EXPLANATION OF TERMS

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Tempo

Ratio between time spent on backswing and time spent on downswing to impact. For example, if 0.9 second is spent on backswing and 0.3 second is spent on downswing, then the tempo is 3.0. (0.9/0.3=3.0)

Standards and Tip

Many professional golfers show tempo of 3.0. But tempo depends on golfer’s preference of swing and is different for all golfers. It is important to maintain consistent tempo so practice while checking voice feedback from ‘SwingTalk’ and the screen of your smartphone.
Club Speed

Club Head Speed value measured at the moment of impact.

Standards and Tip

In general, the club speed of driver is the fastest and wedge is the slowest. Driver head speed of a professional golfer from PGA is over 110mph and driver head speed of a professional golfer from LPGA is over 90mph. Male amateur golfers show average of 85mph and female amateur golfers show 54mph of driver head speed. Good club speed is fast and consistent for each club. Practice while checking voice feedback from ‘SwingTalk’ and the screen of your smartphone.
### Loft Angle

- **Loft Angle**: Angle tilted when club’s shaft is standing vertically on the surface.
- **Dynamic Loft Angle**: Actual angle of clubface contrast to baseline vertical to the surface.

Loft Angle is fixed for each club but Actual loft angle changes depending on the status of address. ‘SwingTalk’ measures and shows Actual loft angle during address and impact.

### Standards and Tip

You can check loft angle changed during address and impact. In case of an iron shot, dynamic loft angle during impact should be smaller than during address if ‘hand first’ is used correctly.

![Diagram of Loft Angle](image)

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<th>Address</th>
<th>Impact</th>
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<td><strong>Loft Angle</strong></td>
<td>32.0deg</td>
<td>21.3deg</td>
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<tr>
<td><strong>Lie Angle</strong></td>
<td>54.1deg</td>
<td>53.2deg</td>
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<tr>
<td><strong>Shaft Lean</strong></td>
<td>-1.0deg</td>
<td>-13.0deg</td>
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<tr>
<td><strong>Cocking Rate</strong></td>
<td>0.86</td>
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<tr>
<td><strong>Face to Address</strong></td>
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<td><strong>Face to Path</strong></td>
<td>-0.5deg</td>
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<td><strong>Club Path</strong></td>
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4 Lie Angle

In general, lie angle is an angle of shaft and surface when club is laid on the surface. Lie angle is fixed for each club but actual lie angle changes depending on address status. ‘SwingTalk’ measures and shows actual lie angle during address and impact.

**Standards and Tip**

Lie angle is influenced by multiple factors like golfer’s physical conditions, length of club and location of hands. In general, driver’s lie angle is the smallest and wedge is the biggest. Practice so there isn’t a much difference in lie angle during address and impact for consistent swings.
5 Shaft Lean

Angle of shaft contrast to baseline vertical to the surface. It will be displayed as minus (-) if tilted towards the target direction and plus (+) if tilted oppositely to the target direction.

**Standards and Tip**

In the example, shaft lean during the moment of impact is tilted 12 degrees more to the target direction contrast to address. In general, it is better for shaft lean to be tilted more to the target direction during impact than during address. If shaft lean during impact is smaller than shaft lean during address, it is closer to being a ‘hand first’ shot.
Cocking Rate

It means time ratio used to maintain cocking if time spent on downswing from backswing top to impact is 1.

Standards and Tip
Cocking is maintained longer as the number is closer to 1.
If it is less than 0.8, it is considered as casting.
For amateur golfers, 0.8 or higher is measured.
For professional golfers, 0.85 or higher is measured.
7 Face to Address

It is change in face angle during impact, using face angle during address as a standard. Minus (-) means it is more closed than address and plus (+) means it is more open than address.

Standards and Tip

The example shows face closed 2.8 degrees during impact contrast to address point. Face angle during address is estimated to be 0.0 which is square to the target direction so it is important to set face angle during address to be square with the target direction.
8 Face to Path

Angle made by face using direction of club head in impact zone as base line. Minus (-) means it is closed and plus (+) means it is open.

Standards and Tip

Face to path is an important factor which decides quality of the swing along with club path. In general, plus (+) causes clubface to open using club path as a standard to result slice(fade) which curve the ball to the right. Oppositely, minus (-) causes clubface to close using club path as a standard to result hook(draw) which curve the ball to the left.
Club Path

Route advanced by club head in the impact zone. It is INSIDE to OUT if it is plus (+) and it is OUTSIDE to IN if it is minus (-).

Standards and Tip

Club Path is an important factor that decides quality of the swing along with face to path. The ball starts more right than the target direction in Inside to out (+) and more left in outside to in (-). The ball's curve afterwards is decided by face to path.

In general, club path's ideal value is about 0 and this represents inside to inside swing type. Practice so you could get value close to 0.
**10 Attack Angle**

Angle made by direction advanced by club head with the surface in the impact zone. It is minus (-) if it is heading to the surface and plus (+) if it is heading to the sky.

**Standards and Tip**

Attack Angle is an important factor for deciding down blow shot and upper blow shot. In general, upper blow shot with plus (+) value is considered effective with driver and down blow shot with minus (-) value considered effective with iron.
11 Swing Plane

Difference between trajectory of backswing and downswing. It is displayed as minus (-) if trajectory of downswing is smaller than backswing and the other way around is plus (+).

Standards and Tip

For the ideal swing plane, trajectory of backswing and trajectory of downswing are matched with 0 degree difference and called one plane swing. As swing plane value gets further away from 0, it is closer to two plane swing.

In general, professional golfer’s downswing trajectory is as same as backswing trajectory or there is a small difference within 10 degrees. Practice so your swing plane value is between -10 to 0 degree.
12 Plane Angle (up)

Plane Angle (UP) : Angle made by backswing trajectory with the surface.
Cf. Plane Angle (DOWN) : Angle made by downswing trajectory with the surface.

Standards and Tip

As value of Plane Angle (UP) is higher than lie angle, it becomes upright swing.
As value of plane angle (UP) is similar to lie angle, it becomes flat swing.
It is known that tall golfers are suitable for upright swing and shorter golfers are suitable for flat swing.
But various other factors must be considered in order to find swing type suitable for each golfer. For professional golfers, plane angle (UP) value is same as lie angle or larger by about 10 degrees during address. Practice so there isn’t much difference between plane angle and lie angle.
13 Plane Angle (down)

Plane Angle(DOWN) : Angle made by downswing trajectory with the surface.
Cf. Plane Angle(UP) : Angle made by backswing trajectory with the surface.

Standards and Tip

In general, plane angle (DOWN) value of efficient swing is as same as plane angle (UP) or a little less. Using too much strength from upper body while performing downswing could cause plane angle (down) to be bigger than plane angle (up). When performing down swing, use your lower body first to make correct weight movement.