

## C.o.G

The location of any given Driver's Centre of Gravity (CoG) will have a two-fold effect.

1. The ability of the golfer to manipulate the angle at which the clubface comes in contact with the ball is lessened as the CoG moves further back, away from the clubface. i.e. The closer the CoG is to the face, the greater the golfer's ability to work their ball flight in either direction (to create a fade or a draw).

2. The closer to the clubface the CoG the lower the initial launch angle of the ball will be. Why? Because a lower, deeper CoG pushes the back end of the Driver head down through the downswing (centrifugal force) causing a forward bend of the shaft – and thus an increased 'dynamic' loft.



### FOOD FOR THOUGHT

Don't be fooled into thinking that CoG is the 'be-all and end-all' when it comes to perfecting your ball flight; the greatest dictator of launch – and spin – conditions is the Driver's loft.

Matching your Driver's loft to your swing speed (the slower the speed the more loft is needed) is still the most effective way to optimise your ball flight and gain those invaluable extra few yards of carry.

## M.O.I

The "Moment of Inertia" reading – somewhat cryptically – describes a Driver's resistance to twisting when the clubface strikes the ball in a spot either side of the vertical axis through the club's Centre of Gravity (CoG). In other words, how much the Driver head twists off-square when you miss the 'sweet spot'.

The higher the MOI, the greater the clubhead's resistance to twisting, and this equates to less distance and accuracy loss off the tee. MOI is increased by moving the Driver's CoG lower and/or deeper in the clubhead, away from the face, or by altering the shape of the Driver so more weight is placed towards the perimeters of the club (hence the introduction of square-headed Drivers).



### FOOD FOR THOUGHT

While a higher MOI clubhead resists twisting on off-centre hits (increasing forgiveness) this has a downside. When a golfer wants to 'work' their ball flight, the higher MOI nullifies the twisting actions of the wrists and hands through the impact zone, making it more difficult to purposefully open or close the clubface and produce a fade or a draw.

## C.o.R

CoR; the Coefficient of Restitution is a fractional value that measures the energy loss or retention when two objects collide. The CoR measurement is always expressed as a number between 0.000 (meaning all energy is lost in the collision) and 1.000 (which means a perfect, elastic collision in which all energy is transferred from one object to the other).

In golfing terms, this refers to the Driver's ability to create extra distance as a result of extra 'bounce' off the clubface (we've no doubt all heard of the "Trampoline Effect"). The CoR of a Driver face is now restricted by both the world's governing bodies, the R&A and the USGA, placing the upper limit at 0.83. This means that when the clubhead impacts the ball, there cannot be more than an 83% transfer of the energy of the head to the ball.



### FOOD FOR THOUGHT

All reputable Drivers are now manufactured 'as standard' with on-the-limit CoR, but what are you sacrificing if you're still using an older Driver or a cheap 'knock off'?

Here's a fact that may get your attention: "With a 100mph swing speed, the difference in carry yardage alone between a Driver with a CoR of 0.820 and another with a CoR of 0.830 equates to 4.2 yards".