Press Release

Defence Minister Rajnath Singh inaugurates Indian Navy's first Aircraft-Carrier Dry Dock

The Strategic, state-of-the-art dry dock in Mumbai is the first Naval Dock to accommodate aircraft carrier INS Vikramaditya

Mumbai, September 28, 2019: Defence Minister Shri Rajnath Singh today inaugurated the Indian Navy's first aircraft-carrier dry dock in Mumbai. The Aircraft Carrier Dock (ACD) is the largest dock of the Indian Navy measuring a mammoth 281 m in length, 45 m in breadth and 17 m in depth. This dock can accommodate the pride of the Indian Navy, aircraft carrier INS Vikramaditya.

The ACD is also the first Indian dry dock built into the sea, unlike the conventional docks, which are built on the land, thereby conserving premium land space and providing the Navy with 0.5 km of crucial berthing space.

The Director General of Naval Project (DGNP), Mumbai, had awarded HCC the contract to construct the dry dock and to strengthen the associated North and South wharves on April 12, 2010.

Mr. Arjun Dhawan, Director & Group Chief Executive Officer, HCC said, "HCC is proud to have partnered with DGNP to create a strategic naval asset. The dry dock is a symbol of national pride, and demonstrates exemplary engineering and project management capability."

The execution of the mega project is a remarkable feat of civil engineering. Thirty eight caissons were used for construction of both dock walls, also known as Fitting-Out Berths (FOBs). The dock floor, having a thickness of 1.5 m, can safely hold ships of a tonnage up to 90,000 tonnes. Achieving this up to a length of almost 300 m into the sea required the building of an Entrance Coffer Dam, which consisted of 115 steel piles filled with reinforced concrete, weighing over 60 tonnes each, and driven more than 20 m into the sea bed to ensure safety and stability.

As the Dock is built into the sea, there is persistent pressure acting on the dock floor as well as on the dock walls. A complex maze of under-dock floor pipes ensures relief from this pressure and provides safe drainage of water to a sump from where it is returned to the sea.

As a precursor to maintaining water-tight integrity, two floating Caisson Gates, each weighing 2,000 tonnes, were constructed in a process akin to ship-building.

To further enhance operational flexibility, this dry dock can dock multiple ships with varying docking periods by suitably positioning an Intermediate, or Lambda Gate weighing more than 40 tonnes.

Time is of the essence in any docking activity. The ACD has two Equilibrium Filling Valves, each of which can fill the dock with seawater in 90 minutes. For removal of water there are eight dewatering pumps; seven pumps in tandem can dewater the dock in 150 minutes. The hauling-

in system can pull the ship in or out using minimal human intervention. Four dock-arm machines can be used to reach inaccessible areas of the docked ship with ease. All services for ships and submarines can be controlled / monitored by a Supervisory Control and Data Acquisition system which has brought a new dimension to dry dock facilities hitherto unseen in Indian Navy dry docks.

The Indian Navy's largest and most modern dock boasts of over 96% indigenous content which is in conformity with the government's "Make in India" policy. It is a saga of surmounting all odds while creating a strategic asset to serve the nation for decades to come. The Aircraft Carrier Dock, an amazing feat of engineering grit, stands resolutely today, in its full glory for a nation to be proud of.

Few interesting facts about the Dry Dock:

a) Can hold 200 million litres of water, more than 80 Olympic size swimming pools
b) 8,000 metric tonnes of steel forms were used, equivalent in weight to that used for the Eiffel Tower.
c) Use of over 5 lakh tonnes of concrete in construction; equivalent to one and half times that used in the Bandra Worli Sea Link
d) The dewatering pumps used are so massive in capacity that they can each empty or fill a water tanker of 12,000 litres within four seconds
e) The electric cables used can stretch over a length of 90 km, and the piping used over 13 km
f) The dock floor can carry a load of 700 tonnes per sqm

About HCC:

HCC is a business group of global scale developing and building responsible infrastructure through next practices. With an engineering heritage of nearly 100 years, HCC has executed a majority of India's landmark infrastructure projects, having constructed 29% of India's Hydro Power generation and 65% of India's Nuclear Power generation capacities, over 3,800 lane km of Expressways and Highways, more than 337 km of complex Tunnelling and 375 Bridges. Today, HCC Ltd. serves the infrastructure sectors of Transportation, Power and Water. The HCC Group, with a group turnover of Rs.10,322 crore, comprises of HCC Ltd., HCC Infrastructure Co. Ltd., and Steiner AG in Switzerland.