

Putting Parameter Guide

1. Basic concepts and definitions

(1) Definition of putting skill level

Amateur: handicap 20 or above

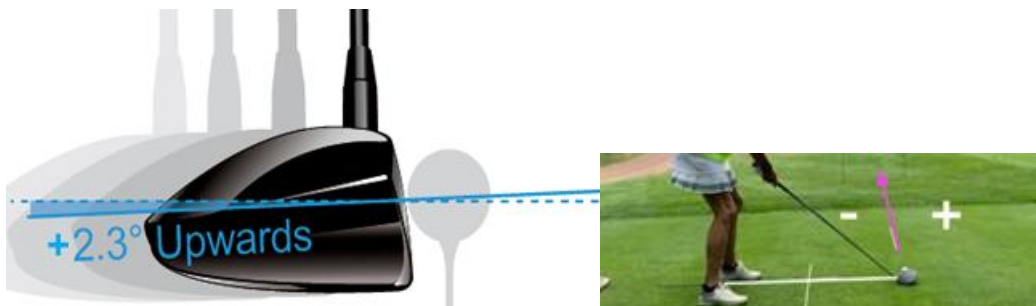
High-level amateur: handicap 6-20

Elite: handicap less than 5

(2) Positive and negative angles

Upward is positive, downward is negative;

Away from the putter is positive, close to the putter is negative.

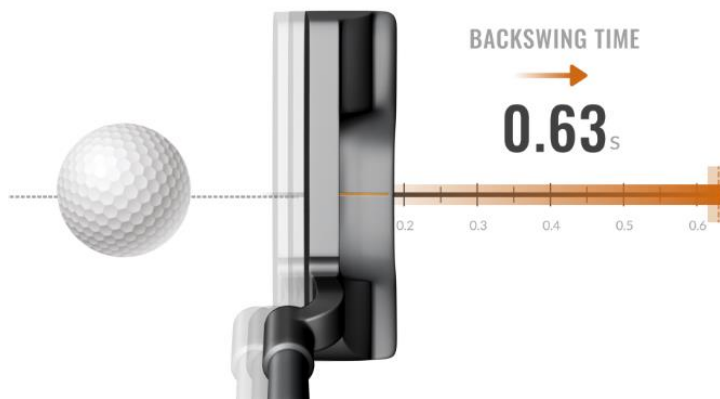


2. Parameter

2.1 Swing rhythm

2.1.1 backswing time

2.1.1.1 definition



Backswing time: The time it takes for the club head to move backward and reach the highest point during the backswing process.

2.1.1.2 Reference values and consistency

There is no reference value, it depends on the length of the putt and the golfer's habits.

Consistency: Amateur: **0.50s**, High-level amateur: **0.10s**, Elite: **0.03s**

2.1.2 Downswing time

2.1.2.1 definition



Downswing time: from the highest point of the backswing to the moment of impact with the ball.

2.1.2.2 Reference values and consistency

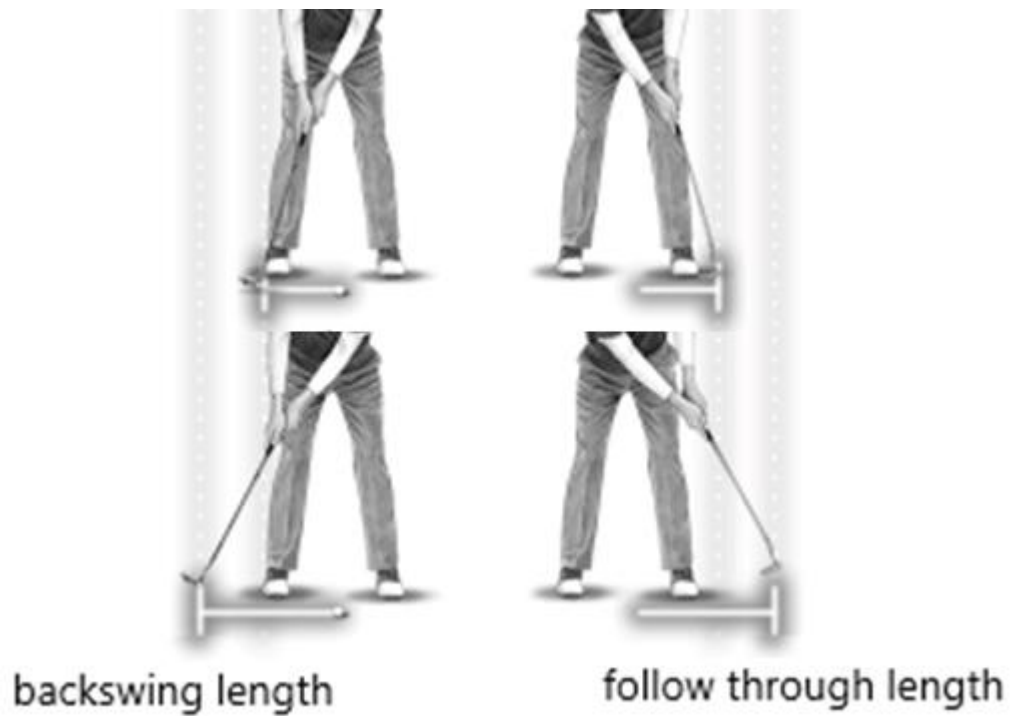
There is no reference value, it depends on the length of the putt and the golfer's habits.

Consistency: Amateur: **0.70s**, High-level amateur: **0.30s**, Elite: **0.01s**

2.1.3 stroke length

2.1.3.1 definition

Stroke length include backswing length follow-through length.



2.1.3.2 Reference values and consistency

There is no reference value, it depends on the player's putting habits and putting length. Generally, the backswing length is the same as the follow-through length.

Consistency: Amateur: **<3inch**, High-level amateur: **<2inch**, Elite: **<1inch**

2.1.4 tempo

2.1.4.1 definition



Putting tempo = backswing time / downswing time

2.1.4.2 Reference values and consistency

Reference values: Amateur: 1.7 – 2.3; high-level amateur: 1.8-2.2; Elite: 1.9 –

2.1

Consistency: Amateur: **0.4**, High-level amateur: **0.2**, Elite: **0.05**

2.2 Club head

2.2.1 Club Speed

2.2.1.1 definition



The linear speed of the club head's geometric center just before impact with the ball.

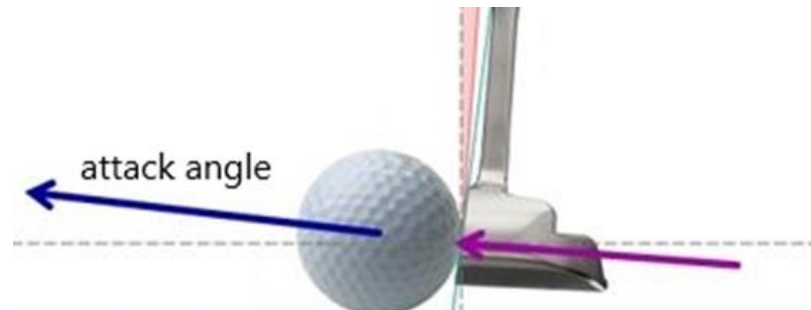
2.2.1.2 Reference values and consistency

There is no reference value, it depends on the length of each putt.

Consistency : **Amateur: 1mph, High-level amateur: 0.5mph, Elite: 0.1mph**

2.2.2 Attack Angle

2.2.2.1 definition



he angle at which the geometric center of the club head moves upward or downward when it impacts the ball.

2.2.2.2 Reference values and consistency

Reference values: Amateur: $\pm 3^\circ$, High-level amateur: $\pm 2^\circ$, Elite: $0-2^\circ$

Consistency : Amateur: $\pm 2^\circ$, High-level amateur: $\pm 1^\circ$, Elite: $\pm 0.5^\circ$

2.2.3 Club Path

2.2.3.1 definition



在撞球时，杆头几何中心 in-to-out 或 out-to-in 的运动。

2.2.3.2 Reference values and consistency

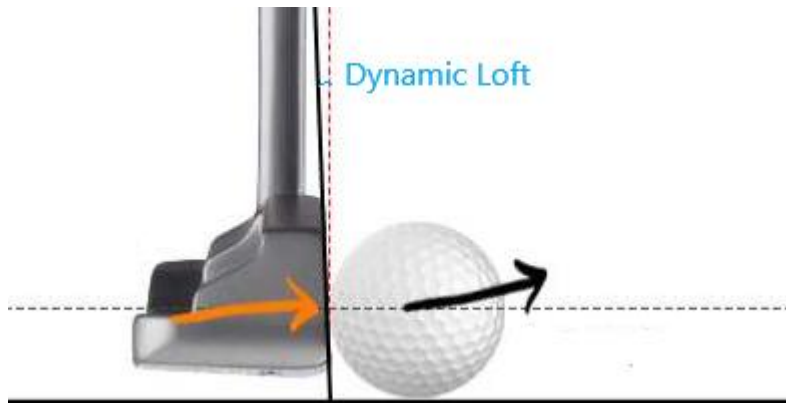
Reference values : Amateur: $\pm 4^\circ$, High-level amateur: $\pm 3^\circ$, Elite: $\pm 2^\circ$

Consistency : Amateur: $\pm 2^\circ$, High-level amateur: $\pm 1^\circ$, Elite: $\pm 0.5^\circ$

2.3 Club Face

2.3.1 Dynamic Loft

2.3.1.1 definition



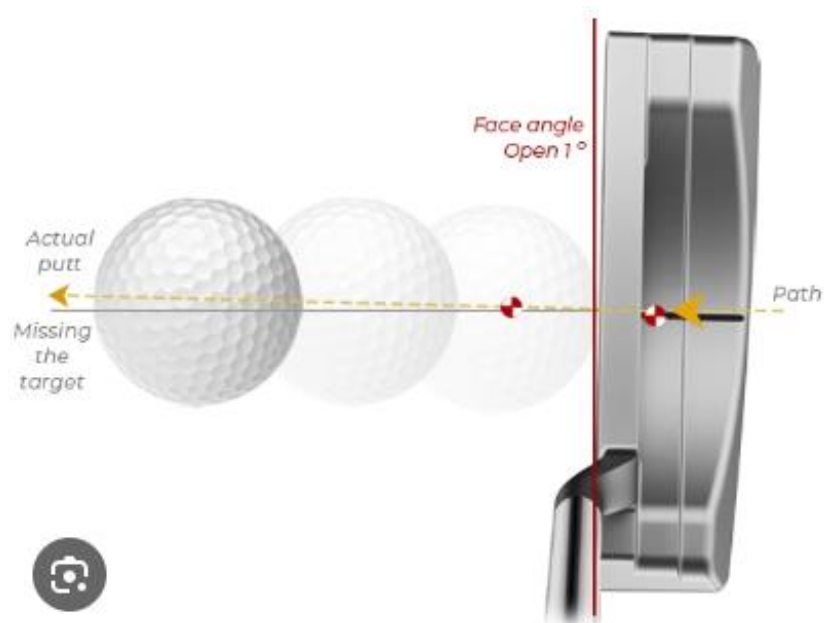
The angle between the club face and vertical at impact is the dynamic loft.

2.3.1.2 Reference values and consistency

Recommended dynamic loft angle 1.5° - 2°

2.3.2 Face Angle

2.3.2.1 definition



The angle at which the clubface is pointing relative to the target line at the center of the point where the clubface makes contact with the ball at impact.

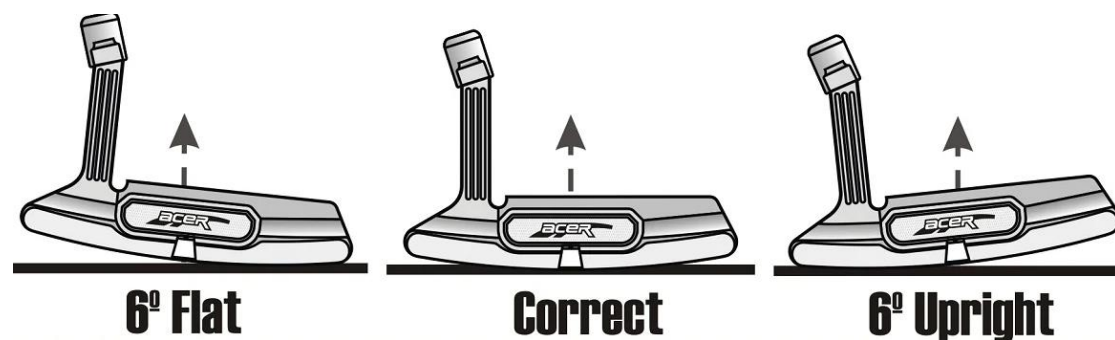
2.3.2.2 Reference values and consistency

Reference values: **Amateur: $\pm 3^\circ$, High-level amateur: $\pm 1.5^\circ$, Elite: $\pm 0.7^\circ$**

Consistency : **Amateur: $\pm 2.5^\circ$, High-level amateur: $\pm 1.5^\circ$, Elite: $\pm 0.5^\circ$**

2.3.4 Dynamic Lie

2.3.4.1 definition



杆头中心线相对于水平线的角度。主要看预备姿势和击球时的底角

2.3.4.2 Reference values and consistency

No reference value, depends on the player's habits.

Consistency: **Amateur: $\pm 2^\circ$, High-level amateur: $\pm 1.5^\circ$, Elite: $\pm 1^\circ$**

2.3.5 Impact Spot (X、Y)

2.3.5.1 definition



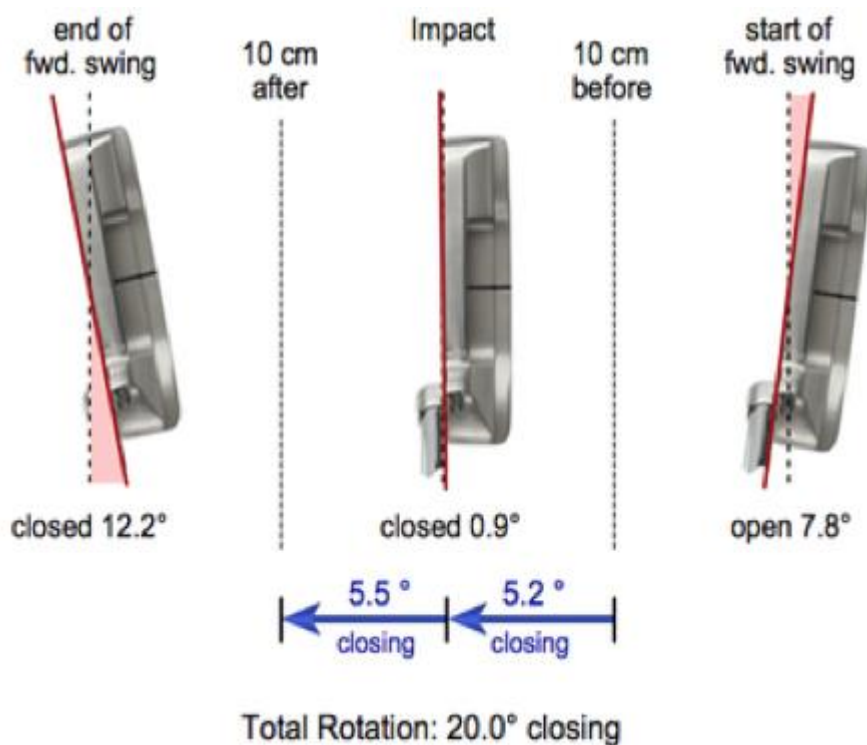
When the club face hits the ball, the vertical and horizontal distances of the impact point relative to the center of the club face.

2.3.5.2 Reference values and consistency

Expect to be in the sweet spot. Each impact position should be as consistent as possible

2.3.6 Club Face Rotation

2.3.6.1 definition



Club face rotation is the speed at which the putter face opens or closes during impact. It is an average calculated from the video before and after impact. The difference between the club face angle at the start of the downswing and the club face angle at the end of the downswing divided by the total downswing time is the club face rotation rate.

2.3.6.2 Reference values and consistency

Reference values : Amateur: > 30°/sec, High-level amateur: 15-30°/sec, Elite:

5°/sec

2.3.7 Club Face Twist

2.3.7.1 definition



The angle of twist created by the putter face upon impact with the golf ball.

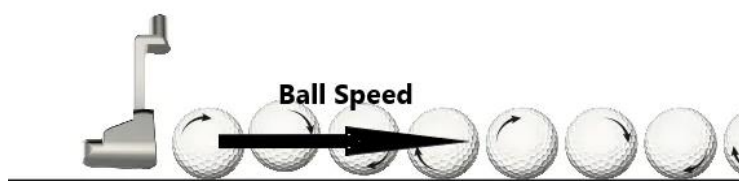
2.3.7.2 Reference values and consistency

Reference values: Amateur: $> 0.75^\circ$, High-level amateur: $0.30-0.75^\circ$, Elite: 0.1°

2.4 Ball

2.4.1 Ball Speed

2.4.1.1 definition



The speed of the ball as it leaves the clubface after being struck by the clubface.

2.4.1.2 Reference values and consistency

No reference value: depends on the length of the putt

Consistency: Amateur: $\pm 1.5\text{mph}$, High-level amateur: $\pm 0.7\text{mph}$, Elite: $\pm 0.2\text{mph}$,

2.4.2 Smash Factor

2.4.2.1 definition



Smash Factor = ball speed / club head speed

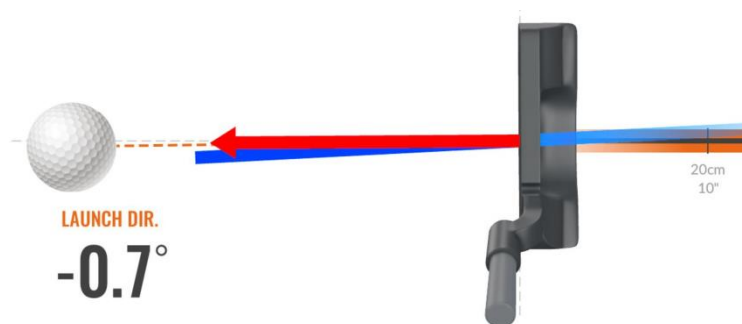
2.4.2.2 Reference values and consistency

Depends on the putter design, generally in the range of 1.6-1.9, no reference value.

Consistency: Amateur: +/-0.1; Amateur High Level: +/- 0.05; Elite: +/- 0.02

2.4.3 Initial Direction Angle

2.4.3.1 definition



The angle of the ball's initial direction relative to the target line in the horizontal plane at that instant, as measured when the ball leaves the clubface.

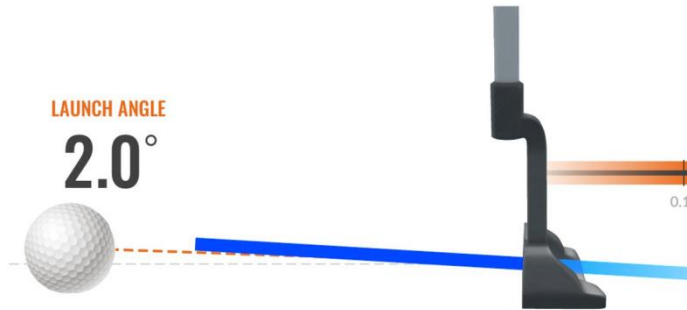
2.4.3.2 Reference values and consistency

Reference values : **Amateur: +/-2.5°, High-level amateur: +/-1.5°, Elite: +/-0.5°**

Consistency: Amateur: +/-2°, High-level amateur: +/-1°, Elite: +/-0.5°

2.4.4 Launch Angle

2.4.4.1 definition



The vertical angle of the ball relative to the horizontal plane at the moment of take-off.

2.4.4.2 Reference values and consistency

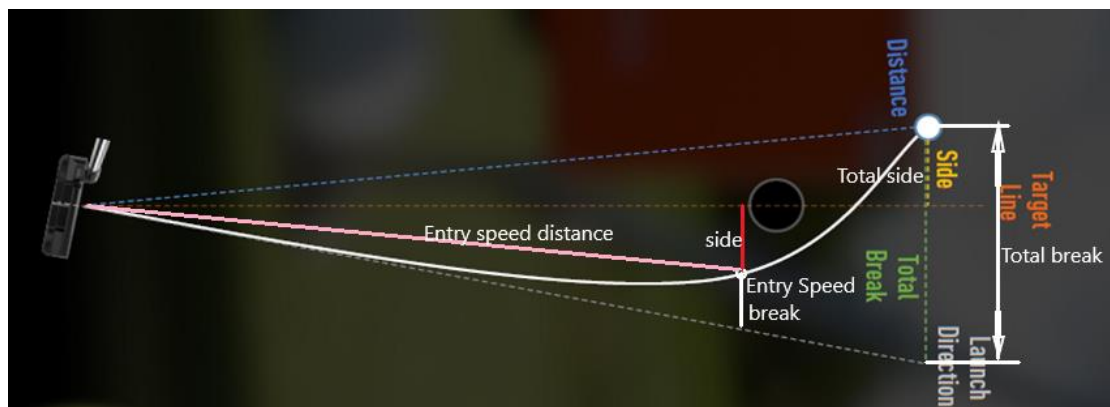
Reference values :Amateur : 0-2.5°, High-level amateur: 0-2°, Elite: 0-1.5°

Consistency: Amateur: +/-2°, High-level amateur: +/-1°, Elite: +/-0.5°

2.5 Ball motion trajectory

2.5.1 Entry Speed

2.5.1.1 definition



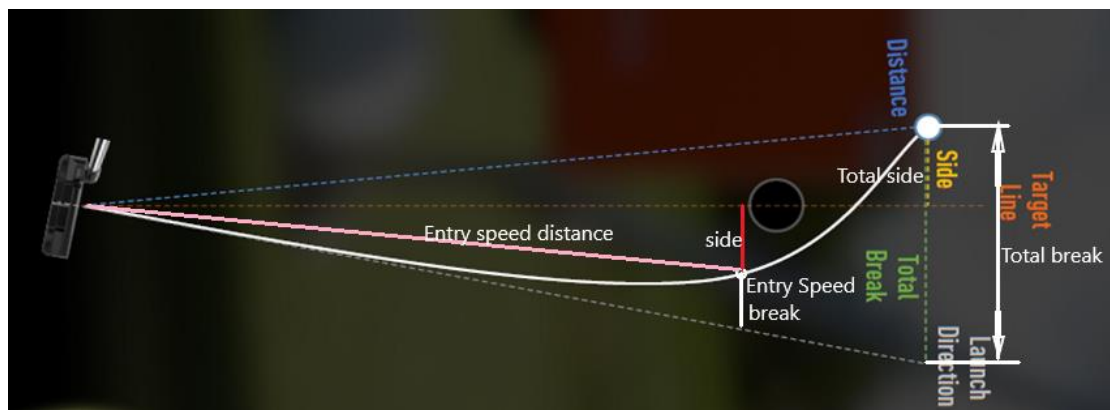
The speed of the ball at the hole distance.

2.5.2.2 Reference values and consistency

The speed of entering the hole is 1.68mph. Even if it does not enter the hole, it will not roll too far, enough to avoid three putts. It is a relatively ideal speed for entering the hole.

2.5.3 Total Distance

2.5.3.1 definition

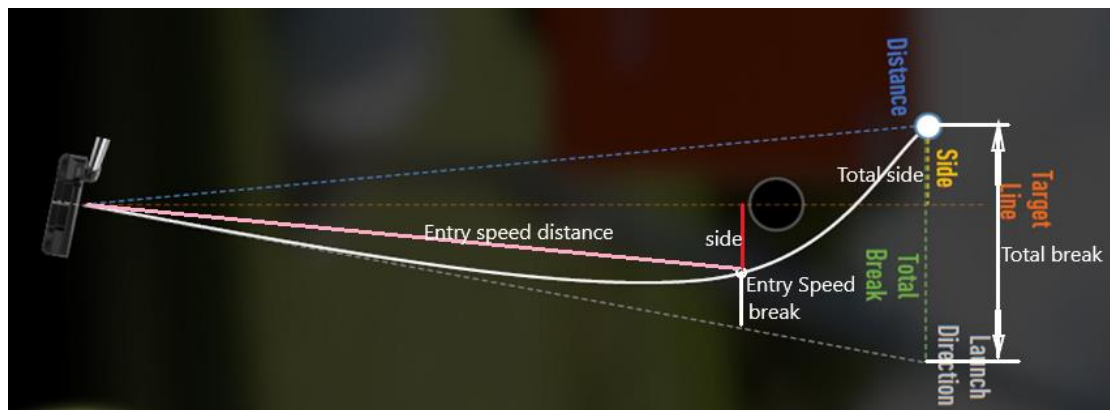


The straight-line distance between the starting point and the calculated stopping point

2.5.3.2 Reference values and consistency

Reference: Amateur: <5 feet from the hole, High-level amateur: <3.5 feet from the hole, Elite: <2 feet from the hole

Consistency: Amateur: +/-20% of the total distance, High-level amateur: +/-10% of the total distance, Elite: +/-5% of the total distance.



2.5.9 Total Side

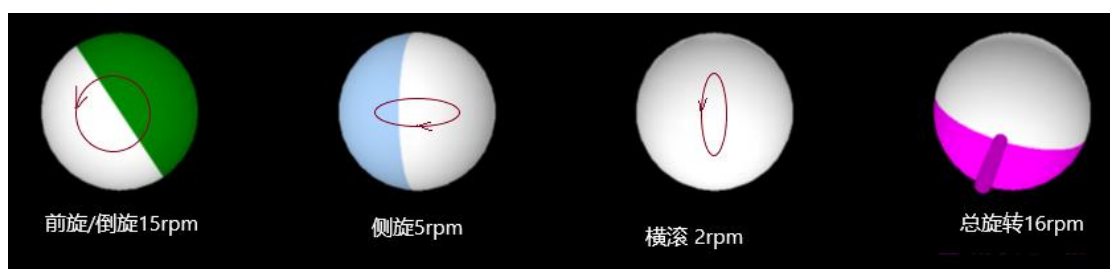
2.5.5.1 definition



The vertical distance from the point where the ball stops to the target line

2.5.6 Forward/Back, side spin, Rifle Spin

2.5.6.1 definition



The rotation of the ball includes not only forward spin/backward spin, but also side spin and rifle spin. That is, the rotation of the ball can be decomposed into three types of rotation: forward/backward spin, side spin and rifle spin, or the rotation of a ball is a combination of these three types of rotation.

2.5.6.2 Reference values and consistency

Forward/backward spin reference values: Amateur: >40rpm, High-level amateur:

15-40rpm, Elite: <15rpm

Side spin reference values: Amateur: >20rpm, High-level amateur: 10-20rpm, Elite:

<10rpm