

# MET OCEAN MOORINGS

## FEATURES & BENEFITS:

- Successfully deployed worldwide
- Designs available for use in lakes, rivers, coastal and offshore oceanic waters
- Designs are validated with dynamic mooring models
- Long-lasting and high performance
- Typical Mean Time Between Failure in excess of 6 years for met ocean buoys
- Proven designs in extreme oceanic environments



*Mooring design and construction for a wide variety of applications.*

## Met Ocean Moorings

*Setting the standard for operational performance*

# MET OCEAN MOORINGS

One of the most important aspects of any moored instrument or buoy program is the mooring itself. The primary purpose of a mooring is to secure floating platforms and/or instrument systems at a specific geographic location under specified environmental conditions. The numerous mooring designs available can be broadly categorized into Surface and Subsurface or a combination of the two.

AXYS has been designing, building, deploying and recovering moorings since 1978 in lakes, rivers, and coastal and offshore oceanic waters. All AXYS mooring designs are analysed with numerical models that define the mooring's operational boundaries. Using these proven numerical models, sound engineering practices, and years of experience to select the right mooring materials results in long-lasting high performance moorings.

## Surface Moorings

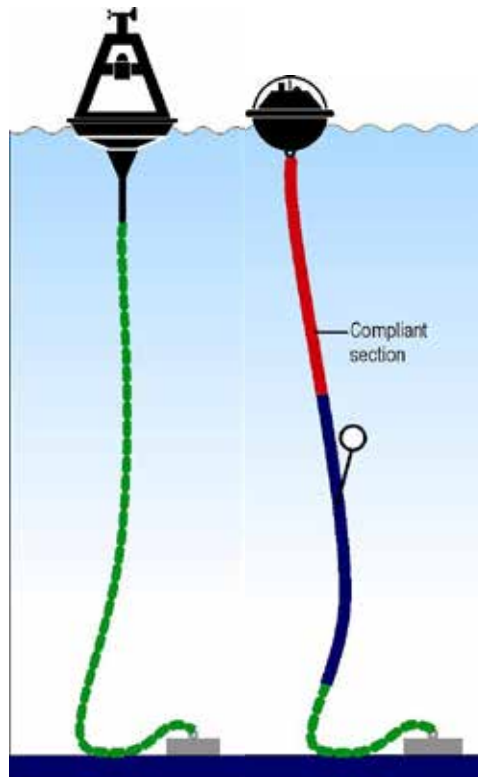
A typical surface mooring consists of an anchor, line or chain, and a surface floating platform. The optimum design will depend on:

- Water depth
- Type of deployment vessel and equipment available on board
- Desired lifetime of the mooring
- Vessel traffic and fishing activity in the vicinity of the mooring
- Currents (surface & at depth)
- Tides
- Waves (average, extreme)
- Winds
- Type of subsurface instrumentation
- Fishbite
- Available materials
- Vessel capabilities

All-chain and inverse catenary are designs frequently used for surface moorings. For meteorological/oceanographic buoys with water depths <80m and no subsurface instrumentation, AXYS normally uses a simple, rugged all-chain mooring. For water depths >200m, an inverse catenary mooring is used. (There is no maximum depth limit for an inverse

catenary mooring.) A hybrid of chain and/or wire is normally recommended for intermediate depths. A compliant mooring allows freedom of motion for buoys measuring waves in shallow water.

For permanent buoy stations, AXYS designs provide long operational life with minimal annual servicing and typical Mean Time Between Failure in excess of 6 years. These designs have been proven in the most extreme oceanic environments in the world.



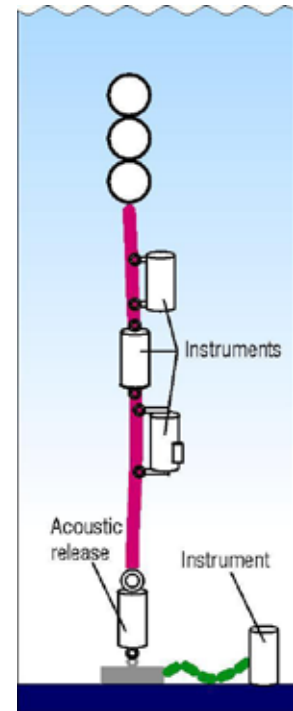
All-chain Mooring Compliant Mooring

## Sub-Surface Sentinel

The AXYS Sub-Surface Sentinel is a subsurface mooring that keeps instrumentation in place in the water column and/or on the bottom and does not normally have any surface floatation. The Sub-Surface Sentinel is a combination of a bottom-mounted instrument and a mooring line with several instrument systems. The Sub-Surface Sentinel is frequently recovered using an acoustic release activated by

a command unit on board a surface vessel. The instruments rise to the surface leaving the anchor behind.

Moorings often include a combination of surface data collection buoys and subsurface instrumentation integrated into the mooring line. Sophisticated arrays of subsurface instrumentation and acoustic telemetry devices can also allow real time data collection to a surface buoy for relaying to shore via satellite and other radio communications systems.



Sub-Surface Sentinel

## Design, Construction and Testing

AXYS designs moorings using proprietary and commercially available software depending on the requirements of the project. Computer simulation tests are run on the design prior to fabricating the mooring. AXYS technologists and engineers have decades of collective practical experience in mooring, design, deployment and servicing for a very wide variety of instrumentation and buoys.



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