Commercial Aerostructures Market Finally Ready for Take-off

Henry S. Seiner
TIMET

09.22 2014
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Backlog
Traffic
Drivers
Trends
Integration
Forecast
Record Backlogs

Years of Backlog

A330 747 767 777 A380 737 A350 787 A320


Source: Boeing, Airbus
Record Backlogs

650K MTs of titanium demand over life of the backlog.

<table>
<thead>
<tr>
<th>Airbus Backlog by Aircraft</th>
<th>Approximate Airframe Ti Demand (MTs)</th>
<th>Approximate Years of Backlog</th>
</tr>
</thead>
<tbody>
<tr>
<td>A320</td>
<td>170,000</td>
<td>9</td>
</tr>
<tr>
<td>A330</td>
<td>25,000</td>
<td>2</td>
</tr>
<tr>
<td>A350</td>
<td>90,000</td>
<td>7</td>
</tr>
<tr>
<td>A380</td>
<td>50,000</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>335,000</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Boeing Backlog by Aircraft</th>
<th>Approximate Airframe Ti Demand (MTs)</th>
<th>Approximate Years of Backlog</th>
</tr>
</thead>
<tbody>
<tr>
<td>737</td>
<td>125,000</td>
<td>7</td>
</tr>
<tr>
<td>747</td>
<td>10,000</td>
<td>2</td>
</tr>
<tr>
<td>767</td>
<td>5,000</td>
<td>3</td>
</tr>
<tr>
<td>777</td>
<td>90,000</td>
<td>3</td>
</tr>
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<td>787</td>
<td>85,000</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>315,000</strong></td>
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</table>

Source: Backlogs per Boeing and Airbus, Buy weight estimates per Goldman Sachs
World Traffic

Share of World Traffic

<table>
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<tbody>
<tr>
<td><strong>Region</strong></td>
</tr>
<tr>
<td>US</td>
</tr>
<tr>
<td>Europe</td>
</tr>
<tr>
<td>Asia Pacific</td>
</tr>
</tbody>
</table>

Source: June 2014 Airline Monitor
World Traffic

Source: June 2014 Airline Monitor
Oil & Aircraft Deliveries

Oil Prices

$ / Barrel


Average Oil Price

Source: www.titudorancea.com
Oil & Aircraft Deliveries

Oil Prices and Duopoly Deliveries

Source: June 2014 Airline Monitor and www.titudorancea.com
Oil & Aircraft Deliveries

Oil Prices, Duopoly Deliveries and Retirements

Source: June 2014 Airline Monitor and www.titudorancea.com
Retirements

Aircraft Retirements

- 767 retired for 787
- 747-4 retired for 777-300 ER

Source: June 2014 Airline Monitor and Aviation Week
Backlog
Traffic
Drivers
Trends
Integration
Forecast
Increasing Ti per Plane

Source: Goldman Sachs
Other Trends

Ultra Clean, Highly Spherical Metal Powders

Supply chain is responding to demands with new technologies
Backlog | Traffic | Drivers
---|---|---
Trends | Integration | Forecast
Supply Chain Alignment

- Leggett & Platt acquires David Hart Aerospace Pipes Ltd
- Sifco acquires MW General
- PCC acquires Exacta Aerospace
- PCC acquires Designed Metal Connections
- Héroux Devtek acquires BBA Aviation PLC
- PCC acquires SOS Metals
- PCC acquires ADI
- ATI acquires Hanard Machine Inc
- RTI acquires Directed Manufacturing
- ATI acquires Dynamic Flowform Corp
- Triumph Group acquires GE Aviation Hydraulics
- RTI acquires Osborn Steel Extrusions
- RTI acquires Firth Rixson
- PCC acquires Summit Machining Inc.
- Alcoa acquires Firth Rixson
Backlog
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Making Sense of Airline Monitor Forecasts

Source: Airline Monitor
Airline Monitor Forecast: 2014-2020 Deliveries

January 2006 Forecast

2014 Deliveries = 1315
2017 Deliveries = 1495
2020 Deliveries = 1695

Source: Airline Monitor
Airline Monitor Forecast: 2014-2020 Deliveries

January 2008 Forecast

2014 Deliveries = 1120
2017 Deliveries = 1615
2020 Deliveries = 1720

Source: Airline Monitor
Airline Monitor Forecast: 2014-2020 Deliveries

January 2010 Forecast

- 2014 Deliveries = 1180
- 2017 Deliveries = 1200
- 2020 Deliveries = 1825

Source: Airline Monitor
Airline Monitor Forecast: 2014-2020 Deliveries

January 2012 Forecast

Source: Airline Monitor

2014 Deliveries = 1590
2017 Deliveries = 1540
2020 Deliveries = 1710
Airline Monitor Forecast: 2014-2020 Deliveries

June 2014 Forecast

- 2014 Deliveries = 1580
- 2017 Deliveries = 1990
- 2020 Deliveries = 2180

Source: Airline Monitor
## Airline Monitor Forecast Recap

<table>
<thead>
<tr>
<th></th>
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<td>2180</td>
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Source: Airline Monitor
Forecast

Total Commercial Aerostructures Titanium Demand

Source: June 2014 Airline Monitor and internal TIMET estimates
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