

# Bowling ball design

[Design](#)



Newer and more aggressive coverstocks are being designed and released every year. Not only the outer surface of the bowling ball has changed, but the core designs inside the bowling balls are ever changing as well. Even the lanes bowl on, believe it or not, are changing since bowling was popularized as an indoor sport. Many people make their decision about which bowling ball they purchase based on what type of material is in the outer casing. This is called the coverstock. Three of the most widely used coverstocks are urethane, reactive resin, and particle.

The urethane coverstock was originally introduced to bowling in the 1950s and had a steeper entry angle into the pocket, "between the one and three pin for right-handed bowlers", and thus created more pin action. Still today the urethane ball is a widely under-utilized tool due to more aggressive coverstocks such as reactive resin. Reactive resin coverstocks are composed of similar materials used in regular urethane formations; however, they are blended with different additives. The effect is a "tacky" feeling which translates into additional traction and a stronger back end reaction on the lane.

Sub-categories of reactive coverstocks are solid and pearl. This mostly has to do with the finish of the ball being dull or shiny. A dull finished ball will begin to hook earlier while a polished ball will slide further down the lane creating more "snap" on the back end. Particle coverstocks are another successful classification and is similar to the make-up of reactive resin balls with the main difference being the addition of microscopic pieces of material blended to reach through an oily lane surface to make even more responsive contact.

Unless there is a very heavy oil volume, particle coarseness will create too much friction causing the ball to use its energy too early and conserve too little energy on the back end for impact with the pins. The core design of a bowling ball can be simply classified into three categories, pancake, two piece, and three piece. Within these three classifications there are literally thousands of different designs. We will start with pin placement. The pin is just a mark on the outside of the ball letting you know where the top of the core is located.

The CGI, or center of gravity is the point on the ball where all four quadrants of the ball are perfectly balanced. The mass bias, or MBA, denotes where the core is closest to the outer edge of the ball. Finally the ERG, or radius of gyration determines how fast the ball can spin. A great example of ERG is that of an ice skater. When they do a spin they can hold their arms in towards their body, this creates a lower ERG and faster spin. Likewise they can position their arms farther away from their body, this creates a higher ERG and slower spin.

This determines where the ball needs to utilize its energy, whether it be mid-lane or closer to the back end. All of these specifications are very important when creating the layout for your bowling ball. The bowling lane that we use, whether it is for recreation or sport, is constructed to very specific guidelines. It is exactly 60 feet from the foul line to the center of the dead pin. The lane width is exactly 41.5 inches not including the gutters. The surface of the lane has also changed immensely over the years. Wooden lanes, although few and far between, still can be found in bowling alleys throughout the country.

<https://assignbuster.com/bowling-ball-design/>

They require much more maintenance and upkeep than the synthetic lanes found in most bowling centers today. Wooden lanes create much more friction and are composed of two different types of wood throughout. Oak is used at the "head", or front part of the much more of a beating. The rest of the lane is constructed of pine because it is cheaper, softer, and creates more friction with the ball. The more popular synthetic lanes also give the appearance of wood but are much more durable and better suited for the ball technology of today.

Possibly the most challenging obstacle bowlers face, no matter what the lane itself is made from is the oil pattern that is being used. There are literally millions of different patterns available and more are being created every day. From the professional patterns created by the SUBS and ABA, to the typical house shots and league patterns we bowl on every day. The possibilities are endless. Finally we get to the end of the lane, so to speak, those ten little pins at the end of the alley. The bowling pin itself has had very little change over the years.

The pin is constructed from maple and is coated in a 3/32 inch plastic shell. It must weigh between 14.5 and 15.5 lbs and stand exactly 15 inches high. The ten pin rack is set up in the following diagram, and if someone is talented and lucky enough to knock down all ten pins, twelve times in a row they would be part of an elite group that can say they've bowled a perfect game of 300. Much easier said than done! In summary it is easy to say that bowling, over the years has gone from a lawn sport laded mostly by royalty, to an indoor sport that anyone can enjoy any day of the week.

It is the only sport that I can think of, in which a few beers may actually be a good thing, a sport in which anyone can rent a pair of shoes and have a good time. Anyone from the handicapped persons of the Special Olympics, to the average Joe on a date with his girlfriend. It can be done fairly inexpensively by an amateur, or thousands can be spent by an engaged league bowler or professional. I encourage everyone to get out and bowl a few games. Maybe you'll get lucky and bowl that perfect game. Like they say Mimi can't win if you don't play. "