



The TillotsonTCT is more than just a carburetor, it's a form of mechanical fuel injection that combines a high velocity metering system to fully atomize the fuel with a full-range, non-linear calibration system that allows the TillotsonTCT to be mapped to various points in the engine curve allow peak performance at the full range operation. The result includes:

- Up to 40% lower emissions
- Up to 20% lower fuel consumption
- Improved acceleration
- Up to 20% higher torque
- Up to 20% more horsepower
- Easier starting, even in cold weather
- Lower risk of gumming
- Longer engine life
- Stable power, even under load
- Smoother, quieter operation



Here's how it works:

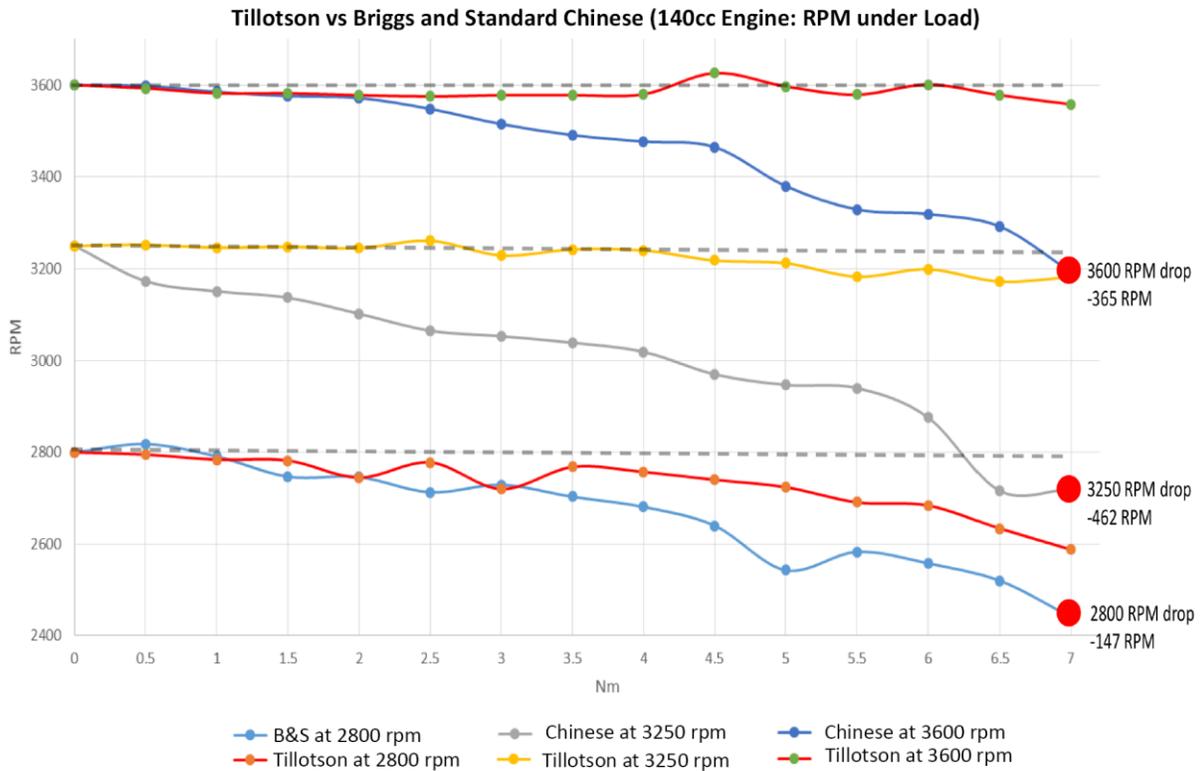
Single Point Metering System. Single point metering systems aren't new to carburetors, but the TillotsonTCT uses a patented slide needle and butterfly system to accelerate the fuel to microns smaller than even an electronic fuel injection system. The result is a fine mist of fuel that burns more completely and is easy for the engine to digest, creating less hot spots in the engine and allowing the engine to run with more stable power even under heavy loads. The atomization and resulting burn also helps reduce emissions and improves acceleration while the easier burn provides a more stable and quieter sounding operation.

Mechanical calibration. On most carburetors, the fuel circuit is linear—as you pull the trigger, the carburetor delivers more fuel in a predominantly linear fashion. You can only add fuel as the engine accelerates, not reduce it. That means the amount of fuel you give the engine at idle, through the acceleration curve and up to wide open throttle are dependent on the fuel already being provided at earlier points in the system. That dependence, in turn, results in compromises and averaging from idle through wide open throttle.

With the TillotsonTCT, however, the idle, acceleration points and wide open throttle can be calibrated independently, so the air-fuel mixture can be mapped to engine like fuel injection to create optimum performance at each and every point. We can even reduce the amount of fuel

being provided, so we don't need to make compromises if there is a point in the acceleration curve where the engine wants less fuel. This allows us to reduce emissions and maintain peak performance by providing only the amount of fuel the engine ideally needs to operate, never more and never less.

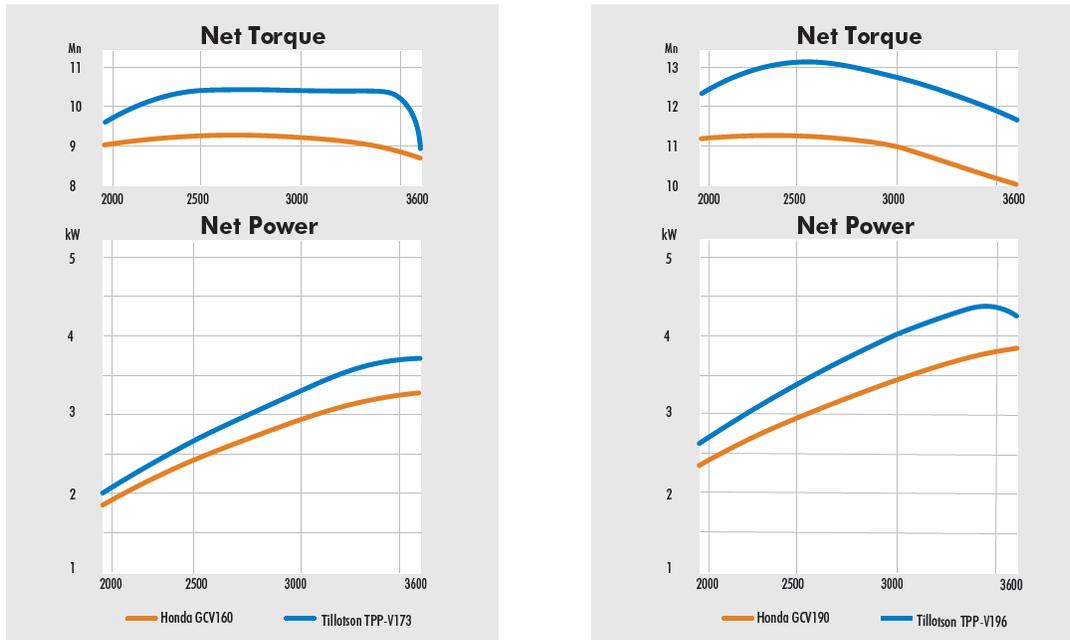
The following chart shows how the Tillotson TCT helps a standard Chinese engine maintain torque under load and as compared to a Briggs engine at its recommended operating setting;



Three different RPM tests were carried out -

- B&S vs Tillotson 140cc at 2800 rpm
- Standard Chinese engine v Tillotson 140cc at 3250 rpm
- Standard Chinese engine v Tillotson 140cc at 3600 rpm

These charts show the power curve of a standard Chinese engine equipped with a TillotsonTCT compared to a comparable Honda engine with a standard carburetor:



These charts show the emission reduction on older “dirty” engines that do not comply with the current EPA III requirements. The TillotsonTCT would bring each of these engines into compliance with current EPA requirements for new engines.

Engine		Loncin G200F 2010	Honda GX160 2010	Zongshen 173 2011	MTD 170COA 2012	GX160 (Orbital) 2008
Baseline (g/k Wh)	HC+NOx	12.6	13.96	9.35	11.19	9.01
	CO	236	334.57	435.1	495.36	291.31
TCT (g/k Wh)	HC+NOx	7.3	8.33	7.03	7.02	6.05
	CO	333.3	340	323,	382.1	211.00
Reduction (g/k Wh)	HC+NOx	-42.1%	-40.3%	-24.8%	-37,3.	-33%
	CO	-41.2%	-1.6%	-25.6%	-22.9%	-28%

SAE J1088 A cycle results on various Class 1 engines typically show 30-40% reduction in HC+NOx and CO

Availability. The TillotsonTCT system is currently available on Tillotson brand engines and generators and as an aftermarket replacement for most small off-road vertical and horizontal Honda and Honda clone engines ranging from 140 – 225cc. A larger TillotsonTCT for 225+cc engines and for minibikes and small motorcycles will be available in late 2016.