

INS VIKRANT: AN INDIGENOUSLY DESIGNED AND DEVELOPED AIRCRAFT CARRIER – A BRIEF

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Introduction

Indian Navy launched its first indigenous aircraft carrier INS Vikrant, their competence prides the entire Nation. India is one of the few Countries owned full-fledged aircraft carrier, The carrier designed by the Indian Navy's in-house Warship Design Bureau (WDB), under the Cochin Shipyard Limited. The design initiated in 1999 and the Keel laid in 2009, Vikrant has commissioned in 2022 and ready for the flight trials.

Dimension & Capacity

The Indian Navy specifies the length and breadth of the ship as 262 metres and 62 metres respectively (Fig 1). It displaces INS Vikrant, and it displaces 45,000 tonnes along with a designed speed of 28 knots, which is 7,500 nautical miles. Vikrant can produce about 25000 kW of electricity (enough power to light up a small town). The carrier would be fitted with a total of thirty-six aircraft and would have four launch pads. The ship would be capable of operating an air wing consisting of 30 aircraft comprising of MiG-29K fighter jets, Kamov-31 early warning helicopters, MH-60R multi-role helicopters, in addition to indigenously manufactured Advanced Light Helicopters (ALH) and Specifically Light Combat Aircraft LCA – Navy are extra special defined for such carriers (Fig. 3).

Built

The floating airfield Vikrant, an Ingenious Indian aircraft carrier built with DMR warship grade steel from SAIL - Bokaro is corrosion resistance, is equipped with Electro Magnetic Interference (EMI) / EMI suppression systems, electrical insulation from Electromagnetic Pulse (EMP) and hull wave protection. This "aircraft carrier" is designed with a spider web pattern of exterior bulwarks that enables ship's company to dangle from the flight deck and thus can accommodate more than 30 aircraft in the hangar. The double hull form is kept for protection against damage by explosions, torpedoes and other near-misses as well as when she is in action against enemy surface vessels or submarines. (Fig. 1) Shows the complete view of the carrier captured from away gives an idea on its exterior design.

The ship has around 2200 compartments (Fig. 2), designed for a crew of around 1600 that include specialised cabins to accommodate Women Officers and Sailors. In-built explosive-proof automatic energy lamp and transparent RF Shielding are added. The major strength of this ship is its multifunction radar system that enables numerous weapons systems to work together in a coordinated manner to carry out complex tasks—like the launching of missiles, attack on surface targets or searching and tracking submarines, in the same broad area, resilient quality, high strength and superior toughness sustain up to 60 Degree Celsius.

Technology

The ship is imbued with the art automation feature. Fighter aircraft are launched using the Short Take Off But Arrested Recovery (STOBAR) method and INS Vikrant is equipped with a ski-jump for launching aircraft, and a set of three 'arrestor wires' for their recovery onboard. The ship has 700 feet of anti - fire walls are installed in the aviation deck. 650 feet firefighting system was deployed as per international norms in the compartments. An island for arresting lay down for take-off of aircraft. Fuel tanks are protected from flooding by a closed cell indetergent gas such as Kevlar mixture. Over 200 allied systems integrate the various systems of carrier making it almost an airlock for aircraft. It is also known as a floating city because it has 18 floors, 14 decks and 2,300 compartments (Fig. 2). It can also produce electricity that can light up to 500 households

Facility

To cater to the needs of medical emergency on board, the aircraft carrier comprises of a mini hospital with 16 beds, two operation theatres and a 64-slice CT scan machine onboard, in addition to ultrasound, digital X-ray machines, two purpose-built operation theatres, a blood transfusion department and two dental chairs and dental treatment facilities. The ship's reverse osmosis plants produce over four lakh litres of water every day. The aircraft carrier also equipped with fitness gym, training plot and activities space. It can carry around 1,500 sea warriors and 10,000 rotis that can be prepared in its kitchen. The ship can hold upto 250 tanker of fuel.

Flag

The new ensign consists of a white flag with the Indian Navy's crest on a navy blue background. The crest is enclosed in an octagon representing the royal seal of historical ruler Chhatrapati Shivaji Maharaj. At the top left corner, the Indian National Flag is placed (Fig. 4).

The new ensign marks a departure from India's colonial past. The Navy's earlier ensign consisted of a white flag with horizontal and vertical red stripes, with the Emblem of India emblazoned at the intersection of the two stripes. The tricolour was placed in the canton.

Concluding Remarks

The Design and Development of INS Vikrant has demonstrated the capabilities available for not only design but to produce with international standards totally indigenously. Further, this also has strengthened the Indian Navy's strength and demonstrated the "Atmanirbhar Bharat" in the vital segment of Naval forces.



Fig.1: Long View Photo of INS Vikrant Sailing



Fig.2: 14 Decks Massive INS Vikrant Onboard



Fig.3: Top view of Loaded Aircraft carrier INS Vikrant

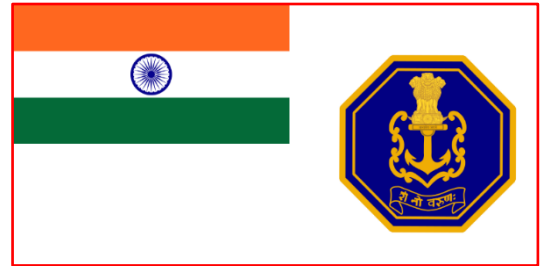


Fig.4: Indian Navy Flag