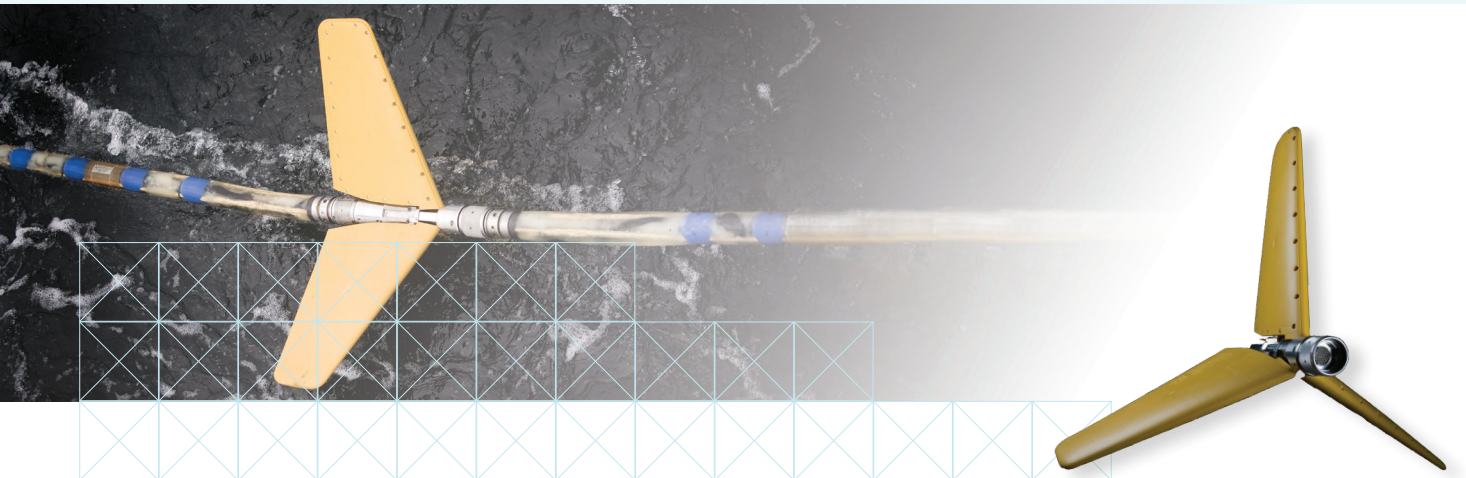
eBird®

KONGSBERG



LATERAL STEERING AND DEPTH CONTROL OF SEISMIC STREAMERS

The slim and elegant eBird design offers effective lateral steering and depth control of seismic streamers with a minimum of additional acoustic noise. The uniform three wing solution and the built-in controller also provide full roll control capabilities.

The eBird solution is built on an in-line body and three detachable wings. The snap-on/snap-off mechanism makes attachment/removal of wings an easy task both during streamer deployment/retrieval and work-boat based maintenance. All wear parts like motors, gears and batteries are located in the wings as a part of the SmartWing concept. SmartWing makes it possible to maintain a very slim body to avoid acoustic noise induced by turbulence. As eBird bodies will remain on the streamer when reeled and wings are easily stowed onboard, eBird requires a minimum of physical space onboard a crowded streamer deck.

Failsafe operation

eBird is designed to be a part of an outer control loop where all steering and control parameters can be accessed from the seismic vessel. The autonomous inner control loop ensures that eBird will maintain the correct depth and roll angle even if communication through streamer is interrupted. The control system includes several fail safe modes designed to handle situations when e.g. physical damage is preventing full steering capabilities of a eBird. Each wing is equipped with a battery that is continuously maintenance charged during normal operation. In case of streamer power failure, wing batteries will work as back-up power sources enabling continued operation for more than one week.

Streamer adaptation

The modular design of eBird means easy adaptation to different streamer types by selection of appropriate connectors, configuration of power- and signal lines and calibration of control algorithms. The eBird wings are interchangeable between different streamer types.

Innovative technology

eBird is based on several technology innovations like the SmartWing concept, inner and outer control loop, modem for low-noise streamer communication and two-way wireless transfer of signal and power between wings and body. The two-way wireless signal and power transfer also enables effective eBird wing diagnostics and battery charging on board. An extensive test program has demonstrated the advantages and robustness of the eBird technology compared to traditional designs. The eBird technology is protected by several international patents.

FEATURES

- In-line titanium body with 3 detachable wings
- Lateral force control
- Low acoustic noise
- Autonomous depth control
- Adaptable to different streamer types
- SmartWing® instrumentation
- Novel modem solution for long range streamer communication
- Wireless power transfer between wing and body
- Ruggedized design
- Battery power back-up
- Power-save mode
- Fault tolerant mode
- Onboard control and monitoring software (eBird® Guidance)

TECHNICAL SPECIFICATIONS

eBird®

PERFORMANCE

Control functions	Lateral, depth, roll
Pressure sensor accuracy	± 0.25 m

WEIGHT AND DIMENSIONS

Build length	373 mm
Overall length	420 mm
Largest body diameter	74 mm
Enclosed diameter with wings	956 mm
Weight (in air)	13 kg
Weight (with wings, in water) 0 kg	
Weight (without wings, in water)	3 kg

ENVIRONMENTAL SPECIFICATIONS

Operating depth	1 – 100 m
Survival depth	300 m
Tension (body)	160 000 N
Operating temperature	-5°C to +65°C
Storage temperature	-20°C to +70°C

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Specifications subject to change without any further notice.

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