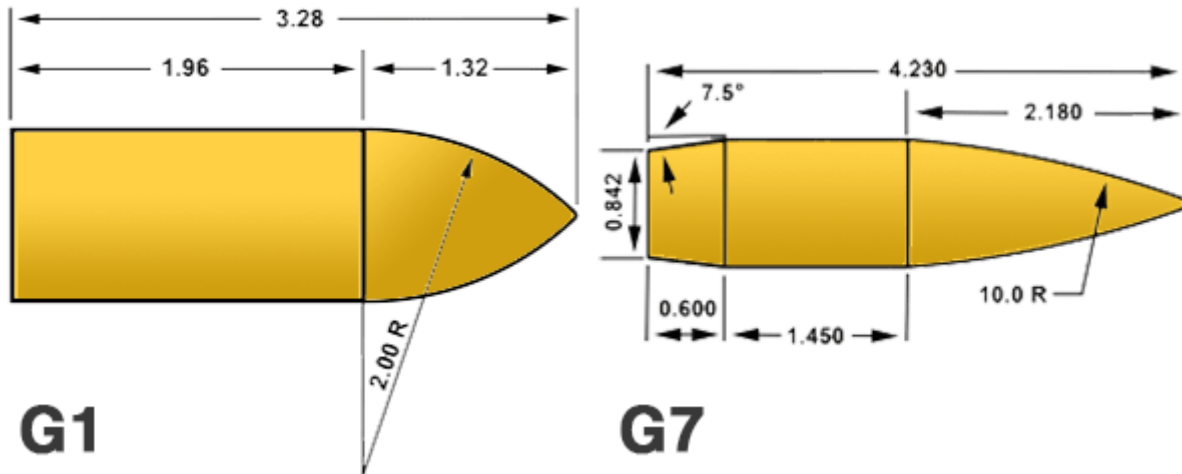# G1 & G7 Ballistic Coefficients... What's the Difference?

Ballistic Coefficients are measures of objects' abilities to overcome air resistance mid-flight. Typically, the higher the number, the lower the drag of the projectile (low negative acceleration), and the better the bullet will cut through the air.

For the more technically minded, ballistic coefficients are derived from the mass of the object divided by its diameter in the airflow squared, divided by the form factor, i, that relates to the aerodynamics of its shape.

The formula is seen below:

An issue with accurately measuring flight characteristics of a bullet is that any mathematical model must differentiate between the many types of bullets and shapes; bullets of different shapes yield different drag curves and cannot be modeled by a single formula. Because of this, several different drag curve models have been standardized for common projectile types, and are shown below:

G1 – also known as Ingalls, G1 projectiles are flat base bullets with 2 caliber nose ogive and are the most common type of bullet.

G2 – bullets in the G2 range are Aberdeen J projectiles.

G5 – G5 bullets are short 7.5-degree boat-tails, with 6.19 caliber long tangent ogive.

G6 – G6 are flatbase bullets with a 6-caliber secant ogive.

G7 – Bullets with the G7 BC are long 7.5-degree boat-tails, with 10 caliber tangent ogive, and are very popular with manufacturers for extremely low-drag bullets.

G8 – G8s are flat base with a 10-caliber secant ogive.

GL – GL projectiles are blunt lead nose.

In the reference projectiles for each standard coefficient, the aforementioned form factor *i* is equal to 1. If the actual bullet exhibits lower drag than the reference projectile shape, its form factor will be lower than 1, and as the actual projectile's drag increases past the reference projectile, its form factor will increase above 1. Many bullet manufacturers today publish the G1 and G7 BCs for their bullets, as they are the most commonly used ones.