

Dash-8 Q400 of the SkyWork Airlines



For the Microsoft FS 2004
Hans-Ruedi Maibach

Specification



Photo: Hans-Ruedi Maibach

About the Q400

The Bombardier De Havilland Dash 8 series 400, or shorter the Q400, is the longest and fastest member of the popular Q-series. The Q400 program was formally launched in June 1995, with the first flight on January 31, 1998. The aircraft was specially designed for the short haul regional airliner market, with routes around 300nm. Compared with the Q300 the fuselage has been stretched by 22ft 5in, or 6.83m. While the cross section has remained the same, there are now two entry doors, one in front and one behind the wing. The Q400 has been fitted with the NVS, active noise and vibration system, which reduces the cabin noise levels to about the same you would experience in a CRJ-jet.

The Dash8-Q400 HB-JGA is the new Plane the Sky Work Airlines Switzerland. The airline charter holiday flights from LSZB destination to LIRJ, LFKF, LESB, LEMH, LIEE, LGPZ, DTTJ, LOWW, LOWS and EDDT.

Typ:	Bombardier DASH-8 Q400
Sitzplätze:	72 (14 Business & 58 Economy)
Max. Flughöhe:	25000ft / 7500m
Max. Geschwindigkeit:	335KN / 600km/H
Max. Reichweite:	1400NM / 2500KM / ca. 4 Stunden

Bombardier Dash-8 Q400

http://www.q400.com/q400/en/multimedia_01.jsp#

SkyWork Airlines

<http://www.skywork-airlines.ch>

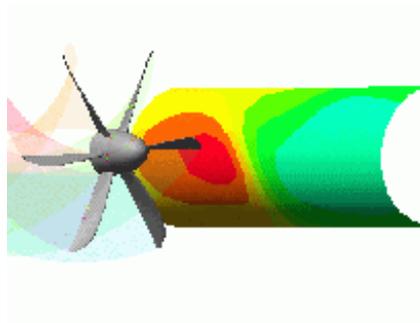
Specification

“Q” Means Quiet

Noise and Vibration Suppression System

What is it?

The Q Series is equipped with the revolutionary new system called NVS that reduces sound and vibration at their sources - even vibrations below the audible threshold. The system works effectively by reducing the vibrations in the fuselage, thus stopping much of the noise from entering the cabin to begin with. The benefit is most dramatic in the seats closest to the arc of the propellers, but is also very noticeable throughout the cabin.



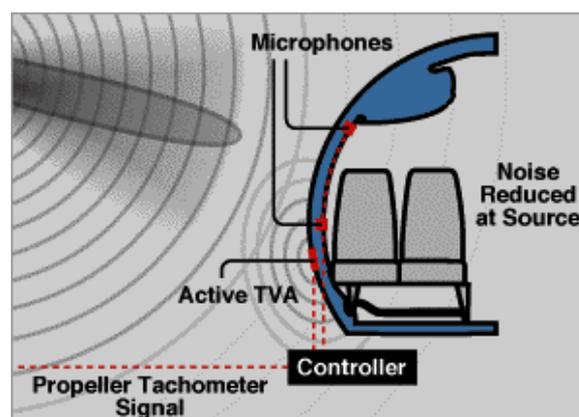
NVS is unique to the Q Series and is the world's first application of this technology in an airliner cabin.

How does it work?

The majority of noise and vibration in a turboprop cabin is caused by the 'pulses' of air that hit the side of the aircraft fuselage, created by the turning of the propeller. This in turn causes the fuselage to vibrate, and transmit both noise and vibration into the cabin.

The NVS system reduces this fuselage vibration through leading edge active control technology.

The diagram below illustrates the peaks of energy created by the air pulses, and the reduction in these peaks through the use of the active control technology.



Harmonic Components of Cabin Noise

During flight, microphones concealed throughout the cabin transmit noise information to a special on-board computer that also receives the propeller speed. The computer continually analyzes this information and signals devices called Active Tuned Vibration Absorbers (ATVAs) mounted on the fuselage frames. The ATVAs then produce out-of-phase counter vibrations, so that the original vibrations are significantly reduced.

The NVS technology, exclusive to the Q Series, is designed and built by Ultra ELECTRONICS.

Origin: Bombardier

Specification

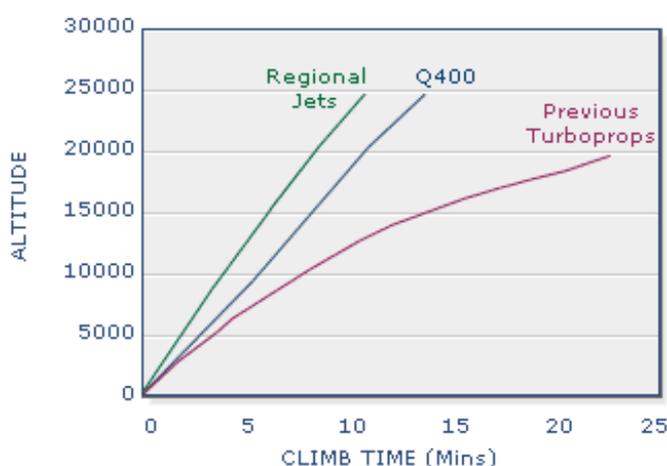
Performance

Performance is a critical element of the Q400's remarkable capabilities.

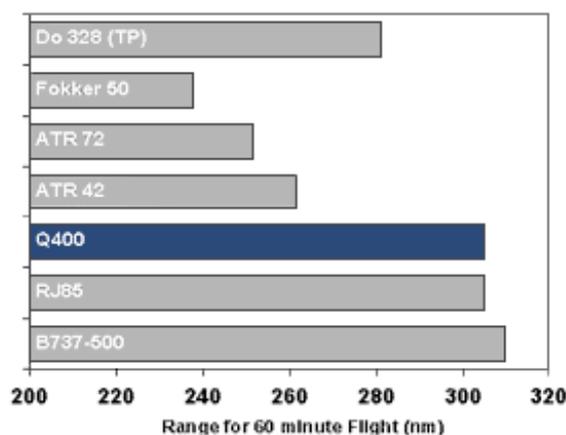
Compared to the Q300, a number of key Q400 design refinements were introduced to contribute to:

- * 360 kt (Mach .58) maximum cruise speed (75 kt higher)
- * 230 to 450 nm more range
- * 40% less time to climb
- * Exceptional airfield performance
- * A better ride

The Q400's exceptional cruise speed, placing it on a par with jet block times up to over 400 miles, provides the flexibility needed to fly longer sectors. Its ability to climb as well as a comparable jet provides considerable ATC flexibility while allowing the Q400 to reach its optimum cruise altitude sooner in order to take full advantage of its high speed capabilities.



Q400 is built for speed and productivity



Specification

General

Crew	2
Flight Attendants	2 or 3
Passengers	68-78

Engines

Number	Two Pratt and Whitney Canada Corp. PW150A
Normal Takeoff Power	4,580 shp
Max. Power	5,071 shp
Max. Cruise Power	3,947 shp

Propellers

Dowty model R408 six-bladed, reversible pitch; composite	
Diameter	13 ft 6 in / 4.11 m

Weights: High Gross Weight Version (HGW)

Maximum takeoff weight	64,500 lb	29,257 kg
Maximum landing weight	61,750 lb	28,009 kg
Maximum zero fuel weight	57,000 lb	25,855 kg
Operating weight empty	37,888 lb	17,185 kg
Maximum payload	19,112 lb	8,670 kg

Fuel and oil capacity

Fuel capacity	1,724 U.S. gal 1,436 Imp. gal	6,526 L
Oil capacity	8.0 U.S. gal engine	30 litres/ engine

Specification

Performance

Range:	NM	SM	KM
Maximum range (70 pax @ 200 lb) MCR, ISA, SL	1,362	1,567	2,522

Speeds:			
Maximum cruise speed	360 kts	414 mph	667 km/h

Airfield Performance:

FAR takeoff field length (SL, ISA, MTOW, HGW)	4,600 ft	1,402 m
FAR landing field length (SL, ISA, MLW, HGW)	4,221 ft	1,287 m
Takeoff field length for 500nm sector (ISA, 70 Pax, IGW)	3,720 ft	1,134 m
Landing field length for 500nm sector (ISA, 70 Pax, IGW)	3,380 ft	1,030 m

Ceiling:

Maximum operating altitude	25,000 ft	7,620 m
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Noise Level:

	FAR 36 EPNdB
Takeoff	78.3
Sideline	84.0
Approach	94.8

Maintenance Program

Daily checks	None
Line checks	Every 50 flight hours
"A" checks	Every 500 flight hours
"C" checks	Every 5,000 flight hours
Structural inspection	Every 40,000 flights hours
Equalized Maintenance Program available.	

Structural Integrity

Crack Free Life	40,000 flights / 32,670 ft. hrs. *
Design Life	80,000 flights / 65,340 ft. hrs. *

* Assumes a 50 minute flight time

Origin: Bombardier

Specification

Weights

Operating weight Empty:	37 888 lb	17'185 kg
Maximum payload:	19 112 lb	8'670 kg
Maximum zero fuel:	57 000 lb	25'855 kg
Maximum takeoff weight:	64 500 lb	29'257 kg
Maximum landing weight	61 750 lb	28'009 kg

Speeds

Weight (lb)	55 400	57 700	60 000	62 200	64 500
Weight (kg)	25 128	26 0172	27 211	28 213	29 257
Fuel (%)	20 %	40 %	60 %	80 %	100 %
Vr (kts)	104	106	108	110	112
Vref (kts)	108	110	113	115	117

Kts = Groundspeed

Cruise speed:

Altitude	FL170	FL250
Speed (kias)	279	230
Speed (kts)	350	330
Mach	.56	.55

Kias = Indicated airspeed

Kts = Groundspeed

Aircraft



Door assignments:

- PAX door (forward) :** Press Shift + E
- PAX doors (Aft) :** Tailhook
- Airstairs (Ladder):** Wingfold
- Cargo doors:** Press Shift + E + 2

Or with Overheadpanel



Panel Dash8-Q400 of the SkyWork Airlines

Photo Cockpit Dash-8 Q400 the SkyWork Airlines



Photo by Hans-Ruedi Maibach

Main Panel



1. Stallwarnig
2. Spoiler arm Switch
3. Chrono zero set
4. Cours
5. HDG
6. ALT
7. VS DN / VS UP
8. Speed
9. Speed display
10. VS display
11. Altimeter display
12. Cours display
13. Wind
14. Altimeter set
15. Gear
16. Annunciator

Overhead panel



Operational switches:

1. Master battery
2. GEN 1 + 2
3. Main Bus
4. Storm/Storm Dome
5. Panel light
6. Ignition switches
7. Engine selector
8. Engine Starter
9. Air conditioning / Cabin
10. Fasten belts, No smoking
11. Landing- / Taxi lights,
12. Exterior lights
13. Cabin doors

Pedestal



1. Pneumatic brakes
2. Spoilers
3. Flaps
4. Elevator trim
5. Throttles
6. Propeller control levers
7. Radio 1 (alternative)
8. Radio 2 (alternative)
9. Swap switch

Radiopanel



1. Radiopanel power ON/OFF
2. Frequency swap

GPS



FS 2004 GPS

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2D Panel and Pedestal – Hans-Ruedi Maibach

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