Sealite®
www.sealite.com

NAUTILUS-2200

2200mm diameter Polyethylene Ocean Buoy

INSTALLATION & SERVICE MANUAL

V1-5

Version No.	Description	Date	Approved
1.0	Manual Launch	July 2009	K. Paton
1.1	Individual Manual	Nov 2009	A. Dixon
1.2	Logo and Warranty Update	July 2010	K. Paton
1.3	Update: Quality Logo	May 2012	J. Dore
1.2	Breather Unit	September 2013	P. Rainey
1.5	Technical specification update	October 2020	M.Nicholson

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Introduction

Congratulations! By choosing to purchase a Sealite Buoy, you have become the owner of one of the most advanced rotationally-moulded polyethylene marine buoys in the world.

Sealite Pty Ltd has been manufacturing buoys for over 25 years, and particular care has been taken to ensure your buoy gives years of service.

As a commitment to producing the highest quality products for our customers, Sealite has been independently certified as complying with the requirements of ISO9001:2015 quality management system.

By taking a few moments to browse through this booklet, you will become familiar with the versatility of your buoy, and be able to maximise its operating function.

Sealite Buoy Division

Sealite marine buoys are manufactured on-site from rotationally-moulded UV-stabilised polyethylene, and are designed to offer a low-maintenance, high visibility solution to marine navigation.

The Sealite buoy division provides turn-key production of navigation buoys. From tooling development, raw materials selection, and production, to final testing and inspection, Sealite guarantees superior quality and fast turn-around times.

Sealite's buoy products are available in a wide range of configurations and sizes, and can be economically shipped worldwide.

Why Choose Polyethylene Buoys?

- No painting
- Inhibits growth
- Increased interval between servicing
- Routine maintenance on location
- Easily repaired in the unlikely event of damage
- Lightweight for ease of deployment and maintenance
- Environmentally friendly – no use of toxic antifouling paint

Mooring Requirements & Regulations

Please contact your local authority for any specific requirements regarding the deployment of buoys.

IALA also has guidelines and recommendations that should be followed.

All information given in this manual is advisory only. Please consult with your local authority before deploying your buoy products.

Local conditions that need to be considered include:-

- Water depth
- Maximum currents
- Maximum wind speeds
- Sinker size and weight

NAUTILUS-2200 Ocean Buoy

The NAUTILUS-2200 is a robust, rotationally-moulded polyethylene ocean buoy designed for offshore port and coastal applications.

SPECIFICATIONS·*	NAUTILUS-2200
General Characteristics	
Available Colours	Red, Green, White, Yellow as per IALA Recommendations
Focal Plane Height (mm/inches)	3200 / 126
Total Float Volume (ltrs/US gallon)	4370 / 1154
Nominal Freeboard (mm/inches)	780 / 30 3/4
Nominal Draft (mm/inches)	690 / 27 1/8
Reserve Buoyancy (kgs/lbs)	1050 / 2315
Maximum Mooring Load (kgs/lbs)	1050 / 2315
Draft, Maximum (mm/inches)	960 / 37 3/4
Freeboard, Minimum (mm/inches)	510 / 20 1/8
Safe Working Load, 1pt (kg/lbs)	1950 / 4300
Safe Working Load, 2pt (kg/lbs)	5200 / 11460
Submergence (kg/cm, lb/inches)	39 / 218
Visual Area (m^2/ft^2)	3 / 32.3
Physical Characteristics	
Material	Rotationally-moulded UV-stabilized virgin polyethylene, internal 316-grade stainless steel bracing, 316-grade stainless steel grab rail and ladder
Wall Thickness (mm/inches)	16 / 5/8 (float section)
Ballast (kg/lbs)	350 / 772 internal concrete
Filling	Closed-cell polyurethane foam (float section)
Height (mm/inches)	4120 / 162 1/4
Width (mm/inches)	2200 / 86 2/3
Mass (kg/lbs)	830 / 1830
Radar Reflector	Echomax
Product Life Expectancy	>20 years
Certifications	
Quality Assurance	ISO9001:2015
Intellectual Property	
Trademarks	SEALITE® is a registered trademark of Sealite Pty Ltd
Warranty *	5 years
Lantern Options	Sealite SL-C310 Series, SL-C510 Series, SL-155 or SL-125 Series
Options Available	· Mould-in graphics · Day marks · Rotationally-moulded side-panelling · Monitoring Systems (AIS, GSM, SATCOM)

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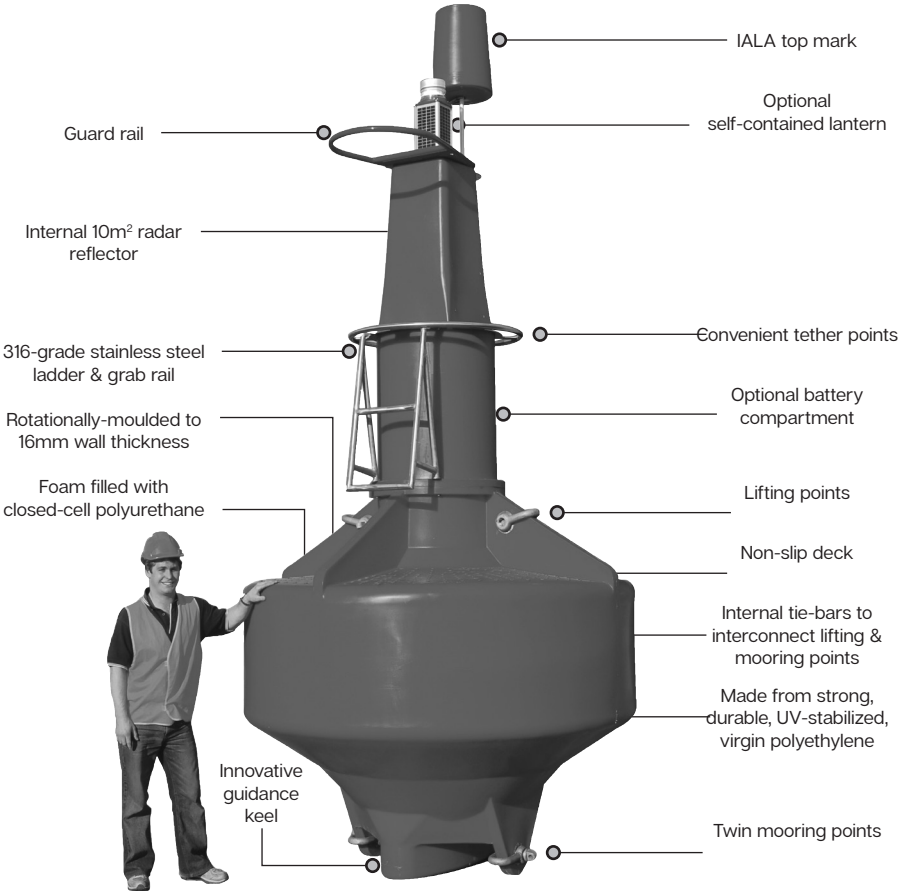
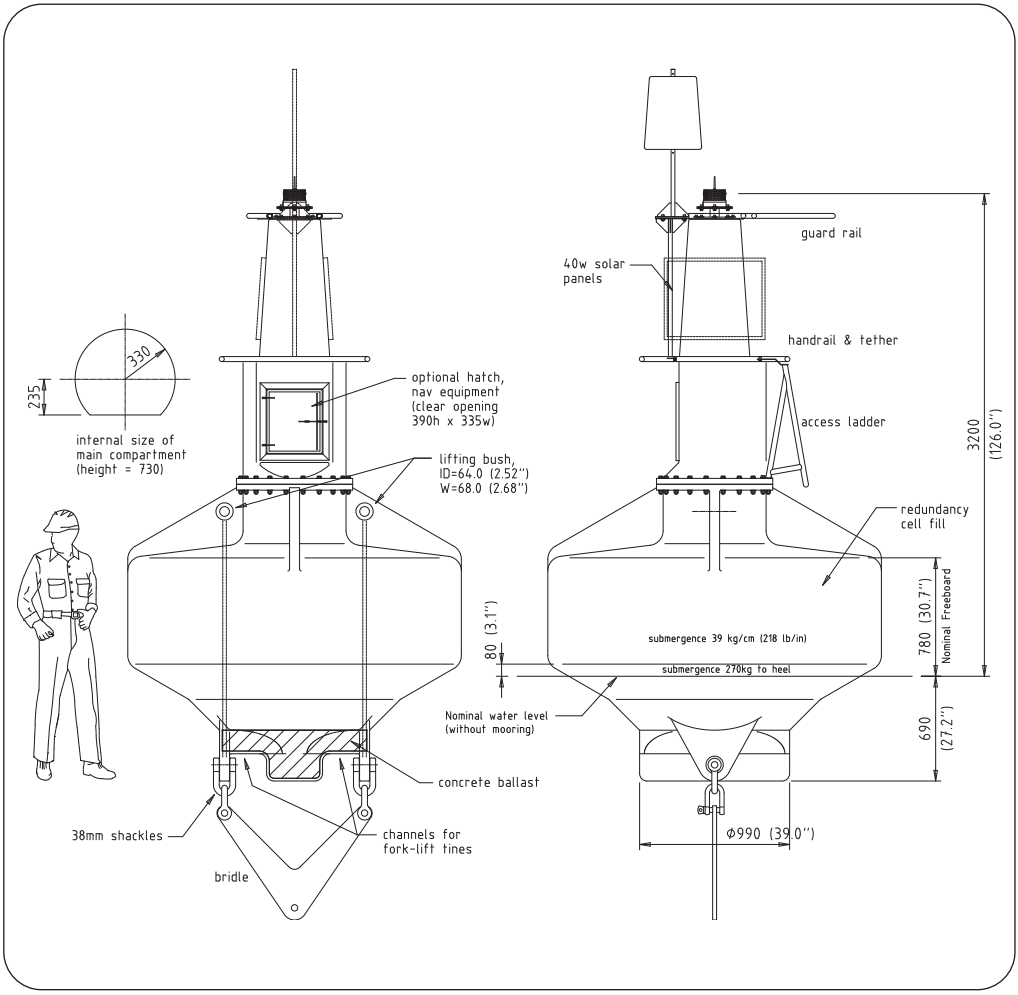
· Specifications subject to change or variation without notice
* Subject to standard terms and conditions

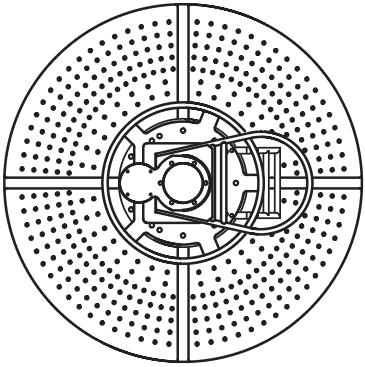
Product Features & Technical Specifications

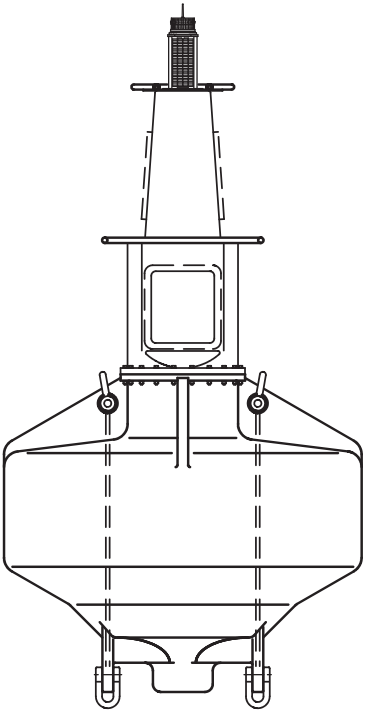


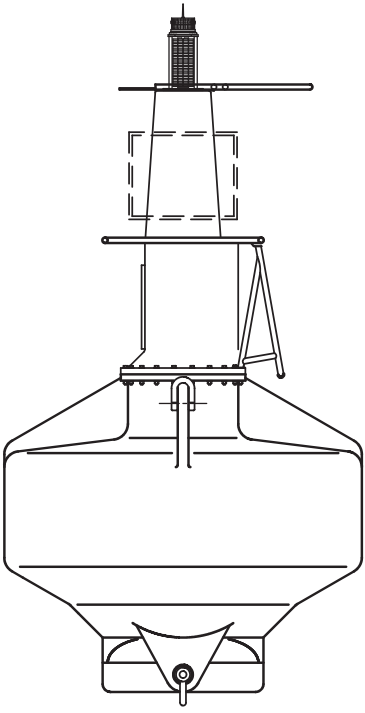

330
235
internal size of
main compartment
(height = 730)
optional hatch,
nav equipment
(clear opening
390h x 335w)
lifting bush,
ID=64.0 (2.52")
W=68.0 (2.68")
concrete ballast
38mm shackles
channels for
fork-lift tines
bridle
guard rail
40w solar
panels
handrail & tether
access ladder
redundancy
cell fill
3200
(126.0")
80 (3.1")
submergence 39 kg/cm (218 lb/in)
submergence 270kg to heel
780 (30.7")
Nominal Freeboard
690
(27.2")
Nominal water level
(without mooring)
ϕ990 (39.0")

NAUTILUS-2200 Product Components

No	Description	Qty
1	Nautilus Float Section	1
2	Nautilus Tower	1
3	Ladder	1
4	G316 S/S Bolt. M10x100mm Long	16
5	G316 S/S Flat Washer	32
6	G316 S/S Spring or Locking Washer	16
7	G316 S/S Plain Nut	16
8	Handrail	1
9	Guardrail	1
10	Day Mark Mounting Plate	1
11	Nautilus Lug Bushes	4
12	Galvanised Grade M Shackle Ø38 with Ø44 pin, inside width 70mm x 137mm	2
13	Galvanised Grade S Shackle, Ø32mm	2
14	Galvanised Grade S Shackle, Ø38mm	1
15	Bridle Plate	1
G316 S/S = Grade 316 Stainless Steel		







Assembly Instructions

Check Components

- Unload all components from crate or container.
- Check all components are complete and correct. Use assembly diagram on following page for full list of components.
- Position the Nautilus Float Section (1) on flat level ground.

Prepare Tower Section

- *Optional:* Position the Lantern on the Tower section. For details on Lantern see Lantern Installation Manual.

  Note: Check for correct Lantern operation before fitting to the tower section.
- *Optional:* Position the Day Mark to the Mounting Plate (10) and secure using 4 x M10 Socket Head Cap Screws, washers and Nuts.

Connect Tower Section to Float Section

- Position the Nautilus Tower (2) on top of the Float Section (1).
  - Secure the Tower to the Float Section.
    - If Tower Section is fitted with Solar Panels, it will require 16 x M10 Stainless Steel Bolts, Nuts and Washers.
    - If Tower Section is not fitted with Solar Panels then 18 x M10 Stainless Steel Bolts, Nuts and Washers are required.
  - Place a flat washer onto the bolt,
  - Insert bolt into hole through Tower and Float Section
  - Secure a second Flat Washer, a Spring Washer and a Nut on to the Bolt.
  - Tighten the Nut
- Fit 2 x Ø38mm Shackles to the Lifting Eyes on the Float Section.
- Lift Buoy up to access the Lug Bushes at the base of the Buoy.
- Cut off the cable tie and fit 2 x Ø38mm Shackles. Secure tightly.
- The buoy is now ready for the Mooring Assembly to be fitted.

Sealite Breather Unit

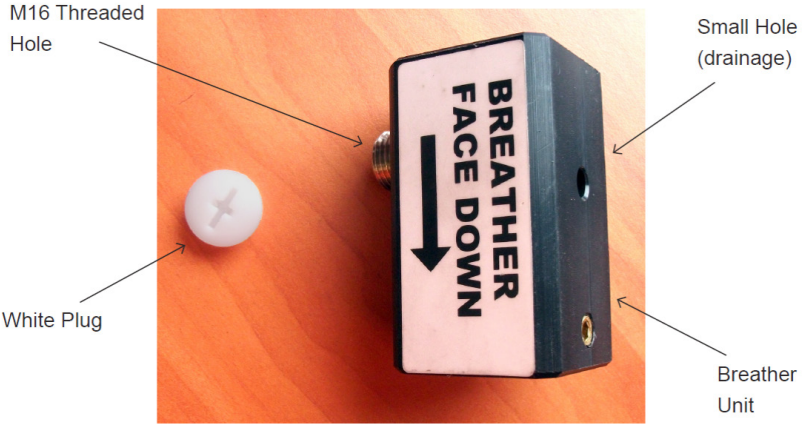
How it Works

Inside the breather unit, is an air channel which forms in the shape of an S-Bend which runs from the M16 threaded hole to a small hole located on the other side.

This channel, fills with water and spills out through the small hole, allowing the water to effectively drain from the buoy and at the same time, preventing water from entering into the buoy through the small hole.

Installation Instructions for Breather Units (For Products which Contain Sealite's Power Packs)

1. Unscrew the white plug located at the side/base of the buoy
2. Apply a small amount of marine grade silicon adhesive to the thread of the breather valve
3. Carefully screw in the breather unit ensuring that the arrow's direction is pointing down.



Mooring Assembly Instructions

Check Components

- Unpack all Mooring and check all components are complete and correct.

Prepare & Attach Chain

- Fit and secure 1 x Ø38mm Shackle and 1 x Ø38mm Swivel Eye to the base of the bridle.

  Note: All Shackles must be positively locked. For example use 3mm Stainless Steel wire to lock the pin eye, or use a shackle pin with nut and split pin.

- Fit and secure a length of chain to the Swivel Eye using 1 x Ø38mm Shackle.

  Note: Please use the guides below to determine the correct chain size and length.

- Fit and secure the Bridle to the Buoy using 2 x Ø32mm Shackles. Place Ø36mm washers to either side of the bridle plate to pack the Shackle for a neat fit.

Attach Mooring Block

- Fit and secure the Chain to the Mooring Block.

- The Buoy is now ready for deployment.

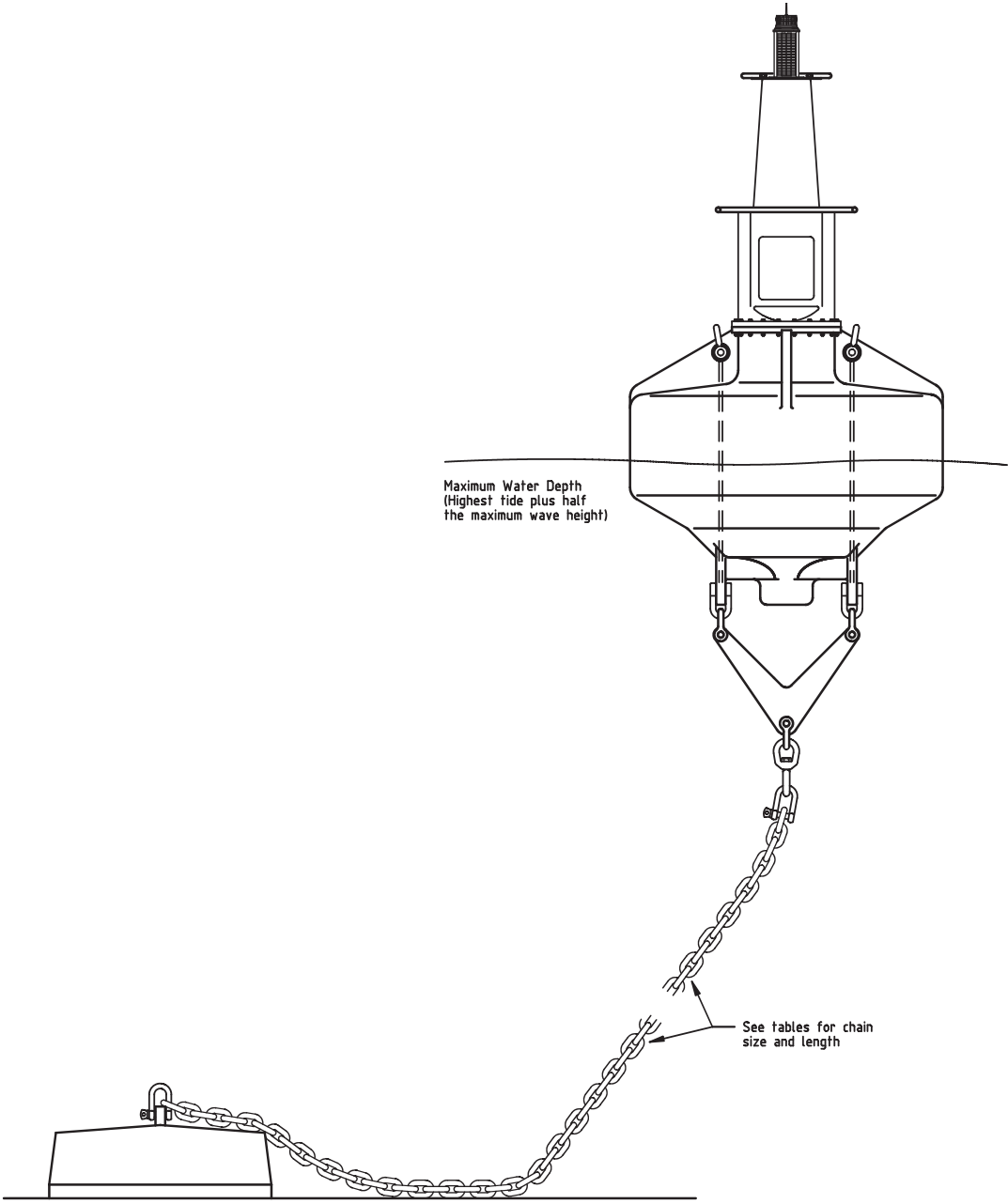
Chain Size Guide

Water Depth		Recommended Chain Size (from swivel to mooring block)
Metres	Feet	
6 to 14	20 to 46	44mm
14 to 22	46 to 72	38mm
22 to 32	72 to 105	32mm
32 to 50	105 to 164	25mm
50 to 75	164 to 246	22mm

Chain Length Guide

	Recommended Length of Chain	Maximum Water Depth
Best Practice (Up to 6kts current)	3 x Water Depth	50m
For Reduced Water Circle (Current 2kts to 4kts)	2.5 x Water Depth	75m
For Minimum Water Circle (use only where current <2kts)	Not less thank 2 x Water Depth	75m

NAUTILUS-2200 Mooring Diagram



Marine Buoy Maintenance

Sealite Marine Buoys are designed to require very little maintenance. We recommend the buoy be inspected annually. Inspection may need to increase depending on the local conditions and the position of the buoy.

IALA Recommendation AISM E-107 suggests moorings are inspected annually.

Marine Buoy – Annual Maintenance

- Visually inspect buoy for damage
- Inspect the top mark for any damage. Repair any broken or damaged section.
- Clean buoy of animal debris

Mooring – Annual Maintenance

- Check and clear the tail and ride chains from shells and algae.
- Check for wear on any shackle axis and check the tapered pins. Any worn shackles must be replaced.
- Check the free movement of each swivel around its head. If any swivel head sticks it must be replaced.
- Check every link of the thrash length of the chain. Check the diameter of the nips and sides and also inspect the welds on every link.
- If depth allows, a worn riding chain may be reversed.
- Change a chain when any link shows excessive wear.
- Chain must be replaced if any link wears to less than 3/5 of the original diameter.

Mooring – Biannual Maintenance

- Inspect the ground chain and sinker.

Lanterns – Maintenance

- Please refer to the Installation Manual for the specific Marine Lantern fitted to the Buoy.

Sealite Buoy Warranty V2.2

Refer to Sealite website: sealite.com

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