

TECHNICAL VISIT TO FAVELLE FAVCO CRANES



by Ir. Dr. Oh Seong Por

The Institution of Engineers Malaysia, Negeri Sembilan Branch (IEMNS) organised a technical visit to Favelle Favco Cranes (M) Bhd. at Senawang Industrial Park on 14 November 2019.

Led by Ir. Dr. Oh Seong Por, the chairman of IEMNS, a group of 26 participants arrived at Favelle Favco and were welcomed by its engineering manager, Mr. Teo Han Fui.

The factory occupies a land size of 68,846 sq metres, with a built-up area of 16,986 sq m. It manufactures tailor-made cranes such as construction tower cranes, offshore cranes, wharf cranes and wind turbine construction cranes.

Mr. Teo gave us a brief explanation of the crane design flow.

Step 1: Client specifications are reviewed and design parameters such as lifting capacity (weight), distance and speed are identified. In addition, environment influences such as wind speed or wavelength are also considered. Next is the type of mounting for crane – moveable wheel, track, platform or supporting column. Safety requirements related to fire or explosion are also studied.

Step 2: Engineering analysis on the crane to determine load chart, component sizing, and winch selection is performed using free body diagram techniques and stress calculation in accordance to API 2C or AISC standards. Computer-generated finite element analysis is applied to study the high-stress location.

Step 3: Designing the mechanical and electrical system. Mechanical design determines the size of the winch, wire rope, engine, gearbox and hydraulic devices such as motor, pump and actuator. Detailed drawings of these parts are prepared for fabrication or component selection. Electrical design is aimed at establishing the power distribution from the client to the crane. This involves identifying the appropriate motor (AC and DC) capacity, air conditioning unit and lighting. The control system and safe load indicators of the crane are also finalised at this stage.

Step 4: The finalised design is submitted to the client for review and response for comment. If necessary, a 3rd party is engaged to verify and endorse the design.

Step 5: The endorsed crane design is handed over to

the production floor where various machines such as lathe machine, flange cutter, rolling machine, laser cutter and welding machine are used to fabricate components which are then assembled together with standard purchased parts to produce the crane.

Step 6: Testing of the crane. The completed crane needs to be tested to verify its intended design functions, namely lifting capacity and lifting speed. Testing is performed at the testing yard. The Favelle Favco testing yard can handle 8 test units of crane simultaneously.

It has an in-house training centre equipped with hydraulic test kits and a crane simulator which provides a virtual training ground similar to the real situation for trainees to learn to control the crane. Our group had a wonderful experience trying the hydraulic test kits and operating the crane simulator. Overall, we spent 4 hours at Favelle Favco Cranes (M) Bhd. and posed for a group photograph with Mr. Teo before departing. Dr. Oh also thanked Mr. Teo and presented him with a souvenir. ■



Participants posing for a group photograph at the site



Participants trying their hand at operating the crane simulator (left) and the hydraulic test kits (right)