

CWI Services Case Study: 002

Welding Quality Support for 40m Long Overhead Crane

Background

MHE-Demag Malaysia (MDM) has recently completed two units of 40m long overhead cranes for a power plant in Thailand. The 40m long overhead cranes were the longest and widest overhead cranes manufactured by MDM. See Figure 1 for the girder of the 40m overhead cranes.

In order to comply with the requirements of structural welding code (AWS D1.1) and crane welding code (AWS D14.1), Chen Welding Integrity (CWI) Services was engaged by MDM to provide welding quality services which include welding procedure qualification and welder performance assessment. Furthermore, the overhead cranes owner requested all the weld joints of the overhead cranes to be 100% visually inspected. CWI Services was engaged by MDM to provide visual welding inspection service to inspect all the weld joints.

Scope of Service

CWI Services provided a Certified International Welding Engineer (CertiWE) to perform the welding and welder qualification services for MDM. The CertiWE of CWI Services developed an all positions welding procedure specification (WPS) for FCAW process. The WPS was developed in accordance with the requirements of AWS D1.1, See Figure 2 for welding of procedure qualification test specimen.

In order to enhance the welding personnel resource to cater the production requirements, the CertiWE of CWI Services assessed the performance of 15 welders at different welding positions for different welding processes in accordance with the requirements of AWS D1.1. A total of 15 MDM welders were qualified for 30 qualifications at different welding positions for SMAW, FCAW and SAW welding processes. See Figure 3 for the welders assessed during the welder qualification test.

For the visual inspection service, CWI Services provided a CSWIP certified senior welding inspector to carry out 100% visual inspection of all the weld joints of the overhead cranes. The CWI Services welding inspector carried out visual inspection in accordance with the requirements of AWS D14.1. See Figure 4 for visual inspection activities. During the inspection support, the welding inspector of CWI Services also provide welding defects rectification method to MDM. In order to manage the inspection record and results, the welding inspector of CWI Services developed a customised and comprehensive weld ID system and inspection report template to record the visual inspection results and information related to the inspected weld joints.

Outcomes

An all position FCAW WPS was developed and 30 welders were qualified by the CertiWE of CWI Services in accordance with the requirements of AWS D1.1. An approximate 330m long butt weld and 1596m long fillet weld were inspected by the welding inspector of CWI Services in accordance with the visual inspection requirements of AWS D14.1.

Contact us

Further information related to the welding quality support, please visit www.cwi-services.com.
For enquiry related to welding quality support, please contact us at funwee.chen@cwi-services.com.



Figure 1 Girders for a unit of 40m overhead crane



Figure 2 Welding of welding procedure qualification test specimen at the 4G welding position



Figure 3 Welders participated the welder performance test

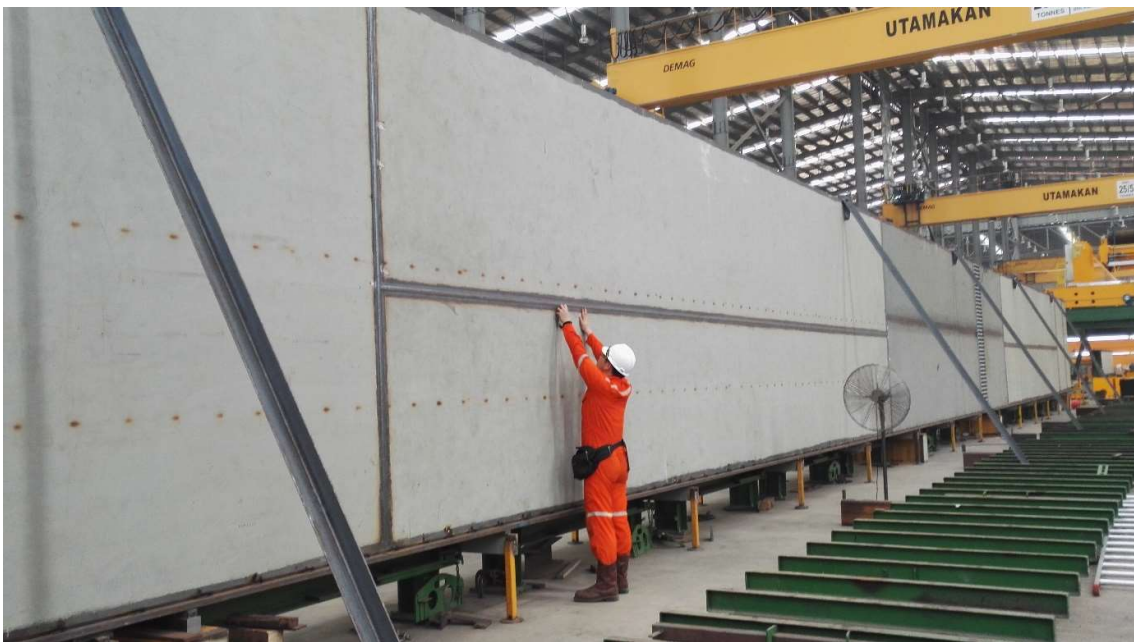


Figure 4 Visual inspection of butt weld of a 40m long girder