



Helly Hansen Hydrator W Breathe

We all know the classic moccasin-based boat shoe. It has been around for over twenty years and has become a popular casual style worn close to water or on city streets. Footwear for the true sailing enthusiast, however, has moved on apace and is now a highly specialised section of the market.

Boating shoes are now high tech

The past few years have seen a tremendous growth in all water sports, and sailing in particular. While the latter has been traditionally popular in many countries, there has been a surge of more general interest due to the television prominence given to rowing and sailing disciplines in the Olympic Games and round-the-world yacht races.

The fact that so many people have come to expect technically sophisticated shoes, in so many areas of life, has inevitably meant that more sophisticated alternatives to the traditional and rather basic boat shoe were required. Specialist clothing brands such as Musto and Helly Hansen have been quick to exploit this.

The demand now is for specialist boots and shoes, which use all the latest technologies employed in athletic footwear and a few other interesting ones besides. So what are the requirements, and what are the technologies used to fulfil them?

Grip

Well the first thing, of course, is grip. Boats are wet and the ability to keep one's feet firmly on the deck or moving around the boat is essential. Failure to do so decreases efficiency in sailing the boat as fast as possible and at the same time increases the chance an unwanted ducking.

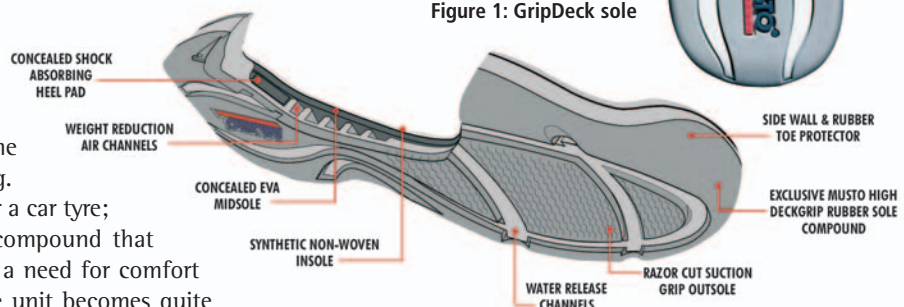
The keys to this are the same as those for a car tyre; a tread pattern to disperse water and a compound that will grip and provide traction. Add to this a need for comfort and shock absorption, so designing a sole unit becomes quite

complex. A good example is the GripDeck sole used by Musto.

Here, the design seeks to maximise the contact surface area with a 'sticky' rubber compound. The wide concave water channels inserted beneath the wear surface of the sole are used to force water from the sole's surface and so increase grip on a wet deck. The zig-zag razor cuts in the wear surface of the sole provide an edge grip when subjected to angled pressure, which helps maximise surface area contact. ➤



Figure 1: GripDeck sole



WORLD FOOTWEAR



Figure 2: Hydrator W
all weather shoe

The sole itself is quite a complex two-part structure (Figure 1) with water drainage channels and razor cuts for extra grip. Protection is provided at both toe and heel by raising the edge of the sole well above the featheredge of the last. The compound is a rubber developed specially by Inov8 for the marine environment and to have optimum performance on fibreglass, painted and teak decks in wet conditions. It took three years to perfect and involved extensive field testing by America's Cup and Vendee Globe sailing crews.

Overall shock absorption is provided by a foam heel insert and an EVA midsole, which are placed inside the sole before it is attached to the upper. The waist and heel areas of the sole are suitably lightened by cross bars, which also help material flow during moulding.

The combination of water dispersion and surface grip that this type of sole design appears to afford could well be applied to everyday footwear and, in particular, for children and elderly people. Some changes to the composition of compounds might be required as the soft compounds used in sailing shoes are not designed for concrete or tarmac surfaces.

Quick-drying uppers

In sailing, feet inevitably get wet and there is nothing worse than spending the day with water sloshing about in one's shoes. There are two solutions:

- Keep the water out, which is not really practical unless you wear boots up to your thighs
- Let the water in but remove it as fast as possible in order to retain a sufficient degree of comfort.

Helly Hansen has made strenuous efforts to solve this problem as far as it is humanly possible by following the second method.

Its Hydrator W shoe has been designed for all-weather sailing and is claimed to be ultra-fast drying in wet conditions. The upper is made from Clarino microfibre which is resistant to salt water and has heavily perforated side panels to allow rapid drainage of any water entering the shoe (Figure 2).

There is also a fully perforated removable synthetic insole/midsole and a perforated sole, which together ensure removal of water in that direction too. The sole itself is made from non-marking gum rubber to increase the wearer's grip on smooth surfaces. This is, of course, a totally sailing-dedicated design concept, but the company also produces a boot which shows how the technology can also be transferred to land-based activities.

The Shorehike Breathe (Figure 3) is something of a hybrid in that it can be used either while sailing or hiking. The design concept is far more akin to a lightweight hiking boot except that to solve the dryness problem, multiple fine perforations in the upper, insole/midsole and outsole are utilised. Whether it would stand up to the rigours expected of most hiking boots is a moot point. Nevertheless, it is an interesting concept.



Figure 3: Shorehike Breathe

Weather resistance

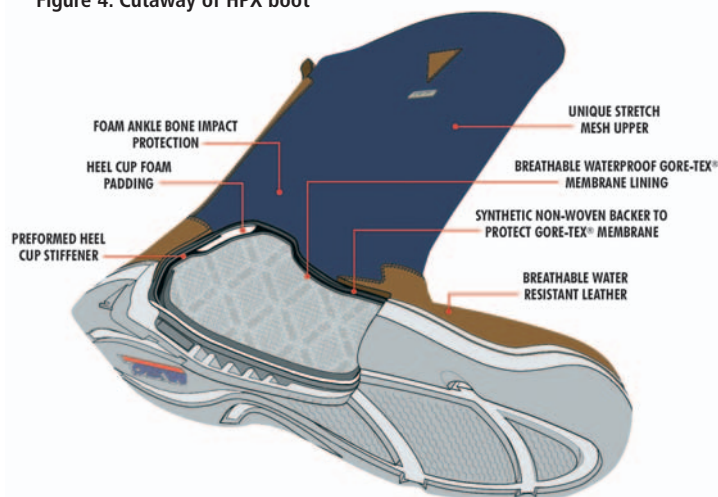
The alternative is to try to keep the water out. Clearly this requires a boot rather than a shoe and one that is close fitting around the leg. This creates two basic problems:

- How to make the boot water resistant but also allow it to breathe
- How to ensure a close fit and also provide enough movement

Musto's HPX boots employ a mixture of materials, which, when combined, are as close to an ideal solution as anyone has come up with so far.

The water resistance and breathability are resolved by a Gore-Tex membrane extending round the foot and all the way up the leg, and laminated to a polyamide/polyester non-woven lining. The system has been well-proven in the company's all weather clothing lines and it was a natural progression to apply it to footwear.

Figure 4: Cutaway of HPX boot



FOOTWEAR TECHNOLOGY

The fit factor is covered by the use of a polyamide/Lycra stretch fabric that Musto also developed for use in clothing. This is used for the leg of the boot and makes it flexible, close fitting but also easy to take on and off. The foot is cut from water-resistant full grain leather and foam padding is included at the heel for added protection (Figure 4).

The final feature is a lightweight PU coated polyamide/Lycra stretch gaiter around the top of the leg containing an inner lace which can be tightened and held by a simple speed lock to provide a final all-weather seal. A small but important consideration here is that the lacing must be easy to use with cold and wet hands—hence the use of a speed lock (Figure 5).

Specialisation

This type of footwear is highly specialised and far removed from the humble boat shoe. It is also expensive, but this does not seem to matter. Whereas the basic everyday



Figure 5: HPX Ocean Boot

ladies or men's shoe is being forced ever downwards in price, specialist brands are defying the trend. The key is technology.

We saw it begin with the trainer, which rapidly became more sophisticated to the extent that perceived technical progress has become the cornerstone of marketing. The concept is now rapidly proliferating into many other types of footwear as more and more end users come to expect greater degrees of technology in their shoes.

In many instances the features are no more than a marketing gimmick. Brands such as Musto and Helly Hansen however, cannot afford to make mistakes and must therefore develop technologies that are of real benefit and actually work. We need to see the same approach increasingly used in everyday footwear so that it also becomes more comfortable, weatherproof and safer to use. 

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