= Titan Clydebank =

Titan Clydebank is a 150 @-@ foot @-@ high (46 m) cantilever crane at Clydebank , West Dunbartonshire , Scotland . It was designed to be used in the lifting of heavy equipment , such as engines and boilers , during the fitting @-@ out of battleships and ocean liners at the John Brown & Company shipyard . It was also the world 's first electrically powered cantilever crane , and the largest crane of its type at the time of its completion .

Situated at the end of a U @-@ shaped fitting out basin , the crane was used to construct some of the largest ships of the 20th century , including the Queen Mary , Queen Elizabeth and Queen Elizabeth 2 . The Category A Listed historical structure was refurbished in 2007 as a tourist attraction and shipbuilding museum .

= = History = =

The shipyard at Clydebank was created in 1871 after the company James & George Thomson moved from the Graving Docks in Govan . John Brown & Company purchased the yard in 1899 , and in 1905 , a £ 24 @,@ 600 order for the crane was placed with Dalmarnock based engineering company Sir William Arrol & Co . Titan was completed two years later in 1907 . It was constructed by the Scottish engineer Adam Hunter , who was working as Chief Engineer for Arrol & Co . , having served his apprenticeship on the construction of the Forth Bridge . Stothert & Pitt of Bath , England , fabricated and installed most of the machinery for the Titan , including electric motors built by Lancashire Dynamo and Motor Co .

The dock was used for fitting out vessels , and the crane would lift engines and boilers into ships . The lifting capacity of the Titan , and the location of the yard at the confluence of the River Clyde and River Cart , contributed to the success of the yard as it could build extremely large ships .

When tested on 24 April 1907 , Titan was the largest cantilever crane ever built with a capacity of 160 tonnes (160 long tons ; 180 short tons) at a radius of 85 feet (26 m) . The original lift capacity was uprated to 203 long tons (206 t) in 1938 , when it became apparent that the original specification would be insufficient to install the new long range gun 's turrets into ships such as the Duke of York .

On the nights of the 13 and 14 of March 1941 , the Clydebank Blitz virtually destroyed the town . 528 civilians were killed , over 617 people were seriously injured , and 48 @,@ 000 civilians lost their homes . Only seven properties in Clydebank were undamaged , in one of the worst bombing raids in Britain . The raids , involving 260 Luftwaffe bombers on the first night and 200 on the second , targeted the industry of Clydeside , but the Titan crane was undamaged .

In 1968 , the yard was amalgamated into Upper Clyde Shipbuilders along with four others , in an attempt to increase competitiveness . The general elections in 1970 saw a change of government , and funding for the yard was withheld , resulting in the closure of John Brown 's . It was bought from the receivers by the Houston , Texas @-@ based Marathon Manufacturing Company for oil rig construction . In 1980 Marathon sold the yard to the French company Union Industrielle et d ? Entreprise (UiE) . UIE 's owners , Bouygues Offshore closed the yard in 2001 and the site was earmarked for redevelopment .

Ships constructed by the crane include HMS Hood , the Queen Mary , Queen Elizabeth , Queen Elizabeth 2 , and the Royal Yacht Britannia .

= = = Refurbishment = = =

The crane fell into disuse in 1980s , and in the intervening period of neglect , the crane suffered vandalism to the wheelhouse and corrosion to the structure . In 1988 the crane was recognised as a Category A Listed historical structure .

The urban regeneration company Clydebank Re @-@ Built started a £ 3.75m restoration project in 2005 , and the crane opened to the public in August 2007 . The structure was shot @-@ blasted to remove old paint and rust , allowing repairs to be undertaken before repainting . A lift for visitors to

ascend to the jib and an emergency evacuation stair were installed , along with a wire mesh around the viewing area and floodlights to illuminate the crane at night .

= = Design = =

The Titan used a fixed counterweight and electrically operated hoists all mounted on a rotated beam , making it faster and more responsive than its steam powered predecessors . For lifting smaller assemblies that did not require the full lifting capacity of 150 tonnes (150 long tons ; 170 short tons) , a 30 tonnes (30 long tons ; 33 short tons) auxiliary hoist was used , as large loads were comparatively rare .

Titan is 49 metres (161 ft) high , weighs about 800 tonnes (790 long tons ; 880 short tons) and sits on four concrete piles sunk to a depth of 23 metres (75 ft) deep . The arms of the cantilever are 45 @.@ 7 metres (150 ft) and 27 @.@ 4 metres (90 ft) long . The tower is 12 metres (39 ft) square , and its centre sits just 10 @.@ 7 metres (35 ft) from the edge of the quay .

Following the removal of the Beardmore Crane in the 1970s and the Fairfield Titan in 2007 , there are now four giant cantilever cranes on the River Clyde . The others are at Stobcross (Finnieston Crane) , Scotstoun (Barclay Curle Crane) and Greenock (James Watt Dock Crane) . Fewer than sixty giant cantilever cranes were built worldwide , six of them on the Clyde , and as of May 2011 , it is believed only eleven remained , four of those on the Clyde .

= = Awards = =

The crane was awarded the 2012 Engineering Heritage Award by the Institution of Mechanical Engineers , and described as " a magnificent example of mechanical engineering , which forms an integral part of the local landscape " . Titan was designated as an International Historic Civil and Mechanical Engineering Landmark by the American Society of Civil Engineers in 2013 , the fifth such award given to a Scottish structure .

For the restoration of the structure , recognition was accorded by Chicago Athenaeum Award for Architecture in 2008 and by the Civic Trust in 2009 .