

# A330neo & 737 MAX 200 announced, 737 MAX specs released.

Airbus and Boeing have both launched new aircraft variants in the past couple of months. The basic specifications of the A330neo and 737 MAX family are discussed here.

There have been developments regarding new aircraft programmes in 2014. In July 2014 Airbus launched the A330neo (new engine option), while Boeing has revealed preliminary specifications for its 737 MAX family.

## A330neo

Airbus launched the A330neo at July's Farnborough Air Show. It believes there is a potential market to sell more than 1,000 of the re-engineered aircraft.

There are two variants of A330ceos (classic engine option), the A330-200 and A330-300.

There will also be two variants of the A330neo: the A330-800neo and the A330-900neo.

## A330-800neo

The A330-800neo will have 252 seats in a typical two-class layout. This is about six more seats than the A330-200, and puts the -800neo in a similar capacity category to the 787-8.

The A330-800neo will have a maximum take-off weight (MTOW) of about 533,500lbs and a maximum zero fuel weight (MZFW) of 379,200lbs or 388,000lbs. It will have a range of 7,450 nautical miles (nm) and is expected to enter service in 2018.

Airbus had received 10 commitments for A330-800neos by the end of August 2014.

## A330-900neo

The larger A330-900neo will be the first variant delivered to airlines. It is estimated to enter service in 2017.

The A330-900neo will accommodate 310 seats in a typical two-class configuration. This is 10 more seats than the current A330-300 and positions the -900neo close to the A350-900, and 787-9 in terms of capacity.

The A330-900neo will have an MTOW of about 533,500lbs and an MZFW of 390,200lbs or 399,000lbs. It will have a maximum range of 6,200nm.

Airbus had received commitments for 117 A330-900neos by the end of August 2014.

## Fuel savings

The two A330neo variants will offer greater fuel efficiency than A330ceos (current engine options).

On a 4,000nm sector with a full passenger payload, an A330-900neo could burn up to 12% less fuel per trip, and 14% less fuel per seat than an A330-300.

Much of this improvement will be provided by a new engine variant. A330neos will be exclusively powered by two Trent 7000 engines designed by Rolls-Royce.

An engine's fuel burn rate is determined by its propulsive efficiency. The propulsive efficiency will be higher when the exit speed of the engine's exhaust gases more closely matches that of the aircraft's forward motion. Accelerating a large mass of air more slowly leads to greater efficiency than accelerating a small amount of air to a faster speed.

One way to increase an engine's propulsive efficiency is to increase its bypass ratio. The bypass ratio can be increased by increasing the size of the fan or reducing the size of the core.

The Trent 7000 will have a larger fan diameter and double the bypass ratio of the Trent 700, which is an engine option for A330ceos.

A330neos will also feature aerodynamic modifications designed to

improve the aircraft's lift-to-drag ratio and lower fuel burn. This will include an enhanced wing with an increased span, optimised twist and new 'Sharklet' wing tips.

## Lower maintenance costs

Airbus claims that the A330neo will also have 5% lower direct maintenance costs than the current A330ceo fleet.

It estimates that 3% of these savings will come from changes to the maintenance planning document (MPD). This will include a reduction in the number of fatigue inspection tasks and an extension of other maintenance intervals.

The remaining 2% of maintenance cost savings will be delivered by replacing the pneumatic bleed air system used on A330ceos with an electrical system. The electrical bleed air system has already entered service on the A380 and will increase reliability.

## Commonality

The A330neo will have 95% spares commonality and the same pilot-type rating as the A330ceo. This means current A330 operators would not need to invest in entirely new spares inventories or additional crew training if they choose to complement or replace their fleets with A330neos.

The A330neo will also have a

## A330NEO SPECIFICATIONS

	A330-800neo	A330-900neo
Standard seating (two-class)	252	310
MTOW (lbs)	533,500	533,500
MZFW (lbs)	379,200/388,000	390,200/399,000
Fuel Capacity (USG)	36,744	36,744
Range (nm)	7,450	6,200
Engines	Trent 7000	Trent 7000
Fan Diameter (inches)	112	112
Bypass ratio	10:1	10:1
Engine thrust rating (lbs)	up to 72,000	up to 72,000
Notes:		
	1). Weights specs rounded to nearest 100lbs based on conversion from Airbus metric tonne figures.	
	2). Fuel capacity rounded to nearest USG following conversion from Airbus litre figures.	

## PRELIMINARY 737 MAX SPECIFICATIONS

	737 MAX 7	737 MAX 8	737 MAX 9
<b>Seating</b>			
Typical standard two-class	126	162	180
Typical standard single-class	140	175	192
<b>Weights</b>			
MTOW (lbs)	159,500	181,200	194,700
MLW (lbs)	135,500	152,800	163,900
MZFW (lbs)	128,600	145,400	156,500
Fuel Capacity (USG)	6,853	6,853	6,853

## Notes:

- 1). Single-class capacity is based on 32-inch seat pitch. Higher density configurations are possible.
- 2). Weight data is preliminary and may change during testing and development.

common type rating with the A350 XWB family.

**Total operating cost**

Airbus claims that, given certain operating parameters, an A330-900neo could demonstrate total operating cost per seat savings of up to 7% compared to a 787-9 on a 4,000nm mission.

**737 MAX**

Boeing released additional weight specification data for its 737 MAX family earlier in 2014.

The 737 MAX family initially consisted of the 737 MAX 7, 737 MAX 8 and 737 MAX 9.

These are same-size replacements for the current 737-700, 737-800 and 737-

900 series aircraft. That is, the three MAX variants have the same fuselage lengths as the previous generation counterparts. The MAX family includes several modifications to improve fuel burn, including new CFM LEAP-1B engines.

All 737 MAX variants will feature new Boeing-designed Advanced Technology (AT) winglets as standard.

**Specifications**

The 737 MAX 7 will accommodate up to 126 seats in a typical two-class configuration or 140 in a one-class layout.

The 737 MAX 7 is projected to have an MTOW of 159,500lbs and an MZFW of 128,600lbs.

The 737 MAX 8 will accommodate

162 passengers in a typical two-seat layout or about 175 in a typical single-class configuration.

It is projected to have an MTOW of 181,200lbs and an MZFW of 145,400lbs.

The 737 MAX 9 will accommodate 180 seats in a two-class configuration or 192 in a typical single-class layout.

The 737 MAX 9 is projected to have an MTOW of 194,700lbs and an MZFW of 156,500lbs.

Boeing had 2,169 737 MAX 7, MAX 8 and MAX 9 aircraft on order backlog at the end of August 2014.

**737 MAX 200**

On 8th September 2014 Boeing announced the launch of a new variant in the 737 MAX family, the 737 MAX 200.

The 737 MAX 200 is based on the airframe of the 737 MAX 8 but, due to an added mid-exit door, it is permitted to accommodate up to 200 seats.

Ryanair is the launch customer for the new variant with a commitment for 100 aircraft and options to purchase a further 100.

There are currently no weight specifications available for the 737 MAX 200. [AC](#)

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*Ryanair is the launch customer for the 737 MAX 200; a high-density, 200-seat aircraft based on the 737 MAX 8 airframe. The airline has made a commitment for 100 aircraft.*