



Clean battery power for Cameron's electric subsea chokes



Saft's lithium-ion (Li-ion) VL cells have overcome significant technical challenges to provide reliable operation for subsea oil and gas systems.

Environmentally safe

Oil and gas flow equipment manufacturer Cameron turned to Saft's VL cells when it wanted to solve the problem of powering its innovative standalone subsea choke, a type of valve which controls the flow of oil or natural gas between wells and manifolds during the seabed operation of offshore fields. Traditionally, subsea chokes have been powered hydraulically but there is a growing trend in subsea equipment to replace hydraulics with electrical drives. These have the advantages of faster and smoother response and real-time feedback on performance and valve position, as well

as eliminating the possible leakage of hydraulic fluid into the sea. But the challenge is to provide enough power to operate the choke at depths of up to 3,000 metres when it's not practical to run a cable that will meet the high peak power demands. Saft Li-ion batteries provide the ideal solution:

- Saft cells meet all technical, commercial and schedule challenges
- Compact cell size enables battery to fit within the confined space of the choke baseplate
- Li-ion technology ensures a long service life in float charge conditions
- Dual redundancy is provided by two batteries controlled by a battery management system

Case study



SAFT

Meeting subsea power needs

The peak power demanded by the choke actuators is significantly higher than the power supplied to the Subsea Control Module. The Saft Li-ion VL cells therefore take the role of closing the power gap by storing enough power for a full opening or closing operation of the choke, a process which takes up to four and a half minutes. This energy storage solution needs to meet the duty of operating several times a day in exceptional circumstances, plus the choke's normal daily duty, reliably throughout the 25-year design life of the subsea equipment.

Cameron's solution is to use state-of-the-art Saft Li-ion VL cells, maintained on a float charge by a standard 24 V 48 W DC power supply.

- Saft Li-ion VL22M cells provide 550 Wh capacity
- High energy density of Li-ion chemistry enables a small installation footprint
- Housings are designed to withstand extreme water pressure
- Cells offer a 25-year design life

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Our stringent supplier evaluation process confirmed that Saft VL Li-ion cells not only covered all our technical requirements, they could also meet our commercial considerations regarding price and delivery against our development schedule.”

Jan van den Akker
Cameron's Product Manager Controls



Saft Li-ion batteries – key benefits

- Combine the advantages of high power lithium electrode technology with enhanced energy density
- Cells are available in battery modules or customised systems
- Deliver high specific energy and power
- Ensure excellent cycle life and service life
- Require no maintenance

The role of subsea chokes in the oil and gas industry

Subsea chokes are designed for use in production, water injection, gas injection, gas lift and reverse flow applications. Typically, they are used to:

- start up and shut subsea wells
- balance pressures from different wells to a common manifold
- reduce flowline pressures and costs
- protect against reservoir collapse during startup
- control flowrates to extend production life
- protect subsea gates valves from high pressure drops during startup and shutdown.



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