



## **Erson Camshaft Series**

Over 80% of the camshafts now sold in the high performance aftermarket are for late model, low compression engines. Traditional high performance camshafts are totally unsuited for these engines. They kill low-end power, waste fuel and idle poorly. The follow-ing camshaft series incorporates all the performance and fuel saving technology developed in our testing programs and are available only from Erson Cams. These camshaft designs feature minimum duration with maximum opening velocity and lift. Valve timing is altered to produce high cylinder pressure and to keep heat in the combustion chamber. Intake opening and exhaust closing points are tailored to eliminate fuel loss during the overlap period. If you have questions or need help picking out a camshaft please feel free to call our tech line at 800-641-7920.

#### RV Camshaft camshafts with grind numbers beginning with RV

Originally designed for use in heavy vehicle and towing applications, these camshafts have proven to be the perfect answer for late model, low compression engines, and are now used primarily in passenger cars, station wagons and light utility vehicles. RV Cams are suitable for use in otherwise stock low compression engines. Usable power is increased between 1500 and 5000 (depending on application). These camshafts have a smooth idle, excellent throttle response and acceleration, plus good fuel efficiency. For the best possible performance, the engine should be equipped with headers, a free-flow exhaust system, a small 4-barrel carburetor and a re-curved ignition system.

These camshafts are ideal for sedans, station wagons, pickups, vans and motor homes. Idle is smooth and standard gearing is satisfactory. RV Cams are available for all late model American passenger car and light truck engines in hydraulic or mechanical designs

#### M/P Camshaft camshafts with grind numbers beginning with MP

The M/P Cam has sufficient duration and special valve timing to bleed off enough compression at low RPM to help prevent pre-ignition, plus deliver great mid-range power. It will also pull strong up to 5500/6000 RPM. The idle is fairly smooth and throttle response is good. When installing an M/P Cam, it will be necessary to re-curve the ignition. The curve must be tailored to advance smoothly to full advance at 3000/3500 RPM. Vacuum advance should be provided to enhance gas mileage at part-throttle cruise. The existing carburetor or fuel injection system will need to be tuned. It will take careful tuning, but great performance, plus greatly improved mileage can be expected from a high performance, high compression engine.

#### TQ Camshaft camshafts with grind numbers beginning with TQ

Erson TQ Cams have undergone extensive testing during the past three decades and offer a big potential for performance improvement in a well set-up low compression engine. TQ Cams feature computer designed profiles incorporating short, fast opening ramps and maximum open velocity. Closing velocity is lower than opening and the closing ramp is slower and longer. This type design allows the engine to deliver good RPM and great power, without sacrificing idle characteristics, low-end power and throttle response. Lobe placement and camshaft phasing have been altered to maintain high cylinder pressure with low compression ratios. TQ Cams maintain good low and mid-range power and good idle characteristics, while producing good, usable power up to 5500/6000 RPM, depending on engine displacement and other performance equipment installed. TQ Cams should be used in engines with headers, a free-flow exhaust system and a good intake system with a small, 4-barrel carburetor. Distributor mechanical advance should be shortened to provide more low RPM advance. Standard gearing can be retained, but a lower gear ratio is beneficial to take advantage of the higher RPM potential. TQ Cams are available for all late model American passenger car and light truck engines for use with hydraulic or mechanical tappets.

#### High-Flow Camshaft camshafts with grind numbers beginning with Hi FLOW

The High-Flow series of high performance camshafts are computer designed short duration, maximum lift camshafts for modified engines with compression ratios of 8:1 up to 10.5:1. High-Flow Cams feature the highest possible lift with the shortest practical duration to produce good usable low-end power and excellent high RPM performance without wasting fuel. For best results, engines should have a good high performance intake and exhaust system, modified ignition and lower gear ratio. Due to their broad power range and good revving ability, the High-Flow Cams have proven to be consistent E.T. Bracket winners. High-Flow Cams are available for all late model, American passenger car engines in hydraulic or mechanical designs.

#### **ERSON CAMS**

# **Erson Camshaft Series**

#### High Boost Camshaft camshafts with grind numbers beginning with HI BOOST

Erson Cams, one of the industry's leaders in camshaft design technology, is proud to introduce its new line of High Boost Cams for the high performance enthusiast. Camshaft profiles, ranging in performance and application from the smaller, roots-style superchargers; all the way up to the larger, more performance oriented blowers of the family--not excluding Paxton or Vortex style Superchargers. As we are all aware, every engine combination is different, however, basic engine requirements still remain the same. Blower Cams are not exception to the rule. They have certain design characteristics that allow the supercharged engine builder to achieve the expected results he or she is striving for. These designs have been developed over many years of research at dyno facilities all over the country. That's why Erson feels confident to offer these profiles as some of the best, most competitive performance street blower grinds in the country.

#### **JB Camshaft** camshafts with grind numbers beginning with JB

The JB Cams were developed to compliment the unique characteristics of jet boats. The jet unit has a power absorption curve similar in shape to the power output curve of an engine, except at the top-end where the impeller power absorption curve becomes very steep. The RPM, where the power developed curve crosses the power absorbed curve, is the absolute maximum RPM the unit can turn. The spread between the curves is excess power and translates into acceleration. All JB Cams are developed to compliment the unusual shaped power absorption curve of the impeller. These designs produce power over a broad range and provide excellent acceleration if properly matched to the impeller curve. A special JB Cam can be produced for any modern OHV American production engine. Call our technical department to order one at 800-641-7920.

#### **Oval Track Camshaft** camshafts with grind numbers beginning with OT

Erson Cams has an ongoing program testing oval track cams on the dyno and at the track. Cams for all types of cars, from Hobby Class to "alky" burning Outlaw Sprints are constantly evaluated and refined to produce the best cam available. This catalog lists oval track cams for most popular engines. These cams were selected from our testing program and are proven performers. We realize it is impossible to design oval track cams for every engine combination run under the various sanctions around the country. We encourage our customers to work closely with our Technical Department when ordering an oval track cam. Erson Cams will design and custom grind a cam for your application. We will choose from our vast selection of Masters, the correct intake and exhaust profile, special lobe center, cam phasing, etc. to fit your needs.

#### Roller Tappet Camshaft camshafts with grind numbers beginning with R

Roller Tappet Cams, when not banned by the governing body, are the way to go for the most serious racing application. Roller Tappet designs produce more power over a broader range than any comparable tappet combination due to the high tappet velocity possible.

#### HR Energy Plus Hydraulic Roller Camshaft camshafts with grind numbers beginning with RH

Most of the "off the shelf" oils today, cannot keep a flat tappet camshaft alive in an engine. The lack of Zinc and Sulfur in the oils, coupled with worn lifter bores in old engine blocks has dramatically affected flat tappet camshaft life. Available for both O.E. and Retro applications, hydraulic roller cams are a huge upgrade from old flat tappet technology. No more camshaft break in, no more flat cams because the lifter stopped spinning in the lifter bore and no more special oils or additives. With faster opening and closing ramps, HR Energy Plus lobes create more torque and horsepower than a comparable flat tappet lobe.

#### Road Rage Camshaft camshafts with grind numbers beginning with ROAD RAGE

Erson Cams has introduced a new line of street performance camshafts and related valve train components called the ROAD RAGE series. Erson's specially developed Road Rage cam profiles produce an aggressive sounding Muscle Car idle and back it up with outstanding performance. Even the mildest Road Rage grinds will deliver significant gains in horsepower and torque over stock cams, and they are easy on your valve train components as well. The Road Rage cam series is available in hydraulic roller and hydraulic flat tappet styles designed to work with carbureted Small Block Chevy, Big Block Chevy and Small Block Ford engines. Erson Cams has engineered the Road Rage series with lobe profiles specifically suited to each engine design and with an optimal combination of lift, duration and overlap to deliver a downright mean-nasty sound and the power to go with it.

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CAMS

# CAMS CAMS

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#### **AMC 6 CYLINDER**

1964-1997 AMC/JEEP INLINE 6 CYLINDER 199-258 - 1998-2004 AMC 4.0 FUEL INJECTED

CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV @	1ON ②.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Excellent replacement cam for stock engines improved low end torque with out sacrificing driveability/mileage. Works with stock gearing.	<sup>)-</sup> 1000-4800	<b>E720111</b> RV5H	IN 274° EX 280°	202° 208°	.437" .448"	110°	4°	.000" .000"
<b>1998-2004 4.0 Fuel injected.</b> Excellent replacement cam for stock engines improved low end torque with out sacrificing driveability/mileage.	1200-4800	<b>E730111</b> RV5H	IN 280° EX 280°	208° 208°	.437" .448"	110°	4°	.000" .000"
Improved low end torque and mid- range hp with minor modifications. Works best with 8.5-9.5:1 compression using headers and/or free flowing ex- haust system. Great for low range or towing light to moderate loads.	1200-5000 n	<b>E720112</b> RV12H	IN 280° EX 288°	208° 214°	.448" .458"	112°	4°	.000" .000"
<b>1998-2004 4.0 Fuel injected.</b> Improved low end torque and mid- range hp with minor modifications. Works best with 8.5-9.5:1 compression using headers and/or free flowing ex- haust. Great for low range or towing.	1200-5000 n	<b>E730112</b> RV12H	in 280° ex 288°	208° 214°	.448" .458"	112°	4°	.000" .000"
The Performer. Street performance at its best. Increased torque and great mid-range performance when installe in slightly modified engines. Fair idle.	1500-5200 d	<b>E723121</b> TQ20H	IN 292° EX 292°	214° 214°	.478" .478"	112°	4°	.000" .000"
One of Erson's premier profiles. Grea mid range torque and top end HP. No less than 9.5:1 compression. Afterma ket intake, 500 two bbl or 390 cfm fou bbl and headers for best results	1800-5500	<b>E720321</b> HI FLOW AH	in 284° ex 284°	220° 220°	.504" .504"	110°	4°	.000" .000"

#### AMC V8



1966-1991 AMC V8 290-401		_						
CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	1ON ).050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Broad power range, City and Express way driving, towing. Cars, heavier rigs Good idle, response and high fuel effi- ciency.	1200 5000	<b>E710112</b> RV12H	in 280° ex 288°	208° 214°	.448" .458"	110°	0°	.000" .000"
The Performer. Erson's most popular grind for improving all around street performance with minor modifications A 600 CFM 4 bbl and free flowing dua exhaust increases low end torque and mid-range hp. Ok with stock converter	1	<b>E710121</b> TQ20H	in 292° ex 292°	214° 214°	.478" .478"	111°	4°	.000" .000"
High-lift, short duration dual pattern of fers great mid-range in slightly modi- fied engines with no less than 9.0:1 compression. Use good dual plane in- take, 4 bbl and header for best results Automatic cars advance cam 4 deg.	2000 0000	<b>Е710321</b> тQ40Н	in 284° ex 296°	220° 228°	.504" .504"	110°	0°	.000" .000"
High performance street seeking in- creased mid-range and top end per- formance from modified 360-401 CID engines. Use no less than 9.5:1 com- pression, torker style intake, up to 750 CFM 4 bbl and headers.	2200-5800	<b>E710421</b> HI FLOW I H	in 296° ex 296°	228° 228°	.504" .504"	108°	0°	.000" .000"
Hot street/Bracket cam, 390-401 CID with no less then 10.5:1. works with automatic with 3500 or more converte	3500-6800 r.	<b>E710621</b> HI FLOW IV H	in 312° ex 320°	248° 256°	.536" .552"	110°	4°	.000" .000"



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# **MECHANICAL/SOLID FLAT TAPPET CAMSHAFTS**

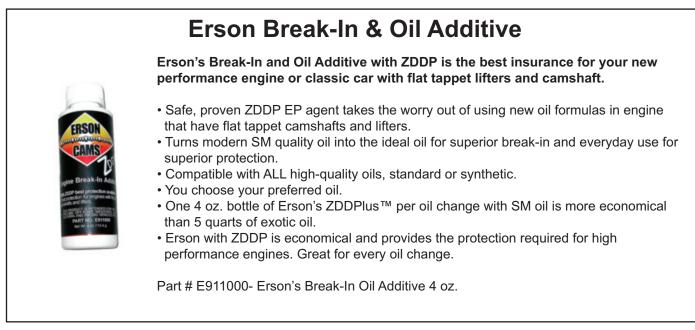
#### AMC V8

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1966-1991 AMC V8 290-401



CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	ION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE
Excellent entry level cam for high per- formance street seeking strong mid- range power. 360-401 CID engines need 10.5:1 compression and after- market intake/exhaust systems for best results. 4-speed manual transmission or automatics with 2500-3000 RPM converter recommended.	2500-6400	<b>E710501</b> HI FLOW AM	in 286° ex 294°	242° 246°	.544" .544"	108°	0°	.022" .022"
Pro Street/E.T. Brackets. 390-401 CIE with 10.5-11.5:1 compression need modified cylinder heads matched to a single plane intake, 750 CFM 4 bbl, 1.750" primary tube headers and 3" exhaust for best results. 2800-3400 lb automatic cars use 3500 RPM con- verter, 28" tire and 4.56 gear.	3200-6800	<b>E710502</b> F-296-1A	in 296° ex 302°	258° 264°	.600" .600"	108°	2°	.022" .022"
E.T. Brackets, 2600-3200 lb Javelins, AMXs, Gremlins, etc. using 390-413 CID engines need 11.5:1 compression resulting in consistent, reliable top end power. Compatible in 4 speed or auto- matic with 4500 RPM converter.		<b>E710503</b> F-306-1A	in 306° ex 314°	268° 276°	.600" .600"	108°	0°	.022" .022"



#### **BUICK 215 V8**

1961-1967 EARLY BUICK V8 215, 300 AND 340, 1968 ROVER 215, 3.5, 3.9 AND 4.2



ERSON CAMS

CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	ION ⊉.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Excellent replacement camshaft for ver- hicles seeking improved low end per- formance. No modifications necessary Compatible with stock compression and gearing. Good idle.	1000_4500	<b>E640111</b> RV5H	in 274° ex 280°	202° 208°	.437" .448"	110°	4°	.000" .000"
Broad power range. City and Freeway driving, towing. Heavier cars. Good id and fuel mileage	e 1200-4800	<b>E640101</b> RV10H	IN 280° EX 280°	208° 208°	.448" .448"	111°	4°	.000" .000"
Rovers and TR-8s with lightly modified cylinder heads, aftermarket aluminum intake and free flowing dual exhaust system increases low end torque and mid-range hp. Fair idle.	1500-5200	<b>E640201</b> RV15H	in 288° ex 288°	214° 214°	.458" .458"	111°	4°	.000" .000"
The Performer. Broader power and more mid-range performance from modified engines. 4 or 5 speed manua transmission and low gears deliver best results. Noticeable idle.	1800-5500 al	<b>Е643121</b> ТQ20Н	in 292° ex 292°	214° 214°	.478" .478"	112°	5°	.000" .000"



#### **BUICK 455 V8**

1967-1976 400-430-455

CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	ION ②.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
The Performer. Excellent replacement camshaft for vehicles seeking im- proved low end and mid-range per- formance with minor modifications. Compatible with stock compression, torque converter and gearing. Should have free flowing dual exhaust system for best results.	1200-5000	<b>Е630121</b> тQ20Н	in 292° ex 292°	214° 214°	.478" .478"	111°	4°	.000" .000"
Increased low end torque and mid- range hp over a broader RPM range. Good idle and driveability without harming fuel efficiency. OK with stock torque converter, power brakes and mild gearing.	1200-5200	<b>E630021</b> MP/2	in 292° ex 310°	214° 226°	.479" .493"	114°	4°	.000" .000"
High-lift, short duration dual pattern camshaft offers increased mid-range torque and HP. Vehicles perform best with aftermarket dual plane intake, up to 750 CFM 4-bbl and free flowing ex- haust system. Largest cam with stock converter. Fair idle.		<b>Е630321</b> ТQ40Н	in 284° ex 296°	220° 228°	.504" .504"	112°	4°	.000" .000"
Excellent choice for mid-60s, early-70 Buick muscle cars seeking strong mic range and top end performance from slightly modified 455 CID engines. Ve hicles with 9.5-10.5:1 compression. Performer style intake, 750 CFM car- buretion and 3" diameter free flowing exhaust pull hardest.	- 2200 0000	<b>E630223</b> тQ50Н	in 296° ex 306°	228° 235°	.504" .504"	110°	0°	.000" .000"





#### **CADILLAC V8**

CADILLAC 368 1980-1984, 425 1977-1979, 472 1968-1974 AND 500 1970-1976



CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	1ON @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Excellent replacement cam for stock engines. Builds good power down low recommended for towing light to mod- erate loads. Needs free flowing dual exhaust.	1000-4800	<b>E520101</b> RV10H	IN 280° EX 280°	208° 208°	.462" .462"	112°	0°	.000" .000"
Excellent choice for trucks, motor homes and heavier rigs with Cadillac powered transplants seeking increase low end torque and driveability.	1200-5000 d	<b>E520201</b> RV15H	IN 288° EX 292°	214° 214°	.472" .493"	112°	4°	.000" .000"
Great street performance grind offerin good low end torque and mid-range hp. Should have aftermarket Performe style intake, 4-bbl carburetion and 2.5 or larger free flowing exhaust system. OK with stock converter.	g 1500-5500 rr	<b>Е520321</b> тQ40Н	in 284° ex 296°	220° 228°	.519" .519"	112°	4°	.000" .000"
Lots of mid-range torque and top end HP from Cadillac powered hot rods, street machines and trucks using 472- 500 CID engines. Works best with 9.5:1 compression, aftermarket intake lightly modified cylinder heads, 4-bbl and 3.70 or lower gears.		<b>E520501</b> ТQ50Н	in 296° ex 306°	228° 235°	.519" .519"	114°	4°	.000" .000"



## CHEVROLET SMALL BLOCK V8

1957-86 262-400 CID ENGINES 1987-94 305/350 CID NON HYDRAULIC ROLLER ENGINES



	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	ION D.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Good idle and fuel efficiency in smaller engines. Computer compatible. Works well in light trucks and 4x4 trucks. Tow- ing light to moderate loads. OK with small superchargers.	1500-4500	<b>E111011</b> M/P1	in 280° ex 292°	208° 214°	.420" .449"	114°	6°	.000" .000"
Strong mid-range power. City, fast ex- pressway and open road towing. Deliv- ers maximum mid-range torque. Good idle, throttle response and fuel effi- ciency.	1800-5000	<b>E110201</b> RV15H	in 288° ex 288°	214° 214°	.429" .429"	111°	4°	.000" .000"
The Performer. Super low and mid- range power. Good idle, fuel efficiency and driveability. 4 bbl and headers rec- ommended.	2500-6000	<b>E113121</b> TQ20H	in 292° ex 292°	214° 214°	.449" .449"	111°	4°	.000" .000"
Good idle and throttle response in larger engines. Prefers 4 bbl, headers, manual transmission and low gears for towing moderate to heavy loads. OK with small superchargers.	2000-5200	<b>E111021</b> M/P2	in 292° ex 310°	214° 226°	.449" .462"	114°	6°	.000" .000"
Fair idle. Resonable fuel efficiency good low and mid range power.	2250-5200	<b>E110321</b> HI FLOW AH	IN 284° EX 284°	220° 220°	.472" .472"	108°	0°	.000" .000"
Street and Strip. High-lift, dual pattern. Fair idle. Reasonable fuel efficiency. Needs 4 bbl, headers and lower gears. OK with automatic and 2,500 RPM stal speed torque converter.	2500-5500	<b>Е113321</b> ТQ40Н	in 284° ex 296°	220° 228°	.472" .472"	110°	4°	.000" .000"
Stock converter ok, but would like 2200 better, 9.5-10.5:1 compression	2500-6000	E113510 ROAD RAGE	IN 284° EX 296°	220° 235°	.473" .473"	108°	5°	.000" .000"
General purpose street and strip cam for 302 & larger engines. Fair Idle	2500-5500	<b>E112061</b> VIKING100H	IN 298° EX 298°	224° 224°	.450" .450"	108°	0°	.000" .000"
Hot Street/E.T. Brackets, etc. High lift.Short duration. Delivers broad power range, strong top end. Fair idle. Needs 4 bbl, headers, compression and gears.	2750-6000	E110421 HI FLOW 1H	in 296° ex 296°	228° 228°	.472" .472"	108°	0°	.000" .000"
Street and Strip. High-lift, dual pattern. Rough idle. Good mid and top range horsepower. Needs 4 bbl intake, head- ers and lower gears. OK with auto- matic and 3,000 RPM stall speed torque converter. 9.0:1 compression or more.	2800-6500	<b>Е113421</b> ТQ50Н	in 296° ex 306°	228° 235°	.472" .472"	110°	4°	.000" .000"

#### CHEVROLET SMALL BLOCK V8 1957-86 262-400 CID ENGINES

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1987-94 305/350 CID NON HYDRAULIC ROLLER ENGINES



Lifters sold separately

CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.		TION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Hot Street Machine with at least 9.5:1 compression. Aftermarket dual or sin- gle plane intake, 650 CFM or larger carb. Headers, dual exhaust, 2500 RPM converter and 3.42 or lower gears. Lopey idle.	2500-6200	<b>E110103</b> HL-294-355	in 294° ex 302°	228° 236°	.532" .532"	108°	0°	.000" .000"
Needs good intake, 10.5:1 compres- sion, headers, gearing	2800-6400	E113515 ROAD RAGE	in 296° ex 316°	228° 240°	.473" .473"	108°	5°	.000" .000"
Hot Street/E.T Brackets no less than 10.0:1 compression, aftermarket head with 1.6 rockers for best performance. Needs good intake manifold, 750 CFM or larger carb At least 2800 RPM con- verter and 3.73 or lower gears.	1	E110109 HL-298-355	in 298° ex 306°	232° 240°	.532" .532"	108°	0°	.000" .000"
Heavy cars with intake restricted mo- tors. Serious mid-range torque.10.0:1 to 11.0:1 compression. Tremendous power out of the corners and on re- starts.	3000-6500	E110522 HI-FLOW 2HRP	in 306° ex 296°	235° 228°	.472" .472"	107°	5°	.000" .000"
Runs strong 3,200-6,600 RPM. Stick of automatic with gears. Needs good in- take and headers. 9.5:1 or more com- pression. Lopey idle.	<sup>or</sup> 3200-6600	<b>E110521</b> HI FLOW 11H	in 306° ex 306°	235° 235°	.472" .472"	108°	0°	.000" .000"
Big Power and Lots of noise! Needs compression, headers, good intake, gears	3200-6800	E113520 ROAD RAGE	in 306° ex 316°	235° 240°	.473" .473"	108°	5°	.000" .000"
Hot Street/E.T Brackets no less than 10:1 compression, aftermarket heads with 1.6 rockers for best performance. Needs good intake manifold, 750 CFM or larger carb. At least 3000 RPM con- verter and 4.10 or lower gears.	1	<b>E110115</b> HL-302-355-1	in 302° ex 310°	236° 244°	.532" .532"	108°	0°	.000" .000"
.450 lift rule circle track. Broad power band, driver needs to be fast and smooth.	3200-6500	<b>E110455</b> H295/299	IN 295° EX 295°	240° 240°	.448" .448"	106°	0°	.000" .000"
2 bbl or 4 bbl limited sportsman racers on 1/4-3/8 mile oval tracks. Proven winner in .500" lift rule hydraulic classes.	3500-6800	E111122 OTH500	in 318° ex 318°	244° 244°	.504" .504"	106°	0°	.000" .000"



## **MECHANICAL/SOLID FLAT TAPPET CAMSHAFTS**

#### **CHEVROLET SMALL BLOCK V8**

1957-86 262-400 CID ENGINES 1987-94 305/350 CID NON HYDRAULIC ROLLER ENGINES



CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	TION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Hot Street/S.C.C.A. Slalom Racer. Good low and mid-range power in small cubic inch engines. 600-650 CFM 4 bbl, dual plane manifold, 1.6 rockers and 4 speed with low gears.	2500-5500	<b>E113123</b> TQ30M	in 280° ex 280°	230° 230°	.465" .465"	108°	0°	.022" .022"
Moderate lift and duration delivers more power through entire RPM range The ideal street camshaft with minor modifications.	e. 3000-6400	<b>E110721</b> HI-FLOW IM	IN 286° EX 286°	242° 242°	.510" .510"	108°	0°	.022" .022"
Increased mid-range and top end power in 327-355 CID engines. After- market intake and carburetion with cas iron exhaust. OK with flat top pistons. Easy on parts.	3200-6500	<b>E116301</b> F-282-2	in 282° ex 290°	246° 254°	.510" .510"	106°	0°	.022" .022"
327-350 CID engines with no less than 10.0:1 compression. Can be used with 1.6:1 rockers to enhance mid-range performance or with manual or auto- matic transmission and 3000 RPM converter.	3250-6500	<b>E110822</b> F-282-3	IN 282° EX 290°	246° 254°	.510" .510"	108°	2°	.022" .022"
1/4-3/8 mile. Big torque down low and through the mid-range. Great for 2 bar rel and small 4 barrel classes. Low lift applications.	3250-6500	<b>E116405A</b> FXR282-2A	IN 288° EX 288°	250° 250°	.533" .543"	106°	6°	.022" .022"
Lower lift version of FXR camshaft E116400, 1/4-3/8 mile, good mid- range. 2 bbl 4412 or 4 bbl with good ir take and exhaust.	3200-6600	E116400A FXR-288-1	IN 286° EX 284°	250° 254°	.533" .543"	106°	4°	.018" .018"
1/4-3/8 mile, good mid-range. 2 bbl 4412 or 4 bbl with good intake and ex- haust.	3200-6600	<b>E116400</b> FXR-288-1	IN 288° EX 292°	250° 254°	.562" .562"	106°	4°	.018" .018"
New oval track camshaft from Erson. Good low end power, yet likes to run upstairs. 4 bbl and headers recom- mended.1/4 mile to fast 3/8 mile dirt or asphalt tracks	3500-6700	<b>E116306</b> F-286-1A	in 286° ex 294°	250° 258°	.510" .510"	106°	0°	.022" .022"
Top end camshaft in 327-355 CID en- gines on tight tracks, with limited cast iron intakes. 2 barrel to small 4 bbl car buretion. Low lift. Can be used with stamped steel rockers.	3200-6750	<b>E116302</b> F-290-1	in 290° ex 294°	254° 258°	.510" .510"	106°	0°	.022" .022"



# **MECHANICAL/SOLID FLAT TAPPET CAMSHAFTS**

#### **CHEVROLET SMALL BLOCK V8**

1957-86 262-400 CID ENGINES 1987-94 305/350 CID NON HYDRAULIC ROLLER ENGINES



CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	TION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Good 2 and 4 bbl cam. Fast 1/4-3/8 11.5:1+. Ok with small 4 bbl 327-358 CID. Low lift applications.	3200-6800	<b>E116410A</b> FXR-292-1	in 292° ex 296°	254° 258°	.533" .543"	106°	4°	.018" .018"
Good 2 and 4 bbl cam. Fast 1/4-3/8 11.5-1+ Ok with small 4 bbl 327-358 CID	3200-6800	<b>E116410</b> FXR-292-1	in 292° ex 296°	254° 258°	.562" .562"	106°	4°	.018" .018"
Reverse pattern version of our 11641 Lots of torque. Prefers 383-400+ CID engines. Low lift applications.	). 3200-6600	<b>E116411A</b> FXR 284/1RP	in 296° ex 292°	258° 254°	.552" .543"	106°	4°	.018" .018"
355-406 CID 1/4-1/2 mile track.Good cylinder heads and intake12.1+ strong runner.	3200-6800	<b>E116430</b> FXR-296-1	in 296° ex 302°	258° 264°	.562" .562"	106°	4°	.018" .018"
E.T. Bracket/Road Racer. No less tha 11.0:1 compression, 2800-3200 lb modified production car. Single 4 bbl, good heads with mild head work. Headers and free flowing 3" exhaust system.	<sup>1</sup> 3400-7000	<b>E110826</b> F-296-1	in 296° ex 302°	258° 264°	.562" .562"	108°	0°	.022" .022"
3/8-1/2 mile 355-406 CID 12.0:1+ 4 bbl. Good intake and exhaust. Great top end performance.	3400-7200	<b>E116440</b> FXR-298-1	in 298° ex 306°	260° 268°	.562" .562"	106°	4°	.018" .018"
355-406 CID Late Model Sportsman 1/2 mile to 5/8. 12.1+ 4 bbl with good intake.	3500-7400	<b>E116450</b> FXR-302-1	in 302° ex 310°	264° 272°	.562" .562"	106°	4°	.018" .018"
Lots of smooth torque and big power for restricted intake, stock headed classes. Must have 10.5 to 1 compres sion and headers.	3300-6400 -	E110905 HI FLOW III M RP	in 306° ex 296°	254° 246°	.510" .510"	107°	5°	.022" .022"



#### **CHEVROLET SMALL BLOCK V8**

1957-86 262-400 CID ENGINES

1957-1986 Chevrolet 262-400, 1987-1997 305/350 - Retrofit Hydraulic Roller



	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	TON @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Recommended for passenger cars and light trucks seeking improved low and mid range. Great for towing low and moderate loads. Good idle	1500-4000	E119814 RH-276-2	IN 276° EX 282°	208° 214°	.480" .480"	110°	4°	.000" .000"
Mild hydraulic roller offering improved low and mid range power in passenger cars and light trucks. Works well with stock converter and mild gearing. Noti- cable idle	1750-4250	<b>E119811</b> RH-282-1	in 282° ex 282°	214° 214°	.480" .480"	110°	0°	.000" .000"
Strong mid range power, needs at leas 9.5:1 compression, dual plane intake and free flowing exhaust	t 2200-5200	E119840 RH272-320	IN 272° EX 280°	218° 226°	.480" .480"	108°	0°	.000" .000"
Improved mid and upper midrange per- formance when used with aftermarket cylinder heads and manifold. Should have headers and free flowing ex- haust. Works well with superchargers, small shots of nitrous and marine com- patible.	2200-5500	E119816 RH-268-1	IN 286° EX 294°	218° 226°	.510" .510"	112°	4°	.000" .000"
This cam offers lots of torque through- out the entire mid range. Should have lightly modified cylinder heads, 4 bbl and headers. Largest cam with stock converter	2200-5200	E119813 RH-288-1	in 288° ex 288°	219° 219°	.480" .480"	110°	0°	.000" .000"
Higher cylinder pressure and better throttle response by modifying timing points. Improved mid range without compromising driveablity. Marine com- patible.	2400-5400	<b>E119817</b> RH-282-4A	in 282° ex 286°	222° 226°	.480" .480"	112°	4°	.000" .000"
Hot street machines with 10.0:1 com- pression. Aftermarket dual or single plane intake. 650 CFM or better carb. Headers and 2500 rpm converter. Lopey idle	2500-5500	E119845 RH-286-365-47	in 286° ex 294°	226° 234°	.548" .548"	108°	0°	.000" .000"
Great hydraulic roller hot rod cam. 350 383 CID. OE head friendly. Needs 9.5:1 compression, headers and good intake. Low vacuum. Use E119836 for power brake applications	2500-5500	E119835 RH-286-365	in 294° ex 302°	226° 234°	.510" .510"	108°	0°	.000" .000"
Great hydraulic roller hot rod cam. 350 383 CID. OE head friendly. Needs 9.5:1 compression, headers and good intake.	- 2600-5700	<b>E119836</b> RH294-4	in 294° ex 302°	226° 234°	.510" .510"	110°	0°	.000" .000"



## **CHEVROLET SMALL BLOCK V8**

1957-86 262-400 CID ENGINES

1957-1986 Chevrolet 262-400, 1987-1997 305/350 - Retrofit Hydraulic Roller



CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	TION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Excellent choice for street machines with roots or centrifugal type super- chargers running 6 to 12 lbs of boost. 2000 RPM converter and good ex- haust. Also works well with fuel in- jected normally aspirated engines. Wi require performance chip or tuneable type fuel injection.	2500-5500 I	<b>E119847</b> RH-286-365-1	in 286° ex 294°	226° 234°	.584" .584"	112°	0°	.000" .000"
Hot street machine with at least 10.0: compression. Aftermarket dual or sin- gle plane manifold, 650 CFM or larger carb, headers and a 2800 RPM con- verter. 3.73 or lower gears	2800-5800	E119848 RH-298-365	in 290° ex 298°	230° 238°	.548" .548"	108°	0°	.000" .000"
Hot Street and ET Brackets. Should have no less than 10.0:1 compression modified cylinder heads and single plane intake. Automatics use 3000 converter, 4:56 gears and 28" tire.	3250-6250	<b>E119819</b> RH-302-1	in 302° ex 310°	234° 242°	.510" .510"	110°	4°	.000" .000"
Hot Street/E.T. Brackets. No less than 10.0:1 compression, aftermarket head with 1.6 rockers for best performance Needs good intake manifold, 750 CFM or larger carb. At least 3000 RPM con verter and 4.10 or lower gears.	s 3000-6000	<b>E119849</b> RH-298-365	IN 298° EX 306°	238° 246°	.548" .548"	108°	0°	.000" .000"
Serious street machines with roots or centrifugal type superchargers, up to 1bs of boost. Needs 2500 RPM con- verter, headers and free flowing ex- haust. Also a good choice for 383 CIE or larger cubic inch engines with after market fuel injection.		<b>E119851</b> RH-298-365-1	in 298° ex 306°	238° 246°	.548" .548"	112°	0°	.000" .000"
Hot street and ET Bracket. Strong mid range torque and top end horsepower No less that 10.5:1 compression, afte market cylinder heads and single plan intake.	3500-6500	<b>E119853</b> RH-302-365	in 302° ex 310°	242° 250°	.548" .548"	108°	2°	.000" .000"



#### **CHEVROLET SMALL BLOCK V8**

1987-1997 Chevrolet 305-350 Originally Equipped With Hydraulic Roller Camshaft Including LT1 And LT4



	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV @	ION D.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
305-350 CID engines in cars and light trucks seeking more mid range per- formance. Automatic with overdrive OK. Computer compatible.	1250-4250	<b>E119825</b> RH-276-3	in 276° ex 276°	208° 208°	.480" .480"	112°	4°	.000" .000"
Great replacement for the ZZ4 (604) crate motor. Better bottom end and strong mid range		<b>E119935</b> ZZ4	in 276° ex 290°	208° 222°	.480" .510"	110°	0°	.000" .000"
Camaros, Firebirds and light trucks wanting to improve low and mid range performance. Aftermarket intake and exhaust helpful. Low boost super- chargers OK. Computer compatible.	1500-4500	<b>E119826</b> RH-276-4	in 276° ex 282°	208° 214°	.480" .480"	114°	6°	.000" .000"
Strong mid-range power needs at least 9.5:1 compression, dual plane intake, free flowing exhaust and at least 2000 RPM converter for best performance. Will have noticeable idle.	2200-5200	<b>E119700</b> RH-272-320	IN 272° EX 280°	216° 226°	.480" .480"	108°	0°	.000" .000"
Great choice for fuel injected street machines. Strong mid-range power needs at least 9.0:1 compression. Free flowing exhaust and at least 2200 RPM converter for best performance.Small supercharger or 125 HP shot of nitrous O.K. May require performance chip.	1	<b>E119703</b> RH-272-320	in 272° ex 280°	218° 226 <b>°</b>	.480" .480"	112°	4°	.000" .000"
Hot street machine with at least 10:1 compression. Aftermarket dual or sin- gle plane manifold. 650 CFM or larger carb, headers and a 2500 RPM con- verter. 3.42 or lower gears. Lopey idle.	2500-5500	<b>E119706</b> RH-286-365	in 286° ex 294°	226° 234°	.548" .548"	108°	0°	.000" .000"
Great Hot Rod cam. Needs 9.5+ com- pression. Can be used with OE type heads. Great sound. Low vacuum	2400-5400	<b>E119735</b> RH-294-2	in 294° ex 302°	226° 234°	.510" .510"	108°	0°	.000" .000"
Excellent choice for street machines with roots or centrifugal type super- chargers running 6 to 12 lbs of boost. 2000 RPM converter and good ex- haust. Also works well with fuel in- jected normally aspirated engines. Will require performance chip or tuneable type fuel injection.	2700-5700	E119709 RH-286-365-1	in 286° ex 294°	226° 234°	.548" .548"	112°	4°	.000" .000"
Great choice for street blower (6-10 psi) or higher compression engines with programable fuel injection.	2600-5600	<b>E119737</b> RH-294-5	in 294° ex 302°	226° 234°	.510" .510"	112°	0°	.000" .000"
Hot street machine with at least 10:1 compression. Aftermarket dual or sin- gle plane manifold, 650 CFM or larger carb, headers and a 2800 RPM con- verter. 3.73 or lower gears.	2800-5800	<b>E119710</b> RH-290-365	in 290° ex 298°	230° 238°	.548" .548"	108°	0°	.000" .000"





# MECHANICAL/SOLID ROLLER CAMSHAFTS

#### **CHEVROLET SMALL BLOCK V8**

1955-1995 Chevrolet Small Block 262-400



CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	TION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Street roller camshaft with excellent low and mid range. 10.0:1 compres- sion, 650-750 carburetion and mild head work with dual plane manifold makes big torque	3000-6500	<b>E119800</b> R-278-1	IN 278° EX 286°	238° 246°	.555" .555"	108°	0°	.022" .022"
Our largest low lift blower cam for the street. Aftermarket aluminum heads, big valves 671 Supercharger, low gears and 3500 converter.	3500-7000	<b>E119833</b> R-282-1A	in 282° ex 292°	253° 263°	.600" .600"	114°	6°	.022" .022"
All out street roller. Works well in 3000 3400 lb car. 10.0:1 compression mini- mum. Ok with small shot of NOS	- 3500-7000	<b>E119801</b> R-291-1	in 294° ex 302°	254° 260°	.555" .555"	108°	0°	.022" .022"
Hot Street/E.T. Brackets. No less than 10.0:1 compression, aftermarket head with 1.6 rockers for best performance. Needs good intake manifold, 750 CFM or larger carb. At least 3000 RPM con verter and 4.10 or lower gears.	s 1	E119923 R-286-3	IN 286° EX 294°	260° 268°	.645" .615"	106°	4°	.022" .022"
E.T. Brackets. Recommended for 350- 406 CID engines with no less that 11.0:1 compression, ported and pol- ished heads, good intake and headers 4000 rpm converter.	4000-7500	<b>E119906</b> R-286-5	in 286° ex 294°	260° 268°	.675" .645"	108°	4°	.022" .022"
Late model sportsman/sprint car. Closed course road racer. 350-410 CID. No restrictions. Alcohol or gas.	4400-7800	<b>E119926</b> R-290-4	in 290° ex 298°	264° 272°	.645" .645"	106°	2°	.022" .022"
Popular E.T. Brakcet camshaft. 12.5:1 compression, aftermarket heads, good intake and exhaust		<b>E119802</b> R-296-1	in 296° ex 308°	266° 278°	.600" .600"	108°	0°	.022" .022"
410+ CID, injected alcohol, outlaw sprint car or late model on fast 1/2 - 5/ track	8 4500-8000	<b>E119927</b> R-294-5	in 294° ex 300°	268° 274°	.675" .645"	106°	4°	.022" .022"
Serious E.T. Bracket racers with 377- 406 CID engines, boasting 12.8 to 13.5:1 compression, Super Stock 327 350 CID 4 speed cars or 2400lb super gas roadsters, this cam is for you.	4800-8000	<b>E119912</b> R-302-5	in 302° ex 310°	276° 284°	.675" .675"	106°	4°	.022" .022"
Small cubic inch engines (up to 357 cid) with 13.0:1 to 15.0:1 compression using heavily modified 18 degree cylir der heads in a light (1500 lb) chassis. Makes relentless top end power.		<b>E119914</b> R-310-4	in 310° ex 314°	280° 288°	.712" .675"	110°	3°	.024" .024"
Designed for and proven winner in 283-327 CID econo altereds and ecor omy dragsters running b or c classes.	- 6000-9200	<b>E119917</b> R-314-7	in 314° ex 330°	284° 298°	.712" .667"	111°	0°	.024" .024"



#### GM GEN III / LS

LS1, LS2, LS6 4.8L, 5.3L, 5.7L, 6.0L 1997-PRESENT



CAM APPLICATIONS	RPM RANGE	PART NO. GRIND NO.		'ION @.050	GROSS LIFT 1.7	GROSS LIFT 1.8	LOBE CENTER	ADV	VALVE LASH
Mild hydraulic roller with strong mid- range torque. This cam gives a good performance increase without having to make other internal modifications. Will benefit from free flowing exhaust. Good mileage and idle, computer compatible.	1500-5000	<b>E112001</b> LSRH-264-1	IN 264° EX 272°	210° 218°	.510" .510"	.540" .540"	112°	0°	.000" .000"
Great mid-range power, good choice for supercharged engines with 5-8 PSI of boost. Needs free flowing exhaust, ok with nitrous. Will require computer tuning.	1700-5500	<b>E112003</b> LSRH-268-1	IN 268° EX 276°	215° 223°	.544" .544"	.576" .576"	112°	2°	.000" .000"
Great replacement cam with more power and stock drivabilty	1200-4800	E112819 LSRH268-1	IN 268° EX 278°	204° 219°	.547" .523"	.579" .554"	114°	4°	.000" .000"
Hot Street/E.T. Brackets, best dual purpose street strip cam. Needs 2500 RPM converter 3.42 or lower gear. Will require computer tuning.	2000-6000	<b>E112009</b> LSRH-286-1	IN 286° EX 294°	226° 234°	.621" .621"	.657" .657"	110°	0°	.000" .000"
Hot Street strong mid-range and top end performance, needs headers and good exhaust. 2000 RPM converter. Will require computer tuning.	1900-5800	<b>E112006</b> LSRH-286-1	IN 286° EX 294°	220° 228°	.578" .578"	.612" .612"	112°	2°	.000" .000"
Good power gains in slightly modified engines. Must have aftermarket heads and compression. Ok with small super charger or small shot of nitrous	2500-6500	<b>E112010</b> LSHR-286-3	IN 286° EX 294°	226° 234°	.621" .621"	.657" .657"	114°	0°	.000" .000"
Great hot rod cam. Camaros and Corvettes. Big torque, needs com- puter tuning.	2000-6000	<b>E112008</b> LSRH-290-3A	IN 290° EX 294°	225° 230°	.578" .578"	.612" .612"	114°	0°	.000" .000"
Hot Street/E.T. Brackets. Turbo charged engines with up to 25 PSI of- boost. Best with at least 3000 RPM converter and 3.42 or lower gears. Will require computer tuning.	2600-6500	<b>E112112A</b> LSRH-294-2A	IN 294° EX 294°	230° 230°	.578" .578"	.612" .612"	114°	0°	.000" .000"
Great cam for 6.0L with stock style heads, compression, intake and ex- haust. Will handle 150+ shot of nitrous	2600-6800	<b>E112114A</b> LSHR-294-4A	IN 294° EX 310°	230° 245°	.578" .578"	.612" .612"	114°	0°	.000" .000"
Hot Street/E.T. Brackets, ported fac- tory or aftermarket heads, good in- take,headers and exhaust. 3000 RPM converter, 3.73 or lower gear. Will re- quire computer tuning.	2800-7000	<b>E112115A</b> LSRH-296-2A	IN 296° EX 310°	236° 245°	.578" .578"	.612" .612"	110°	2°	.000" .000"
Big horsepower and torque gains for heavily modified big inch engines. Needs good heads, compression, headers and upgraded fuel system. Ok with nitrous and super chargers	3000-7000	<b>E112117</b> LSHR-298-4	IN 298° EX 306°	238° 246°	.621" .621"	.657" .657"	117°	0°	.000" .000"
Hot Street/E.T. Brackets, strong mid- range torque and top end horsepower in engines up to 427 CID. No less than 11.0:1 compression, aftermarket heads, good intake and exhaust. 3000-3500 RPM converter and 4.10 or lower gears. Rough idle, will require computer tuning.	3500-7500	<b>E112118</b> LSRH-302-1	IN 302° EX 310°	242° 250°	.621" .621"	.657" .657"	110°	4°	.000" .000"

# CHEVROLET BIG BLOCK V8

1966-1995 Big Block Chevrolet 396-502

ERSON CAMS



CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	TION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Erson's first choice over stock.Excel- lent for 2 wheel drive pickups with campers, 4x4s, utility trucks and moto homes wishing to improve low end pe formance and driveability.	r 1200-4800 r-	<b>E120102</b> M/P1	in 280° ex 292°	208° 214°	.482" .514"	112°	4°	.000" .000"
Strong mid-range power. City, fast ex- pressway and open road towing. Deliv ers maximum mid-range torque. Good idle, throttle response and fuel effi- ciency.		<b>E120201</b> RV15H	in 288° ex 288°	214° 214°	.482" .482"	112°	4°	.000" .000"
The Performer. Super low and mid- range power. Good idle, fuel efficiency and driveability. 4 bbl, headers and free flowing dual exhaust system rec- ommended. OK for towing moderate loads.	, 1500-5000	<b>E120121</b> ТQ20Н	in 292° ex 292°	214° 214°	.514" .514"	112°	4°	.000" .000"
Suburbans, dualies and 4x4s seeking more mid-range torque and horse- power. Recommended for towing whe used with a dual plane intake manifold A 4 bbl, free flowing exhaust and low gears.	2000-5200 n l.	<b>E121021</b> M/P2	in 292° ex 310°	214° 226°	.514" .530"	114°	4°	.000" .000"
Great camshaft for the slightly modifie street car or sport truck. Good low end torque and mid-range horsepower car be used with 4 speed manual or auto- matic with stock converter.	2250-5400	<b>E120320</b> HI FLOW AH	in 284° ex 284°	220° 220°	.542" .542"	111°	0°	.000" .000"
High-lift, short duration, dual pattern camshaft. Builds good torque down lo with strong mid-range power. Largest cam recommended with stock con- verter.	w 2500-5500	<b>Е120621</b> ТQ40Н	in 284° ex 296°	220° 228°	.542" .542"	110°	0°	.000" .000"
Good all-around street performance with rough idle sound. Ok with stock converter or best with 2000. 9.5 com- pression minimum. Choppy idle	2200-5800	E120510 ROAD RAGE	IN 284° EX 296°	220° 235°	.542" .542"	108°	5°	.000" .000"
Strong street and strip cam for heavie car. High-lift and short duration guarar tees lots of torque. OK for Turbo Hydr for 3.55 gears.	1-	<b>E120421</b> HI-FLOW 1H	in 296° ex 296°	228° 228°	.542" .542"	111°	0°	.000" .000"
High-lift. Dual pattern camshaft. Need 4 bbl, headers and low gears. 10.0:1 compression. 4 speed or automatic with 2500 (+) RPM converter. OK with small shot of nitrous oxide.	2500-6500	<b>E120721</b> тQ50Н	in 296° ex 306°	228° 235°	.542" .542"	110°	0°	.000" .000"
Big power for big block boat engines. Low lift works with broad range of cylinder heads	2500-6200	<b>E120722</b> TQ50H/114	in 294° ex 302°	228° 236°	.542" .542"	114°	0°	.000" .000"
Hot Street/E.T. Brackets no less than 10:1 compression, aftermarket heads with 1.6 rockers for best performance. Needs good intake manifold, 750 CFM or larger carb. At least 2800 RPM con verter and 3.73 or lower gears.	1	<b>E120109</b> HL-298-355	in 298° ex 306°	232° 240°	.532" .532"	108°	0°	.000" .000"
Designed for jet boats and river racers equipped with 454-468 CID engines with 10.0-11.0:1 compression.Single of two 4 bbl tunnel ram style intakes with blueprinted pumps and A-B impeller recommended.	r	<b>E125421</b> JB200	in 306° ex 316°	235° 240°	.542" .542"	112°	4°	.000" .000"

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## **MECHANICAL/SOLID FLAT TAPPET CAMSHAFTS**

## CHEVROLET BIG BLOCK V8



CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	1ON @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
High lift-short duration cam comes on strong from 2000 RPM and up. Good for Turbo Hydro with gears. Fair Idle	2500-6000	<b>E121721</b> HI-FLOW IM	IN 286° EX 286°	242° 242°	.585" .585"	110°	0°	.022" .022"
Excellent replacement for 1970 LS6 454	2200-6500	<b>E121620</b> 3904362	IN 336° EX 316°	242° 242°	.520" .520"	114°	6°	.022" .022"
High Performance Street/E.T. Bracket camshaft. 10.5:1 compression, 4 bbl, free flowing exhaust. Pulls hard in heavier chassis when advanced 4°	2500-6400	E121821 HI-FLOW IIM	IN 294° EX 294°	246° 246°	.585" .585"	110°	0°	.022" .022"
Hot Street/E.T. Brackets/Marine. Good mid-range power with 10.5-11.0:1 com pression and 4 speed with low gears. Jet boat with blueprinted pump and A- B impeller. Works well with nitrous oxide.	2800-6600	<b>E120306</b> F-282-4	in 282° ex 290°	246° 254°	.585" .585"	112°	4°	.022" .022"
Great low end torque and mid-range horsepower. Works best with lightly modified cylinder heads. 750-850 CFM 4 bbl carburetion and 3500 RPM con- verter. Intended for 1/8-1/4 mile drag strips or 1.4-3/8 mile tacky dirt tracks.	3000-6800 I	<b>E120307</b> F-286-2	in 286° ex 294°	250° 258°	.585" .585"	108°	0°	.022" .022"
Hot Street/Marine/Blower grind. 6-71 Superchargers producing 8-15 lbs.of boost or jet boats with tunnel ram style intake manifolds using 2x750 CFM car buretors, open exhaust and blueprinte pump produce big power. OK with ni- trous oxide.	<u> </u>	<b>E120308</b> F-292-1	in 292° ex 302°	254° 264°	.645" .645"	114°	4°	.024" .024"
Hot Street/E.T. Brackets/Oval Track. Strong mid-range performance from 11.0-12.0:1 big blocks using TH-400 transmission with 4000 RPM converte 3/8-1/2 mile asphalt modifieds or late model sportsman on dry, slicktrack.	3600-7200	<b>E120309</b> F-298-4	in 298° ex 306°	260° 268°	.645" .645"	108°	0°	.024" .024"
E.T. Brackets/Oval Track/RoadRacer. Great all around power. 12.5:1 427- 11.5:1 468 cubic inch engines. S.C.C.A. production road racers or late model sportsman/modifieds on 1/2 mil high banked asphalt tracks.	3800-7300	<b>E120303</b> F302-2	IN 302° EX 310°	264° 272°	.645" .645"	108°	0°	.024" .024"



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# **MECHANICAL/SOLID FLAT TAPPET CAMSHAFTS**

#### **CHEVROLET BIG BLOCK V8**



CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV @	1ON D.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
E.T. Brackets. Very popular camshaft in 427-454 CID big blocks with 11.5- 12.5:1 compression. Good heads, sin- gle 4 bbl, 4500 RPM converter. Modified or limited super-modifieds or fast 1/2 mile track.		<b>E120304</b> F-306-1A	in 306° ex 314°	268° 276°	.645" .645"	108°	0°	.024" .024"
Pro Street/Marine/Blower grind.Popula in large, cubic inch pro-street cars. 3200-3400 lb. Camaros, Chevelles, etc. Automatic transmission with 4500 converter, 500 (+) CID blown river rac ers, flats with V-drive.		<b>E120310</b> F-306-2	in 306° ex 314°	268° 276°	.645" .645"	114°	4°	.024" .024"
E.T. Brackets/Super Street. 454 (+) CID engines with 12.5-13.5.1 compre- sion with good heads and intake using up to 1050 CFM carburetion on alcoh- or gas. 2400-2800 lb.cars use 5000 RPM converter, 14" slick and 5.38 gears.	1	<b>E120311</b> F-310-2	in 310° ex 314°	272° 276°	.645" .645"	108°	0°	.024" .024"
E.T. Brackets/Super Categories. 468(+) CID engines with 13.5-14.5:1 compression. Aftermarket aluminum heads, large single or dual 4 bbl carbu retion, 2200-2600 lb. roadsters. Use 4500-5500 RPM converter.	4500-7800 I-	<b>E124931</b> 2450X	in 310° ex 320°	276° 286°	.650" .650"	108°	0°	.025" .025"
E.T. Brackets/Super Categories.In- tended for 500(+) CID engines with no less than 14.5:1 compression. Light 2 speed dragsters or altereds with good flowing cylinder heads, carbureted on gas or alcohol injected. Use 5500 RPI converter.		<b>E124531</b> 2505X	in 320° ex 330°	286° 296°	.650" .650"	110°	2°	.025" .025"

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# HYDRAULIC ROLLER CAMSHAFTS

#### **CHEVROLET BIG BLOCK V8**



CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	'ION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Good idle and low end performance with increased mid-range. Our largest camshaft recommended for 454 CID pickups and RVs towing with stock compression. RV converter, free flow- ing exhaust.	1800-5200	E120203 RH-282-7	in 282° ex 294°	214° 226°	.550" .550"	114°	4°	.000" .000"
Mild Street Performance/Marine grind Increased mid-range in heavier chas- sis, i.e. Chevelles, Impalas,Corvettes, 9.0:1 compression, dual plane mani- fold, 3 speed automatics, 3.55-3.73 gears, small shot nitrous oxide.	2000-5400	E120204 RH-286-1	in 286° ex 294°	218° 226°	.585" .585"	112°	4°	.000" .000"
High Performance Street Machines. New lobe design. Increases cylinder pressure and torque. Fair idle. Good low and mid-range performance.9.5:1 10.0:1 compression. 4 speed or auto- matic. Easy on parts.	1900-5500	E120205 RH-282-4	IN 282° EX 286°	222° 226°	.550" .550"	110°	0°	.000" .000"
Hot Street and E.T. Brackets. Rough idle. 9.5:1-10.0:1 compression. Mild head work, gasket matching, etc. Sin- gle plane manifold, 750 CFM, 3" ex- haust, 2500 RPM converter and low gears needed for best results.	2200-5600	E120206 RH-294-2	IN 294° EX 302°	226° 234°	.585" .585"	108°	4°	.000" .000"
Strong mid-range power, needs at least 9.5:1 compression, dual plane in take, free flowing exhaust and at least 2000 RPM converter for best perform- ance. Will have slightly Lopey idle.		<b>E120230</b> RH-288-355	in 288° ex 296°	226° 234°	.604" .604"	108°	0°	.000" .000"
Hot street machine with at least 10:1 compression. After market dual or sin- gle plane manifold, 750 CFM or larger carb, headers, good exhaust. 2500 RPM converter, 3.42 or lower gears. O.K. with 125 HP shot of nitrous	2400-5800	E120231 RH-290-355	in 290° ex 298°	230° 238°	.604" .604"	110°	2°	.000" .000"
Hot Street/E.T. Brackets/Performance Marine.427-468 CID engines. 10.0:1- 10.7:1 compression. Single or dual 4 bbl carburetion, headers, 3 speed au- tomatics with 3000 RPM converter. Of with nitrous oxide.	2500-6000	E120207 RH-302-2	in 302° ex 310°	234° 242°	.585" .585"	112°	4°	.000" .000"
Hot Street Machine with at least 10:1 compression. Aftermarket dual or sin- gle plane manifold, 750 CFM or larger carb, headers, 2500 RPM converter, 3.42 or lower gears. Lopey idle.	2400-6000	E120233 RH-298-365	in 298° ex 306°	238° 246°	.621" .621"	108°	4°	.000" .000"



#### **CHEVROLET BIG BLOCK V8**

1966-1995 Big Block Chevrolet 396-502



CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	ION D.050	GROSS LIFT	LOBE CENTER	ADV	VALVE
Excellent choice for street machines with roots or centrifical type super- chargers,running 6-12 lbs of boost. 2500 RPM converter and good ex- haust. Also works well with fuel in- jected normally aspirated engines.Wil require performance chip.	2500-6200	E120234 RH-298-365-1	in 298° ex 306°	238° 246°	.621" .621"	112°	0°	.000" .000"
Hot Street/E.T. Brackets strong mid- range torque and top end horsepower in 454 CID and larger engines. No less than 10.5:1 compression, aftermarket heads, single plane intake. 3000-3500 RPM converter and 3.73 or lower gea	s )	E120236 RH-306-365	in 306° ex 314°	246° 254°	.621" .621"	108°	2°	.000" .000"
Hot Street/E.T. Brackets. Strong mid- range torque and top end horsepower in 496 CID and larger engines. No less than 10.5:1 compression, aftermarket heads, single plane intake, 3000-3500 RPM converter and 4.10 or lower gea	s	<b>E120340</b> RH-314-365	in 314° ex 322°	254° 262°	.621" .621"	112°	2°	.000" .000"

#### CHEVROLET BIG BLOCK V8 Gen VI

1996-1999 Big Block Chevrolet GEN VI



CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	ION ②.050		LOBE CENTER	ADV	VALVE
Strong low and mid-range perform- ance,great for towing. Compatible with stock computer and injection. Will ben efit from free flowing exhaust.	1500-5000 -	<b>E120802</b> RH-264-300	IN 264° EX 272°	208° 216°	.510" .510"	114°	2°	.000" .000"
Strong mid-range and top end power i 454-496 CID engines. Needs 9.5:1 compression, good intake. Best choice for heavier boats needing torque to ge on plane.	2400-3800	<b>E120824</b> RH-292-355M	in 292° ex 302°	230° 238°	.603" .603"	112°	2°	.000" .000"
Strong top end power in 496 CID and larger engines. Needs 10.0:1 compression good cylinder heads and intake. Also great choice for supercharged engines up to 540 CID.	2000 0000	E120826 RH310-365M	IN 302° EX 310°	242° 250°	.621" .621"	114°	0°	.000" .000"



# **MECHANICAL/SOLID ROLLER CAMSHAFTS**

#### CHEVROLET BIG BLOCK V8



	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	TION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Hot Street/E.T. Brackets. 396 or larger CID engines with no less than 10.0:1 compression. Strong low end and mid- range performance. 4 speed manual or automatic transmission with 3000-3500 RPM converter.	3200-6800	<b>E129890</b> R-286-1	in 286° ex 294°	246° 254°	.629" .629"	108°	0°	.024" .024"
E.T. Brackets/Oval track. 1/8 and 1/4 mile drag, 468 CID or larger modified on 1/4-1/2 mile track	3500-7000	<b>E129872</b> R-286-2	in 286° ex 294°	260° 268°	.697" .697"	108°	0°	.024" .024"
E.T. Brackets/Super Street/Marine. Without a doubt, our most popular- camshaft. Excellent mid-range and top end power. Easy on parts, 468 CID en- gines with no less than 11.5:1 com- pression, 3200-3600 lb vehicles. OK with nitrous oxide.	4000-7200	E129893 R-296-1	in 296° ex 308°	266° 278°	.697" .697"	108°	0°	.024" .024"
Big power in 454-502 CID. Needs 13.0:1. Great for heavier cars	4200-7400	<b>E129894</b> R-302-2A	IN 302° EX 306°	274° 278°	.740" .740"	108°	0°	.026" .026"
Super Street/Super Gas. 427-468 CID engines in 2400-2800 lb chassis. Must have fairly high compression, good flowing cylinder heads and manifold. Will work on cars with open exhaust or cars with free flowing 4" mufflers.	4500-7800	<b>E129880</b> R-306-2	IN 306° EX 314°	280° 288°	.765" .731"	110°	2°	.024" .024"
E.T. Brackets/Super Gas/SuperComp, in 509 to 540 CID engine. Needs at least 12.5:1 compression, 4500 RPM converter. Good choice for heavy chas sis. Works with gas or alcohol.	4200-7500	<b>E129025</b> R-310-4	in 310° ex 318°	280° 292°	.807" .765"	112°	0°	.026" .026"
E.T. Brackets/Super Gas/SuperComp, in 540 to 565 CID engines. Must have at least 13.1:1 compression, 5000 RPM converter. Will work in door cars as well as dragsters. Makes great power and is easy on parts.	4500-7600	<b>E129030</b> R-314-1	in 314° ex 328°	284° 300°	.807" .748"	112°	0°	.026" .026"
E.T. Brackets/Super Gas/SuperComp, in 555-598 CID engines. Must have at least 13.1:1 compression, 5000 RPM converter. Primarily for light cars, road- sters and dragsters	4700-7700	<b>E129035</b> R-314-2	in 314° ex 328°	284° 300°	.807" .748"	114°	0°	.026" .026"
E.T. Brackets/SuperComp/Top Sports- man, in 598-632 CID engines. 14.0:1 to 16.0:1 compression. Works with al- cohol or gas.	4800-7800	<b>E129040</b> R-310-5	IN 310° EX 340°	286° 310°	.867" .807"	114°	0°	.026" .026"
E.T. Brackets/SuperComp/Top Sports- man, in 598-632 cubic inch engines. 14.0:1 to 16.0:1 compression. Works with alcohol or gas. This is a proven grind for dragsters seeking a strong top end and big mph.	4800-8000	<b>E129045</b> R-310-6	in 310° ex 340°	286° 310°	.867" .807"	116°	0°	.026" .026"
E.T. Brackets/Super Street. 427-434 CID engines with 12.5-13.5:1 compres- sion. Single 850-1050 CFM carbure- tion, ported and polished GM rectangle port or aftermarket oval port cylinder heads with 2.250" x 1.88" stainless valves. OK with 2 or 3 speed automat- ics.		<b>E129887</b> R-322-4	in 322° ex 338°	292° 302°	.808" .780"	112°	4°	.026" .026"

#### **CHRYSLER LATE MODEL HEMI V8**

Hemi 2003 & Up without VVT

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Erson Cams now offers a new line of performance camshafts for 2003 & Later 5.7L/6.1L, non-variable valve timing, Chrysler Hemi V8 engines. These cams are designed to boost horsepower and torque in both cars and trucks. Ranging from mild profiles which provide a noticeable power increase, even with a stock Hemi engine, to very aggressive power producing designs. These camshafts require custom computer tuning and correctly matched Erson valve springs and retainers.

Erson Cams also specializes in custom ground cams, so if you don't see the grind you need, our expert technicians can work with you to produce a winning design.

CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	TION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Good torque and horsepower gain with just cam change. Great for towing and heavy vehicles.	n 800-5000	<b>E440815</b> RH-252-5	IN 252° EX 252°	199° 199°	.448" .448"	114°	4°	.000" .000"
Strong low and mid range. Good fuel economy. Great for trucks and towing	1000-5400	<b>E440820</b> RH-260-5	IN 260° EX 264°	207° 211°	.480" .480"	115°	3°	.000" .000"
Broad power through entire rpm range in performance street application.	1500-5800	<b>E440830</b> RH-268-5	IN 268° EX 272°	215° 220°	.480" .480"	115°	4°	.000" .000"
Aftermarket intake, headers and free flowing exhaust. Great for super- charged applications.	2000-6200	<b>E440840</b> RH-276-5	IN 276° EX 280°	224° 228°	.512" .512"	116°	4°	.000" .000"

#### **CHRYSLER SMALL BLOCK V8**

1964-1986 CHRY 273,340,360, 1967-1895 318



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	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	ION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Broad power range. City and Freeway driving, towing. Heavier cars. Good idle and fuel mileage	1000-4800	<b>E420101</b> RV10H	IN 280° EX 280°	208° 208°	.420" .420"	111°	4°	.000" .000"
Good idle and fuel efficiency. Excellent replacement camshaft for cars or trucks with campers, towing moderate loads. May be used with small dis- placement centrifugal, vane or roots- type superchargers. Computer compatible.	1200-5000	<b>E421011</b> MP1	in 280° ex 292°	208° 214°	.420" .449"	114°	4°	.000" .000"
The Performer. Super low and mid- range power. Good idle, fuel efficiency and driveability. 4 bbl and headers rec- ommended.	1500-5200	<b>E420121</b> TQ20H	IN 292° EX 292°	214° 214°	.449" .449"	112°	4°	.000" .000"
Excellent choice for slightly modified, daily drivers, i.e. Darts or Challengers with 8.75-9.5:1 compression in 318- 340 CID engines. Should have after- market aluminum, dual plane style intake with up to 650CFM 4 bbl carbu- retion and gasket matched cylinder heads for best results. Largest camshaft with stock converter and mid- 3 series gearing.	2000-5500	<b>E420322</b> HI FLOW AH	in 284° ex 284°	220° 220°	.472" .472"	108°	0°	.000" .000"
High lift, dual pattern. Needs 4 bbl, headers, lower gears and 2000 RPM stall speed converter if used with auto- matic. Strong mid-range camshaft.	2000-5800	<b>E420222</b> TQ40H	IN 284° EX 296°	220° 228°	.472" .472"	110°	4°	.000" .000"
Noticeable idle and increased mid- range performance from 318-340 CID engines with 9.5-10.5:1 compression using an aftermarket single or dual plane intake manifold, 600-650 CFM 4 bbl carburetion, lightly modified stock cast iron cylinder heads and headers. May require vacuum canister if used with power brakes.	2500-5800	<b>E420221</b> ТQ30Н	in 310° ex 310°	226° 226°	.462" .462"	111°	4°	.000" .000"
High lift, dual pattern. Needs 4 bbl, headers and lower gears. Works best with stick or high-stall automatic. Strong top end camshaft. Rough idle. Should have at least 9.0:1 compres- sion ratio.	2800-6400	<b>Е420223</b> ТQ50Н	in 296° ex 306°	228° 235°	.472" .472"	110°	0°	.000" .000"
Strong mid-range power needs at least 9.5:1 compression, dual plane intake, free flowing exhaust and at least 2000 RPM converter for best performance. Lopey idle.	2800-6400	<b>E420128</b> HL-294-1	in 294° ex 302°	228° 236°	.532" .532"	108°	2°	.000" .000"
Hot street machine with at least 10:1 compression. Aftermarket dual or sin- gle plane manifold, 750 CFM or larger carb, headers. 2800 RPM converter, 3.55 or lower gears.	3200-6800	<b>E420135</b> HL-302-1	in 302° ex 310°	236° 244°	.532" .532"	110°	4°	.000" .000"
Hot Street/E.T. Brackets strong mid- range torque and top end horsepower, in 340 CID and larger engines. No less than 11.0:1 compression, aftermarket heads, single plane intake. 3000-3500 RPM converter and 3.91 or lower gear.	3500-7200	<b>E420137</b> HL-306-1	in 306° ex 314°	240° 248°	.532" .532"	108°	2°	.000" .000"



# **MECHANICAL/SOLID FLAT TAPPET CAMSHAFTS**

## CHRYSLER SMALL BLOCK V8

1964-1986 CHRY 273,340,360, 1967-1895 318

CAMS



CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	TION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Excellent choice for 273-340 CID, earl Mopars with 9.5-10.5:1 compression, seeking improved low end and mid- range performance without expensive engine and Cylinder head modifica- tions. Use 1.6:1 shaft mount rockers, aluminum dual plane intake, 600 CFM 4 barrel and headers to enhance flow characteristics.	/ 2000-6000	<b>E420305</b> TQ30M	IN 280° EX 280°	230° 230°	.465" .465"	110°	4°	.022" .022"
Hot Street/E.T. Brackets. Great mid- range performance from 318-340 CID engines with 10.5-11.5:1 compression. Needs modified stock or W-2 style cylinder heads, gasket-matched, single plane, open plenum intake manifold and up to 750 CFM 4 bbl carburetion, 3200-3600 lb. Bracket racers can use 4 speed manual or torqueflite auto- matic with 3500 RPM converter and low gears.		E420306 HI FLOW AM	IN 286° EX 294°	242° 246°	.510" .510"	108°	0°	.022" .022"
Hot Street/E.T. Brackets/Oval Track. Excellent choice for Darts and Dusters seeking uncompromised mid-range and top end power. 318-360 CID en- gines with 11.0-12.5:1 compression using modified W-2 or W-5 cylinder heads, Victor Jr. style intake, single blueprinted 750 CFM 4 bbl and 1.750 diameter, equal length headers will see large gains. Also works well in modified sportsman cars on fast 1/4-3/8 mile dir or asphalt tracks with no carburetor re- strictions.	e 1 t	<b>E420307</b> F-288-2	in 288° ex 296°	250° 258°	.562" .562"	106°	0°	.024" .024"
E.T. Brackets/Hot street machine in 340-408 CID engines. Needs at least 11.5:1 compression, aftermarket heads and a single plane intake. Use 850 CFM or larger carb, headers and at least 3 inch exhaust. Minimum 3500 RPM converter and 4.10 gears.	3500-7200	<b>E420109</b> F-321-1	in 296° ex 302°	258° 264°	.562" .562"	108°	0°	.024" .024"
E.T. Brackets/Pro street machine in larger CID engines. Needs at least 12.0:1 compression, aftermarket heads and a single plane intake. Use 850 CFM or larger carb, large tube headers and 3 inch to 4 inch exhaust. Minimun 4000 RPM converter and 4.30 gears.	6	E420115 HI FLOW 11H	in 302° ex 306°	264° 272°	.612" .612"	108°	2°	.024" .024"
E.T. Brackets/Pro street machine. Needs at least 12.5:1 compression, af- termarket heads and a single plane in- take. Use 850 CFM or Dominator carb large tube headers and 3 inc to 4 inch exhaust. Minimum 4500 RPM converter and 4.56 or lower gears.	4000-7000	<b>E420120</b> F-329-1	in 304° ex 308°	266° 272°	.612" .612"	108°	4°	.024" .024"

#### **CHRYSLER BIG BLOCK V8**

361, 383, 400,"B" 413, 426W, 440 "RB" ENGINES (Single Bolt Core)

	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	ION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Erson's first choice over stock for Heavy passenger cars and trucks seeking a good idle and driveability with improved low end and mid-range performance. Compatible with stock compression, converter and gearing. OK for towing light to moderate loads.	1000-4500	<b>E411011</b> MP/1	in 280° ex 292°	208° 214°	.420" .449"	114°	4°	.000" .000"
The Performer. Super low and mid- range power. Good idle, fuel efficiency and driveability. 4 bbl and headers rec- ommended.	1200-5000	<b>E410121</b> TQ20H	IN 292° EX 292°	214° 214°	.449" .449"	111°	4°	.000" .000"
Good idle and throttle response from larger engines. Power wagons and Ram Chargers with stock or aftermar- ket dual plane manifolds, 4 bbl carb, headers & dual exhaust will see gains when towing moderate to heavy loads. Works best with 4 or 5 speed manual transmission and low gears.	1500-5000	<b>E411021</b> MP/2	in 292° ex 310°	214° 226°	.449" .462"	114°	4°	.000" .000"
Excellent for slightly modified street machines or muscle trucks seeking im- proved low-end torque and mid-range HP. 383-440 CID engines run best with 8.75-9.5:1 compression, aluminum dual plane intake, 650-750 CFM carbu retion & headers with large diameter, free flowing dual exhaust.		<b>E410322</b> HI FLOW AH	in 284° ex 284°	220° 220°	.472" .472"	112°	4°	.000" .000"
High-lift, dual pattern. Needs 4 bbl, headers, lower gears and 2000 RPM stall speed converter if used with auto- matic. Strong mid-range camshaft.	1800-5400	<b>E410222</b> TQ40H	IN 284° EX 296°	220° 228°	.472" .472"	110°	0°	.000" .000"
Noticeable idle and Strong mid-range performance from 383-440 CID en- gines with 9.5-10.5:1 compression. Use mildly-ported stock heads, gasket- matched to an aftermarket dual plane intake with up to 750 CFM carburetion for best results. May require a vacuum canister if used with power brakes.	2000-5500	<b>E410221</b> TQ30H	IN 310° EX 310°	226° 226°	.462" .462"	111°	4°	.000" .000"
Strong mid-range power. Needs 9.1 compression. Dual plane intake, free flowing exhaust and at a least a 2000 rpm converter for best performance.	2200-5600	<b>E410125</b> HL-290-1	in 290° ex 298°	226° 232°	.532" .532"	108°	0°	.000" .000"
Hot Street, E.T. Brackets, etc. High lift, short duration, delivers broad power range and strong top end. Fair idle. Needs 4 bbl, headers, compression and gears.	2200-5600	<b>E410421</b> HI FLOW 1H	IN 296° EX 296°	228° 228°	.472" .472"	108°	0°	.000" .000"
High-lift, dual pattern. Needs 4 bbl, headers and lower gears. Works best with stick or high-stall automatic. Strong top end camshaft. Rough idle. At least 9.0:1 compression.	2200-5800	<b>Е410223</b> TQ50H	in 296° ex 306°	228° 235°	.472" .472"	110°	0°	.000" .000"
Hot Street, E.T. Brackets, etc. High lift, short duration, delivers broad power range and strong top end. Fair idle. Needs 4 bbl, headers, compression and gears.	2400-6000	<b>E410132</b> HL-294-1	in 298° ex 306°	232° 240°	.532" .532"	110°	0°	.000" .000"
Hot street machine with at least 10.0:1 compression. Aftermarket dual or sin- gle plane manifold. 750 cfm or larger carb. Headers. 2800 stall converter and 3:55 or lower gears	2600-6400	<b>E410135</b> HL-306-1	in 302° ex 310°	236° 244°	.532" .532"	110°	2°	.000" .000"



ERSON CAMS

# **MECHANICAL/SOLID FLAT TAPPET CAMSHAFTS**

#### CHRYSLER BIG BLOCK V8

ERSON CAMS

361, 383, 400,"B" 413, 426W, 440 "RB" ENGINES (3 Bolt Core)

CAM APPLICATIONS	BASIC RPM	PART NO.	DURA		GROSS	LOBE	ADV	VALVE
	RANGE	GRIND NO.		@.050	LIFT	CENTER		LASH
Hot Street/E.T. Brackets. Excellent choice for 3400-3800 lb vehicles seek- ing strong mid-range performance. Works best in 383-440 CID engines with 10.0-11.0:1 compression using modified stock cylinder heads, single or multiple carburetion and headers with 3" diameter dual exhaust. Use 4 speed manual transmission with 4.10, nitrous oxide for best results.	2400-6000	<b>E410001</b> F-282-6	in 282° ex 290°	246° 254°	.510" .510"	110°	4°	.022" .022"
E.T. Brackets/Hot Street Machine 440 to 500 CID engines. 10.0:1 or higher compression, aftermarket aluminum heads or ported factory heads with 2.14/1.81 valves. Can use high rise dual plane intake for street or single plane for best performance. 750 or larger carb, headers and 2.5" or larger exhaust. Minimum 3000 RPM con- verter and 3.55 or lower gears.	2600-6400	<b>E410105</b> F-288-2	in 288° ex 296°	250° 258°	.562" .562"	106°	0°	.024" .024"
E.T. Brackets/Hot Street Machine, 440 to 528 CID engines. 10.5:1 to 12.5:1 compression, high flowing aluminum heads and single plane intake. Use 850 CFM or larger carb, headers and at least 3"exhaust. Minimum 3200 RPM converter and 3.91 gears. Would only recommend for street cars in 500 CI and larger engines.	3200-6500	<b>E410109</b> F-321-1	in 296° ex 302°	258° 264°	.562" .562"	108°	0°	.024" .024"
Hot Street/E.T. Brackets. Maximum street performance from 413-440 CID inch engines with 11.0-12.0:1 compres sion. Should have mildly-ported, Stage IV or V heads gasket-matched to a sin- gle plane intake with 750-850 CFM carb and 2" diameter headers. Works well with 4 speed or automatic with 4000 RPM converter and low gears.		<b>E410002</b> F-296-2	in 296° ex 306°	258° 268°	.562" .562"	108°	0°	.022" .022"
Hot Street/E.T. Brackets. Maximum street performance from 413-440 CID inch engines with 11.0-12.0:1 compres sion. Should have mildly-ported, Stage IV or V heads gasket-matched to a sin- gle plane intake with 750-850 CFM carb and 2" diameter headers. Works well with 4 speed or automatic with 4000 RPM converter and low gears.		<b>E410115</b> F325-1	in 302° ex 306°	264° 270°	.612" .612"	108°	0°	.024" .024"
E.T. Brackets/Pro Street max effort 500 to 572 CID engines. Needs 11.0:1 or higher compression, high flowing after- market heads and single plane intake. 850 CFM or larger carb for street or 1050 CFM or larger Dominator on 540 CI and larger engines, large tube head ers, 3" exhaust. Minimum 3500 RPM converter and at least 4.10 gears.		<b>E410120</b> F-329-1	in 304° ex 308°	266° 272°	.612" .612"	110°	2°	.024" .024"
E.T. Brackets, increased upper mid range and top end when used in lighter bracket car. Higher compression lower gears and 4000rpm converter in 440 or larger engine		<b>E410004</b> F-308-1	in 308° ex 308°	272° 272°	.612" .612"	108°	4°	.024" .024"
E.T. Brackets, maximum effort bracket car. Large cubic inch with 13.0-1 com- pression or higher. Big increase in top end power and mile per hour.	4200-7800	<b>E410005</b> F-320-1	in 320° ex 320°	280° 280°	.612" .612"	108°	0°	.024" .024"



#### **CHRYSLER BIG BLOCK V8**

361, 383, 400,"B" 413, 426W, 440 "RB" ENGINES



CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	'ION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Strong mid-range power needs at leas 9.0:1 compression, dual plane intake, free flowing exhaust and at least 2000 RPM converter for best performance. Good replacement for factory 383-440 magnum camshaft. Slightly lopey idle	1500-5000	<b>E419100</b> RH-272-320	IN 272° EX 280°	218° 226°	.480" .480"	108°	0°	.000" .000"
Strong mid-range power needs at leas 9.0:1 compression, dual plane intake, free flowing exhaust and at least 2000 RPM converter for best performance. Higher lift version of E419100. Can be used with fuel injection and up to 150 shot of nitrous. Slightly lopey idle.	1500-5000	<b>E419105</b> RH-286-340	in 286° ex 294°	218° 226°	.510" .510"	110°	0°	.000" .000"
Hot Street Machine with at least 9.5:1 compression. Aftermarket dual or sin- gle plane manifold, 750 CFM or larger carb, headers. 2200 RPM converter, 3.23 or lower gears. Lopey idle.	2000-5500	<b>E419110</b> RH-286-365	in 286° ex 296°	226° 234°	.548" .533"	108°	0°	.000" .000"
Great street machine camshaft. Prefers aftermarket dual or single plane intake manifold, aftermarket 4 bbl carburetion, headers and 4 or 5 speed manual transmission or auto- matic with 2500 RPM stall and low gears. OK with supercharger or ni- trous.	2400-5800	<b>E419115</b> RH-290-365	in 290° ex 300°	230° 238°	.548" .533"	112°	0°	.000" .000"
Hot Street/E.T. Brackets, strong mid- range torque and top end horsepower in 440 CID and larger engines. No less than 10.5:1 compression, ported fac- tory or aftermarket heads, single plan- intake. Headers and minimum 2.5" exhaust. 3000 to 3500 RPM converte and 3.91 or lower gear.	s	E419125 RH-306-365	in 306° ex 314°	246° 254°	.548" .548"	110°	0°	.000" .000"
Hot Street/E.T. Brackets strong mid- range torque and top end horsepower in 496 CID and larger engines. No less than 10.5:1 compression, aftermarket heads, single plane intake. Headers and 3" exhaust. 3000 to 3500 RPM converter and 4.10 or lower gear.	S	<b>E419130</b> RH-314-365	in 314° ex 322°	254° 262°	.548" .548"	112°	2°	.000" .000"

# **MECHANICAL/SOLID ROLLER CAMSHAFTS**

#### CHRYSLER BIG BLOCK V8

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361, 383, 400,"B" 413, 426W, 440 "RB" ENGINES



	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV @	TION D.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Pro Street/E.T. Brackets. 3200-3600 lb street machines, 413-440 CID engines with 11.0-12.0:1 compression. Excel- lent mid-range performance when used with modified cast iron or aluminum heads, single plane intake, 850 CFM 4 barrel, 2" diameter primary tube head- ers and 150 HP shot of nitrous oxide. Torqueflite cars use 3500 RPM con- verter, 4.56 gear and 28" soft-com- pound tires.		<b>E419705</b> R-276-1	in 276° ex 286°	252° 260°	.675" .645"	110°	4°	.024" .024"
E.T. Brackets. Weekend warriors seek- ing reliable top end power and valve train stability from big block Chrysler engines up to 452 CID with no less than 11.5:1 compression. Smaller en- gines (i.e.: 383-400 CID), may need higher compression to run well. Should have modified Stage V big valve or Stage VI aluminum cylinder heads, gasket matched intake, blueprinted 850 CFM 4 barrel and 2.125" primary tube headers for best results. Needs 4500 RPM converter and can be used with 1.6:1 rockers.	3200-7000	<b>E419706</b> R-294-7	in 294° ex 302°	268° 276°	.645" .615"	108°	0°	.024" .024"
Super Gas/Super Stock. Excellent upper mid-range torque and top end HP in 2400-2800 lb super gassers using tall deck Chrysler big block en- gines up to 482 cubic inches with 12.5- 13.5:1 compression.Works best with modified B-1 or Indy type cylinder heads, matched single plane intake with 1050 CFM Dominator or tunnel ram with 2 x 750s, can be used with 1.6 shaft-mount roller rockers, clear- ance permitting and 2.250" diameter primary tube headers. Also works well in 4 speed 383 CI super stockers.	4000-7200	<b>E419707</b> R-308-4	IN 308° EX 312°	278° 282°	.727" .712"	108°	4°	.024" .024"
Super Gas/Super Comp. When you come off the throttle stop and you need to charge, this is the camshaft for you! Intended for 1800-2400 lb altereds, dragsters and roadsters using up to 500 cubic inch engines with 13.5- 14.5:1 compression. Compatible with B1-T5 or similar aftermarket cylinder heads, 1.6 or 1.7 roller rockers, single dominator on gas or tunnel ram style injected alcohol induction and large di- ameter headers. 2 speed automatic cars use 5500 RPM converter, 4.10 gear and 32" tires.	4500-7800	<b>E419708</b> R-316-2	IN 316° EX 316°	286° 292°	.712" .675"	110°	2°	.024" .024"

#### FORD SMALL BLOCK V8

1962-1984 FORD 221, 260, 289, 302



Lifters sold separately

ERSON CAMS

CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURA1 ADV (	TION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Erson's first choice over stock. Excel- lent replacement camshaft offering more low end performance. No modifi- cations necessary. OK with stock car- buretion, compression and converter. Good idle.	1000-4500	<b>Е210120</b> ТQ10Н	IN 274° EX 274°	202° 202°	.437" .437"	108°	0°	.000" .000"
The Commuter, more power through entire rpm range. Good idle , throttle response and fuel efficiency.	1000-4600	<b>E210111</b> RV5H	IN 274° EX 280°	202° 208°	.437" .448"	110°	4°	.000" .000"
Broad power range. City and Freeway driving, towing. Heavier cars. Good idl and fuel mileage	1400-5000 e	E210201 RV10H	IN 280° EX 280°	208° 208°	.448" .448"	111°	4°	.000" .000"
Early Broncos and ford pickups seek- ing improved low end and mid-range performance. Good on and off-road dr veability with slightly modified engine. OK for towing light to moderate loads.	1200-4800 i-	<b>E210112</b> RV12H	in 280° ex 288°	208° 214°	.448" .458"	110°	4°	.000" .000"
The Performer. Super low and mid- range power. Good idle, fuel efficiency and driveability. 4 bbl and headers rec ommended.	1500-5200	<b>Е210121</b> ТQ20Н	IN 292° EX 292°	214° 214°	.478" .478"	110°	4°	.000" .000"
General purpose street and strip cam for 302 & larger engines. Fair Idle	2000-5500	<b>E210321</b> HI FLOW AH	IN 284° EX 284°	220° 220°	.504" .504"	108°	0°	.000" .000"
High lift. Dual pattern. Needs 4 bbl, headers, lower gears and 2000 RPM stall speed converter if used with auto- matic. Extremely strong mid-range camshaft.	2000-5800	<b>Е210222</b> ТQ40Н	IN 284° EX 296°	220° 228°	.504" .504"	110°	4°	.000" .000"
Engines with 9.5-10.5:1 compression, aftermarket intake manifold, 600-650 CFM 4 bbl, mild head work and head- ers offer increased mid-range perform- ance. Works best with 4 speed top loader and lower gears.	2500-5800	<b>Е210221</b> ТQ30Н	in 310° ex 310°	226° 226°	.493" .493"	110°	4°	.000" .000"
Broad power range. High lift with short duration gives extra performance for smaller engines. Good for automatic transmission in 289 or larger engines.	2750-6000	<b>E210421</b> HI-FLOW 1H	in 296° ex 296°	228° 228°	.504" .504"	108°	0°	.000" .000"
Super power range, high lift camshaft. Strong from 3000-6800 in 289 or large engine. Needs 4 speed, 4 bbl and headers.	r 3000-6800	<b>E210521</b> HI FLOW IIH	in 306° ex 306°	235° 235°	.504" .504"	108°	0°	.000" .000"

# **MECHANICAL/SOLID FLAT TAPPET CAMSHAFTS**

#### FORD SMALL BLOCK V8

1962-1984 FORD 221, 260, 289, 302

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CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURA ADV (	FION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Hot Street/E.T. Brackets. 289-302 CIE engines with 9.5-10.0:1 compression. Excellent low and mid-range power in 3200-3600 lb vehicles having 600-650 CFM. 4 bbl, headers, free flowing ex- haust and 4 or 5 speed manual trans- mission.	2000-6000	<b>E210021</b> TQ30M	in 280° ex 280°	230° 230°	.496" .496"	110°	4°	.022" .022"
High lift short duration cam delivers a fantastic power range. Strong from 2500 to 6600. Ok for automatic. Fair Idle	2500-6600	<b>E210721</b> HI-FLOW IM	IN 286° EX 286°	242° 242°	.544" .544"	108°	0°	.022" .022"
Hot Street/E.T. Brackets/Oval Track. One of our most popular cams. Good mid-range and upper mid-range per- formance in 3000-3400 lb. early Mus- tangs, Comets, Mavericks, etc. No less than 10.5:1 compression. Fast 1/4-3/8 mile, dirt or asphalt tracks.		<b>E210301</b> F-282-2	in 282° ex 290°	246° 254°	.544" .544"	106°	0°	.022" .022"
331-351 CID engines with no less tha 10.0:1 compression. Can be used with 1.6:1 rockers to enhance mid-range performance or with manual or auto- matic transmission and 3000 RPM converter.	n 3000-7000	<b>E210306</b> F-288-1	in 288° ex 296°	250° 258°	.600" .600"	110°	4°	.024" .024"
E.T. Brackets. 2800-3200 lb. doorslan mers with 11.5-12.5:1 compression er gines. Good heads and intake,750 CFM carburetion. 4 speed or C-4 auto matic with trans brake and 4000 RPM converter and low gears. OK with ni- trous.	3200-7200	<b>E210307</b> F-296-1	in 296° ex 302°	258° 264°	.600" .600"	108°	2°	.024" .024"

#### FORD 351W SMALL BLOCK V8

1968-1993 FORD 351W, 1982-1984 302HO



ERSON CAMS

CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURA1 ADV (	FION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Broad power range. City and Freeway driving, towing. Heavier cars. Good idle and fuel mileage	1000-4800	<b>E212101</b> RV10H	IN 280° EX 280°	208° 208°	.448" .448"	111°	4°	.000" .000"
Early Broncos and ford pickups seek- ing improved low end and mid-range performance. Good on and off-road dri veability with slightly modified engine. OK for towing light to moderate loads.	1200-5000	<b>E212112</b> RV12H	IN 280° EX 288°	208° 214°	.448" .458"	110°	4°	.000" .000"
Good idle and fuel efficiency. Excellent replacement camshaft for cars or trucks with campers, towing moderate loads. May be used with small dis- placement centrifugal, vane or roots- type superchargers. Computer compatible.	1200-5000	<b>E212011</b> MP1	in 280° ex 292°	208° 214°	.448" .478"	114°	6°	.000" .000"
The Performer. Super low and mid- range power. Good idle, fuel efficiency and driveability. 4 bbl and headers rec- ommended.	1500-5200	<b>E212121</b> TQ20H	in 292° ex 292°	214° 214°	.478" .478"	110°	4°	.000" .000"
General purpose street and strip cam for 302 & larger engines. Fair Idle	2000-5500	<b>E212321</b> HI FLOW AH	IN 284° EX 284°	220° 220°	.504" .504"	108°	0°	.000" .000"
High lift. Dual pattern. Needs 4 bbl, headers, lower gears and 2000 RPM stall speed converter if used with auto- matic. Extremely strong mid-range camshaft.	2000-5800	<b>E212222</b> TQ40H	IN 284° EX 296°	220° 228°	.504" .504"	110°	4°	.000" .000"
Stock converter ok, but would like 2200 better. 9.5-10.5 compression	2000-6000	E212510 ROAD RAGE	IN 284° EX 306°	220° 235°	.504" .504"	108°	5°	.000" .000"
Engines with 9.5-10.5:1 compression, aftermarket intake manifold, 600-650 CFM 4 bbl, mild head work and head- ers offer increased mid-range perform- ance. Works best with 4 speed top loader and lower gears.	2500-5800	<b>E212221</b> ТQ30Н	in 310° ex 310°	226° 226°	.493" .493"	110°	4°	.000" .000"
High lift, dual pattern. Needs 4 bbl, headers and lower gears. Works best with manual or high-stall automatic. Strong top end camshaft. Rough idle. At least 9.0:1 compression.	2800-6400	<b>Е212223</b> TQ50H	in 296° ex 306°	228° 235°	.504" .504"	110°	0°	.000" .000"
Stock converter ok, but would like 2200 better. 9.5-10.5:1 compression	2800-6500	E212515 ROAD RAGE	IN 296° EX 316°	228° 240°	.504" .504"	108°	5°	.000" .000"
Good mid range and top end. Can be used with EFI and proper tuning.	3000-6800	<b>E212113</b> HL-298-355-1	IN 298° EX 302°	232° 240°	.568" .568"	112°	0°	.000" .000"
Big inch, big compression, good heads and exhaust good with 200 shot of ni- trous	3200-7200	<b>E212124</b> HL-306-355-1	IN 306° EX 314°	240° 248°	.568" .568"	110°	2°	.000" .000"
Hot Street/E.T. Brackets. 302-351CID engines with 10.5-11.5:1 compression using modified aftermarket cast iron or aluminum Cylinder heads, 750 CFM 4 bbl and 2.5" exhaust will produce good upper RPM horsepower. Automatic cars use with 4000 RPM converter and low gears. OK with nitrous oxide!	3500-7500	E212921 HI FLOW IVH	in 312° ex 320°	248° 256°	.536" .552"	110°	4°	.000" .000"

# **MECHANICAL/SOLID FLAT TAPPET CAMSHAFTS**

# FORD 351W SMALL BLOCK V8

1968-1993 FORD 351W, 1982-1984 302HO

CAMS



CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	TION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Hot Street/E.T. Brackets. 289-302 CID engines with 9.5-10.0:1 compression. Excellent low and mid-range power in 3200-3600 lb vehicles having 600-650 CFM. 4 bbl, headers, free flowing ex- haust and 4 or 5 speed manual trans- mission.	2000-6000	<b>E212030</b> TQ30M	in 280° ex 280°	230° 230°	.496" .496"	110°	4°	.022" .022"
Hot Street/E.T. Brackets/Oval Track. One of Erson's most popular camshafts. Good mid-range and uppe mid-range performance in 3000-3400 lb. early Mustangs, Comets, Maver- icks, etc. recommended for engines with no less than 10.5:1 compression. Oval track applications running fast 1/4-3/8 mile dirt or asphalt tracks.		<b>E212301</b> F-282-2	in 282° ex 290°	246° 254°	.544" .544"	106°	0°	.022" .022"
Pro Street/E.T. Brackets. 302-351CID engines using ported and polished af- termarket cylinder heads large diame- ter, free flowing exhaust. 700-750 CFI 4 bbl and low gears. OK with 1.7:1 rockers and/or nitrous oxide. We rec- ommend 10.5-11.5:1 compression for best results.		<b>E212302</b> F-286-3	in 288° ex 296°	250° 258°	.600" .600"	110°	4°	.024" .024"
E.T. Brackets/Oval Track. Excellent mid-range torque and horsepower frou 351-358 CID engines with 11.5-12.5:1 compression using modified aftermar- ket Windsor or Cleveland style cylinde heads. Proven winner in late model sportsman cars on 3/8-1/2 mile tracks OK with single 750 CFM 4 bbl on alco hol or gas!	r	<b>E212303</b> F-296-1A	in 296° ex 302°	258° 264°	.600" .600"	106°	4°	.024" .024"
E.T. Brackets/Oval Track. A favorite with Wednesday night E.T. Bracket racers or Oval Track racers on 1/2 mil dirt or asphalt tracks. Must have good heads and intake, free flowing, large diameter exhaust system. 4 speed manual or C-4 automatic with 4000 RPM converter to work best.	4000-7600 e	<b>E212304</b> F-298-4	in 298° ex 306°	260° 268°	.600" .600"	108°	0°	.024" .024"
E.T. Brackets/Super Street. New lobe technology designed specifically for .875" diameter flat tappets, allows fo a faster, yet more dynamically stable valve train. 2600-3000 lb. door slam- mers with 351-380 CID engines sport- ing 12.5-13.5:1 compression, produce big top end power. Use E915251 springs at 1.900" installed ht.		<b>E212305</b> F-304-1A	in 304° ex 308°	266° 272°	.653" .653"	106°	4°	.024" .024"

#### FORD 351W SMALL BLOCK V8

1968-1993 FORD 351W, 1982-1984 302HO



ERSON CAMS

CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	ION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Improved low end and mid-range power in 302-351 CID engines with 8.5-9.5:1 compression. Works well with stock 4 bbl carburetion or speed den- sity style fuel injection. However, idle quality may improve with mass air flow style fuel injection. Compatible with stock transmissions, converters and gearing. Light duty trucks and Broncos towing moderate loads.		E212836 RH-282-1A	IN 282° EX 282°	214° 214°	.512" .512"	112°	4°	.000" .000"
Great mid-range power in 302-347 CIE carburated engines. Needs 9.0:1-9.5:1 compression, good intake and exhausi 650 CFM carb, 2000 RPM converter and 3.27 or lower gears. Tight lobe cen ter makes it aggressive out of the hole and also gives it a lopey idle.	, 1200-5200 ,	<b>E212845</b> RH-268-320	in 268° ex 276°	214° 222°	.512" .512"	106°	0°	.000" .000"
Dual pattern, high lift, short duration in take offers big mid-range torque, while longer exhaust duration lets your en- gine breathe. Will work with stock or slightly modified aftermarket cylinder heads and intake with up to 650 CFM carburetion or mass air flow fuel injec- tion. Recommended for engines with no less than 9.5:1 compression, head- ers and free flowing dual exhaust. OK with nitrous oxide!	1500-5500	<b>E212837</b> RH-286-1	in 286° ex 294°	218° 226°	.544" .544"	112°	4°	.000" .000"
Improved mid range power in 302-351 ci with 9.0-10.0:1 compression. Works well with aftermarket intake and 600 cfm or larger carb or fuel injections with mass air meter. Can use 1.7 rockers on intake for improved torque.	1800-5200 ז	<b>E212832</b> RH-288-1	in 288° ex 288°	219° 219°	.512" .512"	110°	0°	.000" .000"
Good dual purpose cam for 302-351 CID carburated engines. Needs at least 9.5:1 compression, good heads, intake and headers. 2500 RPM con- verter and 3.55 gears. Pulls strong to 6000 RPM.	2200-5500	<b>E212848</b> RH-276-320	in 276° ex 284°	220° 230°	.512" .512"	106°	0°	.000" .000"
High lift/short duration single pattern camshaft pulls hard through the mid range without sacrificing top end.	2000-5500	<b>E212833</b> RH-290-1	in 290° ex 290°	222° 222°	.544" .544"	112°	4°	.000" .000"
Lobe design incorporates faster ramps for improved timing events. More mid- range and upper mid-range power without compromising low speed drive ability. 4 bbl carburetion or mass air flow fuel injection with 65-70 mm throt- tle body and heavier injectors enhance performance. Recommended with 5 speed transmission. Can use 1.7 rock- ers!	2000-5600	<b>E212838</b> RH-282-4A	in 282° ex 286°	222° 226°	.512" .512"	112°	4°	.000" .000"
351-395 CID .O.E. heads ok, but it would prefer aftermarket heads, 9.0- 10.5:1 compression and while you're doing it, step up to the plate and get a good intake and headers too.	1800-5600	<b>E212600</b> ROAD RAGE	in 296° ex 308°	222° 234°	.544" .544"	108°	5°	.000" .000"

# FORD 351W SMALL BLOCK V8

1968-1993 FORD 351W, 1982-1984 302HO

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CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	TION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Hot Street. 302-351 CID engines with 9.5-10.0:1 compression. Aftermarket cast iron or aluminum cylinder heads (i.e.: GT-40, Dart, TFS, etc.) with minor modifications. Gasket matched Victor Jr. style intake or ported GT-40 or Cobra style fuel injected manifolds with modified mass air flow fuel injection. Intended for 5 speed cars with low gears. Can be used with 1.7 rockers!		E212839 RH-294-3	in 294° ex 294°	226° 226°	.512" .512"	112°	4°	.000" .000"
Non-computer controlled, naturally as- pirated street machines with 9.5-10.5:1 compression in 302 CID engines will find strong mid-range torque and top end horsepower with this camshaft. Popular with ported aftermarket alu- minum cylinder heads, matched Victor Jr. style intake and 750 CFM carbure- tion. 4 or 5 speed manual or C-4 auto- matic with 3000 RPM converter and low gears. Good for nitrous oxide.	2000-6200	<b>E212840</b> RH294-2A	in 294° ex 302°	226° 234°	.544" .544"	110°	4°	.000" .000"
For 351 and larger CID fuel injected street strip engines. Needs 10.0:1 compression, good flowing heads, mass air flow, 70 mm throttle body, larger injectors and headers for best performance. 3000 RPM converter and 3.73 gears. Works great with nitrous!	2200-6200	<b>E212854</b> RH-294-340-1	in 286° ex 294°	226° 234°	.544" .544"	112°	0°	.000" .000"
Higher lift version of E212851 camshaft, it uses our newest lobe de- signs to take advantage of high flowing aftermarket heads. Needs 10.0:1 com- pression, single plane intake, 750 CFM carb and headers. 3000 RPM or highe stall with 3.73 or lower gears.	1	<b>E212857</b> RH-286-365	in 286° ex 294°	226° 234°	.584" .584"	108°	0°	.000" .000"
Hot Street/E.T. Brackets. Great for 351 CID or larger carburated engines. Needs 10.5-12.5:1 compression, alu- minum heads, Victor intake, 750-850 CFM carb and headers.	2200-5800	<b>E212860</b> RH-294-365	in 294° ex 302°	234° 242°	.584" .584"	108°	0°	.000" .000"
Hot Street/E.T. Brackets. Great for 351 CID or larger fuel injected engines. Needs 10.5-12.5:1 compression, alu- minum heads, good intake, mass air- flow, 75mm throttle body, larger injectors and headers. 3500 RPM stall and 4.10 gears. Up to 200 HP shot of nitrous.	2600-6600	<b>E212863</b> RH-294-365-1	in 294° ex 302°	234° 242°	.584" .584"	112°	0°	.000" .000"
10.5:1 compression, headers, intake, gears and aftermarket heads are a must. Big power in a properly set up combination.	2200-6000	E212610 ROAD RAGE	in 302° ex 312°	234° 246°	.568" .584"	108°	5°	.000" .000"
Pro Street/E.T. Brackets. Max effort in larger CID engines. Needs at least 11.0:1 compression, aftermarket heads, super Victor, 850 CFM carb with free flowing exhaust. 4000-4500 RPM converter, 4.10-4.56 gears. Will pull to 7000 RPM.	2800-6800	E212866 RH-302-365	IN 302° EX 310°	242° 250°	.584" .584"	108°	4°	.000" .000"



## **MECHANICAL/SOLID ROLLER CAMSHAFTS**

#### FORD 351W SMALL BLOCK V8

1968-1993 FORD 351W, 1982-1984 302HO



Lifters sold separately

CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	TION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
E.T. Brackets/Hot Street. Street rods of street machines seeking strong low end and mid-range performance. 351- 358 CID with 10.0-11.0:1 compression engines using aftermarket or mildly ported stock cylinder heads. OK with nitrous oxide or small displacement su percharger.	3000-6500	<b>E212991</b> R-278-2	in 278° ex 286°	238° 246°	.592" .592"	112°	4°	.022" .022"
Oval Track. Designed for alcohol burn ing 358-430 CID engines in late mode sportsman, modified or outlaw sprint cars on fast 1/2-5/8 mile tracks. Fig- ures represent 1.7:1 intake and1.6:1 exhaust rockers as suggested for bes results.	4000-7400	<b>E212992</b> R-296-2	in 292° ex 300°	266° 274°	.697" .688"	106°	4°	.022" .022"
Super Stock/Super Gas. Extremely powerful, pulls hard in 358-380 CID super gas roadsters with 13.0-14.5:1 compression. Requires heavily ported aftermarket aluminum cylinder heads, match-ported, open plenum intake an 830 CFM annular discharge 4 bbl on alcohol or gas. Also works well in SS/GT automatic cars with 5000(+) RPM converter when advanced 4°.		<b>E212993</b> R-302-6	in 302° ex 308°	276° 282°	.720" .688"	106°	0°	.022" .022"

# FORD 351 CLEVELAND SMALL BLOCK V8

Ford 351C,351M and 400M Series Engines

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CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.		ГІОN @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Broad power range. City and express- way driving, towing. Cars, wagons, pickups, heavier rigs. Good idle and throttle response plus high fuel effi- ciency.	1000-4800	<b>E220101</b> RV10H	IN 280° EX 280°	208° 208°	.484" .484"	112°	4°	.000" .000"
Light ford trucks and passenger cars seeking improved low end perform- ance and driveability. May be used with stock components or in slightly modi- fied engines. Recommended for towing light to moderate loads.		<b>E220112</b> RV12H	in 280° ex 288°	208° 214°	.484" .495"	110°	4°	.000" .000"
The Performer. Super low and mid- range power. Good idle, fuel efficiency and driveability. 4 bbl and headers rec- ommended.	1500-5100	<b>E220121</b> TQ20H	IN 292° EX 292°	214° 214°	.517" .517"	110°	4°	.000" .000"
Good idle and throttle response in large engines. Prefers stock or after- market dual plane intake manifold, 4 bbl carburetion, headers and 4 or 5 speed manual transmission with low gears for towing moderate to heavy loads. OK with small superchargers!	1500-5200	<b>E221021</b> M/P2	in 292° ex 310°	214° 226°	.517" .533"	114°	4°	.000" .000"
Excellent choice for street rods or slightly modified street machines with up to 9.5:1 compression. Noticeable idle with reasonable fuel efficiency. Produces good low end torque and mid-range horsepower in 3200-3600 lb. vehicles.	1600-5200	<b>E220321</b> HI FLOW AH	in 284° ex 284°	220° 220°	.545" .545"	112°	4°	.000" .000"
High lift, dual pattern. Needs 4 bbl, headers, lower gears and 2000 RPM- speed converter if used with automatic Extremely strong mid-range camshaft.	1800-5400	<b>Е220222</b> ТQ40Н	IN 284° EX 296°	220° 228°	.545" .545"	110°	0°	.000" .000"
Low lift hot rod cam. Eases the pain of non-adjustable rocker arms.	1800-5400	<b>E220270</b> H-300-1	in 300° ex 300°	224° 224°	.467" .467"	110°	4°	.000" .000"
Hot Street/E.T. Brackets. High lift, shor duration. Delivers broad power range and strong top end. Fair idle. Needs 4 bbl, headers, compression and gears.	t 2000-5600	<b>E220421</b> HI FLOW I H	IN 296° EX 296°	228° 228°	.545" .545"	108°	0°	.000" .000"
High lift, dual pattern. Needs 4 bbl, headers and lower gears. Works best with stick or high stall automatic. Strong top end camshaft. Rough idle. At least 9.0:1 compression.	2200-5800	<b>Е220223</b> TQ50H	in 296° ex 306°	228° 235°	.545" .545"	110°	0°	.000" .000"
Runs strong 2500-6500 RPM. Stick or automatic with gears. Needs good in- take and headers. 9.5:1 or more com- pression. Lopey idle.	2500-6500	E220521 HI FLOW II H	in 306° ex 306°	235° 235°	.545" .545"	108°	0°	.000" .000"
Hot Street/E.T. Brackets. 351 cubic inch Cleveland engines with 10.5- 11.5:1 compression using modified 2V or 4V cylinder heads, large valves, Vic tor Jr. style intake, 750 CFM 4 bbl, and 3" diameter free flowing exhaust pro- duce good top end power. Automatic cars use 4000 RPM converter and low gears. OK with nitrous oxide!		E220921 HI FLOW IV H	in 312° ex 320°	248° 256°	.579" .596"	110°	4°	.000" .000"

## **MECHANICAL/SOLID FLAT TAPPET CAMSHAFTS**

#### FORD 351 CLEVELAND SMALL BLOCK V8

Ford 351C,351M and 400M Series Engines



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CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	ION 2.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Hot Street/E.T. Brackets. Strong mid- range performance in 10.0-11.0:1 com pression engines using mildly ported 2V or 4V cylinder heads, single or 2x4 bbl carburetion, 4 speed manual or 3 speed automatic with 3000-3500 RPM converter and low gears. OK with sma shot of nitrous oxide!	2800-8000	<b>E227242</b> HI FLOW AM	in 286° ex 294°	242° 246°	.588" .588"	110°	4°	.022" .022"
Hot Street/E.T. Brackets. More mid- range torque and horsepower can be expected from 351-362 CID engines with 10.5-11.5:1 compression using this camshaft. Needs dual plane or Vic tor Jr. style intake, 750 CFM 4 bbl, headers and 3" free flowing exhaust. 4 speed or automatic with 3500-4000 RPM converter, low gears and sticky D.O.T. tires.		<b>E220306</b> F-286-2	in 286° ex 294°	250° 258°	.588" .588"	108°	0°	.024" .024"
Oval Track. Proven winner! Excellent choice for Thunderbird bodied, late model sportsman cars with no less than 12.5:1 compression. Works best with large valved, ported and polished 2V cylinder heads in cars with no re- strictions on fast 3/8-1/2 mile dirt or as phalt tracks.	3800-7000	<b>E220307</b> F-296-1A	IN 296° EX 302°	258° 264°	.648" .648"	106°	4°	.024" .024"

#### FORD FE V8

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1963 1/2-76 FORD "FE" 352, 360, 390, 406, 410, 427, 428 CID ENGINES

CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	'ION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Broad power range. City and express- way driving or towing. Cars, wagons, pickups, heavier rigs. Good idle and throttle response, plus high fuel effi- ciency.	1000-4800	<b>E240101</b> RV10H	in 280° ex 280°	208° 208°	.490" .490"	111°	4°	.000" .000"
Strong mid-range power. City, fast ex- pressway and towing. Delivers maxi- mum mid-range torque. Good idle and throttle response, plus fuel efficiency.	1300-4900	<b>E240110</b> RV15H	IN 288° EX 288°	214° 214°	.500" .500"	111°	4°	.000" .000"
The Performer. Super low and mid- range power. Good idle, fuel efficiency and driveability. 4 bbl and headers rec ommended.	1500-5000	<b>E240121</b> TQ20H	IN 292° EX 292°	214° 214°	.523" .523"	110°	4°	.000" .000"
Good idle and throttle response from 390-428 CID engines in 2 wheel drive or 4 wheel drive pickups, towing mod- erate to heavy loads. Prefers dual plane intake, 600-650 CFM 4 bbl car- buretion, headers and 4 or 5 speed manual transmission with low gears.	1500-5200	<b>E241021</b> M/P2	in 292° ex 310°	214° 226°	.523" .539"	114°	4°	.000" .000" .000"
Expect a fair idle and reasonable fuel efficiency from slightly modified 390- 428 CID engines with 8.75-9.5:1 com- pression. Produces good low end torque and mid-range horsepower in heavier chassis.	1800-5200	<b>E240321</b> HI FLOW AH	IN 284° EX 284°	220° 220°	.551" .551"	112°	4°	.000" .000"
High lift, dual pattern. Needs 4 bbl, headers, lower gears and 2000 RPM stall speed converter if used with auto- matic. Extremely strong mid-range camshaft.	1800-5400	<b>E240222</b> TQ40H	IN 284° EX 296°	220° 228°	.551" .551"	110°	0°	.000" .000"
352-428 CID engines with 9.5-10.5:1 compression. Improved mid-range per formance. Works best with aftermarke aluminum dual plane intake, 600-650 CFM 4 bbl, mild head work and head- ers with free flowing dual exhaust. Needs 4 speed top loader or 3 speed automatic with 1800-2200 RPM con- verter and low gears for best results.	- 2000-5500	<b>E240221</b> TQ30H	in 310° ex 310°	226° 226°	.539" .539"	110°	4°	.000" .000"
High lift, dual pattern. Needs 4 bbl, headers and lower gears. Works best with stick or 2800-3000 RPM stall auto matic. Strong top end camshaft. Roug idle. Should have at least 9.0:1 com- pression ratio.	2200-5800	<b>Е240223</b> ТQ50Н	in 296° ex 306°	228° 235°	.551" .551"	110°	0°	.000" .000"

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## HYDRAULIC ROLLER CAMSHAFTS

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#### FORD FE V8

1963 1/2-76 FORD "FE" 352, 360, 390, 406, 410, 427, 428 CID ENGINES

CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	TION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
2 and 4 wheel drive pick up trucks seeking improved low end perform- ance for towing. Works with stock com pression and torque converter. Free flowing exhaust enhances mileage and performance.		<b>E240202</b> RH276-1	IN 276° EX 282°	208° 214°	.560" .560"	112°	4°	.000" .000"
Good idle and low end performance with increased mid range. Great for pick ups and towing.	1500-4800	<b>E240203</b> RH282-7	IN 282° EX 294°	214° 226°	.560" .560"	114°	6°	.000" .000"
Increased mid range in heavier chas- sis. 9.0:1 compression, dual plane manifold, 3 speed automatic and 3:55 3:73 gears. Small shot of nitrous ok.	1500-4800	<b>E240204</b> RH286-1	IN 286° EX 294°	218° 226°	.595" .595"	112°	4°	.000" .000"
New lobe design increases cylinder pressure and torque. Good low and mid range performance 9.5:1 to 10.0:1 compression. 4 speed or automatic. Easy on parts.	2200-5200	<b>E240205</b> RH282-4	IN 282° EX 286°	222° 226°	.560" .560"	110°	0°	.000" .000"
Strong mid range power. Needs at least 9.5:1 compression, dual plane & headers. 2000 RPM stall converter.	3500-6500	<b>E240230</b> RH268-355	IN 288° EX 296°	226° 234°	.621" .621"	108°	0°	.000" .000"
Rough idle. 9.5:1 to 10.0:1 compression. Mild head work, Single plane manifold 750 cfm carb and 2500 RPM converter.	2500-5500	<b>E240206</b> RH294-2	in 294° ex 302°	226° 234°	.595" .595"	112°	4°	.000" .000"
Hot street. 10.0:1 to 11.0:1 compression, single or dual 4 bbl, 3000 stall converter.	3500-6500	<b>E240207</b> RH302-2	in 302° ex 310°	234° 242°	.595" .595"	112°	4°	.000" .000"
428+ Cid engines. 11.0:1 + compres- sion. Single plane manifold, headers, gears 3800 stall converter.	3800-7000	<b>E240208</b> RH310-2	in 310° ex 318°	242° 250°	.595" .595"	110°	2°	.000" .000"
Hot street and ET brackets. Needs compression and good heads. Single plane intake and headers Ok with small super charger or nitrous.	3750-6750	<b>E240340</b> RH314-365	IN 314° EX 322°	254° 262°	.639" .639"	114°	2°	.000" .000"
Brackets, all out effort. Needs 11.0-1+ compression. Aftermarket heads, victo style intake and large tube headers.	. 3750-7000	<b>E240341</b> RH322-365	in 322° ex 350°	262° 270°	.639" .639"	112°	0°	.000" .000"



FORD BIG BLOCK V8

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CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	FION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Broad power range. City and express- way driving or towing. Cars, wagons, pickups, heavier rigs. Good idle and throttle response, plus fuel efficiency.	1000-4800	<b>E260101</b> RV10H	in 280° ex 280°	208° 208°	.484" .484"	111°	4°	.000" .000"
Strong mid-range power. City, fast ex- pressway and towing. Delivers maxi- mum mid-range torque. Good idle, throttle response, plus fuel efficiency.	1300-4900	<b>E260201</b> RV15H	IN 288° EX 288°	214° 214°	.495" .495"	111°	4°	.000" .000"
The Performer. Super low and mid- range power. Good idle, fuel efficiency and driveability. 4 bbl and headers rec- ommended.	1500-5000	<b>Е260121</b> ТQ20Н	in 292° ex 292°	214° 214°	.517" .517"	111°	4°	.000" .000"
Good idle and throttle response from larger engines. Prefers stock or after- market dual plane intake manifold, 4 bbl carburetion, headers and 4 or 5 speed manual transmission with low gears for towing moderate to heavy loads. OK for use with small super- charger	1500-5200	<b>E261021</b> M/P2	in 292° ex 310°	214° 226°	.517" .533"	114°	4°	.000" .000" .000"
Excellent choice for slightly modified street machines or muscle trucks seek ing improved low end torque and mid- range horsepower. 429-460 CID engines with 8.75-9.5:1 compression. Runs best with aftermarket aluminum intake, 600-650 CFM carburetion, headers and free flowing dual exhaust		<b>E260321</b> HI FLOW AH	in 284° ex 284°	220° 220°	.545" .545"	112°	4°	.000" .000"
High lift, dual pattern. Needs 4 bbl, headers, lower gears and 2000 RPM stall speed converter if used with auto- matic. Extremely strong mid-range camshaft.	1800-5400	<b>E260222</b> TQ40H	in 284° ex 296°	220° 228°	.545" .545"	110°	0°	.000" .000"
Best with aftermarket intake and headers. Minimum of 9.5:1 compression.	2000-5500	<b>E260510</b> ROAD RAGE	IN 284° EX 296°	220° 235°	.542" .542"	108°	5°	.000" .000"
Originally designed for jet boat use. work very well in heavier street cars with 1800-2200 RPM stall converter.	2200-5600	<b>E260621</b> JB100	in 294° ex 302°	228° 235°	.545" .545"	108°	0°	.000" .000"
High lift, dual pattern. Needs 4 bbl, headers and lower gears. Works best with stick or 2800-3000 RPM stall auto matic. Strong top end camshaft. Rougl idle. Should have at least 9.0:1 com- pression ratio.	2200-5800	<b>Е260223</b> ТQ50Н	in 296° ex 306°	228° 235°	.545" .545"	110°	0°	.000" .000"
Runs strong 2700-6200 RPM. Stick or automatic with gears. Needs good in- take and headers with 9.5:1 or more compression. Lopey idle.	2700-6200	<b>E260521</b> HI FLOW II H	in 306° ex 306°	235° 235°	.545" .545"	108°	0°	.000" .000"
Designed for jet boats with a looser im peller or lighter weight street car with 3000 rpm converter and lower gears.	2800-6400	<b>E260721</b> JB200	in 306° ex 316°	235° 240°	.545" .545"	108°	0°	.000" .000"

## **MECHANICAL/SOLID FLAT TAPPET CAMSHAFTS**

FORD BIG BLOCK V8 1968-1995 FORD 370-460

CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	TION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Super low and mid range power with 429-460 CID engines. Works best wit open plenum style single 4 bbl and 10.5:1-11:0-1 compression.	<sup>1</sup> 2800-6600	<b>E260300</b> F-282-4	IN 282° EX 290°	246° 254°	.588" .588"	112°	4°	.022" .022"
Big mid-range torque. 11.5-12.0:1 cor pression. Must have good cylinder heads and big intake. Great choice fo hot street and E.T. Brackets.	<sup>n-</sup> 3500-7000 r	<b>E260325</b> F-298-1	IN 298° EX 302°	260° 264°	.648" .648"	110°	2°	.024" .024"
Excellent choice for 2800-3200 lb. E. bracket racers. Strong upper, mid- range and top end power without saci ficing reliability. 429-460 CID engines with 11.5-12.45:1 compression using modified cylinder heads.	3800-7300	<b>E264031</b> 1500X	in 306° ex 310°	266° 272°	.590" .615"	108°	0°	.024" .024"
E.T. Brackets/Super Gas. 460 CID or larger engines with 12.5-13.5:1 com- pression in 2200-2600 lb. roadsters o altereds. Needs good heads and in- take, single or multiple carburetion on alcohol or gas.		<b>E260301</b> F-314-2	in 314° ex 322°	276° 284°	.648" .648"	108°	0°	.024" .024"
Super gas, super comp and tractor pulling. 500+ CID, 13.0-15.0:1 com- pression and heavily modified cylinde heads	5000-8200	<b>E266431</b> 2500DP	in 314° ex 326°	285° 296°	.650" .650"	110°	2°	.024" .024"

## **MECHANICAL/SOLID ROLLER CAMSHAFTS**

#### FORD BIG BLOCK V8

1968-1995 FORD 370-460

CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	`ION ⊉.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Hot Street/E.T. Brackets. Super low end and mid-range performance from 429-460 CID engines with 10.5-11.5:1 compression.	3000-6400	<b>E260901</b> R-286-1C	IN 286° EX 294°	246° 254°	.640" .640"	110°	4°	.024" .024"
Pro Street/E.T. Brackets. Excellent mid-range torque and upper mid-rang power without sacrificing reliability fro 429-472 CID engines with 11.0-12.5:1 compression.	e 3200-6600 n	<b>E260902</b> R-294-1	in 294° ex 302°	254° 260°	.640" .640"	108°	0°	.024" .024"
E.T. Brackets. 2800-3200 lb. fully mod fied, door-slammers with no less than 460 cubic inches and 12.0-13.5:1 com pression will produce good mid-range and top end power.	3800-7000	<b>E260903</b> R-292-1A	in 292° ex 300°	266° 274°	.709" .709"	108°	0°	.024" .024"
E.T. Brackets. 2800-3200 lb. fully mod fied, door-slammers with no less than 460 cubic inches and 12.0-13.5:1 com pression. Needs good heads and in- take with blueprinted 850 CFM carburetion.	4200-7400	<b>E260904</b> R-302-4	in 302° ex 310°	276° 284°	.744" .744"	108°	0°	.026" .026"
Super Gas/Super Comp/Super Pro. 1800-2200 lb. dragsters, altereds and roadsters seeking bone jarring upper RPM range torque and horsepower. 496-514 cubic inch ford big blocks wit no less than 14.5:1 compression.	4800-8000 1	<b>E260905</b> R-312-2	in 312° ex 318°	286° 292°	.778" .774"	110°	2°	.026" .026"

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### **OLDSMOBILE V8**

ERSON CAMS

OLDSMOBILE 1967-85 260/307/350/400/403/425/455 39 degree bank angle

CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT	FION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Excellent replacement camshaft for v hicles seeking improved low end per- formance and driveability. Compatible with stock compression, torque con- verter and gearing. Smooth idle.	800-5000	<b>E540011</b> MP1	in 280° ex 292°	208° 214°	.448" .478"	114°	4°	.000" .000"
The Performer. Offers increased low end torque and mid-range horsepower with minor modifications. Stock or per former-style intake, 4 bbl carburetion and free flowing dual exhaust system delivers respectable results. Good idl	-	<b>E540121</b> TQ20H	in 292° ex 292°	214° 214°	.478" .478"	111°	4°	.000" .000"
The M/P1 camshafts big brother. In- tended for 400-455 CID engines with up to 9.5:1 compression. Builds good torque down low, popular for towing moderate loads. OK with stock con- verter and power brakes. Good idle.	1200-5600	<b>E541021</b> MP/2	in 292° ex 310°	214° 226°	.478" .493"	114°	4°	.000" .000"
High lift, short duration dual pattern camshaft offers improved mid-range performance. Runs best with afterma ket aluminum intake, up to 750 CFM bbl and headers with free flowing dua exhaust. Largest cam with stock con- verter and mid-3 series gearing. Fair idle.	1	<b>Е540222</b> ТQ40Н	in 284° ex 296°	220° 228°	.504" .504"	110°	0°	.000" .000"
Special dual pattern high lift cam orig nally designed for jet boat application This is the camshaft that lead to the TQ50H cam that is so popular in man other engines. Nice broad power rang and excellent street strip performance	s. 1800-6000 y	<b>E545321</b> JB200	in 296° ex 306°	228° 235°	.504" .504"	112°	4°	.000" .000"
Hot Street/E.T. Brackets. 400-455 CIL muscle cars with 10.5-11.5:1 compression make great mid-range torque an top end horsepower. Good heads, in- take and exhaust necessary for com- petitive results. 3 speed automatic ca use 3500 RPM converter, 4.56 gears and 28" tall tire.	- 2500-6600 1	<b>E540400</b> HI FLOW IVH	in 312° ex 320°	248° 256°	.536" .552"	110°	4°	.000" .000"

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#### **PONTIAC V8**

1955-1981 PONTIAC 265-455 CID

	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	TION @.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Excellent replacement camshaft for stock engines in heavier chassis. Good low end performance. Compatible with stock compression, gearing, converter and power brakes. Good idle.	1000-4800	<b>E310011</b> MP1	in 280° ex 292°	208° 214°	.420" .449"	114°	6°	.000" .000"
The Performer. Super low and mid- range power. Good idle, fuel efficiency and driveability. 4 bbl and headers rec- ommended.	1200-5200	<b>E310121</b> TQ20H	IN 292° EX 292°	214° 214°	.449" .449"	110°	4°	.000" .000"
Great low and mid-range performance from larger engines with no less than 9.0:1 compression. Aftermarket dual plane intake, 4 bbl and headers.	1500-5200	<b>E310123</b> HI FLOW AH	IN 284° EX 284°	220° 220°	.472" .472"	112°	4°	.000" .000"
High lift, short duration, dual pattern camshaft builds good torque down low and strong mid-range performance. Largest camshaft with stock converter.	1500-5600	<b>E310222</b> TQ40H	IN 284° EX 296°	220° 228°	.472" .472"	110°	4°	.000" .000"
Hot Street cars improved mid-range performance. Should have 9.5:1 com- pression, single plane torker-style in- take with up to 750 CFM 4 bbl and headers for best results.	1800-5800	E310421 HI-FLOW 1H	in 296° ex 296°	228° 228°	.472" .472"	108°	0°	.000" .000"
High lift, dual pattern. Needs 4 bbl, headers and lower gears. Works best with manual or 2800-3000 RPM stall automatic. Strong top end camshaft. Rough idle. At least 9.0:1 compression.	2000-6000	E310223 TQ50H	in 296° ex 306°	228° 235°	.472" .472"	110°	4°	.000" .000"
Runs strong from 2200-6500 RPM. Stick or auto with gears. Needs good intake and headers. 9.5:1 compression or more. Lopey idle.	2200-6400	<b>E310521</b> HI-FLOW11H	in 306° ex 306°	235° 235°	.472" .472"	108°	0°	.000" .000"
Excellent substitute for Pontiac Ram Air IV camshaft. Can be used with 1.65:1 rockers to give .520 gross valve lift enhancing mid-range and top end performance. OK with nitrous oxide.	2200-6500	<b>E310031</b> MP/3	in 306° ex 316°	235° 240°	.472" .472"	114°	6°	.000" .000"
Hot Street/E.T. Brackets. 400-455 CID engines with no less than 10.5:1 com- pression. Strong mid-range and upper rpm performance.	3200-7000	<b>E310444</b> HI FLOW IVH	in 312° ex 320°	248° 256°	.503" .517"	110°	4°	.000" .000"

## **MECHANICAL/SOLID FLAT TAPPET CAMSHAFTS**

#### **PONTIAC V8**

1955-1981 PONTIAC 265-455 CID

CAM APPLICATIONS	BASIC RPM RANGE	PART NO. GRIND NO.	DURAT ADV (	ION D.050	GROSS LIFT	LOBE CENTER	ADV	VALVE LASH
Hot Street/E.T. Brackets. 389-455 CIE engines with no less than 10.0:1 com- pression. Strong mid-range. 4 speed transmission. 1.65:1 rockers and 75- 150 horsepower shot of nitrous.		<b>E310501</b> F-282-6	IN 282° EX 290°	246° 254°	.510" .510"	110°	4°	.022" .022"
Great mid-range and top end perform ance. 400-455 CID engines with 10.5- 11.5:1 compression. Aftermarket cylinder heads with 1.65:1 rockers.	3200-6500	<b>E310502</b> F-286-2	IN 286° EX 294°	250° 258°	.510" .510"	108°	0°	.022" .022"
E.T. Brackets/Super Street. 2800-3200 lb. Pontiac door-slammers sporting 455-469 CID engines no less than 11.5:1 compression.	4000-7000	<b>E310503</b> F-306-1A	in 306° ex 314°	268° 276°	.562" .562"	108°	0°	.022" .022"



#### PbmPerformanceParts.com

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# **CUSTOM CAMSHAFTS RECOMMENDATION FORM**

Name:					
Address:					
Phone:					
E-mail address:					
Vehicle:					
Year:	Make:	Model:			
Weight:	Use:				
	Street:	Street/Strip:	Show car:		
	1/8 mile drag:	1/4 mile drag:	Puller:		
	Oval track:	Asphalt:	Dirt:		
	1/4 mile:	3/8 MILE:	1/2 mile:		
	Marine:	Jet Drive:	Prop Drive:		
Engine:					
Year:	Make:	ylinders:			
Cubic inch:	Compression:	Bore:			
Stroke:	Rod type:	Piston type:			
		Cast:_	Forged:		
Cylinder Heads:					
Cylinder Heads: Make: Model:		Chamber CC'	e.		
Make:Model: Stock:Ported:		Port matched	5  ·		
Valve size intake:					
Rocker ratio intake:		Rocker ratio exhaust:			
Induction:					
Carb/s cfm:	Mechanical FI:Electronic FI:				
Manifold type:	Blown:Turbo/s:				
Type of Fuel:	INILFOUS:	INO.	Stages:		
Exhaust:					
Manifold type:	Headers/diameter	/lufflers:			
Drivetrain:	Conve	ter stall an and			
Transmission type:	Convei	rier stall speed:			
Transmission type: Rear axle ratio:			k: Other:		
		D.O.T010	Outer		
RPM range:	ldle s	peed:			
Emissions standards required					
Emissions standards required:					
Computer controlled:					
Stock:	Chip:	Large i	njectors:		
Stock: Mass air sensor:		Speed density sensor			
Com ourrently used	Turner				
Lance duration:	Type:Valve lift:				
Exhaust duration:	@.030 @.050 <sup>.</sup>	valve lift	lift:		
Lobe separation:	Valve lift: Intake lobe centerline:				
Cam type desired:					
Hydraulic:					
Hydraulic roller:	Solid roller:				
Desired change in performance:					

45 ERSON CAMS



## **CUSTOM CAMSHAFTS GRINDING INFORMATION**

#### **NEW LOBE DESIGNS & CUSTOM CAMS**

APPLICATION	YEAR	ENGINE SIZE	CAMSHAFT/TAPPET	PART NO.
Motown LS (World) V8	Aftermarket		Roller; Hydraulic	E115996
Motown LS (World) V8	Aftermarket		Roller; Mechanical	E115999
Chevrolet LS	2007-up	LS2/4.8L,5.3L,5.7L,6.0L	Roller; Hydraulic - Single Bolt	E117993
Chevrolet V8 Small Block	1957-86	262-400	Solid Roller 4-7 Swap, Small Base Circle	E110994S
Chevrolet V8 Small Block	1957-96	262-400	Flat tappet 4-7 Swap,; Hyd or Mechanical	E110074
Chevrolet V8 Small Block	1957-96	262-400	Roller; Mechanical, 50mm	E110999-50
Chevrolet V8 Small Block	1957-86	262-400	Solid Roller 4-7 Swap, 50mm	E110994-50
Chevrolet V8 Big Block	1967-95	396, 402, 427, 454/7.4L, 502/8.2L	Solid Roller 4-7 Swap, 55mm	E120994-55
Chevrolet V8 Big Block	1967-95	396, 402, 427, 454/7.4L, 502/8.2L	Flat tappet 4-7 Swap,; Hyd or Mechanical	E120074

RH300/355 238 300 0.355 0.000 F286/368 258 286 0.368 0.018   RH304/355 244 304 0.355 0.000 F292/368 259 291 0.350 0.018   RH302/355 246 308 0.355 0.000 F292/368 260 292 0.368 0.018   RH302/352 240 302 0.350 0.000 F292/373 264 296 0.373 0.018   RH310/372 248 310 0.372 0.000 F298/376 288 320 0.376 0.018   R316/450 290 316 0.450 0.022 H20/276 286 0.276 0.000   R320/450 294 320 0.450 0.022 H240/276 160 240 0.276 0.000   Mechanical Flat Tappet .842 0.375 0.018 H300/270 224 300 0.270 0.000   F240/276 159 202 0.276	lobe I.d. <b>Hydraulic Roll</b>	.050 DUR. <mark>er</mark>	LASH DUR.	LOBE LIFT	LASH	LOBE I.D. Mechanical Fl	.050 DUR. at Tappet		LOBE LIFT	LASH
RH308/355 246 308 0.355 0.000 F232/368 260 292 0.368 0.018   RH302/362 240 302 0.362 0.000 F230/365 260 332 0.365 0.018   RH310/372 248 310 0.372 0.000 F296/373 264 296 0.373 0.018   RH310/372 248 310 0.372 0.000 F296/373 264 296 0.373 0.018   R316/450 290 316 0.450 0.022 Mechanical Flat Tappet.903 T   R310/450 294 320 0.450 0.022 Hydraulic Flat Tappet.942 T	RH300/.355	238	300	0.355	0.000	F286/.368	258	286	0.368	0.018
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	RH304/.355	242	304	0.355	0.000	F293/.350	259	291	0.350	0.018
RH302/362 240 302 0.362 0.000 F296/373 264 296 0.373 0.018   RH310/372 248 310 0.372 0.000 F298/390 268 298 0.330 0.018   R316/.450 290 316 0.450 0.022 F332/376 286 290 336 0.017   R320/550 294 320 0.450 0.022 F332/360 291 332 0.360 0.017   R332/550 299 332 0.555 0.022 Hydraulic Flat Tappet .842    H245/271 165 245 0.271 0.000   F284/375 246 284 0.372 0.000 B260H 204 260 0.280 0.000   F316/302 242 336 0.302 0.015 H299/279 246 297 0.279 0.000   F346/322 254 346 0.332 0.022 BP270H 214 270 0.299	RH308/.355	246	308	0.355	0.000	F292/.368	260	292	0.368	0.018
RH310/372 248 310 0.372 0.000 F298/390 268 298 0.390 0.018   Mechanical Roller F336/450 290 316 0.450 0.022 F332/360 291 332 0.360 0.017   R320/450 294 320 0.450 0.022 Hydraulic Flat Tappet .842 F332/360 291 332 0.360 0.017   R330/.555 270 300 0.555 0.022 Hydraulic Flat Tappet .842 160 240 0.276 0.000   P244/.375 246 284 0.375 0.018 H300/270E 224 300 0.270 0.000   F214/.270 165 214 0.270 0.000 BP260H 204 260 0.280 0.000   F336/302 242 336 0.302 0.015 H297/.279 246 297 0.279 0.000   F346/322 254 346 0.323 0.010 H295/.299 240 295 0.299	RH280/.350	219	280	0.350	0.000	F2302/.365	260	302	0.365	0.018
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	RH302/.362	240	302	0.362	0.000	F296/.373	264	296	0.373	0.018
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	RH310/.372	248	310	0.372	0.000	F298/.390	268	298	0.390	0.018
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Mechanical Ro	oller				F320/.376	286	320	0.376	0.018
R320/450 294 320 0.450 0.022 F332/360 291 332 0.360 0.017   R332/550 299 332 0.550 0.022 Hydraulic Flat Tappet.842   R300/555 270 300 0.555 0.022 H240/276 160 240 0.276 0.000   Mechanical Flat Tappet.842 H245/271 165 245 0.271 0.000   F204/375 246 284 0.375 0.018 H320/270E 224 300 0.270 0.000   F214/270 165 214 0.270 0.000 BP260H 204 260 0.280 0.000   F346/323 254 346 0.323 0.015 H299/279 250 299 0.279 0.000   F212/334 256 312 0.334 0.016 H295/299 240 295 0.299 0.000   F212/334 256 312 0.334 0.016 H302/300 241 294 0.300 </td <td>R316/.450</td> <td>290</td> <td>316</td> <td>0.450</td> <td>0.022</td> <td>Mechanical Fl</td> <td>at Tappet</td> <td>.903</td> <td></td> <td></td>	R316/.450	290	316	0.450	0.022	Mechanical Fl	at Tappet	.903		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	R320/.450	294	320	0.450	0.022				0.360	0.017
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	R332/.550	299	332	0.550	0.022	Hydraulic Flat	Tappet .8	42		
Mechanical Flat Tappet.842 H245/.271 165 245 0.271 0.000   F284/.375 246 284 0.375 0.018 H300/.270E 224 300 0.270 0.000   F202/.276 159 202 0.276 0.008 H312/.270 236 312 0.270 0.000   F214/.270 165 214 0.270 0.008 H29260H 204 260 0.280 0.000   F316/.302 242 316 0.302 0.015 H297/.279 250 299 0.279 0.000   F346/.323 254 346 0.323 0.020 BP270H 214 270 0.295 0.000   F292/.336E 240 292 0.336 0.016 H295/.299 240 295 0.299 0.000   F270/.303 230 270 0.303 0.010 H302/.300 241 294 0.300 0.000   F270/.283 230 270 0.355 0.016	R300/.555	270	300	0.555	0.022				0.276	0.000
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Mechanical Fla	at Tappet	.842				165	245	0.271	0.000
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	F284/.375	246	284	0.375	0.018	H300/.270E	224	300	0.270	0.000
F316/3022423160.3020.015H297/2792462970.2790.000F336/3022423360.3020.015H299/2792502990.2790.000F346/3232543460.3230.020BP270H2142700.2950.000F292/336E2402920.3360.016H295/2992402950.2990.000F312/3342563120.3340.018H308/2992543080.2990.000F270/3032302700.3030.010H302/3002343020.3000.000F270/2832302700.2830.016H302/3002412940.3000.000F279/3542482790.3540.016H302/300B2503020.3000.000F310/3552683100.3550.017H289/3052292890.3050.000F324/3552883240.3550.017H268/3092172680.3090.000F328/3612512820.3610.018H308/311E2383000.3110.000F295/370E2632950.3700.016H308/3142222890.3140.000F295/3372482950.3370.018H284/3152242840.3150.000F295/3372482950.3370.018H286/3192232880.319 </td <td>F202/.276</td> <td>159</td> <td>202</td> <td>0.276</td> <td>0.008</td> <td>H312/.270</td> <td>236</td> <td>312</td> <td>0.270</td> <td>0.000</td>	F202/.276	159	202	0.276	0.008	H312/.270	236	312	0.270	0.000
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	F214/.270	165	214	0.270	0.008	BP260H	204	260	0.280	0.000
F346/3232543460.3230.020BP270H2142700.2950.000F292/336E2402920.3360.016H295/2992402950.2990.000F312/3342563120.3340.018H308/2992543080.2990.000F270/3032302700.3030.010H302/3002343020.3000.000F270/2832302700.2830.010H294/3002412940.3000.000F274/3542482790.3540.016H302/300B2503020.3000.000F279/3542482790.3550.017H289/3052292890.3050.000F310/3552683100.3550.017H288/3092172680.3090.000F324/3552843200.3550.017H288/3092172680.3090.000F282/3612512820.3610.018H308/311E2433080.3110.000F295/370E2632950.3700.016H284/3152242840.3150.000F295/3372472920.3390.018H284/3182282840.3140.000F295/3372482950.3370.018H284/3182282840.3140.000F286/3552502860.3550.018H290/3202293900.320 </td <td>F316/.302</td> <td>242</td> <td>316</td> <td>0.302</td> <td>0.015</td> <td>H297/.279</td> <td>246</td> <td>297</td> <td>0.279</td> <td>0.000</td>	F316/.302	242	316	0.302	0.015	H297/.279	246	297	0.279	0.000
F346/3232543460.3230.020BP270H2142700.2950.000F292/336E2402920.3360.016H295/2992402950.2990.000F312/3342563120.3340.018H308/2992543080.2990.000F270/3032302700.3030.010H302/3002343020.3000.000F270/2832302700.2830.010H294/3002412940.3000.000F279/3542482790.3540.016H302/300B2503020.3000.000F310/3552683100.3550.017H289/3052292890.3050.000F320/3552843200.3550.017H288/3092172680.3090.000F324/3552883240.3550.017H288/3092172680.3090.000F282/3612512820.3610.018H308/311E2383000.3110.000F295/370E2632950.3700.016H284/3152242840.3150.000F295/3372472920.3370.018H284/3182282840.3140.000F295/3372482950.3370.018H28/3192332880.3190.000F284/3622542840.3620.018H29/3272352950.327 <td>F336/.302</td> <td>242</td> <td>336</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	F336/.302	242	336							
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	F346/.323	254	346	0.323	0.020			270	0.295	
F312/.3342563120.3340.018H308/.2992543080.2990.000F270/.3032302700.3030.010H302/.3002343020.3000.000F270/.2832302700.2830.010H294/3002412940.3000.000F284/.345E2542940.3450.016H302/.300B2503020.3000.000F279/.3542482790.3540.018H279/.3022232790.3020.000F310/.3552683100.3550.017H289/.3052292890.3050.000F320/.3552843200.3550.017H288/.3092172680.3090.000F287/.357E2542870.3570.016H300/.311E2383000.3110.000F282/.3612512820.3610.018H308/.311E2433080.3110.000F295/.370E2632950.3700.016H284/.3152242840.3150.000F295/.3372482950.3370.018H284/.3182282840.3140.000F286/.3552502860.3550.018H290/.3202293900.3200.000F283/.3662572930.3600.018H278/.3372282780.3270.000F284/.3622542840.3660.018H278/.337	F292/.336E	240	292	0.336	0.016	H295/.299	240	295	0.299	0.000
F270/.2832302700.2830.010H294/3002412940.3000.000F294/.345E2542940.3450.016H302/.300B2503020.3000.000F279/.3542482790.3540.018H279/.3022232790.3020.000F310/.3552683100.3550.017H289/.3052292890.3050.000F320/.3552843200.3550.017H289/.3052292890.3050.000F324/.3552883240.3550.017H268/.3092172680.3090.000F287/.357E2542870.3570.016H300/.311E2383000.3110.000F282/.3612512820.3610.018H308/.311E2433080.3110.000F318/.3662783180.3660.018H289/.3142222890.3140.000F295/.370E2632950.3700.016H284/.3152242840.3150.000F295/.3372482950.3370.018H288/.3192232880.3190.000F283/.3652522830.3650.018H290/.3202293900.3220.000F283/.3652542840.3620.018H295/.3272352950.3270.000F283/.3602572930.3600.018H278/.337	F312/.334	256	312	0.334	0.018	H308/.299	254		0.299	
F294/.345E2542940.3450.016H302/.300B2503020.3000.000F279/.3542482790.3540.018H279/.3022232790.3020.000F310/.3552683100.3550.017H289/.3052292890.3050.000F320/.3552843200.3550.017H268/.3092172680.3090.000F324/.3552883240.3550.017H268/.3092172680.3090.000F287/.357E2542870.3570.016H300/.311E2383000.3110.000F282/.3612512820.3610.018H308/.311E2433080.3110.000F318/.3662783180.3660.018H289/.3142222890.3140.000F295/.370E2632950.3700.016H284/.3152242840.3150.000F295/.3372482950.3370.018H288/.3192232880.3190.000F286/.3552502860.3550.018H290/.3202293900.3200.000F283/.3652522830.3650.018H295/.3272352950.3270.000F283/.3602572930.3600.018H295/.3272352950.3270.000F288/.3732572880.3730.018H288/.338 <td< td=""><td>F270/.303</td><td>230</td><td>270</td><td>0.303</td><td>0.010</td><td>H302/.300</td><td>234</td><td>302</td><td>0.300</td><td>0.000</td></td<>	F270/.303	230	270	0.303	0.010	H302/.300	234	302	0.300	0.000
F279/.3542482790.3540.018H279/.3022232790.3020.000F310/.3552683100.3550.017H289/.3052292890.3050.000F320/.3552843200.3550.017H268/.3092172680.3090.000F324/.3552883240.3550.017H268/.3092172680.3090.000F324/.3572843240.3550.017H268/.3092172680.3100.000F287/.357E2542870.3570.016H300/.311E2383000.3110.000F282/.3612512820.3610.018H308/.311E2433080.3110.000F318/.3662783180.3660.018H289/.3142222890.3140.000F295/.370E2632950.3700.016H284/.3152242840.3150.000F295/.3372482950.3370.018H288/.3192232880.3190.000F286/.3552502860.3550.018H290/.3202293900.3200.000F283/.3652522830.3650.018H295/.3272352950.3270.000F283/.3602572930.3600.018H295/.3272352950.3270.000F288/.3732572880.3730.018H288/.3382	F270/.283	230	270	0.283	0.010	H294/300	241	294	0.300	0.000
F310/.3552683100.3550.017H289/.3052292890.3050.000F320/.3552843200.3550.017H268/.3092172680.3090.000F324/.3552883240.3550.017BP280H2242800.3100.000F287/.357E2542870.3570.016H300/.311E2383000.3110.000F282/.3612512820.3610.018H308/.311E2433080.3110.000F318/.3662783180.3660.018H289/.3142222890.3140.000F295/.370E2632950.3700.016H284/.3152242840.3150.000F292/.3392472920.3390.018H284/.3182282840.3140.000F286/.3552502860.3550.018H284/.3192232880.3190.000F283/.3652522830.3650.018H290/.3202293900.3200.000F284/.3622542840.3620.018H295/.3272352950.3270.000F293/.3602572930.3600.018H28/.3382382880.3380.000F288/.3732572880.3730.018H288/.3382382880.3380.000	F294/.345E	254	294	0.345	0.016	H302/.300B	250	302	0.300	0.000
F320/.3552843200.3550.017H268/.3092172680.3090.000F324/.3552883240.3550.017BP280H2242800.3100.000F287/.357E2542870.3570.016H300/.311E2383000.3110.000F282/.3612512820.3610.018H308/.311E2433080.3110.000F318/.3662783180.3660.018H289/.3142222890.3140.000F295/.370E2632950.3700.016H284/.3152242840.3150.000F292/.3392472920.3390.018H284/.3182282840.3140.000F295/.3372482950.3370.018H288/.3192232880.3190.000F283/.3652522830.3650.018H290/.3202293900.3200.000F284/.3622542840.3620.018H295/.3272352950.3270.000F283/.3602572930.3600.018H295/.3272352950.3270.000F288/.3732572880.3730.018H288/.3382382880.3380.000	F279/.354	248	279	0.354	0.018	H279/.302	223	279	0.302	0.000
F320/.3552843200.3550.017H268/.3092172680.3090.000F324/.3552883240.3550.017BP280H2242800.3100.000F287/.357E2542870.3570.016H300/.311E2383000.3110.000F282/.3612512820.3610.018H308/.311E2433080.3110.000F318/.3662783180.3660.018H289/.3142222890.3140.000F295/.370E2632950.3700.016H284/.3152242840.3150.000F292/.3392472920.3390.018H284/.3182282840.3140.000F286/.3552502860.3550.018H288/.3192232880.3190.000F283/.3652522830.3650.018H290/.3202293900.3250.000F284/.3622542840.3620.018H295/.3272352950.3270.000F283/.3602572930.3600.018H295/.3272352950.3270.000F288/.3732572880.3730.018H288/.3382382880.3380.000	F310/.355	268	310	0.355	0.017	H289/.305	229	289	0.305	0.000
F287/.357E2542870.3570.016H300/.311E2383000.3110.000F282/.3612512820.3610.018H308/.311E2433080.3110.000F318/.3662783180.3660.018H289/.3142222890.3140.000F295/.370E2632950.3700.016H284/.3152242840.3150.000F292/.3392472920.3390.018H284/.3182282840.3140.000F295/.3372482950.3370.018H288/.3192232880.3190.000F286/.3552502860.3550.018H290/.3202293900.3200.000F283/.3652522830.3650.018BP290H2342900.3250.000F284/.3622542840.3620.018H295/.3272352950.3270.000F293/.3602572930.3600.018H278/.3372282780.3270.000F288/.3732572880.3730.018H288/.3382382880.3380.000	F320/.355	284	320	0.355	0.017	H268/.309			0.309	0.000
F282/.3612512820.3610.018H308/.311E2433080.3110.000F318/.3662783180.3660.018H289/.3142222890.3140.000F295/.370E2632950.3700.016H284/.3152242840.3150.000F292/.3392472920.3390.018H284/.3182282840.3140.000F295/.3372482950.3370.018H284/.3182282840.3140.000F286/.3552502860.3550.018H288/.3192232880.3190.000F283/.3652522830.3650.018H290/.3202293900.3200.000F284/.3622542840.3620.018H295/.3272352950.3270.000F293/.3602572930.3600.018H278/.3372282780.3270.000F288/.3732572880.3730.018H288/.3382382880.3380.000	F324/.355	288	324	0.355	0.017	BP280H	224	280	0.310	0.000
F318/.3662783180.3660.018H289/.3142222890.3140.000F295/.370E2632950.3700.016H284/.3152242840.3150.000F292/.3392472920.3390.018H284/.3182282840.3140.000F295/.3372482950.3370.018H284/.3182282840.3140.000F286/.3552502860.3550.018H288/.3192232880.3190.000F283/.3652522830.3650.018H290/.3202293900.3200.000F284/.3622542840.3620.018H295/.3272352950.3270.000F293/.3602572930.3600.018H278/.3372282780.3270.000F288/.3732572880.3730.018H288/.3382382880.3380.000	F287/.357E	254	287	0.357	0.016	H300/.311E	238	300	0.311	0.000
F295/.370E2632950.3700.016H284/.3152242840.3150.000F292/.3392472920.3390.018H284/.3182282840.3140.000F295/.3372482950.3370.018H284/.3192232880.3190.000F286/.3552502860.3550.018H290/.3202293900.3200.000F283/.3652522830.3650.018H290/.3202293900.3250.000F284/.3622542840.3620.018H295/.3272352950.3270.000F293/.3602572930.3600.018H278/.3372282780.3270.000F288/.3732572880.3730.018H288/.3382382880.3380.000	F282/.361	251	282	0.361	0.018	H308/.311E	243	308	0.311	0.000
F292/.3392472920.3390.018H284/.3182282840.3140.000F295/.3372482950.3370.018H288/.3192232880.3190.000F286/.3552502860.3550.018H290/.3202293900.3200.000F283/.3652522830.3650.018BP290H2342900.3250.000F284/.3622542840.3620.018H295/.3272352950.3270.000F293/.3602572930.3600.018H278/.3372282780.3270.000F288/.3732572880.3730.018H288/.3382382880.3380.000	F318/.366	278	318	0.366	0.018	H289/.314	222	289	0.314	0.000
F295/.3372482950.3370.018H288/.3192232880.3190.000F286/.3552502860.3550.018H290/.3202293900.3200.000F283/.3652522830.3650.018BP290H2342900.3250.000F284/.3622542840.3620.018H295/.3272352950.3270.000F293/.3602572930.3600.018H278/.3372282780.3270.000F288/.3732572880.3730.018H288/.3382382880.3380.000	F295/.370E	263	295	0.370	0.016	H284/.315	224	284	0.315	0.000
F295/.3372482950.3370.018H288/.3192232880.3190.000F286/.3552502860.3550.018H290/.3202293900.3200.000F283/.3652522830.3650.018BP290H2342900.3250.000F284/.3622542840.3620.018H295/.3272352950.3270.000F293/.3602572930.3600.018H278/.3372282780.3270.000F288/.3732572880.3730.018H288/.3382382880.3380.000	F292/.339	247	292	0.339	0.018	H284/.318	228	284	0.314	0.000
F286/.3552502860.3550.018H290/.3202293900.3200.000F283/.3652522830.3650.018BP290H2342900.3250.000F284/.3622542840.3620.018H295/.3272352950.3270.000F293/.3602572930.3600.018H278/.3372282780.3270.000F288/.3732572880.3730.018H288/.3382382880.3380.000	F295/.337	248	295		0.018					
F284/.3622542840.3620.018H295/.3272352950.3270.000F293/.3602572930.3600.018H278/.3372282780.3270.000F288/.3732572880.3730.018H288/.3382382880.3380.000	F286/.355	250	286	0.355						
F284/.3622542840.3620.018H295/.3272352950.3270.000F293/.3602572930.3600.018H278/.3372282780.3270.000F288/.3732572880.3730.018H288/.3382382880.3380.000	F283/.365	252	283	0.365	0.018	BP290H	234	290	0.325	0.000
F293/.3602572930.3600.018H278/.3372282780.3270.000F288/.3732572880.3730.018H288/.3382382880.3380.000	F284/.362	254	284	0.362	0.018					
F288/.373 257 288 0.373 0.018 H288/.338 238 288 0.338 0.000	F293/.360	257	293	0.360	0.018	H278/.337			0.327	0.000
	F288/.373	257	288	0.373	0.018					
						H305/.340	245	305	0.340	0.000

