

# Appendix 4D. The 100 largest arms-producing companies, 1999

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## I. The SIPRI ‘top 100’ in 1999 and major events in 2000

After half a decade of rapid concentration in the context of shrinking markets, the Western arms industry has entered a new phase of reorganization in which a smaller number of large companies face a constant if not growing level of demand for new military equipment.

A period of intensive mergers and acquisitions (M&A) began in the early 1990s. Among large aerospace companies, concentration culminated in 1997–98 in the USA and in 1999–2000 in Western Europe. The high rate of concentration in 1999 is reflected in the significant increase in the combined value of arms sales of the 100 largest arms-producing companies in the Organisation for Economic Co-operation and Development (OECD) and developing countries (except China)—by more than 11 per cent in nominal terms, from \$141 billion in 1998 to \$157 billion in 1999 (table 4D.2).<sup>1</sup> Mergers and acquisitions accounted for the overwhelming share of this increase.

The US Government responded to the high rate of concentration achieved by 1999 with an arms industrial policy which had as one of its major aims to preserve a sufficient level of competition in order to improve ‘affordability’ for the Department of Defense (DOD) and promote ‘innovation’ in military technology. In July 2000 the DOD adopted a new competition policy ‘requiring that DOD consider the effects of its acquisitions and technology strategy and budget plans on future competition’.<sup>2</sup> To facilitate continued competition the DOD also favours a ‘competitive transatlantic industrial model—with industrial linkages among multiple firms on both sides of the Atlantic and technology sharing subject to security safeguards’.<sup>3</sup>

M&A in the US arms industry continued in 2000. The characteristics of the concentration process have, however, changed compared with the early and mid-

<sup>1</sup> However, the group of 100 largest companies in 1998 had combined arms sales in 1998 of roughly \$156 billion—nearly the same level as the group of 100 largest companies in 1999.

<sup>2</sup> US Department of Defense, *Annual Industrial Capabilities Report to Congress, January 2001*, p. 6, URL <[http://www.acq.osd.mil/ia/docs/report\\_to\\_congress\\_2001.pdf](http://www.acq.osd.mil/ia/docs/report_to_congress_2001.pdf)>.

<sup>3</sup> US Department of Defense (note 2), p. 7.

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1990s. Consolidation has shifted to aerospace companies concentrating on sub-contracting,<sup>4</sup> partly as a result of the need for streamlining of activities of the recently formed giant companies and partly as a response by subcontractors to the high level of concentration among prime contractor companies. Consolidation was also intensive in information technology (IT) and in particular the IT service sector. The two most important events were the proposed acquisitions of Honeywell International by General Electric in the aerospace engine sector and of Litton by Northrop Grumman, an acquisition which, among other things, aims at creating one of the USA's 'largest federal IT suppliers'.<sup>5</sup>

West European arms industrial policy in 2000 was still focused on the promotion of concentration rather than on its control. Efforts to overcome political and regulatory impediments to continued consolidation resulted in the signing by six European Union (EU) member states of the Framework Agreement in July 2000, after two years of negotiations on the Letter of Intent.<sup>6</sup> Also in Europe, consolidation efforts have been most intense within the aerospace and electronics sectors over the past three years. In 2000, however, both the French and German governments stated their support for increased consolidation in the land systems and military shipbuilding sectors.<sup>7</sup>

Concentration in the West European arms industry advanced in 2000 within the military electronics sector. This was partly precipitated by the ongoing consolidation in the USA, and partly by the establishment of two large aerospace conglomerates in Europe—the UK-based but strongly US-oriented BAE SYSTEMS in 1999 and the tri-nation European Aeronautic, Defence and Space Company (EADS) in 2000.<sup>8</sup> The French electronics company Thomson-CSF, subsequently renamed Thales, acquired Racal Electronics (UK), and the British electronics company Smiths Industries announced plans to acquire the TI Group (UK).

Transatlantic M&A continued in 2000, primarily in the form of acquisitions by British companies in the USA, most importantly the acquisition of the aerospace electronics activities of Lockheed Martin by BAE SYSTEMS.<sup>9</sup> Rather than direct acquisitions of European companies, US arms-producing companies are seeking more

<sup>4</sup> Scott, W. B., 'Industry consolidation seen shifting to subcontractors, suppliers', *Aviation Week & Space Technology*, 1 Jan. 2001, pp. 63–64.

<sup>5</sup> Northrop Grumman, 'Northrop Grumman to acquire Litton Industries for \$80 per share cash', Press release, 21 Dec. 2000, URL <[http://www.northgrum.com/news/news\\_releases/1200-184\\_Litton.html](http://www.northgrum.com/news/news_releases/1200-184_Litton.html)>.

<sup>6</sup> Framework Agreement between the French Republic, the Republic of Germany, the Italian Republic, the Kingdom of Spain, the Kingdom of Sweden, and the United Kingdom of Great Britain and Northern Ireland concerning Measures to Facilitate the Restructuring and Operation of the European Defence Industry, 27 July 2000, URL <<http://projects.sipri.se/expon/loi/indrest02.htm>>. See also Bauer, S. and Winks, R., 'The institutional framework for European armaments policy co-operation' in European Commission, *Defence Industry Restructuring in the 1990s and Beyond*, COST A10, European Co-operation in the Field of Scientific and Technical Research, Action 10, Defense Restructuring and Conversion (European Commission: forthcoming 2001).

<sup>7</sup> Barrie, D. and Tigner, B., 'Germany clears path for home-grown armored giant', *Defense News*, 13 Nov. 2000, pp. 1, 20; and 'France favours European defense sector consolidation', Agence France-Presse (AFP), 25 Jan. 2001, in Foreign Broadcast Information Service, *Daily Report—West Europe (FBIS-WEU)*, FBIS-WEU-2001-0125, 25 Jan. 2001. For an overview of the European shipbuilding industry see Smit, W., 'Naval shipbuilding in Europe', in *Defence Industry Restructuring in the 1990s and Beyond* (note 5). For a presentation of the West European land systems industry see Anderson, J. J., *Cold War Dinosaurs or Hi-tech Arms Providers*, Occasional Papers 23 (WEU Institute for Security Studies: Paris, Feb. 2001), available at URL <<http://www.weu.int/institute/>>.

<sup>8</sup> French, German and Spanish.

<sup>9</sup> 'Last year strongest ever with \$84.5bn in mergers', *Air Letter*, 22 Jan. 2001, p. 7; and Cook, N., 'UK industry follows the money', *Interavia*, Nov. 2000, p. 3.

**Table 4D.1.** The 10 largest arms-producing companies in 1999, arms sales 1990–99  
 Figures for arms sales are in US \$b., at constant 1998 prices and exchange rates. The figures in italics are the percentage share of arms in total sales for each company.

Company, country	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Lockheed Martin (USA)	–	–	–	–	15.9	14.8	18.7	18.8	17.9	17.6
	–	–	–	–	<i>63</i>	<i>60</i>	<i>67</i>	<i>66</i>	<i>68</i>	<i>70</i>
Boeing (USA)	6.4	6.1	5.5	4.3	4.5	4.5	4.2	14.7	15.9	15.3
	<i>18</i>	<i>17</i>	<i>16</i>	<i>15</i>	<i>18</i>	<i>22</i>	<i>18</i>	<i>32</i>	<i>28</i>	<i>27</i>
BAE SYSTEMS (UK)	10.4	9.1	8.4	8.1	9.1	8.2	9.4	10.9	10.5	15.7
	<i>44</i>	<i>40</i>	<i>42</i>	<i>36</i>	<i>62</i>	<i>68</i>	<i>72</i>	<i>74</i>	<i>74</i>	<i>77</i>
Raytheon (USA)	6.9	6.0	5.4	5.1	3.9	4.2	4.7	5.2	12.5	11.3
	<i>57</i>	<i>54</i>	<i>52</i>	<i>49</i>	<i>35</i>	<i>34</i>	<i>37</i>	<i>37</i>	<i>64</i>	<i>58</i>
Northrop Grumman (USA)	6.2	6.1	5.8	5.1	6.2	6.1	7.0	7.3	6.7	7.0
	<i>90</i>	<i>90</i>	<i>89</i>	<i>89</i>	<i>85</i>	<i>84</i>	<i>83</i>	<i>79</i>	<i>75</i>	<i>79</i>
General Dynamics (USA)	10.4	9.1	3.7	3.4	3.2	3.2	3.4	3.7	4.2	5.5
	<i>82</i>	<i>80</i>	<i>92</i>	<i>94</i>	<i>94</i>	<i>96</i>	<i>92</i>	<i>90</i>	<i>84</i>	<i>62</i>
Thomson-CSF (France)	5.6	5.2	4.8	4.4	4.2	4.1	4.0	4.2	4.6	4.1
	<i>77</i>	<i>77</i>	<i>75</i>	<i>70</i>	<i>65</i>	<i>65</i>	<i>64</i>	<i>64</i>	<i>63</i>	<i>56</i>
Litton (USA)	3.7	3.8	3.9	3.6	3.5	3.2	3.3	3.5	3.2	3.8
	<i>58</i>	<i>60</i>	<i>59</i>	<i>91</i>	<i>92</i>	<i>91</i>	<i>89</i>	<i>83</i>	<i>73</i>	<i>70</i>
United Technologies (USA)	5.1	4.8	5.0	4.7	4.2	3.9	3.5	3.4	3.3	3.4
	<i>19</i>	<i>19</i>	<i>20</i>	<i>20</i>	<i>18</i>	<i>16</i>	<i>14</i>	<i>13</i>	<i>13</i>	<i>14</i>
Aérospatiale Matra (France)	–	–	–	–	–	–	–	–	–	3.3
	–	–	–	–	–	–	–	–	–	<i>24</i>

Source: SIPRI arms industry database.

flexible forms of industrial alliances, such as teaming arrangements.<sup>10</sup> The continuing fragmentation of the European market for military equipment is perceived by US companies as the major disincentive to acquisitions in Europe, since the establishment of a subsidiary in one country does not have any direct impact on market access in other countries.<sup>11</sup> A joint venture between Thales (France) and Raytheon (USA) in the development and production of air defence and radar systems, Thales Raytheon Systems, was approved by the US Government in November 2000. EADS and Northrop Grumman (USA) are also searching for closer industrial relations in intelligence, reconnaissance and surveillance systems. The primary aim of these alliances is to broaden market access.<sup>12</sup>

The ‘construction of a transatlantic *industrial bridge* is underway and accelerating’ according to the January 2001 DOD report on the state of the arms industry.<sup>13</sup> However, while closer industrial relations will continue to develop, full mergers between

<sup>10</sup> For an overview of international alliances formed by large US companies see Ripley, T., ‘US defense industry global partnerships’, *Defense Systems Daily*, version as of 7 Mar. 2001, on URL <<http://defence-data.com/archive/pagerip2.htm>>.

<sup>11</sup> US General Accounting Office (GAO), ‘Defense trade, contractors engage in varied international alliances’, GAO/NSIAD-00-213, Sep. 2000, available on URL <<http://www.gao.gov>>.

<sup>12</sup> Tigner, B., ‘EADS, Northrop Grumman look for right relationship’, *Defense News*, 12 Feb. 2001, pp. 1, 20.

<sup>13</sup> US Department of Defense (note 2), p. 8.

the largest US and European arms-producing companies seem unlikely to occur in the short term given the unfavourable political, regulatory and business conditions.<sup>14</sup>

The results of the restructuring of the arms industry during the past decade are now beginning to emerge. In the USA, where the concentration has been most rapid, specialization in military activities by large prime contractors and 'segregated divisions of larger corporations' accelerated during the 1990s.<sup>15</sup> However, smaller prime contractors and larger companies concentrating on subcontracting and services were more successful in reducing their dependence on military sales.<sup>16</sup> Because of their reliance on military programmes, the largest prime contractors have increased their vulnerability to changes in procurement budgets. At the same time concentration of production and development capacities in a small number of companies has increased the governments' vulnerability to lobbying from industry.<sup>17</sup>

In Western Europe, the largest military contractor, BAE SYSTEMS, has increased its dependence on military programmes significantly—from 44 per cent of total sales in 1990 to 77 per cent in 1999 (table 4D.1). The company has suffered severe financial problems in 2000, which are interpreted as the consequence of programme delays and falling military orders.<sup>18</sup> In response to its difficulties BAE SYSTEMS demanded from the British Government a reduced emphasis on competition and fixed pricing in large military programmes,<sup>19</sup> challenging some of the driving principles of the procurement reforms of the 1990s.<sup>20</sup>

Reorganization of the arms industry is likely to continue in 2001 in the form of continued consolidation through M&A among smaller companies and subcontractors as well as internal restructuring efforts by large prime contractors. Despite the high level of concentration achieved during the post-cold war restructuring of the 1990s, the Western arms industry seems still to be characterized by considerable overcapacities. In the USA a recent report by DOD, financial market and arms industry representatives found that the wave of concentration has led to a sharp reduction in the number of companies but to only a marginal reduction in the number of arms-producing facilities. This was, according to the report, the result of financial disincentives and 'companies' concerns that closure of facilities will result in reduced political support'. Incomplete industry rationalization led to a low level of efficiency compared with the civilian industry.<sup>21</sup>

Despite expectations of an upswing in the demand for military equipment, as reflected in DOD forecasts of an increase in US employment in arms production in

<sup>14</sup> James, A. D., 'The prospects for a transatlantic defence industry', eds G. Adams *et al.*, *Between Cooperation and Competition: The Transatlantic Defence Market*, Chaillot Papers 44 (WEU Institute for Security Studies: Paris, Jan. 2001), pp. 93–122.

<sup>15</sup> US Department of Defense (note 2).

<sup>16</sup> Oden, M., Wolf-Powers, L. and Markusen, A., 'Post-cold war conversion: gains, losses, and hidden changes in the US economy', Paper for the Council on Foreign Relations Arms Trade Conference, New York, 14 June 2000, URL <[http://www.foreignrelations.org/public/armstrade/oden\\_military\\_paper.html](http://www.foreignrelations.org/public/armstrade/oden_military_paper.html)>.

<sup>17</sup> Political lobbying efforts are intense 'for higher defence budgets, NATO-expansion, liberalized arms export policies and relaxed anti-trust that would permit trans-Atlantic mergers and privatization'. Oden *et al.* (note 16).

<sup>18</sup> *Defence Industry*, Jan. 2001, p. 9.

<sup>19</sup> 'Anger at BAe bid to freeze out contract rivals', *Air Letter*, 13 Mar. 2001, p. 5.

<sup>20</sup> de Briganti, G., 'Is competition compatible with defense?', 14 Mar. 2001, URL <<http://www.defense-aerospace.com/data/features/data/fe167/index.htm>>.

<sup>21</sup> American Institute for Aeronautics and Astronautics (AIAA), 'Defense reform 2001: a blueprint for action, setting the stage', Washington, DC, 14–15 Feb. 2001, URL <[http://www.defensereform.org/Home/Setting\\_the\\_Stage\\_-\\_FINAL.pdf](http://www.defensereform.org/Home/Setting_the_Stage_-_FINAL.pdf)>, pp. 4–6.

2001,<sup>22</sup> it seems likely that there will be strong pressure on companies to rationalize production through the closure of facilities. After the large-scale M&As in 1999 and 2000 the two largest arms-producing companies in Western Europe, BAE SYSTEMS and EADS, have also announced major rationalization schemes, including employment cuts.<sup>23</sup>

## II. Sources and methods

Table 4D.2 contains information on the 100 largest arms-producing companies in the OECD and the developing countries, ranked by their arms sales in 1999.<sup>24</sup> Companies with the designation *S* in the column for rank in 1999 are subsidiaries; their arms sales are included in the figure in column 6 for the parent company. Subsidiaries are listed in the position in which they would appear if they were independent companies. In order to facilitate comparison with data for the previous year, the rank order and arms sales figures for 1998 are also given. Where new data for 1998 have become available, this information is included in the table; thus the 1998 rank order and the arms sales figures for some companies which appeared in table 6A in the *SIPRI Yearbook 2000* have been revised.

*Sources of data.* The data in the table are based on the following sources: company reports, a questionnaire sent to over 400 companies, and corporation news published in the business sections of newspapers, military journals and on the Internet. Company archives, marketing reports, government publication of prime contracts and country surveys were also consulted. In many cases exact figures on arms sales were not available, mainly because companies often do not report their arms sales or lump them together with other activities. Estimates were therefore made.

*Definitions.* Data on total sales, profits and employment are for the entire company, not for the arms-producing sector alone. Profit data are after taxes in all cases when the company provides such data. Employment data are either a year-end or a yearly average figure as reported by the company. Data are reported on the fiscal year basis reported by the company in its annual report.

*Key to abbreviations in column 5.* A = artillery, Ac = aircraft, El = electronics, Eng = engines, Mi = missiles, MV = military vehicles, SA/A = small arms/ammunition, Sh = ships, and Oth = other. Comp ( ) = components of the product within the parentheses. It is used only for companies which do not produce any final systems.

<sup>22</sup> US Department of Defense, Office of the Under Secretary of Defense, 'National defense budget estimates for FY2001', Mar. 2000, URL <<http://www.dtic.mil/comptroller/fy2001budget/fy2001grbk.pdf>>, table 7-5, p. 213.

<sup>23</sup> 'BAE SYSTEMS says Nimrod, Hawk hit bottom line', *Defence Systems Daily*, 10 Jan. 2001, URL <<http://defence-data.com/archive/page9579.htm>>; and 'EADS to cut jobs to stem losses', *Air Letter*, 2 Jan. 2001, p. 7.

<sup>24</sup> For the membership of the OECD, see the glossary in this volume. The category of developing countries covers all countries other than the OECD and the former and current centrally planned economies, for which there is a lack of comparable data at the enterprise level.

**Table 4D.2.** The 100 largest arms-producing companies in the OECD and developing countries, 1999  
 Figures in columns 6, 7, 8 and 10 are in US \$m. <sup>a</sup> Figures in italics are percentages.

1	2	3	4	5	6	7	8	9	10	11	
Rank <sup>b</sup>	1999	1998	Company <sup>c</sup>	Country	Sector <sup>d</sup>	Arms sales		Total sales 1999	Col. 6 as % of col. 8	Profit 1999	Employment 1999
						1999	1998				
1	1	1	Lockheed Martin	USA	Ac EI Mi	17 930	17 880	25 530	70	382	149 000
2	2	2	Boeing	USA	Ac EI Mi	15 600	15 900	57 993	27	2 309	197 000
3	4	3	BAE SYSTEMS <sup>e</sup>	UK	A Ac EI Mi SA/A Sh	15 470	10 520	20 050	77	1 804	71 150
4	3	3	Raytheon	USA	EI Mi	11 530	12 480	19 841	58	404	105 300
5	5	5	Northrop Grumman	USA	Ac EI Mi SA/A	7 070	6 720	8 995	79	467	44 600
6	7	6	General Dynamics	USA	MV Sh	5 550	4 160	8 959	62	880	43 400
7	8	7	Thomson-CSF	France	EI Mi SA/A	4 080	4 580	7 340	56	293	48 920
8	9	8	Littion <sup>f</sup>	USA	EI Sh	3 910	3 230	5 592	70	122	40 800
9	8	9	United Technologies, UTC <sup>g</sup>	USA	EI Eng	3 480	3 260	24 996	14	1 558	148 300
10	-	10	Aérospatiale Matra, AM	France	Ac EI Mi	3 300	0	13 743	24	58	52 390
11	10	10	DaimlerChrysler, DC	FRG	Ac EI Eng MV Mi	3 070	3 050	159 797	2	6 122	466 940
S	S	S	DaimlerChrysler Aerospace, DASA (DC)	FRG	Ac EI Eng Mi	3 040	3 020	9 792	31	64	46 110
12	12	12	IRI	Italy	A Ac EI MV Mi SA/A Sh	3 000	2 690	23 945	13	3 103	108 970
13	11	11	TRW	USA	Comp (EI MV) Oth	2 990	2 900	16 969	18	469	122 260
S	S	S	Fimmeccanica (IRI)	Italy	A Ac EI MV Mi SA/A	2 790	2 420	6 373	44	70	43 690
S	S	S	Matra BAe Dynamics (AM), BAE SYSTEMS, UK	France/ France	Mi	2 660	1 970	2 660	100	..	..
14	13	13	Mitsubishi Heavy Industries <sup>h</sup>	Japan	Ac MV Mi Sh	2 460	2 540	25 240	10	-1 203	64 990
15	14	14	Rolls Royce <sup>i</sup>	UK	Eng MV	2 410	2 150	8 982	27	..	49 600

1	2	3	4	5	6	7	8	9	10	11	
Rank <sup>b</sup>											
1999	1998	Company <sup>c</sup>	Country	Sector <sup>d</sup>	1999	1998	Total sales 1999	Col. 6 as % of col. 8	Profit 1999	Employment 1999	
S	S	Pratt & Whitney (UTC)	USA	Eng	2 120	1 940	7 674	28	..	30 000	
16	27	GKN	UK	Ac MV	1 860	1 160	7 514	25	586	39 790	
17	17	Newport News	USA	Sh	1 830	1 720	1 863	98	97	17 300	
18	16	DCN	France	Sh	1 700	1 840	1 754	97	..	16 420	
19	18	General Electric	USA	Eng	1 600	1 600	111 630	1	10 717	340 000	
20	28	Computer Sciences Corp. <sup>i</sup>	USA	Oth	1 470	1 110	9 371	16	403	58 000	
21	21	Rheinmetall	FRG	A EI MV SA/A	1 420	1 280	4 809	30	-6	33 050	
22	-	Honeywell International	USA	Ac EI Mi	1 420	0	23 735	6	1 541	120 000	
S	S	Rheinmetall DeTec (Rheinmetall)	FRG	A EI MV SA/A	1 420	610	1 420	100	-21	9 250	
23	20	ITT Industries	USA	EI	1 410	1 290	4 632	31	233	37 870	
24	29	Textron	USA	Ac EI Eng MV	1 300	1 100	11 579	11	2 226	68 000	
25	25	United Defense	USA	MV	1 210	1 200	1 210	100	1 541	4 850	
26	22	Israel Aircraft Industries	Israel	Ac EI Mi	1 200	1 220	2 000	60	70	14 300	
27	26	CEA	France	Oth	1 190	1 190	3 022	39	..	..	
S	S	Sikorsky (UTC)	USA	Ac	1 170	1 270	..	..	..	7 000	
28	42	Kawasaki Heavy Industries <sup>h</sup>	Japan	Ac Eng Mi Sh	1 160	670	10 325	11	-167	29 770	
29	30	Science Applications <sup>i</sup>	USA	Oth	1 140	1 040	5 530	21	620	39 080	
30	35	Ordnance Factories	India	A SA/A	1 120	820	1 240	90	..	..	
31	39	L-3 Communications	USA	EI	1 000	770	1 406	71	59	10 200	
32	15	Dassault Aviation	France	Ac	990	1 870	3 078	32	186	11 600	
33	38	Mitsubishi Electric <sup>h</sup>	Japan	EI Mi	980	790	33 896	3	223	116 590	
34	31	SEPI <sup>k</sup>	Spain	Ac EI Oth	970	1 020	..	..	..	..	
35	24	Celsius	Sweden	A EI SA/A Sh	920	1 200	1 416	65	6	9 130	
36	23	GIAT Industries	France	A MV SA/A	890	1 200	927	97	-154	8 000	
S	S	Eurocopter (Aérospatiale Matra/	France	Ac	890	830	1 868	48	..	9 680	





1	2	3	1999	1998	Rank <sup>b</sup>	Company <sup>c</sup>	Country	Sector <sup>d</sup>	Arms sales		Total sales	Col. 6 as % of col. 8	Profit	Employment
									1999	1998				
62	82	Toshiba <sup>b</sup>	Japan	El Mi		470	290	51 635	1	-252	190 870			
63	-	Marconi <sup>n</sup>	UK	El		460	0	9 264	5	615	53 000			
64	56	Hindustan Aeronautics/	India	Ac Mi		450	470	476	95	..	..			
65	59	Lucent Technologies	USA	El		450	450	38 303	1	3 833	153 000			
66	-	Babcock Borsig	FRG	Sh		440	0	7 032	6	80	41 510			
67	64	Elbit Systems	Israel	El		440	410	440	100	31	2 050			
68	77	Devonport Management	UK	Sh		440	350	547	80	21	3 820			
S	S	HDW (Babcock Borsig)	FRG	Sh		440	280	673	65	..	3 300			
69	85	Primex Technologies	USA	SA/A		430	280	544	79	20	2 850			
70	70	Mitre	USA	Oth		410	390	541	75	11	..			
71	80	Tenix	Australia	Sh		390	300	645	60	..	4 000			
72	-	ThyssenKrupp	FRG	Sh		390	190	34 496	1	293	184 770			
73	76	Cobham	UK	Comp (Ac El)		390	350	704	56	77	5 830			
S	S	Bazan (SEPI)	Spain	El Eng Sh		390	420	505	78	..	5 500			
74	67	Denel	S. Africa	A. Ac El MV Mi SA/A		380	390	564	67	-34	11 090			
75	65	Alvis	UK	MV Oth		380	410	380	100	49	..			
76	74	EG&G	USA	Comp (El Oth)		380	360	500	76	..	..			
77	78	NEC <sup>b</sup>	Japan	El		370	340	43 819	1	91	154 790			
78	75	AIDC	Taiwan	Ac		370	350	731	50	..	3 800			
79	71	TI Group	UK	Comp (Ac)		370	380	4 416	8	287	38 300			
80	92	DRS Technologies	USA	El		360	250	392	92	4	2 000			
81	81	Labinal	France	Eng		340	300	2 674	13	64	29 090			
82	73	Babcock International, BI	UK	Sh		340	360	762	45	36	6 550			
S	S	Babcock Rosyth Defence (BI)	UK	Sh Oth		340	360	340	100	..	..			
83	87	Komatsu <sup>b</sup>	Japan	MV SA/A		330	270	9 267	4	118	28 520			

84	68	Cordant Technologies	USA	Eng SA/A	330	390	2 513	13	164	17 200
85	66	Koor Industries	Israel	A El	320	400	2 579	12	133	..
S	85	Hollandse Signaalapparaten (Thomson-CSF, France)	Netherl.	El	310	370	313	99	-3	3 090
86	98	Federman	Israel	El	300	220	..	..	..	..
87	-	Hitachi Zosen <sup>h</sup>	Japan	Sh	300	..	4 173	7	21	10 870
88	-	Anteon <sup>h</sup>	USA	Oth	300	190	401	75	..	3 900
S	85	Dornier (Daimler Aerospace)	FRG	Ac El	300	..	1 169	26	33	4 050
S	85	El-Op (Federman)	Israel	El Oth	300	220	300	100	14	2 000
89	91	Vosper Thornycroft	UK	Sh	290	250	443	65	39	3 880
90	80	AM General Corporation	USA	MV	290	320	348	83	-10	1 070
S	88	ADI (Transfield Holding/ Thomson-CSF, France)	Australia	El SA/A Sh	290	270	369	78	123	3 100
S	85	EDS Defence (EDS, USA) <sup>h</sup>	UK	El	290	..	290	100	..	2 000
91	92	BFGoodrich	USA	Comp (Ac)	280	250	5 538	5	170	27 000
92	85	Motorola	USA	El	280	280	30 931	1	817	121 000
S	85	Turbomeca (Labinal)	France	Eng	270	240	566	48	..	..
93	90	CAE	Canada	El	260	250	784	33	61	6 000
94	95	Bharat Electronics	India	El	260	240	347	75	25	14 810
S	85	Singapore Aerospace (ST Engineering)	Singapore	Ac El Eng	260	290	506	52	74	4 250
95	89	Ericsson	Sweden	El	250	260	26 070	1	1 468	103 290
96	-	Teledyne Technologies	USA	El	250	0	803	31	49	..
97	-	Nissan Motor <sup>h</sup>	Japan	A MV	240	200	53 678	<1	-6 146	141 530
S	85	Sextant Avionique (Thomson-CSF)	France	El	240	280	911	26	..	7 060
98	96	Bombardier	Canada	El Mi	230	230	9 166	2	484	56 000
99	-	Ultra Electronics	UK	El	230	200	312	75	16	2 000
100	-	Japan Electronic Computer Co. <sup>h</sup>	Japan	El	220	200	..	..	..	..
<b>Total<sup>p</sup></b>					<b>157 370</b>	<b>[141 240]</b>	-	-	-	-

- <sup>a</sup> The period average of market exchange rates of the International Monetary Fund's *International Financial Statistics* is used for conversion to US dollars.
- <sup>b</sup> Rank designations in the column for 1998 may not correspond to those given in table 6A in the *SIPRI Yearbook 2000* because of subsequent revision. A dash (–) in this column indicates either that the company did not produce arms in 1998, or that it did not exist in 1998 as it was structured in 1999, in which case there is a zero (0) in column 7, or that it did not rank among the 100 largest companies in 1998. Companies with the designation S in the column for rank are subsidiaries.
- <sup>c</sup> Names in brackets are names of parent companies.
- <sup>d</sup> A key to abbreviations in column 5 is provided on page 306.
- <sup>e</sup> Data for BAE SYSTEMS are pro-forma sales as if the acquisition of Marconi Electronic Systems (MES) had occurred on 1 Jan. 1999. MES was acquired by British Aerospace on 29 Nov. 1999. Following the acquisition British Aerospace was renamed BAE SYSTEMS.
- <sup>f</sup> Data for Litton are pro-forma sales as if the acquisition of Avondale Industries had occurred on 1 Aug. 1998. Litton acquired Avondale Industries on 2 Aug. 1999.
- <sup>g</sup> Data for United Technologies are pro-forma sales as if the acquisition of Sundstrand had occurred on 1 Jan. 1999. United Technologies acquired Sundstrand in June 1999.
- <sup>h</sup> For Japanese companies figures in the arms sales column represent new military contracts rather than arms sales.
- <sup>i</sup> Data for Rolls Royce are pro-forma sales as if the acquisition of Vickers had taken place on 1 Jan. 1999. Rolls Royce acquired Vickers on 17 Nov. 1999.
- <sup>j</sup> This company is a provider of IT services and products to defence ministries. Figures are for total sales to defence ministries, an unknown share of which is for military applications.
- <sup>k</sup> The former arms-producing subsidiary of SEPI, Indra was privatized in 1999.
- <sup>l</sup> All figures are for 1998.
- <sup>m</sup> The rank of Krauss-Maffei Wegmann in 1999 is derived from the combined arms sales of Wegmann and the arms-producing division of Mannesmann, Krauss-Maffei. These merged in Jan. 1999. The new company is owned 51% by Wegmann and 49% by Mannesmann.
- <sup>n</sup> Marconi was incorporated on 17 Sep. 1999 in anticipation of the sale by GEC of Marconi Electronic Systems (MES) to British Aerospace (see note e). Marconi comprises all activities of the former GEC, except MES.
- <sup>o</sup> The total is the value of combined arms sales of parent companies.