Robust commercial deliveries helped Boeing break through $100 billion revenues in 2018, but the Max crisis will have effect in 2019

Boeing

Golden weddings

With the 12 months since our last survey characterised by a wave of mergers, what has the impact of this consolidation been on our ranking of the global industry's biggest players?

MURDO MORRISON LONDON

Rarely since the turn of the century has there been such a flurry of merger and acquisition activity in the aerospace industry as in the past 18 months, involving companies in and outside our Top 100 ranking. Major aerospace groups have driven much of the consolidation with the coming together of United Technologies and Rockwell Collins, L3 and Harris, Northrop Grumman and Orbital, TransDigm and Esterline, and Parker Hannifin and Lord. Parker also said in July that it is to acquire privately-owned Exotic Metals for $1.56 billion.

Meanwhile, with interest rates low and aerospace continuing to provide attractive margins, private equity concerns have also been active, leading to a change in ownership of some Top 100 companies, if not in name. Turnaround specialist Melrose Capital, for instance, became the new owner of listed GKN in early 2018 after a hostile takeover in a deal worth almost $10 billion. Fellow UK firm Cobham is also to exit the London Stock Exchange after a buyout by US private equity group Advent International.

Since the start of the year, there has also been major change in a commercial aircraft sector dominated for the past two decades by the foursome of Airbus and Boeing in 120-plus seats, and Bombardier and Embraer in regional jets. Since divesting the CSeries to Airbus in 2017, Bombardier has been steadily exiting the segment, this year offloading its Q400 turboprop programme to fellow Canadian firm Longview Capital, and its CRJ family to Mitsubishi, while also putting its aerostructures division on the market. At the same time, Boeing is taking a majority stake in Embraer's civil aircraft business, which is due to be spun off into a standalone entity by the end of the year.

While some of these deals have caused movement in the middle and lower reaches of this year's Top 100, the completion of some of the more significant transactions came too late in the 2018-19 financial year to create major shifts at the upper end. The eight largest aerospace businesses by revenue in the 2018/19 financial year remain the same as they were the previous survey, with some jostling for position among the next four. Such is the gap between third placed Lockheed Martin and United Technologies in fourth that the latter's takeover of 15th-placed Rockwell Collins – signed off in late 2018 – should not lead to a change in next year's top order.

However, an even bigger proposed merger – that of Raytheon and the enlarged United Technologies, news of which emerged just before the Paris air show in June – could see the combined business overtake Lockheed with potential combined revenues of well over $60 billion. (For the purposes of this listing, we do not include the revenues of clear non-aerospace or defence divisions – in United Technologies' case, this includes its soon-to-be spun off Otis and Carrier buildings equipment arms.) In July, United Technologies chief executive Greg Hayes said the Raytheon deal would give the new company "the scale to compete anywhere" in aerospace.

COMBINED MUSCLE

The other mega-merger of the past 12 months, L3 and Harris, completed in June and created a business spanning defence equipment to pilot training services. However, their combined muscle may not be enough to push L3Harris into the top 10 next time. This year, L3 is 13th, with revenues of just over $10 billion, while Harris, at 35, notched up $3.3 billion in 2018. Italian aerospace and defence concern Leonardo, in 10th, recorded revenues of $14.4 billion. Meanwhile, sixth-placed Northrop Grumman's 2018 purchase of Orbital, which boosted revenues from half way through the financial year, helped it close the gap with GE Aviation to half a billion dollars.

The move out of commercial for Bombardier and Embraer will also affect their future standing. The Canadian company is 19th this year, with $7.3 billion revenues from its combined corporate aircraft, commercial aircraft and aerostructures units (we exclude rail). However, the loss of commercial aircraft and the possible divestment of its Belfast-based aerostructures unit will result in a smaller business next time. Likewise, the creation of Boeing Brazil – the new name for the divested entity responsible for the E-Jet family – will see Embraer, in 28th with revenues of $5 billion, roughly halve in size, although we will probably not see the effect of this until the next but one Top 100.

As has been the case since we started compiling the Top 100 in the 1990s, Boeing remains number one, and in this year's analysis – by consultancy Counterpoint Market Intelligence – the Chicago-headquartered group's revenues have topped $100 billion for the first time. This growth of 7.6% is largely down to healthy commercial aircraft deliveries, with airlines' appetite for its models showing few signs of slacking off in 2018. Boeing's profit also grew by almost 16% to $12 billion (more than the revenues of 13th placed L3). However, it remains to be seen what impact the grounding of the 737 Max will have on the 2019 figures. Boeing shareholders are bracing for the worst.

Airbus

Bombardier's business has continued to shrink after it divested the CSeries programme

8.2%

Top 100 revenue growth

20.6%

Top 100 profit growth

ROBUST DEMAND

Airbus's sales in 2018 were almost exactly three-quarters that of its US rival, at just over $75 billion. Again, ongoing problems in its defence and space business – particularly with the A400M airlifter – and sluggish sales in the offshore helicopter market meant the Toulouse-based company was reliant on strong commercial sales. Despite the cancellation of its A380 programme in January, commercial aircraft demand continued to be robust in 2018 – in particular for the A320neo family. The airliner segment made up three-quarters of revenues and well over four-fifths of profits, which leapt by almost 90% in the last financial year.

Every other business in the top 10 recorded revenue increases in 2018, with most achieving double-digit margins. Lockheed Martin notched a 13.6% margin on its $53.8 billion sales, and United Technologies just under 10% on its $36 billion. GE Aviation's margin stood at over 21% on $30.6 billion revenue, and next-placed Northrop Grumman made a 12.6% return on its revenues of £30.1 billion. While Rolls-Royce's margin of 2.9% – on revenues of $15 billion – was the lowest in the top 10, its $443 million profits represented an almost 89% rebound on the previous year. Leonardo had the second-lowest margin in the top 10 at 4.1% and saw its profitability fall.

Two companies have disappeared from the survey this year as a result of consolidation. We have mentioned Orbital and Northrop Grumman already. Safran's takeover of fellow French company Zodiac towards the end of 2018 – which added cabin interiors to a portfolio that includes engines, landing gear, nacelles and defence electronics – helped lift its 2018 revenues from $17.9 billion to $25.2 billion. However, other mergers announced in 2018, including L3 with Harris, TransDigm with Esterline, and Spirit AeroSystems with Belgium's Asco did not conclude in time to affect the 2018 ranking, and all six firms are »

Qinetiq, the diversified UK defence services organisation, is ranked at 95

Qinetiq

» listed separately. Spirit's Asco purchase still had not concluded at time of writing.

There are a number of arrivals and departures in the lower reaches of the Top 100. This is either because of financial performance, or we have decided that certain businesses are sufficiently aerospace-focused to be considered. This year we have put Rostec at number 18. The state corporation's assets include Russian Helicopters, which last year we included separately at 32, along with United Engine. Also making its Top 100 debut – at 51 – is Sierra Nevada, a private company whose interests span cybersecurity and spaceflight.

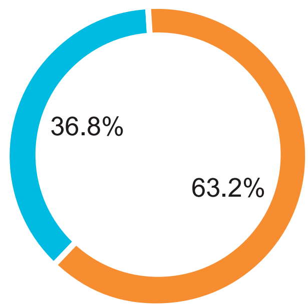
67

Number of Top 100 companies posting revenues in excess of $1 billion

While we exclude from the Top 100 businesses that make the majority of their revenues from maintenance, repair and overhaul or other services, we have judged that engine parts specialist Chromalloy is a manufacturer, and listed the US company at 73. Likewise, Qinetiq, the UK research and development house, which has diversified its business since being spun out of the Ministry of Defence in the early 2000s, comes in at 95. Martin-Baker, famous for its ejection seats, returns to the Top 100 at number 100, with revenues of just over $300 million, but Marshall and Chemring, two other UK companies, now fall outside the survey.

The point in the survey at which companies break through the $1 billion turnover mark is getting lower. Last time, 64th placed Belgian chemicals and speciality materials provider Cytec Solvay was the lowest-placed member of the billion-dollar club. This time, UK engineering firm Senior, ranked 67, squeezes into ten figures with revenues of $1,010 million. While that might be a mere hundredth of Boeing's sales, it does mean that more than two-thirds of the companies in the Top 100 are now billion-dollar-turnover businesses.

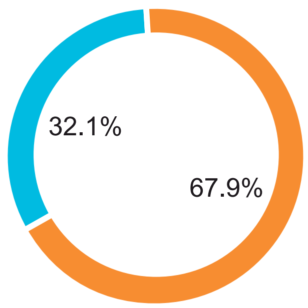
Top 20 share of top 100 sales



Source: FlightGlobal

Top 20 | The rest

Top 20 share of top 100 profits



Source: FlightGlobal

Top 20 | The rest

WANING INFLUENCE

One interesting aspect of this year's survey is that, while there is only one change among the 20 biggest companies – Rostec replacing fellow Russian group United Aircraft – their influence has waned slightly. Last time, the top 20 accounted for around 76% of overall Top 100 revenues and 82% of profits. This year those ratios are around 63% and 68% respectively. It is difficult to determine a single reason for this, but consolidation activity in the supply chain may have been a factor. Israel's Elbit Systems was among many companies boosting its turnover in 2018 with an acquisition outside the Top 100 – in its case Tucson-based avionics provider Universal.

Overall, the Top 100 companies have become substantially bigger – and more profitable. With the world's GDP rising by 3.6% during 2018, average revenue growth for the biggest 100 aerospace businesses was 8.2%, compared with just 3% the previous year. The average operating profit increase was 20.6% against 14.1% in 2017, while operating margins increased from 10.6% in the last survey to 11.3% this time. Barriers to entry in aerospace remain high, and there are consolidation pressures as OEMs increasingly look to deal with fewer suppliers, but the Top 100 suggests that the top end of aerospace compares favourably with many other industries when it comes to making a return for shareholders.

Michael Richter, managing director of aerospace and defence at investment banking group Lazard, which has been an advisor on a number of aerospace mergers and acquisitions in the past 12 months, says an availability of finance, and OEMs anxious to deal with a less-fragmented supply chain, have helped drive consolidation. He says the priority for airframers has been to ensure "fewer potential points of failure" among vendors as they ramp up. "If they have to choose between the two evils of stronger suppliers with more pricing power and a vulnerable supply chain, they would rather have the former," he says.

He admits that the grounding of the 737 Max remains a risk for Boeing and its suppliers. However, he points to the fact that merger and acquisition activity has continued among key suppliers to the programme in recent months. "It is testament to the strength of the market that it is looking beyond short to medium term issues" to the longer-term potential of aerospace businesses, he says. "If we can get past the headwinds [of the 737 Max], I can't see anything in terms of the evolving trend that is going to change." ■

Airbus

Airbus's revenues in 2018 were almost exactly three-quarters of rival airframer Boeing

Top 100 aerospace companies by revenue 2018 ($ millions)

Rank	Company name	Movement in ranking from 2017	Sales (revenue) 2018	Sales (revenue) 2017	Operating profit 2018	Operating profit 2017	Operating margin 2018	Operating margin 2017
1	Boeing	0	$101,000	$94,000	$12,000	$10,300	11.9%	11.0%
2	Airbus	0	$75,100	$63,900	$5,950	$2,890	7.9%	4.5%
3	Lockheed Martin	0	$53,800	$50,000	$7,330	$6,740	13.6%	13.5%
4	United Technologies	0	$36,030	$30,900	$3,570	$3,490	9.9%	11.3%
5	General Electric (GE Aviation)	0	$30,600	$27,000	$6,470	$5,370	21.2%	19.9%
6	Northrop Grumman	0	$30,100	$26,000	$3,780	$3,220	12.6%	12.4%
7	Raytheon	0	$27,100	$25,300	$4,540	$4,230	16.8%	16.7%
8	Safran	0	$25,200	$17,600	$3,430	$2,280	13.6%	12.9%
9	Rolls-Royce	1	$15,000	$13,000	$443	$218	2.9%	1.7%
10	Leonardo	1	$14,400	$12,700	$588	$637	4.1%	5.0%
11	Honeywell	1	$12,900	$11,600	n/a	n/a	n/a	n/a
12	BAE Systems	-3	$12,800	$13,400	n/a	n/a	n/a	n/a
13	L-3 Technologies	1	$10,200	$9,570	$1,110	$1,030	10.8%	10.8%
14	Textron	-1	$9,620	$9,840	$1,030	$857	10.7%	8.7%
15	Rockwell Collins	5	$8,670	$6,820	$1,110	$931	12.8%	13.6%
16	General Dynamics (Aerospace)	-1	$8,460	$8,130	$1,490	$1,580	17.6%	19.4%
17	Precision Castparts	0	$7,770	$7,160	n/a	n/a	n/a	n/a
18	Rostec State Corporation		$7,390	$7,660	$818	$847	11.1%	11.1%
19	Bombardier	-3	$7,320	$7,650	$227	-$144	3.1%	-1.9%
20	Spirit AeroSystems	-2	$7,220	$6,980	$843	$532	11.7%	7.6%
21	United Aircraft	-2	$7,190	$7,440	$344	$356	4.8%	4.8%
22	Thales	-1	$6,820	$6,220	$683	$614	10.0%	9.9%
23	Mitsubishi	-1	$6,140	$6,160	-$339	-$544	-5.5%	-8.8%
24	Dassault Aviation	3	$5,990	$5,280	$789	$387	13.2%	7.3%
25	Arconic	1	$5,890	$5,440	n/a	n/a	n/a	n/a
26	AVIC	4	$5,420	$4,770	$91.7	$259	1.7%	5.4%
27	MTU Aero Engines	-2	$5,390	$4,220	$731	$565	13.6%	13.4%
28	Embraer	-5	$5,070	$5,860	$35.3	$342	0.7%	5.8%
29	GKN Aerospace	0	$4,710	$4,500	$387	$219	8.2%	4.9%
30	IHI	1	$4,460	$3,980	$420	$515	9.4%	13.0%
31	Kawasaki	7	$4,290	$4,470	$294	$290	6.9%	6.5%
32	TransDigm	2	$3,810	$3,500	$1,660	$1,480	43.4%	42.2%
33	Israel Aerospace Industries	0	$3,680	$3,520	$12.0	$121.0	0.3%	3.4%
34	Triumph Group	2	$3,370	$3,200	-$275	-$466	-8.2%	-14.6%
35	Harris	0	$3,330	$3,200	n/a	n/a	n/a	n/a
36	Hindustan Aeronautics	1	$2,960	$2,860	$530	$478	17.9%	16.7%
37	Korea Aerospace Industries	10	$2,530	$1,760	$133	-$177	5.3%	-10.1%
38	Meggitt	3	$2,470	$2,170	n/a	n/a	n/a	n/a
39	CAE	4	$2,450	$2,000	$367	$336	15.0%	16.8%
40	Saab	2	$2,410	$2,210	$230	$203	9.5%	9.2%
41	Panasonic Avionics	-2	$2,360	$2,330	n/a	n/a	n/a	n/a
42	Parker Hannifin	-2	$2,320	$2,290	$398	$337	17.2%	14.7%
43	ATI (Allegheny Technologies)	8	$1,970	$1,720	n/a	n/a	n/a	n/a
44	ST Engineering	2	$1,960	$1,760	$181	$170	9.2%	9.7%
45	Hexcel	3	$1,910	$1,760	n/a	n/a	n/a	n/a
46	Eaton	3	$1,900	$1,740	$398	$332	21.0%	19.0%
47	Aerojet Rocketdyne	-3	$1,890	$1,870	$264	$178	14.0%	9.5%
48	Moog	2	$1,780	$1,650	$196	$163	11.0%	9.9%
49	Diehl Aviation	3	$1,740	$1,480	n/a	n/a	n/a	n/a
50	Cobham	-5	$1,690	$1,860	$190	$182	11.3%	9.8%

The South Korean aerospace champion's range of products includes the T-50 trainer

SALES GROWTH

Fast-climbing KAI targets spot among top five OEMs

Top placed Korea Aerospace Industries saw its sales soar by more than 34% in 2018, largely as a result of revenues from key export deals. The South Korean champion's portfolio includes aerostructures work for Airbus, Boeing and other airframers, as well as an extensive MRO offering and a series of its own military programmes. These include the FA-50 and its T-50 trainer sibling, the KT-1 light trainer, and the Surion transport helicopter. With several programmes coming to fruition and a strategy that foresees expansion in unmanned systems and avionics, KAI is nothing but ambitious, targeting a place among the world's top five aircraft manufacturers by 2030 with projected revenues of Won20tn ($16.4 billion).

ANCHORED

KAI is followed by Sonaca, a business that has expanded rapidly of late mainly as a result of acquisition, "firmly anchoring" it among the industry's top 10 aerostructures suppliers, it says. In mid-2017 it took over similarly sized US player LMI Aerospace, whose $346 million turnover led to the Belgian company more than doubling in size. This year, growth continued strongly at 32%, helped by the demand for programmes it is a supplier to, although the company admits that "concomitant ramp-ups of major platforms" in the USA caused "operational problems" and "associated pressure on margins" (the state-owned company does not release profit figures).

Third place Safran has had a knockback this year with Textron Aviation axing the Citation Hemisphere, the sole application for its Silvercrest business aviation engine, and the grounding of the Boeing 737 Max. The narrowbody is powered by the CFM International Leap, which Safran builds in partnership with GE Aviation. However, strong demand for the Leap and CFM56, together with many of Safran's other

Top 20 by sales growth

Rank by margin	Rank by sales	Company	Sales growth
1	37	KAI	34%
2	72	Sonaca	32%
3	8	Safran	32%
4	15	Rockwell Collins	27%
5	97	Heroux-Devtek	25.2%
6	83	Recaro	22%
7	81	Astronics	21.4%
8	58	Ball	20.7%
9	86	Garmin	20.4%
10	54	Heico	17.9%
11	39	CAE	17.5%
12	26	MTU	17.2%
13	52	Turkish Aerospace	17.1%
14	61	Amphenol	17%
15	4	UTC	16.8%
16	55	Woodward	16%
17	6	Northrop Grumman	15.7%
18	57	Elbit	15.6%
19	91	Figeac Aero	15.5%
20	88	Ducommun	15.2%

KAI

7%

Growth in revenue for bottom 20

9.5%

Growth in revenue for top 20

aerospace products, ranging from nacelles to landing gear, gearboxes to cabin equipment, led to an almost 32% sales growth in 2018.

Other companies that saw 20%-plus sales growth include:

- Rockwell Collins, in its last reporting year as a company in its own right;
- Canadian landing gear manufacturer Heroux-Devtek, which on top of its milestone deal to supply the Boeing 777X, also benefited from the acquisitions of Beaver in the USA and Spain's CESA;
- Recaro Aircraft Seating. The company is enjoying a spike in demand as more narrowbodies enter service;
- Astronics, which supplies a range of cabin products such as lighting and connectivity technology. ■

COMMERCIAL

Boom times for the big two, but regional manufacturers take a hit

Our table for commercial sales presents a mixed picture, with half of the businesses we assessed seeing sales slump in 2018. With almost $61 billion in commercial sales, Boeing tops the list, edging Airbus in terms of revenues, but the European company trumps its rival for sales growth, at 10.3% compared with 4.7%.

Meanwhile, the three biggest business aviation manufacturers, Gulfstream, Bombardier Business Aircraft and Textron Aviation (including its military aircraft sales – Textron does not split out revenue for its flagship Cessna brand) also enjoyed a sales boost last year.

However, the three main regional aircraft players – Bombardier, Embraer and ATR – saw revenue growth go into reverse, while the other two of the big five business aviation brands, Dassault and Embraer, also experienced tumbling sales.

With the 737 Max crisis still ahead of it, 2018 was a good year for Boeing as well as Airbus, with revenues starting to come in strongly for their re-engined narrowbody families. Boeing also benefited from a total of 145 787 deliveries in 2018, while Airbus was shipping A350s and A330ceos – if not too many A330neos or A380s.

Bombardier's regional aircraft sales declined by almost a quarter as it became clearer that the Canadian manufacturer planned to exit the segment – it has since divested both its QSeries and its CRJ ranges. Embraer's revenues fell by almost 15% as deliveries of its first-generation E-Jets slumped ahead of the introduction of the E2 range. ATR, which has come to dominate the turboprop sub-segment, saw its sales fall 6.4%.

With their premium ranges, Gulfstream and Bombardier Business Aircraft are now the third and fourth biggest revenue-earners in the commercial market – their sales for 2018 stood at $8.5 billion and $5 billion respectively. Textron and Dassault both sell more in dollar terms than the three main regional aircraft players. ■

Top 10 by commercial revenues

	Company name	Commercial sales $ millions	Commercial sales growth
1	Boeing	60,700	4.7%
2	Airbus	56,600	10.3%
3	Bombardier (regional)	1,760	-24.2%
4	Embraer (regional)	2,360	-14.9%
5	ATR	1,770	-6.4%
6	Gulfstream	8,460	4%
7	Bombardier (business aviation}	5,000	1.2%
8	Textron (including military)	4,970	6.1%
9	Dassault Falcon	3,060	-13.4%
10	Embraer (business aviation)	1,100	-13.8%

Airbus/H Gousse/Master films

A350 deliveries contributed to a healthy increase in commercial revenues for Airbus

OPERATING MARGIN

TransDigm keeps profiting from acquisitive strategy

As was the case last year and in our 2017 listing, aerospace and defence holding company TransDigm and avionics firm Garmin head our ranking of top 20 operating margins, with returns of 43.4% and 33.9%, respectively.

Cleveland, Ohio-headquartered TransDigm is one of the most acquisitive firms in the business, and by some degree remains the most profitable among those for whom we are able to make a calculation of operating margins. Established in 1993 as TD Holding and incorporated on the New York Stock Exchange in 2006, TransDigm has become a grouping of about 35 subsidiaries, all of them trading under their original brand and overseen with a light touch by a head office that behaves almost like a private equity owner. It supplies products from acutators and controls to pumps, batteries, cockpit displays, seatbelts and cargo loading systems.

Its latest big acquisition, earlier this year, was Esterline (still listed separately for the purposes of our Top 100 ranking), a company that specialises in advanced materials, avionics, and sensors and systems. Additions to its portfolio in 2018 included Extant and Skandia.

Earlier this year, TransDigm stood accused of making excess profits on a number of US Department of Defense contracts, because several of its subsidiaries were sole-source suppliers of a particular component on certain programmes.

Aviation makes up 18% of Garmin's revenues – the company is also a major player in the fitness, outdoor and automotive markets – but 26% of its operating income. The company says that 2018 was "another remarkable year of revenue and operating income growth driven by strong performance" in the aviation and other segments.

Family-owned Martin-Baker, making a return to the Top 100, is in third place, and has previously featured among the most profitable companies. Its ejection seats may have competitors, but the strength of the UK manufacturer's brand and reputation mean they are a specialised product that commands a premium.

Fourth placed Crane Aerospace is another grouping of legacy brands, including Eldec, Lear Romec, Signal Technology, Keltec, and Interpoint, that compete in the sensing, power, fuel and braking systems markets. Part of the industrial group Crane, the aerospace business recorded operating margins of 22% in 2018. ■

Top 20 by operating margin

Rank by margin	Rank by sales	Company	Operating margin
1	32	TransDigm	43.4%
2	86	Garmin	33.9%
3	100	Martin-Baker	25%
4	79	Crane	22%
5	5	GE Aviation	21.2%
6	46	Eaton	21%
7	92	Barnes	20.2%
8	55	Woodward	19.4%
9	36	Hindustan Aeronautics	17.9%
10	16	General Dynamics	17.6%
11	42	Parker	17.2%
12	68	Teledyne	16.9%
13	7	Raytheon	16.8%
14	39	CAE	15%
15	64	Pilatus	14.4%
16	47	Aerojet Rocketdyne	14%
17	3	Lockheed Martin	13.6%
18	8	Safran	13.6%
19	26	MTU	13.6%
20	24	Dassault	13.2%

11.3% Average Top 100 operating margin

12.8% Increase in top 10 operating profits to a total of $48.1 billion

Gary Dawson/Shutterstock

Up and away: ejection seat specialist Martin-Baker recorded margins of 25%

DEFENCE

Military suppliers make significant advances in 2018

It has been a good year for the world's biggest aerospace defence contractors, with nine of the top 10 recording sales growth for their defence activities and three increasing their revenues by more than 15%. United Technologies saw its defence sales rise by more than a quarter in 2018 – with the completion of the acquisition of Rockwell Collins late in the year making little impact.

Total sales of the 10 largest defence businesses was just under $187 billion in 2018, up $15.4 billion on the previous survey.

Top 10 by defence aerospace sales

	Company name	Defence sales $ millions	Defence sales growth
1	Lockheed Martin	53,800	7.6%
2	Northrop Grumman	30,100	15.7%
3	Raytheon	27,100	6.7%
4	Boeing	23,200	12.8%
5	Airbus	11,100	4.4%
6	BAE Systems	8,710	-9.3%
7	Leonardo	8,320	4.3%
8	L3	8,250	6.5%
9	UTC	5,000	25.8%
10	Honeywell	4,670	15.1%

SPLIT REVENUES

For the purposes of this sub-ranking we have split – as far as is possible – sales from the defence sector from revenues derived from commercial and other markets. Lockheed Martin, a company almost entirely devoted to defence, continues to top the list with defence sales of $53.8 billion, followed by Northrop Grumman and Raytheon – two other suppliers with essentially defence-only portfolios. Of the two, Northrop had the strongest bounce in 2018.

Boeing, number one in the main ranking, comes in at three with defence revenues of $23 billion – just under a quarter of its entire business – followed by commercial aircraft rival Airbus, which is less of a direct competitor in Boeing's key defence markets. Boeing, largely dependent on a resurgent domestic customer base, enjoyed a 12.8% rise in defence revenues, while Airbus's sales had a 4.4% uplift, despite problems with the A400M programme.

The two other European companies in the top 10 – BAE Systems and Leonardo – had less than impressive years. The Italian company did manage a 4.3% uplift in revenues – the second lowest in the top 10 – but its UK counterpart suffered a 9.3% drop in defence sales, alongside an even larger, 11.3% decline, in its overall turnover. ■

Lockheed Martin, behind the F-35 and a host of other defence products, led the field

Crown Copyright

Top 100 by company name

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

DATA SOURCE

METHODOLOGY

Companies have been ranked for their financial year 2018 or 2018-19. 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 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 whenever 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 divisional sales, which may result in aerospace revenues greater than group sales.

When looking at all companies, we have revisited our assumptions on what should be included as aerospace sales, and in some cases we have changed our assumptions. Where we have done this, we have used the same assumptions for 2017 and 2018.

In some companies that report the proportion of their sales which are aerospace, the aerospace sales are spread across business units, which do business across a number of sectors, of which aerospace is just one. In such cases, it is not possible to give a profit figure which corresponds to aerospace sales.

Five companies in this year's survey do not produce any estimates for aerospace sales, which are in the public domain. We have included them because they are sizeable and important companies, and we have used our industry knowledge and best estimates to arrive at estimated sales figures.

- Chromalloy is part of Sequa Corporation, which is owned by Carlyle.
- Hutchinson is a subsidiary of French oil company Total. In the aerospace sector, it is a significant supplier of equipment across airframes, engines and cabin systems.
- Nordam, a private US company, is a major supplier of nacelles, transparencies and business jet interiors.
- Precision Castparts, a US company that is owned by Berkshire Hathaway.
- Sierra Nevada, a private US corporation that has a range of businesses in space systems, avionics and cybersecurity.

Two Russian companies, United Aircraft and Rostec, had not released their 2018 results at time of going to press so we have assumed the same results in 2017 in the local currency. However, due to currency movement these companies are showing sales increases in dollar terms.

The numbers for AVIC are different from last year's. This year we have used the sum of the figures for AVIC Aircraft and Jiangxi Hongdu Aviation Industry, rather than AVIC International. We believe that this combination gives a better representation of AVIC's aerospace 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 2018 for that business.

EXCHANGE RATES

An average exchange rate for the period 1 January to 31 December 2018 as 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. To eliminate exchange rates effects, we have calculated percentage increase in revenues and profits for companies in local currencies.