

Tech Sheet 006

GM Ring Gears

Over the years General Motors have manufactured ring gears in many diameters and with many differing tooth counts. As can be seen from the list below, many GM ring gears are similar in specification but definitely not the same. The 168t 14.13" (commonly known as the "big" or 14" ring gear) Chevrolet and the 153t 12.93" (commonly known as the small or 13" ring gear) Chevrolet ring gears are by far the most common in automotive applications. Many of the others listed are for obscure automotive, industrial or marine applications only, but they do turn up occasionally bolted to a 350 Chevy so beware!

Some GM ring gears also vary in offset. Chevy turbo hydro's have 3 versions, varying in offset by up to 10mm and Holden 253's and 308's have 2. If a mis-matched flex plate is already installed we can supply a Roadrunner Starter with more or less pinion depth to suit.

Aftermarket replacement ring gears can vary in OD by up to 3mm in our experience so compare the replacement with the original for size before you re-install the transmission. Again, if required Roadrunner Starters can supply a starter with a larger or smaller pinion to correct backlash issues that cannot be rectified with shimming.

Checking flex plates for "run out" prior to fitment can also save a major headache later, we've seen them up to 0.050" out of round. Also worth noting is that the higher the compression ratio of the engine the less "run out" you can live with so starter pinion backlash becomes more critical the higher the compression ratio. Once your engine has over 11:1 CR we recommend that pinion backlash is set at a maximum of 0.020" (the minimum backlash spec.). If the flex plate runs out by more than 0.005-0.010" you're in trouble.

Cracked or buckled flex plates must be replaced but a slightly bent one can some times be salvaged in situ by unbolting the torque converter and gently bending the plate with bar or large screwdriver.

A bent flex plate causes a variance in pinion to ring gear clearance as the engine rotates so "straight" is best!

Number of teeth	OD in inches
168	14.13
167	13.91
166	14.00
166	13.96
162	13.65
162	13.63
160	13.42
154	12.85
153	12.93
148	12.40
146	11.87
145	11.90
144	11.91
143	11.95
142	12.40