

Name of Listed Company: Yokogawa Electric Corporation

(URL: <http://www.yokogawa.com>) (Stock code: 6841, listed in TSE 1st section)

Name and Position of the Representative:

Takashi Nishijima, President and Chief Executive Officer

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Yokogawa Acquires Norwegian Company with Advanced Chemical Injection Technology
- Strengthening our solutions targeting the oil and gas upstream and midstream sectors -

Yokogawa Electric Corporation announces the acquisition of TechInvent2 AS, a Norwegian enterprise that holds the rights to FluidCom™, a chemical injection metering valve (CIMV). FluidCom prevents blockages and corrosion in oil wells, pipelines, and other facilities and employs a patented technology for thermal control. It incorporates the functions of a mass flowmeter, control valve, and valve controller and has very few moving parts.

FluidCom has already been delivered to several international oil and gas majors. With TechInvent2 joining the Yokogawa Group, Yokogawa will now target delivery of this solution to the oil and gas upstream and midstream sectors, thereby helping to improve operational efficiency, reduce operational costs, and enhance health, safety and the environment (HSE).

1. Background Information

Based on its Transformation 2017 mid-term business plan, Yokogawa will continue to focus on the oil and gas industries, and will strive to strengthen its solutions targeting the upstream and midstream sectors, in addition to its forte downstream sector businesses. Following its April 2016 acquisition of KBC Advanced Technologies, a provider of consulting services that are based on its own advanced oil and gas simulation technologies, the company has been striving to work with its customers to create value through the provision of solutions that address every aspect of their business activities.

At oil wells and pipelines, efforts to ensure a secure oil flow path (flow assurance) play an important role in maintaining production efficiency. The adherence of various chemical substances to the inside walls of a pipe can reduce its internal diameter and cause corrosion. To prevent the accumulation of substances and corrosion, certain chemicals must be injected into the pipes. Improving the efficiency of this process is a major challenge in the upstream and midstream sectors.

2. FluidCom's CIMV

Chemical injection valves have traditionally been manually operated in the upstream sector, although there are cases where chemical injection has been automated using an actuated solution. In the former case, the valves must be frequently opened, closed, and adjusted by plant personnel. This is costly as it necessitates the hiring of additional staff, and it is work that must be done under very harsh environmental conditions in the field.

It is also a well-known problem that inaccurate and unstable dosing of chemicals leads to additional operational costs and challenges with specific processes. To address and resolve such problems, there is an increasing demand for integrated automatic injection solutions that perform stably and offer a high level of precision in the dosing.

FluidCom's CIMV has a unique design; this is based on a patented technology, providing integrated flow control and metering using a unique combination of material and thermal effects. FluidCom is a fully automated and reliable device with a simple design that performs autonomous valve control and continuous flow metering. The device is able to stably inject chemicals in the required small amounts. It has few moving parts and has proven to be an accurate, reliable solution for the control of chemical injection applications. No regular maintenance is required and remote control features are provided.

The device features a self-cleaning mechanism that reduces maintenance workload, and the automatic injection of chemicals in the correct amounts eliminates the need for manual interventions by plant operators and maintenance workers, thereby enabling personnel to lessen their exposure to harsh environmental conditions in the field. This enhances HSE.

FluidCom is also a valuable solution for downstream operations, where corrosion prevention is always a pressing concern. An ISA100 Wireless™* version is planned.

Commenting on the acquisition of this company, Shigeyoshi Uehara, head of Yokogawa's IA Products and Service Business Headquarters, says:

FluidCom will improve flow assurance, which is a key concern of our customers in the oil and gas industry, and it will make a major contribution to their operations by helping them not only improve production efficiency and reduce operational costs, but also enhance HSE. The combination of FluidCom, KBC's simulation technology, and Yokogawa field devices will allow us to expand the range of our upstream and midstream solutions and enable the delivery of value in new ways to our customers.

*ISA100 Wireless

A technology that is based on the ISA100.11a standard. It includes ISA100.11a-2011 communications, an application layer with process control industry standard objects, device descriptions and capabilities, a gateway interface, infrared provisioning, and a backbone router.

3. About TechInvent2

TechInvent2 is a fully owned subsidiary of TechInvent AS, a Stavanger, Norway-based company founded in 2008. TechInvent is owned by the founder and CEO Alf Egil Stensen, the venture capital firm Statoil Technology Invest AS, Aarbakke Innovation AS, and Ipark AS. The company has been supplying its FluidCom chemical injection technology to major oil companies since 2016. Alf Egil Stensen will continue as CEO of the company now that it is part of Yokogawa.

4. Prospects

The impact of this acquisition on Yokogawa's consolidated business results will be negligible.

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