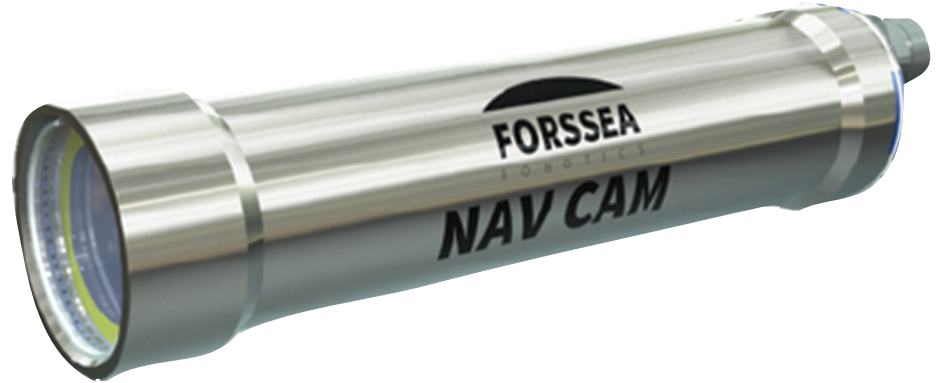


Navigation & Positioning Camera

NAV CAM is an all-in-one ROV / AUV visual based navigation and control centre. NAV CAM features an embedded GPU, integrated pressure sensor and Inertial Navigation System and the V-LOC software is supplied as standard. Image treatments are processed in real-time using the dedicated software to achieve highly accurate positioning. NAV CAM is fully compatible to be used with external survey grade gyro sensors such as an iXblue Octans and vessel Survey suites. As an option Forssea can supply the Nav Cam with an on-demand AI toolbox with asset identification and tracking without the use of markers.



Real-Time Embedded intelligence



Survey Graded Optical Sensor



Certified Lab Calibration



Plug & Play with inertial navigation systems

ELECTRICAL

Voltage	24V
Power	12W
S/N ratio	< 41Dh
Standard wiring	CRE 16 pin connector - BRB16MBA103003 Option - Glenair or McCartney
Data Transfer	Ethernet (10/100 or 100/1000)

MECHANICAL

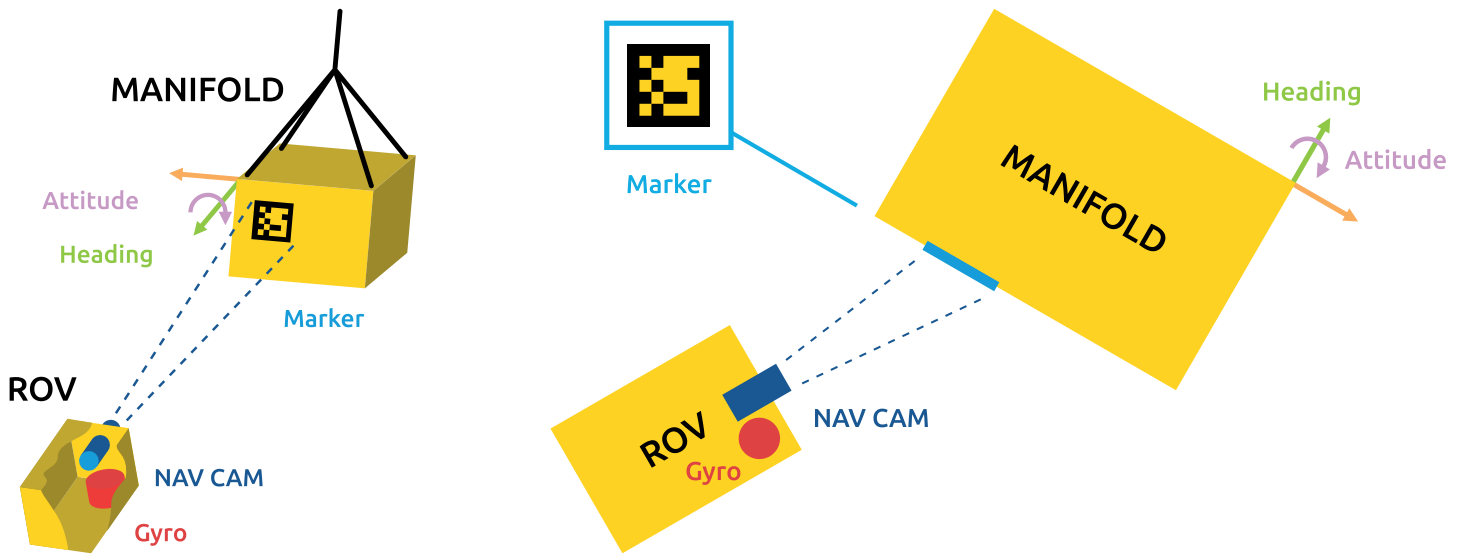
Housing Material	Titanium Gr5 TA6V (3000m)
Lens Material	Sapphire glass
Weight (air/water)	3.41kg / 1.87kg
Dimensions	L = 372mm (inc connector) L = 330mm (without connector) Ø = 75mm (diameter)

OPTICAL

Sensor	Sony IMX264 2/3" Global Shutter Black and White
Absolute sensitivity threshold (γ)	18.07
Resolution	Up to 2456 x 2054 @ 22 fps
Standard focal distance	5mm
Angle of view (in air)	95.45° (D) / 81.54° (H) / 65.76° (V)
Calibration	Certified Lab Calibration for Both Air and Water

ENVIRONMENTAL

Depth rating	3000m (Ti)
Storage temperature	-20°C to 60°C
Operating temperature	0°C to 45°C

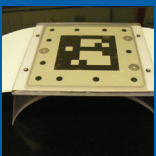


The V-LOC system (Visual Localisation) uses underwater resident markers which are affixed to subsea assets and a calibrated NAV CAM to compute in real-time the positions of the markers for installation and survey operations. The

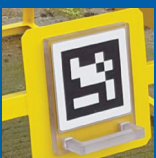
resident markers provided by Forssea are certified with a design life of 60+ years and are equipped with anti-fouling materials. V-LOC is fully compatible with vessel survey suites with drivers developed with EIVA NaviPac and 4D NAV.



Marker Options



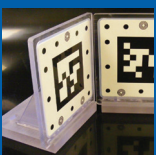
1 Strapping & Bracket



2 Magnetic



3 Permanent Adhesive



4 KISS & Bracket

Installation Example Structure Installation - UK North Sea



STR FORSEA ROBOTICS

Empty Cache | Restart Software

12.17.2019 | 13:57:51

Roll: 0° | Pitch: 0°

Marker settings: Warning: Absolute heading might not be accurate, please add a survey graded gyro to get optimised Heading value

Input settings

Output settings

Network settings

Auto-His

Camera Exposure: 11ms

Camera Threshold: 10

Binary

Marker Rollback

ID	X	Y	Z	Dist Roll	Dist Pitch	Dist Yaw	Abs Roll	Abs Pitch	Abs HDG
2									
4	0.763 m	4.927 m	-0.586 m	-1°	1.7°	92.5°	0.8°	-0.3°	69.6°
3	-0.88 m	4.858 m	-0.625 m	-2°	-4.5°	90.7°	-0.4°	2.5°	67.8°
1									