CAM LOBE PROFILE CATALOG

AN EXPANDED LISTING OF ALL CRANE CAMS LOBE PROFILES FOR PROFESSIONAL RACING ENGINE BUILDERS
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Introduction

This latest version of our Cam Lobe Profile Catalog contains most of the recent and popular recommended lobe shapes that we currently advise. There are literally thousands of additional profiles available, from our early street and racing grinds, to antique restoration and factory replacement grinds dating back to the early 1900’s. Virtually any grind that Crane Cams has produced can still be provided.

If you have a specific requirement that isn’t listed, please contact our Performance Consultant staff at 866-388-5120 for additional information.

Custom Profile Cams

Although the Crane Cams catalog includes an extensive variety of camshafts, many applications occur that may require a camshaft selection not found in our standard listings. This is not an unusual happening at Crane Cams where custom ground camshafts are produced daily. We maintain the largest lobe profile library of any performance cam grinder, an accumulation that began with our founding in 1953.

We cover the entire spectrum of internal combustion engine applications, ranging from stationary power plants to Top Fuel dragsters. Prototype work is performed for a variety of clients from the giant Original Equipment Manufacturers to the individual engine builder/racer. Custom production runs are also commonplace for an equally diverse range of customers. Proprietary work is also a function of our diversity throughout the OEM and performance markets.

It is always recommended that our staff of Performance Consultants be contacted at 866-388-5120 as the first step in the initiation of a special camshaft order. Their combined decades of experience in all forms of camshaft applications can easily save the customer time (and money) when refining their particular combination.

Basic Rules to Follow When Considering a Custom-Ground Camshaft

Our hydraulic and mechanical profiles are designed for a particular finished lobe size and lifter diameter. Applying a lobe design to an engine having a smaller base circle diameter than the lobe is intended for, will probably cause the minimum radius of curvature (which usually occurs at, or near, the maximum lift point) to decrease to an unacceptable level. This will cause premature lobe and lifter failure.

Our hydraulic and mechanical roller profiles are also designed for a particular finished lobe size and lifter wheel diameter. These must be known to produce the proper finished cam grind.

Consideration is also given as to the type of valve train. Engines having an overhead valve style valve train (cam-lifter-pushrod-rocker arm-valve), can not utilize as much positive acceleration at the follower as those engines having direct-actuation valve trains (cam-follower-valve), due to the comparative stiffness of each style. Although the minimum tappet diameter and basic specifications may appear quite similar there are serious lobe design differences, mandating that these types not be interchanged.

Hydraulic and mechanical lobe profiles also have design differences, especially in the clearance ramps. Without going into great detail, you should never use hydraulic lifters on a mechanical lifter cam, nor is it advised to use mechanical lifters on a hydraulic lifter cam.

Crane Cams also has available lobe series for most SOHC and DOHC direct actuation and also translating “slipper” follower valve train engines. As virtually each of these engines utilize their own unique valve train geometry, lobe designs can not usually be interchanged among engines, even though their valve trains may appear identical in configuration.

Due to space limitations we cannot list all of these series here, and recommend that you contact the Crane Cams Performance Consultant staff for specific recommendations.

Notes on Minimum Tappet Diameter

For flat tappet grinds this is the smallest tappet face diameter advisable for use with the particular profile. Use of a smaller face diameter tappet will result in the lobe to lifter contact point going off of the edge of the tappet, usually causing immediate lobe and tappet wear and failure. A larger tappet can be used without this wear potential, however you may be sacrificing tappet velocity (which usually increases performance) if other profiles are available for larger tappets.

Common Values for Tappet Diameters

| .842" | SB and BB Chevy, Pontiac and Buick V8 |
| .875" | SB and BB Ford V8 |
| .904" | Chrysler and AMC V8 |

For more information on Minimum Tappet Diameter and how it affects your application, call a Crane Cams Performance Consultant at 866-388-5120.
CAM LOBE PROFILE CATALOG

Important—Lobe Design Size When Choosing a Roller Grind

Our roller profiles are designed for a particular finished lobe size, as determined by roller wheel diameter or base circle radius requirements. We have provided a column indicating the Lobe Design Size for each of the listed profiles.

Coding

| A | 1.786” Nominal Journal Diameter |
|   | Buick V6 and V8, Cadillac 368–500 V8, or special small base circle diameter, such as Chevrolet 262–400 V8 requiring connecting rod to cam clearance in long stroke applications. |
| B | 1.868” Nominal Journal Diameter |
|   | Chevrolet 262–400 and 348–409 V8, and Pontiac 265–455 V8 |
| C | 1.948”–1.968” or 50 mm Journal Diameter |
| D | 2.036” Nominal Journal Diameter |
|   | Ford 221–302 and 351C–400 V8, AMC V8 |
| E | 2.125” Nominal Journal Diameter |
| F | 55 mm or 2.165” Nominal Journal Diameter |
|   | Chevrolet LS1 V8, Ford LRB, and other engines. |
| J | 57 mm or 2.245” Journal Diameter |
|   | Chrysler 5.7–6.1L Hemi. |
| K | 2.280” Journal Diameter |
| G | 60 mm or 2.362” Nominal Journal Diameter |
| H | 65 mm or 2.560” Nominal Journal Diameter |

Some lobe designs have masters generated for more than one size category. These have been indicated where applicable. When a roller lobe designed for one journal size is applied to an engine having a different nominal journal size, a duration change will occur. For example, an “A” lobe ground on a “C” engine camshaft will realize a four-degree increase at 0.050” cam lift. There is usually a two-degree change between design size series. Caution must be used when selecting a larger sized lobe for a smaller lobe application. If a “D” lobe were used on an “A” application, not only would a duration loss of six degrees take place, but also a negative radius of curvature (inverted flank) may try to occur during the grinding process, resulting in a finished lobe shape that is not representative of the actual design. This may result in unstable valve train, possibly causing component failure.

Lobes that are intended to have this inverted flank (Crane Cams HIR and IR series) are carefully designed and manufactured using a special process to prevent this condition. Even so, HIR and IR camshafts are not normally advised for high RPM applications due to their relative harshness on the valve train.

Important—Lifter Wheel Size When Choosing a Roller Grind

Our roller profiles are also designed for a particular wheel size on the roller lifter.

Popular Wheel Diameters

| .700” | Used on Many Hydraulic Roller Lifters |
| .750” | Used on Most .842” and .875” Diameter Mechanical Roller Lifters |
| .815” | Used on Most .904” Diameter Mechanical Roller Lifters |
| .850” | Used on Most .937” Diameter Mechanical Roller Lifters |
| .920” | Used on Most 1.000” and 1.062” Diameter Mechanical Roller Lifters |

Consideration must be made when changing the size of the wheel from the usual diameter as this will affect the duration of the lobes. As the wheel diameter increases the duration also increases. The duration in the lower lobe lift areas (.001”–.025”) will not change very much, as the pressure angle between the lobe in the wheel is not greatly affected. However, at .050” lobe lift, as the wheel size increases, the duration will increase nearly two degrees for each diameter increment as listed above. Conversely, as the wheel diameter decreases the duration will also decrease. Lobe lift is not affected by the wheel diameter.

Be sure to specify what wheel diameter that you will be using, as the desired opening and closing figures (and duration) may not be obtained if this isn’t compensated for. Many lobe profiles have been generated for more than one wheel size in order to produce the proper lifter motion for these changes.
Special Cam Services Price Schedule
The following basic price schedule (which is subject to change without notice) covers services offered. Additional quotes will be submitted on request. All prices are FOB, Daytona Beach, FL.

Design

Cam Profile Design—Inelastic system with Accelerated Ramps. Lift table with velocities and accelerations in one degree spacing will be furnished.

| Each Profile | Call for Quote |

Cam Profile Design

Inelastic system with Accelerated Ramps, for slipper follower type applications. Lift table with velocities and accelerations in one degree spacing will be furnished.

| Each Profile | Call for Quote |

Profile Smoothing

Computer smoothing of your cam profile design. Performs smooth blending of ramps, nose and roughness-smoothed. Lift table will be furnished.

| Each Profile | Call for Quote |

Tooling (Plate or Masters)

Generate Van Norman/Berco Plate Master Cam Profile. Grind to five decimal place data. (Included verification check of submitted design for errors.)

| Each Valve Profile | Call for Quote |

Generate Van Norman/Berco Plate for customer-supplied camshaft. (Includes base circle runout correction.)

| Each Single Pattern Plate | Call for Quote |
| Each Dual Pattern Plate Set | Call for Quote |

Manufacture

Grind customer’s round lobe 8620 steel billet camshaft core—includes copper plate, rough grind, heat treat and finish grind. For roller camshafts that require base circle undercutting, an additional labor charge is required.

| Each 1 Cyl. Camshaft | Labor PN 98070 |
| Each 4 Cyl. Camshaft | Labor PN 98071 |
| Each 6 Cyl. Camshaft | Labor PN 98072 |
| Each V8 Camshaft | Labor PN 98064 |
| Each V8 Camshaft | Labor PN 98085 |

Grind Crane Cams round lobe 8620 steel billet camshaft core. For roller follower camshafts that require base circle undercutting, an additional labor charge is required.

| Most V8 Round Lobe Steel Billet Cams Includes Core | Labor PN 98061 |
| Most 6 Cyl. Round Lobe Steel Billet Cams, Includes Core | Labor PN 98086 |
| Most 4 Cyl. Round Lobe Steel Billet Cams, Includes Core | Labor PN 98062 |

Grind one sample camshaft from customer’s unground lobe camshaft and inspect for conformance to design data. Customer to furnish semi-finished cam billet if Crane Cams billet is not available.

| Each Camshaft | Call for Quote |
Prototype Cam Services

Crane Cams utilizes computer programs to perform precision cam profile measurements and design analysis. This enables Crane Cams to constantly update and improve their entire product line, plus prototype development for other cam and engine manufacturers.

Crane Cams offers a broad scope of services and capabilities from a single source—a unique and extremely advantageous feature. This multi-faceted service can provide a complete package of engine cam development and manufacturing, from design through sample cams for developmental evaluation at a low total cost.

The “as measured” cam profile analysis services are the most accurate measurement and analysis data currently available in the industry. A precision measurement facility is located in the Crane Cams facility and is used in many phases of Crane Cams’ production and development work, as well as by various other engine and cam manufacturers.

Sharing equal importance with the physical measurements are the computer analysis techniques employed in processing the “as measured” data. This process permits a broad and accurate analysis of the data with corrections to systematic and random errors, which occur in all measurement procedures. The resulting computer printout is an exceedingly accurate lift data (to the nearest 10 millionths of an inch) of the actual measured profile. This data can then be immediately compared to the design data.

One outstanding feature of the cam profile analysis program allows one degree (or 2½ degree) design data to be read into the computer, which will immediately return printout cutting data in one-half degree increments. This unique feature permits a model cam to be generated on one-half degree increments of maximum accuracy, even though the original design was tabulated in one-degree increments.

Only the latest equipment is incorporated into the extensive cam development facilities at Crane Cams. Equipment is only as good as the people that use it, however, and Crane Cams personnel have been one of the main keys to the firm’s successful rise to the “Number One” rating in the high performance cam industry. Crane Cams fully appreciates the importance of care, accuracy, speed and competence, and reflects this concern in its total involvement in all cam facets, from design through volume production.
Tooling

From design data, the first step in cam profile production is the generation of the master cam lobe. At Crane Cams this is the most critical and precision step in cam profile manufacturing, since every step from this point forward can result in possible accumulative errors and deviations from the desired profile, requiring extreme detail and attention to be applied to the project.

From the master cam blank, a rough cam shape is first rough ground on a cam grinder. The final rough and finish grinding is performed on a numerically controlled grinder. The grinder has a basic resolution of one millionth of an inch, with a complete system resolution of 10 millionths of an inch, and a grinding accuracy and repeatability of plus or minus 15 millionths.

Manufacturing

Crane Cams utilizes Landis, Berco, Van Norman and Norton Automatic cam grinders for production cam grinding. If production volume run cams are desired, Crane Cams offers the highest quality at competitive prices, backed up by the fastest delivery possible.

Inspection

Crane Cams production run inspection procedures, designed to check production cams for accuracy, plus establishing performance parameters of a given camshaft of profile, is a very useful and rapid measuring device (Adcole 911) with resolution to .0001 inch and one-quarter of one degree.

A custom-built dynamic inspection machine is utilized in many critical inspection areas to rapidly indicate acceleration, velocity, displacement and jerk of a model, or sample cam profile. Relative smoothness can be instantly reviewed for comparison, as well as lobe-to-lobe variations in profiles. The viewed trace on the oscilloscope truly gives a “fingerprint” of the cam profile almost instantly, and with a minimum of set-up.

Conclusions can be quickly established relating to dynamic problems due to design or manufacture. This machine is also utilized to select optimum lobes, average lobes, or worst lobes, for further inspection and analysis, or for copying profiles on developmental or test cams.

Also located at the Crane Cams facility in Daytona Beach, FL, is the physical measurement equipment. Another custom designed installation, this machine performs precise measurement of “as made” cam profiles, conducts mathematical analysis to correct for systematic and random errors, and provides velocity and acceleration data.

Features include a basic resolution of .000010 inch and two arc seconds. An extremely high accuracy of 20 millionths of an inch (mean standard deviation) is maintained through the operating system employed and close temperature control of the measurement room. Ground and lapped carbide utilized as cam followers, maintain high precision and accuracy.

Our Adcole gauge is considered to be the standard of the industry for camshaft design verification and production. This is the measuring equipment virtually demanded by the original equipment manufacturers for quality control purposes. Measurements are precise to within 1/10 micron (0.0001 mm) and 0.001 degrees. Computer-aided control combines extreme accuracy with speed, and provides for complete plot traces of deviations from the programmed standards.

Lobe Profile Nomenclature

Example:

<table>
<thead>
<tr>
<th>Profile Code</th>
<th>Duration at .050” Lobe Lift</th>
<th>Lobe Lift</th>
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</thead>
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<tr>
<td>F - 262 / 3734</td>
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</tr>
</tbody>
</table>

H  Hydraulic
HR Hydraulic Roller
F  Mechanical Flat Tappet
R  Mechanical Roller Lifter
### HYDRAULIC FLAT TAPPET PROFILES

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT .050” TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>MINIMUM TAPPET DIAMETER</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>DEG.</td>
<td>IN.</td>
<td>104 DEG. INTAKE</td>
<td>114 DEG. EXHAUST</td>
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<td>.030</td>
<td>.014</td>
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<td>HP-218/2942</td>
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</table>

**HP** hydraulic series intended for conservative street use and factory performance upgrades. Designed for .842” diameter or larger tappets.

**HMV (Hydraulic Maximum Velocity)** hydraulic series intended for mid-range torque and street use, also fuel economy. Designed to make maximum use of .842” diameter tappets.

**Z** The Z hydraulic lobes are our most aggressive series for use with .842” diameter tappets. Short seat timing with maximum area under the curve provides outstanding performance.
### HYDRAULIC FLAT TAPPET PROFILES

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT .050” TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>MINIMUM TAPPET DIAMETER</th>
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<td>.104 DEG. INTAKE</td>
<td>.114 DEG. EXHAUST</td>
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#### CCH1 hydraulic series created for performance hydraulic applications requiring higher engine speeds on smaller diameter lobes. Designed for .842” diameter or larger tappets.

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<th>Intake</th>
<th>Exhaust</th>
<th>Advertised Dur.</th>
<th>Lobe Lift</th>
<th>Top Dead Center</th>
<th>Gross Lift</th>
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<td>H-210/270</td>
<td>112</td>
<td>.053</td>
<td>.028</td>
<td>.405</td>
<td>.432</td>
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<tr>
<td>H-214/275</td>
<td>117</td>
<td>.059</td>
<td>.032</td>
<td>.413</td>
<td>.440</td>
<td>.468</td>
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<tr>
<td>H-218/280</td>
<td>122</td>
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<td>H-226/290</td>
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<td>H-234/300</td>
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<td>H-242/310</td>
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#### CCH2 hydraulic series created for performance hydraulic applications requiring even higher engine speeds. Designed for .842” diameter or larger tappets.

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<th>Advertised Dur.</th>
<th>Lobe Lift</th>
<th>Top Dead Center</th>
<th>Gross Lift</th>
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<td>H-198/270</td>
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</table>

#### H1 hydraulic series created for engines with large diameter lobes and long rocker ratios, such as big block Chevrolet, used in performance and marine applications. Designed for .842” diameter or larger tappets.

<table>
<thead>
<tr>
<th>Profile Code</th>
<th>Intake</th>
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### HYDRAULIC ROLLER PROFILES

**HR1**

HR1 hydraulic roller series created for high lift applications with good stability.

| HR-206/313 | 268 | .0040 | 124 | .047 | .026 | .470 | .501 | .532 | .551 | B |
| HR-210/319 | 272 | .0040 | 128 | .053 | .030 | .479 | .510 | .542 | .561 | B C |
| HR-214/325 | 276 | .0040 | 132 | .059 | .034 | .488 | .520 | .553 | .572 | B C |
| HR-218/332 | 280 | .0040 | 137 | .065 | .038 | .498 | .531 | .564 | .584 | B |
| HR-222/339 | 284 | .0040 | 141 | .072 | .043 | .509 | .542 | .576 | .597 | B C |
| HR-226/345 | 288 | .0040 | 145 | .078 | .048 | .518 | .552 | .587 | .607 | B C |
| HR-230/352 | 292 | .0040 | 150 | .085 | .053 | .528 | .563 | .598 | .620 | B C |
| HR-234/359 | 296 | .0040 | 154 | .093 | .058 | .539 | .574 | .610 | .632 | B C |
| HR-238/365 | 300 | .0040 | 158 | .100 | .064 | .548 | .584 | .621 | .642 | B C |
| HR-240/372 | 302 | .0040 | 161 | .104 | .067 | .558 | .595 | .632 | .655 | C |
| HR-242/372 | 304 | .0040 | 163 | .108 | .070 | .558 | .595 | .632 | .655 | B C |
| HR-242/375 | 306 | .0040 | 161 | .104 | .070 | .563 | .600 | .638 | .660 | C |
| HR-244/372 | 306 | .0040 | 164 | .112 | .074 | .563 | .595 | .632 | .655 | C |
| HR-246/372 | 308 | .0040 | 166 | .116 | .077 | .558 | .595 | .632 | .655 | B C |
| HR-248/372 | 310 | .0040 | 167 | .119 | .080 | .558 | .595 | .632 | .655 | C |
| HR-250/372 | 312 | .0040 | 170 | .124 | .084 | .558 | .595 | .632 | .655 | B |
| HR-254/372 | 316 | .0040 | 173 | .131 | .091 | .558 | .595 | .632 | .655 | B C |
| HR-258/372 | 320 | .0040 | 174 | .139 | .098 | .558 | .595 | .632 | .655 | C |
| HR-260/372 | 322 | .0040 | 177 | .143 | .102 | .558 | .595 | .632 | .655 | C |
| HR-262/372 | 324 | .0040 | 179 | .146 | .106 | .558 | .595 | .632 | .655 | C |
| HR-270/372 | 332 | .0040 | 183 | .155 | .118 | .558 | .595 | .632 | .655 | B |
| HR-278/372 | 340 | .0040 | 190 | .169 | .132 | .558 | .595 | .632 | .655 | B |

### HR2

HR2 hydraulic roller series used for large cubic inch high lift applications.

| HR-198/311 | 260 | .0040 | 117 | .041 | .018 | .467 | .498 | .529 | .547 | B D |
| HR-206/325 | 268 | .0040 | 126 | .047 | .026 | .488 | .520 | .553 | .572 | B |
| HR-210/332 | 272 | .0040 | 131 | .053 | .030 | .498 | .531 | .564 | .584 | B D |
| HR-222/352 | 284 | .0040 | 144 | .070 | .041 | .528 | .563 | .598 | .620 | B |
| HR-230/365 | 292 | .0040 | 152 | .084 | .052 | .548 | .584 | .620 | .642 | B |
| HR-238/378 | 300 | .0040 | 160 | .099 | .064 | .567 | .605 | .643 | .665 | B |
| HR-248/391 | 308 | .0040 | 170 | .120 | .080 | .586 | .626 | .665 | .688 | C |
| HR-252/391 | 316 | .0040 | 174 | .128 | .088 | .586 | .626 | .665 | .688 | C |

### HR3

HR3 hydraulic roller series for mild performance and emissions legal camshafts using stock springs. Designed for small block and big block Chevrolet size lobes.

| HR-184/256 | 240 | .0040 | 89 | .022 | .009 | .384 | .410 | .435 | .451 | B C |
| HR-194/271 | 250 | .0040 | 102 | .032 | .015 | .407 | .434 | .461 | .477 | B C |
| HR-204/286 | 260 | .0040 | 115 | .044 | .023 | .429 | .458 | .486 | .503 | B C |
| HR-208/292 | 264 | .0040 | 119 | .050 | .027 | .438 | .467 | .496 | .514 | B C |
| HR-214/301 | 270 | .0040 | 127 | .059 | .033 | .452 | .482 | .512 | .530 | B C |

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**APPLICATION SPECIFIC LT4 AND VORTEC HYDRAULIC ROLLER PROFILES**

These profiles may be used in other applications. Consult with the Crane Cams technical staff for recommendations.

**HRL4**

Chevrolet small block V8 with LT4 heads, HRL4 hydraulic roller series, for applications having limited valve travel.

- **HR-238/350**: 302 .0040 155 .097 .064 .525 .560 B
- **HR-244/350**: 308 .0040 160 .109 .074 .525 .560 B
- **HR-250/350**: 314 .0040 164 .120 .083 .525 .560 B

**HRCV**

Chevrolet Vortec 350, HRCV hydraulic roller series, with .475" maximum lift rules.

- **HR-214/316**: 276 .0040 130 .058 .034 .474 B
- **HR-224/316**: 286 .0040 137 .074 .046 .474 B
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**CHEVROLET LS ENGINE FAMILY HYDRAULIC ROLLER PROFILES**

**LSHR1**

Chevrolet LS V8, LSHR1 hydraulic roller series, used in applications using stock valve springs and standard rocker arm ratio.

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**LSHR2**

Chevrolet LS V8, LSHR2 hydraulic roller series, with increased ramp rates and more area under the curve.

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**LSHR3**

Chevrolet LS V8, LSHR3 hydraulic roller series, used in applications requiring stable and quiet valve control.

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### HYDRAULIC ROLLER PROFILES

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### CHEVROLET LS ENGINE FAMILY HYDRAULIC ROLLER PROFILES

**LSHR3**  
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**LSHS347**  
Chevrolet LS V8, LSHS347 hydraulic roller series, used in high speed performance applications.

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## Hydraulic Roller Profiles

### Chevrolet LS Engine Family Hydraulic Roller Profiles

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<td>.495</td>
</tr>
<tr>
<td>HR-268/330</td>
<td>324</td>
<td>.0040</td>
<td>182</td>
<td>.155</td>
<td>.117</td>
<td>.495</td>
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<tr>
<td>HR-272/330</td>
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<td>186</td>
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<td>.124</td>
<td>.495</td>
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<tr>
<td>HR-276/330</td>
<td>332</td>
<td>.0040</td>
<td>191</td>
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<td>.132</td>
<td>.495</td>
</tr>
</tbody>
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### MECHANICAL FLAT TAPPET PROFILES

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT 200° TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>MINIMUM TAPPET DIAMETER</th>
</tr>
</thead>
<tbody>
<tr>
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<td>DEG.</td>
<td>IN.</td>
<td>104° DEG. INTAKE</td>
<td>114° DEG. EXHAUST</td>
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</table>

#### F1 mechanical series created for oval track and marine engines with higher rocker ratios, such as the big block Chevrolet, where stable upper RPM valve motion is required. Recommended lash is .026”.

<table>
<thead>
<tr>
<th>Code</th>
<th>Duration at .020”</th>
<th>Lobe Lift</th>
<th>Duration at 200° Tappet Lift</th>
<th>Tappet Lift at Top Dead Center</th>
<th>Gross Valve Lift</th>
<th>Minimum Tappet Diameter</th>
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<td>.077</td>
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<td>F-256/3412</td>
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<td>.115</td>
<td>.092</td>
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<tr>
<td>F-266/3528</td>
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<td>.107</td>
<td>.529</td>
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<tr>
<td>F-276/3648</td>
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<td>F-286/3765</td>
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<td>.0200</td>
<td>189</td>
<td>.165</td>
<td>.137</td>
<td>.565</td>
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</table>

#### F2 mechanical series created for street use and mid-range torque applications. Recommended lash is .022”.

<table>
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<tr>
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<th>Duration at .014”</th>
<th>Lobe Lift</th>
<th>Duration at 200° Tappet Lift</th>
<th>Tappet Lift at Top Dead Center</th>
<th>Gross Valve Lift</th>
<th>Minimum Tappet Diameter</th>
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<tbody>
<tr>
<td>F-198/270</td>
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<td>.0140</td>
<td>102</td>
<td>.038</td>
<td>.023</td>
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<td>F-218/2933</td>
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<td>122</td>
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<td>.440</td>
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<tr>
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<td>134</td>
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</table>

#### F3 mechanical series created for racing applications with stable valve control. This series has an excellent racing history. Designed to make full use of .842” diameter tappets. Recommended lash is .026”.

<table>
<thead>
<tr>
<th>Code</th>
<th>Duration at .020”</th>
<th>Lobe Lift</th>
<th>Duration at 200° Tappet Lift</th>
<th>Tappet Lift at Top Dead Center</th>
<th>Gross Valve Lift</th>
<th>Minimum Tappet Diameter</th>
</tr>
</thead>
<tbody>
<tr>
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<td>.104</td>
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<tr>
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<td>284</td>
<td>.0200</td>
<td>156</td>
<td>.111</td>
<td>.078</td>
<td>.527</td>
</tr>
<tr>
<td>F-252/3574</td>
<td>288</td>
<td>.0200</td>
<td>160</td>
<td>.118</td>
<td>.084</td>
<td>.536</td>
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<tr>
<td>F-256/3634</td>
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<td>.0200</td>
<td>164</td>
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<td>.0200</td>
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<td>.124</td>
<td>.590</td>
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<tr>
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#### TLF mechanical series created for oval track racing. Designed to make full use of .842” diameter tappets. Recommended lash is .012”.

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<th>Lobe Lift</th>
<th>Duration at 200° Tappet Lift</th>
<th>Tappet Lift at Top Dead Center</th>
<th>Gross Valve Lift</th>
<th>Minimum Tappet Diameter</th>
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Continued on next page.
### MECHANICAL FLAT TAPPET PROFILES

#### TLF1

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<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>MINIMUM TAPPET DIAMETER</th>
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<tbody>
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<td>187 .165 .128 .600</td>
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</table>

#### F13 mechanical series created for racing mechanical flat tappet. Designed to make full use of .842” diameter tappets. Recommended lash is .014” to .016”.

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<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>MINIMUM TAPPET DIAMETER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DEG.</td>
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<td>1.70</td>
</tr>
<tr>
<td></td>
<td>IN.</td>
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</tr>
<tr>
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<tr>
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<td>148 .096 .062 .503</td>
<td>.537 .570 .590</td>
</tr>
<tr>
<td>F-238/339</td>
<td>263 .0200</td>
<td>150 .099 .066 .509</td>
<td>.542 .576 .597</td>
</tr>
<tr>
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</tr>
<tr>
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<td>154 .106 .072 .519</td>
<td>.554 .588 .609</td>
</tr>
<tr>
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<td>156 .110 .075 .524</td>
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</tr>
<tr>
<td>F-246/353</td>
<td>271 .0200</td>
<td>158 .113 .079 .529</td>
<td>.565 .600 .621</td>
</tr>
<tr>
<td>F-248/3565</td>
<td>273 .0200</td>
<td>160 .117 .082 .535</td>
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<tr>
<td>F-250/3601</td>
<td>275 .0200</td>
<td>162 .120 .085 .540</td>
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</tr>
<tr>
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<tr>
<td>F-254/367</td>
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<td>.587 .624 .646</td>
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<tr>
<td>F-256/370</td>
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<td>168 .129 .094 .555</td>
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<tr>
<td>F-258/374</td>
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<tr>
<td>F-274/402</td>
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<td>186 .161 .129 .603</td>
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</table>

#### FIT842 mechanical series created for racing mechanical flat tappet. Designed to make full use of .842” diameter tappets. High ratio rocker arms advised. Recommended lash is .020” to .022”.

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>MINIMUM TAPPET DIAMETER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DEG.</td>
<td>1.50</td>
<td>1.70</td>
</tr>
<tr>
<td></td>
<td>IN.</td>
<td>1.60</td>
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</tr>
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<td>F-254/372</td>
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<tr>
<td>F-256/3401</td>
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<td>164 .122 .094 .510</td>
<td>.544 .578 .599</td>
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<tr>
<td>F-258/379</td>
<td>287 .0020</td>
<td>170 .127 .098 .569</td>
<td>.606 .644 .667</td>
</tr>
<tr>
<td>F-260/3401</td>
<td>289 .0020</td>
<td>167 .130 .101 .510</td>
<td>.544 .578 .599</td>
</tr>
<tr>
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<td>301 .0020</td>
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</tbody>
</table>

#### FC18 mechanical series created for racing mechanical flat tappet. Designed to make full use of .842” diameter tappets, using 1.8 rocker arm ratios. Recommended lash is .020” to .022”.

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>MINIMUM TAPPET DIAMETER</th>
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<tbody>
<tr>
<td></td>
<td>DEG.</td>
<td>1.50</td>
<td>1.70</td>
</tr>
<tr>
<td></td>
<td>IN.</td>
<td>1.60</td>
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<tr>
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<td>F-248/310</td>
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<tr>
<td>F-250/325</td>
<td>282 .0200</td>
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</tbody>
</table>

Continued on next page.
### MECHANICAL FLAT TAPPET PROFILES

<table>
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<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT .050” LOBE LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>MINIMUM TAPPET DIAMETER</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>DEG.</td>
<td>IN.</td>
<td>104 DEG. INTAKE</td>
<td>114 DEG. EXHAUST</td>
<td>.150</td>
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</table>

#### FC18

Continued from previous page.

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</table>

**F4** mechanical series created for NASCAR® racing applications. This series has an excellent racing history. Designed to make full use of .875” diameter tappets. Recommended lash is .018”.

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<table>
<thead>
<tr>
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<tr>
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**F5** mechanical series created for NASCAR® racing applications. Designed to make full use of .875” diameter tappets. Recommended lash is .018”.

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**TLF2** mechanical series created for NASCAR® racing applications. Designed to make full use of .875” diameter tappets. Recommended lash is .012”.

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## MECHANICAL FLAT TAPPET PROFILES

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**F6 mechanical series** is designed for unrestricted NASCAR® engines with 50 mm cam journals, using 1.8 rocker arm ratios. Recommended lash is .020” intake and .022” exhaust.

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| F-274/415    | 306                             | .0020                   | 183            | .154           | .117                                                          | .789 .809 .875           |
| F-278/428    | 311                             | .0020                   | 186            | .158           | .121                                                          | .813 .835 .875           |
| F-280/428    | 313                             | .0020                   | 187            | .162           | .125                                                          | .813 .835 .875           |
| F-284/4281   | 317                             | .0020                   | 194            | .169           | .132                                                          | .813 .835 .875           |

| F8           |                                 |                         |                |                |                                                               |                          |
| F-232/330    | 264                             | .0200                   | 140            | .082           | .055                                                          | .660 .875                |
| F-238/336    | 270                             | .0200                   | 146            | .091           | .062                                                          | .672 .875                |
| F-242/340    | 274                             | .0200                   | 150            | .098           | .068                                                          | .680 .875                |
| F-246/344    | 278                             | .0200                   | 154            | .104           | .073                                                          | .688 .875                |
| F-258/356    | 290                             | .0200                   | 166            | .125           | .091                                                          | .712 .875                |

| F9           |                                 |                         |                |                |                                                               |                          |
| F-234/310    | 266                             | .0200                   | 138            | .080           | .060                                                          | .558 .875                |
| F-240/348    | 272                             | .0200                   | 148            | .094           | .065                                                          | .626 .875                |
| F-244/354    | 276                             | .0200                   | 152            | .100           | .070                                                          | .637 .875                |
| F-248/3601   | 280                             | .0200                   | 157            | .107           | .076                                                          | .648 .875                |
| F-252/366    | 284                             | .0200                   | 161            | .114           | .081                                                          | .659 .875                |
| F-264/384    | 296                             | .0200                   | 173            | .135           | .100                                                          | .691 .875                |
### MECHANICAL FLAT TAPPET PROFILES

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<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>MINIMUM TAPPET DIAMETER</th>
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<td>344</td>
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<td>212</td>
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</table>

**F11** mechanical series created for Chrysler and AMC engines using .904" diameter tappets for street and mid-range torque applications. Recommended lash is .028" to .030".

**F904** mechanical series created for Chrysler and AMC engines using .904" diameter tappets with stable valve motion for conservative performance and endurance racing applications. Recommended lash is .022" intake and .026" exhaust.

**F904A** mechanical series created for Chrysler and AMC engines using .904" diameter tappets with stable valve motion for racing applications.

**F12** mechanical series created for Chrysler and AMC engines using .904" diameter tappets for racing applications. Recommended lash is .026".

**NOPOP1** mechanical series originally created for Chrysler Hemi fuel drag race applications. Recommended lash is .028".
### MECHANICAL ROLLER PROFILES

**SR Street Roller series** created for late model engines running mechanical rollers requiring quiet valve train operation, due to monitoring by knock sensors. Recommended lash is .020".

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT .050&quot; TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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<tr>
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<td>SR-260/374</td>
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<tr>
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<td>.157 .121 .561 .598 .636 .658 B</td>
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</tbody>
</table>

**SR400 Street Roller .400" lift series** for mechanical rollers in serious street and marine performance applications. Recommended lash is .020" intake and .022" exhaust.

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT .050&quot; TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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<tbody>
<tr>
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<tr>
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</table>

**CDS Cam Dynamics roller series** created for oval track and endurance racing applications. Gentle valve motion with a proven history. Recommended lash is .030".

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<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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Continued on next page.
### MECHANICAL ROLLER PROFILES

#### CDS

Continued from previous page.

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<th>DESIGN LOBE SIZE CODE</th>
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#### TR

Track Roller series created for oval track and endurance racing applications with a proven history. A benchmark from which other cams are measured. Recommended lash is .022".

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<th>TAPPET LIFT AT TOP DEAD CENTER</th>
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<tr>
<td>TR-276/4167</td>
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<td>TR-280/4167</td>
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#### 395 Roller series created for oval track and endurance racing applications with 55 mm journals, usually with 1.6, and up to 2.0, rocker arm ratios. Easy on valve springs. Recommended lash is .020" intake and .022" exhaust.

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR.</th>
<th>DUR. AT .050&quot;</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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<tbody>
<tr>
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<td>DUR. AT TAPPET LIFT</td>
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<td>114 DEG. EXHAUST</td>
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<tr>
<td>R-252/3951</td>
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<td>.138</td>
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</table>

#### 400 Roller series created for oval track and endurance racing applications with 2.036" journals, usually with 1.6 or higher rocker arm ratios. Recommended lash is .020" intake and .022" exhaust.

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR.</th>
<th>DUR. AT .050&quot;</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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<tbody>
<tr>
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<td>DUR. AT TAPPET LIFT</td>
<td>104 DEG. INTAKE</td>
<td>114 DEG. EXHAUST</td>
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<td>1.60</td>
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<td>R-244/400</td>
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<td>.0200</td>
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<td>.138</td>
<td>.109</td>
</tr>
</tbody>
</table>

#### 405 Roller series created for oval track and endurance racing applications with 55 mm journals, usually with 1.6 or higher rocker arm ratios. Recommended lash is .020" intake and .022" exhaust.

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR.</th>
<th>DUR. AT .050&quot;</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
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<tr>
<td></td>
<td>DUR. AT TAPPET LIFT</td>
<td>104 DEG. INTAKE</td>
<td>114 DEG. EXHAUST</td>
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<td>1.60</td>
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<tr>
<td>R-258/4051</td>
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<tr>
<td>R-264/4051</td>
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<td>182</td>
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<td>.112</td>
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<tr>
<td>R-266/405</td>
<td>298</td>
<td>.0200</td>
<td>184</td>
<td>.148</td>
<td>.116</td>
</tr>
</tbody>
</table>
## MECHANICAL ROLLER PROFILES

### 415 roller series created for oval track and endurance racing applications with 50 mm journals. Recommended lash is .020” intake and .024” exhaust.

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT .200” TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-266/415</td>
<td>300 .0200</td>
<td>180 .138 .108</td>
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<td>.745 .771</td>
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<tr>
<td>R-270/415</td>
<td>304 .0200</td>
<td>183 .144 .114</td>
<td>.623 .664 .707 .730</td>
<td>.745 .771</td>
<td>C</td>
</tr>
</tbody>
</table>

### 420 roller series created for oval track racing applications including sprint cars, and endurance applications, up to 8,200 RPM. Proven performance and reliability. Recommended lash is .020”, allowing for a tight cold setting on aluminum engines.

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT .200” TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-244/420</td>
<td>276 .0200</td>
<td>166 .105 .070</td>
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<td>.771 .799</td>
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<td>A B</td>
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<tr>
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<tr>
<td>R-276/420</td>
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### 438 roller series created as a step up from the 420 series with improved high-RPM dynamics. Recommended lash is .016” intake and .018” exhaust.

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<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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Continued on next page.
### MECHANICAL ROLLER PROFILES

<table>
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<th>DUR. AT 200&quot; TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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<tbody>
<tr>
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<td>DEG.</td>
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<td>114 DEG. EXHAUST</td>
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#### 438

**Continued from previous page.**

<table>
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<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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</thead>
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</tbody>
</table>

#### 4381

**Roller series created as a step up from the 420 series with improved high-speed dynamics. Very stable, especially with small BCD lobes. Stable to 9000 RPM with a 1.75 rocker ratio, 9500 RPM with a 1.7 rocker ratio with a properly set-up stable, lightweight valve train. Recommended lash is .020" intake and .022" exhaust.**

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT 200&quot; TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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<tbody>
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<tr>
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<tr>
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<td>R-272/4381</td>
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<tr>
<td>R-274/4381</td>
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<tr>
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<td>R-282/4381</td>
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<tr>
<td>R-284/4381</td>
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<td>B F</td>
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<tr>
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</table>

**LH Low Harmonic roller series minimizes valve spring excitation in the RPM range of maximum engine output. Results of testing have shown an increase of valve spring life in circle track, marine, and bracket racing applications. Recommended lash is .020" intake and .022" exhaust.**

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT 200&quot; TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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**Continued on next page.**
# MECHANICAL ROLLER PROFILES

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<th>DUR. AT .200&quot; TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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<tbody>
<tr>
<td></td>
<td>DEG.</td>
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<td>104 DEG.</td>
<td>114 DEG.</td>
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<td>LH Low Harmonic roller series minimizes valve spring excitation in the RPM range of maximum engine output. Results of testing have shown an increase of valve spring life in circle track, marine, and bracket racing applications. Recommended lash is .020&quot; intake and .022&quot; exhaust.</td>
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**MECHANICAL ROLLER PROFILES**

LH2 Low Harmonic roller series minimizes valve spring excitation in the RPM range of maximum engine output. Higher RPM potential than the original LH. Recommended lash is .020” intake and .022” exhaust.

422 roller series is used primarily as an intake lobe with high rocker arm ratios. The lobes are sized on a .950 base circle diameter. Recommended lash is .012”.

428 roller, aggressive series for up to 1.8:1 rocker ratio. Popular oval track series. Recommended lash is .020” intake and .022” exhaust.

430 roller, aggressive high RPM series created for oval track racing applications including sprint cars. Can be used with 1.85 ratio rockers with 55 mm journals and stiff valve train. Basic RPM potential about 500 less than comparable 4381 series grinds. Recommended lash is .020” intake and .022” exhaust.
### MECHANICAL ROLLER PROFILES

#### 430

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#### 452

452 roller, aggressive series for up to 1.8:1 rocker ratio. Recommended lash is .020” intake and .022” exhaust.

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#### 4467

4467 roller series created for oval track and drag racing that gives a .700”+ net valve lift when used with a 1.6:1 or greater rocker ratio. Recommended lash is .012”.

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#### 4467

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4168 IR roller series created for oval track applications with aggressive inverted flank areas for small block Chevrolet size lobes. Recommended lash is .012". Not recommended for high RPM applications.

4334 IR roller series created from the Cam Dynamics series of masters for oval track applications with aggressive inverted flank areas. Recommended lash is .012". Not recommended for high RPM applications.

422 roller series created for oval track and drag racing that gives a .650"+ net valve lift when used with a 1.6:1 or higher rocker ratio. Sized on a .950" diameter base circle for Buick and long stroke (small base circle) Chevrolet with a .012" recommended lash.

4403 roller series created as a step up from the 420 series with improved high-speed dynamics, popular oval track intake lobes. Use with up to a 1.8 rocker ratio. Recommended lash is .020" intake and .022" exhaust, allowing for a tight cold setting on aluminum engines.
MECHANICAL ROLLER PROFILES

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4440 roller series created for oval track and drag racing that gives a .700”+ net valve lift when used with a 1.6:1 or higher rocker ratio. Sized on a .900” diameter base circle for Buick and long stroke (small base circle) Chevrolet. Recommended lash is .012”.

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4188 IR roller series created for oval track, marine, and drag racing applications with aggressive inverted flank areas for the big block Chevrolet and similar engines. Use with limited RPM applications. Recommended lash is .012”.

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IR roller series created for Super Stock drag racing where aggressive lobes are used with limited RPM. Recommended lash is .012”.

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R1 roller series created for oval track and marine for the big block Chevrolet and other higher rocker ratio engines, where stable high RPM valve motion is required. Recommended lash is .026”.

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R2 roller series created for drag racing applications for engines like the big block Chevrolet and Chrysler engines where stable high RPM valve motion is required. Recommended lash is .028”.

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#### R2

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4706 roller series created for drag racing applications for engines like the big block Chevrolet and Chrysler engines, where stable exhaust valve motion is required. Recommended lash is .030”.

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490 roller series created for drag racing applications for engines like the big block Chevrolet and Chrysler engines, where stable exhaust valve motion is required. Recommended lash is .026” intake and .030” exhaust.

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NOPOP2 roller series created for various drag race applications where stable high RPM valve motion is required. Recommended lash is .026”.

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#### 481 roller series
create for high RPM large cubic inch drag race engines. Recommended lash is .016”.

#### 4765 roller series
Symmetrical design created for high RPM drag race applications from the Cam Dynamics series of masters. Primarily used as an intake lobe with a recommended lash of .030” to .035”.

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#### 4589 roller series
Symmetrical design created for high RPM drag race applications from the Cam Dynamics series of masters. Primarily used as an exhaust lobe with a recommended lash of 0.030” to 0.035”.

**4589**

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#### 484 roller series
Used primarily as an intake lobe on large cubic inch drag race engines. Recommended lash is 0.016”.

**484**

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#### 4841+ roller series
Used primarily as an intake lobe on large cubic inch drag race engines. Recommended lash is 0.016”.

**4841+**

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### MECHANICAL ROLLER PROFILES

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<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
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**515 roller series is used primarily as an intake lobe on large cubic inch drag race engines. Recommended lash is .024".**

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<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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**560 roller series is used primarily on very large cubic inch drag race engines. Recommended lash is .020" intake and .022" exhaust.**

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<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
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**LH3 rollers, a collection of low harmonic lobes used in large cubic inch drag race engines. Recommended lash will vary per profile.**

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## MECHANICAL ROLLER PROFILES

### LH3

Continued from previous page.

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<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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### LH4

LH4 roller series, a collection of low harmonic lobes used in large cubic inch engines that are slightly more aggressive than the LH3. Recommended lash is .020" intake and .022" exhaust.

<table>
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<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
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<td>208 .202</td>
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### MECHANICAL ROLLER PROFILES

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<th>DUR. AT .200&quot; TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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#### LHM roller series, Low Harmonic designs for very large cubic inch applications. Minimizes valve spring excitation in the RPM range of maximum engine output. Higher RPM potential than the original LH. Recommended lash is .020" intake and .022" exhaust.

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT .200&quot; TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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#### LHP roller series, Low Harmonic designs for high RPM 500 cu.in. applications. Minimizes valve spring excitation in the RPM range of maximum engine output. Higher RPM potential than the original LH. Recommended lash is .020".

<table>
<thead>
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<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT .200&quot; TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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## MECHANICAL ROLLER PROFILES

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<th>DUR. AT .050&quot; TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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### MECHANICAL ROLLER PROFILES

**5401**

| R-266/576  | 295     | .0200 | 193 | .161 | .115 | .864 | .922 | .979 | 1.014 | E |
| R-270/5401 | 299     | .0200 | 196 | .169 | .123 | .810 | .864 | .918 | .950  | E G |
| R-270/576  | 299     | .0200 | 197 | .171 | .124 | .864 | .922 | .979 | 1.014 | E |
| R-276/5401 | 305     | .0200 | 201 | .183 | .136 | .810 | .864 | .918 | .950  | G |
| R-276/576  | 305     | .0200 | 202 | .185 | .137 | .864 | .922 | .979 | 1.014 | E |
| R-276/600  | 305     | .0200 | 202 | .185 | .136 | .900 | .960 | 1.02 | 1.056 | G |
| R-278/5401 | 307     | .0200 | 203 | .188 | .140 | .810 | .864 | .918 | .950  | G |
| R-278/5501 | 307     | .0200 | 204 | .189 | .140 | .810 | .864 | .918 | .950  | F |
| R-280/5301 | 309     | .0200 | 205 | .192 | .144 | .795 | .848 | .901 | .933  | G |
| R-280/5401 | 309     | .0200 | 205 | .192 | .144 | .810 | .864 | .918 | .950  | F G |
| R-280/550  | 309     | .0200 | 205 | .194 | .145 | .825 | .880 | .935 | .968  | G |
| R-280/615  | 309     | .0200 | 207 | .197 | .146 | .923 | .984 | 1.046 | 1.082 | G |
| R-280/640  | 310     | .0200 | 208 | .200 | .147 | .960 | 1.024 | 1.088 | 1.126 | G |
| R-282/5401 | 311     | .0200 | 207 | .198 | .149 | .810 | .864 | .918 | .950  | G |
| R-282/610  | 311     | .0200 | 210 | .205 | .153 | .915 | .976 | 1.037 | 1.074 | G |
| R-282/615  | 311     | .0200 | 209 | .203 | .151 | .923 | .984 | 1.046 | 1.082 | G |
| R-284/530  | 313     | .0200 | 209 | .202 | .154 | .795 | .848 | .901 | .933  | E F |
| R-284/5401 | 313     | .0200 | 209 | .203 | .154 | .810 | .864 | .918 | .950  | F G |
| R-284/550  | 313     | .0200 | 209 | .203 | .154 | .825 | .880 | .935 | .968  | F |
| R-284/580  | 313     | .0200 | 210 | .205 | .155 | .870 | .928 | .986 | 1.021 | G |
| R-284/615  | 313     | .0200 | 212 | .211 | .158 | .923 | .984 | 1.046 | 1.082 | G |
| R-286/5401 | 315     | .0200 | 211 | .207 | .158 | .810 | .864 | .918 | .950  | E F G |
| R-286/550  | 315     | .0200 | 211 | .208 | .159 | .825 | .880 | .935 | .968  | E G |
| R-286/5501 | 315     | .0200 | 211 | .208 | .159 | .825 | .880 | .935 | .968  | G |
| R-286/560  | 315     | .0200 | 211 | .209 | .159 | .840 | .896 | .952 | .986  | E |
| R-286/580  | 315     | .0200 | 212 | .210 | .159 | .870 | .928 | .986 | 1.021 | G |
| R-288/525  | 317     | .0200 | 212 | .211 | .163 | .788 | .840 | .893 | .924  | F |
| R-288/5401 | 317     | .0200 | 213 | .212 | .163 | .810 | .864 | .918 | .950  | G |
| R-292/5401 | 321     | .0200 | 217 | .222 | .172 | .810 | .864 | .918 | .950  | F |
| R-300/5601 | 331     | .0200 | 219 | .227 | .178 | .840 | .896 | .952 | .986  | G |
| R-304/600  | 335     | .0200 | 223 | .239 | .189 | .900 | .960 | 1.02 | 1.056 | G |
| R-306/5401 | 337     | .0200 | 225 | .242 | .194 | .810 | .864 | .918 | .950  | G |

**5401 roller series for large displacement engines with large journal diameters. Recommended lash is .020" intake and .022" exhaust.**

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### Mechanical Roller Profiles

<table>
<thead>
<tr>
<th>Profile Code</th>
<th>Advertised Dur. at Tappet Lift</th>
<th>Dur. at .050&quot; Tappet Lift</th>
<th>Lobe Lift</th>
<th>Gross Valve Lift with Zero Lash at Top Dead Center</th>
<th>Theoretical Rocker Ratio Shown</th>
<th>Design Lobe Size Code</th>
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</table>

555 roller series for engines with large cam journal diameters. This series provides very good high speed stability. Will run to 10,000+ RPM with properly set up valve train. Proven excellent performer. Recommended lash is .020" intake and .022" exhaust.
### ENGINE OR APPLICATION SPECIFIC MECHANICAL ROLLER PROFILES

**HC**

Originally designed for Hooters Cup type .625” lift rule, HC roller series. Also used in other applications without lift rule. Recommended lash is .020” intake and .022” exhaust.

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<tr>
<th>PROFILE CODE DUR. AT .050”/LOBE LIFT</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT 200” TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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<th>DUR. AT .200&quot; TAPPET LIFT</th>
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<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
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Chevrolet LS V8, RLDP mechanical roller series, stable lobes used in endurance racing applications. Recommended lash is .020" intake and .022" exhaust.

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**CD2**

**CD2** hydraulic and mechanical lifter Cam Dynamics stocker series—Dwell at Max Lift

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## SPECIALIZED PROFILES

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### PROFILES FOR FLAT TAPPET AND HYDRAULIC ROLLER STOCK LIFT RULES APPLICATIONS

#### CD2

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#### CD3

CD3 hydraulic roller Cam Dynamics stocker series—Non Dwell.

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#### PROFILES FOR HYDRAULIC ROLLER STOCK LIFT RULES APPLICATIONS

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#### PROFILES FOR SPECIALTY OHV AND FLATHEAD APPLICATIONS

These profiles may be used in other applications. Consult with the Crane Cams technical staff for recommendations.

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<th>DUR. AT 200° TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>MINIMUM TAPPET DIAMETER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DEG.</td>
<td>IN.</td>
<td>1/104 DEG. INTAKE</td>
<td>114 DEG. EXHAUST</td>
<td>1.50</td>
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<tr>
<td>F-262/336</td>
<td>300</td>
<td>.0160</td>
<td>.136</td>
<td>.102</td>
<td>.504</td>
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<tr>
<td>F-272/350</td>
<td>310</td>
<td>.0160</td>
<td>.153</td>
<td>.119</td>
<td>.525</td>
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<tr>
<td>F-282/367</td>
<td>320</td>
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<td>.179</td>
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<td>.546</td>
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<tr>
<td>F-292/382</td>
<td>330</td>
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<td>.195</td>
<td>.153</td>
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</table>

**VW1**

VW1 mechanical series for VW Type 4 opposed-4, with .941” tappet diameter.

Recommended cold lash is .006” intake and .008” exhaust.

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT 200° TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>MINIMUM TAPPET DIAMETER</th>
</tr>
</thead>
<tbody>
<tr>
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<td>DEG.</td>
<td>IN.</td>
<td>1/104 DEG. INTAKE</td>
<td>114 DEG. EXHAUST</td>
<td>1.50</td>
</tr>
<tr>
<td>F-230/328</td>
<td>278</td>
<td>.0160</td>
<td>.082</td>
<td>.053</td>
<td>.426</td>
</tr>
<tr>
<td>F-240/338</td>
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<td>.0160</td>
<td>.098</td>
<td>.066</td>
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<tr>
<td>F-250/3677</td>
<td>296</td>
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**OHC1**

OHC1 mechanical series for VW Type 1 opposed-4, with 1.000” tappet diameter. Recommended cold lash is .002”.

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT 200° TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>MINIMUM TAPPET DIAMETER</th>
</tr>
</thead>
<tbody>
<tr>
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<td>DEG.</td>
<td>IN.</td>
<td>1/104 DEG. INTAKE</td>
<td>114 DEG. EXHAUST</td>
<td>1.50</td>
</tr>
<tr>
<td>F-210/305</td>
<td>264</td>
<td>.0120</td>
<td>.053</td>
<td>.026</td>
<td>.345</td>
</tr>
<tr>
<td>F-220/320</td>
<td>274</td>
<td>.0120</td>
<td>.071</td>
<td>.039</td>
<td>.362</td>
</tr>
<tr>
<td>F-230/340</td>
<td>284</td>
<td>.0120</td>
<td>.089</td>
<td>.053</td>
<td>.384</td>
</tr>
<tr>
<td>F-240/360</td>
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<td>.0120</td>
<td>.109</td>
<td>.070</td>
<td>.407</td>
</tr>
<tr>
<td>F-250/380</td>
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<td>.0120</td>
<td>.129</td>
<td>.089</td>
<td>.429</td>
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<tr>
<td>F-260/400</td>
<td>314</td>
<td>.0120</td>
<td>.149</td>
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</table>

**MF6**

MF6 mechanical series for flathead engines with a minimum tappet diameter of .996”. Minimum design base circle radius is .900” minus lobe lift. Recommended cold lash is .010” intake, and .014” exhaust.

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT 200° TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>MINIMUM TAPPET DIAMETER</th>
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</thead>
<tbody>
<tr>
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<td>DEG.</td>
<td>IN.</td>
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<td>1.50</td>
</tr>
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<td>.033</td>
<td>.026</td>
<td>.345</td>
</tr>
<tr>
<td>F-208/310</td>
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<td>.0080</td>
<td>.050</td>
<td>.029</td>
<td>.362</td>
</tr>
<tr>
<td>F-218/330</td>
<td>258</td>
<td>.0080</td>
<td>.069</td>
<td>.033</td>
<td>.384</td>
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<tr>
<td>F-228/350</td>
<td>258</td>
<td>.0140</td>
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<td>.407</td>
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<td>F-238/370</td>
<td>264</td>
<td>.0140</td>
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<td>.429</td>
</tr>
<tr>
<td>F-248/390</td>
<td>274</td>
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<td>.129</td>
<td>.089</td>
<td>.452</td>
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<tr>
<td>F-258/410</td>
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</table>

**MF7**

MF7 mechanical series for industrial engines used in tractor pulling competition with a minimum tappet diameter of 1.100”. Recommended lash is .016” to .018”.

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT 200° TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>MINIMUM TAPPET DIAMETER</th>
</tr>
</thead>
<tbody>
<tr>
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<td>DEG.</td>
<td>IN.</td>
<td>1/104 DEG. INTAKE</td>
<td>114 DEG. EXHAUST</td>
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<tr>
<td>F-200/302</td>
<td>240</td>
<td>.0100</td>
<td>.037</td>
<td>.016</td>
<td>.453</td>
</tr>
<tr>
<td>F-210/322</td>
<td>250</td>
<td>.0100</td>
<td>.054</td>
<td>.024</td>
<td>.483</td>
</tr>
<tr>
<td>F-220/342</td>
<td>260</td>
<td>.0100</td>
<td>.074</td>
<td>.037</td>
<td>.513</td>
</tr>
<tr>
<td>F-230/362</td>
<td>270</td>
<td>.0100</td>
<td>.096</td>
<td>.054</td>
<td>.543</td>
</tr>
<tr>
<td>F-240/382</td>
<td>280</td>
<td>.0100</td>
<td>.119</td>
<td>.074</td>
<td>.573</td>
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</tbody>
</table>
### MECHANICAL ROLLER PROFILES FOR SPECIALTY OHV APPLICATIONS

#### MR3

**MR3 mechanical roller series for industrial engines used in tractor pulling competition with a minimum journal size of 2.200" diameter. Recommended lash is .016" to .018".**

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT .050&quot; TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
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</thead>
<tbody>
<tr>
<td>R-200/302</td>
<td>252 .0100 117 .040 .021 .453 .483 .513 .532</td>
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<tr>
<td>R-210/322</td>
<td>262 .0100 129 .053 .029 .483 .515 .547 .567</td>
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<td></td>
<td></td>
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<tr>
<td>R-220/342</td>
<td>272 .0100 141 .068 .038 .513 .547 .581 .602</td>
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<td></td>
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<tr>
<td>R-226/354</td>
<td>278 .0100 148 .078 .047 .531 .566 .602 .623</td>
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</tr>
<tr>
<td>R-230/362</td>
<td>282 .0100 152 .085 .053 .543 .579 .615 .637</td>
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<td></td>
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<tr>
<td>R-236/374</td>
<td>288 .0100 159 .096 .061 .561 .598 .636 .658</td>
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<tr>
<td>R-240/382</td>
<td>292 .0100 163 .104 .068 .573 .611 .649 .672</td>
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<tr>
<td>R-250/402</td>
<td>302 .0100 173 .125 .085 .603 .643 .683 .708</td>
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</table>

#### MR4

**MR4 mechanical roller series for industrial engines used in tractor pulling competition with a minimum journal size of 2.200" diameter. Recommended lash is .020" to .022".**

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT .050&quot; TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-192/380</td>
<td>219 .0200 124 .029 .014 .570 .608 .646 .669</td>
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<tr>
<td>R-200/375</td>
<td>236 .0200 126 .041 .024 .563 .600 .638 .660</td>
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<td></td>
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<tr>
<td>R-208/385</td>
<td>236 .0200 136 .047 .029 .578 .616 .655 .678</td>
<td>F</td>
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<td></td>
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<tr>
<td>R-210/390</td>
<td>246 .0200 136 .054 .033 .585 .624 .663 .686</td>
<td>F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-212/395</td>
<td>240 .0200 140 .053 .033 .593 .632 .672 .693</td>
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<tr>
<td>R-212/405</td>
<td>240 .0200 141 .053 .033 .608 .648 .689 .713</td>
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<tr>
<td>R-214/370</td>
<td>250 .0200 140 .058 .035 .555 .592 .629 .651</td>
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</tr>
<tr>
<td>R-214/380</td>
<td>246 .0200 139 .056 .035 .570 .608 .646 .669</td>
<td>F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-220/405</td>
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<td>F</td>
<td></td>
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</tr>
<tr>
<td>R-224/425</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-226/380</td>
<td>258 .0200 146 .072 .050 .570 .608 .646 .669</td>
<td>F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-230/420</td>
<td>266 .0200 156 .082 .052 .630 .672 .714 .739</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-232/380</td>
<td>264 .0200 150 .081 .058 .570 .608 .646 .669</td>
<td>F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-234/390</td>
<td>270 .0200 158 .090 .058 .585 .624 .663 .686</td>
<td>F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-236/429</td>
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<td>F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-240/435</td>
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<tr>
<td>R-250/450</td>
<td>286 .0200 175 .120 .081 .675 .720 .765 .792</td>
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</tr>
</tbody>
</table>

#### TPR400

**TPR400 mechanical roller series with .400" lobe lift, for industrial engines used in tractor pulling competition with a minimum journal size of 2.200" diameter. Recommended lash is .020" to .022".**

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT .050&quot; TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-216/400</td>
<td>252 .0200 142 .060 .037 .600 .640 .680 .704</td>
<td>F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-226/400</td>
<td>262 .0200 151 .075 .048 .600 .640 .680 .704</td>
<td>F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-228/400</td>
<td>264 .0200 153 .078 .050 .600 .640 .680 .704</td>
<td>F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-230/400</td>
<td>266 .0200 155 .082 .052 .600 .640 .680 .704</td>
<td>F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-236/400</td>
<td>272 .0200 160 .092 .060 .600 .640 .680 .704</td>
<td>F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-246/400</td>
<td>282 .0200 169 .112 .075 .600 .640 .680 .704</td>
<td>F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-248/4001</td>
<td>284 .0200 171 .116 .078 .600 .640 .680 .704</td>
<td>F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-250/4001</td>
<td>286 .0200 172 .121 .082 .600 .640 .680 .704</td>
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<td></td>
<td></td>
<td></td>
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</table>
SPECIALIZED PROFILES

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR.</th>
<th>DUR. AT 200°</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
<th>DESIGN LOBE SIZE CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DUR. AT TAPPET LIFT</td>
<td>TAPPET LIFT AT</td>
<td>104 DEG. IN.</td>
<td>114 DEG. EXHAUST</td>
<td>.500</td>
</tr>
<tr>
<td>DUR. AT .050&quot; LOBE LIFT</td>
<td>DEG.</td>
<td>IN.</td>
<td>200° TAPPET LIFT</td>
<td>INTAKE</td>
<td>EXHAUST</td>
</tr>
</tbody>
</table>

MECHANICAL ROLLER PROFILES FOR SPECIALTY OHV APPLICATIONS

TPR450 mechanical roller series with .450" lobe lift, for industrial engines used in tractor pulling competition with a minimum journal size of 2.200" diameter. Recommended lash is .020" to .022".

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR.</th>
<th>DUR. AT 200°</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALUE LIFT WITH ZERO LASH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DUR. AT TAPPET LIFT</td>
<td>TAPPET LIFT AT</td>
<td>104 DEG. IN.</td>
<td>114 DEG. EXHAUST</td>
</tr>
<tr>
<td>DUR. AT .050&quot; LOBE LIFT</td>
<td>DEG.</td>
<td>IN.</td>
<td>200° TAPPET LIFT</td>
<td>INTAKE</td>
</tr>
</tbody>
</table>

PROFILES FOR DIRECT ACTUATION FOLLOWER SOHC AND DOHC APPLICATIONS

OHC2 hydraulic series for OHC engines using bucket style followers with a minimum diameter of 1.308" and a minimum design base circle radius of 1.000" minus lobe lift.

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR.</th>
<th>DUR. AT 200°</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DUR. AT TAPPET LIFT</td>
<td>TAPPET LIFT AT</td>
<td>104 DEG. IN.</td>
<td>114 DEG. EXHAUST</td>
</tr>
<tr>
<td>DUR. AT .050&quot; LOBE LIFT</td>
<td>DEG.</td>
<td>IN.</td>
<td>200° TAPPET LIFT</td>
<td>INTAKE</td>
</tr>
</tbody>
</table>

OHC3 hydraulic series for OHC engines using bucket style followers with a minimum diameter of 1.500" and a minimum design base circle radius of .700".

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR.</th>
<th>DUR. AT 200°</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DUR. AT TAPPET LIFT</td>
<td>TAPPET LIFT AT</td>
<td>104 DEG. IN.</td>
<td>114 DEG. EXHAUST</td>
</tr>
<tr>
<td>DUR. AT .050&quot; LOBE LIFT</td>
<td>DEG.</td>
<td>IN.</td>
<td>200° TAPPET LIFT</td>
<td>INTAKE</td>
</tr>
</tbody>
</table>

OHC5 mechanical series for OHC engines using bucket style followers with a minimum tappet diameter of .960" and a base circle radius of .550". Recommended cold lash is .008" intake, and .010" exhaust.

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR.</th>
<th>DUR. AT 200°</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DUR. AT TAPPET LIFT</td>
<td>TAPPET LIFT AT</td>
<td>104 DEG. IN.</td>
<td>114 DEG. EXHAUST</td>
</tr>
<tr>
<td>DUR. AT .050&quot; LOBE LIFT</td>
<td>DEG.</td>
<td>IN.</td>
<td>200° TAPPET LIFT</td>
<td>INTAKE</td>
</tr>
</tbody>
</table>

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## Specialized Profiles

### Profiles for Direct Actuation Follower SOHC and DOHC Applications

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT .050&quot; TAPPET LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH</th>
<th>MINIMUM FOLLOWER DIAMETER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DEG.</td>
<td>IN.</td>
<td>104 DEG. INTAKE</td>
<td>114 DEG. EXHAUST</td>
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<tr>
<td><strong>OHC1</strong></td>
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<td>F-246/380</td>
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<tr>
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<td>.0052</td>
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<td>.104</td>
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<tr>
<td>F-262/400</td>
<td>308</td>
<td>.0052</td>
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<td>188</td>
<td>.162</td>
<td>.123</td>
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<tr>
<td>F-274/410</td>
<td>316</td>
<td>.0120</td>
<td>194</td>
<td>.174</td>
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<td>F-278/418</td>
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<td>F-260/420</td>
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<tr>
<td>F-236/370</td>
<td>280</td>
<td>.0050</td>
<td>164</td>
<td>.107</td>
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</tr>
<tr>
<td>F-246/390</td>
<td>290</td>
<td>.0050</td>
<td>176</td>
<td>.130</td>
<td>.086</td>
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<tr>
<td>F-256/410</td>
<td>300</td>
<td>.0050</td>
<td>186</td>
<td>.153</td>
<td>.108</td>
</tr>
<tr>
<td>F-266/430</td>
<td>310</td>
<td>.0050</td>
<td>196</td>
<td>.177</td>
<td>.131</td>
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<tr>
<td>F-276/450</td>
<td>320</td>
<td>.0050</td>
<td>208</td>
<td>.200</td>
<td>.154</td>
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<tr>
<td>F-286/470</td>
<td>330</td>
<td>.0050</td>
<td>218</td>
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<td>.178</td>
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### SPECIALIZED PROFILES

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT .050&quot; LOBE LIFT</th>
<th>TAPPET LIFT AT TOP DEAD CENTER</th>
<th>GROSS VALVE LIFT WITH ZERO LASH</th>
<th>MINIMUM FOLLOWER DIAMETER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DEG.</td>
<td>IN.</td>
<td>104 DEG. INTAKE</td>
<td>114 DEG. EXHAUST</td>
<td>SEE PAGE 2</td>
</tr>
</tbody>
</table>

### PROFILES FOR DIRECT ACTUATION FOLLOWER SOHC AND DOHC APPLICATIONS

**OHC9**

OHC9 mechanical series for OHC engines using bucket style followers with a minimum diameter of 1.180" and a minimum design base circle radius of .970" minus lobe lift. Recommended cold lash is .006" intake, and .008" exhaust.

<table>
<thead>
<tr>
<th>Code</th>
<th>Advertised DUR.</th>
<th>Tappet Lift</th>
<th>Top Dead Center</th>
<th>Gross Lift</th>
<th>Minimum Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-258/450</td>
<td>300</td>
<td>.0040</td>
<td>194</td>
<td>.168</td>
<td>.119</td>
</tr>
<tr>
<td>F-268/470</td>
<td>310</td>
<td>.0040</td>
<td>204</td>
<td>.190</td>
<td>.142</td>
</tr>
</tbody>
</table>

**OHC11**

OHC11 mechanical series for OHC engines using bucket style followers with a minimum diameter of 1.200" and a minimum design base circle radius of .900" minus lobe lift. Recommended cold lash is .008" intake, and .010" exhaust.

<table>
<thead>
<tr>
<th>Code</th>
<th>Advertised DUR.</th>
<th>Tappet Lift</th>
<th>Top Dead Center</th>
<th>Gross Lift</th>
<th>Minimum Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-270/465</td>
<td>302</td>
<td>.0100</td>
<td>214</td>
<td>.204</td>
<td>.155</td>
</tr>
<tr>
<td>F-280/480</td>
<td>312</td>
<td>.0100</td>
<td>219</td>
<td>.227</td>
<td>.179</td>
</tr>
</tbody>
</table>

**OHC12**

OHC12 mechanical series for OHC engines using bucket style followers with a minimum diameter of 1.220" and a minimum design base circle radius of 1.150" minus lobe lift. Recommended cold lash is .018".

<table>
<thead>
<tr>
<th>Code</th>
<th>Advertised DUR.</th>
<th>Tappet Lift</th>
<th>Top Dead Center</th>
<th>Gross Lift</th>
<th>Minimum Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-222/408</td>
<td>270</td>
<td>.0140</td>
<td>157</td>
<td>.072</td>
<td>.045</td>
</tr>
<tr>
<td>F-232/428</td>
<td>280</td>
<td>.0140</td>
<td>167</td>
<td>.095</td>
<td>.061</td>
</tr>
<tr>
<td>F-242/448</td>
<td>290</td>
<td>.0140</td>
<td>176</td>
<td>.117</td>
<td>.078</td>
</tr>
<tr>
<td>F-252/468</td>
<td>300</td>
<td>.0140</td>
<td>186</td>
<td>.143</td>
<td>.099</td>
</tr>
<tr>
<td>F-284/492</td>
<td>332</td>
<td>.0140</td>
<td>220</td>
<td>.231</td>
<td>.182</td>
</tr>
</tbody>
</table>

**OHC13**

OHC13 mechanical series for OHC engines using bucket style followers with a minimum diameter of 1.375" and a minimum design base circle radius of 1.135" minus lobe lift. Recommended cold lash is .018".

<table>
<thead>
<tr>
<th>Code</th>
<th>Advertised DUR.</th>
<th>Tappet Lift</th>
<th>Top Dead Center</th>
<th>Gross Lift</th>
<th>Minimum Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-234/432</td>
<td>258</td>
<td>.0200</td>
<td>176</td>
<td>.116</td>
<td>.063</td>
</tr>
<tr>
<td>F-260/525</td>
<td>308</td>
<td>.0140</td>
<td>200</td>
<td>.175</td>
<td>.122</td>
</tr>
<tr>
<td>F-270/545</td>
<td>318</td>
<td>.0140</td>
<td>209</td>
<td>.201</td>
<td>.148</td>
</tr>
<tr>
<td>F-276/558</td>
<td>324</td>
<td>.0140</td>
<td>215</td>
<td>.219</td>
<td>.165</td>
</tr>
<tr>
<td>F-282/570</td>
<td>330</td>
<td>.0140</td>
<td>221</td>
<td>.238</td>
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</table>

**OHC10**

OHC10 mechanical miscellaneous profiles for OHC engines using bucket style followers of various tappet diameters and lobe sizes. Contact the Crane Cams technical staff for recommendations.

<table>
<thead>
<tr>
<th>Code</th>
<th>Advertised DUR.</th>
<th>Tappet Lift</th>
<th>Top Dead Center</th>
<th>Gross Lift</th>
<th>Minimum Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-230/440</td>
<td>292</td>
<td>.0140</td>
<td>168</td>
<td>.095</td>
<td>.053</td>
</tr>
<tr>
<td>F-240/470</td>
<td>302</td>
<td>.0140</td>
<td>180</td>
<td>.121</td>
<td>.072</td>
</tr>
<tr>
<td>F-262/420</td>
<td>300</td>
<td>.0100</td>
<td>197</td>
<td>.176</td>
<td>.129</td>
</tr>
<tr>
<td>F-262/450</td>
<td>300</td>
<td>.0100</td>
<td>200</td>
<td>.181</td>
<td>.131</td>
</tr>
<tr>
<td>F-280/530</td>
<td>322</td>
<td>.0050</td>
<td>220</td>
<td>.233</td>
<td>.178</td>
</tr>
<tr>
<td>F-284/488</td>
<td>324</td>
<td>.0140</td>
<td>219</td>
<td>.227</td>
<td>.177</td>
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</tbody>
</table>
### Specialized Profiles

#### Engine Specific Profiles for Direct Actuation Follower SOHC and DOHC Applications

These profiles may be used in other applications. Consult with the Crane Cams technical staff for recommendations.

#### Ford Zetec DOHC 2.0L 4-valve I-4, mechanical series. These lobes use a base circle radius of .709". Recommended lash is .006" intake and .010" exhaust. (223 prefix)

<table>
<thead>
<tr>
<th>Profile Code</th>
<th>Advertised Dur. at Tappet Lift</th>
<th>Dur. at 200&quot; Tappet Lift</th>
<th>Tappet Lift at Top Dead Center</th>
<th>Gross Valve Lift with Zero Lash</th>
<th>Minimum Follower Diameter</th>
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<td>OHC14</td>
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<tr>
<td>F-206/366</td>
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<td>142</td>
<td>.046</td>
<td>.020</td>
</tr>
<tr>
<td>F-210/374</td>
<td>232</td>
<td>.0200</td>
<td>146</td>
<td>.054</td>
<td>.024</td>
</tr>
<tr>
<td>F-214/382</td>
<td>236</td>
<td>.0200</td>
<td>150</td>
<td>.063</td>
<td>.029</td>
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<tr>
<td>F-218/390</td>
<td>240</td>
<td>.0200</td>
<td>154</td>
<td>.072</td>
<td>.033</td>
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<tr>
<td>F-226/410</td>
<td>248</td>
<td>.0200</td>
<td>164</td>
<td>.090</td>
<td>.046</td>
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<tr>
<td>F-236/435</td>
<td>258</td>
<td>.0200</td>
<td>174</td>
<td>.115</td>
<td>.068</td>
</tr>
<tr>
<td>F-246/460</td>
<td>268</td>
<td>.0200</td>
<td>184</td>
<td>.139</td>
<td>.090</td>
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</tbody>
</table>

#### Ford Duratec DOHC 2.3L 4-valve I-4, mechanical series. These lobes use a base circle radius of .650". Recommended lash is .010" intake and .012" exhaust. (224 prefix)

<table>
<thead>
<tr>
<th>Profile Code</th>
<th>Advertised Dur. at Tappet Lift</th>
<th>Dur. at 200&quot; Tappet Lift</th>
<th>Tappet Lift at Top Dead Center</th>
<th>Gross Valve Lift with Zero Lash</th>
<th>Minimum Follower Diameter</th>
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<td>140</td>
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<td>.017</td>
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<tr>
<td>F-212/374</td>
<td>232</td>
<td>.0200</td>
<td>150</td>
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<td>.024</td>
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<tr>
<td>F-216/385</td>
<td>238</td>
<td>.0200</td>
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<td>.066</td>
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<tr>
<td>F-226/410</td>
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<td>.0200</td>
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<td>.046</td>
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<tr>
<td>F-236/435</td>
<td>258</td>
<td>.0200</td>
<td>174</td>
<td>.115</td>
<td>.068</td>
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<tr>
<td>F-246/460</td>
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<td>.0200</td>
<td>184</td>
<td>.139</td>
<td>.090</td>
</tr>
<tr>
<td>F-256/485</td>
<td>278</td>
<td>.0200</td>
<td>194</td>
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<td>.115</td>
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</table>

#### Hyundai DOHC 2.7L 4-valve V6, hydraulic series. These lobes use a base circle radius of .709"

<table>
<thead>
<tr>
<th>Profile Code</th>
<th>Advertised Dur. at Tappet Lift</th>
<th>Dur. at 200&quot; Tappet Lift</th>
<th>Tappet Lift at Top Dead Center</th>
<th>Gross Valve Lift with Zero Lash</th>
<th>Minimum Follower Diameter</th>
</tr>
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<tbody>
<tr>
<td>OHCHYU</td>
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<tr>
<td>H-202/341</td>
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<td>.0060</td>
<td>136</td>
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<tr>
<td>H-216/370</td>
<td>252</td>
<td>.0060</td>
<td>152</td>
<td>.068</td>
<td>.028</td>
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</table>

#### Toyota DOHC 1.6L 4-valve 4AG I-4, mechanical series. These lobes use a base circle radius of .550". Recommended lash is .008" intake and .010" exhaust.

<table>
<thead>
<tr>
<th>Profile Code</th>
<th>Advertised Dur. at Tappet Lift</th>
<th>Dur. at 200&quot; Tappet Lift</th>
<th>Tappet Lift at Top Dead Center</th>
<th>Gross Valve Lift with Zero Lash</th>
<th>Minimum Follower Diameter</th>
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<td>OHC44G</td>
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<td>268</td>
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<td>173</td>
<td>.119</td>
<td>.075</td>
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<tr>
<td>F-248/424</td>
<td>274</td>
<td>.0200</td>
<td>179</td>
<td>.133</td>
<td>.087</td>
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</tbody>
</table>

#### Toyota DOHC 3.0L 4-valve I-6, mechanical series. These lobes use a base circle radius of .709". Recommended lash is .008" intake and .012" exhaust. (705 prefix)

<table>
<thead>
<tr>
<th>Profile Code</th>
<th>Advertised Dur. at Tappet Lift</th>
<th>Dur. at 200&quot; Tappet Lift</th>
<th>Tappet Lift at Top Dead Center</th>
<th>Gross Valve Lift with Zero Lash</th>
<th>Minimum Follower Diameter</th>
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<td>.061</td>
<td>.022</td>
</tr>
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<td>F-222/378</td>
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<td>.0200</td>
<td>154</td>
<td>.079</td>
<td>.039</td>
</tr>
<tr>
<td>F-230/394</td>
<td>252</td>
<td>.0200</td>
<td>162</td>
<td>.097</td>
<td>.054</td>
</tr>
<tr>
<td>F-238/410</td>
<td>260</td>
<td>.0200</td>
<td>170</td>
<td>.115</td>
<td>.071</td>
</tr>
<tr>
<td>F-246/426</td>
<td>268</td>
<td>.0200</td>
<td>178</td>
<td>.133</td>
<td>.088</td>
</tr>
<tr>
<td>F-254/442</td>
<td>276</td>
<td>.0200</td>
<td>186</td>
<td>.151</td>
<td>.105</td>
</tr>
<tr>
<td>F-262/458</td>
<td>284</td>
<td>.0200</td>
<td>192</td>
<td>.169</td>
<td>.122</td>
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</table>
## Specialized Profiles

<table>
<thead>
<tr>
<th>Profile Code</th>
<th>Advertised Dur. at Tappet Lift</th>
<th>Dur. at .050(^\circ) Valve Lift</th>
<th>Valve Lift at Top Dead Center</th>
<th>Cam Lift</th>
<th>Gross Valve Lift with Zero Lash</th>
<th>Design Base Circle Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Deg.</td>
<td>In.</td>
<td>104 Deg. Intake</td>
<td>114 Deg. Exhaust</td>
<td></td>
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</tr>
<tr>
<td>ACU-202/400INT</td>
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<td>97</td>
<td>.041</td>
<td>.020</td>
<td>.224</td>
</tr>
<tr>
<td>ACU-206/400INT</td>
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<td>.0200</td>
<td>99</td>
<td>.047</td>
<td>.023</td>
<td>.224</td>
</tr>
<tr>
<td>ACU-204/388EXH</td>
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<td>.0200</td>
<td>94</td>
<td>.044</td>
<td>.025</td>
<td>.218</td>
</tr>
<tr>
<td>ACU-208/388EXH</td>
<td>246</td>
<td>.0200</td>
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<td>.050</td>
<td>.027</td>
<td>.218</td>
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<tr>
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<td>97</td>
<td>.056</td>
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<td>.0200</td>
<td>134</td>
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### Engine Specific Profiles for Translating Follower SOHC and DOHC Applications

These profiles may be used in other applications. Consult with the Crane Cams technical staff for recommendations.

#### ACU

**Acura DOHC 1.8L 4-valve B18A1 I-4, mechanical series.** Recommended lash is .004” intake and .008” exhaust. (Crane Cams 101 prefix)

<table>
<thead>
<tr>
<th>Profile Code</th>
<th>Advertised Dur. at Tappet Lift</th>
<th>Dur. at .050(^\circ) Valve Lift</th>
<th>Valve Lift at Top Dead Center</th>
<th>Cam Lift</th>
<th>Gross Valve Lift with Zero Lash</th>
<th>Design Base Circle Radius</th>
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#### GMHEC

**Chevrolet / GM DOHC 2.2L 4-valve Ecotec I-4, hydraulic series.**

<table>
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<th>Advertised Dur. at Tappet Lift</th>
<th>Dur. at .050(^\circ) Valve Lift</th>
<th>Valve Lift at Top Dead Center</th>
<th>Cam Lift</th>
<th>Gross Valve Lift with Zero Lash</th>
<th>Design Base Circle Radius</th>
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<td>GM-201/440</td>
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#### GMMEC

**Chevrolet / GM DOHC 2.2L 4-valve Ecotec I-4, mechanical series.** Recommended lash is .007” intake and .009” exhaust, set between the follower and base circle.

<table>
<thead>
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<th>Dur. at .050(^\circ) Valve Lift</th>
<th>Valve Lift at Top Dead Center</th>
<th>Cam Lift</th>
<th>Gross Valve Lift with Zero Lash</th>
<th>Design Base Circle Radius</th>
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<td>GM-246/520</td>
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<td>GM-256/520</td>
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<td>GM-266/520</td>
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<td>GM-266/550</td>
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<td>GM-280/540</td>
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<td>GM-290/540</td>
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#### CHR

**Chrysler SOHC 2.0L 4-valve I-4, hydraulic roller series.** Lobes designed for a base radius of .550” or less, and require Ferrea lash caps #C10008. (Crane 158 prefix)

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<th>Profile Code</th>
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<th>Valve Lift at Top Dead Center</th>
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<th>Design Base Circle Radius</th>
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### SPECIALIZED PROFILES

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<th>DUR. AT 300° VALVE LIFT</th>
<th>VALVE LIFT AT TOP DEAD CENTER</th>
<th>CAM LIFT</th>
<th>GROSS VALVE LIFT WITH ZERO LASH</th>
<th>DESIGN BASE CIRCLE RADIUS</th>
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<tr>
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<td>IN.</td>
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<td>114 DEG. EXHAUST</td>
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<td><strong>CHR2</strong> Chrysler DOHC 2.0-2.4L 4-valve I-4, hydraulic roller series. (Crane 180 and 193 prefix)</td>
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<td>CHR-224/413</td>
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<td>.185</td>
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<td>.287</td>
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<tr>
<td>CHR-272/500</td>
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<td>.060</td>
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<td>.196</td>
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<td>CHR-290/550</td>
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</table>

**CHR3** Chrysler SOHC 4.7L V8, hydraulic roller series. Re grind base circle radius of .826”. Must use 99424-16 lash caps.

| CHR206/502 | 242   | .060  | 124  | .044 | .015 | .271 | .502 | 0.826 |
| CHR212/502 | 248   | .060  | 128  | .056 | .022 | .271 | .502 | 0.826 |
| CHR218/463 | 254   | .060  | 126  | .070 | .030 | .251 | .463 | 0.826 |
| CHR218/502 | 254   | .060  | 134  | .070 | .030 | .271 | .502 | 0.826 |
| CHR224/520 | 260   | .060  | 140  | .085 | .044 | .280 | .520 | 0.826 |

**FOR1** Ford SOHC 2.0L I-4, mechanical series, using stock base circle size and stock length valve, with no lash cap. Recommended lash is .008” intake, and .010”, set between the follower and base circle. (Crane 14 prefix)

| FOR222/410 | 262   | .120  | 112  | .079 | .040 | .253 | .410 | 0.590 |
| FOR232/435 | 272   | .120  | 128  | .103 | .058 | .267 | .435 | 0.590 |
| FOR242/460 | 282   | .120  | 140  | .130 | .080 | .282 | .460 | 0.590 |

**FOR2** Ford SOHC 2.0L I-4, mechanical series, using a .050” longer valve than stock or a stock length valve with a .050” thick lash cap. Recommended lash is .010”, set between follower and base circle. (Crane 14 prefix)

| FOR264/510 | 300   | .160  | 160  | .179 | .128 | .314 | .510 | 0.500 |
| FOR274/535 | 310   | .160  | 172  | .208 | .154 | .326 | .535 | 0.500 |
| FOR284/560 | 320   | .160  | 184  | .237 | .182 | .336 | .560 | 0.500 |

**HFOR3** Ford SOHC 2.3L I-4, hydraulic series, using cast followers and stock hydraulic adjusters. Cams are ground on the stock base circle size and use a stock length valve with no lash cap. (Crane 19 prefix)

| HFOR220/454 | 270   | .060  | 123  | .074 | .037 | .285 | .454 | 0.590 |
| HFOR226/420 | 272   | .060  | 120  | .091 | .046 | .245 | .420 | 0.590 |
| HFOR230/479 | 280   | .060  | 135  | .097 | .054 | .300 | .459 | 0.590 |
| HFOR234/420 | 280   | .060  | 126  | .111 | .062 | .245 | .420 | 0.590 |

*Continued on next page.*
### Specialized Profiles

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT 300° VALVE LIFT</th>
<th>VALVE LIFT AT TOP DEAD CENTER</th>
<th>CAM LIFT</th>
<th>GROSS VALVE LIFT WITH ZERO LASH</th>
<th>DESIGN BASE CIRCLE RADIUS</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>DEG.</td>
<td>IN.</td>
<td>104 DEG. INTAKE</td>
<td>114 DEG. EXHAUST</td>
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### Engine Specific Profiles for Translating Follower SOHC and DOHC Applications

#### HFOR

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<th>DUR. AT 300° VALVE LIFT</th>
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**HFOR3**

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<th>CAM LIFT</th>
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<th>DESIGN BASE CIRCLE RADIUS</th>
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<td>DEG.</td>
<td>IN.</td>
<td>104 DEG. INTAKE</td>
<td>114 DEG. EXHAUST</td>
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**HFOR-240/504**

288 .0060 148 .131 .076 .315 .504 0.590

**HFOR-254/420**

298 .0060 132 .142 .097 .245 .420 0.590

**FORD4**

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**HFOR-234/460 INT**

278 .0060 133 .109 .061 .284 .460 0.590

**HFOR-242/480 EXH**

286 .0060 143 .130 .078 .295 .480 0.590

**FOR5**

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<th>VALVE LIFT AT TOP DEAD CENTER</th>
<th>CAM LIFT</th>
<th>GROSS VALVE LIFT WITH ZERO LASH</th>
<th>DESIGN BASE CIRCLE RADIUS</th>
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<td>DEG.</td>
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**FORD5**

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<th>VALVE LIFT AT TOP DEAD CENTER</th>
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<th>GROSS VALVE LIFT WITH ZERO LASH</th>
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<td>104 DEG. INTAKE</td>
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**FOR-254/485**

290 .0160 148 .152 .103 .279 .485 0.590

**FOR-264/510**

300 .0160 160 .179 .128 .293 .510 0.557

**FOR-268/520**

304 .0160 165 .191 .138 .297 .520 0.590

**FOR-274/460**

312 .0160 150 .165 .123 .283 .460 0.525

**FOR-274/535**

310 .0160 172 .208 .154 .306 .535 0.545

**FOR-284/560**

320 .0160 184 .237 .182 .319 .560 0.533

**HFOR6**

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**RFOR-214/420**

252 .0060 112 .061 .028 .227 .420 0.590

**RFOR-226/420**

274 .0060 119 .087 .047 .228 .420 0.590

**RFOR-234/420**

282 .0060 124 .106 .060 .228 .420 0.590

**RFOR-234/450**

282 .0060 131 .106 .060 .243 .450 0.590

**RFOR-242/480**

290 .0060 142 .127 .076 .259 .480 0.590

**RFOR-250/510**

298 .0060 152 .148 .094 .274 .510 0.590

**HFOR7**

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<th>CAM LIFT</th>
<th>GROSS VALVE LIFT WITH ZERO LASH</th>
<th>DESIGN BASE CIRCLE RADIUS</th>
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<td>114 DEG. EXHAUST</td>
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**RFOR-244/536**

276 .0220 145 .118 .074 .298 .536 0.500

**RFOR-252/560**

284 .0220 154 .140 .092 .311 .560 0.500

**RFOR-256/572**

288 .0220 161 .153 .101 .317 .572 0.500

**RFOR-260/584**

292 .0220 163 .162 .110 .323 .584 0.500

**RFOR-264/596**

296 .0220 170 .176 .120 .330 .596 0.500

**RFOR-268/608**

300 .0220 171 .185 .130 .336 .608 0.500

**RFOR-272/620**

304 .0220 178 .202 .141 .342 .620 0.500

**RFOR-276/632**

308 .0220 180 .210 .151 .349 .632 0.500

**RFOR-284/656**

316 .0220 188 .235 .174 .361 .656 0.500

**RFOR-292/680**

324 .0220 196 .261 .198 .374 .680 0.500

**RFOR-296/692**

328 .0220 200 .275 .210 .380 .692 0.500

---

Ford SOHC 2.3L I-4, hydraulic series, using cast followers and stock hydraulic adjusters. Cams are ground on a reduced base circle requiring a .100” longer valve than stock, or a stock length valve with a .100” thick lash cap. (Crane 19 prefix)

Ford SOHC 2.3L I-4, mechanical series, using cast followers and a .100” longer valve than stock, or a stock length valve with a .100” thick lash cap. Recommended lash is .010”, set between follower and base circle. (Crane 19 prefix)

Ford SOHC 2.3L I-4, hydraulic roller series, using stock roller followers and an 8620 steel camshaft. Valve train is based on hydraulic adjusters and a stock-length Ford valve. (Crane 19 prefix)

Ford SOHC 2.3L I-4, mechanical roller series, using stock roller followers and 8620 steel camshafts. Valve train geometry is based on a 4.900” length valve. Recommended lash is .010” intake and .012” exhaust, set between roller and base circle. (Crane 19 prefix)
<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT TAPPET LIFT</th>
<th>DUR. AT .050&quot; VALVE LIFT</th>
<th>VALVE LIFT AT TOP DEAD CENTER</th>
<th>CAM LIFT</th>
<th>GROSS VALVE LIFT WITH ZERO LASH</th>
<th>DESIGN BASE CIRCLE RADIUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DUR. AT .050&quot;/VALVE LIFT</td>
<td>DEG.</td>
<td>IN.</td>
<td>104 DEG. INTAKE</td>
<td>114 DEG. EXHAUST</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### ENGINE SPECIFIC PROFILES FOR TRANSLATING FOLLOWER SOHC AND DOHC APPLICATIONS

**HR2V**

- **HR-218/500**: 254 .0060 .133 .072 .032 .274 .500 0.947
- **HR-218/550**: 254 .0060 .139 .072 .032 .300 .550 0.947
- **HR-228/500**: 264 .0060 .140 .097 .050 .274 .500 0.947
- **HR-228/550**: 264 .0060 .146 .098 .050 .300 .550 0.947
- **HR-230/575**: 266 .0060 .151 .104 .054 .313 .575 0.947
- **HR-234/500**: 270 .0060 .144 .114 .062 .274 .500 0.947
- **HR-234/550**: 270 .0060 .151 .116 .063 .300 .550 0.947
- **HR-234/575**: 270 .0060 .154 .116 .063 .313 .575 0.947
- **HR-236/600**: 272 .0060 .158 .122 .067 .326 .600 0.947
- **HR-238/575**: 274 .0060 .157 .124 .072 .313 .575 0.947
- **HR-242/575**: 278 .0060 .161 .141 .082 .313 .575 0.947
- **HR-242/600**: 278 .0060 .163 .142 .082 .326 .600 0.947

**HR2VH**

- **HR-212/550**: 248 .0060 .134 .058 .024 .300 .550 0.947
- **HR-216/565**: 252 .0060 .138 .067 .029 .308 .565 0.947
- **HR-220/580**: 256 .0060 .143 .077 .036 .315 .580 0.947
- **HR-224/595**: 260 .0060 .147 .087 .042 .323 .595 0.947
- **HR-228/610**: 264 .0060 .152 .098 .050 .331 .610 0.947
- **HR-232/625**: 268 .0060 .156 .110 .058 .339 .625 0.947
- **HR-236/625**: 272 .0060 .160 .122 .067 .339 .625 0.947
- **HR-240/625**: 276 .0060 .163 .135 .077 .339 .625 0.947

**HR3V**

- **HR-208/468**: 256 .0060 .116 .050 .025 .2293 .468 0.886
- **HR-216/492**: 264 .0060 .125 .064 .033 .2406 .492 0.886
- **HR-224/516**: 272 .0060 .134 .080 .044 .2519 .516 0.886
- **HR-228/528**: 276 .0060 .139 .088 .050 .2575 .528 0.886
- **HR-236/552**: 284 .0060 .147 .107 .064 .2687 .552 0.886
- **HR-248/576**: 292 .0060 .155 .128 .080 .2799 .576 0.886
- **HR-252/600**: 300 .0060 .163 .151 .097 .2910 .600 0.886

**HR3VL**

- **HR-218/480**: 266 .0060 .124 .067 .036 .2350 .480 0.886
- **HR-224/480**: 272 .0060 .128 .079 .044 .2350 .480 0.886
- **HR-230/480**: 278 .0060 .133 .092 .053 .2350 .480 0.886
- **HR-242/480**: 291 .0060 .139 .117 .074 .2350 .480 0.886

**HR2V**

- **HR-218/500**: 254 .0060 .133 .072 .032 .274 .500 0.947
- **HR-228/500**: 264 .0060 .140 .097 .050 .274 .500 0.947
- **HR-234/500**: 270 .0060 .144 .114 .062 .274 .500 0.947
### Specialized Profiles

<table>
<thead>
<tr>
<th>Profile Code</th>
<th>Engine Specific Profiles for Translating Follower SOHC and DOHC Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HR4V</strong></td>
<td><strong>Ford SOHC 4.6–5.4L 4-valve V8, hydraulic roller high lift series. (Crane 40 prefix)</strong></td>
</tr>
<tr>
<td>HR-246/575</td>
<td>282 .0060 164 .154 .093 .313 .575 0.947</td>
</tr>
<tr>
<td>HR-254/510</td>
<td>294 .0060 159 .164 .108 .2791 .510 0.947</td>
</tr>
<tr>
<td>HR-260/540</td>
<td>300 .0060 168 .184 .125 .2947 .540 0.947</td>
</tr>
<tr>
<td><strong>Honda SOHC 1.6L 4-valve D16A6 I-4, mechanical series.</strong></td>
<td></td>
</tr>
<tr>
<td>HON-200/384INT</td>
<td>226 .0200 91 .037 .019 .236 .384 0.610</td>
</tr>
<tr>
<td>HON-206/394INT</td>
<td>232 .0200 98 .047 .023 .242 .394 0.610</td>
</tr>
<tr>
<td>HON-216/425INT</td>
<td>242 .0200 114 .065 .032 .260 .425 0.610</td>
</tr>
<tr>
<td><strong>Honda SOHC VTEC 4-valve D16Y8 I-4, mechanical series.</strong></td>
<td></td>
</tr>
<tr>
<td>HON-186/210</td>
<td>214 .0200 44 .024 .200 .319 0.630</td>
</tr>
<tr>
<td>HON-190/295</td>
<td>205 .0200 53 .028 .205 .327 0.630</td>
</tr>
<tr>
<td>HON-224/433INT</td>
<td>258 .0200 115 .077 .259 .423 0.630</td>
</tr>
<tr>
<td><strong>Honda DOHC VTEC 4-valve B16A I-4, mechanical series.</strong></td>
<td></td>
</tr>
<tr>
<td>HON-180/210</td>
<td>216 .0200 — .024 .016 .145 .210 0.581</td>
</tr>
<tr>
<td>HON-180/295</td>
<td>205 .0200 — .018 .010 .199 .295 0.581</td>
</tr>
<tr>
<td>HON-190/288</td>
<td>222 .0200 — .031 .018 .1947 .288 0.581</td>
</tr>
<tr>
<td>HON-190/315</td>
<td>215 .0200 40 .026 .012 .211 .315 0.581</td>
</tr>
<tr>
<td>HON-200/307</td>
<td>232 .0200 30 .040 .022 .207 .307 0.581</td>
</tr>
<tr>
<td>HON-200/315</td>
<td>225 .0200 43 .038 .018 .211 .315 0.581</td>
</tr>
<tr>
<td>HON-200/335</td>
<td>225 .0200 62 .038 .018 .224 .332 0.581</td>
</tr>
<tr>
<td>HON-210/355</td>
<td>235 .0200 78 .053 .026 .236 .355 0.581</td>
</tr>
<tr>
<td>HON-220/354</td>
<td>245 .0200 83 .071 .038 .235 .354 0.581</td>
</tr>
<tr>
<td>HON-230/425</td>
<td>254 .0200 121 .096 .053 .272 .425 0.581</td>
</tr>
<tr>
<td>HON-236/441</td>
<td>260 .0200 132 .111 .065 .281 .441 0.581</td>
</tr>
<tr>
<td>HON-242/457</td>
<td>266 .0200 138 .127 .077 .289 .457 0.581</td>
</tr>
<tr>
<td>HON-248/472</td>
<td>272 .0200 145 .143 .091 .297 .472 0.581</td>
</tr>
<tr>
<td>HON-254/488</td>
<td>278 .0200 153 .160 .106 .306 .488 0.581</td>
</tr>
<tr>
<td>HON-260/472</td>
<td>284 .0200 153 .172 .121 .297 .472 0.581</td>
</tr>
<tr>
<td>HON-260/504</td>
<td>284 .0200 160 .177 .122 .315 .504 0.581</td>
</tr>
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</table>
### Specialized Profiles

<table>
<thead>
<tr>
<th>Profile Code</th>
<th>Advertised Dur. at Tappet Lift</th>
<th>Dur. at .050&quot; Valve Lift</th>
<th>Valve Lift at Top Dead Center</th>
<th>Cam Lift</th>
<th>Gross Valve Lift with Zero Lash</th>
<th>Design Base Circle Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>DUR. AT .050&quot; VALVE LIFT</td>
<td>104 Deg. Intake</td>
<td>114 Deg. Exhaust</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEG.</td>
<td>IN.</td>
<td>300&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Engine Specific Profiles for Translating Follower SOHC and DOHC Applications

**Honda DOHC 4-valve B16A I-4, mechanical series. Recommended lash is .006" intake and .008" exhaust. Use 8620 steel camshaft and Ferrea roller followers. (Crane 253 prefix)**

<table>
<thead>
<tr>
<th>Profile Code</th>
<th>DUR. AT .050&quot; VALVE LIFT</th>
<th>Valve Lift at Top Dead Center</th>
<th>Cam Lift</th>
<th>Gross Valve Lift with Zero Lash</th>
<th>Design Base Circle Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHON-224/425</td>
<td>248 .0200</td>
<td>114 .077 .044</td>
<td>.277</td>
<td>.425</td>
<td>0.581</td>
</tr>
<tr>
<td>RHON-230/441</td>
<td>254 .0200</td>
<td>122 .090 .063</td>
<td>.287</td>
<td>.441</td>
<td>0.581</td>
</tr>
<tr>
<td>RHON-236/457</td>
<td>260 .0200</td>
<td>130 .102 .063</td>
<td>.297</td>
<td>.457</td>
<td>0.581</td>
</tr>
<tr>
<td>RHON-242/472</td>
<td>266 .0200</td>
<td>137 .116 .074</td>
<td>.307</td>
<td>.472</td>
<td>0.581</td>
</tr>
<tr>
<td>RHON-248/488</td>
<td>272 .0200</td>
<td>144 .131 .086</td>
<td>.317</td>
<td>.488</td>
<td>0.571</td>
</tr>
<tr>
<td>RHON-254/504</td>
<td>278 .0200</td>
<td>151 .146 .098</td>
<td>.326</td>
<td>.504</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-260/504</td>
<td>284 .0200</td>
<td>156 .162 .111</td>
<td>.326</td>
<td>.504</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-266/520</td>
<td>290 .0200</td>
<td>163 .181 .128</td>
<td>.336</td>
<td>.520</td>
<td>0.551</td>
</tr>
<tr>
<td>RHON-272/520</td>
<td>296 .0200</td>
<td>168 .194 .140</td>
<td>.336</td>
<td>.520</td>
<td>0.551</td>
</tr>
<tr>
<td>RHON-278/536</td>
<td>302 .0200</td>
<td>174 .212 .156</td>
<td>.347</td>
<td>.536</td>
<td>0.541</td>
</tr>
</tbody>
</table>

**Honda DOHC VTEC 2.0L 4-valve K20 I-4, mechanical street series. Recommended valve lash is .009" intake and .012" exhaust. (Crane 254 prefix)**

<table>
<thead>
<tr>
<th>Profile Code</th>
<th>DUR. AT .050&quot; VALVE LIFT</th>
<th>Valve Lift at Top Dead Center</th>
<th>Cam Lift</th>
<th>Gross Valve Lift with Zero Lash</th>
<th>Design Base Circle Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHON-206/374INT</td>
<td>233 .0200</td>
<td>87 .047</td>
<td>.2168</td>
<td>.374</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-240/410INT</td>
<td>266 .0200</td>
<td>120 .109</td>
<td>.2371</td>
<td>.410</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-258/524INT</td>
<td>284 .0200</td>
<td>157 .151</td>
<td>.3012</td>
<td>.524</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-262/536INT</td>
<td>288 .0200</td>
<td>161 .162</td>
<td>.3080</td>
<td>.536</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-266/548INT</td>
<td>292 .0200</td>
<td>166 .173</td>
<td>.3147</td>
<td>.548</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-206/374EXH</td>
<td>233 .0200</td>
<td>87 .024</td>
<td>.2160</td>
<td>.374</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-232/360EXH</td>
<td>258 .0200</td>
<td>93 .056</td>
<td>.2083</td>
<td>.360</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-254/500EXH</td>
<td>276 .0200</td>
<td>147 .093</td>
<td>.2842</td>
<td>.400</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-254/512EXH</td>
<td>280 .0200</td>
<td>152 .102</td>
<td>.2893</td>
<td>.512</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-258/524EXH</td>
<td>284 .0200</td>
<td>157 .111</td>
<td>.2970</td>
<td>.524</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-254/504EXH</td>
<td>288 .0200</td>
<td>150 .105</td>
<td>.2831</td>
<td>.5041</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-272/501EXH</td>
<td>300 .0200</td>
<td>163 .132</td>
<td>.2915</td>
<td>.5201</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-276/535EXH</td>
<td>304 .0200</td>
<td>167 .142</td>
<td>.2994</td>
<td>.535</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-284/615EXH</td>
<td>309 .0200</td>
<td>190 .179</td>
<td>.3447</td>
<td>.615</td>
<td>0.561</td>
</tr>
</tbody>
</table>

**Honda DOHC VTEC 2.0L 4-valve K20 I-4, mechanical race series. Recommended valve lash is .009" intake and .012" exhaust. (Crane 254 prefix)**

<table>
<thead>
<tr>
<th>Profile Code</th>
<th>DUR. AT .050&quot; VALVE LIFT</th>
<th>Valve Lift at Top Dead Center</th>
<th>Cam Lift</th>
<th>Gross Valve Lift with Zero Lash</th>
<th>Design Base Circle Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHON-258/545INT</td>
<td>286 .0200</td>
<td>157 .153</td>
<td>.3086</td>
<td>.545</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-276/550INT</td>
<td>304 .0200</td>
<td>172 .198</td>
<td>.3114</td>
<td>.550</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-280/570INT</td>
<td>308 .0200</td>
<td>176 .206</td>
<td>.3224</td>
<td>.570</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-284/615INT</td>
<td>308 .0200</td>
<td>190 .239</td>
<td>.3518</td>
<td>.615</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-292/640INT</td>
<td>317 .0200</td>
<td>198 .267</td>
<td>.3657</td>
<td>.640</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-260/554INT</td>
<td>288 .0200</td>
<td>150 .105</td>
<td>.2831</td>
<td>.5041</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-272/501EXH</td>
<td>300 .0200</td>
<td>163 .132</td>
<td>.2915</td>
<td>.5201</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-276/535EXH</td>
<td>304 .0200</td>
<td>167 .142</td>
<td>.2994</td>
<td>.535</td>
<td>0.561</td>
</tr>
<tr>
<td>RHON-284/615EXH</td>
<td>309 .0200</td>
<td>190 .179</td>
<td>.3447</td>
<td>.615</td>
<td>0.561</td>
</tr>
</tbody>
</table>

**Mitsubishi DOHC 2.0L 4-valve 4G63 I-4 and the EVO VIII DOHC I-4, hydraulic roller series. (Crane 435 and 440 prefix)**

<table>
<thead>
<tr>
<th>Profile Code</th>
<th>DUR. AT .050&quot; VALVE LIFT</th>
<th>Valve Lift at Top Dead Center</th>
<th>Cam Lift</th>
<th>Gross Valve Lift with Zero Lash</th>
<th>Design Base Circle Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIT-200/384</td>
<td>240 .0060</td>
<td>90 .032</td>
<td>.019</td>
<td>.221</td>
<td>.384</td>
</tr>
<tr>
<td>MIT-204/394</td>
<td>244 .0060</td>
<td>96 .038</td>
<td>.023</td>
<td>.227</td>
<td>.394</td>
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<tr>
<td>MIT-208/404</td>
<td>248 .0060</td>
<td>102 .045</td>
<td>.027</td>
<td>.233</td>
<td>.404</td>
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*Continued on next page.*
### ENGINE SPECIFIC PROFILES FOR TRANSLATING FOLLOWER SOHC AND DOHC APPLICATIONS

**MIT**

Continued from previous page.

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT .050&quot; VALVE LIFT</th>
<th>DUR. AT 300&quot; VALVE LIFT</th>
<th>VALVE LIFT AT TOP DEAD CENTER</th>
<th>CAM LIFT</th>
<th>GROSS VALVE LIFT WITH ZERO LASH</th>
<th>DESIGN BASE CIRCLE RADIUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIT-216/424</td>
<td>256 .0060</td>
<td>112 .060</td>
<td>.037</td>
<td>.245</td>
<td>.424</td>
<td>0.591</td>
</tr>
<tr>
<td>MIT-224/444</td>
<td>264 .0060</td>
<td>122 .077</td>
<td>.048</td>
<td>.256</td>
<td>.444</td>
<td>0.591</td>
</tr>
<tr>
<td>MIT-232/464</td>
<td>272 .0060</td>
<td>132 .096</td>
<td>.062</td>
<td>.268</td>
<td>.464</td>
<td>0.591</td>
</tr>
<tr>
<td>MIT-240/484</td>
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<td>142 .117</td>
<td>.077</td>
<td>.280</td>
<td>.484</td>
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</tbody>
</table>

**CHR2**

Mitsubishi DOHC 4-valve 420A I-4, hydraulic roller series. (Crane 431 prefix)

<table>
<thead>
<tr>
<th>PROFILE CODE</th>
<th>ADVERTISED DUR. AT .050&quot; VALVE LIFT</th>
<th>DUR. AT 300&quot; VALVE LIFT</th>
<th>VALVE LIFT AT TOP DEAD CENTER</th>
<th>CAM LIFT</th>
<th>GROSS VALVE LIFT WITH ZERO LASH</th>
<th>DESIGN BASE CIRCLE RADIUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHR-196/345</td>
<td>238 .0060</td>
<td>68 .033</td>
<td>.12</td>
<td>.198</td>
<td>.345</td>
<td>0.591</td>
</tr>
<tr>
<td>CHR-200/354</td>
<td>242 .0060</td>
<td>76 .038</td>
<td>.16</td>
<td>.204</td>
<td>.354</td>
<td>0.591</td>
</tr>
<tr>
<td>CHR-204/364</td>
<td>246 .0060</td>
<td>82 .044</td>
<td>.19</td>
<td>.210</td>
<td>.364</td>
<td>0.591</td>
</tr>
<tr>
<td>CHR-208/374</td>
<td>250 .0060</td>
<td>88 .050</td>
<td>.23</td>
<td>.216</td>
<td>.374</td>
<td>0.591</td>
</tr>
<tr>
<td>CHR-216/394</td>
<td>258 .0060</td>
<td>100 .064</td>
<td>.34</td>
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**PORLD**

Porsche 911 and 930 SOHC opposed-6, mechanical series, using standard rocker arms, with 49 mm diameter cam journals. Recommended cold lash is .004".

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<tr>
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<th>ADVERTISED DUR. AT .050&quot; VALVE LIFT</th>
<th>DUR. AT 300&quot; VALVE LIFT</th>
<th>VALVE LIFT AT TOP DEAD CENTER</th>
<th>CAM LIFT</th>
<th>GROSS VALVE LIFT WITH ZERO LASH</th>
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**TOY**

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## HARLEY DAVIDSON® V2 APPLICATIONS

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<th>ADVERTISED DUR. AT TAPPET LIFT</th>
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<th>GROSS VALVE LIFT WITH ZERO LASH AT THEORETICAL ROCKER RATIO SHOWN</th>
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### HARLEY DAVIDSON® EVOLUTION V2 HYDRAULIC ROLLER SERIES

#### HEV490

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<th>Tappet Lift at Top Dead Center</th>
<th>Gross Valve Lift with Zero Lash at Theoretical Rocker Ratio Shown</th>
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<td>.660</td>
<td></td>
</tr>
<tr>
<td>HTC-260/4001</td>
<td>295</td>
<td>.0200</td>
<td>177</td>
<td>.137              .101</td>
<td>.660</td>
<td></td>
</tr>
<tr>
<td>HTC-266/400</td>
<td>301</td>
<td>.0200</td>
<td>183</td>
<td>.149              .100</td>
<td>.660</td>
<td></td>
</tr>
<tr>
<td>HTC670</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>HTC-270/406</td>
<td>305</td>
<td>.0200</td>
<td>186</td>
<td>.156              .119</td>
<td>.670</td>
<td></td>
</tr>
<tr>
<td>HTC-274/406</td>
<td>309</td>
<td>.0200</td>
<td>190</td>
<td>.164              .126</td>
<td>.670</td>
<td></td>
</tr>
</tbody>
</table>
# Personal Information

<table>
<thead>
<tr>
<th>Name:</th>
<th>Email Address:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Address:</th>
<th>Telephone Number:</th>
<th>Fax:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Cam Interested In:</th>
<th>Hydraulic</th>
<th>Hydraulic Roller</th>
<th>Mechanical</th>
<th>Mechanical Roller</th>
</tr>
</thead>
<tbody>
<tr>
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# Vehicle Information

<table>
<thead>
<tr>
<th>Make:</th>
<th>Year:</th>
<th>Weight:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Computer Controlled</th>
<th>Emissions Controlled Without Computer</th>
<th>Non-Emissions Controlled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

# Vehicle Use

- Street
- Street/Strip
- Off Road
- Towing

# Marine Use

<table>
<thead>
<tr>
<th>Hull Type:</th>
<th>Length:</th>
<th>Weight:</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Drive:</th>
<th>Jet</th>
<th>Prop</th>
<th>Explain:</th>
<th>Wet</th>
<th>Dry</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Exhaust System:</th>
<th>Brand:</th>
<th>Wet</th>
<th>Dry</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Does Exhaust Exit:</th>
<th>Above Water Line</th>
<th>Below Water Line</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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# Options

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>3000–6000</td>
<td>3500–6500</td>
<td>4000–7000</td>
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</table>

<table>
<thead>
<tr>
<th>Engine Idle Characteristics:</th>
<th>Smooth</th>
<th>Choppy</th>
<th>Rough</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

**Note:** Computer controlled vehicles must use smooth idle camshafts only.

# Engine Information

<table>
<thead>
<tr>
<th>Make:</th>
<th>Year:</th>
<th>Number of Cylinders:</th>
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<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Cubic Inches:</th>
<th>Compression Ratio:</th>
<th>Cylinder Head Type:</th>
</tr>
</thead>
<tbody>
<tr>
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<table>
<thead>
<tr>
<th>Ported:</th>
<th>Yes</th>
<th>No</th>
<th>Value Size:</th>
<th>Int.</th>
<th>Exh.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<table>
<thead>
<tr>
<th>Rocker Arm Type:</th>
<th>Stock</th>
<th>Roller</th>
<th>Rocker Ratio:</th>
<th>Int.</th>
<th>Exh.</th>
</tr>
</thead>
<tbody>
<tr>
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<table>
<thead>
<tr>
<th>Intake Manifold Type:</th>
<th>Carburetor:</th>
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</thead>
<tbody>
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<table>
<thead>
<tr>
<th>Type of Injection:</th>
<th>Speed Density</th>
<th>Mass Air</th>
<th>Special</th>
</tr>
</thead>
<tbody>
<tr>
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<table>
<thead>
<tr>
<th>Nitrous Oxide System:</th>
<th>Supercharger Type:</th>
<th>Drive Ratio:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Turbocharger Type:</th>
<th>P.S.I. Boost:</th>
</tr>
</thead>
<tbody>
<tr>
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<table>
<thead>
<tr>
<th>Cranking Compression P.S.I.:</th>
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</thead>
<tbody>
<tr>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>Transmission Model:</th>
<th>Standard</th>
<th>Automatic</th>
<th>Automatic With Overdrive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<table>
<thead>
<tr>
<th>Converter Stall Speed:</th>
<th>Rear Gear Ratio:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<table>
<thead>
<tr>
<th>Cruise RPM @ 60 MPH:</th>
<th>Tire Diameter/Size:</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Cam Now Used:</th>
<th>Part Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>HACRAILY HYDRAULIC ROLLER MECHANICAL MECHANICAL ROLLER</td>
<td></td>
</tr>
<tr>
<td>HYDRAULIC HYDRAULIC ROLLER MECHANICAL MECHANICAL ROLLER</td>
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<table>
<thead>
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</table>

<table>
<thead>
<tr>
<th>Lobe Separation:</th>
<th>Improvement Needed:</th>
<th>Low End Torque</th>
<th>Upper RPM Power</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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