These billet hydraulic roller cams from COMP Cams® unlock a major power upgrade for the 2011+ Ford 5.0L engine. Designed specifically for Coyote V8 applications, these camshafts are counter balanced and work with phaser limiters to produce optimum safe power.

The larger than normal lobe size on the Ford OHC is unlike any other cam-in-block engine, and the dangerous harmonics that come with these bigger lobes must be addressed for high performance usage. By taking cutting-edge race technology and applying it to street applications, COMP Cams® has engineered these phaser-friendly cams with an exclusive integrated counter balance design that cuts down on vibrations and reduces overall harmonics to ensure a smoother operating valve train that was properly engineered for high lift, long duration valve motion at high RPM.

The Ford 5.0L camshafts from COMP Cams® are available for both naturally aspirated and supercharged engines, with three stages available in each series. All cams are No Springs Required. Optimized race and street profiles give you the power where you need it most, whether that’s maximized mid-range power and torque or increased top end horsepower. Custom racing profiles are also available for high-performance circle track and drag race applications.

**2011+ Ford 5.0L DOHC Modular 4V V8 Camshafts**

- Designed specifically for 2011+ Ford Coyote V8 applications to produce safe power and function with OEM phasers
- Engineered for high lift, long duration valve motion at high RPM
- Exclusive integrated counter balance design reduces vibration & valve train harmonics for smoother operation

**Test Parameters**

**Engine:** Stock 2011 Ford 5.0L DOHC Modular 4V V8 GT  
**Torque Converter:** 3800 Stall, 4000 Stall Recommended  
**Bolt-Ons:** Long Tube Headers, JLT Air Induction System  

**Special Notes:**
1. 4.10 or higher gears, premium fuel  
2. COMP Cams® Cam Phaser Limiters and custom tune were used  
3. Stage 2 cams measured 28-38 RWHP gains over stock  

*Independent testing performed at Brenspeed on a chassis dyno.*
### Applications/Camshafts

<table>
<thead>
<tr>
<th>RPM Operating Range</th>
<th>Cam Set Part #</th>
<th>Cam Grind #</th>
<th>Duration Advertised @ .050&quot;</th>
<th>Valve Lift IN.</th>
<th>Valve Lift EX.</th>
<th>Lobe Sep Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>XFI™ NSR (NO SPRINGS REQUIRED) Hydraulic Roller Swinging/Finger Follower Camshafts</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOHC − Great upgrade over stock cams. Good power gains above 4500 RPM. Requires phaser limiter kit &amp; custom ECU programming.</td>
<td>1500-6800</td>
<td>1910601</td>
<td>F5.0D NSR-NA1H-126</td>
<td>260</td>
<td>267</td>
<td>220</td>
</tr>
<tr>
<td>DOHC − Big power gains in mid to upper RPM range, especially above 4900 RPM. Requires phaser limiter kit &amp; custom ECU programming.</td>
<td>1700-7000</td>
<td>1911001</td>
<td>F5.0D NSR-NA2H-126</td>
<td>268</td>
<td>275</td>
<td>228</td>
</tr>
<tr>
<td>DOHC − Max effort street/strip cam set. Strong power gains above 5500-7200+. Full length headers &amp; 3.73+ gear. Requires phaser limiter kit &amp; custom ECU programming.</td>
<td>1900-7200</td>
<td>1911601</td>
<td>F5.0D NSR-NA3H-126</td>
<td>276</td>
<td>283</td>
<td>236</td>
</tr>
<tr>
<td><strong>XFI™ NSR (NO SPRINGS REQUIRED) BLOWER Hydraulic Roller Swinging/Finger Follower Camshafts</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOHC − Great upgrade over stock cams w/ bolt-on blowers &amp; standard boost levels. Requires phaser limiter kit &amp; custom ECU programming.</td>
<td>1500-6900</td>
<td>1912601</td>
<td>F5.0D NSR-BL1H-128</td>
<td>260</td>
<td>271</td>
<td>220</td>
</tr>
<tr>
<td>DOHC − Big power gains in mid to upper RPM range for blower kits w/ higher boost. Requires phaser limiter kit &amp; custom ECU programming.</td>
<td>1700-7100</td>
<td>1913601</td>
<td>F5.0D NSR-BL2H-128</td>
<td>268</td>
<td>279</td>
<td>228</td>
</tr>
<tr>
<td>DOHC − Max effort street/strip cam set. Best choice for higher boost levels &amp; high RPM in modified engines. Requires phaser limiter kit &amp; custom ECU programming.</td>
<td>2000-7300</td>
<td>1914601</td>
<td>F5.0D NSR-BL3H-128</td>
<td>276</td>
<td>287</td>
<td>236</td>
</tr>
</tbody>
</table>

1 Requires cam phaser limiter kit (#5493) for these applications.

2 This is the effective Lobe Separation Angle (LSA) with intake and exhaust cams in their resting or “parked” positions. When using these cams with the required COMP Cams® Phaser Limiter Kit, this is the MAXIMUM effective LSA but when running they can be tuned TIGHTER by as much as 40°.

### Available in Three Stages Each for Naturally Aspirated and Blower Applications

Our 2011 Mustang is an automatic with a bone stock engine and basic bolt-ons, and it picked up 40+ RWHP with the COMP camshafts and minor custom tuning.

**Brent White**

**BrenSpeed**

### Need Help Deciding Which Cams To Purchase?

- 1.800.999.0853
- compcams.com
- Live Chat
- CPGNation.com
PHASERS & COMPONENTS

Phaser Limiters & Adjustable Phaser Locks
For 2011+ Ford 5.0L DOHC Modular 4V V8 Engines

The COMP Cams® Phaser Limiters for the 2011+ Ford 5.0L allow independent control over intake and exhaust centerlines and eliminate piston to valve clearance issues that can occur when using larger aftermarket camshafts in these engine. They physically limit maximum cam phasing to 25 crank degrees (12.5 cam degrees). Four separate phaser limiters, with the proper tuning software, allow the OEM computer to independently control intake and exhaust centerlines. Take full advantage of the benefits of Variable Valve Timing (VVT) when using aggressive aftermarket camshafts without needing to install custom pistons to eliminate valve clearance issues.

The locks for the 5.0L Coyote Modular V8 Engine allow fully adjustable locking over the OEM phaser range (50 degrees) by using a stock timing set, phaser system, bolts with special plugs and slotted degree plates. The locks are easy to adjust on the engine and include a 4 crank degree (2 cam degree) mark on the outer diameter for accurate adjustment. They allow aftermarket race cams to be physically degreed and locked to ensure adequate piston to valve clearance and precise centerline control at very high RPM under extreme conditions, independent of any computer or mapping.

Phaser Limiters & Locks FAQ

What are cam phasers?
COMP Cams® uses the generic term cam phaser for any computer controlled cam sprocket system that can advance or retard the camshaft. The 2011 and up Ford 5.0L Ti-VCT V8 engine uses four camshafts and four independent cam phasers. This allows the computer to independently advance or retard either the intake or exhaust camshafts for best performance for a given RPM and conditions while the engine is running.

How do they work?
Engine oil is pressure fed to the cam phasers through a series of passageways in the cylinder heads and camshafts. The engine computer controls a pair of solenoids that adjusts this oil flow into and out of the cam phasers’ control chambers, giving the ability to move the cams up to 50 crank degrees from the park position.

Unlike the phaser systems common in SOHC or cam-in-block OHV engines, the four-phaser system Ford uses in the DOHC Coyote engine allows independent control of the intake and exhaust cams. The Ford Ti-VCT system “parks” the intake at the full retard position and can advance the intake by up to 50 crank degrees. It also “parks” the exhaust at the full advance position and can retard from there by up to 50 crank degrees.

Why did Ford put them in the engine?
Having independent cam phasers allows the computer to tune the cams to the best performance or best efficiency intake and exhaust centerlines for any throttle callout and RPM by using lookup tables based on the conditions. Under low throttle cruising, the intake may be retarded substantially to reduce pumping losses, and the exhaust can be independently tuned for a longer power stroke or increased EGR (exhaust gas recirculation).

Having independent control also allows the effective lobe separation to be tuned for the given RPM. The more the intake is advanced and the exhaust is retarded, the more overlap of intake and exhaust. Being able to control overlap and move the exhaust in the opposite direction of the intake are two clear advantages of the independent four-phaser system over the earlier 3V system with one phaser per cylinder head.
Why should I modify the cam phasers with a COMP Cams® Phaser Limiter or Lock Kit?
If there is a downside to the stock cam phasers designed by Ford, it is that they have such a wide range of movement. Since each of the cams can move in toward TDC by as much as 50 degrees from the park position, there is very little piston to valve clearance in the engine at these extremes. This minimal piston to valve clearance limits us to fairly small duration cam profiles with much less area under the curve compared to what can be achieved if the total travel is limited. Phaser limiters and locks allow the use of much larger, more aggressive cam profiles.

What does the COMP Cams® Phaser Limiter Kit do?
The kit includes four limiter inserts that are installed into the empty chamber opposite of the phaser vane in the main chamber when the phasers are in their locked (pinned) positions. These inserts reduce the total travel from 50 degrees to 25 degrees when installed.

Do I have to reprogram my engine’s computer after installing the Cam Phaser Limiter Kit?
Yes, you MUST reprogram your engine’s computer for the engine to operate properly after installing the cam phaser limiters. The guidelines for reprogramming are simple – just make sure that the maximum retard amount entered for any of the cam phaser tables and strategies in your tuning software does not exceed 25 degrees. Some additional power is available by tweaking the intake cams to stay near the full advance (-25 degrees) setting until about 4500 RPM and then slowly allowing the cams to retard closer to zero by max RPM. Making a few dyno sweeps with the exhaust set at a constant +10 degree setting while experimenting with the intake setting in 5 degree increments can help you determine the best curve. Once you have optimized the intake phaser curve, then you can see if the engine prefers different exhaust settings at different RPM in a similar manner. However, the COMP® centerlines were chosen to work well with the factory cam tables as long as you limit the max movement to 25 degrees.

The FAST™ XFI 2.0™ was the first aftermarket programmable race EFI system available for the Coyote engine. After listening to racer input and appeals for specific features, FAST™ engineers designed the revolutionary XFI 2.0™ with a host of improved functions and advanced capabilities that integrate perfectly with the 2011+ Ford 5.0L engines.

- Advanced forced induction, power adder & race controls offer flexibility & control over your Coyote engine
- Self learning function makes for quick & easy fuel mapping but can be turned off for fine tuning or custom control
- Intelligent Traction Control™ has user adjustable delay that ignores erroneous starting line activation data & separate output wire activation upon ITC triggering
- Original XFI™ features retained, including Qwik Tune™ Technology, built-in wide-band O2 sensor, on-board diagnostics, data logging & adjustable injector timing

In order for the FAST™ XFI 2.0™ to work on the 2011+ Ford 5.0L, the cam phasers must be LOCKED in place (#5492). Also, the OEM electronic throttle body cannot be used. A mechanical throttle body will have to be adapted.

**Related Products**

**FAST™ XFI 2.0™ Fuel Injection System**

The FAST™ XFI 2.0™ was the first aftermarket programmable race EFI system available for the Coyote engine. After listening to racer input and appeals for specific features, FAST™ engineers designed the revolutionary XFI 2.0™ with a host of improved functions and advanced capabilities that integrate perfectly with the 2011+ Ford 5.0L engines.

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- Original XFI™ features retained, including Qwik Tune™ Technology, built-in wide-band O2 sensor, on-board diagnostics, data logging & adjustable injector timing

For individual XFI 2.0™ components, contact FAST™ at www.fuelairspark.com or 1.877.334.8355.

#301014 XFI 2.0™ EFI Crate/Transplant Engine Management Kit

**FAST™ XIM™ Ignition Module**

- Operation ignition system control & optional programmable ignition system control for 2011+ Ford 5.0L engines
- Independent from fuel delivery method & factory computer; works with carburetor or EZ-EFI®
- Adjustable features include programmable timing curve, vacuum advance and rev limiter
- Includes tach output and fuel pump relay control output; plug and play with factory crank, cam sensors & factory coils

#301317 XIM™ Ignition Module Kit

#3013172 XIM™ Standalone Coil-On Plug Ignition Kit
## RELATED PRODUCTS

### TCI® 6x Six-Speed™ Automatic Transmission & Packages

The TCI® 6x Six-Speed™ Automatic Transmission for Ford 5.0L Coyote Engines is a fully programmable transmission that gives drivers six forward gears (2.97, 2.23, 1.57, 1.18, 1.00, 0.75) for quicker acceleration and increased fuel economy at cruising speeds. All kits include a 6x Six-Speed™ Transmission, bellhousing, flexplate, EZ-TCU™ Transmission Control Unit with harness, dipstick, fluid and cooler. The programmable EZ-TCU™ allows users to program specific shift points and line pressures, as well as converter lock-up, giving Coyote-powered vehicles the most functional and modern drivetrain combination on the market. Designed to handle the Ford 5.0L Coyote engine’s higher horsepower ranges, these kits are perfect for street and race applications.

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<tr>
<th>Code</th>
<th>Description</th>
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<tr>
<td>#271601</td>
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<tr>
<td>#271619</td>
<td>Ford Modular Bellhousing</td>
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<tr>
<td>#271601P7</td>
<td>Transmission Package w/ Bellhousing</td>
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<tr>
<td>#271601P25</td>
<td>Transmission Package w/ Bellhousing &amp; Paddle Shifter</td>
</tr>
<tr>
<td>#271601P26</td>
<td>Transmission Package w/ Bellhousing &amp; Outlaw™ Shifter</td>
</tr>
</tbody>
</table>

### TCI® StreetFighter® 2010-2011 Ford Mustang Ratchet Shifter

The Ford Mustang GT is one of the hottest late model performance vehicles on the market, however the stock shifter has some drawbacks when it comes to serious street/strip performance. The TCI® StreetFighter® 2010-2011 Ford Mustang Ratchet Shifter provides a positive stop shifting action that allows you to manually “speed shift” the transmission without fear of hanging between gears or missing a gear all together. Best of all, this shifter also has an equally impressive billet, race-inspired appearance that makes it at home on the track or cruising in town.

- Engineered specifically to require no modifications to your vehicle interior or the factory Ford 5R55S transmission
- Utilizes the factory shift cable for a fast, simple installation
- Ships complete with functional lighted gear indicators

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>#619575</td>
<td>StreetFighter® ’10 -’11 Ford Mustang Ratchet Shifter</td>
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</tbody>
</table>
**ZEX™ Nitrous Systems**

- Complete nitrous system for 2011+ Ford Mustang GT 5.0L
- Adjustable from 75-175 additional safe horsepower
- Active Fuel Control™ adjusts fuel delivery with changes in nitrous bottle pressure for a safe air/fuel ratio
- Patented throttle-by-wire TPS switch activates nitrous at WOT
- Easy, 2 hour plug-and-play installation

<table>
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<tr>
<th>Part Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>#82390</td>
<td>Classic Purple Nitrous System</td>
</tr>
<tr>
<td>#82390B</td>
<td>Blackout™ Nitrous System</td>
</tr>
</tbody>
</table>

**Powerhouse® Camshaft Degree Kit**

- Contains all the tools you need to degree your Coyote camshaft in one convenient package
- Degreeing tools correct minute machining errors & position the cams for best HP & torque
- Includes degree wheel, pointer, cam fixture with metric adapter, 1” travel dial indicator, 5” dial indicator extension, crankshaft socket, TDC stop, checking spring, instructions & hardcover, foam-padded case

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<tr>
<th>Part Number</th>
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<tr>
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COMP Cams® is a proud member of the COMP Performance Group™ family.
The 2011+ Ford 5.0L Modular 4V V8 engine has already become hugely popular, so now the question is — how do we improve its already great performance? COMP Cams® has expanded upon Ford’s cam phaser technology with a series of camshafts created specifically for these engines and special cam phaser limiters and locks. The No Springs Required cams are available for both naturally aspirated and supercharged engines with three cam sets available for each. And don’t forget the award winning Cam Phaser Limiters and Locks that help lock in the cam phasers to allow the use of larger camshafts for more power. Don’t settle for stock — make your Ford Coyote engine the envy of all your friends.