

Automation Solution Delivers Concrete Results for a Chinese Oil & Gas OEM

A control solution based on the Rockwell Automation Integrated Architecture platform helps keep oilfield cementing equipment in continuous production.

The high risks in oilfield development have led to strict requirements on the reliability and control accuracy of oilfield equipment. Failures at any level can result in huge losses. That is why many forward-thinking oilfield developers are switching to automated solutions to improve well-drilling, whose process requires the use of cement equipment.

Previously, four to six cementing machines and a dozen auxiliary machines were needed for the successful completion of the cementing process. With technology improvements in control automation, only two machines now are required – one on-duty and the other on stand-by.

SJS Limited, an original equipment manufacturer (OEM) based in Jingzhou, Hubei Province, Central China, makes oilfield cementing equipment as well as pumps for oil-well service plunger and centrifugal pump applications. The company has incorporated modern automation solutions and control systems in their equipment for a decade.

Jidong Ye, SJS operations manager, explains that in oil field operations, continuous production is of the utmost

importance, as well as delivering equipment to customers on time: “Our customers expect us to deliver our equipment to them on time so they could start production on time. Also, we cannot afford to let technical issues impact our schedule, so we need our automation vendor to be able to provide timely support whenever we need it.”

In Control

To meet their internal standards and customers’ expectations, SJS selected Rockwell Automation® programmable automation controllers (PACs) and programming software based on the Rockwell Automation Integrated Architecture™ platform. At the heart of this system are Allen-Bradley ControlLogix® and CompactLogix™ PACs, which leverage common programming and development tools; RSLogix™ 5000 programming software; network protocols; and a service-oriented architecture.

“ControlLogix is well-known for its excellent reliability,” says Jidong. “Furthermore, our customers also recognise the excellent quality of Rockwell Automation products in the Oil & Gas industry.”

The SJS engineering team uses RSLogix 5000 to deploy control algorithms and codes in their equipment. The open programming platform helps the team to complete their source code deployment on time and to easily integrate third-party equipment. Under the software platform, add-on instruction (AOI) features help protect their programming source code.

Concrete Results

The ease of Rockwell Automation solutions enables SJS to gain better control of their machines. The OEM has been able to deploy effective control strategies to manufacture equipment that is stable with excellent reliability. More importantly, SJS customers, the oilfield developers, are able to minimise downtime and avoid production errors.

SJS cementing equipment is now reaching the level of 180-1000 hp, with the pressure equipment reaching a level of 400-3000 hp. According to Jidong, the company has developed a network control system that connects up to 40 individual machines, with a maximum power that can reach up to 100,000 hp.

Moving forward, SJS expects a tighter collaboration with Rockwell Automation in terms of system optimisation and new product development. For example, the company is looking at building intelligence into the automation system so junior staff can operate and maintain machines easily. Other efforts include moving into intelligent data management, providing online services and deploying variable speed drives into new product development initiatives. **AT**

