

### **I'm ordering a rear end, what is the difference between the different center section differential types?**

#### **Rear End Center Section Differential Choices Explained**

**Spool:** Spools are used in drag race only vehicles. A spool permanently locks both axle shafts together so that both rear tires will always turn at the same speed. They are not designed or intended for street driven vehicles. A spool is much lighter than a standard posi unit and they improve ring and pinion gear life by providing a more rigid gear mounting. A spool is a very strong center section that will hold up to very high horsepower. They are recommended for a pure drag race only race vehicle. Spools are an option on Ford 9", 12 Bolt and Dana 60 rear ends.

**Eaton Limited-Slip Posi:** Superior rebuildable design, race-bred carbon friction discs and automatic LSD. The Eaton Posi LSD is the perfect way to control traction in all types of tarmac running cars. The Eaton Posi LSD prevents wheel slip before it can get started. To do that, carbon disc clutch packs, preloaded by a central spring assembly, are located behind each differential side gear. When torque input increases the clamping load on the clutch packs increases. That causes the chatter-free clutch packs to grab and transfer power to the other wheel. Muscle cars should look to Eaton's limited-slip differential for their traction answers. And the fact is, Eaton's Posi units are virtually bullet proof. A great choice for an all around street driven vehicle. Eaton posi units are an option on 12 bolt rear ends.

**Detroit TruTrac Torque Proportioning Differential:** Smooth operation, performs open until needed and fully automatic limited slip. The Detroit Truetrac was the first helical gear differential ever introduced into the automotive aftermarket as an Eaton brand. It remains the leading helical gear-type limited slip differential in the industry. Detroit Truetrac's proven helical gear design eliminates the need for wearable parts, resulting in maintenance free traction recognized not only for its toughness, but its smooth and quiet operation as well. Proven design and effective performance make the Detroit Truetrac the ideal choice for a wide variety of applications. No maintenance - Just Traction. A great choice for a high horsepower street/track vehicle. The TruTrac is an option on Ford 9", 12 bolt and Dana 60 rear ends.

**Wavetrac®:** One of the known shortcomings of a typical torque biasing differential is its loss of drive (behaving much like an open diff) under zero or near-zero torque conditions (for example, when there is 'no-load' applied through the drivetrain, either at vehicle stationary and/or transition from engine driving vehicle to engine braking and back). The Wavetrac® differential uses a patent pending design to improve grip in low traction conditions. Precisely engineered, converging / diverging wave profiles are placed on one side gear and its mating preload hub. As the two side gears rotate relative to each other, each wave surface climbs the other, causing them to move apart. This imparts an increased normal force through the side gears, increasing the bias ratio as a function of load. This increase occurs automatically only when conditions find it necessary, and it 'reverts' back to its nominal bias ratio quickly and seamlessly, maintaining optimal drivability and performance at all times. It's like having two differentials in one: you get the benefit of a higher bias ratio when needed without detriment to the car's handling. The Wavetrac® differential is an option on Ford 9" and 12 bolt rear ends. Read a detailed description of the Wavetrac® differential at [this link](#).

**Trac-Loc Limited-Slip Posi:** The Trac-Loc Limited Slip Differential is designed as a direct replacement for the

hard to find expensive OEM unit, or for those enthusiasts desiring to convert to a limited slip. Available for Ford 9" rear ends, this nodular steel casting is totally rebuildable, includes nickel steel side gears and pinion gears, and multiple plate 360-degree steel clutches. This extremely tough and durable differential houses 400-ft/lb static springs, and is capable of 150 lb. braking torque.

Auburn Limited-Slip Posi: The highly efficient torque transfer capability of the Auburn limited-slip differential is achieved through the use of cone clutches coupled to beveled side gears. As torque is transmitted through the differential side gears to the axle shafts, the side gear separating forces and spring pre-load firmly seat the cones into the differential case. The cone design, along with the applied force, determines the torque transfer capability of the differential. When torque levels decrease, as in a cornering maneuver, the gear separating forces also decrease, allowing the axle shafts to rotate independently. It is designed to provide the maximum amount of torque transfer without compromising the performance requirements of a vehicle in situations where torque transfer is not required. A great posi for a performance street vehicle. The Auburn differential is an option on Ford 9" and 12 bolt rear ends.

Detroit Locker: The legendary Detroit Locker began the revolution in performance differentials and still leads the industry today. The Detroit Locker is the most durable and dependable locking differential available. The Detroit Locker maximizes traction by delivering 100% of the torque to both drive wheels. It is engineered to keep both wheels in a constant drive mode, and has the ability to automatically allow wheel speed differentiation when required. No other performance differential has the reputation for delivering traction in mud, snow, rocks and on the track. The choice of professional racers and off-road enthusiasts around the world. The durability of the Detroit Locker is unmatched! The Detroit Locker is an option on Ford 9" rear ends.

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