

# Magee's Memos

## Drysuit Basics

For those thinking of buying a drysuit or just curious about them, here's an informative description. Drysuits essentially put the diver inside a waterproof suit with a zipper, neck seal, and two wrist seals. Boots are built into all drysuits, eliminating the need for leg seals. It is the air and underwear in the drysuit that keeps you warm. The underwear can be as simple as sweats and jeans or as elaborate as special thermal underwear with costs up to \$1500. An inflator hose attached to your first stage and a valve on your chest is used to manually put air into the suit as you descend. This is necessary because the increasing water pressure will cause the suit to squeeze uncomfortably tight as the air volume inside decreases. On the way up to the surface, this air will need to be vented from another valve mounted on the upper arm as the air expands. This can be done manually by pushing the valve or automatically by setting the valve to a low relief setting. The automatic setting is usually preferred.

The waterproof zipper is the most expensive part of the drysuit (> \$400) and requires regular waxing and care. Self-donning suits put the zipper diagonally across your chest, but this also puts it into harms way and could mean a greater chance of damaging your zipper. To help protect it, most self-donning suits put an additional zippered closure over the top of the waterproof zipper. Neck and wrist seals can either be latex or neoprene. Latex provides a better, more comfortable seal, but it is thin and delicate and can be more easily torn. Latex also requires unscented talc (the oils in regular scented talc damages latex) to allow easier donning and to reduce the chances of tearing. Neoprene seals are thicker, more rugged, and less maintenance-intensive, but they also don't provide as reliable or easy of a seal. Some drysuits have built-in latex or neoprene hoods. Some have a flap called a warm neck that allows you to stuff your own separate hood's skirt into it so it doesn't scoop up water. Some people wear regular wet gloves with their drysuits, and some have special dry gloves attached with a special ring seal or another latex wrist seal. Dry gloves, while warmer, are more expensive, complex, and have a tendency to flood if mishandled. Because all drysuits have built-in boots, when buying a drysuit you are guaranteed to need a larger pair of fins than what you use diving wet.

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There are four major types of drysuits: (1) neoprene, (2) compressed (or crushed) neoprene, (3) trilaminate, and (4) vulcanized rubber. Neoprene drysuits are usually the cheapest, but also bulky and require the most weight, usually greater than 30 pounds, to sink them. They also tend to be less easy to repair and require lots of drying time. However, they do tend to be rugged for those that like crawling over sharp metal and inside wrecks. They are inherently warmer, too. This can mean wearing less thermal underwear or more warmth if the suit accidentally floods. Compressed, or crushed (D.U.I. trademark name), neoprene drysuits eliminate the buoyancy and bulkiness of regular neoprene drysuits while maintaining their advantages in ruggedness and warmth. They are, however, more expensive and still have a long drying time. Trilaminate (TLS) drysuits are made of multiple layers of plastic fabric material. They are lightweight, fast drying, and easy to repair if torn. They have little inherent buoyancy, and they are the most comfortable of all the drysuits to wear. They are, however, expensive and easily damaged by sharp objects underwater. Furthermore, they have little inherent insulation, meaning thermal underwear choices are more important and will be very cold if flooded. Vulcanized rubber drysuits are made almost exclusively by Viking. They are completely impervious to water and many chemicals, and that is why these are the drysuit of choice for contaminated water and commercial divers. They are also very rugged, quick drying, and easy to repair if torn. Their inherent insulation, while not as good as neoprene, is also better than average. Their disadvantages, however, are that they are expensive and very heavy and bulky to wear.

The cost of drysuits is a major issue. New, the suits themselves range from \$800 to \$2500. The average cost of a good new drysuit is usually \$1000-\$1500 (or \$500-\$1000 used). The cost of thermal underwear can also be a major hidden cost, ranging \$300-\$1500 from drysuit manufacturers to under \$100 if bought from camping suppliers or Wal-Mart. The cost of maintenance and replacement of the seals or fixing small leaks can also add to the cost of ownership over the years. However, if properly taken care of, most drysuits will last for ten or more years. In summary, drysuits are more trouble and expensive to own than wetsuits, but they keep you very warm. This can be pretty important when diving those frigid Great Lakes waters.