COMPLETE CAM SPECIFICATIONS

Application	Camshaft Series/ Grind Number	RPM POWER RANGE	Camshaft PART NUMBER/ Emissions Code	See pg. 274 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.
Hydraulic Roller Camshafts										
Good low to mid-range torque and HP, for speed density (or mass airflow) style F.I., good idle, daily usage works w/auto or 4/5 speed manual and stock rear end gears, 2200-2600 cruise RPM, (50 state legal 85-93, C.A.R.B. E.O. D-225-46). Good w/centrifugal or small Roots supercharger, with speed density (of mass airflow) style F.I., 8 lbs. maximum boost w/stock 9.2 compression ratio advised, and good w/SEFI-type nitrous system, with speed density (or mass airflow) style F.I., stock 9.2 compression ratio advised.	**2020**	1000-5000	**444211** **444212**[a] ❶	**36530-16**[b] **36532-16**[c]	208 216	262 270	112	(3) 31 45 (9)	.000 .000	.530 .530
Good mid-range torque and HP, good idle, daily usage, designed for use with 1.7 ratio rockers and mass airflow style F.I. engines with aftermarket intake, heads, exhaust, 5-speed or auto w/mild stall converter, 2400-2800 cruise RPM, (50 state legal 85-93, C.A.R.B. E.O. D-225-46). Good w/centrifugal or small Roots supercharger, with mass airflow style F.I., 10 lbs. maximum boost w/8.5 maximum compression ratio advised, and good w/SEFI-type nitrous system, with mass airflow style F.I., stock 9.2 compression ratio advised.	**2031**	1400-5400	**444225** **444226**[a] ❶	**36530-16**[b] **36532-16**[c]	214 220	276 282	112	0 34 47 (7)	.000 .000	.513[d] .529[d]
Delivers mid-range torque and HP, good idle, daily usage, requires mass airflow style F.I. for best idle control, works w/4/5 speed manual or auto, may require higher stall converter, use with 3.08 or numerically higher rear gears, 2400-2800 cruise RPM, (50 state legal 85-93, C.A.R.B. E.O. D-225-46) Basic RPM 2000-5500. Good w/centrifugal or small Roots supercharger, with mass airflow style F.I., 10 lbs maximum boost w/8.5 maximum compression ratio advised, and good w/SEFI-type nitrous system, with mass airflow style F.I., stock 9.2 compression ratio advised.	**2030**	1400-5400	**444221** **444222**[a] ❶	**36530-16**[b] **36532-16**[c]	216 220	270 278	112	1 35 47 (7)	.000 .000	.533 .544
Good low end torque and HP, good idle, daily usage, performance and fuel efficiency, off road, towing, 2400-3000 cruise RPM, 8.75 to 10.0 compression ratio advised.	**HR-216/325-2S-12**	1400-5400	**449541**[*] ❸	**36530-16**[b] **36532-16**[c]	216 224	278 286	112	1 35 49 (5)	.000 .000	.520 .542
Good mid-range and strong top-end power, E303 replacement, requires modified mass airflow, aftermarket intake, performance cylinder heads and headers, must use 5-speed and 3.55 or numerically higher rear gears, 2600-3000 cruise RPM, (50 state legal 85-93, C.A.R.B. E.O. D-225-46. Good w/centrifugal or Roots supercharger, 15 lbs. maximum boost w/8.0 maximum compression ratio advised, and good w/SEFI-type nitrous system, with mass airflow style F.I., stock 9.2 comp. ratio advised.	**2040**	1800-5800	**444231** ❶	**36530-16**[b] **36532-16**[c]	220 220	282 282	110	0 40 40 0	.000 .000	.498 .498

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

IMPORTANT: Adjustable Vacuum Advance Kit available. See page 313 for details.

NOTE: Many 1985-87 302 engines, all 88-97 302 passenger car engines, all 96-00 302 truck engines, all 85-95 302 H.O., and all 94-97 351 Windsor engines are equipped with hydraulic roller camshafts and lifters. Conventional hydraulic, mechanical, or roller lifters can be easily installed in these engines, providing the appropriate kit components are used.

NOTE: To provide the most accurate valve adjustment on hydraulic roller camshafts, the heads must be machined to accept screw-in studs (on engines not originally equipped). On engines equipped with bottleneck type studs, using **99768-16** positive locking nuts will permit valve adjustment. For engines equipped with pedestal mounted rocker arms and hydraulic lifters, excessive lifter preload can be easily remedied by using Crane's Rocker Arm Pedestal Shim Kit (**99170-1**). Refer to page 304 for details.

NOTE: Crane offers a Pushrod Guideplate and Rocker Arm Stud Conversion Kit (**36655-16**) for street applications, enabling the 1977-00 302 cu.in. and 351W engines with pedestal mounted rockers to have adjustable rocker arms without cylinder head removal or machining. Refer to page 305 for details.

NOTE: Special length pushrods can be ordered to provide proper hydraulic lifter preload. See page 353 for checking your hydraulic lifter preload.

NOTE: Some engines have long valve stems which will result in excessive valve spring assembly height. Different springs and retainers may be required to prevent excessive shimming. Contact Crane's Performance consultants for details.

NOTE: Many 1972 and later Ford-Mercury V-8 engines are originally equipped with a retarded crankshaft sprocket. This may cause idling and performance problems when installing aftermarket camshafts. We recommend using our **44975-1** or **44984-1** timing chain and assemblies, a pre-1972 crankshaft sprocket, or degreeing in your camshaft. The non-retarded sprocket will have the alignment dot and keyway slot directly in line with each other.

*This product is applicable only to pre-1966 California and pre-1968 federally certified passenger cars. It is also applicable to non-emission controlled trucks and similar vehicles. It is not applicable or intended for use on any emission controlled vehicles operated on highways or roads.

Custom Grind Cams Also Available – Call 866-388-5120 or go to cranecams.com for ordering information

CRANE VALVE TRAIN COMPONENTS

VALVE SPRING AND RETAINER KITS	VALVE SPRINGS	RETAINERS	VALVE STEM SEALS	VALVE STEM LOCKS	PUSHRODS	TIMING CHAIN AND GEAR ASSEMBLY	STEEL ROCKER ARMS	ALUMINUM ROCKERS CRANE CLASSIC/ ENERGIZER	ALUMINUM ROCKERS GOLD RACE
See pg. 338	*See pg. 317*	*See pg. 330*	*See pg. 343*	*See pg. 340*	*See pg. 286*	*See pg. 308*	*See pg. 292*	*See pg. 295*	*See pg. 297*
44308-1[e] **44309-1**[v]	**99841-16**	**99942-16**		[h]	**36631-16**[k] **36625-16**[l] **95608-16**[l,m]	**44975-1***[n] **44984-1***[o]		**44774-16**[p] **36774-16**[q] **44746-16**[r]	**36759-16**[s] **36758-16**[t] **36750-16**[u]
44308-1[e] **44309-1**[v]	**99841-16**	**99942-16**		[h]	**36631-16**[k] **36625-16**[l] **95608-16**[l,m]	**44975-1***[n] **44984-1***[o]		**44774-16**[p] **36774-16**[q] **44746-16**[r]	**36759-16**[s] **36758-16**[t] **36750-16**[u]
44308-1[e] **44309-1**[v]	**99841-16**	**99942-16**		[h]	**36631-16**[k] **36625-16**[l] **95608-16**[l,m]	**44975-1***[n] **44984-1***[o]		**44774-16**[p] **36774-16**[q] **44746-16**[r]	**36759-16**[s] **36758-16**[t] **36750-16**[u]
44308-1[e] **44309-1**[v]	**96870-16**[f]	**99943-16** **99969-16**[g]	**99820-16**[f]	[h] **99097-1**[i] **99087-1**[j]	**36631-16**[k] **36625-16**[l] **95608-16**[l,m]	**44975-1***[n] **44984-1***[o]		**44774-16**[p] **36774-16**[q] **44746-16**[r]	**36759-16**[s] **36758-16**[t] **36750-16**[u]
44308-1[e] **44309-1**[v]	**99841-16** **96870-16**[f]	**99942-16** **99943-16** **99969-16**[g]	**99820-16**[f]	[h] **99097-1**[i] **99087-1**[j]	**36631-16**[k] **36625-16**[l] **95608-16**[l,m]	**44975-1***[n] **44984-1***[o]		**44774-16**[p] **36774-16**[q] **44746-16**[r]	**36759-16**[s] **36758-16**[t] **36750-16**[u]

Section Continued

- **a** Cam and spring kit, includes **44308-1** kit, containing valve springs, valve spring retainers, and valve stem locks.
- **b** For use with standard Ford alignment bars.
- **c** Vertical locking bar hydraulic roller lifters, no machining required. Cylinder head removal required for installation in 302 and 302 H.O. applications.
- **d** Gross valve lift with 1.7 ratio rocker arms.
- **e** Includes standard diameter conical valve springs (**99841-16**), valve spring retainers (**99942-16**), and valve stem locks (**99094** and **99097**). No machining required.
- **f** Must machine cylinder heads.
- **g** Requires Crane Multi Fit valve stem locks.
- **h** Included in **44308-1** valve spring and retainer kit.
- **i** Machined steel, heat treated.
- **j** Machined steel, heat treated, Multi Fit.
- **k** For engines with non-adjustable pedestal mount rocker arms, heavy wall, heat treated.
- **l** For 302 H.O. engines with adjustable rocker arms with Pushrod Guideplate Conversion Kit (**36655-16**), heavy wall, heat treated. See page 305 for details.
- **m** Pro Series one-piece.
- **n** Performance steel billet gears and roller chain set.
- **o** Pro Series steel billet gears and roller chain set.
- **p** Crane Classic extruded, 1.6 ratio, non-adjustable, for pedestal mount cylinder heads, no machining required.
- **q** Crane Classic extruded, 1.6 ratio, 3/8" stud, must machine cylinder heads and install **99156-16** rocker arm studs and **36650-1** pushrod guideplates, or use **36655-16** Conversion Kit on pedestal mount cylinder heads for street applications.
- **r** Energizer 1.7 ratio, non-adjustable, for pedestal mount cylinder heads, no machining required, includes Rocker Arm Pedestal Shim Kit.
- **s** 1.6 ratio, non-adjustable, for pedestal mount cylinder heads, no machining required, includes Rocker Arm Pedestal Shim Kit.
- **t** 1.7 ratio, non-adjustable, for pedestal mount cylinder heads, no machining required, includes Rocker Arm Pedestal Shim Kit.
- **u** 1.6 ratio, 3/8" stud, must machine cylinder heads and install **99156-16** rocker arm studs and **36650-1** pushrod guideplates, or use **36655-16** Conversion Kit on pedestal mount cylinder heads for street applications.
- **v** For GT40P and similar long exhaust valve cylinder heads. No machining required.