

4602901

sport

Opel X20XEV big block ecotec (1.8-2.0-2.2L)

I-4cyl 2.0L 16v DOHC (DTH/DTH)



intake **exhaust**

camshaft data:

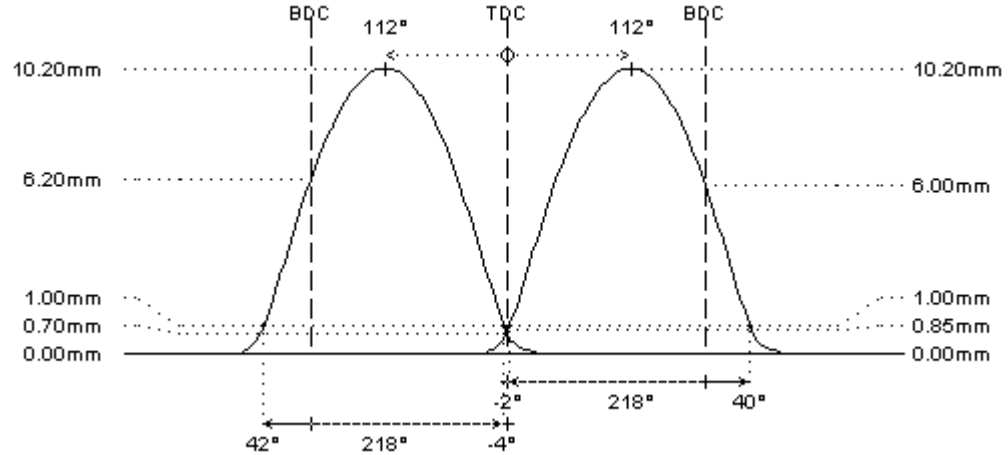
lash ramp	: hydro	hydro
duration @ 0.1mm	: 259°	259°
duration @ 1.0mm	: 218°	218°
valve lift	: 10.20mm	10.20mm
cam lift	:	
lobe angle	: 112°	112°
timing @ 1.0mm	: -2° / 40°	42° / -4°
valve lift @ TDC	: 0.85mm	0.70mm

parts setup:

cam wheels :	:	:
follower	: O.E.M.	: O.E.M.
valve lash	: O.E.M.	: O.E.M.
valve	: O.E.M.	: O.E.M.
valve locks	: O.E.M.	: O.E.M.
upper retainer	: O.E.M.	: O.E.M.
lower retainer	: O.E.M.	: O.E.M.
exterior spring	: O.E.M.	: O.E.M.
interior spring	:	:

fitted load / length	: 27kg @ 34.5mm	: 27kg @ 34.5mm
max. load / lift	: 59kg @ 11.0mm	: 59kg @ 11.0mm

REMARKS :



REMARKS :

- camshafts for use in 1.8-2.0-2.2L long block 'ecotec' engines

For engines until '99 with OEM 9.2mm lift

4602919

sport

Opel X20XEV big block ecotec (1.8-2.0-2.2L)

I-4cyl 2.0L 16v DOHC (DTH/DTH)



intake **exhaust**

camshaft data:

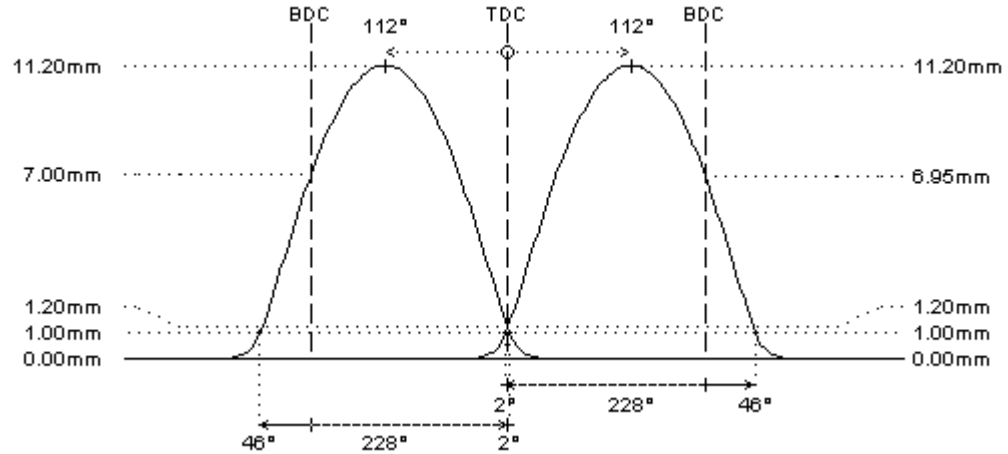
lash ramp	: hydro	hydro
duration @ 0.1mm	: 267°	267°
duration @ 1.0mm	: 228°	228°
valve lift	: 11.20mm	11.20mm
cam lift	:	
lobe angle	: 112°	112°
timing @ 1.0mm	: 2° / 46°	46° / 2°
valve lift @ TDC	: 1.20mm	1.20mm

parts setup:

cam wheels :	:	:
follower	: O.E.M.	: O.E.M.
valve lash	: O.E.M.	: O.E.M.
valve	: O.E.M.	: O.E.M.
valve locks	: O.E.M.	: O.E.M.
upper retainer	: O.E.M.	: O.E.M.
lower retainer	: O.E.M.	: O.E.M.
exterior spring	: O.E.M.	: O.E.M.
interior spring	:	:

fitted load / length	: 27kg @ 34.5mm	: 27kg @ 34.5mm
max. load / lift	: 59kg @ 11.0mm	: 59kg @ 11.0mm

REMARKS :



REMARKS :

- # - camshafts for use in 1.8-2.0-2.2L long block 'ecotec' engines
- # For engines from '00 with OEM 10.6mm lift. if used in older engines, distance between valve seal and retainer is to be adjusted!

4602921

hot street - dirt track

Opel X20XEV big block ecotec (1.8-2.0-2.2L)

I-4cyl 2.0L 16v DOHC (DTH/DTH)



intake

exhaust

camshaft data:

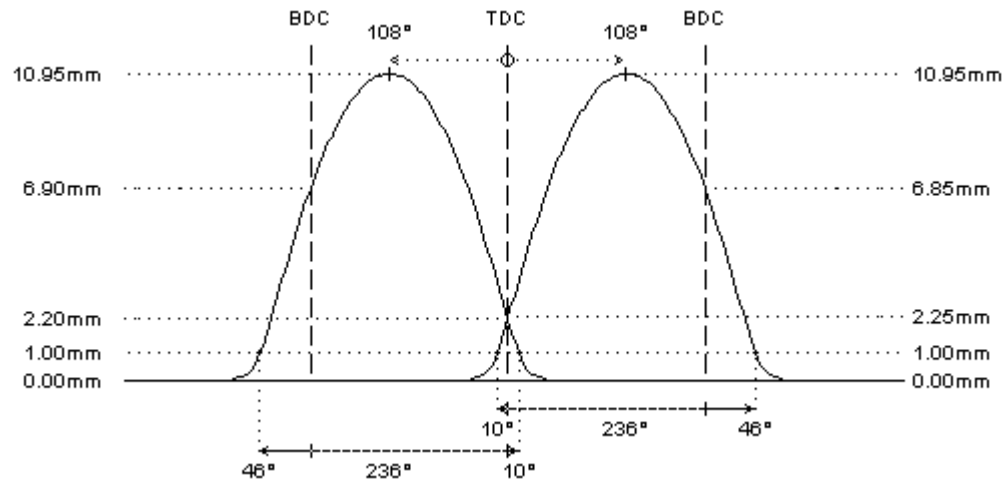
lash ramp	: hydro	hydro
duration @ 0.1mm	: 274°	274°
duration @ 1.0mm	: 236°	236°
valve lift	: 10.95mm	10.95mm
cam lift	:	
lobe angle	: 108°	108°
timing @ 1.0mm	: 10° / 46°	46° / 10°
valve lift @ TDC	: 2.25mm	2.20mm

parts setup:

cam wheels :	: CTOPK01	: CTOPK01
follower	: O.E.M.	: O.E.M.
valve lash	: O.E.M.	: O.E.M.
valve	: O.E.M.	: O.E.M.
valve locks	: O.E.M.	: O.E.M.
upper retainer	: O.E.M.	: O.E.M.
lower retainer	: O.E.M.	: O.E.M.
exterior spring	: O.E.M.	: O.E.M.
interior spring	:	

fitted load / length	: 27kg @ 34.5mm	: 27kg @ 34.5mm
max. load / lift	: 59kg @ 11.0mm	: 59kg @ 11.0mm

REMARKS :



REMARKS :

- # - camshafts for use in 1.8-2.0-2.2L long block 'ecotec' engines
- # For engines from '00 with OEM 10.6mm lift. if used in older engines, distance between valve seal and retainer is to be adjusted!
- # ONLY for dirt track applications and pro street use with adjustable engine management or carburetors

4602931

turbo conversion

Opel X20XEV big block ecotec (1.8-2.0-2.2L)

I-4cyl 2.0L 16v DOHC (DTH/DTH)



intake

exhaust

camshaft data:

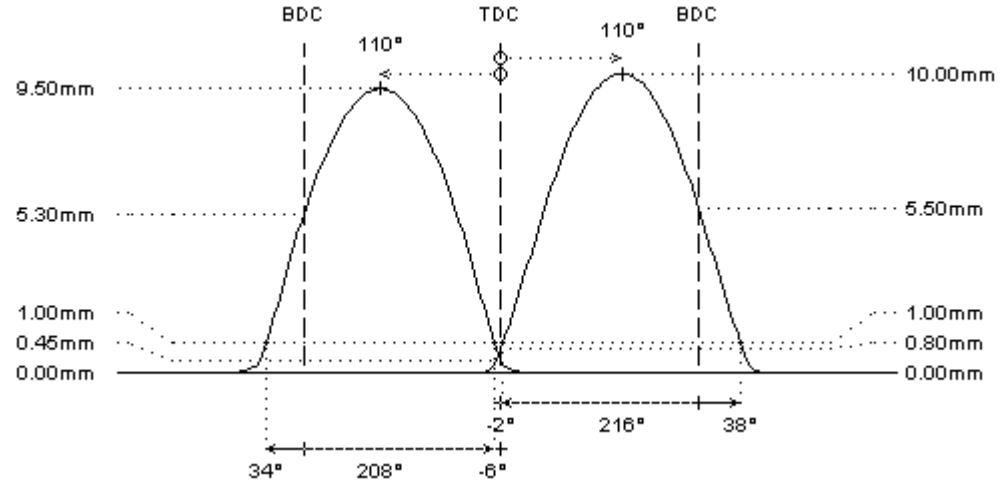
lash ramp	: hydro	hydro
duration @ 0.1mm	: 244°	243°
duration @ 1.0mm	: 216°	208°
valve lift	: 10.00mm	9.50mm
cam lift	:	
lobe angle	: 110°	110°
timing @ 1.0mm	: -2° / 38°	34° / -6°
valve lift @ TDC	: 0.80mm	0.45mm

parts setup:

cam wheels :	: CTOPK01	: CTOPK01
follower	: O.E.M.	: O.E.M.
valve lash	: O.E.M.	: O.E.M.
valve	: O.E.M.	: O.E.M.
valve locks	: O.E.M.	: O.E.M.
upper retainer	: O.E.M.	: O.E.M.
lower retainer	: O.E.M.	: O.E.M.
exterior spring	: O.E.M.	: O.E.M.
interior spring	:	

fitted load / length	: 27kg @ 34.5mm	: 27kg @ 34.5mm
max. load / lift	: 59kg @ 11.0mm	: 59kg @ 11.0mm

REMARKS :



REMARKS :

- camshafts for use in 1.8-2.0-2.2L long block 'ecotec' engines

for TURBO conversion (atmospheric to turbo)

4602932

turbo conversion

Opel X20XEV big block ecotec (1.8-2.0-2.2L)

I-4cyl 2.0L 16v DOHC (DTH/DTH)



intake

exhaust

camshaft data:

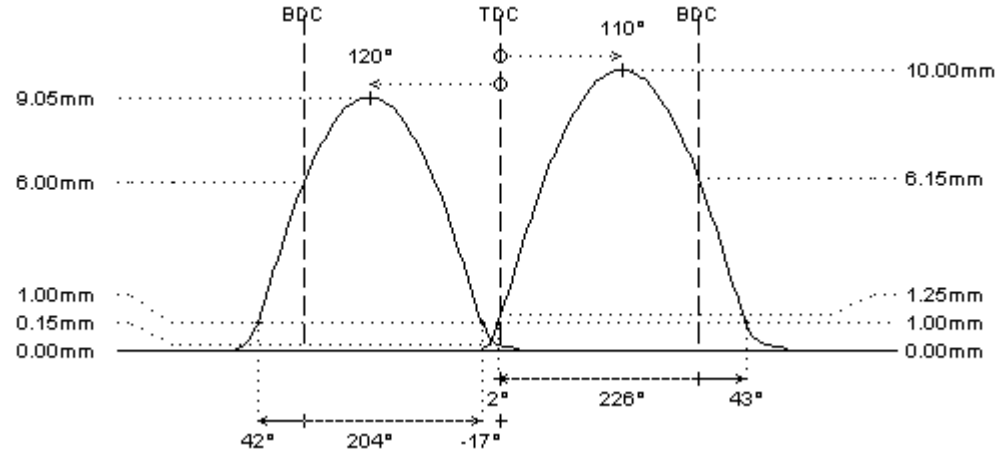
lash ramp	: hydro	hydro
duration @ 0.1mm	: 269°	247°
duration @ 1.0mm	: 225°	205°
valve lift	: 10.00mm	9.05mm
cam lift	:	
lobe angle	: 110°	120°
timing @ 1.0mm	: 2° / 43°	42° / -17°
valve lift @ TDC	: 1.25mm	0.15mm

parts setup:

cam wheels :	: CTOPK01	: CTOPK01
follower	: O.E.M.	: O.E.M.
valve lash	: O.E.M.	: O.E.M.
valve	: O.E.M.	: O.E.M.
valve locks	: O.E.M.	: O.E.M.
upper retainer	: O.E.M.	: O.E.M.
lower retainer	: O.E.M.	: O.E.M.
exterior spring	: O.E.M.	: O.E.M.
interior spring	:	

fitted load / length	: 27kg @ 34.5mm	: 27kg @ 34.5mm
max. load / lift	: 59kg @ 11.0mm	: 59kg @ 11.0mm

REMARKS :



REMARKS :

- camshafts for use in 1.8-2.0-2.2L long block 'ecotec' engines

for TURBO conversion (atmospheric to turbo)

4602939

turbo conversion

Opel X20XEV big block ecotec (1.8-2.0-2.2L)

I-4cyl 2.0L 16v DOHC (DTH/DTH)



intake

exhaust

camshaft data:

lash ramp : hydro
duration @ 0.1mm : 275°
duration @ 1.0mm : 237°
valve lift : 11.15mm
cam lift :
lobe angle : 110°
timing @ 1.0mm : 9° / 48°
valve lift @ TDC : 2.05mm

hydro
257°
220°
10.15mm
:
120°
50° / -10°
0.30mm

parts setup:

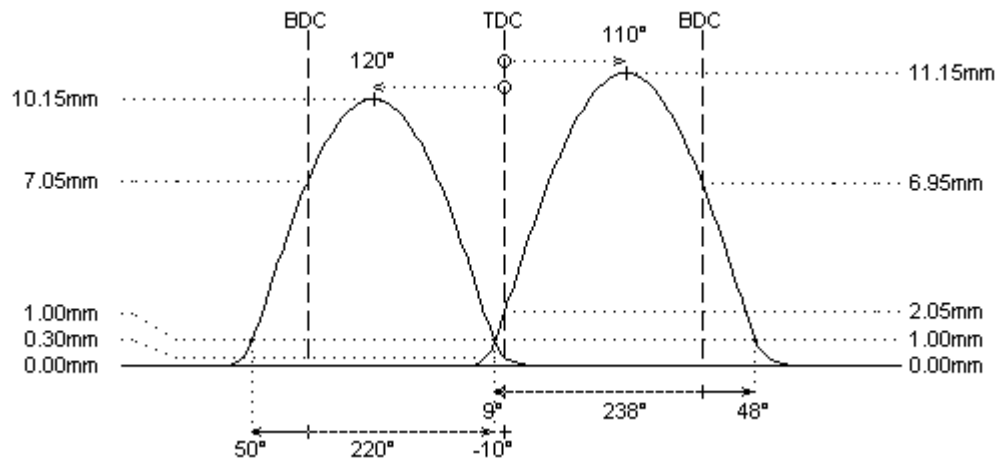
cam wheels : : CTOPK01
follower : : O.E.M.
valve lash : : O.E.M.
valve : : O.E.M.
valve locks : : O.E.M.
upper retainer : : O.E.M.
lower retainer : : O.E.M.
exterior spring : : O.E.M.
interior spring : : O.E.M.

CTOPK01
O.E.M.
O.E.M.
O.E.M.
O.E.M.
O.E.M.
O.E.M.
O.E.M.

fitted load / length : 27kg @ 34.5mm
max. load / lift : 59kg @ 11.0mm

27kg @ 34.5mm
59kg @ 11.0mm

REMARKS :



REMARKS :

- camshafts for use in 1.8-2.0-2.2L long block 'ecotec' engines

4603020

hot street - dirt track

Opel X20XEV big block ecotec (1.8-2.0-2.2L)

I-4cyl 2.0L 16v DOHC (DTH/DTH)



intake

exhaust

camshaft data:

lash ramp	: 0.20mm	0.20mm
duration @ 0.1mm	: 282°	274°
duration @ 1.0mm	: 244°	236°
valve lift	: 11.50mm	11.00mm
cam lift	:	
lobe angle	: 108°	108°
timing @ 1.0mm	: 14° / 50°	46° / 10°
valve lift @ TDC	: 2.95mm	2.40mm

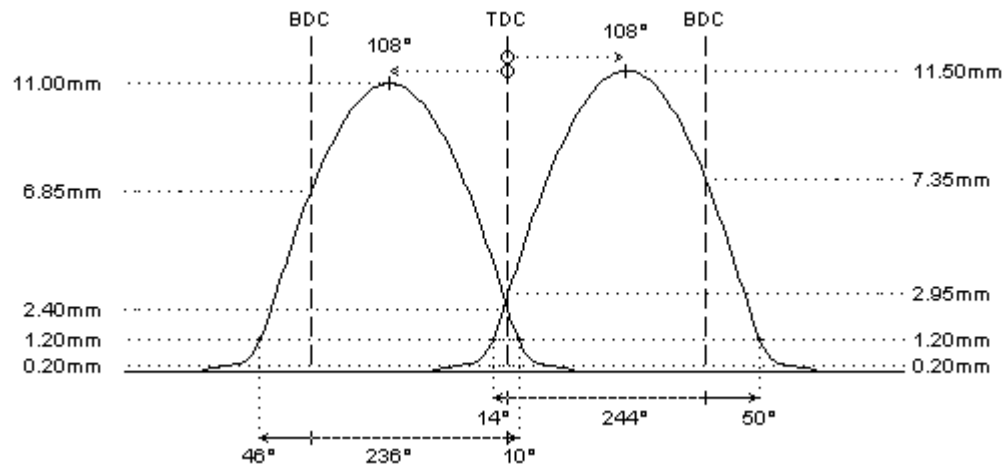
parts setup:

cam wheels :	: CTOPK01	: CTOPK01
follower	: CC004	: CC004
valve lash	: TS101	: TS101
valve	: O.E.M.	: O.E.M.
valve locks	: O.E.M.	: O.E.M.
upper retainer	: 99145/s	: 99145/s
lower retainer	: remove	: remove
exterior spring	: PAC-E92009	: PAC-E92009
interior spring	: PAC-I92009	: PAC-I92009

fitted load / length	: 35kg @ 33.0mm	: 35kg @ 33.0mm
max. load / lift	: 97kg @ 12.5mm	: 97kg @ 12.5mm

REMARKS :

replace OEM lower retainer to obtain a correct installation / fitted length (currently not available)



REMARKS :

- # - camshafts for use in 1.8-2.0-2.2L long block 'ecotec' engines
- # 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 carburetors

4603021

tarmac rally - race

Opel X20XEV big block ecotec (1.8-2.0-2.2L)

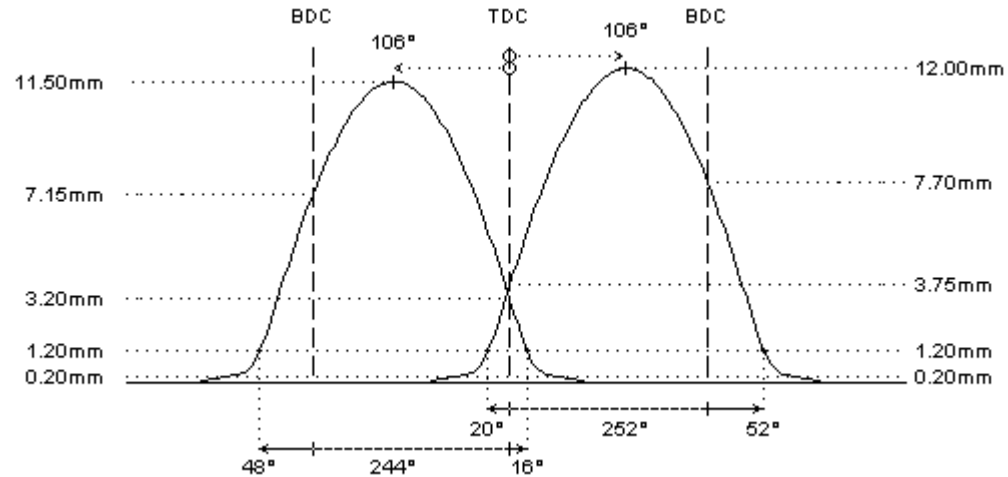
I-4cyl 2.0L 16v DOHC (DTH/DTH)



	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 :	: CTOPK01	: CTOPK01
follower	: CC004	: CC004
valve lash	: TS101	: TS101
valve	: O.E.M.	: O.E.M.
valve locks	: O.E.M.	: O.E.M.
upper retainer	: 99145/s	: 99145/s
lower retainer	: remove	: remove
exterior spring	: PAC-E92009	: PAC-E92009
interior spring	: PAC-I92009	: PAC-I92009
fitted load / length	: 35kg @ 33.0mm	: 35kg @ 33.0mm
max. load / lift	: 97kg @ 12.5mm	: 97kg @ 12.5mm

REMARKS :

replace OEM lower retainer to obtain a correct installation / fitted length (currently not available)



REMARKS :

- # - camshafts for use in 1.8-2.0-2.2L long block 'ecotec' engines
- # 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 camshafs 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

4603022

tarmac rally - race

Opel X20XEV big block ecotec (1.8-2.0-2.2L)

I-4cyl 2.0L 16v DOHC (DTH/DTH)



intake

exhaust

camshaft data:

lash ramp	: 0.20mm	0.20mm
duration @ 0.1mm	: 298°	290°
duration @ 1.0mm	: 260°	252°
valve lift	: 12.50mm	12.00mm
cam lift	:	
lobe angle	: 104°	104°
timing @ 1.0mm	: 26° / 54°	50° / 22°
valve lift @ TDC	: 4.55mm	4.00mm

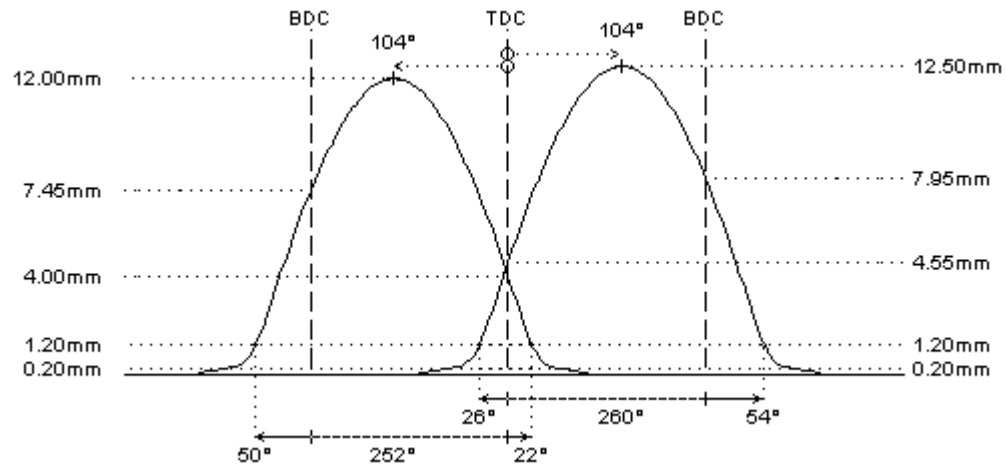
parts setup:

cam wheels :	: CTOPK01	: CTOPK01
follower	: CC004	: CC004
valve lash	: TS101	: TS101
valve	: O.E.M.	: O.E.M.
valve locks	: O.E.M.	: O.E.M.
upper retainer	: 99145/s	: 99145/s
lower retainer	: remove	: remove
exterior spring	: PAC-E92009	: PAC-E92009
interior spring	: PAC-I92009	: PAC-I92009

fitted load / length	: 35kg @ 33.0mm	: 35kg @ 33.0mm
max. load / lift	: 97kg @ 12.5mm	: 97kg @ 12.5mm

REMARKS :

replace OEM lower retainer to obtain a correct installation / fitted length (currently not available)



REMARKS :

- # - camshafts for use in 1.8-2.0-2.2L long block 'ecotec' engines
- # 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 carburetors

4603023

full race

Opel X20XEV big block ecotec (1.8-2.0-2.2L)

I-4cyl 2.0L 16v DOHC (DTH/DTH)



intake

exhaust

camshaft data:

lash ramp	: 0.20mm	0.20mm
duration @ 0.1mm	: 307°	298°
duration @ 1.0mm	: 268°	260°
valve lift	: 13.00mm	12.50mm
cam lift	:	
lobe angle	: 104°	104°
timing @ 1.0mm	: 30° / 58°	54° / 26°
valve lift @ TDC	: 5.10mm	4.50mm

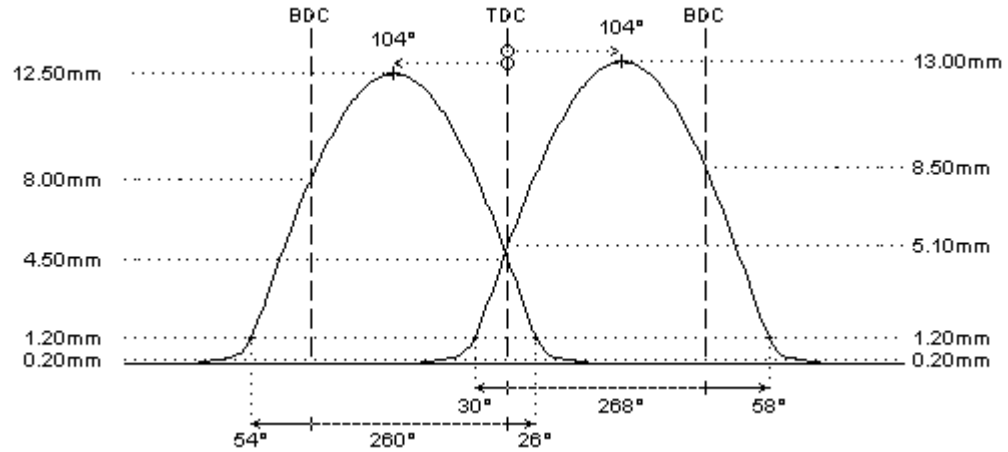
parts setup:

cam wheels :	: CTOPK01	: CTOPK01
follower	: CC004	: CC004
valve lash	: TS101	: TS101
valve	: O.E.M.	: O.E.M.
valve locks	: O.E.M.	: O.E.M.
upper retainer	: 99145/s	: 99145/s
lower retainer	: remove	: remove
exterior spring	: PAC-E92009	: PAC-E92009
interior spring	: PAC-I92009	: PAC-I92009

fitted load / length	: 35kg @ 33.0mm	: 35kg @ 33.0mm
max. load / lift	: 97kg @ 12.5mm	: 97kg @ 12.5mm

REMARKS :

replace OEM lower retainer to obtain a correct installation / fitted length (currently not available)



REMARKS :

- # - camshafts for use in 1.8-2.0-2.2L long block 'ecotec' engines
- # 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 carburetors

4603024

turbo conversion

Opel X20XEV big block ecotec (1.8-2.0-2.2L)

I-4cyl 2.0L 16v DOHC (DTH/DTH)



intake **exhaust**

camshaft data:

lash ramp	: 0.25mm	0.25mm
duration @ 0.1mm	: 293°	278°
duration @ 1.0mm	: 246°	230°
valve lift	: 12.00mm	11.00mm
cam lift	:	
lobe angle	: 110°	120°
timing @ 1.0mm	: 13° / 53°	55° / -5°
valve lift @ TDC	: 2.85mm	0.80mm

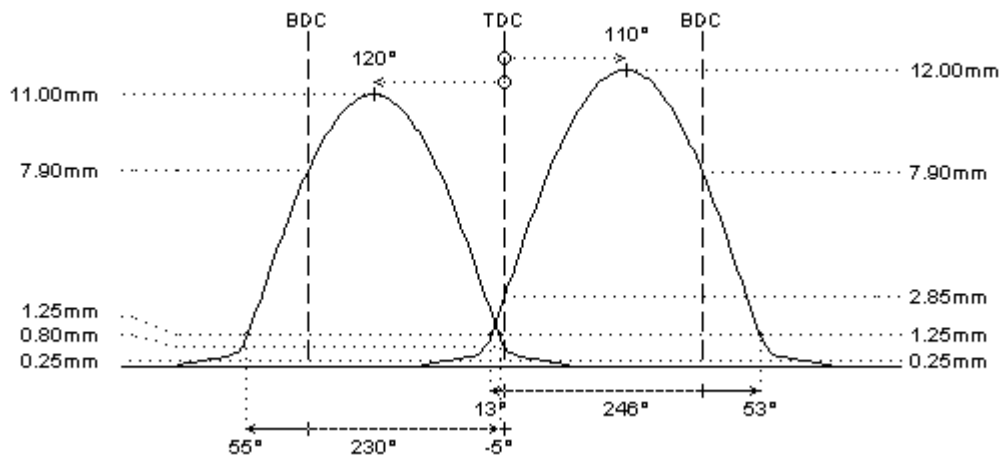
parts setup:

cam wheels :	: CTOPK01	: CTOPK01
follower	: CC004	: CC004
valve lash	: TS101	: TS101
valve	: O.E.M.	: O.E.M.
valve locks	: O.E.M.	: O.E.M.
upper retainer	: 99145/s	: 99145/s
lower retainer	: remove	: remove
exterior spring	: PAC-E92009	: PAC-E92009
interior spring	: PAC-I92009	: PAC-I92009

fitted load / length	: 35kg @ 33.0mm	: 35kg @ 33.0mm
max. load / lift	: 97kg @ 12.5mm	: 97kg @ 12.5mm

REMARKS :

replace OEM lower retainer to obtain a correct installation / fitted length (currently not available)



REMARKS :

- # - camshafts for use in 1.8-2.0-2.2L long block 'ecotec' engines
- # 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 camshafs 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
- # for TURBO conversion (atmospheric to turbo)

4603029

turbo conversion

Opel X20XEV big block ecotec (1.8-2.0-2.2L)

I-4cyl 2.0L 16v DOHC (DTH/DTH)



intake

exhaust

camshaft data:

lash ramp	: 0.25mm	0.25mm
duration @ 0.1mm	: 284°	269°
duration @ 1.0mm	: 238°	222°
valve lift	: 11.50mm	10.50mm
cam lift	:	
lobe angle	: 110°	120°
timing @ 1.0mm	: 9° / 49°	51° / -9°
valve lift @ TDC	: 2.35mm	0.60mm

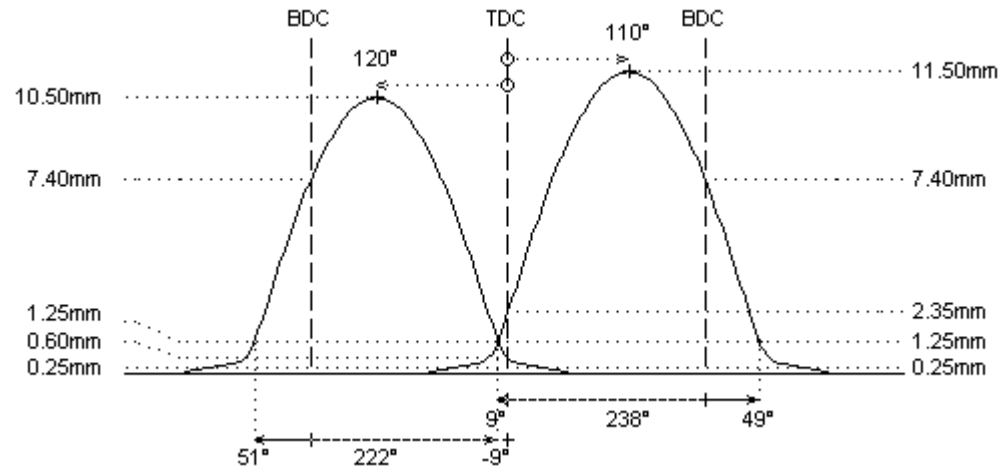
parts setup:

cam wheels :	: CTOPK01	: CTOPK01
follower	: CC004	: CC004
valve lash	: TS101	: TS101
valve	: O.E.M.	: O.E.M.
valve locks	: O.E.M.	: O.E.M.
upper retainer	: 99145/s	: 99145/s
lower retainer	: remove	: remove
exterior spring	: PAC-E92009	: PAC-E92009
interior spring	: PAC-I92009	: PAC-I92009

fitted load / length	: 35kg @ 33.0mm	: 35kg @ 33.0mm
max. load / lift	: 97kg @ 12.5mm	: 97kg @ 12.5mm

REMARKS :

replace OEM lower retainer to obtain a correct installation / fitted length (currently not available)



REMARKS :

- # - camshafts for use in 1.8-2.0-2.2L long block 'ecotec' engines
- # 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 dirt track applications and pro street use with adjustable engine management or carburetors
- # for TURBO conversion (atmospheric to turbo)