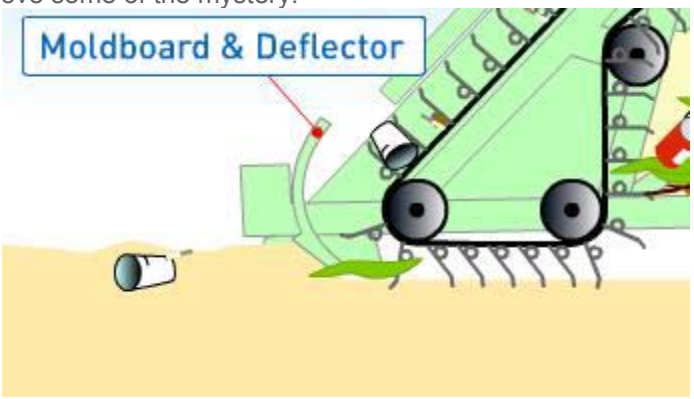
Beach Cleaner Tech: Moldboards Explained

The Moldboard, or steel leveling deflector plate, is integral to the success of mechanical raking beach cleaners and provides them with several significant advantages over other beach cleaning machines. However, most potential beach cleaner buyers aren't fully aware of what a Moldboard actually does. We created this post to remove some of the mystery.



The moldboard performs several critical functions. It primarily:

1. Deflects debris that has been removed from the sand by the tines back onto the conveyor belt, which then transports the debris up into the hopper.

Since the tines are combing through the sand very quickly, they fling newly removed debris forward in the motion they are going. The curve on the inside of the moldboard deflects the debris back onto the conveyor (as shown by the cup in the diagram above), and the tines carry the newly separated debris up to the hopper.

2. Levels the beach. This is important for more than the obvious aesthetic reasons. Beaches are rarely level, and this presents interesting challenges for beach cleaners. An abandoned mid-sized sand castle or raised mound can often be enough to jam beach cleaners that simply remove the sand from the beach with a cutting edge, like most popular sifting-style machines. Hitting one of these obstacles at normal cleaning speeds causes an influx of sand to clog the screen. This results in either too much sand weight overpowering the hydraulic drives, too much sand falling on the screen that can't be sifted in time before getting dumped in the hopper, or, in the cases of larger piles, can simply stop the machine in its tracks.

Additionally, when a cutting edge hits a large rock or concrete block that has been buried in the sand, this can cause the machine to come to a screeching halt--flinging the operator from his/her seat and/or breaking the screen/cutting edge mechanism on the beach cleaner. This results in injury and/or requires major repairs to the beach cleaner.
In order to avoid these potential pit-falls, a moldboard's natural curve simultaneously levels the beach while riding over larger, immovable objects. Instead of hitting a submerged object straight on, like

an ax hitting a log, the moldboard's curve lifts the beach cleaner over the submerged object, while the spring-action tines simply flex over the object without being damaged.

Another great benefit of leveling the beach is that it creates an even plain of sand for the tines to then rake. This ensures that every part of the beach is cleaned thoroughly and evenly with equal tine-penetration.

Lastly, having the solid, steel moldboard to level the beach before/while cleaning proves helpful during the first cleans of the season, because it can level piles of sand or newly-formed hills that developed during the off season. Much like a tractor can level terrain with its loader, the moldboard can smooth the mounds and piles--making a level cleaning surface and a more welcoming environment for beach-goers.

3. Prevents the pre-mature wear of the conveyor belt

By shielding the tines and conveyor belt from constant abrasion, the impact of the sand, and potentially harmful submerged objects, the moldboard protects the conveyor belt from many of the main damaging elements that most beach cleaners' cleaning mechanisms are exposed to. Most sifting screens need to be replaced every year and tightened periodically, because they are the first component to hit the sand while spinning around the cutting edge. This proves annoying and expensive. The conveyor belts and tines on beach cleaners that utilize moldboards, however, tend to last many years.

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