

## COMPLETE CAM SPECIFICATIONS

See pg. 293

Application	Camshaft Series/ Grind Number	RPM POWER RANGE	Camshaft PART NUMBER/ Emissions Code	LIFTERS	Degrees Duration @ .050" Int/Exh.	Advertised Degrees Duration Int/Exh.	Degrees Lobe Separation	Open/Close @ .050" Cam Lift Int/Exh	Lash Hot Int. Exh.	Gross Lift Int. Exh.
<b>Hydraulic Lifter Camshafts</b>										
Brute low end torque, smooth idle, daily usage, fuel economy, 1600-2200 cruise RPM, 7.75 to 8.75 compression ratio advised.	<b>H-248-2</b>	800-4200	<b>693971*</b>	<b>99278-16</b>	192 204	248 260	112	(11) 23 39 (15)	.000 .000	.400 .427
			⚡							
Great low end torque and HP, smooth idle, daily usage, off road, towing, economy, mild marine performance, also mild turbocharged, 2200-2600 cruise RPM, 8.0 to 9.5 compression ratio advised.	<b>H-260-2</b>	1200-4800	<b>693901*</b> <b>693902*<sup>a</sup></b>	<b>99278-16</b>	204 216	260 272	112	(5) 29 45 (9)	.000 .000	.427 .454
			⚡							
Good low end and mid range torque and HP, good idle, daily usage, off road, towing, economy, mild marine performance, also mild turbocharged, 2400-2800 cruise RPM, 8.5 to 10.0 compression ratio advised.	<b>Z-268-2</b>	1200-5000	<b>693511*</b> <b>693512*</b>	<b>99278-16</b>	212 220	268 276	112	(1) 33 47 (7)	.000 .000	.459 .480
			⚡							
Good low end to mid range torque, good idle, daily usage, off road, highway towing, fuel efficiency plus performance, 2600-3000 cruise RPM, 8.75 to 10.0 compression ratio advised.	<b>Energizer 272 H10</b>	1800-5200	<b>15005*</b> <b>150052*<sup>a</sup></b>	<b>99278-16</b>	216 216	272 272	110	3 23 43 (7)	.000 .000	.454 .454
			⚡							
Good low end and mid range torque and HP, good idle, daily usage and off road, towing, performance and fuel efficiency, marine performance, 2600-3000 cruise RPM, 8.75 to 10.5 compression ratio advised.	<b>H-272-2</b>	1800-5400	<b>693941*</b> <b>693942*<sup>a</sup></b>	<b>99278-16</b>	216 228	272 284	112	1 35 51 (3)	.000 .000	.454 .480
			⚡							
Good low end and mid range torque and HP, good idle, daily usage and off road, towing, performance and fuel efficiency, marine performance, 2600-3000 cruise RPM, 8.75 to 10.5 compression ratio advised.	<b>Z-276-2</b>	1800-5600	<b>693521*</b> <b>693522*<sup>a</sup></b>	<b>99278-16</b>	220 228	276 284	110	5 35 49 (1)	.000 .000	.480 .501
			⚡							
Excellent mid range torque, rough idle, moderate performance usage, limited oval track, mild bracket racing, auto trans w/3000+ converter, serious off road, 9.5 to 11.0 compression ratio advised.	<b>H-222/3200-6</b>	2200-5600	<b>690141*</b>	<b>99278-16</b> <b>99378-16*<sup>b</sup></b>	222 222	294 294	106	9 33 41 1	.000 .000	.480 .480
			⚡							
Good mid range torque and HP, fair idle, daily performance usage, mild bracket racing, mild supercharged, small nitrous system, 3000-3400 cruise RPM, 9.5 to 10.75 compression ratio advised.	<b>H-278-2</b>	2200-5800	<b>693801*</b> <b>693802*<sup>a</sup></b>	<b>99278-16</b> <b>99378-16*<sup>b</sup></b>	222 234	278 290	114	2 40 56 (2)	.000 .000	.467 .494
			⚡							

CAMSHAFTS

**RPM range shown is for average usage. These cam profiles will RPM higher, depending upon application.**

**NOTE:** For maximum performance, and to provide the most accurate valve adjustment on hydraulic lifter camshafts, the use of our **69770-16** adjustable rocker arms and **69691-16** pushrods is highly recommended.

**NOTE:** Early 1986-91 318 (5.2L) and early 1987-91 360 (5.9L) engines are equipped with hydraulic roller camshafts and lifters. Conventional hydraulic, mechanical, or roller camshafts and lifters can be installed in these engines, providing the appropriate kit components are used.

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**CRANE VALVE TRAIN COMPONENTS**

<i>See pg. 358</i>	<i>See pg. 337</i>	<i>See pg. 350</i>	<i>See pg. 362</i>	<i>See pg. 360</i>	<i>See pg. 306</i>	<i>See pg. 328</i>	<i>See pg. 312</i>	<i>See pg. 315</i>	<i>See pg. 320</i>
VALVE SPRING AND RETAINER KITS	VALVE SPRINGS	RETAINERS	VALVE STEM SEALS	VALVE STEM LOCKS	PUSHRODS	TIMING CHAIN AND GEAR ASSEMBLY	CAST ROCKER ARMS	— ALUMINUM ROCKERS — CRANE CLASSIC/ ENERGIZER    GOLD RACE	
69308-1 <sup>c</sup>	99835-16 <sup>c</sup>	99948-16			69621-16 <sup>e</sup>	69975-1 <sup>f</sup>	69770-16 <sup>g</sup> 69771-16 <sup>h</sup>		69790-1 <sup>i</sup> 69791-1 <sup>j</sup>
69308-1 <sup>c</sup>	99835-16 <sup>c</sup>	99948-16			69621-16 <sup>e</sup>	69975-1 <sup>f</sup>	69770-16 <sup>g</sup> 69771-16 <sup>h</sup>		69790-1 <sup>i</sup> 69791-1 <sup>j</sup>
69308-1 <sup>c</sup>	99835-16 <sup>c</sup>	99948-16			69621-16 <sup>e</sup>	69975-1 <sup>f</sup>	69770-16 <sup>g</sup> 69771-16 <sup>h</sup>		69790-1 <sup>i</sup> 69791-1 <sup>j</sup>
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69308-1 <sup>c</sup>	99835-16 <sup>c</sup>	99948-16			69621-16 <sup>e</sup>	69975-1 <sup>f</sup>	69770-16 <sup>g</sup> 69771-16 <sup>h</sup>		69790-1 <sup>i</sup> 69791-1 <sup>j</sup>
69308-1 <sup>c</sup>	99838-16 <sup>d</sup>	99948-16	99822-16 <sup>d</sup>		69621-16 <sup>e</sup>	69975-1 <sup>f</sup>	69770-16 <sup>g</sup> 69771-16 <sup>h</sup>		69790-1 <sup>i</sup> 69791-1 <sup>j</sup>
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**Section Continued**

- a Cam and lifter kit, includes installation lubricants.
- b Optional Hi Intensity hydraulic lifters, see page 292 for details.
- c Contains standard diameter valve springs, no machining required.
- d Must machine cylinder heads.
- e Heavy wall, heat treated, for use with adjustable rocker arms.
- f Performance steel billet gears and roller chain set.
- g 1.5 ratio iron rocker arms, adjustable, must use appropriate Crane pushrods (shafts not included).
- h 1.6 ratio iron rocker arms, adjustable, must use appropriate Crane pushrods (shafts not included).
- i 1.5 ratio aluminum rocker arm kit with rocker shafts, adjustable, must use appropriate Crane pushrods.
- j 1.6 ratio aluminum rocker arm kit with rocker shafts, adjustable, must use appropriate Crane pushrods.

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<b>Hydraulic Lifter Camshafts</b>										
Good mid range to upper RPM torque and HP, fair idle, moderate performance usage, bracket racing, 340+ cu.in., 3200-3600 cruise RPM, 9.5 to 11.0 compression ratio advised.	<b>H-288-2</b>	2600-6000	<b>694301*</b> <b>694302<sup>a</sup></b>	<b>99278-16</b> <b>99378-16<sup>b</sup></b>	226 230	288 292	110	8 38 50 0	.000 .000	.458 .465
			❖							
Good mid range torque, fair idle, moderate performance usage, mild bracket racing, auto trans w/2500+ converter, 3400-3800 cruise RPM, serious off road, 9.5 to 11.0 compression ratio advised.	<b>Energizer 284 H12</b>	3000-6200	<b>15006*</b> <b>150062<sup>a</sup></b>	<b>99278-16</b> <b>99378-16<sup>b</sup></b>	228 228	284 284	112	7 41 51 (3)	.000 .000	.480 .480
			❖							
Performance usage, good mid range torque & HP, bracket racing; Street, Heavy, etc., auto trans w/3000+ converter, oval track; Street Stock, Enduro, etc., 1/4-3/8 mile, radical off road, 10.0 to 11.5 compression ratio advised.	<b>H-228/3200-25-8</b>	3000-6200	<b>690591*</b>	<b>99278-16</b> <b>99378-16<sup>b</sup></b>	228 234	284 290	108	11 37 50 4	.000 .000	.480 .494
			❖							
Performance usage, strong mid range to upper RPM torque and HP, bracket racing, auto trans w/3000+ converter, 10.0 to 11.5 compression ratio advised.	<b>H-232/3360-6</b>	3200-6400	<b>690221*</b>	<b>99278-16</b> <b>99378-16<sup>b</sup></b>	232 232	304 304	106	14 38 46 6	.000 .000	.504 .504
			❖							
Good mid range to upper RPM torque and HP, rough idle, performance usage, auto trans w/3000+ converter, 3800-4200 cruise RPM, radical street, also mild super-charged, nitrous, 340+ cu.in., 10.0 to 11.5 compression ratio advised.	<b>H-302-2</b>	3200-6800	<b>694561*</b>	<b>99278-16</b> <b>99378-16<sup>b</sup></b>	232 242	302 312	114	7 45 60 2	.000 .000	.504 .528
			❖							
Moderate competition, good upper RPM HP, performance usage, bracket racing, 360+ cu.in., auto trans w/3500+ converter, 360+ cu.in., 10.5 to 12.0 compression ratio advised.	<b>H-312-2</b>	3600-7000	<b>694571*</b>	<b>99278-16</b> <b>99378-16<sup>b</sup></b>	242 252	312 322	108	18 59 44 13	.000 .000	.528 .552
			❖							
Moderate competition, good upper RPM HP, bracket racing, 360+ cu.in., auto trans w/3500+ converter, oval track 3/8-1/2 mile, 360+ cu.in., 11.5 to 13.0 compression ratio advised.	<b>H-244/3439-6</b>	3800-7000	<b>690711*</b>	<b>99278-16</b> <b>99378-16<sup>b</sup></b>	244 244	300 300	106	20 44 52 12	.000 .000	.516 .516
			❖							
Moderate competition only, good upper RPM HP, bracket racing, auto trans w/3500+ converter, 360+ cu.in., good with aluminum cylinder heads, 12.5 minimum compression ratio advised.	<b>H-252/3680-2-10</b>	4400-7200	<b>690241*</b>	<b>99278-16</b> <b>99378-16<sup>b</sup></b>	252 262	324 334	110	21 51 66 16	.000 .000	.552 .576
			❖							

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	99838-16 <sup>d</sup>	99957-16	99822-16 <sup>d</sup>		69621-16 <sup>e</sup>	69975-1 <sup>f</sup>	69770-16 <sup>g</sup> 69771-16 <sup>h</sup>	69790-1 <sup>i</sup> 69791-1 <sup>j</sup>	
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