

SUBSEA

NAVIGATION



exail



A dark, atmospheric underwater scene. In the upper left, a diver is visible, partially obscured by the darkness. In the center, a large, dark, rectangular structure, possibly a submersible or a large container, is partially visible. The water is dark blue with some light reflecting off the surface, creating a sense of depth and mystery.

Exail, a world leader in high-end subsea navigation

Providing a world-class synergy of inertial and acoustic solutions to ensure operational excellence at every depth.

Exail stands as a global benchmark in subsea navigation and acoustic positioning, with hundreds of vehicles worldwide relying on this proven technology. By combining high-grade Inertial Navigation Systems (INS) with advanced acoustic solutions (USBL, LBL), the company provides a comprehensive ecosystem for underwater operations. Built on maintenance-free Fiber-Optic Gyroscope (FOG) technology, these systems deliver peak reliability in extreme environments. From compact AUV integration to complex offshore construction, the interoperable portfolio ensures high-precision performance supported by a responsive worldwide service network.

INERTIAL PRECISION



STANDALONE NAVIGATION

Inertial Navigation System (INS)



Titanium-housed range INS



Phins Compact Series INS

FOG INS & DVL integration

Unmatched 0.01° sec heading accuracy and 0.05% DT drift, proven down to 6,000 m.

Universal interoperability

Open architecture ensures third-party compatibility and seamless workflow integration.

equipping
80%
of UAVs worldwide

Optimized SWaP-C design

Compact design facilitates integration into space-constrained subsea vehicles.

Extended mission autonomy

Low power consumption enables long-duration deployments.



POST-MISSION REFINEMENT

Delph INS Subsea post-processing software



Superior trajectory accuracy

Optimized processing ensures precision far exceeding real-time capabilities.

Refined data integrity

Advanced algorithms and post-survey integration enable precise error correction and optimized results.

Accelerated project delivery

Automated reporting and batch processing cut validation time and streamline workflows.

Flexible mission adaptability

Intuitive design and licensing ensure fast, seamless deployment in any environment.

INTEGRATED NAVIGATION FOR EVERY SUBSEA MISSION



GAPS SERIES
High-performance USBL
positioning system



ROVINS 9-DVL
High-accuracy
all-in-one INS/DVL

MT9 SERIES
Compact, robust acoustic
transponder



GAPS SERIES
High-performance USBL
positioning system



RAMSES
LBL acoustic
transceiver

ROVINS NANO
Compact navigation-
grade INS



CANOPUS
Intelligent, low-power LBL
seabed transponder



ACOUSTIC SYNERGY



USBL-AIDED NAVIGATION

Gaps Series USBL
positioning systems



Gaps M3



Gaps M5



Gaps M7

Enhanced positioning accuracy

Coupling USBL with the onboard vehicle INS improves positioning accuracy by x3 to x5.

Rapid mobilization

Pre-calibrated and plug-and-play, Gaps Series enables instant operation from any platform.

up to
x5
higher precision

Reliable acoustic communication

Continuous link with subsea vehicles via integrated acoustic modem and telemetry.

Mission versatility

Unique 200° coverage ensures precise tracking from shallow environments down to 7,000 m.



LBL RANGE-AIDED NAVIGATION

Canopus transponder
and Ramses transceiver



Ramses



Canopus

Ultimate deep-water precision

INS/LBL fusion delivers <10 mm accuracy, for demanding subsea operations down to 4,000 m.

Vessel-time savings

Faster deployment, box-in, and array adjustment protocols reduce total days required offshore.

0.01 m
range precision

Sparse LBL efficiency

High-grade INS ensures full performance with fewer transponders, cutting project costs.

Optimized mission workflow

High-rate navigation saves transponder battery. Delph SP software ensures seamless planning and data delivery.

SPECIFICATIONS

TITANIUM-HOUSED RANGE INS

for ROV navigation down to 6,000 m



Octans Nano
Navigation-grade AHRS



Octans Subsea
Survey-grade AHRS



Rovins Nano
Compact navigation-grade INS



Rovins
Survey-grade INS



Rovins 9-DVL
Navigation-grade INS/DVL



Phins Subsea
Ultimate survey-grade INS

Heading accuracy	0.50	0.10	0.15	0.07	0.05	0.01
DVL-aided* on 1 km long straight line (%TD – CEP50)	n/a	n/a	0.20	0.10	0.10	0.05
Roll & Pitch accuracy	0.10	0.01	0.05	0.01	0.01	0.01
Weight in water (kg)	6	6.2	6	6.2	7.5	13
Dimensions (mm)	Ø178 x 266	Ø213 x 375	Ø178 x 266	Ø213 x 375	150 x 255 x 199	Ø255 x 288
Depth rating (m)	6,000	3,000	6,000	3,000	6,000	6,000

COMPACT-RANGE INS

for small and medium UUVs



Phins Compact C3
Navigation-grade INS



Phins 9 Compact
Survey-grade INS



Phins Compact C7
Ultimate survey-grade INS

Heading accuracy	0.15	0.07	0.01
DVL-aided* on 1 km long straight line (%TD – CEP50)	0.20	0.10	0.05
Roll & Pitch accuracy	0.05	0.01	0.01
Weight (kg)	2.2	1.2	3.6
Dimensions (mm)	144 x 82.2 x 8.1 and 124.4 x 83.3 x 46.5	Ø96 x 139	Ø200 x 161.5

*Exail's agnostic architecture ensures seamless integration with all leading DVL providers for robust navigation performance.