

# 4602532

tarmac rally - race

Opel X16XEL small block ecotec (1.4-1.6-1.8L)

I-4cyl 1.6L 16v DOHC (DTH/DTH)



**intake**                      **exhaust**

## camshaft data:

lash ramp	: 0.20mm	0.20mm
duration @ 0.1mm	: 290°	282°
duration @ 1.0mm	: 252°	244°
valve lift	: 12.00mm	11.50mm
cam lift	:	
lobe angle	: 106°	106°
timing @ 1.0mm	: 20° / 52°	48° / 16°
valve lift @ TDC	: 3.75mm	3.20mm

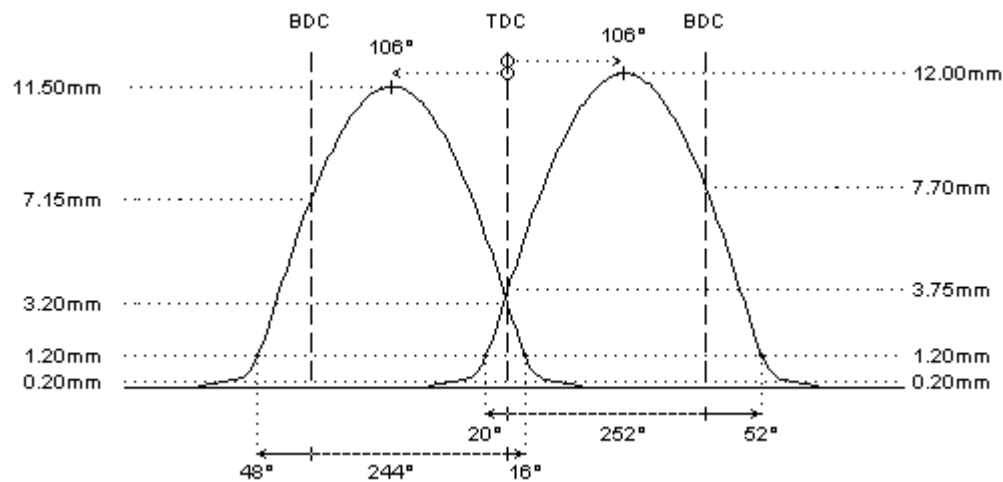
## parts setup:

cam wheels :	: <b>CTOP015</b>	: <b>CTOP015</b>
follower	: <b>CC004</b>	: <b>CC004</b>
valve lash	: <b>TS101</b>	: <b>TS101</b>
valve	: O.E.M.	: O.E.M.
valve locks	: O.E.M.	: O.E.M.
upper retainer	: <b>99245/s</b>	: <b>99245/s</b>
lower retainer	: <b>remove</b>	: <b>remove</b>
exterior spring	: <b>PAC-E92009</b>	: <b>PAC-E92009</b>
interior spring	: <b>PAC-I92009</b>	: <b>PAC-I92009</b>

fitted load / length	: 33kg @ 34.0mm	: 33kg @ 34.0mm
max. load / lift	: 92kg @ 12.5mm	: 92kg @ 12.5mm

## REMARKS :

# if required, machine cylinder head and / or use solid shims to adjust spring load #  
for engines with 6mm valves (not adapted for X18XE1, Z18XE: 5mm valves!)



## REMARKS :

- # - camshafts for use in 1.4-1.6-1.8L short block 'ecotec' engines
- CAUTION: Opel has fitted different types of sprockets and camshafts with different dowel pin positions and cam lobes. Therefore it is required to check the std camshafts before ordering for sports applications!
- # valve clearance is to be adjusted using mechanical lash caps. these can have different shapes according the application:
  - plates available in different diameters and thickness
  - cups for different valve stem diameters. these center on either tappet or valve stem
  - other specific shapes available on request
- # FOR COMPETITION APPLICATIONS ONLY. Following details must be verified:
  - the camshafts must turn smooth in the cylinderhead, provide free travel by machining where needed
  - distance between valve seal and retainer at full lift must be 0.6mm at least
  - minimum valve spring travel of 1.0mm at full lift must be provided
  - distance between valve and piston 1.0mm (pref. 1.5mm). check 5-15° before TDC on exhaust, and after TDC on intake
- # ONLY for use in competition engines with independent engine management (throttle position sensor) or carburettors