

RED ALERT THE REAL RISKS OF FLYING WITH THE RED ARROWS BY PETE COLLINS

CHINOOK BOOST Latest contract will take UK's fleet of transport helicopter to 60 by middle of decade 22

firm to launch corporate

version of Superjet 25





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After the sharp downturn of 2009, profits bounced back in 2010, with Boeing and EADS maintaining clear leadership of our Top 100 ranking of aerospace manufacturers as civil demand overcame defence cutbacks to pull the industry out of recession

DAN THISDELL LONDON

lobal financial markets are looking fragile. Oil is priced stubbornly high. Major world currencies are under pressure. Nobody who worried through the summer of 2008 - those phoney war days before Lehman Brothers fell and the financial crisis sucked global economies into the steepest downturn since 1929 – really needs to be asked whether it all sounds familiar. Nor do they need to be reminded of the agony of 2009, when aerospace industry revenue defied ex-

sharply, by more than 17%. Summing up 2009, and also in defiance of expectations, Airbus and Boeing delivered a record 979 airliners but saw orders plunge to just 413, from a whacking 1,439 chalked up in 2008.

But while financial markets, and thus the real economy, are keeping fingers crossed this summer, it's nice to be reminded that 2010 was, for aerospace, a year of buoyant rebound.

As the latest Flight International Top 100 survey, compiled in association with PwC, shows, revenue grew by a healthy 2%.

pectations to hold firm - but profits dropped | of 2006-2007, and even less than a third of the growth in 2008, despite its horrific fourth quar-ter. And the 2010 aerospace industry growth didn't keep pace with global gross domestic profit, which bounced back from a 1% fall in 2009 to gain 5% last year, as Western economies rebounded and key developing regions continued to power ahead.

But on the profit front, 16% growth in 2010 nearly reversed 2009's 17% decline. And again standing as a quick summary of the industry's year – Airbus and Boeing fell just a handful of deliveries short of the all-time high That's far from the double-digit growth days set in 2009, while net orders surged back into

four figures, at 1,104 – enough to push their joint backlog to within sight of 7,000 aircraft.

REVENUE GROWTH

Over the year, most of the Top 100 companies enjoyed revenue growth, with a tail of about 30 companies experiencing sales decline.

Expansion by the fastest-growing firms far outpaced backward movement by those at the tail end of the rankings.

The Top 20 companies still dominate the Top 100, accounting for 79% of both revenues and profits. In 2010, there was just one new entry into that Top 20, as strong revenue

growth pulled Dassault Aviation up from 23rd in 2009 to 20th place, bumping out Embraer, which closed 2010 in 22nd place, and has seen revenue fall every year since 2007. Mitsubishi held on in 21st position.

At the top, Boeing kept the crown it regained from Airbus parent EADS in 2009 - though EADS closed the revenue gap a bit in this battle of titans.

The pair remain far out in front by revenue, nearly half again bigger than third place Lockheed Martin, and about twice the size of fourth place General Dynamics. In the defence sector, growth is

In 2010, there was just one

Dassault Aviation up from

23rd in 2009 to 20th place

new entry into the Top 20, as

strong revenue growth pulled

running well below historic levels. PwC assistant director, strategy, Anna Sargeant says defence-oriented companies are reassessing future priorities. In a sector that is seeing spending pressure. Lockheed Martin nevertheless managed 7.2% revenue growth, to take the top slot from Boeing, which dropped back to second place. Another company to watch is Thales, which has been seen as an underperformer, but is undergoing a restructuring; the company moved from 10th place to 8th, despite a decline in revenue.

North America and Europe continue to dominate the Top 100, though Asia is growing

The aero engines sector was also one where growth is small, by historic standards. Rolls-Royce's 7.4% revenue growth far outpaced its peers.

Geographically, North America and Europe continue to dominate the Top 100 by revenue and number of companies, though Asia is growing. However, Sargeant points out that neither Chinese nor Russian companies feature in the Top 100 - their financial data is either unavailable or incomplete - but PwC hopes to overcome this hurdle in future.

ACOUSITIONS

In the background, merger and acquisition activity also picked up sharply last year, after falling into a trough as the financial crisis started to bite. Separate figures from PwC show 2010 featuring not only a dramatic bounceback in the number and value of buyout and merger deals, but the return of \$50 million-plus deals.

Total deal value nearly doubled year-on-year. from \$10.9 billion in 2009 to \$20.2 billion in 2010. As PwC's London-based global aerospace and defence practice leader, Neil Hampson, points out, the resurgence of merger and acquisition activity highlights the powerful trends driving the aerospace industry in 2010 - notably the fact that commercial aerospace recovered from the recession faster and stronger than most analysts predicted.

This was also while looking to respond to new competitors and capitalising on a growing market and a changing landscape, as the customer base shifts toward the Asia-Pacific region. The largest revenue growth in the Top 100 was achieved by Triumph, due to its acquisition of the remainder of Vought Aircraft in June 2010.

United Technologies, for example, made some \$3 billion worth of acquisitions in 2010, including a \$1.8 billion purchase of GE Security.

Drill down into the Flight International Top 100 online at flightglobal.com/top100 or see htglobal.com/pwcdataexplore

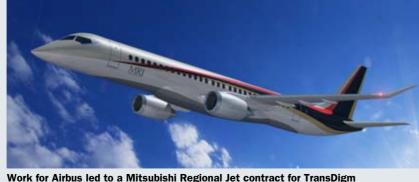
A SUM OF MANY PARTS

Sikorsky CH-53 is one TransDigm destination

30 September. The assets long-term, and that its acquisipicked up were valve maker tion policy would continue. Dukes Aerospace, sensor spe-Among 2010's highlights were cialist Semco Instruments, development work on the the actuators business of Airbus A380 and A350 cockpit Teleflex and, largest of all, security systems, which in turn McKechnie Aerospace, a holdled to a contract award for the ing company consisting of sevcockpit security door module en major operating units that for the Mitsubishi Regional Jet. primarily sell proprietary engi-The company also completed development work on the digital audio system and several other components for the TransDigm fold in a \$1.27 Boeing 787.

In the military sector, the company won contracts to enhance the capabilities or exmarket research tells us there tend the operational life of several helicopter types, including the Boeing CH-47 Chinook and Sikorsky CH-53.

In the fixed-wing sector, TransDigm won work on the Boeing P-8A Poseidon mari-Aero revenues \$828m time patrol aircraft and the Northrop Grumman RQ-4 **Operating margin** 43.8% Global Hawk. TransDigm believes its momentum will continue **CEO** Nicholas Howley through 2011.



neered components.

McKechnie joined the

In its annual report,

TransDigm notes that "our

is no shortage of good pros-

pects" in both the near and

AT A GLANCE

Top 100 rank 64

HQ Cleveland, Ohio

Sales growth 8.7%

Employees 2,400

ROCE 14.2%

billion deal

PROFILE TRANSDIGM ALAN DRON

TRANSDIGM GROUP might not

be an aerospace name that

resonates, but the manufac-

turer is headed for billion-dollar

annual turnover via a strategy

of making small components

that a passenger never consid-

ers, but are nonetheless vital

in getting an aircraft to func-

tors, pumps and valves.

product range rolls on.

electric motors, audio svs-

tems, latches and locks - the

Cleveland, Ohio, US-based TransDigm has been stealthily

climbing the Top 100 for sev-

eral years - from 72 in 2008

latest rankings, with sales of

Delving into the product

range gives clues as to why:

TransDigm claims more than

95% of its products as propri-

etary items to which it owns

the design. About 60% of its

ket sales: even if orders for

both the civil and military air-

craft sectors were to slow si-

squadrons would still have to

keep their existing equipment

in the air. As an added benefit.

notes TransDigm, aftermarket

revenues historically produce

looked to acquisitions to in-

crease revenues, and 2010

was no exception. The firm

calendar year - two beyond

bought four companies in the

its fiscal year, which ended on

TransDigm has traditionally

a higher gross margin.

multaneously, airlines and

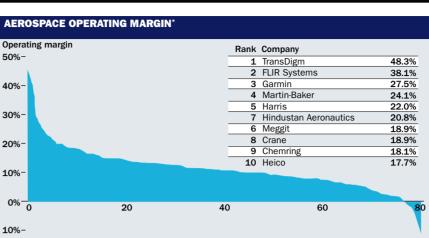
revenue comes from aftermar-

to 69 in 2009 and 64 in the

\$828 million in 2010.

tion. Electro-mechanical actua-





NOTE: *Availabe for 80 companies. SOURCE: PwC

Sector Rank 2010	Sector Rank 2009	Company	Division	Sales 2010 (\$m)	Sales 2009 (\$m)
1	1	General Electric	Aircraft Engines (excl. Smiths est.)	15,680	15,615
2	2	United Technologies	Engines (Pratt & Whitney)	12,935	12,392
3	3	Rolls-Royce	Civil Aerospace and Defence	10,875	10,124
4	4	Safran	Propulsion (Air & Space)	7,424	7,888
5	5	Honeywell*	Aerospace (estimates)	5,287	5,065
6	6	MTU		3,586	3,630
7	7	IHI	Aero-Engines & Space Operations	3,064	2,957
8	8	Avio	Aeroengines and Avioservice	1,943	1,963
9	9	Volvo	Aero	1,069	1,020
10	10	ITP		640	666
TOTAL				62,504	61,321



EADS is in the frav with the Eurofighter

DEFENCE AEROSPACE

Sector Rank 2010	Sector Rank 2009	Company	Division	Sales 2010 (\$m)	Sales 2009 (\$m)
1	2	Lockheed Martin	Includes aeronautics and electronics	27,598	25,733
2	1	Boeing	Includes 85% of Boeing Defense, Space & Security	27,152	28,612
3	3	Northrop Grumman	Excludes shipbuilding and 40% of aerospace (space estimate)	23,674	23,374
4	4	BAE Systems	Excludes Land and Armament Systems	23,651	21,348
5	5	Raytheon	Excluding intelligence and info systems and estimated space revenues (\$1000m)	21,426	20,677
6	6	Finmeccanica	Excludes 34% aeronautics; 15% helicopters, space	17,616	17,540
7	7	EADS	Excludes Airbus Commercial, space and 50% Eurocopter	16,218	15,305
8	10	Thales	Defence and security	9,955	10,418
9	8	United Technologies	80% Flight Systems (Sikorsky, Hamilton Sundstrand)	9,834	9,478
10	9	L-3	Includes 71% sales to DoD of which 75% estimated to be aerospace related	8,350	8,315
11	11	Honeywell	US government sales	4,354	4,288
12	12	Textron	Bell Military and Textron Systems	3,979	3,546
13	13	Israel Aerospace Industries (IAI)		3,148	2,881
14	14	Dassault Aviation	Defence division	1,270	1,364
TOTAL				198,225	192,879
SOURCE: PwC					



Narrowbody production rates are key to many firms' sales

TOP 10	SALES	BY GROWTH		COMMERCIA	L AIRCRAFT			
Rank by growth %		Company	Growth %	Sector Rank 2010	Sector Rank 2009	Company	Sales 2010 (\$m)	Sales 2009 (\$m)
1	33	Triumph	124.4%	1	1	Airbus Commercial (excl ATR)	36,659	36,668
2	51	Kongsberg	37.6%	2	2	Boeing	31,834	34,051
3	90	Heroux Devtek	23.8%	3	3	Bombardier	8,614	9,357
4	36	Hindustan Aeronautics	21.2%	4	4	Gulfstream	5,299	5,171
5	98	Terma	21.1%	5	5	Dassault Aviation	4,276	3,393
6	67	Amphenol	20.5%	6	6	Embraer	2,889	3,382
7	28	Precision Castparts	19.4%	7	8	Hawker Beechcraft	2,805	3,199
8	48	CAE	18.2%	8	7	Cessna	2,563	3,320
9	95	Martin-Baker	17.5%	9	9	ATR	1,350	1,400
10	62	Chemring	17.3%	TOTAL			96,289	99,940
SOURCE: P	wC			SOURCE: PwC				

PROFILE KOREA AEROSPACE INDUSTRIES GREG WALDRON EAGLES KEEP REVENUES SOARING FOR KAI

KOREA AEROSPACE Industries (KAI) moved up to 56th position from 63rd in the 2009 rankings. In 2010 both operating profit and margin more than doubled. to \$106 million and 9.5%, from \$44 million and 4.6% in 2009.

Korea's dominant aerospace player attributes its strong operating numbers to a number of factors. Foremost among these is

increased revenue from full-scale production of the T-50 Golden Eagle advanced jet trainer and its T/A-50 attack variant, as well as production of the KT-1T basic trainer for the Turkish air force. The company said these

ing to lower production costs as well as an inprogrammes helped revenue grow to \$1 billion in 2010 from \$954 million in commercial aircraft. The 2009. "KAI has continuously tried to improve the

management of our busi-787 programmes. It proness since the company's duces the wing rib for the founding in 2000," says A350, and the wing box for KAI. "We believe our efforts the 787. have started to pay off, lead-"Currently the ratio of production of military to civilian projects is 60-40, but we hope to change this crease in efficiency." In the coming years, KAI hopes to to 50-50 in the near future," place a greater emphasis says KAI. In 2011, the comon producing systems for pany has scored a major coup with the first internacompany is involved in both tional sale of the T-50, with the Airbus A350 and Boeing | Indonesia committing to 16

KAI's T-50 Golden Eagle is bringing in a strong revenue stream for the Korean company

aircraft. The type is also involved in competitions in Poland and Israel. The aircraft, which was co-developed with Lockheed Martin, will be a contender in the USA T-X competition to replace the Northrop T-38 Talon. Long term, the company says the market for advanced jet trainers is 3,300 over the next 20 years, and it hopes to get a 30% share of this.

AT A GLANCE

- **Top 100 rank** 56 **HQ** Seoul, South Korea
- Aero revenues \$1,112m
- Sales growth 16.6% Operating margin
- 9.5%
- **ROCE** 12.6%
- **Employees** 2,950
- **CEO** Kim Hong-Kyung

Aerospace into the Top 100, Circor Aerospace's existing taking the final place in range of landing gear and acthe rankings. tuation products, such as com-Headquartered in Corona. plete landing gear for the California, but with operating Boeing CH-47 Chinook heavy locations spread over four contransport helicopter. Last year,

BUILDING THROUGH ACOUISITIONS

PROFILE CIRCOR ALAN DRON

A COMBINATION of an acquisi-

tive nature and close attention

to lean manufacturing proc-

esses has brought Circor

controls (16%).

core product line-up."

Among acquisitions that

began to contribute to the com-

pany's bottom line in 2010 was

the former Castle Precision, of

Sylmar, California, which manu-

factures landing-gear compo-

nents and subsystems and

provides maintenance, repair

and overhaul (MRO) services to

tinents, the company's activi-Circor achieved the first stage ties in 2010 could be broken of integrating its landing gear down into three main categomodel line into production. ries - fluid and pneumatic con-Circor's operations in this trols (50%), landing gears field began with MRO activities (34%) and electromechanical on the CH-47's landing gear. Its streamlined process in this Although it obviously aims to field impressed Boeing and the stimulate organic production, US Army sufficiently that it was acquisition is "core to our busigiven the opportunity to move ness system", the company from maintaining and overhaulsays. "We prefer to acquire a ing the gear to manufacturing company that fits within our

AT A GLANCE **Top 100 rank** 100 **HQ** Corona, California

Aero revenues \$119m **Sales growth** 4.9% Operating margin 13% **ROCE** 3.9% **Employees** 2,950

Group VP Michael Dill



Circor's business centres on landing gear and hydraulics

both the commercial and miliit. Work also began to accelertary aircraft markets. Its manuate on design and developfacturing capabilities and ment of speed sensing and product lines complemented control instruments such as landing gear wheel tachometers for Airbus's A350 XWB. which it is developing under contract to Messier-Bugatti-Dowty. The A350 XWB also yielded contracts to design and develop the new airliner's landing gear door actuators and hydraulic control manifolds. Circor's French operations were also bolstered last year by the merging of the ADN (Ateliers de Navarre) facility into Circor Bodet. ADN has expertise in AC and DC motors.

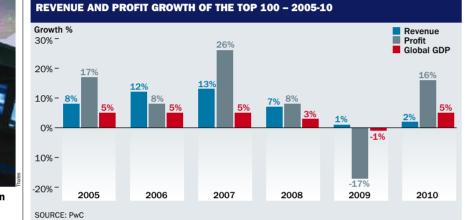
> plus stator, rotor and solenoid and bobbin assembly. The company's European activities are bolstered by its Moroccan facility in the Tangier free-trade zone – Circor Maroc (formerly Atlas Productions) which specialises in low-cost manufacturing of aerospace components, proximity to the European market, plus freetrade agreements with the European Union and USA.



Both military and civilian aerospace manufacturing has seen a continuing if slow - growth as 2011 goes on







The commercial aircraft sector has been characterised by volatility since the 2007-07 market peak

PROFILE PRECISION CASTPARTS ALAN DRON **CASTING FOR ROUTES TO RECOVERY**

"FOR US. calendar 2010 really saw the beginnings of the recovery in our aerospace business," says Precision Castparts' director of communications Dwight Weber.

Portland, Oregon-based Precision makes a wide range of complex castings, forgings and fasteners for the aerospace industry, with many of those products ending up in powerplants on Boeing, Airbus, Bombardier and Embraer aircraft.

"We're like a big job shop. We make parts to customers' design specs," says Weber. Precision felt the effect of the global economic downturn significantly. In contrast to early 2008, when its ultimate major customers – Boeing and Airbus

– were anticipating a 10-

15% increase in output in 2009-10, the combination of the 2008 Boeing machinists' strike and the recession took their toll. "The question turned from by how much Boeing

and Airbus were going to increase their rates to whether they would be able to maintain them." In fact, those rates were indeed maintained, but with the supply chain full of mate-AT A GLANCE

Top 100 rank 28 **HQ** Portland, Oregon Aero revenues \$3,572m **Sales growth** 19.4%

Operating margin 24.2% **ROCE** 18.8% **Employees** 18,308 **CEO** Mark Donegan

rials. Precision had to rein in production to adjust to reduced demand. "From the aerospace side of the business, in 2010 we began to see a recovery in our casting and forging businesses because eventually that inventory was depleted." On the fasteners side,

demand remained low because one major distributor of Precision's products bought a competitor, resulting in a continuing surplus of parts. Despite the lengthy process of recovery, Precision Castparts rose from 32nd to 28th in 2010's Top 100.

Like many companies, it used the recession to look closely at costs. The workforce was trimmed and better use was made of remaining, highly skilled personnel. Productivity in-

creased "markedly" as a result. savs Weber.

their facilities."

tions: its products are companies are able to of its processes are for military aircraft, and thus non-exportable.

having them work out a new cost structure in each of have the added problem of excessive competition, particularly from low-cost nasufficiently complex that few

"In our forgings business, where 60% of our cost is metal, we concentrated on getting better yields and better reverts [shavings and other waste that can be remelted]. Fasteners had never been through a downturn with us before, as we acquired the main business in 2003, so we engaged in Precision at least did not

produce them, while many

Despite steady Boeing output, Precision was hit hard by the downturn

PROFILE DIEHL ALAN DRON FLUSHED WITH SUCCESS

DESPITE WHAT it described as only "restrained growth" Diehl's Aerosystems division raced up the Top 100 rankings in 2010, rising from 93 to 69. The rise was the result both of organic growth and the purchase from Airbus. early in 2010, of Hamburgbased Dasell Cabin Interior. which designs, manufactures and overhauls cabin interior components - particularly lavatories. Perhaps Dasell's most prestigious current programme is producing the onboard shower spas for first-class passengers on the Airbus A380. Dasell joined Diehl Aircabin, which makes cabin modules such as crew rest compartments and Diehl Aerospace, which designs and manufactures avionics and lighting systems for civil and military

aircraft. Both latter divisions are joint ventures between Diehl and Thales. Although Dasell became the smallest constituent of Diehl Aerosystems, it helped the division's sales to rise to €542 million (\$719 million). from €514 million. Without the acquisition sales would have dipped. because of a postponement in the A380 programme.

AT A GLANCE **Top 100 rank** 69 **HQ** Überlingen, Germany Aero revenues \$718m **Sales growth** 5.4% Operating margin N/A ROCE N/A **Employees** 2,978 **CEO** Rainer von ceived a fillip when it Borstel achieved Design

Dasell's business complemented the existing Aerosystems product portfolio without any overlapping, strengthening the division's capabilities of complete aircraft cabin systems. The division reported that general development of the aviation sector had been "very positive", with the recession left behind and the commercial sector galleys, crew rest compartresuming the role of growth

driver after corporate sales had been largely stabilised through the recession by defence earnings. With Boeing and Airbus having increased order backlogs to almost 3,500 apiece, Diehl Aerosystems' production facilities were fully utilised, and will continue to be for the next few years.

Diehl Aircabin also re-

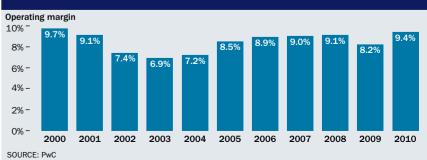
Organisation Approval from the European Aviation Safety Agency. This enabled it to develop major changes on components and modules of commercial aircraft independently, then submit them for approval by the regulatory authorities. This capability covers development of components for aircraft cabin interiors.

ments and environmental systems for commercial aircraft. The political decision to proceed with the Airbus Military A400M transport aircraft was further good news. Throughout 2010, however, development activities at Aerosystems were dominated by the Airbus A350 XWB, which attracted considerable project-specific investment.

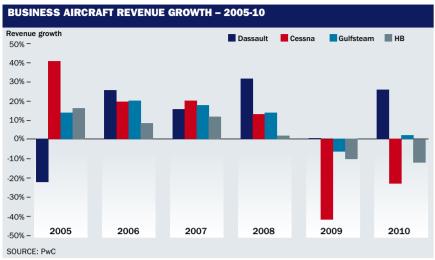


TOP PERFORMERS BY OPERATING MARGIN les (2010) (2010 1 1 64 TransDigm 828 43.8% 44.0% 2 71 FLIR Systems 661 26.1% 30.3% 2 3 4 28 Precision Castparts 3.572 24.2% 26.1% 4 6 95 Martin-Baker 275 24.1% 22.6% 263 5 3 96 Garmin 23.7% 26.7% 5 2,843 23.5% 36 Hindustan 20.8% Aeronautics 9 19.7% 17.3% 67 Amphenol 782 8 44 1.794 18.9% 20.2% Meggitt 8 62 922 18.1% 21.4% 9 7 Chemring 10 10 75 Heico 617 17.7% 16.4% SOURCE: PwC

AVERAGE AEROSPACE MARGIN FOR TOP 100 - 2000-10



flightglobal.com



AEROSPACE REVENUE GROWTH (LOCAL CURRENCIES)

130%-	Top 10 Bank) Company		Bottom Bank	1 10 Company	
120% -		Triumph	124.4%		SKF	-22.5%
100% -		Kongsberg	32.1%		Indra	-12.9%
90%-		Terma	27.2%	3	Hawker Beechcraft	-12.3%
	4	Dassault Aviation	22.4%	4	Fuji Heavy Industries	-11.2%
80% -	5	Amphenol	20.5%	5	Bombardier	-7.9%
70% –	6	Precision Castparts	19.4%	6	Magellan Aerospace	-7.9%
60% -	7	Martin-Baker	18.7%	7	Parker Hannifin	-7.4%
50% -	8	Chemring	18.5%	8	LISI	-7.3%
50%-	9	Hampson Industries	16.8%	9	Boeing	-5.8%
40% -	10	Loral Space & Communications	s 16.7%	10	Elbit Systems	-5.7%
30% -						
20%-						
10%-						
0%—						
-10% -						
-20% -						
SOURCE: F	PwC					

\$bn 70 –	Rank Company 2010 09	Sales 2010 (\$bn)	Rank Company 2010 09	Sales 2010 (\$bn)
	1 1 Boeing	64,306	11 11 L-3 Communications	15,680
	2 2 EADS	60,608	12 15 Thales	13,190
0 – 0	3 3 Lockheed Martin	45,803	13 12 Safran	12,821
	4 4 General Dynamics	32,466	14 14 Rolls-Royce	10,875
0 –	5 5 Northrop Grumman	28,038	15 13 Honeywell	10,683
<i>,</i> –	6 7 United Technologies	25,227	16 16 Bombardier	8,614
	7 6 Raytheon	25,183	17 17 Textron	7,783
0 –	8 8 BAE Systems	23,651	18 18 Goodrich	6,967
	9 9 Finmeccanica	20,831	19 19 ITT	6,228
	10 10 General Electric	15,680	20 23 Dassault Aviation	5,547
) – (

Company	Compan 2010	y ranking 2009
Aernnova	82	-
Aeroflex	73	78
Alcoa	34	31
Alliant Techsystems	26	22
Amphenol	67	74
Asco	93	92
Avio	39	37
B/E Aerospace	42	41
BAE Systems	8	8
Ball	70	71
BBA Group	43	46
Boeing	1	1
Bombardier	16	16
CAE	48	50
Chemring	62	68
Circor International	100	
Cobham	32	33
Crane	78	79
Curtiss-Wright	81	88
Dassault Aviation	20	23
Denel	92	95
Diehl Aerosystems	69	93
•	94	93
Doncasters		
Ducommun	88	89
EADS	2	2
Eaton	49	47
Elbit Systems	38	36
Embraer	22	20
Esterline	50	49
Finmeccanica	9	9
Firth Rixson	79	86
FLIR Systems	71	73
Fuji Heavy Industries	61	58
Garmin	96	98
GenCorp	63	67
General Dynamics	4	4
General Electric	10	10
GKN	41	39
Goodrich	18	18
Hampson Industries	91	96
Harris	23	24
Hawker Beechcraft	37	29
Heico	75	81
Heroux Devtek	90	97
Hexcel	60	65
Hindustan Aeronautics	36	38
Honeywell	15	13
Indra	66	61
Ishikawajima-Harima	31	34
Israel Aerospace Industries	30	35
	50	55

TOD 100 BY COMPANY A

Company	Compa 2010	ny rankina 2009
π	19	19
JAMCO	84	90
Kaman	85	83
Kawasaki Heavy Industries	40	40
Kongsberg	51	54
Korea Aerospace Industries	56	63
L-3 Communications	11	11
Ladish	89	91
Latecoere	76	76
LISI	86	87
Lockheed Martin	3	3
Loral Space & Comms	54	59
Magellan Aerospace	77	77
Magenan Aerospace	95	99
Martin-Baker	44	44
Mitsubishi Heavy Industries	21	21
Moog	58	62
	27	27
MTU Aero Engines	5	5
Northrop Grumman	-	-
Orbital Sciences	53	53
Panasonic Barless Hannifin	55	55
Parker Hannifin	45	42
Pilatus	72	80
Precision Castparts	28	32
Raytheon	7	6
Rockwell Collins	24	25
Rolls-Royce	14	14
RUAG	46	48
Saab	29	28
Safran	13	12
Senior	80	84
Singapore Technologies Eng	52	52
SKF	87	82
Sonaca	97	-
Spirit AeroSystems	25	26
Stork	65	66
Teledyne Technologies	47	45
Teleflex	99	-
Terma	98	100
Textron	17	17
Thales	12	15
TransDigm	64	69
Triumph	33	51
Ultra Electronics	57	57
Umeco	83	75
United Technologies	6	7
Volvo	59	56
Woodward Governor	68	70

PROFILE SONACA ALAN DRON **BATTLING BACK FROM THE BRINK**

TWO YEARS in the doldrums A350 XWB, for which it is finally ended for Sonaca in designing and manufacturing 2010. The recovering aerothe slats. space market began to feed through to the Belgian comtinues through Dassault, for which it provides slats and pany and its own recovery profixed wing leading edges for gramme began to bear fruit. Business volume grew by the Falcon 7X. 15% – better than forecast. although still a substantial lantic component to its work, 23% down compared with producing not only slats in 2008's pre-recession boom. Brazil but also fuselage centre And despite encouraging section and keel beams for factors such as an 11% inthe Embraer E 170/190 famcrease in operating income ily, plus the rear and centre and a 12% rise in productivity fuselage for the ERJ/Legacy there was still a loss – albeit range. Embraer's great rival in reduced compared with the regional market, Canada's 2009 – of €15.9 million Bombardier, is also a custom-(\$22.6 million). er, with the Belgian company The Gosselies-based manufacturer specialises in leading edges and slats, with wing and fuselage panels making up most of the remainder of its workload. Its products are on every member of the Airbus family, including the A400M military transport. This connection will continue into the foreseeable future, with its work on the new

and de-icing systems. In September 2010, a useful extra piece of work came from another Bombardier division, when Leariet asked it to improve the de-icing system on the Learjet 85, which involved a maior redesign.

While Sonaca's position improved in 2010, with reductions in costs coming from a redundancy programme and reduction of stock, some subsidiaries faced fluctuations in their workload, which affected profitability.

Additionally, both the euro and the Brazilian real strengthened against the dollar, which also had adverse effects on the bottom line.

Across all its customer aircraft, Sonaca last year delivered 849 shipsets of components, compared with a high of 1,106 in 2008. The end of 2010 brought the formation of a new Chinese subsidiary, Elson. Its assembly plant at Tianjin is intended to take advantage of

China's lower cost structure.



Sonaca's deal with Bombardier saw the company working on the Learjet 85

providing leading edges, slats AT A GLANCE **Top 100 rank** 97 **HQ** Gosselies, Belgium Aero revenues \$255m **Sales growth** 12.8% **Operating margin** -2% **ROCE** N/A Employees 1,403 **CEO** Bernard Delvaux

The French connection con-

Sonaca also has a transat-

SOURCE: PwC

COMMENTARY PWC NEIL HAMPSON AN INDUSTRY INNOVATION IMPERATIVE

THE AEROSPACE and	tors are emerging, so main-
Defence (A&D) industry has	taining a competitive edge is
been the source of some of	seen as essential.
the most influential techno-	That is not the only rea-
logical advances in modern	son A&D companies are
history – computers and	focusing efforts on innova-
computer networking, satel-	tion, despite the economic
lites and satellite navigation,	downturn. Executives also
and important advances in	see researching and devel-
physics – all have their roots	oping the right new technolo-
in the sector's research.	gies as an essential way to
That is why there is a	build revenues and cut
strong innovation impera-	costs. While a look at the
tive for the industry.	top 20 companies in the
The aerospace execu-	sector showed most held
tives interviewed for PwC's	R&D spending steady in
report A&D Insights: Gaining	2009 and 2010, they may
Technological Advantage*	nonetheless find their overal
agree. Differentiation has	budgets decreasing in fu-
long been critical to gaining	ture, with reductions in exter-
and maintaining contracts,	nal funding.
programme positioning and	So, how do you achieve
market share. It is even	cost cuts and still make nec-
more important today given	essary investments in new
the industry's increasing	technologies and new mar-

ng a competitive edge is n as essential hat is not the only rea-A&D companies are sing efforts on innovadespite the economic nturn. Executives also researching and develg the right new technoloas an essential way to strings 9 and 2010, they may etheless find their overall with reductions in extero, how do you achieve cuts and still make necary investments in new hnologies and new mar-

sector, it is difficult to make ity grids offer the potential to significant changes to the significantly reduce grid inefcost structure in mid-stream. ficiency, enable more interac-We believe focusing on tive demand management, better integrate distributed Governments power sources into the grid, change customer experiwill continue to ence and facilitate new uses hold the purse for electric power. Importantly, they offer A&D companies the opportunity to tap into funding for making the right choices energy-related projects - and about which markets to pura fast growing global market. sue is absolutely critical. By Another strategy is to expanding into adjacent marconsider carefully how new kets beyond their traditional technologies can help cut core, companies can benefit costs (of production or of from industry overlap, diveroperation) on existing prodsification, new technologies ucts or systems. Stronger, with cross-over applications lighter, smarter materials and making the most of core are helping airline customskill sets. For example, ers to achieve this, by resmart grids may represent ducing aircraft weight, increasing fuel efficiency an extremely promising adja-

programmes in place in the

cent market. Smart electricand reducing maintenance requirements. Fibre-reinforced polymer composites are now used in nearly every part of an aircraft. Composite materials account for 50% by weight of the Boeing 787 aerostructures. By reinforcing a plastic matrix with fibres made from glass, carbon or other materials, engineers are able to reduce weight, whilst adding benefits like corrosion resistance. And it's not just composites; aluminium manufacturers have also been working to develop lighter, stronger alloys with better resistance to heat, cold and fatigue. Looking further ahead, alongside research to deliver incremental benefits, we can foresee innovations such as self-healing composites.

A&D equipment and systems are maintenance-intensive. Improving technologies that help to monitor aircraft health are becoming increasingly important and hold promise for reducing maintenance costs without compromising safety. One innovative approach to structural health monitoring is to replace traditional fasteners with sensors to test for fatigue cracks in airframes. That is because cracks most often begin at fastener holes and so, by turning airframe fasteners into sensors, aircraft operators may be able to dramatically reduce the frequency of inspections. The gathering of real-time, health-monitoring data help manufacturers better understand the inservice operation of their

parts and thus design improvements in the future. A key factor in many of the emerging technologies and adjacent markets identified is that working together with government, within the industry and even beyond sector boundaries, is more important than ever. Governments will continue to hold the purse strings, not only on military budgets but on some key adjacencies as well. Technological breakthroughs in key areas such as biofuels will require cooperation across the supply chain. Succeeding in some of the most promising new adjacent markets – such as smart grids - will mean cooperating across sector boundaries too. There is an extremely hig



Companies shouldn't miss opportunities to expand into adjacent markets

	level of synergy between	bu
	new technologies and adja-	ad
	cent markets.	tho
	That means companies	err
	are likely to get the strongest	pa
	benefit from their research	eff
	efforts when new product	be
gh	directions can also help	tur

ild a presence in growing diacent markets. When nose efforts align with govnment priorities, and cominies collaborate fectively both within and eyond the industry, the fure looks brightest. 📕

For more information, email Neil Hampson. global aerospace and defence leader, at neil.r. hampson@uk.pwc.com

*Read the full report at flightglobal.com/PwCa&d

Rank (09)	Company (country)	Aero sales (\$m)		Total sales (\$m)		Operating result (\$m)		Capital	ROCE		Person	nel	Sales per en	nlovee (\$)	
Ralik (03)	Division	2010	2009	Growth*	2010	2010	2009	employed (\$m)	2010	2009	2010	Growth	2010	Growth	Comments
		2010	2005	diowai	2010	2010	2005	cilipioyed (vili)	2010	2005	headcount	Ciowai	2010	alowali	ooninionta
1 (1)	Boeing (USA)	64,306	68,281	-5.8%	64,306	4,971	2,096	33,170	15.0%	7.2%	160,500	2.2%	400,660	-7.8%	Three acquisitions in 2010, the largest being Argon
	Commercial Airplanes				31,834	3,006	-583								ST for \$782 million
	Boeing Defense, Space & Security				31,943	2,875	3,299								
	Boeing Military Aircraft				14,238	1,258	1,528								
	Network and Space Systems				9,455	711	839								
	Global Services & Support				8,250	906	932								
	Boeing Capital Corp/other/accounting differences				529	-910	-620								
2 (2)	EADS (Netherlands)	60,608	59,544	6.8%	60,608	1,572	-528	52,216	3.0%	-1.0%	121,691	1.8%	498,051	4.9%	Acquisitions include Regency IT Consulting and
	Airbus Commercial				36,659	350	505								Jena-Optronik
	Airbus Military				3,556	25	-2,442								
	Eurocopter				6,398	241	364								
	Cassidian				7,860	596	608								
	Astrium				6,628	370	357								
	Other business (and HQ)				1,604	-9	79								
3 (3)	Lockheed Martin (USA)	45,803	43,995	4.1%	45,803	4,097	4,415	23,910	17.1%	18.1%	132,000	-2.9%	346,992	7.3%	IS&GS segment divested Pacific Architects and
	Aeronautics				13,235	1,502	1,577								Engineers (PAE) and most of Enterprise Integration
	Electronic Systems				14,363	1,712	1,660								Group (EIG)
	IS&GS (Information Systems & Global Services)				9,959	890	895								
	Space Systems				8,246	972	972								
4 (4)	General Dynamics (USA)	32,466	31,981	1.5%	32,466	3,945	3,675	21,368	18.5%	17.7%	90,000	-1.9%	360,733	3.4%	Three acquisitions in 2010 focused on IS&T and
	Aerospace				5,299	860	707								combat systems
	Combat systems				8,878	1,275	1,262								
	Marine systems				6,677	674	642								
	Information systems and technology				11,612	1,219	1,151								
	Corporate					-83	-87								
5 (5)	Northrop Grumman (USA)	28,038	27,542	1.8%	34,757	3,070	2,483	23,035	13.3%	10.7%	117,100	-3.0%	296,815	6.1%	Divested advisory services division in 2009
	Aerospace systems				10,910	1,256	1,071								
	Electronic systems				7,613	1,023	969								
	Information systems				8,395	756	624								
	Shipbuilding				6,719	325	299								

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Rank (09)	Company (country)		Aero sales (\$m)		Total sales (\$m)	Operating re	sult (\$m)	Capital	ROCE		Person	nel	Sales per em	plovee (\$)	
(00)	Division	, 2010	2009	Growth*	2010	2010	2009	employed (\$m)	2010	2009	2010	Growth	2010		Comments
	Technical convict				0.000	000	404				headcount				
	Technical services				3,230 -2,110	206 -240	161 -195								
6 (7)	Intersegment eliminations United Technologies (USA)	25,227	24,239	4.1%	-2,110	-240 7,186	6,377	40,761	17.6%	16.8%	208,200	0.7%	260,932	2.6%	Circa \$3 billion acquisitions, including GE Security,
(1)	Engines (Pratt & Whitney)	20,221	21,200	7.170	12,935	1,987	1,835	40,101	11.070	10.070	200,200	5.175	200,002	2.070	March 2010 (\$1.8bn)
	Flight Systems (Sikorsky, Hamilton Sundstrand)				12,292	1,634	1,465								
7 (6)		25,183	24,881	1.2%	25,183	2,607	3,042	18,462	14.1%	16.8%	72,400	-3.5%	347,831	4.8%	Acquisitions include Trusted Computer Solutions,
	Integrated Defence Systems				5,470	879	859								Technology Associates and Compucat Research;
	Intelligence and Information Systems				2,757	-150	259								divestments included Flight Options
	Missile Systems				5,732	654	604								
	Network Centric Systems				4,918	701	674								
	Space and Airborne Systems				4,830	686	647								
	Technical Services				3,472	300	215								
0 (0)	Corporate and Eliminations	23,651	21,348	11.9%	-1,996 32,580	-463 2,324	-216 1,215	19.106	12.2%	5.8%	98,200	0.2%	331,774	2.20/	2009 is restated following the sale of half of the group's
8 (8)	BAE Systems (UK) Electronics, intelligence and support	23,001	21,340	11.9%	8,529	2,324 981	1,215	19,106	12.2%	0.0%	96,200	0.2%	331,774	3.3%	2009 is restated following the sale of half of the group s 20.5% shareholding in Saab and its subsequent
	Land & Armaments				8,929	460	-688								classification as a discontinued operation
	Programmes and support				9,729	598	1,022								
	International businesses				5,105	689	633								
	HQ and other businesses				287	-130	-546								
9 (9)	Finmeccanica (Italy)	20,831	20,778	5.2%	24,766	1,632	1,936	18,843	8.7%	10.1%	75,197	2.9%	329,342	-0.1%	• • •
	Aeronautics				3,721	189	334								Acoustic Concepts and a business unit of Consulting $\& % \left({{{\mathbf{x}}_{i}}} \right) = {{\mathbf{x}}_{i}} \left({{{\mathbf{x}}_{i}}} \right)$
	Space				1,225	49	60								Engineering for Next Generation Networks
	Helicopters				4,827	502	506								
	Defence and security electronics				9,454	750	855								
	Defence systems				1,603	136 152	172 197								
	Energy Transportation				1,872 2,599	152 54	-13								
	Other activities				2,599	-201	-13 -177								
	Eliminations				-858	201	111								
10 (10		15,680	15,615	0.4%	150,211	16,247	15,160	594,499	2.7%	2.5%	287,000	-5.6%	523,383	2.5%	
11 (11		15,680	15,615	0.4%	15,680	1,750	1,656	12,718	13.8%	13.4%	63,000	-6.0%	248,889	6.8%	
	C3 and ISR				3,399	395	344								
	Government services				3,963	344	394								
	Aircraft modernization and maintenance				2,781	229	243								
	Electronic systems				5,537	782	675								
12 (15		13,190	13,589	1.9%	17,387	-229	72	8,209	-2.8%	0.8%	63,734	-0.9%	272,804	2.8%	Aerospace sales estimated based on historical data, du
	Aerospace/transport				7,338	-293	-146								to a business unit reorganisation
	Defence and security				9,955	204	457								
	Other, elim. and non alloc. PPA				94	-32 -109	-102 -138								
13 (12		12,821	13,211	1.9%	14,254	1,146	965	12,015	9.5%	7.9%	54,256	-1.2%	262,716	4.2%	
(12	Aerospace propulsion	12,021	10,211	1.070	7,424	878	914	12,010	0.070	1.570	04,200	1.270	202,110	7.270	
	Aircraft equipment				3,754	166	3								
	Defence				1,643	73	13								
	Security				1,379	164	120								Acquisition of Printrak and GE Homeland Protection
	Holding				54	-135	-83								
14 (14	, , ,	10,875	10,124	8.5%	17,119	1,745	1,828	13,985	12.5%	12.9%	38,900	1.0%	440,068	5.3%	
	Civil aerospace				7,596	605	769								
	Defence aerospace	40.000	40 700	0.70	3,279	477	395	00.417	47 70	40 50	400.000	0.00	050.000	1.001	
15 (13	B) Honeywell (USA)	10,683	10,763	-0.7%	33,370	4,616	4,097	26,117	17.7%	16.5%	130,000	6.6%	256,692	1.3%	
16 (16	Aerospace S) Bombardier (Canada)	8,614	9,357	-7.9%	10,683 17,712	1,835 1,050	1,893 1,098	10,827	9.7%	11.5%	65,200	3.7%	271,656	-11.8%	
10 (16	Aerospace	0,014	9,307	-1.9%	8,614	448	473	10,027	5.1%	11.5%	05,200	3.1%	271,000	-11.0%	
17 (17	7) Textron (USA)	7,783	8,061	-3.4%	10,525	440	311	12,625	3.3%	1.9%	32,000	0.0%	328,906	0.2%	
	Bell	1,100	0,001	0.173	3,241	427	304	12,020	0.070	2.070	02,000	5.673	020,000	0.270	
	Cessna				2,563	-29	198								
	Textron Systems				1,979	230	240								
18 (18		6,967	6,686	4.2%	6,967	998	929	7,680	13.0%	13.0%	25,600	6.7%	272,148	-2.3%	
	Actuation and landing systems				2,492	273	267								
	Nacelles and interior systems				2,340	556	515								
	Electronic systems				2,136	325	276								

Rank (09)	Company (country)	۵	ero sales (\$m)	т	otal sales (\$m)	Operating res	sult (Sm)	Capital	ROCE		Person	nel	Sales per emp	lovee (\$)	
Kalik (03)	Division	2010	2009	Growth*	2010	2010	2009	employed (\$m)	2010	2009	2010	Growth	2010		Comments
		_			_						headcount		_		
10 (10)	Corporate expenses				17 010	-156	-129								
19 (18)) ITT Corporation (USA) Technology infrastructure – aviation	6,228	6,355	-2.0%	17,619 10,995	3,304 900	3,923 894	9,693	9.3%	10.5%	40,000	-0.5%	274,875	3.5%	
	Fluid technology	0,220	0,000	-2.070	3,670	479	393	3,035	5.5%	10.570	40,000	-0.570	214,015	0.070	
	Defence electronics and services				5,897	752	761								
	Motion and flow control				1,441	179	118								
	Eliminations				-13	-510	-378								
20 (23)) Dassault Aviation (France)	5,547	4,757	22.4%	5,547	783	592	6,185	12.7%	8.8%	11,551	-5.4%	480,182	29.4%	
	Defence				1,270										
	Falcon (executive jets)				4,276										
21 (21)) Mitsubishi Heavy Industries (Japan)	5,376	5,343	-5.6%	33,061	1,152	701	27,951	4.1%	2.4%					
	Aerospace				5,376	-39	-68								
22 (20)		5,364	5,498	-2.4%	5,364	392	379	6,002	6.5%	6.2%	18,884	12.1%	284,050	-12.9%	
	Commercial aviation				2,889	241	118								
	Defence				670	90	57								
	Executive aviation				1,145	59	96								
	Aviation services				564	13	97								
00 (0.1)	Others	4 755	4 470	C 40/	97 5 206	-11	12	2.000	04 7%	02.0%	15 000	0.00/	220 500	1 40/	
23 (24)) Harris (USA) RF communications	4,755	4,470	6.4%	5,206 2,067	913 707	794 572	3,692	24.7%	23.6%	15,800	2.6%	329,500	1.4%	
	Government communications systems				2,067	337	303								
24 (25)	Rockwell Collins (USA)	4,665	4,470	4.4%	4,665	822	885	3,612	22.8%	26.9%	20,000	3.6%	233,250	0.7%	
(20)	Government systems	4,000	4,470	4.470	2,861	606	602	0,012	22.0/0	20.070	20,000	0.070	200,200	0.170	
	Commercial systems				1,804	293	353								
25 (26)) Spirit AeroSystems (USA)	4,172	4,079	2.3%	4,172	357	303	3,937	9.1%	8.7%	12,589	-7.5%	331,400	10.6%	
	Fuselage systems	,			2,035	292	288						,		
	Propulsion systems				1,062	138	123								
	Wing systems				1,067	101	21								
	All other				8	-2	-1								
	Unallocated corporate and R&D					-172	-126								
26 (22)) Alliant Techsystems (USA)	3,913	4,046	-3.3%	4,842	526	512	3,381	15.6%	16.6%	15,000	-16.7%	322,800	20.8%	
	Aerospace systems				1,433	131	145								
	Armament systems				1,806	212	168								
	Missile systems				674	69	59								
	Security and sporting				930	128	108								
07 (07)		3,586	3,630	3.7%	3,586	-14 355	32 343	2,538	14.0%	13.6%	7.907	3.2%	453,522	0.5%	
27 (27)) MTU Aero Engines (Germany) OEM: commercial and military	3,580	3,630	3.1%	2,204	300	343	2,038	14.0%	13.6%	7,907	3.2%	453,522	0.5%	
	MRO: commercial maintenance				1,423										
	Other consolidated entities				-40										
28 (32)) Precision Castparts (USA)	3,572	2,991	19.4%	6,220	1,503	1,423	8,014	18.8%	21.0%	18,308	1.1%	339,742	12.6%	
	Aerospace	0,012	2,001	2011/0	3,572	2,000	2,120	0,011	2010/0	22.070	10,000		000,112	1210/0	
29 (28)) Saab (Sweden)	3,389	3,221	-0.9%	3,389	135	180	-14,527	-0.9%	9.1%	12,536	-4.7%	270,354	4.1%	
	Aeronautics				899	26	1								
	Dynamics				645	45	35								
	Defence electronics				467	14	3								
	Security and defence				844	19	36								
	Support and services				428	49	54								
	Corporate				107	-17	51								
00 (07)	Eliminations	0.4.40	0.004	0.00/	2440			074	0.0%	0.00/					
30 (35)		3,148	2,881	9.3%	3,148	600	E04	374	0.0%	0.0%					
31 (34)) Ishikawajima-Harima (Japan) Aero-Engines & Space Operations	3,064	2,957	-2.8%	13,518 3,064	699 66	504 75	7,632	9.2%	7.2%					
32 (22)	Cobham (UK)	2,939	2,932	1.2%	2,939	355	448	5,249	6.8%	18.7%	11,636	-3 /1%	252,562	4.8%	
32 (33)	Avionics and surveillance	2,939	2,932	1.270	2,939	300	440	5,249	0.0%	10.7%	11,030	-3.470	202,002	4.0%	
	Defence electronics				1,327										
	Mission systems				531										
	Aviation services				423										
	Other activities				0										
	Intercorporate				-34										
33 (51)) Triumph (USA)	2,905	1,295	124.4%	2,905	314	155	3,507	9.0%	11.0%	12,097	101.9%	240,142	11.1%	Acquired Vought Aircraft Industries in June 2010
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Rank (09)	Company (country)	۵	ero sales (\$m)	7	Total sales (\$m)		ult (\$m)	Capital	ROCE		Personnel		Sales per employee (\$)		
Rank (03)	Division	2010	2009	Growth*	2010	2010	2009	employed (\$m)	2010	2009	2010	Growth	2010		Comments
											headcount				
	Aerostructures				2,126	268	102								
	Aerospace systems				513 273	75 29	68 11								
	Aftermarket services				-7	-58	-26								
24 (2	Corporate/other L) Alcoa (USA)	2,864	3,000	-4.5%	21,013	1,042	-20	34,057	3.1%	-3.1%	59,000	0.0%	356,153	14.0%	Aerospace is a reported market segment, not an
34 (3	Aerospace	2,004	3,000	-4.5%	21,015	1,042	575	54,057	5.1%	-3.1%	59,000	0.0%	350,155	14.0%	operating division
35 (3	-	2,848	3,067	-2.5%	2,848	318	347	2,871	11.1%	13.1%	17,540	0.4%	162,379	-2.9%	
U U	Aerosafety and technology	2,040	0,001	2.0%	674	83	83	2,011	11.170	10.170	11,040	0.470	102,010	2.070	
	Aircraft systems				637	49	100								
	Cabin interiors				1,537	191	163								
	Zodiac Aerospace					-4	0								
36 (3	B) Hindustan Aeronautics (India)	2,843	2,345	14.0%	2,843	592	550								
37 (2	Hawker Beechcraft (USA)	2,805	3,199	-12.3%	2,805	-174	-712	2,279	-7.6%	-27.4%	6,800	-5.6%	412,500	-7.1%	
38 (3	6) Elbit Systems (Israel)	2,670	2,832	-5.7%	2,670	207	263	2,244	9.2%	14.4%	12,317	9.6%	216,774	-14.0%	
	Airborne				791										
	Land				363										
	C4ISR				1,019										
	Electro-optics				369										
	Other				128										
39 (3		2,322	2,367	3.0%	2,322	225	230	4,226	5.3%	5.3%	5,009	2.1%	463,610	0.9%	
	Aeroengines				1,884	266	262								
	Space				379	48	52								
	AvioService				60	1	5								
	Other activities	0.000	0.040	5.0%	40.070	-90	-90	7.407	0.001	0.00/	00 700	1.000	407.400	0.0%	
40 (4		2,262	2,018	5.2%	13,970	485	-14	7,407	6.6%	-0.2%	32,706	1.3%	427,132	3.2%	
44 (2	Aerospace	0.044	0.040	0.40/	2,262	34 595	40	4.000	40.00/	4 40/	40.000	4 70/	400.004	45.00/	
41 (3	Aerospace	2,241	2,318	-2.4%	7,851 2,241	595 250	61 264	4,826	12.3%	1.4%	40,000	4.7%	196,281	15.0%	
1 2 (A	L) B/E Aerospace (USA)	1,984	1,938	2.4%	1,984	316	296	2,964	10.7%	11.8%	6,650	20.9%	298,346	-15.3%	
	Consumables management	1,504	1,930	2.470	773	153	151	2,304	10.776	11.0%	0,000	20.5%	298,340	-13.3%	
	Commercial aircraft				998	149	121								
	Business jets				214	143	24								
43 (4		1,827	1,686	9.5%	1,827	155	128	1,487	10.4%	7.7%	9,709	0.2%	188,167	9.3%	
、-	Flight support	_,	_,		1,146	113	96	_,			-,				
	Aftermarket services				681	74	76								
	Corporate					-17	-15								
	Exceptional items					-15	-28								
44 (4	 Meggitt (UK) 	1,794	1,794	1.0%	1,794	340	363	4,529	7.5%	8.0%	7,370	2.3%	243,485	-1.3%	
	Aircraft braking systems				479	108	117								
	Control systems				283	59	73								
	Polymers and composites				241	28	36								
	Sensing systems				321	60	50								
	Equipment/group				471	86	84								
45 (4	2) Parker Hannifin (USA)	1,744	1,883	-7.4%	9,993	858	795	7,705	11.1%	10.1%	54,794	6.1%	182,374	-8.6%	
	Aerospace				1,744	208	262		0	10 -			000 0		
	3) Ruag (Switzerland)	1,721	1,562	5.9%	1,721	94	-104	989		-13.5%	7,719	2.5%	223,014	3.4%	
47 (4		1,644	1,652	-0.5%	1,644	179	171	1,217	14.7%	15.6%	9,200	13.6%	178,696	-12.4%	
	Instrumentation				573	114 5	96								
	Digital imaging Aerospace and defence electronics				123 615	5 58	12 60								
	Engineered systems				334	30	31								
	Corporate/other				554	-29	-27								
48 (5	D) CAE (Canada)	1,580	1,337	6.7%	1,580	251	201	2,033	12.4%	12.2%	7,500	7.1%	210,720	-0.4%	
	Civil	1,000	1,001	0.170	741	108	109	2,000	12. 770	12.270	1,000		210,120	5.470	
	Military				839	144	122								
	Restructuring charge				000	1	-30								
49 (4		1,536	1,602	-4.1%	13,715	1,171	444	14,019	8.4%	3.3%	70,000	0.0%	195,929	15.5%	
	Aerospace	2,000	_,		1,536	220	245	1.,010	21.00		,	5.6.0	,•0		
50 (4	a) Esterline (USA)	1,527	1,407	8.5%	1,527	188	145	2,264	8.3%	7.2%	8,976	0.8%	170,120	7.6%	Divestment of Pressure Systems
	Avionics and control				790	126	99								
	Sensors and systems				299	34	32								

Rank (09)	Company (country)	۵۵	ero sales (\$m)		otal sales (\$m)	Operating res	ult (Śm)	Capital	ROCE		Person	nol	Sales per em	nlovee (\$)	
Kalik (03)	Division	2010	2009	Growth*	2010	2010	2009	employed (\$m)	2010	2009	2010	Growth	2010		Comments
	Advanced materials	_	_		438	69	54		_	_	headcount		_	_	
	Corporate				430	-40	-39								
51 (54	•	1,498	1,089	32.1%	2,562	349	201	1,125	31.1%	22.4%	5,681	4.8%	450,981	7.1%	
	Defence systems				558	35	15								
	Protech Systems				940	164	70								
52 (5)	2) Singapore Technologies Engineering (Singapore)	1,371	1,287	-0.1%	4,388	430	334	2,726	15.8%	12.8%	20,000	0.0%	219,401	7.9%	
	Aerospace	4 005	4 4 0 5		1,371	172	138	700	40.4%	0.0%	0.400	7 50/	000.000	04.40/	
53 (5:	Orbital Sciences (USA) Launch vehicles and advanced programmes	1,295	1,125	15.1%	1,295 435	73 21	52 14	702	10.4%	8.3%	3,400	-7.5%	380,882	24.4%	
	Satellites and related space systems				435	34	27								
	Advanced space programmes				424	21	11								
54 (59		1,159	993	16.7%	1,159	81	20	1,315	6.2%	2.5%	2,700	12.5%	429,259	3.7%	
	Satellite services				0	0	0								
	Satellite manufacturing				1,159	81	20								
55 (5	5) Panasonic (Japan)	1,139	1,068	0.0%	98,973	3,476	2,034			3.4%					
	Panasonic Avionics	4.440	054	4.0.00/	4.440	400		042	40.0%	F 0%	0.050	F 0%	070.040	40.00/	
56 (6) 57 (5)	 Korea Aerospace Industries (South Korea) Ultra Electronics (UK) 	1,112 1,096	954 1,015	16.6% 9.1%	1,112 1,096	106 170	44 152	843 553	12.6% 30.7%	5.9% 31.9%	2,950 4,100	5.8%	376,949 267,429	10.2%	
JI (5	Aircraft and vehicle systems	1,090	1,010	9.170	293	36	36	555	30.7%	51.9%	4,100		201,429		
	Information and power systems				355	43	37								
	Tactical and sonar systems				510	91	80								
58 (6:	2) Moog (USA)	1,082	938	15.4%	2,114	188	150	2,233	8.4%	6.8%	10,117	1.1%	208,955	13.1%	
	Aircraft controls				757	76	52								
	Space and defence controls				325	36	40								
59 (5)	S) Volvo (Sweden)	1,069	1,020	-1.2%	36,722	2,497	-2,223	26,902	9.3%	-8.1%	90,409	0.2%	406,182	21.0%	
60 (6	Aero 5) Hexcel (USA)	956	855	11.8%	1,069 1,174	40 130	7 104	1,052	12.4%	9.9%	4,043	8.3%	290,378	-2.2%	
60 (6	Commercial aerospace	900	600	11.0%	645	130	104	1,052	12.4%	9.9%	4,043	0.3%	290,378	-2.2%	
	Space and defence				311										
<mark>61</mark> (58	B) Fuji Heavy Industries (Japan)	943	996	-11.2%	17,996	958	292	8,057	11.9%	4.0%					
	Aerospace				943	26	51								
62 (68	3) Chemring (UK)	922	786	18.5%	922	167	168	1,093	15.3%	22.3%	4,283	27.9%	215,258		Acquisition of Roke, Hi-Shear Technology, Mecar in 2010
63 (6)		851	787	8.1%	858	38	78	631	5.9%	11.6%	3,135	2.1%	273,684	5.7%	
	Aerospace and defence	000	700	0.7%	851	67	90	0.505	4.4.00/	4.4.00/	0.400	00.0%	0.45 000	0.40/	
	 TransDigm (USA) Stork (Netherlands) 	828 816	762 837	8.7% 2.3%	828 2,211	363 78	335 24	2,565 2,129	14.2% 3.7%	14.2% 1.1%	2,400 13,186	20.0% -2.1%	345,000 167,674	-9.4% 4.9%	
00 (0	Fokker Aerospace	010	031	2.3%	816	44	6	2,129	3.170	1.170	13,100	-2.1%	107,074	4.9%	
66 (6:	L) Indra (Spain)	787	948	-12.9%	3,387	334	397	1,844	18.1%	24.3%	27,339	4.4%	123,900	-2.6%	
	Defence and security				787								.,		
67 (74	I) Amphenol (USA)	782	649	20.5%	3,554	700	489	3,361	20.8%	18.0%	39,100	22.2%	90,895	3.1%	
	Aerospace				782										
68 (7)	0) Woodward Governor (USA)	759	698	8.7%	1,457	181	153	1,400	12.9%	10.7%	5,452	-3.7%	267,241	5.8%	
00 (0)	Aerospace and defence	74.0	745	E 40/	759						0.070	10 5%	044 400	-11.7%	
09 (9)	B) Diehl Aerosystems (Germany) Diehl Aerospace	718 265	715	5.4%	718 265						2,978	19.5%	241,100	-11.1%	
	Diehl Aircabin	397			397										
	Dasell cabin interiors														
70 (7:	L) Ball (USA)	714	689	3.6%	7,630	765	654	5,544	13.8%	12.9%	14,500	2.8%	526,207	10.6%	
	Aerospace and technologies				714	70	61								
71 (73	B) FLIR Systems (USA)	661	655	0.9%	1,385	361	347	1,607	22.5%	26.5%	3,215	54.6%	430,793	-21.9%	
70 (0)	Government systems) Pilatus (Switzerland)	050	E74	14.00/	661	252	286				1 205	4.00/	470.747	E 00/	
	 Pilatus (Switzerland) Aeroflex (USA) 	659 655	571 599	11.0% 9.3%	659 655	84 68	72 -19	1,188	5.7%	-1.6%	1,395 2,850	4.9% 5.6%	472,717 229,825	5.8% 3.5%	
•	2) ITP (Spain)	640	666	9.3%	640	00	-19	1,100	5.170	-1.0%	2,000	5.0%	229,029	3.5%	
	L) Heico (USA)	617	538	14.7%	617	109	88	700	15.6%	13.2%	2,300		268,261		
	Flight support				412	68	60				,		,		
	Electronic technologies				206	56	40								
	6) Latécoère (France)	615	624	3.3%	615	60	-143	742	8.0%	-45.7%	4,681	7.0%	131,311	-3.4%	
	7) Magellan Aerospace (Canada)	608	596	-7.9%	711	51	39	335	15.2%	11.1%					
78 (79	Crane (USA)	577	590	-2.2%	2,218	235	208	2,208	10.6%	9.3%	10,500	5.0%	211,238	-3.8%	
	Aerospace and electronics				577	109	96								

								A - with all							
Rank (09)	Company (country)		ero sales (\$m)		otal sales (\$m)	Operating res		Capital	ROCE		Personn		Sales per en		A
	Division	2010	2009	Growth*	2010	2010	2009	employed (\$m)	2010	2009	2010 headcount	Growth	2010	Growth	Comments
79 (86)	Firth Rixson (UK)	531	490	9.6%	701	105	92	1,419	7.4%	6.5%	1,767	17.8%	396,783	-13.6%	
80 (84)		516	498	4.6%	876	96	95	595	16.1%	16.8%	4,872	0.0%	179,725	5.0%	
, ,	Aerospace				516	77	61								
81 (88)	Curtiss-Wright (USA)	511	452	13.0%	1,893	180	169	1,814	9.9%	10.5%	7,600	0.0%	249,079	4.6%	
	Aerospace defence				265										
	Aerospace commercial				246										
82 (nev	v) Aernnova (Spain)	498	526	-0.5%	498		23			4.1%	3,622	2.7%	137,519	-3.2%	
83 (75)	Umeco (UK)	494	455	9.8%	710	51	48	461	11.2%	9.2%	1,600	-4.0%	443,891	16.4%	
	Aerospace and defence				494										
84 (90)	Jamco (Japan)	489	430	6.8%	489	10	10	326	3.2%	3.4%	2,109	5.0%	231,829	1.7%	
85 (83)	Kaman (USA)	487	501	-2.7%	1,319	63	54	674	9.3%	8.7%	4,269	5.9%	308,972	8.7%	
	Aerospace				487	67	75								
<mark>86</mark> (87)	LISI (France)	429	486	-7.3%	1,029	65	48	852	7.6%	5.8%	7,101	7.7%	144,952	3.8%	
	Aerospace				429	28	66								
87 (82)	SKF (Sweden)	423	514	-22.5%	8,465	1,172	419	5,769	20.3%	8.7%	40,206	4.3%	210,544	4.0%	
	Aerospace				423										
88 (89)	. ,	408	431	-5.3%	408	26	16	274	9.5%	5.9%	1,815	-3.0%	224,793	-2.3%	
89 (91)		342	307	11.4%	403	47	9	422	11.1%	2.2%	1,710	4.5%	235,673	10.2%	
	Aerospace components				143										
	Jet engines				199				0.004						
90 (97)	Héroux-Devtek (Canada)	322	260	11.7%	347	30	24	346	8.8%	8.4%					
	Landing gear				221										
	Aerostructures				100										
01 (06)	Aircraft engine components	305	264	16.8%	305	-36	52	517	-7.0%	8.6%					
31 (30)	Hampson Industries (UK) Aerospace components and structures	303	204	10.0%	62	-30	6	511	-1.070	8.0%					
	Aerospace composites and transparencies				243	-34	39								
92 (95)		300	272	-4.0%	491	-34	-55	150	-14.7%	-35.8%	5,090	0.5%	96,466	-8.4%	
UL (33)	Aerostructures	000	212	4.070	56	-38	-53	100	14.170	00.070	0,000	0.070	50,400	0.470	
	Aerospace systems				134	-6	-5								
	Aviation				110	11	5								
93 (92)		294	321	-3.9%	294										
94 (94)	-	276	284	-1.6%	1,039	-15	-84	1,683	-0.9%	-4.9%	5,084	2.6%	204,308	-9.8%	
	Aerospace														
95 (99)	Martin Baker (UK)	275	234	18.7%	275	66	53								
96 (98)	Garmin (USA)	263	246	6.8%	2,690	637	786	3,320	19.2%	25.0%	8,897	5.5%	302,339	-13.4%	
	Aviation				263	72	58								
97 (nev	v) Sonaca (Belgium)	255	237	12.8%	255	-5	-53				1,403		181,802		
98 (100	0) Terma (Denmark)	252	208	27.2%	252	16	0	173	9.1%	0.3%	1,205	-4.4%	208,881	33.1%	
	Non defence				96										
	Defence				156										
99 (nev	v) Teleflex (USA)	174	163	6.2%	1,802	274	257	3,222	8.5%	7.3%	12,500	-1.6%	144,136	3.6%	Divested 51% interest in Airfoil Technologies International
	Aerospace				174	23	10								Singapore (2008 annual revenues: \$247m)
100 (nev	v) Circor International (USA)	119	113	4.9%	686	15	4	381	3.9%	0.9%	2,950	18.0%	232,512	-9.5%	Acquired Bodet Aero and Atlas in March 2009
	Circor Aerospace				119	15	17								
NOTES: *Exclue	des currency impacts. SOURCE: PwC														

DATA SOURCE

The Flight International Top 100 was compiled by aerospace experts at PwC. The information used in preparing this report has been obtained solely from company annual reports, public filings and other publicly available information. PwC has not sought to establish the reliability of this information, and has not verified such information. Accordingly, no representation or

warranty (whether express or implied) is given by PwC as to the accuracy of this information. **COMPANY/DIVISIONS** The top line

of the financial figures refers to consoliengines, avionics, missiles, space and dated results for the overall group, inaerostructures are largely straightforcluding non-aerospace businesses. ward, but telecommunications, network The divisional figures are for those centric and C4I systems and some businesses that are fully or largely conoverhaul operations are included only cerned with aerospace. Groups have where these are largely concerned with

been ranked by their aerospace sales in

2009, calculated from those divisions

that operate primarily in the industry.

Sectors involved with aircraft, aero-

aerospace activities. Satellite services have been excluded wherever possible, as have companies and divisions that derive more than 50% of their revenues from services such as leasing.

Where acquisitions were made within the accounting period, pro-forma accounts have been used for the 12-month consolidated performance. Joint ventures have been included in

the financials. Inter-segment sales have been excluded from operating results and profits for divisions where possible. However, when not possible, each divisional result has been presented inclusive of inter-division sales, resulting in aerospace revenues greater than group sales. Where applicable, divisions of some companies have been re-appraised and removed as they are assessed as not having any aerospace content. In such cases 2008 revenues have also been restated.

EXCHANGE RATES An average exchange rate for the period 1 January 2009 to 31 December 2009 has been used for all non-US companies, regardless of fiscal year definitions. The percentage changes in financial figures are given in local currency terms

to avoid unnecessary distortions. **COUNTRY** All companies have been listed by country of headquarters or incorporation, independent of production or operating territories. OPERATING RESULTS Generally tak-

tions are included where they fall in fiscal year 2009 for that business. RETURN ON CAPITAL EMPLOYED (ROCE) ROCE is calculated as earnings en as the profit (or loss) before interest, before interest expense, taxes, unusual tax and exceptional items and after items and minority interests, divided by deduction of depreciation, this measure year-end total assets less year-end nongives a generally accepted guide to a interest bearing current liabilities.

business's operational performance.

Discontinued or discontinuing opera-