



## The Industry's Best Cover

No other cover enjoys the track record or durability record of Hydro-Cap™ frac covers. We have a million square feet of frac cover success stories. It's about engineered wind resistance with patent pending technologies and integrating the highest performance materials globally available. This cover indeed stands completely alone and does so in all types of weather throughout all North American seasons. You will not see competitor tank covers in wind farms but we do that!

Hydro-Cap™ covers are made with flexible air-entrained bubble membranes that are purpose engineered for the application. They can cover most any large diameter Above Ground Storage Tanks (AST style tanks) in 3 or less panels. Many tanks are covered with single-piece covers and most are two-piece pending diameter. The bulk of the cover-to-tank securing hardware is made with stainless steel for long life. Shipping efficiency is another great advantage as three complete covers fitting 160' diameter tanks can fit on a single 53' flatbed trailer.



Hydro-Cap™ Cover at Wind Farm

### Exposure Risk is Greatly Reduced

This system is quickly deployed in a matter of hours with a directed crew. This is an enormous benefit as wind can jeopardize the integrity of an empty membrane lined tank that is vulnerable to catastrophic damage before filling/commissioning. A seasoned crew has successfully installed Hydro-Cap™ covers in tanks with a few feet of standing water present. Fast installation time also keeps costs in-check and pays additional dividends during the de-commissioning of the tank. The decommissioning event almost never marks the end of a Hydro-Cap™ frac cover. They are routinely re-packaged and re-used many times over again for years across the US and Canada. Fast installation time enhances safety. Working inside tanks at locations with potentially windy conditions can be a safety risk to personnel as well.

### Heat Retention with Hydro-Cap™

Studies have shown that in atmospheric conditions similar to northern winter oil field climate, approximately 93% of heat lost from an AST occurs through the open top. If the water surface is sealed to prevent evaporation, up to 74% of that heat will be retained. This is due to the largest factor in heat loss being the cooling effect of evaporation. Radiation, conduction and convection are the other factors. Our covers are designed to cover 99% or more of a typical AST's open top surface preventing an almost equal amount of evaporation, keeping heat retention close to the 70+% range.

### The Real Significance of R Factor

We are often asked, "what is the R factor of your covers?" The short answer is .48. The more pertinent question is what are the real world implications of R factor in this application? University studies in a common size open-top AST suggest that the optimal R value for this application is 5 which can save up to 11% additional heat vs. no insulation. Beyond that, a rapidly diminishing return on benefit starts to occur. To get to an R5 cover, usually a 2 inch minimum thickness foam insulation layer is required. The typical insulation material chosen for ruggedness and durability is a 1.7lb/ft3 density Dow Ethafoam™ style polyethylene material. One immediate problem is poor shipping efficiency (two truckloads for a 160' diameter tank) vs. a ¼" thick Hydro-Cap cover (one third of a dedicated truckload per 160' cover) and a massive plurality of modules, joining hardware and rigging required with 2" systems. These factors ensure very protracted installation periods with increased wind hazard risks. Worse yet, is that 2" thick covers lack stability in high winds, are prone to blowing-out and offer inferior surface area coverage. The Hydro-Cap™ cover solution offers vastly superior wind resistance, survivability, coverage and installation efficiency.





## Dynamic Features

Hydro-Cap™ frac covers are designed to be easily field configured to make allowances for piping and tank system appurtenances that protrude into the tank's interior perimeter to avoid snagging as contained water levels rise and fall. The cover membrane is opaque black in color to prevent algae growth and help warm the water via solar gain, enhance snow melt and encourage avian deterrence. Stability is achieved through a tether restraint system featuring tethering rings. Tether rings distribute point-load forces over larger cover areas and buffer against wear at the tether cable to cover membrane interface. The tether/ring combination enables Hydro-Cap™ covers to significantly resist both lateral and rotational movement from high wind loads. The full outside perimeter of the covers are designed to roll below the water surface elevation preventing wind from getting underneath the cover. Hydro-Cap™ covers also feature storm water drain ports across their surfaces.

### Installation Notes:

A Wet Cover Installation



Hydro-Cap™ covers install quickly but there's a lot of accessories and small details that are mission critical to deploy properly. The bulk and detail can appear overwhelming to the uninitiated and we therefore require that all customers receive on-site installation assistance. Our pricing includes the cost of one supervisor to be on-site for one day. Airfare is charged at cost + 15%. If a wet installation is required (2'-3' of water depth max.) then it becomes essential that an experienced crew performs the work. We proudly work with ShaleStone Resources of Loveland, CO to provide Installation assistance services.

Cover Panel Deployment



Installing a Cover Joint Line



Completed Cover Joint Line



Commissioned Hydro-Cap™ Cover



featuring GeoBubble™ technology



Hydro-Cap™ is a Registered Trademark of Colorado Lining International the O.E.M. Manufacturer



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