

Quantum of the Seas *very large cruise ship*

Gross tonnage: 168666

Net tonnage: 154078

Lightweight: 67017

Deadweight: 11113 at 8.50m / 27.89ft design

Displacement: 78130 at 8.50m / 27.89ft design

Designer: Meyer Werft (overall); Uwe Wulff (project manager); Henning Luhmann (machinery); Wilson Butler Architects (general planning and interiors); CallisonRTKL (Izumi, spa, and fitness center)

Classification: DNV-GL **1A1**

Length: 347.10m / 1138.78ft oa; 320.20m / 1050.52ft pp

Breadth: 48.90m / 160.43ft max; 41.40m / 135.83ft mld

Draught: 8.80m / 28.87ft max; 8.10m / 26.57ft min

Decks: 20 (14 passenger)

Air draught: 62.90m / 206.36ft to 58.20m / 190.94ft

Depth: 11.55m / 37.89ft mld

Cabins: (inboard, outboard); crew

Complement: (pax dbl occ, crew); 6470 (4919 pax max occ, 1551 crew)

Machinery:

2 Wärtsilä 16V46F (24138hp / 18,000kW ea.)

2 Wärtsilä 12V46F (18774hp / 14,000kW ea.)

Total: 85825hp / 64000kW

Alternators: -

Propulsion devices:

2 ABB Type XO azimuths (27491hp / 20500kW ea.)

Total: 54982hp / 41000kW

Speed (service/max): 22.00 / 23.40 at 145rpm / 25.00

Boilers: -

Bow thrusters: 4 Brunvoll (4694hp / 3500kW ea.)

Stern thrusters: -

Fuel (endurance/speed):

Lifesaving equipment:

16 Fassmer Type SEL 12.5 lifeboats (313 ea. / 5008 total)

2 Fassmer rescue boats

Grand total: 5008

Name Builder's name Shipyard location Builder's hull no.	Contract date Cost	Steel cutting Laid down	Launched / Floated out	Completed Sea trials Delivered Cost Christened Godmother Maiden voyage	Owner Manager Port of registry IMO no. MMSI no. USCG no. Call sign Refits
<i>Quantum of the Seas</i> Meyer Werft GmbH Papenburg, Germany S.697	11 Feb 2011 €725,000,000	31 Jan 2013 2 Aug 2013	9 Aug 2014	28 Oct 2014 15 Oct 2014 28 Oct 2014 \$935,000,000 30 Oct 2014 2 Nov 2014	Quantum of the Seas Inc. Royal Caribbean Cruises Ltd. Nassau 9549463 311000267

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Project History:

Royal Caribbean's Project Sunshine began development in 2009, and in early 2010 was still focused on a rescaled *Oasis of the Seas*. By summer 2010, the focus had shifted to a wholly new design, using *Celebrity Solstice* as the source vessel. This connection makes their choice to bring back Wilson Butler Architects and CallisonRTKL, who had also done work on that ship, to perform the same tasks for this ship. The parent company, Royal Caribbean Group, owns both cruise lines, and as Meyer had also built the older ships, it was round two for a venerable team. The ships were estimated, at the time, to have a gross tonnage of about 165000, although the details of the design were still being figured out. When the order for the first two was placed in early 2011, Royal Caribbean was confident in the evolving design and willing to invest well over a billion dollars on two ships of the new design. Funding for the first two ships of Project Sunshine was secured on 8 June 2011, and provided funding for 80% of each ship's construction, provided the contract price didn't exceed €725,000,000 per ship. Despite this, design work continued through the end of that year and well into the next. As late as the spring of 2012, for example, the design featured open balconies in her forward superstructure, similar to those on *Freedom of the Seas* and her sisters. Additionally, the North Star observation arm had yet to be added even at this late stage of design, while she featured six (not four) platforms cantilevered from the upper level of the Seaplex. A ropes course was located aft of the Seaplex, likely to compete with *Norwegian Breakaway*, *Norwegian Getaway*, and *Norwegian Escape*, although this would later be replaced with the popular skydiving simulator.

The final plan was for a ship with a design draught of 8.50m / 27.89ft, ensuring the ships of the new class would be able to enter any ports the line desired. To ensure the best possible hull form, after CAD refinements were completed, model tests were conducted at MARIN. A massive model, with her MARIN hull number '9164' stenciled on her bow, was put through all combinations of sea state, wind speed and direction, and ship speed. The model, which perfectly matched the final ship in terms of weight and stability, was also put through a rigorous series of turning tests, ensuring the turning circle and list incurred by such a maneuver was acceptable to all involved parties. To further assist her in achieving this speed, she was the first cruise ship fitted with an air lubrication system. This pumps microscopic bubbles under her hull to reduce the water friction against the underside of the ship. This system alone is credited with reducing the ship's fuel consumption by 4%. A block coefficient of 0.675 at her design draught was achieved, which was a requirement of her moderately high service speed and fuel consumption standards laid out in her contract. The latter was due to the ships' intended service in Alaska, where the tightening requirements meant all new ships had to meet very stringent criteria with regards to the environment. Other features which were tailored to the Alaska market include the forward-facing solarium, a stunning achievement and a beautiful climate-controlled space to view the beauty and splendor of Alaskan scenery, landscapes, and wildlife.

Her fifteen funnel flues, arranged in three rows of five each, are retractable to enable the ship to pass beneath bridges and cables which she may otherwise collide with. It is interesting to note here that, in the maritime world, a collision is when two vessels strike each other, while an allision is when a vessel strikes an object which is stationary or immovable. This reduces her air draught from 62.90m / 206.36ft to 58.20m / 190.94ft, although if her North Star pod was raised to its full upright position, this figure would increase to an astonishing 95.00m / 311.68ft. The North Star pod arm, when extended out perpendicular to the vessel, and with zero inclination, increases the ship's maximum breadth from the 48.90m / 160.43ft of her bridge wings to 62.90m / 206.36ft.

Their lead designer and project manager, Uwe Wulff, stated that the idea for the unique animal sculptures on the ships of this class originated with her owners. They wanted something for guests to distinguish between the ships, and remember which one they had been on. Another relatively new innovation was the 'virtual balcony' concept, expanding

upon the previous Meyer-built *Disney Dream* and *Disney Fantasy*. This idea saw every interior cabin fitted with a large TV screen, positioned with the longer side running vertically as opposed to horizontally. They presented a view from a camera positioned on the ship's exterior, facing either forward or aft, depending on which surface the TV is within the cabin.

On 15 October 2014, she underwent her sea trials in the Skagerrak Strait between Norway and Denmark.