under licence from the Israeli company Rafael.

are, however, producers of a wider range of armaments, with light weapons accounting for only a small share of their overall activities.

The Western European missile industry has undergone a process of profound restructuring over the past decade, closely linked to the process of concentration and European integration within the aircraft and military electronics industry. Man-portable missiles are manufactured by the subsidiaries of some of the largest Western European aerospace companies that have led this process, the joint venture European Aeronautic Defence and Space Co. (EADS) and MBDA, the French Thales, and the Swedish Saab. These companies are closely linked to each other through a complex shareholder structure and a long series of co-production programmes, including the French–German anti-tank weapon programme Milan.

The largest European missile producer, MBDA, is controlled by three companies, BAE Systems with headquarters in the UK, the Italian Finmeccanica, and EADS, which is registered in the Netherlands, with headquarters in France and Germany.

EADS is the result of the merger of French, German, and Spanish aerospace companies and is owned by the German DaimlerChrysler, the French state, the French private company Lagardère, employees, and institutional investors. BAE Systems also holds a significant share, 35 per cent, of Saab.

Ammunition

No comprehensive data is provided by the industry about the value of sales of ammunition for military SALW produced in Western Europe. While available information suggests that the production of ammunition, in particular small-calibre ammunition, has been downsized considerably in recent years, it is impossible to measure the decline.

The largest ammunition producer in Sweden, Norway, and Finland is the joint venture Nordic Ammunition Company (Nammo), jointly owned by the Norwegian government (45 per cent), Saab of Sweden (27.5 per cent), and Patria of Finland (27.5 per cent). The Danish ammunition producer Ammunitionsarsenalet formed a production alliance with Nammo in 2004. Nammo employed around 1,300 people in 2003.

A considerable share of small arms ammunition production in Western Europe, for both civilian and military use, is carried out within RUAG Ammotec, with manufacturing facilities in Germany, Switzerland, and Sweden. The company absorbed the small arms ammunition activities of the Austrian company Hirtenberger and the German Dynamit Nobel. RUAG Ammotec employed close to 1,300 people in 2003. Its parent company, RUAG, is also a significant producer of ammunition for light weapons. In 2004, the company announced its plan to streamline ammunition production in response to falling orders.

Other Western European ammunition producers have carried out or initiated restructuring plans in response to low orders from domestic and foreign armed forces. Small arms ammunition production has been restructured in recent years within the Italian company Europa Metalli and has been discontinued in the Netherlands. The Spanish company EXPAL announced employment cuts in 2004. The Portuguese state-owned land arms producer Indep, which faced severe financial difficulties and drastic employment cuts throughout the 1990s, is likely to be closed down. Insufficient information is available about streamlining efforts within the recently established Greek land arms company Hellenic Defence Systems. The company has sold its small arms ammunition manufacturing machinery to the Spanish company Santa Bárbara Sistemas. Differently from the above companies, Santa Bárbara Sistemas is expanding and is currently participating in an industrial team competing for a US small arms ammunition contract.

Industrial consolidation across European countries in the field of ammunition propellants and high explosives has been initiated through the establishment of a joint venture in January 2004 that includes five subsidiaries of three companies, namely two French facilities of SNPE Matériaux Energétiques, the Belgian PB Clermont, the Finnish Nexplo Vihtavouri, and the Swedish Nexplo Bofors. Eurenco (European Energetics Corporation) is owned 60 per cent by Groupe SNPE and 20 per cent each by Patria and Saab. The company employed 850 people in 2004. ■

Table 4

Major companies producing military small arms and light weapons in Western Europe. Available information on owners, financial and employment statistics

Data is for 2002 or 2003 unless otherwise stated. Financial data is in million € at current prices unless otherwise stated.

Company name	Country (production facilities)	Owners	Military police sales	Total sales	Parent comp.* total sales	Foreign sales	Employment	Parent comp.* total sales
Companies producing a wide range of military small arms								
Beretta	Italy, USA	Beretta family—Ugo Gussalli Beretta and his family	36	357	—	84%	2,326	—
FN Herstal	Belgium	**Herstal Group** owned by the Walloon region	97	97	400	99%	942	2,533
General Dynamics Santa Bárbara Sistemas—Coruña facility	Spain	**General Dynamics** (USA) owned by investment funds and banks	n.a.	n.a.	$16,600	n.a.	216 (2003)	67,600
Giat Industries—Saint-Etienne/Saint-Chamond facilities	France	**GIAT Industries**; French state	n.a.	n.a.	730	n.a.	n.a.	6,140
Heckler & Koch	Germany	Heckler & Koch Beteiligungs GmbH owned by two private investors (Keith Halsey and Andreas Heeschen, director of Luhns GmbH); institutional investors (bonds issued July 2004)	80	120	—	50%	700	—
Hellenic Defence Systems	Greece	Greek state	n.a.	n.a.	—	n.a.	2000 (2004)	—
Steyr Mannlicher	Austria	Steyr Mannlicher Holding GmbH (formerly Cura Investmentholding) owned by Wolfgang Führlinger	n.a.	16 (2003)	—	n.a.	120 (2003)	—

Companies producing mainly pistols								
Carl Walther	Germany	**Umarex Group** owned by Wulf Pflaumer and Franz Wonisch	n.a.	24	n.a.	70%	200	600
Glock	Austria	Glock Privatstiftung—Gaston Glock and his family	(50)	100	—	n.a.	450	—
JP Sauer & Sohn	Germany	Private investors: Michael Lüke and Thomas Ortmeier	n.a.	n.a.	—	n.a.	330	—
Companies producing small arms ammunition								
Eurenco (European Energetics Corporation)	France, Sweden, Finland	**SNPE** (France) 60.2%; owned by the French state Saab (Sweden) 19.9%; owned by BAE Systems (35%), Investor (36%), Wallenberg foundations (6%), investment funds and banks (around 23%) Patria (Finland) 19.9%; owned by the Finnish state (73%) and EADS (27%)**	75	100	784	50%	850	5,312
Nammo (Nordic Ammunition Company)	Norway, Sweden, Finland	Norwegian state 45% Saab (Sweden) 27.5%; owned by BAE Systems (35%), Investor (36%), Wallenberg foundations (6%), investment funds and banks (around 23%) Patria (Finland) 27.5%; owned by the Finnish state (73%) and EADS (27%)**	n.a.	180	—	n.a.	1,300	—
RUAG Ammotec	Switzerland, Germany	**RUAG** owned by Swiss state	n.a.	160	780	n.a.	1,280	5,665
Simmel Difesa	Italy	Unknown, previousloy part of Fiat Group.	n.a.	60	—	n.a.	162	—
Titanite	France	AXA Private Equity until Sep. 2004; sold to Fonds Partenaires Gestion	n.a.	24	—	n.a.	150	—
Companies producing small arms ammunition manufacturing equipment								
MAN FIA	Germany	MAN Ferrostaal; owned by **MAN**; owned by investment funds and banks	n.a.	200	13,550	n.a.	300	64,160
Manurhin Equipment	France	MGP Holding 56%, ALFIG 39%, SOFIRHIN 5%	n.a.	n.a.	—	n.a.	n.a.	—
New Lachaussée	Belgium	**Forrest Group**; owned by Georges Forrest		12.5		95%	50	
Companies producing mortars, grenade and rocket launchers and their ammunition								
Dynamit Nobel Defence	Germany	Unknown, previously part of Dynamit Nobel group (owned by Metallgesellschaft/MG until 2004)	n.a.	n.a.	—	n.a.	n.a.	—
EXPAL	Spain	**Union Española de Explosivos (UEE)**, majority-owned by Pallas Investments owned by Swiss Bank Corp, AGF, Crédit Lyonnais, and Elf Aquitaine	n.a.	n.a.	n.a.	n.a.	250	n.a.
Giat Industries—Luchaire Défense and Manurhin Défense facilities	France	**GIAT Industries**; French state	n.a.	n.a.	730	n.a.	n.a.	6140
Hellenic Defence Systems	Greece	Greek state	n.a.	n.a.	—	n.a.	2,000	—
Hirtenberger Defence Systems	Austria	**Hirtenberger Group**; private, no information about owners available	n.a.	n.a.	72	n.a.	n.a.	520
Instalaza	Spain	Private, no information about owners available	n.a.	n.a.	—	n.a.	n.a.	—

Insys Limited	UK	(former Hunting Engineering Limited) owned by management and funds managed by ABN AMRO Capital	77	80	—	7%	530	—
Mecar	Belgium	**Allied Defense Group** (USA)	$130	$130	$170	n.a.	320	n.a.
Nammo	Norway, Sweden, Finland	Norwegian state 45% Saab (Sweden) 27.5%; owned by BAE Systems (35%), Investor (36%), Wallenberg foundations (6%), investment funds and banks (around 23%) Patria (Finland) 27.5%; owned by the Finnish state (73%) and EADS (27%)**	n.a.	180	—	n.a.	1,300	—
Patria Weapon Systems	Finland	**Patria**; owned by the Finnish state (73%) and EADS (27%)**	30	30	260	n.a.	224	2,019
RO Defence	UK	**BAE Systems** owned by investment funds and banks	£270	£270	£12,572	n.a.	3,500	68,900
RUAG Land Systems	Switzerland	**RUAG** owned by Swiss state	n.a.	n.a.	780	n.a.	n.a.	5,665
TDA Armement	France	Thales (50%); owned by the French state (31%), Alcatel (9%), Dassault (6%), Thales (6%), investment funds, banks, and employees (48%) EADS Deutschland (50%); part of EADS**	80	80	—	n.a.	500	—
Companies producing man portable missile launchers								
LFK-Lenkflugkörper-systeme	Germany	**EADS** (81%)** MBDA (19%); owned 37.5% by BAE Systems [owned by investment funds and banks]; 37.5% by EADS*; 25% by Finmeccanica [owned by the Italian state (32%) and investment funds and banks]	410	410	30,133	n.a.	1,600	109,135
MBDA	France, Italy, UK	BAE Systems (37.5%); owned by investment funds and banks EADS (37.5%)** Finmeccanica (25%); owned by the Italian state (32%) and investment funds and banks	2,000	2,000	—	n.a.	10,000	—
Saab Bofors Dynamics	Sweden	**Saab**; owned BAE Systems (35%), Investor (36%), Wallenberg foundations (6%), investment funds and banks (around 23%)	340	340	2,000	n.a.	1,718	13,000
Thales Air Defence	UK	**Thales**; owned by the French state (31%), Alcatel (9%), Dassault (6%), Thales (6%), investment funds, banks, and employees (48%)	n.a.	n.a.	10,570	n.a.	n.a.	62,000

Sources: See company data in next section. (a) Poudres et explosives: fusion européenne, *Jane's Eurosatory Daily 2004,* 14 June 2004, p. 26.

* Holding more than 50 per cent of the shares. Names of parent companies are in bold in the column for owners.

** EADS, European Aeronautic Defence and Space Company, EADS combining the activities of Aerospatiale Matra, DaimlerChrysler Aerospace AG (with the exception of some activities) and Construcciones Aeronauticas (CASA), was established in July 2000. The company has a highly complex shareholding structure which can be simplified as follows (mid-2004): 33% DaimlerChrysler (owned by institutional shareholders), 30% SOGEADE (jointly owned by the French state and the private company Lagardère), and 5.5% SEPI (a Spanish state holding company). 34% are owned by institutional shareholders and EADS employees.

Section 3 **Country profiles**

Country profiles include, as applicable:

- a brief introduction on the size and the structure of the overall arms industry;
- an overview of production of military-style small arms;
- an overview of production of small arms ammunition;
- an overview of production of small arms ammunition manufacturing equipment;
- an overview of production of light weapons; and
- an overview of production of sighting equipment for infantry weapons.

Austria

Austria is a minor producer of military equipment. Overall, around 2,000 people were employed in arms production in 2002, generating revenues of EUR 187 m. (USD 175 m.), according to estimates published by the national chamber of commerce (Wirtschaftskammer Österreich, 2003). Data provided by the Austrian industry association in the late 1990s indicates that employment in arms production has been halved during the past decade.[13]

The Austrian arms industry was heavily dependent on arms exports throughout the 1980s and 1990s because of the limited requirements of the domestic armed forces. A major arms export scandal in the second half of the 1980s, involving a state-owned arms producing company (Noricum) selling arms illegally to both sides in the Iran–Iraq war, led to a major shake-up of the arms industry and initiated the withdrawal of the state from direct ownership.

In spite of the small size of its overall arms industry, Austria is a significant designer of military rifles and an important producer of pistols for law enforcement and civilian markets. A large number of minor companies produce hunting and sporting rifles.[14]

Small arms

Steyr Mannlicher is a minor manufacturer of military rifles, but continues to develop new versions of its AUG (Army Universal Gun) assault rifle. The company faced severe financial problems throughout the 1990s and was transformed from a state-owned into a private company. In order to evade the more restrictive Austrian arms export law, the company announced that it would move production of military-style firearms to Malaysia. The pistol producer **Glock,** on the other hand, according to the few pieces of information that are made available, has a firm production base in Austria. International sales, accounting for a major share of the company's total sales, are, however, administered by a foreign-based company. Detailed company profiles for Steyr Mannlicher and Glock are provided below.

Light weapons

Two Austrian companies are involved in the production of light weapons. **Hirtenberger Defence Systems** produces mortars and mortar, artillery, and tank ammunition (Hirtenberger Defence Systems, n.d.). In 2003, the company discontinued its small-calibre ammunition production (90 employees) in response to the strong competition from East European producers and sold the Hirtenberger small arms ammunition brand and sales rights to the Swiss company RUAG Ammotec (*Ober österreichische Nachrichten*, 2003b). In 2001, Hirtenberger established a small arms ammunition joint venture in Hungary (Euregio-forum, 2001).

Hirtenberger Defence Systems is part of the private Hirtenberger Group, formerly a specialized military company that diversified its product range and entered the civilian market in the early 1990s. The group had total sales of roughly EUR 72 m. (USD 81 m.) in 2003, and employed more than 520 people (Hirtenberger Group, n.d.).

Arges/Ulbricht's produces hand grenades and high explosives. No recent information is available about either the size of the company or its owners.

In the past, **Dynamit Nobel Graz** and its subsidiary, **Dynamit Nobel Wien,** produced military explosives, including anti-personnel mines. The latter employed 156 people when the company went into bankruptcy in 2002 *(Ober österreichische Nachrichten*, 2003a). It was acquired by the US explosives company Austin

Powder (part of the Davis Mining & Manufacturing group) in 2003 and renamed Austin Powder (*Die Wirtschaft*, n.d.). No relevant information is available about the company (Austin Powder, n.d.).

Sights

Photonic Optische Geräte (Photonic Optics) produces sights for assault rifles, sniper rifles, and mortars (Phototonic Optics, n.d.). **Swarovski Optik** produces sights for small- and large-calibre weapons.

COMPANY PROFILE **STEYR MANNLICHER**

Steyr Mannlicher is a small company. Total sales amounted to EUR 16 m. (USD 18 m.) in 2003 and the number of employees was 120. No recent information is available about the share of military versus civilian sales (military sales accounted for around half of total company sales in the early 1990s).

Steyr Mannlicher's most significant military product is the AUG assault rifle, produced since 1978 and sold to the armed forces of a large number of countries, including Austria, Australia, Ireland, and New Zealand, but also to more controversial destinations such as Bolivia, Malaysia, Oman, Saudi Arabia, and Venezuela.

In addition to assault rifles, Steyr Mannlicher produces sniper rifles, anti-matérial rifles, and pistols (see Appendix). The company also produces hunting rifles. It left the market for sporting arms in 2002 when it sold its 51 per cent share in the German producer of sport rifles, Suhler, as well as its sport arms activities, Steyr Sportwaffen GmbH.

Steyr Mannlicher faced severe financial problems throughout the 1990s. Total sales declined by 50 per cent between 1991 and 1996, while employment was reduced from 260 to 180 during the same period. This was the direct result of a significant decline in the production of assault rifles since the late 1980s, as the company made its last delivery of AUG assault rifles to the Austrian armed forces in 1987. The attempt to gain new markets through the development of a sub-machine gun, the Tactical Machine Pistol (TMP), failed (*Ober österreichische Nachrichten*, 1993; 1995). The production rights for the TMP were sold to the small Swiss company Brügger & Thomet.

Table 5

Available financial and employment data: Steyr Mannlicher*

	2003	2002	2001	2000//	1996	1995	1994	1993	1992	1991
Total sales	16	20	..	17	17	18	22	29	32	34
Civilian %	..	..	..	..	..	..	..	..	..	..
Military %	..	..	..	..	..	..	*50*	..	..	..
Police %	..	..	..	..	..	..	..	..	..	..
Total domestic sales %	..	..	..	..	..	..	..	..	..	..
Total foreign sales %	..	..	..	..	..	..	..	..	..	..
Profit (net)	..	..	..	..	-3	..	..	..	..	..
Total employees	120	..	135	..	178	185	197	206	253	260

Sources: Mitte 2004 Absiedlung nach Niederösterreich, Textarchiv Oberösterreichische Nachrichten (http://www.nachrichten.at/archiv), 16 Jan. 2004; Holzer (2003); Miserable Auftragslage, 35 Arbeitsplätse wackeln, Textarchiv Oberösterreichische Nachrichten (http://www.nachrichten.at/archiv), 19 July 2001; Mannlicher baut Mitarbeiter ab, Textarchiv Oberösterreichische Nachrichten (http://www.nachrichten.at/archiv), 23 Dec. 1998; Velusttochter inhaliert, Textarchiv Oberösterreichische Nachrichten (http://www.nachrichten.at/archiv), 21 Aug. 1997; Grosse Schreckpistole für US Hausfrauen, Textarchiv Oberösterreichische Nachrichten (http://www.nachrichten.at/archiv), 23 Dec. 1991; Steyr Daimler Puch (1991–96)

Steyr Mannlicher failed to win significant contract awards within Europe. The most important export contracts for the company were the licences for the production of AUG rifles to Australia (1988) and Malaysia (1991). More than 110,000 AUG rifles were produced in Malaysia in the period 1991–2003. According to Steyr Mannlicher, the production of components for rifles that were produced under licence abroad accounted for about half of the company's military sales in the early 1990s (*Ober österreichische Nachrichten*, 1991).

In March 2004, Steyr Mannlicher took its cooperation with Malaysia several steps further by announcing its plan to transfer the licence for the production and sale of all military small arms to Malaysia (David & Andres, 2004), a step taken with the clear purpose of evading Austrian arms export controls. Wolfgang Führlinger, the owner and manager of the company, declared: 'We will no longer produce military equipment in this country. As a business man I am tired of being considered at a par with drug-dealers and pimps.'[15] Steyr

Company history

1987 Small arms production is spun off from Steyr Daimler Puch AG (owned by the state-owned Creditanstalt Aktiv) and set up as an independent subsidiary, Steyr Mannlicher	
1996 The South Korean company Daewoo tries to acquire Steyr Mannlicher's parent company, Steyr Daimler Puch; Daewoo's offer is rejected	
1996 Steyr Daimler Puch is acquired by Magna; Steyr Mannlicher is excluded from the deal and remains, together with Steyr Spezialfahrzeuge, in the hands of Creditanstalt Aktiv	
2001 The German company Umarex, owner of Carl Walther, tries to acquire Steyr Mannlicher; the offer is rejected	
2001 Cura Investmentholding—owned by Wolfgang Führlinger—acquires Steyr Mannlicher	
2002 Cura Investmentholding is renamed Steyr Mannlicher Holding GmbH, with Steyr Mannlicher GmbH & Co. KG as a fully owned subsidiary	
2004 Steyr Mannlicher announces the establishment of a joint venture company in Malaysia	

Mannlicher announced the creation of a joint venture company with National Aerospace and Defence Industries (NADI), Steyr Mannlicher Sdn Bhd, mainly for the production of an upgraded assault rifle, the AUG A3. The new company plans to produce more than 15,000 rifles per year for customers in the Middle East and Asia (Defense Aerospace, 2004).

In late 2004, Steyr Mannlicher received a contract from the Iranian government for the delivery of 800 HS.50 heavy sniper rifles. This deal, authorized by the Austrian government, is highly controversial because of well-founded fears that the rifles might be used for violations of human rights in Iran or that some of them might be diverted to Iranian non-state allies, such as Hezbollah or certain militant groups in Iraq (Möchel, 2005).

COMPANY PROFILE **GLOCK**

Very little information is available about Glock, one of the largest Western European producers of pistols for both civilian and police markets. Company management refuses to disclose even basic information to the public.[16] According to the sparse information available, total company sales are estimated at roughly USD 100 m., with an overwhelming share derived from foreign sales. Glock employed about 450 people in 2002–03 (see Table 6).

Glock has three manufacturing facilities, two in Austria (Deutsch-Wagram near Vienna and Ferlach) and one in the United States (Smyrna, Georgia). The company has sales offices in Asia (Hong Kong) and Latin America (Uruguay). No formal links exist between Glock GmbH and its foreign activities, which are administered by the Luxemburg-based company Unipatent (Maierbrugger, 2004).

Glock has produced pistols since the early 1980s, when it won the contract for the supply of Glock 17 pistols to the Austrian Army. Outside Austria, Glock pistols are in service with a large number of European armed forces, as well as with US federal agencies. They have also been sold to the armed forces of India, Jordan, Philippines, Taiwan, and Thailand (Jane's Information Group, 2004a, pp. 863–76).

In 2003, Glock was awarded a US contract for the delivery of up to 100,000 pistols for Iraqi police officers. Pistol parts will be produced in Austria and assembled in the United States (*Die Presse*, 2003). Glock pistols for the American market are assembled at the Glock US facility in Smyrna, Georgia. The awarding of the contract to a European small arms producer caused protests from US competitors (Svitak & Sia, 2003).

Glock is majority owned and managed by its founder, Gaston Glock. Glock GmbH is 80 per cent owned by Glock Privatstiftung, a foundation created in 1999. Gaston Glock's children participate in the management of the company.

Table 6
Available financial and employment data: Glock*

	2002–03	2000
Total sales	ca. USD 100	..
Civilian %	..	*(50)*
Military/police %	..	*(50)*
Profit (net)	..	..
Total domestic sales %	..	*ca. 15*
Total foreign sales %	*ca. 66 in USA*	*ca. 85*
Total employees	450 in Austria	380, of which 130 in USA

Sources: *Format* (2003); *Die Presse* (2003); Christi (2000)

Company history
1963 Creation of Glock (Vienna): production of plastic and steel components
1983 Glock wins the competition for the production of 25,000 pistols for the Austrian Army
1985 Establishment of a manufacturing subsidiary, Glock Inc., in Georgia, USA
1988 Establishment of a Glock sales office in Hong Kong
1988 Establishment of a second manufacturing facility in Austria (Ferlach, Kärnten)
1990 Establishment of a Glock sales office in Montevideo, Uruguay

While extraordinarily little information is openly disclosed, Glock—the company as well as its owner—frequently appears in the headlines of the Austrian press. In 1999, Gaston Glock was the victim of a murder attempt by his business partner, Charles Ewert, employed by Glock 15 years earlier to set up a company managing Glock's international business (Machan, 2003). The company, Unipatent Holding, is based in Luxemburg. Lack of clarity persists about its ownership. Also, Gaston Glock's close links to Jörg Haider, the former leader of the right-wing Austrian Freedom Party, have attracted public attention (*Profil*, 2000; Maierbrugger, 2004).

Belgium

According to the Belgian arms industry association, Belgian Defence & Security Group (BDIG),[17] total arms industry revenues in Belgium amounted to EUR 600 m. (USD 560 m.) in 2001–02 (Albers, 2002; Delmartino, 2002). The production of SALW, their parts, and ammunition accounted for a major part of this figure. Because of the limited requirements of the domestic armed forces, the Belgian arms industry is heavily dependent on exports, which accounted for around 80 per cent of total sales, according to available estimates (Jane's Information Group, 2000).

According to official statistics, the value of arms exports amounted to close to EUR 300 m. (USD 280 m.) in 2002 (excluding a wide range of military products, in particular military electronics).[18] The value of exports of large-, medium-, and small-calibre ammunition and SALW amounted to around EUR 160 m. (USD 150 m.), of which about half was for weapons and parts and half for ammunition. The value of exports has decreased by more than 60 per cent in real terms since 1991.[19]

Small arms

Belgium is the home of one of the world's largest military small arms producers, **FN Herstal.** The company is a subsidiary of Herstal Group, which, besides FN Herstal, includes the US military small arms producing subsidiary FNMI. Revenues from military small arms produced in the United States accounted for more than one-third of Herstal's total military and law enforcement sales in 2003. About two-thirds of the group's revenues are derived from the sale of civilian small arms—a significant part of which are produced in the United States. Close to half of the people employed in civilian production were located in the United States in 2003. A detailed company profile is provided below.

Ammunition

A small Belgian company, **New Lachaussée,** produces machines for the production of small arms ammunition (New Lachaussée. n.d.a). Its activities are closely linked to FN Herstal, which, together with the now defunct explosives company PRB (Poudrières Réunies de Belgique), participated in the establishment of New Lachaussée in 1992. The company had sales of EUR 12.5 m. (USD 14 m.) in 2003, of which 95 per cent were derived from exports, and employed 60 people (New Lachaussée. n.d.b).

Small arms ammunition manufacturing equipment has in the past been sold to China (ammunition for sport shooting is produced by the Chinese company Norinco, according to official information), Iran (hunting ammunition, according to official information) (*Gazet van Antwerpen*, 2001), and Kenya (Eldoret Ordinance Bullet Factory, established in the first half of the 1990s) (Amnesty International Vlaanderen, n.d.). New Lachaussée is part of a consortium led by the German company Fritz Werner (now MAN Ferrostaal Industrieanlagen) that won a contract to build a military small arms ammunition plant in Turkey in 2000. Company information suggests that, in addition to the above-mentioned destinations, equipment at some time has also been delivered to countries such as Ethiopia, Cameroon, and Colombia.[20]

In early 2004, the Belgian export credit agency announced that it would authorize a contract with New Lachaussée for the export of small arms ammunition manufacturing equipment to Tanzania. After protests from NGOs, an export authorization was denied (IPS, 2004).[21] In mid-2004, the Belgian NGO Forum voor Vredesactie reported that New Lachaussée was seeking an authorization for the export of small arms ammunition manufacturing equipment to Nepal (which, since 2002, has acquired FN Herstal-manufactured Minimi light machine guns and FNMI-manufactured M16 rifles) (Forum voor Vredesactie, 2004).

New Lachaussée is part of the Forrest Group, owned by Georges Forrest, and in 2002 was accused by a UN expert panel of having participated in the illegal exploitation of natural resources in the Democratic Republic of the Congo (DRC) (UNSC, 2002).

Light weapons

Two Belgian companies are producing light weapons in addition to FN Herstal. **Mecar** produces large-calibre ammunition for tanks and mortars, as well as grenades (rifle and hand grenades) (Mecar, n.d.). The company employed 320 people at the end of 2003 and had revenues of USD 130 m. (with revenues of USD 95 m. and USD 77 m. in 2002 and 2001, respectively).[22] Mecar is owned by the US company Allied Defense Group, which, at the end of 2003, announced the formation of a US-based subsidiary, MECAR (Allied Defense Group, 2003).

PB Clermont is a Belgian ammunition propellant manufacturer (PB Clermont, n.d.). The company is part of the French Groupe SNPE and as such became a subsidiary of the European explosives and propellant company Eurenco, established in January 2004. Eurenco is 60 per cent owned by Groupe SNPE and 20 per cent each by Patria of Finland and Saab of Sweden (PB Clermont, 2004). PB Clermont employed 125 people in mid-2004.

Sights

OIP Sensor Systems (formerly the Belgian division of Delft Sensor Systems) developed the IRBIS weapon sight for the Belgian armed forces (OIP, 2000). Around 80 per cent of the company's sales were military-related in 2001 (Delmartino, 2002). The company has experienced severe financial difficulties in recent years and employed 50 people in mid-2003, when it was sold by its Dutch parent company, Delft Instruments, to the private Israeli military electronics company Elbit Systems (Delft Instruments, 2003).

Aims Optronics produces small arms laser sights.

COMPANY PROFILE **HERSTAL AND FN HERSTAL**

The Belgian Herstal Group is by far the largest small arms producing company and the largest military small arms producing company in Western Europe. The company had total sales of roughly EUR 400 m. (USD 450 m.) in 2003, of which EUR 150 m. (USD 170 m.) was derived from military and law enforcement sales. Herstal employed more than 2,500 people in 2003.

Company sales declined significantly during the 1990s, by roughly 25 per cent between 1991 and 1999 in real terms, largely as a result of a sharp decline in military and law enforcement sales. These accounted for close to 50 per cent of company sales at the beginning of the decade, but had decreased to 29 per cent by 2000. Since that date, military and law enforcement sales increased and accounted for 38 per cent of total sales in 2003. Herstal is currently streamlining its civilian activities, which made a loss of roughly EUR 15 m. (USD 17 m.) in 2001.

Herstal manufacturing subsidiaries are located in Belgium, the United States, Portugal, Italy, and Japan.[23] The group's largest subsidiary, FN Herstal, accounted for a quarter of the group's total sales and more than a third of its employees in 2003. FN Herstal is 100 per cent dependent on military and law enforcement sales. The subsidiary has a sales office in Singapore. The group's US subsidiaries, the military small arms company FNMI and the civilian small arms producer Browning (which FN Herstal acquired in 1976), employed roughly 43 per cent of the group's total workforce in 2003.

Herstal Group companies produce a wide range of military, law enforcement, and civilian small arms, as well as light weapons. FN Herstal produces assault rifles (F2000, FNC, and FAL), machine guns (Minimi, MAG, and M2HB-QCB), sub-machine guns (P90), pistols (Five-seveN and a number of earlier models), and small arms ammunition. The company also produces machine gun mounts for helicopters, military vehicles, and ships, as well as rocket launchers. About 78 and 16 per cent of FN Herstal sales were derived from the sale of small arms/light weapons and ammunition, respectively, in 2002.

Table 7
Available financial and employment data: Herstal Group and FN Herstal*

Herstal Group		2003	2002	2001 //	1999 //	1997 //	1995 //	1993 //	1991
Total sales		403	459	488	424	378	499	597	563
Military/police sales		153	167	158	125	126	196	290	269
Military/police %		*38*	*36*	*32*	*29*	*33*	*39*	*49*	*48*
Profit (net)		5	6	-6	-1	-80	-11	11	-25
Civilian profit		1	2	-15	*profit*	..	..	..	..
Military/police profit		4	4	9	*loss*	..	..	..	..
Total domestic sales %		*1*	*2*	*1*	..	..	..	..	..
Total foreign sales %		*99*	*98*	*99*	..	..	..	..	..
Sales to Europe %		*18*	*14*	*16*	..	..	..	..	..
Sales to USA and Canada %		*67*	*68*	*68*	..	..	..	..	..
Sales to other regions %		*14*	*18*	*16*	..	..	..	..	..
Total employees		2,533	2,286	2,478	2,726	2,889	3,778	3,770	3,923
Employees USA		1,079	904	1,041	..	..	..	..	..
FN Herstal		**2003**	**2002**	**2001 //**	**1999 //**	**1997 //**	**1995 //**	**1993 //**	**1991**
Total sales		97	117	108	94	101	171	224	217
Profit (net)		9	4	3	-1	-29	-5	10	-1
Domestic sales %		*1*	*4*	*2*	..	..	..	..	..
Foreign sales %		*99*	*96*	*98*	..	..	..	..	..
Total employees		942	936	905	940	1,206	1,027	1,082	1,166

* Financial data is in EUR millions at constant 2003 prices.
Sources: 2000 through 2003: Herstal (2002; 2003); 1991 through 1999: Mampaey (2000)

The US-based military subsidiary of Herstal was established in 1981 when FN won a contract to manufacture M16 rifles for the US armed forces. FNMI produces these M16s (M16s were developed and in the past produced by the US small arms company Colt) and M240 machine guns, M249 SAWs, and the FNP Polymer 49 pistol for military and law enforcement forces. The primarily civilian arms producing company Browning produces pistols and small arms ammunition for law enforcement authorities. FN Herstal and FNMI also market the sniper rifles of the French company PGM Precisión.

FAL assault rifles are in service with the armed forces of a very large number of countries worldwide and are or have been produced under licence in Argentina, Brazil, Canada, India, Mexico, South Africa, the UK, the United States, and Venezuela. FNC light assault rifles are produced under licence in Indonesia and Sweden (Jane's Information Group, 2004a). FN Herstal introduced a new assault rifle, the F2000, in 2001.

FN Herstal's Personal Defence Weapon (PDW), the P90 sub-machine gun, was developed in the 1980s and is in service with police forces in Europe, as well as with Saudi Arabia's Special Forces, and the armed forces of Cyprus and Peru (Jane's Information Group, 2004a).[24] The export of 500 sub-machine guns to Mexico was halted in 2000 in response to public protest and the failure of the company to provide an end-user certificate.[25] The P90 is currently competing with the Heckler & Koch MP7 for the contract for supplying the North Atlantic Treaty Organization (NATO) small arms requirement for close combat.

The sale of FN Herstal military small arms, directly and under licence, is supported through the supply of technical assistance provided by FN Herstal's Military Engineering division. FN Herstal has also close links to New Lachaussée, which produces machinery for the production of small arms ammunition (see above).

Close to 100 per cent of Herstal Group sales are derived from sales outside Belgium, a large share of which, in the military and law enforcement sectors, is through exports from Belgium. North America accounted for the overwhelming share of foreign sales, more than two-thirds in 2003.

FN Herstal provides no information about regional shares of total exports. Requests for government authorizations for exports of military-style weapons to destinations outside Western Europe and the United States have caused intense political debate in Belgium in recent years, within the framework of a wider controversy about arms export between the region of Flanders and the heavily arms industry-dependent region of Wallonia (Delmartino, 2000b).

The most recent debate arose in 2002, when FN Herstal received an authorization to export 5,500 Minimi machine guns to Nepal. Despite strong public

Company history[26]
1889 Formation of FN (Fabrique Nationale), to produce Mauser rifles under German licence for the Belgian Army
1896 FN starts producing bicycles
1900 onwards FN starts producing vehicles, including military vehicles
1914–18 Manufacturing activities are discontinued
1936 FN obtains a licence for Bofors anti-aircraft guns
1940–94 FN is controlled by the German Deutsche Waffen und Munitionsfabriken
1948 FN starts producing aircraft engines
1953 FN obtains a licence for Bofors anti-aircraft guns
1976 FN acquires Browning
Mid-1980s FN Herstal starts development of the P90 sub-machine gun
1988 FN acquires the brand and sales rights for Winchester
1991 Formation of Herstal Group
1991 Société Générale de Belgique sells 92 per cent of Herstal Group to GIAT Industries. Non-small arms activities are divested
1997 The Walloon regional government acquires 92 per cent of Herstal Group from Giat Industries and becomes the 100 per cent owner
2000 The Walloon regional government announces that Herstal Group is for sale
2001 FN Herstal introduces the F2000 assault rifle
2002 FN Herstal is granted an export licence for Minimi sub-machine guns to Nepal

opposition to the deal, it supplied the first machine guns in December 2002 (Merckx, 2003). Partly in response to the clash of positions over Nepal, the responsibility for granting export licences was transferred to the regions in 2003.

In the period 1991–97, the French land weapons company GIAT Industries owned a majority share (92 per cent) of the Herstal Group. While the Walloon regional government held a mere 8 per cent of the capital of Herstal, it nevertheless maintained a veto right. GIAT Industries, facing severe financial difficulties of its own, was unable to address the difficulties of its new subsidiary. While civilian sales accounted for more than 50 per cent of Herstal sales at the time of the acquisition, GIAT Industries was fully dependent on military sales.

When GIAT Industries tried to sell Herstal to the US small arms company Colt in 1997, the Walloon regional government intervened and acquired 100 per cent of the shares of the company. Herstal Group is managed through the public company SOGEPA (Société Wallonne de Gestion & de Participation) (Decroly, n.d.).

Following its acquisition of the company, the regional government launched a restructuring plan, 'Plan Herstal 2000', and invested around EUR 75 m. (USD 70 m.) in the company in the period 1997–2001 (RTBF, 2001). From the start, regional government ownership was planned to be temporary—a means to help the company become profitable (RTBF, 2001). In June 2000, the regional government announced that Herstal Group was for sale under three conditions: it must not be split up; the centre of research and development had to remain in Belgium; and existing levels of employment in Liege had to be maintained (Delmartino, 2000a). Herstal's dependency on the United States in the field of research and development (R&D) (since 2002, FN Herstal has been involved in 'smart gun' research funded by the US Department of Justice) feeds into fears of a US takeover.[27]

Denmark

Danish production of small arms and parts is negligible. Ammunition for SALW is produced within the state-controlled **Ammunitionsarsenalet,** which is an independent organization within the Danish Army Matériel Commando (Danish Army Matériel Commando, n.d.). In June 2004, Ammunitionsarsenalet formed an alliance with Nammo for the production of military small arms ammunition (Nammo, 2004).[28] A minor company, Small Arms Industries (SAI) produces silencers and shotguns (Finland, 2002).

Finland

Finland is a minor producer of small arms for military and law enforcement authorities, but has some production of ammunition for SALW within what is by far its largest arms producing company, Patria (formerly Patria Industries).

The Finnish government arms export report provides detailed information about SALW exports. According to the report for 2002, the value of small arms exports amounted to around EUR 1 m. (USD 0.9 m.), and the value of exports of small arms ammunition and of guns and mortars amounted to roughly EUR 4.3 m. (USD 4 m.) each (Finland. Ministry of Defence, 2002).

Small arms

The Finnish company **Sako** produces specialized military and law enforcement rifles, the TRG sniper rifle, and hunting rifles (Sako, n.d.). In the past, Sako was involved in the production of Valmet assault rifles for the Finnish Army. Valmet merged with Sako in 1987. After the production of a small batch of M95 rifles, Sako seems to have discontinued all production of assault rifles (Jane's Information Group, 2004a). In early 2000, Sako was sold by its former parent company, Metso Corporation, to the Italian company Beretta (Metso, 1999). Sako includes the small arms company Tikka and the Canadian company Stoeger. Sako employed 234 people in 2002 and had total sales of around EUR 23 m. (USD 22 m.), primarily from sales of civilian small arms.

Noptel produces training systems for small arms (Noptel, n.d.).

Ammunition and light weapons

Three Finnish companies, either part of or linked to Patria, are producers of small- and medium-calibre ammunition and light weapons. These are Patria Weapon Systems and two Patria companies that have been integrated within European joint ventures, Nammo Lapua and Eurenco Vihtavuori.

Patria was established in 1997 as a state-owned weapons manufacturer through a merger of the Finish arms producing companies operating within different sectors, with the exclusion of shipbuilding. In 2001, EADS acquired a minority share in the company. Patria had military sales of roughly EUR 200 m. (USD 225 m.) in 2003, which accounted for 75 per cent of total company sales. Around 37 per cent of total sales were derived from exports.

Patria Weapon Systems manufactures mortars (originally developed by Tampella, later Vammas) and artillery systems. The company had sales of roughly EUR 30 m. (USD 34 m.) in 2003, or slightly more than 10 per cent of total Patria sales, and employed 224 people (Patria, 2004).

Nammo Lapua (formerly Lapua) produces primarily small arms ammunition for hunters, sport shooters, and law enforcement authorities, as well as artillery and mortar ammunition. The company, including its German subsidiary SK Jagd- und Sportmunitions, employed about 350 people in 2003 (Nammo, n.d.). Since 1998, it has been part of Nammo, jointly owned by the Norwegian government (45 per cent), Saab of Sweden (27.5 per cent), and Patria (27.5 per cent).[29]

Eurenco Vihtavuori (formerly Nexplo Vihtavuori Oy, the Finnish part of the Finnish–Swedish joint venture Nexplo Industries) is part of the European explosives and propellant company Eurenco, established in January 2004.[30] Eurenco Vihtavuori produces propellants for medium- and large-calibre ammunition, mortar increments, and small arms ammunition, including for hunting and sport.

Oy Forcit produces explosives for military and civilian use. The company had total sales of EUR 50 m. (USD 56 m.) in 2002 and employed 250 people (Forcit, n.d.).

France

The French arms industry is the second largest in Europe. According to official estimates, the value of arms sales in 2002 was roughly EUR 13.8 b. (USD 15.6 b.), of which EUR 4.4 b. (USD 5 b.) were derived from exports.[31] The French arms industry was downsized significantly throughout the 1990s, but it is still unclear whether this has resulted in a reduced dependency on arms exports. The share of exports on total arms sales fluctuated throughout the 1990s and averaged 37 per cent in the period 2000–02.

Significant overcapacity continues to exist, in particular in the land arms sector, dominated by the state-owned **GIAT Industries.** This is the company that traditionally produced standard military small arms, besides light weapons, a wide range of ammunition, and, primarily, military vehicles.

Activities related to the development and manufacture of small arms within the company were marginal by mid-2004 and are likely to be further reduced through measures related to the most recent restructuring programme, to be carried out from 2004 to 2006 (see the company profile, below). Since 2004, military-style small arms production in France has therefore been limited.

In the period 1997–2001, the value of French military small arms exports amounted to just over EUR 1 m. (USD 0.9 m.), according to official data. The value of light weapons exports during the same period amounted to more than EUR 450 m. (USD 400 m.) (France, 2003, p. 68).

Small arms

The most significant producer of military-style small arms after GIAT Industries is **PGM Precisión,** a company developing and manufacturing sniper rifles and anti-matériel rifles (Ultima Ratio, Hécate, Mini-Hécate, and Lapua Magnum). PGM Precisión rifles are sold by Herstal subsidiary companies, i.e. the Belgian FN Herstal and the US FNMI. No information is available about the owners of PGM Precisión.

A private company, **SAE (Société d'Armement et d'Études) Alsetex,** produces tactical shotguns, hand grenades, and anti-riot ammunition. Since the mid-1990s, the company has been a subsidiary of Titanite (see below) (SAE Alsetex, n.d.). SAE Alsetex had total sales of roughly EUR 11 m. (USD 12.5 m.) in 2003, and employed about 80 people (Societe.com, n.d.a).

Chapuis Armes acquired the pistol manufacturing activities of Manurhin Equipment (a producer of small arms ammunition manufacturing equipment; see below) in 1999. The company produces civilian and police revolvers, as well as hunting rifles (Chapuis Armes, n.d.).

Ammunition manufacturing equipment

Manurhin Equipment produces manufacturing equipment for small- and medium-calibre ammunition (Manurhin Equipment, n.d.). The company was sold in 1990 by its parent company, Matra, to the Belgian small arms company Herstal. When Herstal was acquired by GIAT Industries in 1991, Manurhin Equipment remained under Belgian control, but became independent in 1995.

In 1999, Manurhin Equipment sold its revolver manufacturing activities to Chapuis Armes. In 2004, the company offered to take over GIAT Industries' Cusset small arms ammunition manufacturing facility (Manurhin Défense) (Ferrard, 2004).

Manurhin Equipment was a partner in the German-led consortium that won a contract to build a military ammunition plant in Turkey in 2000. Insufficient information is available about past and current supplies of manufacturing equipment for military ammunition.

Light weapons and ammunition

Detailed profiles for **GIAT Industries** and the European joint venture **MBDA,** which produces man-portable missiles, are provided below. **TDA Armement** produces mortars and ammunition (TDA Armement, n.d.). The company is a joint venture company of Thales and EADS Deutschland (formerly Daimler Chrysler Aerospace), and was established in 1994. TDA Armement had total sales of roughly EUR 80 m. (USD 90 m.) in 2003 and employed close to 500 people, down from close to 600 five years earlier, in 1998 (Societe.com, n.d.b).

Titanite produces small- and medium-calibre ammunition, as well as grenade launchers and hand grenades. It also produces civilian explosives and had total sales of around EUR 24 m. (USD 27 m.) in 2002, employing 150 people (Societe.com, n.d.c). The company, formerly owned by Finexplo, was acquired in 2000 by AXA Private Equity fund and was sold to the investment fund Fonds Partenaires Gestion in September 2004 (Private Equity Week, n.d.).

Eurenco France produces ammunition propellants and high explosives. The company is part of the European explosives and propellant company Eurenco, established in January 2004 and majority owned by Groupe SNPE.[32]

Optronics

SAGEM's Optronic and AirLand Systems division produces military small arms sights. SAGEM acquired SFIM Industries, a producer of laser target pointers and night sights scopes, in 1999,[33] and the Swiss military optronics company Leica Vectronix in 2003 (see below). SAGEM's Optronic and AirLand Systems division is part of the group's Defence & Security branch with sales of roughly EUR 1.1 b. (USD 1.2 b.) in 2003 (SAGEM, 2004a).

In early 2004, SAGEM won the contract for the French Army future infantry soldier system FELIN (SAGEM, 2004b). FELIN consists of an integrated sighting, fire control, and communication system to be fitted on the FAMAS assault rifle, the Minimi light machine gun, and the FRF2 sniper rifle. The contract is for around 32,000 systems at a value of close to EUR 800 m. (USD 900 m.). Deliveries are expected to start in 2007 (*Military Procurement International*, 2004).

The military electronics company that lost the FELIN competition, Thales (which teamed up with GIAT Industries for the FELIN contract), is involved in similar military small arms network programmes in other European countries, as well as outside Europe.

Thales, with headquarters in France, is one of the world's largest military electronics companies, with, for the arms industry, an extraordinarily large number of foreign-based subsidiaries and joint ventures. Thales (formerly Thomson-CSF) was partly privatized in 1998 (the French state held close to one-third of the company's shares by mid-2004). The company had revenues of more than EUR 10 b. (USD 11.3 b.) in 2003, more than two-thirds from military sales (Thales, 2004).

Within Europe, Thales' production of optic, electro-optic, and electronic infantry equipment is concentrated in Thales Optronic Systems, with facilities in France, the Netherlands,[34] and the UK.[35] Thales UK is the prime contractor for the Assessment Phase (initiated in 2003) of the British FIST (Future Integrated Soldier Technology) programme. The Demonstration and Manufacture contract is expected to be awarded in 2006 (UK, 2003).

Outside Europe, Thales produces optic and electro-optic infantry equipment in the 50 per cent-owned Australian company ADI and the South African company ADS. Thales Optronic Systems, which produces military vehicles and air- and sea-based equipment, employed 4,400 people worldwide in 2002 and had total sales of more than EUR 600 m. (USD 560 m.) (Thales Optronic Systems, n.d.).

COMPANY PROFILE **GIAT INDUSTRIES**

By 2004, GIAT (Groupement Industriel de l'Armement Terrestre) Industries was one of the few fully state-owned arms producers in Western Europe. The company is still one of the largest Western European land arms producers, but will be subject to dramatic downsizing over the coming two to three years.

GIAT Industries was established in 1973 as a subsidiary unit of the Ministry of Defence Direction Technique des Armements Terrestres (DTAT), and transformed into a company only in 1991. The company has experienced severe financial difficulties due to overcapacity since its establishment—exacerbated by the failures of the Leclerc tank programme initiated in 1982—and was subject to reorganization programmes even before it transformed into a company.

Activities related to the development and manufacture of small arms within GIAT Industries were marginal by mid-2004 and are likely to be further reduced through measures related to Projet GIAT 2006. This most recent restructuring programme was first announced in early 2003 and will, if carried out fully, reduce the workforce of GIAT Industries by more than half by 2006 (GIAT Industries, 2003). According to Projet GIAT 2006, all capabilities related to SALW development and production will be concentrated at one of the four facilities that will make up GIAT Industries after 2006, i.e. the facility at Bourges. The optical business at Saint-Etienne is going to be sold off.

The traditional small arms manufacturing centre within GIAT Industries was the Saint-Etienne facility, Manufacture d'Armes de Saint-Etienne (MAS), which employed more than 3,000 people in the mid-1970s. GIAT Industries' most important infantry weapon is the FAMAS (Fusil Automatique, Manufacture d'Armes de Saint-Etienne) assault rifle originally produced at MAS. FAMAS F1 production for the French armed forces started in 1979. The assault rifle has been exported in small numbers to some countries such as Senegal and the United Arab Emirates. The second-generation FAMAS G2 assault rifle is one of the platforms for the French Army's FELIN system. GIAT Industries teamed up with the French private military electronics company Thales in the competition for the contract for the FELIN system. The contract was awarded to a competitor, the military electronics company SAGEM, in April 2004 (see above).

Since the late 1980s, the Saint-Etienne facility has produced under Italian licence the Beretta 92 semi-automatic pistol (French designation PAMAS—Pistolet Automatique de la Manufacture d'Armes de Saint-Etienne) for the French Gendarmerie and Air Force (Hamel, n.d.). In 2003, however, GIAT Industries lost the competition for the contract for around 250,000 pistols for the French police and Gendarmerie, a contract worth around EUR 90 m. (USD 100 m.) (Morawski, 2003).

GIAT Industries produces only small arms for military and law enforcement forces. However, in the period 1991–97, it owned a majority share (92 per cent) of the Belgian small arms producer Herstal, including its significant civilian small arms activities. The alliance was unsuccessful for both parties. The financial loss for GIAT Industries from its ownership of Herstal has been estimated to have amounted to EUR 300 m (France, 2002).[36] Its temporary ownership of Herstal made GIAT Industries also abandon its PDW programme, started in the mid-1980s, as Herstal's military FN Herstal subsidiary developed a competing sub-machine gun (Paulson, 1998).

GIAT Industries' Luchaire Défense and Manurhin Défense subsidiaries produce a wide range of medium- and large-calibre ammunition, including grenades, and artillery and tank ammunition. Total ammunition sales, including a minor share of small-calibre ammunition, accounted for 11 per cent of GIAT Industries' total sales in 2003, or roughly EUR 80 m. (USD 90 m.) (GIAT Industries, 2004, p. 5). Luchaire Défense and Manurhin Défense employed 261 and 385 people, respectively, in 2003 at manufacturing facilities in Cusset and La Chapelle. According to Projet GIAT 2006, ammunition manufacturing will be streamlined and concentrated at one facility, La Chapelle, which is planned to employ around 270 people by 2006. GIAT Industries' Tarbed facility will be drastically downsized from 790 employees in 2003 to 150 by 2006, and will focus on the production of pyrotechnic components (GIAT Industries, 2003).

COMPANY PROFILE **MBDA**

The European joint venture company MBDA produces man-portable missiles. The company has manufacturing facilities in France, Italy, and the UK and a sales office in the United States. MBDA had total sales of around EUR 2 b. (USD 2.3 b.) in 2002, employing 10,000 people (MBDA, n.d.c). While no details are available about the financial values of sales within different areas of activity of the company, available information suggests that man-portable missiles account for a small part of total sales.[37]

MBDA was established in late 2001 through the merger of Matra BAe Dynamics, EADS-Aerospatiale Matra Missiles, and the missile activities of Alenia Marconi Systems, as the result of a consolidation process started in the mid-1990s when the French company Matra Défense and the British BAe Dynamics merged into Matra BAe Dynamics. The largest German missile producer, LFK (Lenkflugkörpersysteme), was 81 per cent owned by EADS and 19 per cent by MBDA in mid-2004, but is planned to be fully integrated into MBDA in the near future. MBDA is owned 37.5 per cent each by BAE Systems (UK) and EADS (Germany, France, Spain), and 25 per cent by Finmeccanica (Italy).

MBDA produces the following man-portable missiles: the Milan and Eryx anti-tank missiles and the Mistral anti-aircraft missile. A new anti-tank missile, the Trigan, is under development as the proposed replacement for the Milan. Besides man-portable weapons, MBDA produces a very wide range of ground-, sea-, and air-launched missiles.

Milan missiles (Missile d'Infanterie Léger Antichar) are among the most widely used anti-tank missiles worldwide. The Milan was developed in the 1970s by the Euromissile consortium owned by the French company Aerospatiale and the German MBB, and are now produced by MBDA in cooperation with LFK. Around 230,000 missiles have been jointly produced by the companies since the 1970s. Another 100,000 missiles have been produced under licence in Spain, India (Bharat Dynamics, since 1985), and the UK (MBDA, n.d.a). From France and Germany, Milan missiles and missile launchers have been exported not only to a number of other European countries, but also to a very large number of countries in Africa and the Middle East, including Cameroon, Egypt, Gabon, Kenya, Iraq, Lebanon, Mauritania, Morocco, Oman, Qatar, Somalia, Syria, Tunisia, Turkey, and the United Arab Emirates (Jane's Information Group, 2004a). Eryx anti-tank missiles have been produced by Aerospatiale Matra since the early 1990s.

The Mistral anti-aircraft missile was developed by the French companies Matra, Aérospatiale, and TDA in the 1970s and entered series production in the late 1980s. Mistral missiles have been sold to 25 countries, including eight in Europe, eight in Pacific Asia, four in the Middle East, and five in South America (MBDA, n.d.b).

Germany

Neither German arms industry associations nor government authorities are forthcoming with relevant information about the size of the German arms industry. A little information has been made available as an illustration of the drastic downsizing of the industry since the end of the cold war. According to this data, direct employment in the arms industry has dropped from around 280,000 to 50,000 since the end of the cold war.[38]

Germany continues to maintain a large land arms industry. Employment in the sector has been estimated at around 6,000 people in 2003 (Erbe, 2004). German production of land weapons is dominated by the military vehicle and military electronics company Rheinmetall DeTec. Production of SALW is, however, largely carried out outside this company by the two independent companies Heckler & Koch and Dynamit Nobel Defence, as well as within the EADS subsidiary LFK.

The medium- and large-calibre ammunition sector (Diehl and Rheinmetall) is undergoing a process of restructuring in an effort to reduce existing overcapacity, while the production of small arms ammunition has been integrated into the Swiss RUAG Group. Germany has a large industry producing small arms for sport and hunting.[39]

The value of export authorizations (*Einzelausfuhrgenehmigungen*) for military small arms and their ammunition amounted to around EUR 61 m. (USD 57 m.) and EUR 15 m. (USD 14 m.), respectively, in 2002; of these totals, 74 per cent and 47 per cent, respectively, went to European Union (EU) member countries.[40] Small arms export authorizations to the United Arab Emirates, Saudi Arabia, Thailand, and South Korea accounted for the overwhelming share of authorizations granted for export to non-EU and non-NATO countries in 2002 (Germany, 2003). No comparable information is available for light weapons.[41]

Small arms

Heckler & Koch is one of Europe's largest producers of military-style small arms. Heckler & Koch assault rifles and sub-machine guns manufactured in Germany, as well as licences for their production abroad, have over the past decades been exported to a very large number of countries worldwide. In late 2003, the company announced its decision to open a manufacturing facility in the United States. Next to Heckler & Koch (see the company profile, below), two comparatively minor German companies produce pistols for law enforcement authorities. These are JP Sauer & Sohn and Carl Walther.

JP Sauer & Sohn is a significant producer of military and police pistols (SIG Sauer) and specialized rifles (Sauer sniper rifles). The company also produces hunting rifles and pistols for the civilian market. In 2003, JP Sauer & Sohn was awarded a contract for the supply of 250,000 pistols to French police and border guards (*Visier*, 2003). Sauer pistols have in the past been supplied to other European police forces (German, Swedish, and Swiss), as well as to Jordan and Saudi Arabia (*Schaffhauser Nachrichten*, 2003).

Between 1976 and 2000, JP Sauer & Sohn was owned by the Swiss company SIG and part of the group's small arms division, SIG Arms (see the section on Switzerland, below) (JP Sauer & Sohn, n.d.). In 2000, the company, along with the other German and Swiss companies belonging to SIG Arms, was acquired by two German textile entrepreneurs, Michael Lueke and Thomas Ortmeier. JP Sauer & Sohn employed around 330 people in 2002 (Döring, 2003).

Carl Walther produces the P99 and its follow-up version, the P22 pistol (the series has been produced since 2001) (*Westfaelische Rundschau Online*, 2001), as well as G22 rifles used by military and police forces (Carl Walther, n.d.).

> Carl Walther is known by gun aficionados as the producer of the PKK pistol, made famous in the James Bond novels, and currently markets the new P99, the 'James Bond pistol', referring to the pistol currently used by the film hero/advertisement platform.

Carl Walther employed 190 people in 2002 and had total sales of EUR 24 m. (USD 22.5 m.), around 70 per cent of which was from export sales (*Westfalenpost Online*, 2003). No information is available about the share of military and police sales in total sales, but the company is planning on 'substantially increasing' its activities in the military and law enforcement fields.[42] The most significant contracts in recent years were for P22 pistols for law enforcement forces in Poland, Canada, and Spain (*Westfalenpost Online*, 2003).

Parts for the P22 pistols are produced by the Umarex manufacturing facility (around 220 employees and EUR 35 m. (USD 33 m.) total sales in 2002), which belongs to the **Umarex Group** (Umarex Group, n.d.). In 2001, Umarex made an unsuccessful bid to acquire the Austrian small arms company Steyr Mannlicher (Meditz, 2001). It acquired Carl Walther in 1993. Umarex Group employed around 600 people in 2002 (*Westfaelische Rundschau Online*, 2002).

Blaser produces sniper rifles. Hunting rifles, however, account for the overwhelming share of the company's business. For a short period in 2000, Blaser was part of the Swiss company SIG Arms (see above) (Blaser, n.d.). The company employed 125 people in 2000 (*Schaffhauser Nachrichten*, 2000).

Ammunition manufacturing equipment

MAN Ferrostaal Industrieanlagen (MAN FIA) produced small arms manufacturing equipment in the past under the name Fritz Werner and is likely to continue to do so, although no clear information is available about activities in this field after 2001.

MAN FIA is a subsidiary of Ferrostaal, which in turn is part of the MAN Group. Before 1990, Fritz Werner was part of the government-owned Deutsche Industrie-anlagen (DIAG). MAN FIA was established in 2002 through the merger of Ferrostaal subsidiaries, including Fritz Werner Industrie-ausrüstungen. The company employed about 300 people in 2002 and had total sales of EUR 200 m. (USD 190 m.).

The company has in the past been involved in the establishment of small arms ammunition facilities in a number of conflict-prone countries. Most recently, Fritz Werner was awarded the prime contract for the production of an ammunition factory for the state-owned Turkish company MKEK in 2000, despite wide public protest. Sub-contracts went to the Belgian company New Lachaussée and the French Manurhin Equipment (Nassauer, 2000). The contract followed the sale of a Heckler & Koch HK33 assault rifle production licence to MKEK in 1998.

In the 1970s and 1980s, Fritz Werner established military facilities in, among others, Iran and Nigeria (AI, 2002; NTI, 2003; Timmerman, 1995). In the 1960s, the company participated in the establishment of Bharat Fritz Werner in India. The link to arms producing facilities in Burma goes as far back as the 1950s (Jane's Information Group, 1998).[43]

Light weapons

LFK is the prime contractor for the European Stinger Programme for the production of the Stinger anti-aircraft-missile, including a man-portable version.[44] Production started in 1993. In cooperation with MBDA, LFK produces the Milan anti-tank missile (see above).

LFK is majority owned by EADS Deutschland (formerly DaimlerChrysler Aerospace). The company will be fully integrated within the European joint venture MBDA (see above), which currently holds a minority share. No recent financial or employment data is available for LFK.

Between 1992 and 2002, the light weapons and ammunition producer Dynamit Nobel was part of Metallgesellschaft (now MG Technologies). Starting in 2002, Dynamit Nobel divested itself of the military activities of the company in response to the long-standing 'unsatisfactory utilization' of capacity (Dynamit Nobel, 2001).

In 2000, military sales accounted for 2.5 per cent of Dynamit Nobel's sales, worth EUR 65 m. (USD 60 m.), down from close to 20 per cent in the early 1990s, and included light weapons and their ammunition, including anti-tank missiles and rockets, and anti-vehicle land mines;[45] small arms ammunition (military, police, and civilian); and ammunition components (SIPRI, 2004).

Dynamit Nobel's light weapons activities were divested in recent years to an independent company, **Dynamit Nobel Defence**. No information is available about the ownership, size, and structure of this company. The Panzerfaust 3 anti-tank weapon is the company's most important product. More than 250,000 weapons have been produced since 1990 (Jane's Information Group, 2004a).

Dynamit Nobel Defence is involved in a cooperation programme with the Israeli company Corner Shot for the development and production of the Corner Shot Panzerfaust (Beaver, 2004). Since 1999, the company has also been developing a new shoulder-fired grenade launcher, the Matador, in collaboration with the Singapore government's military R&D agency and, probably, Singapore Technologies Kinetics (a subsidiary of Singapore Technologies Engineering, by far the largest arms producing company in Singapore), which has been producing the German Armbrust grenade launcher since the late 1980s (Singapore. Ministry of Defence, n.d.).

Dynamit Nobel has worked together with Dezamet of Poland on a programme to integrate the Panzerfaust warhead with the RPG-7 rocket launcher. The RPG-7 is a widely used rocket-propelled grenade launcher designed in the Soviet Union. The new weapon was tested in 2000, but there is no information about the current status of the programme (Jane's Information Group, 2004a, p. 421).

Dynamit Nobel's small arms ammunition business—for civilian, military, and law enforcement—was divested to a joint venture with the Swiss company

RUAG Munitions in 2002. The new company, **RUAG Ammotec,** was initially 80 per cent owned by RUAG and 20 per cent by Dynamit Nobel, but had been fully acquired by RUAG by the end of 2003 (see below).

DynITEC (Ignition Technology Energetic Compounds, formerly the Toisdorf facility of Dynamit Nobel Explosivstoff-und-Systemtechnik Defence Division) produces components for military ammunition. The company was established in 2002 and is owned by Junghans Feinwerktechnik of Diehl und Rheinmetall Waffen & Munition, together with a consortium of company managers (*Soldat & Technik*, 2003).

The core business of the **Rheinmetall** Weapons & Ammunition division is medium- and large-calibre weapons and their ammunition. Rheinmetall left the small arms market when it sold the trademark of Mauser pistols to JP Sauer & Sohn in 2000. Together with Diehl (see below), Rheinmetall manufactures under licence and markets in Europe the man-portable Spike anti-tank missile system, developed and produced by the Israeli company Rafael. A joint venture, Euro-Spike, was established in June 2004 and is owned by Diehl Munitionssysteme (40 per cent), Rheinmetall DeTec (40 per cent), and Rafael (20 per cent) via Ercas —a Dutch holding company wholly owned by Rafael (Rheinmetall, 2004).

Rheinmetall Weapons & Ammunition is part of Rheinmetall DeTec, Europe's largest land arms company, with 2003 sales of roughly EUR 1.6 b. (USD 1.8 b.) —one-third of which falls within the Weapons & Ammunition division. The division laid off as many as 240 people in response to falling demand for ammunition in 2004 (Aguera, 2004). Rheinmetall DeTec is part of Rheinmetall, a joint stock company whose majority share is controlled by the Röchling family.[46]

Diehl Munitionssysteme produces hand grenades and medium- and large-calibre ammunition, and had total sales of roughly EUR 150 m. (USD 140 m.) in 2002, employing more than 920 people (Aguera, 2004, p. 32). The company is part of Diehl VA Systeme, which combines the military and aerospace activities of the Diehl group of companies (Diehl VA Systeme, n.d.). In 2003, Diehl announced that it planned to merge Munitionssysteme with Bodenseewerk Geratetechnik and streamline their activities within a new subsidiary, Diehl BGT Defence (Aguera, 2004, p. 32). Diehl is a family-owned company (Diehl Stiftung). Military sales accounted for roughly 36 per cent of the company's EUR 1.55 b. (USD 1.75 b.) total sales in 2003 (Diehl, n.d.).

Sights

Zeiss Optronik Wetzlar (formerly Hensoldt Systemtechnik) produces military sighting equipment, including sights for military small arms. The company had 2002–03 sales of around EUR 20 m. (USD 22 m.) and employed 70 people in 2003 (Zeiss Optronik, n.d.). Zeiss Optronik Wetzlar is part of Zeiss Optronik, a subsidiary of Zeiss.

Euroatlas military electronic equipment includes sights for military small arms (Euroatlas, n.d.). In 1998, the company was acquired by the fast-growing US military electronics manufacturer L-3 Communications, a spin-off company of Lockheed Martin. Euroatlas had total sales of around EUR 7 m. (USD 8 m.) in 2003 and employed 65 people.

COMPANY PROFILE **HECKLER & KOCH**

The German company Heckler & Koch is one of the two largest producers of small arms for military and law enforcement authorities in Western Europe. The company had total sales of EUR 134 m. (USD 151 m.) in 2003. Two-thirds of sales where derived from military and police sales in 2002 (Schweikle, 2004). Around 75 per cent of total sales were derived from exports in 2003, with less than 10 per cent of export sales from countries outside Europe and the United States (Heckler & Koch, 2004).

Heckler & Koch has sales offices in the United States and the UK. In mid-2004, the company had only one manufacturing facility, in Oberndorf, Germany. Since late 2003, however, it has been building a new manufacturing facility in the United States.

Employment declined significantly throughout the 1990s, from close to 1,300 in 1990 to around 540 in late 2000, but increased to 600 in 2003, and is planned to further increase in the near future through the establishment of the US-based manufacturing facility.

Significant employment cuts were carried out in one single year, 1991, when employment fell by more than 40 per cent. Heckler & Koch faced severe financial difficulties in the late 1980s, at least partly related to the development of the G11 caseless ammunition rifle, for which no market could be found. In 1991, the British land arms producer Royal Ordnance, part of British Aero-

Table 8
Available financial and employment data: Heckler & Koch*

	2003	2002	2001	2000	1999	1998	1997	1996 //	1994	1993	1992	1991	1990
Total sales	134	120	90	90	100	70	70	70	80	90	100	80	100
Civilian %	..	*33*	..	..	..	..	..	..	..	..	..	..	..
Military/ police %	..	*66*	..	..	..	..	..	..	..	..	..	..	..
Total exports %	*75*	*69*	*64*	*66*	*70*	*62*	*50*	*51*	*66*	*57*	*49*	..	..
Exp. in Europe %	*55*	*42*	*36*	*29*	*43*	*19*	*15*	*17*	*25*	*24*	..	..	..
Exp. to USA %	*13*	*16*	*21*	*28*	*20*	*26*	*19*	*19*	*18*	*12*	..	..	..
Exp. other regions %	*7*	*11*	*7*	*11*	*7*	*17*	*16*	*15*	*23*	*21*	..	..	..
Profit (net)	..	..	..	..	..	..	..	..	..	..	..	..	..
Total employees	600	600	580	540	550	550	570	590	590	600	680	720	1,260

* Financial data is in EUR millions at constant 2003 prices.
Sources: Heckler & Koch, direct communication 16 September 2004; for 2002: Schweikle (2004)

space, acquired Heckler & Koch. Small arms production within Royal Ordnance, which already in the 1970s had acquired Heckler & Koch licences for the production of assault rifles and sub-machine guns, was largely taken over by the German company, which in 2000 was awarded the single largest UK small arms contract in recent years—a GBP 80 million (USD 120 m.) contract for the modification of 200,000 SA80 assault rifles (Fletcher, 2000).

British Aerospace announced the decision to sell Heckler & Koch in mid-1999, but was unable to implement it until the end of 2002, when a consortium of private investors, the Heckler & Koch Beteiligungs GmbH, led by two former company managers, Ernst Mauch and Dirk Holzknecht, acquired the company. Lack of clarity persists about the owners of the consortium (Wetzel, 2002).

The new owners decided to divide the activities of Heckler & Koch into a civilian and a military and law enforcement sector through the establishment of a new civilian subsidiary, Heckler & Koch Jagd- und Sportwaffen (hunting and target weapons) in July 2003. In August 2003, Heckler & Koch Jagd- und Sportwaffen acquired Suhler Jagd- und Sportwaffen (140 employees) (*Regioweb Online*, 2003).[47]

Heckler & Koch produces pistols, sub-machine guns (MP5, UMP, and the PDW MP7), assault rifles (G36, HK53, HK33), sniper rifles (HK23, HK21),

Company history[48]

1949 Creation of Heckler & Koch (private company)

1958 The company acquires the licence for the production of the CETME/G3 assault rifle

1959 Heckler & Koch is awarded a contract for the supply of 150,000 assault rifles for the German Army

1960s Licences for the production of G3 rifles are sold to, among others, Iran, Pakistan, Saudi Arabia, and Turkey

1975 Establishment of a US sales office: Heckler & Koch Inc.

1981 A licence for the production of G3 rifles is sold to Burma

1986 Divestiture of the civilian electronics business

1991 The German government postpones the decision about the acquisition of the G11 caseless ammunition rifle

1991 GIAT Industries withdraws from negotiations for the acquisition of Heckler & Koch

1991 Heckler & Koch is acquired by Royal Ordnance (now RO Defence), a subsidiary of British Aerospace (now BAE Systems)

1996 Start of the delivery of G36 assault rifles to the German Army

1998 A licence for the production of the HK33 rifle is sold to Turkey

1998 The Spanish Army adopts the G36 as its new standard assault rifle

1999 Negotiations with the German land weapons company Rheinmetall for a takeover of Heckler & Koch fail

1999 The US small arms manufacturer Colt offers to buy Heckler & Koch for USD 100 million—the bid is rejected

2002 BAE Systems sells Heckler & Koch to a consortium of private investors

2002 The German government refuses to grant an authorization to Heckler & Koch for the export of 65,000 G36 assault rifles to Nepal

2003 Start of the building of a manufacturing facility in the United States grenade launchers, and machine guns. The G3 assault rifle, in production since the 1950s, is one of the most widely used assault rifles worldwide. Production and marketing rights were sold to an extraordinarily large number of countries, including a large number of repressive regimes and governments involved in armed conflicts, from the 1960s up to the 1980s. In the 1960s, G3 licences were sold to countries such as Iran, Pakistan, Saudi Arabia, and Turkey, and in 1981, the licence was sold to Burma (now Myanmar).[49]

The new Heckler & Koch assault rifle, the HK50/G36, was adopted by the German Army in 1996 and by the Spanish Army in 1998. G36 rifles are produced under licence in Spain by Santa Bárbara Sistemas. In 2002, the German government refused to grant an authorization for the export of 65,000 G36 rifles to the Government of Nepal (Claasen, 2002).

The G36 rifle design has been modified by Heckler & Koch for the US OICW requirement. The company is part of an industrial team led by the US company ATK and is responsible for weapon design and production (ATK XM29).

Heckler & Koch is also a significant producer and exporter of sub-machine guns. The latest model, the MP7, entered production in 2001. Designated as a PDW, it is competing with the FN Herstal P90 for the NATO PDW contract award.

In 2003, Heckler & Koch won the contract to supply US Transportation Security Administration commercial airline pilots with the USP40 pistol. The awarding of the contract was heavily opposed by US small arms producers (Sia, 2002). Partly in response to the contract award, Heckler & Koch announced the establishment of its first manufacturing facility in the United States, which is planned to start producing USP40 pistols and MP5 sub-machine guns in 2005. The facility is expected to employ 200 people (Lyne, 2003).

Greece

No relevant information is available about the size of the Greek arms industry. Privatization of the state-owned companies within the industry was initiated in the 1990s, but is far from complete.

A new land weapons company, **Hellenic Defence Systems,** was established in January 2004 through the merger of the two state-owned, loss-making companies EBO, Hellenic Arms Industry; and PYRKAL, Greek Powder and Cartridge Company. The merger, part of a broader state-led restructuring programme for the Greek arms industry, ends a process started in the early 1990s (Zorzovilis, 2001) and should allow a reduction of overlapping capacities in the field.[50] The first contract award was for the production of 120,000 assault riles for the Greek Army (no information has emerged about the type of assault rifle to be produced). The company employed around 2,000 people in mid-2004 (Inter-France Média, 2004).

EBO was the largest small arms producer in Greece and the only company producing military small arms. The company was established in 1977 to produce Heckler & Koch G3 assault rifles for the Greek Army. The Aeghion facility produced G3 rifles, as well as Heckler & Koch machine guns, sub-machine guns, and automatic grenade launchers. Under licence from GIAT Industries, the company produced the WASP anti-tank weapon. It also produced small arms ammunition. EBO had total sales, including ammunition sales, of around EUR 24 m. (USD 21 m.) in 2001 and employed 1,800 people (Epicos, n.d.).

PYRKAL produced small-, medium-, and large-calibre ammunition within its military division, as well as ammunition and explosives for civilian applications. From the mid-1990s, it participated in the European Stinger missile programme. The company employed 1,300 people and had record sales of EUR 70 m. (USD 63 m.)—30 per cent of which was derived from exports—in 2001 (Hellenic Defence Industries, n.d.). The company reports that around 30 per cent of total sales were derived from exports, yet it provided contradictory information about export destinations to the *Hellenic Defence Industries Catalogue*, which lists countries such as Sudan and the DRC among its export destinations. Neither Sudan nor the DRC were, however, listed as export destinations on the company's Web site (PYRKAL, n.d.).

Advanced Weapons Technologies produces anti-matérial rifles. **Theon Sensors,** formerly Thalis Sensors, produces sights for military rifles, as well as for Stinger man-portable anti-aircraft missiles (Theon Sensors, n.d.).

Italy

The Italian arms industry is highly concentrated. No recent estimates are available about the value of annual sales, nor the level of employment in arms production. By far the largest arms producing company, the partly state-owned Finmeccanica group, had military sales of roughly EUR 4.5–5 b. (USD 5–5.6 b.) in 2003.[51] Finmeccanica is a diversified group, producing military aircraft, military electronics, and land arms, including light weapons—but is neither a producer of small arms nor of small arms ammunition.

Small arms

Italy has, however, a very large number of companies involved in the production of small arms.[52] The province of Brescia in northern Italy accounts for an overwhelming share of this. The local association of small arms producers, Consorzio Armaioli Bresciani, represented more than 30 manufacturers of small arms in 2004, and small arms production is estimated to employ around 5,000 people.[53] The owners of the largest company, Beretta, which employs more than 1,400 people in Brescia, have assumed a central role in local economic and political life, giving names to schools and retirement homes. Even at the national level, the Beretta name seems to have some leverage: the idea of giving the post of Italian ambassador to the United States to the owner and president of the company, Ugo Gussalli Beretta, was abandoned after wide public protest in 2002 (Paroli, n.d.).[54]

The vast majority of companies produce hunting rifles and pistols, primarily for foreign markets (Ferraglio, 2004). Few companies are involved in the production of small arms such as pistols and sniper rifles for military and law enforcement authorities, but they do produce an extraordinarily large number of tactical shotguns.

The Italian government arms export report has for years topped similar European government reports in the amount of data supplied. The large amount of information provided, however, has not made relevant information accessible to a broad public. Also, with regard SALW, Italy has so far failed to provide comprehensible information.

The largest Italian small arms company is, as mentioned above, the family owned **Beretta Holding.** During the 1990s, Beretta acquired the previously independent **Franchi** and the partly Finmeccanica-owned **Benelli** and reached total sales of close to EUR 370 m. (USD 420 m.) in 2003. Sales to military and police accounted for a minor share of this (see the company profile, below).

Minor companies with a limited production of small arms for police forces are Fabarm (shotguns) and Tanfoglio (pistols). Bernardelli, a manufacturer of tactical shotguns and hunting rifles, went into bankruptcy in 1997. In 1998, the brand and sales rights for Bernardelli small arms were acquired by the Turkish company Sarsilmaz (AI Italy, 2004).

Light weapons

Oto Melara, a subsidiary of Finmeccanica, produces light mortars, military vehicles, artillery systems, and naval guns (Oto Melara, n.d.). The company was established in 2001 through the merger of Breda Meccanica Bresciana and Oto Melara. Oto Melara had total sales of around EUR 250 m. (USD 235 m.) in 2002 and employed 1,400 people—only a few of whom were concerned with the production of light weapons.

Ammunition

Between 1991 and 2003, the military ammunition business of **Europa Metalli** was set up as a subsidiary company, Europa Metalli-Sezione Difesa. The subsidiary was, however, dissolved in 2003, as orders from the Italian armed forces were not maintained at the levels expected. Europa Metalli, a company with around 2,000 employees in 2002, is part of KM Europa Metal (KME), which is wholly owned by the Italian group Società Metallurgica Italiana (SMI).

Simmel Difesa produces mortar ammunition. The company was controlled by Fiat from 1988 to 2000. No information is available about current ownership relations. Since the late 1980s, when all civilian production was stopped, Simmel Difesa has produced only military ammunition.[55]

Simmel Difesa had total sales of around EUR 60 m. (USD 56 m.) and EUR 80 m. (USD 72 m.) in 2002 and 2001, respectively, and employed 162 people in 2002, down from 173 in 2001 (Mediobanca, 2003). Exports accounted for around 70 per cent of total sales, half of which went to non-NATO countries (Simmel Difesa, n.d.).

Società Esplosivi Industriali (SEI) produces military explosives, as well as sea mines and bombs. It acquired the production rights for MISAR grenades, including hand grenades, from car maker Fiat in 1995. SEI is owned by the French Societe Anonyme d'Explosifs de Produit Chimique (SAEPC).[56]

Sights

Officine Galileo produces SALW sights. The company is part of Finmeccanica and is one of Italy's largest military electronics companies, producing primarily avionic systems and electronics for military vehicles.

COMPANY PROFILE **BERETTA**

Beretta Holding is the second-largest small arms producing company in Western Europe. Company sales amounted to EUR 370 m. (USD 420 m.) in 2003—however, only a minor share of these, or 8 per cent in 2003, was derived from military and law enforcement sales, according to information provided by the company. Clothing and small arms accessories accounted for as much as 4 per cent of total sales, or EUR 15 m. (USD 14 m.) in 2002.

Foreign sales account for the overwhelming share of company sales, 84 per cent of total sales in 2003, a significant part of which involves direct exports from Italy. Insufficient information is available on the sales derived from military and law enforcement exports. According to the Italian government arms export report, the value of exports of controlled weapons by Fabbrica d'Armi Pietro Beretta, the group's main subsidiary, amounted to around EUR 8 m. (USD 7.5 m.) in 2002 (Banche Armate, 2002).

Similar to other European small arms companies, Beretta is heavily dependent on the US market. More than 50 per cent of total sales were derived from sales in the United States and Canada in 2003. Around 20 per cent of employees were located in North America.

Beretta Holding was established in 1995 around the largest Italian small arms company, Fabbrica d'Armi Pietro Beretta. The holding company acquired a number of smaller Italian and foreign small arms producers between 1995 and 2000, most importantly the Italian companies Benelli and Franchi, and the Finnish Sako (see Table 9). As a result, employment increased significantly throughout the period and total sales grew by close to 50 per cent between 1995 and 2003.

Beretta manufacturing facilities are located in Italy (about one-third of total employees in 2002), in Finland, and in the United States. The US facility was established in the early 1980s following the award of a contract for the supply

Table 9

Available financial and employment data: Beretta Holding and its major subsidiaries, Fabbrica d'Armi Pietro Beretta and Benelli*

Beretta Holding	2003	2002	2001	2000	1999	1998 //	1995		
Total sales	369	367	367	340	257	243	252		
Military/police sales	30	37	47	..	..	..	..		
Civilian %	*92*	*90*	*87*	..	..	..	..		
Military %	*1*	*1*	..	..	..	..	..		
Police %	*7*	*9*	..	..	..	..	..		
Profit (net)	22	37	31	..	20	10	21		
Total foreign sales %	*84*	*83*	*83*	*82*	*80*	*77*	*64*		
Europe %	*27*	*23*	*21*	*19*	*21*	*20*	..		
USA and Canada %	*52*	*53*	*54*	*57*	*52*	*48*	..		
Total employees	2,442	2,326	2,159	2,064	1,883	1,940	1,838		
In Italy	1,466	1,452	1,398	1,392	..	..	..		
In North America	470	423	342	410	..	..	..		
Fabb. d'Armi P. Beretta	**2003**	**2002**	**2001**	**2000**	**1999**	**1998 //**	**1995 //**	**1993 //**	**1991**
Total sales	150	159	158	141	119	130	159	124	129
Civilian %	..	..	*87*	..	..	..	..	*66*	*80*
Military/police %	..	..	*13*	..	..	..	..	*33*	*20*
Total foreign sales %	*73*	..	*82*	..	*80*	..	*64*	*56*	*68*
Foreign military/ police %	..	..	..	..	..	..	..	*9*	*15*
Total employees	994	1,013	969	909	908	963	1,061	985	1,011
Benelli	**2003**	**2002**	**2001**	**2000**	**1999**	**1998 //**	**1995 //**	**1993 //**	**1991**
Total sales	74	72	..	..	..	..	..	..	..
Total foreign sales %	*77*	..	..	..	..	..	..	..	..
Total employees	225	217	..	..	..	..	..	..	..

* Financial data is in EUR millions at constant 2003 prices.

Sources: Beretta Holding (1996; 2000; 2003); Brunelli (2003); Mediobanca (2003)

Company history
1526 First reference to Beretta
1985 Contract awarded for the supply of pistols to the US armed forces
Early 1980s Establishment of Beretta USA
1991 Contract awarded for the supply of assault rifles to the Italian armed forces
1995 Formation of Beretta Holding
1995 Beretta acquires the Italian small arms company Franchi
1998 Beretta acquires the remaining shares of the Italian small arms company Benelli
2000 Beretta acquires the Finnish small arms company Sako
2002 Beretta acquires the Turkish small arms company Vursan Silah Sanay (90 employees in 2002) (Vursan Silah Sanay, n.d.)
2002 Beretta acquires the US-based Burris Optics, producing sights for hunting rifles (75 employees in 2002) (Burris Optics, n.d.)
Late 1990s End of the delivery of the AR70/90 assault rifle to the Italian armed forces

of Beretta 92 semi-automatic pistols for the US armed forces. A total of around 500,000 pistols have been delivered (WaffenHQ, n.d.).

The most important subsidiaries of the holding are: Fabbrica d'Armi Pietro Beretta (Italy), Benelli (Italy), Franchi (Italy), Beretta USA (United States) established in 1985, and Sako (Finland), acquired in 1999. All companies produce primarily civilian, but also some military small arms.

Beretta companies produce a range of small arms for military and law enforcement forces, most importantly the AR70/90 assault rifle, the Beretta 92 semi-automatic pistol, the M12 sub-machine gun, and the SPAS15 combat shotgun. The Italian Army adopted the AR70/90 assault rifle in 1990. Deliveries to the Italian forces ended in recent years and no major foreign army adopted the rifle.[57] As a result, military and law enforcement sales declined significantly, by 28 per cent in 2002 alone.

The Beretta M12 sub-machine gun was adopted by Italian forces in the late 1950s, and was later sold to the armed forces of a large number of Asian, African, Middle Eastern, and South American countries.[58] Production licences were sold to Brazil and Indonesia (Jane's Information Group, 2004a).

The Beretta 92 semi-automatic pistol, produced since the 1970s, is likely to be the most important military and law enforcement weapon for the company. These pistols were sold to US military and police forces, to the Italian armed forces, and the French Gendarmerie Nationale and Air Force, as well as to Brazil, Chile, and Iran (Jane's Information Group, 2004a). They were/are manufactured under licence in Egypt and France.[59] In 2002, Beretta was awarded a contract for the supply of Beretta 92 pistols to the Spanish Civil Guard (Berretta Holding, 2003).

The Netherlands

No company in the Netherlands produces military small arms. Production of small arms ammunition has been discontinued.

Eurometaal (formerly the state-owned Artillerie-Inrichtingen) was the largest Dutch ammunition manufacturer, producing medium- and large-calibre ammunition and ammunition components (Eurometaal, n.d.). Eurometaal (200 employees) and its subsidiary, Franerex (50 employees), were closed in April 2002. The closure was motivated by the decline in the demand for military ammunitions in recent years (Eurometaal Holding, 2002). Eurometaal was the military subsidiary of Eurometaal Holding, which was owned 86.6 per cent by the German company Rheinmetall and 13.4 per cent by the Dutch state.[60]

Muiden Chemie International (MIC) produces ammunition propellants. In the late 1980s, it was revealed that the company had delivered military equipment to both Iran and Iraq during their war. In 1990, the company went bankrupt and was acquired by the British land arms producer Royal Ordnance, now RO Defence, a subsidiary of BAE Systems. In 2003, RO Defence announced the closure of MIC by mid-2004.

Sights

Together with the French company GIAT Industries, **Thales Optronics,** part of Thales Nederland (formerly Thomson-CSF Signaal), participated, in the competition for the French FELIN contract, which was awarded to a competitor in 2004. Thales Optronics' parent company, the French military electronics company Thales, is involved in similar programmes in other countries (see above).

Norway

Norwegian arms producing companies produced military goods worth around EUR 800 m. (USD 750 m.) in 2002, according to the national arms industry association, Norwegian Defence Industry Group (Norwegian Defence Industry Group, n.d.b). No company produces military small arms. A number of Norwegian companies, however, are producers of ammunition and components for SALW.

Norway's largest arms producing company, Kongsberg/Norsk Forsvarsteknologi, produced small arms in the past. In the late 1990s, however, the Norwegian arms industry discontinued the production of military small arms.[61]

In 2004 the Norwegian Army was in the process of selecting a replacement for its standard G3 assault rifle, first fielded in the late 1960s. While the winner of the contract has yet to be announced, it is likely that the new rifles will be imported and will not be produced under licence in Norway.

Norway has also initiated a Soldier Modernization Programme, Norwegian Modular Arctic Network Soldier (NORMANS), which is currently in the R&D phase.

Light weapons and ammunition

Nammo Raufoss produces small- and medium-calibre ammunition and light anti-tank weapons, besides artillery ammunition and rocket motors.[62] It employed around 600 people in 2003. Around 70 per cent of total production is exported (Nammo, n.d.). The company is part of Nammo, jointly owned by the Norwegian government (45 per cent), Saab of Sweden (27.5 per cent), and Patria of Finland (27.5 per cent).

The defence products division of **Dyno Nobel Europe** produces explosives for light weapons at the Engene plant in Norway (*Army Technology*, 2004a; Norwegian Defence Industry Group, n.d.a; Dynamit Nobel, n.d.). Dyno Nobel is an international Norwegian-owned corporation that specializes in the manufacture of explosives and chemicals. It is one of Norway's largest companies, with more 5,000 employees worldwide. In May 2003, Dyno Nobel and the American-based Ensign-Bickford Industries (EBI) merged their explosives capabilities, creating one of the world's largest explosives company.

Sights

Simrad Optronics produces laser gun sights. It has a subsidiary in the UK and opened a sales office in the United Arab Emirates in 2004 (Simrad Optronics, 2003). Since 1999, Simrad Optronics has been part of the Norwegian Technor group, a private stock company (Simrad was previously owned by Kongsberg). No recent data is available about the size of the company. Together with another Technor subsidiary, Haaland, Simrad Optronics had sales of roughly EUR 25 m. (USD 28 m.) in 2003. The company won a major contract for artillery fire control systems in 2002 and had a military order backlog of around EUR 45 m. (USD 42 m.) (Simrad Optronics, 2002).

Vinghøg produces weapons sights, including sights for SALW (Vinhøg, n.d.). A Vinghøg sight, the Vingsight FCS, was selected as the primary sight unit in the R&D phase for the NORMANS programme.

Portugal

Portugal belongs to the group of minor arms producing countries in Western Europe. No significant military small arms and small arms ammunition manufacturing capabilities subsisted by mid-2004.

The amount of clear information about the current size of and developments within the Portuguese arms industry is very limited, despite the fact that the government publishes a yearbook of military statistics. Among other information, this report has included a section on the national arms industry since the mid-1990s (Portugal, 2001).

Employment in all the major state-owned arms producing companies, OGMA (aircraft parts and maintenance), Arsenal do Alfeite (warships), OGFE (land arms), OGME, and Indep (small arms, light weapons, and their ammunition) declined significantly during the 1990s.

In 1997, the government established the arms industry holding company, Empordef (Empresa Portuguesa de Defesa), with the task of overseeing the rationalization and privatization of the arms industry (excluding the shipbuilding industry).

In 1961, during the Salazar dictatorship, Portugal acquired a licence for the production of the Heckler & Koch G3 assault rifle. In 1980, the two SALW producing companies Fábrica Militar de Braço de Prata and Fábrica Nacional de Munições de Armas Ligeiras were merged into a single state-owned company, Indústrias Nacionais Defesa (Indep). Besides assault rifles, sub-machine guns (Lusa), and machine guns (Heckler & Koch HK21), Indep produced small arms ammunition, mortars, and mortar ammunition.

According to official data, Indep had total sales of around EUR 5 m. (USD 4.5 m.) in 2001, employing 144 people (Portugal, 2001). Employment was reduced drastically throughout the 1990s, from more than 900 people at the beginning of the decade to less than 400 in 1999 (Portugal, 2001).

At the end of 2003, Indep sold its small arms ammunition manufacturing equipment (produced by the German company Fritz Werner) to the Spanish land arms company General Dynamics Santa Bárbara Sistems (General Dynamics Santa Bárbara Sistemas, 2003b). In mid-2004, Empordef announced that Indep was to be closed down (De Mendia, 2004).

Sociedade Portuguesa de Explosivos (SPEL) produced military explosives (including hand grenades) in the past, but has produced only civilian explosives since 2000 (SPEL, n.d.). It is 51 per cent owned by Empordef and 40 per cent by the Spanish Union Española de Explosivos (UEE). The company employed 250 people in 1999, the most recent year for which information is available (Portugal, 2001).

Spain

According to official statistics, the Spanish arms industry produced on average military equipment worth roughly EUR 2.2 b. (USD 2 b.) per year in the period 2000–02 and employed around 20,400 people in arms production. Around 11 per cent, or EUR 240 m. (USD 220 m.) of total military sales were derived from the sales of 'weapons and ammunition' (Spain, 2002). No information is available about the share of SALW in this figure.

The export value of controlled military goods—much more narrow a category than that of 'military equipment', mentioned above—amounted to EUR 275 m. (USD 259 m.) in 2002. Of this amount, EUR 6 m. (USD 5.7 m.) and EUR 8 m. (USD 7.5 m.) related to small arms (including ammunition) and light weapons (including ammunition), respectively (Spain, 2002).

General Dynamics Santa Bárbara Sistemas—a land weapons manufacturer producing military vehicles, artillery, and ammunition—is the only Spanish company with significant capabilities for producing military-style small arms. Besides assault rifles, Santa Bárbara Sistemas produces grenade launchers and small arms ammunition (see the company profile, below).

A number of minor companies involved primarily in the production of civilian pistols and revolvers went into bankruptcy in the late 1990s. Star Bonifacio Echevarría and Astra Unceta y Cía closed in 1996. In 1997, former employees of the companies created Astar Sal (Agrupación Social Trabajadores Armeros Sociedad Anónima Laboral), which in turn went bankrupt only a few years later (Angulo, 2001). A third company, Llama Gabilando, went bankrupt in 2000. Here also, former employees formed a new company, Fabrinor Arma Corta y Microfusion SAL, which went bankrupt in 2002. A minor company, DC Custom Armeros (DC Customs Ameros, n.d.), producing parts for pistols for military and civilian use, with annual sales of just over half a million euros, is the only company left within the sector (Hita, 2002).

According to the Spanish small arms and ammunition industry association (Asociacíon Armera), the small arms sector had annual sales of around EUR 184 million, with exports accounting for roughly 40 per cent of this, and close to 1,400 employees in 2000 (Hita, 2002). No information is provided as to what this estimate includes.

Explosivos Alaveses (EXPAL) produces military explosives and ammunition for light weapons. The company attracted public attention in the past because of its supply of military equipment to both sides in the Iran–Iraq war in the 1980s, and its production of anti-personnel mines up until the mid-1990s (ICBL, 2000; Centre d'Estudis, 2004a).

The company employed around 250 people in 2002–03 and includes Explosivos de Burgos, Fabricaciones Extremeñas, and Bresel.[63] In April 2004, EXPAL announced the closure of one of its facilities, which had been running at only 20 per cent of its capacity in recent years (Mondragón & Abásolo-Vitori, 2004). EXPAL is the military division of UEE (UEE Defensa, n.d.). UEE has been majority-owned since 1994 by a Dutch investment company, Pallas Investments (owned by Swiss Bank Corp, AGF, Crédit Lyonnais, and Elf Aquitaine) (Spain, n.d.c).

Esperanza y Cia (ECIA), a former producer of mortar ammunition, is no longer involved in military production. It is majority owned by UEE (Centre d'Estudis, 2004b).

Instalaza produces mortar bombs, hand grenades, grenades for rifles, and grenade launchers (Instalaza, n.d.). The company had around 140 employees and total sales of around EUR 70 m. (USD 75 m.) in the late 1990s (Spain, n.d.a).

COMPANY PROFILE **SANTA BÁRBARA SISTEMAS**

Santa Bárbara Sistemas was state owned until 2001, when it was acquired by the US company General Dynamics (General Dynamics Santa Bárbara Sistemas, n.d.), which has positioned itself as one of the major Western European land weapons producers through a series of acquisitions.[64]

Within Santa Bárbara Sistemas, small arms production is carried out in the Corunna facility in north-western Spain. Of the more than 2,300 employees, only around 200 were employed at this facility in 2003, which, besides assault rifles, produces components for military vehicles (General Dynamics Santa Bárbara Sistemas, 2003a).

In the past, the Corunna facility produced the CETME rifle and the AMELI machine gun. Production of the basic model of the CETME assault rifle, developed by the Centro de Estudios Técnicos de Materiales Especiales (CETME), was initiated in the 1950s.[65] Production of upgraded models of the rifle, developed in collaboration with the German company Heckler & Koch, continued to the end of the 1980s. Production of the CETME model L and LC began in 1984. The rifle was adopted by the Spanish Army and entered service in 1988.

Small arms production at the Corunna facility had practically stopped when the Spanish Ministry of Defence opened the competition for a new assault rifle in the mid-1990s to replace the CETME L after only 10–15 years in service. Trials for a new rifle began in 1996 and in 1999 the contract was awarded to Heckler & Koch for G36 E rifles.

Only around 15,000 of a total of up to 115,000 rifles were to be produced by Heckler & Koch itself (Spain, n.d.b). In 2001, Santa Bárbara Sistemas was awarded a first contract for the production under licence of 56,000 rifles. Under the current contract, Santa Bárbara Sistemas plans to produce around 10,000–12,000 per year until 2005.

Expectations of maintaining and modernizing small arms production at the Corunna facility are directly linked to the production under licence of the Heckler & Koch assault rifles and continued close collaboration with the German company. According to company information, around EUR 5 m. was invested during 2000 and 2001 (General Dynamics Santa Bárbara Sistemas, 2003a). In 2003, Heckler & Koch and Santa Bárbara Sistemas set up a new joint venture, Sistemas de Armamento Ibericos (SAI), for the development and manufacture of small arms for foreign markets. Production is planned to take place at the Corunna facility. Heckler & Koch and Santa Bárbara Sistemas are to invest around EUR 7 m. in the new operation (Ing, 2003; General Dynamics Santa Bárbara Sistemas, 2003b).

In 2003, Santa Bárbara acquired a Fritz Werner small arms ammunition plant from Indep, Portugal. The plant was installed at Santa Bárbara's Placencia facility. The company is currently participating in a team competing for a major US Army small arms ammunition contract award (General Dynamics Santa Bárbara Sistemas, 2004).

Sweden

Sweden has a large arms industry. It sold military equipment for roughly EUR 2.7 b. (USD 3 b.) in 2003 and employed around 14,000 people in arms production. A very large share of total sales, close to 40 per cent, was derived from exports (FIF, 2004b).

Major products include combat aircraft, electronic equipment, and land arms, including light weapons—but not small arms. By far the largest Swedish arms producer, the military diversified Saab group, produces portable guided weapons and is involved in the European Nammo and Eurenco ammunition and explosives joint ventures.

The Swedish government report on arms exports does not provide information on the combined value of exported light weapons, as they are included within broader categories (Sweden, 2004).

Light weapons and ammunition

A detailed profile of Saab, the parent company of **Saab Bofors Dynamics,** is provided below.

Eurenco Bofors (formerly Nexplo Bofors, the Swedish part of the Finnish–Swedish joint venture Nexplo Industries) is part of the European explosives and propellant company Eurenco, established in January 2004.[66] Eurenco Bofors produces, among other things, propellants for medium- and large-calibre ammunition; mortar increments; and military, hunting, and sporting ammunition.

Nammo Sweden develops and produces military small arms ammunition. The company is part of Nammo, jointly owned by the Norwegian government (45 per cent), Saab of Sweden (27.5 per cent), and Patria Industries (27.5 per cent). Nammo Sweden had military sales of around SEK 300 million (USD 37 m.) in 2003 (56 per cent of total sales) and employed 220 people in military-related production (out of a total of 345).[67]

Chematur Engineering produces explosives and propellants.

Sights

Aimpoint produces sights (Red Dot Reflex Sights) for military and civilian firearms. Aimpoint sights have been bought by the Swedish, French, and US Armies (Aimpoint, n.d.).

COMPANY PROFILE **SAAB**

Saab produces portable anti-tank and anti-aircraft weapons within Saab Bofors Dynamics. Saab is the largest arms producer not only in Sweden, but in the Nordic countries as a whole. The group had total sales of close to EUR 2 b. (USD 2.25 b.) in 2003, 80 per cent of which was from military products and services, and employed more than 13,000 people (Saab, 2004).

Saab was only marginally involved in land arms until 1999, when it acquired the diversified military company Celsius (Saab, 1999). Electronics and aerospace are by far the largest business areas of the group. Saab sold part of the land arms activities of the former Celsius, Bofors Weapon Systems, producing military vehicles, artillery, and ammunition, to the US company United Defense soon after its acquisition in mid-2000 (Saab, 2000).

Saab is owned by BAE Systems, UK (35 per cent), the Swedish investment holding Investor (36 per cent), Wallenberg foundations (6 per cent), and investment funds and banks (around 23 per cent).

Saab Bofors Dynamics produces anti-tank weapons (the Carl-Gustaf recoilless rifle, MBT LAW, AB AT4, and BILL2) and anti-aircraft weapons (RBS70) (Saab, n.d.). Besides man-portable weapons, the company produces a wide range of air and sea missiles.

The company is organized as a business area of Saab. Its activities were streamlined after Saab's acquisition of Celsius in 1999–2000, resulting in a significant reduction in employees. Saab Bofors Dynamics had total sales of roughly EUR 350 m. (USD 400 m.) and employed more than 1,700 people in 2003 (Saab, 2004b). No information is available about the share of this amount that is related to the production of man-portable weapons.

The Carl-Gustaf recoilless rifle, developed in the 1940s, is still produced and has been exported to a large number of countries, including in Africa (Ghana and Nigeria), Latin America (Belize and Venezuela), and Asia (India, Malaysia, and Singapore) (Jane's Information Group, 2004a). According to Swedish NGOs, Carl-Gustaf rifles were also exported to Burma/Myanmar in the early 1980s, and were re-exported from Singapore to guerrilla forces in Cambodia in the late 1980s (Ångström, Jiborn & Westander, 1995). Saab Bofors Dynamics also produces the ammunition for the Carl-Gustaf rifle.

A licence for the production of Carl-Gustaf rifles was sold to the Indian Ordnance Factory Board in the mid-1970s. The rifles have been used in the Kashmir conflict, as well as in the civil war in Sri Lanka, which Indian forces were directly involved in. In 2002, Saab Bofors Dynamics received a EUR 35 m.

Table 10
Available financial and employment data for Saab Bofors Dynamics*

	2003	2002	2001	2000	1999**
Total sales	340	320	290	280	400
Total employees	1,718	1,904	1,903	1,884	2,565

* Sales data is in EUR millions at constant 2003 prices.
** Data for 1999 is pro forma. Saab acquired and integrated the activities of the Celsius group during 1999–2000.
Sources: Saab (2001; 2002; 2003; 2004b)

(USD 33 m.) contract for the export of the upgraded version of the weapon. The Swedish government authorized the export as a follow-on order to the original contract with India, despite strong protest from NGOs (Lindahl, 2002).

Besides the Carl-Gustaf rifle, Saab Bofors Dynamics produces the BILL anti-tank guided weapon. BILL2, a further development of BILL1, is in service with the Swedish Army. The company also produces the AT4 anti-tank weapon, which is also produced under licence in the United States by ATK. In collaboration with Thales Air Defence (see the UK section, below), Saab Bofors Dynamics is developing a new portable anti-tank weapon, the MBT LAW (main battle tank light anti-tank weapon) for the British Army. Following the awarding of the British contract in 2002, the weapon is likely to be also acquired by the Swedish Army. It will be assembled in Northern Ireland by Thales Air Defence. Other partners in the team are BAE Systems, FR-HiTEMP, Raytheon Systems Ltd., and Thales Missile Electronics (*Global Defence Review*, 2004).

Saab Bofors Dynamics also produces portable anti-aircraft weapons (the RBS70, produced since the 1970s) and their missiles (the RBS70 missile and the new Bolide missile, which can be fitted on the RBS70 system). The RBS70 has been exported to 13 countries, including Australia, Argentina, Bahrain, Brazil, Indonesia, Iran, Ireland, Norway, Pakistan, Singapore, Tunisia, and the United Arab Emirates (*Army Technology*, 2004b). Saab Bofors Dynamics is also involved in the development of thermobaric weapons (Wildegger-Gaissmaier, 2004).

From the late 1980s, Saab produced FN Herstal assault rifles (the FN FNC, developed into the CGA5) under licence for the Swedish Army (a total order of 250,000 rifles). In the late 1990s, Saab Bofors Dynamics introduced a new PDW, the CBJ-MS, which has, however, not entered serial production (Mulcahy, n.d.; SecurityArms.com, 2001).

Saab is conducting a Soldier Modernization Programme, the Saab Warrior system (Hoving, 2003). The Swedish Army is in the initial stages of its own Soldier Modernization Programme, MARKUS (Markstridsutrustad Soldat).

Switzerland

Direct employment in arms production in Switzerland fell from around 9,700 to 3,700 between 1990 and 2000, according to available estimates (Hug, 2000).[68] Restructuring of the Swiss arms industry took off only in the late 1990s, involving significant changes in ownership and structure (corporatization, privatization, and internationalization) and further downsizing. The military vehicle company Mowag became part of General Motors (USA) and subsequently of General Dynamics (USA). Oerlikon Contraves, a producer of anti-aircraft systems, was sold to the German company Rheinmetall. RUAG Swiss/Suisse was established as a private stock company from the arms producing companies formerly owned by the Swiss federal government (RUAG, 2004b).

The production of military-style small arms, however, was practically discontinued. In the autumn of 2000, the diversified industrial conglomerate SIG sold its small arms activities within SIG Arms to two German textile entrepreneurs. Employment cuts following the change in ownership drastically reduced the size of the Swiss-based facilities of the former SIG Arms group. These are likely to retain a marginal role in the military and law enforcement sector as producers of rifles for special forces and as suppliers of parts and

SAN Swiss Arms

The five companies combined within SIG Arms (the original small arms activities of SIG: Haemmerli, acquired by SIG in 1973; Blaser of Germany, acquired in 2000; JP Sauer & Sohn of Germany, acquired in 1976; and SIG Arms Inc. in the United States) produced military rifles, hunting rifles, pistols, and gun barrels. A major part of past military production (SG540 and SG550/Sturmgewehr 90 assault rifles) took place in Switzerland.

SG540 assault rifles, developed in the mid-1970s, have been exported to a large number of countries in South America, Africa, and the Middle East. They are also produced under licence in Chile. The modified version, the SG550, was adopted by the Swiss Army under the name Sturmgewehr 90 in the mid-1980s. The Swiss Army contract, for a total of 450,000 rifles, ended in 1999 (*Der Bund,* 1999).

After their divestiture from SIG, the five companies were re-established as independent companies.

Total employment within SIG Arms amounted to 800 in 2000, but only a minor share of this figure, or around 200 people, was in its Swiss facilities.[69] After the change in ownership, drastic employment cuts of more than 50 per cent were carried out within SAN Swiss Arms (including the original small arms activities of SIG) and Haemmerli (pistols and rifles for competition shooting). Employment in SAN Swiss Arms and Haemmerli was down to 50 and 30, respectively, by mid-2001 (*Schaffhauser Nachrichten*, 2000).

SAN Swiss Arms produces pistols, hunting rifles, and military rifles for special forces (*Schaffhauser Nachrichten*, 2001). The company also produces barrels for rifles.

components, in particular through their close link with the German company JP Sauer & Sohn.

Small arms and their parts accounted for a small share of total Swiss arms exports in 2004, or less than 4 per cent, according to official statistics. Switzerland exported small arms and parts (military and law enforcement weapons, but also civilian small arms) to the value of roughly EUR 9 m. (USD 10 m.), EUR 11 m. (USD 10 m.), EUR 8 m. (USD 7 m.), and EUR 9 m. (USD 8 m.) in 2003, 2002, 2001, and 2000, respectively.[70] By far the largest recipient in recent years was Germany, which most likely received deliveries of parts for JP Sauer pistols.

A small company (with only 20 employees), **Brügger & Thomet (B&T),** has entered the market for specialized sub-machine guns, but primarily produces silencers (B&T, n.d.). B&T acquired the production rights for the Steyr Mannlicher TMP and redesigned it into the B&T MP9 TMP. The company also produces the Heckler & Koch MP5 sub-machine gun.

Ammunition

RUAG Ammotec produces small arms ammunition (military, police, and civilian). See the detailed company profile for RUAG, below.

Sights

ILEE (Industrial Laser and Electronic Engineering) produces laser target pointers for small arms (ILEE, n.d.). Since 1997, the company has been part of the Swiss company Oerlikon Contraves, which was acquired by the German company Rheinmetall in 1999.

Vectronix, formerly the military optronics branch of the German company Leica, was acquired by the French SAGEM (see above) in early 2003. Vectronix had sales of around EUR 50 m. (USD 47 m.) in 2002, around 25 per cent of which was with the US Army (Pressetext.at, 2003). The company employed around 100 people in 2004 (Pengelley, 2004).

COMPANY PROFILE **RUAG SWISS/SUISSE**

The state-owned RUAG Swiss/Suisse is one of the largest small arms ammunition producers in Western Europe. RUAG also produces hand and rifle grenades, mortar ammunition, mortars, and anti-tank warheads. The company is also involved in the development of thermobaric weapons (Wildegger-Gaissmaier, 2004). Activities related to de-mining and disposal of ordnance (Explosive Ordnance Disposal) account for a minor share of company sales (Direktion für Sicherheitspolitik VBS, n.d.).

RUAG's largest business areas are, however, aerospace and large-calibre weapon systems, accounting for roughly one-fourth and one-fifth of company sales in 2002, respectively. The company employed around 5,700 people in 2003 and had total sales of close to EUR 800 m. (USD 900 m.), more than two-thirds of which was from military products. About 10 per cent of total sales were derived from exports outside Europe, half of this amount from exports to the United States and Canada (RUAG, 2004c).

The company is facing falling orders from the Swiss armed forces. As a result of acquisitions (aerospace, ammunition), total employment has increased over recent years. At the same time, however, significant employment cuts were carried out within some group companies.[71]

Table 11
Available financial and employment data: RUAG*

	2003	2002	2001	2000	1999
Total sales	780	650	650	620	620
Civilian %	*32*	*25*	22	*19*	*12*
Military %	*68*	*75*	78	*81*	*88*
Swiss military %	*42*	*60*	..	..	*85*
Foreign military %	*26*	*15*	..	..	*3*
Profit (net)	20	30	50	40	30
Total foreign sales %	*49*	*28*	*19*	*10*	*8*
Europe %	*38*	*19*	..	..	..
USA and Canada %	*5*	*6*	..	..	..
Middle East %	*4*	*2*	..	..	..
Total employees	5,665	4,544	4,165	3,800	3,830

* Financial data is in EUR millions at 2003 constant prices.
Sources: RUAG (2001; 2002; 2003; 2004)

The Swiss federal government consolidated its arms-producing activities under the Department of Defence, Civil Protection, and Sports-controlled Federal Armaments Factories (Eidgenössische Rüstungsbetriebe) within four newly established subsidiaries in 1996: the Swiss Electronics Enterprise, the Swiss Aircraft and Systems Company, the Swiss Ammunition Enterprise, and the Swiss Enterprise for Weapon Systems.[72] Federal Armaments Factories was established as a private stock company, fully owned by the Swiss federal government, in 1999, and renamed RUAG Swiss/Suisse (RUAG, 2004b).

The transformation from a subsidiary unit of a state department into a public company allowed RUAG to establish industrial alliances with other companies, domestic as well as foreign (Hug, 2003). In 2001, RUAG established an alliance with one of the largest US ammunition producers, ATK (ATK, 2001). The share of sales to the Swiss armed forces declined from 86 per cent in 1999 to 42 per cent in 2003.

During the same period, the share of civilian sales (parts for the automotive, semiconductor, and mechanical engineering industries) increased to 32 per cent. Significant parts of civilian activities, the metal processing and machining tooling activities of RUAG, were spun off from RUAG Munition in 2002 into a new subsidiary, RUAG Components (RUAG, 2002a). The company also sells and liquidates discarded military equipment and surplus military vehicles for the Swiss armed forces.

Small-calibre ammunition accounted for roughly 10 per cent of RUAG total sales in 2002 (RUAG, 2002a). RUAG Ammotec, the small-calibre ammunition subsidiary, was established in 2002 through the merger of the small-calibre ammunition business of RUAG and Dynamit Nobel. The company employs around 1,280 people (RUAG, 2004c) and was expected to generate total sales of about EUR 160 m. (USD 180 m.).

RUAG Ammotec has manufacturing facilities in Germany (around 850 employees) (RUAG, 2004c), Switzerland, and Sweden (Maritime-Index.com, 2002). While RUAG Ammotec was originally 80 per cent owned by RUAG and 20 per cent by Dynamit Nobel, by the end of 2003, RUAG was the sole owner of the company. Also in 2003, RUAG Ammotec acquired the brand and sales rights to the small-calibre ammunition of the Austrian Hirtenberger Group (RUAG, 2003a).

RUAG decided to streamline its ammunition activities in mid-2004 as a response to declining orders in small-, medium-, and large-calibre ammunition (RUAG, 2004a). According to its plans, the medium- and large-calibre business of RUAG Munition will, together with RUAG Components and RUAG Land Systems, become part of a new defence unit.

United Kingdom

The UK arms industry is the largest in Western Europe. Direct employment in arms production in the UK was estimated at around 155,000 people in 2001–2002 (UK, 2003). By far the largest producer of military equipment in the UK is BAE Systems, a company involved in virtually all armaments sectors, with roughly 40,000 employees in the UK.

Throughout the 1990s, the overwhelming part of military small arms production in the UK, in particular the production of standard military small arms, was carried out within a subsidiary of British Aerospace, now BAE Systems. By 2004, however, small arms production was marginal within overall arms production. British Aerospace acquired the German small arms manufacturer and designer Heckler & Koch in 1991 and consequently reduced and eventually discontinued small arms production in the UK.

In 2001, BAE Systems set up a Soldier Modernization team (BAE Systems, 2001) to compete for the UK FIST contract award. The contract for the assessment

British Aerospace/BAE Systems

Royal Ordnance had been producing Heckler & Koch G3 assault rifles and MP5 submachine guns under licence since the 1970s before British Aerospace acquired Heckler & Koch in 1991. Until 1994, the British Army's standard SA80 assault rifle, developed by the Royal Small Arms Factory, was produced by the land weapons subsidiary of British Aerospace, Royal Ordnance (now RO Defence), at its facility in Nottingham. The poor performance of the rifle resulted in extensive modification programmes.

In 2000, BAE Systems was awarded the contract for the largest of these programmes, worth GBP 80 million (USD 120 m.), for the modification of 200,000 rifle. BAE Systems decided that the work was to be carried out by Heckler & Koch in Germany (Fletcher, 2000).[73] As a consequence, Royal Ordnance's small arms manufacturing facility, employing around 400 people in 2000, was closed.

In 2002, BAE Systems sold Heckler & Koch, in order to focus on core business areas.

Small arms production and BAE Systems: Key events
1986 British Army contract award for SA80 assault rifles to Royal Ordnance (Nottingham)
1987 British Aerospace acquires the state-owned land arms producer Royal Ordnance
1988 British Aerospace acquires the brand and sales rights to Sterling Armament (sub-machine guns)
1991 Royal Ordnance acquires the Dutch company Muiden Chemie, producer of ammunition propellants
1992 British Aerospace acquires British Manufacture & Research Limited (BMARC), producer of medium-calibre guns and ammunition
2000 British Aerospace acquires the military activities of GEC and changes its name to BAE Systems
2000 Royal Ordnance merges with GEC land and naval weapons business and becomes RO Defence
2000 The British Ministry of Defence (MoD) awards the contract for SA80 modification to BAE Systems, which decides to carry out the work at Heckler & Koch (Oberndorf)
2000 Closure of the Nottingham small arms factory
2002 BAE Systems sells Heckler & Koch

phase of the programme was, however, awarded to Thales UK, a subsidiary of the French military electronics company Thales, in 2003.

A number of minor companies produce specialized military and law enforcement small arms and small arms parts. Very little information about these companies is, however, made publicly available. UK companies are important producers of ammunition and light weapons. The largest companies in the field are RO Defence and Thales Air Defence Systems.

The government export report does not provide information on the financial value of SALW exports. According to the report, around 5,500 'weapons and small arms' were exported in 2003 (2,700 in 2002), the largest recipients being Saudi Arabia and the United Arab Emirates (UK, 2004).

Small arms

Accuracy International produces sniper rifles and anti-matérial rifles (Accuracy International, n.d.). The company had total sales of EUR 6 m. (USD 5 m.) in 2001, around 80 per cent of which were from exports, and employed 37 people (Accuracy International, 2002). **Armalon** produces rifles, pistols, and related equipment, as well as rifle barrels (having acquired the facility of Parker-Hale) (Armalon, n.d.). **Law Enforcement International** produces suppressors for pistols, rifles, and sub-machine/machine guns.

Light weapons

RO Defence produces ammunition for SALW and mortars, as well as large-calibre ammunition and weapons. The company had around 2,500 employees by 2004 (FIF, 2004a), down from 3,500 in 2002 (BAE Systems, n.d.). The value of total sales in 2003 was roughly EUR 400 m. (USD 450 m.) (FIF, 2004a). RO Defence is owned by BAE Systems and was formed in 2000 through the merger of Royal Ordnance with the land and naval weapons activities of the military divisions of the electronics company GEC (*Defence Systems Daily*, 2000).

INSYS Weapon Systems unit produces the LAW80 anti-tank weapon. INSYS was established in 2001 through a management buy-out of Hunting Engineering. The company produces military communication equipment and detection systems for biological weapons, and supplies a range of management and advisory services to the UK MoD. The company had total sales of roughly EUR 80 m. (USD 90 m.) in 2003 and employed 530 people (INSYS, n.d.).

Thales Air Defence Systems in Northern Ireland (formerly Short Missile Systems) produces the Starstreak man-portable anti-aircraft missiles (Thales Air Defence Systems, n.d.). The company teamed up with Saab Bofors of Sweden for the contract award for the supply of a light anti-tank weapon to the British armed forces (see above). The company will be conducting the final assembly and test of the MBT LAW. Thales Air Defence System is part of Thales Group, headquartered in France (see above).

PW Defence produces smoke grenades and incendiary grenades. It was established in 2001 through the merger of the military activities of Pains Wessex, Haley & Weller, and Schermuly. The company is part of Chemring Group (CAAT, n.d.). In 2002, Chemring Group was accused of having marketed fragmentation grenades with trip wire in violation of the landmine treaty (Pallister & Norton-Taylor, 2002).

Manroy Engineering produces heavy machine guns.

Sights

Thales Optronics UK is the prime contractor for the UK FIST programme (see Thales, France, above).

Hall & Watts Defence Optics produces sights for military SALW, as well as artillery systems. The company is part of Hall & Watts Group, which also includes Zengrange Defence Systems, a producer of software for guns and mortars, which was acquired in 1992, and Marine Air Systems (New Zealand), a manufacturer of fire control systems for guns and mortars, as well as remote detonation equipment, which was acquired in 1997.

Imatronic produces laser sights for small arms (Imatronic, n.d.). **Pyser-SGI**'s defence products division produces small arms sights and collimators (Pyser-SGI, n.d.). **Ring Sights** produces military sights, including small arms sights (Ring Sights, n.d.). **United Scientific Instruments** produces sights for military rifles (United Scientific Instruments, n.d.).

Section 5 **Conclusion**

It is impossible to provide a reliable estimate of the current size of the military SALW industry in Western Europe. Information provided by companies is extremely poor. Most governments provide some information on exports of SALW. However, data is offered in a format that does not allow for comparison either across countries or across time.

The focus of governments on exports is legitimate, as it allows them to directly address concerns related to the proliferation of weapons to those that can be expected to use them to commit severe violations of human rights and humanitarian law. Information on exports alone, however, cannot contribute to a full understanding of the weight and motivations of the interests that drive weapon exports—nor of ways to counteract or weaken these.

Comprehensive and reliable information is needed about the overall size, structure, and ownership of companies producing small arms, ammunition, ammunition manufacturing equipment, and light weapons in order to address the likely opposition between the search for profits of predominantly private companies, on the one hand, and the widespread concerns about the negative effects of the proliferation of SALW to irresponsible end-users, on the other.

A high level of industrial integration within and across countries, through direct ownership and joint production and development programmes, adds a new dimension to arms export controls. This has been exemplified in 2004 by the decision of the minor Austrian small arms manufacturer Steyr Mannlicher to transfer production rights for its military-style weapons to a joint venture located in a country with a less restrictive arms export regime (Malaysia).

The dependency of European producers of military small arms on sales to regions outside Europe and North America appears to have decreased during the 1990s as a result of both the increased competition from non-European producers and the tightening of export controls in Western Europe. Concentration within the European land arms industry since the late 1990s, involving to a significant degree also producers of light weapons, should allow the creation of economies of scale within domestic markets and effectively reduce companies' dependency on export sales.

Available information therefore suggests that possible government interventions aimed at further reducing military small arms exports to controversial recipients would have a minor negative impact on companies and local economies. It is therefore surprising that Western European governments continue to support the export of SALW to highly controversial recipients. The most recent example of an economically irrelevant export that is at clear risk of contributing to the severe violation of human rights is the sale of Steyr Mannlicher heavy sniper rifles to Iran in early 2005.

Appendix

Major companies: Weapons produced

Country Company	Pistols Revolvers	Specialized rifles	Sub-machine guns	Assault rifles	Light machine guns	Small arms ammunition	Small arms amm. manufact. equipment	Hand grenades	Heavy machine guns	Mortars, grenade & rocket launchers	Mortar bombs, grenades, rockets	Man portable guided missile systems
Austria												
Arges/Ulbricht's	—	—	—	—	—	yes	—	yes	—	—	—	—
Glock	Glock 18	—	—	—	—	—	—	—	—	—	—	—
Hirtenberger	—	—	—	—	—	—	—	—	—	yes	yes	—
Steyr Mannlicher	M-A1	Tactical Elite, SSG Police	AUG 9 mm, (TMP)	AUG	—	—	—	—	—	—	—	—
Belgium												
FN Herstal	Five-seveN and earlier	(1)	P90	FN2000, FNC	MAG, Minimi	yes	—	—	M2HB-QCB	yes	—	—
New Lachaussée	—	—	—	—	—	—	yes	—	—	—	—	—
Mecar	—	—	—	—	—	—	—	yes	—	—	yes	—

Denmark												
Ammunitions-arsenalet	—	—	—	—	—	yes	—	—	—	—	—	—
Finland												
Nammo Lapua	—	—	—	—	—	yes	—	yes	—	—	yes	—
Patria	—	—	—	—	—	—	—	—	—	yes	—	—
Sako	—	TRG	—	—	—	—	—	—	—	—	—	—
France												
GIAT Industries	yes	yes	—	FAMAS	—	—	—	—	—	yes	yes	—
Manurhin Equipment	yes	—	—	—	—	yes	yes	—	—	—	—	—
MBDA France	—	—	—	—	—	—	—	—	—	—	—	Milan, Eryx, Mistral
PGM Precisión	—	Hecate II, Mini-Hec-ate, PGM 338 LM, Ultima Ratio	—	—	—	—	—	—	—	—	—	—
TDA Armement	—	—	—	—	—	—	—	—	—	yes	yes	—
Titanite	—	—	—	—	—	yes	—	yes	—	yes	—	—
Germany												
Carl Walther	P22	G22	—	—	—	—	—	—	—	—	—	—
Diehl	—	—	—	—	—	—	—	yes	—	—	yes	Spike (lic.)
Dynamit Nobel Defence	—	—	—	—	—	—	—	—	—	yes	—	—
Heckler & Koch	yes	PSG1, MSG90	MP7, MP5, UMP	HK53, HK33, G36	HK23, HK21	—	—	—	—	GMG 40 mm, HK69 40 mm, AG36 40 mm	—	—
JP Sauer & Sohn	P226, P220	S202, SSG3000, S205	—	—	—	—	—	—	—	—	—	—
LFK	—	—	—	—	—	—	—	—	—	—	—	Milan, Stinger
MAN FIA	—	—	—	—	—	yes	yes	—	—	—	—	—
Greece												
Advanced Weapons Technol.	—	yes	—	—	—	—	—	—	—	—	—	—
Hellenic Defence Systems	—	KEFEFS	MP5 (lic.)	G3 (lic.)	MG3 (lic.)	yes	—	—	—	Heckler & Koch (lic.)	yes	—

Italy												
Beretta	M92	Benelli, Franchi, & Beretta shotguns	PM12	AR70/90	AS70/90	—	—	—	—	—	—	—
Europa Metalli	—	—	—	—	—	yes	—	—	—	—	—	—
Oto Melara	—	—	—	—	—	—	—	—	—	yes	—	—
Simmel Difesa	—	—	—	—	—	yes	—	—	—	—	yes	—
Norway												
Nammo Raufoss	—	—	—	—	—	yes	—	—	—	—	yes	—
Spain												
EXPAL	—	—	—	—	—	—	—	yes	—	—	yes	—
Instalaza	—	—	—	—	—	—	—	yes	—	Alcotan-100	yes	—
Santa Bárbara Sistemas	—	—	—	G36 (lic.)	—	yes	—	—	—	—	—	—
Sweden												
Nammo Sweden	—	—	—	—	—	yes	—	—	—	—	—	—
Saab Bofors Dynamics	—	—	—	—	—	—	—	—	—	Carl-Gustaf, AT4, MBT LAW	—	RBS70, BILL2
Switzerland												
RUAG	—	—	—	—	—	yes	—	yes	—	—	yes	—
SAN Swiss Arms	yes	yes	—	—	—	—	—	—	—	—	—	—
United Kingdom												
Accuracy International	—	yes	—	—	—	—	—	—	—	—	—	—
Armalon	yes	yes	—	—	—	—	—	—	—	—	—	—
Manroy Engineering	—	—	—	—	—	—	—	—	yes	—	—	—
RO Defence	—	—	—	—	—	yes	—	yes	—	—	yes	—
INSYS	—	—	—	—	—	—	—	—	—	LAW80	—	—
Thales Air Defence Systems	—	—	—	—	—	—	—	—	—	MBT LAW	—	Starstreak
PW Defence	—	—	—	—	—	—	—	yes	—	—	—	—

Sources: Information provided by companies on their Web sites, in company brochures, and in press releases; Jane's Information Group (2004a)

Notes: (lic.) Produced under licence; (1) Sells PGM Precisión sniper rifles

Endnotes

1 The following countries are included in the survey: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the UK.

2 Small arms production in Russia has been mapped in Pyadushkin (2003); an overview of SALW production in Eastern, Central, and Southeast Europe is given in Kiss (2004); while regional overviews are regularly provided in the annual *Small Arms Survey*.

3 See also Small Arms Survey (n.d.; 2004).

4 See, for instance, Christi (2000).

5 Information requested included data on total sales, sales to military and police forces, and sales to foreign customers, as well as the number of employees.

6 Copies of the annual report of Herstal and its subsidiaries, including FN Herstal, can be obtained from the National Bank of Belgium (NBB) at <http://www.nbb.be>, go to Centrale des bilans.

7 Copies of the annual report of Beretta Holding can be obtained from the chamber of commerce, Camera di Commercio in Brescia at <http://www.bs.camcom.it>.

8 Financial statements of the companies can be requested from the local authorities: Amtsgericht Rottweil (Firmenbuch), Germany, for Heckler & Koch, at <http://www.baden-wuerttemberg.de/sixcms/detail.php?id=5382>; and Landesgericht Klagenfurt, Austria, for Glock, at <http://www.gericht.at/>.

9 General Dynamics completed a series of acquisitions of Western European land weapons producers in recent years and created a European Land Systems unit in the autumn of 2003. GIAT Industries is carrying out a drastic streamlining of its activities, to be completed by 2006. In mid-2004, BAE Systems, owner of the land arms company RO Defence, announced its decision to acquire the British military vehicles company Alvis, including former Vickers land arms, and the Swedish Hägglunds. The German company Rheinmetall, which has acquired a number of Swiss, Italian, Dutch, and German land arms companies since the late 1990s, announced streamlining efforts in 2004.

10 Detailed notes on sources for data and information are provided in the main section of the survey.

11 These are Hirtenberger (Austria), Patria (Finland), TDA and Titanite (France), Hellenic Defence Systems (Greece), Otobreda (Italy), EXPAL (Spain), RUAG (Switzerland), and RO Defence (UK). Insufficient information is available about the Portuguese Indep.

12 These are GIAT Industries (France), Hellenic Defence Systems (Greece), MBDA (France, Germany, UK), Dynamit Nobel Defence (Germany), Instalaza (Spain), Saab Bofors Dynamics (Sweden), and INSYS (UK). Rheinmetall and Diehl co-produce an Israeli anti-tank weapon. No information is available about current production of anti-tank weapons, including missiles, by Gyconsa (Spain), a subsidiary of the military electronics company Indra.

13 Communication of the Austrian Original Equipment Manufacturers (Vereinigung Österreichischer Zuliefer-Exporteure) to the Stockholm International Peace Research Institute (SIPRI) Arms Production Project, April 1997.

14 Ferlach in Kärnten is a traditional firearms centre; see Ruhm (2002).

15 'Wir produzieren hierzulande künftig kein Kriegsmaterial mehr. Ich habe es als Geschäftsmann satt, in Österreich mit meinen Produkten in die Nähe von Drogendealern und Zuhältern gerückt zu werden' (*Profil*, 2004). See also IPPNW (2004).

16 See, for instance, Christi (2000).

17 Information about the association can be found at the website of AGORIA, the Belgian 'multisector federation', at <http://www.agoria.be/gen-en/home-en.htm>.

18 Official arms export data refers only to military goods in a strict sense and does not include a wide range of military electronics produced by Belgian companies; see Belgium (2003).

19 The value of exports of large-, medium-, and small-calibre ammunition and SALW amounted to roughly EUR 410 million in 1991 at 2002 prices.

20 See New Lachaussée (2004).

21 See Pax Christi Vlaanderen (2004).

22 Information about MECAR can be found in the annual report of the parent company, Allied Defense Group, at <http://www.allieddefensegroup.com/investor_sec.html>.

23 Herstal owns 11 per cent of the Japanese producer of hunting rifles, Miroku.

24 See also Mampaey (2003).

25 See Guzmán (2000).

26 See <http://users.belgacom.net/jm.armes/FN-usine/FN_histo.htm>.

27 See the parliamentary debate (November 2003) on the issue at <http://nautilus.parlement-wallon.be/Archives/2003_2004/CRA/cra08.pdf>.

28 See also Jane's Information Group (2004b).

29 See Lapua at <http://www.lapua.com/history.html>.

30 Eurenco is owned 60 per cent by Groupe SNPE and 20 per cent each by Patria Industries of Finland and Saab of Sweden.

31 See DGA (2004), data appendix.

32 See en. 30.

33 SFIM had annual sales of roughly EUR 240 million (at current prices) at the time of acquisition; see SAGEM (1999).

34 Thales Optronics, part of Thales Nederland, former Hollandse Signaal, acquired by Thales, then Thomson-CSF, in 1990.

35 Fifty per cent of Pilkington Optronics was acquired by Thales (formerly Thomson-CSF) in 1990, the remaining share in 2000; see Thales UK (n.d.).

36 See also Cour des Comptes (2001).

37 Accounts for the French part, MBDA France, can be obtained through Societe.com at <http://www.societe.com/pages_html/index2.html>.

38 See, for instance, Hanel (2003). According to the arms industry, combined indirect and direct employment dropped from 400,000 people to 80,000 within the same period (Haas & Knust, 2004).

39 Besides the abovementioned companies, the largest producers are JG Anschutz and Suhler Jagd- und Sportwaffen (SJS), with around 150 employees each. SJS was acquired by Heckler

& Koch in 2003. According to the government arms export report, the combined value of export authorizations for military, police, and civilian small arms amounted to around EUR 438 m. (USD 414 m.) in 2002, only EUR 61 m. (USD 69 m.) of which was for military-style small arms (Germany, 2003, pp. 28ff.). According to foreign trade statistics, the value of civilian and law enforcement small arms exports (categories 9302, 9304, 9305) was EUR 161 m. (USD 182 m.) in 2003, and EUR 160 m. (USD 199 m.), EUR 132 m. (USD 164 m.), EUR 136 m. (USD 169 m.), EUR 129 m. (USD 160 m.), EUR 126 m. (USD 157 m.), and EUR 122 m. (USD 152 m.) in 2002, 2001, 2000, 1999, 1998, and 1997, respectively (at current prices) (Germany, 2004).

40 The value of export authorization for military small arms amounted to EUR 5 m. (USD 6 m.), EUR 16 m. (USD 20 m.), EUR 23 m. (USD 29 m.), EUR 21 m. (USD 26 m.), EUR 9 m. (USD 11 m.), and EUR 39 m. (USD 49 m.) in 1996, 1997, 1998, 1999, 2000, and 2001 (at current prices), respectively.

41 Within the official export statistics, light weapons are included in a broader category of medium- and large-calibre weapons.

42 Company communication, 5 March 2004.

43 Fritz Werner was the only foreign company allowed to set up a joint venture company in Burma prior to 1988 and continues to be involved in the establishment of industrial plants in the country within diverse sectors (Institute for International Economics, n.d.).

44 Germany, Greece, the Netherlands, Turkey.

45 See Handicap International Deutschalnd at <http://www.handicap-international.de/landminen/minen_nobel.html>.

46 A comprehensive analysis of the company's military activities up until the late 1990s is provided in Lock (1999).

47 The company produced parts for AK47 and sniper rifles in the past, but fully converted to civilian production after it went bankrupt and was acquired by the Beteiligungsgesellschaft für den Wiederaufbau Thüringens and Steyr Mannlicher in 1993 (*Ober österreichische Nachrichten*, 1994).

48 A detailed and comprehensive chronology of Heckler & Koch is provided in Grässlin & Maertens (2004).

49 See also Grässlin (2001) and Grässlin & Maertens (2004).

50 See Valmas (2003).

51 Estimate based on information in the company annual report for 2003; see <http://www.finmeccanica.it>.

52 A comprehensive analysis of small arms production in Italy is provided in Brunelli (2003).

53 See Gardone Valtrompia (2004).

54 See also Missionari Saveriani (2002).

55 See <http://www.camera.it/_dati/leg13/lavori/stenografici/sed267/41790001.htm>.

56 See company information at Associazione Industrie per l'Aerospazio, i Sistemi e la Difesa (AIAD), <http://www.aiad.it/dettagliRepertorio.asp?ID=136>.

57 The AR70/90 is in service with the armed forces of Jordan, Lesotho, and Paraguay (Jane's Information Group, 2004a).

58 These were Bahrain, Brazil, Burkina Faso, Chile, Gabon, Guyana, Indonesia, Iran, Libya, Nigeria, Saudi Arabia, Somalia, Sudan, Tunisia, and Venezuela (Jane's Information Group, 2004a). According to Amnesty International, 5,000 PM12 submachine guns were exported to Algeria in 1999 (see <http://www.promiseland.it/view.php?id=514>).

59 See <http://world.guns.ru/handguns/hg07-e.htm>.

60 Rheinmetall acquired one-third of the state-owned Eurometaal in 1996 and increased its stake in the company in the following years.

61 See NISAT (2004), country profile for Norway.

62 In 2003, the company was accused by the NGO Norwatch of exporting licences for dum-dum bullets (Stenerud, 2003).

63 See Centre d'Estudis (1997; 2004).

64 General Dynamics created a European Land Combat Systems unit in October 2003, integrating Santa Bárbara Sistemas, the Swiss military vehicle company Mowag (acquired in March 2003), and the Austrian military vehicle company Steyr Spezialfahrzeug (acquired in October 2003). Within the European unit, and even more so within General Dynamics, the weight of small arms production in terms of sales and employees is marginal. See General Dynamics Corporation (2003).

65 The CETME rifle was adopted by the post-war West German military in 1957 and produced under licence by Heckler & Koch.

66 See en. 30.

67 The Association of Swedish Defence Industries (FIF, 2004b) provides detailed annual statistics for its member companies.

68 See also Hug (2003).

69 Employment within the company's foreign subsidiaries was as follows: the German subsidiaries JP Sauer & Sohn and Blaser employed 350 and 125 workers respectively; SIG Arms Inc. in the USA, 120 (*Schaffhauser Nachrichten*, 2000).

70 CHF 14 m. (10 m.), 16 m. (10 m.), 12 m. (7 m.), and 13 m. (8 m.), in 2003, 2002, 2001, and 2000, respectively (Swiss government arms export report, published by the State Secretariat for Economy (SECO); available on the NISAT Web site at <http://www.nisat.org>).

71 See RUAG (2004c).

72 Ammunition factories (Altdorf and Thun); explosives factory (Wimmis); Swiss Aircraft Factory (Emmen); armaments factory (Bern); construction facilities (Thun); parts of the part of the Air Force logistic group, as well as of the military depot; see <http://www.anti-wto.ch/reitschule/anti-wto/texte/handgranaten_aus_thun.shtml>.

73 See also Gander (2000) and *BBC News* (2000).

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