

# Dismantling, loading and transportation of the Malmo Crane

Client: Hyundai Heavy Industries



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CIVIL 38

Hyundai Heavy Industries (HHI) employed Fagioli PSC as main contractor to dismantle, load and transport the Malmo Crane to their offshore yard in Ulsan, South Korea. Additionally, Fagioli PSC were tasked to dismantle and transport two Jib dockside cranes whilst demolishing another.

The 1500 tonnes capacity gantry crane at the former Kockums shipyard stood 136m high to the top of the main beam with a span of 174m, weighing in at just under 7,900 tonnes.

The dismantling presented many problems which had to be overcome:

- The sheer size of the crane in terms of sail areas;
- The exact weights were unknown
- Limited space on the site owing to development since the dockyard closure.
- The crane was constructed largely of thin steel plate which meant strengthening many lifting points.

The crane was lowered to the ground in three sections:

- **MAIN BEAM** (4100 tonnes)

Fagioli PSC designed two ring frames to strengthen the main girder lowering points. Arrangements of 4 x 600 tonne capacity strand jacks were positioned on top of each leg mounted on Fagioli PSC cantilever beams. These were twinned to combine two lowering points at each end of the girder. The lowering was controlled by computer situated in a control room about 300m away from all jacks. A complex arrangement of guys were installed to ensure leg and beam stability during lowering. The beam was laid on two temporary supports and two 12m Fagioli PSC Towers constructed in the dry dock where upon the beam was cut into two pieces in readiness for sea transportation.

- **SHEAR LEG** (920 tonnes)
- **PIER LEG** (1480 tonnes)

Fagioli PSC designed temporary lifting points which were welded on both legs. SMIT Heavy Lift's floating sheer leg was employed to lower the legs to the ground. The legs were first inclined using Fagioli PSC leg guys then lifted clear of the crane and lowered to the ground for preparation for sea transportation.

With support from Brandt cranes GmbH and a Fagioli self propelled modular transporter (SPMT) a total of 11,000 tonnes of gantry crane, jib crane and ancillaries were loaded to Dockwise vessel 'Mighty Servant 3', docked alongside the yard.

Re-erection of the beam in Ulsan will take place in January 2003.



Above: Ariel photograph of the crane beam being lowered



Left: Close up of the Strand Jack system used to lower the crane beam.

Below: The main girder lower crane trolley (160 tonnes) being lowered onto an 8 axle Fagioli SPMT

