

Ball Speed

Ball Speed is the speed of the golf ball immediately after impact.

Ball speed is created by club speed and impact. Bad impact such as shots hit on the toe or heel will reduce the potential ball speed. “Glancing blows” created by hooks, slices, and hitting too much down on the ball can also reduce the potential ball speed.

Although a golfer’s club speed is key to potential distance, the ball speed that is created at impact is the biggest factor in how far the ball actually carries. Gaining 1 mph of ball speed can increase your driver distance by up to 2 yards.

The highest recorded ball speed is 225 mph by former long drive champion Ryan Louw.

Technical Definition

Ball Speed - The speed of the golf ball’s center of gravity immediately after separation from the club face

Averages

PGA TOUR

- Driver – 167 mph

LPGA Tour

- Driver - 139 mph

TrackMan Combine Averages

Male Amateur (Driver)

- Scratch or Better – 161 mph
- 5 HCP – 147 mph
- 10 HCP – 138 mph
- Average Golfer (14.5) – 133 mph
- Bogey Golfer – 131 mph

Female Amateur (Driver)

- Scratch or Better – 131 mph
- 5 HCP – 125 mph
- 10 HCP – 119 mph
- 15 HCP – 111 mph

BALL SPEED



Smash Factor

Smash Factor is ball speed divided by club speed.

Smash Factor relates to the amount of energy transferred from the club head to the golf ball. The higher the smash factor the better the energy transfer. A golfer would hope to achieve a smash factor near 1.50 on driver shots. That means for a 100 mph club speed the ball speed would be 150 mph. The higher the loft of the club, the lower the smash factor is expected to be. A PW should have a smash factor near 1.25.

DRIVER EXAMPLE

Golfer A has a club speed of 100 mph and a smash factor of 1.40. Golfer A's ball speed is 140 mph.

Golfer B has a club speed of 100 mph and a smash factor of 1.50. Golfer B's ball speed is 150 mph.

The 10 mph difference in ball speed between Golfer A and Golfer B equates to approximately 20 yards in distance between the two golfers even though they have the same club speed.

Technical Definition

Smash Factor - The ratio between the Ball Speed and the Club Speed

Tour Averages

PGA TOUR

- Driver – 1.49
- 6 iron – 1.38

LPGA Tour

- Driver - 1.49
- 6 iron - 1.39

Male Amateur (Driver)

- Scratch or Better – 1.49
- 5 HCP – 1.45
- 10 HCP – 1.45
- Average Golfer (14.5) – 1.44
- Bogey Golfer – 1.43

Female Amateur (Driver)

- Scratch or Better – 1.46
- 5 HCP – 1.45
- 10 HCP – 1.44
- 15 HCP – 1.41



Launch Angle

Launch Angle is the angle the ball takes off at relative to the ground.

Launch angle is highly correlated to dynamic loft. Launch angle will always be a little less than dynamic loft, but will have a similar value.

Along with ball speed, launch angle is a primary component to determining the height and distance of a shot. Every golfer should be fitted to achieve the optimal balance of launch angle and spin rate based on their club speed and ball speed.

Technical Definition

Launch Angle - The vertical angle relative to the horizon of the golf ball's center of gravity movement immediately after leaving the club face

PGA TOUR

- Driver – 10.9 deg
- 6 iron – 14.1 deg

LPGA Tour

- Driver - 13.2 degrees
- 6 iron - 17.1 degrees

Male Amateur (Driver)

- Scratch or Better – 11.2 degrees
- 5 HCP – 11.2 degrees
- 10 HCP – 11.9 degrees
- Average Golfer (14.5) – 12.6 degrees
- Bogey Golfer – 12.1 degrees

Female Amateur (Driver)

- Scratch or Better – 12.7 degrees
- 5 HCP – 12.0 degrees
- 10 HCP – 12.4 degrees
- 15 HCP – 13.6 degrees



Spin Rate

Spin Rate is the amount of spin on the golf ball immediately after impact.

Spin rate has a major influence on the height and distance of a shot. Spin rate is one of the least appreciated numbers, especially in windy conditions.

A high spin rate is the enemy, particularly when hitting in to the wind. One way to reduce spin is to hit a lower lofted club. Practice taking one or two clubs more (5 iron instead of 7 iron) and swing easier. This will help you control your ball flight and distance.

More loft generally increases spin rate. All things being equal, more club speed will also increase spin rate.

Technical Definition

Spin Rate - The rate of rotation of the golf ball around the resulting rotational axis of the golf ball immediately after the golf ball separates from the club face

PGA TOUR

- Driver – 2686 rpm
- 6 iron – 6231 rpm

LPGA Tour

- Driver - 2611 rpm
- 6 iron - 5943 rpm

Male Amateur (Driver)

- Scratch or Better – 2896 rpm
- 5 HCP – 2987 rpm
- 10 HCP – 3192 rpm
- Average Golfer (14.5) – 3275 rpm
- Bogey Golfer – 3127 rpm

Female Amateur (Driver)

- Scratch or Better – 2831 rpm
- 5 HCP – 3027 rpm
- 10 HCP – 3207 rpm
- 15 HCP – 3287 rpm

SPIN RATE



Carry Distance

Carry is the distance the ball travels through the air.

An important thing to know about carry is that the value is given for a landing area that is the same height as where the ball is hit from. Then the golfer can adjust for uphill and downhill shots on the course. This reason is why carry is sometimes referred to as “carry flat”.

Using the club speed definition, we would expect the average male amateur to hit their driver as far as the average LPGA Tour player. However, the actual difference is more than 20 yards. Ball speed, launch angle, and spin rate must be optimized to reach a golfer’s potential distance. LPGA Tour players are some of the best in the world at optimizing these numbers and getting the most out of their club speed.

Technical Definition

Carry – The straight-line distance between where the ball started and where the trajectory crosses a point that is the same height as where the ball was hit

PGA TOUR

- Driver – 275 yards

LPGA Tour

- Driver - 218 yards

Male Amateur (Driver)

- Scratch or Better – 252 yards
- 5 HCP – 223 yards
- 10 HCP – 205 yards
- Average Golfer (14.5) – 195 yards
- Bogey Golfer – 184 yards

Female Amateur (Driver)

- Scratch or Better – 197 yards
- 5 HCP – 178 yards
- 10 HCP – 163 yards
- 15 HCP – 149 yards