

### Top 100 aerospace companies by revenue 2017 (\$ millions)

Rank	Company name	Movement in ranking from 2016	Sales (revenue) 2017	Sales (revenue) 2016	Operating profit 2017	Operating profit 2016	Operating margin 2017	Operating margin 2016
1	Boeing	0	\$93,400	\$94,600	\$10,300	\$5,830	11.0%	6.2%
2	Airbus	0	\$72,300	\$70,800	\$3,700	\$2,400	5.1%	3.4%
3	Lockheed Martin	0	\$51,000	\$47,200	\$5,900	\$5,500	11.6%	11.7%
4	United Technologies	0	\$30,900	\$29,400	\$3,830	\$3,840	12.4%	13.1%
5	General Electric (GE Aviation)	0	\$27,400	\$26,300	\$6,640	\$6,120	24.3%	23.3%
6	Northrop Grumman	0	\$25,800	\$24,500	\$3,300	\$3,190	12.8%	13.0%
7	Raytheon	0	\$25,300	\$24,100	\$3,320	\$3,300	13.1%	13.7%
8	Safran	0	\$17,900	\$16,800	\$2,580	\$2,540	14.4%	15.1%
9	BAE Systems	0	\$13,400	\$13,300	n/a	n/a	n/a	n/a
10	Rolls-Royce	1	\$12,700	\$12,000	\$1,110	\$980	8.7%	8.1%
11	Leonardo	-1	\$12,500	\$12,800	\$902	\$1,050	7.2%	8.2%
12	Honeywell	0	\$11,600	\$11,700	n/a	n/a	n/a	n/a
13	Textron	0	\$9,840	\$9,920	\$857	\$961	8.7%	9.7%
14	L3 Technologies	0	\$9,580	\$9,210	\$1,020	\$1,010	10.7%	10.9%
15	General Dynamics (Aerospace)	1	\$8,130	\$7,820	\$1,590	\$1,410	19.6%	18.0%
16	Bombardier	-1	\$7,690	\$8,770	-\$171	-\$454	-2.2%	-5.2%
17	Precision Castparts	0	\$7,160	\$7,000	n/a	n/a	n/a	n/a
18	Spirit AeroSystems	0	\$6,980	\$6,790	\$569	\$725	8.1%	10.7%
19	United Aircraft	3	\$6,870	\$5,980	\$185	\$161	2.7%	2.7%
20	Rockwell Collins	5	\$6,820	\$5,260	\$1,120	\$999	16.4%	19.0%
21	Thales	0	\$6,480	\$6,180	\$651	\$607	10.0%	9.8%
22	Mitsubishi	-2	\$6,200	\$6,220	-\$129	\$8	-2.1%	0.1%
23	Embraer	-4	\$5,840	\$6,220	\$330	\$206	5.6%	3.3%
24	Zodiac	-1	\$5,550	\$5,540	\$184	\$206	3.3%	3.7%
25	MTU Aero Engines	1	\$5,450	\$5,040	\$601.4	\$482	11.0%	9.6%
26	Arconic	-2	\$5,440	\$5,300	n/a	n/a	n/a	n/a
27	Dassault Aviation	3	\$5,230	\$3,890	\$372	\$304	7.1%	7.8%
28	Orbital ATK	-1	\$4,760	\$4,460	\$529	\$472	11.1%	10.6%
29	GKN Aerospace	-1	\$4,500	\$4,450	\$217	\$440	4.8%	9.9%
30	AVIC	1	\$4,310	\$3,670	\$318	\$266	7.4%	7.3%
31	IHI	-2	\$3,980	\$4,170	\$515	\$469	13.0%	11.2%
32	Russian Helicopters	4	\$3,530	\$3,080	\$534	\$465	15.1%	15.1%
33	Israel Aerospace Industries	-1	\$3,520	\$3,580	\$121	-\$105	3.4%	-2.9%
34	TransDigm	1	\$3,500	\$3,170	\$1,480	\$1,270	42.2%	40.0%
35	Harris	-1	\$3,200	\$3,200	n/a	n/a	n/a	n/a
36	Triumph Group	-3	\$3,200	\$3,530	-\$362	\$56.9	-11.3%	1.6%
37	Hindustan Aeronautics	2	\$2,860	\$2,800	\$490	\$513	17.2%	18.3%
38	Kawasaki	0	\$2,850	\$2,900	\$179	\$221	6.3%	7.6%
39	Panasonic Avionics	1	\$2,330	\$2,510	n/a	n/a	n/a	n/a
40	Parker Hannifin	2	\$2,290	\$2,260	\$337	\$338	14.7%	15.0%
41	Meggitt	2	\$2,210	\$2,230	n/a	n/a	n/a	n/a
42	Saab	2	\$2,100	\$1,920	\$193	\$161	9.2%	8.4%
43	CAE	2	\$2,010	\$1,880	\$335	\$285	16.7%	15.2%
44	Aerojet Rocketdyne	3	\$1,870	\$1,750	\$178	\$143	9.5%	8.2%
45	Cobham	1	\$1,840	\$1,860	\$182	\$206	9.9%	11.1%
46	ST Engineering	4	\$1,770	\$1,740	\$189	\$167	10.6%	9.6%
47	Korea Aerospace Industries	-6	\$1,760	\$2,430	-\$177	\$264	-10.1%	10.9%
48	Hexcel	1	\$1,760	\$1,740	n/a	n/a	n/a	n/a
49	Eaton	-1	\$1,740	\$1,750	\$332	\$335	19.0%	19.1%
50	Moog	1	\$1,720	\$1,650	\$188	\$163	10.9%	9.9%



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Rank	Company name	Movement in ranking from 2016	Sales (revenue) 2017	Sales (revenue) 2016	Operating profit 2017	Operating profit 2016	Operating margin 2017	Operating margin 2016
51	Allegheny Technologies	2	\$1,720	\$1,590	n/a	n/a	n/a	n/a
52	Diehl Aviation	3	\$1,660	\$1,410	n/a	n/a	n/a	n/a
53	Liebherr	3	\$1,480	\$1,360	n/a	n/a	n/a	n/a
54	Turkish Aerospace Industries	3	\$1,420	\$1,260	n/a	n/a	n/a	n/a
55	Esterline	-3	\$1,400	\$1,600	n/a	n/a	n/a	n/a
56	Heico	3	\$1,370	\$1,240	n/a	n/a	n/a	n/a
57	Woodward	3	\$1,340	\$1,230	\$258	\$232	19.2%	18.8%
58	Maxar Technologies Space Systems	-4	\$1,300	\$1,420	\$191	\$204	14.8%	14.4%
59	Elbit Systems	-1	\$1,230	\$1,240	n/a	n/a	n/a	n/a
60	Subaru (Fuji Heavy Industries)	1	\$1,220	\$1,230	\$105	\$81	8.6%	6.6%
61	Daher	1	\$1,180	\$1,120	n/a	n/a	n/a	n/a
62	RUAG	2	\$1,100	\$1,010	\$79	\$86	7.2%	8.5%
63	LISI	0	\$1,080	\$1,050	\$139	\$131	12.8%	12.4%
64	Cytec Solvay Group	1	\$1,010	\$970	n/a	n/a	n/a	n/a
65	Ball Aerospace	6	\$991	\$818	\$98	\$88	9.9%	10.8%
66	Amphenol	0	\$982	\$880	n/a	n/a	n/a	n/a
67	Pilatus	6	\$963	\$801	\$132	\$87	13.7%	10.8%
68	Teledyne Technologies	-1	\$956	\$875	\$163	\$144	17.0%	16.5%
69	Senior	-1	\$898	\$864	\$95	\$97	10.6%	11.2%
70	AIDC	2	\$869	\$814	\$87	\$81	10.1%	10.0%
71	Constellium	-2	\$823	\$846	n/a	n/a	n/a	n/a
72	FACC	2	\$813	\$751	\$69	\$27	8.5%	3.5%
73	Sonaca	22	\$812	\$384	n/a	\$38	0.0%	9.9%
74	Curtiss-Wright	7	\$787	\$706	n/a	n/a	n/a	n/a
75	Aernnova	3	\$744	\$723	n/a	n/a	n/a	n/a
76	Kongsberg	4	\$735	\$722	\$54	\$80	7.4%	11.0%
77	Kaman Aerospace	5	\$725	\$702	\$120	\$115	16.5%	16.4%
78	Magellan Aerospace	-1	\$718	\$728	\$100	\$90	13.9%	12.3%
79	Latecoere	4	\$707	\$697	\$45	\$56	6.3%	8.0%
80	Crane Aerospace and Electronics	-5	\$691	\$746	\$160	\$150	23.2%	20.1%
81	Korean Air Aerospace Division	-5	\$680	\$744	n/a	\$92	n/a	12.4%
82	Nordam group	2	\$676	\$695	n/a	n/a	n/a	n/a
83	JAMCO	-4	\$667	\$723	\$38	\$19	5.7%	2.6%
84	Astronics Corporation	1	\$625	\$633	\$30	\$73	4.9%	11.5%
85	Kaiser Aluminum	1	\$588	\$608	n/a	n/a	n/a	n/a
86	Hutchinson	2	\$569	\$532	n/a	n/a	n/a	n/a
87	Chemring	2	\$561	\$494	\$51	\$48	9.1%	9.8%
88	Recaro Aircraft Seating	3	\$527	\$481	n/a	n/a	n/a	n/a
89	Ducommun	1	\$502	\$490	n/a	n/a	n/a	n/a
90	Garmin	2	\$501	\$439	\$154	\$125	30.7%	28.4%
91	Barnes Aerospace	3	\$463	\$407	\$83	\$62	18.0%	15.4%
92	SKF	-5	\$436	\$572	n/a	n/a	n/a	n/a
93	ASCO Industries	0	\$412	\$415	n/a	n/a	n/a	n/a
94	Figeac Aero	4	\$401	\$345	\$37	\$56	9.3%	16.2%
95	ITT Corporation	1	\$362	\$351	n/a	n/a	n/a	n/a
96	ShinMaywa	3	\$349	\$345	\$11	\$18	3.4%	5.1%
97	Praxair	3	\$343	\$316	n/a	n/a	n/a	n/a
98	Lord Corporation	4	\$310	\$303	n/a	n/a	n/a	n/a
99	Marshall	2	\$304	\$304	n/a	-\$18	0.0%	-6.0%
100	Heroux-Devtek	3	\$286	\$295	\$17	\$26	6.1%	8.8%



Takeover of LMI Aerospace helped Belgium's Sonaca increase turnover to \$812 million

## WOMEN LEADERS

# Lockheed Martin chief heads list of female top bosses

Earlier this year, FlightGlobal revealed that only two of the world's Top 100 airlines were run by women. The picture in aerospace is marginally better, with female chief executives and other senior leaders increasingly making their presence felt, especially in the USA.

The most prominent women in aerospace are Lockheed Martin chief executive Marillyn Hewson and Kathy Warden, who – as president and chief operating officer – is number two at sixth-ranked Northrop Grumman. Fifteenth-placed General Dynamics is also helmed by a woman, Phebe Novakovic, as is Aerojet

Rocketdyne at number 44, whose chief executive is Eileen Drake.

Hewson, the only woman to run a top five US defence contractor, has held a variety of positions at Lockheed since joining more than 35 years ago as an industrial engineer.

Women in senior executive positions in leading Top 100 companies include Lisa Atherton, who runs Textron's Systems division. She took over from another woman, Ellen Lord, last year, after Lord announced she was joining the Trump administration as Under Secretary of Defense. Jean Lydon-Rodgers heads GE

Aviation Services.

Meanwhile, earlier this year Esina Alic was named chief executive of Boeing's Insitu subsidiary. Que Dallara is chief commercial officer at Honeywell group. Cate Gutowski has become senior vice-president for global sales and services with Panasonic Avionics.

Outside the USA, Pascale Sourisse heads international development on the Thales executive board, and has run several French aerospace businesses. Other executive leaders include Hege Skryseth at the digital unit of Norwegian manufacturer Kongsberg. At



SALES GROWTH

# Revenue at the double for Sonaca as it rises to top spot

More than doubling of revenues at Belgian aerostructures firm Sonaca has seen it soar up the Top 100 from 92nd place to 73. The increase to \$812 million is more than three times that of Dassault, second in the table for sales growth in 2017 – although, of course, from a much lower base.

Sonaca's turnover increase is largely down to its takeover in mid-2017 of US business LMI Aerospace, a similarly-sized firm with sales of \$346 million in 2016. In its latest financial report, Sonaca, which is largely owned by the investment arm of the Wallonia regional government, said the acquisition "opens up huge growth possibilities for our activities thanks to intra-group complementarities" and giving the European company manufacturing sites closer to its US customers.

Dassault, which makes the Rafale fighter as well as the Falcon range of business jets, lost chairman Serge Dassault, who died in May. However, the largely family-owned company saw a 30.3% improvement in sales even though delivery numbers for both the Rafale and the Falcon were the same as in 2016.

Rockwell Collins had a strong year, with sales growing by almost 30%, an indication of why United Technologies was prepared to pay so much money for the Cedar Rapids-based company, which has a dominant position in many fast growing technological sectors, including on-board connectivity systems and cockpit avionics.

Ball Aerospace, the Boulder, Colorado-based division of Ball Corporation, had a good 2017, with sales growing by just over a fifth. The company is a major contractor in the US defence and space markets. Meanwhile, Switzerland's Pilatus also saw a revenue boost of just over 20%, despite its widely-hailed first business jet, the PC-

## Top 20 by sales growth

Rank by growth %	Rank by sales	Company	Sales growth
1	73	Sonaca	111.6%
2	27	Dassault Aviation	34.7%
3	20	Rockwell Collins	29.7%
4	65	Ball Aerospace	21.1%
5	67	Pilatus	20.3%
6	52	Diehl Aviation	18.0%
7	30	AVIC	17.8%
8	94	Figeac Aero	16.1%
9	32	Russian Helicopters	14.8%
10	19	United Aircraft	14.8%
11	90	Garmin	14.1%
12	91	Barnes Aerospace	13.8%
13	87	Chemring	13.6%
14	54	Turkish Aerospace Industries	12.9%
15	66	Amphenol	11.5%
16	74	Curtiss-Wright	11.5%
17	56	Heico	10.9%
18	34	TransDigm	10.5%
19	88	Recaro Aircraft Seating	9.7%
20	68	Teledyne Technologies	9.4%

111%

Sonaca's sales growth, the highest by far of any Top 100 company

24, entering service only this year. With an order book so full that Pilatus has stopped taking new customers, revenue from the first few dozen de-

3%

Average sales growth for Top 100 companies

liveries should positively impact the Stans-based manufacturer's revenues in its 2018 and 2019 financial results. ■

Canadian systems and components maker Magellan, women make up a third of the nine-strong executive board.

Women are still vastly under-represented in senior corporate roles, with executive boards on both sides of the Atlantic often featuring females in human resources, corporate communications or marketing positions; key strategic, financial and engineering posts are still overwhelmingly dominated by men.

Beyond the Top 100, Eren Ozmen is president of Sierra Nevada, and Lynn Tilton of Patriarch Partners owns and is chief executive of MD Helicopters. ■

Marillyn Hewson is the most prominent woman in aerospace Top 100 companies



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## OPERATING MARGIN

# TransDigm acquisition model continues to pay dividends

As for the most operationally profitable companies, the top of the list looks remarkably familiar this year, with TransDigm and Garmin retaining first and second place, and GE Aviation – fourth last time – replacing Martin-Baker in third after the UK ejection-seat manufacturer slipped out of the Top 100.

TransDigm's business model is highly unusual. It has more than 30 operating businesses, most of them still trading under their own brands, the result of a flurry of acquisitions of often-troubled companies, which the parent has attempted to turn around. Its latest buy was Illinois-based Skandia, from Graycliff Partners for \$84 million in July. Skandia makes seat foam, turns over \$26 million, and its products are on most major business jet platforms.

The company says its goal is to give shareholders "private equity-like returns with the liquidity of a public market" and to do this it "owns and operates a wide range of proprietary aerospace businesses with substantial aftermarket content". It has a decentralised management structure to keep each subsidiary "close to its customer".

### Top 20 by operating margin

Rank by margin	Rank by sales	Company	Operating margin
1	34	TransDigm	42.2%
2	90	Garmin	30.7%
3	5	General Electric (GE Aviation)	24.3%
4	80	Crane Aerospace and Electronics	23.2%
5	15	General Dynamics (Aerospace)	19.6%
6	57	Woodward	19.2%
7	49	Eaton	19.0%
8	91	Barnes Aerospace	18.0%
9	37	Hindustan Aeronautics	17.2%
10	68	Teledyne Technologies	17.0%
11	43	CAE	16.7%
12	77	Kaman Aerospace	16.5%
13	20	Rockwell Collins	16.4%
14	32	Russian Helicopters	15.1%
15	58	Maxar Technologies Space Systems	14.8%
16	40	Parker Hannifin	14.7%
17	8	Safran	14.4%
18	78	Magellan Aerospace	13.9%
19	67	Pilatus	13.7%
20	7	Raytheon	13.1%



Garmin's shift up value chain has seen it compete successfully in business aviation avionics sector

10.7%

Average Top 100 operating margin\*

\*Companies for which operating profit data is available

In its annual statement, the company says its priorities are, in order: investing in its current businesses, making "accretive" acquisitions, and handing money to shareholders through dividends and stock buy-backs, with paying off debt being only the fourth most important in the current climate of low interest rates.

Garmin – which has had considerable success in moving up the value chain to compete with established players in the business aviation avionics segment – notched up impressive operating margins of almost 31%, an improvement on last time's 28.4%.

GE Aviation is one of three US-based players that record margins of more than 20%, the others being General Dynamics (Aerospace), owner of Gulfstream and Jet Aviation, and Crane, an amalgam of nine aerospace businesses. ■



GE Aviation

Six of 10 biggest businesses are based in North America, including GE Aviation

REGIONAL SPLIT

Even as market moves to Asia, US manufacturers still rule the world

The marketplace is skewing to Asia but, for now, the USA continues to dominate the aerospace manufacturing industry. Forty-six of the Top 100 companies are headquartered there, with others running their aerospace businesses largely from the country. Six of the biggest 10 companies are American, and all of the top seven except Airbus. Four of the 100 are Canadian.

Europe – for the purposes of this study, we have included Turkey, but not Israel or Russia

– is not far behind, with 33. Sonaca's takeover of US-based LMI has helped swing the balance towards Europe, although Spirit AeroSystems' absorption of ASCO will redress that next year.

Two European companies – Indra and Martin-Baker – have fallen out of the survey, while ITP was taken over by another European company, Rolls-Royce.

Asian companies – from China, India, Japan, Singapore, South Korea and Taiwan – make up 12 of the Top 100. ■

3.7%

World GDP growth

14.1%

Average Top 100 profit growth\*

\*Companies for which operating profit data is available

The Kamov co-axial Ka-32 is one of a wide range of types offered by debutant Russian Helicopters



Russian Helicopters

**NEW ENTRANTS**

## Russian Helicopters touches down in the top third

The highest placed new entrant in the Top 100 is Russian Helicopters, at 32, who we previously omitted from the survey. Founded in the late 2000s as a consolidation of Russia's state-owned rotorcraft assets; many of them, including Kamov and Mil, date back many decades, so the consolidated company is responsible for a fleet of around 8,000 helicopters flying in 100 countries.

It also claims to have around 10% of world-wide helicopter sales, with its business skewed towards the heavier end. Its products include the ubiquitous Mil Mi-8/17 – one of the most widely operated helicopters in history – the heavyweight Mi-26, and the coaxial Kamov Ka-32 multirole type, used in firefighting among other missions.

Also coming into the rankings for the first time at number 70 is AIDC, the vehicle for most of Taiwan's military and aerospace activities. The government-owned entity's business

ranges from building civil aerostructures to supplying the US-derived military aircraft used by Republic of China armed forces.

Astronics, ranked 84, offers a range of products from data systems, radomes and antennae to interiors and connectivity solutions for business aircraft. The New York state-based corporation recorded revenues of \$625 million in the latest financial year.

Just below Astronics is Kaiser Aluminum, a US producer of semi-fabricated aluminum components, including for aerospace, while US industrial group Lord returns to our Top 100 at number 98. The company estimates its aerospace sales as \$310 million, although the privately owned corporation services a number of industries, including automotive. ■

**2.9%**

Revenue growth for biggest 20 companies

**0.7%**

Revenue growth for the bottom 20 companies



DEFENCE

# F-35 gives Lockheed a boost as Boeing slips to fourth

As they did last time, the four giants of the US marketplace dominate the list of the biggest defence aerospace players. However, while Lockheed Martin, Northrop Grumman and Raytheon have enjoyed a good 2017, the broader industry's biggest company had a disappointing year in defence.

Its commercial business may be powering ahead, but Boeing has slipped from second to fourth place when it comes to selling military equipment. Its decline in defence revenues – from \$29.5 billion last time to just over \$21 billion – needs some clarification, as the company has moved 2016 revenues from both defence and commercial into its new Global Services business unit. However, like-for-like revenues are still 6.7% down on last year's survey, while its three main rivals have seen sales boosts of between 5.1% and 8%, thanks to a modest uptick in US defence spending and good export business.

### DELIVERIES

Lockheed's revenue increase was largely down to a hike in production and deliveries of the F-35, its key aircraft programme, in 2017, as well as stronger sales of tactical missiles. Meanwhile, Northrop's sales have yet to be impacted by its acquisition earlier this year of Orbital ATK.

### Top 10 by defence aerospace sales

	Company name	Defence sales \$ millions	Defence sales growth
1	Lockheed Martin	51,000	8.0%
2	Northrop Grumman	25,800	5.3%
3	Raytheon	25,300	5.1%
4	Boeing	21,000	-6.7%
5	BAE Systems	11,900	0%
6	Airbus	11,700	-7%
7	Leonardo	8,500	4%
8	L3 Technologies	7,750	1.6%
9	Honeywell	4,050	-7.4%
10	United Technologies	4,010	13.8%

64

Number of companies posting revenues of over one billion dollars

At number five, BAE Systems – which makes more than a third of its revenues from the US government and is one of the Pentagon's top 10 contractors – saw its revenues stand still.

\$40.8

Combined operating profits in billions of dollars for biggest 10 companies

Airbus defence revenues fell by 7%, even further than Boeing's. Without a big domestic customer, Toulouse's defence sales remain at little more than half of its US counterpart's. ■



Boeing's defence business ran short of fuel in 2017, with its revenues slipping by 6.7%

Boeing





## Top 100 by company name

Company	Ranking	Company	Ranking	Company	Ranking
Aernnova	75	General Electric (GE Aviation)	5	Northrop Grumman	6
Aerojet Rocketdyne	44	GKN Aerospace	29	Orbital ATK	28
AIDC	70	Harris	35	Panasonic Avionics	39
Airbus	2	Heico	56	Parker Hannifin	40
Allegheny Technologies	51	Heroux-Devtek	100	Pilatus	67
Amphenol	66	Hexcel	48	Praxair	97
Arconic	26	Hindustan Aeronautics	37	Precision Castparts	17
ASCO Industries	93	Honeywell	12	Raytheon	7
Astronics Corporation	84	Hutchinson	86	Recaro Aircraft Seating	88
AVIC	30	IHI	31	Rockwell Collins	20
BAE Systems	9	Israel Aerospace Industries	33	Rolls-Royce	10
Ball Aerospace	65	ITT Corporation	95	RUAG	62
Barnes Aerospace	91	JAMCO	83	Russian Helicopters	32
Boeing	1	Kaiser Aluminum	85	Saab	42
Bombardier	16	Kaman Aerospace	77	Safran	8
CAE	43	Kawasaki	38	Senior	69
Chemring	87	Kongsberg	76	ShinMaywa	96
Cobham	45	Korea Aerospace Industries	47	SKF	92
Constellium	71	Korean Air Aerospace Division	81	Sonaca	73
Crane Aerospace and Electronics	80	L3 Technologies	14	Spirit AeroSystems	18
Curtiss-Wright	74	Latecoere	79	ST Engineering	46
Cytec Solvay Group	64	Leonardo	11	Subaru (Fuji Heavy Industries)	60
Daher	61	Liebherr	53	Teledyne Technologies	68
Dassault Aviation	27	LISI	63	Textron	13
Diehl Aviation	52	Lockheed Martin	3	Thales	21
Ducommun	89	Lord Corporation	98	TransDigm	34
Eaton	49	Magellan Aerospace	78	Triumph Group	36
Elbit Systems	59	Marshall	99	Turkish Aerospace Industries	54
Embraer	23	Maxar Technologies Space Systems	58	United Aircraft	19
Esterline	55	Meggitt	41	United Technologies	4
FACC	72	Mitsubishi	22	Woodward	57
Figeac Aero	94	Moog	50	Zodiac	24
Garmin	90	MTU Aero Engines	25		
General Dynamics (Aerospace)	15	Nordam group	82		

## DATA SOURCE

### METHODOLOGY

Companies have been ranked for their financial year 2017 or 2017-2018. As far as possible, we have sought to obtain representative figures for aerospace turnover. Companies involved predominantly in aviation services, maintenance, repair and overhaul, and finance have been excluded.

Sectors involved with aircraft, aero engines, avionics, missiles, space and aerostructures are relatively straightforward, but telecommunications, network-centric and C4I systems and some overhaul operations have been included only where these are largely concerned with aerospace activities. Where a business's divisional structure clearly separates its aerospace activities, we have taken that figure. In other

instances, we have excluded elements of the business that are not involved in aerospace, but in some cases, where the company's revenues primarily derive from aerospace manufacturing, we have included the top-line revenue total.

Satellite services have been excluded wherever possible, as have companies and divisions that derive more than half their revenues from services such as leasing. Joint ventures have been included in the financial data.

Inter-segment sales have been excluded from operating results and profits for divisions where possible. Where that is not possible, divisional results have been presented inclusive of inter divisional sales, which may result in aerospace revenues greater than group sales.

### OPERATING RESULTS

Generally the profit (or loss) is before interest, tax and exceptional items and after deduction of depreciation. Discontinued or discontinuing operations have been included where they fall in fiscal year 2017 for that business.

### EXCHANGE RATE

An average exchange rate for the period from 1 January 2017 to 31 December 2017 has been used for all non-US companies, regardless of fiscal year definitions.

The source for the exchange rate information was the US Internal Revenue Service. The percentage annual changes in the financial figures have been given in local currency terms in order to avoid unnecessary distortions.